

boehlerit

Takma Uçlu Matkaplar Indexable Drills



Kodlama Designation	BT	ID	2	130	20	T2	5
No	1	2	3	4	5	6	7

- 1 BT : Boehlerit Türkiye
Boehlerit Turkey
- 2 ID : Takma Uçlu Matkap
Indexable Drill
- 3 2 : Delme Derinliği
Drilling Depth
- 4 130 : Matkap Çapı
Tool Diameter
- 5 20 : Şaft Çapı / Weldon Ölçüsü
Shank Diameter / Weldon Dimension
- 6 T2 : Ağız Sayısı
Number of Teeth
- 7 05 : Uç Ölçüsü
Insert Size

Takma Uçlu Matkap
Indexable Drill

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Şaft tipi: Weldon
Shank type: Weldon

Flanş
Flange

Matkap Tipi: 2xD - 3xD - 4xD - 5xD
Drill Type: 2xD - 3xD - 4xD - 5xD

Matkap Çapı: Ø13 - 40 mm
Drill Diameter: Ø13 - 40 mm

Matkap Boyu
Drill Length

Delme Derinliği
Drilling Depth

Uçlar: SPGX 05-06-07-09-11
Inserts: SPGX 05-06-07-09-11

Kalite: BTCK10D - BTCK30D
Grade: BTCK10D - BTCK30D

Geometri
Geometry

Teknik Avantajlar:

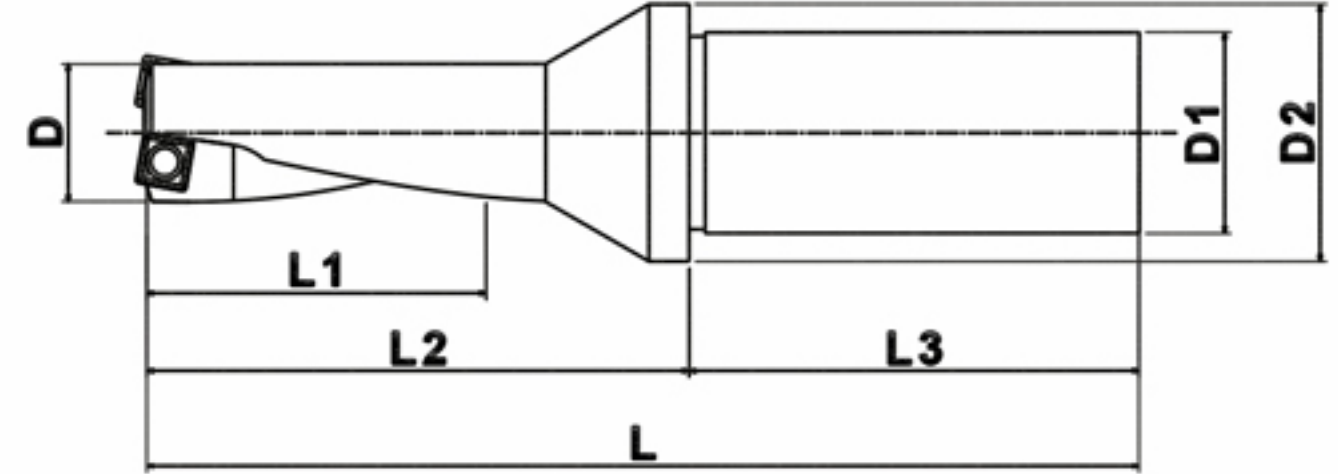
- Yüksek Kesme hızları ve ilerleme değeri
- Yüksek talaş kaldırma oranı ve üretkenlik
- 4 kesme kenarına sahip değiştirilebilir ekonomik uçlar
- Maksimum işlem güvenilirliği
- Tüm malzeme grupları için uygunluk
- İdeal talaş tahliye kanalı ile rahat talaş atımı
- Yüzey kalitesi ve delik çapı hassasiyeti
- Ni kaplama ile uzun takım ömrü
- 2xD-3xD-4xD-5xD delme derinlikleri
- Yumuşak ve sert malzemeler için farklı uç kaliteleri

Technical Advantages:

- High cutting speed and feed rate
- High chip volume and productivity
- Economic indexable inserts with 4 cutting edges
- Maximum safety
- Availability for wide range of material
- Optimum chip removal channel for easy chip transport
- Surface quality and bore precision
- Long tool life with Ni coating
- 2xD-3xD-4xD-5xD depth of drill
- Different grades for soft and hard material

Takma Uçlu Matkaplar Indexable Drills
Delme Derinliği 2 x Çap Drilling Depth 2 x Diameter

