

**Heavy Duty  
Process Pumps  
OH2 Type**

**SMK**

**API 610 10<sup>th</sup> ed.  
ISO 13709**



**Marelli  
Pumps**

# Marelli Pumps:

**More than 40 years of experience in centrifugal pumps design, development, manufacturing and servicing to comply the latest standards for petrol, petrochemical process and heavy duty processing industries, as full compliance machinery.**

## Applications

Marelli Pumps, based onto its high skilled experience, has developed tailor made solutions, matching the most exigent customer specifications regarding all heavy industries as:

- Refineries
- Petrochemical
- Oil and gas pipelines
- Off-shore and on-shore installations for petrol and gas
- Reverse osmosis
- Synfuels
- Heavy-duty industry applications
- Other intensive services and systems, where it is demanded high reliability and efficiency.

## Design

Marelli's SMK pumps series are end-suction, centreline mounted, radial split, overhung horizontal single and double volute centrifugal pumps. SMK OH2 pumps fully comply API 610 10<sup>th</sup> edition/ISO 13709.

## Operating data

- Capacities: up to 1500 m<sup>3</sup>/h (50 Hz)
- Heads: up to 280 meters (50 Hz)
- Temperatures: -150 °C to 450 °C
- Pressures: up to 80 bars
- Rotational speed: up to 4000 rpm

