PERSTA

A 182 Gr. F22 Cl.3 [4]

Working pressure in PSIG classes								Working pressure in bar							
Temp. °F	600	725	900	1500	1850	2500	3200	Temp. °C	6				1850	2500	3200
100	1500.0	1812.5	2250.0	3750.0	4625.0	6250.0	8000.0	38					318.9	430.9	551.6
200	1500.0	1813.0	2250.0	3750.0	4625.0	6250.0	8000.0	50					318.9	430.9	551.6
300	1455.0	1759.0	2185.0	3640.0	4490.5	6070.0	7769.6	100					317.7	429.4	549.7
400	1410.0	1704.0	2115.0	3530.0	4352.5	5880.0	7526.4	150					309.4	418.2	535.3
500	1330.0	1607.0	1995.0	3325.0	4100.3	5540.0	7091.2	200					300.1	405.4	518.9
600	1210.0	1462.0	1815.0	3025.0	3730.3	5040.0	6451.2	250					285.8	386.2	494.0
650	1175.0	1421.0	1765.0	2940.0	3627.8	4905.0	6278.4	300					264.3	357.1	457.0

High pressure valves

- CLASS 900 - 4500

▪ About PERSTA

Industrial valves made by company Stahl-Armaturen PERSTA GmbH are designed according to DIN-Standards, EN-Standards and according to the technical rules like AD the European Pressure Vessel Guideline 97/23/EG and the ASME B16.34 Code.

Design, manufacture and testing of these valves was carried out on condition that the valves are operated under normal operating conditions. Normal operating conditions contain for example the following:

- Operation with liquid or gaseous media, without special corrosive, chemical or abrasive influences
- Frequency of temperature-change of app. 3 °C – 6 °C per minute
- Usual flow rates, depending on the kind of medium and the range of application of the valve
- Operation without additional outer influences like pipeline-forces, vibrations, wind load stressing, earth-quake, corrosive environment, fire, operation load stressing, disintegration pressure of unstable fluide, etc

If the purchaser expects stresses deviating from the normal operating conditions he has to indicate these requirements unambiguously and completely in the inquiry as well as in the order. This would allow us, as the valve manufacturer, to work out corresponding measures and to suggest them to the customer. These measures could be for example:

- Special choose of the body material
- Higher wall-thickness
- Protection of areas which are endangered by wear
- Special gaskets and bolt connections
- Special operation instructions depending on the medium and the kind of operation
- Special coatings
- Additional equipment to avoid excessive overpressure
- Special design for control operation, etc

During planning and installation of the pipeline the customer should take measures which minimize additional dangers and pressures on the valves, on the piping system and on the environment, for example by:

- Installation of vibration dampers
- Consideration of a security final position in case of breakdown of energy
- Taking measures to ensure the safe drainage of dangerous media in case of leakage, etc

By marking the product with the CE-mark we declare the conformity with the European Pressure Equipment Directive 97/23/EG.

Please see our operation instruction BA 10S.002GB for further information and warnings which have to be considered for the operation of industrial valves.

Impressum
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▪ High pressure valves ▪ High pressure globe valves

The PERSTA HD 2000
This valve has been developed for use at high pressures. In order to simplify maintenance procedures, the high pressure valve is constructed with a separate body bonnet, so that the complete bonnet can be removed from the body if repairs are necessary. All pressure parts are die-forged. The technical deformation which is applied to the material during the forging process guarantees an optimal fibre run and results in maximum non-deformability and hardness, even under application of different loads.

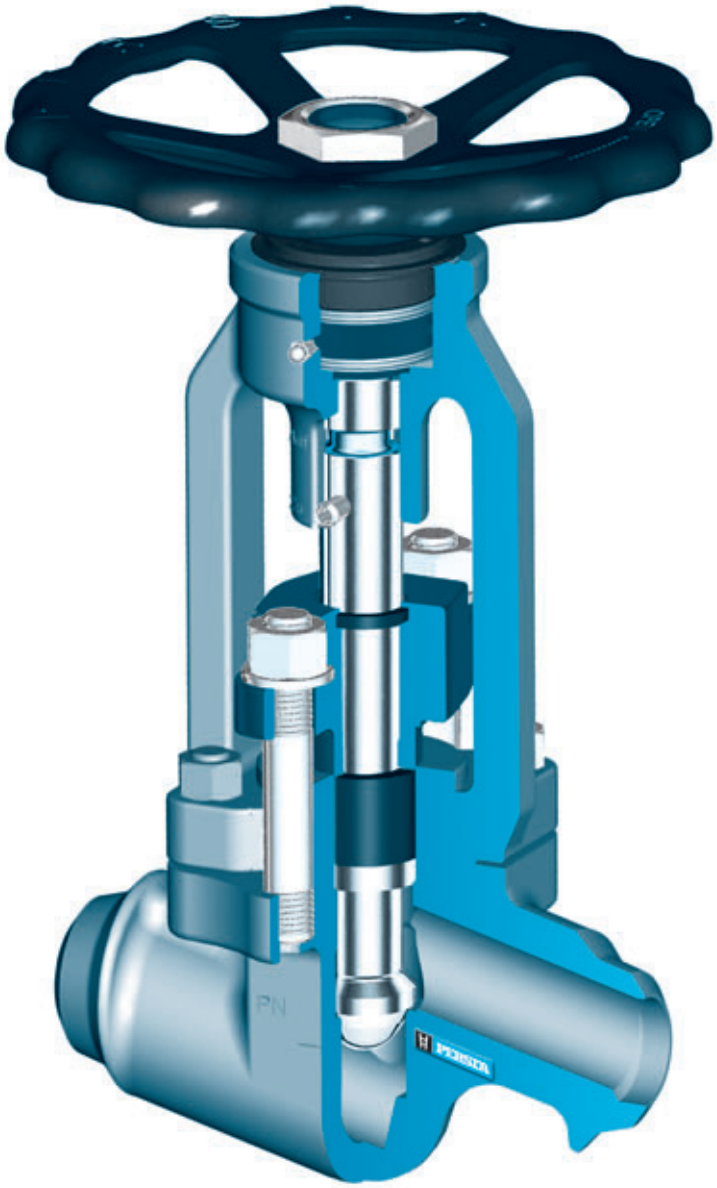
Body
The body, which is die-forged in one piece, is hard-faced with stellite, fine-polished and lapped (special facings available on request).

Bonnet
Like the body, the bonnet is die-forged in one piece. It is fitted to the body by means of studs and nuts. The bonnet holds the threaded bushing with needle bearing which is protected against dirt by a locking cap.

Gland / stuffing box
The gland packing consists of a Ni-Resist support ring and high-pressed, closed pure graphite rings; the support ring is chambered with an upper graphite braided ring. The gland packing is tightened by means of a forged gland flange via the separate gland ring. A dirt scraper in the gland flange prevents dirt from the gland section. The eye bolts with extensible shaft transfer the tightening force of the gland directly to the body. Consequently, the screw connection between the body and the bonnet is only responsible for the stop and reaction forces resulting from the stem.

Stem
The one-piece stem with integrated cone is manufactured out of corrosion-resistant Cr-steel. The seat of the cone is hard-faced with stellite at temperatures greater than 1058 °F, fine-polished and lapped. The whole stem shaft is polished.

- **High pressure globe valve**
- **200 JM**
- **HD 91**
- **Class 1850**
- **(PN 320)**
- **3/8" up to 2 1/2"**
- **(DN 10-50/65)**



▪ High pressure globe valve ▪ 200 JM ▪ HD 91
▪ Class 1850 ▪ (PN 320) ▪ 3/8" up to 2 1/2" ▪ (DN 10-50/65)

Standard features

- Die-forged valve body
- Disc and stem in one piece
- Non-turning rising stem
- Position indicator
- Throttle disc
- Yoke sleeve supported by needle bearings
- Possibility to add an actuator-flange

Pressure and temperature ratings

- Pressure rating up to class 1850
- Temperature rating up to 1100 °F (600 °C)

Material

- A 105
- A 182 F1
- A 182 F12
- A 182 F22

Further materials on request

Media

Depending on the material the globe valves are suitable for water, gas, oil and other non aggressive media

Applications

High temperature steam and water, refining (catalytic reformers and hydrocrackers), petrochemical and chemical industries, power plants

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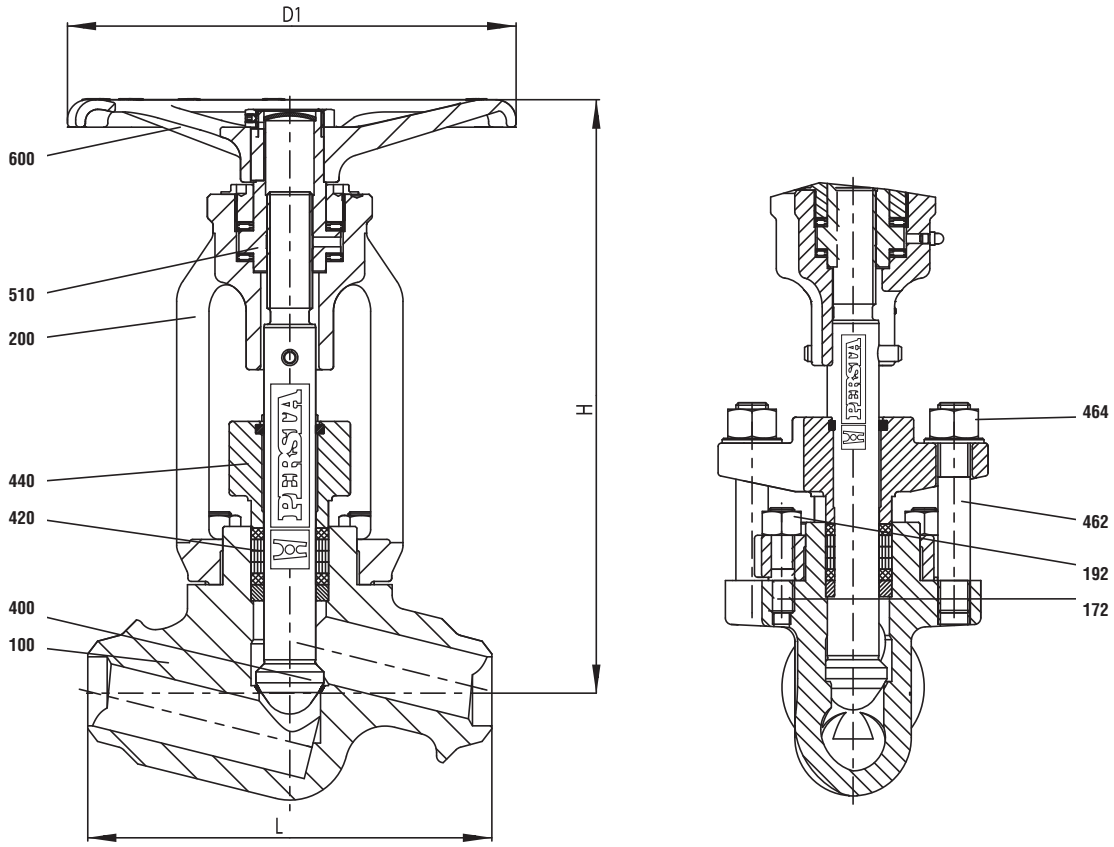
Design Highlights

- Body and bonnet in two separate pieces with bolted connection
- Body seat: tapered seat welded on integratedly with stellite
- Disc and stem in one piece with tapered seat, stellited seat at temperatures higher than 1058 °F
- Yoke sleeve (in closing direction) supported by needle bearings (axial type)
- Sealing to the outside only means of the gland packing
- Gland flange with dirt scraper ring
- Possibility to add an actuator-flange

Benefits

- To easy maintenance work, e.g. regrinding of the body seats
- No pressed in or screwed seat ring, therefore no crevice corrosion or loosing
- No damage occurs between disc and stem at high flow velocity
- To minimize the expenditure of effort when closing valve
- No bonnet gasket, therefore reduction of possible leakage places
- Prevents dirt entering into the stuffing box
- Simple retrofitting of an electric actuator possible

- **High pressure globe valve** ▪ **200 JM** ▪ **HD 91**
- **Class 1850** ▪ **(PN 320)** ▪ **3/8" up to 2 1/2"** ▪ **(DN 10-50/65)**



▪ High pressure globe valve ▪ 200 JM ▪ HD 91

▪ Class 1850 ▪ (PN 320) ▪ 3/8" up to 2 1/2" ▪ (DN 10-50/65)

Standard Materials

Pos.	Component	ASTM A105 (B1)	ASTM A182 F1 (D2)	ASTM A182 F12 (D4)	ASTM A182 F22 (D5)
100	Body	A105	A182 F1	A182 F12	A182 F22
	welded on with	Stellite	Stellite	Stellite	Stellite
172	Stud	Carbon steel	Carbon steel	Carbon steel	Carbon steel
192	Hexagonal nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel
200	Yoke	1.7379	1.7379	1.7379	1.7379
400	Stem with disc	CR 17	CR 17	CR 17	CR 17
420	Packing	Graphite	Graphite	Graphite	Graphite
440	Gland flange	1.7379	1.7379	1.7379	1.7379
462	Stud	Carbon steel	Carbon steel	Carbon steel	Carbon steel
464	Hexagonal nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel
510	Yoke sleeve	CW713R	CW713R	CW713R	CW713R
600	Handwheel	A536-80 Gr.60-40-18	A536-80 Gr.60-40-18	A536-80 Gr.60-40-18	A536-80 Gr.60-40-18

1) Higher 570 °C / 1058 °F design with stellited seats and stem in CR 12 and high temperature packing. Please mention service temperate in your purchase order.

Dimensions

NPS	DN	BW / SW L		H		Stroke		Rotation/ Stroke	D1		Flange F DIN/ISO 5210
3/8	10	5.91	150	8.19	208	0.39	10	5	5.5	140	F07/F10
1/2	15	5.91	150	8.19	208	0.39	10	5	5.5	140	F07/F10
3/4	20	6.30	160	9.84	250	0.63	16	8	7.1	180	F10
1	25	6.30	160	9.84	250	0.63	16	8	7.1	180	F10
1 1/4	32	9.84	250	16.34	415	1.06	27	9	11.0	280	F10/F14
1 1/2	40	9.84	250	16.34	415	1.06	27	9	11.0	280	F10/F14
2	50	9.84	250	16.34	415	1.06	27	9	11.0	280	F10/F14
2 1/2	65/50	9.84	250	16.34	415	1.06	27	9	11.0	280	F10/F14

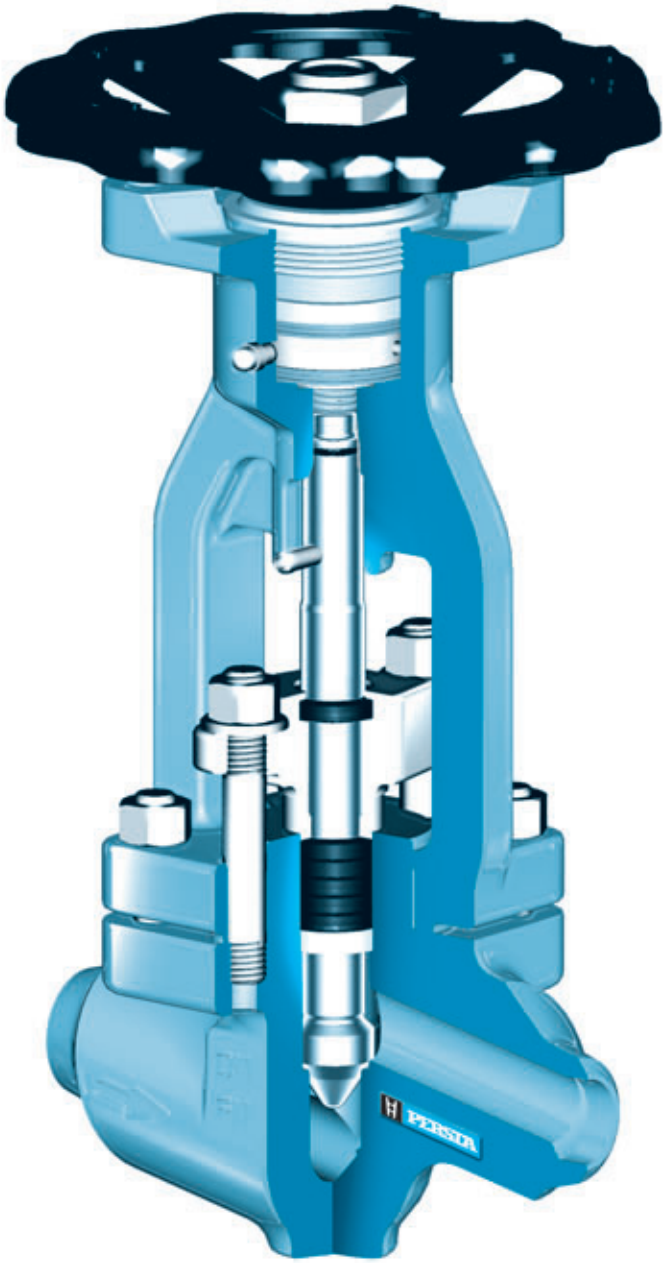
Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

Weight / Flow Coefficient

NPS	DN	BW / SW lb	BW / SW kg	Flow Coefficient Cv	Flow Coefficient Kv
3/8	10	8.8	4	2.7	2.3
1/2	15	8.8	4	4.0	3.4
3/4	20	15.2	6.9	7.3	6.2
1	25	15.2	6.9	9.3	7.9
1 1/4	32	50.7	23	17.6	15.0
1 1/2	40	50.7	23	21.3	18.1
2	50	50.7	23	34.0	28.9
2 1/2	65/50	50.7	23	34.0	28.9

Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

- **High pressure globe valve** ▪ **200 LM** ▪ **HD 2000**
- **Class 3200** ▪ **(PN 500)** ▪ **3/8" up to 2 1/2"** ▪ **(DN 10-50/65)**



▪ High pressure globe valve ▪ 200 LM ▪ HD 2000
▪ Class 3200 ▪ (PN 500) ▪ 3/8" up to 2 1/2" ▪ (DN 10-50/65)

Standard features

- Die-forged valve body and bonnet
- Disc and stem in one piece with tapered seat
- Non-turning rising stem
- Position indicator
- Gland flange and gland ring in two separate pieces
- Yoke sleeve made of bronze

Applications

High temperature steam and water, refining (catalytic reformers and hydrocrackers), petrochemical and chemical industries

Pressure and temperature ratings

- Pressure rating up to class 3200
- Temperature rating up to 1200 °F (650 °C)

Material

- A 105
- A 182 F1
- A 182 F12
- A 182 F22
- A 182 F91
- A 182 F92

Further materials on request

Design Highlights

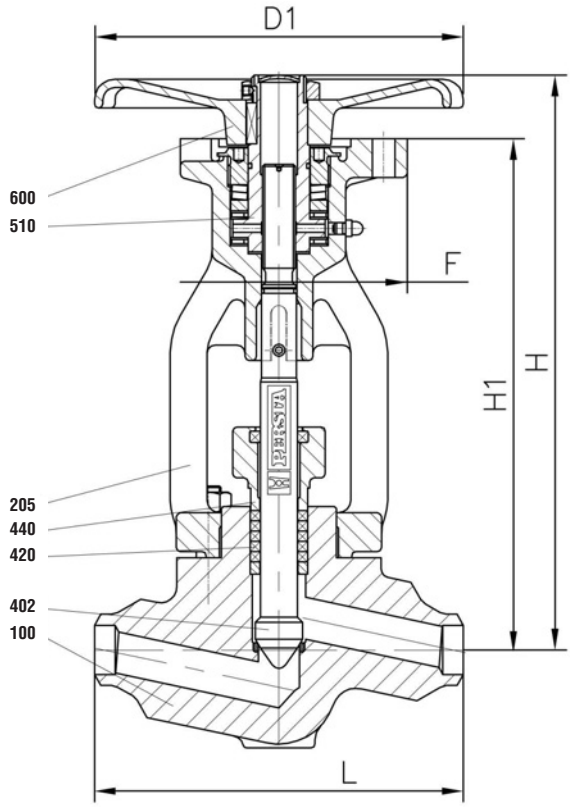
- Body and bonnet in two separate pieces with bolted connection
- Body seat: tapered seat welded on integratedly with stellite
- Disc and stem in one piece with tapered seat, stellited seat at temperatures higher than 1058 °F
- Yoke sleeve (in closing direction) supported by needle bearings (axial type)
- Sealing to the outside only means of the gland packing
- Gland flange with dirt scraper ring

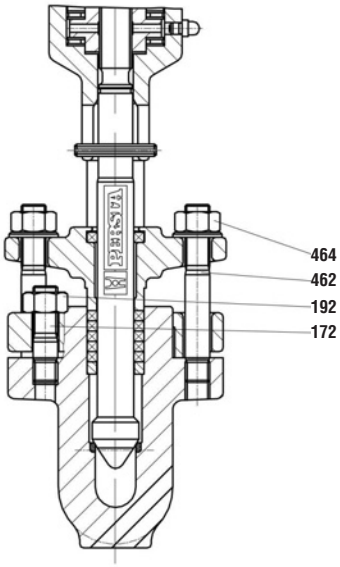
Benefits

- To easy maintenance work, e.g. regrinding of the body seats
- No pressed in or screwed seat ring, therefore no crevice corrosion or loosing
- No damage occurs between disc and stem at high flow velocity
- To minimize the expenditure of effort when closing valve
- No bonnet gasket, therefore reduction of possible leakage places
- Prevents dirt entering into the stuffing box

- High pressure globe valve ▪ 200 LM ▪ HD 2000
- Class 3200 ▪ (PN 500) ▪ 3/8" up to 2 1/2" ▪ (DN 10-50/65)

BW Version





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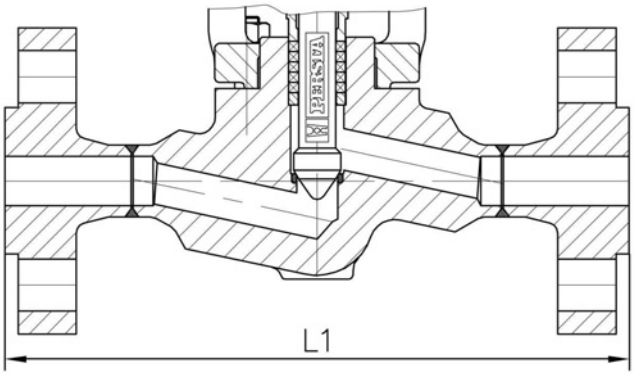
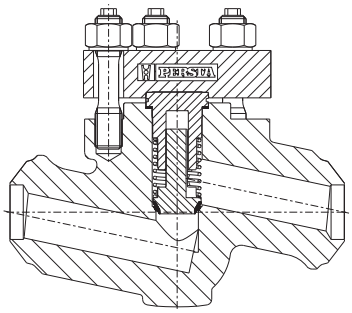


Lift check valve



▪ High pressure globe valve ▪ 200 LM ▪ HD 2000

▪ Class 3200 ▪ (PN 500) ▪ 3/8" up to 2 1/2" ▪ (DN 10-50/65)

Standard Materials

Pos.	Component	ASTM A105 (B1)	ASTM A182 F1 (D2)	ASTM A182 F12 (D4)	ASTM A182 F22 (D5)	ASTM A182 F91 (F3)	ASTM A182 F92 (F6)
100	Body	A105	A182 F1	A182 F12	A182 F22	A182 F91	A182 F92
	welded on with	Stellite	Stellite	Stellite	Stellite	Stellite	Stellite
172	Stud	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
192	Hexagonal nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
205	Yoke	1.7379	1.7379	1.7379	1.7379	1.7379	1.7379
402	Stem with disc	CR 17	CR 17	CR 17	CR 17	CR 17 [1)]	CR 16
420	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
440	Gland flange	1.7379	1.7379	1.7379	1.7379	1.7379	1.7379
462	Stud	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
464	Hexagonal nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
510	Yoke sleeve	CW713R	CW713R	CW713R	CW713R	CW713R	CW713R
600	Handwheel	A536-80 Gr.60-40-18	A536-80 Gr.60-40-18	A536-80 Gr.60-40-18	A536-80 Gr.60-40-18	A536-80 Gr.60-40-18	A536-80 Gr.60-40-18

1) Higher 570 °C / 1058 °F design with stellited seats and stem in CR 16 and high temperature packing. Please mention service temperate in your purchase order.

