



**GLOBE  
VALVES**

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## Genera Information

Our shutoff valves which are usually supplied in the "globe" type and in the "directional flow type", are suitable for interception and for modulation as well. In these types of valves the seats are formed by a ring seat and a shutter which can be differently shaped as necessities require (disc, conic or needle shaped; with interchangeable gasket, etc...). The shutter can be linked to the operating stem in such a way that it undergoes a pure transitional motion without rotating together with the stem, thus avoiding any wear or scratch on the seat due to friction between shutter and seat. With these valves the bonding of shutter and seat, due for instance to calcareous deposit, is avoided, and even at high temperature there are no interferences between shutter and seat.

For big sizes and high temperatures the operation is made possible by the use of a by-pass or a balanced shutter. The latter is made up by a main disc and an auxiliary disc assembled inside it. The valve is installed with reverse flow direction, so that the pressure is applied over the disc, thus helping the sealing. During the opening phase, the operating stem acts on the little auxiliary disc before, and when the pressures inside the valve are balanced the main disc is actuated. The seats are placed approximately on the inlet and outlet flanges axis, thus avoiding the deposit of solid

particles that the flow may drag on the piping bottom and which could undermine the sealing. The operation stem is always movable and its thread side is usually placed outside the gland, not in contact with the fluid which may cause damage to it; besides, the stem position can visually indicate the valve opening degree.

The yoke nut is usually held by a yoke having two arms particularly elastic, so that the thermal expansion cannot block the valve in the close position.

The disc frequently has an auxiliary seal seat, which (at open valve) matches a seat obtained from the inside top of the bonnet.

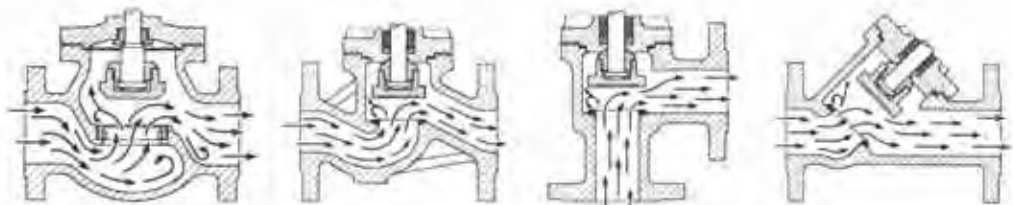
The backlocking is thus made possible, which allows the gland gasket replacement with fully open valve.

The gland is usually "cap" type for small sizes and bronze valves; it's "eye-bolts flange type" for steel valves and big sizes, thus allowing a constant pressure on the gaskets, even when the bolts tightening is not homogeneous.

In respect to other valves or gates, the flow is usually not bidirectional.

Because of the tortuous way, the flow pressure drops are higher than with a free flow valve.

