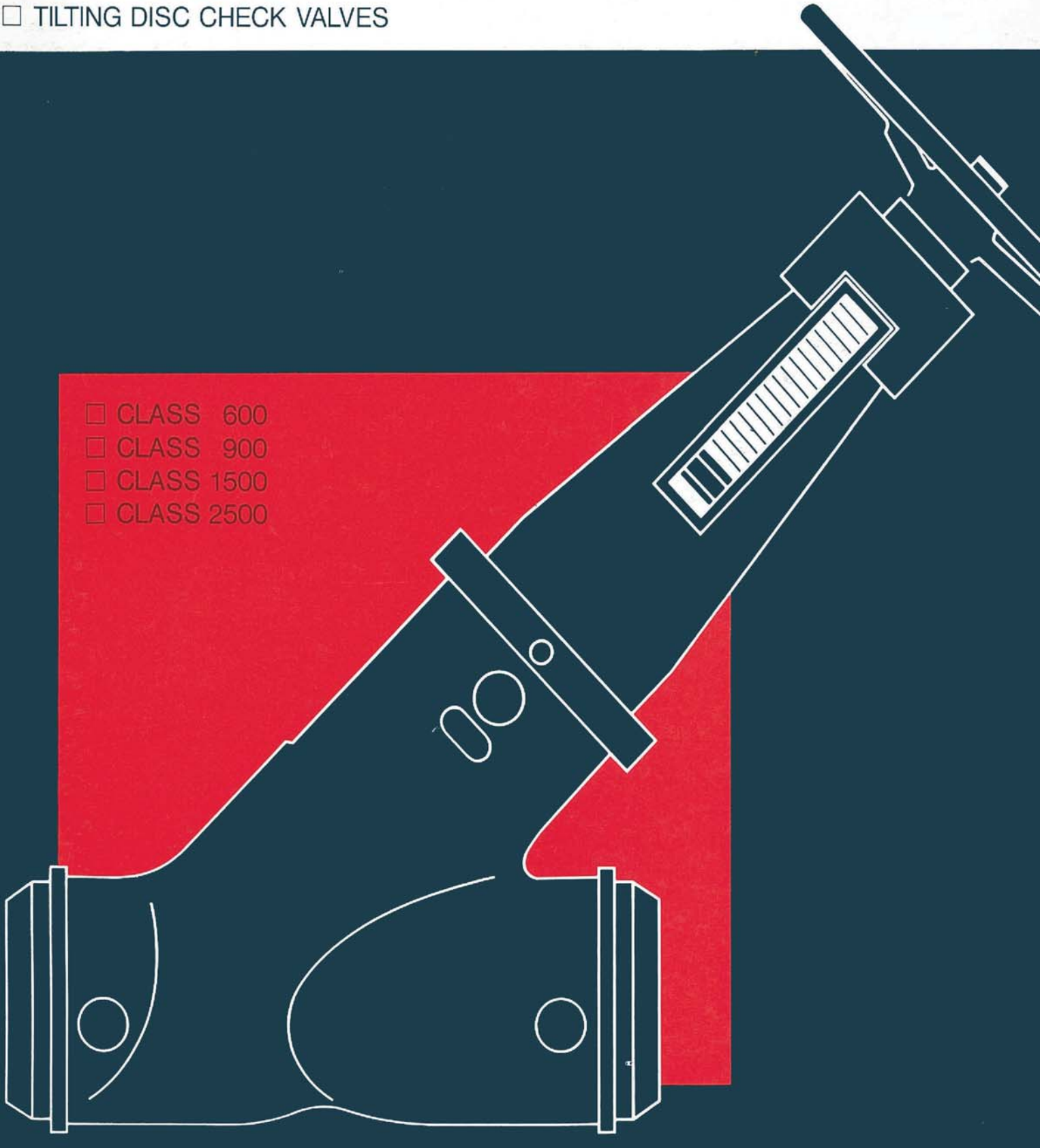
sella | gvm

PRESSURE SEAL VALVES

- ☐ GATE VALVES
- ☐ GLOBE STOP VALVES
- ☐ GLOBE STOP-CHECK VALVES
- ☐ PISTON-CHECK VALVES
- ☐ TILTING DISC CHECK VALVES

- ☐ CLASS 600
- ☐ CLASS 900
- ☐ CLASS 1500
- ☐ CLASS 2500



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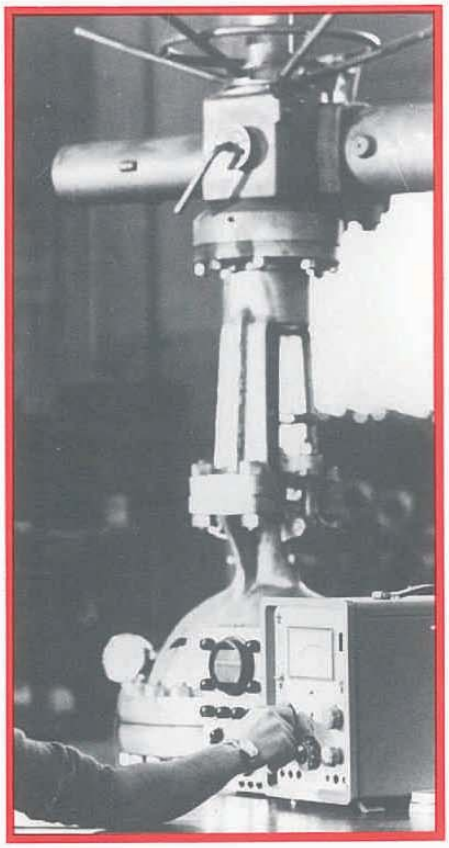
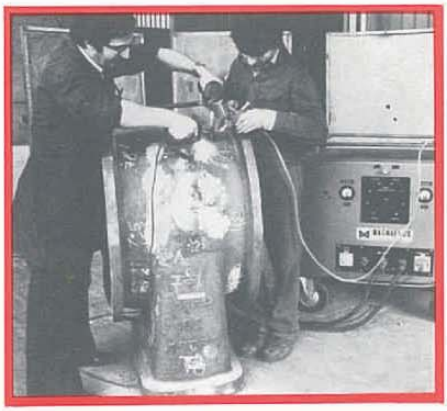
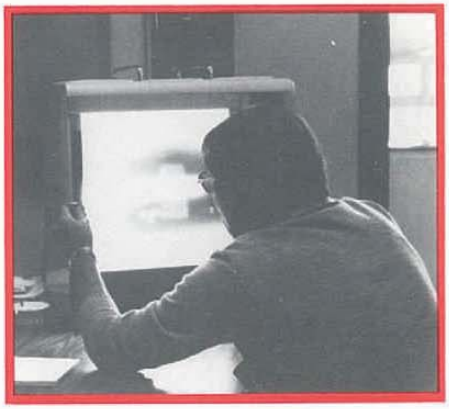






Introduction

With this Catalogue section, SELLA describes its range of **GATE, GLOBE and CHECK VALVES,** with **Pressure Seal Bonnet,** for high pressure temperature service.
The following pages contain a detailed description, as well as useful technical information.

☐ Our production follows years of research and experience in valve manufacturing. Advanced design, based on the most modern criteria, guarantees a long life and troublefree service, under extreme operating conditions.

☐ Manufacture of our high pressure valves is based on the principle of batch production and several special purpose machines guarantee the interchangeability of component parts.

☐ During all stages of manufacture, the constituent parts are subjected to a rigid quality and dimensional control, exercised by an experienced Control Department.

☐ The materials employed are extensively checked, physically and chemically.

☐ All castings are subjected to severe physical and chemical tests, including magnetic particle and radiographic examination, in conformity with the most up to date specifications.

☐ The modern Pressure Seal construction ensures permanent tightness between body and bonnet, as well as easy dismantling and re-assembly.

☐ Wall thicknesses, materials and end-to-end dimensions comply normally with the API and American National Standard (formerly ASA) specifications, but we can furnish valves in accordance with other Standards (e.g. DIN, UNI, BS, AFNOR). For design details of our standard production, see the description in the following pages.

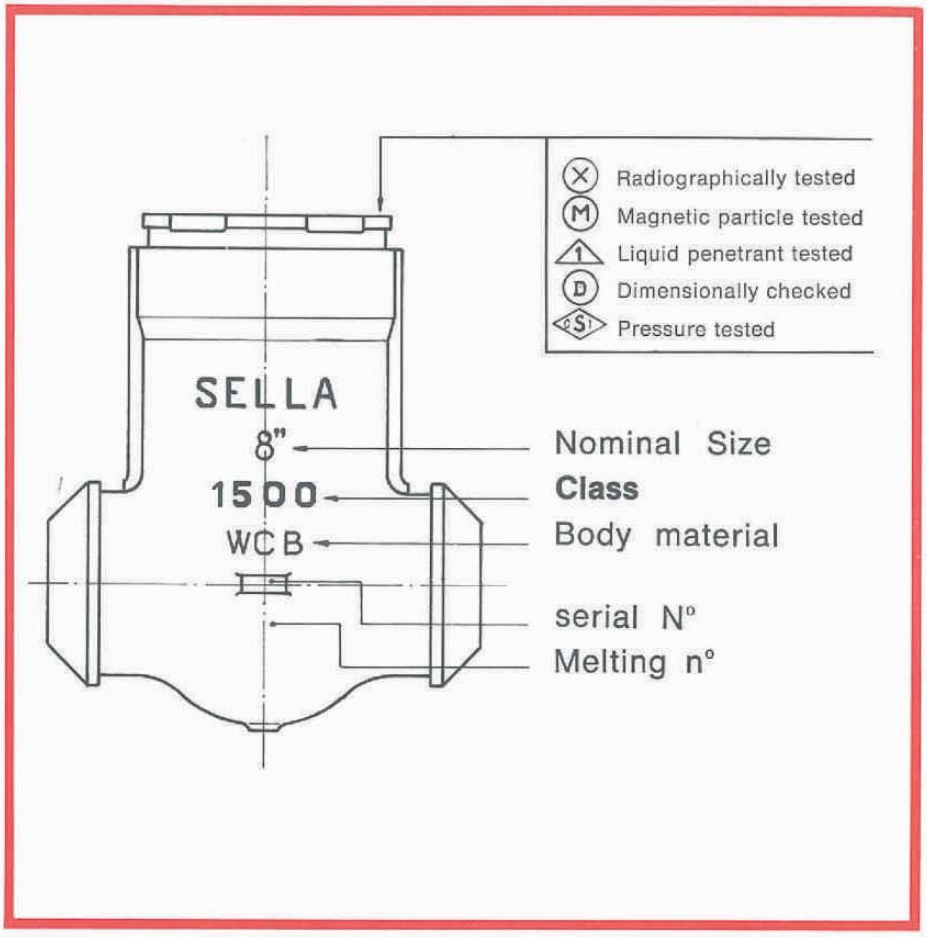
☐ All orders are subject to our General Conditions of Sale and exception are only valid, if specifically stated in our Order Confirmations.

☐ We reserve the right to change or modify design of construction without incurring any obligation to furnish or install such modifications on products previously or subsequently sold.

☐ The illustrations in this Catalogue are a true representation of the construction but are not necessarily to scale. Only the drawings, which accompany our offers or order confirmations, are binding.

MARKINGS

The Markings on our Pressure Seal Valves are as follows:



REQUIRED DATA

Customers are kindly requested to include the following technical information in their enquiries. This enables us to submit a correct offer.

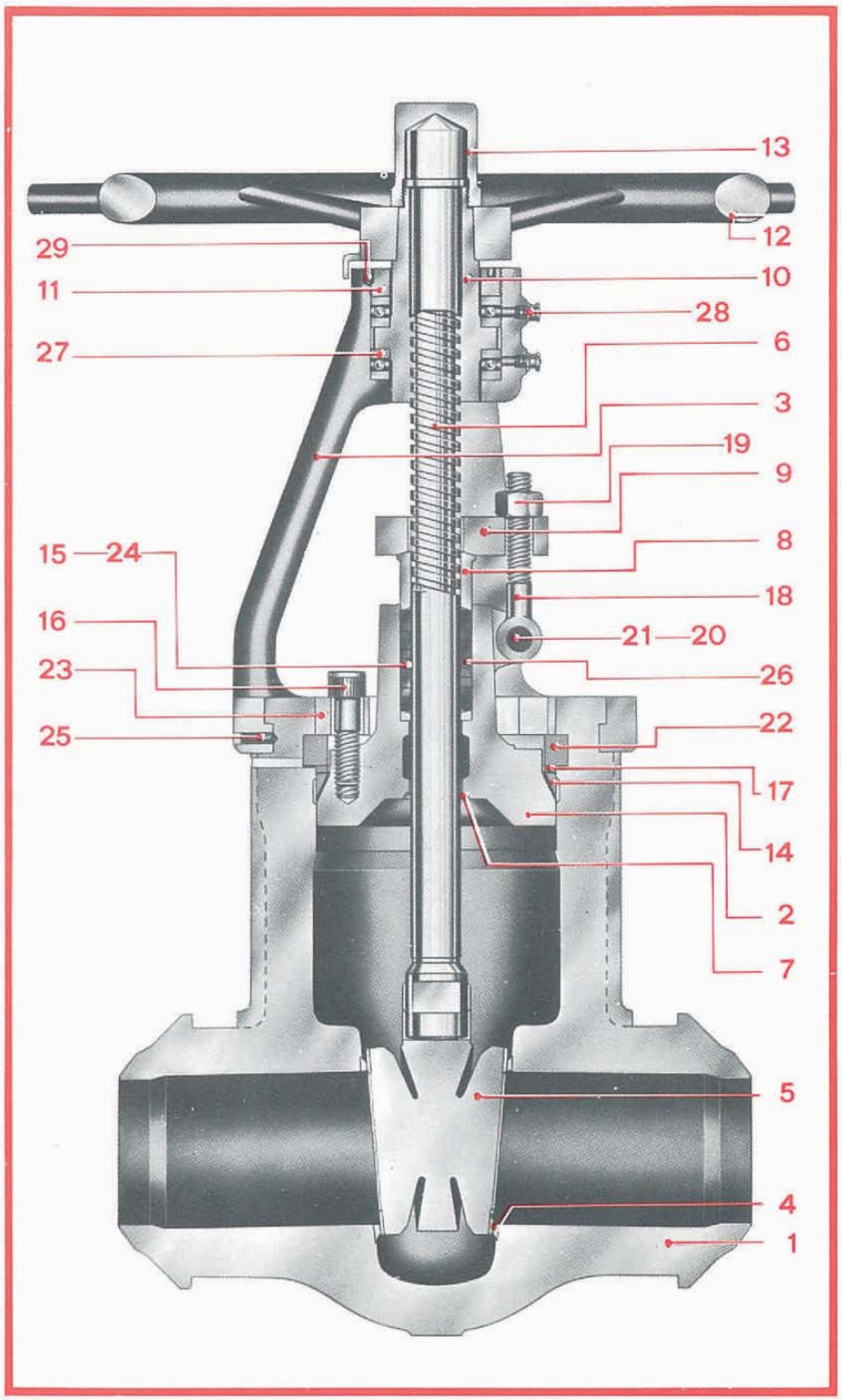
☐ Medium.
☐ Maximum operating temperature.
☐ Maximum operating pressure.
☐ Differential pressure across the valve.
☐ Nominal diameter and pipe schedule (or ID and OD pipe).
☐ Desired specification,e. g. ANS (ASA), DIN, BS.
☐ Desired type of weld ends or flanges.
☐ Importance of pressure drop or the acceptability of a slightly reduced seat passage.
☐ The need for accessories e. g. bypass valves, actuator, locking device.

In the case of Actuators, the following additional information is required.

☐ Type of actuator (pneumatic, electric etc.).
☐ Voltage and frequency or air pressure.
☐ Closing time.
☐ Operating frequency.
☐ Ambient temperature.
☐ The need for position indicator, position transmitter etc.
☐ Single or double torque switch.
☐ Number and type of auxiliary contacts required (e. g. 2-train or 4-train).

