

API-610 BB1-TYPE PUMPS • TMP DD PUMP MODEL
PHOTO: TMP DD PUMP MODEL FOR MAIN OIL LINE SERVICE AT PIPELINE



HORIZONTAL BETWEEN-BEARINGS, AXIALLY SPLIT, ONE-STAGE, DOUBLE-SUCTION PUMPS

API-610 TYPE: BB1

TERMOMECCANICA PUMP MODEL: DD



MAIN APPLICATIONS:

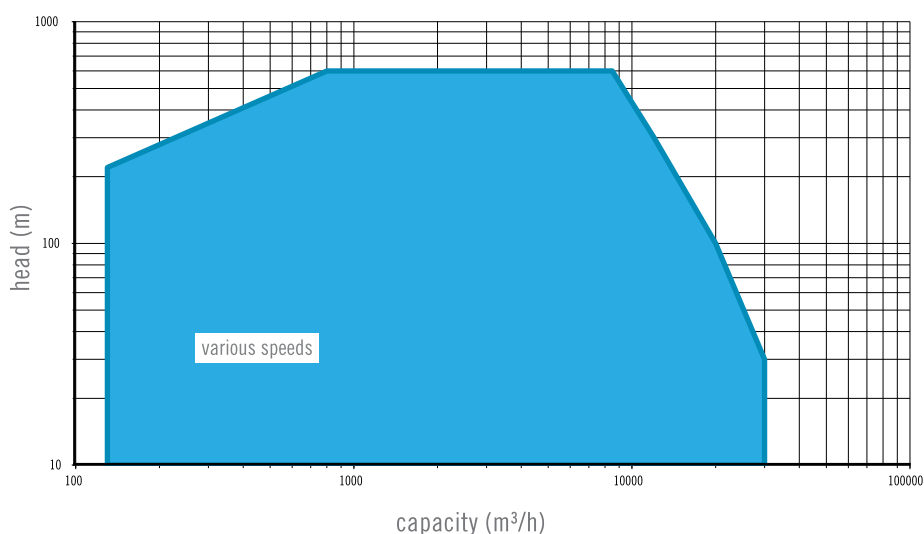
- Water transportation
- Water supply and distribution
- Cooling water services in industrial plants
- Boiler feed boosting & condensate extraction in power plants
- Sea water desalination
- Crude oil pipeline
- Tank farm transfer
- Ship charge and discharge
- General industry

KEY FEATURES:

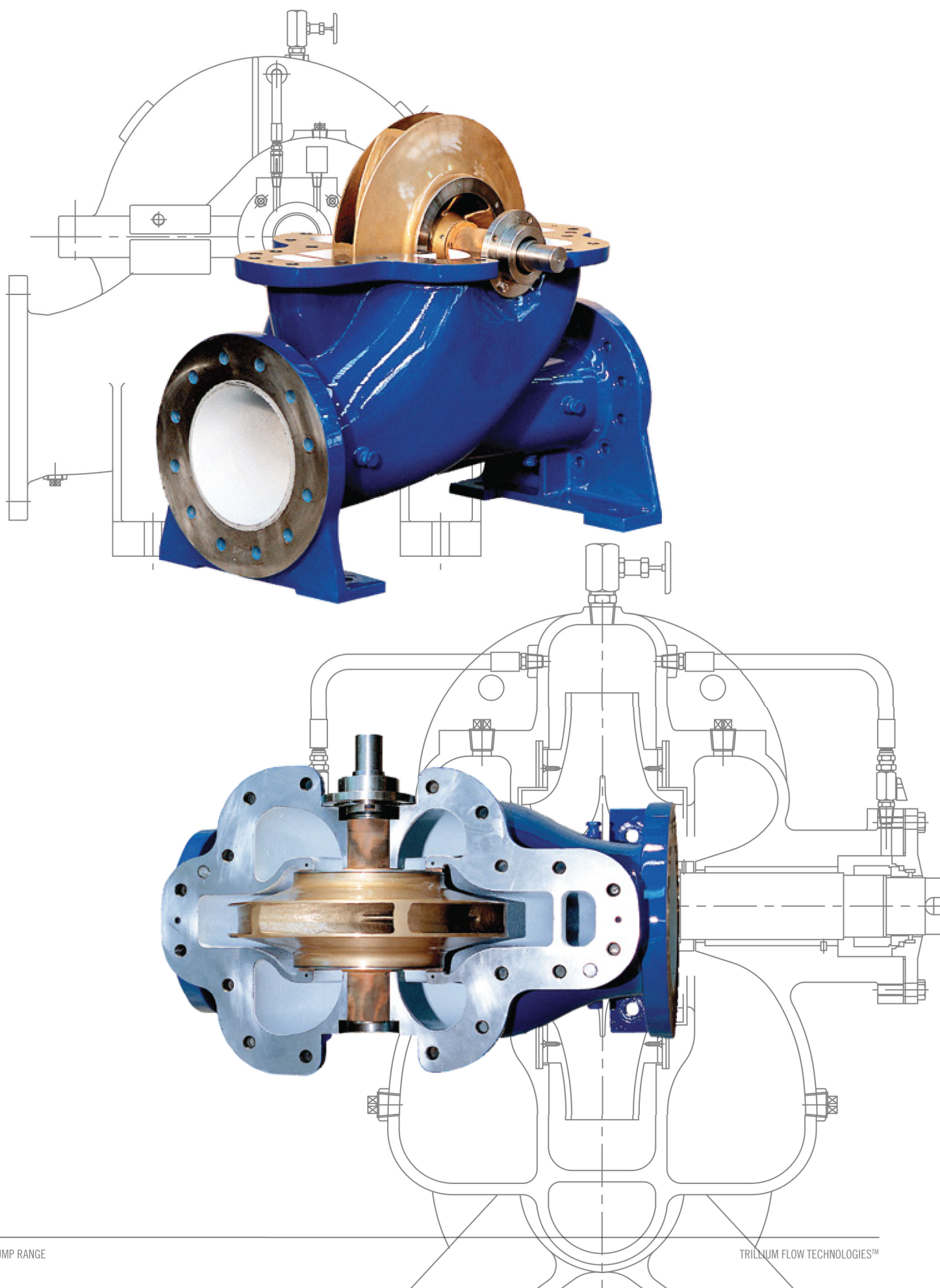
- Axially split casing, single stage double entry impeller, double volute, between bearings pumps
- Very large number of hydraulics optimized for any need-medium and high capacities, low and high heads
- Near centerline foot mounted for high temperature (DDH)
- Vertical arrangement available (DDBV)
- Bearing type and lubrication
 - Antifriction radial and thrust bearings, oil bath or oil ring lubricated
 - Hydrodynamic radial and rolling element thrust bearings, lubricated by oil bath or oil ring
 - Hydrodynamic radial and thrust bearings with pressurized oil system, for higher speed and power

OPERATING RANGE

- | | | | |
|---------------------|-------|--------------------------|-------------|
| • Capacity: | up to | 30,000 m ³ /h | 132,000 gpm |
| • Head: | up to | 600 m | 1,970 ft. |
| • Pressure: | up to | 150 bar | 2,180 psig |
| • Temperature: | up to | 200°C | 392 °F |
| • Speed of rotation | up to | 5,000 rpm | 5,000 rpm |



HORIZONTAL BETWEEN-BEARINGS, AXIALLY SPLIT, ONE-STAGE, DOUBLE SUCTION PUMPS • TMP HSS PUMP MODEL
PHOTO: TMP HSS PUMP MODEL FOR MUNICIPAL WATER SYSTEMS



HORIZONTAL BETWEEN-BEARINGS, AXIALLY SPLIT, ONE-STAGE, DOUBLE SUCTION PUMPS

API-610 TYPE: BB1 - N/A

TERMOMECCANICA PUMP MODEL: HSS (PATENTED DESIGN)



KEY FEATURES:

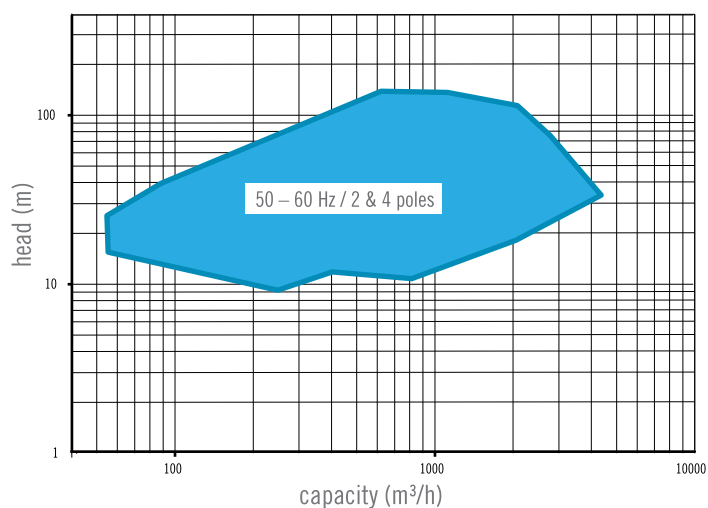
- Horizontal between-bearings, axially split, single stage, double suction pumps like our DD pumps but with a patented design where standard bearing housings are removed
- Axial hydraulic thrusts are compensated by disc-type wear rings
- Only one seal (either mechanical or packing) is provided on drive end side
- The pump's reduced number of components and simplicity of assembly/disassembly reduce operating & maintenance costs while maintaining a high level of efficiency, safety & reliability

MAIN APPLICATIONS:

- Water transmission, distribution and irrigation
- Various services in Reverse Osmosis Desalination plants
- Clean or slightly polluted water and hydrocarbon services in general industry

OPERATING RANGE

- | | | | |
|----------------|-------|-------------------------|------------|
| • Capacity: | up to | 4,000 m ³ /h | 18,000 gpm |
| • Head: | up to | 200 m | 650 ft. |
| • Pressure: | up to | 25 bar | 360 psig |
| • Temperature: | up to | + 150 °C | 300 °F |



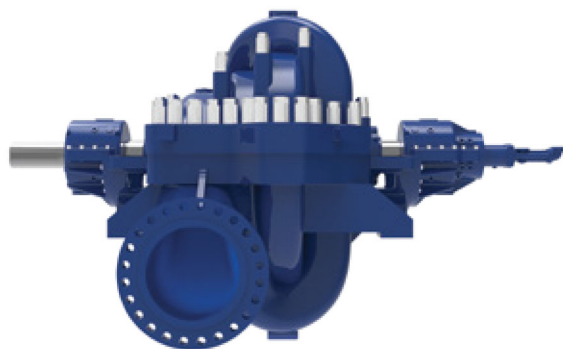
API-610 BB1-TYPE PUMPS • TMP D2 - D2D - DD2D PUMP MODELS
TMP D2D PUMP MODEL FOR MAIN LINE SERVICE AT WATER TRANSMISSION PLANT



HORIZONTAL BETWEEN-BEARINGS, AXIALLY SPLIT, ONE-STAGE, DOUBLE SUCTION PUMPS

API-610 TYPE: BB1

TERMOMECCANICA PUMP MODEL: D2 - D2D - DD2D



MAIN APPLICATIONS:

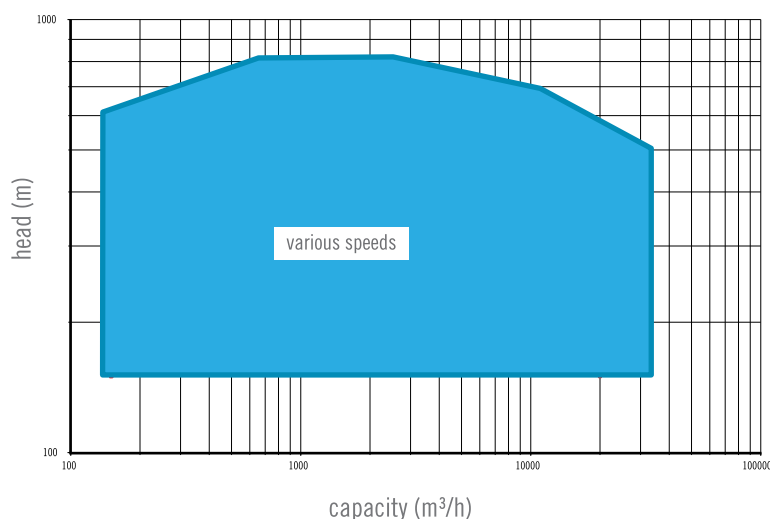
- Water transportation
- High pressure services in sea water desalination plants
- Crude oil pipelines
- Applications requiring high capacities and high head services

