KLINGER India

PRODUCTS

for Pulp & Paper plants

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KLINGER
trusted. worldwide.

KLINGER GROUP

Visionary by Tradition

KLINGER is the world's leading manufacturer and provider of industrial gaskets and valves.

Formed in 1886 as a family enterprise, the pioneers in gasket technology today present themselves as a globally active Group. Independent global manufacturing, sales and service companies offer unique know-how and competent on-site consultancy services from a total of 60 countries worldwide.

Our customers comprise leading companies belonging to the manufacturing industry, infrastructure, automotive, marine, oil & gas, the chemical industry, pulp & paper, the energy sector, food & beverage and the pharmaceutical industry. KLINGER employs around 2,500 people worldwide with total annual sales of around 520 million Euros.

520 MIO. ANNUAL SALES

520 million Euros are generated by the KLINGER Group per year.

2.500 EMPLOYEES

Our global workforce amounts to 2,500 persons worldwide.

80 COUNTRIES

to which the group has already exported.

18 PRODUCTION SITES

for seals, valves, instrumentation, expansion joints and hoses.

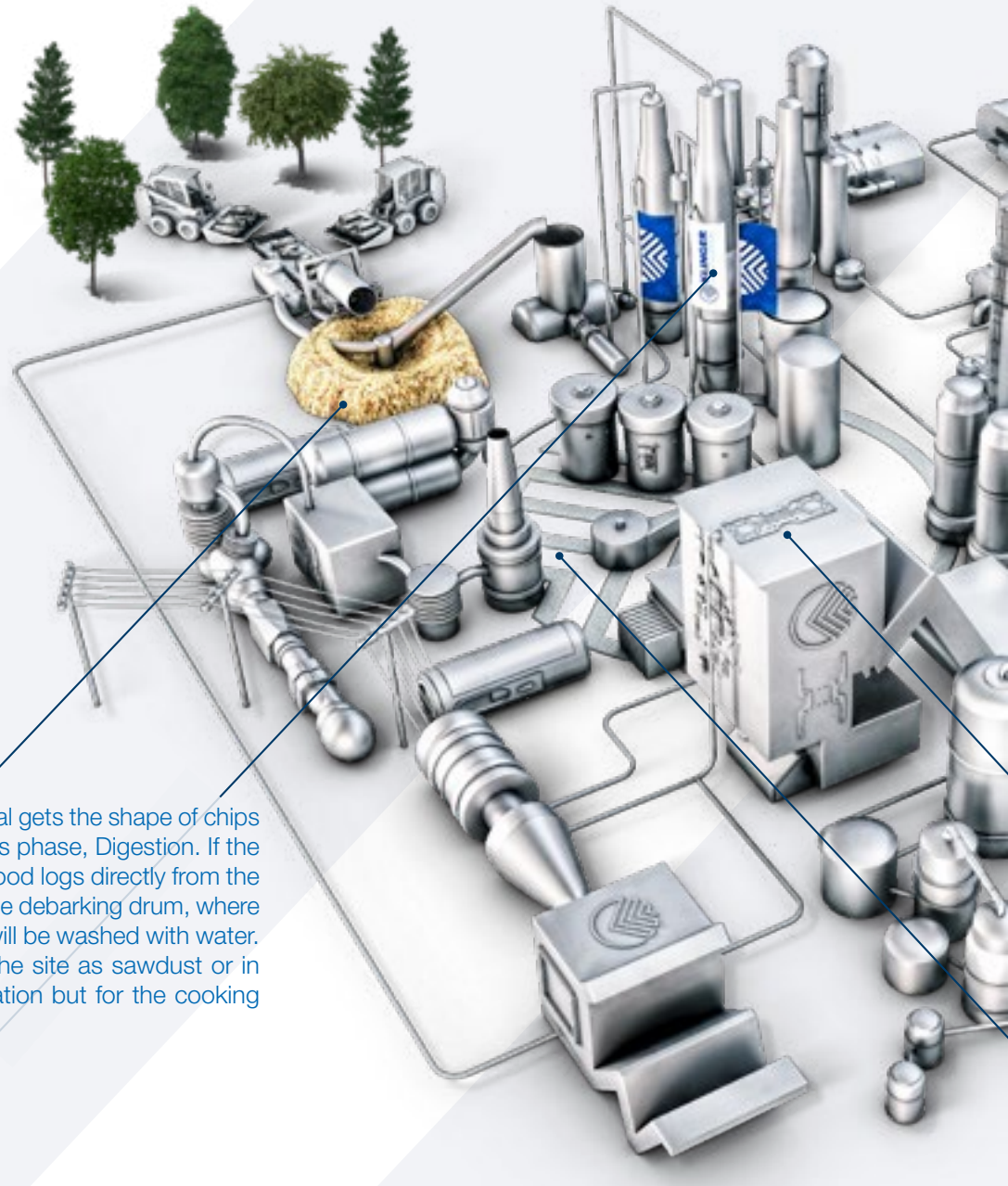
60 COUNTRIES

worldwide are home to a group subsidiary or representative.

PLANT VIEW

Chemical Pulping Process

The first phase in the pulping process is the debarking of wood logs in a Woodyard. Wood is then cut to chips which are fed to the Cooking towers, digesters, and are cooked with chemicals at a temperature of 160 °C. The result of digestion is unbleached pulp and black liquor. The pulp will be refined in the Washing, Screening and Bleaching stages to the fine end product. Black liquor goes through an Evaporation process where the solid content is raised up to 90 %. Dry black liquor will be burned in the Recovery Boiler and will be returned after recausticizing back to the digestion process.

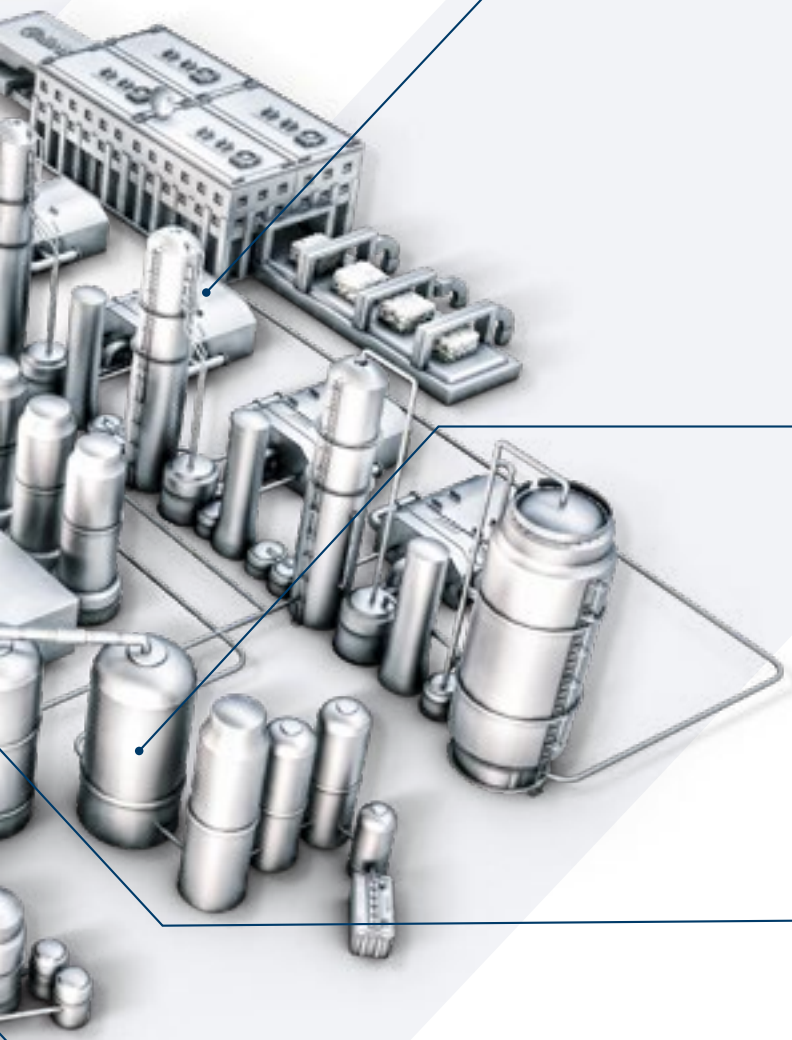


WOODYARD

In the Woodyard the wooden material gets the shape of chips whichcan be fed to the next process phase, Digestion. If the wood comes to the mill as round wood logs directly from the forest, the wood will be entered to the debarking drum, where the bark will be removed and logs will be washed with water. Wood material can also come to the site as sawdust or in prechipped form from another location but for the cooking process it has to be small enough.

COOKING

In the Cooking process the wood chips will be fed to the Digester together with chemicals, White Liquor. Chips and White Liquor are then cooked in 160°C steam to separate fibers from lignin and other extractive materials. After cooking the pulp is entered to a pressure vessel where the rest of the steam and volatile compound are removed. The cooking liquor has turned dark and it has collected lignine and other impurities. The Black Liqour is now returned to chemical recovery cycle towards Evaporation.



