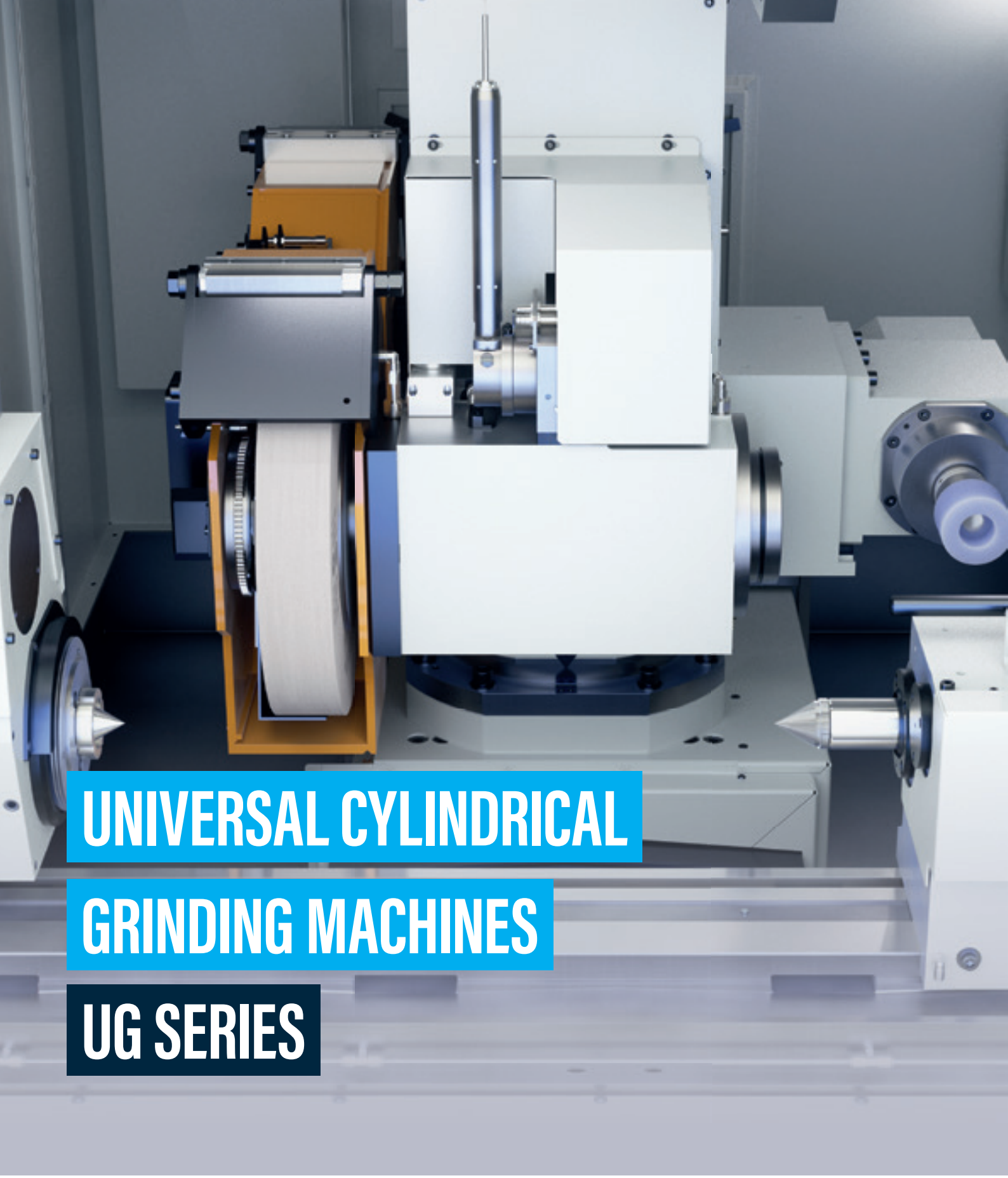


UNIVERSAL CYLINDRICAL GRINDING MACHINES

UG SERIES

Universal grinding machines for maximum precision and flexible applications

EMAG

Four Core Areas
of the EMAG Classic Line

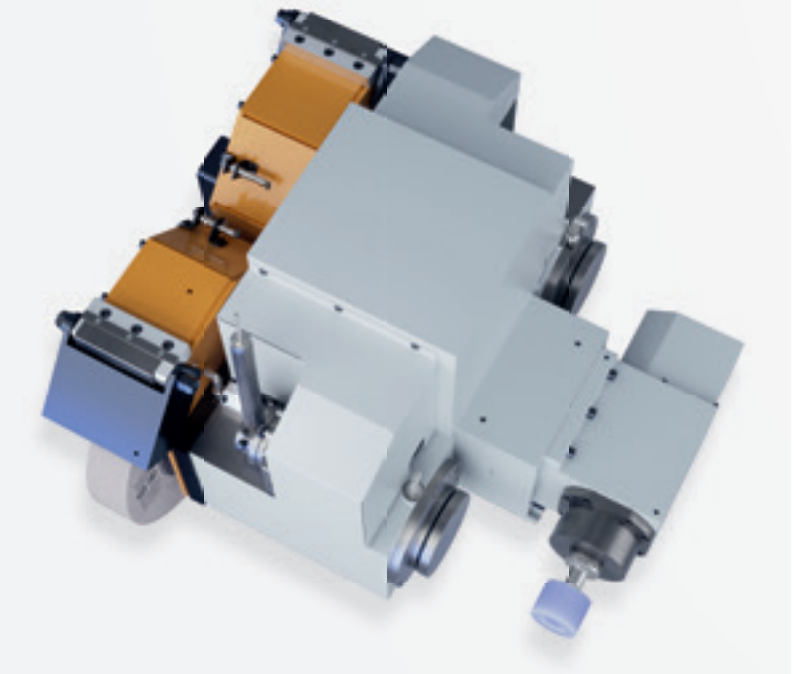
The UG series is part of the EMAG Classic Line – the efficient entry into precision manufacturing.

These machines focus on the essentials and offer an optimized range of functions for typical grinding tasks. The basic machine comes from the international EMAG production network and is equipped with proven process and machining technology.

The result: fast commissioning, reproducible results, and high process reliability. This makes the UG series ideal for precision grinding processes in toolmaking, prototype manufacture, and series production. You also benefit from the global EMAG service network and fast spare parts supply.

1 Base Machine

+ A robust machine with a high price-performance ratio
