RECOMMENDED CUTTING CONDITIONS

MVS

(inch)

Work Material			Mild Steel (≤180HB) AISI 1010 etc.		Carbon Steel, Alloy Steel (180—280HB) AISI 1045, 4140 etc.	
DC		L/D	vc (Min.—Max.) (SFM)	fr (Min.—Max.) (IPR)	vc (Min.—Max.) (SFM)	fr (Min.—Max.) (IPR)
inch	mm					
.0394	1.0	2,7DC	165 (130—195)	.0016 (.0008—.0020)	165 (130—195)	.0016 (.0008—.0020)
		≥12DC	165 (130—195)	.0008 (.0004—.0012)	130 (100—150)	.0008 (.0004—.0012)
.0591	1.5	2,7DC	165 (130—195)	.0020 (.0012—.0031)	165 (130—195)	.0020 (.0012—.0031)
		≥12DC	165 (130—195)	.0020 (.0008—.0031)	130 (100—150)	.0020 (.0012—.0031)
.0787	2.0	2,7DC	165 (130—195)	.0028 (.0016—.0039)	165 (130—195)	.0028 (.0016—.0039)
		≥12DC	165 (130—195)	.0028 (.0016—.0039)	165 (130—195)	.0028 (.0016—.0039)
.0984	2.5	2,7DC	195 (150—230)	.0035 (.0020—.0051)	195 (150—230)	.0035 (.0020—.0051)
		≥12DC	195 (150—230)	.0035 (.0024—.0051)	165 (130—195)	.0031 (.0020—.0051)
.1260	3.2	2DC	295 (130—360)	.0067 (.0039—.0094)	295 (165—330)	.0067 (.0039—.0094)
		3,5,8DC	295 (230—345)	.0039 (.0024—.0051)	265 (195—295)	.0039 (.0024—.0051)
		10,15,20,25,30DC	295 (130—360)	.0067 (.0039—.0094)	295 (165—330)	.0067 (.0039—.0094)
		35,40DC	245 (130—310)	.0055 (.0031—.0075)	245 (130—280)	.0055 (.0031—.0075)
.1575	4.0	2DC	330 (165—395)	.0079 (.0047—.0118)	295 (165—330)	.0079 (.0047—.0118)
		3,5,8DC	330 (260—375)	.0047 (.0031—.0063)	295 (230—345)	.0047 (.0031—.0063)
		10,15,20,25,30DC	295 (130—360)	.0079 (.0047—.0118)	295 (165—330)	.0079 (.0047—.0118)
		35,40DC	245 (130—310)	.0063 (.0039—.0094)	245 (130—280)	.0063 (.0039—.0094)
.1969	5.0	2DC	330 (165—395)	.0098 (.0059—.0138)	295 (165—330)	.0098 (.0059—.0138)
		3,5,8DC	330 (260—375)	.0059 (.0039—.0079)	295 (230—345)	.0059 (.0039—.0079)
		10,15,20,25,30DC	295 (130—360)	.0098 (.0059—.0138)	295 (165—330)	.0098 (.0059—.0138)
		35,40DC	245 (130—310)	.0079 (.0047—.0110)	245 (130—280)	.0079 (.0047—.0110)
.2480	6.3	2DC	360 (195—425)	.0106 (.0067—.0146)	330 (195—360)	.0106 (.0067—.0146)
		3,5,8DC	360 (280—410)	.0079 (.0051—.0102)	330 (260—375)	.0079 (.0051—.0102)
		10,15,20,25,30DC	360 (195—425)	.0106 (.0067—.0146)	330 (195—360)	.0106 (.0067—.0146)
		35,40DC	295 (130—360)	.0087 (.0055—.0118)	260 (130—295)	.0087 (.0055—.0118)
.3150	8.0	2DC	395 (230—460)	.0118 (.0079—.0157)	360 (230—395)	.0118 (.0079—.0157)
		3,5,8DC	395 (310—445)	.0091 (.0071—.0110)	360 (280—410)	.0091 (.0071—.0110)
		10,15,20,25,30DC	360 (195—425)	.0118 (.0079—.0157)	330 (195—360)	.0118 (.0079—.0157)
		35,40DC	295 (130—360)	.0094 (.0063—.0126)	260 (130—295)	.0094 (.0063—.0126)
.3937	1.0	2DC	425 (260—490)	.0126 (.0087—.0165)	395 (260—425)	.0126 (.0087—.0165)
		3,5,8DC	425 (330—490)	.0106 (.0087—.0126)	395 (310—445)	.0106 (.0087—.0126)
		10,15,20,25,30DC	360 (195—425)	.0126 (.0087—.0165)	330 (195—360)	.0126 (.0087—.0165)
		35,40DC	295 (130—360)	.0102 (.0071—.0134)	260 (130—295)	.0102 (.0071—.0134)
.4724	12.0	2DC	460 (295—525)	.0134 (.0094—.0173)	425 (295—460)	.0134 (.0094—.0173)
		3,5,8DC	460 (360—525)	.0118 (.0102—.0134)	425 (330—490)	.0118 (.0102—.0134)
		10,15,20,25,30DC	425 (260—490)	.0134 (.0094—.0173)	395 (260—425)	.0134 (.0094—.0173)
		35,40DC	345 (180—410)	.0106 (.0075—.0138)	310 (180—345)	.0106 (.0075—.0138)
.6299	16.0	2DC	525 (360—590)	.0142 (.0102—.0181)	460 (330—490)	.0142 (.0102—.0181)
		3,5,8DC	525 (410—590)	.0130 (.0106—.0150)	460 (360—525)	.0130 (.0106—.0150)
		10,15,20,25,30DC	425 (260—490)	.0142 (.0102—.0181)	395 (260—425)	.0142 (.0102—.0181)
		35,40DC	345 (180—410)	.0114 (.0083—.0146)	310 (180—345)	.0114 (.0083—.0146)
.7874	2.0	3,5,8DC	525 (410—590)	.0138 (.0118—.0157)	460 (360—525)	.0138 (.0118—.0157)

