



Roller Dresser

Diamond Roller Dressers for
Conventional Grinding Wheels, Diamond & CBN Wheels.

Diamond Roller Dressers for Gear Manufacturing - Worm Grinding.

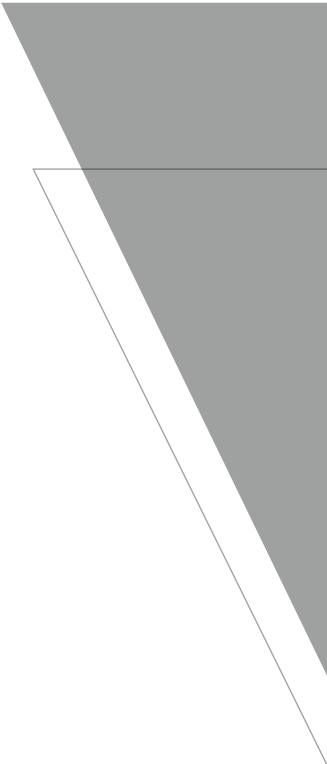


Shinhan Diamond Industrial Co., Ltd. has produced a variety of diamond tools from products for construction and stone to those for precision industries and high-tech materials such as silicon wafers for semi-conductor and the flat panel display including LCD and OLED since its establishment in 1978.



Roller Dresser

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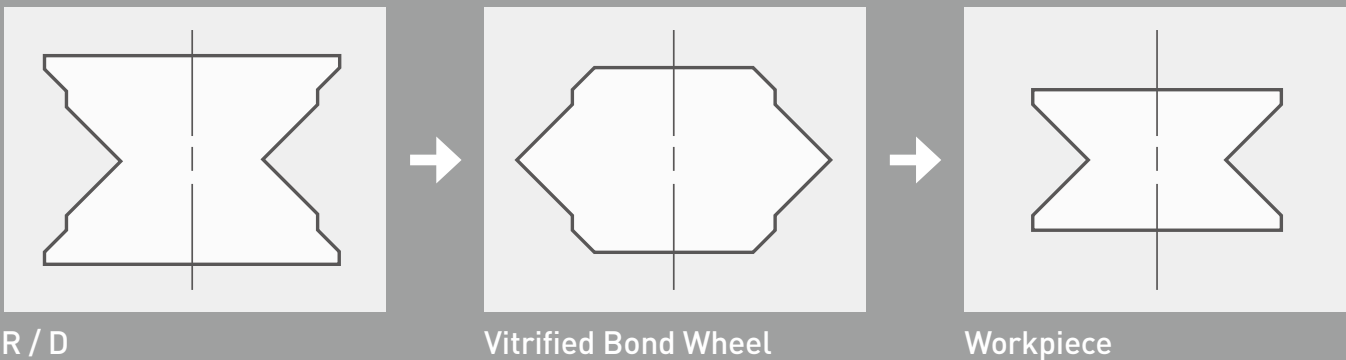


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Basic Information

Roller Dresser

Roller dresser is used to make a trued and sharpened abrasive wheel in the opposite profile of the roller dresser, so that the abrasive wheel can grind the workpiece to the same profile as the roller dresser.



Through truing and dressing a grinding wheel to its correct form, roller dresser sustains the wheels grinding efficiency and accuracy and maintains productivity as well as quality in mass production.

Roller dresser enables the profiling of more workpieces while keeping the profile deviation to a minimum by conditioning conventional grinding wheels at regular intervals during grinding process.

Compare to single-point or multi-point dresser, roller dresser shows reproducible dressing results with stable costs.

Basic Information

Types of Roller Dresser

Reverse-plated Type

This type of reverse-plated roller dresser is made by a method of electroplating. This production method is useful for complicated shapes and high tolerances. There are many ways to improve the dressing performance according to the dressing condition with this type of roller dresser.

