

BF 32

Butterfly valves



TECHNICAL BROCHURE

Pietro Fiorentini S.p.A.

Via E.Fermi, 8/10 | 36057 Arcugnano, Italy | +39 0444 968 511
sales@fiorentini.com

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Who we are

We are a global organization specialized in designing and manufacturing technologically advanced solutions for natural gas treatment, transmission and distribution systems.

We are the ideal partner for operators in the Oil & Gas sector, with a business offer that goes across the whole natural gas chain.

We are in constant evolution to meet our customers' highest expectations in terms of quality and reliability.

Our aim is to be a step ahead of the competition, with customized technologies and an after-sale service program undertaken with the highest grade of professionalism.



Pietro Fiorentini advantages



Localised technical support

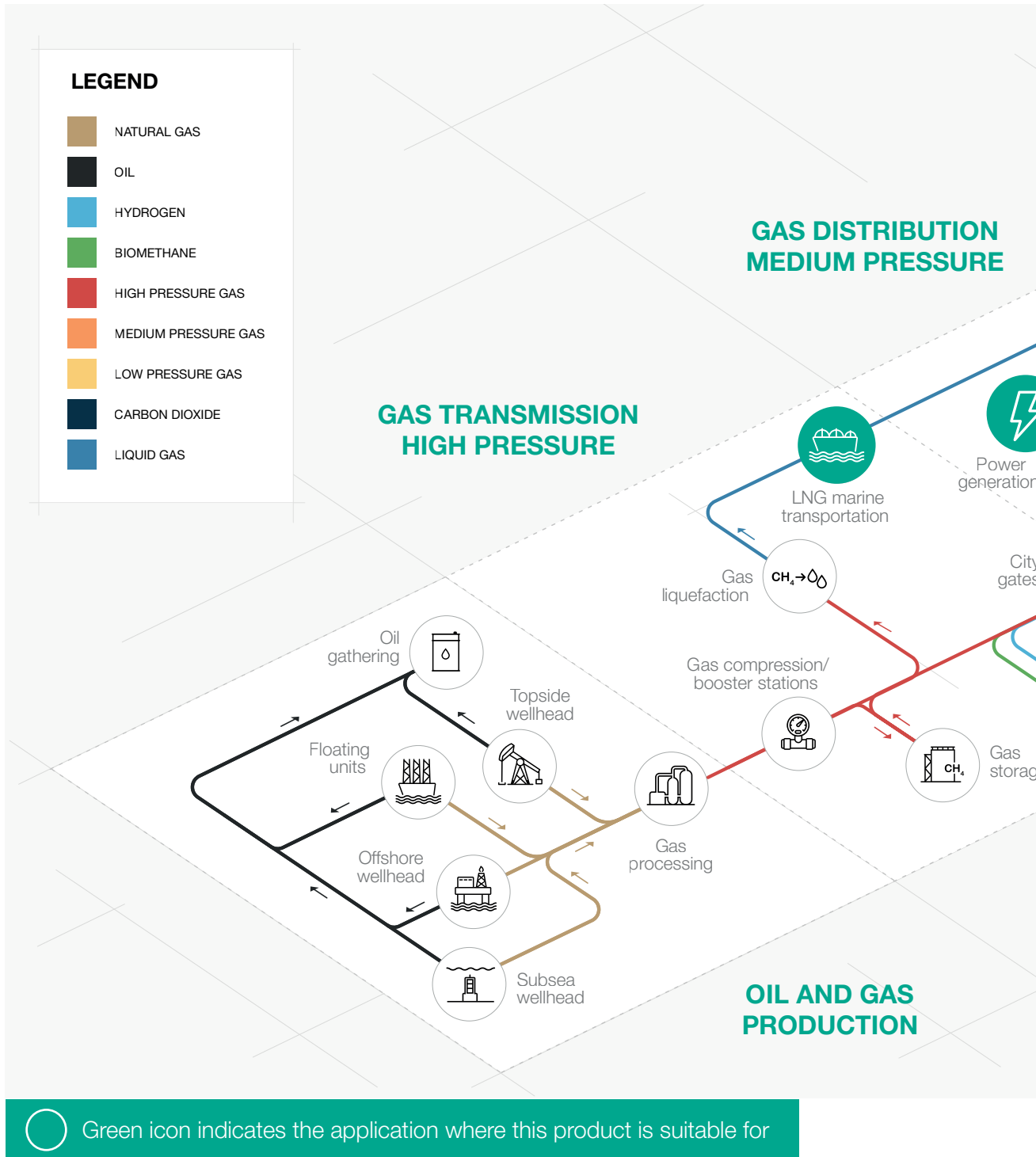


Experience since 1940



We operate in over 100 countries

Area of Application



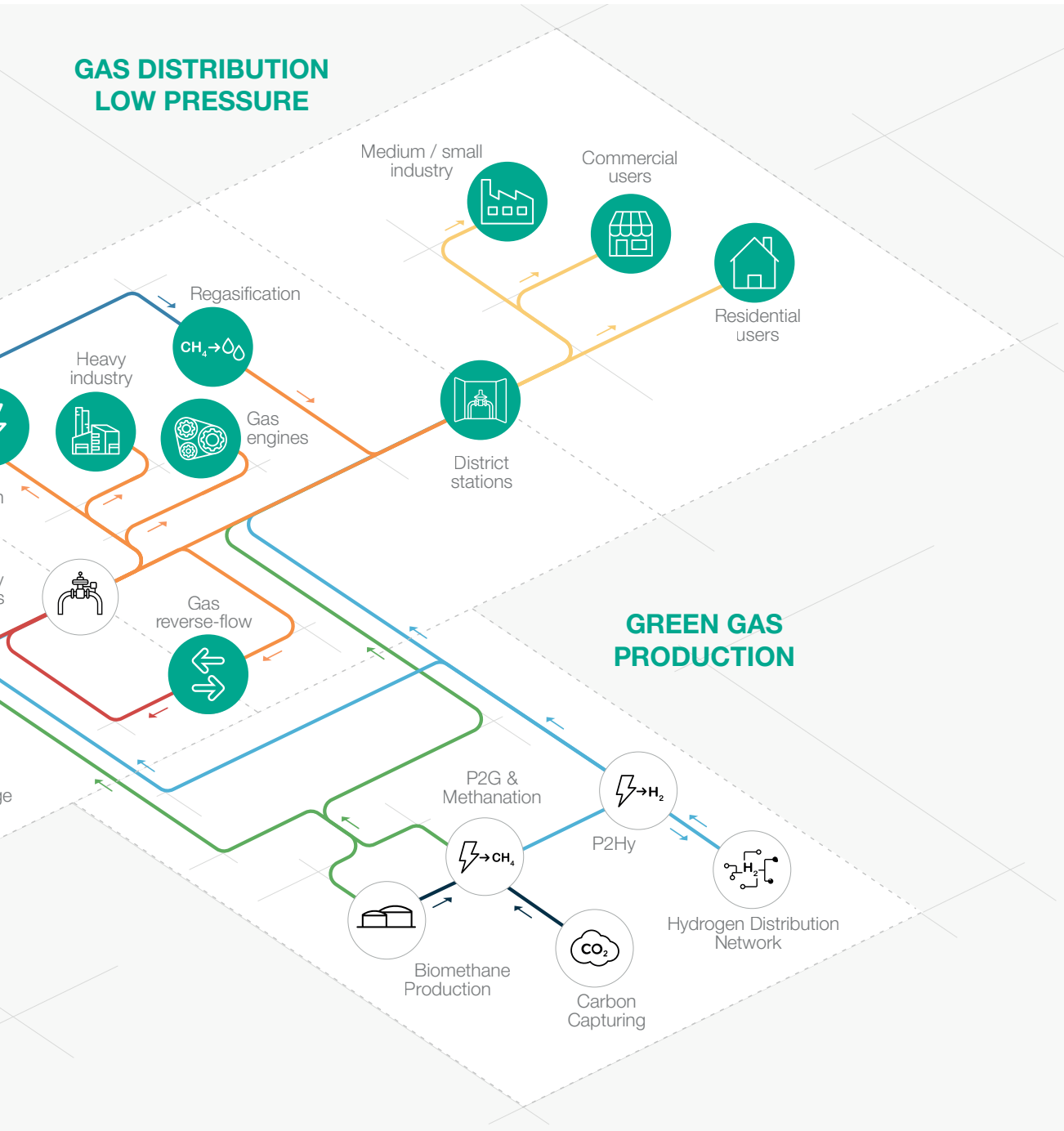


Figure 1 Area of Application Map

Introduction

The **butterfly valve BF 32** is an interception device able to guarantee low pressure losses. It may be used also for intercepting liquids when a hermetic seal, low pressure losses and compact construction in the flow direction are required.

