



# OMICRON

## CNC

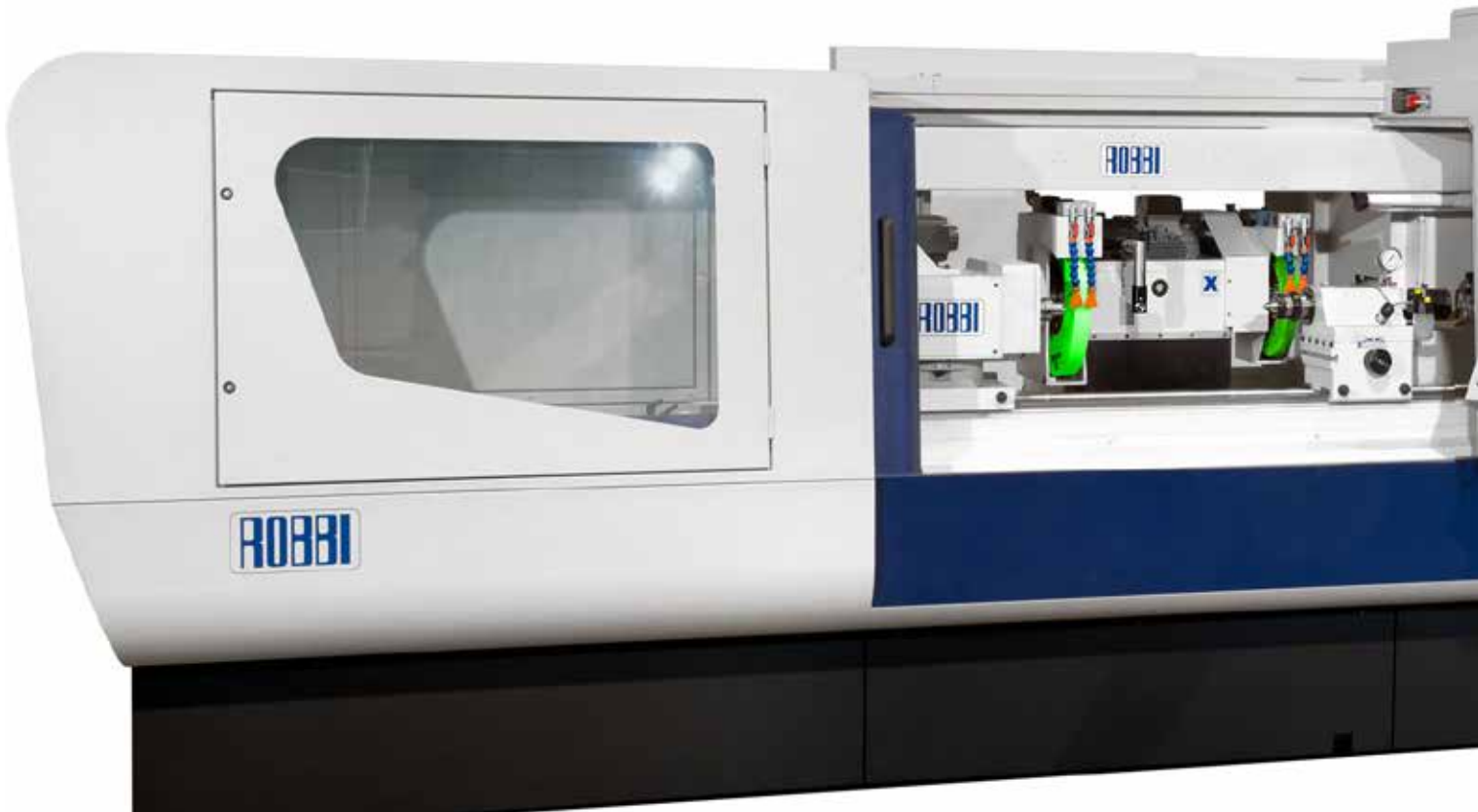
### UNIVERSAL CYLINDRICAL GRINDING MACHINES



[www.EcoMachineTools.com](http://www.EcoMachineTools.com)

770-279-2001

# OMICRON CNC



## THE POWER OF THE CNC AND THE PROCESS SIMPLICITY

- The work cycle can be optimised in-process with geometrical and working parameters.
- The CNC grinding machines versions were developed in response to needs for medium-high production volumes.
- Equipped with the latest-generation of SIEMENS 840D sl control system.
- Machines can be equipped with automatic measurement devices to process complex components.
- The CNC allows the operator to profile the grind wheel specifically to create geometries for the type of job required.
- High precision crowning operations can be performed by equipping the machines with a third interpolated axis and a bespoke software for this processes.

## EASY PROGRAMMING

The machine operator may create a program, even complex, without ISO programming knowledge.

### GUIDED COMPILATION

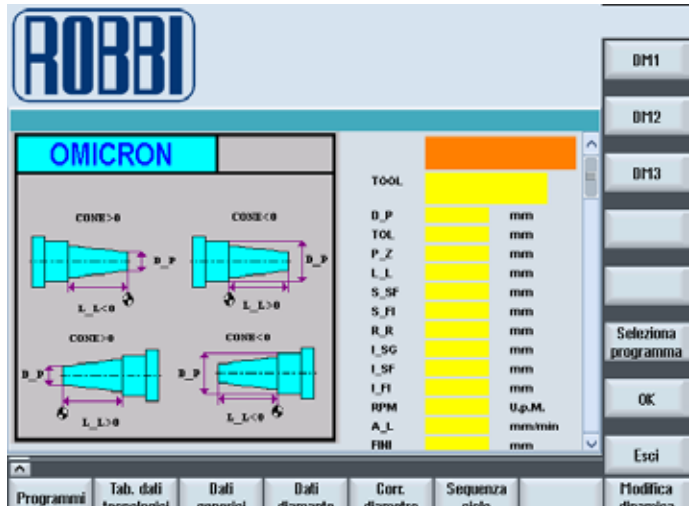
The compilation of the parameters is guided by a series of messages and icons that explain step by step the meaning of the various parameters.

The programming of the working cycles is done by filling the same parametric working cycle.

Once the working cycle has been programmed, it is also possible to modify the execution sequence of the various cycles, simply and intuitively.

### ERRORS CONTROL

To eliminate errors in the execution of a program, there is available a summary page to control the main geometric parameters of every single working cycles.



### ACCURATE GEOMETRIC RESULTS

In each cycle it is possible to correct eventual taper errors, interpolating the two axis X and Z. This permits, in a short time, to obtain very accurate geometric results.