Dimensions

NPS	DN	BW / SW L		RF L1		H		H1		Stroke		Rotation/ Stroke	D1		Flange F DIN/ISO 5210
3/8	10	5.91	150	11.81	300	9.0	228	7.8	198	0.39	10	5	5.5	140	F07
1/2	15	5.91	150	11.81	300	9.0	228	7.8	198	0.39	10	5	5.5	140	F07
3/4	20	7.09	180	14.17	360	11.0	280	9.8	250	0.63	16	8	8.9	225	F10
1	25	7.09	180	14.17	360	11.0	280	9.8	250	0.63	16	8	8.9	225	F10
1 1/4	32	11.81	300	20.87	530	17.5	445	15.4	390	1.06	27	9	14.2	360	F10/F14
1 1/2	40	11.81	300	20.87	530	17.5	445	15.4	390	1.06	27	9	14.2	360	F10/F14
2	50	11.81	300	20.87	530	17.5	445	15.4	390	1.06	27	9	14.2	360	F10/F14
2 1/2	65/50	11.81	300	20.87	530	17,5	445	15.4	390	1.06	27	9	14.2	360	F10/F14

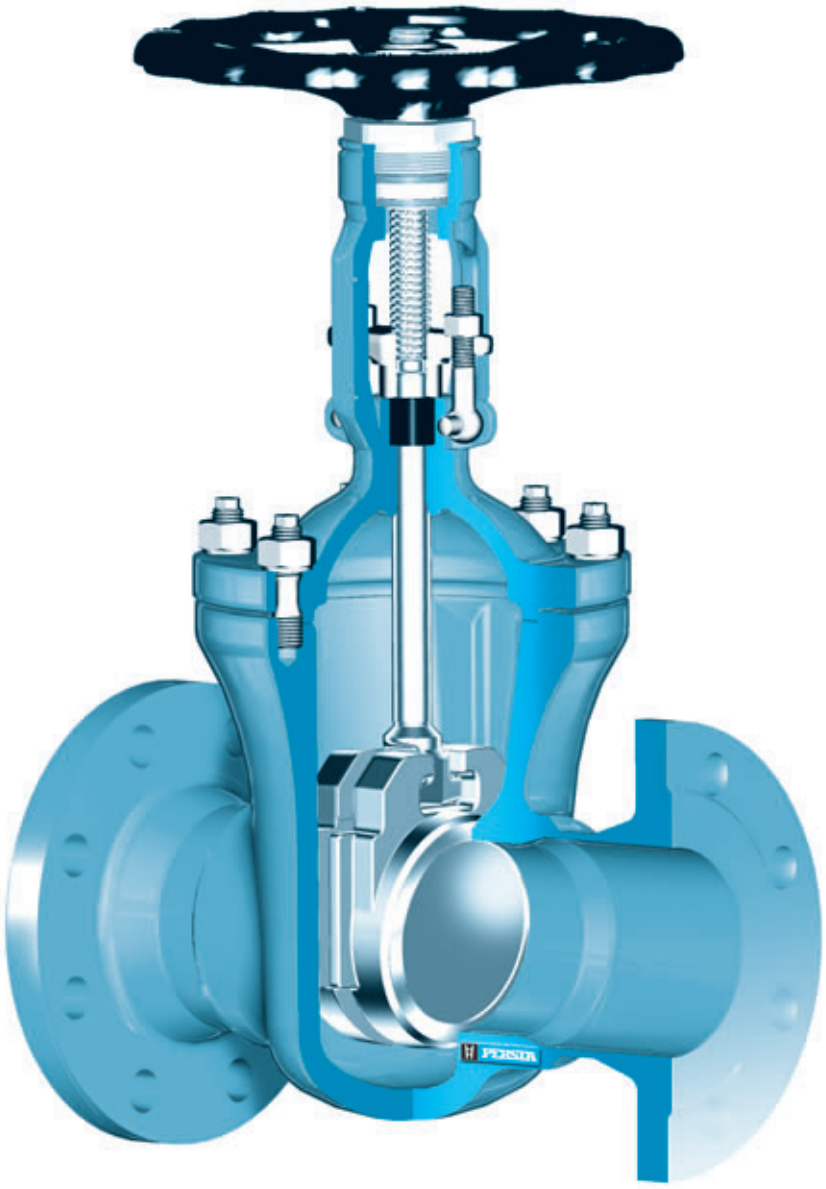
Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

Weight / Flow Coefficient

NPS	DN	BW / SW lb	BW / SW kg	Flow Coefficient Cv	Flow Coefficient Kv
3/8	10	13.2	6	2.7	2.3
1/2	15	13.2	6	4.0	3.4
3/4	20	25.4	11.5	7.3	6.2
1	25	24.9	11.3	9.3	7.9
1 1/4	32	104.7	47.5	17.6	15.0
1 1/2	40	103.6	47	21.3	18.1
2	50	102.5	46.5	34.0	28.9
2 1/2	65/50	102.5	46.5	34.0	28.9

Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

- Gate valve ▪ 700 JJ ▪ S 2000
- Class 600 ▪ (PN 100) ▪ 2” up to 6” ▪ (DN 50-150)



▪ Gate valve ▪ 700 JJ ▪ S 2000
▪ Class 600 ▪ (PN 100) ▪ 2” up to 6” ▪ (DN 50-150)

Standard features

- Die-forged body and bonnet
- Split wedge = Type 700 JJ
- Flexible wedge = Type 700 HJ
- Full bore, except DN 2 1/2" and 5”
- Yoke sleeve

Applications

Chemical industries, power plants, ship building and other

Pressure and temperature ratings

- Pressure rating up to class 600 (ASME B16.34 - 1996 Edition)
- Temperature rating up to 1112 °F (600 °C)

Material

- A 105
- A 182 F12
- A 182 F 22

Further materials on request

Design Highlights

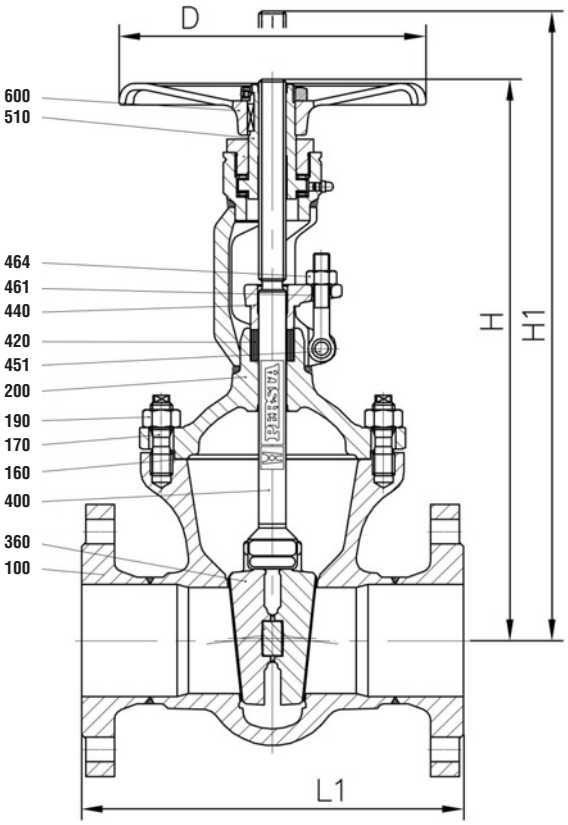
- The main valve body is one-piece die-forged incorporating the bonnet flange and the guide for the shut-off device
- Bolted bonnet with reduced shaft bolts
- Polished stem shaft
- Hardfaced seats

Benefits

- Die-forged parts, compared with cast steel parts are generally free from porosity and shrink holes. The special of the valve body minimize the existance of welding seams
- To improve the stress capability when temperature and pressure fluctuate
- Minimum wear to the gland packing compared with ground stem surfaces
- Extremely resistant to wear

- Gate valve ▪ 700 JJ ▪ S 2000
- Class 600 ▪ (PN 100) ▪ 2” up to 6” ▪ (DN 50-150)

RF Version



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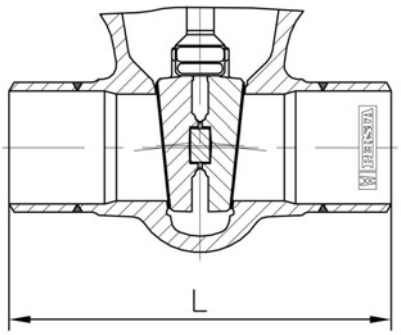


▪ Gate valve ▪ 700 JJ ▪ S 2000

▪ Class 600 ▪ (PN 100) ▪ 2” up to 6” ▪ (DN 50-150)

Standard Materials

Pos.	Component	ASTM A105 (B1)	ASTM A182 F12 (D4)	ASTM A182 F22 (D5)
100	Body	A105	A182 F12	A182 F22
	welded on with	17%Cr	Stellite	Stellite
160	Gasket	Graphite	Graphite	Graphite
170	Stud	Carbon steel	Carbon steel	Carbon steel
190	Hexagonal nut	Carbon steel	Carbon steel	Carbon steel
200	Yoke	A105	A182 F22	A182 F22
360	Flexible wedge	A105	A182 F22	A182 F22
	welded on with	18/8	Stellite	Stellite
400	Stem	13%Cr	17%Cr	17%Cr
420	Packing	Graphite	Graphite	Graphite
440	Gland flange	A105	A182 F12	A182 F12
451	Pin	Steel	Steel	Steel
461	Eye bolt	Carbon steel	Carbon steel	Carbon steel
464	Hexagonal nut	Carbon steel	Carbon steel	Carbon steel
510	Yoke sleeve	AISI12L13*	AISI12L13*	AISI12L13*
600	Handwheel	Steel	Steel	Steel

* = Tenifer treated

Dimensions

NPS	DN	BW L		RF L1		H (closed)		H1 (open)		rotation/ stroke	D	
2	50	11.50	292.1	11.50	292.1	13.27	337	15.75	400	15	7.1	180
2 1/2	65/50	13.00	330.2	13.00	330.2	13.27	337	15.75	400	15	7.1	180
3	80	14.00	355.6	14.00	355.6	16.14	410	19.69	500	22	8.9	225
4	100	17.00	431.8	17.00	431.8	19.88	505	24.21	615	22	14.2	360
5	125/100	20.00	508.0	20.00	508.0	19.88	505	24.21	615	22	14.2	360
6	150	22.00	558.8	22.00	558.8	26.97	685	33.46	850	27.5	14.2	360

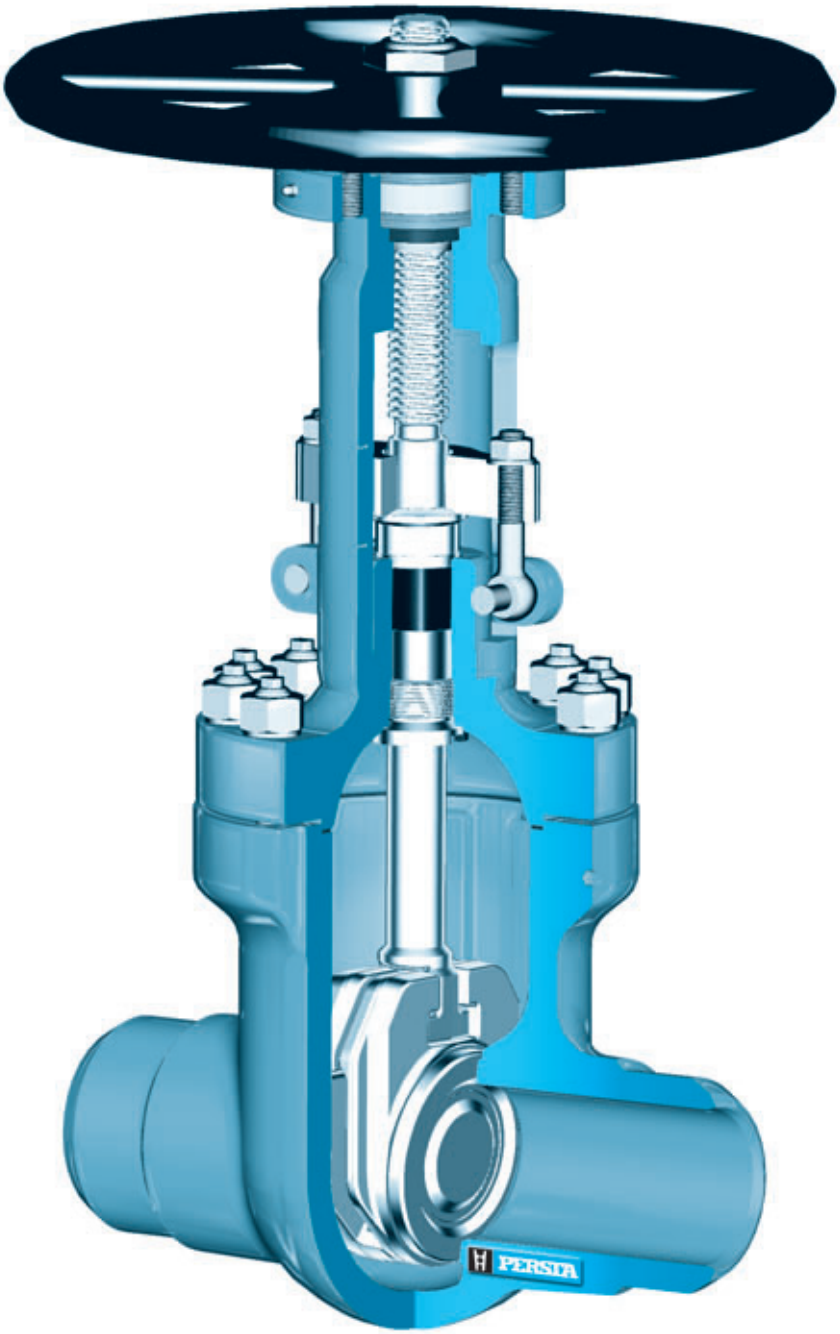
Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

Weight / Flow Coefficient

NPS	DN	BW lb	BW kg	RF lb	RF kg	flow coefficient Cv	flow coefficient Kv
2	50	34.2	15.5	58.4	26.5	304	258
2 1/2	65/50	35.3	16.0	67.2	30.5	304	258
3	80	68.3	31.0	99.2	45.0	739	628
4	100	103.6	47.0	156.5	71.0	1166	991
5	125/100	108.0	49.0	196.2	89.0	1166	991
6	150	220.5	100.0	341.7	155.0	2733	2323

Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

- Gate valve ▪ 700 JJ ▪ (PD 18)
- Class 900 ▪ (PN 160) ▪ 2” up to 12” ▪ (DN 50-300)



▪ Gate valve ▪ 700 JJ ▪ (PD 18)
▪ Class 900 ▪ (PN 160) ▪ 2” up to 12” ▪ (DN 50-300)

Standard features

- Die-forged body
- Flexible wedge
- Incorporated seats
- Outside screw
- Yoke sleeve with needle bearings
- Universal valve head for mounting actuators

Applications

Chemical industries, power plants, ship building and other

Pressure and temperature ratings:

- Pressure rating up to class 900 (ASME B16.34 - 1996 Edition)
- Temperature rating up to 1112 °F (600 °C)

Materials

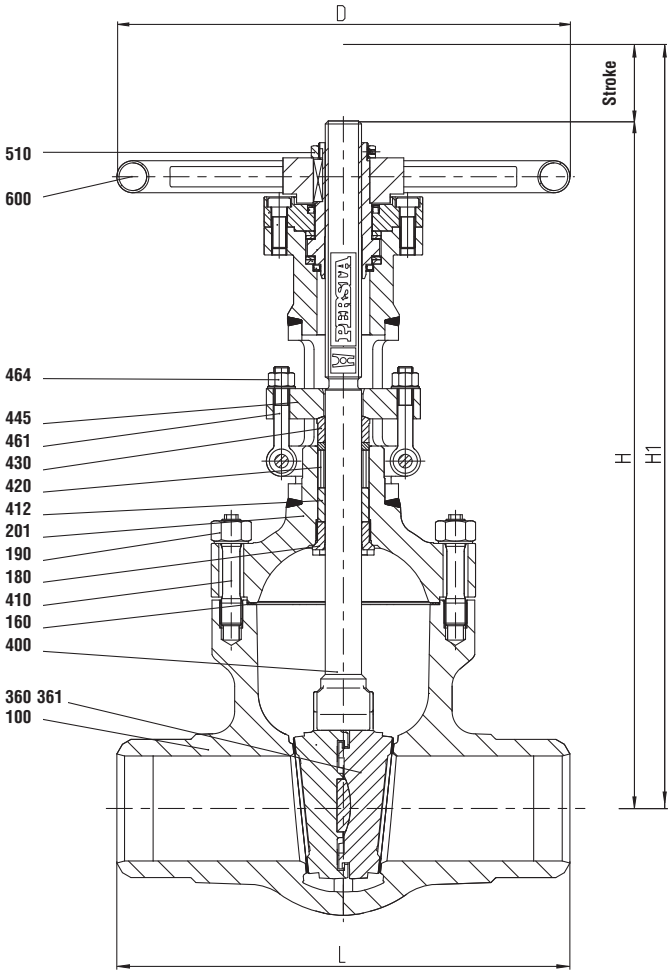
- A 105
- A 182 F12
- A 182 F22

Further materials on request

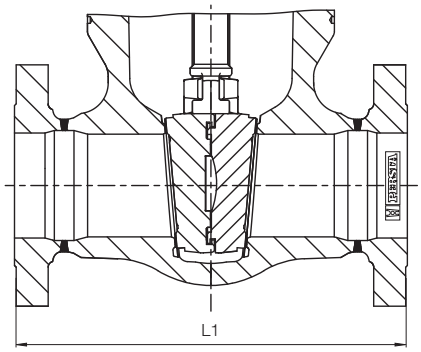
Design Highlights	Benefits
▪ Die-forged valve body with incorporated seats	▪ Free from porosity and shrink holes
▪ Seats and wedge faced with stellite	▪ Best possible sliding performance, minimum wear
▪ Hammer head connection between wedge and stem	▪ The wedges are able to move parallel to the axis of the pipeline within the guiding groove. This protects the stem against bending movements
▪ Gland ring and gland flange in two separate pieces	▪ Damage to the stem by irregular tightening of gland bolts is avoid
▪ Yoke sleeve supported at the top and at the bottom by means of needle bearings (axial type)	▪ To minimize the expenditure of effort when opening and closing the valve
▪ Valve head equipped with dirt scrapers below and above the bearings	▪ To protect against dirt and to avoid the loss of lubricants

- Gate valve ▪ 700 JJ ▪ (PD 18)
- Class 900 ▪ (PN 160) ▪ 2” up to 12” ▪ (DN 50-300)

BW Version



RF Version



▪ Gate valve ▪ 700 JJ ▪ (PD 18)

▪ Class 900 ▪ (PN 160) ▪ 2” up to 12” ▪ (DN 50-300)

Components

Pos.	Component	ASTM A105 (B1)	ASTM A182 F12 (D4)	ASTM A182 F22 (D5)
100	Body	A105	A182 F12	A182 F22
	welded on with	Stellite	Stellite	Stellite
160	Gasket	A182 F12 3)	A182 F12 3)	A182 F5
180	Screw bolt	A193 B7	A193 B7 2)	A193 B7 2)
190	Hexagonal nut	A194 2H	A194 2H 2)	A194 2H 2)
201	Yoke	A105	A182 F22	A182 F22
360/361	Split wedge	A105	A182 F22	A182 F22
	welded on with	Stellite	Stellite	Stellite
400	Stem	13%Cr	17%Cr	17%Cr
410	Back seat bushing	13%Cr	13%Cr	13%Cr
412	Bottom ring	AISI12L13*	AISI12L13*	AISI12L13*
420	Packing	Graphite	Graphite	Graphite
430	Gland ring	A182 F12	A182 F12	A182 F12
445	Gland flange	A182 F12	A182 F12	A182 F12
461	Eye bolt	A193 B7	A193 B7	A193 B7
464	Hexagonal nut	A194 2H	A194 2H	A194 2H
510	Yoke sleeve	CW713R	CW713R	CW713R
600	Handwheel	Steel	Steel	Steel

2) Working temperature > 550 °C = material A193 B16 / A194 Gr. 4
3) With graphite coating
* Tenifer treated

Dimensions

NPS	DN	BW L		RF L1		H (closed)		H1 (open)		rotation/ stroke	D		Flange F DIN/ISO 5210
2	50	8.50	215.90	14.50	368.30	19.29	490.00	22.44	570.00	16.00	14.20	360.00	F10
2 1/2	65 / 50	10.00	254.00	16.50	419.10	19.29	490.00	22.44	570.00	16.00	14.20	360.00	F10
3	80	12.00	304.80	15.00	381.00	24.02	610.00	28.35	720.00	18.00	15.70	400.00	F14
4	100	14.00	355.60	18.00	457.20	27.36	695.00	32.68	830.00	18.00	19.70	500.00	F14
5	125 / 100	17.00	431.80	22.00	558.80	27.36	695.00	32.68	830.00	22.00	19.70	500.00	F14
6	150	20.00	508.00	24.00	609.60	35.04	890.00	41.73	1060.00	21.00	31.50	800.00	F16
8	200	26.00	660.40	29.00	736.60	42.91	1090.00	51.77	1315.00	25.00	39.40	1000.00	F25
10	250	31.00	787.40	33.00	838.20	50.20	1275.00	60.83	1545.00	29.50	39.40	1000.00	F25
12	300 / 250	36.00	914.40	38.00	965.20	50.20	1275.00	60.83	1545.00	29.50	39.40	1000.00	F25

Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

Weight / Flow Coefficient

NPS	DN	BW lb	BW kg	RF lb	RF kg	flow coefficient Cv	flow coefficient Kv
2	50	99.20	45.00	14.50	368.30	268.20	228.00
2 1/2	65 / 50	114.60	52.00	16.50	419.10	268.20	228.00
3	80	220.50	100.00	15.00	381.00	664.70	565.00
4	100	275.60	125.00	18.00	457.20	1094.10	930.00
5	125 / 100	286.60	130.00	22.00	558.80	1094.10	930.00
6	150	595.20	270.00	24.00	609.60	2347.10	1995.00
8	200	1146.40	520.00	29.00	736.60	4068.20	3458.00
10	250	2050.30	930.00	33.00	838.20	6314.10	5367.00
12	300 / 250	2160.50	980.00	38.00	965.20	6314.10	5367.00

Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

- **High pressure gate valve**
- **Design Highlights**

Body
As a pressure-retaining component, the body, including the bonnet, determines the ranges in which the valves can be used. The demand for valves to withstand higher pressure and temperatures calls for special materials and production processes. In high-pressure applications, pressure ratings, nominal sizes and quantities require different production processes which take account of different conditions of use. Designs therefore vary according to the particular applications.

