

HANDOL

The Cornerstone of Pump Technology



HISTORY

1993

03 HANDOL PUMPS LIMITED was founded in Incheon, Korea.

1995

10 Headquarters including the factory moved to Namdong National Industrial Complex in Incheon, Korea

1996

11 Awarded as the Developer of High Pressure Boiler Feed Pumps for Co-generation Power Plant by Government.

1998

12 ISO 9001 Certification

2000

11 Opened HANDOL PUMPS R&D Center

2001

03 Registered as a Pump supplier for Korean Nuclear Power Plants

2010

07 CE-ATEX Certification

12 ISO 14001 Certification

2012

05 Completed New Headquarters building in the current location, Namdong Indus Park in Incheon, Korea

2013

01 Completed New Factory & Test Facilities in the current location, Namdong Indus Park in Incheon, Korea.

2015

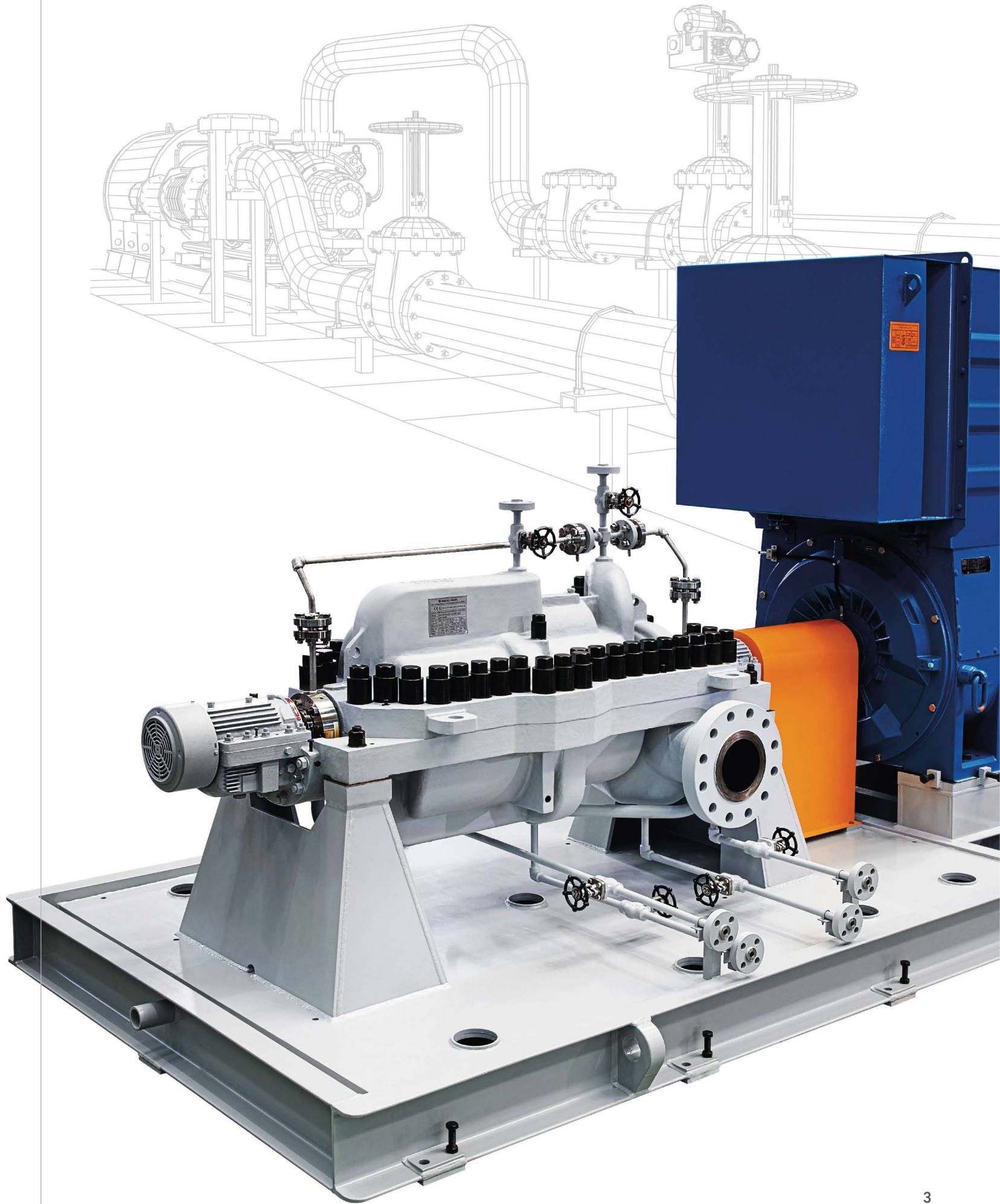
04 OHSAS 18001 Certification

2020

03 ISO 45001 Certification

2022

08 Certificate of Excellent ESG that fulfills corporate social responsibility of the global standard.



GLOBAL HANDOL

AMERICA Brazil, Chile, Colombia, USA

AFRICA Algeria, Egypt, Ghana, Libya, Sudan, South Sudan

EUROPE Austria, Azerbaijan, Belarus, Bulgaria, Croatia, Russia, Serbia

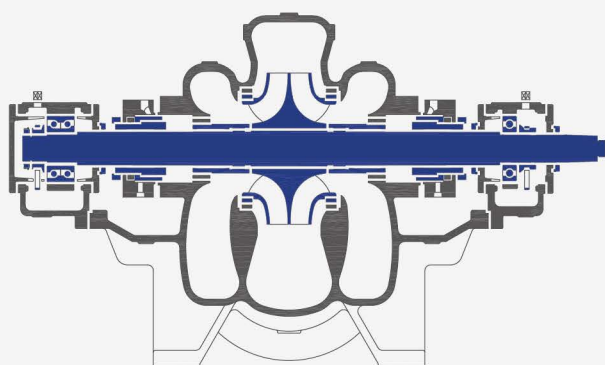
ASIA Bangladesh, China, India, Indonesia, Iran, Iraq, Japan, Jordan, Korea, Malaysia, Qatar, Saudi Arabia, Singapore, Sri Lanka, Taiwan, Thailand, U.A.E, Vietnam



MAJOR MODELS

SEGMENT MATRIX

Product Types	Pump Model	API 610 Pump Type	Oil & Gas Up-and Midstream	Oil & Gas Downstream	Power Generation	Water & Wastewater	Chemical	Pulp & Paper
Axially Split Pumps	DSA	BB1	●	●	●	●		
	DSH / DCN	BB1			●	●	●	●
	ASM	BB3	●	●	●	●	●	●
	SM / SMB	BB3	●	●	●	●	●	●
