

Series 1134 - 1136

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	≤ 20 HRC	115		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
	≤ 32 HRC	100		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		
Free-cutting steels	≤ 25 HRC	130		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		
	≤ 32 HRC	130		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		
Unalloyed heat-treatable steels	≤ 20 HRC	115		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		
	≤ 25 HRC	115		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		
	≤ 32 HRC	100		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124		
Alloyed heat-treatable steels	≤ 32 HRC	70		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124		
	≤ 43 HRC	55		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098		
Unalloyed case hardened steels	≤ 25 HRC	110		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
Alloyed case hardened steels	≤ 32 HRC	65		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124		
	≤ 43 HRC	50		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098		
Nitriding steels	≤ 32 HRC	45		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124		
	≤ 43 HRC	40		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098		
Tool steels	≤ 25 HRC	60		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124		
	≤ 43 HRC	40		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098		
High speed steels	≤ 43 HRC	25		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098		
Spring steels	≤ 38 HRC	25		0.0016	0.0025	0.0039	0.0039	0.0049	0.0063	0.0079		
Stainless steels	sulphured austenitic martensitic	≤ 28 HRC	40		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098	
		≤ 36 HRC	35		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098	
		≤ 46 HRC	35		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098	
Hardened steels	≤ 48 HRC											
	≤ 66 HRC											
Special alloys	≤ 54 HRC	20		0.0013	0.0020	0.0031	0.0031	0.0039	0.0049	0.0063		
Cast iron	≤ 23 HRC	110		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
	≤ 38 HRC	110		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
Spheroidal graphite iron and malleable cast iron	≤ 23 HRC	100		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
	≤ 38 HRC	80		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
Chilled cast iron	≤ 38 HRC											
Ti and Ti-alloys	≤ 25 HRC	25		0.0016	0.0025	0.0039	0.0039	0.0049	0.0063	0.0079		
	≤ 43 HRC	20		0.0016	0.0025	0.0039	0.0039	0.0049	0.0063	0.0079		
Aluminum and Al-alloys	≤120HB	260		0.0049	0.0079	0.0124	0.0124	0.0157	0.0197	0.0248		
	≤200HB	260		0.0049	0.0079	0.0124	0.0124	0.0157	0.0197	0.0248		
Al wrought alloys	≤ 10% Si	195		0.0049	0.0079	0.0124	0.0124	0.0157	0.0197	0.0248		
Al cast alloys	≤ 24% Si	195		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
	≤120HB	230		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
Magnesium alloys	≤ 80 HB	215		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		
Copper	low-alloyed	215		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		
Brass	short-chipping	≤180HB	230		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157	
	long-chipping	≤180HB	150		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157	
Bronze	short-chipping	≤180HB	115		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124	
	long-chipping	≤ 25 HRC	110		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124	
Bronze	long-chipping	≤ 25 HRC	65		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124	
	long-chipping	≤ 32 HRC	50		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124	
Duroplastics	-	70		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124		
Thermoplastics	-	120		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		

Series 1133 - 1135

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	≤ 20 HRC	140		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
	≤ 32 HRC	120		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		
Free-cutting steels	≤ 25 HRC	155		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
	≤ 32 HRC	140		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
Unalloyed heat-treatable steels	≤ 20 HRC	145		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
	≤ 25 HRC	145		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
	≤ 32 HRC	130		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		
Alloyed heat-treatable steels	≤ 32 HRC	90		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124		
	≤ 43 HRC	70		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098		
Unalloyed case hardened steels	≤ 25 HRC	120		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
Alloyed case hardened steels	≤ 32 HRC	70		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124		
	≤ 43 HRC	60		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098		
Nitriding steels	≤ 32 HRC	60		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124		
	≤ 43 HRC	50		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098		
Tool steels	≤ 25 HRC	70		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124		
	≤ 43 HRC	50		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098		
High speed steels	≤ 43 HRC	40		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098		
Spring steels	≤ 38 HRC	35		0.0016	0.0025	0.0039	0.0039	0.0049	0.0063	0.0079		
Stainless steels	sulphured austenitic martensitic	≤ 28 HRC	60		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098	
		≤ 36 HRC	50		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098	
		≤ 46 HRC	40		0.0020	0.0031	0.0049	0.0049	0.0063	0.0079	0.0098	
Hardened steels	≤ 48 HRC											
	≤ 66 HRC											
Special alloys	≤ 54 HRC	25		0.0013	0.0020	0.0031	0.0031	0.0039	0.0049	0.0063		
Cast iron	≤ 23 HRC	125		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
	≤ 38 HRC	115		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
Spheroidal graphite iron and malleable cast iron	≤ 23 HRC	110		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
	≤ 38 HRC	90		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
Chilled cast iron	≤ 38 HRC											
Ti and Ti-alloys	≤ 25 HRC	35		0.0016	0.0025	0.0039	0.0039	0.0049	0.0063	0.0079		
	≤ 43 HRC	25		0.0016	0.0025	0.0039	0.0039	0.0049	0.0063	0.0079		
Aluminum and Al-alloys	≤120HB	260		0.0049	0.0079	0.0124	0.0124	0.0157	0.0197	0.0248		
	≤200HB	280		0.0049	0.0079	0.0124	0.0124	0.0157	0.0197	0.0248		
Al wrought alloys	≤ 10% Si	215		0.0049	0.0079	0.0124	0.0124	0.0157	0.0197	0.0248		
Al cast alloys	≤ 24% Si	215		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
	≤120HB	260		0.0039	0.0063	0.0098	0.0098	0.0124	0.0157	0.0197		
Magnesium alloys	≤ 80 HB	230		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		
Copper	low-alloyed	230		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157		
Brass	short-chipping	≤180HB	245		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157	
	long-chipping	≤180HB	165		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157	
Bronze	short-chipping	≤180HB	150		0.0031	0.0049	0.0079	0.0079	0.0098	0.0124	0.0157	
	long-chipping	≤ 25 HRC	130		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124	
Bronze	long-chipping	≤ 25 HRC	80		0.0025	0.0039	0.0063	0.0063	0.0079	0.0098	0.0124	
	long-chipping	≤ 32 HRC	65		0.0025							