



# OMICRON

## CONVENTIONAL

# UNIVERSAL CYLINDRICAL GRINDING MACHINES

PRECISION SINCE 1936



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# CONVENTIONALS

## MANUFACTURED RESPECTING THE TRADITIONAL ITALIAN PRECISION MECHANICS

- High standards of precision
- Flexibility
- Fast set-up
- Ideal for processing components with very tight tolerances
- Sturdiness and Stability:
  - Machine bed in normalised cast iron
  - Grinding wheel spindle mounted on solid bronze bushes



THE MOST APPRECIATED  
BY PROFESSIONAL REBUILDERS



THE RANGE OF  
CONVENTIONAL UNIVERSAL CYLINDRICAL GRINDING  
IS COMPOSED OF :  
MODEL R - LIGHT VERSION  
MODEL E - SUITABLE FOR HEAVIER WORK

# CONVENTIONALS

## TRADITIONAL MECHANICS ASSISTED BY INCREMENTAL LINEAR AND DISPLAY UNITS

The following parameters are set on the touch screen panel encoder:

- workhead and wheelhead speeds
- automatic cycle parameters , for example:
  - dwell time at reverse
  - number of spark-out passes.

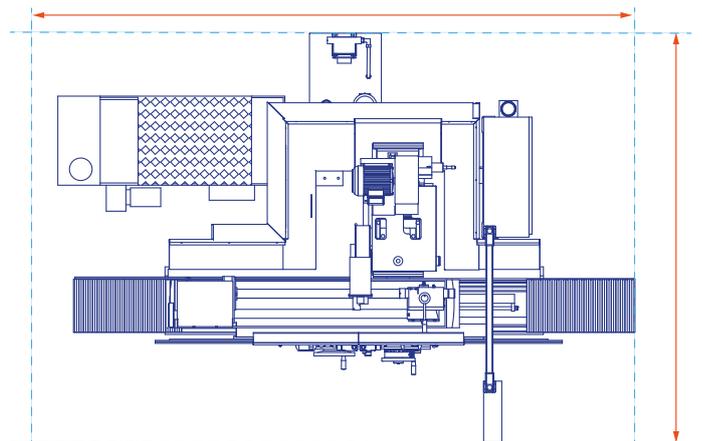
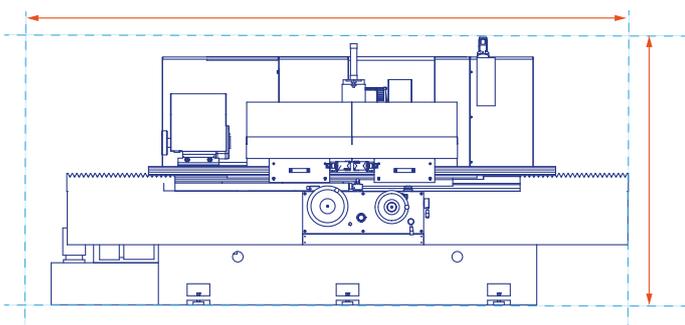


## MANUAL HANDWHEEL FOR TABLE AND WORKHEAD FEEDS

Division on diameter (mm)	
Main handwheel	0,01
Micrometric handwheel	0,001
Automatic Zero Stop	



# OMICRON R



<b>WORKING CAPACITY</b>	<b>600</b>	<b>1000</b>
Distance between centers	max. 600	1000 mm
Grinding length	max. 600	1000 mm
Height of centers over table		160 mm
Swing over table	max. 315	mm
Weight on centers	max. 120	kg
Cantilever weight <sup>1</sup>	max. 40	kg

<b>TABLE(Z-AXIS)</b>	<b>600</b>	<b>1000</b>
Automatic table traverse	max. 680	1080 mm
Swivel on either side	+9°	+8°
	-5°	-4°
Automatic traverse min.	3	mm
Hydraulic translation speed	0-5000 mm/min	
Manual feed for handwheel revolution	13	mm

