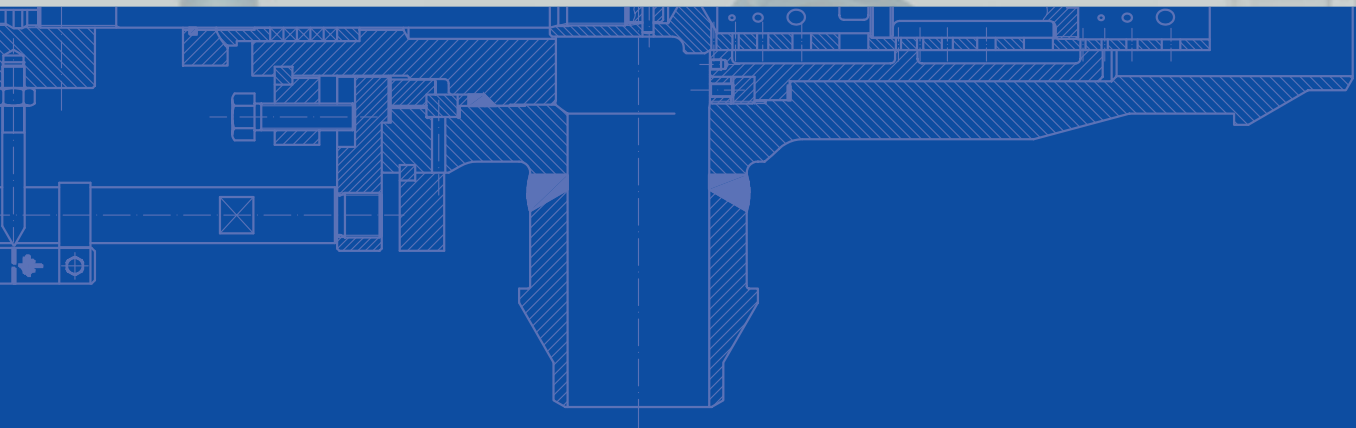
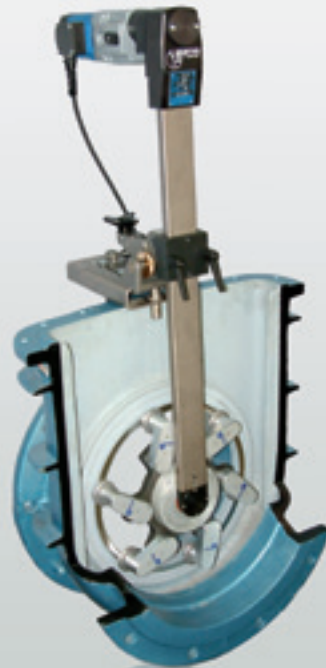


# VALVE REPAIR AND TESTING EQUIPMENT



## Serving the World

For more than 30 years it has been EFCO's policy to win our customers as partners. Thus we can jointly solve your problems which arise during machining and testing of sealing faces and flanges on valves.

Experience has shown that preventative maintenance is the cheapest way of increasing the safety of your installations. Once the first faults occur, costs frequently balloon, especially as action has to be taken under enormous time pressure in such cases. In addition to environmental damage and high clean-up costs, unquantifiable damage to your image can also quickly arise.

With the targeted use of EFCO technology, you achieve not just a high level of safety, but also save significant amounts of time and money in the long term and make an additional contribution to environmental protection – without additional costs.

EFCO machines are used worldwide and are characterised by:

- excellent quality
- long life
- operator-friendly handling
- first-class repair results

As a world-leading manufacturer of portable and stationary valve repair and testing technology, we are certified to DIN EN ISO 9001.

We are able to maintain our market leadership due to flexibility, continuous process improvements, short information paths as well as dealing actively and positively with problems.

Our product range comprises, amongst other things:

- Portable and stationary machining and repair machinery for valves, flanges and pipelines
- Surface lapping machines
- Valve test benches
- Mobile workshops
- Consumables
- Workshops
- Workshop planning, and many other things

Please contact our team in Düren, our sales offices or our sales partners for further information or if you have any questions. You can also visit us on the Internet at [www.efco-dueren.com](http://www.efco-dueren.com).

We will gladly demonstrate our machines, also at your facility.



## Our range of industries from A-Z

---

- |                                  |                                   |
|----------------------------------|-----------------------------------|
| Apparatus construction           | Petrochemical plants / refineries |
| Boiler manufacturers             | Pharmaceutical industry           |
| Chemical industry                | Pipelines                         |
| Combined heat and power stations | Plant construction                |
| Conventional power stations      | Refuse incinerators               |
| District heating suppliers       | Rubber manufacturers              |
| Fertilizer plants                | Shipping companies                |
| Food industry                    | Shipyards                         |
| Gas manufacturers                | Steel industry                    |
| Hydroelectric power plants       | Steel works                       |
| Manufacturer of valves           | Sugar refineries                  |
| Mining                           | Valves service companies          |
| Nuclear power stations           | Valves trade                      |
| Paper industry / cellulose       | Waterworks                        |





## EFCO machines arranged by valve type

### Flat seat / safety valve:

Mobile machining		Stationary machining	
VALVA	Grinding and lapping technology	SM	Grinding and lapping technology
VSA	Grinding technology	TSV	Grinding and lapping technology
TSV	Grinding and lapping technology	MK/ENT	Grinding technology
TD	Turning technology	KS-6	Grinding technology*
TDF	Turning technology	SPM	Turning technology
CW-1000	Welding technology	FLM	Lapping technology*
		CW-1000	Welding technology

\* not for safety valve

### Conical seat:

Mobile machining		Stationary machining	
VSK	Grinding technology	SPM	Turning technology
VSA	High-speed grinding technology	CW-1000	Welding technology
TD	Turning technology		
CW-1000	Welding technology		

### Flange machining:

Mobile machining		Stationary machining	
TDF	Turning technology	SPM	Turning technology
SL	Grinding and lapping technology		
TD	Turning technology		

