



KLINGER® KHO Monolith Single-piece ball valve DN 25 (1") – 300 (12")

CE 0408
Conformity with Pressure
Equipment Directive 97/23/EC



Klinger KHO Monolith

The “KLINGER Monolith” concept was developed from the demand for greater tightness and stability. All components are cast or made from solid materials, and are bonded using a modern welding technique which guarantees a gap-free weld while at the same time only requiring low heat input. No cold-formed sheet metal or pipe parts, which feature high residual stress levels, are used. Resistance against high pipeline forces, bending moments and corrosion is therefore ensured.

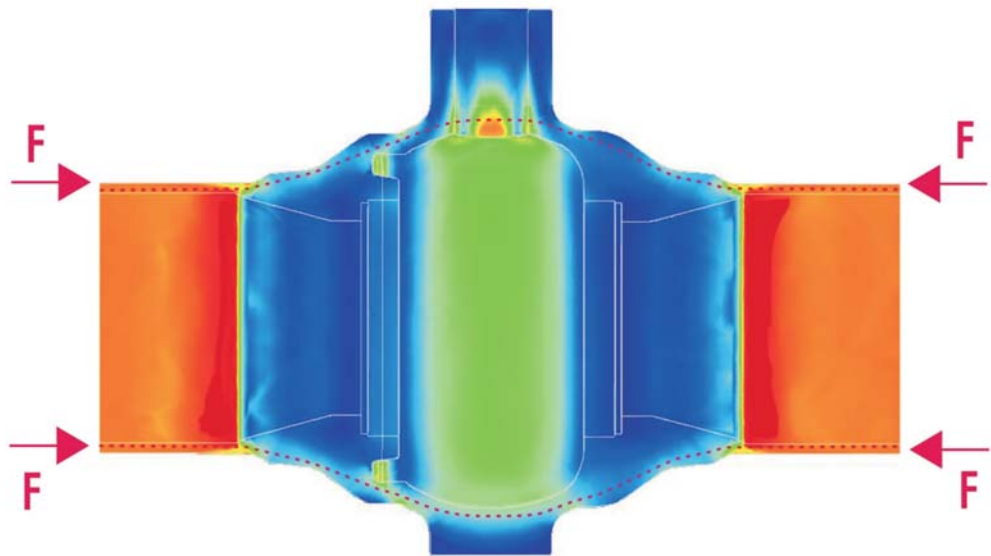
Requirements have been complied with the EN 488 European standard and the Austrian standards on district heating (FW 401). The complete construction was optimised for high internal and external forces with the help of the “finite element method” (FEM) and in cooperation with the Technical University of Vienna, likewise the positioning and completion of the welding.

The housing is made of cast steel and the top part of the operating stem of stainless steel. On the blow-out safe stem it is easy to see by the marking whether the ball valve is open or closed.

The greatest benefits of the KLINGER Monolith are the high stability of its housing, its small size, high level of tightness, maintenance-free properties and long life-time.

Further technical features

- Operating media: Hot water, oil, natural gas and many more
- Pressure: Up to 40 bar
- Free of non-ferrous metals
- Position indicator on the top of the operating stem
- Double bearing operating stem
- Fix stop in open and closed position
- Dry stem
- Low operating torque, also at maximum pressure
- Two-way flow through
- Compact size in accordance with the EN 12982 standard
- Unsusceptible to contamination
- Corrosion resistant surface coating
- Different welding finishes on the request of the customer



High pressure level Medium pressure level Low pressure level

Flow of forces through the valve – the weakest component is the pipe!

Monolith – power through singularity

... jointless manufacturing method
... forms a solid unit
... made from a solid block

Key features

- *Load-optimised body*
- *Only one main welding on the body*
- *No cold-formed sheet metal or pipe parts*
- *No saddle welding on the housing stem*
- *Tried and tested resilient Klinger sealing system*
- *Secondary stem seal easily exchangeable*
- *Long operational life*
- *Maintenance-free*





