DORMER PRAMET

DEĞİŞTİRİLEBİLİR FREZE UÇLARI

2024

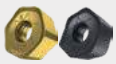
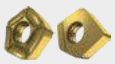
PRAMET

DEĞİŞTİRİLEBİLİR FREZE UÇLARI – GENEL İÇERİK

DEĞİŞTİRİLEBİLİR FREZE UÇLARI

YÜZEY FREZELEME

YÜZEY FREZELEME

	SON06C	SHN06C	SHN09C	SPN13		
	43°	45°	45°	57°		
	APMX (mm) 4.0 (7.0)	APMX (mm) 3.0	APMX (mm) 5.0	APMX (mm) 10.0		
	DC (mm) 50 – 250	DC (mm) 25 – 125	DC (mm) 50 – 315	DC (mm) 100 – 315		
Silindirik şaft						
Weldon		 DC = 25, 32 (mm)				
Modüler						
Frezeleme kafası		 DC = 40 – 125 (mm)				
Sayfa	8	13	17	21		
ISO	P M K S H	P M K H	P M K H	P M K S H		
Kesici uç şekli						
Kesici uçlar	ONMX 0605 SNMX 1705	HNGX 0604 XNGX 0604	HNGX 0906 XNGX 0906	PNM. 1308 XN.. 1308		
Kesme kenarlarının sayısı	16 / 8	12 / 1	12 / 1	10 / 1		
Yüzey frezeleme 	■	■	■	■		
Havşa frezeleme 	■	■	■			
Aşamalı dalma 		■	■			
Açılı frezeleme 	◪	■	■			

■ İlk seçim. ◪ Olası seçim.

SON06C

P M K S H

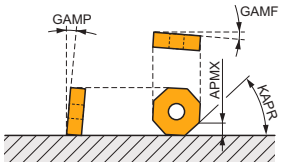
PRAMET

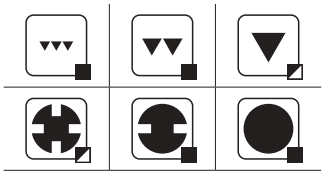
S

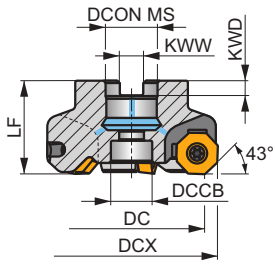
ECON ON06 43° Yüzey Frezeleme Takımı, Çift Negatif Tasarım ve İçten Su Vermeli

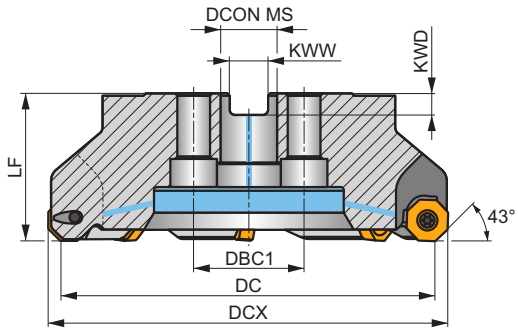
İki tip çift kenarlı negatif kesici uç kullanan çok ekonomik ve verimli yüzey frezeleme takımı. 16 kesme köşeli ve 4 mm APMX'e sahip ekonomik sekizgen ON..06 kesici uçlar ve 8 kesme kenarlı ve 7 mm APMX'e sahip verimli SN..17 kare kesici uçlar. Farklı diş hatvesine sahip arbor tipi mevcuttur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	43°
APMX	4.0 (7.0) mm









h_m 0.04 - 0.25

	Product	DC (mm)	DCX (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	LF (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
	50A04R-S45ON06-C	50	60.8	22	16.5	–	40	10.4	6.3	-10	-5	4	✓	9400	✓	0.42	GI342	C0621	–
	50A05R-S45ON06-C	50	60.8	22	16.5	–	40	10.4	6.3	-10	-5	5	–	9400	✓	0.39	GI342	C0621	–
	63A05R-S45ON06-C	63	73.8	22	18.1	–	40	10.4	6.3	-10	-5	5	✓	8400	✓	0.71	GI342	C0621	–
	63A06R-S45ON06-C	63	73.8	22	18.1	–	40	10.4	6.3	-10	-5	6	✓	8400	✓	0.55	GI342	C0621	–
	80A06R-S45ON06-C	80	90.8	27	22.1	–	50	12.4	7	-10	-5	6	✓	7500	✓	1.27	GI342	C0622	–
	80A08R-S45ON06-C	80	90.8	27	22.1	–	50	12.4	7	-10	-5	8	–	7500	✓	1.19	GI342	C0622	–
	100A08R-S45ON06-C	100	110.8	32	30.1	–	50	14.4	8	-10	-5	8	✓	6700	✓	1.88	GI342	C0620	AC002
	100A10R-S45ON06-C	100	110.8	32	30.1	–	50	14.4	8	-10	-5	10	–	6700	✓	1.81	GI342	C0620	AC002
ISO 6462 DIN 8030	**125A08R-S45ON06-C**	125	135.8	40	56.1	–	63	16.4	9	-10	-5	8	✓	6000	✓	3.80	GI342	C0620	AC003
	125A10R-S45ON06-C	125	135.8	40	56.1	–	63	16.4	9	-10	-5	10	✓	6000	✓	3.65	GI342	C0620	AC003
	125A12R-S45ON06-C	125	135.8	40	56.1	–	63	16.4	9	-11	-5	12	–	6000	✓	3.70	GI342	C0620	AC003
	160C08R-S45ON06-C	160	170.8	40	–	66.7	63	16.4	9.25	-10	-5	8	✓	5700	✓	6.48	GI342	C0623	–
	160C12R-S45ON06-C	160	170.8	40	–	66.7	63	16.4	9.25	-10	-5	12	✓	5700	✓	5.74	GI342	C0623	–
	160C14R-S45ON06-C	160	170.8	40	–	66.7	63	16.4	9.25	-11	-5	14	–	5700	✓	5.65	GI342	C0623	–
	200C12R-S45ON06-C	200	210.8	60	–	101.6	63	25.8	14.25	-10	-5	12	✓	4700	✓	9.06	GI342	C0624	–
	200C16R-S45ON06-C	200	210.8	60	–	101.6	63	25.8	14.25	-10	-5	16	–	4700	✓	9.02	GI342	C0624	–
	250C14R-S45ON06-C	250	260.8	60	–	101.6	63	25.8	14.25	-10	-5	14	✓	4300	✓	15.71	GI342	C0625	–
	250C18R-S45ON06-C	250	260.8	60	–	101.6	63	25.8	14.25	-10	-5	18	–	4300	✓	15.51	GI342	C0625	–

GI342	ONMX 0605..	ONMX 0605..-W..	SNMX 1705..

C0620	US 45013A-T20P	5.0 Nm	M 5	13	SDR T20P-T	–	–	–	–

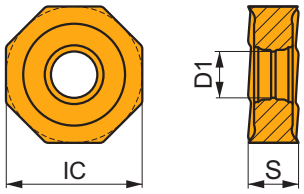
		Nm							
C0621	US 45013A-T20P	5.0	M 5	13	SDR T20P-T	HS 1030C	–	–	–
C0622	US 45013A-T20P	5.0	M 5	13	SDR T20P-T	HS 1230C	–	–	–
C0623	US 45013A-T20P	5.0	M 5	13	SDR T20P-T	HS 1240C	CAC 160C	HSD 0825C	HXK 5
C0624	US 45013A-T20P	5.0	M 5	13	SDR T20P-T	HS 1655C	CAC 200C	HSD 1025C	HXK 7
C0625	US 45013A-T20P	5.0	M 5	13	SDR T20P-T	HS 1655C	CAC 250C	HSD 1025C	HXK 7

AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

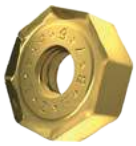
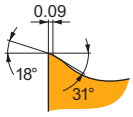
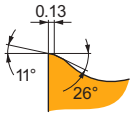
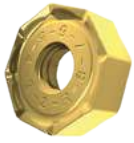
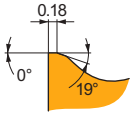
ONMX 06

PRAMET

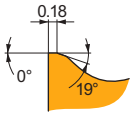
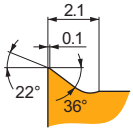
	IC (mm)	D1 (mm)	S (mm)
0605	17.000	5.70	7.08



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																			
F geometrisi keskindir ve finiş işleme için kullanılır, uzun kullanma mesafesi veya ince duvarlı ve ince iş parçası uygulamaları için uygundur. Çok pozitif eğimli tasarlanmıştır, dar T alanına ve yuvarlatılmış kesme kenarına sahiptir ve hafif işleme için uygundur.																			
ONMX 060508SR-F:8215	0.8	275	0.10	2.0	165	0.09	2.0	–	–	–	–	–	–	65	0.07	1.6	–	–	–
ONMX 060508SR-F:M6330	0.8	230	0.10	2.0	165	0.09	2.0	–	–	–	–	–	–	65	0.07	1.6	–	–	–
ONMX 060508SR-F:M8330	0.8	270	0.10	2.0	160	0.09	2.0	–	–	–	–	–	–	65	0.07	1.6	–	–	–
ONMX 060508SR-F:M8340	0.8	245	0.10	2.0	145	0.09	2.0	–	–	–	–	–	–	60	0.07	1.6	–	–	–
ONMX 060508SR-F:M9340	0.8	320	0.10	2.0	190	0.09	2.0	–	–	–	–	–	–	80	0.07	1.6	–	–	–
																			
M geometrisi çok yönlüdür ve çok çeşitli çalışma koşulları için ilk tercihtir. Pozitif eğimli tasarlanmıştır, orta boyutlu T alanına ve yuvarlatılmış kesme kenarına sahiptir ve orta işleme için uygundur.																			
ONMX 060508SR-M:8215	0.8	230	0.20	2.0	135	0.18	2.0	–	–	–	–	–	–	55	0.14	1.6	45	0.14	1.0
ONMX 060508SR-M:M6330	0.8	195	0.20	2.0	140	0.18	2.0	–	–	–	–	–	–	55	0.14	1.6	–	–	–
ONMX 060508SR-M:M8330	0.8	230	0.20	2.0	135	0.18	2.0	–	–	–	–	–	–	55	0.14	1.6	45	0.14	1.0
ONMX 060508SR-M:M8340	0.8	210	0.20	2.0	125	0.18	2.0	–	–	–	–	–	–	50	0.14	1.6	–	–	–
ONMX 060508SR-M:M9325	0.8	285	0.20	2.0	–	–	–	–	–	–	–	–	–	–	–	–	55	0.14	1.0
ONMX 060508SR-M:M9340	0.8	255	0.20	2.0	150	0.18	2.0	–	–	–	–	–	–	60	0.14	1.6	–	–	–
																			
R geometrisi güçlüdür ve kaba talaş işleme ve ağır çalışma koşulları için kullanılır. Hafif pozitif eğimli tasarlanmıştır, geniş boyutlu T alanına ve yuvarlatılmış kesme kenarına sahiptir ve kaba işleme için uygundur.																			
ONMX 060508SR-R:8215	0.8	210	0.30	2.0	–	–	–	195	0.30	2.0	–	–	–	–	–	–	40	0.21	1.0
ONMX 060508SR-R:M5315	0.8	255	0.30	2.0	–	–	–	240	0.30	2.0	–	–	–	–	–	–	50	0.21	1.0
ONMX 060508SR-R:M8330	0.8	210	0.30	2.0	–	–	–	195	0.30	2.0	–	–	–	–	–	–	40	0.21	1.0

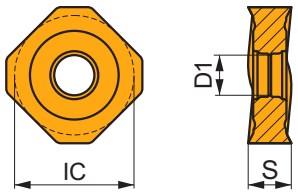
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
R geometrisi güçlüdür ve kaba talaş işleme ve ağır çalışma koşulları için kullanılır. Hafif pozitif eğimli tasarlanmıştır, geniş boyutlu T alanına ve yuvarlatılmış kesme kenarına sahiptir ve kaba işleme için uygundur.																			
ONMX 060508SR-R:M8340	0.8	190	0.30	2.0	–	–	–	180	0.30	2.0	–	–	–	–	–	–	–	–	–
ONMX 060508SR-R:M9325	0.8	250	0.30	2.0	–	–	–	235	0.30	2.0	–	–	–	–	–	–	50	0.21	1.0
 																			
W büyük kesiciler ve yüksek ilerleme hızı ile işleme yaparken daha iyi yüzey kalitesi sağlayan silici tasarımı.																			
ONMX 060508SR-W:8215	0.8	340	0.10	0.3	200	0.09	0.3	–	–	–	–	–	–	–	–	–	–	–	–
ONMX 060508SR-W:M8330	0.8	325	0.10	0.3	195	0.09	0.3	–	–	–	–	–	–	–	–	–	–	–	–

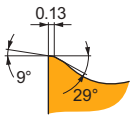
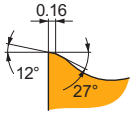
SNMX 17

PRAMET

	IC (mm)	D1 (mm)	S (mm)
1705	17.000	5.70	5.56

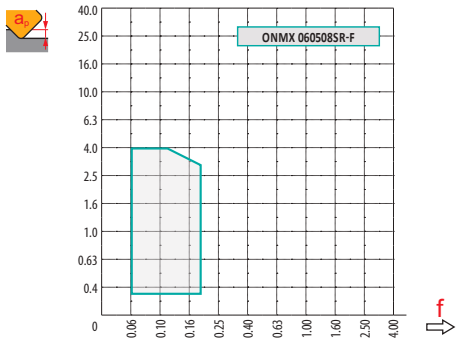


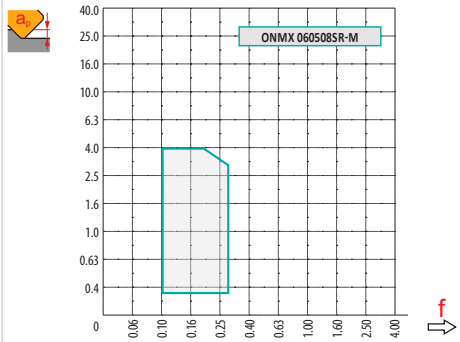
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

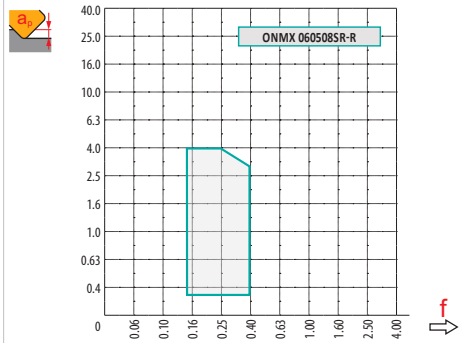
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
M geometrisi çok yönlüdür ve çok çeşitli çalışma koşulları için ilk tercihtir. Pozitif eğimli tasarlanmıştır, orta boyutlu T alanına ve yuvarlatılmış kesme kenarına sahiptir ve orta işleme için uygundur.																			
SNMX 170508SR-M:8215	0.8	265	0.20	4.0	155	0.18	4.0	–	–	–	–	–	–	65	0.14	3.2	50	0.14	1.0
SNMX 170508SR-M:M6330	0.8	225	0.20	4.0	160	0.18	4.0	–	–	–	–	–	–	65	0.14	3.2	–	–	–
SNMX 170508SR-M:M8330	0.8	265	0.20	4.0	155	0.18	4.0	–	–	–	–	–	–	65	0.14	3.2	50	0.14	1.0
SNMX 170508SR-M:M8340	0.8	240	0.20	4.0	140	0.18	4.0	–	–	–	–	–	–	60	0.14	3.2	–	–	–
SNMX 170508SR-M:M9325	0.8	325	0.20	4.0	–	–	–	–	–	–	–	–	–	–	–	–	65	0.14	1.0
SNMX 170508SR-M:M9340	0.8	295	0.20	4.0	175	0.18	4.0	–	–	–	–	–	–	70	0.14	3.2	–	–	–
 																			
R geometrisi güçlüdür ve kaba talaş işleme ve ağır çalışma koşulları için kullanılır. Hafif pozitif eğimli tasarlanmıştır, geniş boyutlu T alanına ve yuvarlatılmış kesme kenarına sahiptir ve kaba işleme için uygundur.																			
SNMX 170508SR-R:8215	0.8	240	0.30	4.0	–	–	–	225	0.30	4.0	–	–	–	–	–	–	45	0.21	1.0
SNMX 170508SR-R:M5315	0.8	300	0.30	4.0	–	–	–	285	0.30	4.0	–	–	–	–	–	–	60	0.21	1.0
SNMX 170508SR-R:M8330	0.8	240	0.30	4.0	–	–	–	225	0.30	4.0	–	–	–	–	–	–	45	0.21	1.0
SNMX 170508SR-R:M8340	0.8	220	0.30	4.0	–	–	–	205	0.30	4.0	–	–	–	–	–	–	–	–	–
SNMX 170508SR-R:M9325	0.8	290	0.30	4.0	–	–	–	275	0.30	4.0	–	–	–	–	–	–	55	0.21	1.0

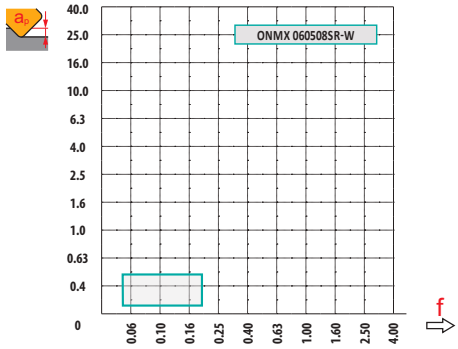
a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

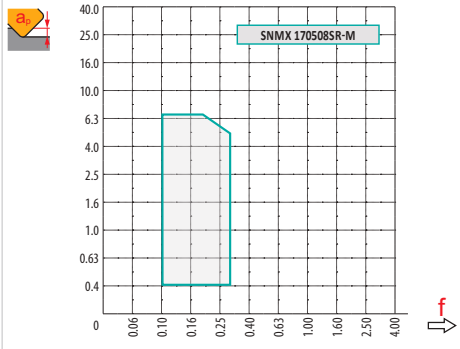
	ONMX 06-F	ONMX 06-M	ONMX 06-R	ONMX 06-W	SNMX 17-M	SNMX 17-R
RE	0.80	0.80	0.80	0.80	0.80	0.80
BS	0.75	0.75	0.75	4.30	0.70	0.70

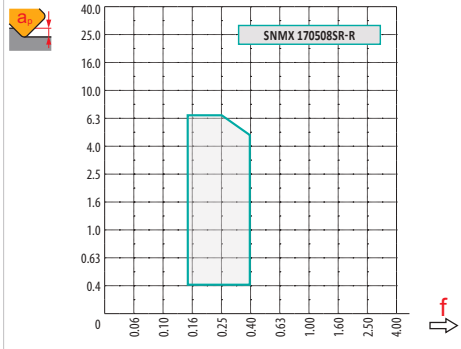












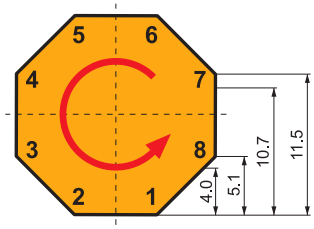
DC	a_p	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00
50		51.06	52.11	53.19	54.27	55.35	56.43	57.51	58.59
63		64.06	65.11	66.19	67.27	68.35	69.43	70.51	71.59
80		81.06	82.11	83.19	84.27	85.35	86.43	87.51	88.59
100	DEF	101.06	102.11	103.19	104.27	105.35	106.43	107.51	108.59
125		126.06	127.11	128.19	129.27	130.35	131.43	132.51	133.59
160		161.06	162.11	163.19	164.27	165.35	166.43	167.51	168.59
200		201.06	202.11	203.19	204.27	205.35	206.43	207.51	208.59
250		251.06	252.11	253.19	254.27	255.35	256.43	257.51	258.59

DC	S							
	a_p	0.00	1.00	2.00	3.00	4.00	5.00	6.00	7.00
50	DEF	47.24	49.40	51.56	53.73	55.90	58.06	60.23	62.40
63		60.24	62.40	64.56	66.73	68.90	71.06	73.23	75.40
80		77.24	79.40	81.56	83.73	85.90	88.06	90.23	92.40
100		97.24	99.40	101.56	103.73	105.90	108.06	110.23	112.40
125		122.24	124.40	126.56	128.73	130.90	133.06	135.23	137.40
160		157.24	159.40	161.56	163.73	165.90	168.06	170.23	172.40
200		197.24	199.40	201.56	203.73	205.90	208.06	210.23	212.40
250		247.24	249.40	251.56	253.73	255.90	258.06	260.23	262.40

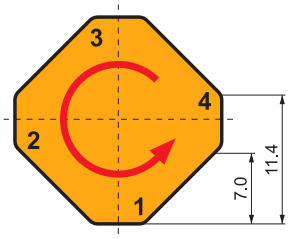
DC	X.V	f_{max}
50	1.35	0.36
63	1.39	0.40
80	1.44	0.45
100	1.48	0.51
125	1.53	0.57
160	1.58	0.64
200	1.63	0.72
250	1.68	0.80

O		
DC	RPMX	APMX/l
50	0.3	0.4/100
63	0.2	0.25/100
80	0.2	0.2/100
100	0.1	0.1/100
125	0.1	0.05/100

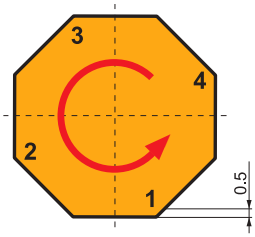
S		
DC	RPMX	APMX/l
47.24	0.1	0.1/100
60.24	0.1	0.05/100
77.24	0.1	0.05/100



a_p	
-> 4.0	16
-> 5.1	14
-> 10.7	8
-> 11.5	6



a_p	
-> 7.0	8
-> 11.4	4



ONMX 06-W	
a_p	
-> 0.5	8

SHN06C

P M K H

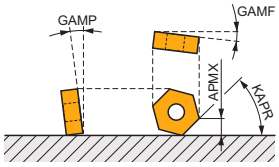
PRAMET

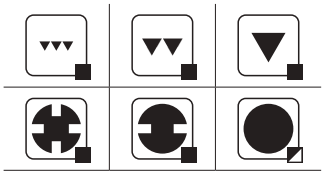
S

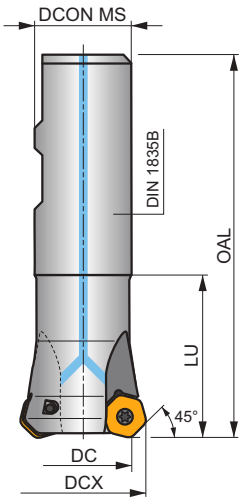
ECON HN06 45° Yüzey Frezeleme Takımı, Çift Negatif Tasarım, İçten Su Vermeli

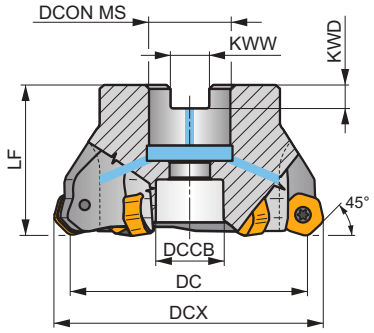
3 mm'lik APMX'li çift taraflı HN..06 tarzı kesici uçlar kullanan son derece verimli 45° yüzey frezesi. Kaba işleme, ince işleme ve pah kırma. 12 kesme kenarlı ekonomik kesici uç. Veldon, modüler ve göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	45°
APMX	3.0 mm









h_m	0.06 - 0.15
h_m	0.06 - 0.15

	Product	DC (mm)	DCX (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
DIN 1835B	**25N2R042B25-SHN06C-C**	25	32.2	99	25	–	42	–	–	–	-7	-7	2	–	17400	✓	0.35	GI204	FA010	–
DIN 1835B	**32N3R042B32-SHN06C-C**	32	39.3	103	32	–	42	–	–	–	-7	-7	3	–	15400	✓	0.59	GI204	FA010	–
	40A05R-S45HN06C-C	40	47.3	–	16	14	–	40	8.4	5.6	-7	-7	5	✓	13800	✓	0.37	GI204	FA012	–
	50A04R-S45HN06C-C	50	57.3	–	22	18	–	40	10.4	6.3	-7	-7	4	✓	12300	✓	0.54	GI204	FA013	–
	50A06R-S45HN06C-C	50	57.3	–	22	18	–	40	10.4	6.3	-7	-7	6	✓	12300	✓	0.41	GI204	FA013	–
	63A06R-S45HN06C-C	63	70.3	–	22	18	–	40	10.4	6.3	-7	-7	6	✓	11000	✓	0.68	GI204	FA013	–
ISO 6462 DIN 8030	**63A08R-S45HN06C-C**	63	70.3	–	22	18	–	40	10.4	6.3	-7	-7	8	✓	11000	✓	0.68	GI204	FA013	–
	80A07R-S45HN06C-C	80	86.8	–	27	38	–	50	12.4	7	-7	-7	7	✓	9700	✓	1.10	GI204	FA011	AC001
	80A10R-S45HN06C-C	80	86.8	–	27	38	–	50	12.4	7	-7	-7	10	✓	9700	✓	1.10	GI204	FA011	AC001
	100A08R-S45HN06C-C	100	107.1	–	32	45	–	50	14.4	8	-7	-7	8	✓	8700	✓	2.00	GI204	FA011	AC002
	100A12R-S45HN06C-C	100	107.1	–	32	45	–	50	14.4	8	-7	-7	12	✓	8700	✓	1.82	GI204	FA011	AC002
	125A10R-S45HN06C-C	125	132.2	–	40	56	–	63	16.4	9	-7	-7	10	✓	7800	✓	3.53	GI204	FA011	AC003

GI204	HNGX 0604AN..	XNGX 0604AN..

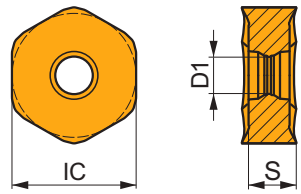
		Nm						
FA010	US 3007-T09P	2.0	M 3	7.3	–	–	Flag T09P	–
FA011	US 3007-T09P	2.0	M 3	7.3	D-T07P/T09P	FG-15	–	–
FA012	US 3007-T09P	2.0	M 3	7.3	D-T07P/T09P	FG-15	–	HS 0830C
FA013	US 3007-T09P	2.0	M 3	7.3	D-T07P/T09P	FG-15	–	HS 1030C

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

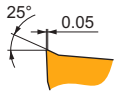
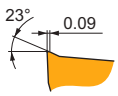
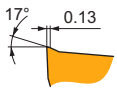
HNGX 06

PRAMET

	IC (mm)	D1 (mm)	S (mm)
0604	10.500	3.70	4.76

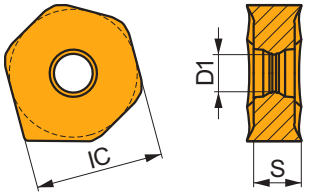


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  	**F** geometri, hafif işleme için çok pozitif tasarım.																		
HNGX 0604ANSN-F:8215	–	315	0.11	1.7	185	0.10	1.7	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-F:M6330	–	265	0.11	1.7	185	0.10	1.7	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-F:M8330	–	305	0.11	1.7	180	0.10	1.7	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-F:M8340	–	285	0.11	1.7	170	0.10	1.7	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-F:M9340	–	365	0.11	1.7	215	0.10	1.7	–	–	–	–	–	–	–	–	–	–	–	–
  	**M** geometri, orta işleme için çok pozitif tasarım.																		
HNGX 0604ANSN-M:8215	–	300	0.13	2.0	180	0.13	2.0	285	0.13	2.0	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-M:M5315	–	425	0.13	2.0	–	–	–	400	0.13	2.0	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-M:M6330	–	255	0.13	2.0	180	0.13	2.0	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-M:M8310	–	325	0.13	2.0	165	0.13	2.0	305	0.13	2.0	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-M:M8330	–	295	0.13	2.0	175	0.13	2.0	280	0.13	2.0	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-M:M8340	–	265	0.13	2.0	155	0.13	2.0	250	0.13	2.0	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-M:M9315	–	410	0.13	2.0	–	–	–	385	0.13	2.0	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-M:M9325	–	375	0.13	2.0	–	–	–	355	0.13	2.0	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-M:M9340	–	345	0.13	2.0	205	0.13	2.0	–	–	–	–	–	–	–	–	–	–	–	–
  	**R** geometri, orta ve ağır işleme için çok pozitif tasarım.																		
HNGX 0604ANSN-R:8215	–	280	0.18	1.8	165	0.18	1.8	265	0.18	1.8	–	–	–	–	–	–	55	0.12	1.0
HNGX 0604ANSN-R:M5315	–	370	0.18	1.8	–	–	–	350	0.18	1.8	–	–	–	–	–	–	70	0.12	1.0
HNGX 0604ANSN-R:M8310	–	300	0.18	1.8	150	0.18	1.8	285	0.18	1.8	–	–	–	–	–	–	60	0.12	1.0
HNGX 0604ANSN-R:M8330	–	275	0.18	1.8	165	0.18	1.8	260	0.18	1.8	–	–	–	–	–	–	55	0.12	1.0
HNGX 0604ANSN-R:M8340	–	250	0.18	1.8	150	0.18	1.8	235	0.18	1.8	–	–	–	–	–	–	–	–	–
HNGX 0604ANSN-R:M9325	–	345	0.18	1.8	–	–	–	325	0.18	1.8	–	–	–	–	–	–	65	0.12	1.0

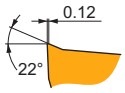
XNGX 06

	IC	D1	S
	(mm)	(mm)	(mm)
0604	10.500	3.70	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)

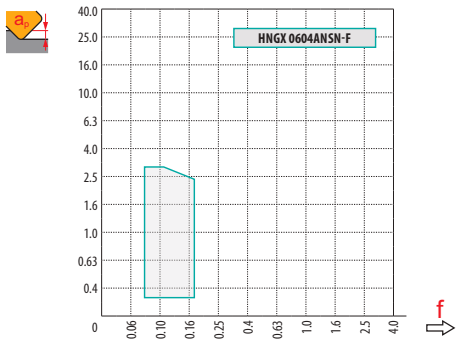


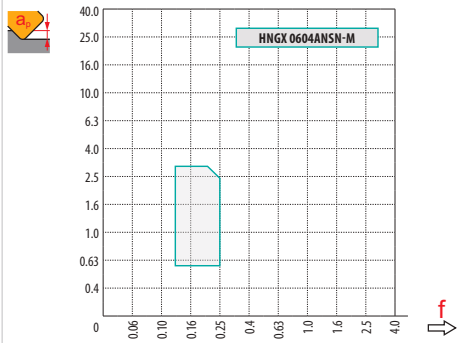
W silicili tasarım, daha iyi yüzey finişi için.

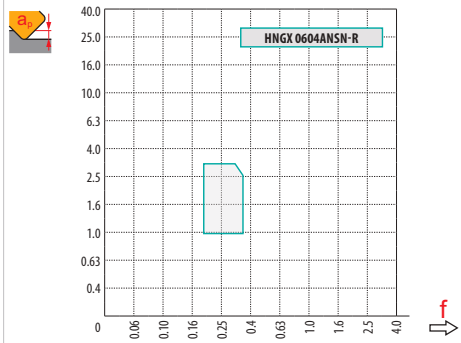
XNGX 0604ANSN:8215	–	290	0.13	1.8	170	0.12	1.8	275	0.13	1.8	–	–	–	–	–	–	–	–	–

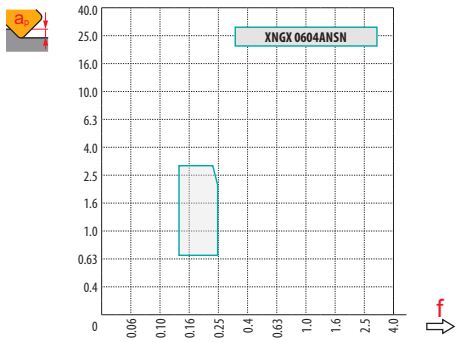
a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	HNGX 06-F	HNGX 06-M	HNGX 06-R	XNGX 06
RE	–	–	–	–
BS	1.12	0.80	0.80	4.15









DC	X.V	f_{max}
25	1.31	0.24
32	1.36	0.28
40	1.40	0.31
50	1.45	0.35
63	1.49	0.39
80	1.54	0.44
100	1.59	0.49
125	1.64	0.55

DC	RPMX	APMX/I
25	2.7°	3.0/65
32	1.9°	3.0/89
40	1.5°	2.5/100
50	1.1°	1.9/100
63	0.9°	1.4/100
80	0.6°	1.0/100
100	0.5°	0.8/100
125	0.4°	0.6/100

a_p
0.9

SHN09C

P M K H

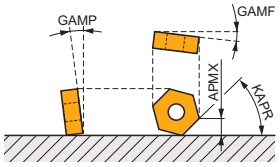
PRAMET

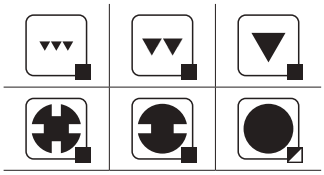
S

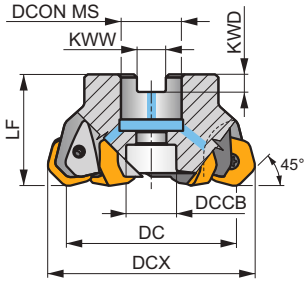
ECON HN09 45° Yüzey Frezeleme Takımı, Çift Negatif Tasarım, İçten Su Vermeli

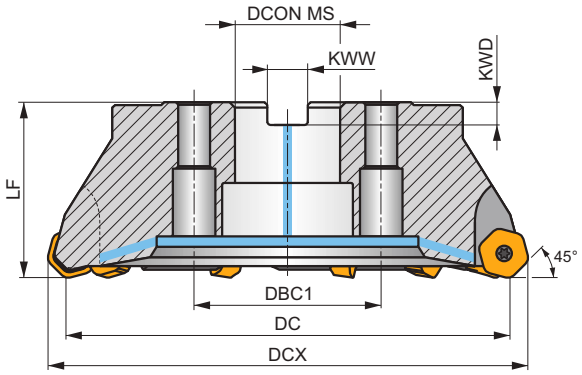
5 mm APMX'li çift taraflı HN..09 stili kesici uçlar kullanan son derece verimli 45° yüzey frezesi.12 kesme kenarlı ekonomik kesici uç. Kaba, finiş ve pah işleme için uygundur. Gövdeden bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	45°
APMX	5.0 mm









h_m 0.08 - 0.25

	Product	DC (mm)	DCX (mm)	LF (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
	50A04R-S45HN09C-CF	50	61.7	40	22	18	–	10.4	6.3	-7	-7	4	✓	7900	✓	0.38	GI252	FA023	–
	63A06R-S45HN09C-CF	63	74.7	40	22	18	–	10.4	6.3	-7	-7	6	✓	7000	✓	0.54	GI252	FA023	–
	80A06R-S45HN09C-CF	80	91.7	50	27	38	–	12.4	7	-7	-7	6	✓	6200	✓	1.06	GI252	FA021	AC001
	80A08R-S45HN09C-CF	80	91.7	50	27	38	–	12.4	7	-7	-7	8	✓	6200	✓	1.06	GI252	FA021	AC001
	100A06R-S45HN09C-CF	100	111.7	50	32	45	–	14.4	8	-7	-7	6	✓	5600	✓	1.95	GI252	FA021	AC002
	100A08R-S45HN09C-CF	100	111.7	50	32	45	–	14.4	8	-7	-7	8	✓	5600	✓	1.99	GI252	FA021	AC002
	100A10R-S45HN09C-CF	100	111.7	50	32	45	–	14.4	8	-8	-7	10	–	5600	✓	1.99	GI252	FA021	AC002
	125A06R-S45HN09C-CF	125	136.7	63	40	56	–	16.4	9	-7	-7	6	✓	5000	✓	3.36	GI252	FA021	AC003
ISO 6462 DIN 8030	**125A08R-S45HN09C-CF**	125	136.7	63	40	56	–	16.4	9	-7	-7	8	✓	4900	✓	3.66	GI252	FA021	AC003
	125A10R-S45HN09C-CF	125	136.7	63	40	56	–	16.4	9	-7	-7	10	✓	5000	✓	3.52	GI252	FA021	AC003
	125A12R-S45HN09C-CF	125	136.7	63	40	56	–	16.4	9	-8	-7	12	–	5000	✓	3.36	GI252	FA021	AC003
	160C08R-S45HN09C-CF	160	171.7	63	40	–	66.7	16.4	9	-7	-7	8	✓	4400	✓	6.24	GI252	FA026	–
	160C12R-S45HN09C-CF	160	171.7	63	40	–	66.7	16.4	9	-7	-7	12	✓	4400	✓	6.45	GI252	FA026	–
	160C14R-S45HN09C-CF	160	171.7	63	40	–	66.7	16.4	9	-7	-7	14	✓	4400	✓	6.39	GI252	FA026	–
	200C10R-S45HN09C-CF	200	211.7	63	60	–	101.6	25.7	14	-7	-7	10	✓	3900	✓	11.37	GI252	FA027	–
	250C14R-S45HN09C-CF	250	261.7	63	60	–	101.6	25.7	14	-7	-7	14	✓	3500	✓	18.50	GI252	FA028	–
	315C16R-S45HN09C-CF	315	326.7	80	60	–	101.6	25.7	14	-7	-7	16	✓	3100	✓	37.00	GI252	FA029	–

GI252	HNGX 0906AN..	XNGX 0906AN..

		Nm										
FA021	US 54511-T15P	5.0	M 4.5	11	D-T08P/T15P	FG-15	–	–	–	–	–	–
FA023	US 54511-T15P	5.0	M 4.5	11	D-T08P/T15P	FG-15	HS 1030C	–	–	–	–	–

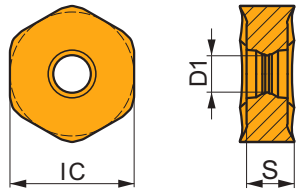
		Nm										
FA026	US 54511-T15P	5.0	M 4.5	11	D-T08P/T15P	FG-15	HS 1240C	CAC 160C	HSD 0825C	HXK 5	–	–
FA027	US 54511-T15P	5.0	M 4.5	11	D-T08P/T15P	FG-15	HS 1655C	CAC 200C	HSD 1025C	HXK 7	–	–
FA028	US 54511-T15P	5.0	M 4.5	11	D-T08P/T15P	FG-15	HS 1655C	CAC 250C	HSD 1025C	HXK 7	–	–
FA029	US 54511-T15P	5.0	M 4.5	11	D-T08P/T15P	FG-15	HS 1655C	CAC 315C	HSD 1035C	HXK 7	CACP 315OC	RRH 34

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

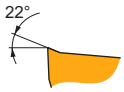
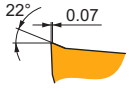
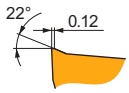
HNGX 09

PRAMET

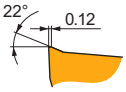
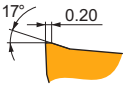
	IC (mm)	D1 (mm)	S (mm)
0906	16.500	4.90	6.35



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
			**FF** geometri, hafif işleme için çok pozitif tasarım.																	
HNGX 0906ANEN-FF:8215	●	–	345	0.10	1.0	205	0.09	1.0	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0906ANEN-FF:M8330	●	–	335	0.10	1.0	200	0.09	1.0	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0906ANEN-FF:M9340	●	–	405	0.10	1.0	240	0.09	1.0	–	–	–	–	–	–	–	–	–	–	–	–
			**F** geometri, hafif ve orta işleme için çok pozitif tasarım.																	
HNGX 0906ANSN-F:8215	⧓	–	300	0.12	2.1	180	0.11	2.1	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-F:M6330	⧓	–	255	0.12	2.1	180	0.11	2.1	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-F:M8310	⧓	–	330	0.12	2.1	165	0.11	2.1	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-F:M8330	⧓	–	300	0.12	2.1	180	0.11	2.1	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-F:M8340	⧓	–	270	0.12	2.1	160	0.11	2.1	–	–	–	–	–	–	–	–	–	–	–	–
			**M** geometri, orta işleme için çok pozitif tasarım.																	
HNGX 0906ANSN-M:8215	✱	–	255	0.20	2.7	150	0.18	2.7	240	0.20	2.7	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-M:M5315	⧓	–	340	0.20	2.7	–	–	–	320	0.20	2.7	–	–	–	–	–	–	–	–	–

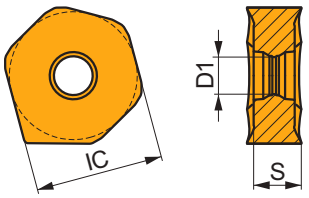
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
M geometri, orta işleme için çok pozitif tasarım.																			
HNGX 0906ANSN-M:M6330	–	220	0.20	2.7	155	0.18	2.7	–	–	–	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-M:M8310	–	280	0.20	2.7	140	0.18	2.7	265	0.20	2.7	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-M:M8330	–	255	0.20	2.7	150	0.18	2.7	240	0.20	2.7	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-M:M8340	–	235	0.20	2.7	140	0.18	2.7	220	0.20	2.7	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-M:M9315	–	340	0.20	2.7	–	–	–	320	0.20	2.7	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-M:M9325	–	315	0.20	2.7	–	–	–	295	0.20	2.7	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-M:M9340	–	290	0.20	2.7	170	0.18	2.7	–	–	–	–	–	–	–	–	–	–	–	–
 																			
R geometri, orta ve ağır işleme için pozitif tasarım.																			
HNGX 0906ANSN-R:8215	–	240	0.25	3.0	140	0.25	3.0	225	0.25	3.0	–	–	–	–	–	–	45	0.13	1.0
HNGX 0906ANSN-R:M5315	–	305	0.25	3.0	–	–	–	285	0.25	3.0	–	–	–	–	–	–	60	0.13	1.0
HNGX 0906ANSN-R:M8310	–	260	0.25	3.0	130	0.25	3.0	245	0.25	3.0	–	–	–	–	–	–	50	0.13	1.0
HNGX 0906ANSN-R:M8330	–	240	0.25	3.0	140	0.25	3.0	225	0.25	3.0	–	–	–	–	–	–	45	0.13	1.0
HNGX 0906ANSN-R:M8340	–	220	0.25	3.0	130	0.25	3.0	205	0.25	3.0	–	–	–	–	–	–	–	–	–
HNGX 0906ANSN-R:M9315	–	310	0.25	3.0	–	–	–	290	0.25	3.0	–	–	–	–	–	–	60	0.13	1.0
HNGX 0906ANSN-R:M9325	–	295	0.25	3.0	–	–	–	280	0.25	3.0	–	–	–	–	–	–	55	0.13	1.0

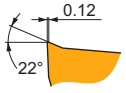
XNGX 09

PRAMET

	IC (mm)	D1 (mm)	S (mm)
0906	16.500	4.90	6.35

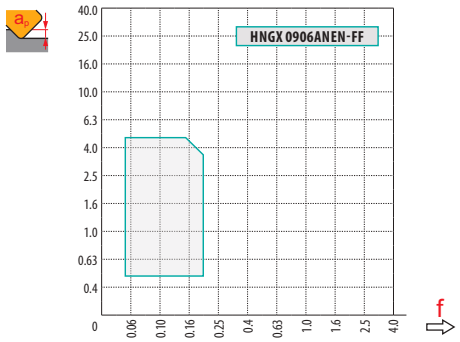


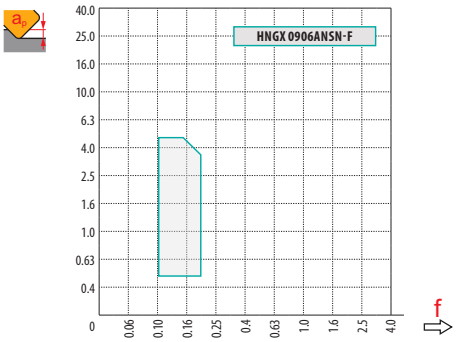
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

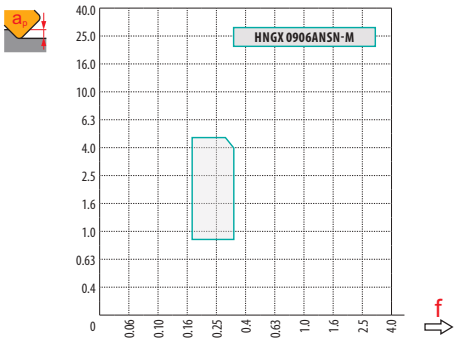
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
W silicili tasarım, daha iyi yüzey finişi için.																			
XNGX 0906ANSN:8215	–	245	0.20	2.7	145	0.18	2.7	230	0.20	2.7	–	–	–	–	–	–	–	–	–
XNGX 0906ANSN:M8330	–	245	0.20	2.7	145	0.18	2.7	230	0.20	2.7	–	–	–	–	–	–	–	–	–

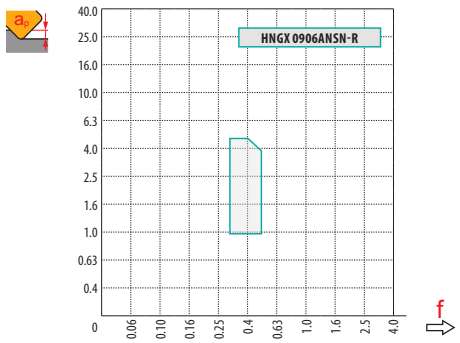
a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

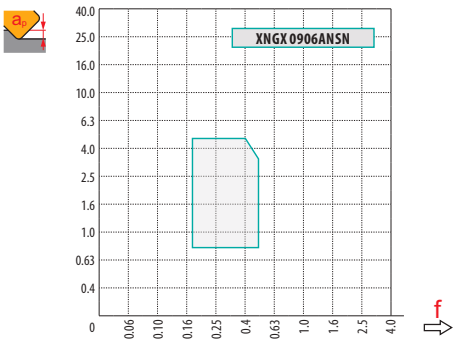
	HNGX 09-FF	HNGX 09-F	HNGX 09-M	HNGX 09-R	XNGX 09
RE	–	–	–	–	–
BS	1.50	1.17	1.17	1.17	7.53











DC	X.V	f_{max}
50	1.35	0.36
63	1.39	0.40
80	1.44	0.45
100	1.48	0.51
125	1.53	0.57
160	1.58	0.64
200	1.63	0.72
250	1.68	0.80
315	1.74	0.90

DC	RPMX	APMX/I
50	2.1°	3.5/100
63	1.5°	2.5/100
80	1.1°	1.8/100
100	0.9°	1.4/100
125	0.7°	1.1/100
160	0.5°	0.7/100

a_p
1.9

SPN13

P M K S H

PRAMET

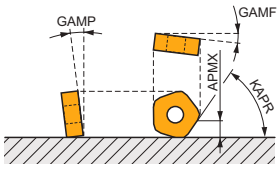
S

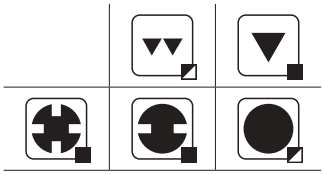
PENTA HD 57° Ağır İş Yüzey Frezeleme Takımı, Çift Negatif Tasarım

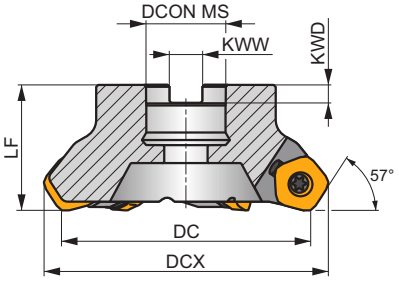
10 mm APMX'li çift taraflı PN..13 ve XN..13 stili kesici uçlar kullanan son derece verimli 57° yüzey frezesi. Yüzey frezeleme için uygundur. Yalnızca göbekten bağlamalı gövde stili.Uç yuvasını korumak için altlıklıdır. Gövde uzun takım ömrü için işlem görmüştür.

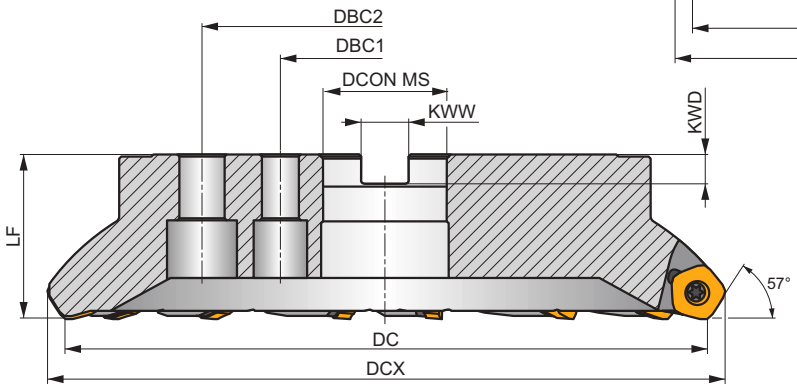
PENTA HD

KAPR	57°
APMX	10.0 mm









h_m 0.20 - 0.50

	Product	DC (mm)	DCX (mm)	LF (mm)	DCON MS (mm)	DBC1 (mm)	DBC2 (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
	100A05R-S57PN13	100	115.8	50	32	–	–	14.4	8	-8.2	-4	5	–	3400	–	1.22	GI261	FA081	AC002
	125A06R-S57PN13	125	140.8	63	40	–	–	16.4	9	-7	-4	6	–	3100	–	2.79	GI261	FA081	AC003
ISO 6462 DIN 8030	**160C08R-S57PN13**	160	175.8	63	40	66.7	–	16.4	9	-6	-4	8	–	2700	–	3.58	GI261	FA081	–
	200C10R-S57PN13	200	215.8	63	60	101.6	–	25.7	14	-5	-4	10	–	2400	–	9.17	GI261	FA081	–
	250C12R-S57PN13	250	265.8	63	60	101.6	–	25.7	14	-5	-4	12	–	2200	–	15.39	GI261	FA081	–
	315C14R-S57PN13	315	330.8	80	60	101.6	177.8	25.7	14	-5	-4	14	–	1900	–	29.17	GI261	FA081	–

GI261	PNMU 1308DN..	XNGX 1308DNSN	PNMQ 1308DN..

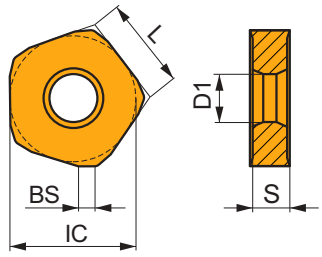
FA081	SPN 13T3DN	US 64010-T15P	SDR T15P	US 68026-T30P	15.0 Nm	M 8	26	SDR T30P-T

AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

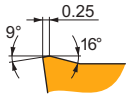
PNMU 13

PRAMET

	BS	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)	(mm)
1308	3.00	24.400	10.00	13.00	7.94



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

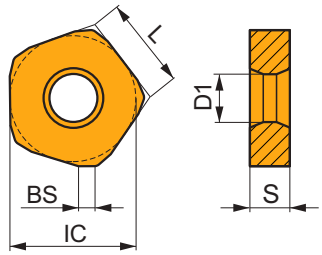
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
PNMU 1308DNSR-M:8215		–	■	165	0.35	6.5	◪	95	0.32	6.5	■	155	0.35	6.5		–	–	–	◪	40	0.28	5.2	◪	30	0.18	2.0
PNMU 1308DNSR-M:M8330		–	■	190	0.35	6.5	◪	110	0.32	6.5	■	180	0.35	6.5		–	–	–	◪	45	0.28	5.2	◪	35	0.18	2.0
PNMU 1308DNSR-M:M8345		–	■	135	0.35	6.5	◪	80	0.32	6.5		–	–	–		–	–	–	◪	30	0.28	5.2		–	–	–
PNMU 1308DNSR-M:M9315		–	■	210	0.35	6.5		–	–	–	■	195	0.35	6.5		–	–	–		–	–	–	◪	40	0.18	2.0
PNMU 1308DNSR-M:M9340		–	■	170	0.35	6.5	◪	100	0.32	6.5		–	–	–		–	–	–	◪	40	0.28	5.2		–	–	–

M geometri, kaba işleme için pozitif tasarım.

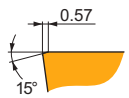
PNMQ 13

PRAMET

	BS	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)	(mm)
1308	3.00	24.400	10.00	13.00	7.94



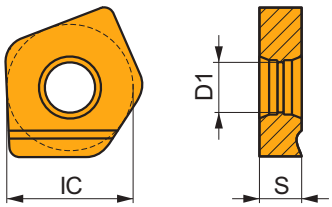
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
PNMQ 1308DNSN:M8330		–	◪	165	0.60	6.5		–	–	–	■	155	0.60	6.5		–	–	–		–	–	–	◪	30	0.30	2.0
PNMQ 1308DNSN:M8345		–	◪	120	0.60	6.5		–	–	–		–	–	–		–	–	–		–	–	–		–	–	–

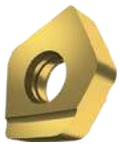
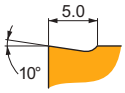
SN sıfır talaş açısı tasarımı, özellikle kaba işleme için uygun.

XNGX 13

	IC	D1	S
	(mm)	(mm)	(mm)
1308	24.180	10.00	7.94

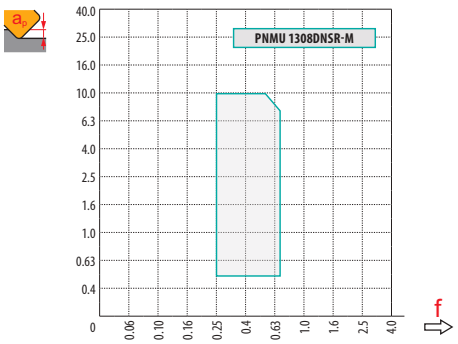


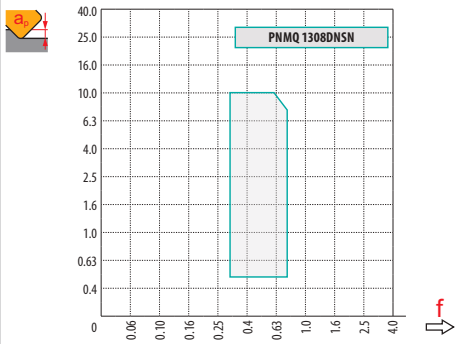
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

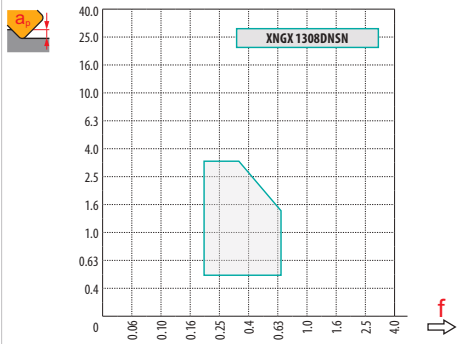
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
W silicili tasarım, daha iyi yüzey finişi için.																				
XNGX 1308DNSN:M8330		–	■	245	0.45	2.5	–	–	–	■	230	0.45	2.5	–	–	–	–	–	–	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
⇨ X.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
⇨ X.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

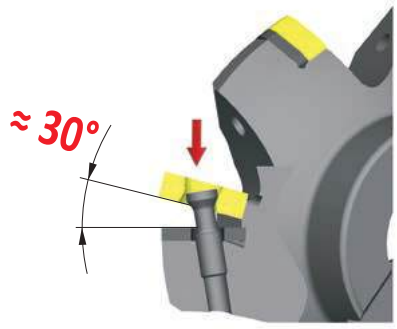
	PNMU 13-M	PNMQ 13	XNGX 13
RE	–	–	–
BS	3.00	3.00	12.71







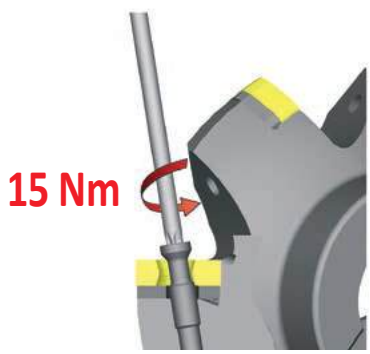
1



2

3

4



YÜZEY FREZELEME

	SSD13F	SSE09	SSN12Z	FSB22X		
	45°	45°	45°	60°		
	APMX (mm) 6.4	APMX (mm) 4.5	APMX (mm) 6.5	APMX (mm) 15.0		
	DC (mm) 32 – 250	DC (mm) 20 – 160	DC (mm) 63 – 125	DC (mm) 125 – 250		
Silindirik şaft						
Weldon	 DC = 32, 40 (mm)	 DC = 20 – 32 (mm)				
Modüler						
Frezeleme kafası	 DC = 40 – 250 (mm)	 DC = 32 – 160 (mm)				
Sayfa	26	31	35	38		
ISO	P M K N S H	P M K S	P M K S	P M K		
Kesici uç şekli						
Kesici uçlar	SDET 13T3 SDMT 13T3 XDET 13T3	SE.T 09T3	SN.T 1205	SB.. 2207		
Kesme kenarlarının sayısı	4 / 4 / 1	4	4	4 / 1		
Yüzey frezeleme 	■	■	■	■		
Havşa frezeleme 	■	■	■			
Helisel interpolasyon 	◪					
Aşamalı dalma 	◪					
Açılı frezeleme 	◪					

■ İlk seçim. ◪ Olası seçim.

SSD13F

P M K N S H

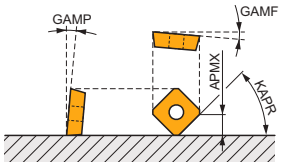
PRAMET

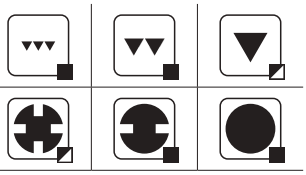
S

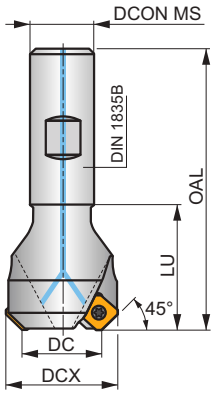
VER SD13 45° Yüzey Frezeleme Takımı, Pozitif Tasarım, İçten Su Vermeli

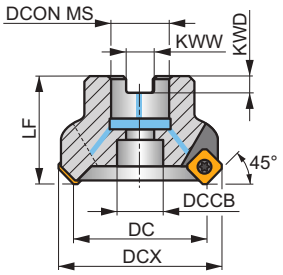
6,4 mm APMX ile tek taraflı SD.. 13 tipi kesici uçlar kullanan çok yönlü 45° yüzey frezeleme takımı. Tüm iş parçası malzemelerindeki çok çeşitli uygulamalar için uygundur. Farklı diş hatvesine sahip Weldon ve arbor tipi mevcuttur. Gövde, daha uzun takım ömrü sağlamak üzere işlem görmüştür, uygulama güvenliği için yuvada karbür altlıklar bulunur.

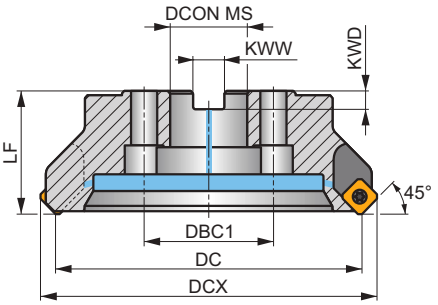
KAPR	45°
APMX	6.4 mm





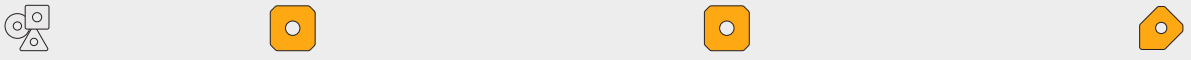






h_m	0.04 - 0.28
h_m	0.04 - 0.32

	Product	DC (mm)	DCX (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	LU (mm)	LF (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
DIN 1835B	**32N3R045B25-SSD13F-C**	32	44.9	120	25	–	–	45	–	–	–	-15	15	3	–	16100	✓	0.43	GI341	C0610	–
DIN 1835B	**40N3R045B32-SSD13F-C**	40	53.5	120	32	–	–	45	–	–	–	-7	15	3	–	14400	✓	0.72	GI341	C0610	–
	40A03R-S45SD13F-C	40	53.5	–	16	14	–	–	40	8.4	5.6	-7	15	3	–	14400	✓	0.27	GI341	C0611	–
	50A04R-S45SD13F-C	50	63.5	–	22	18	–	–	40	10.4	6.3	-7	15	4	✓	12900	✓	0.51	GI341	C0612	–
	63A05R-S45SD13F-C	63	76.4	–	22	18	–	–	40	10.4	6.3	-7	15	5	✓	11500	✓	0.53	GI341	C0612	–
	80A07R-S45SD13F-C	80	93.4	–	27	22	–	–	50	12.4	7	-7	15	7	✓	10200	✓	1.21	GI341	C0613	AC001
	100A08R-S45SD13F-C	100	112.9	–	32	45	–	–	50	14.4	8	-12	15	8	✓	9100	✓	1.83	GI341	C0613	AC002
	100A10R-S45SD13F-C	100	112.9	–	32	45	–	–	50	14.4	8	-12	15	10	–	9100	✓	1.94	GI341	C0613	AC002
ISO 6462 DIN 8030	**125A08R-S45SD13F-C**	125	137.8	–	40	56	–	–	63	16.4	9	-12	15	8	✓	8100	✓	3.41	GI341	C0613	AC003
ISO 6462 DIN 8030	**125A12R-S45SD13F-C**	125	137.8	–	40	56	–	–	63	16.4	9	-12	15	12	–	8100	✓	3.31	GI341	C0613	AC003
	160C10R-S45SD13F-C	160	172.8	–	40	–	66.7	–	63	16.4	9	-12	15	10	✓	7200	✓	6.68	GI341	C0614	–
	160C14R-S45SD13F-C	160	172.8	–	40	–	66.7	–	63	16.4	9	-12	15	14	✓	7200	✓	6.62	GI341	C0614	–
	200C12R-S45SD13F-C	200	212.8	–	60	–	101.6	–	63	25.7	14	-12	15	12	✓	6400	✓	9.06	GI341	C0615	–
	200C16R-S45SD13F-C	200	212.8	–	60	–	101.6	–	63	25.7	14	-12	15	16	✓	6400	✓	11.85	GI341	C0615	–
	250C14R-S45SD13F-C	250	262.8	–	60	–	101.6	–	63	25.7	14	-12	15	14	✓	5700	✓	19.50	GI341	C0616	–
	250C20R-S45SD13F-C	250	262.8	–	60	–	101.6	–	63	25.7	14	-12	15	20	✓	5700	✓	19.20	GI341	C0616	–



GI341	SDET 13T3..	SDMT 13T3..	XDET 13T3..

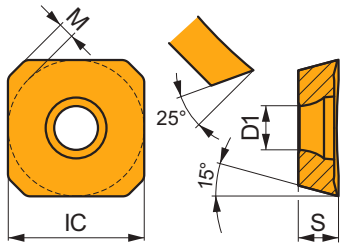
		Nm												
C0610	US 63513-T15P	3.0	M 3.5	13	Flag T15P	–	–	–	SDW 1103AF	MS 3507	HXK 3.5	–	–	–
C0611	US 63513-T15P	3.0	M 3.5	13	–	D-T08P/T15P	FG-15	HS 0830C	SDW 1103AF	MS 3507	HXK 3.5	–	–	–
C0612	US 63513-T15P	3.0	M 3.5	13	–	D-T08P/T15P	FG-15	HSD 1025C	SDW 1103AF	MS 3507	HXK 3.5	–	–	–
C0613	US 63513-T15P	3.0	M 3.5	13	–	D-T08P/T15P	FG-15	–	SDW 1103AF	MS 3507	HXK 3.5	–	–	–
C0614	US 63513-T15P	3.0	M 3.5	13	–	D-T08P/T15P	FG-15	HS 1240C	SDW 1103AF	MS 3507	HXK 3.5	CAC 160C	HSD 0825C	HXK 5
C0615	US 63513-T15P	3.0	M 3.5	13	–	D-T08P/T15P	FG-15	HS 1655C	SDW 1103AF	MS 3507	HXK 3.5	CAC 200C	HSD 1025C	HXK 7
C0616	US 63513-T15P	3.0	M 3.5	13	–	D-T08P/T15P	FG-15	HS 1655C	SDW 1103AF	MS 3507	HXK 3.5	CAC 250C	HSD 1025C	HXK 7

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

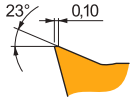
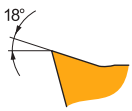
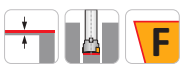
SDET 13

PRAMET

	IC (mm)	D1 (mm)	M (mm)	S (mm)
13T3	13.385	4.40	1.5	3.97

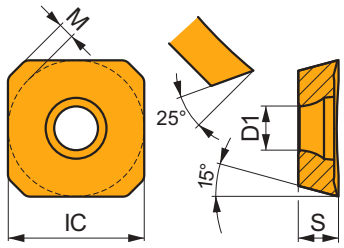


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

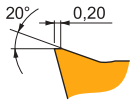
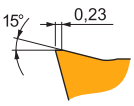
Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
	 																			
F geometrisi keskindir ve finiş işleme için kullanılır, uzun kullanma mesafesi veya ince duvarlı ve ince iş parçası uygulamaları için uygundur. Çok pozitif eğimli tasarlanmıştır, dar T alanına ve yuvarlatılmış kesme kenarına sahiptir ve hafif işleme için uygundur.																				
SDET 13T3AFSN-F:M6330	✱	–	■ 250	0.15	3.0	■ 175	0.14	3.0	–	–	–	–	–	–	■ 70	0.11	2.4	–	–	–
SDET 13T3AFSN-F:M8310	⬢	–	■ 315	0.15	3.0	◪ 160	0.14	3.0	◪ 295	0.15	3.0	–	–	–	–	–	–	–	–	–
SDET 13T3AFSN-F:M8330	✱	–	■ 285	0.15	3.0	■ 170	0.14	3.0	◪ 270	0.15	3.0	◪ 855	0.18	3.0	◪ 70	0.11	2.4	–	–	–
SDET 13T3AFSN-F:M8340	✱	–	■ 265	0.15	3.0	■ 155	0.14	3.0	◪ 250	0.15	3.0	–	–	–	■ 65	0.11	2.4	–	–	–
SDET 13T3AFSN-F:M9340	⬢	–	■ 330	0.15	3.0	■ 195	0.14	3.0	–	–	–	–	–	–	■ 80	0.11	2.4	–	–	–
	 																			
FA geometrisi keskindir ve demir içermeyen alaşımları işleme için kullanılır, uzun kullanma mesafesi veya ince duvarlı ve ince iş parçası uygulamaları için uygundur. Çok pozitif eğimli, parlatılmış ve taşlanmış tasarım.																				
SDET 13T3AFFN-FA:HF7	⬢	–	–	–	–	–	–	–	–	–	–	■ 360	0.12	3.0	–	–	–	–	–	–
SDET 13T3AFFN-FA:M0315	⬢	–	–	–	–	–	–	–	–	–	–	■ 840	0.12	3.0	–	–	–	–	–	–

SDMT 13

	IC (mm)	D1 (mm)	M (mm)	S (mm)
13T3	13.385	4.40	1.5	3.97

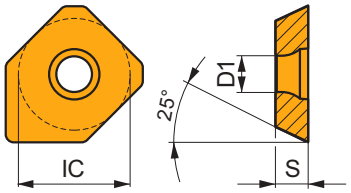


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
M geometrisi çok yönlüdür ve çok çeşitli çalışma koşulları için ilk tercihtir. Pozitif eğimli tasarlanmıştır, orta boyutlu T alanına ve yuvarlatılmış kesme kenarına sahiptir ve orta işleme için uygundur.																				
SDMT 13T3AFSN-M:8215		–	245	0.30	3.0	145	0.27	3.0	230	0.30	3.0	–	–	–	60	0.24	2.4	45	0.21	1.0
SDMT 13T3AFSN-M:M6330		–	215	0.30	3.0	150	0.27	3.0	–	–	–	–	–	–	60	0.24	2.4	–	–	–
SDMT 13T3AFSN-M:M8330		–	245	0.30	3.0	145	0.27	3.0	230	0.30	3.0	–	–	–	60	0.24	2.4	45	0.21	1.0
SDMT 13T3AFSN-M:M8340		–	225	0.30	3.0	135	0.27	3.0	210	0.30	3.0	–	–	–	55	0.24	2.4	–	–	–
SDMT 13T3AFSN-M:M9325		–	295	0.30	3.0	–	–	–	280	0.30	3.0	–	–	–	–	–	–	55	0.21	1.0
SDMT 13T3AFSN-M:M9340		–	265	0.30	3.0	155	0.27	3.0	–	–	–	–	–	–	65	0.24	2.4	–	–	–
																				
R geometrisi güçlüdür ve kaba talaş işleme ve ağır çalışma koşulları için kullanılır. Hafif pozitif eğimli tasarlanmıştır, geniş boyutlu T alanına ve yuvarlatılmış kesme kenarına sahiptir ve kaba işleme için uygundur.																				
SDMT 13T3AFSN-R:M5315		–	285	0.35	3.0	–	–	–	270	0.35	3.0	–	–	–	–	–	–	55	0.25	1.0
SDMT 13T3AFSN-R:M8310		–	255	0.35	3.0	130	0.32	3.0	240	0.35	3.0	–	–	–	–	–	–	50	0.25	1.0
SDMT 13T3AFSN-R:M8330		–	240	0.35	3.0	140	0.32	3.0	225	0.35	3.0	–	–	–	–	–	–	45	0.25	1.0
SDMT 13T3AFSN-R:M8340		–	220	0.35	3.0	130	0.32	3.0	205	0.35	3.0	–	–	–	–	–	–	–	–	–
SDMT 13T3AFSN-R:M9325		–	280	0.35	3.0	–	–	–	265	0.35	3.0	–	–	–	–	–	–	55	0.25	1.0

XDET 13

	IC	D1	S
	(mm)	(mm)	(mm)
13T3	13.385	4.40	3.97



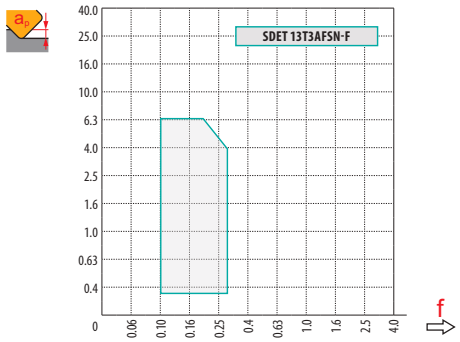
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

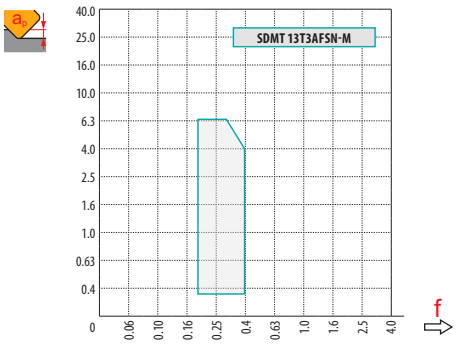
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
XDET 13T3AFER:8215		–	420	0.10	0.2	250	0.09	0.2	395	0.10	0.2	–	–	–	–	–	–	–	–	–
XDET 13T3AFER:M8330		–	395	0.10	0.2	235	0.09	0.2	375	0.10	0.2	–	–	–	–	–	–	–	–	–

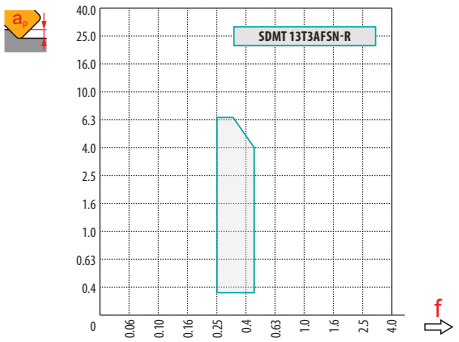
W büyük kesiciler ve yüksek ilerleme hızları ile işleme yaparken daha iyi yüzey kalitesi sağlayan silici tasarımı.

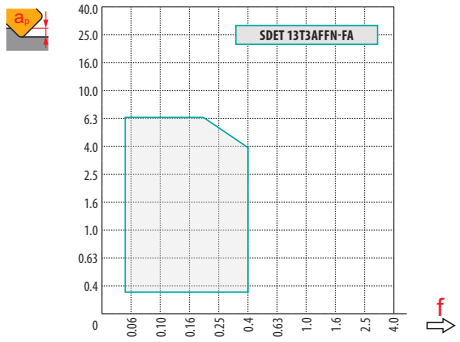
a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

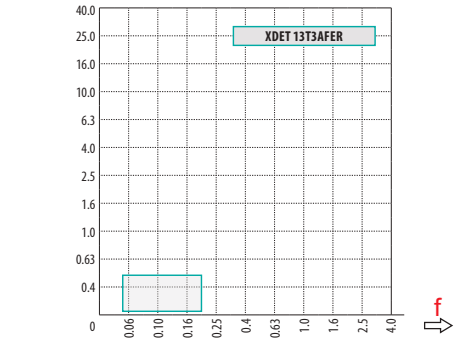
	SDET 13-F	SDMT 13-M	SDMT 13-R	SDET 13-FA	XDET 13
RE	–	–	–	–	–
BS	1.75	1.75	1.75	1.75	8.19











DC	X.V	f_{max}
32	1.22	0.15
40	1.26	0.16
50	1.30	0.18
63	1.34	0.20
80	1.39	0.22
100	1.43	0.24
125	1.48	0.26
160	1.53	0.29
200	1.58	0.33
250	1.63	0.36

DC	RPMX	APMX/I
32	14.1°	6.4/27
40	11.8°	6.4/32
50	9.8°	6.4/39
63	7.7°	6.4/49
80	5.2°	6.4/72
100	4.1°	6.4/91
125	3.2°	5.45/100
160	1.0°	1.6/100
200	0.4°	0.55/100
250	0.3°	0.4/100

DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
32	60.0	89.8	1.7	1.7
40	75.0	107.0	1.7	1.7
50	94.0	127.0	1.7	1.7
63	120.0	152.8	1.7	1.7
80	155.0	186.8	1.7	1.7
100	193.0	225.8	1.7	1.7
125	245.0	275.6	1.7	1.7
160	322.0	345.6	1.7	1.7
200	405.0	425.6	1.7	1.7
250	505.0	525.6	1.7	1.7

a_p
1.5

SSE09

P M K S

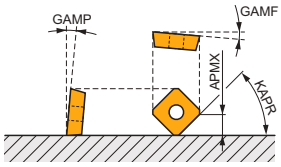
PRAMET

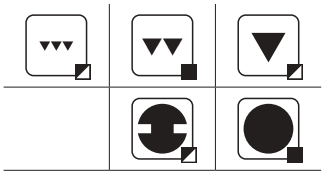
S

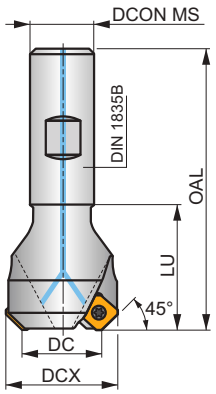
45° Yüzey Frezeleme Takımı, Pozitif Tasarım, İçten Su Vermeli

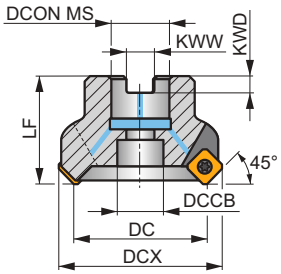
4,5 mm APMX'li tek taraflı SE..09 tarzı kesici uçlar kullanan son derece verimli 45° yüzey frezesi. Yüzey frezeleme ve pah kırma için uygundur. Veldon ve göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

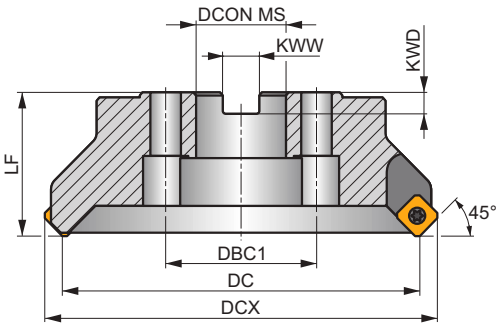
KAPR	45°
APMX	4.5 mm











h_m	0.06 - 0.18
h_m	0.06 - 0.2

	Product	DC (mm)	DCX (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	LU (mm)	LF (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)	max.	kg				
DIN 1835B	**20N2R032B20-SSE09-C**	20	29.8	82	20	–	–	32	–	–	–	-5	20	2	–	24600	✓	0.26	GI147 FA010 –
DIN 1835B	**25N3R042B25-SSE09-C**	25	34.8	98	25	–	–	42	–	–	–	-5	20	3	–	22000	✓	0.44	GI147 FA010 –
DIN 1835B	**32N4R042B32-SSE09-C**	32	42	102	32	–	–	42	–	–	–	-5	20	4	–	19400	✓	0.68	GI147 FA010 –
	32A04R-S45SE09F-C	32	42	–	16	14	–	–	40	8.4	6.4	-5	20	4	✓	19400	✓	0.24	GI147 FA012 –
	40A04R-S45SE09F-C	40	53.2	–	16	14	–	–	40	8.4	6.4	-5	20	4	✓	17400	✓	0.30	GI147 FA012 –
	50A05R-S45SE09F-C	50	59.6	–	22	18	–	–	40	10.4	6.4	-5	20	5	✓	15600	✓	0.55	GI147 FA013 –
	63A05R-S45SE09F-C	63	75.8	–	22	18	–	–	40	10.4	6.4	-5	20	5	✓	13900	✓	0.66	GI147 FA013 –
	63A06R-S45SE09F-C	63	75.8	–	22	18	–	–	40	10.4	6.4	-5	20	6	✓	13900	✓	0.58	GI147 FA013 –
ISO 6462 DIN 8030	**80A06R-S45SE09F-C**	80	89.6	–	27	38	–	–	50	12.4	7	-5	20	6	✓	12300	✓	1.14	GI147 FA011 AC001
ISO 6462 DIN 8030	**80A08R-S45SE09F-C**	80	89.6	–	27	38	–	–	50	12.4	7	-5	20	8	✓	12300	✓	1.13	GI147 FA011 AC001
	100A08R-S45SE09F-C	100	110	–	32	45	–	–	50	14.4	8	-5	20	8	✓	11000	✓	1.83	GI147 FA011 AC002
	100A10R-S45SE09F-C	100	110	–	32	45	–	–	50	14.4	8	-5	20	10	✓	10900	✓	1.82	GI147 FA011 AC002
	125A09R-S45SE09F-C	125	134.5	–	40	60	–	–	63	16.4	9	-5	20	9	✓	9800	✓	3.87	GI147 FA011 AC003
	125A12R-S45SE09F-C	125	134.5	–	40	60	–	–	63	16.4	9	-5	20	12	✓	9800	✓	3.87	GI147 FA011 AC003
	160C10R-S45SE09F	160	169.6	–	40	–	66.7	–	63	16.4	9	-5	20	10	✓	8700	–	6.21	GI147 FA014 –

GI147	SEET 09T3AF..	SEMT 09T3AF..

		Nm						
FA010	US 3007-T09P	2.0	M 3	7.3	–	–	Flag T09P	–
FA011	US 3007-T09P	2.0	M 3	7.3	D-T07P/T09P	FG-15	–	–
FA012	US 3007-T09P	2.0	M 3	7.3	D-T07P/T09P	FG-15	–	HS 0830C
FA013	US 3007-T09P	2.0	M 3	7.3	D-T07P/T09P	FG-15	–	HS 1030C

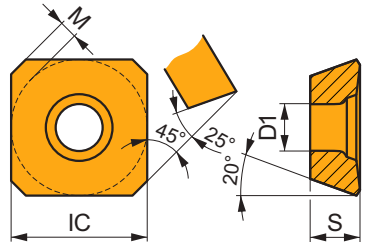
FA014	US 3007-T09P	2.0	M 3	7.3	D-T07P/T09P	FG-15	–	HS 1240C

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

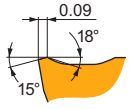
SEMT 09

PRAMET

	IC (mm)	D1 (mm)	M (mm)	S (mm)
09T3	9.525	3.50	1.2	3.97

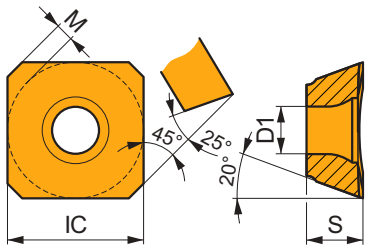


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

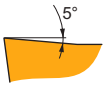
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																			
AFSN hafif ve orta işleme için pozitif tasarım.																			
SEMT 09T3AFSN:8215	–	295	0.18	1.8	175	0.16	1.8	280	0.18	1.8	–	–	–	–	–	–	–	–	–
SEMT 09T3AFSN:M8330	–	290	0.18	1.8	170	0.16	1.8	275	0.18	1.8	–	–	–	–	–	–	–	–	–
SEMT 09T3AFSN:M8340	–	265	0.18	1.8	155	0.16	1.8	250	0.18	1.8	–	–	–	–	–	–	–	–	–
SEMT 09T3AFSN:M9325	–	365	0.18	1.8	–	–	–	345	0.18	1.8	–	–	–	–	–	–	–	–	–

SEET 09

	IC	D1	M	S
	(mm)	(mm)	(mm)	(mm)
09T3	9.525	3.50	1.2	3.97

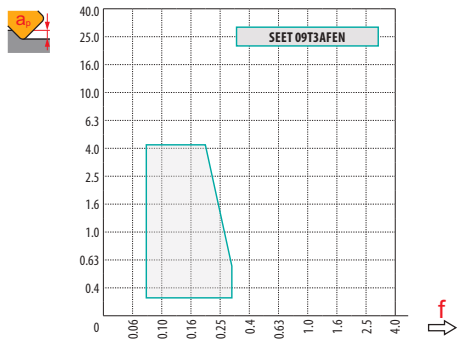


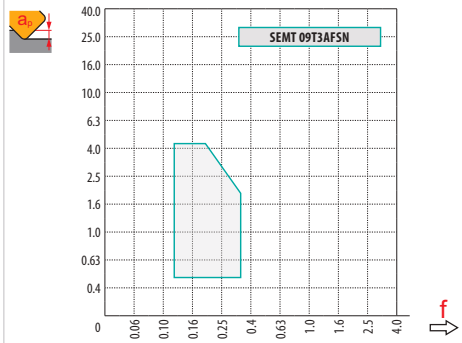
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
AFEN hafif ve orta işleme için pozitif tasarım.																				
SEET 09T3AFEN:M6330	●	–	■	255	0.14	2.5	◪	180	0.13	2.5	–	–	–	–	–	–	◪	75	0.10	2.0	–	–	–
SEET 09T3AFEN:M8330	●	–	■	295	0.14	2.5	◪	175	0.13	2.5	–	–	–	–	–	–	◪	70	0.10	2.0	–	–	–
SEET 09T3AFEN:M8340	●	–	■	270	0.14	2.5	◪	160	0.13	2.5	–	–	–	–	–	–	◪	65	0.10	2.0	–	–	–
SEET 09T3AFEN:M9340	●	–	■	345	0.14	2.5	◪	205	0.13	2.5	–	–	–	–	–	–	◪	85	0.10	2.0	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	SEET 09	SEMT 09
RE	–	–
BS	1.28	1.25





DC	X.V	f_{max}
20	1.20	0.18
25	1.24	0.20
32	1.29	0.23
40	1.33	0.25
50	1.37	0.28
63	1.41	0.32
80	1.46	0.36
100	1.50	0.40
125	1.55	0.45
160	1.60	0.51

SSN12Z

P M K S

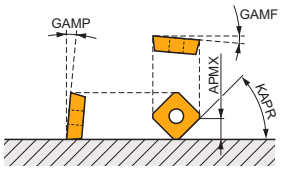
PRAMET

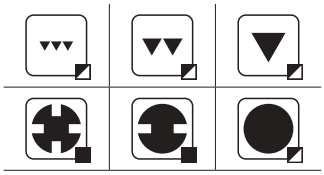
S

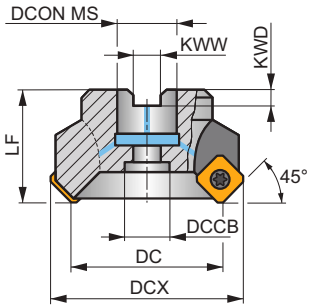
45° Yüzey Frezeleme Takımı, Pozitif Tasarım, İçten Su Vermeli

Tek taraflı SN.. 6,5 mm APMX'li 12 stil kesici uç kullanan son derece verimli 45° yüzey frezesi. Yüzey frezeleme ve pah kırma için uygundur. Göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	45°
APMX	6.5 mm







h_m 0.12 - 0.35

	Product	DC (mm)	DCX (mm)	LF (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
ISO 6462 DIN 8030	**63A05R-S45SN12Z-C**	63	78	40	22	18	–	10.4	6.3	-5.5	7.5	5	–	8600	✓	0.62	GI156	FA071	–
	80A06R-S45SN12Z-C	80	95	50	27	38	–	12.4	7	-5.5	7.5	6	–	7700	✓	1.36	GI156	FA071	AC001
	100A07R-S45SN12Z-C	100	115	50	32	45	–	14.4	8	-5.5	7.5	7	–	6900	✓	1.70	GI156	FA071	AC002
	125A08R-S45SN12Z-C	125	140	63	40	56	–	16.4	9	-5.5	7.5	8	–	6100	✓	3.42	GI156	FA071	AC003

GI156	SNKT 1205AZ..	SNMT 1205AZ..

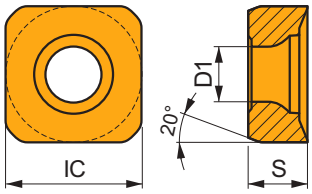
FA071	US 4511-T20	5.0 Nm	M 4.5	11	SDR T20-T

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

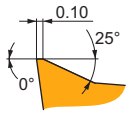
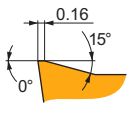
SNMT 12

PRAMET

	IC (mm)	D1 (mm)	S (mm)
1205	12.700	5.20	5.56



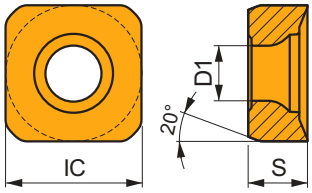
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 		**M** geometri, orta işleme için çok pozitif tasarım.																	
SNMT 1205AZSR-M:8215	–	300	0.25	3.2	180	0.23	3.2	285	0.25	3.2	–	–	–	75	0.18	2.6	–	–	–
SNMT 1205AZSR-M:M8330	–	300	0.25	3.2	180	0.23	3.2	285	0.25	3.2	–	–	–	75	0.18	2.6	–	–	–
SNMT 1205AZSR-M:M8340	–	275	0.25	3.2	165	0.23	3.2	260	0.25	3.2	–	–	–	65	0.18	2.6	–	–	–
SNMT 1205AZSR-M:M9325	–	365	0.25	3.2	–	–	–	345	0.25	3.2	–	–	–	–	–	–	–	–	–
 		**R** geometri, orta ve ağır işleme için pozitif tasarım.																	
SNMT 1205AZSR-R:8215	–	290	0.27	3.5	170	0.24	3.5	275	0.27	3.5	–	–	–	70	0.22	2.8	–	–	–
SNMT 1205AZSR-R:M5315	–	365	0.27	3.5	–	–	–	345	0.27	3.5	–	–	–	–	–	–	–	–	–
SNMT 1205AZSR-R:M8330	–	290	0.27	3.5	170	0.24	3.5	275	0.27	3.5	–	–	–	70	0.22	2.8	–	–	–
SNMT 1205AZSR-R:M8340	–	270	0.27	3.5	160	0.24	3.5	255	0.27	3.5	–	–	–	65	0.22	2.8	–	–	–
SNMT 1205AZSR-R:M9325	–	355	0.27	3.5	–	–	–	335	0.27	3.5	–	–	–	–	–	–	–	–	–

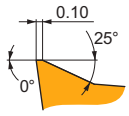
SNKT 12

PRAMET

	IC (mm)	D1 (mm)	S (mm)
1205	12.700	5.20	5.56

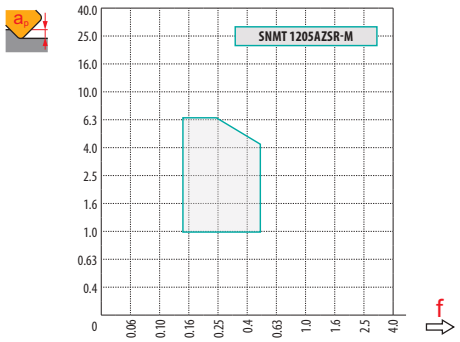


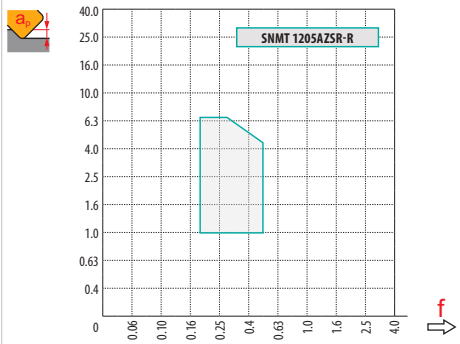
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

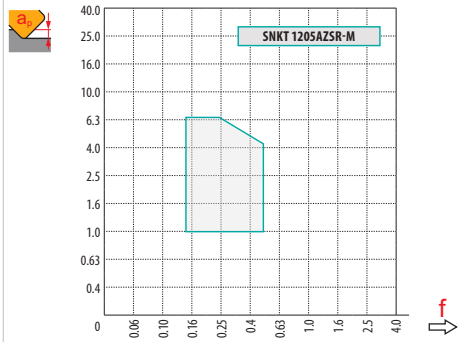
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 		**M** geometri, orta işleme için çok pozitif tasarım.																	
SNKT 1205AZSR-M:M8330	–	305	0.24	3.2	180	0.22	3.2	285	0.24	3.2	–	–	–	75	0.17	2.6	–	–	–
SNKT 1205AZSR-M:M8340	–	275	0.24	3.2	165	0.22	3.2	260	0.24	3.2	–	–	–	65	0.17	2.6	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	SNMT 12-M	SNMT 12-R	SNKT 12-M
RE	–	–	–
BS	0.95	1.03	1.59







DC	X.V	f_{max}
63	1.34	0.53
80	1.39	0.60
100	1.43	0.67
125	1.47	0.74

FSB22X

P M K

PRAMET

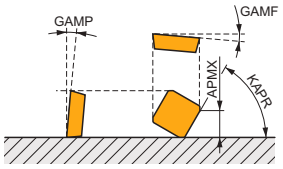
F

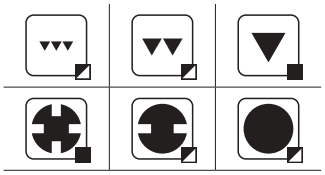
ROUGH SB 60° Ağır İş Yüzey Frezeleme Takımı, Pozitif Tasarım

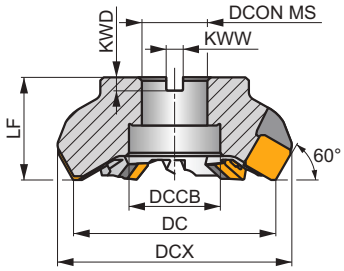
15 mm APMX'li tek taraflı SB..22 tipi kesici uçlar kullanan son derece verimli 60° yüzey frezesi. Pürüzsüz kesme hareketi ile ağır yüzey frezeleme için optimize edilmiştir.Ağır frezeleme için özel tasarım. Gövde uzun takım ömrü için işlem görmüştür.

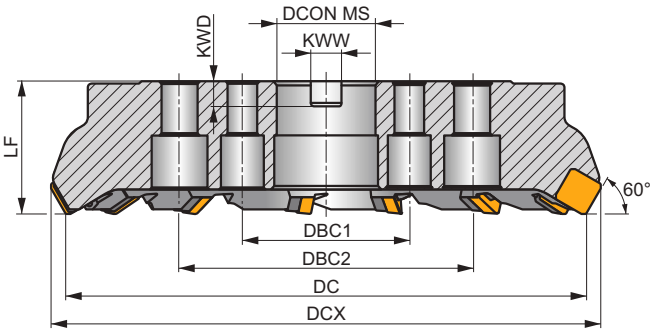
ROUGH SB

KAPR	60°
APMX	15.0 mm









h_m 0.15 - 0.5

	Product	DC (mm)	DCX (mm)	LF (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	DBC2 (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
ISO 6462 DIN 8030	**125B07R-F60SB22X**	125	144.4	63	40	56	–	–	16.4	9	-9	9	7	✓	–	–	3.73	GI144	FA111	AC003
	160C08R-F60SB22X	160	178.7	63	40	–	66.7	–	16.4	9	-9	9	8	✓	–	–	6.46	GI144	FA114	–
	200C08R-F60SB22X	200	217.9	63	60	–	101.6	–	25.7	14	-9	9	8	✓	–	–	10.59	GI144	FA115	–
	250C09R-F60SB22X	250	267.4	63	60	–	101.6	–	25.7	14	-9	9	9	✓	–	–	17.54	GI144	FA115	–

GI144	SBKX 2207DZ..	SBMR 2207DZ..

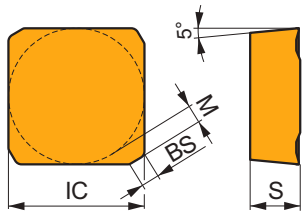
FA111	LNX 220616	US 6013-T20P	SDR T20P-T	KU SBMR 2207	DS 01Z	KL 04	–
FA114	LNX 220616	US 6013-T20P	SDR T20P-T	KU SBMR 2207	DS 01Z	KL 04	HS 1240
FA115	LNX 220616	US 6013-T20P	SDR T20P-T	KU SBMR 2207	DS 01Z	KL 04	HS 1655

AC003	KS 2040	K.FMH40

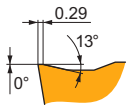
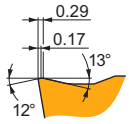
SBMR 22

PRAMET

	IC (mm)	M (mm)	S (mm)	BS (mm)
2207	22.000	2.8	8.00	1.99



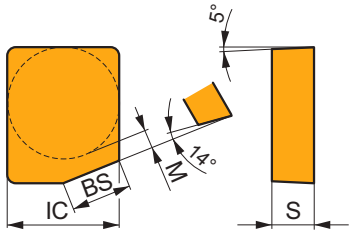
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
			**DZSR** stabil tasarım, ağır işleme için.																	
SBMR 2207DZSR:M8326		–	140	0.38	8.5	–	–	–	130	0.38	8.5	–	–	–	–	–	–	–	–	–
SBMR 2207DZSR:M8346		–	120	0.38	8.5	70	0.38	8.5	–	–	–	–	–	–	–	–	–	–	–	–
			**R** geometri, ağır işleme için stabil tasarım.																	
SBMR 2207DZSR-R:M5326		–	160	0.44	9.8	–	–	–	150	0.44	9.8	–	–	–	–	–	–	–	–	–
SBMR 2207DZSR-R:M8326		–	135	0.44	9.8	–	–	–	125	0.44	9.8	–	–	–	–	–	–	–	–	–
SBMR 2207DZSR-R:M8346		–	115	0.44	9.8	65	0.40	9.8	–	–	–	–	–	–	–	–	–	–	–	–

SBKX 22

PRAMET

	IC (mm)	M (mm)	S (mm)	BS (mm)
2207	22.000	3.2	8.00	11.84

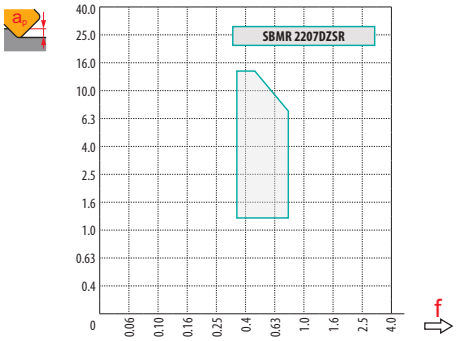


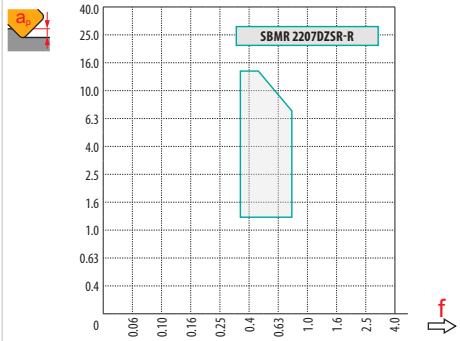
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

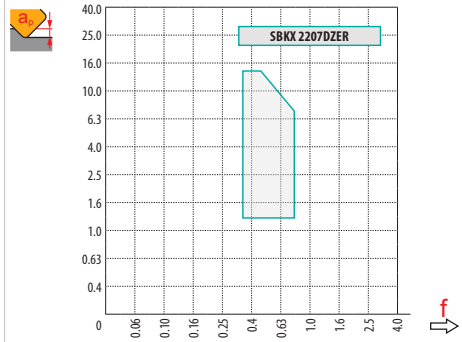
Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
			**DZER** sıfır talaş açılı ve silicili tasarım, daha iyi yüzey finişi için.																	
SBKX 2207DZER:M8326		–	100	0.60	8.5	–	–	–	95	0.60	8.5	–	–	–	–	–	–	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	SBMR 22	SBMR 22-R	SBKX 22
RE	–	–	–
BS	1.99	1.99	11.84







YÜZEY FREZELEME

	SOD05	SOD06D	SOE06Z			
	45°	45°	43°			
	APMX (mm) 2.7 (10.0)	APMX (mm) 3.1 (8.6)	APMX (mm) 3.3 (9.9)			
	DCX (mm) 32 – 125	DC (mm) 63 – 160	DC (mm) 50 – 200			
Silindirik şaft	 DC = 32, 40 (mm)					
Weldon						
Modüler						
Frezeleme kafası	 DC = 40 – 125 (mm)					
Sayfa	42	51	55			
ISO	P M K N	P M K S H	P M N S			
Kesici uç şekli						
Kesici uçlar	OD.. 0505 RD.. 1205 SD.. 1205	OD.. 0605 RPE. 1505	OEHT 0604 REHT 1604 XEHT 0604			
Kesme kenarlarının sayısı	8 / 8 / 4	8 / 8	8 / 8 / 1			
Yüzey frezeleme 	■	■	■			
Havşa frezeleme 	■	■	■			
Helisel interpolasyon 	■		◪			
Aşamalı dalma 	■		◪			
Açılı frezeleme 	■		◪			
Şekil yüzeyleri frezeleme (kopya frezeleme) 	■		◪			
Sığ kenar frezeleme 	■					
Sığ oluk frezeleme 	■					
Dalma frezeleme 	■					

■ İlk seçim. ◪ Olası seçim.

SOD05

P M K N

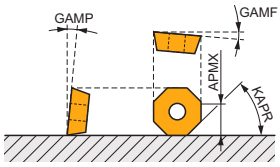
PRAMET

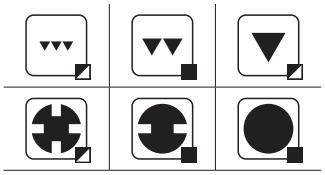
S

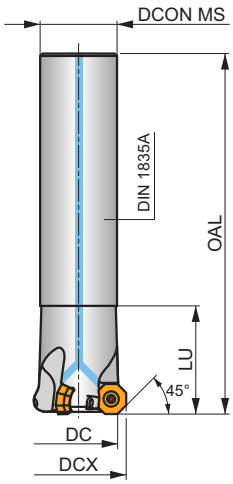
Üniversal Freze Takımı, Pozitif Tasarım, İçten Su Vermeli

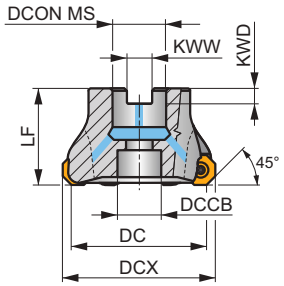
Highly productive universal face mill utilising single-sided positive inserts with APMX up to 2.7 (10) mm. Unique insert seat fits OD.. 05, RD.. 12 and SD.. 12 style inserts, suited for wide range of applications. Differential tooth pitch. Arbor and cylindrical style. Body treated for longer tool life.

KAPR	45°
APMX	2.7 (10.0) mm









h_m	0.03 - 0.15
h_m	0.03 - 0.12

	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	KAPR (°)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
DIN 1835A	**32N3R045A25-SOD05-C**	32	24.7	130	25	–	45	–	45	–	–	-10	8	3	–	17700	✓	0.41	GI326	FA049	–
	40N3R045A32-SOD05-C	40	32.6	150	32	–	45	–	45	–	–	-7	8	3	–	15800	✓	0.86	GI326	FA040	–
	40A03R-S450D05-C	40	32.7	–	16	14	–	40	45	8.4	5.6	-10	8	3	–	15800	✓	0.18	GI326	FA042	–
	50A04R-S450D05-C	50	42.6	–	22	18	–	40	45	10.4	6.3	-7	8	4	–	14100	✓	0.28	GI326	FA043	–
	50A05R-S450D05-C	50	42.6	–	22	18	–	40	45	10.4	6.3	-7	8	5	–	14100	✓	0.28	GI326	FA043	–
	63A05R-S450D05-C	63	55.6	–	22	18	–	40	45	10.4	6.3	-7	8	5	✓	12600	✓	0.39	GI326	FA043	–
ISO 6462 DIN 8030	**63A06R-S450D05-C**	63	55.6	–	22	18	–	40	45	10.4	6.3	-7	8	6	✓	12600	✓	0.50	GI326	FA043	–
	80A06R-S450D05-C	80	72.6	–	27	38	–	50	45	12.4	7	-7	8	6	✓	11100	✓	0.73	GI326	FA041	AC001
	80A08R-S450D05-C	80	72.6	–	27	38	–	50	45	12.4	7	-7	8	8	✓	11100	✓	0.66	GI326	FA041	AC001
	100A07R-S450D05-C	100	92.6	–	32	45	–	50	45	14.4	8	-7	8	7	✓	10000	✓	1.09	GI326	FA041	AC002
	125A08R-S450D05-C	125	117.6	–	40	56	–	63	45	16.4	9	-7	8	8	✓	8900	✓	2.20	GI326	FA041	AC003

GI326	OD.. 0505..	RD.. 1205..	SDKT 1205..	SDMT 1205..SN

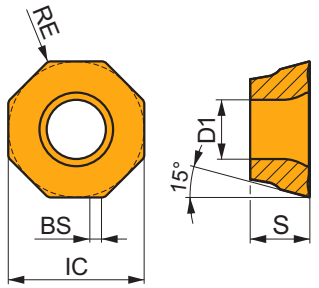
		Nm					
FA040	US 45014-T20P	5.0	M 5	13	Flag T20P	–	–
FA041	US 45014-T20P	5.0	M 5	13	–	SDR T20P-T	–
FA042	US 45014-T20P	5.0	M 5	13	–	SDR T20P-T	HS 90835
FA043	US 45014-T20P	5.0	M 5	13	–	SDR T20P-T	HS 1030C
FA049	US 45011-T20P	5.0	M 5	11	Flag T20P	–	–

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

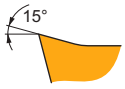
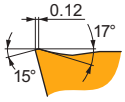
ODKT 05IM

PRAMET

	IC (mm)	D1 (mm)	S (mm)	BS (mm)
0505	12.700	5.50	5.56	1.00



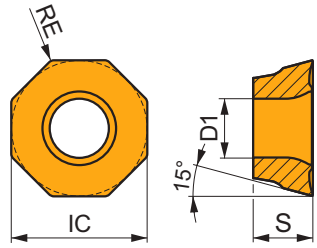
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
F geometri, 45° yüzey frezeleme ucu, hafif işleme için çok pozitif geometri.																				
ODKT 0505ADFR-F:M8310	●	0.8	■ 275	0.15	2.5	◪ 140	0.14	2.5	–	–	–	–	–	–	–	–	–	–	–	–
																				
FM geometri, 45° yüzey frezeleme ucu, hafif ve orta işleme için pozitif geometri.																				
ODKT 0505ADSR-FM:M6330	⧓	0.8	■ 190	0.25	2.5	■ 135	0.23	2.5	–	–	–	–	–	–	–	–	–	–	–	–
ODKT 0505ADSR-FM:M8310	⧓	0.8	■ 240	0.25	2.5	◪ 120	0.23	2.5	◪ 225	0.25	2.5	–	–	–	–	–	–	–	–	–
ODKT 0505ADSR-FM:M8330	⧓	0.8	■ 225	0.25	2.5	■ 135	0.23	2.5	◪ 210	0.25	2.5	–	–	–	–	–	–	–	–	–
ODKT 0505ADSR-FM:M8345	⧓	0.8	■ 160	0.25	2.5	■ 95	0.23	2.5	–	–	–	–	–	–	–	–	–	–	–	–
ODKT 0505ADSR-FM:M9340	⧓	0.8	■ 245	0.25	2.5	■ 145	0.23	2.5	–	–	–	–	–	–	–	–	–	–	–	–

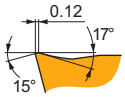
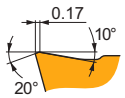
ODMT 05IM

PRAMET

	IC (mm)	D1 (mm)	S (mm)
0505	12.700	5.50	5.56



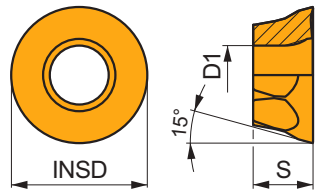
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
FM geometri, 45° yüzey frezeleme ucu, hafif ve orta işleme için pozitif geometri.																			
ODMT 0505ADSR-FM:M8340	0.8	200	0.25	2.5	120	0.23	2.5	190	0.25	2.5	–	–	–	–	–	–	–	–	–
ODMT 0505ADSR-FM:M9340	0.8	245	0.25	2.5	145	0.23	2.5	–	–	–	–	–	–	–	–	–	–	–	–
 																			
R geometri, 45° yüzey frezeleme ucu, stabil olmayan şartlar için pozitif tasarım.																			
ODMT 050508SN-R:M8330	0.8	190	0.25	2.5	–	–	–	180	0.25	2.5	–	–	–	–	–	–	–	–	–
ODMT 050508SN-R:M9340	0.8	210	0.25	2.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

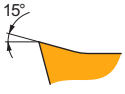
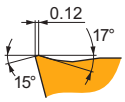
RDGT 12IM

PRAMET

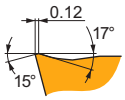
	INSD (mm)	D1 (mm)	S (mm)
1205	12.700	5.50	5.56



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
F geometri, hafif işleme için çok pozitif tasarım.																			
RDGT 120500FN-F:M8310	–	210	0.20	1.5	105	0.18	1.5	–	–	–	–	–	–	–	–	–	–	–	–
 																			
FM geometri, hafif ve orta işleme için pozitif tasarım.																			
RDGT 120500SN-FM:M8330	–	190	0.20	1.5	110	0.18	1.5	180	0.20	1.5	–	–	–	–	–	–	–	–	–

Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

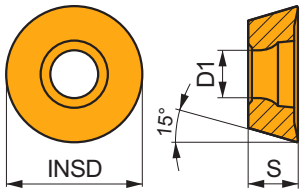
Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
RDGT 120500SN-FM:M8345	●	–	■	140	0.20	1.5	◪	80	0.18	1.5	–	–	–	–	–	–	–	–	–	–

FM geometri, hafif ve orta işleme için pozitif tasarım.

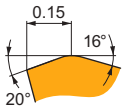
RDMT 12IM

PRAMET

	INSD (mm)	D1 (mm)	S (mm)
1205	12.700	5.50	5.56



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

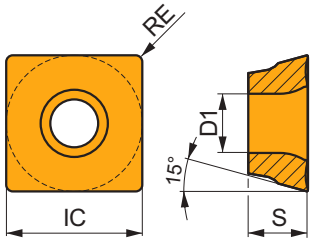
Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
RDMT 120500SN-R:M8330	⬌	–	■	175	0.30	1.5	–	–	–	–	■	165	0.30	1.5	–	–	–	–	–	–	–
RDMT 120500SN-R:M8340	⬌	–	■	160	0.30	1.5	–	–	–	–	◪	150	0.30	1.5	–	–	–	–	–	–	–

R geometri, kopya ve profil frezeleme ucu, stabil olmayan şartlar için pozitif tasarım.

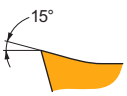
SDKT 12IM

PRAMET

	IC (mm)	D1 (mm)	S (mm)
1205	12.700	5.50	5.56

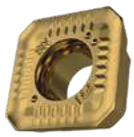
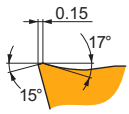


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
SDKT 1205PDFR-F:8215	●	0.8	■	285	0.10	4.0	◪	170	0.09	4.0	–	–	–	◪	855	0.12	4.0	–	–	–	–

F geometri, 90° kenar frezeleme ucu, hafif işleme için çok pozitif geometri.

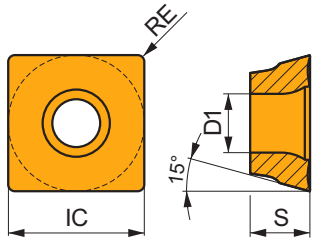
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)
																				
FM geometri, 90° kenar frezeleme ucu, hafif ve orta işleme için pozitif geometri.																				
SDKT 1205AESN-FM:M8330		–	280	0.15	4.0	165	0.15	4.0	265	0.15	4.0	–	–	–	–	–	–	–	–	–
SDKT 1205AESN-FM:M8345		–	205	0.15	4.0	120	0.15	4.0	–	–	–	–	–	–	–	–	–	–	–	–
SDKT 1205PDSR-FM:M8330		0.8	255	0.15	4.0	150	0.15	4.0	240	0.15	4.0	–	–	–	–	–	–	–	–	–
SDKT 1205PDSR-FM:M8345		0.8	185	0.15	4.0	110	0.15	4.0	–	–	–	–	–	–	–	–	–	–	–	–

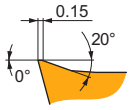
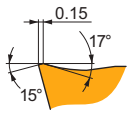
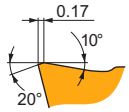
SDMT 12IM

PRAMET

	IC (mm)	D1 (mm)	S (mm)
1205	12.700	5.50	5.56



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

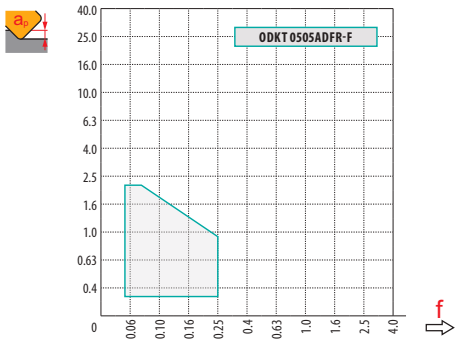
Product		RE	P			M			K			N			S			H		
			vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)
																				
F geometri, 90° kenar frezeleme ucu, hafif ve orta işleme için pozitif geometri.																				
SDMT 120508SN-F:M8310		0.8	265	0.15	4.0	135	0.15	4.0	–	–	–	–	–	–	–	–	–	–	–	–
SDMT 120508SN-F:M8330		0.8	245	0.15	4.0	145	0.15	4.0	–	–	–	735	0.18	4.0	–	–	–	–	–	–
																				
FM geometri, 90° kenar frezeleme ucu, orta işleme için pozitif geometri.																				
SDMT 120508SN-FM:M8345		0.8	175	0.15	4.0	105	0.15	4.0	–	–	–	–	–	–	–	–	–	–	–	–
																				
R geometri, 90° kenar frezeleme ucu, stabil olmayan şartlar için pozitif tasarım.																				
SDMT 120508SN-R:M8330		0.8	225	0.20	4.0	–	–	–	210	0.20	4.0	–	–	–	–	–	–	–	–	–
SDMT 120508SN-R:M8345		0.8	165	0.20	4.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SDMT 1205AESN-R:M8330		–	265	0.20	4.0	–	–	–	250	0.20	4.0	–	–	–	–	–	–	–	–	–
SDMT 1205AESN-R:M8340		–	240	0.20	4.0	–	–	–	225	0.20	4.0	–	–	–	–	–	–	–	–	–

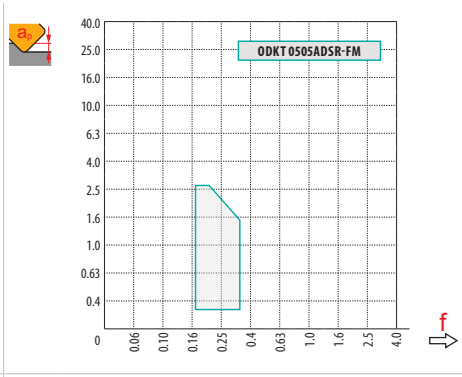
a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
⇨ X.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
⇨ X.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

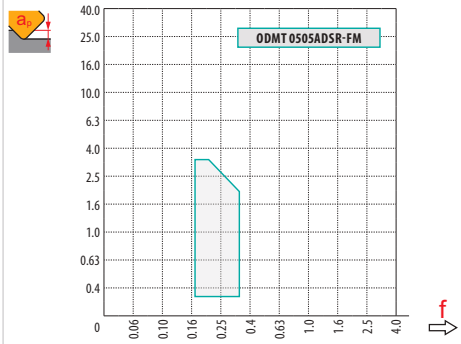
	ODKT 05-F	ODKT 05-FM	ODMT 05-FM	ODMT 05-R
RE	0.4	0.8	0.8	0.8
BS	1.00	1.00	–	–

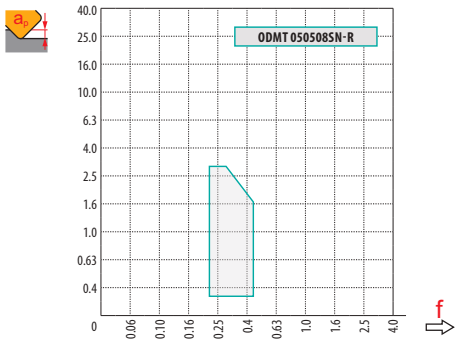
	RDGT 12-F	RDGT 12-FM	RDGT 12-R
RE	6.35	6.35	6.35
BS	–	–	–

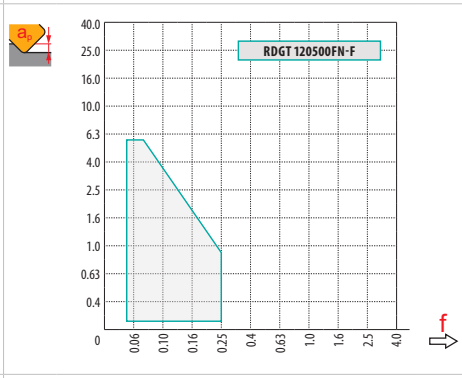
	SDKT 12-F	SDKT 12-FM	SDMT 12-F	SDMT 12-R
RE	0.8	0.8	0.8	0.8
BS	2.30	2.30	–	–

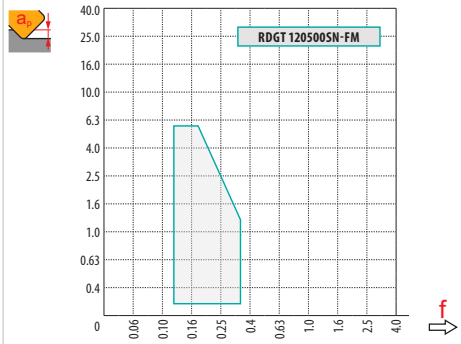


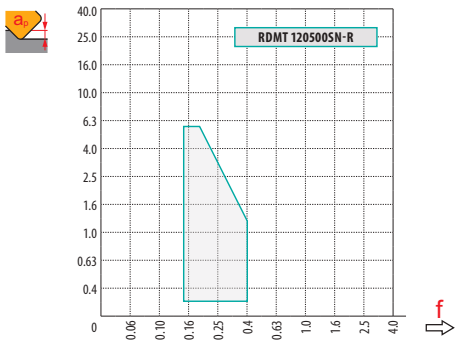


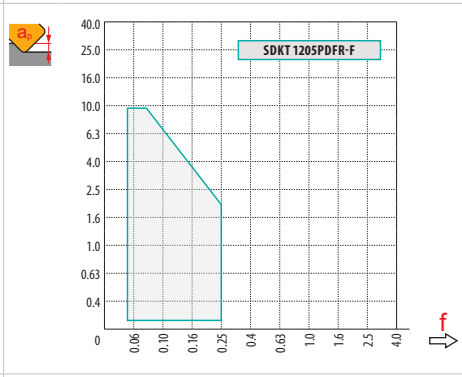


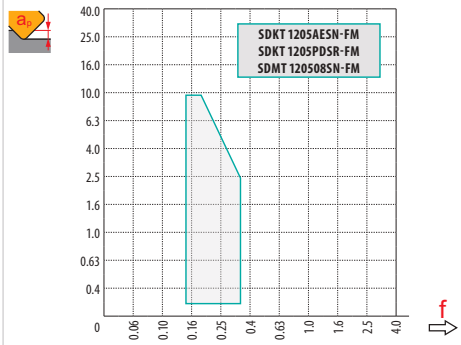


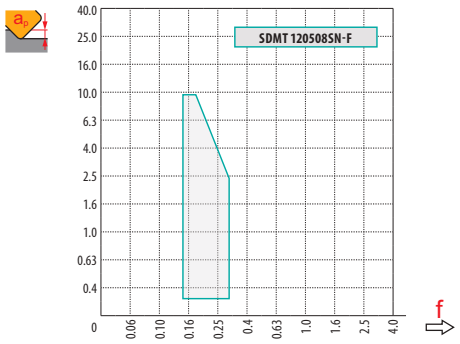


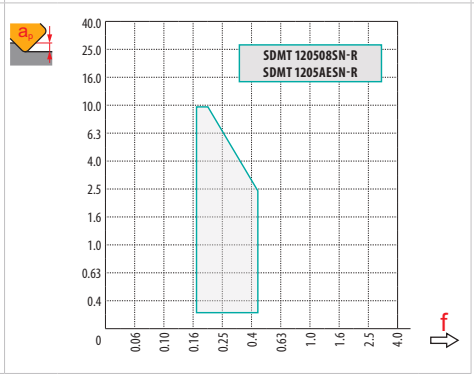












DCX	a_p	0.25	0.50	0.60	0.70	0.80	1.00	1.25	1.50	2.00	3.00	4.00	5.00	6.00
32		23.43	24.80	25.23	25.62	25.99	26.63	27.33	27.94	28.94	30.39	31.31	31.83	32.00
40		31.43	32.80	33.23	33.62	33.99	34.63	35.33	35.94	36.94	38.39	39.31	39.83	40.00
50	DEF	41.43	42.80	43.23	43.62	43.99	44.63	45.33	45.94	46.94	48.39	49.31	49.83	50.00
63		54.43	55.80	56.23	56.62	56.99	57.63	58.33	58.94	59.94	61.39	62.31	62.83	63.00
80		71.43	72.80	73.23	73.62	73.99	74.63	75.33	75.94	76.94	78.39	79.31	79.83	80.00
100		91.43	92.80	93.23	93.62	93.99	94.63	95.33	95.94	96.94	98.39	99.31	99.83	100.00
125		116.43	117.80	118.23	118.62	118.99	119.63	120.33	120.94	121.94	123.39	124.31	124.83	125.00

DCX	X.V	f_{max}
32	1.36	0.28
40	1.40	0.31
50	1.43	0.33
63	1.47	0.37
80	1.52	0.42
100	1.57	0.47
125	1.62	0.52

S

a_{emax}
10.0

S

a_p	1.0	5.0	10.0
f	0.35	0.21	0.15

O

DCX	RPMX	APMX/I
50	4.1°	7.05/100
63	2.7°	4.6/100
80	1.8°	3/100
100	1.7°	2.85/100
125	0.7°	1.1/100

R

DCX	RPMX	APMX/I
50	3.8°	6.2/95
63	2.5°	4.25/100
80	1.7°	2.85/100
100	1.6°	2.65/100
125	0.3°	0.4/100

O

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
50	78.0	100.0	4.5	4.5
63	105.0	126.0	4.5	4.5
80	138.0	160.0	4.5	4.5
100	178.0	200.0	4.5	4.5
125	229.0	250.0	4.0	4.5

R

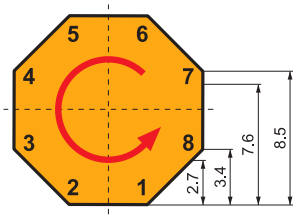
DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
50	78.0	100.0	4.5	4.5
63	105.0	126.0	4.5	4.5
80	138.0	160.0	4.5	4.5
100	178.0	200.0	4.5	4.5
125	230.0	250.0	4.0	4.5

	O	R
a_p	2.4	2.3

		R									
DCX	µm	3	5	10	15	20	30	40	50	60	80	100
32	FE	0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657
100		1.095	1.414	2.000	2.449	2.828	3.464	4.000	4.472	4.899	5.657	6.325
125		1.225	1.581	2.236	2.739	3.162	3.873	4.472	5.000	5.477	6.325	7.071

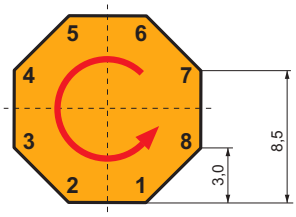
RE	µm	3	5	10	15	20	30	40	50	60	80	100
6.0	FE	0.379	0.490	0.693	0.849	0.980	1.200	1.386	1.549	1.697	1.960	2.191

ODKT 05



a_p	
–> 2.7	8
–> 3.4	7
–> 7.6	4
–> 8.5	2

ODMT 05



a_p	
–> 3.0	8
–> 8.5	4

SOD06D

P M K S H

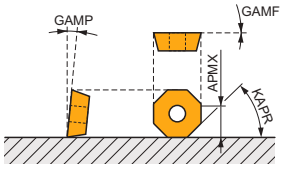
PRAMET

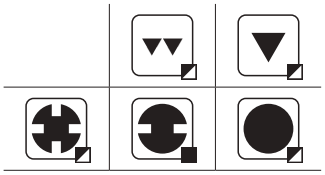
S

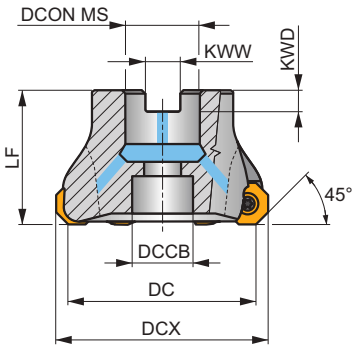
Üniversal Freze Takımı, Pozitif Tasarım, İçten Su Vermeli

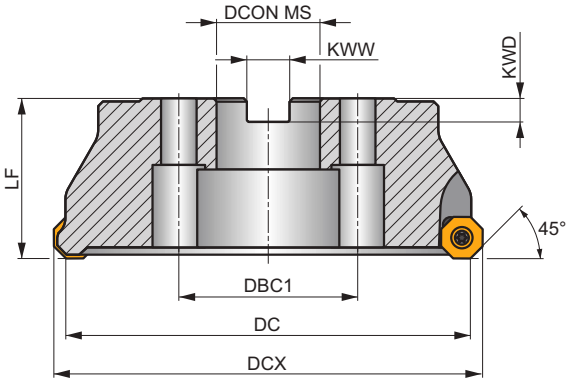
Highly productive universal face mill utilising single sided positive inserts with APMX of up to 3.1 (8.6) mm. Unique insert seat fits OD.. 06 and RP.. 15 style inserts, suited for face milling and chamfering. Arbor style only with differential tooth pitch. Body treated for longer tool life.