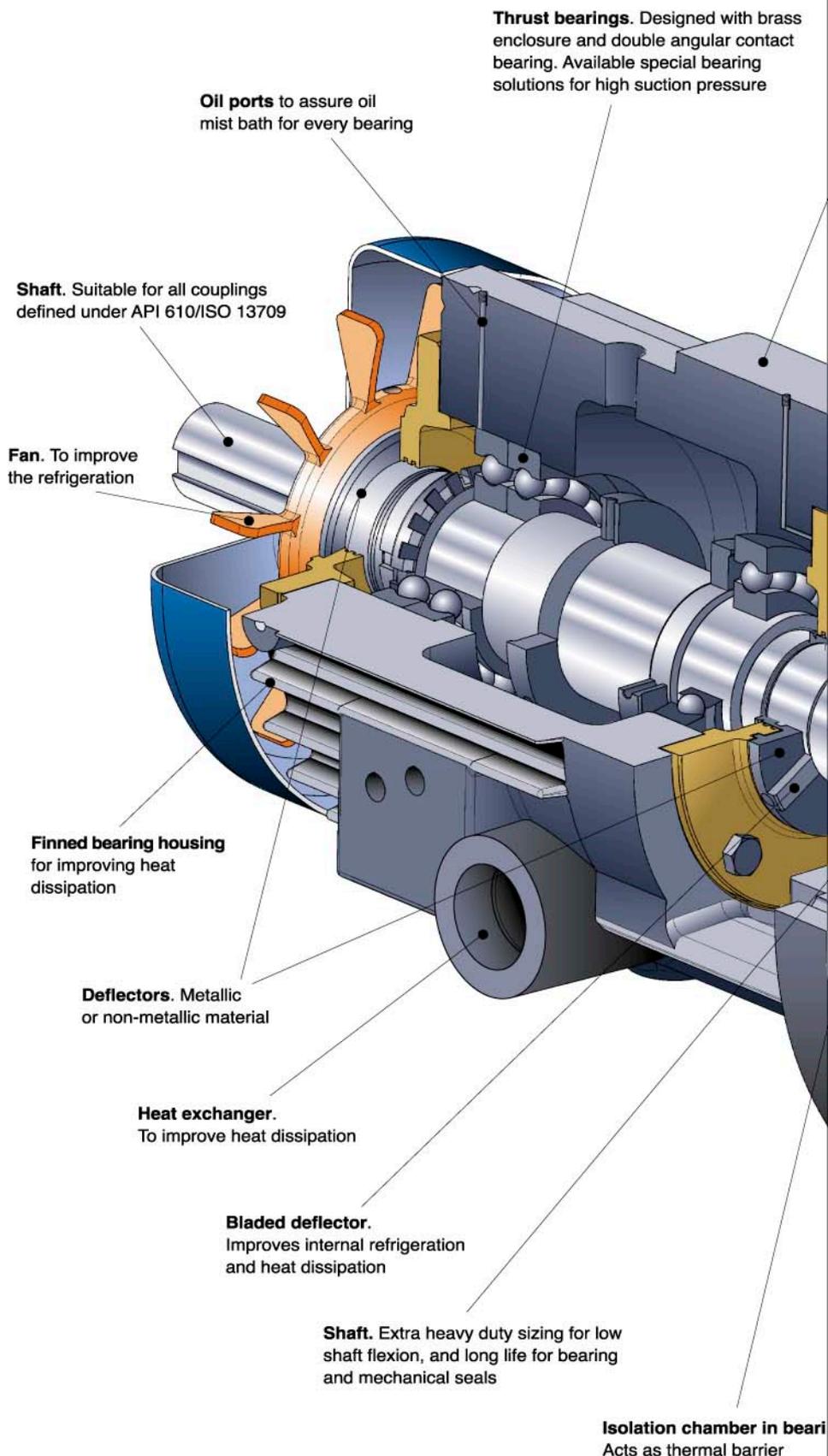
## Materials

PART	According to H1 - API 610 10 <sup>th</sup> Edition						
	S1	S5	S6	S8	C6	A8	D1
<b>Pressure casing</b>	Carbon steel (A216 WCB)				12 % CHR	316 AUS	Duplex
<b>Impeller</b>	Cast iron	Carbon steel	12 % CHR	316 AUS	12 % CHR	316 AUS	Duplex
<b>Wear rings</b>	Cast iron	12% CHR Hardened		Hard-faced 316 AUS	12% CHR Hardened	Hard-faced 316 AUS	Hard-faced Duplex
<b>Shaft</b>	Carbon steel	AISI 4140		316 AUS	12 % CHR	316 AUS	Duplex
<b>Bearing housing</b>	Carbon steel (A216 WCB)						
<b>Case gasket</b>	AUS, Spiral wound			316 AUS, Spiral wound	AUS, Spiral wound	316 AUS, Spiral wound	Duplex SS Spiral wound

**OTHER MATERIALS AND METALURGIES UNDER REQUEST**

## Standard features

- ❑ API 610 10<sup>th</sup> Edition/ISO 13709 **full compliance**.
- ❑ All pumps within SMK family suitable to work at **50 Hz and 60 Hz**. (*see performance coverage attached*).
- ❑ **Higher efficiencies**. Due to a design with tangential discharge and wide variety of hydraulics to match all kind of duty points.
- ❑ Centreline mounted. **Maximum stability** working at **high temperature** conditions.
- ❑ **Low Nss and low NPSHr**, based onto a wide choice of impellers for optimum efficiency over a big operating range.
- ❑ **Finned bearing housing** to perform maximum heat dissipation under API 610 compliance.
- ❑ Isolation chamber at bearing housing. **Thermal barrier** amongst mechanical seal chamber and bearing housing.
- ❑ Deflection system with fins to **improve refrigeration**.
- ❑ **Labyrinth deflector**, to avoid all kind of external contamination.
- ❑ High maintainable wear rings lay out design for cheapest, easiest substitution, then to **improve life cycle cost** of SMK pump type.
- ❑ Mechanical seals chambers suitable for cartridges defined under **API 682 3<sup>rd</sup> Edition**. Also meeting API 610 standards.
- ❑ **Socket welded flanges** drains and venting as standard, also available gussets and bracing.
- ❑ Choice of **multiple impellers** in each hydraulic pump casing for optimum efficiency over a wide operating range.
- ❑ A variety of instrumentation plugs is available for easiest installation on site. **Ready to fit** devices for monitoring all kind of operation conditions (temperature, pressure, vibrations, etc).



**Bearing housing.** Different sizes designed under the maximum interchangeability lay out

**Seal chamber.**  
API 610 heating or refrigeration available

**Casing gasket.**  
Confined compression gasket with metal to metal rabbet installation

**Pump casing.** Twin volute configuration to minimize radial loads and shaft deflections (over 3" discharge nozzle size). Flanges design under ASME VIII. Available top suction and lateral discharge