WASHING, SCREENING AND BLEACHING

Brown stock is washed with water to remove residues of cooking liquor and other impurities. After this it will be screened to remove undigested wooden particles like knots from raw pulp (brown stock). In Bleaching rest of the lignine and other coloring impurities will be removed from the stock to achieve white or light colored pulp for paper or cardboard manufacturing. Bleaching is normally done as a multistage process where there are different stages removing different impurities from thepulp. In these stages are normally used chlorine gas and dioxide, sodium hypoclorite, hydrogen peroxide and oxygen, which requires special products.

EVAPORATION

The Evaporation process is for evaporating black liquor from approximately 15 % dryness up to 90 % dry solid content as a burning black liquor. During the evaporation the temperature rises as dryness of the black liquor increases and at the same time volatile compounds are released from the black liquor. Volatile compounds will be burned in a boiler to avoid unnecessary fugitive emissions from the plant. When the dry solid content is approximately 80 to 90 %, the black liquor is burned in the recovery boiler where all organic residues from wood cooking are converted to energy.

RECOVERY BOILER

Concentrated Cooking chemicals will be fed after Evaporation to the Recovery Boiler. The black liquor burns and forms steam and electricity to other processes. After burning the black liquor will turn into a green liquor which then turns to a white liquor after Causticizing and will be returning to beginning of bleaching process.

WHITE LIQUOR PLANT

In the causticizing process the green liquor from the Recovery Boiler is treated with burnt lime which converts the sodium carbonate from the green liquor to sodium hydroxide. The formed white liquor is now fed back to the Cooking process, and the recycling of the chemicals starts its next cycle in the process.

KLINGER India

KLINGER BALLOSTAR® BALL VALVES KHA

The new KHA – the multi-talented product for many applications.

In this context, the KLINGER Ballostar KHA offers a more stable bolting of the body with shorter bolts for greater mechanical stability with regard to thermal expansion.

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

FIRE SAFETY

The ball valve can be used for fire safe applications at any given time as the basic design is already certified per default.

IMPROVED CORROSION PROTECTION

KLINGER Advanced Corrosion Protection is a newly developed, special coating procedure with galvanic coating eansuring improved protection against corrosion.

SERIAL ANTISTATIC

The KLINGER Ballostar KHA features serial antistatic equipment in accordance with ISO 7121 and EN 1983 respectively.

TA-LUFT (VDI 2440)

The standard stuffing box meets the requirements of TA Luft (VDI 2440). Double sealing at the body division by means of the KLINGERSIL® C-4430 soft gasket protects against external leakages and meets the highest helium emission testing requirements. Also available with EN15848.

OXYGEN DESIGN

Due to the fact that increased concentrations of oxygen lead to greater fire and explosion hazards, a valve must also meet certain pre-requirements in terms of oxygen.

KLINGER BALLOSTAR® BALL VALVE KHE

BENEFITS / PROPERTIES

2-piece body, flanged ball valve optimised for the process industry. Due to the 2-piece body construction design the risk of an external leakage is reduced, because there is just one sealing area between body and flanged end piece. A whole ball valve range produced in EN standard (short pattern) and in ANSI standard (CL150).

SPECIFICATION

Standard antistatic
Fire Safe
"TA-Luft"
Leakage rate A
Oxygen service
Natural gas service
Gas distribution systems with up to 16 bar

KLINGER BALL VALVE KHD

BENEFITS / PROPERTIES

KLINGER KHD series ball valves for general applications, e.g. different materials for water, air and for most standard process media such as pulp and other non-burning gases and liquids. As standard with lockable handle. Ball Valves are with RPTFE seats, fullbore, 3-piece, with welding thread ends or with flanges.

SPECIFICATION

Available in materials CF8M and Carbon steel. Valve is double standarded for pressure classes PN50 and ANSI Class 300. Standard sizes are DN10-100 (3/8"-4") but is available up to DN600 (24") on request.

KLINGER BALL VALVE KHD

BENEFITS / PROPERTIES

KLINGER KHD series ball valves for general applications, e.g. different materials for water, air and for most standard process materials as pulp and other non-burning gases and liquids. As standard with lockable handle. Ball Valves are with RPTFE seats, fullbore, 2-piece, with flanges.

SPECIFICATION

Available in material CF8M. Pressure classes in EN standard is PN10-40 and in ANSI, Class 150 and 300 Standard sizes are DN25-300 (1"-12") but is available up to DN600 (24") on request.

KLINGER PISTON VALVE KVN

BENEFITS / PROPERTIES

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

SPECIFICATION

Fire-Safe. Valve for oxygen service. Valve on the basis of "TA Luft". Emission testing ISO 15848. Valve materials Stainless steel, Carbon steel and cast iron with pressure class PN16-63 and ANSI Class 150 and 300.

KLINGER BUTTERFLY VALVE KKD

BENEFITS / PROPERTIES

KLINGER KKD series butterfly valve is suitable for different substances. Flow medias such as steam, water and standard gases can be controlled or valves can be used as closing valve in different process applications. Fitted with handle or manual gear. Butterfly valves are with metal or PTFE seat and is to be installed between flanges.

SPECIFICATION

Valve materials CF8M (Carbon steel available) and pressure classes in EN standard are PN10-40 and ANSI Class 150 and 300. Standard sizes are DN80-600 (3"-24") but is available up to DN1200 (48") on request.

KLINGER BUTTERFLY VALVE KKD

BENEFITS / PROPERTIES

KLINGER KKD series butterfly valve with EPDM lining suitable for process water and inert gases. Butterfly valves are used as control valves or as a closing valve in different process applications. Fitted with handle or with manual gear.

SPECIFICATION

Valve materials Cast Iron (Carbon steel also available) body and pressure classes in EN standard are PN10-25 and ANSI Class 150. Different lining materials EPDM, PTFE, NBR, Viton and Hypalon. Standard sizes are DN50-600 (2"-24") but is available up to DN1200 (48") on request.

KLINGER CHECK VALVE KRC

BENEFITS / PROPERTIES

KLINGER KRC series check valves are suitable for different substances. Water, air and for most standard process medias as pulp and other non-burning gases and liquids. Check Valves are with metal seats and will be installed between flanges.

SPECIFICATION

Valve materials CF8M with pressure classes PN10-40 and ANSI Class 150 and 300. (Special materials AISI317 and SMO also available for bleaching application) Standard sizes are DN50-600 (2”-24”) but is available up to DN1000 (20”) on request.

KLINGER CHECK VALVE KRG

BENEFITS / PROPERTIES

KLINGER KRG series check valves are suitable for different medias, e.g. water, air and for most standard process substances such as pulp and other non-burning gases and liquids. Check Valves are with metal seats (PTFE seat available) and will be installed between flanges.

SPECIFICATION

Valve materials CF8M with pressure classes PN10-40 and ANSI Class 150 and 300. Standard sizes are DN10-100 (3/8”-4”).

KLINGER CHECK VALVE KRD

BENEFITS / PROPERTIES

KLINGER KRD series check valves suitable for different substances such as steam, water, air and for most standard process medias such as pulp but also for burning gases and liquids. Check valves are swing type with metal seat, with flanges or welding ends.

SPECIFICATION

Valve materials Carbon steel and CF8M and pressure classes in EN standard are PN10-40 and ANSI Class 150 and 300. Higher pressure classes are available on request. Standard sizes are DN80-600 (3”-24”) but is available up to DN900 (36”) on request.

KLINGER BALL VALVE KHY

BENEFITS / PROPERTIES

KLINGER KHY series ball valves with lockable handle for chemically demanding applications such as chlorine dioxides and acids used in e.g. pulp bleeching processes. Ball Valves are with FEP lining and seats, fullbore, 2 or 3-piece design, with flanges.

SPECIFICATION

Valve materials carbon steel (CF8M available) with PTFE, FEP or PFA lining. Pressure class for valves are PN10-25 and ANSI Class 150 (Class 300 flange drillings ara available). Standard sizes are DN15-300 (1/2”-12”).

KLINGER BUTTERFLY VALVE KKY

BENEFITS / PROPERTIES

KLINGER KKY series butterfly valves for chemically demanding applications such as chlorine dioxides and acids used in e.g. pulp bleeching processes. Butterfly valves can be used as control or shut-off valve. Fitted with handle or with manual gear. Valves are with PTFE lining and to be installed between flanges.

SPECIFICATION

Valve materials carbon steel (CF8M available) with PTFE, FEP or PFA lining. Pressure class for valves are PN10-25 and ANSI Class 150 (Class 300 flange drillings also available). Standard sizes are DN80-600 (3”-24”).

KLINGER CHECK VALVE KRY

BENEFITS / PROPERTIES

KLINGER KRY series check valves for chemically demanding applications as chlorine dioxides and acids used in e.g. pulp bleeching processes. Check valves are with FEP lining and seats, with flanges.

