



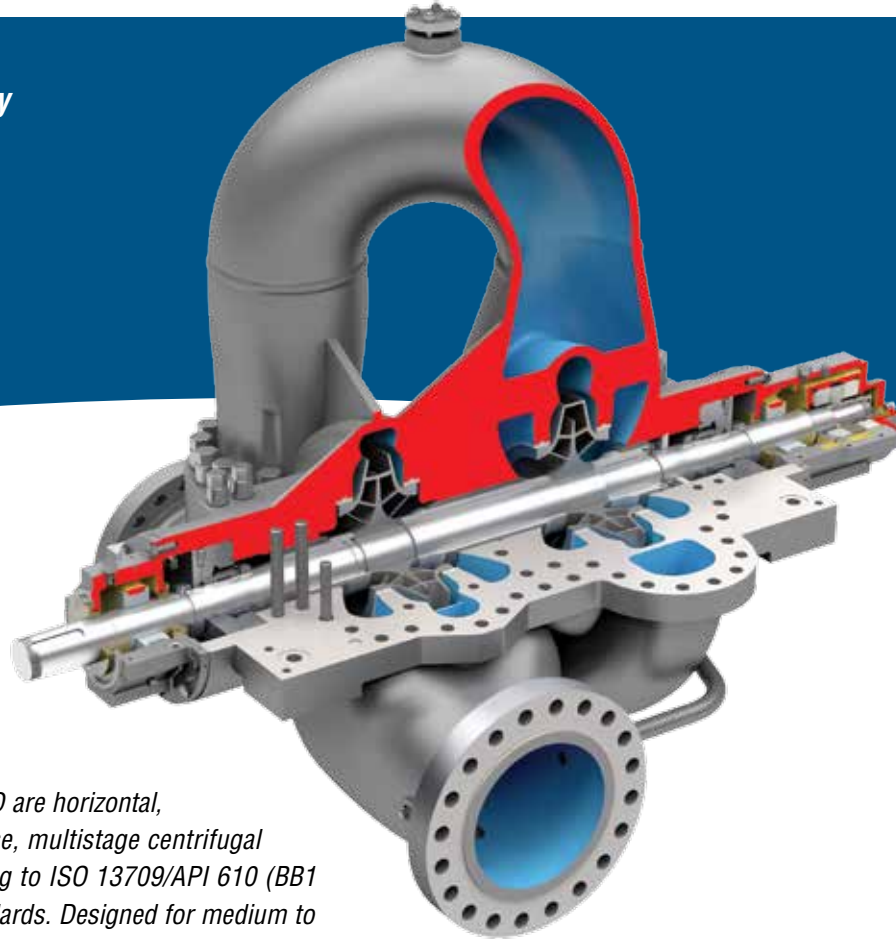
***BF and BFD  
Between Bearings, Axially Split  
Multistage Pumps***

ISO 13709/API 610 (BB1 and BB3)



*Experience In Motion*

**BF and BFD**  
**Between Bearings, Axially**  
**Split Multistage Pumps**



The BF and BFD are horizontal, axially split case, multistage centrifugal pumps adhering to ISO 13709/API 610 (BB1 and BB3) standards. Designed for medium to high flows, high heads and maximum efficiency, the single-suction BF and double-suction BFD are well suited for pipeline, refinery and waterflood services. Both configurations are available in 2, 3 and 4 stage designs.

**Operating Parameters**

- Flows to 4300 m<sup>3</sup>/h (18 800 gpm)
- Heads to 2130 m (6000 ft)
- Pressures to 230 bar (3335 psi)
- Temperatures to 200°C (400°F)

**Features and Benefits**

**Suction and Discharge Nozzles** are integrally cast with the lower casing, allowing disassembly and inspection of the rotating assembly without disturbing the piping.

**Double or Staggered Single Volute Design** balances radial loads on the shaft, minimizing shaft deflection.

**Near-centerline Mounting** of casing feet ensures optimal alignment and performance when operating at elevated temperatures.

