



**Functional Requirement for butterfly valve: (from the viewpoint of maximum reliability, availability and performance)**

**A Sample: For Butterfly valves operating in river water.**

1. To handle river water of Hoogli having a viscosity of around 1.13 cSt
2. Flow rate in the pump system would vary between 2 m/s to 3 m/s
3. The K value of the butterfly valve may be considered as 0.35
4. The valve must have low friction loss and pressure drop to be as low as possible but not be exceeded 1 bar in any case
5. The seat and the body should not leak or get abraded or eroded by sand particles expected to flow along with the river water.
6. Normal pressure to be withstood by the valve and the body 5 bar (which is not to be exceeded by 10%)
7. Maximum pressure to be withstood by the valve and the body would be 15 to 20 bar (water hammer)
8. Pressure testing for leakage and integrity is to be done at the manufacturer's end for which either certificates are to be provided or the tests are to be done in presence of our representatives
9. No galling to take place under repeated operation (to be tested and proved)
10. Operating temperature 5 C to 30 C
11. All parts are to be corrosion resistant and would be free from corrosion for at least 10 years.
12. The valve is to be electrically actuated.
13. Self adjusting operating spindle
14. Use of secondary seal recommended
15. Earthing strap for static electricity discharge is to be provided.
16. The overall size of 500 mm dia valve should be within 1500 mm x 500 mm and for 1000 mm dia valve should be within 2500 mm x 1000 mm (recommended size)
17. Fretting corrosion should not happen to the disk or the seat area due to transmission of pipe vibrations during operation.
18. Suggested MOC (Material of Construction): Note: The supplier need not follow our suggestions at all. They should supply the right material to fulfill the above stated functional objectives.
  - a. Body: Spheroidal Graphite (grade 20/25) cast iron body/WCB/CF 8/CF 8M (body to be epoxy resin coated)/rubber lined (?)
  - b. Disc: PFA sheathed SS disk/operating spindle/WCB/CF 8/CF 8M
  - c. Seat: PTFE (at higher operating pressure)/Glass filled PTFE/Ceramic/Borosilicate/PFA/any other suitable material
  - d. Shaft: SS 316/SS 316L/SS 316 SH/PFA sheathed SS/ SS 400 series to be avoided
  - e. Note: Use of Inconel or Hastelloy would not be needed for this application.