



API 685 HPX-Mag Magnetic Drive Process Pump



Experience In Motion

Dual Containment. Zero Emissions. Maximum Safety.

Engineered for the Most Demanding Services

Purpose-built for the most hazardous liquid services, the HPX-Mag is the first API 685 sealless magnetic drive pump to combine secondary pressure containment with integrated solids-handling capability. This unique design delivers **true zero-emission performance** — even in the event of a primary containment shell failure — **protecting people, assets, and the environment in the most critical applications.**



API 610 design

Based on proven API 610 design

The HPX-Mag pump is a horizontal, overhung, single-stage, radially split, end suction, top-discharge, centerline mounted pump with a high-efficiency magnetic coupling. It is based on the proven hydraulic design of the Flowserve HPX API 610 pump and delivers the following performance-enhancing features:

- Robust construction meets or exceeds API 685 requirements, ensuring zero emissions in difficult-to-seal, toxic, aggressive and flammable liquids.
- First API 685 sealless magnetic drive pump to combine secondary pressure containment with integrated
- solids-handling capability.
- Hermetically sealed design eliminates the need for mechanical seals and external flushing systems during normal operation.
- Dynamic thrust balancing system limits vibration and assures smooth operation over a wide flow range.
- Increased mean time between maintenance (MTBM) reduces downtime and maintenance costs.
- Back pullout design simplifies maintenance activities and reduces labor costs.
- Extensive hydraulic coverage enables precise selection for the highest operating efficiency.
- Parts interchangeability with HPX API 610 pump reduces parts inventory and carrying costs.



API 685 design

Eliminate leaks in aggressive and toxic applications

The HPX-Mag pump is designed to reliably withstand the high pressures, temperatures and aggressive media often found in the oil and gas and hydrocarbon industries.

Typical applications:

- Petroleum production, distribution and refining
- Petrochemical and chemical processing
- Difficult-to-seal liquids
- Toxic, aggressive or flammable liquids
- High-temperature applications
- Gas industry services
- Biofuels
- Boiler circulation
- Power plants
- General industrial

Operating parameters:

- Rated flows to 1,000 m³/h (4,400 gpm)
- Heads to 300 m (985 ft)
- Standard pressures to 42 bar (600 psi)
- Temperatures from -29°C to 300°C (-20°F to 570°F)*



**Higher pressures or temperatures available on request*

Features and benefits

The HPX-Mag sealless pump enables operators to **achieve full API 685 compliance** without compromising performance, uptime, or safety. Engineered for **zero leakage**, it is ideally suited for handling **toxic, aggressive, or combustible liquids** while meeting the world's most stringent environmental regulations on hazardous fluids.

Leakage-free containment shell made from alloy C4 material for high-efficiency performance and high corrosion resistance. Ceramic ZrO₂ material containment shell is available for zero eddy current losses. Both containment shell designs are self-venting and fully drainable.

Consolidated hydraulic design uses the same casing and impeller installed in the popular HPX API 610 pump.

