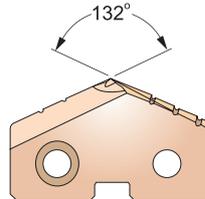


SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48 SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48

- ▶ For use in high temperature alloys and materials with 350~500 Brinell.
- ▶ Improved stability and hole straightness by newly developed thinning design.
- ▶ Less thrust force and excellent self-centering.
- ▶ Any non-standard size available.

- ▶ Zur Anwendung bei hitzebeständigen Legierungen und Werkstoffen mit 350 - 500 Brinell
- ▶ Erhöhte Stabilität und Fluchtgenauigkeit durch neu entwickelte Querschnitengeometrie
- ▶ Verminderte Bohrkraft und ausgezeichnete Selbstzentrierung
- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : P.325

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		PREMIUM HSS (M48)		
					TiN	TiCN	TiAlN
Y 9.50 (.374") to 11.07 (.436")		9.50	.3740"	2.4 (3/32")	SM555095	SM560095	SM565095
	3/8"	9.53	.3750"		SM505024	SM510024	SM515024
		9.80	.3858"		SM555098	SM560098	SM565098
	25/64"	9.92	.3906"		SM505025	SM510025	SM515025
		10.00	.3937"		SM555100	SM560100	SM565100
		10.20	.4016"		SM555102	SM560102	SM565102
	13/32"	10.32	.4062"		SM505026	SM510026	SM515026
		10.50	.4134"		SM555105	SM560105	SM565105
	27/64"	10.72	.4219"		SM505027	SM510027	SM515027
		10.80	.4252"		SM555108	SM560108	SM565108
Z 11.11(.437") to 12.95(.510")		11.00	.4331"	2.4 (3/32")	SM555110	SM560110	SM565110
	7/16"	11.11	.4375"		SM505028	SM510028	SM515028
		11.50	.4528"		SM555115	SM560115	SM565115
	29/64"	11.51	.4531"		SM505029	SM510029	SM515029
	15/32"	11.91	.4688"		SM505030	SM510030	SM515030
		12.00	.4724"		SM555120	SM560120	SM565120
	31/64"	12.30	.4844"		SM505031	SM510031	SM515031
		12.50	.4921"		SM555125	SM560125	SM565125
	1/2"	12.70	.5000"		SM505032	SM510032	SM515032
		13.00	.5118"		SM555130	SM560130	SM565130
0 12.98 (.511") to 17.65 (.695")		13.10	.5156"	3.2 (1/8")	SM505033	SM510033	SM515033
	33/64"	13.49	.5312"		SM505034	SM510034	SM515034
	17/32"	13.50	.5315"		SM555135	SM560135	SM565135
		13.89	.5469"		SM505035	SM510035	SM515035
	35/64"	14.00	.5512"		SM555140	SM560140	SM565140
		14.29	.5625"		SM505036	SM510036	SM515036
	9/16"	14.50	.5709"		SM555145	SM560145	SM565145
		14.68	.5781"		SM505037	SM510037	SM515037
	37/64"	15.00	.5906"		SM555150	SM560150	SM565150
		15.08	.5938"		SM505038	SM510038	SM515038
	19/32"	15.48	.6094"		SM505039	SM510039	SM515039
	39/64"	15.50	.6102"		SM555155	SM560155	SM565155
		15.88	.6250"		SM505040	SM510040	SM515040
	5/8"	16.00	.6299"		SM555160	SM560160	SM565160

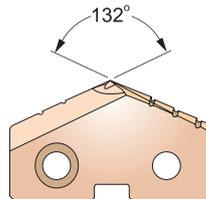
◎ : Excellent ○ : Good

Non- alloyed 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)
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○

SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48
SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48

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- ▶ Jede Abmessung außerhalb des Kataloges lieferbar



cutting conditions : P.325

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.				
	Inch (inch)	Metric (mm)	Decimal (inch)		PREMIUM HSS (M48)				
					TiN	TiCN	TiAlN		
0 12.98(.511") to 17.65(.695")	41/64"	16.27	.6406"	3.2 (1/8")	SM505041	SM510041	SM515041		
		16.50	.6496"		SM555165	SM560165	SM565165		
	21/32"	16.67	.6562"		SM505042	SM510042	SM515042		
		17.00	.6693"		SM555170	SM560170	SM565170		
	43/64"	17.07	.6719"		SM505043	SM510043	SM515043		
		17.46	.6875"		SM505044	SM510044	SM515044		
		17.50	.6890"		SM555175	SM560175	SM565175		
	1 17.53 (.690") to 24.38 (.960")	45/64"	17.86		.7031"	4.0 (5/32")	SM505045	SM510045	SM515045
			18.00		.7087"		SM555180	SM560180	SM565180
		23/32"	18.26		.7188"		SM505046	SM510046	SM515046
		18.50	.7283"	SM555185	SM560185		SM565185		
47/64"		18.65	.7344"	SM505047	SM510047		SM515047		
		19.00	.7480"	SM555190	SM560190		SM565190		
3/4"		19.05	.7500"	SM505048	SM510048		SM515048		
49/64"		19.45	.7656"	SM505049	SM510049		SM515049		
		19.50	.7677"	SM555195	SM560195		SM565195		
25/32"		19.84	.7812"	SM505050	SM510050		SM515050		
	20.00	.7874"	SM555200	SM560200	SM565200				
	51/64"	20.24	.7969"	SM505051	SM510051	SM515051			
	20.50	.8071"	SM555205	SM560205	SM565205				
	13/16"	20.64	.8125"	SM505052	SM510052	SM515052			
	21.00	.8268"	SM555210	SM560210	SM565210				
	27/32"	21.43	.8438"	SM505054	SM510054	SM515054			
	55/64"	21.83	.8594"	SM505055	SM510055	SM565055			
		22.00	.8661"	SM555220	SM560220	SM565220			
	7/8"	22.23	.8750"	SM505056	SM510056	SM515056			
	57/64"	22.62	.8906"	SM505057	SM510057	SM515057			
		23.00	.9055"	SM555230	SM560230	SM565230			
	29/32"	23.02	.9062"	SM505058	SM510058	SM515058			
	59/64"	23.42	.9219"	SM505059	SM510059	SM515059			
	15/16"	23.81	.9375"	SM505060	SM510060	SM515060			
		24.00	.9449"	SM555240	SM560240	SM565240			