GATE VALVES

PRESSURE SEAL BONNET



N°	PARTS	STANDARD MATERIAL SPECIFICATIONS			
1	Body	A216 - WCB	A217 - WC6	A217 - WC9	A351 - CF8M
2	Bonnet	A216 - WCB	A217 - WC6	A217 - WC9	A351 - CF8M
3	Yoke	A216 - WCB			
4	Seat stellite 6 faced	INTEGRAL OR EQUIVALENT TO BODY MATERIAL			
5	Flexible wedge stellite 6 faced	A216 - WCB	A217 - WC6	A217 - WC9	A351 - CF8M
6	Stem	A182 - F6			A182 - F316
7	Integral back seat	STELLITE 6			
8	Gland bushing	A105	A182 - F304		A182 - F316
9	Gland flange	A105			A182 - F304
10	Yoke sleeve	IRON NI - RESIST D2			
11	Yoke nut retaining nut	A105			
12	Handwheel	A216 - WCB			
13	Handwheel nut	A105			
14	Gasket	SOFT IRON (Silver Plated)			A182 - F316
15	Lantern	A182 - F6			A182 - F316

N°	PARTS	STANDARD MATERIAL SPECIFICATIONS		
16	Stud bolt	HIGH STRENGTH STEEL (UNBRAKO TYPE)		
17	Spacer ring	A182 - F6		
18	Eye bolt	A307 - B	A193 - B7	A320 - B8
19	Nut for ditto	A307 - B	A194 - 2H	A194 - 8
20	Eye bolt stud bolt	A307 - B	A193 - B7	A320 - B8
21	Nut for ditto	A307 - B	A194 - 2H	A194 - 8
22	Segmented retainer ring	A182 - F6		
23	Bonnet retainer	A105		
24	Plug	A105	A182 - F304	A182 - F316
25	Set screw	CARBON STEEL (forged)		
26	Stem packing	J. CRANE 187 - I or equivalent		
27	Thrust ball bearing	STEEL		
28	Grease nipple	STEEL		
29	Set screw	CARBON STEEL (forged)		

PARTS DESCRIPTION

Body 1

The body material is cast carbon steel or cast alloy steel, depending on the temperature conditions, under which the valve is to be employed. In order to avoid distortion or undue stresses under extreme operating conditions, the valve body is cylindrical in shape. Furthermore, adequate « padding » has been provided, in order to achieve a sound cast structure in the critical areas.

The wall thickness is greater than, or in accordance with, the API, ANSI (ASA), and ASME requirements.

The disc piston travels along the body between three integrally cast and machined guide surfaces. In order to avoid any danger of galling or seizure, the contact surfaces are such that a minimum of specific pressure is achieved.

Moreover, the body guides will be stellite faced if required.

In order to avoid any possibility of corrosion or wire drawing, which might affect the ease of dismantling, the area in contact with the Pressure Seal gasket has a stainless steel 18/8 inlay. The inside diameter of this area has been machined and honed to close tolerances.


1


2


3

Bonnet 2 - 14 - 17 - 22

The bonnet construction is of the Pressure Seal « pullup » type and has been designed to ensure perfect body-bonnet tightness, as well as easy dismantling and re-assembly of the valve.
The accurately dimensioned soft iron gasket has been silver plated.
Our special purpose machines guarantee perfet coaxiality between body and bonnet, thus avoiding any misalignment, often the cause of damaged stems.

Yoke 3

The cast steel yoke assembly consists of a ring with two sturdy legs. The former fits around the body by means of a machined bayonet connection, thus avoiding the use of bolting, which might lead to play, due to temperature stress.
Normally the yoke is mounted in line with the path but it may be rotated 90°, if so desired.

Yoke Sleeve 10

The yoke sleeve is of iron Ni - resist D2, which has a high tensile strength at elevated temperatures, combined with a low coefficient of friction.

In order to take up the stem thrust, the yoke sleeve has been provided with two sturdy thrust bearings. According to valve size, one or two standard grease nipples have been mounted.


14


17


22

Seat 4

In the larger sizes the Stellite 6 seating surface is integrally applied to the body, by means of a welding process. It will be evident that this feature, avoiding the need of pressed-in and welded seat ring, offers distinct technical advantages.
The seating surface is lapped, in order to achieve perfect mating with the wedge surfaces.
In order to meet customers' needs, our internal sizing is such that, for most nominal diameters, there is a choice between two different valve executions. Model « FB » has a 100% seat passage, whereas our conventional model « CB » has a slightly reduced passage, in accordance to API 597 where indicated.
Accepting a slight increase in pressure drop, this latter model offers the advantage of less weight, less cost, a reduced closing torque, a smaller actuator, etc. The actual passage reduction, depending on valve size and internal diameter of the connecting pipe, is normally contained between 10 - 20% but, in every case, the pressure drop will remain well below that of a corresponding Globe Valve.

5

Flexible Wedge 5

Our carefully proportioned flexible wedge ensures valve tightness, upstream as well as downstream, thus having the same effect as two solid Wedge Gate Valves in series.
Moreover, any body distortion, due to temperature variations, is taken up by flexible members of the wedge which renders it ideally suited to high temperature steam and feedwater service.
In our wedge construction, the stem thrust acts exclusively on the central part of the wedge, thus never interfering with the free movement of the flexible members themselves.
In the case of low pressure differentials, wedges with increased flexibility can be furnished.
A substantial Stellite 6 layer has been applied to the seating surfaces by means of Gas Metal Arc Welding.
A special treatment has secured the required hardness and soundness of this deposit, whereas the lapped finish guarantees perfect mating with the seats.
In addition to having a large contact area with the body guides, the wedge slots have a sprayed-on Stellite surface, thus eliminating any danger of galling under extreme operating conditions.
It will be evident that our flexible Wedge Gate Valves offer considerable advantages over solid Wedge Valves, Parallel Slide Valves, Double Disc Valves etc.

Stem 6

The stem is machined of bar stock to ASTM A182-F6 but, if required, it can be furnished in other materials.

Our stems are specially heat treated to ensure adequate mechanical properties and hard surfaces.

Further they have a rolled mirror finish, resulting in a greater surface hardness, less packing friction and less possibility of corrosion.

The ACME thread is machined to a smooth finish in order to minimize friction during the opening and closing operations.

All valves are furnished with stem protectors.

The stem is always provided with a visual position indicator.
(For class 600, the stem itself acts as an indicator).

Furthermore, the stem can be adapted to fitting a locking device in either the open or closed position.

Backseat 7

All Valves are fitted with a positive backseat, allowing for the possibility of re-packing, with the valve in the fully open position.
The conical seat in the bonnet assembly is integrally STELLITE faced.

Stuffing Box

The stuffing box is of liberal dimensions, allowing for an adequate number of packing rings, according to valve size and pressure rating.
Normally, our valves are furnished with Crane Packing Type 187 I, or equal.

On request the stuffing box can be fitted with lantern ring and pipe connection.

The gland is a two-piece, self-aligning assembly, comprising a gland bush and a gland flange. The bush is of Aluminium Bronze to ASTM B 148 9A, whereas the flange is either of forged or cast steel, according to valve size and pressure rating.

Gland adjustment is effected by means of nuts and eye bolts to ASTM A 193 B7.

Handwheel 12

Normally the handwheels of our Pressure Seal Valves are provided with extended grips for easy operation.
The material is cast steel.

In order to give satisfactory service, a Pressure Seal Valve should be closed with a pre-determined torque, depending on the actual operating conditions.

On request, the Sella Hammer Blow Handwheel is furnished, in order to achieve an easier but tighter closing operation.

At elevated differential pressures, the use of reduction gears or actuators may be necessary (see « Accessories »).

RELIEF VALVE

If a well-functioning flexible Wedge Gate Valve is completely filled with cold water and thereafter closed, the liquid expansion of this trapped water, when heating up, may cause undue stresses in the valve body, leading to permanent distortion or even more undesirable consequences.

In practice this condition will hardly ever occur but, for extra safety, all valves for hot water service are provided with a small Pressure Relief Valve, which has its inlet above the backseat. For steam service this precaution is not required.

Bolting

As a construction feature of the main component parts, all bolting has been avoided since, under high temperature conditions, bolts may become stressed beyond the yield point, leading to leaking joints and other unsatisfactory consequences.

For the Pressure Seal pull-up arrangement, special high tensile bolting has been used although, once the valve is in service, the function of these bolts is taken over by the line pressure.

Accessories

☐ **Chain Wheels, Extension Stems** and **Floor Stands** can be furnished on request.

☐ **Reduction Gears.** As explained under « Handwheel », at elevated differential pressures the use of a reduction gear may become necessary. In order to submit a correct offer, we would require full details in respect of the line pressure and the differential pressure across the valve (see section « Required Data »). Our standard reduction units, of the Bevel Gear type, are totally enclosed.

☐ **Actuators.** Our valves can be equipped with pneumatic or electric actuators, in accordance with customers' wishes.

☐ **Bypass Valves** can be supplied to customers' requirement. In this connection we point out that the value of a Bypass Valve for reducing the differential pressure, is usually very doubtful.

☐ **End contacts** or **Limit Switches** for remote signalling can be mounted, necessitating the use of a slightly longer stem and a modified version of the yoke sleeve.

☐ **Locking Devices.** On request, locking devices can be fitted, in either the open or the closed positon.

End connections

Our standard execution allows for weld end connection in accordance with ANS (ASA) B 16,25, and customer specifications. Valves with flanged ends can be supplied on request.

If desired, valves can be supplied with flanges or weld ends in accordance with DIN, UNI, BS, AFNOR or other specifications.

End-to-End dimensions

The standard models comply with the ANSI (ASA) requirements but valves with end-to-end dimensions to other specifications can be furnished on request.

Class 600 LBS

The valves of this rating, generally functioning under less severe operating conditions, are in some respects of a simpler construction. For details, please see the relevant graphs.

Pressure Ratings

The wall thicknesses of our valves are greater than, or in accordance with, the requirements or API Std. 600, last revision, and are usually in excess of those, calculated in accordance with the design criteria, in ANSI B 16.34 and ASME specifications. This extra safety factor in the dimensioning, in many cases, allows for the use of our valves in pressure/temperature conditions beyond the ANSI (ASA) ratings.
The European (DIN) pressure ratings are based on different design criteria and generally admit smaller wall thicknesses. Whereas this conception has proved to give excellent results, it will be understood that smaller wall thicknesses also affect the rigidity of the valve, which might effect the seat tightness in cases where body distortion, due to exhorbitant pipe stresses may be expected. The acceptance of DIN criteria may be of particular advantage to the customer and, in this connection, we mention that, for material to ASTM A 217 WC6, the DIN ratings (based on an evalutation of creep values) allow considerably higher pressures than the ANSI (ASA) ratings, a fact which may lead to a substantial saving in cost.

Hydraulic test pressure

Figures quoted for each class are in accordance with the requirements of ANSI B.16.5, 1968 ed.

Tests according to ANSI B.16.5, 1973 ed. can be provided on request.

Castings

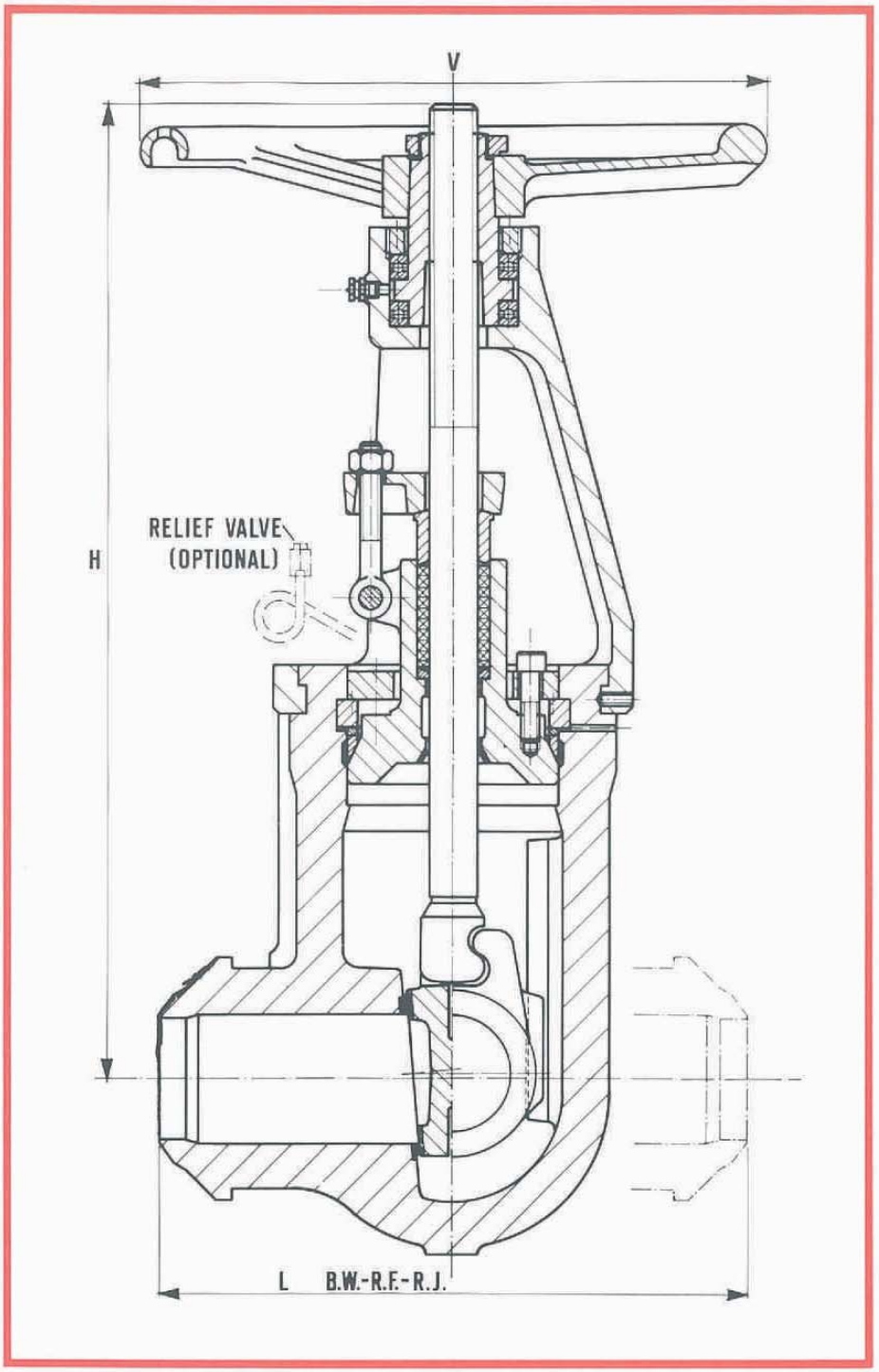
All castings are subjected to severe physical and chemical tests, to customers' specifications, including magnetic particle, liquid penetrant and radiographic examination, in conformity with the most up-to-date codes.
Normally, the soundness of our castings is in accordance with ASTM E 72 or E 446, Class 3 or Class 2, to be specified by the customer in his enquiry. If so desired, weld ends can be furnished in compliance with Class 1.
On request, radiographic film can be furnished extra cost.

GATE VALVES

Class 600

Fig. N° 1941

Hydraulic test pressure:
Body: 2175 psig. (153 kg/cm²)
Seat: max 1440 psig. (101 kg/cm²).