**Long-radius Crossovers** minimize flow losses between stages, helping to enable high efficiencies.

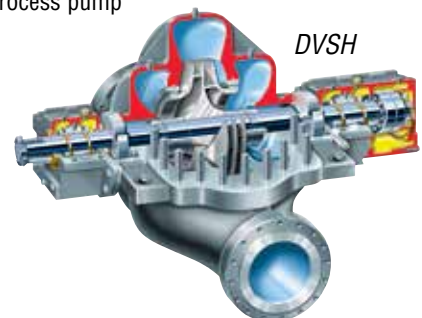
**Cap Nuts** are arranged on the top half casing parting flange, allowing easy casing removal for rotor inspection and maintenance.

**Shaft Sleeves** are threaded against rotation and locked against opposite rotation with a set screw.

**Replaceable Casing and Impeller Wear Rings** control interstage leakage and provide hydraulic stability.

**Complementary Pump Designs**

- DVSH ISO 13709/API 610 (BB1) axially split, single-stage process pump
- UZDL ISO 13709/API 610 (BB1) axially split, two-stage process pump
- DMX ISO 13709/API 610 (BB3) axially split, multistage process pump





### Bearing Designs to Suit Any Application

The BF and BFD are offered with a variety of bearing arrangements to meet application requirements.

- Standard-duty
  - Radial: Double-row, self-aligning ball bearing
  - Thrust: Double-row, angular-contact ball bearings mounted back-to-back
- Medium-duty
  - Radial: Split sleeve, plain-surface bearings
  - Thrust: Double-row, angular-contact ball bearings mounted back-to-back
- Heavy-duty
  - Radial: Split sleeve, plain-surface bearings
  - Thrust: Tilting pad thrust bearings

