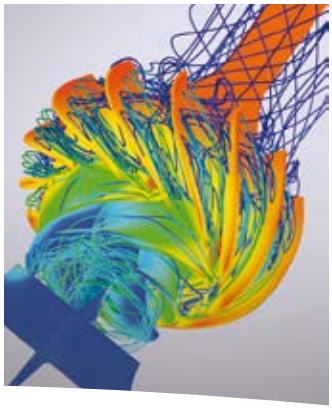
FLOWSERVE

SIHI® ISOchem
Chemical Process Pumps with Magnetic Drive

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 provides pumping solutions that 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 initial 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 bearings single-stage
- Between bearings multistage
- Vertical
- Submersible motor
- Positive displacement
- Vacuum & Compressor
- Nuclear
- Specialty

Product Brands of Distinction

ACEC™ Centrifugal Pumps

Aldrich™ Pumps

Byron Jackson® Pumps

Calder™ Energy Recovery Devices

Cameron™ Pumps

Durco® Process Pumps

Flowserve® Pumps

IDP® Pumps

INNOMAG® Sealless Pumps

Lawrence Pumps®

Niigata Worthington™ Pumps

Pacific® Pumps

Pleuger® Pumps

Scienco™ Pumps

Sier-Bath® Rotary Pumps

SIHI® Pumps

TKL™ Pumps

United Centrifugal® Pumps

Western Land Roller™ Irrigation Pumps

Wilson-Snyder® Pumps

Worthington® Pumps

Worthington Simpson™ Pumps




SIHI® ISOchem … chemical process pumps

Today, chemical process pumps are used in a wide range of plants. Thanks to their reliability, they provide a high level of safety and reduced operating costs for the process industry.

Many application processes require specific types of shaft seals, such as single or double-acting mechanical seals or seal-less designs. These enable a greater range of applications and pump complexity as there are many individual designs available for even the most varied of applications.

The range of applications that chemical process pumps can be used for, as well as the specific technical standards they are required to adhere to as prescribed by e.g. ISO 5199, ISO 15783 and ISO 2858, mean that the pumps must be highly flexible in order to meet various application profiles.

Performance data

Capacity:	max. 650 m^3/h (4403 US gpm)
Delivery head:	max. 160 m (525 ft)
Speed:	max. 3600 rpm
Casing pressure:	max. 25 bar (362 psi)
Temperature:	max. +400 °C (752 °F)

Industries / Markets

- Chemical
- Pharmaceutical
- Petrochemical
- Paper industry
- Food industry
- Plastics industry

and many more …

Typical Applications

- Filling
- Distillation
- Draining
- Extraction
- Product transfer
- Reaction
- Fuel storage
- Vaporisation
- Heat transfer