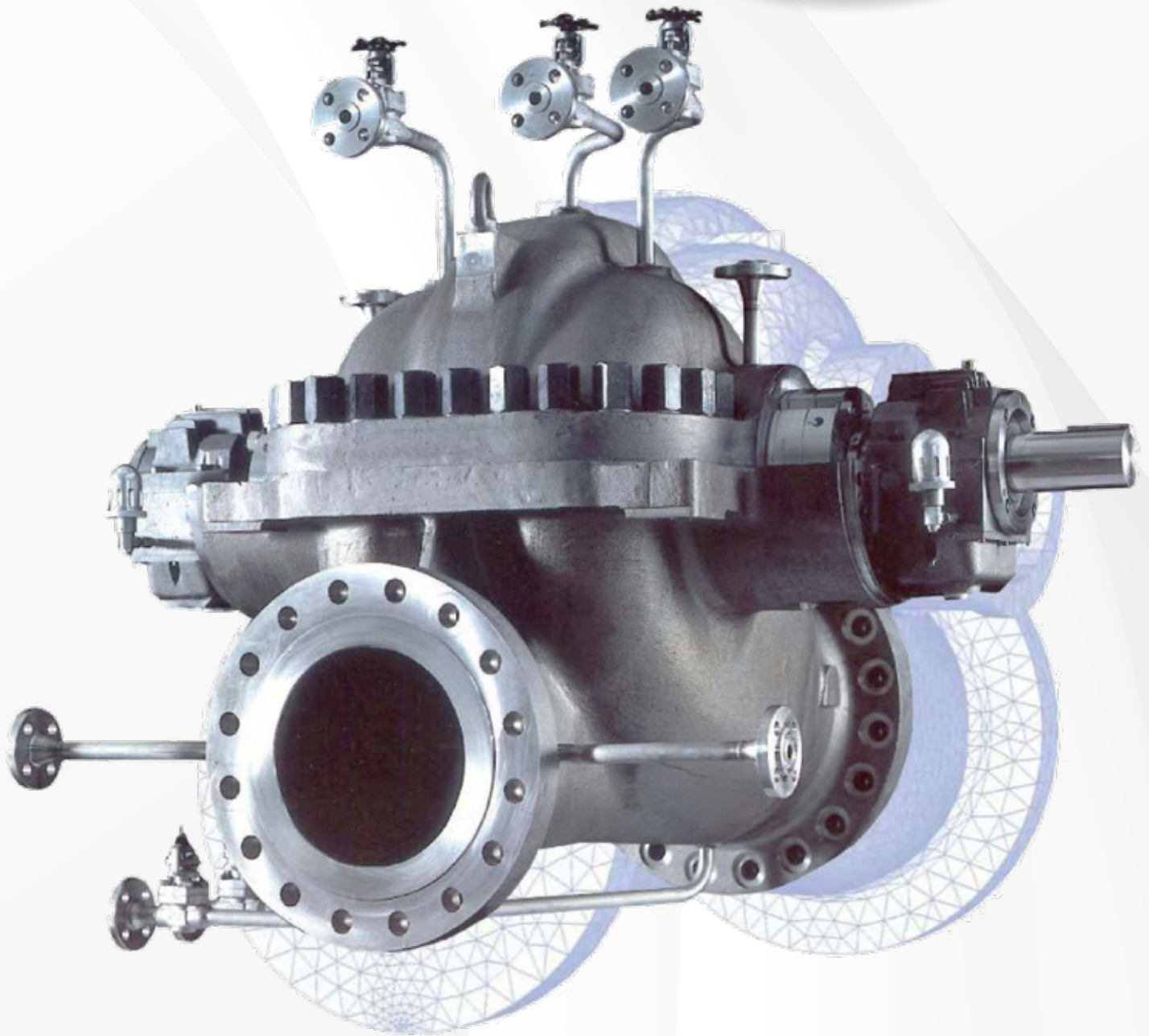
KEY FEATURES:

- Axially split casing, double volute, two stage, between bearings pumps:
 - D2 has two single suction impellers and a back-to-back arrangement
 - D2D has two double suction impellers and volute is staggered to reduce pressure pulsations
 - DD2D has first stage double entry impeller, second stage single entry impeller. To minimize axial hydraulic forces, a solution with first stage consisting of two single entry, back-to-back impellers, with diffuser design is also available
- Bearings and lubrication:
 - Anti friction radial and thrust bearings, oil bath or oil ring lubricated
 - Hydrodynamic radial and rolling element thrust bearings, lubricated by oil bath or oil ring
 - Hydrodynamic radial and thrust bearings with pressurized oil system, for higher speed and power
- Near centerline mounted casing
- Hydraulics optimized through extensive CFD analyses & experimental tests

OPERATING RANGE

- Capacity: up to 20,000 m³/h 88,057 gpm
- Head: up to 800 m 2,625 ft.
- Pressure: up to 150 bar 2,180 psig
- Temperature: upto +150 °C 302 °F
- Speed of rotation up to 5,000 rpm 5,000 rpm





Gabbioneta Pumps®
Horizontal Double Suction Pumps
AXD Range

General information

The AXD range heavy duty process pumps are horizontal, between bearings with axial split casing and double suction impeller designed for full compliance with latest edition of API 610 standard.

A wide range of sizes and material combinations complete the variety of the offered products.

Main design features:

- Geometry of pump components optimised through hydraulic, structural, thermal and dynamic F.E.M. analysis to guarantee high product reliability.
- Double suction, closed impeller, solid hub assure axial balance under different operating conditions.
- Rotor operates far from its critical speeds
- Centreline casing mounting for high temperature stability
- Deep stuffing boxes integrally cast with pump casing, in accordance to API 682 standard, suitable to accept any type of mechanical or packing seal.
- Axial split bearing housing for easy inspection and maintenance procedure.
- Labyrinths and deflectors at both bearing housing covers to maximise protection against dirt.
- Suction and discharge nozzles, integrally cast with the casing, are arranged in in-line position.
- Three bearings arrangements available:
 - Ball Radial / Ball Thrust
 - Sleeve Radial / Ball Thrust
 - Sleeve Radial / Tilting Pads Thrust (Kingsbury Type)

Options

The following pump designs can be provided:

- For extremely low NPSH duties, a number of AXD pumps can be equipped with inducers
- Casing foot mounted
- Replaceable stuffing box cooling or heating jackets
- Double shaft extension
- Cylindrical fit at coupling shaft end
- Special bearing isolators at both bearing housing ends
- "CARB" or hydrodynamic line bearing for high temperature application
- Oil mist lubrication system (pure or purge)
- Forced feed lubrication system
- Temperature and/or vibration detection and monitoring equipment
- Baseplate available with three point gimbals mounting (FPSO services)

Operating data

Capacity

up to 6000 m³/h (26400 USgpm)

Head

up to 380 m (1200 feet)

Temperature

from — 30°C (-20°F) to 200°C (400°F)

Design working pressure

up to 60 barg (900 psig)