### Gate valves:

Mobile machining		Stationary machining	
SL	Grinding and lapping technology	SM-N	Grinding technology
HSL	High-speed grinding technology	KS	Grinding technology
		FLM	Lapping technology
		SPM	Turning technology
		MK and ENT	Grinding technology
		CW-1000	Welding technology

### Testing Technology:

Mobile testing technology		Stationary testing technology	
PS-T/SV5 (SV/A)		PS-15/30/50/75 (SV/A)	
PS-T10 (SV/A)		PS-SV 15/30/50/75 (SV)	
EFCO-VALVE-DOC (SV/A)		PS-100/140 (A)	
		PS-H 250/300/350/500/1500 (A)	
		EFCO-Booster	

SV = safety valve

A = shut-off and control valves

### Cleaning and inspection:

Mobile machining		Stationary machining	
ARS	Cleaning set		
TSM	Mirror set		
	Protractor for gate valve sealing faces		



VALVA-S1

## VALVA SERIES

Portable machine for grinding and lapping of flat sealing faces on valves, valve disks and flanges from DN 8-1600 mm (¼"-64").

Drive: electric 230/120 V, 50/60Hz or pneumatic 6-7 bar

The VALVA series: an impressive concept = simple, easy, one-man operation, wear-resistant tools, good price/performance ratio, high profitability and efficiency.

Type	DN	Grinding	Lapping
VALVA-S1	8-150 (¼"-6")	•	
VALVA-1	8-150 (¼"-6")	•	•
VALVA-S15	80-300 (3"-12")	•	
VALVA-15	80-300 (3"-12")	•	•
VALVA-2	200-700 (8"-28")	•	•
VALVA-3	500-1600 (20"-64")	•	•

Dimensions in mm (inch)



05

## VSK SERIES

Special tools for the grinding of conical sealing faces in:

- High-pressure, shut-off and control valves of DN 8-300 mm
- Standard seat angles of 30° (2x15°), 40° (2x20°), 60° (2x30°), 75° (2x37,5°), 90° (2x45°) (other angles and dimensions on request)

Drive: electric 230/120 V, 50/60Hz or pneumatic 6-7 bar

VSK*	1	2	3	4	5
DN	8-50	8-65	8-100	80-150	80-300
	(¼"-2")	(¼"-2½")	(¼"-4")	(3"-6")	(3"-12")

Dimensions in mm (inch)

\*Please state seat angle in enquiries.

VSK

LS



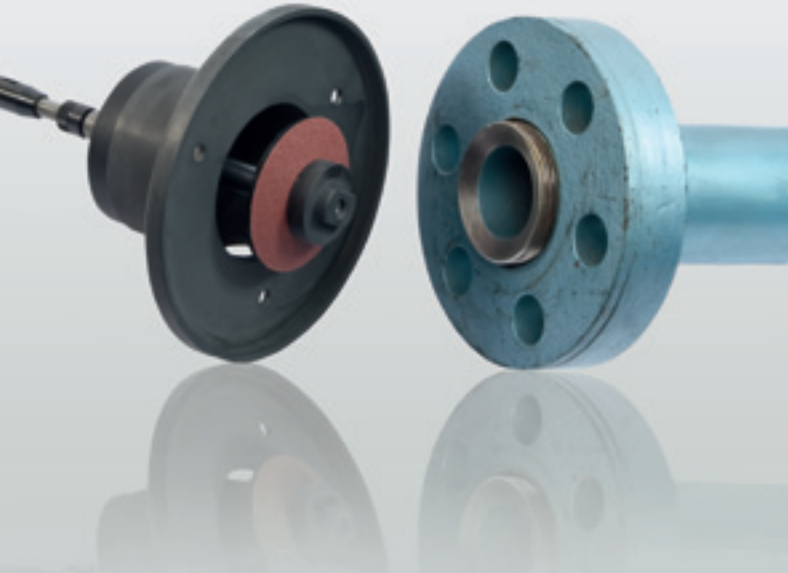
## LS SERIES

Special tools for grinding flanged pipe ends with metallic lenticular gaskets 140° as per BASF- and DIN 2696 standard from DN 6-200 mm (¼"-8").

Drive: electric 230/120 V, 50/60Hz or pneumatic 6-7 bar

LS	1	2
DN	6-90 (¼"-3½")	6-200 (¼"-8")

Dimensions in mm (inch)



SL-2



## SL SERIES

Portable grinding and lapping machine for the repair of sealing faces in gate valves and non-return valves and on wedges and flanges of DN 20-2000 mm (¾"-80").

Drive: electric 230/120 V, 50/60Hz or pneumatic 6-7 bar

	SL-05	SL-1	SL-15	SL-2	SL-3
DN					
Standard	20-65 (¾"-2½")	32-150 (1¼"-6")	40-300 (1½"-12")	200-700 (8"-28")	500-1600 (20"-64")
Special up to	80 (3")	200 (8")	450 (18")	900 (36")	2000 (80")
Immersion depth					
Standard	250 (9.8")	400 (15.7")	600 (23.6")	1000 (39.4")	1200 (47.2")
Special up to	400 (15.7")	600 (23.6")	1200 (47.2")	1600 (62.9")	2200 (86.6")
Min. spacing					
	15 (0.59")	28 (1.1")	41 (1.6")	69 (2.7")	102 (4")

