

**Heavy Duty
Process Pumps
BB3 Type**

DVMX

**API 610 10th ed.
ISO 13709**



**Marelli
Pumps**

Marelli Pumps:

More than 40 years of experience in centrifugal pumps design, development, manufacturing and servicing, to fulfil 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 for high-pressure water and hydrocarbon services, matching the most exigent customer specifications regarding all heavy industries as:

- Refineries
- Desalination plants
- Water injection platforms
- Power plants
- Boiler-feed water in cogeneration
- Mine dewatering
- Process charge
- Descaling
- Condensate extraction
- CO₂ injection
- Process transfer
- Petrochemical plants
- Crude Oil and gas pipelines
- Oil fields and terminals
- Off-shore and on-shore installations for petrol and gas
- Reverse osmosis
- Synfuels
- High pressure heavy-duty industry applications
- Other intensive high-pressure services and systems, where it is demanded high reliability and efficiency

Design

Marelli's DVMX pumps series are horizontal axial split case multi-stage pumps with back to back mounted impellers running in heavy duty double volute casings, near centreline mounted, those pumps fully comply with API 610 10th edition/ISO 13709.

Operating data

- Capacities to 1500 m³/h (50 Hz)
- Heads to 1500 meters (50 Hz)
- Temperatures to 210 °C
- Pressures: up to 275 bars
- Rotational speed: up to 6000 rpm
- Specific gravities over 0.7

Materials

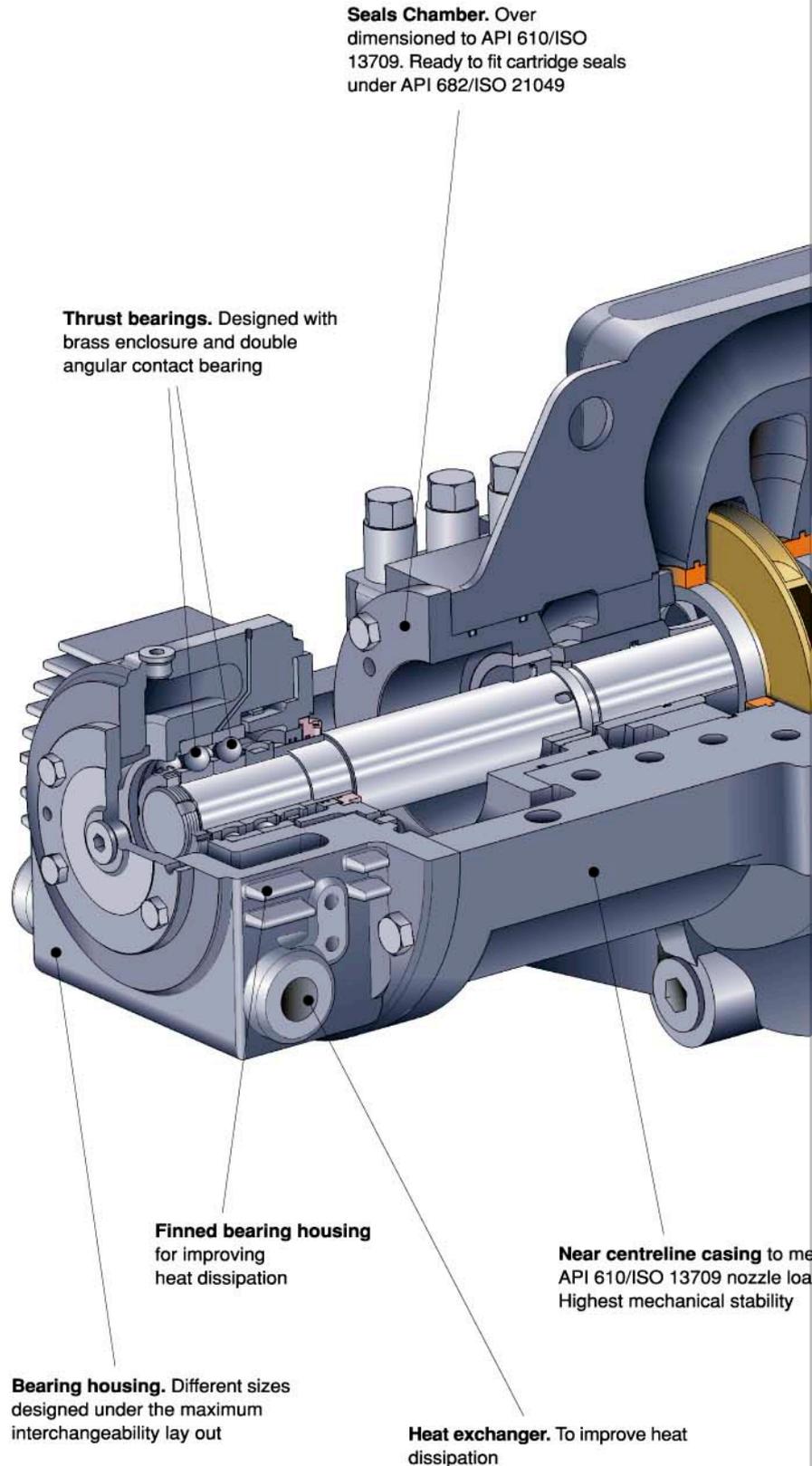
PART	According to H1 - API 610 10 th Edition						
	S1	S5	S6	S8	C6	A8	D1
Pressure casing	Carbon steel (A216 WCB)				12 % CHR	316 AUS	Duplex
Impeller	Cast iron	Carbon steel	12 % CHR	316 AUS	12 % CHR	316 AUS	Duplex
Wear rings	Cast iron	12% CHR Hardened		Hard-faced 316 AUS	12% CHR Hardened	Hard-faced 316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

