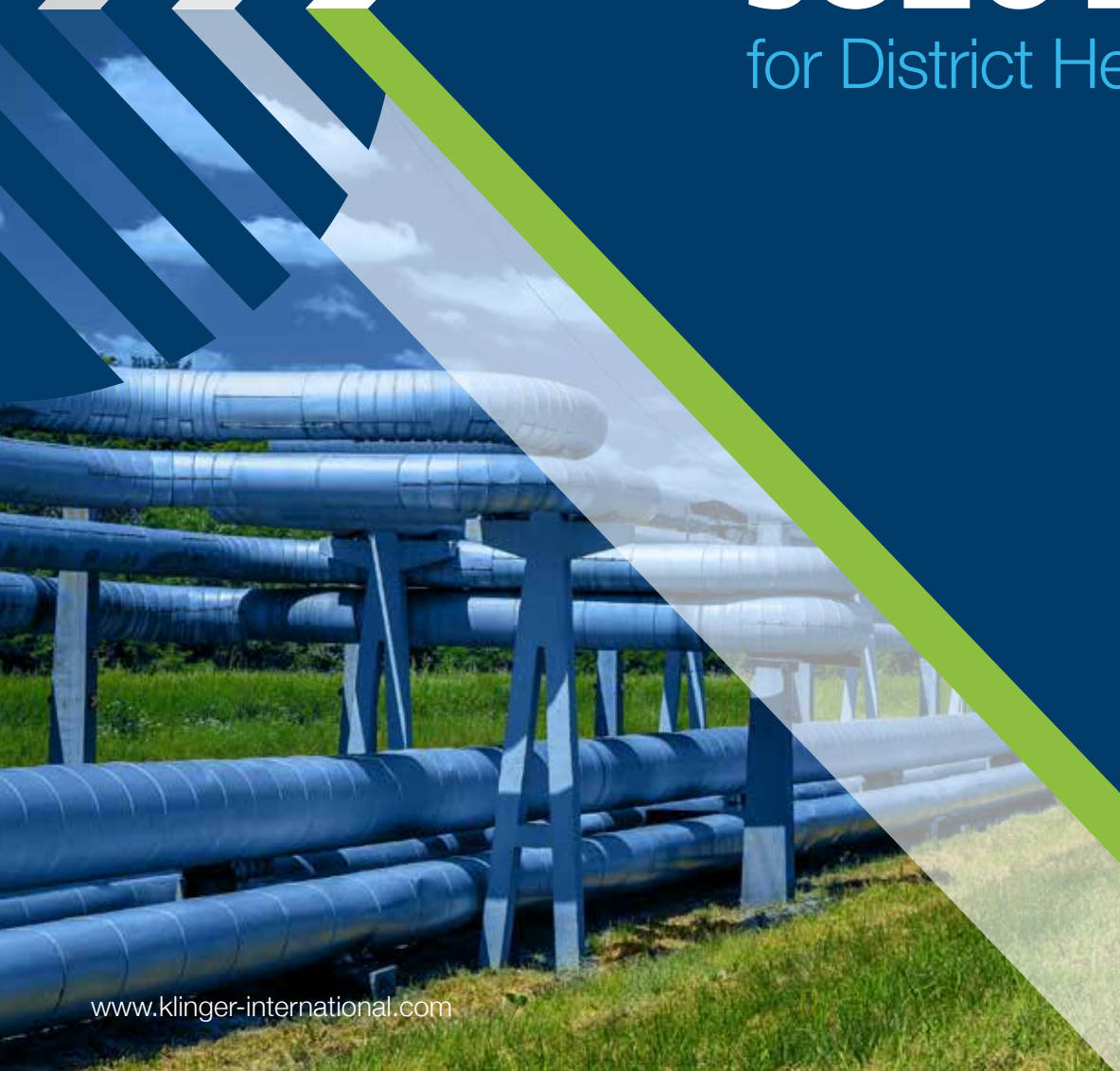
KLINGER
trusted. worldwide.

SOLUTIONS
for District Heating



www.klinger-international.com

KLINGER GROUP
Visionary by Tradition

KLINGER is the world's leading manufacturer and provider of sealing and fluid control solutions.

Founded in 1886 as a family enterprise, the pioneer in gasket technology today has evolved into a globally operating corporate group comprising independent global manufacturing, sales and service companies that offer unique know-how and expert on-site consulting services in 60 countries around the world.

Our customers include leading companies form a wide range of industries from manufacturing, infrastructure and automotive to marine, oil & gas, chemicals, pulp & paper, as well as energy, food & beverage, and pharmaceuticals. KLINGER employs around 2,800 people worldwide with total annual sales of around 684 million euros.

€ 684 MIO. ANNUAL SALES
684 million euros in revenue generated by the KLINGER Group per year.

2,800 EMPLOYEES
Our global workforce is 2,800 people strong.

80 MARKETS
KLINGER Group has already exported to 80 countries and counting.

18 PRODUCTION SITES
The KLINGER Group manufactures gaskets, valves, instrumentation, expansion joints and hoses in almost 20 countries.

60 COUNTRIES
The KLINGER Group subsidiaries and representatives are at home all over the world.

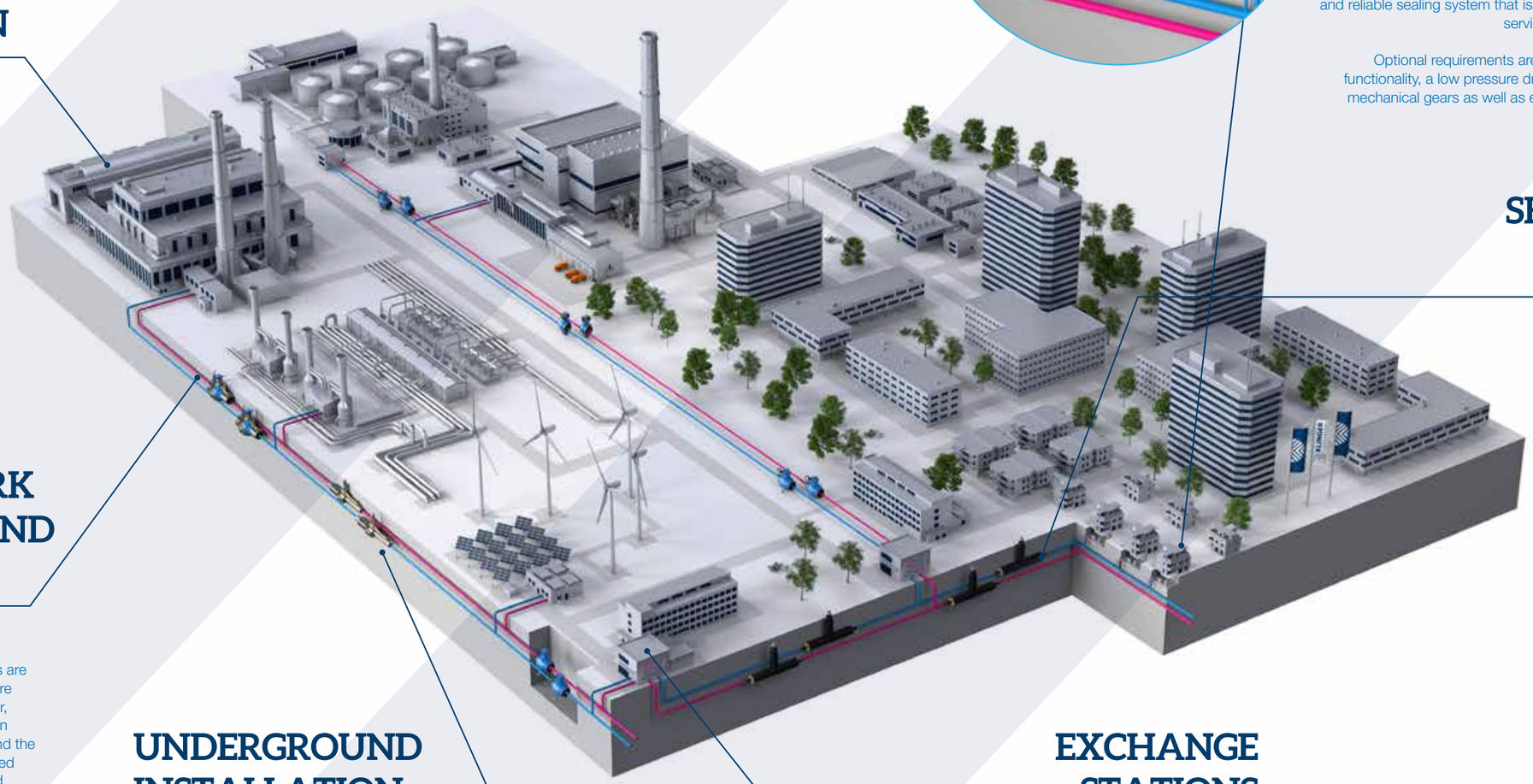
KLINGER® trusted. worldwide.

