



Greater Cairo Foundries

مسابك القاهرة الكبرى



Concentric **Rubber** Lined Butterfly **Valves**

GCF Double Flanged Butterfly Valve

Series 7100 for Water Works Application

GCF butterfly Valve Series 7100 is a ductile iron double flanged concentric rubber lined valve, machined and assembled such that it ensures high reliability and low total cost over its lifetime.



This model is suitable for high pressure waterworks application. They are used as OPEN / CLOSE valves as well as control valve with valve partially opened or closed for regulating purposes.

The 7100 valve complies with ISO 5752 series F13, BS 5155 (Short type) and DIN3202 series F16. They can be supplied with worm gearbox, pneumatic and electric actuators upon client request.

Design Details & Operational Advantages

General

- Valve may act as a regulating valve in partly Open / Close position for throttling purposes
- Reduced maintenance and reduced down times
- Low weight thus easy handling while withstanding high pressures
- Less Storage / space required
- Excellent resistance to corrosion
- Low operating torques thus economic actuator selection
- Center of shaft in center of valve seat allowing two-way 90 deg rotations on shaft axis

Disc Design Advantages

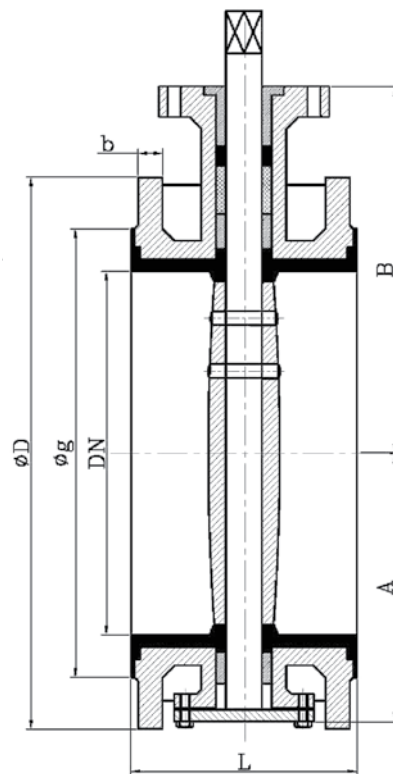
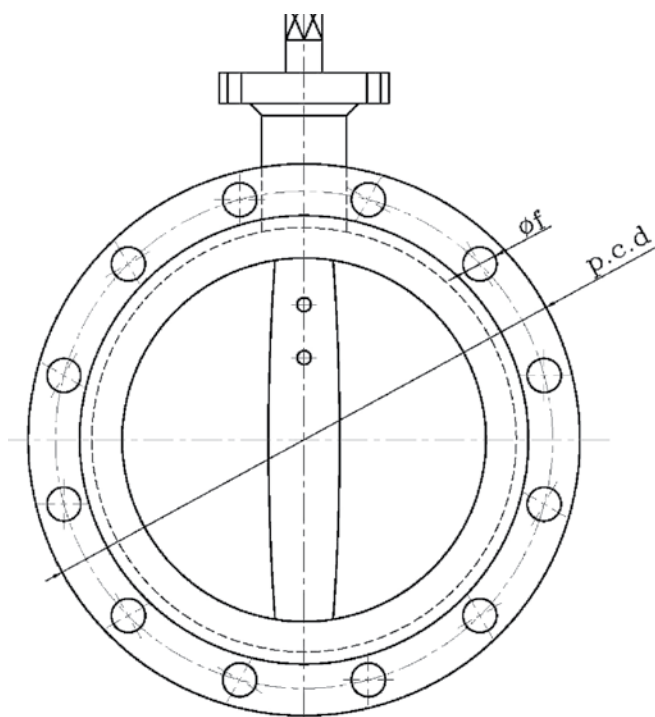
- When fully open, Symmetric and slim design of disc ensures favorable flow, low pressure loss and energy cost savings
- Accurate and smooth machining of disc to achieve low operating torque thus requiring smaller and less expensive actuators and gearboxes
- Smooth machining of disc edge also provides less deformation on the rubber sealing thus longer life of the valve

Rubber Lining Advantages

- Rubber Lining gives corrosion protection and acts as a flange gasket
- Tight sealing offering zero leakage under specified pressures as per ISO 5208, Rate A
- Longer operational life cycle as a result of decreased / eliminated friction

