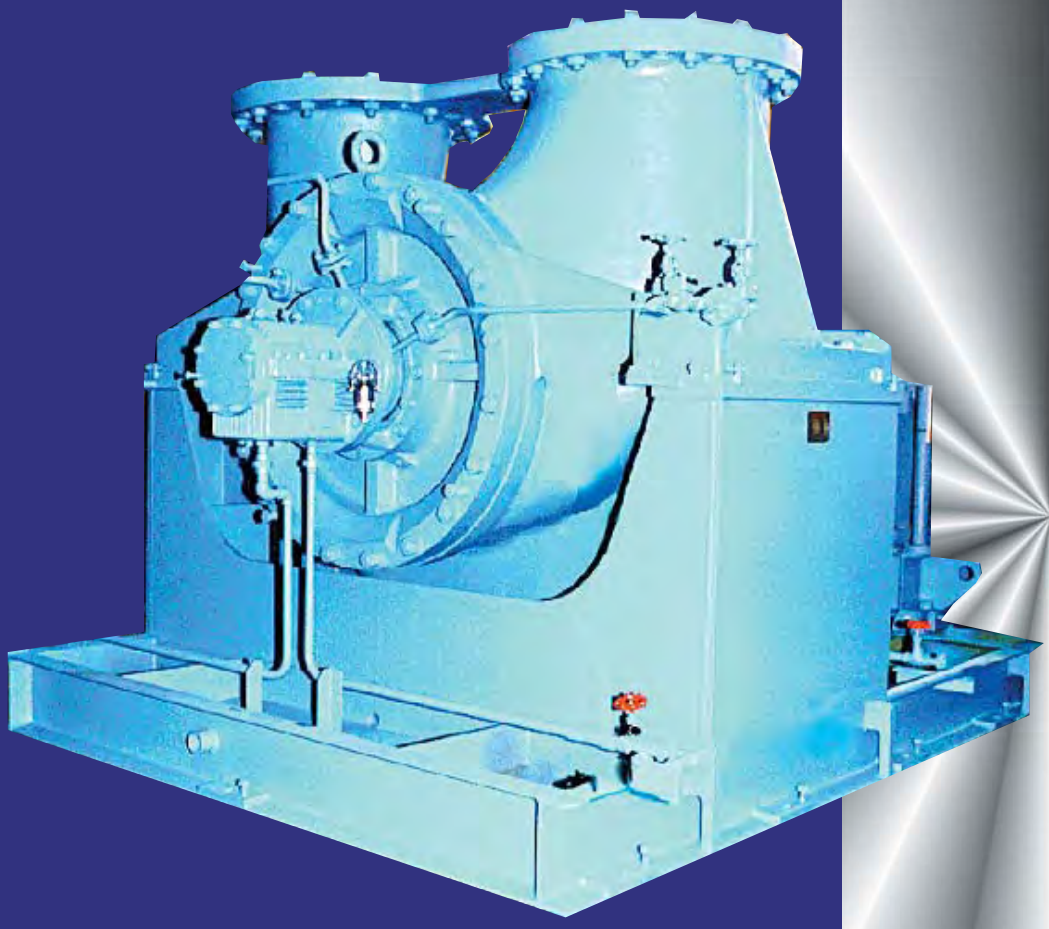
SNM RADIALLY SPLIT SINGLE STAGE PUMPS

Model HDV

API 610 11th Edition Process Pump



SHIN NIPPON MACHINERY CO.,LTD.

MODEL HDV Radially Split Single Stage Between Bearings Pumps (API Class BB2)

Design Feature

- The model HDV is horizontal, radially split, single stage, double suction, double volute, centerline support, between bearings process pump.

- The HDV is suitable for low NPSH, large capacity and high temperature application.

- Heavy duty construction is in full compliance with API 11th edition.

- Seal chamber
  Seal chamber dimensions are in full compliance with API682 and API610 standards.
  Dual seals can be installed with our standard seal chamber dimension.

- Easy maintenance
  Overhaul can be carried out without disrupting main pipings and driver.
  Jack bolt is furnished at rabbeted fit area in order to prevent obstruction of disassembly by sticking .

