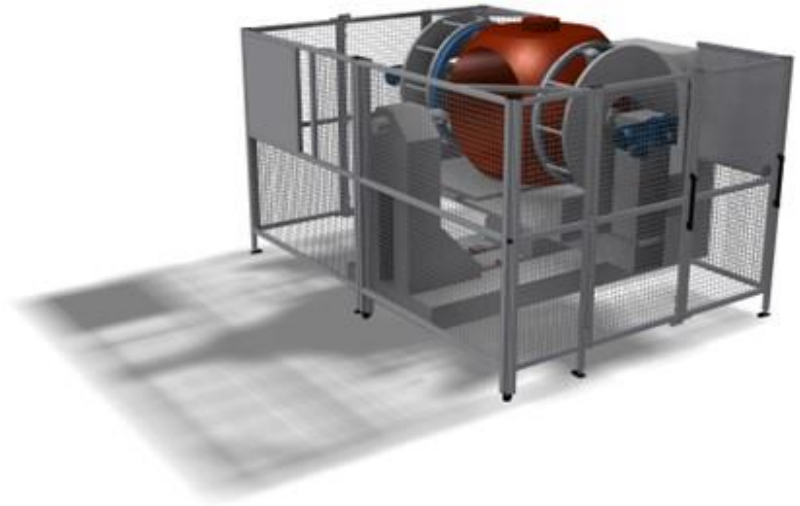


ROTAGO 16

With automatic lapping sequence

Stationary ball-lapping machine for ball workpieces of DN range of up to 400 mm (16"), for simultaneously finishing balls and both metal sealing rings.

EFCO ROTAGO 16 is a perfect tool for lapping-in ball valves ball and metal seal seats. ROTAGO 16 was designed for lapping different types of seal seats and balls, such as floating ball or trunnion mounted ball when the surface and the surface quality are extremely important.



sample representation

The main features of this machine are:

- Choice between manual and automatic lapping mode
- Simultaneous lapping of the ball and both seal seats
- SIEMENS SIMATIC S7 controlled
- SIEMENS drive
- Timer with automatic shut-off
- Continuously variable control of drive speeds
- Independent speed control of individual drives
- Rotation direction of the drive changeable
- Integrated metering device for lapping oil for continuous dilution of the lapping mixture
- Ergonomically adjustable control panel
- Continuously variable pressure setting for contact pressure between valve seat and ball
- Collection tank for used lapping mixture
- Automatic lapping sequence in automatic mode
- Machining parameters selectable and adjustable for all machining ranges
- Multi-language user interface
- Usable as a polishing machine for balls to produce high-gloss surfaces

Technical data

DN-range:	DN 150–400 (6"–16")
Ball diameter:	Ø 200 mm to Ø 600 mm (8"–24")
Max. ball weight:	approx. 700 kg (1,543.2 lbs.)
Dimensions (L x W x H):	approx. 2,800 mm x 2,600 mm x 2,000 mm (110.2" x 102.4" x 78.7")

Energy sources required from customer

Power supply: 400 V (50/60 Hz)
(Please inquire if different customer-provided power supply required!)

Compressed air (network air): max. 6–7 bar (87–100 psi)

Recommended surface roughness and dimensional accuracy before lapping

Ball dimensional accuracy: ~ 0.02 mm
 Surface roughness: ~ Ra 0.4µm

Description of function

The valve's ball is clamped in the three-jaw chuck situated on the main spindle by means of special holders. A rotating centre in the tailstock supports the ball. The seal seats are clamped in special receptacles on a ball joint in the secondary spindles. The base body of the ball joint has an adjustable counterweight to keep the different sizes of seal seats in horizontal position. The seal seats are pressed against the ball via pneumatic cylinders. The entire unit of the secondary spindles is moved forward and backward (oscillation) on a circular path around the centre of the ball by a drive. The stroke of the forwards and backwards movement is adjustable. During the lapping process an automatic dosing device ensures a continuous flow of the lapping oil. The lapping paste is applied manually to the ball and seal seats beforehand. Through the several different movements between the ball and seal seats a precise surface shape of the ball and seal seats to each other is created during the lapping process. This machining step provides a perfect match between the ball and the seal seats.

Lapping programs for the respective DN ranges can be stored in the ROTAGO 16 control panel. This way lapping quality and processing time are exactly reproducible for certain ball types and for quality assurance.

The operator is free to concentrate on other tasks after starting the lapping cycle.