(Note) For the spindle revolution of diameters not shown in the table, please adjust to the conditions of larger and closest diameter, or calculate from the cutting speed of the closest diameter. For the feed rate per revolution, please set up within the recommended feed rate of the closest diameter appropriately.

MVS

(inch)

Work Material			Carbon Steel, Alloy Steel (280—350HB) AISI 4340 etc.		Austenitic Stainless Steel (≤200HB) AISI 304, 316 etc.	
DC		L/D	vc (Min.—Max.) (SFM)	fr (Min.—Max.) (IPR)	vc (Min.—Max.) (SFM)	fr (Min.—Max.) (IPR)
inch	mm					
.0394	1.0	2,7DC	130 (100—150)	.0016 (.0008—.0020)	100 (65—115)	.0012 (.0008—.0020)
		≥12DC	100 (65—115)	.0008 (.0004—.0012)	100 (65—115)	.0008 (.0004—.0012)
.0591	1.5	2,7DC	130 (100—150)	.0020 (.0012—.0031)	100 (65—115)	.0020 (.0012—.0028)
		≥12DC	100 (65—115)	.0020 (.0008—.0031)	100 (65—115)	.0020 (.0008—.0031)
.0787	2.0	2,7DC	130 (100—150)	.0028 (.0016—.0039)	100 (65—115)	.0024 (.0016—.0031)
		≥12DC	165 (130—195)	.0028 (.0016—.0039)	100 (65—115)	.0028 (.0016—.0039)
.0984	2.5	2,7DC	165 (130—195)	.0035 (.0020—.0051)	130 (100—150)	.0031 (.0020—.0039)
		≥12DC	165 (130—195)	.0031 (.0020—.0051)	100 (65—115)	.0031 (.0020—.0047)
.1260	3.2	2DC	295 (165—330)	.0059 (.0035—.0087)	130 (65—195)	.0028 (.0020—.0035)
		3,5,8DC	230 (180—260)	.0039 (.0024—.0051)	130 (100—150)	.0031 (.0024—.0039)
		10,15,20,25,30DC	260 (130—295)	.0059 (.0035—.0087)	130 (65—195)	.0028 (.0020—.0035)
		35,40DC	210 (130—245)	.0059 (.0028—.0071)	100 (65—165)	.0024 (.0016—.0028)
.1575	4.0	2DC	295 (165—330)	.0071 (.0043—.0106)	130 (65—195)	.0031 (.0024—.0039)
		3,5,8DC	265 (195—295)	.0043 (.0028—.0055)	130 (100—150)	.0035 (.0024—.0043)
		10,15,20,25,30DC	260 (130—295)	.0071 (.0043—.0106)	130 (65—195)	.0031 (.0024—.0039)
		35,40DC	210 (130—245)	.0071 (.0035—.0087)	100 (65—165)	.0024 (.0020—.0031)
.1969	5.0	2DC	295 (165—330)	.0087 (.0055—.0126)	130 (65—195)	.0039 (.0028—.0047)
		3,5,8DC	265 (195—295)	.0055 (.0035—.0071)	130 (100—150)	.0043 (.0031—.0055)
		10,15,20,25,30DC	260 (130—295)	.0087 (.0055—.0126)	130 (65—195)	.0039 (.0028—.0047)