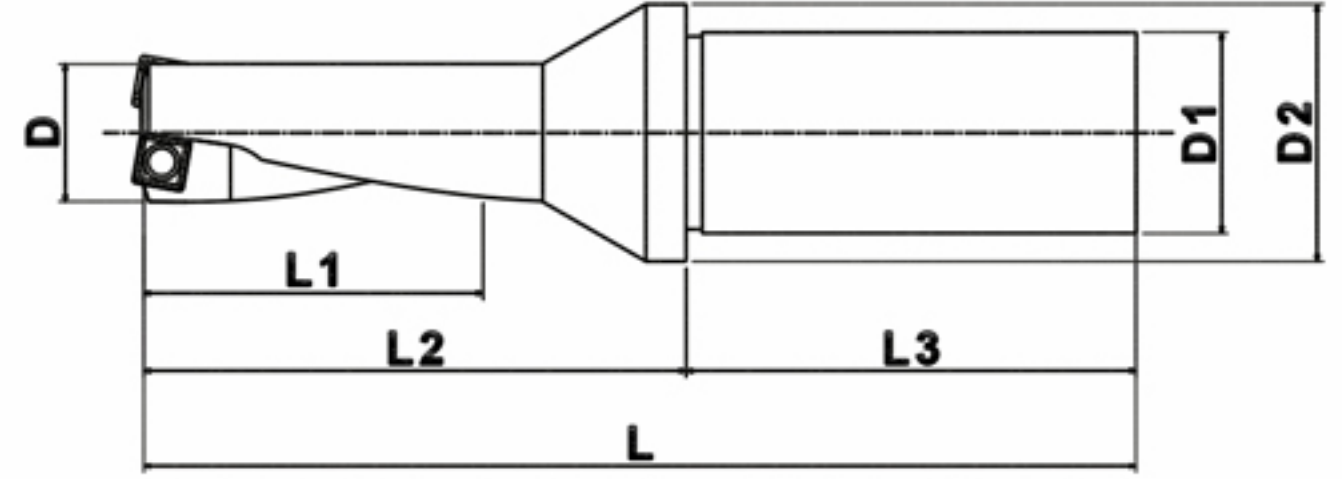
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Ürün Kodu Product Code	Ölçüler (mm) Dimensions in (mm)							Kullanılan Uç Suitable Insert
	D	D1	D2	L1	L2	L3	L	
BTID 2130-20T2-05	13,0	20	24	26	44	50	94	SPGX 050204
BTID 2135-20T2-05	13,5	20	24	27	45	50	95	
BTID 2140-20T2-05	14,0	20	24	28	46	50	96	
BTID 2145-20T2-05	14,5	20	24	29	47	50	97	
BTID 2150-20T2-05	15,0	20	24	30	48	50	98	
BTID 2155-20T2-05	15,5	20	24	31	49	50	99	
BTID 2160-25T2-06	16,0	25	31	32	53	56	109	SPGX 060204
BTID 2165-25T2-06	16,5	25	31	33	54	56	110	
BTID 2170-25T2-06	17,0	25	31	34	55	56	111	
BTID 2175-25T2-06	17,5	25	31	35	56	56	112	
BTID 2180-25T2-06	18,0	25	31	36	57	56	113	
BTID 2185-25T2-06	18,5	25	31	37	58	56	114	
BTID 2190-25T2-06	19,0	25	31	38	59	56	115	
BTID 2195-25T2-06	19,5	25	31	39	60	56	116	
BTID 2200-25T2-06	20,0	25	31	40	62	56	118	
BTID 2205-25T2-06	20,5	25	31	41	63	56	119	
BTID 2210-25T2-06	21,0	25	31	42	64	56	120	
BTID 2220-32T2-07	22,0	32	44	44	74	60	134	SPGX 07T308
BTID 2230-32T2-07	23,0	32	44	46	76	60	136	
BTID 2235-32T2-07	23,5	32	44	47	77	60	137	
BTID 2240-32T2-07	24,0	32	44	48	78	60	138	
BTID 2245-32T2-07	24,5	32	44	49	79	60	139	
BTID 2250-32T2-07	25,0	32	44	50	80	60	140	
BTID 2260-32T2-07	26,0	32	44	52	82	60	142	
BTID 2265-32T2-07	26,5	32	44	53	83	60	143	
BTID 2270-32T2-07	27,0	32	44	54	84	60	144	
BTID 2280-32T2-09	28,0	32	44	56	86	60	146	SPGX 090408
BTID 2290-32T2-09	29,0	32	44	58	88	60	148	
BTID 2300-32T2-09	30,0	32	54	60	91	60	151	
BTID 2310-32T2-09	31,0	32	54	62	93	60	153	
BTID 2320-32T2-09	32,0	32	54	64	95	60	155	
BTID 2330-32T2-09	33,0	32	54	66	97	60	157	
BTID 2340-32T2-11	34,0	32	54	68	99	60	159	SPGX 110408
BTID 2350-32T2-11	35,0	32	54	70	101	60	161	
BTID 2360-32T2-11	36,0	32	54	72	103	60	163	
BTID 2370-32T2-11	37,0	32	54	74	105	60	165	
BTID 2380-32T2-11	38,0	32	54	76	107	60	167	
BTID 2390-32T2-11	39,0	32	54	78	109	60	169	
BTID 2395-32T2-11	39,5	32	54	79	110	60	170	
BTID 2400-32T2-11	40,0	32	54	80	111	60	171	

Takma Uçlu Matkaplar Indexable Drills
Delme Derinliği 3 x Çap Drilling Depth 3 x Diameter

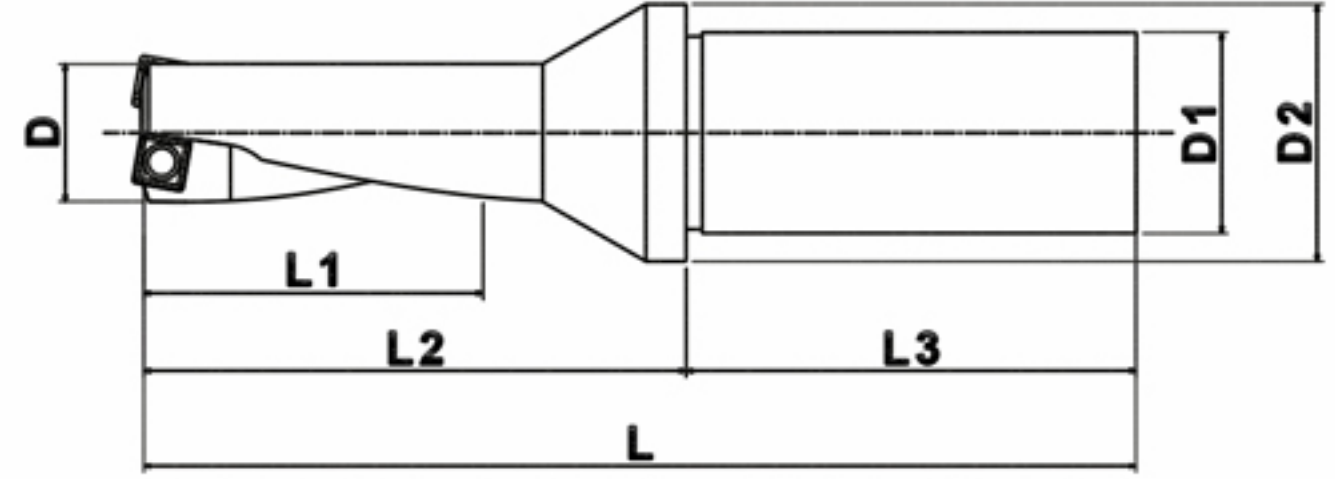
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Ürün Kodu Product Code	Ölçüler (mm) Dimensions in (mm)							Kullanılan Uç Suitable Insert
	D	D1	D2	L1	L2	L3	L	
BTID 3130-20T2-05	13,0	20	25	39	57	50	107	SPGX 050204
BTID 3135-20T2-05	13,5	20	25	40,5	58,5	50	109	
BTID 3140-20T2-05	14,0	20	25	42	60	50	110	
BTID 3145-20T2-05	14,5	20	25	43,5	61,5	50	111,5	
BTID 3150-20T2-05	15,0	20	25	45	63	50	113	
BTID 3155-20T2-05	15,5	20	25	46,5	64,5	50	114,5	
BTID 3160-25T2-06	16,0	25	32	48	69	56	125	SPGX 060204
BTID 3165-25T2-06	16,5	25	32	50	70,5	56	126,5	
BTID 3170-25T2-06	17,0	25	32	51	72	56	128	
BTID 3175-25T2-06	17,5	25	32	52,5	73,5	56	129,5	
BTID 3180-25T2-06	18,0	25	32	54	75	56	131	
BTID 3185-25T2-06	18,5	25	32	55,5	76,5	56	132,5	
BTID 3190-25T2-06	19,0	25	32	57	78	56	134	
BTID 3195-25T2-06	19,5	25	32	58,5	79,5	56	135,5	
BTID 3200-25T2-06	20,0	25	32	60	82	56	138	
BTID 3205-25T2-06	20,5	25	32	61,5	83,5	56	139,5	
BTID 3210-25T2-06	21,0	25	32	63	85	56	141	
BTID 3220-32T2-07	22,0	32	44	66	96	60	156	SPGX 07T308
BTID 3225-32T2-07	22,5	32	44	67,5	97,5	60	157,5	
BTID 3230-32T2-07	23,0	32	44	69	99	60	159	
BTID 3235-32T2-07	23,5	32	44	71	101	60	160	
BTID 3240-32T2-07	24,0	32	44	72	102	60	162	
BTID 3245-32T2-07	24,5	32	44	73,5	103,5	60	163,5	
BTID 3250-32T2-07	25,0	32	44	75	105	60	165	
BTID 3260-32T2-07	26,0	32	44	78	108	60	168	
BTID 3265-32T2-07	26,5	32	44	79,5	109,5	60	169,5	
BTID 3270-32T2-07	27,0	32	44	81	111	60	171	
BTID 3280-32T2-09	28,0	32	44	84	114	60	174	SPGX 090408
BTID 3290-32T2-09	29,0	32	44	87	117	60	177	
BTID 3295-32T2-09	29,5	32	54	88,5	118,5	60	178,5	
BTID 3300-32T2-09	30,0	32	54	90	121	60	181	
BTID 3310-32T2-09	31,0	32	54	93	124	60	184	
BTID 3320-32T2-09	32,0	32	54	96	127	60	187	
BTID 3330-32T2-09	33,0	32	54	99	130	60	190	
BTID 3340-32T2-11	34,0	32	54	102	136	60	196	SPGX 110408
BTID 3350-32T2-11	35,0	32	54	105	140	60	200	
BTID 3360-32T2-11	36,0	32	54	108	144	60	204	
BTID 3370-40T2-11	37,0	40	54	111	148	70	218	
BTID 3380-40T2-11	38,0	40	54	114	152	70	222	
BTID 3390-40T2-11	39,0	40	54	117	156	70	226	
BTID 3395-40T2-11	39,5	40	54	118,5	158,0	70	230	
BTID 3400-40T2-11	40,0	40	54	120	160	70	230	

