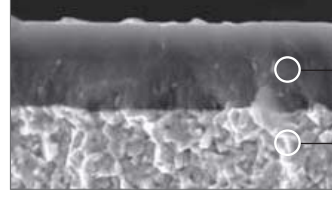


F I⁺ Endmill için Teknik Bilgi

HRC45 altındaki işparçası malzemesi için garanti edilmiş dengeli performans

I⁺ Endmill

- Tok içyapı ve aşınmaya dayanıklı kaplama teknolojisi uygulanmış
- Geniş uygulama aralığında genel kullanım içindir
 - 45 HRC altındaki işparçası malzemesi için garanti edilmiş dengeli performans
- Yüksek verimlilik ile maliyette kazanç



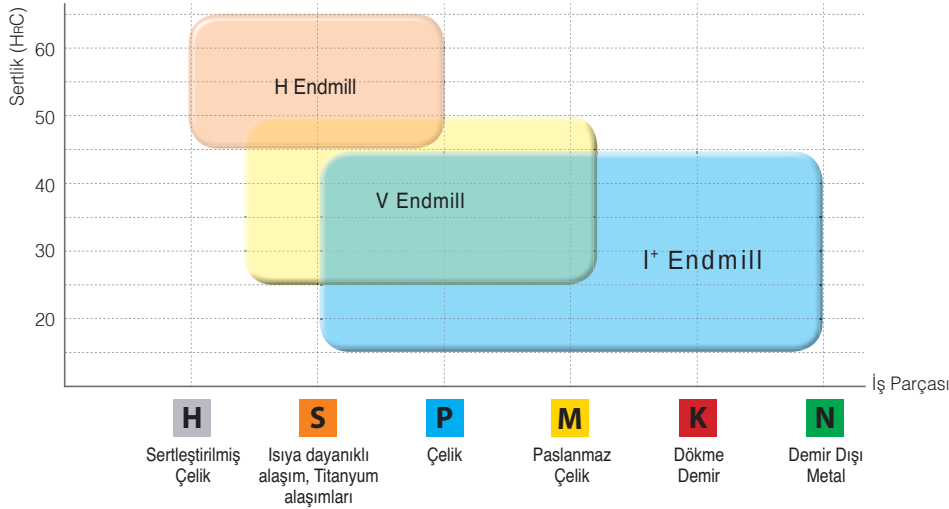
PC320

AlTiN Kaplama tabakası
1 µ tane büyüklüğünden küçük içyapı

Ürün çeşitliliği

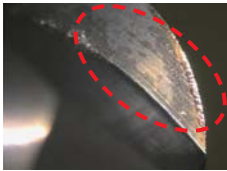
- IPBE: I Plus Küresel Parmak Frezeler (Ø1~Ø20)
- IPFE: I Plus Düz Parmak Frezeler (Ø1~Ø20)
- IPRE: I Plus Köşe Radyüslü Parmak (Ø1~Ø12)

Uygulama alanı

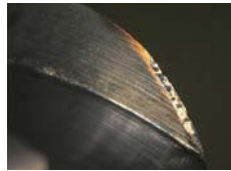


Performans değerlendirme

- İş Parçası SM45C
- Kesme koşulu Çap = Ø8.0, n (dak⁻¹) = 5.173, vc (m/dak) = 130.0, vf (mm/dak) = 1.034, fz (mm/diş) = 0.1, ap (mm) = 0.5, ae (mm) = 1.6, Kuru
- Takımlar IPBE2080-060



I⁺ Endmill

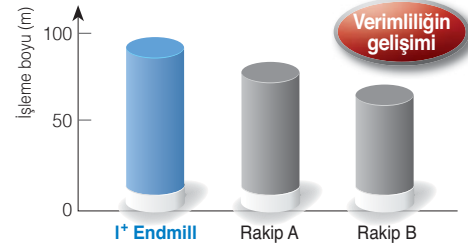


Rakip A



Rakip B

Test sonucu



F

Parmak Frezeler

30

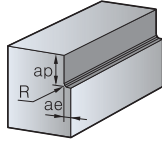
I⁺ Endmill için Teknik Bilgi F

Önerilen Kesme Koşulu (Düz)

