



# KLINGER KHD-LB

PFA-lined ball valve  
DN 15 - DN 200





GUMPOLDSKIRCHEN  
AUSTRIA





# THE KLINGER GROUP

Trust through reliability

KLINGER is an established top leader for sealing, fluid control and fluid monitoring systems. The family business, founded in 1886, presents itself today as a globally active group of companies. Successful collaboration with customers from around the world and business excellence are paramount for the KLINGER Group.

Our global network has production facilities as well as sales and service offices in more than 60 countries.

Characterized by the inherited expertise, our work is guided by high quality requirements and the pioneering spirit of several generations. At the same time, we are constantly expanding our technology and market leadership, always with the objective of increasing customer satisfaction.

We deliver top quality performance combined with passion for excellence – then, now and tomorrow.



# KLINGER WORLDWIDE

Technology leadership with service excellence

KLINGER products can be found in many different markets and sectors worldwide. We develop industry and region specific solutions that help make our customers successful today and in the future. Our leading-edge products, the know-how of our specialists and the proximity to our customers are the connecting elements of our market approach. We provide solutions for the following industries:



**GENERAL  
MANUFACTURING**



**CHEMICAL**



**OIL & GAS**



**INFRASTRUCTURE**



**ENERGY**



**PULP & PAPER**



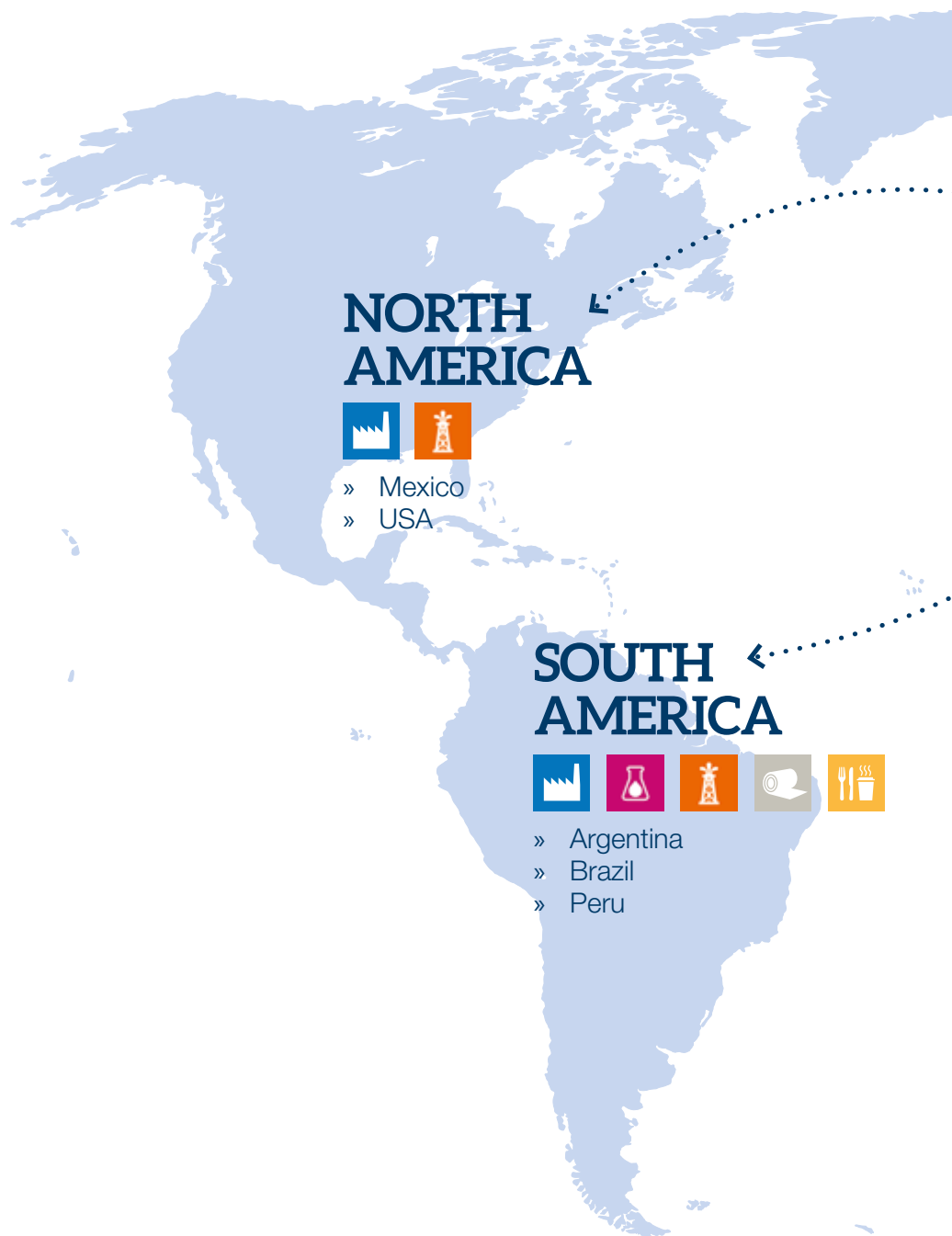
**TRANSPORT**



**PHARMA**



**FOOD & BEVERAGE**



**NORTH  
AMERICA**



» Mexico  
» USA

**SOUTH  
AMERICA**



» Argentina  
» Brazil  
» Peru

## EUROPE



- » Austria
- » Belgium
- » Denmark
- » Finland
- » Germany
- » Italy
- » Kazakhstan
- » Norway
- » Poland
- » Portugal
- » Spain
- » Sweden
- » Switzerland
- » The Netherlands
- » United Kingdom