Takma Uçlu Matkaplar Indexable Drills
Delme Derinliği 4 x Çap Drilling Depth 4 x Diameter

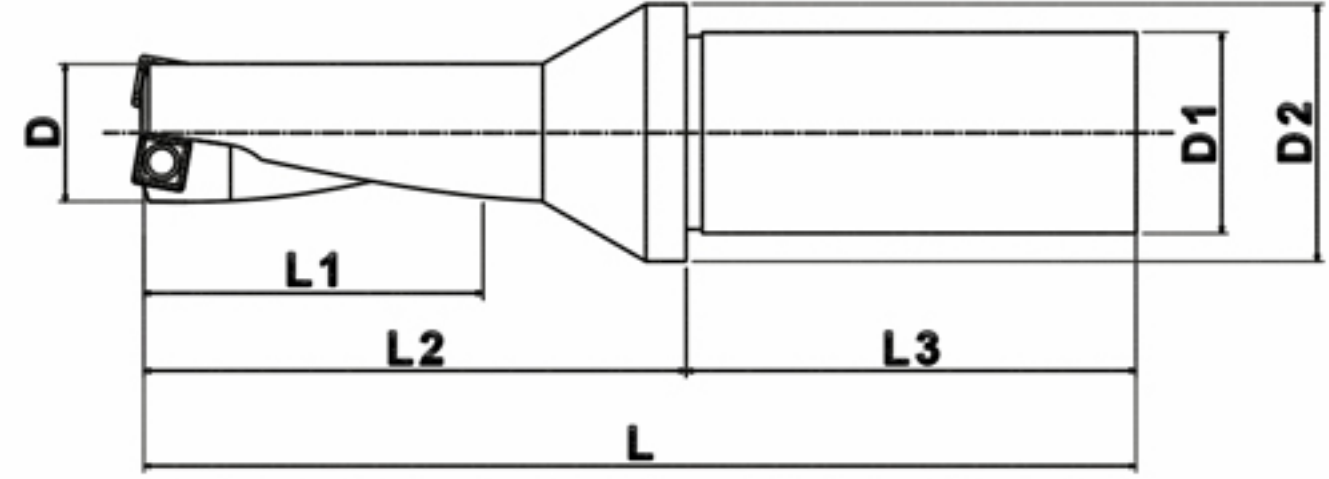
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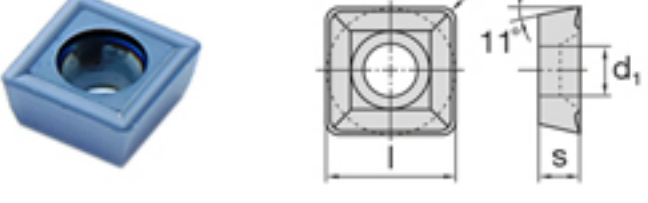
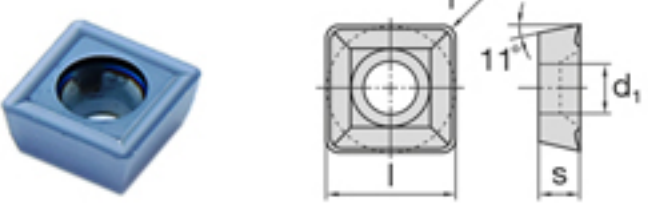
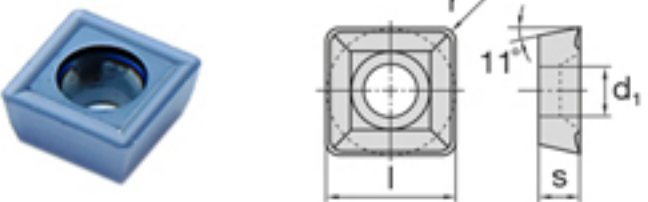
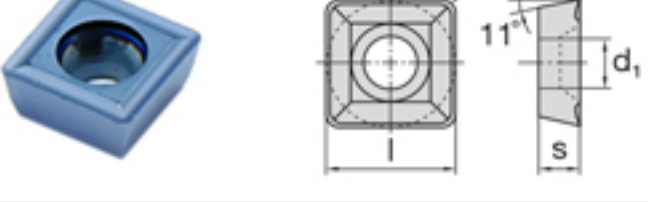
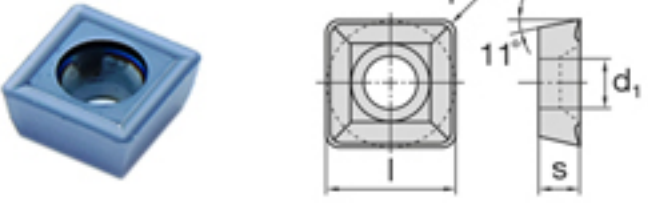
Ürün Kodu Product Code	Ölçüler (mm) Dimensions in (mm)							Kullanılan Uç Suitable Insert
	D	D1	D2	L1	L2	L3	L	
BTID 4130-20T2-05	13,0	20	24	52	70	50	120	SPGX 050204
BTID 4135-20T2-05	13,5	20	24	54	72	50	122	
BTID 4140-20T2-05	14,0	20	24	56	74	50	124	
BTID 4145-20T2-05	14,5	20	24	58	76	50	126	
BTID 4150-20T2-05	15,0	20	24	60	78	50	128	
BTID 4155-20T2-05	15,5	20	24	62	80	50	130	
BTID 4160-25T2-06	16,0	25	31	64	85	56	141	SPGX 060204
BTID 4165-25T2-06	16,5	25	31	66	87,0	56	143,0	
BTID 4170-25T2-06	17,0	25	31	68	89	56	56	
BTID 4175-25T2-06	17,5	25	31	70	91,0	56	147,0	
BTID 4180-25T2-06	18,0	25	31	72	93	56	149	
BTID 4185-25T2-06	18,5	25	31	74	95,0	56	151,0	
BTID 4190-25T2-06	19,0	25	31	76	97	56	153	
BTID 4195-25T2-06	19,5	25	31	78	99,0	56	155,0	
BTID 4200-25T2-06	20,0	25	31	80	102	56	158	
BTID 4205-25T2-06	20,5	25	31	82	104,0	56	160,0	
BTID 4210-25T2-06	21,0	25	31	84	106	56	162	
BTID 4220-32T2-07	22,0	32	45	88	118	60	178	SPGX 07T308
BTID 4225-32T2-07	22,5	32	45	90	120	60	180	
BTID 4230-32T2-07	23,0	32	45	92	122	60	182	
BTID 4235-32T2-07	23,5	32	45	94	124,0	60	184,0	
BTID 4240-32T2-07	24,0	32	45	96	124	60	184	
BTID 4245-32T2-07	24,5	32	45	98	126	60	186	
BTID 4250-32T2-07	25,0	32	45	100	130	60	190	
BTID 4260-32T2-07	26,0	32	45	104	134	60	194	
BTID 4265-32T2-07	26,5	32	45	106	136	60	196	
BTID 4270-32T2-07	27,0	32	45	108	138	60	198	
BTID 4280-32T2-09	28,0	32	45	112	142	60	202	SPGX 090408
BTID 4290-32T2-09	29,0	32	45	116	146	60	206	
BTID 4295-32T2-09	29,5	32	55	118	149	60	209	
BTID 4300-32T2-09	30,0	32	55	120	151	60	211	
BTID 4310-32T2-09	31,0	32	55	124	155	60	215	
BTID 4320-32T2-09	32,0	32	55	128	159	60	219	
BTID 4330-32T2-09	33,0	32	55	132	163	60	223	
BTID 4340-32T2-11	34,0	32	54	136	170	60	230	SPGX 110408
BTID 4350-32T2-11	35,0	32	54	140	175	60	235	
BTID 4360-32T2-11	36,0	32	54	144	180	60	240	
BTID 4370-32T2-11	37,0	32	54	148	185	60	245	
BTID 4380-32T2-11	38,0	32	54	152	190	60	250	
BTID 4390-32T2-11	39,0	32	54	156	195	60	255	
