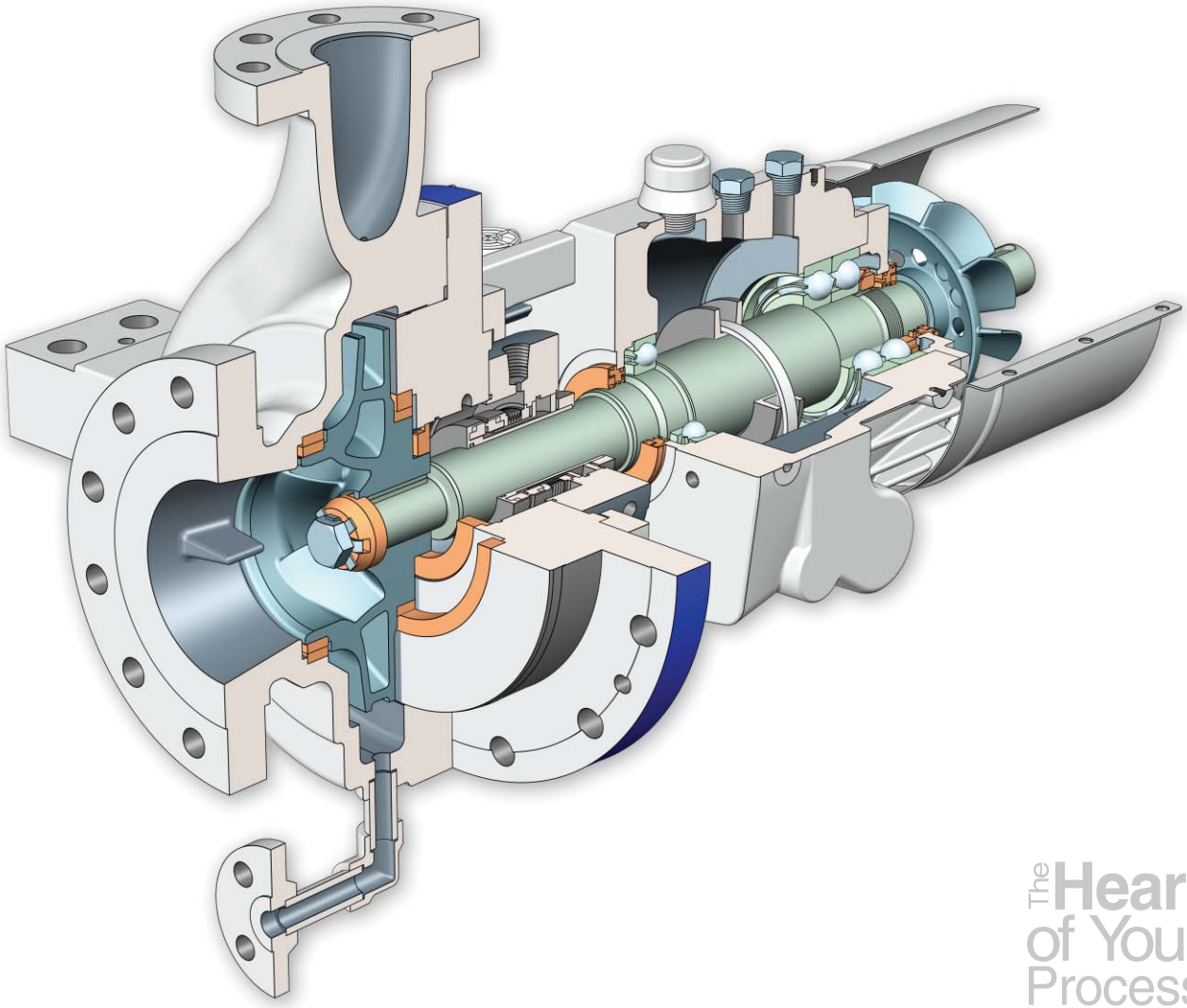
SULZER

OHX Pump Upgrade Kit
API 610 (ISO 13709)



The Heart of Your Process

Sulzer Pumps

Sulzer Pumps is a leading global supplier of reliable products and innovative pumping solutions for end users. Our active research and development, detailed process and application knowledge together with a comprehensive understanding of market demands keeps us consistently at the leading edge of technical development. Our global network of modern manufacturing and packaging facilities together with sales offices, service centers and representatives located close to major markets provide fast responses to customer needs.

Sulzer Pumps is active serving business partners in the following industries:

- Oil & Gas
- Hydrocarbon Processing
- Pulp & Paper
- Power Generation
- Food, Metals & Fertilizers
- Water & Wastewater

OHX Pump Upgrade Kit

The OHX Sulzer Pumps Upgrade Kit for horizontal process pumps is designed to increase service life and allow for reduced emission levels. This fast and cost effective method to upgrade seal chamber and bearing assembly to the criteria of API 610 includes:

- Generous seal chamber to accommodate dual seal arrangement
- Increased stiffness of rotor at seal chamber; better L3/D4 ratio
- Redesigned cooling and lubrication system for bearings
- CW and CCW rotation

These upgrades can be applied to any brand of overhung API process pump. It offers a dramatic cost advantage over the purchase of new equipment, since normally no relocation of the driver, modification of the base, or relocation of process piping is necessary. Along with these upgrades, a hydraulic re-rate can further increase service life by matching best efficiency point to the pump's current operating conditions. For more infor-mation, ask your Sulzer representative about hydraulic performance upgrades and life cycle cost evaluations.

