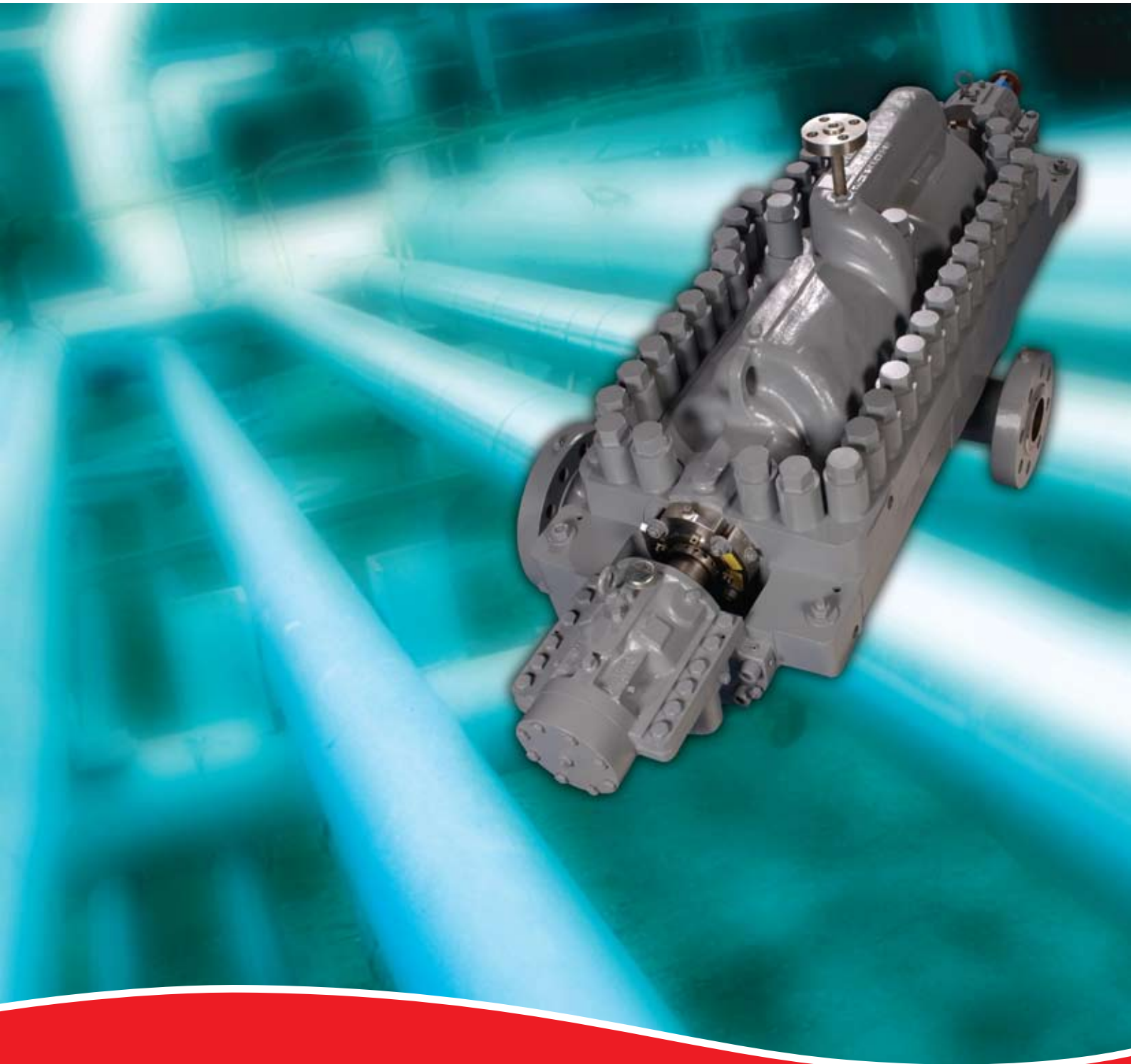


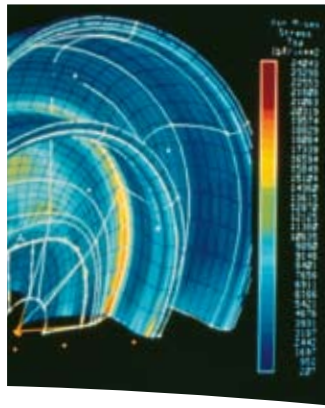


DMX
***Between Bearings, Axially Split,
Multistage Pump***

ISO 13709/API 610 (BB3)



