TECHNICAL
information

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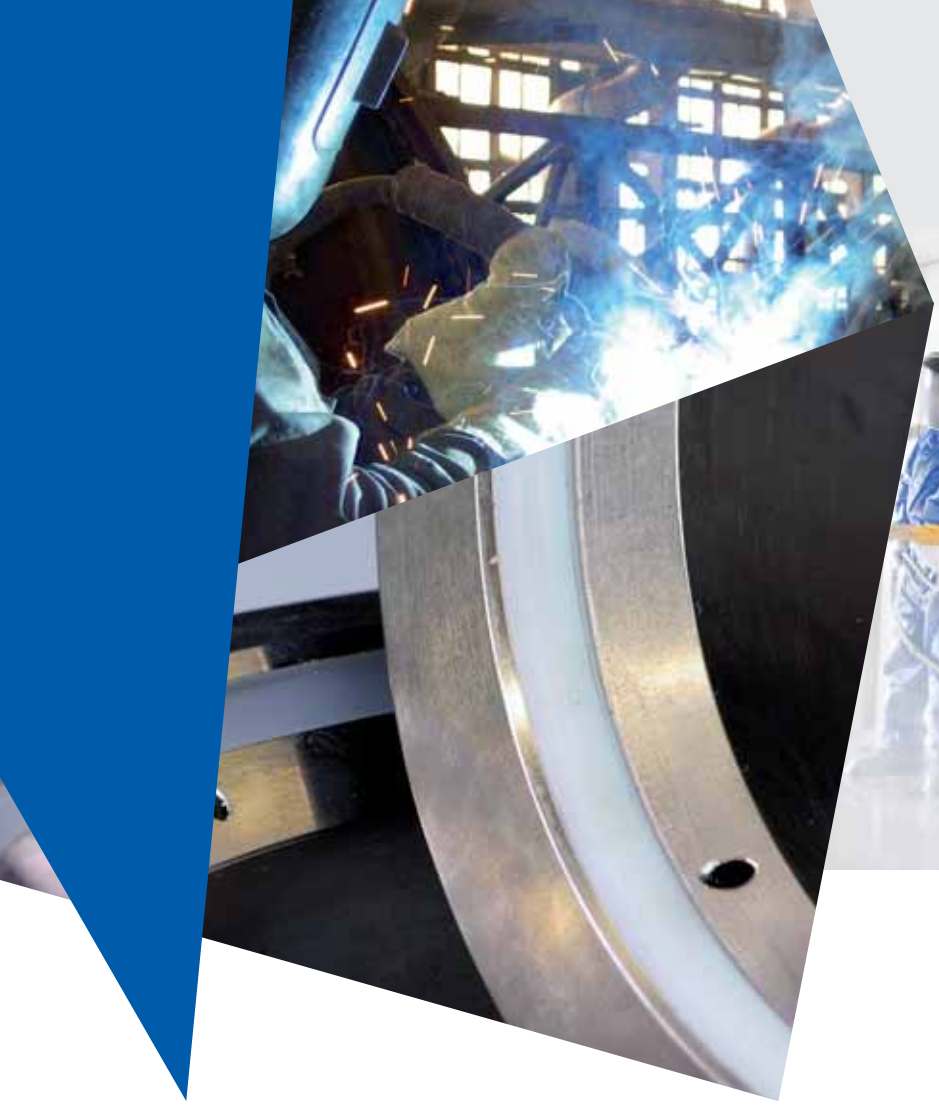


Materials

Sealing

Seals materials are selected according to the service of the valve and leakage requirement. Zero leakage is easier obtained by softer seals, while the resistance to scratches and to other factors (temperature, pressure, erosion) is obtained by harder seals.

Protective coating

Experienced and approved contractors. Qualified trained and certified in accordance with most remarkable technical standard for protective coating.

CRA weld overlay

MIG welding with globular transfer, pulse transfer, and spray transfer.
Corrosion-resistant weld overlays are used to improve the service life of components made with an otherwise corrosion-prone material.
On request, seat pocket area overlay, seal area overlay, or completed cladding on wetted surface welded overlays in Inconel 625, Stainless Steel 316, or Electroless Nickel Plating.

