

 **GOULDS PUMPS**

# Goulds 3610

API 610 11<sup>th</sup> Edition / ISO 13709 2<sup>nd</sup> Edition  
API BB1 Axially-Split, Between-Bearing Pump



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**ITT**

ENGINEERED FOR LIFE

# Goulds 3610

## A Leader in API Engineered Pump Package Solutions...

### Proven API Leadership

ITT Goulds Pumps is a proven leader in API Pumps

- Over 20,000 units installed
  - Over 17,000 OH2 / OH3s
  - Over 3,000 BB1 / BB2 / BB3 pumps
- 40+ years of API expertise
- Participating member on API 610 and API 682 committees

### Family of API Pumps

ITT Goulds Pumps has a family of proven API pumps:

- Overhung pumps
- Single and two-stage between-bearing
- Multistage between-bearing pumps – axially split
- Barrel multistage - radially split
- Vertical, double casing pumps
- Specialty pumps

### Global Coverage

ITT Goulds Pumps has the global coverage needed to serve multi-national companies in any region.

### Industry Leading Hydraulic Coverage

- We offer extensive coverage to meet your process needs.
- Better hydraulic fits can mean improved efficiency and long-term reliability and parts life.

### 8000 HP / 6000 kW Testing Capability

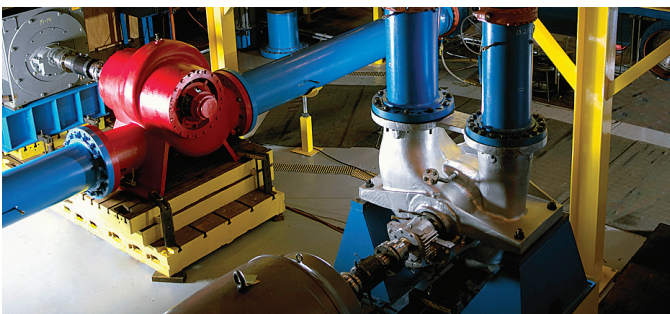
- Our expanded test facility can test your pump in the most demanding conditions.
- Testing at rated speeds is critical to assess the impact of dynamic conditions including vibration.

### API Engineering Expertise

- We are experts in packaging engineered pumps that meet your demanding applications – with true conformance to the latest API specifications.
- We have extensive experience in nearly every type of driver, bearing, seal, piping configuration, nozzle configuration, flange and baseplate design to meet your application needs.
- ITT is a world leader in technology and engineering including hydraulics, materials science, mechanical design and fluid dynamics.

### Broad Applications

- Petroleum refining, production and distribution
- Petrochemical and demanding chemical processing
- High temperature applications including boiler circulation
- General industrial requiring high temperature or high pressures



# Goulds 3610

## End Suction API 610 / ISO 13709 Process Pump

- Designed for optimum reliability
- State-of-the-art mechanical design features
- 48 casing sizes – choice of impellers with most casings.



Brazil Refinery - Crude Transfer Pipeline 30x36-32  
600 psi (42 Bar), 3500 HP (2600 kW)



Refinery in UAE - centerline mount for higher temperatures



Brazil Refinery Cooling Tower Service

## High Temperature and Pressure Process Pumps that Meet or Exceed 610 API 11<sup>th</sup> Edition and ISO 13709 2<sup>nd</sup> Edition

Safety, reliability, and versatility are the key words for our double suction API 610 between-bearing (BB1) pump.

### Safety and Reliability

We provide engineered solutions with true conformance to the latest API specifications. The result is a safe and rugged API process pump designed for a 20-year life.

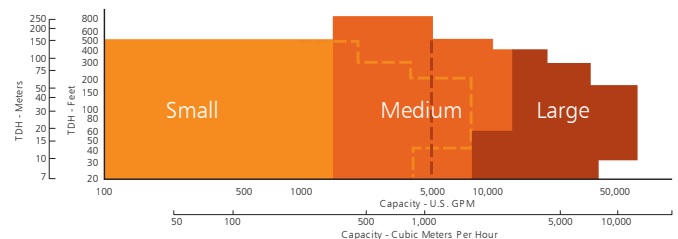
### Versatility

- Capacity to 50,000 GPM (11355 m<sup>3</sup>/h)
- Total Dynamic Head to 700 feet (215 m)
- Temperature to 300° F (150°C)  
[Optional 400° F (205° C)]
- Pressure to 300 psig (21 bar)  
[Optional 600 psig (42 bar)]

**Materials:** Available in a wide range of materials including all API 610 constructions and custom application needs.

**Engineered Hydraulics:** Industry-leading hydraulic combinations to better match your process for efficiency and reliability. Custom hydraulics are available.