Those who masters the sealing system, masters the security

The in-line sealing system

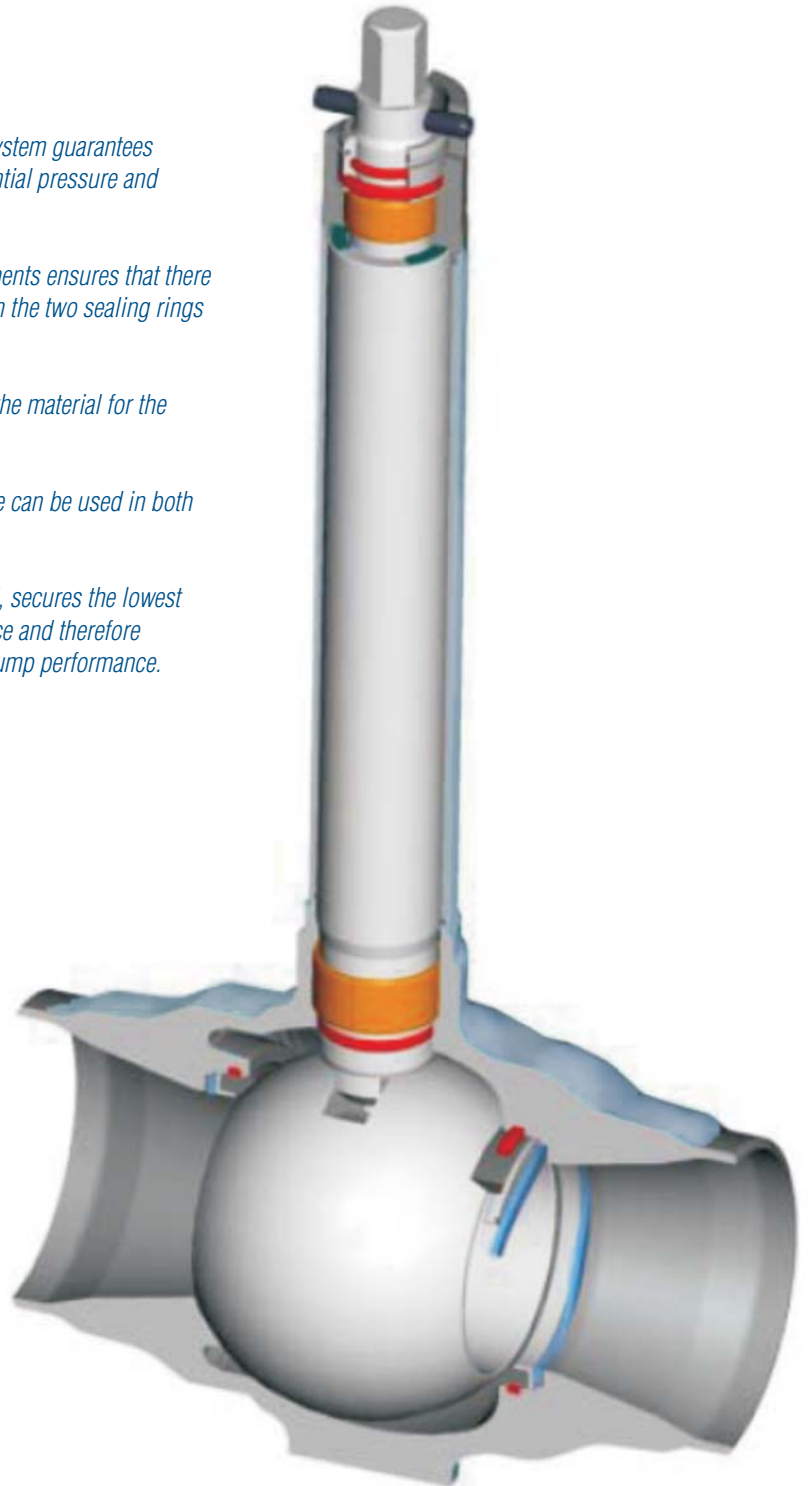
The spring-loaded in-line sealing system guarantees perfect tightness even at low differential pressure and minimises operating torque.

The flexibility of the sealing components ensures that there are always two sealed joints between the two sealing rings and the ball.

The proven Klinger KFC is used as the material for the sealing rings.

The Klinger KHO Monolith ball valve can be used in both flow directions.

The ball, with its cylindrical channel, secures the lowest loss of fluid flow, prevents turbulence and therefore negates the necessity for a higher pump performance.



Those who masters the sealing system, masters the security



Sealing to the environment

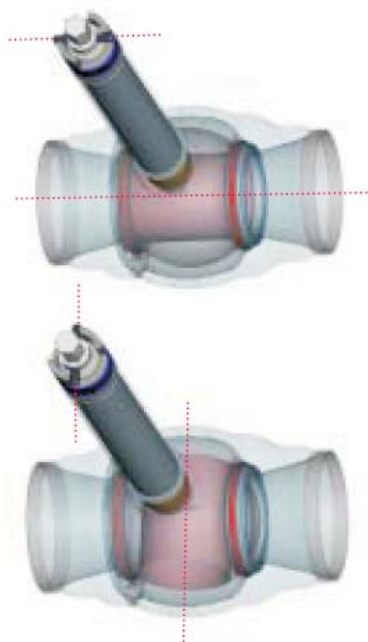
An unpressurised operating stem with double seal avoids that the flow medium flows up the housing stem.

