

1. SCOPE

This specification sets the minimum acceptable requirements for supply of concentric U-Section butterfly valves type for size range of DN100 – DN800.

2. APPLICABLE STANDARDS

DIN EN 558-1	Industrial valves face to face and center to face dimensions of metal valves for use in flanged pipes systems
BS EN 593	Industrial Valves – Metallic Butterfly Valves
ISO10631	Metallic butterfly valves for general purposes
EN 1074-1	Valves for water supply – Part 1: Fitness for purpose req. and Appropriate verification tests (General Req.)
EN 1074-2	Valves for water supply – Part 2: Fitness for purpose req. and Appropriate verification tests (Isolating valves.)
EN 12266-1	Testing of valves Part 1: Pressure tests, test procedures and acceptable criteria - Mandatory requirements – (Industrial valves)
ISO5752	Face to face dimensions of valves
ISO 7005	Metallic flanges
ISO 5211	Actuator mounting flange.
ISO5208	Industrial valves, Pressure testing of metallic valves
EN 1092	Flanges and their joints – Part 2: Cast Iron flanges, Circular flanges for pipes, valves, fittings and accessories, PN designated
EN1563/DIN 1693	Spheroidal graphite cast iron

3. CONSTRUCTION REQUIREMENTS

Valves shall be of concentric design type and may have replicable sealing liner, the valve stem shall be centered in the middle of the disc and the disc may be cantered in the valve bore. The disc shall be designed to afford minimal pressure drop.

The face to face dimension of valves shall comply with ISO 5752 Series 20 and shall have a nominal pressure rating as per design requirement (Max. PN10 bars)

The valves shall have flanged connections with the flanges drilled in accordance with the ISO 7005 and EN 1092-2 standards and pressure ratings shall be as per project requirement.

The disc shall accurately and precisely machined for achieving low operating torques, less deformation of the rubber seat and to extend life of the valve.

The disc shall be designed to withstand the maximum pressure differential across the valve in either direction of flow. The disc shall be contoured to ensure the lowest possible resistance to flow.

The shaft shall be of Stainless Steel, designed to withstand the maximum torque that will be imposed by the operator. It may be in one piece or attached as two stub ends on opposite sides of the disc.

Worm gear shall be of fully enclosed type and may require a maximum input force on the hand wheel of not more than 356N pull to develop the required torque for rated working pressure. The worm gear box shall be furnished with a device to indicate the valve position. The gearbox shall be self-locking type. The gear box shall have end stops in both directions for rotation of minimum 90°. The mounting flange of the worm gearbox to the valve shall be according to ISO 5211. The maximum output torque of the GB shall be greater than the valve unseating torque by a min. of 20%.

For electrically actuated valves, gearbox shall have suitable adaption for electric actuator of suitable size. Torque of Electric Actuator Shall higher 20% than the valve required torque at any position of the Valve.

Pneumatically actuated valves shall be used for fast and frequent opening and closing where valve pressure is not more than 10bars, which is the typical application of water treatment plants (Sand filters). Valve shaft shall include slot to indicate valve position in case of the pneumatic actuator removal for maintenance situations.

Valves shall be provided with internal and external coating of non-toxic fusion bonded epoxy (powder coating) with a minimum dry film thickness of 250 microns at any point. The coating shall be done after shot blasting in accordance with ISO 8501-01 Gr. SA. 2.5.

Hydrostatic testing (Body test, seat test) shall be performed in each valve in accordance with ISO 5208 Or EN 12266-1. Valves shall show no signs of visible leakage during testing.

	Technical Specification U-Section Butterfly Valves	Date :27/08/2021 Page 3 of 3
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Marking shall be cast on the body with raised letters or engraved on a separate stainless steel name plate and it may indicate the nominal valve size, manufacturer's name, design pressure rating and the year of manufacture.

4. Material Specifications

Body	Ductile Iron EN-GJS-400/12 <u>or</u> Ductile Iron EN-GJS-500/7 acc. To EN1563
Disc	Ductile Iron EN-GJS-400/12 <u>or</u> Ductile Iron EN-GJS-500/7 acc. To EN1563
Body Seat	EPDM (NBR)
Shaft	X20Cr13 (AISI 420)
Bearing	Self-Lubricating Bearing
Gland	Ductile Iron EN-GJS-400/12 <u>or</u> Ductile Iron EN-GJS-500/7 acc. To EN1563
Seals	EPDM (NBR)