Diamond Array Randomness, Patterned

Product Size Out-Diameter : \varnothing 60 ~ \varnothing 250 mm
Width : 10 ~ 230 mm



Sintered Type

This type of roller dresser is very good in conditions that require a high dressing speed and good resistance. The sintered roller dresser is made by a way of hand-setting. This is realized with a sintered roller dresser.

Diamond Array Hard-Setting, Randomness, Mixing

Product Size Out-Diameter : \varnothing 15 ~ \varnothing 300 mm
Width : ~ 230 mm

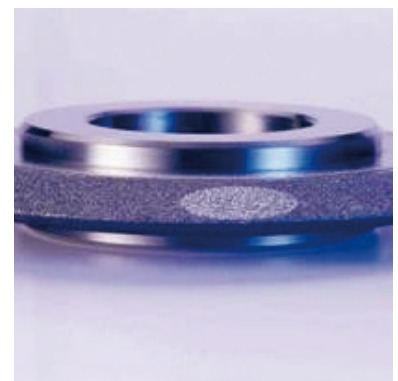


Electroplated Type

The same production method with normal E/P grinding wheels is used for the electroplated roller dresser. This type of roller dresser has very good grit-retention and a high tolerance with special treatment.

(This type of roller dresser is used for various dressing conditions)

Diamond Array Randomness

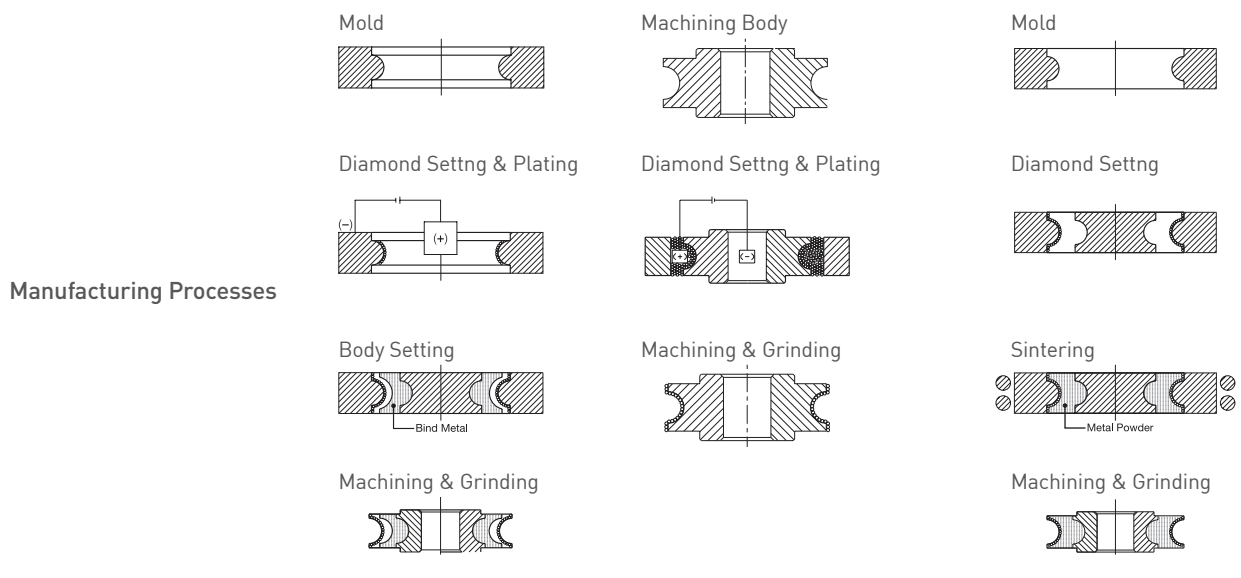


Basic Information

Manufacturing Details of Roller Dresser & Manufacturing Processes

⊙ Excellent ○ Good △ Normal

Manufacturing Method	Reverse-plated Type	Electroplated Type	Sintered Type	
			Hand Setting	Mixing
Distribution of Diamond Grits	Random	Random	Regular	Regular
Applicable Grit Size	#20 #80	#30 #80	#16 #20	#30 #80
Profile	Complex / Fine	Simple	General	Cup Straight
Dressing Method	Plunge	Traverse	Plunge / Traverse	Traverse
Major Applications	Bearing / Injection Needles	Gear Grinding	Turbine Blades / Camshafts	Internal Grinding / Centerless Grinding
Geometrical Accuracy	⊙	○	○	-
Surface Roughness	⊙	○	○	△
Service Life	⊙	○	○	△
Dressing Force	○	○	⊙	⊙
Major Features	Highest Precision / Fine Profile / Complex Profile	Gear Grinding	Any Concentration Settable / High Dressing Ability	Consistant Dressing Ability