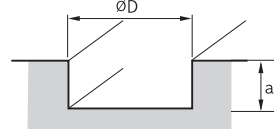
■ IPFE2000

Çap (ØD)	Karbon Çelik, Alaşımli Çelik~HRC30 (SM50C, SCM, GC250, Dökme Demir)			Alaşımli Çelik, Yüksek Hız Çelik HRC30~45 (Pre Sertleştirilmiş Çeliks, STD61, NAK)			Paslanmaz Çelik (STS304, STS316)		
	Devir n (dak ⁻¹)	İlerleme vf (mm/dak)		Devir n (dak ⁻¹)	İlerleme vf (mm/dak)		Devir n (dak ⁻¹)	İlerleme vf (mm/dak)	
		Dik kenar frezeleme	Kanal Açma		Dik kenar frezeleme	Kanal Açma		Dik kenar frezeleme	Kanal Açma
1.0	30,000	600	480	20,000	400	320	12,600	300	180
1.5	20,000	600	480	14,000	400	320	8,400	300	180
2.0	15,000	600	480	10,000	400	400	6,300	300	180
2.5	12,000	600	480	8,200	400	320	5,100	300	180
3.0	10,000	600	480	7,000	400	320	4,200	300	180
4.0	7,500	600	480	5,200	400	320	3,100	300	180
5.0	6,000	600	480	4,200	400	320	2,500	300	180
6.0	5,000	600	480	3,500	400	320	2,100	300	180
8.0	4,000	520	410	2,800	350	280	1,600	260	150
10.0	3,200	450	360	2,200	300	240	1,300	230	130
12.0	2,700	410	320	1,900	270	210	1,100	210	120
16.0	2,000	240	190	1,400	210	160	840	160	100
20.0	1,600	200	160	1,100	170	130	680	140	80

Uygulama



- Dik kenar frezeleme derinliği (ap) ve radyal derinlik (ae)
 - ap: ≤ 1.5 (Tüm çaplar)
 - ae: ≤ 0.1D (D ≤ Ø3) ≤ 0.2D (D > Ø3)

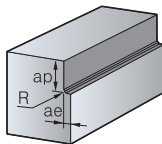


- Kanal İşleme Derinliği (ap)
 - ap: ≤ 0.1D (D ≤ Ø2) ≤ 0.2D (D > Ø2)

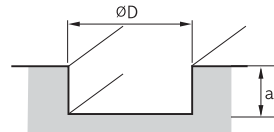
■ IPFE4000

Çap (ØD)	Karbon Çelik, Alaşımli Çelik~HRC30 (SM50C, SCM, GC250, Dökme Demir)			Alaşımli Çelik, Yüksek Hız Çelik HRC30~45 (Pre Sertleştirilmiş Çeliks, STD61, NAK)			Paslanmaz Çelik (STS304, STS316)		
	Devir n (dak ⁻¹)	İlerleme vf (mm/dak)		Devir n (dak ⁻¹)	İlerleme vf (mm/dak)		Devir n (dak ⁻¹)	İlerleme vf (mm/dak)	
		Dik kenar frezeleme	Kanal Açma		Dik kenar frezeleme	Kanal Açma		Dik kenar frezeleme	Kanal Açma
1.0	30,000	900	720	20,000	600	480	12,600	450	270
1.5	20,000	900	720	14,000	600	480	8,400	450	270
2.0	15,000	900	720	10,000	600	480	6,300	450	270
2.5	12,000	900	720	8,200	600	480	5,100	450	270
3.0	10,000	900	720	7,000	600	480	4,200	450	270
4.0	7,500	900	720	5,200	600	480	3,100	450	270
5.0	6,000	900	720	4,200	600	480	2,500	450	270
6.0	5,000	900	720	3,500	600	480	2,100	450	270
8.0	4,000	780	620	2,800	520	410	1,600	390	230
10.0	3,200	680	540	2,200	450	360	1,300	340	200
12.0	2,700	620	490	1,900	410	320	1,100	310	180
16.0	2,000	360	280	1,400	310	240	840	240	140
20.0	1,600	300	240	1,100	250	200	680	210	120

Uygulama



- Dik kenar frezeleme derinliği (ap) ve radyal derinlik (ae)
 - ap: ≤ 1.5 (Tüm çaplar)
 - ae: ≤ 0.1D (D ≤ Ø3) ≤ 0.2D (D > Ø3)



- Kanal İşleme Derinliği (ap)
 - ap: ≤ 0.1D (D ≤ Ø2) ≤ 0.2D (D > Ø2)

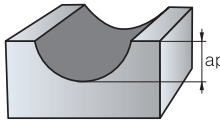
F I⁺ Endmill için Teknik Bilgi

Önerilen Kesme Koşulu (Küresel)

