

## BUTTERFLY VALVES

### Butterfly valves

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#### butterfly valves omal

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### Features

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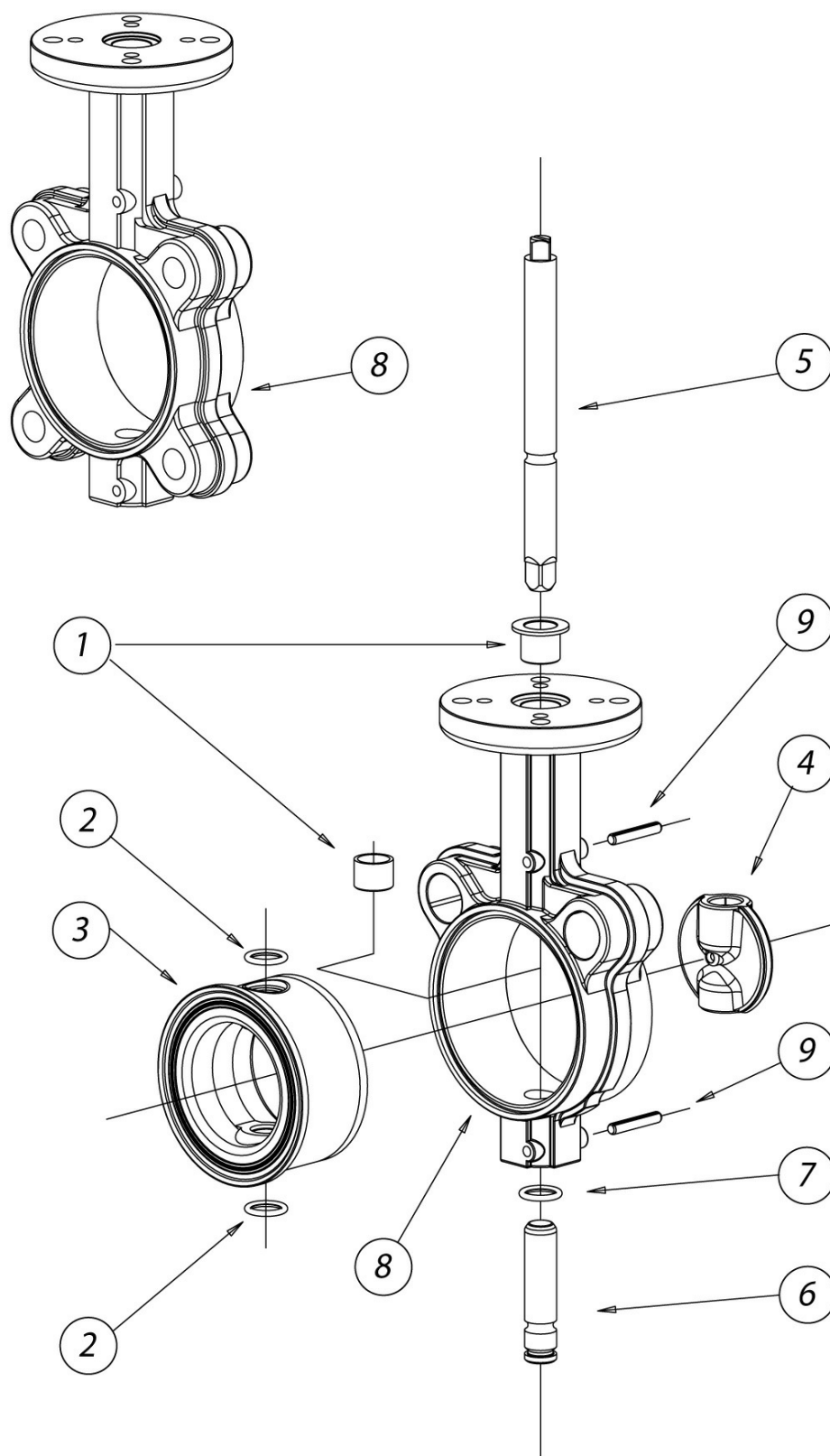
#### OMAL BUTTERFLY VALVE

OMAL butterfly valves, available in wafer or lug version from DN 40 to DN 600 (lug DN 300), are designed and manufactured to be used in most applications in all industrial fields.