Basic Information

Standard Design

Item	Factor	Symbol	Accuracy (mm)	Illustration
Profile	Runout	$\bar{i} \bar{i}$	± 0.002	
	Width	L	± 0.002	
	Radius	R	± 0.005	
	Step	S	± 0.001	
	Out Line	x	± 0.002	
	Angle	θ	$\pm 1'$	
	Straightness	\acute{o}	± 0.002	
	Pich	P	± 0.002	
Accumulative Pitch	nP	± 0.004		
Body	Bore	$\bar{y} H$	+ 0.005	
	Parallelism	//	± 0.002	
	Squareness	δ	± 0.002	
	Runout	$\bar{i} \bar{i}$	± 0.002	

Basic Information

Specification of Special Roller Dresser

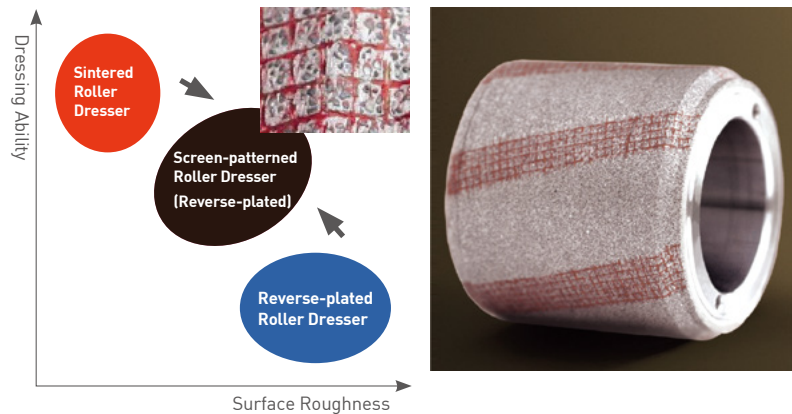
Screen-patterned Roller Dresser

Through Screen-patterned spaces between stones, the abrasive chips can be easily removed during dressing process. With this effect, better dressing performance can be obtained.

Patent No. 10-0593150 / 16 June, 2007
Roller dressers and the production method.

Characteristics

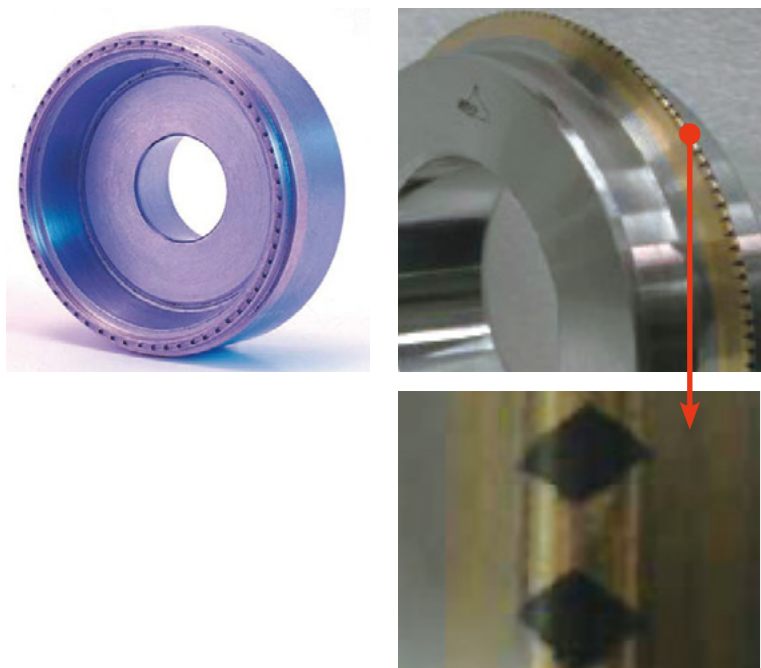
50% Screen-patterned Roller Dresser out of total surface showed and maintained 30% lower dressing load comparing to the high concentrated roller dressers.



