

Universal - US451

Material Designation	SFM [ft/min]	ae max [inch]	ap max [inch]	Chip Load Per Tooth [Inch]						
				1/8"	3/16" 1/4" 5/16"	3/8" 7/16"	1/2" 5/8"	3/4"	1"	
Machining Steel	< 500 N/mm ²	853	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	> 500 N/mm ²	787	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Construction Steel	Non-Alloy < 500 N/mm ²	820	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Non-Alloy > 500 N/mm ²	755	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloy	722	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Cementation Steel	< 150 HB	689	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	150-200 HB	656	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	> 200 HB	623	1xø	1xø	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Nitriding Steel	< 1000 N/mm ²	623	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	> 1000 N/mm ²	558	1xø	1xø	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Quenched & Tempered Steel	Non-Alloy < 800 N/mm ²	656	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Non-Alloy 800-1000 N/mm ²	623	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloy < 800 N/mm ²	623	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloy 800-1000 N/mm ²	591	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloy 1000-1300 N/mm ²	558	1xø	1xø	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Alloy 1300-1600 N/mm ²	492	1xø	1xø	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Non-Alloy Tool Steel	General	607	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Tool Steel for Cold Processing	Low Alloy < 1000 N/mm ²	591	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Low Alloy < 1200 N/mm ²	558	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Low Alloy < 1500 N/mm ²	492	1xø	1xø	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	High Alloy Annealed < 1000 N/mm ²	525	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	High Alloy Hardened < 1300 N/mm ²	459	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Tool Steel for Warm Processing	Low Alloy < 1200 N/mm ²	656	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Low Alloy < 1500 N/mm ²	591	1xø	1xø	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	High Alloy Annealed < 1000 N/mm ²	492	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	High Alloy Hardened < 1300 N/mm ²	459	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	High Alloy Hardened < 1600 N/mm ²	427	1xø	1xø	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Stainless Steel	Ferric	328	1xø	1xø	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	Martensitic	262	1xø	1xø	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	Austenitic A5 < 40%	328	1xø	1xø	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	Austenitic A5 > 40%	328	1xø	1xø	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	Sulphured	361	1xø	1xø	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
High Temperature Alloy	Fe-Alloy	98	1xø	0.5xø	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
	Ni-Alloy not hardened	98	1xø	0.5xø	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
	Ni-Alloy hardened	98	1xø	0.5xø	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
	Co-Alloy	98	1xø	0.5xø	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
Cast Iron	Non-Alloy	656	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Low-Alloy	525	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	High-Alloy	394	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Stainless Cast Steel	Ferric/Martensitic	328	1xø	1xø	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	Austenitic	328	1xø	1xø	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
Cast Iron with Lamellar Graphite	Non-Alloy < 180 HB	656	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Non-Alloy > 180 HB	591	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Alloy	525	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	High Alloy	394	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Spheroidal Cast Iron	Non-Alloy < 180 HB	623	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Non-Alloy > 180 HB	558	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloy	492	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
White Malleable Cast Iron	< 180 HB	591	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	> 180 HB	525	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Black Malleable Cast Iron	< 180 HB	591	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	> 180 HB	525	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Copper	Non-Alloy	919	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Wrought Alloy Non-Hardened	787	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Wrought Alloy Hardened	656	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	CuNi-Alloy	787	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	CuNiZn-Alloy Long-Chipping	656	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	CuNiZn-Alloy Short-Chipping	787	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
		984	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
CuZn (Brass)	Long-Chipping	1148	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Short-Chipping	787	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
CuSn (Bronze)	Long-Chipping	919	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Short-Chipping	787	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
CuAlFe (Ampco)	Long-Chipping	459	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Short-Chipping	525	1xø	1xø	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
Titanium	Non-Alloy	295	1xø	1xø	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloyed-Annealed	262	1xø	1xø	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Alloyed-Hardened	164	1xø	1xø	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035

* Feeds and Speeds are starting points for Overall Lengths of 3" and shorter.
For End Mills with Overall Lengths over 3" decrease the Feeds and Speeds.

