



BUTTERFLY VALVES

Butterfly valves are particularly suitable for high flow rates and intermediate pressures. They have wide open passage areas and therefore create almost negligible pressure drop. In our patented model, the typical drawback of poor sealing is removed and a perfect airtight design is provided for any operating pressure, even in large units.

These characteristics extend the range of use of the butterfly valves to new fields of application, such as operation with compressed air, gas, vacuum, in which a very good performance is achieved. Of course even better performance is obtained with oils, fuels, and all liquids.

However, particular care must be paid to hard waters that may impair the valve sealing or its operations by depositing scales on the sealing elements.

Both operations of valve opening and closure are rapid and take place within one quarter turn of input lever only. The position of the lever itself provides an indication of the angular position of the butterfly and therefore of the open flow passage area. In addition to the end stops of the input mechanism of the butterfly, an internal device provides a precise stop when the valve closes, and thus maintains the correct positioning of the butterfly and a perfect sealing. The operating torque of our valves is extremely small, because the seals are mounted on the valve body and do not undergo any friction during the disc rotation, after the valve is closed, only, the fluid pressure keeps the seals of the body against the spherical surface of the butterfly, thus providing perfect sealing.

Therefore, the maximum operating torque is required at the beginning of the valve opening, i.e. when the seals are in contact with the whole butterfly-length.

The fluid flow is always bidirectional and the pressure drop through the valve is negligible due to the wide open passage area.

For an open valve angle larger than 20°, the induced flow turbulence is very small, therefore butterfly valves can be used as modulating valves when the accuracy requirements are not too stringent. For the use as flow modulating device, our valves are equipped with a locking system that allows to lock the butterfly in any position.

When the valve is used as modulating valve for fluids, it is necessary to keep the fluids speed under 6 m/sec. Positive features of our butterfly valves are compactness, strength, lightness and minimum distance between welding ends when compared to other valves of the same diameter. Thus, they can often be installed where no other valve could fit.

Because any metal contact between the components is

avoided, the valve does not undergo any decrease of its characteristics. Only the seals may have to be replaced, which is a very easy and quick operation.

The seals can be made of different materials, according to the operating conditions, High temperature is the most critical and limiting factor, which is common for all valves with seals.

Due to their easy operation, butterfly valves are highly suitable to be driven by light and compact servos and can be used as parts of emergency operation systems with pneumatic or electromagnetic inputs.

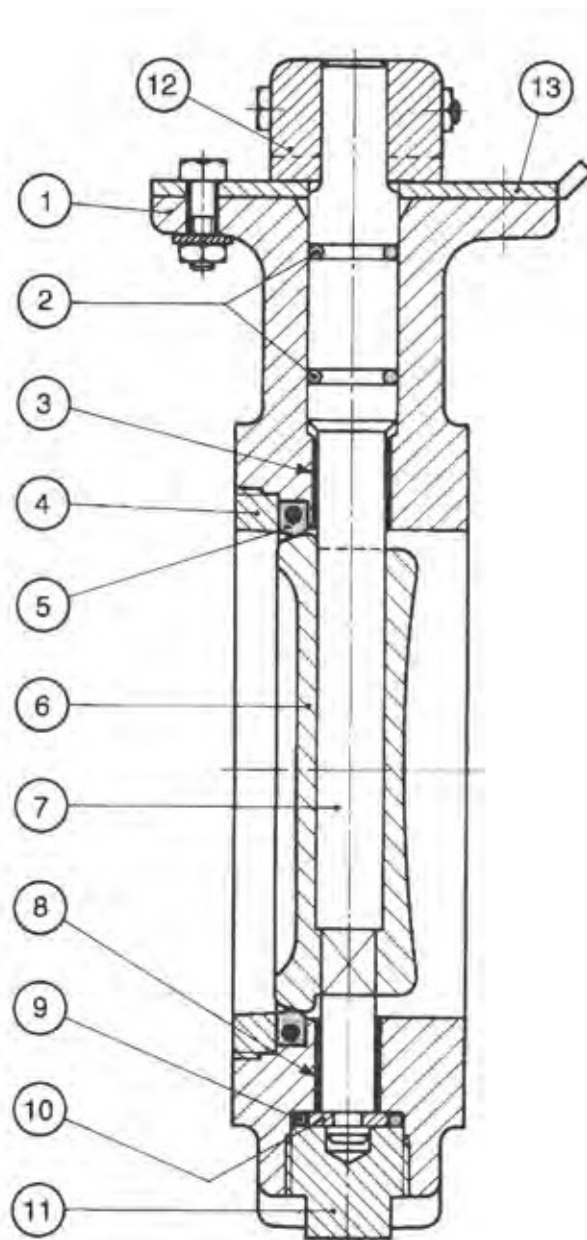
All our valves are equipped with flanges to be welded directly to the connecting pipes, while it is always possible to disassemble the main body for inspection and replacement of the seals.