### Types of flow in shutoff Valves :



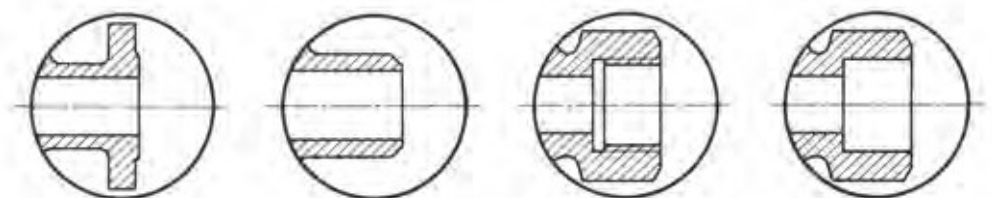
Globe

Directional Flow

Right Angle

Free Flow

### Ends



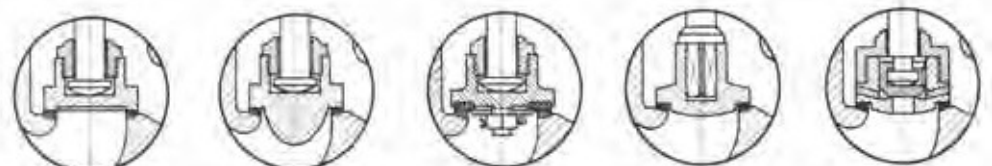
Flanges

Welding Neck

Threaded

Socket Welding

### Shutters



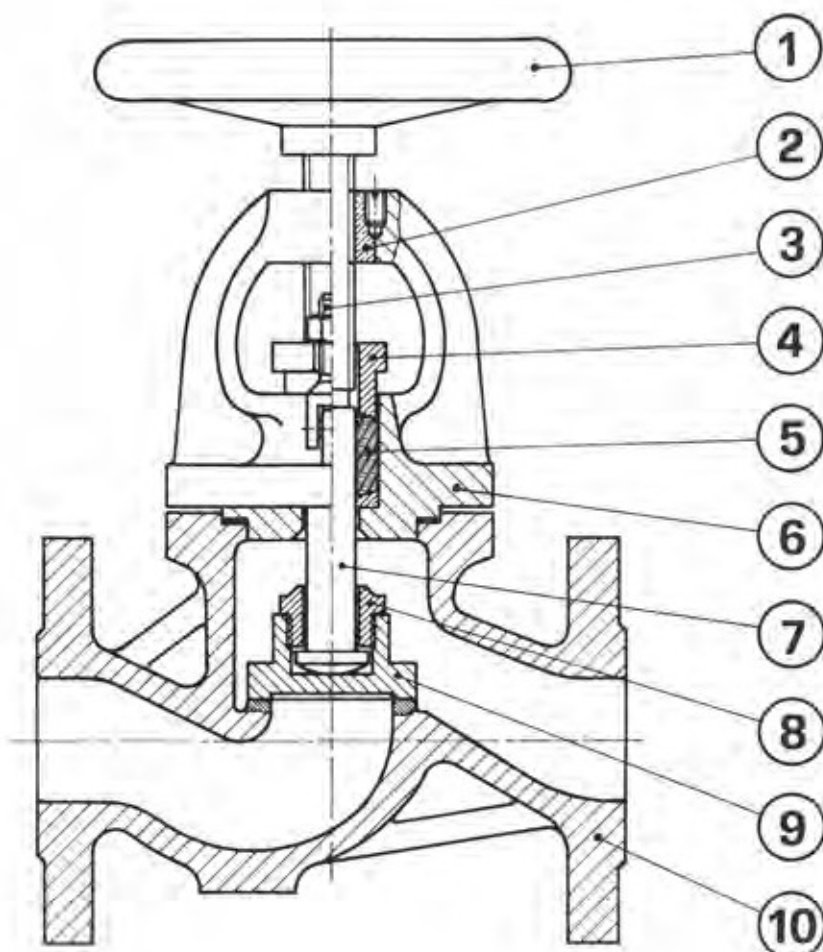
Flat Seat

Parabolic

Interchangeable Gasket

Automatic

Balanced



<b>1</b>	Volantino
	Handwheel
<b>2</b>	Madrevite
	Yoke Nut
<b>3</b>	Bulloni ribaltabili del premistoppa
	Gland Eye Bolts
<b>4</b>	Premistoppa
	Gland
<b>5</b>	Stoppa
	Stem Packing

<b>6</b>	Coperchio con cavallotto
	Bonnet and Yoke
<b>7</b>	Stelo - Asta - Albero
	Stem
<b>8</b>	Ghiera dell'otturatore con retrotenuta
	Disc Locknut
<b>9</b>	Otturatore
	Disc
<b>10</b>	Corpo
	Body

## Directional flow shutoff valves with flanged outlets

N.	10100	in Cast Iron	series	PN 16
N.	10110	in Steel	series	PN 40
N.	10120	in Steel	series	PN 64
N.	10130	in Steel	series	PN 100/160

### Materials:

The body, bonnet and yoke are cast steel (cast iron for valves PN16).

The stem is 13% Cr. stainless steel. The seal components are in 18-8 stainless steel.

The yoke nut is in bronze.

### Features:

This non specific employ valve is suitable for shutoff and modulation of water, steam, oil, fuels, air, gas, etc...

Outer screw ground stem not in contact with the fluid - flat face seal seat obtained in the body - Jointed disc locknut for gland gaskets replacement under pressure and with fully open valve - eye-ball gland bolts. Suitable guided flow with negligible pressure drops.