**Flanges ANSI B16.5 300#RF, 600#RF y 900#RF and their required serrations. Also available flanges ASME/DIN/ISO/JIS**

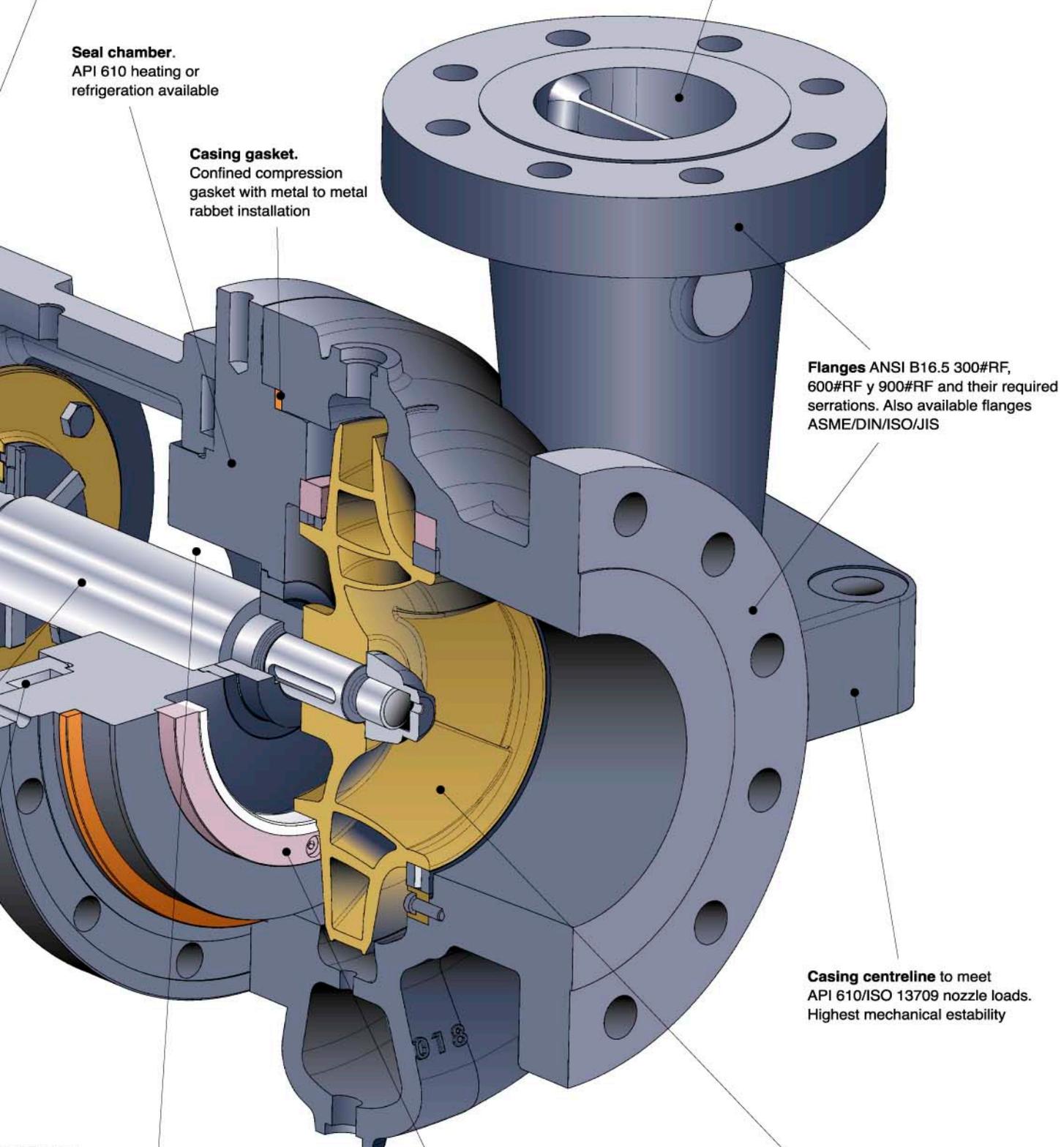
**Casing centreline** to meet API 610/ISO 13709 nozzle loads. Highest mechanical establiity