Double-Casing Pumps	BTN	BB5	●	●	●			
Ring section Pumps	STN	BB4	●		●	●	●	●
	STN-RO	BB4				●		
	TMN / TMS	BB4			●	●	●	●
Two-stage Pumps	RT	BB2	●	●	●		●	
Single-stage Pumps	RDA	BB2	●	●	●		●	
	IPH	OH1	●	●	●	●	●	●
	HPP	OH1		●	●	●	●	●
	HPH	OH2			●			
	AH	OH2	●	●	●		●	
	LNA	OH2	●	●	●		●	
	APVF	OH3	●	●			●	
	IPV	OH4			●		●	
Magnetic Drive Pumps	MDA	API685		●		●	●	
Vertical Pumps	VTH	VS1	●	●	●	●	●	●
	HPV	VS4	●	●	●	●	●	●
	VLN	VS4	●	●			●	
	VW	VS4	●	●	●	●	●	
	VCH	VS6	●	●	●	●	●	●
	VCTM	VS6	●	●	●	●	●	●
Axial Flow Pumps	HAF					●	●	



DSA

API 610 Type BB1
Axially Split Single-Stage Double Suction Pump

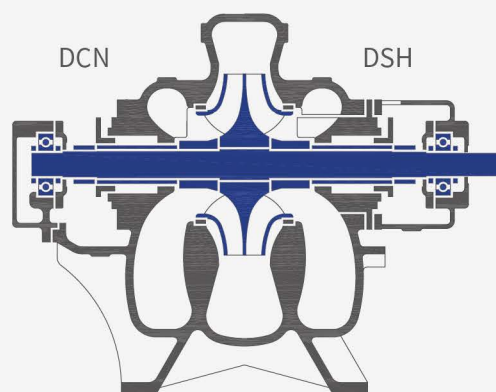
Capacity	Pressure	Temperature
Up to 15,000 m ³ /h	Up to 25 bar	Up to 150°C

APPLICATIONS

- Hydrocarbon and Water Transfer
- Petroleum Refining, Production and Distribution
- Petrochemical and Heavy Duty Chemical Processing
- Hydrocarbon and Water Pipeline
- Power Generation
- Gas Scrubbing
- Cooling Water

FEATURES & BENEFITS

- Full compliance with API 610, latest edition.
- For larger size, Double Volute Casing minimizes radial thrust, thus reduces shaft deflection.
- Double Suction Impeller minimizes axial thrust and allows low NPSHR and highly efficient, vibration-free operation.
- Robust Foot-Mounted resists external forces and vibration.
- Renewable Wear Rings ensure hydraulic stability and efficient operation.
- Large Diameter Shaft and Short Bearing Span minimize deflection.



DSH / DCN

API 610 Type BB1
Axially Split Single-Stage Double Suction Pump

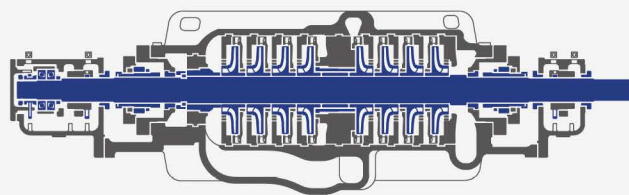
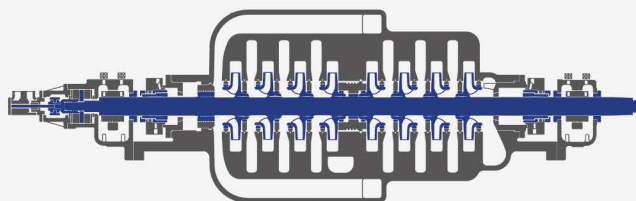
Capacity	Pressure	Temperature
Up to 15,000 m ³ /h	Up to 25 bar	Up to 150°C