OTHER MATERIALS AND METALURGIES UNDER REQUEST

Standard features

- ❑ API 610 10th Edition/ISO 13709 **full compliance**.
- ❑ **Near-centreline** mounted.
- ❑ Impeller back-to-back design for **compensating axial thrust** over entire operating pump range.
- ❑ Single suction radial closed impeller, with **large eye area**.
- ❑ **Side-Side nozzle arrangement**. Nozzles are cast integral for easy disassembly without disturbing auxiliary pipe work.
- ❑ **Balancing line design**, for equalizing pressures in seals chambers.
- ❑ High maintainable wear rings lay out design for cheapest, easiest substitution, then to **improve life cycle cost** of DVMX pump type
- ❑ **Ring Oil** lubrication system.
- ❑ Shaft sleeves **preventing counter-rotations**.
- ❑ All pumps within DVMX family suitable to work at **50 Hz and 60 Hz**. (see performance coverage attached).
- ❑ **Dual volute** for balancing radial thrust at each stage for extending seal/bearing life.
- ❑ **Cartridge type mechanical seals** for easy assembly and proper installation.
- ❑ **Dynamic flows analysis** assures stable performances and high efficiency levels, with high mechanical reliability.
- ❑ Seal chamber in compliance with **API 682 3rd Edition/ISO 21049**, ready to accommodate single, tandem or double mechanical seals.
- ❑ **Casings** supplied under **ASME B16.5** classes 600, 900 and 1500.
- ❑ Cap nuts arranged for **best maintainability** and lowering life cycle costs.
- ❑ **Extra large shafts** diameter design to minimize deflection in operation.
- ❑ Pumps packages provided to match **customer specifications**.
- ❑ 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. **Ready to fit** devices for monitoring all kind of operation conditions (temperature, pressure, vibrations, etc).
- ❑ **Socket welded flanges** drains and venting as standard, also available gussets and bracing
- ❑ **Labyrinth deflector**, to avoid all kind of external contamination.