BTID 4395-32T2-11	39,5	32	54	158	197,0	60	257,0	
BTID 4400-32T2-11	40,0	32	54	160	200	60	260	

Takma Uçlu Matkaplar Indexable Drills
Delme Derinliği 5 x Çap Drilling Depth 5 x Diameter

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Ürün Kodu Product Code	Ölçüler (mm) Dimensions in (mm)							Kullanılan Uç Suitable Insert
	D	D1	D2	L1	L2	L3	L	
BTID 5130-20T2-05	13,0	20	24	65	83	50	133	SPGX 050204
BTID 5135-20T2-05	13,5	20	24	67,5	85,5	50	135,5	
BTID 5140-20T2-05	14,0	20	24	70	88	50	138	
BTID 5145-20T2-05	14,5	20	24	72,5	90,5	50	140,5	
BTID 5150-20T2-05	15,0	20	24	75	93	50	143	
BTID 5155-20T2-05	15,5	20	24	77,5	95,5	50	145,5	
BTID 5160-25T2-06	16,0	25	31	80	101	56	157	SPGX 060204
BTID 5165-25T2-06	16,5	25	31	82,5	103,5	56	159,5	
BTID 5170-25T2-06	17,0	25	31	85	106	56	162	
BTID 5175-25T2-06	17,5	25	31	87,5	108,5	56	164,5	
BTID 5180-25T2-06	18,0	25	31	90	111	56	167	
BTID 5185-25T2-06	18,5	25	31	92,5	112,5	56	168,5	
BTID 5190-25T2-06	19,0	25	31	95	116	56	172	
BTID 5195-25T2-06	19,5	25	31	97,5	118,5	56	174,5	
BTID 5200-25T2-06	20,0	25	31	100	122	56	178	
BTID 5205-25T2-06	20,5	25	31	102,5	124,5	56	180,5	
BTID 5210-25T2-06	21,0	25	31	105	127	56	183	
BTID 5220-32T2-07	22,0	32	44	110	140	60	200	SPGX 07T308
BTID 5225-32T2-07	22,5	32	44	113	143	60	203	
BTID 5230-32T2-07	23,0	32	44	115	145	60	205	
BTID 5235-32T2-07	23,5	32	44	117,5	147,5	60	207,5	
BTID 5240-32T2-07	24,0	32	44	120	150	60	210	
BTID 5245-32T2-07	24,5	32	44	123	153	60	213	
BTID 5250-32T2-07	25,0	32	44	125	155	60	215	
BTID 5260-32T2-07	26,0	32	44	130	160	60	220	
BTID 5265-32T2-07	26,5	32	44	133	163	60	223	
BTID 5270-32T2-07	27,0	32	44	135	165	60	225	
BTID 5280-32T2-09	28,0	32	44	140	170	60	230	SPGX 090408
BTID 5290-32T2-09	29,0	32	44	145	175	60	235	
BTID 5295-32T2-09	29,5	32	54	147,5	178	60	238	
BTID 5300-32T2-09	30,0	32	54	150	181	60	241	
BTID 5310-32T2-09	31,0	32	54	155	186	60	246	
BTID 5320-32T2-09	32,0	32	54	160	191	60	251	
BTID 5330-32T2-09	33,0	32	54	165	196	60	256	
BTID 5340-40T2-11	34,0	40	54	170	204	70	274	SPGX 110408
BTID 5350-40T2-11	35,0	40	54	175	210	70	280	
BTID 5360-40T2-11	36,0	40	54	180	216	70	286	
BTID 5370-40T2-11	37,0	40	54	185	222	70	292	
BTID 5380-40T2-11	38,0	40	54	190	228	70	298	
BTID 5390-40T2-11	39,0	40	54	195	233	70	303	
BTID 5395-40T2-11	39,5	40	54	197,5	236	70	306	
BTID 5400-40T2-11	40,0	40	54	200	239	70	309	