- Long bearing life
  Double volute casing and double suction impeller design produce pumps with optimum radial and axial forces balance, ensuring smooth operation and long bearing life.

- Low vibration
  Full circular construction of bearing housing and optimum clearance design minimizes vibration of pump.

- Minimal variety of spare parts
  By standardizing our horizontal, between bearings pumps, replacement parts are interchangeable and can be provided with little or no lead time.

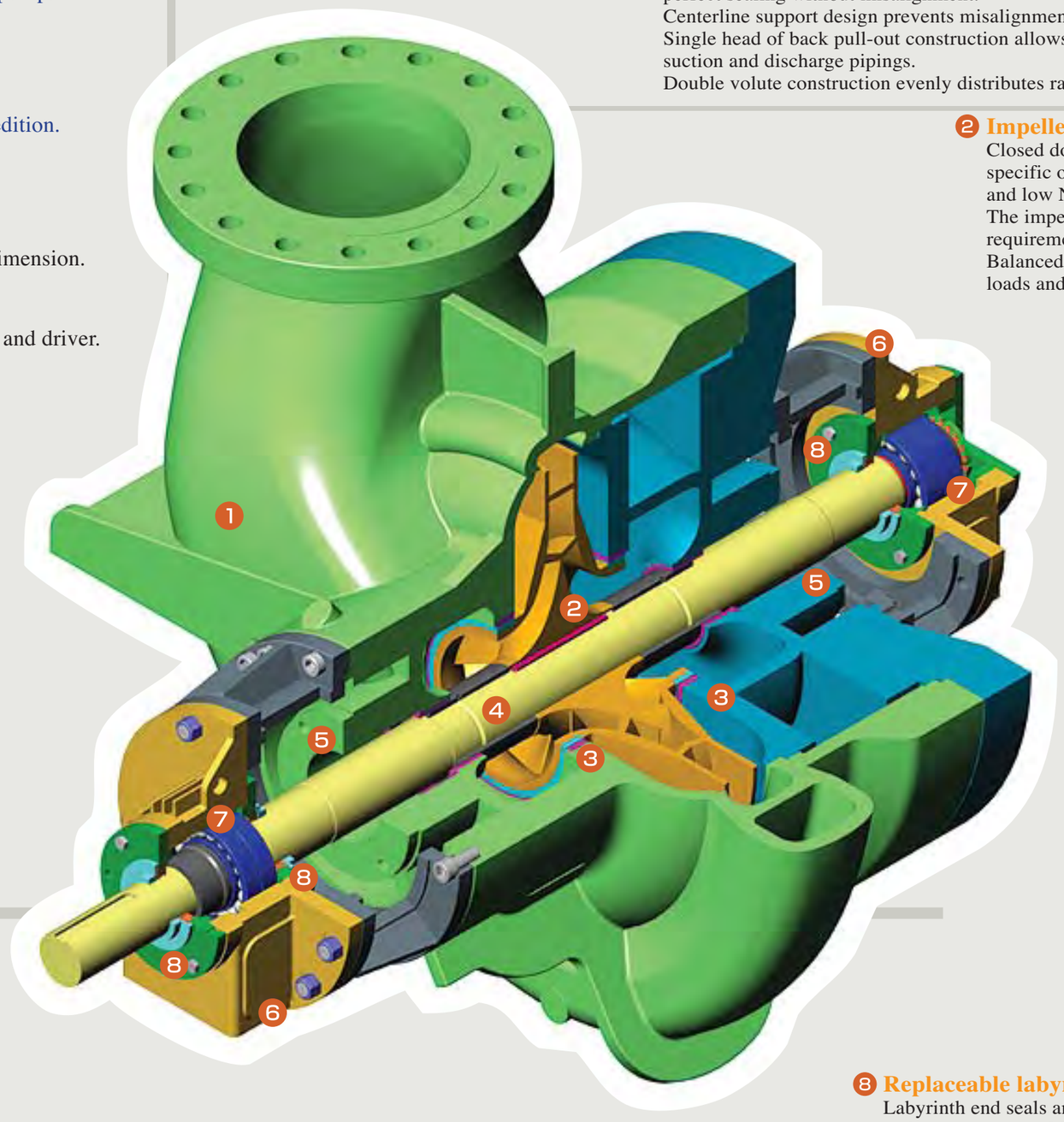
- Self vent
  Top discharge, top suction nozzles are capable of self venting and ensure smooth start up.