PLANT VIEW
District Heating Network

District heating is a system for distributing heat generated centrally in a heating plant. Water is generally used as a heat transfer medium and reaches consumers via a pipe system. There, the hot water releases heat in radiators or heat exchangers for space or water heating in homes and businesses.

HEAT GENERATION

Heat is generated in different heating plants from natural gas, coal or waste, biomass, or by using geothermal energy, and supplied to the primary network. The heat generation mainly uses large ball valves (DN400 – DN800) and smaller dimensions <DN150. The general requirements on valves installed in heating plants are leakage rate A, a robust valve body with fully welded or bolted design, a reliable sealing system, long service life, easy handling and maintenance, guaranteed function also at fewer operating cycles (no blockage), and stable operating torques. An optional requirement is certified SIL2 double block & bleed functionality with the option of installing mechanical gears and electric or pneumatic actuators for pipe sizes up to DN800.



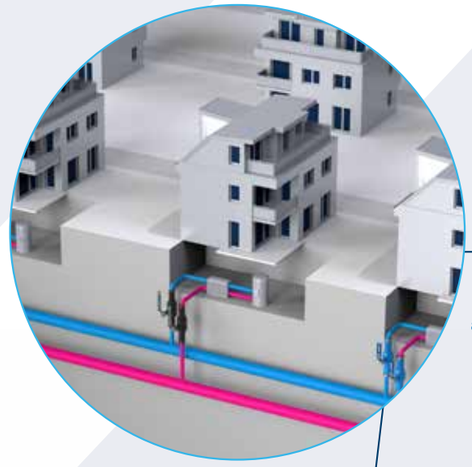
PRIMARY NETWORK AND ABOVE-GROUND INSTALLATION

The primary pipe network usually carries hot water at around 120 °C to 180 °C on the supply side. Local differences are possible. The return flow temperatures are usually around 65 °C at a maximum operating pressure of around 23 bar and a test pressure of around 38 bar, which can be even higher in some countries. The main pipes have diameters between DN400 and DN800 and the welding seams are pressure-tested. The pipes are fitted with thermal insulation in the form of mineral wool and bitumen roofing felt for above-ground pipes and aluminum sheet sheathing for underground pipes. The valves are wrapped in insulation blankets made of glass silk fabric and insulating felt.

The primary network also comprises valves, compensators and manholes. Valves are installed in underground inspection chambers to manage the network and to provide safety shutoff possibilities.

UNDERGROUND INSTALLATION

Underground valves installed at regular distances are also used in the primary network. The underground valves must be completely buried and able to withstand any pipeline forces due to thermal expansion. They must function reliably even when there are only very few operating cycles and they are in difficult installation locations. Their drawback is that maintenance is only possible at high cost. The requirements on these valves are a leakage rate A, i.e. no leakage to the atmosphere, a reliable sealing system and a robust, fully welded valve body certified according to EN488:2019. In addition, they must offer a long service life and easy handling, flexibility in term of insulation expansions and service valves. They must be fitted with mechanical gears, including an angular gear for manual operation with a T-handle wrench or slip-on gear. Insulated valves must also be fitted with a leakage detection system and be available for pipe sizes up to DN800.



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SUBSTATIONS

Substations are the connection between the secondary network and the end users. The pressures and temperatures are lower at around 60 °C and a maximum of 10 bar, respectively. In addition, the pipe sizes are smaller (under DN150). The requirements on these valves are a leakage rate A, SIL 2, a robust valve body and reliable sealing system that is insensitive to impurities, a long service life as well as easy handling.

Optional requirements are certified double block & bleed functionality, a low pressure drop, and the possibility to install mechanical gears as well as electric or pneumatic actuators.

SECONDARY NETWORK

The secondary network supplies customers with heat and runs at temperatures of around 60 °C to 90 °C. Local differences are possible. The maximum operating pressure is around 6 to 10 bar. The network mainly consists of pre-insulated composite casing systems with steel service pipe, PU foam as thermal insulation and PE protective casing firmly connected to each other. It is pre-tensioned and buried underground using special bedding sand. Service valves up to max. DN250 are also buried.

EXCHANGE STATIONS

Heat exchange stations are located within the primary network to reduce the pressure and transfer heat. They serve as the connection points between the primary and the secondary network. Exchange stations commonly use valves of nearly all diameters in different versions. The requirements on these valves are leakage rate A, a reliable sealing system, as well as a long service life and easy handling. An optional requirement is certified SIL2 double block & bleed functionality with maximum flexibility in terms of operation by means of mechanical gears and extensions, as well as electric actuators for pipe sizes up to DN600.

END USERS

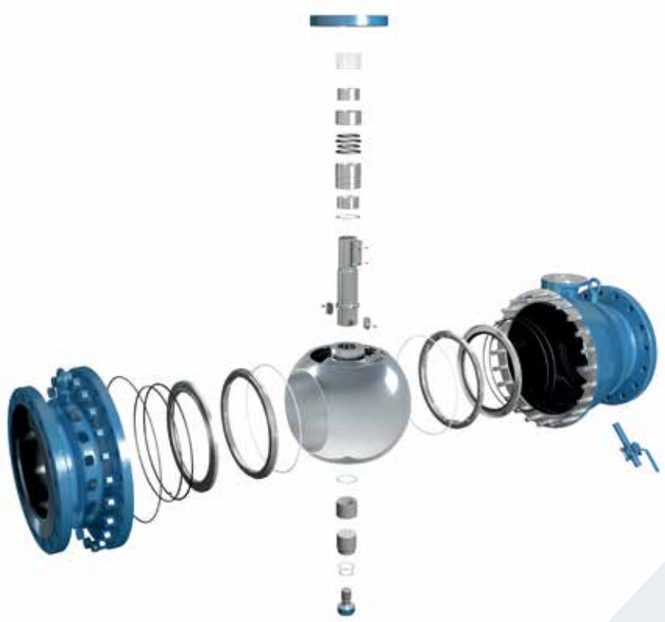
The district heating reaches the consumer directly via the underground, insulated pipe system. A pipe connecting the home or business is laid from the main pipe to the end user's building. Buildings connected to the district heating network no longer require fuel-fired heating systems. End users can be private homes, public buildings or commercial or industrial businesses.

VALVES

KLINGER BALLOSTAR BALL VALVE KHSVI VVS

KHSVI VVS ball valves keep up with tightening requirements and are assured to meet future standards with regard to tensile, compressive and bending stress today. The KLINGER Ballostar KHSVI VVS ball valves, certified in accordance with EN 488:2019, are ideally suited for underground installations thanks to their robust, pre-insulated design. The unique sealing system is another feature of the Ballostar KHSVI VVS.

The test and drain valve welded to the ball valve housing allows the pressure to be relieved while the ball valve is closed. The key benefit of this feature is that the Ballostar KHSVI VVS valve can be leak-tested at any time without having to open the pipeline. These ball valves have a fully welded body with two welding ends and are fit for many different applications such as underground district heating trenches and buried pipelines.



FIRE SAFETY

The ball valve can be used for fire-safe applications and is certified in accordance with API Standard 607 and EN ISO 10497 by Lloyd's Register and TÜV Austria, respectively.

