

THE NEW VALUE FRONTIER



CERATIP®

KYOCERA Cutting Tools

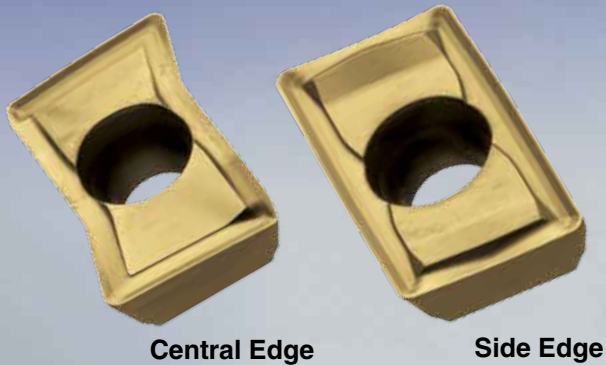
CP162-E

MEY Type

Silver-Coated Multi-Function Endmill

Front Runner of Multi-Function Endmill

• Full 2-Edge Line and Stability Improved



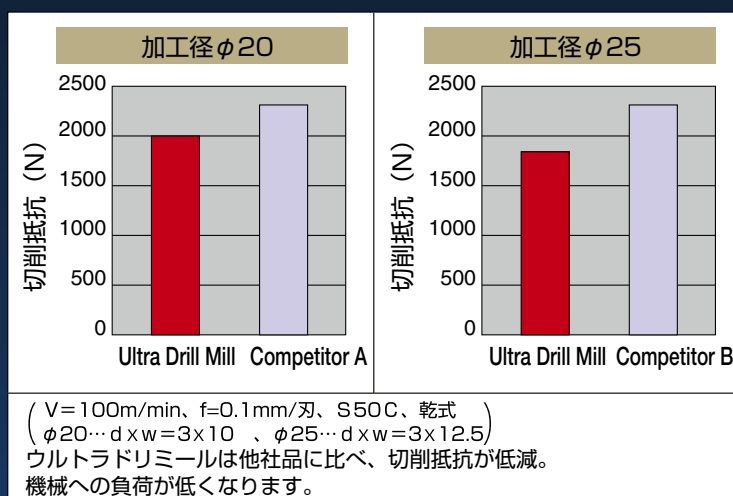
Silver-Coated Multi-Function Endmill

MEY Type

Advantages

- ① Full 2-Edge Line and Stability Improved
- ② Low Cutting Resistance and Long Shank Type is available
- ③ Tools with Larger Cutting Dia. than Shank Dia. are available and No Shank's Interference even at High Wall Shouldering
- ④ Stable and Long Life by New Grade PR830/PR905
- ⑤ Good Chip Evacuation even at Slant Milling and Drilling
- ⑥ Good Durability due to Silver Coat