KAPR	45°
APMX	3.1 (8.6) mm









h_m 0.12 - 0.22

	Product	DC (mm)	DCX (mm)	LF (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg		
ISO 6462 DIN 8030	**63A05R-S450D06D**	63	72.5	40	22	18	–	10.4	6.3	0	5	5	✓	8800	✓	0.55	GI059	FA071
	80A06R-S450D06D	80	89.5	50	27	20	–	12.4	7	0	5	6	✓	7800	✓	1.19	GI059	FA071
	100A07R-S450D06D	100	109.5	50	32	27	–	14.4	8	0	5	7	✓	7000	✓	2.07	GI059	FA071
	125A08R-S450D06D	125	134.5	63	40	33	–	16.4	9	0	5	8	✓	6300	✓	4.05	GI059	FA071
	160C09R-S450D06D	160	169.5	63	40	56	66.7	16.4	9	0	5	9	✓	5500	–	6.49	GI059	FA071

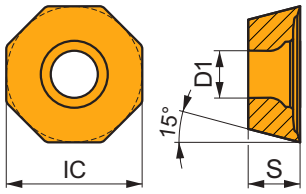
GI059	OD.. 0605ZZ..	RP.. 1505M0..

FA071	US 4511-T20	5.0 Nm	M 4.5	11	SDR T20-T

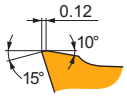
ODMT 06

PRAMET

	IC (mm)	D1 (mm)	S (mm)
0605	15.875	5.50	5.56



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

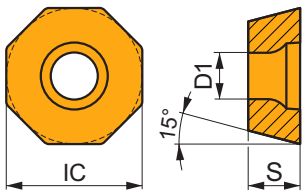
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
ODMT 0605ZZN:M5315	–	255	0.24	3.0	–	–	–	240	0.24	3.0	–	–	–	–	–	–	–	–	–
ODMT 0605ZZN:M8330	–	200	0.24	3.0	–	–	–	190	0.24	3.0	–	–	–	–	–	–	–	–	–
ODMT 0605ZZN:M8340	–	185	0.24	3.0	–	–	–	175	0.24	3.0	–	–	–	–	–	–	–	–	–
ODMT 0605ZZN:M9325	–	245	0.24	3.0	–	–	–	230	0.24	3.0	–	–	–	–	–	–	–	–	–

ZZN hafif pozitif tasarım, 45° yüzey frezeleme ucu, orta işleme için.

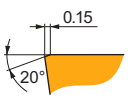
ODEW 06

PRAMET

	IC (mm)	D1 (mm)	S (mm)
0605	15.875	5.50	5.56



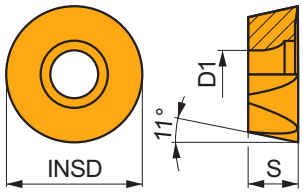
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
ODEW 0605ZZN:M8330	–	210	0.26	2.5	–	–	–	195	0.26	2.5	–	–	–	–	–	–	40	0.13	1.0

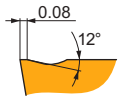
ZZN sıfır talaş açısı tasarımı, 45° yüzey frezeleme ucu, orta işleme için uygun.

RPET 15

	INSD	D1	S
	(mm)	(mm)	(mm)
1505	15.785	5.50	5.56



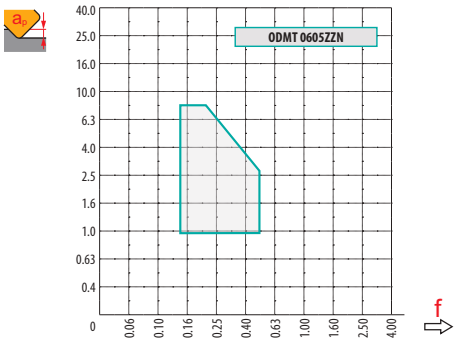
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

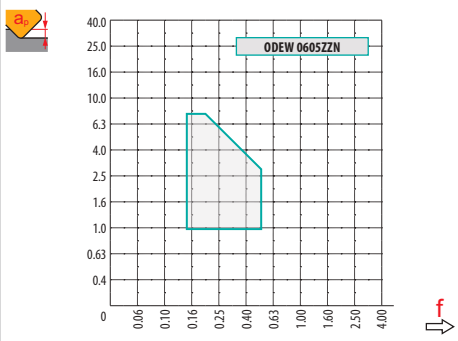
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																			
RPET 1505MOS-M:M8330	–	■ 230	0.40	1.0	◪ 135	0.36	1.0	◪ 215	0.40	1.0	–	–	–	◪ 55	0.28	0.8	–	–	–

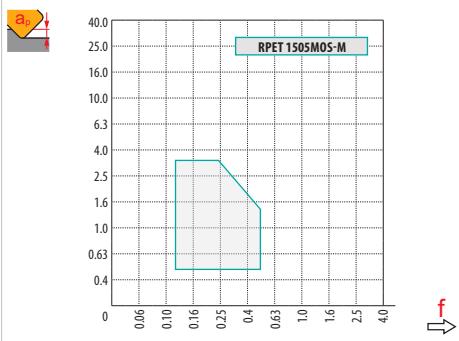
M geometri, kopya ve profil frezeleme ucu, hafiften kaba işlemeye kadar uygun pozitif tasarım.

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	ODMT 06	ODEW 06	RPET 15-M
RE	–	–	7.89
BS	1.73	5.92	–

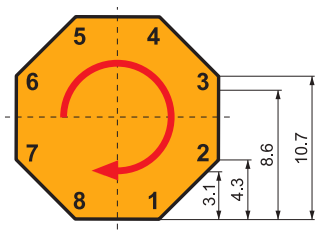






DC	a_p	0.00	0.50	0.75	1.25	1.50	2.00	2.50	3.00	4.00
63	DEF	56.63	62.17	63.36	65.18	65.91	67.16	68.19	69.05	70.41
80		73.63	79.17	80.36	82.18	82.91	84.16	85.19	86.05	87.41
100		93.63	99.17	100.36	102.18	102.91	104.16	105.19	106.05	107.41
125		118.63	124.17	125.36	127.18	127.91	129.16	130.19	131.05	132.41
160		153.63	159.17	160.36	162.18	162.91	164.16	165.19	166.05	167.41

DC	X.V	f_{max}
63	1.49	0.78
80	1.54	0.88
100	1.59	0.98
125	1.64	1.10
160	1.70	1.24



a_p	
–> 3.1	8
–> 4.3	7
–> 8.6	4
–> 10.7	2

SOE06Z

P M N S

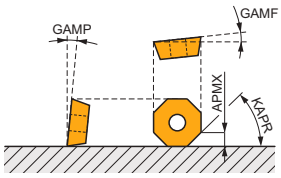
PRAMET

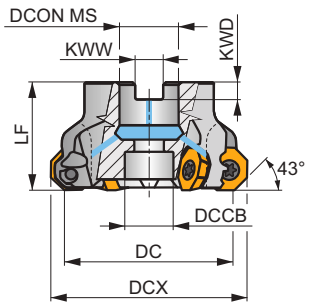
S

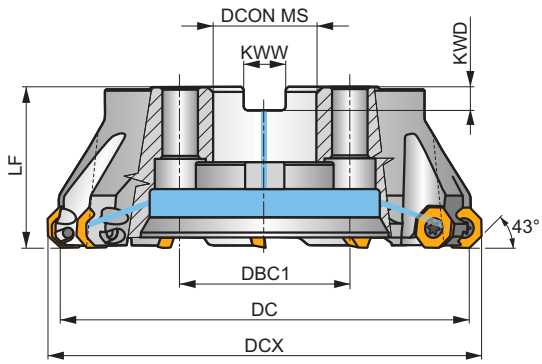
Üniversal Freze Takımı, Pozitif Tasarım, İçten Su Vermeli

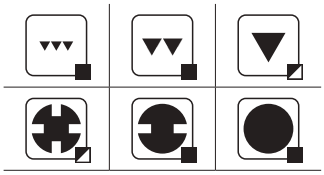
RE.. 16 için 4 mm'lik APMX'li pozitif tek taraflı kesici uçlar kullanan son derece verimli üniversal yüzey frezesi. Benzersiz kesici uç yuvası OE.. 06, RE.. 16 ve XE.. 06 tarzı kesici uçlara uygundur ve çok çeşitli uygulamalara uygundur.Göbekten bağlamalı gövde. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	43°
APMX	3.3 (9.9) mm

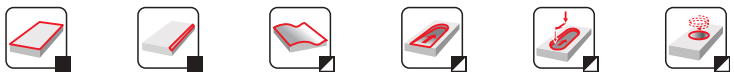








h_m 0.06 - 0.20



	Product	DC (mm)	DCX (mm)	LF (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
	50A04R-S45OE06Z-C	50	60.2	40	22	18	–	10.4	6.3	6	10	4	✓	10700	✓	0.47	GI283	FA053	–
	50A05R-S45OE06Z-C	50	60	40	22	18	–	10.4	6.3	1	10	5	✓	10700	✓	0.47	GI283	FA053	–
	56A05R-S45OE06Z-C	56	66	40	22	18	–	10.4	6.3	6	10	5	✓	10100	✓	0.52	GI283	FA053	–
	63A04R-S45OE06Z-C	63	73.2	40	22	18	–	10.4	6.3	6	10	4	✓	9600	✓	0.58	GI283	FA053	–
	63A06R-S45OE06Z-C	63	73	40	22	18	–	10.4	6.3	1	10	6	✓	9600	✓	0.60	GI283	FA053	–
	70A06R-S45OE06Z-C	70	80	40	22	18	–	10.4	6.3	6	10	6	✓	9100	✓	0.69	GI283	FA053	–
	80A05R-S45OE06Z-C	80	90.2	50	27	38	–	12.4	7	6	10	5	✓	8500	✓	1.02	GI283	FA051	AC001
	80A06R-S45OE06Z-C	80	90.2	50	27	38	–	12.4	7	6	10	6	✓	8500	✓	1.03	GI283	FA051	AC001
ISO 6462 DIN 8030	**90A07R-S45OE06Z-C**	90	100	50	32	45	–	14.4	8	6	10	7	✓	8000	✓	1.59	GI283	FA051	AC002
	100A06R-S45OE06Z-C	100	110.2	50	32	45	–	14.4	8	6	10	6	✓	7600	✓	1.85	GI283	FA051	AC002
	100A08R-S45OE06Z-C	100	109.9	50	32	45	–	14.4	8	1	10	8	✓	7600	✓	1.87	GI283	FA051	AC002
	125A07R-S45OE06Z-C	125	135.2	63	40	56	–	16.4	9	6	10	7	✓	6800	✓	3.31	GI283	FA051	AC003
	125A09R-S45OE06Z-C	125	134.9	63	40	56	–	16.4	9	1	10	9	✓	6800	✓	3.35	GI283	FA051	AC003
	160C09R-S45OE06Z-C	160	170.2	63	40	–	66.7	16.4	9	6	10	9	✓	6000	✓	6.08	GI283	FA056	–
	160C12R-S45OE06Z-C	160	169.9	63	40	–	66.7	16.4	9	1	10	12	✓	6000	✓	7.06	GI283	FA056	–
	200C11R-S45OE06Z-C	200	210.2	63	60	–	101.6	25.7	14	6	10	11	✓	5300	✓	10.80	GI283	FA057	–
	200C14R-S45OE06Z-C	200	209.9	63	60	–	101.6	25.7	14	1	10	14	✓	5300	✓	11.15	GI283	FA057	–

GI283	OEHT 0604AE..	REHT 1604M0..	XEHT 0604AE..

		Nm							
FA051	US 5011-T20P	5.0	M 5	11	SDR T20P-T	–	–	–	–
FA053	US 5011-T20P	5.0	M 5	11	SDR T20P-T	HS 1030C	–	–	–

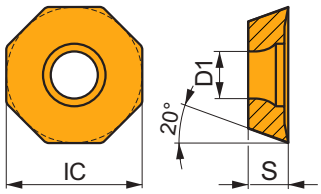
		Nm							
FA056	US 5011-T20P	5.0	M 5	11	SDR T20P-T	HS 1240C	CAC 160C	HSD 0825C	HXK 5
FA057	US 5011-T20P	5.0	M 5	11	SDR T20P-T	HS 1655C	CAC 200C	HSD 1025C	HXK 7

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

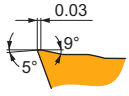
OEHT 06

PRAMET

	IC (mm)	D1 (mm)	S (mm)
0604	16.050	5.50	4.76



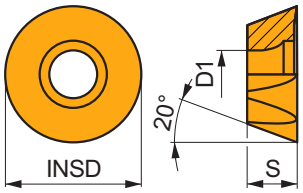
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  																			
MF geometri, 45° yüzey frezeleme ucu, hafif, orta ve finiş işleme için keskin pozitif geometri.																			
OEHT 0604AEER-MF:M6330	–	255	0.12	2.2	180	0.11	2.2	–	–	–	–	–	–	75	0.10	1.8	–	–	–
OEHT 0604AEER-MF:M8330	–	295	0.12	2.2	175	0.11	2.2	–	–	–	885	0.14	2.2	70	0.10	1.8	–	–	–
OEHT 0604AEER-MF:M8340	–	275	0.12	2.2	165	0.11	2.2	–	–	–	–	–	–	65	0.10	1.8	–	–	–
  																			
MM geometri, 45° yüzey frezeleme ucu, hafif ve orta işleme için keskin pozitif geometri.																			
OEHT 0604AEER-MM:M6330	–	245	0.16	2.2	170	0.14	2.2	–	–	–	–	–	–	70	0.11	1.8	–	–	–
OEHT 0604AEER-MM:M8330	–	280	0.16	2.2	165	0.14	2.2	–	–	–	840	0.19	2.2	70	0.11	1.8	–	–	–
OEHT 0604AEER-MM:M8340	–	255	0.16	2.2	150	0.14	2.2	–	–	–	–	–	–	60	0.11	1.8	–	–	–
OEHT 0604AEER-MM:M8345	–	205	0.16	2.2	120	0.14	2.2	–	–	–	–	–	–	50	0.11	1.8	–	–	–
OEHT 0604AEER-MM:M9340	–	320	0.16	2.2	190	0.14	2.2	–	–	–	–	–	–	80	0.11	1.8	–	–	–
  																			
M geometri, 45° yüzey frezeleme ucu, hafif, orta ve yarı ağır işleme için yarı pozitif geometri.																			
OEHT 0604AESR-M:M6330	–	210	0.24	3.2	150	0.22	3.2	–	–	–	–	–	–	60	0.17	2.6	–	–	–
OEHT 0604AESR-M:M8310	–	265	0.24	3.2	135	0.22	3.2	–	–	–	–	–	–	–	–	–	–	–	–
OEHT 0604AESR-M:M8330	–	245	0.24	3.2	145	0.22	3.2	–	–	–	–	–	–	60	0.17	2.6	–	–	–
OEHT 0604AESR-M:M8340	–	220	0.24	3.2	130	0.22	3.2	–	–	–	–	–	–	55	0.17	2.6	–	–	–
OEHT 0604AESR-M:M9325	–	295	0.24	3.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

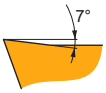
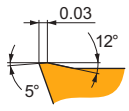
REHT 16

PRAMET

	INSD	D1	S
	(mm)	(mm)	(mm)
1604	16.000	5.50	4.76



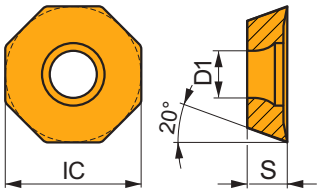
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**E**																	
MM geometri, kopya ve profil frezeleme ucu, hafif ve orta için yarı pozitif tasarım.																				
REHT 1604M0EN-MM:M6330	✱	–	255	0.20	2.0	180	0.18	2.0	–	–	–	–	–	–	75	0.14	1.6	–	–	–
REHT 1604M0EN-MM:M8340	✱	–	270	0.20	2.0	160	0.18	2.0	–	–	–	–	–	–	65	0.14	1.6	–	–	–
REHT 1604M0EN-MM:M9340	✱	–	330	0.20	2.0	195	0.18	2.0	–	–	–	–	–	–	80	0.14	1.6	–	–	–
			**S**																	
M geometri, kopya ve profil frezeleme ucu, hafif ve orta işleme için pozitif tasarım.																				
REHT 1604M0SN-M:M8310	✱	–	285	0.30	2.0	145	0.27	2.0	–	–	–	–	–	–	–	–	–	–	–	–
REHT 1604M0SN-M:M8330	✱	–	270	0.30	2.0	160	0.27	2.0	–	–	–	–	–	–	65	0.21	1.6	–	–	–
REHT 1604M0SN-M:M8340	✱	–	245	0.30	2.0	145	0.27	2.0	–	–	–	–	–	–	60	0.21	1.6	–	–	–

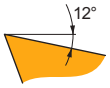
OEHT 06-FA

PRAMET

	IC	D1	S
	(mm)	(mm)	(mm)
0604	16.050	5.50	4.76

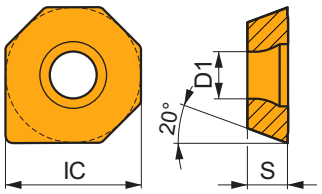


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**1**		**F**															
FA geometri, ince finişten orta işlemeye kadar 45° yüzey frezelemeye uygun çok pozitif tasarım.																				
OEHT 0604AEFR-FA:HF7	●	–	–	–	–	–	–	–	–	–	–	330	0.18	2.0	–	–	–	–	–	–
OEHT 0604AEFR-FA:M0315	●	–	–	–	–	–	–	–	–	–	–	765	0.18	2.0	–	–	–	–	–	–

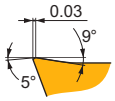
XEHT 06

	IC	D1	S
	(mm)	(mm)	(mm)
0604	16.050	5.50	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)

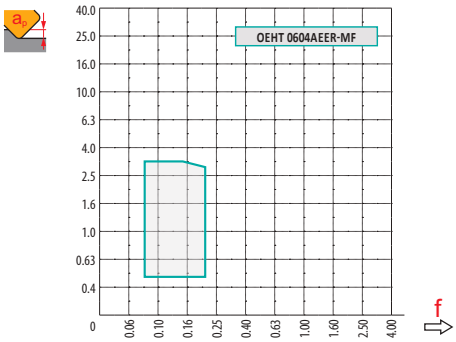


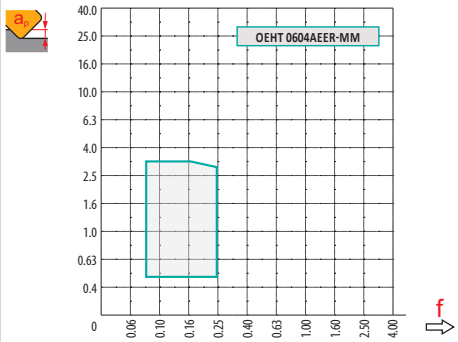
W hafif pozitif silicili tasarım, daha iyi yüzey finişi için.

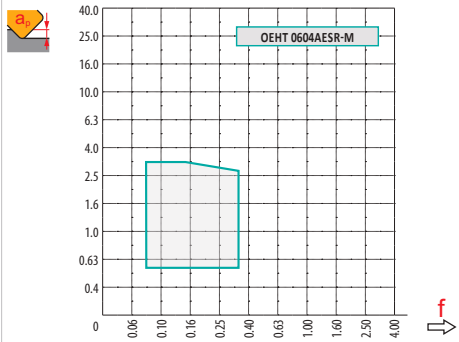
XEHT 0604AESR:M8310		–	■	265	0.24	3.2	◪	135	0.22	3.2	–	–	–	–	–	–	–	–	–	–	–	–
XEHT 0604AESR:M8330		–	■	245	0.24	3.2	◪	145	0.22	3.2	–	–	–	–	–	–	–	–	–	–	–	–

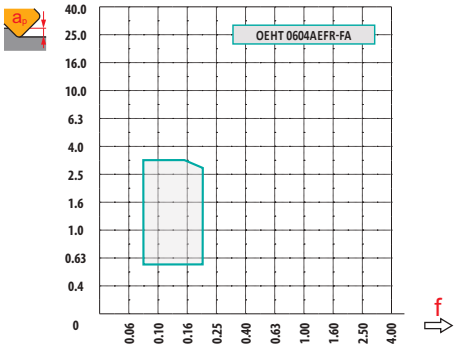
a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
⇨ X.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
⇨ X.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

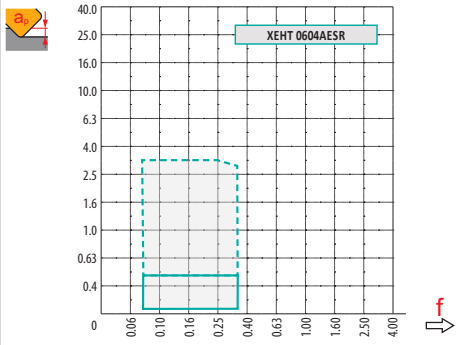
	OEHT 06-MF	OEHT 06-MM	OEHT 06-M	OEHT 06-FA	XEHT 06	REHT 16-MM	REHT 16-M
RE	–	–	–	–	–	8.00	8.00
BS	1.36	1.36	1.36	1.36	9.91	–	–

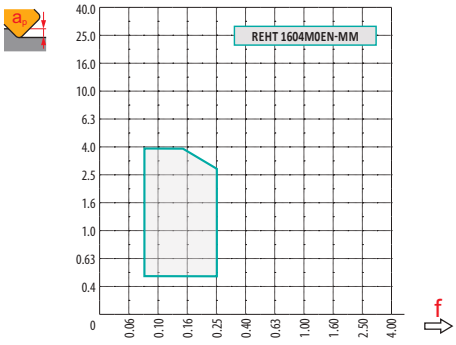


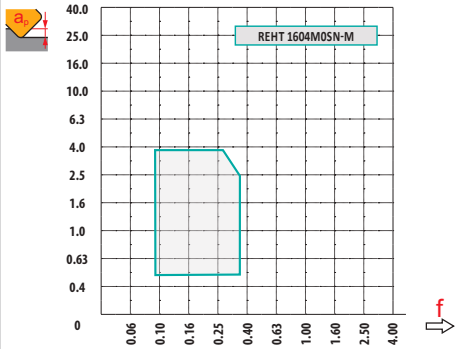












DC	R								
	a_p	0.00	0.50	0.75	1.25	1.50	2.00	2.50	3.00	4.00
50		43.90	49.47	50.66	52.49	53.23	54.48	55.52	56.39	57.76
56		49.80	55.37	56.56	58.39	59.13	60.38	61.42	62.29	63.66
63		56.90	62.47	63.66	65.49	66.23	67.48	68.52	69.39	70.76
70		63.80	69.37	70.56	72.39	73.13	74.38	75.42	76.29	77.66
80	DEF	73.90	79.47	80.66	82.49	83.23	84.48	85.52	86.39	87.76
90		83.80	89.37	90.56	92.39	93.13	94.38	95.42	96.29	97.66
100		93.90	99.47	100.66	102.49	103.23	104.48	105.52	106.39	107.76
125		118.90	124.47	125.66	127.49	128.23	129.48	130.52	131.39	132.76
160		153.90	159.47	160.66	162.49	163.23	164.48	165.52	166.39	167.76
200		193.90	199.47	200.66	202.49	203.23	204.48	205.52	206.39	207.76

DC	X.V	f_{max}
50	1.43	0.33
56	1.45	0.35
63	1.47	0.37
70	1.49	0.39
80	1.52	0.42
90	1.55	0.44
100	1.57	0.47
125	1.62	0.52
160	1.68	0.59
200	1.73	0.66

O		
DC	RPMX	APMX/I
50	4.9°	8.4/100
56	4.2°	7.2/100
63	3.6°	6.1/100
70	3.1°	5.3/100
80	2.6°	4.4/100
90	2.3°	3.9/100
100	2.0°	3.3/100
125	1.5°	2.5/100

R		
DCX	RPMX	APMX/I
59.9	4.6°	7.9/100
65.8	4.0°	6.8/100
72.9	3.0°	5.1/100
79.8	2.7°	4.6/100
89.9	2.2°	3.7/100
99.8	2.0°	3.3/100
109.9	1.8°	3.0/100
134.9	1.3°	2.1/100

O				
DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
50	91.5	120.0	5.9	5.9
56	103.2	131.5	5.9	5.9
63	117.4	146.0	5.9	5.9
70	131.2	159.5	5.9	5.9
80	151.4	180.0	5.9	5.9
90	171.2	199.5	5.9	5.9
100	191.4	220.0	5.9	5.9
125	241.3	270.0	5.9	5.9

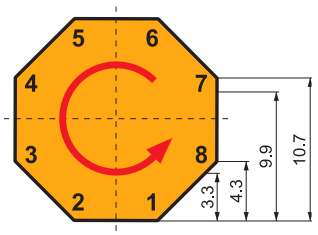
R				
DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
59.9	91.5	119.5	5.9	5.9
65.8	103.5	131.0	5.9	5.9
72.9	118.0	145.5	5.9	5.9
79.8	131.5	159.0	5.9	5.9
89.9	151.5	179.5	5.9	5.9
99.8	171.5	199.0	5.9	5.9
109.9	191.5	219.5	5.9	5.9
134.9	241.5	269.5	5.9	5.9

	O	R
a_p	3.1	3.0

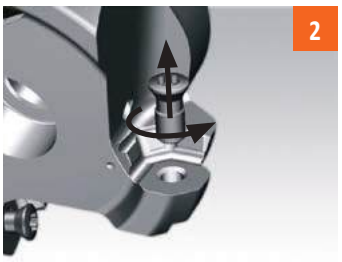
R

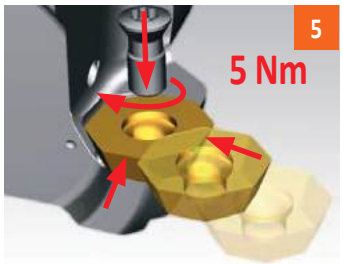
DCX	µm	3	5	10	15	20	30	40	50	60	80	100
59.9	FE	0.848	1.095	1.548	1.896	2.189	2.681	3.096	3.461	3.792	4.378	4.895
65.8		0.889	1.147	1.622	1.987	2.294	2.810	3.245	3.628	3.974	4.589	5.130
72.9		0.935	1.207	1.708	2.091	2.415	2.958	3.415	3.818	4.183	4.830	5.400
79.8		0.979	1.263	1.787	2.188	2.527	3.095	3.573	3.995	4.376	5.053	5.650
89.9		1.039	1.341	1.896	2.322	2.682	3.285	3.793	4.240	4.645	5.364	5.997
99.8		1.094	1.413	1.998	2.447	2.826	3.461	3.996	4.468	4.894	5.651	6.318

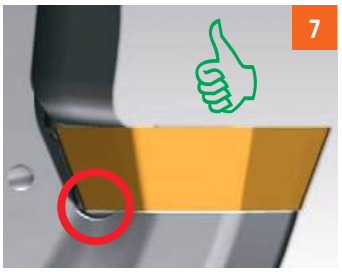
RE	µm	3	5	10	15	20	30	40	50	60	80	100
8.0	FE	0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530

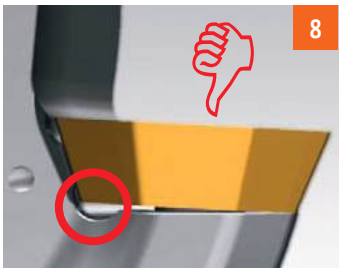


a_p	
–> 3.3	8
–> 4.3	7
–> 9.9	4
–> 10.7	2









DUVAR FREZELEME

YÜZEY FREZELEME

	STN10	STN16	SLN12	SLN16	SLN12X
	90°	90°	90°	90°	90°
	APMX (mm) 5.0	APMX (mm) 10.0	APMX (mm) 9.0	APMX (mm) 13.0	APMX (mm) 10.0
	DC (mm) 18 – 80	DC (mm) 25 – 175	DC (mm) 25 – 125	DC (mm) 63 – 175	DC (mm) 25 – 125
Silindirik şaft	 DC = 18 – 35 (mm)	 DC = 25 – 35 (mm)	 DC = 25, 32 (mm)		 DC = 25 – 40 (mm)
Weldon	 DC = 20 – 32 (mm)	 DC = 25 – 40 (mm)	 DC = 25 – 40 (mm)		 DC = 25 – 40 (mm)
Modüler	 DC = 20 – 32 (mm)	 DC = 25 – 40 (mm)	 DC = 25 – 40 (mm)		
Frezeleme kafası	 DC = 40 – 80 (mm)	 DC = 40 – 175 (mm)	 DC = 40 – 125 (mm)		 DC = 40 – 125 (mm)
Sayfa	66	70	75	81	85
ISO	**P** M K **N**	**P** M K **N**	**P** **M** **K** **N**	**P** **K** **N** H	**P** M **K** H
Kesici uç şekli					
Kesici uçlar	TNGX 1004	TNGX 1606	LNG. 1205	LN.U 1607	LNEX 1210
Kesme kenarlarının sayısı	6	6	4	4	4
Yüzey frezeleme	■	■	■	■	■
Havşa frezeleme	◪	◪	◪		◪
Helisel interpolasyon	■	■	■	■	■
Aşamalı dalma	◪		■	■	■
Açılı frezeleme	◪		◪		
Şekil yüzeyleri frezeleme (kopya frezeleme)	◪		◪		◪
Sığ kenar frezeleme	■	■	◪		■
Sığ oluk frezeleme			◪	◪	

■ İlk seçim. ◪ Olası seçim.

STN10

P M K N S

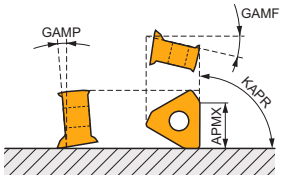
PRAMET

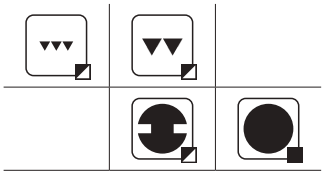
S

ECO TN10 Duvar Frezeleme Takımı, İçten Su Vermeli

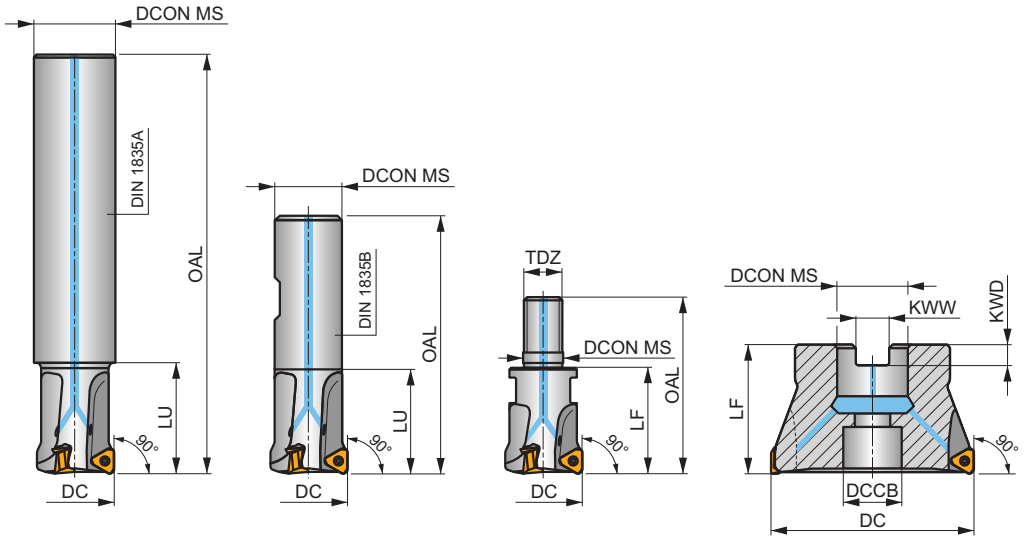
6 kesme kenarlı ve 5 mm APMX'li çift taraflı TNGX 10 kesici uç kullanan 90° parmak ve kenar frezeleri. Çok çeşitli uygulamalar için uygundur. Silindirik, veldon, modüler ve göbekten bağlamalı tipinde mevcuttur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	90°
APMX	5.0 mm





ECON TN



h_m	0.03 - 0.06
h_m	0.03 - 0.08

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
	18A2R050A20-STN10-C	18	180	20	–	50	–	–	–	–	-17.1	-11	2	–	29100	✓	0.39	GI292	SQ300	–
	20A2R029A20-STN10-C	20	150	20	–	29	–	–	–	–	-16.5	-11	2	–	27600	✓	0.35	GI292	SQ300	–
	20A3R029A20-STN10-C	20	150	20	–	29	–	–	–	–	-16.5	-11	3	–	27600	✓	0.34	GI292	SQ300	–
	22A3R050A25-STN10-C	22	180	25	–	50	–	–	–	–	-16.5	-11	3	–	26300	✓	0.58	GI292	SQ300	–
DIN 1835A	**25A3R034A25-STN10-C**	25	170	25	–	34	–	–	–	–	-16	-11	3	–	24700	✓	0.58	GI292	SQ300	–
	25A4R034A25-STN10-C	25	170	25	–	34	–	–	–	–	-16	-11	4	✓	24700	✓	0.58	GI292	SQ300	–
	30A4R050A32-STN10-C	30	200	32	–	50	–	–	–	–	-16	-11	4	✓	22500	✓	1.06	GI292	SQ300	–
	32A4R037A32-STN10-C	32	195	32	–	37	–	–	–	–	-16	-11	4	✓	21800	✓	1.08	GI292	SQ300	–
	32A5R037A32-STN10-C	32	195	32	–	37	–	–	–	–	-16	-11	5	✓	21800	✓	1.08	GI292	SQ300	–
	35A5R080A32-STN10-C	35	200	32	–	80	–	–	–	–	-16	-11	5	✓	20800	✓	1.07	GI292	SQ300	–
	20A2R032B20-STN10-C	20	90	20	–	32	–	–	–	–	-16.5	-11	2	–	27600	✓	0.20	GI292	SQ300	–
	20A3R032B20-STN10-C	20	90	20	–	32	–	–	–	–	-16.5	-11	3	–	27600	✓	0.19	GI292	SQ300	–
DIN 1835B	**25A3R042B25-STN10-C**	25	100	25	–	42	–	–	–	–	-16	-11	3	–	24700	✓	0.31	GI292	SQ300	–
	25A4R042B25-STN10-C	25	100	25	–	42	–	–	–	–	-16	-11	4	✓	24700	✓	0.31	GI292	SQ300	–
	32A4R042B32-STN10-C	32	110	32	–	42	–	–	–	–	-16	-11	4	✓	21800	✓	0.57	GI292	SQ300	–
	32A5R042B32-STN10-C	32	110	32	–	42	–	–	–	–	-16	-11	5	✓	21800	✓	0.56	GI292	SQ300	–
	20A2R026M10-STN10-C	20	45	10.5	–	–	26	M10	–	–	-16.5	-11	2	–	–	✓	0.06	GI292	SQ300	–
	20A3R026M10-STN10-C	20	45	10.5	–	–	26	M10	–	–	-16.5	-11	3	–	–	✓	0.06	GI292	SQ300	–
MODULAR	**25A3R033M12-STN10-C**	25	55	12.5	–	–	33	M12	–	–	-16	-11	3	–	–	✓	0.10	GI292	SQ300	–
	25A4R033M12-STN10-C	25	55	12.5	–	–	33	M12	–	–	-16	-11	4	✓	–	✓	0.10	GI292	SQ300	–
	32A4R043M16-STN10-C	32	66	17	–	–	43	M16	–	–	-16	-11	4	✓	–	✓	0.21	GI292	SQ300	–
	32A5R043M16-STN10-C	32	66	17	–	–	43	M16	–	–	-16	-11	5	✓	–	✓	0.21	GI292	SQ300	–
	40A04R-S90TN10-C	40	–	16	14	–	40	–	8.4	5.6	-15	-11	4	✓	19500	✓	0.34	GI292	SQ302	–
	40A06R-S90TN10-C	40	–	16	14	–	40	–	8.4	5.6	-15	-11	6	✓	19500	✓	0.34	GI292	SQ302	–
ISO 6462 DIN 8030	**50A05R-S90TN10-C**	50	–	22	18	–	40	–	10.4	6.3	-15	-11	5	✓	17400	✓	0.48	GI292	SQ303	–
	50A07R-S90TN10-C	50	–	22	18	–	40	–	10.4	6.3	-15	-11	7	✓	17400	✓	0.49	GI292	SQ303	–
	63A06R-S90TN10-C	63	–	22	18	–	40	–	10.4	6.3	-15	-11	6	✓	15500	✓	0.63	GI292	SQ303	–

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
ISO 6462 DIN 8030	**63A09R-S90TN10-C**	63	–	22	18	–	40	–	10.4	6.3	-15	-11	9	✓	15500	✓	0.63	GI292	SQ303	–
	80A10R-S90TN10-C	80	–	27	38	–	50	–	12.4	7	-15	-11	10	✓	13800	✓	1.03	GI292	SQ301	AC001

GI292	TNGX 1004..

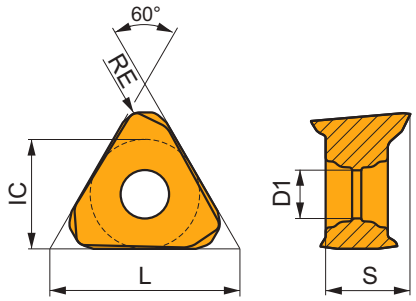
		Nm						
SQ300	US 52506-T07P	0.8	M 2.5	6	–	–	Flag T07P	–
SQ301	US 52506-T07P	0.8	M 2.5	6	D-T07P/T09P	FG-15	–	–
SQ302	US 52506-T07P	0.8	M 2.5	6	D-T07P/T09P	FG-15	–	HS 0830C
SQ303	US 52506-T07P	0.8	M 2.5	6	D-T07P/T09P	FG-15	–	HS 1030C

AC001	KS 1230	K.FMH27

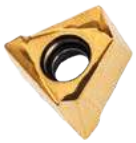
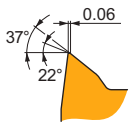
TNGX 10

PRAMET

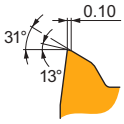
	IC (mm)	D1 (mm)	L (mm)	S (mm)
1004	6.000	2.80	10.39	4.69



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
			F geometri, hafif işleme için çok pozitif tasarım.																	
TNGX 100402SR-F:M8330	●	0.2	■ 205	0.09	2.0	◪ 120	0.08	2.0	◪ 190	0.09	2.0	–	–	–	–	–	–	–	–	–
TNGX 100402SR-F:M8340	●	0.2	■ 190	0.09	2.0	◪ 110	0.08	2.0	◪ 180	0.09	2.0	–	–	–	–	–	–	–	–	–
TNGX 100404SR-F:8215	●	0.4	■ 225	0.09	2.0	◪ 135	0.08	2.0	◪ 210	0.09	2.0	–	–	–	–	–	–	–	–	–
TNGX 100404SR-F:M6330	●	0.4	■ 190	0.09	2.0	◪ 135	0.08	2.0	–	–	–	–	–	–	–	–	–	–	–	–
TNGX 100404SR-F:M8330	●	0.4	■ 220	0.09	2.0	◪ 130	0.08	2.0	◪ 205	0.09	2.0	–	–	–	–	–	–	–	–	–
TNGX 100404SR-F:M8340	●	0.4	■ 200	0.09	2.0	◪ 120	0.08	2.0	◪ 190	0.09	2.0	–	–	–	–	–	–	–	–	–
TNGX 100404SR-F:M9340	●	0.4	■ 270	0.09	2.0	◪ 160	0.08	2.0	–	–	–	–	–	–	–	–	–	–	–	–
TNGX 100408SR-F:8215	●	0.8	■ 270	0.09	2.0	◪ 160	0.08	2.0	◪ 255	0.09	2.0	–	–	–	–	–	–	–	–	–
TNGX 100408SR-F:M6330	●	0.8	■ 225	0.09	2.0	◪ 160	0.08	2.0	–	–	–	–	–	–	–	–	–	–	–	–
TNGX 100408SR-F:M8330	●	0.8	■ 260	0.09	2.0	◪ 155	0.08	2.0	◪ 245	0.09	2.0	–	–	–	–	–	–	–	–	–
TNGX 100408SR-F:M8340	●	0.8	■ 240	0.09	2.0	◪ 140	0.08	2.0	◪ 225	0.09	2.0	–	–	–	–	–	–	–	–	–
TNGX 100408SR-F:M9340	●	0.8	■ 320	0.09	2.0	◪ 190	0.08	2.0	–	–	–	–	–	–	–	–	–	–	–	–

Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

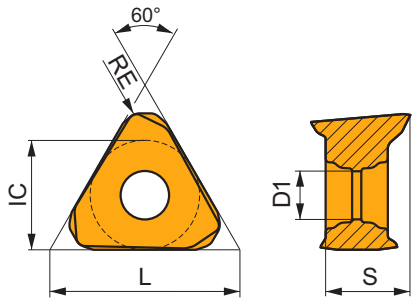
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
TNGX 100404SR-M:8215	●	0.4	■ 205	0.13	2.0	◪ 120	0.12	2.0	◪ 190	0.13	2.0	–	–	–	◪ 50	0.09	1.6	–	–	–
TNGX 100404SR-M:M6330	●	0.4	■ 175	0.13	2.0	◪ 125	0.12	2.0	–	–	–	–	–	–	◪ 50	0.09	1.6	–	–	–
TNGX 100404SR-M:M8330	●	0.4	■ 205	0.13	2.0	◪ 120	0.12	2.0	◪ 190	0.13	2.0	–	–	–	◪ 50	0.09	1.6	–	–	–
TNGX 100404SR-M:M8340	●	0.4	■ 185	0.13	2.0	◪ 110	0.12	2.0	◪ 175	0.13	2.0	–	–	–	◪ 45	0.09	1.6	–	–	–
TNGX 100404SR-M:M9340	●	0.4	■ 240	0.13	2.0	◪ 140	0.12	2.0	–	–	–	–	–	–	◪ 60	0.09	1.6	–	–	–
TNGX 100408SR-M:8215	●	0.8	■ 245	0.13	2.0	◪ 145	0.12	2.0	◪ 230	0.13	2.0	–	–	–	◪ 60	0.09	1.6	–	–	–
TNGX 100408SR-M:M6330	⬢	0.8	■ 210	0.13	2.0	◪ 150	0.12	2.0	–	–	–	–	–	–	◪ 60	0.09	1.6	–	–	–
TNGX 100408SR-M:M8310	●	0.8	■ 270	0.13	2.0	◪ 135	0.12	2.0	◪ 255	0.13	2.0	–	–	–	–	–	–	–	–	–
TNGX 100408SR-M:M8330	⬢	0.8	■ 245	0.13	2.0	◪ 145	0.12	2.0	◪ 230	0.13	2.0	–	–	–	◪ 60	0.09	1.6	–	–	–
TNGX 100408SR-M:M8340	⬢	0.8	■ 220	0.13	2.0	◪ 130	0.12	2.0	◪ 205	0.13	2.0	–	–	–	◪ 55	0.09	1.6	–	–	–
TNGX 100408SR-M:M8345	⬢	0.8	■ 180	0.13	2.0	◪ 105	0.12	2.0	–	–	–	–	–	–	◪ 45	0.09	1.6	–	–	–
TNGX 100408SR-M:M9340	●	0.8	■ 285	0.13	2.0	◪ 170	0.12	2.0	–	–	–	–	–	–	◪ 70	0.09	1.6	–	–	–
TNGX 100412SR-M:M8330	⬢	1.2	■ 255	0.13	2.0	◪ 150	0.12	2.0	◪ 240	0.13	2.0	–	–	–	◪ 60	0.09	1.6	–	–	–
TNGX 100412SR-M:M8340	⬢	1.2	■ 230	0.13	2.0	◪ 135	0.12	2.0	◪ 215	0.13	2.0	–	–	–	◪ 55	0.09	1.6	–	–	–
TNGX 100416SR-M:M8310	⬢	1.6	■ 300	0.13	2.0	◪ 150	0.12	2.0	◪ 285	0.13	2.0	–	–	–	–	–	–	–	–	–
TNGX 100416SR-M:M8330	⬢	1.6	■ 270	0.13	2.0	◪ 160	0.12	2.0	◪ 255	0.13	2.0	–	–	–	◪ 65	0.09	1.6	–	–	–
TNGX 100416SR-M:M8340	⬢	1.6	■ 245	0.13	2.0	◪ 145	0.12	2.0	◪ 230	0.13	2.0	–	–	–	◪ 60	0.09	1.6	–	–	–

M geometri, hafif ve orta işleme için pozitif tasarım.

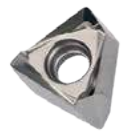
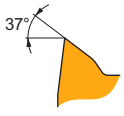
TNGX 10-FA

PRAMET

	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1004	6.000	2.80	10.39	4.69



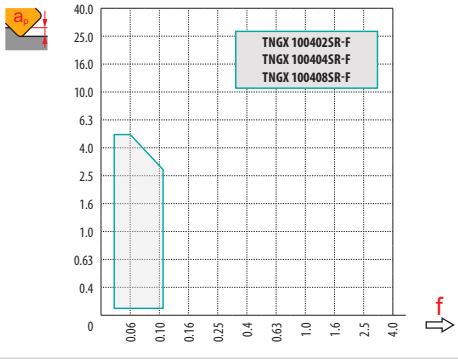
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

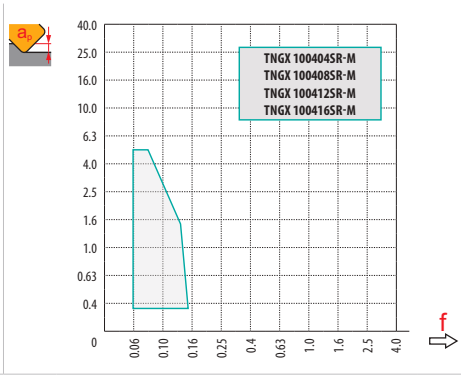
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
TNGX 100404FR-FA:HF7	●	0.4	–	–	–	–	–	–	–	–	–	■ 345	0.10	1.5	–	–	–	–	–	–
TNGX 100404FR-FA:M0315	●	0.4	–	–	–	–	–	–	–	–	–	■ 780	0.10	1.5	–	–	–	–	–	–
TNGX 100408FR-FA:HF7	●	0.8	–	–	–	–	–	–	–	–	–	■ 345	0.10	1.5	–	–	–	–	–	–
TNGX 100408FR-FA:M0315	●	0.8	–	–	–	–	–	–	–	–	–	■ 780	0.10	1.5	–	–	–	–	–	–

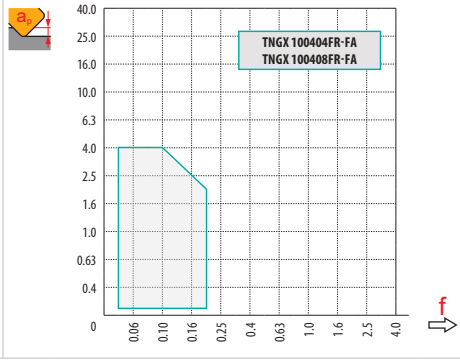
FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	TNGX 10-F			TNGX 10-M				TNGX 10-FA	
RE	0.2	0.4	0.8	0.4	0.8	1.2	1.6	0.4	0.8
BS	1.53	1.34	0.92	1.34	0.92			1.33	0.93







max
1.5

a_p	1.0	3.0	5.0
f	0.10	0.08	0.04

a_p
0.2

DC	RPMX	APMX/I
18	1.80°	3.05/100
20	1.60°	2.70/100
22	1.20°	2.00/100
25	1.00°	1.70/100
30	0.90°	1.45/100
32	0.80°	1.30/100
35	0.65°	1.00/100
40	0.60°	0.90/100
50	0.50°	0.70/100
63	0.40°	0.50/100
80	0.25°	0.30/100

DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
18	33	36	1.2	1.2
20	37	40	1.2	1.2
22	41	44	1.0	1.0
25	47	50	1.0	1.0
30	57	60	1.0	1.0
32	61	64	1.0	1.0
35	67	70	0.9	0.9
40	77	80	0.9	0.9
50	97	100	0.9	0.9
63	123	126	0.9	0.9
80	157	160	0.9	0.9

STN16

P M K N S

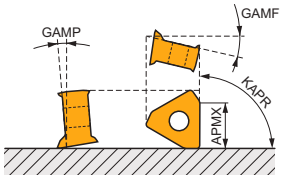
PRAMET

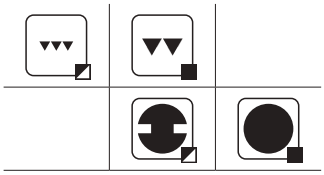
S

ECO TN16 Duvar Frezeleme Takımı, İçten Su Vermeli

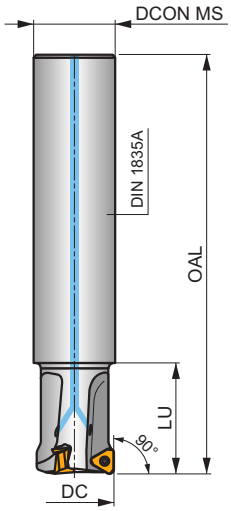
Çift tarafıyla 6 kesme kenarlı ve 10 mm APMX'li TNGX 16 kesici uç kullanan 90° silindirik ve veldonlu freze gövedeleri. Çok çeşitli uygulamalar için uygundur. Silindirik, Veldon, modüler ve vidalı (diferansiyel diş adımlı) tarzında mevcuttur. Daha uzun takım ömrü için gövde işlem görmüştür.

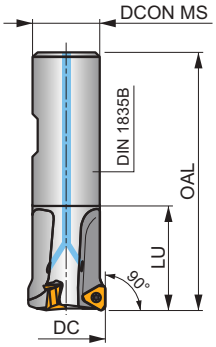
KAPR	90°
APMX	10.0 mm

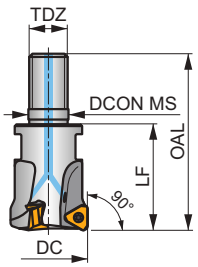


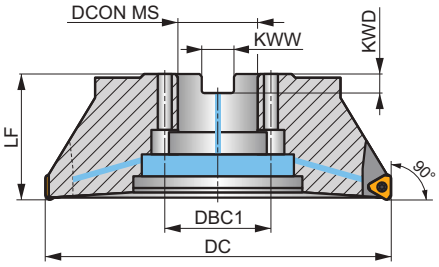


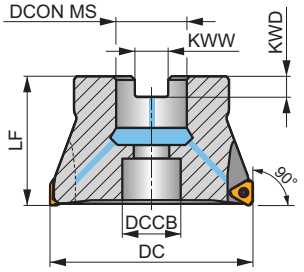
ECON TN











h_m	0.03 - 0.13
h_m	0.03 - 0.15

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg		
	25A2R034A25-STN16-C	25	170	25	–	–	34	–	–	–	–	-18.5	-9.5	2	–	20000	✓	0.54	GI340	C0382
	32A2R034A32-STN16-C	32	195	32	–	–	34	–	–	–	–	-16	-9.5	2	–	17500	✓	1.05	GI340	C0382
DIN 1835A	**25A2R080A25-STN16-C**	25	170	25	–	–	80	–	–	–	–	-18.5	-9.5	2	–	20000	✓	0.48	GI340	C0382
DIN 1835A	**32A2R080A32-STN16-C**	32	195	32	–	–	80	–	–	–	–	-16	-9.5	2	–	17500	✓	0.96	GI340	C0382
	32A3R034A32-STN16-C	32	195	32	–	–	34	–	–	–	–	-16	-9.5	3	–	17500	✓	1.04	GI340	C0382
	35A3R034A32-STN16-C	35	195	32	–	–	34	–	–	–	–	-16	-9.5	3	–	17000	✓	1.07	GI340	C0382
	25A2R042B25-STN16-C	25	110	25	–	–	42	–	–	–	–	-18.5	-9.5	2	–	20000	✓	0.29	GI340	C0382
DIN 1835B	**32A3R042B32-STN16-C**	32	110	32	–	–	42	–	–	–	–	-16	-9.5	3	–	17500	✓	0.52	GI340	C0382
DIN 1835B	**40A4R050B32-STN16-C**	40	120	32	–	–	50	–	–	–	–	-16	-9.5	4	–	16000	✓	0.68	GI340	C0382
	25A2R033M12-STN16-C	25	55	12.5	–	–	–	33	M12	–	–	-18.5	-9.5	2	–	20000	✓	0.10	GI340	C0382
	32A2R043M16-STN16-C	32	66	17	–	–	–	43	M16	–	–	-16	-9.5	2	–	17500	✓	0.18	GI340	C0382
MODULAR	**32A3R043M16-STN16-C**	32	66	17	–	–	–	43	M16	–	–	-16	-9.5	3	–	17500	✓	0.17	GI340	C0382
MODULAR	**40A3R043M16-STN16-C**	40	66	17	–	–	–	43	M16	–	–	-16	-9.5	3	–	16000	✓	0.20	GI340	C0382
MODULAR	**40A4R043M16-STN16-C**	40	66	17	–	–	–	43	M16	–	–	-16	-9.5	4	–	16000	✓	0.21	GI340	C0382
	40A03R-S90TN16-C	40	40	16	12.4	–	–	40	–	8.4	5.6	-16	-9.5	3	–	16000	✓	0.32	GI340	C0384
	40A04R-S90TN16-C	40	40	16	12.4	–	–	40	–	8.4	5.6	-16	-9.5	4	–	16000	✓	0.31	GI340	C0384
	50A04R-S90TN16-C	50	40	22	18.1	–	–	40	–	10.4	6.3	-16	-9.5	4	✓	14000	✓	0.34	GI340	C0386
	50A05R-S90TN16-C	50	40	22	18.1	–	–	40	–	10.4	6.3	-16	-9.5	5	✓	14000	✓	0.32	GI340	C0386
	63A04R-S90TN16-C	63	40	22	18.1	–	–	40	–	10.4	6.3	-16	-9.5	4	✓	12500	✓	0.47	GI340	C0386
	63A06R-S90TN16-C	63	40	22	18.1	–	–	40	–	10.4	6.3	-16	-9.5	6	✓	12500	✓	0.48	GI340	C0386
ISO 6462 DIN 8030	**80A05R-S90TN16-C**	80	50	27	22.1	–	–	50	–	12.4	7	-16	-9.5	5	✓	11000	✓	1.15	GI340	C0388
ISO 6462 DIN 8030	**80A07R-S90TN16-C**	80	50	27	22.1	–	–	50	–	12.4	7	-16	-9.5	7	✓	11000	✓	1.17	GI340	C0388
	100A06R-S90TN16-C	100	50	32	45.1	–	–	50	–	14.4	8	-16	-9.5	6	✓	10000	✓	1.79	GI340	C0390
	100A08R-S90TN16-C	100	50	32	45.1	–	–	50	–	14.4	8	-16	-9.5	8	✓	10000	✓	1.66	GI340	C0390
	115A06R-S90TN16-C	115	50	32	45.1	–	–	50	–	14.4	8	-16	-9.5	6	✓	9500	✓	2.21	GI340	C0390
	125A07R-S90TN16-C	125	63	40	56.1	–	–	63	–	16.4	9	-16	-9.5	7	✓	9000	✓	3.05	GI340	C0390
	125A09R-S90TN16-C	125	63	40	56.1	–	–	63	–	16.4	9	-16	-9.5	9	✓	9000	✓	3.14	GI340	C0390

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg		
ISO 6462 DIN 8030	**140A08R-S90TN16-C**	140	63	40	56.1	–	–	63	–	16.4	9	-16	-9.5	8	✓	8500	✓	3.69	GI340	C0390
	160C10R-S90TN16-C	160	63	40	–	66.7	–	63	–	16.4	9.2	-16	-9.5	10	✓	8000	✓	5.16	GI340	C0394
	175C10R-S90TN16-C	175	63	40	–	66.7	–	63	–	16.4	9.2	-16	-9.5	10	✓	7500	✓	6.89	GI340	C0394

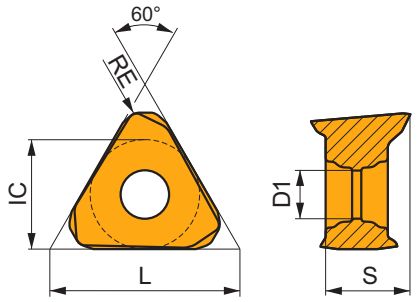
GI340	TNGX 1606..

		Nm									
C0382	US 44010-T15P	3.5	M 4	10	–	–	Flag T15P	–	–	–
C0384	US 44010-T15P	3.5	M 4	10	D-T08P/T15P	FG-15	–	HS 90835	–	–
C0386	US 44010-T15P	3.5	M 4	10	D-T08P/T15P	FG-15	–	HS 1030C	–	–
C0388	US 44010-T15P	3.5	M 4	10	D-T08P/T15P	FG-15	–	HS 1230C	–	–
C0390	US 44010-T15P	3.5	M 4	10	D-T08P/T15P	FG-15	–	–	–	–
C0394	US 44010-T15P	3.5	M 4	10	D-T08P/T15P	FG-15	–	HS 1240C	HSD 0825C	CAC 160C

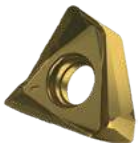
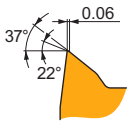
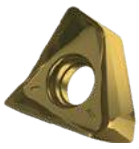
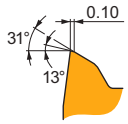
TNGX 16

PRAMET

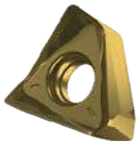
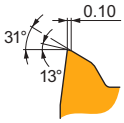
	IC (mm)	D1 (mm)	L (mm)	S (mm)
1606	9.525	4.40	16.50	6.58



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
	F geometri, hafif işleme için çok pozitif tasarım.																			
TNGX 160604SR-F:M8330	●	0.4	205	0.10	3.0	120	0.09	3.0	190	0.10	3.0	–	–	–	–	–	–	–	–	–
TNGX 160604SR-F:M8340	●	0.4	190	0.10	3.0	110	0.09	3.0	180	0.10	3.0	–	–	–	–	–	–	–	–	–
TNGX 160608SR-F:8215	●	0.8	250	0.10	3.0	150	0.09	3.0	235	0.10	3.0	–	–	–	–	–	–	–	–	–
TNGX 160608SR-F:M6330	●	0.8	215	0.10	3.0	150	0.09	3.0	–	–	–	–	–	–	–	–	–	–	–	–
TNGX 160608SR-F:M8310	●	0.8	280	0.10	3.0	140	0.09	3.0	265	0.10	3.0	–	–	–	–	–	–	–	–	–
TNGX 160608SR-F:M8330	●	0.8	245	0.10	3.0	145	0.09	3.0	230	0.10	3.0	–	–	–	–	–	–	–	–	–
TNGX 160608SR-F:M8340	●	0.8	225	0.10	3.0	135	0.09	3.0	210	0.10	3.0	–	–	–	–	–	–	–	–	–
																				
	M geometri, hafif ve orta işleme için pozitif tasarım.																			
TNGX 160604SR-M:8215	●	0.4	180	0.18	3.0	105	0.16	3.0	170	0.18	3.0	–	–	–	45	0.13	2.4	–	–	–
TNGX 160604SR-M:M6330	●	0.4	155	0.18	3.0	110	0.16	3.0	–	–	–	–	–	–	45	0.13	2.4	–	–	–
TNGX 160604SR-M:M8310	●	0.4	205	0.15	3.0	100	0.14	3.0	190	0.15	3.0	–	–	–	–	–	–	–	–	–
TNGX 160604SR-M:M8330	●	0.4	180	0.18	3.0	105	0.16	3.0	170	0.18	3.0	–	–	–	45	0.13	2.4	–	–	–

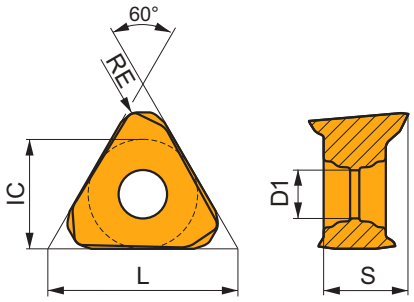
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**M** geometri, hafif ve orta işleme için pozitif tasarım.																	
TNGX 160604SR-M:M8340	●	0.4	165	0.18	3.0	95	0.16	3.0	155	0.18	3.0	–	–	–	40	0.13	2.4	–	–	–
TNGX 160608SR-M:8215	⬢	0.8	215	0.18	3.0	125	0.16	3.0	200	0.18	3.0	–	–	–	50	0.13	2.4	–	–	–
TNGX 160608SR-M:M6330	⬢	0.8	185	0.18	3.0	130	0.16	3.0	–	–	–	–	–	–	55	0.13	2.4	–	–	–
TNGX 160608SR-M:M8310	●	0.8	245	0.15	3.0	120	0.14	3.0	230	0.15	3.0	–	–	–	–	–	–	–	–	–
TNGX 160608SR-M:M8330	⬢	0.8	215	0.18	3.0	125	0.16	3.0	200	0.18	3.0	–	–	–	50	0.13	2.4	–	–	–
TNGX 160608SR-M:M8340	⬢	0.8	195	0.18	3.0	115	0.16	3.0	185	0.18	3.0	–	–	–	45	0.13	2.4	–	–	–
TNGX 160608SR-M:M8345	⬢	0.8	155	0.18	3.0	90	0.16	3.0	–	–	–	–	–	–	35	0.13	2.4	–	–	–
TNGX 160608SR-M:M9325	●	0.8	285	0.15	3.0	–	–	–	270	0.15	3.0	–	–	–	–	–	–	–	–	–
TNGX 160608SR-M:M9340	⬢	0.8	245	0.18	3.0	145	0.16	3.0	–	–	–	–	–	–	60	0.13	2.4	–	–	–
TNGX 160612SR-M:M8330	⬢	1.2	230	0.18	3.0	135	0.16	3.0	215	0.18	3.0	–	–	–	55	0.13	2.4	–	–	–
TNGX 160612SR-M:M8340	⬢	1.2	205	0.18	3.0	120	0.16	3.0	190	0.18	3.0	–	–	–	50	0.13	2.4	–	–	–
TNGX 160616SR-M:M8310	⬢	1.6	275	0.15	3.0	140	0.14	3.0	260	0.15	3.0	–	–	–	–	–	–	–	–	–
TNGX 160616SR-M:M8330	⬢	1.6	240	0.18	3.0	140	0.16	3.0	225	0.18	3.0	–	–	–	60	0.13	2.4	–	–	–
TNGX 160616SR-M:M8340	⬢	1.6	220	0.18	3.0	130	0.16	3.0	205	0.18	3.0	–	–	–	55	0.13	2.4	–	–	–

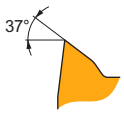
TNGX 16-FA

PRAMET

	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1606	9.525	4.40	16.50	6.58

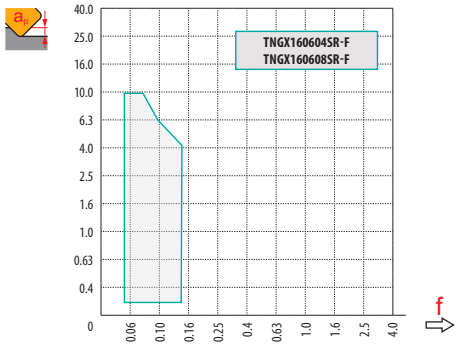


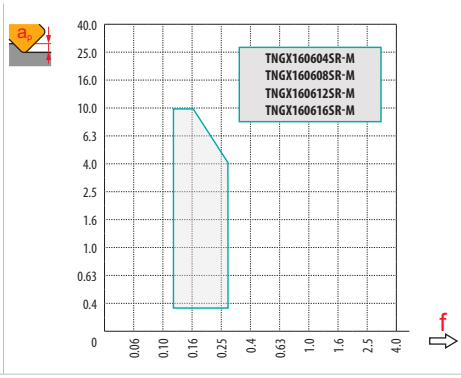
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

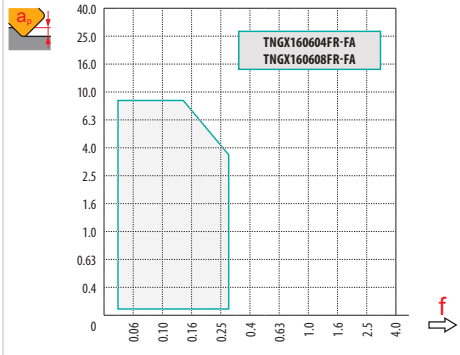
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**FA** geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.																	
TNGX 160604FR-FA:HF7	●	0.4	–	–	–	–	–	–	–	–	–	255	0.14	2.0	–	–	–	–	–	–
TNGX 160604FR-FA:M0315	●	0.4	–	–	–	–	–	–	–	–	–	585	0.14	2.0	–	–	–	–	–	–
TNGX 160608FR-FA:HF7	●	0.8	–	–	–	–	–	–	–	–	–	300	0.14	2.0	–	–	–	–	–	–
TNGX 160608FR-FA:M0315	●	0.8	–	–	–	–	–	–	–	–	–	690	0.14	2.0	–	–	–	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	TNGX 16-F		TNGX 16-M				TNGX 16-FA	
RE	0.4	0.8	0.4	0.8	1.2	1.6	0.4	0.8
BS	2.10	1.9	2.10	1.90	1.73	1.14	2.10	1.90



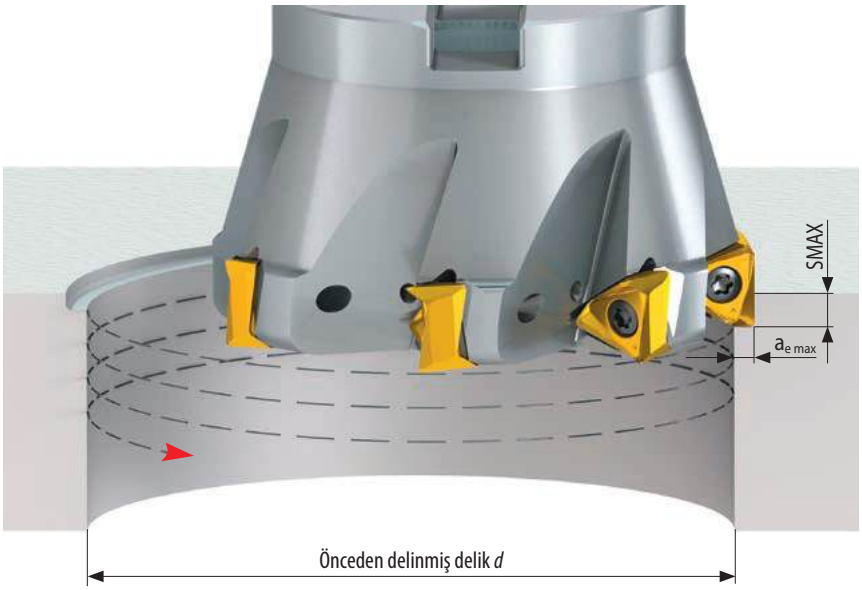




a_p	3.0	4.5	6.0
1 f	0.18	0.14	0.10

DC	min	d_{min} = DC *		d = 1.25 DC		d = 1.5 DC		d = 1.75 DC		d ≥ 2 DC	
		SMAX	$a_{e\,max}$	SMAX	$a_{e\,max}$	SMAX	$a_{e\,max}$	SMAX	$a_{e\,max}$	SMAX	$a_{e\,max}$
25	25	0.14	1.3	0.22	2.2	0.33	3.0	0.60	4.0	0.70	5.0
32	32	0.16	1.5	0.33	2.8	0.44	4.0	0.70	5.0	0.90	6.5
40	40	0.22	2.0	0.38	3.5	0.55	5.0	0.90	6.5	1.15	8.0
50	50	0.27	2.5	0.50	4.5	0.70	6.5	1.00	8.0	1.40	10.0
63	63	0.33	3.2	0.60	5.5	0.90	8.0	1.45	10.0	1.80	12.5
80	80	0.55	4.0	1.00	7.0	1.45	10.0	2.15	13.0	2.60	16.0
100	100	0.70	5.0	1.20	9.0	1.80	12.5	2.70	16.5	3.30	20.0
115	115	0.85	6.0	1.50	10.0	1.90	14.5	2.80	19.0	3.80	23.0
125	125	0.90	6.5	1.60	11.0	2.30	15.5	3.10	20.0	4.10	25.0
140	140	1.00	7.0	1.80	12.5	2.60	17.5	3.70	23.0	4.60	28.0
160	160	1.20	8.0	2.00	14.0	2.90	20.0	4.30	26.0	5.30	32.0
175	175	1.30	8.8	2.20	15.5	3.20	22.0	4.70	29.0	5.80	35.0

* Delik çapı aşağıdakiler arasında olduğunda ilerleme hızı düşüşünü kontrol edin d_{min} – 1.5 *DC*.



SLN12

P M K N

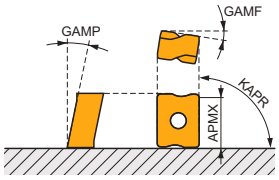
PRAMET

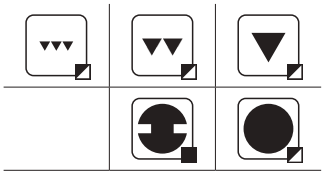
S

ECO LN12 Duvar Frezeleme Takımı, İçten Su Vermeli

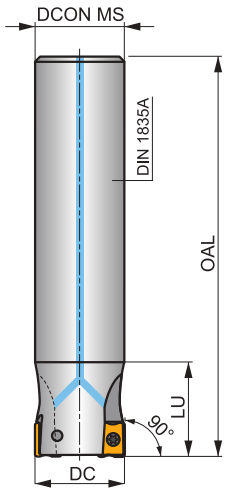
Çift taraflı LN kullanan 90° uçlu ve kenar frezeler.. 9 mm APMX'li 12 kesici uç. Çok çeşitli uygulamalar için uygundur. Silindirik, veldon, modüler ve göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

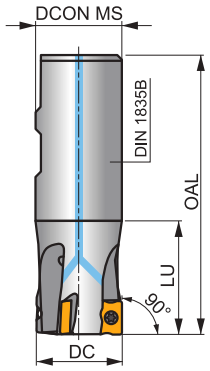
KAPR	90°
APMX	9.0 mm

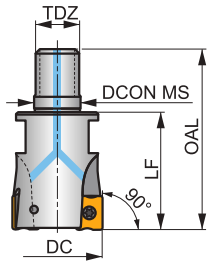


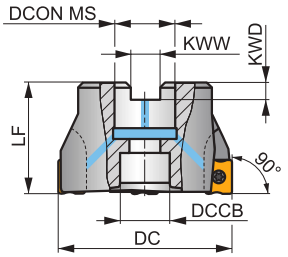


ECON LN

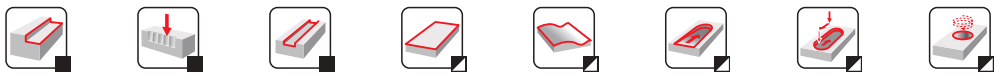








h_m	0.06 - 0.15
h_m	0.06 - 0.13



	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
DIN 1835A	**25A2R034A25-SLN12-C**	25	170	25	–	34	–	–	–	–	-23	-8	2	–	19500	✓	0.58	GI205	SQ340	–
	25A2R080A25-SLN12-C	25	170	25	–	80	–	–	–	–	-23	-8	2	–	19500	✓	0.54	GI205	SQ340	–
	32A2R034A32-SLN12-C	32	195	32	–	34	–	–	–	–	-15	-6	2	–	17300	✓	1.05	GI205	SQ340	–
	32A2R090A32-SLN12-C	32	195	32	–	90	–	–	–	–	-15	-6	2	–	17300	✓	0.98	GI205	SQ340	–
DIN 1835B	**25A2R042B25-SLN12-C**	25	99	25	–	42	–	–	–	–	-23	-8	2	–	19500	✓	0.30	GI205	SQ340	–
	32A3R042B32-SLN12-C	32	103	32	–	42	–	–	–	–	-15	-6	3	–	17300	✓	0.50	GI205	SQ340	–
	40A4R050B32-SLN12-C	40	111	32	–	50	–	–	–	–	-15	-6	4	✓	15500	✓	0.62	GI205	SQ340	–
MODULAR	**25A2R033M12-SLN12-C**	25	55	12.5	–	–	33	–	–	–	-22	-6	2	–	–	✓	0.11	GI205	SQ340	–
	32A2R043M16-SLN12-C	32	66	17	–	–	43	–	–	–	-15	-6	2	–	–	✓	0.22	GI205	SQ340	–
	32A3R043M16-SLN12-C	32	66	17	–	–	43	–	–	–	-15	-6	3	–	–	✓	0.22	GI205	SQ340	–
	40A3R043M16-SLN12-C	40	66	17	–	–	43	–	–	–	-15	-6	3	–	–	✓	0.28	GI205	SQ340	–
ISO 6462 DIN 8030	**40A04R-S90LN12-C**	40	–	16	14	–	40	–	8.4	5.6	-15	-6	4	✓	15500	✓	0.33	GI205	SQ342	–
	50A04R-S90LN12-C	50	–	22	18	–	40	–	10.4	6.3	-14.5	-6	4	✓	13800	✓	0.47	GI205	SQ343	–
	50A05R-S90LN12-C	50	–	22	18	–	40	–	10.4	6.3	-14.5	-6	5	✓	13800	✓	0.40	GI205	SQ343	–
	63A04R-S90LN12-C	63	–	22	18	–	40	–	10.4	6.3	-14	-6	4	✓	12300	✓	0.55	GI205	SQ343	–
	63A06R-S90LN12-C	63	–	22	18	–	40	–	10.4	6.3	-14	-6	6	✓	12300	✓	0.50	GI205	SQ343	–
	80A05R-S90LN12-C	80	–	27	38	–	50	–	12.4	7	-14	-6	5	✓	10900	✓	1.16	GI205	SQ341	AC001
	80A07R-S90LN12-C	80	–	27	38	–	50	–	12.4	7	-14	-6	7	✓	10900	✓	1.11	GI205	SQ341	AC001
	100A06R-S90LN12-C	100	–	32	45	–	50	–	14.4	8	-14	-6	6	✓	9800	✓	1.78	GI205	SQ341	AC002
	100A08R-S90LN12-C	100	–	32	45	–	50	–	14.4	8	-14	-6	8	✓	9800	✓	1.93	GI205	SQ341	AC002
	110A06R-S90LN12-C	110	–	32	45	–	50	–	14.4	8	-14	-6	6	✓	9300	✓	2.09	GI205	SQ341	AC002
	125A07R-S90LN12-C	125	–	40	56	–	63	–	16.4	9	-14	-6	7	✓	8700	✓	3.40	GI205	SQ341	AC003
	125A09R-S90LN12-C	125	–	40	56	–	63	–	16.4	9	-14	-6	9	✓	8700	✓	3.35	GI205	SQ341	AC003

GI205	LNGX 1205..	LNGU 1205..

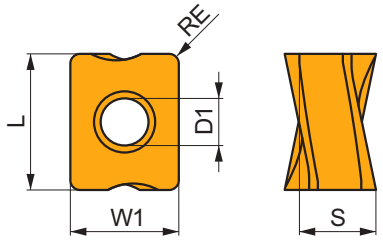
		Nm						
SQ340	US 44012-T15P	3.5	M 4	12	–	–	Flag T15P	–
SQ341	US 44012-T15P	3.5	M 4	12	D-T08P/T15P	FG-15	–	–
SQ342	US 44012-T15P	3.5	M 4	12	D-T08P/T15P	FG-15	–	HS 0830C
SQ343	US 44012-T15P	3.5	M 4	12	D-T08P/T15P	FG-15	–	HS 1030C

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

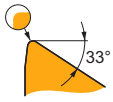
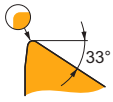
LNGX 12

PRAMET

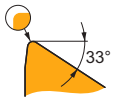
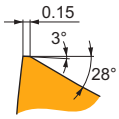
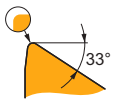
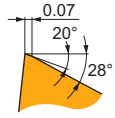
	W1 (mm)	D1 (mm)	L (mm)	S (mm)
1205	9.500	4.50	12.00	5.96



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
			F geometri, hafif işleme için çok pozitif tasarım.																	
LNGX 120504ER-F:8215	●	0.4	200	0.15	1.5	–	–	–	190	0.15	1.5	–	–	–	–	–	–	–	–	–
LNGX 120504ER-F:M8330	●	0.4	200	0.15	1.5	–	–	–	190	0.15	1.5	–	–	–	–	–	–	–	–	–
LNGX 120504ER-F:M8340	●	0.4	180	0.15	1.5	–	–	–	170	0.15	1.5	–	–	–	–	–	–	–	–	–
LNGX 120508ER-F:8215	⬢	0.8	240	0.15	1.5	–	–	–	225	0.15	1.5	–	–	–	–	–	–	–	–	–
LNGX 120508ER-F:M8310	⬢	0.8	260	0.15	1.5	–	–	–	245	0.15	1.5	–	–	–	–	–	–	–	–	–
LNGX 120508ER-F:M8330	⬢	0.8	235	0.15	1.5	–	–	–	220	0.15	1.5	–	–	–	–	–	–	–	–	–
LNGX 120508ER-F:M8340	⬢	0.8	215	0.15	1.5	–	–	–	200	0.15	1.5	–	–	–	–	–	–	–	–	–
																				
			M geometri, hafif ve orta işleme için pozitif tasarım.																	
LNGX 120504ER-M:M8330	●	0.4	185	0.15	3.0	–	–	–	175	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120504ER-M:M8340	⬢	0.4	170	0.15	3.0	–	–	–	160	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120508ER-M:8215	⬢	0.8	220	0.15	3.0	–	–	–	205	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120508ER-M:M8310	⬢	0.8	240	0.15	3.0	–	–	–	225	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120508ER-M:M8330	⬢	0.8	220	0.15	3.0	–	–	–	205	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120508ER-M:M8340	⬢	0.8	200	0.15	3.0	–	–	–	190	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120508ER-M:M9315	⬢	0.8	300	0.15	3.0	–	–	–	285	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120508ER-M:M9325	⬢	0.8	280	0.15	3.0	–	–	–	265	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120508ER-M:M9340	⬢	0.8	250	0.15	3.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LNGX 120510ER-M:M8330	⬢	1.0	230	0.15	3.0	–	–	–	215	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120512ER-M:M8330	⬢	1.2	230	0.15	3.0	–	–	–	215	0.15	3.0	–	–	–	–	–	–	–	–	–

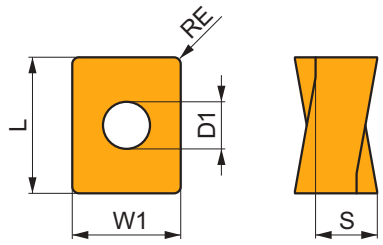
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
M geometri, hafif ve orta işleme için pozitif tasarım.																			
LNGX 120512ER-M:M8340	1.2	210	0.15	3.0	–	–	–	195	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120516ER-M:M8330	1.6	240	0.15	3.0	–	–	–	225	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120516ER-M:M8340	1.6	220	0.15	3.0	–	–	–	205	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120520ER-M:M8310	2.0	280	0.15	3.0	–	–	–	265	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120520ER-M:M8330	2.0	255	0.15	3.0	–	–	–	240	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGX 120520ER-M:M8340	2.0	230	0.15	3.0	–	–	–	215	0.15	3.0	–	–	–	–	–	–	–	–	–
 																			
R geometri, stabil olmayan şartlar için pozitif tasarım.																			
LNGX 120508SR-R:8215	0.8	205	0.20	3.5	–	–	–	190	0.20	3.5	–	–	–	–	–	–	–	–	–
LNGX 120508SR-R:M5315	0.8	265	0.20	3.5	–	–	–	250	0.20	3.5	–	–	–	–	–	–	–	–	–
LNGX 120508SR-R:M8310	0.8	220	0.20	3.5	–	–	–	205	0.20	3.5	–	–	–	–	–	–	–	–	–
LNGX 120508SR-R:M8330	0.8	205	0.20	3.5	–	–	–	190	0.20	3.5	–	–	–	–	–	–	–	–	–
LNGX 120508SR-R:M8340	0.8	185	0.20	3.5	–	–	–	175	0.20	3.5	–	–	–	–	–	–	–	–	–
LNGX 120508SR-R:M9315	0.8	265	0.20	3.5	–	–	–	250	0.20	3.5	–	–	–	–	–	–	–	–	–
LNGX 120508SR-R:M9325	0.8	250	0.20	3.5	–	–	–	235	0.20	3.5	–	–	–	–	–	–	–	–	–
LNGX 120508SR-R:M9340	0.8	225	0.20	3.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LNGX 120516SR-R:8215	1.6	225	0.20	3.5	–	–	–	210	0.20	3.5	–	–	–	–	–	–	–	–	–
LNGX 120516SR-R:M8330	1.6	225	0.20	3.5	–	–	–	210	0.20	3.5	–	–	–	–	–	–	–	–	–
LNGX 120516SR-R:M8340	1.6	205	0.20	3.5	–	–	–	190	0.20	3.5	–	–	–	–	–	–	–	–	–
LNGX 120516SR-R:M9325	1.6	275	0.20	3.5	–	–	–	260	0.20	3.5	–	–	–	–	–	–	–	–	–
 																			
MF geometri, hafif işleme için çok pozitif tasarım.																			
LNGX 120504ER-MF:M6330	0.4	175	0.15	1.0	125	0.14	1.0	–	–	–	–	–	–	–	–	–	–	–	–
LNGX 120504ER-MF:M9340	0.4	240	0.15	1.0	140	0.14	1.0	–	–	–	–	–	–	–	–	–	–	–	–
LNGX 120508ER-MF:M6330	0.8	210	0.15	1.0	150	0.14	1.0	–	–	–	–	–	–	–	–	–	–	–	–
LNGX 120508ER-MF:M8340	0.8	225	0.15	1.0	135	0.14	1.0	–	–	–	–	–	–	–	–	–	–	–	–
LNGX 120508ER-MF:M9340	0.8	285	0.15	1.0	170	0.14	1.0	–	–	–	–	–	–	–	–	–	–	–	–
 																			
MM geometri, hafif ve orta işleme için pozitif tasarım.																			
LNGX 120508SR-MM:M6330	0.8	190	0.15	2.8	135	0.14	2.8	–	–	–	–	–	–	–	–	–	–	–	–
LNGX 120508SR-MM:M8340	0.8	200	0.15	2.8	120	0.14	2.8	–	–	–	–	–	–	–	–	–	–	–	–
LNGX 120508SR-MM:M8345	0.8	160	0.15	2.8	95	0.14	2.8	–	–	–	–	–	–	–	–	–	–	–	–
LNGX 120508SR-MM:M9340	0.8	255	0.15	2.8	150	0.14	2.8	–	–	–	–	–	–	–	–	–	–	–	–

LNGU 12

PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1205	9.500	4.50	12.00	5.96



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

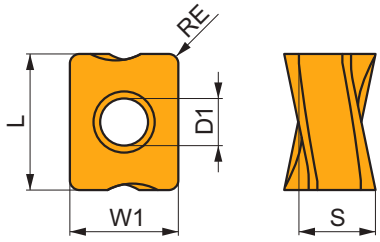
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
LNGU 120525ER-M:M8330		2.5	255	0.15	3.0	–	–	–	240	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGU 120525ER-M:M8340		2.5	230	0.15	3.0	–	–	–	215	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGU 120530ER-M:M8330		3.0	255	0.15	3.0	–	–	–	240	0.15	3.0	–	–	–	–	–	–	–	–	–
LNGU 120530ER-M:M8340		3.0	230	0.15	3.0	–	–	–	215	0.15	3.0	–	–	–	–	–	–	–	–	–

M geometri, orta işleme için pozitif tasarım.

LNGX 12-FA

PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1205	9.500	4.50	12.00	5.96



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

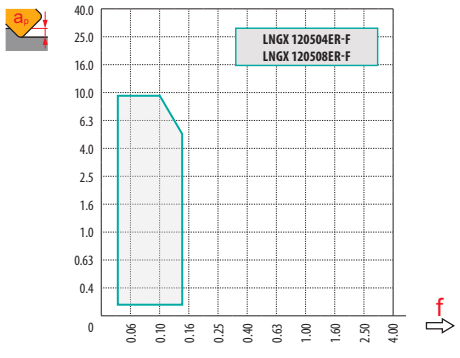
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
LNGX 120504FR-FA:HF7	●	0.4	–	–	–	–	–	–	–	–	–	270	0.30	2.0	–	–	–	–	–	–
LNGX 120508FR-FA:HF7	●	0.8	–	–	–	–	–	–	–	–	–	315	0.30	2.0	–	–	–	–	–	–
LNGX 120508FR-FA:M0315	●	0.8	–	–	–	–	–	–	–	–	–	720	0.30	2.0	–	–	–	–	–	–

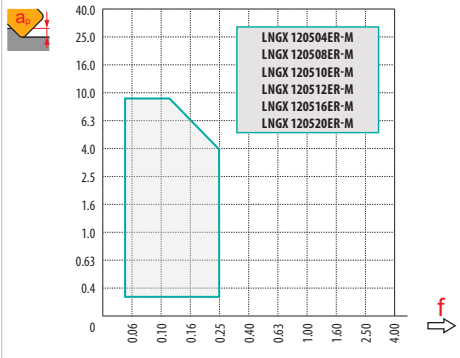
FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.

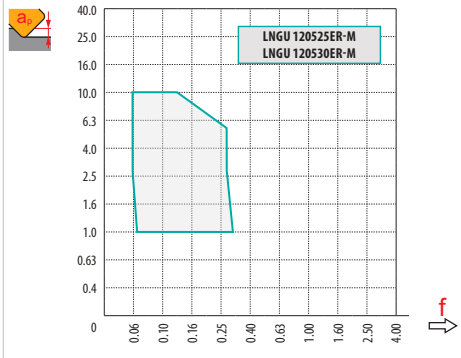
a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

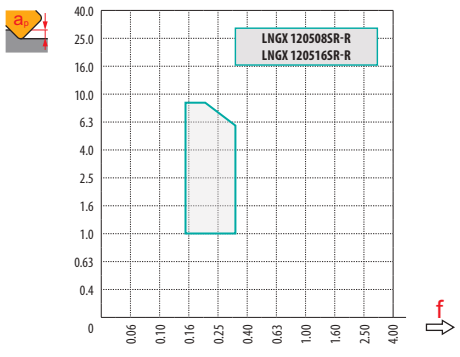
	LNGX 12-F		LNGX 12-M						LNGU 12-M	
RE	0.4	0.8	0.4	0.8	1.0	1.2	1.6	2.0	2.5	3.0
BS	2.29	1.89	2.29	1.89	1.69	1.49	1.09	0.68	0.87	0.36

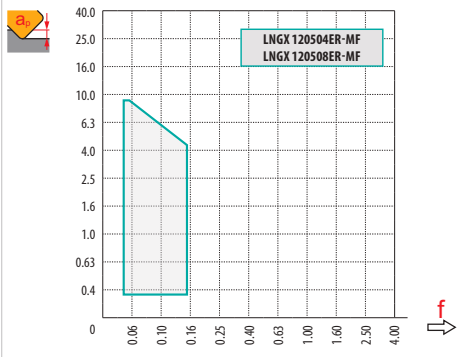
	LNGX 12-R		LNGX 12-MF		LNGX 12-MM	LNGX 12-FA	
RE	0.8	1.6	0.4	0.8	0.8	0.4	0.8
BS	1.88	1.08	2.28	1.88	1.88	2.30	1.89

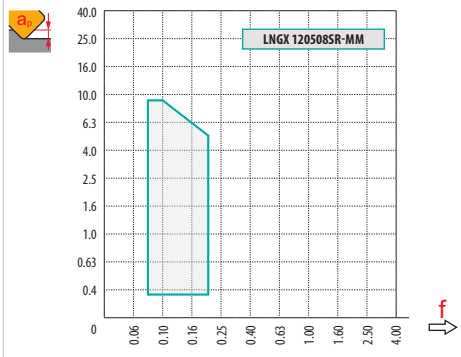


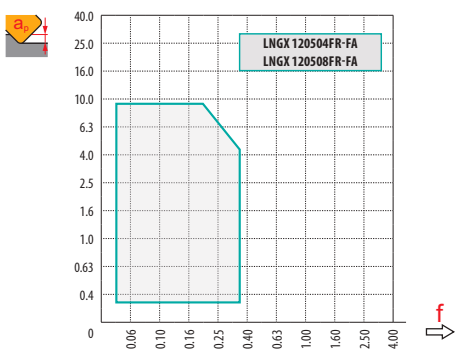


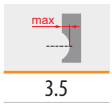












3.5

a_p	1.0	5.0	9.0
f	0.19	0.13	0.08

LNGX 12

DC	RPMX	APMX/I
25	1.3°	2.1/100
32	0.7°	1.1/100
40	0.5°	0.7/100
50	0.4°	0.5/100
63	0.2°	0.3/100
80	0.2°	0.2/100

LNGX 12

DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
25	35.0	50.0	0.7	1.7
32	49.0	64.0	0.6	1.2
40	65.0	80.0	0.6	1.0
50	85.0	100.0	0.7	1.0
63	111.0	126.0	0.6	0.8
80	145.0	160.0	0.7	0.8

0.2

DC	µm	3	5	10	15	20	30	40	50	60	80	100
25		0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
40	FE	0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657

RE	µm	3	5	10	15	20	30	40	50	60	80	100
1.6		0.196	0.253	0.358	0.438	0.506	0.620	0.716	0.800	0.876	1.012	1.131
2.0	FE	0.219	0.283	0.400	0.490	0.566	0.693	0.800	0.894	0.980	1.131	1.265
2.5		0.245	0.316	0.447	0.548	0.632	0.775	0.894	1.000	1.095	1.265	1.414
3.0		0.268	0.346	0.490	0.600	0.693	0.849	0.980	1.095	1.200	1.386	1.549

SLN16

P K N H

PRAMET

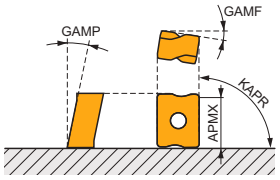
S

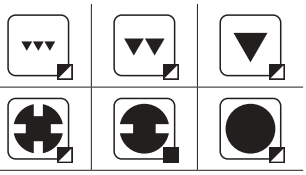
ECO LN16 Duvar Frezeleme Takımı, İçten Su Vermeli

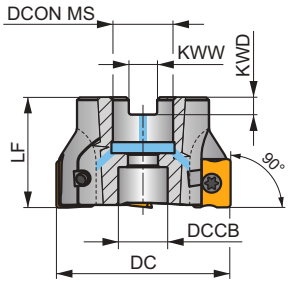
Çift taraflı LN.. 16 uç kullanan 90° kenar freze.. 13 mm APMX'li kesici uç. Çok çeşitli uygulamalar için uygundur.Göbekten bağlamalı takım stili de mevcuttur. Gövde uzun takım ömrü için işlem görmüştür.

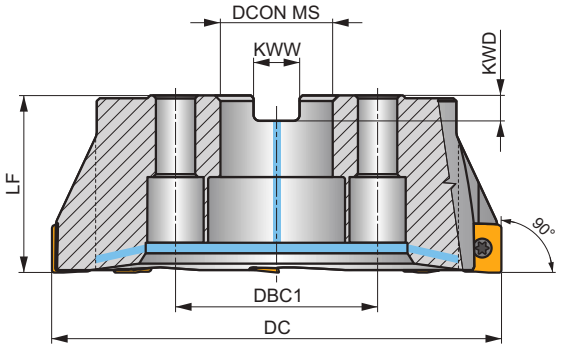
ECON LN

KAPR	90°
APMX	13.0 mm









h_m 0.08 - 0.2

	Product	DC (mm)	LF (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
ISO 6462 DIN 8030	**63A04R-S90LN16-C**	63	40	22	18	–	10.4	6.3	-10.5	-6	4	✓	7600	✓	0.46	GI207	SQ353	–
	63A05R-S90LN16-C	63	40	22	18	–	10.4	6.3	-10.5	-6	5	✓	7600	✓	0.46	GI207	SQ353	–
	80A04R-S90LN16-C	80	50	27	38	–	12.4	7	-10.5	-6	4	✓	6800	✓	0.98	GI207	SQ351	AC001
	80A06R-S90LN16-C	80	50	27	38	–	12.4	7	-10.5	-6	6	✓	6800	✓	0.89	GI207	SQ351	AC001
	100A05R-S90LN16-C	100	50	32	45	–	14.4	8	-10.5	-6	5	✓	6100	✓	0.98	GI207	SQ351	AC002
	100A07R-S90LN16-C	100	50	32	45	–	14.4	8	-10.5	-6	7	✓	6100	✓	1.78	GI207	SQ351	AC002
	125A06R-S90LN16-C	125	63	40	56	–	16.4	9	-10.5	-6	6	✓	5400	✓	3.39	GI207	SQ351	AC003
	125A08R-S90LN16-C	125	63	40	56	–	16.4	9	-10.5	-6	8	✓	5400	✓	3.28	GI207	SQ351	AC003
	140A06R-S90LN16-C	140	63	40	56	–	16.4	9	-10.5	-6	6	✓	5100	✓	3.91	GI207	SQ351	AC003
	160C08R-S90LN16-C	160	63	40	–	66.7	16.4	9	-10.5	-6	8	✓	4700	✓	6.19	GI207	SQ356	–
	175C08R-S90LN16-C	175	63	40	–	66.7	16.4	9	-10.5	-6	8	✓	4500	✓	7.11	GI207	SQ356	–

GI207	LNMU 1607..	LNGU 1607..

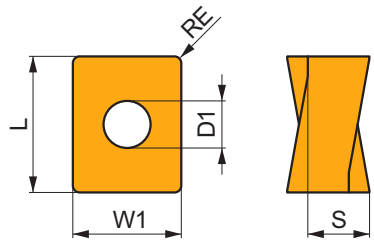
		Nm							
SQ351	US 45012-T20P	5.0	M 5	12	SDR T20P-T	–	–	–	–
SQ353	US 45012-T20P	5.0	M 5	12	SDR T20P-T	HS 1030C	–	–	–
SQ356	US 45012-T20P	5.0	M 5	12	SDR T20P-T	HS 1240C	CAC 160C	HSD 0825C	HXK 5

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

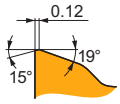
LNGU 16

PRAMET

	W1 (mm)	D1 (mm)	L (mm)	S (mm)
1607	13.200	5.70	16.60	7.50



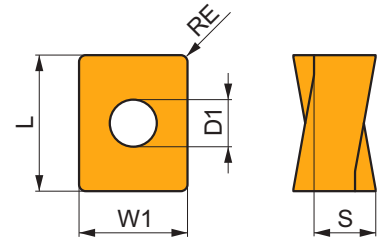
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
			**M** geometri, orta işleme için çok pozitif tasarım.																
LNGU 160708SR-M:8215	0.8	200	0.18	5.0	–	–	–	190	0.18	5.0	–	–	–	–	–	–	40	0.12	1.0
LNGU 160708SR-M:M8340	0.8	180	0.18	5.0	–	–	–	170	0.18	5.0	–	–	–	–	–	–	–	–	–
LNGU 160708SR-M:M9315	0.8	265	0.18	5.0	–	–	–	250	0.18	5.0	–	–	–	–	–	–	50	0.12	1.0
LNGU 160708SR-M:M9325	0.8	250	0.18	5.0	–	–	–	235	0.18	5.0	–	–	–	–	–	–	50	0.12	1.0

LNMU 16

PRAMET

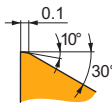
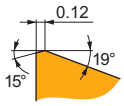
	W1 (mm)	D1 (mm)	L (mm)	S (mm)
1607	13.200	5.70	16.60	7.50



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
			**F** geometri, hafif işleme için çok pozitif tasarım.																
LNMU 160708ER-F:M8330	0.8	230	0.16	1.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LNMU 160708ER-F:M8340	0.8	210	0.16	1.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

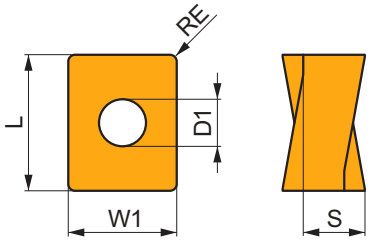
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
M geometri, orta işleme için pozitif tasarım.																			
LNMU 160708SR-M:8215	0.8	200	0.18	5.0	–	–	–	190	0.18	5.0	–	–	–	–	–	–	–	–	–
LNMU 160708SR-M:M6330	0.8	170	0.18	5.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LNMU 160708SR-M:M8330	0.8	200	0.18	5.0	–	–	–	190	0.18	5.0	–	–	–	–	–	–	–	–	–
LNMU 160708SR-M:M8340	0.8	180	0.18	5.0	–	–	–	170	0.18	5.0	–	–	–	–	–	–	–	–	–
LNMU 160708SR-M:M9325	0.8	250	0.18	5.0	–	–	–	235	0.18	5.0	–	–	–	–	–	–	–	–	–
LNMU 160720SR-M:M8330	2.0	230	0.18	5.0	–	–	–	215	0.18	5.0	–	–	–	–	–	–	–	–	–
LNMU 160720SR-M:M8340	2.0	210	0.18	5.0	–	–	–	195	0.18	5.0	–	–	–	–	–	–	–	–	–
LNMU 160730SR-M:M8330	3.0	230	0.18	5.0	–	–	–	215	0.18	5.0	–	–	–	–	–	–	–	–	–
LNMU 160730SR-M:M8340	3.0	210	0.18	5.0	–	–	–	195	0.18	5.0	–	–	–	–	–	–	–	–	–
LNMU 160740SR-M:M8340	4.0	210	0.18	5.0	–	–	–	195	0.18	5.0	–	–	–	–	–	–	–	–	–
 																			
R geometri, orta işleme için stabil pozitif tasarım.																			
LNMU 160708SR-R:M5315	0.8	265	0.18	6.3	–	–	–	250	0.18	6.3	–	–	–	–	–	–	50	0.12	1.0
LNMU 160708SR-R:M8330	0.8	195	0.18	6.3	–	–	–	185	0.18	6.3	–	–	–	–	–	–	35	0.12	1.0
LNMU 160708SR-R:M8340	0.8	175	0.18	6.3	–	–	–	165	0.18	6.3	–	–	–	–	–	–	–	–	–
LNMU 160708SR-R:M9315	0.8	260	0.18	6.3	–	–	–	245	0.18	6.3	–	–	–	–	–	–	50	0.12	1.0
LNMU 160708SR-R:M9325	0.8	240	0.18	6.3	–	–	–	225	0.18	6.3	–	–	–	–	–	–	45	0.12	1.0
LNMU 160716SR-R:M8330	1.6	215	0.18	6.3	–	–	–	200	0.18	6.3	–	–	–	–	–	–	40	0.12	1.1
LNMU 160716SR-R:M8340	1.6	195	0.18	6.3	–	–	–	185	0.18	6.3	–	–	–	–	–	–	–	–	–
LNMU 160716SR-R:M9315	1.6	285	0.18	6.3	–	–	–	270	0.18	6.3	–	–	–	–	–	–	55	0.12	1.1
LNMU 160716SR-R:M9325	1.6	265	0.18	6.3	–	–	–	250	0.18	6.3	–	–	–	–	–	–	50	0.12	1.1

LNGU 16-FA

PRAMET

	W1 (mm)	D1 (mm)	L (mm)	S (mm)
1607	13.200	5.70	16.60	7.50

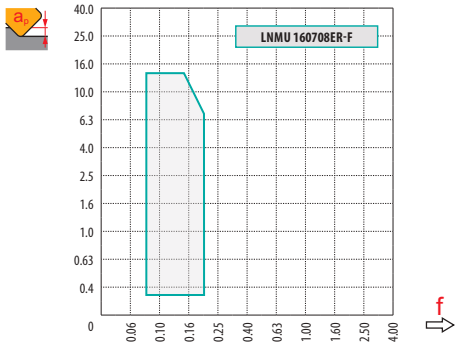


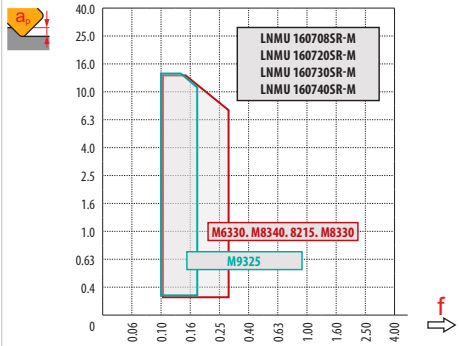
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

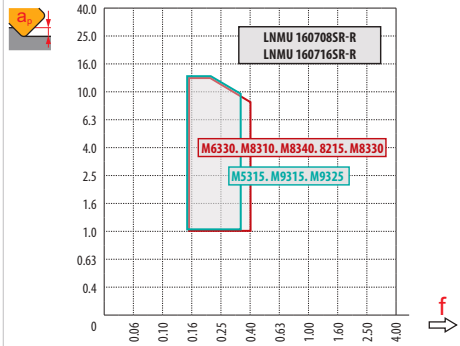
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.																			
LNGU 160708FR-FA:HF7	0.8	–	–	–	–	–	–	–	–	–	300	0.30	3.0	–	–	–	–	–	–

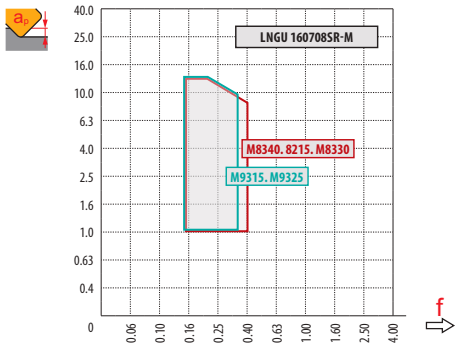
a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

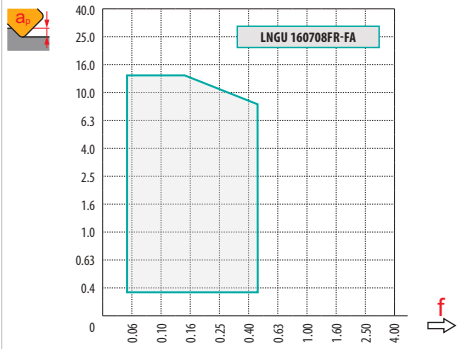
	LNMU 16-F	LNMU 16-M				LNMU 16-R		LNGU 16-M	LNGU 16-FA
RE	0.8	0.8	2.0	3.0	4.0	0.8	1.6	0.8	0.8
BS	3.30	3.30	2.11	1.12	0.10	3.30	2.50	3.24	3.30











max
7.0

a_p	1.0	6.0	13.0
f	0.31	0.24	0.13

SLN12X

P K H

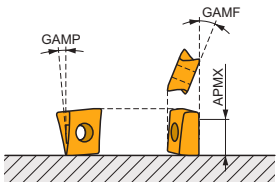
PRAMET

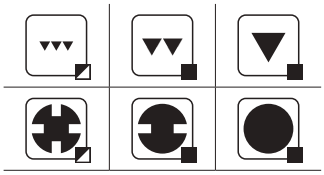
S

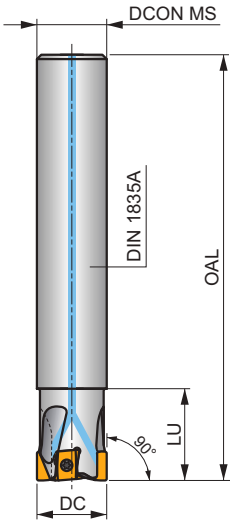
PROD LN12 90° İçten Su Vermeli Tanjantiyel Kare Kenar Frezeleme Takımı

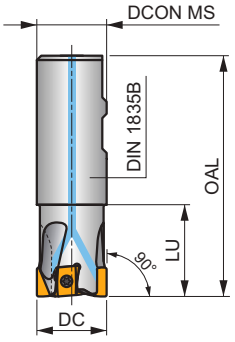
4 kesme kenarlı ve 10 mm APMX'e sahip teğetsel LNEX 12 kesici uç kullanan, yüksek verimli 90° kenar frezeleme takımları. Birçok uygulama için uygundur. Silindirik, Weldon ve arbor tipinde sunulmuştur. Güçlü kesici gövdesi, uzun takım ömrünü ve mükemmel kırılma direncini destekler.

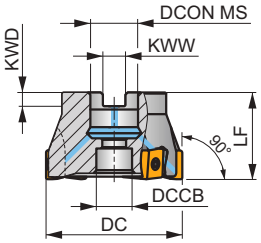
KAPR	90°
APMX	10.0 mm











h_m	0.06 - 0.18
h_m	0.06 - 0.20

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835A	25A2R042A25-SLN12X-C	25	170	25	–	42	–	–	–	-30	-5	2	–	17300	✓	0.55	GI206	C0382
	25A2R080A25-SLN12X-C	25	170	25	–	80	–	–	–	-30	-5	2	–	17300	✓	0.50	GI206	C0382
	32A3R042A32-SLN12X-C	32	195	32	–	42	–	–	–	-22.5	-5	3	–	15300	✓	1.08	GI206	SQ340
	32A3R090A32-SLN12X-C	32	195	32	–	90	–	–	–	-22.5	-5	3	–	15300	✓	1.02	GI206	SQ340
	40A4R050A32-SLN12X-C	40	195	32	–	50	–	–	–	-22.5	-5	4	–	13700	✓	1.17	GI206	SQ340
DIN 1835B	25A2R042B25-SLN12X-C	25	100	25	–	42	–	–	–	-30	-5	2	–	17300	✓	0.29	GI206	C0382
	32A3R042B32-SLN12X-C	32	110	32	–	42	–	–	–	-22.5	-5	3	–	15300	✓	0.58	GI206	SQ340
	40A4R050B32-SLN12X-C	40	120	32	–	50	–	–	–	-22.5	-5	4	–	13700	✓	0.73	GI206	SQ340
ISO 6462 DIN 8030	40A03R-S90LN12X-C	40	–	16	12.4	–	40	8.4	5.6	-22.5	-5	3	–	13700	✓	0.15	GI206	SQ345
	40A04R-S90LN12X-C	40	–	16	12.4	–	40	8.4	5.6	-22.5	-5	4	✓	13700	✓	0.23	GI206	SQ345
	50A05R-S90LN12X-C	50	–	22	16.5	–	40	10.4	6.3	-19.5	-5	5	–	12300	✓	0.34	GI206	SQ343
	50A06R-S90LN12X-C	50	–	22	16.5	–	40	10.4	6.3	-19.5	-5	6	–	12300	✓	0.34	GI206	SQ343
	52A05R-S90LN12X-C	52	–	22	16.5	–	40	10.4	6.3	-19.5	-5	5	–	12300	✓	0.37	GI206	SQ343
	63A06R-S90LN12X-C	63	–	22	16.5	–	40	10.4	6.3	-19.5	-5	6	✓	10900	✓	0.61	GI206	SQ343
	63A08R-S90LN12X-C	63	–	22	16.5	–	40	10.4	6.3	-19.5	-5	8	–	10900	✓	0.50	GI206	SQ343
	66A06R-S90LN12X-C	66	–	22	16.5	–	40	10.4	6.3	-19.5	-5	6	✓	10900	✓	0.54	GI206	SQ343
	80A07R-S90LN12X-C	80	–	27	38.1	–	50	12.4	7	-19.5	-5	7	✓	9700	✓	1.00	GI206	SQ341
	80A10R-S90LN12X-C	80	–	27	38.1	–	50	12.4	7	-19.5	-5	10	–	9700	✓	0.98	GI206	SQ341
	100A08R-S90LN12X-C	100	–	32	45.1	–	50	14.4	8	-17.5	-5	8	✓	8700	✓	1.90	GI206	SQ341
	100A11R-S90LN12X-C	100	–	32	45.1	–	50	14.4	8	-17.5	-5	11	–	8700	✓	1.88	GI206	SQ341
	125A12R-S90LN12X-C	125	–	40	56.1	–	63	16.4	9	-17.5	-5	12	✓	7800	✓	3.39	GI206	SQ341

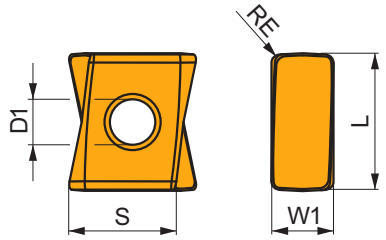
GI206	LNEX 1210..

		Nm						
C0382	US 44010-T15P	3.5	M 4	10	–	–	Flag T15P	–
SQ340	US 44012-T15P	3.5	M 4	12	–	–	Flag T15P	–
SQ341	US 44012-T15P	3.5	M 4	12	D-T08P/T15P	FG-15	–	–
SQ343	US 44012-T15P	3.5	M 4	12	D-T08P/T15P	FG-15	–	HS 1030C
SQ345	US 44012-T15P	3.5	M 4	12	D-T08P/T15P	FG-15	–	HS 90835

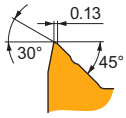
LNEX 12

PRAMET

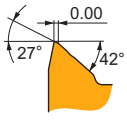
	W1 (mm)	D1 (mm)	L (mm)	S (mm)
1210	6.000	4.40	13.30	10.26



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
LNEX 121008SR-F:M6330		0.8	220	0.17	3.0	155	0.15	3.0	–	–	–	–	–	–	–	–	–	–	–	–
LNEX 121008SR-F:M8310		0.8	280	0.17	3.0	140	0.15	3.0	265	0.17	3.0	–	–	–	–	–	–	55	0.11	1.0
LNEX 121008SR-F:M8330		0.8	260	0.17	3.0	155	0.15	3.0	245	0.17	3.0	–	–	–	–	–	–	50	0.11	1.0
LNEX 121008SR-F:M8340		0.8	235	0.17	3.0	140	0.15	3.0	220	0.17	3.0	–	–	–	–	–	–	–	–	–
LNEX 121012SR-F:M6330		1.2	230	0.17	3.0	165	0.15	3.0	–	–	–	–	–	–	–	–	–	–	–	–
LNEX 121012SR-F:M8310		1.2	295	0.17	3.0	150	0.15	3.0	280	0.17	3.0	–	–	–	–	–	–	55	0.11	1.0
LNEX 121012SR-F:M8330		1.2	270	0.17	3.0	160	0.15	3.0	255	0.17	3.0	–	–	–	–	–	–	50	0.11	1.0

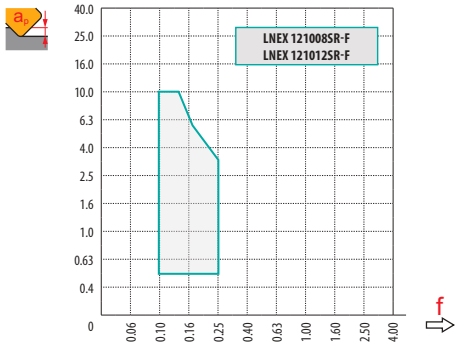
F geometrisi keskindir ve hafif ve orta işleme için kullanılır, uzun kullanma mesafesine sahip uygulamalar için uygundur. Çok pozitif eğimli tasarlanmıştır, dar T alanına ve yuvarlatılmış kesme kenarına sahiptir, hafif ve orta işleme için uygundur.

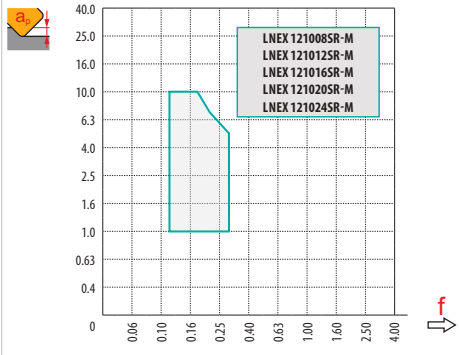
Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
LNEX 121008SR-M:M6330		0.8	210	0.20	3.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LNEX 121008SR-M:M8310		0.8	265	0.20	3.5	–	–	–	250	0.20	3.5	–	–	–	–	–	–	50	0.16	1.0
LNEX 121008SR-M:M8330		0.8	245	0.20	3.5	–	–	–	230	0.20	3.5	–	–	–	–	–	–	45	0.16	1.0
LNEX 121008SR-M:M8340		0.8	220	0.20	3.5	–	–	–	205	0.20	3.5	–	–	–	–	–	–	–	–	–
LNEX 121008SR-M:M9315		0.8	320	0.20	3.5	–	–	–	300	0.20	3.5	–	–	–	–	–	–	60	0.16	1.0
LNEX 121008SR-M:M9325		0.8	300	0.20	3.5	–	–	–	285	0.20	3.5	–	–	–	–	–	–	60	0.16	1.0
LNEX 121008SR-M:M9340		0.8	270	0.20	3.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
LNEX 121012SR-M:M8310		1.2	280	0.20	3.5	–	–	–	265	0.20	3.5	–	–	–	–	–	–	55	0.16	1.0
LNEX 121012SR-M:M8330		1.2	255	0.20	3.5	–	–	–	240	0.20	3.5	–	–	–	–	–	–	50	0.16	1.0
LNEX 121012SR-M:M8340		1.2	235	0.20	3.5	–	–	–	220	0.20	3.5	–	–	–	–	–	–	–	–	–
LNEX 121016SR-M:M8310		1.6	295	0.20	3.5	–	–	–	280	0.20	3.5	–	–	–	–	–	–	55	0.16	1.0
LNEX 121016SR-M:M8330		1.6	270	0.20	3.5	–	–	–	255	0.20	3.5	–	–	–	–	–	–	50	0.16	1.0
LNEX 121016SR-M:M8340		1.6	245	0.20	3.5	–	–	–	230	0.20	3.5	–	–	–	–	–	–	–	–	–
LNEX 121020SR-M:M8330		2.0	285	0.20	3.5	–	–	–	270	0.20	3.5	–	–	–	–	–	–	55	0.16	1.0
LNEX 121020SR-M:M8340		2.0	255	0.20	3.5	–	–	–	240	0.20	3.5	–	–	–	–	–	–	–	–	–
LNEX 121024SR-M:M8330		2.4	285	0.20	3.5	–	–	–	270	0.20	3.5	–	–	–	–	–	–	55	0.16	1.0
LNEX 121024SR-M:M8340		2.4	255	0.20	3.5	–	–	–	240	0.20	3.5	–	–	–	–	–	–	–	–	–

M geometrisi çok yönlüdür ve çok çeşitli çalışma koşulları için ilk tercihtir. Pozitif eğimli tasarlanmıştır, orta boyutlu T alanına ve yuvarlatılmış kesme kenarına sahiptir ve orta ila yarı kaba işleme için uygundur.

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
⇨ x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
⇨ x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	LNEX 12-F		LNEX 12-M				
RE	0.8	1.2	0.8	1.2	1.6	2.0	2.4
BS	2.25	1.73	2.25	1.73	1.33	1.15	0.79





max
2.5

a_p	2.0	3.0	4.0	5.0
1 ⇨ f	0.30	0.20	0.20	0.15

DC	RPMX	APMX/I
25	0.80°	1.40/100
32	0.60°	1.00/100
40	0.35°	0.60/100
50	0.30°	0.50/100
52	0.30°	0.50/100
63	0.20°	0.35/100

DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
25	44.0	48.0	0.6	0.7
32	58.0	62.0	0.8	1.0
40	74.0	78.0	0.7	0.8
50	94.0	98.0	0.7	0.8
52	98.0	102.0	0.7	0.8
63	120.0	124.0	0.3	0.4

DC	µm	3	5	10	15	20	30	40	50	60	80	100
25		0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
52		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
63		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657

RE	µm	3	5	10	15	20	30	40	50	60	80	100
0.8		0.155	0.200	0.283	0.346	0.400	0.490	0.566	0.632	0.693	0.800	0.894
1.2		0.170	0.219	0.310	0.379	0.438	0.537	0.620	0.693	0.759	0.876	0.980
1.6		0.196	0.253	0.358	0.438	0.506	0.620	0.716	0.800	0.876	1.012	1.131
2.0		0.219	0.283	0.400	0.490	0.566	0.693	0.800	0.894	0.980	1.131	1.265
2.4		0.245	0.316	0.447	0.548	0.632	0.775	0.894	1.000	1.095	1.265	1.414

YÜZEY FREZELEME

	SAD07D	SAD11E	SAD16E	SAP10D	SAP16D
	90°	90°	90°	90°	90°
	APMX (mm) 5.0	APMX (mm) 9.0	APMX (mm) 13.0	APMX (mm) 9.0	APMX (mm) 13.0
	DC (mm) 10 – 32	DC (mm) 16 – 125	DC (mm) 25 – 175	DC (mm) 10 – 25	DC (mm) 25 – 125
Silindirik şaft	 DC = 10 – 25 (mm)	 DC = 16 – 35 (mm)	 DC = 25, 32 (mm)		
Weldon		 DC = 16 – 32 (mm)	 DC = 25 – 40 (mm)	 DC = 10 – 25 (mm)	 DC = 25 – 40 (mm)
Modüler	 DC = 12 – 32 (mm)	 DC = 16 – 40 (mm)	 DC = 32, 40 (mm)		
Frezeleme kafası		 DC = 40 – 125 (mm)	 DC = 40 – 175 (mm)		 DC = 40 – 125 (mm)
Sayfa	90	97	106	114	117
ISO	P M K N S	P M K N S H	P M K N S H	P M K N S	P M K N S
Kesici uç şekli					
Kesici uçlar	AD.X 0702	AD.X 11T3	AD.X 1606	APKT 1003	AP.T 1604
Kesme kenarlarının sayısı	2	2	2	2	2
Yüzey frezeleme 	■	■	■	■	■
Havşa frezeleme 	■	■	■	■	■
Helisel interpolasyon 	■	■	■	■	■
Aşamalı dalma 	■	■	■	■	■
Açılı frezeleme 	■	■	■	■	■
Şekil yüzeyleri frezeleme (kopya frezeleme) 	■	■	■	■	■
Sığ kenar frezeleme 	◪	◪	◪	◪	◪
Sığ oluk frezeleme 	◪	■	■		

■ İlk seçim. ◪ Olası seçim.

SAD07D

P M K N S

PRAMET

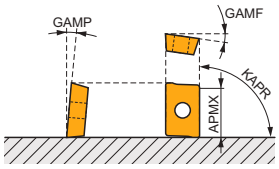
S

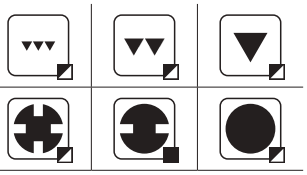
FORCE AD07 Duvar Frezeleme Takımı, İçten Su Vermeli

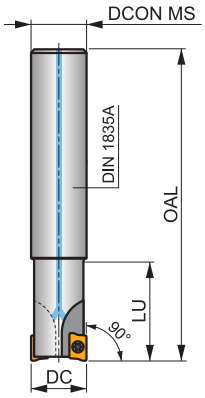
5 mm APMX'li pozitif AD..07 stili kesici uç kullanan 90° parmak freze. Alın, kenar, kanal, helisel, trokoidal, açılı frezeleme ve dalma frezeleme gibi uygulamalar için uygundur. Silindirik ve modüler tarzda olarak mevcuttur.Gövde uzun takım ömrü için işlem görmüştür.

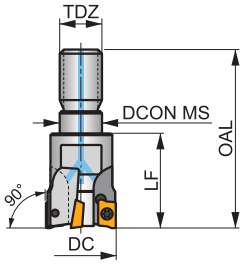
FORCE AD

KAPR	90°
APMX	5.0 mm









h_m 0.03 - 0.08

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	LF (mm)	TDZ	GAMF (°)	GAMP (°)			max.		kg		
	10A2R016A08-SAD07D-C	10	100	8	16	–	–	-12	8	2	–	61600	✓	0.05	GI276	SQ010
	10A2R016A10-SAD07D-C	10	80	10	16	–	–	-12	8	2	–	61600	✓	0.05	GI276	SQ010
	10A2R018A08-SAD07D-CF	10	100	8	18	–	–	-12	8	2	–	61600	✓	0.06	GI276	SQ010
	10A2R018A10-SAD07D-CF	10	80	10	18	–	–	-12	8	2	–	61600	✓	0.05	GI276	SQ010
	12A2R018A10-SAD07D-C	12	120	10	18	–	–	-10	8	2	–	56300	✓	0.09	GI276	SQ010
	12A2R018A12-SAD07D-C	12	90	12	18	–	–	-10	8	2	–	56300	✓	0.09	GI276	SQ010
	12A3R018A12-SAD07D-C	12	90	12	18	–	–	-10	8	3	–	56200	✓	0.09	GI276	SQ010
	12A3R020A12-SAD07D-CF	12	90	12	20	–	–	-10	8	3	–	56200	✓	0.09	GI276	SQ010
	14A3R018A12-SAD07D-C	14	140	12	18	–	–	-9	8	3	–	52100	✓	0.13	GI276	SQ010
	14A3R018A14-SAD07D-C	14	90	14	18	–	–	-9	8	3	–	52100	✓	0.11	GI276	SQ010
DIN 1835A	14A3R020A12-SAD07D-CF	14	140	12	20	–	–	-9	8	3	–	52100	✓	0.14	GI276	SQ010
DIN 1835A	14A3R020A14-SAD07D-CF	14	90	14	20	–	–	-9	8	3	–	52100	✓	0.11	GI276	SQ010
	16A3R019A14-SAD07D-C	16	160	14	19	–	–	-8	8	3	–	48700	✓	0.21	GI276	SQ011
	16A3R019A16-SAD07D-C	16	110	16	19	–	–	-8	8	3	–	48700	✓	0.18	GI276	SQ011
	16A4R019A16-SAD07D-C	16	110	16	19	–	–	-8	8	4	–	48700	✓	0.18	GI276	SQ011
	18A4R019A16-SAD07D-C	18	180	16	19	–	–	-7.5	8	4	✓	45900	✓	0.28	GI276	SQ011
	18A4R019A18-SAD07D-C	18	110	18	19	–	–	-7.5	8	4	✓	45900	✓	0.22	GI276	SQ011
	20A4R020A18-SAD07D-C	20	200	18	20	–	–	-7	8	4	✓	43600	✓	0.37	GI276	SQ011
	20A4R020A20-SAD07D-C	20	125	20	20	–	–	-7	8	4	✓	43600	✓	0.29	GI276	SQ011
	20A5R020A20-SAD07D-C	20	125	20	20	–	–	-7	8	5	✓	43600	✓	0.30	GI276	SQ011
	25A5R024A25-SAD07D-C	25	140	25	24	–	–	-6.5	8	5	✓	39000	✓	0.51	GI276	SQ011
	25A6R024A25-SAD07D-C	25	140	25	24	–	–	-6.5	8	6	✓	39000	✓	0.51	GI276	SQ011
	12A2R020M06-SAD07D-C	12	35	6.5	–	20	M6	-10	8	2	–	–	✓	0.04	GI276	SQ010
	14A3R020M08-SAD07D-C	14	38	8.5	–	20	M8	-9	8	3	–	–	✓	0.04	GI276	SQ010
MODULAR	14A3R023M08-SAD07D-CF	14	41	8.5	–	23	M8	-9	8	3	–	–	✓	0.05	GI276	SQ010
MODULAR	16A4R023M08-SAD07D-C	16	41	8.5	–	23	M8	-8	8	4	✓	–	✓	0.05	GI276	SQ011
	20A5R030M10-SAD07D-C	20	49	10.5	–	30	M10	-7	8	5	✓	–	✓	0.08	GI276	SQ011

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	LF (mm)	TDZ	GAMF (°)	GAMP (°)			max.		kg		
MODULAR	**25A6R035M12-SAD07D-C**	25	57	12.5	–	35	M12	-6.5	8	6	✓	–	✓	0.13	GI276	SQ011
MODULAR	**32A8R043M16-SAD07D-C**	32	66	17	–	43	M16	-6	8	8	✓	–	✓	0.24	GI276	SQ011

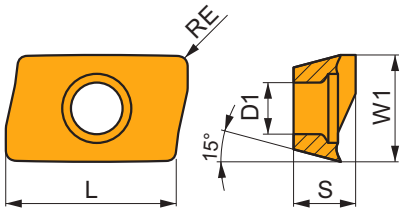
GI276	ADMX 0702..	ADEX 0702..