Materials

In the standard version the valve is made out of forged carbon steel or ductile iron; the stem is of stainless steel and the spherical surface of the butterfly is chrome plated.

On request the valves can be also made out of stainless steel, bronze or other materials. Seals are the BUNA N, EPDM or Viton type according to the operating conditions

- . Buna N is used for air, methane, oxygen, nitrogen, water, oils, and for temperatures up to 80 °C
- . EPDM (Dural) is used for air, water, water steam, inorganic acids and temperatures up to 150 °C
- . Viton is used for diesel oil, gasoline, kerosene, liquid gases, city gas and for temperatures up to 200



POS.	DENOMINAZIONE	ESECUZIONE STANDARD	ESECUZIONE IN ACCIAIO INOX
1	Body	astm a 105 (*) astm a 350lf 2	aisi 316
2	OR Ring	buna n (**)	buna n (**)
3	Self-lubricating Bearings	Steel with PTFE	Stainless Steel with PTFE
4	Ring	Brass ot 58	aisi
5	Sealing	buna n +c 72 (**)	buna n aisi 316 (**)
6	Plug	astm a 105 (*) astm a 350lf 2	aisi 316
7	Stem	aisi 410 (*)	aisi 316
8	Self-lubricating Bearings	Steel with PTFE	Stainless Steel with PTFE
9	OR Ring	buna n (**)	buna n (**)
10	coppia semianelli	Brass ot 58	aisi 316
11	Plug	Brass ot 58	aisi 316
12	lever	aluminium	aluminium
13	Graduated Disc	Carbon Steel	aisi 304

Operating Torque

The maximum operating torque exists at the beginning of the valve opening, that is when the seals adhere to the butterfly disc along its perimeter under the effect of the fluid pressure. This break-away torque air measure **at the maximum operating pressure**, is very low and can be found in Table i. It is noteworthy that the opening torque decreases with the fluid pressure, and is reduced about by one half when the pressure is decreased by one half.

If the valve has to be operated by a servomechanism, it is advisable that the output torque provided by the servo is 50% greater than the values listed in Table i in order to ensure a proper safety factor.

dN	50	65	80	100	125	150	200	250	300
Nm	12	15	20	32	48	70	120	180	250

Pressure losses

The pressure losses through our valves are very small when the butterfly disc is fully open. For standard air (at the atmospheric pressure and at the temperature of 15°C) the pressure losses can be obtained from the Charts below. This is a working chart to be used in the following ways:

- Given the flow rate and the valve nominal diameter, the pressure drop through the valve can be determined.
- Given the valve nominal diameter, the flow rate that corresponds to a specific pressure drop can be determined.
- Given the flow rate, the valve nominal diameter for which the pressure drop is less than a specified value can be determined.

Chart 1 - Pressure drops Δp in function of the flow Q for air standard or normal (at atmospheric pressure and at a temperature of 15 ° C)