DOUBLE BLOCK & BLEED

With the DBB function you only need one KLINGER Ballostar KHI ball valve instead of two separate valves. This alternative solution not only saves time and money, but is especially useful for installations with limited space.

GAS APPROVAL

ÖVGW certificate to display the ÖVGW "Gas" quality seal on the ball valves GKHI, GKHSVI and GKHSVI VVS, DN 150 - 800.

TA-LUFT (VDI 2440)

The KLINGER Ballostar KHI valve remains significantly below the prescribed emission limits for keeping the air clean. Certified emissions testing pursuant to VDI 2440 of Ballostar KHI / KHSVI ball valves at temperatures < 250 °C.

APPLICATION WITH GASEOUS OXYGEN

The BAM Berlin has granted its approval for the Ballostar KHI ball valve series in application scenarios with gaseous oxygen at operating pressures of up to 16 bar and operating temperatures of up to 60 °C.

KLINGER BALLOSTAR BALL VALVE KHI

BENEFITS / PROPERTIES

2-piece body, flanged on both ends. The ball valve housing also comes with a test and drain valve, which enables the pressure to be relieved without having to open the pipeline when the ball valve is closed. This is a significant advantage as it allows for leak testing at any time.

SPECIFICATIONS

- Maintenance-free
- Fire-safe
- "TA-Luft"
- Double block & bleed
- Oxygen, gas and vacuum version
- Certified in accordance with EN 488:2019
- High temperature version up to +260 °C

KLINGER BALLOSTAR BALL VALVE KHA

BENEFITS / PROPERTIES

A wide range of types due to the modular design system characterizes these multi-talented 3-piece ball valves. Three kinds of connections, nine types of sealing elements and nine stuffing box designs ensure that KLINGER Ballostar KHA ball valves are suitable for many different operating conditions and applications.

SPECIFICATIONS

- Fire-safe
- Improved corrosion protection
- Antistatic as standard
- "TA-Luft"
- Oxygen version
- Emissions testing ISO 15848

KLINGER PISTON VALVE KVN

BENEFITS / PROPERTIES

KLINGER KVN series piston valve with hand wheel for flow media such as steam, water and standard gases. Piston valves can be used as control or shutoff valves. The piston valve has a unique graphite seat system which allows its use in contaminated media replacing globe valves, for example. Valve connection with welding ends, threads and flanges.

SPECIFICATIONS

- Fire-safe
- Oxygen version
- "TA Luft"
- Regulation design
- Emissions testing ISO 15848

Valves are made of stainless steel, carbon-steel and cast iron with pressure class PN16-63 and ANSI class 150/300.

KLINGER BALLOSTAR BALL VALVE KHE

BENEFITS / PROPERTIES

2-piece body, flanged ball valve optimized for the process industry. Due to the 2-piece body design, the risk of external leakage is reduced, as there is just one sealing area between the body and flanged end. KLINGER manufactures an entire range of ball valves in EN standard (short pattern) and in ANSI standard (CL150).

SPECIFICATIONS

- Antistatic as standard
- Fire-safe
- "TA-Luft"
- Leakage rate A
- Oxygen service
- Natural gas service
- Gas distribution systems with up to 16 bar

KLINGER MONOBALL BALL VALVE KHO

BENEFITS / PROPERTIES

Monoball KHO valves are fully welded ball valves and have been successfully used in the field of district energy and industrial technology for more than 30 years. Continuing this success, we have elevated the Monoball valve series to the next technological level. Durability, functionality, maintenance-free operation and user-friendliness were the top priorities during development.

SPECIFICATIONS

The permanently elastic, maintenance-free sealing system comprises corrosion-resistant, pre-stressed stainless steel Belleville washers as well as graphite-reinforced PTFE sealing rings. This ensures reliable, bidirectional tightness.

KLINGER MONOBALL BALL VALVE KHO ISO

BENEFITS / PROPERTIES

The Monoball KHO is a fully welded ball valve and has been successfully used in the fields of district energy and industrial technology for more than 30 years. From pipe size DN80 to DN125, the Monoball KHO with welding or flanged ends is also available with a bare stem, with ISO TOP flange according ISO5211 for subsequent installation of mechanical gears or actuators.

SPECIFICATIONS

The permanently elastic, maintenance-free sealing system comprises corrosion-resistant, pre-stressed stainless steel Belleville washers as well as graphite-reinforced PTFE sealing rings.

KLINGER BALL VALVE KHD-FW31

BENEFITS / PROPERTIES

Fully welded ball valve, PN25, DN15-DN50, full bore or reduced bore with threaded ends. Isolation valve for district heating, cooling and industrial purposes.

SPECIFICATIONS

- Fully welded design prevents leakage
- Lightweight and compact
- Easy to install and insulate
- Long service life, maintenance-free
- Anti-blowout stem for safety
- Multiple-seal design ensures tightness

KLINGER BALL VALVE KHD-FW31

BENEFITS / PROPERTIES

Fully welded ball valve, PN25, DN15-DN150, full bore or reduced bore with welding ends. Isolation valve for district heating, cooling and industrial purposes.

SPECIFICATIONS

- Fully welded design prevents leakage
- Lightweight and compact
- Easy to install and insulate
- Long service life, maintenance-free
- Anti-blowout stem for safety
- Multiple-seal design ensures tightness

KLINGER BALL VALVE KHD-FW35

BENEFITS / PROPERTIES

Fully welded ball valve, PN25, DN200-DN1400, full bore or reduced bore with welding ends. Isolation valve for district heating, cooling and industrial purposes..

SPECIFICATIONS

- Fully welded design prevents leakage
- Lightweight and compact
- Easy to install and insulate
- Long service life, maintenance-free
- Anti-blowout stem for safety
- Multiple-seal design ensures tightness

KLINGER BALL VALVE KHD-FW35B

BENEFITS / PROPERTIES

Fully welded balance valve with dual function.

SPECIFICATIONS

- Dual shut-off and balancing functions
- Fully welded design prevents leakage
- Lightweight and compact
- Easy to install and insulate
- Long service life, maintenance-free
- Anti-blowout stem for safety
- Multiple-seal design ensures tightness

KLINGER BUTTERFLY VALVE KKD-FW

BENEFITS / PROPERTIES

Triple-eccentric butterfly valves with flexible metal seal are excellent as shut-off or control valves for the use in district heating, cooling and a wide range of applications. Made of high-quality materials, the butterfly valve follows design features triple offset geometry with state of art U-type flexible metal sealing offering excellent shut-off characteristics and is suitable for a wide range of temperatures.

SPECIFICATIONS

Available in welded and flanged end connection with sizes up to DN1400, KKD-FW83 valves are lightweight, easy to install, maintenance-free, and cost-effective. Fully welded construction eliminates leakage and makes it easy to install and insulate.

KLINGER AB COCK MABI

BENEFITS / PROPERTIES

AB cocks are robust shutoff cocks with a simple design specifically for measurement technology. Due to their reliability and economic efficiency, they are used by the millions. The MABI series is a pressure gauge stop cock as a cylinder cock, sealed by an elastic packing sleeve that can be retightened. Steel or stainless steel body, handle made of GTS 35, cock plug of stainless steel.

SPECIFICATIONS

90-degree operation ensures immediate opening and closing procedure. Hand operation enables throttling, thus use in blow-down pipes possible. Simple design ensures high operating safety and long-term durability. No jamming caused by corrosion.

KLINGER FLOW INDICATOR

Intergal flange cast-steel flow indicators with KLINGER original borosilicate glass. The materials used as well as refined production and product certification make these indicators the most reliable, top-quality products. A very simple element that thanks to KLINGER has become strategic for every chemical, petrochemical and steam plants, where process evolution is to be constantly checked in a secure way.