<b>WORKHEAD</b>		
Rotation speed	0-600	rpm
Spindle hole diameter	26	mm
Internal center taper	4	MT
External center taper <sup>3</sup>	5	ASA
Swivel max.	90°	

<b>TAIL STOCK</b>		
Spindle stroke	25	mm
Spindle diameter	43	mm
Internal center taper	4	MT

<b>WHEEL HEAD (X - AXIS)</b>		
Swivel	max. +/-	180°
Stroke	max	180 mm
Fast hydraulic stroke		50 mm
Handwheel feed stroke		130 mm
Rotation speed (inverter)	600-1600	rpm

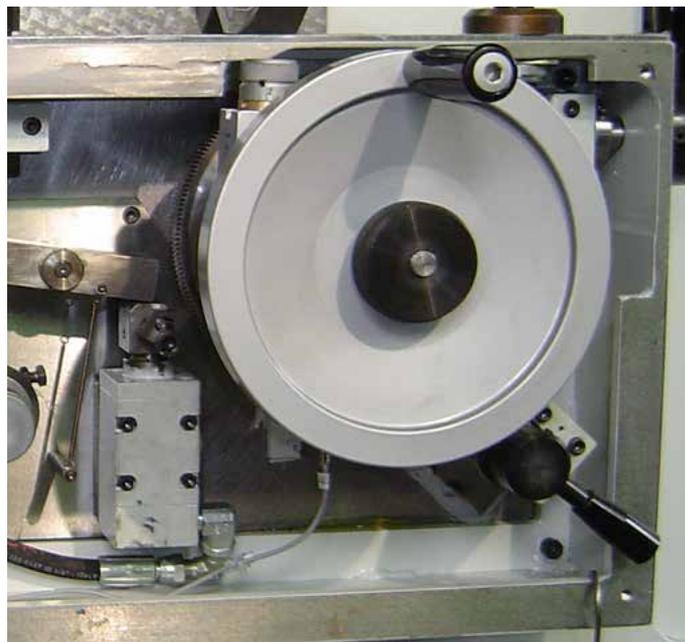
<b>GRINDING WHEEL SPECIFICATIONS</b>		
Diameter	max.	450 mm
Hole		127 mm
Width	min.	20 mm
	max.	50 mm

<b>WORKING FEEDS</b>	<b>(mm)</b>	
Automatic feed at each reversal Rh table	0,01	0,02
	0,03	0,04
Wheel feed for handwheel revolution		2
	micrometric	0,05
Handwheel division values		0,01
	micrometric	0,002

<b>INTERNAL GRINDING ATTACHMENT</b>		
Hole diameter for spindle	80	mm
Electric motor	1,5	kW

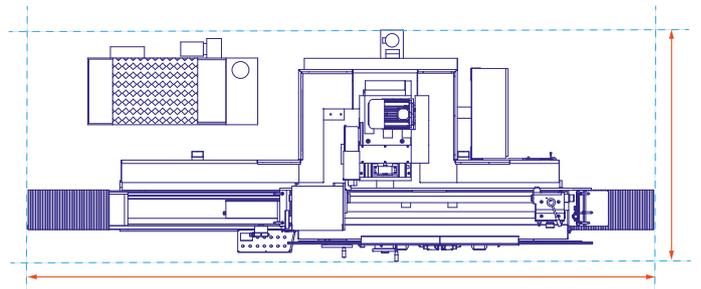
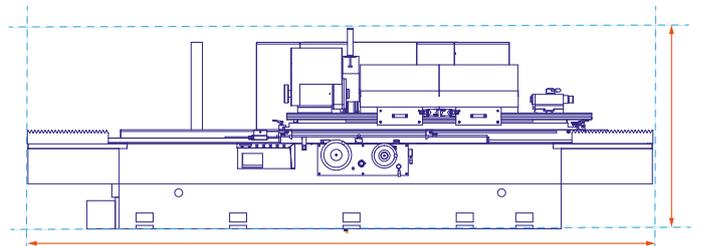
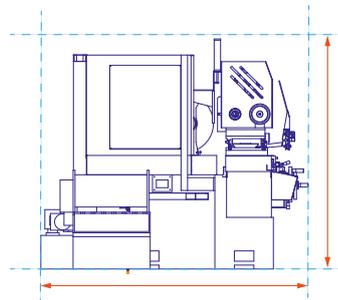
<b>MOTORS</b>		
Wheelhead	4,00	kW
Workhead	0,75	kW
Hydraulic power pack	0,75	kW
Coolant pump	0,18	kW