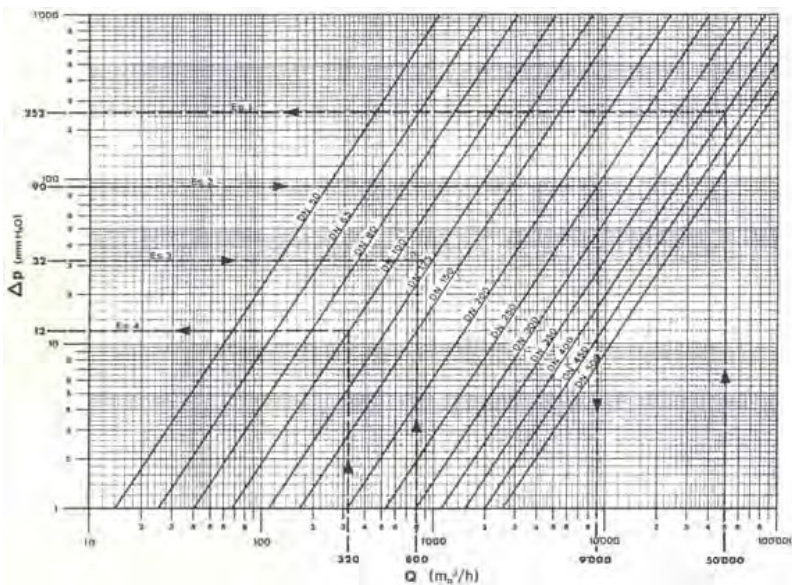
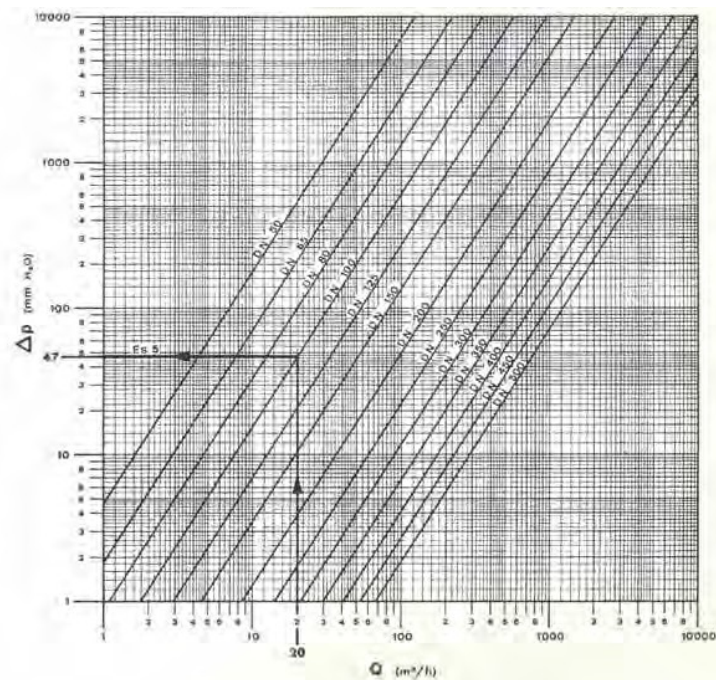


Chart 1 - Pressure drops Δp in function of the flow Q for water



Butterfly Valve PN16 Lug Type Lever Operated

N. 20000 **lug type**

Materials

The body, butterfly disc and flanges are forged carbon steel - the stem is 13% Cr stainless steel - the outer spherical surface of the butterfly disc is chrome plated - seals are of Buna – N, EPDM, Viton, Silicon or, for DN lower than 200, PTFE.

On request body and butterfly disc of ductile iron. The valves can also be manufactures in stainless steel bronze, or other special materials according to particular needs.

Features

Our shutoff and modulating valves are for gas, air and vacuum operation, therefore also suitable for use with oil, fuels, soft water, etc.

- Perfect sealing

- quick operation with low torque
- wide passage area with negligible pressure drop
- space and weight savings
- internal device for stopping the disc at its closed position.

The flanges are according to UNI 5211.

On request flanges ANSI Class 150 welding neck or screwed (up to 4") , can be obtained.

Homologation R.I. Na. for marine employment.

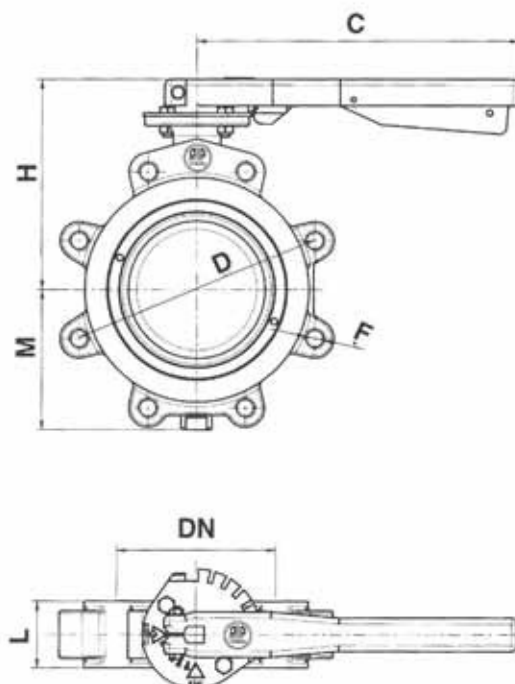
On request modulating valves without seal gaskets and fit for high temperatures can be supplied. Modulation can be controlled manually or pneumatically with continuous action

On request we make butterfly valves up to DN 1200.