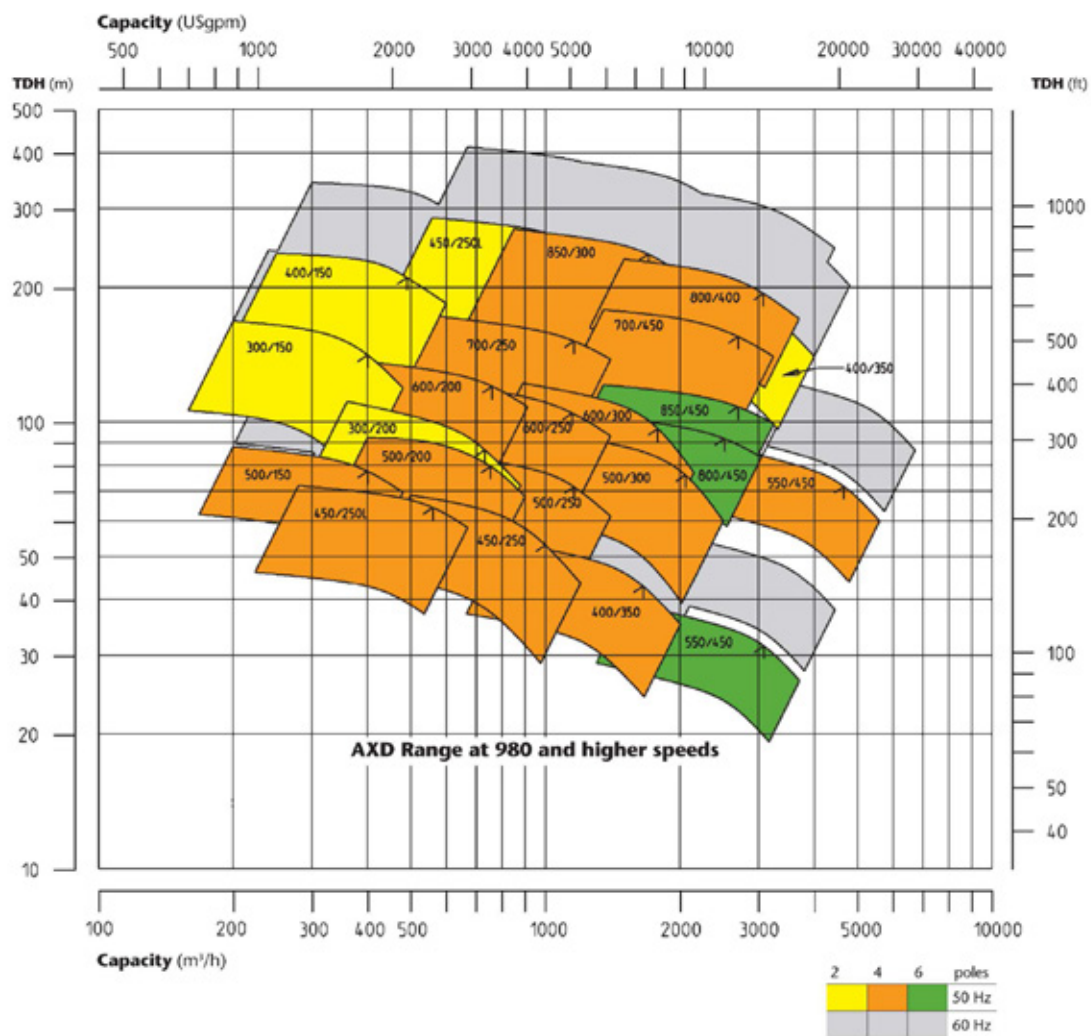
Rotational speed

up to 3800 rpm

Main pumps applications refer to heavy duties on

- Oil & Gas
- Fluid transportation
- Refineries
- Petrochemical plants
- Firefighting

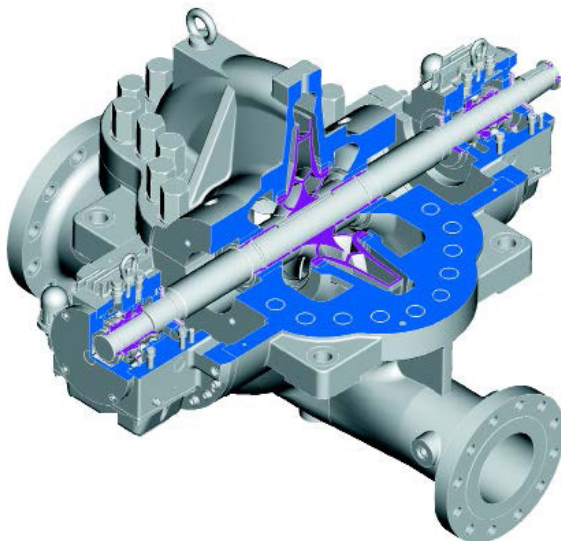
Coverage Chart



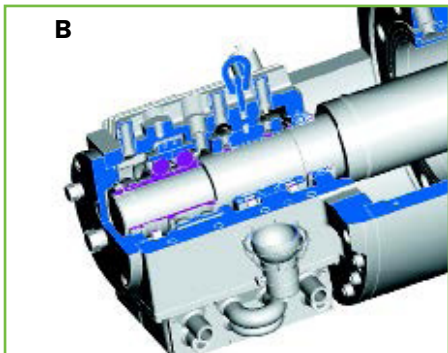
Pump identification

Pump type AXD 300 / 150
 Nominal impeller diameter (mm) 300
 Nominal discharge nozzle diameter (mm) 150