PERSTA forged valve bodies, particularly those designed for power stations, are die-forged or produced as open-die forgings which are then machined. Specific rolling and forming processes give the parts and dense, uniform, fine-structure with no bubbles or pores, and with a grain orientation that is ideal for their intended use.

The modern production methods have increased the use of forged steel for high-pressure applications. However, the development of die-forged bodies has been restricted by the high forming forces and the associated size and cost of the forgings. Machined open-die forgings are therefore used for large bodies.

For PERSTA high pressure valves the following production methods proved excellent results:

1. Hollow one-piece-forgings, mainly for valve bodies in the DSK 26 range, 2 ½" - 16". Connecting flanges or butt-welding ends are welded on with a circumferential seam.

2. Bodies for gate valves and swing check valves in the DSK 27 range, 2 ½" - 24" are produced as solid, open-die forgings which are then machined. Valves are subjected to stress in the following ways:
   - mechanically by
     - operating pressure
     - operating temperature
     - temperature gradients during starting up and shut down
     - erosion and cavitation by the medium
   - due to the forces exerted by the connected pipes, fastening devices and the weight of mechanical actuators, and
   - chemically
     - due to corrosion

In PERSTA valve bodies, thermal stress is limited by smooth transitions between different wall thicknesses.

Gate valves are sealed on the downstream side of the body. The required sealing force is provided by the medium by means of the differential pressure. For pressure ratings class 600 - 4500, PERSTA DSK 27 gate valves are fitted with a mechanical stembarel stop to limit the stress on the stems and the sealing faces caused by the actuation forces.

Ledges or grooves are guiding the wedge or the split wedge in the body after about 10 % of the opening lift. The forces which have to be absorbed from the guides are relatively low because there has already been a large degree of pressure compensation at this point.

The weld seams are designed for easy radiographic or ultrasonic testing.

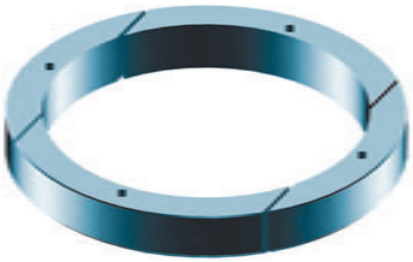
All PERSTA gate valves and swing check valves can be delivered with buttwelding ends to match the corresponding material and pipe diameter.

Stem sealing
The gland packing seals the stem guide onto outside. Operational demands of this sealing arise by reason of stem travel, pressure and friction at the gland packing, by thermal cycle stress and by the medium. The design of the gland follower resp. gland ring assures a smooth contact pressure of the packing rings even in the case of an easily irregular tightening of the gland bolts and prevents a seizing of the stem.

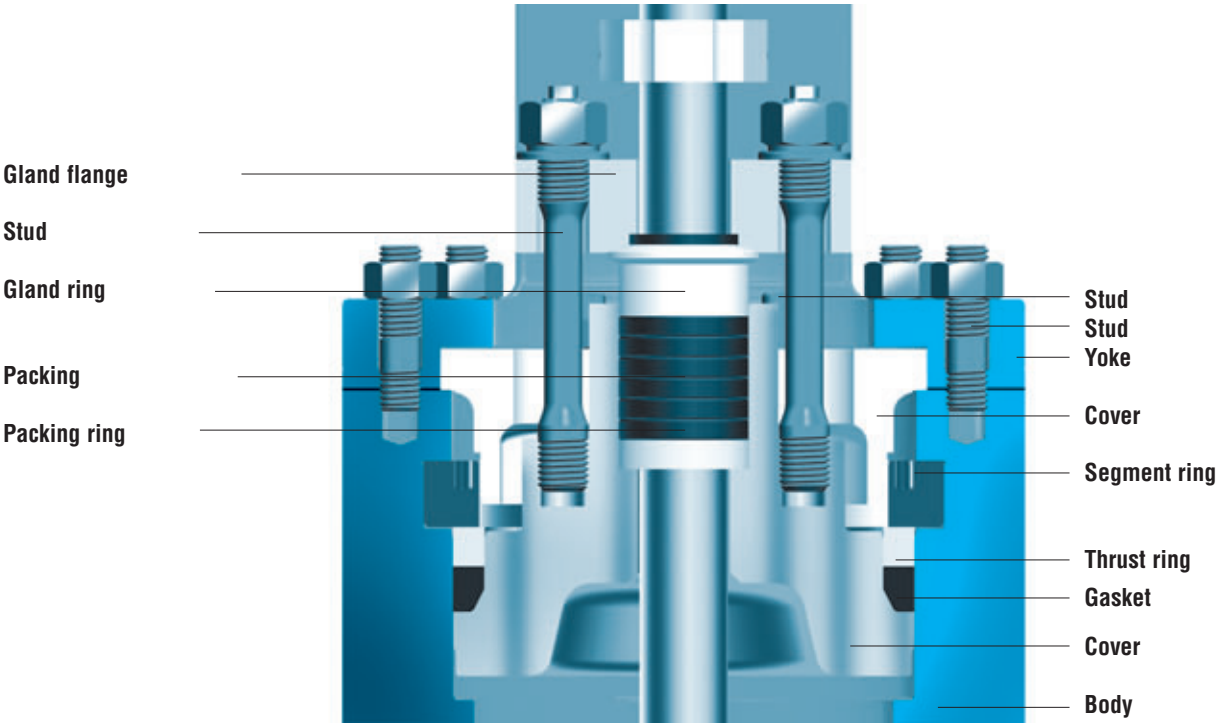
Mode of operation
A power applied by the stud bolts onto the gland follower will be transmitted via the gland ring resp. chamber ring to the packing rings. Thereby the packing rings are compressed. Upcoming surface pressure towards the wall of the stuffing box chamber and towards the stem surface tightens against the medium.

Pressure seal bonnet

Operating characteristics:
An axial force which increases as the internal pressure increases is applied to the elastic gasket. This force compresses the elastic gasket which deforms radially and axially. In the radial direction it is pressed against the wall of the body and the cover, thus achieving the required surface pressure and associated sealing force. The ring on the gasket absorbs axial force and transfers it to the segment ring. The segment ring is fitted in a groove in the body, thus transferring the axial force to the body. The segment ring consisting of four parts is held in the groove by the centring cover. The cover is pre-stressed by studs so that the gasket is deformed and the sealing effect achieved even when the internal pressure is low. Moreover the cover is centered by means of the supporting cap.



Segment ring



- High pressure gate valve
- 700 JT
- DSK 10
- Class 725
- (PN 100)
- 14” up to 28”
- (DN 350-700)

▪ High pressure gate valve ▪ 700 JT ▪ DSK 10
▪ Class 725 ▪ (PN 100) ▪ 14” up to 28” ▪ (DN 350-700)

Standard features

- Split wedge type
- Die-forged body and bonnet
- Full bore
- Outside screw and yoke
- Pressure sealing bonnet acc. to VGB-guidelines

Applications

Chemical industries, power plants, ship building and other

Pressure and temperature ratings

- Pressure rating simmilar to class 725 (calculation according to ASME B31.3)
- Temperature rating up to 1200 °F (650 °C)

Materials

- A 105
- A 182 F12
- A 182 F22
- A 182 F91

Further materials on request

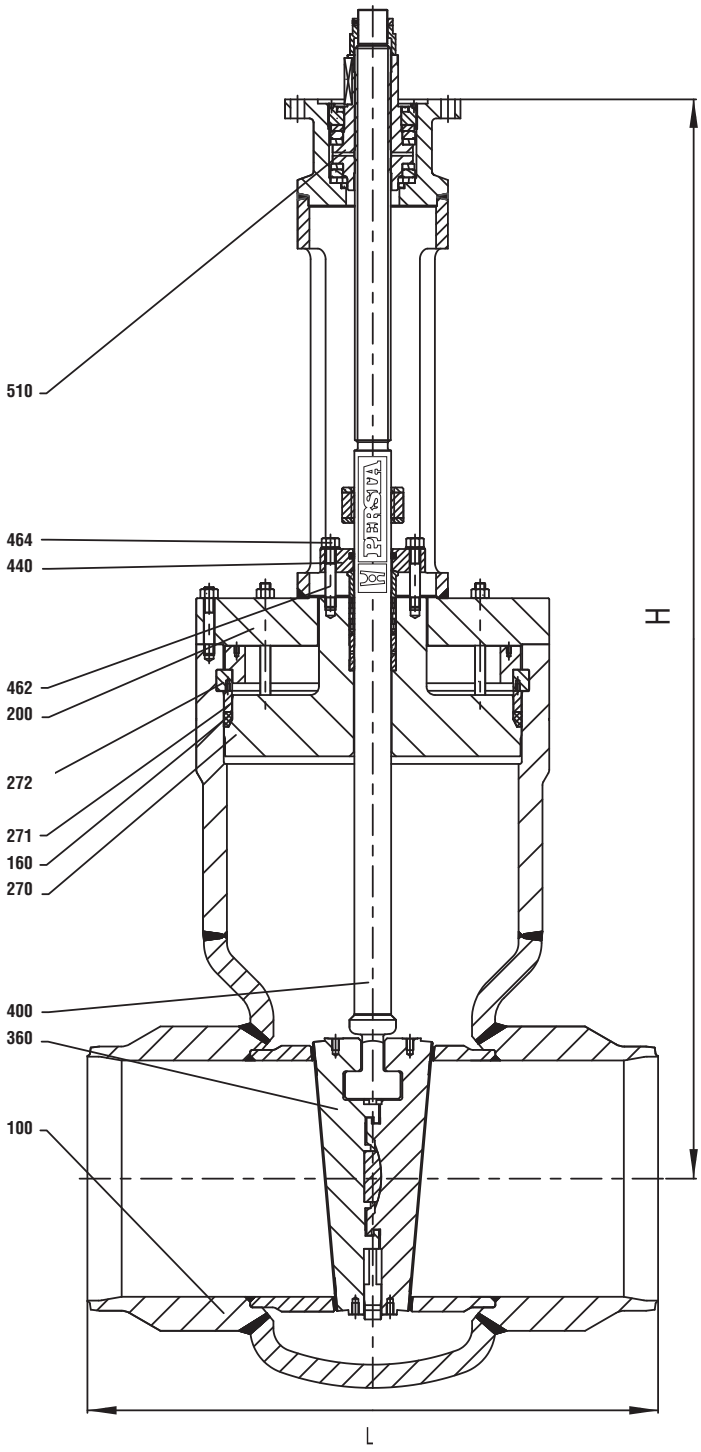
Design Highlights

- Die-forged body and bonnet
- Seats and wedge faced with stellite
- Hammer head connection between wedge and stem
- Gland ring and gland flange in two separate pieces
- Yoke sleeve supported at the top and the bottom by means of needle bearings (axial type)
- Valve head equipped with dirt scrapers below and above the bearings

Benefits

- Free from porosity and shrink holes
- Best possible sliding performance, minimum wear
- The wedges are able to move parallel to the axis of the pipeline within the guiding groove. This protects the stem against bending moments
- Damage to the stem by irregular tightening of gland bolts is avoid
- To minimize the expenditure of effort when opening and closing the valve
- To protect against dirt and to avoid the loss of lubricants

- High pressure gate valve ▪ 700 JT ▪ DSK 10
- Class 725 ▪ (PN 100) ▪ 14” up to 28” ▪ (DN 350-700)



▪ High pressure gate valve ▪ 700 JT ▪ DSK 10

▪ Class 725 ▪ (PN 100) ▪ 14” up to 28” ▪ (DN 350-700)

Components

Pos.	Component	ASTM A105 (B1)	ASTM A182 F12 (D4)	ASTM A182 F22 (D5)	ASTM A182 F91 (F3)
100	Body	A105	A182 F12	A182 F22	A182 F91
	welded on with	Stellite	Stellite	Stellite	Stellite
160	Gasket	Graphite	Graphite	Graphite	Graphite
200	Bonnet	A182 F22	A182 F22	A182 F22	A182 F22
270	Cover	A105	A182 F12	A182 F22	A182 F91
271	Ring	A105	A182 F12	A182 F22	A182 F91
272	Segment ring	A105	A182 F12	A182 F22	A182 F91
360	Double disc	A105	A182 F12	A182 F22	A182 F91
	welded on with	Stellite	Stellite	Stellite	Stellite
400	Stem	17%Cr	17%Cr	17%Cr	12%Cr
440	Gland flange	A105	A182 F12	A182 F22	A182 F91
462	Stud	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
464	Hexagonal nut	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
510	Yoke sleeve	CW713R	CW713R	CW713R	CW713R

Dimensions

Class 725 NPS	DN	BW L		H (closed)		Stroke	
14	350	33,46	850	68,11	1730	14,37	365
16	400	37,40	950	72,83	1850	16,34	415
18	450	41,34	1050	81,50	2070	18,31	465
20	500	45,28	1150	90,55	2300	20,28	515
24	600	53,15	1350	108,86	2765	24,61	625
28	700	61,02	1550	113,98	2895	23,23	590

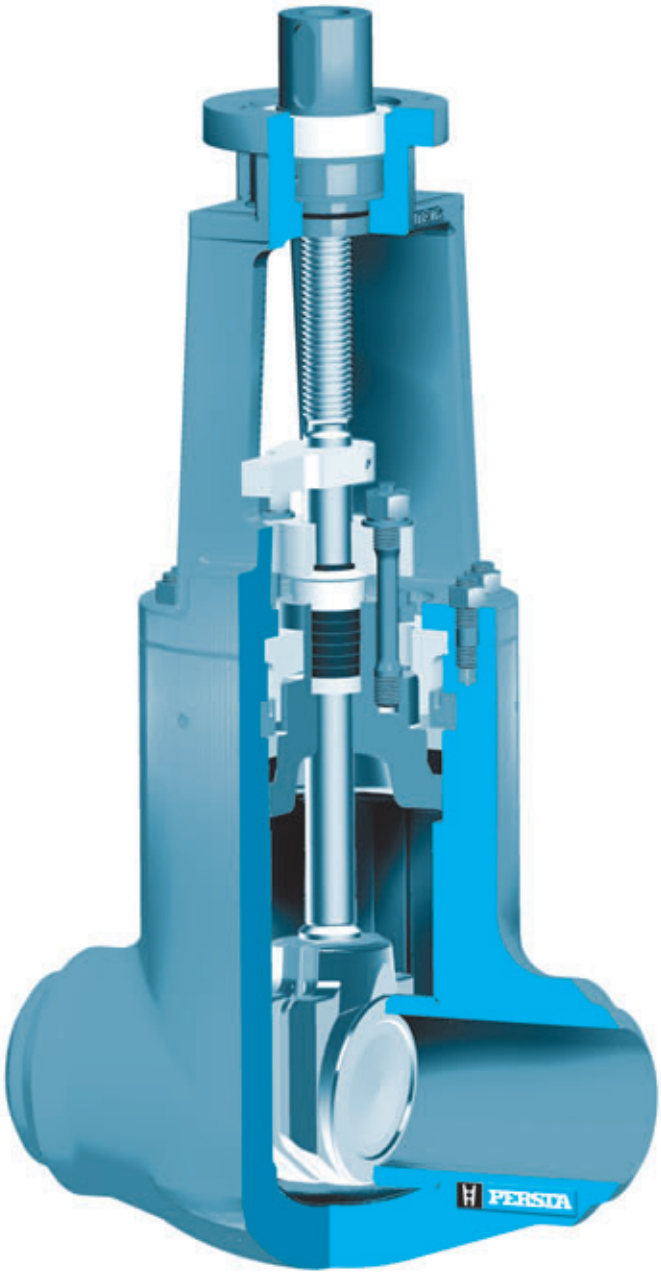
Black in inches, lb, Us gal/min. Blue in mm, kg, m3/h.

Weight / Flow Coefficent

Class 725 NPS	DN	BW lb	kg	flow coefficient Cv	Kv
14	350	2194	995	13227	11243
16	400	3527	1600	17084	14521
18	450	4409	2000	21300	18105
20	500	5489	2490	26298	22353
24	600	10031	4550	37868	32188
28	700	12676	5750	49145	41773

Black in inches, lb, Us gal/min. Blue in mm, kg, m3/h.

- High pressure gate valve
- 700 JT
- DSK 26
- Class 900-2500
- (PN 160-420)
- 2 ½" up to 16"
- (DN 65-400)



▪ High pressure gate valve ▪ 700 JT ▪ DSK 26
▪ Class 900-2500 ▪ (PN 160-420) ▪ 2 ½" up to 16" ▪ (DN 65-400)

Standard features

- One-piece valve body made of forged steel with welded seat rings
- Split wedge
- High bonnet
- Position indicator
- Yoke sleeve supported at the top and at the bottom with needle bearing (axial type) and cylindrical roller bearing
- Pressure sealing bonnet arc. VGB-guidelines

Applications

High temperature steam and water, refining (catalytic reformers and hydrocrackers), petrochemical and chemical industries

Pressure and temperature ratings:

- Pressure rating up to class 2500 (PN 420)
- Temperature rating up to 1200 °F (650 °C)

Material

- A 105
- A 182 F1
- A 182 F12
- A 182 F22
- A 182 F91
- A 182 F92

Further materials on request

Design-Highlights

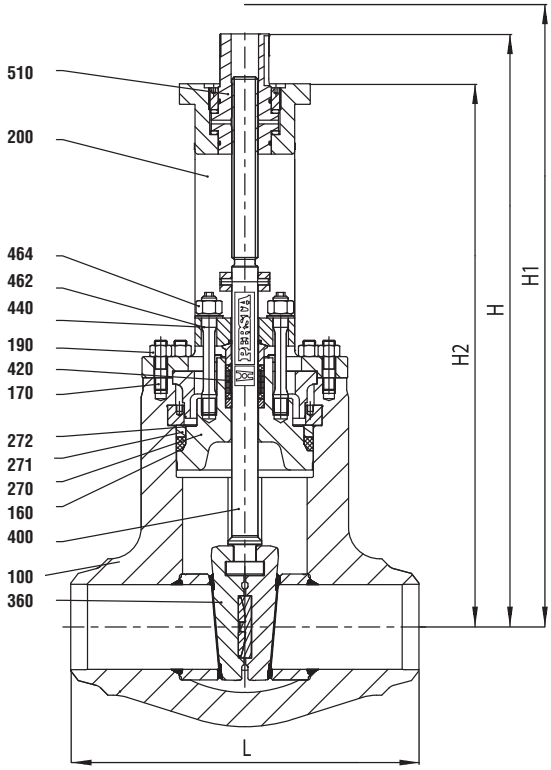
- Seats of the shut-off device and of the valve body generally faced with stellite
- Hammer head connection between shut-off device and stem
- Valve head equipped with dirt scrapers below and above the bearings
- A crosshead screwed to the stem gives protection against torsion
- The segment rings are not fixed in their position by the valve cover but secured by a separate supporting cap

