

1. SCOPE

This specification sets the minimum acceptable requirements for supply of double eccentric butterfly valve types for size range of DN250 – DN2600.

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 5210	Industrial valves — Multi-turn valve actuator attachments
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
EN 1563/DIN 1693	Spheroidal graphite cast iron

3. CONSTRUCTION REQUIREMENTS

Valves shall be of the double flanged eccentric disc rubber seated butterfly valves which are suitable for high-pressure waterworks applications. The face to face dimension of valves shall comply with ISO 5752 Series 13 or 14. Valves shall have a nominal pressure rating as per design requirement (Max. PN25 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 body seat shall be furnished with a welded-in overlay stainless steel seat, precisely machined inside the valve body for providing high corrosion and wear resistance, long service life and reliability.

The disc shall be of double eccentric design and it may 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 and shall not have any external ribs in direction of Flow. Disc shall have an adjustable and removable clamping ring for easy re-adjustment or replacement of disc seal. The disc rubber seal shall be of one piece moulded construction and secured in its place by means of a retainer ring that is fixed to the disc by means of stainless steel fasteners. Valve design shall allow the replacement of disc seal without removing the valve from pipeline.

The shaft shall be of Stainless Steel, designed to withstand the maximum torque that will be imposed by the operator. It shall have two Shafts one drive shaft and one stub shaft designed to transmit required torques and withstand stresses imposed under severe operating conditions.

Shaft sealing shall be a gland with O-Ring or U-Cup Type Packing that may provide excellent sealing and Minimize operating torques. Shaft seal design shall allowing replacement without removing the valve shaft.

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%.

The valve can be operated with hand wheel or with an extension spindle as per the project requirement. In case the valve is operated with extension spindles, headstocks and foot brackets shall be provided where specified.

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

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.

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 400/12 <u>or</u> Ductile Iron EN 500/7 acc. To EN1563
Disc	Ductile Iron EN 400/12 <u>or</u> Ductile Iron EN 500/7 acc. To EN1563
Retaining Ring	Ductile Iron EN 400/12 <u>or</u> Ductile Iron EN 500/7 acc. To EN1563
Body Seat	Welded overlay SS316
Driving and stub Shafts	X20Cr13 (AISI 420)
Disc Seat	EPDM Rubber
Retaining ring bolts	A2(St.St.304)
Bearing	Self-Lubricating Bearing
Gland	Ductile Iron EN 400/12 <u>or</u> Ductile Iron EN 500/7 acc. To EN1563
Seals	EPDM Rubber
Bottom Cover	St37