**g housing.**

**Seals Chamber.** Over dimensioned to API 610/ISO 13709. Ready to fit cartridge seals under API 682 3rd Edition

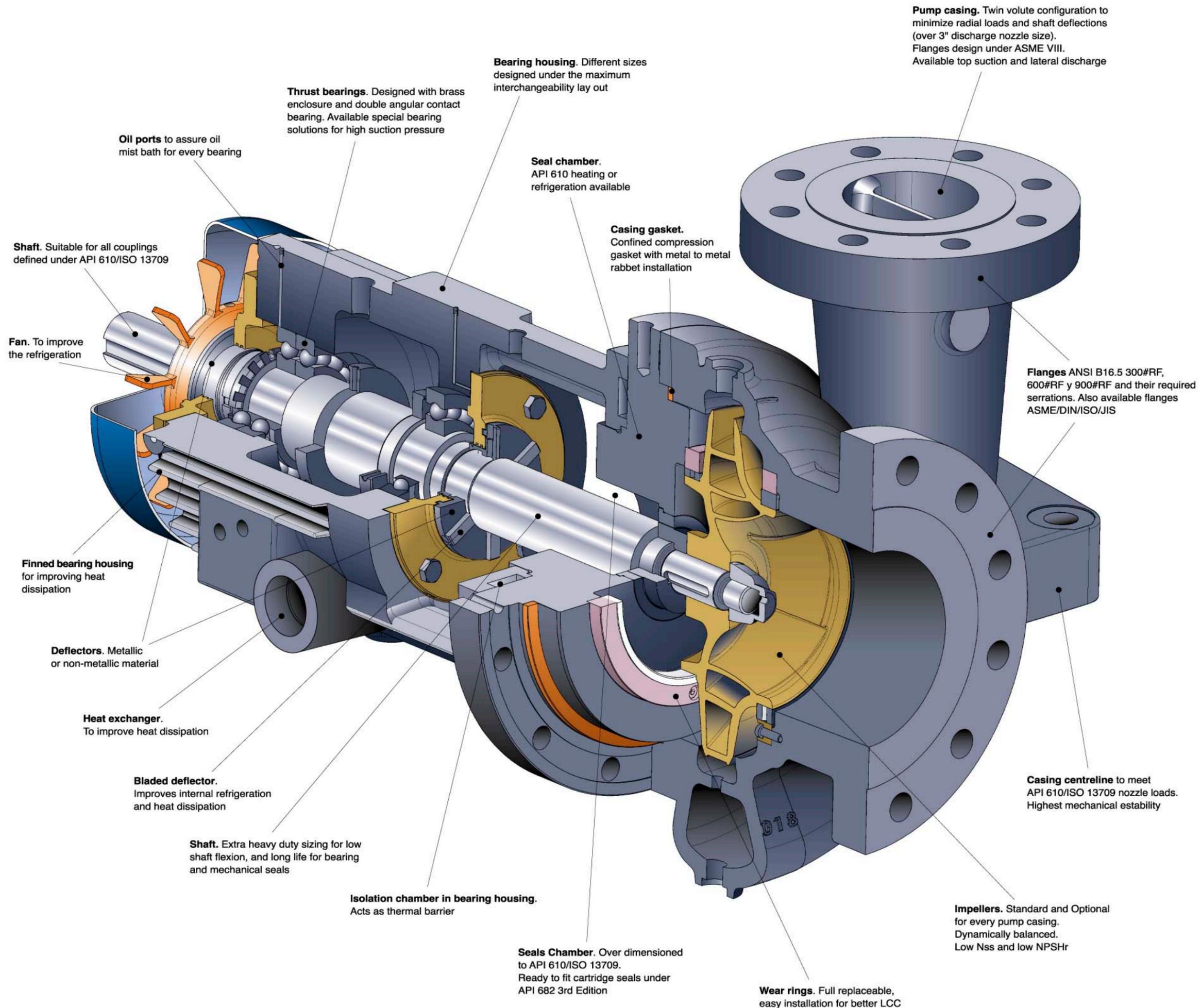
**Wear rings.** Full replaceable, easy installation for better LCC