# EASY HUMAN INTERFACE



## COMPLETE CLOSURE - A TYPE

### STANDARD PROGRAMS SUPPLIED WITH THE MACHINE

|                | Od | ID |
|----------------|----|----|
| PASS           | ✓  | ✓  |
| PLUNGE         | ✓  | ✓  |
| FACING         | ✓  | ✓  |
| MULTI PLUNGE   | ✓  |    |
| ANGULAR PLUNGE | ✓  | ✓  |
| TAPER          | ✓  | ✓  |

### WHEEL DRESSING PROGRAMMING

It is possible to program all the automatic grinding wheel dressing cycle parameters.

The dressing operation may be executed:

- outside the grinding cycle
- automatically inside the grinding cycle (beginning before finishing or end of cycle),
- automatically using a cycle counter,
- on demand, during the grinding cycle

### SHOULDER GRINDING IN 3 MODES

In each cycle, it is possible to insert the shoulder grinding operation:

#### MANUALLY

The machine stops before the finishing operation, permitting the operator to execute the shoulder grinding operation with the electronic handwheel.

#### AUTOMATICALLY

The machine executes, before the finishing operation, the shoulder grinding operation, up to the programmed quote.

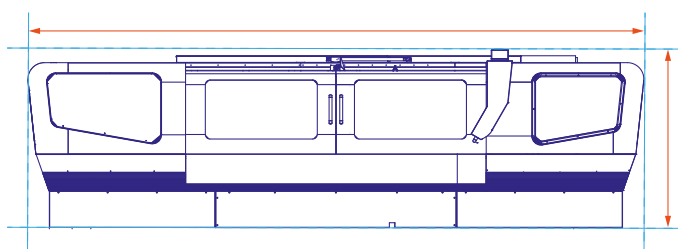
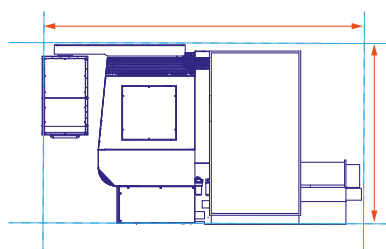
#### AUTOMATICALLY WITH GAP CONTROL

The machine executes, before the finishing operation, an automatic research of the shoulder to be ground by using the gap control. After the contact, the cycle automatically removes the quantity of programmed material. After the shoulder grinding operation it is possible, to execute a zero setting of the Z axis.

In this way it is possible to execute other shoulder grinding operations on the same workpiece with high precision and reduction in cycletime



COMPLETE CLOSURE - A TYPE





| WORKING CAPACITY               |      | 3206 | 3210   |
|--------------------------------|------|------|--------|
| Distance between centers       | max. | 600  | 1000mm |
| Grinding length                | max. | 600  | 1000mm |
| 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     |

| TABLE (Z - AXIS)         |      | 3206   | 3210        |
|--------------------------|------|--------|-------------|
| Automatic table traverse | max. | 680    | 1080mm      |
| Swivel on either side    |      | +9°    | +8°         |
|                          |      | -5°    | -4°         |
| Automatic traverse min.  |      | 3      | mm          |
| Speed                    |      | 1-5000 | mm/min      |
| Handwheel division       |      | 0,001  | 0,01 0,1 mm |

| WORKHEAD              |  |           |
|-----------------------|--|-----------|
| Rotation speed        |  | 0-600 rpm |
| Spindle hole diameter |  | 26 mm     |
| Internal center taper |  | 4 MT      |
| External center taper |  | 5 ASA     |
| Swivel                |  | 90°       |

| TAIL STOCK            |  |       |
|-----------------------|--|-------|
| Spindle stroke        |  | 50 mm |
| Spindle diameter      |  | 70 mm |
| Internal center taper |  | 4 MT  |

| WHEEL HEAD (X - AXIS)     |      |                   |
|---------------------------|------|-------------------|
| Swivel                    | max. | +/- 180°          |
| Handwheel division        |      | 0,001 0,01 0,1 mm |
| Manual position travel    |      | 130 mm            |
| Stroke                    | max  | 200 mm            |
| Speed                     | max  | 0,2-3000 mm/min   |
| Rotation speed (inverter) |      | 600-1600 rpm      |

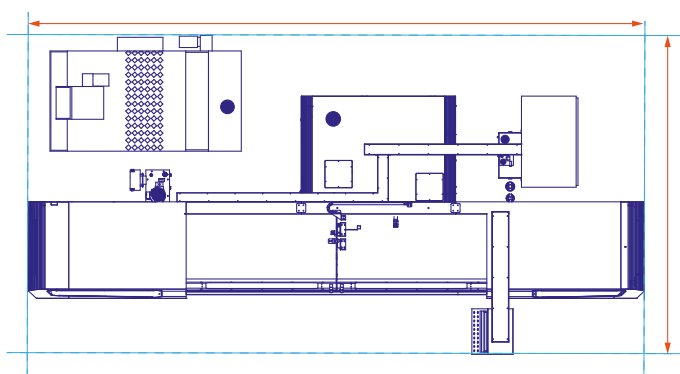
| GRINDING WHEEL SPECIFICATIONS |      |          |
|-------------------------------|------|----------|
| Diameter                      | max. | 450 mm   |
| Hole                          |      | ø 127 mm |
| Width                         | min. | 20 mm    |
|                               | max. | 50 mm    |

| WORKING FEEDS             |  | (mm)  |
|---------------------------|--|-------|
| Minimum programmable feed |  | 0,001 |

| INTERNAL GRINDING ATTACHMENT |  |         |
|------------------------------|--|---------|
| Hole diameter for spindle    |  | 80 mm   |
| Electric motor               |  | 1,50 kW |

| MOTORS                  |  |         |
|-------------------------|--|---------|
| Wheelhead               |  | 4,00 kW |
| Workhead                |  | 0,75 kW |
| Wheelhead feed (X axis) |  | 3,00 Nm |
| Table feed (Z axis)     |  | 6,00 Nm |
| Hydraulic power pack    |  | 0,75 kW |
| Coolant pump            |  | 0,18 kW |

| DIMENSIONS |  | 3206 | 3210   |
|------------|--|------|--------|
| Length     |  | 2900 | 3700mm |
| Width      |  | 1350 | 1350mm |
| Height     |  | 1750 | 1900mm |
| Net weight |  | 3700 | 4900Kg |