For pressures equal to or higher than the ones in the following table , a perfect sealing handling of the valve can be achieved with balanced disc (option E) and the

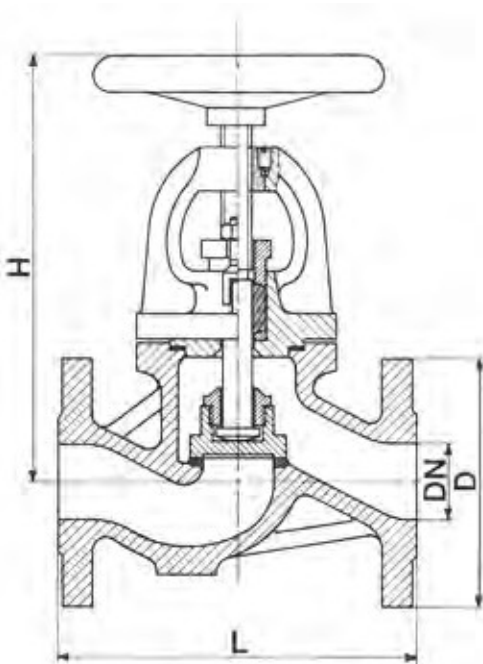
valve installed with reverse-direction flow, that is to say with the pressure acting on the disc. The valve installed with reverse flow direction causes pressure drops higher than with a normal flow.

DN	65	80	100	125	150	200	250	300	400
bar	64	64	44	30	21	12	9	6	3
A balanced disc is recommended beyond these pressures.									

The flanges, sized and drilled according to UNI tables, are usually supplied with raised face and seal groove.

### Options

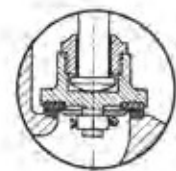
- A. with flanges ANSI S. 150
- B. with flanges ANSI S. 300
- C. with automatic disc. The disc is linked to the stem with a prismatic guide which allows a cutoff similar to the one of the back pressure valves.
- D. with interchangeable gasket disc. It ensures the sealing even with little solid particles deposit on the seat.
- E. with balanced disc, for high pressures or big sizes.
- I. with opening indicator
- P. with parabolic disc for linear control
- Z. with UNI gain flanges.



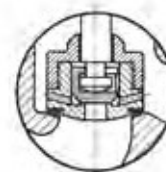
Art. 10100	Cast Iron	PN 16
10110	Steel	PN 40
10120	Steel	PN 64
10130	Steel	PN 100/160



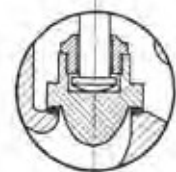
Variant C



Variant D



Variant E



Variant P

**Inside screw bellows valves pn 16 in cast iron GG - 25 with flanged outlets.**

N. 10500 **DIRECTIONAL FLOW**  
N. 10520 **RIGHT ANGLE**

**Materials and working pressures:**

The body and bonnet are cast iron GG -25 the stem and seats are 13% Cr stainless steel  
The bellows is stainless steel 18.8.  
Maximum working pressure as follows:  
16 bar up to 120°C ; 10 bar up to 200°C; 8 bar up to 250 °C.

**Inside screw bellows valves PN 16 in modular cast iron GG 40.3 with flanged outlet**

N. 10600 **DIRECTIONAL FLOW**  
N. 10620 **RIGHT ANGLE**

**Material and working pressures**

The body and bonnet are modular cast iron GGG 40.3  
The stem and seats are 13% Cr. stainless steel  
The bellows is stainless steel 18.8

Maximum working pressures as follows:

**Common Characteristic**

200°C; 10 bar up to 300 °C.