## ASIA



- » China
- » India
- » Singapore
- » Thailand

## MIDDLE EAST & AFRICA



- » Abu Dhabi
- » Angola
- » Kuwait
- » Saudi Arabia
- » South Africa
- » Zambia

## OCEANIA



- » Australia
- » New Zealand

# HIGHEST CORROSION RESISTANCE

Before and after, perfect operation



## PRODUCT ADVANTAGES

- » PFA lining offers highest corrosion resistance.
- » Full bore offers high KV value equal to the pipeline.
- » One piece ball-stem design, no possibility of damaging PFA lining on ball due to stem movement.
- » All lining parts must pass spark test with 15KV high voltage, to ensure no air pathway within lining parts.
- » Integral mounting pad design ensure no external force exerted on packing or valve top cap position, which might lead to enlargement and inconsistency of valve output torque.



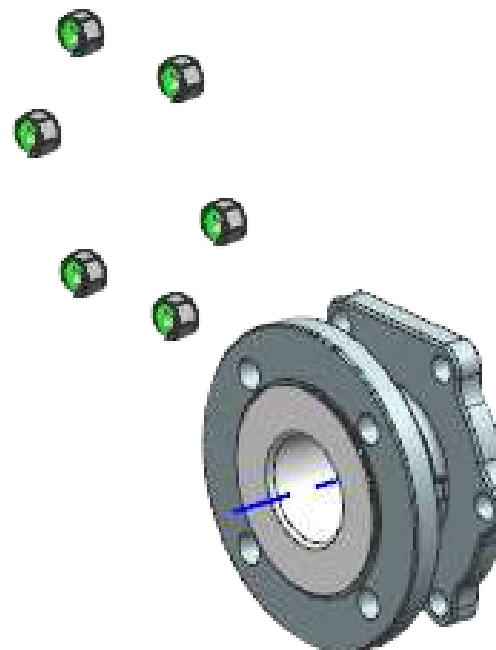
## SPECIAL TYPES

- » Tank bottom version

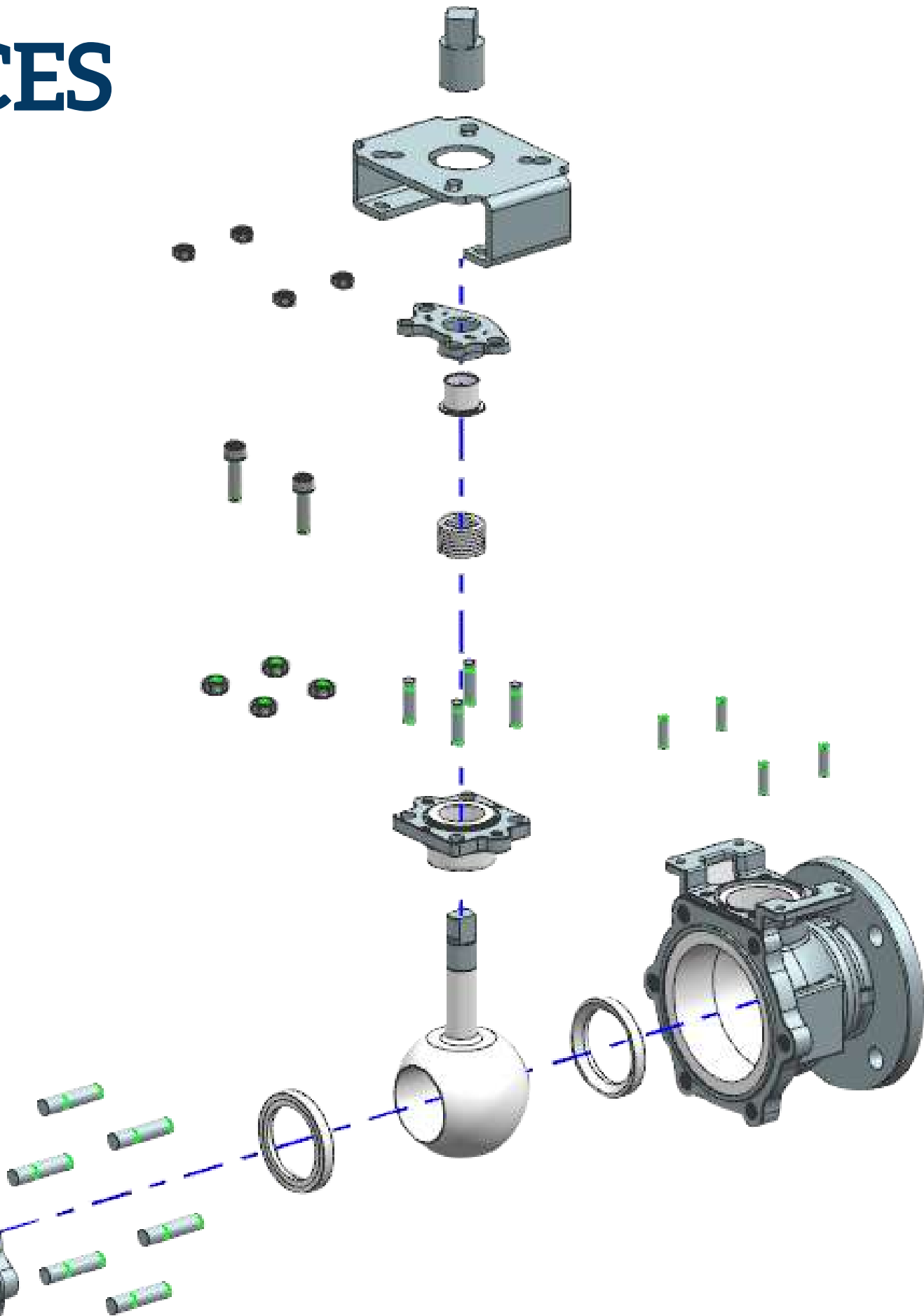


## PRODUCT DETAILS

Pressure Rating	PN16, CLASS 150, CLASS 300
DN	15 - 200
Material	Carbon steel, stainless steel, further materials upon request
Temperature	PFA: -20°C to 200°C FEP: -20°C to 150°C
Structure Design	Two piece side-entry ball valves
End Type	Flanged



ICES



# OPERATIONAL PRINCIPLE

## Reliable in most tough applications

KHD-LB series lined ball valves with PFA lining are suitable for high corrosive media in chemical industry such as sulfuric acid, hydrochloric acid, caustics, pharmaceutical applications, and semiconductor applications with ultra-pure water. Due to its design nature, lined ball valves can also be used in vacuum applications. With these features, KHD-LB lined ball valves exhibit replacement to special-alloy valves in high corrosive applications.

