



**GIORIA**

UNIVERSAL GRINDING MACHINES

**R/161  
CNC**

**R/162  
CNC**

**R/163  
CNC**

UNIVERSAL GRINDING MACHINES

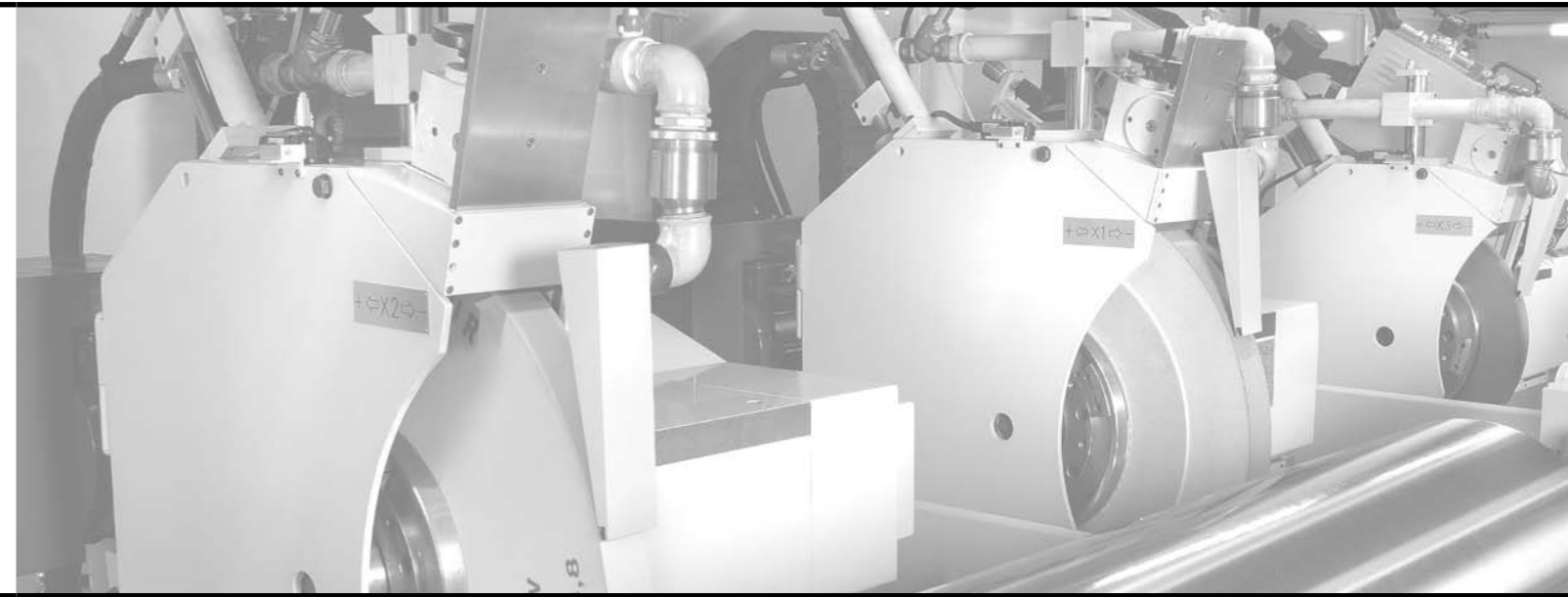




# R/161 CNC

# R/162 CNC

# R/163 CNC



#### WHEEL MOVING UNIVERSAL GRINDING MACHINES SERIES R/160 CNC

These universal grinding machines are accurate, robust, productive and flexible for they combine all features expected from a modern piece of equipment.

Thorough workmanship, first class components and repeated controls during the whole manufacturing process guarantee the supply of quality-made long-lasting, reliable machines.

The solutions engineered at the designing stage, the architecture of the front-end programming interface, the variety of options and grinding features such as OD, ID, face, taper, profile and crown grinding as well as microfinishing and polishing make these machines suitable for any grinding job in fully automatic unattended operation on large part batches or manual operator-controlled grinding of complex single parts.