**Common features**

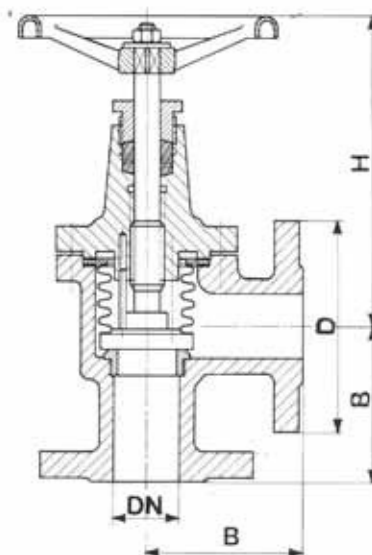
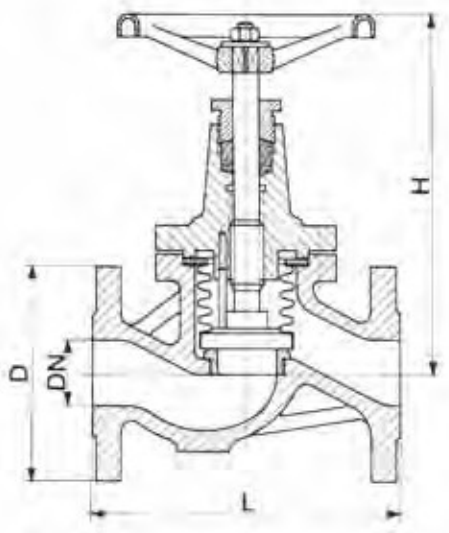
Specific valve for diathermic oils, kerosine, volatile, poisoning or flammable fluids and generally when a perfect outside sealing of the gland is required.  
In these valves the traditional gland has the only function of emergency sealing device in case of bellows breaking. As the bellows guarantees a good functioning for thousands of operations, these valves are usually qualified as "no maintenance required".  
The link between stem and disc is made in such a way that the bellows undergoes no torsion.  
The bellow is straightly welded on the disc at one end, while at other end it is equipped with a washer, which is locked between body and bonnet; thus, the inside part of the valve is ermetically insulated from outside.  
Even in the "inside screw" type, the screw cannot come in contact with the fluid because it is protected by bellows.  
The flanges sized and drilled according to UNI PN 16 tables, are usually supplied with raised face and seal groove.

**Options**

- D with double wall bellows
- T with triple-wall bellows
- P with parabolic disc.

DN*	15	20	25	32	40	50	65	80	100	125	150	200
D	95	105	115	140	150	165	185	200	220	250	285	340
L	130	150	160	180	200	230	290	310	350	400	480	600
B	90	95	100	105	115	125	145	155	175	200	225	275
H	160	165	190	200	225	260	280	320	375	415	460	570
≈ kg	5	6	8	10	13	18	26	30	45	58	78	146

\* Bigger sizes on request





## Inside screw bellows valves pn 16 in cast iron GG-25 with flanged outlets

- N. 10720 right angle
- N. 10700 diirectional flow

### Materials and working pressures

The body and bonnet are in modular cast iron GGG 40.3

The stem and seats are 13% Cr. stainless steel

The bellows is stainless steel 18.8

Maximum working pressures as follows:

16 bar up to 120 °C; 13 bar up to 200 °C; 13 bar up to 200°C; 10 bar up to 300 °C.

## Inside screw bellows valves PN 16 in cast iron GG-25 with flanged outlets

- N. 10800 directional flow
- N. 10820 right angle

### Materials and working pressures

The body and bonnet with yoke are in modular cast iron GGG 40.3 -

The stem and the seats are 13% Cr. stainless steel

The bellows is stainless steel 18.8

Working pressures as follows:

16 bar up to 120 °C; 13 bar up to 200°C; 10 bar up to 300°C.

### Common features

Specific valve for diathermic oils, kerosine, volatile, poisoning or flammable fluids and generally when a perfect outside sealing of the gland is required. In these valves the traditional gland has the only function of emergency sealing device in case of bellows breaking. As the bellows guarantees a good functioning for thousands of operations, these valves are usually qualified as "no maintenance required".

The link between stem and disc is made in such a way that the bellows undergoes no torsion.

The bellows is straightly welded on the disc at one end, while at other end it is equipped with a washer, which is locked between body and bonnet; thus, the inside part of the valve is ermetically insulated from outside.

In outside screw valves the opening degree of the valve can be desumed from the stem raising.

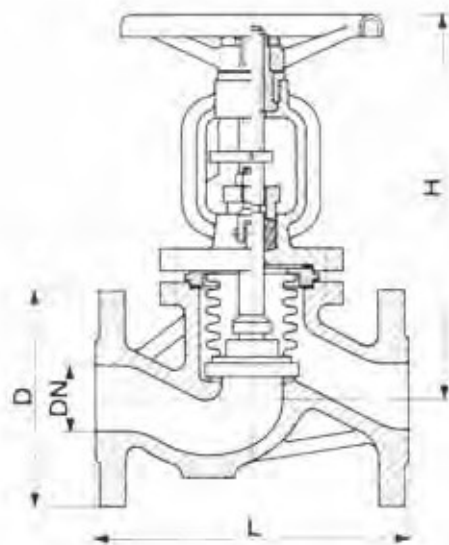
The flanges sized and drilled according to UNI PN 16 tables, are usually supplied with raised face and seal groove.

