

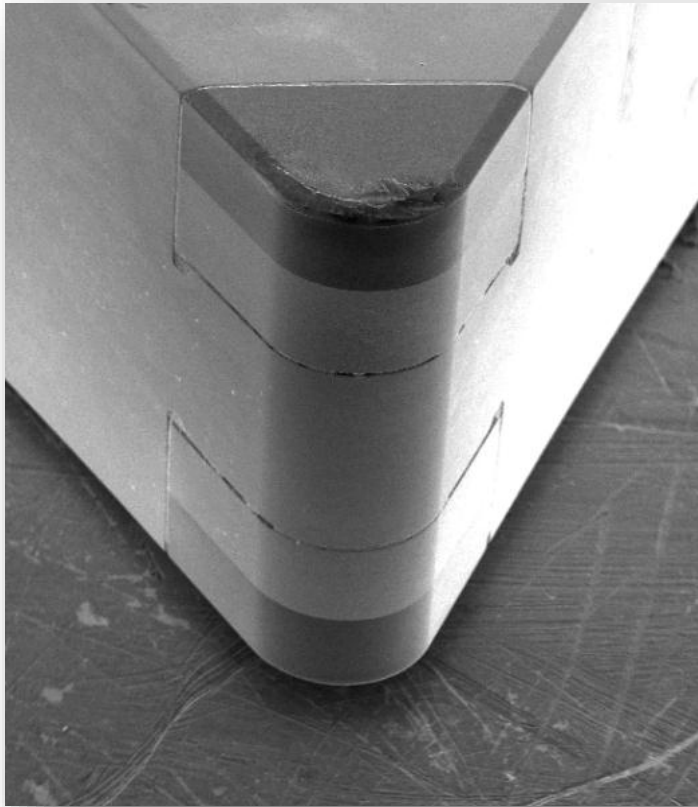
VT SOLID INSERT FOR HARD TURNING



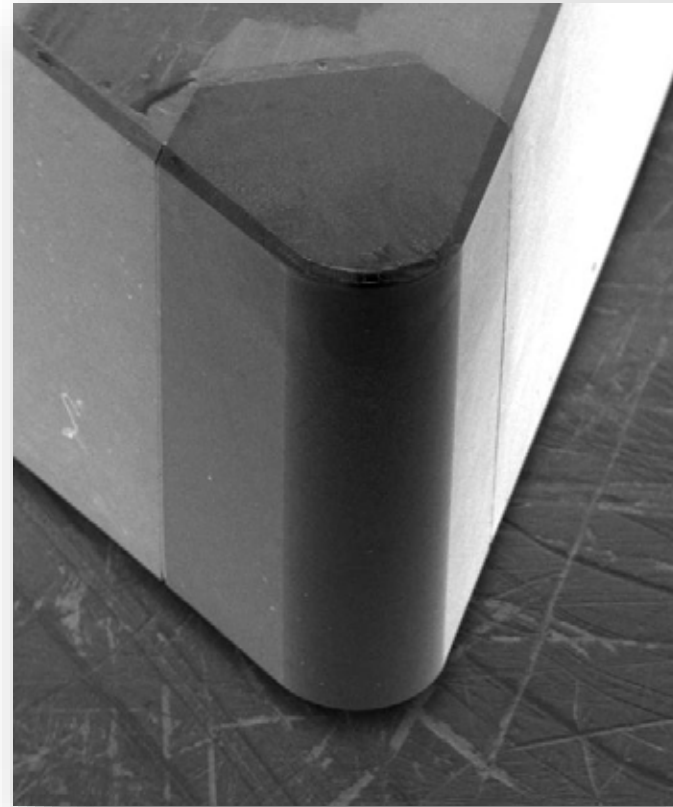
- ✓ **VERTICAL BRAZING**
- ✓ **SOLID PCBN**
- ✓ **MULTI EDGE**
- ✓ **CHIPBREAKER**
- ✓ **COATING**