- General requirements in accordance with UNI EN593:2009
- Face to face as per EN 558 series 20
- Tightness at 16 bar according to EN 12266-1 rate A
- Integral sealing (with liner vulcanized on hard ring) which avoids any contact between fluid and valve body.
- Sealing design allowing perfect adherence to the valve body and perfect tightness to the flanges, without additional parts. Clamping between flanges does not influence the torque of the valve.
- Improved disc shape which allows better tightness, reduced torque and low wear of the liner
- PTFE bushes to support the shaft
- Coupling between stem and disc with two shafts (better Kv) carried out with no additional fittings (e.g. screws, bolts, pins, etc.) to avoid any risk of corrosion and breaking
- Valve neck with top work as per EN ISO 5211 : 2003 for easy connections with all different types of actuators
- All components properly treated against corrosion

OMAL will be free to change all specifications and data included in this catalogue at any time, so as to improve the quality and the performance of its products.

# Butterfly valves OMAL



## MATERIALS SPECIFICATION

1*) Shaft bush	Epoxy resin with PTFE from DN40 to DN300, Bronze from DN350 to DN600
2*) Shaft O-ring	EPDM - nBR
3*) Liner	EPDM - nBR
4) Disc	A 536 65-45-12 (GGG50) - A351-CF8M (AISI 316)
5) Upper shaft	A 276 S42000 (AISI420) ( equivalent to X20CR13; 1.4021)
6) Lower shaft	A 276 S42000 (AISI420) ( equivalent to X20CR13; 1.4021)

7*) Lower O-ring	EPDM - nBR - (whit part. 3 in FKM)
8) Body	A 536 65-45-12 (GGG50) (equivalent to en-gjs-450-10 en-js c1040)
9*) Elastic pin	Stainless steel
* Components of spare parts KGF...	
If other valve materials are required, please contact our sales offices.	

# Features - materials - applications field

## MATERIALS SPECIFICATION

BODY	STEM	DISC	LINER
	Stainless steel AISI 420 *	DN40 - 600	DN40 - 600
DN40 - 600	Stainless steel SUS 630	Cast iron A536 65-45-12 *	EPDM *
Cast iron A536 65-45-12 *		Chemical nickel plating	NBR *
Epoxy coated			
		DN40 - 300	DN40 - 300
cast iron A536 65-45-12		cast iron A536 65-45-12	FKM
rilsan coated		epoxy coated	
			PTFE ON EPDM
DN40 - 300		cast ironn A536 65-45-12	
Stainless steel AISI 304		rilsan corated	NBR
			White NBR
Stainless steel AISI 316		stainless steel AISI 316	Potable water white NBR
		Stainless steel AISI 316 polished	HNBR
WCB ( CARBON STEEL )		acciaio inox 316L	NBR CARBOX
		Stainless steel AISI 316L polished	SILICONE
		stainless steel 316	
		F46 coated	
		Bronze-Alluminium	