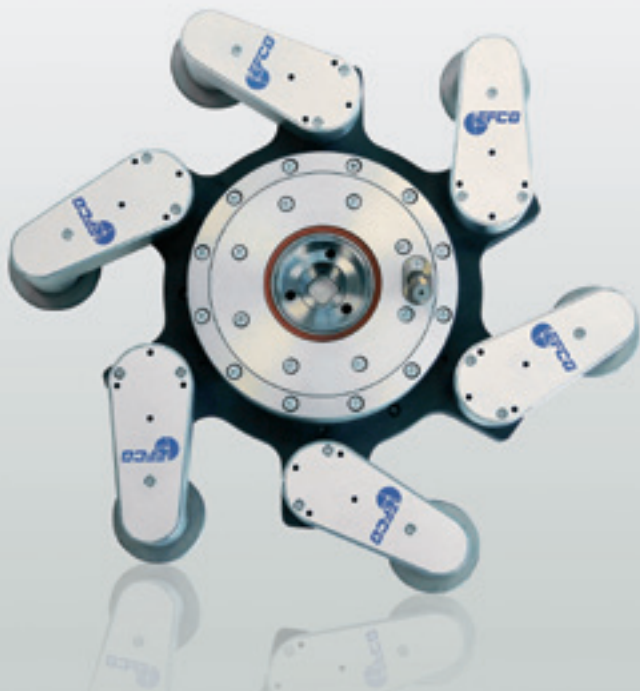
Dimensions in mm (inch)

Other immersion depths can be supplied on request.

Option:

- Digital rocker (for the exact reproduction of the set contact pressure)
- Swing-check-adapter (for machining the sealing faces in non-return valve housings with large inclination)
- VB device:  
additional arm for grinding and lapping flat sealing faces in valve housings.





AS-3

## SLA SERIES

Planetary gears with driven high-speed spindles for the machining of hard sealing faces ( $\geq 35\text{HRC}$ ) for SL-15 and SL-2 machines (patented).

Time saving up to 90%.

Available as option for new machines and for retrofitting to existing SL machines.

### Driven planetary gears

Type	SLA-15*	SLA-2**
AS-1	DN 125-175 (5"-7") (Option)	
AS-2	DN 175-225 (7"-9")	DN 200-225 (8"-9") (Option)
AS-3	DN 225-400 (9"-16")	DN 225-400 (9"-16")
AS-4		DN 400-600 (16"-24")

Dimensions in mm (inch)

\* for SL-15 machines \*\* for SL-2 machines



## HSL SERIES

Portable machine for high-speed grinding of hard sealing faces ( $\geq 35\text{HRC}$ ) in high-pressure gate valves and wedges of various design.

Fitted with SLA series planetary gears for use with driven GSS grinding spindles.

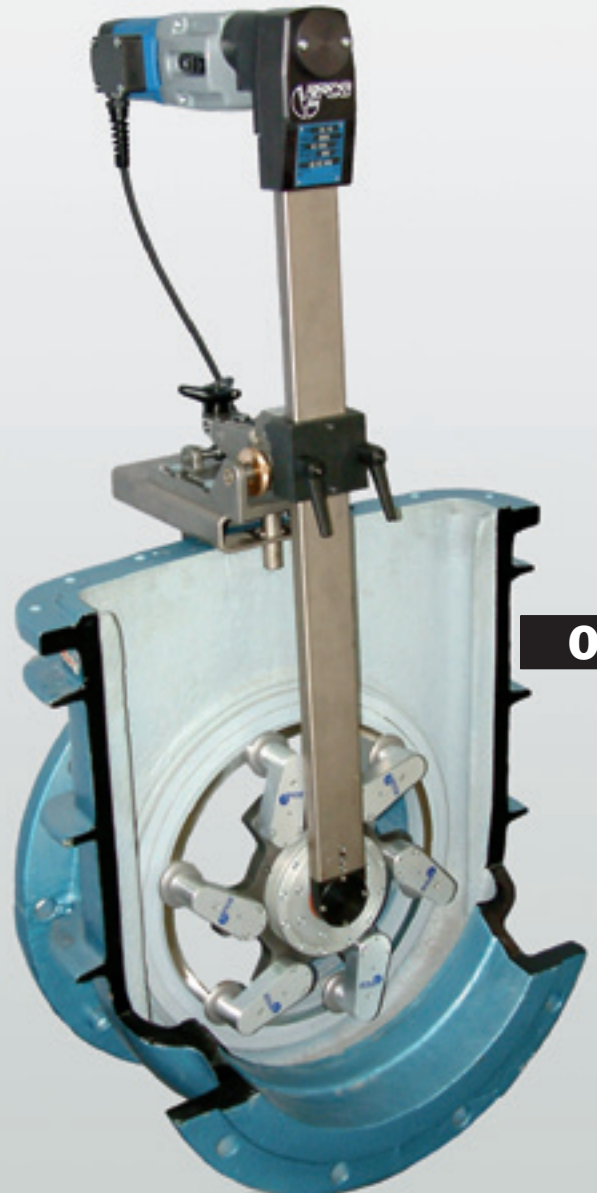
Drive: electric 230/120 V, 50/60Hz or pneumatic 6-7 bar

Type	HSL-15	HSL-2
Working range	DN 175-400 (7"-16")	DN 225-600 (9"-24")

Dimensions in mm (inch)

- Grinding speed up to 21 m/s (826.8"/s)
- Very high material removal of up to 2 mm/h /0.08"/h (for Stellite 6/21 dia. 350/300 (13.8"/11.8"))
- Time saving up to 90%!
- Patented

HSL-15



07



TSV-150



## TSV SERIES

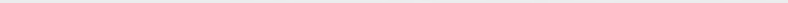
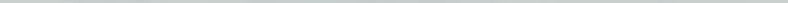
Portable grinding and lapping machine with eccentric for the machining of sealing faces in safety valves of DN 15-300 mm (½"-12").

In these machines the grinding movement is overlaid by an additional eccentric movement. This results in a cross-ground and absolutely flat sealing face.

Suitable for use on-site and in the workshop.