VERTICAL BRAZING

STANDARD TIP

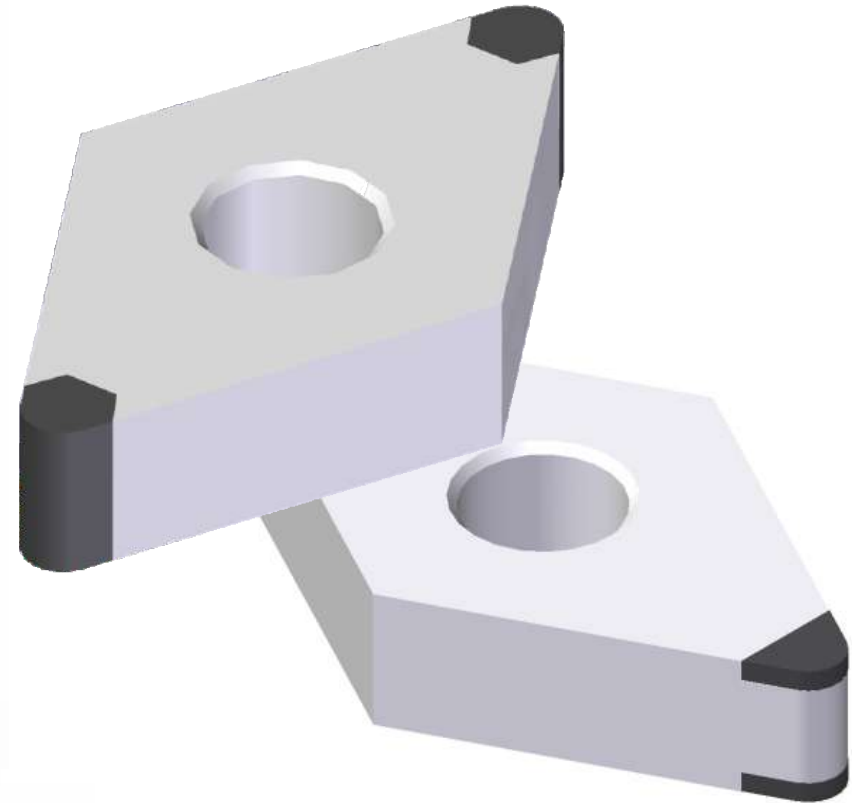


VERTICAL SOLID



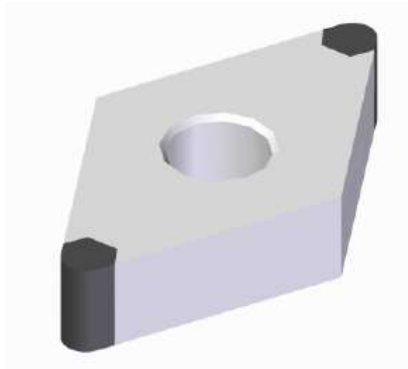
- ✓ **Brazing strength of vertical solid insert is much better than a standard insert.**
- ✓ **It reinforces tool rigidity, and minimize the heat damage generated from machining process. Therefore it helps the tool's stabilization.**
- ✓ **Active brazing (high temperature, vacuum condition)**

SOLID PCBN MATERIAL

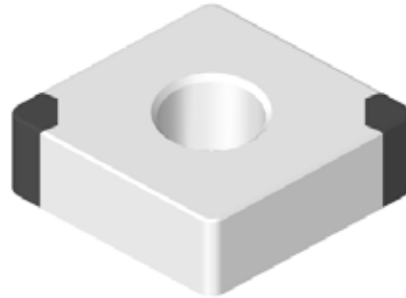


- ✓ **Excellent thermal resistance / chemical resistance**
The thick PCBN layer quickly conducts the heat damage generated from machining process therefore it can improve a tool life
- ✓ **It can minimize the quality variation of each corner by solid PCBN.**
- ✓ **Excellent tool rigidity.**
The machining load is dispersed by whole solid PCBN .
- ✓ **This is the optimized design of negative insert.**