Construction Standards

API	American Petroleum Institute
Spec. 6A	Specification for wellhead and christmas tree equipment
Spec. 6D	Specification fot pipeline valves
Spec. 6DSS	Specification on Subsea Pipeline Valve
Spec. 6FA	Specification for firetesting of valves
Std. 598	Valve inspection and test
Std. 605	Large diameter carbon steel flanges
Std. 607	Fire test for soft seated quarter-turn valves

ASTM	American Society for Testing Materials
01.01	Steel piping, tubing and fittings
01.02	Ferrous casting Ferro alloys
02.01	Copper and Copper alloys
02.04	Nichel and Nichel alloys
03.01	Metals - Mechanical testing Elevated & low temperature test Metallography
03.03	Nondestructive testing

British Standard	
BS 1560	Steel pipe flanges and flanged fittings
BS 2080	Face-to-face, centre-to-face, end-to-end, and centre-to-end dimension of flanged and butt-welding end steel valves for the petroleum, petrochemical and allied industries
BS 4504	Flanges and bolthings for pipes valves and fittings
BS 5146	Inspection and test of steel valves for the petroleum, petrochemical and allied industries
EN ISO 17292	Metal ball valves for the petroleum, petrochemical and allied industries
BS 6755	Testing of valves

ANSI	American National Standard Institute
ASME	American Society of Mechanical Engineers
B16.11	Forged steel fitting socket-welding and threaded
B16.5	Steel pipe flanges and flanged fittings
B16.10	Face-to-face and end to end dimensions of ferrous valves
B16.25	Butt welding ends
B16.34	Steel valves - Flanged and butt welding ends
B16.47	Large diameter steel flanges (NPS 26 through NPS 60) Large diameter carbon steel flanges
B31.3	Chemical plant and petroleum refinery piping system
B31.4	Liquid petroleum transportation piping systems
B31.8	Gas transmission and distribution piping systems

MSS	Manufactures Standardization Society
SP 6	Standard finishes for contact faces of pipe flanges and connecting - end flanges of valves and fittings
SP 25	Standard marking system for valves fittings, flanges and unions
SP 44	Steel pipeline flanges
SP 55	Quality standard for steel castings - visual method
SP 61	Hydrostatic testing of steel velves
SP 72	Ball valves with flanged or butt - welding ends for general service

ISO	International Organization for Standardization
ISO 9001	Quality systems - Model for quality assurance in design/development, production, installation and servicing

NACE	National Association of Corrosion Engineers
MR-01-75	Sulfide stress cracking resistant metallic materials for oil field equipment

Construction materials

		ASTM	UNS	OTHER DESIGNATION	APPLICATIONS	
Carbon Steel	CS	AISI 4140	G41400			
		A694 F52				
		A694 F60		API 6A 60K		
		A694 F65				
	LTCS	A350 LF2	K03011		-46°C	Low temperature
		A350 LF3	K32025		-101°C	
Stainless Steel	Austenitic SS	A182 F304	S30400			Sour service Cryo (-196°c) & lt
		A182 F316	S31600			
		A182 F316L	S31603			
		A182 F316Ti	S31635			
		A182 F321	S32100			
		A182 F347	S34700			
		A182 F44 (superaustenitic)	S31254	6% Mo	Cloride service	
		A182 FX-M19	S20910	NITRONIC 50		
	Martensitic SS	A182 F6A	S41000	AISI 410 - 13% Cr		
		A182 F6NM	S41500	AISI 415	-70°C	
		17-4 PH	S17400			
	DSS (Duplex)	A182 F51	S31803	SAF 2205	Marine environement	Sour service High pressure
		A182 F60				
		A182 F53 (superduplex)	S32750	SAF 2507	Subsea	
		A182 F55 (superduplex)	S32760			
	Special Alloy	B446	N06625	INCONEL 625		H2s (>5%) very sour service
			N08825	INCOLOY 825		
		B637	N07718	INCONEL 718		
		B164	N04400	MONEL 400	Alchylation	
			N05500	MONEL K500	Alchylation	
			N06022	HASTELLOY-C22	Hypoclorite service	
			N10276	ALLOY C276		
Other Materials		A387		TITANIUM		
		B348	C95500	BRONZE		
		B148	C95800	BRONZE		
		B151	C70600	BRONZE		
		B62		BRONZE		

