

## V-PM-Drills

**More Performance with PM-Steel**

Chip - by Chip - to the Top

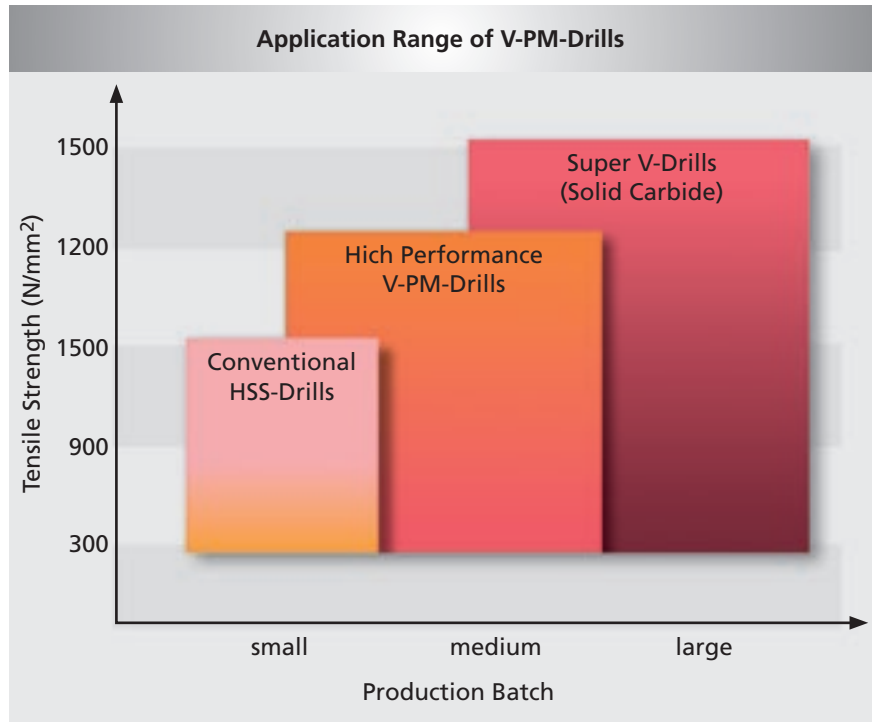
# V-PM-Drills

## V-PM - the „new efficiency“ from Stock!

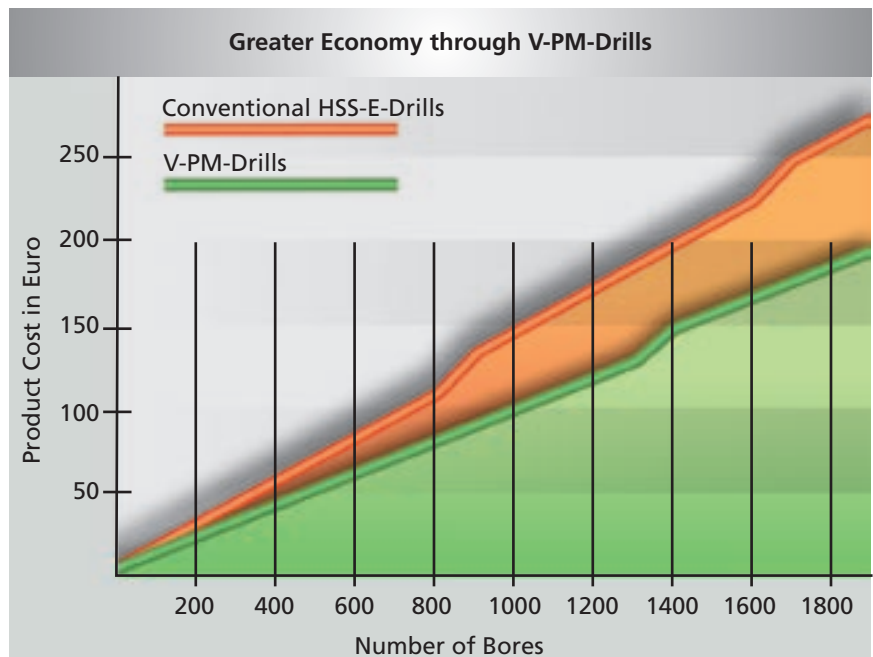
The new V-PM-drill is specially designed for application in steels of medium to high tensile strengths and is made from high performance powdermetallurgical (PM) steel. This combines the advantages of HSS drills with those of solid carbide drills closing the gap for medium tensile strength steels and medium size batch production.