Roller Dresser with Square Pillar Diamonds

Characteristics

- Superior Durability of Diamond Grits
- Excellent Stability against Heat
- Identical Shape of Diamond Grits
- Various Sizes and Shapes
- Uniform Wear of overall Dresser Surface
- Ability of dressing and truing wheels to accurate profile
- Cost reduction in operation



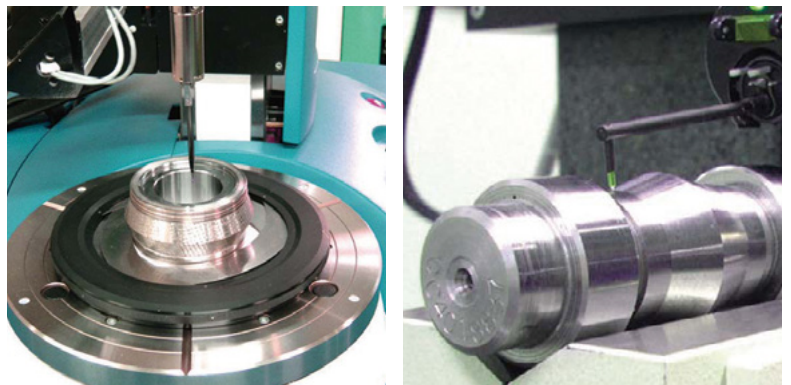
Basic Information

Inspection of Roller Dresser

Required accuracy for Roller Dresser is becoming more strict which is from microns to sub microns. To ensure the required accuracy, we have established perfect inspection system by most up-to-date equipments.

Designated as Advanced Technology Center (ATC)

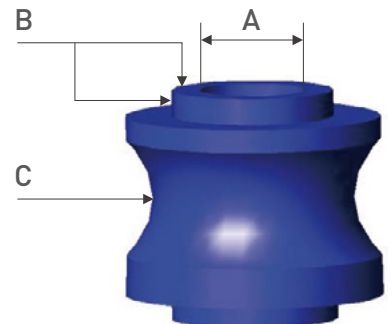
Certified ISO 9001:2000
from TÜV Rheinland in Germany



Description of Inspection

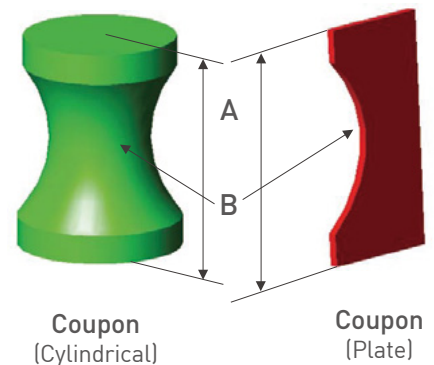
Roller Dresser

- A. Inside Diameter 3-point gauge.
- B. Runout (of reference surface)
Roundness measuring equipment. (Taylor Hobson)
- C. Runout of Profile
Roundness measuring equipment. (Taylor Hobson)



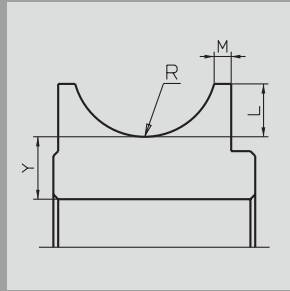
Test Pieces (Coupon)

- A. Measurement of Profile
Profile measuring equipment.
Projector [Mahr, OKM (Carlzeiss)]
- B. Surface Roughness
Surface roughness measuring equipment. (Taylor Hobson)



Type & Shape

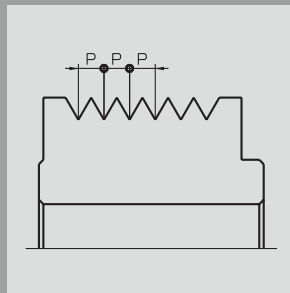
Applications of Reverse-plated Type



Ball, Taper, Hub Bearing Compressor vanes and other precision parts.