Benefits

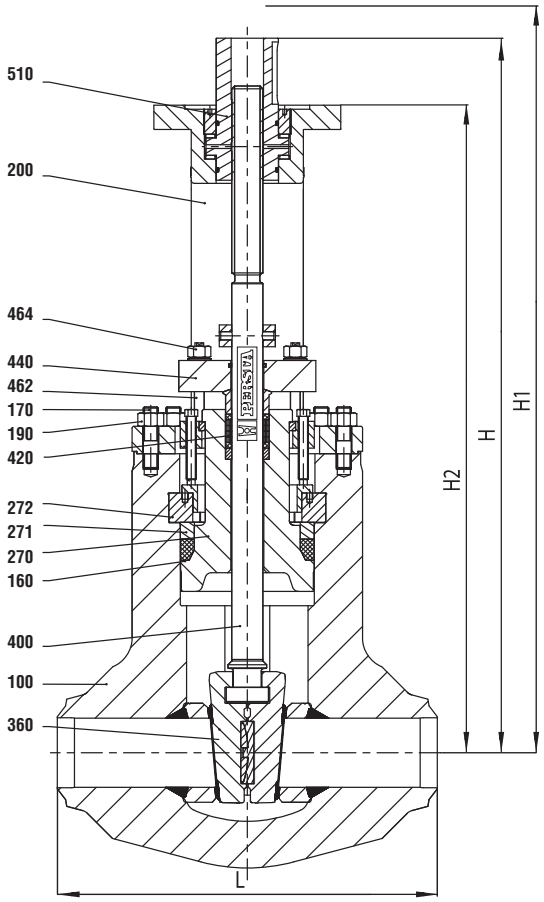
- Best possible sliding performance and minimum wear
- The wedges are able to move parallel to the axis of the pipeline within the guiding groove.
- This protects the stem against bending moments to protect against dirt and to avoid the loss of lubricants
- This is to prevent the shut-off device against operating forces, at the same time the crosshead serves as position indicator and offers the possibility to fit limit switches
- This version eases the maintenance work considerably. In case of dismantling it is not necessary to press the valve cover in closing direction in order to remove the segment rings

- High pressure gate valve ▪ 700 JT ▪ DSK 26
- Class 900-2500 ▪ (PN 160-420) ▪ 2 ½" up to 16" ▪ (DN 65-400)

Class 900-1500 design BW Version



Class 2500 design BW Version



▪ High pressure gate valve ▪ 700 JT ▪ DSK 26

▪ Class 900-2500 ▪ (PN 160-420) ▪ 2 ½" up to 16" ▪ (DN 65-400)

Components

Pos.	Component	ASTM A105 (B1)	ASTM A182 F1 (D2)	ASTM A182 F12 (D4)	ASTM A182 F22 (D5)	ASTM A182 F91 (F3)	ASTM A182 F92 (F6)
100	Body	A105	A182 F1	A182 F12	A182 F22	A182 F91	A182 F92
	welded on with	Stellite	Stellite	Stellite	Stellite	Stellite	Stellite
160	Gasket	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
170	Stud	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
190	Hexagonal nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
200	Yoke	A217 WC1	A217 WC1	A217 WC1	A217 WC1	A217 WC1	A217 WC1
270	Bonnet	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F22
271	Ring	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
272	Segment ring	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
360	Double disc	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
	welded on with	Stellite	Stellite	Stellite	Stellite	Stellite	Stellite
400	Stem	Cr 17	Cr 17	Cr 17	Cr 17	Cr 12	Cr16
420	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
440	Gland flange	A182 F22	A182 F22	A182 F22	A182 F22	A182 F22	A182 F22
462	Stud	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
464	Hexagonal nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
510	Yoke sleeve	CW713R	CW713R	CW713R	CW713R	CW713R	CW713R

Dimensions

Class 900 NPS	DN	BW	L	RF	L1	H (closed)		H1 (open)		H2		rotation/ stroke	Flange F DIN/ISO 5210	
3	80	12.00	304.8	15.00	381.0	21.46	545	24.61	625.00	19.29	490.00	16.00	F10 (F14)	
4	100	14.00	355.6	18.00	457.2	25.67	652	29.72	755.00	23.23	590.00	17.00	F14	
5	125	17.00	431.8	22.00	558.8	29.53	750	34.65	880.00	27.17	690.00	21.00	F14	
6	150	20.00	508.0	24.00	609.6	35.16	893	41.14	1045.00	34.33	872.00	22.00	(F14) F16	
8	200	26.00	660.4	29.00	736.6	42.44	1078	50.00	1270.00	41.14	1045.00	24.00	(F16) F25	
10	250	31.00	787.4	33.00	838.2	49.88	1267	59.65	1515.00	48.82	1240.00	28.00	(F25) F30	Black in inches, lb, Us gal/min.
12	300	36.00	914.4	38.00	965.2	60.16	1528	71.46	1815.00	58.94	1497.00	29.00	F30	Blue in mm, kg, m3/h.

14 as intermediate class on request

Class 1500 NPS	DN	BW	L	RF	L1	H (closed)		H1 (open)		H2		rotation/ stroke	Flange F DIN/ISO 5210	
3	80	12.00	304.80	18.50	469.90	21.46	545.00	24.61	625.00	19.29	490.00	16.00	F10 (F14)	
4	100	16.00	406.40	21.50	546.10	25.67	652.00	29.72	755.00	23.23	590.00	17.00	F14	
5	125	19.00	482.60	26.50	673.10	29.53	750.00	34.65	880.00	27.17	690.00	21.00	F14	
6	150	22.00	558.80	27.75	704.90	35.16	893.00	41,14	1045.00	34.33	872.00	22.00	(F14) F16	
8	200	28.00	711.20	32.75	831.90	42.44	1078.00	50.00	1270.00	41.14	1045.00	24.00	(F16) F25	
10	250	34.00	863.60	39.00	990.60	49.88	1267.00	59.65	1515.00	48.82	1240.00	28.00	(F25) F30	
12	300	39.00	990.60	44.50	1130.30	49.88	1267.00	59,65	1515.00	48.82	1240.00	28.00	(F25) F30	
14	350	42.00	1066.80	49.50	1257.30	60.16	1528.00	71.46	1815.00	58.94	1497.00	29.00	F30	Black in inches, lb, Us gal/min.
16	400	47.00	1193.80	54.50	1384.30	60.16	1528.00	71.46	1815.00	58.94	1497.00	29.00	F30	Blue in mm, kg, m3/h.

Class 2500 NPS	DN	BW	L	RF	L1	H (closed)		H1 (open)		H2		rotation/ stroke	Flange F DIN/ISO 5210	
2 1/2	65	13.00	330.20	20.00	508.00	20.38	518.00	23.38	594.00	18.33	466.00	12.00	(F10) F14	
3	80	14.50	368.30	22.75	577.90	24.39	619.00	28.24	717.00	22.07	561.00	12.00	F14	
4	100	18.00	457.20	26.50	673.10	28.05	713.00	32.91	836.00	25.81	656.00	15.00	F14	
5	125	21.00	533.40	31.25	793.80	31.30	795.00	34.25	870.00	28.54	725.00	15.00	F16	
6	150	24.00	609.60	36.00	914.40	42.91	1090.00	48.43	1230.00	40.94	1040.00	16.00	(F16) F25	
8	200	30.00	782.00	40.25	1022.40	47.05	1195.00	53.94	1370.00	45.87	1165.00	19.00	(F25) F30	
10	250	36.00	914.40	50.00	1270.00	58.07	1475.00	66.34	1685.00	56.69	1440.00	21.00	(F30) F35	Black in inches, lb, Us gal/min.
12	300	41.00	1041.40	56.00	1422.40	58.07	1475.00	66.34	1685.00	56.69	1440.00	21.00	(F30) F35	Blue in mm, kg, m3/h.

14 as intermediate class on request

Weight / Flow Coefficient

Class 900/1500 NPS	DN	Class 900 BW lb	Class 900 BW kg	Class 1500 BW lb	Class 1500 BW kg	flow coefficient Cv	flow coefficient Kv
3	80	165.30	75.00	165.30	75.00	585	505
4	100	291.00	132.00	299.80	136.00	1010	875
5	125	482.80	219.00	496.00	255.00	1470	1270
6	150	842.20	382.00	864.20	392.00	2210	1910
8	200	1331.60	604.00	1355.80	607.00	3780	3270
10	250	2484.60	1127.00	2557.30	1160.00	5880	5080
12	300	3972.70	1802.00	2674.20	1213.00	5880	5080
14	350			4120.40	1869.00	8255	7140
16	400			4243.90	1925.00	8255	7140

Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

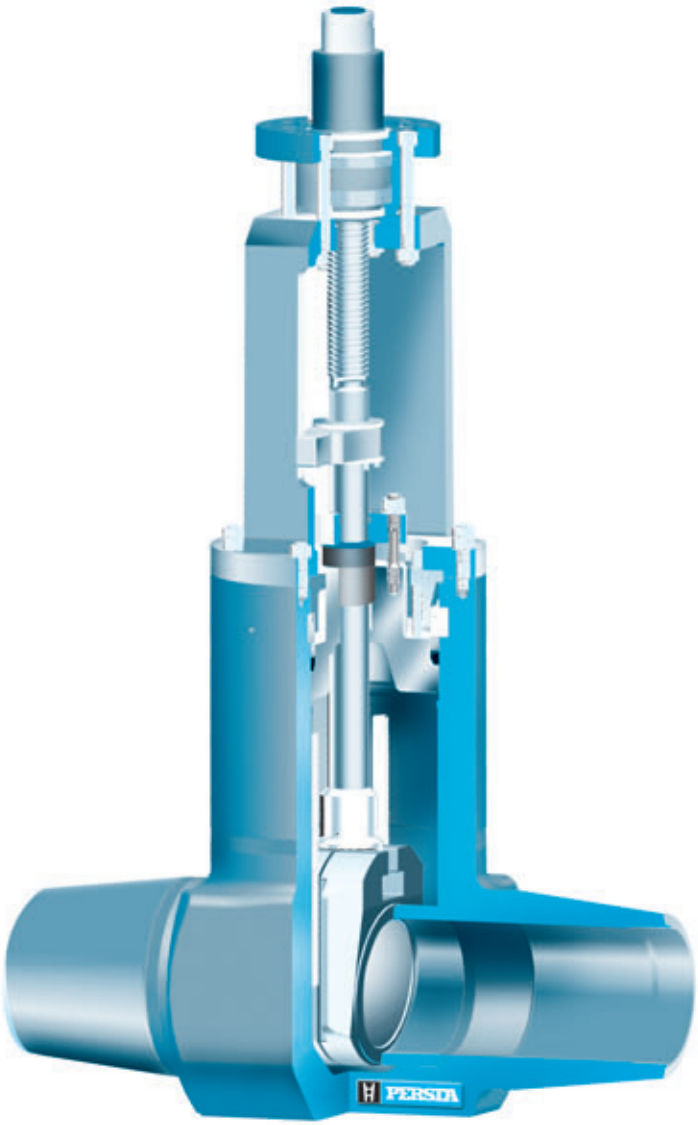
Weight / Flow Coefficient

Class 2500 NPS	DN	Class 2500 BW lb	Class 2500 BW kg	flow coefficient Cv	flow coefficient Kv
2 1/2	65	183.00	83.00	240	210
3	80	330.70	135.00	360	310
4	100	546,70	219.00	585	505
5	125	950.20	411.00	960	835
6	150	1545.40	676.00	1710	1485
8	200	2766.80	1188.00	2545	2200
10	250	4515.00	2048.00	4085	3530
12	300	4744.30	2152.00	4085	3530

14 as intermediate class on request.

Black in inches,lb,Us gal/min. Blue in mm,kg,m^3/h

- High pressure gate valve
- 700 JT
- DSK 27
- Class 600-4500
- (PN 100-720)
- 2 ½" up to 24"
- (DN 65-600)



▪ High pressure gate valve ▪ 700 JT ▪ DSK 27
▪ Class 600-4500 ▪ (PN 100-720) ▪ 2 ½" up to 24" ▪ (DN 65-600)

Standard features

- Valve body made of forged steel with welded seat rings and welded guiding groove with full penetration welding seams
- Split wedge
- High bonnet
- Position indicator
- Yoke sleeve supported at the top and at the bottom with needle bearing (axial type) and cylindrical roller bearing
- Pressure sealing bonnet, according VGB-guidelines

Applications

High temperature steam and water, refining (catalytic reformers and hydrocrackers), petrochemical and chemical industries

Pressure and temperature ratings

- Pressure rating up to class 4500 (PN 720)
- Temperature rating up to 1200 °F (650 °C)

Material

- A 105
- A 182 F1
- A 182 F12
- A 182 F22
- A 182 F91
- A 182 F92

Further materials on request

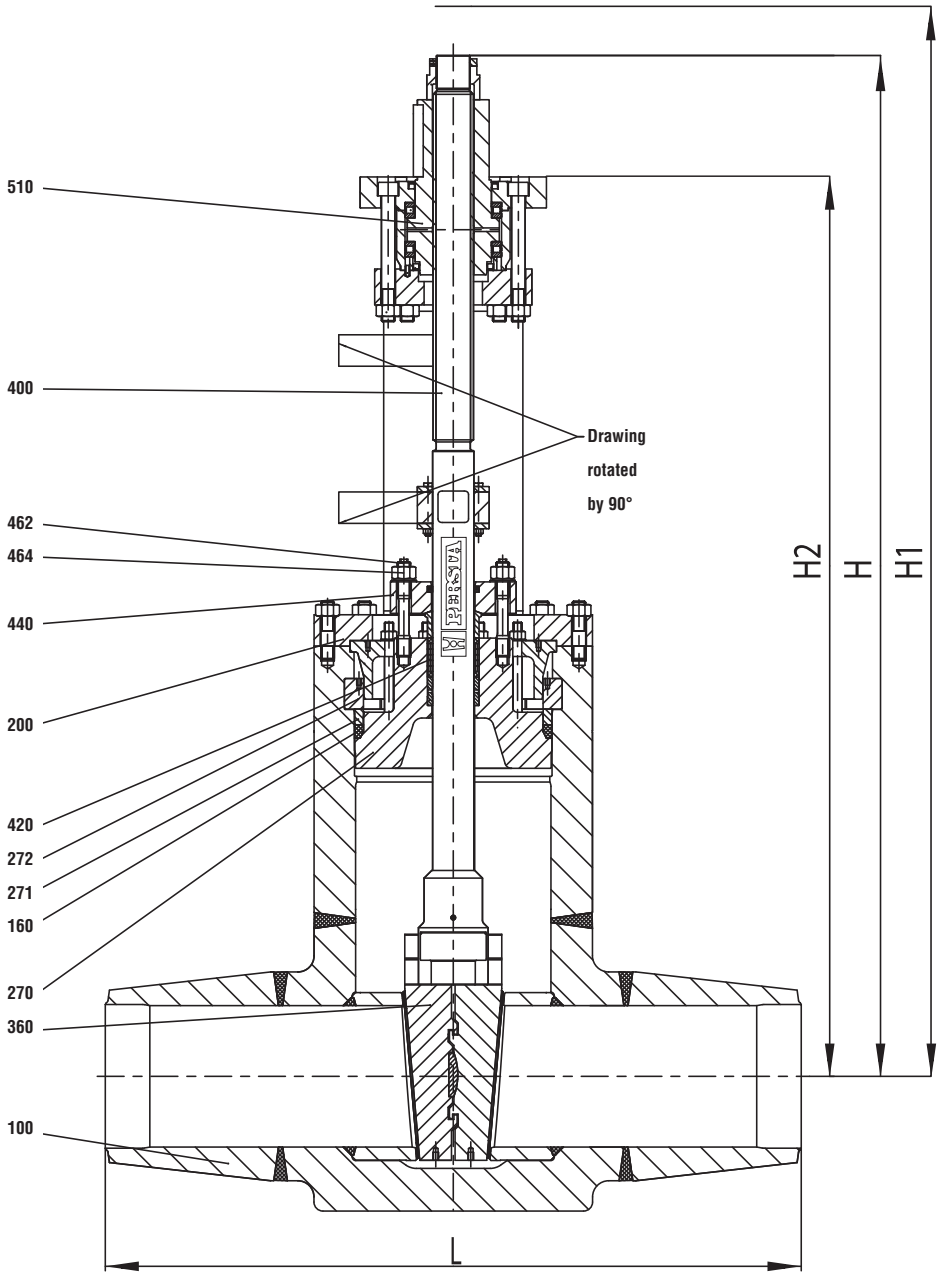
Design-Highlights

- Seats and wedge faced with stellite
- Hammer head connection between shut-off device and stem
- Valve head equipped with dirt scrapers below and above the bearings
- A crosshead screwed to the stem gives protection against torsion
- The segment rings are not fixed in their position by the valve cover but secured by a separate supporting cap
- The bonnet is joined to the body by means of a clamp connection

Benefits

- Best possible sliding performance and minimum wear
- The wedges are able to move parallel to the axis of the pipeline within the guiding groove. This protects the stem against bending moments
- To protect against dirt and to avoid the loss of lubricants
- This is to prevent the shut-off device against operating forces, at the same time the crosshead serves as position indicator and offers the possibility to fit limit switches
- This version eases the maintenance work considerably. In case of dismantling it is not necessary to press the valve cover in closing direction in order to remove the segment rings
- Eases maintenance work in contrast to a screwed connection

- High pressure gate valve ▪ 700 JT ▪ DSK 27
- Class 600-4500 ▪ (PN 100-720) ▪ 2 ½" up to 24" ▪ (DN 65-600)



▪ High pressure gate valve ▪ 700 JT ▪ DSK 27

▪ Class 600-4500 ▪ (PN 100-720) ▪ 2 ½" up to 24" ▪ (DN 65-600)

Components

Pos.	Component	ASTM A105 (B1)	ASTM A182 F1 (D2)	ASTM A182 F12 (D4)	ASTM A182 F22 (D5)	ASTM A182 F91 (F3)	ASTM A182 F92 (F6)
100	Body	A105	A182 F1	A182 F12	A182 F22	A182 F91	A182 F92
	welded on with	Stellite	Stellite	Stellite	Stellite	Stellite	Stellite
160	Gasket	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
200	Yoke	1.5415	1.5415	1.5415	1.5415	1.5415	1.5415
270	Bonnet	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
271	Ring	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
272	Segment ring	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
360	Double disc	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
	welded on with	Stellite	Stellite	Stellite	Stellite	Stellite	Stellite
400	Stem	Cr 17	Cr 17	Cr 17	Cr 17	Cr 12	Cr 16
420	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
440	Gland flange	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
462	Stud	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
464	Hexagonal nut	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel	Carbon steel
510	Yoke sleeve	CW713R	CW713R	CW713R	CW713R	CW713R	CW713R

Dimensions / Weights

DSK 27 Class 900 NPS	DN	BW L		H (closed)		H1 (open)		H2		rotation/ stroke	Flange F DIN/ISO 5210	lb	Weight kg	flow coefficient Cv	Kv
12	300	36.00	914.40	70.87	1800.00	82.87	2105.00	63.19	1605.00	30.50	F25/F30	3197	1450	8828	7504
14	350	39.00	990.60	84.25	2140.00	98.03	2490.00	75.59	1920.00	35.00	F30	4365	1980	12016	10214
16	400	43.00	1092.20	91.34	2320.00	107.09	2720.00	81.30	2065.00	40.00	F30	7055	3200	15694	13340
18	450	48.00	1219.20	97.83	2485.00	115.35	2930.00	87.01	2210.00	37.00	F35	8642	3920	19864	16884
20	500	52.00	1320.80	112.20	2850.00	131.89	3350.00	100.39	2550.00	41.00	F35			24522	20844
22	550	on request													
24	600	on request													

Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

Dimensions / Weights

DSK 27 Class 1500 NPS	DN	BW L		H (closed)		H1 (open)		H2		rotation/ stroke	Flange F DIN/ISO 5210	lb	Weight kg	flow coefficient Cv	Kv
16	400	47.00	1193.80	89.76	2280.00	103.74	2635.00	79.33	2015.00	29.00	F35	6614	3000	12016	10214
18	450	53.00	1346.20	100.98	2565.00	117.13	2975.00	89.76	2280.00	34.00	F35	11023	5000	15694	13340
20	500	58.00	1473.20	112.20	2850.00	130.31	3310.00	99.61	2530.00	38.00	F35/F40			19864	16884
22	550	58.00	1473.20	123.62	3140.00	143.90	3655.00	111.02	2820.00	43.00	F35/F40			24522	20844
24	600	on request													

Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

Class 2500 and above on request
Intermediate class on request
Larger sizes on request

▪ Gate valves ▪ Overpressure-safety-devices

If a closed gate valve filled with a medium (e.g. water) (fig. 1) is heated, an unacceptably high pressure may develop inside the body. The level of increase in pressure that may occur depends upon the percentage volumes of the fluid and vapour phases and on the increase in the temperature of the medium. Overpressure inside the body can adversely affect the operation of the gate valve. Moreover an unacceptably high pressure load can result in the failure of the pressure-retaining components.

Figure 2 shows the increase of pressure according to percentage volume and temperature changes, when water is in the body.

Attention: If there is a possibility of an unacceptable pressure load of this kind developing inside the valve because of the way it has been fitted or the way it is used, the piping designer or operator must provide a suitable safety device.

Simple and effective protection against overpressure can be achieved by means of a hole in the seat ring or in the wedge on the side facing the pressure (Fig. 4). This hole prevents the pressure inside the body from exceeding the operating pressure; however, the gate valve can then only provide a seal in one direction. If this is the case, the direction of flow is shown by an arrow on the body. Another possibility is to by-pass the third room (Fig. 5) to the side facing the pressure.

In case an outside overpressure safety device should be assigned body has to be ordered with an appropriate closed stud (Fig. 1 and 3).

Fig. 4 includes a pressure equalizing pipe to reduce the opening torque with differential pressure, this configuration also enables the „3rd chamber“ to be relieved to the high pressure side. Bi-directional flow characteristics are achivable with this design.