IPBE2000

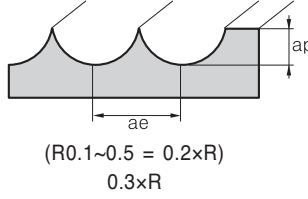
Çap (ØD)	Karbon Çelik (SM50C)		Alaşımli Çelik (SCM, STD, STS, KP4M, NAK)		Kalıp çeliği~HRC45 (STD61)		Demir-dışı metaller (Alüminyum)	
	Devir n (dak ⁻¹)	İlerleme vf (mm/dak)	Devir n (dak ⁻¹)	İlerleme vf (mm/dak)	Devir n (dak ⁻¹)	İlerleme vf (mm/dak)	Devir n (dak ⁻¹)	İlerleme vf (mm/dak)
1.0	40,000	1,200	38,000	1,200	29,000	900	40,000	1,000
1.5	30,000	1,270	25,500	1,100	19,000	700	40,000	1,360
2.0	24,000	1,160	19,000	800	14,300	600	40,000	2,000
2.5	19,000	1,000	15,300	670	11,500	510	38,000	2,400
3.0	16,000	930	13,000	600	9,600	460	32,000	2,400
3.5	13,700	930	11,400	580	8,200	450	27,300	2,400
4.0	12,000	930	10,000	570	7,200	450	24,000	2,400
5.0	9,600	930	8,000	560	5,700	450	19,000	2,400
6.0	8,000	930	6,400	540	4,800	450	16,000	2,400
8.0	6,000	900	4,800	540	3,600	450	12,000	2,400
10.0	4,800	900	3,800	540	2,900	450	9,600	2,300
12.0	4,000	900	3,200	540	2,400	450	8,000	2,100
14.0	3,400	900	2,750	540	2,050	450	6,800	2,000
16.0	3,000	900	2,400	540	1,800	450	6,000	2,000
20.0	2,400	900	1,900	520	1,450	450	4,800	2,000

Uygulama



Kanal İşleme Derinliği (ap)

- ap: 0.1xR (~45HRC)
- 0.08 xR (~50HRC)



Dik kenar frezeleme derinliği (ap) ve radyal derinlik (ae)

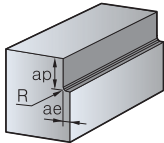
- ~0.16xR R ≤ 0.3 (~45HRC)
- ~0.25xR R ≤ 3 (~45HRC)
- ~0.17xR R ≤ 4 (~45HRC)
- ~0.05xR (~50HRC)

Önerilen Kesme Koşulu (Köşe Radyüslü)

IPRE2000

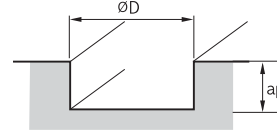
Çap (ØD)	Karbon Çelik, Alaşımli Çelik~HRC30 (SM50C, SCM, GC250, Dökme Demir)			Alaşımli Çelik, Yüksek Hız Çelik HRC30~45 (Pre Sertleştirilmiş Çeliks, STD61, NAK)			Paslanmaz Çelik (STS304, STS316)		
	Devir n (dak ⁻¹)	İlerleme vf (mm/dak)		Devir n (dak ⁻¹)	İlerleme vf (mm/dak)		Devir n (dak ⁻¹)	İlerleme vf (mm/dak)	
		Dik kenar frezeleme	Kanal Açma		Dik kenar frezeleme	Kanal Açma		Dik kenar frezeleme	Kanal Açma
2.0	11,000	180	180	7,200	110	110	6,000	90	90
3.0	8,500	200	160	5,300	130	100	4,400	110	66
4.0	7,200	360	290	4,400	220	180	3,000	180	110
5.0	6,000	380	300	3,600	230	180	2,400	190	110
6.0	5,300	420	340	3,200	240	190	2,200	210	130
8.0	4,000	450	360	2,400	240	190	1,600	220	130
10.0	3,200	390	310	1,900	190	150	1,300	190	110
12.0	2,700	330	260	1,600	160	130	1,000	150	90

Uygulama



Dik kenar frezeleme derinliği (ap) ve radyal derinlik (ae)

- ap: ≤ 1.5D
- ap: ≤ 0.1D



Kanal İşleme Derinliği (ap)

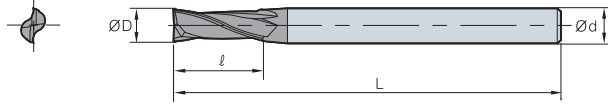
- ap: ≤ 0.3D



F Parmak Frezeler



IPFE2000 (Düz)



ØD	Tolerans
Ø1~Ø12	0.00~-0.02
Ø12.1~Ø20	0.00~-0.03



(mm)