**Engineered Packaging** with a wide range of drivers, seals, piping, nozzle configurations, flanges, baseplates, and QC testing.



# Goulds 3610 (API BB1)

API 610 11th Edition / ISO 13709 2nd Edition

API BB1 Axially-Split, Between-Bearing Pump



## RENEWABLE CASING WEAR RINGS

Positively locked on impeller hubs to permit easy renewal of API 610 / ISO 13709 running clearances and protect impeller hubs from wear.

## HEAVY DUTY SHAFTS

Designed for minimum deflection in the toughest services means excellent shaft seal and bearing life. Sized to meet deflection and rotor dynamic requirements of API 610 / ISO 13709.

## DOUBLE SUCTION IMPELLER

Minimizes axial thrust for longer bearing life. Polished waterways and fully machined exterior surfaces assure highly efficient performance. Dynamically balanced as standard for smooth operation.

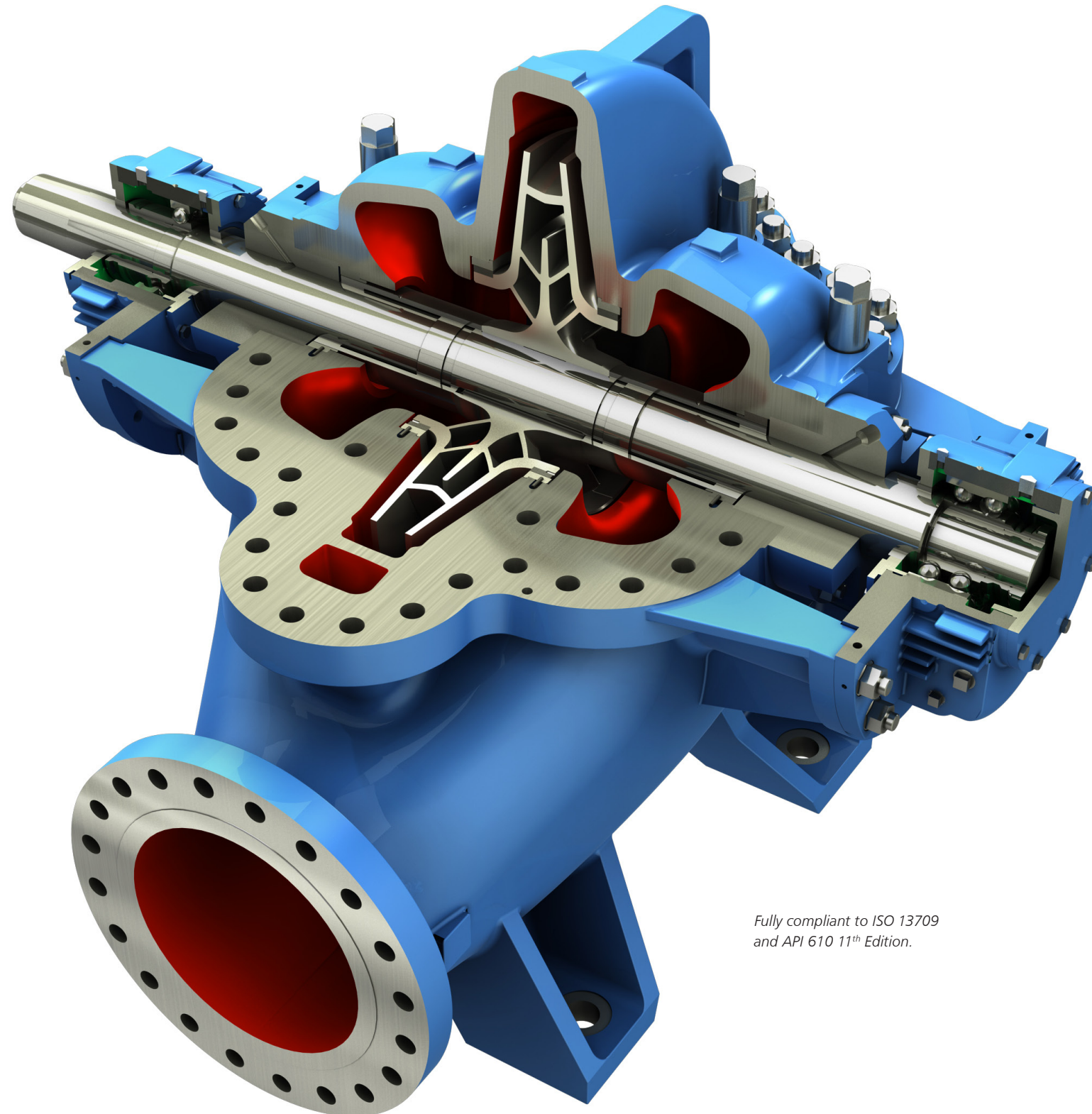
## AXIALLY-SPLIT HEAVY-DUTY CASINGS

Rugged foot-mounted design to resist external forces and vibration. Casings designed to withstand high working pressures with minimum distortion and are 100% hydrostatically tested. Suction and discharge connections are in the lower half casing, allowing removal of upper half casing for inspection or removal of complete rotating element without disturbing piping or driver.