Seal materials

	DESIGNATION	SPECIAL APPLICATION
Standards	FKM 90	
	FKM 90 - AED (Anti Explosive Decompression)	
	HNBR	Methanol
	HNBR - AED (Anti Explosive Decompression)	Methanol
Available	KALREZ (FFKM)	Hi-Temp. (up to 327°C)
	ELAST-O-LION 101 (HNBR)	Methanol
	ELAST-O-LION 985 (HNBR)	Low Temp. (up to -46°C)
	GLT	
	ENDURA	

Bolting materials*

BODY MATERIAL	STD BOLTING	OTHER AVAILABLE
CS	B7/2H	B7M/2HM
LTCS	L7/4	L7M/7M
SS	B8/8	B8M/8M
		B8M/8M Cl.2
DSS	B7/2H HDG	UNS S31803
		UNS S32750
		UNS S32760

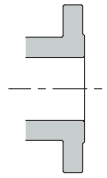
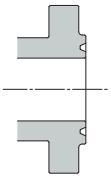
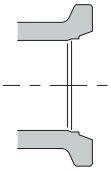
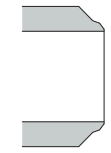
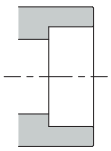
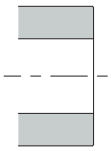
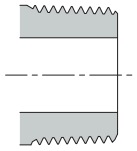
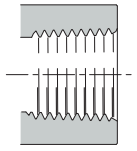
Seat materials**

	DESIGNATION	SPECIAL APPLICATION
Standards	RPTFE (filled with glass or carbongraphite)	
	DEVLON V (NYLON)	
	PEEK	Hi-Temp (up to 230°C) Hi-Pressure
	PCTFE (Kel-F®)	Cryogenic service
Available	VESPEL	Very Hi-Temp (above 300°C)
	DELRIN	

***Upon request:** A453 Gr.660, Monel K500
Treatment like HDG, Zinc Plating, PTFE coating

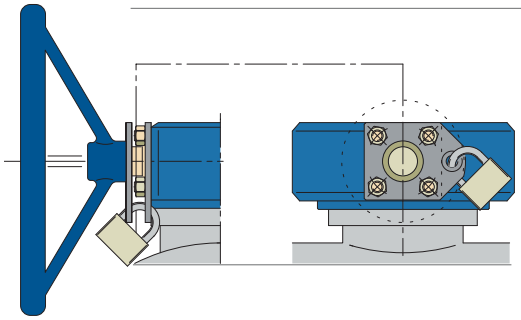
** All valves have secondary graphite seal. ***Upon request:***
(or in case of special applications) other kind of seals are also available
(Garlock packing, lip-seal, PTFE ring, Chevron packing)

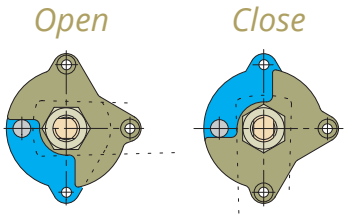
Ends

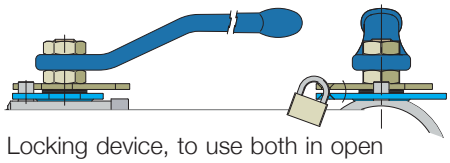
	SHAPE	TYPE	DESCRIPTION	APPLICATIONS
FLANGED		RF	*Raised Face* Sealing on RF flanges is by flat non-metallic gaskets fitted within the bolts of the flanges. Surface finish is controlled depending on the type of gaskets being used.	Typically used for low pressure (class 150-300-600)
FLANGED		RJ	*Ring Joint* Ring type metal gaskets must be used on this type of flange facing.	Typically used for high pressure (class 900-1500-2500-API 6A) May be equipped as per NORSOK-L005
CLAMP		HUB	This coupling requires bolting, clamps and seal ring. As different designs are produced by different manufacturers we always require to the customer to supply the HUB machining drawing.	Typically used for high pressure (class 900-1500- 2500-API 6A)
WELDED (WE)		BW	*Butt Welding* This construction offers the highest verifiable integrity of welding as BW connections are easy to radiograph. Different schedules can be supplied.	BW ends are generally used when the possibility of fluid leakage must be eliminated.
WELDED (WE)		SW	*Socket Welding* This kind of welding end match to the PE end.	Typically used for applications where no extremely hazardous fluids neither fluids with tendency for crevice corrosion are present.
WELDED (WE)		PE	*Plain Ends* This kind of welding end match to the SW end.	
THREADED		NPT (M)	Threaded joints as per American National Taper	Typically used on commodity valves.
THREADED		NPT (F)		

Others available:
BSP (ISO 228/1 e ISO 7/1), flat face, large female, large groove, compact flange, sae.