FLOWSERVE

SIHI® ISOchem bare shaft or close-coupled design

Hydraulic and dimensions according to ISO 2858

Wear rings ensure safety against failure

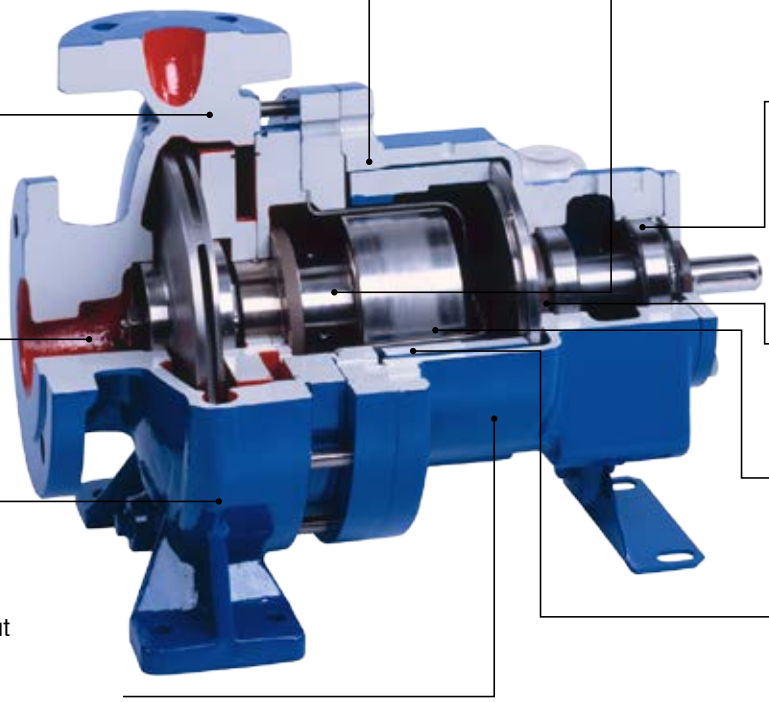
Maintenance free sleeve bearings

Alternative bearings for fluids with low lubrication properties

L10h > 50,000 hours bearing life time for ball bearings

High efficiency and low NPSH

Minimum Flow – continuous operation at 10 % of BEP



Secondary sealing as an option

Long life and high temperature magnets

Design according to ISO 5199

Total hermetically sealed without drain drillings in volute casing

Containment shell options

Drop-in replacement for mechanical sealed versions

Materials

Volute casing:	ductile iron, stainless steel, duplex steel
Casing cover:	ductile iron, stainless steel, duplex steel
Shaft:	duplex steel
Impeller:	cast iron, stainless steel, duplex steel

SIHI® ISOchem Options

Containment shells

Standard Hastelloy shells up to PN 25
- Up to temperatures of 300 °C

High efficiency Hastelloy shells up to PN 25
- Savings of eddy current losses approx. 40 %
- Increase coupling efficiency of approx. 5 %
- Up to temperatures of 180 °C

Coated (TiN) ceramic ZrO_2 shells up to PN 25
- No eddy current losses
- High fracture toughness, chemical abrasion and thermo-shock resistance
- Coating (TiN) allows ATEX certification

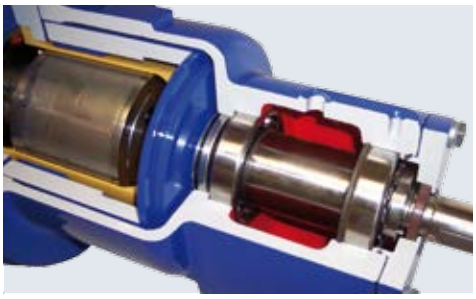
All containment shells are fully interchangeable with each other.

Standard and high efficiency Hastelloy shells

Coated ceramic ZrO_2 shells

Secondary control system according to ISO 15783

In case of failure of primary pressure casing, a secondary sealing system reduces the leakage to atmosphere and gives the possibility to control the discharge and detect the failure.



Options

- Temperatures up to 400 °C (752 °F) without external cooling
- Special materials (Hastelloy, titanium, ...)
- Heating jackets
- Monitoring systems

SIHI® ISOchem with magnetic drive

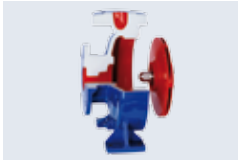
Chemical process pumps in the SIHI® ISOchem range are horizontal, single-stage volute casing pumps with designs that fully meet the technical requirements of ISO 5199, ISO 15783 and dimensions according ISO 2858.

This process pumps consists of 30 hydraulics sizes designed with closed impeller. Due to the design, the pumps can be used in a bare shaft or close-coupled configuration.

Benefits

- Low power consumption
- Increased lifetime and longer maintenance intervals
- Low installation costs
- High level of availability and short supply times
- Simple assembly and dismantling
- Quick on-site servicing
- Can be used where there is a risk of explosion

Hydraulic



Volute casing with closed impeller

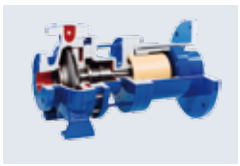
- Clean liquids
- Low NPSH values

With bare shaft back pull-out assembly

CBM with magnetic drive to ISO 15783

Close-coupled back pull-out assembly

CBE with magnetic drive to ISO 15783 for temperatures up to 300 °C (572 °F)



CBE with magnetic drive and heat barrier to ISO 15783 for temperatures up to 400 °C (752 °F)

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:

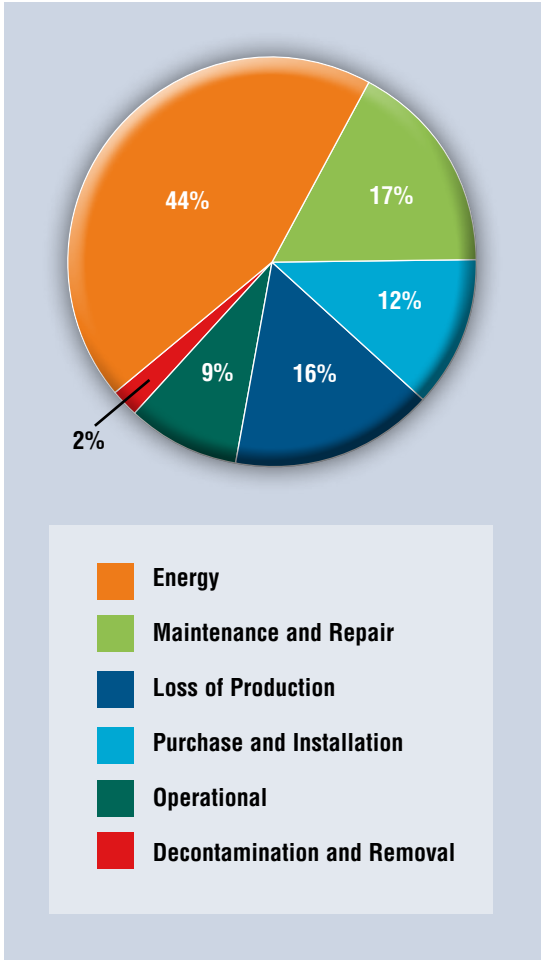
Capital Expenses
- Initial purchase
- Installation

