

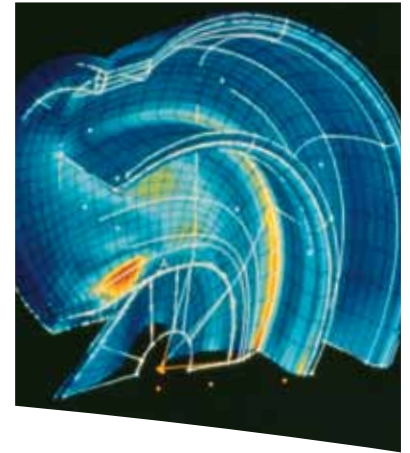
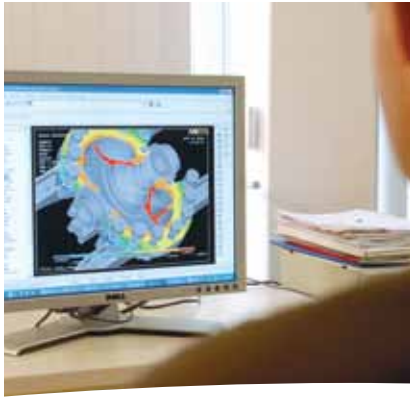


***Genuine Flowserve
Replacement Parts
Chemical Process Pumps***



Experience In Motion

**Genuine
Flowserve
Replacement
Parts
Chemical
Process Pumps**



When and Where You Need Them

The Flowserve parts distribution network includes more than 150 stocking locations globally. Flowserve factories, service centers, and authorized distributors are strategically located to supply customers the parts they need to keep their operations running smoothly and profitably.

Quality and Performance That Lower Operating Costs

Backed by a heritage that includes the experience and expertise of Durco® and IDP®, Flowserve engineers continually employ advanced design tools, materials, processes and manufacturing techniques that ensure:

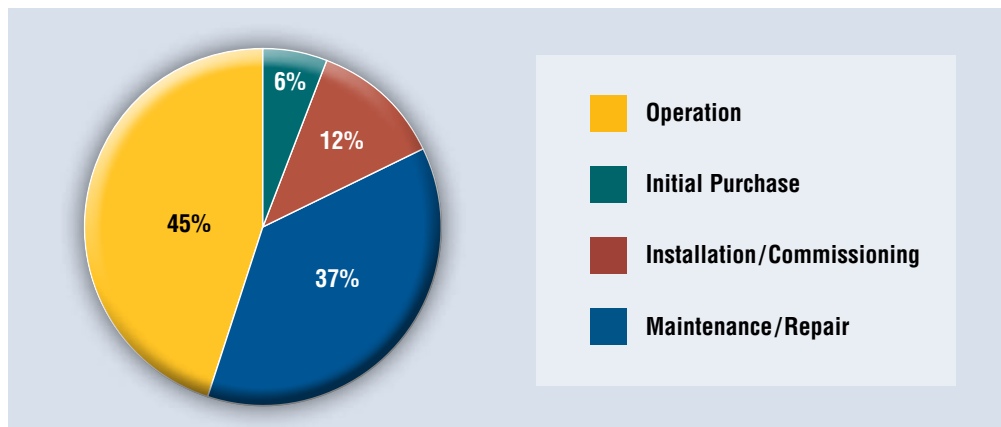
- Hydraulic performance and efficiencies that lower operating costs
- Mechanical reliability that extends equipment life
- Optimal material composition for long life and safe operation