<b>DIMENSIONS</b>	<b>600</b>	<b>1000</b>
Length	2540	3750 mm
Width	1350	1350 mm
Height	1750	1750 mm
Net weight	2600	3300 Kg



BREAST BAR ALIGNMENT DEVICE  
(Optional)

# OMICRON E



<b>WORKING CAPACITY</b>		<b>600</b>	<b>1000</b>	<b>1500</b>
Distance between centers	max.	630	1030	1530 mm
Grinding length	max.	630	1030	1530 mm
Height of centers over table			180	230 <sup>3</sup> mm
Swing over table	max.	355	455	3 <sup>3</sup> mm
Weight on centers	max.	250	300	3 <sup>3</sup> kg
Cantilever weight <sup>1</sup>	max.	80	100	3 <sup>3</sup> kg

<b>TABLE (Z - AXIS)</b>		<b>600</b>	<b>1000</b>	<b>1500</b>
Automatic table traverse	max.	780	1180	1680 mm
Swivel on either side		+9°	+8°	+7°
		-5°	-4°	-3°
Automatic traverse	min.	3 mm		
Hydraulic translation speed		0-5000 mm/min		
Manual feed for handwheel revolution		13 mm		

<b>WORKHEAD</b>		
Rotation speed		0-600 rpm
Spindle hole diameter		31 mm
Internal center taper		5 MT
External center taper <sup>3</sup>		5 ASA
Swivel		90° max.

<b>TAIL STOCK</b>	
Spindle stroke	35 mm
Spindle diameter	48 mm
Internal center taper	4 MT

<b>WHEEL HEAD (X - AXIS)</b>	
Swivel	max. +/- 180°
Stroke	max 250 mm
Fast hydraulic stroke	50 mm
Handwheel feed stroke	200 mm
Rotation speed (inverter)	600-1600 rpm

<b>GRINDING WHEEL SPECIFICATIONS</b>	
Diameter	450-500 <sup>3</sup> mm
Hole	127 mm
Width	min. 20 mm
	max. 80 mm

<b>WORKING FEEDS</b>		(mm)
Automatic feed at each reversal Rh table		0,01 0,02
		0,03 0,04
Wheel feed for handwheel revolution		2
	micrometric	0,05
Handwheel division values		0,01
	micrometric	0,002

<b>INTERNAL GRINDING ATTACHMENT</b>	
Hole diameter for spindle	100 mm
Electric motor	1,5 kW

<b>MOTORS</b>	<b>600</b>	<b>1000</b>	<b>1500</b>
Wheelhead	5,50	5,50	5,50 kW
Workhead	1,50	1,50	2,20 kW
Hydraulic power pack <sup>3</sup>	0,75	0,75	0,75 kW
Coolant pump	0,18	0,18	0,18 kW

<b>DIMENSIONS</b>	<b>600</b>	<b>1000</b>	<b>1500</b>
Length	3350	4150	5500 mm
Width	1350	1350	1500 mm
Height	1750	1750	1750 mm
Net weight	3500	4400	5800 kg



## STANDARD EQUIPMENT



# TECHNICAL SPECIFICATIONS



## BASE

Structure in normalised and stabilised cast iron with large ground guides.  
On all the lower part of the perimeter are situated the recesses for machine levelling.

## TABLE

The table is manufactured in two parts, both are in normalised and stabilised cast iron.  
Lubrication is assured by a constant oil flow distributed over the complete length of the table.  
The upper part of the table is swivelable in the two directions making it suitable for grinding tapered workpieces.