Impeller
for every
Dynamic



Seals Chamber. Over dimensioned to API 610/ISO 13709. Ready to fit cartridge seals under API 682/ISO 21049

Thrust bearings. Designed with brass enclosure and double angular contact bearing

Finned bearing housing for improving heat dissipation

Near centreline casing to meet API 610/ISO 13709 nozzle load. Highest mechanical stability

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

Heat exchanger. To improve heat dissipation

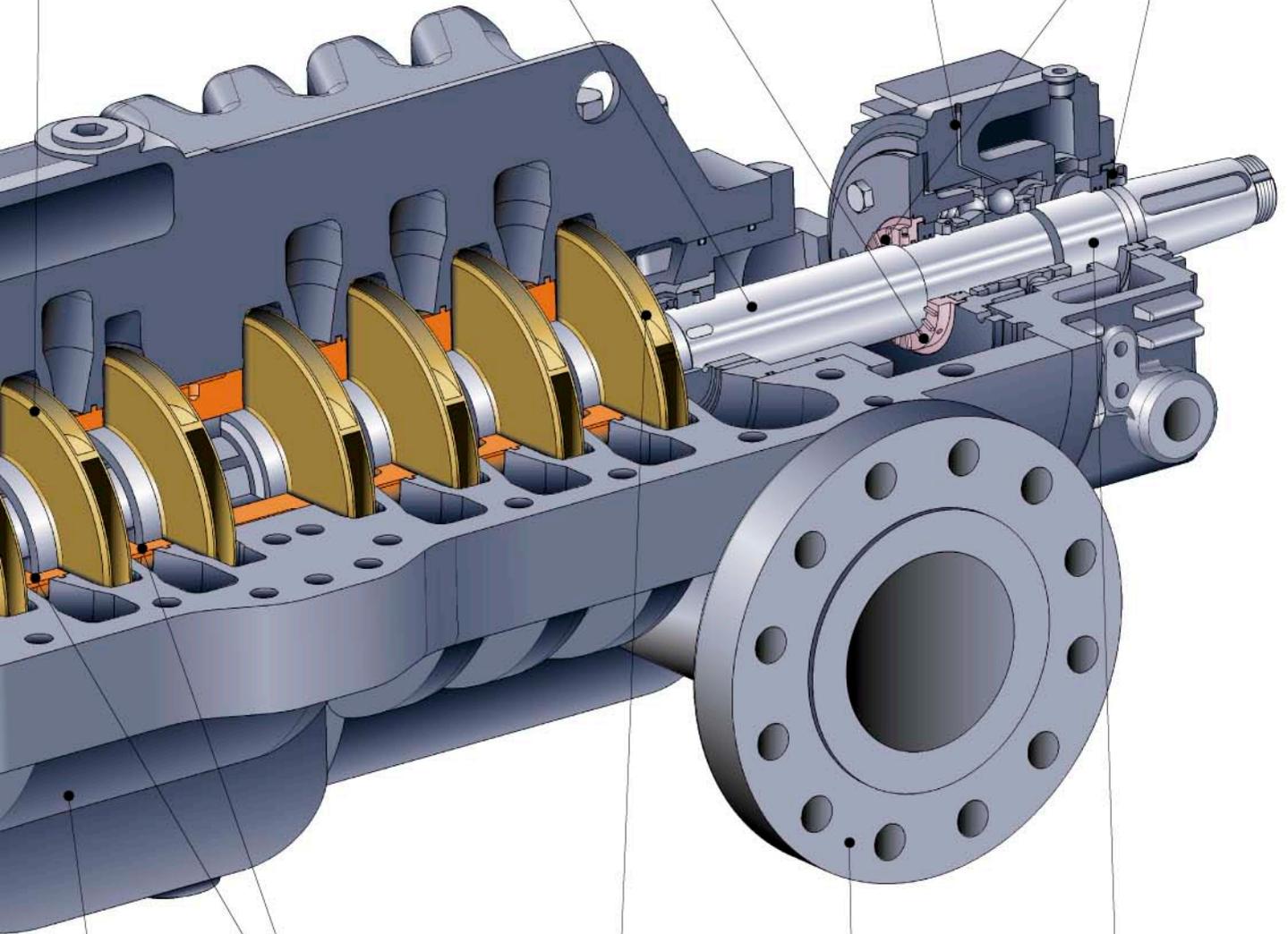
rs. Standard and Optional
y pump casing.
cally balanced

Shaft. Suitable for
all couplings defined
under API 610/ISO 13709

Oil ports to assure oil mist bath
for every bearing

Finned deflector.
Improves internal refrigeration
and heat dissipation

Deflectors. Metallic or
non-metallic material



Split wear rings. Full replaceable,
easy installation for better LCC.