SPECIFICATIONS

- Material: Built in WCB or CF8M
- Max. pressure: 50 bar
- Max. temperature: -273 °C / 300 °C
- Connections: Flanged, bolted BSP and NPT, or SW and BW
- Compliance with PED and ATEX Certificate

KLINGER STRAINER KFD

KFD strainer effectively removes solid particles from fluids and protects downstream equipment such as pumps from contamination. For district energy, strainer removes foreign particles like welding beads, sand, swarf etc. carried along by heating / cooling medium. The filter can be accessed easily for cleaning or replacement by loosening and removing the plug at the end of the filter.

SPECIFICATIONS

- Available in carbon-steel and stainless steel
- DN15-600 (1/2"-24") as standard
- Larger sizes may be available on request
- Pressure rating: PN16/25/40, Class 150/300/600 as standard
- Max. temperature up to 425 °C with SS304+graphite gasket
- Various mesh sizes available

PRE-INSULATED SOLUTIONS

KLINGER MONOBALL KHO-KMR INSULATED BALL VALVE

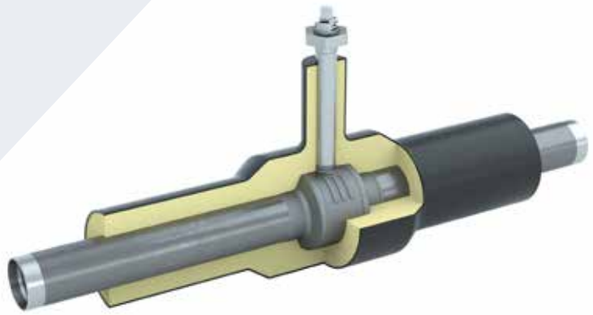
BENEFITS / PROPERTIES

Fully welded ball valve model KHO-KMR, PN25 with fully welded stem extension with HDPE insulation jacket*. Certified and tested according to EN488:2019 and EHP003. Operation via square.

Different pipe sizes can be operated with the same T-handle wrench.

SPECIFICATIONS

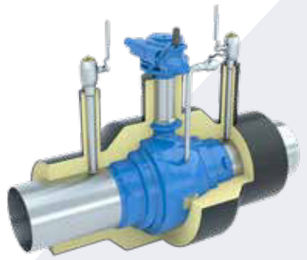
- DN25 to DN250, PN25, body 1.0619
- Temperature range: -10 °C to +200 °C
- Body extension made of P235GH, welding seams x-ray-tested
- HDPE insulation jacket, insulation “row 2” incl. integrated alarm system*
- AUMA gear with attached angle gear “GK” with square end VK27/32
- Solid stem made of stainless steel



WHAT’S THE DIFFERENCE?

Dimension / DN	15	125	150	125	1000	
Ballostar KHI			Trunnion mounted			Chrome-hardened ball special flex sealing element all welds “welded through”
Monoball KHO	Floating ball					Stainless steel ball spring loaded sealing element all welds “welded through”
	Full or reduced					

*visualized for showing purposes



KLINGER BALLOSTAR KHSVI VVS INSULATED

BENEFITS / PROPERTIES

Fully welded ball valve model KHSVI-VVS, PN25 with fully welded stem extension with HDPE insulation jacket*. Certified and tested according to EN488:2019 and EHP003. Equipped with top-mounted mechanical gear with angle gear, operated via square end.

Different pipe sizes can be operated with the same T-handle wrench.

SPECIFICATIONS

- DN150 to DN800, PN25, body 1.0619
- Temperature range: -10 °C to +200 °C
- Body extension made of P235GH, welding seams x-ray-tested. HDPE insulation jacket, insulation “row 2” incl. integrated alarm system*
- AUMA gear with attached angle gear “GK” with square end VK27/32

KLINGER BALLOSTAR KHSVI VVS WITH DRAIN AND VENT

BENEFITS / PROPERTIES

Fully welded ball valve model KHSVI-VVS, PN25 with fully welded stem extension, drain/test cock, HDPE insulation jacket* and 2 service valves. Equipped with top-mounted mechanical gear with angle gear, operated via square end. Certified and tested according to EN488:2019 and EHP003.

Different pipe sizes can be operated with the same T-handle wrench. The drain/test cock enables draining the cavity and checking of the upstream seat.

SPECIFICATIONS

- DN150 to DN800, PN25, body 1.0619.
- Temperature range: -10 °C to +200 °C
- Body extension made of P235GH, welding seams x-ray-tested. HDPE insulation jacket, insulation “row 2” incl. integrated alarm system*. AUMA gear with attached angle gear “GK” with square end VK27/32
- 1 vertical drain/test cock model KHO in stainless steel
- 2 drain/vent valves model KHO in stainless steel

KLINGER BALLOSTAR KHSVI VVS SIDE-MOUNTED GEAR

BENEFITS / PROPERTIES

Fully welded ball valve model KHSVI-VVS, PN25 with HDPE insulation jacket* and 2 service valves. Certified and tested according to EN488:2019 and EHP003. Equipped with side-mounted mechanical gear and adjustable gear extension. Different pipe sizes can be operated with the same T-handle wrench. The adjustable gear extension can be shortened on site to the required length.

SPECIFICATIONS

- DN150 to DN600, PN25, body 1.0619. Temperature range: -10 °C to +200 °C
- Body extension made of P235GH, welding seams x-ray-tested. HDPE insulation jacket, insulation “row 2” incl. integrated alarm system*
- Mechanical ROTORK gear and 2,000 mm gear extension with square end VK27/32
- 2 drain/vent valves model KHO in stainless steel

KLINGER MONOBALL DN25 – DN125 KHO-U

BENEFITS / PROPERTIES

For use in buried hot-water networks, KLINGER Monoball KHO ball valves can also be provided with elongated welding end extensions on both sides of the valve for an overall length of 1,500 mm and an extended operating shaft prepared for installing different HDPE insulation jackets. Available from pipe size DN25 to 125 in full and reduced bore PN40.

SPECIFICATIONS

- Maintenance-free
- Multi-layer, durable operating stem seal
- Certified according to EN 488:2019 and EHP003
- Meets the requirements of the AGFW worksheet FW 401 – Part 5
- Elastically pre-stressed sealing elements with stainless steel sinuous springs
- Long heat-insulating shaft, switch shaft made of stainless steel
- High degree of resilience against pipework forces
- Supports pressurization on both sides

The permanently elastic, maintenance-free sealing system comprises corrosion-resistant, pre-stressed stainless steel Belleville washers as well as graphite-reinforced PTFE sealing rings.

KLINGER MONOBALL DN150 – DN250 KHO-U

BENEFITS / PROPERTIES

For use in buried hot-water networks, KLINGER Monoball KHO ball valves can also be provided with elongated welding end extensions on both sides of the valve for an overall length of 2,000 mm and an extended operating shaft prepared for applying of different HDPE insulation jackets. Available from pipe size DN150 to 250 in full bore PN25.

SPECIFICATIONS

- Maintenance-free
- Multi-layer, durable operating stem seal
- Certified according to EN 488:2019 and EHP003
- Meets the requirements of the AGFW worksheet FW 401 – Part 5
- Elastically pre-stressed sealing elements with stainless steel sinuous springs
- Long heat-insulating shaft, switch shaft made of stainless steel
- High degree of resilience against pipework forces
- Supports pressurization on both sides

The permanently elastic, maintenance-free sealing system comprises corrosion-resistant, pre-stressed stainless steel Belleville washers as well as graphite-reinforced PTFE sealing rings.

KLINGER DIE ERSTE KHD-FWU31

BENEFITS / PROPERTIES

Fully welded underground ball valve. Corresponds to the base model, but has a long stem for underground application.

SPECIFICATIONS

- Various stem extension lengths available, also customizable
- Insulation valve for district heating, cooling and industrial purposes
- Fully welded design prevents leakage
- Lightweight and compact
- Easy to install and insulate
- Long service life, maintenance-free
- Anti-blowout stem for safety
- Multiple-seal design ensures tightness

PRE-INSULATED EQUIPMENT

KLINGER MONOBALL KHO PRE-INSULATED BALL VALVES EQUIPMENT

Nowhere else is construction and quality as important as for buried fittings because of the strong forces involved due to restricted expansion. Replacement would be very expensive. That is why KLINGER offers pre-insulated equipment for the most challenging conditions in the district heating sector.