SQ010	US 62003A-T06P	0.6	M 2	3	Flag T06P
SQ011	US 62004A-T06P	0.6	M 2	4	Flag T06P

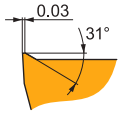
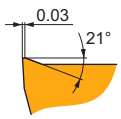
ADMX 07

PRAMET

	W1 (mm)	D1 (mm)	L (mm)	S (mm)
0702	4.482	2.20	6.95	2.48



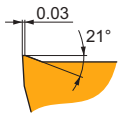
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
ADMX 070202SR-F:M8330	●	0.2	220	0.07	2.0	130	0.06	2.0	–	–	–	660	0.08	2.0	55	0.05	1.6	–	–	–
ADMX 070204SR-F:M6330	●	0.4	200	0.07	2.0	140	0.06	2.0	–	–	–	–	–	–	60	0.05	1.6	–	–	–
ADMX 070204SR-F:M8330	●	0.4	235	0.07	2.0	140	0.06	2.0	–	–	–	705	0.08	2.0	55	0.05	1.6	–	–	–
ADMX 070204SR-F:M8340	●	0.4	215	0.07	2.0	125	0.06	2.0	–	–	–	–	–	–	50	0.05	1.6	–	–	–
ADMX 070208SR-F:M8310	⬢	0.8	320	0.07	2.0	160	0.06	2.0	–	–	–	–	–	–	–	–	–	–	–	–
ADMX 070208SR-F:M8330	⬢	0.8	280	0.07	2.0	165	0.06	2.0	–	–	–	840	0.08	2.0	70	0.05	1.6	–	–	–
ADMX 070208SR-F:M8340	⬢	0.8	255	0.07	2.0	150	0.06	2.0	–	–	–	–	–	–	60	0.05	1.6	–	–	–
																				
ADMX 070202SR-M:M8330	●	0.2	205	0.09	2.2	120	0.08	2.2	190	0.09	2.2	615	0.11	2.2	50	0.06	1.8	–	–	–
ADMX 070202SR-M:M8340	●	0.2	185	0.09	2.2	110	0.08	2.2	175	0.09	2.2	–	–	–	45	0.06	1.8	–	–	–
ADMX 070204SR-M:8215	●	0.4	225	0.09	2.2	135	0.08	2.2	210	0.09	2.2	675	0.11	2.2	55	0.06	1.8	–	–	–
ADMX 070204SR-M:M6330	●	0.4	190	0.09	2.2	135	0.08	2.2	–	–	–	–	–	–	55	0.06	1.8	–	–	–
ADMX 070204SR-M:M8310	●	0.4	245	0.09	2.2	120	0.08	2.2	230	0.09	2.2	–	–	–	–	–	–	–	–	–
ADMX 070204SR-M:M8330	●	0.4	220	0.09	2.2	130	0.08	2.2	205	0.09	2.2	660	0.11	2.2	55	0.06	1.8	–	–	–
ADMX 070204SR-M:M8340	●	0.4	200	0.09	2.2	120	0.08	2.2	190	0.09	2.2	–	–	–	50	0.06	1.8	–	–	–
ADMX 070204SR-M:M9340	●	0.4	265	0.09	2.2	155	0.08	2.2	–	–	–	–	–	–	65	0.06	1.8	–	–	–
ADMX 070208SR-M:8215	⬢	0.8	270	0.09	2.2	160	0.08	2.2	255	0.09	2.2	810	0.11	2.2	65	0.06	1.8	–	–	–

F geometri, hafif işleme için çok keskin tasarım.

M geometri, hafif ve orta işleme için pozitif tasarım.

Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

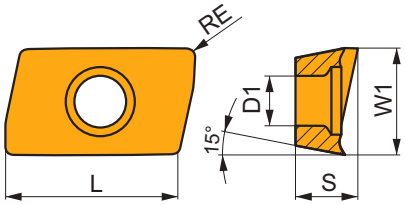
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
ADMX 070208SR-M:M6330	0.8	225	0.09	2.2	160	0.08	2.2	–	–	–	–	–	–	65	0.06	1.8	–	–	–
ADMX 070208SR-M:M8310	0.8	290	0.09	2.2	145	0.08	2.2	275	0.09	2.2	–	–	–	–	–	–	–	–	–
ADMX 070208SR-M:M8330	0.8	260	0.09	2.2	155	0.08	2.2	245	0.09	2.2	780	0.11	2.2	65	0.06	1.8	–	–	–
ADMX 070208SR-M:M8340	0.8	240	0.09	2.2	140	0.08	2.2	225	0.09	2.2	–	–	–	60	0.06	1.8	–	–	–
ADMX 070208SR-M:M9340	0.8	315	0.09	2.2	185	0.08	2.2	–	–	–	–	–	–	75	0.06	1.8	–	–	–
ADMX 070216SR-M:M8330	1.6	290	0.09	2.2	170	0.08	2.2	275	0.09	2.2	870	0.11	2.2	70	0.06	1.8	–	–	–
ADMX 070220SR-M:M8310	2.0	340	0.09	2.2	170	0.08	2.2	320	0.09	2.2	–	–	–	–	–	–	–	–	–
ADMX 070220SR-M:M8330	2.0	300	0.09	2.2	180	0.08	2.2	285	0.09	2.2	900	0.11	2.2	75	0.06	1.8	–	–	–
ADMX 070220SR-M:M8340	2.0	275	0.09	2.2	165	0.08	2.2	260	0.09	2.2	–	–	–	65	0.06	1.8	–	–	–

M geometri, hafif ve orta işleme için pozitif tasarım.

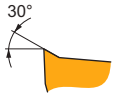
ADEX 07-FA

PRAMET

	W1 (mm)	D1 (mm)	L (mm)	S (mm)
0702	4.497	2.20	6.95	2.48



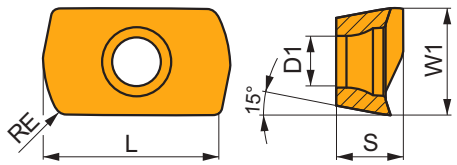
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
ADEX 070204FR-FA:HF7	0.4	–	–	–	–	–	–	–	–	–	240	0.18	3.0	–	–	–	–	–	–
ADEX 070204FR-FA:M0315	0.4	–	–	–	–	–	–	–	–	–	555	0.18	3.0	–	–	–	–	–	–
ADEX 070208FR-FA:HF7	0.8	–	–	–	–	–	–	–	–	–	285	0.18	3.0	–	–	–	–	–	–

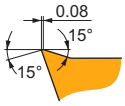
FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.

ADEX 07-HF

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
0702	4.439	2.20	6.45	2.48

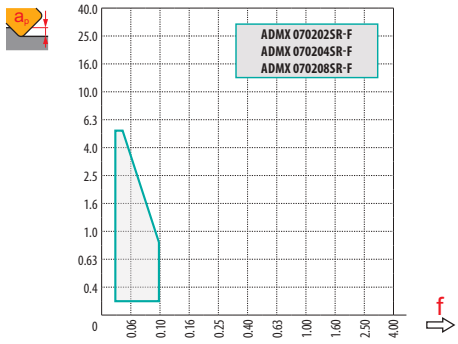


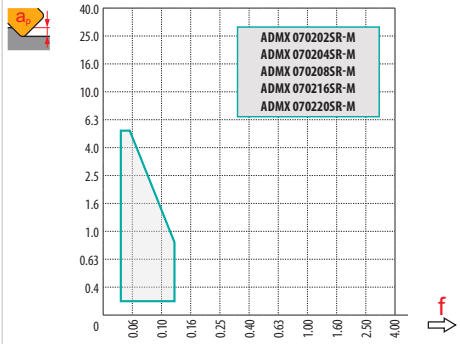
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

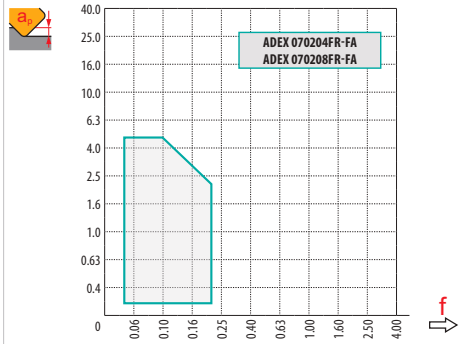
Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
		HFC S																	
HF geometri, yüksek hızlı frezeleme için çok pozitif tasarım.																			
ADEX 070206SR-HF:M6330	0.6	200	0.60	0.3	140	0.54	0.3	–	–	–	–	–	–	–	–	–	–	–	–
ADEX 070206SR-HF:M8330	0.6	225	0.60	0.3	135	0.54	0.3	–	–	–	–	–	–	–	–	–	–	–	–
ADEX 070206SR-HF:M8340	0.6	215	0.60	0.3	125	0.54	0.3	–	–	–	–	–	–	–	–	–	–	–	–

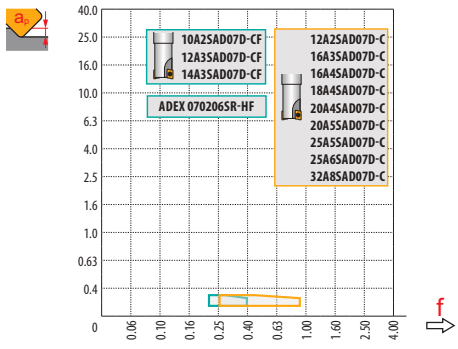
a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	ADMX 07-F			ADMX 07-M					ADEX 07-HF	ADEX 07-FA	
RE	0.2	0.4	0.8	0.2	0.4	0.8	1.6	2.0	0.6	0.4	0.8
BS	1.38	0.89	0.54	1.38	0.89	0.54	0.7	0.33	–	0.94	0.55









ADEX 07-HF				
DC	a_p	0	0.1	0.2	0.3
10		5.6	7.8	8.7	9.4
12		7.6	9.8	10.7	11.4
14		9.6	11.8	12.7	13.4
16	DEF	11.6	13.8	14.7	15.4
18		13.6	15.8	16.7	17.4
20		15.6	17.8	18.7	19.4
25		20.6	22.8	23.7	24.4
32		27.6	29.8	30.7	31.4

HFC			
a_p	0.1	0.2	0.3
1 f	0.9	0.8	0.6

max
3.0

a_p	1.0	3.0	5.0
1 f	0.13	0.08	0.05

	HFC		
a_p	0.1	0.2	0.3
1 f	0.7	0.6	0.4

DC	RPMX	APMX/I
10	5.2°	5.0/56
12	3.4°	5.0/86
14	2.5°	4.2/100
16	1.9°	3.2/100
18	1.7°	2.8/100
20	1.5°	2.5/100
25	1.1°	1.8/100
32	0.8°	1.2/100

HFC		
DC	RPMX	APMX/I
10	3.5°	0.3/6
12	2.2°	0.3/9
14	1.6°	0.3/12
16	1.3°	0.3/15
18	1.1°	0.3/17
20	0.9°	0.3/21
25	0.7°	0.3/26
32	0.5°	0.3/36

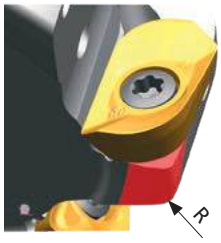
DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
10	12.0	20.0	0.5	2.8
12	16.0	24.0	0.7	2.2
14	20.0	28.0	0.8	1.9
16	24.0	32.0	0.8	1.6
18	28.0	36.0	0.9	1.6
20	32.0	40.0	0.9	1.6
25	42.0	50.0	1.0	1.5
32	56.0	64.0	1.0	1.4

HFC				
DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
10	12	20	0.30	0.30
12	16	24	0.30	0.30
14	20	28	0.30	0.30
16	24	32	0.30	0.30
18	28	36	0.30	0.30
20	32	40	0.30	0.30
25	42	50	0.30	0.30
32	56	64	0.30	0.30

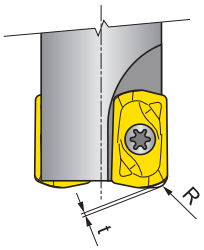
a_p
0.5

a_p	HFC
	0.3

DC	µm	3	5	10	15	20	30	40	50	60	80	100
10		0.346	0.447	0.632	0.775	0.894	1.095	1.265	1.414	1.549	1.789	2.000
12		0.379	0.490	0.693	0.849	0.980	1.200	1.386	1.549	1.697	1.960	2.191
14		0.410	0.529	0.748	0.917	1.058	1.296	1.497	1.673	1.833	2.117	2.366
16	FE	0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530
18		0.465	0.600	0.849	1.039	1.200	1.470	1.697	1.897	2.078	2.400	2.683
20		0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
25		0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578



ADMX 07	R
ADMX 070216SR-M	1
ADMX 070220SR-M	1.5
ADEX 070206SR-HF	1



ADEX 07	R	t
ADEX 070206SR-HF	0.8	0.18

SAD11E

P M K N S H

PRAMET

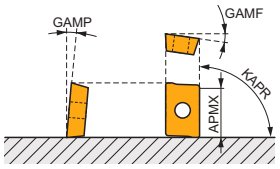
S

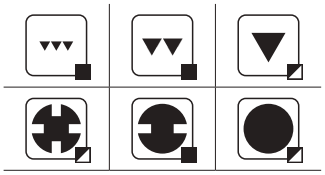
FORCE AD11 Duvar Frezeleme Takımı, İçten Su Vermeli

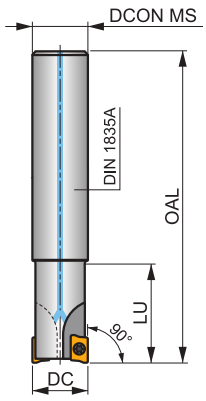
9 mm APMX'li pozitif AD.. 11 stil kesici uç kullanan 90° uç ve kabuk frezeleri. Yüzey, kenar, kanal, helisel, trokoidal, açılı frezeleme ve dalma frezeleme için uygundur.. ilindirik, veldon, modüler, mors konik ve göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

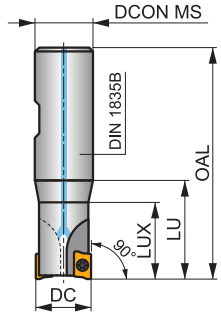
FORCE AD

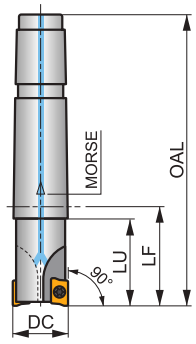
KAPR	90°
APMX	9.0 mm

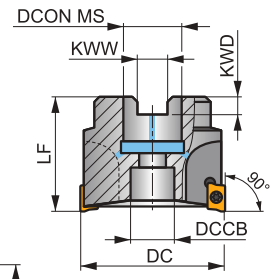


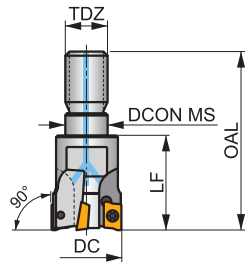












h_m	0.06 – 0.13
h_m	0.08 – 0.16

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LUX (mm)	LF (mm)	TDZ	CZC MS	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)	max.		kg			
	16A2R024A14-SAD11E-C	16	160	14	–	24	–	–	–	–	–	–	-12.8	4	2	–	30100	✓	0.19	GI169 SQ025	–
	16A2R024A16-SAD11E-C	16	135	16	–	24	–	–	–	–	–	–	-12.8	4	2	–	30100	✓	0.19	GI169 SQ025	–
	16A2R050A16-SAD11E-C	16	135	16	–	50	–	–	–	–	–	–	-12.8	4	2	–	30100	✓	0.20	GI169 SQ025	–
	18A2R029A20-SAD11E-C	18	150	20	–	29	–	–	–	–	–	–	-12	4.5	2	–	28400	✓	0.35	GI169 SQ025	–
	20A2R029A20-SAD11E-C	20	150	20	–	29	–	–	–	–	–	–	-11.5	5	2	–	27000	✓	0.33	GI169 SQ020	–
	20A2R070A20-SAD11E-C	20	150	20	–	70	–	–	–	–	–	–	-11.5	5	2	–	27000	✓	0.32	GI169 SQ020	–
	20A3R029A18-SAD11E-C	20	200	18	–	29	–	–	–	–	–	–	-11.5	5	3	–	27000	✓	0.36	GI169 SQ025	–
	20A3R029A20-SAD11E-C	20	150	20	–	29	–	–	–	–	–	–	-11.5	5	3	–	27000	✓	0.31	GI169 SQ025	–
DIN 1835A	**22A3R029A20-SAD11E-C**	22	200	20	–	29	–	–	–	–	–	–	-11.5	5	3	–	25600	✓	0.45	GI169 SQ025	–
	25A3R034A25-SAD11E-C	25	170	25	–	34	–	–	–	–	–	–	-10.2	5	3	–	24100	✓	0.42	GI169 SQ020	–
	25A3R080A25-SAD11E-C	25	170	25	–	80	–	–	–	–	–	–	-10.2	5	3	–	24100	✓	0.52	GI169 SQ020	–
	25A4R034A25-SAD11E-C	25	170	25	–	34	–	–	–	–	–	–	-10.2	5	4	–	24100	✓	0.56	GI169 SQ025	–
	25A4R040A25-SAD11E-C	25	250	25	–	40	–	–	–	–	–	–	-10.2	5	4	–	24100	✓	0.85	GI169 SQ025	–
	30A3R080A32-SAD11E-C	30	200	32	–	80	–	–	–	–	–	–	-9.3	7	3	–	22000	✓	0.98	GI169 SQ020	–
	32A3R090A32-SAD11E-C	32	195	32	–	90	–	–	–	–	–	–	-9	5	3	–	21300	✓	0.99	GI169 SQ020	–
	32A5R034A32-SAD11E-C	32	195	32	–	34	–	–	–	–	–	–	-9	8	5	–	21300	✓	1.03	GI169 SQ025	–
	35A5R025A32-SAD11E-C	35	200	32	–	25	–	–	–	–	–	–	-9	8	5	–	20300	✓	1.11	GI169 SQ020	–
	16A2R027B16-SAD11E-C	16	75	16	–	–	27	–	–	–	–	–	-12.8	4	2	–	30100	✓	0.11	GI169 SQ025	–
	20A2R032B20-SAD11E-C	20	82	20	–	–	32	–	–	–	–	–	-11.5	5	2	–	27000	✓	0.13	GI169 SQ020	–
	20A3R032B20-SAD11E-C	20	82	20	–	–	32	–	–	–	–	–	-11.5	5	3	–	27000	✓	0.13	GI169 SQ025	–
DIN 1835B	**25A3R042B25-SAD11E-C**	25	98	25	–	–	42	–	–	–	–	–	-10.2	5	3	–	24100	✓	0.29	GI169 SQ020	–
	25A4R042B25-SAD11E-C	25	98	25	–	–	42	–	–	–	–	–	-10.2	5	4	–	24100	✓	0.31	GI169 SQ025	–
	32A4R042B32-SAD11E-C	32	102	32	–	–	42	–	–	–	–	–	-9	8	4	–	21300	✓	0.27	GI169 SQ020	–
	32A5R042B32-SAD11E-C	32	102	32	–	–	42	–	–	–	–	–	-9	8	5	–	21300	✓	0.32	GI169 SQ025	–
	16A2R030E02-SAD11E-C	16	94	–	–	25	–	30	–	2	–	–	-12.8	4	2	–	30100	✓	0.13	GI169 SQ025	–
DIN 228A	**20A3R035E03-SAD11E-C**	20	116	–	–	30	–	35	–	3	–	–	-11.5	5	3	–	27000	✓	0.27	GI169 SQ025	–
	25A4R043E03-SAD11E-C	25	124	–	–	38	–	43	–	3	–	–	-10.2	5	4	–	24100	✓	0.31	GI169 SQ025	–

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LUX (mm)	LF (mm)	TDZ	CZC MS	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)					kg			
MODULAR	**16A2R024M08-SAD11E-C**	16	38	8.5	–	–	–	24	M8	–	–	–	-12.8	4	2	–	–	✓	0.04	GI169	SQ025	–
	20A2R026M10-SAD11E-C	20	45	11	–	–	–	26	M10	–	–	–	-11.5	5	2	–	–	✓	0.06	GI169	SQ020	–
	20A3R026M10-SAD11E-C	20	45	10.5	–	–	–	26	M10	–	–	–	-11.5	5	3	–	–	✓	0.06	GI169	SQ025	–
	25A3R033M12-SAD11E-C	25	55	12.5	–	–	–	33	M12	–	–	–	-10.2	5	3	–	–	✓	0.10	GI169	SQ020	–
	25A4R033M12-SAD11E-C	25	55	12.5	–	–	–	33	M12	–	–	–	-10.2	5	4	–	–	✓	0.09	GI169	SQ025	–
	32A4R043M16-SAD11E-C	32	66	17	–	–	–	43	M16	–	–	–	-9	8	4	–	–	✓	0.20	GI169	SQ020	–
	32A5R043M16-SAD11E-C	32	66	17	–	–	–	43	M16	–	–	–	-9	8	5	–	–	✓	0.20	GI169	SQ025	–
	40A4R043M16-SAD11E-C	40	66	17	–	–	–	43	M16	–	–	–	-8.1	11	4	–	–	✓	0.27	GI169	SQ020	–
	40A6R043M16-SAD11E-C	40	66	17	–	–	–	43	M16	–	–	–	-8.1	11	6	–	–	✓	0.21	GI169	SQ020	–
	40A04R-S90AD11E-C	40	–	16	14	–	–	40	–	–	8.4	5.6	-8.1	11	4	✓	19100	✓	0.16	GI169	SQ022	–
	40A05R-S90AD11E-C	40	–	16	14	–	–	40	–	–	8.4	5.6	-8.1	11	5	✓	19000	✓	0.31	GI169	SQ022	–
	40A06R-S90AD11E-C	40	–	16	14	–	–	40	–	–	8.4	5.6	-8.1	11	6	✓	19100	✓	0.20	GI169	SQ022	–
	50A05R-S90AD11E-C	50	–	22	18	–	–	40	–	–	10.4	6.3	-7.2	12	5	✓	17000	✓	0.31	GI169	SQ023	–
ISO 6462 DIN 8030	**50A07R-S90AD11E-C**	50	–	22	18	–	–	40	–	–	10.4	6.3	-7.2	12	7	✓	17000	✓	0.44	GI169	SQ023	–
	63A06R-S90AD11E-C	63	–	22	18	–	–	40	–	–	10.4	6.3	-6.5	12	6	✓	15200	✓	0.54	GI169	SQ023	–
	63A09R-S90AD11E-C	63	–	22	18	–	–	40	–	–	10.4	6.3	-6.5	12	9	✓	15200	✓	0.61	GI169	SQ023	–
	80A10R-S90AD11E-C	80	–	27	38	–	–	50	–	–	12.4	7	-6	12	10	✓	13500	✓	1.04	GI169	SQ021	AC001
	100A11R-S90AD11E-C	100	–	32	45	–	–	50	–	–	14.4	8	-5.5	12	11	✓	12100	✓	1.89	GI169	SQ021	AC002
	125A12R-S90AD11E-C	125	–	40	56	–	–	63	–	–	16.4	9	-5.2	12	12	✓	10800	✓	2.97	GI169	SQ021	AC003

GI169	ADMX 11T3..	ADEX 11T3..

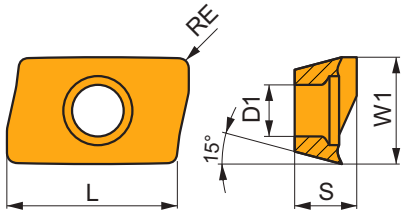
		Nm						
SQ020	US 62506-T07P	1.2	M 2.5	6	–	–	Flag T07P	–
SQ021	US 62506-T07P	1.2	M 2.5	6	D-T07P/T09P	FG-15	–	–
SQ022	US 62506-T07P	1.2	M 2.5	6	D-T07P/T09P	FG-15	–	HS 0830C
SQ023	US 62506-T07P	1.2	M 2.5	6	D-T07P/T09P	FG-15	–	HS 1030C
SQ025	US 62505-T07P	1.2	M 2.5	5	–	–	Flag T07P	–

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

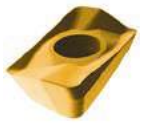
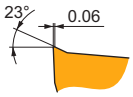
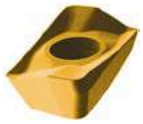
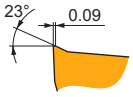
ADMX 11

PRAMET

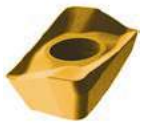
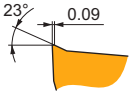
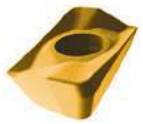
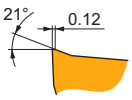
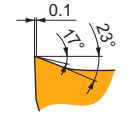
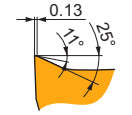
	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
11T3	6.530	2.90	11.00	3.97



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
F geometri, hafif işleme için çok keskin tasarım.																				
ADMX 11T304SR-F:8215	●	0.4	245	0.10	2.0	145	0.09	2.0	230	0.10	2.0	735	0.12	2.0	60	0.08	1.6	–	–	–
ADMX 11T304SR-F:M8330	●	0.4	240	0.10	2.0	140	0.09	2.0	225	0.10	2.0	720	0.12	2.0	60	0.08	1.6	–	–	–
ADMX 11T304SR-F:M8340	●	0.4	220	0.10	2.0	130	0.09	2.0	205	0.10	2.0	–	–	–	55	0.08	1.6	–	–	–
ADMX 11T304SR-F:M9340	●	0.4	285	0.10	2.0	170	0.09	2.0	–	–	–	–	–	–	70	0.08	1.6	–	–	–
ADMX 11T308SR-F:8215	⬢	0.8	290	0.10	2.0	170	0.09	2.0	275	0.10	2.0	870	0.12	2.0	70	0.08	1.6	–	–	–
ADMX 11T308SR-F:M8330	⬢	0.8	285	0.10	2.0	170	0.09	2.0	270	0.10	2.0	855	0.12	2.0	70	0.08	1.6	–	–	–
ADMX 11T308SR-F:M8340	⬢	0.8	260	0.10	2.0	155	0.09	2.0	245	0.10	2.0	–	–	–	65	0.08	1.6	–	–	–
ADMX 11T308SR-F:M9340	⬢	0.8	340	0.10	2.0	200	0.09	2.0	–	–	–	–	–	–	85	0.08	1.6	–	–	–
																				
M geometri, hafif ve orta işleme için pozitif tasarım.																				
ADMX 11T302SR-M:M8330	●	0.2	190	0.15	4.0	110	0.14	4.0	180	0.15	4.0	–	–	–	45	0.12	3.2	–	–	–
ADMX 11T302SR-M:M8340	⬢	0.2	170	0.15	4.0	100	0.14	4.0	160	0.15	4.0	–	–	–	40	0.12	3.2	–	–	–
ADMX 11T304SR-M:8215	●	0.4	205	0.15	4.0	120	0.14	4.0	190	0.15	4.0	–	–	–	50	0.12	3.2	–	–	–
ADMX 11T304SR-M:M8310	●	0.4	220	0.15	4.0	110	0.14	4.0	205	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T304SR-M:M8330	⬢	0.4	205	0.15	4.0	120	0.14	4.0	190	0.15	4.0	–	–	–	50	0.12	3.2	–	–	–
ADMX 11T304SR-M:M8340	⬢	0.4	185	0.15	4.0	110	0.14	4.0	175	0.15	4.0	–	–	–	45	0.12	3.2	–	–	–
ADMX 11T304SR-M:M9325	●	0.4	255	0.15	4.0	–	–	–	240	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T304SR-M:M9340	●	0.4	235	0.15	4.0	140	0.14	4.0	–	–	–	–	–	–	55	0.12	3.2	–	–	–
ADMX 11T308SR-M:8215	⬢	0.8	245	0.15	4.0	145	0.14	4.0	230	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T308SR-M:M5315	⬢	0.8	335	0.15	4.0	–	–	–	315	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T308SR-M:M8310	⬢	0.8	265	0.15	4.0	135	0.14	4.0	250	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T308SR-M:M8330	⬢	0.8	245	0.15	4.0	145	0.14	4.0	230	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T308SR-M:M8340	⬢	0.8	220	0.15	4.0	130	0.14	4.0	205	0.15	4.0	–	–	–	55	0.12	3.2	–	–	–
ADMX 11T308SR-M:M9315	⬢	0.8	330	0.15	4.0	–	–	–	310	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T308SR-M:M9325	⬢	0.8	305	0.15	4.0	–	–	–	285	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T308SR-M:M9340	⬢	0.8	275	0.15	4.0	165	0.14	4.0	–	–	–	–	–	–	65	0.12	3.2	–	–	–
ADMX 11T310SR-M:M8330	⬢	1.0	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T310SR-M:M8340	✱	1.0	230	0.15	4.0	135	0.14	4.0	215	0.15	4.0	–	–	–	55	0.12	3.2	–	–	–
ADMX 11T312SR-M:8215	⬢	1.2	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T312SR-M:M8330	✱	1.2	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T312SR-M:M8340	✱	1.2	230	0.15	4.0	135	0.14	4.0	215	0.15	4.0	–	–	–	55	0.12	3.2	–	–	–
ADMX 11T316SR-M:8215	⬢	1.6	270	0.15	4.0	160	0.14	4.0	255	0.15	4.0	–	–	–	65	0.12	3.2	–	–	–
ADMX 11T316SR-M:M6330	✱	1.6	230	0.15	4.0	165	0.14	4.0	–	–	–	–	–	–	65	0.12	3.2	–	–	–
ADMX 11T316SR-M:M8310	⬢	1.6	295	0.15	4.0	150	0.14	4.0	280	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T316SR-M:M8330	✱	1.6	270	0.15	4.0	160	0.14	4.0	255	0.15	4.0	–	–	–	65	0.12	3.2	–	–	–
ADMX 11T316SR-M:M8340	✱	1.6	240	0.15	4.0	140	0.14	4.0	225	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T320SR-M:M6330	✱	2.0	240	0.15	4.0	170	0.14	4.0	–	–	–	–	–	–	70	0.12	3.2	–	–	–
ADMX 11T320SR-M:M8330	✱	2.0	280	0.15	4.0	165	0.14	4.0	265	0.15	4.0	–	–	–	70	0.12	3.2	–	–	–
ADMX 11T320SR-M:M8340	✱	2.0	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–

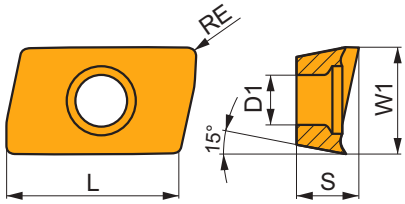
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
M geometri, hafif ve orta işleme için pozitif tasarım.																			
ADMX 11T325SR-M:M6330	2.5	240	0.15	4.0	170	0.14	4.0	–	–	–	–	–	–	70	0.12	3.2	–	–	–
ADMX 11T325SR-M:M8340	2.5	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T330SR-M:M6330	3.0	240	0.15	4.0	170	0.14	4.0	–	–	–	–	–	–	70	0.12	3.2	–	–	–
ADMX 11T330SR-M:M8330	3.0	280	0.15	4.0	165	0.14	4.0	265	0.15	4.0	–	–	–	70	0.12	3.2	–	–	–
ADMX 11T330SR-M:M8340	3.0	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
 																			
R geometri, az stabil şartlar için pozitif tasarım.																			
ADMX 11T308PR-R:8215	0.8	230	0.18	4.0	135	0.16	4.0	215	0.18	4.0	–	–	–	55	0.16	3.2	45	0.12	0.7
ADMX 11T308PR-R:M5315	0.8	310	0.18	4.0	–	–	–	290	0.18	4.0	–	–	–	–	–	–	60	0.13	0.7
ADMX 11T308PR-R:M8310	0.8	250	0.18	4.0	125	0.16	4.0	235	0.18	4.0	–	–	–	–	–	–	50	0.12	0.7
ADMX 11T308PR-R:M8330	0.8	230	0.18	4.0	135	0.16	4.0	215	0.18	4.0	–	–	–	55	0.16	3.2	45	0.12	0.7
ADMX 11T308PR-R:M8340	0.8	210	0.18	4.0	125	0.16	4.0	195	0.18	4.0	–	–	–	50	0.16	3.2	–	–	–
ADMX 11T308PR-R:M9315	0.8	310	0.18	4.0	–	–	–	290	0.18	4.0	–	–	–	–	–	–	60	0.13	0.7
ADMX 11T308PR-R:M9325	0.8	290	0.18	4.0	–	–	–	275	0.18	4.0	–	–	–	–	–	–	55	0.13	0.7
ADMX 11T316PR-R:8215	1.6	255	0.18	4.0	150	0.16	4.0	240	0.18	4.0	–	–	–	60	0.16	3.2	50	0.12	0.7
ADMX 11T316PR-R:M8330	1.6	255	0.18	4.0	150	0.16	4.0	240	0.18	4.0	–	–	–	60	0.16	3.2	50	0.12	0.7
ADMX 11T316PR-R:M9325	1.6	320	0.18	4.0	–	–	–	300	0.18	4.0	–	–	–	–	–	–	60	0.12	0.7
 																			
MF geometri, hafif ve finiş işleme için çok pozitif tasarım.																			
ADMX 11T304SR-MF:M6330	0.4	215	0.08	2.5	150	0.07	2.5	–	–	–	–	–	–	60	0.06	2.0	–	–	–
ADMX 11T304SR-MF:M8340	0.4	220	0.08	2.5	130	0.07	2.5	–	–	–	–	–	–	55	0.06	2.0	–	–	–
ADMX 11T308SR-MF:M6330	0.8	255	0.08	2.5	180	0.07	2.5	–	–	–	–	–	–	75	0.06	2.0	–	–	–
ADMX 11T308SR-MF:M8340	0.8	265	0.08	2.5	155	0.07	2.5	–	–	–	–	–	–	65	0.06	2.0	–	–	–
 																			
MM geometri, hafif ve orta işleme için çok pozitif tasarım.																			
ADMX 11T304SR-MM:M6330	0.4	185	0.14	2.5	130	0.13	2.5	–	–	–	–	–	–	55	0.11	2.0	–	–	–
ADMX 11T304SR-MM:M8340	0.4	195	0.14	2.5	115	0.13	2.5	–	–	–	–	–	–	45	0.11	2.0	–	–	–
ADMX 11T308SR-MM:M6330	0.8	225	0.14	2.5	155	0.13	2.5	–	–	–	–	–	–	65	0.11	2.0	–	–	–
ADMX 11T308SR-MM:M8340	0.8	235	0.14	2.5	140	0.13	2.5	–	–	–	–	–	–	55	0.11	2.0	–	–	–
ADMX 11T308SR-MM:M8345	0.8	190	0.14	2.5	110	0.13	2.5	–	–	–	–	–	–	45	0.11	2.0	–	–	–
ADMX 11T308SR-MM:M9340	0.8	300	0.14	2.5	180	0.13	2.5	–	–	–	–	–	–	75	0.11	2.0	–	–	–
ADMX 11T312SR-MM:M6330	1.2	235	0.14	2.5	165	0.13	2.5	–	–	–	–	–	–	70	0.11	2.0	–	–	–
ADMX 11T312SR-MM:M8340	1.2	245	0.14	2.5	145	0.13	2.5	–	–	–	–	–	–	60	0.11	2.0	–	–	–

ADEX 11-FA

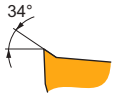
PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
11T3	6.450	2.90	9.70	3.91



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)



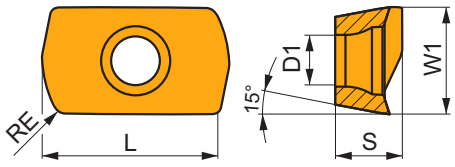
FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.

ADEX 11T304FR-FA:HF7	●	0.4	–	–	–	–	–	–	–	–	–	■ 210	0.30	5.0	–	–	–	–	–	–
ADEX 11T304FR-FA:M0315	●	0.4	–	–	–	–	–	–	–	–	–	■ 480	0.30	5.0	–	–	–	–	–	–
ADEX 11T308FR-FA:HF7	●	0.8	–	–	–	–	–	–	–	–	–	■ 240	0.30	5.0	–	–	–	–	–	–
ADEX 11T308FR-FA:M0315	●	0.8	–	–	–	–	–	–	–	–	–	■ 570	0.30	5.0	–	–	–	–	–	–
ADEX 11T312FR-FA:HF7	●	1.2	–	–	–	–	–	–	–	–	–	■ 255	0.30	5.0	–	–	–	–	–	–
ADEX 11T316FR-FA:HF7	●	1.6	–	–	–	–	–	–	–	–	–	■ 270	0.18	5.0	–	–	–	–	–	–

ADEX 11-HF

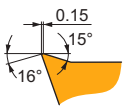
PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
11T3	6.450	2.90	10.67	3.82



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

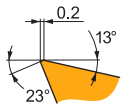
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)



HF geometri, yüksek hızlı frezeleme için çok pozitif tasarım.

ADEX 11T308SR-HF:8215	●	0.8	■ 215	0.68	0.4	◪ 125	0.61	0.4	–	–	–	–	–	–	–	–	–	–	–	–
ADEX 11T308SR-HF:M6330	●	0.8	■ 185	0.68	0.4	◪ 130	0.61	0.4	–	–	–	–	–	–	–	–	–	–	–	–
ADEX 11T308SR-HF:M8310	●	0.8	■ 220	0.68	0.4	◪ 110	0.52	0.4	–	–	–	–	–	–	–	–	–	–	–	–
ADEX 11T308SR-HF:M8330	●	0.8	■ 215	0.68	0.4	◪ 125	0.61	0.4	–	–	–	–	–	–	–	–	–	–	–	–
ADEX 11T308SR-HF:M8340	●	0.8	■ 200	0.68	0.4	◪ 120	0.61	0.4	–	–	–	–	–	–	–	–	–	–	–	–
ADEX 11T308SR-HF:M9340	●	0.8	■ 220	0.68	0.4	◪ 130	0.61	0.4	–	–	–	–	–	–	–	–	–	–	–	–

Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

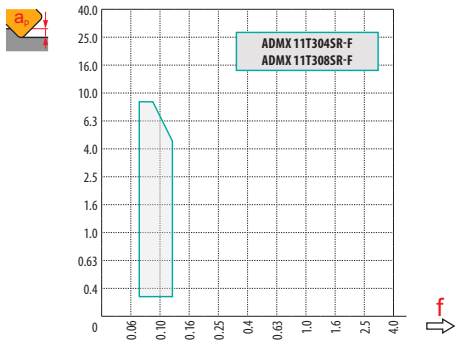
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
ADEX 11T308SR-HF2:M8310		0.8	220	0.68	0.4	110	0.61	0.4	205	0.68	0.4	–	–	–	–	–	–	40	0.48	0.3
ADEX 11T308SR-HF2:M8330		0.8	215	0.68	0.4	125	0.61	0.4	200	0.68	0.4	–	–	–	50	0.48	0.3	40	0.48	0.3
ADEX 11T308SR-HF2:M8340		0.8	200	0.68	0.4	120	0.61	0.4	190	0.68	0.4	–	–	–	50	0.48	0.3	–	–	–
ADEX 11T308SR-HF2:M9325		0.8	250	0.68	0.4	–	–	–	235	0.68	0.4	–	–	–	–	–	–	50	0.48	0.3

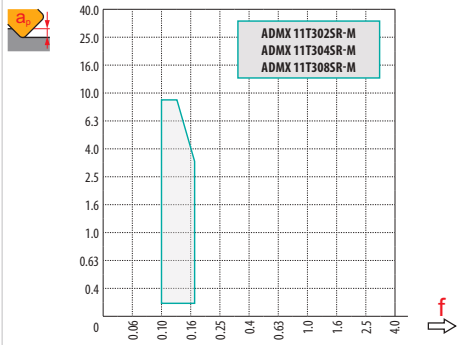
HF2 geometri, yüksek hızlı frezeleme için pozitif tasarım.

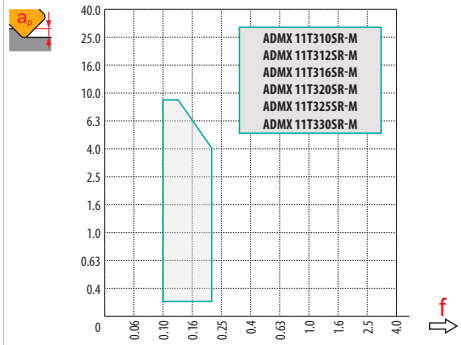
a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

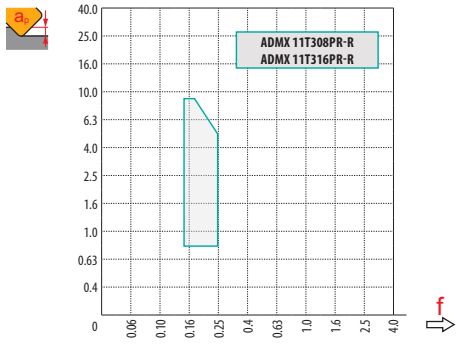
	ADMX 11-F		ADMX 11-M									ADMX 11-R		ADMX 11-MF	
RE	0.4	0.8	0.2	0.4	0.8	1.0	1.2	1.6	2.0	2.5	3.0	0.8	1.6	0.4	0.8
BS	1.89	1.48	2.09	1.89	1.48	1.27	1.08	0.68	1.61	1.13	0.66	1.48	0.68	1.89	1.48

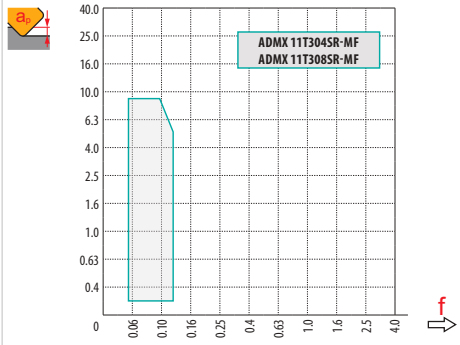
	ADMX 11-MM			ADEX 11-HF	ADEX 11-HF2	ADEX 11-FA			
RE	0.4	0.8	1.2	0.8	0.8	0.4	0.8	1.2	1.6
BS	1.89	1.48	1.08	0.17	0.17	1.77	1.39	1.0	0.62

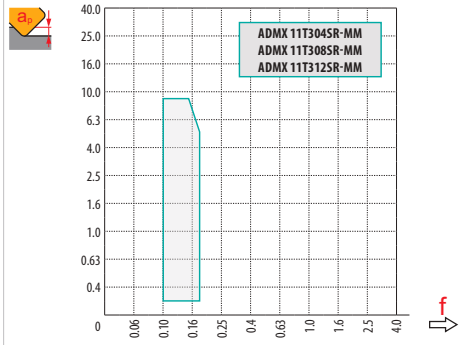


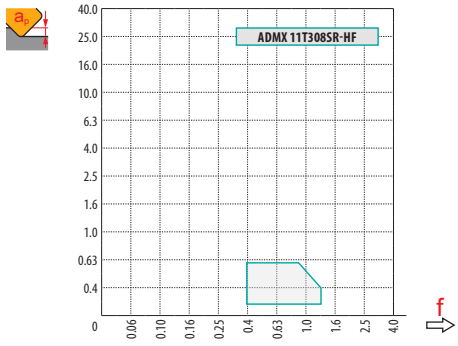


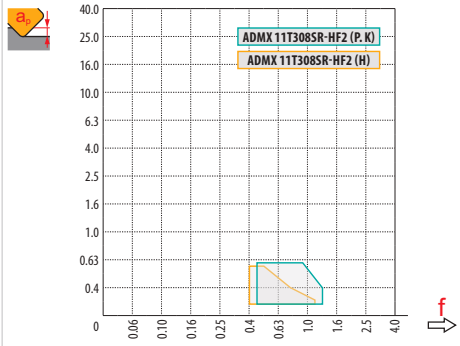


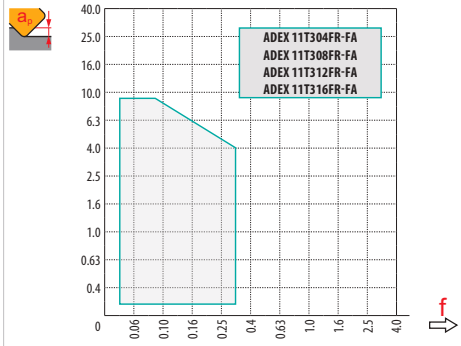












max 4.5

a_p	1.0	5.0	9.0
f	0.20	0.13	0.10

DC	RPMX	APMX/l
16	13.5°	9.0/40
18	10.0°	9.0/53
20	9.0°	9.0/59
25	6.0°	9.0/87
32	5.3°	9.0/99
40	3.8°	6.5/100
50	2.8°	4.7/100
63	1.8°	3.0/100
80	1.6°	2.6/100

HFC

DC	RPMX *	RPMX **	APMX/l
16	4.1°	5.7°	0.6/8
18	2.8°	4.5°	0.6/12
20	2.3°	4.3°	0.6/15
25	1.3°	6.7°	0.6/26
32	0.7°	4.3°	0.6/49
40	0.3°	2.9°	0.6/100
50	0.1°	2.1°	0.6/100
63	–	–	–
80	–	–	–

* HFC frezeleme

** Konvansiyonel frezeleme

DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
16	27.0	32.0	8.3	9.0
18	32.0	36.0	7.5	9.0
20	35.0	40.0	7.5	9.0
25	45.0	50.0	6.5	7.5
32	59.0	64.0	4.0	4.5
40	75.0	80.0	1.5	2.0
50	–	–	–	–

HFC

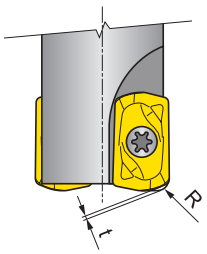
DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
16	21.0	32.0	0.6	0.6
18	29.0	36.0	0.6	0.6
20	29.0	40.0	0.6	0.6
25	39.0	50.0	0.6	0.6
32	53.0	64.0	0.6	0.6
40	68.5	80.0	0.6	0.6
50	88.5	100.0	0.6	0.6

a_p
1.7

DC	µm	3	5	10	15	20	30	40	50	60	80	100
16	FE	0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530
18		0.465	0.600	0.849	1.039	1.200	1.470	1.697	1.897	2.078	2.400	2.683
20		0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
25		0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657

RE	µm	3	5	10	15	20	30	40	50	60	80	100
1.0	FE	0.155	0.200	0.283	0.346	0.400	0.490	0.566	0.632	0.693	0.800	0.894
1.2		0.170	0.219	0.310	0.379	0.438	0.537	0.620	0.693	0.759	0.876	0.980
1.6		0.196	0.253	0.358	0.438	0.506	0.620	0.716	0.800	0.876	1.012	1.131
2.0		0.219	0.283	0.400	0.490	0.566	0.693	0.800	0.894	0.980	1.131	1.265
2.5		0.245	0.316	0.447	0.548	0.632	0.775	0.894	1.000	1.095	1.265	1.414
3.0		0.268	0.346	0.490	0.600	0.693	0.849	0.980	1.095	1.200	1.386	1.549

ADMX/ADEX 11	R
ADMX 11T320SR-M	1.0
ADMX 11T325SR-M	1.8
ADMX 11T330SR-M	1.8
ADEX 11T308SR-HF	1.4
ADEX 11T308SR-HF2	1.4



ADEX 11	R	t
ADEX 11T308SR-HF	1.42	0.35
ADEX 11T308SR-HF2	1.34	0.38

SAD16E

P M K N S H

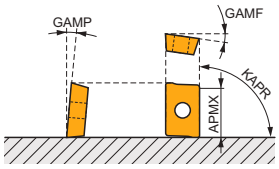
PRAMET

S

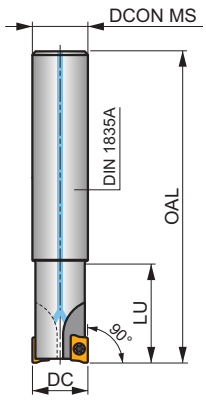
FORCE AD16 Duvar Frezeleme Takımı, İçten Su Vermeli

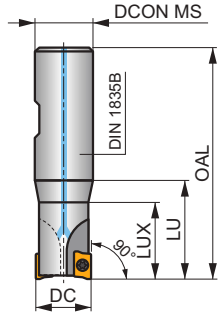
13 mm APMX'li pozitif AD.. 16 stil kesici uç kullanan 90° uç ve kabuk frezeleri. Yüzey, kenar, kanal, helisel, trokoidal, açılı frezeleme ve dalma frezeleme için uygundur.Silindirik, veldon, modüler, mors konik ve göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

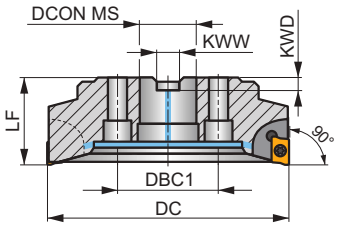
KAPR	90°
APMX	13.0 mm

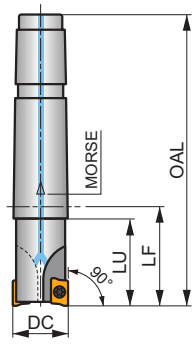


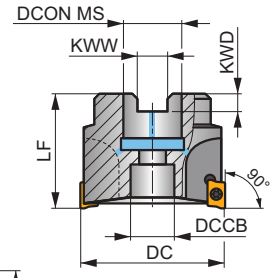
FORCE AD

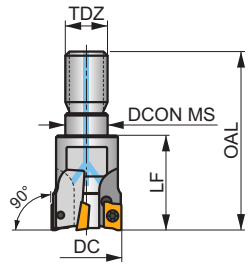












h_m	0.06 - 0.18
h_m	0.08 - 0.22

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	LU (mm)	LUX (mm)	LF (mm)	TDZ	CZC MS	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)	max.	kg	
DIN 1835A	25A2R033A25-SAD16E-C	25	165	25	–	–	33	–	–	–	–	–	–	-13	5	2	–	18700	✓	0.52 GI165 SQ030 –
	25A2R038A25-SAD16E-C	25	200	25	–	–	38	–	–	–	–	–	–	-13	5	2	–	18700	✓	0.66 GI165 SQ030 –
	32A3R033A32-SAD16E-C	32	195	32	–	–	33	–	–	–	–	–	–	-12	7	3	–	16500	✓	1.03 GI165 SQ030 –
	32A3R048A32-SAD16E-C	32	250	32	–	–	48	–	–	–	–	–	–	-12	7	3	–	16500	✓	1.35 GI165 SQ030 –
DIN 1835B	25A2R042B25-SAD16E-C	25	98	25	–	–	–	42	–	–	–	–	–	-13	5	2	–	18700	✓	0.29 GI165 SQ030 –
	32A3R040B32-SAD16E-C	32	100	32	–	–	–	40	–	–	–	–	–	-12	7	3	–	16500	✓	0.51 GI165 SQ030 –
	40A3R050B32-SAD16E-C	40	110	32	–	–	–	50	–	–	–	–	–	-8.2	10.5	3	–	14800	✓	0.51 GI165 SQ030 –
	40A4R050B32-SAD16E-C	40	110	32	–	–	–	50	–	–	–	–	–	-8.2	10.5	4	–	14800	✓	0.64 GI165 SQ030 –
DIN 228A	25A2R043E03-SAD16E-C	25	98	–	–	–	38	–	43	–	3	–	–	-13	5	2	–	18600	✓	0.31 GI165 SQ030 –
	32A3R043E03-SAD16E-C	32	100	–	–	–	38	–	43	–	3	–	–	-12	7	3	–	16500	✓	0.33 GI165 SQ030 –
	40A3R054E04-SAD16E-C	40	110	–	–	–	48	–	54	–	4	–	–	-8.2	10.5	3	–	14700	✓	0.74 GI165 SQ030 –
	40A4R054E04-SAD16E-C	40	110	–	–	–	48	–	54	–	4	–	–	-8.2	10.5	4	–	14700	✓	0.70 GI165 SQ030 –
MODULAR	32A3R043M16-SAD16E-C	32	66	17	–	–	–	–	43	M16	–	–	–	-12	7	3	–	–	✓	0.20 GI165 SQ030 –
	40A4R043M16-SAD16E-C	40	66	17	–	–	–	–	43	M16	–	–	–	-8.2	10.5	4	–	–	✓	0.26 GI165 SQ030 –
ISO 6462 DIN 8030	40A04R-S90AD16E-C	40	–	16	14	–	–	–	40	–	–	8.4	5.6	-8.2	10.5	4	–	14700	✓	0.21 GI165 SQ032 –
	50A03R-S90AD16E-C	50	–	22	18	–	–	–	40	–	–	10.4	6.3	-7	11	3	–	13200	✓	0.43 GI165 SQ033 –
	50A05R-S90AD16E-C	50	–	22	18	–	–	–	40	–	–	10.4	6.3	-7	11	5	✓	13200	✓	0.40 GI165 SQ033 –
	63A04R-S90AD16E-C	63	–	22	18	–	–	–	40	–	–	10.4	6.3	-6	12	4	✓	11800	✓	0.60 GI165 SQ033 –
	63A06R-S90AD16E-C	63	–	22	18	–	–	–	40	–	–	10.4	6.3	-6	12	6	✓	11800	✓	0.59 GI165 SQ033 –
	80A05R-S90AD16E-C	80	–	27	38	–	–	–	50	–	–	12.4	7	-5	12	5	✓	10400	✓	1.09 GI165 SQ031 AC001
	80A07R-S90AD16E-C	80	–	27	38	–	–	–	50	–	–	12.4	7	-5	13	7	✓	10400	✓	0.97 GI165 SQ031 AC001
	100A06R-S90AD16E-C	100	–	32	45	–	–	–	50	–	–	14.4	8	-4	12	6	✓	9300	✓	1.85 GI165 SQ031 AC002
	100A08R-S90AD16E-C	100	–	32	45	–	–	–	50	–	–	14.4	8	-4	12	8	✓	9300	✓	1.89 GI165 SQ031 AC002
	125A09R-S90AD16E-C	125	–	40	56	–	–	–	63	–	–	16.4	9	-3.8	12	9	✓	8400	✓	3.65 GI165 SQ031 AC003
	140A08R-S90AD16E-C	140	–	40	56	–	–	–	63	–	–	16.4	9	-3.8	12	8	✓	7900	✓	4.06 GI165 SQ031 –
	160C10R-S90AD16E-C	160	–	40	–	66.7	–	–	63	–	–	16.4	9.2	-3.8	10	10	✓	7300	✓	6.04 GI165 SQ036 –
	175C10R-S90AD16E-C	175	–	40	–	66.7	–	–	63	–	–	16.4	9.2	-3.8	12	10	✓	7000	✓	6.86 GI165 SQ036 –

GI165	ADMX 1606..	ADEX 1606..

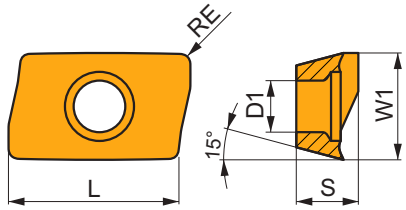
SQ030	US 4008-T15P	3.5	M 4	8	–	–	Flag T15P	–	–	–	–
SQ031	US 4011-T15P	3.5	M 4	10.6	D-T08P/T15P	FG-15	–	–	–	–	–
SQ032	US 4008-T15P	3.5	M 4	8	D-T08P/T15P	FG-15	–	HS 0830C	–	–	–
SQ033	US 4011-T15P	3.5	M 4	10.6	D-T08P/T15P	FG-15	–	HS 1030C	–	–	–
SQ036	US 4011-T15P	3.5	M 4	10.6	D-T08P/T15P	FG-15	–	HS 1240C	CAC 160C	HSD 0825C	HXK 5

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

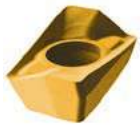
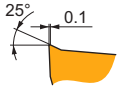
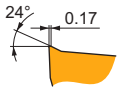
ADMX 16

PRAMET

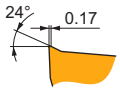
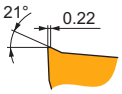
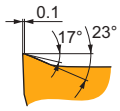
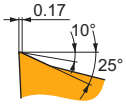
	W1 (mm)	D1 (mm)	L (mm)	S (mm)
1606	9.950	4.50	16.00	6.25



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
	  **F** geometri, hafif ve orta işleme için çok pozitif tasarım.																		
ADMX 160608SR-F:8215	0.8	290	0.10	2.0	170	0.09	2.0	275	0.10	2.0	870	0.12	2.0	70	0.07	1.6	–	–	–
ADMX 160608SR-F:M8310	0.8	320	0.10	2.0	160	0.09	2.0	300	0.10	2.0	–	–	–	–	–	–	–	–	–
ADMX 160608SR-F:M8330	0.8	285	0.10	2.0	170	0.09	2.0	270	0.10	2.0	855	0.12	2.0	70	0.07	1.6	–	–	–
ADMX 160608SR-F:M8340	0.8	260	0.10	2.0	155	0.09	2.0	245	0.10	2.0	–	–	–	65	0.07	1.6	–	–	–
ADMX 160608SR-F:M9340	0.8	340	0.10	2.0	200	0.09	2.0	–	–	–	–	–	–	85	0.07	1.6	–	–	–
	  **M** geometri, hafif ve orta işleme için pozitif tasarım.																		
ADMX 160604SR-M:8215	0.4	190	0.18	5.0	110	0.16	5.0	180	0.18	5.0	–	–	–	45	0.13	4.0	–	–	–
ADMX 160604SR-M:M8330	0.4	190	0.18	5.0	110	0.16	5.0	180	0.18	5.0	–	–	–	45	0.13	4.0	–	–	–
ADMX 160604SR-M:M8340	0.4	170	0.18	5.0	100	0.16	5.0	160	0.18	5.0	–	–	–	40	0.13	4.0	–	–	–
ADMX 160608SR-M:8215	0.8	225	0.18	5.0	135	0.16	5.0	210	0.18	5.0	–	–	–	55	0.13	4.0	–	–	–
ADMX 160608SR-M:M5315	0.8	305	0.18	5.0	–	–	–	285	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160608SR-M:M8310	0.8	250	0.18	5.0	125	0.16	5.0	235	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160608SR-M:M8330	0.8	225	0.18	5.0	135	0.16	5.0	210	0.18	5.0	–	–	–	55	0.13	4.0	–	–	–
ADMX 160608SR-M:M8340	0.8	205	0.18	5.0	120	0.16	5.0	190	0.18	5.0	–	–	–	50	0.13	4.0	–	–	–
ADMX 160608SR-M:M9315	0.8	305	0.18	5.0	–	–	–	285	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160608SR-M:M9325	0.8	280	0.18	5.0	–	–	–	265	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160608SR-M:M9340	0.8	255	0.18	5.0	150	0.16	5.0	–	–	–	–	–	–	60	0.13	4.0	–	–	–

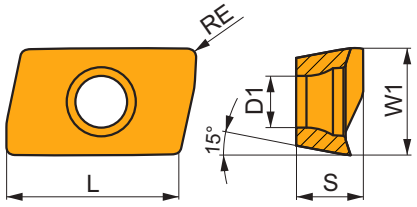
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  	**M** geometri, hafif ve orta işleme için pozitif tasarım.																		
ADMX 160616SR-M:8215	1.6	250	0.18	5.0	150	0.16	5.0	235	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160616SR-M:M8310	1.6	275	0.18	5.0	140	0.16	5.0	260	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160616SR-M:M8330	1.6	250	0.18	5.0	150	0.16	5.0	235	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160616SR-M:M8340	1.6	225	0.18	5.0	135	0.16	5.0	210	0.18	5.0	–	–	–	55	0.13	4.0	–	–	–
ADMX 160616SR-M:M9325	1.6	310	0.18	5.0	–	–	–	290	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160620SR-M:M8330	2.0	265	0.18	5.0	155	0.16	5.0	250	0.18	5.0	–	–	–	65	0.13	4.0	–	–	–
ADMX 160620SR-M:M8340	2.0	240	0.18	5.0	140	0.16	5.0	225	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160630SR-M:M8330	3.0	265	0.18	5.0	155	0.16	5.0	250	0.18	5.0	–	–	–	65	0.13	4.0	–	–	–
ADMX 160630SR-M:M8340	3.0	240	0.18	5.0	140	0.16	5.0	225	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160632SR-M:M6330	3.2	225	0.18	5.0	155	0.16	5.0	–	–	–	–	–	–	65	0.13	4.0	–	–	–
ADMX 160632SR-M:M8330	3.2	265	0.18	5.0	155	0.16	5.0	250	0.18	5.0	–	–	–	65	0.13	4.0	–	–	–
ADMX 160632SR-M:M8340	3.2	240	0.18	5.0	140	0.16	5.0	225	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160632SR-M:M9325	3.2	325	0.18	5.0	–	–	–	305	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160640SR-M:M8330	4.0	265	0.18	5.0	155	0.16	5.0	250	0.18	5.0	–	–	–	65	0.13	4.0	–	–	–
ADMX 160640SR-M:M8340	4.0	240	0.18	5.0	140	0.16	5.0	225	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160650SR-M:M8330	5.0	265	0.18	5.0	155	0.16	5.0	250	0.18	5.0	–	–	–	65	0.13	4.0	–	–	–
ADMX 160650SR-M:M8340	5.0	240	0.18	5.0	140	0.16	5.0	225	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
  	**R** geometri, orta işleme ve az stabil şartlar için pozitif tasarım.																		
ADMX 160608PR-R:8215	0.8	205	0.25	6.0	120	0.23	6.0	190	0.25	6.0	–	–	–	50	0.20	4.8	40	0.16	1.1
ADMX 160608PR-R:M5315	0.8	260	0.25	6.0	–	–	–	245	0.25	6.0	–	–	–	–	–	–	50	0.16	1.1
ADMX 160608PR-R:M8310	0.8	220	0.25	6.0	110	0.23	6.0	205	0.25	6.0	–	–	–	–	–	–	40	0.16	1.1
ADMX 160608PR-R:M8330	0.8	205	0.25	6.0	120	0.23	6.0	190	0.25	6.0	–	–	–	50	0.20	4.8	40	0.16	1.1
ADMX 160608PR-R:M8340	0.8	190	0.25	6.0	110	0.23	6.0	180	0.25	6.0	–	–	–	45	0.20	4.8	–	–	–
ADMX 160608PR-R:M9315	0.8	265	0.25	6.0	–	–	–	250	0.25	6.0	–	–	–	–	–	–	50	0.16	1.1
ADMX 160608PR-R:M9325	0.8	250	0.25	6.0	–	–	–	235	0.25	6.0	–	–	–	–	–	–	50	0.16	1.1
ADMX 160616PR-R:M8330	1.6	225	0.25	6.0	135	0.23	6.0	210	0.25	6.0	–	–	–	55	0.20	4.8	45	0.16	1.1
ADMX 160616PR-R:M8340	1.6	210	0.25	6.0	125	0.23	6.0	195	0.25	6.0	–	–	–	50	0.20	4.8	–	–	–
ADMX 160616PR-R:M9315	1.6	295	0.25	6.0	–	–	–	280	0.25	6.0	–	–	–	–	–	–	55	0.16	1.1
  	**MF** geometri, finiş işleme için çok pozitif tasarım.																		
ADMX 160608SR-MF:M6330	0.8	215	0.08	4.0	150	0.07	4.0	–	–	–	–	–	–	60	0.06	3.2	–	–	–
ADMX 160608SR-MF:M8340	0.8	225	0.08	4.0	135	0.07	4.0	–	–	–	–	–	–	55	0.06	3.2	–	–	–
ADMX 160608SR-MF:M9340	0.8	305	0.08	4.0	180	0.07	4.0	–	–	–	–	–	–	75	0.06	3.2	–	–	–
  	**MM** geometri, hafif ve orta işleme için çok pozitif tasarım.																		
ADMX 160604SR-MM:M6330	0.4	145	0.18	4.0	105	0.16	4.0	–	–	–	–	–	–	40	0.14	3.2	–	–	–
ADMX 160604SR-MM:M8340	0.4	160	0.18	4.0	95	0.16	4.0	–	–	–	–	–	–	40	0.14	3.2	–	–	–
ADMX 160608SR-MM:M6330	0.8	175	0.18	4.0	125	0.16	4.0	–	–	–	–	–	–	50	0.14	3.2	–	–	–
ADMX 160608SR-MM:M8340	0.8	190	0.18	4.0	110	0.16	4.0	–	–	–	–	–	–	45	0.14	3.2	–	–	–
ADMX 160608SR-MM:M8345	0.8	150	0.18	4.0	90	0.16	4.0	–	–	–	–	–	–	35	0.14	3.2	–	–	–
ADMX 160608SR-MM:M9340	0.8	235	0.18	4.0	140	0.16	4.0	–	–	–	–	–	–	55	0.14	3.2	–	–	–
ADMX 160616SR-MM:M6330	1.6	195	0.18	4.0	140	0.16	4.0	–	–	–	–	–	–	55	0.14	3.2	–	–	–
ADMX 160616SR-MM:M8340	1.6	210	0.18	4.0	125	0.16	4.0	–	–	–	–	–	–	50	0.14	3.2	–	–	–
ADMX 160616SR-MM:M8345	1.6	165	0.18	4.0	95	0.16	4.0	–	–	–	–	–	–	40	0.14	3.2	–	–	–
ADMX 160616SR-MM:M9340	1.6	260	0.18	4.0	155	0.16	4.0	–	–	–	–	–	–	65	0.14	3.2	–	–	–

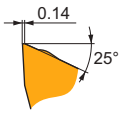
ADEX 16

PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1606	9.950	4.50	16.00	6.25



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

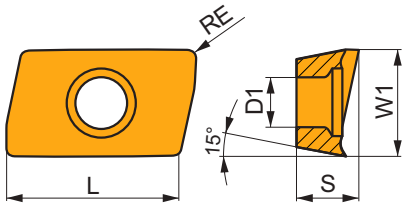
Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
	 																		
ADEX 160608SR-FM:8215	0.8	260	0.16	2.0	155	0.14	2.0	245	0.16	2.0	–	–	–	65	0.11	1.6	–	–	–
ADEX 160608SR-FM:M8330	0.8	255	0.16	2.0	150	0.14	2.0	240	0.16	2.0	–	–	–	60	0.11	1.6	–	–	–
ADEX 160608SR-FM:M8340	0.8	235	0.16	2.0	140	0.14	2.0	220	0.16	2.0	–	–	–	55	0.11	1.6	–	–	–

FM geometri, orta işleme için çok pozitif tasarım.

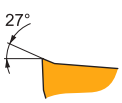
ADEX 16-FA

PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1606	9.950	4.50	16.00	6.17



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

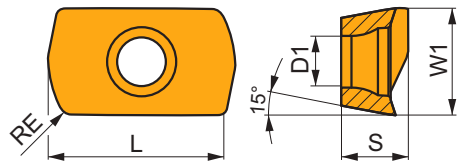
Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
	 																		
ADEX 160604FR-FA:HF7	0.4	–	–	–	–	–	–	–	–	–	195	0.28	6.0	–	–	–	–	–	–
ADEX 160604FR-FA:M0315	0.4	–	–	–	–	–	–	–	–	–	480	0.28	6.0	–	–	–	–	–	–
ADEX 160608FR-FA:HF7	0.8	–	–	–	–	–	–	–	–	–	240	0.28	6.0	–	–	–	–	–	–
ADEX 160608FR-FA:M0315	0.8	–	–	–	–	–	–	–	–	–	570	0.28	6.0	–	–	–	–	–	–
ADEX 160616FR-FA:HF7	1.6	–	–	–	–	–	–	–	–	–	255	0.28	6.0	–	–	–	–	–	–
ADEX 160616FR-FA:M0315	1.6	–	–	–	–	–	–	–	–	–	630	0.28	6.0	–	–	–	–	–	–
ADEX 160630FR-FA:HF7	3.0	–	–	–	–	–	–	–	–	–	270	0.28	6.0	–	–	–	–	–	–

FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.

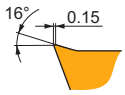
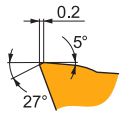
ADEX 16-HF

PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1606	9.950	4.50	16.00	5.88



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
ADEX 160612SR-HF:8215		1.2	195	1.00	0.6	115	0.90	0.6	–	–	–	–	–	–	–	–	–	–	–	–
ADEX 160612SR-HF:M8310		1.2	205	1.00	0.6	100	0.77	0.6	–	–	–	–	–	–	–	–	–	–	–	–
ADEX 160612SR-HF:M8330		1.2	200	1.00	0.6	120	0.90	0.6	–	–	–	–	–	–	–	–	–	–	–	–
ADEX 160612SR-HF:M8340		1.2	185	1.00	0.6	110	0.90	0.6	–	–	–	–	–	–	–	–	–	–	–	–
ADEX 160612SR-HF:M9340		1.2	195	1.00	0.6	115	0.90	0.6	–	–	–	–	–	–	–	–	–	–	–	–
																				
ADEX 160612SR-HF2:M8310		1.2	205	0.90	0.6	100	0.81	0.6	190	0.90	0.6	–	–	–	–	–	–	40	0.63	0.5
ADEX 160612SR-HF2:M8330		1.2	205	0.90	0.6	120	0.81	0.6	190	0.90	0.6	–	–	–	50	0.81	0.5	40	0.63	0.5
ADEX 160612SR-HF2:M8340		1.2	190	0.90	0.6	110	0.81	0.6	180	0.90	0.6	–	–	–	45	0.81	0.5	–	–	–
ADEX 160612SR-HF2:M9325		1.2	230	0.90	0.6	–	–	–	215	0.90	0.6	–	–	–	–	–	–	45	0.63	0.5

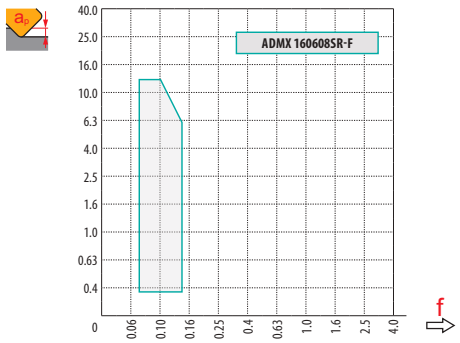
HF geometri, yüksek hızlı frezeleme için çok pozitif tasarım.

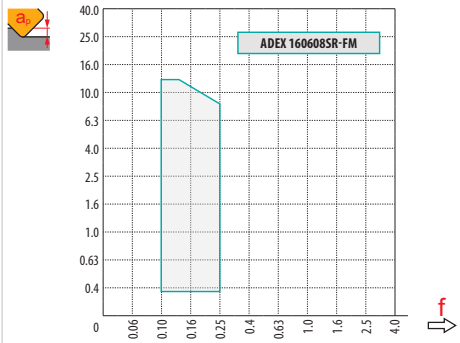
HF2 geometri, yüksek hızlı frezeleme için pozitif tasarım.

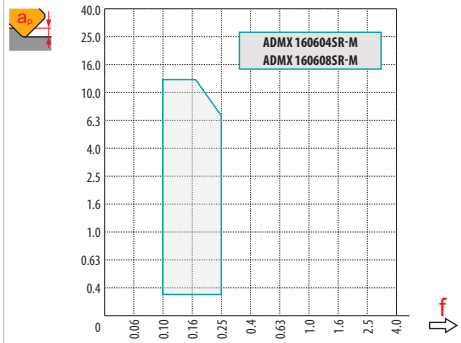
a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
⇨ X.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
⇨ X.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

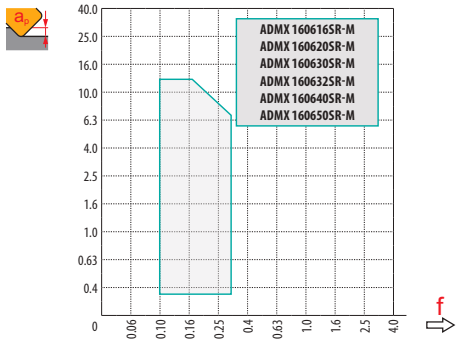
	ADMX 16-F	ADEX 16-FM	ADMX 16-M								ADMX 16-R	
RE	0.8	0.8	0.4	0.8	1.6	2.0	3.0	3.2	4.0	5.0	0.8	1.6
BS	2.99	2.18	3.39	2.99	1.62	1.23	0.28	0.09	2.69	1.52	2.99	1.62

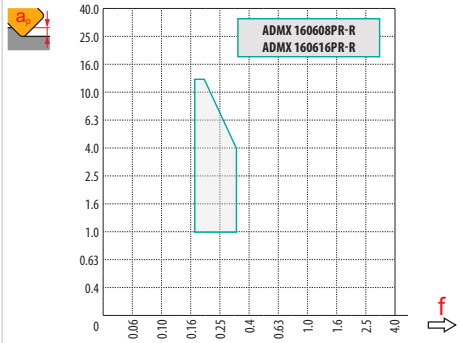
	ADMX 16-MF	ADMX 16-MM			ADEX 16-HF	ADEX 16-HF2	ADEX 16-FA			
RE	0.8	0.4	0.8	1.6	1.2	1.2	0.4	0.8	1.6	3.0
BS	2.99	3.39	2.99	1.62	0.52	0.52	2.84	2.44	1.65	0.69

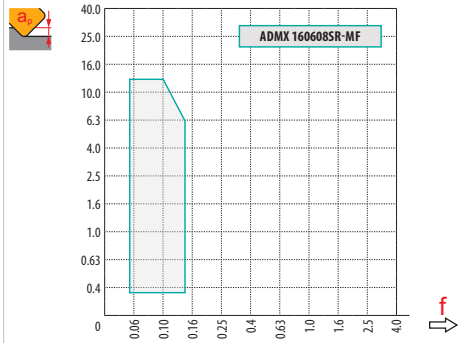


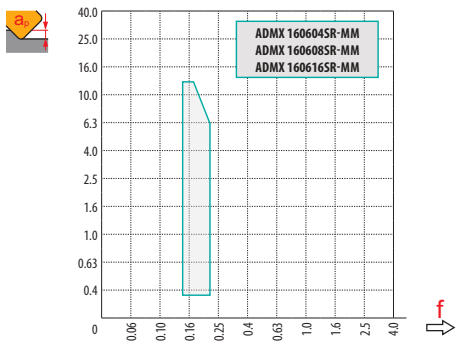


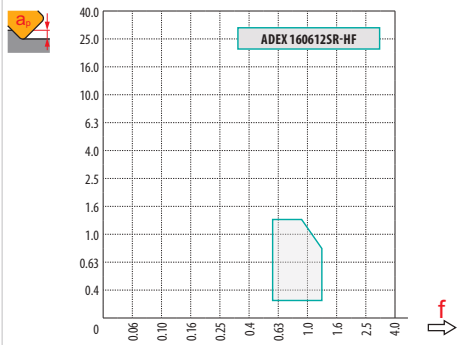


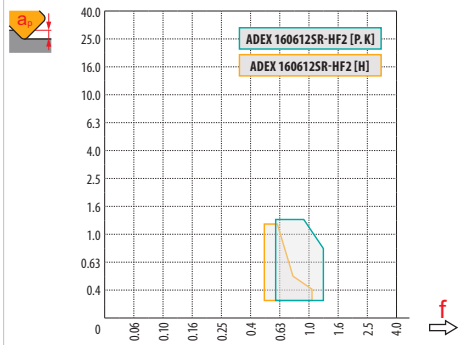


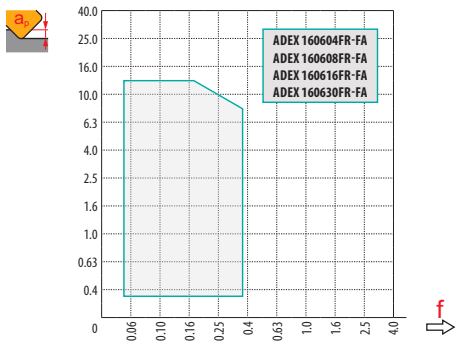












max

7.5

a_p	1.0	6.0	13.0
f	0.28	0.19	0.10

DC	RPMX	APMX/I
25	12.5°	13.0/60
32	7.5°	13.0/100
40	5.0°	8.6/100
50	3.5°	6.0/100
63	2.5°	4.2/100
80	2.0°	3.3/100

HFC

DC	RPMX *	RPMX **	APMX/I
25	4.0°	8.0°	1.3/19
32	2.0°	7.5°	1.3/38
40	1.2°	4.5°	1.3/65
50	0.8°	3.0°	1.3/100
63	0.5°	2.0°	0.8/100
80	0.4°	1.5°	0.6/100

* HFC frezeleme
** Konvansiyonel frezeleme

DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
25	42.0	50.0	10.0	12.5
32	55.0	64.0	6.5	9.0
40	72.0	80.0	5.0	8.0
50	92.0	100.0	4.5	6.0
63	118.0	126.0	4.0	5.0
80	136.0	160.0	1.5	2.0

HFC

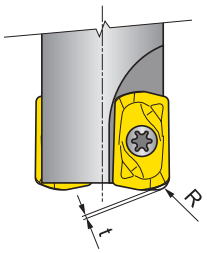
DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
25	42.0	50.0	1.3	1.3
32	55.0	64.0	1.3	1.3
40	72.0	80.0	1.3	1.3
50	92.0	100.0	1.3	1.3
63	118.0	126.0	1.3	1.3
80	136.0	160.0	1.3	1.3

a_p
2.5

DC	µm	3	5	10	15	20	30	40	50	60	80	100
25	FE	0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657

RE	µm	3	5	10	15	20	30	40	50	60	80	100
1.6	FE	0.196	0.253	0.358	0.438	0.506	0.620	0.716	0.800	0.876	1.012	1.131
2.0		0.219	0.283	0.400	0.490	0.566	0.693	0.800	0.894	0.980	1.131	1.265
3.0		0.268	0.346	0.490	0.600	0.693	0.849	0.980	1.095	1.200	1.386	1.549
3.2		0.277	0.358	0.506	0.620	0.716	0.876	1.012	1.131	1.239	1.431	1.600
4.0		0.310	0.400	0.566	0.693	0.800	0.980	1.131	1.265	1.386	1.600	1.789
5.0		0.346	0.447	0.632	0.775	0.894	1.095	1.265	1.414	1.549	1.789	2.000

ADMX/ADEX 16	R
ADMX 160630SR-M	2.5
ADMX 160632SR-M	2.5
ADMX 160640SR-M	4.0
ADMX 160650SR-M	4.5
ADEX 160612SR-HF	3.0
ADEX 160612SR-HF2	3.0



ADEX 16	R	t
ADEX 160612SR-HF	2.59	0.56
ADEX 160612SR-HF2	2.48	0.57

SAP10D

P M K N S

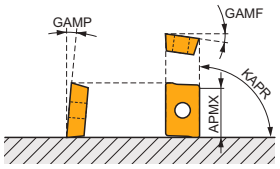
PRAMET

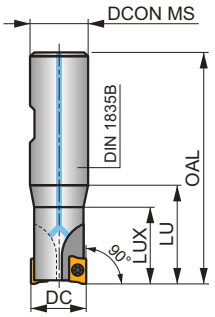
S

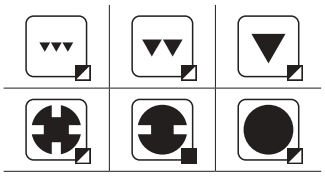
APKT 10 için Duvar Frezeleme Takımı, İçten Su Vermeli

9 mm APMX'li pozitif APKT 10 tarzı kesici uç kullanan 90° parmak ve kabuk frezeleri. Yüzey, kenar, kanal, helisel, trokoidal, açılı frezeleme ve dalma frezeleme için uygundur. Veldon, ve göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	90°
APMX	9.0 mm







h_m	0.06 - 0.13
h_m	0.08 - 0.16

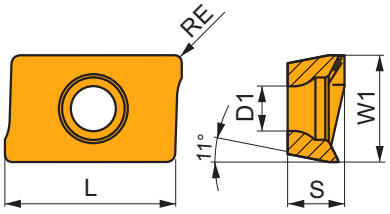
	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LUX (mm)	LF (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835B	**10A1R020B16-SAP10D-C**	10	78	16	–	30	20	–	–	–	12	2	1	–	39000	✓	0.09	GI081	SQ215
	12A1R027B16-SAP10D-C	12	75	16	–	27	–	–	–	–	12	2	1	–	35600	✓	0.10	GI081	SQ210
	16A2R032B16-SAP10D-C	16	80	16	–	32	–	–	–	–	12	4	2	–	30800	✓	0.12	GI081	SQ210
	20A3R032B20-SAP10D-C	20	82	20	–	32	–	–	–	–	12	4	3	–	27600	✓	0.13	GI081	SQ210
	25A3R042B25-SAP10D-C	25	98	25	–	42	–	–	–	–	12	4	3	–	24700	✓	0.36	GI081	SQ210

GI081	APKT 1003..

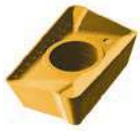
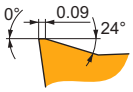
		Nm			
SQ210	US 2506-T07P	1.2	M 2.5	6.3	Flag T07P
SQ215	US 2505-T07P	1.2	M 2.5	5.2	Flag T07P

APKT 10

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1003	6.700	2.88	11.00	3.50

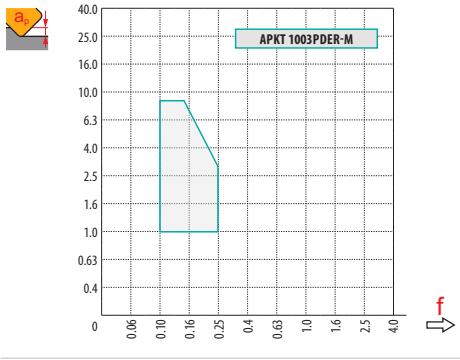


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**M** geometri, hafif ve orta işleme için çok pozitif tasarım.																	
APKT 1003PDER-M:8215		0.5	■	285	0.12	4.0	◪	170	0.11	4.0	■	270	0.12	4.0	–	–	–	◪	70	0.11	3.2	–	–	–
APKT 1003PDER-M:M8330		0.5	■	285	0.12	4.0	◪	170	0.11	4.0	■	270	0.12	4.0	–	–	–	◪	70	0.11	3.2	–	–	–
APKT 1003PDER-M:M8340		0.5	■	255	0.12	4.0	◪	150	0.11	4.0	◪	240	0.12	4.0	–	–	–	◪	60	0.11	3.2	–	–	–
APKT 1003PDER-M:M9325	●	0.5	■	360	0.12	4.0		–	–	–	■	340	0.12	4.0	–	–	–		–	–	–	–	–	–
APKT 1003PDER-M:M9340		0.5	■	335	0.12	4.0	◪	200	0.11	4.0		–	–	–	–	–	–	◪	80	0.11	3.2	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	APKT 10-M
RE	0.5
BS	0.84



max.
4.5

a_p	1.0	3.0	5.0
1 f	0.20	0.13	0.10

DC	RPMX	APMX/I
10	7.3°	9.0/72
12	6.2°	9.0/84
16	2.4°	4.0/100
20	2.2°	3.7/100
25	2.2°	3.7/100

DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
10	11.0	20.0	0.4	3.8
12	13.0	24.0	0.3	3.9
16	20.5	32.0	0.6	2.0
20	27.2	40.0	0.9	2.4
25	37.9	50.0	1.6	3.0

a_p
0.3

SAP16D

P M K N S

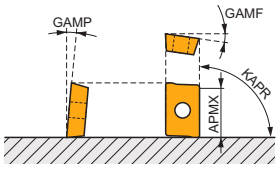
PRAMET

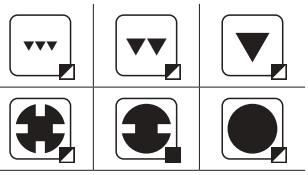
S

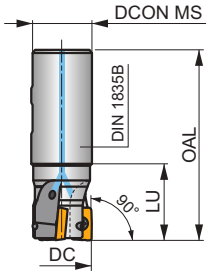
APKT 16 için Duvar Frezeleme Takımı, İçten Su Vermeli

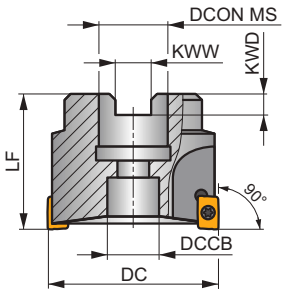
13 mm APMX'li pozitif APKT 16 tarzı kesici uç kullanan 90° parmak ve kenar frezeleri. Yüzey, kenar, kanal, helisel, trokoidal, açılı frezeleme ve dalma frezeleme için uygundur. Weldon ve göbekten bağlamalı tarzında mevcuttur. Gövde uzun takım ömrü için işlem görmüştür.

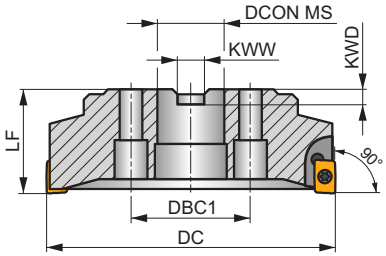
KAPR	90°
APMX	13.0 mm











h_m	0.06 - 0.18
h_m	0.10 - 0.22

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	LU (mm)	LF (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
DIN 1835B	**25A2R042B25-SAP16D-C**	25	98	25	–	–	42	–	–	–	0	6	2	–	16800	✓	0.31	GI080	SQ030	–
DIN 1835B	**32A3R040B32-SAP16D-C**	32	100	32	–	–	50	–	–	–	0	8	3	–	14800	✓	0.51	GI080	SQ220	–
DIN 1835B	**40A4R050B32-SAP16D-C**	40	110	32	–	–	50	–	–	–	0	8	4	–	13200	✓	0.67	GI080	SQ220	–
	40A4R-S90AP16D	40	40	16	11	–	–	40	8.4	5.6	0	6	4	✓	13200	–	0.23	GI080	SQ031	–
	50A5R-S90AP16D	50	40	22	18	–	–	40	10.4	6.3	0	6	5	✓	11800	–	0.35	GI080	SQ031	–
	63A6R-S90AP16D	63	40	22	18	–	–	40	10.4	6.3	0	6	6	✓	10600	–	0.50	GI080	SQ031	–
ISO 6462 DIN 8030	**80B5R-S90AP16D**	80	50	27	38	–	–	50	12.4	7	0	6	5	✓	9400	–	0.97	GI080	SQ031	AC001
ISO 6462 DIN 8030	**80B7R-S90AP16D**	80	50	27	38	–	–	50	12.4	7	0	6	7	✓	9400	–	0.99	GI080	SQ031	AC001
ISO 6462 DIN 8030	**100B8R-S90AP16D**	100	50	32	45	–	–	50	14.4	8	0	6	8	✓	8400	–	1.50	GI080	SQ031	AC002
ISO 6462 DIN 8030	**125B9R-S90AP16D**	125	63	40	56	–	–	63	16.4	9	0	6	9	✓	7500	–	2.80	GI080	SQ031	AC003

GI080	APKT 1604..	APET 1604..

		Nm					
SQ030	US 4008-T15P	3.5	M 4	8	–	–	Flag T15P
SQ031	US 4011-T15P	3.5	M 4	10.6	D-T08P/T15P	FG-15	–
SQ220	US 4011-T15P	3.5	M 4	10.6	–	–	Flag T15P

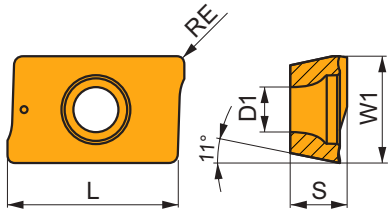
AC001	KS 1230	K.FMH27

AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

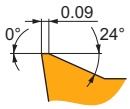
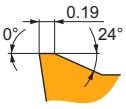
APKT 16

PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1604	9.440	4.60	17.00	5.67

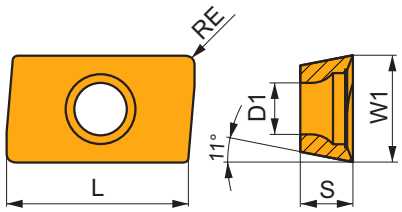


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

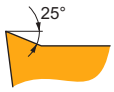
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**GM** geometri, hafif ve orta işleme için çok pozitif tasarım.																	
APKT 1604PDR-GM:M8330		0.8	235	0.20	8.0	140	0.18	8.0	220	0.20	8.0	–	–	–	55	0.16	6.4	–	–	–
APKT 1604PDR-GM:M8340		0.8	210	0.20	8.0	125	0.18	8.0	195	0.20	8.0	–	–	–	50	0.16	6.4	–	–	–
APKT 1604PDR-GM:M9315		0.8	310	0.20	8.0	–	–	–	290	0.20	8.0	–	–	–	–	–	–	–	–	–
APKT 1604PDR-GM:M9325		0.8	285	0.20	8.0	–	–	–	270	0.20	8.0	–	–	–	–	–	–	–	–	–
APKT 1604PDR-GM:M9340		0.8	260	0.20	8.0	155	0.18	8.0	–	–	–	–	–	–	65	0.16	6.4	–	–	–
			**HM** geometri, orta ve az stabil işleme koşulları için çok pozitif tasarım.																	
APKT 160404-HM:M8340		0.4	160	0.30	6.0	95	0.27	6.0	150	0.30	6.0	–	–	–	40	0.24	4.8	–	–	–
APKT 160416-HM:M8340		1.6	210	0.30	6.0	125	0.27	6.0	195	0.30	6.0	–	–	–	50	0.24	4.8	–	–	–
APKT 160431-HM:M8340		3.1	220	0.30	6.0	130	0.27	6.0	205	0.30	6.0	–	–	–	55	0.24	4.8	–	–	–
APKT 1604PDR-HM:8215		0.8	220	0.30	6.0	130	0.27	6.0	205	0.30	6.0	–	–	–	55	0.24	4.8	–	–	–
APKT 1604PDR-HM:M5315		0.8	270	0.30	6.0	–	–	–	255	0.30	6.0	–	–	–	–	–	–	–	–	–
APKT 1604PDR-HM:M8330		0.8	220	0.30	6.0	130	0.27	6.0	205	0.30	6.0	–	–	–	55	0.24	4.8	–	–	–
APKT 1604PDR-HM:M8340		0.8	200	0.30	6.0	120	0.27	6.0	190	0.30	6.0	–	–	–	50	0.24	4.8	–	–	–
APKT 1604PDR-HM:M9325		0.8	260	0.30	6.0	–	–	–	245	0.30	6.0	–	–	–	–	–	–	–	–	–

APET 16-FA

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1604	9.600	4.50	17.00	4.76

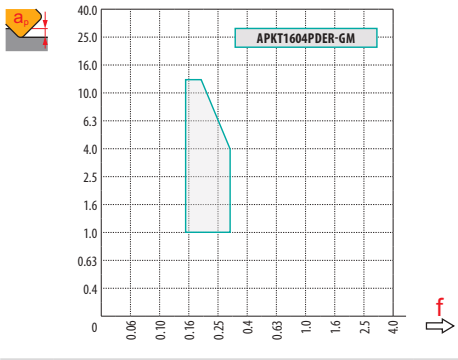


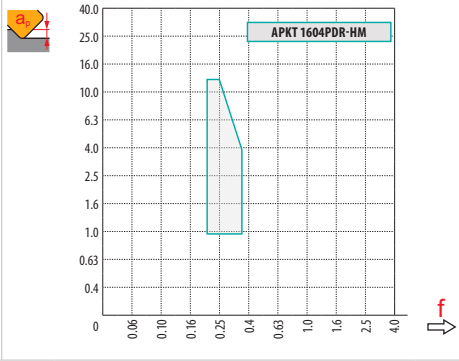
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

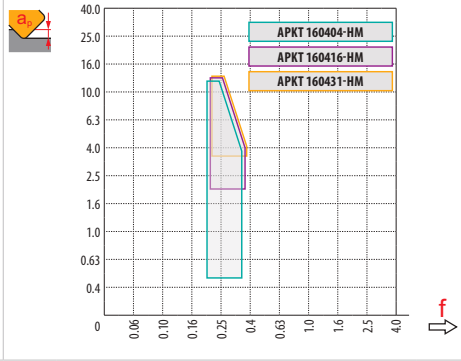
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**FA** geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.																	
APET 160408FR-FA:HF7	●	0.8	–	–	–	–	–	–	–	–	–	■ 255	0.24	8.0	–	–	–	–	–	–

a_e/DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	APKT 16-GM	APKT 16-HM			
RE	0.8	0.4	0.8	1.6	3.1
BS	1.39	1.87	1.48	0.64	1.30







max
7.4

a_p	1.0	6.0	13.0
f	0.28	0.19	0.13

DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
25	34.7	50.0	1.2	3.1
32	48.5	64.0	0.9	1.7
40	63.5	80.0	1.3	2.2
50	83.5	100.0	0.9	1.4
63	110.0	126.0	1.0	1.4
80	144.0	160.0	1.1	1.3

DC	RPMX	APMX/I
25	2.3	3.9/100
32	1.0	1.6/100
40	1.0	1.6/100
50	0.5	0.7/100
63	0.4	0.5/100
80	0.3	0.4/100

a_p
0.2

YÜZEY FREZELEME

	SSO09	SSD12	FTB27X			
	90°	90°	90°			
	APMX (mm) 8.0	APMX (mm) 10.0	APMX (mm) 18.0			
	DC (mm) 20 – 80	DC (mm) 50 – 160	DC (mm) 175, 260			
Silindirik şaft						
Weldon	 DC = 20 – 32 (mm)					
Modüler						
Frezeleme kafası	 DC = 40 – 80 (mm)					
Sayfa	122	125	128			
ISO	P M K S	P M K N S	P M K			
Kesici uç şekli						
Kesici uçlar	SOMT 09T3	SDMT 1205	TBMR 2707			
Kesme kenarlarının sayısı	4	4	3			
Sığ kenar frezeleme 	■	■	■			
Sığ oluk frezeleme 	■	■	◪			
Dalma frezeleme 	■	■				
Yüzey frezeleme 	◪	◪	◪			

■ İlk seçim. ◪ Olası seçim.

SSO09

P M K S

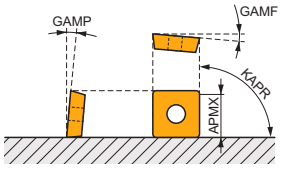
PRAMET

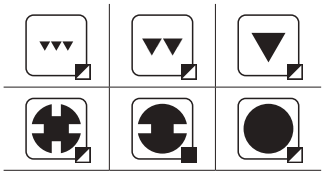
S

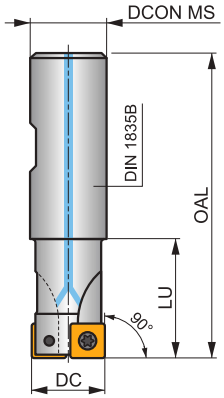
SOMT 09 için 90° Duvar Frezeleme Takımı, İçten Su Vermeli

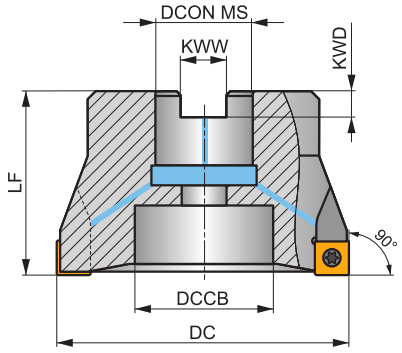
8 mm APMX'li pozitif SOMT 09 kesici uçlar kullanan 90° parmak ve kenar frezeleri. Yüzey, kenar, kanal ve dalma frezeleme için uygundur. Birçok uygulama için uygundur. Veldon ve göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	90°
APMX	8.0 mm









h_m	0.07 - 0.18
h_m	0.07 - 0.22

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
DIN 1835B	**20A2R032B20-SSO09-C**	20	82	20	–	32	–	–	–	-12	6	2	–	23800	✓	0.21	GI146	SQ400	–
	25A3R042B25-SSO09-C	25	98	25	–	42	–	–	–	-12	6	3	–	21300	✓	0.31	GI146	SQ400	–
	32A4R042B32-SSO09-C	32	102	32	–	42	–	–	–	-10	10	4	✓	18800	✓	0.55	GI146	SQ400	–
ISO 6462 DIN 8030	**40A05R-S90SO09-C**	40	–	16	14	–	40	8.4	5.6	-9.1	10	5	–	16800	✓	0.29	GI146	SQ402	–
	50A06R-S90SO09-C	50	–	22	18	–	40	10.4	6.4	-8.8	10	6	–	15100	✓	0.33	GI146	SQ403	–
	63A07R-S90SO09-C	63	–	22	18	–	40	10.4	6.4	-8.6	10	7	–	13400	✓	0.62	GI146	SQ403	–
	80A09R-S90SO09-C	80	–	27	38	–	50	12.4	7	-8.1	10	9	–	11900	✓	1.03	GI146	SQ401	AC001

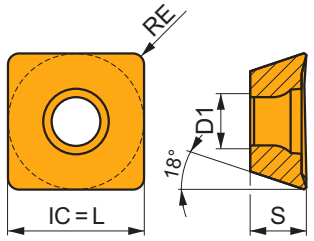
GI146	SOMT 09T3..

		Nm						
SQ400	US 3006-T09P	2.0	M 3	6	–	–	Flag T09P	–
SQ401	US 3006-T09P	2.0	M 3	6	D-T07P/T09P	FG-15	–	–
SQ402	US 3006-T09P	2.0	M 3	6	D-T07P/T09P	FG-15	–	HS 0830C
SQ403	US 3006-T09P	2.0	M 3	6	D-T07P/T09P	FG-15	–	HS 1030C

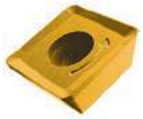
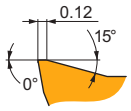
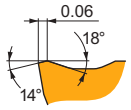
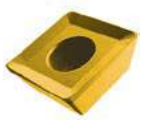
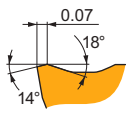
AC001	KS 1230	K.FMH27

SOMT 09

	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
09T3	9.550	3.50	9.55	3.97

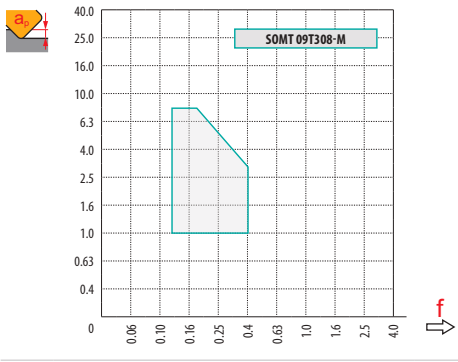


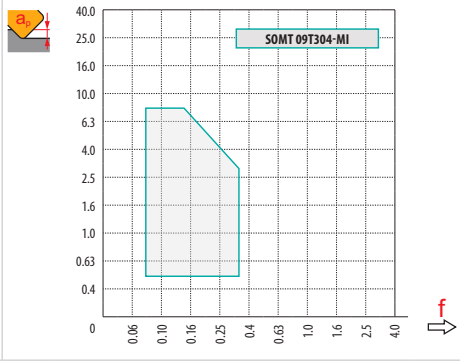
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Şartlar 90°ayar açısı içindir. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

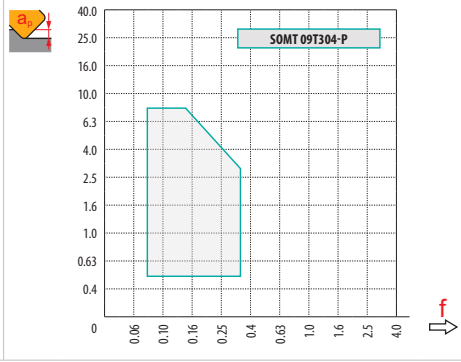
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**M** geometri, orta işleme için pozitif tasarım.																	
SOMT 09T308-M:8215		0.8	275	0.14	2.5	165	0.13	2.5	260	0.14	2.5	–	–	–	65	0.13	2.0	–	–	–
SOMT 09T308-M:M5315		0.8	390	0.14	2.5	–	–	–	370	0.14	2.5	–	–	–	–	–	–	–	–	–
SOMT 09T308-M:M8330		0.8	270	0.14	2.5	160	0.13	2.5	255	0.14	2.5	–	–	–	65	0.13	2.0	–	–	–
SOMT 09T308-M:M8340		0.8	250	0.14	2.5	150	0.13	2.5	235	0.14	2.5	–	–	–	60	0.13	2.0	–	–	–
SOMT 09T308-M:M9315		0.8	380	0.14	2.5	–	–	–	360	0.14	2.5	–	–	–	–	–	–	–	–	–
			**MI** geometri, orta işleme için stabil pozitif tasarım.																	
SOMT 09T304-MI:8215		0.4	230	0.14	2.5	135	0.13	2.5	215	0.14	2.5	–	–	–	55	0.10	2.0	–	–	–
SOMT 09T304-MI:M8310		0.4	255	0.14	2.5	130	0.13	2.5	240	0.14	2.5	–	–	–	–	–	–	–	–	–
SOMT 09T304-MI:M8330		0.4	230	0.14	2.5	135	0.13	2.5	215	0.14	2.5	–	–	–	55	0.10	2.0	–	–	–
SOMT 09T304-MI:M8340		0.4	210	0.14	2.5	125	0.13	2.5	195	0.14	2.5	–	–	–	50	0.10	2.0	–	–	–
SOMT 09T304-MI:M9315		0.4	320	0.14	2.5	–	–	–	300	0.14	2.5	–	–	–	–	–	–	–	–	–
SOMT 09T304-MI:M9340		0.4	265	0.14	2.5	155	0.13	2.5	–	–	–	–	–	–	65	0.10	2.0	–	–	–
			**P** geometri, orta işleme için çok pozitif tasarım.																	
SOMT 09T304-P:M8330		0.4	250	0.14	2.5	150	0.13	2.5	235	0.14	2.5	–	–	–	60	0.10	2.0	–	–	–
SOMT 09T304-P:M8340		0.4	230	0.14	2.5	135	0.13	2.5	215	0.14	2.5	–	–	–	55	0.10	2.0	–	–	–
SOMT 09T304-P:M9325		0.4	320	0.14	2.5	–	–	–	300	0.14	2.5	–	–	–	–	–	–	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	SOMT 09-M	SOMT 09-MI	SOMT 09-P
RE	0.8	0.4	0.4
BS	0.90	1.30	1.30







max

6.0

a_p	1.0	4.0	8.0
f	0.28	0.19	0.09

SSD12

P M K N S

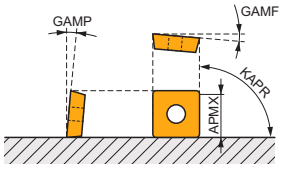
PRAMET

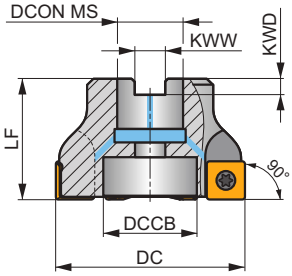
S

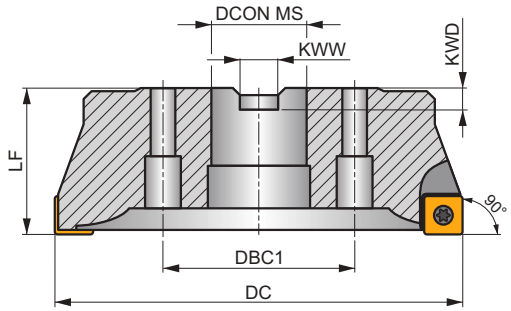
SDMT 12 için 90° Duvar Frezeleme Takımı, İçten Su Vermeli

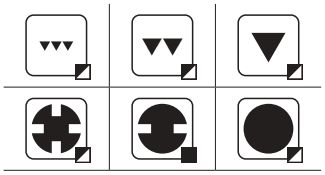
10 mm APMX'li pozitif SDMT 12 kesici uç kullanan 90° kabuk frezesi. Yüzey, kenar, kanal ve dalma frezeleme için uygundur.Yalnızca göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	90°
APMX	10.0 mm









h_m 0.09 - 0.25

	Product	DC (mm)	LF (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
ISO 6462 DIN 8030	**50A05R-S90SD12-C**	50	40	22	18	–	10.4	6.3	-5	8	5	–	13000	✓	0.34	GI057	SQ413	–
	63A06R-S90SD12-C	63	40	22	18	–	10.4	6.3	-5	8	6	–	11600	✓	0.53	GI057	SQ413	–
	80A06R-S90SD12-C	80	50	27	38	–	12.4	7	-5	8	6	–	10300	✓	1.16	GI057	SQ411	AC001
	100A08R-S90SD12-C	100	50	32	45	–	14.4	8	-5	8	8	–	9200	✓	1.69	GI057	SQ411	AC002
	125A09R-S90SD12-C	125	63	40	56	–	16.4	9	-5	8	9	–	8300	✓	3.19	GI057	SQ411	AC003
	160C12R-S90SD12	160	63	40	–	66.7	16.4	9	-5	8	12	–	7300	–	5.70	GI057	SQ411	–

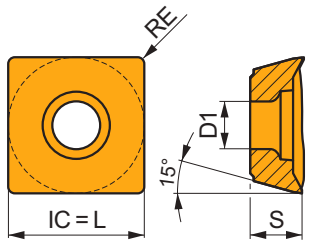
GI057	SDMT 1205..

					Nm					
SQ411	SSN 100312	MS 3510	HXK 3.5	US 3511-T15	3.0	M 3.5	11	D-T07/T15	FG-15	–
SQ413	–	–	–	US 3511-T15	3.0	M 3.5	11	D-T07/T15	FG-15	HS 1030C

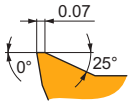
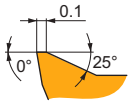
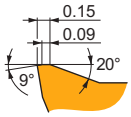
AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

SDMT 12

	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1205	12.700	4.40	12.70	5.00

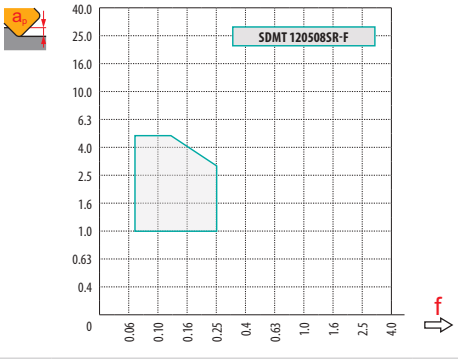


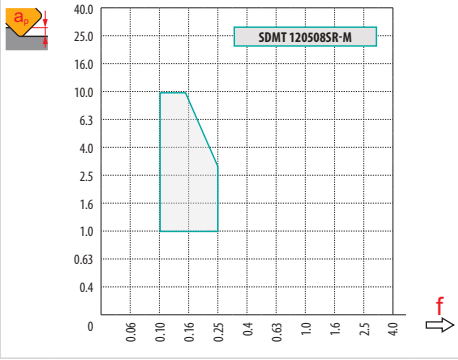
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

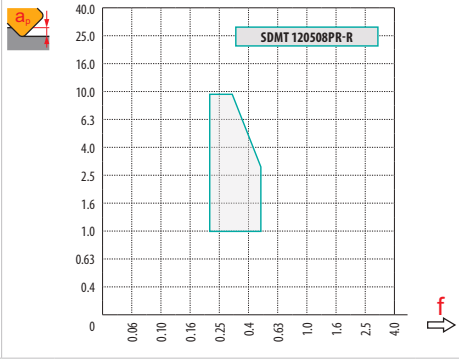
Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
	 																		
F geometri, hafif ve orta işleme için pozitif tasarım.																			
SDMT 120508SR-F:M8330	0.8	275	0.10	3.0	165	0.09	3.0	260	0.10	3.0	825	0.12	3.0	65	0.08	2.4	–	–	–
SDMT 120508SR-F:M8340	0.8	250	0.10	3.0	150	0.09	3.0	235	0.10	3.0	–	–	–	60	0.08	2.4	–	–	–
	 																		
M geometri, hafif ve orta işleme için pozitif tasarım.																			
SDMT 120508SR-M:8215	0.8	245	0.16	3.5	145	0.14	3.5	230	0.16	3.5	–	–	–	60	0.11	2.8	–	–	–
SDMT 120508SR-M:M8330	0.8	240	0.16	3.5	140	0.14	3.5	225	0.16	3.5	–	–	–	60	0.11	2.8	–	–	–
SDMT 120508SR-M:M8340	0.8	220	0.16	3.5	130	0.14	3.5	205	0.16	3.5	–	–	–	55	0.11	2.8	–	–	–
SDMT 120508SR-M:M9325	0.8	305	0.16	3.5	–	–	–	285	0.16	3.5	–	–	–	–	–	–	–	–	–
	 																		
R geometri, orta işleme için stabil pozitif tasarım.																			
SDMT 120508PR-R:M8330	0.8	220	0.25	3.5	130	0.23	3.5	205	0.25	3.5	–	–	–	55	0.23	2.8	–	–	–
SDMT 120508PR-R:M8340	0.8	195	0.25	3.5	115	0.23	3.5	185	0.25	3.5	–	–	–	45	0.23	2.8	–	–	–
SDMT 120508PR-R:M9315	0.8	280	0.25	3.5	–	–	–	265	0.25	3.5	–	–	–	–	–	–	–	–	–
SDMT 120508PR-R:M9325	0.8	265	0.25	3.5	–	–	–	250	0.25	3.5	–	–	–	–	–	–	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	SDMT 12-F	SDMT 12-M	SDMT 12-R
RE	0.8	0.8	0.8
BS	–	–	–







max.

8.0

a_p	1.0	5.0	10.0
f	0.39	0.25	0.14

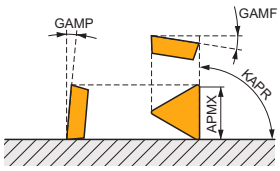
FTB27X

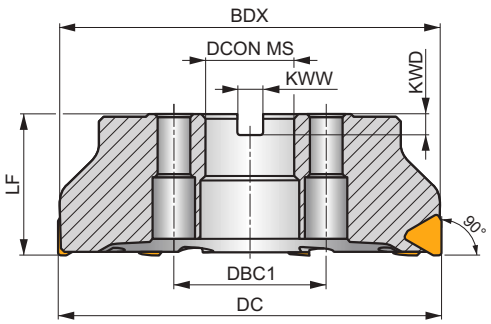
TBMR 27 Ağır Frezeleme Ucu için ROUGH TB Kenar ve Yüzey İşleme Takımı

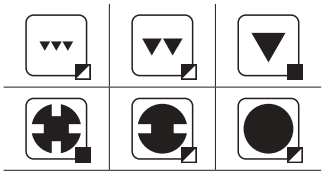
18 mm APMX'li pozitif TBMR 27 uçlar kullanan 90° freze. Ağır yüzey işleme, kenar ve kanal frezeleme için uygundur. Göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

ROUGH TB

KAPR	90°
APMX	18.0 mm







h_m 0.15 - 0.38

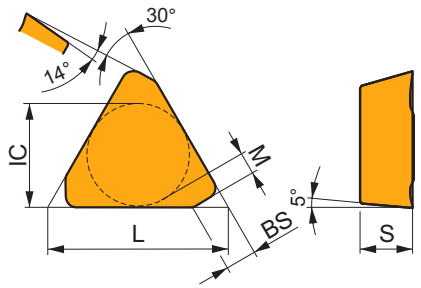
	Product	DC (mm)	BDX (mm)	LF (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
ISO 6462 DIN 8030	**175C08R-F90TB27X**	175	169.6	63	40	–	66.7	16.4	16.4	-9	9	8	✓	–	–	7.59	GI163	SQ424	–
	260C12R-F90TB27X	260	253.4	63	60	–	101.6	25.7	25.7	-9	9	12	✓	–	–	18.21	GI163	SQ425	–

GI163	TBMR 2707PZ..

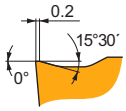
SQ424	LNK 220616	US 6013-T20P	SDR T20P-T	KU TBMR 2707	DS 01Z	KL 04	HS 1240
SQ425	LNK 220616	US 6013-T20P	SDR T20P-T	KU TBMR 2707	DS 01Z	KL 04	HS 1655

TBMR 27

	BS	IC	L	M	S
	(mm)	(mm)	(mm)	(mm)	(mm)
2707	4.61	15.875	27.50	3.2	7.94



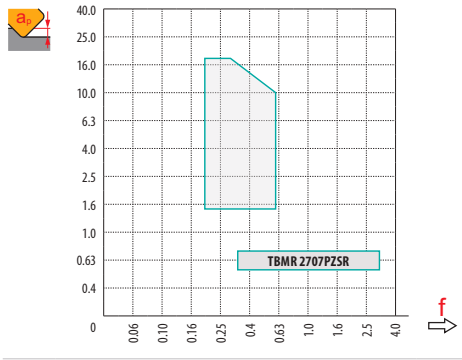
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
TBMR 2707PZSR:M8326		–	130	0.20	11.0	–	–	–	120	0.20	11.0	–	–	–	–	–	–	–	–	–
TBMR 2707PZSR:M8346		–	110	0.20	11.0	65	0.20	11.0	–	–	–	–	–	–	–	–	–	–	–	–

PZSR güçlü tasarım, ağır işleme için.

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
⇨ X.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
⇨ X.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	TBMR 27
RE	–
BS	2.70



a_p	1.5	8.0	18.0
⇨ f	0.60	0.39	0.24

DERIN DUVAR FREZELEME

YÜZEY FREZELEME

	J(T)-SAD11E	J(T)-SAD16E	J(T)-SSAP	J(T)-CSD12X	J(T)-SLSN
	90°	90°	90°	90°	90°
	APMX (mm) 37.0 – 56.0	APMX (mm) 40.0 – 108.0	APMX (mm) 58.0 – 95.0	APMX (mm) 44.1 – 87.3	APMX (mm) 104.0 – 134.0
	DC (mm) 25 – 50	DC (mm) 50 – 100	DC (mm) 50 – 80	DC (mm) 40 – 80	DC (mm) 63, 80
Silindirik şaft	 DC = 25 – 40 (mm)				
Weldon	 DC = 25 – 40 (mm)			 DC = 50 (mm)	
Modüler		 DC = 50 – 80 (mm)		 DC = 40 – 63 (mm)	
Frezeleme kafası	 DC = 50 (mm)	 DC = 50 – 100 (mm)		 DC = 50 – 80 (mm)	
Sayfa	134	139	145	150	153
ISO	P M K N S H	P M K N S H	P M K N S H	P M S	P K
Kesici uç şekli					
Kesici uçlar	AD 11T3	AD.. 1606	APE. 150412 SPE. 1204	SD.X 1205	LNET 1606 SN.. 1305
Kesme kenarlarının sayısı	2	2	2 / 4	4	2 / 8
Derin kenar frezeleme	■	■	■	■	■
Derin oluk frezeleme	■	■	■	■	■
Yüzey frezeleme	◪	◪	◪	◪	◪
Dalma frezeleme	◪	◪	◪		◪

■ İlk seçim. ◪ Olası seçim.

J(T)-SAD11E

P M K N S

PRAMET

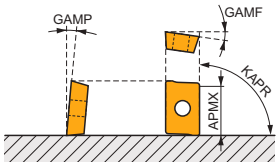
S

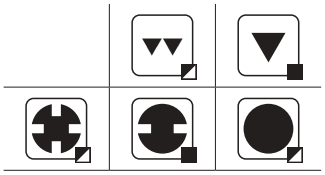
HELİCAL AD11 Uzun Kesme Boylu Freze Takımı, İçten Su Vermeli

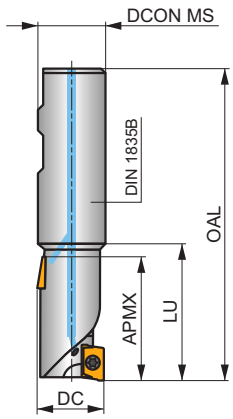
İçten soğutmalı, 36 ila 56 mm'ye kadar APMX'li pozitif ADMX 11 kesici uçlar kullanan 90° uzun kenarlı parmak freze. Kenar, kanal, yüzey veya dalma frezeleme için uygundur. Weldon, mors konik vegöbekten bağlamalı mevcuttur.Gövde uzun takım ömrü için işlem görmüştür.

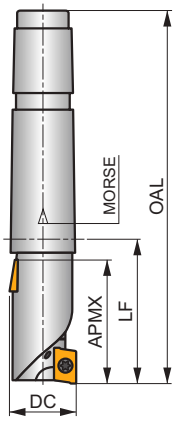
FORCE AD

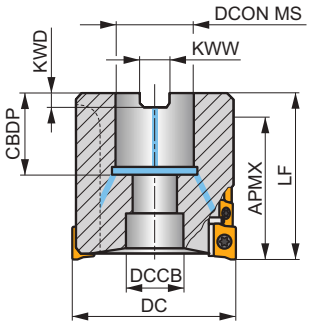
KAPR	90°
APMX	37.0 - 56.0 mm











h_m	0.05 - 0.08
h_m	0.05 - 0.08

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	APMX (mm)	CBDP (mm)	CZC MS	GAMF (°)	GAMP (°)	NOF			max.		kg		
DIN 1835B	**25J2R50B25-SAD11E38-C**	25	106	25	–	50	–	38.00	–	–	-10.5	5	2	8	–	24100	✓	0.32	GI184	SQ210
	32J2R60B32-SAD11E47-C	32	120	32	–	60	–	47.00	–	–	-9	8	2	10	–	21300	✓	0.60	GI184	SQ210
	40J2R60B40-SAD11E47-C	40	130	40	–	60	–	47.00	–	–	-8.1	11	2	10	–	19100	✓	1.07	GI184	SQ210
	40J3R70B32-SAD11E56-C	40	130	32	–	70	–	56.00	–	–	-8.1	11	3	18	–	19100	✓	0.76	GI184	SQ210
	40J3R70B40-SAD11E56-C	40	140	40	–	70	–	56.00	–	–	-8.1	11	3	18	–	19100	✓	1.07	GI184	SQ210
DIN 228A	**25J2R55E03-SAD11E38-C**	25	136	–	–	–	55	38.00	–	3	-10.5	5	2	8	–	24100	✓	0.32	GI184	SQ210
	32J2R65E04-SAD11E47-C	32	167.5	–	–	–	65	47.00	–	4	-9	8	2	10	–	21300	✓	0.71	GI184	SQ210
	40J3R75E04-SAD11E56-C	40	177.5	–	–	–	75	56.00	–	4	-8.1	11	3	18	–	19100	✓	0.85	GI184	SQ210
ISO 6462 DIN 8030	**50T03R-S90AD11E37-C**	50	–	22	18	–	58	37.00	21	–	-7.2	12	3	12	–	17000	✓	0.66	GI184	SQ903

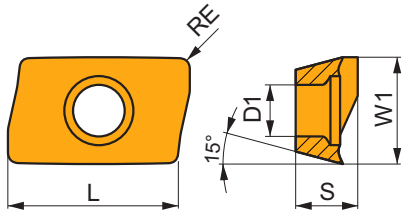
GI184	ADMX 11T3..	ADEX 11T3..-FA

		Nm						
SQ210	US 2506-T07P	1.2	M 2.5	6.3	–	–	Flag T07P	–
SQ903	US 2506-T07P	1.2	M 2.5	6.3	D-T07P/T09P	FG-15	–	HS 1030C

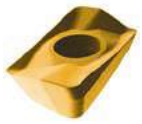
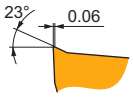
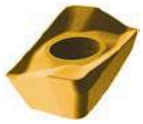
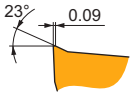
ADMX 11

PRAMET

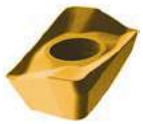
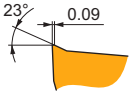
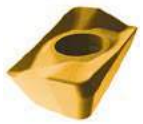
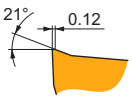
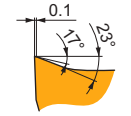
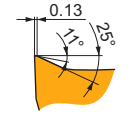
	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
11T3	6.530	2.90	11.00	3.97



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

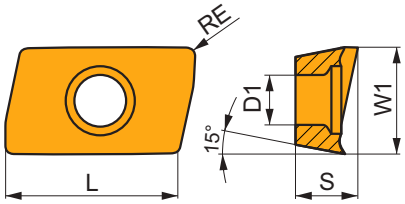
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
F geometri, hafif işleme için çok keskin tasarım.																				
ADMX 11T304SR-F:8215	●	0.4	245	0.10	2.0	145	0.09	2.0	230	0.10	2.0	735	0.12	2.0	60	0.08	1.6	–	–	–
ADMX 11T304SR-F:M8330	●	0.4	240	0.10	2.0	140	0.09	2.0	225	0.10	2.0	720	0.12	2.0	60	0.08	1.6	–	–	–
ADMX 11T304SR-F:M8340	●	0.4	220	0.10	2.0	130	0.09	2.0	205	0.10	2.0	–	–	–	55	0.08	1.6	–	–	–
ADMX 11T304SR-F:M9340	●	0.4	285	0.10	2.0	170	0.09	2.0	–	–	–	–	–	–	70	0.08	1.6	–	–	–
ADMX 11T308SR-F:8215	⬢	0.8	290	0.10	2.0	170	0.09	2.0	275	0.10	2.0	870	0.12	2.0	70	0.08	1.6	–	–	–
ADMX 11T308SR-F:M8330	⬢	0.8	285	0.10	2.0	170	0.09	2.0	270	0.10	2.0	855	0.12	2.0	70	0.08	1.6	–	–	–
ADMX 11T308SR-F:M8340	⬢	0.8	260	0.10	2.0	155	0.09	2.0	245	0.10	2.0	–	–	–	65	0.08	1.6	–	–	–
ADMX 11T308SR-F:M9340	⬢	0.8	340	0.10	2.0	200	0.09	2.0	–	–	–	–	–	–	85	0.08	1.6	–	–	–
																				
M geometri, hafif ve orta işleme için pozitif tasarım.																				
ADMX 11T302SR-M:M8330	●	0.2	190	0.15	4.0	110	0.14	4.0	180	0.15	4.0	–	–	–	45	0.12	3.2	–	–	–
ADMX 11T302SR-M:M8340	⬢	0.2	170	0.15	4.0	100	0.14	4.0	160	0.15	4.0	–	–	–	40	0.12	3.2	–	–	–
ADMX 11T304SR-M:8215	●	0.4	205	0.15	4.0	120	0.14	4.0	190	0.15	4.0	–	–	–	50	0.12	3.2	–	–	–
ADMX 11T304SR-M:M8310	●	0.4	220	0.15	4.0	110	0.14	4.0	205	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T304SR-M:M8330	⬢	0.4	205	0.15	4.0	120	0.14	4.0	190	0.15	4.0	–	–	–	50	0.12	3.2	–	–	–
ADMX 11T304SR-M:M8340	⬢	0.4	185	0.15	4.0	110	0.14	4.0	175	0.15	4.0	–	–	–	45	0.12	3.2	–	–	–
ADMX 11T304SR-M:M9325	●	0.4	255	0.15	4.0	–	–	–	240	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T304SR-M:M9340	●	0.4	235	0.15	4.0	140	0.14	4.0	–	–	–	–	–	–	55	0.12	3.2	–	–	–
ADMX 11T308SR-M:8215	⬢	0.8	245	0.15	4.0	145	0.14	4.0	230	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T308SR-M:M5315	⬢	0.8	335	0.15	4.0	–	–	–	315	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T308SR-M:M8310	⬢	0.8	265	0.15	4.0	135	0.14	4.0	250	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T308SR-M:M8330	⬢	0.8	245	0.15	4.0	145	0.14	4.0	230	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T308SR-M:M8340	⬢	0.8	220	0.15	4.0	130	0.14	4.0	205	0.15	4.0	–	–	–	55	0.12	3.2	–	–	–
ADMX 11T308SR-M:M9315	⬢	0.8	330	0.15	4.0	–	–	–	310	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T308SR-M:M9325	⬢	0.8	305	0.15	4.0	–	–	–	285	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T308SR-M:M9340	⬢	0.8	275	0.15	4.0	165	0.14	4.0	–	–	–	–	–	–	65	0.12	3.2	–	–	–
ADMX 11T310SR-M:M8330	⬢	1.0	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T310SR-M:M8340	✱	1.0	230	0.15	4.0	135	0.14	4.0	215	0.15	4.0	–	–	–	55	0.12	3.2	–	–	–
ADMX 11T312SR-M:8215	⬢	1.2	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T312SR-M:M8330	✱	1.2	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T312SR-M:M8340	✱	1.2	230	0.15	4.0	135	0.14	4.0	215	0.15	4.0	–	–	–	55	0.12	3.2	–	–	–
ADMX 11T316SR-M:8215	⬢	1.6	270	0.15	4.0	160	0.14	4.0	255	0.15	4.0	–	–	–	65	0.12	3.2	–	–	–
ADMX 11T316SR-M:M6330	✱	1.6	230	0.15	4.0	165	0.14	4.0	–	–	–	–	–	–	65	0.12	3.2	–	–	–
ADMX 11T316SR-M:M8310	⬢	1.6	295	0.15	4.0	150	0.14	4.0	280	0.15	4.0	–	–	–	–	–	–	–	–	–
ADMX 11T316SR-M:M8330	✱	1.6	270	0.15	4.0	160	0.14	4.0	255	0.15	4.0	–	–	–	65	0.12	3.2	–	–	–
ADMX 11T316SR-M:M8340	✱	1.6	240	0.15	4.0	140	0.14	4.0	225	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T320SR-M:M6330	✱	2.0	240	0.15	4.0	170	0.14	4.0	–	–	–	–	–	–	70	0.12	3.2	–	–	–
ADMX 11T320SR-M:M8330	✱	2.0	280	0.15	4.0	165	0.14	4.0	265	0.15	4.0	–	–	–	70	0.12	3.2	–	–	–
ADMX 11T320SR-M:M8340	✱	2.0	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–

Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
M geometri, hafif ve orta işleme için pozitif tasarım.																			
ADMX 11T325SR-M:M6330	2.5	240	0.15	4.0	170	0.14	4.0	–	–	–	–	–	–	70	0.12	3.2	–	–	–
ADMX 11T325SR-M:M8340	2.5	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
ADMX 11T330SR-M:M6330	3.0	240	0.15	4.0	170	0.14	4.0	–	–	–	–	–	–	70	0.12	3.2	–	–	–
ADMX 11T330SR-M:M8330	3.0	280	0.15	4.0	165	0.14	4.0	265	0.15	4.0	–	–	–	70	0.12	3.2	–	–	–
ADMX 11T330SR-M:M8340	3.0	255	0.15	4.0	150	0.14	4.0	240	0.15	4.0	–	–	–	60	0.12	3.2	–	–	–
 																			
R geometri, az stabil şartlar için pozitif tasarım.																			
ADMX 11T308PR-R:8215	0.8	230	0.18	4.0	135	0.16	4.0	215	0.18	4.0	–	–	–	55	0.16	3.2	45	0.12	0.7
ADMX 11T308PR-R:M5315	0.8	310	0.18	4.0	–	–	–	290	0.18	4.0	–	–	–	–	–	–	60	0.13	0.7
ADMX 11T308PR-R:M8310	0.8	250	0.18	4.0	125	0.16	4.0	235	0.18	4.0	–	–	–	–	–	–	50	0.12	0.7
ADMX 11T308PR-R:M8330	0.8	230	0.18	4.0	135	0.16	4.0	215	0.18	4.0	–	–	–	55	0.16	3.2	45	0.12	0.7
ADMX 11T308PR-R:M8340	0.8	210	0.18	4.0	125	0.16	4.0	195	0.18	4.0	–	–	–	50	0.16	3.2	–	–	–
ADMX 11T308PR-R:M9315	0.8	310	0.18	4.0	–	–	–	290	0.18	4.0	–	–	–	–	–	–	60	0.13	0.7
ADMX 11T308PR-R:M9325	0.8	290	0.18	4.0	–	–	–	275	0.18	4.0	–	–	–	–	–	–	55	0.13	0.7
ADMX 11T316PR-R:8215	1.6	255	0.18	4.0	150	0.16	4.0	240	0.18	4.0	–	–	–	60	0.16	3.2	50	0.12	0.7
ADMX 11T316PR-R:M8330	1.6	255	0.18	4.0	150	0.16	4.0	240	0.18	4.0	–	–	–	60	0.16	3.2	50	0.12	0.7
ADMX 11T316PR-R:M9325	1.6	320	0.18	4.0	–	–	–	300	0.18	4.0	–	–	–	–	–	–	60	0.12	0.7
 																			
MF geometri, hafif ve finiş işleme için çok pozitif tasarım.																			
ADMX 11T304SR-MF:M6330	0.4	215	0.08	2.5	150	0.07	2.5	–	–	–	–	–	–	60	0.06	2.0	–	–	–
ADMX 11T304SR-MF:M8340	0.4	220	0.08	2.5	130	0.07	2.5	–	–	–	–	–	–	55	0.06	2.0	–	–	–
ADMX 11T308SR-MF:M6330	0.8	255	0.08	2.5	180	0.07	2.5	–	–	–	–	–	–	75	0.06	2.0	–	–	–
ADMX 11T308SR-MF:M8340	0.8	265	0.08	2.5	155	0.07	2.5	–	–	–	–	–	–	65	0.06	2.0	–	–	–
 																			
MM geometri, hafif ve orta işleme için çok pozitif tasarım.																			
ADMX 11T304SR-MM:M6330	0.4	185	0.14	2.5	130	0.13	2.5	–	–	–	–	–	–	55	0.11	2.0	–	–	–
ADMX 11T304SR-MM:M8340	0.4	195	0.14	2.5	115	0.13	2.5	–	–	–	–	–	–	45	0.11	2.0	–	–	–
ADMX 11T308SR-MM:M6330	0.8	225	0.14	2.5	155	0.13	2.5	–	–	–	–	–	–	65	0.11	2.0	–	–	–
ADMX 11T308SR-MM:M8340	0.8	235	0.14	2.5	140	0.13	2.5	–	–	–	–	–	–	55	0.11	2.0	–	–	–
ADMX 11T308SR-MM:M8345	0.8	190	0.14	2.5	110	0.13	2.5	–	–	–	–	–	–	45	0.11	2.0	–	–	–
ADMX 11T308SR-MM:M9340	0.8	300	0.14	2.5	180	0.13	2.5	–	–	–	–	–	–	75	0.11	2.0	–	–	–
ADMX 11T312SR-MM:M6330	1.2	235	0.14	2.5	165	0.13	2.5	–	–	–	–	–	–	70	0.11	2.0	–	–	–
ADMX 11T312SR-MM:M8340	1.2	245	0.14	2.5	145	0.13	2.5	–	–	–	–	–	–	60	0.11	2.0	–	–	–

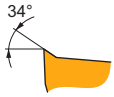
ADEX 11-FA

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
11T3	6.450	2.90	9.70	3.91



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)



FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.

