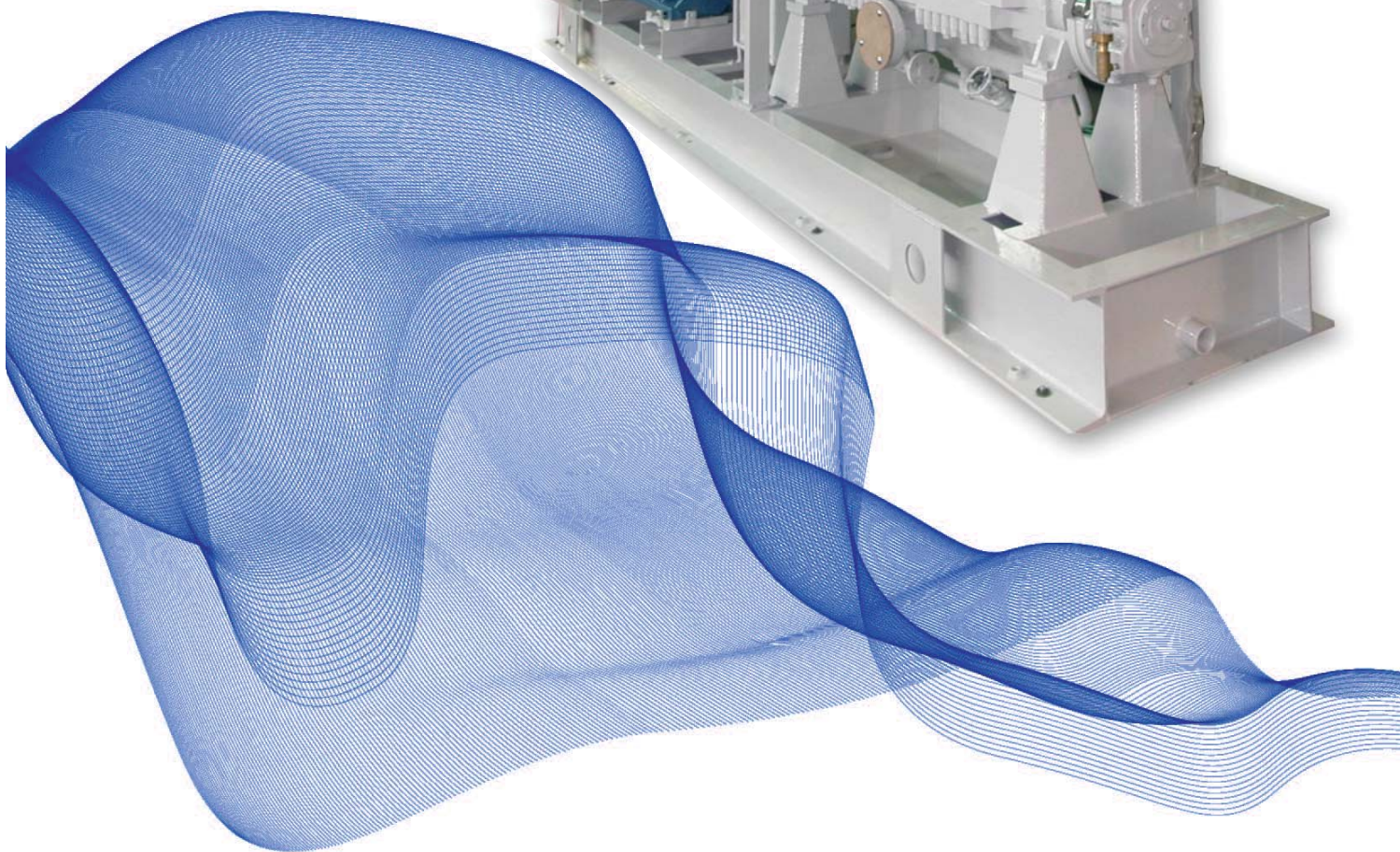
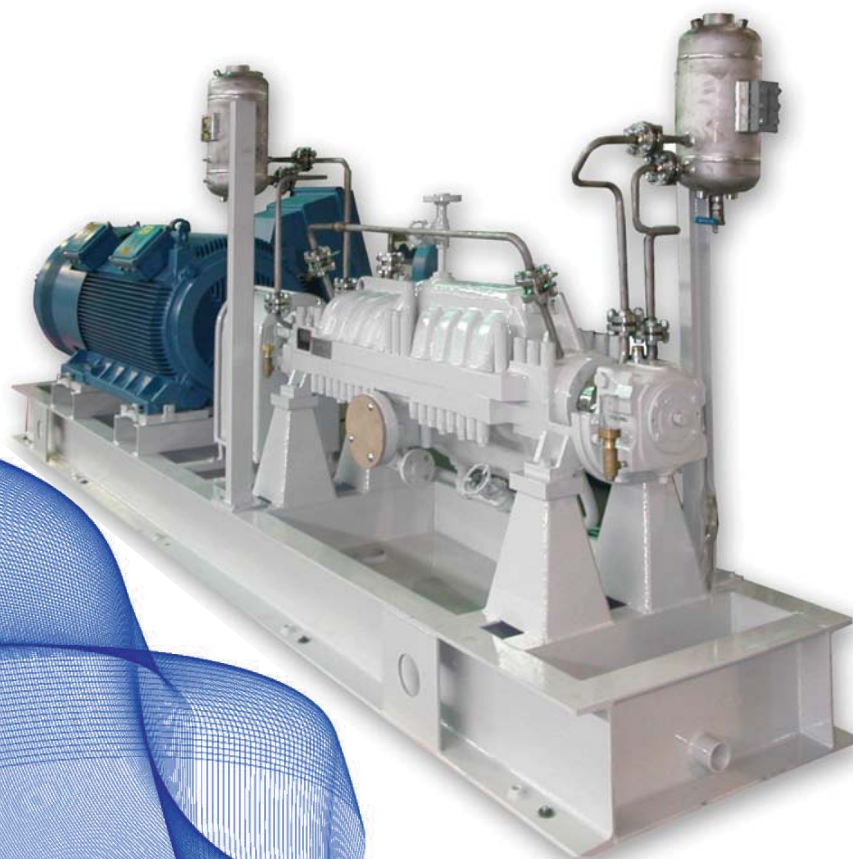