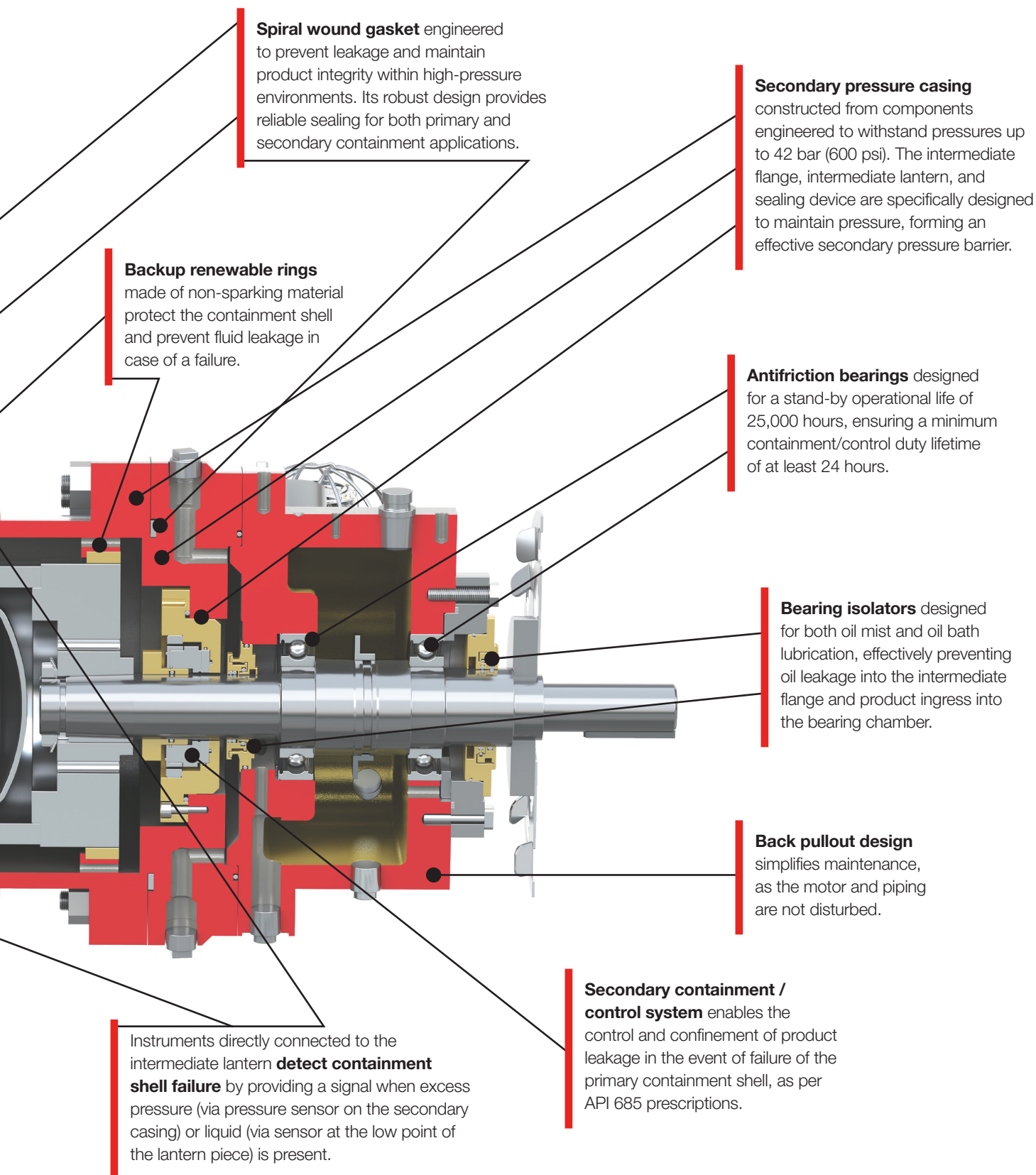
Internal flushing with process fluid cools the magnet area and lubricates the sleeve bearings. External flushing plans available upon request.

Centerline-supported pump casing withstands nozzle loads beyond API 685 design requirements. The suction nozzle guide vane reduces inlet vortexing and ensures uniform flow into the impeller to achieve a reliable NPSH margin.

Renewable casing and impeller wear rings reduce replacement parts costs. Wear rings are secured by set screws or tack welds.

Lubricated radial and thrust bearings made of silicon carbide (SiC) material, mounted with tolerance fit compensate for expansion in high-temperature conditions. Optional materials are available for special application needs. Both containment shell designs are self-venting and fully drainable.

High-torque magnets made of rare earth samarium-cobalt eliminate slippage and enable high-temperature resistance.



Innovative thrust-balanced design

The HPX-Mag magnetic drive coupling incorporates a **dynamic thrust-balancing system that eliminates mechanical thrust bearings** — a common wear point in conventional pumps.

This advanced design not only increases **operating reliability** and **extends service life**, but also **reduces energy losses and operating costs**, delivering measurable value over the pump's lifetime.

Reduce maintenance labor and costs

Every aspect of the HPX-Mag is engineered for **maintenance efficiency** and **operator safety**:

- **Standard Back Pullout Assembly** – Enables quick inspection and service while keeping the pump casing in-line and piping connections intact.
- **Contained Back Pullout for Safer Servicing** – The process fluid remains completely confined during drive-end maintenance, eliminating the need to drain or purge the pump and protecting personnel from exposure to hazardous liquids.
- **Fully Assembled Replacement Kits** – Available for all major components, including the impeller assembly, internal and external magnetic rotors, and bearing assembly, simplifying maintenance planning.
- **100% Replaceable Silicon Carbide Components**
 - Maximizes component life and reduces the cost of replacement parts over time.

Heavy-duty bearing system

The HPX-Mag's bearing housing is constructed from **robust carbon steel** and protected by **labyrinth-type oil seals** to retain lubricant and block contaminants.

