



CNSDp
DOUBLE-CASING,
RADIALLY SPLIT, MULTISTAGE,
BETWEEN-BEARINGS PUMP
BB5 TYPE
ANSI/API STANDARD 610
(ISO 13709:2009)

MATERIALS

Duplex steel (D-1 class according to API 610 11-th Ed.)

- Pressure casing: duplex steel GX2CrNiMoCuN-25-6-3-3
- Inner case parts: duplex steel GX2CrNiMoCuN-25-6-3-3
- Shaft: duplex steel X2CrNiMoN-22-5-3
- Wear rings parts: hard-faced duplex steel

Super Duplex steel (D-2 class according to API 610 11-th Ed.)

- Pressure casing: super duplex steel GX2CrNiMoN-26-7-4
- Inner case parts: super duplex steel GX2CrNiMoN-26-7-4
- Shaft: super duplex steel X2CrNiMoCuWN-25-7-4
- Wear rings parts: hard-faced super duplex steel

APPLICATION

The pump is designed for water injection into reservoirs to maintain formation pressure and stimulate production of oil, gas and condensate.

The pump can be also used in the high-pressure oil refining processes and for various applications in petrochemical industry.

TECHNICAL DATA

Capacity, m ³ /h.....	up to 1000
Head, m.....	up to 2800
Pressure, bar	up to 300
Temperature, °C	up to + 400

PUMPED MEDIA

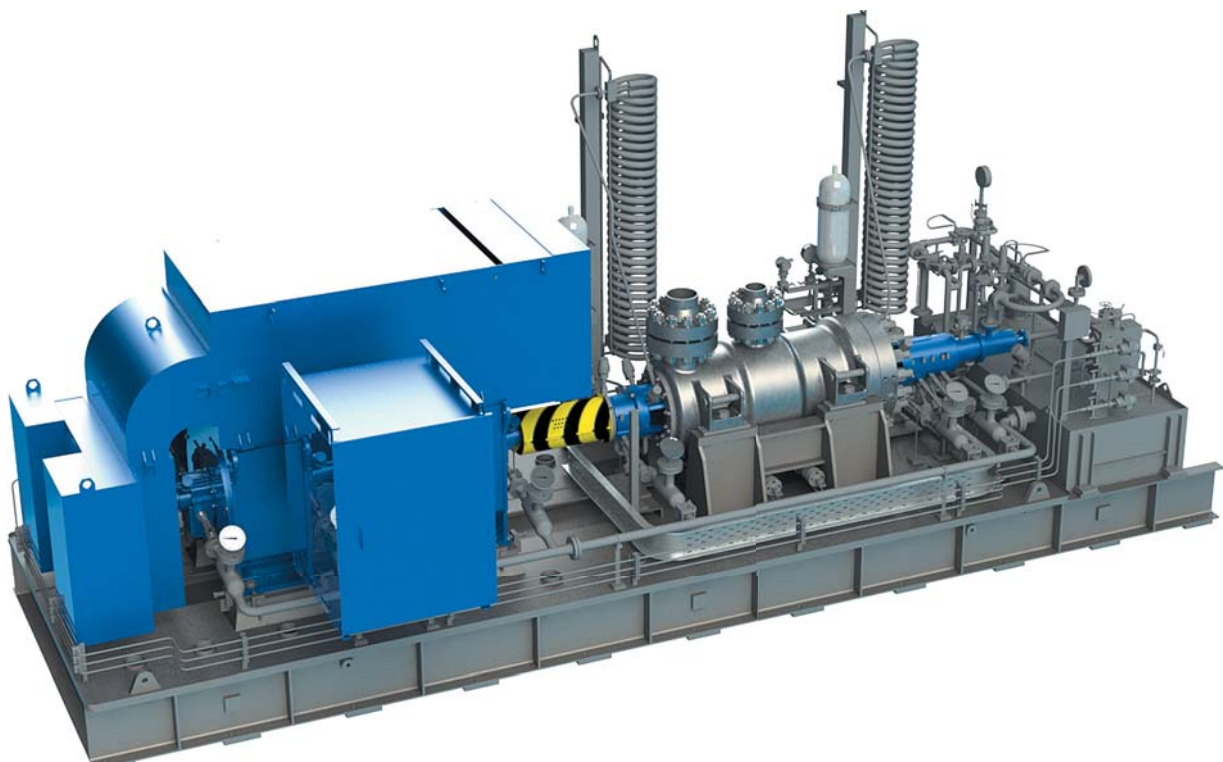
Highly-corrosive seawater, stratal water and waste water (including the fluids containing hydrogen sulfide):