Unit : mm

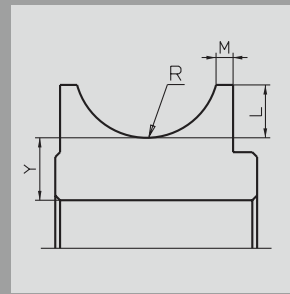
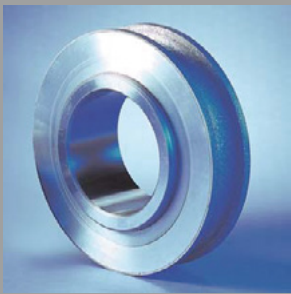
Y	≥ 10
M	$\geq L$ (min = 2 mm)
R	≥ 1
Out Diameter	≤ 200



Tools such as Tool Holders, Taps and Dies Rack.

Unit : mm

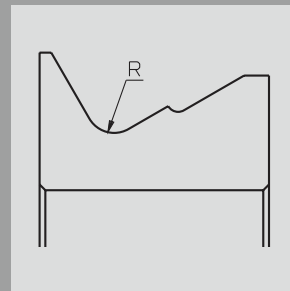
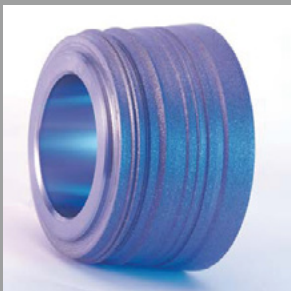
P	≥ 0.5
Width	≤ 200



Automobile parts such as CV Joints and Valves Ball Screws, LM Guides, etc.

Unit : mm

Y	≥ 10
M	$\geq L$ (min = 2 mm)
R	≥ 0.5
Out Diameter	≤ 200



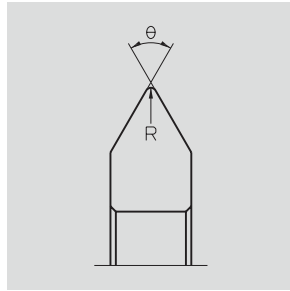
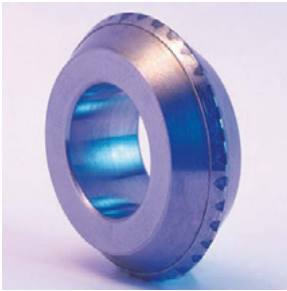
Aerospace parts including turbine blades, Precision grinding for various industries.

Unit : mm

R	≥ 0.3
Out Diameter	≤ 250

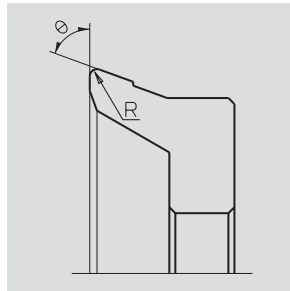
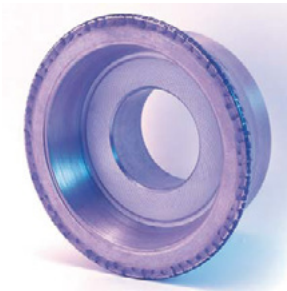
Type & shape

Applications of Sintered Type



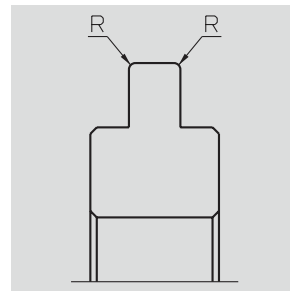
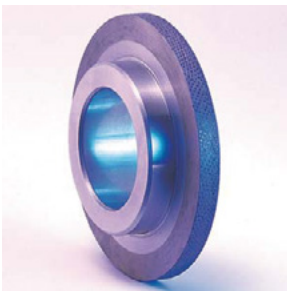
ID Wheel (including Vitrified Wheels)
Dressing Form traverse grinding.