In addition to the ball valve models KHSVI-VVS and KHO-U for underground installation, a wide range of additional equipment is available. These accessories include stem extensions for the KHO-U ball valve model in various designs and lengths that can be retrofitted to the valve and adapted to the required length. Also available are KHO branching valves for termination of a construction section that will be continued at a later time or KHO hot tapping valves for expanding the pipeline network in ongoing operation under temperature and pressure. Stainless steel KHO drain and vent valves with multiple connection types fitted with a welded-on carbon steel pipe are a perfect solution for different applications where pipelines or valve systems have to be purged. The mobile KLINGER change gear with various adapters enables quick and easy operation of several valves with one gearbox.

KLINGER MONOBALL KHO STEM EXTENSION SMALL DN 25-65

BENEFITS / PROPERTIES

KLINGER offers extension adapters, which enable the adaptation of the already insulated and installed valves to the actual depth by means of simple reduction at the construction site. The underground extensions, which can be reduced in length, are available in the following lengths: 1 m, 1.5 m and 2 m, in three different versions. Depending on the nominal width, they can be operated with a T-handle wrench.

SPECIFICATIONS

The small version of the operating stem extension is used for DN25-65. It is available in the lengths 1 m, 1.5 m and 2 m and is equipped with a round plastic pipe.

KLINGER MONOBALL KHO STEM EXTENSION MEDIUM DN 80-125

BENEFITS / PROPERTIES

KLINGER offers extension adapters, which enable the adaptation of the already insulated and installed valves to the actual depth by means of simple reduction at the construction site. The underground extensions, which can be reduced in length, are available in three different versions. Depending on the nominal width, they can be operated with a mobile and practical mounted gearbox.

SPECIFICATIONS

The medium version of the operating stem extension is used for DN80-125. It is available in the lengths 1 m, 1.5 m and 2 m and is equipped with a square galvanized pipe.

KLINGER MONOBALL KHO STEM EXTENSION LARGE DN 150-250

BENEFITS / PROPERTIES

KLINGER offers extension adapters, which enable the adaptation of the already insulated and installed valves to the actual depth by means of simple reduction at the construction site. The underground extensions, which can be reduced in length, are available in three different versions. Depending on the nominal width, they can be operated either with a T-handle wrench or with a mobile and practical, mounted gearbox.

SPECIFICATIONS

The large version of the operating stem extension is used for DN150-250. The available lengths for DN150-200 are 1 m, 1.5 m and 2 m. For DN250 it is only available in the lengths 1 m and 1.5 m. It is equipped with a square galvanized pipe.

KLINGER MONOBALL KHO BRANCHING VALVE

BENEFITS / PROPERTIES

The Monoball KHO branching valve is used to terminate a construction section that will be continued at a later time. Welded-in as an end piece, the existing pipe can be continued at any time without the pipeline having to be drained and taken out of service. Branching ball valves are welded into the network in the closed position like a piece of pipe.

SPECIFICATIONS

Valve requires no servicing and is easy to install, resulting in a long service life with low operating cost. Easy to insulate thanks to long, circular housing. The design of the valve body does not use any heavy and unreliable cast components. Easy to retrofit actuating equipment.

- DN20 to DN100 and DN25R20 to DN125R100
- Fully welded ball valve with full or reduced bore
- Welding ends in accordance with AGFW worksheet FW 401 – Part 5
- Housing design in accordance with EN488
- Spring-loaded sealing element
- Length according to manufacturer standard

KLINGER MONOBALL KHO HOT TAPPING VALVE

BENEFITS / PROPERTIES

The Monoball KHO hot tapping valve is suitable for non-abrasive media such as district heat. Used for expanding the pipeline network in ongoing operation under temperature and pressure. This allows new customers to be connected to the existing pipeline network at full operating pressure and temperature. There is no need to empty, fill and vent the existing pipe network: This means significant time and cost savings.

SPECIFICATIONS

Valve requires no servicing and is easy to install, resulting in a long service life with low operating cost. Easy to insulate thanks to long, circular stem housing. The design of the valve body does not use any heavy and unreliable cast components. Easy to retrofit actuating equipment.

- DN20 to DN100
- Tapping system Hütz+Baumgarten
- Fully welded ball valve with full bore
- Welding ends according to manufacturer standard
- Housing design in accordance with EN488
- Spring-loaded sealing element
- Can also be used as a shut-off valve after hot tapping
- Hot tapping operation is safe, simple and easy

KLINGER MONOBALL KHO DRAIN & VENT VALVE

BENEFITS / PROPERTIES

The main component of every KLINGER drain and vent valve is a fully welded, maintenance-free and durable Monoball KHO ball valve made of rust- and acid-proof stainless steel. The ball valve is fitted with a welded-on carbon steel pipe at the factory by default. Alternatively, multiple connection types such as a threaded sleeve, bolted end, welding end or flange can be selected.

SPECIFICATIONS

Valve is pre-insulated in accordance with series 1 as standard. If desired, the valve can additionally be fitted with a leak detection cable and/or a special cable outlet.

Triple sealing on the uncoated ball valve body, comprising a heat-shrinking end cap, a special bitumen casting compound and a pivot bolt clamp made from rust- and acid-proof stainless steel, guarantees safe and long-term protection against moisture penetration.

- DN25R20
- DN50R40
- DN80

KLINGER CHANGE GEAR

BENEFITS / PROPERTIES

Relatively light and compact planetary gear for attaching and operating DN100 to DN300. Thanks to the large gear ratio of up to 46:1, switching even the largest nominal widths is easy. The gear boxes are delivered complete with gear ratchet in a handy little leather case.

ACTUATED SOLUTIONS

BALL VALVE WITH ELECTRIC ACTUATOR

SELECTION

In the district energy industry, ball valves are normally controlled with electric actuators because of the availability of power. Ball valves are the most common type of valves for handling steam or district heating water. The low pressure drop and high Kv value of full-bore ball valves offers big advantages in operation and in terms of total cost of ownership.

SPECIFICATIONS

Usually the smaller pipe sizes (DN15 to DN125) can be equipped with V-port balls with different ports (10°, 30°, 60° and slotted port) that produce different flow characteristics. Pipe sizes larger than DN125 can use orifice plates with a defined port for control applications.

All versions of the control ball valves can be combined with electric control actuators or pneumatic actuators with positioners to control the flow.

GEARBOX *

BENEFITS / PROPERTIES

One of the simplest ways to operate a valve is by using mechanical worm gears operated by a hand wheel. Choice of standard, high-temperature, low-temperature and ATEX versions. With the appropriate design, retrofitting of electric actuators is possible. Mechanical gears can be a minimum requirement for larger pipe sizes in particular where the valves can no longer be operated with a hand lever or hand wheel.

SPECIFICATIONS

Mechanical worm gears are available in a large torque range. Some gear manufacturers provide a minimum ingress protection rating of IP68. In addition, the housing offers a high level of corrosion protection thanks to powder coating. The selection of the gear depends on the operating torque of the valve used and the differential pressure.

ELECTRIC ACTUATORS *

BENEFITS / PROPERTIES

Electric actuators come in quarter-turn or multiple-turn models. They are slower than pneumatic actuators. Their biggest advantage over pneumatic actuators is their power. Bigger valves need strong forces to operate and these forces can be generated by electric actuators in combination with gear units.

SPECIFICATIONS

Most actuators use electric power. Since there are different standards for electric power in different countries, the standard has to be known before selecting the actuator for the valve. Products are available for ATEX areas and the most known data transfer protocols are supported by actuators from different suppliers.

* Image: copyrights AUMA Riester GmbH & Co. KG

KHA WITH ELECTRIC ACTUATOR

BENEFITS / PROPERTIES

Electric actuators can be used for the automation of the KLINGER Ballostar KHA ball valve. The exact determination of the torque saves investment and follow-up costs. The actuator should therefore not be selected in accordance with the maximum possible options in mind, but rather according to actual needs. In this context the necessary pressure differential determines the torque of the required actuator.