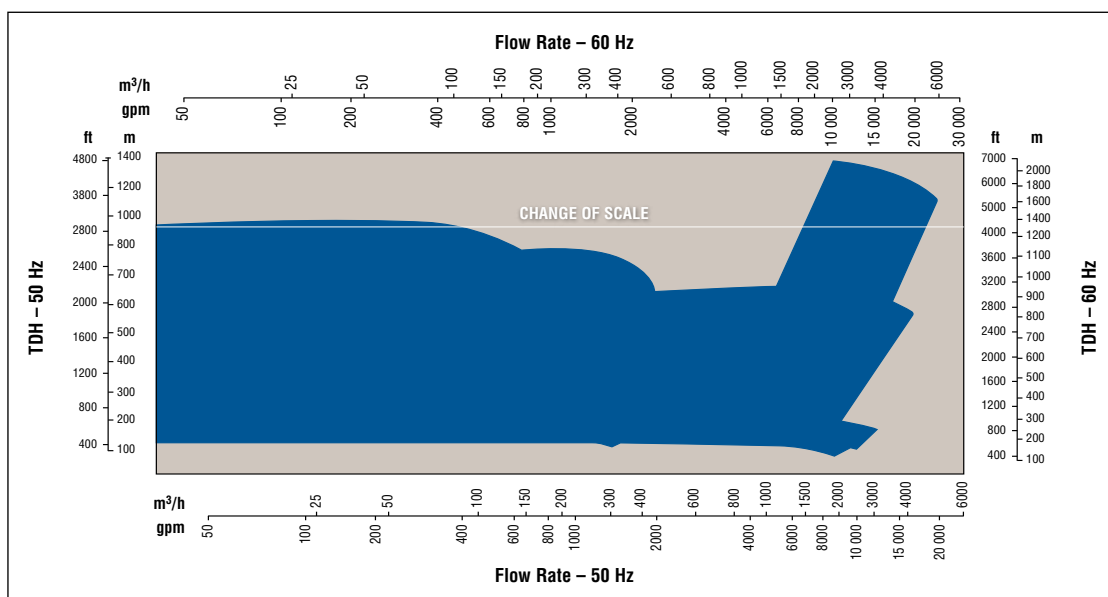
### Bearing Lubrication

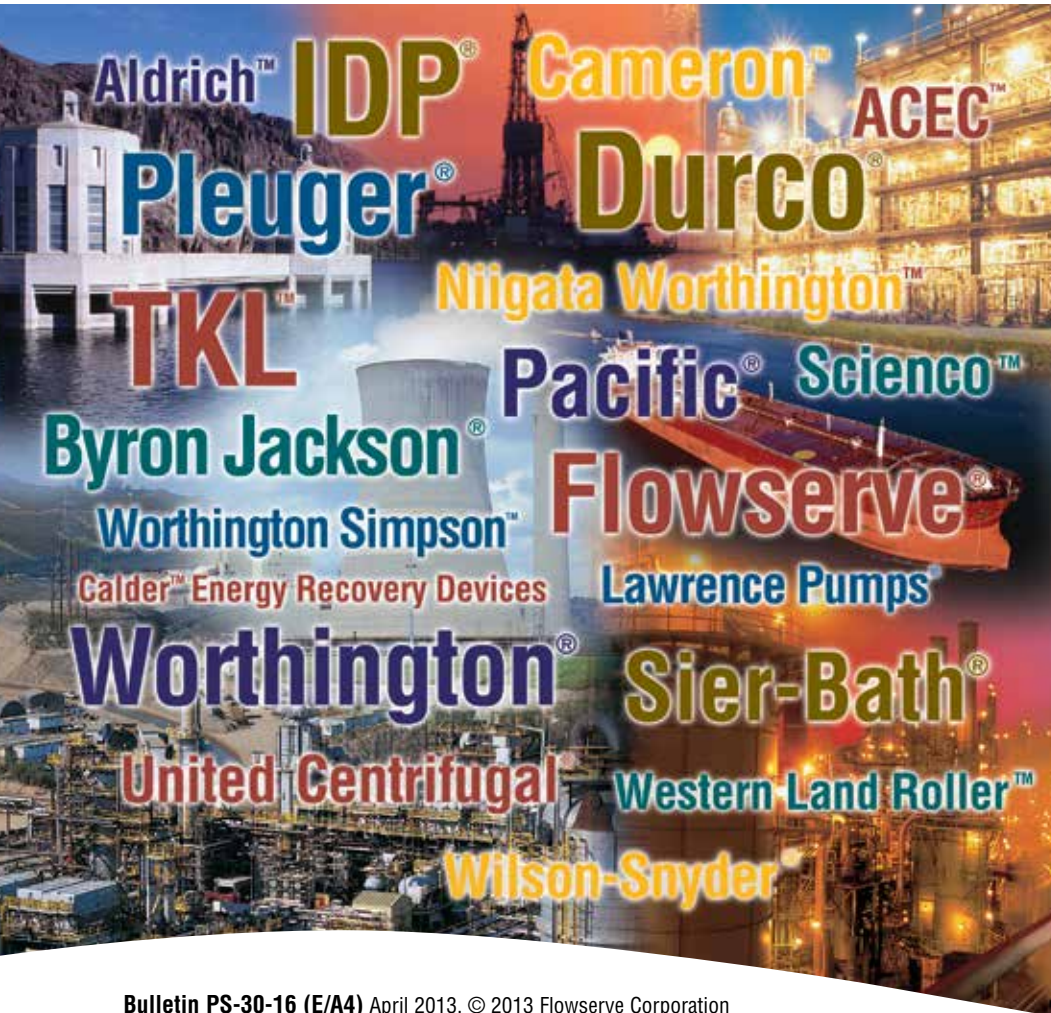
Standard lubrication is via oil ring, which prolongs bearing life by ensuring oil penetrates the bearings without foaming. Force-feed lubrication is required for tilting pad bearings.

### Back-to-Back Impeller Design

Single-suction impellers (BF) are mounted back-to-back in pairs, providing balanced axial loads over the entire operating range. Locating rings and interference fits assure positive axial positioning. Double-suction impellers (BFD) may be furnished to lower NPSHR and minimize cavitation.

### Range Chart





Bulletin PS-30-16 (E/A4) April 2013. © 2013 Flowserve Corporation

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