	TSV-150	TSV-300
DN range	15-150 (½"-6")	25-300 (1"-12")
Max. immersion depth	350 (14")	350 (14")
Clamping range of chuck	85-450 (3.4"-17.7")	85-450 (3.4"-17.7")
Max. spindle speed	330 rpm	170 (245*) rpm
Max. eccentric speed	520 rpm	555 (805*) rpm
Eccentricity	3 (0.12")	3 (0.12")
Drive	pneumatic	230/120V, 50/60 Hz or pneumatic*

Dimensions in mm (inch)



08



VSA-2



## VSA SERIES

High-speed precision grinding machine for the machining of build-up welding, sealing faces, conical faces and bores in valves, cylinders, pump housings and flanges of DN 20-1500 mm (¾"-59").

Drive: pneumatic

Type	Working range	Immersion depth
VSA-05	DN 20-150 (¾"-6")	250 (9.8")
VSA-1	DN 50-400 (2"-16")	650 (25.6")
VSA-2	DN 250-800 (10"-32")	1000 (39.4")
VSA-3	DN 500-1500 (20"-60")	1500 (59")

Dimensions in mm (inch). Other dimensions on request.

A bore grinding unit and a manhole grinding unit can be supplied as accessories.





TDF-05A



## TDF SERIES

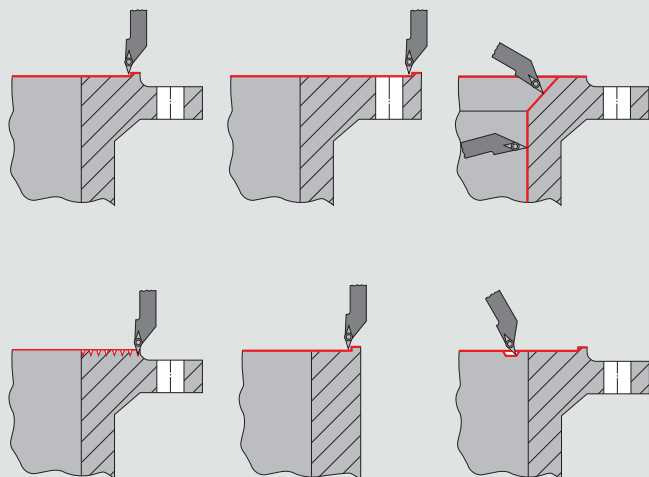
Portable flange facer with external clamping, for on-site use on flanges, valves, pumps, turbine housings, heat exchangers – turning range dia. 0-2200 mm (0-86.6”).

Drive: electric 230/120 V, 50/60Hz or pneumatic 6-7 bar

Type	TDF-05	TDF-05A	TDF-1	TDF-1A
Machining dia.	0-250 (0-9.8")	0-250 (0-9.8")	0-500 (0-19.7")	0-400 (0-15.7")
Mounting dia.	250-400 (9.8"-15.7")	250-400 (9.8"-15.7")	260-600 (10.2"-23.6")	260-600 (10.2"-23.6")
Machine height	230 (9")	310 (12.2")	230 (9")	310 (12.2")
Axial feed	—	30 (1.2")	—	30 (1.2")
Axial feed with angled head (Option)	60 (2.36")	60 (2.36")	60 (2.36")	60 (2.36")
Radial stroke	80 (3.15")	80 (3.15")	80 (3.15")	80 (3.15")
Radial feed /rev.	0,1/1 (0.004"/0.04")	0,1/1 (0.004"/0.04")	0,1/1 (0.004"/0.04")	—

Dimensions in mm (inch)

Numerous machining options:



Type	TDF-2	TDF-2A	TDF-3	TDF-4
Machining dia.	300-1200 (11.8"-47.2")	300-800 (11.8"-31.5")	700-2200 (27.5"-86.6")	1500-3500 (59"-137.8")
Mounting dia.	480-1380 (18.9"-54.3")	480-1380 (18.9"-54.3")	750-2400 (29.5"-94.5")	1500-3700 (59"-145.7")
Machine height	300 (11.8")	380 (15")	450 (17.7")	760 (29.9")
Axial feed	—	30 (1.2")	—	—
Axial feed angled head (optional)	80 (3.15")	80 (3.15")	80 (3.15")	80 (3.15")
Radial stroke	100 (3.9")	100 (3.9")	150 (5.9")	200 (7.9")
Radial feed /rev.	0,1/1 (0.004"/0.04")	0,1/1 (0.004"/0.04")	0,1/1 (0.004"/0.04")	—
Radial feed /min.	—	—	—	0-10 (0"-0.04")

Dimensions in mm (inch)

Special versions on request



TDF-3

## TD SERIES

Portable lathe for on-site use on valves, flanges, pumps, turbine housings.