		35,40DC	210 (130—245)	.0087 (.0043—.0102)	100 (65—165)	.0031 (.0024—.0039)
.2480	6.3	2DC	330 (195—360)	.0094 (.0059—.0130)	165 (100—230)	.0047 (.0031—.0063)
		3,5,8DC	295 (230—345)	.0071 (.0043—.0094)	165 (130—195)	.0055 (.0035—.0071)
		10,15,20,25,30DC	295 (165—330)	.0094 (.0059—.0130)	165 (100—230)	.0047 (.0031—.0063)
		35,40DC	245 (130—280)	.0094 (.0047—.0102)	130 (65—195)	.0039 (.0024—.0051)
.3150	8.0	2DC	330 (230—360)	.0106 (.0071—.0142)	165 (65—195)	.0055 (.0039—.0067)
		3,5,8DC	330 (260—375)	.0083 (.0063—.0098)	165 (130—195)	.0059 (.0039—.0075)
		10,15,20,25,30DC	295 (195—330)	.0106 (.0071—.0142)	165 (65—195)	.0055 (.0039—.0067)
		35,40DC	245 (150—280)	.0106 (.0055—.0114)	130 (65—165)	.0043 (.0031—.0055)
.3937	10.0	2DC	330 (195—395)	.0114 (.0079—.0150)	165 (65—195)	.0059 (.0047—.0071)
		3,5,8DC	360 (280—410)	.0091 (.0075—.0106)	165 (130—195)	.0063 (.0047—.0079)
		10,15,20,25,30DC	295 (195—360)	.0114 (.0079—.0150)	165 (65—195)	.0059 (.0047—.0071)
		35,40DC	245 (150—310)	.0114 (.0063—.0118)	130 (65—165)	.0047 (.0039—.0055)
.4724	12.0	2DC	395 (295—460)	.0118 (.0087—.0157)	195 (65—230)	.0067 (.0055—.0075)
		3,5,8DC	395 (310—445)	.0102 (.0087—.0114)	195 (150—230)	.0071 (.0059—.0083)
		10,15,20,25,30DC	330 (195—395)	.0118 (.0087—.0157)	195 (65—230)	.0067 (.0055—.0075)
		35,40DC	260 (130—330)	.0118 (.0071—.0126)	165 (65—195)	.0055 (.0043—.0059)
.6299	16.0	2DC	395 (260—460)	.0126 (.0091—.0161)	195 (65—230)	.0067 (.0055—.0075)
		3,5,8DC	425 (330—490)	.0110 (.0091—.0130)	195 (150—230)	.0075 (.0055—.0094)
		10,15,20,25,30DC	330 (195—395)	.0126 (.0091—.0161)	195 (65—230)	.0067 (.0055—.0075)
		35,40DC	260 (130—330)	.0126 (.0071—.0130)	165 (65—195)	.0055 (.0043—.0059)
.7874	20.0	3,5,8DC	425 (330—490)	.0118 (.0102—.0134)	195 (150—230)	.0083 (.0059—.0102)

(Note) For the spindle revolution of diameters not shown in the table, please adjust to the conditions of larger and closest diameter, or calculate from the cutting speed of the closest diameter. For the feed rate per revolution, please set up within the recommended feed rate of the closest diameter appropriately.

