

# Pipelines

Oil & Gas Products for Transportation



**ITT**

ENGINEERED FOR LIFE

# ITT's Capabilities & Technology

From pump systems used to transport and refine petroleum, to watermakers used on offshore rigs, ITT fluid handling technologies are used in all areas of the Oil and Gas Industry.

## Expertise

For over 160 years, our engineers have worked closely with major energy producers worldwide to develop innovative products and technologies that optimize the life cycle of equipment required by this demanding industry. ITT is recognized as the premier supplier of pumps, valves, controls and monitoring, offshore RO desalination, and services to the Oil and Gas Industry.

## Reliability

ITT is recognized worldwide for our brands such as Goulds Pumps®, Bornemann, PRO Services, Engineered Valves, Blakers, and C'treat®. We have developed engineered products for Oil and Gas applications and offer custom designs for critical services. The latest foundry and manufacturing technologies, combined with demanding quality control processes and procedures, ensure the highest quality products. We provide the greatest value in life cycle cost and performance.

## Innovation

ITT is the world leader in technology and engineering expertise, utilizing capabilities such as:

- Computational fluid dynamics
- Materials science
- Manufacturing technology
- Finite element analysis
- Efficiency optimization
- Controls and monitoring
- Rapid prototyping
- Hydraulic design
- Mechanical design

PumpSmart® controls and ProSmart® monitoring systems keep processes reliably on line by automatically adjusting pump output to meet system needs, detecting and correcting problems before they disrupt the process.

## Environment, Safety & Health

ITT is proud to be a leader in protecting our employees, customers and the communities where we operate.

The ITT Environment, Safety and Health Management System provides for the systematic control of environmental, safety and health (ESH) risks. Using this system, operational, administrative and cultural ESH processes are standardized and applied to continually improve environmental and occupational safety and health performance.



Twenty Model 3600 API pumps propel seawater 90 miles from the Pacific Ocean to a copper mine

# ITT – API Expert

## ITT Commitment

ITT is committed to the Oil and Gas market, which is the largest segment of our business. We have been investing in technology to continuously improve our products to meet increasingly demanding industry requirements.

## Proven API Leadership

ITT is a proven leader in API pumps with over 25,000 units installed.

40+ years of API expertise participating member on API 610, API 676 and API 682 committees.

## Complete Portfolio of API Pumps

ITT Goulds Pumps and Bornemann have a complete portfolio of proven API pumps:

- Overhung pumps
- Single and two-stage between-bearing pumps
- Multistage between-bearing pumps – axially split
- Barrel Multi-Stage pumps
- Vertical, double casing pumps
- Specialty pumps
- Twin screw pumps
- Multiphase pumps
- Progressive cavity pumps



Model 3600 BB3 pump

## Global Coverage

ITT's family of industrial brands - Goulds Pumps, Bornemann, PRO Services, Engineered Valves, Compact, Turn-Act, and C'treat have the global coverage needed to serve multi-national companies in any region.

## Industry Leading Hydraulic Coverage

We offer extensive hydraulic 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 centrifugal and multiphase pump test facilities can meet any of your test requirements. This allows us to test at rated speeds, which is critical to assess the impact of dynamic conditions including vibration.