Experience In Motion



Pump Supplier to the World

Flowserve is the driving force in the global industrial pump marketplace. No other pump company in the world has the depth or breadth of expertise in the successful application of pre-engineered, engineered and special purpose pumps and systems.

Life Cycle Cost Solutions

Flowserve is providing pumping solutions which permit customers to reduce total life cycle costs and improve productivity, profitability and pumping system reliability.

Market Focused Customer Support

Product and industry specialists develop effective proposals and solutions directed toward market and customer preferences. They offer technical advice and assistance throughout each stage of the product life cycle, beginning with the inquiry.

Broad Product Lines

Flowserve offers a wide range of complementary pump types, from pre-engineered process pumps, to highly engineered and special purpose pumps and systems. Pumps are built to recognized global standards and customer specifications.

Pump designs include:

- Single-stage process
- Between bearing single-stage
- Between bearing multistage
- Vertical
- Submersible motor
- Rotary
- Reciprocating
- Nuclear
- Specialty

Product Brands of Distinction

ACEC™ Centrifugal Pumps

Aldrich® Pumps

Byron Jackson® Pumps

Calder™ Energy Recovery Devices

Cameron® Pumps

Durco® Pumps

Flowserve® Pumps

IDP® Pumps

Jeumont-Schneider™ Pumps

Niigata Worthington™ Pumps

Pacific® Pumps

Pleuger® Pumps

Scienco® Pumps

Sier-Bath® Rotary Pumps

TKL™ Pumps

United® Centrifugal Pumps

Western Land Roller® Irrigation Pumps

Wilson-Snyder® Pumps

Worthington® Pumps

Worthington Simpson® Pumps

DMX
Between Bearings,
Axially Split,
Multistage Pump
 ISO 13709/API 610 (BB3)



Number One in the Industry

Fully compliant with ISO 13709/API 610, latest edition, the FlowsERVE DMX is a horizontal, multistage, axially split, near centerline-mounted pump. With more than 10 000 units supplied, the DMX is the first choice of users for applications involving high-flow, high-pressure movement of water, hydrocarbons, CO₂ and other process liquids.

Available in numerous sizes, hydraulics and material combinations, DMX pumps are particularly well suited for use in process charge, pipeline and injection services where uncompromising reliability over wide flow ranges is of utmost importance.

Engineered to Perform

The basic pump design, consisting of opposed mounted impellers operating in heavy-duty double volute casings, inherently results in optimum axial thrust and radial thrust balance over the full operating range.

- First-stage impellers are available with single- or double-suction inlets depending on NPSH available for a given application.
- Inherent hydraulic balance allows both seal chambers to operate at pump suction pressure.

Broad Application

- Pipeline
- Boiler feed
- Water injection
- CO₂ injection
- Process charge
- Descaling
- Mine dewatering
- Power recovery
- Reverse osmosis feed