SPECIFICATION

Valve materials carbon steel (CF8M available) with PTFE, FEP or PFA lining. Pressure class for valves are PN10-25 and ANSI Class 150 (Class 300 flange drillings are available). Standard sizes are DN15-300 (1/2”-12”).

KLINGER SLIDE GATE VALVE KSD

BENEFITS / PROPERTIES

KLINGER KSD series gate valve with handle or with manual gear suitable for different substances. Flow medias as pulp stock and dispersion waters. Gate valves are with metal seat, EPDM or PTFE seat and will be installed between flanges.

SPECIFICATION

Valve material CF8M (Carbon steel also available) and pressure classes in EN standard are PN10-25 and ANSI Class 150. Standard sizes are DN50-600 (2”-24”) but is available up to DN1200 (48”) on request.

KLINGER GATE VALVE KSD

BENEFITS / PROPERTIES

KLINGER KSD series gate valve with hand wheel for flow medias as steam, water and standard gases. Gate valves have metal seat and will be installed with flanges, welding ends or thread ends.

SPECIFICATION

Valve materials Carbon steel and CF8M, and pressure classes in ANSI Class 800. Higher pressure classes are available on request. Standard sizes are DN10-50 (3/8”-2”).

KLINGER GATE VALVE KSD

BENEFITS / PROPERTIES

KLINGER KSD series gate valve with hand wheel or with manual gear for flow medias as steam, water and standard gases. Gate valves have metal seat and will be installed with flanges or with buttweld ends.

SPECIFICATION

Valve materials Carbon steel and CF8M, and pressure classes in EN standard are PN10-40 and ANSI Class 150 and 300. Higher pressure classes are available on request. Standard sizes are DN80-600 (3”-24”) but is available up to DN1200 (48”) on request.

KLINGER GLOBE VALVE KAD

BENEFITS / PROPERTIES

KLINGER KAD series globe valve with hand wheel or with manual gear for flow medias as steam, water and standard gases. Globe valves have a metal seat and will be installed with flanges or with buttweld ends.

SPECIFICATION

Valve materials Carbon steel and CF8M, and pressure classes in EN standard are PN10-40 and ANSI Class 150 and 300. Higher pressure classes are available on request. Standard sizes are DN80-400 (2”-16”).

KLINGER GLOBE VALVE KAD

BENEFITS / PROPERTIES

KLINGER KAD series globe valve with hand wheel for flow medias as steam, water and and standard gases. Globe valves have a metal seat and will be installed with flanges, welding ends or thread ends.

SPECIFICATION

Valve materials Carbon steel and CF8M, and pressure classes in ANSI Class 800. Higher pressure classes are available on request. Standard sizes are DN10-50 (3/8”-2”).

KLINGER PLUG VALVE KPZ

BENEFITS / PROPERTIES

KLINGER KPZ series plug valves are suitable for different demanding medias as black liquor and other substances which need a valve with zero empty space between body and obturator. Fitted with handle or manual gear. Plug valves are with RPTFE sleeve, reduced bore, with flanges or welding/thread ends.

SPECIFICATION

Valve materials Duplex, CF8M and Carbon steel (also Hastelloy available) and valves in pressure classes ANSI Class 150–600. (Drillings for PN ratings available) Standard sizes are DN15-500 (1/2”-20”) but is available up to DN700 (28”) on request.

VALVES WITH SPECIAL CONNECTIONS

BENEFITS / PROPERTIES

With modified connections valves have significantly smaller dead space between orburator and wall of pipe or vessel. This reduces the possibility of a clocking effect and all drains will work as planned. These special ends can be fitted in many valves but for example three-piece ball valves will gain most benefits from the design.

SPECIFICATION

The material of the valve and special flange can be selected freely according to customer needs. Different valve and pipe connection size do not restrict the connection, but valve size has to be couple of sizes smaller than the pipe (e.g. DN50 valve connecting to DN150 pipe)

FLANGE TRANSMITTER VALVE

BENEFITS / PROPERTIES

Flange transmitter valve is manufactured as a one-piece ball valve with special bolts and flange, which has a flushing connection and closing valve. This valve is used as a root valve between the vessel and process instruments, for example a pressure indicator. Different materials can be chosen according to customer requirements.

SPECIFICATION

Most common size is DN80, different sizes upon request. Flushing with water and/or steam available.

SAMPLE VALVE

BENEFITS / PROPERTIES

KLINGER provides many types of sampling valves. Piston type manual sampling valves, ball valves with spring closing action and with different collecting systems.

SPECIFICATION

Material for the valves made of stainless steel to duplex or PTFE lined valves according to customers needs. Valves can also be equipped with flushing ports.

SIGHT FLOW INDICATOR

BENEFITS / PROPERTIES

Sight flow indicators are added to the process line to see if there is a flow in the pipeline. For gaseous materials the flow is normally shown by a spinner behind the glass.

SPECIFICATION

Materials for sight flows are carbon steel and stainless steel but also special materials are available if needed.

STRAINER

BENEFITS / PROPERTIES

Strainers purpose is to remove solid particles from the fluid. The size of t1^enter the process, e.g. pumps.

SPECIFICATION

Strainers can be used in high and low pressure applications. Body material is normally carbon steel or stainless steel, screen is made from stainless steel.

KLINGER is the world's leading manufacturer and provider of industrial gaskets and valves.

SAFETY VALVE

BENEFITS / PROPERTIES

Safety valves secure the process – process vessels and pipes from high pressure peeks. Safety valves can be divided into two categories: capacitive safety valves, which will always be calculated for a specific process or it's part, and expansion safety valves where the valve's maximum flow is given in the opening pressure.

SPECIFICATION

Valve materials can be selected from carbon steel to titanium. Different materials can be combined in different parts depending on if the fluid is in contact with valve parts or not. Different operating temperatures have an effect on the bonnet has to be open or closed. Manual operation lever is available for valves.

STEAM TRAP

BENEFITS / PROPERTIES

Steam traps are part of the process to remove condensate water from the steam system. The function of the steam trap is either mechanical (inverted steam trap bucket, float) or operated by temperature/pressure-ratio (thermodynamic, thermic). When the steam trap is working together with the heat exchanger, trap capasity has to be calculated according to the capacity of the exchanger.

SPECIFICATION

Materials for steam traps are cast iron, carbon steel and stainless steel. Cast Iron is quite common as it has better heat transfer abilities. As a result the traps perform better. Sizes are usually from DN15-50 but also bigger steam traps are available for high capacity heat exchanger.

PRESSURE REDUCING VALVE

BENEFITS / PROPERTIES

Pressure reducing valves lowers the inlet pressure to the outlet pressure. Basic model will reduce the pressure evenly by using spring force. When the inlet pressure varies the outlet pressure also varies. By adding a pressure connection from downstream side to actuator of reducer it is possible to stabilize the downstream pressure to one constant pressure.

SPECIFICATION

Normal materials for pressure reducing valves are carbon steel and stainless steel. Flow medias are normally gaseous or fluids which do not contain coarse material. Pressure reducing valves will always be calculated according to process requirements.

CONTROL & ON/OFF VALVES

BALL VALVE WITH ACTUATOR

SELECTION

Both pneumatic and electric actuators can be used for the automation of ball valves. The determination of the torque needed by the customer saves investment and follow-up costs. Eventhough the selection of actuatoran be made according to valve maximum torque tolerance, it is highly recommended that the actuator is selected according to actual needs. In this context the necessary pressure differential determines the torque of the required actuator. Ball valves operation degrees are 0-90.

CONTROL

As a control valve, the standard ball valve is more like a throttling valve. If there is a possibility to use V-Port Ball or Segment Ball execution inside the valve, then ball valves turn out to be very good and sharp control valves, whose control characteristics can be adjusted exactly to customer needs within the process.

CONTROL BALL SEGMENT VALVES

SELECTION

Segment ball valve type control valves are normally controlled with pneumatic actuators because of contro response time. Segment ball valves are the most common type to control liquids and fluids which contains solid materials, but can be used also for different gases like steam and air. Operation type isquarter turn movement.

CONTROL

Usually Segment ball valves are one-step control vvalves. If th sound level is raising too highthe level valve can be equipped with noise reduction obturator, suitable for most gases and non fiberous-liquids. The control area is wide and linear with segment ball valves and it can be modified specifically at the closing side with a different shaping of the obturator.

BUTTERFLY VALVE WITH ACTUATOR

SELECTION

Both pneumatic and electric actuators can be used for the automation of butterfly valves. Actuator should be selected in accordance with the needed torque values and the required operation times. Operation degrees 0-90.

CONTROL

As a control valve standard the butterfly valve is preferably applicable in standard control areas from 10-80 degrees from closed position. There are also special executions available for reducing the cavitation phenomena and to modify control abilities especially in lower stream control.

SLIDE GATE VALVE WITH ACTUATOR

SELECTION

Both pneumatic and electric actuators can be used for the automation of slide gate valves. Actuator should be selected in accordance with the needed torque values and which kind of operation times are required. Operation type is linear movement.

