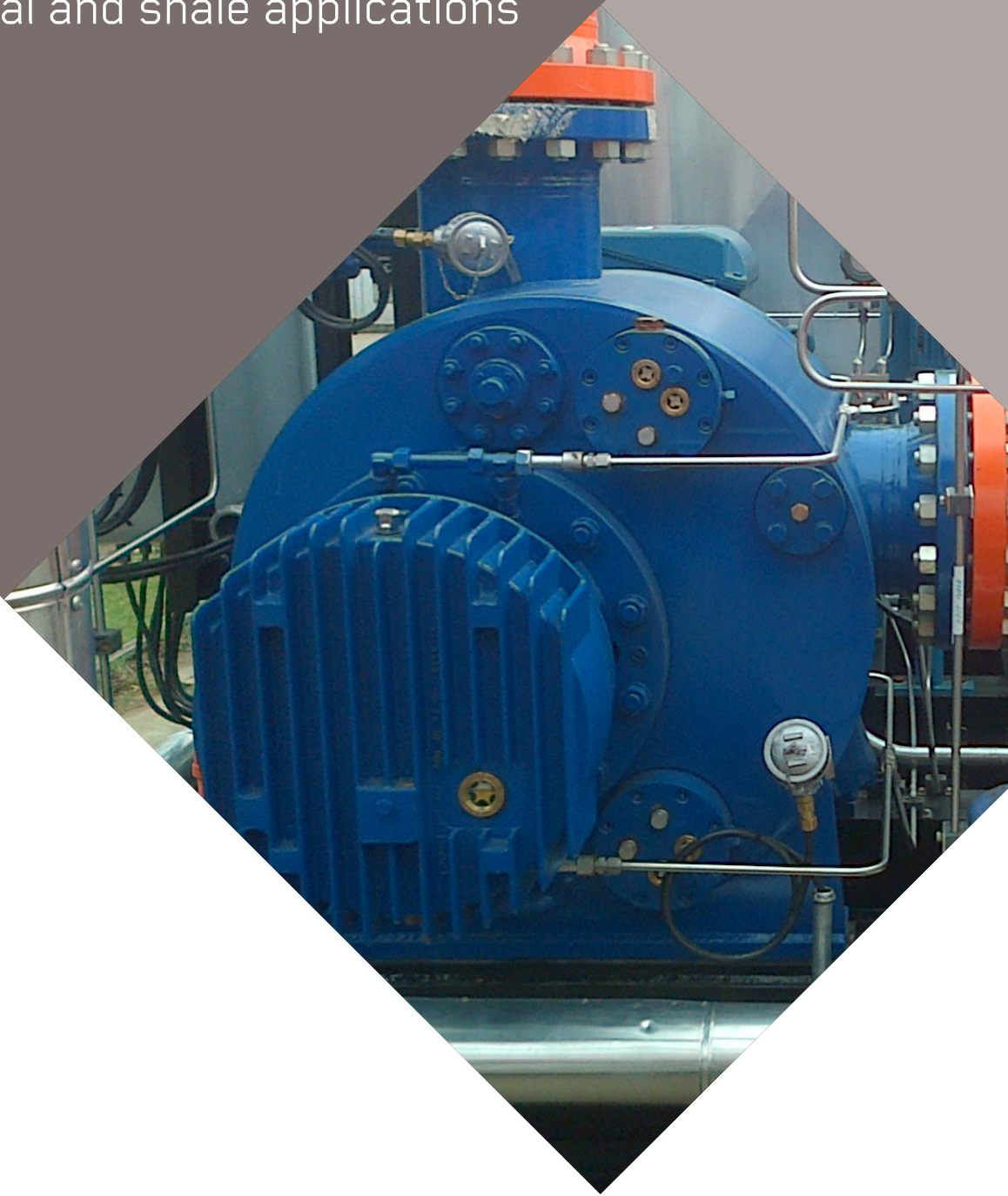


Unconventional Oil & Gas

Pumping solutions for multiphase mixtures in
tight oil, thermal and shale applications



ITT

ENGINEERED FOR LIFE

ITT's Capabilities & Technology

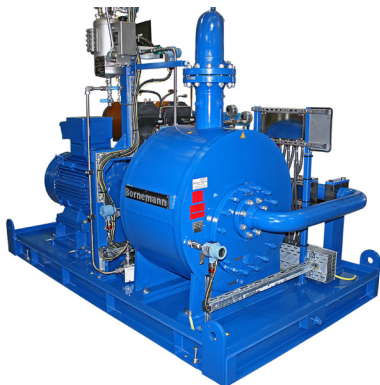
From pump systems used to transport and refine petroleum, to watermakers used on offshore rigs, ITT fluid handling technologies are used in all areas of the Oil and Gas Industry.

Expertise

ITT Bornemann twin screw and progressive cavity pumps offer customers in the unconventional oil and gas market a unique custom designed solution. Known as 'multiphase boosting,' these systems offer many savings in the area of wellhead boosting, vapor recovery and clustering of multiple wells to a single pipeline for a centralized oil/gas separation unit. Headquartered in Germany with operations in Argentina, United States and Canada: ITT Bornemann has the largest installed base of multiphase boosting systems globally and operating in many different environments including the deserts of the Middle East, the arctic conditions of Russia and Canada, and the jungles of Venezuela and Panama.

Reliability

Over the years, ITT Bornemann has refined and expanded its portfolio of solutions to address the specific challenges of each application in the Oil & Gas production environment. In addition, ITT Bornemann recognizes that your goal is for reliable production, not simply equipment life. We work to solve both parts of this equation by eliminating unnecessary auxiliary equipment while providing a robust system solution.



