

Recommended Cutting Conditions

◆ GBA type insert (Ground Chipbreaker)

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)							① f for Grooving (mm/rev) ② f for Longitudinal turning (mm/rev) ③ ap for Longitudinal turning (mm)					Remarks	
	Cermet		MEGA	PVD Coated Carbide		Carbide	CBN	PCD	GBA○○% 033~100	GBA○○% 125~200	GBA○○% 230~300	GBA○○% 330~400		GBA○○% 400~480
	TC40	TN90	PR1215	PR930	PR1115	PR905	KW10	KBN510 KBN525						
Carbon Steel (SxxC etc.)	☆ 150-220	☆ 150-220	★ 80-200	☆ 80-180	☆ 80-180	-	-	-	①0.03-0.08 ②Not recom. ③Not recom.	①0.04-0.09 ②0.04-0.09 ③Max. 0.3	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.8	
Alloy Steel (SCM etc.)	☆ 130-200	☆ 130-200	★ 80-180	☆ 80-160	☆ 80-160	-	-	-	①0.03-0.07 ②Not recom. ③Not recom.	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.09 ②0.05-0.09 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.8	
Stainless Steel (SUS304 etc.)	-	☆ 70-150	☆ 60-150	☆ 60-130	★ 60-130	-	-	-	①0.03-0.07 ②Not recom. ③Not recom.	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.09 ②0.05-0.09 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.8	
Cast Iron (FC/FCD etc.)	-	-	-	-	-	★ 80-180	☆ 60-120	★ 150-400	①0.03-0.08 ②Not recom. ③Not recom.	①0.04-0.09 ②0.04-0.09 ③Max. 0.3	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.8	
Aluminum	-	-	-	-	-	★ 150-400	-	★ 150-2000	①0.05-0.12 ②Not recom. ③Not recom.	①0.05-0.15 ②0.05-0.15 ③Max. 0.5	①0.05-0.15 ②0.05-0.15 ③Max. 0.8	①0.08-0.15 ②0.05-0.1 ③Max. 0.8	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	
Brass	-	-	-	-	-	★ 150-300	-	★ 200-800	①0.05-0.12 ②Not recom. ③Not recom.	①0.05-0.15 ②0.05-0.15 ③Max. 0.5	①0.05-0.15 ②0.05-0.15 ③Max. 0.8	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	①0.08-0.15 ②0.08-0.15 ③Max. 0.8	
Hard materials	-	-	-	-	-	-	★ 80-120	-	-	①0.02~0.05 ②Not recom. ③Not recom.	①0.03-0.07 ②0.01-0.04 ③Max. 0.1	-	-	

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% higher for internal grooving. MEGA indicates MEGACOAT. ★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GBA type insert (MY Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc: m/min)							① f for Grooving (mm/rev) ② f for Longitudinal turning (mm/rev) ③ ap for Longitudinal turning (mm)					Remarks	
	Cermet		MEGA	PVD Coated Carbide		Carbide	CBN	PCD	GBA43% 175MY~ 200MY	GBA43% 230MY~ 265MY	GBA43% 300MY	GBA43% 330MY~ 350MY		GBA43% 400MY
	TN6020	TC40	PR1215	PR930	PR1115	KW10	KBN510	KPD001 (KPD010)						
Carbon Steel (SxxC etc.)	☆ 150-220	-	★ 80-200	☆ 80-200	☆ 80-200	-	-	-	①0.03-0.08 ②0.03-0.08 ③Max. 0.3	①0.04-0.09 ②0.04-0.09 ③Max. 0.3	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.8	
Alloy Steel (SCM etc.)	☆ 130-200	-	★ 80-180	☆ 80-180	☆ 80-180	-	-	-	①0.03-0.07 ②0.03-0.1 ③Max. 0.3	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.09 ②0.05-0.09 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.8	
Stainless Steel (SUS304 etc.)	☆ 70-150	-	☆ 60-150	☆ 60-150	★ 60-150	-	-	-	①0.03-0.07 ②0.03-0.1 ③Max. 0.3	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.09 ②0.05-0.09 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.8	

* Above cutting condition is for external grooving. Set both cutting speed and feed 10% higher for internal grooving. MEGA indicates MEGACOAT. ★ : 1st Recommendation ☆ : 2nd Recommendation

◆ GB type insert (Ground Chipbreaker) ▶ GB type will be switched to GBA type.