### High Corrosion Resistance and High Durability

KLINGER KHD-LB lined ball valve provides excellent corrosion resistance in industrial applications. It has good chemical stability, high corrosion resistance, low rubbing modulus, and self-lubricate features, which is suitable for alkali and acid applications in semiconductor manufacturing process, gas, and pharmaceutical applications.

The valve body is designed with stem-ball one-piece design for better molding of PFA lining material. With stem and ball assembled together, contact between ball and stem is eliminated, thus, provides strong body strength against media flow.

With genuine DAIKIN NEOFLON PFA raw material, KLINGER KHD-LB lined ball valve is able to operate under 150°C and 10 Bar working conditions. Other lining materials are available upon request for different purposes.

### Seal Effects

With patterned design, KLINGER KHD-LB PFA lined ball valve offers perfect stem seal.

Multiple seal structure prevent leakage to minimum. The first sealing comes through thrust washer for tight sealing effect. The second sealing is V-shape structure packing system with flexible feature. The more pressure comes from valve bore, the more tightened it will become. For high demanding requirements, spring set is used to uniformly compress-packing downward for actuator applications.

### Spark Test

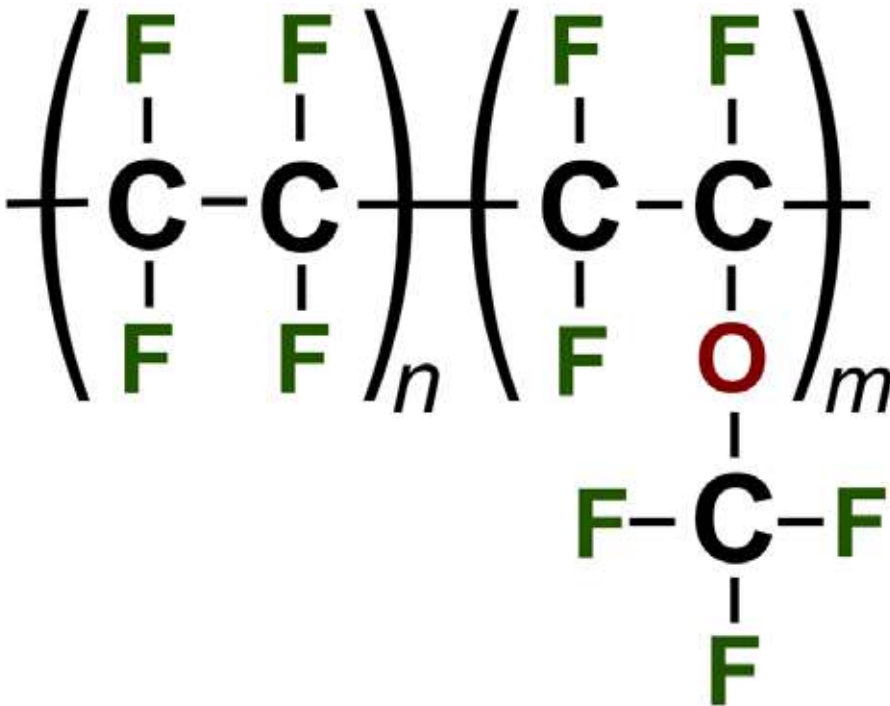
During production, the liner integrity of each liner component is checked by using an electrostatic discharge "spark" tester. The entire lined surface is tested at a voltage of 15kV to identify any voids, cracks or pinholes that indicate gasket rupture.