BB3 Series

Technical Catalogue

2015



Our Vision

ASK's vision is to be a recognized leader in innovative, sustainable, engineered, and customer-focused solutions for performance critical applications in the oil and gas, hydrocarbon processing, power generation, pulp and paper, and other selected industries.



Our mission

ASK aims to be a multi-industry company with a strong brand, which provides solutions that combine products, services, engineering, and customer-application expertise. The corporation is close to the customer by being direct-sales driven.

Engineering, innovation, and technology are cornerstones. ASK strives to be an attractive employer and to create an environment where employees can excel. The company focuses on creating value for its customers.



ASK Innotec

The research and development unit of ASK supports the other divisions of the company and industrial companies in their development projects by providing a contract including research and special technical services like diagnostics and certified testing as well as one-off production and engineering. ASK innotec has expertise in materials and surface engineering, fluid technology, as well as in mechanics. Its core competencies in research contract also lie in these classical disciplines.



Certification

Certified quality management ISO 9001 with scope of "Design and manufacturing of process centrifugal pumps according to API standard 610".



Product Description

Using modern computer aided design methods, the pumps are specially designed as heavy duty, minimal wear, long life pumps which have been designed in a modular way, with a number of options available, to ensure full compliance to the customers' exact requirements and specifications. A fully compliant API 610 heavy duty baseplate helps achieve low vibration and noise levels which in turn extends the pump's life and ensures maximum running time. A 'space saving' reduced footprint is also available for use where space is at a premium.

The pumps can be fitted with a variety of proprietary components (i.e. seals, motors & couplings) from all the major manufacturers to cater for customers site preferences. Double mechanical seal arrangements can be fitted with an attached seal support system. This can be supplied by Seal Support System which is designed and manufactured by ASK, or another manufacturer's seal support system can be fitted.

