

3000 D

MH

FORMERLY
GCH3000EE

MORARA

TRAIN AXELS GRINDERS

MH 1500T

MT 2000DW/SW

MT 3000DW/SW

PRIMA FABBRICA ITALIANA DI RETTIFICHE
LEADING ITALIAN GRINDER MANUFACTURER



GLOBAL PERFORMANCES
DOMESTIC ATTITUDE



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GLOBAL PERFORMANCES
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EXTERNAL DIAMETER GRINDING CENTER

The new OD grinding family "**MH Factor**", MH available in 3 sizes: **MH1500**, **MH2000** and **MH3000** and 3 versions T with **TURRET SW SINGLE WHEEL DW DOUBLE WHEEL** (2000 + 3000 only). 8 new models based on avant-garde technologies, combining design, innovation and reliability under the motto "**CREATING LASTING VALUE FOR THE CUSTOMER.**"

Morara, leading ITALIAN manufacturer of "cylindrical and non-cylindrical grinding machine", has developed this new MH 3000 (formerly GCH E/E 3000 CNC) cylindrical grinder that is the perfect solution for the grinding of the side ends of rail road axes. It's a simple, accurate, high speed grinder, with the highest quality and productivity ratio, at the very lowest price on the market.

Morara's MH 3000 (formerly GCH E/E 3000 CNC rail road axle grinder, with the work piece load of 2500 Kg and the double wheels (right and left) with 20° angle approach, complete the machining in a single set-up.

The SHAPED wheel is able to grind the part in a single plunge up to 300 mm.

MACHINE BED is in stabilized cast iron naturally aged and mellowed to relax material tension after the first pre-machining phase.

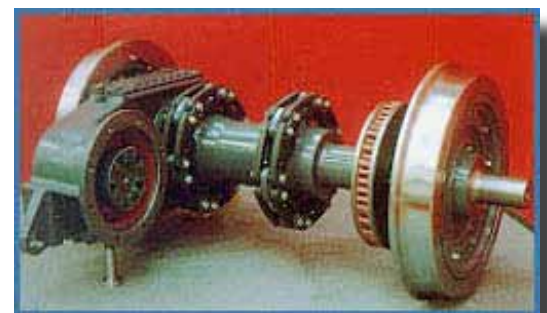
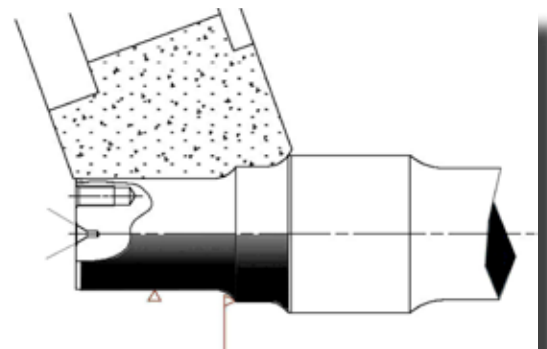
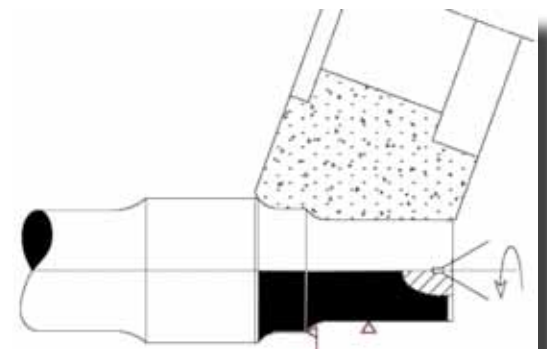
The COOLING SYSTEM for the wheel-to-workpiece contact point has been designed for the utmost effectiveness. All machine fluids are controlled by thermostats and external chillers.

The CNC is a Siemens 840D with MORARA grinding software installed

The MARPOSS UNIMAR MEASURING SYSTEM is installed on an independent CNC-CONTROLLED GANTRY (W AXIS), and moves up to the diameter to be measured, for both sides in-process measurement. Marposs MIDA is the touch system for work piece presence and zero check. Database stores all Data for full traceability.