OVERALL DIMENSIONS (mm/in)

NOM. SIZE	200 8"	250 10"	300 12"	350 14"
H	1028	1141	1253	1384
	40 1/2	45	49	54 1/2
H¹	1233	1406	1578	1743
	48 1/2	55	62	69
L BW	584	711	813	889
	23	28	32	35
L RF	660	787	838	889
	26	31	33	35
L RJ	664	791	841	892
	26 1/8	31 1/8	33 1/8	35 1/8
V	575	650	650	720
	23	26	26	28

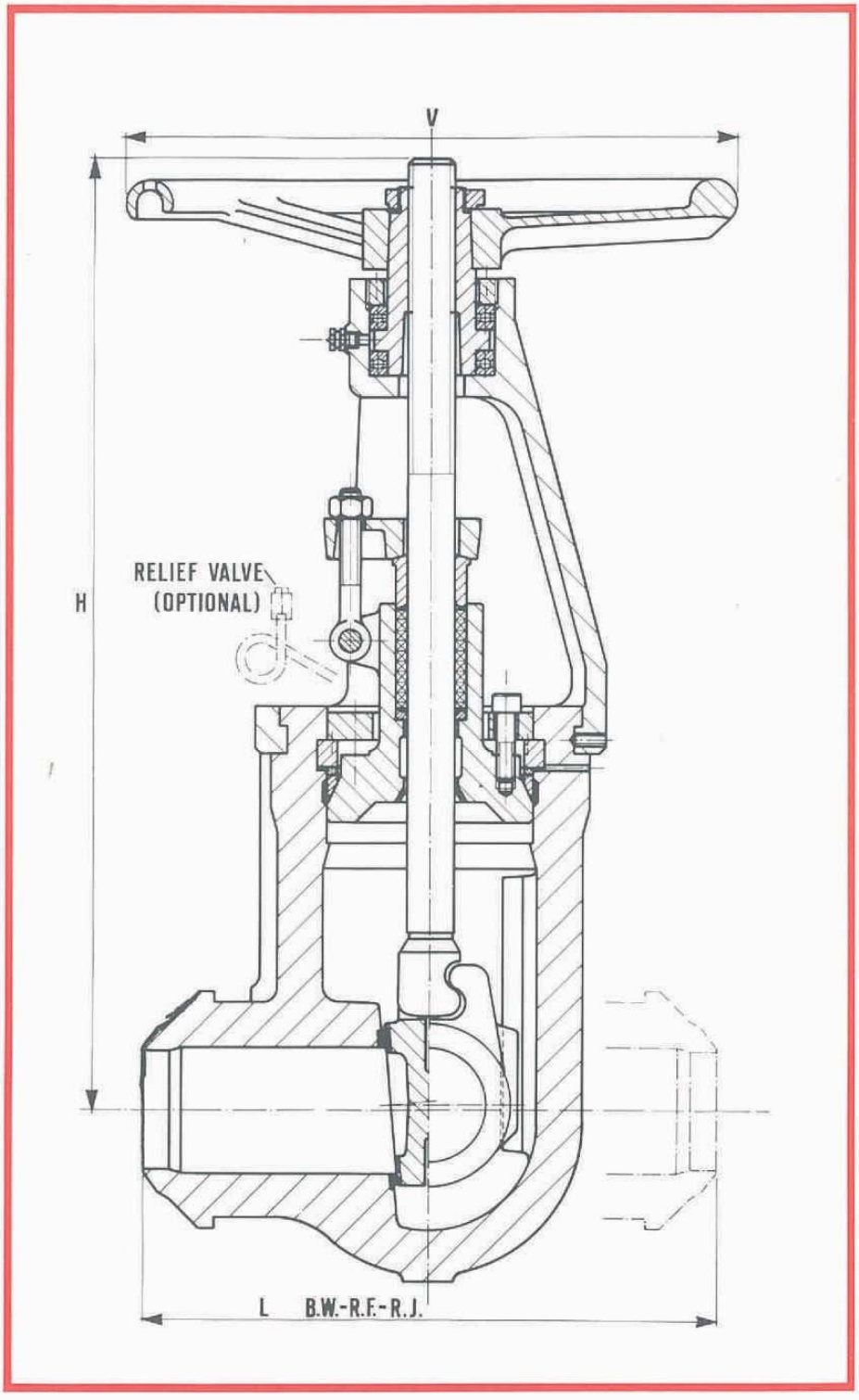
- **up to 6": use Bolted Bonnet Valves**
- **16" and over: dimensions on request**

GATE VALVES

Class 900

Fig. N° 1951

Hydraulic test pressure:
Body: 3250 psig. (229 kg/cm²)
Seat: max 2160 psig. (152 kg/cm²)



OVERALL DIMENSIONS (mm/in)

NOM. SIZE	100	125	150	200	250	300	350
	4"	5"	6"	8"	10"	12"	14"
H	698	821	962	123	1403	1572	1766
	27 1/2	32	38	48 1/2	55	62	69 1/2
L BW	356	432	508	660	787	914	991
	14	17	20	26	31	36	39
L RF	457	559	610	737	838	965	1029
	18	22	24	29	33	38	40 1/2
L RJ	460	562	613	740	841	968	1038
	18 1/8	22 1/8	24 1/8	29 1/8	33 1/8	38 1/8	40 7/8
V	450	450	650	900	900	900	1000
	18	18	25 1/2	35	35	35	39

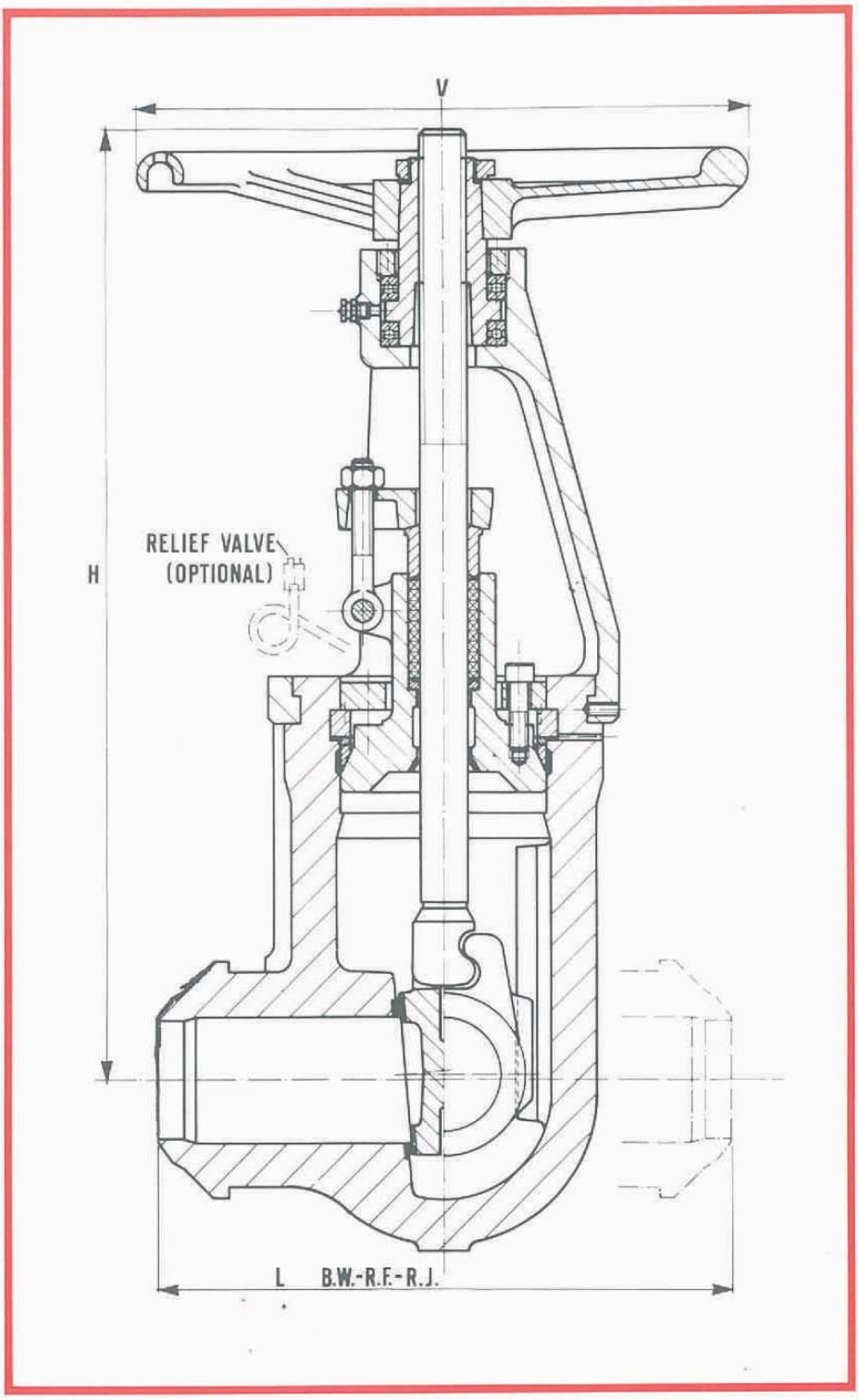
- **up to 3": use Bolted Bonnet Valves**
- **16" and over: dimensions on request**

GATE VALVES

Class 1500

Fig. N° 1961

Hydraulic test pressure:
Body: 5400 psig. (380 kg/cm²)
Seat: max 3600 psig. (253 kg/cm²)



OVERALL DIMENSIONS (mm/in)

NOM. SIZE	50	65	80	100	125	150	200	250	300
	2"	2½"	3"	4"	5"	6"	8"	10"	12"
H	520	567	613	724	870	1012	1232	1466	1690
	20½	22	24	28½	34	40	48½	58	66½
L BW	216	254	305	406	483	559	711	864	991
	8½	10	12	16	19	22	28	34	39
L RF	368	419	470	546	673	705	832	991	1130
	14½	16½	18½	21½	26½	27¾	32¾	39	44½
L RJ	371	422	473	549	676	711	841	1000	1146
	14⅝	16⅝	18⅝	21⅝	26⅝	28	33⅛	39⅜	45⅛
V	450	450	450	450	450	650	900	1000	1000
	18	18	18	18	18	25½	34	39	39

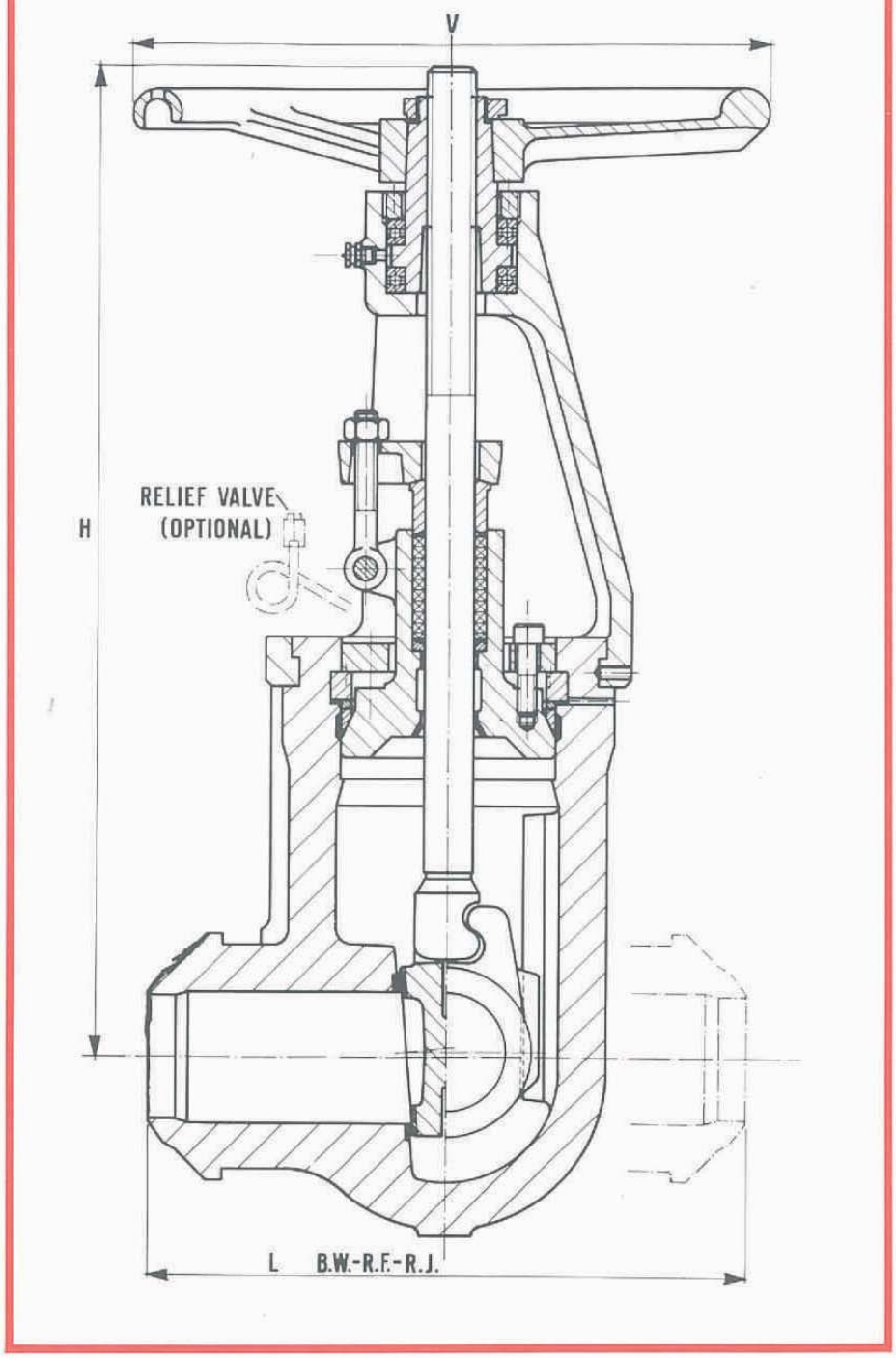
• 14" and over: dimensions on request

GATE VALVES

Class 2500

Fig. N° 1971

Hydraulic test pressure:
Body: 9000 psig. (633 kg/cm²)
Seat: max 6000 psig. (422 kg/cm²)



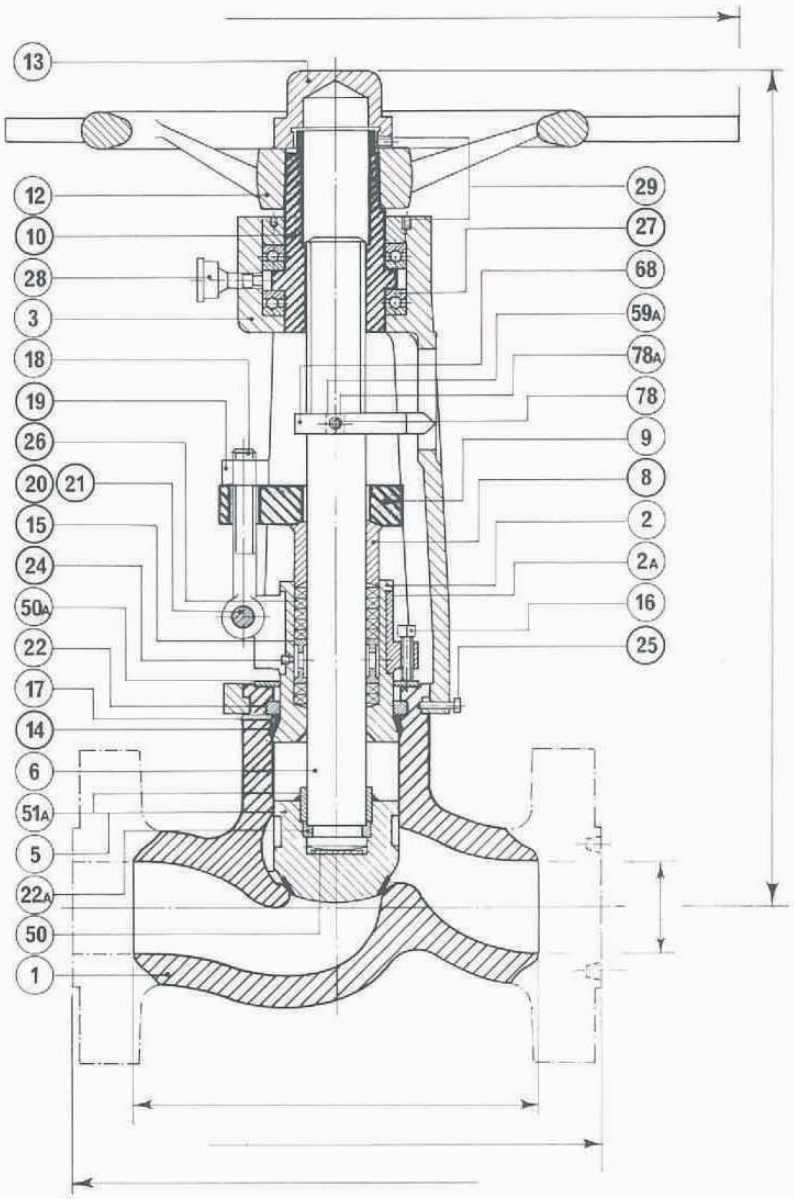
OVERALL DIMENSIONS (mm/in)