Locking device *Gear and lever operated - optional*

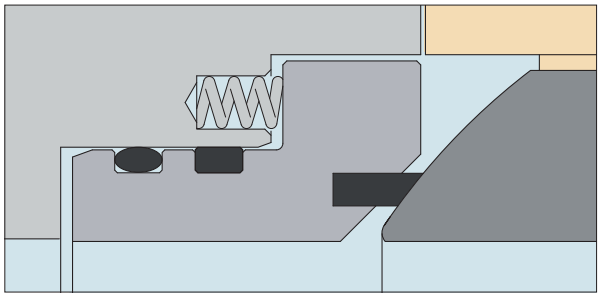




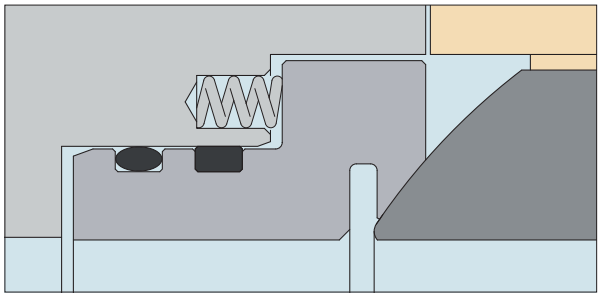


Locking device, to use both in open and in close position is suitable to receive padlock.

Seat design *- standard*



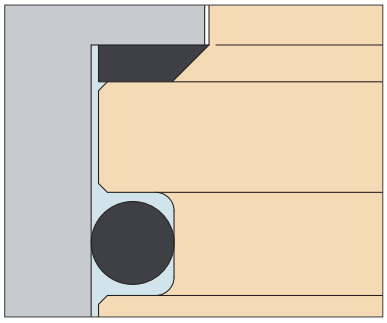
Soft seated valves are provided with a metal seat ring which is sealing against the ball by means of a resilient insert and against the body by a seat gasket.



Metal seated valves are recommended for abrasive service and for the higher operating temperatures.
Ball and seat rings contact surfaces are with tungsten or chrome carbide coating.

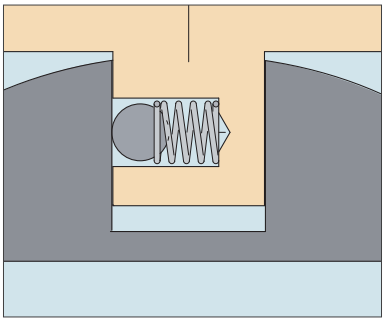
Anti static device *- standard*

Floating type



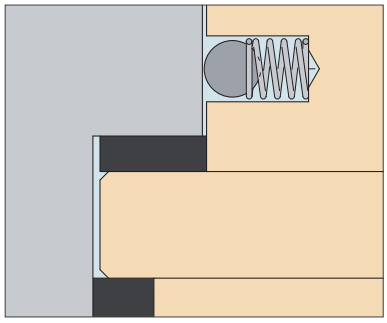
Anti static gasket grants conductivity between body and stem.

