VORTEX TOOLS

HOLE MAKING

CUTTING DATA

SPMG Indexable Drill Inserts



DRILLING

SPMG INSERTS

ISO **P** **M** **K** **N** S H

Workpiece Material		HARDNESS Bhn	Vc Surface speed · m/min	Feed rate mm/rev · by drill diameter				
				Ø12-16	Ø17-23	Ø24-29	Ø30-42	Ø43-100
P CARBON STEEL	Low Carbon Steel	80 – 180	**190** 130 – 250	0.04 – 0.08	0.04 – 0.08	0.04 – 0.08	0.04 – 0.08	0.04 – 0.08
	High Carbon Steel	180 – 280	**140** 80 – 200	0.04 – 0.10	0.04 – 0.12	0.05 – 0.16	0.08 – 0.18	0.10 – 0.22
P ALLOY STEEL	Low Alloy Steel	140 – 260	**130** 70 – 200	0.04 – 0.10	0.06 – 0.12	0.08 – 0.16	0.08 – 0.20	0.08 – 0.24
	Low Alloy Steel	50 – 260	**100** 50 – 160	0.04 – 0.18	0.06 – 0.12	0.08 – 0.16	0.08 – 0.18	0.08 – 0.22
	Low Pre-Hardened	200 – 400	**100** 50 – 150	0.04 – 0.10	0.06 – 0.12	0.08 – 0.16	0.08 – 0.18	0.08 – 0.22
	High Pre-Hardened Steel	220 – 450	**70** 30 – 120	0.04 – 0.12	0.06 – 0.14	0.08 – 0.17	0.08 – 0.17	0.08 – 0.20
M STAINLESS STEEL	Austenite Series	135 – 275 Ni>8%	**90** 40 – 150	0.04 – 0.10	0.06 – 0.12	0.06 – 0.14	0.06 – 0.16	0.06 – 0.20
	Ferrite Series Martensite Series	135 – 275	**100** 60 – 160	0.04 – 0.10	0.04 – 0.12	0.06 – 0.14	0.06 – 0.16	0.06 – 0.20
K CAST IRON	Grey Cast Iron	150 – 230	**190** 150 – 250	0.04 – 0.10	0.05 – 0.14	0.06 – 0.16	0.10 – 0.22	0.10 – 0.26
	Ductile Cast Iron	160 – 260	**150** 100 – 200	0.04 – 0.12	0.06 – 0.16	0.08 – 0.18	0.08 – 0.20	0.10 – 0.22
N NON-FERROUS	Aluminium Wrought Alloys	60 – 100	**350** 330 – 380	0.06 – 0.14	0.08 – 0.15	0.10 – 0.20	0.12 – 0.22	0.14 – 0.26
	Aluminium Castings Si<12%	80 – 90	**320** 300 – 350	0.06 – 0.12	0.08 – 0.14	0.10 – 0.18	0.12 – 0.20	0.14 – 0.24
	Aluminium Alloys Si>12%	130	**220** 200 – 250	0.06 – 0.10	0.08 – 0.12	0.10 – 0.16	0.12 – 0.18	0.14 – 0.22
	Bronze & Brass	90 – 100	**300** 280 – 330	0.06 – 0.14	0.08 – 0.14	0.10 – 0.18	0.12 – 0.20	0.14 – 0.24

*For 4 x D reduce the cutting conditions by 30-40%. In interrupted cutting reduce feed by 30-50%

Vc	Feed rate	Hardness	Ø
Surface speed (m/min)	mm/rev	Bhn	Drill diameter

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Recommended starting values. Adjust to suit machine rigidity, workholding, tool overhang and coolant.