## EQUIPMENT AND ELECTRICAL PLANT

The cabinet houses all the electrical / electronic components, PCL control, axis motor controllers etc.

## LUBRICATION PLANT

The lubrication power pack, is separate from the machine and supplies continuous oil to the wheelhead and table guides.  
The recovered and filtered table oil is returned to the power pack.

## HYDRAULIC PLANT

The hydraulic power pack, is separate from the machine and activates the hydraulic cylinder of the tailstock.

## PNEUMATIC PLANT

This distributes the air to the air cushion on the workhead, tailstock, table and wheelhead top-slide as required during the set up and manual movement of the major parts.

## PROTECTIONS

For the protection of the operator all movable parts are covered with CE compliant guards. Belts and moving parts are covered.  
The front protections are sheet sliding doors with polycarbonate shields, as standard.  
There are two fix steel sheets positioned on the sides of the bed.

There is also a movable shield in sheet metal, controlled by a pneumatic cylinder, protects the operator, when the grinding wheel is in rotation and the front sliding doors are open.

A built in interlock safety device, does not permit the automatic cycle to start if the front sliding doors are open

# TECHNICAL SPECIFICATIONS

TABLE	Automatic table longitudinal movement	hydraulic cylinder	√
	Large ground guides, accurately hand scrapped to permit a better sliding		√
	Incremental linear encoder to display the position		√
	Micrometric device with dial gauge for taper control		√
DRESSER	External diamond dresser on the tailstock		√
	Internal diamond dressing device positioned on the table		√
ELECTRICAL PLANT CABINET			
The internal temperature of the cabinet is controlled by an air-conditioning unit.			O
HYDRAULIC CYLINDER DRIVE	tabel and wheelhead movement		√
	tailstock		O
OIL-AIR HEAT EXCHANGER			√
COOLANT PLANT	Automatic opening and closing coolant flow		√
	Large capacity tank for the coolant complete with electro pump		√
	Coolant plant with combined magnetic+paper roll cleaner.		O
COMPLETE CLOSURE			O

# STANDARD EQUIPMENT

Coolant equipment complete with pump, electrical equipment, tank, pipes and nozzle		✓
	Magnetic and paper roll	○
Coolant Filters	Paper roll	○
	Magnetic	○
	One Grinding Wheel	✓
Grinding wheel	Flange	✓
	Balancing arbor	✓
	Extractor	✓
Set of levelling screws and plates		○
2 cloth bellows for table guide protection		✓
Set of	service spanners	✓
	hexagonal spanners	✓
Oil for guide lubrication	5 kg	○
Instruction manual		✓

# EQUIPMENT

Axis digital readout	X wheel head	✓
	Z table	✓
Table manual swivelling system for taper grinding with dial gauge		✓
Wheel head	Wheelhead slides by means of a recirculating ball screw with double preloaded nut, on linear motion guide with roller cage.	✓
Hydraulic unit for tailstock control		○
Pneumatic unit		✓
Centralized lubrication		✓

# WHEEL HEAD

## POSITIONING PRECISION

The structure is composed of 2 carriages in normalised cast iron.

The upper carriage, where the hydrodynamic spindle is located, has a manual stroke positioning to optimise the use of the grinding wheel

An air flow facilitates the positioning

The lower carriage slides by means of a recirculating ball screw with double preloaded nut, on linear motion guide with roller cage.

The greasing of the guides is timed.

The lower carriage has two movements:

- fast approach by means of an hydraulic cylinder
- working feed by means of a steel screw and bronze preloaded nut

The position of the grinding wheelhead is visualized by a millesimal optical line (resolution 0,001 mm)



## WHEELHEAD ROTATION 45°

The wheelhead rotates manually +/- 45°

On request, the wheelhead rotation may be executed :

- manually
- manually with DRO
- index swivel of 2.5°, with Hirth coupling (manual)

## WHEELHEAD CONFIGURATION

Wheelhead can be equipped with a second external grinding wheel, mounted on the right side of the same spindle.