+ Components from proven suppliers



2 Process Technology

+ Decades of experience in process technology and engineering
+ Innovative tool and technology development

3 Turnkey Solution

+ EMAG assumes full responsibility for quality and lead time—as a complete turnkey solution, if desired
+ The customer receives a technology package including NC program, grinding tools, coolant, and workholding technology

4 Global Customer Support

+ Service technicians worldwide
+ Global spare parts availability

EMAG UG Series:
High-Precision Universal Cylindrical Grinding Machines for Int

EMAG's UG series delivers maximum precision, flexibility, and cost-effectiveness in the world of universal cylindrical grinding.

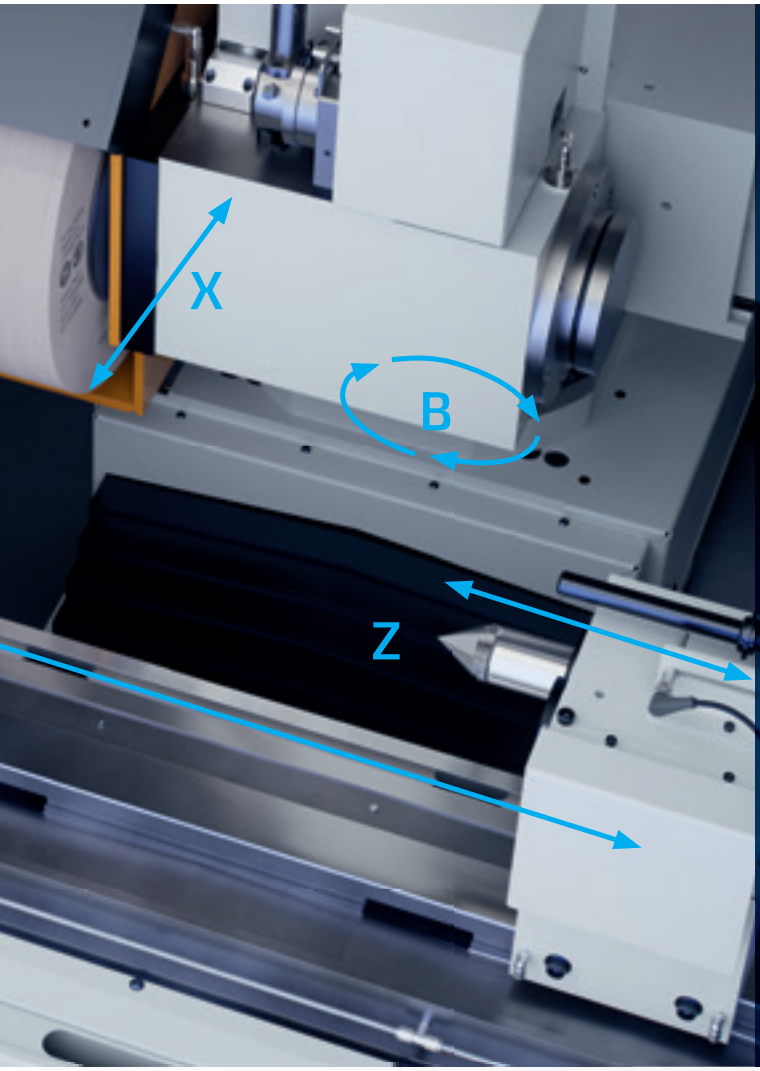
With grinding lengths ranging from 400 to 1,500 mm, the series covers a wide range of workpiece sizes—from short precision parts to long shafts and complex components with internal and external machining.