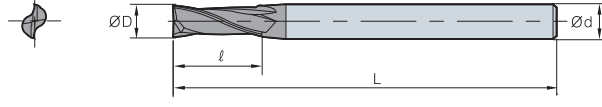
Kod	ØD	Ød	ℓ	L
IPFE				
2010-050-S3	1	3	3	50
2010-050-S4	1	4	3	50
2010-050	1	6	3	50
2015-050-S3	1.5	3	4	50
2015-050-S4	1.5	4	4	50
2015-050	1.5	6	4	50
2020-050-S3	2	3	6	50
2020-050-S4	2	4	6	50
2020-050	2	6	6	50
2025-050-S3	2.5	3	8	50
2025-050-S4	2.5	4	8	50
2025-050	2.5	6	8	50
2030-050-S3	3	3	8	50
2030-050-S4	3	4	8	50
2030-050	3	6	8	50
2035-050-S4	3.5	4	10	50
2035-050	3.5	6	10	50
2040-050-S4	4	4	11	50
2040-050	4	6	11	50
2045-050	4.5	6	13	50
2050-050	5	6	13	50
2055-050	5.5	6	13	50
2060-050	6	6	16	50
2065-060	6.5	8	16	60
2070-060	7	8	16	60
2075-060	7.5	8	19	60
2080-060	8	8	20	60
2085-075	8.5	10	20	75
2090-075	9	10	20	75
2095-075	9.5	10	25	75
2100-075	10	10	25	75
2105-075	10.5	12	25	75
2110-075	11	12	30	75
2115-075	11.5	12	30	75
2120-075	12	12	32	75
2140-100	14	16	40	100
2160-100	16	16	40	100
2180-100	18	20	45	100
2200-100	20	20	45	100





F I⁺ Endmill

IPLFE2000 (Uzun Düz)



ØD	Tolerans
Ø1~Ø12	0.00~ -0.02
Ø12.1~Ø20	0.00~ -0.03



Uzun Şaft Tip

(mm)

Kod	ØD	Ød	ℓ	L
IPLFE 2060-075	6	6	16	75
2060-100	6	6	16	100
2080-075	8	8	20	75
2080-100	8	8	20	100
2100-100	10	10	25	100
2100-150	10	10	25	150
2120-100	12	12	32	100
2120-150	12	12	32	150

Uzun Kanal Tip

(mm)

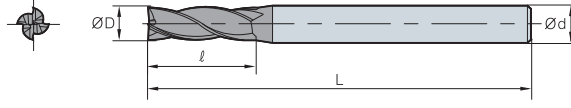
Kod	ØD	Ød	ℓ	L
IPLFE 2010-050-V7S4	1	4	7	50
2015-050-V9S4	1.5	4	9	50
2020-050-V12S4	2	4	12	50
2025-050-V12S4	2.5	4	12	50
2030-060-V15S6	3	6	15	60
2035-060-V15S6	3.5	6	15	60
2040-075-V20S6	4	6	20	75
2045-075-V20S6	4.5	6	20	75
2050-075-V25S6	5	6	25	75
2055-075-V25S6	5.5	6	25	75
2060-075-V30S6	6	6	30	75
2070-100-V30S8	7	8	30	100
2080-100-V40S8	8	8	40	100
2090-100-V40S10	9	10	40	100
2100-100-V40S10	10	10	40	100
2110-100-V40S12	11	12	40	100
2120-100-V50S12	12	12	50	100
2140-150-V50S16	14	16	50	150
2160-150-V60S16	16	16	60	150
2200-200-V90S20	20	20	90	200



F Parmak Frezeler



IPFE4000 (Düz)



ØD	Tolerans
Ø1~Ø12	0.00~ -0.02
Ø12.1~Ø20	0.00~ -0.03



(mm)

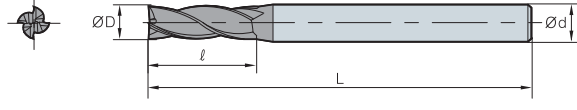
Kod	ØD	Ød	l	L
IPFE				
4010-050-S3	1	3	3	50
4010-050-S4	1	4	3	50
4010-050	1	6	3	50
4015-050-S3	1.5	3	4	50
4015-050-S4	1.5	4	4	50
4015-050	1.5	6	4	50
4020-050-S3	2	3	6	50
4020-050-S4	2	4	6	50
4020-050	2	6	6	50
4025-050-S3	2.5	3	8	50
4025-050-S4	2.5	4	8	50
4025-050	2.5	6	8	50
4030-050-S3	3	3	8	50
4030-050-S4	3	4	8	50
4030-050	3	6	8	50
4035-050-S4	3.5	4	10	50
4035-050	3.5	6	10	50
4040-050-S4	4	4	11	50
4040-050	4	6	11	50
4045-050	4.5	6	13	50
4050-050	5	6	13	50
4055-050	5.5	6	13	50
4060-050	6	6	16	50
4065-060	6.5	8	16	60
4070-060	7	8	16	60
4075-060	7.5	8	19	60
4080-060	8	8	20	60
4085-075	8.5	10	20	75
4090-075	9	10	20	75
4095-075	9.5	10	25	75
4100-075	10	10	30	75
4105-075	10.5	12	30	75
4110-075	11	12	30	75
4115-075	11.5	12	30	75
4120-075	12	12	32	75
4140-100	14	16	40	100
4160-100	16	16	40	100
4180-100	18	20	45	100
4200-100	20	20	45	100