Floating and Trunnion type



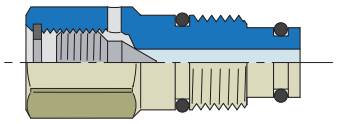
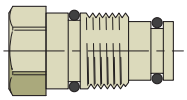
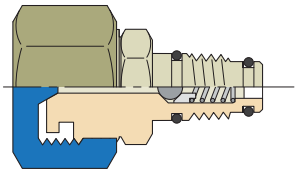
Antistatic device between ball and stem is a direct metal contact.*

Trunnion type

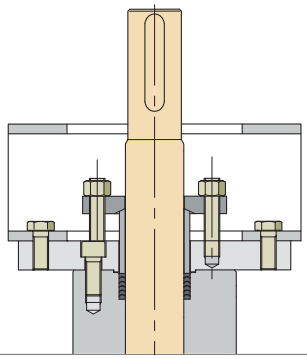
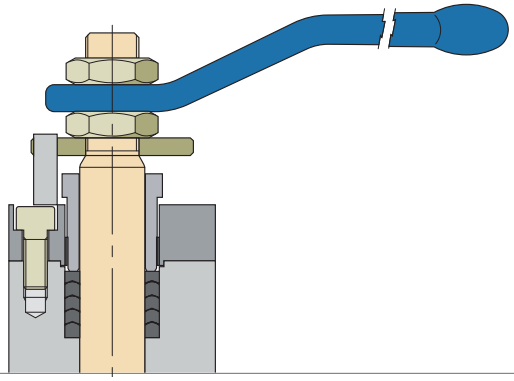


Anti static ball with spring grants conductivity between body and stem.

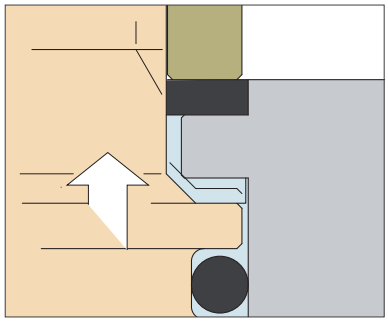
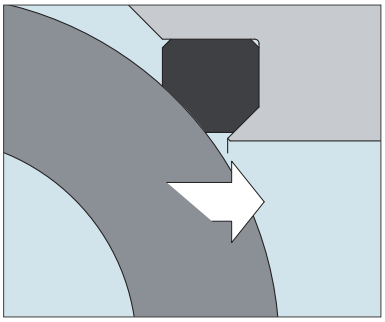
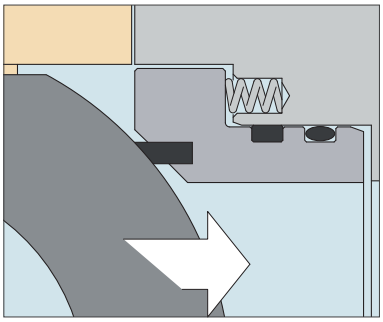
Double O-Ring feature *- optional*

Vent Bleeder	Drain plug	Seat Grase / Sealant injector
		

Low fugitive emission *Stem packing according to ISO 15848 - optional*

Gear operated or bare stem	Lever operated
	

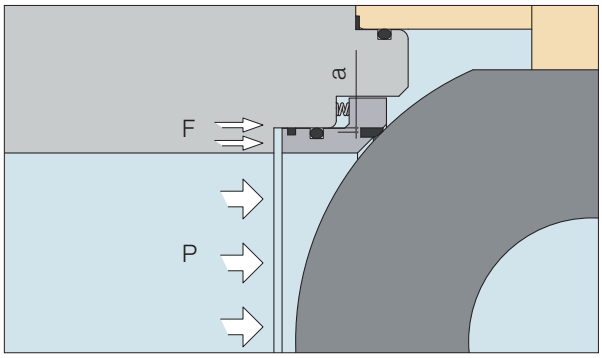
Fire safe *Designed in accordance with API 607 - standard*

Floating type	Floating and Trunnion type	Trunnion type
		

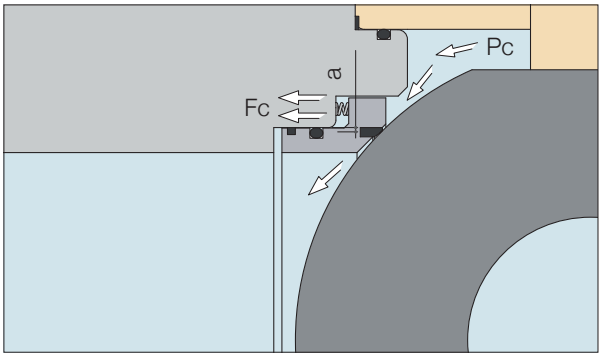
When non-metal parts are destroyed in a fire, the upstream medium pressure push the ball into the downstream metal seat lip and the stem to the body preventing leakage due to a secondary metal-to-metal seals.
For all static seals and on the stem for trunnion execution the fire safe is provided by a secondary graphite sealing.