APPLICATIONS

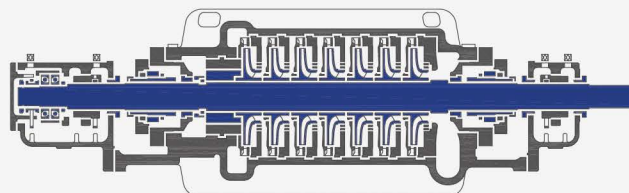
- Industrial Process
- Water Intake, Distribution, Boosting, Circulation, Drainage, Fire-Fighting
- Seawater Desalination
- District Heating and Cooling
- Pipe-Line Boosting
- Fire-Fighting

FEATURES & BENEFITS

- This type does not meet all the requirements of API 610.
- Double Suction Impeller minimizes axial thrust and allows low NPSHR and highly efficient, vibration-free operation.
- Robust Foot-Mounted resists external forces and vibration.
- Renewable Wear Rings ensure hydraulic stability and efficient operation.
- Large Diameter Shaft and Short Bearing Span minimize deflection.
- For larger size, Double Volute Casing minimizes radial thrust, thus reduces shaft deflection.



SM (Back-to-Back)



SMB (In-Line)

ASM

API 610 Type BB3
Axially Split Double Volute Type Multistage Pump

Capacity	Pressure	Temperature
Up to 2,000 m ³ /h	Up to 200 bar	Up to 200°C

APPLICATIONS

- Pipeline
- Boiler Feed
- Water Injection
- Process Charge
- Descaling
- Mine Dewatering
- Power Recovery
- Reverse Osmosis Feed

FEATURES & BENEFITS

- Full compliance with API 610, latest edition.
- Double Volute Hydraulic Passages for radial thrust balance and Opposed Impeller Mounted for axial thrust balance.
- Double Volute, Axially split casing with integral compact crossovers minimizes flow losses, maximize efficiency.
- Precision Cast Impellers balanced dynamically for the maximum hydraulic efficiency.
- Double Suction First-Stage Impeller (ASM-D) is available for lower NPSHR.
- Centerline-Mounted for superior alignment.
- API 610 Seal Chambers accept various range of API 682 sealing options.

SM / SMB

API 610 Type BB3
Axially Split Diffuser Type Multistage Pump

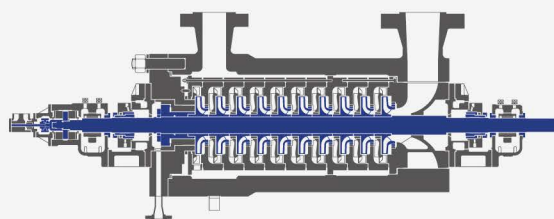
Capacity	Pressure	Temperature
Up to 1,800 m ³ /h	Up to 220 bar	Up to 200°C

APPLICATIONS

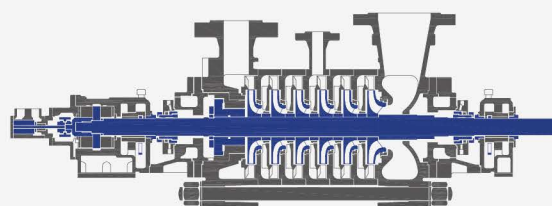
- Pipeline
- Boiler Feed
- Water Injection
- Process Charge
- Descaling
- Mine Dewatering
- Power Recovery
- Reverse Osmosis Feed

FEATURES & BENEFITS

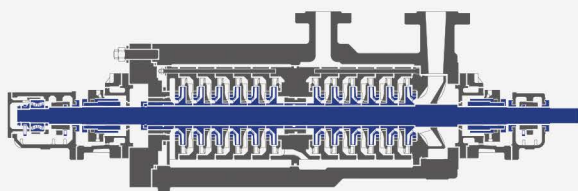
- Full compliance with API 610, latest edition.
- Radial and axial thrust balance is assured by Diffuser Design and Balance Piston or Impeller Arrangement.
- Precision Cast Impellers and diffusers for the maximum hydraulic efficiency.
- Renewable Wear Rings ensure hydraulic stability and efficient operation.
- Two Types of Impeller Arrangement.
 - SM : Back-to-Back
 - SMB : In-Line
- Diffusers provide smooth flow transition and reduces hydraulic losses.
- Centerline-Mounted for superior alignment.
- API 610 Seal Chambers accept various range of API 682 sealing options.



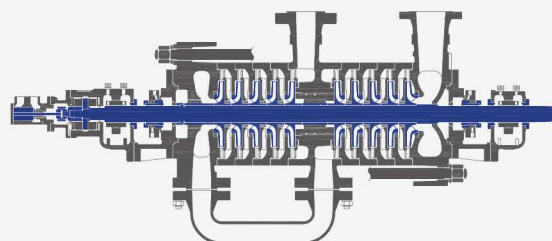
BTN (In-Line)



STN (In-Line)



BTN-X (Back-to-Back)



STN-X (Back-to-Back)

BTN

API 610 Type BB5

Double-Casing (Barrel) Radially Split Multistage Pump

Capacity	Pressure	Temperature
Up to 900 m ³ /h	Up to 220 bar	Up to 450°C

APPLICATIONS

- Pipeline
- Boiler Feed
- Amine, Ethylene Feed
- Water Injection
- Hydrocarbon Charge
- Acid Gas Reinjection
- Hydraulic Power Recovery Turbine

FEATURES & BENEFITS

- Full compliance with API 610, latest edition.
- Double-Casing Construction features a simple cylindrical outer casing and cover with only one circular joint enclosing the inner casing.
- Centerline-Mounted absorbs high forces and moments.
- Precision Cast Impellers and diffusers for maximum hydraulic efficiency.
- Double Suction First-Stage Impeller is available for lower NPSHR. (BTN-D)
- Back-to-Back (Opposed) arrangement is available for Extreme Pressures.
- API 610 Seal Chambers accept various range of API 682 sealing options.