NOM. SIZE	65 2 1/2"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"
H	597	635	792	950	1098	1450	1820	2160
	23 1/2	25	31	37	43	57	72	85
L BW	330	368	457	533	610	762	914	1041
	13	14 1/2	18	21	24	30	36	41
L RF	508	578	673	794	914	1022	1270	1422
	20	22 3/4	26 1/2	31 1/4	36	40 1/4	50	56
L RJ	514	584	683	807	927	1038	1292	1445
	20 1/4	23	26 7/8	31 1/4	36 1/2	40 7/8	50 7/8	56 7/8
V	450	450	650	650	900	1000	1000	1600
	18	18	26	26	35	39	39	63

- for 2": use Bolted Bonnet Valves
- 14" and over: dimensions on request

GLOBE STOP VALVES

PRESSURE SEAL BONNET



(Heavy typed circles: recommended spare parts)

N°	PARTS	STANDARD MATERIAL SPECIFICATION			
1	Body	A215 - WCB	A217 - WC6	A217 - WC9	A351 - CF8M
2	Bonnet	A215 - WCB	A217 - WC6	A217 - WC9	A351 - CF8M
2A	Eye bolt ring	A216 - WCB or integrally whit the bonnet			
3	Yoke	A216 - WCB			
4	Integrally seat	STELLITE 6 FACED			
5	Disc stellite 6 faced	A105	A182 - F6		A182 - F316
6	Stem	A182 - F6			A182 - F316
7	Integrally back seat	STELLITE 6 FACED			
8	Gland bushing	A105	A182 - F304		A182 - F316
9	Gland flange	A105			A182 - F304
10	Yoke sleeve	IRON NI - RESIST D2			
11	Yoke nut retaining nut	A105			
12	Handwheel	A216 - WCB			
13	Handwheel nut	A105			
14	Gasket	SOFT IRON (Silver Plated)			A182 - F316
15	Lantern	A182 - F6			A182 - F316
16	Stud bolt	HIGH STRENGTH STEEL (Unbrako type)			
17	Spacer ring	A182 - F6			
18	Eye bolt	A307 - B	A193 - B7		A320 - B8

N°	PARTS	STANDARD MATERIAL SPECIFICATION		
19	Nut for ditto	A307 - B	A194 - 2H	A194 - 8
20	Eye bolt stud bolt	A307 - B	A193 - B7	A320 - B8
21	Nut for ditto	A307 - B	A194 - 2H	A194 - 8
22	Segmented retainer ring	A182 - F6		
22A	Stem segmented retainer ring	A182 - F6		A182 - F316
24	Plug	A105	A182 - F304	A182 - F316
25	Set screw	CARBON - STEEL (forged)		
26	Stem packing	J. CRANE 187 I or equivalent		
27	Thrust ball bearing	STEEL		
28	Grease nipple	STEEL		
29	Set screw	CARBON - STEEL (forged)		
50	Disc thrust plate	A182 - F6		A182 - F316
50A	Ring thrust plate	A193 - B7		
51A	Disc nut	A182 - F6		A182 - F316
59A	Key for stem indicator	CARBON - STEEL		
68	Visual position indicator	STEEL		
78	Retaining screw	CARBON - STEEL (forged)		
78A	Washer	CARBON - STEEL		

PARTS DESCRIPTION

Listed below is a summary of our standard GLOBE VALVE relating to BODY, SEAT, DISC and STEM. Other parts concerning these valves are shown under the Gate Valves section.

Body 1

The body material is cast carbon steel or cast alloy steel, depending on the temperature conditions, under which the valve is to be employed.
In order to avoid distortion or undue stresses under extreme operating conditions, the valve body is cylindrical in shape. Furthermore, adequate « padding » has been provided, in order to achieve a sound cast structure in the critical areas.

The wall thickness is greater than, or in accordance with, the API, ANSI (ASA), and ASME requirements.

The disc piston travels along the body between three integrally cast and machined guide surfaces. In order to avoid any danger of galling or seizure, the contact surfaces are such that a minimum of specific pressure is achieved. Moreover, the body guides will be STELLITE FACED if required.

In order to avoid any possibility of corrosion or wire drawing, which might affect the ease of dismantling, the area in contact with the Pressure Seal gasket has a stainless steel 18/8 inlay. The inside diameter of this area has been machined and honed to close tolerances.

1

Seat 4

Seat is integrally cast in the body by means of a welding process.
It will be evident that this feature, avoiding the need of pressed-in and welded seat ring, offers distinct technical advantages.
The seating surface is lapped, in order to achieve perfect mating with the wedge surfaces.
To meet customer needs, our internal sizing is such that, for most nominal diameters, there is a choice between two different valve executions. Model « FB » has a 100% seat passage, whereas our conventional model « CB » has a slightly reduced passage, in accordance with API 597 where indicated. Accepting a slight increase in pressure drop, this latter model offers the advantage of less weight, less cost, a reduced closing torque, a smaller actuator, etc. The actual passage reduction, depending on valve size and internal diameter of the connecting pipe, is normally contained between 10 - 20% but, in every case, the pressure drop will remain well below that of a corresponding Globe Valve.

DISC 5

Sella Pressure Seal Globe Valves are fitted with a loose disc, which can freely revolve around the stem, thus avoiding rubbing on the seat (and the danger of galling) at the point of closure.
It is a 3-piece assembly, consisting of the disc, a retaining ring and a thrust plate.
The disc piston has a smoothly finished cylindrical part which travels along the three body guides.
The disc conical seating surface is smoothly ground and lapped to a mirror finish.
Disc and retaining ring are normally manufactured of integral 13% Cr. Steel to ASTM A186-F6, suitably heat treated to obtain the required mechanical properties and hardness (350-380 Brinell).
The disc is made of carbon steel or of alloy steel with a welded-on 13% Cr. trim.
The disc is of spherical shape (plug type).
If required, discs with a parabolic regulating cone can be furnished.
In this case, and on request, the valve can be fitted with a graduated position indicator.
The top of the retaining ring has been provided with a conical seating surface, to match the back seat bushing.
If required a substantial Stellite 6 layer is applied to the seating surface by means of Gas Metal Arc Welding.
A special treatment secures the required hardness and soundness of this deposit, and the lapped finish guarantees perfect mating with the seat.

STEM 6

The stem is machined of bar stock to ASTM A182-F6 but, if required, it can be furnished in other materials.

Our stems are specially heat treated to ensure adequate mechanical properties and hard surfaces.

Further they have a rolled mirror finish, resulting in a greater surface hardness, less packing friction and less possibility of corrosion.

The ACME thread is machined to a smooth finish in order to minimize friction during the opening and closing operations.

All valves are furnished with stem protectors.
The stem is always provided with a visual position indicator.
(For Class 600, the stem itself acts as an indicator).

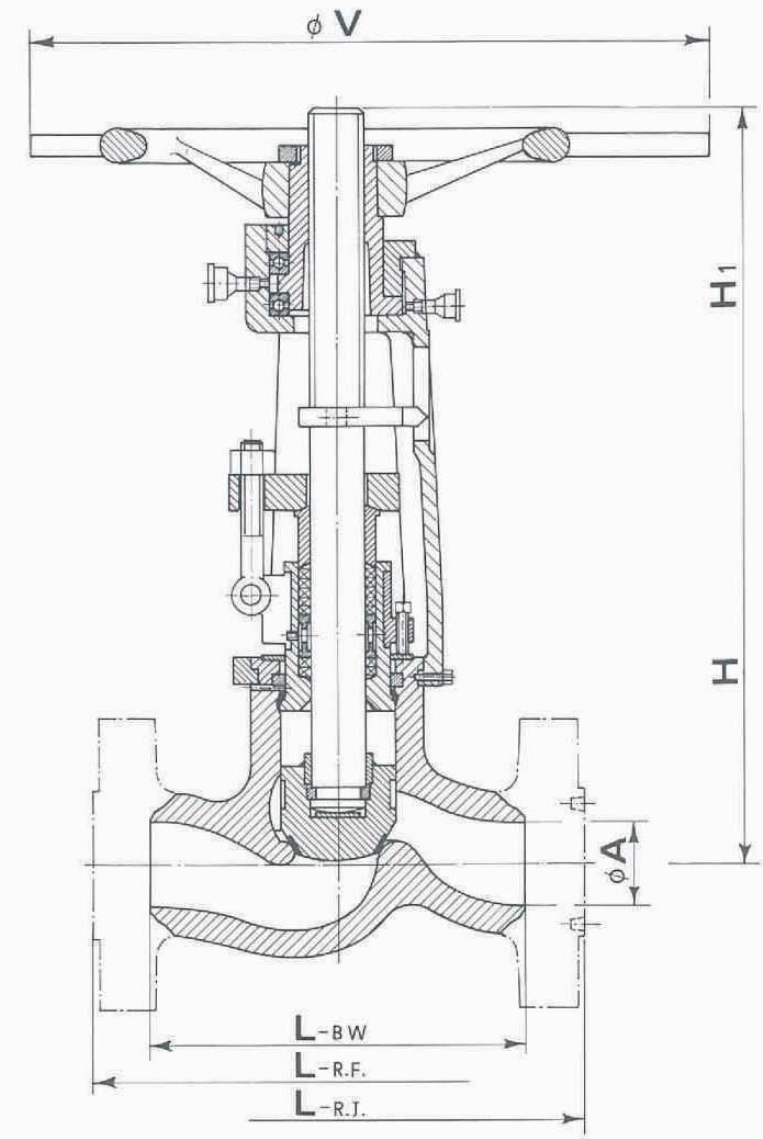
Furthermore, the stem can be adapted to fitting a locking device in either the open or closed position.

GLOBE STOP VALVES

Class 600

Fig. N° 3941

Hydraulic test pressure:
Body: 2175 psig. (153 kg/cm²)
Seat: max 1440 psig. (101 kg/cm²).



OVERALL DIMENSIONS (mm/in)

SIZE	8"	10"	12"
DN	200	250	300
ϕ A	7⅞"	9¾"	11¾"
	200	248	298
L RF	26"	31"	33"
	660	787	838
L RJ	26⅛"	31⅛"	33⅛"
	664	790	841
L BW	23"	28"	32"
	584	711	813
H	33,46"	37,20"	40,83"
	850	945	1037
H1	37,16"	41,34"	45,35"
	944	1050	1152
ϕ V	21,65"	25,59"	35,43"
	550	650	900

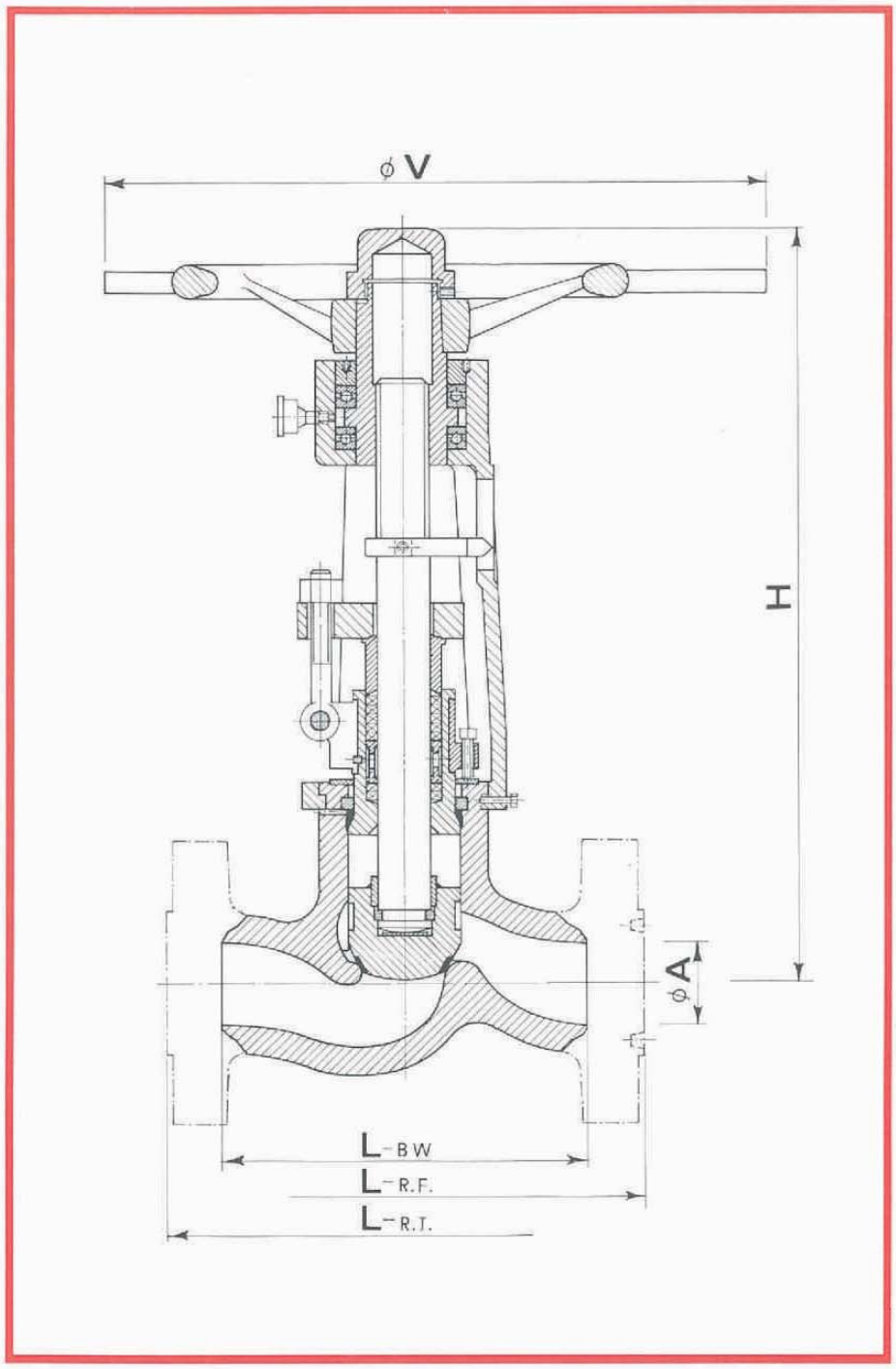
- **up to 6": use Bolted Bonnet Globe Valves**
- **14" and over: dimensions on request**

GLOBE STOP VALVES

Class 900

Fig. N° 3951

Hydraulic test pressure:
Body: 3250 psig. (229 kg/cm²)
Seat: max 2160 psig. (152 kg/cm²).