### 3 convincing points for V-PM-drills: economy, rigidity, longevity!

These are the results of combining the advantages of classical HSS and solid carbide drills. What's more, the TiN or FIRE coating makes the V-PM-drill more resistant to high temperatures which again has a positive effect on the tool life.



The STOCK V-PM- drill is available in two different versions: for drilling depths of 3 x D and 5 x D (see below).



Catalog No: **51131**



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- DIN 1897
- Point angle 130°
- Ø-Tolerance h8
- PM HSS-E
- TiN- or FIRE-coated
- Drilling depth ~ 3 x D
- Straight shank

- STOCK-Standard / Flute length to DIN 338
- Point angle 130°
- Ø-Tolerance h8
- PM HSS-E
- TiN- or FIRE-coated
- Drilling depth ~ 5 x D
- Reinforced shank to DIN 1835 A\* or straight shank

\* Shanks with flat to DIN 1835 B available upon request; please call for delivery times.

### Application Recommendations for V-PM-Drills

Drill Ø mm	Feed Rate Codes								
	A	B	C	D	E	F	G	H	I
	f (mm/rev.)								
0.50	0.004	0.006	0.007	0.008	0.010	0.012	0.014	0.016	0.019
1.00	0.006	0.008	0.012	0.014	0.016	0.018	0.020	0.023	0.025
2.00	0.020	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125
2.50	0.025	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160
3.15	0.032	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200
4.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
5.00	0.040	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250
6.30	0.050	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315
8.00	0.063	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400
10.00	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
12.50	0.080	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500
16.00	0.100	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630
20.00	0.125	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800
25.00	0.160	0.200	0.250	0.315	0.400	0.500	0.630	0.800	0.800

NX-Drills  
with feed rate code **in grey**  
are the preferred choices  
for the respective material group.

Catalog No.	<b>61131</b> 3xD <b>61232</b> 5xD	<b>51131</b> 3xD <b>51132</b> 5xD
Cutting Material	PM HSS-E	PM HSS-E
Surface Finish	TiN	FIRE
DIN/Norm	1897/338	1897/Stock



#### Coolants & Lubricants:

- Cutting oil, highly activated (surface active) ■
- Soluble oil (emulsion) ■
- None □
- Air ONLY ■