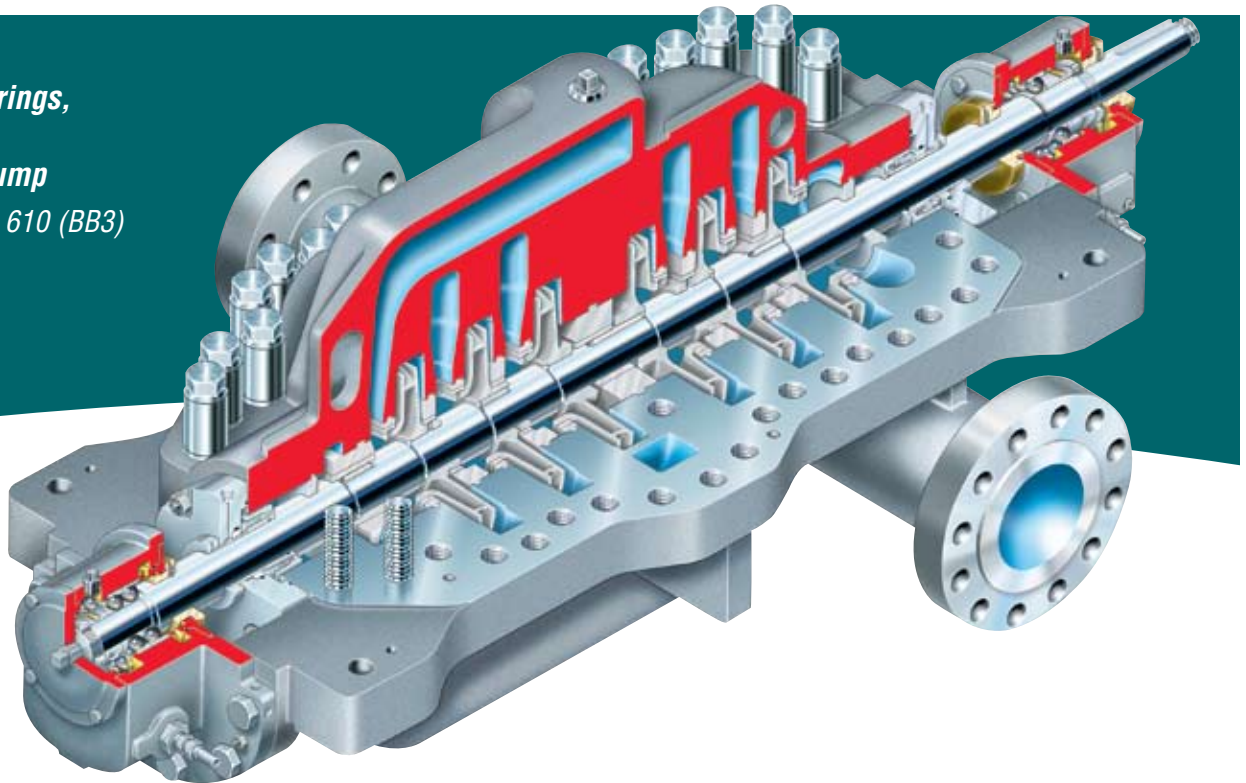
Complementary Pump Designs

Type DMX pumps may be used with other FlowsERVE models of the following designs:

- Single-stage, double-suction, axially split pumps
- Multistage, double-casing
- Radially split, single- and two-stage pumps
- Vertical canned pumps



DMX
*Between Bearings,
 Axially Split,
 Multistage Pump*
 ISO 13709/API 610 (BB3)



The Flowserve DMX pump is fully compliant with ISO 13709/API 610, latest edition. It is engineered and built for high-pressure, heavy-duty applications. Boasting a comprehensive range of hydraulic coverage, the DMX permits precise selection to ensure the best hydraulic fit, operating efficiency and stability. This helps to minimize operating expenses and extend mean time between repair.

Operating Parameters

- Flows to 2950 m³/h (13 000 gpm)
- Heads to 2130 m (7000 ft)
- Pressures to 275 bar (4000 psi)
- Temperatures to 205°C (400°F)
- Speeds to 6000 rpm
- Specific gravities down to 0.35

Features and Benefits

Near Centerline Mounted Pump Casing maintains alignment during operation at elevated temperatures

Casing and Internal Material Combinations selected to meet service requirements. Available materials of construction include carbon steel, chromium steel, austenitic stainless steels and super duplex stainless steels

Raised Face Flanges meet ASME B16.5 dimensional criteria. Class 600 suction and discharge minimum. High-pressure casings and Class 900 and 1500 are also available

Nozzles are cast integrally with the lower half casing, permitting disassembly of the pump without disturbing piping connections. Nozzles are designed to handle external forces and moments equal to or in excess of ISO/API specified figures