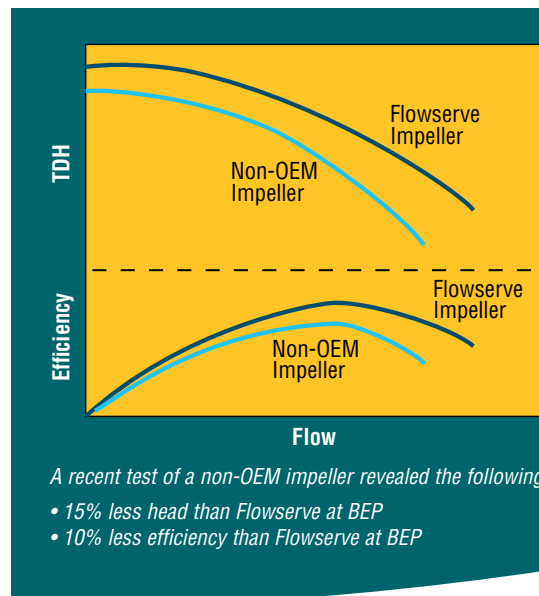
Service That Delivers Peace of Mind

With innovative supply chain programs and an extensive global inventory, Flowserve helps customers focus on core activities by assuring timely delivery of critical parts and assemblies. Every day, customers benefit from unparalleled responsiveness and service levels from the Flowserve parts distribution network:

- 95% shipment of stocked parts within 24 hours
- \$50 million in worldwide inventory
- 24-hour emergency service numbers
- Quick Response Programs for rapid turnaround on non-stocked items

Total Cost of Ownership — Chemical Process Pumping System





Consider This When Specifying Replicated Parts

- 1. Is every part within required dimensional tolerances?*

Non-OEM parts do not consistently meet the precise tolerances required for every Flowserve part. Small errors can lead to catastrophic results or poor performance.
- 2. Do the parts incorporate the latest design changes and refinements that improve efficiency and reliability?*

Non-OEM parts frequently replicate old designs which can lead to sacrifices in performance and service life.
- 3. Does every casting come with a lifetime guarantee?*

Every Flowserve casting comes with a lifetime warranty against manufacturing defects.
- 4. Can the non-OEM supplier offer all of the parts you need in the necessary materials?*

Sourcing a handful of parts from a supplier with limited capabilities can lead to purchasing inefficiencies and hidden transaction-related costs.
- 5. Does your non-OEM supplier invest in ongoing research and development that consistently results in design and material enhancements?*

Flowserve engineers deliver innovative solutions every day, not every year.
- 6. What is your non-OEM supplier's quality program?*

Every genuine Flowserve part is manufactured in facilities that are ISO certified.
- 7. Does your non-OEM supplier consistently deliver the right material for every application?*

With a global staff of materials experts and a complete range of alloys and non-metallic components, Flowserve customers are assured the proper application of materials for their services.
- 8. Can your non-OEM supplier deliver non-stocked parts quickly and within specification?*

Innovative quick response programs from Flowserve deliver non-stock components quickly and according to the latest design specifications.
- 9. Can your non-OEM supplier offer automated inventory management programs?*

Flowserve offers innovative management programs that optimize inventories, eliminate waste and reduce costs.
- 10. Does the use of non-OEM parts affect the manufacturer's warranty?*

Use of non-compliant parts can increase product liability exposure in the event of a catastrophic event.

Impellers



Looks Can Be Deceiving

Just because it looks the same doesn't mean it is the same. Investment cast impellers from Flowserve offer extremely smooth surfaces and incorporate contours, vane angles and shapes to deliver industry-leading performance while ensuring the lowest possible NPSHR. Non-OEM impellers frequently exhibit rough surface finishes, incorrect hydraulic passageways and out-of-tolerance sealing surfaces. Why does this matter? Consider these hidden costs of quality:

- Poor performance means more money to operate.
- Dimensional deficiencies lead to imbalance and poor pump reliability.
- Out-of-tolerance sealing surfaces can cause catastrophic leaks.
- Hidden casting defects can lead to unsafe pump operation and costly shutdowns.



This non-OEM impeller delivered 6 m (20 ft) less head than its intended design. It also did not seal properly to the pump shaft and contained a major shrink void, making it prone to failure in service.

Surface Quality
Rough surfaces and poor casting quality can lead to poor performance and accelerated erosion.

Impeller Nose
A rough, out-of-tolerance nose can lead to higher than published NPSH requirements.

Leading Vane Edge
An out-of-specification leading edge results in poor hydraulic and NPSH performance.

Vane Shape and Angle
Vane thickness, shape, and width are commonly out of tolerance in non-OEM impellers, leading to costly inefficiencies and underperforming pumps.