Uç Şekilleri Insert Drawing	l (mm)	s (mm)	d1 (mm)	r (mm)	Uç Tipi Insert	Matkap Çap Aralığı Drilling Diameter (mm)
	5,00	2,38	3,00	0,4	SPGX 050204	ø 13 - 15,5
	6,00	2,38	3,60	0,40	SPGX 060204	ø 16 - 21
	7,94	3,97	4,10	0,80	SPGX 07T308	ø 22 - 27
	9,80	4,30	5,85	0,80	SPGX 090408	ø 28 - 33
	11,50	4,80	5,85	0,80	SPGX 110408	ø 34 - 40

BTCK30D

Paslanmaz çelikler, krom nikel kobalt alaşımlı çelikler, asit ve ısıt işlem çelikleri, titanyum alaşımları ile plastik malzemelerin orta kesme hızlarında, orta / yüksek ilerleme değerlerinde çok yüksek aşınma ve kırılma dayanımına sahip sünek kaplamalı bir kalitedir.

BTCK30D

Highly wear-resistant coated grade for machining stainless steel, chrome - nickel - cobalt alloy steel, heat-treatable steel, titanium alloys and plastics at medium cutting speeds.

BTCK10D

Alaşımlı alaşımsız takım çeliklerinin, yüksek dayanımlı malzemeleri, demir dışı metallerin ve dökme demirlerin yüksek kesme hızlarında, küçük ve orta ilerleme değerlerinde yüksek bir aşınma dayanımına ve kesme kenarı mukavemetine sahip kaplamalı bir kalitedir.

BTCK10D

Highly wear-resistant coated grade with high cutting edge stability for fine machining of alloyed and unalloyed tool steels, high-strength materials, non-ferrous metals and cast iron at high cutting speeds.

Tavsiye Edilen Kesme Değerleri
Recommended Cutting Parameters

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ISO	Malzeme Material	Vc (m/dak) Vc (m/min)	Diş Başına İlerleme (mm) Feed per tooth in mm				
			ø13,0 - ø15,0	ø15,5 - ø21,5	ø22,0 - ø27,5	ø28,0 - ø33,0	ø34,0 - ø41,0
P	Düşük Karbonlu Çelikler Low Carbon Steel	180-250	0,05 - 0,08	0,06 - 0,10	0,06 - 0,12	0,07 - 0,13	0,08 - 0,15
	İmalat Çelikleri Plain Carbon Steel	160-220	0,06 - 0,12	0,08 - 0,15	0,10 - 0,18	0,12 - 0,22	0,12 - 0,24
	Düşük Alaşımlı Çelikler Low Alloy Steel	150-220	0,06 - 0,12	0,08 - 0,14	0,10 - 0,18	0,12 - 0,22	0,12 - 0,23
	Yüksek Alaşımlı Çelikler High Alloy Steel	130-180	0,06 - 0,10	0,08 - 0,15	0,10 - 0,20	0,12 - 0,23	0,12 - 0,24
M	Paslanmaz Çelik Stainless Steel	170-240	0,05 - 0,10	0,06 - 0,12	0,08 - 0,15	0,09 - 0,16	0,10 - 0,17
K	Gri Dökme Demir Grey Cast Iron	180-250	0,06 - 0,12	0,08 - 0,16	0,12 - 0,20	0,15 - 0,25	0,16 - 0,28
	Sfero Dökme Demir Nodular Cast Iron	130-200	0,06 - 0,10	0,08 - 0,15	0,10 - 0,18	0,12 - 0,20	0,15 - 0,23
N	Alüminyum Malzemeler Aluminium	330-380	0,06 - 0,14	0,08 - 0,15	0,10 - 0,20	0,12 - 0,22	0,14 - 0,23

Uygulama Örneği
Application Example

İş Parçası
Work Piece

: Konstrüksiyon Plakası
Structural Plate

Malzeme
Material

: ST52-3

Çap
Diameter

: 22 x 3D

Takım
Tool

: BTID 3220-25T2-07

Uç
Insert

: SPGX 07T308 BTCK30D

Vc
Cutting Speed in m / min

: 150 m/dak
m/min

n
Speed in min

: 2200 dev/dak
rev/min

fz
Feed Per Tooth in mm

: 0,05 mm

Müşteri Kazanımı
Customer's Benefit

: Toplam 450 adet delik açılmıştır.
Total 450 holes were drilled.