OVERALL DIMENSIONS (mm/in)

SIZE	3"	4"	5"	6"	8"	10"	12"
DN	80	100	125	150	200	250	300
ϕ A	2 7/8"	3 7/8"	4 3/4"	5 3/4"	7 1/2"	9 3/8"	11 1/8"
	73	98	121	146	191	238	283
L RF	15"	18"	22"	24"	29"	33"	38"
	381	457	559	610	737	838	965
L RJ	15 1/8"	18 1/8"	22 1/8"	24 1/8"	29 1/8"	33 1/8"	38 1/8"
	384	460	562	613	740	841	968
L BW	12"	14"	17"	20"	26"	31"	36"
	305	356	432	508	660	787	914
H	22,60"	25,98"	31,65"	37,28"	45,67"	50"	58,07"
	574	660	804	947	1160	1270	1475
ϕ V	17,72"	25,59"	25,59"	35,43"	39,37"	39,37"	59,06"
	450	650	650	900	1000	1000	1500

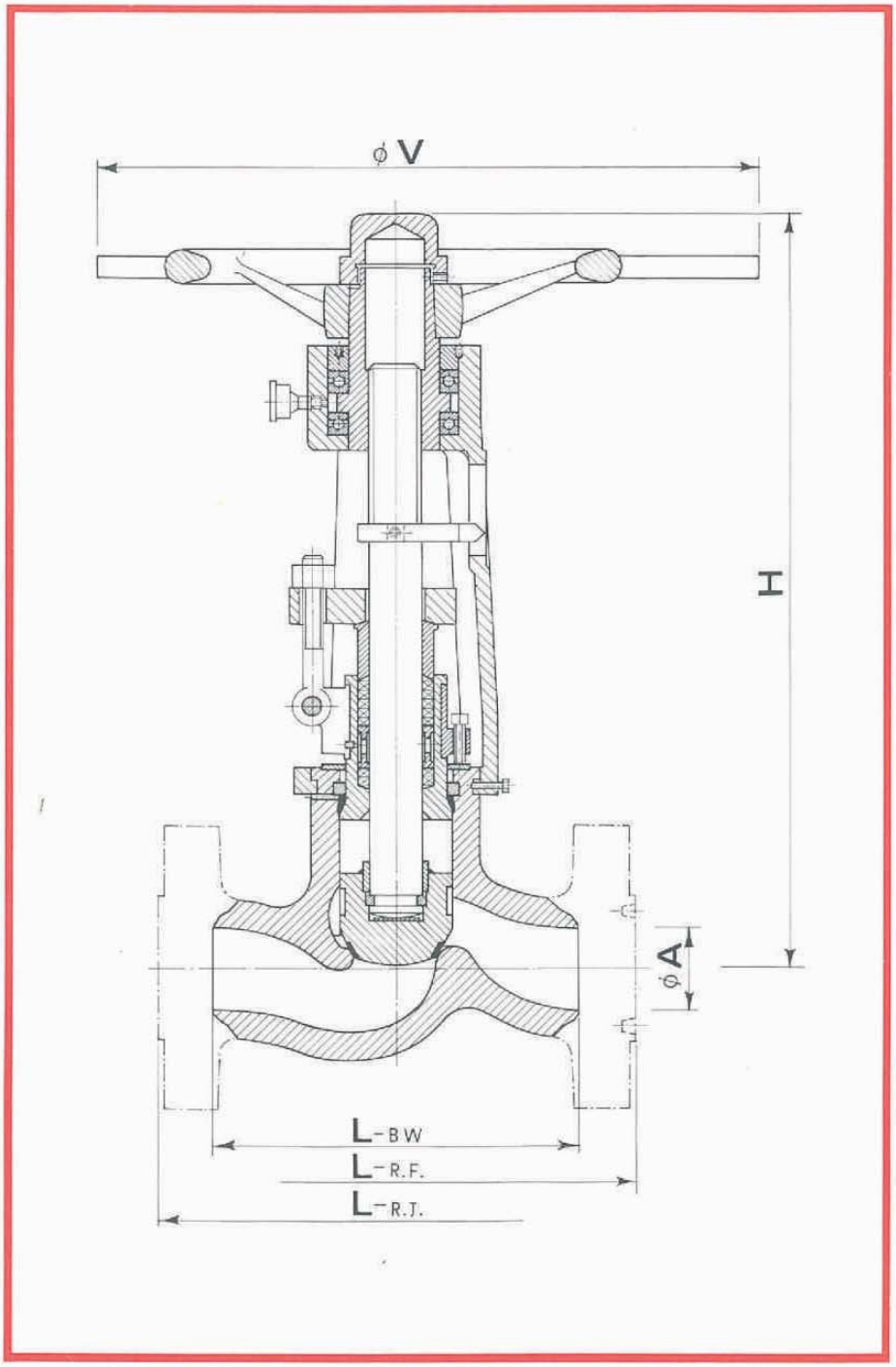
- for 2 1/2": use 1500 LB Pressure Seal Globe Stop Valves
- for 2": use Bolted Bonnet Globe Valves
- 14" and over: dimensions on request

GLOBE STOP VALVES

Class 1500

Fig. N° 3961

Hydraulic test pressure:
Body: 5400 psig. (380 kg/cm²)
Seat: max 3600 psig. (253 kg/cm²).



OVERALL DIMENSIONS (mm/in)

SIZE	2 1/2"	3"	4"	5"	6"	8"	10"
DN	65	80	100	125	150	200	250
ø A	2 1/4"	2 3/4"	3 5/8"	4 3/8"	5 3/8"	7"	8 3/4"
	57	70	92	111	137	178	222
L RF	16 1/2"	18 1/2"	21 1/2"	26 1/2"	27 3/4"	32 3/4"	39"
	419	470	546	673	705	832	991
L RJ	16 5/8"	18 5/8"	21 5/8"	26 5/8	28"	33 1/8"	39 3/8"
	421	473	549	676	711	841	1000
L BW	16 1/2"	18 1/2"	21 1/2"	26 1/2"	27 3/4"	32 3/4"	39"
	419	470	546	673	705	832	991
H	22,28"	23,78"	33,42"	36,42"	39,17"	47,64"	56,89"
	566	604	849	925	995	1210	1445
ø V	17,72"	25,59"	35,43"	35,43"	39,37"	59"	59"
	450	650	900	900	1000	1500	1500

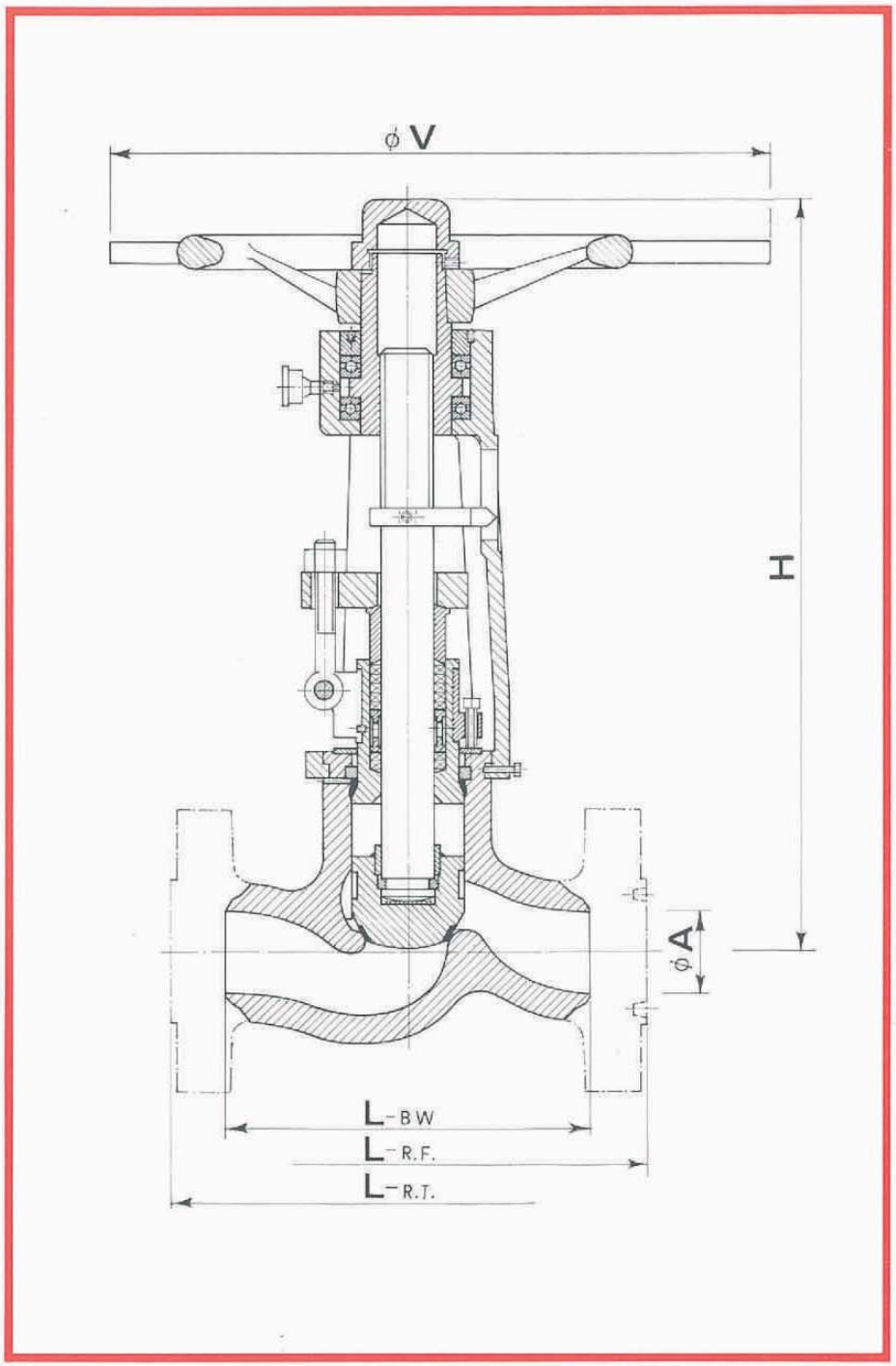
- **for 2": use Bolted Bonnet Globe Valves**
- **12" and over: dimensions on request**

GLOBE STOP VALVES

Class 2500

Fig. N° 3971

Hydraulic test pressure:
Body: 9000 psig. (633 kg/cm²)
Seat: max 6000 psig. (422 kg/cm²).



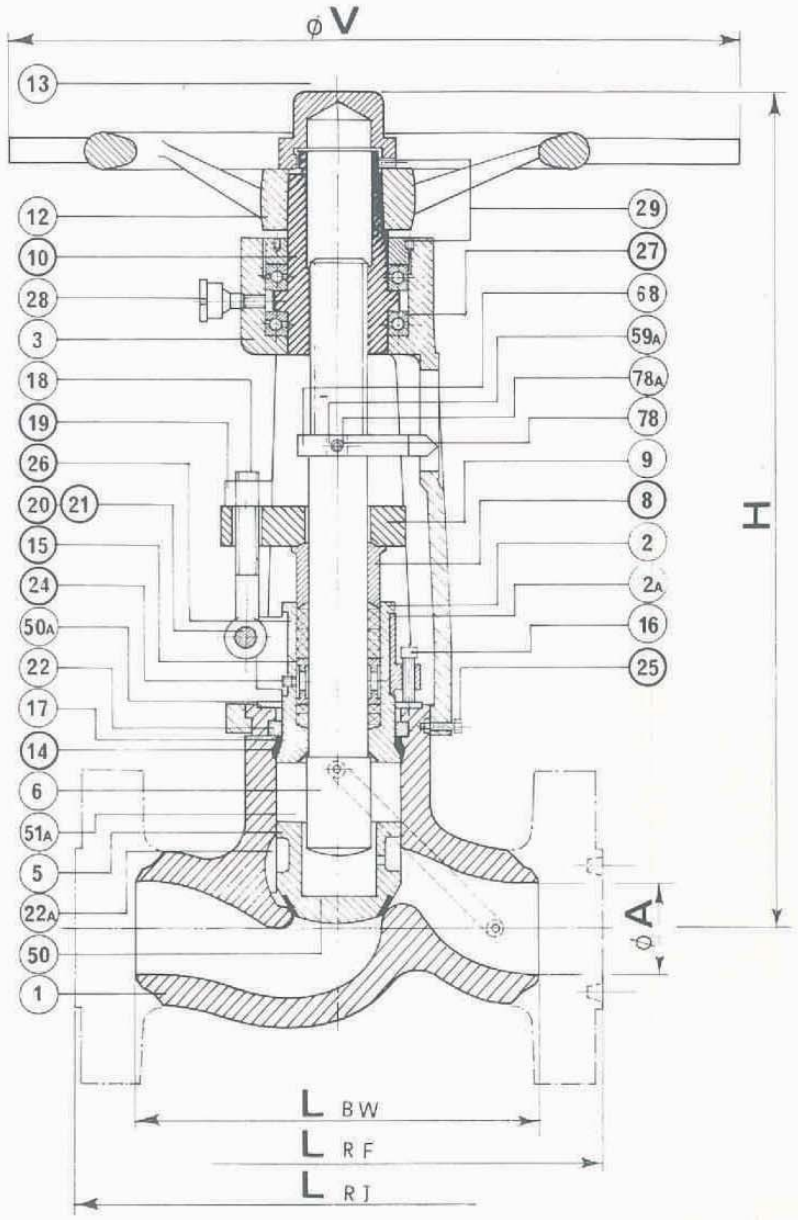
OVERALL DIMENSIONS (mm/in)

SIZE	2 1/2"	3"	4"	5"	6"	8"
DN	65	80	100	125	150	200
Ø A	1 7/8"	2 1/4"	2 7/8"	3 5/8"	4 3/8"	5 3/4"
	48	57	73	92	111	146
L RF	20"	22 3/4"	26 1/2"	31 1/4"	36"	40 1/4"
	508	578	673	794	914	1022
L RJ	20 1/4"	23"	26 7/8"	31 3/4"	36 1/2"	40 7/8"
	514	584	683	807	927	1038
L BW	20"	22 3/4"	26 1/2"	31 1/4"	36"	40 1/4"
	508	578	673	794	914	1022
H	23,11"	24,61"	36,61"	37,75"	42,52"	49,25"
	587	625	930	959	1080	1251
Ø V	17,52"	25,59"	35,43"	39,37"	39,37"	59"
	450	650	900	1000	1000	1500

- **for 2": use Bolted Bonnet Globe Valves**
- **10" and over: dimensions on request**

GLOBE STOP-CHECK VALVES

PRESSURE SEAL BONNET



(Heavy typed circles: recommended spare parts)

Nº	PARTS	STANDARD MATERIAL SPECIFICATION			
1	Body	A215 - WCB	A217 - WC6	A217 - WC9	A351 - CF8M
2	Bonnet	A215 - WCB	A217 - WC6	A217 - WC9	A351 - CF8M
2A	Eye bolt ring	A216 - WCB or integrally whit the bonnet			
3	Yoke	A215 - WCB			
5	Disc stellite 6 faced	A105	A182 - F6		A182 - F316
6	Stem	A182 - F6			A182 - F316
8	Gland bushing	A105	A182 - F304		A182 - F316
9	Gland flange	A105			A182 - F304
10	Yoke sleeve	IRON NI - RESIST D2			
12	Handwheel	A216 - WCB			
13	Handweel nut	A105			
14	Gasket	SOFT IRON (Silver Plated)			A182 - F316
15	Lantern	A182 - F6			A182 - F316
16	Stud bolt	HIGH STRENGTH STEEL (Umbrako type)			
17	Spacer ring	A182 - F6			
18	Eye bolt	A307 - B	A193 - B7		A320 - B8

Nº	PARTS	STANDARD MATERIAL SPECIFICATION		
19	Nut for ditto	A307 - B	A194 - 2H	A194 - 8
20	Eye bolt stud bolt	A307 - B	A193 - B7	A320 - B8
21	Nut for ditto	A307 - B	A194 - 2H	A194 - 8
22	Segmented retainer ring	A182 - F6		
24	Plug	A105	A182 - F304	A182 - F316
25	Set screw	CARBON - STEEL (forged)		
26	Stem packing	J. CRANE 187 I ore equivalent		
27	Thrust ball bearing	STEEL		
28	Grease nipple	STEEL		
29	Set screw	CARBON - STEEL (forged)		
50A	Ring thrust plate	A193 - B7		
59A	Key for stem indicator	CARBON - STEEL		
68	Visual position indicator	STEEL		
78	Retaining screw	CARBON - STEEL (forged)		
78A	Washer	CARBON - STEEL		

The Sella Pressure Seal Globe Stop-Check Valve is a particular variation of the Globe Stop Valve, giving a check service too.
It finds good application where prevention of back flow is desired.

Interior body shape is specially designed to follow flow lines, to give minimum pressure drop and to eliminate turbolence.
Our valve is furnished with an equalizer, i.e., a by-pass connecting the zone above the disc-piston with the valve outlet zone.

It works on the pressure balance principle, thus permitting easy and full disc-piston lift and avoiding possible vibrations.
The Sella Pressure Seal Stop-Check Globe Valve is available also in a special y-flow type, which gives a still smaller pressure drop.