## API Engineering Expertise

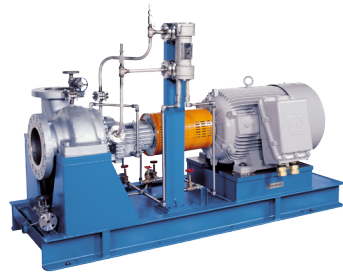
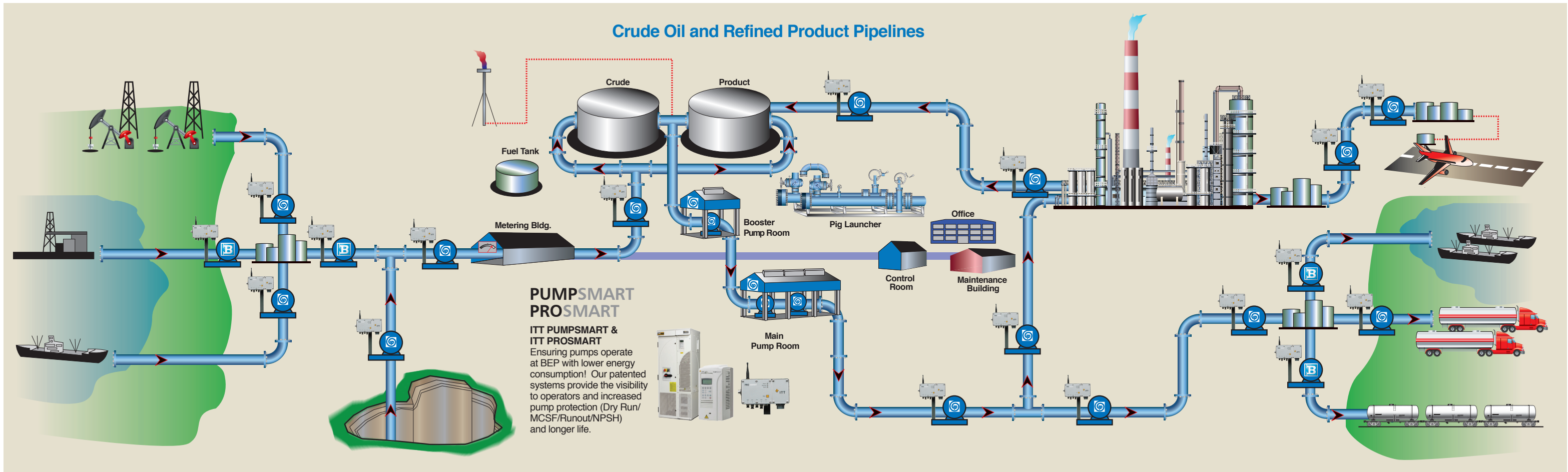
We are experts in packaging engineered pumps that meet your demanding applications – with true conformance to the latest API specifications. ITT is a world leader in technology and engineering, including hydraulics, materials science, mechanical design and fluid dynamics. We have extensive experience 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.

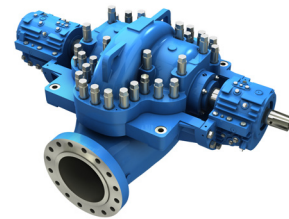


Model 3610 BB1 mainline pump for pipelines

# Pipelines



- 3700 (OH2)**  
 Single-Stage, Overhung
- Capacity: 8,500 GPM (1930 m<sup>3</sup>/h)
  - Head: 1,200 feet (360 m)
  - Temperature: 800°F (425°C)
  - Pressure: 870 PSIG (60 Bar)



- 3610P (BB1)**  
 Axial Split Case, Double Suction
- Capacity: 30,000 GPM (6813 m<sup>3</sup>/h)
  - Head: 1500 feet (457 m)
  - Temperature: 400°F (204°C)
  - Pressure: 2200 PSIG (152 bar)



- 3600 (BB3)**  
 Heavy-Duty Multi-Stage Axially Split Pumps
- Capacity: 8,500 GPM (1930 m<sup>3</sup>/h)
  - Head: 9,000 feet (2740 m)
  - Temperature: 400°F (204°C)
  - Pressure: 4,000 PSIG (276 bar)



- 7200CB (BB5)**  
 Barrel Multistage Pumps
- Capacity: 4,000 GPM (910 m<sup>3</sup>/h)
  - Head: 9,000 feet (2740 m)
  - Temperature: 800°F (425°C)
  - Pressure: 4,000 PSIG (276 bar)



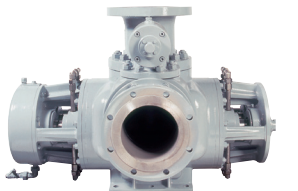
- 3196 i-FRAME™ / IC (OH1)**  
 Process Pumps (ANSI / ISO)
- Capacity: 7,000 GPM (1364 m<sup>3</sup>/h)
  - Head: 730 feet (223 m)
  - Temperature: 700°F (371°C)
  - Pressure: 375 PSIG (26 bar)