Specification

- Max. flow rate up to 5000 m^3/h

- Max. differential Head up to 500 m

- Max. operation temperature up to 400˚C



1 Casing
The casing is designed in full compliance with API610. (design pressure, nozzle force and moment, etc.)
Radially split casing is metal-to-metal fitted with a controlled compression gasket which ensures perfect sealing without misalignment.
Centerline support design prevents misalignment caused by thermal expansion.
Single head of back pull-out construction allows removing rotor without dirupting driver and the suction and discharge pipings.
Double volute construction evenly distributes radial forces.

2 Impeller
Closed double suction impeller is designed to meet the specific operating condition with the maximum efficiency and low NPSH-required (NPSH3).
The impeller is dynamically balanced to meet the API610 requirement.
Balanced construction of double suction reduces thrust loads and prolongs bearing life.

3 Renewable wear rings
Renewable wear rings are furnished.

4 Stiff shaft
Minimizes shaft deflection for longer bearing and seal life.

5 Shaft seals
Mechanical seal is applicable to all seal types and plans in accordance with API682 and API610.
Upon request, gland packing can be installed.

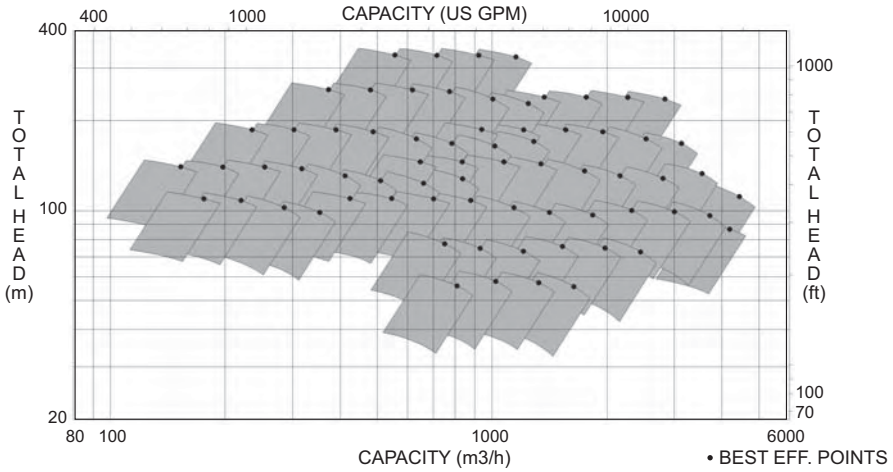
6 Bearing housing
Full circular bracket construction minimizes vibration of bearing housing. So Pump vibration is much lower than the limit of API610. If high temperature service is specified, suitable cooling system is furnished.

7 Bearings
Bearings and lubrication systems are available in three Configurations to meet service conditions and the requirements of API610.
1. ball radial and angular contact ball thrust / flooded lubrication
2. sleeve radial and angular contact ball thrust / oil ring lubrication
3. sleeve radial and tilting pad thrust / pressurized lubrication

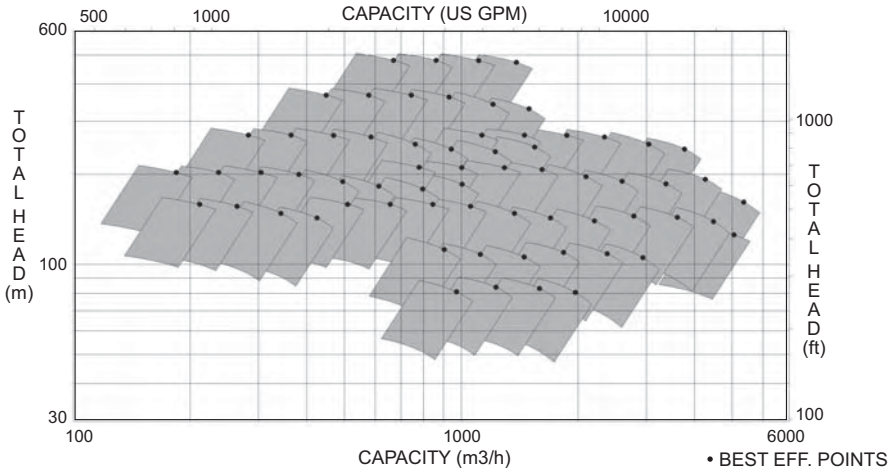
8 Replaceable labyrinth end seals and deflectors
Labyrinth end seals and deflectors effectively retain oil in the housing and prevent entry of foreign material into the housing.