## CLASS 300 RF FLANGES STANDARD

## FOOT-MOUNTED CASINGS

Heavy-duty mounting to accept API 610 / ISO 13709 nozzle loads and maintain pump alignment.



## LARGE INLET AREAS

Reduce NPSH requirements and assure smooth, quiet flow to the impeller.

## RENEWABLE IMPELLER WEAR RINGS

Positively locked on impeller hubs permit easy renewal of API 610 / ISO 13709 running clearance and protect impeller hubs from wear.

## ENLARGED SEAL CHAMBERS

Conforms to API 610 / ISO13709 dimensional requirements. Allows use of a wide variety of API 610 / ISO 13709 cartridge mechanical seals.

## HEAVY-DUTY THRUST BEARING

Duplex 40 degree angular contact standard with ring oil lube.

## LABYRINTH BEARING PROTECTION

Standard on all 3610 pumps. Significantly reduces the chance for bearing contamination and greatly improves mean time between failure.

Fully compliant to ISO 13709  
and API 610 11<sup>th</sup> Edition.

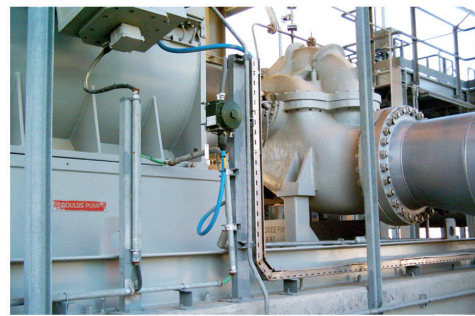
# Materials of Construction

Part Description	S-4	S-6	C-4	A-8
Casing	Carbon Steel	Carbon Steel	12% Chrome	316 SS
Impeller	Carbon Steel	12% Chrome	12% Chrome	316 SS
Shaft	Carbon Steel	Carbon Steel	12% Chrome	316 SS
Shaft Sleeve <sup>1</sup>	C1	12% Chrome Hard	12% Chrome Hard	316 SS Hard
Casing Wear Ring <sup>1</sup>	C1	12% Chrome Hard	12% Chrome Hard	316 SS Hard
Bearing Housings	Carbon Steel			
Impeller Wear Ring <sup>1</sup>	C1	12% Chrome Hard	12% Chrome Hard	316 SS Hard

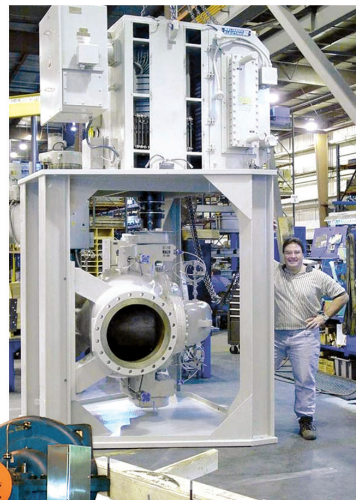
<sup>1</sup> Also available in hardened/hard metal coated materials.



Refinery Cooling Tower Service  
(Brazil)



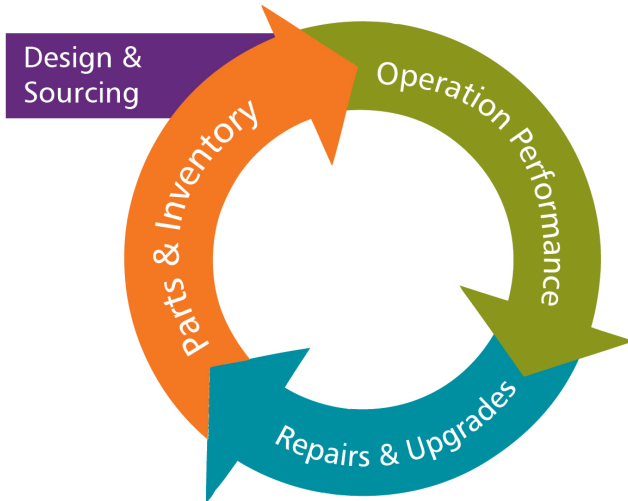
Refinery Crude  
Oil Service  
(Middle East)



Offshore Platform Service  
(Gulf of Mexico)



Cooling Water Service  
(Canadian Oil Sands)



## Reliability has no quitting time.

**PRO Services** provides an array of services focused on reducing equipment total cost of ownership (TCO) and increasing plant output, including predictive monitoring, maintenance contracts, field service, engineered upgrades, inventory management, and overhauls for pumps and other rotating equipment.