F I⁺ Endmill

IPLFE4000 (Uzun Düz)



ØD	Tolerans
Ø1~Ø12	0.00~-0.02
Ø12.1~Ø20	0.00~-0.03



Uzun Şaft Tip

(mm)

Kod	ØD	Ød	l	L
IPLFE 4060-075	6	6	16	75
4060-100	6	6	16	100
4080-075	8	8	20	75
4080-100	8	8	20	100
4100-100	10	10	30	100
4100-150	10	10	30	150
4120-100	12	12	32	100
4120-150	12	12	32	150

Uzun Kanal Tip

(mm)

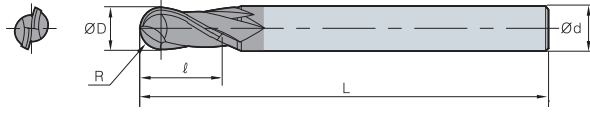
Kod	ØD	Ød	l	L
IPLFE 4010-050-V6S4	1	4	6	50
4015-050-V9S4	1.5	4	9	50
4020-050-V12S4	2	4	12	50
4025-050-V12S4	2.5	4	12	50
4030-060-V15S6	3	6	15	60
4035-060-V15S6	3.5	6	15	60
4040-075-V20S6	4	6	20	75
4045-075-V20S6	4.5	6	20	75
4050-075-V25S6	5	6	25	75
4055-075-V25S6	5.5	6	25	75
4060-075-V30S6	6	6	30	75
4070-100-V30S8	7	8	30	100
4080-100-V40S8	8	8	40	100
4090-100-V40S10	9	10	40	100
4100-100-V40S10	10	10	40	100
4110-100-V40S12	11	12	40	100
4120-100-V50S12	12	12	50	100
4140-150-V50S16	14	16	50	150
4160-150-V60S16	16	16	60	150
4200-200-V90S20	20	20	90	200



F Parmak Frezeler



IPBE2000 (Küresel)



ØD	Tolerans
Ø1~Ø12	0.00~-0.02
Ø12.1~Ø20	0.00~-0.03



(mm)

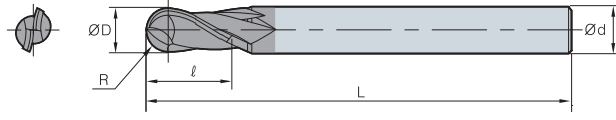
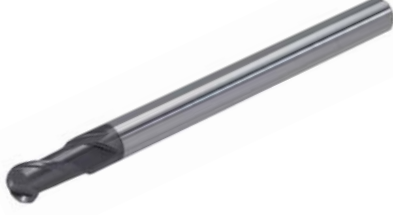
Kod	R	ØD	Ød	l	L
IPBE					
2010-050-S3	0.5	1	3	2	50
2010-050-S4	0.5	1	4	2	50
2010-050	0.5	1	6	2	50
2015-050-S3	0.75	1.5	3	3	50
2015-050-S4	0.75	1.5	4	3	50
2015-050	0.75	1.5	6	3	50
2020-050-S3	1	2	3	4	50
2020-050-S4	1	2	4	4	50
2020-050	1	2	6	4	50
2025-050-S3	1.25	2.5	3	5	50
2025-050-S4	1.25	2.5	4	5	50
2025-050	1.25	2.5	6	5	50
2030-050-S3	1.5	3	3	6	50
2030-050-S4	1.5	3	4	6	50
2030-050	1.5	3	6	6	50
2035-050-S4	1.75	3.5	4	7	50
2035-050	1.75	3.5	6	7	50
2040-050-S4	2	4	4	8	50
2040-050	2	4	6	8	50
2045-050	2.25	4.5	6	9	50
2050-050	2.5	5	6	10	50
2060-050	3	6	6	12	50
2070-060	3.5	7	8	14	60
2080-060	4	8	8	16	60
2090-075	4.5	9	10	18	75
2100-075	5	10	10	20	75
2120-075	6	12	12	24	75
2140-100	7	14	16	28	100
2160-100	8	16	16	32	100
2180-100	9	18	20	36	100
2200-100	10	20	20	40	100