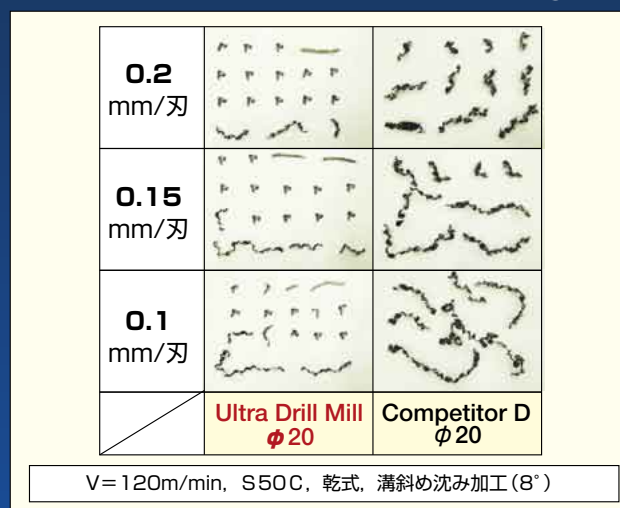
■ Cutting Resistance



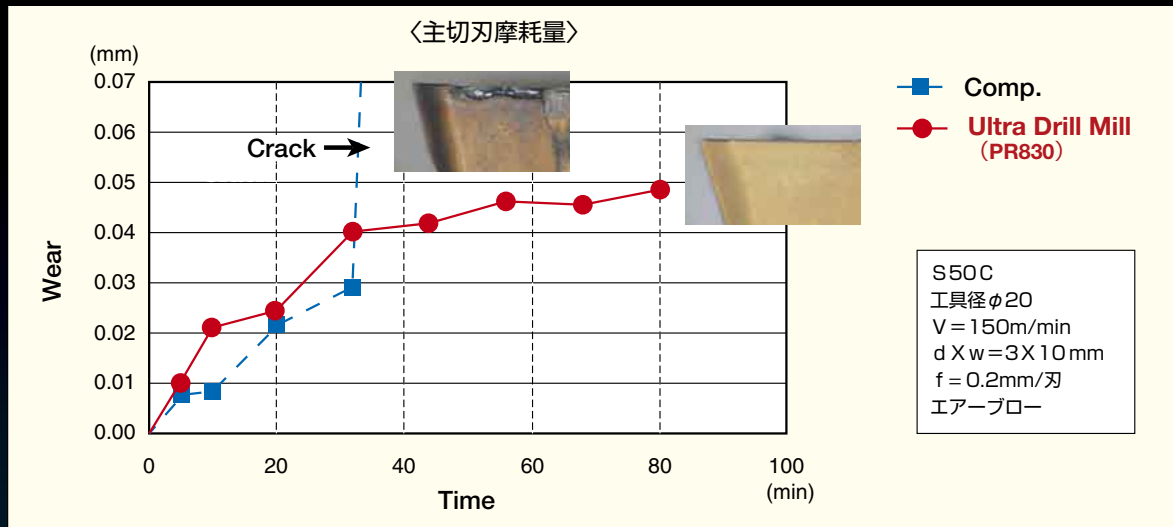
■ Chip Control (at Drilling)



■ Chip Control (at Slant Milling)



Wear Resistance



PR830

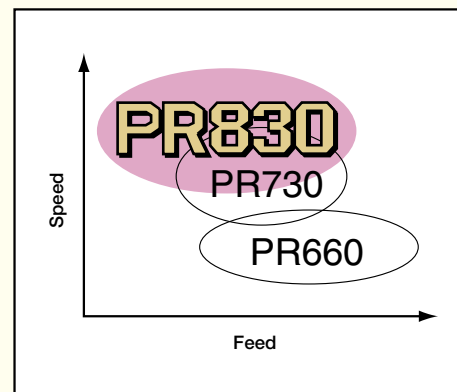
New PVD Coat Grade for High Speed Machining