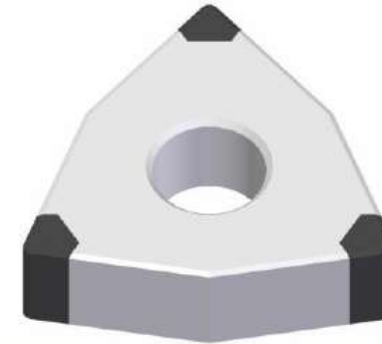
MULTI CORNER



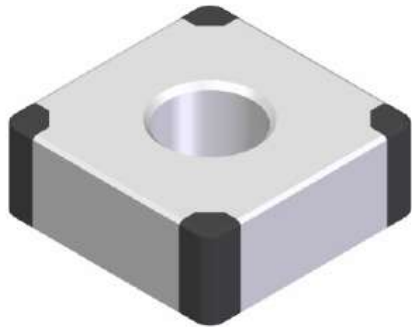
4VT-DNGA1504



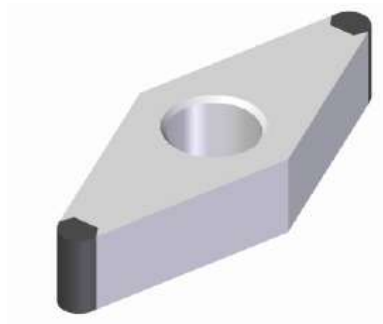
4VT-CNGA1204



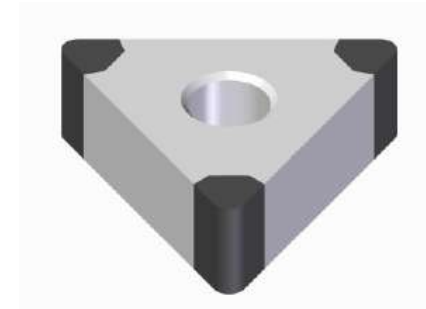
6VT-WNGA0804



8VT-SNGA1204



4VT-VNGA1604



6VT-TNGA1604

CHIP BREAKER SOLUTION

- ✓ Feasible chip control resulting in longer tool life for hard part turning.



✓ TEST RESULT

- Tool spec : 4VT-CNGA120408 with breaker
- Work material : SCr 420H (HRC58)
- Cutting speed : 120m/min
- Depth of cut : 0.15mm
- Coolant : Dry
- Feed rate : 0.15mm/rev



With chip breaker



Without chip breaker

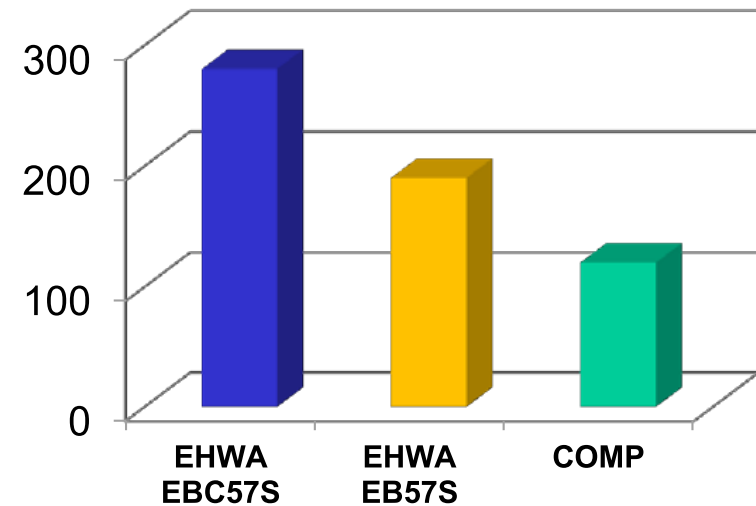
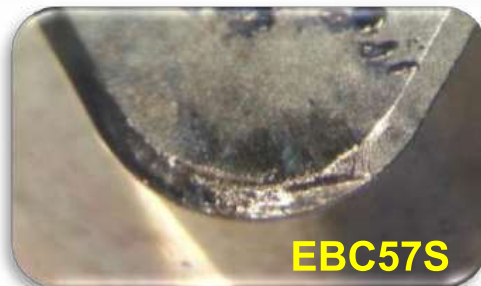
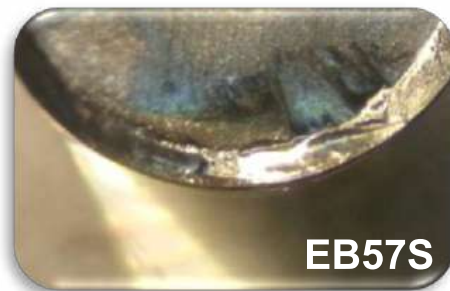
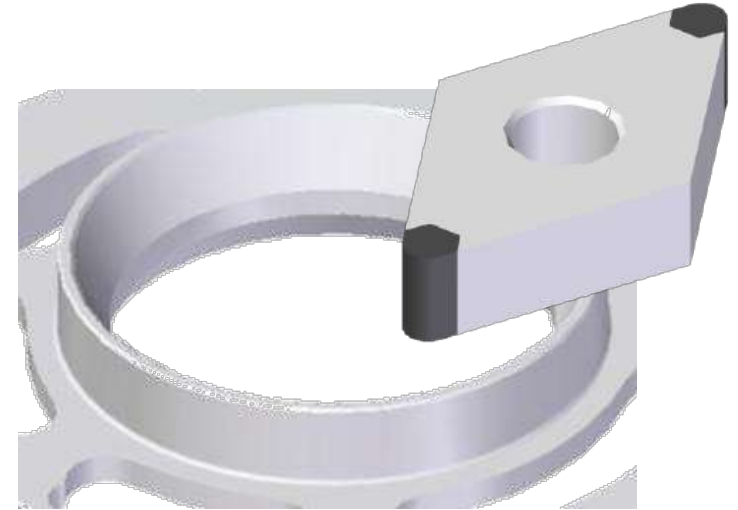
TEST CASE - TAPER BEARING HARD TURNING