SPECIFICATIONS

Most actuators use electric power. Since there are different standards for electric power in different countries, the standard has to be known before selecting the actuator for the valve. Products are available for ATEX areas and the most known data transfer protocols are supported by actuators from different suppliers.

V-PORT BALL

BENEFITS / PROPERTIES

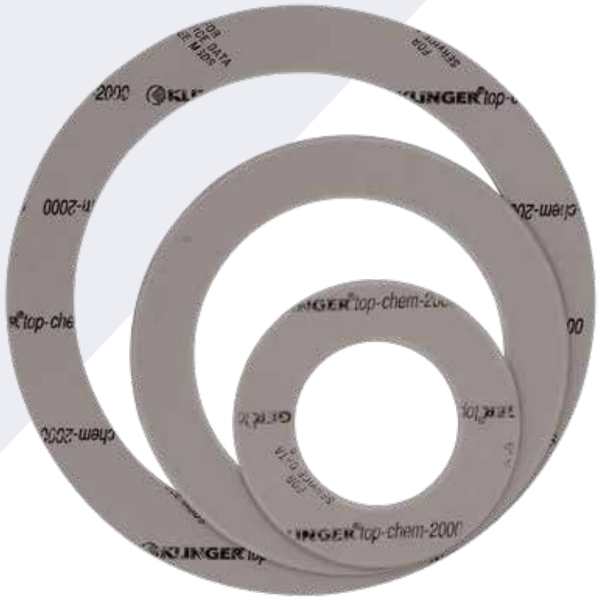
For flow control and regulating applications, the ball valve model KHA is available with different V-port balls. This V-cut gives this V-port ball valve its name. The size of the V-port regulates the flow rate – from full bore to segmented 10°, 30° and 60° as well as slotted.

SPECIFICATIONS

- Different characteristic curves due to different ball notches
- Applicable for clear media without solids
- Easily combinable with pneumatic and electric control actuators
- V-port ball versions are available with 10°, 30° and 60° angles as well as slotted
- The V-port balls with different notches are available for the entire size range of the ball valve model KHA
- Soft sealing up to 230 °C with KFC sealing rings in normal operation
- To maintain the leakage rate A, the valve may only cool down when the ball is fully open or closed – not in the control position

GASKETS

KLINGER TOPCHEM 2000



BENEFITS / PROPERTIES

- The perfect universal gasket for heavy-duty applications
- Manage high temperatures up to 260 °C in combination with high pressure
- The only PTFE gasket with API 6FA fire-safe certificate
- Excellent for all types of aggressive media
- FDA certificate of conformity for food & pharma
- Retained tension force = retorquing not required
- No aging
- No cold flow
- Extreme gas tightness

SPECIFICATIONS

Modified PTFE filled with silicon carbide.
Dimensions of standard sheet: 1,500 x 1,500 mm
Thickness: 1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm
Tolerances: Thickness ± 10%, length ± 50 mm, width ± 50 mm
Can be supplied as ring seal gaskets in DIN, ANSI and user-defined dimensions.

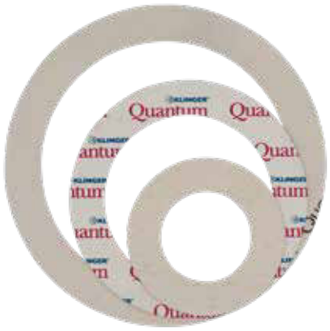
KLINGER TOPCHEM 2003

BENEFITS / PROPERTIES

- Suitable for low temperatures and large sealing surfaces
- Excellent for all types of aggressive media
- FDA certificate of conformity for food & pharma
- Retained tension force = retorquing not required
- No aging
- Excellent adaption to poor flange surfaces
- High gas tightness at low torque

SPECIFICATIONS

Modified PTFE filled with hollow glass microspheres. Dimensions of standard sheet: 1,500 x 1,500 mm. Thickness: 1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm. Tolerances: Thickness ± 10%, length ± 50 mm, width ± 50 mm. Can be supplied as ring seal gaskets in DIN, ANSI, and user-defined dimensions.



KLINGER QUANTUM

BENEFITS / PROPERTIES

KLINGER Quantum is the first fiber-reinforced gasket material in the world that exclusively uses HNBR as the binder. Together with a unique production process developed for this purpose, this material can be used at higher temperatures and with a much broader range of media than other fiber-reinforced gasket materials available on the market.

BENEFITS / PROPERTIES

- Handles high temperatures without embrittlement
- Increased service life
- Retained flexibility
- High density at high temperatures
- Suitable for a wide range of media

KLINGERSIL C-4400

BENEFITS / PROPERTIES

- Universal gasket for general use up to 150 °C
- Excellent price/performance ratio
- Very good resistance to refrigerants
- Does not stick to the flange

SPECIFICATIONS

Aramid fibers bonded with NBR.
Dimensions of standard sheet: 1,500 x 2,000 mm
Thickness: 0.5 mm, 1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm.
Tolerances: Thickness ± 10%, length ± 50 mm, width ± 50 mm. Can also be supplied as ring seal gaskets in DIN, ANSI, and user-defined dimensions.

KLINGER PSM-AS

BENEFITS / PROPERTIES

- Handles 450 °C in continuous operation in combination with high pressure
- Suitable for worn flange surfaces
- Excellent in steam applications
- Does not stick to the flange
- Contains no adhesive
- Perforated steel insert very resistant to exhaust gases
- Also available as TA-Luft-approved in type TSM

SPECIFICATIONS

Graphite with perforated steel insert, AS non-stick surface. Purity: 98%, alt. 99.82%. Density according to customer specification. Dimensions of standard sheet: 1,000 x 1,000 mm. Thickness: 0.6 mm, 0.8 mm, 1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm. Tolerances: Thickness ± 5%, length ± 5 mm, width ± 5 mm. Can be supplied as ring seal gaskets in DIN, ANSI, and user-defined dimensions.

KLINGER GRAPHITE LAMINATE MLX

BENEFITS / PROPERTIES

- Multi-layer structure
- Integrated non-stick properties
- High temperature resistance
- Handles high compressive stresses
- Suitable for high internal pressures
- Excellent blow-out resistance

SPECIFICATIONS

Expanded graphite with 0.05 mm thick smooth stainless steel foils.
Dimensions of standard sheet: 1,500 x 1,500 mm.
Thickness: 1.0 mm, 2.0 mm, 3.0 mm. Tolerances: Thickness: ±5%, length: ±5 mm, width: ±5 mm

KLINGER MILAM PSS

BENEFITS / PROPERTIES

- High-temperature materials up to 900 °C in continuous operation
- Suitable for applications such as exhaust pipes, turbines, turbochargers and fuel lines
- Unparalleled resistance to dry heat
- NOTE! Not a high-pressure gasket, max. 5 bar

SPECIFICATIONS

Mica with stainless steel insert, AS self-releasing surfaces. Dimensions of standard sheet: 1,200 x 1,000 mm. Thickness: 1.0 mm, 2.0 mm, 3.0 mm. Tolerances: 1.0 mm. Thickness ±5%, 2.0 mm thickness ±10%, 3.0 mm. Thickness ±10%, length: ±5%, width: ±5%. Can also be supplied as ring seal gaskets in DIN, ANSI, and user-defined dimensions.

KLINGER MAXIFLEX

BENEFITS / PROPERTIES

- Highly suitable for and common in refinery applications
- Handles 550 °C in continuous operation
- Suitable for applications with pressures up to 160 bar
- Handles large pressure fluctuations
- Multiple filling materials and metals to choose from, standard material is graphite

SPECIFICATIONS

Spiral wound gasket with filling materials graphite (550 °C), PTFE (260 °C), Nonas (350 °C), mica (1,000 °C) or mica & graphite (900 °C). The standard design features the inner ring and winding in 316L stainless steel/graphite and the outer ring in carbon steel. Dimensions: Can be supplied as ring seal gaskets in DIN, ANSI, and user-defined dimensions.