PR830のコーティング層

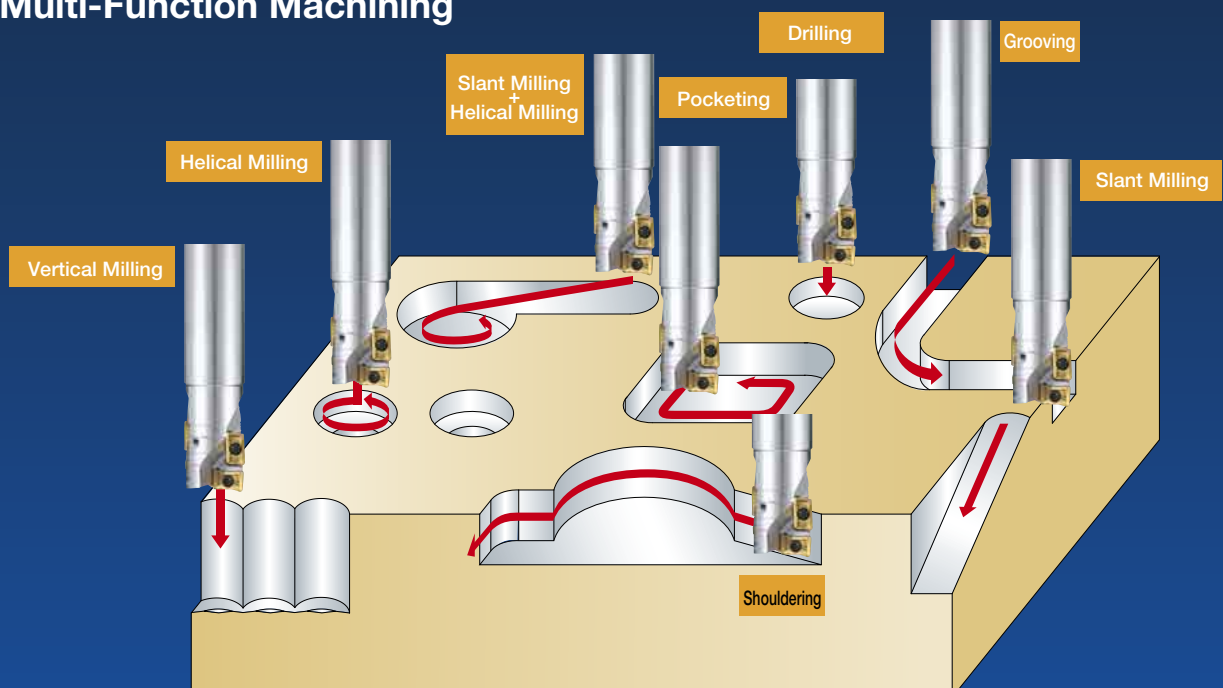


- ← TiNコート
- ← FSコート(TiAlN)
Suitable for High Speed Machining
Good Wear Resistance
- ← 特殊強靱超硬母材
Specific Tough Carbide Substrate

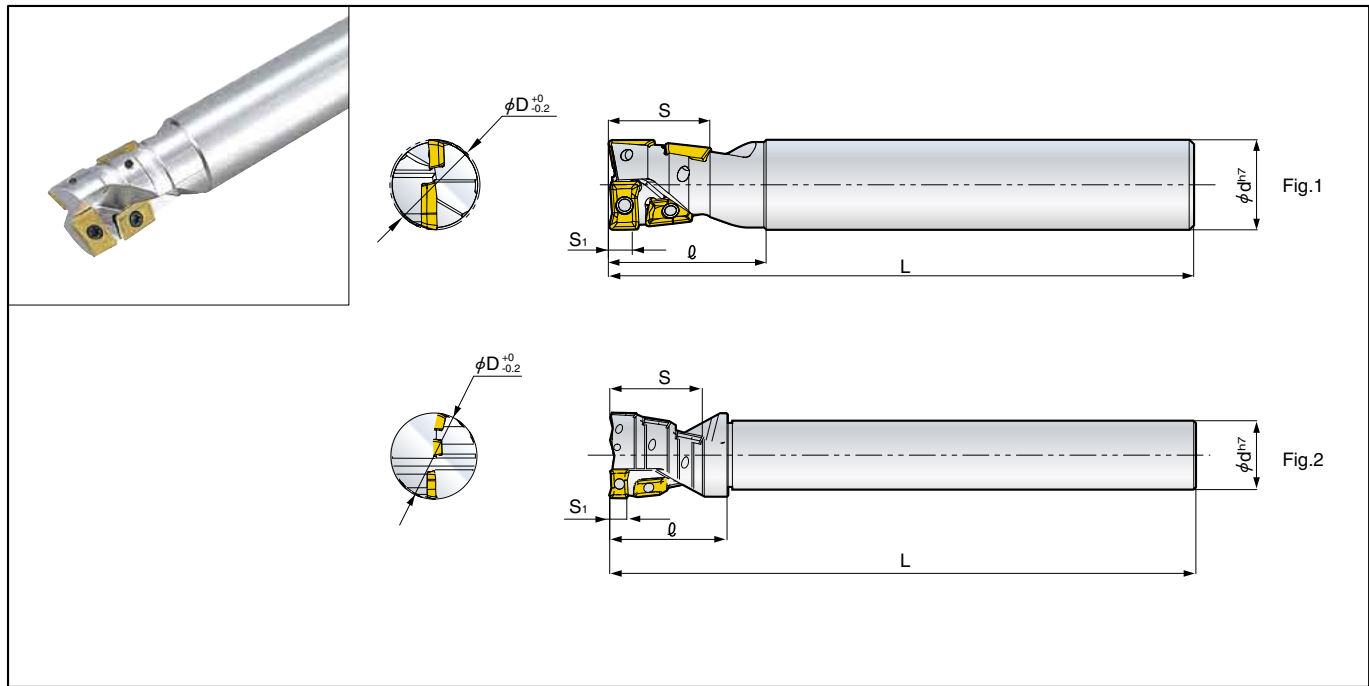
Area Map



Multi-Function Machining



MEY Type



Toolholder Dimension

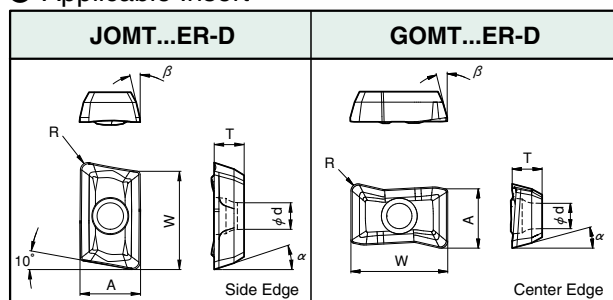
Description			stock	No. of Insert	Edge Line No.	Dimension (mm)						Rake Angle		Shape	Spare Parts			
						φD	φd	L	ℓ	S	S ₁	A.R.	R.R.		Clamp Screw	Wrench		Anti-seize Compound
																		