**Impellers.** Standard and Optional for every pump casing. Dynamically balanced. Low Nss and low NPSHr



## Standard features

- ❑ API 610 10<sup>th</sup> Edition/ISO 13709 **full compliance**.
- ❑ All pumps within SMK family suitable to work at **50 Hz and 60 Hz**. (see performance coverage attached).
- ❑ **Higher efficiencies**. Due to a design with tangential discharge and wide variety of hydraulics to match all kind of duty points.
- ❑ Centreline mounted. **Maximum stability** working at **high temperature** conditions.
- ❑ **Low Nss and low NPSHr**, based onto a wide choice of impellers for optimum efficiency over a big operating range.
- ❑ **Finned bearing housing** to perform maximum heat dissipation under API 610 compliance.
- ❑ Isolation chamber at bearing housing. **Thermal barrier** amongst mechanical seal chamber and bearing housing.
- ❑ Deflection system with fins to **improve refrigeration**.
- ❑ **Labyrinth deflector**, to avoid all kind of external contamination.
- ❑ High maintainable wear rings lay out design for cheapest, easiest substitution, then to **improve life cycle cost** of SMK pump type.
- ❑ Mechanical seals chambers suitable for cartridges defined under **API 682 3<sup>rd</sup> Edition**. Also meeting API 610 standards.
- ❑ **Socket welded flanges** drains and venting as standard, also available gussets and bracing.
- ❑ Choice of **multiple impellers** in each hydraulic pump casing for optimum efficiency over a wide operating range.
- ❑ A variety of instrumentation plugs is available for easiest installation on site. **Ready to fit** devices for monitoring all kind of operation conditions (temperature, pressure, vibrations, etc).

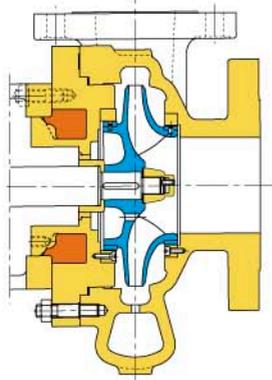


# Optional features

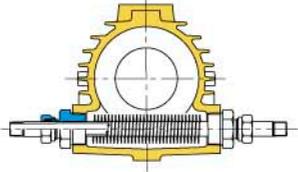
Marelli provides a **SMK** pump series with an open range of customized improvements, matching the highest heavy duty level of performances, comprising solutions for every demand.

## For High temperature

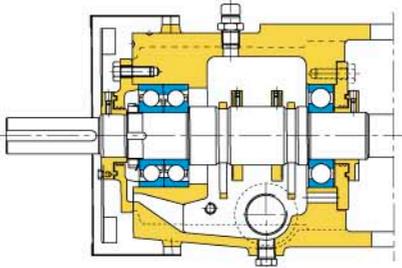
- Refrigerated mechanical seal chamber.



- External refrigeration for bearing housing with finned heat exchanger fed with inert fluid and / or water.



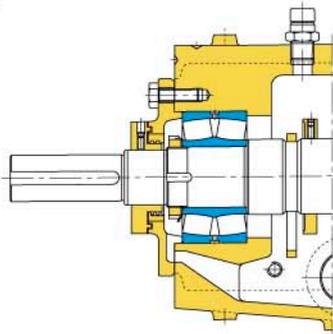
- Convection venting for bearing housing with a low noise fan placed at rear in coupling side.



## For High suction pressure

- Heavy duty designs of bearing housings for high intake pressure applications.
- Mechanical seals defined under particular performances matching high grade requirements.
- Pump casing and seal chamber dimensioned adequately to high suction pressure.

- Available special bearings solutions.

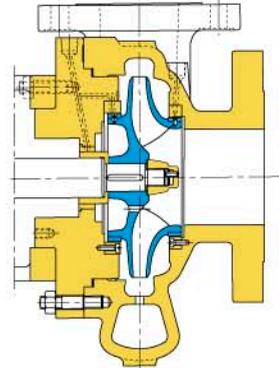


## For Lubrication system

- Purge ports with drainage valve. Test gauges for conditions analysis.
- Oil mist lubrication system with purge ports are outboard for assuring mist flow through each bearing.

## For Coking services

- Backwash system for wear rings and neck bush.
- Specific coke crusher under particle demand.

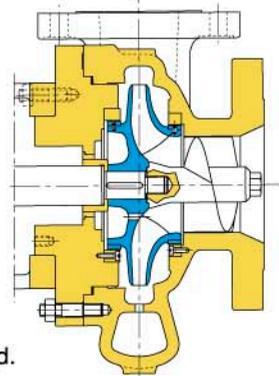


## Base plates

- Pre-grouted and non-grouted for all kind of driver.
- Special larger bases design to match oversize drivers, pumps and turbines. Also special design for extra mechanical stress situations.
- Tailor made base plates for off-shore applications.
- Skid mounting type available.