Stem Threads
Incorrectly machined grooves can cause poor shaft engagement, premature pump failure and unsafe leakage.

O-ring Groove
An undersized or oversized groove can lead to catastrophic leakage of the pumped fluid.

Power Ends



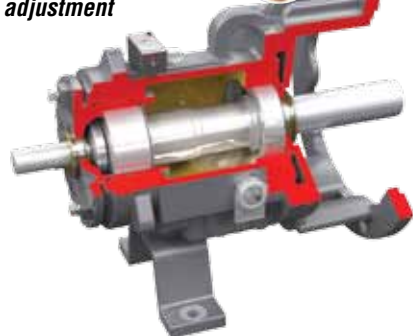
ASME (ANSI) Power Ends

The Flowserve Mark 3™ pump¹ has long been recognized as the simplest, easiest to maintain ASME (ANSI) process pump in the industry. Its ANSI 3A™ power end features a 20-second impeller adjustment, oversized bearings and an industry-leading L^3/D^4 ratio. Plant operators worldwide rely on the ANSI 3A for reliable performance and quick-turn maintenance.

Micrometer impeller adjustment



Inpro VBXX bearing isolators



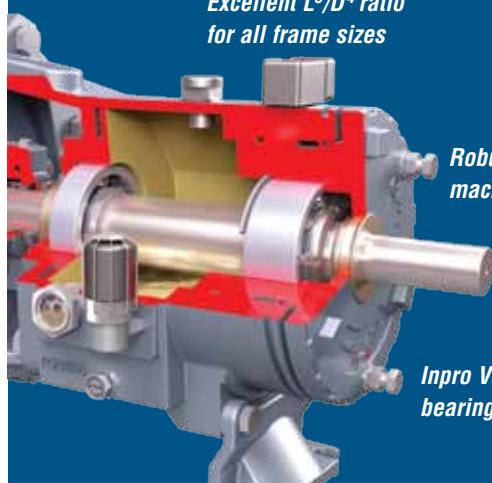
Oversized solid shafts (sleeve shafts optional)

Power End Exchange Programs

While every Flowserve process pump is built for maximum reliability, power end maintenance and repair remains a crucial facet of plant operation. Not every operation has the time or the resources to perform this important function. Power End Exchange Programs³ for ASME (ANSI) and ISO process pumps allow quick and hassle-free replacement of power ends without the need for protracted, expensive maintenance.

- Eliminate lost production time
- Continually upgrade to the latest power end technology
- Take advantage of new power end warranties
- Eliminate troubling reuse/dispose decisions
- Reduce inventory costs

Excellent L^3/D^4 ratio for all frame sizes



Robust, precision-machined shafts

Inpro VBXX bearing isolators

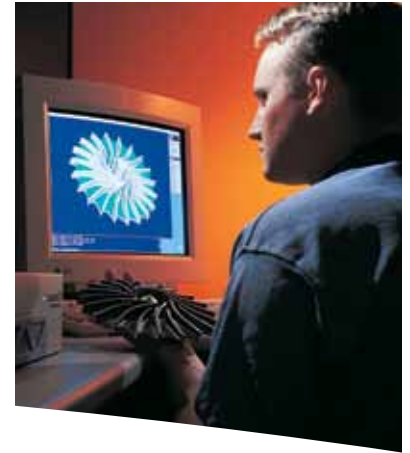
ISO Power Ends

The Durco Mark 3 ISO power end² delivers the reliability expected from one of the leading names in ISO 2858/5199 process pumps. Its durable frame, robust shaft design and maintenance-friendly features keep plants running smoothly with minimal interruption to operations.