SAFETY RETRACT DISENGAGES WHEELS FROM WORK PIECE in case of power failure, breakdown of control or measuring system, overload, etc. to prevent damage to grinder and work piece. Great emphasis has been placed on ergonomics.

MORARA knows how to get the right tool to its customers to keep an edge over their competitors.



GROUPS

RADIAL MOVEMENT OF WHEEL SLIDE (X AXIS)

Radial movement of wheel slide driven by AC brushless motor. Slide mounted on high-precision roller-recirculating linear guides.

Axis radial position controlled by high-accuracy Heidenhain pressurised optic scale. Measuring system resolution 0,0001 mm

UNIVERSAL TURRET UNIT – B AXIS

Wheel head unit assembled on rotating turret with integrated Torque motor. NC programmable angular position in the setting range from -20 to + 230 degrees.- Positioning resolution 0.00017 degrees. - Hydraulic system for turret clamping in programmed angular position. - Suitable up to 3 wheel spindles for external and/or internal grinding wheel.

WHEEL SPINDLES

Hydrodynamic belt driven wheel spindles for external grinding. Incorporated balancing system. Wheel flanges and guards conform to safety regulations (FEPA CODE).

Spindle with different specifications are available on request.

WORK HEAD UNIT

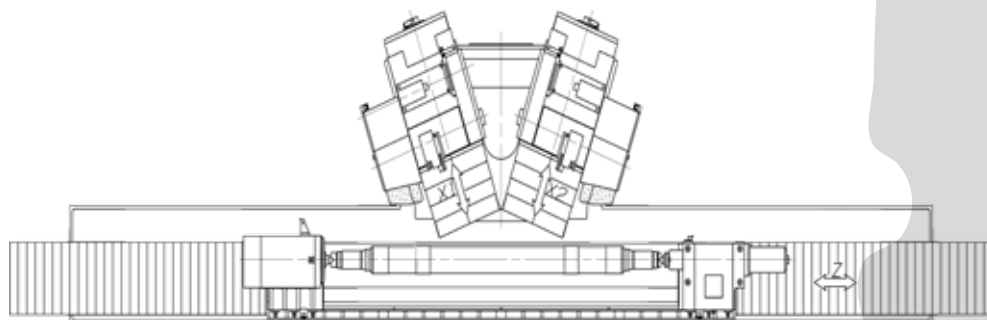
Work head driven by AC brushless Siemens motor. Programmable CNC speed 10 – 200 rpm. Maximum spindle torque 470 Nm.

External taper ASA 6. Internal taper Morse 6. Spindle bore 40 mm.

TAILSTOCK UNIT

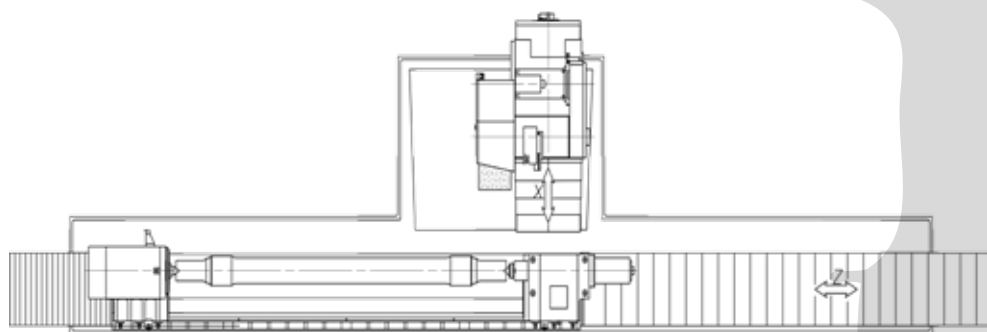
Pressurized hydraulically controlled tailstock unit. Manual cylindricity error correction +/- 0,24 mm.

Linear transducer provides real position control. Pneumatic lightening for easy tailstock positioning.