## WHEELHEAD CUSTOMIZATION

To respond to more complex processing, the machine can be realized according to customer's requirements such as, for example, grinding wheels mounted on two spindles

## WHEELHEAD SPINDLE

Hydrodynamic type, rotates on anti-friction metal bushes, guaranteeing high finish degree.

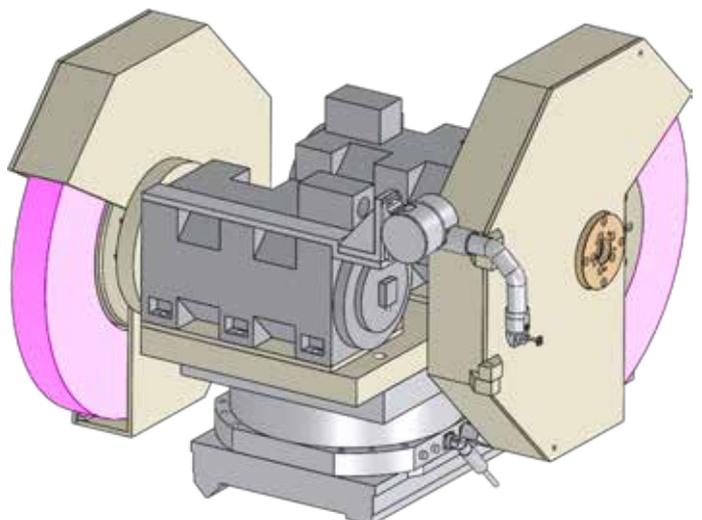
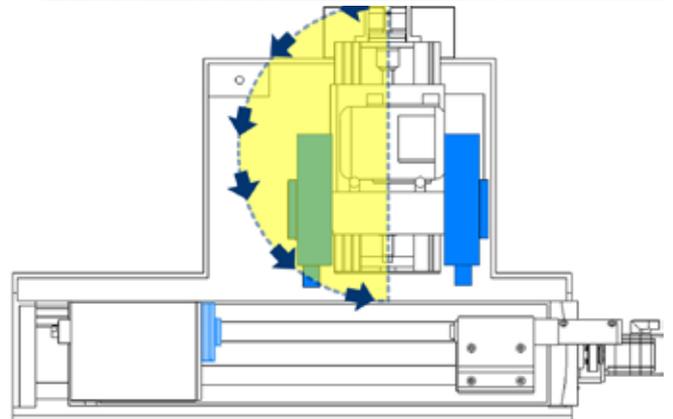
Rotation is by means of an AC motor.

Transmission by means of pulleys and Poly-V belt.