Hardened Steel - US367

Material Designation		SFM [ft/min]	ae max [inch]	ap max [inch]	Chip Load Per Tooth [Inch]					
					1/8"	3/16" 1/4" 5/16"	3/8" 7/16"	1/2" 5/8"	3/4"	1"
Spring Steel	Annealed < 250 HB	427	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	Natural Hardened 250-350 HB	394	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	Spring Hardened 1200-1600 N/mm ²	377	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
Nitriding Steel	> 1000 N/mm ²	394	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
Quenched & Tempered Steel	Alloy 1000-1300 N/mm ²	394	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	Alloy 1300-1600 N/mm ²	361	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
Non-Alloy Tool Steel	General	443	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
Tool Steel for Cold Processing	Low Alloy < 1000 N/mm ²	427	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	Low Alloy < 1200 N/mm ²	394	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	Low Alloy < 1500 N/mm ²	361	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	High Alloy Annealed < 1000 N/mm ²	328	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	High Alloy Hardened < 1300 N/mm ²	295	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
Tool Steel for Warm Processing	Low Alloy < 1200 N/mm ²	394	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	Low Alloy < 1500 N/mm ²	361	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	High Alloy Annealed < 1000 N/mm ²	328	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	High Alloy Hardened < 1300 N/mm ²	295	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	High Alloy Hardened < 1600 N/mm ²	279	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
Hardened Tool Steel	< 55 HRC	262	0.05xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	55-58 HRC	230	0.03xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	58-60 HRC	197	0.03xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	60-62 HRC	148	0.03xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049
	62-64 HRC	115	0.03xØ	1.5xØ	0.0016	0.0018	0.0024	0.0028	0.0039	0.0049

Hardened Steel - US453

Material Designation		SFM [ft/min]	ae max [inch]	ap max [inch]	Chip Load Per Tooth [Inch]					
					1/8"	3/16" 1/4" 5/16"	3/8" 7/16"	1/2" 5/8"	3/4"	1"
Spring Steel	Annealed < 250 HB	525	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
	Natural Hardened 250-350 HB	443	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
	Spring Hardened 1200-1600 N/mm ²	328	1xØ	1xØ	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
Nitriding Steel	> 1000 N/mm ²	525	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
Quenched & Tempered Steel	Alloy 800-1000 N/mm ²	525	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
	Alloy 1000-1300 N/mm ²	443	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
	Alloy 1300-1600 N/mm ²	377	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
Tool Steel for Cold Processing	Low Alloy < 1000 N/mm ²	525	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
	Low Alloy < 1200 N/mm ²	377	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
	Low Alloy < 1500 N/mm ²	295	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
	High Alloy Annealed < 1000 N/mm ²	443	1xØ	1xØ	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
	High Alloy Hardened < 1300 N/mm ²	427	1xØ	1xØ	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
Tool Steel for Warm Processing	Low Alloy < 1200 N/mm ²	410	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
	Low Alloy < 1500 N/mm ²	377	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
	High Alloy Annealed < 1000 N/mm ²	443	1xØ	1xØ	0.0006	0.0012	0.0016	0.0020	0.0024	0.0030
	High Alloy Hardened < 1300 N/mm ²	410	1xØ	1xØ	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
	High Alloy Hardened < 1600 N/mm ²	377	1xØ	1xØ	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
Hardened Tool Steel	< 55 HRC	164	1xØ	1xØ	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
	55-58 HRC	115	1xØ	0.5xØ	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
	58-60 HRC	82	1xØ	0.5xØ	0.0003	0.0004	0.0008	0.0012	0.0016	0.0020
	60-62 HRC	66	1xØ	0.5xØ	0.0003	0.0004	0.0008	0.0012	0.0016	0.0020
	62-64 HRC	49	1xØ	0.5xØ	0.0003	0.0004	0.0008	0.0012	0.0016	0.0020

* Feeds and Speeds are starting points for Overall Lengths of 3" and shorter.
For End Mills with Overall Lengths over 3" decrease the Feeds and Speeds.