(inch)

Work Material			Gray Cast Iron (≤350MPa) No45B etc.		Ductile Cast Iron (≤450MPa) 60-60-8 etc.	
DC		L/D	vc (Min.—Max.) (SFM)	fr (Min.—Max.) (IPR)	vc (Min.—Max.) (SFM)	fr (Min.—Max.) (IPR)
inch	mm					
.0394	1.0	2,7DC	165 (130—195)	.0016 (.0008—.0020)	130 (100—150)	.0016 (.0008—.0020)
		≥12DC	130 (100—150)	.0008 (.0004—.0012)	100 (65—115)	.0008 (.0004—.0012)
.0591	1.5	2,7DC	165 (130—195)	.0020 (.0012—.0031)	130 (100—150)	.0020 (.0012—.0031)
		≥12DC	130 (100—150)	.0020 (.0008—.0031)	100 (65—115)	.0020 (.0008—.0031)
.0787	2.0	2,7DC	165 (130—195)	.0028 (.0016—.0039)	130 (100—150)	.0028 (.0016—.0039)
		≥12DC	165 (130—195)	.0028 (.0016—.0039)	165 (130—195)	.0028 (.0016—.0039)
.0984	2.5	2,7DC	195 (150—230)	.0035 (.0020—.0051)	165 (130—195)	.0035 (.0020—.0051)
		≥12DC	165 (130—195)	.0035 (.0024—.0051)	165 (130—195)	.0031 (.0020—.0047)
.1260	3.2	2DC	295 (195—360)	.0075 (.0043—.0102)	295 (195—360)	.0067 (.0039—.0094)
		3,5,8DC	295 (230—345)	.0039 (.0024—.0051)	215 (165—245)	.0039 (.0024—.0051)
		10,15,20,25,30DC	295 (195—360)	.0075 (.0043—.0102)	295 (195—360)	.0067 (.0039—.0094)
		35,40DC	245 (150—310)	.0059 (.0035—.0083)	100 (65—165)	.0055 (.0031—.0075)
.1575	4.0	2DC	330 (230—395)	.0087 (.0051—.0130)	295 (195—360)	.0079 (.0047—.0118)
		3,5,8DC	330 (260—375)	.0047 (.0031—.0063)	215 (165—245)	.0047 (.0031—.0063)
		10,15,20,25,30DC	295 (195—360)	.0087 (.0051—.0130)	295 (195—360)	.0079 (.0047—.0118)
		35,40DC	245 (150—310)	.0071 (.0039—.0102)	100 (65—165)	.0063 (.0039—.0094)
.1969	5.0	2DC	330 (230—395)	.0110 (.0028—.0154)	295 (195—360)	.0098 (.0059—.0138)
		3,5,8DC	330 (260—375)	.0059 (.0039—.0079)	215 (165—245)	.0059 (.0039—.0079)
		10,15,20,25,30DC	295 (195—360)	.0110 (.0028—.0154)	295 (195—360)	.0098 (.0059—.0138)
		35,40DC	245 (150—310)	.0087 (.0024—.0122)	100 (65—165)	.0079 (.0047—.0110)
.2480	6.3	2DC	360 (260—425)	.0118 (.0075—.0161)	330 (230—395)	.0106 (.0067—.0146)
		3,5,8DC	360 (280—410)	.0079 (.0051—.0102)	230 (180—260)	.0079 (.0051—.0102)
		10,15,20,25,30DC	360 (260—425)	.0118 (.0075—.0161)	330 (230—395)	.0106 (.0067—.0146)
		35,40DC	295 (195—360)	.0094 (.0059—.0130)	130 (100—195)	.0087 (.0055—.0118)
.3150	8.0	2DC	395 (295—460)	.0130 (.0087—.0173)	330 (230—395)	.0118 (.0079—.0157)
		3,5,8DC	395 (310—445)	.0098 (.0071—.0122)	230 (180—260)	.0091 (.0071—.0110)
		10,15,20,25,30DC	360 (260—395)	.0130 (.0087—.0173)	330 (230—395)	.0118 (.0079—.0157)
		35,40DC	295 (195—330)	.0102 (.0071—.0138)	130 (100—195)	.0094 (.0063—.0126)
.3937	10.0	2DC	425 (330—460)	.0138 (.0094—.0181)	330 (230—395)	.0126 (.0087—.0165)
		3,5,8DC	425 (330—490)	.0114 (.0087—.0138)	230 (180—260)	.0106 (.0087—.0126)
		10,15,20,25,30DC	360 (260—395)	.0138 (.0094—.0181)	330 (230—395)	.0126 (.0087—.0165)
		35,40DC	295 (195—330)	.0110 (.0075—.0146)	130 (100—195)	.0102 (.0071—.0134)
.4724	12.0	2DC	460 (330—490)	.0146 (.0102—.0189)	395 (295—460)	.0134 (.0094—.0173)
		3,5,8DC	460 (360—525)	.0126 (.0102—.0146)	295 (230—345)	.0118 (.0102—.0134)
		10,15,20,25,30DC	425 (295—460)	.0146 (.0102—.0189)	395 (295—460)	.0134 (.0094—.0173)
		35,40DC	345 (210—375)	.0118 (.0083—.0150)	165 (130—230)	.0106 (.0075—.0138)
.6299	16.0	2DC	525 (395—560)	.0157 (.0114—.0189)	395 (295—460)	.0142 (.0102—.0181)
		3,5,8DC	525 (410—590)	.0138 (.0110—.0165)	295 (230—345)	.0130 (.0110—.0150)
		10,15,20,25,30DC	425 (295—460)	.0157 (.0114—.0189)	395 (295—460)	.0142 (.0102—.0181)
		35,40DC	345 (210—375)	.0126 (.0091—.0150)	165 (130—230)	.0114 (.0083—.0146)
.7874	20.0	3,5,8DC	525 (410—590)	.0146 (.0118—.0173)	330 (260—375)	.0138 (.0118—.0157)