An **oil slinger lubrication system** ensures continuous oil flow and prevents degradation, while optional bearing isolators offer additional protection.

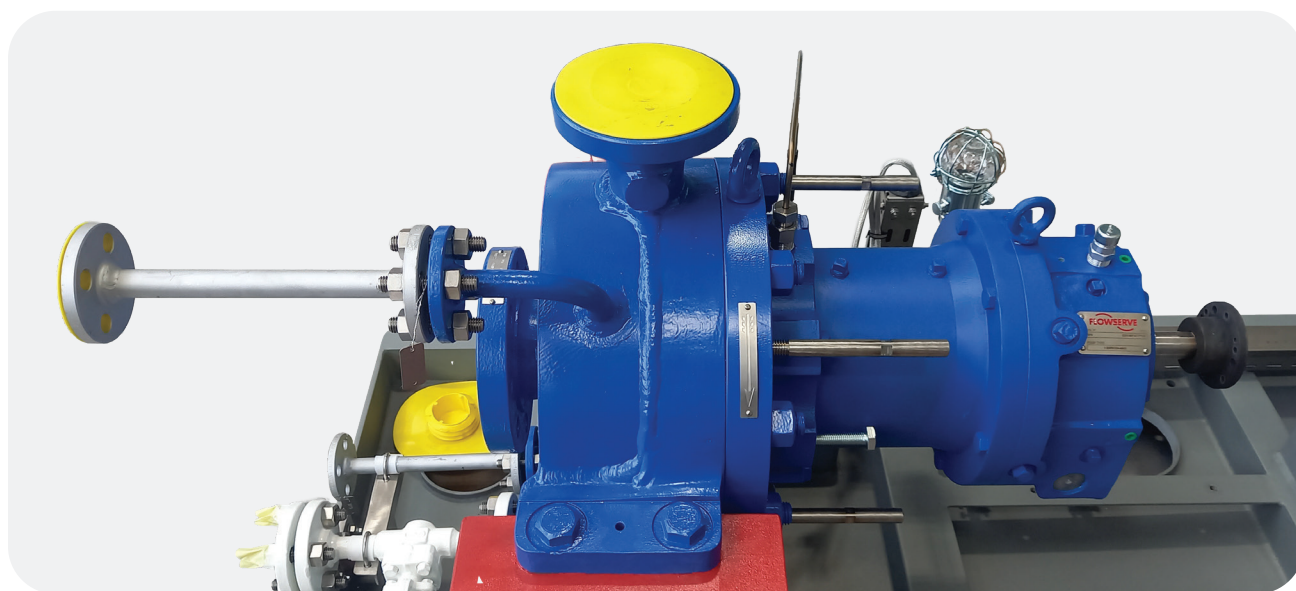
Flexible Bearing Lubrication and Cooling Options

The HPX-Mag adapts to your operating environment with multiple lubrication and cooling configurations:

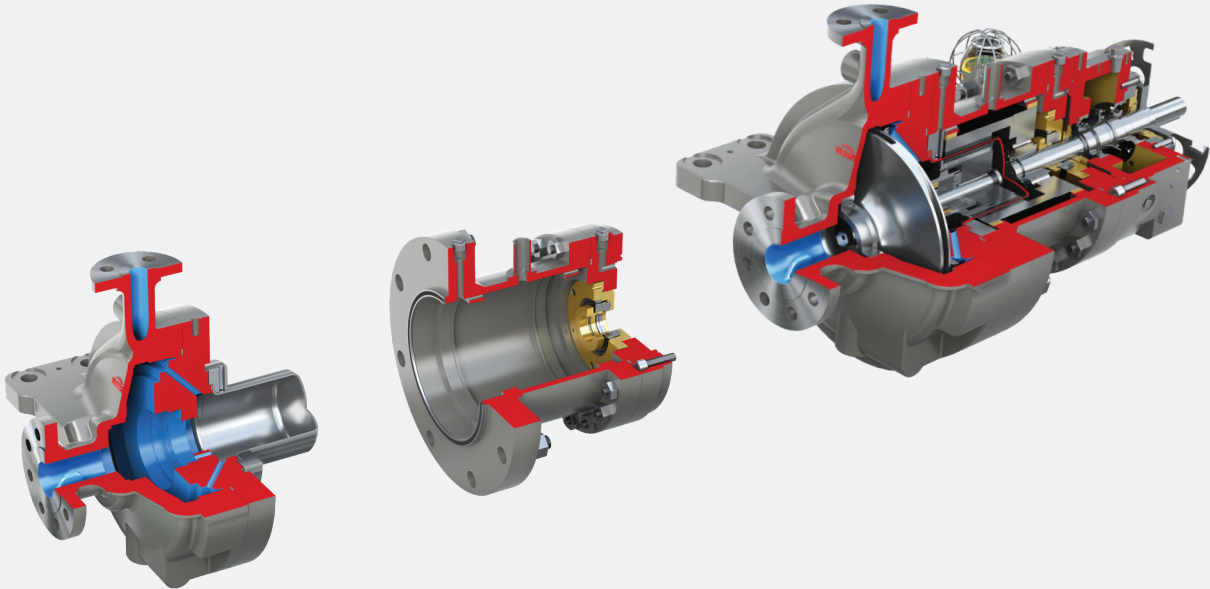
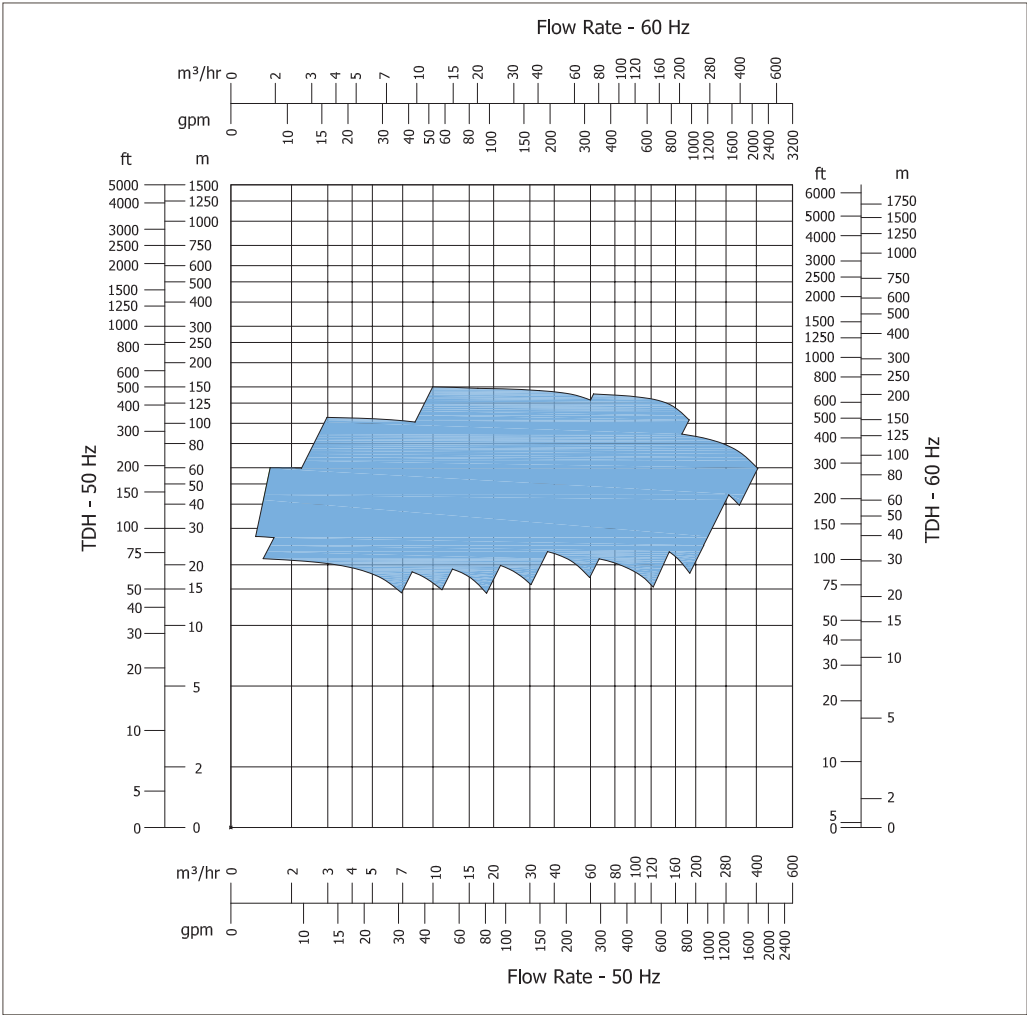
Oil Mist or Oil Purge – Continuous bearing lubrication for maximum life.

Fan Cooling – For high operating or ambient temperatures.

Finned Cooling Inserts – Efficient water cooling for hot standby applications.



Hydraulic coverage





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