### Wedge Groove Design

allows PFA lining layer to firmly attached on the valve body without falling apart when encounter high pressure applications.





### Material Selections

KLINGER KHD-LB lined ball valve provides PFA and FEP lining material to fit different needs.

PFA has alkoxy substitutes in which it can be melt-processed. However, it also differs from a molecular level as it has a smaller chain length than other fluoropolymers. It is extremely durable which makes it suitable for use in demanding application. It is also the preferred option when it comes to choosing a material that requires high chemical resistance as well as high purity and low stiffness while it is also extremely durable when it comes to resisting weathering. It has a lower melting temperature when compared to PTFE while it has great insulation properties and is UV resistant which also adds to its durability.

All PFA material made with DAIKIN Neoflon PFA AP-230 in accordance with FDA requirement.

FEP has non-stick properties which again makes it suitable for use in applications where residues or oils are likely. FEP does have a softer makeup when compared to that of PTFE and that means that it can melt at a lower temperature which means that it is not suitable in applications that are exposed to high temperatures. Along with this, it is also transparent while it is resistant to sunlight and UV which makes it suitable for use in applications that are exposed to the elements.



# PFA-LINED BALL VALVE KHD-LB

## Overview of types



**KHD-LB-PN16**  
PFA-lined ball valve, PN16



**KHD-LB-CL150**  
PFA-lined ball valve, CLASS 150



**KHD-LB-CL300**  
PFA-lined ball valve, CLASS 300



**KHD-LBTB-PN16**  
PFA-lined Tank Bottom ball valve,  
PN16

# PFA-LINED BALL VALVE KHD-LB-PN16

## Flanged connection

### GENERAL FEATURES

- » PFA lining offers highest corrosion resistances.
- » Full bore offers high KV value equal to the pipeline.
- » One piece ball-stem design, no possibility of damaging PFA lining on ball due to stem movement.
- » All lining parts must pass spark test with 15KV high voltage, to ensure no air pathway within lining parts.
- » Integral mounting pad design ensure no external force exerted on packing or valve top cap position, which might lead to enlargement and inconsistency of valve output torque.

### CONNECTIONS

Flange in acc. with EN 1092-1

### DIMENSIONS

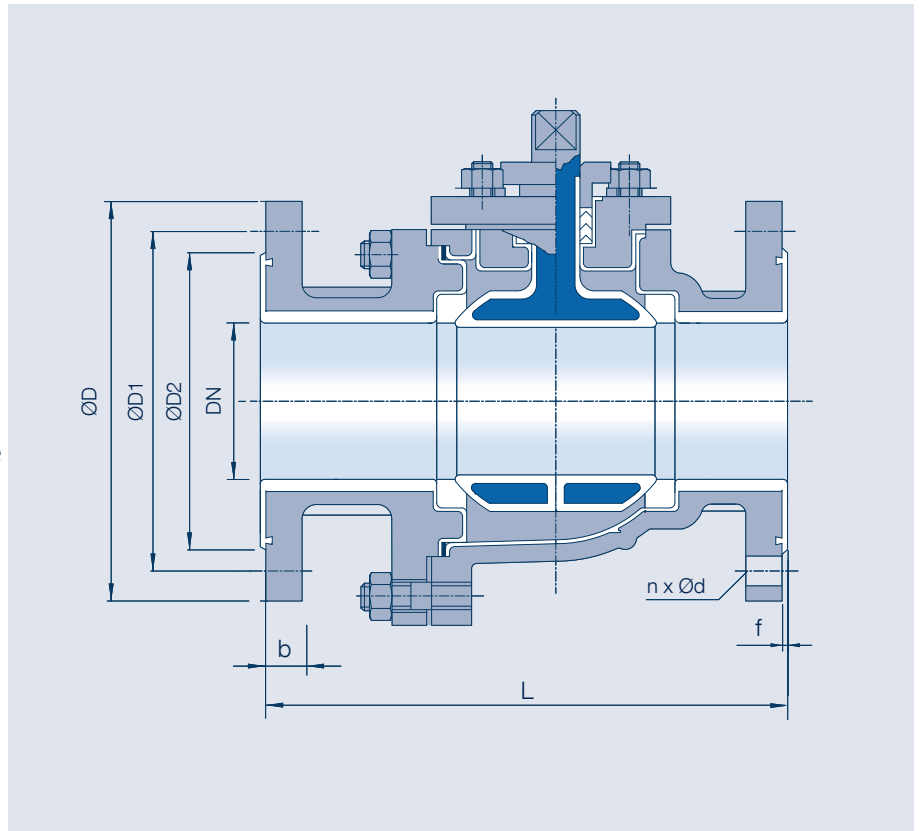
Face to Face Dimension in acc. with EN 558-1 Series 1

### ACCEPTANCE TESTING

- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: ISO 5208 Rate A
- » Spark Test: Tested by electrostatic spark at 15K volts, scanning along the surface of the liner at a speed of 50mm/s. Charge breakdown is not allowed.