STN

API 610 Type BB4

Ring Section Type High Pressure Multistage Pump

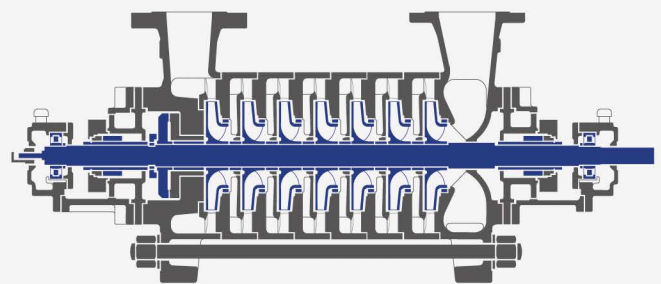
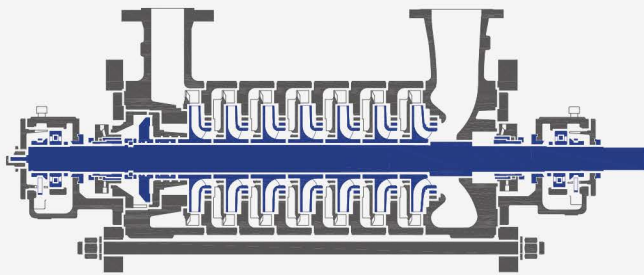
Capacity	Pressure	Temperature
Up to 1,000 m ³ /h	Up to 220 bar	Up to 200°C

APPLICATIONS

- Boiler Feed
- Condensate Extraction Service in Power Plants
- Descaling
- High Pressure Water in the General Industry

FEATURES & BENEFITS

- This type does not meet all the requirements of API 610.
- Centerline-Mounted and heavy duty design.
- Precision Cast Impellers and diffusers for maximum hydraulic efficiency.
- Double Suction First-Stage Impeller is available for lower NPSHR.(STN-D)
- Total Axial Thrust is perfectly balanced by a Balance Disk. Also Balance Piston(Drum) System is available.
- Ring Oil Lubricated Sleeve Type and Babbitt Lined Bearings are standard.
Ball Bearing or Pivot Shoe type for Balance Piston type and API 610 BB4.



STN-RO

API 610 Type BB4
RO Ring Section Type Multistage Pump

Capacity
Up to 1200 m³/h

Pressure
Up to 100 bar

Temperature
Up to 120 °C

APPLICATIONS

- High Pressure RO feed
- Water Transmission
- Raw Water Transfer
- Clean water pumping stations
- Any other high pressure application with clean liquids and low temperature

FEATURES & BENEFITS

- This type does not meet all the requirements of API 610.
- Oil Lubricated Anti-friction Bearings for long-life performance.
- High Efficiency and Low NPSH Impellers.
- Precision Cast Impellers and diffusers for maximum hydraulic efficiency.
- Flanges can be installed side or top position as per customer convenience.
- Compound Material Wear Rings for min. flow losses and reliable operation.
- Duplex Stainless Steel or Super Duplex Stainless Steel for all wetted pump parts.
- Total Axial Thrust is perfectly balanced by a Balance Disk.
- Cartridge Seals assure easy maintenance and precise seal face setting.

TMN / TMS

API 610 Type BB4
Ring Section Type Medium Pressure Multistage Pump

Capacity
Up to 1800 m³/h

Pressure
Up to 60 bar

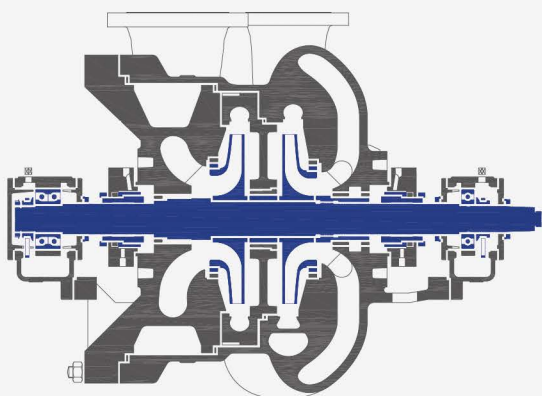
Temperature
Up to 200 °C

APPLICATIONS

- Boiler Feed
- Water Processing
- Boosting
- Mine Dewatering
- Fire-Fighting
- General Industries

FEATURES & BENEFITS

- This type does not meet all the requirements of API 610.
- Foot-Mounted and Heavy Duty Design.
- Precision Cast Impeller balanced dynamically for maximum hydraulic efficiency.
- Double Suction First-Stage Impeller is available for lower NPSHR.
- Flanges can be installed side or top position as per customer convenience.
- Total Axial Thrust is perfectly balanced by a Balance Disk. Also Balance Piston(Drum) System is available.
- Roller Bearings on both sides and separable bearings facilitate assembly and dismantling.
- Ring Oil Lubricated Sleeve Type and Babbitt Lined Bearings are standard for TMS 200 and larger ones.