Application

- WORK : T/M TAPER BEARING INNER
- TOOL SPEC: PCBN-INSERT, 4VT-DNGA150412, EB57S
- CUTTING SPEED : 140M/MIN,
- FEED RATE : 0.17MM/REV

Test result

- TOOL LIFE : EB57S – 190 EA
EBC57S – 280 EA
COMP – 120EA



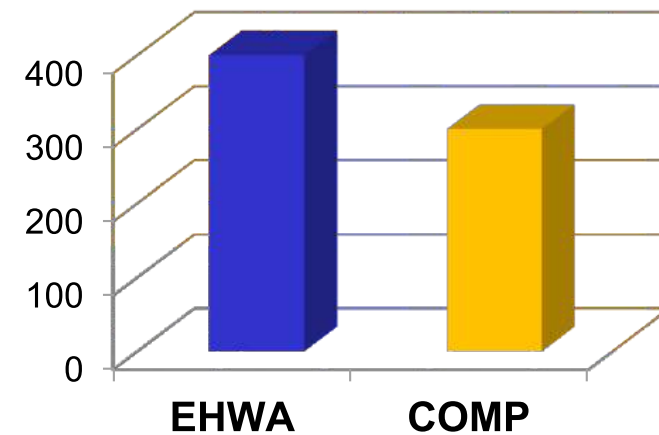
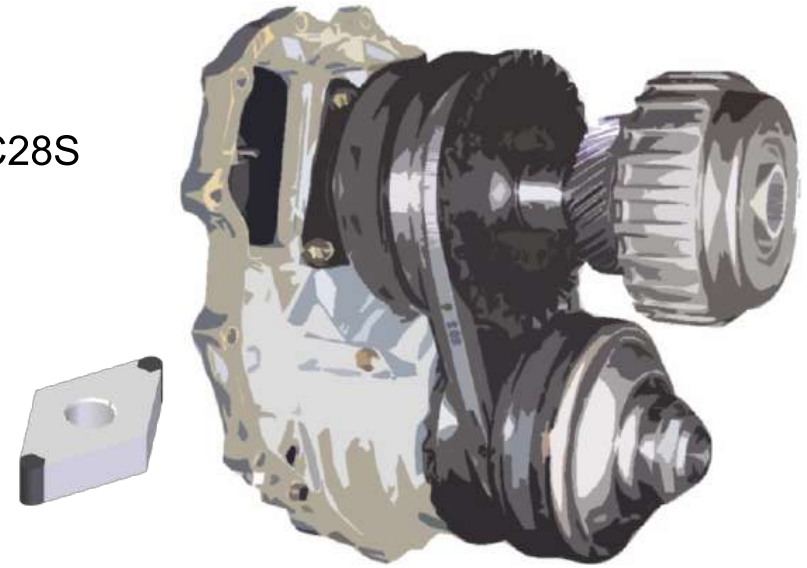
TEST CASE - CVT PULLEY HARD TURNING