Design

Full compliance of upgrade parts with API 610 specifications (ISO 13709).

Horizontal, overhung, radially split, centerline mounted, heavy duty process pump.

- Fully confined compression gaskets between case, case cover and seal gland. Pump shaft and cover designed for cartridge type mechanical seals.
- Seal chamber sized to accommodate all single and dual cartridge seal configurations. Complies fully with API 682 Specification Table I.
- The OHX Upgrade Kit utilizes many of the components and design features from the state-of-the-art Sulzer OHH end suction process pump.

Application Ranges

OHX pumps are designed for retrofit applications covering the full range of refinery services, including water, gasoline, propanes, and other light products, as well as crude oil and fractionator bottoms.

- Refinery
- Petrochemical plants
- Gas processing
- Coal processing
- Offshore installation

Materials

Standard API 610 Material Classes: S-4, S-6, C-6, A-8. Other material combinations are available.

Design Features

Casing Gasket
- Fully confined with controlled compression and metal to metal fit

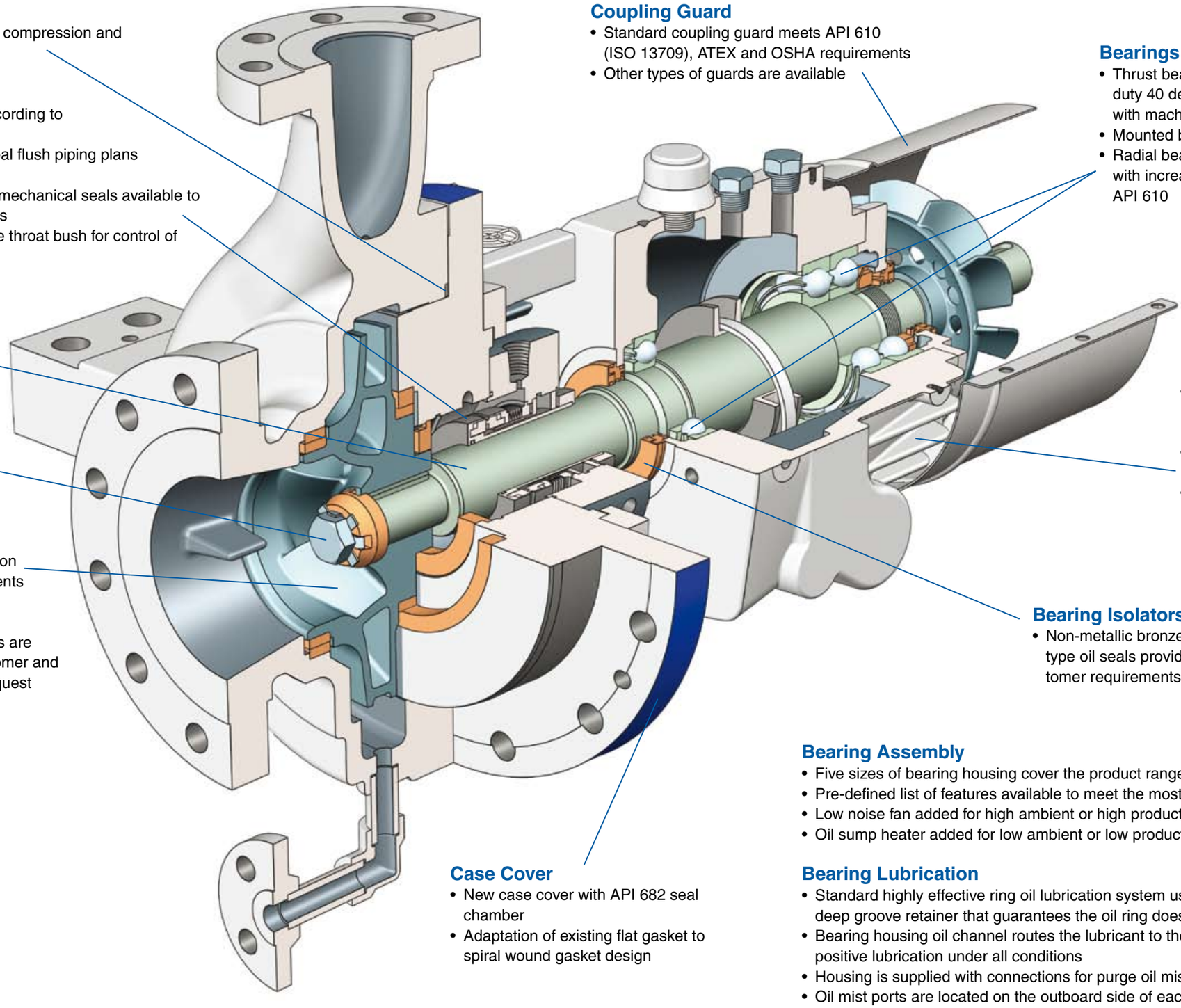
Seal Chamber
- Standardized dimensions according to API 610 (ISO 13709)
- Furnished with all API 682 seal flush piping plans for improved seal life
- Single or dual cartridge type mechanical seals available to meet all process requirements
- Standard and close clearance throat bush for control of sealing chamber pressure