\*Standard OMAL Supply

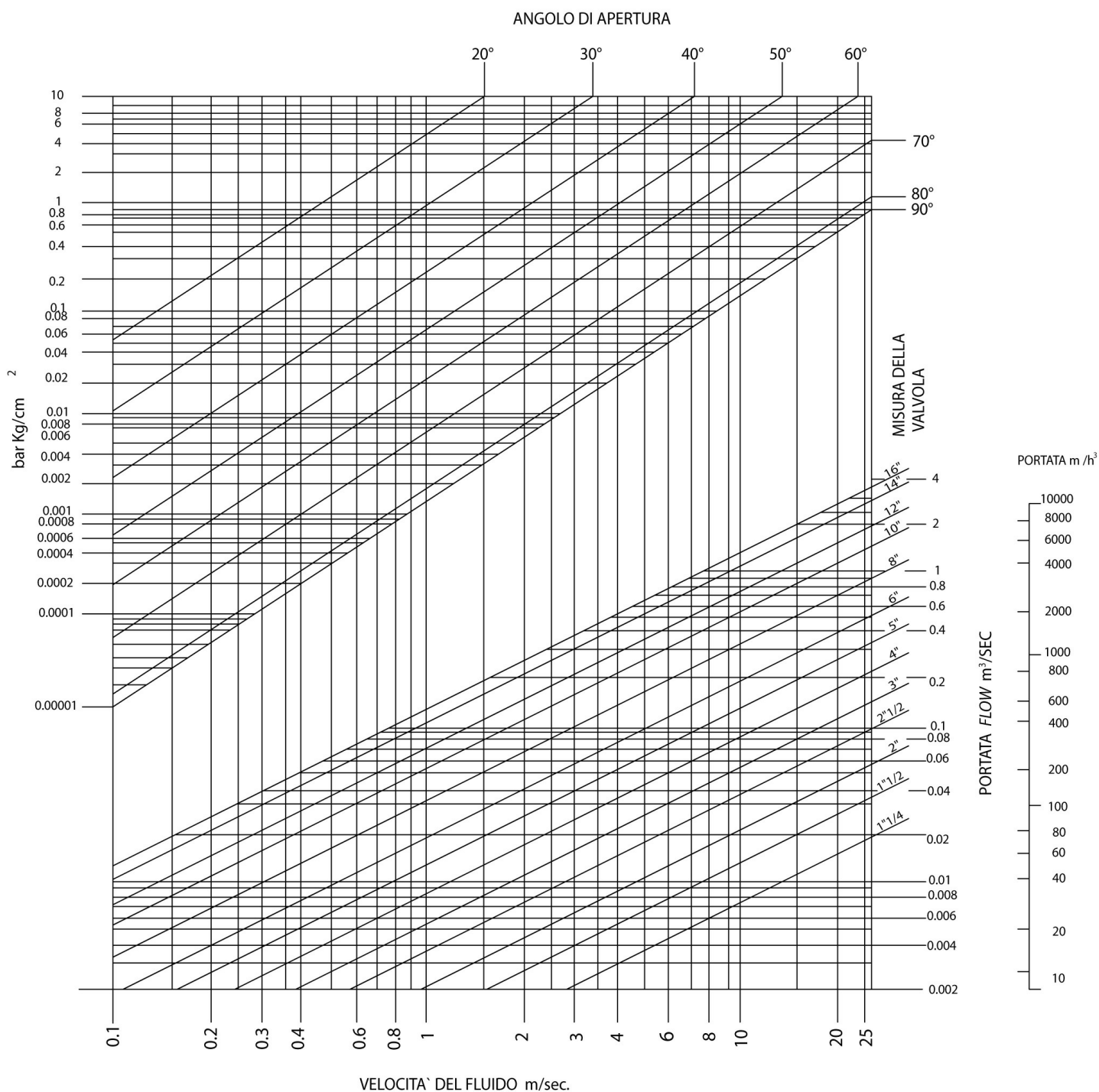
## Material applications

material	features	applications
cast iron A536 65-45-12	Mechanical strength as good as stainless steel	General applications Used as a standard for body and disc
carbon steel WCB	Excellent mechanical strength	Hard applications
Bronze - ALUMINIum	Good corrosion resistance	Corrosive fluids, sea water
rilsan coated	Excellent corrosion restance	General applications Used as a standard for body and disc
stainless steel aisi 304	Average corrosion resistance	Food, chemical, pharmaceutical...etc
stainless steel aisi 316	Excellent corrosion resistance	Food, chemical, pharmaceutical...etc
epdm	Temperature limits ( °C): -50°/+150°. Operating temperature ( °C): -40°/+135. Unsuitable for hydrocarbons.	Water (soft, sea, glycolic and industrial), steam, ozone, animal and vegetables fats, bases and diluted acids, acetic solvents, alcohol, caustic soda, atmospheric agents.