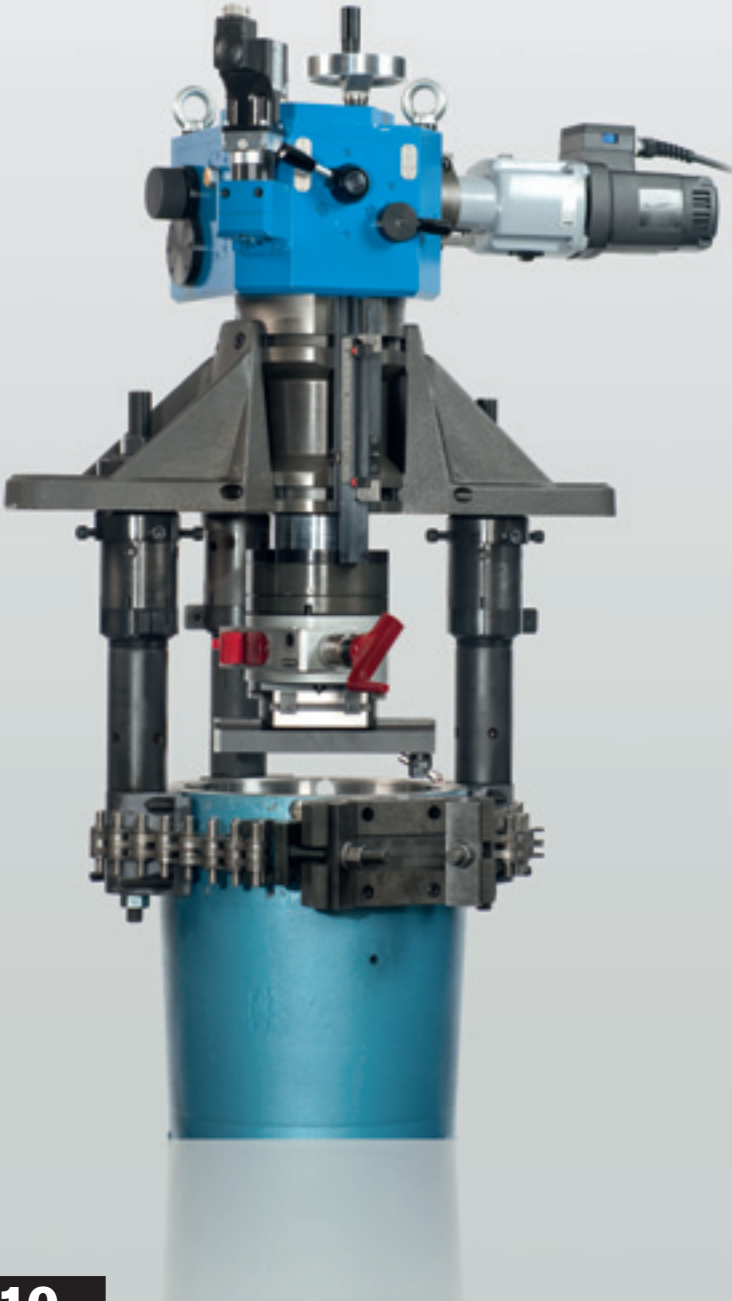
Particularly suitable for turning cylindrical and conical sealing faces in high-pressure valves (internal seals) and for the removal of welded-in valve seats of dia. 0-900 mm (0-35.4").

Drive: electric 230/120 V, 50/60Hz or pneumatic 6-7 bar

Type	TD-03	TD-1*	TD-2*
Turning range	0-150 (0-5.9")	0-400 (0-15.7")	0-600 (0-23.6")
Working depth	250 (9.8")	350 (13.8")	540 (21.3")
Radial stroke	20 (0.79")	40 (1.57")	60 (2.36")
Axial stroke	100 (3.94")	120 (4.72")	150 (5.9")

Dimensions in mm (inch)

\*Optional unit for high-speed grinding can be supplied.



10

## TD-2T SERIES

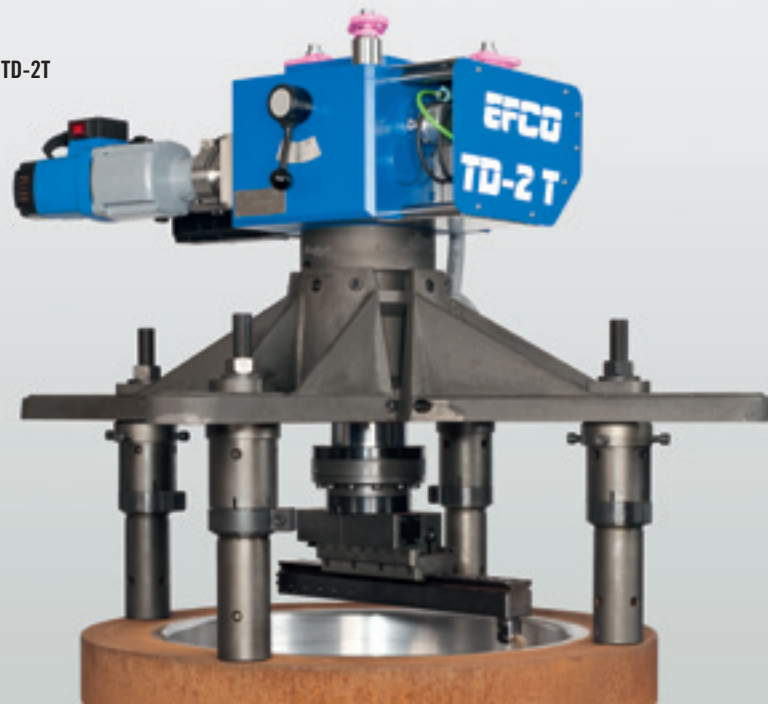
Portable lathe with two controlled axes (X+Z).

With this version, it is possible to machine flat surfaces and bores as well as cones and radii with one fixture.

Type	TD-2T
Facing range	0-800 (31.5")
Max. working depth	600 (23.6")
Machining feed /rev.	0-2 (0-0.079")
Chip thickness	0-2 (0-0.079")

Dimensions mm (inch)

TD-2T



## SM-450 SERIES



Stationary grinding and lapping machine with centre spindle for the machining of sealing faces in shut-off valves, wedges, safety valves, etc.

The machine can be supplied optionally with one or two tables in various configurations.

Drive: electric 230 V, 50/60 Hz

	Inclined table	Rotary table
Size	450 x 450 (17.7" x 17.7")	Ø 450 (17.7")
Inclination	± 12°	–
Max. valve diameter	Ø 560 (22")	Ø 560 (22")
Max. valve height	500 (20")	520 (21")
Max. valve weight	200 kg	200 kg

Dimensions in mm (inch)



SM-450



11



SM-750



## SM-750 SERIES

Stationary grinding and lapping machine for the machining of sealing faces in shut-off valves, wedges, safety valves, etc.

The machine can be supplied with centre or eccentric spindle and one or two inclined tables.

Drive: electric 400 V, 50/60 Hz

	SM-750 centred	SM-750 eccentric
Spindle	centred	eccentric 0-20 (0-0.78")
Inclined table size	750 x 750 (29.5" x 29.5")	750 x 750 (29.5" x 29.5")
Inclination	± 12°	± 12°
Max. valve diameter	Ø 950 (38")	Ø 950 (38")
Max. valve height	1000 (40")	1000 (40")
Max. valve weight	2500 kg	2500 kg

Dimensions in mm (inch)



MK-2 / ENT-1



## MK and ENT SERIES

The pillar or radial drilling machine with MK-ADAPTER makes it possible to use the EFCO tools of the Valva and SL series for stationary machining of sealing faces in and on valves and wedges.