Application

- WORK : CVT PULLEY HARD TURNING
- TOOL SPEC: PCBN-INSERT, 4VT-DNGA150408, EBC28S
- CUTTING SPEED : 120M/MIN,
- FEED RATE : 0.15MM/REV

Test result

- TOOL LIFE : EBC28S – 400EA
COMP – 300EA



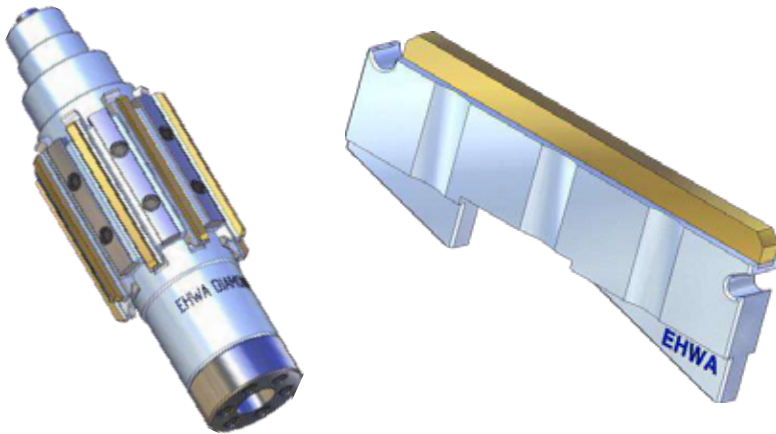
Production Guide of Metal Wheel

For Automobile Parts

1. HMF (For Cylinder Block)

APPLICATION

Used for Cylinder Block



SHAPE OF TOOL



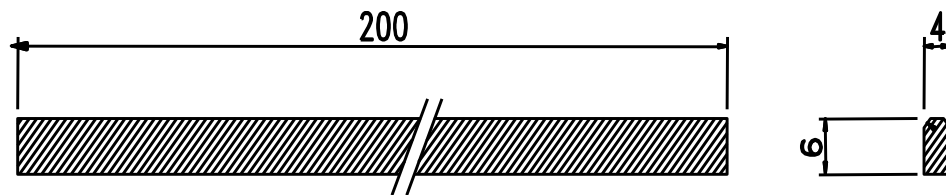
WORKPIECE / MACHINE

TYPE	GRIT SIZE	Length (mm)	BOND	Condition	Workpiece
Rough	#100 ~ #170	60 ~ 80	MS13, MJ1, MJ	Rz < 3 or 4 Rpk < 0.3 Rk, Rvk	FC25 (HB 187~241)
Finish	#325 ~ #400		MS12		
Platsu	#600 ~ #800		MJ, MH41		

2. HMF (For Cylinder Liner)

APPLICATION

Used for Cylinder Block



SHAPE OF TOOL



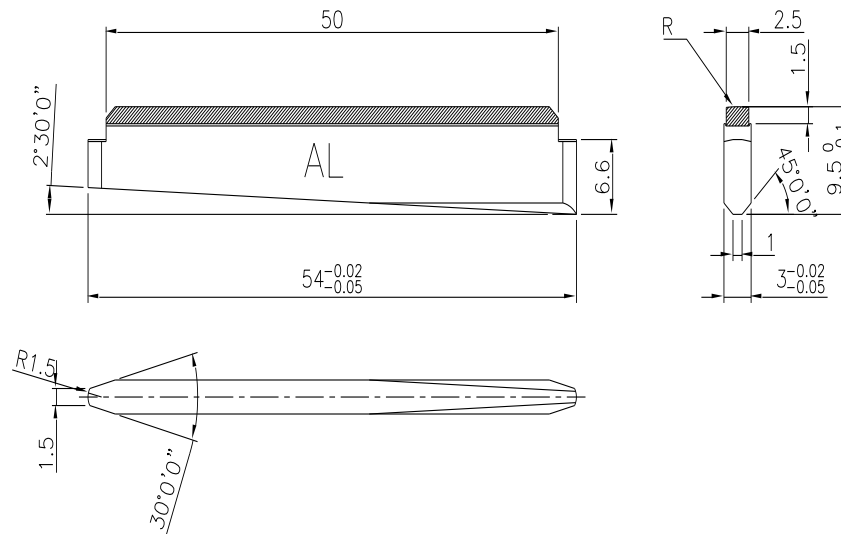
WORKPIECE(Cylinder Liner)