### TEMPERATURE

- » PFA-lined: -20 °C to +200 °C
- » FEP-lined: -20 °C to +150 °C



### AUTOMATION

Flange connection in accordance with ISO 5211, allows for assembly of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

### STANDARD

Material: Steel casting 1.0619  
(Material code VIII)  
Stainless steel casting 1.4308  
(Material code Xc)

DN	Dimensions							Weight
	L	D	D1	D2	n x ød	b	f	kg
15	130	95	65	45	4 x 14	16	2	3.5
20	150	105	75	58	4 x 14	18	2	4
25	160	115	85	68	4 x 14	18	2	5.5
32	180	140	100	78	4 x 18	18	2	7
40	200	150	110	88	4 x 18	18	2	9
50	230	165	125	102	4 x 18	18	2	15.5
65	290	185	145	122	8 x 18	18	2	19.5
80	310	200	160	138	8 x 18	20	2	30
100	350	220	180	158	8 x 18	20	2	40
150	480	285	240	215	8 x 22	27	2	57
200	600	340	295	265	12 x 22	29	2	73.5

# PFA-LINED BALL VALVE KHD-LB-CL150

## Flanged connection

### GENERAL FEATURES

- » PFA lining offers highest corrosion resistances.
- » Full bore offers high KV value equal to the pipeline.
- » One piece ball-stem design, no possibility of damaging PFA lining on ball due to stem movement.
- » All lining parts must pass spark test with 15KV high voltage, to ensure no air pathway within lining parts.
- » Integral mounting pad design ensure no external force exerted on packing or valve top cap position, which might lead to enlargement and inconsistency of valve output torque.

### CONNECTIONS

Flange in acc. with ASME B16.5

### DIMENSIONS

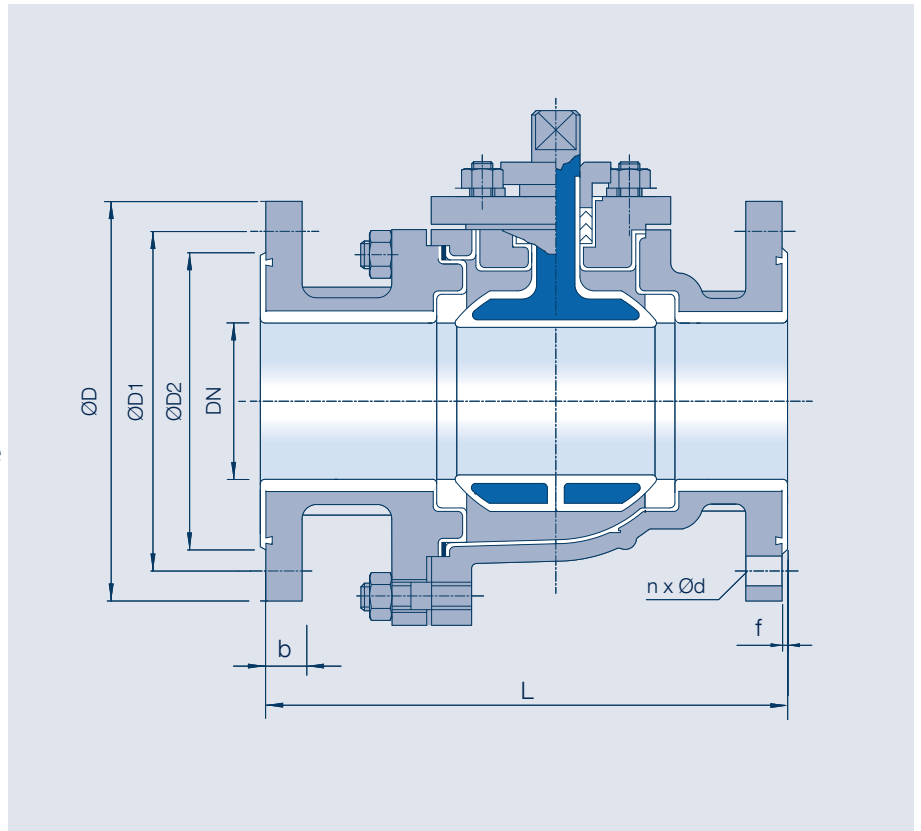
Face to Face Dimension in acc. with ASME B16.10

### ACCEPTANCE TESTING

- » Shell strength: API 598
- » Shell tightness: API 598
- » Seat leak tightness: ISO 5208 Rate A
- » Spark Test: Tested by electrostatic spark at 15K volts, scanning along the surface of the liner at a speed of 50mm/s. Charge breakdown is not allowed.

### TEMPERATURE

- » PFA-lined: -20 °C to +200 °C
- » FEP-lined: -20 °C to +150 °C



### AUTOMATION

Flange connection in accordance with ISO 5211, allows for assembly of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

### STANDARD

Material: Steel casting WCB  
(Material code VIII)  
Stainless steel casting CF8  
(Material code Xc)

NPS	Dimensions							Weight
	L	D	D1	D2	n x ød	b	f	kg
1/2	108	90	60.5	35	4 x 15	12.5	2	3.5
3/4	117	100	70.0	43	4 x 15	13	2	4
1	127	110	79.5	51	4 x 15	13	2	5.5
1¼	140	115	89.0	63.5	4 x 15	15	2	7
1½	165	125	98.5	73	4 x 15	17	2	9
2	178	150	120.5	92	4 x 19	18.5	2	15.5
2½	190	180	140	105	4 x 19	20	2	19.5
3	203	190	152.5	127	4 x 19	21.5	2	30
4	229	230	190.5	157	8 x 19	26.5	2	40
6	267	280	241.5	216	8 x 22	27	2	57
8	292	345	298.5	270	8 x 22	29	2	73.5