Fig. 1

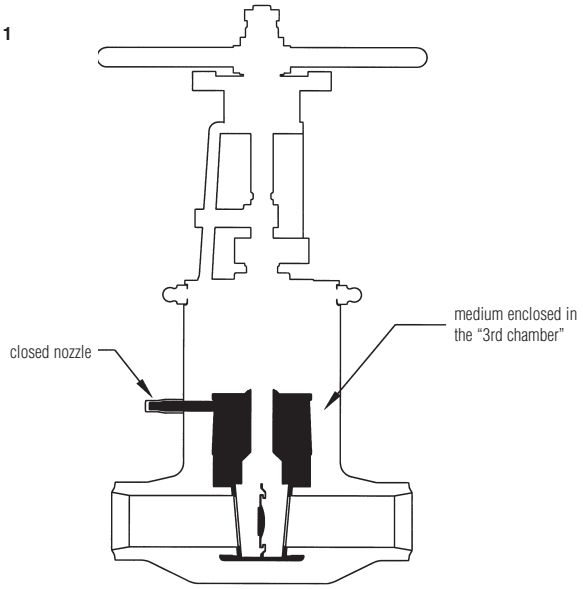


Fig. 2

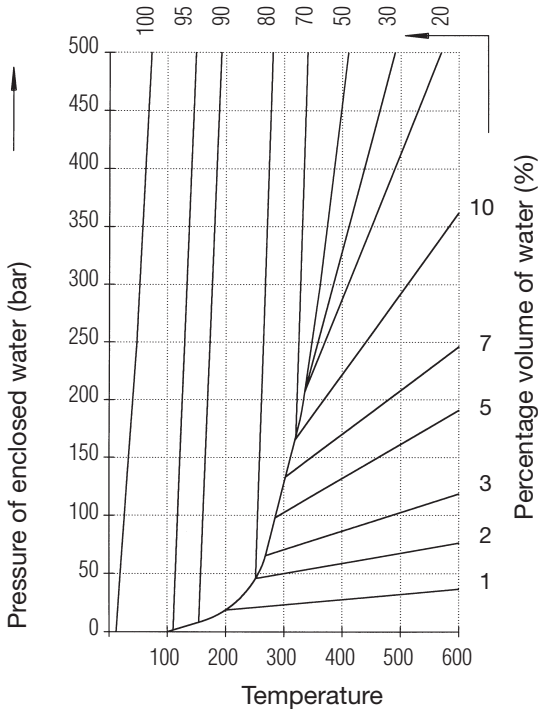


Fig. 3
With safety valve

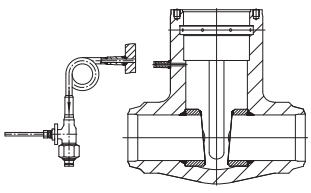


Fig. 4
With equalizing pipe and bypass valves

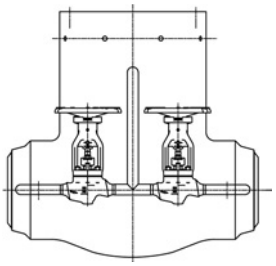


Fig. 5
With hole in the wedge or seatring

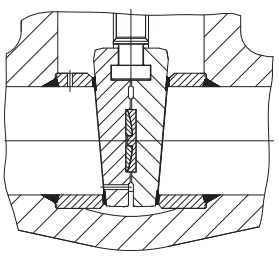
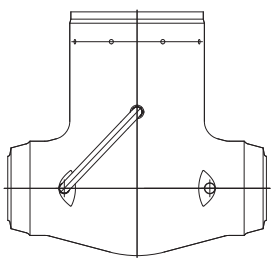


Fig. 6
With equalizing pipe to the 3rd chamber



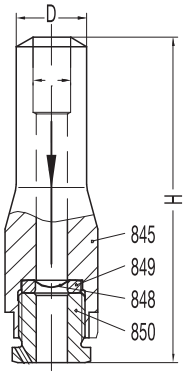
Technical alterations reserved

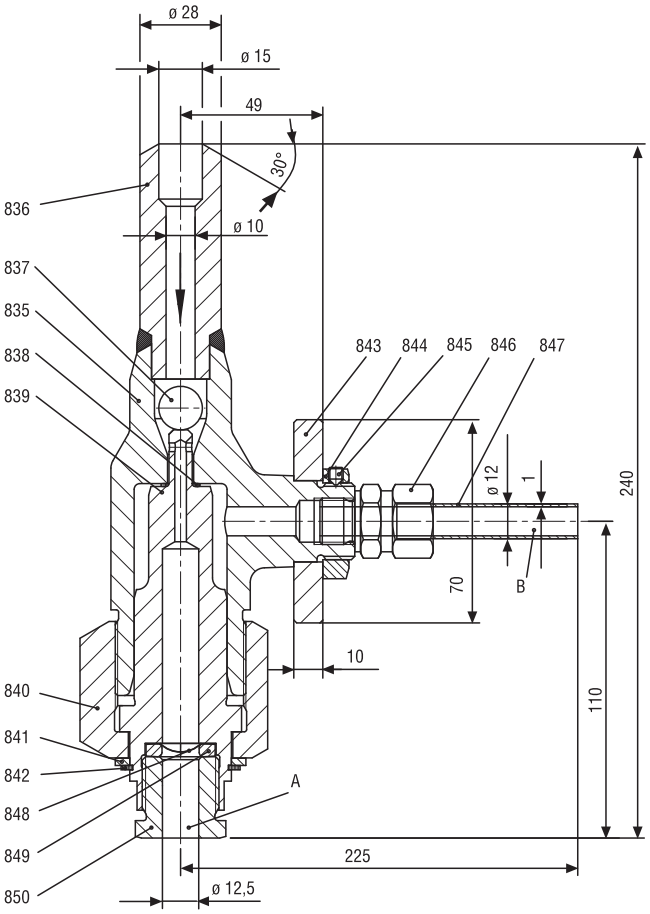
Materials

Pos.	Component	Material
835	Housing	1.4571
836	Connection stud	1.7335
837	Ball	WLSt
838	Gasket	2.4066
839	Valve body	1.4923
840	Union nut	CW 713 R
841	Supporting ring	FSt
842	Safety ring	FSt
843	Mechanism plate	1.0038
844	Hexagonal pipe nut	St
845	Screw pin	45H
846	Pipe screwing	1.4571
847	Steam-releasing pipe	1.4571
848	Burst disc	316 SS / Inconell 600
849	Pressure ring	1.4122
850	Pressure screw	1.4571

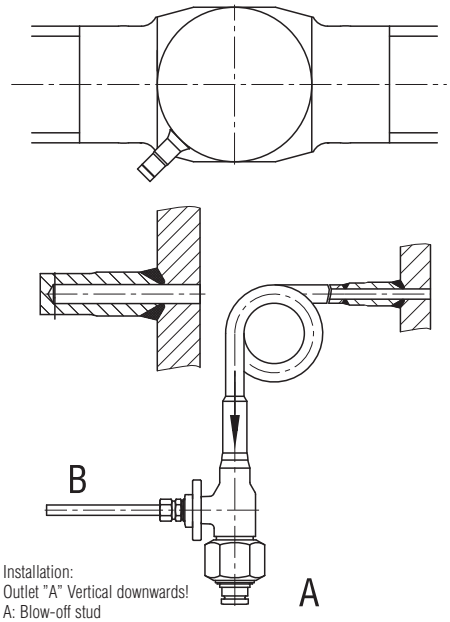
Materials

Pos.	Component	Material
845	Housing	1.7335
848	Burst disc	316 SS / Inconell 600
849	Pressure ring	1.4122
850	Pressure screw	1.4571



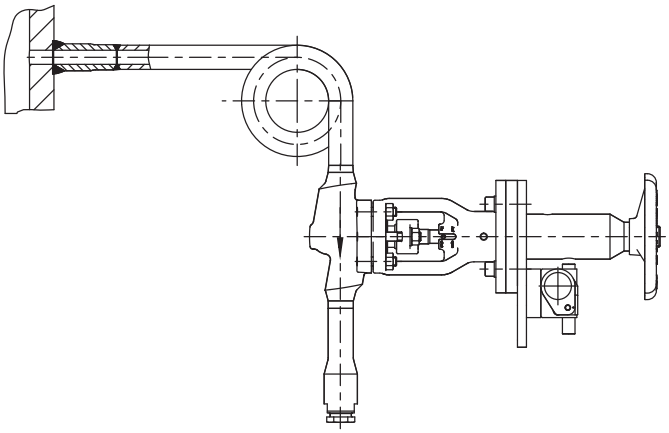


Assembly Sketch SV 98



Installation:
Outlet "A" Vertical downwards!
A: Blow-off stud
B: Steam-releasing-pipe

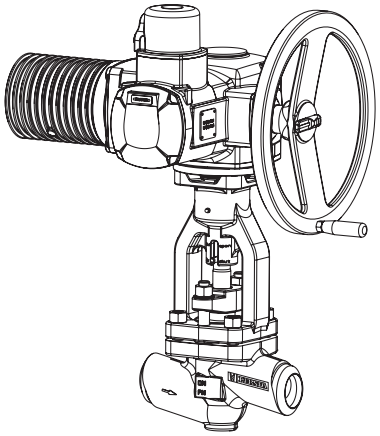
Assembly Sketch SV 99

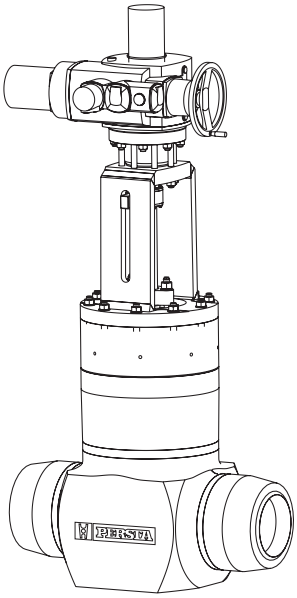


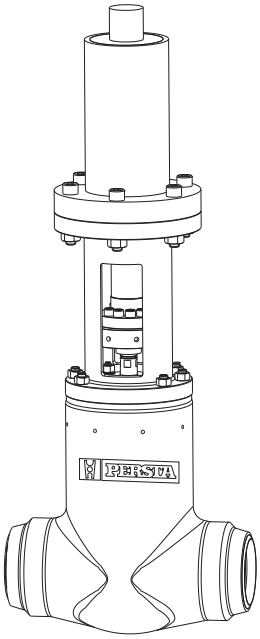
With lockable
High-pressure-globe valve

▪ Valves automation and accessories

Example



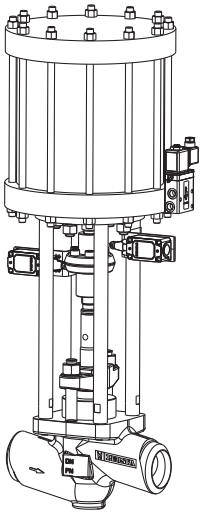




PERCON piston drive

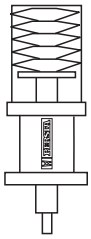
Spring opening

Example



PERCON piston drive

Spring closing



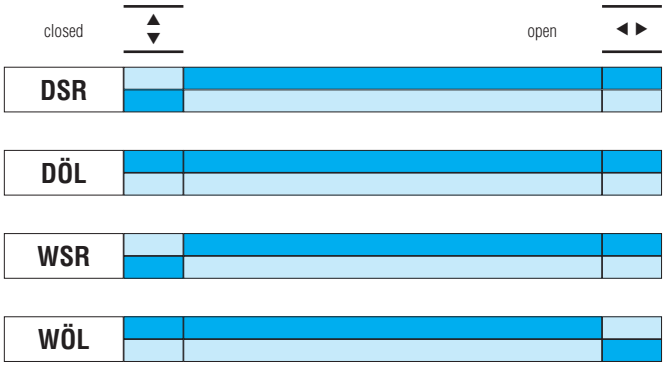
Standard electric actuator setting and wiring

PERSTA globe and gate valves type 200 LM and 700 JJ

In direction CLOSED (clockwise) the actuator is switched off by the torque switch **(DSR)**. In direction OPEN (counterclockwise) the actuator is switched off by the limit switch **(WÖL)**.

The torque switch **(DÖL)** acts as an overload protection over full travel and should therefore also be connected.

Valves with electric actuators are set according to the operating requirements and undergo a test run at the PERSTA plant.



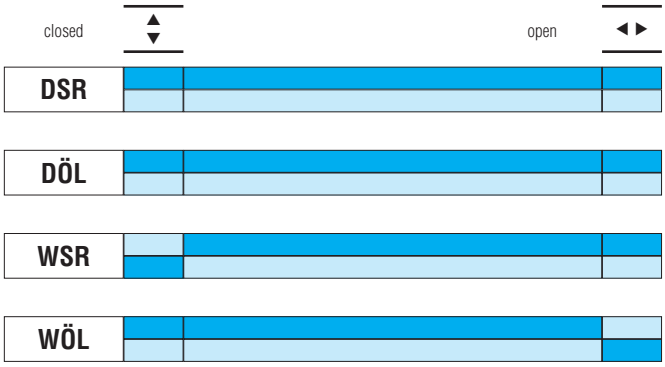
Switch wiring over full travel

PERSTA high pressure gate valves type 700 JT

In direction CLOSED (clockwise) the actuator is switched off by the limit switch **(WSR)**. In direction OPEN (counter-clockwise) the actuator is also switched off by the limit switch **(WÖL)**.

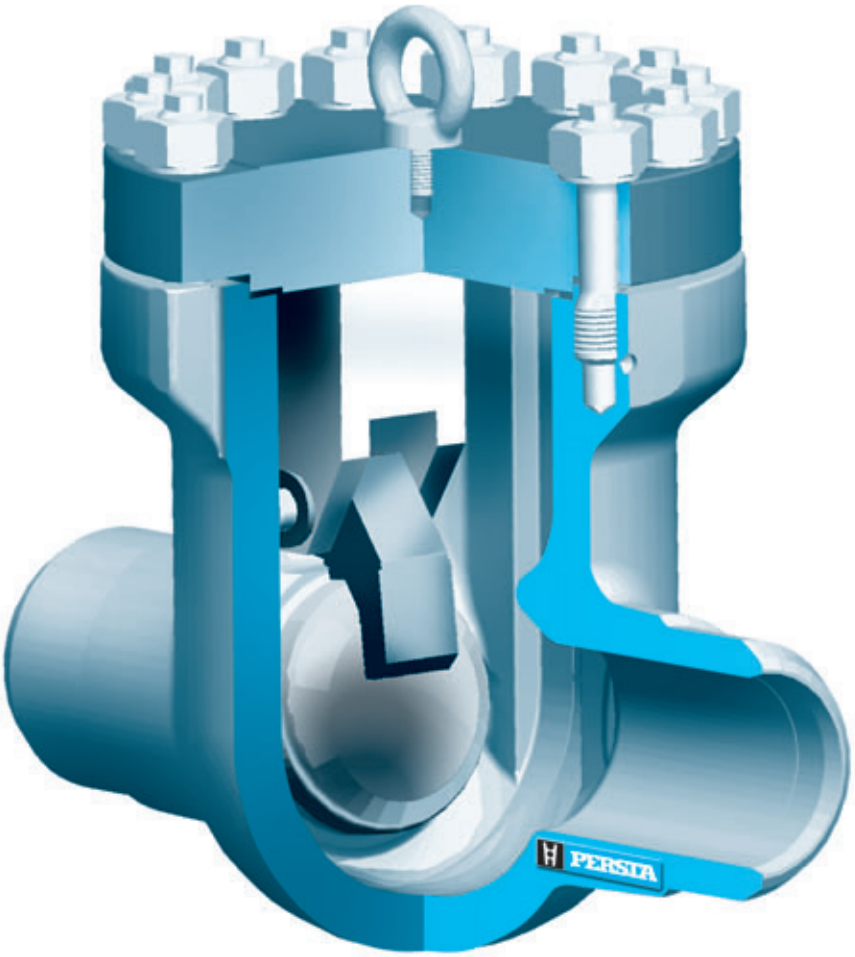
The torque switch in direction CLOSED **(clockwise DSR)** and in direction OPEN **(counterclockwise, DÖL)** act as overload protection over full travel and should also be connected.

Valves with electric actuators are set according to the operating requirements and undergo a test run at the PERSTA plant.



Switch wiring over full travel

- High pressure swing check valve ▪ PD 18 ▪ 640 AA
- Class 600/900 ▪ (PN 100/160) ▪ 2” up to 12” ▪ (DN 50-300/250)



▪ High pressure swing check valve ▪ PD 18 ▪ 640 AA
▪ Class 600/900 ▪ (PN 100/160) ▪ 2” up to 12” ▪ (DN 50-300/250)

Standard features

- Die-forged body
- Disc with inside shaft

Applications

Chemical industries, power plants, ship building and other

Pressure and temperature ratings

- Pressure rating up to class 900 (ASME B16.34 - 1996 Edition)
- Temperature rating up to 1112 °F (600 °C)

Materials

- A 105
- A 182 F12
- A 182 F22

Further materials on request

Design Highlights

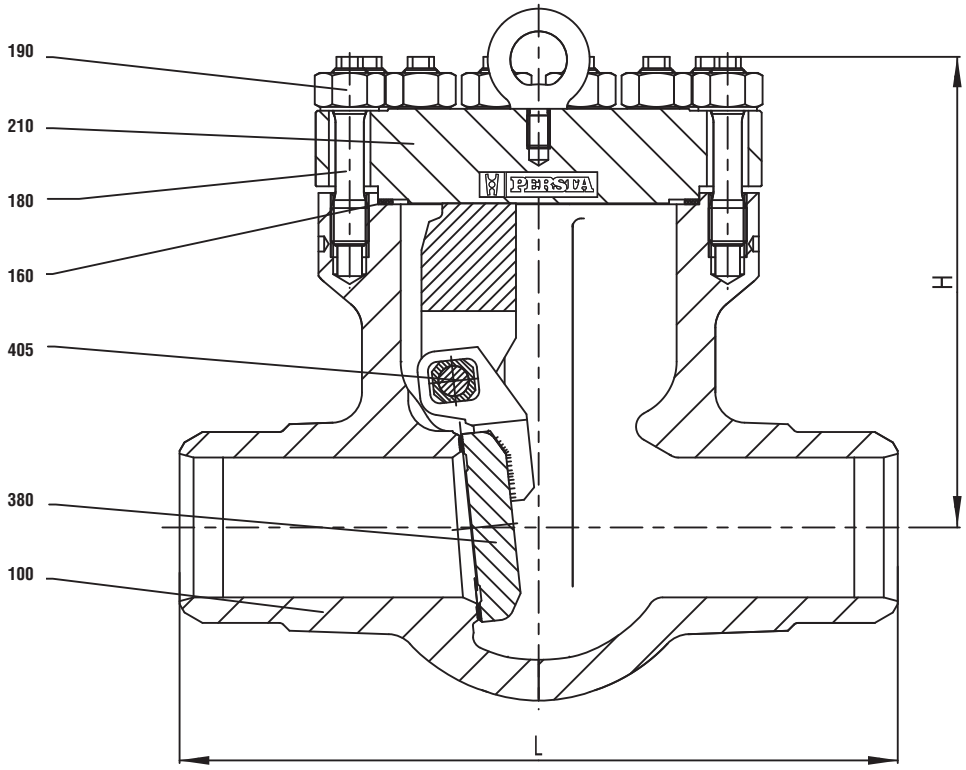
- Die-forged body
- Seats welded on integratedly with stellite
- Lever rests on the hinge pin by means of the guide bush
- Bolted bonnet with reduced-shaft bolts

Benefits

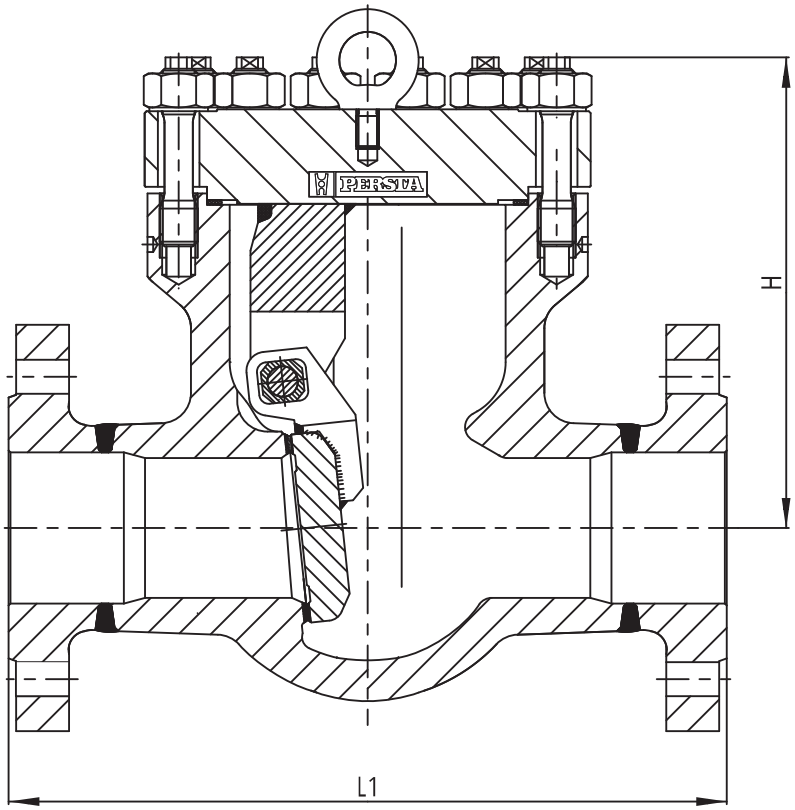
- Free from porosity and shrink holes
- No crevice corrosion between seat and valve body
- Optimum adjustment of the disc to the body seat by means of the movability to the guide bush
- To improve the stress capacity when temperature and pressure changes

- High pressure swing check valve ▪ PD 18 ▪ 640 AA
- Class 600/900 ▪ (PN 100/160) ▪ 2” up to 12” ▪ (DN 50-300/250)

BW Version



RF Version



▪ High pressure swing check valve ▪ PD 18 ▪ 640 AA

▪ Class 600/900 ▪ (PN 100/160) ▪ 2” up to 12” ▪ (DN 50-300/250)

Components

Pos.	Component	ASTM A105 (B1)	ASTM A182 F12 (D4)	ASTM A182 F22 (D5)
100	Body	A105	A182 F12	A182 F22
	welded on with	Stellite	Stellite	Stellite
160	Gasket	A182 F12 [1)]	A182 F12 [1)]	A182 F12 [1)]
180	Screw bolt	A193 B7	A193 B7	A193 B7
190	Hexagonal nut	A194 2H	A194 2H	A194 2H
210	Bonnet	A105	A182 F22	A182 F22
380	Disk	A105	A182 F12	A182 F22
	welded on with	Stellite	Stellite	Stellite
405	Hinge pin	Cr 12	Cr 12	Cr 12