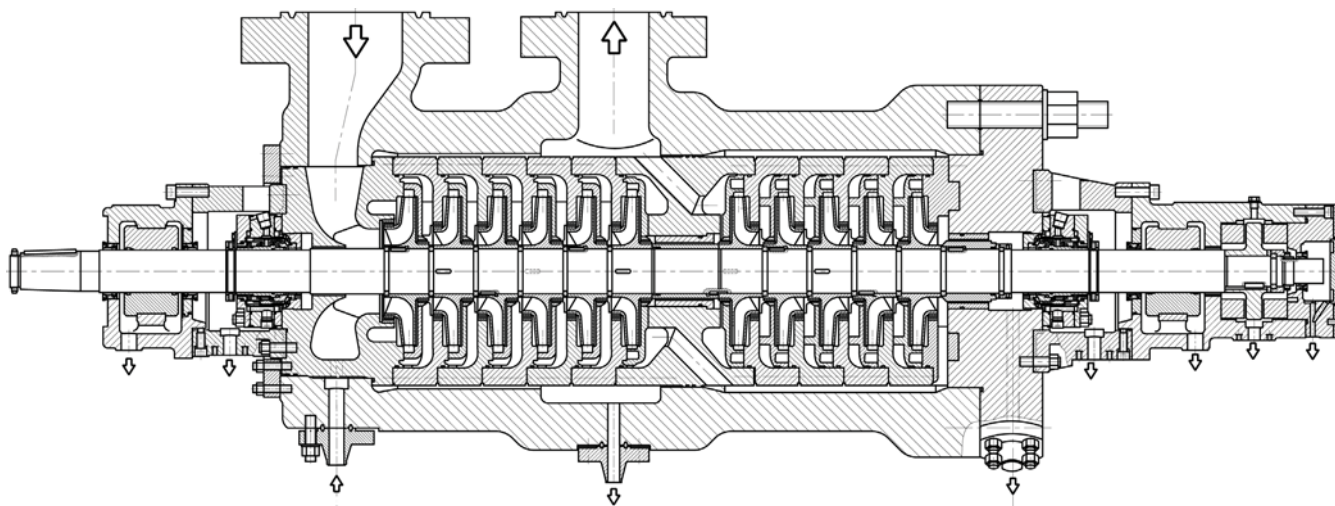
Density, kg /m ³	up to 1180
Max size of solid particles, mm	0.2
pH value	4 ... 9
Oil content, mg/L	up to 200
H ₂ S content, mg/L	up to 400

OPERATIONAL INTERVALS AND LIFETIME

Depending on the pumped media the average operational lifetime amounts to:

- Mean time between overhauls (MTBO): over 40000 hours
- Casing parts service life: over 30 years





DESIGN FEATURES

CNSDp pump is a horizontal, double-casing, radially split, multistage, between-bearings pump of a BB5 type (barrel pump), in full compliance with ANSI/API standard 610 (ISO 13709:2009).

The pump rotor is hydraulically unloaded by the «back-to-back» impellers fixed on the shaft by their press fit, embedded rings and shaft keys.

The outer casing is engineered and rated for the maximum allowable working pressure (MAWP).

Suction and discharge nozzles are directed vertically upwards. The pump supports are located on a centerline.

The inner casing of a cartridge type consists of radially split sections with metal-to-metal sealing and additional rubber rings completely eliminating internal circulation of the liquid. Due to a cartridge design the inner casing can be replaced at site conditions without dismantling the outer casing.

The pump rotor is supported by segmented bearings with forced lubrication system.

The residual axial force arising as a result of uneven wear of impellers' seals during operation is accepted by the Mitchell type thrust bearing with self-aligning pads and leveling system.

An oil pump of the lubrication system can be optionally installed on the main pump shaft.

The rotor sealing can be either single or double mechanical type in accordance with API 682. Pressure in the sealing system is kept by a hydraulic accumulator. The impeller of a mechanical sealing provides circulation of the barrier fluid that is cooled in a heat exchanger.

The pump is connected with a drive through the elastic diaphragm coupling.