Stainless Steel - US445

Material Designation	SFM [ft/min]	ae max [inch]	ap max [inch]	Chip Load Per Tooth [Inch]						
				1/8"	3/16" 1/4" 5/16"	3/8" 7/16"	1/2" 5/8"	3/4"	1"	
Machining Steel	> 500 N/mm ²	787	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Construction Steel	Non-Alloy < 500 N/mm ²	820	0.8xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Non-Alloy > 500 N/mm ²	755	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Alloy	722	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Cementation Steel	< 150 HB	689	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	150-200 HB	656	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	> 200 HB	623	0.8xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
Nitriding Steel	< 1000 N/mm ²	623	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	> 1000 N/mm ²	558	0.8xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
Quenched & Tempered Steel	Non-Alloy < 800 N/mm ²	656	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Non-Alloy 800-1000 N/mm ²	623	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Alloy < 800 N/mm ²	623	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Alloy 800-1000 N/mm ²	591	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Alloy 1000-1300 N/mm ²	558	0.8xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	Alloy 1300-1600 N/mm ²	492	0.8xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
Non-Alloy Tool Steel	General	607	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Tool Steel for Cold Processing	Low Alloy < 1000 N/mm ²	591	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Low Alloy < 1200 N/mm ²	558	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Low Alloy < 1500 N/mm ²	492	0.8xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	High Alloy Annealed < 1000 N/mm ²	525	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	High Alloy Hardened < 1300 N/mm ²	459	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Tool Steel for Warm Processing	Low Alloy < 1200 N/mm ²	656	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Low Alloy < 1500 N/mm ²	591	0.8xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	High Alloy Annealed < 1000 N/mm ²	492	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	High Alloy Hardened < 1300 N/mm ²	459	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	High Alloy Hardened < 1600 N/mm ²	427	0.8xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
Stainless Steel	Ferric	328	0.8xØ	1xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Martensitic	262	0.8xØ	1xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Austenitic A5 < 40%	328	0.8xØ	1xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Austenitic A5 > 40%	328	0.8xØ	1xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Sulphured	361	0.8xØ	1xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
Cast Iron	Non-Alloy	656	0.8xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Low-Alloy	525	0.8xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	High-Alloy	394	0.8xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Stainless Cast Steel	Ferric/Martensitic	328	0.8xØ	1xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Austenitic	328	0.8xØ	1xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
Cast Iron with Lamellar Graphite	Non-Alloy < 180 HB	656	0.8xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Non-Alloy > 180 HB	591	0.8xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloy	525	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	High Alloy	394	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Spheroidal Cast Iron	Non-Alloy < 180 HB	623	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Non-Alloy > 180 HB	558	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Alloy	492	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
White Malleable Cast Iron	< 180 HB	591	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	> 180 HB	525	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Black Malleable Cast Iron	< 180 HB	591	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	> 180 HB	525	0.8xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039

* Feeds and Speeds are starting points for Overall Lengths of 3" and shorter.
For End Mills with Overall Lengths over 3" decrease the Feeds and Speeds.

Stainless Steel - US340

Material Designation		SFM [ft/min]	ae max [inch]	ap max [inch]	Chip Load Per Tooth [Inch]					
					1/8"	3/16" 1/4" 5/16"	3/8" 7/16"	1/2" 5/8"	3/4"	1"
Machining Steel	< 500 N/mm ²	853	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	> 500 N/mm ²	787	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Construction Steel	Non-Alloy < 500 N/mm ²	820	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Non-Alloy > 500 N/mm ²	755	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloy	722	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Cementation Steel	< 150 HB	689	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	150-200 HB	656	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	> 200 HB	623	1xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Nitriding Steel	< 1000 N/mm ²	623	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	> 1000 N/mm ²	558	1xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Quenched & Tempered Steel	Non-Alloy < 800 N/mm ²	656	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Non-Alloy 800-1000 N/mm ²	623	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloy < 800 N/mm ²	623	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloy 800-1000 N/mm ²	591	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloy 1000-1300 N/mm ²	558	1xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
Stainless Steel	Ferric	328	1xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	Martensitic	262	1xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	Austenitic A5 < 40%	328	1xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	Austenitic A5 > 40%	328	1xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	Sulphured	361	1xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
High Temperature Alloy	Fe-Alloy	82	1xØ	0.5xØ	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
	Ni-Alloy not hardened	82	1xØ	0.5xØ	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
	Ni-Alloy hardened	82	1xØ	0.5xØ	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
	Co-Alloy	82	1xØ	0.5xØ	0.0004	0.0008	0.0012	0.0016	0.0020	0.0024
Cast Iron	Non-Alloy	656	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Low-Alloy	525	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	High-Alloy	394	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Stainless Cast Steel	Ferric/Martensitic	328	1xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
	Austenitic	328	1xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035
Cast iron with Lamellar Graphite	Non-Alloy < 180 HB	656	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Non-Alloy > 180 HB	591	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Alloy	525	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	High Alloy	394	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Spheroidal Cast Iron	Non-Alloy < 180 HB	623	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Non-Alloy > 180 HB	558	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloy	492	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
White Malleable Cast Iron	< 180 HB	591	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	> 180 HB	525	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Black Malleable Cast Iron	< 180 HB	591	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	> 180 HB	525	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
Copper	Non-Alloy	919	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Wrought Alloy Non-Hardened	787	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Wrought Alloy Hardened	656	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	CuNi-Alloy	787	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	CuNiZn-Alloy Long-Chipping	656	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	CuNiZn-Alloy Short-Chipping	787	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
CuZn (Brass)	Long-Chipping	984	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Short-Chipping	1148	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
CuSn (Bronze)	Long-Chipping	787	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Short-Chipping	919	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
CuAlFe (Ampco)	Long-Chipping	459	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Short-Chipping	525	1xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
Titanium	Non-Alloy	295	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloyed-Annealed	262	1xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039
	Alloyed-Hardened	164	1xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	0.0035

* Feeds and Speeds are starting points for Overall Lengths of 3" and shorter.
For End Mills with Overall Lengths over 3" decrease the Feeds and Speeds.