# PFA-LINED BALL VALVE KHD-LB-CL300

## Flanged connection

### GENERAL FEATURES

- » PFA lining offers highest corrosion resistances.
- » Full bore offers high KV value equal to the pipeline.
- » One piece ball-stem design, no possibility of damaging PFA lining on ball due to stem movement.
- » All lining parts must pass spark test with 15KV high voltage, to ensure no air pathway within lining parts.
- » Integral mounting pad design ensure no external force exerted on packing or valve top cap position, which might lead to enlargement and inconsistency of valve output torque.

### CONNECTIONS

Flange in acc. with ASME B16.5

### DIMENSIONS

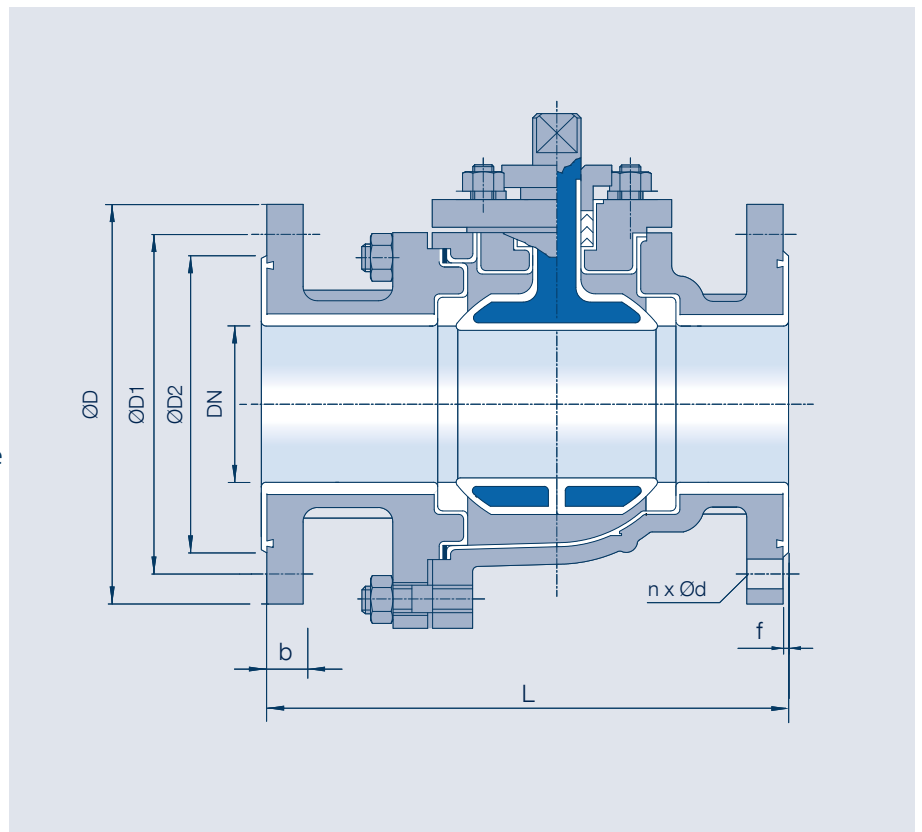
Face to Face Dimension in acc. with ASME B16.10

### ACCEPTANCE TESTING

- » Shell strength: API 598
- » Shell tightness: API 598
- » Seat leak tightness: ISO 5208 Rate A
- » Spark Test: Tested by electrostatic spark at 15K volts, scanning along the surface of the liner at a speed of 50mm/s. Charge breakdown is not allowed.

### TEMPERATURE

- » PFA-lined: -20 °C to +200 °C
- » FEP-lined: -20 °C to +150 °C



### AUTOMATION

Flange connection in accordance with ISO 5211, allows for assembly of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

### STANDARD

Material: Steel casting WCB  
(Material code VIII)  
Stainless steel casting CF8  
(Material code Xc)

DN	Dimensions						
	L	D	D1	D2	n x ød	b	f
1/2	140	95	66.7	35	4 x 15.9	14.7	2
3/4	152	115	82.6	43	4 x 19	16.3	2
1	165	125	88.9	51	4 x 19	17.9	2
1¼	178	135	98.4	63.5	4 x 19	19.5	2
1½	190	155	114.3	73	4 x 22	21.1	2
2	216	165	127	92	8 x 19	22.7	2
2½	241	190	149.2	104.8	8 x 22	25.9	2
3	282	210	168.3	127	8 x 22	29.0	2
4	305	255	200	157.2	8 x 22	32.2	2
6	403	320	235	216	12 x 22	37.0	2
8	502	380	269.9	270	12 x 25.4	41.7	2

# PFA-LINED TANK BOTTOM BALL VALVE KHD-LBTB-PN16

## Flanged connection

### GENERAL FEATURES

- » PFA lining offers highest corrosion resistances.
- » Full bore offers high KV value equal to the pipeline.
- » One piece ball-stem design, no possibility of damaging PFA lining on ball due to stem movement.
- » All lining parts must pass spark test with 15KV high voltage, to ensure no air pathway within lining parts.
- » Integral mounting pad design ensure no external force exerted on packing or valve top cap position, which might lead to enlargement and inconsistency of valve output torque.