Shaft. Extra heavy duty sizing for
low shaft flexion, and long life for
bearing and mechanical seals

First stage impeller. Low Nss
and low NPSHr.

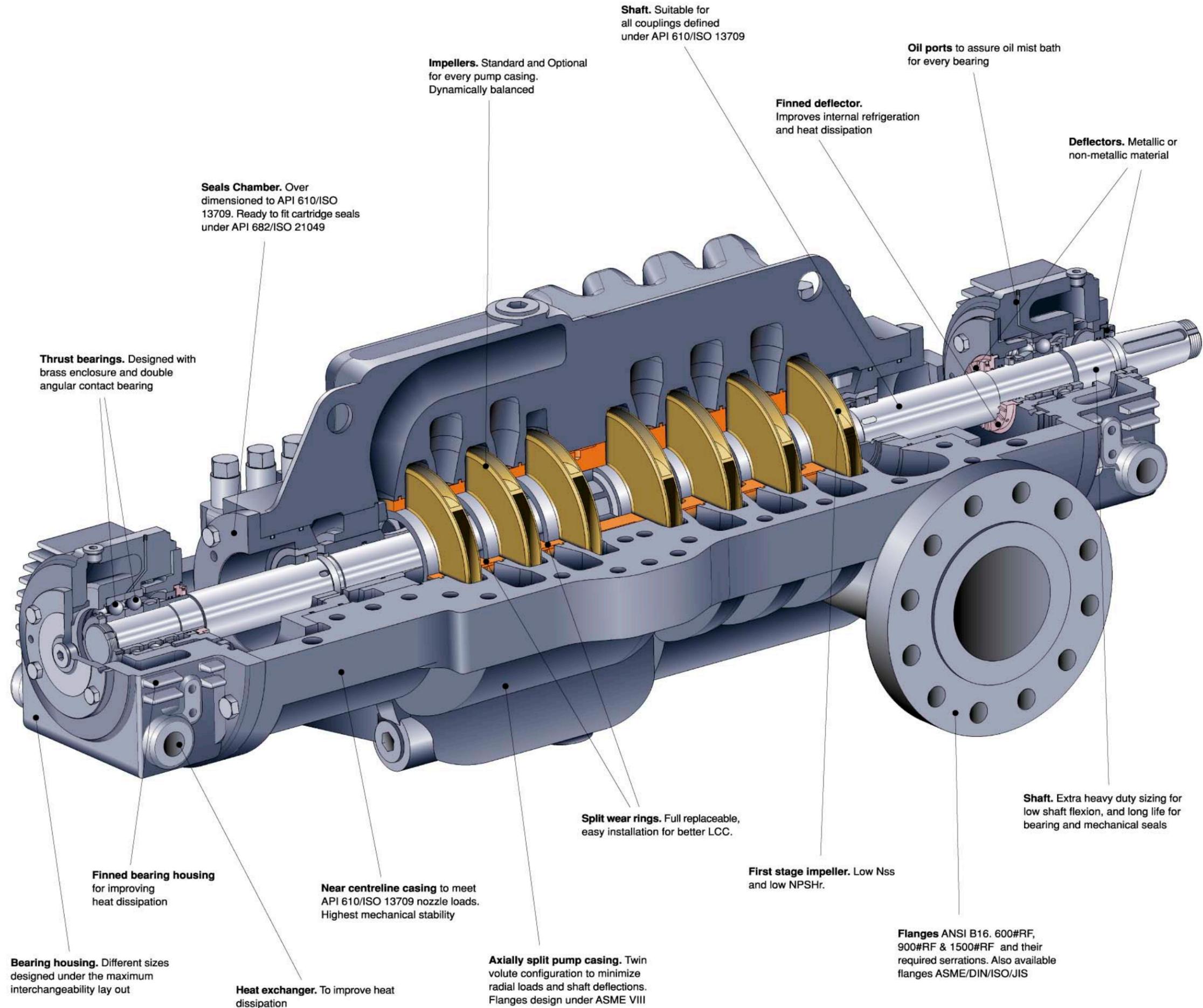
**Flanges ANSI B16. 600#RF,
900#RF & 1500#RF** and their
required serrations. Also available
flanges ASME/DIN/ISO/JIS