To complete the package a full range of standard material options from SG iron and stainless steel, to duplex are available to match your process fluid. NACE compliant materials are also available. Standard documentation packs including manufacturing data books, material certification, and installation & operating manuals are available to suit the application. Performance testing to API610 / ISO 13709 and various NDE (nondestructive examination) & NDT (non-destructive testing) options are offered to ensure full compliance to our customers' applications. Alternative bespoke package can be tailored to fit your exact requirements.

Field of Application

ASK pumps, BB3 series, are axially split, multi-stage, designed for high pressure petroleum refinery services, petrochemical plant services, gas processing, oil processing, offshore installations (platforms), hydrocarbon and crude oil pipeline and finished products pipeline services. All units comply with API 610 latest version.

Following services covered but not limited by our BB3 pumps include:

- Water & seawater injection
- Pipeline applications
- Light hydrocarbon refinery services
- Sand laden crude oil
- Boiler feed water
- High Pressure Water Services
- Crude Oil Pipeline
- Crude Products Pipeline
- High Pressure Condensate
- Gasoline Pipeline Service
- Natural Gas Liquids Pipeline
- Mine Dewatering
- Water Flood



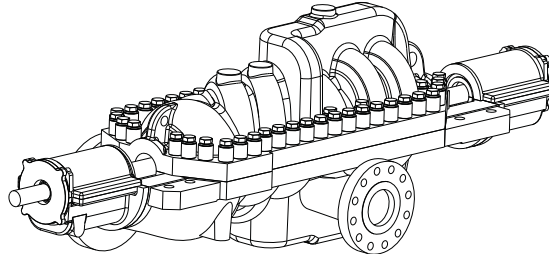
Key Features

- BB3 axially split multistage centerline mounted centrifugal pumps
- 100 bar pump to API 610 (11th edition) & Atex compliant
- -15°C to 400°C temperature applications
- fully closed impellers, key driven by the shaft
- Double volute design
- Side suction, side discharge nozzles with same pressure grade
- A range of alloys available on request including NACE compliant materials
- Tested to API610/ISO13709 procedures - Head, Flow, NPSH, Noise & Vibration
- A range of API682 seals & systems (PED compliant)
- Grouted and Non-grouted base plates to API610 dimensions



Product Overview

General description	BB3 series is a multistage, between the bearings, single or double suction, horizontal centrifugal pump	
Construction	Heavy duty modular design, maximizing flexibility to meet rigorous customer requirements	
Design methodology	Advanced computer techniques including 3D modeling, FEA & CFD	
Design standards	API610 11 th :2010 / ISO13709:2009 / ATEX EC-Directive 94/9/EC	
Design pressure rating	Up to 100 bar g @ 20°C	
Suction pressure rating	Up to 60 bar g (Heavy duty construction)	
Operating temperature	-15°C to 150°C (Standard construction)	
	-15°C to 400°C (Heavy duty construction)	
Flow rate	Up to 600m ³ /h	
Differential Head	Up to 900 m	
Speed	Up to 3000 rpm	
Configuration	Long coupled pump	
	Bare shaft pump	
	Rotating assembly	
Discharge Sizes	Up to DN 150	
Design life	20 years (3 years uninterrupted operation)	



Designation

Example: BB3/DS 150-5stg / 315 2 S6 D115261 A / EXT4

BB3	DS	150	5stg	315	2	S6	D	115261	CD	EXT4
Pump type	Impeller option	Discharge nominal dia. in millimeters	Number of stages	Nominal power of installed driver in kW	No. of poles	Material class acc. to table H1 of API610	Seal type	Seal plan code acc. to API682	Options	Area classification
BB3: Multi-stage, Between bearings, Axially split centrifugal pumps, acc. to API610	Refers to pumps with a double suction impeller at 1st stage	Up to 150mm	Up to 8	up to 1400kW	2: 3000rpm 4: 1500rpm	S-1 S-3 S-4 S-5 S-6 S-8 C-6 A-8 D-1	S: Single mechanical seal D: Double mechanical seal	Each two digits stands for a plan: For example "115261" means plans 11, 52, and 61 have been utilized together.	A: No option B: Oil mist lubrication C: Vibration sensors D: Temp. Sensors E: Heating jacket F: Special bearing arrangement	SA: Safe area EX: Explosion proof T1~T6: Temperature class

1) For diesel engine refers to the driver's speed only.