Unit : mm	
θ	$\geq 30^\circ$
R	≥ 0.1
Out Diameter	30 ~ 200



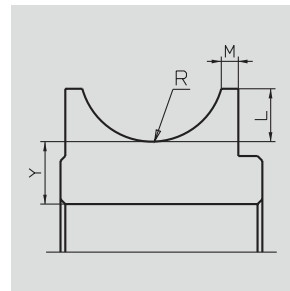
ID Wheel (including Vitrified Bond
Wheels) Dressing.

Unit : mm	
θ	$\geq 30^\circ$
R	≥ 0.1
Out Diameter	15 ~ 200



Crank Shafts, Cam Shafts,
Centerless OD Grinding (ex. Valves)
and Traverse dressing.

Unit : mm	
R	≥ 0.1
Out Diameter	40 ~ 300



Automobile parts such as Cages,
Housing, Universal Joints and Pump
Shafts.

Unit : mm	
Y	≥ 8
M	$\geq 0.5 L$ (min = 2 mm)
R	≥ 2

Type & Shape

Gear Grinding Dresser Introduction

Gear grinding is one of the most important methods of manufacturing of high precision gears.

The generative grinding of precision gears with worm-shaped grinding wheels has been known throughout the world for many years as one of the most economic processes.

Shinhan Diamond produces diamond gear dresser from module 0.5 (DP50.8) for all common dressing systems together with modification of chamfer, tip relief and other factors of common dressing systems.

Electroplated (Single Layer) diamond gear dresser and sintered diamond gear dresser are available.



Types of Gear Dresser

Disk Type (Single Taper Gear Dressing Wheels)

- Dressing wheels are used in pairs, each with its own powered dressing spindle.
- The pitch of the grinding worm can be adjusted by changing the distance between the dressing wheels.
- The profile depth of the grinding worm can be individually selected and can be used across different modules, if required.
- Dressing wheels can be regenerated by regrinding or replating the body.



Single Type (Twin Taper Gear Dressing Wheels)

- Diamond profile roller systems with gear root dressing.
- The positioning of the individual tools can be individually adjusted, but their design is dependent on the workpiece.
- Positive electroplated tools can be regenerated by regrinding or replating the body.



Double Type (Gear Dresser Sets for Single Pass Dressing)

- Diamond profile roller systems with gear root dressing.
- Various gear dressers set configurations are available to optimize dressing paths and therefore allow shorter dressing times.
- Proven rapid setup and tool change times.
- All module gear dresser sets can be reinforced at tip diameter.
- Tools can be regenerated by regrinding or replating the body.



Pitch Type (Full Profile Gear Dresser)

- Reverse process methods and Electroplated.
- Particularly suitable for module ranges < 1.5
- The full profile gear dresser is used as an individual tool on a powered dressing spindle.
- Diamond profile roller systems with gear root dressing.
- For single-pass and multi-pass dressing.



Inquiry Form

01. Machine Information

Type of Machine :

Maker & Model :

02. Workpiece Information

Part Name :

Material :

Surface Roughness :

Heat Treatment (HRc, Hs, Hv) :

Drawing :

03. Workpiece Information

Size & Maker :

Others :

04. Workpiece Information

Wheel Speed :

Sliding Speed :

Dressing Interval :

Workpiece Speed :

Cutting Speed :

Coolant :

Feed Speed :

Spark-Out Interval :

05. Dressing Condition

Dresser Speed :

Traverse Cutting Rate :

Dresser Turning Direction :

Dressing Time :

Dressing Traverse Speed :

06. Others





Roller Dresser

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