CONTROL

Standard gate valves are not suitable in control applications, but there are as well as special ports for controlling the fluid and as well as special materials for resisting corrosion of the slide.

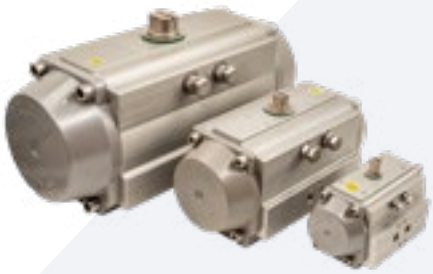
CONTROL GLOBE VALVES

SELECTION

Globe type control valves are normally controlled with pneumatic or even hydraulic actuators because of control response time. Globe type control valves are the most common type to control steam and gas medias but can be used for most fluids. Operation type is linear movement.

CONTROL

Globe type control valves can be one-step control valves, but several pressure reducing points can additionally be installed inside the valve. This enables higher reduction without increasing amount of cavitation and high volume of sound.



PNEUMATIC ACTUATORS

BENEFITS / PROPERTIES

Pneumatic actuators are the most common actuators for quarter turn valves to be open/close or control actuators. Actuators can be only with pneumatic operation (DA) or another direction is build to operate with spring force (SR). it is also possible to operate 180 degrees and with hydraulic oil.

SPECIFICATION

Normal pressure in actuator feed (air) is 4,5-6 bar(g). There are special products for ATEX -areas and also products for different reliability levels (SIL) according to customer specifications. Some manufacturers also produce actuators in material 316 if high chemical resistance is needed.

ELECTRIC ACTUATORS

BENEFITS / PROPERTIES

Electric actuators have quarter turn or multiple turn models, and operation time is slower than in pneumatic actuators. Biggest advantage compared to pneumatic actuators is strength. Bigger valves need a large amount of force to operate and with electric actuators combined with gear units these high forces can be found.

SPECIFICATION

Most of the 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.

POSITIONERS

BENEFITS / PROPERTIES

The positioner is the control unit of the pneumatic actuated valve. The positioner receives a signal. The actuator then moves the valve into the desired position according to that setpoint.

SPECIFICATION

Normal pressure for positioners (air) is 4,5-8 bar(g). There are special products for ATEX zones and also products for different reliability levels (SIL) according to customer specifications. Customers receive position information, additionally the positioner is able to communicate with several protocols within the automation system.

LIMIT SWITCHES

BENEFITS / PROPERTIES

When valves are moving only in open and close positions without controlling fluids in the middle position, the valve actuator can be equipped with a device that gives a signal to the automation system when the valve is fully open or closed.

SPECIFICATION

Limit switches are operating with mechanical or inductive sensors. There are special products for ATEX -areas and also products for different reliability levels (SIL) according to customer specifications.

SOLENOID VALVES

BENEFITS / PROPERTIES

The positioner moves the actuator to the valve position that corresponds to the setpoint.The valve actuator can be driven with a device that feeds the pneumatic air in to actuator to move the valve into open or close position. Special features can be used to move the valve also in the middle positions to gain some control functions.

SPECIFICATION

Normal pressure for solenoid valves (air) is 4,5-8 bar(g). There are special products for ATEX-ZONES products for different reliability levels (SIL) according to customer specifications.

GASKETS

KLINGER TOP-CHEM 2000

BENEFITS / PROPERTIES

» The perfect universal gasket for heavy-duty applications
» Manage high temperatures in combination with high pressure up to 260 °C
» The only PTFE gasket with a Fire-safe-certificate API 6FA
» Excellent for all type of aggressive media
» FDA conformity for Food & Pharma
» Retained resilience = retorque is not necessary
» No aging
» No coldflow
» Extreme gas tightness

SPECIFICATION

Modified PTFE.
Dimensions, Standard Sheet
Size: 1500 x 1500 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 rings in DIN, ANSI, and user-defined dimensions.

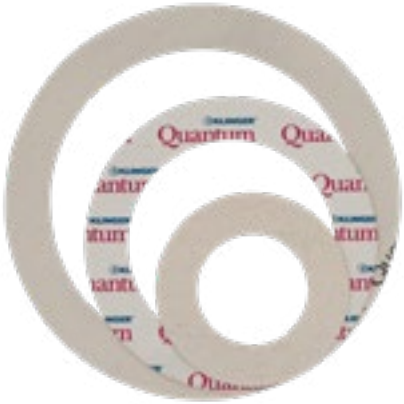
KLINGER TOP-CHEM 2003

BENEFITS / PROPERTIES

» Suitable for low temperature and large sealing surfaces
» Excellent for all type of aggressive media
» FDA conformity for Food & Pharma
» Retained resilience = retorque is not necessary
» No aging
» Excellent adaption to bad flange surfaces
» High gas tightness at low torque

SPECIFICATIONS

Modified PTFE. Dimensions, Standard Sheet, Size: 1500 x 1500 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 rings in DIN, ANSI, and user-defined dimensions.



KLINGER® QUANTUM

BENEFITS / PROPERTIES

KLINGER® Quantum is the first fiber reinforced gasket material in the world that is exclusively HNBR-bound. 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 material available on the market.

BENEFITS / PROPERTIES

» Handles high temperatures without embrittlement
» Increased life expectancy
» Maintained flexibility
» High density at high temperatures
» Suitable for a wide range of media

KLINGER SEALEX

BENEFITS / PROPERTIES

» 'Newly developed installation tape facilitates assembly and adjustment
» Improved dimensional stability reduces the need for retightening
» Suitable for aggressive media up to 260 °C at limited bolt load
» Adapts perfectly to worn and non-parallel flange surfaces
» FDA conformity for Food and Pharma applications
» Excellent for non-metallic plastics and glass flanges
» Useful for large flange diameters

SPECIFICATION

Sealing tape of expanded PTFE. 2
Width and Thickness, std rolls: 3 x 1.5 mm – 30 m, 5x 2 mm – 20 m, 7 x 2.5 mm – 15 m, 10 x 3 mm – 8 m,10 x 3 – 25 m, 14 x 5 mm – 5 m, 14 x 5mm – 25 m,17 x 6 mm – 5 m, 20 x 7 mm – 5 m, 25 x 8 mm

KLINGER PSM-AS

BENEFITS / PROPERTIES

» Manage 450 °C in continuous operation in combination with high pressure
» Suitable for worn flange surfaces
» Excellent in steam applications
» Does not stick on the flange
» Contains no adhesive
» Perforated steel insert which is very resistant to exhaust

Also available as TA-<Luft-approved in type TSM

SPECIFICATION

Graphite with perforated steel insert, 3xA anti-stick surface. Purity: 98 % alt. 99.82 %. Density according to the customer's requests. Dimensions, standard sheet. Size: 1000 x 1000 mm. Thickness: 0.6 mm, 0.8 mm, 1mm, 1.5mm, 2mm, 3mm. Tolerances: Thickness ± 5%, Length ± 5 mm, Width ± 5 mm. Can be supplied as rings in DIN, ANSI, and user-defined dimensions.

KLINGER GRAPHITE LAMINATE MLX

BENEFITS / PROPERTIES

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

SPECIFICATION

Expanded graphite with 0.05 mm thick smooth stainless-steel foils.

Dimensions, Standard Sheet
Size: 1500 x 1500 mm, Thickness: 1.0 mm, 2.0 mm, 3.0 mm, Tolerances: Thickness: ±5%, length: ±5mm, width: ±5mm

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

SPECIFICATION

Mica with stainless steel insertion, 3xA self-released surfaces.

Dimensions, Standard Sheet
Size: 1200 x 1000 mm, Thickness: 1.0 mm, 2.0 mm, 3.0 mm, Tolerances: 1.3 mm-thickness: ±5%, 2.0mm-thickness: ±10%, 3.0mm thickness: ±10%, length: ±5%, width: ±5%. Also comes delivered as rings in DIN, ANSI, and user-defined dimensions.

KLINGER MAXIFLEX

BENEFITS / PROPERTIES

» Very suitable and common in refinery applications
» Manage 550°C in continuous operation
» Suitable for applications with pressures up to 160 bar
» Manage large pressure fluctuations
» Multiple filling and metal materials to choose from, standard is graphite

SPECIFICATION

Spiral wound gasket with filling material of Graphite (550°C), PTFE (260°C), Nonas (350°C), Mica (1000°C) or Mica & Graphite (900°C). The standard execution has the inner ring and winding in 316L steel/graphite and the outer ring in carbon steel. Dimensions, Can be supplied as rings 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
» Very suitable for steam and hot water
» Does not stick on the flange

SPECIFICATION

Synthetic and fiberglass bound with NBR, 3xA self-release surfaces.

Dimensions, standard paper.

Size: 1500 x 2000 mm
Thickness: 0.5 mm, 1.0 mm, 1.5 mm, 2.0 mm, 3.0 mm, 4.0 mm, 5.0 mm, Tolerances: Thickness ± 10 %, Length ± 50 mm, Width ± 50 mm, Also comes delivered as rings in DIN, ANSI, and user-defined dimensions.