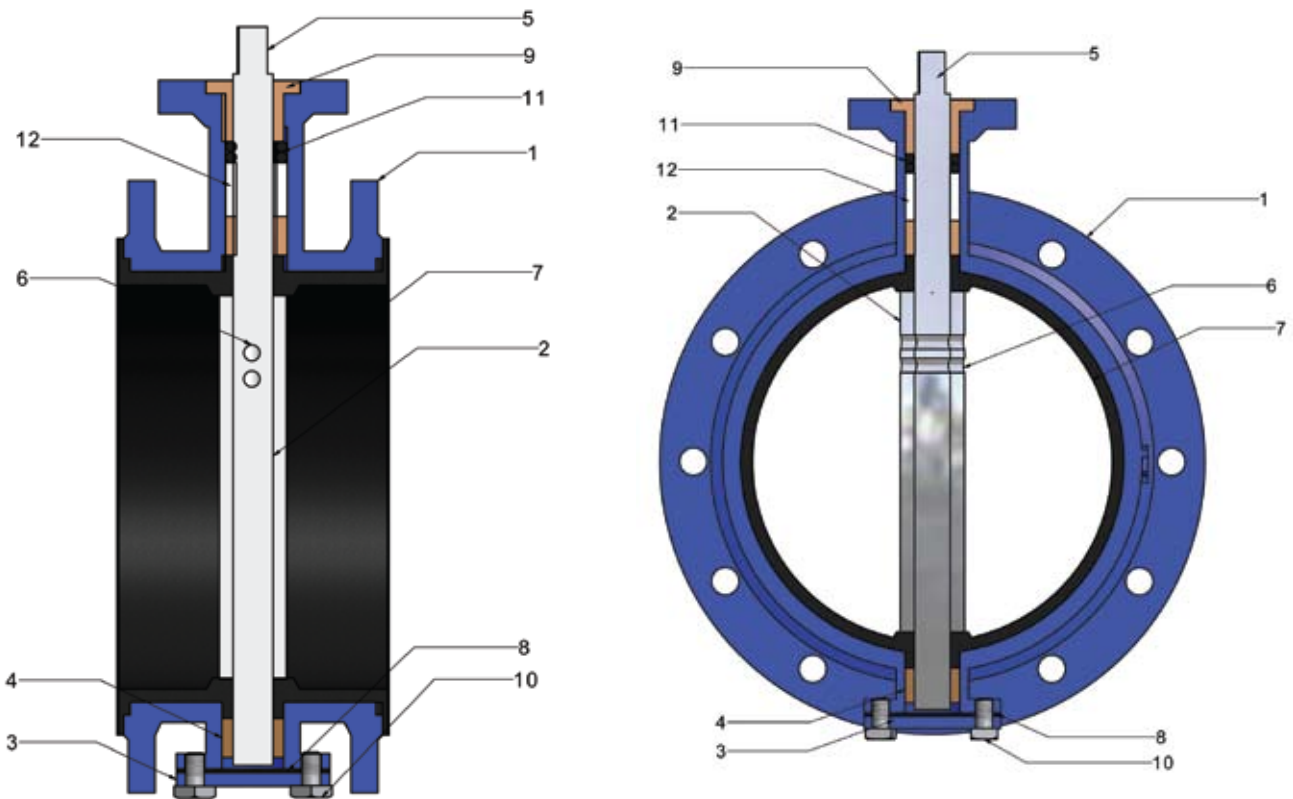


Valve Dimensions



DN	L	A	B	PN 10						PN 16						Weights (kg)
				ØD	Øg	b	p.c.d	Øf	no	ØD	Øg	b	p.c.d	Øf	no	
80	114	102	146	200	132	16	16	19	8	200	266	16	16	19	8	22
100	128	124	160	220	156	16	180	19	8	220	156	16	180	19	8	25
150	140	149	190	285	211	16	240	23	8	285	211	16	240	23	8	30
200	152	181	220	340	266	17	295	23	8	340	266	17	295	23	12	48
250	165	210	260	400	319	19	350	23	12	400	319	19	355	28	12	66
300	178	248	290	455	370	20.5	400	23	12	455	370	20.5	410	28	12	77
350	190	279	320	505	429	20.5	460	23	16	520	429	22.5	470	28	16	100
400	216	305	350	565	480	20.5	515	28	16	580	480	24	525	31	16	130
450	222	365	380	615	527	21.5	565	28	20	640	544	26	585	31	20	210
500	229	341	420	670	582	22.5	620	28	20	715	609	27.5	650	34	20	240
600	267	457	470	780	682	25	725	31	20	840	720	31	770	37	20	320

Valve Parts and Material Selection



Part No.	Part Name	Material	Material Number	Remarks
1, 2, and 3	Body, disc, and Bottom cover	Ductile iron A	ISO 1083 grade 500-7	Equivalent DIN1693 (GGG50)
		Ductile iron B	ISO 1083 grade 400-15	Equivalent DIN1693 (GGG40)
		Ductile iron C	ISO 1083 grade 400-12	ASTEM 536-80 grade 60-40-18
4	Bearing	Bronze		BS2874CZ116
5	Shaft	Austenitic stainless steel	SS304 and SS316	BS304S15-ASTM276-1967 grade 1A
6	Pin	Austenitic stainless steel	SS304 and SS316	BS304S15-ASTM276-1967 grade 1A
7	Seat	EPDM		
8	Gasket	EPDM		
9	Packing Gland	Bronze		BS2874CZ116
10	Bolts and Nuts	Galvanized steel	Grade 8.8	BS970-1955EN3D
11	O-ring	EPDM		
12	spacer	Teflon		

Hydraulic Testing

All valves go through hydraulic testing according to tightness test (ISO 5208 and EN 12266 **leakage rate A**).