We recommend the appropriate inclined tables (0°-12°) for fast alignment of valve housings and wedges.

Adapter	Inclined table	EFCO machines	up to DN
MK2	ENT-1 300 x 300 (11.8" x 11.8")	Valva-1, Valva-S1	150 (6")
	ENT-2 500 x 500 (19.7" x 19.7")	Valva-15 SL-15	300 (12") 400 (16")
MK 3	ENT-3 1000 x 1000 (39.4" x 39.4")	SL-2, Valva-2	600 (24")
MK 5	ENT-4 1500 x 1500 (59" x 59")	SL-3, Valva-3	1200-1600 (48"-64")

Dimensions in mm (inch)

SPM-801-N



12



## SPM SERIES

**Stationary precision lathe, CNC-controlled.**

**The optimum solution for complete machining and general overhaul of valves.**

The machines of the SPM series have a precision inclined table ( $\pm 12^\circ$ , accuracy  $\pm 10''$ ) and have been optimised for more efficient machining of valves. Due to the flexible design, they can also be used for other machining tasks.

Type	SPM-801-N
Turning dia.	max. 1000 (40")
Machining height	max. 1300 (52")
Precision inclined table	1000 x 1000 (39.4" x 39.4")

Dimensions in mm (inch)

## KS-6 SERIES

Grinding table for face grinding wedges, valve disks and other machine components.

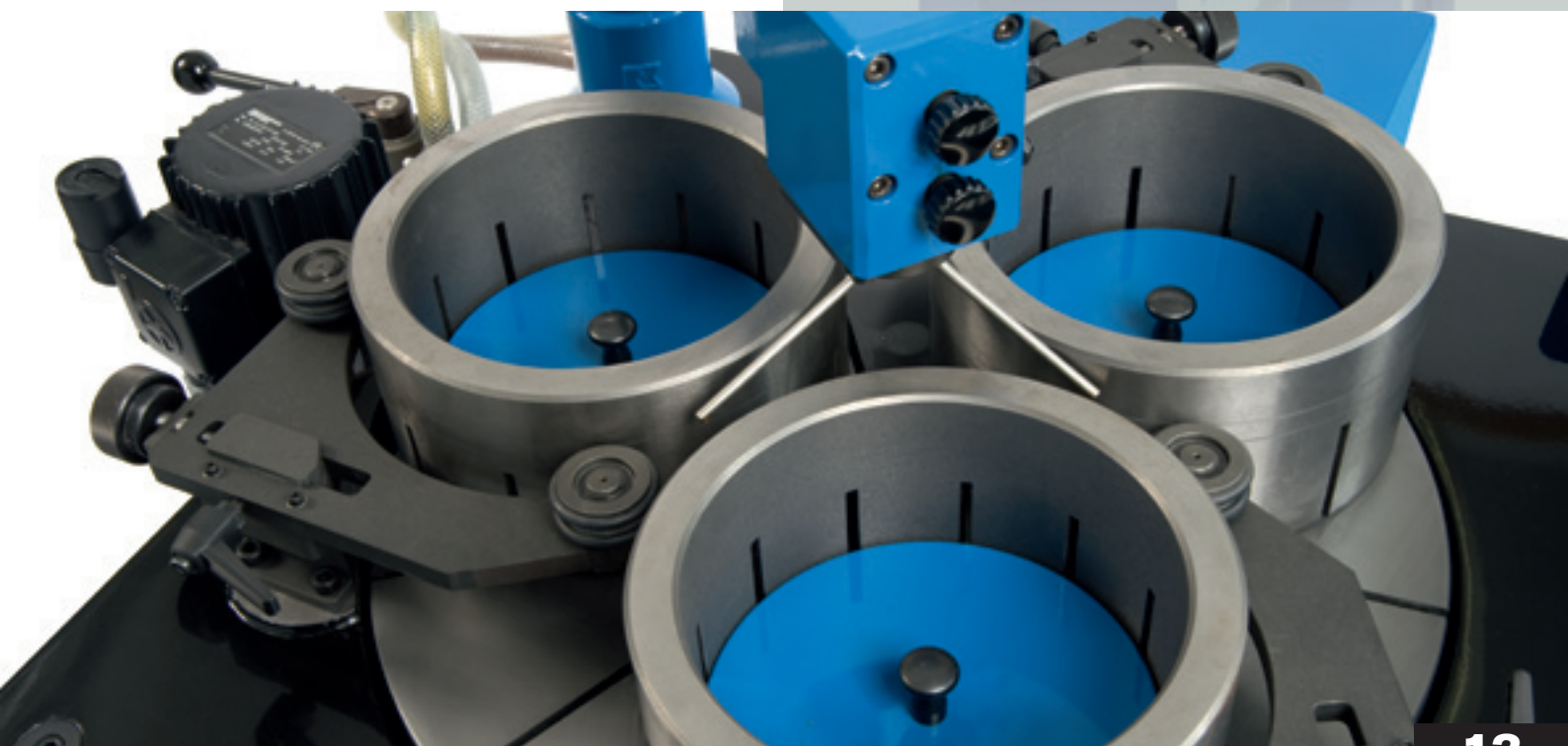
Aluminium grinding disk, dia. 600 mm (23.6"), fitted with self-adhesive abrasive paper disks. A version with quick-change grinding disks is available for use with frequently changing grains.

Drive: electric 230 V/120V, 50/60 Hz

Safe operation due to stop bracket and footswitch.

Can be used on-site and in the workshop.

KS-6



13

FLM-600

## FLM SERIES

Stationary surface lapping machines, particularly suitable for the lapping of valve disks, axial face seals and wedges etc.