The wheel moving design conceived and manufactured as early as the seventies combined to the strength and stability of the iron castings produced in the company's foundry are the solid grounds the success of these grinders is based on.

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#### MACHINE BED

The bed is a single-piece casting made of thermally stabilized cast iron. Its strength and the massive weight provide stability and vibration dampening.

#### WHEEL CARRIAGE, SLIDE AND WHEELHEAD (Z AXIS – X AXIS)

The wheelhead consists of three units: wheel carriage, slide and wheelhead.

The wheel carriage is made of highly resistant thermally stabilized cast iron sliding in the lengthwise direction along the bed guideways through a recirculating ball screw (class of accuracy ISO 1) with linear scale controlled by the CNC (Z AXIS).

The wheelhead slide is also made of cast iron and moves on the wheel carriage in the crosswise direction through a recirculating ball screw (class of accuracy ISO 1) with linear scale controlled by the CNC (X AXIS).

The wheelhead is made of cast iron. Depending on the severity of the grinding job and required surface finish the grinding wheel spindle can be mounted on ball bearings, hydrodynamic or hydrostatic bearings.



#### WORKHEAD AND TAILSTOCK

Made of highly resistant cast iron, workhead rests on table guideways.

The work spindle can be operated either dead or live with speed continuously adjusted and controlled by the CNC (S1 Axis).

The tailstock consists of two sections: the lower section moves longitudinally along table guideways by means of a motor while the upper one features a micrometric cross adjustment to align the centres.

Tailstock quill movement is motor-driven and is equipped with a programmable load cell complete with d.r.o. to monitor and set the thrust.

#### ID GRINDING

Any machine can be equipped with an ID grinding attachment operated in fully automatic mode through the CNC to mount belt-driven or electro-spindles designed per customer's specific requirement.

#### CNC AND ELECTRONICS

The controller is a Siemens Sinumerik 840D SL.

The man-machine interface (HMI) developed by our software specialists offers a customized front-end interface to execute machine set-ups, wheel dressing and part programs in a very easy way.

The CNC control unit is equipped with telediagnosis to connect machine CNC to the server located at our Service Department.

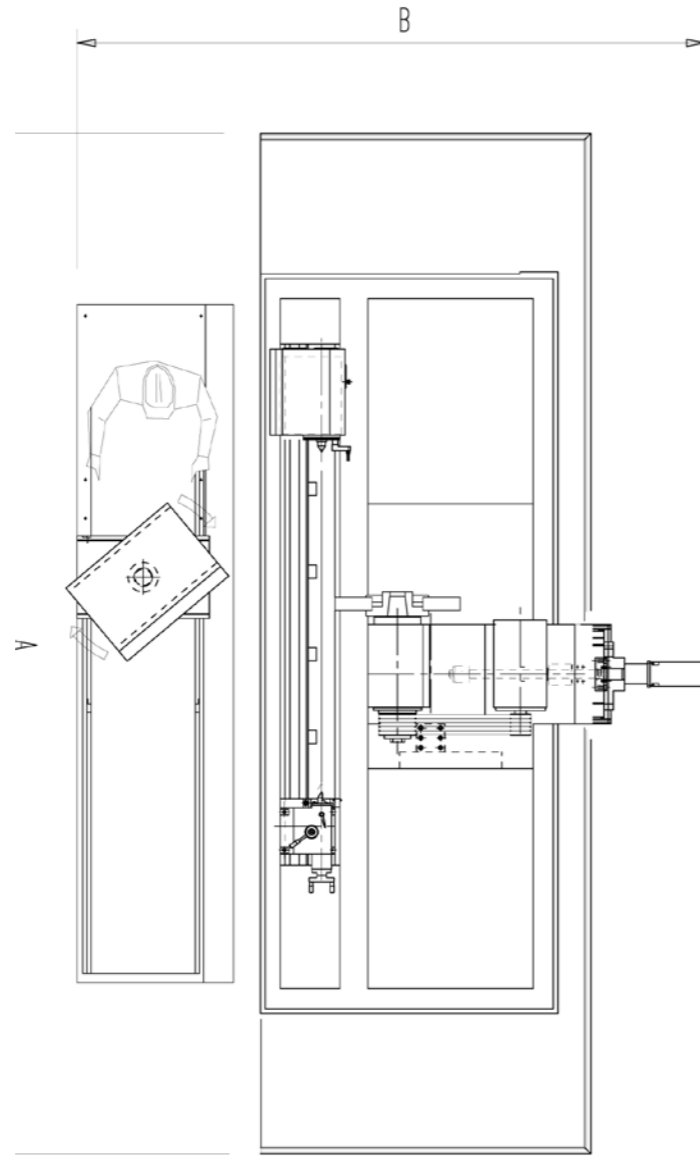
The machine is provided with gap control through acoustic sensors. This is an important safety feature and an aid to operators in machine set-ups.