Options

F limit switch.

DN	50	65	80	100	125	150	200	250	300
L	43	46	46	52	56	56	60	68	78
H	132	142	150	162	177	192	270	270	305
C	270	270	270	270	270	270	400	400	400
D	125	145	160	180	210	240	295	355	410
F	M16	M16	M16	M16	M16	M20	M20	M22	M22
M	76	84	90	105	120	130	170	200	225
N. Holes	4	4	8	8	8	8	12	12	12
Weight kg	4,4	5,5	6,8	8,6	11,2	13,9	26	40	58



Butterfly Valve PN16 with dielectric coupling lever operated

N 20500

Materials

The body, butterfly disc and flanges are forged carbon steel, the stem is 13% Cr stainless steel, the out spherical surface of the butterfly disc is chrome plated, seals are of Buna-N, EPDM, Viton, Silicon or, for DC lower than 200, PTFE, insulating ring and bushing in PVC.

On request body and butterfly disc of ductile iron. The valve can also be manufactured in stainless steel, bronze or other special materials, according to particular needs.

Features

Our shutoff and modulating valves are for gas, air and vacuum operation, therefore also suitable for use with oil, fuels, softwater, etc.

- Perfect sealing

- quick operation with low torque
- wide passage area with negligible pressure drop
- space and weight savings
- throttling control in any position
- internal device for stopping in the disc at its closed position.

The flanges are welding neck UNI 2282 to be welded directly to the pipes.

On request flanges ANSI Class 150, welding neck or screwed (up to 4") are obtainable.

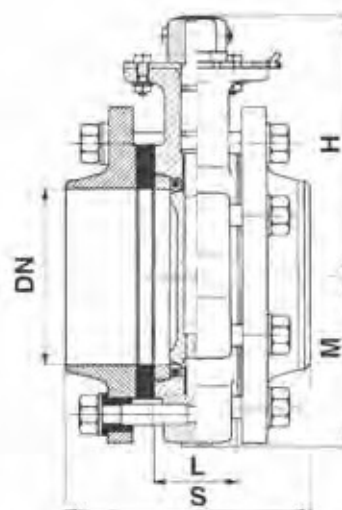
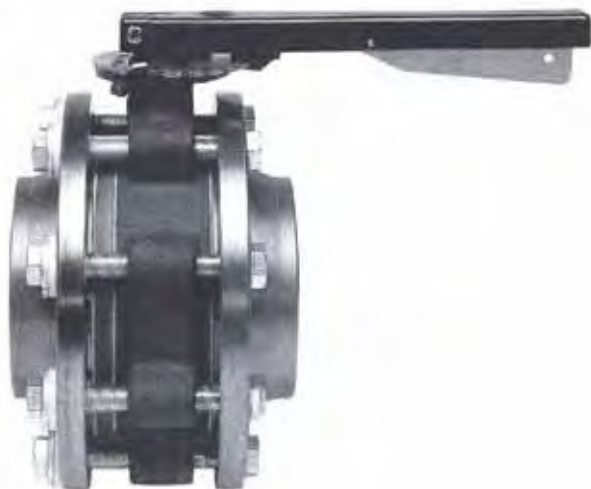
One of the two flanges is separated from the valve body by means of an PVC ring and two gaskets, which provides a high dielectric strength. The same flange has the bolt holes and the tie rod stop beads insulated with PVC bushings. Thus, the two parts of the pipe connected by the valve are electrically insulated from each other.

The maximum operating temperature is limited to 80°C because of the PVC ring. This is also for the case of Viton seals.

Options

F limit switch.

DN	50	65	80	100	125	150	200	250	300
L	43	46	46	52	56	56	60	68	78
H	132	142	150	162	177	192	270	270	305
S	153	156	166	176	186	186	204	228	254
M	76	84	90	105	120	130	170	200	225



Butterfly Valve PN16 worm gear operated

N 21000

Materials

The body, butterfly disc and flanges are forged carbon steel, the stem is 13% Cr stainless steel, the out spherical surface of the butterfly disc is chrome plated, seals are of Buna-N, EPDM, Viton, Silicon or, for DC lower than 200, PTFE, insulating ring and bushing in PVC.