nbr	<p>Good abrasion/wear resistance. Good chemical and mechanical strength to mineral oils, some hydrocarbons and aliphatic solvents.  Temperature limits (°C): -23 / +100.  Operating temperature (°C): -23 / +82.  Unsuitable for acetone, ketones, nitrates and chlorinated hydrocarbons.</p>	<p>General applications, compressed air, cold water, hydraulic fluids, methane, butane, petroleum, sea water and abrasive materials for pneumatic circuits.</p>
white nbr	<p>Good abrasion/wear resistance. Good chemical and mechanical strength to mineral oils, some hydrocarbons and aliphatic solvents.  Temperature limits (°C): -23 / +100.  Operating temperature (°C): -23 / +82.  Unsuitable for acetone, ketones, nitrates and chlorinated hydrocarbons.</p>	<p>General applications, compressed air, cold water, hydraulic fluids, methane, butane, petroleum, sea water and abrasive materials for pneumatic circuits.</p>
potable water white nbr	<p>Suitable for potable water according to Italian law D.L. 174/2004.  Temperature limits (°C): -23 / +100.  Operating temperature (°C): -23 / +82.  Unsuitable for acetone, ketones, nitrates and chlorinated hydrocarbons.</p>	<p>General applications, compressed air, cold drinking water, hydraulic fluids, methane, butane, petroleum, sea water and abrasive materials for pneumatic circuits.</p>
carbox nbr	<p>Good abrasion/wear resistance. Good chemical and mechanical strength to mineral oils, some hydrocarbons and aliphatic solvents.  Temperature limits (°C): -23 / +100.  Operating temperature (°C): -10 / +82.  Unsuitable for acetone, ketones, nitrates and chlorinated hydrocarbons.</p>	<p>Abrasive dusts and fluids</p>
hnbr	<p>Good abrasion/wear resistance. Good chemical and mechanical strength to mineral oils, some hydrocarbons and aliphatic solvents.  Temperature limits (°C): -40 / +120.  Operating temperature (°C): -20 / +100.  Unsuitable for acetone, ketones, nitrates and chlorinated hydrocarbons.</p>	<p>General applications, compressed air, cold water, hydraulic fluids, methane, butane, petroleum, sea water and abrasive materials for pneumatic circuits.</p>
fkm	<p>Excellent chemical and mechanical strength to heat, atmospheric agents, benzocyclic solvents. Gas-proof. Unsuitable for steam and boiling water.  Temperature limits (°C): -30 / +250.  Operating temperature (°C): -10 / +190.</p>	<p>Solvents (acetic excluded), solid hydrocarbons, oxygenating fuels, acids, bases, hydraulic fluids, oils.</p>

high temperature silicone	Excellent chemical and mechanical strength to steam and superheated water (150 °C). Temperature limits (°C): -50 / +200. Operating temperature (°C): -50 / +160.	Air or hot inert gas (Temperature limits (°C): +180), food industry, water, steam.
ptfe on epdm	Excellent chemical strength to solvents and corrosive products. Unsuitable for abrasive fluids, alkaline metals (potassium, sodium), gaseous fluorine. Temperature limits (°C): -25 / +150.	Very corrosive products for chemical industry and food industry.
<p>NOTE: The table above lists typical features and applications of all "Omal" products. Nevertheless, if unusual situations occur (i.e. special applications, contacts with particular fluids, extraordinary pressure or temperature conditions, ...) the elements which determine corrosion and abrasion might change and, as a consequence, metal performances might change, too. It is always the customer who has to choose the right material; however, our technical department is willing to meet all customers requests.</p>		

# Pressure loss-flow diagram

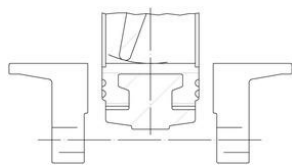


## Pressure loss-flow diagram

Example of flow-pressure and pressure drop in a 6" (DN. 150) valve with a water flow of 0,1 m<sup>3</sup>/sec. and a rotation angle of 90°:

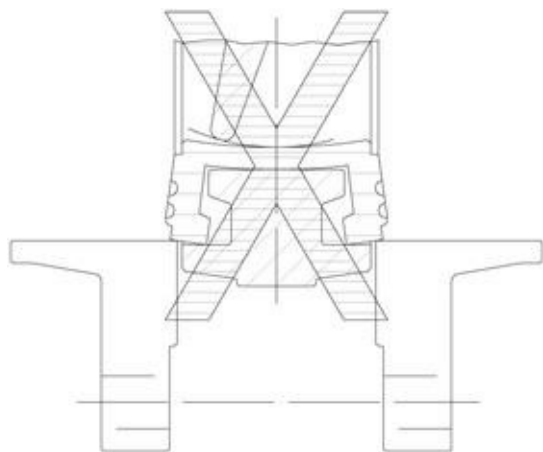
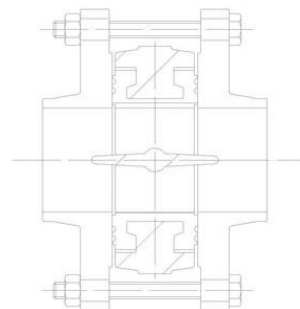
- 1) Determine the point where the valve flow and diameter lines meet
- 2) Draw a vertical line from the above-mentioned point to the 90° straight line; then draw a horizontal line from this point to the flow-pressure loss scale, where you'll read the requested value (0,038 bar).
- 3) Starting from point 1 and going down the fluid speed scale, you'll read the fluid speed values (5 m/sec.)

