

SPADE DRILL INSERTS - CARBIDE(P40)
EINWEG BOHREINSATZ - VOLLHARTMETALL(P40)

- ▶ For general use in carbon steels and alloy steels.
- ▶ Set up time can be reduced due to changing inserts easily on the machine.
- ▶ Any non-standard size available.
- ▶ Für allgemeine Anwendung in Kohlenstoffstählen und legierten Stählen
- ▶ Reduzierte Rüstzeiten, einfacher Einsatzwechsel auf der Maschine
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : P.326

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		CARBIDE (P40)		
					TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	S1805062	S1810062	S1815062
	63/64"	25.00	.9843"		S1855250	S1860250	S1865250
	1"	25.40	1.0000"		S1805100	S1810100	S1815100
	1-1/64"	25.80	1.0156"		S1805101	S1810101	S1815101
		26.00	1.0236"		S1855260	S1860260	S1865260
	1-1/32"	26.19	1.0313"		S1805102	S1810102	S1815102
	1-3/64"	26.59	1.0469"		S1805103	S1810103	S1815103
	1-1/16"	26.99	1.0625"		S1805104	S1810104	S1815104
		27.00	1.0630"		S1855270	S1860270	S1865270
	1-3/32"	27.78	1.0938"		S1805106	S1810106	S1815106
		28.00	1.1024"		S1855280	S1860280	S1865280
	1-7/64"	28.18	1.1094"		S1805107	S1810107	S1815107
	1-1/8"	28.58	1.1250"		S1805108	S1810108	S1815108
		29.00	1.1417"		S1855290	S1860290	S1865290
	1-5/32"	29.37	1.1563"		S1805110	S1810110	S1815110
		30.00	1.1811"		S1855300	S1860300	S1865300
	1-3/16"	30.16	1.1875"		S1805112	S1810112	S1815112
	1-7/32"	30.96	1.2188"		S1805114	S1810114	S1815114
		31.00	1.2205"		S1855310	S1860310	S1865310
	1-1/4"	31.75	1.2500"		S1805116	S1810116	S1815116
		32.00	1.2598"		S1855320	S1860320	S1865320
	1-9/32"	32.54	1.2813"		S1805118	S1810118	S1815118
		33.00	1.2992"		S1855330	S1860330	S1865330
	1-5/16"	33.34	1.3125"		S1805120	S1810120	S1815120
	34.00	1.3386"	S1855340	S1860340	S1865340		
1-11/32"	34.13	1.3438"	S1805122	S1810122	S1815122		
1-3/8"	34.93	1.3750"	S1805124	S1810124	S1815124		
	35.00	1.3780"	S1855350	S1860350	S1865350		

◎ : Excellent ○ : Good

Non-alloy Steels, Free Machining Steels	Carbon Steels		Alloy Steels		High Alloyed steels		Structural Steels		Tool Steels		Stainless Steels	Cast Iron		Aluminum	Copper Alloys
	~HRc24 (~HB250)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc28 (~HB275)	HRc28~ (~HB275~)	~HRc37 (~HB350)	HRc37~ (~HB350~)	~HRc24 (~HB250)	HRc24~ (~HB250~)	~HRc13 (~HB200)	HRc13~ (~HB200~)	~HRc28 (~HB275)	~HRc19 (~HB220)	HRc19~ (~HB220~)	~HRc8 (~HB180)
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○

- HSS
- I-DREAM DRILLS
- DREAM DRILLS -GENERAL
- DREAM DRILLS -INOX
- DREAM DRILLS -ALU
- DREAM DRILLS -CFRP
- DREAM DRILLS -MQL TYPE
- DREAM DRILLS for HARDENED STEELS
- GENERAL CARBIDE DRILLS
- NC-SPOTTING DRILLS
- CENTER DRILLS
- MULTI-1 DRILLS
- HPD DRILLS
- GOLD-P DRILLS
- STRAIGHT SHANK DRILLS
- TAPER SHANK DRILLS
- NC-SPOTTING DRILLS
- CENTER DRILLS
- SPADE DRILLS
- TECHNICAL DATA



RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

DRILL INSERT (METRIC) - CARBIDE
BOHREINSATZ (METRISCH) - VOLLHARTMETALL

Material	Material Hardness		CARBIDE Grade	Speed (M/min)			Feed (mm/rev)				
	(Bhn)	(HRc)		TiN	TiCN	TiAlN	Ø 9.5 ~12.5	Ø 13 ~17.5	Ø 18 ~24	Ø 25 ~35	Ø 36 ~47
Free machining Steels 9SMn36, 9SMnPb28 10SPb20 etc	100 - 150		P40	101	113	125	0.18	0.28	0.36	0.44	0.50
	150 - 200	- 13	P40	88	99	110	0.16	0.26	0.33	0.39	0.45
	200 - 250	13 - 24	P40	82	88	101	0.14	0.23	0.31	0.41	0.42
Low Carbon Steels C10, C15, C22, C25 etc	85 - 125		P40	94	110	119	0.20	0.24	0.31	0.42	0.46
	125 - 175	- 7	P40	82	88	107	0.18	0.24	0.31	0.39	0.43
	175 - 225	7 - 20	P40	76	82	96	0.15	0.22	0.29	0.36	0.40
Medium Carbon Steels C35, C40, C45 etc	225 - 275	20 - 28	P40	62	73	84	0.13	0.22	0.29	0.36	0.40
	125 - 175	- 7	P40	82	88	102	0.17	0.24	0.31	0.37	0.42
	175 - 225	7 - 20	P40	75	84	93	0.15	0.22	0.28	0.36	0.40
Structural Steels St33, St37-2, St44-2 St52, St60 etc	225 - 275	20 - 28	P40	66	70	84	0.15	0.22	0.28	0.36	0.40
	275 - 325	28 - 34	P40	56	64	67	0.13	0.19	0.26	0.33	0.37
	100 - 150		P40	75	82	91	0.19	0.26	0.34	0.39	0.43
Cast Iron / S,G Iron GG10, 20, 25, 35, 40 GGG50, 70 GTW35, GTS70 etc	150 - 250	- 24	P40	62	70	75	0.15	0.24	0.29	0.33	0.37
	250 - 350	24 - 37	P40	55	64	73	0.13	0.23	0.27	0.29	0.33
	120 - 150		K20,K10	98	125	137	0.18	0.30	0.37	0.46	0.56
	150 - 200	- 13	K20,K10	95	101	125	0.17	0.26	0.32	0.42	0.53
Alloy Steels 45CrNi4, 42CrNi4 16MnCr5, Ck75 35CrNi4, 16MnCr5 etc	200 - 220	13 - 19	K20,K10	75	91	111	0.14	0.23	0.30	0.38	0.45
	220 - 260	19 - 26	K20,K10	66	81	93	0.13	0.15	0.28	0.33	0.37
	260 - 320	26 - 34	K20,K10	56	70	79	0.13	0.18	0.23	0.28	0.33
	125 - 175	- 7	P40	79	85	98	0.18	0.25	0.32	0.40	0.45
Tool Steels T02Cr6, T05WCr6, C75W etc	175 - 225	7 - 20	P40	73	81	88	0.15	0.23	0.29	0.38	0.42
	225 - 275	20 - 28	P40	66	73	81	0.15	0.21	0.28	0.37	0.41
	275 - 325	28 - 34	P40	62	70	78	0.12	0.20	0.27	0.33	0.40
High Temp. Alloy Hastelloy B, Inconel etc	325 - 375	34 - 40	P40	53	58	64	0.10	0.18	0.23	0.30	0.38
	150 - 200	- 13	P40	50	56	67	0.09	0.18	0.22	0.28	0.31
High Strength Alloy 36CrNiMo4, 34CrNiMo8 40NiCrMo73 etc	200 - 250	13 - 24	P40	37	46	50	0.09	0.18	0.22	0.28	0.31
	140 - 220	- 19	K20	26	27	30	0.10	0.17	0.23	0.27	0.33
Aluminum AlCuSiMn, AlMgSi0.5, AlZnMgCu1.5 etc	220 - 310	19 - 33	K20	20	23	24	0.10	0.14	0.20	0.24	0.30
	225 - 300	- 32	P40	49	55	62	0.15	0.23	0.25	0.29	0.38
Stainless Steels X7Cr13, X10CrAl18, X5CrNi189, X5CrNiMo18 10 etc	300 - 350	32 - 37	P40	43	49	55	0.12	0.20	0.23	0.27	0.35
	350 - 400	37 - 43	P40	38	43	47	0.10	0.18	0.20	0.24	0.30
Aluminum AlCuSiMn, AlMgSi0.5, AlZnMgCu1.5 etc	30		K20	366	396	427	0.24	0.38	0.45	0.50	0.53
	180	- 8	K20	244	290	291	0.22	0.33	0.40	0.45	0.48
Stainless Steels X7Cr13, X10CrAl18, X5CrNi189, X5CrNiMo18 10 etc	135 - 185	- 9	K20	50	55	62	0.19	0.19	0.21	0.24	0.30
	185 - 275	9 - 28	K20	38	44	46	0.15	0.17	0.20	0.21	0.25

RPM= revolution per minute (rev/min)
M/min= surface meter per minute(M/min)
DIA= diameter of drill (mm)
mm/rev = feed rate(mm/rev)

*** Formulas :**

$$M/min = \frac{(RPM) \cdot (\pi) \cdot (DIA.)}{1000}$$

$$mm/min = (RPM) \cdot (mm/rev)$$

$$RPM = \frac{(M/min) \cdot (1000)}{(\pi) \cdot (DIA.)}$$

The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points.

Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.