1) With graphite coating

Dimensions Class 600 / 900

NPS	DN	BW [2)] L		RF [2)] L1		H		D1		BW lb	BW kg	RF lb	RF kg
2	50	8.50	215.90	14.50	368.30	8.66	220.00	7.56	192.00	77.20	35.00	2.17	55.00
2 1/2	65/50	10.00	254.00	16.50	419.10	8.66	220.00	7.56	192.00	83.80	38.00	2.56	65.00
3	80	12.00	304.80	15.00	381.00	11.02	280.00	9.29	236.00	138.90	63.00	3.50	89.00
4	100	14.00	355.60	18.00	457.20	12.60	320.00	10.43	265.00	220.50	100.00	5.71	145.00
5	125/100	17.00	431.80	22.00	558.80	12.60	320.00	10.43	265.00	233.70	106.00	7.09	180.00
6	150	20.00	508.00	24.00	609.60	16.14	410.00	13.78	350.00	485.00	220.00	12.20	310.00
8	200	26.00	660.40	29.00	736.60	20.08	510.00	17.32	440.00	804.70	365.00	20.47	520.00
10	250	31.00	787.40	33.00	838.20	23.43	595.00	21.65	550.00	1653.50	750.00	38.58	980.00
12	300/250	36.00	914.40	38.00	965.20	23.43	595.00	21.65	550.00	1763.70	800.00	41.34	1050.00

2) Face to Face (L) dimensions of Class 600 are identical with Class 900. Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

- High pressure swing check valve
- 640 AB
- DRI 26
- Class 900-2500
- (PN 160-420)
- 2 ½" up to 16"
- (DN 65-400)

▪ High pressure swing check valve ▪ 640 AB ▪ DRI 26

▪ Class 900-2500 ▪ (PN 160-420) ▪ 2 ½" up to 16" ▪ (DN 65-400)

Standard features

- One-piece valve body made of forged steel with welded seat rings
- Disc with inside shaft
- Disc applicated to the body insert
- Pressure sealing bonnet acc. to VGB-guidelines

Pressure and temperature ratings:

Class 900 (PN 160) *3" up to 12" (DN 80-300)
- Pressure rating up to class 900 (PN 160)
- temperature rating up to 1200 °F (650 °C)

Class 1500 (PN 250) *3" up to 16" (DN 80-400)
- Pressure rating up to class 1500 (PN 250)
- Temperature rating up to 1200 °F (650 °C)

Class 2500 (PN 420) *2 1/2" up to 12" (DN 65-300)
- Pressure rating up to class 2500 (PN 420)
- Temperature rating up to 1200 °F (650 °C)

Applications

High temperature steam and water, refining (catalytic reformers and hydrocrackers), petrochemical and chemical industries

Material

- A 105
- A 182 F1
- A 182 F12
- A 182 F22
- A 182 F91
- A 182 F92

Further materials on request

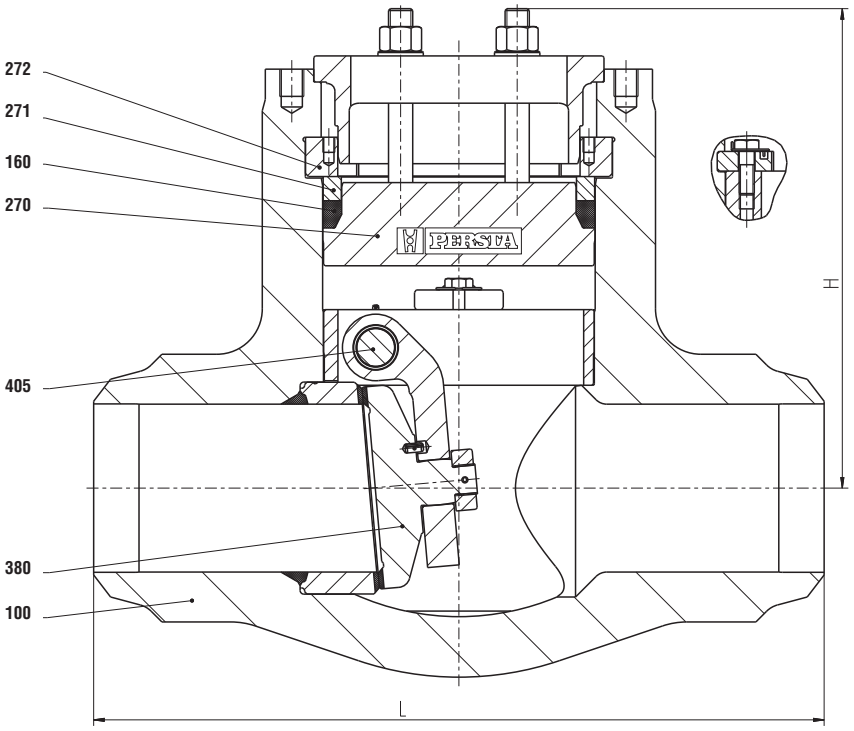
Design-Highlights

- Valve Body made of forged steel
- Tubular forged body
- Seat faced with stellite
- Lever rests in a seperate support ring
- Shut-off disc with curved journal
- Cover can be used for dismantling of the cover fastener

Benefits

- Free from porosity and shrink holes
- No pressure retaining weldseams
- Extremely resistant to wear
- The setting of the disc can be examined before installing the bonnet cover
- Optimum adjustment of the disc to the body seat
- No special tools are necessary for dismantling the disc fastener

- High pressure swing check valve ▪ 640 AB ▪ DRI 26
- Class 900-2500 ▪ (PN 160-420) ▪ 2 ½" up to 16" ▪ (DN 65-400)



▪ High pressure swing check valve ▪ 640 AB ▪ DRI 26

▪ Class 900-2500 ▪ (PN 160-420) ▪ 2 ½" up to 16" ▪ (DN 65-400)

Standard Materials

Pos.	Component	ASTM A105 (B1)	ASTM A182 F1 (D2)	ASTM A182 F12 (D4)	ASTM A182 F22 (D5)	ASTM A182 F91 (F3)	ASTM A182 F92 (F6)
100	Body	A105	A182 F1	A182 F12	A182 F22	A182 F91	A182 F92
	welded on with	Stellite	Stellite	Stellite	Stellite	Stellite	Stellite
160	Gasket	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
270	Cover	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
271	Ring	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
272	Segment ring	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
380	Disk	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
	welded on with	Stellite	Stellite	Stellite	Stellite	Stellite	Stellite
405	Hinge pin	Cr 12	Cr 12	Cr 12	Cr 12	Cr 12	Cr 12

Dimensions

Class 900 NPS	DN	BW L		RF L1		H	
3	80	12,00	304,8	15,00	381,0	9,06	230
4	100	14,00	355,6	18,00	457,2	10,12	257
5	125	17,00	431,8	22,00	558,8	12,48	317
6	150	20,00	508,0	24,00	609,6	14,06	357
8	200	26,00	660,4	29,00	736,6	17,52	445
10	250	31,00	787,4	33,00	838,2	20,87	530
12	300	36,00	914,4	38,00	965,2	23,74	603

14 Intermediate class on request

Black in inches, lb, Us gal/min. Blue in mm, kg, m³/h.

Weight / Flow Coefficient

Class 900 NPS	DN	lb	BW kg	flow coefficient Cv	Kv
3	80	108,0	49,0	250,0	215,0
4	100	174,2	79,0	435,0	375,0
5	125	288,8	131,0	635,0	550,0
6	150	560,0	254,0	950,0	820,0
8	200	864,2	392,0	1640,0	1410,0
10	250	1327,2	602,0	2545,0	2200,0
12	300	2436,1	1105,0	3570,0	3090,0

14 Intermediate class on request

Black in inches, lb, Us gal/min. Blue in mm, kg, m³/h.

Dimensions

Class 1500 NPS	DN	BW L		RF L1		H	
3	80	12,00	304,8	18,50	469,9	9,06	230
4	100	16,00	406,4	21,50	546,1	10,12	257
5	125	19,00	482,6	26,50	673,1	12,48	317
6	150	22,00	558,8	27,75	704,9	14,06	357
8	200	28,00	711,2	32,75	831,9	17,52	445
10	250	34,00	863,6	39,00	990,6	20,87	530
12	300	39,00	990,6	44,50	1130,3	20,87	530
14	350	42,00	1066,8	49,50	1257,3	23,74	603
16	400	47,00	1193,8	54,50	1384,3	23,74	603

Black in inches, lb, Us gal/min. Blue in mm, kg, m³/h.

Weight / Flow Coefficient

Class 1500 NPS	DN	lb	BW kg	flow coefficient Cv	Kv
3	80	108,0	49,0	250,0	215,0
4	100	183,0	83,0	435,0	375,0
5	125	302,0	137,0	635,0	550,0
6	150	582,0	264,0	950,0	820,0
8	200	888,5	403,0	1640,0	1410,0
10	250	1642,4	745,0	2545,0	2200,0
12	300	1642,4	745,0	3570,0	3090,0
14	350	2570,6	1166,0	3570,0	3090,0
16	400	2570,6	1166,0	3570,0	3090,0

Black in inches, lb, Us gal/min. Blue in mm, kg, m³/h.

Dimensions

Class 2500 NPS	DN	BW L		RF L1		H	
2 1/2	65	13,00	330,2	20,00	508,0	9,09	231
3	80	14,50	368,3	22,75	577,9	9,69	246
4	100	18,00	457,2	26,50	673,1	10,94	278
5	125	21,00	533,4	31,25	793,8	13,27	337
6	150	24,00	609,6	36,00	914,4	16,97	431
8	200	30,00	762,0	40,25	1022,4	18,86	479
10	250	36,00	914,4	50,00	1270,0	23,11	587
12	300	41,00	1041,4	56,00	1422,4	23,11	587

14 Intermediate class on request

Black in inches, lb, Us gal/min. Blue in mm, kg, m³/h.

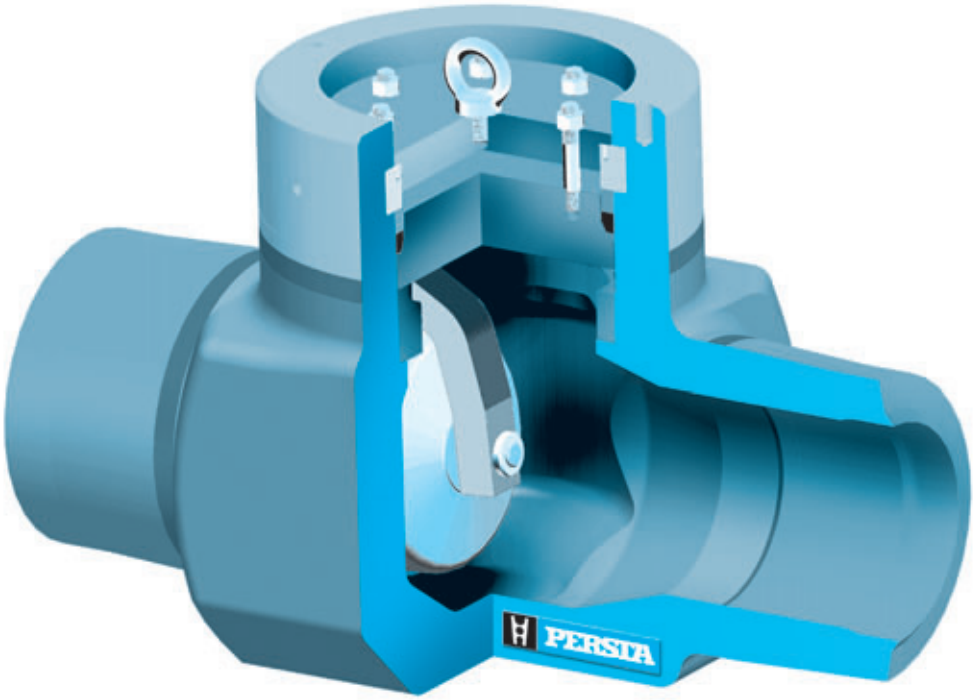
Weight / Flow Coefficient

Class 2500 NPS	DN	lb	BW kg	flow coefficient Cv	Kv
2 1/2	65	127,9	58,0	100,0	90,0
3	80	198,4	90,0	155,0	135,0
4	100	328,5	149,0	250,0	215,0
5	125	632,7	287,0	415,0	360,0
6	150	981,0	445,0	740,0	640,0
8	200	1752,7	795,0	1100,0	950,0
10	250	3395,1	1540,0	1765,0	1530,0
12	300	3593,5	1630,0	1765,0	1530,0

14 Intermediate class on request

Black in inches, lb, Us gal/min. Blue in mm, kg, m³/h.

- High pressure swing check valve ▪ 640 AB ▪ DRI 27
- Class 600-4500 ▪ (PN 100-720) ▪ 2 ½" up to 24" ▪ (DN 65-600)



Technical alterations reserved

■ High pressure swing check valve ■ 640 AB ■ DRI 27
■ Class 600-4500 ■ (PN 100-720) ■ 2 ½" up to 24" ■ (DN 65-600)

Standard features

- Valve body made of forged steel with welded seat ring welded on with stellite
- Pressure sealing bonnet

Applications

High temperature steam and water, refining (catalytic reformers and hydrocrackers), petrochemical and chemical industries

Pressure and temperature ratings

- Pressure rating up to class 4500 (PN 420)
- Temperature rating up to 1200 °F (650 °C)

Material

- A 105
- A 182 F1
- A 182 F12
- A 182 F22
- A 182 F91
- A 182 F92

Further materials on request

Design Highlights

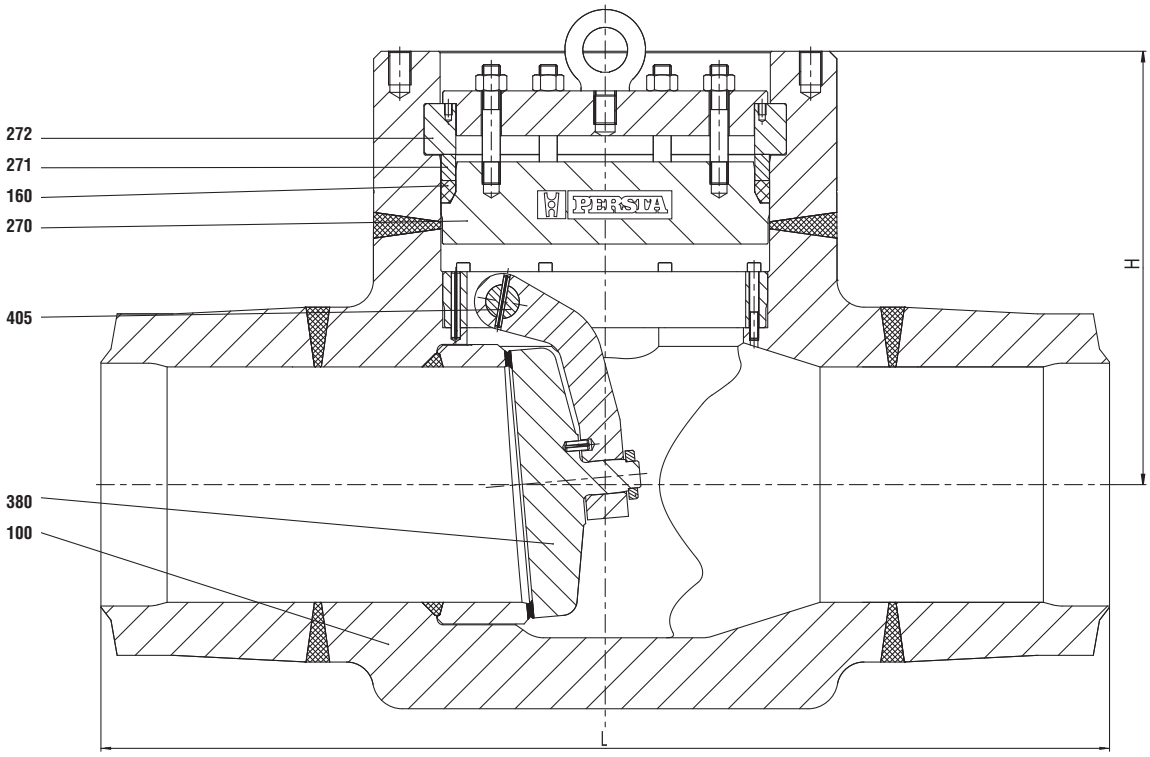
- Valve body made of forged steel
- Seats faced with stellite
- Lever rests in a separate support ring

Benefits

- Free from porosity and shrink holes
- Extremely resistant to wear
- The setting of the disc can be examined before installing the bonnet cover

- High pressure swing check valve ▪ 640 AB ▪ DRI 27
- Class 600-4500 ▪ (PN 100-720) ▪ 2 ½" up to 24" ▪ (DN 65-600)

BW Version



▪ High pressure swing check valve ▪ 640 AB ▪ DRI 27
▪ Class 600-4500 ▪ (PN 100-720) ▪ 2 ½" up to 24" ▪ (DN 65-600)

Standard Materials

Pos.	Component	ASTM A105 (B1)	ASTM A182 F1 (D2)	ASTM A182 F12 (D4)	ASTM A182 F22 (D5)	ASTM A182 F91 (F3)	ASTM A182 F92 (F6)
100	Body	A105	A182 F1	A182 F12	A182 F22	A182 F91	A182 F92
	welded on with	Stellite	Stellite	Stellite	Stellite	Stellite	Stellite
160	Gasket	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
270	Cover	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
271	Ring	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
272	Segment ring	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
380	Disk	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
	welded on with	Stellite	Stellite	Stellite	Stellite	Stellite	Stellite
405	Hinge pin	Cr 12	Cr 12	Cr 12	Cr 12	Cr 12	Cr 12

Dimensions

DRI 27 Class 900 NPS	DN	BW L		H		lb	Weight kg
14	350	39.00	990.60	22.83	580.00	3638.00	1650.00
16	400	43.00	1092.20	25.98	660.00	5952.00	2700.00
18	450	48.00	1219.20	29.53	750.00	7165.00	3250.00
20	500	52.00	1320.80	33.46	850.00		
22	550	on request					
24	600	on request					

Black in inches, lb. Blue in mm, kg.

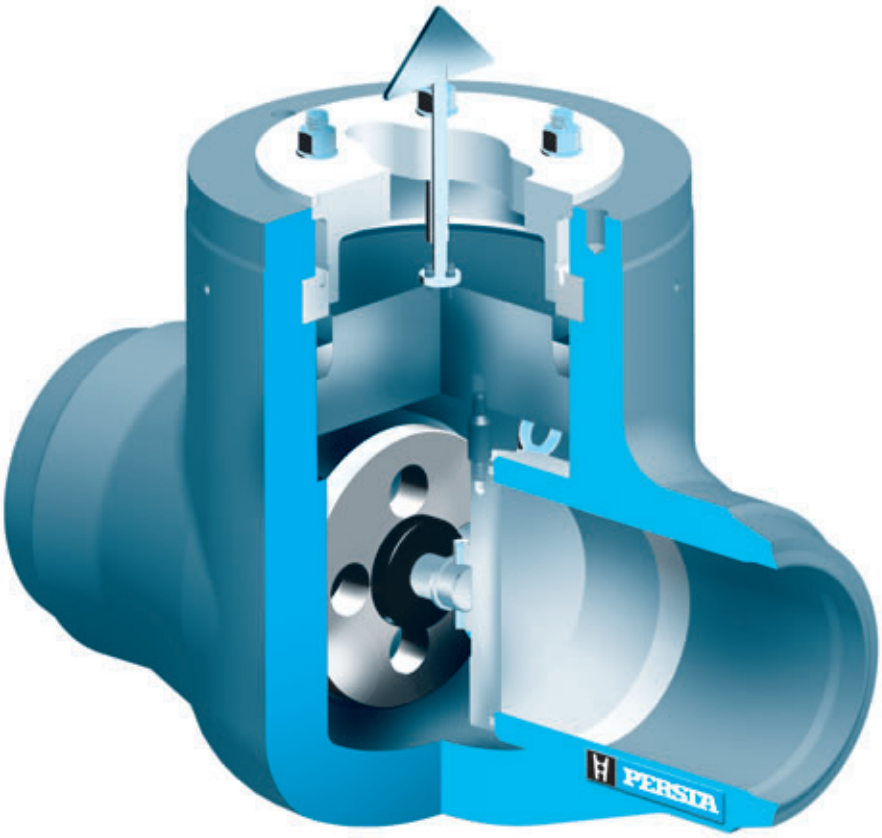
Dimensions

DRI 27 Class 1500 NPS	DN	BW L		H		lb	Weight kg
16	400	47.00	1193.80	22.83	580.00	4586.00	2080.00
18	450	53.00	1346.20	25.98	660.00	7430.00	3370.00
20	500	58.00	1473.20	29.53	750.00		
22	500	on request					
24	600	on request					

Black in inches, lb. Blue in mm, kg.