On request body and butterfly disc of ductile iron. The valve can also be manufactured in stainless steel, bronze or other special materials, according to particular needs.

Features

Our shutoff and modulating valves are for gas, air and vacuum operation, therefore also suitable for use with oil,

fuels, softwater, etc.

- Perfect sealing
- quick operation with low torque
- wide passage area with negligible pressure drop
- space and weight savings
- throttling control in any position
- internal device for stopping in the disc at its closed position.

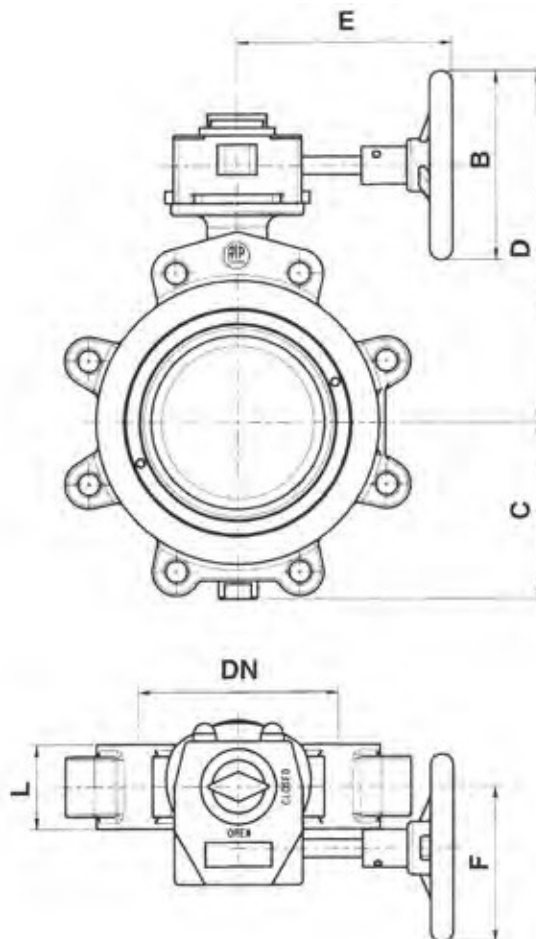
These valves are recommended when a very low operating torque is required.

A worm drives a nut and the butterfly disc by means of a crank mechanism. The drive mechanism has an indicator that shows the angular position of the disc and it is all contained within a strong aluminium case. The butterfly disc is automatically locked in the desired throttling position.

Options

F limit switch

DN	50	65	80	100	125	150	200	250	300	
L	43	46	46	52	56	56	60	68	78	
B	125						200			
C	76	84	90	105	120	130	170	200	225	
D	189	200	166	183	234	250	333	368	405	
E	170						210			
F	101						152			



Butterfly Valves PN16 with double effect pneumatic actuator

N. 22000

Materials

The body, butterfly disc and flanges are forged carbon steel, the stem is 13% Cr stainless steel, the out spherical surface of the butterfly disc is chrome plated, seals are of Buna-N, EPDM, Viton, Silicon or, for DC lower than 200, PTFE, insulating ring and bushing in PVC.

On request body and butterfly disc of ductile iron. The valve can also be manufactured in stainless steel, bronze or other special materials, according to particular needs.

Features

Our shutoff and modulating valves are for gas, air and vacuum operation, therefore also suitable for use with oil, fuels, softwater, etc.

- Perfect sealing
- quick operation with low torque

- wide passage area with negligible pressure drop
- space and weight savings
- throttling control in any position
- internal device for stopping in the disc at its closed position.

The flanges are welding neck UNI 2282 to be welded directly to the pipes.

On request flanges ANSI Class 160, welding neck or screwed (up to 4") are obtainable.

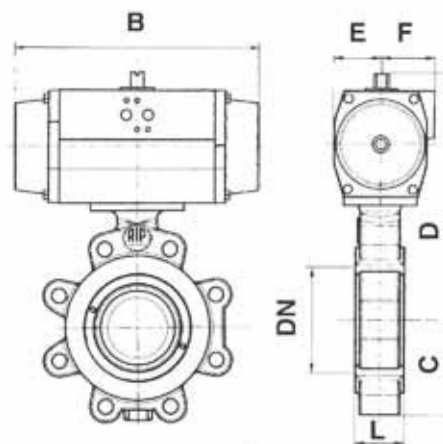
The operator is made up by a double acting oscillating cylinder, driven by fluid at a pressure between 4 and 12 kg/cm². The operator is supported by a bracket perpendicular to the pipe axis.