Axially split pump casing. Twin
volute configuration to minimize
radial loads and shaft deflections.
Flanges design under ASME VIII

et
ds.

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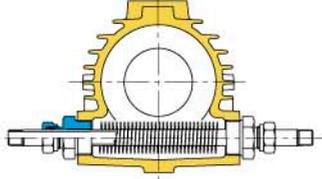
Optional features

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

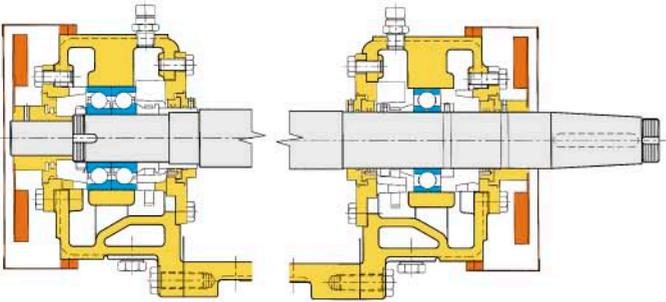
For High temperature

- Refrigerated mechanical seal chamber.

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

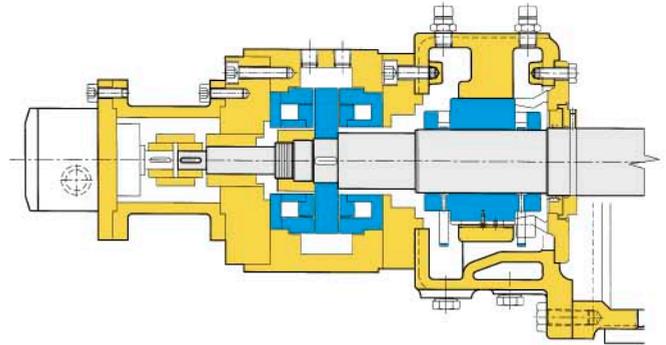


- Convection venting for bearing housing with a low noise fan placed at rear in coupling side.



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.
- Available special bearing solutions like tilting-pad thrust bearing (Kingsbury® type)



For Lubrication system

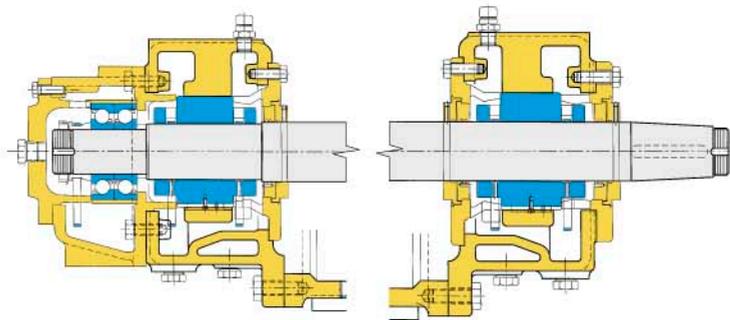
- Purge ports with valve. Test gauges for conditions analysis.
- Oil mist lubrication system with purge ports is outboard for assuring mist flow through each bearing.