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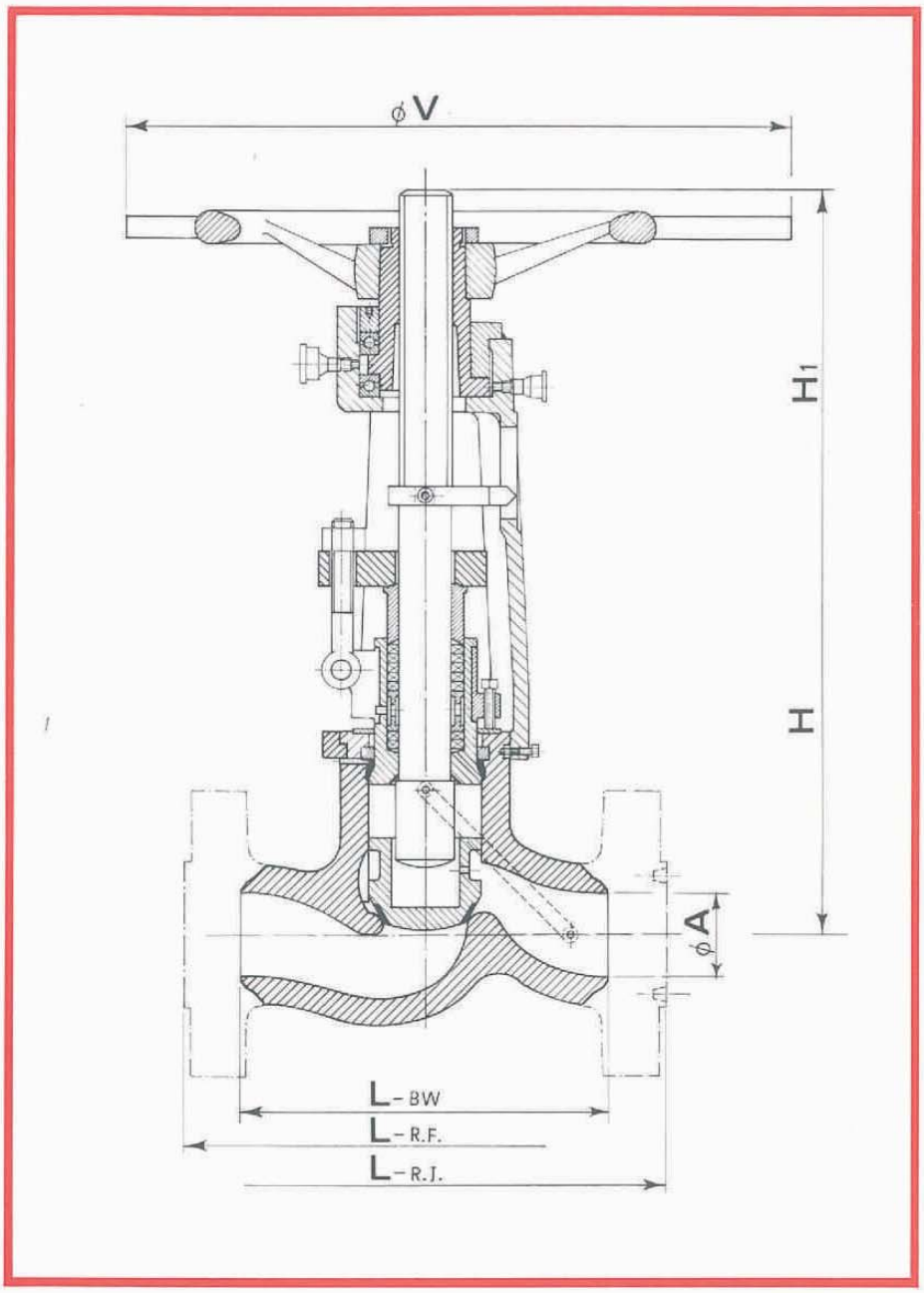
GLOBE STOP-CHECK VALVES

Class 600

Fig. N° 13941

Hydraulic test pressure:
Body: 2175 psig. (153 kg/cm²)
Seat: max 1440 psig. (101 kg/cm²).



OVERALL DIMENSIONS (mm/in)

SIZE	8"	10"	12"
DN	200	250	300
ϕ A	7⅞"	9¾"	11¾"
	200	248	298
L RF	26"	31"	33"
	660	787	838
L RJ	26⅛"	31⅛"	33⅛"
	664	790	841
L BW	23"	28"	32"
	584	711	813
H	33,46"	37,20"	40,83"
	850	945	1037
H1	37,16"	41,43"	41,34"
	944	1050	1152
ϕ V	21,65"	25,59"	35,43"
	550	650	900

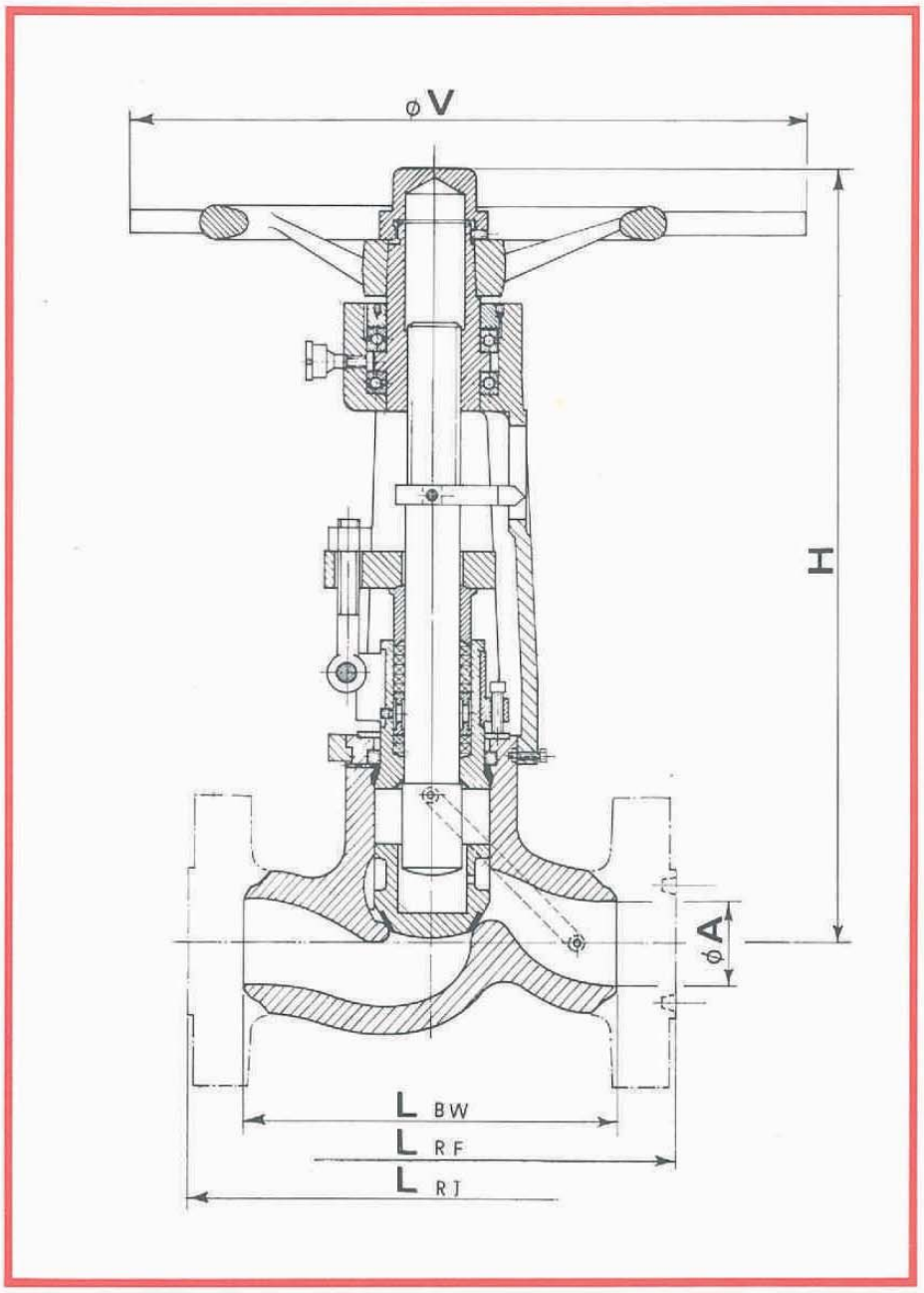
- up to 6": use Bolted Bonnet Valves
- 14" and over: dimensions on request

GLOBE STOP-CHECK VALVES

Class 900

Fig. N° 13951

Hydraulic test pressure:
Body: 3250 psig. (229 kg/cm²)
Seat: max 2160 psig. (152 kg/cm²).



OVERALL DIMENSIONS (mm/in)

SIZE	3"	4"	5"	6"	8"	10"
DN	80	100	125	150	200	250
Ø A	2 7/8"	3 7/8"	4 3/4"	5 3/4"	7 1/2"	9 3/8"
	73	98	121	146	191	238
L RF	15"	18"	22"	24"	29"	33"
	381	457	559	610	737	838
L RJ	15 1/8"	18 1/8"	22 1/8"	24 1/8"	29 1/8"	33 1/8"
	384	460	562	613	740	841
L BW	12"	14"	17"	20"	26"	31"
	305	356	432	508	660	787
H	22,60"	25,98"	31,65"	37,28"	45,67"	50"
	574	660	804	947	1160	1270
Ø V	17,72"	25,59"	25,59"	35,43"	39,37"	39,37"
	450	650	650	900	1000	1000

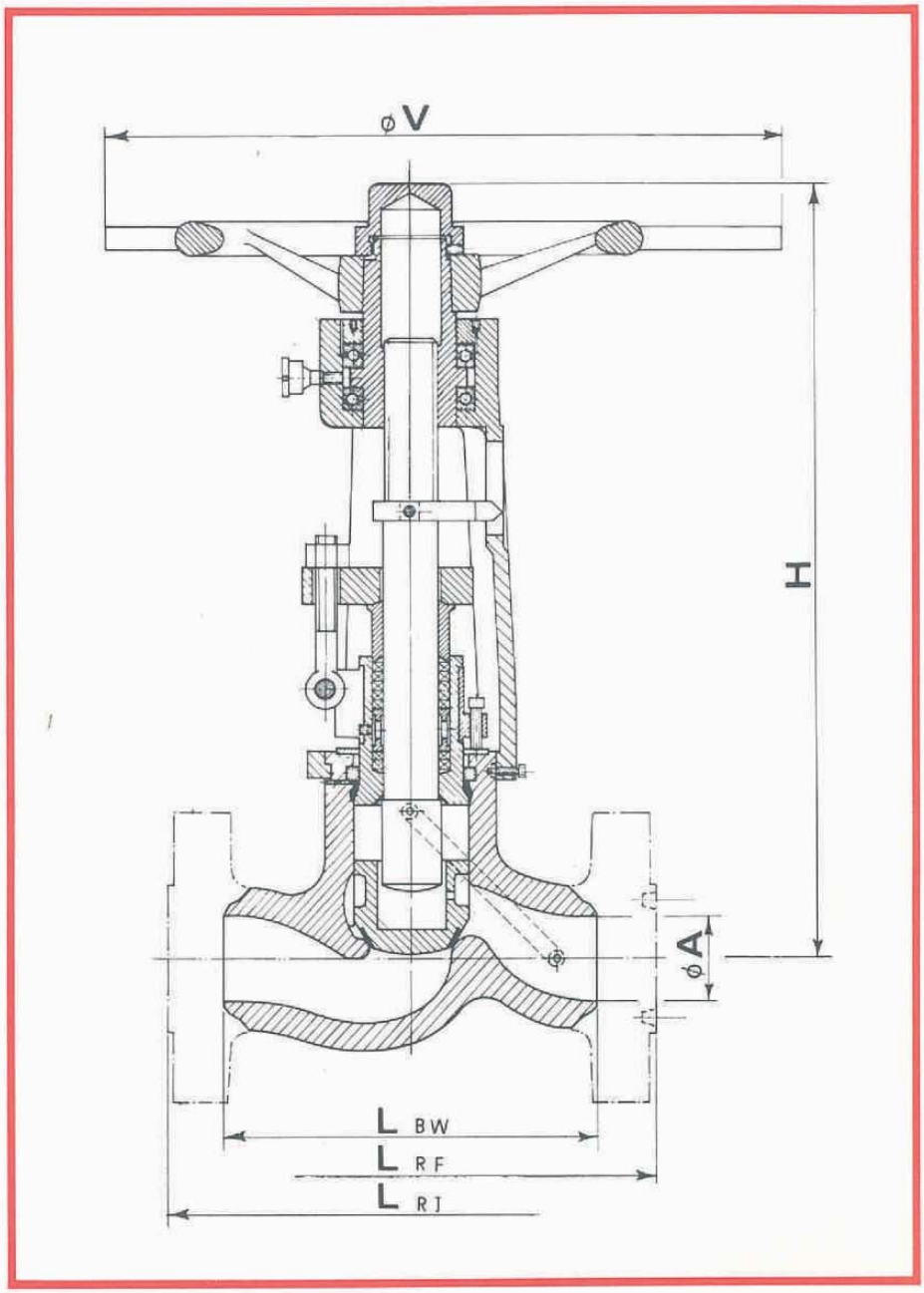
- **for 2": use Bolted Bonnet Valves**
- **for 2 1/2": use 1500 LB class**
- **12" and over: dimensions on request**

GLOBE STOP-CHECK VALVES

Class 1500

Fig. N° 13961

Hydraulic test pressure:
Body: 5400 psig. (380 kg/cm²)
Seat: max 3600 psig. (253 kg/cm²).



OVERALL DIMENSIONS (mm/in)

SIZE	2 1/2"	3"	4"	5"	6"	8"	10"
DN	65	80	100	125	150	200	250
ø A	2 1/4"	2 3/4"	3 5/8"	4 3/8"	5 3/8"	7"	8 3/4"
	57	70	92	111	137	178	222
L RF	16 1/2"	18 1/2"	21 1/2"	26 1/2"	27 3/4"	32 3/4"	39"
	419	470	546	673	705	832	991
L RJ	16 5/8"	18 5/8"	21 5/8"	26 5/8"	28"	33 1/8"	39 3/8"
	421	473	549	676	711	841	1000
L BW	16 1/2"	18 1/2"	21 1/2"	26 1/2"	27 3/4"	32 3/4"	39"
	419	470	546	673	705	832	991
H	22,28"	23,78"	33,42"	36,42"	39,17"	47,64"	56,89"
	566	604	849	925	995	1210	1445
ø V	17,72"	25,59"	35,43"	35,43"	39,37"	59"	59"
	450	650	900	900	1000	1500	1500

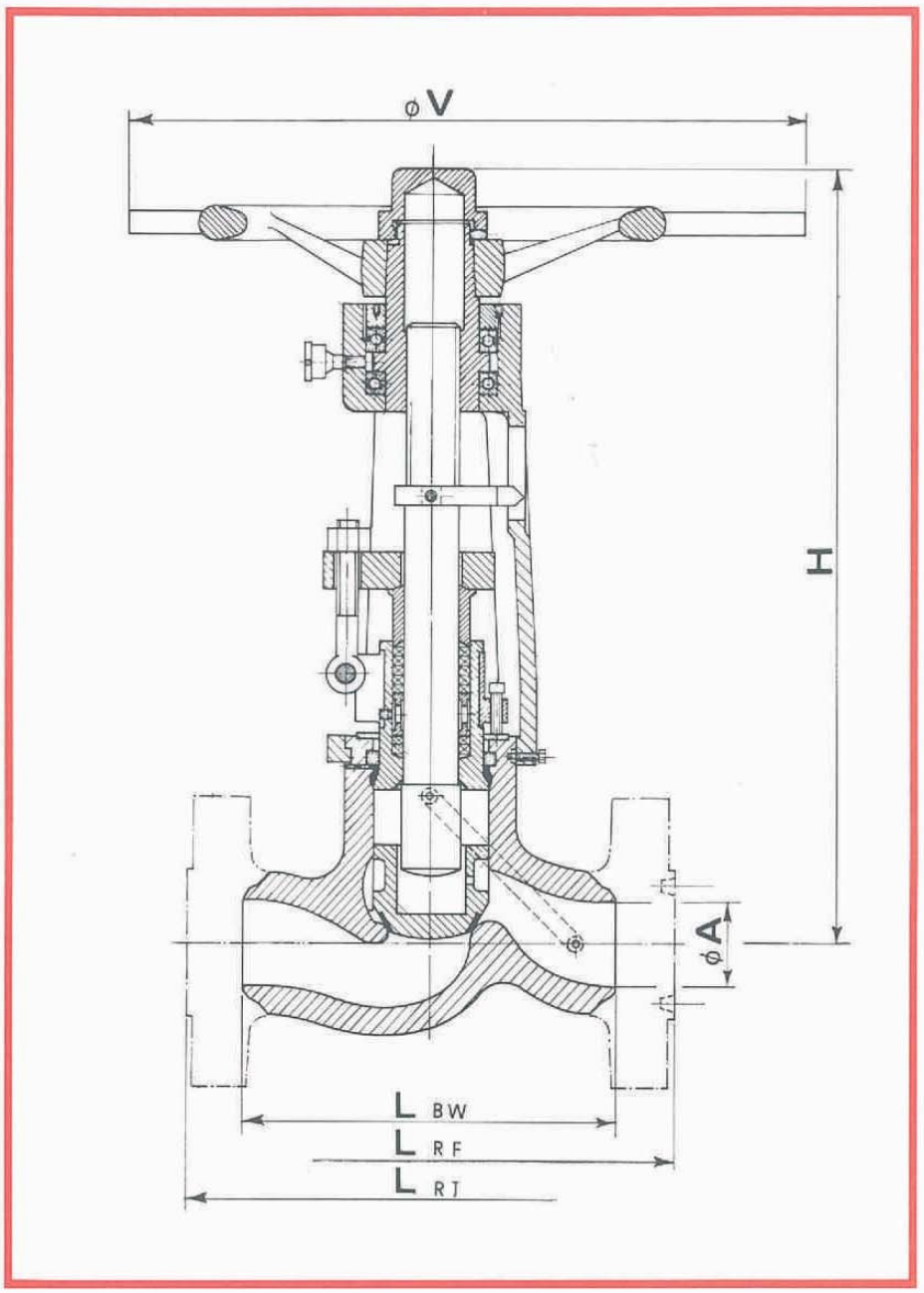
- **for 2": use Bolted Bonnet Valves**
- **12" and over: dimensions on request**

GLOBE STOP-CHECK VALVES

Class 2500

Fig. N° 13971

Hydraulic test pressure:
Body: 9000 psig. (633 kg/cm²)
Seat: max 6000 psig. (422 kg/cm²).