Sertlik - Mukayese Tablosu
Hardness - Comparison Table

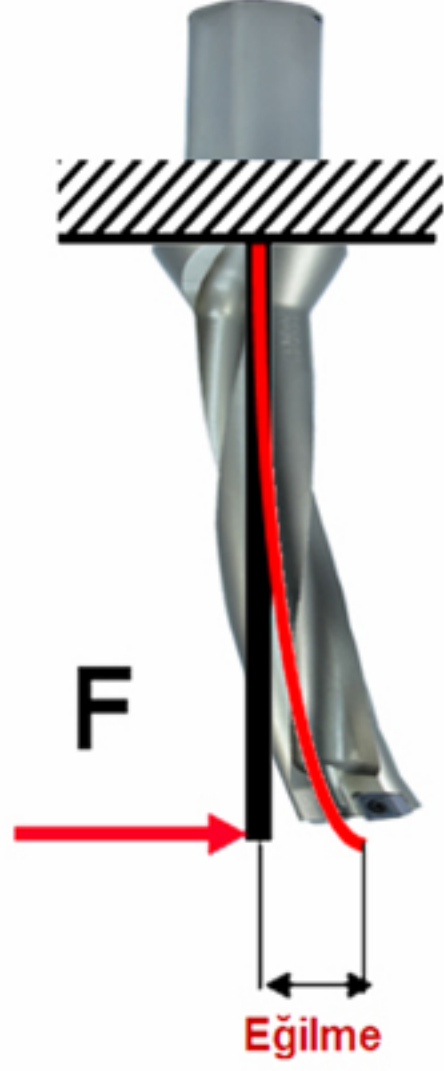
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Gerilme direnci Rm Tensile strength Rm N/mm ²	Vickers sertlik Vickers hardness HV	Brinell sertlik Brinell hardness HB	Rockwell C Sertlik Rockwell hardness HRC
255	80	76	
270	85	80,7	
285	90	85,5	
305	95	90,2	
320	100	95	
335	105	99,8	
350	110	105	
370	115	109	
385	120	114	
400	125	119	
415	130	124	
430	135	128	
450	140	133	
465	145	138	
480	150	143	
495	155	147	
510	160	152	
530	165	156	
545	170	162	
560	175	166	
575	180	171	
595	185	176	
610	190	181	
625	195	185	
640	200	190	
660	205	195	
675	210	199	
690	215	204	
705	220	209	
720	225	214	
740	230	219	
755	235	223	
770	240	228	20,3
785	245	233	21,3
800	250	238	22,2
820	255	242	23,1
835	260	247	24
850	265	252	24,8
865	270	257	25,6
880	275	261	26,4
900	280	266	27,1
915	285	271	27,8
930	290	276	28,5
950	295	280	29,2
965	300	285	29,8
995	310	295	31
1030	320	304	32,2
1060	330	314	33,3
1095	340	323	34,4

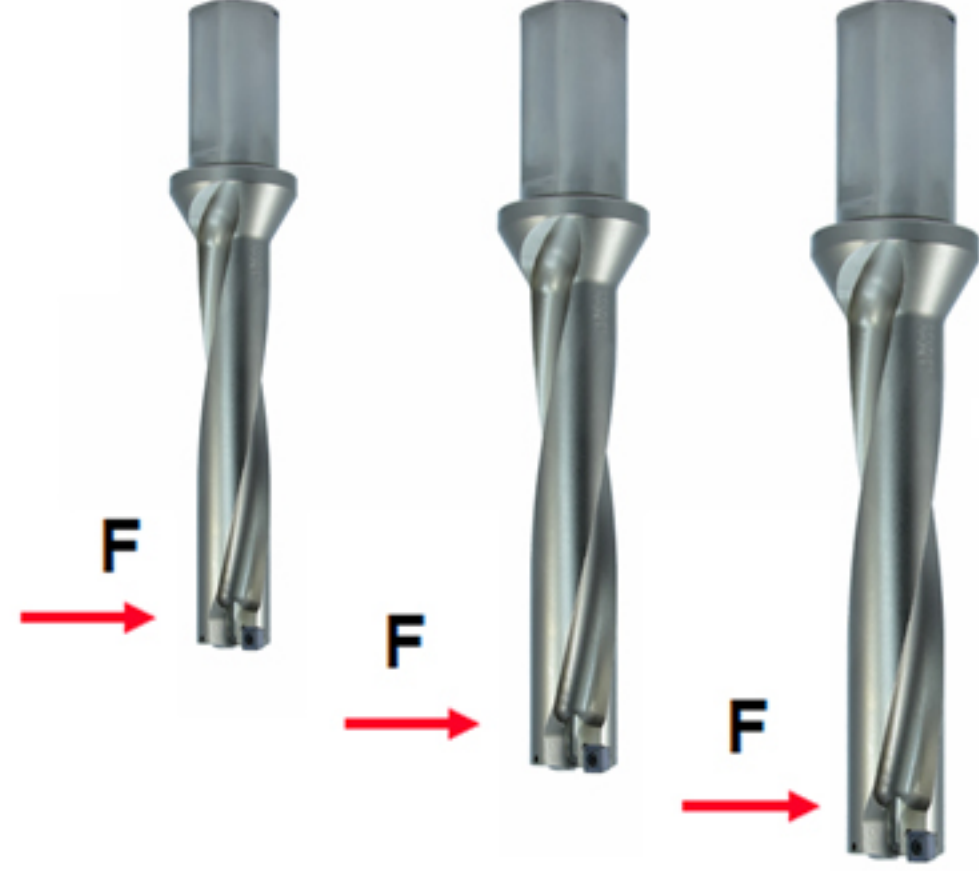
Gerilme direnci Rm Tensile strength Rm N/mm ²	Vickers sertlik Vickers hardness HV	Brinell sertlik Brinell hardness HB	Rockwell C Sertlik Rockwell hardness HRC
1125	350	333	35,5
1155	360	342	36,6
1190	370	352	37,7
1220	380	361	38,8
1155	390	371	39,8
1290	400	380	40,8
1320	410	390	41,8
1350	420	399	42,7
1385	430	409	43,6
1420	440	418	44,5
1455	450	428	45,3
1485	460	437	46,1
1520	470	447	46,9
1555	480	(456)	47,7
1595	490	(466)	48,4
1630	500	(475)	49,1
1665	510	(485)	49,8
1700	520	(494)	50,5
1740	530	(504)	51,1
1775	540	(513)	51,7
1810	550	(523)	52,3
1845	560	(532)	53,0
1880	570	(542)	53,6
1920	580	(551)	54,1
1955	590	(561)	54,7
1995	600	(570)	55,2
2030	610	(580)	55,7
2070	620	(589)	56,3
2105	630	(599)	56,8
2145	640	(608)	57,3
2180	650	(618)	57,8
	660		58,3
	670		58,8
	680		59,2
	690		59,7
	700		60,1
	720		61
	740		61,8
	760		62,5
	780		63,3
	800		64
	820		64,7
	840		65,3
	860		65,9
	880		66,4
	900		67
	920		67,5
	940		68

Gerilme direnci: Tensile strength	N/mm ²	Rm
Vickers sertlik: Vickers hardness	Diamantpiramit 136, Test Kuvveti F ≥ 98 N Diamond pyramid 136, Test force F ≥ 98 N	HV
Brinell sertlik: Brinell hardness	0,102 x F/D ² = 30 N/mm ²	HB
Hesaplama: Calculated from: HB = 0,95 x HV	Test kuvveti N, D = konik çapı mm F = Test force in N, D= Cone diameter in mm	
Rockwell C Sertlik: Hardness Rockwell C	Diamantkonik 120°, Toplam test kuvveti 1471 ± 9 N Diamond cone 120°, Total test force 1471 ± 9 N	HRC

Balans Balance



Uzunluk Length	Eğilme Bending
2xD	1a
3xD	4a
4xD	8a
5xD	16a



Daha uzun matkaplar, matkap gövdesi rijitliğin azalması nedeniyle daha büyük delik toleransına sebep olur.
In order of unstable conditions long type of drill causes big hole tolerances.