ADEX 11T304FR-FA:HF7	●	0.4	–	–	–	–	–	–	–	–	–	■	210	0.30	5.0	–	–	–	–	–	–
ADEX 11T304FR-FA:M0315	●	0.4	–	–	–	–	–	–	–	–	–	■	480	0.30	5.0	–	–	–	–	–	–
ADEX 11T308FR-FA:HF7	●	0.8	–	–	–	–	–	–	–	–	–	■	240	0.30	5.0	–	–	–	–	–	–
ADEX 11T308FR-FA:M0315	●	0.8	–	–	–	–	–	–	–	–	–	■	570	0.30	5.0	–	–	–	–	–	–
ADEX 11T312FR-FA:HF7	●	1.2	–	–	–	–	–	–	–	–	–	■	255	0.30	5.0	–	–	–	–	–	–
ADEX 11T316FR-FA:HF7	●	1.6	–	–	–	–	–	–	–	–	–	■	270	0.18	5.0	–	–	–	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	0.89	0.81	0.76	0.73	0.71	0.70	0.67	0.65	0.63	0.62	0.60	0.60	0.60	0.45

$a_{e\,max}$	1		2.5		5		7.5		10		15		20	
DC	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨
25	0.25	0.40	0.16	0.26	0.12	0.19	0.10	0.15	0.09	0.14	0.07	0.12	0.07	0.11
32	0.28	0.45	0.18	0.29	0.13	0.21	0.11	0.17	0.09	0.15	0.08	0.13	0.07	0.12
40	0.32	0.51	0.20	0.32	0.14	0.23	0.12	0.19	0.10	0.17	0.09	0.14	0.08	0.13
50	0.35	0.57	0.23	0.36	0.16	0.26	0.13	0.21	0.12	0.19	0.10	0.15	0.09	0.14

$a_{e\,max}$	25		32		40		50	
DC	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨
25	0.08	0.13	–	–	–	–	–	–
32	0.07	0.11	0.08	0.13	–	–	–	–
40	0.07	0.12	0.07	0.11	0.08	0.13	–	–
50	0.08	0.13	0.07	0.12	0.07	0.11	0.08	0.13

	ADMX 11-F		ADMX 11-M									ADMX 11-R		ADMX 11-MF		ADMX 11-MM			ADEX 11-FA			
RE	0.4	0.8	0.2	0.4	0.8	1.0	1.2	1.6	2.0	2.5	3.0	0.8	1.6	0.4	0.8	0.4	0.8	1.2	0.4	0.8	1.2	1.6
BS	1.89	1.48	2.09	1.89	1.48	1.27	1.08	0.68	1.61	1.13	0.66	1.48	0.68	1.89	1.48	1.89	1.48	1.08	1.77	1.39	1.0	0.62

ISO	DC		APMX	a_p
25J2R50B25-SAD11E38-C	25	2	38	34.5
32J2R60B32-SAD11E47-C	32	2	47	43.5
40J2R60B40-SAD11E47-C	40	2	47	43.5
40J3R70B32-SAD11E56-C	40	3	56	52.5
40J3R70B40-SAD11E56-C	40	3	56	52.5
25J2R55E03-SAD11E38-C	25	2	38	34.5
32J2R65E04-SAD11E47-C	32	2	47	43.5
40J3R75E04-SAD11E56-C	40	3	56	52.5
50T03R-S90AD11E37-C	50	3	37	33.5

ADMX/ADEX 11	R
ADMX 11T320SR-M	1.0
ADMX 11T325SR-M	1.8
ADMX 11T330SR-M	1.8

max

4.5

J(T)-SAD16E

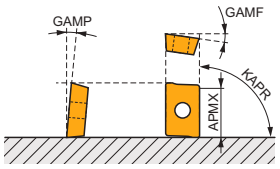
PRAMET

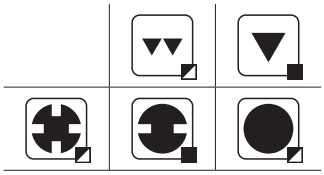
S

HELICAL AD16 Uzun Kesme Boylu Freze Takımı, İçten Su Vermeli

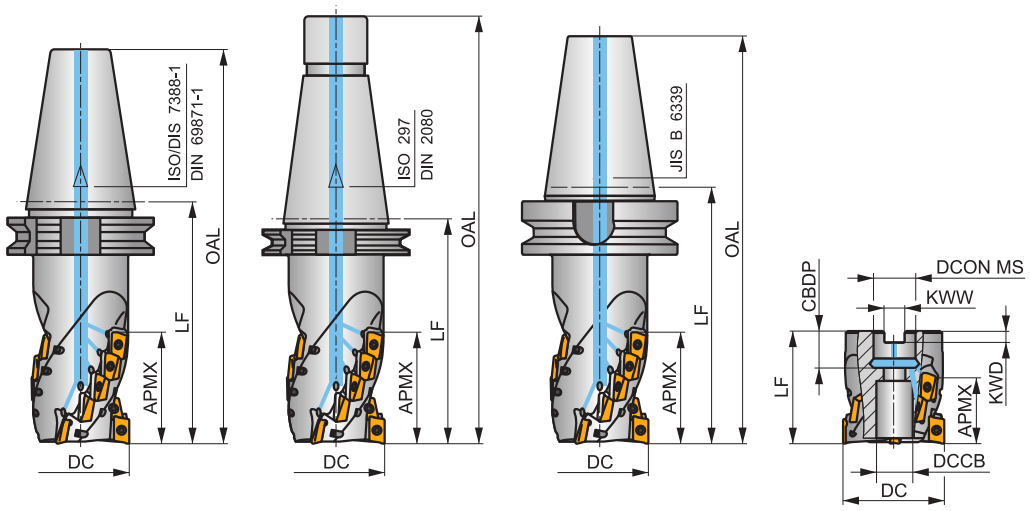
Pozitif AD..16 kullanan 90° uzun kenarlı parmak freze. İçten soğutmalı, 40'tan 108 mm'ye kadar APMX'li kesici uç. Kenar, kanal, yüzey veya dalma frezeleme için uygundur. Göbekten bağlama, DIN 69871, BT ve DIN 2080 konik stilinde mevcuttur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	90°
APMX	40.0 - 108.0 mm





FORCE AD



h_m	0.08 - 0.1
h_m	0.08 - 0.1

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LF (mm)	APMX (mm)	CBDP (mm)	CZC MS	GAMF (°)	GAMP (°)	NOF			max.		kg		
	50J3R100H50-SAD16E54-C	50	202	–	–	100	54.00	–	50	-6	12	3	12	–	13200	✓	4.08	GI282	SQ031
	50J3R140H50-SAD16E80-C	50	242	–	–	140	80.00	–	50	-6	12	3	18	–	13200	✓	4.38	GI282	SQ031
ISO/DIS 7388-1	**63J3R140H50-SAD16E68-C**	63	242	–	–	140	68.00	–	50	-6	12	3	15	–	11700	✓	5.34	GI282	SQ031
	63J3R155H50-SAD16E95-C	63	257	–	–	155	95.00	–	50	-6	12	3	21	–	11700	✓	5.43	GI282	SQ031
	80J4R165H50-SAD16E108-C	80	257	–	–	165	108.00	–	50	-6	12	4	32	✓	10400	✓	7.37	GI282	SQ031
	50J3R140G50-SAD16E80-C	50	267	–	–	140	80.00	–	50	-6	12	3	18	–	13200	✓	4.48	GI282	SQ031
ISO 297	**63J3R155G50-SAD16E95-C**	63	282	–	–	155	95.00	–	50	-6	12	3	21	–	11700	✓	5.52	GI282	SQ031
	80J4R165G50-SAD16E108-C	80	292	–	–	165	108.00	–	50	-6	12	4	32	✓	10400	✓	7.51	GI282	SQ031
	50J3R140X50-SAD16E68-C	50	242	–	–	140	68.00	–	50	-6	12	3	15	–	13200	✓	5.28	GI282	SQ031
JIS B 6339	**63J3R155X50-SAD16E80-C**	63	257	–	–	155	80.00	–	50	-6	12	3	18	–	11700	✓	6.19	GI282	SQ031
	80J4R165X50-SAD16E95-C	80	267	–	–	165	95.00	–	50	-6	12	4	28	✓	10400	✓	7.84	GI282	SQ031
	50T03R-S90AD16E40-C	50	–	22	18	70	40.00	21	–	-6	12	3	9	–	13200	✓	0.63	GI282	SQ913
	63T04R-S90AD16E40-C	63	–	27	22	70	40.00	22	–	-6	12	4	12	✓	11700	✓	1.14	GI282	SQ914
ISO 6462 DIN 8030	**63T04R-S90AD16E68-C**	63	–	27	22	100	68.00	22	–	-6	12	4	20	✓	11700	✓	1.86	GI282	SQ914
	80T04R-S90AD16E55-C	80	–	32	30	85	55.00	25	–	-6	12	4	16	✓	10400	✓	2.56	GI282	SQ915
	80T04R-S90AD16E80-C	80	–	32	30	115	80.00	25	–	-6	12	4	24	✓	10400	✓	3.17	GI282	SQ915
	100T05R-S90AD16E80-C	100	–	40	36	120	80.00	30	–	-6	12	5	30	✓	9300	✓	5.31	GI282	SQ916

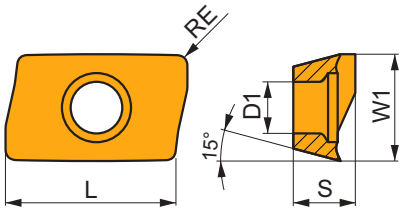
GI282	ADMX 1606..	ADEX 1606..-FA	ADEX 1606..-FM

		Nm					
SQ031	US 4011-T15P	3.5	M 4	10.6	D-T08P/T15P	FG-15	–
SQ913	US 4011-T15P	3.5	M 4	10.6	D-T08P/T15P	FG-15	HS 1030C
SQ914	US 4011-T15P	3.5	M 4	10.6	D-T08P/T15P	FG-15	HS 1230C
SQ915	US 4011-T15P	3.5	M 4	10.6	D-T08P/T15P	FG-15	HS 1630C
SQ916	US 4011-T15P	3.5	M 4	10.6	D-T08P/T15P	FG-15	HS 2040C

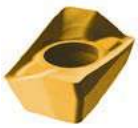
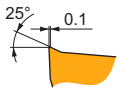
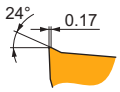
ADMX 16

PRAMET

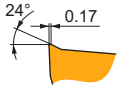
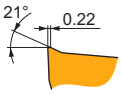
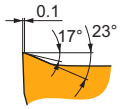
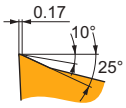
	W1 (mm)	D1 (mm)	L (mm)	S (mm)
1606	9.950	4.50	16.00	6.25



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
   **F** geometri, hafif ve orta işleme için çok pozitif tasarım.																			
ADMX 160608SR-F:8215	0.8	290	0.10	2.0	170	0.09	2.0	275	0.10	2.0	870	0.12	2.0	70	0.07	1.6	–	–	–
ADMX 160608SR-F:M8310	0.8	320	0.10	2.0	160	0.09	2.0	300	0.10	2.0	–	–	–	–	–	–	–	–	–
ADMX 160608SR-F:M8330	0.8	285	0.10	2.0	170	0.09	2.0	270	0.10	2.0	855	0.12	2.0	70	0.07	1.6	–	–	–
ADMX 160608SR-F:M8340	0.8	260	0.10	2.0	155	0.09	2.0	245	0.10	2.0	–	–	–	65	0.07	1.6	–	–	–
ADMX 160608SR-F:M9340	0.8	340	0.10	2.0	200	0.09	2.0	–	–	–	–	–	–	85	0.07	1.6	–	–	–
   **M** geometri, hafif ve orta işleme için pozitif tasarım.																			
ADMX 160604SR-M:8215	0.4	190	0.18	5.0	110	0.16	5.0	180	0.18	5.0	–	–	–	45	0.13	4.0	–	–	–
ADMX 160604SR-M:M8330	0.4	190	0.18	5.0	110	0.16	5.0	180	0.18	5.0	–	–	–	45	0.13	4.0	–	–	–
ADMX 160604SR-M:M8340	0.4	170	0.18	5.0	100	0.16	5.0	160	0.18	5.0	–	–	–	40	0.13	4.0	–	–	–
ADMX 160608SR-M:8215	0.8	225	0.18	5.0	135	0.16	5.0	210	0.18	5.0	–	–	–	55	0.13	4.0	–	–	–
ADMX 160608SR-M:M5315	0.8	305	0.18	5.0	–	–	–	285	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160608SR-M:M8310	0.8	250	0.18	5.0	125	0.16	5.0	235	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160608SR-M:M8330	0.8	225	0.18	5.0	135	0.16	5.0	210	0.18	5.0	–	–	–	55	0.13	4.0	–	–	–
ADMX 160608SR-M:M8340	0.8	205	0.18	5.0	120	0.16	5.0	190	0.18	5.0	–	–	–	50	0.13	4.0	–	–	–
ADMX 160608SR-M:M9315	0.8	305	0.18	5.0	–	–	–	285	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160608SR-M:M9325	0.8	280	0.18	5.0	–	–	–	265	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160608SR-M:M9340	0.8	255	0.18	5.0	150	0.16	5.0	–	–	–	–	–	–	60	0.13	4.0	–	–	–
ADMX 160616SR-M:8215	1.6	250	0.18	5.0	150	0.16	5.0	235	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160616SR-M:M8310	1.6	275	0.18	5.0	140	0.16	5.0	260	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160616SR-M:M8330	1.6	250	0.18	5.0	150	0.16	5.0	235	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160616SR-M:M8340	1.6	225	0.18	5.0	135	0.16	5.0	210	0.18	5.0	–	–	–	55	0.13	4.0	–	–	–
ADMX 160616SR-M:M9325	1.6	310	0.18	5.0	–	–	–	290	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160620SR-M:M8330	2.0	265	0.18	5.0	155	0.16	5.0	250	0.18	5.0	–	–	–	65	0.13	4.0	–	–	–
ADMX 160620SR-M:M8340	2.0	240	0.18	5.0	140	0.16	5.0	225	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160630SR-M:M8330	3.0	265	0.18	5.0	155	0.16	5.0	250	0.18	5.0	–	–	–	65	0.13	4.0	–	–	–
ADMX 160630SR-M:M8340	3.0	240	0.18	5.0	140	0.16	5.0	225	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160632SR-M:M6330	3.2	225	0.18	5.0	155	0.16	5.0	–	–	–	–	–	–	65	0.13	4.0	–	–	–
ADMX 160632SR-M:M8330	3.2	265	0.18	5.0	155	0.16	5.0	250	0.18	5.0	–	–	–	65	0.13	4.0	–	–	–

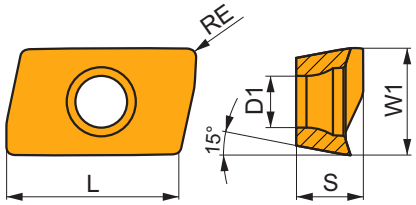
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  																			
M geometri, hafif ve orta işleme için pozitif tasarım.																			
ADMX 160632SR-M:M8340	3.2	240	0.18	5.0	140	0.16	5.0	225	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160632SR-M:M9325	3.2	325	0.18	5.0	–	–	–	305	0.18	5.0	–	–	–	–	–	–	–	–	–
ADMX 160640SR-M:M8330	4.0	265	0.18	5.0	155	0.16	5.0	250	0.18	5.0	–	–	–	65	0.13	4.0	–	–	–
ADMX 160640SR-M:M8340	4.0	240	0.18	5.0	140	0.16	5.0	225	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
ADMX 160650SR-M:M8330	5.0	265	0.18	5.0	155	0.16	5.0	250	0.18	5.0	–	–	–	65	0.13	4.0	–	–	–
ADMX 160650SR-M:M8340	5.0	240	0.18	5.0	140	0.16	5.0	225	0.18	5.0	–	–	–	60	0.13	4.0	–	–	–
  																			
R geometri, orta işleme ve az stabil şartlar için pozitif tasarım.																			
ADMX 160608PR-R:8215	0.8	205	0.25	6.0	120	0.23	6.0	190	0.25	6.0	–	–	–	50	0.20	4.8	40	0.16	1.1
ADMX 160608PR-R:M5315	0.8	260	0.25	6.0	–	–	–	245	0.25	6.0	–	–	–	–	–	–	50	0.16	1.1
ADMX 160608PR-R:M8310	0.8	220	0.25	6.0	110	0.23	6.0	205	0.25	6.0	–	–	–	–	–	–	40	0.16	1.1
ADMX 160608PR-R:M8330	0.8	205	0.25	6.0	120	0.23	6.0	190	0.25	6.0	–	–	–	50	0.20	4.8	40	0.16	1.1
ADMX 160608PR-R:M8340	0.8	190	0.25	6.0	110	0.23	6.0	180	0.25	6.0	–	–	–	45	0.20	4.8	–	–	–
ADMX 160608PR-R:M9315	0.8	265	0.25	6.0	–	–	–	250	0.25	6.0	–	–	–	–	–	–	50	0.16	1.1
ADMX 160608PR-R:M9325	0.8	250	0.25	6.0	–	–	–	235	0.25	6.0	–	–	–	–	–	–	50	0.16	1.1
ADMX 160616PR-R:M8330	1.6	225	0.25	6.0	135	0.23	6.0	210	0.25	6.0	–	–	–	55	0.20	4.8	45	0.16	1.1
ADMX 160616PR-R:M8340	1.6	210	0.25	6.0	125	0.23	6.0	195	0.25	6.0	–	–	–	50	0.20	4.8	–	–	–
ADMX 160616PR-R:M9315	1.6	295	0.25	6.0	–	–	–	280	0.25	6.0	–	–	–	–	–	–	55	0.16	1.1
  																			
MF geometri, finiş işleme için çok pozitif tasarım.																			
ADMX 160608SR-MF:M6330	0.8	215	0.08	4.0	150	0.07	4.0	–	–	–	–	–	–	60	0.06	3.2	–	–	–
ADMX 160608SR-MF:M8340	0.8	225	0.08	4.0	135	0.07	4.0	–	–	–	–	–	–	55	0.06	3.2	–	–	–
ADMX 160608SR-MF:M9340	0.8	305	0.08	4.0	180	0.07	4.0	–	–	–	–	–	–	75	0.06	3.2	–	–	–
  																			
MM geometri, hafif ve orta işleme için çok pozitif tasarım.																			
ADMX 160604SR-MM:M6330	0.4	145	0.18	4.0	105	0.16	4.0	–	–	–	–	–	–	40	0.14	3.2	–	–	–
ADMX 160604SR-MM:M8340	0.4	160	0.18	4.0	95	0.16	4.0	–	–	–	–	–	–	40	0.14	3.2	–	–	–
ADMX 160608SR-MM:M6330	0.8	175	0.18	4.0	125	0.16	4.0	–	–	–	–	–	–	50	0.14	3.2	–	–	–
ADMX 160608SR-MM:M8340	0.8	190	0.18	4.0	110	0.16	4.0	–	–	–	–	–	–	45	0.14	3.2	–	–	–
ADMX 160608SR-MM:M8345	0.8	150	0.18	4.0	90	0.16	4.0	–	–	–	–	–	–	35	0.14	3.2	–	–	–
ADMX 160608SR-MM:M9340	0.8	235	0.18	4.0	140	0.16	4.0	–	–	–	–	–	–	55	0.14	3.2	–	–	–
ADMX 160616SR-MM:M6330	1.6	195	0.18	4.0	140	0.16	4.0	–	–	–	–	–	–	55	0.14	3.2	–	–	–
ADMX 160616SR-MM:M8340	1.6	210	0.18	4.0	125	0.16	4.0	–	–	–	–	–	–	50	0.14	3.2	–	–	–
ADMX 160616SR-MM:M8345	1.6	165	0.18	4.0	95	0.16	4.0	–	–	–	–	–	–	40	0.14	3.2	–	–	–
ADMX 160616SR-MM:M9340	1.6	260	0.18	4.0	155	0.16	4.0	–	–	–	–	–	–	65	0.14	3.2	–	–	–

ADEX 16

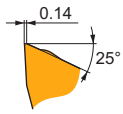
PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1606	9.950	4.50	16.00	6.25



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)



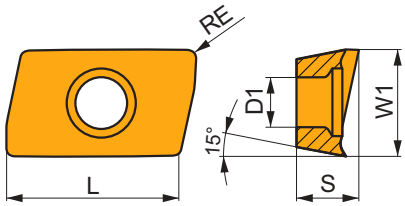
FM geometri, orta işleme için çok pozitif tasarım.

ADEX 160608SR-FM:8215	0.8	260	0.16	2.0	155	0.14	2.0	245	0.16	2.0	–	–	–	65	0.11	1.6	–	–	–
ADEX 160608SR-FM:M8330	0.8	255	0.16	2.0	150	0.14	2.0	240	0.16	2.0	–	–	–	60	0.11	1.6	–	–	–
ADEX 160608SR-FM:M8340	0.8	235	0.16	2.0	140	0.14	2.0	220	0.16	2.0	–	–	–	55	0.11	1.6	–	–	–

ADEX 16-FA

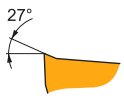
PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1606	9.950	4.50	16.00	6.17



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)



FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.

ADEX 160604FR-FA:HF7	0.4	–	–	–	–	–	–	–	–	–	195	0.28	6.0	–	–	–	–	–	–
ADEX 160604FR-FA:M0315	0.4	–	–	–	–	–	–	–	–	–	480	0.28	6.0	–	–	–	–	–	–
ADEX 160608FR-FA:HF7	0.8	–	–	–	–	–	–	–	–	–	240	0.28	6.0	–	–	–	–	–	–
ADEX 160608FR-FA:M0315	0.8	–	–	–	–	–	–	–	–	–	570	0.28	6.0	–	–	–	–	–	–
ADEX 160616FR-FA:HF7	1.6	–	–	–	–	–	–	–	–	–	255	0.28	6.0	–	–	–	–	–	–
ADEX 160616FR-FA:M0315	1.6	–	–	–	–	–	–	–	–	–	630	0.28	6.0	–	–	–	–	–	–
ADEX 160630FR-FA:HF7	3.0	–	–	–	–	–	–	–	–	–	270	0.28	6.0	–	–	–	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	0.89	0.81	0.76	0.73	0.71	0.70	0.66	0.65	0.63	0.62	0.60	0.60	0.60	0.45

$a_{e\,max}$	1		2.5		5		7.5		10		15		20	
DC	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹
50	0.57	0.71	0.36	0.45	0.26	0.32	0.21	0.27	0.19	0.23	0.15	0.19	0.14	0.17
63	0.64	0.80	0.40	0.51	0.29	0.36	0.24	0.30	0.21	0.26	0.17	0.21	0.15	0.19
80	0.72	0.90	0.45	0.57	0.32	0.40	0.27	0.33	0.23	0.29	0.19	0.24	0.17	0.21
100	0.80	1.00	0.51	0.64	0.36	0.45	0.30	0.37	0.26	0.32	0.21	0.27	0.19	0.23

$a_{e\,max}$	25		32		40		50		63		80		100	
DC	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹
50	0.13	0.16	0.12	0.14	0.11	0.14	0.13	0.16	–	–	–	–	–	–
63	0.14	0.17	0.12	0.16	0.12	0.15	0.11	0.14	0.13	0.16	–	–	–	–
80	0.15	0.19	0.14	0.17	0.13	0.16	0.12	0.15	0.11	0.14	0.13	0.16	–	–
100	0.17	0.21	0.15	0.19	0.14	0.17	0.13	0.16	0.12	0.15	0.11	0.14	0.13	0.16

	ADMX 16-F	ADEX 16-FM	ADMX 16-M								ADMX 16-R	
RE	0.8	0.8	0.4	0.8	1.6	2.0	3.0	3.2	4.0	5.0	0.8	1.6
BS	2.99	2.18	3.39	2.99	1.62	1.23	0.28	0.09	2.69	1.52	2.99	1.62

	ADMX 16-MF	ADMX 16-MM			ADEX 16-FA			
RE	0.8	0.4	0.8	1.6	0.4	0.8	1.6	3.0
BS	2.99	3.39	2.99	1.62	2.84	2.44	1.65	0.69

ISO	DC		APMX	a_p
50J3R100H50-SAD16E54-C	50	3	54	50.5
50J3R140H50-SAD16E80-C	50	3	80	76.5
63J3R140H50-SAD16E68-C	63	3	68	64.5
63J3R155H50-SAD16E95-C	63	3	95	91.5
80J4R165H50-SAD16E108-C	80	4	108	104.5
50J3R140G50-SAD16E80-C	50	3	80	76.5
63J3R155G50-SAD16E95-C	63	3	95	91.5
80J4R165G50-SAD16E108-C	80	4	108	104.5
50J3R140X50-SAD16E68-C	50	3	68	64.5
63J3R155X50-SAD16E80-C	63	3	80	76.5
80J4R165X50-SAD16E95-C	80	4	95	91.5
50T03R-S90AD16E40-C	50	3	40	36.5
63T04R-S90AD16E40-C	63	4	40	36.5
63T04R-S90AD16E68-C	63	4	68	64.5
80T04R-S90AD16E55-C	80	4	55	51.5
80T04R-S90AD16E80-C	80	4	80	76.5
100T05R-S90AD16E80-C	100	5	80	76.5

max
7.5

ADMX/ADEX 16	R
ADMX 160630SR-M	2.5
ADMX 160632SR-M	2.5
ADMX 160640SR-M	4.0
ADMX 160650SR-M	4.5

J(T)-SSAP

P M K S

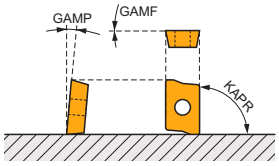
PRAMET

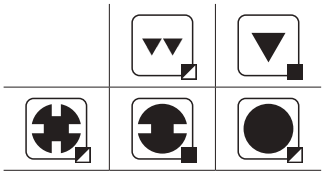
S

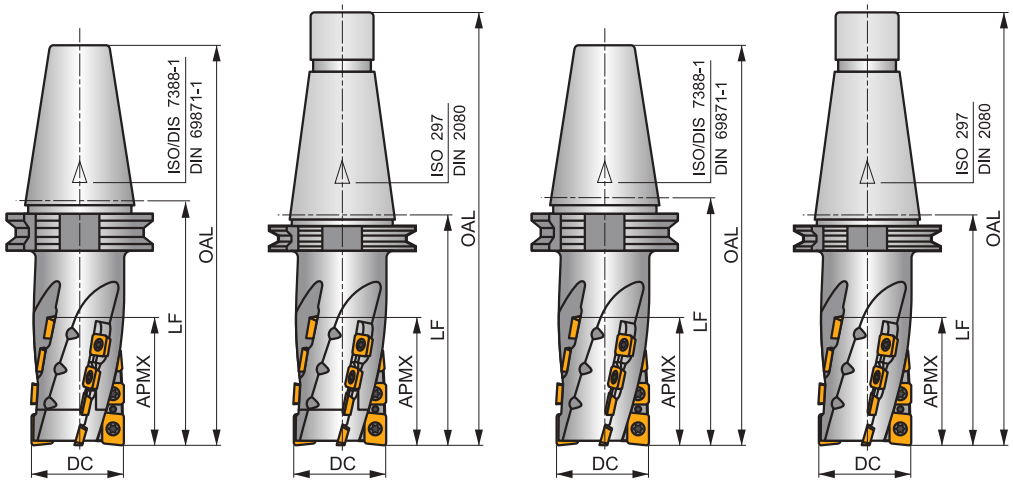
AP.. 15 ve SP.. 12 için Uzun Kesme Boylu Frezeleme Takımı

58'den 95 mm'ye kadar APMX'li AP..15 ve SP..12 kesici uçlar kullanan 90° uzun kenarlı parmak freze. Gövde değiştirilebilir uç parçasına sahiptir. Kenar, kanal, yüzey ve dalma frezeleme için uygundur. DIN 69871 ve DIN 2080 50 konik stilinde mevcuttur.Gövde uzun takım ömrü için işlem görmüştür.

KAPR	90°
APMX	58.0 - 95.0 mm







h_m 0.07 - 0.1

	Product	DC (mm)	OAL (mm)	APMX (mm)	LF (mm)	GAMF (°)	GAMP (°)	CZCMS	NOF	AP	SP		max.		kg		
ISO/DIS 7388-1	**50J4R128H50-SSAP55+21**	50	230	76.00	128	0	7	50	4	2	16	–	9500	–	3.80	GI128	SQ942
	63J4R150H50-SSAP74+21	63	252	95.00	150	0	7	50	4	2	20	–	8500	–	4.50	GI128	SQ943
ISO 297	**50J4R124X50-SSAP55+21**	50	251	76.00	124	0	7	50	4	2	16	–	9500	–	4.43	GI128	SQ942
	63J4R146X50-SSAP74+21	63	273	95.00	146	0	7	50	4	2	20	–	8500	–	4.75	GI128	SQ943
ISO/DIS 7388-1	**63J4R150H50-SSAP95-A**	63	252	95.00	150	0	7	50	4	2	20	–	8500	–	5.32	GI128	SQ941
	80J6R155H50-SSAP95-A	80	257	95.00	155	0	7	50	6	3	30	–	7500	–	6.30	GI128	SQ941
ISO 297	**50J4R124X50-SSAP76-A**	50	251	76.00	124	0	7	50	4	2	16	–	9500	–	3.80	GI128	SQ941
	63J4R146X50-SSAP95-A	63	273	95.00	146	0	7	50	4	2	20	–	8500	–	4.50	GI128	SQ941
	80J6R151X50-SSAP95-A	80	275	95.00	151	0	7	50	6	3	30	–	7500	–	6.20	GI128	SQ941

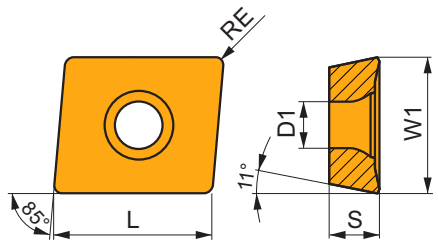
GI128	APE. 1504..	SPE. 1204..

					Nm			
SQ941	–	–	–	US 4511-T20	5.0	M 4.5	11	SDR T20-T
SQ942	P50X21	SR 25	HXK 6	US 4511-T20	5.0	M 4.5	11	SDR T20-T
SQ943	P63X21	SR 26	HXK 8	US 4511-T20	5.0	M 4.5	11	SDR T20-T

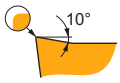
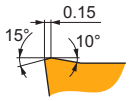
APET 15

PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1504	12.700	5.50	15.90	4.76



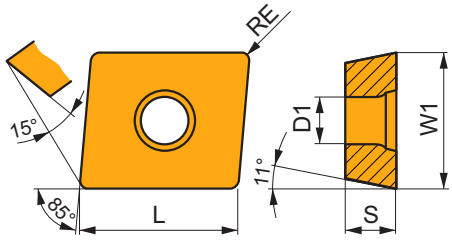
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  																			
EN kenar hazırlığı, hafif ve orta işleme için pozitif geometri.																			
APET 150412EN:M8330	1.2	225	0.20	12.0	135	0.18	12.0	210	0.20	12.0	–	–	–	55	0.14	9.6	–	–	–
  																			
SN kenar hazırlığı, orta ve kaba işleme için pozitif geometri.																			
APET 150412SN:M8330	1.2	215	0.25	12.0	125	0.23	12.0	200	0.25	12.0	–	–	–	50	0.25	9.6	–	–	–
APET 150412SN:M8340	1.2	190	0.25	12.0	110	0.23	12.0	180	0.25	12.0	–	–	–	45	0.25	9.6	–	–	–

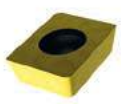
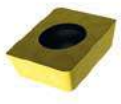
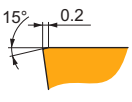
APEW 15

PRAMET

	W1	D1	L	M	S
	(mm)	(mm)	(mm)	(mm)	(mm)
1504	12.700	5.50	15.90	3.7	4.76



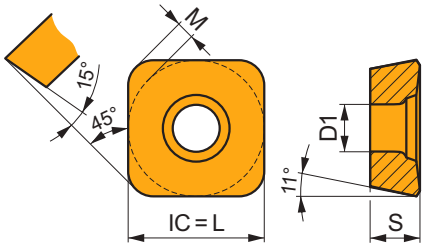
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  																			
ER kenar hazırlığı, hafif ve orta işleme için sıfır talaş açısı.																			
APEW 150412ER:M8330	1.2	200	0.20	12.0	–	–	–	190	0.20	12.0	–	–	–	–	–	–	40	0.13	1.0
  																			
SR kenar hazırlığı, orta ve ağır işleme için sıfır talaş açısı geometrisi.																			
APEW 150412SR:M8330	1.2	200	0.20	12.0	–	–	–	190	0.20	12.0	–	–	–	–	–	–	40	0.13	1.0

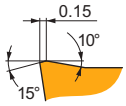
SPET 12

PRAMET

	IC	D1	L	M	S
	(mm)	(mm)	(mm)	(mm)	(mm)
1204	12.700	5.50	12.70	1.9	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				

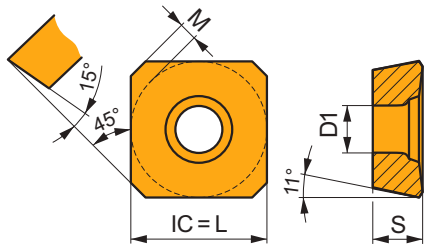
S kenar hazırlığı, genel amaçlı pozitif geometri.

SPET 120408S:M8330	0.8	215	0.20	12.0	125	0.18	12.0	200	0.20	12.0	–	–	–	50	0.18	9.6	–	–	–
SPET 120408S:M8340	0.8	190	0.20	12.0	110	0.18	12.0	180	0.20	12.0	–	–	–	45	0.18	9.6	–	–	–

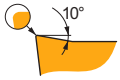
SPET 12 AD

PRAMET

	IC	D1	L	M	S
	(mm)	(mm)	(mm)	(mm)	(mm)
1204	12.700	5.50	12.70	1.9	4.76

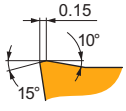


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				

ADEN kenar hazırlığı, hafif ve orta işleme için pozitif geometri.

SPET 1204ADEN:M8330	–	245	0.20	12.0	145	0.18	12.0	230	0.20	12.0	–	–	–	60	0.14	9.6	–	–	–
SPET 1204ADEN:M8340	–	220	0.20	12.0	130	0.18	12.0	205	0.20	12.0	–	–	–	55	0.14	9.6	–	–	–

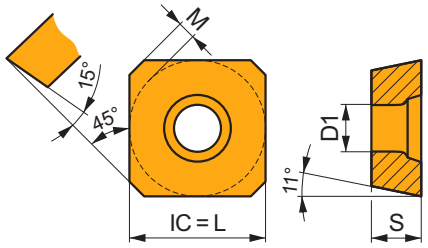


ADSN kenar hazırlığı, orta işleme için pozitif geometri.

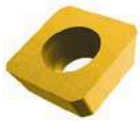
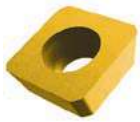
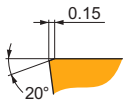
SPET 1204ADSN:M8330	–	245	0.20	12.0	145	0.18	12.0	230	0.20	12.0	–	–	–	60	0.14	9.6	–	–	–
SPET 1204ADSN:M8340	–	220	0.20	12.0	130	0.18	12.0	205	0.20	12.0	–	–	–	55	0.14	9.6	–	–	–

SPEW 12 AD

	IC	D1	L	M	S
	(mm)	(mm)	(mm)	(mm)	(mm)
1204	12.700	5.50	12.70	1.9	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**E**																	
ADEN kenar hazırlığı, hafif ve orta işleme için sıfır talaş açısı.																				
SPEW 1204ADEN:M8330		–	220	0.20	12.0	–	–	–	205	0.20	12.0	–	–	–	–	–	–	40	0.10	1.0
			**S**																	
ADSN kenar hazırlığı, orta işleme için sıfır talaş açısı.																				
SPEW 1204ADSN:M8330		–	220	0.20	12.0	–	–	–	205	0.20	12.0	–	–	–	–	–	–	40	0.13	1.0

a_e/DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	0.89	0.81	0.76	0.73	0.71	0.70	0.67	0.65	0.63	0.62	0.60	0.60	0.60	0.45

$a_{e\,max}$	1		2.5		5		7.5		10		15		20	
DC	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹
50	0.50	0.71	0.32	0.45	0.23	0.32	0.19	0.27	0.16	0.23	0.14	0.19	0.12	0.17
63	0.56	0.80	0.35	0.51	0.25	0.36	0.21	0.30	0.18	0.26	0.15	0.21	0.13	0.19
80	0.63	0.90	0.40	0.57	0.28	0.40	0.23	0.33	0.20	0.29	0.17	0.24	0.15	0.21

$a_{e\,max}$	25		32		40		50		63		80	
DC	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹	f_{min} ⇨	f_{max} ⟹
50	0.11	0.16	0.10	0.14	0.10	0.14	0.11	0.16	–	–	–	–
63	0.12	0.17	0.11	0.16	0.10	0.15	0.10	0.14	0.11	0.16	–	–
80	0.13	0.19	0.12	0.17	0.11	0.16	0.10	0.15	0.10	0.14	0.11	0.16

	APET 15	APEW 15	SPET 12	SPET 12AD	SPEW 12AD
RE	1.2	1.2	0.8	–	–
BS	–	–	–	–	–

ISO	DC		APMX	a_p
50J4R128H50-SSAP55+21	50	2+2	76	73.6
63J4R150H50-SSAP74+21	63	2+2	95	92.6
50J4R124X50-SSAP55+21	50	2+2	76	73.6
63J4R146X50-SSAP74+21	63	2+2	95	92.6
63J4R150H50-SSAP95-A	63	2+2	95	92.6
80J6R155H50-SSAP95-A	80	3+3	95	92.6
50J4R124X50-SSAP76-A	50	2+2	76	73.6
63J4R146X50-SSAP95-A	63	2+2	95	92.6
80J6R151X50-SSAP95-A	80	3+3	95	92.6

J(T)-CSD12X

P M S

PRAMET

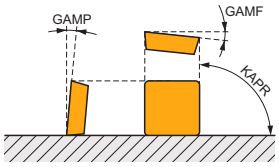
C

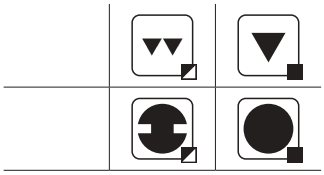
MULTISIDE SD Uzun Kesme Boylu Freze Takımı

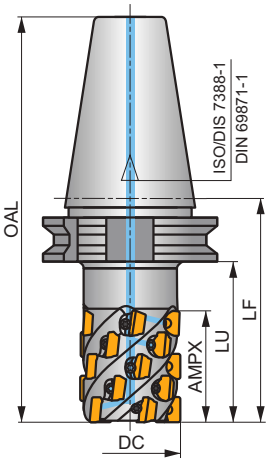
Pozitif SD.. 44.1'den 87.3 mm'ye kadar APMX'li 12 kesici uç kullanan 90° uzun kenarlı parmak freze. Kenar, kanal veya yüzey frezeleme için uygundur. Göbekten bağlama, PSC, Mors veya DIN 69871 konik stilinde mevcuttur. Gövde uzun takım ömrü için işlem görmüştür.

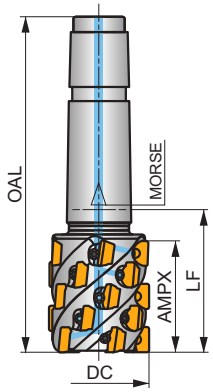
MULTISIDE SD

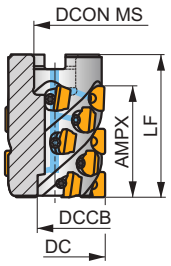
KAPR	90°
APMX	44.1 - 87.3 mm











h_m	0.025 - 0.05
h_m	0.025 - 0.05

	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	APMX (mm)	GAMF (°)	GAMP (°)	CZC MS	NOF			max.		kg		
ISO/DIS 7388-1	**40J4R090H40-CSD12X44**	40	158.4	–	–	70	90	44.10	-5	8	40	4	16	–	4000	✓	1.16	GI271	SQ091
	50J5R100H50-CSD12X55	50	201.7	–	–	80	100	54.90	-5	8	50	5	25	–	3200	✓	4.20	GI271	SQ091
	63J6R110H50-CSD12X66	63	211.7	–	–	90	110	65.70	-5	8	50	6	36	–	2500	✓	4.90	GI271	SQ091
DIN 228A	**50J5R065E04-CSD12X55**	50	167.5	–	–	–	65	54.90	-5	8	4	5	25	–	3200	✓	1.34	GI271	SQ091
ISO 6462 DIN 8030	**50T05R-C90SD12X55**	50	–	22	18	–	78	54.90	-5	8	–	5	25	–	3200	✓	1.21	GI271	SQ923
	63T06R-C90SD12X66	63	–	27	22	–	90	65.70	-5	8	–	6	36	–	2500	✓	1.72	GI271	SQ924
	80T08R-C90SD12X88	80	–	40	36	–	115	87.30	-5	8	–	8	64	–	2000	✓	3.20	GI271	SQ925

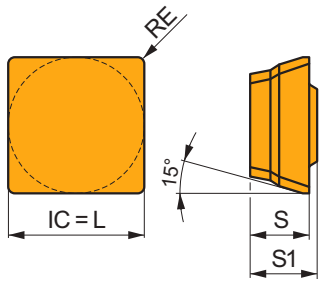
GI271	SDGX 1205..	SDMX 1205..

		Nm					
SQ091	US 63511D-T15P	3.0	M 3.5	11	D-T08P/T15P	FG-15	–
SQ923	US 63511D-T15P	3.0	M 3.5	11	D-T08P/T15P	FG-15	HSD 1070
SQ924	US 63511D-T15P	3.0	M 3.5	11	D-T08P/T15P	FG-15	HS 1280
SQ925	US 63511D-T15P	3.0	M 3.5	11	D-T08P/T15P	FG-15	HS 20100

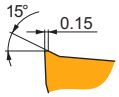
SDGX 12

PRAMET

	IC	L	S	S1
	(mm)	(mm)	(mm)	(mm)
1205	12.700	12.70	5.56	6.35



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

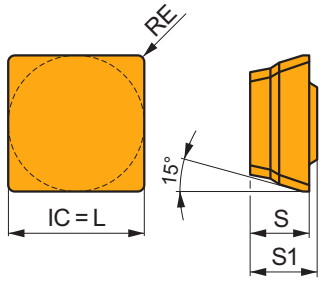
Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
	 																		
SDGX 120508EN-FM:M8330	0.8	220	0.15	12.0	130	0.14	12.0	–	–	–	–	–	–	55	0.11	9.6	–	–	–
SDGX 120508EN-FM:M8345	0.8	155	0.15	12.0	90	0.14	12.0	–	–	–	–	–	–	35	0.11	9.6	–	–	–

FM geometri, hafif ve orta-ağır işleme için pozitif tasarım.

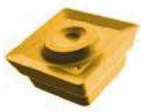
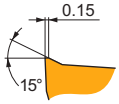
SDMX 12

PRAMET

	IC	L	S	S1
	(mm)	(mm)	(mm)	(mm)
1205	12.700	12.70	5.56	6.35



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
	 																		
SDMX 120508EN-M:M8330	0.8	220	0.15	12.0	130	0.14	12.0	–	–	–	–	–	–	55	0.11	9.6	–	–	–
SDMX 120508EN-M:M8345	0.8	155	0.15	12.0	90	0.14	12.0	–	–	–	–	–	–	35	0.11	9.6	–	–	–

M geometri, hafiften kaba işlemeye kadar uygun pozitif tasarım.

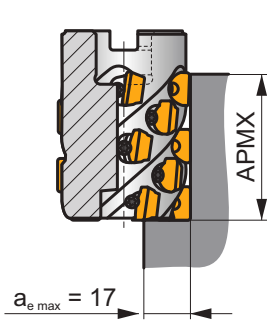
a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	0.89	0.81	0.76	0.73	0.71	0.70	0.66	0.65	0.63	0.62	0.60	0.60	0.60	0.45

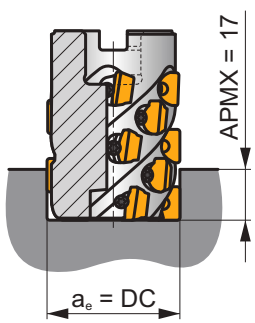
$a_{e\,max}$ / DC	1		2.5		5		7.5		10		15		20	
	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨
40	0.16	0.32	0.10	0.20	0.07	0.14	0.06	0.12	0.05	0.10	0.04	0.09	0.04	0.08
50	0.18	0.35	0.11	0.23	0.08	0.16	0.07	0.13	0.06	0.12	0.05	0.10	0.04	0.09
63	0.20	0.40	0.13	0.25	0.09	0.18	0.07	0.15	0.06	0.13	0.05	0.11	0.05	0.09
80	0.22	0.45	0.14	0.28	0.10	0.20	0.08	0.17	0.07	0.14	0.06	0.12	0.05	0.10

$a_{e\,max}$ / DC	25		32		40		50		63		80	
	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨
40	0.04	0.07	0.03	0.07	0.04	0.08	–	–	–	–	–	–
50	0.04	0.08	0.04	0.07	0.03	0.07	0.04	0.08	–	–	–	–
63	0.04	0.09	0.04	0.08	0.04	0.07	0.03	0.07	0.04	0.08	–	–
80	0.05	0.09	0.04	0.09	0.04	0.08	0.04	0.07	0.03	0.07	0.04	0.08

	SDGX 12-FM	SDMX 12-M
RE	0.8	0.8
BS	2.99	2.99

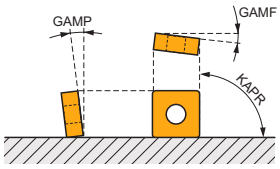
ISO	DC		APMX	a_p
40J4R090H40-CSD12X44	40	4	44.1	42.5
50J5R100H50-CSD12X55	50	5	54.9	53.3
63J6R110H50-CSD12X66	63	6	65.7	64.1
80J8R130H50-CSD12X88	80	8	87.3	85.7
40J4R080XC5-CSD12X44	40	4	44.1	42.5
50J5R080XC5-CSD12X55	50	5	54.9	53.3
63J6R095XC6-CSD12X66	63	6	65.7	64.1
50J5R065E04-CSD12X55	50	5	54.9	53.3
50T05R-C90SD12X55	50	5	54.9	53.3
63T06R-C90SD12X66	63	6	65.7	64.1
80T08R-C90SD12X88	80	8	87.3	85.7

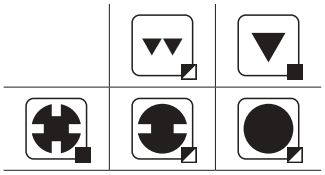




J(T)-SLSN

KAPR	90°
APMX	104.0 - 134.0 mm

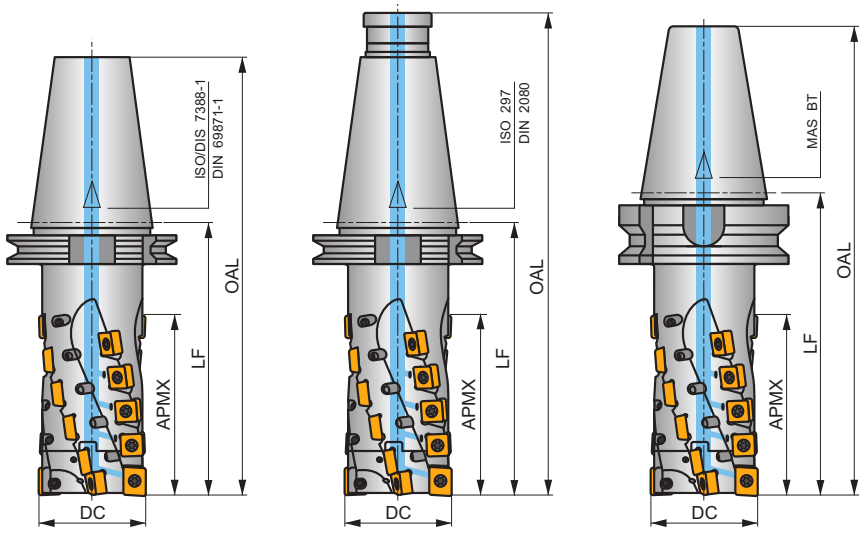




ROUGH SN Uzun Kesme Boylu Ağır Freze Takımı, İçten Su Vermeli

104'ten 134 mm'ye kadar APMX'li LNET 16 ve SN.. 13 kesici uçlar kullanan 90° uzun kenarlı parmak freze. Gövde değiştirilebilir uç parçasına sahiptir. Kenar, kanal, yüzey ve dalma frezeleme için uygundur. DIN 69871, BT ve DIN 2080 50 konik stilinde mevcuttur. Gövde uzun takım ömrü için işlem görmüştür.

ROUGH SN



h_m 0.08 - 0.22

	Product	DC (mm)	OAL (mm)	APMX (mm)	LF (mm)	GAMF (°)	GAMP (°)	CZCMS	NOF	LN	SN		max.		kg		
ISO/DIS 7388-1	**63J2R155H50-SLSN104-C**	63	257	104.00	155	-9	-10	50	4	2	20	–	8500	✓	5.03	GI209	SQ934
	80J2R190H50-SLSN134-C	80	292	134.00	190	-9	-10	50	4	2	26	–	7500	✓	7.45	GI209	SQ935
ISO 297	**63J2R155G50-SLSN104-C**	63	282	104.00	155	-9	-10	50	4	2	20	–	8500	✓	5.20	GI209	SQ934
	80J2R190G50-SLSN134-C	80	317	134.00	190	-9	-10	50	4	2	26	–	7500	✓	7.40	GI209	SQ935
JIS B 6339	**63J2R175X50-SLSN104-C**	63	277	104.00	175	-9	-10	50	4	2	20	–	8500	✓	6.10	GI209	SQ934
	80J2R210X50-SLSN134-C	80	312	134.00	210	-9	-10	50	4	2	26	–	7500	✓	8.50	GI209	SQ935

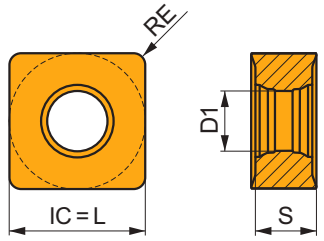
GI209	LNET 1606..	SN.. 1305..

					Nm			
SQ934	EH6326-SL-C	HS 1230	HXK 10	US 45012-T20P	5.0	M 5	12	SDR T20P-T
SQ935	EH8036-SL-C	HS 1640	HXK 14	US 45012-T20P	5.0	M 5	12	SDR T20P-T

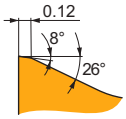
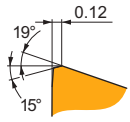
SNGX 13

PRAMET

	IC (mm)	D1 (mm)	S (mm)
1305	13.200	5.90	5.96



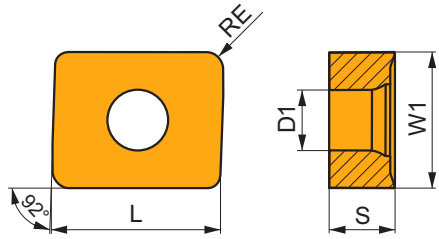
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																			
																			
M geometri, hafif işleme için pozitif tasarım.																			
SNGX 130512SN-M:M8330	1.2	105	0.15	12.0	–	–	–	95	0.15	12.0	–	–	–	–	–	–	–	–	–
SNGX 130512SN-M:M8340	1.2	105	0.15	12.0	–	–	–	95	0.15	12.0	–	–	–	–	–	–	–	–	–
																			
																			
R geometri, kaba işleme ve stabil olmayan şartlar için pozitif tasarım.																			
SNGX 130512PN-R:M8330	1.2	95	0.15	12.0	–	–	–	90	0.15	12.0	–	–	–	–	–	–	–	–	–
SNGX 130512PN-R:M8340	1.2	95	0.15	12.0	–	–	–	90	0.15	12.0	–	–	–	–	–	–	–	–	–

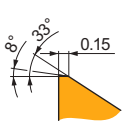
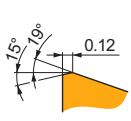
LNET 16

PRAMET

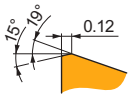
	W1 (mm)	D1 (mm)	L (mm)	S (mm)
1606	13.200	5.90	16.40	6.38



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																			
																			
M geometri, orta işleme için çok pozitif tasarım.																			
LNET 160616SR-M:M8340	1.6	105	0.15	15.0	–	–	–	95	0.15	15.0	–	–	–	–	–	–	–	–	–
																			
																			
R geometri, orta işleme için çok pozitif tasarım.																			
LNET 160616SR-R:M8330	1.6	100	0.15	15.0	–	–	–	95	0.15	15.0	–	–	–	–	–	–	–	–	–

Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)
			**R** geometri, orta işleme için çok pozitif tasarım.																	
LNET 160616SR-R:M8340		1.6	95	0.15	15.0	–	–	–	90	0.15	15.0	–	–	–	–	–	–	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00

$a_{e\,max}$	1		2.5		5		7.5		10		15		20	
DC	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨
63	0.64	1.75	0.40	1.11	0.29	0.79	0.24	0.65	0.21	0.57	0.17	0.47	0.15	0.41
80	0.72	1.97	0.45	1.25	0.32	0.89	0.27	0.73	0.23	0.64	0.19	0.53	0.17	0.46

$a_{e\,max}$	25		32		40		50		63		80	
DC	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨
63	0.14	0.38	0.12	0.34	0.12	0.32	0.11	0.30	0.13	0.35	–	–
80	0.15	0.42	0.14	0.38	0.13	0.35	0.12	0.32	0.11	0.30	0.13	0.35

	LNET 16-M	LNET 16-R	SNGX 13-M	SNGX 13-R
RE	1.6	1.6	1.2	1.2
BS	–	–	–	–

ISO	DC		APMX	a_p
63J2R155H50-SLSN104-C	63	2+2	104	101.2
80J2R190H50-SLSN134-C	80	2+2	134	131.2
63J2R155G50-SLSN104-C	63	2+2	104	101.2
80J2R190G50-SLSN134-C	80	2+2	134	131.2
63J2R175X50-SLSN104-C	63	2+2	104	101.2
80J2R210X50-SLSN134-C	80	2+2	134	131.2

KOPYA FREZELEME

YÜZEY FREZELEME

	SRD05	SRD07	SRD10	SRD12	SRD16
	–	–	–	–	–
	APMX (mm) 1.5	APMX (mm) 2.0	APMX (mm) 2.5	APMX (mm) 3.0	APMX (mm) 4.0
	DCX (mm) 10 – 15	DCX (mm) 15 – 25	DCX (mm) 20 – 52	DCX (mm) 24 – 80	DCX (mm) 32 – 100
Silindirik şaft					
Weldon		 DCX = 15 (mm)	 DCX = 20 (mm)		
Modüler		 DCX = 15 – 25 (mm)	 DCX = 20 – 42 (mm)	 DCX = 24 – 42 (mm)	 DCX = 32 (mm)
Frezeleme kafası			 DCX = 42, 52 (mm)	 DCX = 50 – 80 (mm)	 DCX = 52 – 100 (mm)
Sayfa	160	163	168	174	180
ISO	P K H	P M K N S H	P M K N S H	P M K N S H	P M K N S H
Kesici uç şekli					
Kesici uçlar	RD 0501	RD 0702	RD 1003	RD 12T3	RD 1604
Kesme kenarlarının sayısı	–	–	–	–	–
Konturlu yüzeyler (kopya frezeleme)	■	■	■	■	■
Yüzey frezeleme	■	■	■	■	■
Helisel interpolasyon	■	■	■	■	■
Aşamalı dalma	■	■	■	■	■
Açılı frezeleme	■	■	■	■	■

■ İlk seçim. ◪ Olası seçim.

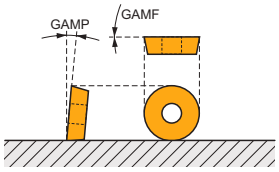
SRD05

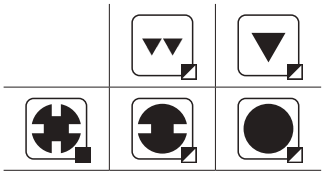
PRAMET

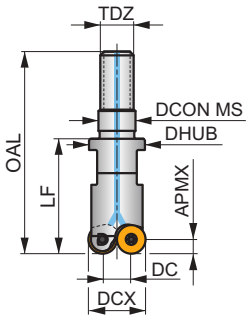
RDHX 05 Uçlar için Kopya Frezeleme Takımı, İçten Su Vermeli

1,5 mm APMX'li pozitif RDHX 05 uçlar kullanan kopya frezeleme için frezeleme takımı. İçten soğutmalı Yüzey, helisel enterpolasyon, rampalama, dalma ve kopya frezeleme için uygundur. Modüler tarzda mevcuttur. Daha uzun takım ömrü için gövde bakımı yapılmıştır.

APMX	1.5 mm







h_m 0.03 - 0.1

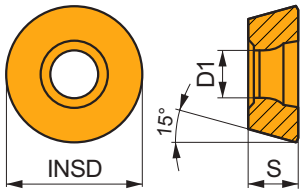
	Product	DCX (mm)	DC (mm)	DHUB (mm)	OAL (mm)	LF (mm)	DCON MS (mm)	TDZ	GAMF (°)	GAMP (°)			max.		kg		
MODULAR	**10E2R020M06-SRD05-CF**	10	5	9.8	35	20	6.5	M6	5	3	2	–	89300	✓	0.01	GI117	CO352
MODULAR	**12E3R020M06-SRD05-CF**	12	7	10	35	20	6.5	M6	0	3	3	–	81500	✓	0.01	GI117	CO352
MODULAR	**15E4R020M08-SRD05-CF**	15	10	13.5	38	20	8.5	M8	0	3	4	–	72900	✓	0.02	GI117	CO352

GI117	RD.. 0501M0..

		Nm			
CO352	US 62003B-T06P	0.9	M 2	3	Flag T06P

RDHX 05

	INSD	D1	S
	(mm)	(mm)	(mm)
0501	5.000	2.20	1.51

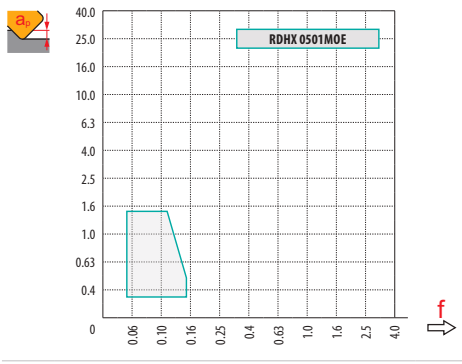


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			HFC E																	
MOE sıfır talaş açısı tasarımı, finiş işleme için.																				
RDHX 0501MOE:M8310	✤	–	400	0.10	0.5	–	–	–	380	0.10	0.5	–	–	–	–	–	–	80	0.10	0.3

a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	RDHX 05
RE	2.5
BS	–



DCX	a_p	0.00	0.30	0.50	0.75	1.00	1.25	1.50	2.00	2.50
10	DEF	5.0	7.4	8.0	8.6	9.0	9.3	9.6	9.9	10.0
12		7.0	9.4	10.0	10.6	11.0	11.3	11.6	11.9	12.0
15		10.0	12.4	13.0	13.6	14.0	14.3	14.6	14.9	15.0
	a_p	–	0.30	0.50	0.75	1.00	1.25	1.50	2.00	2.50
	f	–	0.25	0.19	0.16	0.14	0.13	0.12	0.10	0.09

DCX	RPMX	APMX/I
10	15.0	1.3/11
12	11.0	1.3/14
15	7.0	1.3/22

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
10	12.0	20.0	1.2	1.2
12	16.0	24.0	1.2	1.2
15	22.0	30.0	1.2	1.2

a_p
1.0

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
10	FE	0.346	0.447	0.632	0.775	0.894	1.095	1.265	1.414	1.549	1.789	2.000
12		0.379	0.490	0.693	0.849	0.980	1.200	1.386	1.549	1.697	1.960	2.191
15		0.424	0.548	0.775	0.949	1.095	1.342	1.549	1.732	1.897	2.191	2.449
RE	µm	3	5	10	15	20	30	40	50	60	80	100
2.5	FE	0.245	0.316	0.447	0.548	0.632	0.775	0.894	1.000	1.095	1.265	1.414

SRD07

P M K N S H

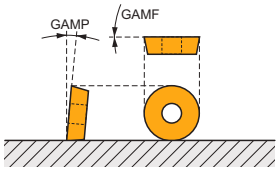
PRAMET

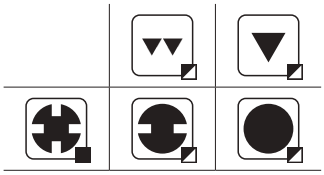
S

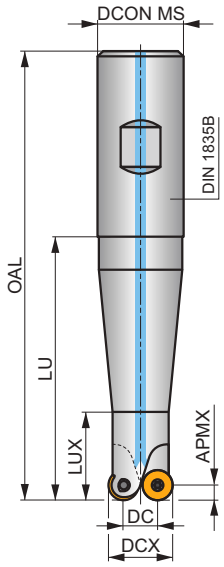
RD.. 07 Uçlar için Kopya Frezeleme Takımı, İçten Su Vermeli

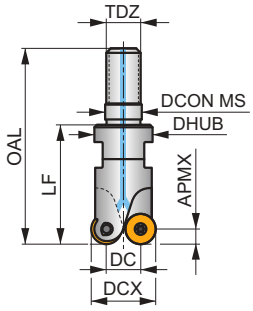
RD.. 07 uçlar için APMX 2mm içten su vermeli kopya frezeleme takımları. Birçok uygulama için uygundur. Veldon ve modüler olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

APMX	2.0 mm









h_m 0.065 - 0.13

	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	DHUB (mm)	LU (mm)	LUX (mm)	LF (mm)	TDZ	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835B	15E2R040B16-SRD07-CF	15	8	88	16	–	40	20	–	–	1	0	2	–	44200	✓	0.12	GI118	C0354
	15E2R060B16-SRD07-CF	15	8	108	16	–	60	20	–	–	1	0	2	–	44200	✓	0.15	GI118	C0354
	15E2R080B20-SRD07-CF	15	8	130	20	–	80	22	–	–	1	0	2	–	44200	✓	0.22	GI118	C0354
	15E2R100B20-SRD07-CF	15	8	150	20	–	100	22	–	–	1	0	2	–	44200	✓	0.25	GI118	C0354
	15E2R120B25-SRD07-CF	15	8	176	25	–	120	22	–	–	1	0	2	–	44200	✓	0.45	GI118	C0354
MODULAR	15E2R028M08-SRD07-CF	15	8	46	8.5	13.5	–	–	28	M8	1	0	2	–	44200	✓	0.03	GI118	C0354
	15E3R028M08-SRD07-CF	15	8	46	10.5	13.5	–	–	28	M8	2	0	3	–	44200	✓	0.05	GI118	C0354
	20E4R028M10-SRD07-CF	20	13	47	12.5	18	–	–	28	M10	-8	0	4	–	38200	✓	0.07	GI118	C0354
	25E5R028M12-SRD07-CF	25	18	50	12.5	21	–	–	28	M12	-2	0	5	–	34200	✓	0.09	GI118	C0354

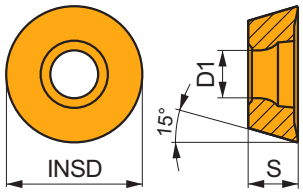
GI118	RD.. 07..M0..

C0354	US 42505-T07P	1.2	M 2.5	5	Flag T07P

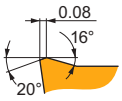
RDGT 07

PRAMET

	INSD (mm)	D1 (mm)	S (mm)
0702	7.000	2.80	2.38



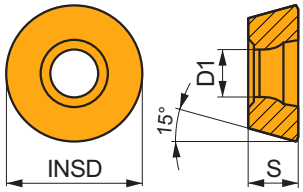
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
			**MOT** finiş işleme için pozitif tasarım.																	
RDGT 0702MOT:M8325		–	■ 305	0.15	0.5	◪ 145	0.14	0.5	–	–	–	–	–	–	–	–	–	–	–	–
RDGT 0702MOT:M8345		–	■ 270	0.15	0.5	◪ 160	0.14	0.5	–	–	–	–	–	–	◪ 65	0.12	0.4	–	–	–

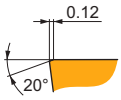
RDHX 07

PRAMET

	INSD (mm)	D1 (mm)	S (mm)
0702	7.000	2.80	2.38
07T1	7.000	2.80	1.98

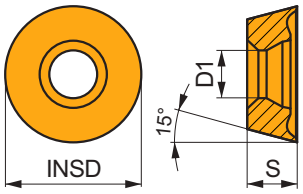


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

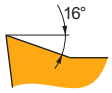
Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
			**MOT** sıfır talaş açısı tasarımı, finiş işleme için.																	
RDHX 0702MOT:M4303		–	◪ 370	0.15	0.5	–	–	–	■ 350	0.15	0.5	–	–	–	–	–	–	■ 70	0.11	0.5
RDHX 0702MOT:M8310		–	◪ 360	0.15	0.5	–	–	–	■ 340	0.15	0.5	–	–	–	–	–	–	■ 70	0.11	0.5
RDHX 0702MOT:M8325		–	◪ 275	0.15	0.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
RDHX 07T1MOT:M8310		–	◪ 360	0.15	0.5	–	–	–	■ 340	0.15	0.5	–	–	–	–	–	–	■ 70	0.11	0.5

RDHT 07-FA

	INSD	D1	S
	(mm)	(mm)	(mm)
0702	7.000	2.80	2.38



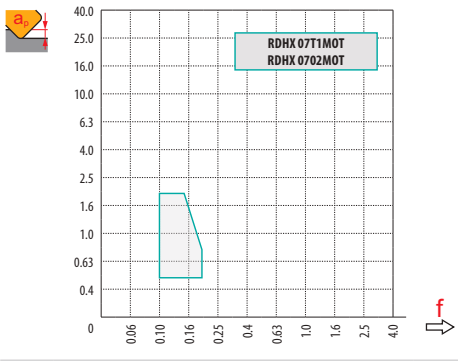
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

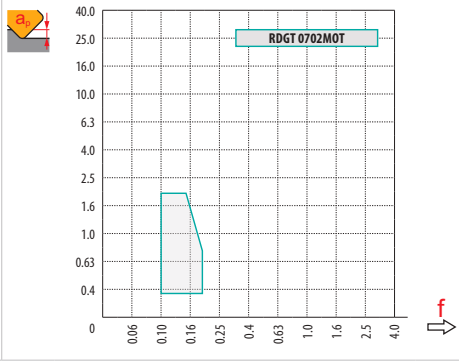
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
RDHT 0702M0-FA:HF7	●	–	–	–	–	–	–	–	–	–	–	■	420	0.18	0.5	–	–	–	–	–	–

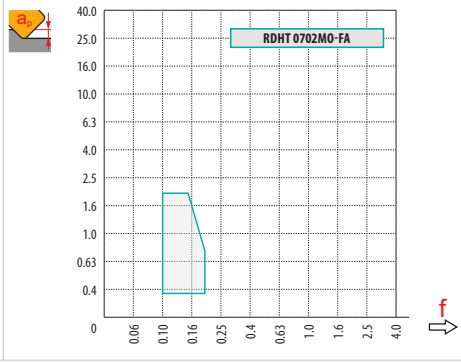
FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.

a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	RDHX 07	RDGT 07	RDHT 07-FA
RE	3.5	3.5	3.5
BS	–	–	–







DCX	a_p	0.00	0.30	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	3.50
15	DEF	8.0	10.8	11.6	12.3	12.9	13.4	13.7	14.3	14.7	14.9	15.0
20		13.0	15.8	16.6	17.3	17.9	18.4	18.7	19.3	19.7	19.9	20.0
25		18.0	20.8	21.6	22.3	22.9	23.4	23.7	24.3	24.7	24.9	25.0
	a_p	**0.00**	**0.30**	**0.50**	**0.75**	**1.00**	**1.25**	**1.50**	**2.00**	**2.50**	**3.00**	**3.50**
	f	–	0.29	0.23	0.19	0.16	0.15	0.13	0.12	0.11	0.10	0.09

DCX	RPMX	APMX/I
15	11.0	1.7/20
20	7.0	1.7/30
25	6.0	1.7/35

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
15	17.0	30.0	0.4	1.7
20	28.0	40.0	1.7	1.7
25	38.0	50.0	1.7	1.7

a_p
1.2

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
15		0.424	0.548	0.775	0.949	1.095	1.342	1.549	1.732	1.897	2.191	2.449
20		0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
25		0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
RE	µm	3	5	10	15	20	30	40	50	60	80	100
3.5		0.290	0.374	0.529	0.648	0.748	0.917	1.058	1.183	1.296	1.497	1.673

SRD10

P M K N S H

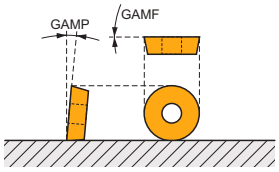
PRAMET

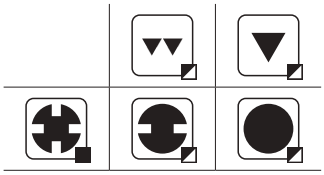
S

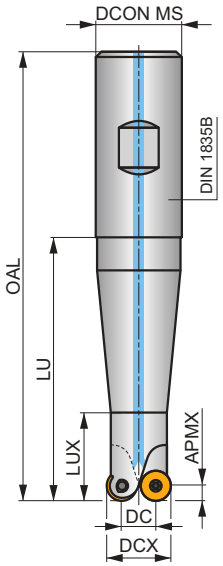
RD.. 10 Uçlar için Kopya Frezeleme Takımı, İçten Su Vermeli

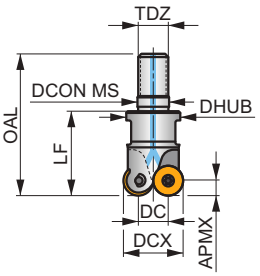
RD.. 10 uçlar için APMX 2.5mm içten su vermeli kopya frezeleme takımları. Birçok uygulama için uygundur. Veldon, modüler ve göbekten bağlama olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

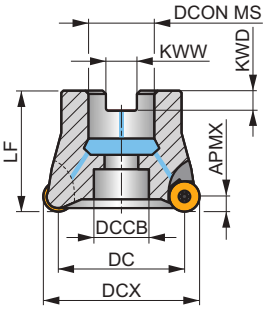
APMX	2.5 mm











h_m 0.065 - 0.19

	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	DHUB (mm)	DCCB (mm)	LU (mm)	LUX (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835B	20E2R040B20-SRD10-CF	20	10	90	20	–	–	40	20	–	–	–	–	-2	0	2	–	30800	✓	0.20	GI119	C0356
	20E2R060B20-SRD10-CF	20	10	110	20	–	–	60	22	–	–	–	–	-2	0	2	–	30800	✓	0.20	GI119	C0356
	20E2R080B25-SRD10-CF	20	10	136	25	–	–	80	25	–	–	–	–	-2	0	2	–	30800	✓	0.40	GI119	C0356
	20E2R100B25-SRD10-CF	20	10	156	25	–	–	100	25	–	–	–	–	-2	0	2	–	30800	✓	0.45	GI119	C0356
	20E2R120B25-SRD10-CF	20	10	176	25	–	–	120	25	–	–	–	–	-2	0	2	–	30800	✓	0.46	GI119	C0356
MODULAR	20E2R028M10-SRD10-CF	20	10	47	10.5	18	–	–	–	28	M10	–	–	-2	0	2	–	30800	✓	0.07	GI119	C0356
	25E2R032M12-SRD10-CF	25	15	54	12.5	21	–	–	–	32	M12	–	–	0.5	0.5	2	–	27500	✓	0.08	GI119	C0356
	25E3R032M12-SRD10-CF	25	15	54	12.5	21	–	–	–	32	M12	–	–	0.5	0.5	3	–	27500	✓	0.10	GI119	C0356
	30E4R042M16-SRD10-CF	30	20	65	17	29	–	–	–	42	M16	–	–	0	0	4	–	25100	✓	0.20	GI119	C0356
	32E4R042M16-SRD10-CF	32	22	65	17	29	–	–	–	42	M16	–	–	0	0	4	–	24300	✓	0.19	GI119	C0356
	35E5R042M16-SRD10-CF	35	25	65	17	29	–	–	–	42	M16	–	–	0	0	5	–	23200	✓	0.22	GI119	C0356
	42E4R042M16-SRD10-CF	42	32	65	17	29	–	–	–	42	M16	–	–	0	0	4	–	21200	✓	0.24	GI119	C0356
	42E5R042M16-SRD10-CF	42	32	65	17	29	–	–	–	42	M16	–	–	0	0	5	–	21200	✓	0.24	GI119	C0356
ISO 6462 DIN 8030	42A05R-SMORD10-CF	42	32	–	16	–	14	–	–	40	–	8.4	8.4	0	0	5	–	21200	✓	0.20	GI119	C0358
	52A07R-SMORD10-CF	52	42	–	22	–	18	–	–	40	–	10.4	10.4	0	0	7	–	19100	✓	0.41	GI119	C0360

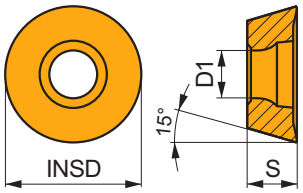
GI119	RD.. 1003MOT	RDHT 1003MO-FA

		Nm					
C0356	US 63507-T15P	3.0	M 3.5	7	Flag T15P	–	–
C0358	US 63507-T15P	3.0	M 3.5	7	D-T08P/T15P	FG-15	HS 0830C
C0360	US 63507-T15P	3.0	M 3.5	7	D-T08P/T15P	FG-15	HS 1030C

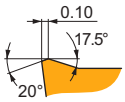
RDGT 10

PRAMET

	INSD (mm)	D1 (mm)	S (mm)
1003	10.000	3.90	3.18



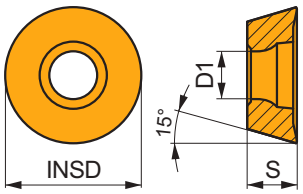
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
   **MOT** finiş işleme için pozitif tasarım.																			
RDGT 1003MOT:M6330	–	290	0.15	1.0	205	0.14	1.0	–	–	–	–	–	–	85	0.12	0.8	–	–	–
RDGT 1003MOT:M8310	–	375	0.15	1.0	190	0.14	1.0	355	0.15	1.0	–	–	–	–	–	–	–	–	–
RDGT 1003MOT:M8325	–	280	0.15	1.0	130	0.14	1.0	–	–	–	–	–	–	–	–	–	–	–	–
RDGT 1003MOT:M8345	–	250	0.15	1.0	150	0.14	1.0	–	–	–	–	–	–	60	0.12	0.8	–	–	–
RDGT 1003MOT:M9340	–	395	0.15	1.0	235	0.14	1.0	–	–	–	–	–	–	95	0.12	0.8	–	–	–

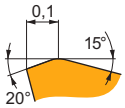
RDMT 10

PRAMET

	INSD (mm)	D1 (mm)	S (mm)
1003	10.000	3.90	3.18



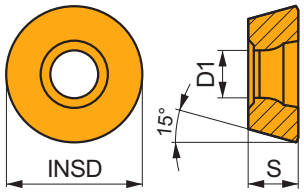
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
   **MOT** finiş işleme için pozitif tasarım.																			
RDMT 1003MOT:M8325	–	280	0.15	1.0	130	0.14	1.0	–	–	–	–	–	–	–	–	–	–	–	–
RDMT 1003MOT:M8345	–	250	0.15	1.0	150	0.14	1.0	–	–	–	–	–	–	–	–	–	–	–	–

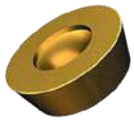
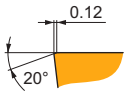
RDMX 10

PRAMET

	INSD	D1	S
	(mm)	(mm)	(mm)
1003	10.000	3.90	3.18



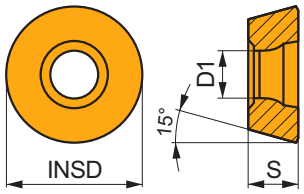
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
  																			
MOT sıfır talaş açısı tasarımı, finiş işleme için.																			
RDMX 1003MOT:M8310	–	335	0.15	1.0	–	–	–	315	0.15	1.0	–	–	–	–	–	–	65	0.11	0.7
RDMX 1003MOT:M8325	–	250	0.15	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
RDMX 1003MOT:M8345	–	225	0.15	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

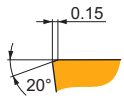
RDHX 10

PRAMET

	INSD	D1	S
	(mm)	(mm)	(mm)
1003	10.000	3.90	3.18



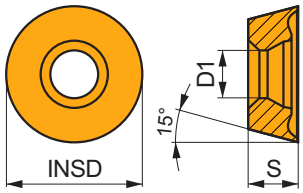
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
  																			
MOT sıfır talaş açısı tasarımı, finiş işleme için.																			
RDHX 1003MOT:M4303	–	340	0.15	1.0	–	–	–	320	0.15	1.0	–	–	–	–	–	–	65	0.12	0.7
RDHX 1003MOT:M8310	–	335	0.15	1.0	–	–	–	315	0.15	1.0	–	–	–	–	–	–	65	0.12	0.7
RDHX 1003MOT:M8325	–	250	0.15	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
RDHX 1003MOT:M8345	–	225	0.15	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

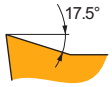
RDHT 10-FA

PRAMET

	INSD	D1	S
	(mm)	(mm)	(mm)
1003	10.000	3.90	3.18



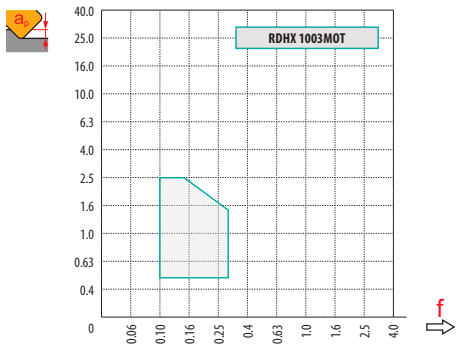
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

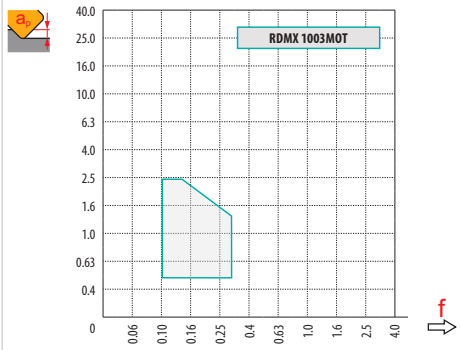
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
RDHT 1003MO-FA:HF7	●	–	–	–	–	–	–	–	–	–	–	■ 390	0.18	1.0	–	–	–	–	–	–

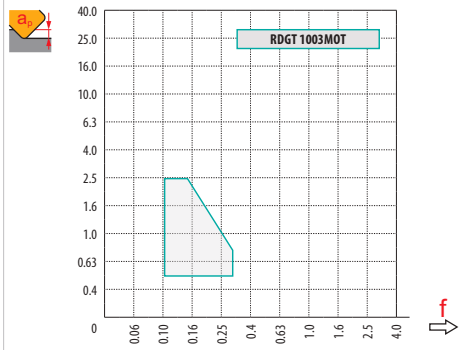
FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.

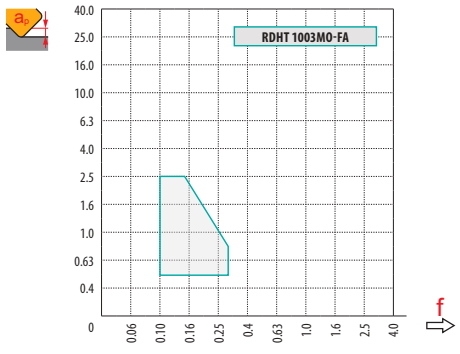
a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

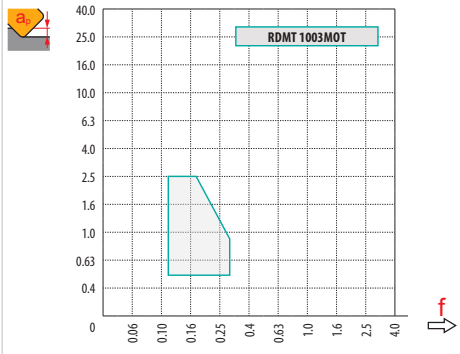
	RDHX 10	RDMX 10	RDGT 10	RDHT 10-FA	RDMT 10
RE	5.0	5.0	5.0	5.0	5.0
BS	–	–	–	–	–











DCX	a_p	0.00	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	3.50	4.00	5.00
20	DEF	10.0	14.4	15.3	16.0	16.6	17.1	18.0	18.7	19.2	19.5	19.8	20.0
25		15.0	19.4	20.3	21.0	21.6	22.1	23.0	23.7	24.2	24.5	24.8	25.0
30		20.0	24.4	25.3	26.0	26.6	27.1	28.0	28.7	29.2	29.5	29.8	30.0
32		22.0	26.4	27.3	28.0	28.6	29.1	30.0	30.7	31.2	31.5	31.8	32.0
35		25.0	29.4	30.3	31.0	31.6	32.1	33.0	33.7	34.2	34.5	34.8	35.0
42		32.0	36.4	37.3	38.0	38.6	39.1	40.0	40.7	41.2	41.5	41.8	42.0
52		42.0	46.4	47.3	48.0	48.6	49.1	50.0	50.7	51.2	51.5	51.8	52.0
	a_p	0.00	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	3.50	4.00	5.00
	f	–	0.54	0.44	0.39	0.35	0.32	0.28	0.25	0.23	0.22	0.21	0.19

DCX	RPMX	APMX/I
20	20	2.5/15
25	12	2.5/25
30	8	2.5/37
32	7.5	2.5/20
35	7	2.5/42
42	4	2.5/37
52	3	2.5/49

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
20	22.0	40.0	2.5	2.5
25	32.0	50.0	2.5	2.5
30	42.0	60.0	2.5	2.5
32	46.0	64.0	2.5	2.5
35	52.0	70.0	2.5	2.5
42	66.0	84.0	2.5	2.5
52	86.0	104.0	2.5	2.5

a_p
2.5

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
20	FE	0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
25		0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
30		0.600	0.775	1.095	1.342	1.549	1.897	2.191	2.449	2.683	3.098	3.464
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
35		0.648	0.837	1.183	1.449	1.673	2.049	2.366	2.646	2.898	3.347	3.742
42		0.710	0.917	1.296	1.587	1.833	2.245	2.592	2.898	3.175	3.666	4.099
52		0.790	1.020	1.442	1.766	2.040	2.498	2.884	3.225	3.533	4.079	4.561
RE	µm	**3**	**5**	**10**	**15**	**20**	**30**	**40**	**50**	**60**	**80**	**100**
5.0	FE	0.346	0.447	0.632	0.775	0.894	1.095	1.265	1.414	1.549	1.789	2.000

SRD12

P M K N S H

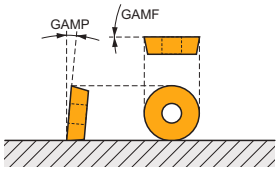
PRAMET

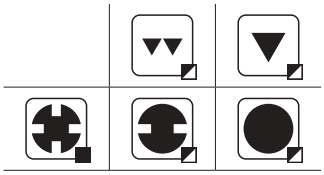
S(C)

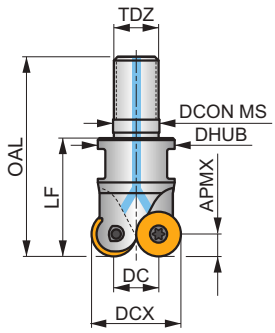
RD.. 12 Uçlar için Kopya Frezeleme Takımı, İçten Su Vermeli

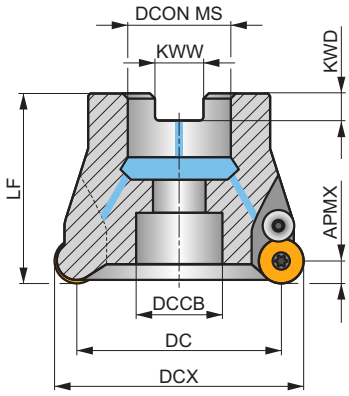
RD.. 12 uçlar için APMX 3mm içten su vermeli kopya frezeleme takımları. Birçok uygulama için uygundur. Modüler ve göbekten bağlama olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

APMX	3.0 mm









h_m	0.065 - 0.25
h_m	0.065 - 0.22

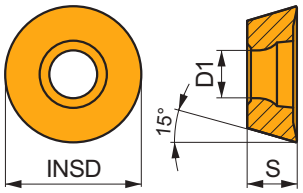
	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	DHUB (mm)	DCCB (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg		
MODULAR	**24E2R032M12-SRD12-CF**	24	12	54	12.5	21	–	32	M12	–	–	-3	0	2	–	21900	✓	0.10	GI120	C0362
MODULAR	**35E3R042M16-SCRD12-CF**	35	23	65	17	29	–	42	M16	–	–	0	0	3	–	18100	✓	0.22	GI120	C0364
MODULAR	**35E4R042M16-SRD12-CF**	35	23	65	17	29	–	42	M16	–	–	0	0	4	–	18100	✓	0.20	GI120	C0362
MODULAR	**42E4R042M16-SCRD12-CF**	42	30	65	17	29	–	42	M16	–	–	0	0	4	–	16600	✓	0.21	GI120	C0364
MODULAR	**42E5R042M16-SRD12-CF**	42	30	65	17	29	–	42	M16	–	–	0	0	5	–	16600	✓	0.22	GI120	C0366
ISO 6462 DIN 8030	**50A05R-SCMORD12-CF**	50	38	–	22	–	18	50	–	10.4	10.4	2	7	5	–	15200	✓	0.29	GI120	C0366
ISO 6462 DIN 8030	**52A05R-SCMORD12-CF**	52	40	–	22	–	18	50	–	10.4	10.4	2	7	5	–	14900	✓	0.44	GI120	C0366
ISO 6462 DIN 8030	**66A06R-SCMORD12-CF**	66	54	–	27	–	22	50	–	12.4	12.4	2	7	6	–	13200	✓	0.54	GI120	C0370
ISO 6462 DIN 8030	**80A07R-SCMORD12-CF**	80	68	–	27	–	38	52	–	12.4	12.4	2	7	7	–	12000	✓	0.89	GI120	C0372

GI120	RD.. 12T3M0T	RDHT 12T3M0-FA

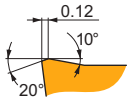
		Nm							
C0362	US 3508-T15P	3.5	M 3.5	8	–	–	Flag T15P	–	–
C0364	US 3006-T09P	2.0	M 3	6	D-T07P/T09P	FG-15	–	CS12P	–
C0366	US 3508-T15P	3.5	M 3.5	8	D-T08P/T15P	FG-15	–	CS12P	HS 1030C
C0370	US 3508-T15P	3.5	M 3.5	8	D-T08P/T15P	FG-15	–	CS12P	HS 1230C
C0372	US 3508-T15P	3.5	M 3.5	8	D-T08P/T15P	FG-15	–	CS12P	–

RDGT 12

	INSD	D1	S
	(mm)	(mm)	(mm)
12T3	12.000	3.90	3.97

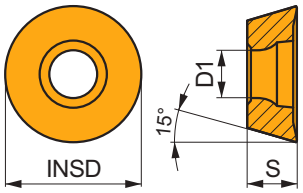


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

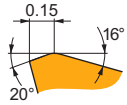
Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																			
MOT finiş işleme için pozitif tasarım.																			
RDGT 12T3MOT:M6330	–	260	0.20	1.5	185	0.18	1.5	–	–	–	–	–	–	75	0.14	1.2	–	–	–
RDGT 12T3MOT:M8310	–	330	0.20	1.5	165	0.18	1.5	310	0.20	1.5	–	–	–	–	–	–	–	–	–
RDGT 12T3MOT:M8325	–	250	0.20	1.5	120	0.18	1.5	–	–	–	–	–	–	–	–	–	–	–	–
RDGT 12T3MOT:M8345	–	225	0.20	1.5	135	0.18	1.5	–	–	–	–	–	–	55	0.14	1.2	–	–	–
RDGT 12T3MOT:M9340	–	340	0.20	1.5	200	0.18	1.5	–	–	–	–	–	–	85	0.14	1.2	–	–	–

RDMT 12

	INSD	D1	S
	(mm)	(mm)	(mm)
12T3	12.000	3.90	3.97



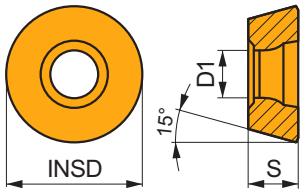
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																			
MOT finiş işleme için pozitif tasarım.																			
RDMT 12T3MOT:M8345	–	225	0.20	1.5	135	0.18	1.5	–	–	–	–	–	–	–	–	–	–	–	–

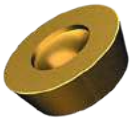
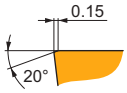
RDMX 12

PRAMET

	INSD (mm)	D1 (mm)	S (mm)
12T3	12.000	3.90	3.97



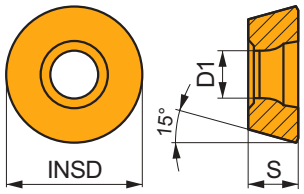
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
   **MOT** sıfır talaş açısı tasarımı, finiş işleme için.																			
RDMX 12T3M0T:M8310	–	300	0.20	1.5	–	–	–	285	0.20	1.5	–	–	–	–	–	–	60	0.10	0.8
RDMX 12T3M0T:M8325	–	225	0.20	1.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
RDMX 12T3M0T:M8345	–	200	0.20	1.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

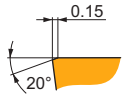
RDHX 12

PRAMET

	INSD (mm)	D1 (mm)	S (mm)
12T3	12.000	3.90	3.97

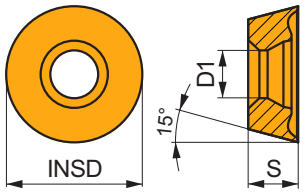


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

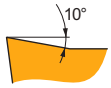
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
   **MOT** sıfır talaş açısı tasarımı, finiş işleme için.																			
RDHX 12T3M0T:M4303	–	300	0.20	1.5	–	–	–	285	0.20	1.5	–	–	–	–	–	–	60	0.14	0.8
RDHX 12T3M0T:M8310	–	300	0.20	1.5	–	–	–	285	0.20	1.5	–	–	–	–	–	–	60	0.14	0.8
RDHX 12T3M0T:M8325	–	225	0.20	1.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
RDHX 12T3M0T:M8345	–	200	0.20	1.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

RDHT 12-FA

	INSD	D1	S
	(mm)	(mm)	(mm)
12T3	12.000	3.90	3.97



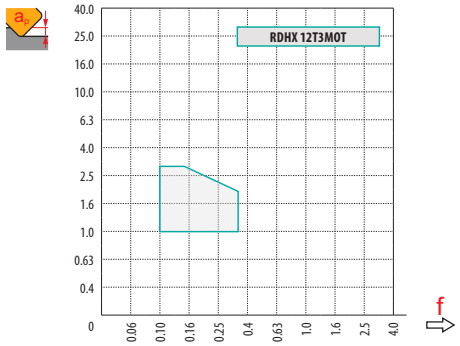
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

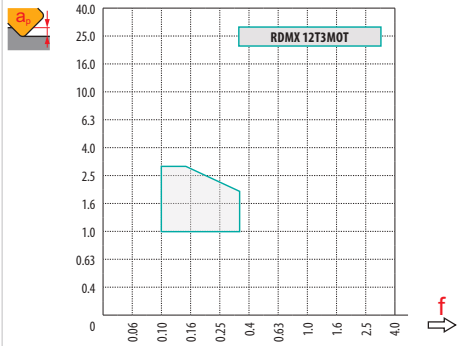
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
RDHT 12T3M0-FA:HF7	●	–	–	–	–	–	–	–	–	–	–	■	360	0.24	1.5	–	–	–	–	–	–

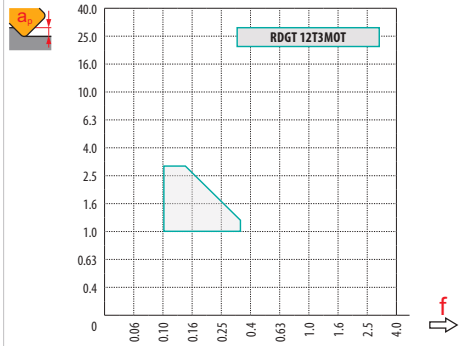
FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.

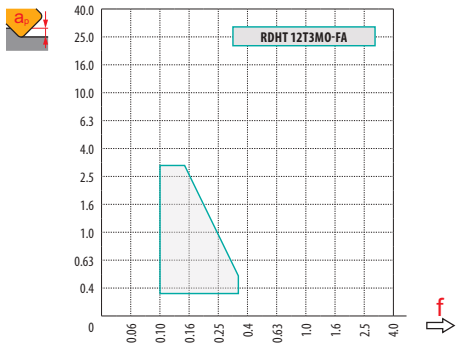
a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

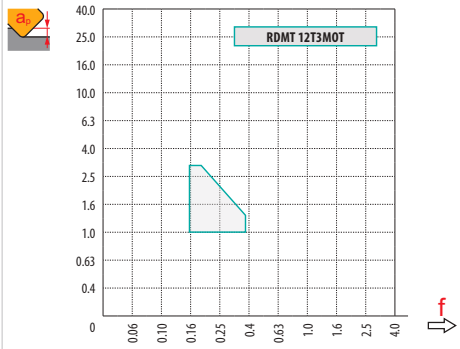
	RDHX 12	RDMX 12	RDGT 12	RDHT 12-FA	RDMT 12
RE	6.0	6.0	6.0	6.0	6.0
a_p	–	–	–	–	–











DCX	a_p	0.00	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	3.50	4.00	5.00	6.00
24		12.0	16.8	17.8	18.6	19.3	19.9	20.9	21.7	22.4	22.9	23.3	23.8	24.0
35		23.0	27.8	28.8	29.6	30.3	30.9	31.9	32.7	33.4	33.9	34.3	34.8	35.0
42		30.0	34.8	35.8	36.6	37.3	37.9	38.9	39.7	40.4	40.9	41.3	41.8	42.0
50	DEF	38.0	42.8	43.8	44.6	45.3	45.9	46.9	47.7	48.4	48.9	49.3	49.8	50.0
52		40.0	44.8	45.8	46.6	47.3	47.9	48.9	49.7	50.4	50.9	51.3	51.8	52.0
66		54.0	58.8	59.8	60.6	61.3	61.9	62.9	63.7	64.4	64.9	65.3	65.8	66.0
80		68.0	72.8	73.8	74.6	75.3	75.9	76.9	77.7	78.4	78.9	79.3	79.8	80.0
	a_p	0.00	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	3.50	4.00	5.00	6.00
	f	–	0.49	0.40	0.35	0.32	0.29	0.25	0.23	0.21	0.20	0.18	0.17	0.16

DCX	RPMX	APMX/I
24	25.0	3.0/14
35	9.0	3.0/39
42	8.0	3.0/44
50	4.0	3.0/87
52	4.0	3.0/87
66	3.0	3.0/100
80	2.2	3.0/100

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
24	26.0	48.0	3.0	3.0
35	46.0	70.0	3.0	3.0
42	62.0	84.0	3.0	3.0
50	78.0	100.0	2.8	2.8
52	82.0	104.0	2.8	2.8
66	110.0	132.0	2.8	2.8
80	136.0	160.0	2.8	2.8

a_p
2.8

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
24	FE	0.537	0.693	0.980	1.200	1.386	1.697	1.960	2.191	2.400	2.771	3.098
35		0.648	0.837	1.183	1.449	1.673	2.049	2.366	2.646	2.898	3.347	3.742
42		0.710	0.917	1.296	1.587	1.833	2.245	2.592	2.898	3.175	3.666	4.099
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
52		0.790	1.020	1.442	1.766	2.040	2.498	2.884	3.225	3.533	4.079	4.561
66		0.890	1.149	1.625	1.990	2.298	2.814	3.250	3.633	3.980	4.596	5.138
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657
RE	µm	3	5	10	15	20	30	40	50	60	80	100
6.0	FE	0.379	0.490	0.693	0.849	0.980	1.200	1.386	1.549	1.697	1.960	2.191

SRD16

P M K N S H

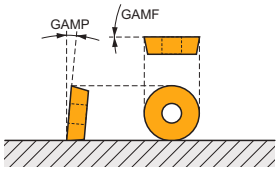
PRAMET

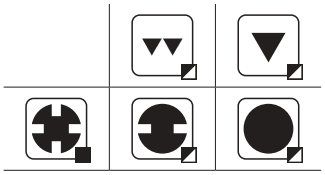
S(C)

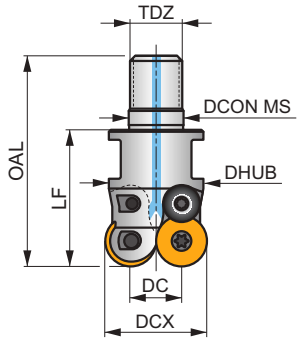
RD.. 16 Uçlar için Kopya Frezeleme Takımı, İçten Su Vermeli

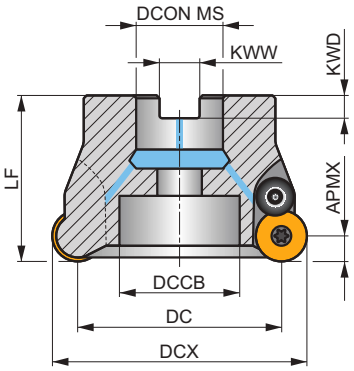
RD.. 16 uçlar için APMX 4mm içten su vermeli kopya frezeleme takımları. Birçok uygulama için uygundur. Modüler ve göbekten bağlama olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

APMX	4.0 mm









h_m	0.11 - 0.25
h_m	0.1 - 0.2

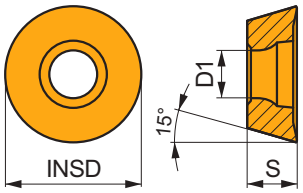
	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	DHUB (mm)	DCCB (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg		
MODULAR	**32E2R042M16-SCRD16-CF**	32	16	65	17	29	–	42	M16	–	–	-2	0	2	–	12600	✓	0.18	GI121	C0374
	52A04R-SCMORD16-CF	52	36	–	22	–	16.5	50	–	10.4	10.4	0	7	4	–	9900	✓	0.41	GI121	C0376
ISO 6462 DIN 8030	**66A05R-SCMORD16-CF**	66	50	–	27	–	22	50	–	12.4	12.4	0	7	5	–	8800	✓	0.60	GI121	C0378
	80A06R-SCMORD16-CF	80	64	–	27	–	38	52	–	12.4	12.4	0	7	6	–	8000	✓	0.87	GI121	C0380
	100A07R-SCMORD16-CF	100	84	–	32	–	45	52	–	14.4	14.4	0	7	7	–	7100	✓	1.41	GI121	C0380

GI121	RD.. 1604MOT	RDHT 1604MO-FA

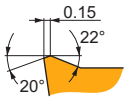
		Nm						
C0374	US 64510-T20P	4.5	M 4.5	10	–	Flag T20P	CS16P	–
C0376	US 64510-T20P	4.5	M 4.5	10	SDR T20P-T	–	CS16P	HS 1030C
C0378	US 64510-T20P	4.5	M 4.5	10	SDR T20P-T	–	CS16P	HS 1230C
C0380	US 64510-T20P	4.5	M 4.5	10	SDR T20P-T	–	CS16P	–

RDGT 16

	INSD	D1	S
	(mm)	(mm)	(mm)
1604	16.000	5.20	4.76

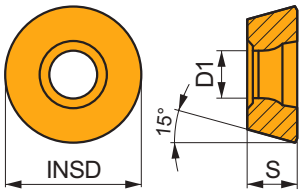


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

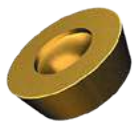
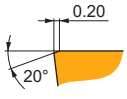
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**MOT** finiş işleme için pozitif tasarım.																	
RDGT 1604MOT:M8310		–	285	0.30	2.0	145	0.27	2.0	270	0.30	2.0	–	–	–	–	–	–	–	–	–
RDGT 1604MOT:M8325		–	220	0.30	2.0	105	0.27	2.0	–	–	–	–	–	–	–	–	–	–	–	–
RDGT 1604MOT:M8345		–	200	0.30	2.0	120	0.27	2.0	–	–	–	–	–	–	50	0.21	1.6	–	–	–

RDMX 16

	INSD	D1	S
	(mm)	(mm)	(mm)
1604	16.000	5.20	4.76



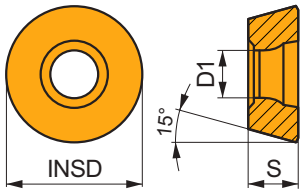
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**MOT** sıfır talaş açısı tasarımı, finiş işleme için.																	
RDMX 1604MOT:M8310		–	255	0.30	2.0	–	–	–	240	0.30	2.0	–	–	–	–	–	–	50	0.15	1.1

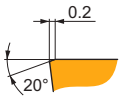
RDHX 16

PRAMET

	INSD (mm)	D1 (mm)	S (mm)
1604	16.000	5.20	4.76



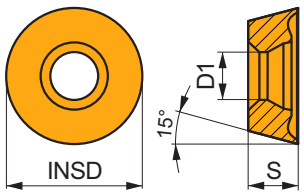
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  HFC T **MOT** sıfır talaş açısı tasarımı, finiş işleme için.																			
RDHX 1604MOT:M8310	–	255	0.30	2.0	–	–	–	240	0.30	2.0	–	–	–	–	–	–	50	0.15	1.1
RDHX 1604MOT:M8325	–	195	0.30	2.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
RDHX 1604MOT:M8345	–	180	0.30	2.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
RDHX 1604MOT:M9325	–	290	0.30	2.0	–	–	–	275	0.30	2.0	–	–	–	–	–	–	55	0.15	1.1

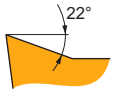
RDHT 16-FA

PRAMET

	INSD (mm)	D1 (mm)	S (mm)
1604	16.000	5.20	4.76

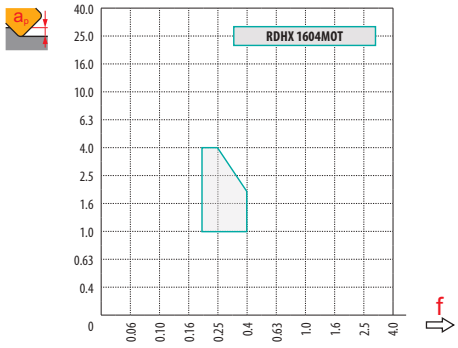


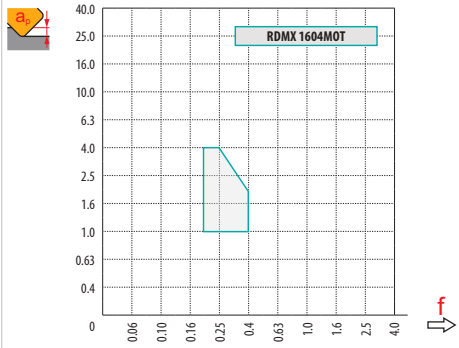
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

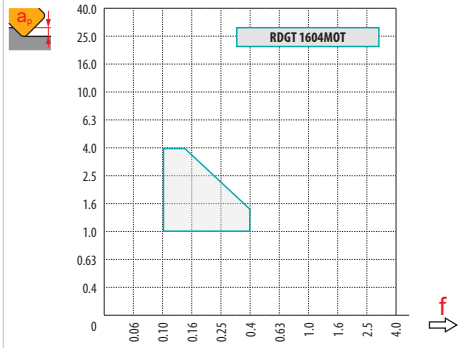
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  HFC F **FA** geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.																			
RDHT 1604MO-FA:HF7	–	–	–	–	–	–	–	–	–	–	315	0.36	2.0	–	–	–	–	–	–

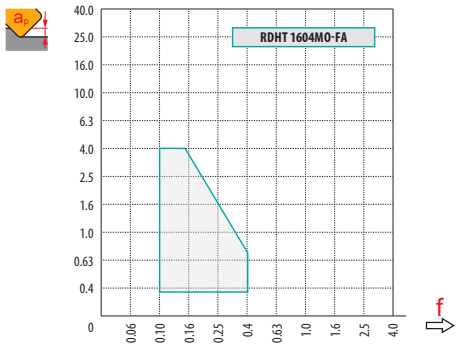
a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	RDHX 16	RDMX 16	RDGT 16	RDHT 16-FA
RE	8.0	8.0	8.0	8.0
BS	–	–	–	–









DCX	a_p	0.00	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	3.50	4.00	5.00	6.00	7.00	8.00
32	DEF	16.0	21.6	22.8	23.7	24.6	25.3	26.6	27.6	28.5	29.2	29.9	30.8	31.5	31.9	32.0
52		36.0	41.6	42.8	43.7	44.6	45.3	46.6	47.6	48.5	49.2	49.9	50.8	51.5	51.9	52.0
66		50.0	55.6	56.8	57.7	58.6	59.3	60.6	61.6	62.5	63.2	63.9	64.8	65.5	65.9	66.0
80		64.0	69.6	70.8	71.7	72.6	73.3	74.6	75.6	76.5	77.2	77.9	78.8	79.5	79.9	80.0
100		84.0	89.6	90.8	91.7	92.6	93.3	94.6	95.6	96.5	97.2	97.9	98.8	99.5	99.9	100.0
	a_p	0.00	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	3.50	4.00	5.00	6.00	7.00	8.00
	f	–	0.91	0.74	0.65	0.58	0.53	0.46	0.42	0.38	0.36	0.34	0.30	0.28	0.26	0.25

DCX	RPMX	APMX/I
32	25.0	4.0/19
52	8.0	4.0/58
66	6.0	4.0/78
80	4.0	4.0/100
100	3.0	4.0/100

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
32	34.0	64.0	4.0	4.0
52	74.0	104.0	4.0	4.0
66	102.0	132.0	4.0	4.0
80	130.0	160.0	4.0	4.0
100	170.0	200.0	4.0	4.0

a_p
4.0

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
32	FE	0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
52		0.790	1.020	1.442	1.766	2.040	2.498	2.884	3.225	3.533	4.079	4.561
66		0.890	1.149	1.625	1.990	2.298	2.814	3.250	3.633	3.980	4.596	5.138
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657
100		1.095	1.414	2.000	2.449	2.828	3.464	4.000	4.472	4.899	5.657	6.325
RE	µm	3	5	10	15	20	30	40	50	60	80	100
8.0	FE	0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530

YÜZEY FREZELEME

	SRC10	SRC12	SRC16	SRC20		
	–	–	–	–		
	APMX (mm) 5.0	APMX (mm) 6.0	APMX (mm) 8.0	APMX (mm) 10.0		
	DCX (mm) 25 – 66	DCX (mm) 40 – 100	DCX (mm) 63 – 160	DCX (mm) 80 – 160		
Silindirik şaft	 DCX = 25, 32 (mm)					
Weldon						
Modüler	 DCX = 25 – 35 (mm)					
Frezeleme kafası	 DCX = 40 – 66 (mm)					
Sayfa	186	190	194	198		
ISO	P M K S H	P M K S H	P M K S H	P M K S H		
Kesici uç şekli						
Kesici uçlar	RC 10T3	RC 1204	RC 1606	RC 2006		
Kesme kenarlarının sayısı	8	12	8	8		
Konturlu yüzeyler (kopya frezeleme) 	■	■	■	■		
Yüzey frezeleme 	■	■	■	■		
Helisel interpolasyon 	■	■	■	■		
Aşamalı dalma 	■	■	■	■		
Açılı frezeleme 	■	■	■	■		

■ İlk seçim. ◪ Olası seçim.

SRC10

P M K S H

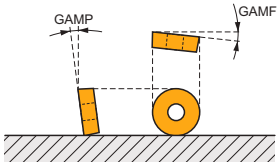
PRAMET

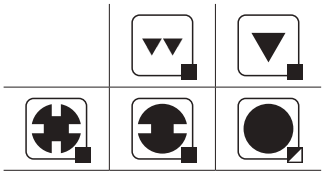
S

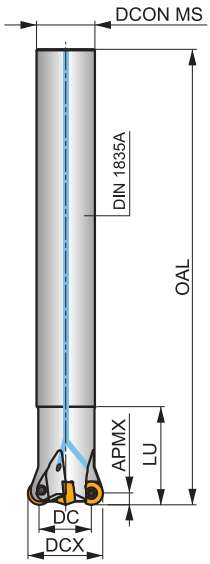
RCMT 10 Uçlar için Kopya Frezeleme Takımı, İçten Su Vermeli

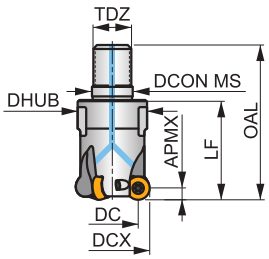
RCMT 10 uçlar için APMX 5mm kopya frezeleme takımları. İçten soğutmalı .Yüzey, helisel enterpolasyon, rampalama, dalma ve yüksek hızlı frezeleme için uygundur. Silindirik, modüler ve göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

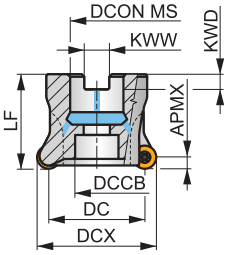
APMX	5.0 mm











h_m	0.05 - 0.12
h_m	0.08 - 0.15

	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	DHUB (mm)	DCCB (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)	max.			kg		
DIN 1835A	**25E2R034A20-SRC10-C**	25	15	170	20	–	–	34	–	–	–	–	-3	-7	2	–	20900	✓	0.40	GI328	C0010
	25E3R034A20-SRC10-C	25	15	170	20	–	–	34	–	–	–	–	-3	-7	3	–	20900	✓	0.36	GI328	C0010
	32E3R042A25-SRC10-C	32	22	200	25	–	–	42	–	–	–	–	-2.6	-7	4	–	18500	✓	0.67	GI328	C0010
	32E4R042A25-SRC10-C	32	22	200	25	–	–	42	–	–	–	–	-2.6	-7	3	–	18500	✓	0.70	GI328	C0010
MODULAR	**25E2R032M12-SRC10-C**	25	15	54	12.5	21	–	–	32	M12	–	–	-3	-7	2	–	20900	✓	0.11	GI328	C0010
	25E3R032M12-SRC10-C	25	15	54	12.5	21	–	–	32	M12	–	–	-3	-7	3	–	20900	✓	0.08	GI328	C0010
	32E4R042M16-SRC10-C	32	22	65	17	29	–	–	42	M16	–	–	-2.6	-7	4	–	18500	✓	0.20	GI328	C0010
	35E4R042M16-SRC10-C	35	25	65	17	29	–	–	42	M16	–	–	-2.4	-7	4	–	17700	✓	0.20	GI328	C0010
ISO 6462 DIN 8030	**40A05R-SMORC10-C**	40	30	–	16	–	14	–	40	–	8.4	5.6	-2.2	-7	5	–	16500	✓	0.21	GI328	C0012
	50A05R-SMORC10-C	50	40	–	22	–	18	–	40	–	10.4	6.3	-2	-7	5	–	14800	✓	0.34	GI328	C0013
	50A06R-SMORC10-C	50	40	–	22	–	18	–	40	–	10.4	6.3	-2	-7	6	–	14800	✓	0.33	GI328	C0013
	52A05R-SMORC10-C	52	42	–	22	–	18	–	40	–	10.4	6.3	-2	-7	5	–	14500	✓	0.35	GI328	C0013
	52A06R-SMORC10-C	52	42	–	22	–	18	–	40	–	10.4	6.3	-2	-7	6	–	14500	✓	0.28	GI328	C0013
	63A06R-SMORC10-C	63	53	–	22	–	18	–	40	–	10.4	6.3	-1.8	-7	6	–	13200	✓	0.52	GI328	C0013
	63A07R-SMORC10-C	63	53	–	22	–	18	–	40	–	10.4	6.3	-1.8	-7	7	–	13200	✓	0.52	GI328	C0013
	66A06R-SMORC10-C	66	56	–	27	–	22	–	50	–	12.4	7	-1.4	-7	6	–	12800	✓	0.58	GI328	C0014
	66A07R-SMORC10-C	66	56	–	27	–	22	–	50	–	12.4	7	-1.4	-7	7	–	12800	✓	0.60	GI328	C0014

GI328	RCMT 10T3M0..