KLINGER KGS GII

BENEFITS / PROPERTIES

» Suitable for temperatures up to 200°C (applies with 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. within sewage treatment plants, waterworks, biogas plants and chemicals industry.
» Stable gaskets facilitate installation in vertical flanges or with systems that have underpressure.
» Very suitable for flanges of plastic and fiberglass.
» Available in designs with gas approval (DIN-DVGW) and drinking water approval (KTW).

SPECIFICATION

Elastomer with steel core. Available elastomers: NR, NBR, EPDM, CSM, FKM, Available in DIN-dimensions between DN 15 and DN 2000 and pressure classes between PN 6 and PN 40.

COMPRESSION PACKINGS

KLINGER TOP-LINE K3400

BENEFITS / PROPERTIES

» Max. operating temperature: 316°C
» Max. peripheral speed: 20 m/s
» pH 1–14a
» Braided structure: Interlock
» Good resilience
» Good thermal conductivity
» Good chemical resistance to concentrated alkalies in kraft pulping
» Low friction
» Used in stuffing boxes of pumps and as end rings in high temperature and pressure valves
» Typical applications within the pulp industry are digesters
» Excellent for feed water pumps

SPECIFICATION

Pure filament carbon fibrev impregnated with graphite and other lubricants.

Dimensions, Standard Package: 8 m/box.
Sizes, square profile (mm): 3.2, 5, 6.5, 8, 9.5, 11, 12.5, 14, 16, 19, 20, 22, 25
Tolerances: ± 0.4 on 3.2, 5.0, 6.5. ± 0.8 for the rest.

KLINGER TOP-LINE K4259

BENEFITS / PROPERTIES

» Max. operating temperature: 260°C
» Max. peripheral speed: 15 m/s
» pH 2–10
» Braided structure: Interlock
» Slurry packing designed to handle high abrasion/high surface velocity
» No damaging of shafts or sleeves under normal conditions
» Retaining its mechanical integrity at high speed
» Suitable for mild chemicals or steam
» Will not hydrolyze
» Typical applications within the pulp industry are digesters
» Excellent for pulp, potash, mining and other slurries

SPECIFICATION

Special composite with silicone break-in lubricant

Dimensions, Standard Package: 8 m/box
Sizes, square profile (mm): 3.2, 5, 6.5, 8, 9.5, 11, 12.5, 14, 16, 19, 20, 22, 25. Tolerances: ± 0.4 on 3.2, 5.0, 6.5. ± 0.8 for the rest.

KLINGER TOP-LINE K1140 GFO®

BENEFITS / PROPERTIES

» Max. operating temperature: 285°C
» Max. peripheral speed: 22 m/s
» pH 0–14
» Braided structure: Interlock
» Good resilience
» Good thermal conductivity
» Low friction
» Pump packing
» Extremely good chemical resistance
» An excellent universal mill compression packing

SPECIFICATION

Graphited GFO® fibre yarn with silicone and PTFE lubricants. Dimensions, Standard Package: 8 m/box

Dimensions, Standard Package: 8 m/box
Sizes, square profile (mm): 3.2, 5, 6.5, 8, 9.5, 11, 12.5, 14, 16, 19, 20, 22, 25. Tolerances: ± 0.4 on 3.2, 5.0, 6.5. ± 0.8 for the rest.

KLINGER TOP-LINE K4257

BENEFITS / PROPERTIES

» Max. operating temperature: 260°C
» Max. peripheral speed: 20 m/s
» pH 1–14
» Braided structure: Interlock
» Resistant to elevated temperatures and steam
» Resistant to elevated speeds
» No damaging of shafts or sleeves under normal conditions
» Exceptional resilience
» Excellent resistance to high vibration/high velocity
» Typical applications within the pulp industry are digesters
» Developed specifically for wood pulp refiners

SPECIFICATION

Special proprietary fibre blend

Dimensions, Standard Package: 8 m/rle
Sizes, square profile (mm): 3.2, 5, 6.5, 8, 9.5, 11, 12.5, 14, 16, 19, 20, 22, 25
Tolerances: ± 0.4 on 3.2, 5.0, 6.5. ± 0.8 for the rest.

KLINGER TOP-LINE K3222W

BENEFITS / PROPERTIES

» Min operating temperature: -200°C
» Max operating temperature: 430°C, suitable for high temperatures, depending on oxygen
» Max static pressure: 280 bar
» Max peripheral speed: 20 m/s
» pH 0–14
» Mainly a valve gasket
» Can also be used in low temperatures
» Permanent resilience
» Extremely dense, properly compressed
» Can be seen as a universal gasket for valves

SPECIFICATION

Pure graphite gasket with Inconel-wire.Dimensions, Standard packaging: 8 m/rle Sizes, square profile (mm): 3.2, 5, 6.5, 8, 9.5, 11, 12.5, 14, 16, 17.5, 19, 20.5, 22, 25. Tolerances: ± 0.4 on 3.2, 5.0, 6.5. ± 0.8 for the rest.

KLINGER TOP-LINE K54

BENEFITS / PROPERTIES

» Max operating temperature: 260°C (K54S up to 280 °C)
» Max static pressure: 200 bar
» Max periphery speed: 10 m/s (5 m/s for K54S)
» pH 0–14
» Suitable for aggressive media
» Pure, non-polluting gasket for foods and pharmaceuticals
» K54H – designed for pumps
» K54S – universal gasket

SPECIFICATION

Pure PTFE gasket.

Dimensions, Standard packaging: 8 m/rle
Sizes, square profile (mm): 3.2, 5, 6.5, 8, 9.5, 11, 12.5, 14, 16, 17.5, 19, 20.5, 22, 25. Tolerances: ± 0.4 on 3.2, 5.0, 6.5. ± 0.8 for the rest.

KLINGER TOP-LINE K10

BENEFITS / PROPERTIES

» Min operating temperature: -100°C
» Max operating temperature: 260°C
» Max static pressure: 100 bar
» Max peripheral speed: 10 m/s
» pH 2-12
» Price effective braid for basic applications
» Pumps and valves in less demanding operations
» PTFE-based lubrication for low friction
» Typical gasket within water and sanitation
» Easy to cut and handle
» Pure braiding

SPECIFICATION

Synthetic fiber gasket.

Dimensions, Standard packaging: 8 m/rle
Sizes, square profile (mm): 3.2, 5, 6.5, 8, 9.5, 11, 12.5, 14, 16, 17.5, 19, 20.5, 22, 25. Tolerances: ± 0.4 on 3.2, 5.0, 6.5. ± 0.8 for the rest.

K35 GRAPHITE RINGS

BENEFITS / PROPERTIES

» Suitable for high to very high temperatures, depending on the oxygen.
» Also used in low temperatures.
» Mainly used as a valve compression packing.
» Permanent resilience.
» Extremely dense, properly compressed.
» Suitable also for pumps
» pH 0–14

SPECIFICATION

Compression molded graphite rings, pure graphite. Purity: 98% alt. 99.85%. Density according to the customer's requests. Dimensions, Delivered in user-defined dimensions.

EXPANSION JOINTS

EXTERNALLY PRESSURISED DB TYPE

BENEFITS / PROPERTIES

Externally pressurized expansion joints are an excellent answer for large axial displacement needs and pressure is high, and if you would like to avoid U-loops or be in control of your maintenance costs.

SPECIFICATION

- Size: DN 25–1000
- Design pressure: Up to 40 bar(g)
- Design temperature: up to 400°C
- Bellows material: AISI 304, 316, 321
- Flanged material: Carbon steel, Stainless steel
- Extreme gas tightness

KB TYPE

BENEFITS / PROPERTIES

Weld end expansion joints are equipped with carbon steel or stainless steel pipe connections. Even though they can absorb movements in any direction, this model is mainly used for axial movements. If lateral movement is requested, a universal type may be more suitable. These type of expansion joints can be supplied with limit liners, covers, rods, hinges or gimbals.

SPECIFICATION

- Size: DN 25 -1000 (for other sizes – check with us)
- Design pressure: Up to16 bar(g)
- Design temperature: up to 400°C
- Bellows material: AISI 304, 316, 321 or nickel alloys

SF TYPE (FIXED FLANGE)

BENEFITS / PROPERTIES

Fixed flanged expansion joints are equipped with welded carbon steel or stainless steel flanges (EN, ASME or as requested). It absorbs mainly axial movements with possibility of some lateral movements. Even though they can absorb movements in any direction, this type is mainly used for axial movements. If lateral movement is requested, a universal type may be more suitable. These type of expansion joints can be supplied with limit rod, liners, covers, rods, hinges or gimbals.