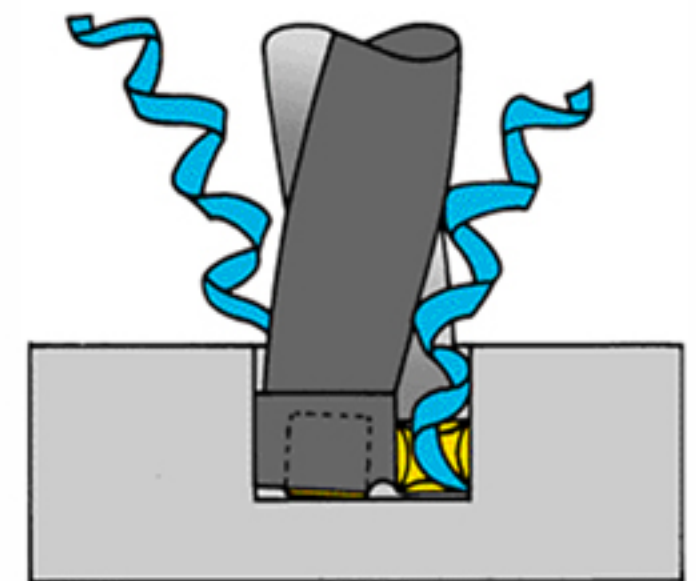
Talaş oluşumu Chip Formation

Talaş oluşumu aşağıdakilere bağlıdır Chip Formation by following conditions

- Kesme hızı Cutting speed
- İlerleme değeri Feed rate
- Malzeme Workpiece
- Soğutma sıvısı iletimi ve basınç Coolant system
- Uç geometrisi Insert geometry
- Matkap geometrisi (talaş boşaltma kanalları) Tool geometry (Chip transport channel)

Talaş akışı aşağıdakilere bağlıdır For stable chip transport

- Talaş akışı kanallarının şekli Chip transport channel shape
- Soğutma Coolant
- Kesme koşulları Cutting parameters



Delme işlemi için yöntemler Methods for drilling

Doğru matkap seçimi için kriterler For right choice drilling

- Çap, delik derinliği Diameter, depth of hole
- Delik kalitesi, tolerans Hole surface, tolerance
- İlerleme oranı, kesme verileri Feed rate, cutting parameter
- Tezgah; devir, stabilite, soğutma, salgı, güç, moment
Machine, rpm, stability, coolant, bending, power, moment
- Güvenlik Security
- Tezgah ve takım maliyeti Machine and tool cost
- İş parçası malzemesi Workpiece material
- Delme koşulları (giriş yüzeyi, bağlama vs) Drilling conditions (enter surface, fixing etc.)

Yeni delme işlemi için yöntemler

- Tevsiye edilen minimum ilerleme oranı ile başlayın. bir kaç mm delin, talaş şeklini ve delik çapını değerlendirin.
Please start with recommended minimum feed rate, check the chip shape and hole diameter after several mm drilling.
- Üretkenliği arttırmak için ilerleme oranını gerektiği kadar 0,01 mm aralıklarla arttırın.
Increase feed rate 0,01 mm for more productivity.
- Deliği delin ve güç ile yükü değerlendirin. Ani değişiklikler talaş tıkanıklığını gösterir. Şimdi daha kısa talaşlar oluşturmak için ilerleme oranını arttırın.
Check the machine power during the drilling. Sudden changes indicate chip transport increase feed rate for short chip.
- Eğer matkap veya iş parçasının eğilme riski varsa aşırı yüksek ilerleme oranlarından kaçının. İlerleme kuvvetlerindeki ani değişiklikler uçlara veya gövdelere zarar verebilir.
In case of any bending risk for the tool and workpiece, please avoid high feed rate. Different feed rate might be damaged the tool and insert.

Boehlerit**Sert Metal ve Takım Sanayi ve Ticaret A.Ş.**

Gosb 1600 Sok. No: 1602
41400 Gebze / Kocaeli
Telefon +90 262 677 17 37
Faks +90 262 677 17 46
info@boehlerit.com.tr
www.boehlerit.com.tr

boehlerit

Boehlerit GmbH & Co. KG
Werk VI-Strasse 100 8605
Kapfenberg Österreich/Austria
Telefon +43 3862 300-0
Telefax +43 3862 300-793
info@boehlerit.com
www.boehlerit.com

Arjantin/Argentina
SIN PAR S.A.
Conesa 10
B1878KSB Quilmes -
Buenos Aires
Telefon +54 11 4257 4396
Telefax +54 11 4224 5687
ventas@sinpar.com.ar
www.sinpar.net
www.boehlerit.com

Brazilya/Brazil
Boehlerit Brasil Ferramentas Ltda.
Rua Capricórnio 72
Alpha Conde Comercial I
06473-005 - Barueri -
São Paulo
Telefon +55 11 554 60 755
Telefax +55 11 554 60 476
info@boehlerit.com.br
www.boehlerit.com

Çin/China
Boehlerit China Co. Ltd.
Swiss Center Shanghai
Room A107, Building 3
No. 526, 3rd East Fute Road
Shanghai Pilot Free Trade Zone
200131 P.R. China
Telefon +86 137 358 950 58
info@boehlerit.com.cn

HORN (Shanghai) Trading Co. Ltd.
Room 905, No 518 Anyuan Road
Putuo District
Shanghai 20060
Telefon +86 21 528 33 505, 528 33 205
Telefax +86 21 528 32 562
info@phorn.cn
www.phorn.cn

Almanya/Germany
Boehlerit GmbH & Co. KG
Werk VI-Strasse 100
8605 Kapfenberg
Österreich/Austria
Telefon +43 3862 300-0
Telefax +43 3862 300-793
info@boehlerit.com
www.boehlerit.com

Paul Horn GmbH
Unter dem Holz 33-35,
72072 Tübingen
Deutschland/Germany
Tel.: +49 7071-7004-0
Fax: +49 7071-72893
info@phorn.de
www.phorn.de

İngiltere/United Kingdom
LMT UK Ltd
4202 Waterside Centre,
Solihull Parkway
B37 7YN Birmingham
Telefon +44 16 76 523440
Telefax +44 16 76 525379
lmt.uk@lmt-tools.com
www.lmt-uk.co.uk
www.boehlerit.com