Standard	MEY	16-S16	●	4	2	16	16	120	31	19	4.5	+11°	-11°	Fig.1	SB-2040TRG	FT-6	—	MP-1
		17-S16	●			17	16	120	31	19	4.5	+11°	-11°		SB-2040TRG	FT-6	—	
		20-S20	●			20	20	130	35	22	6	+13°	- 9°		SB-2555TRG	—	DT-8	
		21-S20	●			21	20	130	35	22	6		- 9°		SB-2555TRG	—	DT-8	
		25-S25	●			25	25	140	40	28	7.5		-11°	SB-3070TRG	—	DT-10		
		26-S25	●			26	25	140	40	28	7.5		-11°	SB-3070TRG	—	DT-10		
		32-S32	●			32	32	150	50	36	9.5	- 9°	SB-4070TRG	—	DT-15			
		33-S32	●			33	32	150	50	36	9.5	- 9°	SB-4070TRG	—	DT-15			
		40-S32	●			7	40	40	160	55	42	7.5	-11°	Fig.2	SB-3070TRG	—	DT-10	
		50-S42	●			50	42	170	70	54	9.5	- 9°	Fig.2	SB-4070TRG	—	DT-15		
Long Head	MEY	16-S16-140H	●	4	2	16	16	140	51	19	4.5	+11°	-11°	Fig.1	SB-2040TRG	FT-6		MP-1
		20-S20-150H	●			20	20	150	53	22	6	- 9°	SB-2555TRG		—	DT-8		
		25-S25-170H	●			25	25	170	70	28	7.5	+13°	-11°		SB-3070TRG	—	DT-10	
		32-S32-180H	●			32	32	180	80	36	9.5	- 9°	SB-4070TRG		—	DT-15		
Long Shank	MEY	16-S16-190	●	4	2	16	16	190	61	19	4.5	+11°	-11°	Fig.1	SB-2040TRG	FT-6	—	MP-1
		17-S16-190	●			17	16	190	61	19	4.5	+11°	-11°		SB-2040TRG	FT-6	—	
		20-S20-200	●			20	20	200	63	22	6	- 9°	SB-2555TRG		—	DT-8		
		21-S20-200	●			21	20	200	63	22	6	- 9°	SB-2555TRG		—	DT-8		
		25-S25-220	●			25	25	220	80	28	7.5	+13°	-11°	SB-3070TRG	—	DT-10		
		26-S25-220	●			26	25	220	80	28	7.5	+13°	-11°	SB-3070TRG	—	DT-10		
		32-S32-230	●			32	32	230	90	36	9.5	- 9°	SB-4070TRG	—	DT-15			
		33-S32-230	●			33	32	230	90	36	9.5	- 9°	SB-4070TRG	—	DT-15			
		40-S32-240	●			7	40	40	240	55	42	7.5	-11°	Fig.2	SB-3070TRG	—	DT-10	
		50-S42-250	●			50	42	250	70	54	9.5	- 9°	Fig.2	SB-4070TRG	—	DT-15		

* S_1 show the edge length of the complete 2-flute part.

● : Standard Stock



● Applicable Insert



Endmill	Applicable Insert			
	Side Edge	使用枚数	Center Edge	使用枚数
MEY 16-S16(---) 17-S16(---) 20-S20(---) 21-S20(---) 25-S25(---) 26-S25(---) 32-S32(---) 33-S32(---) 40-S32(---) 50-S42(---)	JOMT08T208ER-D	3	GOMT08T208ER-D	1
	JOMT100308ER-D		GOMT100308ER-D	
	JOMT13T308ER-D		GOMT13T308ER-D	
	JOMT160408ER-D		GOMT160408ER-D	
	JOMT13T308ER-D	6	GOMT13T308ER-D	
	JOMT160408ER-D		GOMT160408ER-D	