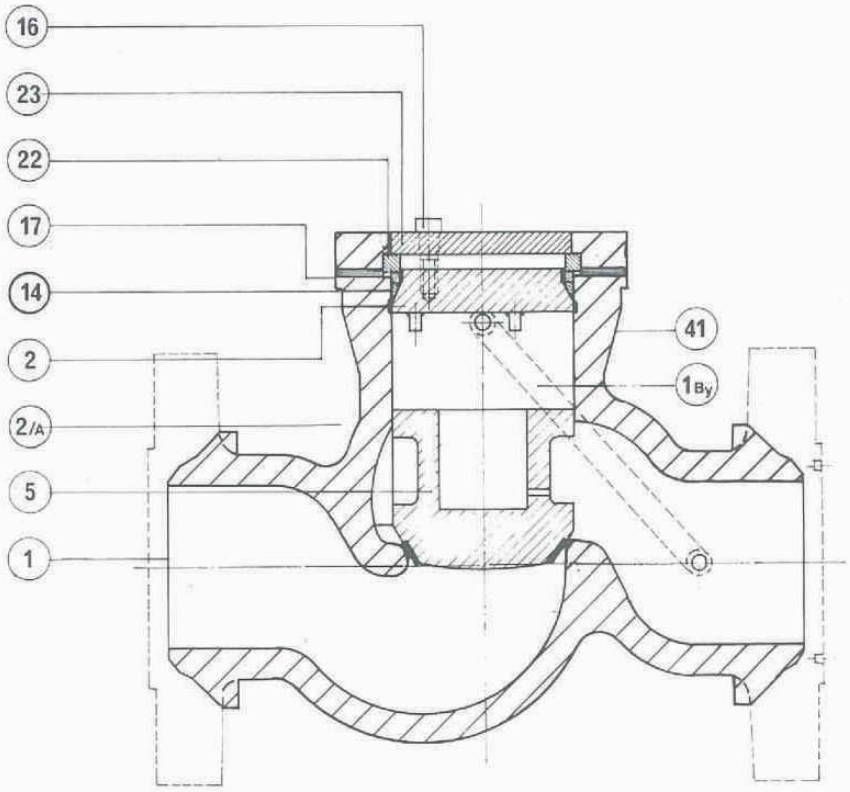
OVERALL DIMENSIONS (mm/in)

SIZE	2 1/2"	3"	4"	5"	6"
DN	65	80	100	125	150
Ø A	1 7/8"	2 1/4"	2 7/8"	3 5/8"	4 3/8"
	48	57	73	92	111
L RF	20"	22 3/4"	26 1/2"	31 1/4"	36"
	508	578	673	794	914
L RJ	20 1/4"	23"	26 7/8"	31 3/4"	36 1/2"
	514	584	683	807	927
L BW	20"	22 3/4"	26 1/2"	31 1/4"	36"
	508	578	673	794	914
H	23,11"	24,61"	36,61"	37,75"	42,52"
	587	625	930	959	1080
Ø V	17,72"	25,59"	35,43"	39,37"	39,37"
	450	650	900	1000	1000

- **for 2": use Bolted Bonnet Valves**
- **8" and over: dimensions on request**

PISTON-CHECK VALVES

PRESSURE SEAL BONNET



(Heavy typed circles: recommended spare parts)

Nº	PARTS	STANDARD MATERIAL SPECIFICATION			
1	Body	A216 - WCB	A217 - WC6	A217 - WC9	A351 - CF8M
1BY	Equalizer (Pipe)	EQUIVALENT TO BODDY MATERIAL			
2	Bonnet	A105	A182 - F11	A182 - F22	A182 - F316
2A	Eye bolt ring	A307 - B			
5	Disc stellite 6 faced	A216 - WCB	A217 - WC6	A217 - WC9	A351 - CF8M
14	Gasket	SOFT IRON (Silver Plated)			A182 - F316

Nº	PARTS	STANDARD MATERIAL SPECIFICATION
16	Stud bolt	HIGH STRENGTH STEEL (Umbrako type)
17	Spacer ring	A182 - F6
22	Segmented retainer ring	A182 - F6
23	Bonnet retainer	A105
41	Indicator plate	STAINLESS STEEL

SELLA PRESSURE SEAL PISTON CHECK VALVES

With this further development, it is possible to have all the above good qualities of the Globe Stop and Stop-Check Valve features, in an actual Check Valve.

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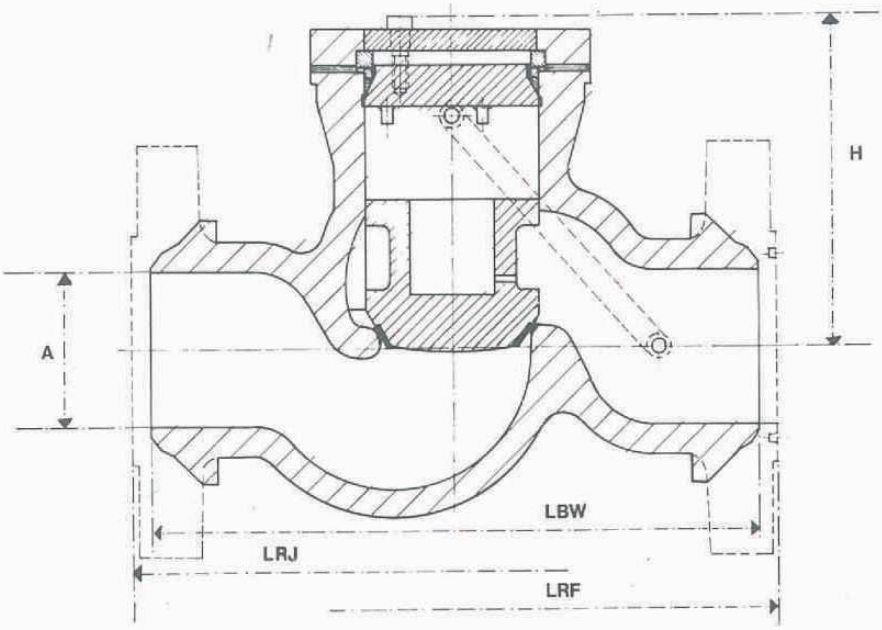
PISTON-CHECK VALVES

Class 600

Fig. N° 10941

Hydraulic test pressure:
Body: 2175 psig. (153 kg/cm²)
Seat: max 1440 psig. (101 kg/cm²).



OVERALL DIMENSIONS (mm/in)

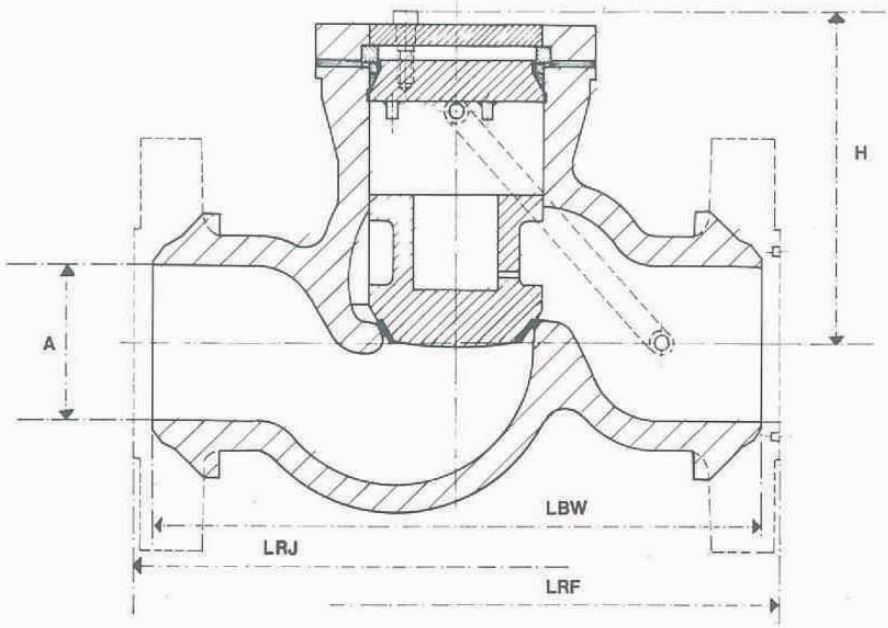
SIZE	8"	10"	12"
DN	200	250	300
Ø A	7 7/8"	9 3/4"	11 3/4"
	200	248	298
L RF	26"	31"	33"
	660	787	838
L RJ	26 1/8"	31 1/8"	33 1/8"
	664	790	841
L BW	23"	28"	32"
	584	711	813
H	16,34"	20,47"	24,57"
	415	520	624

PISTON-CHECK VALVES

Class 900

Fig. N° 10951

Hydraulic test pressure:
Body: 3250 psig. (229 kg/cm²)
Seat: max 2160 psig. (52 kg/cm²).



OVERALL DIMENSIONS (mm/in)

SIZE	3"	4"	5"	6"	8"	10"
DN	80	100	125	150	200	250
Ø A	2 7/8"	3 7/8"	4 3/4"	5 3/8"	7 1/2"	9 3/8"
	73	98	121	146	191	238
L RF	15"	18"	22"	24"	29"	33"
	381	457	559	610	737	838
L RJ	15 1/8"	18 1/8"	22 1/8"	24 1/8"	29 1/8"	33 1/8"
	384	460	562	613	740	841
L BW	12"	14"	17"	20"	26"	31"
	305	356	432	508	660	787
H	6,77"	8,26"	10,24"	12,36"	17,08"	21,46"
	172	210	260	314	434	545

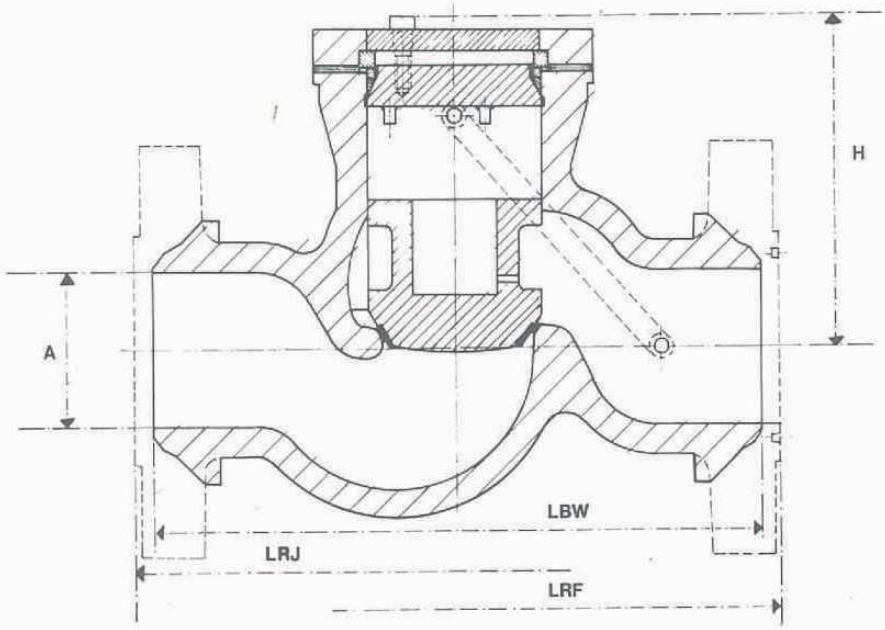
- **for 2": use Bolted Bonnet Swing Check Valves**
- **for 2 1/2": use 1500 LB class**
- **12" and over: dimensions on request**

PISTON-CHECK VALVES

Class 1500

Fig. N° 10961

Hydraulic test pressure:
Body: 5400 psig. (380 kg/cm²)
Seat: max 3600 psig. (253 kg/cm²).



OVERALL DIMENSIONS (mm/in)

SIZE	2 1/2"	3"	4"	5"	6"	8"	10"
DN	65	80	100	125	150	200	250
ø A	2 1/4"	2 3/4"	3 5/8"	4 3/8"	5 3/8"	7"	8 3/4"
	57	70	92	111	137	178	222
L RF	16 1/2"	18 1/2"	21 1/2"	26 1/2"	27 3/4"	32 3/4"	39"
	419	470	546	673	705	832	991
L RJ	16 5/8"	18 5/8"	21 5/8"	26 5/8	28"	33 1/8"	39 3/8"
	421	473	549	676	711	841	1000
L BW	16 1/2"	18 1/2"	21 1/2"	26 1/2"	27 3/4"	32 3/4"	39"
	419	470	546	673	705	832	991
H	22,28"	23,78"	33,42"	36,42"	39,17"	47,64"	56,89"
	566	604	849	925	995	1210	1445

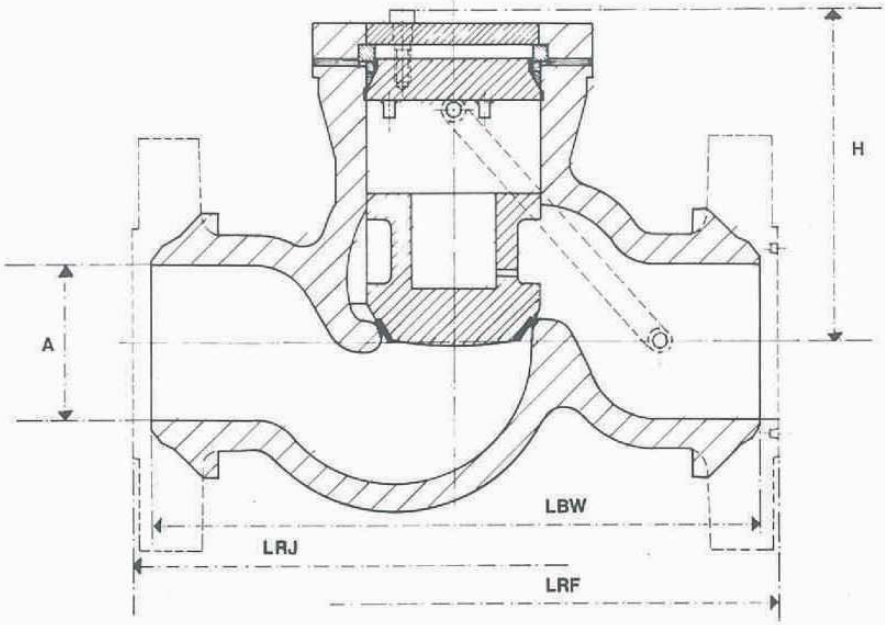
- for 2": use Bolted Bonnet Valves
- 12" and over: dimensions on request

PISTON-CHECK VALVES

Class 2500

Fig. N° 10971

Hydraulic test pressure:
Body: 9000 psig. (633 kg/cm²)
Seat: max 6000 psig. (422 kg/cm²).