Titanium - US456 / US457										
Material Designation		SFM [ft/min]	ae max [inch]	ap max [inch]	Chip Load Per Tooth [Inch]					
					1/8"	3/16" 1/4" 5/16"	3/8" 7/16"	1/2" 5/8"	3/4"	1"
High Temperature Alloy	Fe-Alloy	180	1xØ	0.5xØ	0.0008	0.0016	0.0020	0.0024	0.0028	0.0031
	Ni-Alloy not hardened	180	1xØ	0.5xØ	0.0008	0.0016	0.0020	0.0024	0.0028	0.0031
	Ni-Alloy hardened	180	1xØ	0.5xØ	0.0008	0.0016	0.0020	0.0024	0.0028	0.0031
	Co-Alloy	180	1xØ	0.5xØ	0.0008	0.0016	0.0020	0.0024	0.0028	0.0031
Titanium	Non-Alloy	394	1xØ	0.5xØ	0.0010	0.0018	0.0028	0.0039	0.0047	0.0055
	Alloyed-Annealed	328	1xØ	0.5xØ	0.0008	0.0016	0.0024	0.0031	0.0039	0.0047
	Alloyed-Hardened	262	1xØ	0.5xØ	0.0006	0.0012	0.0020	0.0024	0.0031	0.0039

Titanium - US556										
Material Designation		SFM [ft/min]	ae max [inch]	ap max [inch]	Chip Load Per Tooth [Inch]					
					1/8"	3/16" 1/4" 5/16"	3/8" 7/16"	1/2" 5/8"	3/4"	
Stainless Steel	Ferric	328	0.5xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	
	Martensitic	262	0.5xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	
	Austenitic A5 < 40%	328	0.5xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	
	Austenitic A5 > 40%	328	0.5xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	
	Sulphured	361	0.5xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	
High Temperature Alloy	Fe-Alloy	180	0.5xØ	1xØ	0.0008	0.0016	0.0020	0.0024	0.0028	
	Ni-Alloy not hardened	180	0.5xØ	1xØ	0.0008	0.0016	0.0020	0.0024	0.0028	
	Ni-Alloy hardened	180	0.5xØ	1xØ	0.0008	0.0016	0.0020	0.0024	0.0028	
	Co-Alloy	180	0.5xØ	1xØ	0.0008	0.0016	0.0020	0.0024	0.0028	
Stainless Cast Steel	Ferric/Martensitic	328	0.5xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	
	Austenitic	328	0.5xØ	1xØ	0.0005	0.0010	0.0016	0.0020	0.0028	
Titanium	Non-Alloy	394	0.5xØ	1xØ	0.0010	0.0018	0.0028	0.0039	0.0047	
	Alloyed-Annealed	328	0.5xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0039	
	Alloyed-Hardened	262	0.5xØ	1xØ	0.0006	0.0012	0.0020	0.0024	0.0031	

Aluminum - US360										
Material Designation		SFM [ft/min]	ae max [inch]	ap max [inch]	Chip Load Per Tooth [Inch]					
					1/8"	3/16" 1/4" 5/16"	3/8" 7/16"	1/2" 5/8"	3/4"	1"
Aluminium	Non-Alloy	1968	1xØ	1xØ	0.0014	0.0024	0.0028	0.0035	0.0047	0.0055
	Wrought Alloy Non-Hardened	1968	1xØ	1xØ	0.0014	0.0024	0.0028	0.0035	0.0047	0.0055
	Wrought Alloy Hardened	1968	1xØ	1xØ	0.0014	0.0024	0.0028	0.0035	0.0047	0.0055
	Casting Alloy < 6% Si	1575	1xØ	1xØ	0.0014	0.0024	0.0028	0.0035	0.0047	0.0055
	Casting Alloy 6-12% Si	1181	1xØ	1xØ	0.0012	0.0020	0.0028	0.0047	0.0067	0.0083
	Casting Alloy > 6% Si	787	1xØ	1xØ	0.0012	0.0020	0.0028	0.0047	0.0067	0.0083
Magnesium	Wrought Alloy	722	1xØ	1xØ	0.0012	0.0020	0.0028	0.0047	0.0067	0.0083
	Casting Alloy	656	1xØ	1xØ	0.0012	0.0020	0.0028	0.0047	0.0067	0.0083
Copper	Non-Alloy	558	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	Wrought Alloy Non-Hardened	509	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	Wrought Alloy Hardened	394	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	CuNi-Alloy	492	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	CuNiZn-Alloy Long-Chipping	394	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
CuZn (Brass)	CuNiZn-Alloy Short-Chipping	492	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	Long-Chipping	591	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
CuSn (Bronze)	Short-Chipping	787	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	Long-Chipping	492	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
CuAlFe (Ampco)	Short-Chipping	558	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	Long-Chipping	180	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	Short-Chipping	230	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055

* Feeds and Speeds are starting points for Overall Lengths of 3" and shorter.
For End Mills with Overall Lengths over 3" decrease the Feeds and Speeds.