RT

API 610 Type BB2
Radially Split Two-Stage Pump

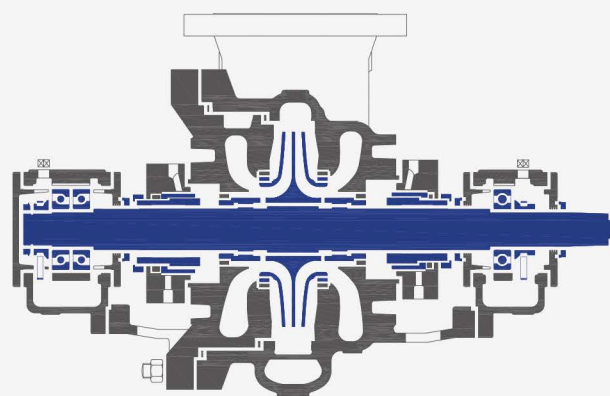
Capacity	Pressure	Temperature
Up to 1700 m ³ /h	Up to 75 bar	Up to 450 °C

APPLICATIONS

- Petroleum Refining, Production and Distribution
- Petrochemical and Heavy Duty Chemical Processing
- Liquefied Gas Industry Services
- Boiler Feed
- Heavy-Duty Utility Services

FEATURES & BENEFITS

- Full compliance with API 610, latest edition.
- Centerline-Mounted Heavy Radially Split Casing.
- Opposed Impeller Arrangement for low axial forces.
- Double Suction First-Stage Impeller is available for lower NPSHR. (RT-D)
- Heavy Duty Shaft for low shaft deflection.
- Tapered Shaft End for easy seal maintenance and coupling removal.
- API 610 Seal Chambers accept various range of API 682 sealing options.



RDA

API 610 Type BB2
Radially Split Single-Stage Double Suction Pump

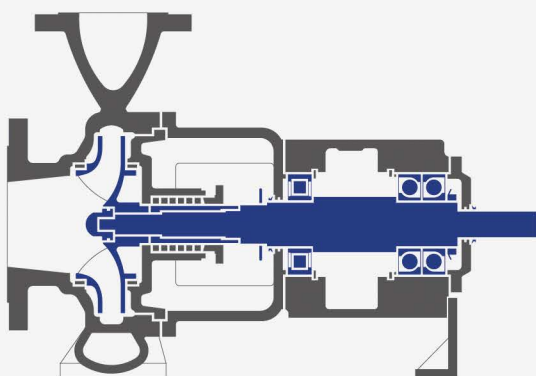
Capacity	Pressure	Temperature
Up to 4000 m ³ /h	Up to 50 bar	Up to 450 °C

APPLICATIONS

- Petroleum Refining, Production and Distribution
- Petrochemical and Heavy Duty Chemical Processing
- Liquefied Gas Industry Services
- Boiler Feed Boosting
- Treated Sea Water

FEATURES & BENEFITS

- Full compliance with API 610, latest edition.
- Centerline-Mounted Heavy Radially Split Casing.
- Double Suction Impeller allows to operate in lower NPSHR.
- Double Volute Casing for high capacity for min. radial loads on the rotor.
- Heavy Duty Shaft for min. shaft deflection and longer bearing & seal lifetime.
- API 610 Seal Chambers accept various range of API 682 sealing options.
- Tapered Shaft End for easy seal maintenance and coupling removal.
- Ring Oil Lubricated Radial Ball and Ball Thrust Bearing are Standard.
Ball or Tilting Pad Bearing as thrust bearing along with sleeve babbitt lined radial bearing.



IPH

API 610 Type OH1
ISO 2858 / 5199 Upgraded Medium Duty
Foot-Mounted Single-Stage Overhung Pump

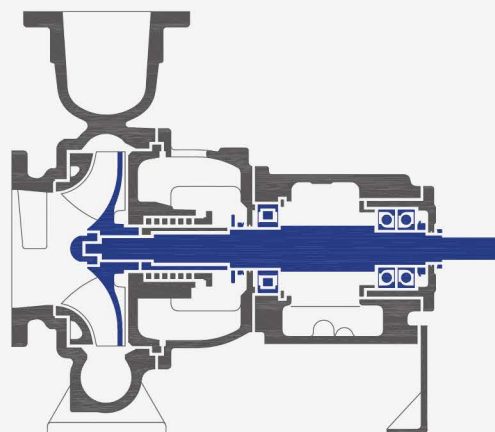
Capacity	Pressure	Temperature
Up to 4,800 m ³ /h	Up to 25 bar	From -25 to 300°C

APPLICATIONS

- Chemicals
- Seawater Desalination
- Petrochemicals
- Refineries
- Pulp and Paper
- Food and Beverages
- Sugar Refineries

FEATURES & BENEFITS

- Meets technical requirements to ISO 5199 and Dimensions & ratings to ISO 2858.
- This type does not meet all the requirements of API 610.
- Foot-Mounted and Upgraded Medium Duty Design.
- Back Pull-Out Design permits easy maintenance.
- Improved Shaft Design reduces the shaft deflection and increases shaft and seal lifetime.
- Back-to-Back Angular Contact Ball Bearings protect against rotor shuttling.
- Heating Jacket and Cooling Jacket are available.



