



ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	INDEXABLE DRILL DIAMETER (INCH)		
					0.5620"-0.7499"	0.7500" - 1.4999"	1.5000" - 2.2500"
					Fz = IPR (INCH PER REVOLUTION)*		
<b>P</b>	<b>CARBON STEELS</b> 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	<b>UD51 /UD52</b>	300-800	.0015-.0060	.0025-.0080	.0030-.009
	<b>ALLOY STEELS</b> 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		250-700	.0020-.0070	.0025-.0070	.0030-.0080
<b>M</b>	<b>STAINLESS STEELS (FREE MACHINING)</b> 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	<b>UD32</b>	230-650	.0018-.0040	.0025-.0065	.0030-.0070
	<b>STAINLESS STEELS (DIFFICULT)</b> 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-700	.0018-.0040	.0023-.0055	.0030-.0065
<b>K</b>	<b>GRAY IRONS</b> Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	<b>UD21</b>	285-900	.0025-.0055	.0035-.0070	.0040-.0080
	<b>DUCTILE IRONS</b> D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		230-700	.0020-.0050	.0028-.0055	.0030-.0060
<b>N</b>	<b>NON-FERROUS</b> Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	<b>UD2</b>	400-975	.0020-.0075	.0030-.0070	.0045-.0100
<b>H</b>	<b>TOOL STEELS</b> A2, D2, H13, L2, M2, P20, S7, T15, W2"	≤ 375 BHN or ≤ 55 HRC	<b>UD32</b>	75-200	.0018-.0065	.0020-.0065	.0030-.0070
<b>S</b>	<b>HR SUPER ALLOYS</b> Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	<b>UD32 /UD52</b>	40-200	.0016-.0032	.0020-.0050	.0020-.0050
	<b>TITANIUM</b> 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC		90-350	.0019-.0055	.0020-.0050	.0020-.0065

**Recommendations**

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

\*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.