TYPE	GRIT SIZE	Length (mm)	BOND	Condition	Workpiece
Rough	#100 ~ #170	60 ~ 80	MS13, MJ1, MJ	$R_z < 3$ or 4 $R_{pk} < 0.3$ R_k, R_{vk}	FC25 (HB 187~241)
Finish	#325 ~ #400		MS12		
Platsu	#600 ~ #800		MJ, MH41		

3. HMF (For Pinion Gear)

APPLICATION

Used for Pinion Gear.



SHAPE OF TOOL



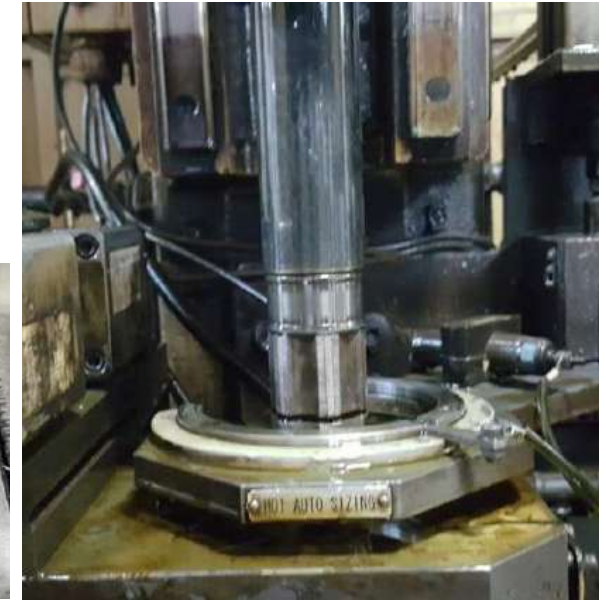
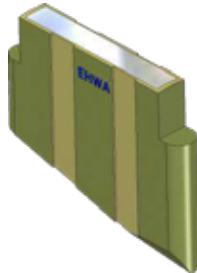
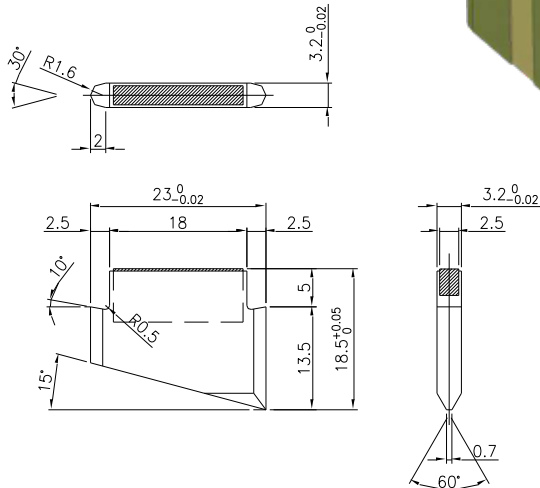
WORKPIECE / MACHINE

TYPE	GRIT SIZE	Length (mm)	BOND	Condition	Workpiece
Rough	#140 ~ #170	40 ~ 60	MH15, MB24	Ra < 0.25	SCM steel (HRc 59)
Finish	#800		MH17C	Roundness < 5 μ m Cylindricity < 5 μ m	

4. HMF (For Speed Gear)

APPLICATION

Used for Speed Gear.