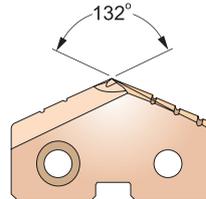
◎ : Excellent ○ : Good

Non- alloyed 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)
	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	○	○

SM-POINT SPADE DRILL INSERTS - PREMIUM HSS M48 SM-POINT EINWEG BOHREINSATZ - PREMIUM HSS M48

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cutting conditions : P.325

Series Min. to Max. (mm/inch)	Diameter			Thick Metric (mm/inch)	EDP No.		
	Inch (inch)	Metric (mm)	Decimal (inch)		PREMIUM HSS (M48)		
					TiN	TiCN	TiAlN
2 24.41 (.961") to 35.05 (1.380")	31/32"	24.61	.9688"	4.8 (3/16")	SM505062	SM510062	SM515062
	63/64"	25.00	.9843"		SM555250	SM560250	SM565250
	1"	25.40	1.0000"		SM505100	SM510100	SM515100
	1-1/64"	25.80	1.0156"		SM505101	SM510101	SM515101
		26.00	1.0236"		SM555260	SM560260	SM565260
	1-1/32"	26.19	1.0312"		SM505102	SM510102	SM515102
	1-3/64"	26.59	1.0469"		SM505103	SM510103	SM515103
	1-1/16"	26.99	1.0625"		SM505104	SM510104	SM515104
		27.00	1.0630"		SM555270	SM560270	SM565270
	1-3/32"	27.78	1.0938"		SM505106	SM510106	SM515106
		28.00	1.1024"		SM555280	SM560280	SM565280
	1-7/64"	28.18	1.1094"		SM505107	SM510107	SM515107
	1-1/8"	28.58	1.1250"		SM505108	SM510108	SM515108
		29.00	1.1417"		SM555290	SM560290	SM565290
	1-5/32"	29.37	1.1562"		SM505110	SM510110	SM515110
		30.00	1.1811"		SM555300	SM560300	SM565300
	1-3/16"	30.16	1.1875"		SM505112	SM510112	SM515112
	1-7/32"	30.96	1.2188"		SM505114	SM510114	SM515114
		31.00	1.2205"		SM555310	SM560310	SM565310
	1-1/4"	31.75	1.2500"		SM505116	SM510116	SM515116
		32.00	1.2598"		SM555320	SM560320	SM565320
	1-9/32"	32.54	1.2812"		SM505118	SM510118	SM515118
		33.00	1.2992"		SM555330	SM560330	SM565330
	1-5/16"	33.34	1.3125"		SM505120	SM510120	SM515120
	34.00	1.3386"	SM555340	SM560340	SM565340		
1-11/32"	34.13	1.3438"	SM505122	SM510122	SM515122		
1-3/8"	34.93	1.3750"	SM505124	SM510124	SM515124		
	35.00	1.3780"	SM555350	SM560350	SM565350		

◎ : Excellent ○ : Good

Non- alloyed 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)
◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	○	○