Class 2500 and above on request
Intermediate class on request
Larger sizes on request

- **High pressure line blind valve DPV 10-27** ▪ **990 VW**
- **Class 600-4500** ▪ **(PN 100-630)** ▪ **2 ½" up to 28"** ▪ **(DN 65-600)**



Technical alterations reserved

▪ High pressure line blind valve DPV 10-27 ▪ 990 VW

▪ Class 600-4500 ▪ (PN 100-630) ▪ 2 ½" up to 28" ▪ (DN 65-600)

Standard features

- Valve body made of forged steel with welded seat rings
- Position indicator
- Pressure sealing bonnet acc. to VGB-guidelines

Applications

Chemical industries, power plants, ship building and other

Pressure and temperature ratings:

- Pressure rating up to class 4500
- Temperature rating up to 1200 °F (650 °C)

Materials

- A 105
- A 182 F1
- A 182 F12
- A 182 F22
- A 182 F91
- A 182 F92

Further materials on request

Design Highlights

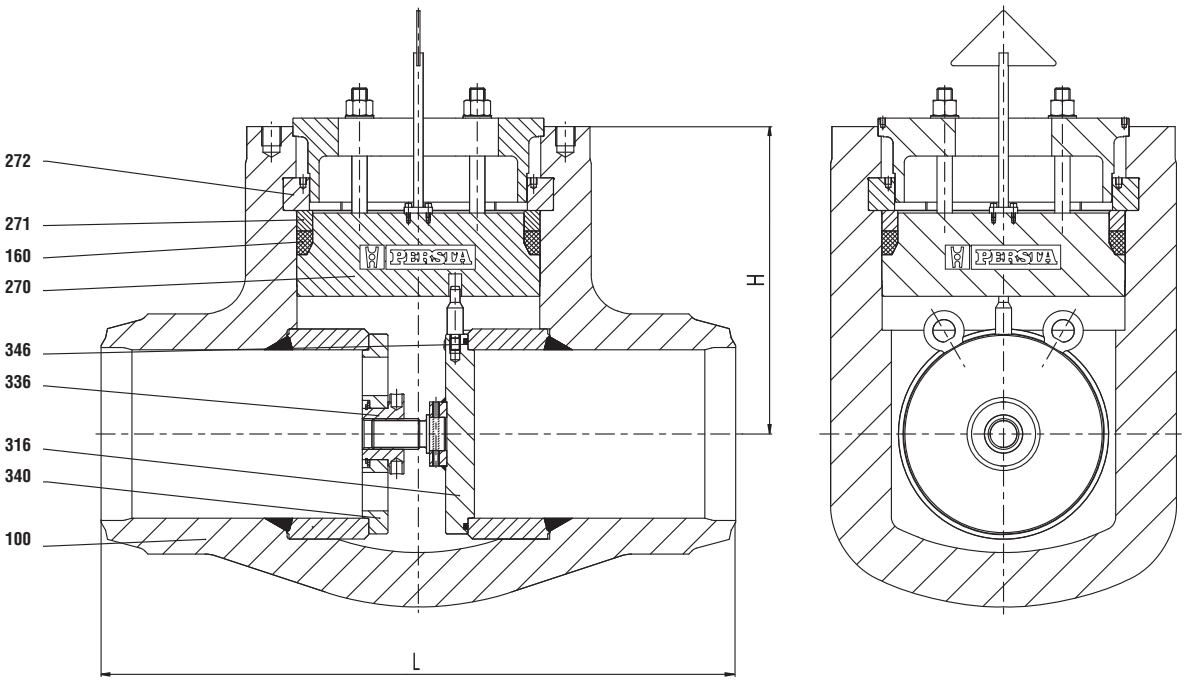
- Valve Body made of forged steel
- Tubular forged body
- Seat faced with stellite
- Position indicator
- Cover can be used for dismantling of the cover fastener

Benefits

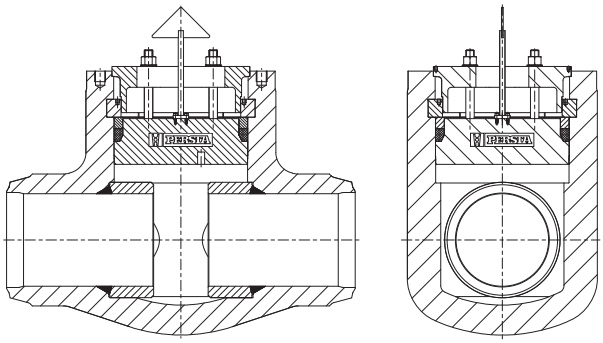
- Free from porosity and shrink holes
- No pressure retaining weldseams
- Extremely resistant to wear
- Indicates if seal plate is mounted or dismantled
- No special tools are necessary for dismantling the disc fastener

- **High pressure line blind valve DPV 10-27** ▪ **990 VW**
- **Class 600-4500** ▪ **(PN 100-630)** ▪ **2 ½" up to 28"** ▪ **(DN 65-600)**

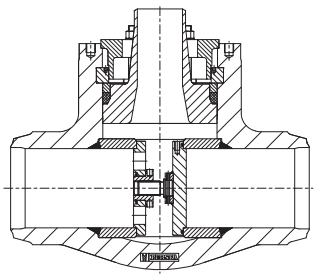
Closed passage (seal plate mounted)



Free passage (seal plate dismantled)



With blow-out attachment (seal plate mounted) on request



▪ High pressure line blind valve DPV 10-27 ▪ 990 VW

▪ Class 600-4500 ▪ (PN 100-630) ▪ 2 ½" up to 28" ▪ (DN 65-600)

Components

Pos.	Component	ASTM A105 (B1)	ASTM A182 F1 (D2)	ASTM A182 F12 (D4)	ASTM A182 F22 (D5)	ASTM A182 F91 (F3)	ASTM A182 F92 (F6)
100	Body	A105	A182 F1	A182 F12	A182 F22	A182 F91	A182 F92
	welded on with	Stellite	Stellite	Stellite	Stellite	Stellite	Stellite
160	Gasket	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
270	Cover	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
271	Ring	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
272	Segment ring	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
316	Cone plate	A182 F22	A182 F22	A182 F22	A182 F22	A182 F91	A182 F92
336	Coupling nut	Bronze	Bronze	Bronze	Bronze	Bronze	Bronze
340	Plate	A182 F22	A182 F22	A182 F22	A182 F22	A182 F22	A182 F22
346	O-ring	Viton	Viton	Viton	Viton	Viton	Viton

Dimensions / Weight / Flow coefficent Class 1500

Class 1500 NPS	DN	BW L		RF L1		H		BW lb	kg	flow coefficient Cv	Kv
3	80	12,00	304,8	18,50	469,9	8,15	207	108,0	49,0	250,0	215,0
4	100	16,00	406,4	21,50	546,1	9,11	231	183,0	83,0	435,0	375,0
5	125	19,00	482,6	26,50	673,1	11,23	285	302,0	137,0	635,0	550,0
6	150	22,00	558,8	27,75	704,9	12,65	321	582,0	264,0	950,0	820,0
8	200	28,00	711,2	32,75	831,9	15,77	401	888,5	403,0	1640,0	1410,0
10	250	34,00	863,6	39,00	990,6	18,78	477	1642,4	745,0	2545,0	2200,0
12	300	39,00	990,6	44,50	1130,3	18,78	477	1642,4	745,0	3570,0	3090,0
14	350	42,00	1066,8	49,50	1257,3	23,74	543	2570,6	1166,0	3570,0	3090,0
16	400	47,00	1193,8	54,50	1384,3	21,37	543	2570,6	1166,0	3570,0	3090,0

Intermediate class on request. Larger sizes on request. Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

Dimensions / Weight / Flow coefficent Class 2500

Class 2500 NPS	DN	BW L		RF L1		H		BW lb	kg	flow coefficient Cv	Kv
2 1/2	65	13,00	330,2	20,00	508,0	8,19	208	127,9	58,0	100,0	90,0
3	80	14,50	368,3	22,75	577,9	8,72	221	198,4	90,0	155,0	135,0
4	100	18,00	457,2	26,50	673,1	9,85	250	328,5	149,0	250,0	215,0
5	125	21,00	533,4	31,25	793,8	11,94	303	632,7	287,0	415,0	360,0
6	150	24,00	609,6	36,00	914,4	15,27	388	981,0	445,0	740,0	640,0
8	200	30,00	762,0	40,25	1022,4	16,97	431	1752,7	795,0	1100,0	950,0
10	250	36,00	914,4	50,00	1270,0	20,80	528	3395,1	1540,0	1765,0	1530,0
12	300	41,00	1041,4	56,00	1422,4	20,80	528	3593,5	1630,0	1765,0	1530,0

Intermediate class on request. Larger sizes on request. Black in inches, lb, Us gal/min. Blue in mm, kg, m^3/h.

▪ Technical Appendix ▪ Pressure-temperature ratings

Pressure-temperature ratings

A 105 [1]

Temp. °F	Working pressure in PSIG classes 600	725	900	1500	1850	2500	3200	Temp. °C	Gage working pressure by rating number, bar 600	725	900	1500	1850	2500	3200
100	1480.0	1788.3	2220.0	3705.0	4567.7	6170.0	7897.6	38	102.1	123.4	153.2	255.3	314.9	425.5	544.6
200	1360.0	1641.0	2035.0	3395.0	4186.0	5655.0	7238.4	50	100.2	121.1	150.4	250.6	309.1	417.7	534.7
300	1310.0	1583.0	1965.0	3270.0	4033.0	5450.0	6976.0	100	93.1	112.6	139.8	233.0	287.4	388.3	497.0
400	1265.0	1530.0	1900.0	3170.0	3908.5	5280.0	6758.4	150	90.2	109.0	135.2	225.4	278.0	375.6	480.8
500	1205.0	1457.0	1810.0	3015.0	3718.5	5025.0	6432.0	200	87.6	105.9	131.4	219.0	270.1	365.0	467.2
600	1135.0	1373.0	1705.0	2840.0	3501.5	4730.0	6054.4	250	83.9	101.4	125.8	209.7	258.6	349.5	447.4
650	1100.0	1329.0	1650.0	2745.0	3385.5	4575.0	5856.0	300	79.6	96.2	119.5	199.1	245.5	331.8	424.7
700	1060.0	1281.0	1590.0	2665.0	3281.0	4425.0	5664.0	325	77.4	93.5	116.1	193.6	238.8	322.6	412.9
750	1015.0	1225.0	1520.0	2535.0	3128.2	4230.0	5414.4	350	75.1	90.8	112.7	187.8	231.6	313.0	400.7
800	825.0	996.0	1235.0	2055.0	2536.2	3430.0	4390.4	375	72.7	87.9	109.1	181.8	224.3	303.1	387.9
850	640.0	771.0	955.0	155.0	1966.0	2655.0	3398.4	400	69.4	83.9	104.2	173.6	214.1	289.3	370.3
900	460.0	556.0	690.0	1150.0	1417.7	1915.0	2451.2	425	57.5	69.5	86.3	143.8	177.4	239.7	306.8
950	275.0	331.0	410.0	685.0	846.0	1145.0	1465.6	450	46.0	55.6	69.0	115.0	141.8	191.7	245.4
1000	170.0	205.0	255.0	430.0	529.7	715.0	915.0	475	34.9	42.2	52.3	87.2	107.5	145.3	186.0
								500	23.5	28.4	35.3	58.8	72.5	97.9	125.3
								538	11.8	14.3	17.7	29.5	36.4	49.2	63.0

Notes:
(1) Upon prolonged exposure to temperatures above 800 °F (425 °C), the carbide phase of steel may be converted to graphite. Permissible, but not recommended for prolonged use above 800 °F (425 °C).

Pressure-temperature ratings

A 182 Gr. F1 [2]

Temp. °F	Working pressure in PSIG classes 600	900	1500	1850	2500	3200	Temp. °C	Gage working pressure by rating number, bar 600	900	1500	1850	2500	3200
100	1395.0	2250.0	3750.0	4293.8	6250.0	8000.0	38	96.0	144.1	240.1	296.1	400.1	512.2
200	1395.0	2250.0	3750.0	4228.8	6250.0	8000.0	50	96.0	144.1	240.1	296.1	400.1	512.2
300	1375.0	2165.0	3610.0	4236.5	6015.0	7699.2	100	95.9	143.8	239.7	295.6	399.5	511.4
400	1325.0	2080.0	3465.0	4083.5	5775.0	7392.0	150	94.7	142.0	236.7	291.9	394.5	505.0
500	1285.0	1995.0	3325.0	3959.0	5540.0	7091.2	200	91.6	137.4	229.0	282.4	381.7	488.6
600	1210.0	1815.0	3025.0	3730.3	5040.0	6451.2	250	89.0	133.5	222.5	274.4	370.9	474.7
650	1175.0	1765.0	2940.0	3627.8	4905.0	6278.4	300	85.7	128.6	214.4	264.3	357.1	457.0
700	1135.0	1705.0	2840.0	3501.5	4730.0	6054.4	325	82.6	124.0	206.6	254.8	344.3	440.7
750	1065.0	1595.0	2660.0	3279.5	4430.0	5670.4	350	80.4	120.7	201.1	248.1	335.3	429.1
800	1015.0	1525.0	2540.0	3131.5	4230.0	5414.4	375	77.6	116.5	194.1	239.3	323.2	413.7
850	975.0	1460.0	2435.0	3003.8	4060.0	5196,8	400	73.3	109.8	183.1	232.2	304.9	390.2
900	900.0	1350.0	2245.0	2770.0	3745.0	4793.6	425	70.0	105.1	175.1	215.9	291.6	373.2
950	560.0	955.0	1595.0	1734.0	2655.0	3398.4	450	67.7	101.4	169.0	208.5	281.8	360.6
1000	330.0	650.0	1080.0	1015.8	1800.0	2304.0	475	63.4	95.1	158.2	195.2	263.9	377.7
							500	48.1	72.2	120.3	148.4	200.5	256.7
							538	22.7	34.0	56.7	70.0	94.6	121.1

Notes:
(2) Upon prolonged exposure to temperatures above 875 °F (470 °C), the carbide phase of carbon-molybdenum steel may be converted to graphite.
Permissible, but not recommended for prolonged use above 875 °F (470 °C).

Pressure-Temperature Ratings Standard Class Valves, flanges and buttwelding ends.
Note: For special class valves, which have higher ratings contact PERSTA.
Forged ASTM Material Standard - to ASME B16.34 PSIG / °F, classes 600 - 3200 (Bar / °C, PN 100-500)

■ Technical Appendix ■ Pressure-temperature ratings

Pressure-temperature ratings

A 182 Gr. F12 Cl.2 [3]

	Working pressure in PSIG classes								Gage working pressure by rating number, bar							
Temp. °F	**600**	**725**	**900**	**1500**	**1850**	**2500**	**3200**	**Temp. °C**	**600**	**725**	**900**	**1500**	**1850**	**2500**	**3200**
100	1500.0	1812.5	2250.0	3750.0	4625.0	6250.0	8000.0	38	103.4	124.9	155.1	258.6	318.9	430.9	551.6
200	1500.0	1778.0	2250.0	3750.0	4539.3	6250.0	8000.0	50	103.4	124.5	155.1	258.6	317.6	430.9	551.6
300	1445.0	1692.0	2165.0	3610.0	4312.3	6015.0	7699.0	100	103.0	121.9	154.4	257.4	311.1	429.0	549.7
400	1385.0	1614.0	2080.0	3465.0	4123.8	5775.0	7392.0	150	99.5	116.4	149.2	248.7	297.1	414.5	535.3
500	1330.0	1516.0	1995.0	3325.0	3984.3	5540.0	7091.0	200	95.9	111.8	143.9	239.8	285.3	399.6	518.9
600	1210.0	1462.0	1815.0	3025.0	3730.3	5040.0	6451.0	250	92.7	108.3	139.0	231.8	276.4	386.2	494.0
650	1175.0	1421.0	1765.0	2940.0	3627.8	4905.0	6278.0	300	85.7	103.6	128.6	214.4	264.3	357.1	457.0
700	1135.0	1373.0	1705.0	2840.0	3501.5	4730.0	6054.0	350	80.4	97.2	120.7	201.1	248.1	335.3	429.1
750	1065.0	1286.0	1595.0	2660.0	3279.5	4430.0	5670.0	375	77.6	93.8	116.5	194.1	239.3	323.2	413.7
800	1015.0	1228.0	1525.0	2540.0	3131.5	4230.0	5414.0	400	73.3	88.5	109.8	183.1	225.7	304.9	390.2
850	975.0	1177.0	1460.0	2435.0	3003.8	4060.0	5197.0	425	70.0	84.6	105.1	175.1	215.9	291.6	373.2
900	900.0	901.0	1350.0	2245.0	2305.8	3745.0	4794.0	450	67.7	81.7	101.4	169.0	208.5	281.8	360.6
950	640.0	665.0	955.0	1595.0	1690.3	2655.0	3398.0	475	63.4	67.3	95.1	158.2	171.8	263.9	337.7
1000	430.0	481.0	650.0	1080.0	1226.0	1800.0	2304.0	500	51.5	51.7	77.2	128.6	131.9	214.4	274.4
1050	290.0	348.0	430.0	720.0	888.0	1200.0	1536.0	538	29.8	33.1	44.7	74.5	84.6	124.1	158.9
1100	190.0	232.0	290.0	480.0	592.0	800.0	1024.0	550	25.4	29.1	38.1	63.5	74.3	105.9	135.5
1150	130.0	150.0	195.0	325.0	381.8	545.0	698.0	575	17.6	21.3	26.4	44.0	54.3	73.4	93.9
1200	80.0	84.6	125.0	205.0	210.3	345.0	442.0	600	12.2	14.6	18.3	30.5	37.3	50.9	65.1

Notes:
(3) Permissible, but not recommended for prolonged use above 1100 °F (593,3 °C).

Pressure-temperature ratings

A 182 Gr. F22 Cl.3 [4]

	Working pressure in PSIG classes								Gage working pressure by rating number, bar							
Temp. °F	**600**	**725**	**900**	**1500**	**1850**	**2500**	**3200**	**Temp. °C**	**600**	**725**	**900**	**1500**	**1850**	**2500**	**3200**
100	1500.0	1812.5	2250.0	3750.0	4625.0	6250.0	8000.0	38	103.4	124.9	155.1	258.6	318.9	430.9	551.6
200	1500.0	1813.0	2250.0	3750.0	4625.0	6250.0	8000.0	50	103.4	124.9	155.1	258.6	318.9	430.9	551.6
300	1455.0	1759.0	2185.0	3640.0	4490.5	6070.0	7769.6	100	103.0	124.5	54.6	257.6	317.7	429.4	549.7
400	1410.0	1704.0	2115.0	3530.0	4352.5	5880.0	7526.4	150	100.3	121.3	150.6	250.8	309.4	418.2	535.3
500	1330.0	1607.0	1995.0	3325.0	4100.3	5540.0	7091.2	200	97.2	117.5	145.8	243.4	300.1	405.4	518.9
600	1210.0	1462.0	1815.0	3025.0	3730.3	5040.0	6451.2	250	92.7	112.0	139.0	231.8	285.8	386.2	494.0
650	1175.0	1421.0	1765.0	2940.0	3627.8	4905.0	6278.4	300	85.8	103.6	128.6	214.4	264.3	357.1	457.0
700	1135.0	1373.0	1705.0	2840.0	3501.5	4730.0	6054.4	350	80.4	97.2	120.7	201.1	248.1	335.3	429.1
750	1065.0	1286.0	1595.0	2660.0	3279.5	4430.0	5670.4	375	77.6	93.8	116.5	194.1	239.3	323.2	413.7
800	1015.0	1228.0	1525.0	2540.0	3131.5	4230.0	5414.4	400	73.3	88.5	109.8	183.1	225.7	304.9	390.2
850	975.0	1177.0	1460.0	2435.0	3003.8	4060.0	5196.8	425	70.0	84.6	105.1	175.1	215.9	291.6	373.2
900	900.0	1088.0	1350.0	2245.0	2770.0	3745.0	4793.6	450	67.7	81.7	101.4	169.0	208.5	281.8	360.6
950	755.0	924.0	1160.0	1930.0	2381.5	3220.0	4121.6	475	63.4	76.6	95.1	158.2	195.2	263.9	337.7
1000	535.0	645.0	800.0	1335.0	1648.3	2230.0	2854.4	500	56.5	68.3	84.7	140.9	173.8	235.0	300.8
1050	350.0	423.0	525.0	875.0	1078.0	1455.0	1862.4	538	36.9	44.6	55.3	92.2	113.7	153.7	196.7
1100	220.0	266.0	330.0	550.0	677.8	915.0	1171.2	550	31.3	37.8	46.9	78.2	96.4	130.3	166.8
1150	135.0	164.0	205.0	345.0	423.8	570.0	730.0	575	21.1	25.5	31.6	52.6	64.9	87.7	112.2
1200	80.0	98.8	125.0	205.0	254.0	345.0	442.0	600	13.8	16.7	20.7	34.4	42.5	57.4	73.5

Notes:
(4) Permissible, but not recommended for prolonged use above 1100 °F (593,3 °C).

▪ Technical Appendix ▪ Pressure-temperature ratings

Pressure-temperature ratings

A 182 Gr. F91

Temp. °F	Working pressure in PSIG classes 600	725	900	1500	2500	3200	Temp. °C	Gage working pressure by rating number, bar 600	725	900	1500	2500	3200
100	1500.0	1812.5	2250.0	3750.0	6250.0	8000.0	38	103.4	124.9	155.1	258.6	430.9	551.6
200	1500.0	1813.0	2250.0	3750.0	6250.0	8000.0	50	103.4	124.9	155.1	258.6	430.9	551.6
300	1455.0	1759.0	2185.0	3640.0	6070.0	7769.6	100	103.0	124.5	154.6	257.6	429.4	549.7
400	1410.0	1704.0	2115.0	3530.0	5880.0	7526.4	150	100.3	121.3	150.6	250.8	418.2	535.3
500	1330.0	1607.0	1995.0	3325.0	5540.0	7091.2	200	97.2	117.5	145.8	243.4	405.4	518.9
600	1210.0	1462.0	1815.0	3025.0	5040.0	6451.2	250	92.7	112.0	139.0	231.8	386.2	494.0
650	1175.0	1421.0	1765.0	2940.0	4905.0	6278.4	300	85.7	103.6	128.6	214.4	357.1	457.0
700	1135.0	1373.0	1705.0	2840.0	4730.0	6054.4	350	80.4	97.2	120.7	201.1	335.3	429.1
750	1065.0	1286.0	1595.0	2660.0	4430.0	5670.4	375	77.6	93.8	116.5	194.1	323.2	413.7
800	1015.0	1228.0	1525.0	2540.0	4230.0	5414.4	400	73.3	88.5	109.8	183.1	304.9	390.2
850	975.0	1177.0	1460.0	2435.0	4060.0	5196.8	425	70.0	84.6	105.1	175.1	291.6	373.2
900	900.0	1088.0	1350.0	2245.0	3745.0	4793.6	450	67.7	81.7	101.4	169.0	281.8	360.6
950	775.0	935.0	1160.0	1930.0	3220.0	4121.6	475	63.5	76.6	95.1	158.2	263.9	337.7
1000	725.0	877.0	1090.0	1820.0	3030.0	3878.4	500	56.5	68.3	84.7	140.9	235.0	300.8
1050	720.0	870.0	1080.0	1800.0	3000.0	3840.0	538	50.0	60.5	75.2	125.5	208.9	267.3
1100	605.0	730.0	905.0	1510.0	2515.0	3219.2	550	49.8	60.2	74.8	124.9	208.0	266.2
1150	445.0	539.0	670.0	1115.0	1855.0	2374.4	575	47.9	57.9	71.8	119.7	199.5	255.4
1200	290.0	348.0	430.0	720.0	1200.0	1536.0	600	39.0	58.4	58.5	97.5	162.5	208.0
							625	29.2	35.3	43.8	73.0	121.7	155.8
							650	19.9	24.0	29.8	49.6	82.7	105.9

Pressure-temperature ratings

A 182 Gr. F92 [5)]

Temp. °F	Working pressure in PSIG classes 600	900	1500	2500	3200	Temp. °C	Gage working pressure by rating number, bar 600	900	1500	2500	3200
100	1500.0	2250.0	3750.0	6250.0	8000.0	38	103.4	155.1	258.6	430.9	551.6
200	1500.0	2250.0	3750.0	6250.0	8000.0	50	103.4	155.1	258.6	430.9	551.6
300	1455.0	2185.0	3640.0	6070.0	7770.0	100	103.0	154.6	257.6	429.4	549.7
400	1410.0	2115.0	3530.0	5880.0	7526.0	150	100.3	150.6	250.8	418.2	535.3
500	1330.0	1995.0	3325.0	5540.0	7091.0	200	97.2	145.8	243.4	405.4	519.0
600	1210.0	1815.0	3025.0	5040.0	6451.0	250	92.7	139.0	231.8	386.2	494.2
650	1175.0	1765.0	2940.0	4905.0	6278.0	300	85.7	128.6	214.4	357.1	457.0
700	1135.0	1705.0	2840.0	4730.0	6054.0	325	82.6	124.0	206.6	344.3	440.7
750	1065.0	1595.0	2660.0	4430.0	5670.0	350	80.4	120.7	201.1	335.3	429.1
800	1015.0	1525.0	2540.0	4230.0	5414.0	375	77.6	116.5	194.1	323.3	413.7
850	975.0	1460.0	2435.0	4060.0	5197.0	400	73.3	109.8	183.1	304.9	390.2
900	900.0	1350.0	2245.0	3745.0	4794.0	425	70.0	105.1	175.1	291.6	373.2
950	775.0	1160.0	1930.0	3220.0	4122.0	450	67.7	101.4	169.0	281.8	360.6
1000	725.0	1090.0	1820.0	3030.0	3878.0	475	63.4	95.1	158.2	263.9	337.7
1050	720.0	1080.0	1800.0	3000.0	3840.0	500	56.5	84.7	140.9	235.0	300.8
1100	645.0	965.0	1610.0	2685.0	3437.0	538	50.0	75.2	125.5	208.9	267.3
1150	550.0	825.0	1370.0	2285.0	2925.0	550	49.8	74.8	124.9	208.0	266.2
1200	385.0	575.0	960.0	1600.0	2048.0	575	47.9	71.8	119.7	199.5	255.4
						600	42.9	64.2	107.0	178.5	228.5
						625	36.6	54.9	91.2	152.0	194.6
						650	26.6	39.7	66.2	110.3	141.2

Notes:
(5) Application above 620 °C is limited to tubing of maximum outside diameter of 88.9 mm.