Thanks to the combination of a robust base machine, high-quality EMAG components, and proven grinding technology, the UG series offers a technically sophisticated solution for workshops, toolmakers, and production companies that want to perform universal grinding tasks efficiently and reproducibly.

UG 400
Grinding length 400 mm

UG 630
Grinding length 630 mm

ernal and External Grinding



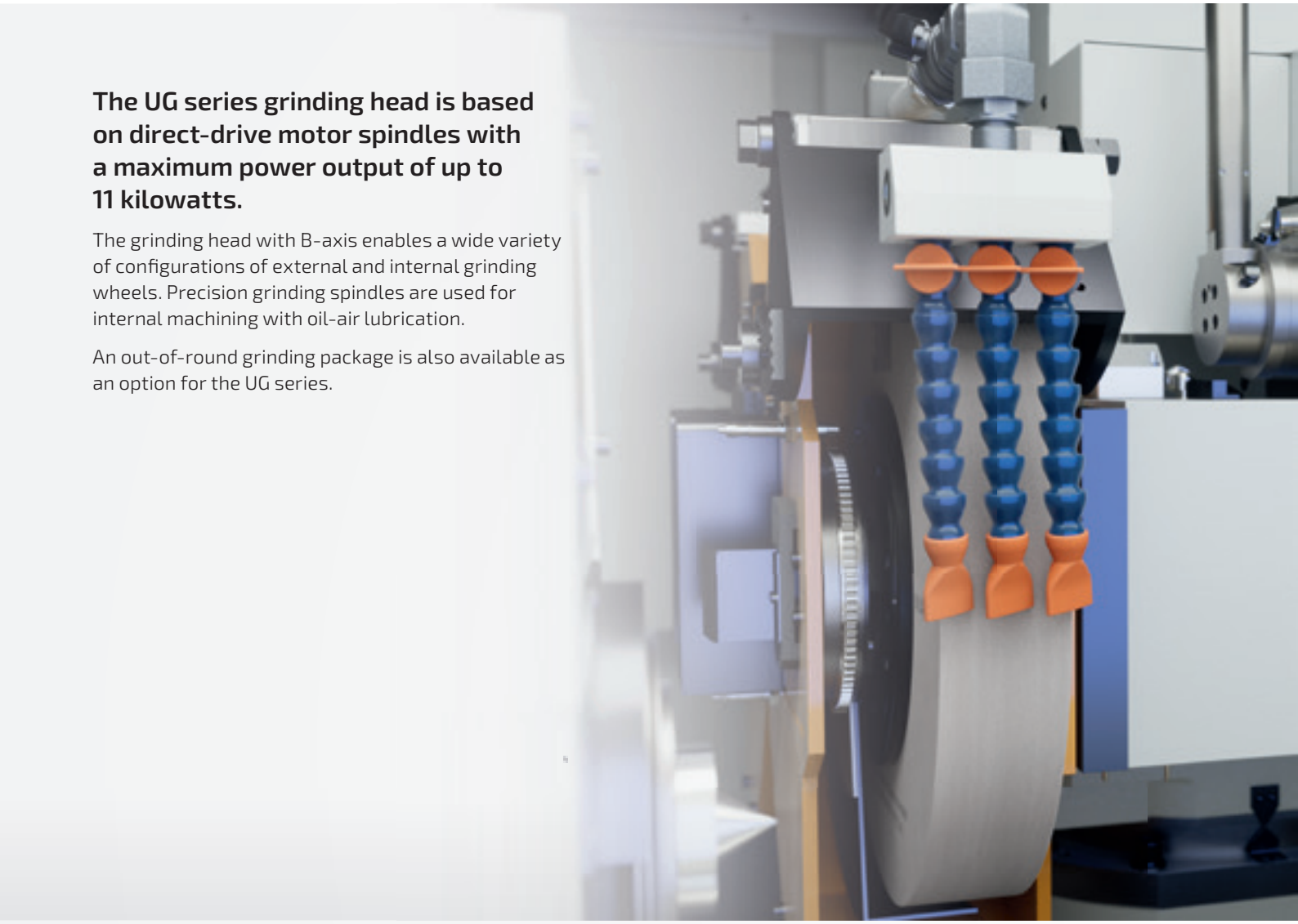
THE AXLE ASSEMBLY

The machines in the UG Series are equipped with preloaded precision linear guides and high-resolution linear measuring systems in the X and Z axes. Servo motors with ball screws ensure precise positioning and repeatability. The automatic B-axis with