KLINGERSIL C-4430

BENEFITS / PROPERTIES

- Universal gasket for general use up to 250 °C
- Very good pressure stability
- Highly suitable for steam and hot water
- Does not stick to the flange

SPECIFICATIONS

Synthetic material and fiberglass bonded with NBR, 3xA self-releasing surfaces.
Dimensions of standard sheet: 1,500 x 2,000 mm
Thickness: 0.5 mm, 1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm
Tolerances: Thickness ± 10%, length ± 50 mm, width ± 50 mm. Can also be supplied as ring seal gaskets in DIN, ANSI, and user-defined dimensions.

KLINGER KGS GII

BENEFITS / PROPERTIES

- Suitable for temperatures up to 200 °C (valid for FKM)
- Excellent for applications with flanges that have low surface pressure, poor and non-parallel flange surfaces
- Suitable for water, gases, waste water, chemicals, etc.
- Common application areas are, e.g. sewage treatment plants, waterworks, biogas plants and chemicals industry
- Stable gaskets facilitate installation in vertical flanges or systems operating under negative pressure.
- Highly suitable for plastic and fiberglass flanges
- Available in designs with approval for gas (DIN-DVGW) and drinking water (KTW)

SPECIFICATIONS

Elastomer with steel core. Available elastomers: NR, NBR, EPDM, CSM, FKM. Available in DIN dimensions DN15 to DN2000 and pressure classes PN6 to PN40.

EXPANSION JOINTS

CENTRAL HEATING SYSTEM TYPE EXPANSION JOINT

These types of expansion joints are excellent for large displacements inside buildings. They have an outer cover for protection against external damage to the bellows, and for aesthetic reasons. In addition, they have an inner sleeve for a smooth internal medium flow.

Standard material for bellows is 316/316L and balancer material is carbon-steel painted white. Also available in all stainless steel. They come with threaded connections up to DN65 and socket welding connections larger than DN65.

Can be axially pre-set for movements. Inner sleeve minimizes pressure loss and “whistling” due to flow. Installation is easy and quick. Typically one unit is sufficient for a building 30 meters tall, about the height of a ten-story residential building.

SPECIFICATIONS

- Size: DN 25–1000 (please check with us for other sizes)
- Design pressure: up to 16 barG
- Design temperature: up to 400 °C
- Bellows material: AISI 304, 316, 321
- Balancer material: carbon-steel, stainless steel, custom
- Quick connection

APPLICATIONS

- Central heating systems of buildings
- Water pipe systems of large complexes such as shopping centers, hospitals, airports
- Heating and ventilation systems (HVAC)
- Geothermal applications

These types of expansion joints find safe application in many industries.

KB TYPE

BENEFITS / PROPERTIES

Welded expansion joints come with carbon-steel or stainless steel pipe connections. While able to compensate movements in any direction, this model is mainly used for axial movements. If a great magnitude of lateral movement is required, a universal type may be more suitable. This type of expansion joint can be fitted with limit/tie rods, liners, covers, hinges or gimbals.

SPECIFICATIONS

- Size: DN 25–1000 (please check with us for other sizes)
- Design pressure: up to 16 barG
- Design temperature: up to 400 °C
- Bellows material: AISI 304, 316, 321 or nickel alloys

SF TYPE (FIXED FLANGE)

BENEFITS / PROPERTIES

Fixed flange expansion joints come with fixed welded carbon-steel or stainless steel flanges (EN, ASME or as required). While able to compensate movements in any direction, this type is mainly used for axial movements. If a great magnitude of lateral movement is required, a universal type may be more suitable. This type of expansion joint can be fitted with limit/tie rods, liners, covers, hinges or gimbals.

SPECIFICATIONS

- Size: DN 25–1000 (please check with us for other sizes)
- Design pressure: up to 16 barG
- Design temperature: up to 400 °C
- Bellows material: AISI 304, 316, 321 or nickel alloys
- Flange material: carbon-steel, stainless steel, custom
- Quick connection

DF TYPE (FLOATING FLANGE)

BENEFITS / PROPERTIES

Floating flange expansion joints come with carbon-steel or stainless steel flanges (EN, ASME or as required). While able to compensate movements in any direction, this type is mainly used for axial movements. If lateral movement is required, a universal type may be more suitable. Available for exhaust gas, liquid media and steam. Bellows are calculated in line with the latest EJMA standards.

SPECIFICATIONS

- Size: DN 25–1000 (please check with us for other sizes)
- Design pressure: up to 16 barG
- Design temperature: up to 400 °C
- Bellows material: AISI 304, 316, 321 or nickel alloys
- Flange material: carbon-steel, stainless steel, custom
- Quick connection

INSTRUMENTATION

KLINGER LEVEL GAUGES

BENEFITS / PROPERTIES

Can be used with water, liquids, liquefied gases and steam.

SPECIFICATIONS

» Good light/dark contrast gives a clear reading
» Can be supplied with both left- and right-hand control
» Displays can be rotated by 360 degrees
» Pressure class: indicates pressures up to 250 bar
» Design temperature: up to 400 °C

MAIN ADVANTAGES

» Direct view of the fluid level
» Suitable for steam applications
» No electronic signal, no fault
» Cheaper solution to check the fluid level
» Easy maintenance
» Very long life in service

KLINGER TRANSPARENT LEVEL GAUGE

BENEFITS / PROPERTIES

In this kind of level gauge, the medium is contained within two glasses whose surfaces are both smooth. The medium level can be easily observed looking through the glasses.

SPECIFICATIONS

» Built in carbon-steel, stainless steel and special materials on request
» Suitable for steam and process applications
» Design Temperature up to 400 °C
» Pressure up to 250 bar
» In order to improve visibility an illuminator can be mounted

KLINGER REFLEX LEVEL GAUGE

BENEFITS / PROPERTIES

Reflex level gauges allow the medium to be viewed through a reflex glass: the side of the glass which is exposed to the medium has a prismatic surface, while the other side is smooth. The medium level inside the level gauge is indicated as the result of the light refraction principle.

SPECIFICATIONS

» Built in carbon-steel, stainless steel and special materials on request
» Suitable for steam and process applications
» Design temperature up to 400 °C
» Pressure up to 400 bar

KLINGER BICOLOR GAUGE

BENEFITS / PROPERTIES

Bicolor level gauges are a variation of transparent level gauges and are mainly used to measure steam at very high pressures. These gauges feature two flat transparent glasses which, together with the gauge body, form the chamber containing the medium.

SPECIFICATIONS

» Manufactured from carbon-steel
» High-pressure steam applications only
» Design temperature up to 356 °C
» Pressure up to 225 bar

PRESSURE GAUGE

BENEFITS / PROPERTIES

Pressure gauges for monitoring all types of pressure in industrial applications. Delivered from stock with glycerin filling.

SPECIFICATIONS

» Dimensions Ø 63 mm, Ø 100 mm or Ø 160 mm
1.4301 (AISI 304)
» Wetted parts: Brass or stainless steel (AISI 316)
» Ranges: -1 bar – 1,600 bar according to EN 837-1
» Connection: Threads on bottom or back

KLINGER SMART MONITOR

BENEFITS / PROPERTIES

An energy-autarkic “Industry 4.0 LPWA Smart Monitoring System” with contemporary features enabled by “TEG Energy Harvesting”. Its benefits are the clear identification of faults challenging to replicate, a decrease in maintenance cost, expanded repair alternatives, overall improved resource efficiency, and data acquisition for future device optimizations.

SPECIFICATIONS

Uses the heat radiation and the flow energy harvested by a micro water turbine to wirelessly transmit telemetry data including temperature, pressure and flow rate to a server based on NB-IoT/LwM2M protocols. Data transfer via mobile phone app optionally available.

KLINGER MAGNETIC LEVEL GAUGE

BENEFITS / PROPERTIES

The KLINGER magnetic level gauges are particularly suitable for services where there are toxic or dangerous liquids or gases and when the following is required: immediate and safe response to level changes, perfect visibility, continuous indication of fluid level, local or remote display.