(Note) For the spindle revolution of diameters not shown in the table, please adjust to the conditions of larger and closest diameter, or calculate from the cutting speed of the closest diameter. For the feed rate per revolution, please set up within the recommended feed rate of the closest diameter appropriately.

RECOMMENDED CUTTING CONDITIONS

MVS

(inch)

Work Material			Aluminum Alloy (Si<5%) ASTM 6061, 7075 etc.		Heat Resistant Alloy Inconel718 etc.	
DC		L/D	vc (Min.—Max.) (SFM)	fr (Min.—Max.) (IPR)	vc (Min.—Max.) (SFM)	fr (Min.—Max.) (IPR)
inch	mm					
.0394	1.0	2,7DC	195 (150—230)	.0020 (.0012—.0031)	35 (15—50)	.0008 (.0004—.0012)
		≥12DC	165 (130—195)	.0020 (.0012—.0031)	35 (15—50)	.0008 (.0004—.0012)
.0591	1.5	2,7DC	260 (195—295)	.0028 (.0020—.0047)	35 (15—50)	.0012 (.0008—.0016)
		≥12DC	230 (180—260)	.0031 (.0020—.0047)	35 (15—50)	.0012 (.0008—.0016)
.0787	2.0	2,7DC	295 (230—345)	.0039 (.0024—.0059)	50 (35—65)	.0016 (.0012—.0020)
		≥12DC	260 (195—295)	.0043 (.0024—.0059)	50 (35—65)	.0016 (.0012—.0020)
.0984	2.5	2,7DC	330 (260—375)	.0051 (.0031—.0079)	50 (35—65)	.0020 (.0016—.0024)
		≥12DC	295 (230—345)	.0055 (.0031—.0079)	50 (35—65)	.0020 (.0016—.0024)
.1260	3.2	2DC	395 (260—490)	.0091 (.0039—.0138)	65 (30—80)	.0028 (.0020—.0035)
		3,5,8DC	395 (310—460)	.0091 (.0039—.0138)	65 (50—80)	.0028 (.0020—.0035)
		10,15,20,25,30DC	330 (195—425)	.0091 (.0039—.0138)	65 (30—80)	.0028 (.0020—.0035)
		35,40DC	260 (130—360)	.0071 (.0031—.0110)	50 (30—65)	.0024 (.0016—.0028)
.1575	4.0	2DC	395 (260—490)	.0094 (.0047—.0138)	65 (30—80)	.0035 (.0024—.0043)
		3,5,8DC	395 (310—460)	.0094 (.0047—.0138)	65 (50—80)	.0035 (.0024—.0043)
		10,15,20,25,30DC	330 (195—425)	.0094 (.0047—.0138)	65 (30—80)	.0035 (.0024—.0043)
		35,40DC	260 (130—360)	.0075 (.0039—.0110)	50 (30—65)	.0028 (.0020—.0035)
.1969	5.0	2DC	395 (260—490)	.0098 (.0059—.0138)	65 (30—80)	.0043 (.0031—.0055)
		3,5,8DC	395 (310—460)	.0098 (.0059—.0138)	65 (50—80)	.0043 (.0031—.0055)
		10,15,20,25,30DC	330 (195—425)	.0098 (.0059—.0138)	65 (30—80)	.0043 (.0031—.0055)