SHAPE OF TOOL

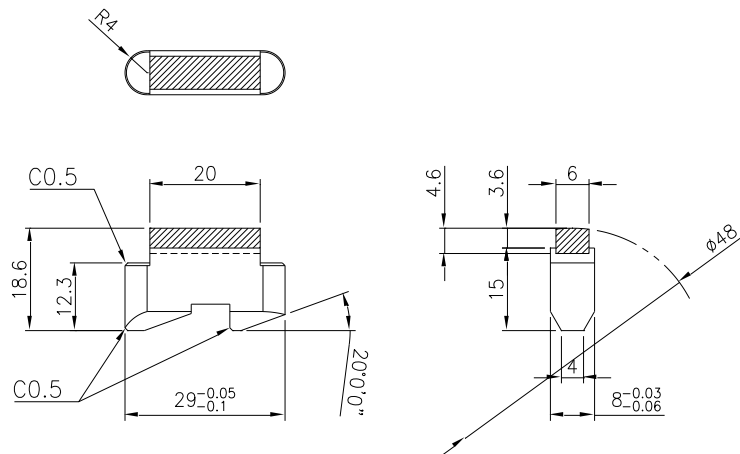
WORKPIECE(SPEED Gear) / MACHINE

TYPE	GRIT SIZE	Length (mm)	BOND	Condition	Workpiece
Rough	#140 ~ #170	40 ~ 60	ME4	Ra < 0.4 Cylindricity < 20 μ m	SCR steel (HRc 61)
Finish	#600		MH15, MS13		

5. HMF (For DCT Gear)

APPLICATION

Used for DCT Gear



SHAPE OF TOOL



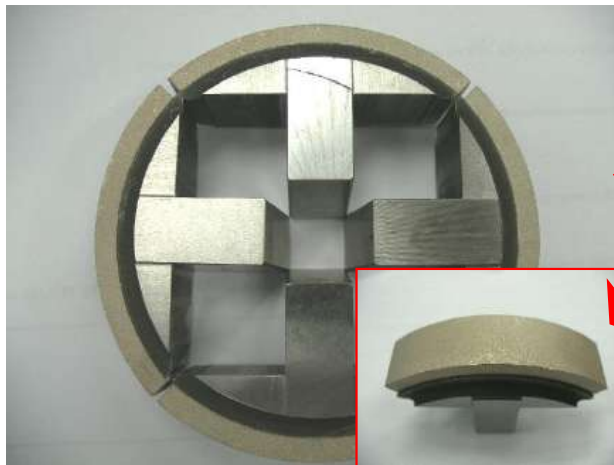
WORKPIECE(Speed Gear)

TYPE	GRIT SIZE	Length (mm)	BOND	Condition	Workpiece
Rough	#140 ~ #170	40 ~ 60	MB24	$Ra < 0.4$ or 0.32	SCM steel (HRc 65)
Finish	#600 ~ #800		MH15, MH41	Roundness $< 5\mu m$ Cylindricity $< 10\mu m$	

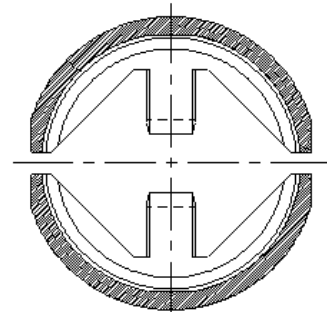
6. HMF (For Sleeve Gear)

APPLICATION

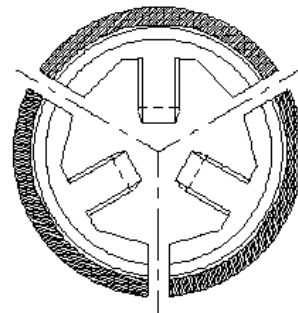
Used for Sleeve Gear



SHAPE OF TOOL



2P-TYPE



3P-TYPE



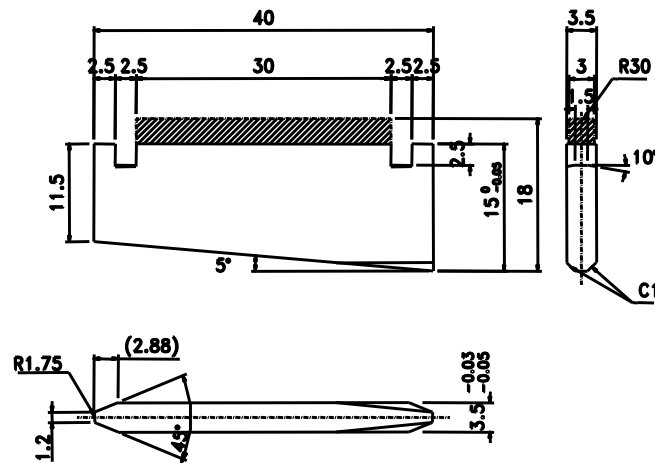
WORKPIECE / MACHINE

TYPE	GRIT SIZE	Length (mm)	BOND	Condition	Workpiece
Rough	#270	70.5D	MB33	$Ra < 0.4$	SCM steel (HB 160 ~ 187)
Finish	#400 ~ #500		MS3	Roundness $< 30\mu m$	

7. HMF (For Con-Rod)

APPLICATION

Used for Connection-Rod.



