Using These Tables. The Speeds & Feeds listed below are conservative recommendations for initial setup. In actual use, depending on the machining environment and workpiece material, significantly higher speeds and feeds may be achievable. Using the below as a starting point, cutting speed/feed can be gradually adjusted upwards until the optimum settings per application are found. Questions? Contact us by telephone at (800) 776-6170.

Series # 4108 body (5xD) with # 4112 insert

Material group	Hardness	SFM	Feed Rate - IPR									
			1/16 in. 1.590 mm	1/8 in. 3.170 mm	1/4 in. 6.350 mm	3/8 in. 9.520 mm	1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm	1 1/4 in. 31.75mm	1 1/2 in. 38.10mm
Common structural steels	≤ 100 BHN	425	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	100-260 BHN	360	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
Free-cutting steels	≤ 24 HRC	425	•	•	•	•	0.012	0.016	0.020	0.025	0.025	0.031
	24-30 HRC	360	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
Unalloyed heat-treatable steels	≤ 16 HRC	425	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	16-24 HRC	410	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	24-30 HRC	360	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
Alloyed heat-treatable steels	24-30 HRC	360	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	30-38 HRC	295	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
Unalloyed case hardened steels	≤ 230 BHN	425	•	•	•	•	0.012	0.016	0.020	0.025	0.025	0.031
Alloyed case hardened steels	24-30 HRC	360	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	30-38 HRC	230	•	•	•	•	0.006	0.008	0.010	0.012	0.012	0.016
Nitriding steels	24-30 HRC	345	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
	30-38 HRC	230	•	•	•	•	0.006	0.008	0.010	0.012	0.012	0.016
Tool steels	≤ 24 HRC	195	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
	24-30 HRC	180	•	•	•	•	0.006	0.008	0.010	0.012	0.012	0.016
High speed steels	14-30 HRC	180	•	•	•	•	0.005	0.006	0.008	0.010	0.010	0.012
Spring steels	≤ 330 BHN	165	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
Stainless steels sulphured	≤ 24 HRC	180	•	•	•	•	0.005	0.006	0.008	0.010	0.010	0.012
austenitic	≤ 24 HRC	130	•	•	•	•	0.005	0.006	0.008	0.010	0.010	0.012
martensitic	≤ 24 HRC	115	•	•	•	•	0.005	0.006	0.008	0.010	0.010	0.012
Hardened steels	40-48 HRC	80	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
	48-60 HRC	•	•	•	•	•	•	•	•	•	•	•
Special alloys	≤ 38 HRC	80	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
Ti and Ti-alloys	≤ 24 HRC	130	•	•	•	•	0.005	0.006	0.008	0.010	0.010	0.012
	24-38 HRC	115	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010

Series # 4108 body (5xD) with # 4113 insert

Material group	Hardness	SFM	Feed Rate - IPR									
			1/16 in. 1.590 mm	1/8 in. 3.170 mm	1/4 in. 6.350 mm	3/8 in. 9.520 mm	1/2 in. 12.700 mm	5/8 in. 15.870 mm	3/4 in. 19.050 mm	1 in. 25.400 mm	1 1/4 in. 31.750 mm	1 1/2 in. 38.100 mm
Cast iron	≤240 Bhn	330	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	240-300 Bhn	295	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
New Cast Materials CGI & ADI	350-410 Bhn	260	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
New Cast Materials CGI & ADI	350-410 Bhn	260	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020
Spheroidal graphite iron and	≤240 Bhn	395	•	•	•	•	0.012	0.016	0.020	0.025	0.025	0.031
malleable cast iron	240-300 Bhn	330	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025

Series # 4108 body (5xD) with # 4114 insert

Material group	Hardness	SFM	Feed Rate - IPR									
			1/16 in. 1.590 mm	1/8 in. 3.170 mm	1/4 in. 6.350 mm	3/8 in. 9.520 mm	1/2 in. 12.700 mm	5/8 in. 15.870 mm	3/4 in. 19.050 mm	1 in. 25.400 mm	1 1/4 in. 31.750 mm	1 1/2 in. 38.100 mm
Aluminium and Al-alloys	≤120 Bhn	655	•	•	•	•	0.012	0.016	0.020	0.025	0.025	0.031
Al wrought alloys	≤150 Bhn	590	•	•	•	•	0.012	0.016	0.020	0.025	0.025	0.031
Al cast alloys ≤ 10 % Si	≤200 Bhn	490	•	•	•	•	0.012	0.016	0.020	0.025	0.025	0.031
> 10 % Si	≤200 Bhn	395	•	•	•	•	0.012	0.016	0.020	0.025	0.025	0.031
Magnesium alloys	≤150 Bhn	590	•	•	•	•	0.012	0.016	0.020	0.025	0.025	0.031
Copper, low-alloyed	≤120 Bhn	230	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
Brass, short-chipping	≤200 Bhn	590	•	•	•	•	0.012	0.016	0.020	0.025	0.025	0.031
long-chipping	≤200 Bhn	395	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
Bronze, short-chipping	≤200 Bhn	230	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	>200-260 Bhn	165	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
Bronze, long-chipping	24 Hrc	150	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
	24-30 Hrc	115	•	•	•	•	0.008	0.010	0.012	0.016	0.016	0.020

Series # 4108 body (5xD) with # 4115 insert

Material group	Hardness	SFM	Feed Rate - IPR									
			1/16 in. 1.590 mm	1/8 in. 3.170 mm	1/4 in. 6.350 mm	3/8 in. 9.520 mm	1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm	1 1/4 in. 31.75mm	1 1/2 in. 38.10mm
Stainless steels sulphured	≤ 24 HRC	180	•	•	•	•	0.005	0.006	0.008	0.010	0.010	0.012
austenitic	≤ 24 HRC	130	•	•	•	•	0.005	0.006	0.008	0.010	0.010	0.012
martensitic	≤ 24 HRC	115	•	•	•	•	0.005	0.006	0.008	0.010	0.010	0.012
Hardened steels	40-48 HRC	80	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
	48-60 HRC	•	•	•	•	•	•	•	•	•	•	•
Special alloys	≤ 38 HRC	80	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010
Chilled cast iron	≤ 350 BHN	295	•	•	•	•	0.010	0.012	0.016	0.020	0.020	0.025
Ti and Ti-alloys	≤ 24 HRC	130	•	•	•	•	0.005	0.006	0.008	0.010	0.010	0.012
	24-38 HRC	115	•	•	•	•	0.004	0.005	0.006	0.008	0.008	0.010