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

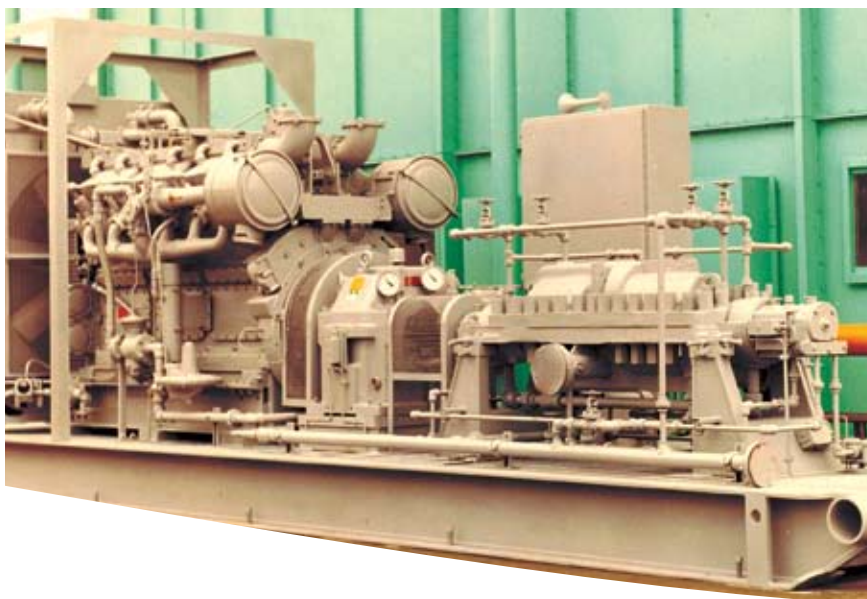
Axially Split Center Bushing facilitates replacement while simplifying inspection and dynamic balancing of the rotor without dismantling

Seal Chamber is compliant with ISO 21049/API 682 dimensional criteria. This design allows for installation of cartridge type single, dual unpressurized and dual pressurized mechanical seals to meet the required safety and environmental requirements

Replaceable Casing and Impeller Wear Rings control interstage leakage and provide hydraulic stability. Optional laser hardened, HVOF overlaid or non-metallic wear rings in Graphalloy®, PEEK® and other materials may be specified

Certified Testing is performed on each DMX pump prior to shipment

© Graphalloy is a registered trademark of Graphite Metallizing Corporation
 © PEEK is a registered trademark of Victrex plc Corp.



Double Volute Construction

The DMX pump features a heavy-duty, axially split casing with double volute hydraulic passages for radial thrust balance. Furthermore, its opposed impeller mounting provides axial thrust balance. Consequently, detrimental shaft deflection and vibration are virtually eliminated.

Robust Rotating Element Ensures Optimum Performance

The DMX's robust rotating element includes large diameter shafts and short bearing spans to minimize deflection. Final two plane dynamic balancing and TIR verifications are conducted on assembled rotors to assure optimum mechanical performance throughout the operating range. Shaft size is selected to suit power and speed requirements.

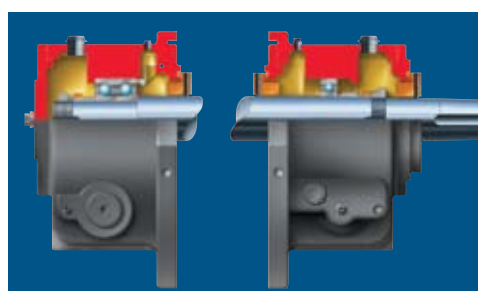
Multiple Bearing Designs to Suit Application Needs

The DMX is offered with a variety of bearing designs to meet application requirements. The standard radial bearing is self-aligning, antifriction type. The thrust bearing consists of two single row, angular contact antifriction bearings.