HORN Cutting Tools Ltd.
32 New Street, Ringwood,
Hampshire BH24 3AD
Telefon +44 1425 481 800
Telefax +44 1425 481 888
info@phorn.co.uk
www.phorn.co.uk

Finlandiya/Finland
Oy Maantera AB
Keinumäenkuja 2, P.O. Box 70
01510 Vantaa
Telefon +358 29 006 130
Telefax +358 29 006 1130
maantera@maantera.fi
www.maantera.fi
www.boehlerit.com

Fransa/France
Horn SAS
665 Av Blaise Pascal
77127 Lieusaint
Telefon +33 164 88 5958
Telefax +33 164 88 6049
infos@horn.fr
www.hornfrance.fr

Horn SAS
564 rue Claude Ballaloud
ZAE Bord d'Arve
74950 Scionzier
Telefon +33 4050 183148
Telefax +33 4050 182171
contact@horn.fr

Hindistan/India
LMT Fette (India) Pvt Ltd
29 (Old No. 14) II Main Road
Gandhinagar, Adyar
Chennai 600 020, India
Telefon +91 44 244 05 136
Telefax +91 44 244 05 205
lmt.in@lmt-tools.com
www.lmt-tools.com
www.boehlerit.com

İtalya/Italy
Boehlerit Italy S.r.l.
Via Papa Giovanni XXIII, Nr. 45
20090 Rodano (MI)
Telefon +39 02 269 49 71
Telefax +39 02 218 72 456
info@boehlerit.it
www.boehlerit.com

İran/Iran
Taban Abzar Pars Co
(TAPCO)
No 19, Rezaei Alley
Derakhi St, Sepehr St,
Farahzadi Blv Shahrak Gharb
Tehran, Iran
info@tabanabzar.com
Telefon +98-21-88583487-9
Telefax +98-21-88086744

**Hırvatistan/Bosna & Hersek
Croatia/Bosnia & Herzegovina
Bulgaristan/Bulgaria
Karadağ/Montenegro
Romanya/Romania
Sırbistan/Serbia**
HORN Magyarország Kft.
Gesztenyefa u. 4
9027 Győr
Telefon +36 96 55 05 31
Telefax +36 96 55 05 32
technik@phorn.hu
www.horn.hu

Meksika/Mexico
Boehlerit S.A. de C.V.
Av. Acueducto No. 15
Parque Industrial Bernardo Quintana
El Marqués, Querétaro
México. C.P. 76246
Telefon +52 442 221 5706
Telefax +52 442 221 5555
info@boehlerit.com.mx
www.boehlerit.com

Hollanda/Netherlands
Hagro Precisie b.v.
Industriepark 18
NL-5374 CM Schaijk
Telefon +31 486 462 424
Telefax +31 486 461 650
hagro@hagro.nl
www.hagro.nl
www.boehlerit.com

Polonya/Poland
Boehlerit Polska sp.z.o.o.
Złotniki, ul. Kobaltowa 6
62-002 Suchy Las
Telefon +48 61 659 38 00
Telefax +48 61 623 20 14
info@boehlerit.pl
www.boehlerit.com

Romanya/Romania
SC Profil Construct Expert SRL
Matei Corvin nr. 402 Hala 1
410313 Oradea, ROMANIA
Telefon +40 359 176 400
Telefax +40 745 411 695
viorel@pcetools.ro
www.pcetools.ro
www.boehlerit.com

Rusya/Russia
000 "Metin Group"
Skladochnaya, 6
127018, Moscow
Telefon +7 495 921 1342
Telefax +7 495 921 1342
www.boehlerit.com

HORN RUS LLC
5 Bryanskaya street
121059, Moscow
Telefon +7 495 968 21 68
Telefax +7 495 960 21 68
www.hornrus.com
www.boehlerit.com

İsveç/Sweden
HORN Sverige & Danmark
Powered by JR TOOL ApS
Box 1902
SE-701 19 Örebro
Telefon + 46 19 / 277 76 06
Telefax +46 19 / 277 76 08
info@phorn.se
www.phorn.se
www.boehlerit.com

İsviçre/Switzerland
Vargus Werkzeugtechnik Snel AG
Knonausterstraße 56
6330 Cham 1
Telefon +41 41 784 21 21
Telefax +41 41 784 21 39
info@vargus.ch
www.vargus.ch
www.boehlerit.com

Singapur/Singapore
Boehlerit Asia Pte Ltd
1 Clementi Loop 04-01
Clementi West District Park
Singapore 12 98 08
Telefon +65 64 62 1608
Telefax +65 64 62 4215
info@boehleritasia.com
www.boehlerit.com

Slovakya/Slovakia
Kancelár Boehlerit
Santraziny 753
760 01 Zlín
Telefon +420 577 214 989
Telefax +420 577 219 061
boehlerit@boehlerit.cz
www.boehlerit.com

Slovenya/Slovenia
KAČ trade d.o.o.
Ložnica pri Žalcu 46
3310 Žalec
Telefon: +386 3 710 40 80
Telefax: +386 3 710 40 81
info@kactrade.si
www.kactrade.com
www.boehlerit.com

İspanya/Spain
Boehlerit Spain S.L.
C/. Narcis Monturiol 11-15
08339 Vilassar de Dalt Barcelona
Telefon +34 93 750 7907
Telefax +34 93 750 7925
info@boehlerit.es
www.boehlerit.com

Güney Kore/South Korea
LMT Korea Co., Ltd
Room # 1520,
Anyang Trade Center
Bisan-Dong, Dongan-Gu
Anyang-Si, Gyeonggi-Do,
431-817, South Korea
Telefon +82 31 384 8600
Telefax +82 31 384 2121
lmt.kr@lmt-tools.com
www.lmt-tools.com
www.boehlerit.com

**Çek Cumhuriyeti
Czech Republic**
Kancelár Boehlerit
Santraziny 753
760 01 Zlín
Telefon +420 577 214 989
Telefax +420 577 219 061
boehlerit@boehlerit.cz
www.boehlerit.com

Macaristan/Hungary
Boehlerit Hungária Kft.
PO Box: 2036 Érdliget Pf. 32
2030-Érd, Kis-Duna u.6.
Telefon +36 23 521 910
Telefax +36 23 521 919
info@boehlerit.hu
www.boehlerit.com

USA
Kanada/Canada
Boehlerit USA
1140 No.Main St.
Lombard IL 60148
Telefon +1 847 734 9390
Telefax +1 847 734 9391
www.boehlerit.com

HORN USA, Inc.
320 Premier Court, Suite 205
Franklin, TN37067
Telefon +1 888 818-HORN
Telefax +1 615 771-4101
sales@hornusa.com
www.hornusa.com