a swivel range of –15° to +225° allows the use of multiple grinding spindles and thus flexible machining strategies.

UG 1000
Grinding length 1.000 mm

UG 1500
Grinding length 1.500 mm

Grinding Head:
Direct Drive Technology for Maximum Machining Precision

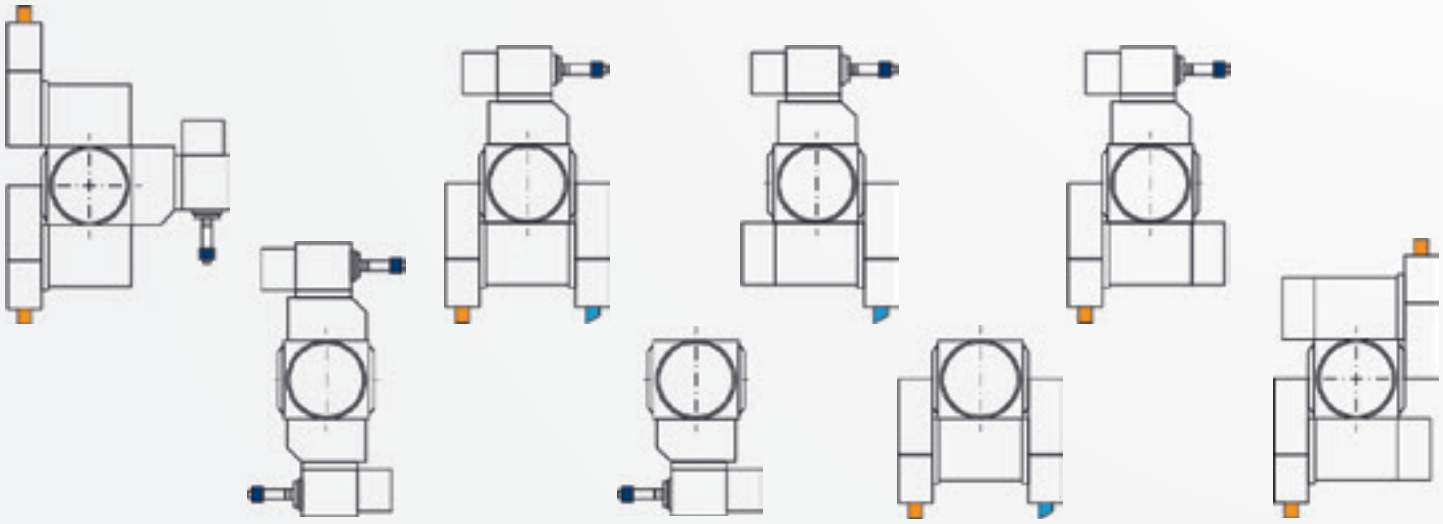


The UG series grinding head is based on direct-drive motor spindles with a maximum power output of up to 11 kilowatts.

The grinding head with B-axis enables a wide variety of configurations of external and internal grinding wheels. Precision grinding spindles are used for internal machining with oil-air lubrication.

An out-of-round grinding package is also available as an option for the UG series.