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| WORKING CAPACITY               |      | 3606 | 3610 | 3615 | 3620                |
|--------------------------------|------|------|------|------|---------------------|
| Distance between centers       | max. | 630  | 1030 | 1530 | 2030 mm             |
| Grinding length                | max. | 630  | 1030 | 1530 | 2030 mm             |
| Height of centers over table   |      |      |      | 180  | 230 <sup>3</sup> mm |
| Swing over table               |      |      | max. | 355  | 455 <sup>3</sup> mm |
| Weight on centers              |      |      | max. | 250  | 300 <sup>3</sup> kg |
| Cantilever weight <sup>1</sup> |      |      | max. | 80   | 80 kg               |

| TABLE (Z - AXIS)         |      | 3606  | 3610   | 3615 | 3620    |
|--------------------------|------|-------|--------|------|---------|
| Automatic table traverse | max. | 780   | 1180   | 1680 | 2180 mm |
| Swivel on either side    |      | +9°   | +8°    | +7°  | +6°     |
|                          |      | -5°   | -4°    | -3°  | -2°     |
| Automatic traverse       | min. |       | 4      |      | mm      |
| Speed                    |      |       | 1-5000 |      | mm/min  |
| Handwheel division       |      | 0,001 | 0,01   | 0,1  | mm      |

| WORKHEAD              |  |           |
|-----------------------|--|-----------|
| Rotation speed        |  | 0-600 rpm |
| Spindle hole diameter |  | 31 mm     |
| Internal center taper |  | 5 MT      |
| External center taper |  | 5 ASA     |
| Swivel                |  | 90°       |

| TAILSTOCK             |  |       |
|-----------------------|--|-------|
| Spindle stroke        |  | 70 mm |
| Spindle diameter      |  | 70 mm |
| Internal center taper |  | 5 MT  |

| WHEEL HEAD (X - AXIS)     |      |                   |
|---------------------------|------|-------------------|
| Swivel                    | max. | +/- 180°          |
| Handwheel division        |      | 0,001 0,01 0,1 mm |
| Manual position travel    |      | 200 mm            |
| Stroke                    | max  | 380 mm            |
| Speed                     | max  | 0,2-3000 mm/min   |
| Rotation speed (inverter) |      | 600-1600 rpm      |

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

| WORKING FEEDS             |  | (mm)  |
|---------------------------|--|-------|
| Minimum programmable feed |  | 0,001 |

| INTERNAL GRINDING ATTACHMENT |  |         |
|------------------------------|--|---------|
| Hole diameter for spindle    |  | 100 mm  |
| Electric motor               |  | 1,50 kW |

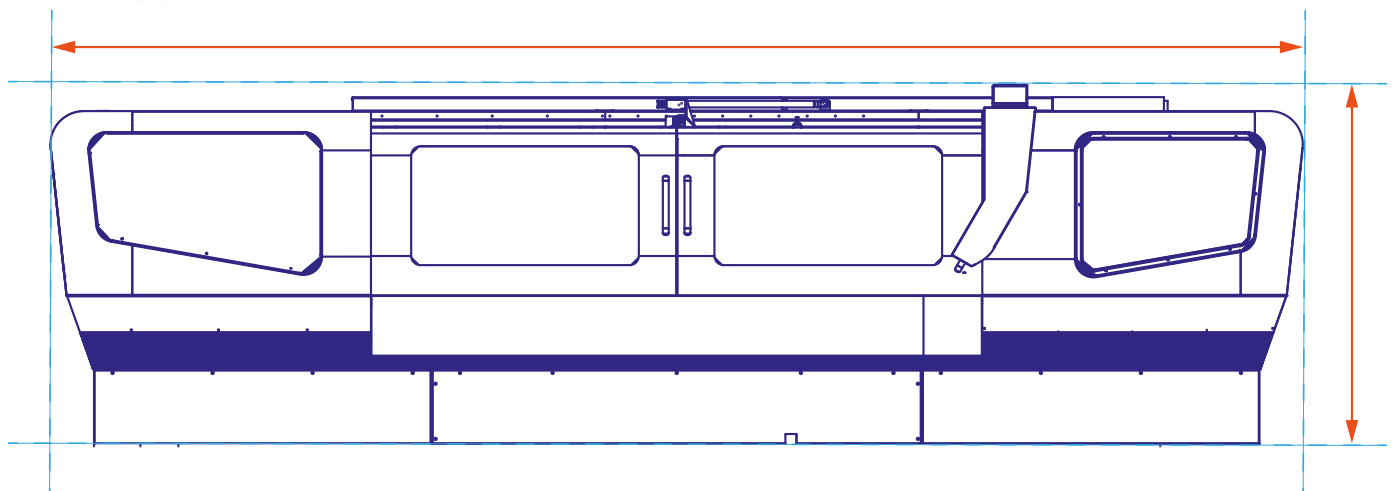
| MOTORS                            |  | 3606 | 3610                     | 3615 | 3620 |
|-----------------------------------|--|------|--------------------------|------|------|
| Wheelhead                         |  |      | 5,50 - 7,50 <sup>3</sup> |      | kW   |
| Workhead                          |  |      | 1,50 - 2,20 <sup>3</sup> |      | kW   |
| Wheelhead feed (X axis)           |  |      | 3,00                     |      | Nm   |
| Table feed (Z axis)               |  |      | 11,00                    |      | Nm   |
| Hydraulic power pack <sup>3</sup> |  |      | 0,75                     |      | kW   |
| Coolant pump                      |  |      | 0,18                     |      | kW   |

| DIMENSIONS |  | 3606 | 3610 | 3615 | 3620    |
|------------|--|------|------|------|---------|
| Length     |  | 2900 | 3700 | 5200 | 6600 mm |
| Width      |  | 1500 | 1500 | 1500 | 1500 mm |
| Height     |  | 2100 | 2100 | 2100 | 2100 mm |
| Net weight |  | 3800 | 4700 | 6200 | 7700 Kg |

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COMPLETE CLOSURE - A TYPE





| WORKING CAPACITY               |      | 6010 | 6015 | 6020 | 6030                |
|--------------------------------|------|------|------|------|---------------------|
| Distance between centers       | max. | 1150 | 1750 | 2250 | 3150 mm             |
| Grinding length                | max. | 1000 | 1600 | 2100 | 3000 mm             |
| Height of centers over table   |      |      |      | 300  | 350 <sup>3</sup> mm |
| Swing over table               |      |      | max. | 595  | 695 <sup>3</sup> mm |
| Weight on centers              |      |      | max. | 1200 | kg                  |
| Cantilever weight <sup>1</sup> |      |      | max. | 120  | kg                  |

| TABLE (Z - AXIS)         |      | 6010  | 6015   | 6020 | 6030    |
|--------------------------|------|-------|--------|------|---------|
| Automatic table traverse | max. | 1150  | 1650   | 2150 | 3050 mm |
| Swivel on either side    |      | +8°   | +7°    | +6°  | +5°     |
|                          |      | -4°   | -3°    | -2°  | -1°     |
| Automatic traverse       | min. |       | 3      |      | mm      |
| Speed                    |      |       | 1-5000 |      | mm/min  |
| Handwheel division       |      | 0,001 | 0,01   | 0,1  | mm      |

| WORKHEAD              |  |           |
|-----------------------|--|-----------|
| Rotation speed        |  | 0-350 rpm |
| Spindle hole diameter |  | 44 mm     |
| Internal center taper |  | 6 MT      |
| External center taper |  | 8 ASA     |
| Swivel                |  | 90°       |

| TAIL STOCK            |  |       |
|-----------------------|--|-------|
| Spindle stroke        |  | 70 mm |
| Spindle diameter      |  | 80 mm |
| Internal center taper |  | 5 MT  |

| WHEEL HEAD (X - AXIS)     |      |                   |
|---------------------------|------|-------------------|
| Swivel                    | max. | +/- 180°          |
| Handwheel division        |      | 0,001 0,01 0,1 mm |
| Manual position travel    |      | 250 mm            |
| Stroke                    | max  | 480 mm            |
| Speed                     | max  | 0,2-3000 mm/min   |
| Rotation speed (inverter) |      | 600-1250 rpm      |