**** On request:*** ball with spring option can also be done between ball and stem.

Single piston effect (self relieving)* *Uni-directional seat - standard*

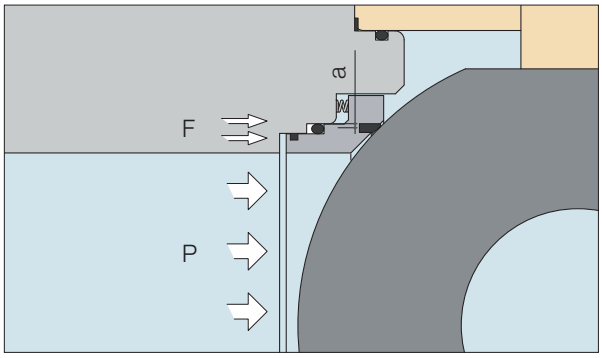


The pressure upstream P and the gap “a” produce the force “F” that pushed seat against the ball

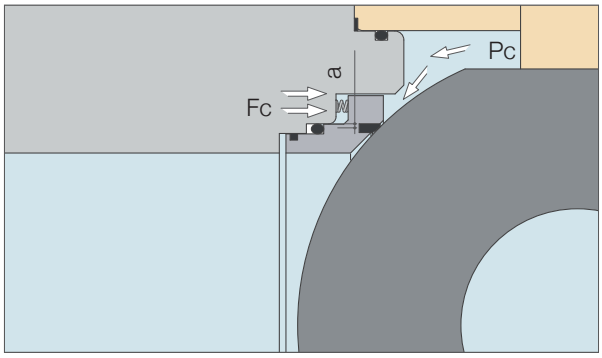


The pressure in body cavity Pc and the gap “a” produce the force “Fc” that pushes away the seat from the ball and the body cavity pressure can relief in flow line

Double piston effect * *Bi-directional seat - optional*



The pressure upstream P and the gap “a” produce the force “F” that pushed seat against the ball



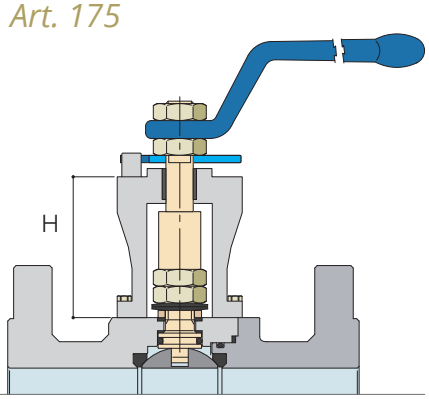
The pressure in body cavity Pc and the gap “a” produce the force “Fc” that pushes the seat always against the ball and the body cavity pressure can not relief in flow line