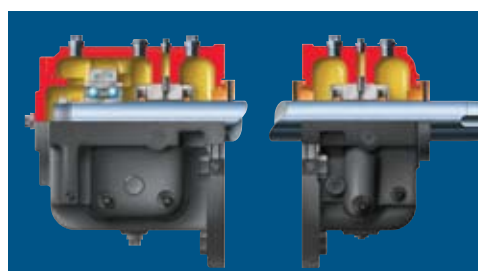
Standard lubrication is via an oil ring system and incorporates a constant level oiler and a sight glass. This system prolongs bearing life by ensuring oil penetrates the bearings without foaming.

Other bearing designs include the following:

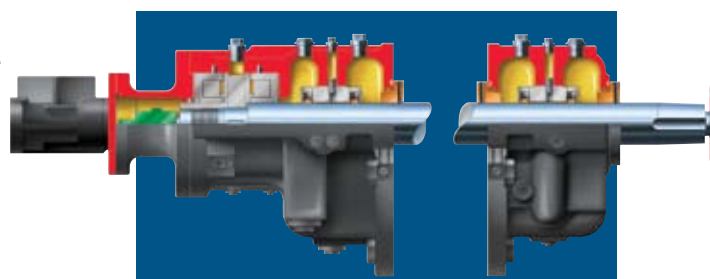
- Split sleeve radial and ball thrust
- Split sleeve radial and tilting pad thrust



Ball Radial and Ball Thrust



Split Sleeve Radial and Ball Thrust



Split Sleeve Radial and Tilting Pad Thrust

*Options and
Technical Data*



Available Pump Packages

Pump packages are provided to specification and may include lube oil piping, seal systems, cooling piping plans, monitoring instruments and drive train mounting.

Baseplate Designs

Engineered to contract requirements, baseplate designs may include any of the following:

- Conventional welded steel with drain rim
- Sub-base under pump only
- Three-point design
- Pre-grouted
- Skid type non-grouted

Pumps mounted with engine or turbine drivers and multiple pump modules are also available.

Optional Interstage Take-Off

An optional secondary fluid take-off line is available for pressure and flow required.

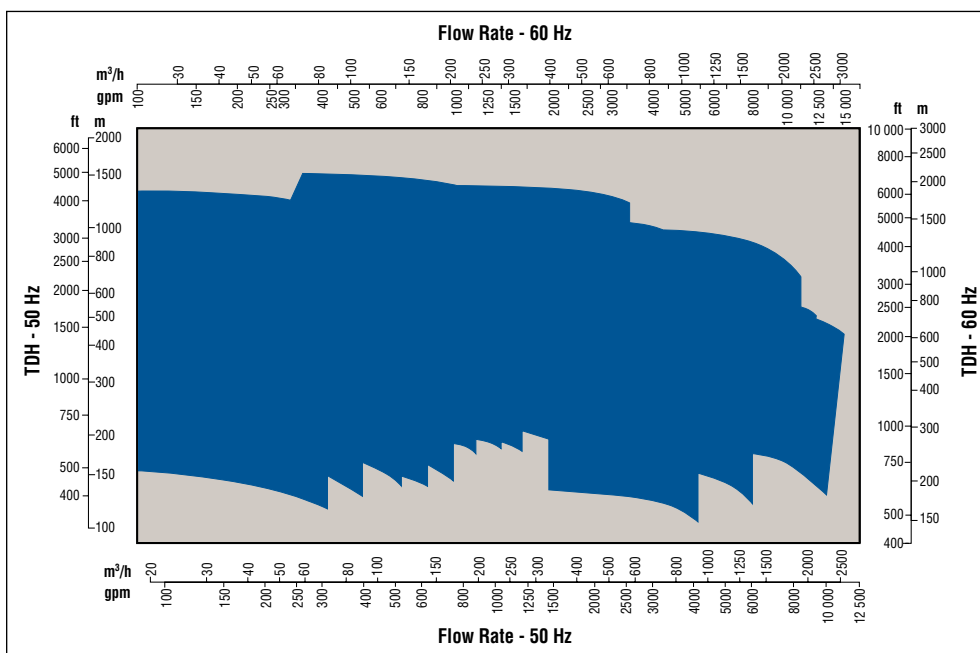
Bearing Options

- Cooling
 - Fan cooling
 - Water cooling
 - Product cooling
- Lubrication
 - Ring oil
 - Pressure lubricated
 - Oil mist

Shaft Options

The DMX is available with an optional double extension for connecting to auxiliary pumps or hydraulic turbines. Additionally, special shaft end machining is available for hydraulic fitted couplings.