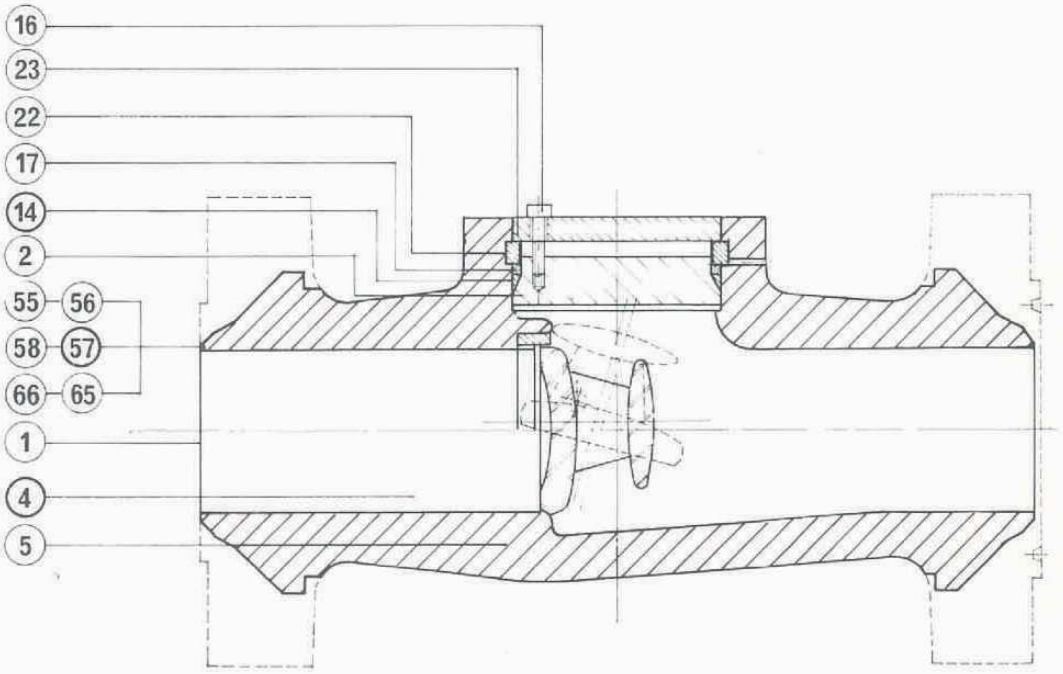
OVERALL DIMENSIONS (mm/in)

SIZE	2 1/2"	3"	4"	5"	6"
DN	65	80	100	125	150
Ø A	1 7/8"	2 1/4"	2 7/8"	3 5/8"	4 3/8"
	48	57	73	92	111
L RF	20"	22 3/4"	26 1/2"	31 1/4"	36"
	508	578	673	794	914
L RJ	20 1/4"	23"	26 7/8"	31 3/4"	36 1/2"
	514	584	683	807	927
L BW	20"	22 3/4"	26 1/2"	31 1/4"	36"
	508	578	673	794	914
H	8,07"	9,65"	12,32"	15,55"	18,74"
	205	245	313	395	476

• 8" and over: dimensions on request

TILTING DISC CHECK VALVES

PRESSURE SEAL BONNET



(Heavy typed circles: recommended spare parts)

N°	PARTS	STANDARD MATERIAL SPECIFICATION			
1	Body	A216 - WCB	A217 - WC6	A217 - WC9	A351 - CF8M
2	Bonnet	A105	A182 - F11	A182 - F22	A182 - F316
4	Seat stellite 6 faced	INTEGRAL OR EQUIVALENT TO BODY MATERIAL			
5	Disc stellite 6 faced	A216 - WCB	A217 - WC6	A217 - WC9	A351 - CF8M
14	Gasket	SOFT IRON (Silver Plated)			A182 - F316
16	Stud bolt	HIGH STRENGTH STEEL (Unbrako type)			
17	Spacer ring	A182 - F6			
22	Segmented retainer ring	A182 - F6			

N°	PARTS	STANDARD MATERIAL SPECIFICATION			
23	Bonnet retainer	A105			
55	Disc pin	A182 - F6			A182 - F316
56	Plug or flange	A105	A182 - F11	A182 - F22	A182 - F316
57	Gasket for ditto	SOFT IRON			A182 - F316
58	Spacer washer	A182 - F6			A182 - F316
65	Blind flange stud	A193 - B7			A320 - B8
66	Nut for ditto	A194 - 2H			A194 - 8

SELLA PRESSURE SEAL TILTING DISC CHECK VALVES

Sensitivity to back flow is one of the most important characteristics of our Tilting Disc Check Valves.
It permits prompt and quick closure, before back flow reaches high speed, thus avoiding dangerous, severe slamming and possible vibrations.
This result is achieved overall through the particular features of the disc, which is counterweighted and geometrically shaped, in order to take advantage of the minimum back flow thrust.

Also the pivot position, which is a little above the centre of gravity of the disc, and the finishing of the pivot-hub surfaces, help to give stability, as well as sensitivity to back flow.
Automatic closing is guaranteed because of the integral counterweight of the disc, which permits closure in the horizontal position, as well as in the vertical.
Beyond the Tilting Disc above described, Sella Pressure Seal Check Valves can be furnished also with the traditional swing-disc.

PARTS DESCRIPTION

Listed below is a summary of our standard Tilting Disc Check Valve relating to body, bonnet, seat, disc and accessories.

Other parts concerning these valves are shown under the Gate Valves section.

Body 1

The body material is cast carbon steel or cast alloy steel, depending on the temperature conditions, under which the valve is to be employed.
In order to avoid distortion or undue stresses under extreme operating conditions, the valve body is cylindrical in shape. Furthermore, adequate « padding » has been provided, in order to achieve a sound cast structure in the critical areas.

The wall thickness is greater than, or in accordance with, the API, ANSI (ASA), and ASME requirements.
In order to avoid any possibility of corrosion or wire drawing, which might affect the ease of dismantling. The area in contact with the Pressure Seal gasket has a stainless steel 18/8 inlay. The inside diameter of this area has been machined and honed to close tolerances.

Seat 4

In the larger sizes the Stellite 6 seating surface is integrally applied to the body, by means of a welding process. It will be evident that this feature, avoiding the need of pressed-in and welded seat ring, offers distinct technical advantages.
The seating surface is lapped, in order to achieve perfect mating with the wedge surfaces.
In order to meet customers' needs, our internal sizing is such that, for most nominal diameters, there is a choice between two different valve executions. Model « FB » has a 100% seat passage, whereas our conventional model « CB » has a slightly reduced passage, in accordance to API 597 where indicated.
Accepting a slight increase in pressure drop, this latter model offers the advantage of less weight less cost, a reduced closing torque, a smaller actuator, etc. The actual passage reduction, depending on valve size and internal diameter of the connecting pipe, is normally contained between 10 - 20% but, in every case, the pressure drop will remain well below that of a corresponding Globe Valve.

Disc 5

A substantial Stellite 6 layer has been applied to the seating surface by means of Gas Metal Arc Welding.
A special treatment has ensured the required hardness and soundness of this deposit, and the lapped finish guarantees perfect mating with the seats.

Accessories

☐ Dash-pots can be furnished, if required, in order to control the disc speed, as well as its closing time, according to particular needs.

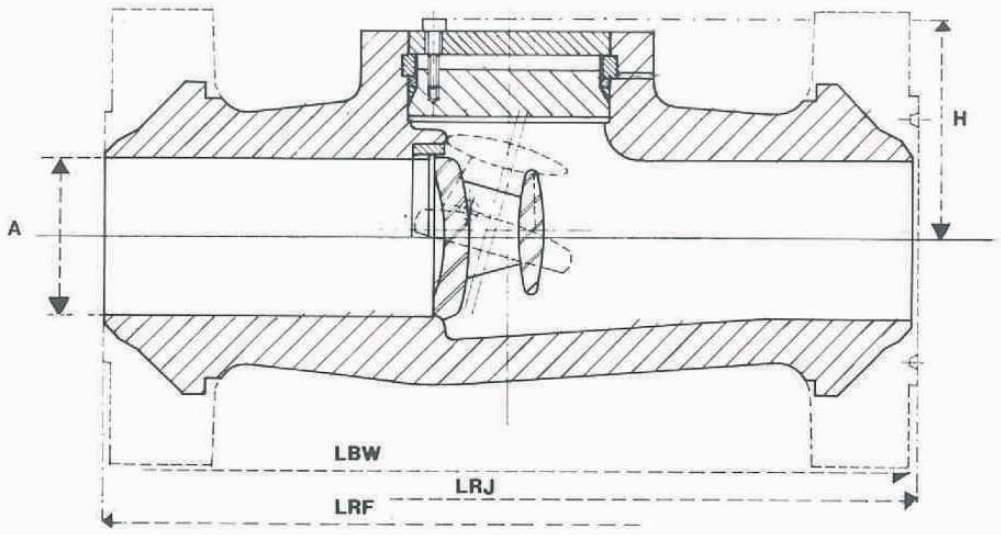
☐ **Locking Devices.** On request, locking devices can be fitted, in either the open or the closed position.

TILTING DISC CHECK VALVES

Class 900

Fig. N° 7953

Hydraulic test pressure:
Body: 3250 psig. (229 kg/cm²)
Seat: max 2160 psig. (152 kg/cm²).



OVERALL DIMENSIONS (mm/in)

SIZE	4"	5"	6"	8"	10"	12"	14"
DN	100	125	150	200	250	300	350
Ø A	3 7/8"	4 3/4"	5 3/4"	7 1/2"	9 5/8"	11 1/8"	12 1/4"
	98	121	146	191	238	283	311
L RF	18"	22"	24"	29"	33"	38"	40 1/2"
	457	559	610	737	838	965	1029
L RJ	18 7/8"	22 1/8"	24 1/8"	29 1/8"	33 1/8"	38 1/8"	40 7/8"
	460	562	613	740	841	968	1038
L BW	18"	22"	24"	29"	33"	38"	40 1/2"
	457	559	610	737	838	965	1029
H	4,72"	6,10"	7,28"	9 1/2"	12"	13 1/2"	14,57"
	120	155	185	241	305	343	370

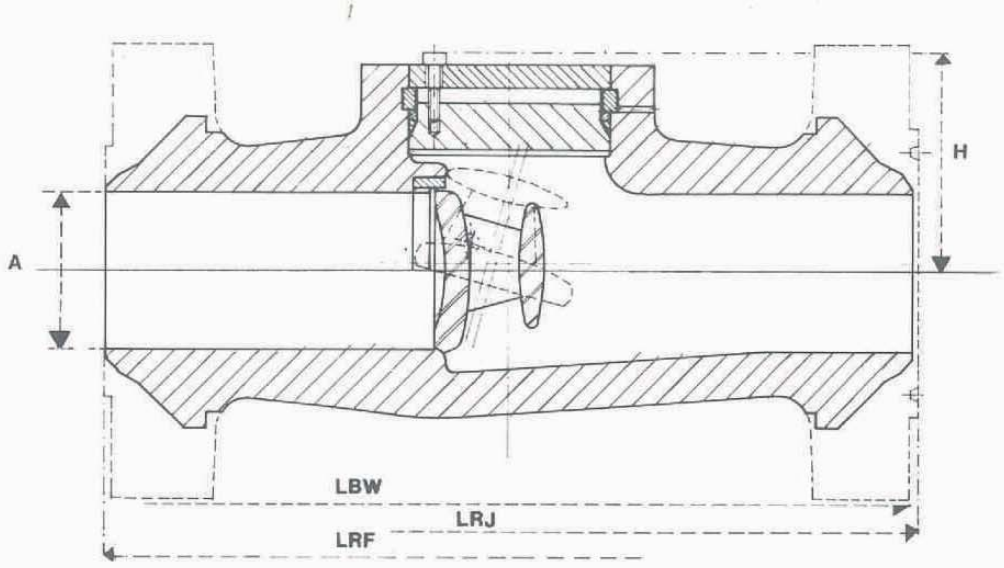
- **up to 3": use Bolted Bonnet Swing Check Valves**
- **16" and over: dimensions on request**

TILTING DISC CHECK VALVES

Class 1500

Fig. N° 7963

Hydraulic test pressure:
Body: 5400 psig. (380 kg/cm²)
Seat: max 3600 psig. (253 kg/cm²).



OVERALL DIMENSIONS (mm/in)

SIZE	3"	4"	5"	6"	8"	10"
DN	80	100	125	150	200	250
Ø A	2 3/4"	3 5/8"	4 3/8"	5 3/8"	7"	8 3/4"
	70	92	111	137	178	222
L RF	18 1/2"	21 1/2"	26 1/2"	27 3/4"	32 3/4"	39"
	470	546	673	705	832	991
L RJ	18 5/8"	21 5/8"	26 5/8"	28"	33 1/8"	39 3/8"
	473	549	676	711	841	1000
L BW	18 1/2"	21 1/2"	26 1/2"	27 3/4"	32 3/4"	39"
	470	546	673	705	832	991
H	4,33"	5,31"	6,30"	7,56"	9,84"	12,24"
	110	135	160	192	250	311

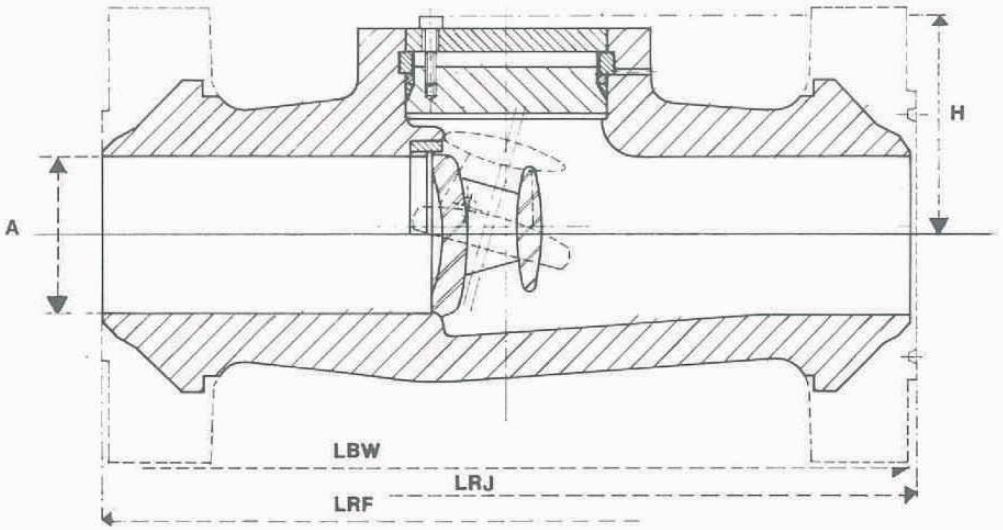
- **for 2": use Bolted Bonnet Swing Check Valves**
- **12" and over: dimensions on request**

TILTING DISC CHECK VALVES

Class 2500

Fig. N° 7973

Hydraulic test pressure:
Body: 9375 psig. (647 kg/cm²)
Seat: max 6875 psig. (474 kg/cm²).



OVERALL DIMENSIONS (mm/in)

SIZE	2 1/2"	3"	4"	5"	6"	8"	10"	12"
DN	65	80	100	125	150	200	250	300
ø A	1 7/8"	2 1/4"	2 7/8"	3 5/8"	4 3/8"	5 3/4"	7 1/4"	8 5/8"
	48	57	73	92	111	146	184	219
L RF	20"	22 3/4"	26 1/2"	31 1/4"	36"	40 1/4"	50"	56"
	508	578	673	794	914	1022	1270	1422
L RJ	20 1/4"	23"	26 7/8"	31 3/4"	36 1/2"	40 7/8"	50 7/8"	56 7/8"
	514	584	683	807	927	1038	1292	1445
L BW	20"	22 3/4"	26 1/2"	31 1/4"	36"	40 1/4"	50"	56"
	508	578	673	794	914	1022	1270	1422
H	4,33"	5,12"	6,30"	7,48"	9,05"	11,61"	14,57"	16,14"
	110	130	160	190	230	295	370	410

- **for 2": use Bolted Bonnet Swing Check Valves**
- **14" and over: dimensions on request**

sella | gvm

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