SPECIFICATION

- Size: DN 25–1000 (for other sizes - check with us)
- Design pressure: up to 16 bar(g)
- Design temperature: up to 400°C
- Bellows material: AISI 304, 316, 321 or nickel alloys
- Fanged material: CS, SS, Customized
- Quick connection

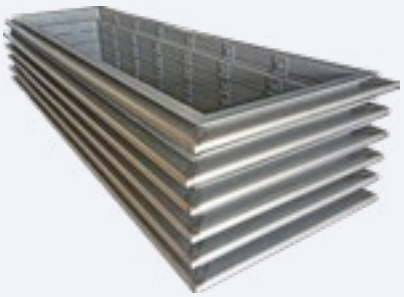
DF TYPE (FLOATING FLANGED)

BENEFITS / PROPERTIES

Floating flanged expansion joints are equipped with carbon steel or stainless steel flanges (EN, ASME or as requested). It absorbs mainly axial movements with possibility of some lateral movements. Even though they can absorb movements in any direction, this type is mainly used for axial movements. If lateral movement is requested, a universal type may be more suitable. Available for exhaust gas, liquid medium and steam. Bellows are calculated following latest EJMA standards. Also, floating flange type expansion joints may have a double bellows which are designed for absorbing the higher lateral movements.

SPECIFICATION

- Size: DN 25–1000 (for other sizes check with us)
- Design pressure: up to 16 bar(g)
- Design temperature: up to 400°C
- Bellows material: AISI 304, 316, 321 or nickel alloys
- Fanged material: CS, SS, Customized
- Quick connection



CENTRAL HEATING SYSTEM TYPE EXPANSION JOINT

BENEFITS / PROPERTIES

Deformations in pipes and noise resulting from thermal stresses are prevented. Minimum/maximum limits and pretension are observed easily with the help of limiting pin. Internal sleeve prevents pressure losses and misalignments while external cover prevents external damages. Internal sleeve (liner) also prevents “whistling” noise due to flow. Heat and ventilation systems, water pipes etc. in large buildings, hospitals and similar constructions.

SPECIFICATION

- Size: DN 15 -100
- Design pressure: up to 16 barG
- Design temp.: up to 400°C
- Bellows material: AISI 304, 316, 321
- Balanced material: Carbon steel, Stainless steel
- Quick connection

VIBRATION ABSORBERS

BENEFITS / PROPERTIES

Metal expansion joints can also be used to absorb vibration in systems. They are manufactured from thin, multi-layer bellows for excellent vibration absorbing capabilities. Multi-layer bellows help to dampen high frequency and low amplitude vibrations. While vibration absorbers are mostly used with flanged connections, they can also be supplied with welded connections. A very typical accessory with this type of expansion joint is a limit rod / tie-rod to restrain pressure thrust of bellows or limit excessive design movements. Metal expansion joints are an excellent choice for absorbing vibrations where temperatures or pressures are too high for rubber expansion joints. Rubber washers can be used to reduce noise.

SPECIFICATION

- Size: DN50–500
- Design pressure: up to 16 barG
- Design temp.: up to 400°C

Bellows materials: AISI 304, 316L, 321
Flanged materials: Carbon steel, Stainless steel

RECTANGULAR MEJ

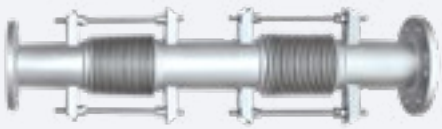
BENEFITS / PROPERTIES

Rectangular metal expansion joints are designed to absorb movements in all three directions i.e. axial, lateral and angular. The rectangular bellows are mostly designed for very low pressure applications such as ducts, exhaust systems, ventilation systems etc. Rectangular metal expansion joints are designed and used in gas turbines exhaust systems, turbine and condenser connections, etc. i.e. in the shipbuilding. The bellows can be designed and manufactured as U- and V-shapes and can be connected via various corner types (Single/Double/Camera V-shape corners or Round corner U-shape) in accordance with required operating conditions.

SPECIFICATION

- Size: Customized
- Design pressure: up to 1 bar(g)
- Design temp.: up to 850°C
- Minimum reaction forces

Bellow materials: CS, AISI 304, 316L, 321
Hardware materials: CS, AISI 304, 316L, 321



SEISMIC EXPANSION JOINTS WITH RODS

BENEFITS / PROPERTIES

Metal expansion joints can also be used to absorb movements in piping systems due to earthquakes, ground settlements or landslides. These events can cause large movements in piping systems and cause critical piping systems to fail. Seismic expansion joints are an excellent choice for such applications. They are designed to absorb large axial and lateral movements.

SPECIFICATION

- Size: DN 32–250
- Design pressure: up to 16 bar(g)
- Design temperature.: up to 400°C
- Bellows material: AISI 304, 316, 321
- Flanged & hardwares material: Carbon steel
  Stainless steel

INSTRUMENTATION

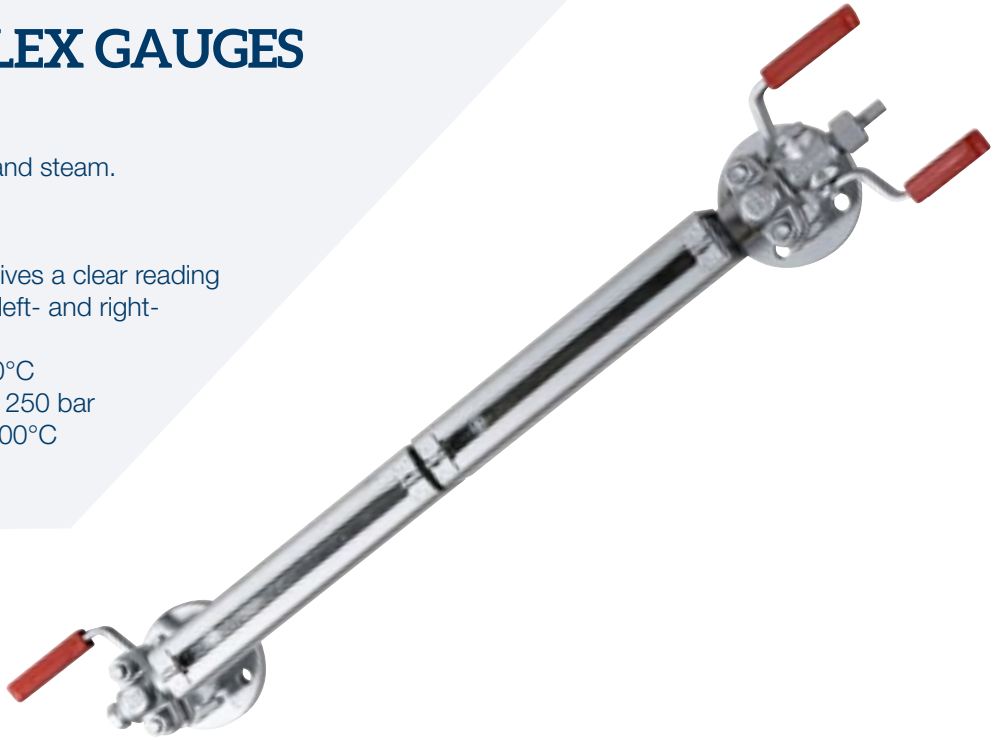
KLINGER REFLEX GAUGES

BENEFITS / PROPERTIES

Water, liquids, liquefied gases and steam.

SPECIFICATION

» Good light / dark contrast gives a clear reading
» Can be delivered with both left- and right-handed handle control
» Displays can be rotated 360°C
» Pressure class shows up to 250 bar
» Design temperature up to 400°C



TRANSPARENT GAUGES KLINGER

BENEFITS / PROPERTIES

Water, liquids and steam.

SPECIFICATION

» Supplied with original KLINGER borosilicate glass "extra tempered"
» Resistant to high temperatures
» Displays can be rotated 360°C
» Pressure class shows up to 180 bar
» Design temperature up to 400°C

VORTEX FLOW METER KLINGER LUGB

BENEFITS / PROPERTIES

KLINGER LUGB is a Vortex flowmeter used for liquid, gas and steam measurement. It will be delivered either with flanges or as wafer. For steam and gas measurement a model with integrated pressure and temperature sensors are available. In this versions the transmitter includes necessary software algorithms for compensation on most common media.

SPECIFICATION

» Dimensions: DN 15 to DN300
» Process connections: Flange or Wafer
» Wetted parts: Stainless steel (304 or 316)
» Sensor type: Piezoceramic sensor
» Accuracy: Liquid: ± 1% of measurement value (Re ≥ 20000)
» Gas / vapor: ± 1.5% of measured value (Re ≥ 20000)
» Output signal: 4–20 mA max. load 300 Ohm
» Scaled pulse output
» Communication RS485 (Modbus)

CORIOLIS MASS FLOW METER KLINGER U-MASS

BENEFITS / PROPERTIES

KLINGER U-Mass is a Coriolis mass flow meter that can be used for liquids and gases in a wide range of applications. The meter is delivered with a built-in or separate transmitter unit.

