



KLINGER® KHSUP Monolith Fully Welded Ball Valve DN 25 (1") - 125 (5")

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

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KLINGER KHSUP Monolith

Fully Welded Ball Valve

The KLINGER Monolith laser-welded ball valve – constitutes a milestone in valve development

The new KLINGER Monolith valve concept was developed in response to a customer's demand for a fully welded ball valve without using any cold-formed pipe and sheet metal parts, which have the drawback of high internal stress from the shaping process. Furthermore, the customer also wanted the valve to be able to absorb high pipe forces, such as required by EN 488 or FW 401. Up to this point in time no spectacular technical innovations were called for to meet the requirements. This was however the case as soon as it was revealed that the ball valve had to be produced using laser welding technology. Producing the components from rods with high precision and then welding them by laser was indeed a challenge both for the developers and the manufacturers. The initial effort involved was however more than compensated for by the laser welding results. As very little heat is generated during the welding process, due to the high welding speed on one hand and the laser's enormous power density on the other, not only distortion of the components is minimized to a great extent, but also damage from plastic parts melting is prevented. This opens up completely new manufacturing



The KLINGER MONOLITH body have been optimized using FEA. Thus, it is possible to obtain the ideal lines of forces and to achieve the transmission of high piping forces.

prospects for parts assembly and the welding process itself. Stainless and acid-resistant steels can thus easily be welded to carbon steels. The precision alignment of the connections with the body and the mounted bonnet enable perfect, fully welded butt seams to be achieved.

This means that there are no cracks anywhere in the body area that could give rise to crevice corrosion. Unlike in conventional welding processes, the internal stress caused by laser welding is very low.

When superimposed with stresses entering the body along with pipe forces, stress cracking can be stopped. The dreaded development of such small cracks that can run along the grain boundaries to the surface of valve bodies causing leaks can thus be prevented to a great extent.



Using rods enables modular design of the connections, such as weld ends and flanges to DIN and ANSI, which can be produced to customer specifications within a short space of time thanks to advanced CNC technology.

The integration of a spring sealing system that has proved its worth for several years across the ports and the seal to the outside, as well as the option of mounting gears and drives round off the KLINGER Monolith's features, making it a long-life, top quality and rugged high-end product.