Aluminum - US376

Material Designation		SFM [ft/min]	ae max [inch]	ap max [inch]	Chip Load Per Tooth [Inch]					
					1/8"	3/16" 1/4" 5/16"	3/8" 7/16"	1/2" 5/8"	3/4"	1"
Aluminium	Non-Alloy	1640	0.05xØ	2xØ	0.0008	0.0016	0.0020	0.0024	0.0028	0.0031
	Wrought Alloy Non-Hardened	1640	0.05xØ	2xØ	0.0008	0.0016	0.0020	0.0024	0.0028	0.0031
	Wrought Alloy Hardened	1640	0.05xØ	2xØ	0.0008	0.0016	0.0020	0.0024	0.0028	0.0031
	Casting Alloy < 6% Si	1312	0.05xØ	2xØ	0.0008	0.0016	0.0020	0.0024	0.0028	0.0031
	Casting Alloy 6-12% Si	984	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Casting Alloy > 6% Si	689	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
Magnesium	Wrought Alloy	656	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Casting Alloy	558	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
Copper	Non-Alloy	492	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Wrought Alloy Non-Hardened	459	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Wrought Alloy Hardened	361	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	CuNi-Alloy	427	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	CuNiZn-Alloy Long-Chipping	361	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	CuNiZn-Alloy Short-Chipping	427	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
CuZn (Brass)	Long-Chipping	492	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Short-Chipping	689	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
CuSn (Bronze)	Long-Chipping	427	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Short-Chipping	459	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
CuAlFe (Ampco)	Long-Chipping	197	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028
	Short-Chipping	230	0.05xØ	2xØ	0.0006	0.0008	0.0012	0.0020	0.0024	0.0028

Aluminum - US220

Material Designation		SFM [ft/min]	ae max [inch]	ap max [inch]	Chip Load Per Tooth [Inch]					
					1/8"	3/16" 1/4" 5/16"	3/8" 7/16"	1/2" 5/8"	3/4"	1"
Aluminium	Non-Alloy	1968	1xØ	1xØ	0.0016	0.0024	0.0031	0.0059	0.0079	0.0089
	Wrought Alloy Non-Hardened	1968	1xØ	1xØ	0.0016	0.0024	0.0031	0.0059	0.0079	0.0089
	Wrought Alloy Hardened	1968	1xØ	1xØ	0.0016	0.0024	0.0031	0.0059	0.0079	0.0089
	Casting Alloy < 6% Si	1575	1xØ	1xØ	0.0016	0.0024	0.0031	0.0059	0.0079	0.0089
	Casting Alloy 6-12% Si	1181	1xØ	1xØ	0.0012	0.0020	0.0028	0.0047	0.0067	0.0083
	Casting Alloy > 6% Si	787	1xØ	1xØ	0.0012	0.0020	0.0028	0.0047	0.0067	0.0083
Magnesium	Wrought Alloy	722	1xØ	1xØ	0.0012	0.0020	0.0028	0.0047	0.0067	0.0083
	Casting Alloy	656	1xØ	1xØ	0.0012	0.0020	0.0028	0.0047	0.0067	0.0083
Copper	Non-Alloy	558	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	Wrought Alloy Non-Hardened	509	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	Wrought Alloy Hardened	394	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	CuNi-Alloy	492	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	CuNiZn-Alloy Long-Chipping	394	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	CuNiZn-Alloy Short-Chipping	492	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
CuZn (Brass)	Long-Chipping	591	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	Short-Chipping	787	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
CuSn (Bronze)	Long-Chipping	492	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	Short-Chipping	558	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
CuAlFe (Ampco)	Long-Chipping	180	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055
	Short-Chipping	230	1xØ	1xØ	0.0008	0.0016	0.0024	0.0031	0.0047	0.0055

* Feeds and Speeds are starting points for Overall Lengths of 3" and shorter.
For End Mills with Overall Lengths over 3" decrease the Feeds and Speeds.