Description	Dimension (mm)					Angle		Insert Grade	
	A	T	φd	W	R	α	β	PVD Coated	
								PR830	PR905
JOMT 08T208ER-D	5.14	2.78	2.3	8.5	0.8	17°	13°	●	●
100308ER-D	6.42	3.18	2.8	10.2				●	●
13T308ER-D	8.05	3.70	3.4	13.2				●	●
160408ER-D	9.67	4.76	4.4	16.7				●	●
GOMT 08T208ER-D	5.21	2.78	2.3	8.7	0.8	13°	17°	●	●
100308ER-D	6.56	3.30	2.8	10.7				●	●
13T308ER-D	8.36	3.85	3.4	13.2				●	●
160408ER-D	10.03	4.76	4.4	16.7				●	●

● : Standard Stock

◆ Recommended Cutting Conditions

Work Material	Feed Rate (mm/tooth)		Insert Grade (Speed)	
	Drilling	Shouldering · Grooving	PVD Coated	
			PR830	PR905
Stainless Steel	0.08~0.12	0.05~0.15	100~180	—
Carbon Steel	0.08~0.15	0.05~0.25	120~200	—
Alloy Steel	0.08~0.15	0.05~0.25	100~180	—
Metal Mold Steel	0.08~0.12	0.05~0.15	80~150	—
Cast Iron	0.05~0.2	0.05~0.25	—	100~200