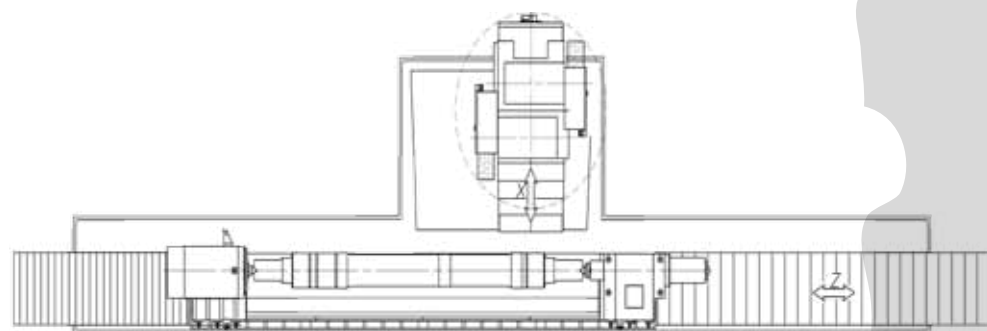
Double wheel 20 degrees angle approach

Morara's MH 3000 (formerly GCH E/E 3000 CNC rail road axle grinder, with the work piece load of 2500 Kg and the double wheels (right and left) with 20° angle approach, complete the machining in a single set-up.



Single straight wheel

Cheap and friendly, for external grinding of heavy parts.

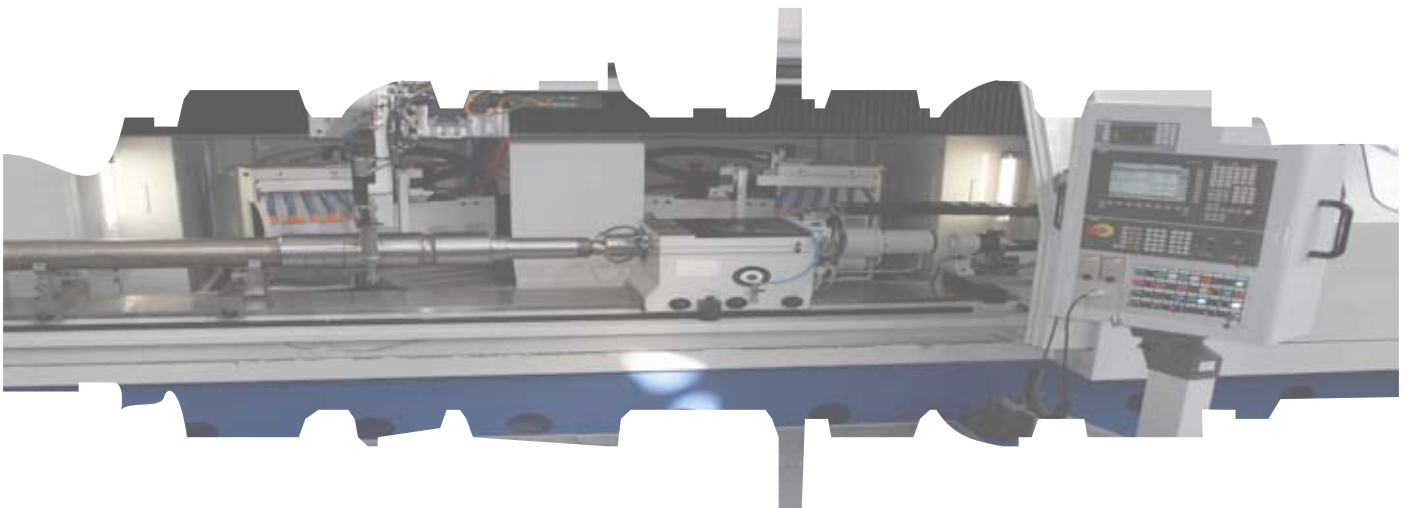


Double wheels Turret-mounted (for multiple operations)

The MORARA TORQUE TURRET controls wheels positioning, ensuring optimal repeatability, reliability and cycle time, in spite of the significant load (wheel, spindle and accessories). - Suitable up to 3 wheel spindles for external and/or internal grinding wheel.