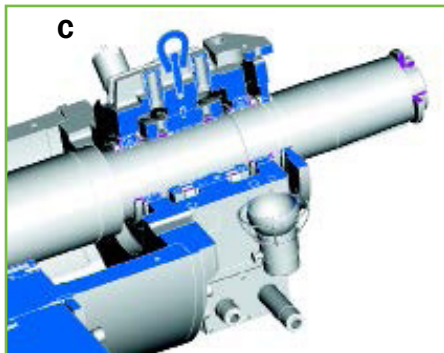
A



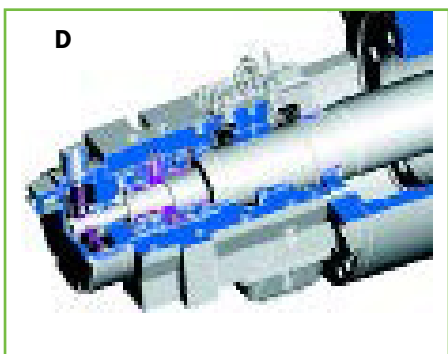
B



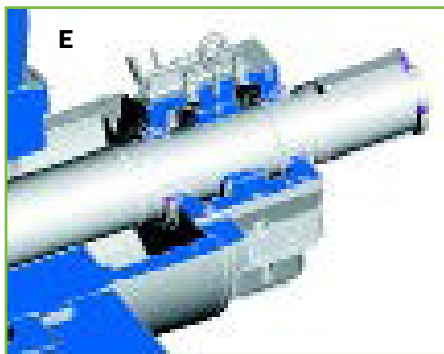
C



D

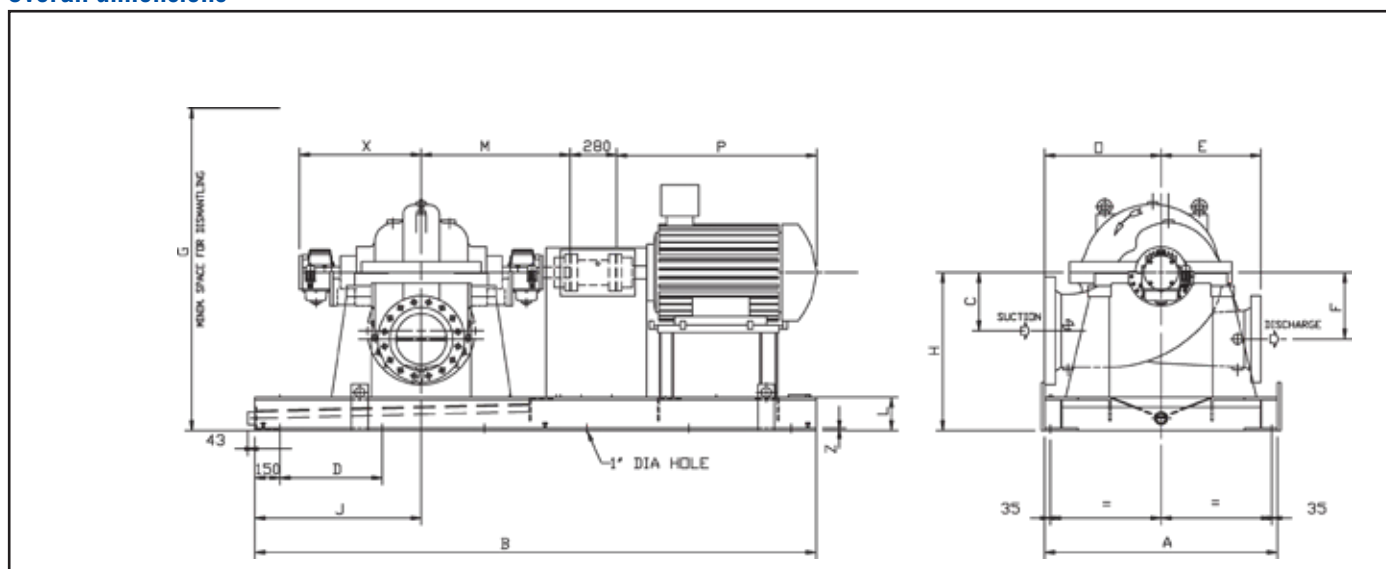


E



- A. Ball-Ball
- B. Sleeve-Ball NDE
- C. Sleeve-Ball DE
- D. Sleeve-Kingsbury NDE
- E. Sleeve-Kingsbury DE