SPECIFICATIONS

» Manufactured from stainless steel, or special materials by request
» Suitable for steam and process applications
» Design temperature up to 400 °C
» Pressure up to 312 bar
» Suitable for toxic and dangerous fluids
» Alarm switching facilities
» Very high length feasible

KLINGER MAGNETIC TRANSMITTER

BENEFITS / PROPERTIES

Suitable with all KLINGER magnetic level gauges.

SPECIFICATIONS

» Covers the entire reading range of the magnetic indicator
» 4-20 mA transmitter signal
» Voltage: 8-30 V
» Body in stainless steel
» Junction box in aluminum
» Pitch (resolution): 10 mm
» ATEX certification
» Fluid temperature range: -20 -170 °C
» Ambient temperature range: 10 - 85 °C
» Ingress protection rating: IP66

KLINGER MAGNETIC SWITCH

BENEFITS / PROPERTIES

Suitable with all KLINGER magnetic level gauges.

SPECIFICATIONS

» KMS Type: reed magnetic switch with enclosure in stainless steel, cable gland and triple core cable exit.
» KMSJB type: reed magnetic switch with enclosure in stainless steel and junction box with threaded entry
» KMSJB – EXD type: Reed magnetic with model KMS inserted in explosion-proof box with Ex d certificate with threaded entry.
» Switching capacity: max. 230 V AC/DC – 60 W/VA - 1A
» Fluid temperature range: -50/250 °C
» Ambient temperature range: -50/120 °C
» Ingress protection rating: IP67

PRODUCT OVERVIEW

Product and process mapping district heating

KLINGER trusted. worldwide.

PROCESS STEP	APPLICATIONS	VALVES	PRE-INSULATED SOLUTIONS	ACTUATED SOLUTIONS	GASKETS	EXPANSION JOINTS	INSTRUMENTATION
Heat generation	**Isolation of boilers** **Isolation of pumps** **Heating/cooling supply lines** **Drain/vent applications** **Heat generation** **Boilers** **Pumps** **Bypass applications** **Double block & bleed applications** **On/off applications heating/ cooling lines** **Hot tapping and branching** **Remote-controlled valves** **Steam applications**	Ball valves **Ballostar KHI/KHSVI/KHSVI-VVS** **Ballostar KHA** **Ballostar KHA-DBB** **Monoball KHO** **Ballostar KHE** **KHD-FW31** **KHD-FW35** **KHD-FW35B/FWS31/FWS35** Piston valves **KVN** Shut-off valves **AB Cock MABI** Butterfly valves **KKD-FW**		Ball valves **Ballostar KHI/KHSVI** with electric actuators **Ballostar KHSVI-VVS** with electric actuators **Ballostar KHA/KHA-DBB** with electric actuators Piston valves **KVN** with electric actuators	**PSM** **Quantum** **KLINGERSIL C-4430** **TopChem 2000**	**KB, SF and DF types**	Glass level gauges Magnetic level gauges Bicolor level gauges Strainer Magnetic switch Magnetic transmitter Pressure gauges
Primary network	**Chamber/gallery installation** **Hard-to-access areas** **Underground pipes** **Remote-controlled valves** **Drain/vent applications** **Hot tapping and branching**	Ball valves **Ballostar KHI/KHSVI/KHSVI-VVS** **Monoball KHO** **Ballostar KHA** **Ballostar KHA-DBB** Piston valves **KVN** Butterfly valves **KKD-FW**	**KHSVI-VVS** with gear/angle gear top installation, with or without drain or vent valves **KHSVI-VVS** with gear & gear extension side installation, with/without drain or vent valves **KHO-U** with extended dome **Monoball KHO** drain/vent valves hot tapping & branching valve **KHD-FW35, KHD-FW35B**	Ball valves **Ballostar KHI/KHSVI** with electric actuators **Ballostar KHSVI-VVS** with electric actuators **Ballostar KHA/KHA-DBB** with electric actuators	**Quantum**	**KB, SF and DF types**	
Underground installation	**Underground pipes** **Drain/vent applications**	Ball valves **Ballostar KHSVI-VVS isolated** **Monoball KHO-U** **KHD-FW31/FW35B**	**KHSVI-VVS** with gear/angle gear top installation, with or without drain or vent valves **KHSVI-VVS** with gear & gear extension side installation, with/without drain or vent valves **KHO-U** with extended dome **KHD-FWU31**			**DH types** **KB, SF and DF types**	

PRODUCT OVERVIEW

Product and process mapping district heating

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PROCESS STEP	APPLICATIONS	VALVES	PRE-INSULATED SOLUTIONS	ACTUATED SOLUTIONS	GASKETS	EXPANSION JOINTS	INSTRUMENTATION
Exchange stations	Pumps Heat exchangers On/off applications Drain/vent applications Pressure- and temperature-reducing control Double block & bleed applications Remote-controlled valves Steam applications	Ball valves **Ballostar KHI/KHSVI** **Ballostar KHA** **Ballostar KHA-DBB** **Ballostar KHE** **Monoball KHO** **KHD-FW31** Butterfly valves **KKD-FW** Piston valves **KVN** Shut-off valves **AB Cock MABI**		Ball valves **Ballostar KHA/KHA-DBB** with electric actuators Piston valve **KVN** with electric actuators	**Quantum** **TopChem 2000** **PSM** **KLINGERSIL C-4430**	**KB, SF and DF types**	Glass level gauges Magnetic level gauges Bicolor level gauges Strainer Magnetic switch Magnetic transmitter Pressure gauges
Secondary network	Chamber/gallery installation Hard-to-access areas Underground pipes Remote-controlled valves Drain/vent applications Hot tapping and branching Steam applications Double block & bleed applications	Ball valves **Ballostar KHA** **Ballostar KHA-DBB** **Monoball KHO** **Ballostar KHE** **KHD-FW31** Piston valves **KVN** Shut-off valves **AB Cock MABI** Butterfly valves **KKD-FW**	**KHO-U** with extended dome **Monoball KHO** drain/vent valves **KHD-FW31/FW35B** **KHD-FWU31**	Ball valves **Ballostar KHA/KHA-DBB** with electric actuators Piston valve **KVN** with electric actuators	**TopChem 2000** **PSM** **KLINGERSIL C-4430**	**DH types** **KB, SF and DF types**	Glass level gauges Magnetic level gauges Bicolor level gauges Strainer Magnetic switch Magnetic transmitter Pressure gauges
Substations	Pumps Heat exchangers On/off applications Drain/vent applications Double block & bleed applications Steam applications Remote-controlled valves	Ball valves **Ballostar KHA** **Ballostar KHA-DBB** **Monoball KHO** **Ballostar KHE** **KHD-FW31** **KHD** Piston valves **KVN** Shut-off valves **AB Cock MABI** Butterfly valves **KKD-FW** Globe valves **KAD**		Ball valves **Ballostar KHA/KHA-DBB** with electric actuators Piston valve **KVN** with electric actuators	**TopChem 2000** **PSM** **KLINGERSIL C-4430**	**KB, SF and DF types**	Glass level gauges Magnetic level gauges Bicolor level gauges Strainer Magnetic switch Magnetic transmitter Pressure gauges

PRODUCT OVERVIEW

Product and process mapping District Heating

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PROCESS STEP	APPLICATIONS	VALVES	PRE-INSULATED SOLUTIONS	ACTUATED SOLUTIONS	GASKETS	EXPANSION JOINTS	INSTRUMENTATION
End users	On/off applications	Ball valves **Ballostar KHA** **Ballostar KHA-DBB** **Monoball KHO** **Ballostar KHE** **KHD-FW31** Piston valves **KVN** Shut-off valves **AB Cock MABI**			**Quantum** **KLINGERSIL C-4430** **PSM** **KLINGERSIL C-4400**	**Smaller DH types** **KB, SF and DF types**	Smart Monitors Glass level gauges Magnetic level gauges Bicolor level gauges Strainer Magnetic switch Magnetic transmitter Pressure gauges
	Drain/vent applications						
	Double block & bleed applications						
	Steam applications						

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