Model HDV performance chart

Coverage-50Hz



Coverage-60Hz



Note: Performance chart abobe represent 80% to 110% of best efficiency point.
(※) In addition to above-mentioned chart, we will provide the best design for your application.

Optional Feature

Design for optimum operating condition

・3D machined impeller

3D machined impellers(※) can be designed and produced to meet specific operating condition by using advanced flow analysis method.

(※)Machining processes for fabricated impellers offer capabilities for more exact profiles and higher efficiency.

3D machined impeller

For higher efficiency requirement

・Non-metallic material wear rings

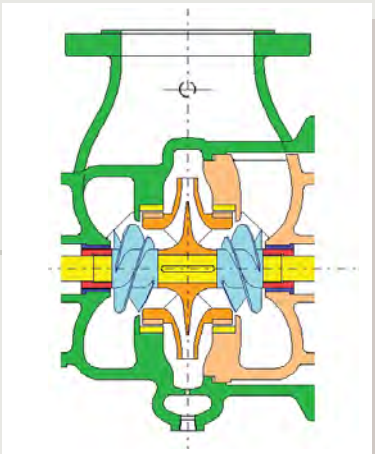
Use of non-metallic material wear rings ensures improvement of pump efficiency.
Running clearance can be reduced with improved operating reliability as well as termination of seizure under specified operating conditions.

Optional Feature

For lower NPSH applications

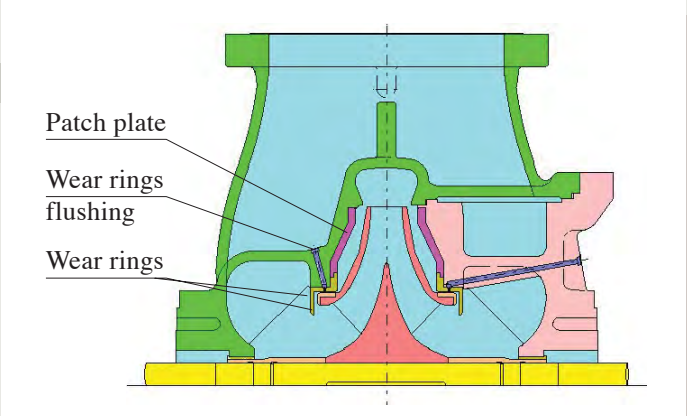
・Suction inducer
Machined inducer with high efficiency can be installed

Suction inducer



For slurry services (quench oil circulation pump, etc.)

Pump is attached to patch plate, wear rings flushing system, etc. in order to prevent erosion caused by slurry in pumping liquid and produces reliable operation.



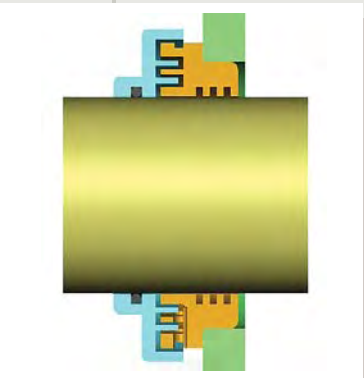
Special protector

・Special labyrinth seal and deflector
・Special gas breather
・Bearing protector

The above-mentioned parts will prevent lubricant contamination cased by cloudburst, sandstorm, entry of steam and other heavy condition.

Bearing protector

Special gas breather



Special labyrinth seal And deflector

Optional lubrication

・Oil mist lubrication
Oil mist lubrication can be provided.

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