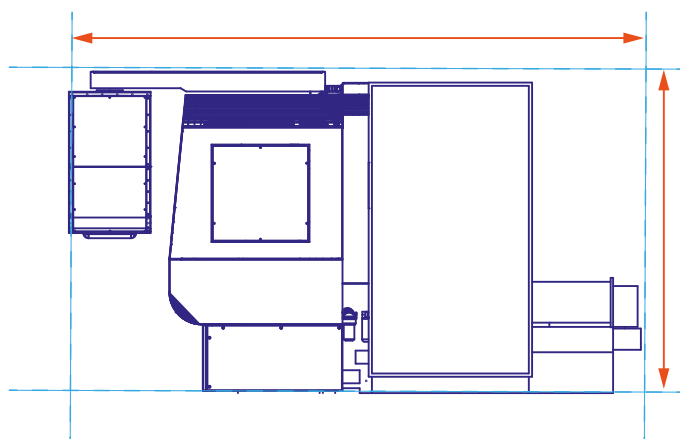
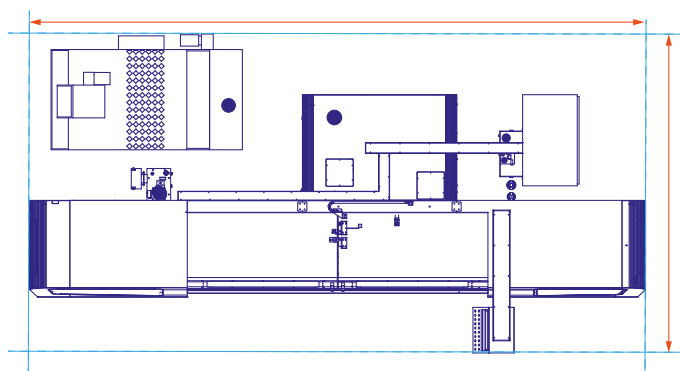
| GRINDING WHEEL SPECIFICATIONS |      |        |
|-------------------------------|------|--------|
| Diameter                      | max. | 610 mm |
| Hole                          |      | 230 mm |
| Width                         | min. | 50 mm  |
|                               | max. | 120 mm |

| WORKING FEEDS             |  | (mm)  |
|---------------------------|--|-------|
| Minimum programmable feed |  | 0,001 |

| INTERNAL GRINDING ATTACHMENT |  |                           |
|------------------------------|--|---------------------------|
| Hole diameter for spindle    |  | 100 120 <sup>3</sup> mm   |
| Electric motor               |  | 2,20 4,00 <sup>3</sup> kW |

| MOTORS                  |  |          |
|-------------------------|--|----------|
| Wheelhead               |  | 15,00kW  |
| Workhead                |  | 3,60kW   |
| Wheelhead feed (X axis) |  | 6,00 Nm  |
| Table feed (Z axis)     |  | 11,00 Nm |
| Hydraulic power pack    |  | 0,75kW   |
| Coolant pump            |  | 0,18kW   |

| DIMENSIONS |  | 6010 | 6015 | 6020 | 6030     |
|------------|--|------|------|------|----------|
| Length     |  | 5200 | 5700 | 6850 | 9000 mm  |
| Width      |  | 1950 | 1950 | 1950 | 1950 mm  |
| Height     |  | 2100 | 2100 | 2100 | 2100 mm  |
| Net weight |  | 6800 | 8100 | 9300 | 11000 Kg |



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| WORKING CAPACITY               | 8030 | 8040      | 8050             | 8060             | 8080                |
|--------------------------------|------|-----------|------------------|------------------|---------------------|
| Distance between centers max   | 3000 | 4000      | 5000             | 6000             | 8000 mm             |
| Grinding length max            | 3000 | 4000      | 5000             | 6000             | 8000 mm             |
| Height of centers over table   |      |           | 400              | 450 <sup>3</sup> | 500 <sup>3</sup> mm |
| Swing over table               |      | max. 795  | 895 <sup>3</sup> | 995 <sup>3</sup> | mm                  |
| Weight on centers              |      | max. 4000 |                  |                  | kg                  |
| Cantilever weight <sup>1</sup> |      | max. 180  |                  |                  | kg                  |

| TABLE (Z - AXIS)             | 8030       | 8040       | 8050       | 8060       | 8080       |
|------------------------------|------------|------------|------------|------------|------------|
| Automatic table traverse max | 3200       | 4200       | 5200       | 6200       | 8200 mm    |
| Swivel on either side        | +5°<br>-1° | +4°<br>-1° | +3°<br>-1° | +2°<br>-1° | +0°<br>-0° |
| Automatic traverse min.      |            |            | 4          |            | mm         |
| Speed                        |            |            | 1-5000     |            | mm/min     |
| Handwheel division           |            | 0,001      | 0,01       | 0,1        | mm         |

| WORKHEAD              |           |
|-----------------------|-----------|
| Rotation speed        | 0-150 rpm |
| Spindle hole diameter | 44 mm     |
| Internal center taper | 6 MT      |
| External center taper | 8 ASA     |
| Swivel                | 90°       |

| TAIL STOCK            |        |
|-----------------------|--------|
| Spindle stroke        | 80 mm  |
| Spindle diameter      | 120 mm |
| Internal center taper | 6 MT   |

| WHEEL HEAD (X - AXIS)     |                     |
|---------------------------|---------------------|
| Swivel                    | max. +/- 180°       |
| Handwheel division        | 0,001 0,01 0,1 mm   |
| Manual position travel    | 250 mm              |
| Stroke                    | max 480 mm          |
| Speed                     | max 0,2-3000 mm/min |
| Rotation speed (inverter) | 600-1250 rpm        |

| GRINDING WHEEL SPECIFICATIONS |                           |
|-------------------------------|---------------------------|
| Diameter                      | 760-1200 mm               |
| Hole                          | 305 mm                    |
| Width                         | min. 50 mm<br>max. 120 mm |