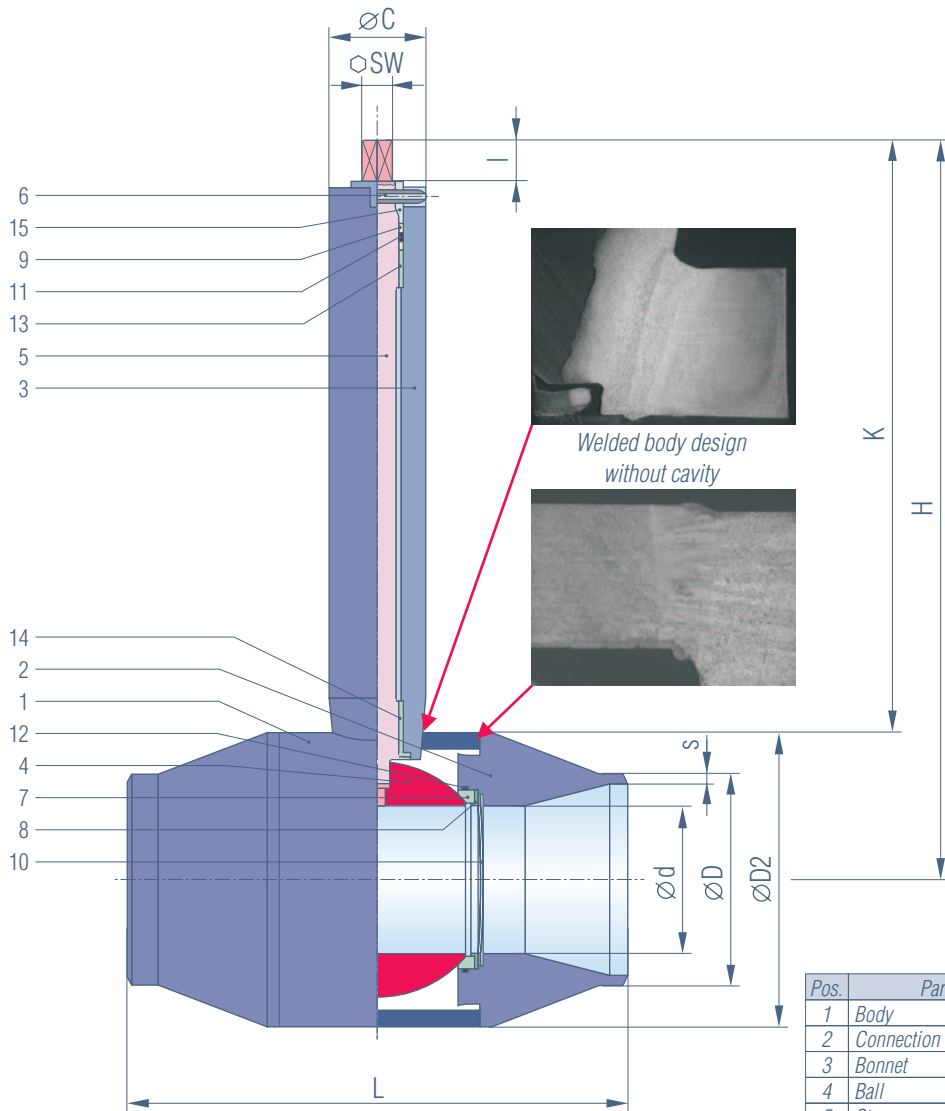
Technical properties

Fully Welded Ball Valve

- floating ball
- soft seated
- resilient sealing elements, double leak-tightness in both port directions
- interlocking lever
- dismantling lever
- maintenance-free
- TRB 801 Nr. 45
- resistant to high piping forces
- LASER welded body without cavity
- Materials: steel, stainless and acid resistant steel
- Combined materials possible for body parts
- connection: welding ends in compliance with EN 12627
- reduced bore
- variable bonnet heights stem extensions
- anti blow-out stem design
- pressure balanced dead space
- high durability and life time
- design in compliance with EN 488 and FW 401
- suitable for directly buried hot water networks
- flow media: water, steam, oil and gas

Fully Welded Ball Valve

Welding ends in compliance with EN 12627, reduced bore
Material code: Steel, 1.5217



KHSUP

PN 40

DN 25 – 125

Material code VII

**Face-to-face
dimension according
to EN 12982, GR 67**

Pos.	Part	Material
1	Body	1.5217
2	Connection	1.0421
3	Bonnet	1.4301
4	Ball	1.4408
5	Stem	1.4301
6	Bolt	Spring steel
7	Sealing ring	KFC-25
8	Sealing ring support	1.4104
9	Support ring	PTFE
10	Support ring	1.4310
11	O-ring	FEPM
12	O-ring	FEPM
13	Spindle bush	St/Bz/PTFE
14	Bush	St/Bz/PTFE
15	Bolt	Spring steel

Material code (m. c.)

m. c.	Body	Bonnet	Internal parts	Color
VII	Carbon steel	Stainless steel	Stainless steel	blue

Overall dimensions

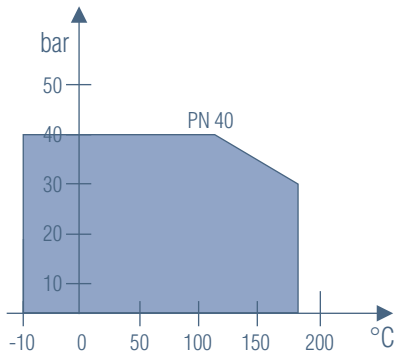
DN	PN	d	D	s	D2	L	C	K	H	I	SW	Gewicht
25/20	40	20	33,7	3,35	62	100	36	369	400	28	19	3 kg
32/25	40	25	42,4	3,2	69	110	36	365,5	400	28	19	4 kg
40/32	40	32	48,3	3,5	83	125	45	378,5	420	28	19	6 kg
50/40	40	40	60,3	3,4	98,5	150	45	370,75	420	28	19	7 kg
65/50	40	50	76,1	3,5	114	190	45	373	430	28	19	10 kg
80/65	40	65	88,9	4	136	220	45	362	430	28	19	14 kg
100/80	40	80	114,3	5,15	167	270	63	376,5	460	28	19	28 kg
125/100	40	100	139,7	6,35	194	330	63	393	460	28	19	41 kg