MH 3000 D

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TECHNICAL SPECIFICATIONS				
GENERAL DATA	MH1500	MH2000	MH3000	unità/unit
Max distance between centers	1600	2200	3050	mm
Max grinding length (2 WHEELS +20°-20°)	ND	ND	1100	mm.
Max grinding length (only left wheel)	1500	2000	2100 [20°]	mm.
Max grinding length(only right wheel)	1200	1700	2500	mm.
Maximum grinding diameter	450			mm.
Centers height	255 [275]			mm
Centers height over SHOP floor	1200			mm .
Wheels angle approach left \ right	0°/-20°	0°/-20°	+20°/-20°	°
Maximum work piece load (between centers)	2000			daN
Total machine weight, basic version	16000	20000	28000	kg
WHEELS SLIDE (X1 AND X2 AXIS)				
X1 and X2 Axis motor (AC brushless Siemens)	27			Nm.
Maximum axis travel/Maximum speed (Programmable)	470/0,001 - 10000			mm./mm ¹
VRS (diametro x passo)	50x6			mm.
Measuring system resolution (high-accuracy pressurised optic scale)	0,0001 (HEIDENHAIN)			mm
Repetitive pos. accuracy/Axis positioning accuracy (VDI/DGQ3441 Std)	0,002/0,004			mm
TAVOLA PORTAPEZZO ASSE "Z"				
Corsa max.	1800	2300	3280	mm.
Motore asse "Z" digitale	50			Nm
Velocità massima asse "Z"	10			mt/ min.
Risoluzione asse	0,0001			mm.
VRS (diametro x passo)	63x10			mm.
Trasduttore riga ottica assoluta	AXIS POSITION CONTROL			
Ripetitività/Accuratezza	0,01/0,02			mm
Incavo mola (esterno/interno)	400x55/ 400x30			mm
Mandrino su boccole idrodinamiche				
WORK HEAD UNIT				
Internal/ External taper	4/6	5/6	5/6	Morse/ ASA
Spindle bore	40			mm
Programmable speed	10/200			rpm
Maximum spindle torque	50 - 470			Nm
TAILSTOCK UNIT. PRESSURIZED & HYDRAULICALLY CONTROLLED				
Sleeve internal taper	6			Morse
Tailstock sleeve stroke & diameter	120 e 140			mm
Axial load	55 - 1800			daN
Manual cylindricity error correction	± 0,240			mm
WHEEL SPINDLES (LEFT AND RIGHT) FOR EXTERNAL GRINDING				
Wheel (left and right)				
Max wheel speed	50			mt/ sec
Motor power	46 [33]			kW
Max ceramic wheel diameter	760x305x304.8			mm
Max wheel width	ext. 400/55 int. 400/30			mm
Hydrodynamic belt driven wheel spindles				
MEASURING & CNC				
In process diameter measuring MARPOSS UNIMAR	Fix		ON "W" axe	
Range of diameter	250-50		350-50	
Gap eliminator & balancing system	P7 MARPOSS			
positioning device (left and right end)	MIDA T25 MARPOSS			
CNC	SINUMERIK 840d SIEMENS			
Memory	MORARA MRC GC E/E - 100 programs			

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MORARA ha scelto l'innovazione come strategia di medio e lungo periodo

MORARA innova l'idea di rettifica con le 2 nuove linee denominate "FATTORE M e MH", 30 nuovi modelli equipaggiati con tecnologie d'avanguardia, combinando innovazione progettuale e affidabilità, design e risparmio energetico, sotto il motto: "CREARE VALORE DUREVOLE PER L'UTILIZZATORE".

MORARA innova l'idea di service che diventa GLOBAL, con la nuova "hot-line", la nuova formazione del personale di assistenza, i nuovi sistemi di telecontrollo, il personale locale

MORARA innova l'idea di organizzazione commerciale con le reti di agenti e la presenza globalizzata sui mercati: dai domestici EC agli emergenti BRIC, con le controllate a Pechino (PRC), Pune (INDIA), MOSCA (CSI), al NAFTA, al MERCOSUR.