Drive: electric 400 V, 50/60 Hz (FLM-400: 230 V, 50/60 Hz)

Type	Lapping wheel dia.	Max. workpiece dia.	Max. workpiece weight
FLM-400	405 (15.9")	120 (5")	10 kg
FLM-600	615 (24.2")	220 (9")	50 kg
FLM-900	915 (36")	350 (14")	100 kg
FLM-1200	1215 (47.8")	470 (19")	150 kg
FLM-1500	1515 (59.6")	600 (24")	150 kg

Dimensions in mm (inch)

Accessories such as interference lamp, optical flats, polishing tables and roughness testers as well as consumables can also be supplied.





PS-15

## PS SERIES VALVE TEST BENCHES

Valve test benches can be used for various applications.

These are, for example, the incoming goods test when new valves are delivered, the intermediate and final inspection during/after valve manufacture, checking the valve repair result or routine testing of, for example, safety valves.

The tests comprise mainly pressure tests of valve housings, leakage tests of the valve seats and testing of the set pressure of safety valves in particular.

In addition to valves, other components, too, can obviously be subjected to a pressure test. These are, for example, tanks, motor housings, pump housings, pipe fittings, insulators, etc. Special clampings are frequently required to clamp these test pieces.

### Construction of valve test benches

- Stationary / portable (available up to about 10 t clamping force)
- Manual / automatic
- Horizontal/vertical/tilting

### For the testing of

- Gate valves
- Valves
- Control valves
- Check valves
- Ball valves
- Safety valves
- Hollow bodies (motor housings, pipe fittings, tanks, etc.)

### Design of test piece ends (inlet/outlet)

- Flange
- Thread
- Welding socket pieces
- Flangeless ("sandwich" / "wafer")

### Test medium

- Water
- Air
- Nitrogen
- Special test media (e.g. oil, kerosene)

### Test types

- Strength test of housing
- Leakage test of spindle gland
- Leakage test of shut-off device
- Set pressure of safety valves

### Test pressure

- Water, max. 1380 bar (20000 psi) (on request even higher)
- Air / nitrogen, max. 300 bar (4350 psi) (on request even higher)

An EFCO valve test bench consists of a clamping unit and an operating/measuring/control unit (console). The test piece is held securely by the clamping device and sealed on inlet and outlet for the test. Clamping forces up to about 1500 t can be implemented (on request even higher).

The operating/measuring/control unit (console) is used for the actual test (filling of valve, building up of test pressure, control of clamping unit, measurement of test pressure).

We also offer small, portable test units for mobile applications. These test units do not have a clamping unit and can be used to build up test pressure and measure it (e.g. for tank tests).



PS-200


**Standard overview (excerpt)**

Type	DN	Clamping force in t
PS-T/SV 5	10-80 (3/8"-3")	5
PS-T 10	10-200 (3/8"-8")	10
PS-15	15-250 (1/2"-10")	15
PS-30/50/75	25-400 (1"-16")	30/50/75
PS-30/50/75	25-500 (1"-20")	30/50/75
PS-100	100-500 (4"-20")	100
PS-140	100-500 (4"-20")	140
PS-SV 15	15-250 (1/2"-10")	15
PS-SV 30/50/75	25-400 (1"-16")	30/50/75
PS-H 15	25-250 (1"-10")	15
PS-H 30/50/75	25-400 (1"-16")	30/50/75
PS-H 100	25-500 (1"-20")	100
PS-H 250/300/ 350/500/1500	100-1000 (4"-40")	250/300 350/500/1500

Dimensions in mm (inch)

Standardisation is limited mainly to the clamped nominal test piece diameters (DN) and clamping forces.

Test pressures required, design of control and test media for implementation of the test are to individual customer requirements.

Test benches for all clamping force ranges are also available with automatic program sequence (special design).

Special designs outside our standard (variant) range are our particular strength.


**15**

PS-T 10



VALVE-DOC



## EFCO-VALVE-DOC

Recording and management of test results is increasingly important nowadays. We can provide a data logging system for the documentation and management of the test results. The core of the data logging system is the presentation of the pressure curve. It clearly records and documents whether and how a pressure drop, if any, (pressure drop test for shut-off/control valves) or a response (set pressure test for safety valves) occurs.

Finally, a test certificate (PDF format) is drawn up for each test and stored automatically. This can be printed at any time when required.



## EFCO-BOOSTER



Automatic water pressure generation with appropriate high-pressure pumps is integrated in every EFCO valve test bench intended for a water test.

The air/nitrogen test pressure required for testing is provided either via a high-pressure bottle pre-filled by the customer or via an EFCO Booster.

The EFCO Booster compresses air or nitrogen to 300 bar (4350 psi) (higher pressures are possible on request).

BOOSTER



16



## PS ACCESSORIES

All EFCO valve test benches are equipped with standard accessories and their function can be extended with optional accessories.

The following are some of the accessories available:

- O-ring sealing plates
- Polyurethane sealing plates (Vulkollan)
- Safety plugs (specially for safety valves)
- Threaded adapters (for the testing of test pieces with threaded end)



## EFCO WELDING TECHNOLOGY

### CW-1000 SERIES



DN 30-1000 mm (1¼"-40").

**Complete solution for MIG/MAG welding in and on valves.**

Automatic welding of sealing faces/circular welding of:

- bores, circular faces, conical faces

The machine is equipped with automatic feed and has integrated water cooling.

Type	CW 1000
Axial stroke	175 (6.89")
Radial stroke	90 (3.54")
Axial feed /rev.	3 (0.12")
Radial feed /rev.	3 / 3,8 / 4,6 (adjustable) (0.12"/0.15"/0.18")
Speed range	0,1 - 5,0 rpm
Adjustment angle	of head 0 - 90° (manually)

Dimensions in mm (inch)

CW-1000



ARS



## EFCO-ARS-SERIES

**Professional cleaning set for valves to remove rust, seal residues, scale, slag, paint residue and other contamination.**

Developed for cleaning of dirty valves or housings using high-speed rotating twisted brushes.