F I⁺ Endmill

IPLBE2000 (Uzun Küresel)



ØD	Tolerans
Ø1~Ø12	0.00~ -0.02
Ø12.1~Ø16	0.00~ -0.03



(mm)

Kod	R	ØD	Ød	l	L
IPLBE					
2010-075	0.5	1	6	2	75
2010-100	0.5	1	6	2	100
2015-075	0.75	1.5	6	3	75
2015-100	0.75	1.5	6	3	100
2020-075	1	2	6	4	75
2020-100	1	2	6	4	100
2025-075	1.25	2.5	6	5	75
2025-100	1.25	2.5	6	5	100
2030-075	1.5	3	6	6	75
2030-100	1.5	3	6	6	100
2035-100	1.75	3.5	6	7	100
2040-075	2	4	6	8	75
2040-100	2	4	6	8	100
2050-075	2.5	5	6	10	75
2050-100	2.5	5	6	10	100
2060-075	3	6	6	12	75
2060-100	3	6	6	12	100
2060-150	3	6	6	12	150
2080-075	4	8	8	16	75
2080-100	4	8	8	16	100
2080-150	4	8	8	16	150
2100-100	5	10	10	20	100
2100-150	5	10	10	20	150
2100-200	5	10	10	20	200
2120-100	6	12	12	24	100
2120-150	6	12	12	24	150
2120-200	6	12	12	24	200
2160-150	8	16	16	32	150
2160-200	8	16	16	32	200

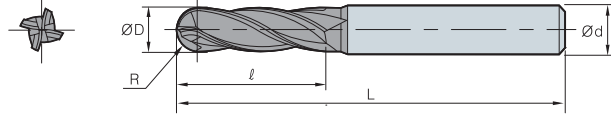


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IPBE4000 (Küresel)



ØD	Tolerans
Ø1~Ø12	0.00~ -0.02
Ø12.1~Ø20	0.00~ -0.03



(mm)

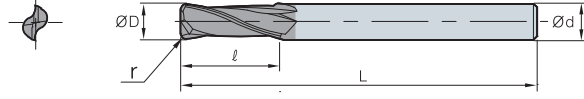
Kod	R	ØD	Ød	l	L
IPBE					
4010-050-S4	0.5	1	4	2	50
4010-050	0.5	1	6	2	50
4015-050-S4	0.75	1.5	4	3	50
4015-050	0.75	1.5	6	3	50
4020-050-S4	1	2	4	4	50
4020-050	1	2	6	4	50
4025-050-S4	1.25	2.5	4	5	50
4025-050	1.25	2.5	6	5	50
4030-050-S3	1.5	3	3	6	50
4030-050-S4	1.5	3	4	6	50
4030-050	1.5	3	6	6	50
4035-050-S4	1.75	3.5	4	7	50
4035-050	1.75	3.5	6	7	50
4040-050-S4	2	4	4	8	50
4040-050	2	4	6	8	50
4045-050	2.25	4.5	6	9	50
4050-050	2.5	5	6	10	50
4060-050	3	6	6	12	50
4070-060	3.5	7	8	14	60
4080-060	4	8	8	16	60
4090-075	4.5	9	10	18	75
4100-075	5	10	10	20	75
4120-075	6	12	12	24	75
4140-100	7	14	16	28	100
4160-100	8	16	16	32	100
4180-100	9	18	20	36	100
4200-100	10	20	20	40	100





F I⁺ Endmill

IPRE2000 (Köşe Radyüslü)



ØD	Tolerans
Ø1~Ø12	0.00~-0.02



(mm)