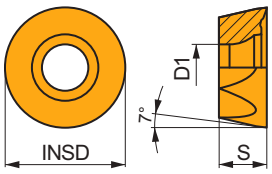
		Nm				
C0010	US 63509-T10P	3.0	M 3.5	9	Flag T10P	–
C0012	US 63509-T10P	3.0	M 3.5	9	Flag T10P	HS 0830C

C0013	US 63509-T10P	3.0	M 3.5	9	Flag T10P	HS 1030C
C0014	US 63509-T10P	3.0	M 3.5	9	Flag T10P	HS 1230C

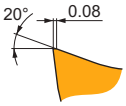
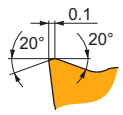
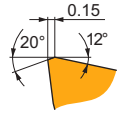
RCMT 10

PRAMET

	INSD (mm)	D1 (mm)	S (mm)
10T3	10.000	3.90	3.97

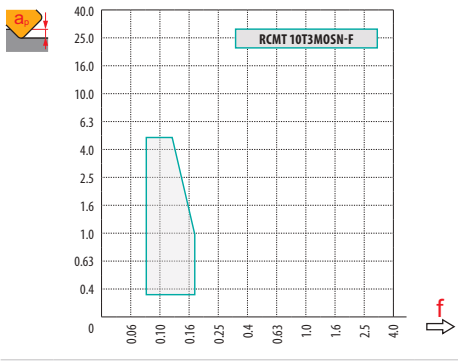


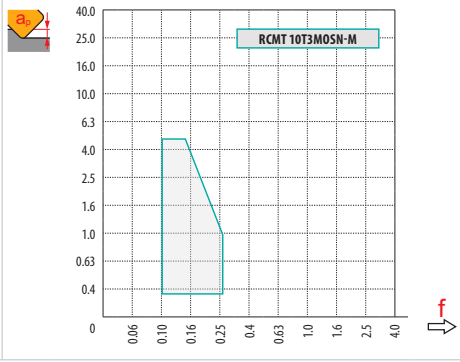
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

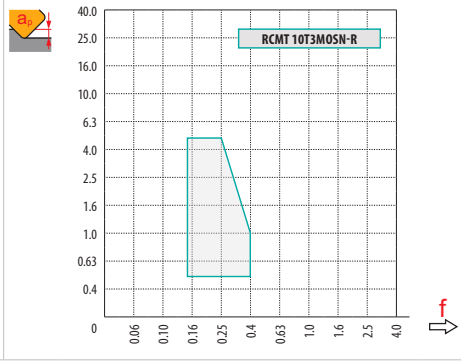
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																			
																			
																			
F geometri, hafif işleme için çok pozitif tasarım.																			
RCMT 10T3MOSN-F:M6330	–	340	0.10	1.0	240	0.09	1.0	–	–	–	–	–	–	100	0.08	0.8	–	–	–
RCMT 10T3MOSN-F:M8330	–	395	0.10	1.0	235	0.09	1.0	–	–	–	–	–	–	95	0.08	0.8	–	–	–
																			
																			
																			
M geometri, orta işleme için çok pozitif tasarım.																			
RCMT 10T3MOSN-M:M6330	–	310	0.12	1.0	220	0.11	1.0	–	–	–	–	–	–	90	0.11	0.8	–	–	–
RCMT 10T3MOSN-M:M8310	–	400	0.12	1.0	200	0.11	1.0	380	0.12	1.0	–	–	–	–	–	–	–	–	–
RCMT 10T3MOSN-M:M8330	–	360	0.12	1.0	215	0.11	1.0	340	0.12	1.0	–	–	–	90	0.11	0.8	–	–	–
RCMT 10T3MOSN-M:M8340	–	330	0.12	1.0	195	0.11	1.0	310	0.12	1.0	–	–	–	80	0.11	0.8	–	–	–
																			
																			
																			
R geometri, kaba kopya frezeleme için pozitif tasarım.																			
RCMT 10T3MOSN-R:M8310	–	345	0.17	1.0	–	–	–	325	0.17	1.0	–	–	–	–	–	–	65	0.12	0.7
RCMT 10T3MOSN-R:M8330	–	310	0.17	1.0	–	–	–	290	0.17	1.0	–	–	–	75	0.17	0.8	60	0.12	0.7

a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	RCMT 10-F	RCMT 10-M	RCMT 10-R
RE	5.0	5.0	5.0
BS	–	–	–







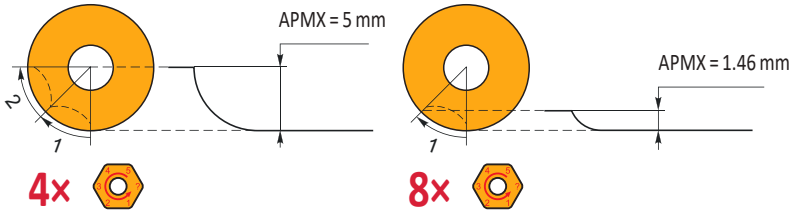
DCX	a_p	0.00	0.15	0.30	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
25		15.00	17.43	18.41	19.36	20.27	21.00	21.61	22.14	23.00	23.66	24.17	24.80	25.00
32		22.00	24.43	25.41	26.36	27.27	28.00	28.61	29.14	30.00	30.66	31.17	31.80	32.00
35		25.00	27.43	28.41	29.36	30.27	31.00	31.61	32.14	33.00	33.66	34.17	34.80	35.00
40	DEF	30.00	32.43	33.41	34.36	35.27	36.00	36.61	37.14	38.00	38.66	39.17	39.80	40.00
50		40.00	42.43	43.41	44.36	45.27	46.00	46.61	47.14	48.00	48.66	49.17	49.80	50.00
52		42.00	44.43	45.41	46.36	47.27	48.00	48.61	49.14	50.00	50.66	51.17	51.80	52.00
63		53.00	55.43	56.41	57.36	58.27	59.00	59.61	60.14	61.00	61.66	62.17	62.80	63.00
66		56.00	58.43	59.41	60.36	61.27	62.00	62.61	63.14	64.00	64.66	65.17	65.80	66.00
	a_p	–	0.15	0.30	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
	f	–	0.90	0.64	0.50	0.41	0.35	0.32	0.29	0.25	0.23	0.21	0.19	0.17

DCX	RPMX	APMX/I
25	13.2	5/23
32	12.6	5/24
35	12.3	5/24
40	9.5	5/31
50	6.4	5/46
52	6.1	5/48
63	4.7	5/62
66	4.4	5/66

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
25	32.0	50.0	3.0	3.0
32	45.0	64.0	3.0	3.0
35	51.0	70.0	3.0	3.0
40	61.0	80.0	3.0	3.0
50	81.0	100.0	3.0	3.0
52	85.0	104.0	3.0	3.0
63	107.0	126.0	3.0	3.0
66	113.0	132.0	3.0	3.0

a_p
2.24

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
25	FE	0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
35		0.648	0.837	1.183	1.449	1.673	2.049	2.366	2.646	2.898	3.347	3.742
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
52		0.790	1.020	1.442	1.766	2.040	2.498	2.884	3.225	3.533	4.079	4.561
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
66		0.890	1.149	1.625	1.990	2.298	2.814	3.250	3.633	3.980	4.596	5.138
RE	µm	3	5	10	15	20	30	40	50	60	80	100
5.0	FE	0.346	0.447	0.632	0.775	0.894	1.095	1.265	1.414	1.549	1.789	2.000



SRC12

P M K S H

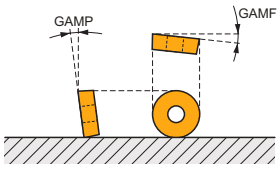
PRAMET

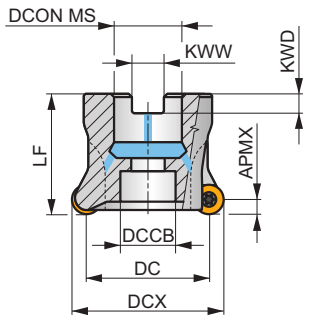
S

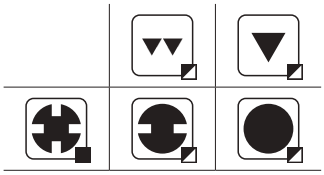
RCMT 12 Uçlar için Kopya Frezeleme Takımı, İçten Su Vermeli

RCMT 12 uçlar için APMX 6mm içten su vermeli kopya frezeleme takımları. Yüzey, helisel enterpolasyon, rampalama, dalma ve yüksek hızlı frezeleme için uygundur Göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

APMX	6.0 mm







h_m 0.1 - 0.2

	Product	DCX (mm)	DC (mm)	DCON MS (mm)	DCCB (mm)	LF (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
ISO 6462 DIN 8030	**40A03R-SMORC12-C**	40	28	16	12	40	8.4	5.6	-2.1	-7	3	–	14800	✓	0.27	GI279	C0022	–
	50A04R-SMORC12-C	50	38	22	18	40	10.4	6.3	-2	-7	4	–	13200	✓	0.36	GI279	C0023	–
	52A05R-SMORC12-C	52	40	22	18	40	10.4	6.3	-2	-7	5	–	12900	✓	0.15	GI279	C0023	–
	63A05R-SMORC12-C	63	51	22	30	40	10.4	6.3	-2	-7	5	–	11800	✓	0.45	GI279	C0023	–
	66A06R-SMORC12-C	66	54	27	22	50	12.4	7	-1.5	-7	6	–	11400	✓	0.65	GI279	C0024	–
	80A05R-SMORC12-C	80	68	27	37	50	12.4	7	-1.7	-7	5	–	10400	✓	1.08	GI279	C0024	–
	100A06R-SMORC12-C	100	88	32	45	50	14.4	8	-1.8	-7	6	–	9300	✓	1.78	GI279	C0021	AC002

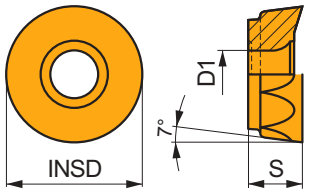
GI279	RCMT 1204M0..

		Nm					
C0021	US 63509-T15P	3.0	M 3.5	10	D-T08P/T15P	FG-15	–
C0022	US 63509-T15P	3.0	M 3.5	10	D-T08P/T15P	FG-15	HS 90835
C0023	US 63509-T15P	3.0	M 3.5	10	D-T08P/T15P	FG-15	HS 1030C
C0024	US 63509-T15P	3.0	M 3.5	10	D-T08P/T15P	FG-15	HS 1230C

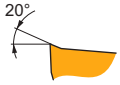
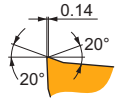
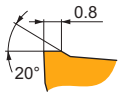
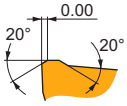
AC002	KS 1635	K.FMH32

RCMT 12

	INSD	D1	S
	(mm)	(mm)	(mm)
1204	12.000	4.40	4.76

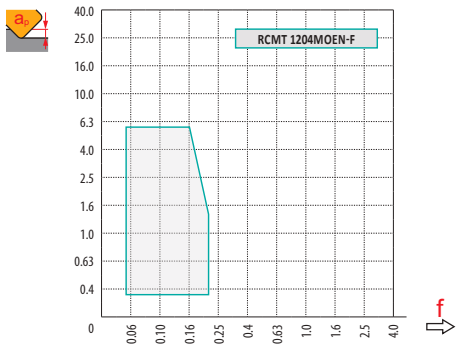


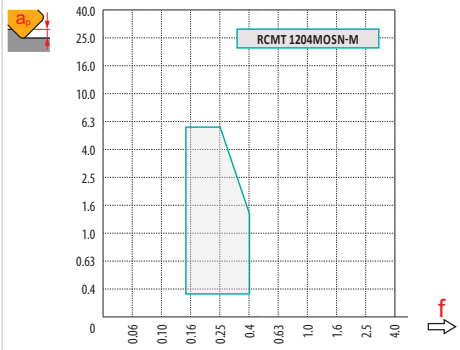
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

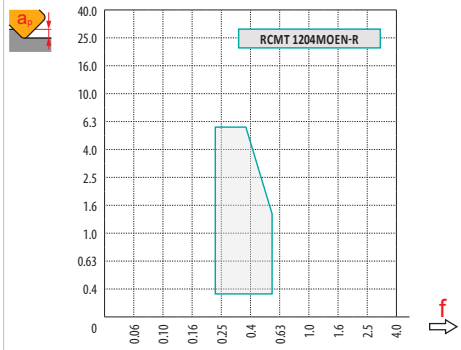
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
F geometri, hafif işleme için çok pozitif tasarım.																				
RCMT 1204MOEN-F:M8310	●	–	■ 420	0.10	1.5	◪ 210	0.09	1.5	–	–	–	–	–	–	–	–	–	–	–	–
RCMT 1204MOEN-F:M8330	●	–	■ 380	0.10	1.5	■ 225	0.09	1.5	–	–	–	–	–	–	◪ 95	0.07	1.2	–	–	–
																				
M geometri, orta işleme için çok pozitif tasarım.																				
RCMT 1204MOSN-M:M6330	✱	–	■ 265	0.20	1.5	◪ 185	0.18	1.5	–	–	–	–	–	–	■ 75	0.16	1.2	–	–	–
RCMT 1204MOSN-M:M8310	✱	–	■ 335	0.20	1.5	◪ 170	0.18	1.5	■ 315	0.20	1.5	–	–	–	–	–	–	–	–	–
RCMT 1204MOSN-M:M8330	✱	–	■ 305	0.20	1.5	◪ 180	0.18	1.5	■ 285	0.20	1.5	–	–	–	◪ 75	0.16	1.2	–	–	–
RCMT 1204MOSN-M:M8345	✱	–	■ 225	0.20	1.5	◪ 135	0.18	1.5	–	–	–	–	–	–	■ 55	0.16	1.2	–	–	–
RCMT 1204MOSN-M:M9325	✱	–	■ 380	0.20	1.5	–	–	–	■ 360	0.20	1.5	–	–	–	–	–	–	–	–	–
RCMT 1204MOSN-M:M9340	✱	–	■ 345	0.20	1.5	◪ 205	0.18	1.5	–	–	–	–	–	–	■ 85	0.16	1.2	–	–	–
																				
EN-R geometri, kaba kopya frezeleme için pozitif tasarım.																				
RCMT 1204MOEN-R:M8310	✱	–	■ 280	0.30	1.5	◪ 140	0.27	1.5	■ 265	0.30	1.5	–	–	–	–	–	–	■ 55	0.15	0.8
RCMT 1204MOEN-R:M8330	✱	–	■ 260	0.30	1.5	◪ 155	0.27	1.5	■ 245	0.30	1.5	–	–	–	◪ 65	0.24	1.2	◪ 50	0.15	0.8
																				
SN-R geometri, kaba kopya işleme için pozitif tasarım.																				
RCMT 1204MOSN-R:M8345	✱	–	■ 190	0.35	1.5	–	–	–	–	–	–	–	–	–	◪ 45	0.25	1.2	–	–	–
RCMT 1204MOSN-R:M9315	✱	–	■ 315	0.35	1.5	–	–	–	■ 295	0.35	1.5	–	–	–	–	–	–	◪ 60	0.18	0.8

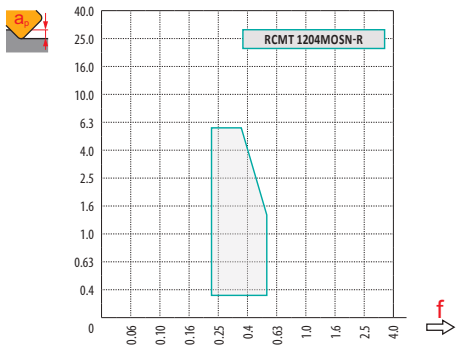
a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	RCMT 12-F	RCMT 12-M	RCMT 12 EN-R	RCMT 12 SN-R
RE	6.0	6.0	6.0	6.0
BS	–	–	–	–









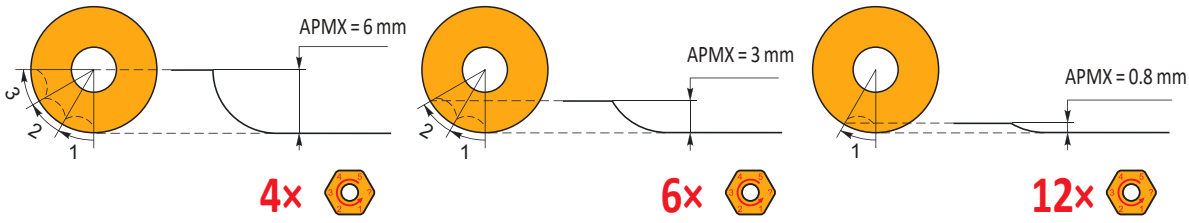
DCX	a_p	0.00	0.30	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00
40		28.0	31.7	32.8	33.8	34.6	35.3	35.9	36.9	37.7	38.4	39.3	39.8	40.0
50		38.0	41.7	42.8	43.8	44.6	45.3	45.9	46.9	47.7	48.4	49.3	49.8	50.0
52		40.0	43.7	44.8	45.8	46.6	47.3	47.9	48.9	49.7	50.4	51.3	51.8	52.0
63	DEF	51.0	54.7	55.8	56.8	57.6	58.3	58.9	59.9	60.7	61.4	62.3	62.8	63.0
66		54.0	57.7	58.8	59.8	60.6	61.3	61.9	62.9	63.7	64.4	65.3	65.8	66.0
80		68.0	71.7	72.8	73.8	74.6	75.3	75.9	76.9	77.7	78.4	79.3	79.8	80.0
100		88.0	91.7	92.8	93.8	94.6	95.3	95.9	96.9	97.7	98.4	99.3	99.8	100.0
	a_p	–	0.30	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00
	f	–	0.95	0.74	0.61	0.53	0.47	0.43	0.38	0.34	0.31	0.28	0.25	0.24

DC	RPMX	APMX/l
40	9.0	6.0/39
50	7.0	6.0/50
52	6.5	6.0/53
63	5.0	6.0/70
66	4.5	6.0/76
80	3.0	5.1/100
100	2.0	3.3/100

DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
40	56.0	80.0	6.0	6.0
50	76.0	100.0	6.0	6.0
52	80.0	104.0	6.0	6.0
63	102.0	126.0	6.0	6.0
66	108.0	132.0	6.0	6.0
80	136.0	160.0	6.0	6.0
100	176.0	200.0	6.0	6.0

a_p
3.5

DC	µm	3	5	10	15	20	30	40	50	60	80	100
40	FE	0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
52		0.790	1.020	1.442	1.766	2.040	2.498	2.884	3.225	3.533	4.079	4.561
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
66		0.890	1.149	1.625	1.990	2.298	2.814	3.250	3.633	3.980	4.596	5.138
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657
100		1.095	1.414	2.000	2.449	2.828	3.464	4.000	4.472	4.899	5.657	6.325
RE	µm	3	5	10	15	20	30	40	50	60	80	100
6.0	FE	0.379	0.490	0.693	0.849	0.980	1.200	1.386	1.549	1.697	1.960	2.191



SRC16

P M K S H

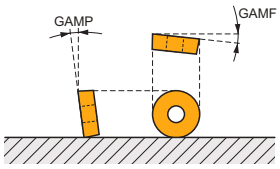
PRAMET

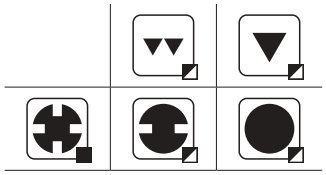
S

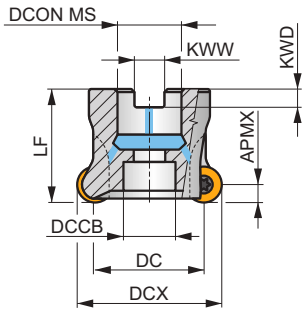
RCMT 16 Uçlar için Kopya Frezeleme Takımı, İçten Su Vermeli

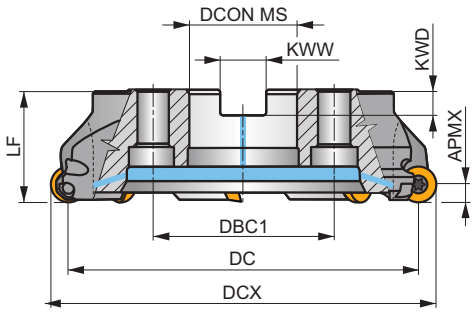
RCMT 16 uçlar için APMX 8mm içten su vermeli kopya frezeleme takımları. Yüzey, helisel enterpolasyon, rampalama, dalma ve yüksek hızlı frezeleme için uygundur. Gövde uzun takım ömrü için işlem görmüştür.

APMX	8.0 mm









h_m 0.1 - 0.25

	Product	DCX (mm)	DC (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	LF (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
ISO 6462 DIN 8030	**63A04R-SMORC16-C**	63	47	22	18	–	50	10.4	6.3	-2.6	-7	4	–	9700	✓	0.60	GI280	C0033	–
	66A05R-SMORC16-C	66	50	27	22	–	50	12.4	7	-2.5	-7	5	–	9200	✓	0.59	GI280	C0030	–
	80A05R-SMORC16-C	80	64	27	37	–	50	12.4	7	-1.7	-7	5	–	8600	✓	0.87	GI280	C0030	–
	100A06R-SMORC16-C	100	84	32	45	–	50	14.4	8	-1.7	-7	6	–	7700	✓	1.27	GI280	C0031	AC002
	125A07R-SMORC16-C	125	109	40	36	–	63	16.4	9	-1.2	-7	7	–	6500	✓	3.03	GI280	C0032	–
	160C08R-SMORC16-C	160	144	40	–	66.7	63	16.4	9	-0.9	-7	8	–	5400	✓	5.63	GI280	C0034	–

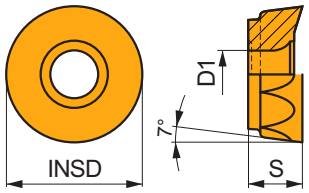
GI280	RCMT 1606M0..

		Nm							
C0030	US 65014-T20P	5.0	M 5	14	SDR T20P-T	HS 1230C	–	–	–
C0031	US 65014-T20P	5.0	M 5	14	SDR T20P-T	–	–	–	–
C0032	US 65014-T20P	5.0	M 5	14	SDR T20P-T	HSD 2040	–	–	–
C0033	US 65014-T20P	5.0	M 5	14	SDR T20P-T	HS 1030C	–	–	–
C0034	US 65014-T20P	5.0	M 5	14	SDR T20P-T	HS 1240C	CAC 160C	HSD 0825C	HXK 5

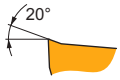
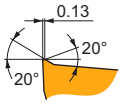
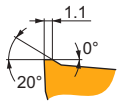
AC002	KS 1635	K.FMH32

RCMT 16

	INSD	D1	S
	(mm)	(mm)	(mm)
1606	16.000	5.50	6.35

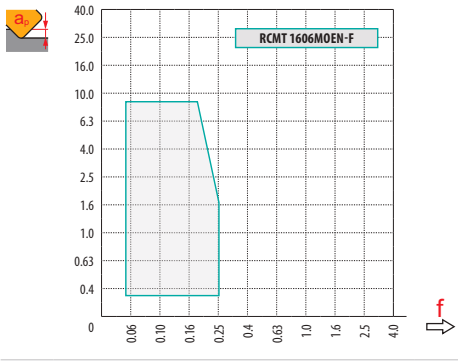


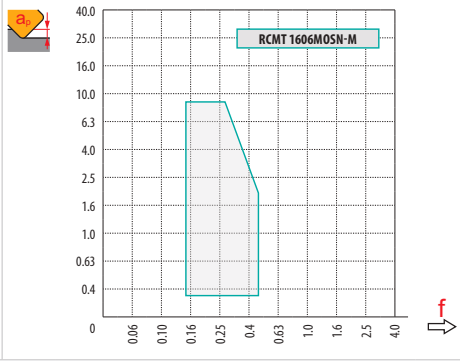
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

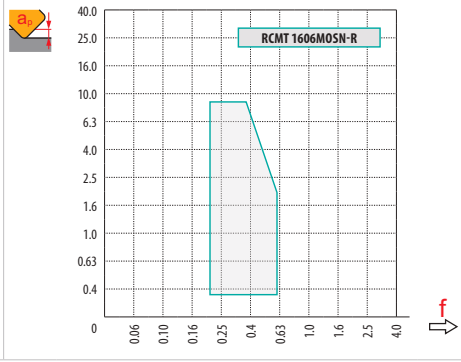
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
F geometri, hafif işleme için çok pozitif tasarım.																				
RCMT 1606M0EN-F:M8310	●	–	410	0.10	2.0	205	0.09	2.0	–	–	–	–	–	–	–	–	–	–	–	–
RCMT 1606M0EN-F:M8330	●	–	370	0.10	2.0	220	0.09	2.0	–	–	–	–	–	–	90	0.07	1.6	–	–	–
																				
M geometri, orta işleme için çok pozitif tasarım.																				
RCMT 1606M0SN-M:M6330	✱	–	255	0.20	2.0	180	0.18	2.0	–	–	–	–	–	–	75	0.16	1.6	–	–	–
RCMT 1606M0SN-M:M8330	✱	–	300	0.20	2.0	180	0.18	2.0	285	0.20	2.0	–	–	–	75	0.16	1.6	–	–	–
RCMT 1606M0SN-M:M8345	✱	–	215	0.20	2.0	125	0.18	2.0	–	–	–	–	–	–	50	0.16	1.6	–	–	–
RCMT 1606M0SN-M:M9325	✱	–	370	0.20	2.0	–	–	–	350	0.20	2.0	–	–	–	–	–	–	–	–	–
RCMT 1606M0SN-M:M9340	✱	–	335	0.20	2.0	200	0.18	2.0	–	–	–	–	–	–	80	0.16	1.6	–	–	–
																				
R geometri, kaba kopya frezeleme için pozitif tasarım.																				
RCMT 1606M0SN-R:M8310	✱	–	250	0.40	2.0	–	–	–	235	0.40	2.0	–	–	–	–	–	–	50	0.20	1.1
RCMT 1606M0SN-R:M8330	✱	–	240	0.40	2.0	–	–	–	225	0.40	2.0	–	–	–	60	0.28	1.6	45	0.20	1.1
RCMT 1606M0SN-R:M8345	✱	–	175	0.40	2.0	–	–	–	–	–	–	–	–	–	40	0.28	1.6	–	–	–

a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	RCMT 16-F	RCMT 16-M	RCMT 16-R
RE	8.0	8.0	8.0
BS	–	–	–







DCX	a_p	0.00	0.30	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00	7.00	8.00
63		47.0	51.3	52.6	53.8	54.7	55.6	56.3	57.6	58.6	59.5	60.9	61.8	62.5	62.9	63.0
66		50.0	54.3	55.6	56.8	57.8	58.6	59.3	60.6	61.6	62.5	63.9	64.8	65.5	65.9	66.0
80	DEF	64.0	68.3	69.6	70.8	71.7	72.6	73.3	74.6	75.6	76.5	77.9	78.8	79.5	79.9	80.0
100		84.0	88.3	89.6	90.8	91.7	92.6	93.3	94.6	95.6	96.5	97.9	98.8	99.5	99.9	100.0
125		109.0	113.3	114.6	115.8	116.7	117.6	118.3	119.6	120.6	121.5	122.9	123.8	124.5	124.9	125.0
160		144.0	148.3	149.6	150.8	151.7	152.6	153.3	154.6	155.6	156.5	157.9	158.8	159.5	159.9	160.0
	a_p	–	0.30	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00	7.00	8.00
	f	–	1.10	0.85	0.70	0.61	0.54	0.50	0.43	0.39	0.36	0.31	0.28	0.26	0.25	0.24

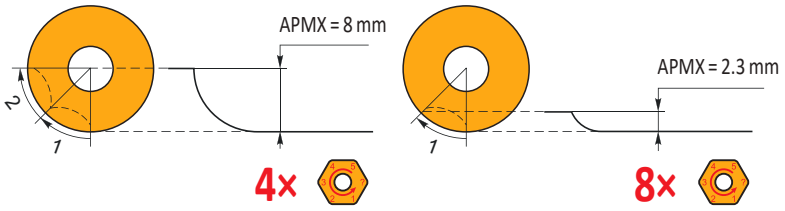
DC	RPMX	APMX/I
63	7.0	8.0/67
66	6.5	8.0/71
80	5.0	8.0/93
100	4.0	6.8/100

DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
63	94.0	126.0	8.0	8.0
66	100.0	132.0	8.0	8.0
80	128.0	160.0	8.0	8.0
100	168.0	200.0	8.0	8.0

a_p
5.0

DC	µm	3	5	10	15	20	30	40	50	60	80	100
63	FE	0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
66		0.890	1.149	1.625	1.990	2.298	2.814	3.250	3.633	3.980	4.596	5.138
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657
100		1.095	1.414	2.000	2.449	2.828	3.464	4.000	4.472	4.899	5.657	6.325
125		1.225	1.581	2.236	2.739	3.162	3.873	4.472	5.000	5.477	6.325	7.071
160		1.386	1.789	2.530	3.098	3.578	4.382	5.060	5.657	6.197	7.155	8.000

RE	µm	3	5	10	15	20	30	40	50	60	80	100
8.0	FE	0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530



SRC20

P M K S H

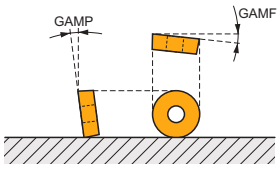
PRAMET

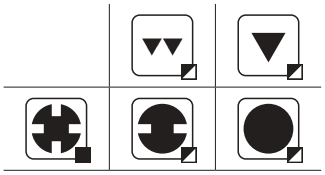
S

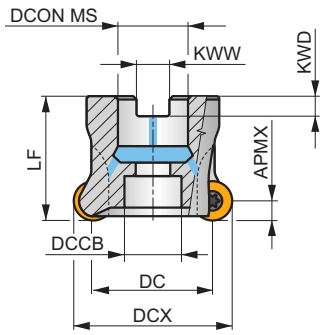
RCMT 20 Uçlar için Kopya Frezeleme Takımı, İçten Su Vermeli

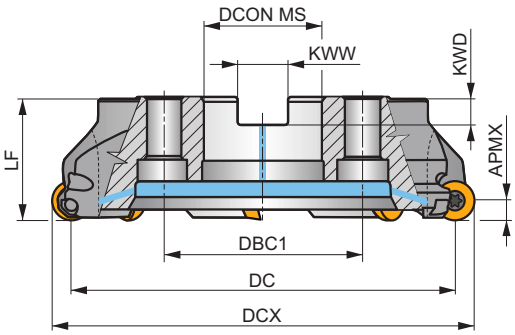
RCMT 20 uçlar için APMX 10mm içten su vermeli kopya frezeleme takımları. Yüzey, helisel enterpolasyon, rampalama, dalma ve yüksek hızlı frezeleme için uygundur. Gövdeden bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

APMX	10.0 mm









h_m 0.11 - 0.32

	Product	DCX (mm)	DC (mm)	DCON MS (mm)	DCCB (mm)	DBC1 (mm)	LF (mm)	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
ISO 6462 DIN 8030	**80A04R-SMORC20-C**	80	60	27	28	–	50	12.4	7	-2.7	-7	4	–	8500	✓	0.91	GI281	C0040	–
	100A05R-SMORC20-C	100	80	32	45	–	50	14.4	8	-1.7	-7	5	–	7600	✓	1.20	GI281	C0041	AC002
	125A06R-SMORC20-C	125	105	40	36	–	63	16.4	9	-1	-7	6	–	6500	✓	2.92	GI281	C0042	–
	160C07R-SMORC20-C	160	140	40	–	66.7	63	16.4	9	-0.9	-7	7	–	5400	✓	5.37	GI281	C0046	–

GI281	RCMT 2006M0..

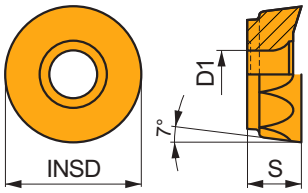
		Nm							
C0040	US 66015-T25P	7.5	M 6	15	SDR T25P-T	HS 1230C	–	–	–
C0041	US 66015-T25P	7.5	M 6	15	SDR T25P-T	–	–	–	–
C0042	US 66015-T25P	7.5	M 6	15	SDR T25P-T	HSD 2040	–	–	–
C0046	US 66015-T25P	7.5	M 6	15	SDR T25P-T	HS 1240C	CAC 160C	HSD 0825C	HXK 5

AC002	KS 1635	K.FMH32

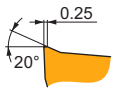
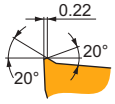
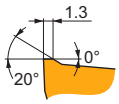
RCMT 20

PRAMET

	INSD	D1	S
	(mm)	(mm)	(mm)
2006	20.000	6.50	6.35

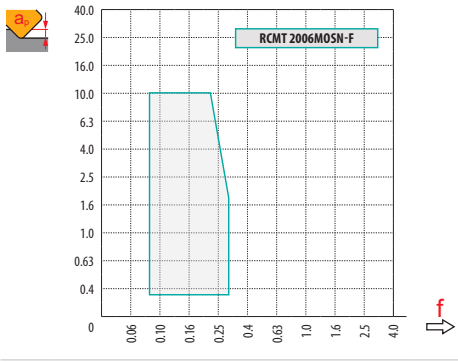


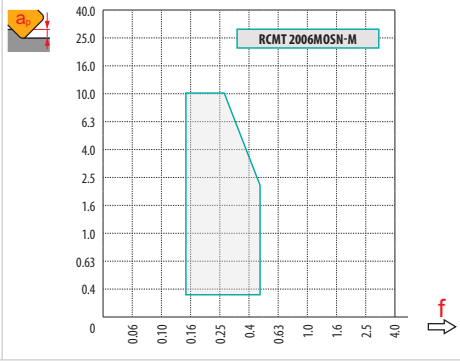
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

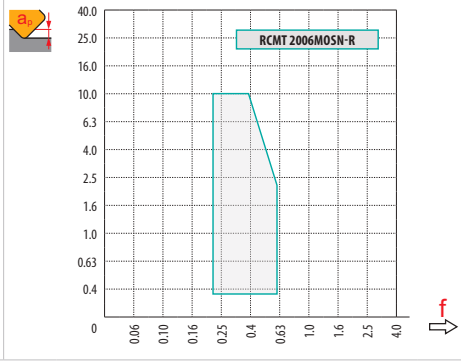
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
						**F** geometri, hafif işleme için çok pozitif tasarım.														
RCMT 2006M0SN-F:M8330		–	■	320	0.15	3.0	◪	190	0.14	3.0		–	–	–	–	–	–	◪	80	0.11	2.4	–	–	–
						**M** geometri, orta işleme için çok pozitif tasarım.														
RCMT 2006M0SN-M:M6330		–	■	225	0.30	3.0	◪	155	0.27	3.0		–	–	–	–	–	–	■	65	0.21	2.4	–	–	–
RCMT 2006M0SN-M:M8330		–	■	255	0.30	3.0	◪	150	0.27	3.0	■	240	0.30	3.0	–	–	–	◪	60	0.21	2.4	–	–	–
RCMT 2006M0SN-M:M8345		–	■	190	0.30	3.0	◪	110	0.27	3.0		–	–	–	–	–	–	■	45	0.21	2.4	–	–	–
RCMT 2006M0SN-M:M9315		–	■	330	0.30	3.0		–	–	–	■	310	0.30	3.0	–	–	–		–	–	–	–	–	–
RCMT 2006M0SN-M:M9325		–	■	315	0.30	3.0		–	–	–	■	295	0.30	3.0	–	–	–		–	–	–	–	–	–
RCMT 2006M0SN-M:M9340		–	■	275	0.30	3.0	◪	165	0.27	3.0		–	–	–	–	–	–	■	65	0.21	2.4	–	–	–
						**R** geometri, kaba kopya frezeleme için pozitif tasarım.														
RCMT 2006M0SN-R:M8330		–	■	225	0.45	3.0		–	–	–	■	210	0.45	3.0	–	–	–	◪	55	0.32	2.4	◪	45	0.23	1.3
RCMT 2006M0SN-R:M8345		–	■	165	0.45	3.0		–	–	–		–	–	–	–	–	–	◪	40	0.32	2.4	–	–	–	–
RCMT 2006M0SN-R:M9325		–	■	260	0.45	3.0		–	–	–	■	245	0.45	3.0	–	–	–		–	–	–	◪	50	0.23	1.3

a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	RCMT 20-F	RCMT 20-M	RCMT 20-R
RE	10.0	10.0	10.0
BS	–	–	–







DCX	a_p	0.00	0.30	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
80	DEF	60.0	64.9	66.2	67.6	68.7	69.7	70.5	72.0	73.2	74.3	76.0	77.3	78.3	79.1	79.6	79.9	80.0
100		80.0	84.9	86.2	87.6	88.7	89.7	90.5	92.0	93.2	94.3	96.0	97.3	98.3	99.1	99.6	99.9	100.0
125		105.0	109.9	111.2	112.6	113.7	114.7	115.5	117.0	118.2	119.3	121.0	122.3	123.3	124.1	124.6	124.9	125.0
160		140.0	144.9	146.2	147.6	148.7	149.7	150.5	152.0	153.2	154.3	156.0	157.3	158.3	159.1	159.6	159.9	160.0
	a_p	–	0.30	0.50	0.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
	f	–	1.23	0.95	0.78	0.68	0.61	0.55	0.48	0.43	0.40	0.35	0.31	0.29	0.27	0.26	0.25	0.24

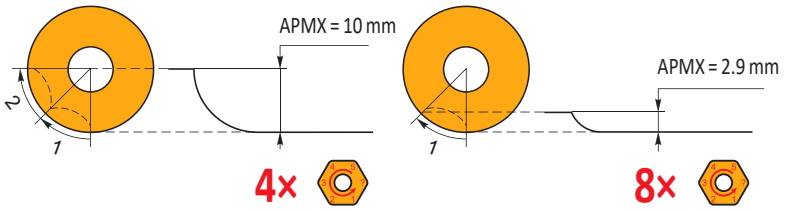
DCX	RPMX	APMX/I
80	7.0	10.0/83
100	5.0	8.6/100

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
80	120.0	160.0	10.0	10.0
100	160.0	200.0	10.0	10.0

a_p
6.0

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
80	FE	0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657
100		1.095	1.414	2.000	2.449	2.828	3.464	4.000	4.472	4.899	5.657	6.325
125		1.225	1.581	2.236	2.739	3.162	3.873	4.472	5.000	5.477	6.325	7.071
160		1.386	1.789	2.530	3.098	3.578	4.382	5.060	5.657	6.197	7.155	8.000

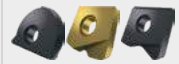
RE	µm	3	5	10	15	20	30	40	50	60	80	100
10.0	FE	0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828



PROFIL FREZELEME

DEĞİŞTİRİLEBİLİR UÇLU FREZELER – REHBER

YÜZEY FREZELEME

	L2-SZP	K2-SRC	K2-SLC	K2-PPH	K3-CXP
	–	–	90°	–	–
	APMX (mm) 8.9 – 44.7 DCX (mm) 10 – 50	APMX (mm) 0.6 – 3.2 DCX (mm) 8 – 32	APMX (mm) 1.0 – 3.0 DCX (mm) 12 – 20	APMX (mm) 0.3 – 4.0 DCX (mm) 8 – 32	APMX (mm) 8.0 – 16.0 DCX (mm) 16 – 32
Silindirik şaft	 DCX = 10 – 32 (mm)	 DCX = 8 – 32 (mm)		 DCX = 8 – 32 (mm)	 DCX = 16 – 32 (mm)
Weldon	 DCX = 12 – 50 (mm)				 DCX = 16 – 25 (mm)
Modüler	 DCX = 10 – 32 (mm)	 DCX = 8 – 20 (mm)		 DCX = 16, 20 (mm)	 DCX = 16 – 25 (mm)
Morse	 DCX = 12 – 32 (mm)				
Sayfa	206	211	218	222	234
ISO	P M K S H	P M K H	P M K H	P M K S H	P M K S H
Kesici uç şekli					
Kesici uçlar	ZP	RC LC	LC	PPH PPHF PPHT	XP
Kesme kenarlarının sayısı	2	2	2	2	1
Konturlu yüzeyler (kopya frezeleme) 	■	■	■	■	■
Helisel interpolasyon 			◪	◪	
Aşamalı dalma 			◪	◪	
Açılı frezeleme 			◪	◪	
Havşa frezeleme 			◪	◪	

■ İlk seçim. ◪ Olası seçim.

L2-SZP

P M K S H

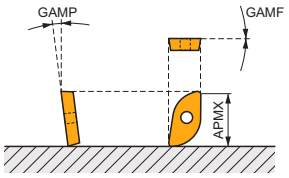
PRAMET

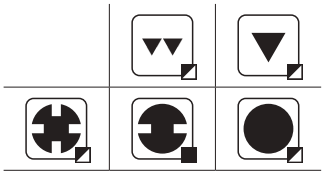
S

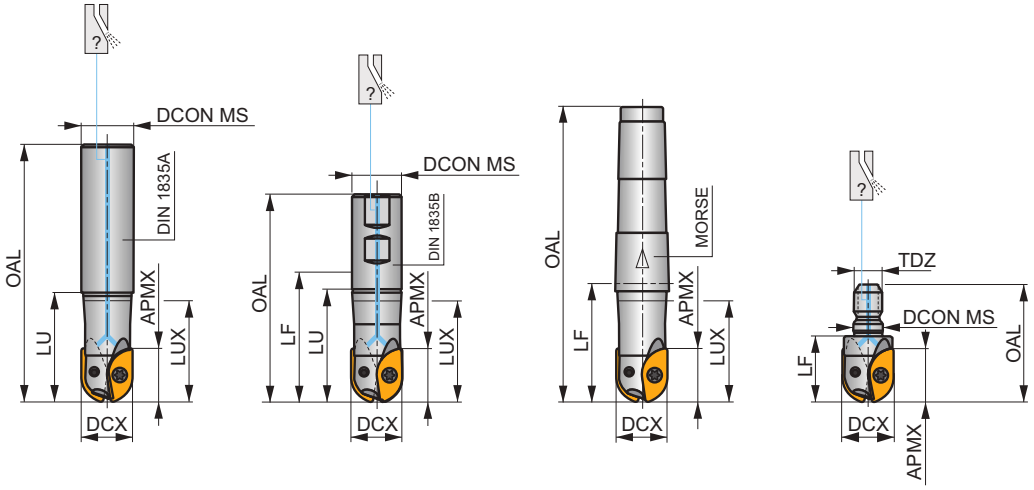
ZP.. Uçlar için Küre Profil Frezeleme Takımı

ZP.. uçlar için APMX 8.9-44.7mm küre ağızlı freze takımı.Profil işleme için uygundur. Silindirik veldon, mors ve modüler olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

APMX	8.9 - 44.7 mm







h_m	0.05 - 0.19

	Product	DCX (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	LUX (mm)	LF (mm)	TDZ	CZC MS	APMX (mm)	GAMF (°)	GAMP (°)			max.		kg		
	10L2R030A10-SZP10	10	130	10	30	30	–	–	–	8.90	0	-10	2	–	35800	–	0.11	GI255	C0510
	10L2R050A16-SZP10	10	160	16	50	22.3	–	–	–	8.90	0	-10	2	–	35800	–	0.24	GI255	C0510
	12L2R035A12-SZP12	12	140	12	35	35	–	–	–	10.70	0	-10	2	–	21000	–	0.15	GI253	C0510
	12L2R045A20-SZP12	12	200	20	–	22	–	–	–	10.70	0	-10	2	–	21000	–	0.48	GI253	C0511
	16L2R040A16-SZP16-C	16	160	16	40	40	–	–	–	14.40	0	-10	2	–	20000	✓	0.24	GI256	C0510
DIN 1835A	**16L2R045A20-SZP16-C**	16	200	20	–	29.4	–	–	–	14.40	0	-10	2	–	20000	✓	0.43	GI256	C0512
	20L2R050A20-SZP20-C	20	250	20	50	–	–	–	–	17.90	0	-10	2	–	24000	✓	0.54	GI254	C0513
	20L2R055A25-SZP20-C	20	200	25	–	36.1	–	–	–	17.90	0	-10	2	–	24000	✓	0.68	GI254	C0513
	25L2R060A25-SZP25-C	25	250	25	60	–	–	–	–	22.30	0	-10	2	–	24000	✓	0.85	GI257	C0514
	25L2R065A32-SZP25-C	25	250	32	–	43	–	–	–	22.30	0	-10	2	–	24000	✓	1.34	GI257	C0514
	32L2R070A32-SZP32-C	32	250	32	–	–	–	–	–	28.60	0	-10	2	–	18500	✓	1.43	GI258	C0515
	12L2R040B20-SZP12	12	91	20	40	21.5	66.5	–	–	10.70	0	-10	2	–	21000	–	0.19	GI253	C0511
	12L2R060B20-SZP12	12	111	20	60	23.8	86.5	–	–	10.70	0	-10	2	–	21000	–	0.22	GI253	C0511
	16L2R040B20-SZP16-C	16	91	20	40	28.3	66.5	–	–	14.40	0	-10	2	–	20000	✓	0.15	GI256	C0512
	16L2R060B20-SZP16-C	16	111	20	60	32.9	86.5	–	–	14.40	0	-10	2	–	20000	✓	0.21	GI256	C0512
	20L2R050B25-SZP20-C	20	107	25	50	35.1	75.5	–	–	17.90	0	-10	2	–	24000	✓	0.30	GI254	C0513
	20L2R070B25-SZP20-C	20	127	25	70	39.5	95.5	–	–	17.90	0	-10	2	–	24000	✓	0.36	GI254	C0513
DIN 1835B	**25L2R060B25-SZP25-C**	25	117	25	60	–	85.5	–	–	22.30	0	-10	2	–	24000	✓	0.36	GI257	C0514
	25L2R080B25-SZP25-C	25	137	25	80	–	105	–	–	22.30	0	-10	2	–	24000	✓	0.42	GI257	C0514
	32L2R070B32-SZP32-C	32	131	32	70	–	95.5	–	–	28.60	0	-10	2	–	18500	✓	0.72	GI258	C0515
	32L2R100B32-SZP32-C	32	161	32	100	–	125.5	–	–	28.60	0	-10	2	–	18500	✓	0.81	GI258	C0515
	40L2R070B32-SZP40-C	40	131	32	70	–	95.5	–	–	35.70	0	-10	2	–	8000	✓	0.81	GI259	C0516
	40L2R100B40-SZP40-C	40	171	40	100	–	131	–	–	35.70	0	-10	2	–	8000	✓	1.40	GI259	C0516
	50L2R100B50-SZP50-C	50	181	50	100	–	136.5	–	–	44.70	0	-10	2	–	7000	✓	2.25	GI260	C0517
	12L2R060E02-SZP12	12	124	–	–	25.8	60	–	2	10.70	0	-10	2	–	21000	–	0.17	GI253	C0511
DIN 228A	**12L2R090E02-SZP12**	12	154	–	–	25.8	90	–	2	10.70	0	-10	2	–	21000	–	0.23	GI253	C0511
	16L2R060E02-SZP16	16	124	–	–	42.2	60	–	2	14.40	0	-10	2	–	20000	–	0.19	GI256	C0512

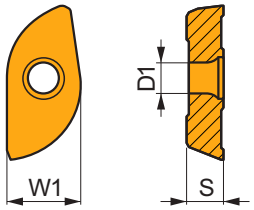
	Product	DCX (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	LUX (mm)	LF (mm)	TDZ	CZC MS	APMX (mm)	GAMF (°)	GAMP (°)			max.		kg		
DIN 228A	**16L2R090E02-SZP16**	16	154	–	–	75.9	90	–	2	14.40	0	-10	2	–	20000	–	0.23	GI256	C0512
	20L2R070E03-SZP20	20	151	–	–	–	70	–	3	17.90	0	-10	2	–	24000	–	0.37	GI254	C0513
	20L2R100E03-SZP20	20	181	–	–	77.4	100	–	3	17.90	0	-10	2	–	24000	–	0.42	GI254	C0513
	25L2R080E03-SZP25	25	161	–	–	–	80	–	3	22.30	0	-10	2	–	24000	–	0.44	GI257	C0514
	25L2R110E04-SZP25	25	213	–	–	92.7	110	–	4	22.30	0	-10	2	–	24000	–	0.83	GI257	C0514
	32L2R100E04-SZP32	32	203	–	–	–	100	–	4	28.60	0	-10	2	–	18500	–	0.90	GI258	C0515
	32L2R150E04-SZP32	32	253	–	–	–	150	–	4	28.60	0	-10	2	–	18500	–	1.10	GI258	C0515
MODULAR	**10L2R025M08-SZP10**	10	–	8.5	–	–	25	M8	–	8.90	0	-10	2	–	–	–	0.03	GI255	C0510
	12L2R025M06-SZP12	12	–	6.5	–	–	25	M6	–	10.70	0	-10	2	–	–	–	0.05	GI253	C0510
	12L2R025M08-SZP12	12	–	8.5	–	–	25	M8	–	10.70	0	-10	2	–	–	–	0.04	GI253	C0511
	16L2R025M08-SZP16	16	–	8.5	–	–	25	M8	–	14.40	0	-10	2	–	–	–	0.05	GI256	C0512
	20L2R030M10-SZP20-C	20	–	10.5	–	–	30	M10	–	17.90	0	-10	2	–	–	✓	0.07	GI254	C0513
	25L2R035M12-SZP25-C	25	–	12.5	–	–	35	M12	–	22.30	0	-10	2	–	–	✓	0.09	GI257	C0514
	32L2R045M16-SZP32-C	32	–	17	–	–	45	M16	–	27.90	0	-10	2	–	–	✓	0.15	GI258	C0515

GI253	ZP 12..
GI254	ZP 20..
GI255	ZP 10..
GI256	ZP 16..
GI257	ZP 25..
GI258	ZP 32..
GI259	ZP 40..
GI260	ZP 50..

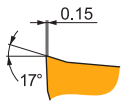
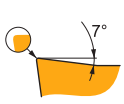
					Nm			
C0510	–	–	Flag T06P	US 62004-T06P	0.6	M 2	4	–
C0511	–	–	Flag T08P	US 62506-T08P	1.2	M 2.5	6	–
C0512	–	–	Flag T08P	US 62508-T08P	1.2	M 2.5	7	–
C0513	–	–	Flag T10P	US 63510-T10P	2.0	M 3.5	9	–
C0514	–	–	Flag T15P	US 4011A-T15P	3.5	M 4	11	–
C0515	–	–	–	US 65013-T20	5.0	M 5	13	SDR T20
C0516	–	–	–	US 66015-T25P	7.5	M 6	15	SDR T25P
C0517	SZN 400322	US 3508-T15P	Flag T15P	US 68020-T30P	15.0	M 8	20	SDR T30P

ZP

	W1 (mm)	D1 (mm)	S (mm)
10	10.000	2.20	1.70
12	12.000	2.90	2.38
16	16.000	2.90	3.18
20	20.000	4.00	3.97
25	25.000	4.70	4.76
32	32.000	5.90	6.35
40	40.000	7.00	7.94
50	50.000	9.60	7.94



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

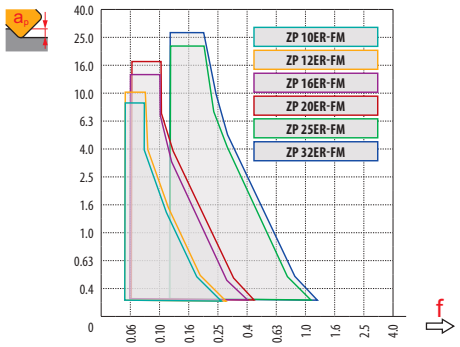
Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
			**FM** geometri, hafif ve orta işleme için keskin nötr tasarım.																	
ZP 10ER-FM:M8310	●	–	■ 305	0.36	0.5	–	–	–	■ 285	0.36	0.5	–	–	–	–	–	–	■ 60	0.25	0.5
ZP 10ER-FM:M8345	⬌	–	■ 210	0.36	0.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZP 12ER-FM:M8310	●	–	■ 300	0.36	0.6	–	–	–	■ 285	0.36	0.6	–	–	–	–	–	–	■ 60	0.25	0.6
ZP 12ER-FM:M8345	⬌	–	■ 205	0.36	0.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZP 16ER-FM:M8310	●	–	■ 290	0.36	0.8	–	–	–	■ 275	0.36	0.8	–	–	–	–	–	–	■ 55	0.25	0.8
ZP 20ER-FM:M8310	●	–	■ 285	0.36	1.0	–	–	–	■ 270	0.36	1.0	–	–	–	–	–	–	■ 55	0.25	1.0
ZP 25ER-FM:M8310	●	–	■ 275	0.36	1.3	–	–	–	■ 260	0.36	1.3	–	–	–	–	–	–	■ 55	0.25	1.3
ZP 32ER-FM:M8310	●	–	■ 270	0.36	1.6	–	–	–	■ 255	0.36	1.6	–	–	–	–	–	–	■ 50	0.25	1.6
			**M** geometri, orta işleme için çok pozitif tasarım.																	
ZP 12ER-M:M8330	⬌	–	■ 280	0.36	0.6	■ 165	0.32	0.6	◪ 265	0.36	0.6	–	–	–	◪ 70	0.25	0.5	–	–	–
ZP 12ER-M:M8345	⬌	–	■ 205	0.36	0.6	■ 120	0.32	0.6	–	–	–	–	–	–	◪ 50	0.25	0.5	–	–	–
ZP 16ER-M:M8330	⬌	–	■ 270	0.36	0.8	■ 160	0.32	0.8	◪ 255	0.36	0.8	–	–	–	◪ 65	0.25	0.6	–	–	–
ZP 16ER-M:M8340	⬌	–	■ 250	0.36	0.8	■ 150	0.32	0.8	◪ 235	0.36	0.8	–	–	–	◪ 60	0.25	0.6	–	–	–
ZP 16ER-M:M8345	⬌	–	■ 200	0.36	0.8	■ 120	0.32	0.8	–	–	–	–	–	–	◪ 50	0.25	0.6	–	–	–
ZP 20ER-M:M8330	⬌	–	■ 265	0.36	1.0	■ 155	0.32	1.0	◪ 250	0.36	1.0	–	–	–	◪ 65	0.25	0.8	–	–	–
ZP 20ER-M:M8345	⬌	–	■ 195	0.36	1.0	■ 115	0.32	1.0	–	–	–	–	–	–	◪ 45	0.25	0.8	–	–	–
ZP 25ER-M:M8330	⬌	–	■ 260	0.36	1.3	■ 155	0.32	1.3	◪ 245	0.36	1.3	–	–	–	◪ 65	0.25	1.0	–	–	–
ZP 25ER-M:M8345	⬌	–	■ 190	0.36	1.3	■ 110	0.32	1.3	–	–	–	–	–	–	◪ 45	0.25	1.0	–	–	–
ZP 32ER-M:M8330	⬌	–	■ 255	0.36	1.6	■ 150	0.32	1.6	◪ 240	0.36	1.6	–	–	–	◪ 60	0.25	1.3	–	–	–
			**R** geometri, hafif ve orta keskin pozitif geometri.																	
ZP 16ER-R:M8345	⬌	–	■ 190	0.45	0.8	■ 110	0.41	0.8	–	–	–	–	–	–	◪ 45	0.32	0.8	–	–	–
ZP 20ER-R:M8345	⬌	–	■ 185	0.45	1.0	■ 110	0.41	1.0	–	–	–	–	–	–	◪ 45	0.32	1.0	–	–	–
ZP 25ER-R:M8345	⬌	–	■ 180	0.45	1.3	■ 105	0.41	1.3	–	–	–	–	–	–	◪ 45	0.32	1.3	–	–	–
ZP 32ER-R:M8330	⬌	–	■ 240	0.45	1.6	■ 140	0.41	1.6	◪ 225	0.45	1.6	–	–	–	◪ 60	0.32	1.6	◪ 45	0.32	1.6
ZP 32ER-R:M8345	⬌	–	■ 175	0.45	1.6	■ 105	0.41	1.6	–	–	–	–	–	–	◪ 40	0.32	1.6	–	–	–
ZP 40ER-R:M8345	⬌	–	■ 170	0.45	2.0	■ 100	0.41	2.0	–	–	–	–	–	–	◪ 40	0.32	2.0	–	–	–
ZP 50ER-R:M8345	⬌	–	■ 165	0.45	2.5	■ 95	0.41	2.5	–	–	–	–	–	–	◪ 40	0.32	2.5	–	–	–

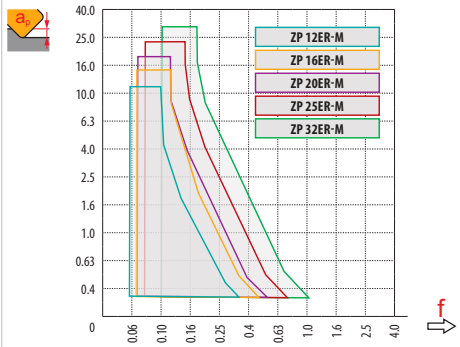
a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

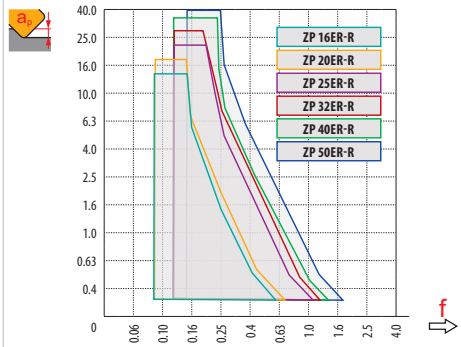
	ZP 10-FM	ZP 12-FM	ZP 16-FM	ZP 20-FM	ZP 25-FM	ZP 32-FM
RE	5.0	6.0	8.0	10.0	12.5	16.0
BS	–	–	–	–	–	–

	ZP 12-M	ZP 16-M	ZP 20-M	ZP 25-M	ZP 32-M
RE	6.0	8.0	10.0	12.5	16.0
BS	–	–	–	–	–

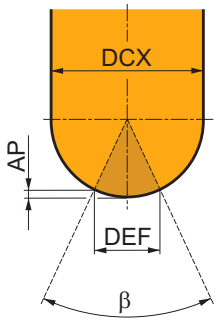
	ZP 16-R	ZP 20-R	ZP 25-R	ZP 32-R	ZP 40-R	ZP 50-R
RE	8.0	10.0	12.5	16.0	20.0	25.0
BS	–	–	–	–	–	–







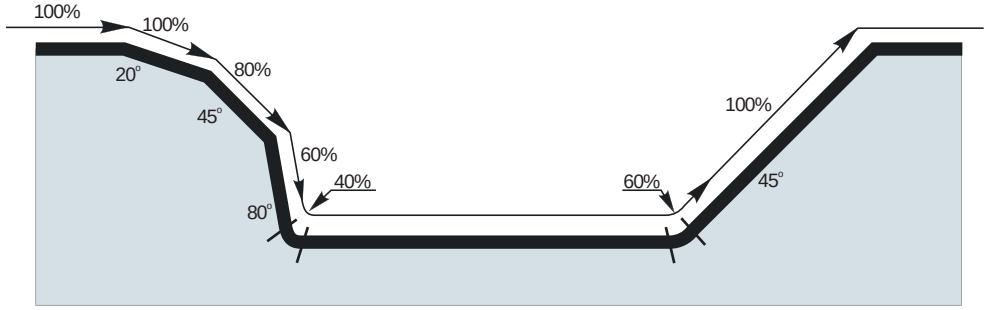
DCX	a_p	0.30	0.40	0.50	0.70	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00	6.00	8.00	10.00	12.00	15.00	16.00	20.00	22.50	25.00
10		3.4	3.9	4.4	5.1	6.0	6.6	7.1	8.0	8.7	9.2	9.8	10.0	–	–	–	–	–	–	–	–	–
12		3.7	4.3	4.8	5.6	6.6	7.3	7.9	8.9	9.7	10.4	11.3	11.8	12.0	–	–	–	–	–	–	–	–
16		4.3	5.0	5.6	6.5	7.7	8.6	9.3	10.6	11.6	12.5	13.9	14.8	15.5	16.0	–	–	–	–	–	–	–
20	DEF	4.9	5.6	6.2	7.4	8.7	9.7	10.5	12.0	13.2	14.3	16.0	17.3	18.3	19.6	20.0	–	–	–	–	–	–
25		5.4	6.3	7.0	8.2	9.8	10.9	11.9	13.6	15.0	16.2	18.3	20.0	21.4	23.3	24.5	25.0	–	–	–	–	–
32		6.2	7.1	7.9	9.4	11.1	12.4	13.5	15.5	17.2	18.7	21.2	23.2	25.0	27.7	29.7	31.2	31.9	32.0	–	–	–
40		6.9	8.0	8.9	10.5	12.5	13.9	15.2	17.4	19.4	21.1	24.0	26.5	28.6	32.0	34.6	37.1	38.7	39.2	40.0	–	–
50		7.7	8.9	9.9	11.7	14.0	15.6	17.1	19.6	21.8	23.7	27.1	30.0	32.5	36.7	40.0	43.3	45.8	46.6	49.0	49.7	50.0



DCX		β	DEF	AP
10	FM	41°	3.496	0.322
12	FM	41°	4.194	0.381
16	FM	42°	5.660	0.520
20	FM	42°	7.100	0.650
25	FM	41°	8.756	0.794
35	FM	41°	11.113	0.998
40	R	41°	14.108	1.298
50	R	45°	19.176	1.915

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
10		0.346	0.447	0.632	0.775	0.894	1.095	1.265	1.414	1.549	1.789	2.000
12		0.379	0.490	0.693	0.849	0.980	1.200	1.386	1.549	1.697	1.960	2.191
16	FE	0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530
20		0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
25	FE	0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472

DEF	a_e	1 %	2.5 %	5 %	7.5 %	10 %	15 %	20 %	25 %	30 %	35 %	40 %	45 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
	a_p										⇨ x.f									
19.9 %	1.0 %	2.86	1.84	1.33	1.12	1.00	0.89	–	–	–	–	–	–	–	–	–	–	–	–	–
31.2 %	2.5 %	3.58	2.28	1.64	1.36	1.20	1.01	0.92	0.88	0.91	–	–	–	–	–	–	–	–	–	–
43.6 %	5.0 %	4.22	2.68	1.92	1.58	1.39	1.16	1.03	0.95	0.90	0.88	0.89	–	–	–	–	–	–	–	–
52.7 %	7.5 %	4.63	2.95	2.10	1.73	1.51	1.26	1.11	1.02	0.96	0.91	0.89	0.88	0.90	–	–	–	–	–	–
60.0 %	10.0 %	4.94	3.14	2.24	1.84	1.61	1.33	1.18	1.07	1.00	0.95	0.91	0.89	0.88	1.00	–	–	–	–	–
71.4 %	15.0 %	5.39	3.42	2.43	2.00	1.74	1.44	1.27	1.15	1.07	1.01	0.96	0.93	0.90	0.88	0.93	–	–	–	–
80.0 %	20.0 %	5.70	3.62	2.57	2.11	1.84	1.52	1.33	1.21	1.12	1.05	1.00	0.96	0.93	0.89	0.88	0.89	1.00	–	–
86.6 %	25.0 %	5.93	3.76	2.67	2.20	1.91	1.58	1.38	1.25	1.16	1.08	1.03	0.99	0.95	0.90	0.88	0.88	0.89	–	–
91.7 %	30.0 %	6.10	3.87	2.75	2.26	1.96	1.62	1.42	1.28	1.18	1.11	1.05	1.01	0.97	0.92	0.89	0.88	0.88	0.93	–
95.4 %	35.0 %	6.23	3.95	2.80	2.30	2.00	1.65	1.44	1.31	1.20	1.13	1.07	1.02	0.98	0.93	0.89	0.88	0.88	0.90	–
98.0 %	40.0 %	6.31	4.00	2.84	2.33	2.03	1.67	1.46	1.32	1.22	1.14	1.08	1.03	0.99	0.93	0.90	0.89	0.88	0.89	–
99.5%	45.0 %	6.36	4.03	2.86	2.35	2.04	1.68	1.47	1.33	1.23	1.15	1.09	1.04	1.00	0.94	0.90	0.89	0.88	0.88	–
100.0 %	50.0 %	6.38	4.04	2.87	2.35	2.05	1.69	1.48	1.33	1.23	1.15	1.09	1.04	1.00	0.94	0.90	0.89	0.88	0.88	1.00



Takım boyu (*DCX* çapın çarpımı)	< 3.0	3.0 – 3.5	3.6 – 4.0	4.1 – 4.5	> 4.6
Kesme hızı için çarpan katsayısı	1.0	0.9	0.8	0.7	0.5

K2-SRC

P M K H

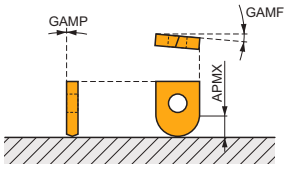
PRAMET

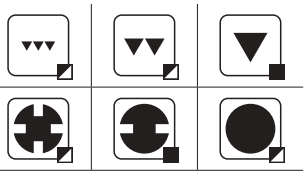
S

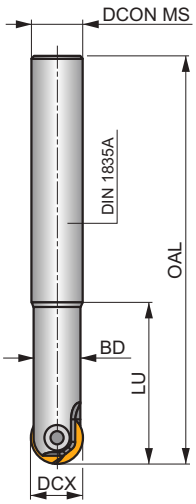
Kopya ve Profil İşleme için Parmak Frezeler

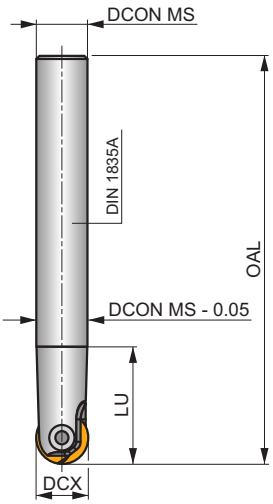
Çok çeşitli Kalıp ve Kalıp uygulamaları için esnek parmak freze. Küresel ve toroidal kesici uçlar için tek takım çözümü. Silindirik ve modüler tarzda mevcuttur. Gövde uzun takım ömrü için işlem görmüştür.

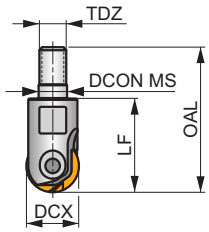
APMX	0.6 - 3.2 mm











h_m	0.07 - 0.14

	Product	DCX (mm)	OAL (mm)	DCON MS (mm)	BD (mm)	LU (mm)	LF (mm)	TDZ			max.		kg		
	08K2R025A10-SRC08-A	8	110	10	7.5	25	–	–	2	–	56000	–	0.08	GI030	C0530
	08K2R050A12-SRC08-A	8	140	12	–	13.5	–	–	2	–	56000	–	0.14	GI030	C0530
	10K2R030A12-SRC10-A	10	130	12	9	30	–	–	2	–	42000	–	0.16	GI031	C0531
	10K2R060A16-SRC10-A	10	150	16	–	19.5	–	–	2	–	42000	–	0.18	GI031	C0531
	12K2R030A12-SRC12-A	12	130	12	10.5	30	–	–	2	–	35000	–	0.11	GI032	C0532
DIN 1835A	**12K2R060A16-SRC12-A**	12	160	16	–	24.5	–	–	2	–	35000	–	0.14	GI032	C0532
DIN 1835A	**16K2R035A16-SRC16-A**	16	140	16	14	35	–	–	2	–	22000	–	0.23	GI033	C0533
DIN 1835A	**16K2R065A20-SRC16-A**	16	175	20	–	31.5	–	–	2	–	22000	–	0.30	GI033	C0533
DIN 1835A	**20K2R045A20-SRC20-A**	20	160	20	18	45	–	–	2	–	16000	–	0.40	GI034	C0534
DIN 1835A	**20K2R080A25-SRC20-A**	20	190	25	–	33.5	–	–	2	–	16000	–	0.66	GI034	C0534
DIN 1835A	**25K2R045A25-SRC25-A**	25	160	25	22.4	45	–	–	2	–	10000	–	0.59	GI035	C0535
DIN 1835A	**32K2R060A32-SRC32-A**	32	180	32	28.6	60	–	–	2	–	6000	–	1.10	GI036	C0536
	08K2R30M06-SRC08-A	8	45	6.5	–	–	30	M6	2	–	–	–	0.02	GI123	C0530
	10K2R30M06-SRC10-A	10	45	6.5	–	–	30	M6	2	–	–	–	0.03	GI124	C0531
MODULAR	**12K2R30M06-SRC12-A**	12	45	6.5	–	–	30	M6	2	–	–	–	0.15	GI125	C0530
MODULAR	**12K2R30M08-SRC12-A**	12	48	8.5	–	–	30	M8	2	–	–	–	0.04	GI125	C0532
MODULAR	**16K2R35M08-SRC16-A**	16	53	8.5	–	–	35	M8	2	–	–	–	0.16	GI033	C0533
MODULAR	**20K2R35M10-SRC20-A**	20	54	10.5	–	–	35	M10	2	–	–	–	0.08	GI034	C0534

GI030	RC 08	–	LC 08-KP	LC 08-KPF
GI031	RC 10	RC 10-F	LC 10-KP	LC 10-KPF
GI032	RC 12	RC 12-F	–	–
GI033	RC 16	RC 16-F	–	–
GI034	RC 20	–	–	–
GI035	RC 25	–	–	–

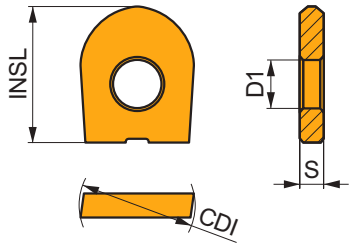
GI036	RC 32	–	–	–
GI123	RC 08	–	–	–
GI124	RC 10	RC 10-F	–	–
GI125	RC 12	RC 12-F	–	–

		Nm						
C0530	CS 3007-T08P	1.2	M 3	7	–	–	–	Flag T08P
C0531	CS 4008-T15P	3.0	M 4	8	–	D-T08P/T15P	FG-15	–
C0532	CS 5009-T20P	5.0	M 5	9	SDR T20P	–	–	–
C0533	CS 5013-T20P	5.0	M 5	13	SDR T20P	–	–	–
C0534	CS 5015-T20P	5.0	M 5	15	SDR T20P	–	–	–
C0535	CS 6020-T20P	7.5	M 6	20	SDR T20P	–	–	–
C0536	CS 8025-T30P	15.0	M 8	25	SDR T30P	–	–	–

RC

PRAMET

	CDI (mm)	D1 (mm)	INSL (mm)	S (mm)
08	8.0	3.00	9.5	2.00
10	10.0	4.00	11.5	2.50
12	12.0	5.00	12.0	2.50
16	16.0	5.00	14.0	3.00
20	20.0	5.00	16.0	3.00
25	25.0	6.00	21.5	4.00
32	32.0	8.00	25.8	5.00



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
		U E																	
N nötr yüzey, pozitif kesme kenarı tasarımı.																			
RC 08:M4310	–	255	0.36	0.4	–	–	–	240	0.36	0.4	–	–	–	–	–	–	50	0.18	0.8
RC 08:M8310	–	295	0.36	0.4	–	–	–	280	0.36	0.4	–	–	–	–	–	–	55	0.18	0.8
RC 10:M4310	–	250	0.36	0.5	–	–	–	235	0.36	0.5	–	–	–	–	–	–	50	0.18	1.0
RC 10:M8310	–	290	0.36	0.5	–	–	–	275	0.36	0.5	–	–	–	–	–	–	55	0.18	1.0
RC 10:M8330	–	270	0.36	0.5	–	–	–	255	0.36	0.5	–	–	–	–	–	–	50	0.18	1.0
RC 12:M4310	–	245	0.36	0.6	–	–	–	230	0.36	0.6	–	–	–	–	–	–	45	0.18	1.2
RC 12:M8310	–	285	0.36	0.6	–	–	–	270	0.36	0.6	–	–	–	–	–	–	55	0.18	1.2
RC 12:M8330	–	265	0.36	0.6	–	–	–	250	0.36	0.6	–	–	–	–	–	–	50	0.18	1.2
RC 16:M4310	–	235	0.36	0.8	–	–	–	220	0.36	0.8	–	–	–	–	–	–	45	0.18	1.1
RC 16:M8310	–	275	0.36	0.8	–	–	–	260	0.36	0.8	–	–	–	–	–	–	55	0.18	1.1
RC 16:M8330	–	255	0.36	0.8	–	–	–	240	0.36	0.8	–	–	–	–	–	–	50	0.18	1.1
RC 20:M4310	–	235	0.36	1.0	–	–	–	220	0.36	1.0	–	–	–	–	–	–	45	0.18	1.3
RC 20:M8310	–	270	0.36	1.0	–	–	–	255	0.36	1.0	–	–	–	–	–	–	50	0.18	1.3
RC 20:M8330	–	250	0.36	1.0	–	–	–	235	0.36	1.0	–	–	–	–	–	–	50	0.18	1.3
RC 25:M8310	–	260	0.36	1.3	–	–	–	245	0.36	1.3	–	–	–	–	–	–	50	0.18	1.7
RC 25:M8330	–	245	0.36	1.3	–	–	–	230	0.36	1.3	–	–	–	–	–	–	45	0.18	1.7
RC 32:M4310	–	220	0.36	1.6	–	–	–	205	0.36	1.6	–	–	–	–	–	–	40	0.18	2.1
RC 32:M8330	–	240	0.36	1.6	–	–	–	225	0.36	1.6	–	–	–	–	–	–	45	0.18	2.1

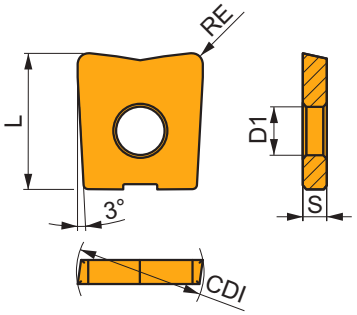
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

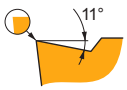
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  F																			
F geometri, keskin ve finiş işleme için uygun.																			
RC 10-F:M4310	–	250	0.36	0.5	125	0.32	0.5	235	0.36	0.5	–	–	–	–	–	–	50	0.18	1.0
RC 12-F:M4310	–	245	0.36	0.6	120	0.32	0.6	230	0.36	0.6	–	–	–	–	–	–	45	0.18	1.2
RC 16-F:M4310	–	235	0.36	0.8	115	0.32	0.8	220	0.36	0.8	–	–	–	–	–	–	45	0.18	1.1
RC 16-F:M8330	–	255	0.36	0.8	150	0.32	0.8	240	0.36	0.8	–	–	–	–	–	–	50	0.18	1.1

LC

PRAMET

	CDI (mm)	D1 (mm)	L (mm)	S (mm)
08	8.0	3.00	9.50	2.00
10	10.0	4.00	11.50	2.50

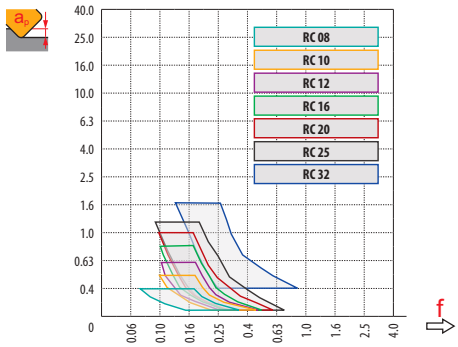


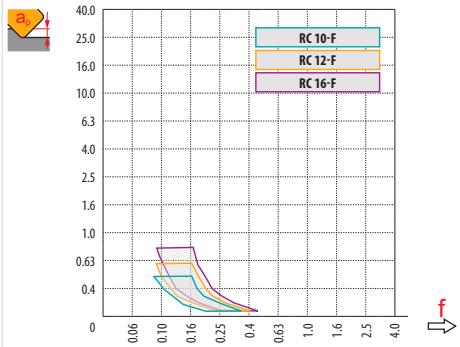
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  U E																			
KP geometri, hafif ve orta işleme için sıfır talaş açısı.																			
LC 0806-KP:M4310	0.6	280	0.16	0.3	–	–	–	265	0.16	0.3	–	–	–	–	–	–	55	0.11	0.6
LC 0806-KP:M8310	0.6	325	0.16	0.3	–	–	–	305	0.16	0.3	–	–	–	–	–	–	65	0.11	0.6
LC 0810-KP:M4310	1.0	280	0.16	0.5	–	–	–	265	0.16	0.5	–	–	–	–	–	–	55	0.11	1.0
LC 1008-KP:M4310	0.8	270	0.16	0.4	–	–	–	255	0.16	0.4	–	–	–	–	–	–	50	0.08	0.8
LC 1008-KP:M8310	0.8	315	0.16	0.4	–	–	–	295	0.16	0.4	–	–	–	–	–	–	60	0.08	0.8
LC 1010-KP:M4310	1.0	280	0.16	0.5	–	–	–	265	0.16	0.5	–	–	–	–	–	–	55	0.08	1.0
LC 1010-KP:M8310	1.0	325	0.16	0.5	–	–	–	305	0.16	0.5	–	–	–	–	–	–	65	0.08	1.0
  F																			
KPF geometri, hafif ve orta işleme için pozitif tasarım.																			
LC 0806-KPF:M4310	0.6	280	0.16	0.3	140	0.14	0.3	265	0.16	0.3	–	–	–	–	–	–	55	0.08	0.6
LC 1008-KPF:M4310	0.8	270	0.16	0.4	135	0.14	0.4	255	0.16	0.4	–	–	–	–	–	–	50	0.08	0.8

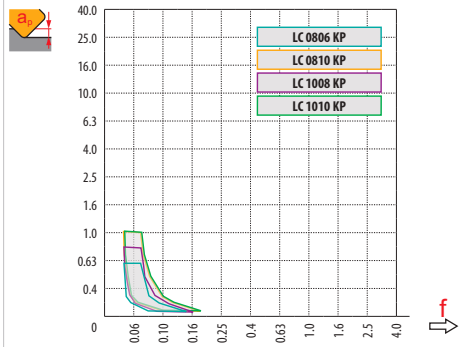
	RC 08	RC 10	RC 12	RC 16	RC 20	RC 25	RC 32
RE	4.0	5.0	6.0	8.0	10.0	12.5	16.0
BS	–	–	–	–	–	–	–

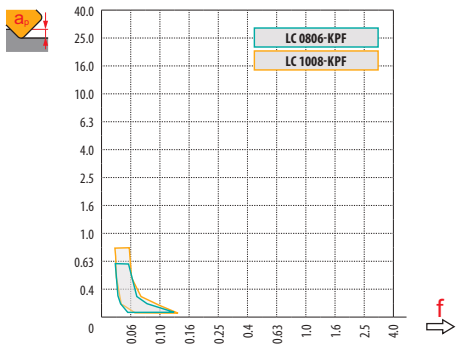
	RC 10-F	RC 12-F	RC 16-F
RE	5.0	6.0	8.0
BS	–	–	–

	LC 08-KP	LC 08-KP	LC 10-KP	LC 10-KP	LC 08-KPF	LC 10-KPF
RE	0.6	1.0	0.8	1.0	0.6	0.8
BS	–	–	–	–	–	–









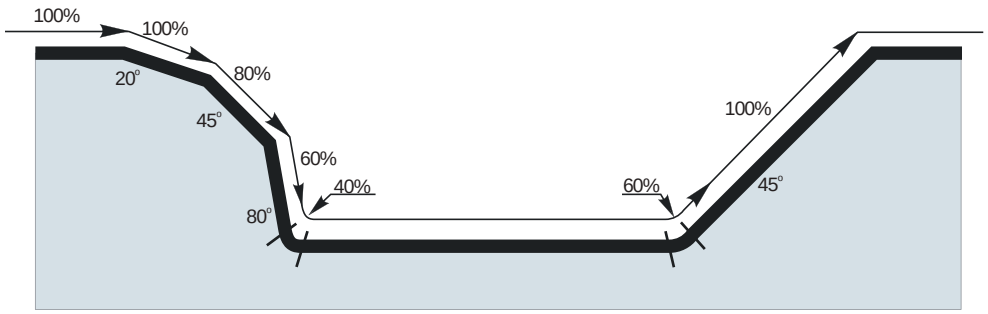
	DCX
RC 08	8
RC 10 / RC 10-F	10
RC 12 / RC 12-F	12
RC 16 / RC 16-F	16
RC 20	20
RC 25	25
RC 32	32

a_p	0.3	0.4	0.5	0.7	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	15.0	16.0
DEF	3.0	3.5	3.9	4.5	5.3	5.8	6.2	6.9	7.4	7.7	8.0	–	–	–	–	–	–	–
	3.4	3.9	4.4	5.1	6.0	6.6	7.1	8.0	8.7	9.2	9.8	10.0	–	–	–	–	–	–
	3.7	4.3	4.8	5.6	6.6	7.3	7.9	8.9	9.7	10.4	11.3	11.8	12.0	–	–	–	–	–
	4.3	5.0	5.6	6.5	7.7	8.6	9.3	10.6	11.6	12.5	13.9	14.8	15.5	16.0	–	–	–	–
	4.9	5.6	6.2	7.4	8.7	9.7	10.5	12.0	13.2	14.3	16.0	17.3	18.3	19.6	20.0	–	–	–
	5.4	6.3	7.0	8.2	9.8	10.9	11.9	13.6	15.0	16.2	18.3	20.0	21.4	23.3	24.5	25.0	–	–
	6.17	7.11	7.94	9.36	11.14	12.40	13.53	15.49	17.18	18.65	21.17	23.24	24.98	27.71	29.66	30.98	31.94	32.00

	DCX
RC 08	8
RC 10 / RC 10-F	10
RC 12 / RC 12-F	12
RC 16 / RC 16-F	16
RC 20	20
RC 25	25
RC 32	32

µm	3	5	10	15	20	30	40	50	60	80	100
FE	0.310	0.400	0.566	0.693	0.800	0.980	1.131	1.265	1.386	1.600	1.789
FE	0.346	0.447	0.632	0.775	0.894	1.095	1.265	1.414	1.549	1.789	2.000
	0.379	0.490	0.693	0.849	0.980	1.200	1.386	1.549	1.697	1.960	2.191
	0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530
	0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
	0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
	0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578

DEF	a_e	1.0 %	2.5 %	5.0 %	7.5 %	10 %	15 %	20 %	25 %	30 %	35 %	40 %	45 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
	a_p										⇨ x.f									
19.9%	1.0%	2.86	1.84	1.33	1.12	1.00	0.89	–	–	–	–	–	–	–	–	–	–	–	–	–
31.2%	2.5%	3.58	2.28	1.64	1.36	1.20	1.01	0.92	0.88	0.91	–	–	–	–	–	–	–	–	–	–
43.6%	5.0%	4.22	2.68	1.92	1.58	1.39	1.16	1.03	0.95	0.90	0.88	0.89	–	–	–	–	–	–	–	–
52.7%	7.5%	4.63	2.95	2.10	1.73	1.51	1.26	1.11	1.02	0.96	0.91	0.89	0.88	0.90	–	–	–	–	–	–
60.0%	10.0%	4.94	3.14	2.24	1.84	1.61	1.33	1.18	1.07	1.00	0.95	0.91	0.89	0.88	1.00	–	–	–	–	–
71.4%	15.0%	5.39	3.42	2.43	2.00	1.74	1.44	1.27	1.15	1.07	1.01	0.96	0.93	0.90	0.88	0.93	–	–	–	–
80.0%	20.0%	5.70	3.62	2.57	2.11	1.84	1.52	1.33	1.21	1.12	1.05	1.00	0.96	0.93	0.89	0.88	0.89	1.00	–	–
86.6%	25.0%	5.93	3.76	2.67	2.20	1.91	1.58	1.38	1.25	1.16	1.08	1.03	0.99	0.95	0.90	0.88	0.88	0.89	–	–
91.7%	30.0%	6.10	3.87	2.75	2.26	1.96	1.62	1.42	1.28	1.18	1.11	1.05	1.01	0.97	0.92	0.89	0.88	0.88	0.93	–
95.4%	35.0%	6.23	3.95	2.80	2.30	2.00	1.65	1.44	1.31	1.20	1.13	1.07	1.02	0.98	0.93	0.89	0.88	0.88	0.90	–
98.0%	40.0%	6.31	4.00	2.84	2.33	2.03	1.67	1.46	1.32	1.22	1.14	1.08	1.03	0.99	0.93	0.90	0.89	0.88	0.89	–
99.5%	45.0%	6.36	4.03	2.86	2.35	2.04	1.68	1.47	1.33	1.23	1.15	1.09	1.04	1.00	0.94	0.90	0.89	0.88	0.88	–
100.0%	50.0%	6.38	4.04	2.87	2.35	2.05	1.69	1.48	1.33	1.23	1.15	1.09	1.04	1.00	0.94	0.90	0.89	0.88	0.88	1.00



	DCX	RE	a_p 0.00	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.25	1.50	2.00	2.50	3.00	4.00
LC 0806-KP	8	0.6	6.8	7.8	7.9	8.0	8.0	–	–	–	–	–	–	–	–	–	–
LC 0806-KPF		0.6	6.8	7.8	7.9	8.0	8.0	–	–	–	–	–	–	–	–	–	–
LC 0810-KP		1.0	6.0	7.4	7.6	7.7	7.8	7.9	8.0	8.0	8.0	–	–	–	–	–	–
LC 1008-KP	10	0.8	8.4	9.6	9.8	9.9	9.9	10.0	10.0	–	–	–	–	–	–	–	–
LC 1008-KPF		0.8	8.4	9.6	9.8	9.9	9.9	10.0	10.0	–	–	–	–	–	–	–	–
LC 1010-KP		1.0	8.0	9.4	9.6	9.7	9.8	9.9	10.0	10.0	10.0	–	–	–	–	–	–

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
8	FE	0.310	0.400	0.566	0.693	0.800	0.980	1.131	1.265	1.386	1.600	1.789
10		0.346	0.447	0.632	0.775	0.894	1.095	1.265	1.414	1.549	1.789	2.000
RE	**µm**	**3**	**5**	**10**	**15**	**20**	**30**	**40**	**50**	**60**	**80**	**100**
0.6	FE	0.120	0.155	0.219	0.268	0.310	0.379	0.438	0.490	0.537	0.620	0.693
0.8		0.139	0.179	0.253	0.310	0.358	0.438	0.506	0.566	0.620	0.716	0.800
1.0		0.155	0.200	0.283	0.346	0.400	0.490	0.566	0.632	0.693	0.800	0.89

	DCX	RE	max
LC 0806-KP	8	0.6	3.0
LC 0806-KPF		0.6	2.8
LC 0810-KP		1.0	3.0
LC 1008-KP	10	0.8	3.8
LC 1008-KPF		0.8	3.6
LC 1010-KP		1.0	3.8

	DCX	RE	RPMX	APMX/l
LC 0806-KP	8	0.6	2.5	1.5/35
LC 0806-KPF		0.6	2.2	1.5/39
LC 0810-KP		1.0	2.4	1.5/36
LC 1008-KP	10	0.8	2.6	1.5/33
LC 1008-KPF		0.8	2.3	1.5/38
LC 1010-KP		1.0	2.6	1.5/33

	DCX	RE	DMIN	DMAX	SMAX DMIN	SMAX DMAX
LC 0806-KP	8	0.6	9.8	15.9	0.8	1.0
LC 0806-KPF		0.6	10.2	15.9	0.1	0.1
LC 0810-KP		1.0	9.9	15.9	0.1	0.1
LC 1008-KP	10	0.8	12.2	19.9	0.9	1.1
LC 1008-KPF		0.8	12.6	19.9	0.2	0.2
LC 1010-KP		1.0	12.2	19.9	0.2	0.2

	DCX	RE	a_p
LC 0806-KP	8	0.6	0.15
LC 0806-KPF		0.6	0.13
LC 0810-KP		1.0	0.13
LC 1008-KP	10	0.8	0.2
LC 1008-KPF		0.8	0.18
LC 1010-KP		1.0	0.19

Takım boyu (*DCX* çapın çarpımı)	< 3.0	3.0 – 3.5	3.6 – 4.0	4.1 – 4.5	> 4.6
Kesme hızı için çarpan katsayısı	1.0	0.9	0.8	0.7	0.5

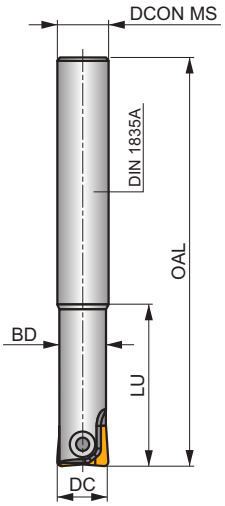
K2-SLC

PRAMET

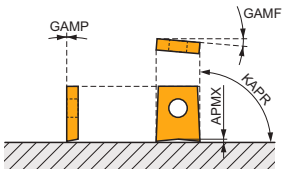
S

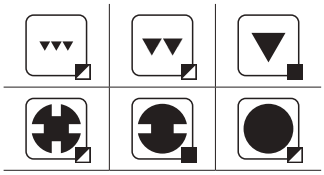
Kopya ve Profil İşleme için Finiş Parmak Freze

LC kesici uçların kullanıldığı çok çeşitli uygulamalarda ince talaş işleme işlemleri için parmak freze. Yüksek hassasiyetli taşlanmış kesici uçlar mükemmel doğruluk sağlar. Profil işleme, pah kırma, helisel, dalma frezeleme ve rampalama için. Yalnızca silindirik tarzda mevcuttur. Gövde uzun takım ömrü için işlem görmüştür.



APMX	1.0 - 3.0 mm





h_m 0.03 - 0.10

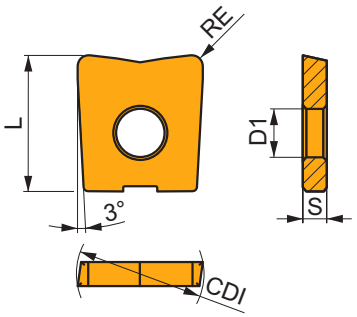
	Product	DC (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	BD (mm)			max.		kg		
DIN 1835A	**12K2R030A12-SLC12-A**	12	130	12	30	10.5	2	–	35000	–	0.11	GI037	CO532
	16K2R035A16-SLC16-A	16	140	16	35	14	2	–	22000	–	0.20	GI038	CO533
	20K2R045A20-SLC20-A	20	160	20	45	18	2	–	16000	–	0.38	GI039	CO534

GI037	LC 12-KP	LC 12-KPF
GI038	LC 16-KP	–
GI039	LC 20-KP	–

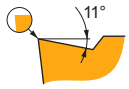
		Nm			
CO532	CS 5009-T20P	5.0	M 5	9	SDR T20P
CO533	CS 5013-T20P	5.0	M 5	13	SDR T20P
CO534	CS 5015-T20P	5.0	M 5	15	SDR T20P

LC

	CDI	D1	L	S
	(mm)	(mm)	(mm)	(mm)
12	12.0	5.00	14.00	2.50
16	16.0	5.00	16.00	3.00
20	20.0	5.00	18.00	3.00

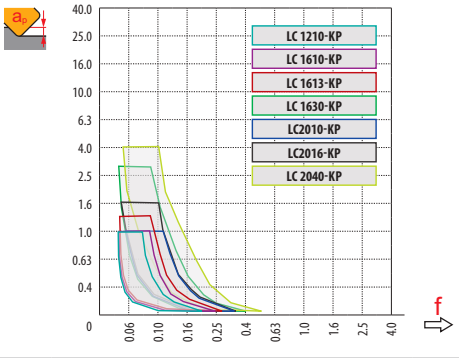


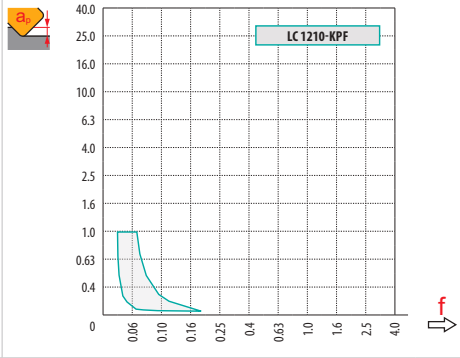
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
		U E																	
KP geometri, hafif ve orta işleme için sıfır talaş açısı.																			
LC 1210-KP:M4310	1.0	280	0.16	0.5	–	–	–	265	0.16	0.5	–	–	–	–	–	–	55	0.08	1.0
LC 1210-KP:M8310	1.0	325	0.16	0.5	–	–	–	305	0.16	0.5	–	–	–	–	–	–	65	0.08	1.0
LC 1210-KP:M8330	1.0	295	0.16	0.5	–	–	–	280	0.16	0.5	–	–	–	–	–	–	55	0.08	1.0
LC 1610-KP:M4310	1.0	280	0.16	0.5	–	–	–	265	0.16	0.5	–	–	–	–	–	–	55	0.08	1.0
LC 1610-KP:M8310	1.0	325	0.16	0.5	–	–	–	305	0.16	0.5	–	–	–	–	–	–	65	0.08	1.0
LC 1610-KP:M8330	1.0	295	0.16	0.5	–	–	–	280	0.16	0.5	–	–	–	–	–	–	55	0.08	1.0
LC 1613-KP:M4310	1.3	270	0.16	0.7	–	–	–	255	0.16	0.7	–	–	–	–	–	–	50	0.08	1.3
LC 1613-KP:M8310	1.3	315	0.16	0.7	–	–	–	295	0.16	0.7	–	–	–	–	–	–	60	0.08	1.3
LC 2010-KP:M4310	1.0	280	0.16	0.5	–	–	–	265	0.16	0.5	–	–	–	–	–	–	55	0.08	1.0
LC 2010-KP:M8310	1.0	325	0.16	0.5	–	–	–	305	0.16	0.5	–	–	–	–	–	–	65	0.08	1.0
LC 2016-KP:M4310	1.6	280	0.16	0.8	–	–	–	265	0.16	0.8	–	–	–	–	–	–	55	0.08	1.1
LC 2016-KP:M8310	1.6	325	0.16	0.8	–	–	–	305	0.16	0.8	–	–	–	–	–	–	65	0.08	1.1
LC 2040-KP:M8330	4.0	285	0.16	2.0	–	–	–	270	0.16	2.0	–	–	–	–	–	–	55	0.08	2.7
		F																	
KPF geometri, hafif ve orta işleme için pozitif tasarım.																			
LC 1210-KPF:M4310	1.0	280	0.16	0.5	140	0.14	0.5	265	0.16	0.5	–	–	–	–	–	–	55	0.08	1.0
LC 1210-KPF:M8330	1.0	295	0.16	0.5	175	0.14	0.5	280	0.16	0.5	–	–	–	–	–	–	55	0.08	1.0

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
⇨ x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
⇨ x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	LC 1210-KP	LC 1610-KP	LC 1613-KP	LC 2010-KP	LC 2016-KP	LC 2040-KP	LC 1210-KPF
RE	1.0	1.3	3.0	1.0	1.6	4.0	1.0
BS	–	–	–	–	–	–	–





	DC	a_p RE	0.0	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.25	1.5	2.0	2.5	3.0	4.0
LC 1210-KP	12	1.0	10.0	11.4	11.6	11.7	11.8	11.9	12.0	12.0	12.0	–	–	–	–	–	–
LC 1210-KPF		1.0	10.0	11.4	11.6	11.7	11.8	11.9	12.0	12.0	12.0	–	–	–	–	–	–
LC 1610-KP	16	1.0	14.0	15.4	15.6	15.7	15.8	15.9	16.0	16.0	16.0	–	–	–	–	–	–
LC 1613-KP		1.3	13.4	15.1	15.3	15.4	15.6	15.7	15.8	15.9	15.9	16.0	–	–	–	–	–
LC 2010-KP	20	1.0	18.0	19.4	19.6	19.7	19.8	19.9	20.0	20.0	20.0	–	–	–	–	–	–
LC 2016-KP		1.6	16.8	18.7	18.9	19.1	19.3	19.4	19.6	19.7	19.8	19.9	20.0	–	–	–	–
LC 2040-KP		4.0	12.0	15.0	15.5	15.9	16.2	16.5	16.8	17.1	17.3	17.8	18.2	18.9	19.4	–	–

DC	µm	3	5	10	15	20	30	40	50	60	80	100
12		0.379	0.490	0.693	0.849	0.980	1.200	1.386	1.549	1.697	1.960	2.191
16		0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530
20		0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
RE	**µm**	**3**	**5**	**10**	**15**	**20**	**30**	**40**	**50**	**60**	**80**	**100**
1.3		0.177	0.228	0.322	0.395	0.456	0.559	0.645	0.721	0.790	0.912	1.020
1.6	FE	0.196	0.253	0.358	0.438	0.506	0.620	0.716	0.800	0.876	1.012	1.131
2.0		0.219	0.283	0.400	0.490	0.566	0.693	0.800	0.894	0.980	1.131	1.265
4.0		0.310	0.400	0.566	0.693	0.800	0.980	1.131	1.265	1.386	1.600	1.789

	DC	RE	max
LC 1210-KP	12	1.0	4.8
LC 1210-KPF		1.0	4.4
LC 1610-KP	16	1.0	6.6
LC 1613-KP		1.3	6.6
LC 2010-KP	20	1.0	8.5
LC 2016-KP		1.6	8.5
LC 2040-KP		4.0	8.5

	DC	RE	RPMX	APMX/I
LC 1210-KP	12	1.0	4.7	1.5/19
LC 1210-KPF		1.0	3.8	1.5/23
LC 1610-KP	16	1.0	4.8	1.5/18
LC 1613-KP		1.3	4.8	1.5/18
LC 2010-KP	20	1.0	5.0	1.5/18
LC 2016-KP		1.6	4.9	1.6/19
LC 2040-KP		4.0	4.5	4.0/51

	DC	RE	DMIN	DMAX	SMAX DMIN	SMAX DMAX
LC 1210-KP	12	1.0	14.1	23.9	1.0	1.2
LC 1210-KPF		1.0	15.0	23.9	0.4	0.4
LC 1610-KP	16	1.0	18.6	31.9	1.1	1.4
LC 1613-KP		1.3	18.6	31.9	0.6	0.6
LC 2010-KP	20	1.0	22.8	39.9	1.3	1.5
LC 2016-KP		1.6	22.8	39.9	0.8	0.8
LC 2040-KP		4.0	22.8	39.9	0.5	0.5

	DC	RE	a_p
LC 1210-KP	12	1.0	0.44
LC 1210-KPF		1.0	0.9
LC 1610-KP	16	1.0	0.65
LC 1613-KP		1.3	0.62
LC 2010-KP	20	1.0	0.85
LC 2016-KP		1.6	0.79
LC 2040-KP		4.0	0.54

Takım boyu (*DCX* çapın çarpımı)	< 3.0	3 – 3.5	3.6 – 4.0	4.1 – 4.5	> 4.6
Kesme hızı için çarpan katsayısı	1.0	0.9	0.8	0.7	0.5

K2-PPH

P M K S H

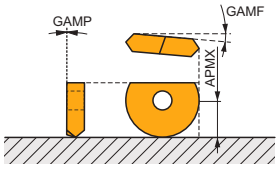
PRAMET

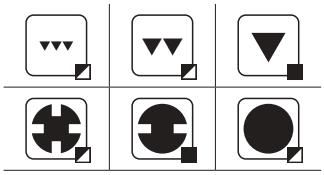
S

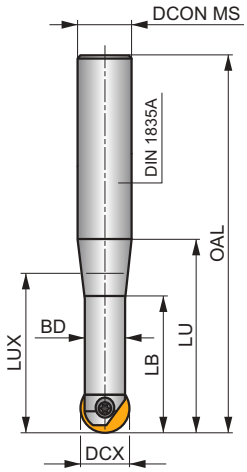
Kopya ve Profil İşleme için Parmak Frezeler

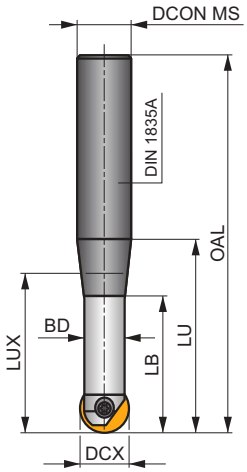
Çok çeşitli Kalıp ve Kalıp uygulamaları için esnek parmak freze. Yuvarlak uçlu, toroidal ve yüksek ilerlemeli kesici uçlar için tek takım çözümü. Yüksek hassasiyetli taşlanmış kesici uçlar yüksek doğruluk sağlar. Silindirik ve modüler tarzda mevcuttur.Gövde uzun takım ömrü için işlem görmüştür.

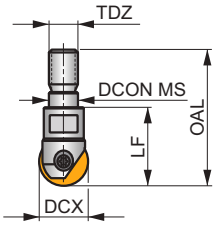
APMX	0.3 - 4.0 mm











h_m 0.07 - 0.14

	Product	DCX (mm)	OAL (mm)	DCON MS (mm)	BD (mm)	LB (mm)	LU (mm)	LUX (mm)	LF (mm)	TDZ	Carbide	max.		kg		
	PPH-08/02-QC12-092	8	92	12	6.5	19	35	23.1	–	–	–	40000	–	0.14	GI284	C0540
	PPH-08/02-QC12-110	8	110	12	6.5	33.5	53	41.5	–	–	–	33600	–	0.14	GI284	C0540
	PPH-08/02-QC12-132	8	132	12	6.5	19	75	41.8	–	–	–	16800	–	0.15	GI284	C0540
	PPH-10/02-QC12-092	10	92	12	8	22.4	38	30	–	–	–	40000	–	0.12	GI285	C0541
	PPH-10/02-QC12-110	10	110	12	8	38.7	53	51.9	–	–	–	40000	–	0.15	GI285	C0541
	PPH-10/02-QC12-132	10	132	12	8	21.8	75	73.6	–	–	–	20300	–	0.16	GI285	C0541
	PPH-12/02-QC16-145	12	145	16	10	22.5	85	63.3	–	–	–	19800	–	0.23	GI286	C0542
	PPH-16/02-QC20-166	16	166	20	14	29.5	100	75.5	–	–	–	20000	–	0.37	GI287	C0543
	PPH-20/02-QC25-191	20	191	25	17	35	115	82.2	–	–	–	18400	–	0.64	GI288	C0544
	PPH-25/02-QC32-215	25	215	32	21	42.5	135	97	–	–	–	16500	–	1.07	GI289	C0545
	PPH-12/02-QC12-083	12	83	12	10	–	26	–	–	–	–	40000	–	0.15	GI286	C0542
	PPH-12/02-QC12-110	12	110	12	10	–	53	–	–	–	–	40000	–	0.15	GI286	C0542
	PPH-16/02-QC16-092	16	92	16	14	–	92	–	–	–	–	36000	–	0.20	GI287	C0543
DIN 1835A	PPH-16/02-QC16-123	16	123	16	14	–	63	–	–	–	–	36000	–	0.24	GI287	C0543
	PPH-20/02-QC20-104	20	104	20	17	–	38	–	–	–	–	40000	–	0.34	GI288	C0544
	PPH-20/02-QC20-141	20	141	20	17	–	75	–	–	–	–	40000	–	0.41	GI288	C0544
	PPH-25/02-QC25-121	25	121	25	21	–	45	–	–	–	–	40000	–	0.53	GI289	C0545
	PPH-25/02-QC25-166	25	166	25	21	–	90	–	–	–	–	37100	–	0.57	GI289	C0545
	PPH-32/02-QC32-186	32	186	32	26	–	107	–	–	–	–	32500	–	1.09	GI290	C0546
	PPH-32/02-QC32-240	32	240	32	26	–	160	–	–	–	–	14500	–	1.37	GI290	C0546
	PPH-08/02-QC12-110HSCW	8	110	12	6.5	19	53	30.1	–	–	✓	40000	–	0.21	GI284	C0540
	PPH-08/02-QC12-132HSCW	8	132	12	6.5	19	75	37.1	–	–	✓	23400	–	0.22	GI284	C0540
	PPH-10/02-QC12-092HSCW	10	92	12	8	21.9	38.1	90.9	–	–	✓	40000	–	0.20	GI285	C0541
	PPH-10/02-QC12-132HSCW	10	132	12	8	21.8	75.1	51.1	–	–	✓	23400	–	0.24	GI285	C0541
	PPH-12/02-QC16-145HSCW	12	145	16	10	21.5	85	65.6	–	–	✓	21000	–	0.28	GI286	C0542
	PPH-16/02-QC20-166HSCW	16	166	20	14	28.5	100	87.2	–	–	✓	25500	–	0.66	GI287	C0543
	PPH-20/02-QC25-191HSCW	20	191	25	17	35	115	75.6	–	–	✓	18500	–	1.07	GI288	C0544
	PPH-08/02-QC08-130HSCW	8	130	8	6.5	–	20	–	–	–	✓	40000	–	0.17	GI284	C0540

	Product	DCX (mm)	OAL (mm)	DCON MS (mm)	BD (mm)	LB (mm)	LU (mm)	LUX (mm)	LF (mm)	TDZ	Carbide	max.		kg		
DIN 1835A	**PPH-10/02-QC10-140HSCW**	10	140	10	8	–	25	–	–	–	✓	40000	–	0.22	GI285	C0541
	PPH-12/02-QC12-083HSCW	12	83	12	10	–	26	–	–	–	✓	40000	–	0.19	GI286	C0542
	PPH-12/02-QC12-110HSCW	12	110	12	10	–	53	–	–	–	✓	40000	–	0.22	GI286	C0542
	PPH-16/02-QC16-092HSCW	16	92	16	14	–	32	–	–	–	✓	43000	–	0.29	GI287	C0543
	PPH-16/02-QC16-123HSCW	16	123	16	14	–	63	–	–	–	✓	43000	–	0.36	GI287	C0543
	PPH-20/02-QC20-104HSCW	20	104	20	17	–	38	–	–	–	✓	40000	–	0.50	GI288	C0544
	PPH-20/02-QC20-141HSCW	20	141	20	17	–	75	–	–	–	✓	40000	–	0.62	GI288	C0544
MODULAR	**PPH-16/02-025-P08**	16	–	8.5	–	–	–	–	25	M8	–	–	–	0.10	GI287	C0543
	PPH-20/02-030-P10	20	–	10.5	–	–	–	–	30	M10	–	–	–	0.16	GI288	C0544

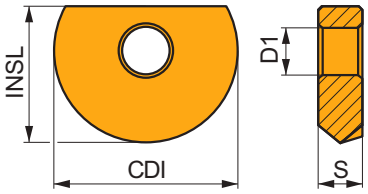
GI284	PPH 08..	–	PPHT 08..	PPHF 08..
GI285	PPH 10..	PPHE 10..	PPHT 10..	PPHF 10..
GI286	PPH 12..	PPHE 12..	PPHT 12..	PPHF 12..
GI287	PPH 16..	PPHE 16..	PPHT 16..	PPHF 16..
GI288	PPH 20..	PPHE 20..	PPHT 20..	PPHF 20..
GI289	PPH 25..	–	PPHT 25..	–
GI290	PPH 32..	–	–	–

		Nm						
C0540	CS 42506-T07P	1.0	M 2.5	6	D-T07P/T09P	FG-15	–	–
C0541	CS 43008-T08P	1.2	M 3	8	D-T08P/T15P	FG-15	–	–
C0542	CS 43509-T10P	2.0	M 3.5	9	–	–	SDR T10P	–
C0543	CS 44013-T15P	3.0	M 4	13	D-T08P/T15P	FG-15	–	–
C0544	CS 45016-T20P	5.0	M 5	16	–	–	SDR T20P	–
C0545	CS 46020-T25P	7.5	M 6	20	–	–	–	SDR T25P-T
C0546	CS 48025-T40P	15.0	M 8	25	–	–	–	SDR T40P-T

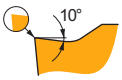
PPH

PRAMET

	CDI (mm)	D1 (mm)	INSL (mm)	S (mm)
0800	8.0	2.50	7.0	2.40
1000	10.0	3.00	8.5	2.60
1200	12.0	3.50	10.0	3.00
1600	16.0	4.00	12.0	4.00
2000	20.0	5.00	15.0	5.00
2500	25.0	6.00	18.5	6.00
3000	30.0	8.00	22.5	7.00
3200	32.0	8.00	23.5	7.00

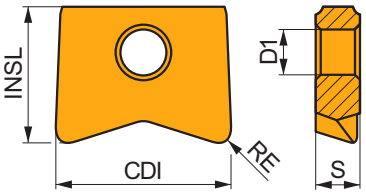


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
CL1 geometri, keskin tasarım.																			
PPH 0800-CL1:2003	–	285	0.36	0.4	145	0.32	0.4	270	0.36	0.4	–	–	–	–	–	–	55	0.18	0.8
PPH 1000-CL1:2003	–	280	0.36	0.5	140	0.32	0.5	265	0.36	0.5	–	–	–	–	–	–	55	0.18	1.0
PPH 1200-CL1:2003	–	275	0.36	0.6	140	0.32	0.6	260	0.36	0.6	–	–	–	–	–	–	55	0.18	1.2
PPH 1600-CL1:2003	–	265	0.36	0.8	135	0.32	0.8	250	0.36	0.8	–	–	–	–	–	–	50	0.18	1.1
PPH 2000-CL1:2003	–	260	0.36	1.0	130	0.32	1.0	245	0.36	1.0	–	–	–	–	–	–	50	0.18	1.3
PPH 2500-CL1:2003	–	250	0.36	1.3	125	0.32	1.3	235	0.36	1.3	–	–	–	–	–	–	50	0.18	1.7
PPH 3000-CL1:2003	–	245	0.36	1.5	120	0.32	1.5	230	0.36	1.5	–	–	–	–	–	–	45	0.18	2.0
PPH 3200-CL1:2003	–	245	0.36	1.6	120	0.32	1.6	230	0.36	1.6	–	–	–	–	–	–	45	0.18	2.1
 																			
CL4 geometri, darbeli işleme için keskin tasarım.																			
PPH 0800-CL4:8215	–	270	0.36	0.4	–	–	–	255	0.36	0.4	–	–	–	–	–	–	50	0.18	0.8
PPH 1000-CL4:8215	–	265	0.36	0.5	–	–	–	250	0.36	0.5	–	–	–	–	–	–	50	0.18	1.0
PPH 1200-CL4:8215	–	255	0.36	0.6	–	–	–	240	0.36	0.6	–	–	–	–	–	–	50	0.18	1.2
PPH 1600-CL4:8215	–	250	0.36	0.8	–	–	–	235	0.36	0.8	–	–	–	–	–	–	50	0.18	1.1
PPH 2000-CL4:8215	–	245	0.36	1.0	–	–	–	230	0.36	1.0	–	–	–	–	–	–	45	0.18	1.3
 																			
SM1 geometri, keskin tasarım.																			
PPHE 1000-SM1:8215	–	275	0.31	0.5	165	0.28	0.5	260	0.31	0.5	–	–	–	–	–	–	55	0.16	1.0
PPHE 1200-SM1:8215	–	255	0.36	0.6	150	0.32	0.6	240	0.36	0.6	–	–	–	–	–	–	50	0.18	1.2
PPHE 1600-SM1:8215	–	260	0.31	0.8	155	0.28	0.8	245	0.31	0.8	–	–	–	–	–	–	50	0.16	1.1
PPHE 2000-SM1:8215	–	250	0.31	1.0	150	0.28	1.0	235	0.31	1.0	–	–	–	–	–	–	50	0.16	1.3

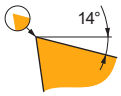
PPHT

	CDI (mm)	D1 (mm)	INSL (mm)	S (mm)
0800	8.0	2.50	7.0	2.40
1000	10.0	3.00	8.5	2.60
1200	12.0	3.50	10.0	3.00
1600	16.0	4.00	12.0	4.00
2000	20.0	5.00	15.0	5.00
2500	25.0	6.00	18.5	6.00



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

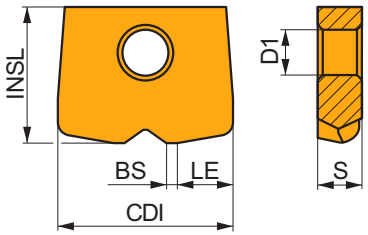
Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
PPHT 080003-A2:2003	●	0.3	275	0.10	0.3	140	0.09	0.3	260	0.10	0.3	–	–	–	–	–	–	55	0.07	0.3
PPHT 080005-A2:2003	●	0.5	270	0.13	0.3	135	0.12	0.3	255	0.13	0.3	–	–	–	–	–	–	50	0.09	0.5
PPHT 080010-A2:2003	⬢	1.0	315	0.14	0.5	160	0.13	0.5	295	0.14	0.5	–	–	–	–	–	–	60	0.10	1.0
PPHT 100005-A2:2003	●	0.5	270	0.13	0.3	135	0.12	0.3	255	0.13	0.3	–	–	–	–	–	–	50	0.09	0.5
PPHT 100008-A2:2003	⬢	0.8	305	0.14	0.4	155	0.13	0.4	285	0.14	0.4	–	–	–	–	–	–	60	0.10	0.8
PPHT 100010-A2:2003	⬢	1.0	315	0.14	0.5	160	0.13	0.5	295	0.14	0.5	–	–	–	–	–	–	60	0.10	1.0
PPHT 120005-A2:2003	●	0.5	270	0.13	0.3	135	0.12	0.3	255	0.13	0.3	–	–	–	–	–	–	50	0.09	0.5
PPHT 120010-A2:2003	⬢	1.0	315	0.14	0.5	160	0.13	0.5	295	0.14	0.5	–	–	–	–	–	–	60	0.10	1.0
PPHT 120020-A2:2003	⬢	2.0	320	0.14	1.0	160	0.13	1.0	300	0.14	1.0	–	–	–	–	–	–	60	0.10	1.3
PPHT 160010-A2:2003	⬢	1.0	315	0.14	0.5	160	0.13	0.5	295	0.14	0.5	–	–	–	–	–	–	60	0.10	1.0
PPHT 160013-A2:2003	⬢	1.3	300	0.15	0.6	150	0.13	0.6	285	0.15	0.6	–	–	–	–	–	–	60	0.10	1.3
PPHT 160020-A2:2003	⬢	2.0	320	0.14	1.0	160	0.13	1.0	300	0.14	1.0	–	–	–	–	–	–	60	0.10	1.3
PPHT 200010-A2:2003	⬢	1.0	315	0.14	0.5	160	0.13	0.5	295	0.14	0.5	–	–	–	–	–	–	60	0.10	1.0
PPHT 200016-A2:2003	⬢	1.6	310	0.14	0.8	155	0.13	0.8	290	0.14	0.8	–	–	–	–	–	–	60	0.10	1.1
PPHT 200030-A2:2003	⬢	3.0	305	0.14	1.5	155	0.13	1.5	285	0.14	1.5	–	–	–	–	–	–	60	0.10	2.0
PPHT 200040-A2:2003	⬢	4.0	295	0.14	2.0	150	0.13	2.0	280	0.14	2.0	–	–	–	–	–	–	55	0.10	2.7
PPHT 250020-A2:2003	⬢	2.0	320	0.14	1.0	160	0.13	1.0	300	0.14	1.0	–	–	–	–	–	–	60	0.10	1.3



A2 geometri, hafif ve orta işleme için pozitif tasarım.