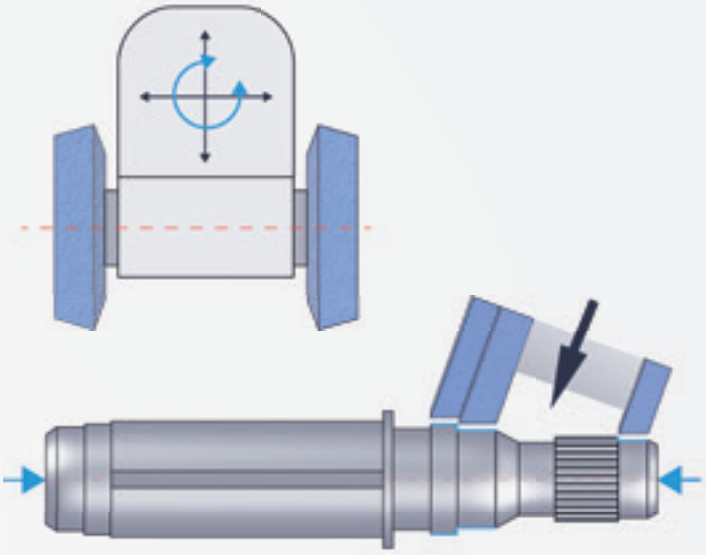
Overview of available grinding head configurations:



CONFIGURATION EXAMPLES FOR TOOLMAKING:

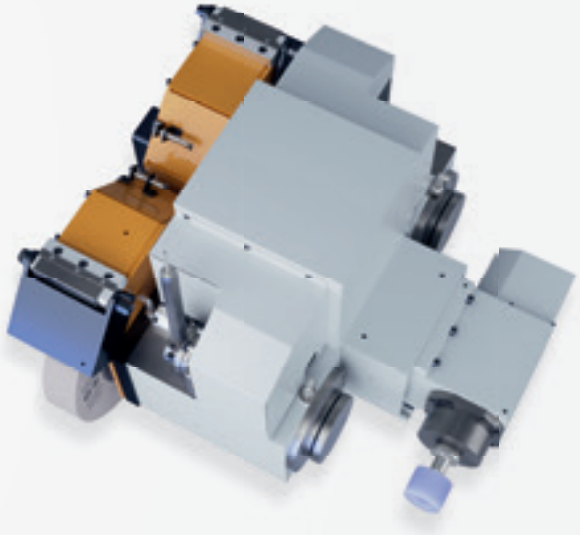
1 UG 630
for flexible production grinding

- Twin spindle (direct drive)
- IPG (2 x diameter and axial positioning)
- Driven tailstock (no clamping required)



2 UG 1000 Basic
for toolmaking

- 2 x external spindle (direct drive)
- 1 x internal spindle (GMN)
- IPG (diameter and axial positioning)
- Fanuc 0i



3 UG 1000
including out-of-round grinding

- 2 x external spindles (direct drive)
- 1 x internal machining spindle (GMN)
- Workpiece spindle with direct drive
- Dressing spindle
- Fanuc 31 B plus

Machine Structure

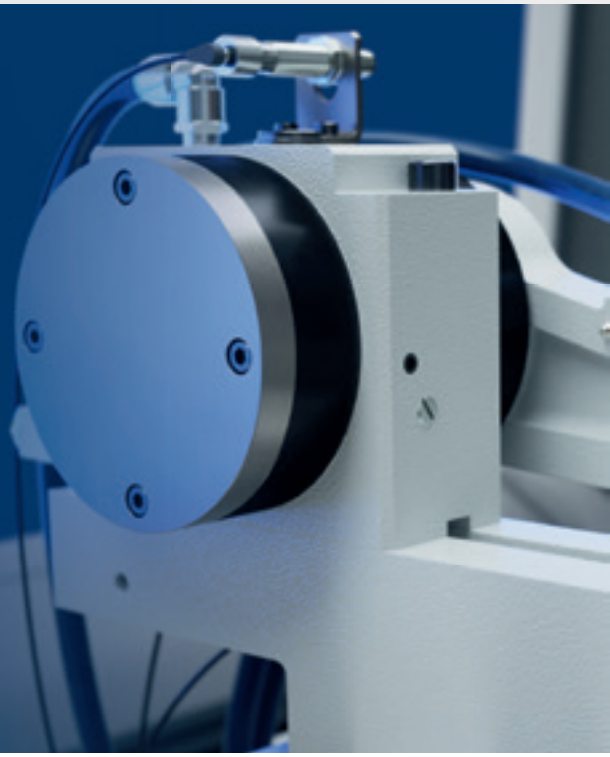
1 WORKPIECE SPINDLE

+ **Design:**
  Compact workpiece spindle unit for high rigidity and ease of maintenance
+ **Drive:**
  Workpiece spindle with direct drive
+ **Roundness accuracy:**
  0.5 µm on test workpiece
+ **Bearing:**
  Precision tapered roller bearing with high load capacity
+ **Swivel range:**
  0 to +30° for flexible machining
+ **Operating modes:**
  Grinding between centers or in the chuck
+ **Pneumatic lifting device:**
  Facilitates setup and positioning
+ **Optional AE sensory equipment (structure-borne sound sensors):**
  Detection of workpiece contact, reduced
+ **Optional:**
  Motor spindle for out-of-round grinding