Kod	ØD	Ød	l	L	r
IPRE					
2010-050-R01	1	4	3	50	0.1
2010-050-R02	1	4	3	50	0.2
2010-050-R03	1	4	3	50	0.3
2015-050-R02	1.5	4	4	50	0.2
2015-050-R03	1.5	4	4	50	0.3
2020-050-R02	2	4	6	50	0.2
2020-050-R03	2	4	6	50	0.3
2020-050-R05	2	4	6	50	0.5
2025-050-R02	2.5	4	8	50	0.2
2030-050-R02-S3	3	3	8	50	0.2
2030-050-R03-S3	3	3	8	50	0.3
2030-050-R05-S3	3	3	8	50	0.5
2030-050-R10-S3	3	3	8	50	1
2030-050-R02	3	4	8	50	0.2
2030-050-R03	3	4	8	50	0.3
2030-050-R05	3	4	8	50	0.5
2030-050-R10	3	4	8	50	1
2040-050-R02	4	4	10	50	0.2
2040-050-R03	4	4	10	50	0.3
2040-050-R05	4	4	10	50	0.5
2040-050-R10	4	4	10	50	1
2040-050-R15	4	4	10	50	1.5
2050-050-R02	5	6	13	50	0.2
2050-050-R03	5	6	13	50	0.3
2050-050-R05	5	6	13	50	0.5
2050-050-R10	5	6	13	50	1
2060-050-R02	6	6	15	50	0.2
2060-050-R03	6	6	15	50	0.3
2060-050-R05	6	6	15	50	0.5
2060-050-R10	6	6	15	50	1
2060-050-R15	6	6	15	50	1.5
2060-050-R20	6	6	15	50	2



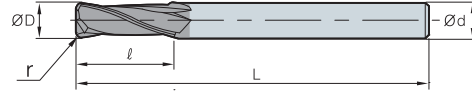
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IPRE2000 (Köşe Radyüslü)



ØD	Tolerans
Ø1~Ø12	0.00~-0.02



(mm)

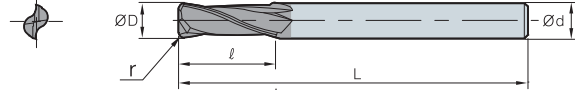
Kod	ØD	Ød	l	L	r
IPRE 2080-060-R03	8	8	20	60	0.3
2080-060-R05	8	8	20	60	0.5
2080-060-R10	8	8	20	60	1
2080-060-R15	8	8	20	60	1.5
2080-060-R20	8	8	20	60	2
2080-060-R25	8	8	20	60	2.5
2080-060-R30	8	8	20	60	3
2100-075-R03	10	10	25	75	0.3
2100-075-R05	10	10	25	75	0.5
2100-075-R10	10	10	25	75	1
2100-075-R15	10	10	25	75	1.5
2100-075-R20	10	10	25	75	2
2100-075-R25	10	10	25	75	2.5
2100-075-R30	10	10	25	75	3
2120-075-R03	12	12	30	75	0.3
2120-075-R05	12	12	30	75	0.5
2120-075-R10	12	12	30	75	1
2120-075-R15	12	12	30	75	1.5
2120-075-R20	12	12	30	75	2
2120-075-R25	12	12	30	75	2.5
2120-075-R30	12	12	30	75	3





F I⁺ Endmill

IPLRE2000 (Uzun Köşe Radyüslü)



ØD	Tolerans
Ø3-Ø12	0.00~ -0.02



(mm)

Kod	ØD	Ød	l	L	r
IPLRE					
2030-075-R03	3	3	8	75	0.3
2030-075-R05	3	3	8	75	0.5
2030-075-R10	3	3	8	75	1
2040-075-R03	4	4	10	75	0.3
2040-075-R05	4	4	10	75	0.5
2040-075-R10	4	4	10	75	1
2040-075-R15	4	4	10	75	1.5
2060-100-R03	6	6	15	100	0.3
2060-100-R05	6	6	15	100	0.5
2060-100-R10	6	6	15	100	1
2060-100-R15	6	6	15	100	1.5
2060-100-R20	6	6	15	100	2
2080-100-R03	8	8	20	100	0.3
2080-100-R05	8	8	20	100	0.5
2080-100-R10	8	8	20	100	1
2080-100-R15	8	8	20	100	1.5
2080-100-R20	8	8	20	100	2
2080-100-R25	8	8	20	100	2.5
2080-100-R30	8	8	20	100	3
2100-100-R03	10	10	25	100	0.3
2100-100-R05	10	10	25	100	0.5
2100-100-R10	10	10	25	100	1
2100-100-R15	10	10	25	100	1.5
2100-100-R20	10	10	25	100	2
2100-100-R25	10	10	25	100	2.5
2100-100-R30	10	10	25	100	3
2120-100-R03	12	12	30	100	0.3
2120-100-R05	12	12	30	100	0.5
2120-100-R10	12	12	30	100	1
2120-100-R15	12	12	30	100	1.5
2120-100-R20	12	12	30	100	2
2120-100-R25	12	12	30	100	2.5
2120-100-R30	12	12	30	100	3



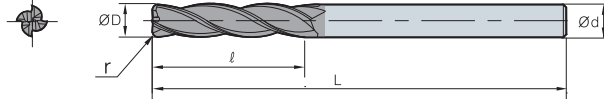
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IPRE4000 (Köşe Radyüslü)