| WORKING FEEDS             | (mm)  |
|---------------------------|-------|
| Minimum programmable feed | 0,001 |

| INTERNAL GRINDING ATTACHMENT |                           |
|------------------------------|---------------------------|
| Hole diameter for spindle    | 100 100 <sup>3</sup> mm   |
| Electric motor               | 2,20 4,00 <sup>3</sup> kW |

| MOTORS                  |                             |
|-------------------------|-----------------------------|
| Wheelhead               | 15,00 18,00 <sup>3</sup> kW |
| Workhead                | 7,50 kW                     |
| Wheelhead feed (X axis) | 6,00 Nm                     |
| Table feed (Z axis)     | 36,00 Nm                    |
| Hydraulic power pack    | 1,50 kW                     |
| Coolant pump            | 0,18 kW                     |

| DIMENSIONS | 8030  | 8040  | 8050  | 8060  | 8080     |
|------------|-------|-------|-------|-------|----------|
| Length     | 9860  | 12260 | 14000 | 16500 | 18500 mm |
| Width      | 2400  | 2400  | 2400  | 2400  | 2400 mm  |
| Height     | 2650  | 2650  | 2650  | 2650  | 2650 mm  |
| Net weight | 23000 | 25000 | 27500 | 30000 | 35000 Kg |

<sup>1</sup>150 mm from workhead spindle nose

<sup>2</sup>Without Inverter

<sup>3</sup>Option

# 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 re-circulating ball screw with preloaded nut                                                      | ✓ |
|                                                                                    | Incremental linear encoder to display the position                                                                                      | O |
|                                                                                    | Micrometric device with dial gauge for taper control                                                                                    | ✓ |
|                                                                                    | Machines with distance between centers of more than 4000 mm, the swivelling is facilitated and more precise with the air cushion system | ✓ |
| DRESSER                                                                            | External diamond dresser on the tailstock                                                                                               | ✓ |
|                                                                                    | Grinding wheel dressing with radius on the edges and interpolation between X and Z                                                      | ✓ |
|                                                                                    | External wheel dresser support mounted on headstock                                                                                     | O |
|                                                                                    | High frequency diamond roll (dressing wheels in CBN or PCD)                                                                             | O |
|                                                                                    | Internal diamond dressing device positioned on the table                                                                                | ✓ |
|                                                                                    | Internal wheel dresser support, tilting hydraulic                                                                                       | O |
| ELECTRICAL PLANT CABINET                                                           |                                                                                                                                         | ✓ |
| The internal temperature of the cabinet is controlled by an air-conditioning unit. |                                                                                                                                         |   |
| TAILSTOCK HYDRAULIC CYLINDER DRIVE                                                 |                                                                                                                                         | ✓ |
| RE-CIRCULATING BALL SCREW NUTS: GREASE LUBRICATED                                  |                                                                                                                                         | ✓ |
| 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.                                                                                | ✓ |
| FIXED STEEL SHEETS INSTALLED ON THE BED SIDES                                      |                                                                                                                                         | ✓ |
| COMPLETE CLOSURE                                                                   |                                                                                                                                         | O |

# STANDARD EQUIPMENT

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

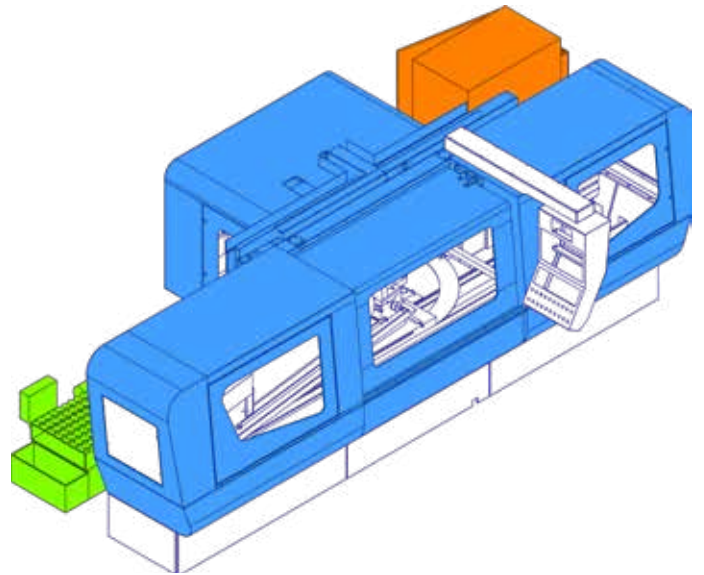
# EQUIPMENT

|                                                                                |                                                                                                                             |   |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---|
| Axis digital readout                                                           | X wheel head                                                                                                                | ✓ |
|                                                                                | Z table                                                                                                                     | O |
| Wheel head and table automatic electronic feeds controlled by brushless motors |                                                                                                                             | ✓ |
| Re-circulating ball screw with preloaded nut                                   | 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                                                        |                                                                                                                             | ✓ |