### CONNECTIONS

Flange in acc. with EN 1092-1

### DIMENSIONS

Face to Face Dimension in acc. with manufacturer's standard

### ACCEPTANCE TESTING

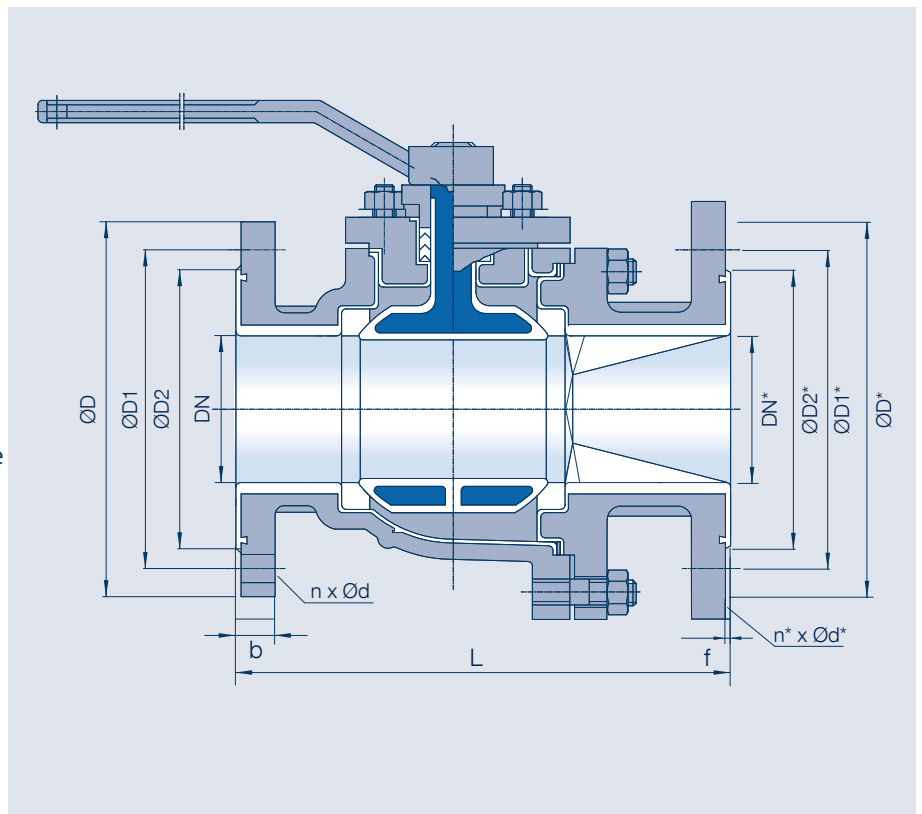
- » Shell strength: API 598
- » Shell tightness: API 598
- » Seat leak tightness: ISO 5208 Rate A
- » Spark Test: Tested by electrostatic spark at 15K volts, scanning along the surface of the liner at a speed of 50mm/s. Charge breakdown is not allowed.

### TEMPERATURE

- » PFA-lined: -20 °C to +200 °C
- » FEP-lined: -20 °C to +150 °C

### STANDARD

Material: Steel casting 1.0619  
(Material code VIII)  
Stainless steel casting 1.4308  
(Material code Xc)



### AUTOMATION

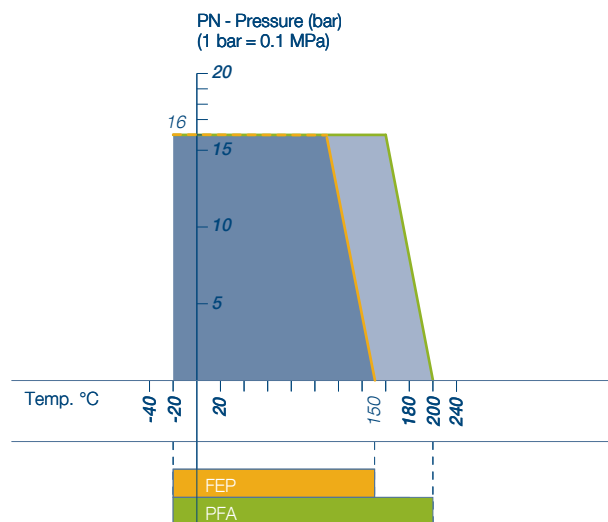
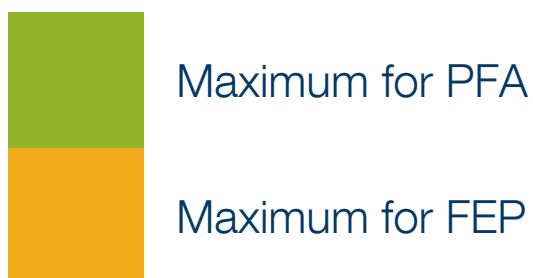
Flange connection in accordance with ISO 5211, allows for assembly of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

