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Recommended Cutting Conditions - Boring (Positive Insert)

[D.O.C. Indicates Radius]

ISO Classification	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Grade	Corner-R (rε)	Lower Limit - **Recommendation** - Upper Limit		
								Vc (sfm)	D.O.C. (inch)	Feed Rate f (ipr)
P※	Low-carbon Steel Low-carbon Alloy	HB ≦ 300	Precision Finishing	Continuous	F,U	TN620	0.004	820 - **980** - 1150	0.002 - **0.012** - 0.020	0.001 - **0.004** - 0.006
				Interruption		PR1425	0.008	390 - **560** - 720	0.002 - **0.012** - 0.020	0.001 - **0.004** - 0.006
			Finishing	Continuous	XP	PV7010	1/64	660 - **820** - 980	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
				Interruption		CA525	1/64	490 - **660** - 820	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
			Finishing-Medium	Continuous	XQ	PV7010	1/64	490 - **660** - 820	0.020 - **0.039** - 0.079	0.004 - **0.006** - 0.010
				Interruption		CA525	1/64	330 - **490** - 660	0.020 - **0.039** - 0.059	0.004 - **0.006** - 0.008
			Medium	Continuous	Standard	PV720	1/32	330 - **490** - 660	0.039 - **0.059** - 0.098	0.004 - **0.006** - 0.012
				Interruption		CA525	1/32	260 - **390** - 490	0.039 - **0.059** - 0.079	0.004 - **0.006** - 0.008
	Medium-carbon Steel Medium-carbon Alloy	HB ≦ 300	Precision Finishing	Continuous	F,U	TN620	0.008	490 - **660** - 820	0.002 - **0.012** - 0.020	0.001 - **0.004** - 0.006
				Interruption		PR1425	1/64	390 - **460** - 560	0.002 - **0.012** - 0.020	0.001 - **0.004** - 0.006
			Finishing	Continuous	PP	PV7010	1/64	490 - **660** - 820	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
				Interruption		CA525	1/64	390 - **590** - 660	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
			Finishing-Medium	Continuous	HQ	PV7010	1/64	390 - **590** - 720	0.020 - **0.039** - 0.079	0.004 - **0.006** - 0.010
				Interruption		CA525	1/64	330 - **490** - 660	0.020 - **0.039** - 0.059	0.004 - **0.006** - 0.008
			Medium	Continuous	Standard	PV720	1/32	330 - **490** - 660	0.039 - **0.059** - 0.098	0.004 - **0.006** - 0.012
				Interruption		CA525	1/32	260 - **390** - 490	0.039 - **0.059** - 0.079	0.004 - **0.006** - 0.008
	High-carbon Alloy	HB ≦ 280	Precision Finishing	Continuous	F,U	TN620	0.008	390 - **490** - 590	0.002 - **0.012** - 0.020	0.001 - **0.004** - 0.006
				Interruption		PR1425	1/64	360 - **430** - 520	0.002 - **0.012** - 0.020	0.001 - **0.004** - 0.006
			Finishing	Continuous	PP	PV7010	1/64	390 - **490** - 590	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
				Interruption		CA525	1/64	330 - **390** - 490	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
			Finishing-Medium	Continuous	HQ	PV7010	1/64	390 - **490** - 590	0.020 - **0.039** - 0.079	0.004 - **0.006** - 0.010
				Interruption		CA525	1/64	330 - **390** - 490	0.020 - **0.039** - 0.059	0.004 - **0.006** - 0.008
			Medium	Continuous	Standard	CA515	1/32	330 - **390** - 490	0.039 - **0.059** - 0.098	0.004 - **0.006** - 0.012
				Interruption		CA525	1/32	260 - **330** - 390	0.039 - **0.059** - 0.079	0.004 - **0.006** - 0.008
M	Stainless Steel	HB ≦ 220	Finishing	Continuous	MQ	CA6525	1/64	390 - **490** - 590	0.008 - **0.020** - 0.031	0.002 - **0.003** - 0.004
				Interruption		PR1535	1/32	330 - **390** - 490	0.008 - **0.020** - 0.031	0.002 - **0.003** - 0.004
			Medium	Continuous	Standard	CA6525	1/64	390 - **490** - 590	0.020 - **0.039** - 0.059	0.002 - **0.004** - 0.008
				Interruption		PR1535	1/32	330 - **390** - 490	0.020 - **0.039** - 0.059	0.002 - **0.004** - 0.008
	Stainless Steel	HB ≦ 300	Finishing	Continuous	MQ	CA6525	1/64	260 - **330** - 390	0.008 - **0.028** - 0.039	0.002 - **0.004** - 0.006
				Interruption		PR1535	1/32	200 - **260** - 330	0.008 - **0.028** - 0.039	0.002 - **0.004** - 0.006
			Medium	Continuous	Standard	CA6525	1/64	260 - **330** - 390	0.020 - **0.039** - 0.059	0.002 - **0.004** - 0.008
				Interruption		PR1535	1/32	200 - **260** - 330	0.020 - **0.039** - 0.059	0.002 - **0.004** - 0.008
K	Gray Cast Iron	HB ≦ 250	High Speed Machining	Continuous	Without Chipbreaker	KBN475	1/64	1310 - **1640** - 1970	0.002 - **0.008** - 0.020	0.002 - **0.004** - 0.006