# ENCLOSER

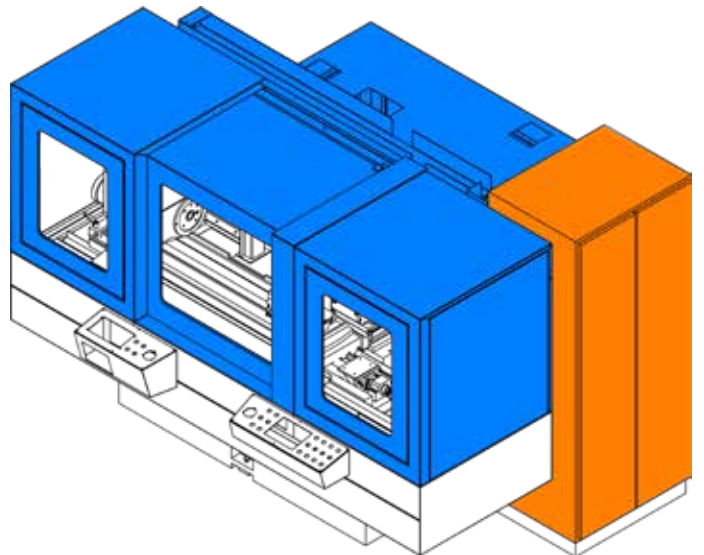
## TYPE A - ROUNDED

- COMPLETE ENCLOSER
- ELEGANT
- BALANCED STYLE



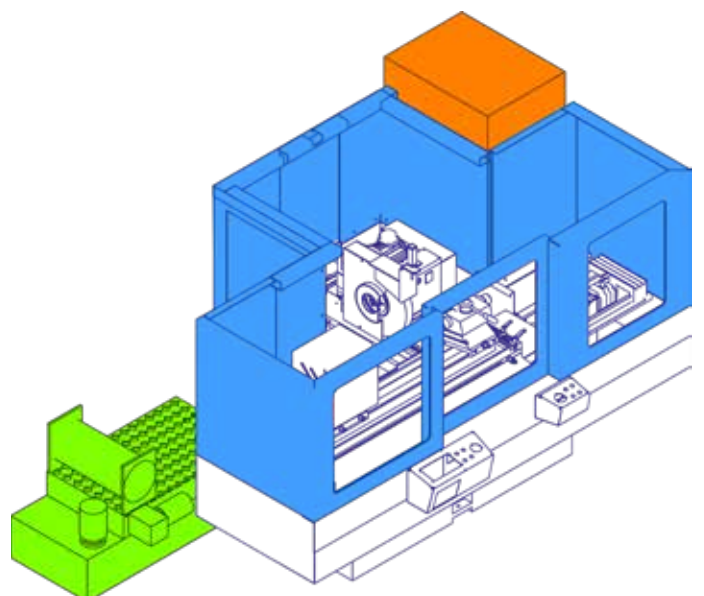
## TYPE B - SQUARE

- COMPLETE ENCLOSER
- FUNCTIONAL
- ESSENTIAL



## TIPO C - STANDARD

- OPEN TOP
- FUNCTIONAL



# WHEELHEAD

## POSITIONING PRECISION

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

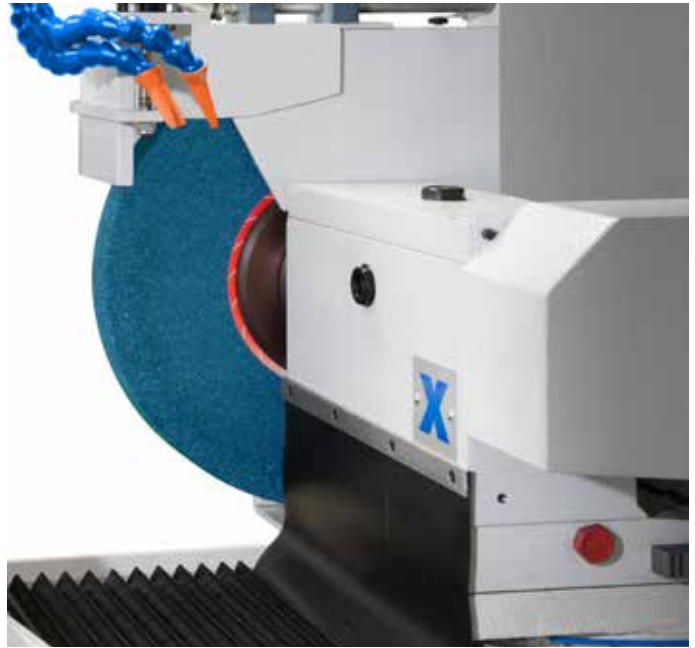
The upper carriage where the hydrodynamic spindle is located, has a manual stroke positioning to optimise the use of the grinding wheel

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 brushless motor which moves the screw, may be controlled (on request) with a closed loop by the incremental linear encoder, which guarantees a positioning precision on the complete stroke of 0,0001 mm

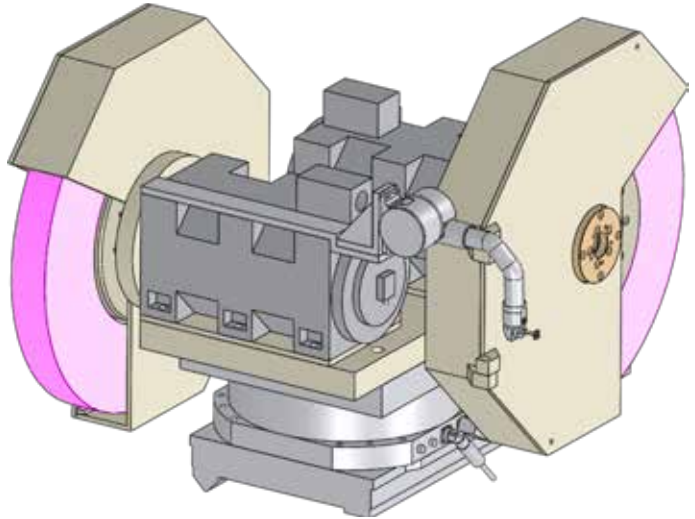


## WHEELHEAD ROTATION 180°

The wheelhead rotates manually 180°.

On request, the wheelhead rotation of 180° may be executed :

- manually
- manually with DRO
- index swivel of 2.5°, with Hirth coupling :
  - manual
  - automatic with brushless motor
- in continue with TORQUE motor



## 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 by means of an AC motor.

Transmission by means of pulleys and Poly-V belt.

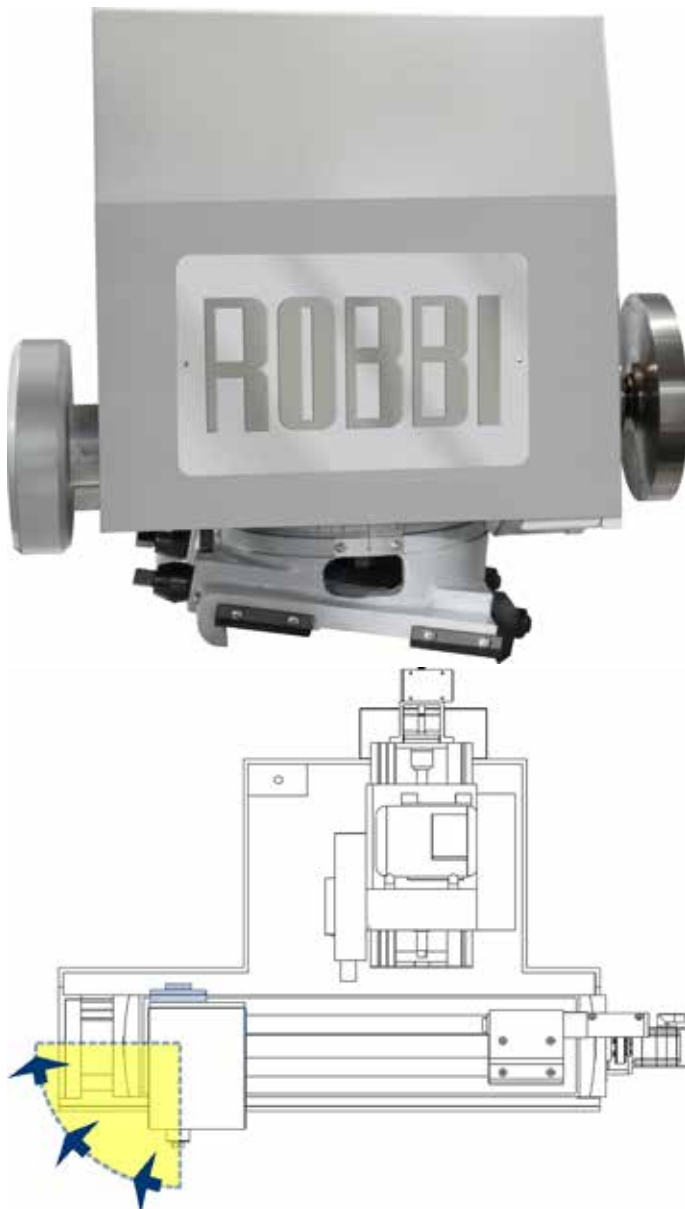
The speed is regulated by inverter

## CUSTOMIZATION

On request electrospindle of different power can be assembled



# WORKHEAD



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

The structure is 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 180°

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

# TAILSTOCK

Machine models PT6 and MT6, are supplied standard with Hydraulic opening / closure and micrometric correction of the cylindricity