Micro - US501/US503

Hardness: ≤ 28 Rc													
Material		Chip Load - IPT				Depth of Cut		Chip Load - IPT				Depth of Cut	
		SFM	0.005 - 0.015	0.015 - 0.031	0.031 - 0.047	Radial	Axial	0.047 - 0.062	0.062 - 0.078	0.078 - 0.093	0.093 - 0.120	Radial	Axial
Aluminum Alloys	Castings	750	0.00015	0.00031	0.00047	.13xDia.	3xDia.	0.00055	0.00069	0.00082	0.00110	.25xDia.	3xDia.
	Wrought	1000	0.00015	0.00031	0.00047	.13xDia.	3xDia.	0.00055	0.00069	0.00082	0.00110	.25xDia.	3xDia.
Copper Alloys	Coppers	225	0.00012	0.00025	0.00038	.13xDia.	3xDia.	0.00044	0.00055	0.00065	0.00088	.13xDia.	3xDia.
	Brass	500	0.00012	0.00025	0.00038	.13xDia.	3xDia.	0.00044	0.00055	0.00065	0.00088	.13xDia.	3xDia.
	Bronze	225	0.00012	0.00025	0.00038	.13xDia.	3xDia.	0.00044	0.00055	0.00065	0.00088	.13xDia.	3xDia.
	Aluminum Bronze	500	0.00012	0.00025	0.00038	.13xDia.	3xDia.	0.00044	0.00055	0.00065	0.00088	.13xDia.	3xDia.
	Nickel	225	0.00012	0.00025	0.00038	.13xDia.	3xDia.	0.00044	0.00055	0.00065	0.00088	.13xDia.	3xDia.
	Copper Alloys	550	0.00012	0.00025	0.00038	.13xDia.	3xDia.	0.00044	0.00055	0.00065	0.00088	.13xDia.	3xDia.
Cast Iron	Ductile	300	0.00005	0.00010	0.00015	.13xDia.	3xDia.	0.00017	0.00021	0.00025	0.00034	.13xDia.	3xDia.
	Gray	400	0.00005	0.00010	0.00015	.13xDia.	3xDia.	0.00017	0.00021	0.00025	0.00034	.13xDia.	3xDia.
	Malleable	250	0.00005	0.00010	0.00015	.13xDia.	3xDia.	0.00017	0.00021	0.00025	0.00034	.13xDia.	3xDia.
Magnesium Alloys	General	1500	0.00015	0.00031	0.00048	.13xDia.	3xDia.	0.00055	0.00069	0.00082	0.00110	.13xDia.	3xDia.
Zinc Alloys	General	800	0.00015	0.00031	0.00048	.13xDia.	3xDia.	0.00055	0.00069	0.00082	0.00110	.13xDia.	3xDia.

Hardness: 29 - 37 Rc													
Material		Chip Load - IPT				Depth of Cut		Chip Load - IPT				Depth of Cut	
		SFM	0.005 - 0.015	0.015 - 0.031	0.031 - 0.047	Radial	Axial	0.047 - 0.062	0.062 - 0.078	0.078 - 0.093	0.093 - 0.120	Radial	Axial
Carbon Steel	Low Carbon	600	0.00005	0.00010	0.00015	.13xDia.	3xDia.	0.00170	0.00021	0.00025	0.00034	.25xDia.	3xDia.
	Medium Carbon	200	0.00004	0.00009	0.00013	.13xDia.	3xDia.	0.00020	0.00025	0.00030	0.00040	.25xDia.	3xDia.
Stainless Steels	Martensitic\Ferritic	450	0.00005	0.00010	0.00015	.13xDia.	3xDia.	0.00017	0.00021	0.00025	0.00034	.25xDia.	3xDia.
	Austenitic	200	0.00004	0.00009	0.00013	.13xDia.	3xDia.	0.00015	0.00019	0.00023	0.00031	.25xDia.	3xDia.
Tool Steels	Low Alloy	200	0.00004	0.00009	0.00013	.13xDia.	3xDia.	0.00015	0.00019	0.00023	0.00031	.25xDia.	3xDia.
	High Alloy	150	0.00003	0.00006	0.00008	.13xDia.	3xDia.	0.00010	0.00012	0.00014	0.00019	.25xDia.	3xDia.
Titanium Alloys	General	150	0.00003	0.00006	0.00008	.13xDia.	3xDia.	0.00010	0.00012	0.00014	0.00019	.25xDia.	3xDia.
High Temp Alloys	Iron Alloy	70	0.00003	0.00006	0.00009	.13xDia.	3xDia.	0.00010	0.00012	0.00014	0.00019	.25xDia.	3xDia.
	Nickel Alloy	70	0.00003	0.00006	0.00009	.13xDia.	3xDia.	0.00010	0.00012	0.00014	0.00019	.25xDia.	3xDia.
	Hardened Nickel Alloy	70	0.00003	0.00006	0.00009	.13xDia.	3xDia.	0.00010	0.00012	0.00014	0.00019	.25xDia.	3xDia.
	Cobalt Alloy	70	0.00003	0.00006	0.00009	.13xDia.	3xDia.	0.00010	0.00012	0.00014	0.00019	.25xDia.	3xDia.