SPECIFICATION

» Dimensions: DN01–250
» Process connection: Flange or TriClamp
» Wetted parts: Stainless steel / Hastelloy C
» Measuring ranges: Flow 0 –20 kg/h to 0–1,800 t/h
» Density -0.1 g/cm^3 –2.5 g/cm^3
» Accuracy: Better than ± 0.2% / option ± 0.1%
» Media temperature: -50 to +180°C
» Media pressure: Standard: 16 bar / Option: up to 150 bar
» Output signal: Current: 2 pcs analog 4–20 mA
» Scaled pulse / Frequency (0–10 kHz)

THERMAL MASS FLOW METER KLINGER STG-F AND STG-I

BENEFITS / PROPERTIES

STG-F / I are thermal mass flow meters for pure dry gases. The measuring signal is direct mass flow, independent of pressure and temperature variations.

SPECIFICATION

- Dimensions: DN10–DN4000
- Process connections:
  Flange or welding connection (Hot tap as option)
- Wetted parts: Stainless steel (304 or 316)
- Measuring ranges: 0.1–100 Nm/s
- Accuracy: ± 1%–2.5% of measurement value
- Supply voltage: 24 VDC (± 15%) or 220 VAC
- Output signal: 4–20 mA max. load 500 Ohm
- Scaled Pulse Output
- 2 x relay NO, 10A / 220V / AC or 5A / 30V / DC
- Communication: RS485 / HART

TURBINE FLOW METER KLINGER LWGY

BENEFITS / PROPERTIES

KLINGER LWGY turbine flow meters are a series of turbine meters suitable for most pure liquids. The meter is made with wetted parts in stainless steel, except for the bearings which are of tungsten carbide.

SPECIFICATION

- Dimensions: DN 4–200
- Connection: Thread or Flange
- Materials:
- Measuring tube: Stainless steel,
  Standard: 304 / option: 316 L
- Rotor: Stainless steel (13% Cr, 2% Mo)
- Bearings: Tungsten Carbide
- Output: Pulse (frequency signal)
- 4–20 mA

OVAL GEAR FLOW METER KLINGER LC

BENEFITS / PROPERTIES

The Ovalgear meter is a flowmeter type in which a predefined chamber is filled with liquid or emptied. The number of filling / emptying is counted as an expression of the amount that has passed through the meter.

SPECIFICATION

- Dimensions: DN 10–DN 200
- Accuracy: Better than 0.5% (Option: 0.2%)
- Materials:
- Measuring tubes: Cast iron, Cast steel,
  Stainless steel 304 or 316
- Display: Mechanical or LCD
- Output (Option): Scaled pulse output
- 4–20 mA (2-wire)

VA FLOW METER KLINGER SH250

BENEFITS / PROPERTIES

For measuring flow on liquids or gas. The meter can be used for measuring non-conductive media in a typical measuring range of 10:1 – without any form of power supply.

SPECIFICATION

- Dimensions: DN 15–DN 150
- Operating pressure: up to 40 bar
- Materials:
- Measuring tubes: Stainless steel 304 or 316
- Floats: Stainless steel 304, 316 or PTFE
- Output (Option): 1 or 2 alarm relays
- 4–20 mA (2-wire)

HYDROSTATIC LEVEL MEASUREMENT KLINGER 451DP

BENEFITS / PROPERTIES

Differential pressure measurement is widely used for level measurement in process tanks isolated from the surroundings, e.g. in the chemical and petrochemical industries. The transmitter is adapted to level measurement, using dividing membranes, fitted to the transmitter with capillary tubes that allow one to be mounted membrane at the bottom, and one at the top of the tank.

SPECIFICATION

- Measuring ranges: 0–60 mbar up to 0–100 bar
  (1 bar = 10 mHO)
- Accuracy: better than +/- 0.5%
- Many materials and process connections
- Capillary tube: 2 pcs max. 10m

MAGNETIC INDUCTIVE FLOW METER

BENEFITS / PROPERTIES

KLINGER LDG is a magnetic inductive flow meter for accurate measurement of liquid in all kinds of industrial plants, as well as in water, wastewater and cooling systems.

SPECIFICATION

- Dimensions: DN 06–DN 2200
- Output signal: 4–20 mA
- Scaled pulse output
- Status outputs
- Liner: Hard rubber, PTFE or PPO
- Electrodes: SS 1.4571, Hastelloy C, Tantalum or
  Platinum-Uridium
- Communication: HART, Modbus RS485 or GPRS

GUIDED RADAR KLINGER 8701

BENEFITS / PROPERTIES

Microwave radar for continuous level measurement in tanks / silos with liquids or solids.

SPECIFICATION

- Wetted parts: Stainless steel 304 or 316L
- Sensor: Wire or rod
- Measuring ranges: up to .30 m
- Accuracy: Better than ± 5mm
- Output signal: 4–20mA, 2 or 3-wire

ULTRASONIC LEVEL KLINGER ULM

BENEFITS / PROPERTIES

Measurement of liquid levels in open tanks and basins. Can be delivered with separate transmitter.

SPECIFICATION

- Sensor: PTFE or PVDF
- Measuring ranges: 0–5 m up to 0–30 m
- Accuracy: +/- 0.5% of measured value
- Output signal: 4–20mA, 2 or 3-wire

ULTRASONIC FLOW METER KLINGER DS116

BENEFITS / PROPERTIES

KLINGER DS116 is an ultrasonic flow meter for measuring liquid. The meter is a clamp on the outside of the measuring tube.

SPECIFICATION

- Dimension: For pipes DN 25 to DN 1200
- Measuring ranges: 0.01–5 m/s
- Accuracy: +/- 1% FS
- Supply voltage: 10–36VDC / Max. 1 A (standard version)
- Output signal: Scaled pulse
- Current output (4–20mA)
- Status / alarm output (Relay)
- Communication RS232 or RS485 (Modbus)

PRESSURE GAUGES KLINGER 208

BENEFITS / PROPERTIES

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

SPECIFICATION

- Dimensions: Ø63mm, Ø100mm or Ø160mm, 1.4301 (AISI 304)
- Wetted parts: Brass or Stainless steel (AISI 316)
- Ranges: -1 bar–1,600 bar according to EN 837-1
- Connection: Thread downwards or backwards

PRESSURE TRANSMITTERS KLINGER COMPACT 401

BENEFITS / PROPERTIES

Compact transmitter for measuring pressure in all types of industry. KLINGER Compact 401 are also available with local display and / or cooling neck for direct connection to processes with media temperatures up to 350 °C.

SPECIFICATION

- Enclosure: Stainless steel 1.4301 (304)
- Wetted parts: Stainless steel 1.4301 (304) or 1.4404 (316L)
- Ranges: 0–10mbar bar to 0–1,000bar (also vacuum)
- Connection: G½* B or M20x1,5
- Output: 4–20mA /2-wire

PRESSURE TRANSMITTER KLINGER FIELD 401

BENEFITS / PROPERTIES

Robust transmitter for measuring pressure in all types of industry. KLINGER Field 401 is also supplied with a cooling neck for direct connection to processes with media temperatures up to 350°C.

SPECIFICATION

- Enclosure: Aluminum housing (painted)
- Wetted parts: Stainless steel 1.4301 (304) or 1.4404 (316L)
- Ranges: 0–10mbar bar to 0–1,000bar (also vacuum)
- Connection: G½* B or M20x1,5
- Output: 4–20mA m HART protocol

PRODUCT OVERVIEW

Product and process mapping Pulp & Paper

PROCESS-STEP	EQUIPMENT	COMPRESSION PACKINGS	GASKETS
Woodyard	Debarking pump	K4259	KLINGER Graphite Laminate PSM-AS
	Flume pump		
Cooking	Low pressure feeder	KLINGER Top-Line K3400	KLINGER Graphite Laminate PSM-AS (For mild caustic service)
	Metering valve	KLINGER Top-Line K3222W	
	Steaming valve		
	Chemical valve		KLINGER top-chem 2000 (For concentrated liquors up to 260°C)
	High pressure feeder	KLINGER Top-Line K3400	
	Inlet device		
	Liquor circulation pump		
	B.L. injection pump		
	Cold blow pump		
	Displacement Digester System		
Washing, Screening and Bleaching	Black tank agitator	K4259	KLINGER Graphite Laminate PSM-AS
	Thick stock pump	KLINGER Top-Line K3400	KLINGER top-chem 2003
	Pressure Screen	K4259	KLINGER Graphite Laminate PSM-AS
	Stock pump		
	Hot water pump	KLINGER Top-Line K3400	
	Kamyr washer/Drumwashers	KLINGER Top-Line K54H	KLINGER top-chem 2003
	Thickener	K4259	KLINGER Graphite Laminate PSM-AS
	Stock pump		
	Feed pump		
	Chlorine injection pump	K1140 GFO®	KLINGER top-chem 2003
	Spent acid pump	KLINGER Top-Line K3400	
	Brine pump		
	Bleached stock washers	K4259	KLINGER Graphite Laminate PSM-AS
	Vertical /Hydrapulper	K4259	
		K10	
	Horizontal	K4259	