DRILL INSERT (METRIC) - HSS BOHREINSATZ (METRISCH) - HSS

Material	Material Hardness		* HSS Grade	Speed (M/min)			Feed (mm/rev)						
	(Bhn)	(HRc)		TiN	TiCN	TiAlN	Ø9.5 ~12.5	Ø13 ~17.5	Ø18 ~24	Ø25 ~35	Ø36 ~47	Ø48 ~65	Ø66 ~114
Free machining Steels 9SMn36, 9SMnPb28 10SPb20 etc	100 - 150		HSS	63	79	84	0.16	0.23	0.31	0.40	0.48	0.55	0.67
	150 - 200	- 13	HSS	58	70	81	0.16	0.23	0.31	0.40	0.48	0.55	0.67
	200 - 250	13 - 24	HSS	51	66	72	0.14	0.23	0.31	0.38	0.48	0.57	0.69
Low Carbon Steels C10, C15, C22, C25 etc	85 - 125		HSS	54	67	75	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	125 - 175	- 7	HSS	51	63	72	0.15	0.22	0.28	0.37	0.46	0.56	0.67
	175 - 225	7 - 20	HSS	49	58	69	0.13	0.19	0.24	0.34	0.43	0.50	0.57
Medium Carbon Steels C35, C40, C45 etc	225 - 275	20 - 28	HSS	45	56	66	0.13	0.19	0.24	0.34	0.43	0.50	0.57
	125 - 175	- 7	HSS	52	63	75	0.14	0.22	0.28	0.35	0.45	0.55	0.65
	175 - 225	7 - 20	HSS	48	59	69	0.13	0.19	0.23	0.34	0.43	0.50	0.58
Structural Steels St33, St37-2, St44-2 St52, St60 etc	225 - 275	20 - 28	HSS	45	56	63	0.13	0.19	0.23	0.34	0.43	0.50	0.58
	275 - 325	28 - 34	SH, PH	42	52	58	0.10	0.17	0.21	0.28	0.38	0.45	0.55
	100 - 150		HSS	44	56	63	0.14	0.23	0.29	0.35	0.44	0.50	0.63
Cast Iron / S,G Iron GG10, 20, 25, 35, 40 GGG50, 70 GTW35, GTS70 etc	150 - 250	- 24	HSS	39	47	55	0.13	0.22	0.24	0.28	0.38	0.46	0.59
	250 - 350	24 - 37	SH, PH	32	41	45	0.10	0.20	0.22	0.24	0.34	0.40	0.48
	120 - 150		HSS	52	64	75	0.16	0.30	0.40	0.49	0.59	0.69	0.75
Alloy Steels 45CrNiMo4, 42CrMo4 16MnCr5, Ck75 35CrMo4, 16MnCr5 etc	150 - 200	- 13	HSS	48	58	70	0.14	0.26	0.35	0.45	0.56	0.64	0.68
	200 - 220	13 - 19	HSS	42	53	58	0.14	0.23	0.30	0.41	0.46	0.52	0.60
	220 - 260	19 - 26	SH, PH	35	44	52	0.13	0.17	0.23	0.30	0.35	0.43	0.50
Tool Steels 102Cr6, 105WCr6, C75W etc	260 - 320	26 - 34	SH, PH	29	35	41	0.10	0.15	0.16	0.23	0.28	0.35	0.40
	125 - 175	- 7	HSS	48	58	63	0.15	0.20	0.24	0.36	0.43	0.47	0.53
	175 - 225	7 - 20	HSS	45	56	58	0.13	0.20	0.24	0.36	0.42	0.46	0.55
High Temp. Alloy Hastelloy B, Inconel etc	225 - 275	20 - 28	HSS	41	50	56	0.13	0.16	0.23	0.35	0.41	0.44	0.55
	275 - 325	28 - 34	SH, PH	39	47	53	0.09	0.15	0.22	0.28	0.38	0.41	0.50
	325 - 375	34 - 40	SH, PH	36	43	46	0.08	0.15	0.21	0.27	0.38	0.40	0.51
High Strength Alloy 36CrNiMo4, 34CrNiMo8 40NiCrMo73 etc	150 - 200	- 13	SH	25	34	36	0.09	0.15	0.19	0.25	0.28	0.36	0.41
	200 - 250	13 - 24	SH, PH	19	27	29	0.09	0.15	0.19	0.25	0.28	0.36	0.41
Aluminum AlCuSiMn, AlMgSi0.5, AlZnMgCu1.5 etc	140 - 220	- 19	SH, PH	9	11	12	0.08	0.17	0.20	0.24	0.30	0.37	0.39
	220 - 310	19 - 33	PH	8	9	11	0.08	0.14	0.18	0.19	0.25	0.29	0.34
	225 - 300	- 32	SH, PH	25	34	35	0.13	0.18	0.23	0.24	0.36	0.43	0.50
Stainless Steels X7Cr13, X10CrA118, X5CrNi189, X5CrNiMo18 10 etc	300 - 350	32 - 37	SH, PH	19	26	27	0.10	0.18	0.23	0.24	0.36	0.43	0.50
	350 - 400	37 - 43	PH	16	21	22	0.08	0.15	0.20	0.22	0.30	0.48	0.46
Aluminum AlCuSiMn, AlMgSi0.5, AlZnMgCu1.5 etc	30		HSS	187	229	244	0.19	0.33	0.41	0.50	0.54	0.64	0.62
	180	- 8	HSS	92	137	137	0.19	0.33	0.41	0.46	0.54	0.64	0.62
Stainless Steels X7Cr13, X10CrA118, X5CrNi189, X5CrNiMo18 10 etc	135 - 185	- 9	HSS	24	29	34	0.14	0.20	0.23	0.26	0.36	0.41	0.50
	185 - 275	9 - 28	HSS	20	23	29	0.12	0.18	0.20	0.24	0.30	0.36	0.46

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 :

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

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

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

* HSS Grade : HSS = HSS M4, SH = Super HSS T15, PH = Premium HSS M48

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.

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