Comparison between different leakage rates (Drops/min)

Standard	Rate A	Rate B	Rate C
EN 12266-1	Tight Shut off	0.01 X DN	0.03 X DN
ISO 5208	Tight Shut off	0.01 X DN	0.03 X DN

Both the valve body and the valve disc are hydrostatically tested as per the following table:

Nominal Pressure (PN)	Valve Size (MM)	Test Pressure (Bar)	
		Body	Seat
PN 10	80 - 600	16	11
PN 16	80 - 600	24	17.6

Coating

GCF butterfly valves are coated with Blue color non toxic two-layer liquid epoxy with min thickness of 200 microns.

All valve parts are shot blast to remove dirt, dust, and any casting residual to surface finish of SA 2.5.

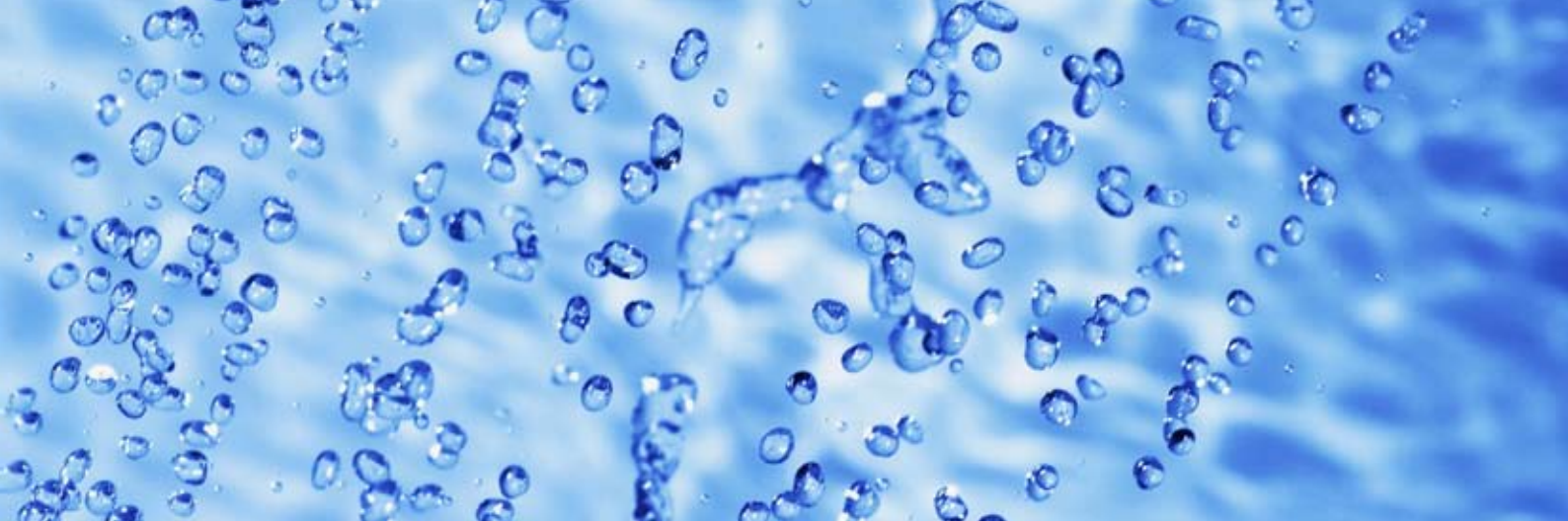
Painting of liquid epoxy is performed using an airless spray to minimize air bubbles in the paint.



Painted valves pass thru a series of inspections. Some typical tests are:-

- 1- **Thickness testing;** to determine the thickness of dry film thickness testing
- 2- **Adhesion testing;** to determine the adhesion strength of the paint to the surface of the metallic valve
- 3- **Holiday testing;** to detect air bubble and pinholes content in painting





Valve Operating Torques

The two main torques that are required to overcome in rubber lined butterfly valves are:-

- Seating torque, the torque resulting from the friction between the disc and the rubber lining of valve body
- Dynamic torque, the torque resulting from the difference in pressures in a partly opened valve as a result of high flow velocities

Under normal conditions (no solid particles, no chemicals or contaminants, Max temp 80°C, max velocity of 4 m/s) the total operating torque are typically as follows:-

Valve Size (MM)	80	100	150	200	250	300	350	400	500	600
Torque (Nm) at 10 Bar	21	35	90	160	280	355	515	680	1420	2100

For other operating pressures or other operating conditions, please consult our valves technical department for more information.