3 DRESSING

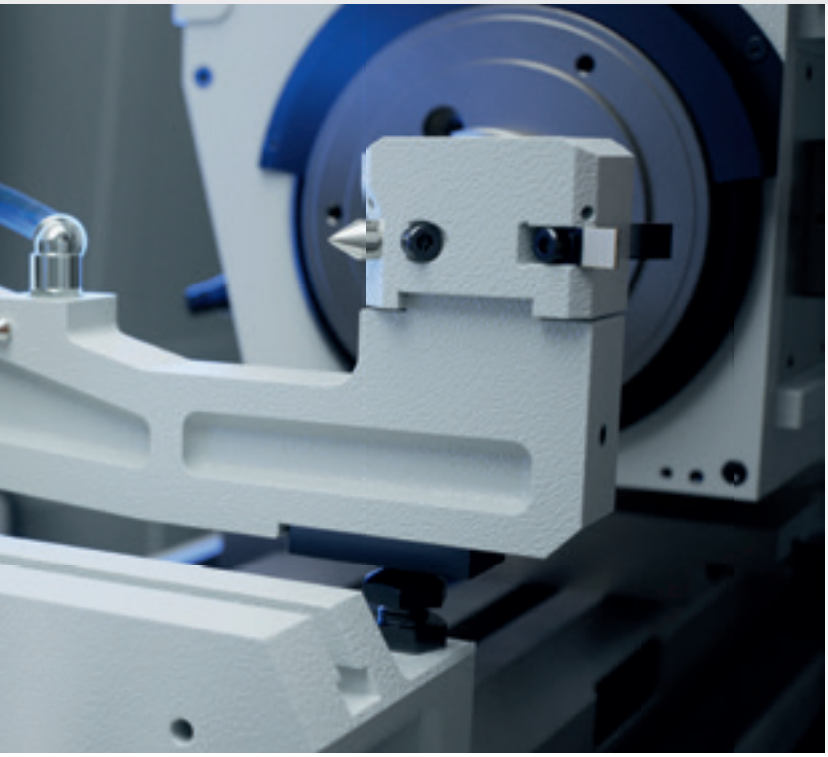
The UG machines are available with various dressing systems:

+ **Table-mounted swivel arm dresser:**
  Particularly effective for grinding wheel dressing and allows flexible positioning on the machine table
+ **Workpiece spindle dresser system:**
  Direct integration on the workpiece spindle
+ **Tailstock dresser system:**
  Mounted on the tailstock for special dressing applications
+ Dresser spindles are also available as an option.



2 TAILSTOCK

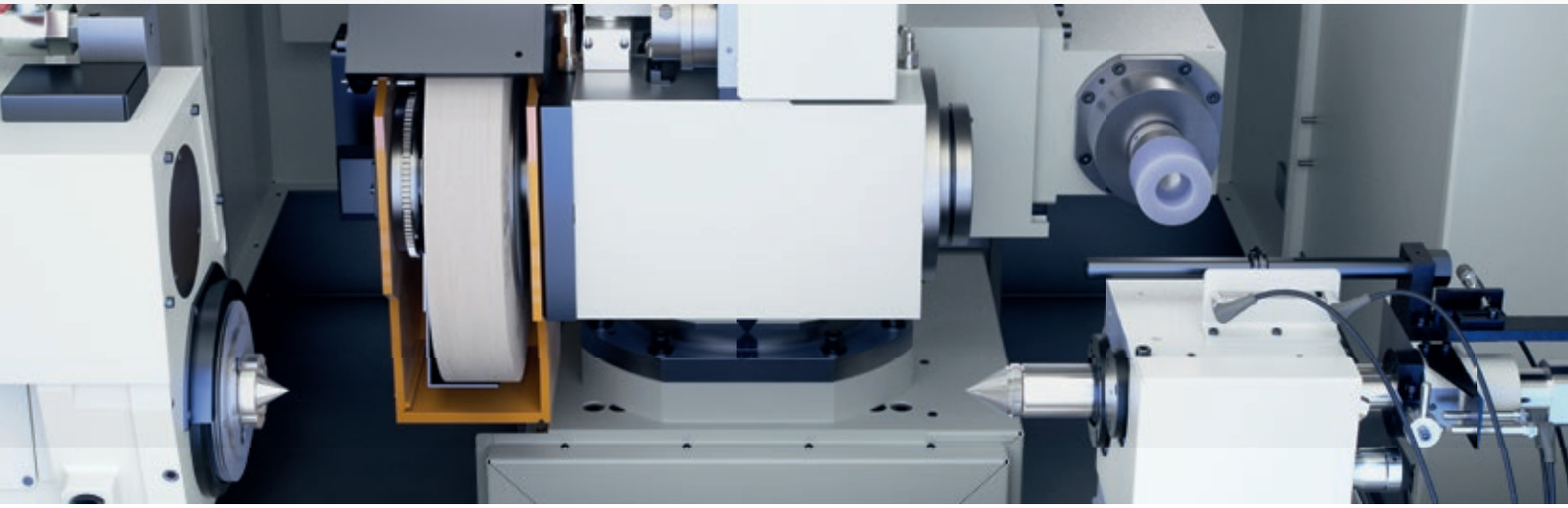
+ **Quill:**
  Ø 63 mm, for Morse 4 taper
+ **Fine adjustment:**
  ± 40 µm for correcting taper errors
  (< 1 µm accuracy)
+ **Actuation:**
  manual or optional hydraulic
+ **Hydraulic reset:**
  for quick workpiece changeover
+ **Pneumatic lifting function:**
  facilitates setup and positioning
+ **Sensory equipment:**
  control of correct workpiece seating
+ **Guidance:**
  precision-mounted quill for low-backlash running and high rigidity
+ **Optional:**
  synchronous tailstock or NC tailstock