## Other available solutions

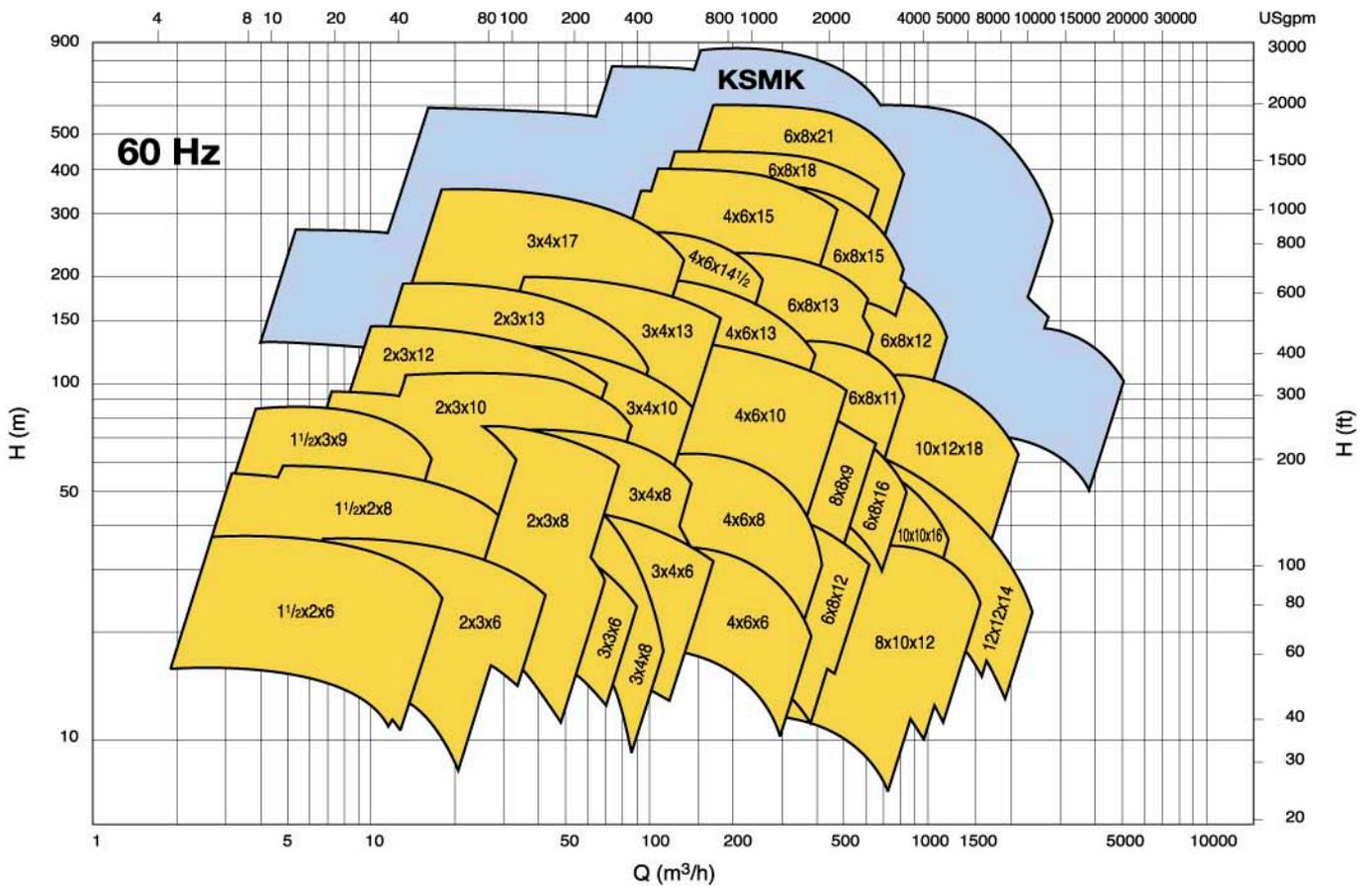
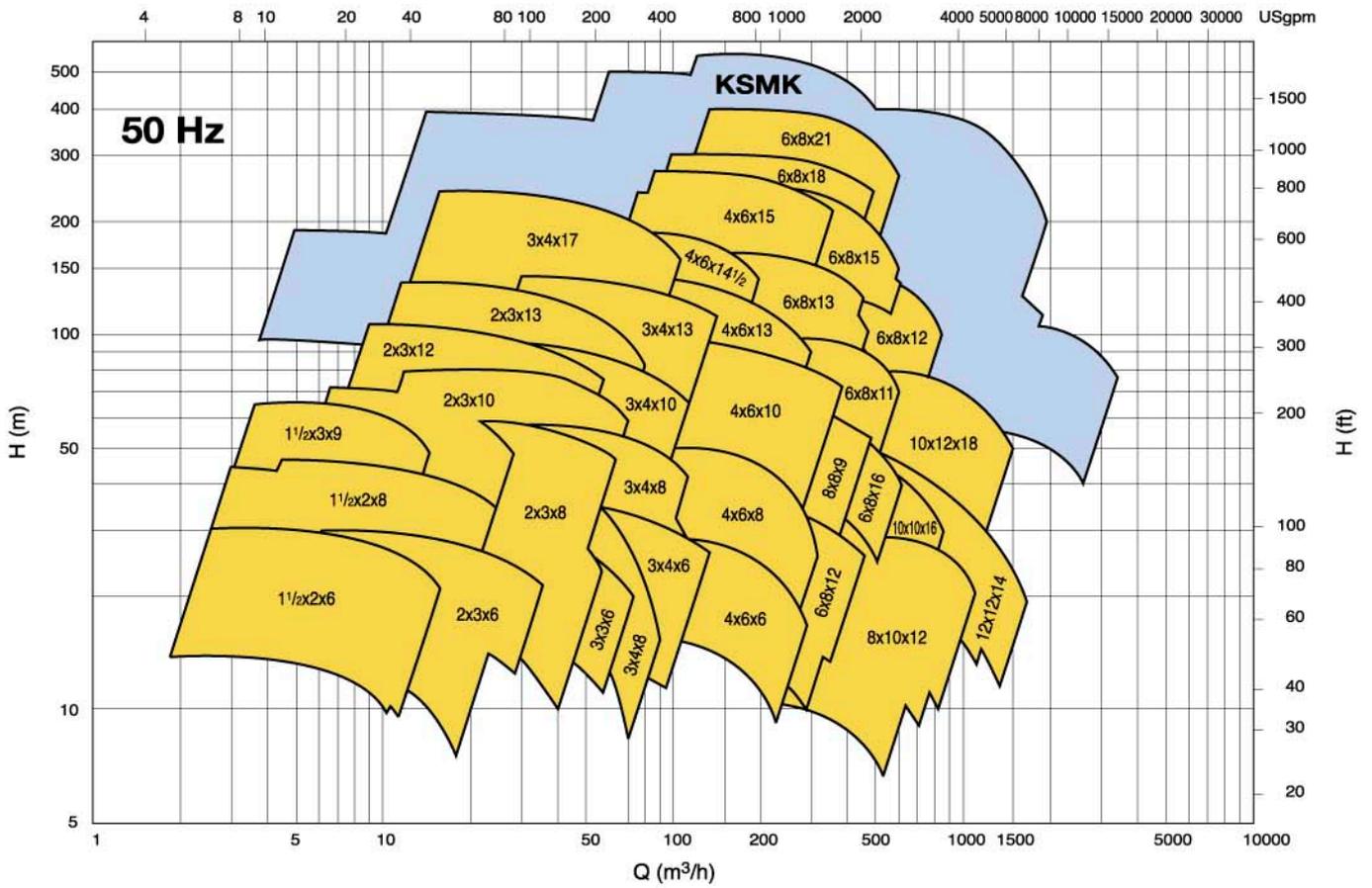
- State of the art inducer designs to improve suction capacity.
- Top suction designs on demand.
- Lateral right/left side pump discharges for matching existing pipe works at plant.



## Marelli SMK series

**Pumps designed for minimizing the life cycle cost, improving pumps MTBF.**

# Performance curves



**Bombas Ercole Marelli, S.R.L.**  
 Ctra. Madrid-Toledo, Km. 30,8  
 45200-ILLESCAS (Toledo) SPAIN  
[www.marellipumps.com](http://www.marellipumps.com)

Tel.: +34 925 511 200  
 Fax: +34 925 511 600  
[marellipumps@marellipumps.com](mailto:marellipumps@marellipumps.com)