Stem extension ** *Cryogenic design - standard for cryogenic execution*

Floating type

DN	H
1/2”	150
3/4”	150
1”	150
1” 1/4	150
1” 1/2	150
2”	200
2” 1/2	200
3”	250
4”	300
6”	300

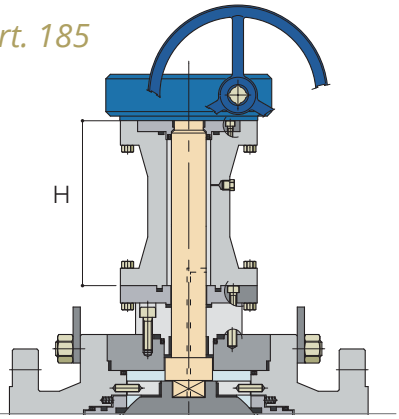
Art. 175



Trunnion type

DN	H
1”	150
1” 1/2	150
2”	200
3”	250
4”	300
6”	300
8”	300
10”	300
≥12”	300

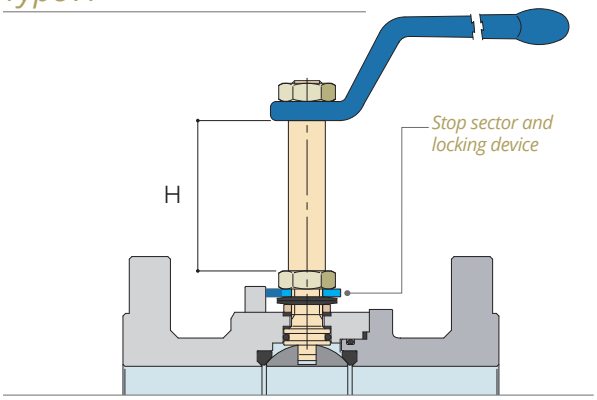
Art. 185



Stem extension *Special lenght upon request*

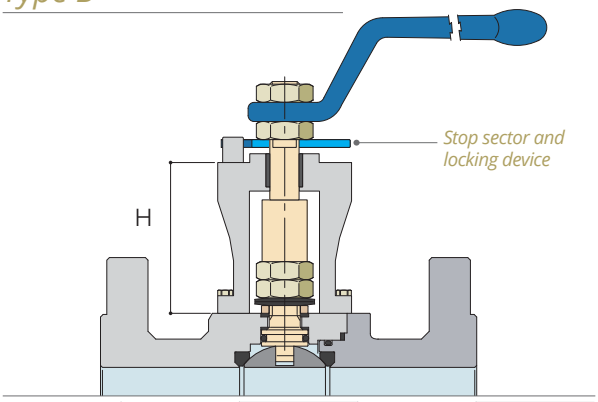
Floating type

Type A



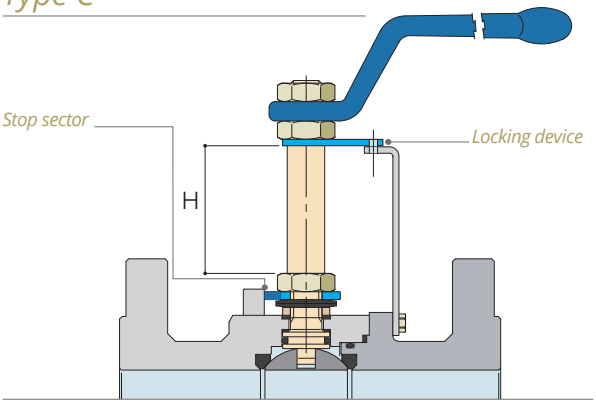
H	30	50	80	100 (max)

Type B



H	80	100	150	200

Type C

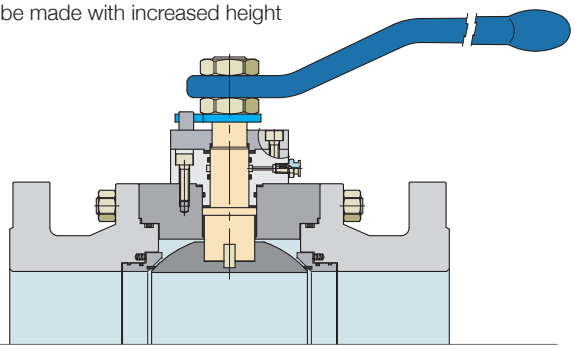


H	30	50	80	100 (max)

Trunnion type

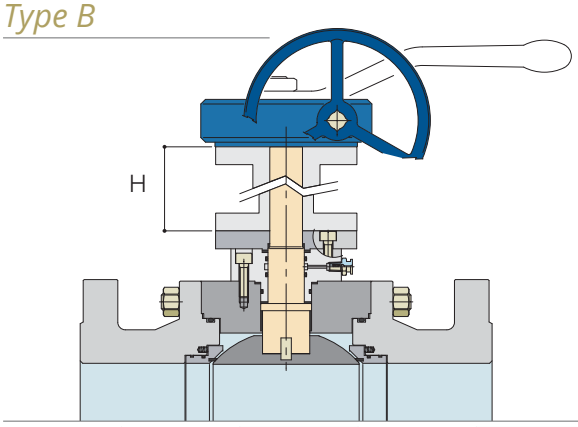
Type A

Up to extension with L=100 Gland flange
will be made with increased height



Increased height gland flange	50	80	100 (max)

Type B



H	150	200	250	300

*** On request:** Ball valves can be supplied with both seats uni-directional, both seats bi-directional or a combination of the two.

**** On request:** Special lenght or according to MS SP134

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