Shaft
- Extra heavy duty large diameter shaft for low shaft deflection and long life

Impeller Retention
- Per design requirements to suit existing impeller and new Sulzer shaft

Impeller
- Existing impeller
- Optional new impeller based on current operational requirements

Coupling (not shown)
- Flexible disk spacer couplings are supplied to comply with customer and API 610 requirements, on request



Coupling Guard
- Standard coupling guard meets API 610 (ISO 13709), ATEX and OSHA requirements
- Other types of guards are available

Bearings
- Thrust bearings are 7300 series, heavy duty 40 degree angular contact bearings with machined brass cages
- Mounted back to back
- Radial bearing is deep groove ball bearing with increased clearance as required by API 610

Bearing Housing
- Carbon steel construction with cooling fins for improved heat dissipation
- Variety of instrumentation available for condition monitoring
- Dimples are provided for consistent location when taking vibration measurements with a portable instrument

Bearing Isolators
- Non-metallic bronze bearing isolators or magnetic type oil seals provided to meet a variety of customer requirements

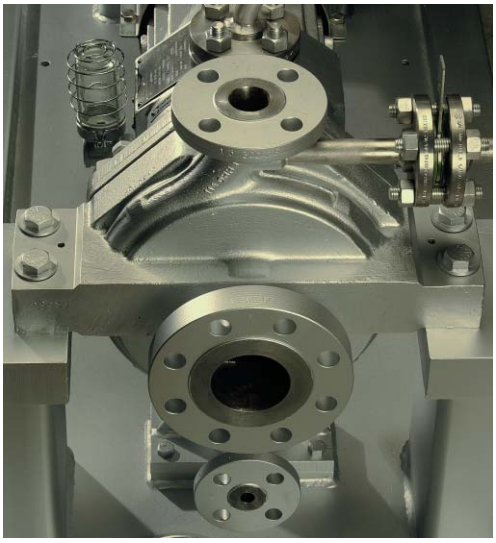
Case Cover
- New case cover with API 682 seal chamber
- Adaptation of existing flat gasket to spiral wound gasket design

Bearing Assembly
- Five sizes of bearing housing cover the product range for maximum interchangeability
- Pre-defined list of features available to meet the most difficult operating conditions
- Low noise fan added for high ambient or high product temperatures
- Oil sump heater added for low ambient or low product temperatures

Bearing Lubrication
- Standard highly effective ring oil lubrication system uses an oil ring mounted within a deep groove retainer that guarantees the oil ring does not become dislodged
- Bearing housing oil channel routes the lubricant to the rear of each bearing to ensure positive lubrication under all conditions
- Housing is supplied with connections for purge oil mist or pure oil mist
- Oil mist ports are located on the outboard side of each bearing to ensure positive oil mist flow through each bearing

Operating Data

	SI units	US units
Impeller size	152 to 533 mm	6 to 21 inches
Pressure	to 50 bar	to 735 psi
Temperature	to 425oC	to 800oF
Speed	to 3600 rpm	to 3600 rpm



Features and Benefits

	Design feature	Advantages	Benefits
Pump	Direct drop-in replacement for most API overhung process pumps	Less manpower required to effect the changeover	Reduced installation cost
	Seal chamber meets API 682 specifications	Seal chamber design is optimized	Extended seal life
Mechanical seal	Outside drive collar mechanical seal used	Seal setting position is readily accessible	Ease of seal setting
	Seal gland has register fit and gasket sealing	Positioning and sealing are repeatable	Ease of maintenance
Shaft	Optimized shaft diameter to overhang ratio	Lower shaft deflection at seal	Longer seal life and lower cost Extended bearing life
	Positive shouldering of bearing and seals	Assures proper assembly	Reduced maintenance time and longer operating periods
Bearing bracket	Large single piece finned bearing assembly	Positive housing to case cover alignment	Reduced maintenance cost and longer operating periods
		Large surface area for cooling	Longer bearing life
	Self-contained oiling system with internal circulation	No external oil system required	Longer bearing life and cooler operating bearings
		Adequate flow of oil throughout housing	
	Inboard ball bearing standard	Bearing has a higher load capacity	Extended bearing life
	Bearing isolators	Minimum external contamination of oil	Longer bearing life and extended operating periods
	Fan cooling standard	Cooling water may be eliminated below 800°F	Reduced installation costs for utilities as well as operating costs
		No utility connections required	
	Finned tube water cooling optional	Large surface area for positive heat transfer and temperatures to 425°C (800°F)	Extended range of applications for the product

SULZER

Check our worldwide offices at
www.sulzerpumps.com