The table-mounted swivel arm dresser is particularly suitable for universal dressing of various grinding wheel profiles. It can be flexibly positioned on the machine table and allows quick adaptation to different dressing requirements.

Technical Data

		UG 400	UG 630	UG 1000	UG 1500
Center height/Width between center	mm in	175/400 7/16	175/630 7/25	175/1,000 7/39	175/1,500 7/59
Grinding length (straight wheel/angular wheel)	mm in	400/240 16/9	630/450 25/18	1,000/825 39/32	1,500/1,220 59/48
Weigth between center, max.	kg lb	60 132	80 176	120 264	150 331
Clamping Ø (chuck) max.	mm in	100 4	90 3.5	90 3.5	-
Longitudinal axis (Z-axis)					
Table stroke	mm in	640 25	885 35	1,240 49	1,860 73
Min. increment / pulse	mm	0.0001	0.0001	0.0001	0.0001
Feed servomotor torque	Nm ft-lbs	8 5.9	12 8.8	12 8.8	12 8.8
Machine table swivelling range	°	8.5	8.5	8.5	5
Wheel slide (X-axis)					
Slide stroke	mm in	320 12.5	320 12.5	320 12.5	320 12.5
Travel min./pulse	mm	0.0001	0.0001	0.0001	0.0001
Min. increment / pulse	Nm ft-lbs	8 5.9	8 5.9	8 5.9	8 5.9
Machine table swivelling range	°	8.5	8.5	8.5	-
Swivel axis (B axis)					
Swivel range	°	-15 to +225	-15 to +225	-15 to +225	-15 to +225
B- Axis Resolution	°	0.0001	0.0001	0.0001	0.0001
Swiveling time for 180°	s	8	8	8	8
B- Axis Positioning Repeatability	arc seconds	±2	±2	±2	±2
Wheel Head (OD/face grinding)					
Grinding wheel (left/right) Ø	mm in	500 × 40 (50ROS)× 203.2 20 x 1.5 (50ROS) x 8	500 × 63 (80ROS) × 203.2 20 x 2.5 (80ROS) x 8	500 × 63 (80ROS) × 203.2 20 x 2.5 (80ROS) x 8	500 × 50 (80ROS) × 203.2 20 x 2 (80ROS) x 8
Spindle motor power	kW	7.5	7.5 (11 optional)	7.5 (11 optional)	7.5 (11 optional)
Peripheral speed	m/s	60	60	40	50