ØD	Tolerans
Ø2~Ø12	0.00~ -0.02



(mm)

Kod	ØD	Ød	l	L	r
IPRE					
4020-050-R02	2	4	6	50	0.2
4020-050-R03	2	4	6	50	0.3
4020-050-R05	2	4	6	50	0.5
4025-050-R02	2.5	4	8	50	0.2
4030-050-R02-S3	3	3	8	50	0.2
4030-050-R03-S3	3	3	8	50	0.3
4030-050-R05-S3	3	3	8	50	0.5
4030-050-R10-S3	3	3	8	50	1
4030-050-R02	3	4	8	50	0.2
4030-050-R03	3	4	8	50	0.3
4030-050-R05	3	4	8	50	0.5
4030-050-R10	3	4	8	50	1
4040-050-R02	4	4	10	50	0.2
4040-050-R03	4	4	10	50	0.3
4040-050-R05	4	4	10	50	0.5
4040-050-R10	4	4	10	50	1
4040-050-R15	4	4	10	50	1.5
4050-050-R02	5	6	13	50	0.2
4050-050-R03	5	6	13	50	0.3
4050-050-R05	5	6	13	50	0.5
4050-050-R10	5	6	13	50	1
4060-050-R02	6	6	15	50	0.2
4060-050-R03	6	6	15	50	0.3
4060-050-R05	6	6	15	50	0.5
4060-050-R10	6	6	15	50	1
4060-050-R15	6	6	15	50	1.5
4060-050-R20	6	6	15	50	2
4080-060-R03	8	8	20	60	0.3
4080-060-R05	8	8	20	60	0.5
4080-060-R10	8	8	20	60	1
4080-060-R15	8	8	20	60	1.5
4080-060-R20	8	8	20	60	2
4080-060-R25	8	8	20	60	2.5
4080-060-R30	8	8	20	60	3
4100-075-R03	10	10	25	75	0.3
4100-075-R05	10	10	25	75	0.5
4100-075-R10	10	10	25	75	1
4100-075-R15	10	10	25	75	1.5
4100-075-R20	10	10	25	75	2
4100-075-R25	10	10	25	75	2.5
4100-075-R30	10	10	25	75	3
4120-075-R03	12	12	30	75	0.3
4120-075-R05	12	12	30	75	0.5
4120-075-R10	12	12	30	75	1
4120-075-R15	12	12	30	75	1.5
4120-075-R20	12	12	30	75	2
4120-075-R25	12	12	30	75	2.5
4120-075-R30	12	12	30	75	3

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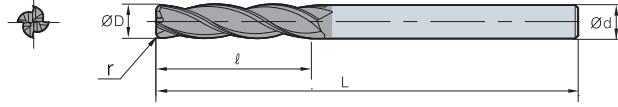
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F I⁺ Endmill

IPLRE4000 (Uzun Köşe Radyüslü)



ØD	Tolerans
Ø3-Ø12	0.00~-0.02



(mm)

Kod	ØD	Ød	l	L	r
IPLRE					
4030-075-R03	3	3	8	75	0.3
4030-075-R05	3	3	8	75	0.5
4030-075-R10	3	3	8	75	1
4040-075-R03	4	4	10	75	0.3
4040-075-R05	4	4	10	75	0.5
4040-075-R10	4	4	10	75	1
4040-075-R15	4	4	10	75	1.5
4060-100-R03	6	6	15	100	0.3
4060-100-R05	6	6	15	100	0.5
4060-100-R10	6	6	15	100	1
4060-100-R15	6	6	15	100	1.5
4060-100-R20	6	6	15	100	2
4080-100-R03	8	8	20	100	0.3
4080-100-R05	8	8	20	100	0.5
4080-100-R10	8	8	20	100	1
4080-100-R15	8	8	20	100	1.5
4080-100-R20	8	8	20	100	2
4080-100-R25	8	8	20	100	2.5
4080-100-R30	8	8	20	100	3
4100-100-R03	10	10	25	100	0.3
4100-100-R05	10	10	25	100	0.5
4100-100-R10	10	10	25	100	1
4100-100-R15	10	10	25	100	1.5
4100-100-R20	10	10	25	100	2
4100-100-R25	10	10	25	100	2.5
4100-100-R30	10	10	25	100	3
4120-100-R03	12	12	30	100	0.3
4120-100-R05	12	12	30	100	0.5
4120-100-R10	12	12	30	100	1
4120-100-R15	12	12	30	100	1.5
4120-100-R20	12	12	30	100	2
4120-100-R25	12	12	30	100	2.5
4120-100-R30	12	12	30	100	3



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