Drive: electric 230/120 V, 50/60Hz or pneumatic 6-7 bar

## MOBILE WORKSHOPS



**As fixed lorry superstructure or in an ISO container**

Fast reaction times and flexibility are required for on-site valve service. EFCO can provide you with a mobile workshop equipped to your requirements. It is equipped with EFCO turning, grinding and lapping technology and can also be fitted with a lathe, drilling machine, valve test bench and everything else you require.





## EFCO ABRASIVES

EFCO abrasives have been matched to EFCO technology through extensive testing. We supply abrasives on a backing in various grain sizes and formulations optimised for the application.

- Abrasive backing:
- Paper
  - Fabric
  - Foil
- Grain types:
- Aluminium oxide ( $Al_2O_3$ )
  - Silicon carbide (SiC)
  - Zirconium corundum ( $ZrO_2 + Al_2O_3$ )
- Grain size:
- Standard grain size: P80-P1800  
(other grain sizes on request)

## GSS SERIES

EFCO GSS grinding tools are coated with electroplated cubic crystalline boron nitride (CBN).

CBN is highly suitable for grinding hard sealing faces with a minimum hardness of 35 HRC such as, for example, steel on cobalt and nickel basis, highly alloyed steels, chromium steel, etc.

The good heat resistance of CBN in combination with its great hardness makes possible economic grinding at the higher machining temperatures of these steels (long life).



## EFCOBOR LAPPING COMPOUNDS

In accordance with DIN 8589, lapping is a microfinishing process using a grain distributed loosely in a liquid or paste (lapping compound) which is held on a, usually shaped, counterpart (lapping tool).

EFCOBOR lapping compounds are oil soluble lapping pastes of boron carbide.

Using EFCO lapping compounds, it is possible to achieve

- high surface quality
- highest dimensional accuracy
- close dimensional tolerances independent of the material hardness.

They can be supplied in various grain sizes from P80-P1500 (FEPA) and pack sizes.



EFCO also supplies other equipment, machinery and materials for valve repair on site or in the workshop and for the repair of pipelines.

- SEAL AND PACKING CUTTING MACHINES AND EQUIPMENT
- ANGLE PROTRACTOR FOR GATE VALVE SEALING FACES
- TSM TELESCOPIC INSPECTION MIRROR
- HYDRAULIC NUT OPENER

#### ADVICE, PROJECT PLANNING AND TRAINING

We offer training with our machines and equipment in our company or at your site. Valve repair training, too, is carried out competently.

Our core competence is valve repair/valve testing. We are happy to advise you and work together with you on drawing up concepts for valve repair. Our partners are companies of different sizes from many industries.

We can design and build special machines for you which match the requirements of your company.

We will gladly advise you at your site and also to provide any special information specific to your requirements.

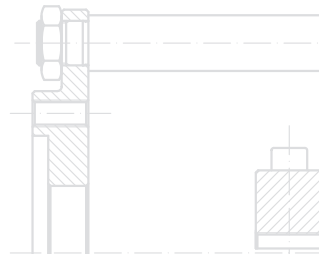
Please come and visit us.

Within Europe, we would be pleased to visit you by arrangement with one of our demonstration vehicles to introduce you personally and competently to a large section of our product range.

You can also find us on the Internet with further product details and up-to-date information.

[www.efco-dueren.com](http://www.efco-dueren.com)





#### **EFCO Maschinenbau GmbH**

Otto-Brenner-Strasse 5-7  
D-52353 Düren  
Phone: +49-2421-989-0  
Fax: +49-2421-86260  
E-Mail: [info@efco-dueren.de](mailto:info@efco-dueren.de)  
[sales@efco-dueren.de](mailto:sales@efco-dueren.de)  
Web: [www.efco-dueren.com](http://www.efco-dueren.com)

#### **EFCO USA, INC**

P.O. Box 38839  
Charlotte, NC 28278-1014  
Phone: (800) 332-6872  
(800) EFCO-USA  
Fax: (888) 332-6872  
(888) EFCO-USA  
E-Mail: [www.efcousa.com](http://www.efcousa.com)  
Web: [sales@efcousa.com](mailto:sales@efcousa.com)

#### **EFCO MOSKAU**

115054 Moscow  
B.Strochenovsky Pereulok,  
d.22/25, str.1, of. 501  
Phone: +7 (495) 633 97 57  
Fax: +7 (495) 633 97 54  
E-Mail: [efcomoscow@efco-dueren.ru](mailto:efcomoscow@efco-dueren.ru)  
Web: [www.efcorussia.ru](http://www.efcorussia.ru)

#### **EFCO CHINA**

Rm1103, #3 Block  
Wanda Plaza  
No. 93 Jianguo Road  
Chaoyang District  
Beijing 100022, P.R.China  
Phone: +86-10-5960 4230  
Phone: +86-10-5960 4240  
Phone: +86-10-5960 3402  
Fax: +86-10-5960 3404  
E-Mail: [office@efco-beijing.com](mailto:office@efco-beijing.com)  
Web: [www.efco-beijing.com](http://www.efco-beijing.com)

#### **EFCO MASCHINENBAU INDIA PVT LTD**

# 55/A, Annaram Village  
Jinnaram Mandal, Medak District – 502 313  
Phone: +91 8458 275 906 / 275 907 / 275 908  
Fax: +91 8458 275 101  
Email: [sales@efcoindia.com](mailto:sales@efcoindia.com); [efcoindia@gmail.com](mailto:efcoindia@gmail.com)  
Web: [www.efcoindia.com](http://www.efcoindia.com)

**You can find further agencies and trading partners  
in many countries on our Internet pages**



*We reserve the right to make changes contributing to technical progress without  
prior notification*