HPP

API 610 Type OH1
End Suction Single-Stage Open Impeller
Process Pump

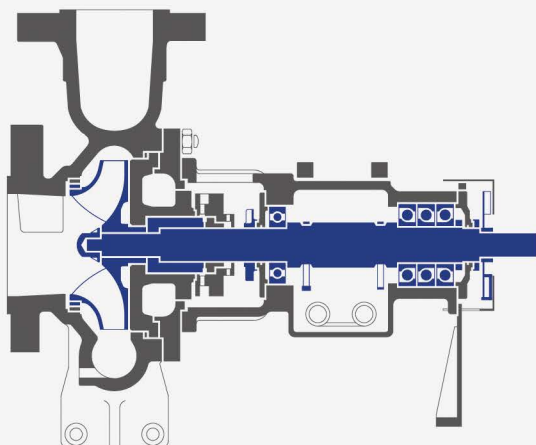
Capacity	Pressure	Temperature
Up to 4,800 m ³ /h	Up to 25 bar	Up to 180°C

APPLICATIONS

- Pulp and Paper
- Chemicals
- Waste Water / Sewage Treatment
- Food and Beverages
- Sugar

FEATURES & BENEFITS

- This type does not meet all the requirements of API 610.
- Foot-Mounted and Heavy Duty Design.
- Back Pull-Out Design permits easy maintenance.
- Open Impeller and external adjusting equipment.
- Renewable Front Wear Plate for longer casing lifetime.
- Shaft and bearings are dimensioned for minimum shaft deflection and maximum bearing and seal lifetime.



HPH

API 610 Type OH2
Hot Water and Boiler Circulating Pump

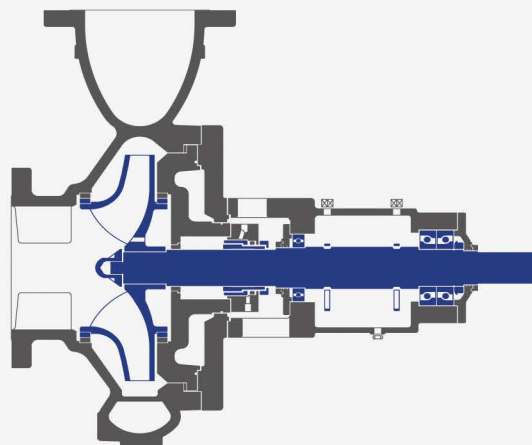
Capacity	Pressure	Temperature
Up to 1,800 m ³ /h	Up to 110 bar	Up to 320°C

APPLICATIONS

- Forced Circulation Boilers
- High Pressure Hot Water Generation Plants

FEATURES & BENEFITS

- This type does not meet all the requirements of API 610.
- Centerline-Mounted and Heavy Duty Design.
- Back Pull-Out Design permits easy maintenance.
- Axial thrust balance by Anti-Friction Bearings.



AH

API 610 Type OH2
Centerline-Mounted Single-Stage Overhung Pump

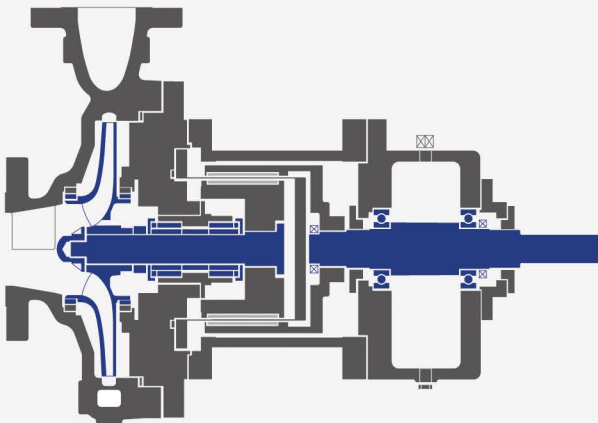
Capacity	Pressure	Temperature
Up to 4,000 m ³ /h	Up to 50 bar	From -100 to 450°C

APPLICATIONS

- Petroleum Refining, Production and Distribution
- Petrochemical and Heavy Duty Chemical Processing
- Gas Industry Services
- Boiler Circulation and other High Temperature Services
- Water and General Industrial Services
- Cryogenic Services

FEATURES & BENEFITS

- Full compliance with API 610, latest edition.
- Heavy Duty Centerline-Mounted Construction for API 610 nozzles.
- Back Pull-Out Design permits easy maintenance.
- Double Volute for low radial thrust depending on size.
- A Special Impeller or an additional inducer for lower NPSHR.
- Shaft Design for min. shaft deflection and max. Shaft and seal lifetime.
- Ring Oil Lubricated Radial Ball and Back-to-Back Duplex, Single Row, 40° Angular Contact Ball Thrust Bearings are Standard.
- API 610 Seal Chambers accept various range of API 682 sealing options.