		35,40DC	260 (130—360)	.0079 (.0047—.0110)	50 (30—65)	.0035 (.0024—.0043)
.2480	6.3	2DC	490 (360—590)	.0138 (.0079—.0197)	80 (50—100)	.0051 (.0035—.0063)
		3,5,8DC	490 (395—560)	.0138 (.0079—.0197)	80 (65—100)	.0051 (.0035—.0063)
		10,15,20,25,30DC	425 (295—525)	.0138 (.0079—.0197)	65 (30—80)	.0051 (.0035—.0063)
		35,40DC	345 (210—440)	.0110 (.0063—.0157)	50 (30—65)	.0039 (.0028—.0051)
.3150	8.0	2DC	490 (330—560)	.0138 (.0079—.0197)	80 (50—100)	.0055 (.0043—.0063)
		3,5,8DC	490 (395—560)	.0138 (.0079—.0197)	80 (65—100)	.0055 (.0043—.0067)
		10,15,20,25,30DC	425 (260—490)	.0138 (.0079—.0197)	65 (30—80)	.0055 (.0043—.0063)
		35,40DC	345 (180—410)	.0110 (.0063—.0157)	50 (30—65)	.0043 (.0035—.0051)
.3937	10.0	2DC	490 (330—560)	.0197 (.0079—.0315)	80 (50—100)	.0059 (.0047—.0067)
		3,5,8DC	490 (395—560)	.0197 (.0079—.0315)	80 (65—100)	.0059 (.0047—.0067)
		10,15,20,25,30DC	425 (260—490)	.0197 (.0079—.0315)	65 (30—80)	.0059 (.0047—.0067)
		35,40DC	345 (180—410)	.0157 (.0063—.0252)	50 (30—65)	.0047 (.0039—.0055)
.4724	12.0	2DC	525 (330—560)	.0197 (.0079—.0315)	80 (50—100)	.0063 (.0051—.0071)
		3,5,8DC	525 (410—590)	.0197 (.0079—.0315)	80 (65—100)	.0063 (.0051—.0071)
		10,15,20,25,30DC	460 (260—490)	.0197 (.0079—.0315)	65 (30—80)	.0063 (.0051—.0071)
		35,40DC	375 (180—410)	.0157 (.0063—.0252)	50 (30—65)	.0051 (.0039—.0055)
.6299	16.0	2DC	525 (330—560)	.0197 (.0079—.0315)	80 (50—100)	.0067 (.0055—.0075)
		3,5,8DC	525 (410—590)	.0236 (.0079—.0394)	80 (65—100)	.0071 (.0055—.0083)
		10,15,20,25,30DC	460 (260—490)	.0197 (.0079—.0315)	65 (30—80)	.0067 (.0055—.0075)
		35,40DC	375 (180—410)	.0157 (.0063—.0252)	50 (30—65)	.0055 (.0043—.0059)
.7874	20.0	3,5,8DC	560 (445—655)	.0236 (.0079—.0394)	100 (65—115)	.0075 (.0059—.0087)

(Note) For the spindle revolution of diameters not shown in the table, please adjust to the conditions of larger and closest diameter, or calculate from the cutting speed of the closest diameter. For the feed rate per revolution, please set up within the recommended feed rate of the closest diameter appropriately.