Suitable for use with natural gas and previously filtered non-corrosive gases, it is mainly used in medium and low pressure gas distribution networks.



Figure 2 BF 32

The peculiar features of these valves are the following:

- Hermetic internal seal with shut valve
- Small pressure losses
- Possibility of rotating the butterfly of 360° with consequent self-cleaning of the seat without removing the body from the piping
- Not fixed assembly on the piping, since the two flow directions are possible butterfly with two sealing rings. This construction with hole in the body allows to check the internal seal of the valve without removing the valve itself from the piping. Moreover, the hole may be used also for lubricating the body seal seat without removing the pressure from the piping
- Chromium-plated body spheric seat for ensuring:
 - a longer life with hermetic internal seal
 - low control torques
- High reliability
- Construction according to UNI 11354 standard
- Face-to-face according to UNI 11354 and ISO 5752, MSS - SP 67, BS 5155-74 standard.

Features

Features	Values
Maximum working pressure	16 bar (UNI PN16) 19 bar (ANSI 150 RF)
Working temperature	from -10 °C up to +150 °C
Fluids	Gas, compressed air, hydrocarbons
Nominal dimensions DN	DN 50 ÷ 250
Flanged connections	UNI PN16; class ANSI 150 RF

(*) REMARK: Different functional features and/or extended temperature ranges available on request. Stated temperature ranges are the maximum for which the equipment's full performance, including accuracy, are fulfilled. Standard product may have a narrower range.

Table 1 Features

Materials

Part	Material
Body	ASTM A 105
Butterfly	ASTM A 105
Stem	AISI 410
Fixing screws for sealing ring	AISI 304
Sleeve	Self-lubricating
Reinforced sealing ring	VITON NBR (on request only)

REMARK: The materials indicated above refer to the standard models. Different materials can be provided according to specific needs.

Table 2 Materials

Pressure losses

The pressure losses of the valve with the butterfly at a fully-open position may be calculated with the followings equations:

$$\Delta p = \frac{d \cdot q^2}{C_{vm}^2} \text{ for liquids [1]}$$

$$\Delta p = \frac{d \cdot (273,16 + t)}{230782,6 \cdot C_v m^2} \cdot \frac{q^2}{P_m + P_b} \text{ for gas [2]}$$

where

Δp = pressure losses in mbar

d = specific gravity of liquids [1] (water = 1) and gas [2] (air = 1)