DN	Dimensions						
	L	D	D1	D2	n x ød	b	f
25/40*	140	115/130*	85/100*	68/80*	4 x 14/4* x 14*	18/18*	2/2
25/50*	140	115/140*	85/110*	68/90*	4 x 14/4* x 14*	18/18*	2/2
32/50*	165	140/140*	100/110*	78/80*	4 x 18/4* x 14*	18/18*	2/2
32/65*	165	140/160*	100/130*	78/110*	4 x 18/4* x 14*	18/18*	2/2
40/80*	170	150/190*	110/150*	88/128*	4 x 18/4* x 14*	18/18*	2/2
40/100*	170	150/210*	110/170*	88/148*	4 x 18/4* x 18*	18/18*	2/2
40/125*	170	150/240*	110/200*	88/178*	4 x 18/8* x 18*	18/18*	2/2
50/80*	190	165/190*	125/150*	102/128*	4 x 18/4* x 18*	18/20*	2/2
50/100*	190	165/210*	125/170*	102/148*	4 x 18/4* x 18*	18/20*	2/2
50/125*	190	165/240*	125/200*	102/178*	4 x 18/8* x 18*	18/20*	2/2
50/150*	190	165/265*	125/225*	102/202*	4 x 18/8* x 18*	18/20*	2/2
65/100*	220	185/210*	145/170*	122/148*	4 / 8 x 18/8* x 18*	18/20*	2/2
65/125*	220	185/240*	145/200*	122/178*	4 / 8 x 18/8* x 18*	18/20*	2/2
80/100*	245	200/210*	160/170*	138/148*	8 x 18/4* x 18*	20/20*	2/2
80/125*	245	200/240*	160/200*	138/178*	8 x 18/8* x 18*	20/20*	2/2
80/150*	245	200/265*	160/225*	138/202*	8 x 18/8* x 18*	20/20*	2/2

\* Note: Dimensions of Tank bottom side are in accordant with manufacturer's standard.

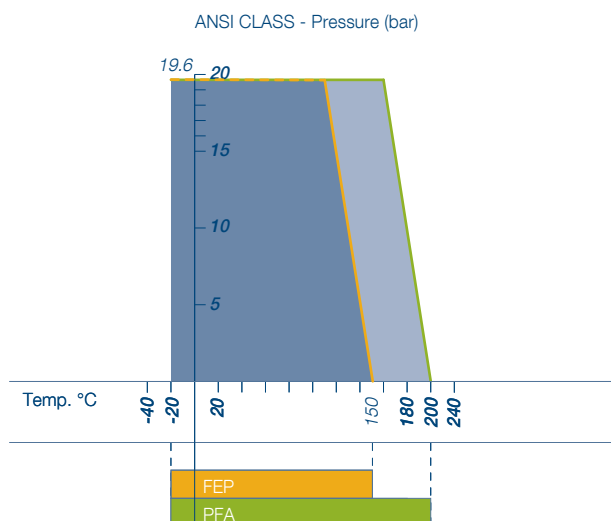
# TECHNICAL DETAILS

## Pressure and temperature charts



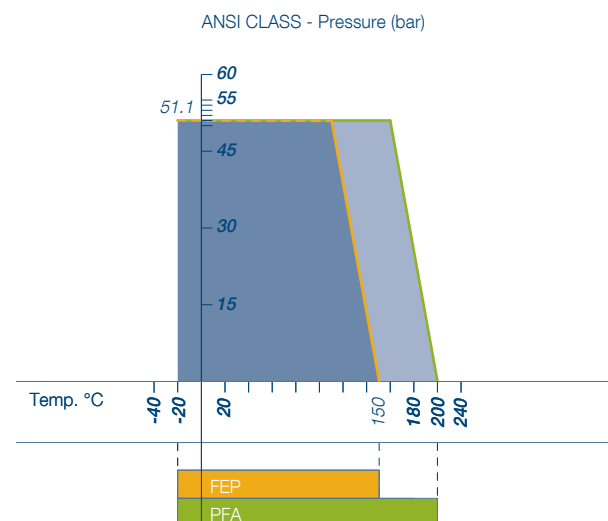
**KHD-LB/LBTB-PN16**

Material code Xc/VIII



**KHD-LB-CL150**

Material code Xc/VIII



**KHD-LB-CL300**

Material code Xc/VIII

# PRODUCT OVERVIEW

**KHD-FSB**  
fire safe ball valves



**KHD**  
general ball valves



**KHD-SG**  
segmented ball valves



**KSD-GTF**  
gate valves



**KSD-KG**  
knife gate valves



**KAD-GBF**  
globe valves



## AREAS OF APPLICATION



INDUSTRY



OIL & GAS



CHEMICAL



INFRASTRUCTURE



ENERGY



PHARMA



**KHD-LB**  
PFA-lined ball valves



**KKD-81**  
concentric  
butterfly valves



**KKD-82/83**  
eccentric  
butterfly valves



**KAD-BLGB**  
bellow globe valves



**KRD**  
check valves



**KPD**  
plug valves



# ACCESSORIES & OTHERS



**Pneumatic  
Actuator**



**Electric  
Actuator**



**Solenoid Valve**



**Limit Switch**



**KFD-YSF  
Y-Strainer**





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