2) Other seal arrangements are available on request.

3) For other types of driver (nonelectric drivers) abbreviation of the used type will be interpolated, examples: (ST: Steam Turbine)/(DE: Diesel Engine)/etc.

Material Options

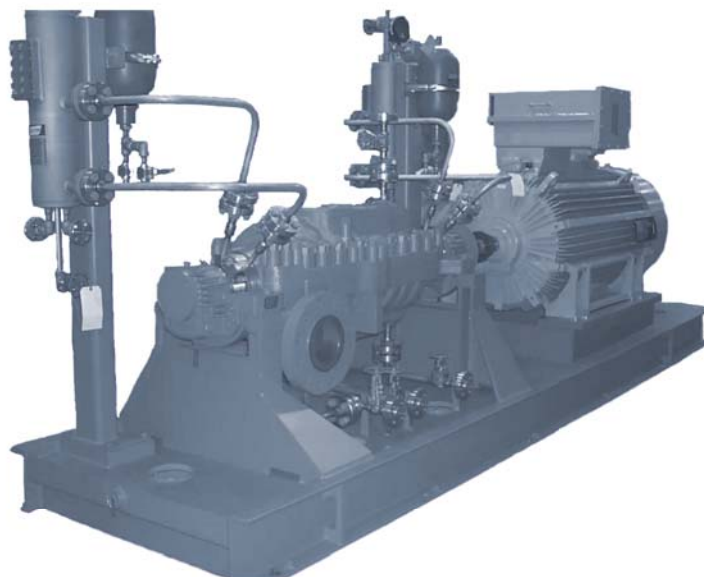
Material Class	Casing	Impeller	Shaft
S1 - Carbon Steel / Cast Iron	ASTM A 216 WCB	ASTM A 48 Class 40B	ASTM A 576 Gr. 1045
S3 - Carbon Steel / Ni-resist	ASTM A 216 WCB	ASTM A 436 Type 1,2,3	ASTM A 576 Gr. 1045
S4 - Carbon Steel / Cast Iron	ASTM A 216 WCB	ASTM A 48 Class 40B	ASTM A 576 Gr. 1045
S5 - Carbon Steel / Carbon Steel	ASTM A 216 WCB	ASTM A743 CF-8M	ASTM A 276 Type 420
S6 - Carbon Steel / 12% Cr SS	ASTM A 216 WCB	ASTM A743 CA6NM	ASTM A 276 Type 420
S8 - Carbon Steel / SS 316	ASTM A 216 WCB	ASTM A744 CF-8M	AISI 316
C6 - 12% Cr SS / 12% Cr SS	ASTM A743 CA6NM	ASTM A743 CA6NM	ASTM A 276 Type 420
A8 - SS 316 / SS 316	ASTM A 743 CF-8M	ASTM A743 CF-8M	AISI 316
D1 - Duplex SS / Duplex SS	EN10213-4 / 1.4517	EN10213-4 / 1.4517	ASTM A 436 Type 1,2,3