Hardness: 38 - 45 Rc													
Material		Chip Load - IPT				Depth of Cut		Chip Load - IPT				Depth of Cut	
		SFM	0.005 - 0.015	0.015 - 0.031	0.031 - 0.047	Radial	Axial	0.047 - 0.062	0.062 - 0.078	0.078 - 0.093	0.093 - 0.120	Radial	Axial
Stainless Steels	Austenitic	100	0.00002	0.00004	0.00007	.13xDia.	3xDia.	0.00008	0.00100	0.00012	0.00016	.25xDia.	3xDia.
Tool Steels	Low Alloy	100	0.00002	0.00004	0.00007	.13xDia.	3xDia.	0.00008	0.00100	0.00012	0.00016	.25xDia.	3xDia.
	High Alloy	90	0.00001	0.00003	0.00004	.13xDia.	3xDia.	0.00005	0.00006	0.00007	0.00010	.25xDia.	3xDia.
Titanium Alloys	General	75	0.00001	0.00003	0.00004	.13xDia.	3xDia.	0.00005	0.00006	0.00007	0.00010	.25xDia.	3xDia.
High Temp Alloys	Iron Alloy	50	0.00001	0.00003	0.00004	.13xDia.	3xDia.	0.00005	0.00006	0.00007	0.00010	.25xDia.	3xDia.
	Nickel Alloy	50	0.00001	0.00003	0.00004	.13xDia.	3xDia.	0.00005	0.00006	0.00007	0.00010	.25xDia.	3xDia.
	Hardened Nickel Alloy	50	0.00001	0.00003	0.00004	.13xDia.	3xDia.	0.00005	0.00006	0.00007	0.00010	.25xDia.	3xDia.
	Cobalt Alloy	50	0.00001	0.00003	0.00004	.13xDia.	3xDia.	0.00005	0.00006	0.00007	0.00010	.25xDia.	3xDia.

Micro US504/US506

Hardness: ≤ 28 Rc

Material		Chip Load - IPT				Depth of Cut		Chip Load - IPT				Depth of Cut	
		SFM	0.005 - 0.015	0.015 - 0.031	0.031 - 0.047	Radial	Axial	0.047 - 0.062	0.062 - 0.078	0.078 - 0.093	0.093 - 0.120	Radial	Axial
Aluminum Alloys	Castings	750	0.00022	0.00045	0.00068	.30xDia.	1xDia	0.00780	0.00099	0.00118	0.00158	.60xDia.	1xDia.
	Wrought	1000	0.00022	0.00045	0.00068	.30xDia.	1xDia	0.00780	0.00099	0.00118	0.00158	.60xDia.	1xDia.
Copper Alloys	Coppers	225	0.00017	0.00036	0.00055	.30xDia.	1xDia	0.00063	0.00079	0.00094	0.00127	.60xDia.	1xDia.
	Brass	500	0.00017	0.00036	0.00055	.30xDia.	1xDia	0.00063	0.00079	0.00094	0.00127	.60xDia.	1xDia.
	Bronze	225	0.00017	0.00036	0.00055	.30xDia.	1xDia	0.00063	0.00079	0.00094	0.00127	.60xDia.	1xDia.
	Aluminum Bronze	500	0.00017	0.00036	0.00055	.30xDia.	1xDia	0.00063	0.00079	0.00094	0.00127	.60xDia.	1xDia.
	Nickel	225	0.00017	0.00036	0.00055	.30xDia.	1xDia	0.00063	0.00079	0.00094	0.00127	.60xDia.	1xDia.
	Copper Alloys	550	0.00017	0.00036	0.00055	.30xDia.	1xDia	0.00063	0.00079	0.00094	0.00127	.60xDia.	1xDia.
Cast Iron	Ductile	300	0.00007	0.00014	0.00021	.30xDia.	1xDia	0.00024	0.00031	0.00036	0.00049	.60xDia.	1xDia.
	Gray	400	0.00007	0.00014	0.00021	.30xDia.	1xDia	0.00024	0.00031	0.00036	0.00049	.60xDia.	1xDia.
	Malleable	250	0.00007	0.00014	0.00021	.30xDia.	1xDia	0.00024	0.00031	0.00036	0.00049	.60xDia.	1xDia.
Magnesium Alloys	General	1500	0.00022	0.00045	0.00068	.30xDia.	1xDia	0.00078	0.00099	0.00118	0.00158	.60xDia.	1xDia.
Zinc Alloys	General	800	0.00022	0.00045	0.00068	.30xDia.	1xDia	0.00078	0.00099	0.00118	0.00158	.60xDia.	1xDia.