### Options

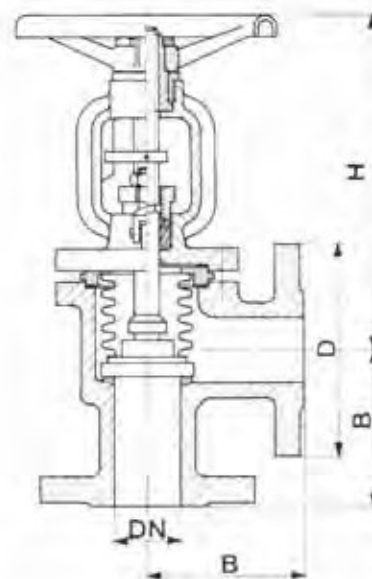
- D. with double wall bellows
- T with triple-wall bellows
- P with parabolic disc.

DN*	15	20	25	32	40	50	65	80	100	125	150	200
D	95	105	115	140	150	165	185	200	220	250	285	340
L	130	150	160	180	200	230	290	310	350	400	480	600
B	90	95	100	105	115	125	145	155	175	200	225	275
H	160	165	190	200	225	260	280	320	375	415	460	570
≈ kg	5	6	8	11	14	19	28	32	48	62	84	155

\* Bigger sizes o.n request



Art. 10700 - 10800



Art. 10720 - 10820

**Outer screw bellows valves in steel PN 40 with flanged outlets**

- N. 10900 directional flow
- N. 10920 right angle

**Material and working pressures**

The body, the bonnet and the yoke are steel.  
 The stem and the seats are 13% Cr. stainless steel.  
 The bellows is stainless steel 18.8  
 While the valve body is series PN40, the bellows limits the working pressure to the following values:  
 25 bar at 120°C; 20 bar at 320°C.

**Features**

Specific valve for diathermic oils, kerosine, volatile, poisoning or flammable fluids and generally when a perfect outside sealing of the gland is required.  
 In these valves, the traditional eye bolts gland has the only function of emergency sealing device in case of bellows breaking. As the bellows guarantees a good

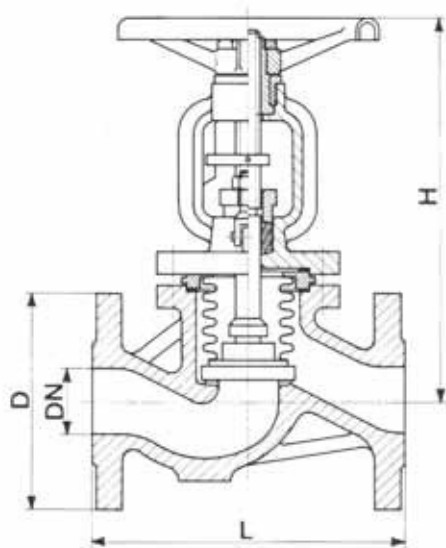
functioning for thousands of operations, these valves are usually qualified as "no maintenance needing".  
 The link between stem and disc is obtained in such a way that the bellows undergoes on torsions.  
 The bellows is straightly welded on the disc at one end, while at other end it is equipped with a washer, which is locked between body and bonnet; thus, the inside part of the valve is ermetically insulated from outside.  
 In outside screw valves the opening degree of the valve can be desumed from the stem raising.  
 The flanges sized and drilled according to UNI PN 16 tables, are usually supplied with raised face and seal groove.

**Options**

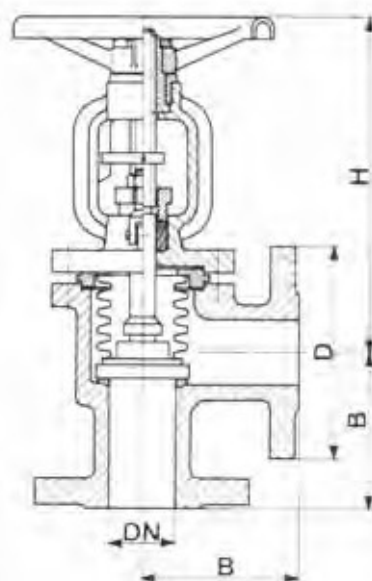
- D. with double wall bellows
- T with triple-wall bellows
- P with parabolic disc.