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)							① f for Grooving (mm/rev) ② f a for Longitudinal turning (mm/rev) ③ ap for Longitudinal turning (mm)					Remarks
	Cermet		PVD Coated Carbide		Carbide	CBN	PCD	GB○○% 050~100	GB○○% 125~200	GB○○% 230~300	GB○○% 330~400	GB○○% 400~480	
	TN90	TC40	TC60	PR630	PR930	KW10	KBN510						
Carbon Steel (SxxC etc.)	-	☆ 150-220	☆ 100-150	☆ 80-200	★ 80-180	-	-	-	①0.03-0.08 ②Not recom. ③ Not recom.	①0.04-0.09 ②0.04-0.09 ③Max. 0.3	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.8
Alloy Steel (SCM etc.)	-	☆ 130-200	☆ 80-130	☆ 80-180	★ 80-160	-	-	-	①0.03-0.07 ②Not recom. ③Not recom.	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.09 ②0.05-0.09 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.8
Stainless Steel (SUS304 etc.)	-	-	☆ 60-100	☆ 60-150	★ 60-130	-	-	-	①0.03-0.07 ②Not recom. ③Not recom.	①0.04-0.08 ②0.04-0.08 ③Max. 0.3	①0.05-0.09 ②0.05-0.09 ③Max. 0.5	①0.05~0.1 ②0.05~0.1 ③Max. 0.5	①0.05-0.1 ②0.05-0.1 ③Max. 0.8
Cast Iron (FC/FCD etc.)	-	-	-	-	-	★ 60-100	-	-	①0.03-0.08 ②Not recom. ③Not recom.	①0.04-0.09 ②0.04-0.09 ③Max. 0.3	①0.05-0.1 ②0.05-0.1 ③Max. 0.5	①0.05~0.12 ②0.05~0.1 ③Max. 0.5	①0.05-0.12 ②0.05-0.1 ③Max. 0.8
Aluminum	-	-	-	-	-	★ 150-400	-	★ 150-2000	①0.05-0.12 ②Not recom. ③Not recom.	①0.05-0.15 ②0.05-0.15 ③Max. 0.5	①0.05-0.15 ②0.05-0.15 ③Max. 0.8	①0.08~0.15 ②0.08~0.15 ③Max. 0.8	①0.08-0.15 ②0.08-0.15 ③Max. 0.8
Brass	-	-	-	-	-	★ 150-300	-	★ 200-800	①0.05-0.12 ②Not recom. ③Not recom.	①0.05-0.15 ②0.05-0.15 ③Max. 0.5	①0.05-0.15 ②0.05-0.15 ③Max. 0.8	①0.08~0.15 ②0.08~0.15 ③Max. 0.8	①0.08-0.15 ②0.08-0.15 ③Max. 0.8

◆ Recommended Insert Grade (Tip-Bars)

★ : 1st Recommendation ☆ : 2nd Recommendation

Workpiece Material	Recommended Insert Grade (Cutting Speed: m/min)				PSG05	PSG06 PSG07 PSG08	Remarks	
	Cermet		PVD Coated Carbide					Carbide
	TC60		PR930	KW10				
General Steel (S45C etc.)	☆ 60-120		★ 30-100		-0.03	-0.05	Wet	
Stainless Steel (SUS304 etc.)	☆ 50-100		★ 30-80		-0.02	-0.03		
Non-ferrous Metals (Aluminum / Brass etc.)				★ ~300	-0.05	-0.08		

★ : 1st Recommendation ☆ : 2nd Recommendation

Note for using the grooving insert bar PSG-S type

How to Install

Ultra small grooving requires accurate installation because an error of insert height or angle can affect the machining precision. When installing, set the cutting edge higher than the center line as shown in Table 1. The cutting edge of all the PSG-S type bars is designed to be higher than the center line. (L4 of insert bar dimension)



Grooving