# Mounting instructions



When the valve is being inserted, the flanges must be at such a distance from one another to make inspection possible without any contacts between flanges and sealing. Meanwhile, the butterfly must be kept in "half-closed" position.

After inserting the valve between the flanges, but before screwing the bolts up, the butterfly must be switched into the "open" position. Otherwise, you might damage or permanently deform the sealing, while closing the valve.



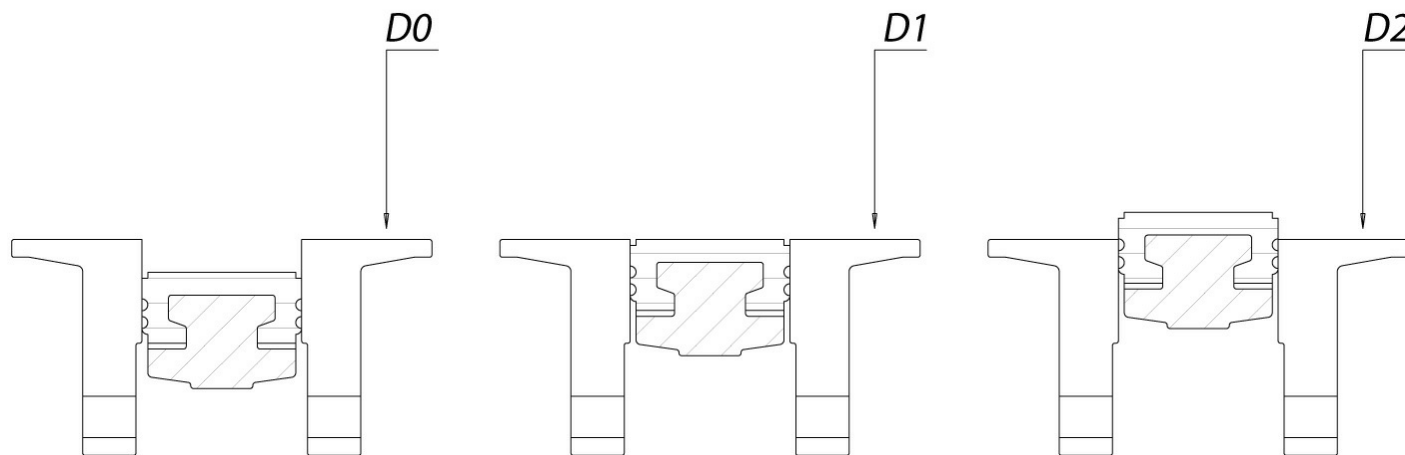
Example of wrong mounting: the flanges are not open enough and the sealing might be damaged.

OMAL butterfly valves are assembled between pipe flanges without other rings and they are centered by means of tie-rods and fixing screws. Their diameter must conform to the following values.

D0 minimum flange diameter necessary for the inspection of the valve (with a perfectly centered valve)

D1 maximum flange diameter which allows the best possible uses

D2 maximum flange diameter which allows uses at low pressure. If you need any other information, please contact our technical department.



valve diameter	DN 40	DN 50	DN 65	DN 80	DN 100	DN 125	DN 150	DN 200	DN 250	DN 300	DN 350	DN 400	DN 450	DN 500	DN 600
D0 mm	30	36	51	67	93	119	143	196	247	297	330	377	426	476	573
D1 mm	42	51	65	81	100	124	149	198	249	300	345	399	447	496	546
D2 mm	49	61	77	89	115	140	169	220	274	325	357	407	448	491	534