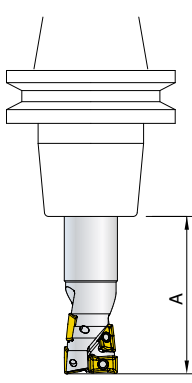
■ Drilled Hole Bottom Shape

φ 16~ φ 33

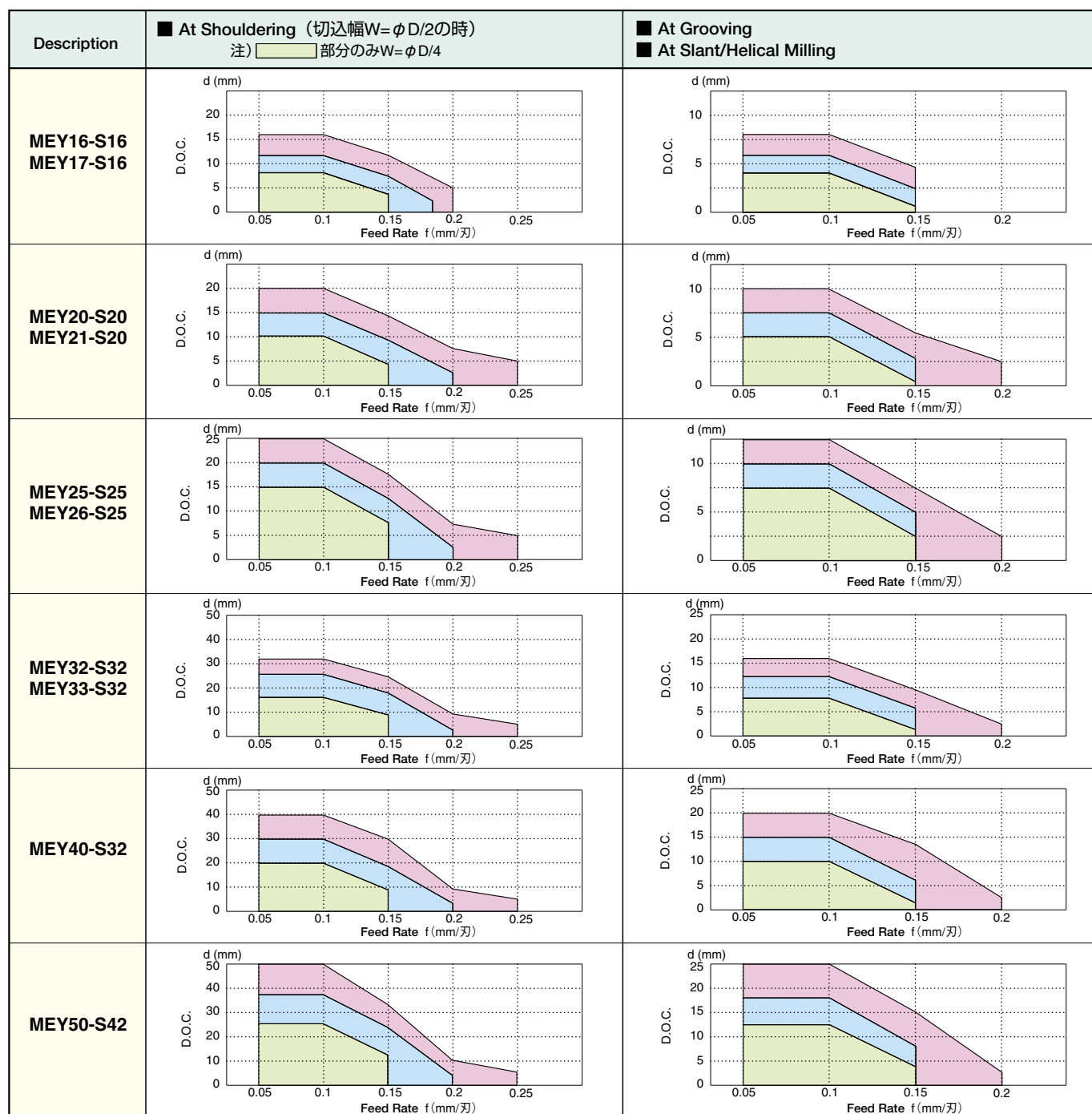
φ 40, φ 50

Cutting Dia.	φ 16, φ 17	φ 20, φ 21	φ 25, φ 26	φ 32, φ 33	φ 40	φ 50
a (mm)	0.5	0.64	0.85	1.12	1.54	1.65

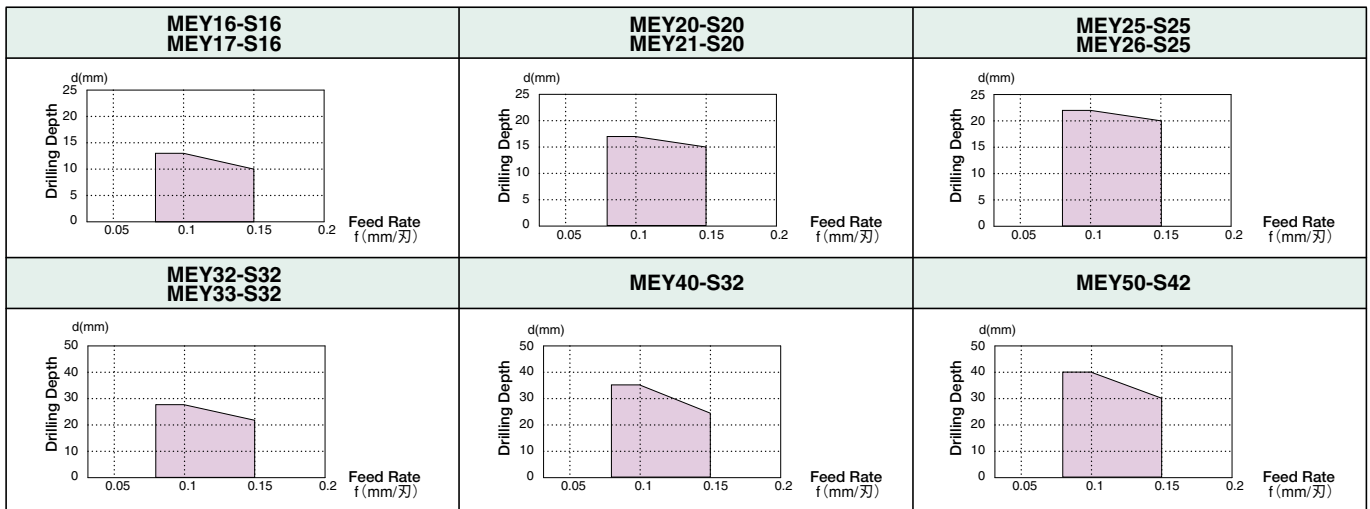
Cutting Performance of MEY Type 【被削材 : S50C】