Product Benefits

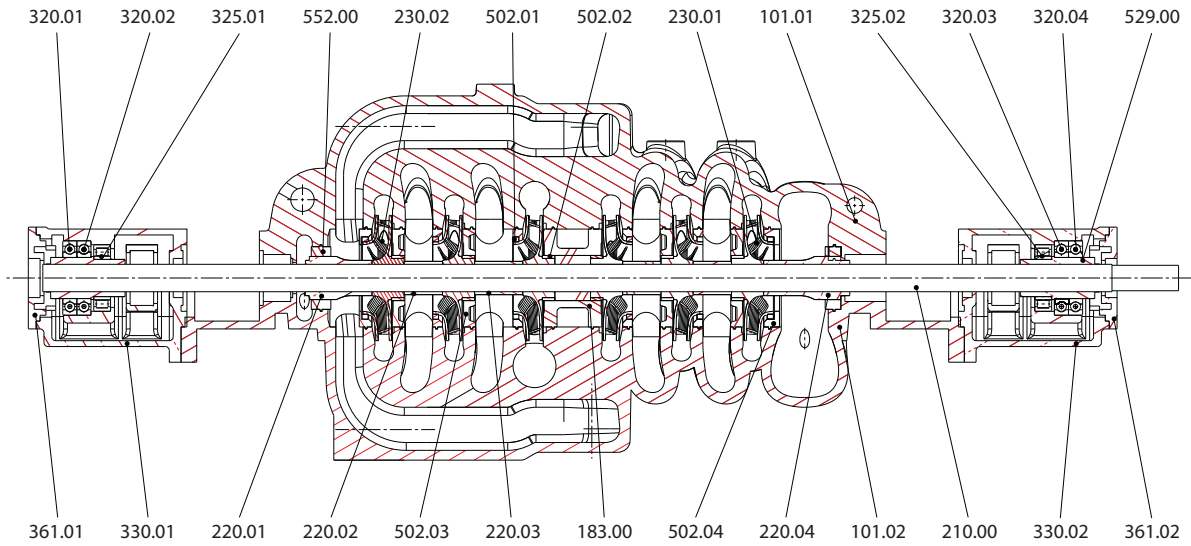
- Suitable for application requiring high suction pressure
- 3mm corrosion allowance to API610
- 2 x API allowable nozzle forces and moments
- Exchangeable impeller and case wear rings for re-establishing initial running clearances and efficiency (clearances to API 610, latest edition)
- Opposing impeller design to limit axial thrust to maximize thrust bearing life Double volute design minimizes hydraulic radial loads & shaft deflection
- Extra-large shaft diameter design to minimize deflection in operation
- Smooth operation with low vibration levels due to dynamic balancing both of the individual impellers and the complete rotor
- Axial thrust compensation by back-to-back arrangement of impellers
- Labyrinth bearing seals, deflector, to avoid external contamination and maximizing seal and lubrication life
- Fits for mechanical seals as per ISO 24109 / API 682 in cartridge design for easy installation and removal
- Rotor removable without dismantling the piping for Ease of maintenance
- Nozzles are cast integrally with lower casing half for easy disassembly without disturbing the piping for Ease of maintenance

Product Options

- Materials variety acc. to API 610
- Various types of cartridge mechanical seals available
- Impeller trimmed to match the specified duty point
- Optional double suction large eye first stage impeller for lower NPSH performance
- Several hydraulic systems per pump size
- Several bearing types possible, selecting rolling-element bearing type for bearings with bore diameter below 120mm and using hydrodynamic bearing type for those are above the limit. (Refer to "API610-11 ed., table 10")
- For higher pumping temperature cooling of the shaft sealing chambers and bearing housings can also be provided
- Flanges to ASME B16.5 class 600, 900 and 1500
- A variety of instrumentation options are available for monitoring all key operating parameters (temperature, pressure, vibrations, etc.)
- Standard or heavy duty base plates available



General Sectional Drawing

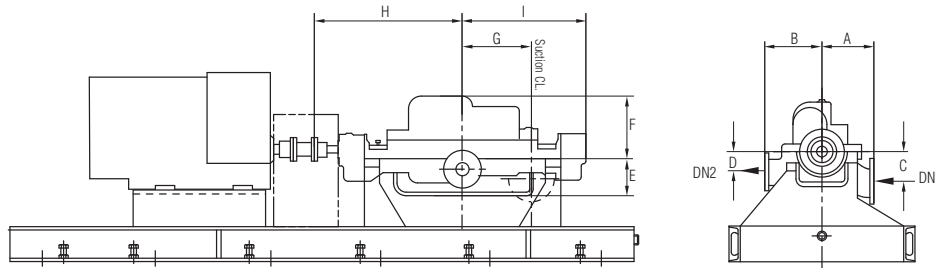


Part No.	Part Name
101.01	Upper casing
101.02	Lower casing
183.00	Center bushing
210.00	Shaft
220.01	Shaft sleeve
220.02	Shaft sleeve
220.03	Shaft sleeve
220.04	Shaft sleeve
230.01	Impeller
230.02	Impeller
320.01	Deep groove ball bearing
320.02	Deep groove ball bearing
320.03	Deep groove ball bearing