Base plates

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

Other available solutions

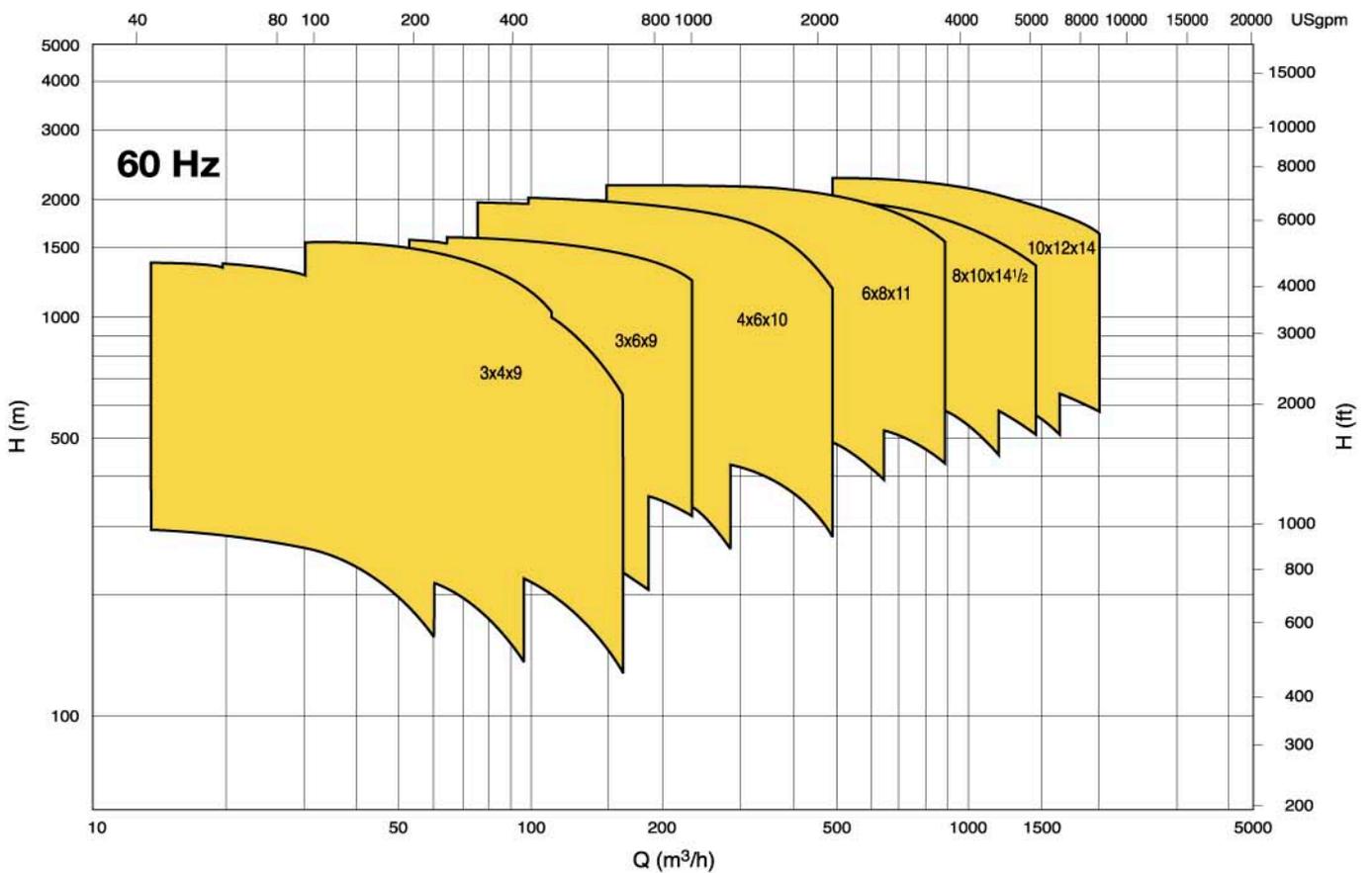
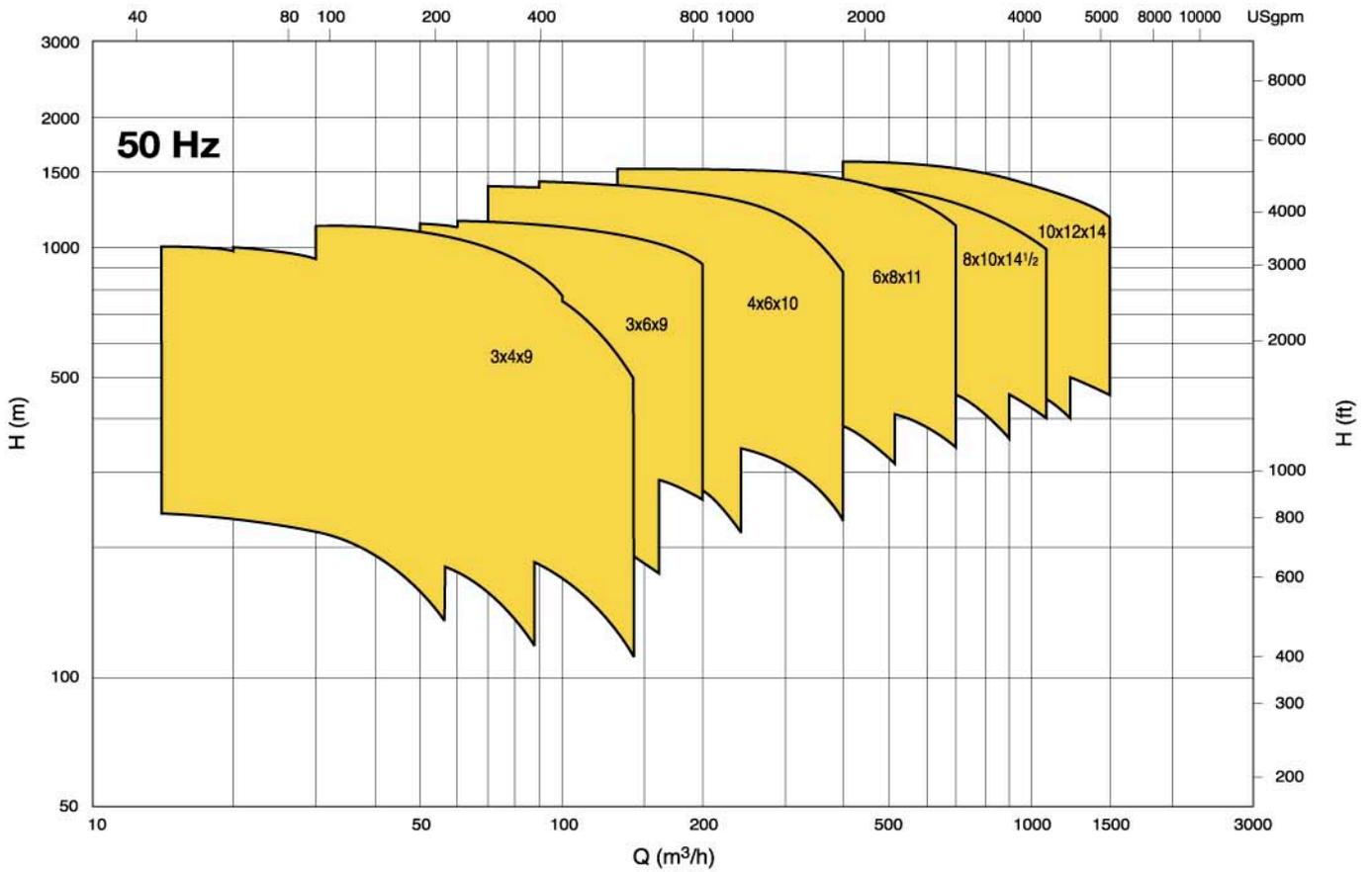
- Double suction first stage impeller available for obtaining low Nss and low NPSHr.
- Special bearing construction. Suction side (sleeve bearing). Delivery side (ball bearing + sleeve bearing).



Marelli DVMX series

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

Performance curves



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