Machine models RT6 and ET6 are available in three different versions:

- manual opening (standard);
- hydraulic opening (on request);
- hydraulic opening / closure and micrometric correction of the cylindricity (on request).



# INTERNAL GRINDING

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

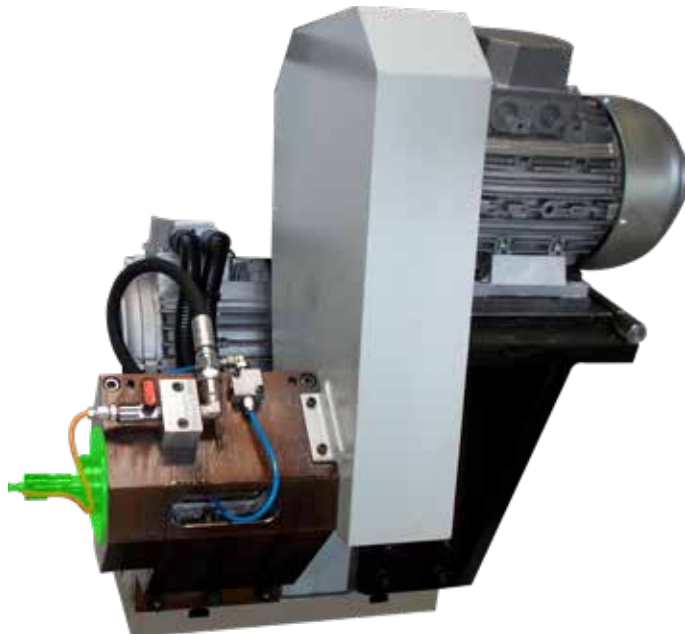
- drop down over wheel head
- on rear side of wheel head.

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

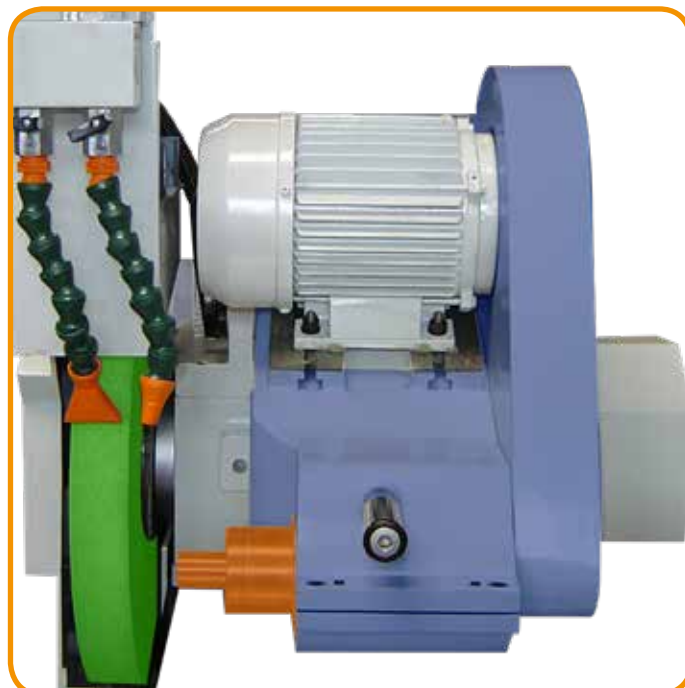
- belt driven spindles up to 42,000 RPM
- electric spindles up to 120,000 RPM

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

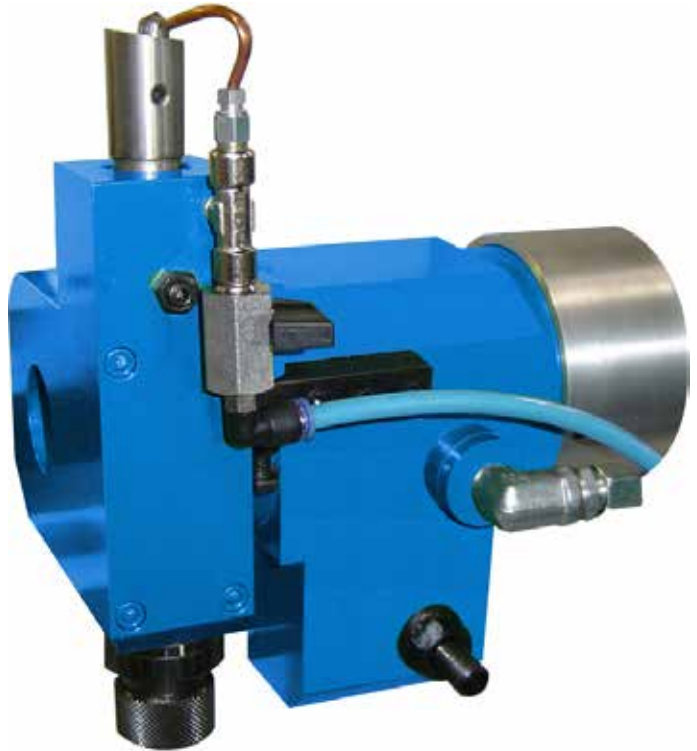
## CUSTOMIZABLE ACCORDING TO THE PROCESS REQUIRED

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



## DRESSING FIXED TOOLS OR HIGH FREQUENCY DIAMOND ROLLS

The machine can use for dressing:

- fixed tools
- or high frequency diamond rolls, particularly useful for internal grinding wheels



# PROCESS CONTROL

## GRINDING WHEEL BALANCING

Continuously monitors the condition of the machine in real time and compensates any unbalance of the grinding wheel .

Grinding Wheel Balancing :

- improves the mechanical stability
- improves the surface quality, avoiding risks of facets , circularity defects errors and roughness
- allows to increase the peripheral speed of the grinding wheel
- increases the productivity
- reduces stress on the spindle bearings

## CONTACT CONTROL

The instant in which the grinding wheel comes into contact with the workpiece, is important to:

- reduce the cycle time
- minimise the 'gap' time, maximising the axis feeds

The analysis of the contact between grinding wheel-dresser, consents to obtain a perfect profile optimising the scrap.