PRO Services provides OEM parts for Goulds Pumps, Bornemann Pumps, AC, Morris, Goyne, CB, HVC, UXN and ROV in a timely manner to meet end user requirements. Significant levels of inventory and quick response capability provides the necessary programs to meet all repair needs.

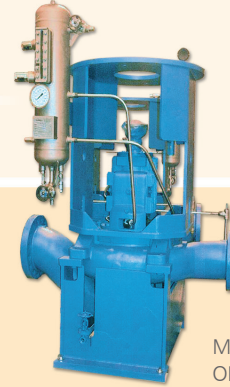
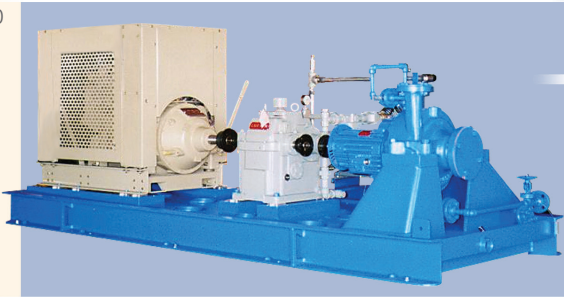
PRO Services provides programs of reliability services, energy assessments, asset management and training. These can be deployed as stand-alone or integrated solutions, tailored to the needs of your company.

PRO Services provides an array of repairs and upgrades services to extend equipment life. PRO Services helps customers develop effective maintenance and asset management programs to lower maintenance costs, improve uptime, reduce inventory costs and extend equipment life.

# A Leader in API Engineered Pump Package Solutions

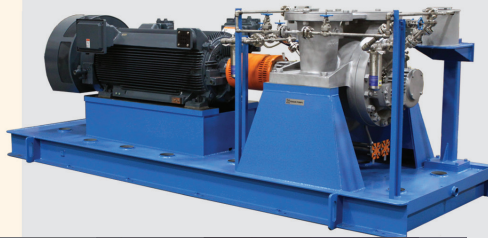
## API Family of Pumps

Model 3700  
OH-2



Model 3910  
OH-3

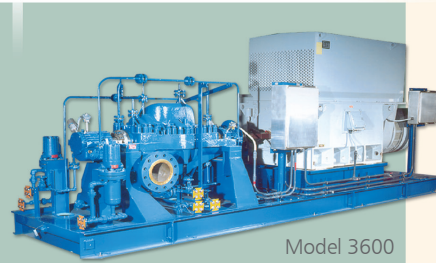
Model 3620  
3640  
BB-2



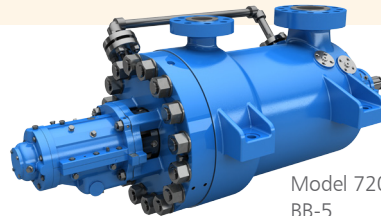
Model 3610  
BB-1



API Type	Goulds Model	Capacity GPM (M <sup>3</sup> /Hour)	TDH Feet (Meters)	Temperature °F (°C)	Pressure PSIG (kg/cm <sup>2</sup> )
OH-2	3700	8500 (1930)	1200 (360)	800 (425)	870 (60)
OH-3	3910	6000 (1360)	750 (230)	650 (340)	600 (42)
BB-1	3610	50000 (11355)	700 (215)	300 (150)	300 (21)
BB-2	3640	7500 (1700)	2500 (760)	850 (455)	1130 (75)
BB-2	3620	20000 (4540)	1500 (455)	850 (455)	1000 (70)
BB-3	3600	8500 (1930)	9000 (2740)	400 (205)	4000 (275)
BB-5	7200CB	4000 (910)	9000 (2740)	800 (425)	4000 (275)
VS4	API 3171	3180 (720)	525 (160)	450 (232)	750 (50)
VS1	VIT	70000 (14760)	3500 (1060)	500 (260)	2500 (175)
VS6	VIC	70000 (14760)	3500 (1060)	500 (260)	2500 (175)



Model 3600  
BB-3



Model 7200CB  
BB-5



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