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

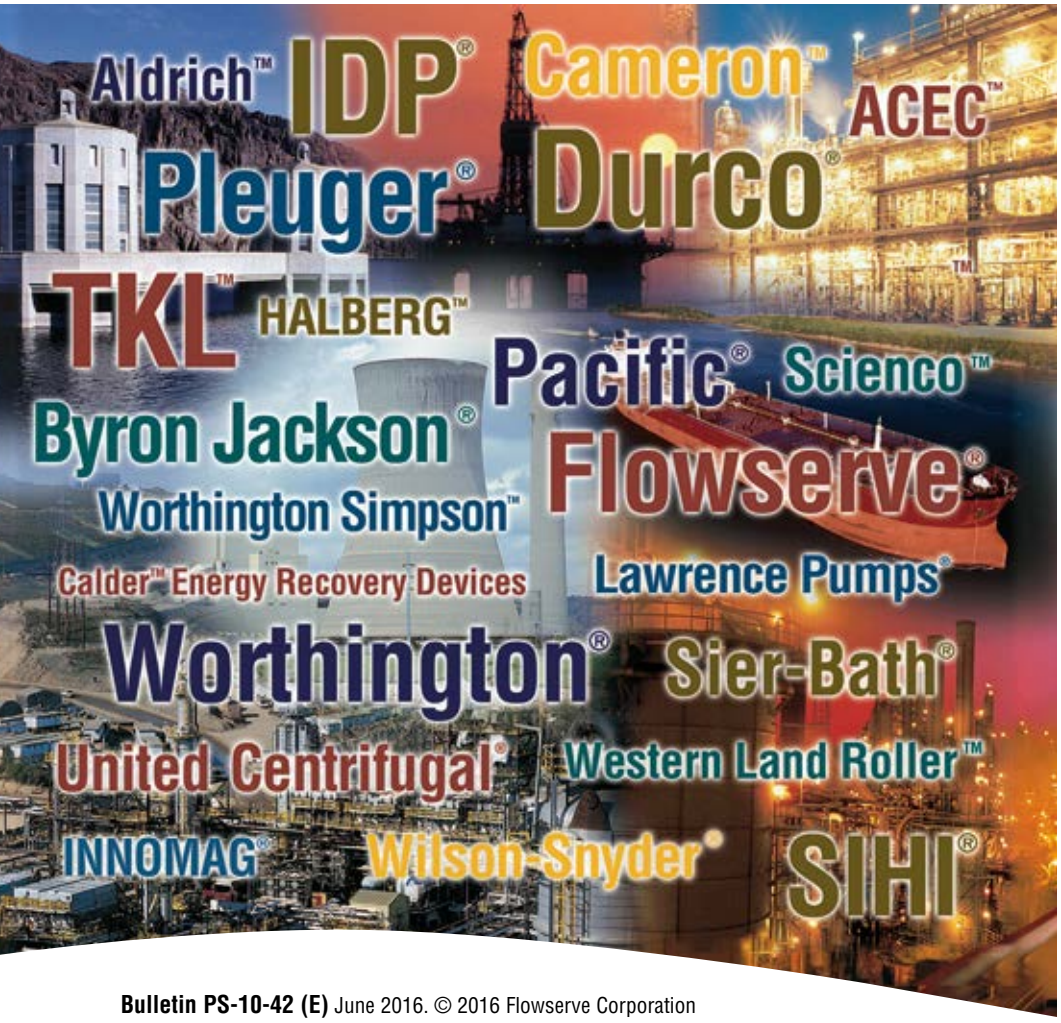
Innovative Life Cycle Cost Solutions

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

Typical Pump Life Cycle Costs[1]



[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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