Part No.	Part Name
320.04	Deep groove ball bearing
325.01	Roller bearing
325.02	Roller bearing
330.01	Bearing housing
330.02	Bearing housing
361.01	Bearing cover
361.02	Bearing cover
502.01	Impeller front wear ring
502.02	Impeller rear wear ring
502.03	Stage ring
502.04	Casing wear ring
529.00	Bearing sleeve
552.00	Throat bushing



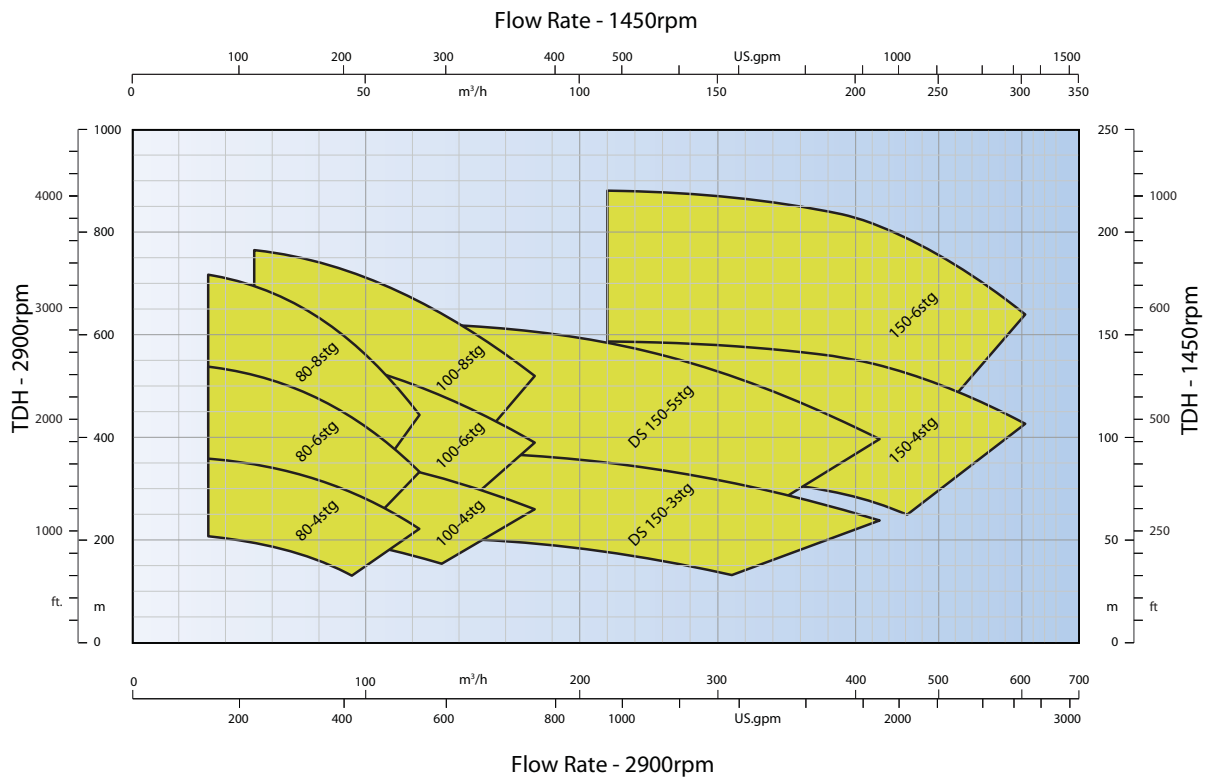
Outline Dimensions

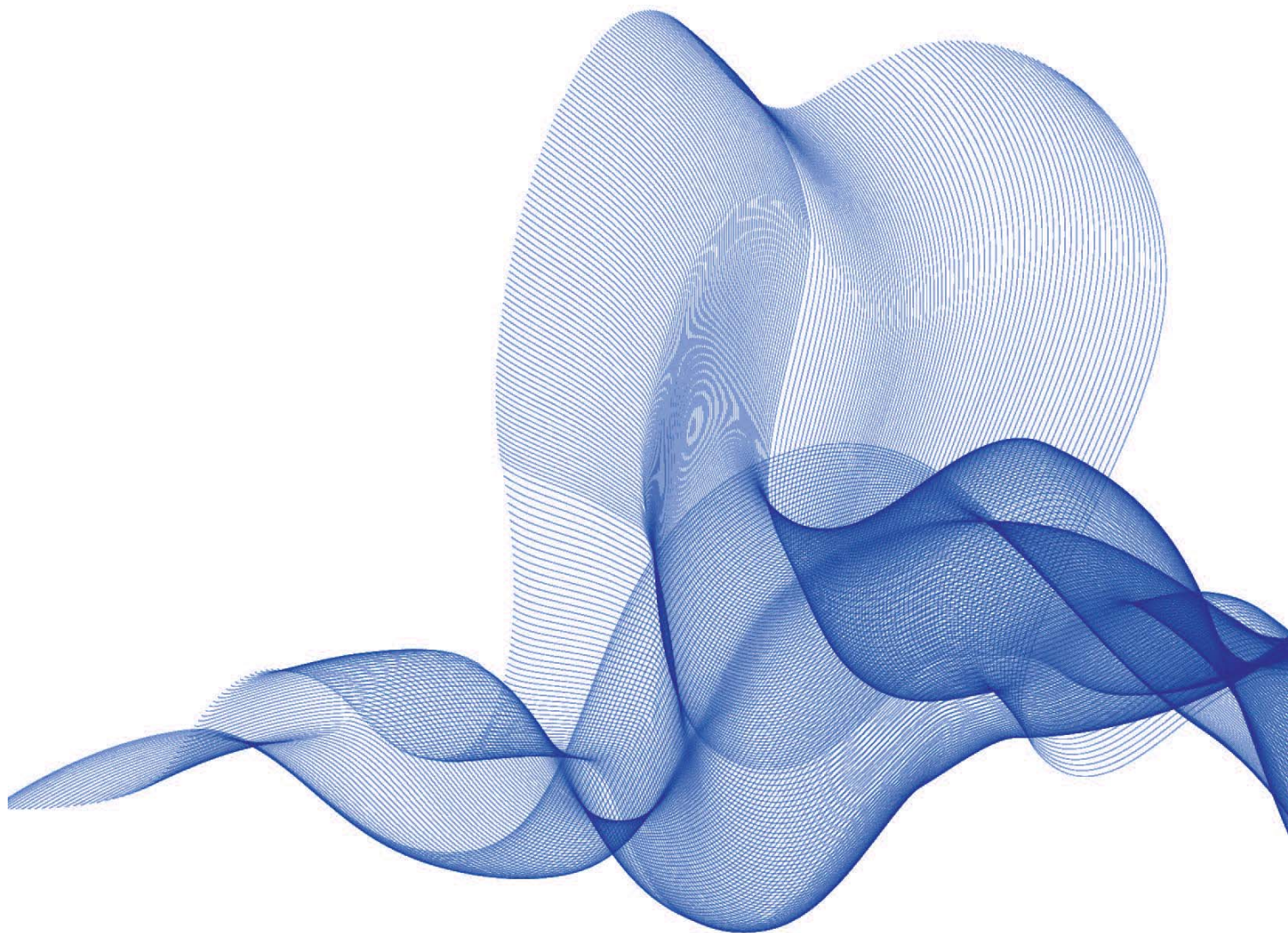


Model	Stage No.	DN1	DN2	A	B	C	D	E	F	G	H	I
BB3 80	4	100	80	368	356	191	165	337	337	305	880	930
	6	100	80	368	356	191	165	337	337	406	981	1032
	8	100	80	368	356	191	165	337	337	508	1083	1134
BB3 100	4	150	100	432	432	203	203	368	368	318	921	981
	6	150	100	432	432	203	203	368	368	432	1035	1096
	8	150	100	432	432	203	203	368	368	546	1149	1210
BB3/DS 150	3	200	150	457	457	216	216	483	457	241	1054	908
	5	200	150	457	457	216	216	483	457	387	1200	1054
BB3 150	4	200	150	508	483	254	254	483	483	406	1178	1146
	6	200	150	508	483	254	254	483	483	572	1343	1311

Note: All dimensions are in mm. Dimensions are not certified for construction.

Hydraulic Coverage





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