C_{vm} = flow coefficient (m³/h water flow rate at 15°C which flows through the valve at fully-open position with a 1 mbar pressure difference between upstream and downstream)

q = flow rate in m³/h for liquids in Stm³/h for gas

P_m = gas static pressure at the valve inlet in bars

P_b = local atmospheric pressure (1,013 bars)

t = inlet temperature in °C

The equation [2] is valid for $\frac{\Delta P}{P_m + P_b} \leq 20$

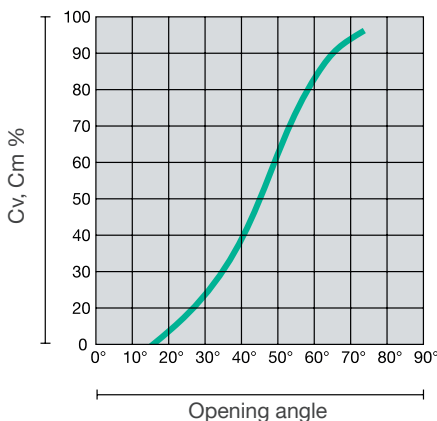
Sometimes the Cv flow coefficient is used (water flow rate in USGPM at the 60° F which flows through the valve at fully-open position with a 1 psi difference between upstream and downstream).

$$C_{vm} = 0,0274 \cdot C_v$$

For a rapid calculation of the pressure losses it is possible to make reference to TT 465 table.

The losses calculated in such way are referred to the valve with the butterfly at a fully-open position.

With the butterfly in choked position, the losses may be calculated with the same above mentioned equation, by using, however, the C_{vm} or the C_v percentage related to the opening angle of the butterfly itself.



CV, Cvm Values								
DN	2"	2" 1/2	3"	4"	5"	6"	8"	10"
CV	50	65	80	100	125	150	200	250
Cvm	120	190	360	583	850	1300	2565	4250
	3,46	5,20	9,87	15,97	23,29	35,62	70,27	116,45

Table 4 BF 32 CV, Cvm values

Figure 3 BF 32 CM, Cvm curves



Torque

Torque Nm		
	DN	Pmax 16 bar
40	1" 1/2	20
50	2"	20
65	2" 1/2	22
80	3"	33
100	4"	45
125	5"	55
150	6"	63
200	8"	127
250	10"	200

Values measured during testing on valves assembled for at least 8 days and lubricated with grease (gasket and seals).

Table 5 Torque values

Optional controls

Pietro Fiorentini butterfly valves can be supplied with the following controls on request.