DETECTS SUB-MICRON CONTACTS ("GAP")

MONITORS CONSTANTLY THE WORK

PREVENTS COLLISION ("ANTI-CRASH")

# IN PROCESS MEASURING SYSTEM

## WORKPIECE SETTING

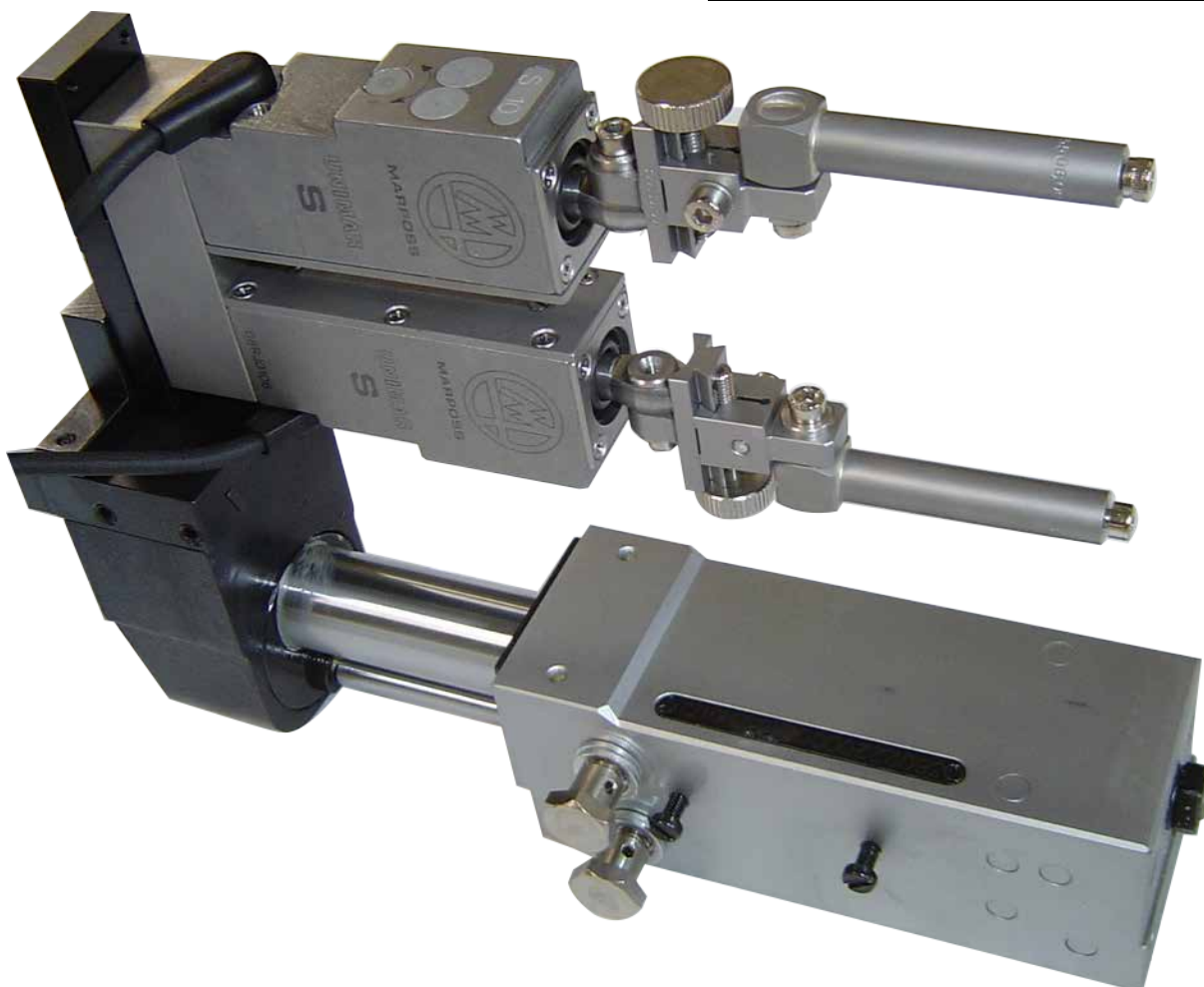
The use of a flagging device combined to the PLC control records the position of the workpiece in Z axis (table).

## IN PROCESS MEASURING SYSTEM

The use of measuring systems during the working, permits to grind components with high restricted tolerance.

The available methods are :

- Absolute measurement of diameters, with large ranges
- Measurement of small and large ranges, with reference master
- Control of continuous and interrupted surfaces (regular and irregular)
- Analysis of roundness and shape
- Measurement of the diameters: external, internal, thickness, scrap, taper, shoulder, etc.
- Automatic compensation of the in-process correction.



# DIGITAL FACTORY

## OMICRON CNC GRINDING MACHINES ARE EQUIPPED WITH (Optional) MINDSPHERE SIEMENS

MORE PRODUCTIVITY

MORE QUALITY

DIGITALIZATION OF PRODUCTION PROCESS

The CNC machines can be integrated with software and with appropriate sensors to:

- digitize the production process
- analyze the working parameters
- verify the machine status

The CNC machines may be further customized (on request) to meet customer's production process requirements

ANALYSIS OF:

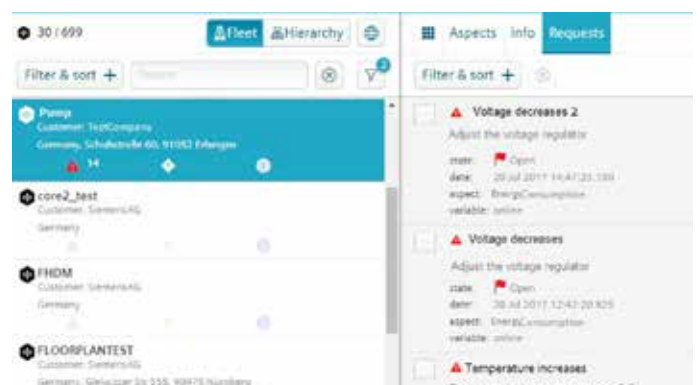
ACCELERATION

TEMPERATURE

SPEED

VIBRATIONS

- to monitor continuously the working conditions
- to be checked and serviced worldwide, safely
- to perform part programs from an external memory



# 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, pro-actively, 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.*



*Texts, illustrations and specifications reported in this catalogue are based on information available at the time of publication.*

*Despite the efforts, this document can contain technical inaccuracies or typographical errors.*

*Robbi Group reserves the right to make changes at any time and without notice, any content including pictures and text.*

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