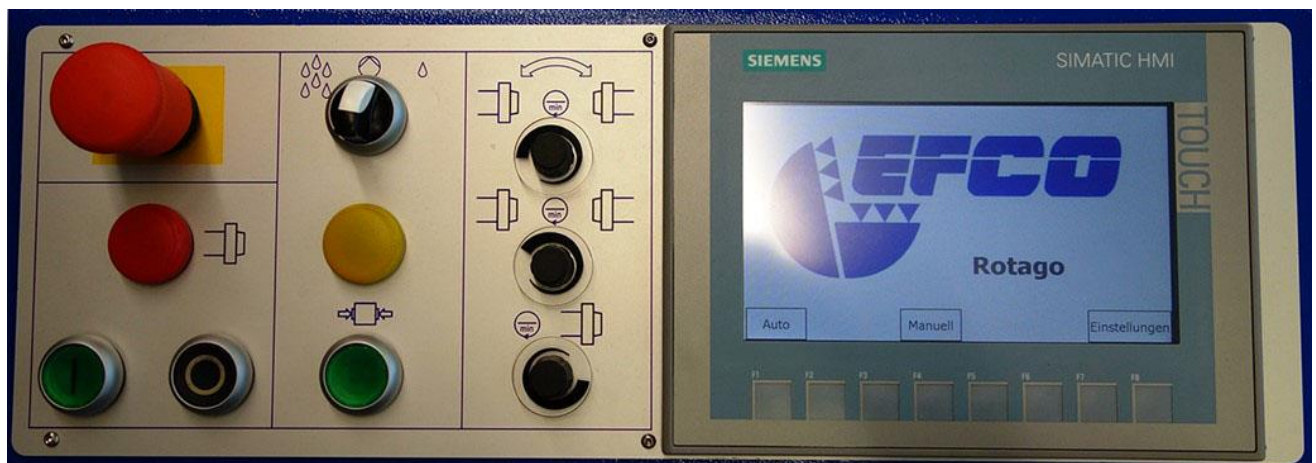
Storage and administration of corresponding lapping programs can be carried out in the password-protected area of the control panel, e.g., by the operator.

Following parameters are entered in the lapping programs for a respective DN range:

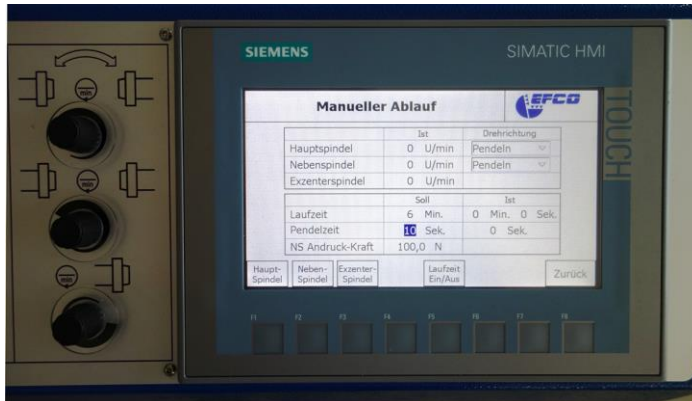
- Main spindle rotation speed
- Change of rotation direction of the main drive (clockwise, anti-clockwise) or change of rotation direction based on time or position (e.g., for lapping not the complete ball surface but only certain areas (ball-sectors)).
- Rotation speed of the auxiliary spindles
- Change of rotation direction of the auxiliary spindles (clockwise, anti-clockwise) and change of rotation direction based on sequence time
- Oscillation speed
- Contact pressure of the auxiliary spindles (intensity of surface treatment)
- Quantity of lapping oil (drip intensity)
- Total lapping time

Control Panel

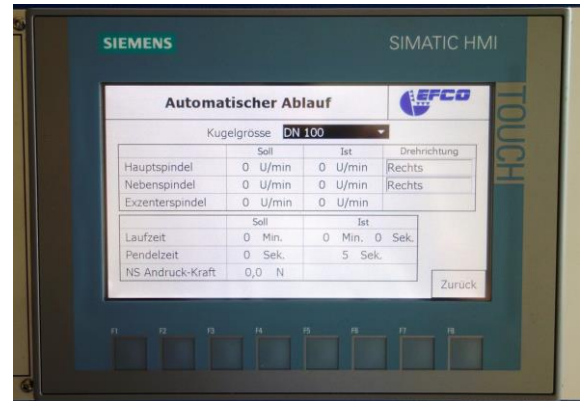
All switches and display instruments required for operating the ROTAGO are clearly arranged in groups on the control panel.



Manual Control Panel



Automatic Control Panel



Standard scope of delivery

- 1 pc. Basic machine, complete (incl. chuck)
- 1 set Operating and tool accessories
- 1 set Operating instructions

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Not included in the standard scope of delivery:

Clamping devices for balls and seat rings **required** for mounting on the machine. Provision. These **can be provided by the customer or**, after technical clarification, **by EFCO**.

Consumables included in scope of delivery

- 3 pcs Lapping paste: boron carbide grain sizes 800, 1,200, 1,500 [0.5 kg (1.1 lbs.) each]
- 10 litres Lapping oil
- 5 litres Cleaning liquid

!

Lapping agent for various balls and seat rings

We are happy to offer you additionally required lapping agents according to your requirements:

- material or coating of the balls and seat rings,
- surface quality of the work pieces before lapping,
- desired surface quality of the work pieces after lapping.