Hardness: 29 - 37 Rc

Material		Chip Load - IPT				Depth of Cut		Chip Load - IPT				Depth of Cut	
		SFM	0.005 - 0.015	0.015 - 0.031	0.031 - 0.047	Radial	Axial	0.047 - 0.062	0.062 - 0.078	0.078 - 0.093	0.093 - 0.120	Radial	Axial
Carbon Steel	Low Carbon	600	0.00007	0.00014	0.00021	.30xDia.	1xDia	0.00024	0.00031	0.00036	0.00049	.60xDia.	1xDia.
	Medium Carbon	200	0.00006	0.00013	0.00019	.30xDia.	1xDia	0.00022	0.00028	0.00033	0.00045	.60xDia.	1xDia.
Stainless Steels	Martensitic\Ferritic	450	0.00007	0.00014	0.00021	.30xDia.	1xDia	0.00024	0.00031	0.00036	0.00049	.60xDia.	1xDia.
	Austenitic	200	0.00006	0.00013	0.00019	.30xDia.	1xDia	0.00022	0.00028	0.00033	0.00045	.60xDia.	1xDia.
Tool Steels	Low Alloy	200	0.00006	0.00013	0.00019	.30xDia.	1xDia	0.00022	0.00028	0.00033	0.00045	.60xDia.	1xDia.
	High Alloy	150	0.00004	0.00008	0.00012	.30xDia.	1xDia	0.00014	0.00017	0.00021	0.00028	.60xDia.	1xDia.
Titanium Alloys	General	150	0.00004	0.00008	0.00012	.30xDia.	1xDia	0.00014	0.00017	0.00021	0.00028	.60xDia.	1xDia.
High Temp Alloys	Iron Alloy	70	0.00004	0.00008	0.00012	.30xDia.	1xDia	0.00014	0.00017	0.00021	0.00028	.60xDia.	1xDia.
	Nickel Alloy	70	0.00004	0.00008	0.00012	.30xDia.	1xDia	0.00014	0.00017	0.00021	0.00028	.60xDia.	1xDia.
	Hardened Nickel Alloy	70	0.00004	0.00008	0.00012	.30xDia.	1xDia	0.00014	0.00017	0.00021	0.00028	.60xDia.	1xDia.
	Cobalt Alloy	70	0.00004	0.00008	0.00012	.30xDia.	1xDia	0.00014	0.00017	0.00021	0.00028	.60xDia.	1xDia.

Hardness: 38- 45 Rc

Material		Chip Load - IPT				Depth of Cut		Chip Load - IPT				Depth of Cut	
		SFM	0.005 - 0.015	0.015 - 0.031	0.031 - 0.047	Radial	Axial	0.047 - 0.062	0.062 - 0.078	0.078 - 0.093	0.093 - 0.120	Radial	Axial
Stainless Steels	Austenitic	100	0.00003	0.00006	0.00010	.30xDia.	1xDia	0.00011	0.00014	0.00017	0.00022	.60xDia.	1xDia.
Tool Steels	Low Alloy	100	0.00003	0.00006	0.00010	.30xDia.	1xDia	0.00011	0.00014	0.00017	0.00022	.60xDia.	1xDia.
	High Alloy	90	0.00002	0.00004	0.00006	.30xDia.	1xDia	0.00007	0.00009	0.00012	0.00018	.60xDia.	1xDia.
Titanium Alloys	General	75	0.00002	0.00004	0.00006	.30xDia.	1xDia	0.00007	0.00009	0.00012	0.00018	.60xDia.	1xDia.
High Temp Alloys	Iron Alloy	50	0.00002	0.00004	0.00006	.30xDia.	1xDia	0.00007	0.00009	0.00012	0.00018	.60xDia.	1xDia.
	Nickel Alloy	50	0.00002	0.00004	0.00006	.30xDia.	1xDia	0.00007	0.00009	0.00012	0.00018	.60xDia.	1xDia.
	Hardened Nickel Alloy	50	0.00002	0.00004	0.00006	.30xDia.	1xDia	0.00007	0.00009	0.00012	0.00018	.60xDia.	1xDia.
	Cobalt Alloy	50	0.00002	0.00004	0.00006	.30xDia.	1xDia	0.00007	0.00009	0.00012	0.00018	.60xDia.	1xDia.