LNA

API 610 Type OH2
Low Flow High Head Process Pump

Capacity	Pressure	Temperature
Up to 50 m³/h	Up to 50 bar	Up to 450 °C

APPLICATIONS

- Petroleum Refining
- Petrochemicals
- Gas Processing
- Nitrogenous Fertilizer
- Boiler Feed / Condensate

FEATURES & BENEFITS

- Meets or exceeds the requirements of API 610 latest edition.
- Multiple Radial Blade Impeller provides superior hydraulic fits at low flows.
- Multiple balance holes provide increased head with high efficiency and is more reliable in balancing axial thrust compared to Pump-out vane designs.
- Machined Casing ensures BEP fits for any given set of hydraulics.
- Centerline-Mounted Construction for API 610 nozzle requirements.
- Back Pull-Out Design permits easy maintenance.
- Shaft Design for min. Shaft deflection and max. Shaft and seal lifetime.
- API 610 Seal Chambers accept various range of API 682 sealing options.

MDA

API 685 Type OH2
Heavy Duty Sealless Magnetic Drive Pump

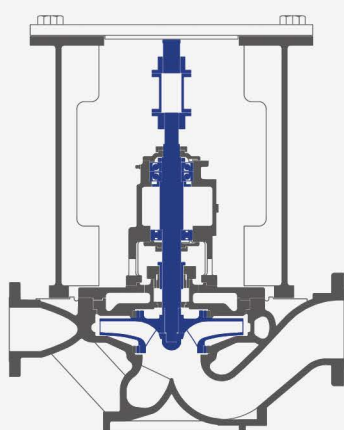
Capacity	Pressure	Temperature
Up to 1,000 m³/h	Up to 50 bar	From -40 °C to 300 °C

APPLICATIONS

- Petroleum Refineries
- Petrochemicals
- Gas Processing
- Water and General Industrial Services

FEATURES & BENEFITS

- Full compliance with API 685, latest edition.
- Heavy Duty Centerline-Mounted Construction for API 610 nozzle.
- Back Pull-Out Design permits easy maintenance.
- A Special impeller or an additional inducer for lower NPSHR.



APVF

API 610 Type OH3
Vertical In-Line Process Pump

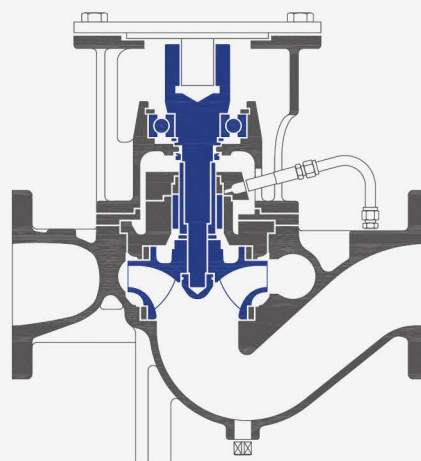
Capacity	Pressure	Temperature
Up to 1,400 m ³ /h	Up to 50 bar	Up to 340 °C

APPLICATIONS

- Petroleum Refineries
- Petrochemicals
- Gas Processing
- Bitumen Processing
- Offshore Oil Production Platforms
- Floating Production, Storage and Offloading (FPSO) Units
- Cryogenic Services

FEATURES & BENEFITS

- Full compliance with API 610, latest edition.
- In-Line permits minimum installation space and costs.
- Back Pull-Out Design permits easy maintenance.
- Bearing Bracket carries pump loads.
- Field Alignment not required.
- API 610 Seal Chambers accept various range of API 682 sealing options.



IPV

API 610 Type OH4
Vertical In-Line Process Pump

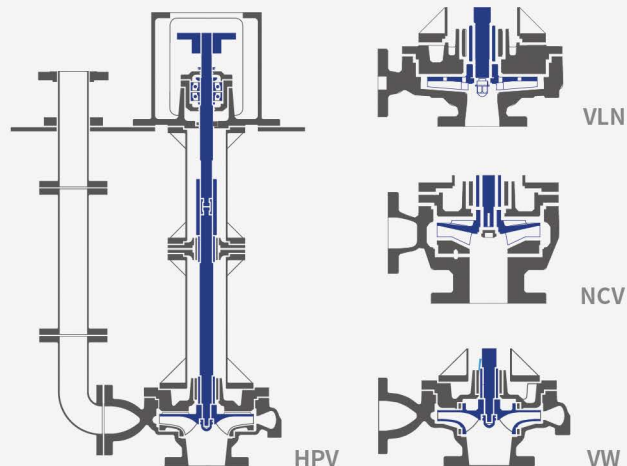
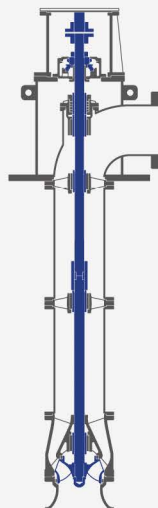
Capacity	Pressure	Temperature
Up to 180 m ³ /h	Up to 25 bar	From -40°C to 140°C

APPLICATIONS

- Petrochemical Plants
- Chemical Plants
- Condensate Return
- Filter Feed

FEATURES & BENEFITS

- This type does not meet all the requirements of API 610.
- In-line mounting for space and cost savings.
- Back Pull-Out Design permits easy maintenance.
- Field alignment not required.