For more complete information, please see:

- ¹ Mark 3 Pump Bulletin: PS-10-13
- ² Mark 3 ISO Pump Bulletin: PS-10-31
- ³ Power End Exchange Bulletin: PS-100-1

Parts Management Programs



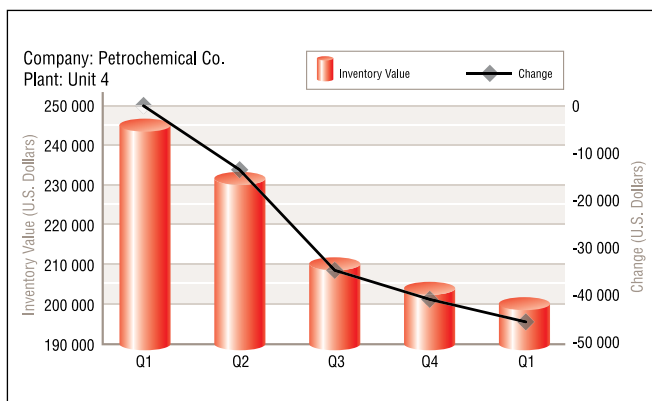
In its ongoing effort to lower total life cycle costs, Flowserve has engaged in innovative business programs aimed at removing waste and adding value to the pump parts supply chain.

Inventory Management

Flowserve helps its customers systematically minimize parts inventory and inventory-related costs, improve asset utilization and simplify maintenance. Programs and processes include:

- Equipment population surveys
- Standardization evaluations and planning
- Inventory analysis and optimization planning
- Vendor-managed stock programs
- Obsolescence and shrinkage mitigation

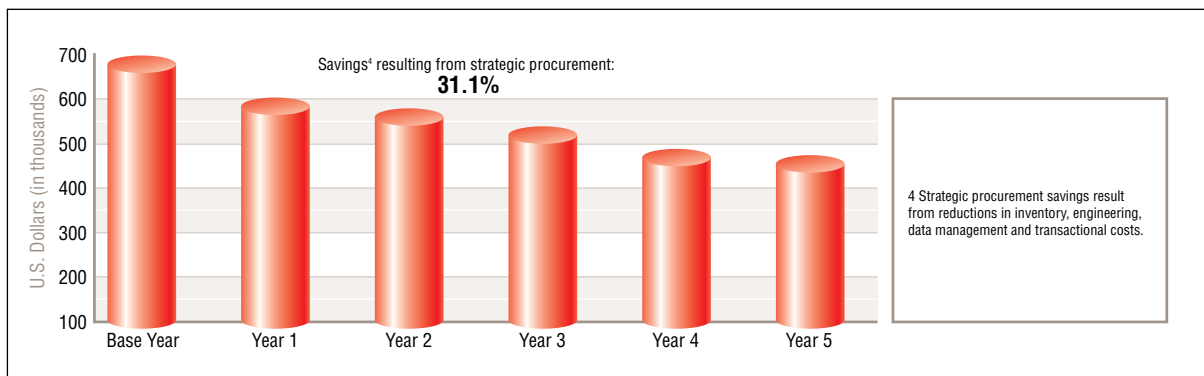
Inventory Management Report



Strategic Procurement

Flowserve offers programs that focus on efficient transactions to reduce administrative, equipment, parts and maintenance costs. Preferred pricing yields lower capital costs. Streamlined procedures accelerate the purchasing cycle while virtually eliminating clerical errors and their related costs. In an environment where emphasis is on vendor consolidation and collaboration, Flowserve helps customers realize real life cycle cost savings through innovative procurement programs.

Strategic Procurement



**Global
Stocking and
Manufacturing**
*Quick Response
Centers*



Global Stocking and Manufacturing

With more than 150 global stocking locations and an ever-increasing network of distributors and parts manufacturing facilities, Flowserve is positioned to rapidly respond to virtually any process pump part inquiry. For engineered, non-stock components, Flowserve has implemented innovative Quick Response Programs⁵ for timely delivery of complex components in a variety of materials.