Pressure-Temperature Ratings Standard Class Valves, flanges and buttwelding ends.
Note: For special class valves, which have higher ratings contact PERSTA.
Forged ASTM Material Standard - to ASME B16.34 PSIG / °F, classes 600 - 3200 (Bar / °C, PN 100-500)

▪ Technical Appendix ▪ American Steel Flange Standards ASME B16.5

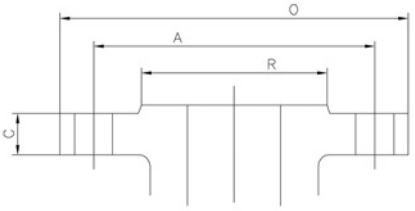
American Steel Flange Standards ASME B16.5

Nominal Pipe Size	O Outside Diameter of Flange	R Outside Diameter of Raised Face	C Minimum Thickness of Flange	A Diameter of Bolt Circle	Number of Bolt Studs	Diameter of Bolt Studs	Diameter of Bolt Studs Holes
Class 600 valve flanges							
2	6.50	3.62	1.00	5.00	8	5/8	0.75
2 1/2	7.50	4.12	1.12	5.88	8	3/4	0.88
3	8.25	5.00	1.25	6.62	8	3/4	0.88
4	10.75	6.19	1.50	8.50	8	7/8	1.00
5	13.00	7.31	1.75	10.50	8	1	1.12
6	14.00	8.50	1.88	11.50	12	1	1.12
8	16.50	10.62	2.19	13.75	12	1-1/8	1.25
10	20.00	12.75	2.50	17.00	16	1-1/4	1.38
12	22.00	15.00	2.62	19.25	20	1-1/4	1.38
Class 900 valve flanges							
2	8.50	3.62	1.50	6.50	8	7/8	1.00
2 1/2	9.62	4.12	1.62	7.50	8	1	1.12
3	9.50	5.00	1.50	7.50	8	7/8	1.00
4	11.50	6.19	1.75	9.25	8	1-1/8	1.25
5	13.75	7.31	2.00	11.00	8	1-1/4	1.38
6	15.00	8.50	2.19	12.50	12	1-1/8	1.25
8	18.50	10.62	2.50	15.50	12	1-3/8	1.50
10	21.50	12.75	2.75	18.50	16	1-3/8	1.50
12	24.00	15.00	3.12	21.00	20	1-3/8	1.50
14	25.25	16.25	3.38	22.00	20	1-1/2	1.62
Class 1500 valve flanges							
1/2	4.75	1.38	0.88	3.25	4	3/4	0.88
3/4	5.12	1.69	1.00	3.50	4	3/4	0.88
1	5.88	2.00	1.12	4.00	4	7/8	1.00
1 1/4	6.25	2.50	1.12	4.38	4	7/8	1.00
1 1/2	7.00	2.88	1.25	4.88	4	1	1.12
2	8.50	3.62	1.50	6.50	8	7/8	1.00
2 1/2	9.62	4.12	1.62	7.50	8	1	1.12
3	10.50	5.00	1.88	8.00	8	1-1/8	1.25
4	12.25	6.19	2.12	9.50	8	1-1/4	1.38
5	14.75	7.31	2.88	11.50	8	1-1/2	1.62
6	15.50	8.50	3.25	12.50	12	1-3/8	1.50
8	19.00	10.62	3.62	15.50	12	1-5/8	1.75
10	23.00	12.75	4.25	19.00	12	1-7/8	2.00
12	26.50	15.00	4.88	22.50	16	2	2.12
14	29.50	16.25	5.25	25.00	16	2-1/4	2.38
16	32.50	18.50	5.75	27.75	16	2-1/2	2.62
18	36.00	21.00	6.38	30.50	16	2-3/4	2.88
20	38.75	23.00	7.00	32.75	16	3	3.12
24	46.00	27.25	8.00	39.00	16	3-1/2	3.62
Class 2500 valve flanges							
1/2	5.25	1.38	1.19	3.50	4	3/4	0.88
3/4	5.50	1.69	1.25	3.75	4	3/4	0.88
1	6.25	2.00	1.38	4.25	4	7/8	1.00
1 1/4	7.25	2.50	1.50	5.12	4	1	1.12
1 1/2	8.00	2.88	1.75	5.75	4	1-1/8	1.25
2	9.25	3.62	2.00	6.75	8	1	1.12
2 1/2	10.50	4.12	2.25	7.75	8	1-1/8	1.25
3	12.00	5.00	2.62	9.00	8	1-1/4	1.38
4	14.00	6.19	3.00	10.75	8	1-1/2	1.62
5	16.50	7.31	3.62	12.75	8	1-3/4	1.88
6	19.00	8.50	4.25	14.50	8	2	2.12
8	21.75	10.62	5.00	17.25	12	2	2.12
10	26.50	12.75	6.50	21.25	12	2-1/2	2.62
12	30.00	15.00	7.25	24.38	12	2-3/4	2.88

Nummerals in inch.

Standard Flange, Facings & Extras
Class 900, 1500 and 2500 flanged valves are regulary furnished with 1/4 in. Raised face with phonograph finish.

* Class 900 and 1500 standards are identical in all sizes below size 2”



▪ Technical Appendix ▪ Endpreparations buttwelding ends

Buttwelding ends

Features are per ASME B16.25

NPS	Pipe Sch. No.	A outside diameter inches	A outside diameter mm	B inside diameter inches	B inside diameter mm	C bore of welding lip inches	C bore of welding lip mm	t wall thickness inches	t wall thickness mm
1/2	40	0.840	21.000	0.622	15.800	0.608	15.400	0.109	2.800
15	80			0.546	13.900	0.542	13.800	0.147	3.700
	160			0.466	11.800	0.470	11.900	0.188	4.800
	XXS			0.252	6.400	0.285	7.200	0.294	7.500
3/4	40	1.050	27.000	0.824	20.900	0.811	20.600	0.113	2.900
20	80			0.742	18.800	0.740	18.800	0.154	3.900
	160			0.614	15.600	0.626	15.900	0.219	5.600
	XXS			0.434	11.000	0.470	11.900	0.308	7.800
1	40	1.315	33.000	1.049	26.000	1.041	26.400	0.133	3.400
25	80			0.957	24.300	0.961	24.400	0.179	4.500
	160			0.815	20.700	0.837	21.300	0.250	6.400
	XXS			0.599	15.200	0.648	16.500	0.358	9.100
1 - 1 1/4	40	1.660	42.000	1.380	35.100	1.374	34.900	0.140	3.600
32	80			1.278	32.500	1.285	32.600	0.191	4.900
	160			1.160	29.500	1.181	30.000	0.250	6.400
	XXS			0.896	22.800	0.951	24.200	0.382	9.700
1 - 1 1/2	40	1.990	48.000	1.610	40.900	1.605	40.800	0.145	3.700
40	80			1.500	38.100	1.509	38.300	0.200	5.100
	160			1.338	34.000	1.367	34.700	0.281	7.100
	XXS			1.100	27.900	1.159	29.400	0.400	10.200
2	40	2.375	60.000	2.067	52.500	2.065	52.500	0.154	3.900
50	80			1.939	49.300	1.953	49.600	0.218	5.500
	160			1.687	42.900	1.734	44.000	0.344	8.700
	XXS			1.503	38.200	1.571	39.900	0.436	11.100

XXS - Double extra strong wall thickness. Black numerals are in inch. Blue numerals are in millimeter.

Features are per ASME B16.25

NPS	Pipe No Sch.	A outside diameter inches	A outside diameter mm	B inside diameter inches	B inside diameter mm	C bore of welding lip inches	C bore of welding lip mm	t wall thickness inches	t wall thickness mm
2 1/2	40	2.875	73.000	2.469	63.000	2.479	62.950	0.203	5.150
65	80			2.323	59.000	2.351	59.700	0.276	7.000
	160			2.125	54.000	2.178	55.300	0.375	9.550
	XXS			1.771	45.000	1.868	47.450	0.552	14.000
3	40	3.500	89.000	3.068	78.000	3.081	78.250	0.216	5.500
80	80			2.900	74.000	2.934	74.500	0.300	7.600
	160			2.624	67.000	2.692	68.400	0.438	11.150
	XXS			2.300	58.000	2.409	61.200	0.600	15.250
4	40	4.500	114.000	4.026	102.000	4.044	102.700	0.237	6.000
100	80			3.826	97.000	3.869	98.250	0.337	8.550
	120			3.624	92.000	3.692	93.800	0.438	11.150
	160			3.438	87.000	3.530	89.650	0.531	13.500
	XXS			3.152	80.000	3.279	83.300	0.674	17.100
5	80	5.563	141.000	4.813	122.000	4.866	123.600	0.375	9.550
125	120			4.563	116.000	4.647	118.050	0.500	12.700
	160			4.313	110.000	4.428	112.450	10.625	15.900
	XXS			4.063	103.000	4.209	106.900	0.750	19.050
6	80	6.625	168.000	5.761	146.000	5.828	148.050	0.432	10.950
150	120			5.501	140.000	5.600	142.250	0.562	14.250
	160			5.187	132.000	5.326	135.300	0.719	18.250
	XXS			4.897	124.000	5.072	128.850	0.864	21.950
8	80	8.625	219.000	7.625	194.000	7.709	195.800	0.500	12.700
200	100			7.437	189.000	7.544	191.600	0.594	15.100
	120			7.187	183.000	7.326	186.100	0.719	18.250
	140			7.001	178.000	7.163	181.950	0.812	20.600
	160			6.875	175.000	7.053	179.150	0.875	22.250
	XXS			6.813	173.000	6.998	177.750	0.906	23.000
10	80	10.750	273.000	9.562	243.000	9.670	245.600	0.594	15.100
250	100			9.312	237.000	9.451	240.050	0.719	18.250
	120			9.062	230.000	9.232	234.500	0.844	21.450
	140			8.750	222.000	8.959	227.550	1.000	25.400
	160			8.500	216.000	8.740	222.000	1.125	28.600

XXS - Double extra strong wall thickness. Black numerals are in inch. Blue numerals are in millimeter.

▪ Technical Appendix ▪ Endpreparations buttwelding ends

Buttwelding ends

Features are per ASME B16.25

NPS	Pipe Sch. No.	A outside diameter inches	A outside diameter mm	B inside diameter inches	B inside diameter mm	C bore of welding lip inches	C bore of welding lip mm	t wall thickness inches	t wall thickness mm
12	80	12.750	324.000	11.374	289.000	11.505	292.250	0.688	17.500
300	100			11.062	281.000	11.232	285.300	0.844	21.450
	120			10.750	273.000	10.959	278.350	1.000	25.400
	140			10.500	267.000	10.740	272.800	1.125	28.600
	160			10.126	257.000	10.413	264.500	1.312	33.300
14	80	14.000	356.000	12.500	318.000	12.646	321.200	0.75	19.050
350	100			12.124	308.000	12.318	312.900	0.938	23.850
	120			11.812	300.000	12.044	305.900	1.094	27.800
	140			11.500	292.000	11.771	299.000	`1.25	31.750
	160			11.188	284.000	11.498	292.050	1.406	35.700
16	80	16.000	406.000	14.312	364.000	14.482	367.850	0.844	21.450
400	100			13.938	354.000	14.155	359.550	1.031	26.200
	120			13.562	344.000	13.826	351.200	1.219	30.950
	140			13.124	333.000	13.442	341.450	1.438	36.550
	160			12.812	325.000	13.17	334.500	1.594	40.500
18	80	18.000	457.000	16.124	410.000	16.318	414.500	0.938	23.850
450	100			15.688	398.000	15.936	404.750	1.156	29.350
	120			15.250	387.000	15.553	395.050	1.375	34.950
	140			14.876	378.000	15.225	386.700	1.562	39.650
	160			14.438	367.000	14.842	377.000	1.781	45.250
20	80	20.000	508.000	17.938	456.000	18.155	461.150	1.031	26.200
500	100			17.438	443.000	17.717	450.000	1.281	32.550
	120			17.000	432.000	17.334	440.300	1.5	38.100
	140			16.500	419.000	16.896	429.150	1.75	44.450
	160			16.062	408.000	16.513	419.450	1.969	50.000
22	60	22.000	559.000	20.250	514.000	20.428	518.850	0.875	22.250
550	80			19.750	502.000	19.990	507.750	1.125	28.600
	100			19.250	489.000	19.553	496.650	1.375	34.950
	120			18.750	476.000	19.115	485.500	1.625	41.300
	140			18.250	464.000	18.678	474.400	1.875	47.650
	160			17.750	451.000	18.240	463.300	2.125	54.000
24	40	24.000	610.000	22.624	575.000	22.755	578.000	0.688	17.500
600	60			22.062	560.000	22.263	565.500	0.969	24.600
	80			21.562	548.000	21.826	554.400	1.219	30.950
	100			20.938	532.000	21.280	540.500	1.531	38.900
	120			20.376	518.000	20.788	528.000	1.812	46.000
	140			19.876	505.000	20.350	516.900	2.062	52.350
	160			19.312	491.000	19.857	504.350	2.344	59.550

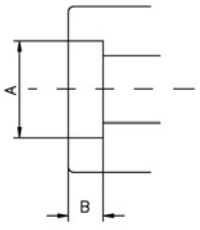
XXS - Double extra strong wall thickness. Black numerals are in inch. Blue numerals are in millimeter

End Configurations Socket Welding - Ends ASME B16.11

	NPS	DN	NPS	DN	NPS	DN	NPS	DN	NPS	DN	NPS	DN
Valve Sizes	1/2	15	3/4	20	1	25	1 1/4	32	1 1/2	40	2	50
A - Socket Diameter - min.	0.855	22	1.065	27	1.330	34	1.675	43	1.915	49	2.406	61
B - Depth of Socket - min.	0.38	10	0.50	13	0.50	13	0.50	13	0.50	13	0.62	16

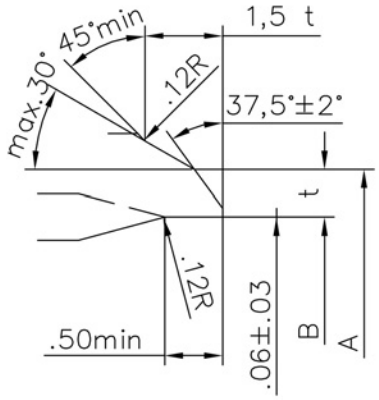
Black numerals are in inch. Blue numerals are in millimeter

Attention:
The material in this catalog is for general information. For specific performance data and proper material selection, consult your PERSTA representative. Although every attempt has been made to ensure that the information contained in this catalog is correct, PERSTA reserves the right to change designs, materials or specifications without notice.

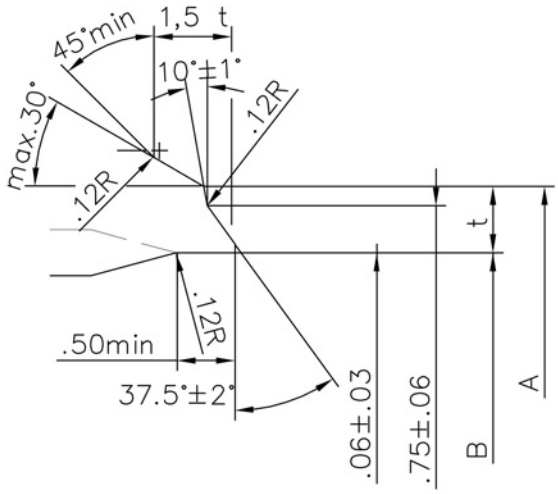


Socket Welding Ends
Conforming to requirements of ASME B16.11

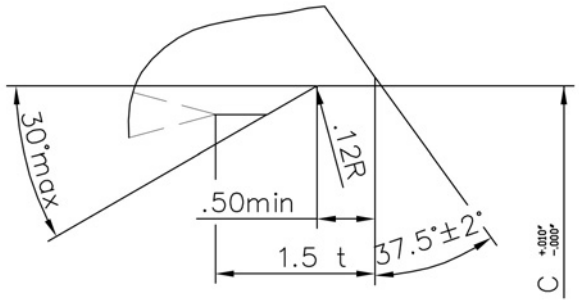
▪ Technical Appendix ▪ Endpreparations buttwelding ends



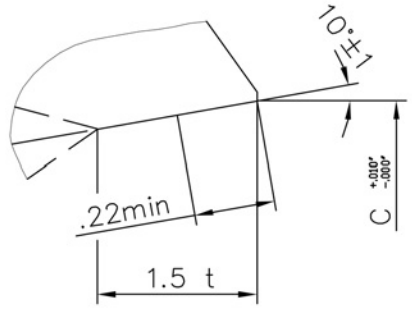
"A" For Wall Thickness (t). 1875" to. 875" inclusive (ASME B16.25 - Fig. 2A, 2B or 4)



"B" For Wall Thickness (t). Greater Than .875" inclusive (ASME B16.25 - Fig. 3A, 3B or 4)



"C" Inside contour for use with rectangular racking ring (ASME B16.25 - Fig. 2C, 3C)



"t" Inside Contour for Use With Taper Backing Ring (ASME B16.25 - Fig. 2D, 3D)

Important
When ordering buttwelding end valves; indicate type of weld prep desired from this page and give pipe schedule to be used from pages 52 and 53, or provide other complete instructions, missing or incomplete weld prep information may delay shipment of valves.

Inside and outside of welding ends of both cast and forged steel valves to be finish machined and carefully inspected where the thickness of these ends less than 1.15t. Runout of machined surface diameter of valve to have no abrupt change in section. Inside diameter of valve may be either larger or smaller than pipe inside diameter.

A - Nominal outside diameter of pipe
B - Nominal inside diameter of pipe
C - A - 0.031" - 1.75 t
t - Nominal outside diameter of pipe

▪ Technical Appendix ▪ Approvals

Approvals	
Name of testing firm or auditing company	**Specification**
FRAMATOME/Siemens/AREVA	AVS D 100/50
FRAMATOME/Siemens/AREVA	KTA 1401
TÜV Cert	DIN EN ISO 9001:2000
Forsmark/Vattenfall	DIN EN ISO 9001:2000
TÜV Nord	CE 0045, DGRL97/23/EG
FSPO Moscow	Goststandard Russia
FSPO Moscow	RTN
Promatomnadzor Minsk	GOSPROMNADZOR (Belarus)
Alstom Power	Alstom QS-System
Shell Nederland Raffin.BV	Service group 77DAAB Service group 77DPBA
Shell Nederland ChemieBV	Service group 77DAAB Service group 77DPBA
Canada	Canadian Registration; CSA B51

Design	ASME B16.34 / ASME B31.3
Pressure Rating	ASME B16.34
Testing	API 598 and MSS-SP61
Marking	MSS-SP 25 and CE-PED
Certificate	EN 10204-3.1

Valve type	
Valve type	**PERSTA Code**
High pressure globe valve, type HD 91	200 JM
High pressure globe valve, type HD 2000	200 LM
High pressure gate valve, type S 2000 and PD 18	700 JJ
High pressure gate valve, type DSK 26 and DSK 27	700 JT
High pressure swing check valve	640 AA
High pressure swing check valve, type DRI 26 and DRI 27	640 AB
High pressure line blind valve	990 VW

Material	
ASTM-No.	**PERSTA Code**
A 105	B1
A 182 F1	D2
A 182 F12	D4
A 182 F22	D5
A 182 F91	F3
A 182 F92	F6

Connection	
Connection	**PERSTA Code**
Flanges (RF) acc. to ASME B16.5, Face to Face dimensions acc. to ASME B16.10 (except HD 91, HD 2000)	1
Butt welded ends (BW) acc. to ASME B16.25, Face to Face dimensions to ASME B16.1 (except HD 91, HD 2000)	2
Socket welded ends (SW) acc. to ASME B16.11, Face to Face dimensions to PERSTA standard	8
Special ends	9

Figure number code

Example

XXX XX XX. X

Valve type
Material
Connection

700 JT B1. 2

Stahl-Armaturen PERSTA GmbH
Mülheimer Straße 18
59581 Warstein, Germany
Phone +49 29 02 7 62 - 02
Fax +49 29 02 7 67 03
info@persta.de
www.persta.com

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