		UG 400	UG 630	UG 1000	UG 1500
Internal grinding unit					
HF spindle mount Ø	mm in	120 5	120 5	120 5	-
Speed range	1/min	20,000–125,000	20,000–125,000	20,000–125,000	-
Grinding wheel Ø	mm in	50 2	50 2	50 2	-
Workpiece spindle (workpiece head)					
Centering cone	–	MT4	A2-4/MT4 (MT5)	A2-4/MT4 (MT5)	-
Spindle speed (stepless)	1/min	30–800	30–800	30–800	-
Swivel range	°	0 to +30	0 to +30	0 to +30	-
Motor torque	Nm ft-lbs	12 8.8	22 16	22 16	-
Tailstock					
Centertaper	–	MT4	MT4	MT4	MT5
Quill diameter/quill stroke	mm in	60/40 2/1.5	60/40 2/1.5	60/40 2/1.5	65/40 2.5/1.5
Micro Taper Correction	mm	±0.040	±0.040	±0.040	±0.040
Dressing systems					
For external grinding	–	On workpiece head, dressing blades			
For internal grinding	–	on table swing arm type			
Hydraulic power unit					
Fuel tank capacity	l	30	30	30	30
Engine power	kW	0.75	0.75	0.75	0.75

CONTROL AND OPERATION

FANUC 0i-TF Plus control system

The machines in the UG series are equipped with the FANUC 0i-TF Plus CNC control, which offers intuitive operation via a dialog-oriented HMI.

For out-of-round grinding applications, the FANUC 31 B Plus is available as an option, offering enhanced computing power for complex contours.

The control platform is established worldwide—a clear advantage for international users in terms of service, spare parts supply, and programming convenience.

Global
Customer Service

EMAG operates a global service network with locations in Europe, North and South America, and Asia. This decentralized structure enables short response times and rapid on-site presence for service requests.

All service technicians have access to a shared knowledge pool. Experience gained from service cases is systematically analyzed and made available worldwide—so customers benefit from the entire know-how of the EMAG organization, irrespective of their location.

As an OEM supplier, EMAG guarantees customers the fastest possible support. On request, we can deliver a complete turnkey package: machine, tool, workholding technology, cutting fluids, and finished workpiece program. The customer receives a production-ready solution from a single source.

Market Company America

- **EMAG L.L.C.**
  Detroit, USA
- **Maquinaria EMAG México**
  Querétaro, México
- **EMAG DO BRASIL**
  São Paulo, Brazil

Market Company Europe

- **EMAG Salach**
  Salach, Germany
- **EMAG Salach – France**
  La Guerche, Frane
- **EMAG Salach – España**
  Barcelona, Spain
- **EMAG Milano**
  Milano, Italy
- **EMAG Salach – Austria**
  Hallein, Austria
- **EMAG Salach – Sweden**
  Köping, Sweden
- **EMAG Salach – Eastern Europe**
  Eastern Europe

EMAG Group
Technology Leader in Metalworking

The EMAG group, headquartered in Salach, Germany, has been one of the world's leading manufacturers of machine tools for over 150 years. With more than 30 locations worldwide, the company is one of the few system providers to cover the entire process chain from soft to hard machining.

TECHNOLOGY SPECTRUM

The technology portfolio includes turning, drilling, milling, gear cutting (hobbing, shaving, broaching, shaving), grinding (gear grinding, cylindrical grinding, crankshaft grinding, CBN grinding), laser welding and joining, and electrochemical machining (ECM/PECM).

Market Company Asia

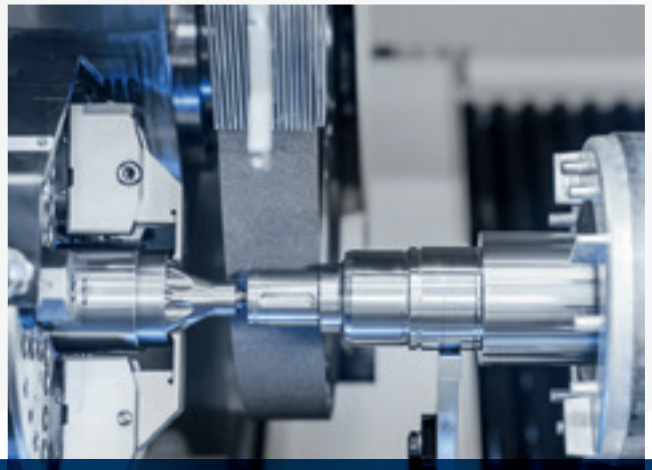
- **EMAG (China) Machinery**
  Jintan - Taicang - Chongqing, China
- **EMAG Middle East**
  Dubai, United Arab Emirates
- **EMAG India**
  Bangalore, India
- **EMAG Korea**
  Seongnam, South Korea
- **EMAG Thailand**
  Chonburi, Thailand

TECHNOLOGY. CONNECTED.

Turning Chucked Components

Turning Shafts

Gear Grinding



Cylindrical Grinding

Out-of-round Gr

Milling

Gear Hobbing

rinding

ECM/PECM

Laser Processing

At Home All Over The World.

All EMAG Locations

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