VTH

API 610 Type VS1
Vertical Turbine Pump / Vertical Mixed Flow Pump

Capacity	Pressure	Temperature
Up to 15,000 m ³ /h	Up to 40 bar	Up to 200°C

APPLICATIONS

- Cooling Water
- Sea Water and River Water Intake
- Refinery
- Chemical and Petrochemical Industries
- Pipeline and Transfer Service
- Offshore Crude Oil Loading
- Waste Water Treatment

FEATURES & BENEFITS

- This type does not meet all the requirements of API 610.
- Both Rigid and Flexible couplings with or without spacer are available.
- Cast or Fabricated Discharge Heads for various nozzles.
- Precision Machined Heavy Duty Shaft to minimize Shaft Vibration.
- Special Single Suction or Double Suction Impeller is available for lower NPSHR.
- Cartridge Mechanical Seal is available in accordance with API 682.
- Dual Wear Rings are available for enclosed impellers and bowls.
- Suction Bell Bearing is available for shaft stability.

HPV / VW / NCV NFV / VLN

API 610 Type VS4
Vertical Sump Pump

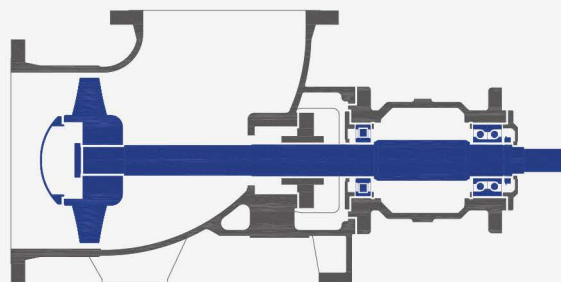
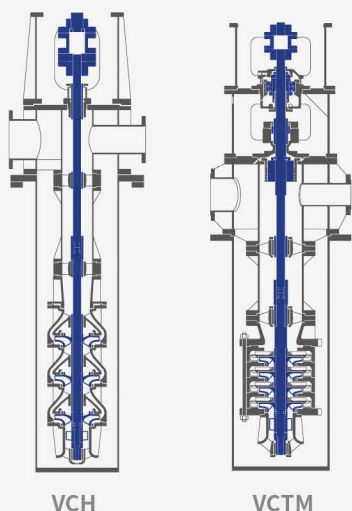
Capacity	Pressure	Temperature
Up to 1,000 m ³ /h	Up to 20 bar	Up to 350°C

APPLICATIONS

- Petrochemical Processing
- Chemical Processing
- Refinery Offsites
- Drainage
- Industrial Sump Wastes
- Industrial Processing
- Tank Unloading
- Molten Sulfur

FEATURES & BENEFITS

- This type does not meet all the requirements of API 610.
- Multiple Hydraulic Designs:
 - ▶ HPV : Semi-Open Impeller
 - ▶ VW : Enclosed Impeller
 - ▶ NCV : Channel Impeller
 - ▶ NFV : Recessed / Vortex Impeller
 - ▶ VLN : Radial Vane Impeller
- Radial Plain Bearings lubricated by grease or pumped liquid.
- Thrust Anti-Friction Bearings lubricated by grease or oil.
- Packing or Mechanical Seal is used upon request.



VCH / VCTM

API 610 Type VS6
Vertical Double-Casing (Can) Diffuser Pump

	Axial Diffuser Hydraulics (VCH)	Radial Diffuser Hydraulics (VCTM)
Capacity	Up to 3,500 m ³ /h	Up to 900 m ³ /h
Pressure	Up to 40 bar	Up to 150 bar
Temperature	From -100 to 350°C	From -100 to 350°C

APPLICATIONS

- Condensate and Condensate Extraction
- Hydrocarbon Booster and Transfer
- Pipeline Booster
- Chemical and Petrochemical Industries
- Pipeline and Transfer Service
- Offshore Crude Oil Loading
- Waste Water Treatment
- Cryogenic Services

FEATURES & BENEFITS

- This type does not meet all the requirements of API 610.
- Both Rigid and Flexible couplings with or without spacer are available.
- Cast or Fabricated Discharge Heads for various nozzles.
- Precision Machined Heavy Duty Shaft to minimize Shaft Vibration.
- Inducer, Special Single Suction or Double Suction Impeller for lower NPSHR.
- Cartridge Mechanical Seal is available in accordance with API 682.
- Dual Wear Rings are available for enclosed impellers and bowls.
- Suction Bell Bearing is available for shaft stability.

HAF

Axial Flow (Propeller) Pump

Capacity	Pressure	Temperature
Up to 11,500 m ³ /h	Up to 6 bar	Up to 200°C

APPLICATIONS

- Biogas Plants
- Evaporation and Crystallization Plants
- Chemical Industry / Process Engineering
- Waste Water / Clarification Engineering
- Desalination Plants
- De-Sulphurization

FEATURES & BENEFITS

- High Efficiency and Maximum Reliability.
- Easy installation and Maintenance.
- Pump Drive Directly Coupled.
- End Suction Configuration is standard and top suction is also available.
- Shaft sealing in a variety of designs and materials.
- Higher Flows upon request.



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