DMX Range Chart



**Global Service
and Technical
Support**



Life Cycle Cost Solutions

Typically, 90% of the total life cycle cost (LCC) of a pumping system is accumulated after the equipment is purchased and installed. Flowserve has developed a comprehensive suite of solutions aimed at providing customers with unprecedented value and cost savings throughout the life span of the pumping system. These solutions account for every facet of life cycle cost, including:

Capital Expenses

- Initial purchase
- Installation

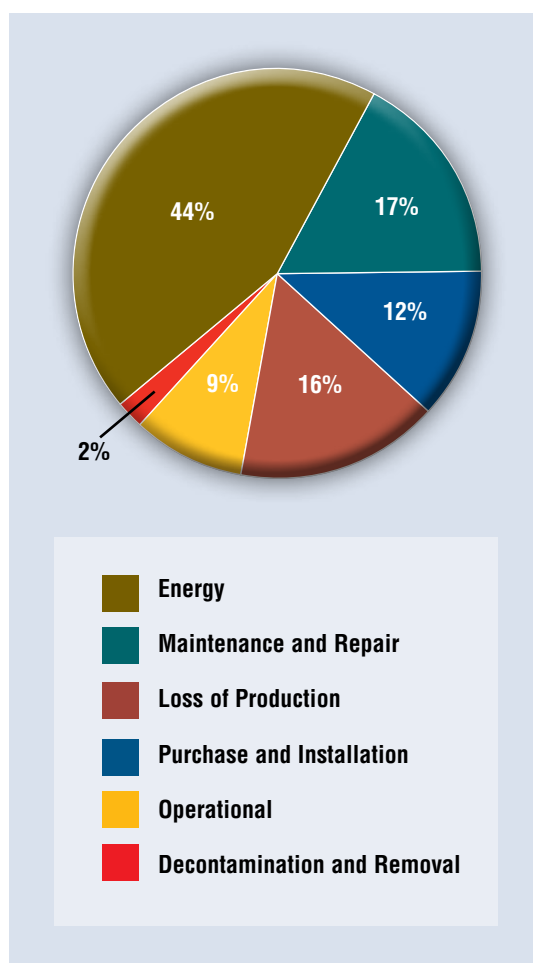
Operating Expenses

- Energy consumption
- Maintenance
- Production losses
- Environmental
- Inventory
- Operating
- Removal

Innovative Life Cycle Cost Solutions

- New Pump Selection
- Turnkey Engineering and Field Service
- Energy Management
- Pump Availability
- Proactive Maintenance
- Inventory Management

Typical Pump Life Cycle Costs¹



¹ While exact values may differ, these percentages are consistent with those published by leading pump manufacturers and end users, as well as industry associations and government agencies worldwide.



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To find your local Flowserve representative:

For more information about Flowserve Corporation,
visit www.flowserve.com or call USA 1 800 728 PUMP (7867)

USA and Canada

Flowserve Corporation
5215 North O'Connor Blvd.
Suite 2300
Irving, Texas 75039-5421 USA
Telephone: 1 937 890 5839

Europe, Middle East, Africa

Flowserve Corporation
Gebouw Hagepoint
Westbroek 39-51
4822 ZX Breda
Netherlands
Telephone: 31 76 502 8920

Latin America

Flowserve Corporation
Boulevard del Cafetal
Edificio Ninina, Local 7
El Cafetal - Caracas
Venezuela 1061
Telephone: 58 212 985 3092
Telefax: 58 212 985 1007

Asia Pacific

Flowserve Pte. Ltd.
10 Tuas Loop
Singapore 637345
Telephone: 65 6771 0600
Telefax: 65 6779 4607