PIPELINE MEDIA VALVES	VALVES	EXPANSION JOINTS	INSTRUMENTATION
Compressed air Circulation water Mill water (mech./chem. treated)	Ball valves **KHA, KHE, KHD** Butterfly valves **KKD, KKQ** Check valves **KRC, KRG, KRD**	Fixed, floating and welding ends for Metallic Expansion Joints with adjustment and/or customization prior installation Vibration Absorber	**Flow measurement** Magnetic flow, Ultrasonic, Variable Areal, Thermal mass **Pressure** Gauges, transmitters
Compressed air Odorous gases Concentrated sulfuric acid Sodium bisulfate solution Oxygen **Liquors:** White, Black, Cooking Sodium hydroxide (NaOH) Brown stock filtrate Hydrogen peroxide Reject **Steams:** LP Steam, MP Steam, Flash Steam, Exhaust vapour **Condensates:** LP Condensate, MP Condensate, Secondary Condensate, Kraft mill foul Condensate **Waters:** Mill water (mech./chem. threated), Cooling water, Demineralized water, Warm water, Hot water, Sealing water, White water Knots suspension	Ball valves **KHA, KHE, KHD** Butterfly valves **KKD, KKQ** Check valves **KRC, KRG, KRD** Isolation valves (Gate, globe) **KSD, KAD, KVN** Plug valve **KPZ**	Fixed, floating and welding ends for Metallic Expansion Joints with adjustment and/or customization prior installation Vibration Absorber Fabric Expansion Joints for Fans	**Flow measurement** Magnetic flow, Vortex, Ultrasonic, Coriolis, Turbine, Ovalgear, Variable Areal, Thermal mass and dP **Pressure** Gauges, transmitters **Level** Transparent Gauges, Reflex gauges, Magnetic Gauges, Hydrostatic, Ultrasonic, Guided radar
Compressed air Odorous gases Oxygen Sodium hydroxide (NaOH) **Liquors:** Black, White, Oxidized white liquor Unbleached stock Brown stock filtrate Defoaming agent Hydrogen peroxide Pulp, Peroxide stage Reject Semibleached stock (low Cl) Talk slurry **Chlorine Dioxide:** water, pulp, filtrate (require PTFE lined or titanium valves) Concentrated sulfuric acid Sodium bisulfate solution **Steams:** LP steam, MP steam, Exhaust vapour **Condensates:** LP condensate, MP condensate, Secondary condensate, Kraft mill foul condensate **Waters:** Mill water (mech./chem. threated), Cooling water, Demineralized water, Warm water, Hot water, Sealing water, White water Knots suspension	Ball valves **KHA, KHE, KHD** Butterfly valves **KKD, KKQ** Check valves **KRC, KRG, KRD** Isolation valves (Gate, globe) **KSD, KAD, KVN** Plug valve **KPZ** Lined valves for Chlorine dioxide **KHY, KKY, KRY**	Fixed, floating and welding ends for Metallic Expansion Joints with adjustment and/or customization prior installation Vibration Absorber Fabric Expansion Joints for Fans	**Flow measurement** Magnetic flow, Vortex, Ultrasonic, Coriolis, Turbine, Ovalgear, Variable Areal, Thermal mass and dP **Pressure** Gauges, transmitters **Level** Transparent Gauges, Reflex gauges, Magnetic Gauges, Hydrostatic, Ultrasonic, Guided radar

PRODUCT OVERVIEW

Product and process mapping Pulp & Paper

PROCESS-STEP	EQUIPMENT	COMPRESSION PACKINGS	GASKETS
Evaporation	Weak black liquor feed pump	KLINGER Top-Line K3400	**Maxiflex** (for high pressure steam above 260°C)
	Contaminated condensate		
	Clean condensate pump		
		K1140 GFO®	KLINGER top-chem 2000 (For concentrated liquors up to 260°C)
	Vacuum pump	KLINGER Top-Line K3400	
	Concentrated black liquor pump		KLINGER Graphite Laminate PSM-AS (For mild caustic service)
	Tall oil pump		
Recovery Boiler	Nozzle pump	KLINGER Top-Line K3400	KLINGER Graphite Laminate PSM-AS
	Valves	KLINGER Top-Line K3222W	
	Salt cake injection	KLINGER Top-Line K3400	
	Soot blowers	KLINGER K35 DLC rings	
	Recycle pumps	KLINGER Top-Line K3400	
Recausticizing	Green and white liquor	KLINGER Top-Line K3400	KLINGER Graphite Laminate PSM-AS

PIPELINE MEDIA VALVES	VALVES	EXPANSION JOINTS	INSTRUMENTATION
Compressed air Orodous Gases **Black Liquors:** Firing black liquor, Heavy black liquor, Intermediate black liquor, Weak black liquor Sodium sulphate Defoame Methanol **Steams**: Flash steam, LP steam, MP steam, Alkaline flash vapor, Secondary vapour **Condensates:** Foul condensate, LP condensate, MP condensate, Secondary condensate, Alkaline condensate **Waters:** Mill water (mech/chem threated), Cooling water, Hot water, Sealing water, Potable water	Ball valves **KHA, KHE, KHD** Butterfly valves **KKD, KKQ** Check valves **KRC, KRG, KRD** Isolation valves (Gate, globe) **KSD, KAD, KVN** Plug valve **KPZ** Ball valves **KHA** or Plug **KPZ** with duplex material for Black liquor over 80% solid content	Rubber Expansion Joints, metallic for hottest temperature >120C and Externally Pressurized for Condensate Lines Fixed, floating and welding ends for Metallic Expansion Joints with adjustment and/or customization prior installation Vibration Absorber Special vacuum expansion joints with O-RİNG faced flanged Special customized design. Not on website.	**Flow measurement** Magnetic flow, Vortex, Ultrasonic, Coriolis, Turbine, Ovalgear, Variable Areal, Thermal mass and dP **Pressure** Gauges, transmitters **Level** Transparent Gauges, Reflex gauges, Magnetic Gauges, Hydrostatic, Ultrasonic, Guided radar
Compressed Air Orodous gases Incondensable gases Flue gas Petroleum natural gas Boiler drainage **Feed waters:** low, medium and high pressure **Waters:** Boiler water, Scrubbing water, Firefighting water, Demineralized water, Potable water, Cooling water, Sealing water, Sewer water Oxygen scavanger Hydrazine **Liquors:** Weak white liquor, Weak black liquor, Heavy black liquor, Diluted green liquor, Raw green liquor Heavy fuel oil **Steams:** Sootblowing pressure steam, Low pressure steam, Medium pressure steam **Condensates:** Low pressure condensate, Medium pressure condensate, Foul condensate	Ball valves **KHA, KHE, KHD** Butterfly valves **KKD, KKQ** Check valves **KRC, KRG, KRD** Isolation valves (Gate, globe) **KSD, KAD, KVN** Plug valve **KPZ** Ball valves **KHA** or Plug **KPZ** with duplex material for Black liquor over 80% solid content Green liquor needs metal seated ball valve with scraping seats because of crystallizising behaviour	Fixed, floating and welding ends for Metallic Expansion Joints with adjustment and/or customization prior installation Vibration Absorber Fabric Expancion Joints for Fans	**Flow measurement** Magnetic flow, Vortex, Ultrasonic, Coriolis, Turbine, Ovalgear, Variable Areal, Thermal mass and dP **Pressure** Gauges, transmitters **Level** Transparent Gauges, Reflex gauges, Magnetic Gauges, Hydrostatic, Ultrasonic, Guided radar
Compressed Air Orodous Gases Formic Acid Natural gas Flue gas Propane **Liquors:** Green liquer, White liquor, Weak White liquor **Limes:** Lime mud, Lime milk, Lime mud filtrate Polymer Sodium hydroxide (NaOH) Diesel Oil Heavy fuel oil Methanol **Steams:** LP steam, MP steam **Condensates:** Alkaline condensate, Foul condensate, Secondary condensate **Waters:** Cooling water, Demineralized water, Warm water, Hot water, Sealing water, Firefighting water, Potable water, Sewer water	Ball valves **KHA, KHE, KHD** Butterfly valves **KKD, KKQ** Check valves **KRC, KRG, KRD** Isolation valves (Gate, globe) **KSD, KAD, KVN** Plug valve **KPZ** Green liquor needs metal seated ball valve with scraping seats because of crystallizising behaviour	Metal and Rubber Expansion Joints and Fabric for Fans and Externally Pressurized for Steam Lines Fixed, floating and welding ends for Metallic Expansion Joints with adjustment and/or customization prior installation Vibration Absorber Fabric Expansion Joints for Fans	**Flow measurement** Magnetic flow, Vortex, Ultrasonic, Coriolis, Turbine, Ovalgear, Variable Areal, Thermal mass and dP **Pressure** Gauges, transmitters **Level** Transparent Gauges, Reflex Gauges, Magnetic Gauges, Hydrostatic, Ultrasonic, Guided radar

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