The speed is regulated by an inverter

## CUSTOMIZATION

On request, the machine can mount electrospindles of different power



# WORK HEAD



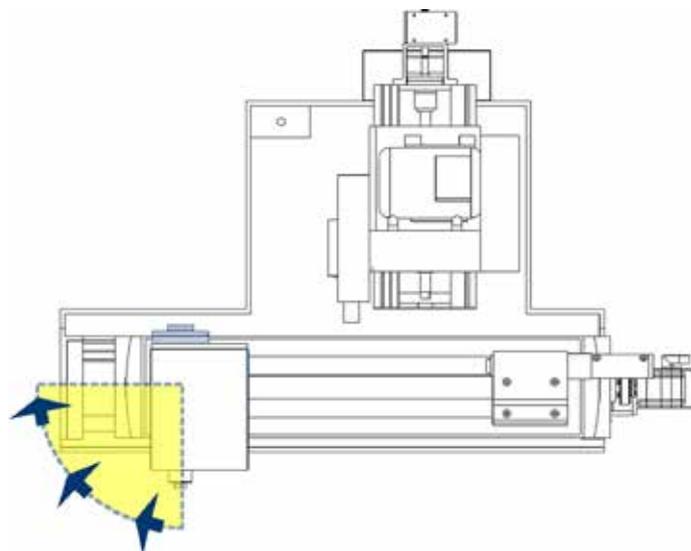
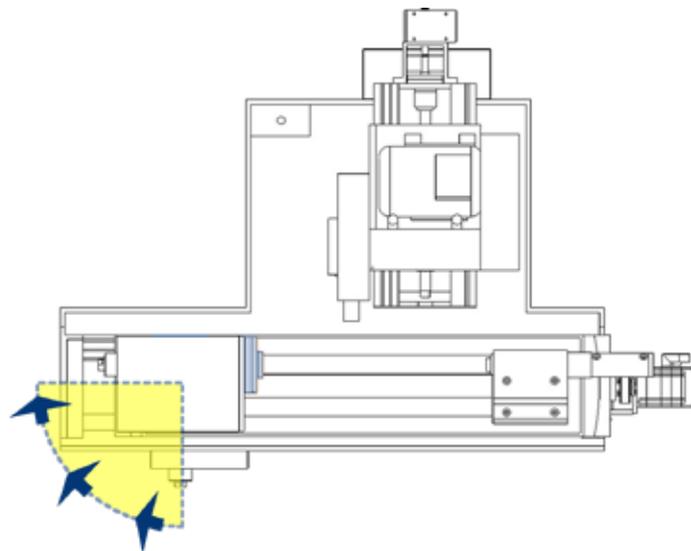
## DEAD AND LIVE SPINDLE POSITIONING FACILITATED BY AN AIR FLOW

The structure in normalised, stabilised and well ribbed cast iron, supports the workpiece weight and the force generated by the grinding operation. Equipped with dead and live spindle.

The spindle rotates:

- on high precision ball bearings, guaranteeing restricted tolerance and maximum rigidity in the working;
- by means of a AC motor and the rpm adjustments are programmable on the operator panel;
- may be intermittently manual or automatic.

The workhead positioning on the table is facilitated by an air flow.



## WORKHEADS ROTATION 90°

Workhead rotates 90 degrees and the rotation can be:

- manual
- manually with DRO\*
- Automatically with Indexing 1° Hirth coupling \*
- Manually with Indexing 1° Hirth coupling \*

\*On request

SPINDLE ROTATION  
ON HIGH PRECISION BALL BEARINGS,  
GUARANTEEING RESTRICTED TOLERANCE  
AND MAXIMUM RIGIDITY

# INTERNAL GRINDING

The machine ( on request ) may be equipped with Internal Grinding Attachment, which may be mounted in two versions:

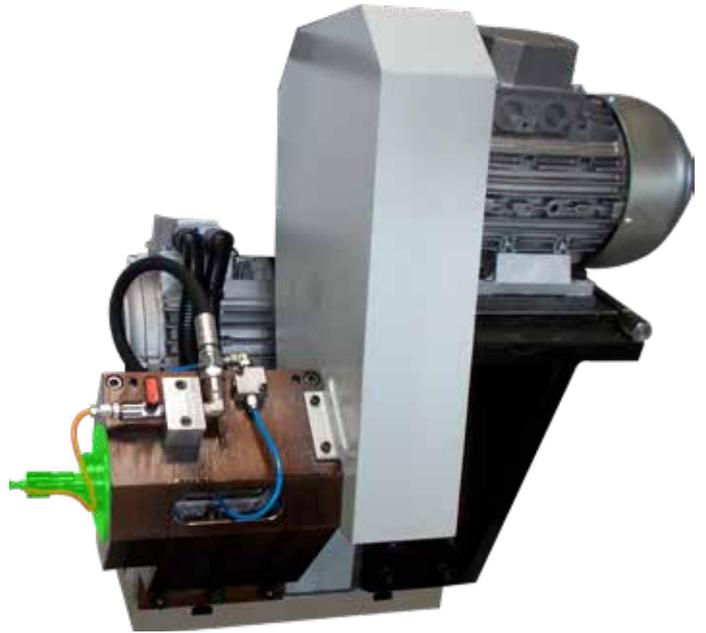
- drop down over wheel head
- on rear side of wheel head.