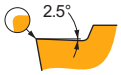
PPHF

	BS	LE	CDI	D1	INSL	S
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
0800	0.40	2.60	8.0	2.50	7.0	2.40
1000	0.50	3.20	10.0	3.00	8.5	2.60
1200	0.60	3.90	12.0	3.50	10.0	3.00
1600	0.80	5.20	16.0	4.00	12.0	4.00
2000	1.00	6.40	20.0	5.00	15.0	5.00



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
PPHF 080004-CE1:M8330	●	–	200	0.30	0.3	120	0.27	0.3	190	0.30	0.3	–	–	–	50	0.27	0.2	40	0.21	0.2
PPHF 100005-CE1:M8330	●●	–	190	0.35	0.3	110	0.32	0.3	180	0.35	0.3	–	–	–	45	0.32	0.2	35	0.25	0.2
PPHF 120006-CE1:M8330	●●	–	205	0.45	0.4	120	0.41	0.4	190	0.45	0.4	–	–	–	50	0.41	0.3	40	0.32	0.3
PPHF 160008-CE1:M8330	●●	–	190	0.60	0.5	110	0.54	0.5	180	0.60	0.5	–	–	–	45	0.54	0.4	35	0.42	0.4
PPHF 200010-CE1:M8330	●●	–	185	0.75	0.6	110	0.68	0.6	175	0.75	0.6	–	–	–	45	0.68	0.5	35	0.53	0.4



HFC E

CE1 geometri, yüksek hızlı işleme için güçlü tasarım.

a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
⇨ X.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
⇨ X.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	PPH 08-CL1	PPH 10-CL1	PPH 12-CL1	PPH 16-CL1	PPH 20-CL1	PPH 25-CL1	PPH 30-CL1	PPH 32-CL1
RE	4.0	5.0	6.0	8.0	10.0	12.5	15.0	16.0
BS	–	–	–	–	–	–	–	–

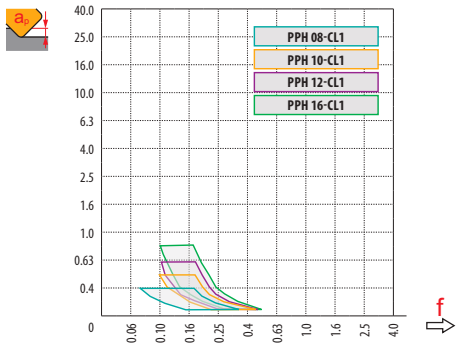
	PPH 08-CL4	PPH 10-CL4	PPH 12-CL4	PPH 16-CL4	PPH 20-CL4
RE	4.0	5.0	6.0	8.0	10.0
BS	–	–	–	–	–

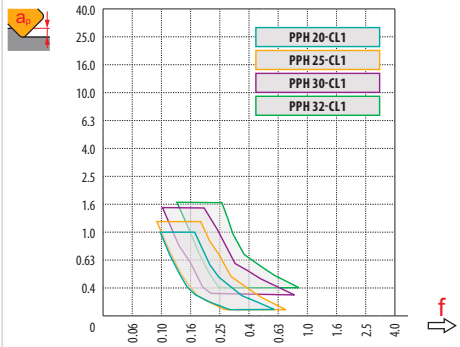
	PPHE 10-SM1	PPHE 12-SM1	PPHE 16-SM1	PPHE 20-SM1
RE	5.0	6.0	8.0	10.0
BS	–	–	–	–

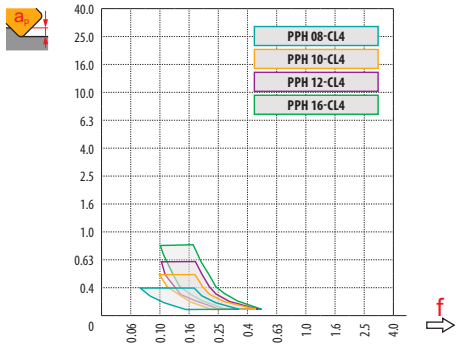
	PPHF 08-CE1	PPHF 10-CE1	PPHF 12-CE1	PPHF 16-CE1	PPHF 20-CE1
RE	0.6	0.8	1.0	1.3	1.6
BS	0.40	0.50	0.60	0.80	1.00

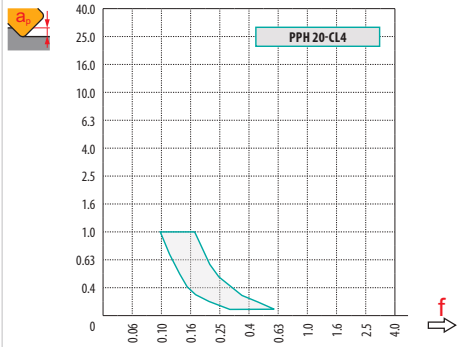
	PPHT 08-A2	PPHT 08-A2	PPHT 08-A2	PPHT 10-A2	PPHT 10-A2	PPHT 10-A2	PPHT 12-A2	PPHT 12-A2	PPHT 12-A2
RE	0.3	0.5	1.0	0.5	0.8	1.0	0.5	1.0	2.0
BS	–	–	–	–	–	–	–	–	–

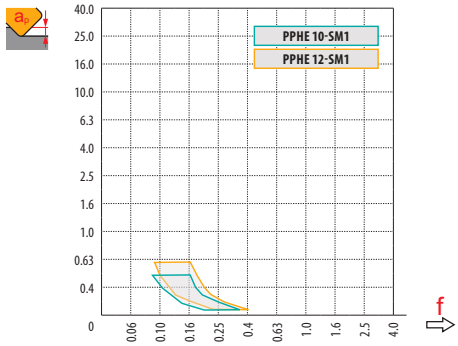
	PPHT 16-A2	PPHT 16-A2	PPHT 16-A2	PPHT 20-A2	PPHT 20-A2	PPHT 20-A2	PPHT 20-A2	PPHT 25-A2
RE	1.0	1.3	2.0	1.0	1.6	3.0	4.0	2.0
BS	–	–	–	–	–	–	–	–

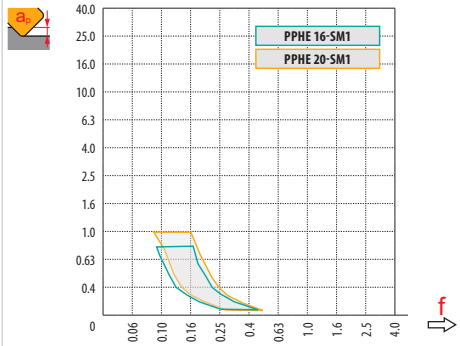

a_p
PPH 08-CL1
PPH 10-CL1
PPH 12-CL1
PPH 16-CL1
f

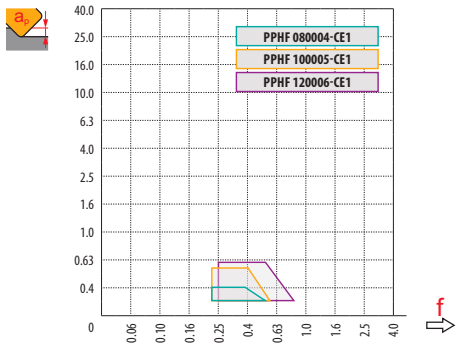

a_p
PPH 20-CL1
PPH 25-CL1
PPH 30-CL1
PPH 32-CL1
f

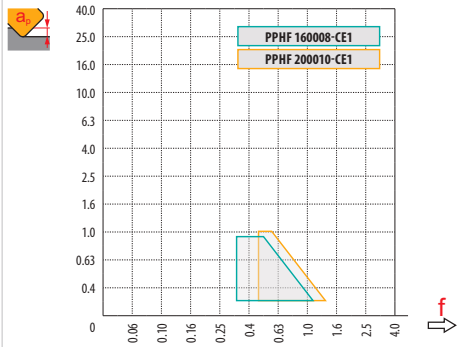

a_p
PPH 08-CL4
PPH 10-CL4
PPH 12-CL4
PPH 16-CL4
f

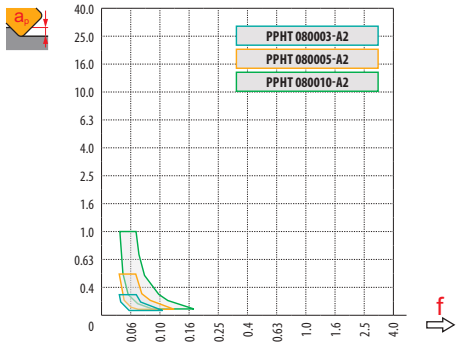

a_p
PPH 20-CL4
f

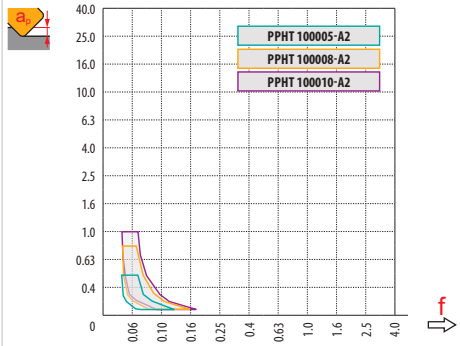

a_p
PPHE 10-SM1
PPHE 12-SM1
f

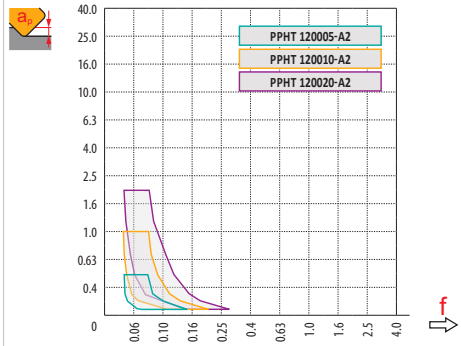

a_p
PPHE 16-SM1
PPHE 20-SM1
f

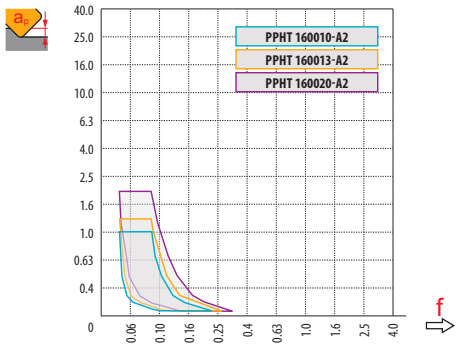

a_p
PPHF 080004-CE1
PPHF 100005-CE1
PPHF 120006-CE1
f

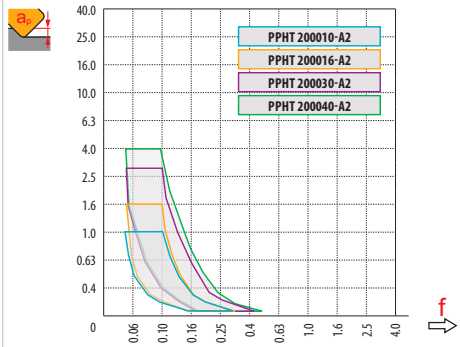

a_p
PPHF 160008-CE1
PPHF 200010-CE1
f

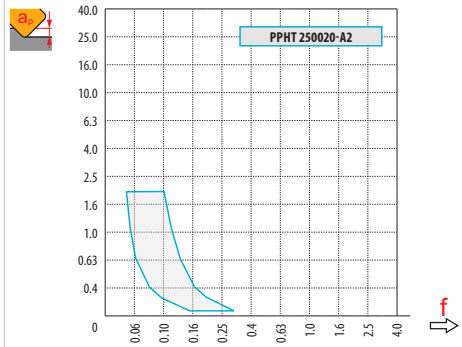

a_p
PPHT 080003-A2
PPHT 080005-A2
PPHT 080010-A2
f


a_p
PPHT 100005-A2
PPHT 100008-A2
PPHT 100010-A2
f


a_p
PPHT 120005-A2
PPHT 120010-A2
PPHT 120020-A2
f







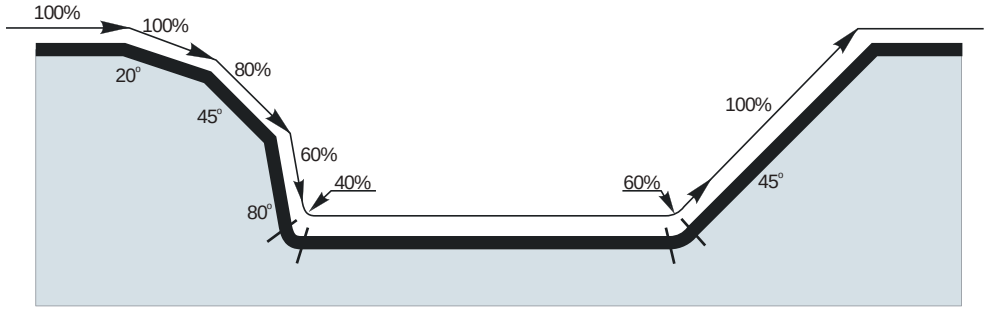
	DCX		0.3	0.4	0.5	0.7	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	15.0	16.0
PPH 08	**8**		3.0	3.5	3.9	4.5	5.3	5.8	6.2	6.9	7.4	7.7	8.0	–	–	–	–	–	–	–
PPH 10	**10**		3.4	3.9	4.4	5.1	6.0	6.6	7.1	8.0	8.7	9.2	9.8	10.0	–	–	–	–	–	–
PPH 12	**12**		3.7	4.3	4.8	5.6	6.6	7.3	7.9	8.9	9.7	10.4	11.3	11.8	12.0	–	–	–	–	–
PPH 16	**16**	DEF	4.3	5.0	5.6	6.5	7.7	8.6	9.3	10.6	11.6	12.5	13.9	14.8	15.5	16.0	–	–	–	–
PPH 20	**20**		4.9	5.6	6.2	7.4	8.7	9.7	10.5	12.0	13.2	14.3	16.0	17.3	18.3	19.6	20.0	–	–	–
PPH 25	**25**		5.4	6.3	7.0	8.2	9.8	10.9	11.9	13.6	15.0	16.2	18.3	20.0	21.4	23.3	24.5	25.0	–	–
PPH 32	**32**		6.17	7.11	7.94	9.36	11.14	12.40	13.53	15.49	17.18	18.65	21.17	23.24	24.98	27.71	29.66	30.98	31.94	32.00

	DCX	µm	3	5	10	15	20	30	40	50	60	80	100
PPH 08	**8**		0.310	0.400	0.566	0.693	0.800	0.980	1.131	1.265	1.386	1.600	1.789
PPH 10	**10**	FE	0.346	0.447	0.632	0.775	0.894	1.095	1.265	1.414	1.549	1.789	2.000
PPH 12	**12**		0.379	0.490	0.693	0.849	0.980	1.200	1.386	1.549	1.697	1.960	2.191
PPH 16	**16**	FE	0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530
PPH 20	**20**		0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
PPH 25	**25**		0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
PPH 32	**32**		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578

DEF	a_e	1 %	2.5 %	5 %	7.5 %	10 %	15 %	20 %	25 %	30 %	35 %	40 %	45 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
	a_p										⇨ x.f									
19.9 %	1.0 %	2.86	1.84	1.33	1.12	1.00	0.89	–	–	–	–	–	–	–	–	–	–	–	–	–
31.2 %	2.5 %	3.58	2.28	1.64	1.36	1.20	1.01	0.92	0.88	0.91	–	–	–	–	–	–	–	–	–	–
43.6 %	5.0 %	4.22	2.68	1.92	1.58	1.39	1.16	1.03	0.95	0.90	0.88	0.89	–	–	–	–	–	–	–	–
52.7 %	7.5 %	4.63	2.95	2.10	1.73	1.51	1.26	1.11	1.02	0.96	0.91	0.89	0.88	0.90	–	–	–	–	–	–
60.0 %	10.0 %	4.94	3.14	2.24	1.84	1.61	1.33	1.18	1.07	1.00	0.95	0.91	0.89	0.88	1.00	–	–	–	–	–
71.4 %	15.0 %	5.39	3.42	2.43	2.00	1.74	1.44	1.27	1.15	1.07	1.01	0.96	0.93	0.90	0.88	0.93	–	–	–	–
80.0 %	20.0 %	5.70	3.62	2.57	2.11	1.84	1.52	1.33	1.21	1.12	1.05	1.00	0.96	0.93	0.89	0.88	0.89	1.00	–	–
86.6 %	25.0 %	5.93	3.76	2.67	2.20	1.91	1.58	1.38	1.25	1.16	1.08	1.03	0.99	0.95	0.90	0.88	0.88	0.89	–	–
91.7 %	30.0 %	6.10	3.87	2.75	2.26	1.96	1.62	1.42	1.28	1.18	1.11	1.05	1.01	0.97	0.92	0.89	0.88	0.88	0.93	–
95.4 %	35.0 %	6.23	3.95	2.80	2.30	2.00	1.65	1.44	1.31	1.20	1.13	1.07	1.02	0.98	0.93	0.89	0.88	0.88	0.90	–
98.0 %	40.0 %	6.31	4.00	2.84	2.33	2.03	1.67	1.46	1.32	1.22	1.14	1.08	1.03	0.99	0.93	0.90	0.89	0.88	0.89	–
99.5 %	45.0 %	6.36	4.03	2.86	2.35	2.04	1.68	1.47	1.33	1.23	1.15	1.09	1.04	1.00	0.94	0.90	0.89	0.88	0.88	–
100.0 %	50.0 %	6.38	4.04	2.87	2.35	2.05	1.69	1.48	1.33	1.23	1.15	1.09	1.04	1.00	0.94	0.90	0.89	0.88	0.88	1.00

	DCX		a_p															
		RE	**0.0**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1.0**	**1.25**	**1.5**	**2.0**	**2.5**	**3.0**	**4.0**
PPHT 08-A2	**8**	0.3	7.4	8.0	–	–	–	–	–	–	–	–	–	–	–	–	–
PPHT 08-A2		0.5	7.0	7.9	8.0	8.0	–	–	–	–	–	–	–	–	–	–	–
PPHT 08-A2		0.8	6.4	7.6	7.8	7.9	7.9	8.0	8.0	–	–	–	–	–	–	–	–
PPHT 08-A2		1.0	6.0	7.4	7.6	7.7	7.8	7.9	8.0	8.0	8.0	–	–	–	–	–	–
PPHT 10-A2	**10**	0.5	9.0	9.9	10.0	10.0	–	–	–	–	–	–	–	–	–	–	–
PPHT 10-A2		0.8	8.4	9.6	9.8	9.9	9.9	10.0	10.0	–	–	–	–	–	–	–	–
PPHT 10-A2		1.0	8.0	9.4	9.6	9.7	9.8	9.9	10.0	10.0	10.0	–	–	–	–	–	–
PPHT 12-A2	**12**	0.5	11.0	11.9	12.0	12.0	–	–	–	–	–	–	–	–	–	–	–
PPHT 12-A2		1.0	10.0	11.4	11.6	11.7	11.8	11.9	12.0	12.0	12.0	–	–	–	–	–	–
PPHT 12-A2		2.0	8.0	10.1	10.4	10.6	10.9	11.0	11.2	11.3	11.5	11.7	11.9	12.0	–	–	–
PPHT 16-A2	**16**	1.0	14.0	15.4	15.6	15.7	15.8	15.9	16.0	16.0	16.0	–	–	–	–	–	–
PPHT 16-A2		1.3	13.4	15.1	15.3	15.4	15.6	15.7	15.8	15.9	15.9	16.0	–	–	–	–	–
PPHT 16-A2		2.0	12.0	14.1	14.4	14.6	14.9	15.0	15.2	15.3	15.5	15.7	15.9	16.0	–	–	–
PPHT 16-A2		3.0	10.0	12.6	13.0	13.3	13.6	13.9	14.1	14.3	14.5	14.9	15.2	15.7	15.9	16.0	–
PPHT 20-A2	**20**	1.0	18.0	19.4	19.6	19.7	19.8	19.9	20.0	20.0	20.0	–	–	–	–	–	–
PPHT 20-A2		1.6	16.8	18.7	18.9	19.1	19.3	19.4	19.6	19.7	19.8	19.9	20.0	–	–	–	–
PPHT 20-A2		3.0	14.0	16.6	17.0	17.3	17.6	17.9	18.1	18.3	18.5	18.9	19.2	19.7	19.9	20.0	–
PPHT 20-A2		4.0	12.0	15.0	15.5	15.9	16.2	16.5	16.8	17.1	17.3	17.8	18.2	18.9	19.4	19.7	20.0
PPHT 25-A2	**25**	2.0	21.0	23.1	23.4	23.6	23.9	24.0	24.2	24.3	24.5	24.7	24.9	25.0	–	–	–
PPHF 08-CE1	**8**	0.6	2.8	6.0	7.1	–	–	–	–	–	–	–	–	–	–	–	–
PPHF 10-CE1	**10**	0.8	3.6	6.8	7.9	9.0	–	–	–	–	–	–	–	–	–	–	–
PPHF 12-CE1	**12**	1.0	4.2	7.4	8.5	9.6	10.7	11.8	–	–	–	–	–	–	–	–	–
PPHF 16-CE1	**16**	1.3	5.6	8.8	9.9	11.0	12.1	13.2	14.2	15.3	–	–	–	–	–	–	–
PPHF 20-CE1	**20**	1.6	7.2	10.4	11.5	12.6	13.7	14.8	15.8	16.9	18.0	–	–	–	–	–	–
PPHF 25-CE1	**25**	1.9	9.2	12.4	13.5	14.6	15.7	16.8	17.8	18.9	20.0	22.7	–	–	–	–	–

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
8	FE	0.310	0.400	0.566	0.693	0.800	0.980	1.131	1.265	1.386	1.600	1.789
10		0.346	0.447	0.632	0.775	0.894	1.095	1.265	1.414	1.549	1.789	2.000
12		0.379	0.490	0.693	0.849	0.980	1.200	1.386	1.549	1.697	1.960	2.191
16		0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530
20		0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
25		0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
RE	**µm**	**3**	**5**	**10**	**15**	**20**	**30**	**40**	**50**	**60**	**80**	**100**
1.3	FE	0.177	0.228	0.322	0.395	0.456	0.559	0.645	0.721	0.790	0.912	1.020
1.6		0.196	0.253	0.358	0.438	0.506	0.620	0.716	0.800	0.876	1.012	1.131
1.9		0.214	0.276	0.390	0.477	0.551	0.675	0.780	0.872	0.955	1.103	1.233
2.0		0.219	0.283	0.400	0.490	0.566	0.693	0.800	0.894	0.980	1.131	1.265
3.0		0.268	0.346	0.490	0.600	0.693	0.849	0.980	1.095	1.200	1.386	1.549
4.0		0.310	0.400	0.566	0.693	0.800	0.980	1.131	1.265	1.386	1.600	1.789



	DCX	RE	max
PPHT 08-A2	8	0.3	2.4
PPHT 08-A2		0.5	2.4
PPHT 08-A2		0.8	2.5
PPHT 08-A2		1.0	2.7
PPHT 10-A2	10	0.5	3.2
PPHT 10-A2		0.8	3.3
PPHT 10-A2		1.0	3.4
PPHT 12-A2	12	0.5	4.0
PPHT 12-A2		1.0	4.2
PPHT 12-A2		2.0	4.6
PPHT 16-A2	16	1.0	5.7
PPHT 16-A2		1.3	5.8
PPHT 16-A2		2.0	6.0
PPHT 16-A2		3.0	6.4
PPHT 20-A2	20	1.0	7.2
PPHT 20-A2		1.6	7.4
PPHT 20-A2		3.0	7.8
PPHT 20-A2		4.0	8.2
PPHT 25-A2	25	2.0	9.3

	DCX	RE	max
PPHF 08-CE1	8	0.6	2.0
PPHF 10-CE1	10	0.8	2.5
PPHF 12-CE1	12	1.0	3.0
PPHF 16-CE1	16	1.3	4.0
PPHF 20-CE1	20	1.6	5.0
PPHF 25-CE1	25	1.9	6.0

	DCX	RE	RPMX	APMX/l
PPHT 08-A2	8	0.3	6.3	1.2/11
PPHT 08-A2		0.5	6.1	1.2/12
PPHT 08-A2		0.8	5.7	1.2/12
PPHT 08-A2		1.0	6.8	1.2/11
PPHT 10-A2	10	0.5	6.9	1.5/13
PPHT 10-A2		0.8	6.6	1.5/13
PPHT 10-A2		1.0	7.5	1.5/12
PPHT 12-A2	12	0.5	7.9	1.8/13
PPHT 12-A2		1.0	7.5	1.8/14
PPHT 12-A2		2.0	9.0	1.8/12
PPHT 16-A2	16	1.0	8.9	2.4/16
PPHT 16-A2		1.3	8.9	2.4/16
PPHT 16-A2		2.0	8.5	2.4/17
PPHT 16-A2		3.0	12.3	2.4/11
PPHT 20-A2	20	1.0	9.3	3/19
PPHT 20-A2		1.6	9.1	3/19
PPHT 20-A2		3.0	8.8	3/20
PPHT 20-A2		4.0	11.4	3/15
PPHT 25-A2	25	2.0	8.3	3.7/26

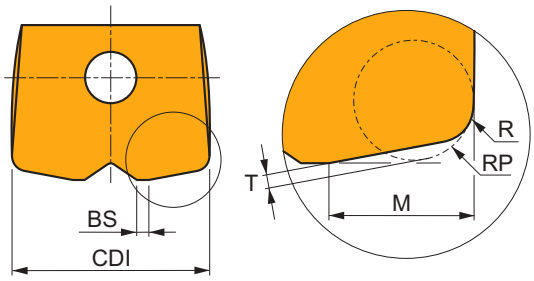
	DCX	RE	RPMX	APMX/l
PPHF 08-CE1	8	0.6	8.0	0.4/3
PPHF 10-CE1	10	0.8	8.0	0.5/4
PPHF 12-CE1	12	1.0	8.0	0.6/5
PPHF 16-CE1	16	1.3	8.0	0.8/6
PPHF 20-CE1	20	1.6	8.0	1.0/8
PPHF 25-CE1	25	1.9	8.0	1.2/9

	DCX	RE	DMIN	DMAX	SMAX DMIN	SMAX DMAX
PPHT 08-A2	8	0.3	11.0	15.9	0.5	0.5
PPHT 08-A2		0.5	10.9	15.9	0.5	0.5
PPHT 08-A2		0.8	10.7	15.9	0.4	0.4
PPHT 08-A2		1.0	10.3	15.9	0.4	0.4
PPHT 10-A2	10	0.5	13.4	19.9	0.7	0.7
PPHT 10-A2		0.8	13.2	19.9	0.6	0.6
PPHT 10-A2		1.0	12.9	19.9	0.6	0.6
PPHT 12-A2	12	0.5	15.8	23.9	1.0	1.0
PPHT 12-A2		1.0	15.4	23.9	0.8	0.8
PPHT 12-A2		2.0	14.6	23.9	0.7	0.7
PPHT 16-A2	16	1.0	20.4	31.9	1.3	1.3
PPHT 16-A2		1.3	20.2	31.9	1.3	1.3
PPHT 16-A2		2.0	19.7	31.9	1.0	1.0
PPHT 16-A2		3.0	18.9	31.9	1.2	1.2
PPHT 20-A2	20	1.0	25.4	39.9	1.8	1.8
PPHT 20-A2		1.6	24.9	39.9	1.6	1.6
PPHT 20-A2		3.0	24.1	39.9	1.2	1.2
PPHT 20-A2		4.0	23.3	39.9	1.3	1.3
PPHT 25-A2	25	2.0	31.1	49.9	1.8	1.8

	DCX	RE	DMIN	DMAX	SMAX DMIN	SMAX DMAX
PPHF 08-CE1	8	0.6	10.0	14.7	0.40	0.40
PPHF 10-CE1	10	0.8	13.0	18.4	0.50	0.50
PPHF 12-CE1	12	1.0	15.7	22.0	0.60	0.60
PPHF 16-CE1	16	1.3	20.9	29.4	0.80	0.80
PPHF 20-CE1	20	1.6	26.2	36.7	1.00	1.00
PPHF 25-CE1	25	1.9	33.0	46.1	1.20	1.20

	DCX	RE	a_p
PPHT 08-A2	**8**	0.3	0.52
PPHT 08-A2		0.5	0.47
PPHT 08-A2		0.8	0.39
PPHT 08-A2		1.0	0.40
PPHT 10-A2	**10**	0.5	0.69
PPHT 10-A2		0.8	0.61
PPHT 10-A2		1.0	0.62
PPHT 12-A2	**12**	0.5	0.97
PPHT 12-A2		1.0	0.79
PPHT 12-A2		2.0	0.68
PPHT 16-A2	**16**	1.0	1.33
PPHT 16-A2		1.3	1.26
PPHT 16-A2		2.0	1.03
PPHT 16-A2		3.0	1.15
PPHT 20-A2	**20**	1.0	1.80
PPHT 20-A2		1.6	1.59
PPHT 20-A2		3.0	1.21
PPHT 20-A2		4.0	1.27
PPHT 25-A2	**25**	2.0	1.83

	DCX	RE	a_p
PPHF 08-CE1	**8**	0.6	0.40
PPHF 10-CE1	**10**	0.8	0.50
PPHF 12-CE1	**12**	1.0	0.60
PPHF 16-CE1	**16**	1.3	0.80
PPHF 20-CE1	**20**	1.6	1.00
PPHF 25-CE1	25	1.9	1.20



DCX	R	RP	M	T
08	0.6	1.0	2.6	0.3
10	0.8	1.2	3.2	0.4
12	1.0	1.5	3.9	0.4
16	1.3	2.0	5.2	0.6
20	1.6	2.5	6.4	0.7
25	1.9	3.0	7.9	0.9

Takım boyu (*DCX* çapın çarpımı)	**< 3.0**	**3.0 – 3.5**	**3.6 – 4.0**	**4.1 – 4.5**	**> 4.6**
Kesme hızı için çarpan katsayısı	1.0	0.9	0.8	0.7	0.5

K3-CXP

P M K S H

PRAMET

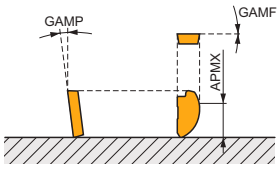
C

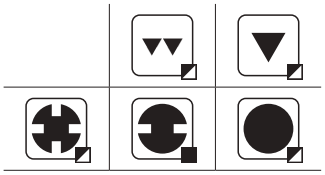
MULTISIDE XP Profil Frezeleme Takımı

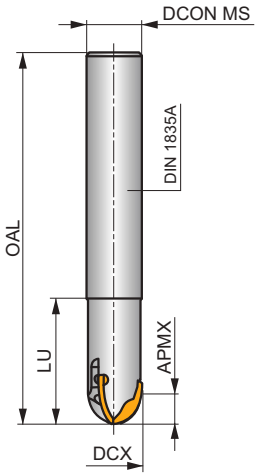
XP.. uçlar için APMX 8-16mm küre ağızlı freze takımı. Benzersiz sıkma sistemi üç adet uç bağlayabilir. Silindirik ve modüler olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

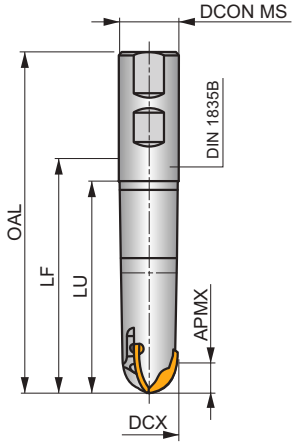
MULTISIDE XP

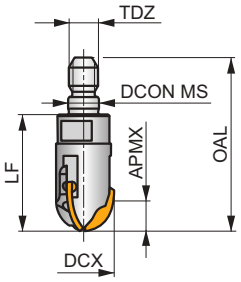
APMX	8.0 - 16.0 mm











h_m 0.05 - 0.19

	Product	DCX (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	LUX (mm)	LF (mm)	TDZ	APMX (mm)	GAMF (°)	GAMP (°)			max.		kg		
	16K3R050A16-CXP16	16	200	16	50	–	–	–	8.00	0	-5	3	–	22600	–	0.35	GI267	C0520
	16K3R050A20-CXP16	16	200	20	50	–	–	–	8.00	0	-5	3	–	22600	–	0.50	GI267	C0520
DIN 1835A	**20K3R050A20-CXP20**	20	200	20	50	–	–	–	10.00	0	-5	3	–	20000	–	0.52	GI268	C0521
	20K3R060A25-CXP20	20	250	25	60	–	–	–	10.00	0	-5	3	–	20000	–	0.92	GI268	C0521
	25K3R060A25-CXP25	25	250	25	60	–	–	–	12.50	0	-5	3	–	20000	–	0.96	GI269	C0522
	32K3R080A32-CXP32	32	250	32	80	–	–	–	16.00	0	-5	3	–	15000	–	1.50	GI270	C0523
	16K3R060B20-CXP16	16	111	20	60	–	86.5	–	8.00	0	-5	3	–	22600	–	0.23	GI267	C0520
DIN 1835B	**20K3R070B25-CXP20**	20	127	25	70	–	95.5	–	10.00	0	-5	3	–	20000	–	0.41	GI268	C0521
	25K3R080B25-CXP25	25	137	25	80	–	105	–	12.50	0	-5	3	–	20000	–	0.49	GI269	C0522
	16K3R035M10-CXP16	16	–	10.5	–	–	35	M10	8.00	0	-5	3	–	–	–	0.07	GI267	C0520
MODULAR	**20K3R040M10-CXP20**	20	–	10.5	–	–	40	M10	10.00	0	-5	3	–	–	–	0.07	GI268	C0521
	25K3R045M12-CXP25	25	–	12.5	–	–	45	M12	12.50	0	-5	3	–	–	–	0.16	GI269	C0522

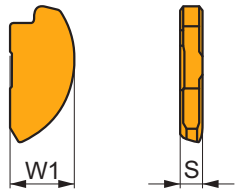
GI267	XP 16..
GI268	XP 20..
GI269	XP 25..
GI270	XP 32..

		Nm			
C0520	US 63009-T09P	1.2	M 3	9	Flag T09P
C0521	US 63513-T15P	3.0	M 3.5	13	Flag T15P
C0522	US 64014-T15P	3.5	M 4	14	Flag T15P
C0523	US 65017-T20P	5.0	M 5	17	Flag T20P

XP

PRAMET

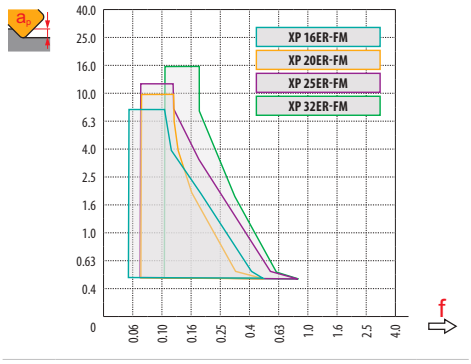
	W1 (mm)	S (mm)
16	16.000	2.00
20	20.000	2.50
25	25.000	3.17
32	32.000	4.00



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

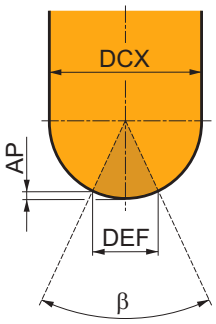
Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
			**FM** geometri, hafif işleme için nötr tasarım.																	
XP 16ER-FM:M8310		–	■ 285	0.27	0.8	◪ 145	0.24	0.8	■ 270	0.27	0.8	–	–	–	–	–	–	■ 55	0.19	0.8
XP 20ER-FM:M8330		–	■ 260	0.27	1.0	◪ 155	0.24	1.0	■ 245	0.27	1.0	–	–	–	◪ 65	0.19	1.0	◪ 50	0.19	1.0
XP 20ER-FM:M8345		–	■ 190	0.27	1.0	◪ 110	0.24	1.0	–	–	–	–	–	–	◪ 45	0.19	1.0	–	–	–
XP 25ER-FM:M8310		–	■ 270	0.27	1.3	◪ 135	0.24	1.3	■ 255	0.27	1.3	–	–	–	–	–	–	■ 50	0.19	1.3
XP 32ER-FM:M8345		–	■ 180	0.27	1.6	◪ 105	0.24	1.6	–	–	–	–	–	–	◪ 45	0.19	1.6	–	–	–

	XP 16-FM	XP 20-FM	XP 25-FM	XP 32-FM
RE	8.0	10.0	12.5	16.0
BS	–	–	–	–



DCX	a_p	0.3	0.4	0.5	0.7	1.0	1.25	1.5	2.0	2.5	3.0	4.0	5.0	6.0	8.0	10.0	12.0	15.0
16	DEF	4.3	5.0	5.6	6.5	7.7	8.6	9.3	10.6	11.6	12.5	13.9	14.8	15.5	16.0	–	–	–
20		4.9	5.6	6.2	7.4	8.7	9.7	10.5	12.0	13.2	14.3	16.0	17.3	18.3	19.6	20.0	–	–
25		5.4	6.3	7.0	8.2	9.8	10.9	11.9	13.6	15.0	16.2	18.3	20.0	21.4	23.3	24.5	25.0	–
32		6.2	7.1	7.9	9.4	11.1	12.4	13.5	15.5	17.2	18.7	21.2	23.2	25.0	27.7	29.7	31.2	31.9

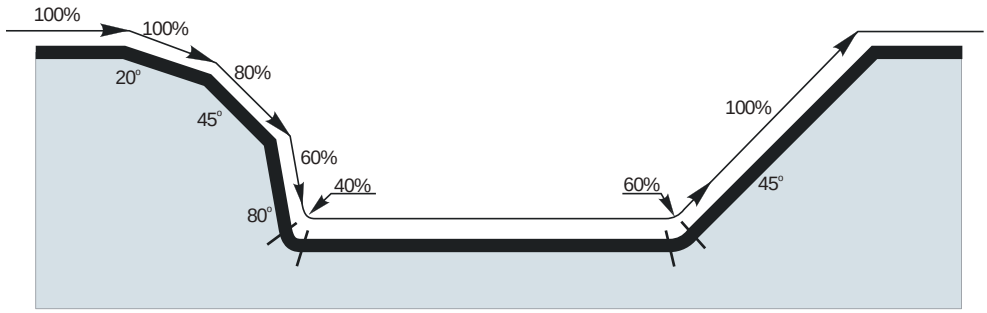
Gerçek talaş derinliğinde kesme çapı.



DCX	β	DEF	AP
16	41°	5.568	0.51
20	37°	6.314	0.52
25	37°	7.901	0.65
32	37°	10.122	0.83

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
16	FE	0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530
20		0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
25	FE	0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578

DEF	a_e	1.0 %	2.5 %	5.0 %	7.5 %	10 %	15 %	20 %	25 %	30 %	35 %	40 %	45 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
	a_p										⇨x.f									
19.9 %	1.0 %	2.86	1.84	1.33	1.12	1.00	0.89	–	–	–	–	–	–	–	–	–	–	–	–	–
31.2 %	2.5 %	3.58	2.28	1.64	1.36	1.20	1.01	0.92	0.88	0.91	–	–	–	–	–	–	–	–	–	–
43.6 %	5.0 %	4.22	2.68	1.92	1.58	1.39	1.16	1.03	0.95	0.90	0.88	0.89	–	–	–	–	–	–	–	–
52.7 %	7.5 %	4.63	2.95	2.10	1.73	1.51	1.26	1.11	1.02	0.96	0.91	0.89	0.88	0.90	–	–	–	–	–	–
60.0 %	10.0 %	4.94	3.14	2.24	1.84	1.61	1.33	1.18	1.07	1.00	0.95	0.91	0.89	0.88	1.00	–	–	–	–	–
71.4 %	15.0 %	5.39	3.42	2.43	2.00	1.74	1.44	1.27	1.15	1.07	1.01	0.96	0.93	0.90	0.88	0.93	–	–	–	–
80.0 %	20.0 %	5.70	3.62	2.57	2.11	1.84	1.52	1.33	1.21	1.12	1.05	1.00	0.96	0.93	0.89	0.88	0.89	1.00	–	–
86.6 %	25.0 %	5.93	3.76	2.67	2.20	1.91	1.58	1.38	1.25	1.16	1.08	1.03	0.99	0.95	0.90	0.88	0.88	0.89	–	–
91.7 %	30.0 %	6.10	3.87	2.75	2.26	1.96	1.62	1.42	1.28	1.18	1.11	1.05	1.01	0.97	0.92	0.89	0.88	0.88	0.93	–
95.4 %	35.0 %	6.23	3.95	2.80	2.30	2.00	1.65	1.44	1.31	1.20	1.13	1.07	1.02	0.98	0.93	0.89	0.88	0.88	0.90	–
98.0 %	40.0 %	6.31	4.00	2.84	2.33	2.03	1.67	1.46	1.32	1.22	1.14	1.08	1.03	0.99	0.93	0.90	0.89	0.88	0.89	–
99.5 %	45.0 %	6.36	4.03	2.86	2.35	2.04	1.68	1.47	1.33	1.23	1.15	1.09	1.04	1.00	0.94	0.90	0.89	0.88	0.88	–
100.0 %	50.0 %	6.38	4.04	2.87	2.35	2.05	1.69	1.48	1.33	1.23	1.15	1.09	1.04	1.00	0.94	0.90	0.89	0.88	0.88	1.00



Takım boyu (*DCX* çapın çarpımı)	**< 3.0**	**3.1 – 4.0**	**4.1 – 6.0**	**> 6.1**
Kesme hızı için çarpan katsayısı	1.0	0.9	0.7	0.5

YÜZEY FREZELEME

	SVC22C	SCN05C	SWN04C			
	90°	90° (93°)	90° (93°)			
	APMX (mm) 3.0 (16.0)	APMX (mm) 0.5 (1.0)	APMX (mm) 0.5 (2.0)			
	DC (mm) 32 – 80	DC (mm) 12 – 20	DC (mm) 16 – 35			
Silindirik şaft	 DC = 32, 40 (mm)	 DC = 12 – 20 (mm)	 DC = 16 – 32 (mm)			
Weldon						
Modüler	 DC = 32, 40 (mm)	 DC = 12 – 20 (mm)	 DC = 16 – 35 (mm)			
Frezeleme kafası	 DC = 50 – 80 (mm)					
Sayfa	240	243	246			
ISO	N	P K H	P K H			
Kesici uç şekli						
Kesici uçlar	VCGT 220530	CN.. 0502	WN.. 0403			
Kesme kenarlarının sayısı	2	4	6			
Konturlu yüzeyler (kopya frezeleme)		■	■			
Yüzey frezeleme		■	■			
Helisel interpolasyon	■					
Aşamalı dalma	■					
Açılı frezeleme	◪	■	■			
Sığ oluk frezeleme	◪					
Derin kenar frezeleme	◪	■	■			
Dalma frezeleme		■	■			

■ İlk seçim. ◪ Olası seçim.

SVC22C

N

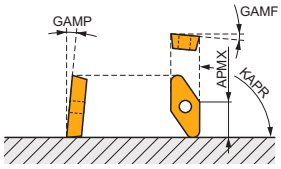
PRAMET

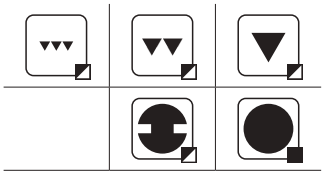
S

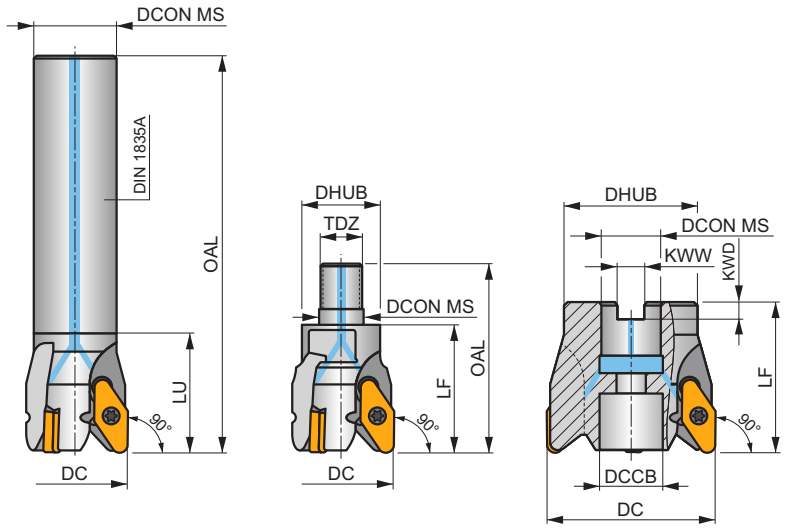
Demir içermeyen malzemeler için Frezeleme Takımları, İçten Su Vermeli

16 mm APMX'li VCGT 22 uçlar kullanan alüminyum ve demir dışı malzemeler için son derece verimli kesici. İçten soğutmalı. Yüzey, dalma, kenar frezeleme, açılı frezeleme ve kanal frezeleme için uygundur. Silindirik, modüler ve göbekten bağlamalı tarzında mevcuttur.Gövde uzun takım ömrü için işlem görmüştür.

KAPR	90°
APMX	3.0 (16.0) mm







h_m	0.03 - 0.5
h_m	0.03 - 0.55

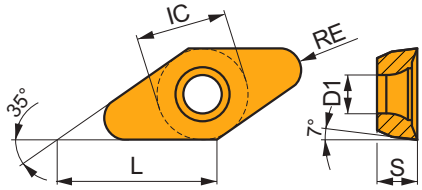
	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	DHUB (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835A	**32A2R045A25-SVC22C**	32	120	25	–	45	–	–	–	–	–	4	3	2	–	10400	✓	0.46	GI141	C0560
	40A3R045A32-SVC22C	40	150	32	–	45	–	–	–	–	–	8	3	3	–	9300	✓	0.91	GI141	C0560
MODULAR	**32A2R048M16-SVC22C**	32	71	17	–	–	48	29	M16	–	–	11	3	2	–	–	✓	0.17	GI141	C0560
	40A3R048M16-SVC22C	40	71	17	–	–	48	29	M16	–	–	13	3	3	–	–	✓	0.24	GI141	C0560
ISO 6462 DIN 8030	**50A03R-S90VC22C**	50	–	22	18	–	56	40	–	10	6.3	4	3	3	–	8400	✓	0.42	GI141	C0563
	63A04R-S90VC22C	63	–	22	18	–	56	50	–	10	6.3	6	3	4	–	7400	✓	0.68	GI141	C0563
	80A05R-S90VC22C	80	–	27	20	–	56	63	–	12	7	8	3	5	–	6600	✓	1.12	GI141	C0562

GI141	VCGT 220530F-FA

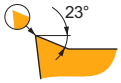
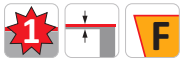
		Nm					
C0560	US 4511-T20	5.0	M 4.5	11	–	–	Flag T20
C0562	US 4511-T20	5.0	M 4.5	11	SDR T20-T	–	–
C0563	US 4511-T20	5.0	M 4.5	11	SDR T20-T	HS 1030C	–

VCGT 22-FA

	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
2205	12.700	5.20	22.00	5.50

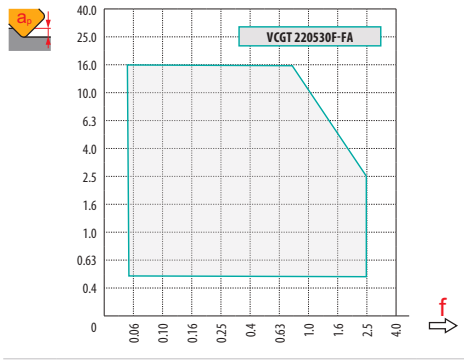


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
			FA geometri, orta ve kaba frezeleme için çok pozitif tasarım.																	
VCGT 220515F-FA:HF7	●	1.5	–	–	–	–	–	–	–	–	–	■ 255	0.24	0.4	–	–	–	–	–	–
VCGT 220520F-FA:HF7	●	2.0	–	–	–	–	–	–	–	–	–	■ 255	0.30	0.5	–	–	–	–	–	–
VCGT 220530F-FA:HF7	●	3.0	–	–	–	–	–	–	–	–	–	■ 210	0.48	1.0	–	–	–	–	–	–

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	VCGT 22-FA		
RE	1.5	2.0	3.0
BS	–	–	–



a_p	0.5	3.0	12.0
f	0.86	0.31	0.05

DC	RPMX	APMX/I
32	8.0	12.0/87
40	8.0	12.0/87
50	6.0	10.4/100
63	4.2	7.2/100
80	3.1	5.3/100

DC	DMIN	DMAX	SMAX DMIN	SMAX DMAX
32	42.0	64.0	4.2	12.0
40	58.0	80.0	7.7	12.0
50	78.0	100.0	9.0	12.0
63	104.0	126.0	9.3	12.0
80	138.0	160.0	9.7	12.0

a_p
9

DC	µm	3	5	10	15	20	30	40	50	60	80	100
32	FE	0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657
RE	µm	3	5	10	15	20	30	40	50	60	80	100
3.0	FE	0.268	0.346	0.490	0.600	0.693	0.849	0.980	1.095	1.200	1.386	1.549

SCN05C

P K H

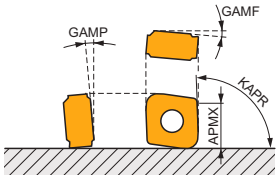
PRAMET

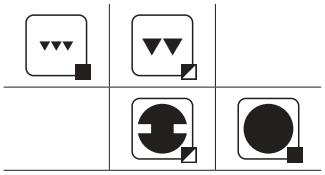
S

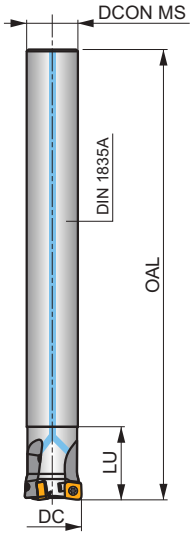
Kalıpçılık Uygulamaları için Parmak Frezeler, İçten Su Vermeli

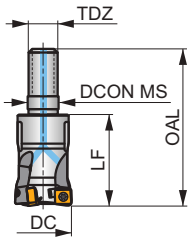
0.5 mm APMX'li Die & Mold'un son işlem alanında geniş bir uygulama yelpazesine yönelik parmak freze. 4 kesme kenarına sahip yüksek hassasiyetli taşlanmış çift taraflı CNHX 05 kesici uçlar, yüksek doğruluk ve ekonomi sağlar. Silindirik ve modüler olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

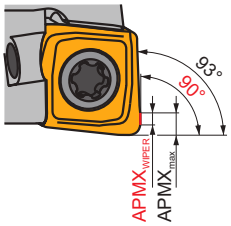
KAPR	90° (93°)
APMX	0.5 (1.0 mm)











h_m 0.02 - 0.07

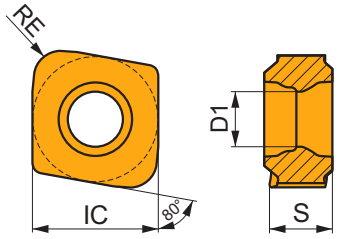
	Product	DC (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	LF (mm)	TDZ	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835A	**12A2R020A10-SCN05C-C**	12	100	10	20	–	–	-15	-8	2	–	48700	✓	0.08	GI330	C0601
	16A3R020A14-SCN05C-C	16	130	14	20	–	–	-13.5	-7.8	3	–	42200	✓	0.16	GI330	C0601
	20A5R020A18-SCN05C-C	20	160	18	20	–	–	-12.7	-7.5	5	✓	37700	✓	0.31	GI330	C0601
MODULAR	**12A2R020M06-SCN05C-C**	12	35	6.5	–	20	M6	-15	-8	2	–	–	✓	0.04	GI330	C0601
	16A3R025M08-SCN05C-C	16	43	8.5	–	25	M8	-13.5	-7.8	3	–	–	✓	0.05	GI330	C0601
	20A5R030M10-SCN05C-C	20	49	10.5	–	30	M10	-12.7	-7.5	5	✓	–	✓	0.08	GI330	C0601

GI330	CNHX0502..

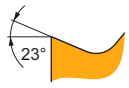
		Nm			
C0601	US 62005-T06P	0.9	M 2	4.9	Flag T06P

CNHX 05

	IC	D1	S
	(mm)	(mm)	(mm)
0502	4.800	2.10	2.40



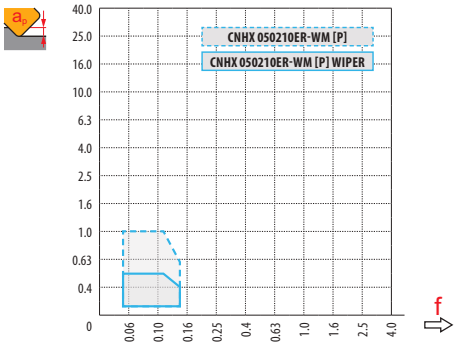
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

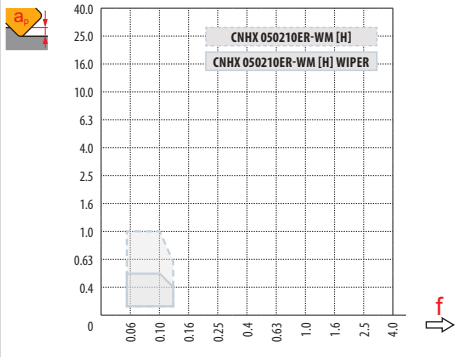
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			 **WM** geometri, yarı finiş ve finiş işleme için silicili tasarım.																		
CNHX 050205ER-WM:M4310	●	0.5	350	0.10	0.5	–	–	–	335	0.10	0.5	–	–	–	–	–	–	70	0.10	0.5
CNHX 050205ER-WM:M8330	⬌	0.5	310	0.10	0.5	–	–	–	290	0.10	0.5	–	–	–	–	–	–	60	0.10	0.5
CNHX 050210ER-WM:M4310	⬌	1.0	440	0.10	0.5	–	–	–	420	0.10	0.5	–	–	–	–	–	–	85	0.10	0.5
CNHX 050210ER-WM:M8330	⬌	1.0	390	0.10	0.5	–	–	–	370	0.10	0.5	–	–	–	–	–	–	75	0.10	0.5

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00

a_e / DC	0.5 %	1.0 %	2.0 %	3.0 %	4.0 %	5.0 %
X.V	2.04	1.85	1.68	1.59	1.53	1.48

	CNHX 05-WM	
RE	0.5	1.0
BS	0.50	0.50



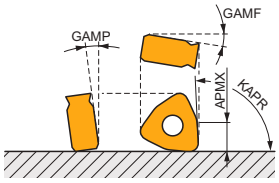


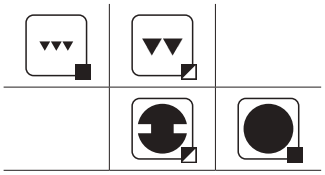
DC	max
12	0.4
16	0.4
20	0.5

DC	RPMX	APMX/I
12	2.4	1/25
16	1.5	1/40
20	1.1	1/54

SWN04C

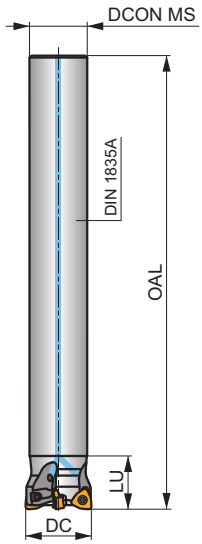
KAPR	90° (93°)
APMX	0.5 (2.0 mm)

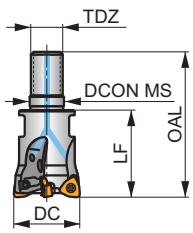


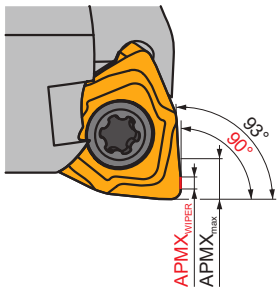


Kalıpçılık Uygulamaları için Parmak Frezeler, İçten Su Vermeli

0.5 mm APMX'li Die & Mold'un son işlem alanında geniş bir uygulama yelpazesine yönelik parmak freze. 6 kesme kenarına sahip, yüksek hassasiyetli taşlanmış WNHX 04 kesici uçlar, yüksek doğruluk ve ekonomi sağlar. . Silindirik ve modüler olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.







h_m 0.02 - 0.07

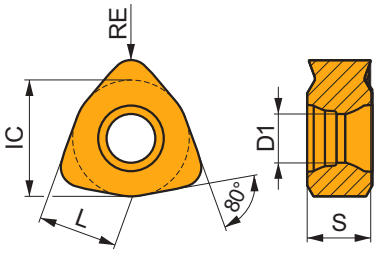
	Product	DC (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	LF (mm)	TDZ	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835A	**16A2R020A14-SWN04C-C**	16	140	14	20	–	–	-13.5	-8	2	–	33200	✓	0.14	GI331	C0602
	20A3R020A18-SWN04C-C	20	160	18	20	–	–	-12	-8	3	–	19700	✓	0.27	GI331	C0602
	25A4R020A22-SWN04C-C	25	180	22	20	–	–	-11.5	-8	4	✓	26600	✓	0.45	GI331	C0602
	32A6R020A25-SWN04C-C	32	200	25	20	–	–	-11.2	-8	6	✓	23500	✓	0.69	GI331	C0602
MODULAR	**16A2R025M08-SWN04C-C**	16	43	8.5	–	25	M08	-13.5	-8	2	–	33200	✓	0.05	GI331	C0602
	20A3R030M10-SWN04C-C	20	49	10.5	–	30	M10	-12	-8	3	–	–	✓	0.07	GI331	C0602
	25A4R033M12-SWN04C-C	25	55	12.5	–	33	M12	-11.5	-8	4	✓	–	✓	0.10	GI331	C0602
	32A6R040M16-SWN04C-C	32	63	17	–	40	M16	-11.2	-8	6	✓	–	✓	0.21	GI331	C0602
	35A6R043M16-SWN04C-C	35	66	17	–	43	M16	-11.1	-8	6	✓	–	✓	0.22	GI331	C0602

GI331	WNHX0403..

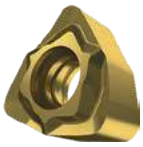
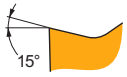
C0602	US 42507-T07P	1.2	M 2.5	7	Flag T07P

WNHX 04

	IC	D1	S
	(mm)	(mm)	(mm)
0403	6.200	2.60	3.38



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

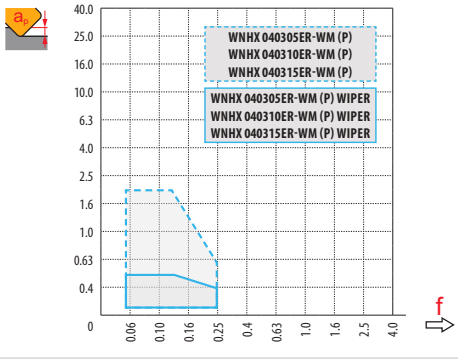
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
WNHX 040305ER-WM:M4310	●	0.5	◪	290	0.15	1.0	–	–	–	■	275	0.15	1.0	–	–	–	–	–	–	■	55	0.10	0.7
WNHX 040305ER-WM:M8330	⬌	0.5	■	260	0.15	1.0	–	–	–	■	245	0.15	1.0	–	–	–	–	–	–	◪	50	0.10	0.7
WNHX 040310ER-WM:M4310	⬌	1.0	◪	370	0.15	1.0	–	–	–	■	350	0.15	1.0	–	–	–	–	–	–	■	70	0.10	0.7
WNHX 040310ER-WM:M8330	⬌	1.0	■	330	0.15	1.0	–	–	–	■	310	0.15	1.0	–	–	–	–	–	–	◪	65	0.10	0.7
WNHX 040315ER-WM:M4310	⬌	1.5	◪	390	0.15	1.0	–	–	–	■	370	0.15	1.0	–	–	–	–	–	–	■	75	0.10	0.7
WNHX 040315ER-WM:M8330	⬌	1.5	■	345	0.15	1.0	–	–	–	■	325	0.15	1.0	–	–	–	–	–	–	◪	65	0.10	0.7

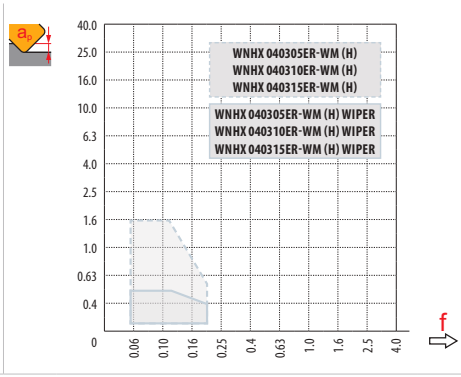
WM geometri, yarı finiş ve finiş işleme için silicili tasarım.

a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00

a_e / DC	0.5 %	1.0 %	2.0 %	3.0 %	4.0 %	5.0 %
X.V	2.04	1.85	1.68	1.59	1.53	1.48

	WNHX 04-WM		
RE	0.5	1.0	1.5
BS	0.50	0.50	0.50



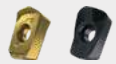


DC	max
16	
20	0.4
25	0.5
32	0.5
35	0.5

DC	RPMX	APMX/I
16		
20	0.7	1.1/100
25	0.5	0.75/100
32	0.3	0.4/100
35	0.3	0.4/100

YÜKSEK ILERLEMELI FREZELEME

YÜZEY FREZELEME

	SBN10	SSN11				
	20°	18°				
	APMX (mm) 1.0	APMX (mm) 1.7				
	DCX (mm) 16 – 66	DCX (mm) 32 – 125				
Silindirik şaft	 DCX = 16 – 35 (mm)	 DCX = 32, 35 (mm)				
Weldon						
Modüler	 DCX = 16 – 40 (mm)	 DCX = 32 – 40 (mm)				
Freze kafası	 DCX = 40 – 66 (mm)	 DCX = 40 – 125 (mm)				
Sayfa	252	258				
ISO	P M K S H	P M K S H				
Kesici uç şekli						
Kesici uçlar	BNGX 10T3 ANHX 10T3	SNGX 1104				
Kesme kenarlarının sayısı	4 / 2	8				
Yüzey frezeleme	■	■				
Helisel interpolasyon	■	◪				
Sığ kenar frezeleme	■	■				
Dalma frezeleme	■	■				
Aşamalı dalma	■	◪				
Açılı frezeleme	■	◪				
Şekil yüzeyleri frezeleme (kopya frezeleme)	■	■				
Sığ oluk frezeleme	◪	◪				

■ İlk seçim. ◪ Olası seçim.

SBN10

P M K S H

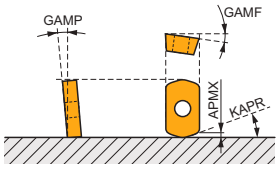
PRAMET

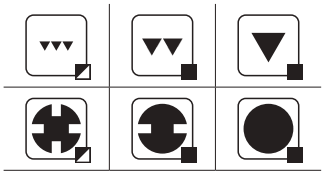
S

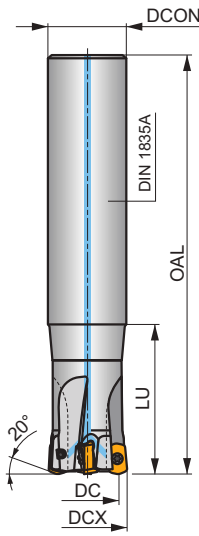
BN.. 10 Uçlar için Yüksek Hızlı Freze Takımı, İçten Su Vermeli, Yeni Nesil

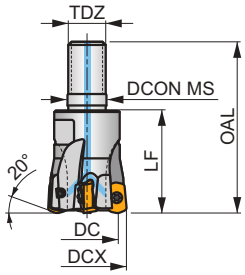
Dört kesme kenarlı ve 1 mm APMX'li çift taraflı BNGX 10 uçlar kullanan daha küçük çaplar için yüksek ilerlemeli frezeleme takımı. İçten su vermeli. Birçok uygulama için uygundur. Silindirik, modüler ve göbekten bağlamalı olarak Ø16-42mm çaplarında bulunur. Gövde uzun takım ömrü için işlem görmüştür.

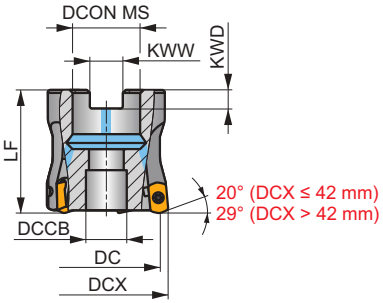
KAPR	20° (29°)
APMX	1.0 mm











h_m	0.17 - 0.41
h_m	0.17 - 0.41

	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	KAPR (°)	GAMF (°)	GAMP (°)			max.		kg		
	16E2R030A16-SBN10-C	16	9.4	100	16	–	30	–	–	–	–	20	-12	-10	2	✓	31100	✓	0.13	GI329	C0310
	16E2R050A16-SBN10-C	16	9.4	150	16	–	50	–	–	–	–	20	-12	-10	2	–	31100	✓	0.18	GI329	C0310
	16E2R030A14-SBN10-C	16	9.4	150	14	–	30	–	–	–	–	20	-12	-10	2	–	31100	✓	0.18	GI329	C0310
	18E2R030A16-SBN10-C	18	11.4	150	16	–	30	–	–	–	–	20	-11	-10	2	–	29200	✓	0.23	GI329	C0310
	20E3R040A20-SBN10-C	20	13.4	130	20	–	40	–	–	–	–	20	-10	-10	3	–	27700	✓	0.25	GI329	C0310
	20E3R080A20-SBN10-C	20	13.4	160	20	–	80	–	–	–	–	20	-10	-10	3	–	27700	✓	0.29	GI329	C0310
	20E3R040A18-SBN10-C	20	13.4	180	18	–	40	–	–	–	–	20	-10	-10	3	–	27700	✓	0.29	GI329	C0310
	20E4R040A20-SBN10-C	20	13.4	130	20	–	40	–	–	–	–	20	-10	-10	4	–	27700	✓	0.28	GI329	C0310
DIN 1835A	**25E4R050A25-SBN10-C**	25	18.4	140	25	–	50	–	–	–	–	20	-9	-10	4	✓	24800	✓	0.42	GI329	C0310
	25E4R100A25-SBN10-C	25	18.4	180	25	–	100	–	–	–	–	20	-9	-10	4	✓	24800	✓	0.51	GI329	C0310
	25E4R050A22-SBN10-C	25	18.4	220	22	–	50	–	–	–	–	20	-9	-10	4	✓	24800	✓	0.58	GI329	C0310
	25E5R050A25-SBN10-C	25	18.4	140	25	–	50	–	–	–	–	20	-9	-10	5	–	24800	✓	0.42	GI329	C0310
	32E5R070A32-SBN10-C	32	25.4	150	32	–	70	–	–	–	–	20	-8	-10	5	✓	21900	✓	0.73	GI329	C0310
	32E6R070A32-SBN10-C	32	25.4	150	32	–	70	–	–	–	–	20	-8	-10	6	✓	21900	✓	0.76	GI329	C0310
	32E5R120A32-SBN10-C	32	25.4	200	32	–	120	–	–	–	–	20	-8	-10	5	✓	21900	✓	0.96	GI329	C0310
	35E5R050A32-SBN10-C	35	28.4	200	32	–	50	–	–	–	–	20	-7.5	-10	5	✓	21000	✓	1.08	GI329	C0310
	35E6R050A32-SBN10-C	35	28.4	200	32	–	50	–	–	–	–	20	-7.5	-10	6	✓	21000	✓	1.08	GI329	C0310
	16E2R025M08-SBN10-C	16	9.4	43	8.5	–	–	25	M8	–	–	20	-12	-10	2	–	31100	✓	0.05	GI329	C0310
	18E2R025M08-SBN10-C	18	11.4	43	8.5	–	–	25	M8	–	–	20	-11	-10	2	–	29200	✓	0.05	GI329	C0310
	20E3R030M10-SBN10-C	20	13.4	49	10.5	–	–	30	M10	–	–	20	-10	-10	3	–	27700	✓	0.07	GI329	C0310
	20E4R030M10-SBN10-C	20	13.4	49	10.5	–	–	30	M10	–	–	20	-10	-10	4	–	27700	✓	0.06	GI329	C0310
MODULAR	**25E4R033M12-SBN10-C**	25	18.4	55	12.5	–	–	33	M12	–	–	20	-9	-10	4	✓	24800	✓	0.08	GI329	C0310
	25E5R033M12-SBN10-C	25	18.4	55	12.5	–	–	33	M12	–	–	20	-9	-10	5	–	24800	✓	0.10	GI329	C0310
	28E5R035M12-SBN10-C	28	21.4	57	12.5	–	–	35	M12	–	–	20	-8.5	-10	5	✓	23400	✓	0.12	GI329	C0310
	32E5R040M16-SBN10-C	32	25.4	63	17	–	–	40	M16	–	–	20	-8	-10	5	✓	21900	✓	0.21	GI329	C0310
	32E6R040M16-SBN10-C	32	25.4	63	17	–	–	40	M16	–	–	20	-8	-10	6	✓	21900	✓	0.21	GI329	C0310
	35E6R043M16-SBN10-C	35	28.4	66	17	–	–	43	M16	–	–	20	-7.5	-10	6	✓	21000	✓	0.23	GI329	C0310

	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	KAPR (°)	GAMF (°)	GAMP (°)			max.		kg		
MODULAR	40E6R043M16-SBN10-C	40	33.4	66	17	–	–	43	M16	–	–	20	-7	-10	6	✓	19600	✓	0.27	GI329	C0310
MODULAR	40E7R043M16-SBN10-C	40	33.4	66	17	–	–	43	M16	–	–	20	-7	-10	7	✓	19600	✓	0.26	GI329	C0310
	40A05R-SMOBN10-C	40	33.4	–	16	14.1	–	40	–	8.4	5.6	20	-7	-10	5	✓	19600	✓	0.23	GI329	C0312
	40A07R-SMOBN10-C	40	33.4	–	16	14.1	–	40	–	8.4	5.6	20	-7	-10	7	✓	19600	✓	0.27	GI329	C0312
	42A05R-SMOBN10-C	42	35.4	–	16	14.1	–	40	–	8.4	5.6	20	-7	-10	5	✓	19100	✓	0.23	GI329	C0312
	42A07R-SMOBN10-C	42	35.4	–	16	14.1	–	40	–	8.4	5.6	20	-7	-10	7	✓	19100	✓	0.36	GI329	C0312
ISO 6462 DIN 8030	50A07R-SMOBN10-C	50	45	–	22	18.1	–	40	–	10.4	6.3	29	-6	-7	7	✓	17500	✓	0.46	GI343	C0311
ISO 6462 DIN 8030	50A08R-SMOBN10-C	50	45	–	22	18.1	–	40	–	10.4	6.3	29	-6	-7	8	✓	17500	✓	0.34	GI343	C0311
ISO 6462 DIN 8030	52A07R-SMOBN10-C	52	47	–	22	18.1	–	40	–	10.4	6.3	29	-6	-7	7	✓	17200	✓	0.49	GI343	C0311
ISO 6462 DIN 8030	52A08R-SMOBN10-C	52	47	–	22	18.1	–	40	–	10.4	6.3	29	-6	-7	8	✓	17200	✓	0.37	GI343	C0311
ISO 6462 DIN 8030	66A08R-SMOBN10-C	66	61	–	27	22.1	–	50	–	12.4	7	29	-6	-7	8	✓	15200	✓	0.89	GI343	C0313

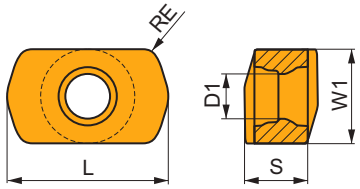
GI329	BNGX 10T3…	ANHX 10T3..
GI343	BNGX 10T3…	–

		Nm						
C0310	US 42507-T07P	1.2	M 2.5	7	Flag T07P	–	–	–
C0313	US 42507-T07P	1.2	M 2.5	7	–	D-T07P/T09P	FG-15	HS 1230C
C0312	US 42507-T07P	1.2	M 2.5	7	–	D-T07P/T09P	FG-15	HS 0830C
C0311	US 42507-T07P	1.2	M 2.5	7	–	D-T07P/T09P	FG-15	HS 1030C

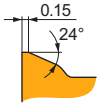
BNGX 10

PRAMET

	W1 (mm)	D1 (mm)	L (mm)	S (mm)
10T3	5.800	2.76	9.92	3.90

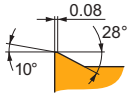
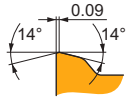


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																			
BNGX 10T308SR-M:8215	0.8	240	0.65	0.7	–	–	–	225	0.65	0.7	–	–	–	–	–	–	45	0.36	0.5
BNGX 10T308SR-M:M6330	0.8	210	0.65	0.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
BNGX 10T308SR-M:M8310	0.8	250	0.65	0.7	–	–	–	235	0.65	0.7	–	–	–	–	–	–	50	0.36	0.5
BNGX 10T308SR-M:M8330	0.8	240	0.65	0.7	–	–	–	225	0.65	0.7	–	–	–	–	–	–	45	0.36	0.5
BNGX 10T308SR-M:M8340	0.8	225	0.65	0.7	–	–	–	210	0.65	0.7	–	–	–	–	–	–	–	–	–
BNGX 10T308SR-M:M8345	0.8	180	0.65	0.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
BNGX 10T308SR-M:M9325	0.8	275	0.65	0.7	–	–	–	260	0.65	0.7	–	–	–	–	–	–	55	0.36	0.5

M geometri, yüksek hızlı frezeleme için pozitif tasarım.

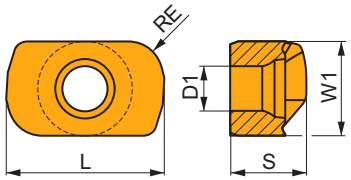
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
   **MM** geometri, yüksek hızlı frezeleme için çok pozitif tasarım.																			
BNGX 10T308SR-MM:M6330	0.8	215	0.65	0.6	150	0.59	0.6	–	–	–	–	–	–	60	0.46	0.5	–	–	–
BNGX 10T308SR-MM:M8310	0.8	255	0.65	0.6	130	0.59	0.6	–	–	–	–	–	–	–	–	–	–	–	–
BNGX 10T308SR-MM:M8330	0.8	245	0.65	0.6	145	0.59	0.6	–	–	–	–	–	–	60	0.46	0.5	–	–	–
BNGX 10T308SR-MM:M8340	0.8	230	0.65	0.6	135	0.59	0.6	–	–	–	–	–	–	55	0.46	0.5	–	–	–
BNGX 10T308SR-MM:M8345	0.8	180	0.65	0.6	105	0.59	0.6	–	–	–	–	–	–	45	0.46	0.5	–	–	–
BNGX 10T308SR-MM:M9325	0.8	280	0.65	0.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
BNGX 10T308SR-MM:M9340	0.8	250	0.65	0.6	150	0.59	0.6	–	–	–	–	–	–	60	0.46	0.5	–	–	–
   **HM** geometri, yüksek hızlı frezeleme için güçlü tasarım.																			
BNGX 10T308SR-HM:8215	0.8	–	–	–	–	–	–	240	0.65	0.4	–	–	–	–	–	–	50	0.65	0.4
BNGX 10T308SR-HM:M8310	0.8	–	–	–	–	–	–	250	0.65	0.4	–	–	–	–	–	–	50	0.65	0.4
BNGX 10T308SR-HM:M8330	0.8	–	–	–	–	–	–	240	0.65	0.4	–	–	–	–	–	–	50	0.65	0.4

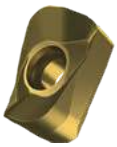
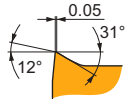
ANHX 10

PRAMET

	W1 (mm)	D1 (mm)	L (mm)	S (mm)
10T3	5.800	2.76	9.72	4.70



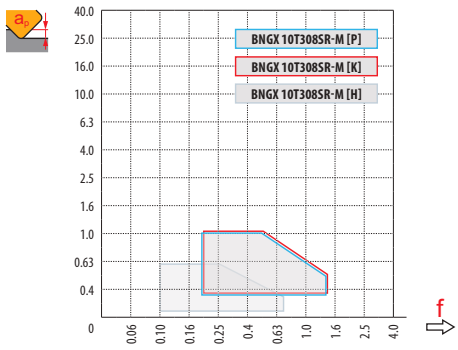
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

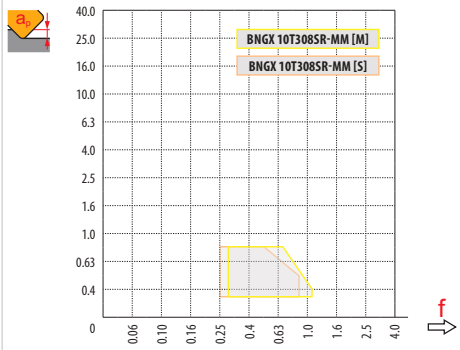
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
   **F** geometri, finiş ve yarı finiş işleme için pozitif tasarım.																			
ANHX 10T320SR-F:M8310	2.0	380	0.10	2.5	190	0.09	2.5	–	–	–	–	–	–	–	–	–	–	–	–
ANHX 10T320SR-F:M8330	2.0	340	0.10	2.5	200	0.09	2.5	–	–	–	–	–	–	–	–	–	–	–	–

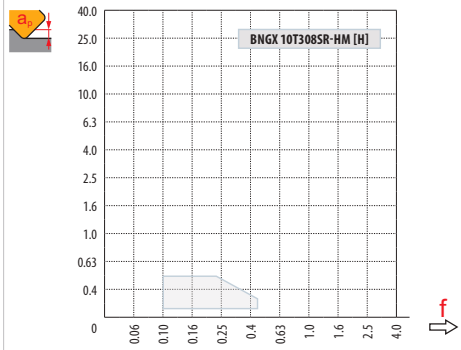
a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

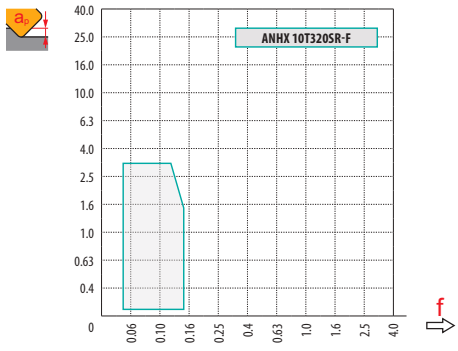
	BNGX 10-M	BNGX 10-MM	BNGX 10-HM
RE	0.8	0.8	0.8
BS	–	–	–

	ANHX 10 - F
RE	2.0
BS	0.92









BNGX 10 (HFC)

DCX	a_p	0.00	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
16		9.40	12.85	13.36	13.80	14.20	14.56	14.88	15.19	15.47
18		11.40	14.85	15.36	15.80	16.20	16.56	16.88	17.19	17.47
20		13.40	16.85	17.36	17.80	18.20	18.56	18.88	19.19	19.47
25		18.40	21.85	22.36	22.80	23.20	23.56	23.88	24.19	24.47
32	DEF	25.40	28.85	29.36	29.80	30.20	30.56	30.88	31.19	31.47
35		28.40	31.85	32.36	32.80	33.20	33.56	33.88	34.19	34.47
40		33.40	36.85	37.36	37.80	38.20	38.56	38.88	39.19	39.47
42		35.40	38.85	39.36	39.80	40.20	40.56	40.88	41.19	41.47
50		43.98	46.09	46.45	46.82	47.18	47.54	47.90	48.26	48.56
52		45.98	48.09	48.45	48.82	49.18	49.54	49.90	50.26	50.56
66		59.98	62.09	62.45	62.82	63.18	63.54	63.90	64.26	64.56
	a_p	**0.00**	**0.30**	**0.40**	**0.50**	**0.60**	**0.70**	**0.80**	**0.90**	**1.00**
	f	–	1.30	1.10	0.90	0.80	0.72	0.68	0.65	0.50

BNGX 10

DCX	a_{emax}	f_{max}
16	3.5	0.12
18	3.5	0.12
20	4.0	0.15
25	4.0	0.15
32	4.0	0.17
35	4.0	0.17
40	4.0	0.17
42	4.0	0.17
50	4.5	0.30
52	4.5	0.30
66	4.5	0.30

BNGX 10 (HFC)

a_p	0.3	0.6	1.0
f	1.10	0.60	0.30

BNGX 10 (HFC) / ANHX 10

DCX	BNGX 10 (HFC) RPMX	BNGX 10 (HFC) APMX/I	ANHX 10 RPMX	ANHX 10 APMX/I
16	3.8	1/17	1.6°	2.65/100
18	3.8	1/17	1.3°	2.15/100
20	3.8	1/17	1.1°	1.80/100
25	2.6	1/24	0.8°	1.25/100
32	1.8	1/33	0.5°	0.75/100
35	1.6	1/37	0.5°	0.75/100
40	1.3	1/46	0.4°	0.55/100
42	1.3	1/46	0.4°	0.55/100
50	0.4	0.55/100	–	–
52	0.4	0.55/100	–	–
66	0.3	0.4/100	–	–

BNGX 10 (HFC)

DCX	a_p	f_{max}
16	0.4	0.15
18	0.7	0.15
20	0.7	0.15
25	0.7	0.15
32	0.7	0.2
35	0.7	0.2
40	0.7	0.2
42	0.7	0.2
50	0.3	0.2
52	0.3	0.2
66	0.3	0.2

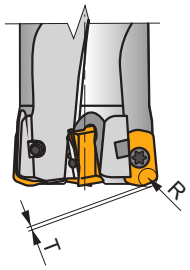
BNGX 10 (HFC)

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
16	22.4	31.8	0.5	0.5
18	25.4	35.8	0.5	0.5
20	29.4	39.8	0.5	0.5
25	39.4	49.8	0.5	0.5
32	53.4	63.8	0.5	0.5
35	59.4	69.8	0.5	0.5
40	69.4	79.8	0.5	0.5
42	73.4	83.8	0.5	0.5
50	89.6	99.6	0.5	0.5
52	93.6	103.6	0.5	0.5
66	121.6	131.6	0.5	0.5

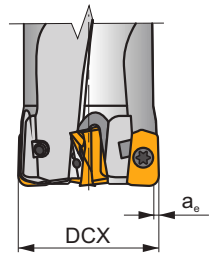
DCX	µm	3	5	10	15	20	30	40	50	60	80	100
16	FE	0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530
18		0.465	0.600	0.849	1.039	1.200	1.470	1.697	1.897	2.078	2.400	2.683
20		0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
25		0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
35		0.648	0.837	1.183	1.449	1.673	2.049	2.366	2.646	2.898	3.347	3.742
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
42		0.710	0.917	1.296	1.587	1.833	2.245	2.592	2.898	3.175	3.666	4.099

ANHX 10

RE	µm	3	5	10	15	20	30	40	50	60	80	100
2.0	FE	0.219	0.283	0.400	0.490	0.566	0.693	0.800	0.894	0.980	1.131	1.265



	R	T
BNGX 10T308	1.60	0.44



	max a_e/DCX
ANHX 10T320	0.05

SSN11

P M K S H

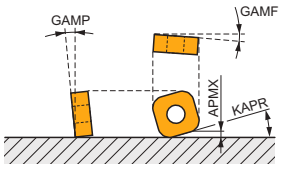
PRAMET

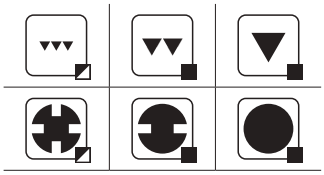
S

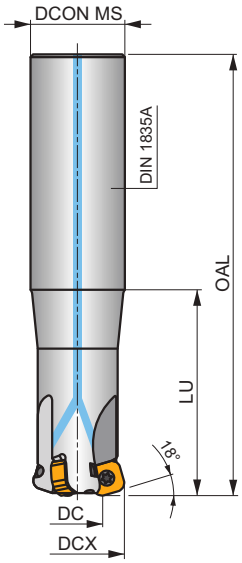
SN. 11 Uçlar için İçten Kesme Sıvılı, Yeni Nesil Yüksek İlerlemeli Frezeleme Takımı

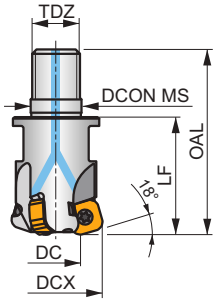
Sekiz kesme kenarlı ve 1.7 mm APMX'li çift taraflı SNXG 11 kesici uçlar kullanan daha büyük çaplar için yüksek ilerlemeli frezeleme takımı. İçten su vermeli. Birçok uygulama için uygundur. Silindirik, modüler ve göbekten bağlamalı tipindebulunur. Gövde uzun takım ömrü için işlem görmüştür.

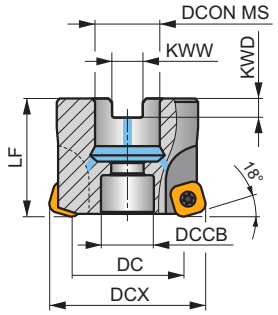
KAPR	18°
APMX	1.7 mm











h_m	0.20 - 0.46
h_m	0.20 - 0.46

	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
DIN 1835A	32E3R070A32-SSN11-C	32	18.3	150	32	–	70	–	–	–	–	-11.5	-10	3	–	17500	✓	0.69	GI339	C0314	–
	32E3R120A32-SSN11-C	32	18.3	200	32	–	120	–	–	–	–	-11.5	-10	3	–	17500	✓	0.89	GI339	C0314	–
	35E3R050A32-SSN11-C	35	21.2	200	32	–	50	–	–	–	–	-11	-10	3	–	16800	✓	1.08	GI339	C0314	–
MODULAR	32E3R040M16-SSN11-C	32	18.3	63	17	–	–	40	M16	–	–	-11.5	-10	3	–	17500	✓	0.19	GI339	C0314	–
	35E3R040M16-SSN11-C	35	21.2	63	17	–	–	40	M16	–	–	-11	-10	3	–	16800	✓	0.19	GI339	C0314	–
	40E4R043M16-SSN11-C	40	26.2	66	17	–	–	43	M16	–	–	-10.5	-10	4	✓	15700	✓	0.26	GI339	C0314	–
ISO 6462 DIN 8030	40A04R-SMOSN11-C	40	26.2	–	16	12.4	–	40	–	8.4	5.6	-10.5	-10	4	✓	15700	✓	0.19	GI339	C0316	–
	42A04R-SMOSN11-C	42	28.2	–	16	14.1	–	40	–	8.4	5.6	-10.5	-10	4	✓	15300	✓	0.21	GI339	C0318	–
	50A05R-SMOSN11-C	50	36.1	–	22	18.1	–	40	–	10.4	6.3	-10	-10	5	✓	14000	✓	0.31	GI339	C0320	–
	50A06R-SMOSN11-C	50	36.1	–	22	18.1	–	40	–	10.4	6.3	-10	-10	6	✓	14000	✓	0.43	GI339	C0320	–
	52A05R-SMOSN11-C	52	38.1	–	22	18.1	–	40	–	10.4	6.3	-10	-10	5	✓	13800	✓	0.47	GI339	C0320	–
	52A06R-SMOSN11-C	52	38.1	–	22	18.1	–	40	–	10.4	6.3	-10	-10	6	✓	13800	✓	0.46	GI339	C0320	–
	63A06R-SMOSN11-C	63	49.1	–	22	18.1	–	40	–	10.4	6.3	-10	-10	6	✓	12500	✓	0.46	GI339	C0320	–
	63A08R-SMOSN11-C	63	49.1	–	22	18.1	–	40	–	10.4	6.3	-10	-10	8	✓	12500	✓	0.60	GI339	C0320	–
	66A06R-SMOSN11-C	66	52.1	–	27	18.1	–	50	–	12.4	7	-10	-10	6	✓	12200	✓	0.88	GI339	C0322	–
	66A08R-SMOSN11-C	66	52.1	–	27	18.1	–	50	–	12.4	7	-10	-10	8	✓	12200	✓	0.88	GI339	C0322	–
	80A07R-SMOSN11-C	80	66.1	–	27	38.1	–	50	–	12.4	7	-10	-10	7	✓	11100	✓	0.95	GI339	C0324	AC001
	80A09R-SMOSN11-C	80	66.1	–	27	38.1	–	50	–	12.4	7	-10	-10	9	✓	11100	✓	1.03	GI339	C0324	AC001
	100A08R-SMOSN11-C	100	86.1	–	32	45.1	–	50	–	14.4	8	-10	-10	8	✓	9900	✓	1.83	GI339	C0324	AC002
	115A08R-SMOSN11-C	115	101.1	–	32	45.1	–	50	–	14.4	8	-10	-10	8	✓	9200	✓	2.30	GI339	C0324	AC002
	125A08R-SMOSN11-C	125	111.1	–	40	56.1	–	63	–	16.4	9	-10	-10	8	✓	8900	✓	3.34	GI339	C0324	AC003

GI339	SNGX 1104..

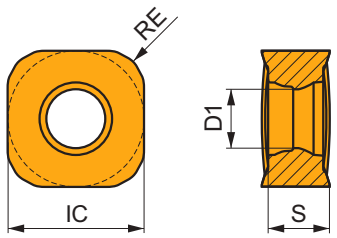
		Nm						
C0314	US 44012-T15P	3.5	M 4	12	–	–	Flag T15P	–
C0316	US 44012-T15P	3.5	M 4	12	D-T08P/T15P	FG-15	–	HCS 0840C
C0318	US 44012-T15P	3.5	M 4	12	D-T08P/T15P	FG-15	–	HS 90835
C0320	US 44012-T15P	3.5	M 4	12	D-T08P/T15P	FG-15	–	HS 1030C
C0322	US 44012-T15P	3.5	M 4	12	D-T08P/T15P	FG-15	–	HS 1230C
C0324	US 44012-T15P	3.5	M 4	12	D-T08P/T15P	FG-15	–	–

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

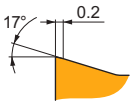
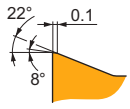
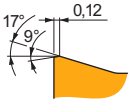
SNGX 11

PRAMET

	IC (mm)	D1 (mm)	S (mm)
1104	10.600	4.56	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

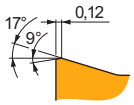
Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
SNGX 110416SR-M:8215		1.6	260	0.60	1.0	–	–	–	245	0.60	1.0	–	–	–	–	–	–	–	–	–
SNGX 110416SR-M:M8310		1.6	275	0.60	1.0	–	–	–	260	0.60	1.0	–	–	–	–	–	–	–	–	–
SNGX 110416SR-M:M8330		1.6	260	0.60	1.0	–	–	–	245	0.60	1.0	–	–	–	–	–	–	–	–	–
SNGX 110416SR-M:M8340		1.6	245	0.60	1.0	–	–	–	230	0.60	1.0	–	–	–	–	–	–	–	–	–
SNGX 110416SR-M:M9325		1.6	305	0.60	1.0	–	–	–	285	0.60	1.0	–	–	–	–	–	–	–	–	–
SNGX 110416SR-M:M9340		1.6	270	0.60	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
																				
SNGX 110416SR-MM:M6330		1.6	175	0.60	1.0	125	0.54	1.0	–	–	–	–	–	–	50	0.42	0.8	–	–	–
SNGX 110416SR-MM:M8340		1.6	190	0.60	1.0	110	0.54	1.0	–	–	–	–	–	–	45	0.42	0.8	–	–	–
SNGX 110416SR-MM:M8345		1.6	150	0.60	1.0	90	0.54	1.0	–	–	–	–	–	–	35	0.42	0.8	–	–	–
SNGX 110416SR-MM:M9340		1.6	210	0.60	1.0	125	0.54	1.0	–	–	–	–	–	–	50	0.42	0.8	–	–	–
																				
SNGX 110416SR-HM:8215		1.6	230	1.00	1.0	–	–	–	215	1.00	1.0	–	–	–	–	–	–	45	0.70	0.7
SNGX 110416SR-HM:M8310		1.6	240	1.00	1.0	–	–	–	225	1.00	1.0	–	–	–	–	–	–	45	0.70	0.7

M geometri, yüksek ilerlemeli frezeleme için pozitif tasarım.

MM geometri, yüksek ilerlemeli frezeleme için çok pozitif tasarım.

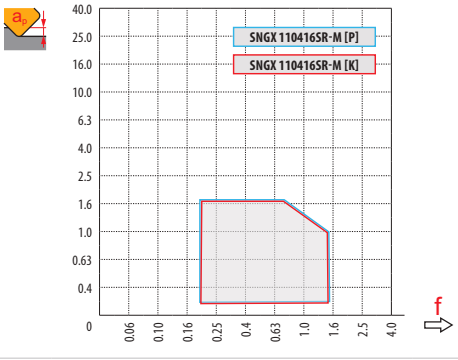
HM geometri, yüksek ilerlemeli frezeleme için güçlü tasarım.

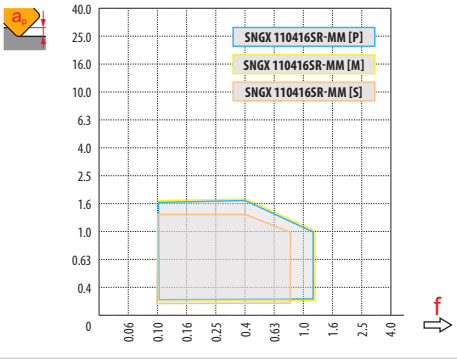
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

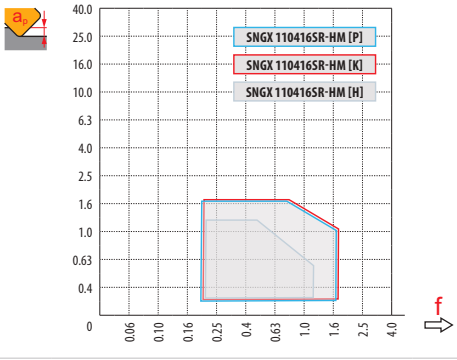
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
   **HM** geometri, yüksek ilerlemeli frezeleme için güçlü tasarım.																			
SNGX 110416SR-HM:M8330	1.6	235	1.00	1.0	–	–	–	220	1.00	1.0	–	–	–	–	–	–	45	0.70	0.7
SNGX 110416SR-HM:M9325	1.6	260	1.00	1.0	–	–	–	245	1.00	1.0	–	–	–	–	–	–	50	0.70	0.7

a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	SNGX 11 - M	SNGX 11 - MM	SNGX 11 - HM
RE	1.6	1.6	1.6
BS	–	–	–







HFC

DCX	a_p	0.00	0.20	0.40	0.60	0.80	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70
32	DEF	18.30	19.53	20.76	21.99	23.22	24.46	25.07	25.69	26.30	26.92	27.53	28.15	28.76
35		21.20	22.43	23.66	24.89	26.12	27.36	27.97	28.59	29.20	29.82	30.43	31.05	31.66
40		26.20	27.43	28.66	29.89	31.12	32.36	32.97	33.59	34.20	34.82	35.43	36.05	36.66
42		28.20	29.43	30.66	31.89	33.12	34.36	34.97	35.59	36.20	36.82	37.43	38.05	38.66
50		36.10	37.33	38.56	39.79	41.02	42.26	42.87	43.49	44.10	44.72	45.33	45.95	46.56
52		38.10	39.33	40.56	41.79	43.02	44.26	44.87	45.49	46.10	46.72	47.33	47.95	48.56
63		49.10	50.33	51.56	52.79	54.02	55.26	55.87	56.49	57.10	57.72	58.33	58.95	59.56
66		52.10	53.33	54.56	55.79	57.02	58.26	58.87	59.49	60.10	60.72	61.33	61.95	62.56
80		66.10	67.33	68.56	69.79	71.02	72.26	72.87	73.49	74.10	74.72	75.33	75.95	76.56
100		86.10	87.33	88.56	89.79	91.02	92.26	92.87	93.49	94.10	94.72	95.33	95.95	96.56
115		101.10	102.33	103.56	104.79	106.02	107.26	107.87	108.49	109.10	109.72	110.33	110.95	111.56
125		111.10	112.33	113.56	114.79	116.02	117.26	117.87	118.49	119.10	119.72	120.33	120.95	121.56
	a_p	–	0.20	0.40	0.60	0.80	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70
	f	–	1.37	0.98	0.81	0.71	0.64	0.62	0.59	0.58	0.56	0.54	0.53	0.52

SNGX		
DCX	a_{emax}	f_{max}
32	5.0	0.25
35	5.0	0.25
40	5.2	0.30
42	5.2	0.30
50	5.3	0.30
52	5.3	0.30
63	5.4	0.30
66	5.4	0.30
80	5.5	0.35
100	5.5	0.35
115	5.5	0.35
125	5.5	0.35

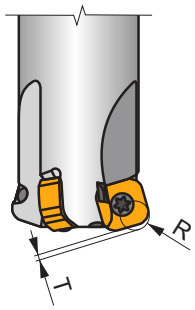
SNGX (HFC)		
DCX	RPMX	APMX/I
32	0.8	1.4/100
35	0.8	1.4/100
40	0.7	1.2/100
42	0.7	1.2/100
50	0.5	0.9/100
52	0.5	0.9/100
63	0.4	0.7/100
66	0.4	0.7/100
80	0.3	0.5/100
100	0.2	0.3/100
115	0.2	0.3/100
125	0.2	0.3/100

SNGX (HFC)		
DCX	a_p	f_{max}
32	0.2	0.3
35	0.2	0.3
40	0.2	0.3
42	0.2	0.3
50	0.3	0.4
52	0.3	0.4
63	0.3	0.4
66	0.3	0.4
80	0.3	0.4
100	0.3	0.4
115	0.3	0.4
125	0.3	0.4

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
32	FE	0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
35		0.648	0.837	1.183	1.449	1.673	2.049	2.366	2.646	2.898	3.347	3.742
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
42		0.710	0.917	1.296	1.587	1.833	2.245	2.592	2.898	3.175	3.666	4.099
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
52		0.790	1.020	1.442	1.766	2.040	2.498	2.884	3.225	3.533	4.079	4.561
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
66		0.890	1.149	1.625	1.990	2.298	2.814	3.250	3.633	3.980	4.596	5.138
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657
100		1.095	1.414	2.000	2.449	2.828	3.464	4.000	4.472	4.899	5.657	6.325
115		1.175	1.517	2.145	2.627	3.033	3.715	4.290	4.796	5.254	6.066	6.782
125		1.225	1.581	2.236	2.739	3.162	3.873	4.472	5.000	5.477	6.325	7.071

	SNGX			
a_p	0.2	0.5	1.0	1.7
1 f	1.20	1.00	0.50	0.25

SNGX (HFC)				
DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
32	48.0	63.8	0.7	1.4
35	54.0	69.8	0.8	1.5
40	64.0	79.8	0.9	1.5
42	68.0	83.8	1.0	1.6
50	84.0	99.8	0.9	1.4
52	88.0	103.8	1.0	1.4
63	109.0	125.8	1.0	1.4
66	115.0	131.8	1.1	1.4
80	143.0	159.8	1.0	1.3
100	183.0	199.8	0.9	1.1
115	213.0	229.8	1.1	1.3
125	233.0	249.8	1.2	1.4



SNGX	R	T
SNGX 110416	4.6	0.92

YÜZEY FREZELEME

	SSO12	SPD09	SZD07	SZD09	SZD12
	12°	19°	–	–	–
	APMX (mm) 1.9	APMX (mm) 2.0	APMX (mm) 1.0	APMX (mm) 1.0	APMX (mm) 1.6
	DCX (mm) 35 – 125	DCX (mm) 32 – 140	DCX (mm) 16 – 25	DCX (mm) 25 – 63	DCX (mm) 32 – 80
Silindirik şaft	 DC = 35, 40 (mm)	 DCX = 32, 40 (mm)	 DCX = 16 – 25 (mm)		
Weldon	 DC = 35, 40 (mm)			 DCX = 25, 32 (mm)	
Modüler				 DCX = 25, 32 (mm)	 DCX = 32, 40 (mm)
Freze kafası	 DC = 42 – 125 (mm)	 DCX = 42 – 140 (mm)		 DCX = 40 – 63 (mm)	 DCX = 50 – 80 (mm)
Sayfa	266	270	276	280	284
ISO	P M K N S H	P M K S H	P K H	P K H	P K H
Kesici uç şekli					
Kesici uçlar	SOHT 1205	PD.. 0905	ZDCW 0703	ZDCW 09T3	ZDEW 1204
Kesme kenarlarının sayısı	4	5	4	4	4
Yüzey frezeleme 	■	■	■	■	■
Helisel interpolasyon 	■	■	◪	◪	◪
Sığ kenar frezeleme 	■	■	◪	◪	◪
Dalma frezeleme 	■	■	◪	◪	◪
Aşamalı dalma 	■	■	◪	◪	◪
Açılı frezeleme 	■	■			
Şekil yüzeyleri frezeleme (kopya frezeleme) 		◪	◪	◪	◪
Sığ oluk frezeleme 	■	◪	◪	◪	◪

■ İlk seçim. ◪ Olası seçim.

SSO12

P M K S H

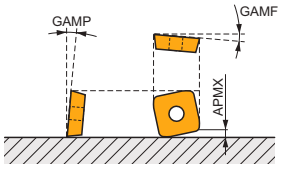
PRAMET

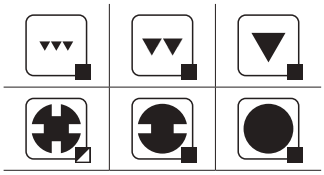
S

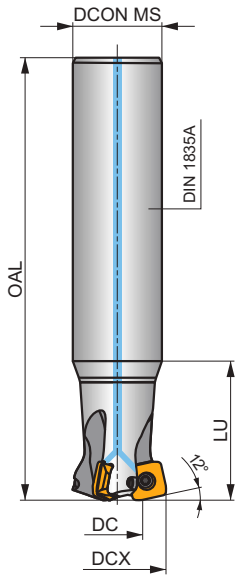
VER SO12 12° İçten Soğutmalı Yüksek İlerlemeli Frezeleme

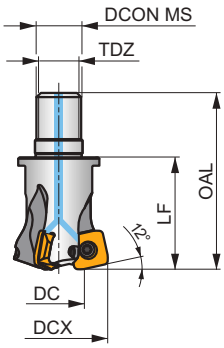
1.9 mm APMX ile tek taraflı SO... 12 tarzı kesici uçlar kullanan çok yönlü 12° yüksek ilerlemeli freze. Çoğu iş parçası malzemesinde geniş bir uygulama yelpazesi için uygundur. Diferansiyel diş aralığı ile silindirik, modüler ve arbor tarzı mevcuttur. Kanallardan geçen soğutma sıvısı ve daha uzun takım ömrü için işlenmiş gövde.

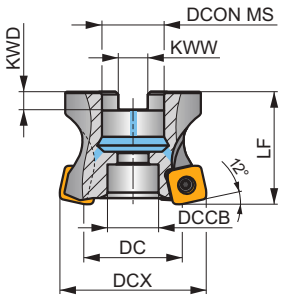
KAPR	12°
APMX	1.9 mm











h_m	0.09-0.93
h_m	0.09-0.93

	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
DIN 1835A	**35E3R050A32-SSO12-C**	35	17.3	200	32	–	50	–	–	–	–	-5	5	3	–	15700	✓	1.07	GI350	SQ501	–
DIN 1835A	**35E3R120A32-SSO12-C**	35	17.3	200	32	–	120	–	–	–	–	-5	5	3	–	15700	✓	0.95	GI350	SQ501	–
DIN 1835A	**40E4R120A32-SSO12-C**	40	22.3	200	32	–	120	–	–	–	–	-5	5	4	–	14700	✓	1.00	GI350	SQ501	–
MODULAR	**35E3R040M16-SSO12-C**	35	17.3	63	17	–	–	40	M16	–	–	-5	5	3	–	15700	✓	0.15	GI350	SQ501	–
MODULAR	**40E4R043M16-SSO12-C**	40	22.3	66	17	–	–	43	M16	–	–	-5	5	4	–	14700	✓	0.18	GI350	SQ501	–
	42A04R-SMOSO12-C	42	24.3	–	16	12.4	–	40	–	8.4	5.6	-5	5	4	–	14300	✓	0.16	GI350	SQ502	–
	50A05R-SMOSO12-C	50	32.3	–	22	18.1	–	40	–	10.4	6.3	-5	5	5	✓	13100	✓	0.23	GI350	SQ503	–
	52A05R-SMOSO12-C	52	34.3	–	22	18.1	–	40	–	10.4	6.3	-5	5	5	✓	12800	✓	0.35	GI350	SQ503	–
ISO 6462 DIN 8030	**63A06R-SMOSO12-C**	63	45.3	–	27	22.1	–	50	–	12.4	7	-5	5	6	✓	11700	✓	0.48	GI350	SQ504	–
ISO 6462 DIN 8030	**66A06R-SMOSO12-C**	66	48.3	–	27	22.1	–	50	–	12.4	7	-5	5	6	✓	11400	✓	0.51	GI350	SQ504	–
ISO 6462 DIN 8030	**80A07R-SMOSO12-C**	80	62.3	–	27	22.1	–	50	–	12.4	7	-5	5	7	✓	10400	✓	0.76	GI350	SQ504	–
	100A08R-SMOSO12-C	100	82.3	–	32	45.1	–	50	–	14.4	8	-5	5	8	✓	9300	✓	1.32	GI350	SQ505	AC002
	125A10R-SMOSO12-C	125	107.3	–	40	56.1	–	63	–	16.4	9	-5	5	10	✓	8300	✓	2.46	GI350	SQ505	AC003

GI350	SOHT 1205..

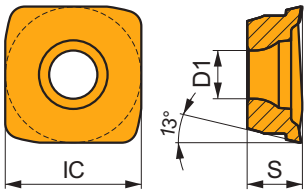
		Nm					
SQ501	US 4011-T15P	3.5	M 4	10.6	FLAG T15P	–	–
SQ502	US 4011-T15P	3.5	M 4	10.6	–	SDR T15P-T	HCS 0840C
SQ503	US 4011-T15P	3.5	M 4	10.6	–	SDR T15P-T	HS 1030C
SQ504	US 4011-T15P	3.5	M 4	10.6	–	SDR T15P-T	HS 1230C
SQ505	US 4011-T15P	3.5	M 4	10.6	–	SDR T15P-T	–

AC002	KS 1635	K.FMH32
AC003	KS 2040	K.FMH40

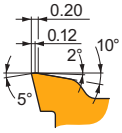
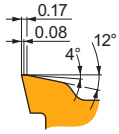
SOHT 12

PRAMET

	IC (mm)	D1 (mm)	S (mm)
1205	12.700	4.50	5.15

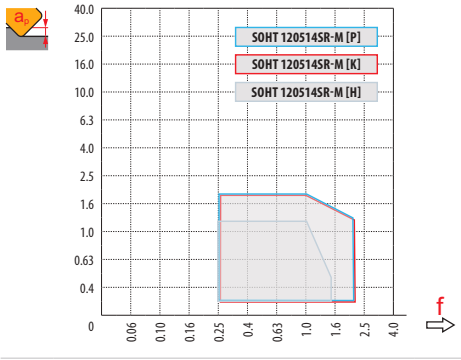


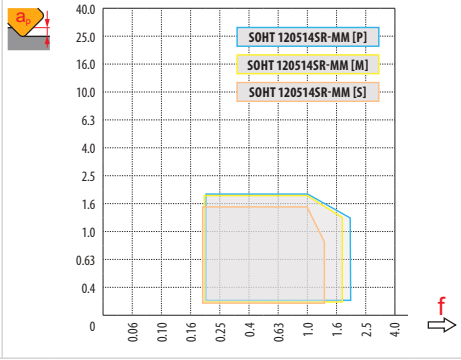
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																			
M geometrisi, çok çeşitli çalışma koşulları için çok yönlüdür. Pürüzsüz HFC frezeleme için pozitif eğim, orta T-land ve yuvarlatılmış kesme kenarı ile tasarlanmıştır. Çelikler, dökme demirler ve sertleştirilmiş çelikler için ilk tercihtir.																			
SOHT 120514SR-M:8215	1.4	215	1.00	1.0	125	0.90	1.0	200	1.00	1.0	–	–	–	50	0.70	0.8	40	0.68	0.8
SOHT 120514SR-M:M8310	1.4	225	1.00	1.0	110	0.90	1.0	210	1.00	1.0	–	–	–	–	–	–	45	0.68	0.8
SOHT 120514SR-M:M8330	1.4	220	1.00	1.0	130	0.90	1.0	205	1.00	1.0	–	–	–	55	0.70	0.8	40	0.68	0.8
SOHT 120514SR-M:M8340	1.4	205	1.00	1.0	120	0.90	1.0	190	1.00	1.0	–	–	–	50	0.70	0.8	–	–	–
SOHT 120514SR-M:M9325	1.4	245	1.00	1.0	–	–	–	230	1.00	1.0	–	–	–	–	–	–	45	0.68	0.8
SOHT 120514SR-M:M9340	1.4	215	1.00	1.0	125	0.90	1.0	–	–	–	–	–	–	50	0.70	0.8	–	–	–
																			
MM geometrisi keskindir ve büyük çıkıntı veya ince duvarlı ve ince iş parçası uygulamaları için uygundur. Pürüzsüz HFC frezeleme için pozitif eğim, dar T-land ve yuvarlatılmış kesme kenarı ile tasarlanmıştır. Paslanmaz çelikler ve süper alaşımlar için ilk tercihtir.																			
SOHT 120514SR-MM:M6330	1.4	190	1.00	1.0	135	0.90	1.0	–	–	–	–	–	–	55	0.70	0.8	–	–	–
SOHT 120514SR-MM:M8340	1.4	205	1.00	1.0	120	0.90	1.0	–	–	–	–	–	–	50	0.70	0.8	–	–	–
SOHT 120514SR-MM:M8345	1.4	165	1.00	1.0	95	0.90	1.0	–	–	–	–	–	–	40	0.70	0.8	–	–	–
SOHT 120514SR-MM:M9325	1.4	245	1.00	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SOHT 120514SR-MM:M9340	1.4	215	1.00	1.0	125	0.90	1.0	–	–	–	–	–	–	50	0.70	0.8	–	–	–

a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	SOHT 12-M	SOHT 12-MM
RE	1.4	1.4
BS	2.00	2.00





HFC														
DCX	a_p	0.00	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.50	1.60	1.70	1.80	1.90
35		17.3	19.2	21.1	22.9	24.8	26.7	28.6	30.5	31.4	32.4	33.1	33.5	33.9
40		22.3	24.2	26.1	27.9	29.8	31.7	33.6	35.5	36.4	37.4	38.1	38.5	38.9
42		24.3	26.2	28.1	29.9	31.8	33.7	35.6	37.5	38.4	39.4	40.1	40.5	40.9
50		32.3	34.2	36.1	37.9	39.8	41.7	43.6	45.5	46.4	47.4	48.1	48.5	48.9
52	DEF	34.3	36.2	38.1	39.9	41.8	43.7	45.6	47.5	48.4	49.4	50.1	50.5	50.9
63		45.3	47.2	49.1	50.9	52.8	54.7	56.6	58.5	59.4	60.4	61.1	61.5	61.9
66		48.3	50.2	52.1	53.9	55.8	57.7	59.6	61.5	62.4	63.4	64.1	64.5	64.9
80		62.3	64.2	66.1	67.9	69.8	71.7	73.6	75.5	76.4	77.4	78.1	78.5	78.9
100		82.3	84.2	86.1	87.9	89.8	91.7	93.6	95.5	96.4	97.4	98.1	98.5	98.9
125		107.3	109.2	111.1	112.9	114.8	116.7	118.6	120.5	121.4	122.4	123.1	123.5	123.9
	a_p	0.00	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.50	1.60	1.70	1.80	1.90
	f	-	2.20	2.00	1.80	1.60	1.40	1.20	1.10	1.00	0.90	0.80	0.70	0.60

DCX	a_{emax}	f_{max}
35	10.0	0.10
40	10.0	0.10
42	10.0	0.12
50	10.0	0.12
52	10.0	0.12
63	10.0	0.15
66	10.0	0.15
80	10.0	0.20
100	10.0	0.20
125	10.0	0.20

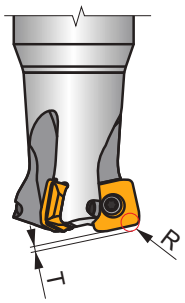
DCX	RPMX	APMX/I
35	9.6	1.9/11
40	6.9	1.9/16
42	6.1	1.9/18
50	4.3	1.9/25
52	4.0	1.9/27
63	2.6	1.9/41
66	2.5	1.9/44
80	1.9	1.9/59
100	1.4	1.9/79
125	1.0	1.9/105

DCX	a_p	f_{max}
35	1.6	0.17
40	1.6	0.17
42	1.6	0.15
50	1.6	0.10
52	1.6	0.10
63	1.6	0.05
66	1.6	0.05
80	1.6	0.05
100	1.6	0.05
125	1.6	0.05

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
35		0.648	0.837	1.183	1.449	1.673	2.049	2.366	2.646	2.898	3.347	3.742
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
42		0.710	0.917	1.296	1.587	1.833	2.245	2.592	2.898	3.175	3.666	4.099
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
52	FE	0.790	1.020	1.442	1.766	2.040	2.498	2.884	3.225	3.533	4.079	4.561
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
66		0.890	1.149	1.625	1.990	2.298	2.814	3.250	3.633	3.980	4.596	5.138
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657
100		1.095	1.414	2.000	2.449	2.828	3.464	4.000	4.472	4.899	5.657	6.325
125		1.225	1.581	2.236	2.739	3.162	3.873	4.472	5.000	5.477	6.325	7.071

a_p	0.2	0.6	1.0	1.5	1.9
1 f	2.0	1.6	1.2	0.8	0.5

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
35	46.0	69.8	1.9	1.9
40	56.0	79.8	1.9	1.9
42	60.0	83.8	1.9	1.9
50	76.0	99.8	1.9	1.9
52	80.0	103.8	1.9	1.9
63	102.0	125.8	1.9	1.9
66	108.0	131.8	1.9	1.9
80	136.0	159.8	1.9	1.9
100	176.0	199.8	1.9	1.9
125	226.0	249.8	1.9	1.9



SOHT	R	T
SOHT 120514	3.37	1.21

SPD09

P M K S H

PRAMET

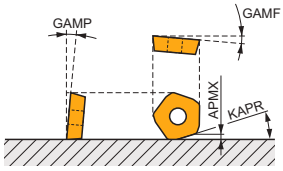
S

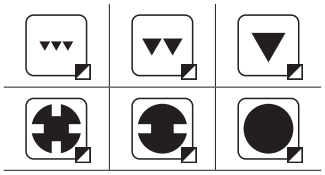
PENTA HF Yüksek Hızlı Frezeleme Takımı, İçten Su Vermeli

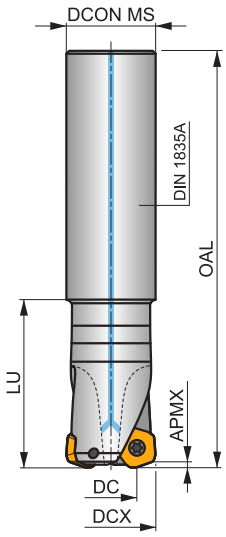
PD.. 09 uçlar için APMX 2mm tek taraflı içten su vermeli, yüksek hızlı son derece verimli frezeleme takımları. Birçok uygulama için uygundur. Silindirik ve göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

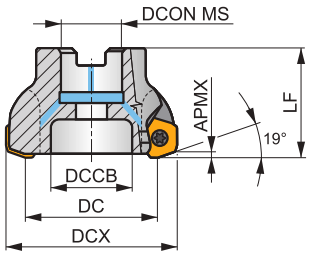
PENTA HF

KAPR	19°
APMX	2.0 mm









h_m	0.065 - 0.975
h_m	0.065 - 0.975

	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LF (mm)	GAMF (°)	GAMP (°)			max.		kg			
DIN 1835A	32E2R060A32-SPD09-C	32	18.4	250	32	–	60	–	-24	10	2	–	13100	✓	1.34	GI245	C0340	–
DIN 1835A	40E3R060A32-SPD09-C	40	25.5	250	32	–	60	–	-11	10	3	–	11700	✓	1.43	GI245	C0340	–
	42A03R-S19PD09-C	42	27.5	–	16	12	–	40	-8	10	3	–	11500	✓	0.18	GI245	C0342	–
	50A04R-S19PD09-C	50	35.3	–	22	18	–	40	-3	10	4	–	10500	✓	0.23	GI245	C0343	–
	50A05R-S19PD09-C	50	35.3	–	22	18	–	40	-3	10	5	–	10500	✓	0.33	GI245	C0343	–
	52A04R-S19PD09-C	52	37.3	–	22	18	–	40	-3	10	4	–	10300	✓	0.25	GI245	C0343	–
	63A05R-S19PD09-C	63	48.2	–	22	18	–	40	-1	10	5	–	9400	✓	0.44	GI245	C0343	–
	63A06R-S19PD09-C	63	48.2	–	22	18	–	40	-1	10	6	–	9300	✓	0.45	GI245	C0343	–
	66A06R-S19PD09-C	66	51.2	–	22	18	–	40	-1	10	6	–	9200	✓	0.35	GI245	C0343	–
ISO 6462 DIN 8030	66A06R-S19PD09-CF	66	51.2	–	27	22	–	50	-1	10	6	–	9100	✓	0.67	GI245	C0344	–
	80A05R-S19PD09-C	80	65.3	–	27	37	–	50	-1	10	5	–	8300	✓	0.84	GI245	C0341	AC001
	80A06R-S19PD09-C	80	65.3	–	27	37	–	50	-1	10	6	–	8300	✓	0.86	GI245	C0341	AC001
	100A06R-S19PD09-C	100	58.3	–	32	45	–	50	-1	10	6	–	7400	✓	1.46	GI245	C0341	AC002
	100A08R-S19PD09-C	100	85.3	–	32	45	–	50	-1	10	8	–	7400	✓	1.40	GI245	C0341	AC002
	125A08R-S19PD09-C	125	110.3	–	40	36	–	63	-1	10	8	–	6600	✓	3.10	GI245	C0349	–
	125A10R-S19PD09-C	125	110.3	–	40	36	–	63	-1	10	10	–	6600	✓	3.11	GI245	C0349	–
	140A08R-S19PD09-C	140	125.3	–	40	36	–	63	-1	10	8	–	6200	✓	3.57	GI245	C0349	–

GI245	PD.X 0905ZE..	PDKT 0905..	PDMW 0905..

		Nm					
C0340	US 45011-T20P	5.0	M 5	11	–	–	Flag T20P
C0341	US 45011-T20P	5.0	M 5	11	SDR T20P-T	–	–

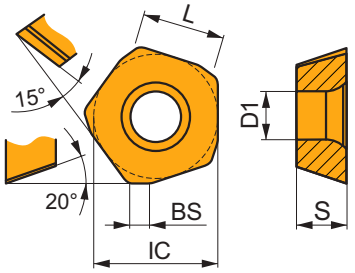
		Nm					
C0342	US 45011-T20P	5.0	M 5	11	SDR T20P-T	HS 90835	–
C0343	US 45011-T20P	5.0	M 5	11	SDR T20P-T	HS 1030C	–
C0344	US 45011-T20P	5.0	M 5	11	SDR T20P-T	HS 1230C	–
C0349	US 45011-T20P	5.0	M 5	11	SDR T20P-T	HSD 2040	–

AC001	KS 1230	K.FMH27
AC002	KS 1635	K.FMH32

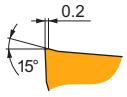
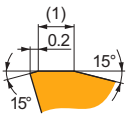
PDMX 09

PRAMET

	BS (mm)	IC (mm)	D1 (mm)	L (mm)	S (mm)
0905	2.00	13.500	5.50	9.00	5.47



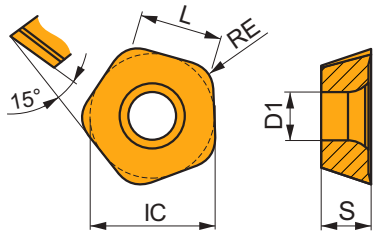
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																			
M geometri, yüksek hızlı frezeleme için pozitif tasarım.																			
PDMX 0905ZEER-M:8215	–	215	1.00	1.2	125	0.90	1.2	200	1.00	1.2	–	–	–	–	–	–	–	–	–
PDMX 0905ZEER-M:M8330	–	220	1.00	1.2	130	0.90	1.2	205	1.00	1.2	–	–	–	–	–	–	–	–	–
PDMX 0905ZEER-M:M8345	–	165	1.00	1.2	95	0.90	1.2	–	–	–	–	–	–	–	–	–	–	–	–
PDMX 0905ZEER-M:M9340	–	215	1.00	1.2	125	0.90	1.2	–	–	–	–	–	–	–	–	–	–	–	–
																			
R geometri, yüksek hızlı işleme için güçlü tasarım.																			
PDMX 0905ZESR-R:8215	–	215	1.00	1.3	–	–	–	200	1.00	1.3	–	–	–	–	–	–	40	0.70	0.9
PDMX 0905ZESR-R:M8330	–	215	1.00	1.3	–	–	–	200	1.00	1.3	–	–	–	–	–	–	40	0.70	0.9
PDMX 0905ZESR-R:M8345	–	165	1.00	1.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
PDMX 0905ZESR-R:M9325	–	245	1.00	1.3	–	–	–	230	1.00	1.3	–	–	–	–	–	–	45	0.70	0.9

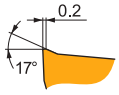
PDKT 09

PRAMET

	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
0905	13.500	5.50	9.00	5.47



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

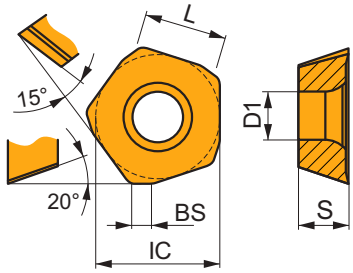
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
PDKT 090530ER-FM:8215		3.0	■	240	1.00	1.2	◪	140	0.90	1.2	◪	225	1.00	1.2	–	–	–	◪	60	0.70	1.0	–	–	–
PDKT 090530ER-FM:M6330		3.0	■	210	1.00	1.2	■	150	0.90	1.2		–	–	–	–	–	–	■	60	0.70	1.0	–	–	–
PDKT 090530ER-FM:M8310		3.0	■	250	1.00	1.2	◪	125	0.90	1.2	◪	235	1.00	1.2	–	–	–		–	–	–	–	–	–
PDKT 090530ER-FM:M8330		3.0	■	245	1.00	1.2	■	145	0.90	1.2	◪	230	1.00	1.2	–	–	–	◪	60	0.70	1.0	–	–	–
PDKT 090530ER-FM:M8345		3.0	■	180	1.00	1.2	■	105	0.90	1.2		–	–	–	–	–	–	■	45	0.70	1.0	–	–	–
PDKT 090530ER-FM:M9325		3.0	■	275	1.00	1.2		–	–	–	◪	260	1.00	1.2	–	–	–		–	–	–	–	–	–

FM geometri, hafif ve orta işlemeye uygun yüksek hızlı frezeleme için çok pozitif tasarım.

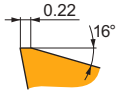
PDKX 09

PRAMET

	BS	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)	(mm)
0905	2.00	13.500	5.50	9.00	5.47



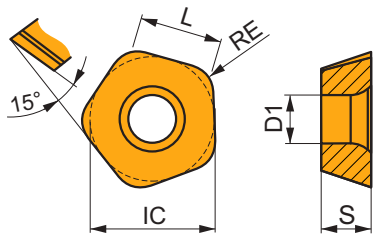
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
PDKX 0905ZEER-FM:M6330		–	■	195	1.00	1.2	■	135	0.90	1.2		–	–	–	–	–	–	■	55	0.70	1.0	–	–	–
PDKX 0905ZEER-FM:M8345		–	■	165	1.00	1.2	■	95	0.90	1.2		–	–	–	–	–	–	■	40	0.70	1.0	–	–	–
PDKX 0905ZEER-FM:M9340		–	■	215	1.00	1.2	■	125	0.90	1.2		–	–	–	–	–	–	■	50	0.70	1.0	–	–	–

FM geometri, orta işlemeye uygun yüksek hızlı frezeleme için çok pozitif tasarım.

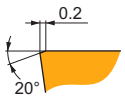
PDMW 09

	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
0905	13.500	5.50	9.00	5.47



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

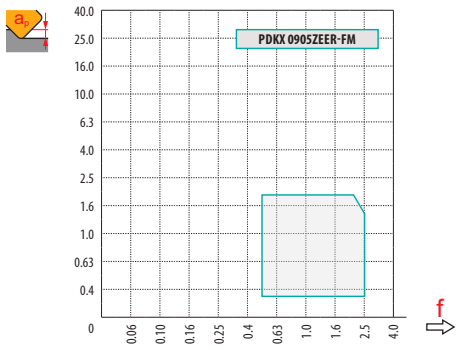
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
PDMW 090530SR:M8310	✱	3.0	245	1.00	1.4	–	–	–	230	1.00	1.4	–	–	–	–	–	–	45	0.70	1.0
PDMW 090530SR:M8345	✱	3.0	180	1.00	1.4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
PDMW 090530SR:M9325	✱	3.0	270	1.00	1.4	–	–	–	255	1.00	1.4	–	–	–	–	–	–	50	0.70	1.0

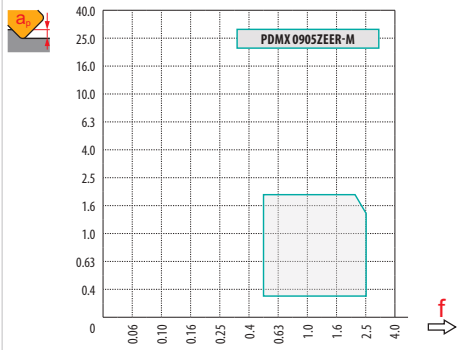


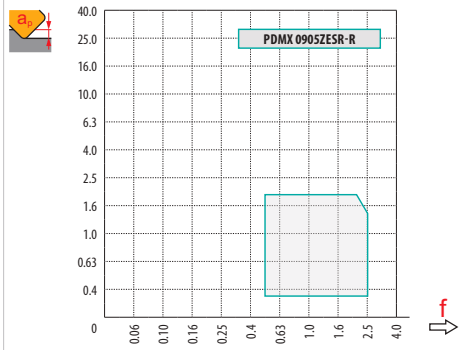
SR sıfır talaş açısı tasarımı, yüksek hızlı işleme için.

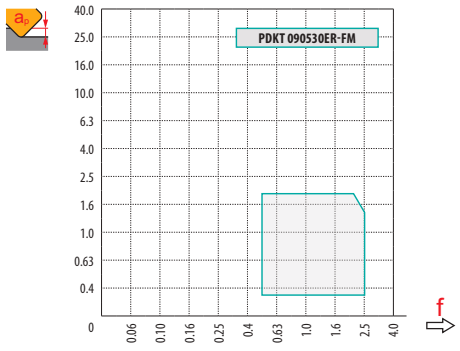
a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

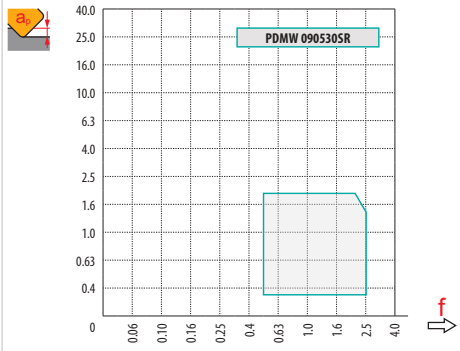
	PDKX 09-FM	PDMX 09-M	PDMX 09-R	PDKT 09-FM	PDMW 09
RE	–	–	–	3.0	3.0
BS	2.00	2.00	2.00	–	–











DCX	a_p	0.00	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.25	1.50	2.00
32	DEF	18.4	20.1	20.7	21.3	21.9	22.5	23.0	23.6	24.2	25.7	27.1	30.0
40		25.5	27.2	27.8	28.4	29.0	29.6	30.1	30.7	31.3	32.8	34.2	37.1
42		27.5	29.2	29.8	30.4	31.0	31.6	32.1	32.7	33.3	34.8	36.2	39.1
50		35.3	37.0	37.6	38.2	38.8	39.4	39.9	40.5	41.1	42.6	44.0	46.9
52		37.3	39.0	39.6	40.2	40.8	41.4	41.9	42.5	43.1	44.6	46.0	48.9
63		48.2	49.9	50.5	51.1	51.7	52.3	52.8	53.4	54.0	55.5	56.9	59.8
66		51.2	52.9	53.5	54.1	54.7	55.3	55.8	56.4	57.0	58.5	59.9	62.8
80		65.3	67.0	67.6	68.2	68.8	69.4	69.9	70.5	71.1	72.6	74.0	76.9
100		85.3	87.0	87.6	88.2	88.8	89.4	89.9	90.5	91.1	92.6	94.0	96.9
125		110.3	112.3	112.9	113.5	114.1	114.6	115.2	115.8	116.4	117.9	119.3	122.2
140		125.3	127.3	127.9	128.5	129.1	129.7	130.2	130.8	131.4	132.9	134.3	137.2
	a_p	0.00	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.25	1.50	2.00
	f	–	3.00	3.00	2.90	2.80	2.70	2.60	2.50	2.40	2.25	1.50	1.50

Urmați instrucțiunile furnizate pentru frezare suprafețe plane. În cazul frezării aproape de suprafață verticală, reduceti avansul per dinte (f_z) până la 50%, pentru a preveni vibrațiile și deteriorarea muchiilor aschietoare.

DCX	max	f_{max}
32	5.0	0.20
40	5.0	0.20
42	5.0	0.20
50	6.0	0.20
52	6.0	0.20
63	7.0	0.25
66	7.0	0.25
80	8.0	0.30
100	8.0	0.30

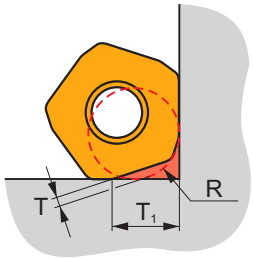
DCX	RPMX	APMX/I
40	8.0	1.80/16
42	8.0	2.00/16
50	8.0	2.00/16
52	8.0	2.00/16
63	7.0	2.00/18
66	6.0	2.00/21
80	5.0	2.00/24
100	3.0	2.00/40

HFC		
a_p	0.5	1.0	2.0
1 f	3.0	2.3	1.5

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
40	63.7	80.0	2.00	2.00
42	67.5	84.0	2.00	2.00
50	83.3	100.0	2.00	2.00
52	87.3	104.0	2.00	2.00
63	109.2	126.0	2.00	2.00
66	115.2	132.0	2.00	2.00
80	143.3	160.0	2.00	2.00
100	183.3	200.0	2.00	2.00

DCX	a_p	f_{max}
32	1.8	0.20
40	1.8	0.20
42	2.0	0.20
50	2.0	0.20
52	2.0	0.20
63	2.0	0.25
66	2.0	0.25
80	2.0	0.30
100	2.0	0.30

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
42		0.710	0.917	1.296	1.587	1.833	2.245	2.592	2.898	3.175	3.666	4.099
50	FE	0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
52		0.790	1.020	1.442	1.766	2.040	2.498	2.884	3.225	3.533	4.079	4.561
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
66		0.890	1.149	1.625	1.990	2.298	2.814	3.250	3.633	3.980	4.596	5.138
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657



DCX	R	T	T_1
32	4.5	1.1	6.8
40 – 140	4.5	1.1	7.3

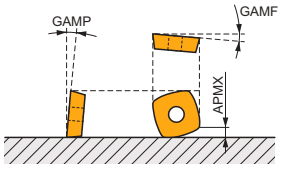
SZD07

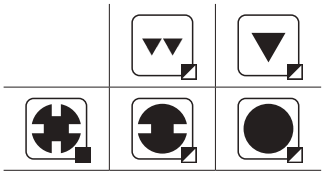
FEED ZD07 Yüksek Hızlı Frezeleme Takımı, İçten Su Vermeli

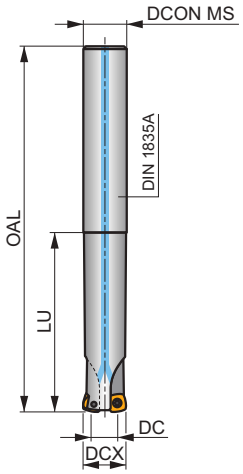
ZD.. 07 uçlar için APMX 1mm 4 köşeli içten su vermeli, yüksek hızlı son derece verimli frezeleme takımları. Birçok uygulama için uygundur. Silindirik ve modüler olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

FEED ZD

APMX	1.0 mm







h_m 0.175 - 0.44

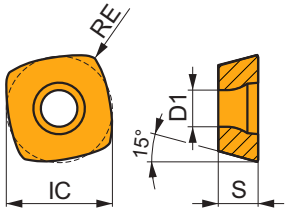
	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	LF (mm)	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835A	**16E2R030A16-SZD07**	16	6	100	16	30	–	-5	8	2	–	47400	✓	0.13	GI201	C0350
	16E2R065A16-SZD07	16	6	145	16	65	–	-5	8	2	–	47400	✓	0.22	GI201	C0350
	20E3R040A20-SZD07	20	10	120	20	40	–	-5	8	3	–	42400	✓	0.25	GI201	C0350
	20E3R080A20-SZD07	20	10	165	20	80	–	-5	8	3	–	42400	✓	0.33	GI201	C0350
	25E3R050A25-SZD07	25	15	140	25	50	–	-5	8	3	–	37900	✓	0.47	GI201	C0350
	25E3R100A25-SZD07	25	15	190	25	100	–	-5	8	3	–	37900	✓	0.60	GI201	C0350

GI201	ZDCW 0703..

C0350	US 2205-T07P	0.9 Nm	M 2.2	5	Flag T07P

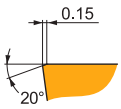
ZDCW 07

	IC	D1	S
	(mm)	(mm)	(mm)
0703	6.800	2.60	3.18



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)

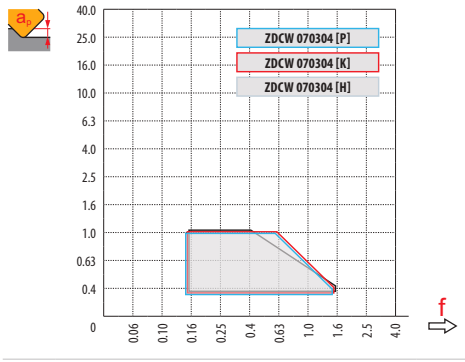


ZDCW özel tasarım, yüksek hızlı işleme için.

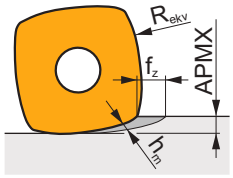
ZDCW 070304:M8310	0.4	420	0.60	0.4	–	–	–	395	0.60	0.4	–	–	–	–	–	–	80	0.42	0.3
ZDCW 070304:M8325	0.4	325	0.60	0.4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZDCW 070304:M8345	0.4	305	0.60	0.4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
x.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	ZDCW 07
RE	0.4
BS	–



DCX	a_p	0.00	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
16	DEF	6.0	12.0	12.9	13.7	14.4	15.1	15.7	16.2	16.8
20		10.0	16.0	16.9	17.7	18.4	19.1	19.7	20.2	20.8
25		15.0	21.0	21.9	22.7	23.4	24.1	24.7	25.2	25.8
	a_p	0.00	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
	1 f	–	1.50	1.50	1.13	1.00	0.88	0.75	0.61	0.60



$$f_z = h_m \times \sqrt{\frac{2R_{ekv.}}{APMX}} \quad \text{(mm/ağız)}$$

Düz yüzeylerin frezelenmesi için verilen talimatları izleyin. Dik yüzeye yakın frezeleme durumunda, titreşimleri ve kesici kenarın hasarını önlemek için ağız başına ilerleme miktarını (f_z) % 50'ye düşürün.