KLINGER KHSUP Monolith

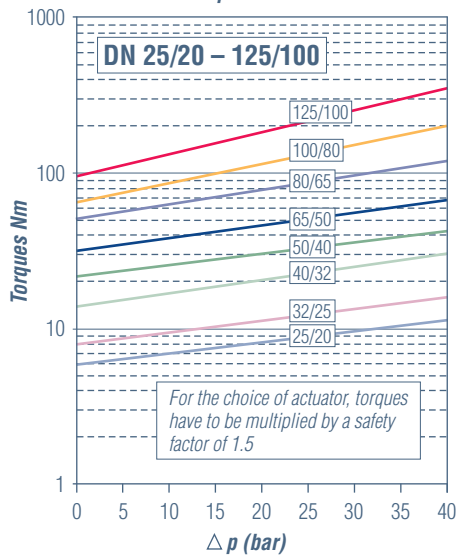
Fully Welded Ball Valve

Pressure-temperatur diagram for hotwater application



Material code VII: -10 °C bis +180 °C for valve type with weld ends

Torques Monolith



Flow data

DN	k_v	ζ
25	32,3	0,60
32	58	0,50
40	108	0,35
50	174	0,33
65	286	0,35
80	460	0,31
100	834	0,23
125	1363	0,21

k_v = Flow coefficient (m³/h)

ζ = Zeta value

The k_v value indicates the amount of water in m³ that passes through the valve within one hour, at a temperature between +5 °C and +30 °C and a pressure loss of 1 bar [water-density 1000 kg/m³].



Certificates

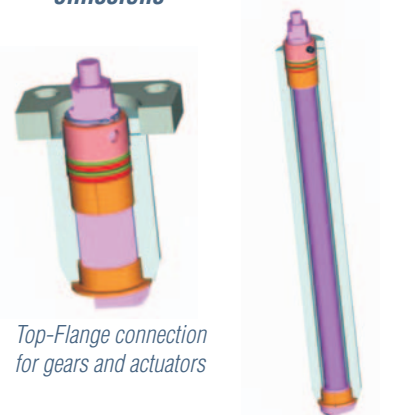
The acceptance tests are realised in our own test department. The valves are loaded with hot water +140 °C, an operating pressure of 25 bar and an axial compression force of 269 kN on the body for 14 days (as shown on the picture above for the valve DN 80/65). A further cycle of 14 days follows with an axial tensile force of 140 kN on the body and a water temperatur of 20 °C at 25 bar.



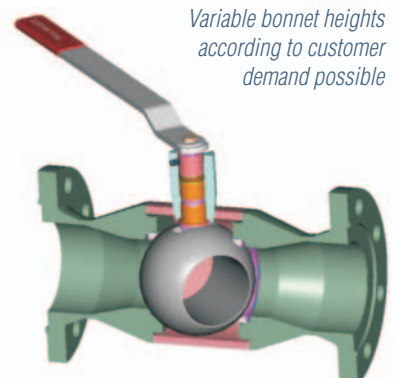
The valves which are in compliance with EN 488 and FW 401 have been certified by TÜV

Options

- antistatic-design
- top-flange in compliance with EN ISO 5211 for actuators
- mechanical gear, pneumatic or electric actuation
- modulare connections: welding ends, flanges acc. to DIN and ANSI-Standard
- metallic seats
- full bore
- Fire-Safe in compliance with API 607
- stuffing box
- high-temperature version
- high pressure body up to PN 250
- special materials, MONEL, INCONEL, HASTELLOY etc.
- corrosive fluids and gases
- TA-Luft resp. fugitive emissions



Top-Flange connection for gears and actuators



Variable bonnet heights according to customer demand possible

Flange Type