

Annexure 'B' Rev (00) to PI 340282712
PGMA-22920 (Vishnugad Pipalkoti HEP)

Purchase specification for Triple Offset Butterfly Valves (TOBV)-Motorized

- 1 Valves shall be **wafer type** triple offset butterfly valves Class#150 and operated by electrical actuator. The best sealing arrangement shall be provided. The companion flanges and nuts/bolts shall be in BHEL's scope of supply.

Design pressure	23 kg/cm ²
Body test pressure	32 kg/cm ²
Seal test pressure	23 kg/cm ²

Application - For handling river water having silt.

Materials

a. Body	Cast steel to ASTM A216 WCB
b. Door	Cast steel to ASTM A216 WCB
c. Seal Ring (on door)	Duplex SS (UNS S 31803 + Graphite)
d. Seat (Integral with body)	Hard faced with Stellite - 21
e. Door Shaft	S.S. 410 (Forged Bar / No casting)

Electrical Actuator shall have integral starter. The make of the electrical actuator to be either M/S AUMA or M/S Rotork. Actuator shall be suitable for 415V 3Φ 50Hz supply. Torque switches, limit switches, potentiometer shall be provided in the actuator.

- 2 BFV are to be supplied as given below.
Design of valve (TOBV) shall be as per ASME B16.34 /API 609 Cat. B. Testing of the valve shall be as per ASME B 16.34 / API 598/API607/API6FA.

<u>Size</u>	<u>Face to face</u> (max)	<u>PCD in</u> <u>Companion Flange*</u>	<u>No. x Size of bolt*</u>
300NB	by vendor	432 mm	12 x M24 (hole φ28mm)

(* being supplied by BHEL)

- 3 Vendor shall furnish sectional arrangement drawing, showing overall dimensions, bill of material with materials of construction, sealing arrangement, locking arrangement etc. along with the offer. The manufacturing is to be taken up only after the drawing and QA Plan are approved by BHEL Bhopal.
- 4 Vendor shall furnish Test Certificate of **Life Cycle Test** for all type of valves as per AWWA 504. Valves on which life cycle test is performed will not be supplied against our order. If life cycle test is already performed, then TC shall suffice.
- 5 Vendor shall also quote for recommended spares required for trouble free operation.
- 6 Vendor shall furnish the QA plan for our customer's approval along with the offer.
- 7 Three copies of test certificates for material test, operational test and hydraulic pressure test shall be furnished along with the equipment.
- 8 Three copies of O & M manual and part lists (covering all the items under supplier's scope) shall be furnished along with the equipment.
- 9 Inspection at supplier's works shall be by BHEL Bhopal /Third party/Customer.

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Annexure 'A' Rev 00) to PI 340282712
PGMA-22920 (Vishnugad Pipalkoti HEP)

Purchase specification for Triple Offset Butterfly Valves (TOBV)

1. All valves shall be **wafer type** triple offset butterfly valves Class#150 and operated by gear. (Gear box shall be of reputed make). The best sealing arrangement shall be provided. The companion flanges and nuts/bolts shall be in BHEL's scope of supply.

Design pressure	23 kg/cm ²
Body test pressure	32 kg/cm ²
Seal test pressure	23 kg/cm ²

Application - For handling river water having silt.

Materials

- | | |
|------------------------------|------------------------------------|
| a. Body | Cast steel to ASTM A216 WCB |
| b. Door | Cast steel to ASTM A216 WCB |
| c. Seal Ring (on door) | Duplex SS (UNS S 31803 + Graphite) |
| d. Seat (Integral with body) | Hard faced with Stellite - 21 |
| e. Door Shaft | S.S. 410 (Forged Bar/ No casting) |
2. BFV are to be supplied as given below.
Design of valve (TOBV) shall be as per ASME B16.34 /API 609 Cat. B. Testing of the valve shall be as per ASME B 16.34 / API 598/API607/API6FA.

<u>Size</u>	<u>Face to face (max)</u>	<u>PCD in Companion Flange *</u>	<u>No. x Size of bolt *</u>
400NB	by vendor	539 mm	16 x M24 (hole ϕ 28mm)
300NB	by vendor	432 mm	12 x M24 (hole ϕ 28mm)
200NB	by vendor	298.5 mm	8 x M20 (hole ϕ 22mm)
125NB	by vendor	216 mm	8 x M20 (hole ϕ 22mm)
80NB	by vendor	152 mm	4 x M16 (hole ϕ 19mm)

(* being supplied by BHEL)

3. Vendor shall furnish sectional arrangement drawing, showing overall dimensions, bill of material with materials of construction, sealing arrangement, locking arrangement etc. along with the offer. The manufacturing is to be taken up only after the drawing and QA Plan are approved by BHEL Bhopal.
4. Vendor shall furnish Test Certificate of **Life Cycle Test** for all type of valves as per AWWA 504. Valves on which life cycle test is performed will not be supplied against our order. If life cycle test is already performed, then TC shall suffice.
5. Vendor shall also quote for recommended spares required for trouble free operation.
6. Vendor shall furnish the QA plan for our customer's approval along with the offer.
7. Three copies of test certificates for material test, operational test and hydraulic pressure test shall be furnished along with the equipment.
8. Three copies of O & M manual and part lists (covering all the items under supplier's scope) shall be furnished along with the equipment.
9. Inspection at supplier's works shall be by BHEL Bhopal /Third party/Customer.

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