Cutting Dia.	Description	Overhang Length		Cutting Dia.	Description	Overhang Length		Shape
φ16	MEY16-S16	31	[~61] (推奨外)	φ25	MEY25-S25	40	[~70] (推奨外)	
	MEY16-S16-140H	-	~61 [~91]		MEY25-S25-170H	-	70 [~100]	
	MEY16-S16-190	-	61 ~91		MEY25-S25-220	-	~80 ~100	
φ17	MEY17-S16	31	[~61] (推奨外)	φ26	MEY26-S25	40	[~70] (推奨外)	
	MEY17-S16-190	31	~61 ~91		MEY26-S25-220	40	~70 ~100	
φ20	MEY20-S20	35	[~65] (推奨外)	φ32	MEY32-S32	50	[~80] (推奨外)	
	MEY20-S20-150H	-	~65 [~95]		MEY32-S32-180H	-	~80 [~110]	
	MEY20-S20-200	-	65 ~95		MEY32-S32-230	-	90 ~110	
φ21	MEY21-S20	35	[~65] (推奨外)	φ33	MEY33-S32	50	[~80] (推奨外)	
	MEY21-S20-200	35	~65 ~95		MEY33-S32-230	50	~80 ~110	
				φ40	MEY40-S32	55	[~85] [~115]	
					MEY40-S32-240	55	~85 ~115	
				φ50	MEY50-S42	70	[~100] [~130]	
					MEY50-S42-250	70	~100 ~130	

[] 内寸法でご使用の際は、ホルダの把握長さが短いのでご注意ください。



■ Drilling Depth (標準・ロングヘッド・ロングシャンク共通：S50C)



■ How to MEY Type

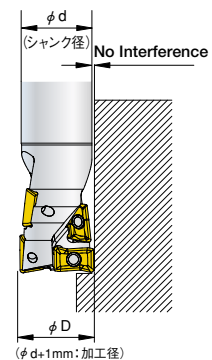
Drilling

- Drilling Conditions shall be Calculated as One Edge Line
- Use Compressed Air during Drilling
- Use Step Feed Method for Sticky Material
- For Stainless Steel, Wet Cutting is Recommended

Cutting Dia.	Max. Depth
φ 16	13
φ 17	13
φ 20	17
φ 21	17
φ 25	22
φ 26	22
φ 32	29
φ 33	29

Shouldering

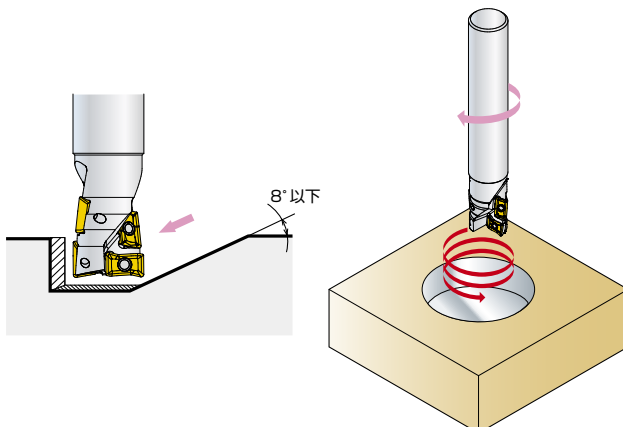
型番	φ D	φ d
MEY17-S16	17	16
MEY21-S20	21	20
MEY26-S25	26	25
MEY33-S32	33	32
MEY17-S16-190	17	16
MEY21-S20-200	21	20
MEY26-S25-220	26	25
MEY33-S32-230	33	32



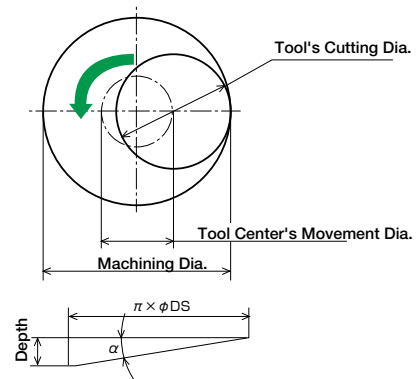
- Tool with Larger Cutting Dia. by 1mm than Shank Dia. is available

Slant Milling · Helical Milling

- Ramping Angle shall be Under 8°
- Plunge Depth per Revolution at Helical Milling shall be Under 1/2 D
- Use Compressed Air during Machining



■ How to Find Factors at Helical Milling



How to Find "φDS"

$$\phi DS = \phi DL - \phi D$$

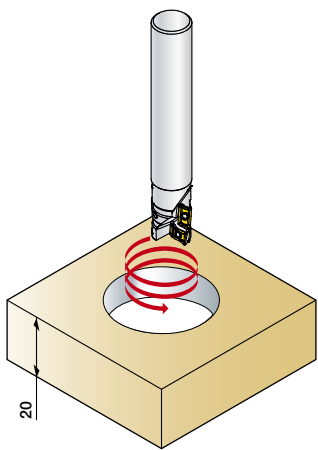
How to Find "h"