Overall dimensions



General notes

1. All dimensions are in mm. Do not use for construction unless certified.
2. Dimensions B and P vary with driver selection.
3. Dimension X relative to Sleeve-Kingsbury configuration does not include the coaxial lube oil pump,

Pump type	Nozzle Size		A	D	C	E	F	G	H	X			M	O	J	L	Z
	Suct	Disch									S/B	S/K					
300/150	8"	6"	1060	715	230	370	230	1400	800	556	680	700	690	430	1000	200	15
300/200	10"	8"	1060	715	270	360	230	1500	800	685	809	829	846	460	1000	200	15
400/150	10"	6"	1240	715	255	500	255	1700	800	647	771	791	766	500	1000	200	15
400/350	18"	14"	1390	715	370	600	400	1900	1100	730	854	874	895	700	1000	200	17,5
450/250	12"	10"	1240	715	330	480	300	1750	800	640	764	784	740	620	1000	200	15
450/250 L	12"	10"	1240	715	300	480	300	1750	900	664	788	808	829	620	1000	200	15
500/150	8"	6"	1240	715	280	550	280	1950	800	580	704	724	680	600	1000	240	17
500/200	10"	8"	1390	715	350	500	350	1950	900	685	809	829	846	600	1000	240	17
500/250	14"	10"	1390	715	320	550	370	1900	900	664	788	808	829	650	1000	200	15
500/300	16"	12"	1390	715	350	600	400	1950	1000	732	856	876	895	700	1000	200	15
550/450	24"	18"	1900	715	500	800	550	2500	1300	867	991	1011	1030	950	1200	260	17,5
600/200	10"	8"	1390	715	350	550	350	2100	1000	685	809	829	846	630	1000	240	17
600/250	14"	10"	1390	715	320	550	400	2100	1000	664	788	808	829	700	1000	240	17
600/300	14"	12"	1545	715	400	600	350	2100	1000	720	844	864	893	750	1000	240	17
700/250 A	14"	10"	1600	715	300	650	455	2200	1000	663	879	803	846	780	1000	240	17
700/250 B	12"	10"	1545	715	340	575	340	2200	800	685	809	829	846	720	1000	200	15
700/450	24"	18"	1900	715	420	850	520	2300	1200	888	1014	1034	1075	950	1300	260	17,5
850/300	16"	12"	1900	715	420	850	520	2300	1200	798	922	942	965	950	1300	260	17,5
800/400	20"	16"	1900	715	420	850	520	2300	1200	858	984	1004	1045	950	1300	260	17,5
850/400	20"	16"	1900	715	420	850	520	2300	1200	858	984	1004	1045	950	1300	260	17,5
800/450	24"	18"	1900	715	420	850	520	2300	1200	888	1014	1034	1045	950	1300	260	17,5
850/450	24"	18"	1900	715	420	850	520	2300	1200	888	1014	1034	1045	950	1300	260	17,5

A century of experience

Since the foundation of the company in 1897, Gabbioneta Pumps® has been engaged in design and manufacture of high quality centrifugal pumps.

The products and the markets served progressively changed from water to chemical industry and finally, in the last thirty years, to API 610 heavy duty pumps for refinery and petrochemical industries.

Product development is based on a thorough interchange of marketing and operating experience within the company and in close cooperation with project and plant engineers.

Manufacturing is carried out in a factory equipped with several modern CNC machines and machine tools. Special note has to be given to the machining centers where pump casings can be machined completely with only two settings.

In-house facilities are designed to meet the performance and NPSH testing requirements of all pumps manufactured in the company in full compliance with API 610 Standards.

A quality assurance system certified in accordance with ISO 9001 ensures Gabbioneta Pumps® are of the highest quality.





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