Material Group	Material Group Example <i>Codes in bold = material to DIN EN</i>	Tensile str. N/mm <sup>2</sup>	Hard- ness	Cool- ant	Vc m/min	Feed Rate Code	Vc m/min	Feed Rate Code
Common structural steels	1.0035 S185(St33), 1.0486 P275N(StE285), 1.0345 P235GH(H1), 1.0425 P265GH(H2)	<500		■	40	F	50	F
Free-cutting steels	1.0050 E295 (St50-2), 1.0070 E360 (St70-2), 1.8937 P500NH (WStE500)	>500		■	32	E	40	E
Unalloyed temper steels	1.0718 11SMnPb30 (9SMnPb28), 1.0736 11SMn37 (9SMn36)	<800		■	48	F	60	F
Alloyed temper steels	1.0727 46S20 (45S20), 1.0728 (60S20), 1.0757 46SPb20 (45SPb20)	>800		■	40	F	50	F
Unalloyed case hardened steels	1.0402 C22, 1.1178 C30E (Ck30)	< 700		■	32	F	40	F
Alloyed case hardened steels	1.0503 C45, 1.1191 C45E (Ck45)	700-850		■	32	F	40	F
Unalloyed case hardened steels	1.0601 C60, 1.1221 C60E (Ck60)	850-1000		■	26	E	32	E
Alloyed case hardened steels	1.5131 50MnSi4, 1.7003 38Cr2, 1.7030 28Cr4	850-1000		■	26	D	32	D
Unalloyed case hardened steels	1.5710 36NiCr6, 1.7035 41Cr4, 1.7225 42CrMo4	1000-1200		■	26	D	32	D
Alloyed case hardened steels	1.0301 (C10), 1.1121 C10E (Ck10)	≤750		■	32	C	40	C
Nitrided steels	1.7043 38Cr4	850-1000		■	20	D	25	D
Tool steels	1.5752 15NiCr13 (15NiCr13), 1.7131 16MnCr5, 1.7264 20CrMo5	1000-1200		■	16	C	20	C
High speed steels	1.8504 34CrAl6	850-1000		■	16	D	20	D
Spring steels	1.8519 31CrMoV9, 1.8550 34CrAlNi7	1000-1200		■	16	C	20	C
Stainless steels, sulphured	1.1750 C75W, 1.2067 102Cr6, 1.2307 29CrMoV9	<850		■	20	D	25	D
Stainless steels, austenitic	1.2080 X210Cr12, 1.2083 X42Cr13, 1.2419 105WCr6, 1.2767 X45NiCrMo4	850-1000		■	16	C	20	C
Stainless steels, martensitic	1.3243 S 6-5-2-5, 1.3343 S 6-5-2, 1.3344 S 6-5-3	<1050		■	16	C	20	C
Hardened steels	1.5026 55Si7, 1.7176 55Cr3, 1.8159 51CrV4 (51CrV4)	<330 HB		■	10	B	12	B
Special alloys	1.4005 X12CrS13, 1.4104 X14CrMoS17, 1.4105 X6CrMoS17, 1.4305 X8CrNiS18-9	≤850		■	16	D	20	D
Cast iron	1.4301 X5CrNi18-10, 1.4541 X6CrNiTi18-10, 1.4571 X6CrNiMoTi 17 12 2	≤850		■	12	C	15	C
Spheroidal graphite iron and malleable cast iron	1.4057 X20CrNi 17 2 (X17CrNi16-2), 1.4122 X39CrMo17-1, 1.4521 X2CrMoTi18-2	≤850		■	16	C	20	C
Chilled cast iron	-	40-48 HRC 48-60 HRC		■				
Titanium and Ti-alloys	Nimonic, Inconel, Monel, Hastelloy	1200		■	10	B	13	B
Aluminium and Al-alloys	0.6010 EN-GJL-100(GG10), 0.6020 EN-GJL-200(GG20)	<240 HB		■	36	F	45	F
Al-wrought alloys	0.6025 EN-GJL-250(GG25), 0.6035 EN-GJL-350(GG35)	<300 HB		■	29	F	36	F
Al-cast alloys ≤ 10 % Si	0.7050 EN-GJS-500-7(GGG50), 0.8035 EN-GJMW-350-4(GTW35)	<240 HB		■	32	F	40	F
Al-cast alloys > 10 % Si	0.7070 EN-GJS-700-2(GGG70), 0.8170 EN-GJMB-700-2(GTS70)	<300 HB		■	26	F	32	F
Magnesium alloys > 10 % Si	-	<350 HB		■				
Copper, low alloyed	3.7024 Ti99,5, 3.7114 TiAl5Sn2,5, 3.7124 TiCu2	<850		■				
Brass, short chipping	3.7154 TiAl6Zr5, 3.7164 TiAl6V4, 3.7184 TiAl4Mo4Sn2,5, - TiAl8Mo1V1	850-1200		■				
Brass, long chipping	3.0255 Al99,5, 3.2315 AlMgSi1, 3.3515 AlMg1	<400		■				
Bronze, short chipping	3.0615 AlMgSiPb, 3.1325 AlCuMg1, 3.3245 AlMg3Si, 3.4365 AlZnMgCu1,5	<450		■				
Bronze, long chipping	3.2131 G-AlSi5Cu1, 3.2153 G-AlSi7Cu3, 3.2573 G-AlSi9	<600		■	72	G	90	G
Duroplastics	3.2581 G-AlSi12, 3.2583 G-AlSi12Cu, - G-AlSi12CuNiMg	<600		■	64	F	80	F
Thermoplastics	MgMn2, G-MgAl8Zn1, G-MgAl6Zn3	<450		■	64	F	80	F
Kevlar	2.0070 SE-Cu, 2.1020 CuSn6, 2.1096 G-CuSn5ZnPb	<400		■				
Glass/carbon-plastics	2.0380 CuZn39Pb2, 2.0401 CuZn39Pb3, 2.0410 CuZn43Pb2	<600		■				
	2.0250 CuZn20, 2.0280 CuZn33, 2.0332 CuZn37Pb0,5	<600		■				
	2.1090 CuSn7ZnPb, 2.1170 CuPb55Sn5, 2.1176 CuPb10Sn	<600		■				
	2.0790 CuNi18Zn19Pb	600-850		■				
	2.0916 CuAl5, 2.0960 CuAl9Mn, 2.1050 CuSn10	850		■				
	2.0980 CuAl11Ni, 2.1247 CuBe2	850-1000		■				
	Bakelit, Resopal, Pertinax, Moltopren	-		□				
	Plexiglass, Hostalen, Novodur, Makralon	-		□				
	Kevlar	-		□				
	GFK/CFK	-		□				

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