Robbi Group offers a large range of internal grinding spindles that can be :

- belt driven spindles up to 42,000 RPM
- electric spindles up to 120,000 RPM

LARGE RANGE OF  
QUILLS AND ATTACHMENTS  
ARE AVAILABLE

INTERNAL GRINDING SPINDLE  
MOUNTED  
ON REAR SIDE OF WHEEL HEAD



INTERNAL GRINDING SPINDLE  
MOUNTED  
DROP DOWN OVER WHEEL HEAD



# WHEEL DRESSING

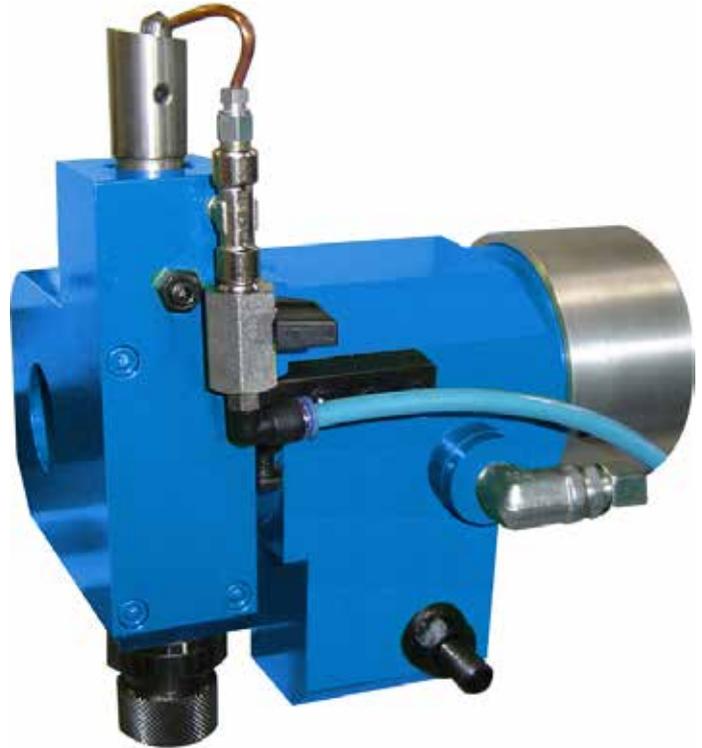
CUSTOMIZABLE ACCORDING  
TO THE PROCESS REQUIRED

A well dressed grinding wheel is crucial to obtain a high-performance and high-quality grinding process. The wheel dresser for external grinding wheels can be mounted on the:

- table
- tailstock

The wheel dresser support can be:

- fixed
- tilting hydraulic





# AT YOUR SERVICE SINCE 1936



*Robbi has operated in the machine tool market since 1936 and specialise in the manufacture of machines tailored to meet the more demanding needs of the customer's complex and more specialised demands.*

*Whilst maintaining competitive prices, Robbi have ensured their machines have stability and precision.*



*Robbi grinding machines, use the best technology and the most robust and reliable components available on the market in their build programme.*

*Robbi have a commitment to assist and help, proactively, its customers to ensure they maximise the efficiency of the machine.*



*Robbi, in fact, offers various service solutions, including the:*

- *development of manufacturing processes;*
- *replacement parts spare part programme,*
- *making parts available for older models,*
- *tailored operational training programs*
- *and maintenance training to maximise the features of grinding machines and maintain the Robbi Grinders longevity.*



*Understanding the needs of our customers we are offer the best solutions and services that increase their return on productivity thus improving our customers return on his investment.*

*Ideas that may improve our business are always appreciated from customers.*

*If there's anything we can do to improve your experience with Robbi, please let us know.*

*Robbi have a commitment to ensure all customers are completely satisfied.*

*Choose Robbi precision for increased productivity and a faster return on your investment.*

*Call us today, we've have a solution for your grinding application.*



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