Operation Types

Gearboxes

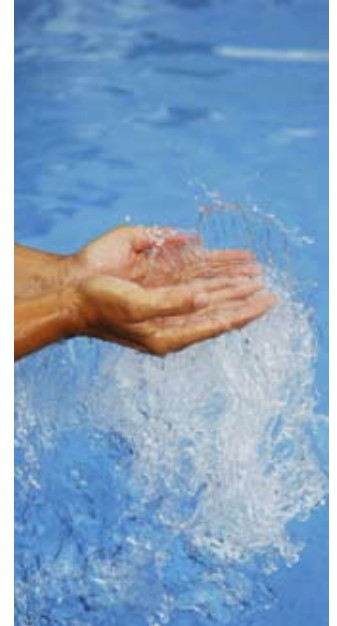
GCF Valves are provided with top of the line quarter turn gear boxes that provide the following advantages and features:

- High efficiency gearing and bearing system resulting in high mechanical advantage
- Reduced effort exerted for open / close operation
- Reduced timing open / close
- Minimum maintenance required
- Reduced noise
- Capacity to work in temperatures up to 80° C
- Self Locking
- Position Indicator
- Provided with Hand wheel and Flange for actuator connection



Our Gearbox selection meets the following criteria:

Valve Size (MM)	Type	Gear Ratio	Max. Torque Capacity (Nm)	Turns to close	Weight (Kg)
80 - 200	worm	28 : 1	304	7	5
250	worm	36 : 1	589	9	6
300	worm	38 : 1	981	10	9
350 - 400	worm + spur	76 : 1	981	19	13
500 - 600	worm + spur	84 : 1	2,335	21	26



Pneumatic Actuator

Pneumatic actuators installed with GCF valves are provided from world class manufacturers. They are double acting spring type. Our selection criteria for top branded pneumatic actuators guarantee the following advantages:

- Long service life (up to 1 million switching cycles)
- Initial cost saving; wide range of torques available to exactly match the required torque thus saving cost on unnecessary large actuators.
- Reduced installation space and increased flexibility
- Standard pivoting angle end adjustment +5° to -5°
- Safety; Anti blow out of shafts therefore no risk of accidents
- Visual position indicator
- Outstanding power delivery and precise valve modulation

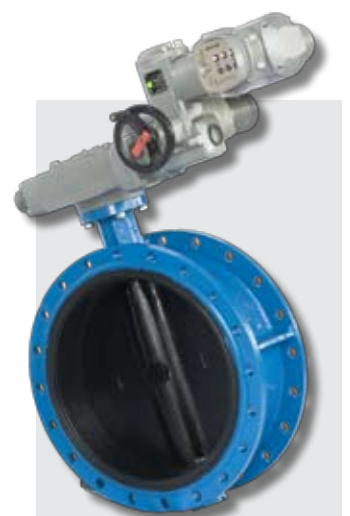


Electric Actuator

Electric Actuators provided on our valves cover a wide range of torques. GCF recommends AUMA actuators which may come with many optional features.

Some Optional features for AUMA Electric Actuators

- **AUMA MATIC:** acting as a control panel
- **Position indicator:** mechanical indicator showing the position of the disc
- **Feedback Signal:** sends signal to a control panel / SCADA System to display the position of the disc (Can be placed with AUMA NORM)
- **Positioner:** to receive electrical signal from SCADA system / control panel to partially or fully open and closing the disc (Can only be placed with AUMA MATIC)
- **Modulating Duty:** includes both feedback signal and positioned for partially or fully opening and closing the disc. Ideal for regulating purposes up to 1200 starts / hr.
- **IP68 protection:** Up to 72 hours of protection against water submersion. Standard protection IP67 is up to 30mins only.



The features and options of AUMA actuators is beyond the scope of this catalogue. For more technical information, please contact our Valves technical department



Greater Cairo Foundries

مسابك القاهرة الكبرى

Sales Office

Sq 1226 Building 4W, Masaken Sheraton, Cairo, Egypt

Tel.: +202 22684392 / + 202 22672700 / +2010 1829930

Fax: +202 22689143

Email: sales@gcf.com.eg

Inshas Plant

Inshas Desert Road, Sharkia, Egypt

Tel.: +2055-2642030 / +2010 5501550 / +20105396591

Fax: +2055 2642031

www.gcf.com.eg