DCX	max	f_{max}
16	5.6	0.12
20	5.6	0.15
25	5.6	0.17

HFC			
a_p	0.3	0.6	1.0
1 f	1.50	0.80	0.40

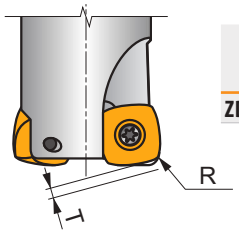
DCX	RPMX	APMX/I
16	7.8	1.0/9
20	9.7	1.0/7
25	4.9	1.0/13

HFC		
DCX	RPMX	APMX/I
16	0.5	0.75/100
20	0.3	0.40/100
25	0.2	0.20/100

DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
16	21.0	32.0	0.10	0.40
20	29.0	40.0	0.10	0.30
25	39.0	50.0	0.15	0.25

DCX	a_p	f_{max}
16	0.05	0.12
20	0.05	0.15
25	0.05	0.17

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
16	FE	0.438	0.566	0.800	0.980	1.131	1.386	1.600	1.789	1.960	2.263	2.530
20		0.490	0.632	0.894	1.095	1.265	1.549	1.789	2.000	2.191	2.530	2.828
25		0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162



	R	T
ZDCW 070304	1.70	0.60

SZD09

P K H

PRAMET

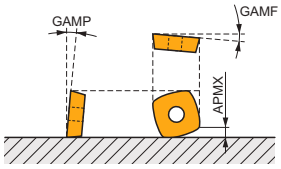
S

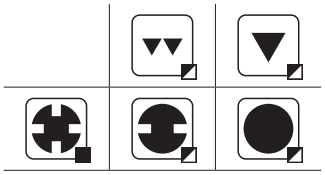
FEED ZD09 Yüksek Hızlı Frezeleme Takımı, İçten Su Vermeli

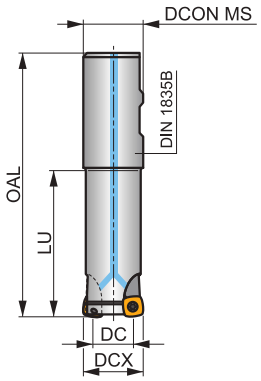
4 kesme kenarlı ve 1 mm APMX'li tek taraflı ZD..09 kesici uç kullanan üretken, yüksek ilerlemeli frezeleme takımı.İçten soğutmaşlı. Çok çeşitli uygulamalar için uygundur. Silindirik, modüler ve göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

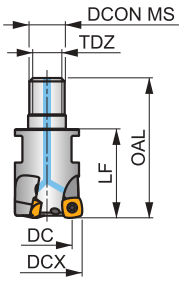
FEED ZD

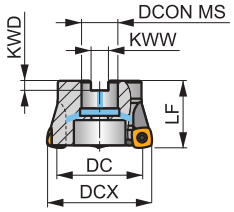
APMX	1.0 mm











h_m	0.31 - 0.618
h_m	0.31 - 0.618

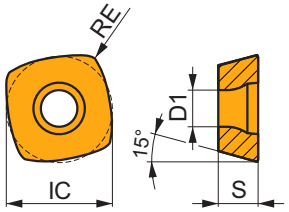
	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835B	**25E2R080B25-SZD09-C**	25	11.6	140	25	80	–	–	–	–	-6	10	2	–	22800	✓	0.46	GI191	SQ400
	25E2R140B25-SZD09-C	25	11.6	200	25	140	–	–	–	–	-6	10	2	–	22800	✓	0.63	GI191	SQ400
	32E2R080B32-SZD09-C	32	18.7	140	32	80	–	–	–	–	-6	10	2	–	20100	✓	0.76	GI191	SQ400
MODULAR	**25E3R032M12-SZD09-C**	25	11.6	54	12.5	–	32	M12	–	–	-6	10	3	–	–	✓	0.11	GI191	SQ400
	32E3R040M16-SZD09-C	32	18.7	63	17	–	40	M16	–	–	-6	10	3	–	–	✓	0.21	GI191	SQ400
ISO 6462 DIN 8030	**40A04R-SMOZD09-C**	40	26.7	–	16	–	40	–	8.4	5.6	-6	10	4	✓	18000	✓	0.34	GI191	SQ402
	50A05R-SMOZD09-C	50	36.7	–	22	–	40	–	10.4	6.4	-6	10	5	✓	16000	✓	0.41	GI191	SQ403
	63A06R-SMOZD09-C	63	49.7	–	22	–	40	–	10.4	6.4	-6	10	6	✓	14300	✓	0.60	GI191	SQ403

GI191	ZDCW 09T3..

		Nm						
SQ400	US 3006-T09P	2.0	M 3	6	–	–	Flag T09P	–
SQ402	US 3006-T09P	2.0	M 3	6	D-T07P/T09P	FG-15	–	HS 0830C
SQ403	US 3006-T09P	2.0	M 3	6	D-T07P/T09P	FG-15	–	HS 1030C

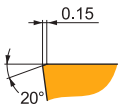
ZDCW 09

	IC	D1	S
	(mm)	(mm)	(mm)
09T3	9.525	3.40	3.97



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
ZDCW 09T304:M8310	0.4	320	1.00	0.6	–	–	–	300	1.00	0.6	–	–	–	–	–	–	60	0.70	0.4
ZDCW 09T304:M8325	0.4	250	1.00	0.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZDCW 09T304:M8345	0.4	235	1.00	0.6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

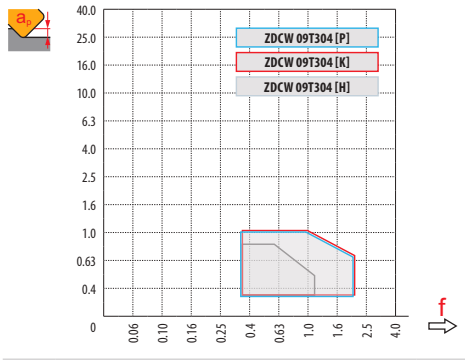


HFC

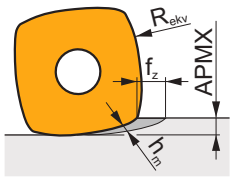
ZDCW özel tasarım, yüksek hızlı işleme için.

a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
⇨ X.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
⇨ X.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	ZDCW 09
RE	0.4
BS	–



DCX	a_p	0.00	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
25	DEF	11.6	17.4	18.2	19.0	19.7	20.3	20.9	21.5	22.0
32		18.7	24.5	25.3	26.1	26.8	27.4	28.0	28.6	29.1
40		27.7	33.5	34.3	35.1	35.8	36.4	37.0	37.6	38.1
50		36.7	42.3	43.1	43.8	44.5	45.1	45.7	46.2	46.7
63		49.7	55.3	56.1	56.8	57.5	58.1	58.7	59.2	59.7
	a_p	**0.00**	**0.30**	**0.40**	**0.50**	**0.60**	**0.70**	**0.80**	**0.90**	**1.00**
	1 f	–	2.00	2.00	2.00	1.75	1.50	1.25	1.13	1.00



$$f_z = h_m \times \sqrt{\frac{2R_{ekv.}}{APMX}} \quad \text{(mm/ağız)}$$

Düz yüzeylerin frezelenmesi için verilen talimatları izleyin. Dik yüzeye yakın frezeleme durumunda, titreşimleri ve kesici kenarın hasarını önlemek için ağız başına ilerleme miktarını (f_z) % 50'ye düşürün.

DCX	max	f_{max}
25	7.7	0.15
32	7.7	0.17
40	7.7	0.20

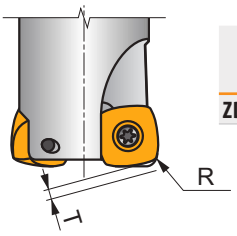
HFC			
a_p	0.3	0.6	1.0
1 f	2.00	1.50	1.00

			HFC	
DCX	RPMX	APMX/l	RPMX	APMX/l
25	12.0	1.0/6	0.9	1.00/65
32	7.5	1.0/11	0.5	0.75/100
40	3.6	1.0/17	0.4	0.55/100

DCX	DMIN	DMAX	SMAX / DMIN	SMAX / DMAX
25	35.0	50.0	0.45	1.00
32	49.0	64.0	0.45	0.85
40	65.0	80.0	0.50	0.85

DCX	a_p	f_{max}
25	0.15	0.15
32	0.15	0.17
40	0.15	0.20

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
25	FE	0.548	0.707	1.000	1.225	1.414	1.732	2.000	2.236	2.449	2.828	3.162
32		0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
50												
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020



	R	T
ZDCW 09T304	2.27	0.52

SZD12

P K H

PRAMET

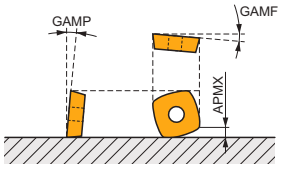
S

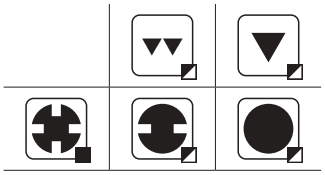
FEED ZD 12 Yüksek Hızlı Freze Takımı, İçten Su Vermeli

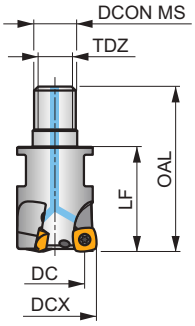
4 kesme kenarlı tek taraflı ZD..12 kesici uç ve 1.6 mm APMX kullanan son derece verimli, yüksek ilerlemeli frezeleme takımı.İçten soğutmalı. Çok çeşitli uygulamalar için uygundur.Birçok uygulama için uygundur. Silindirik, modüler ve göbekten bağlamalı gövde.Gövde uzun takım ömrü için işlem görmüştür.

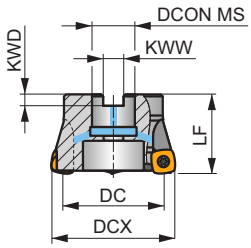
FEED ZD

APMX	1.6 mm









h_m	0.46 - 0.925
h_m	0.46 - 0.925

	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	LF (mm)	TDZ	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)			max.		kg			
MODULAR	**32E3R040M16-SZD12-C**	32	14.5	63	17	–	40	M16	–	–	-6	10	3	–	–	✓	0.19	GI192	SQ220	–
MODULAR	**40E4R040M16-SZD12-C**	40	22.5	63	17	–	40	M16	–	–	-6	10	4	–	–	✓	0.22	GI192	SQ220	–
ISO 6462 DIN 8030	**50A04R-SM0ZD12-C**	50	32.5	–	22	–	40	–	10.4	6.4	-6	10	4	✓	14000	✓	0.38	GI192	SQ033	–
ISO 6462 DIN 8030	**63A05R-SM0ZD12-C**	63	45.5	–	22	–	40	–	10.4	6.4	-6	10	5	✓	12500	✓	0.57	GI192	SQ033	–
ISO 6462 DIN 8030	**80A05R-SM0ZD12-C**	80	62.5	–	27	–	50	–	12	7	-6	10	5	✓	11100	✓	1.07	GI192	C0371	AC001

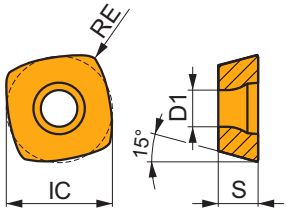
GI192	ZDEW 1204..

		Nm						
C0371	US 4011-T15P	3.5	M 4	10.6	D-T08P/T15P	FG-15	–	–
SQ033	US 4011-T15P	3.5	M 4	10.6	D-T08P/T15P	FG-15	–	HS 1030C
SQ220	US 4011-T15P	3.5	M 4	10.6	–	–	Flag T15P	–

AC001	KS 1230	K.FMH27

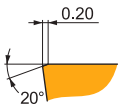
ZDEW 12

	IC	D1	S
	(mm)	(mm)	(mm)
1204	12.700	4.40	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
ZDEW 120408:M8310		0.8	270	1.00	1.0	–	–	–	255	1.00	1.0	–	–	–	–	–	–	50	0.70	0.7
ZDEW 120408:M8325		0.8	205	1.00	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ZDEW 120408:M8345		0.8	195	1.00	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

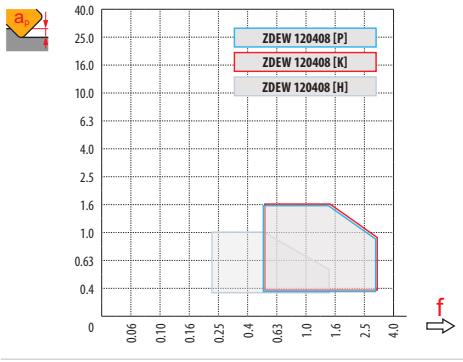


HFC S

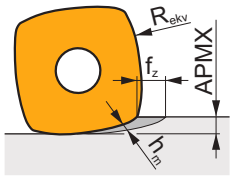
ZDEW özel tasarım, yüksek hızlı işleme için.

a_e / DCX	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00
⇨ X.f	2.20	1.60	1.35	1.20	1.10	0.95	0.85	0.75	0.85	0.95	1.00	1.00	1.00	1.00
⇨ X.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	0.68	0.71	0.72	0.74	0.79	1.00

	ZDEW 12
RE	0.8
BS	–



DCX	a_p	0.00	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60
32	DEF	14.5	22.7	23.5	24.2	24.8	25.4	26.0	26.5	27.0	27.5	28.0	28.5	28.9
40		22.5	30.7	31.5	32.2	32.8	33.4	34.0	34.5	35.0	35.5	36.0	36.5	36.9
50		32.5	40.7	41.5	42.2	42.8	43.4	44.0	44.5	45.0	45.5	46.0	46.5	46.9
63		45.5	53.7	54.5	55.2	55.8	56.4	57.0	57.5	58.0	58.5	59.0	59.5	59.9
80		62.5	70.7	71.5	72.2	72.8	73.4	74.0	74.5	75.0	75.5	76.0	76.5	76.9
	a_p	0.00	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60
	1 ⇨ f	–	3.00	3.00	3.00	3.00	3.00	3.00	2.50	2.25	2.00	1.80	1.65	1.50



$$f_z = h_m \times \sqrt{\frac{2R_{ekv.}}{APMX}} \quad \text{(mm/ağız)}$$

Düz yüzeylerin frezelenmesi için verilen talimatları izleyin. Dik yüzeye yakın frezeleme durumunda, titreşimleri ve kesici kenarın hasarını önlemek için ağız başına ilerleme miktarını (f_z) % 50'ye düşürün.

DCX	max	f_{max}
32	10.0	0.15
40	10.0	0.17
50	10.0	0.20
63	10.0	0.20
80	10.0	0.25

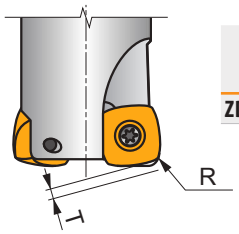
	HFC		
a_p	0.5	1.0	1.6
1 ⇨ f	3.00	2.00	1.50

			HFC	
DCX	RPMX	APMX/I	RPMX	APMX/I
32	10	1.6/11	1.2	1.60/78
40	5.5	1.6/18	0.7	1.10/100
50	3.3	1.6/29	0.5	0.75/100
63	2.2	1.6/43	0.3	0.40/100
80	1.5	1.6/63	0.2	0.20/100

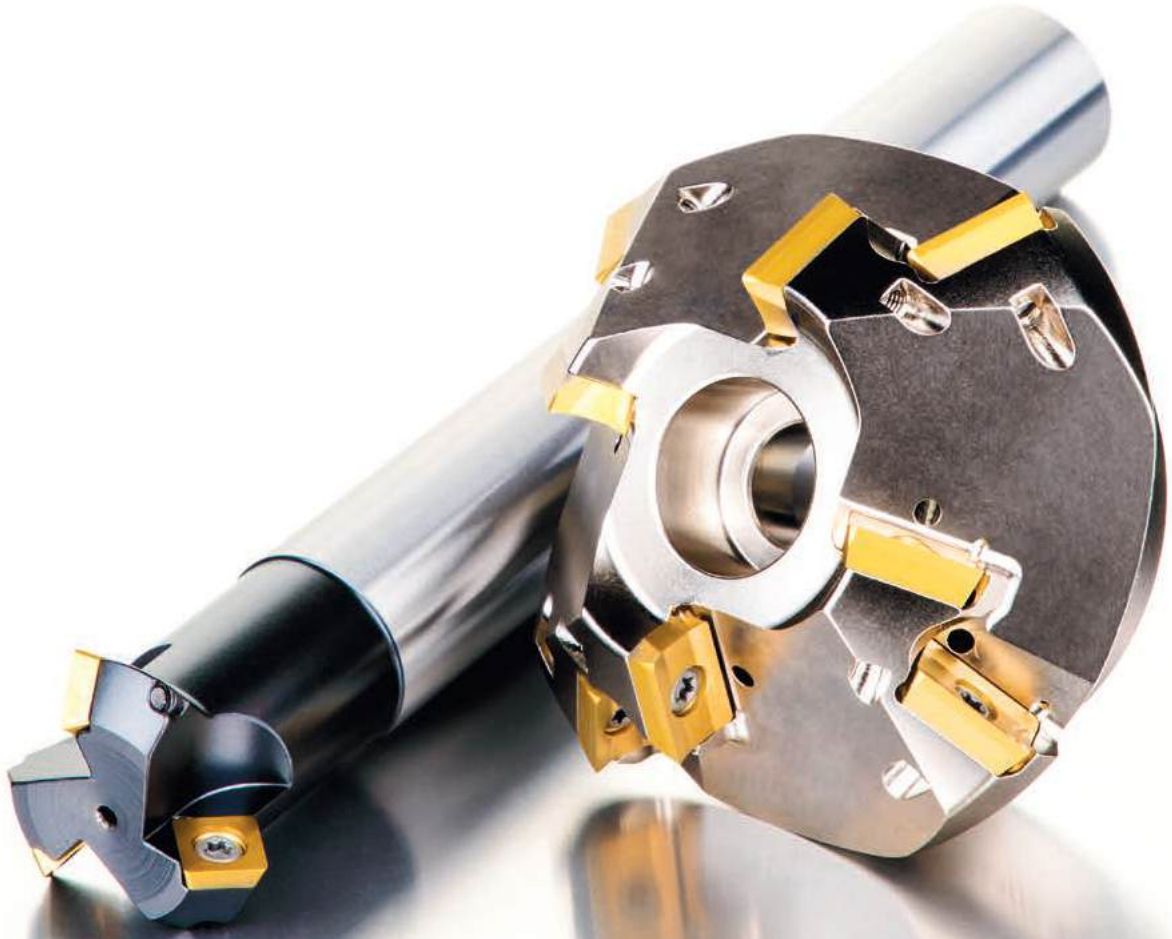
DCX	DMIN	DMAX	SMAX DMIN	SMAX DMAX
32	44.0	64.0	0.75	1.60
40	60.0	80.0	0.75	1.50
50	80.0	100.0	0.80	1.35
63	106.0	126.0	0.70	1.00
80	140.0	160.0	0.65	0.85

DCX	a_p	f_{max}
32	0.25	0.15
40	0.25	0.17
50	0.25	0.20
63	0.25	0.20
80	0.25	0.25

DCX	µm	3	5	10	15	20	30	40	50	60	80	100
32	FE	0.620	0.800	1.131	1.386	1.600	1.960	2.263	2.530	2.771	3.200	3.578
40		0.693	0.894	1.265	1.549	1.789	2.191	2.530	2.828	3.098	3.578	4.000
50		0.775	1.000	1.414	1.732	2.000	2.449	2.828	3.162	3.464	4.000	4.472
63		0.869	1.122	1.587	1.944	2.245	2.750	3.175	3.550	3.888	4.490	5.020
80		0.980	1.265	1.789	2.191	2.530	3.098	3.578	4.000	4.382	5.060	5.657



	R	T
ZDEW 120408	3.52	0.64



PAH KIRMA

YÜZEY FREZELEME

	SSD09	N-SSO09	STC	2516	2636	J(T)-SXP16
	45°	45°	45°	45°	10°– 80°	15°– 75°
	APMX (mm) 4.5	APMX (mm) 4.5	APMX (mm) 8.0	APMX (mm) 8.5	APMX (mm) 8.5	APMX (mm) 7.0– 28.0
	DC (mm) 10 – 25	DC (mm) 8 – 25	DC (mm) 20	DC (mm) 11 – 19	DC (mm) 5 – 23	DC (mm) 35 – 45
Silindirik şaft	 DC = 16, 25 (mm)					
Weldon	 DC = 10 – 25 (mm)					
Modüler	 DC = 16, 25 (mm)					
Frezeleme kafası						
Sayfa	292	295	298	301	304	307
ISO	P M K S H	P M K S	P M K N	P M K N	P M K N	P M K N
Kesici uç şekli						
Kesici uçlar	SDE. 0903	SOMT 09T3	TCTX 16 STC	TCMT 16T3	TCMT 16T3	XPHT 1604
Kesme kenarlarının sayısı	4	4	3	3	3	2
Havşa frezeleme 	■	■	■	■	■	■

■ İlk seçim. ◪ Olası seçim.

SSD09

P M K S H

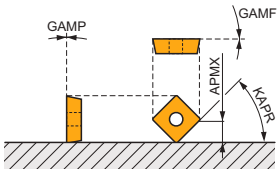
PRAMET

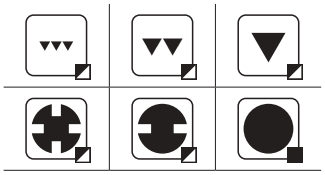
S

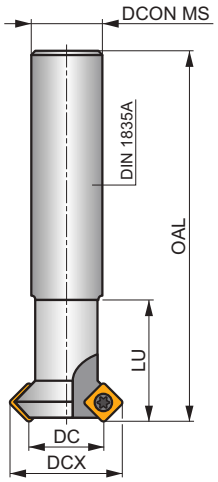
SD.. 09 Uç için 45° Pah Freze Takımı

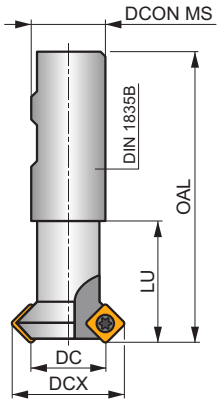
4.5 mm APMX'li tek taraflı SD..09 kesici uçlar kullanan 45° pah frezeleme takımı. Üst ve alt yan pah kırmaya uygundur. Silindirik, veldon ve mors konik stilde mevcuttur. Gövde uzun takım ömrü için işlem görmüştür.

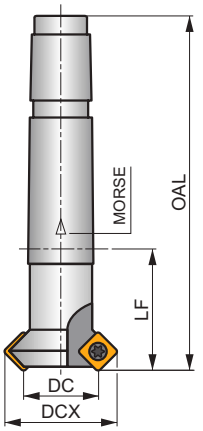
KAPR	45°
APMX	4.5 mm











h_m 0.095 - 0.15

	Product	DC (mm)	DCX (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	LF (mm)	CZCMS	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835A	**16N2R027A16-SSD09**	16	28	200	16	27	–	–	0	0	2	–	32200	–	0.34	GI129	C0070
	25N3R042A25-SSD09	25	37	200	25	42	–	–	0	0	3	–	25800	–	0.77	GI129	CH011
DIN 1835B	**10N1R027B16-SSD09-A**	10	22	75	16	27	–	–	0	0	1	–	40700	–	0.13	GI129	C0070
	16N2R027B16-SSD09-A	16	28	75	16	27	–	–	0	0	2	–	32200	–	0.14	GI129	C0070
	25N3R042B25-SSD09-A	25	37	98	25	42	–	–	0	0	3	–	25800	–	0.37	GI129	CH011
DIN 228A	**16N2R030E02-SSD09-A**	16	28	94	–	–	30	2	0	0	2	–	32200	–	0.14	GI129	C0070
	25N3R043E03-SSD09-A	25	37	124	–	–	43	3	0	0	3	–	25800	–	0.38	GI129	CH011

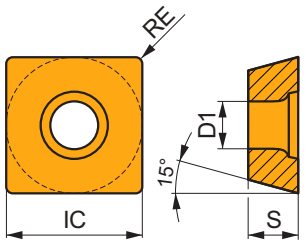
GI129	SDEW 0903..	SDEX 0903..

		Nm			
C0070	US 3507-T15	3.0	M 3.5	7	Flag T15
CH011	US 3509-T15	3.0	M 3.5	9	Flag T15

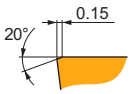
SDEW 09

PRAMET

	IC (mm)	D1 (mm)	S (mm)
0903	9.525	4.40	3.18



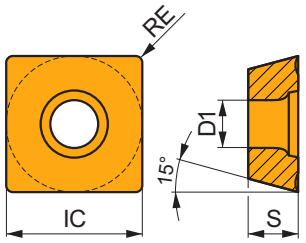
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 		**EN** geometri, 45° pah frezeleme için sıfır talaş açısı.																	
SDEW 090308EN:M8330	0.8	235	0.10	4.5	–	–	–	220	0.10	4.5	–	–	–	–	–	–	45	0.09	0.7
SDEW 090308EN:M8340	0.8	210	0.10	4.5	–	–	–	195	0.10	4.5	–	–	–	–	–	–	–	–	–
 		**SN** geometri, 45° pah frezeleme için sıfır talaş açısı tasarımı.																	
SDEW 090308SN:M8330	0.8	215	0.15	4.5	–	–	–	200	0.15	4.5	–	–	–	–	–	–	40	0.11	0.7
SDEW 090308SN:M8340	0.8	195	0.15	4.5	–	–	–	185	0.15	4.5	–	–	–	–	–	–	–	–	–

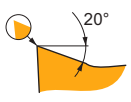
SDEX 09

PRAMET

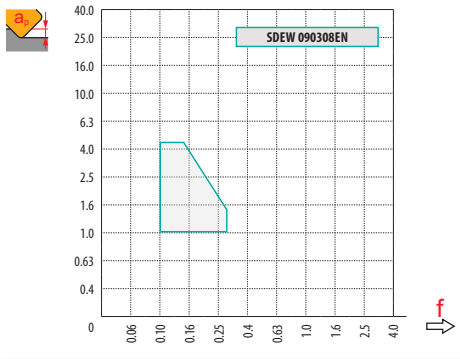
	IC (mm)	D1 (mm)	S (mm)
0903	9.525	4.40	3.18

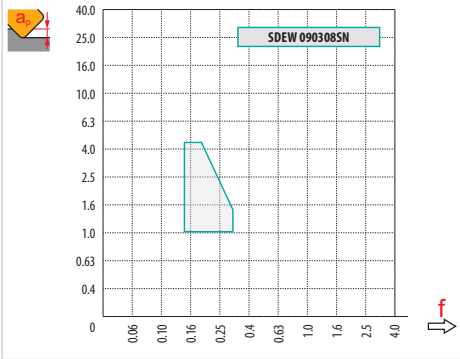


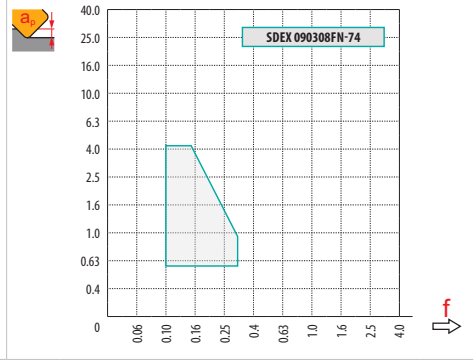
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 		**74** geometri 45° pah frezeleme için pozitif tasarım.																	
SDEX 090308FN-74:M8330	0.8	305	0.12	4.5	180	0.11	4.5	285	0.12	4.5	–	–	–	75	0.11	3.6	–	–	–

	SDEW 09 EN	SDEW 09 SN	SDEX 09-74
RE	0.8	0.8	0.8
BS	–	–	–







DC	DCX	X.V	f_{min}	f_{max}
10	22	1.09	0.20	0.30
16	28	1.17	0.25	0.34
25	37	1.24	0.32	0.39

a_e / DC	**0.10**			**0.15**			**0.20**			**0.25**			**0.30**			**0.35**			**0.40**			**0.50 – 1.00**		
	f																							
45°	0.42	0.54	0.67	0.35	0.44	0.55	0.30	0.38	0.47	0.27	0.34	0.42	0.25	0.31	0.39	0.23	0.29	0.36	0.21	0.27	0.34	0.19	0.24	0.30
X.V	1.35			1.27			1.22			1.19			1.16			1.13			1.11			1.00		

N-SSO09

P M K S

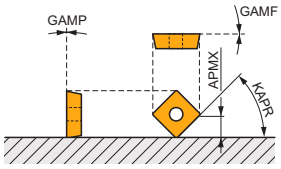
PRAMET

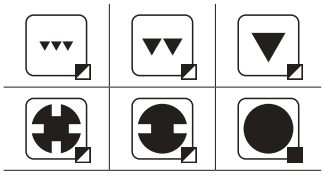
S

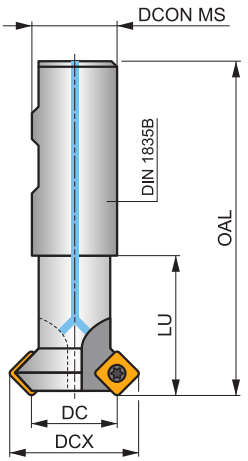
SOMT 09 Uç için 45° Pah Freze Takımı, İçten Su Vermeli

4.5 mm APMX'li tek taraflı SOMT 09 kesici uçlar kullanan 45° pah frezeleme takımı. Dahili soğutucu. Üst ve alt yan pah kırmaya uygundur. Veldon tarzında mevcuttur.Gövde uzun takım ömrü için işlem görmüştür.

KAPR	45°
APMX	4.5 mm







h_m 0.095 - 0.18

	Product	DC (mm)	DCX (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835B	**16N2R027B16-SSO09-C**	16	28.8	110	16	27	0	0	2	–	26600	✓	0.23	GI146	SQ500
	25N3R042B25-SSO09-C	25	37.8	125	25	42	0	0	3	–	21300	✓	0.49	GI146	SQ500
	8N1R027B16-SSO09-C	8	20.5	90	16	27	0	0	1	–	37700	✓	0.16	GI146	SQ500

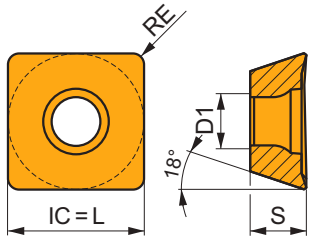
GI146	SOMT 09T3..

SQ500	US 3006-T09P	2.0	M 3	6	Flag T09P

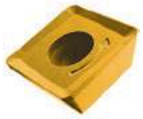
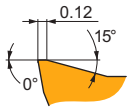
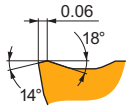
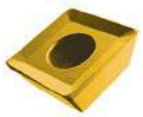
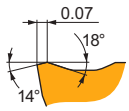
SOMT 09

PRAMET

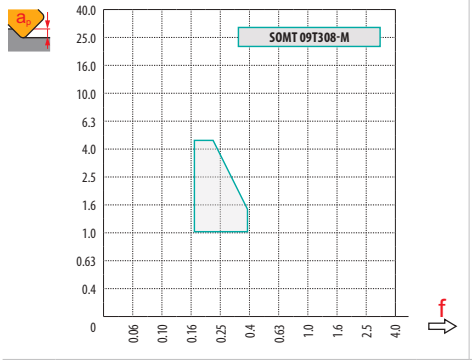
	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
09T3	9.550	3.50	9.55	3.97

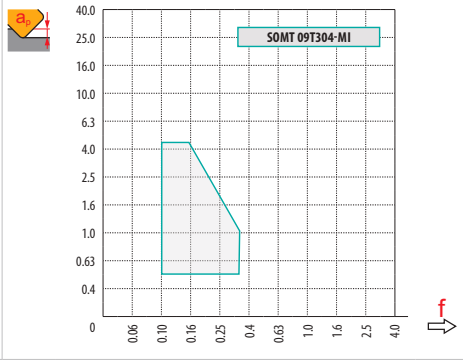


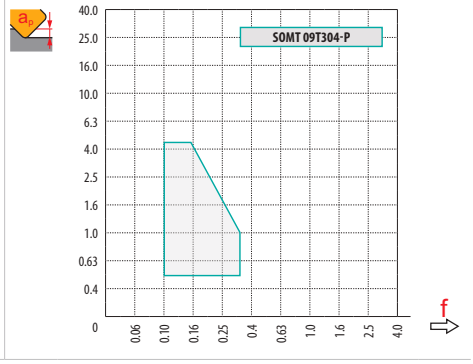
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Şartlar 90°ayar açısı içindir. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**M** geometri, orta işleme için pozitif tasarım.																	
SOMT 09T308-M:8215		0.8	■ 275	0.14	2.5	◪ 165	0.13	2.5	◪ 260	0.14	2.5	–	–	–	◪ 65	0.13	2.0	–	–	–
SOMT 09T308-M:M5315		0.8	◪ 390	0.14	2.5	–	–	–	◪ 370	0.14	2.5	–	–	–	–	–	–	–	–	–
SOMT 09T308-M:M8330		0.8	■ 270	0.14	2.5	■ 160	0.13	2.5	◪ 255	0.14	2.5	–	–	–	◪ 65	0.13	2.0	–	–	–
SOMT 09T308-M:M8340		0.8	■ 250	0.14	2.5	■ 150	0.13	2.5	◪ 235	0.14	2.5	–	–	–	◪ 60	0.13	2.0	–	–	–
SOMT 09T308-M:M9315		0.8	■ 380	0.14	2.5	–	–	–	◪ 360	0.14	2.5	–	–	–	–	–	–	–	–	–
			**MI** geometri, orta işleme için stabil pozitif tasarım.																	
SOMT 09T304-MI:8215		0.4	■ 230	0.14	2.5	◪ 135	0.13	2.5	◪ 215	0.14	2.5	–	–	–	◪ 55	0.10	2.0	–	–	–
SOMT 09T304-MI:M8310		0.4	■ 255	0.14	2.5	◪ 130	0.13	2.5	◪ 240	0.14	2.5	–	–	–	–	–	–	–	–	–
SOMT 09T304-MI:M8330		0.4	■ 230	0.14	2.5	■ 135	0.13	2.5	◪ 215	0.14	2.5	–	–	–	◪ 55	0.10	2.0	–	–	–
SOMT 09T304-MI:M8340		0.4	■ 210	0.14	2.5	■ 125	0.13	2.5	◪ 195	0.14	2.5	–	–	–	◪ 50	0.10	2.0	–	–	–
SOMT 09T304-MI:M9315		0.4	■ 320	0.14	2.5	–	–	–	◪ 300	0.14	2.5	–	–	–	–	–	–	–	–	–
SOMT 09T304-MI:M9340		0.4	■ 265	0.14	2.5	■ 155	0.13	2.5	–	–	–	–	–	–	◪ 65	0.10	2.0	–	–	–
			**P** geometri, orta işleme için çok pozitif tasarım.																	
SOMT 09T304-P:M8330		0.4	■ 250	0.14	2.5	◪ 150	0.13	2.5	◪ 235	0.14	2.5	–	–	–	◪ 60	0.10	2.0	–	–	–
SOMT 09T304-P:M8340		0.4	■ 230	0.14	2.5	◪ 135	0.13	2.5	◪ 215	0.14	2.5	–	–	–	◪ 55	0.10	2.0	–	–	–
SOMT 09T304-P:M9325		0.4	■ 320	0.14	2.5	–	–	–	◪ 300	0.14	2.5	–	–	–	–	–	–	–	–	–

	SOMT 09-M	SOMT 09-MI	SOMT 09-P
RE	0.8	0.4	0.4
BS	–	–	–







DC	DCX	X.V	f_{min}	f_{max}
8	20.5	1.06	0.18	0.29
16	28.8	1.17	0.25	0.34
25	37.8	1.24	0.32	0.39

a_e / DC	**0.10**			**0.15**			**0.20**			**0.25**			**0.30**			**0.35**			**0.40**			**0.50 – 1.00**		
	f																							
45°	0.42	0.63	0.80	0.35	0.51	0.66	0.30	0.44	0.57	0.27	0.40	0.51	0.25	0.36	0.46	0.23	0.33	0.43	0.21	0.31	0.40	0.19	0.28	0.36
X.V	1.35			1.27			1.22			1.19			1.16			1.13			1.11			1.00		

STC

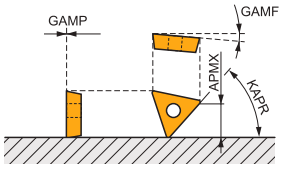
PRAMET

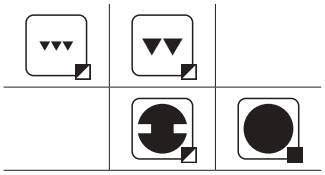
S

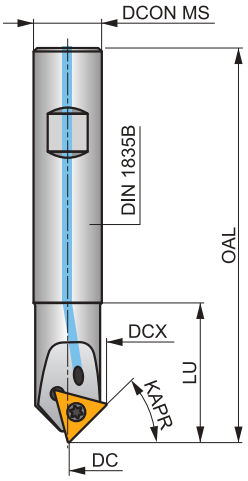
TC.T 16 Uç için 45° Pah Freze Takımı, İçten Su Vermeli

TC.T 16 uçlar için APMX 8.5mm 45° içten su vermeli pah ve oyma frezesi. Veldon olarak Ø31 ve Ø39mm çaplarında bulunur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	45°







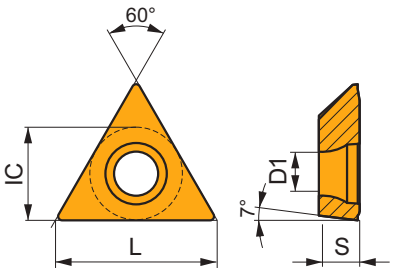
	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	LU (mm)			kg		
DIN 1835B	20N1R040B20-STC-000887	22.8	1.1	114	20	40	1	✓	0.26	GI223	SQ222

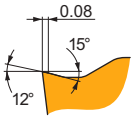
GI223	TC.T 16 STC

		Nm			
SQ222	US 2002-T15P	3.0	4	8.5	Flag T15P

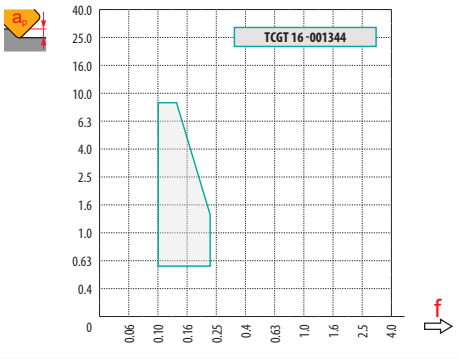
TCXT 16 STC

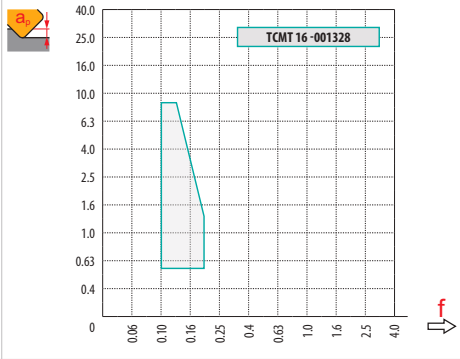
	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
16	9.525	4.60	16.50	3.97



Product	Interrupted/ Continuous cut	RE	P			M			K			N			S			H		
			vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)	vc (m/min)	f (mm/tooth)	ap (mm)
	 																			
328 talaş kırıcı, çeliklerin ince finiş işlemleri için ilk tercihtir. T-land olmadan hafif pozitif eğim açısına sahiptir. Dökme demirler için de uygundur.																				
TCMT 16-001328:M8330	–	0.4	■	150	0.13	8.5	◪	90	0.12	8.5	◪	140	0.13	8.5	–	–	–	–	–	–	–	–	–
	 																			
344 talaş kırıcı keskindir ve demir dışı alaşımların çok yönlü işlenmesi için ilk tercihtir. T-land olmadan son derece pozitif eğim açısına sahiptir. Süper alaşımlar için de şartlı olarak uygundur.																				
TCGT 16-001344:HF7	–	0.4	–	–	–	–	–	–	–	–	–	■	225	0.10	8.5	–	–	–	–	–	–	–	–

	TCGT 16 -001344	TCMT 16 -001328
RE	0.4	0.4
BS	–	–





DC	DCX	X.V	f_{min}	f_{max}
1.1	22.8	1.1	0.1	.018

2516

P M K N

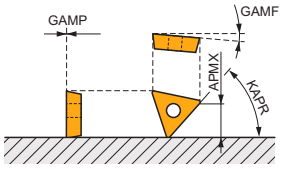
PRAMET

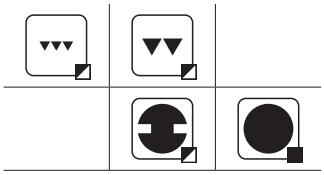
S

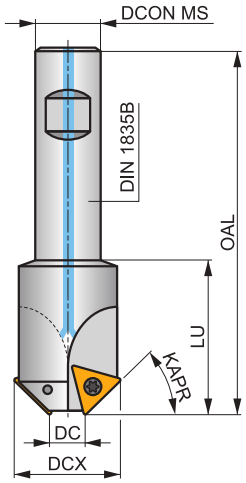
TCMT 16 Uç için 45° Pah Freze Takımı, İçten Su Vermeli

8.5 mm APMX'li tek taraflı TCMT 16 kesici uçlar kullanan 45° pah frezeleme takımı. İçten Soğutmalı. Üst tarafta pah kırmaya uygundur. Yalnızca veldon tarzında mevcuttur.Gövde uzun takım ömrü için işlem görmüştür.

KAPR	45°
APMX	8.5 mm







h_m 0.065 - 0.095

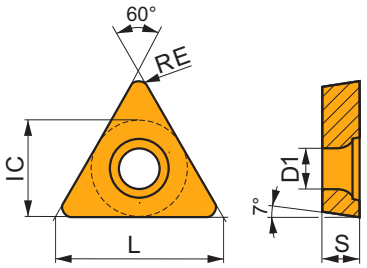
	Product	DCX (mm)	DC (mm)	OAL (mm)	DCON MS (mm)	LU (mm)			max.		kg		
DIN 1835B	**2516-45-11**	31	11	100	16	30	2	–	18100	✓	0.20	GI155	SQ220
DIN 1835B	**2516-45-19**	39	19	100	20	30	2	–	16200	✓	0.31	GI155	SQ220

GI155	TCMT 16T308E-FM:T8..

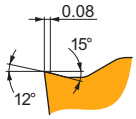
		Nm			
SQ220	US 4011-T15P	3.5	M 4	10.6	Flag T15P

TCMT

	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
16T3	9.525	4.40	16.50	3.97



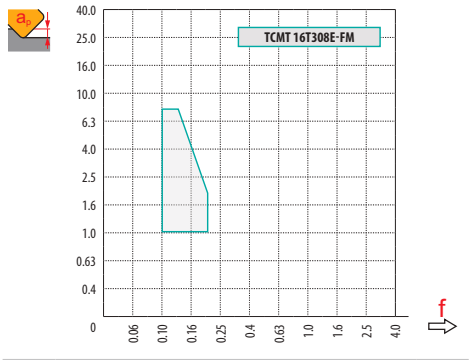
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/rev)	(mm)	(m/min)	(mm/rev)	(mm)	(m/min)	(mm/rev)	(mm)	(m/min)	(mm/rev)	(mm)	(m/min)	(mm/rev)	(mm)	(m/min)	(mm/rev)	(mm)
																				

FM talaş kırıcı çok yönlüdür ve çeliklerin finiş işlemleri için ilk tercihtir. Pozitif eğim açısı ve pozitif, dar T-land özelliğine sahiptir. Paslanmaz çelikler için ve şartlara bağlı olarak dökme demirler ve demir dışı alaşımlar için de uygundur.

TCMT 16T308E-FM:T8315	●	0.8	◪	170	0.17	1.7	■	100	0.15	1.7	◪	160	0.17	1.7	◪	510	0.20	1.7	–	–	–	–	–	–
TCMT 16T308E-FM:T8415	●	0.8	■	210	0.17	1.7	■	110	0.15	1.7	◪	190	0.17	1.7	◪	525	0.20	1.7	–	–	–	–	–	–
TCMT 16T308E-FM:T8430	●	0.8	■	185	0.17	1.7	■	100	0.15	1.7	◪	150	0.17	1.7	◪	510	0.20	1.7	–	–	–	–	–	–

	TCMT 16-FM
RE	0.8
BS	–



DC	DCX	X.V	f_{min}	f_{max}
11.0	31.0	1.02	0.10	0.18
19.0	39.0	1.10	0.14	0.20

2636

P M K N

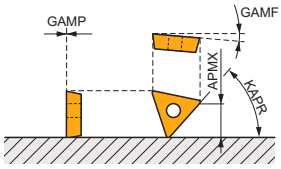
PRAMET

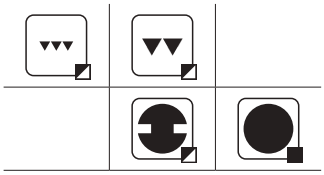
S

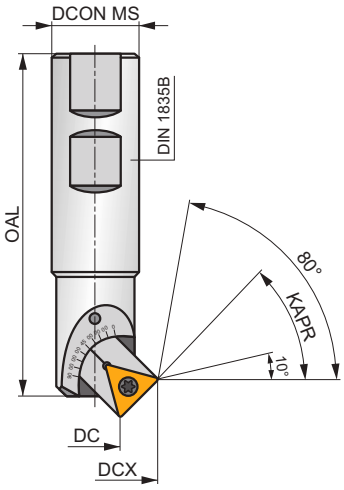
TCMT 16 Uç için Ayarlanabilir Freze Takımı

TCMT 16 uçlar için APMX 8.5 mm 45° içten su vermeli ayarlanabilir pah freze takımları. 10° – 80° ayarlanabilir. Sadece veldon olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	10° – 80°
APMX	8.5 mm







h_m 0.03 – 0.08

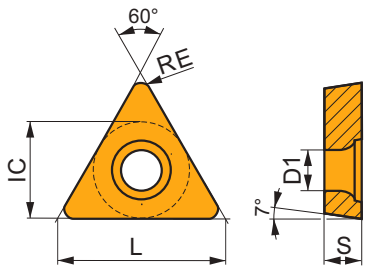
	Product	DCN (mm)	DCX (mm)	OAL (mm)	DCON MS (mm)	KAPR (°)	GAMF (°)	GAMP (°)			max.		kg		
DIN 1835B	**2636-05-25**	5.0	31.0	100	25	10	-8	0	1	–	18100	–	0.35	GI294	CH040
		5.5	31.0			15									
		7.0	29.5			30									
		11.0	29.5			45									
		16.0	28.5			60									
		21.0	26.5			75									
		23.0	26.0			80									

GI294	TCMT 16T304E-FM:T8...	TCMT 16T308E-FM:T8...

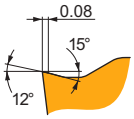
CH040	USI 0614	CA 2669	US 4011-T15P	3.5 Nm	M 4	10.6	Flag T15

TCMT

	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
16T3	9.525	4.40	16.50	3.97



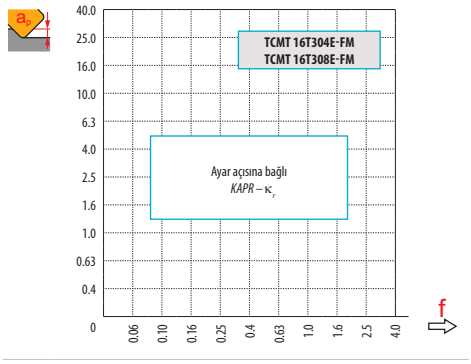
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/rev)	(mm)	(m/min)	(mm/rev)	(mm)	(m/min)	(mm/rev)	(mm)	(m/min)	(mm/rev)	(mm)	(m/min)	(mm/rev)	(mm)	(m/min)	(mm/rev)	(mm)
																				

FM talaş kırıcı çok yönlüdür ve çeliklerin finiş işlemleri için ilk tercihtir. Pozitif eğim açısı ve pozitif, dar T-land özelliğine sahiptir. Paslanmaz çelikler için ve şartlara bağlı olarak dökme demirler ve demir dışı alaşımlar için de uygundur.

TCMT 16T304E-FM:T8315	●	0.4	◪	155	0.12	1.7	■	90	0.11	1.7	◪	145	0.12	1.7	◪	465	0.14	1.7	–	–	–	–	–	–
TCMT 16T304E-FM:T8415	●	0.4	■	190	0.12	1.7	■	100	0.11	1.7	◪	170	0.12	1.7	◪	480	0.14	1.7	–	–	–	–	–	–
TCMT 16T304E-FM:T8430	●	0.4	■	180	0.12	1.7	■	95	0.11	1.7	◪	145	0.12	1.7	◪	495	0.14	1.7	–	–	–	–	–	–
TCMT 16T308E-FM:T8315	●	0.8	◪	170	0.17	1.7	■	100	0.15	1.7	◪	160	0.17	1.7	◪	510	0.20	1.7	–	–	–	–	–	–
TCMT 16T308E-FM:T8415	●	0.8	■	210	0.17	1.7	■	110	0.15	1.7	◪	190	0.17	1.7	◪	525	0.20	1.7	–	–	–	–	–	–
TCMT 16T308E-FM:T8430	●	0.8	■	185	0.17	1.7	■	100	0.15	1.7	◪	150	0.17	1.7	◪	510	0.20	1.7	–	–	–	–	–	–

	TCMT 16-FM	
RE	0.8	0.4
BS	–	–



	a_p	DC	DCX	X.V	f_{min}	f_{max}
10°	2.6	5.0	31.0	1.38	0.24	0.59
15°	3.9	5.5	31.0	1.30	0.17	0.40
30°	7.6	7.0	29.5	1.18	0.10	0.20
45°	10.7	11.0	29.5	1.13	0.09	0.14
60°	13.2	16.0	28.5	1.09	0.09	0.11
75°	14.7	21.0	26.5	1.06	0.09	0.10
80°	15.0	23.0	26.0	1.06	0.09	0.10

a_e / DC	0.10			0.15			0.20			0.25			0.30			0.35			0.40			0.50 – 1.00		
	f																							
10°	0.55	0.91	1.46	0.45	0.74	1.19	0.39	0.64	1.03	0.35	0.58	0.92	0.32	0.53	0.84	0.29	0.49	0.78	0.27	0.46	0.73	0.24	0.41	0.65
15°	0.37	0.61	0.98	0.30	0.50	0.80	0.26	0.43	0.69	0.23	0.39	0.62	0.21	0.35	0.56	0.20	0.33	0.52	0.18	0.31	0.49	0.16	0.27	0.44
30°	0.19	0.32	0.51	0.15	0.26	0.41	0.13	0.22	0.36	0.12	0.20	0.32	0.11	0.18	0.29	0.10	0.17	0.27	0.09	0.16	0.25	0.08	0.14	0.23
45°	0.13	0.22	0.36	0.11	0.18	0.29	0.09	0.16	0.25	0.08	0.14	0.23	0.08	0.13	0.21	0.07	0.12	0.19	0.07	0.11	0.18	0.06	0.10	0.16
60°	0.11	0.18	0.29	0.09	0.15	0.24	0.08	0.13	0.21	0.07	0.12	0.18	0.06	0.11	0.17	0.06	0.10	0.16	0.05	0.09	0.15	0.05	0.08	0.13
75°	0.10	0.16	0.26	0.08	0.13	0.21	0.07	0.12	0.19	0.06	0.10	0.17	0.06	0.09	0.15	0.05	0.09	0.14	0.05	0.08	0.13	0.04	0.07	0.12
80°	0.10	0.16	0.26	0.08	0.13	0.21	0.07	0.11	0.18	0.06	0.10	0.16	0.06	0.09	0.15	0.05	0.09	0.14	0.05	0.08	0.13	0.04	0.07	0.11
X.V	1.35			1.27			1.22			1.19			1.16			1.13			1.11			1.00		

J(T)-SXP16

P M K N

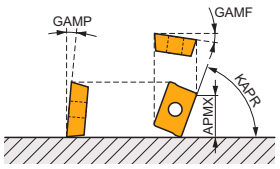
PRAMET

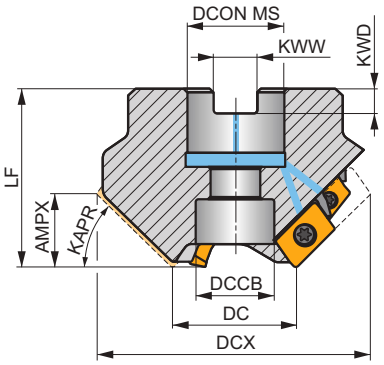
S

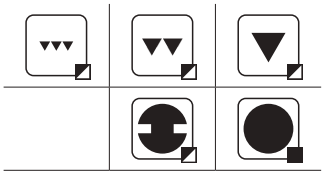
XPHT 16 Uç için Uzun Kenar Pah Frezeleme Takımı, İçten Su Vermeli

7'den 28 mm'ye kadar APMX'li tek taraflı XPHT 16 kesici uçlar kullanan pah frezeleme takımı.İçten soğutmalı. Üst pah kırma için uygundur. 15°, 25°, 30°, 35°, 40°, 45°, 50°, 55°, 60° ve 75° pah açısı aralığında göbekten bağlamalı mevcuttur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	15° - 75°
APMX	7.0 - 28.0 mm







h_m 0.05 - 0.11

	Product	DC (mm)	DCX (mm)	LF (mm)	DCON MS (mm)	DCCB (mm)	KAPR (°)	KWW (mm)	KWD (mm)	APMX (mm)	GAMF (°)	GAMP (°)	NOF			max.		kg		
	35T03R-S15XP1607-C	35	90.6	50	27	22	15	12.4	7	7.00	-6	-1	3	6	–	15200	✓	1.32	GI208	CH050
	35T03R-S25XP1612-C	35	87.3	50	27	22	25	12.4	7	12.00	-6	0	3	6	–	15200	✓	1.15	GI208	CH050
	35T03R-S30XP1614-C	35	85.1	50	27	22	30	12.4	7	14.00	-6	0	3	6	–	15200	✓	1.11	GI208	CH050
	35T03R-S35XP1616-C	35	82.4	50	27	22	35	12.4	7	16.00	-6	0	3	6	–	15200	✓	1.04	GI208	CH050
	35T03R-S40XP1618-C	35	79.4	50	27	22	40	12.4	7	18.00	-6	1	3	6	–	15200	✓	0.96	GI208	CH050
	35T03R-S45XP1620-C	35	76.1	50	27	22	45	12.4	7	20.00	-6	2	3	6	–	15200	✓	0.90	GI208	CH050
	35T03R-S50XP1622-C	35	72.4	50	27	22	50	12.4	7	22.00	-6	2	3	6	–	15200	✓	0.83	GI208	CH050
	35T03R-S55XP1623-C	35	68.4	50	27	22	55	12.4	7	23.00	-6	2	3	6	–	15200	✓	0.72	GI208	CH050
ISO 6462 DIN 8030	35T03R-S60XP1625-C	35	64.2	50	27	22	60	12.4	7	25.00	-5	4	3	6	–	15200	✓	0.63	GI208	CH050
	45T03R-S75XP1628-C	45	60.1	50	27	22	75	12.4	7	28.00	-5	5	3	6	–	13400	✓	0.64	GI208	CH050
	45T04R-S25XP1612-C	45	97.3	50	27	22	25	12.4	7	12.00	-6	0	4	8	✓	13400	✓	1.24	GI208	CH050
	45T04R-S30XP1614-C	45	95.1	50	27	22	30	12.4	7	14.00	-6	0	4	8	✓	13400	✓	1.21	GI208	CH050
	45T04R-S35XP1616-C	45	92.4	50	27	22	35	12.4	7	16.00	-6	2	4	8	✓	13400	✓	1.30	GI208	CH050
	45T04R-S40XP1618-C	45	89.5	50	27	22	40	12.4	7	18.00	-6	2	4	8	✓	13400	✓	1.08	GI208	CH050
	45T04R-S45XP1620-C	45	86.1	50	27	22	45	12.4	7	20.00	-6	2	4	8	✓	13400	✓	1.03	GI208	CH050
	45T04R-S50XP1622-C	45	82.4	50	27	22	50	12.4	7	22.00	-6	2	4	8	✓	13400	✓	0.96	GI208	CH050
	45T04R-S55XP1623-C	45	78.4	50	27	22	55	12.4	7	23.00	-6	2	4	8	✓	13400	✓	0.88	GI208	CH050
	45T04R-S60XP1625-C	45	74.2	50	27	22	60	12.4	7	25.00	-5	4	4	8	✓	13400	✓	0.78	GI208	CH050

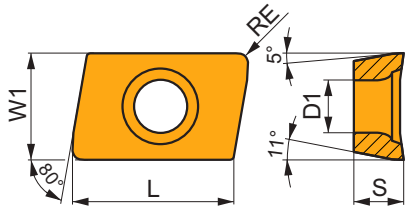
GI208	XPHT 1604..

CH050	US 3509-T15	3.0 Nm	M 3.5	9	D-T07/T15	FG-15	HS 1230C

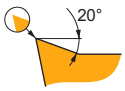
XPHT 16-FA

PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1604	9.525	4.40	15.88	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

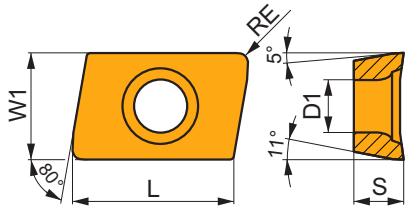
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
XPHT 160408F-FA:HF7	●	0.8	–	–	–	–	–	–	–	–	–	■ 255	0.12	15.0	–	–	–	–	–	–

FA geometri, pah frezeleme için çok pozitif tasarım.

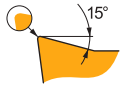
XPHT 16

PRAMET

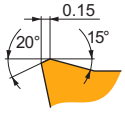
	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1604	9.525	4.40	15.88	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
XPHT 160412E:8215	⬢	1.2	■ 225	0.10	15.0	◪ 135	0.09	15.0	◪ 210	0.10	15.0	–	–	–	–	–	–	–	–	–
XPHT 160412E:M6330	⬢	1.2	■ 190	0.10	15.0	■ 135	0.09	15.0	–	–	–	–	–	–	–	–	–	–	–	–
XPHT 160412E:M8330	⬢	1.2	■ 220	0.10	15.0	■ 130	0.09	15.0	◪ 205	0.10	15.0	–	–	–	–	–	–	–	–	–
XPHT 160412E:M8340	⬢	1.2	■ 195	0.10	15.0	■ 115	0.09	15.0	◪ 185	0.10	15.0	–	–	–	–	–	–	–	–	–

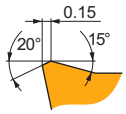
E geometri, pah frezeleme için çok pozitif tasarım.

S geometri, pah frezeleme için çok pozitif tasarım.

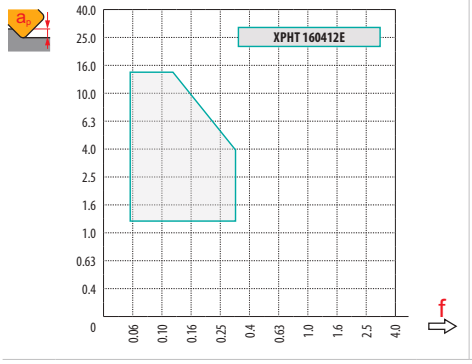
XPHT 160412S:8215	⬢	1.2	■ 210	0.12	15.0	◪ 125	0.11	15.0	◪ 195	0.12	15.0	–	–	–	–	–	–	–	–	–
XPHT 160412S:M8330	⬢	1.2	■ 210	0.12	15.0	■ 125	0.11	15.0	◪ 195	0.12	15.0	–	–	–	–	–	–	–	–	–
XPHT 160412S:M8340	✱	1.2	■ 190	0.12	15.0	■ 110	0.11	15.0	◪ 180	0.12	15.0	–	–	–	–	–	–	–	–	–

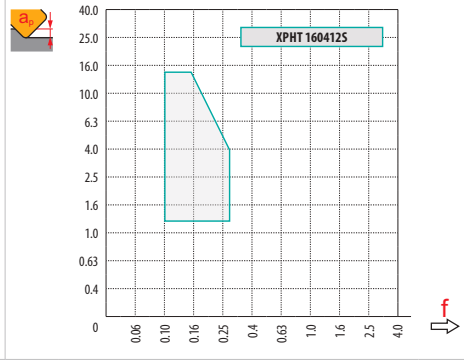
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

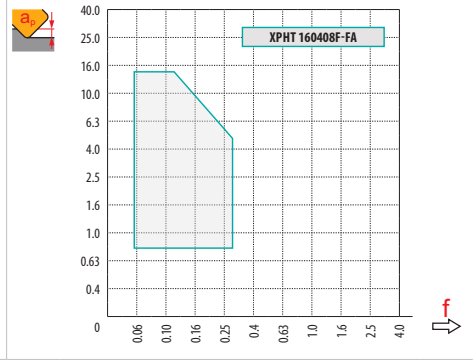
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
XPHT 160412S:M9325	1.2	270	0.12	15.0	–	–	–	255	0.12	15.0	–	–	–	–	–	–	–	–	–
XPHT 160412S:M9340	1.2	245	0.12	15.0	145	0.11	15.0	–	–	–	–	–	–	–	–	–	–	–	–

S geometri, pah frezeleme için çok pozitif tasarım.

	XPHT 16 E	XPHT 16 S	XPHT 16-FA
RE	1.2	1.2	0.8
BS	–	–	–







a_e / DC	0.10			0.15			0.20			0.25			0.30			0.35			0.40			0.50 – 1.00		
	f																							
15°	0.61	0.98	1.34	0.50	0.80	1.10	0.43	0.69	0.95	0.39	0.62	0.85	0.35	0.56	0.78	0.33	0.52	0.72	0.31	0.49	0.67	0.27	0.44	0.60
25°	0.37	0.60	0.82	0.31	0.49	0.67	0.26	0.42	0.58	0.24	0.38	0.52	0.22	0.35	0.48	0.20	0.32	0.44	0.19	0.30	0.41	0.17	0.27	0.37
30°	0.32	0.51	0.70	0.26	0.41	0.57	0.22	0.36	0.49	0.20	0.32	0.44	0.18	0.29	0.40	0.17	0.27	0.37	0.16	0.25	0.35	0.14	0.23	0.31
35°	0.28	0.44	0.61	0.23	0.36	0.50	0.19	0.31	0.43	0.17	0.28	0.38	0.16	0.25	0.35	0.15	0.24	0.32	0.14	0.22	0.30	0.12	0.20	0.27
40°	0.25	0.39	0.54	0.20	0.32	0.44	0.17	0.28	0.38	0.16	0.25	0.34	0.14	0.23	0.31	0.13	0.21	0.29	0.12	0.20	0.27	0.11	0.18	0.24
45°	0.22	0.36	0.49	0.18	0.29	0.40	0.16	0.25	0.35	0.14	0.23	0.31	0.13	0.21	0.28	0.12	0.19	0.26	0.11	0.18	0.25	0.10	0.16	0.22
50°	0.21	0.33	0.45	0.17	0.27	0.37	0.15	0.23	0.32	0.13	0.21	0.29	0.12	0.19	0.26	0.11	0.18	0.24	0.10	0.17	0.23	0.09	0.15	0.20
55°	0.19	0.31	0.42	0.16	0.25	0.35	0.14	0.22	0.30	0.12	0.20	0.27	0.11	0.18	0.25	0.10	0.17	0.23	0.10	0.15	0.21	0.09	0.14	0.19
60°	0.18	0.29	0.40	0.15	0.24	0.33	0.13	0.21	0.28	0.12	0.18	0.25	0.11	0.17	0.23	0.10	0.16	0.21	0.09	0.15	0.20	0.08	0.13	0.18
75°	0.16	0.26	0.36	0.13	0.21	0.29	0.12	0.19	0.25	0.10	0.17	0.23	0.09	0.15	0.21	0.09	0.14	0.19	0.08	0.13	0.18	0.07	0.12	0.16
X.V	1.35			1.27			1.22			1.19			1.16			1.13			1.11			1.00		

	a_p	DC	DCX	X.V	f_{min}	f_{max}
15°	7	35.0	90.6	1.16	0.43	0.70
25°	12	35.0	87.3	1.16	0.20	0.32
30°	14	35.0	85.1	1.17	0.16	0.25
35°	16	35.0	82.4	1.17	0.13	0.20
40°	18	35.0	79.4	1.17	0.11	0.16
45°	20	35.0	76.0	1.18	0.09	0.14
50°	22	35.0	72.4	1.18	0.08	0.12
55°	23	35.0	68.4	1.20	0.08	0.11
60°	25	35.0	64.1	1.20	0.07	0.09
25°	12	45.0	97.3	1.18	0.23	0.34
30°	14	45.0	95.0	1.18	0.18	0.26
35°	16	45.0	92.4	1.19	0.15	0.21
40°	18	45.0	89.5	1.19	0.12	0.17
45°	20	45.0	86.0	1.20	0.11	0.15
50°	22	45.0	82.4	1.21	0.09	0.13

	a_p	DC	DCX	X.V	f_{min}	f_{max}
55°	23	45.0	78.4	1.22	0.09	0.11
60°	25	45.0	74.1	1.23	0.08	0.10
75°	28	45.0	60.1	1.31	0.07	0.08

Ayar açısı 15° olan kesiciler HFC olarak kullanılabilir. Pah tablosundan beslemeleri kullanın.

KANAL FREZELEME

YÜZEY FREZELEME

	S90SN	S90CN(XN)	F-SCC			
	90°	90°	90°			
	APMX (mm) 4.0 – 14.0	APMX (mm) 14.0 – 30.5	APMX (mm) 11.0 – 18.0			
	DC (mm) 63 – 200	DC (mm) 125 – 315	DC (mm) 25 – 40			
Silindirik şaft	 DC = 80 – 200 (mm)	 DC = 125 – 315 (mm)				
Weldon	 DC = 63 – 160 (mm)	 DC = 125 – 200 (mm)				
Modüler						
Frezeleme kafası						
Sayfa	314	320	325			
ISO	P M K	P M K	P M K			
Kesici uç şekli						
Kesici uçlar	SNHQ 11 SNHQ 12	CNHQ 1005 XNHQ 1205 XNHQ 1606	CCMX			
Kesme kenarlarının sayısı	4	2	2			
Derin oluk frezeleme 	■	■				
Derin kenar frezeleme 	◪	◪				
Yüzey frezeleme 	◪	◪				
Arka yüzey frezeleme 	◪	◪	■			
T oluk frezeleme 			■			
Sığ kenar frezeleme 			◪			
Sığ oluk frezeleme 			◪			

■ İlk seçim. ◪ Olası seçim.

S90SN

P M K

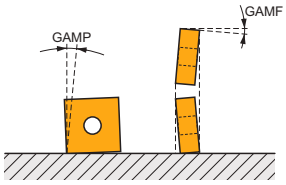
PRAMET

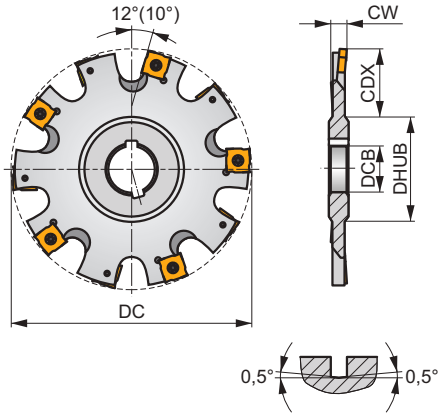
S

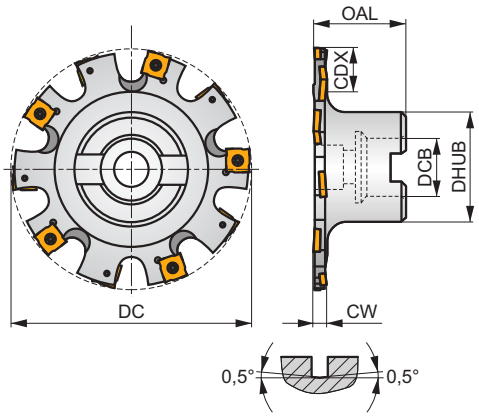
Kenar ve Yüzey Disk Freze Takımı

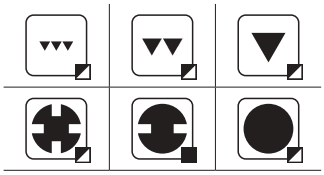
90° disc mill utilising SNHQ inserts. Suitable for slot, shoulder, rear side and face milling. Available in arbor or stub arbor style. Body treated for longer tool life.

KAPR	90°
CW	4.0 – 14.0 mm

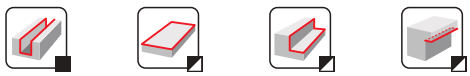








h_m	0.07 – 0.09
h_m	0.07 – 0.09



	Product	DC (mm)	OAL (mm)	DCB (mm)	DHUB (mm)	CDX (mm)	CW (mm)	x 1	GAMF (°)	GAMP (°)			max.		kg			
	80F8N-S90SN11N4	80	–	27	42	16	4.00	–	2.5	-0.5	8	–	12300	–	0.21	GI151	DI011	–
	80F8N-S90SN11N5	80	–	27	42	16	5.00	–	2.5	-0.5	8	–	12300	–	0.22	GI152	DI019	–
	80F8N-S90SN12N6	80	–	27	42	16	6.00	–	2.5	-0.5	8	–	8400	–	0.25	GI153	DI012	–
	80F8N-S90SN12N8	80	–	27	42	16	8.00	–	2.5	-0.5	8	–	8400	–	0.25	GI157	DI013	–
	100G10N-S90SN12N6	100	–	32	48	24	6.00	–	2.5	-0.5	10	–	7500	–	0.43	GI153	DI012	–
	100G10N-S90SN12N8	100	–	32	48	24	8.00	–	2.5	-0.5	10	–	7500	–	0.42	GI157	DI013	–
	100G10N-S90SN12N10	100	–	32	48	24	10.00	–	2.5	-0.5	10	–	7500	–	0.46	GI154	DI014	–
	100G10N-S90SN12N12	100	–	32	48	24	12.00	–	2.5	-0.5	10	–	7500	–	0.66	GI158	DI015	–
	125H12N-S90SN12N6	125	–	40	58	31	6.00	–	2.5	-0.5	12	–	6700	–	0.62	GI153	DI012	–
	125H12N-S90SN12N8	125	–	40	58	31	8.00	–	2.5	-0.5	12	–	6700	–	0.73	GI157	DI013	–
ISO 6462 DIN 8030	**125H12N-S90SN12N10**	125	–	40	58	31	10.00	–	2.5	-0.5	12	–	6700	–	0.66	GI154	DI014	–
	125H12N-S90SN12N12	125	–	40	58	31	12.00	–	2.5	-0.5	12	–	6700	–	0.76	GI158	DI015	–
	160H16N-S90SN12N6	160	–	40	58	43	6.00	–	2.5	-0.5	16	–	5900	–	0.86	GI153	DI012	–
	160H16N-S90SN12N8	160	–	40	58	43	8.00	–	2.5	-0.5	16	–	5900	–	1.10	GI157	DI013	–
	160H16N-S90SN12N10	160	–	40	58	43	10.00	–	2.5	-0.5	16	–	5900	–	1.14	GI154	DI014	–
	160H16N-S90SN12N12	160	–	40	58	43	12.00	–	2.5	-0.5	16	–	5900	–	1.30	GI158	DI015	–
	160H15N-S90SN12N14	160	–	40	58	43	14.00	–	2.5	-0.5	15	–	5900	–	1.40	GI158	DI015	–
	200J18N-S90SN12N6	200	–	50	72	62	6.00	–	2.5	-0.5	18	–	5300	–	1.40	GI153	DI012	–
	200J18N-S90SN12N8	200	–	50	72	62	8.00	–	2.5	-0.5	18	–	5300	–	1.78	GI157	DI013	–
	200J18N-S90SN12N10	200	–	50	72	62	10.00	–	2.5	-0.5	18	–	5300	–	1.89	GI154	DI014	–
	200J18N-S90SN12N12	200	–	50	72	62	12.00	–	2.5	-0.5	18	–	5300	–	2.23	GI158	DI015	–
	200J18N-S90SN12N14	200	–	50	72	62	14.00	–	2.5	-0.5	18	–	5300	–	2.67	GI158	DI015	–
	63A03R-S90SN11N4	63	40	16	34	10.5	4.00	3	2.5	-0.5	6	–	13900	–	0.37	GI151	DI021	–
	63A03R-S90SN11N5	63	40	16	34	10.5	5.00	3	2.5	-0.5	6	–	13900	–	0.36	GI152	DI021	–
ISO 6462 DIN 8030	**63A03R-S90SN12N6**	63	40	16	34	10.5	6.00	3	2.5	-0.5	6	–	9500	–	0.37	GI153	DI022	–
	80A04R-S90SN11N5	80	40	22	40	17.5	5.00	4	2.5	-0.5	8	–	12300	–	0.48	GI152	DI023	–
	80A04R-S90SN12N6	80	40	22	40	17.5	6.00	4	2.5	-0.5	8	–	8400	–	0.50	GI153	DI024	–

	Product	DC (mm)	OAL (mm)	DCB (mm)	DHUB (mm)	CDX (mm)	CW (mm)		GAMF (°)	GAMP (°)			max.		kg			
ISO 6462 DIN 8030	**100A05R-S90SN12N6**	100	50	27	48	23.5	6.00	5	2.5	-0.5	10	–	7500	–	0.86	GI153	DI025	–
	125B06R-S90SN12N6	125	50	40	56	24	6.00	6	2.5	-0.5	12	–	6700	–	1.20	GI153	DI012	AC003
	160B08R-S90SN12N10	160	50	40	70	41	10.00	8	2.5	-0.5	16	–	5900	–	1.83	GI154	DI014	–

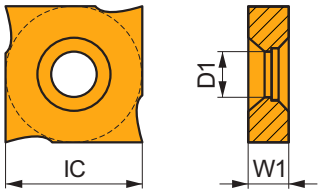
GI151	SNHQ 1102..
GI152	SNHQ 1103..
GI153	SNHQ 1203..
GI154	SNHQ 1205..
GI157	SNHQ 1204..
GI158	SNHQ 1207

		Nm					
DI011	US 3504-T09P	3.0	M 3.5	4	D-T07P/T09P	FG-15	–
DI012	US 70	5.0	M 4	5	D-T07/T15	FG-15	–
DI013	US 71	5.0	M 4	7	D-T07/T15	FG-15	–
DI014	US 72	5.0	M 4	9	D-T07/T15	FG-15	–
DI015	US 73	5.0	M 4	11	D-T07/T15	FG-15	–
DI019	US 3505-T09P	3.0	M 3.5	5	D-T07P/T09P	FG-15	HS 0830
DI021	US 3504-T09P	3.0	M 3.5	4	D-T07P/T09P	FG-15	HS 0830
DI022	US 70	5.0	M 4	5	D-T07/T15	FG-15	HS 0830
DI023	US 3505-T09P	3.0	M 3.5	5	D-T07P/T09P	FG-15	HS 1030
DI024	US 70	5.0	M 4	5	D-T07/T15	FG-15	HS 1030
DI025	US 70	5.0	M 4	5	D-T07/T15	FG-15	HS 1230

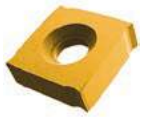
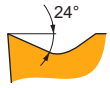
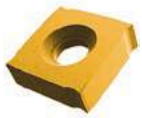
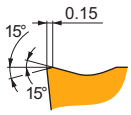
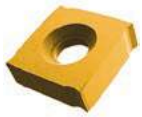
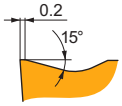
AC003	KS 2040	K.FMH40

SNHQ AZ

	IC (mm)	D1 (mm)	W1 (mm)
1102	11.000	4.30	2.300
1103	11.000	4.30	2.700
1203	12.700	5.00	3.200
1204	12.700	5.00	4.500
1205	12.700	5.00	5.400
1207	12.700	5.00	7.000
12T3	12.700	5.00	3.400

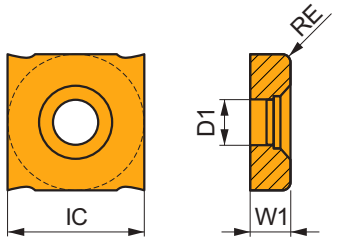


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
			**EN** geometri, kanal frezeleme için özel tasarım.																	
SNHQ 1203AZEN:8215		–	415	0.10	–	245	0.10	–	390	0.10	–	–	–	–	–	–	–	–	–	–
SNHQ 1203AZEN:M8340		–	370	0.10	–	220	0.10	–	350	0.10	–	–	–	–	–	–	–	–	–	–
SNHQ 1204AZEN:8215		–	405	0.10	–	240	0.10	–	380	0.10	–	–	–	–	–	–	–	–	–	–
SNHQ 1204AZEN:M8340		–	355	0.10	–	210	0.10	–	335	0.10	–	–	–	–	–	–	–	–	–	–
SNHQ 1205AZEN:8215		–	390	0.10	–	230	0.10	–	370	0.10	–	–	–	–	–	–	–	–	–	–
SNHQ 1205AZEN:M8340		–	345	0.10	–	205	0.10	–	325	0.10	–	–	–	–	–	–	–	–	–	–
SNHQ 1207AZEN:8215		–	380	0.10	–	225	0.10	–	360	0.10	–	–	–	–	–	–	–	–	–	–
SNHQ 1207AZEN:M8340		–	335	0.10	–	200	0.10	–	315	0.10	–	–	–	–	–	–	–	–	–	–
			**TN** geometri, kanal frezeleme için özel tasarım.																	
SNHQ 1102AZTN:M8330		–	365	0.20	–	215	0.18	–	345	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 1102AZTN:M8340		–	335	0.20	–	200	0.18	–	315	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 1103AZTN:M8330		–	345	0.20	–	205	0.18	–	325	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 1103AZTN:M8340		–	315	0.20	–	185	0.18	–	295	0.20	–	–	–	–	–	–	–	–	–	–
			**TN** geometri, kanal frezeleme için özel tasarım.																	
SNHQ 1203AZTN:M8330		–	345	0.20	–	205	0.18	–	325	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 1203AZTN:M8340		–	315	0.20	–	185	0.18	–	295	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 1204AZTN:M8330		–	335	0.20	–	200	0.20	–	315	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 1204AZTN:M8340		–	300	0.20	–	180	0.20	–	285	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 1205AZTN:M8330		–	330	0.20	–	195	0.20	–	310	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 1205AZTN:M8340		–	295	0.20	–	175	0.20	–	280	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 1207AZTN:M8330		–	320	0.20	–	190	0.20	–	300	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 1207AZTN:M8340		–	290	0.20	–	170	0.20	–	275	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 12T3AZTN:M8340		–	300	0.20	–	180	0.18	–	285	0.20	–	–	–	–	–	–	–	–	–	–

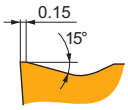
SNHQ TRL

	IC	D1	L	W1
	(mm)	(mm)	(mm)	(mm)
1203	12.700	5.00	12.70	3.200
1204	12.700	5.00	12.70	4.500
1205	12.700	5.00	12.70	5.400
1207	12.700	5.00	12.70	7.000



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)

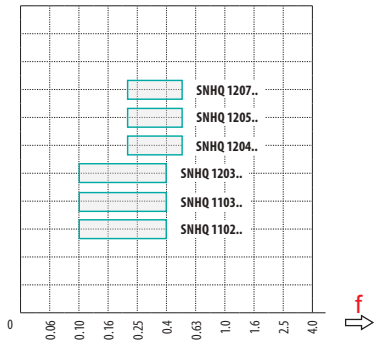


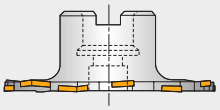
TRL geometri, kanal frezeleme için özel tasarım.

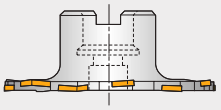
SNHQ 120305TRL:M8340	●	0.5	230	0.20	–	135	0.18	–	215	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 120310TRL:M8340	●	1.0	285	0.20	–	170	0.18	–	270	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 120315TRL:M8340	✱	1.5	300	0.20	–	180	0.18	–	285	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 120405TRL:M8340	●	0.5	220	0.20	–	130	0.20	–	205	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 120415TRL:M8340	✱	1.5	290	0.20	–	170	0.20	–	275	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 120505TRL:M8340	●	0.5	215	0.20	–	125	0.20	–	200	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 120515TRL:M8340	✱	1.5	280	0.20	–	165	0.20	–	265	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 120705TRL:M8340	●	0.5	210	0.20	–	125	0.20	–	195	0.20	–	–	–	–	–	–	–	–	–	–
SNHQ 120710TRL:M8340	✱	1.0	265	0.20	–	155	0.20	–	250	0.20	–	–	–	–	–	–	–	–	–	–

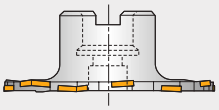
a_e / DC	0.05	0.10	0.15	0.20	0.25	0.30	0.40	0.50	0.60	0.70	0.75	0.80	0.90	1.00
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00

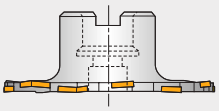
	SNHQ AZEN	SNHQ AZTN	SNHQ 12TRL
RE	–	–	0.5 – 1.5
BS	–	–	–



	DC		CDX	$a_{e\,max}$
	80	4	16	16
	100	5	24	24
	125	6	31	31
	160	5	43	43
	200	9	62	62
	63	3	10.5	63
	80	4	17.5	80
	100	5	23.5	100
	125	6	24	125
	160	8	41	160

	a_e	5		10		15		20		25	
	DC	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}
	80	0.28	0.36	0.20	0.26	0.17	0.21	–	–	–	–
	100	0.32	0.41	0.23	0.29	0.19	0.24	0.16	0.21	–	–
	125	0.35	0.45	0.25	0.32	0.21	0.27	0.18	0.23	0.16	0.21
	160	0.40	0.51	0.28	0.36	0.23	0.30	0.20	0.26	0.18	0.23
	200	0.44	0.57	0.32	0.41	0.26	0.33	0.23	0.29	0.20	0.26
	63	0.25	0.32	0.18	0.23	0.15	0.19	0.13	0.17	0.12	0.15
	80	0.28	0.36	0.20	0.26	0.17	0.21	0.15	0.19	0.13	0.17
	100	0.32	0.41	0.23	0.29	0.19	0.24	0.16	0.21	0.15	0.19
	125	0.35	0.45	0.25	0.32	0.21	0.27	0.18	0.23	0.16	0.21
	160	0.40	0.51	0.28	0.36	0.23	0.30	0.20	0.26	0.18	0.23

	a_e	32		40		50		63		80	
	DC	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}
	80	–	–	–	–	–	–	–	–	–	–
	100	–	–	–	–	–	–	–	–	–	–
	125	–	–	–	–	–	–	–	–	–	–
	160	0.16	0.21	0.15	0.19	–	–	–	–	–	–
	200	0.18	0.23	0.16	0.21	0.15	0.19	–	–	–	–
	63	0.11	0.14	0.10	0.13	0.10	0.12	0.10	0.11	–	–
	80	0.12	0.15	0.11	0.14	0.10	0.13	0.10	0.12	0.10	0.11
	100	0.13	0.17	0.12	0.15	0.11	0.14	0.10	0.13	0.10	0.12
	125	0.15	0.19	0.13	0.17	0.12	0.15	0.11	0.14	0.10	0.13
	160	0.16	0.21	0.15	0.19	0.13	0.17	0.12	0.16	0.11	0.14

	a_e	100		125		160	
	DC	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}
	80	–	–	–	–	–	–
	100	–	–	–	–	–	–
	125	–	–	–	–	–	–
	160	–	–	–	–	–	–
	200	–	–	–	–	–	–
	63	–	–	–	–	–	–
	80	–	–	–	–	–	–
	100	0.10	0.11	–	–	–	–
	125	0.10	0.12	0.10	0.11	–	–
	160	0.10	0.13	0.10	0.12	0.10	0.11

S90CN(XN)

P M K

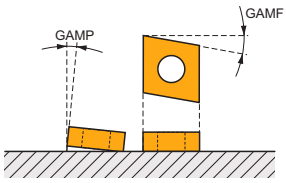
PRAMET

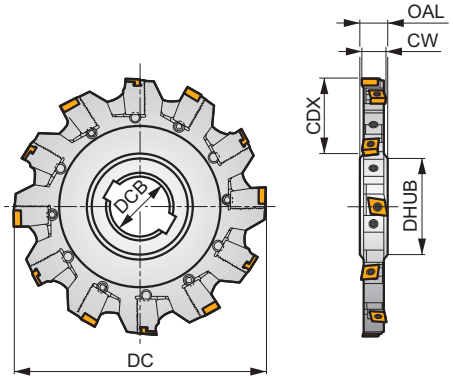
S

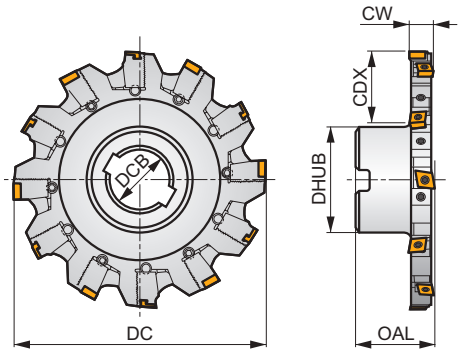
Genişliği Ayarlanabilir Kenar ve Yüzey Disk Freze Takımı

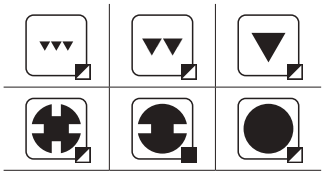
90° disc mill utilising CNHQ and XNHQ inserts. Suitable for slot, shoulder, rear side and face milling. Available in arbor or stub arbor style. Body treated for longer tool life.

KAPR	90°
CW	14.0 – 30.5 mm

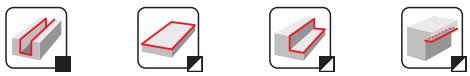








h_m	0.07 – 0.09
h_m	0.07 – 0.09



	Product	DC (mm)	OAL (mm)	DCB (mm)	DHUB (mm)	CDX (mm)	CW (mm)	GAMF (°)	GAMP (°)	x/1			max.		kg			
	125H04N-S90CN10N18	125	18	40	56	34	14.0 – 18.5	-10	4	4	8	–	7800	–	1.19	GI195	DI051	–
	160H06N-S90CN10N18	160	18	40	56	50	14.0 – 18.5	-8	4	6	12	–	6900	–	1.80	GI195	DI052	–
	160H05N-S90XN12N24	160	24	40	56	50	19.0 – 24.3	-8	5	5	10	–	5200	–	2.50	GI196	DI056	–
	200J07N-S90CN10N18	200	18	50	71	60	14.0 – 18.5	-8	4	7	14	–	6100	–	2.85	GI195	DI053	–
	200J06N-S90XN12N24	200	24	50	71	60	19.0 – 24.3	-8	5	6	12	–	4700	–	3.60	GI196	DI057	–
ISO 6462 DIN 8030	**200J06N-S90XN16N30**	200	30	50	71	60	24.5 – 30.5	-9	5	6	12	–	4000	–	6.00	GI197	DI060	–
	250J09N-S90CN10N18	250	18	50	71	85	14.0 – 18.5	-8	4	9	18	–	5500	–	5.30	GI195	DI054	–
	250J08N-S90XN12N24	250	24	50	71	85	19.0 – 24.3	-8	5	8	16	–	4200	–	7.50	GI196	DI058	–
	250J08N-S90XN16N30	250	30	50	71	85	24.5 – 30.5	-8	5	8	16	–	3600	–	8.00	GI197	DI061	–
	315J12N-S90CN10N18	315	18	50	71	110	14.0 – 18.5	-8	4	12	24	–	4900	–	7.80	GI195	DI055	–
	315J10N-S90XN12N24	315	24	50	71	110	19.0 – 24.3	-8	5	10	20	–	3700	–	10.70	GI196	DI059	–
	315K10N-S90XN16N30	315	30	60	85	110	24.5 – 30.5	-8	5	10	20	–	3200	–	13.00	GI197	DI062	–
	125B04R-S90CN10N18	125	50	40	70	25	14.0 – 18.5	-10	4	4	8	–	7800	–	1.65	GI195	DI071	AC003
ISO 6462 DIN 8030	**160B06R-S90CN10N18**	160	50	40	70	44	14.0 – 18.5	-8	5	6	12	–	6900	–	2.55	GI195	DI072	–
	160B05R-S90XN12N24	160	50	40	70	44	19.0 – 24.3	-8	5	5	10	–	5200	–	2.50	GI196	DI074	–
	200C06R-S90XN12N24	200	50	40	90	52	19.0 – 24.3	-8	5	6	12	–	6100	–	4.70	GI196	DI075	–
ISO 6462 DIN 8030	**200C07R-S90CN10N18**	200	50	40	90	52	14.0 – 18.5	-8	4	7	14	–	6100	–	4.05	GI195	DI073	–

GI195	CNHQ 1005..
GI196	XNHQ 1205..
GI197	XNHQ 1606..

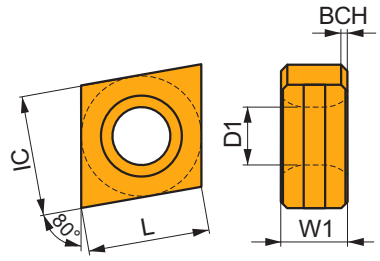
DI051	125H04N-S-14-08	KL-1418-CN10	KR-1418-CN10	KS 613F	DS 6018F	SDR T20	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	–
DI052	160H06N-S-14-12	KL-1418-CN10	KR-1418-CN10	KS 613F	DS 6018F	SDR T20	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	–
DI053	200J07N-S-14-14	KL-1418-CN10	KR-1418-CN10	KS 613F	DS 6018F	SDR T20	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	–
DI054	250J09N-S-14-18	KL-1418-CN10	KR-1418-CN10	KS 613F	DS 6018F	SDR T20	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	–
DI055	315J12N-S-14-24	KL-1418-CN10	KR-1418-CN10	KS 613F	DS 6018F	SDR T20	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	–
DI056	160H05N-S-19-10	KL-1924-XN12	KR-1924-XN12	KS 617M	DS 6500	–	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	HXK 4
DI057	200J06N-S-19-12	KL-1924-XN12	KR-1924-XN12	KS 617M	DS 6500	–	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	HXK 4
DI058	250J08N-S-19-16	KL-1924-XN12	KR-1924-XN12	KS 617M	DS 6500	–	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	HXK 4
DI059	315J10N-S-19-20	KL-1924-XN12	KR-1924-XN12	KS 617M	DS 6500	–	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	HXK 4
DI060	200J06N-S-25-12	KL-2530-XN16	KR-2530-XN16	KS 623M	DS 6500	–	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	HXK 4
DI061	250J08N-S-25-16	KL-2530-XN16	KR-2530-XN16	KS 623M	DS 6500	–	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	HXK 4
DI062	315K10N-S-25-20	KL-2530-XN16	KR-2530-XN16	KS 623M	DS 6500	–	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	HXK 4
DI071	125B04R-S-14-08	KL-1418-CN10	KR-1418-CN10	KS 613F	DS 6018F	SDR T20	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	–
DI072	160B06R-S-14-12	KL-1418-CN10	KR-1418-CN10	KS 613F	DS 6018F	SDR T20	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	–
DI073	200C07R-S-14-14	KL-1418-CN10	KR-1418-CN10	KS 613F	DS 6018F	SDR T20	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	–
DI074	160B05R-S-19-10	KL-1924-XN12	KR-1924-XN12	KS 617M	DS 6500	–	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	HXK 4
DI075	200C06R-S-19-12	KL-1924-XN12	KR-1924-XN12	KS 617M	DS 6500	–	SS 6005-T09P	SDR T09	US 4011-T15P	3.5	M 4	10.6	SDR T15P	HXK 4

AC003	KS 2040	K.FMH40

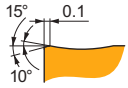
CNHQ

PRAMET

	BCH	IC	D1	L	W1
	(mm)	(mm)	(mm)	(mm)	(mm)
1005	0.50	10.000	4.70	10.00	5.400



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

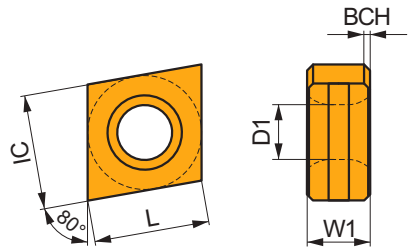
Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																			
CNHQ 1005AZTN:M8330	–	310	0.15	–	185	0.14	–	290	0.15	–	–	–	–	–	–	–	–	–	–
CNHQ 1005AZTN:M8340	–	280	0.15	–	165	0.14	–	265	0.15	–	–	–	–	–	–	–	–	–	–

TN özel tasarım, kanal frezeleme için, hafiften ağır işleme şartlarına kadar uygun.

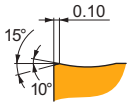
XNHQ

PRAMET

	BCH	IC	D1	L	W1
	(mm)	(mm)	(mm)	(mm)	(mm)
1205	0.50	10.000	4.70	12.70	5.400
1606	0.50	12.000	5.90	16.00	6.400



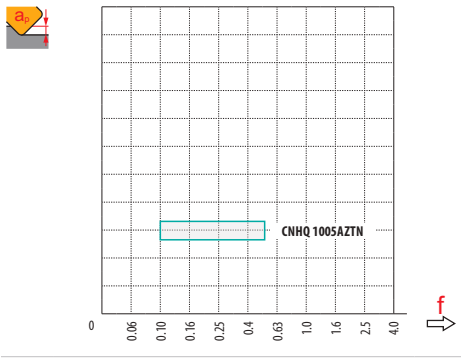
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																			
XNHQ 1205AZTN:M8330	–	310	0.15	–	185	0.14	–	290	0.15	–	–	–	–	–	–	–	–	–	–
XNHQ 1205AZTN:M8340	–	275	0.15	–	165	0.14	–	260	0.15	–	–	–	–	–	–	–	–	–	–
XNHQ 1606AZTN:M8330	–	300	0.15	–	180	0.14	–	285	0.15	–	–	–	–	–	–	–	–	–	–
XNHQ 1606AZTN:M8340	–	270	0.15	–	160	0.14	–	255	0.15	–	–	–	–	–	–	–	–	–	–

TN özel tasarım, kanal frezeleme için.

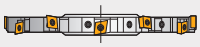
a_e / DC	0.05	0.10	0.15	0.20	0.25	0.30	0.40	0.50	0.60	0.70	0.75	0.80	0.90	1.00
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00

	XNHQ 10
RE	–
BS	–



	DC		CDX	a_{emax}
	125	4	34	34
	160	6	50	50
	200	7	60	60
	250	9	85	85
	315	12	110	110
	125	4	25	125
	160	6	44	160
	200	7	52	200

	a_e	5		10		15		20		25	
	DC	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨
	125	0.35	0.45	0.25	0.32	0.21	0.27	0.18	0.23	0.16	0.21
	160	0.40	0.51	0.28	0.36	0.23	0.30	0.20	0.26	0.18	0.23
	200	0.44	0.57	0.32	0.41	0.26	0.33	0.23	0.29	0.20	0.26
	250	0.50	0.64	0.35	0.45	0.29	0.37	0.25	0.32	0.23	0.29
	315	0.56	0.72	0.39	0.51	0.32	0.42	0.28	0.36	0.25	0.32
	125	0.35	0.45	0.25	0.32	0.21	0.27	0.18	0.23	0.16	0.21
	160	0.40	0.51	0.28	0.36	0.23	0.30	0.20	0.26	0.18	0.23
	200	0.44	0.57	0.32	0.41	0.26	0.33	0.23	0.29	0.20	0.26

	a_e	32		40		50		63		80	
	DC	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}
	**125**	0.15	0.19	–	–	–	–	–	–	–	–
	160	0.16	0.21	0.15	0.19	–	–	–	–	–	–
	200	0.18	0.23	0.16	0.21	0.15	0.19	–	–	–	–
	250	0.20	0.26	0.18	0.23	0.16	0.21	0.15	0.19	0.13	0.17
	315	0.22	0.29	0.20	0.26	0.18	0.23	0.16	0.21	0.15	0.19
	**125**	0.15	0.19	0.13	0.17	0.12	0.15	0.11	0.14	0.10	0.13
	160	0.16	0.21	0.15	0.19	0.13	0.17	0.12	0.16	0.11	0.14
	200	0.18	0.23	0.16	0.21	0.15	0.19	0.13	0.17	0.12	0.15

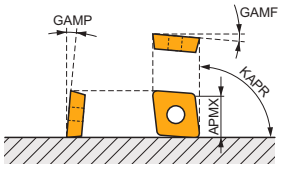
	a_e	100		125		160		200	
	DC	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}	f_{min}	f_{max}
	**125**	–	–	–	–	–	–	–	–
	160	–	–	–	–	–	–	–	–
	200	–	–	–	–	–	–	–	–
	250	–	–	–	–	–	–	–	–
	315	0.13	0.17	–	–	–	–	–	–
	**125**	0.10	0.12	0.10	0.11	–	–	–	–
	160	0.10	0.13	0.10	0.12	0.10	0.11	–	–
	200	0.11	0.14	0.10	0.13	0.10	0.12	0.10	0.11

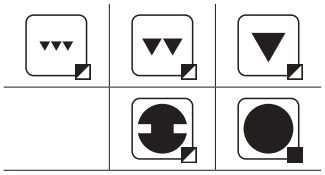
F-SCC

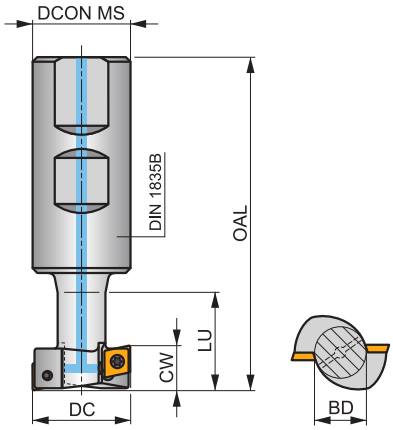
CCMX Uç için T-Kanal Freze Takımı, İçten Su Vermeli

CCMX uçlar için içten su vermeli T-kanal frezeleme takımı. T-kanal, ters yüzey, dar kenar ve sığ kanal açmak için uygundur. Veldon olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür.

KAPR	90°
APMX	11.0 – 18.0 mm







h_m 0.05 – 0.08

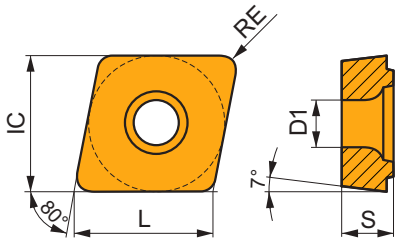
	Product	DC (mm)	BD (mm)	OAL (mm)	DCON MS (mm)	LU (mm)	CW (mm)				max.		kg		
DIN 1835B	**25F1R030B25-SCC06-C**	25	12	86	25	25	11.00	1	2	–	28100	✓	0.26	GI148	SQ213
	32F1R038B32-SCC08-C	32	16	98	32	33	14.00	1	2	–	19100	✓	0.50	GI149	SQ212
	40F2R046B32-SCC09-C	40	20	105	32	41	18.00	2	4	–	14900	✓	0.56	GI150	SQ212

GI148	CCMX 060304
GI149	CCMX 08T308
GI150	CCMX 09T308

		Nm			
SQ212	US 3007-T09P	2.0	M 3	7.3	Flag T09P
SQ213	US 2506-T07P	1.2	M 2.5	6.3	Flag T07P

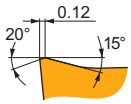
CCMX

	IC	D1	L	S
	(mm)	(mm)	(mm)	(mm)
0603	6.350	2.80	6.40	3.50
08T3	8.030	3.50	8.10	4.40
09T3	9.525	3.50	9.70	3.97



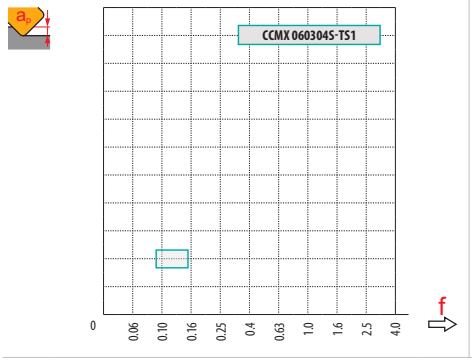
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

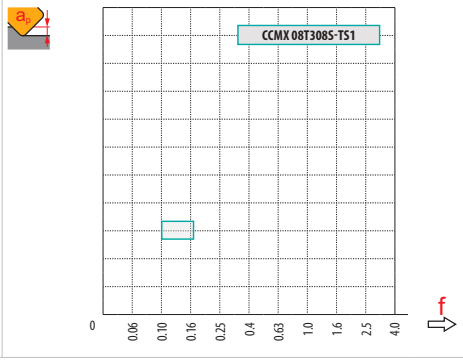
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
CCMX 060304S-TS1:M8330	●	0.4	240	0.10	–	140	0.09	–	225	0.10	–	–	–	–	–	–	–	–	–	–
CCMX 060304S-TS1:M8340	⬌	0.4	215	0.10	–	125	0.09	–	200	0.10	–	–	–	–	–	–	–	–	–	–
CCMX 08T308S-TS1:M8330	⬌	0.8	275	0.10	–	165	0.10	–	260	0.10	–	–	–	–	–	–	–	–	–	–
CCMX 09T308S-TS1:M8330	⬌	0.8	270	0.10	–	160	0.10	–	255	0.10	–	–	–	–	–	–	–	–	–	–
CCMX 09T308S-TS1:M8340	⬌	0.8	240	0.10	–	140	0.10	–	225	0.10	–	–	–	–	–	–	–	–	–	–

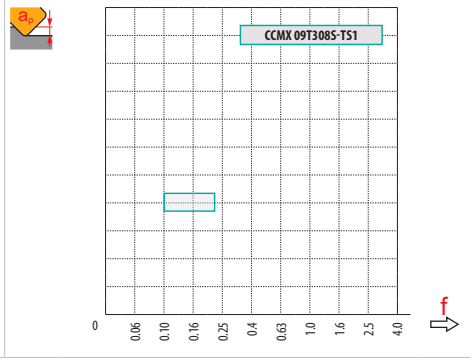


TS1 özel tasarım, T-kanal frezeleme için, hafif ve orta işleme şartlarına uygun.

	CCMX 06-TS1	CCMX 08-TS1	CCMX 09-TS1
RE	0.4	0.8	0.8
BS	–	–	–







a_e / DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	1.48	1.35	1.27	1.22	1.19	1.16	1.11	1.08	1.05	1.03	1.00	1.00	1.00	1.00

DC	a_e = 1		a_e = 2		a_e = 3		a_e = 4		a_e = 5		a_e = 8		a_e = 10	
	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨
25	0.25	0.40	0.18	0.29	0.15	0.24	0.13	0.21	0.12	0.19	0.09	0.15	0.09	0.14
32	0.28	0.45	0.20	0.32	0.17	0.27	0.14	0.23	0.13	0.21	0.10	0.17	0.09	0.15
40	0.32	0.51	0.23	0.36	0.18	0.30	0.16	0.26	0.14	0.23	0.12	0.19	0.10	0.17

DC	a_e = 12		a_e = 16		a_e = 20		a_e = 25		a_e = 32		a_e = 40	
	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨	f_{min} ⇨	f_{max} ⇨
25	0.08	0.13	0.07	0.12	0.07	0.11	0.08	0.13	–	–	–	–
32	0.09	0.14	0.08	0.13	0.07	0.12	0.07	0.11	0.08	0.13	–	–
40	0.10	0.15	0.09	0.14	0.08	0.13	0.07	0.12	0.07	0.11	0.08	0.13

T kanal frezeleme için geçerlidir

Kenar ve ters yüzey frezeleme için geçerlidir

Kenar frezeleme için geçerlidir

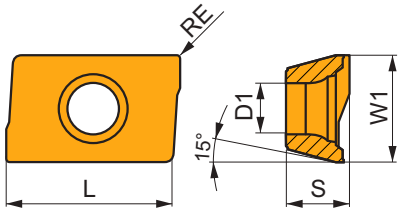
DC		APMX	$a_{e\,max}$
25	1	11	6.4
32	1	14	8.0
40	2	18	9.7

DIĞER FREZELEME UÇLARI

ADKT 15

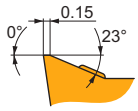
PRAMET

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1505	9.525	4.40	15.55	5.60



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)



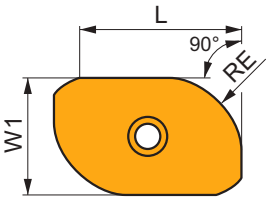
M geometri, orta işleme için çok pozitif tasarım.

ADKT 1505PDER-M:M8330	0.8	235	0.20	5.0	140	0.18	5.0	220	0.20	5.0	–	–	–	55	0.16	4.0	–	–	–
ADKT 1505PDER-M:M8340	0.8	210	0.20	5.0	125	0.18	5.0	195	0.20	5.0	–	–	–	50	0.16	4.0	–	–	–
ADKT 1505PDER-M:M9325	0.8	290	0.20	5.0	–	–	–	275	0.20	5.0	–	–	–	–	–	–	–	–	–

ADKX 15

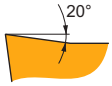
PRAMET

	W1	L	S
	(mm)	(mm)	(mm)
15T3	9.525	12.20	3.97



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE	P			M			K			N			S			H		
		vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)

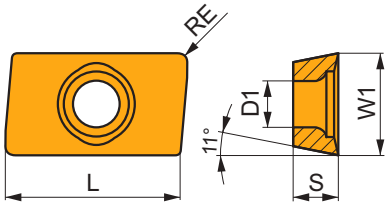


F geometri, hafif ve orta işleme için çok keskin tasarım.

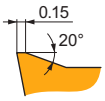
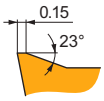
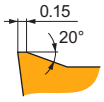
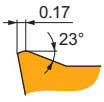
ADKX 15T308ER-F:M8345	0.8	170	0.10	10.0	100	0.09	10.0	–	–	–	–	–	–	40	0.07	8.0	–	–	–

APMT 16

	W1	D1	L	S
	(mm)	(mm)	(mm)	(mm)
1604	9.600	4.50	17.00	4.76



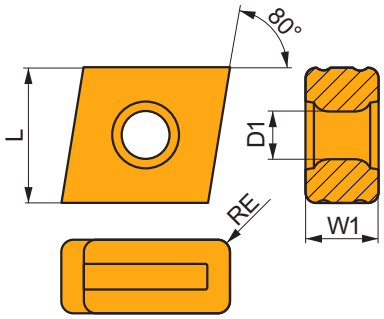
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
			F geometri, hafif işleme için pozitif tasarım.																	
APMT 1604PDER-F:M8330		–	320	0.10	2.0	190	0.09	2.0	300	0.10	2.0	–	–	–	80	0.07	1.6	–	–	–
																				
			FM geometri, hafif ve orta işleme için pozitif tasarım.																	
APMT 1604PDER-FM:M8330		–	285	0.16	2.0	170	0.14	2.0	270	0.16	2.0	–	–	–	70	0.13	1.6	–	–	–
APMT 1604PDER-FM:M8345		–	205	0.16	2.0	120	0.14	2.0	–	–	–	–	–	–	50	0.13	1.6	–	–	–
																				
			ER-R geometri, kaba işleme için pozitif işleme.																	
APMT 1604PDER-R:M8330		–	255	0.16	5.0	–	–	–	240	0.16	5.0	–	–	–	–	–	–	–	–	–
																				
			SR-R geometri, kaba işleme için pozitif tasarımı.																	
APMT 1604PDSR-R:M8330		–	255	0.18	5.0	–	–	–	240	0.18	5.0	–	–	–	–	–	–	–	–	–

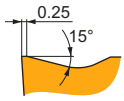
CNM

PRAMET

	D1	L	S
	(mm)	(mm)	(mm)
63	5.50	15.00	8.00



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

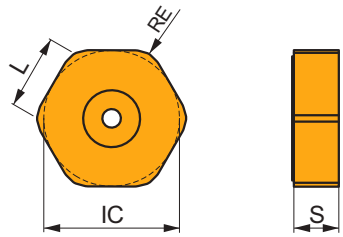
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
CNM 563:M8330	●	1.2	185	0.30	10.0	–	–	–	175	0.30	10.0	–	–	–	–	–	–	–	–	–
CNM 563:M8340	⬌	1.2	220	0.30	10.0	–	–	–	205	0.30	10.0	–	–	–	–	–	–	–	–	–

563 üniversal geometri.

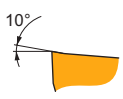
HNEF 09

PRAMET

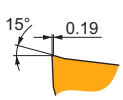
	IC	L	S
	(mm)	(mm)	(mm)
0905	16.200	9.40	5.64



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
HNMF 090516SN-R:8215	●	1.6	–	–	–	–	–	–	380	0.15	1.5	–	–	–	–	–	–	–	–	–
HNMF 090516SN-R:M5315	⬌	1.6	–	–	–	–	–	–	265	0.30	3.0	–	–	–	–	–	–	–	–	–

R geometri, hafif, orta ve ağır işleme için negatif tasarım.

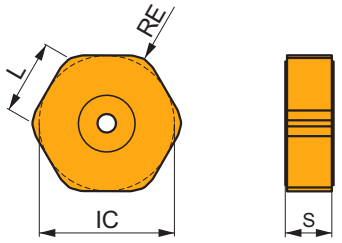
																				
HNEF 090508EN-M:M5315	⬌	0.8	–	–	–	–	–	–	290	0.18	3.0	–	–	–	–	–	–	–	–	–

M geometri, hafif ve orta işleme için pozitif tasarım.

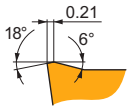
HNMF 09

PRAMET

	IC (mm)	L (mm)	S (mm)
0905	16.200	9.40	5.64



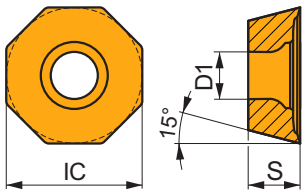
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
R geometri, hafif, orta ve ağır işleme için negatif tasarım.																			
HNMF 090516SN-R:8215	1.6	–	–	–	–	–	–	210	0.30	3.0	–	–	–	–	–	–	–	–	–
HNMF 090516SN-R:M5315	1.6	–	–	–	–	–	–	265	0.30	3.0	–	–	–	–	–	–	–	–	–

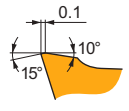
ODMT 05

PRAMET

	IC (mm)	D1 (mm)	S (mm)
0504	12.700	4.40	4.76



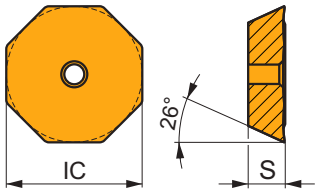
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
ZZN hafif pozitif tasarım, orta işleme için.																			
ODMT 0504ZZN:M8340	–	195	0.25	1.5	–	–	–	185	0.25	1.5	–	–	–	–	–	–	–	–	–

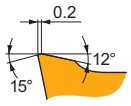
OFKR 07

PRAMET

	IC	D1	S
	(mm)	(mm)	(mm)
0704	17.845	2.65	4.56



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				

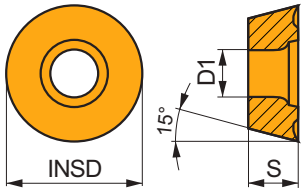
M geometri, hafif ve orta işleme için pozitif tasarım.

OFKR 0704SN-M:M8330	–	235	0.25	1.5	140	0.23	1.5	220	0.25	1.5	–	–	–	–	–	–	–	–	–
OFKR 0704SN-M:M8340	–	215	0.25	1.5	125	0.23	1.5	200	0.25	1.5	–	–	–	–	–	–	–	–	–

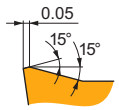
RDET

PRAMET

	INSD	D1	S
	(mm)	(mm)	(mm)
0802	8.000	3.40	2.38
1003	10.000	4.40	3.18
12T3	12.000	4.40	3.97



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				

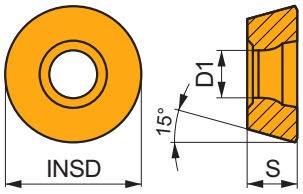
SN finiş işleme için pozitif tasarım.

RDET 0802MOSN:M8340	–	335	0.15	0.5	200	0.14	0.5	315	0.15	0.5	–	–	–	80	0.12	0.4	–	–	–
RDET 1003MOSN:M8340	–	310	0.15	1.0	185	0.14	1.0	290	0.15	1.0	–	–	–	75	0.12	0.8	–	–	–
RDET 12T3MOSN:M8340	–	280	0.20	1.5	165	0.18	1.5	265	0.20	1.5	–	–	–	70	0.14	1.2	–	–	–

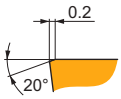
RDHX 20

PRAMET

	INSD	D1	S
	(mm)	(mm)	(mm)
2006	20.000	5.20	6.35



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

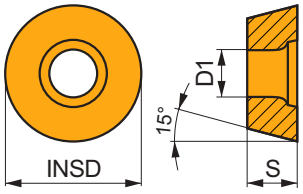
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
RDHX 2006MOT:M8310	–		240	0.35	3.0	–	–	–	225	0.35	3.0	–	–	–	–	–	–	45	0.18	1.3
RDHX 2006MOT:M8325	–		180	0.35	3.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

MOT sıfır talaş açısı tasarımı, finiş işleme için.

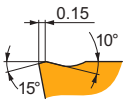
RPET 12

PRAMET

	INSD	D1	S
	(mm)	(mm)	(mm)
1204	12.000	4.40	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

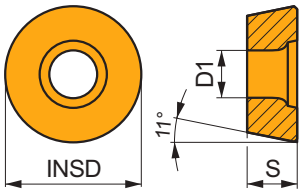
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
RPET 1204MOSN:8215	–		325	0.20	1.5	195	0.18	1.5	305	0.20	1.5	–	–	–	80	0.14	1.2	–	–	–
RPET 1204MOSN:M8330	–		320	0.20	1.5	190	0.18	1.5	300	0.20	1.5	–	–	–	80	0.14	1.2	–	–	–
RPET 1204MOSN:M8340	–		295	0.20	1.5	175	0.18	1.5	280	0.20	1.5	–	–	–	70	0.14	1.2	–	–	–

MOSN finiş işleme için pozitif tasarım.

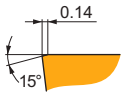
RPEW 12

PRAMET

	INSD	D1	S
	(mm)	(mm)	(mm)
1204	12.000	4.40	4.76



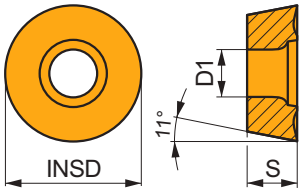
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			HFC S																	
MOSN sıfır talaş açısı tasarımı, finiş işleme için.																				
RPEW 1204MOSN:M8330		–	285	0.20	1.5	–	–	–	270	0.20	1.5	–	–	–	–	–	–	55	0.10	0.8
RPEW 1204MOSN:M8340		–	265	0.20	1.5	–	–	–	250	0.20	1.5	–	–	–	–	–	–	–	–	–

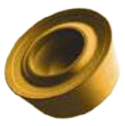
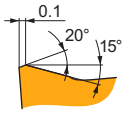
RPEX

PRAMET

	INSD	D1	S
	(mm)	(mm)	(mm)
1204	12.000	4.40	4.76

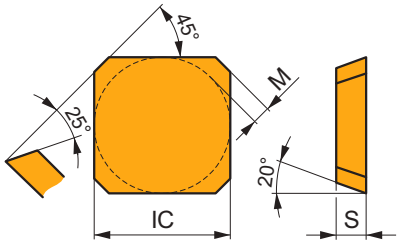


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

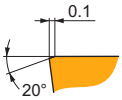
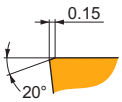
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			HFC S																	
12 finiş işleme için pozitif tasarım.																				
RPEX 1204MOSN-12:M8340		–	215	0.30	1.5	125	0.27	1.5	200	0.30	1.5	–	–	–	50	0.21	1.2	–	–	–

SEEN

	IC (mm)	M (mm)	S (mm)
1203	12.700	1.6	3.18
1504	15.875	2.0	4.76



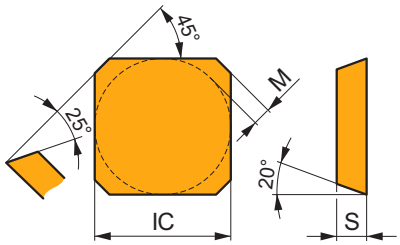
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 		**AFFN** kenar hazırlığı, hafif ve orta işleme için sıfır talaş açısı.																	
SEEN 1203AFFN:M8330	–	270	0.15	2.0	160	0.14	2.0	255	0.15	2.0	–	–	–	–	–	–	–	–	–
SEEN 1203AFFN:M8340	–	245	0.15	2.0	145	0.14	2.0	230	0.15	2.0	–	–	–	–	–	–	–	–	–
 		**AFSN** kenar hazırlığı, orta ve ağır işleme için sıfır talaş açısı.																	
SEEN 1203AFSN:8215	–	255	0.20	2.0	–	–	–	240	0.20	2.0	–	–	–	–	–	–	50	0.13	1.0
SEEN 1203AFSN:M8330	–	255	0.20	2.0	–	–	–	240	0.20	2.0	–	–	–	–	–	–	50	0.13	1.0
SEEN 1203AFSN:M8340	–	230	0.20	2.0	–	–	–	215	0.20	2.0	–	–	–	–	–	–	–	–	–
SEEN 1203AFSN:M9315	–	340	0.20	2.0	–	–	–	320	0.20	2.0	–	–	–	–	–	–	65	0.13	1.0
SEEN 1203AFSN:M9325	–	315	0.20	2.0	–	–	–	295	0.20	2.0	–	–	–	–	–	–	60	0.13	1.0
 		**AFSN** kenar hazırlığı, orta ve ağır işleme için sıfır talaş açısı.																	
SEEN 1504AFSN:M8330	–	240	0.20	3.0	–	–	–	225	0.20	3.0	–	–	–	–	–	–	45	0.13	1.3
SEEN 1504AFSN:M8340	–	225	0.20	3.0	–	–	–	210	0.20	3.0	–	–	–	–	–	–	–	–	–

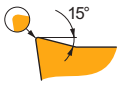
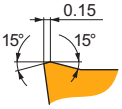
SEER

PRAMET

	IC (mm)	M (mm)	S (mm)
1203	12.700	1.6	3.18
1204	12.700	1.6	4.76
1504	15.875	2.0	4.76



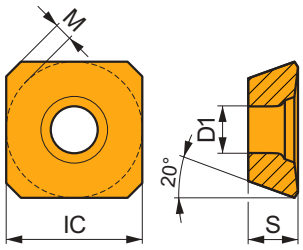
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
AFEN kenar hazırlığı, orta ve ağır işleme için talaş kırıcı geometrisi.																			
SEER 1203AFEN:M8330	–	265	0.24	2.5	155	0.22	2.5	250	0.24	2.5	–	–	–	65	0.22	2.0	–	–	–
SEER 1203AFEN:M8340	–	245	0.24	2.5	145	0.22	2.5	230	0.24	2.5	–	–	–	60	0.22	2.0	–	–	–
 																			
AFSN kenar hazırlığı, orta ve ağır işleme için talaş kırıcı geometrisi.																			
SEER 1203AFSN:M8330	–	265	0.25	2.5	155	0.23	2.5	250	0.25	2.5	–	–	–	65	0.20	2.0	–	–	–
SEER 1203AFSN:M8340	–	240	0.25	2.5	140	0.23	2.5	225	0.25	2.5	–	–	–	60	0.20	2.0	–	–	–
SEER 1204AFSN:M8330	–	265	0.25	2.5	155	0.23	2.5	250	0.25	2.5	–	–	–	65	0.20	2.0	–	–	–
SEER 1504AFSN:M8330	–	255	0.25	3.5	150	0.23	3.5	240	0.25	3.5	–	–	–	60	0.20	2.8	–	–	–
SEER 1504AFSN:M8340	–	230	0.25	3.5	135	0.23	3.5	215	0.25	3.5	–	–	–	55	0.20	2.8	–	–	–

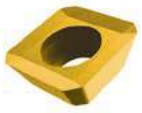
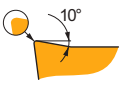
SEET 12

PRAMET

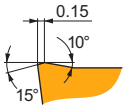
	IC (mm)	D1 (mm)	M (mm)	S (mm)
1204	12.700	5.50	1.6	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
AFEN kenar hazırlığı, çok amaçlı pozitif geometri.																			
SEET 1204AFEN:M8330	–	265	0.24	2.5	155	0.22	2.5	250	0.24	2.5	–	–	–	65	0.22	2.0	–	–	–

Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

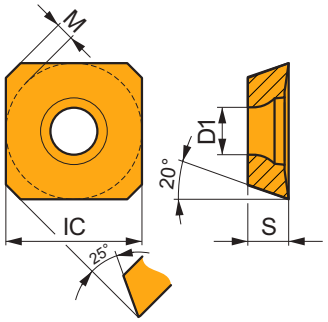
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
SEET 1204AFSN:8215	–	265	0.23	2.5	155	0.21	2.5	250	0.23	2.5	–	–	–	65	0.21	2.0	–	–	–
SEET 1204AFSN:M8330	–	265	0.24	2.5	155	0.22	2.5	250	0.24	2.5	–	–	–	65	0.22	2.0	–	–	–
SEET 1204AFSN:M8340	–	240	0.25	2.5	140	0.23	2.5	225	0.25	2.5	–	–	–	60	0.23	2.0	–	–	–
SEET 1204AFSN:M9325	–	340	0.20	2.5	–	–	–	320	0.20	2.5	–	–	–	–	–	–	–	–	–

AFSN kenar hazırlığı, çok amaçlı pozitif geometri.

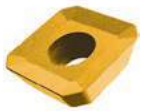
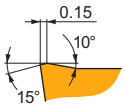
SEET 12-PM

PRAMET

	IC (mm)	D1 (mm)	M (mm)	S (mm)
12T3	13.400	4.20	1.5	3.97



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

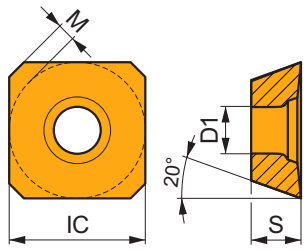
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 																			
SEET 12T3M-PM:M8330	–	265	0.25	2.0	155	0.23	2.0	250	0.25	2.0	–	–	–	65	0.20	1.6	–	–	–
SEET 12T3M-PM:M8340	–	245	0.25	2.0	145	0.23	2.0	230	0.25	2.0	–	–	–	60	0.20	1.6	–	–	–
SEET 12T3M-PM:M9325	–	325	0.25	2.0	–	–	–	305	0.25	2.0	–	–	–	–	–	–	–	–	–
SEET 12T3M-PM:M9340	–	290	0.25	2.0	170	0.23	2.0	–	–	–	–	–	–	70	0.20	1.6	–	–	–

PM geometri, çok amaçlı pozitif tasarım.

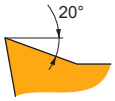
SEET 12-FA

PRAMET

	IC	D1	M	S
	(mm)	(mm)	(mm)	(mm)
1204	12.700	5.50	1.6	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

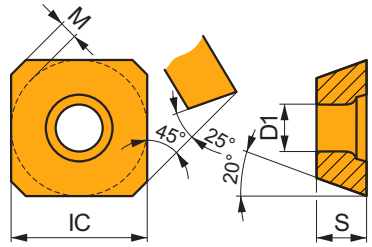
Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
SEET 1204AFFN-FA:HF7	●	–	–	–	–	–	–	–	–	–	–	■	330	0.18	3.0	–	–	–	–	–	–

FA geometri, ince finişten orta işlemeye kadar uygun çok pozitif tasarım.

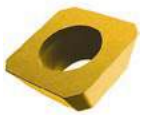
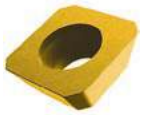
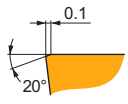
SEEW 12

PRAMET

	IC	D1	M	S
	(mm)	(mm)	(mm)	(mm)
1204	12.700	5.50	1.6	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
																				
SEEW 1204AFEN:M8330	●	–	◪	265	0.15	2.5	–	–	–	◪	250	0.15	2.5	–	–	–	–	–	–	–	–	–
SEEW 1204AFEN:M8340	●	–	◪	240	0.15	2.5	–	–	–	◪	225	0.15	2.5	–	–	–	–	–	–	–	–	–
																				
SEEW 1204AFSN:8215	●	–	◪	250	0.20	2.5	–	–	–	■	235	0.20	2.5	–	–	–	–	–	–	◪	50	0.13	1.0
SEEW 1204AFSN:M8330	●	–	◪	245	0.20	2.5	–	–	–	■	230	0.20	2.5	–	–	–	–	–	–	◪	45	0.13	1.0
SEEW 1204AFSN:M8340	✱	–	◪	225	0.20	2.5	–	–	–	◪	210	0.20	2.5	–	–	–	–	–	–		–	–	–
SEEW 1204AFSN:M9325	●	–	◪	305	0.20	2.5	–	–	–	■	285	0.20	2.5	–	–	–	–	–	–	◪	60	0.13	1.0

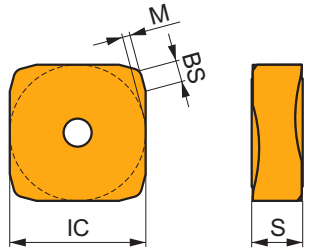
AFEN kenar hazırlığı, hafif ve orta işleme için sıfır talaş açısı.