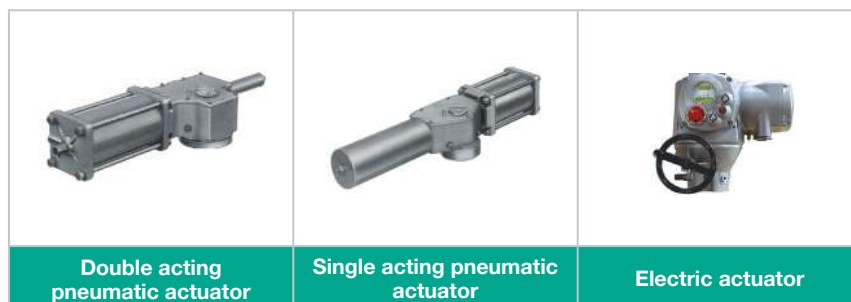


Table 6 Optional controls

Weights and Dimensions

BF 32

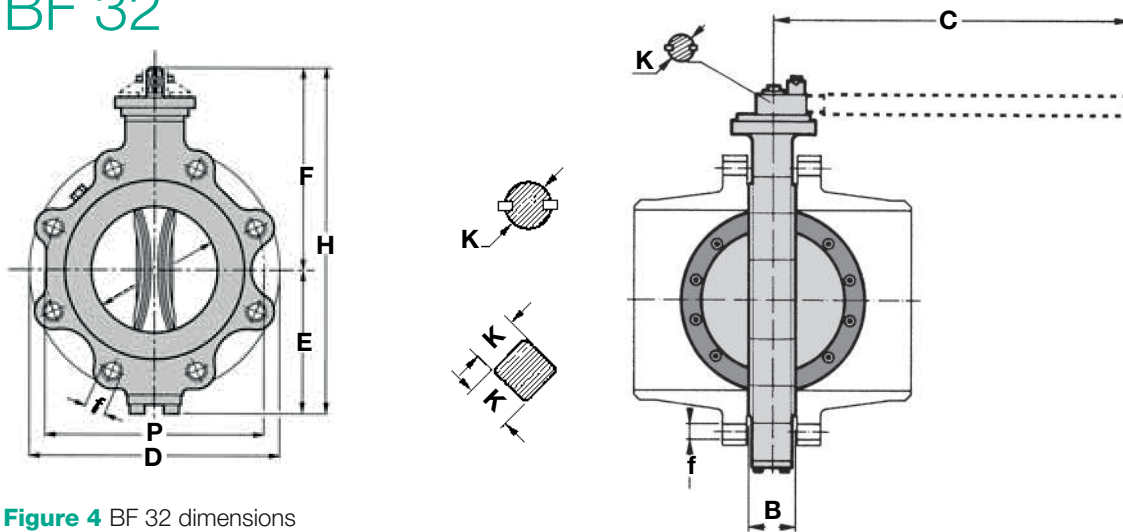


Figure 4 BF 32 dimensions

Weights and Dimensions (for other connections please contact your closest Pietro Fiorentini representative)

Size (DN) - [mm]	50		65		80		100		125		150		200		250		
	2"		2" 1/2		3"		4"		5"		6"		8"		10"		
Size (DN) - inches	[mm]	inches	[mm]	inches	[mm]	inches	[mm]	inches	[mm]	inches	[mm]	inches	[mm]	inches	[mm]	inches	
B	44	1.7	47	1.9	47	1.9	52	2.0	56	2.2	56	2.2	61	2.4	67	2.6	
C	255	10.0	255	10.0	255	10.0	315	12.4	315	12.4	405	15.9	405	15.9	650	25.6	
E	74	2.9	81	3.2	110	4.3	124	4.9	136	5.4	172	6.8	200	7.9	228	9.0	
F	133	5.2	140	5.5	148	5.8	171	6.7	183	7.2	214	8.4	237	9.3	277	10.9	
H	207	8.1	221	8.7	258	10.2	295	11.6	319	12.6	386	15.2	437	17.2	505	19.9	
K	10x10		10x10		10x10		12x12		12x12		18x18		18x18		32f8		
UNI PN 16	D	165	6.5	185	7.3	200	7.9	220	8.7	250	9.8	285	11.2	340	13.4	405	15.9
	P	125	4.9	145	5.7	160	6.3	180	7.1	210	8.3	240	9.4	295	11.6	355	14.0
	f	18	0.7	18	0.7	18	0.7	18	0.7	18	0.7	22	0.9	22	0.9	26	1.0
	N° screw screw	4 M16		4 M16		8 M16		8 M16		8 M16		8 M20		12 M20		12 M24	
ANSI 150	D	152,5	6.0	178	7.0	190,5	7.5	228,5	9.0	254	10.0	279,4	11.0	343	13.5	406,5	16.0
	P	120,7	4.8	139,7	5.5	152,4	6.0	190,5	7.5	215,9	8.5	241,3	9.5	298,4	11.7	361,9	14.2
	f	19	0.7	19	0.7	19	0.7	19	0.7	22	0.9	22	0.9	22	0.9	25	1.0
	N° screw screw	4 M16		4 M16		4 M16		8 M16		8 M20		8 M20		8 M20		12 M22	
Weight	Kg	lbs	Kg	lbs	Kg	lbs	Kg	lbs	Kg	lbs	Kg	lbs	Kg	lbs	Kg	lbs	
	4	8,8	5	11	7 (6,5)	15,4 (14,3*)	10	22	14	30,8	18	39,6	30 (29*)	66 (63,8*)	51	112,2	

Table 7 Weights and dimensions



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