For hydraulic operators, the cylinder is lined internally with Rilsan; the cylinder and piston heads are coated with Teflon; the piston rod is of stainless steel

Options

- A with explosion-proof plug in unit
- F microswitch with limit switch signal endowed
- L valve with longitudinal operator. The supporting bracket is parallel to the pipe axis
- M with simple acting, spring return cylinder.
- I with hydraulic plug-in unit

DN	50	65	80	100	125	150	200	250	300
L	43	46	46	52	56	56	60	68	78
B	202	202	202	230	230	271	308	360	464
C	76	84	90	105	120	130	170	200	225
D	234	244	252	274	289	319	379	427	523
E	42,5	42,5	42,5	49	49	55	64	70	88
F	49	49	49	53	53	63	69	73	91



Butterfly Valves PN16 with single effect pneumatic actuator

N. 22200

Materials

The body, butterfly disc and flanges are forged carbon steel, the stem is 13% Cr stainless steel, the out spherical surface of the butterfly disc is chrome plated, seals are of Buna-N, EPDM, Viton, Silicon or, for DC lower than 200, PTFE, insulating ring and bushing in PVC.

On request body and butterfly disc of ductile iron. The valve can also be manufactured in stainless steel, bronze or other special materials, according to particular needs.

Features

Our shutoff and modulating valves are for gas, air and vacuum operation, therefore also suitable for use with oil, fuels, softwater, etc.

- Perfect sealing
- quick operation with low torque

- wide passage area with negligible pressure drop
- space and weight savings
- throttling control in any position
- internal device for stopping in the disc at its closed position.

The flanges are welding neck UNI 2282 to be welded directly to the pipes.

On request flanges ANSI Class 160, welding neck or screwed (up to 4") are obtainable.

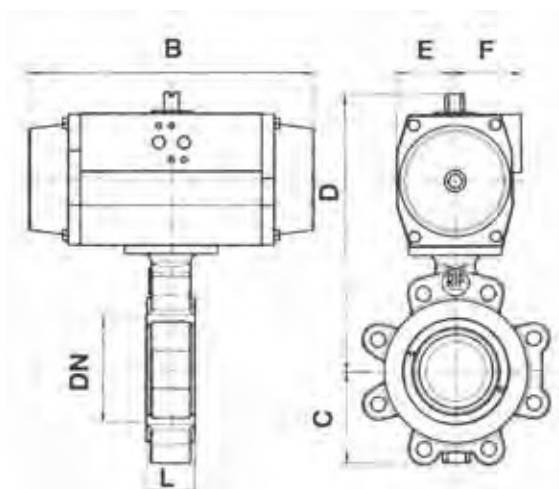
The operator is made up by a double acting oscillating cylinder, driven by fluid at a pressure between 4 and 12 kg/cm². The operator is supported by a bracket perpendicular to the pipe axis.

For hydraulic operators, the cylinder is lined internally with Rilsan; the cylinder and piston heads are coated with Teflon; the piston rod is of stainless steel

Options

- A with explosion-proof plug in unit
- F microswitch with limit switch signal endowed
- L valve with longitudinal operator. The supporting bracket is parallel to the pipe axis
- M with simple acting, spring return cylinder.
- I with hydraulic plug-in unit

DN	50	65	80	100	125	150	200	250	300
L	43	46	46	52	56	56	60	68	78
B	230	230	230	271	271	308	360	464	576
C	76	84	90	105	120	130	170	200	225
D	244	254	262	289	304	346	392	488	567
E	49	49	49	55	55	64	70	88	110
F	53	53	53	63	63	69	73	91	110



Butterfly Valves PN16 with electric operated three-phase motor

N. 22800

Materials

The body, butterfly disc and flanges are forged carbon steel, the stem is 13% Cr stainless steel, the outer spherical surface of the butterfly disc is chrome plated, seals are of Buna-N, EPDM, Viton, Silicon or, for DC lower than 200, PTFE, insulating ring and bushing in PVC.

On request body and butterfly disc of ductile iron. The valve can also be manufactured in stainless steel, bronze or other special materials, according to particular needs.