DN*	15	20	25	32	40	50	65	80	100	125	150	200
D	95	105	115	140	150	165	185	200	235	270	300	375
L	130	150	160	180	200	230	290	310	350	400	480	600
B	90	95	100	105	115	125	145	155	175	200	225	275
H	210	220	220	220	240	270	310	350	400	460	510	630
≈ kg	5	6	8	11	14	19	28	32	48	62	84	155

\* Bigger sizes o.n request



Art. 10900



Art. 10920

## Shutoff valves with electric actuator

The valves can be chosen among different types: directional flow, angle, flee flow, bellows and ANSI type. Cast iron valves should not be employed with an electric actuator.

Electric actuator is particularly recommended for valves installed in uneasy access positions: for remote control, for big valves or high working pressures, when a manual operation is difficult or impssoble.

### Features of the electric actuator

The atuator is made up by an electric motor driving a kinematic chain consisting of a first helical gear pair, and a second worm screw/helical gear pair, which drives the operating bushing coupled to the valve stem with hammer-blow device.

The gears, rotating on ball bearings, are bath-lubricated and are contained in a sturdy light-alloy carter.

A torque limiting mechanical device, which operates efficiently in both flow directions, can be adjusted from 25% to 100% of the actuatot output torque, and avoids any possible actuator or valve breaking, in case of accidental overloads during the operation.

The actuatot is equipped with an emergency handwheel with lever clutch and mechanical release actuated by the motor in the start phase.

After having engaged the manual operation the lever

goes back automatically to its rest position, and can be also locked in the two positions in order to avoid possible unrequested operations. The handwheel does not rotate while the electric motor is on, and has a gear ratio of 1:1.

All the electric devices (stroke limit switches supplementary switches, torque limiter, potentiometer for disc position remote signal, anticondensate resistance, terminal board with tags etc.) are mechanically fixed and electrically connected in a watertight box, on whose lid the mechanical position indicator is mounted.

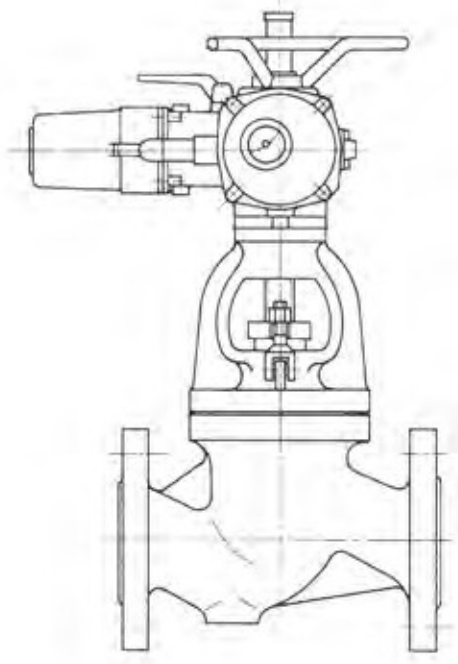
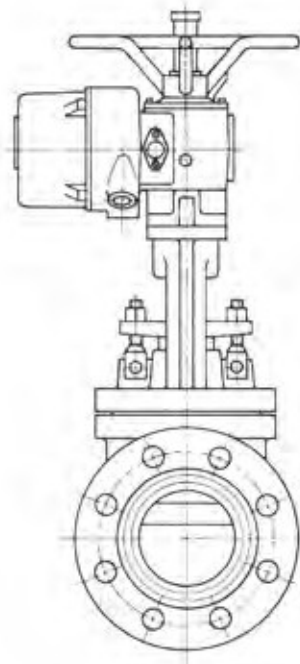
The actuators are supplied in standard type for ambient temperature -20°C to 80°C, with protection degree IP 67 (temporary water dipping), according to DIN 40050 and IEC 144 norms.

They are coated with epoxidic primer of polyurethan resin RAL 7030. Moreover, they are supplied equipped with lubricating oil and their coupling unit can be separated from the gearmotor, maintaining the valve in operation.