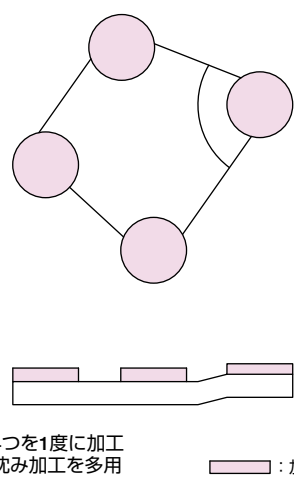
$$h = \pi \times \phi DS \times \tan \alpha$$

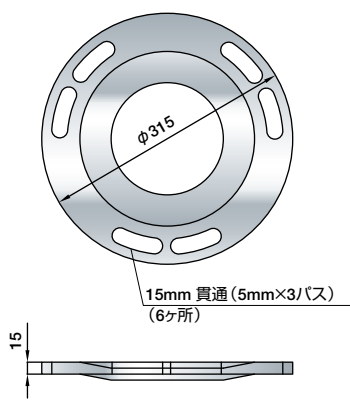
(α shall be Under 8°)

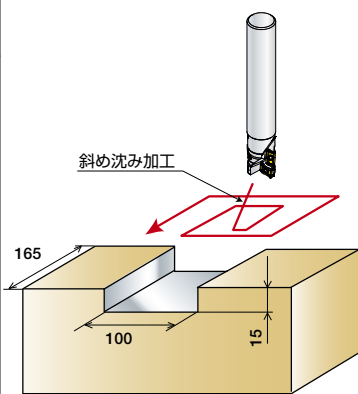


Case Study

S50C	 φ79 (貫通穴) → φ93に拡大
・プレート ・$V=180 \text{ m/min}$ ($N=2300 \text{ min}^{-1}$) ・$d \times W=6 \times 7 \text{ (mm)}$ (ヘリカル2° 沈み) ・$F=830 \text{ mm/min}$ ($f=0.18 \text{ mm/刃}$) ・乾式 ・MEY25-S25 ・JOMT13T308ER-D (PR830) ・GOMT13T308ER-D (PR830)	
・Ultra Drill Mill could machine even at $f=0.18 \text{ mm/tooth}$ ($F=830 \text{ mm/min}$) comfortably without vibration.	
Evaluation from the user	

S50C (鍛造)	 4つを1度に加工 沈み加工を多用 ：加工部
・フォークリフト用部品 ・$V=118 \text{ m/min}$ ($N=750 \text{ min}^{-1}$) ・肩加工 $d=3 \text{ mm}$ $F=180 \text{ mm/min}$ ・沈み加工 $d=3 \text{ mm}$ $F=40 \text{ mm/min}$ ・乾式 ・MEY50-S42 ・JOMT160408ER-D (PR830) ・GOMT160408ER-D (PR830)	
Ultra Drill Mill enhanced the machining efficiency greatly.	
Evaluation from the user	

SCM440H	 φ315 15mm 貫通 (5mm×3/パス) (6ヶ所) 15
・フライホイール ・$V=125 \text{ m/min}$ ($N=2000 \text{ min}^{-1}$) ・$d=5\text{mm}$深さ×3パス (6ヶ所) ・$F=600 \text{ mm/min}$ ($f=0.15 \text{ mm/刃}$) ・乾式 ・MEY20-S20 ・JOMT100308ER-D (PR830) ・GOMT100308ER-D (PR830)	
Competitor's could not machine 20 works, but Ultra Drill Mill could machine than 20 works, stably.	
Evaluation from the user	

SKT4	 斜め沈み加工 切削パターン：3回繰返し
・ブロック ・$V=110 \text{ m/min}$ ($N=1400 \text{ min}^{-1}$) ・斜め沈み加工+肩加工 ・$d \times W=5 \times 10\text{mm}$ ・$F=518\text{mm/min}$ ($f=0.185\text{mm/刃}$) ・突出し量：70mm ・乾式 ・MEY25-S25 ・JOMT13T308ER-D (PR830) ・GOMT13T308ER-D (PR830)	
Even at higher feed rate, comfortable machining was available without vibration. Machining efficiency became higher.	
Evaluation from the user	