Features

Our shutoff and modulating valves are for gas, air and vacuum operation, therefore also suitable for use with oil, fuels, softwater, etc.

- Perfect sealing
- quick operation with low torque
- wide passage area with negligible pressure drop

- space and weight savings
- throttling control in any position
- internal device for stopping in the disc at its closed position.

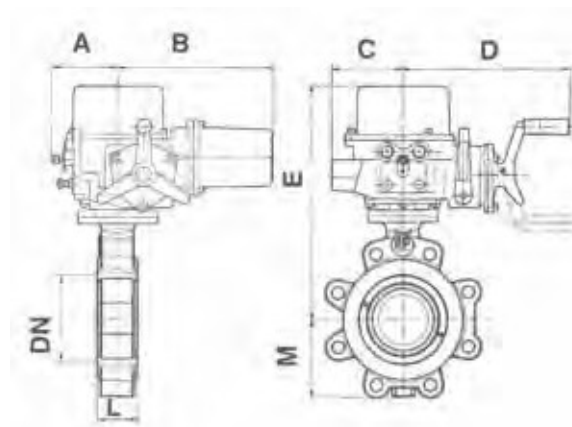
Features of electric operator

Weather-proof type motor - mechanical indicator of the opening angle - safety device against breakage due to rigid bodies flowing through the pipes - emergency manual operation and motor actuated automatic release - operating time of 10 - 20 - 40 seconds. The actuator is designed for possible operation with automatic control devices such as pneumatic controls, thermostats, clocks etc.

On request

- explosion-proof type motor (for installation in presence of explosive gases)
- electric remote indicator of the opening angle
- direct current motor
- electric transmitter 4÷20 mA
- potentiometer transmitter 0÷1000 ohm
- Limit microswitch

DN	50	65	80	100	125	150	200	250	300
L	43	46	46	52	56	56	60	68	78
A	100	100	100	100	100	100	110	110	110
B	236	236	236	236	236	236	300	300	300
C	110	110	110	110	110	110	165	165	165
D	241	241	241	241	241	241	280	280	280
E	304	314	322	334	349	364	507	542	577
M	76	84	90	105	120	130	170	200	225



Butterfly Valve with automatic locking caused by fluid speed increasing

N. 23200

Materials

The body, butterfly disc and flanges are forged carbon steel, the stem is 13% Cr stainless steel, the out spherical surface of the butterfly disc is chrome plated, seals are of Buna-N, EPDM, Viton, Silicon.

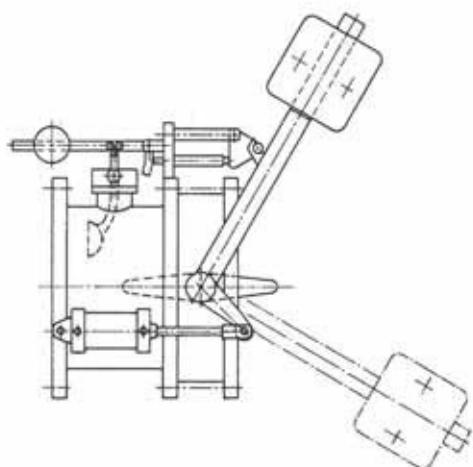
Features

Special valves fit for hydroelectric plant feet pipings. This valve is endowed with a system determining the valve locking when the speed of water in the pipings exceeds a fixed limit. This may be due to a malfunction in the modulating device or to a failure in the plant (or in the piping beyond the valve). This device avoids the water hammer.

The device sensitive to water speed is a trowel inserted into the piping and subject to a hydrodynamic push which rises according to the water speed.

When the speed exceeds the setting the travel causes the unhooking of a counterweighted arm (lever) which kindly shuts the valve.

The valve reopening and the (lever) rearming is manual.



Methan Butterfly Valve to be inserted on polythene piping

N. 23500

Materials

The body, butterfly disc and flanges are forged carbon steel, the stem is 13% Cr stainless steel, the out spherical surface of the butterfly disc is chrome plated, seals are of Buna-N, EPDM, Viton, Silicon. Bearing collars in polythene PE 50.

Features

Shutoff and modulating valves specific for methan. Perfect airtightness - quick operation with low torque - wide passage area with negligible pressure drop - space and weight savings - internal device for stopping the disc at its closed position. Flanges to be welded directly to the pipes.

