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GA (Molded Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)								① f (feed) during Grooving (ipr)			Notes
	Cermet				CVD	PVD		Carbide	② f (feed) during Traversing (ipr)			
	TN60	TN90	TC40	TC60M	CR9025	PR630	PR930	KW10	③ D.O.C. during Traversing (in)			
									GA 30	GA 40	GA 50	
Carbon Steel	☆ 430~660	-	-	-	★ 260~590	-	-	-	① 0.0024~0.0071 ② 0.0020~0.0059 ③ MAX 0.031	① 0.0024~0.0083 ② 0.0020~0.0067 ③ MAX 0.039	① 0.0024~0.0098 ② 0.0020~0.0079 ③ MAX 0.051	Wet
Alloy Steel	☆ 330~590	-	-	-	★ 260~520	-	-	-	① 0.0024~0.0059 ② 0.0020~0.0047 ③ MAX 0.012	① 0.0024~0.0071 ② 0.0020~0.0059 ③ MAX 0.020	① 0.0024~0.0087 ② 0.0020~0.0071 ③ MAX 0.031	
Stainless Steel	-	-	-	-	★ 200~430	-	-	-	① 0.0024~0.0039 ② 0.0020~0.0031 ③ MAX 0.031	① 0.0024~0.0039 ② 0.0020~0.0031 ③ MAX 0.031	① 0.0024~0.0047 ② 0.0020~0.0039 ③ MAX 0.047	

★ : 1st Recommendation ☆ : 2nd Recommendation

GIA (Molded Chipbreaker)

Workpiece Material	Recommended Insert Grade (Vc sfm)								① f (feed) during Grooving (ipr)			Notes
	Cermet				CVD	PVD		Carbide	② f (feed) during Traversing (ipr)			
	TN60	TN90	TC40	TC60M	CR9025	PR630	PR930	KW10	③ D.O.C. during Traversing (in)			
									GIA 30	GIA 40	GIA 50	
Carbon Steel	☆ 200~390	-	-	-	★ 200~390	-	-	-	① 0.0016~0.0031 ② 0.0008~0.0031 ③ MAX 0.012	① 0.0016~0.0035 ② 0.0008~0.0031 ③ MAX 0.016	① 0.0020~0.0039 ② 0.0020~0.0031 ③ MAX 0.020	Wet
Alloy Steel	☆ 200~330	-	-	-	★ 200~330	-	-	-	① 0.0016~0.0028 ② 0.0008~0.0028 ③ MAX 0.012	① 0.0016~0.0028 ② 0.0008~0.0028 ③ MAX 0.016	① 0.0020~0.0031 ② 0.0020~0.0031 ③ MAX 0.020	
Stainless Steel	-	-	-	-	★ 200~260	-	-	-	① 0.0016~0.0028 ② 0.0008~0.0028 ③ MAX 0.012	① 0.0016~0.0028 ② 0.0008~0.0028 ③ MAX 0.016	① 0.0020~0.0031 ② 0.0020~0.0031 ③ MAX 0.020	

★ : 1st Recommendation ☆ : 2nd Recommendation

PSG-S (Micro Bars)

Workpiece Material	Recommended Insert Grade (Vc sfm)		PSG05	PSG06 PSG07 PSG08	Notes
	PVD	Carbide			
	PR630	KW10	Feed Rate (ipr)		
Carbon Steel	★ 100~330	-	~0.0012	~0.0020	Wet
Alloy Steel	★ 100~260	-	~0.0008	~0.0012	
Stainless Steel	-	★ ~980	~0.0020	~0.0031	

Note for using the grooving Micro-Bars PSG-S type

How to Install

Internal small dia. 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 the Table 1. The cutting edge of all the PSG-S type Micro-Bars is designed to be higher than the center line. (L4 of Micro-Bars dimension)

★ : 1st Recommendation

FMM / FNM

Workpiece Material	Recommended Insert Grade (Vc sfm)						Face Grooving (FMM / FMN)			Traversing (FMM)			Notes
	Cermet	CVD	PVD			Carbide	Edge Width (in)			Edge Width (in)			
	TN90	CR9025	PR915	PR930	PR905	KW10	0.1181	0.1575	0.1969 / 0.2362	0.1181	0.1575	0.1969 / 0.2362	
							Feed Rate (ipr)			Feed Rate (ipr)			
Carbon Steel	☆ 330~720	☆ 260~660	☆ 260~660	★ 260~660	-	-	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	Wet
Alloy Steel	☆ 260~660	☆ 230~590	☆ 230~590	★ 230~590	-	-	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	
Stainless Steel	☆ 230~520	☆ 200~490	★ 200~490	☆ 200~490	-	-	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	
Cast Iron	-	-	-	-	★ 260~590	☆ 230~490	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	
Aluminum	-	-	-	-	-	★ 660~1640	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	
Brass	-	-	-	-	-	★ 330~660	0.0012~0.0020	0.0012~0.0031	0.0020~0.0039	0.0020~0.0039	0.0020~0.0098	0.0039~0.0118	

- Set the feed rate 1/100 of edge width on the first groove and check chip evacuation.
- FMN type Inserts are only for Deep Grooving, and when used for turning, set to D.O.C. = 0.079" and under.

★ : 1st Recommendation ☆ : 2nd Recommendation

Turning Conditions

① **FMM Toolholder**

	Recommended Cutting Conditions	
D.O.C. (MAX) (in)	Under 50% of Edge Width	D.O.C. ≤ 0.0197w
f (MAX) (ipr)	Under 3~5% of Edge Width	f≤ [0.0012(Min.) ~ 0.0020(Max.)] w

- (D.O.C.) x (f) should be as follows.

Edge Width (in) / Load (in²)	0.1181	0.1575	0.1969	0.2362
D.O.C. x Feed Rate (f)	~0.004	~0.006	~0.010	~0.014

- D.O.C. x f ≤ 0.0004w²

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