On request the machine can be equipped with an automatic and dynamic grinding wheel balancing system.

#### OD MEASURING SYSTEM

On request the grinding machine can be equipped with an absolute or comparative OD gage for in-process size and shape control down to the target diameter. This option improves accuracy and repeatability and increases process automation and machine productivity.

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**EQUIPMENT INCLUDED**

- CNC SIEMENS Sinumerik 840D SL with front-end HMI programming interface
- Gap control with acoustic sensors
- Linear scales on Z and X axis
- OD grinding wheel complete with flange
- Hook for wheel change
- Low voltage work light
- Holder for self-centering chuck
- Two carbide-tipped dead centres
- Wheel balancing arbour
- Diamond holder for OD grinding wheel dressing and profiling
- Set of splash guards on table
- Protection sliding doors in the front of the machine per CE rules
- All-round fencing per CE rules
- Foundation anchors, levelling and alignment plates and screws
- Set of service tools and wrenches
- Instruction books and geometrical test certificate

**Main technical features**

R/161 CNC		1000	2000	3000	4000	5000	6000	7000
Length (A)	mm	4700	6000	7200	8600	9800	11000	12200
Width (B)	mm	3850						
Height	mm	2400						
Weight	kg	12600	13600	14700	15900	18000	20000	22000

R/162 CNC		1000	2000	3000	4000	5000	6000	7000
Length (A)	mm	5100	6300	7600	8800	10000	11200	12400
Width (B)	mm	4000						
Height	mm	2400						
Weight	kg	17600	19000	20300	21700	23500	25000	27000

R/163 CNC		1000	2000	3000	4000	5000	6000	7000
Length (A)	mm	6100	7200	8300	9350	10350	11400	12600
Width (B)	mm	4400						
Height	mm	2400						
Weight	kg	28200	33000	33000	36600	40700	45000	50000

Dimensions may change depending on where machine peripherals are located

		R/161 - CNC	R/162 - CNC	R/163 - CNC
<b>Working capacity</b>	Distance between centres	mm	1000 - 7000	1000 - 7000
	Height of centres	mm	250 - 300	300 - 400
	Maximum workpiece weight admitted on the machine	Kg.	1000	4000
<b>Wheel carriage - Z axis</b>	Travel = Centres distance +	mm	300	300
	Speed	mm/min	6000	
	Resolution with linear scale	mm	0,001	
<b>Wheelhead slide - X axis</b>	Travel	mm	400	
	Speed	mm/min	6000	
	Resolution with linear scale	mm	0,001	
<b>Wheelhead</b>	Grinding wheel dimensions	mm	762/914 x 304,8 x 80 max 130	
	Wheel peripheral speed (max)	m/s	60	
	Drive motor power	kW	22	31
<b>Workhead</b>	Spindle rotation speed	rpm	1 to 400	1 to 200
	Spindle internal taper / nose		Morse 4 /Asa 3	Morse 6 /Asa 6
	Swivelling range		90°	Fixed
	Drive motor power	kW	10,5	22
<b>Tailstock</b>	Quill travel	mm	40	90
	Quill diameter	mm	75	120
	Internal taper		Morse 5	Morse 6

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