The primary seal (O-ring) is located at the bottom of the operating stem and protects the stem bearing from contamination.

On top of the stem there is a secondary O-ring.

On the one hand, far away from the hot flow medium and on the other hand, it can be easily replaced:

- No disassembly of the entire valve
- No disassembly of the insulation
The replacement of the retaining bush is possible with simple tools
- The O-rings used are of standard dimensions and can not be mixed up



The position indicator

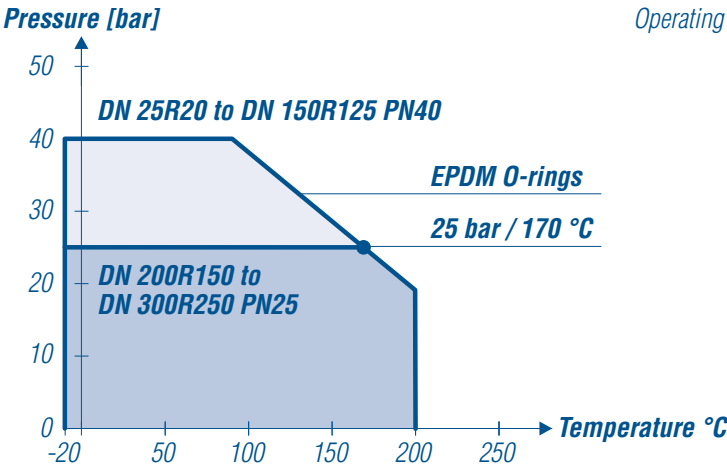
Through the visible stop and the position indicator, you can see at any time how the valve is orientated in the ground and whether it is in the open or closed position.

Turn to the right, clockwise ↻ : close

Turn to the left, anticlockwise ↺ : open



Pressure / temperature diagram



Operating conditions can be derived from the p/T diagram.

1 bar = 0,1 MPa = 0,1 N/mm²

Torque without safety factor

<i>Md</i> [Nm]	0 – 40 bar
25R20	5
32R25	9
40R32	14
50R40	33
65R50	53
80R65	73
100R80	120
125R100	175
150R125	230

<i>Md</i> [Nm]	0 – 25 bar
200R150	650
250R200	1070
300R250	2085

For the correct sizing of the actuators, Klinger proposes to multiply those values by a safety factor of 1.5.

Note: With long periods of downtime, increased breakaway torque must be taken into account.

Flow factor, resistance coefficients

DN	25R20	32R25	40R32	50R40	65R50	80R65	100R80	125R100	150R125	200R150	250R200	300R250
<i>k_v</i>	32,3	58	108	174	286	460	834	1363	1642	2920	4640	6682
<i>ζ</i>	0,60	0,50	0,35	0,33	0,35	0,31	0,23	0,21	0,30	0,30	0,29	0,29

k_v = flow factor [m³/h] *ζ* = resistance coefficient

The values stated in the table are accurate ± 10% and are valid for water up to 30 °C.

Material codes

DN	Housing	Dome	Internal parts	Housing colour
VIII	Casted steel	Stainless steel	Stainless steel	Primed in grey