SHAPE OF TOOL



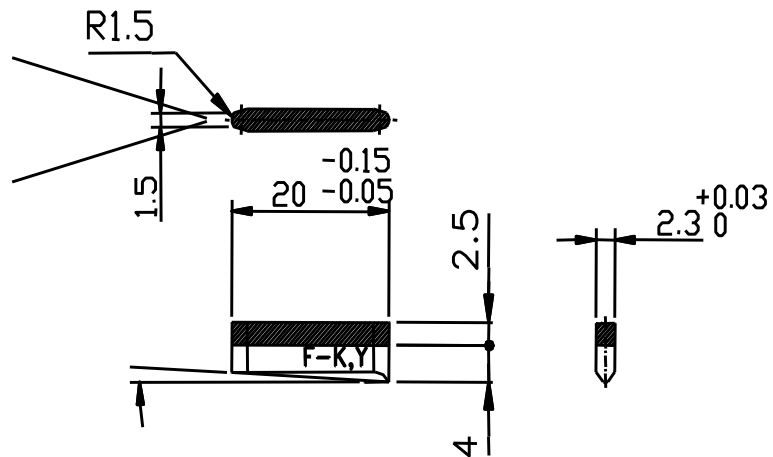
WORKPIECE / MACHINE

TYPE	GRIT SIZE	Length (mm)	BOND	Condition	Workpiece
A TYPE	#325	20~40L	MS12, MB24	Ra < 0.8	FC (HB 100~110)
B TYPE	#400 ~ #500		MJ1, MH41		

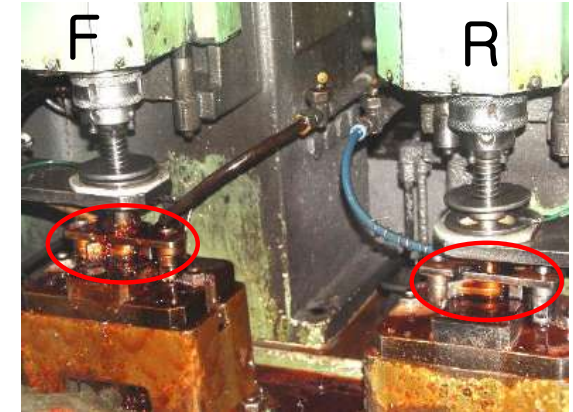
8. HMF (For Rocker Arm)

APPLICATION

Used for Rocker Arm



SHAPE OF TOOL



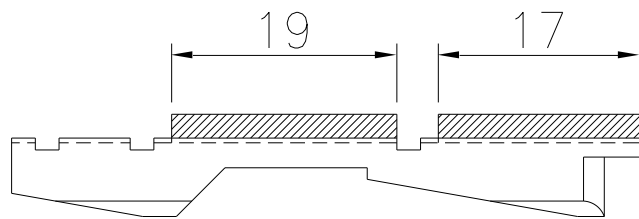
WORKPIECE(Rocker Arm)

TYPE	GRIT SIZE	Length (mm)	BOND	Condition	Workpiece
ROUGH	#120 ~ #140	$20L - 2.3W - 2.5X$	MS12	Rs < 3.2	SCM steel
FINISH	#500		MS3		

9. HMF (For Clutch Cylinder)

APPLICATION

Used for Clutch Cylinder.



SHAPE OF TOOL



WORKPIECE(Clutch Cylinder)

TYPE	GRIT SIZE	Length (mm)	BOND	Condition	Workpiece
ROUGH	#400	17L-2.5W-2.3X 19L-2.5W-2.3X	MS12		FC, FCD, AL Alloy.
FINISH	#800		MS3		