- 3171 API (VS4)**  
 Vertical Sump
- Capacity: 3,180 GPM (722 m<sup>3</sup>/h)
  - Head: 525 feet (160 m)
  - Temperature: 450°F (232°C)
  - Pit depth: 20 feet (6 m)



- VIC/VICDS (VS6/VS7)**  
 Vertical Can / Double Suction
- Flows to 70,000 GPM (4760 m<sup>3</sup>/h)
  - Head: 3,500 feet (1067 m)
  - Pressure: 2,500 psi (172 bar)
  - Bowl sizes from (6" to 55")
  - Temperature: 500°F (260°C)



- W/V Universal**  
 Twin Screw Pumps
- Capacity: 12,300 GPM (2800 m<sup>3</sup>/h)
  - Temperature: 662°F (350°C)
  - Pressure to 900 PSIG (62 bar)

# Industrial Applications

Whether you are talking short distances between storage tank and truck, or long barren stretches between pumping stations, ITT has the right solution.

Transporting crude or refined product demands absolute care. ITT has dependable, efficient products that are crucial to managing your pipelines and transport requirements.

We are experts in packaging engineered pumps that meet your demanding applications – with true conformance

## ITT's offerings include:

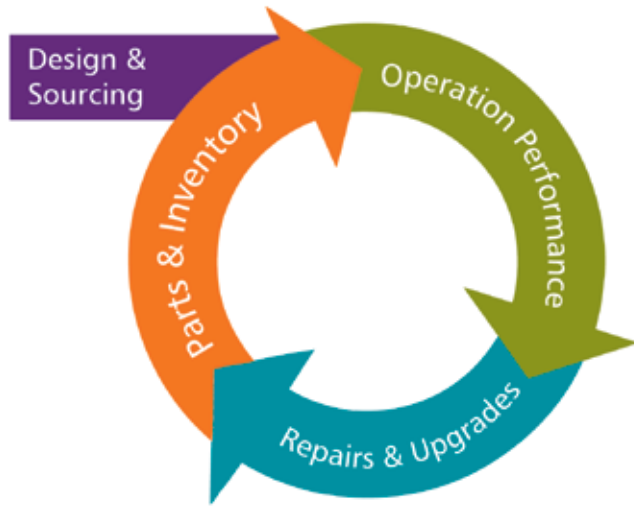
- Booster pumps
- Mainline pumps
- Pumps for terminals and tank farms
- Twin screw pumps for loading and unloading of ships, tank wagons, tanker trucks as well as storage tanks and pipeline
- Hydraulic rerates of existing pumps
- Remote monitoring



Ethanol railcar unloading pumps in Albany NY



Heavy crude oil transfer pumps with viscosities ranging from 50 to 900 cSt. When "frozen," this pipeline relies on ITT Bornemann twin screw pumps



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.



Significant levels of inventory and quick response capability provides the necessary programs to meet all repair needs. Rotating elements can be stored at locations close to pump stations and be available on site within 24-72 hours.

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.



Vertical pump being serviced.



Provides operations with a "window" into real time pump performance and operation. Dynamic pump flow/head/power curve changes with speed.

Visit our website at

[www.ittoilgas.com](http://www.ittoilgas.com)

## Upgrade and Improve your standard Medium Voltage VFD Pumping System!

- PumpSmart MV has the ability to analyze existing VFD controlled systems and give operators visibility of pumping systems
- Provides better operation and less down-time due to process pump visibility
- Patented logic can improve overall system visibility and predictive monitoring
- More than just AMPS and SPEED; real-time pump performance equates to better operation and protection of high energy pumps



Intelligent and Powerful monitoring or control for your Medium Voltage industrial process pumping system is finally here. PumpSmart MV systems combines the experience and knowledge of over 160 years of pump system design and support, with the latest in monitoring and control. ITT PRO services can engineer and integrate your pumping mechanical, hydraulic and electrical system for advanced system monitoring and control.

# Wherever you are, we're there too.



ITT's family of industrial brands:



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