				Interruption		PT600M	1/32	660 - **820** - 1150	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.006
			Finishing (Gloss Oriented)	Continuous	Standard	PV7005	1/32	660 - **820** - 980	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
				Interruption		TN620	1/32	390 - **590** - 750	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
			Finishing	Continuous	Standard	CA4505	1/64	490 - **590** - 660	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
				Interruption		CA4515	1/32	330 - **490** - 590	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
			Medium	Continuous	Standard Without Chipbreaker	CA4505	1/32	330 - **490** - 660	0.020 - **0.039** - 0.079	0.004 - **0.006** - 0.008
				Interruption		CA4515	1/32	260 - **390** - 490	0.020 - **0.039** - 0.079	0.002 - **0.004** - 0.006
	Nodular Cast Iron	HB ≦ 270	High Speed Machining	Continuous	Without Chipbreaker	KBN475	1/64	660 - **980** - 1310	0.002 - **0.008** - 0.020	0.001 - **0.002** - 0.004
				Interruption		PT600M	1/32	490 - **660** - 820	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.006
			Finishing (Gloss Oriented)	Continuous	Standard	PV7005	1/32	490 - **660** - 820	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
				Interruption		TN620	1/32	390 - **490** - 660	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
			Finishing	Continuous	Standard	CA4505	1/64	390 - **490** - 590	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
				Interruption		CA4515	1/32	330 - **390** - 490	0.008 - **0.020** - 0.039	0.002 - **0.004** - 0.008
N	Non-ferrous Metals Copper Alloy Aluminum Aluminum Alloys	HB ≦ 100	Medium	Continuous	Standard	CA4505	1/32	330 - **390** - 490	0.020 - **0.039** - 0.079	0.002 - **0.004** - 0.008
				Interruption		CA4515	1/32	260 - **330** - 390	0.020 - **0.039** - 0.079	0.002 - **0.004** - 0.006
			High Speed Machining (Rainbow Surface Gloss)	Continuous	Without Chipbreaker	KPD001	0.008	660 - **1310** - 3280	0.002 - **0.004** - 0.012	0.002 - **0.004** - 0.006
			Finishing (Long Tool Life)	Continuous	F, U	PDL025	1/64	330 - **660** - 1310	0.002 - **0.020** - 0.039	0.001 - **0.004** - 0.008
				Interruption			1/64	330 - **660** - 1310	0.002 - **0.020** - 0.039	0.001 - **0.004** - 0.008
			Finishing	Continuous	F, U	KW10	1/64	330 - **660** - 1310	0.002 - **0.020** - 0.039	0.001 - **0.004** - 0.008
				Interruption			1/64	330 - **660** - 1310	0.002 - **0.020** - 0.039	0.001 - **0.004** - 0.008
S	Titanium Alloy	HB ≦ 400	Precision Finishing (Rainbow Surface Gloss)	Continuous	Without Chipbreaker	KPD001	0.008	330 - **390** - 490	0.002 - **0.004** - 0.012	0.001 - **0.003** - 0.004
				Interruption			1/64	230 - **330** - 390	0.002 - **0.004** - 0.012	0.001 - **0.003** - 0.004
			Finishing	Continuous	F,U	KW10	0.008	100 - **160** - 230	0.002 - **0.020** - 0.039	0.001 - **0.004** - 0.008
				Interruption			1/64	100 - **160** - 230	0.002 - **0.020** - 0.039	0.001 - **0.004** - 0.008
	Heat-resistant Alloys	HB ≦ 350	Finishing	Continuous	F,U	KW10	1/64	30 - **100** - 160	0.002 - **0.020** - 0.039	0.001 - **0.004** - 0.008
				Interruption			1/64	30 - **100** - 160	0.002 - **0.020** - 0.039	0.001 - **0.004** - 0.008
			Finishing	Continuous	MQ	PR1310	1/64	130 - **200** - 260	0.004 - **0.012** - 0.020	0.001 - **0.002** - 0.004
				Interruption			1/32	130 - **200** - 260	0.004 - **0.012** - 0.020	0.001 - **0.002** - 0.004
H	Hardened Steel Hardened Materials	40~50 HRC	Finishing	Continuous	HQ Standard	CA515	1/32	200 - **260** - 330	0.002 - **0.012** - 0.020	0.002 - **0.003** - 0.004
				Interruption			1/32	100 - **160** - 230	0.002 - **0.012** - 0.020	0.002 - **0.003** - 0.004
		45~68 HRC	Finishing	Continuous	ME MET	KBN05M	1/64	330 - **460** - 590	0.004 - **0.008** - 0.012	0.001 - **0.003** - 0.004
				Interruption			1/32	300 - **390** - 520	0.004 - **0.008** - 0.012	0.001 - **0.003** - 0.004
			Medium	Continuous	Without Chipbreaker (Negative)	KBN900	1/32	200 - **260** - 330	0.012 - **0.028** - 0.039	0.001 - **0.004** - 0.006

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