In the standard version the electric motor is a three phase asynchronous, insulation class H - rated for service S2 - 15 min according to CEI 2 - 3 norms.

Voltage 380 V (\*/- 10%), frequency 50 Hz (+/- 5%).

The actuator can properly operate in any assembling position, as its output angular speed range is 6 , 144 revolutions per minute. The actuator is suitable to possible control by automatic devices, such as pressure switches, thermostats, clocks, etc.



Shutoff valves with electric actuator



**On request we can supply**

- . motors for other voltages and frequencies
- . direct current motors
- . explosion-proof type motor for rooms containing explosive gas
- . potentiometer for remote indication of the valve opening degree
- . remote control board, with or without led indicator of the valve opening degree
- . actuators equipped with remote inverter device suitable for remote control. This device has a control board with locking preselector switch, which selects near remote control or exclusion of any maneuver, and a three-position switch for near control

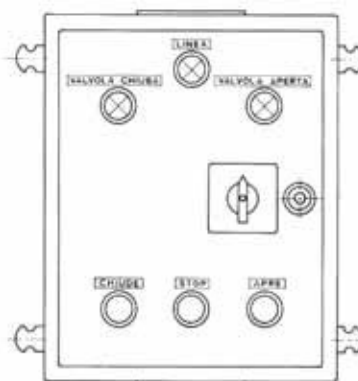
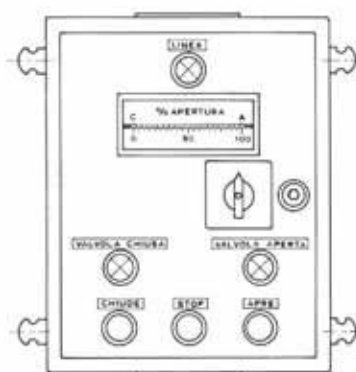
**Indication to be specified in enquiries**

In order to allow our technical office to choose the most suitable actuator, our customers should always specify following information:

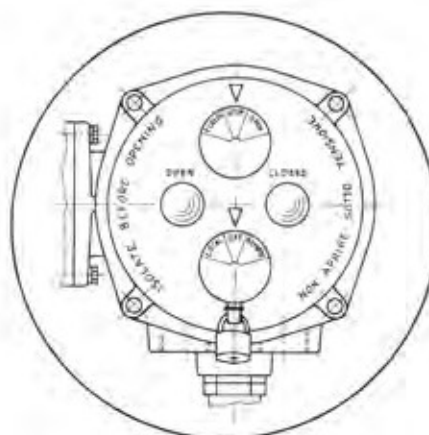
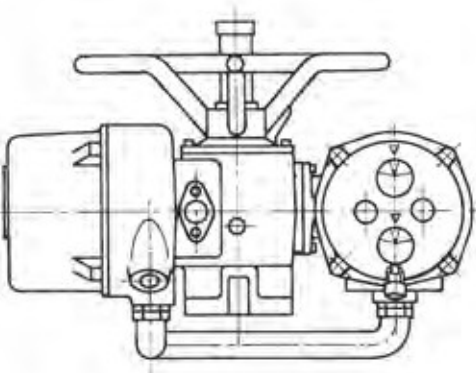
- . fluid type and temperature
- . kind of valve chosen
- . valve nominal diameter
- . maximum differential pressure on the disc (Ap)
- . required operation time
- . type of service (continuous or number of manoeuvres per hour)
- . supply voltage
- . network frequency

**Weights and measures**

The valves weight and measures will not be supplied until the customer has provided all the information above



**REMOTE CONTROL BOARDS**



**ACTUATOR EQUIPPED WITH REMOTE INVERTER DEVICE**

## Shutoff valves with hydropneumatic operator

The valve can be supplied in different types: directional flow, angle or ANSI type. Cast iron valves should not be employed with this operator.

The operator is particularly recommended for valves installed in difficult access position, for remote control, for big valves, when the motor fluid is under pressure and a manual operation is difficult.

### Features of the operator

The operator is direct control type, made up with a cylinder fixed to the valve body and a piston slipping inside it. The piston is directly coupled to the valve disc by means of a rigid shaft.