DALLA INNOVAZIONE 30 nuove rettifiche MORARA

MT disponibili in 4 taglie: MT500, MT1000, MT1500, MT2000 e 5 versioni. **DLX** per tutte le lavorazioni, **C** per le camme, **K** per gli alberi a gomito, **L** per parti leggere, **ID** per interni.

MH disponibili in 4 taglie: MH1000, MH1500, MH2000 e MH3000 e 3 versioni. **T** con torretta, **SW** singola mola, **DW** doppia mola (-solo sulle 2000 e 3000-)

L'INNOVAZIONE E LA TRADIZIONE - SISTEMI MODULARI PERSONALIZZATI

Oltre i mercati globali.: Anche sui mercati domestici **MORARA** sa come fare a fornire ai propri clienti lo strumento per mantenere un vantaggio competitivo sulla concorrenza: soluzioni dedicate, con rettifiche personalizzabili, che seguono le richieste del cliente con le **FAMIGLIE MORARA CLASSIC** e **QUICK GRINDER**, rettifiche che adottano soluzioni tecnologiche consolidate e ben note ai clienti più tradizionalisti.

MORARA has chosen innovation as a medium and long term strategy

MORARA upgrade the grinding idea LAUNCHING the new series, "M.FACTOR & MH". 30 new models based on the most advanced (and most reliable) technologies under the motto "CREATING LASTING VALUE FOR THE CUSTOMER".

MORARA upgrade the service idea becoming GLOBAL service with new remote control and monitoring systems, new support-staff training, new hot line phone call.

MORARA upgrade the sales management idea with Sales innovation: internationalization of markets (with 3 new subsidiaries in China, India, Russia in Beijing, Pune and Moscow), new agents network.

FROM INNOVATION 30 NEW GRINDING MACHINES

MT available in 4 sizes: MT500, MT1000, MT1500, MT2000 e 5 Versions. **DLX** for every operations, **C** for cam, **K** for crankshaft, **L** for light parts, **ID** for internal diameters.

MH available in 4 sizes: MH1000, MH1500, MH2000 e MH3000 e 3 versions. **T** with turret, **SW** single wheel, **DW** double wheel (-2000 + 3000 only.)

INNOVATION AND TRADITION -TAILOR MADE MODULAR SYSTEMS

Back to domestic: Not only global market. **MORARA** knows as well how to give domestic customers a competitive advantage: tailor made solutions, performing customer requirements, based on grinding machines like **MORARA CLASSIC** and **QUICK GRINDER** family, with more steady, very well known, technical solution, for more traditionalist customer.



MORARA **TACCHELLA MACCHINE** **meccanodora** **FAVRETTO**

IMT - Italian Machine Tools, il gruppo industriale che nel corso del 2010 ha aggregato sotto una sola bandiera i principali costruttori italiani di rettifiche

MORARA, TACCHELLA, MECCANODORA, FAVRETTO

creando il nuovo protagonista della rettifica nel mercato globale, è un progetto di PARITEL HOLDING. PARITEL è una società di partecipazioni industriali fondata a Bologna nel 1989. Oltre IMT, nel portafoglio PARITEL sono presenti **SGP** - Sasib Global Packaging (linee per l'imballaggio) e **IPA** - Industrial Plant Automation (movimentazione materiali sfusi). I dati principali di PARITEL: Net equity: € 20 milioni Turnover: € 150 milioni Addetti: circa 750. **IMT** è controllato da PARITEL al 100%

www.morara.it

IMT - Italian Machine Tools, the industrial group that during 2010 has gathered under the same banner the leading Italian grinding manufacturers

MORARA, TACCHELLA, MECCANODORA, FAVRETTO

creating the new protagonist in grinding for the global market, is a PARITEL HOLDING project. PARITEL GROUP is an industrial holding established in BOLOGNA, ITALY, in 1989. Belong to PARITEL portfolio also **SGP** - Sasib Global Packaging (Packaging lines) and **IPA** - Industrial Plant Automation (bulk solid handling). Main PARITEL figures are: Net equity: € 20 million Turnover: € 150 million Employees: about 750. IMT is controlled by PARITEL 100%.

www.imtgrindinggroup.com