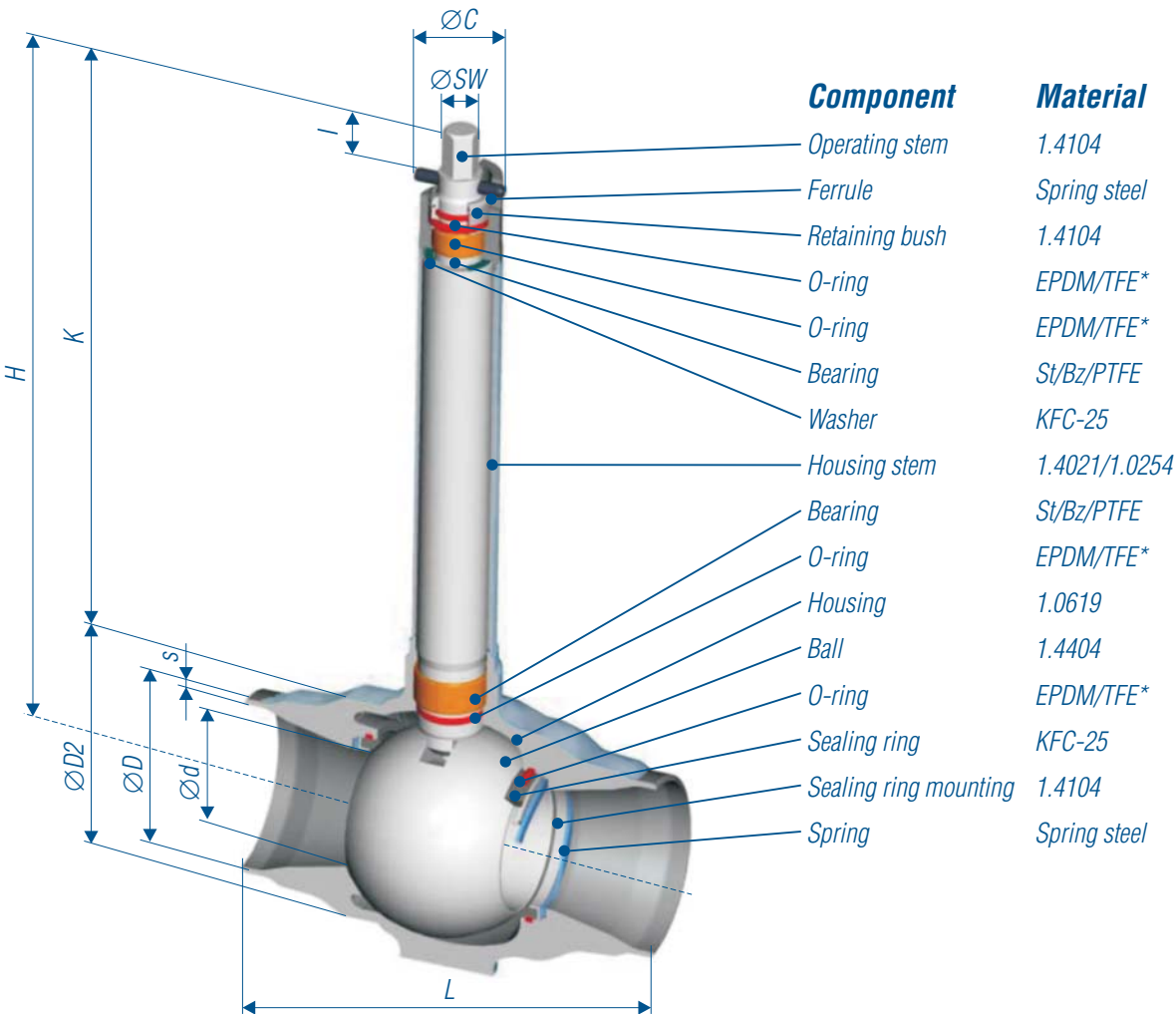
KLINGER KHO Monolith

Single-piece ball valve

with welding ends in accordance with EN 12627

and reduced bore geometry

Material: steel



KHO
PN 40
DN 25 - 150
Material VIII
Lengths in accordance with EN 12982, GR 67
PN 25
DN 200 - 300
Material VIII
Lengths in accordance with EN 12982, GR 78

Dimensions

All measurements in mm

DN	PN	d	D	s	D2	L	C	K	H	I	AF	Weight
25R20	40	20	33,7	3,6	50	100	30	375	400	28	19	2,5 kg
32R25	40	25	42,4	3,6	60	110	30	370	400	28	19	2,9 kg
40R32	40	32	48,3	3,6	72	125	30	384	420	28	19	3,5 kg
50R40	40	40	60,3	3,6	90	150	30	375	420	28	19	5,2 kg
65R50	40	50	76,1	3,6	100	190	45	380	430	28	19	9,2 kg
80R65	40	65	88,9	3,6	124	220	45	368	430	28	19	13 kg
100R80	40	80	114,3	3,6	150	260	51	385	460	35	27	21 kg
125R100	40	100	139,7	3,6	185	330	51	398	490	35	27	34 kg
150R125	40	125	168,3	4,2	230	430	51	395	510	35	27	64 kg
200R150	25	150	219	6,3	265	457	Hex90	405	538	26	50	94 kg
250R200	25	200	273	6,3	346	533	Hex90	398	571	26	50	148 kg
300R250	25	250	323,9	6,3	417	610	Hex90	492	701	26	50	236 kg



KLINGER product range

Product range

Ballostar®KHA

3-piece ball valve made of grey cast iron, steel and stainless steel

Ballostar®KHI

2-piece ball valve with trunnion mounted ball, made of grey cast iron, steel and stainless steel

Ballostar®KHE

2-piece ball valve with floating ball, made of steel and stainless steel

Monolith KHO

One-piece fully welded ball valve made of casted steel

KLINGER Monoball®

One-piece ball valve made of steel

KLINGER Ball-o-top

Brass ball valves

Piston valves KVN

made of grey cast iron, nodular cast iron, steel and stainless steel

KLINGERMATIC®

Actuator for piston valves and ball valves

Reflex and transparent gauge glasses

Circular sight-glasses

AB cocks

Packing-sleeve cocks and pressure-gauge cocks in brass, steel and stainless steel

Key role

Link

Innovation

Navigation

Growth

Efficiency

Routine