The shaft is guided by a long bushing which also works as a gland by means of seal rings. In case of eventual leakages of the gland, the pipe-cutting between valve and disc has a hole through which the main fluid slipped from the gland can discharge, thus avoiding any interference on the operator piston. This hole also act as a leakage indicator.

The piston is equipped with proper seal rings, while the

cylinder is chrome-plated inside.

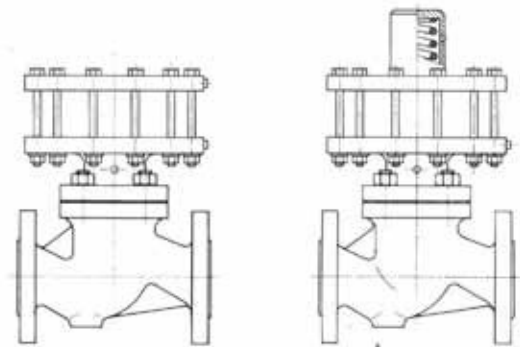
The operator can be supplied in two different working ways: single-effect and spring return double-effect.

With the double-effect operator, the motor fluid under pressure, sent to the proper side of the piston, opens and shuts the valve.

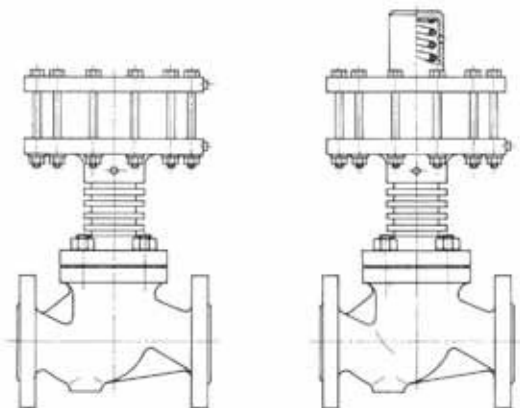
With the simple-effect operator, we can again distinguish two cases:

- a. The motor fluid shuts the valve and the spring re-opens it when the motor fluid action is over (open at rest)
- b. The motor fluid opens the valve and the spring shuts it when the motor fluid action is over (closed at rest). In this case, the main fluid flow inside the valve must be reversed, in order to avoid too heavy springs. Finally if the main fluid passing through the valve has a high temperature, the operator is kept far from the valve by means of a finned spacer thus allowing a sufficient thermal dissipation in the surrounding room. As a consequence, the operator overheating which may damage the seal rings on stem and piston, is avoided.

Directional flow valves with double-effect operator and spring return single-effect operator



Directional flow valves with double-effect spaced operator and spring return single-effect operator



**Dimensions and weights**

The dimensions and weights of the valves with hydropneumatic operator will be supplied according to the selected type of valve, to the actual maximum working pressure and to the available motor fluid pressure.

**Servomotor Calculation**

The calculation of the servomotor cylinder theoretical inside diameter may be easily done in the following way:

$$D_t = d_s \sqrt{p_{eserc} / p}$$

where:

- Dt = theoretical servomotor cylinder inside diameter in mm;
- ds = valve seat diameter in mm;
- Persec = maximum valve working pressure in bar;
- Pfm = motor fluid pressure in bar.

In order to consider the gland and the piston seal rings friction, and to have a shutter tightening strong enough to guarantee the sealing and to overcome the spring contrasting action (in case of simple effect operator) it is advisable to choose for the cylinder an actual diameter

D eff, suitably increased.

The theoretical diameter Dt may be also obtained using the Diagram 3.II in the way shown by the example. The Diagram 3.II has been designed assuming the seat diameter ds equal to the valve nominal diameter DN.

**Example**

Determine the theoretical diameter Dt for a hydropneumatic operator cylinder with the following data:

- directional flow valve DN 100;
- maximum working pressure fwm = 40 bar
- motor fluid pressure ffm = 8 bar

With reference to the Diagram here below, starting from the diameter DN 100 and from the pressure pwk = 40 bar with two perpendicular straight lines we can find the point A. The point B can be obtained moving parallelly to the inclined lines bundle in correspondence with the assigned motor fluid pressure pfm = 8 bar. In correspondence with B, we can read the value of the searched theoretical diameter Dt = 224 on the higher scale.

**Diagram 1: Determination of hydroneumatic operator cylinder theoretical diameter**

fm