Quick Response Centers

Flowserve recognizes that a customer's core business may not be rotating equipment repair, but that these functions are vital. In response, Flowserve has developed Quick Response Centers — dedicated rotating equipment facilities built and operated by Flowserve to help customers:

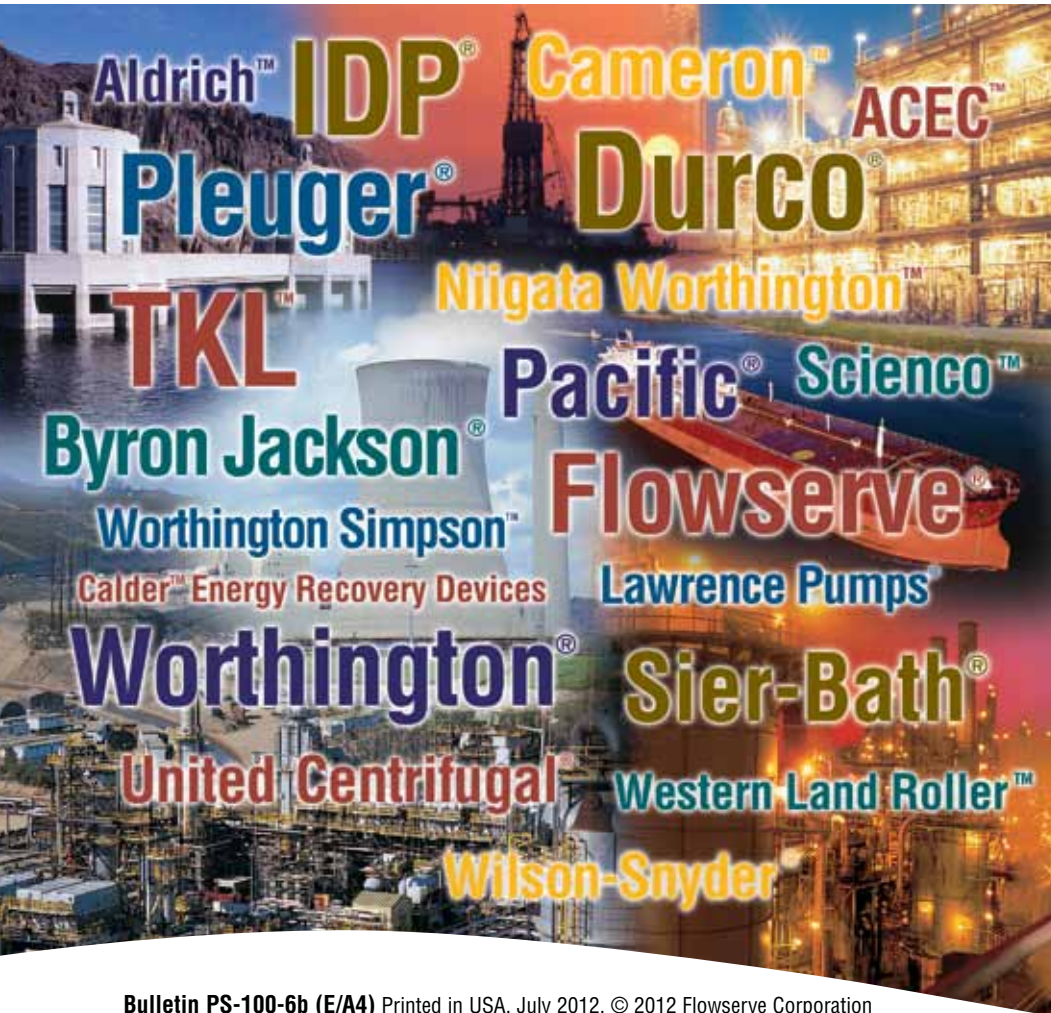
- Improve operational performance
- Lower equipment ownership costs
- Increase revenues

Flowserve Quick Response Centers restore equipment to original operating performance or better by carrying out everyday maintenance and applying the latest advances in hydraulic and mechanical design. Offering comprehensive service capabilities, QRCs are fully tooled and staffed to handle new equipment needs, as well as maintenance and repair. Capabilities include:

- Machining capabilities
- Pump improvement engineering
- Material overlay capabilities
- Training services



⁵ For more complete information, please see:
Wear Rings Quick Response Bulletin: FPD-1156
Shafts Quick Response Bulletin: FPD-1157
Impellers Quick Response Bulletin: FPD-1158



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