AFSN kenar hazırlığı, hafif ve orta işleme için sıfır talaş açısı.

SNHF

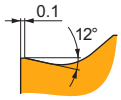
PRAMET

	BS	IC	M	S
	(mm)	(mm)	(mm)	(mm)
1204	2.00	12.700	0.5	4.76
1504	1.40	15.875	1.1	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)



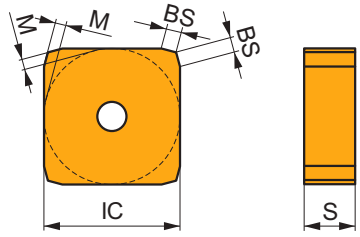
M geometri, hafif ve orta işleme için pozitif tasarım.

SNHF 1204ENSR-M:M8330	✱	–	■	235	0.15	4.0	–	–	–	◪	220	0.15	4.0	–	–	–	–	–	–	–	–	–
SNHF 1504ENSR-M:M8340	✱	–	■	220	0.15	6.0	–	–	–	◪	205	0.15	6.0	–	–	–	–	–	–	–	–	–

SNHN

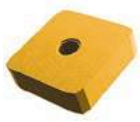
PRAMET

	BS	IC	M	S
	(mm)	(mm)	(mm)	(mm)
1204	1.40	12.700	0.9	4.76
1504	1.40	15.875	1.3	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)



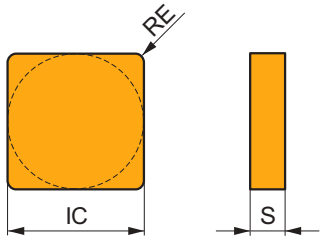
ENEN standart negatif frezeleme geometrisi, 75° yüzey frezeleme için.

SNHN 1204ENEN:8215	❖	–	◪	275	0.15	6.0	–	–	–	■	260	0.15	6.0	–	–	–	–	–	–	◪	55	0.11	1.0
SNHN 1204ENEN:M8330	❖	–	◪	270	0.15	6.0	–	–	–	■	255	0.15	6.0	–	–	–	–	–	–	◪	50	0.11	1.0
SNHN 1204ENEN:M8340	❖	–	◪	245	0.15	6.0	–	–	–	◪	230	0.15	6.0	–	–	–	–	–	–		–	–	–
SNHN 1204ENEN:S26	❖	–	◪	110	0.15	6.0	–	–	–		–	–	–	–	–	–	–	–	–		–	–	–
SNHN 1504ENEN:8215	❖	–	◪	260	0.15	9.0	–	–	–	■	245	0.15	9.0	–	–	–	–	–	–	◪	50	0.11	1.3
SNHN 1504ENEN:M8330	❖	–	◪	260	0.15	9.0	–	–	–	■	245	0.15	9.0	–	–	–	–	–	–	◪	50	0.11	1.3
SNHN 1504ENEN:M8340	❖	–	◪	235	0.15	9.0	–	–	–	◪	220	0.15	9.0	–	–	–	–	–	–		–	–	–
SNHN 1504ENEN:S26	❖	–	◪	105	0.15	9.0	–	–	–		–	–	–	–	–	–	–	–	–		–	–	–

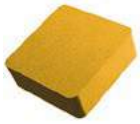
SNUN

PRAMET

	IC (mm)	S (mm)
1204	12.700	4.76
1504	15.875	4.76



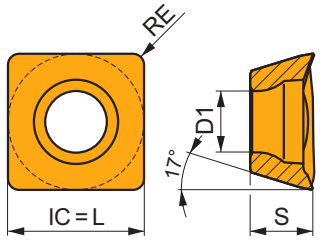
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
		E																	
N negatif geometrili freze ucu, tornalama için de kullanılabilir.																			
SNUN 120408:M8330	0.8	260	0.13	4.5	–	–	–	245	0.13	4.5	–	–	–	–	–	–	50	0.10	1.0
SNUN 120412:M8330	1.2	275	0.13	4.5	–	–	–	260	0.13	4.5	–	–	–	–	–	–	55	0.10	1.0
SNUN 150412:M8330	1.2	255	0.15	6.0	–	–	–	240	0.15	6.0	–	–	–	–	–	–	50	0.12	1.3

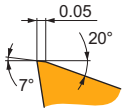
SOMT 05

PRAMET

	IC (mm)	D1 (mm)	L (mm)	S (mm)
0502	5.570	2.50	5.57	2.63



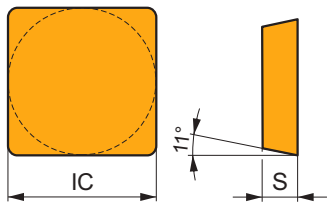
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
		U S																	
M geometri, hafif ve orta işleme için pozitif tasarım.																			
SOMT 050204SR-M:M6330	0.4	255	0.05	2.5	180	0.05	2.5	–	–	–	–	–	–	75	0.04	2.0	–	–	–
SOMT 050204SR-M:M8330	0.4	290	0.05	2.5	170	0.05	2.5	275	0.05	2.5	–	–	–	70	0.04	2.0	–	–	–
SOMT 050208SR-M:M8330	0.8	350	0.05	2.5	210	0.05	2.5	330	0.05	2.5	–	–	–	85	0.04	2.0	–	–	–

SPGN

PRAMET

	IC (mm)	S (mm)
0903	9.525	3.18
1203	12.700	3.18
1504	15.875	4.76



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

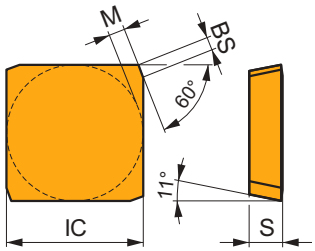
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
		E																	
SPGN 090308:M8340	0.8	225	0.15	2.0	–	–	–	210	0.15	2.0	–	–	–	–	–	–	–	–	–
SPGN 120308:M8330	0.8	230	0.15	4.0	–	–	–	215	0.15	4.0	–	–	–	–	–	–	–	–	–
SPGN 150412:M8330	1.2	225	0.20	5.0	–	–	–	210	0.20	5.0	–	–	–	–	–	–	–	–	–

N sıfır talaş açılı freze ucu, tornalama için de kullanılabilir.

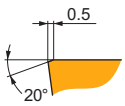
SPGN 25 DZ

PRAMET

	IC (mm)	M (mm)	S (mm)	BS (mm)
2506	25.000	3.5	6.35	2.40



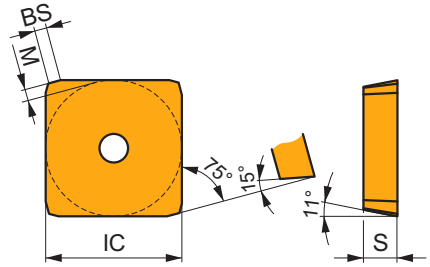
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
		1		S															
SPGN 2506DZSR:M8326	–	110	0.50	12.0	–	–	–	100	0.50	12.0	–	–	–	–	–	–	–	–	–
SPGN 2506DZSR:M8346	–	90	0.50	12.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

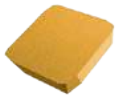
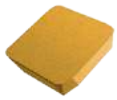
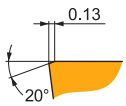
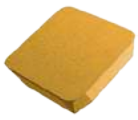
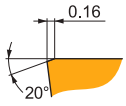
DZ geometri, ağır işleme için sıfır talaş açısı.

SPKN

	IC (mm)	M (mm)	S (mm)	BS (mm)
1203	12.700	0.9	3.18	1.60
1504	15.875	1.3	4.76	1.70



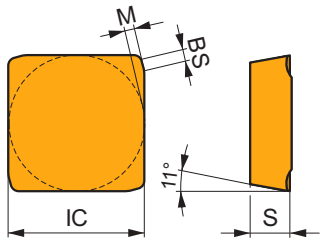
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
 		**EDER** kenar hazırlığı, hafif ve orta işleme için sıfır talaş açısı.																	
SPKN 1203EDER:M8330	–	255	0.15	4.0	–	–	–	240	0.15	4.0	–	–	–	–	–	–	–	–	–
SPKN 1203EDER:M8340	–	230	0.15	4.0	–	–	–	215	0.15	4.0	–	–	–	–	–	–	–	–	–
SPKN 1504EDER:M8330	–	235	0.20	5.0	–	–	–	220	0.20	5.0	–	–	–	–	–	–	–	–	–
SPKN 1504EDER:M8340	–	210	0.20	5.0	–	–	–	195	0.20	5.0	–	–	–	–	–	–	–	–	–
 		**EDSR** (sağ yönlü kesim) kenar hazırlığı, orta işleme için sıfır talaş açısı.																	
SPKN 1203EDSL:M8330	–	240	0.20	4.0	–	–	–	225	0.20	4.0	–	–	–	–	–	–	45	0.13	1.0
SPKN 1203EDSR:M8330	–	240	0.20	4.0	–	–	–	225	0.20	4.0	–	–	–	–	–	–	45	0.13	1.0
SPKN 1203EDSR:M8340	–	215	0.20	4.0	–	–	–	200	0.20	4.0	–	–	–	–	–	–	–	–	–
SPKN 1203EDSR:M9325	–	290	0.20	4.0	–	–	–	275	0.20	4.0	–	–	–	–	–	–	55	0.13	1.0
SPKN 1203EDSR:S26	–	95	0.20	4.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
 		**EDS.** EDSR (sağ yönlü kesim) / EDSL (sol yönlü kesim) kenar hazırlığı, orta işleme için sıfır talaş açısı.																	
SPKN 1504EDSR:8215	–	220	0.25	5.0	–	–	–	205	0.25	5.0	–	–	–	–	–	–	40	0.13	1.3
SPKN 1504EDSR:M8330	–	220	0.25	5.0	–	–	–	205	0.25	5.0	–	–	–	–	–	–	40	0.13	1.3
SPKN 1504EDSR:M8340	–	205	0.25	5.0	–	–	–	190	0.25	5.0	–	–	–	–	–	–	–	–	–
SPKN 1504EDSR:M9315	–	285	0.25	5.0	–	–	–	270	0.25	5.0	–	–	–	–	–	–	55	0.13	1.3
SPKN 1504EDSR:M9325	–	270	0.25	5.0	–	–	–	255	0.25	5.0	–	–	–	–	–	–	50	0.13	1.3
SPKN 1504EDSR:S26	–	90	0.25	5.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

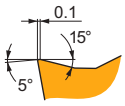
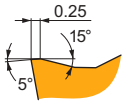
SPKR

PRAMET

	IC (mm)	L (mm)	M (mm)	S (mm)
1203	12.700	12.70	0.9	3.18
1504	15.875	15.88	1.2	4.76



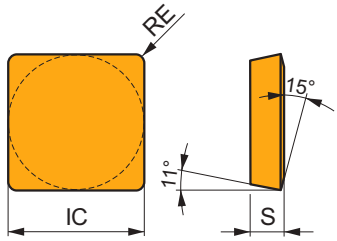
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																			
EDSR (sağ yönlü kesim) kenar hazırlığı, orta ve kaba işleme için talaş kırıcı geometrisi.																			
SPKR 1203EDSR:M8330	–	265	0.20	4.0	155	0.18	4.0	250	0.20	4.0	–	–	–	–	–	–	–	–	–
SPKR 1203EDSR:M8340	–	240	0.20	4.0	140	0.18	4.0	225	0.20	4.0	–	–	–	–	–	–	–	–	–
																			
EDSR (sağ yönlü kesim) kenar hazırlığı, orta ve kaba işleme için talaş kırıcı geometrisi.																			
SPKR 1504EDSR:M8330	–	245	0.25	5.0	145	0.25	5.0	230	0.25	5.0	–	–	–	–	–	–	–	–	–
SPKR 1504EDSR:M8340	–	225	0.25	5.0	135	0.25	5.0	210	0.25	5.0	–	–	–	–	–	–	–	–	–

SPUN

PRAMET

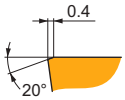
	IC (mm)	S (mm)
1203	12.700	3.18
1504	15.875	4.76
1904	19.050	4.76
2506	25.400	6.35



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																			
N sıfır talaş açılı freze ucu, tornalama için de kullanılabilir.																			
SPUN 120304:M8330	0.4	195	0.15	4.0	–	–	–	185	0.15	4.0	–	–	–	–	–	–	–	–	–
SPUN 120308:M8330	0.8	230	0.15	4.0	–	–	–	215	0.15	4.0	–	–	–	–	–	–	–	–	–
SPUN 120308:S26	0.8	95	0.15	4.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SPUN 120312:M8330	1.2	245	0.15	4.0	–	–	–	230	0.15	4.0	–	–	–	–	–	–	–	–	–

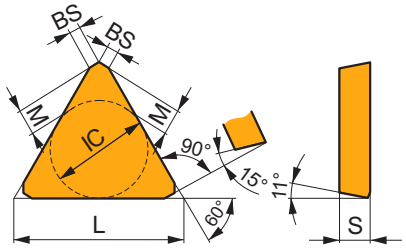
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  																			
N sıfır talaş açılı freze ucu, tornalama için de kullanılabilir.																			
SPUN 150412:M8330	1.2	225	0.20	5.0	–	–	–	210	0.20	5.0	–	–	–	–	–	–	–	–	–
SPUN 190408:M8330	0.8	210	0.20	6.0	–	–	–	195	0.20	6.0	–	–	–	–	–	–	–	–	–
SPUN 190412:M8330	1.2	220	0.20	6.0	–	–	–	205	0.20	6.0	–	–	–	–	–	–	–	–	–
  																			
N sıfır talaş açılı freze ucu, tornalama için de kullanılabilir.																			
SPUN 250616S:M8326	1.6	115	0.40	12.0	–	–	–	105	0.40	12.0	–	–	–	–	–	–	–	–	–
SPUN 250620S:M5326	2.0	145	0.40	12.0	–	–	–	135	0.40	12.0	–	–	–	–	–	–	–	–	–
SPUN 250620S:M8326	2.0	120	0.40	12.0	–	–	–	110	0.40	12.0	–	–	–	–	–	–	–	–	–
SPUN 250620S:M8346	2.0	100	0.40	12.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SPUN 250620S:S26	2.0	45	0.40	12.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

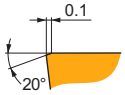
TPCN 16

PRAMET

	BS (mm)	IC (mm)	L (mm)	M (mm)	S (mm)
1603	1.20	9.530	16.10	2.5	3.18

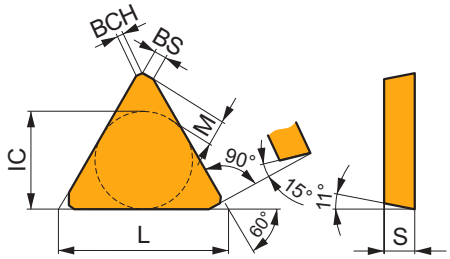


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

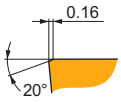
Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
  																			
XNCB özel tasarım, disk frezeleme için.																			
TPCN 1603PDSN:M8330	–	195	0.20	–	–	–	–	185	0.20	–	–	–	–	–	–	–	–	–	–

TPKN

	IC	L	M	S	BCH	BS
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
1603	9.530	16.50	2.5	3.18	1.20	1.30
2204	12.700	22.00	3.5	4.76	1.20	1.50



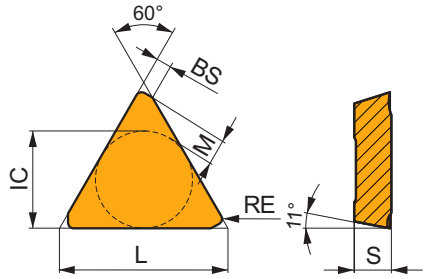
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE	P			M			K			N			S			H		
			vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap	vc	f	ap
		(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)	(m/min)	(mm/tooth)	(mm)
			**PDER** kenar hazırlığı, hafif ve orta işleme için sıfır talaş açısı.																	
TPKN 1603PDER:M8330	●	–	◪	195	0.15	4.0	–	–	–	◪	185	0.15	4.0	–	–	–	–	–	–	–	–	–
TPKN 1603PDER:M8340	●	–	◪	175	0.15	4.0	–	–	–	◪	165	0.15	4.0	–	–	–	–	–	–	–	–	–
TPKN 2204PDER:8215	●	–	◪	190	0.15	5.5	–	–	–	◪	180	0.15	5.5	–	–	–	–	–	–	–	–	–
TPKN 2204PDER:M8330	●	–	◪	190	0.15	5.5	–	–	–	◪	180	0.15	5.5	–	–	–	–	–	–	–	–	–
TPKN 2204PDER:M8340	●	–	◪	170	0.15	5.5	–	–	–	◪	160	0.15	5.5	–	–	–	–	–	–	–	–	–
			**PDSR** kenar hazırlığı, orta işleme için sıfır talaş açısı.																	
TPKN 1603PDSR:M8330	●	–	◪	185	0.20	4.0	–	–	–	◪	175	0.20	4.0	–	–	–	–	–	–	–	◪	35	0.13	0.8
TPKN 1603PDSR:M8340	⬌	–	◪	165	0.20	4.0	–	–	–	◪	155	0.20	4.0	–	–	–	–	–	–	–		–	–	–
TPKN 1603PDSR:S26	●	–	◪	75	0.20	4.0	–	–	–		–	–	–	–	–	–	–	–	–	–		–	–	–
TPKN 2204PDSR:M8310	●	–	◪	195	0.20	5.5	–	–	–	◪	185	0.20	5.5	–	–	–	–	–	–	–	◪	35	0.13	1.0
TPKN 2204PDSR:M8330	⬌	–	◪	175	0.20	5.5	–	–	–	◪	165	0.20	5.5	–	–	–	–	–	–	–	◪	35	0.13	1.0
TPKN 2204PDSR:M8340	⬌	–	◪	160	0.20	5.5	–	–	–	◪	150	0.20	5.5	–	–	–	–	–	–	–		–	–	–
TPKN 2204PDSR:M9325	●	–	◪	220	0.20	5.5	–	–	–	◪	205	0.20	5.5	–	–	–	–	–	–	–	◪	40	0.13	1.0
TPKN 2204PDSR:S26	●	–	◪	75	0.20	5.5	–	–	–		–	–	–	–	–	–	–	–	–	–		–	–	–

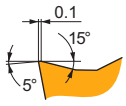
TPKR

PRAMET

	IC (mm)	L (mm)	M (mm)	S (mm)	BS (mm)
1603	9.530	16.50	2.5	3.18	1.40
2204	12.700	22.00	3.5	4.76	1.40



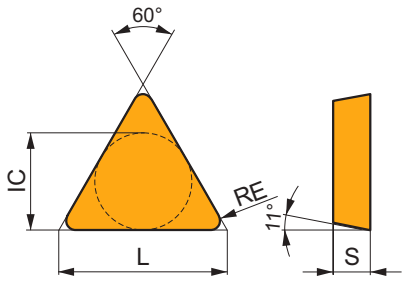
Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
PDSR kenar hazırlığı, orta ve ağır işleme için talaş kırıcı geometrisi.																				
TPKR 1603PDSR:M8330	●	–	185	0.20	4.0	110	0.18	4.0	175	0.20	4.0	–	–	–	–	–	–	–	–	–
TPKR 1603PDSR:M8340	●	–	165	0.20	4.0	95	0.18	4.0	155	0.20	4.0	–	–	–	–	–	–	–	–	–
TPKR 2204PDSR:M8330	●	–	175	0.20	5.5	105	0.18	5.5	165	0.20	5.5	–	–	–	–	–	–	–	–	–
TPKR 2204PDSR:M8340	●	–	160	0.20	5.5	95	0.18	5.5	150	0.20	5.5	–	–	–	–	–	–	–	–	–
TPKR 2204PDSR:M9325	●	–	220	0.20	5.5	–	–	–	205	0.20	5.5	–	–	–	–	–	–	–	–	–

TPUN

PRAMET

	IC (mm)	L (mm)	S (mm)
1103	6.350	11.00	3.18
1603	9.525	16.50	3.18
2204	12.700	22.00	4.76

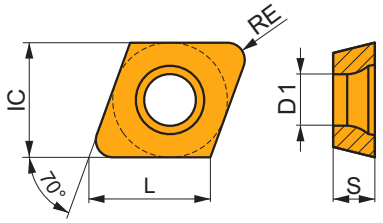


Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

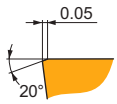
Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
																				
N sıfır talaş açılı freze ucu, tornalama için de kullanılabilir.																				
TPUN 110304:M8330	●	0.4	–	–	–	–	–	–	150	0.10	1.2	–	–	–	–	–	–	30	0.10	0.4
TPUN 160304:8215	●	0.4	155	0.15	4.0	–	–	–	145	0.15	4.0	–	–	–	–	–	–	–	–	–
TPUN 160304:H10	●	0.4	–	–	–	–	–	–	65	0.15	4.0	–	–	–	–	–	–	–	–	–
TPUN 160304:M8330	●	0.4	155	0.15	4.0	–	–	–	145	0.15	4.0	–	–	–	–	–	–	–	–	–
TPUN 160304:S26	●	0.4	65	0.15	4.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TPUN 160308:8215	●	0.8	185	0.15	4.0	–	–	–	175	0.15	4.0	–	–	–	–	–	–	–	–	–
TPUN 160308:M8330	●	0.8	–	–	–	–	–	–	155	0.18	1.5	–	–	–	–	–	–	30	0.11	0.6
TPUN 160312:M8330	●	1.2	–	–	–	–	–	–	155	0.20	1.5	–	–	–	–	–	–	30	0.11	0.8
TPUN 220408:M8330	●	0.8	170	0.20	5.0	–	–	–	160	0.20	5.0	–	–	–	–	–	–	–	–	–
TPUN 220412:M8330	●	1.2	–	–	–	–	–	–	155	0.20	2.0	–	–	–	–	–	–	30	0.11	1.0

XDHW

	IC (mm)	D1 (mm)	L (mm)	S (mm)
0702	6.500	2.95	6.90	2.38
10T3	10.000	3.95	10.60	3.97



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product		RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc (m/min)	M f (mm/tooth)	M ap (mm)	K vc (m/min)	K f (mm/tooth)	K ap (mm)	N vc (m/min)	N f (mm/tooth)	N ap (mm)	S vc (m/min)	S f (mm/tooth)	S ap (mm)	H vc (m/min)	H f (mm/tooth)	H ap (mm)
			**E**																	
XDHW 070210EN:M8310		1.0	310	0.10	1.0	–	–	–	290	0.10	1.0	–	–	–	–	–	–	60	0.05	1.0
			**S**																	
XDHW 070210SN:M8310		1.0	310	0.10	1.0	–	–	–	290	0.10	1.0	–	–	–	–	–	–	60	0.05	1.0
XDHW 070210SN:M8325		1.0	230	0.10	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
XDHW 10T310SN:M8310		1.0	275	0.15	1.0	–	–	–	260	0.15	1.0	–	–	–	–	–	–	55	0.08	1.0
XDHW 10T310SN:M8325		1.0	210	0.15	1.0	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

EN geometri, kanal frezeleme için sıfır talaş açısı.

SN geometri, kanal frezeleme için sıfır talaş açısı tasarımı.

AÇIKLAMALAR

1 SAD11E

P M K N S H 2

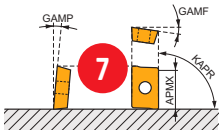
PRAMET 3 S

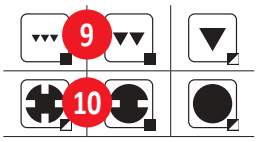
FORCE AD11 Duvar Frezeleme Takımı, İçten Su Vermeli

9 mm APMX'li pozitif AD.. 11 stil kesici uç kullanan 90° uç ve kabuk frezeleri. Yüzey, kenar, kanal, helisel, trokoidal, açılı frezeleme ve dalma frezeleme için uygundur.. ilindirik, veldon, modüler, mors konik ve göbekten bağlamalı olarak bulunur. Gövde uzun takım ömrü için işlem görmüştür. 5

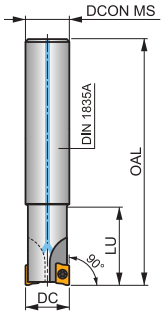
FORCE AD

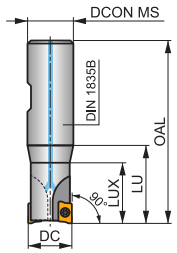
KAPR	90°
APMX	6 9.0 mm

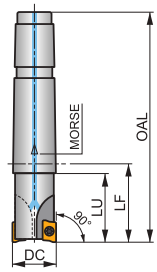


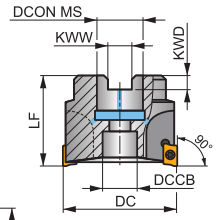


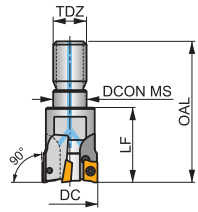
8

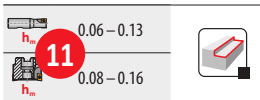












	Product	DC (mm)	OAL (mm)	DCON MS (mm)	DCCB (mm)	LU (mm)	LUX (mm)	LF (mm)	TDZ	CZC MS	KWW (mm)	KWD (mm)	GAMF (°)	GAMP (°)	16	17	18 max.	19	20 kg	21	22	23
	16A2R024A14-SAD11E-C	16	160	14	–	24	–	–	–	–	–	–	-12.8	4	2		30100		0.19	GI169	SQ025	
	16A2R024A16-SAD11E-C	16	135	16	–	24	–	–	–	–	–	–	-12.8	4	2		30100		0.19	GI169	SQ025	
	16A2R050A16-SAD11E-C	16	135	16	–	50	–	–	–	–	–	–	-12.8	4	2	–	30100	✓	0.20	GI169	SQ025	–
	18A2R029A20-SAD11E-C	18	150	20	–	29	–	–	–	–	–	–	-12	4.5	2	–	28400	✓	0.35	GI169	SQ025	–
	20A2R029A20-SAD11E-C	20	150	20	–	29	–	–	–	–	–	–	-11.5	5	2	–	27000	✓	0.33	GI169	SQ020	–
13	20A2R07[illegible]-SAD11E-C	20	150	20	–	70	–	–	–	–	–	–	-11.5	5	2	–	27000	✓	0.32	GI169	SQ020	–
13 14	20A3R0[illegible]-SAD11E-C	20	200	18	–	29	15	–	–	–	–	–	-11.5	5	3	–	27000	✓	0.36	GI169	SQ025	–
	20A3R029A20-SAD11E-C	20	150	20	–	29	–	–	–	–	–	–	-11.5	5	3	–	27000	✓	0.31	GI169	SQ025	–
	22A3R029A20-SAD11E-C	22	200	20	–	29	–	–	–	–	–	–	-11.5	5	3	–	25600	✓	0.45	GI169	SQ025	–
	25A3R034A25-SAD11E-C	25	170	25	–	34	–	–	–	–	–	–	-10.2	5	3	–	24100	✓	0.42	GI169	SQ020	–
	25A3R080A25-SAD11E-C	25	170	25	–	80	–	–	–	–	–	–	-10.2	5	3	–	24100	✓	0.52	GI169	SQ020	–
	25A4R034A25-SAD11E-C	25	170	25	–	34	–	–	–	–	–	–	-10.2	5	4	–	24100	✓	0.56	GI169	SQ025	–
	25A4R040A25-SAD11E-C	25	250	25	–	40	–	–	–	–	–	–	-10.2	5	4	–	24100	✓	0.85	GI169	SQ025	–
	30A3R080A32-SAD11E-C	30	200	32	–	80	–	–	–	–	–	–	-9.3	7	3	–	22000	✓	0.98	GI169	SQ020	–

		24	
GI169	ADMX 11T3..		ADEX 11T3..

		Nm			25			
SQ020	US 62506-T07P	1.2	M 2.5	6	–	–	Flag T07P	–
SQ021	US 62506-T07P	1.2	M 2.5	6	D-T07P/T09P	FG-15	–	–
SQ022	US 62506-T07P	1.2	M 2.5	6	D-T07P/T09P	FG-15	–	HS 0830C
SQ023	US 62506-T07P	1.2	M 2.5	6	D-T07P/T09P	FG-15	–	HS 1030C
SQ025	US 62505-T07P	1.2	M 2.5	5	–	–	Flag T07P	–

		26	
AC001	KS 1230		K.FMH27
AC002	KS 1635		K.FMH32
AC003	KS 2040		K.FMH40

Standart değiştirilebilir frezeler görüntüleme sayfası - sayfada yer alan belirli detaylar farklılık gösterebilir.

DEĞİŞTİRİLEBİLİR UÇLU FREZELER – GENEL BAKIŞ SAYFASI

Poz.	Açıklama
1	Kesicinin işareti
2	Malzeme grubu önerileri
3	Kesici ucun bağlama sistemi
4	Açıklayıcı resim
5	Takım açıklaması
6	Ayar açısı ve maksimum teorik kesme derinliği (mm)
7	Takım geometrisi
8	Takımın şematik çizimi
9	Ulaşılabilir yüzey kalitesi
10	Kesim karakteri/çalışma koşulları
11	Parmak frezeleme takımları ve/veya kabuk freze takımları için maksimum ortalama talaş kalınlık aralığı (mm)
12	Ürün uygulamaları
13	Şaft tipi

Poz.	Açıklama
14	ISO kesici kodu
15	Boyutlar (mm), açılar [1] (°) ve bağlantı boyut kodu
16	Diş sayısı
17	Düzensiz diş hatvesi
18	Kesicinin maksimum devir sayısı
19	İçten kesme sıvısı beslemesi
20	Ağırlık (kg)
21	Uyumlu kesici uç grubu [2]
22	Yedek parça grubu [2]
23	Özel aksesuarlar grubu [2]
24	Uyumlu kesici uçlar
25	Yedek parçalar
26	Özel aksesuarlar

[1] γ_f = Kesici uç cebinin radyal eğim ayarı açısı (GAMF) – bkz. değiştirilebilir frezeler teknik bilgileri

γ_p = Kesici uç cebinin eksenel eğim ayarı açısı (GAMP) – bkz. değiştirilebilir frezeler teknik bilgileri

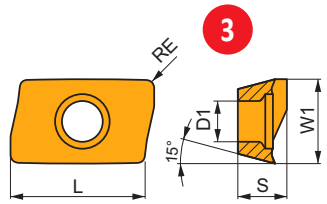
[2] Yedek parçalara ve özel aksesuara ait simgeler kolay anlaşılması için şematik olarak tasarlanmıştır. Bunlar simge listesine dahil edilmemiştir. Bazı durumlarda vida bilgilerine ek olarak Nm cinsinden tork değeri, vida uzunluğu ve diş boyutu da verilmiştir.

FREZELEME KESİCİ UÇLARI – GENEL BAKIŞ SAYFASI

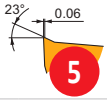
1 **ADMX 11**

PRAMET

	W1 (mm)	D1 (mm)	**2** L (mm)	S (mm)
11T3	6.530	2.90	11.00	3.97



Kesme hızı (vc), ilerleme (f) ve kesme derinliği (ap) için uygunluk ve başlangıç değerleri. Daha ileri hesaplamalar için İşleme Hesaplayıcısı uygulamasına başvurun.

Product	RE (mm)	P vc (m/min)	P f (mm/tooth)	P ap (mm)	M vc	M f	M ap	K vc	K f	K ap	N vc	N f	N ap	S vc	S f	S ap	H vc	H f	H ap
4 		**5** 	**6** 	**F** geometri, hafif işleme için çok keskin tasarım.													**10**		
ADMX 11T304SR-F:8215	0.4	245	0.10	2.0	145	0.09	2.0	230	0.10	2.0	735	0.12	2.0	60	0.08	1.6	–	–	–
ADMX 11T304SR-F:M8330	0.4	240	0.10	2.0	140	0.09	2.0	225	0.10	2.0	720	0.12	2.0	60	0.08	1.6	–	–	–
ADMX 11T304SR-F:M8340	0.4	220	0.10	2.0	130	0.09	2.0	205	0.10	2.0	–	–	–	55	0.08	1.6	–	–	–
ADMX 11T [7] F:M9340	0.4	285	0.10	2.0	170	0.09	2.0	–	–	–	–	–	–	70	0.08	1.6	–	–	–
ADMX 11T [7] F:8215	0.4	290	0.10	2.0	170	0.09	2.0	275	0.10	2.0	870	0.12	2.0	70	0.08	1.6	–	–	–
ADMX 11T308SR-F:M8330	0.8	285	0.10	2.0	170	0.09	2.0	270	0.10	2.0	855	0.12	2.0	70	0.08	1.6	–	–	–
ADMX 11T308SR-F:M8340	0.8	260	0.10	2.0	155	0.09	2.0	245	0.10	2.0	–	–	–	65	0.08	1.6	–	–	–
ADMX 11T308SR-F:M9340	0.8	340	0.10	2.0	200	0.09	2.0	–	–	–	–	–	–	85	0.08	1.6	–	–	–

7 **8** **9** **11**

Poz.	Açıklama
1	Kesici uç işareti
2	Kesici uç boyutları tablosu (mm)
3	Kesici ucun şematik çizimi
4	Temsili kesici uç resmi
5	Ana kesme kenarının profili
6	Simgeler – spesifik özellikler ve kesme kenarı tipi

Poz.	Açıklama
7	ISO kesici uç kodu:Kalite
8	Çalışma koşullarına uygun
9	Kesici uç yarıçapı (mm)
10	Geometri açıklaması
11	Kesici ucun uygulama alanı [1]

[1] Kesme hızı düzeltmelerine ait öneriler teknik bölümde, Frezeleme'nin sonunda bulunabilir.

Teknik bilgiler, frezeleme takımı sayfalarından ve ilgili uyumlu kesici uçlardan hemen sonra ve kesme hızlarına başlama bilgilerinde sunulur. Bu bilgiler takımları doğru şekilde kullanmanıza yardımcı olacaktır. Bu bilgilerin nasıl kullanılacağı veya yorumlanacağı konusundan emin değilseniz frezeleme bölümünün sonundaki teknik bölüme bakın veya Dormer Pramet temsilcinizle iletişime geçin.

Standart frezeleme kesici uçları görüntüleme sayfası - sayfada yer alan belirli detaylar farklılık gösterebilir. Kesici uçların çoğu, bu katalogda ilgili frezeleme takımından hemen sonra veya alternatif olarak ayrı kesici uçlar bölümünde bulunabilir.

SİMGELERE GENEL BAKIŞ

Genel Simgeler

■	Birincil kullanım
◪	Olası kullanım

▼▼▼	Finiş işleme – çok iyi yüzey kalitesi
▼▼	Orta talaş işleme – iyi yüzey kalitesi
▼	Kaba talaş işleme – sınırlanmamış yüzey pürüzlülüğü

●	Stabil çalışma koşullarına uygun
◖◗	Stabil olmayan çalışma koşullarına uygun
✚	Çok dengesiz çalışma koşullarına uygun

Frezeleme İşlemleri

	Yüzey frezeleme
	Sığ kenar frezeleme
	Derin kenar frezeleme
	Sığ oluk frezeleme
	Derin oluk frezeleme

	Dalma frezeleme
	Aşamalı dalma
	Açılı frezeleme
	Helisel interpolasyon
	Önceden delinen delikte helisel interpolasyon

	Havşa frezeleme
	T oluk frezeleme
	Arka yüzey frezeleme
	Konturlu yüzeyler (kopya frezeleme)

Özellikler

1	İlk tercih
Ü	Üniversal geniş aralık seçeneği
W	Silici geometrisine sahip kesici uç

	İnce duvarlı ve ince iş parçaları
	Uzun kullanma mesafesi
HFC	Yüksek İlerlemeli Kesim

	Ağır çalışma koşulları

Kesme kenarı durum kodu (CECC)

F	Keskin kenar
E	Yuvarlatılmış kenar

T	Fazlı kenar
S	Fazlı yuvarlatılmış kenar

P	Çift fazlı yuvarlatılmış kenar

Bağlama Tipi Kodu (MTP)

S	S – Vida sıkmalı
C	C – Üstten sıkmalı

F	System F
S(C)	System SC

Nm	Vidanın bağlama torku (Nm)

SİMGELERE GENEL BAKIŞ

Şaft

	DIN 1835A Silindirik Şaft
	DIN 1835B Weldon Şaft
	Mors şaft DIN 228-1
	Vida dişli bağlama

	Arbor DIN 69871-1
	Arbor DIN 2080-1
	Arbor MAS BT (JIS-B-6339)
	Kabuk freze DIN 8030

	Kabuk freze DIN 8030 – helisel freze
	Kabuk freze DIN 8030 – disk freze

Teknik Parçalar

a_e/DC	Radyal kesme genişliğinin kesme çapına oranı (%)
a_e/DCX	Radyal kesme genişliğinin maksimum kesme çapına oranı (%)
X.V	Kesme hızı için çarpım faktörü
	İlerleme için çarpım faktörü (merkez hattında işleme)
	İlerleme için çarpım faktörü (merkez hattı dışında işleme)
	Talaş kırıcı
RE	Kesici ucun köşe yarıçapı (mm)
BS	Silici kenar uzunluğu (mm)
f	İlerleme (mm/diş)
	Başlangıç ilerlemesi (mm/diş)
f_{min}	Minimum ilerleme (mm/diş)
f_{max}	Maksimum ilerleme (mm/diş)

a_p	Kesme derinliği (mm)
DC	Kesicinin çapı (mm)
DCX	Kesicinin maksimum çapı (mm)
DEF	Kesicinin etkin çapı (mm)
	Maksimum işlenmiş alan genişliği (mm)
	Dalma için kesme derinliği (mm)
RPMX	Maksimum açılı frezeleme açısı (°)
APMX/I	Kesme uzunluğu boyunca maksimum kesme derinliği (mm)
	Maksimum delik çapı için devir başına maksimum derinlik (mm)
	Minimum delik çapı için devir başına maksimum derinlik (mm)
	Geleneksel frezelemede konturlama adımı (mm)
	Yukarı/aşağı çapraz frezelemede konturlama adımı (mm)

	Diş sayısı
	Takımın etkin çalışma uzunluğu (mm)
	Diş sayısı (helisel kesiciler)
	Takımın etkin erişimi (mm)
	Etkin diş sayısı
	Pah açısı (°)
	Kullanılan kenar sayısı
	Delik çapı (mm)
µm	İşlenmiş yüzeyin pürüzlülüğü R_a (mm)
	Diş hatvesi
	İnç başına dişler
	Süre (dak)

ISO KODLAMA SİSTEMİ – FREZE KAFALARI

	1	2	3	4		5	6	7	8	9	10	11	12
ISO	63	A	06	R	–		S	90	A	D	16	E	
ANSI	1	2	3	4		5	6	7	8	9	10	11	12
	300	F	04	N	–	I	S	90	S	N	12	N	4

1 Takım çapı

DC

DC

DC

DC

DCX

2 Takım tipi

A ISO 6462/A DIN 8030/A	B ISO 6462/B DIN 8030/B	C ISO 6462/C DIN 8030/C

F	DC = 27 mm	DC = 1.000
G	DC = 32 mm	DC = 1.250
H	DC = 40 mm	–
J	DC = 50 mm	–
K	DC = 60 mm	–
M	DC = 80 mm	–
T		

DCB

3 Kenar sayısı

4 Kesme yönü

R

L

N

5 Standart

I	(")

6 Sıkma tipi

C

S

W

F

7 Giriş açısı (KAPR)

90°

75°

60°

45°

MO DC [mm]

8 Uç şekli

H O P R

S T C 80° D 55°

E 75° M 86° V 35° W 80°

L A 85° B 82° K 55°

9 Serbest açı

A 3° B 5°

C 7° D 15°

E 20° F 25°

G 30° N 0°

P 11° O Special

10 Kesici kenar boyu

IC (mm)	(")	H	O	P	S	T	C	D	E	M	V	W	R	K
3.97					03	06		04			06	02		
	5/32"							1.2"						
4.76					04	08	04	05	04	04	08	L3		
	3/16"							1.5"						
5.56					05	09	05	06	05	05	09	03		
	7/32"							1.8"						
6.35		03	02	04	08	11	06	07	08	08	11	04	06	
	1/4"							2"						
7.94		04	03	05	07	13	08	09	06	07	13	05	07	
	5/16"							2.5"						
9.525		05	04	07	09	16	09	11	09	09	16	06	09	19
	3/8"							3"						
12.7		07	05	09	12	22	12	15	13	12	22	08	12	
	1/2"							4"						
15.875		09	06	11	15	27	16	19	16	15	27	10	15	
	5/8"							5"						
19.05		11	07	13	19	33	19	23	19	19	33	13	19	
	3/4"							6"						
25.4		14	10	18	25	44	25	31	26	25	44	17	25	
	5/1"							8"						
31.75		18	13	23	31	54	32	38	32	31	54	21	31	
	1 1/4"							10"						

11 Serbest açı

ALP

N	ALP = 0°	C	ALP = 7°	P	ALP = 11°
D	ALP = 15°	E	ALP = 20°	F	ALP = 25°

12 Kesici kenar uzunluğu (genişliği)

CW (mm) / (")

CW

CW	1/16"
0.156	2.5
0.187	3
0.250	4
0.313	5
0.375	6

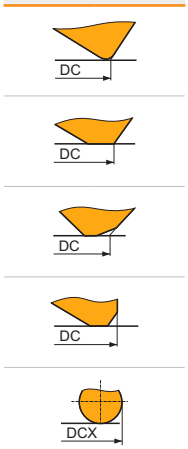
APMX

APMX

ISO KODLAMA SİSTEMİ – ŞAFTLI FREZE GÖVDELERİ

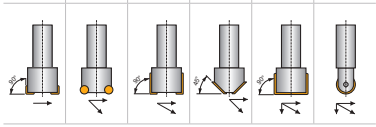
	1	2	3	4	5	6	7		8	9	10	11	12	13
ISO	32	A	4	R	042	B	32	–		S	A	D	11	E
ANSI	125	A	4	R	150	W	125	–	I	S	A	D	11	E

1 Takım çapı



2 Takım tipi ve giriş açısı

A	E	J	N	H	K



5 Takım boyu

(mm)

(")

6 Şaft tipi

	A	C	DIN 1835A
	B	W	ISO 3338-2, DIN 1835B
	E	-	ISO 296, DIN 228-1
	G	-	ISO 297, DIN 208-1
	H	-	ISO/DIS 7388-1, DIN 69871-1
	N	-	ISO 12 164-1, DIN 69893
	-	R8	R8
	X	-	MAS BT
	XC	-	CAPTO
	-	CA	ANSI B5.50

7 Şaft ölçüsü

6 – 40 mm	.250" – 1.250"
6 – 50 mm	.375" – 2.000"
1 – 6	–
40 – 50 mm	–
30 – 50 mm	–
25 – 100 mm	–
–	1.250"
30 – 50	–
3 – 10	–
–	40 / 50

3 Kenar sayısı

4 Kesme yönü

R	L	N

10 Uç şekli

H	O	P	R
S	T	C 80°	D 55°
E 75°	M 86°	V 35°	W 80°
L	A 85°	B 82°	K 55°

11 Serbest açı

A 3°	B 5°
C 7°	D 15°
E 20°	F 25°
G 30°	N 0°
P 11°	O Special

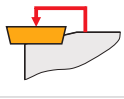
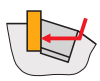
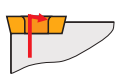
12 Kesici kenar boyu

IC (mm)	IC (")	H	O	P	S	T	C	D	E	M	V	W	R	K
3.97					03	06		04			06	02		
	5/32"							1.2"						
4.76					04	08	04	05	04	04	08	L3		
	3/16"							1.5"						
5.56					05	09	05	06	05	05	09	03		
	7/32"							1.8"						
6.35		03	02	04	08	11	06	07	08	08	11	04	06	
	1/4"							2"						
7.94		04	03	05	07	13	08	09	06	07	13	05	07	
	5/16"							2.5"						
9.525		05	04	07	09	16	09	11	09	09	16	06	09	19
	3/8"							3"						
12.7		07	05	09	12	22	12	15	13	12	22	08	12	
	1/2"							4"						
15.875		09	06	11	15	27	16	19	16	15	27	10	15	
	5/8"							5"						
19.05		11	07	13	19	33	19	23	19	19	33	13	19	
	3/4"							6"						
25.4		14	10	18	25	44	25	31	26	25	44	17	25	
	5/1"							8"						
31.75		18	13	23	31	54	32	38	32	31	54	21	31	
	1 1/4"							10"						

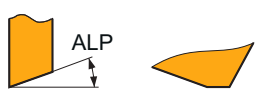
8 Standart

I	(")

9 Sıkma tipi

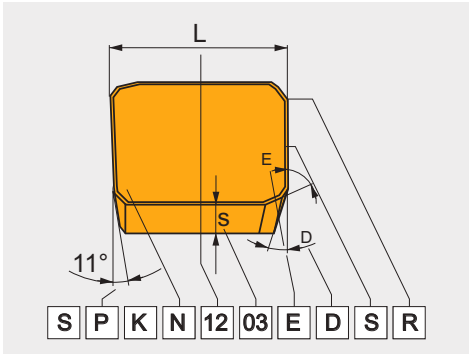
C		W	
S		F	

13 Serbest açı



N ALP = 0°	C ALP = 7°	P ALP = 11°
D ALP = 15°	E ALP = 20°	F ALP = 25°

ISO KODLAMA SİSTEMİ – FREZE UÇLARI



	1	2	3	4
ISO	S	P	G	N
	S	P	K	N
ANSI	1	2	3	4
	S	P	G	
	S	P	K	N

1 – Uç şekli

H	O	P	R
S	T	C (80°)	D (55°)
E (75°)	M (86°)	V (35°)	W (80°)
L	A (85°)	B (82°)	K (55°)

2 – Serbest açı

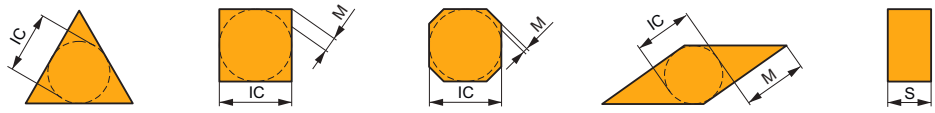
A (3°)		B (5°)	
C (7°)		D (15°)	
E (20°)		F (25°)	
G (30°)		N (0°)	
P (11°)		O	Özel

4 – Talaş kırıcı, sıkma tipi

N	
R	
F	
A	
M	
G	
W	40 – 60°
T	
Q	
U	
B	70 – 90°
H	
C	
J	
X	Özel

3 – Toleranslar

	(mm)			(″)		
	M (±)	S (±)	IC (±)	M (±)	S (±)	IC (±)
A	0.005	0.025	0.025	0.0002″	0.001″	0.0010″
F	0.005	0.025	0.013	0.0002″	0.001″	0.0005″
C	0.013	0.025	0.025	0.0005″	0.001″	0.0010″
H	0.013	0.025	0.013	0.0005″	0.001″	0.0005″
E	0.025	0.025	0.025	0.0010″	0.001″	0.0010″
G	0.025	0.130	0.025	0.0010″	0.005″	0.0010″
J	0.005	0.025	0.05 – 0.13	0.0002″	0.001″	0.002″ – 0.005″
K	0.013	0.025	0.05 – 0.13	0.0005″	0.001″	0.002″ – 0.005″
L	0.025	0.025	0.05 – 0.13	0.0010″	0.001″	0.002″ – 0.005″
M	0.08 – 0.18	0.130	0.05 – 0.13	0.003″ – 0.007″	0.005″	0.002″ – 0.005″
N	0.08 – 0.18	0.025	0.05 – 0.13	0.003″ – 0.007″	0.001″	0.002″ – 0.005″
U	0.05 – 0.38	0.130	0.05 – 0.13	0.005″ – 0.015″	0.005″	0.003″ – 0.010″



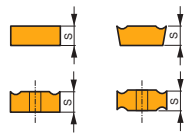
ISO KODLAMA SİSTEMİ – FREZE UÇLARI

5	6	7		8	9		10
12	03	08					
12	03	ED		S	R	-	
5a	6a	7a		8	9		
4	2	2					
4	2	ED		S	R	-	

5 – Kesici kenar uzunluğu

I.C. (mm)	I.C. (″)	H	O	P	S	T	C	D	E	M	V	W	R	K
3.97					03	06		04			06	02		
	5/32″	1.2″												
4.76					04	08	04	05	04	04	08	L3		
	3/16″	1.5″												
5.56					05	09	05	06	05	05	09	03		
	7/32″	1.8″												
6.35		03	02	04	08	11	06	07	08	08	11	04	06	
	1/4″	2″												
7.94		04	03	05	07	13	08	09	06	07	13	05	07	
	5/16″	2.5″												
9.525		05	04	07	09	16	09	11	09	09	16	06	09	19
	3/8″	3″												
12.7		07	05	09	12	22	12	15	13	12	22	08	12	
	1/2″	4″												
15.875		09	06	11	15	27	16	19	16	15	27	10	15	
	5/8″	5″												
19.05		11	07	13	19	33	19	23	19	19	33	13	19	
	3/4″	6″												
25.4		14	10	18	25	44	25	31	26	25	44	17	25	
	5/1″	8″												
31.75		18	13	23	31	54	32	38	32	31	54	21	31	
	1 1/4″	10″												

6 – Uç kalınlığı



Symbol	S (mm)	S (″)
01	1.59	1/16″
T1	1.98	5/64″
02	2.38	3/32″
03	3.18	1/8″
T3	3.97	5.32″
04	4.76	3/16″
05	5.56	7/32″
06	6.35	1/4″
07	7.94	5/16″
09	9.52	3/8″

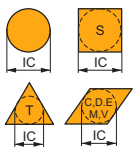
7 – Kesici kenar açısı / Serbest açı

	KAPR		ALP
A	45°	A	3°
D	60°	B	5°
E	75°	C	7°
F	85°	D	15°
P	90°	E	20°
Z	Özel	F	25°
		G	30°
		N	0°
		P	11°
		Z	Özel

ZZ – Özel

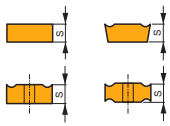
ANSI

5a – İç teğet çapı



Symbol	I.C. (mm)	I.C. (″)
1	3.175	1/8″
1.2	3.969	5/32″
1.5	4.763	3/16″
1.8	5.556	7/32″
2	6.350	1/4″
2.5	7.938	5/16″
3	9.525	3/8″
4	12.700	1/2″
5	15.875	5/8″
6	19.050	3/4″
7	22.225	7/8″
8	25.400	1″
10	31.750	5/4″
12	38.100	6/4″

6a – Uç kalınlığı



Symbol	S (mm)	S (″)
1	1.588	1/16″
1.2	1.984	5/64″
1.5	2.381	3/32″
2	3.175	1/8″
2.5	3.969	5/32″
3	4.763	3/16″
3.5	5.556	7/32″
4	6.350	1/4″
5	7.938	5/16″
6	9.525	3/8″
7	11.113	7/16″
8	12.700	1/2″
9	14.288	9/16″
10	15.875	5/8″

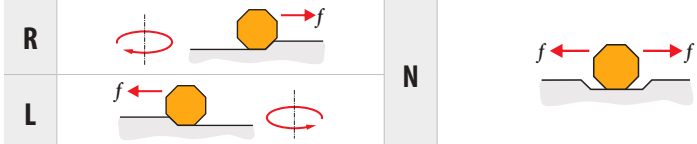
7a – Kesici kenar köşesi

Symbol	RE (mm)	RE (″)
0	0	0″
0.2	0.099	1/256″
0.5	0.198	1/128″
1	0.397	1/64″
2	0.794	1/32″
3	1.191	3/64″
4	1.588	1/16″
5	1.984	5/64″
6	2.381	3/32″
7	2.778	7/64″
8	3.175	1/8″
10	3.969	5/32″
12	4.763	3/16″
14	5.556	7/32″
16	6.350	1/4″

8 – Kesme kenar tasarımı

F	Keskin kesme kenarlı	E	Yuvarlatılmış kesme kenarlı
T	Pahlı kesme kenarlı	S	Pahlı ve yuvarlatılmış kesme kenarlı
K	Çift pahlı kesme kenarlı	P	Çift pahlı ve yuvarlatılmış kesme kenarlı

9 – Kesme yönü



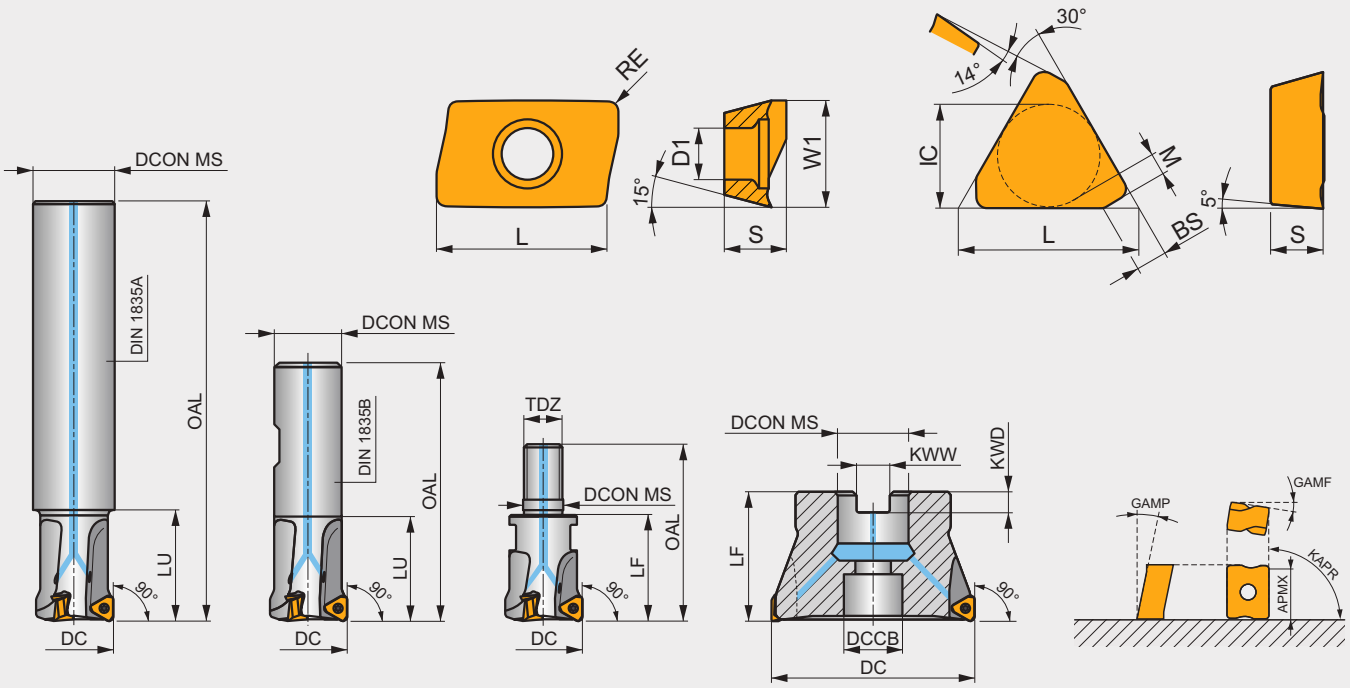
10 – Talaş kırıcı tasarımı

ISO 13399'A GÖRE KESİCİ TAKIM PARAMETRELERİ

Tüm kesici takımlar ISO 13399 standardına göre çeşitli parametreler ile tanımlanır. Bu listede, bu katalogda kullanılan tüm parametreler ve bunların tanımları yer alır.

ISO 13399, uluslararası kesici takım bilgisi standardıdır. Belirli bir sistem veya şirket terminolojisinden bağımsız, nötr formatta boyutlar ve parametreler sağlar. Kesici takımlar global bir standarda göre net bir biçimde tanımlandığında, tüm yazılım türleri elektronik verileri daha hızlı bir şekilde işleyebilir, böylece iletişimin kalitesi artar ve bilgi alışverişinin sorunsuz çalışması sağlanır. Kesici takım açıklamalarımızda ortak bir dili destekleyerek sistem iletişiminde bu sisteme yardımcı olur. 40.000 farklı yekpare ve değiştirilebilir takımımız ile yüksek kalitede verilerin daha kolay toplanmasını sağlayarak size önemli miktarda zaman tasarrufu sağlar. ISO 13399 uyumlu bir sistem kullandığınızda verileri manuel olarak yorumlamanız ve sisteminize girmeniz gerekmez.

SADECE NUMUNELER!

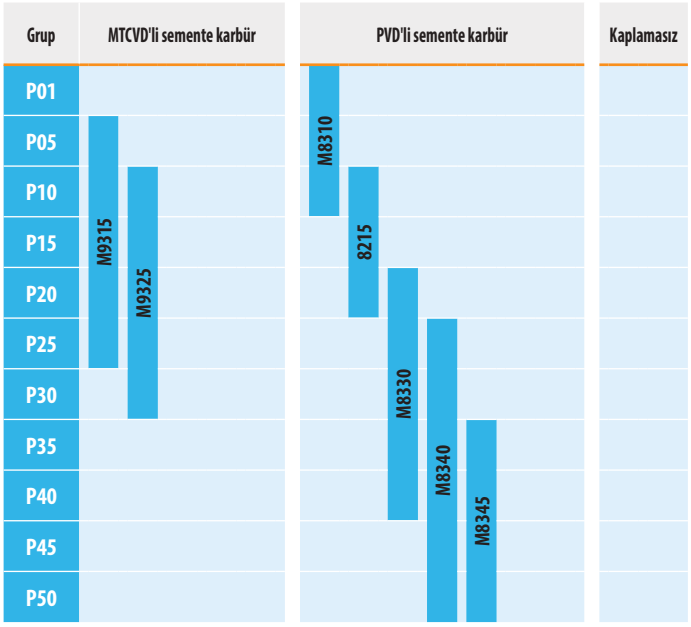


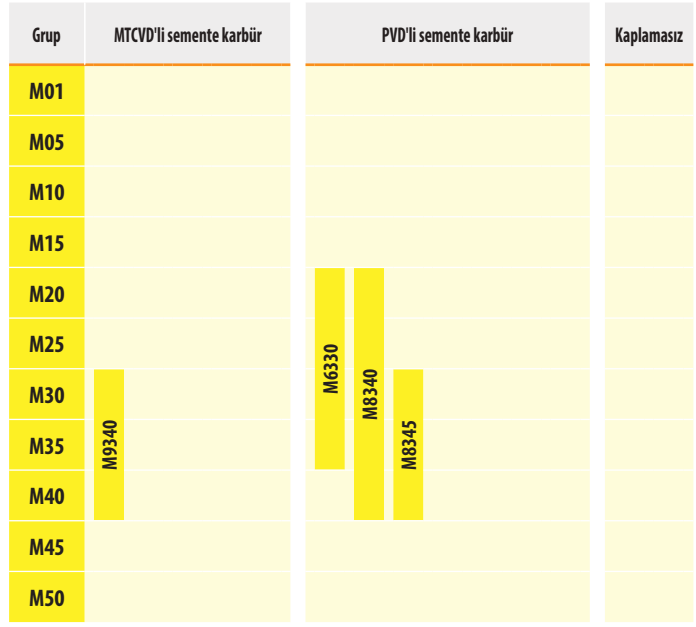
ISO 13399 kodu	Açıklama
APMX	Maksimum kesme derinliği
BD	Gövde çapı
BDX	Maksimum gövde çapı
BCH	Köşe pahı uzunluğu
BS	Silici kenar uzunluğu
CBDP	Bağlantı delik derinliği
CDI	Kesici uç kesme çapı
CDX	Maksimum kesme derinliği
CW	Kesme genişliği
CZC MS	Bağlantı boyut kodu tezgah tarafı
D1	Sabitleme deliği çapı
DAH4	Erişim deliği çapı
DAH5	Erişim deliği çapı
DAH6	Erişim deliği çapı
DBC1	Cıvata çemberi 1 çapı
DBC2	Cıvata çemberi 2 çapı
DBC4	Cıvata çemberi çapı
DBC5	Cıvata çemberi çapı
DBC6	Cıvata çemberi çapı

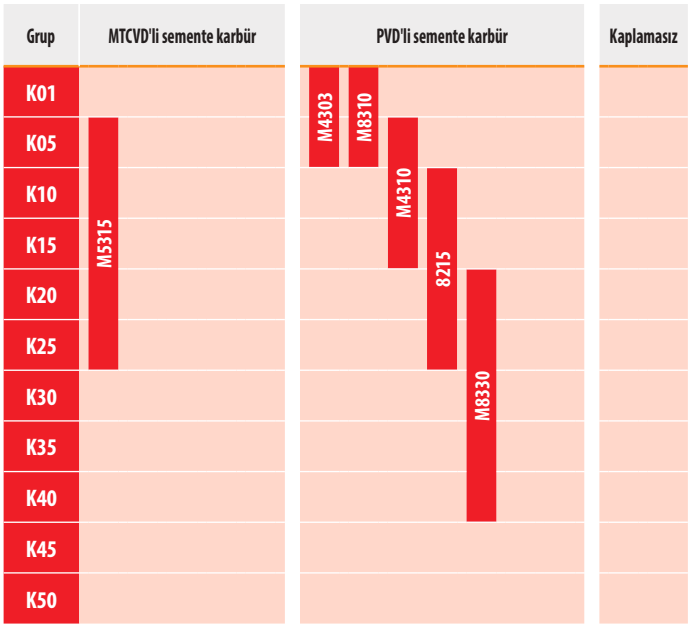
ISO 13399 kodu	Açıklama
DC	Kesme çapı
DCB	Bağlantı deliği çapı
DCCB	Bağlantı deliği havşa açma çapı
DCN	Minimum kesme çapı
DCON MS	Bağlantı çapı
DCX	Maksimum kesme çapı
DHUB	Kasnak çapı
DN	Boyun çapı
GAMF	Radyal kesme açısı
GAMP	Eksenel kesme açısı
CHW	Köşe pahı genişliği
IC	İç teğet daire çapı
INSD	Kesici uç çapı
INSL	Kesici uç uzunluğu
KAPR	Takım kesme kenarı açısı
KWD	Kama yuvası derinliği
KWW	Kama yuvası genişliği
L	Kesme kenarı uzunluğu
LB	Gövde uzunluğu
LE	Kesme kenarı etkin uzunluğu

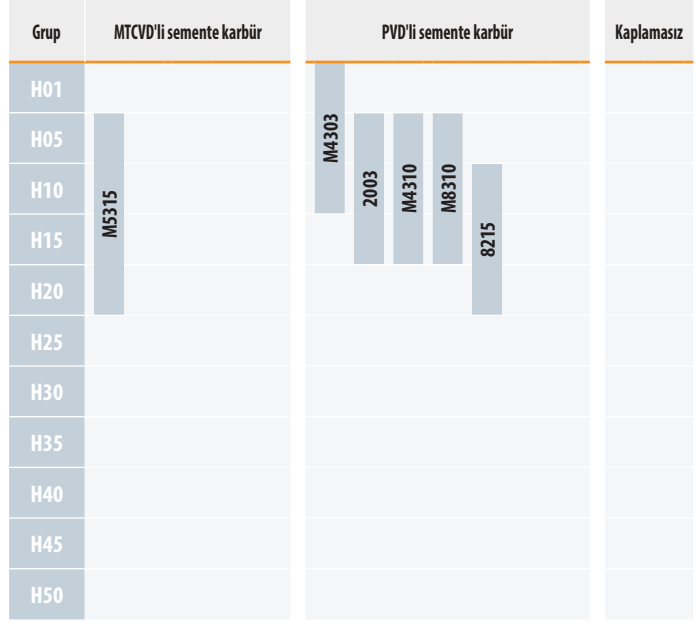
ISO 13399 kodu	Açıklama
LF	Fonksiyonel uzunluk
LH	Kafa uzunluğu
LU	Kullanılabilir Uzunluk
LUX	Kullanılabilir maksimum uzunluk
M	M-ölçüsü
NOF	Kanal Sayısı
OAL	Toplam uzunluk
P	Bıçağın hatvesi
PRFA	Profil açısı
PRFRAD(2)	Profil yarıçapı
RE	Yarıçap
S	Kesici uç kalınlığı
S1	Toplam kesici uç kalınlığı
TDZ	Diş çapı boyutu
TP	Diş hatvesi
TPI	İnç başına dişler
W1	Kesici uç genişliği
ZNP	Takımdaki çevresel kenarların sayısı

FREZELEME KALİTELERİ – GENEL BAKIŞ









FREZELEME KALİTELERİ – GENEL BAKIŞ

Kalite Tanımlama	Uygulama Alanı	Uygulama	İlerleme	Kesme hızı	Olumsuz Çalışma Koşullarına Direnç	Kaplama	Renk	Altyapı	Kesme sıvısı avantajı	Kalite açıklaması
M8345	P30 – P50 M30 – M40	■ ■	▰▰▰▰	▰▱▱▱	▰▰▰▰+	PVD		H	-	Olağanüstü operasyonel güvenilirliğe sahip olan bu kalite zor ve sert malzemelerde elverişsiz koşullar altında yapılan ağır kesimler için tasarlanmıştır.
M6330	P20 – P35 M20 – M35 S20 – S30	■ ■ ■	▰▰▰▰	▰▱▱▱	▰▰▰▰	PVD		H	+ / -	Olağanüstü hizmet güvenilirliğine sahip frezeleme kalitesi. Özellikle işlenmesi zor malzemelerin işlenmesi için uygundur. Olumsuz koşulların ve ağır kesimlerin hakim olduğu uygulamalarda güçlüdür.
M4303	P01 – P10 K01 – K10 N01 – N10 H01 – H10	◪ ■ ◪ ■	▰▰▰▱	▰▰▰▰	▰▰▰▱	PVD		ultra submicron H	-	Kalıp ve pafta uygulamaları için aşınmaya en dayanıklı kalitedir. Stabil kesme şartlarında, yüksek kesme hızlarında ve düşük ilerlemelerde olağanüstü performans sunar. Zor iş parçası malzemelerinde finiş işleme operasyonları için uygundur.
M4310	P05 – P15 M05 – M15 K05 – K15 S05 – S10 H05 – H15	◪ ◪ ■ ■ ■	▰▰▰▰	▰▰▰▰	▰▰▰▰	PVD		ultra submicron H	-	Kalıp ve pafta uygulamaları için universal kalitedir. Finiş işleme ve yarı kaba işleme operasyonları için uygundur. Bu kalite, yüksek aşınma direncini ve olağanüstü operasyonel güvenilirliği birlikte sunar.
2003	P01 – P10 M01 – M10 K01 – K10 S05 – S10 H05 – H15	◪ ◪ ■ ■ ◪	▰▰▰▰	▰▰▰▰	▰▰▰▱	PVD		ultra submicron H	-	Mükemmel aşınma direncine sahip frezeleme kalitesi. Stabil kesme şartları ve orta/yüksek kesme hızları altında sert ve yüksek mukavemetli malzemelerin işlenmesinde en uygun çözümdür. Demir dışı metaller dışındaki diğer iş parçası grubu malzemelerini kesmek için uygundur.
M0315	N05 – N25	■	▰▰▰▰	▰▰▰▱	▰▰▰▰	PVD		submicron H	-	Demir dışı metalleri ve alaşımlarını dengeli bir aşınma direnci ve tokluk oranıyla frezelemek için mikron altı kalitedir. Mükemmel sürtünme özelliklerine sahip benzersiz bir kaplama ile sunulur.
M8326	P20 – P40 M15 – M30	■ ◪	▰▰▰▰	▰▰▰▱	▰▰▰▰	PVD		H	-	Ağır işler için özel kalite. Bu kalitenin ana uygulama alanı her tür çeliğin (paslanmaz dahil) "yumuşak durumda" işlemesidir. Daha yumuşak dökme demirlerin işlenmesinde de kullanılabilir. Ortalama kesme şartlarında orta hızlarda M15 – M30 işleme için uygundur.
M8346	P30 – P50 M30 – M40	■ ■	▰▰▰▰	▰▱▱▱	▰▰▰▰+	PVD		H	-	Ağır işler için özel kalite. Olağanüstü operasyonel güvenilirliğe sahip olan bu kalite zor ve sert malzemelerde elverişsiz koşullar altında yapılan ağır kesimler için tasarlanmıştır.
S26	P15 – P30	■	▰▰▰▰	▰▱▱▱	▰▰▰▰	–		S	++	Kesme yüzeyinin erozyonuna karşı mükemmel dirençli kaplamasız frezeleme kalitesidir. Sadece karbon ve alaşımlı çelikleri düşük kesme hızlarında işlemek için tasarlanmıştır.
S45	P30 – P45	■	▰▰▰▰	▰▱▱▱	▰▰▰▰+	–		S	++	Düşük kesme hızının ve olumsuz kesme şartlarının hakim olduğu işleme uygulamaları için uygun kaplamasız, sert kesme kalitesidir
HF7	M10 – M20 K10 – K25 N10 – N25	◪ ■ ■	▰▰▰▰	▰▱▱▱	▰▰▰▰	–		submicron H	++	Esas olarak demir dışı metallerin işlenmesi için tasarlanmış kaplamasız kalitedir; diğer işlenmiş malzemeler için de kullanılabilir (çelik hariç). Bu kalite tornalama, frezeleme ve hatta delik işlemede kullanılabilir.

FREZELEME KALİTELERİ – GENEL BAKIŞ

Kalite Tanımlama	Uygulama Alanı	Uygulama	İlerleme	Kesme hızı	Olumsuz Çalışma Koşullarına Direnç	Kaplama	Renk	Altyapı	Kesme sıvısı avantajı	Kalite açıklaması
M9315	P05 – P25 K10 – K30 H10 – H20	■ ■ ◪				MT-CVD		H	---	Yüksek termal yüklerde bile yüksek aşınma direncine sahip frezeleme kalitesi, ana uygulama alanı orta veya küçük kesme derinliklerine sahip yüksek kesme hızlarıdır.
M9325	P10 – P30 K10 – K30 H15 – H20	■ ■ ◪				MT-CVD		H	---	Bu kalite, aşınma direnci ve tokluk arasında ideal bir dengeye sahiptir, esas olarak kaba talaş işleme operasyonları için tasarlanmıştır. Avantajları, nispeten yüksek kesme hızlarında bile mükemmel güvenilirlik ve mükemmel aşınma direncidir; bu kalite, yüksek hızlar ve düşük ilerleme hızları kullanan uygulamalar için daha uygundur.
M9340	P35 – P50 M30 – M40 S15 – S20	■ ■ ■				MT-CVD		H	---	Çok tok bir kalitedir ve ana avantajı kesme kenarının yüksek mukavemeti ve olumsuz kesme şartlarına karşı dirençli olmasıdır. Bu malzeme MT-CVD M30 – M40 kaplamaya sahiptir; ancak özellikle optimum kesme şartlarında uygulama için emülsiyon soğutma kullanılabilir.
M5315	P05 – P20 K05 – K25 H05 – H20	◪ ■ ■				MT-CVD		H	---	Stabil koşullar altında kullanılması gereken, aşınmaya en dayanıklı frezeleme kalitelerinden biridir. Başlıca avantajı, termal gerilime ve aşındırıcı K05 – K25 aşınmasına karşı son derece yüksek dirençtir. Esas olarak sert ve çok sert malzemelerin, özellikle de dökme demirin işlenmesinde kullanılır.
M8310	P01 – P10 M01 – M10 K01 – K10 H05 – H15	■ ◪ ■ ◪				PVD		ultra submicron H	-	Kopya frezeleme için özel olarak geliştirilmiş, aşınmaya karşı yüksek dirençli kalite. Stabil kesme şartları altında yüksek kesme hızlarında işleme ve neredeyse tüm işlenmiş malzeme gruplarını (özellikle güçlü ve sert malzemeler) işlemek için uygundur.
8215	P10 – P20 M10 – M20 K10 – K25 N10 – N25 S10 – S15 H10 – H15	■ ◪ ■ ■ ◪ ■				PVD		submicron H	+ / -	Hem iş parçası malzemeleri aralığı hem de mümkün uygulama aralığı açısından en çok yönlü frezeleme kalitelerinden biridir. Karakteristik özellikleri, yüksek aşınma direnci ve operasyonel güvenilirliktir. Diğer avantajlarından biri de, sıcaklık şoku kaynaklı çatlamaya karşı mükemmel dirençtir. Eşsiz özelliklere sahip bu malzeme, frezeleme alanındaki temel malzemelerden biridir.
M8325	P20 – P40 M15 – M30	■ ◪				PVD		S	-	Bu kalitenin ana uygulama alanı her tür çeliğin (paslanmaz dahil) "yumuşak durumda" işlemesidir. Daha yumuşak dökme demirlerin işlenmesinde de kullanılabilir. Ortalama kesme şartlarında orta hızlarda M15 – M30 işleme için uygundur.
M8330	P20 – P40 M20 – M35 K20 – K40 N15 – N30 S15 – S25 H15 – H25	■ ■ ■ ◪ ◪ ◪				PVD		submicron H	+ / -	Bu kalite universal özelliktedir ve çeşitli malzeme tiplerini işlemek için kullanılabilir. Bununla birlikte öncelikli uygulama alanı çelikler ve sünek dökme demirlerdir. Stabil olmayan kesme şartları altında orta hızlarda frezeleme için tavsiye edilir.
M8340	P25 – P50 M20 – M40 K20 – K40 S20 – S30	■ ■ ◪ ■				PVD		submicron H	+ / -	Düşük kesme hızları ve olumsuz kesme koşulları için özel olarak üretilmiş en sünek kalitelerden biridir. Bu kalite, kesme kenarının çok güçlü olması gerektiği bütün işlemler için idealdir.

FREZELEME KALİTELERİ – GENEL BAKIŞ

Kalitelerin işareti

M	9	3	2	5
İşlem tipi	Kaplama/Altyapı	Nesil	ISO aralığı	

İşlem tipi	
D	Delik delme
M	Frezeleme
T	Tornalama
G	Kanal açma ve Dilimleme

Kaplama/Altyapı	
0 PVD 1 CVD	Özel ygulama
2 PVD 3 CVD	Serbest
4 PVD 5 CVD	Grup K, H
6 PVD 7 CVD	Grup M, S
8 PVD 9 CVD	Üniversal
B	CBN
D	PCD

Nesil
1 – 9

ISO aralığı	
	01 – 05
	05 – 10
	10 – 20
	20 – 30
	30 – 40
	40 – 50

Alt yapı	
H	WC-Co bazlı alt yapı
submicron H	İnce tanecikli (< 1 µm) WC-Co bazlı alt yapı
ultra submicron H	Çok ince tanecikli (< 0.5 µm) WC-Co bazlı alt yapı
S	Kübik karbürlü alt yapı

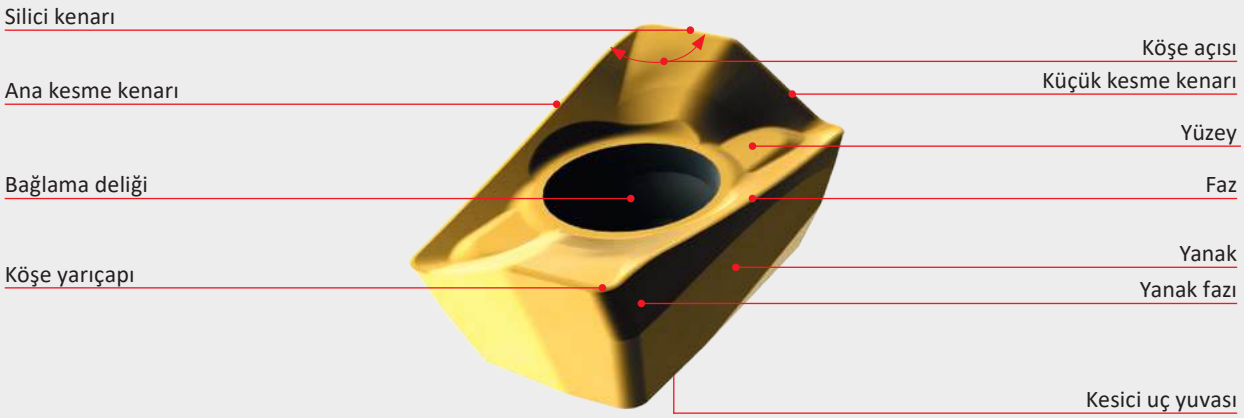
Kaplama	
MT-CVD	Orta sıcaklıkta kimyasal kaplama
PVD	Düşük sıcaklıkta fiziksel kaplama
–	Kaplamasız kalite

Soğutma faydası	
- - -	Very negative effect on tool life – cooling is not recommended
-	Slightly negative effect on tool life
+ / -	Influence of cooling may be both positive and negative – decisive factor is specific working conditions
+ +	Positive effect on tool life – cooling is recommended

Attribute Strength	
	Level 1 – 5

TEMEL TERİMLERİN TANIMI

Bir değiştirilebilir kesici ucun parçaları



Freze takımının geometrisi

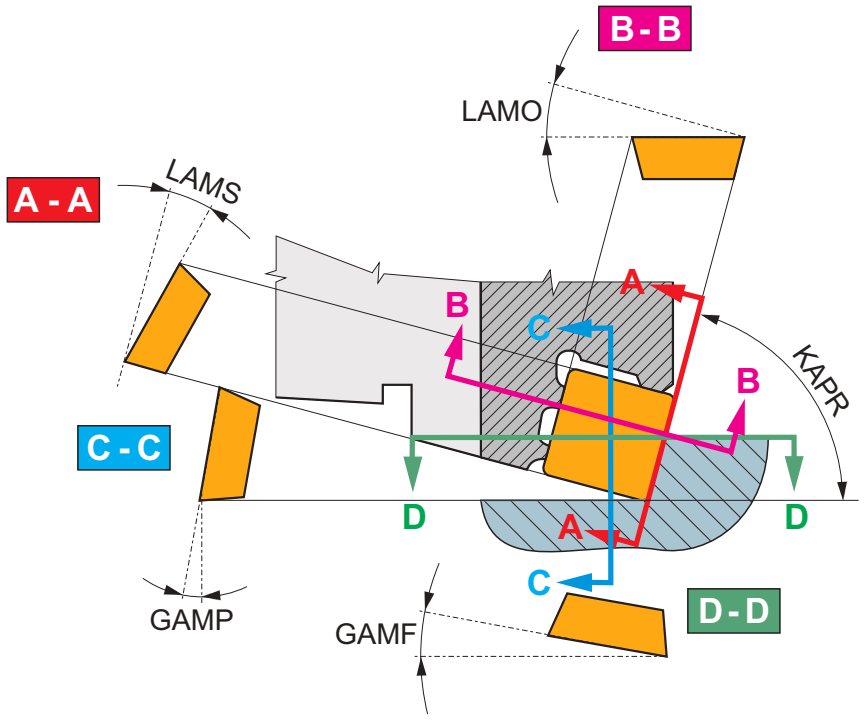
Yapısal açılar, kesici ucun sıkıştırıldığı yuva konumunun temel yönünü belirler ve bu nedenle frezeleme takımı gövdesinin tasarımı için önemlidir. İki açı vardır: Eksenel yüz açısı $GAMP - \gamma_p$ (takım arka eğimi) ve radyal yüz açısı $GAMF - \gamma_f$ (takım yan eğimi) – aşağıdaki resme bakın.

Çalışma açıları, ayar açısı $KAPR - \kappa_r$, dikey yüz açısı $GAMO\ \gamma_o$ ve kesme kenarının eğim açısı $LAMS - \lambda_s$ şeklindedir.

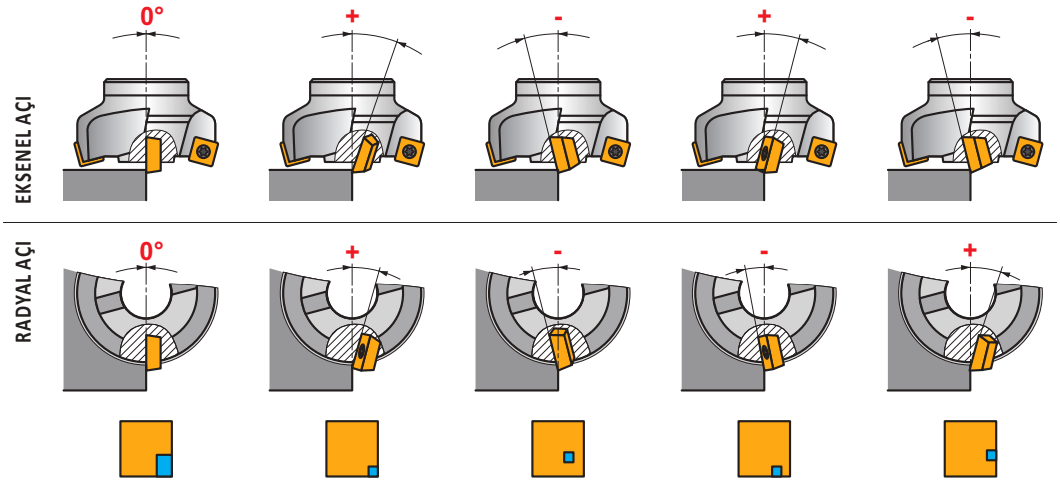
- **Dikey yüz açısı** $GAMO - \gamma_o$ sadece kesilen talaştaki plastik deformasyon boyutunu değil, aynı zamanda kesme kuvvetini ve sıcaklığını da etkiler. Eğim açısı $GAMO - \gamma_o$ büyüdükçe, iş mili motorunun kesme kuvveti ve güç talebi de azalır (ve tersi).
- **Ayar açısı** $KAPR - \kappa_r$ diş başına belirli bir ilerlemedeki talaşın kalınlığını f_z ve eksenel kesme derinliğini a_p belirler. Bu nedenle kesme kuvvetlerini ve özellikle yükü, aşınmayı ve takım hizmet ömrünü etkiler. $KAPR - \kappa_r$ ayar açısının f_z sabit ilerlemesiyle düşürülmesi h talaş kalınlığını azaltır.
- **Kesme kenarının** $LAMS - \lambda_s$ eğim açısı, $KAPR - \kappa_r$ ayar açısı ve $GAMO - \gamma_o$ yüz açısı hep birlikte kenar ile iş parçası arasındaki ilk temas noktasını belirler. Darbeli kesim sırasında kesme kenarının çentiklenme direncini etkilemesinin nedeni de budur. Aynı zamanda talaş tahliyesinin yönünü de etkiler.

Takım çalışma açıları; aşağıdaki formülleri ve şemaları kullanarak yatağı belirleyebilirsiniz.

Freze takımının çalışma ve yapısal açıları

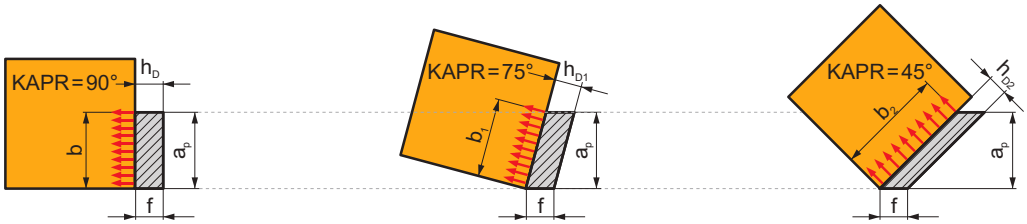


Frezeleme Takımı Geometrisi



Takım seçerken birçok kriteri hesaba katmak gerekir. Temel gereksinimlerden biri, kesme kaması ile iş parçası arasındaki ilk temas yerinin uçtan ve kesme kenarından daha uzakta olmasıdır. Ancak bu durum kesme kamasının temel geometrisine, yani *GAMO* – γ_o, *LAMS* – λ_s, *KAPR* – κ_r açılarına ve ayrıca frezeleme takımıyla iş parçası giriş kenarının karşılıklı konumuna bağlıdır. Aşağıdaki şekil, bazı çok olumsuz kavrama koşullarında (yani frezeleme takımının ekseni iş parçasının kenarı ile aynı hizada olduğunda) bireysel frezeleme takımı geometrilerini (veya daha doğrusu, radyal ve eksenel açıların kombinasyonlarını) göstermektedir. Şeklin alt kısmında, değiştirilebilir kesici ucun iş parçasıyla ilk temas kurduğu alanın bir göstergesiyle birlikte değiştirilebilir ek parçanın bir gösterimi bulunur. Şekilde, bu tür olumsuz etkileşim koşullarında negatif – negatif geometriye sahip takımların en iyi, pozitif – pozitif geometriye sahip takımların ise en sorunlu performansı sağladığı görülmektedir. Diğer bir kriter talaş kaldırmadır. Negatif – negatif takımlar talaşı çalışma yüzeyine (iş parçasına doğru) iterken, pozitif – pozitif takımlar bunun tersini yaparak talaşı çalışma yüzeyinden, yani iş parçasından uzağa yönlendirir. Bu nedenle, negatif ve pozitif açıları birleştirmek optimal bir uzlaşmadır.

Giriş Açısı

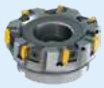


KAPR = 90°	KAPR = 75°	KAPR = 45°
$h_D = f$ $k_c = 1{,}00\ k_{c1}$ $k_c/b = 1{,}00$	$h_{D1} = 0{,}97f$ $k_c = 1{,}01\ k_{c1}$ $k_c/b_1 = 0{,}98$	$h_{D2} = 0{,}71f$ $k_c = 1{,}09\ k_{c1}$ $k_c/b_2 = 0{,}77$

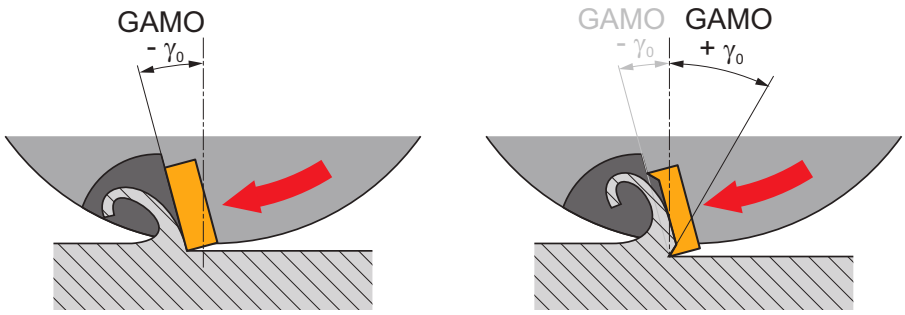
Yüzey frezeleme için giriş açısını seçerken, diğer şeylerin yanı sıra, tezgahın gücü ve rijitliği (takım tutucunun boyutu ve tipi), dinamik yetenekleri ve maksimum kaldırma derinliği hesaba katılmalıdır. Örneğin, elinizde yüksek performanslı (50 – 100 kW) bir tezgah ve ISO 50 takım tutucu varsa ve yüksek derinlikli kesim yapıyorsanız ilk tercihiniz, giriş açısı 90° – 58° arasında olan bir frezeleme takımı olmalıdır. Öte yandan, ISO 40 (HSK 63) takım tutucuya sahip düşük güçlü bir tezgahınız (10 kW'a kadar) varsa ve 2-3 mm derinlikte kesim yapmayı planlıyorsanız, 45° – 10° aralığında (ör. HFC) giriş açısı olan veya yuvarlak kesici uçlu bir takım seçmelisiniz. Bu nedenle, giriş açısı 45° olan, aynı zamanda daha yüksek kesme derinliklerini işleyebilen ve 90° giriş açısına sahip bir takımla karşılaştırıldığında % 30'a kadar daha yüksek ilerlemeyle ve yaklaşık olarak aynı yükte ve aynı derinlikte kesim yapabilen bir takım seçmek ideal bir uzlaşma olacaktır. Son olarak, giriş açısı ne kadar düşük olursa, talaş o kadar ince ve kesme kamasının takılan kısmı o kadar uzun olur; bu da ısı yayılımı ve kesici ucun kenarı boyunca kuvvet dağılımı açısından önemlidir. Belirtilmesi yararlı olan diğer bir konu da, kesme kuvvetleri bileşkesinin yönündeki değişikliktir. Basitçe bu yön, kenara dik olarak görselleştirilebilir. (Giriş açısının düşürülmesi, iş miline giden kesme kuvvetinin pasif parçasını artırır ve kesme kuvvetinin aktif radyal parçasını azaltır).

TAKIM SEÇİMİ

Aşağıdaki resimde kesici gövdesinin giriş açısına ve temel geometrisine (yani yüzün eksenel ve radyal açısı) göre Pramet frezeleme takımlarının çeşitleri gösterilmiştir. Bununla birlikte kesici uç geometrisinin, takımın sonuçta ortaya çıkan geometrisini aşağıdaki şekilde değiştirebileceğine dikkat edilmelidir.

	Negatif – Negatif	← Negatif – Pozitif →	Pozitif – Pozitif
93°	 SWN04C  SCN05C		
90°	 STN10  STN16  SLN12  SLN16  SLN12X  J(T)-SLSN	 SAD07D  SAD11E  SAD16E  SAP10D  SAP16D  SSO09  SSD12  FTB27X  F-SCC  S90SN  S90CN(XN)  J(T)-SAD11E  J(T)-SAD16E  J(T)-SSAP  J(T)-CSD12X	 SAP10D  SVC22C
57° – 60°	 SPN13	 FSB22X	
45°	 SHN06C  SHN09C  SSD09  N-SSO09  2516	 SSF13F  SOD05  SOD06D  SSE09  SSN12Z	
43°	 SON06C		 SOE06Z
12° – 20°	 SBN10  SSN11	 SPD09  SSO12	
-	 SRC10  SRC12  SRC16  SRC20  SRD10  SRD12  L2-SZP  K3-CXP  K2-PPH  K2-SLC  K2-SRC	 SRD05  SRD07  SRD10  SRD12  SRD16  SZD07  SZD09  SZD12  2636  J(T)-SXP16	

Sonuç Geometrisi (Frezeleme Takımı + Değiştirilebilir Kesici Uç)



Aşağıdaki tabloda, üç temel frezeleme takımının geometrisi ve işlenen malzeme türüne göre yaklaşık kullanım önceliği listelenmiştir. Kesici uç geometrilerine göre farklı takım aileleri hakkında ayrıntılı bilgi katalog bölümünde bulunabilir.

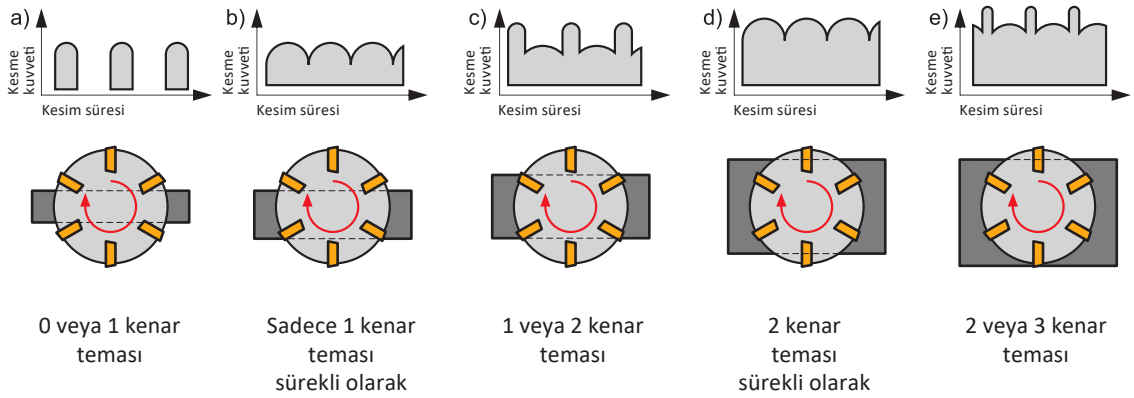
Koşullar		Uygulamaya göre kesici geometrisi seçimi		
		Negatif – Negatif	Negatif – Pozitif	Pozitif – Pozitif
Gövdenin yapısal parametresi	*GAMP* (A.R.)	-	+	+
	GAMF (R.R.)	-	-	+
	GAMO	-	+	+
İşlenen malzeme	Karbon çelikleri, alaşımlı çelikler (< 300 HB)	◪	■	■
	Paslanmaz çelikler (< 300 HB)		■	◪
	Paslanmaz çelikler (> 300 HB)		■	◪
	Dökme demir, sünek demir	■	◪	◪
	Al alaşımları		◪	■
	Bakır ve alaşımları		◪	■
	Titanyum ve alaşımları		◪	◪
	Sertleştirilmiş çelikler (40 – 55 HRC)	◪	◪	

Frezeleme Takımındaki Diş Sayısı

Frezelenmiş yüzeyin genişliğiyle ilişkili olarak, frezeleme takımı üzerindeki diş sayısı da önemlidir. Diş sayısı aşağıdaki şekilde gösterildiği gibi, kesimin kuvvetini ve akustik özelliklerini belirler.

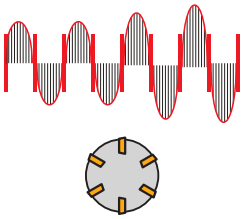
			
Dakikadaki ilerleme	+	++	+++
Sert malzemeler	+++	++	+
Güç gereksinimi	+	++	+++
Sonuçtaki pürüzlülük	+++	++	+
			

Diş Hatvesi



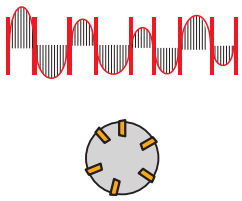
0 veya 1 kenar teması	Sadece 1 kenar teması sürekli olarak	1 veya 2 kenar teması	2 kenar teması sürekli olarak	2 veya 3 kenar teması

Ek olarak, bazı takım ailelerinde eşit ve düzgün olmayan diş hatvesi arasında seçim yapma olanağı sunulur. Düzgün olmayan diş hatvesine sahip bir takım kullanılması harmonik salınımı engeller ve sonuç olarak stabiliteyi artırmaya ve titreşim riskini azaltmaya yardımcı olur. Buna göre, titreşim riski öngörüyorsanız yani öncelikle yüksek kullanma mesafelerinde veya yüksek radyal kesme derinliğinde ve tamamen stabil olmayan koşullar altında çalışırken düzgün olmayan diş hatvesini seçmeniz gerekir.



— Tek bir dişin girişi

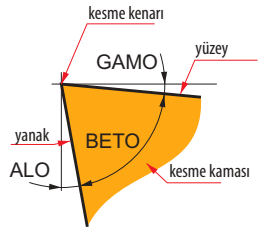
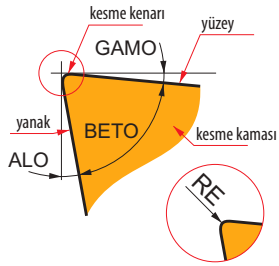
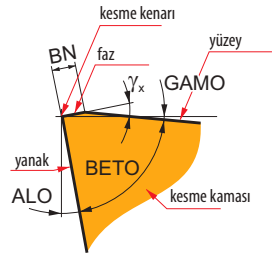
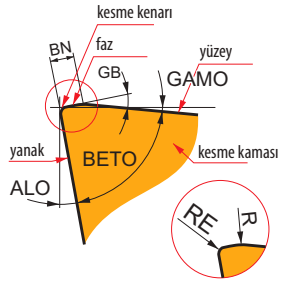
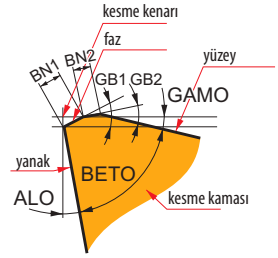
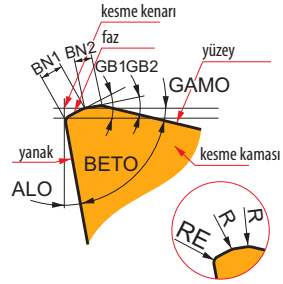
Titreşimin genliği



KESİCİ UÇ SEÇİMİ

Değiştirilebilir bir kesici uç seçerken ucun, katalog bölümünde simgelerle gösterilen mikro geometrisine de dikkat edilmelidir. Aşağıda, kesici uçlarımızda bulabileceğiniz kesme kenarı tiplerine genel bir bakış verilmiştir.

Kesme Kenarı Tasarımlarına Genel Bakış

F		**Keskin kesme kenarları** – Al alaşımları için tasarlanmış frezeleme takımlarıyla kullanılan kesici uçlar için önerilir. Keskin kesme kamaları, kesilen tabakada minimum deformasyon, kenarda daha az talaş birikmesi ve daha düşük kesme kuvveti gereksinimi sağlar. Ancak kesme kamasının mukavemeti diğer tiplere göre daha düşüktür.
E		**Yuvarlatılmış kesme kenarları** – kamadaki hafif bir yuvarlatma sayesinde kama yüzeyindeki mikro kusurlar ortadan kaldırılır. Kamanın belirli bir çok düşük yarıçapta (*RE*) düzeltilmesi, kesme kenarının mekanik hasara, yani gevrek kırılma veya mikro parçalanmaya karşı direncini artırır. Bu modifikasyon şu anda hemen tüm malzeme tiplerini frezelemede kullanılan, faz içermeyen (önceki F modifikasyonu) tüm değiştirilebilir kesici uçlarda kullanılmaktadır.
T		**Fazlı kesme kenarları** – x genişliği ve γ_x açısı olan bir faz, kesme kenarının hemen yakınındaki kesme kamasının γ_n açısını artırır, böylece aynı zamanda mukavemetini, yani mekanik yüklere ve gevrek kırılmaya karşı direncini de artırır. Şu anda S modifikasyonu ile değiştirildiği için nadiren kullanılmaktadır.
S		**Fazlı yuvarlatılmış kenarlar** – T modifikasyonuna kıyasla kesici uç, kesme kenarının yuvarlanmasını ve bir fazının kalınlaşmasını sağlayan bir düzeltmeye tabi tutulmuştur. Bu modifikasyon kamanın mekanik hasarlara karşı direncini büyük ölçüde artırır.
K		**Çift fazlı kenarlar** – x_1 x_2 genişliğinde ve γ_{x1} γ_{x2} açılı çift faz, kenarın gücünü yani mekanik gerilimlere ve gevrek kırılmaya karşı direncini daha da artırır. Frezeleme kesici uçları için sadece en zor kesimlerde ve nadiren kullanılır.
P		**Çift fazlı yuvarlatılmış kenarlar** – K modifikasyonuna kıyasla kesici uç, kesme kenarının yuvarlanmasını ve iki fazının kalınlaşmasını sağlayan bir düzeltmeye tabi tutulmuştur. Bu modifikasyon, kamanın mekanik hasarlara karşı maksimum dirençli olmasını sağlar.

DÜZELTME FAKTÖRLERİ

Belirli kesici tipi ve operasyon için düzeltme faktörleri C_{VcO}

X.V	●	◓	◔
***KAPR* 45° – 60° ve negatif kesici uçlu yüzey frezeleri (SON06C, SHN06C, SHN09C)**	1.15	1.00	0.85
***KAPR* 45° ve pozitif kesici uçlu yüzey frezeleri (SSD13F, SSE09, SSN12Z, FSB22X, SOD05, SOD06D, SOE06Z)**	1.15	1.00	0.85
***KAPR* 90° kenar frezeleri (SAD07/10/16, STN10/16, SLN12/16, SAP10/16, SS009, SSD12)**	1.10	1.00	0.90
Kopya yüzey frezeleri (SRC10 – SRC20, SRD05 – SRD16, …)	1.10	1.00	0.90
Kopya parmak frezeler (K2-PPH, K2-SLC, K2-SRC, K3-CXP…)	1.10	1.00	0.90
Disk frezeler (S90CN(XN), S90SN…)	1.10	1.00	0.90
Uzatılmış kanallı kenar frezeleri J(T)-CSD12X, J(T)-SAD11E, J(T)-SAD16E…)	1.25	1.00	0.80
Ağır hizmet için yüzey frezeleri (FSB22X, SPN13..)	1.30	1.00	0.85
Ağır hizmet için kenar frezeleri (FTB27X..)	1.25	1.00	0.85

Gerekli dayanıklılık için düzeltme faktörleri C_{VcT}

dakika	15	20	30	45	60	90	120
Genel işleme (finiş işlemeden kaba talaş işlemeye)	1.23	1.13	1.00	0.89	0.81	0.72	–
Ağır işleme (ağır kaba işleme)	–	–	1.23	1.13	1.00	0.89	0.81

Ek düzeltme faktörleri C_{VcA}

İşleme ortamı	C_{VcA}
İş malzemesinin durumu (dövme veya döküm nedeniyle bozuk yüzey)	0.70
Stabil olmayan işleme şartları	0.85
Yaygın işleme şartları	1.00
Stabil işleme şartları	1.20

< % 100 radyal daldırma ile yüzey ve kenar frezeleme sırasında kesme hızı için düzeltme faktörleri C_{VcRCT}

a_e/DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
X.V	**1.48**	**1.35**	**1.27**	**1.22**	**1.19**	**1.16**	1.11	1.08	1.05	1.03	**1.00**	**1.00**	**1.00**	**1.00**

< % 100 radyal daldırma ile yüzey ve kenar frezeleme sırasında talaş incelmesini telafi etmek için düzeltme faktörleri Cf_{zRCT}

a_e/DC	5 %	10 %	15 %	20 %	25 %	30 %	40 %	50 %	60 %	70 %	75 %	80 %	90 %	100 %
⇨x.f	**2.20**	**1.60**	**1.35**	**1.20**	**1.10**	0.95	0.85	0.75	0.85	0.95	**1.00**	**1.00**	**1.00**	**1.00**
⇨x.f	0.64	0.64	0.64	0.64	0.64	0.65	0.65	0.67	**0.68**	**0.71**	**0.72**	**0.74**	**0.79**	**1.00**

Ortaya çıkan düzeltilmiş kesme hızı *vcc*

$v_{cc} = v_c \times kvG \times C_{VcO} \times CvcT \times C_{VcA} \times C_{VcRCT} \times Cf_{zRCT}$

k_{vG} – kullanılan malzemenin katsayısı

v_c – katalog sayfasından başlangıç hızı

FORMÜLLER

Değer	Birim	Formül
Fener mili hızı	(dev/dk)	$n = \frac{v_c \times 1000}{DC \times \pi}$
Kesme hızı	(m/dk)	$v_c = \frac{\pi \times DC \times n}{1000}$
Devir başına ilerleme	(mm/dev)	$f_{rev} = \frac{f_{min}}{n} = f_z \times z$
Dakika başına ilerleme (ilerleme hızı)	(mm/dk)	$f_{min} = v_f = f_{rev} \times n = f_z \times z \times n$
Diş başına ilerleme	(mm/ağız)	$f_z = \frac{f_{rev}}{z} = \frac{f_{min}}{n \times z}$
Talaş kesiti	(mm^2)	$A = f_z \times a_p$
Talaş kalınlığı(düz kenarlı uçlar için)	(mm)	$h = f_z \times \sin KAPR$
Talaş kalınlığı (yuvarlak kesici uçlar için)	(mm)	$h = f_z \times \sqrt{\frac{a_p}{INSD}}$
Talaş kaldırma oranı	(cm^3/dk)	$Q = \frac{a_p \times a_e \times f_{min}}{1000}$
Güç gereksinimi	(kW)	$P_c = \frac{a_p \times a_e \times f_{min}}{60 \times 10^6 \times \eta} \times k_c \times k_\gamma$
Ortalama güç gereksinimi	(kW)	$P_c = \frac{a_p \times a_e \times f_{min}}{x}$

Not:

	Değer	Birim
n	Fener mili hızı	(dev/dk)
DC	Çap	(mm)
v_c	Kesme hızı	(m/dk)
f_{rev}	Devir başına ilerleme	(mm/dev)
A	Talaş kesiti	(mm^2)
a_p	Eksenel kesme derinliği (kesme derinliği)	(mm)
a_e	Radyal kesme derinliği (kesme genişliği)	(mm)
$KAPR$	Ana kenar giriş açısı	(°)
f_{min}	Dakika başına ilerleme (ilerleme hızı)	(mm/dk)
f_z	Diş başına ilerleme	(mm/ağız)
z	Ağız sayısı	(-)
$INSD$	Çap kesici uçlar	(mm)

	Değer	Birim
h	Talaş kalınlığı	(mm)
Q	Dakikada talaş kaldırma hacmi	(cm^3/dk)
P_c	Güç gereksinimi	(kW)
k_c	mm^2 başına kesme kuvveti	(MPa)
k_γ	γ_0 açısının etki katsayısı	(°)
η	Tezgah verimliliği genellikle $\eta = 0.75$	(-)
x	İş parçası malzemesi etki katsayısı	(-)

Malzeme	Çelik	Dökme	Alüminyum
x katsayısı	24 000	30 000	120 000

TAVSİYE EDİLEN SIKMA VİDASI TORK DEĞERLERİ

Sıkma vidası	Tork	Vida	Boy
	(Nm)	–	(mm)
US 20	0.9	M 2	3
US 2205-T07P	0.9	M 2.2	5
US 25	1.2	M 2.5	5
US 2505-T08P	1.2	M 2.5	5
US 2506-T07P	1.2	M 2.5	6
US 3006-T09P	2	M 3	6
US 3007-T09P	2	M 3	7
US 3504-T09P	3	M 3.5	4
US 3507-T15	3	M 3.5	7
US 3509-T15	3	M 3.5	9
US 3511-T15	3	M 3.5	11
US 3512-T15P	3	M 3.5	12
US 4008-T15P	3.5	M 4	8
US 4011-T15P	3.5	M 4	11
US 4511-T20	5	M 4.5	11
US 5012-T15P	5	M 5	12
US 70	5	M 4	5
US 71	5	M 4	7
US 72	5	M 4	9
US 73	5	M 4	11
CS 3007-T08P	1.2	M 3	7
CS 4008-T15P	3	M 4	8
CS 42506-T07P	1	M 2.5	6
CS 43008-T08P	1.2	M 3	8
CS 43509-T10P	2	M 3.5	9
CS 44013-T15P	3	M 4	13
CS 45016-T20P	5	M 5	16
CS 46020-T25P	7.5	M 6	20
CS 48025-T40P	15	M 8	25
CS 5009-T20P	5	M 5	9
CS 5013-T20P	5	M 5	13
CS 5015-T20P	5	M 5	15
CS 6020-T20P	7.5	M 6	20
CS 8025-T30P	15	M 8	25
US 2505-T07P	1.2	M 2.5	5
US 2506-T07P	1.2	M 2.5	6
US 3007-T09P	2	M 3	7
US 3505-T09P	3	M 3.5	5
US 4011A-T15P	3.5	M 4	11
US 4011-T15P	3.5	M 4	11
US 44010-T15P	3.5	M 4	10
US 44012-T15P	3.5	M 4	12
US 45011-T20P	5	M 5	11
US 45012-T20P	5	M 5	12
US 5011-T20P	5	M 5	11
US 5018-T20P	5	M 5	18
US 52506-T07P	0.8	M 2.5	6
US 54511-T15P	5	M 4.5	11
US 62003A-T06P	0.6	M 2	3
US 62004A-T06P	0.6	M 2	4
US 62004-T06P	0.6	M 2	4
US 62505-T07P	1.2	M 2.5	5
US 62506-T07P	1.2	M 2.5	6
US 62506-T08P	1.2	M 2.5	6
US 62508-T08P	1.2	M 2.5	7
US 63009-T09P	1.2	M 3	9
US 63509-T15P	3	M 3.5	10
US 63510-T10P	2	M 3.5	9
US 63511D-T15P	3	M 3.5	11
US 63513-T15P	3	M 3.5	12
US 64014-T15P	3.5	M 4	14
US 65013-T20	5	M 5	13
US 65014-T20P	5	M 5	14
US 65017-T20P	5	M 5	17
US 66015-T25P	7.5	M 6	15
US 68020-T30P	15	M 8	20
US 68026-T30P	15	M 8	26
US 74016-T15P	3.5	M 4	16

Tork anahtarları

Tork kolu 	Torq (Nm)	Vida dişi sıkma
MR-0.8-2.0 Vario	0.5 – 2.0	M 2 – M 3
MR-1.0-5.0 Vario	0.8 – 5.0	M 2.5 – M 5
MR-0.9 fix	0.9	M 2
MR-2.0 fix	2.0	M 3
MR-3.0 fix	3.0	M 3.5
MR-3.5 fix	3.5	M 4
MR-5.0 fix	5.0	M 5

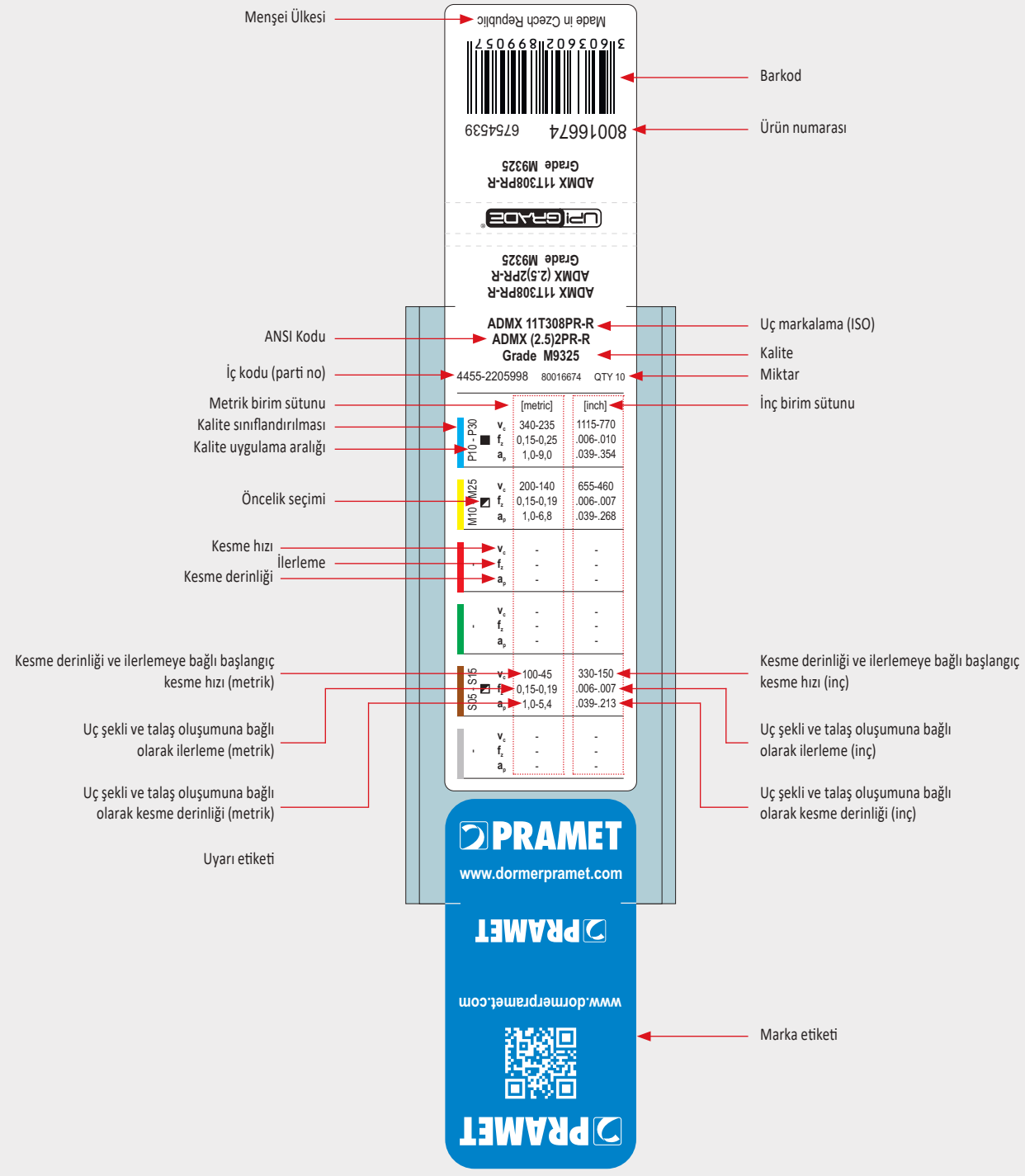
Değiştirilebilir gövdeler

Değiştirilebilir gövdeler 
D-T6
D-T6P
D-T7
D-T7P
D-T8
D-T8P
D-T9
D-T9P
D-T15
D-T15P
D-T20
D-T20P

Vida yağlama

Uç sıkma vidaları yüksek ısıl gerilime maruz kalır. Tüm vidaların MOLYKOTE 1000 gibi yüksek kaliteli macun ile yağlanması tavsiye edilir.

UÇ KUTUSU ÜZERİNDEKİ TEKNİK BİLGİLER



WMG (İŞ PARÇASI MALZEME GRUPLARI)

ISO grup		**WMG** (İş Parçası Malzeme Grupları)			**Sertlik** (HB veya HRC)	**Toplam Gerilme Dayanımı** (MPa)	**Düzeltme fakt.** ***kvG***
P	P1	P1.1	Kolay işlenebilir çelik (İşlenebilirliği artırılmış karbon çeliği)	Sülfürlü	< 240 HB	≤ 830	1.33
		P1.2		Sülfürlü ve fosforlu	< 180 HB	≤ 620	1.49
		P1.3		Sülfürlü/fosforlu ve kurşunlu	< 180 HB	≤ 620	1.53
	P2	P2.1	Yalın karbon çeliği (demir ve karbon ağırlıklı çelik)	İçerik < 0.25 % C	< 180 HB	≤ 620	1.14
		P2.2		İçerik < 0.55 % C	< 240 HB	≤ 830	1.00
		P2.3		İçerik > 0.55 % C	< 300 HB	≤ 1030	0.89
	P3	P3.1	Alaşımlı çelik (karbonlu çelik, alaşım ≤ %10)	Tavlanmış	< 180 HB	≤ 620	0.92
		P3.2		Sertleştirilmiş ve tavlanmış	180 – 260 HB	> 620 ≤ 900	0.74
		P3.3			260 – 360 HB	> 900 ≤ 1240	0.63
	P4	P4.1	Takım çeliği (kalıp için özel alaşımlı çelikler)	Tavlanmış	< 26 HRC	≤ 900	0.55
		P4.2		Sertleştirilmiş ve tavlanmış	26 – 39 HRC	> 900 ≤ 1240	0.47
		P4.3			39 – 45 HRC	> 1240 ≤ 1450	0.38
M	M1	M1.1	Ferritik paslanmaz çelik (sertleştirilemiyen düz krom alaşımı)		< 160 HB	≤ 520	1.22
		M1.2			160 – 220 HB	> 520 ≤ 700	1.03
	M2	M2.1	Martensitik paslanmaz çelik (sertleştirilebilir düz krom alaşımı)	Tavlanmış	< 200 HB	≤ 670	1.08
		M2.2		Sertleştirilmiş ve tavlanmış	200 – 280 HB	> 670 ≤ 950	0.89
		M2.3		Yaş sertleştirme	280 – 380 HB	> 950 ≤ 1300	0.75
	M3	M3.1	Östenitik paslanmaz çelik (krom nikel ve krom nikel manganlı alaşımlar)		< 200 HB	≤ 750	1.00
		M3.2			200 – 260 HB	> 750 ≤ 870	0.86
		M3.3			260 – 300 HB	> 870 ≤ 1040	0.77
	M4	M4.1	Östenitik ferritik (DUPLEX) veya süper östenitik paslanmaz çelik		< 300 HB	≤ 990	0.75
		M4.2	Yaş sertleştirilmiş östenitik paslanmaz çelik		300 – 380 HB	≤ 1320	0.64
K	K1	K1.1	Pik döküm (ASTM A48) veya Otomotiv Pik döküm (ASTM A159) (lamelli grafit mikroyapıya sahip demir karbon döküm)	Ferritik veya ferritik perlitik	< 180 HB	≤ 190	1.35
		K1.2		Ferritik perlitik veya perlitik	180 – 240 HB	> 190 ≤ 310	1.00
		K1.3		Perlitik	240 – 280 HB	> 310 ≤ 390	0.75
	K2	K2.1	Dövülebilir demir (ASTM A602) (grafitsiz mikroyapılı demir karbon dökümü)	Ferritic	< 160 HB	≤ 400	1.39
		K2.2		Ferritik veya perlitik	160 – 200 HB	> 400 ≤ 550	1.13
		K2.3		Perlitik	200 – 240 HB	> 550 ≤ 660	0.90
	K3	K3.1	Sfero döküm (ASTM A536) (sfero grafit mikroyapılı demir karbon dökümü)	Ferritik	< 180 HB	≤ 560	1.23
		K3.2		Ferritik veya perlitik	180 – 220 HB	> 560 ≤ 680	0.94
		K3.3		Perlitik	220 – 260 HB	> 680 ≤ 800	0.76
	K4	K4.1	Östenitik pik döküm (ASTM A436) (östenitik lamelli grafit mikroyapılı demir-karbon alaşımlı döküm)		< 180 HB	≤ 190	1.14
		K4.2	Östenitik sfero döküm (ASTM A439 veya ASTM A571) (östenitik sfero grafit mikroyapılı demir karbon alaşımlı döküm)		< 240 HB	≤ 740	0.86
		K4.3	Östemperlenmiş pik döküm (ASTM A897) (östferrit mikroyapılı demir karbon alaşımlı döküm)		< 280 HB	> 840 ≤ 980	0.63
		K4.4			280 – 320 HB	> 980 ≤ 1130	0.54
		K4.5			320 – 360 HB	> 1130 ≤ 1280	0.45
	K5	K5.1	Sıkıştırılmış grafit demir CGI (ASTM A842) (kıvrımlı grafit yapılı demir karbon döküm)	Ferritik	< 180 HB	≤ 400	1.29
		K5.2		Ferritik-perlitik	180 – 220 HB	> 400 ≤ 450	0.97
		K5.3		Perlitik	220 – 260 HB	> 450 ≤ 500	0.75
N	N1	N1.1	Saf dövme alüminyum		< 60 HB	≤ 240	1.33
		N1.2	Dövme alüminyum alaşımları	Yarı sert tavlanmış	60 – 100 HB	> 240 ≤ 400	1.00
		N1.3		Tam sert tavlanmış	100 – 150 HB	> 400 ≤ 590	0.67
	N2	N2.1	Döküm alüminyum alaşımları		< 75 HB	≤ 240	0.67
		N2.2			75 – 90 HB	> 240 ≤ 270	0.60
		N2.3			90 – 140 HB	> 270 ≤ 440	0.43
	N3	N3.1	Kolay işlenebilir bakır alaşımları		–	–	0.70
		N3.2	Orta zorlukta işlenebilir, kısa talaş veren bakır alaşımları		–	–	0.41
		N3.3	Zor işlenebilir, uzun talaş veren bakır alaşımları		–	–	0.21
	N4	N4.1	Termoplastik polimerler		–	–	0.70
		N4.2	Termoset polimerler		–	–	0.27
		N4.3	Camelyaf polimer veya kompozitler		–	–	0.29
	N5	N5.1	Grafit		–	–	1.00
S	S1	S1.1	Titanyum ya da titanyum alaşımları		< 200 HB	≤ 660	1.94
		S1.2			200 – 280 HB	> 660 ≤ 950	1.72
		S1.3			280 – 360 HB	> 950 ≤ 1200	1.44
	S2	S2.1	Fe-bazlı sıcak iş alaşımları		< 200 HB	≤ 690	1.33
		S2.2			200 – 280 HB	> 690 ≤ 970	1.17
	S3	S3.1	Ni-bazlı sıcak iş alaşımları		< 280 HB	≤ 940	1.00
		S3.2			280 – 360 HB	> 940 ≤ 1200	0.83
	S4	S4.1	Co-bazlı sıcak iş alaşımları		< 240 HB	≤ 800	0.78
		S4.2			240 – 320 HB	> 800 ≤ 1070	0.67
H	H1	H1.1	Soğutulmuş dökme demir		< 440 HB	–	1.52
	H2	H2.1	Sertleştirilmiş dökme demir		< 55 HRC	–	0.90
		H2.2			> 55 HRC	–	0.77
	H3	H3.1	Sertleştirilmiş çelik < 55 HRC		< 51 HRC	–	1.00
		H3.2			51 – 55 HRC	–	0.82
	H4	H4.1	Sertleştirilmiş çelik > 55 HRC		55 – 59 HRC	–	0.64
		H4.2			> 59 HRC	–	0.54

SERTLİK ÇEVRİM TABLOSU

Dayanım (MPa)	Sertlik			
	BRINELL	VICKERS	ROCKWELL	ROCKWELL
R_m	HB	HV	HRB	HRC
285	86	**90**	1190	–
320	95	**100**	56.2	–
350	105	**110**	62.3	–
385	114	**120**	66.7	–
415	124	**130**	71.2	–
450	133	**140**	75.0	–
480	143	**150**	78.7	–
510	152	**160**	81.7	–
545	162	**170**	85.8	–
575	171	**180**	87.1	–
610	181	**190**	89.5	–
640	190	**200**	91.5	–
675	199	**210**	93.5	–
705	209	**220**	95	–
740	219	**230**	96.7	–
770	228	**240**	98.1	–
800	238	**250**	99.5	–
820	242	**255**	–	23.1
850	252	**265**	–	24.8
880	261	**275**	–	26.4
900	266	**280**	–	27.1
930	276	**290**	–	28.5
950	280	**295**	–	29.2
995	295	**310**	–	31.0
1030	304	**320**	–	32.2
1060	314	**330**	–	33.3
1095	323	**340**	–	34.4
1125	333	**350**	–	35.5
1155	342	**360**	–	36.6

Dayanım (MPa)	Sertlik			
	BRINELL	VICKERS	ROCKWELL	ROCKWELL
R_m	HB	HV	HRB	HRC
1190	352	**370**	–	37.7
1220	361	**380**	–	38.8
1255	371	**390**	–	39.8
1290	380	**400**	–	40.8
1320	390	**410**	–	41.8
1350	399	**420**	–	42.7
1385	409	**430**	–	43.6
1420	418	**440**	–	44.5
1455	428	**450**	–	45.3
1485	437	**460**	–	46.1
1520	447	**470**	–	46.9
1555	456	**480**	–	47.7
1595	466	**490**	–	48.4
1630	475	**500**	–	49.1
1665	485	**510**	–	49.8
1700	494	**520**	–	50.5
1740	504	**530**	–	51.1
1775	513	**540**	–	51.7
1810	523	**550**	–	52.3
1845	532	**560**	–	53.0
1880	542	**570**	–	53.6
1920	551	**580**	–	54.1
1955	561	**590**	–	54.7
1995	570	**600**	–	55.2
2030	580	**610**	–	55.7
2070	589	**620**	–	56.3
2105	599	**630**	–	56.8
2145	608	**640**	–	57.3
2180	618	**650**	–	57.8

SIMPLY RELIABLE

Profesyoneller sadece talaşa bakarak işin kalitesini eğerlendirebilir. Bizim talaşımız kendi öyküsünü anlatan pürüzsüz ve basit şekillidir. Açık ve istikrarlı işaretinden dolayı basitçe güvenilir olmak için sembolümüz olarak talaş **şeklini kullanıyoruz**.

DORMER PRAMET

www.dormerpramet.com

DP-CAT-INDEXMILL-2024-TR

FOLLOW US...

ONLINE

SEGMENTS

LIBRARY APP.

CALCULATOR APP.