Single-well multiphase booster system

System/Turnkey Approach

ITT Bornemann's success has been because we supply you our knowledge and experience with the entire multiphase boosting system, not just a pump or select piece of equipment. We use process simulation and 3D engineering capabilities to deal with the specific conditions associated with the well. Suction and discharge piping, valves, seal systems, lube oil systems, electric motors, gas engines, variable speed drives, instrumentation, and control panels can all be included on a single skid. The system is designed to operate as a complete unit and is tested at the factory before shipment. In the end all the customer needs to do is to install the unit and pump the hydrocarbons.

Global Support

With the integration of ITT's global footprint, Bornemann can provide immediate service support anywhere around the world. This is particularly true in North America where we have a strong PRO Services Shop network with 11 locations and trained service teams for startup, commissioning, and overhaul. Bornemann has complete technical teams in Germany, Edmonton, Houston and Buenos Aires to support our sales service teams. Parts are kept in inventory and can be dispatched as needed.

Reliable Partner

Being part of ITT, Bornemann has a strong financial profile and has been providing multiphase boosting solutions for over 25 years. We are easy to do business with and will listen carefully to your needs and then provide a custom solution or offer a less expensive solution based on the investment capital available and the projected life of the well.

ITT – Oil & Gas Expert

ITT Commitment

ITT is committed to the Oil and Gas market, particularly the upstream unconventional oil and gas market. We have been investing in technology to continuously improve our products to meet increasingly demanding industry requirements.

Proven Oil & Gas Leadership

ITT is a proven leader in the Oil & Gas industry with over 30,000 pumps and systems installed globally. In addition, we have been a member of the American Petroleum Institute (API) for over 40 years with participation on API610, API 676 and API 682 committees.

Portfolio Breadth

Since our twin screw pumps use fabricated casings and our progressive cavity pumps can pump low quantities of liquids, you can be assured that ITT Bornemann will be able to engineer a solution for your specific issues. High pressure, high power, converging screws, cartridge mechanical seals, replaceable liners, and internal coatings for increased wear resistance are all available. We will establish a budget and work with our customers to provide an economic solution that meets their needs.

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.

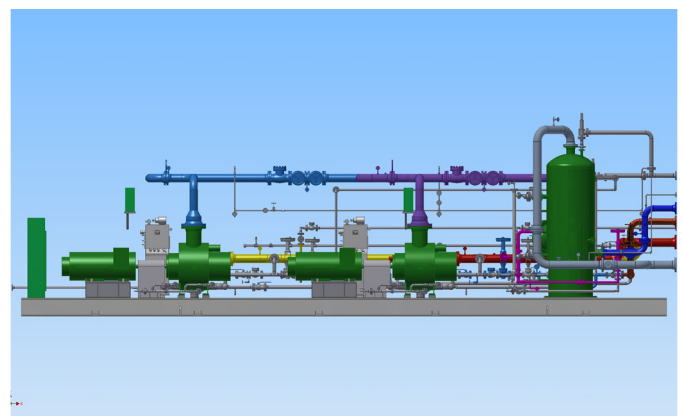
Engineering Expertise

We are experts in packaging engineered pumps that meet your demanding applications – with true conformance to the latest API specifications or your specific needs. 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.

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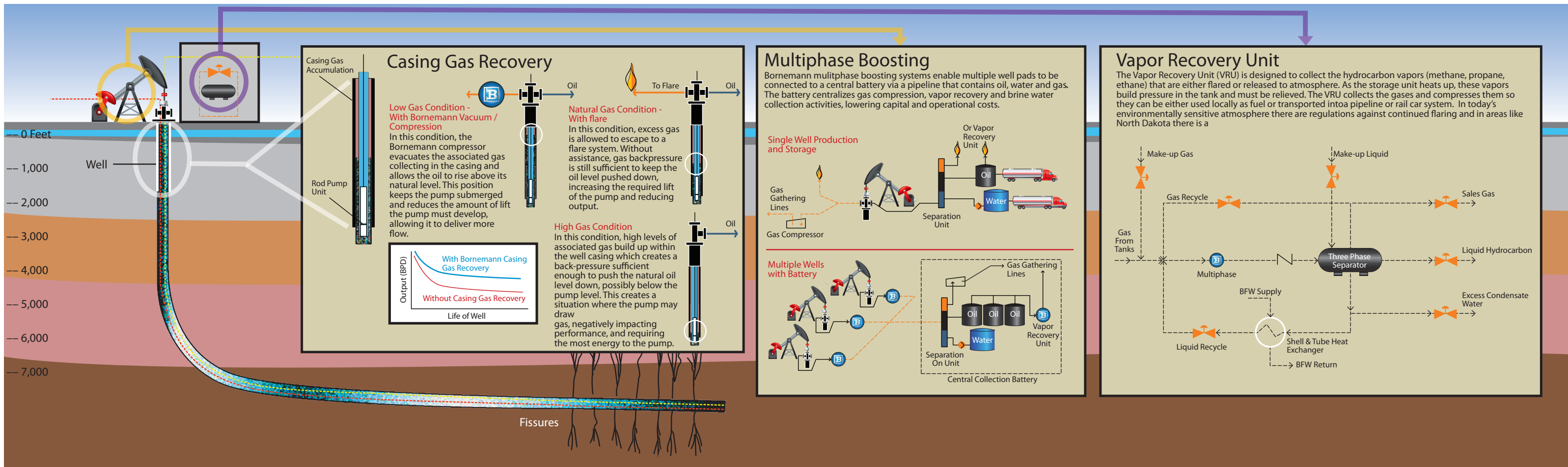


A mobile, multiphase pump system that can handle the oil, water and gas produced at wells



Complete system design and delivery for a Canadian thermal application

Multiphase Boosting in Unconventional Oil & Gas Production



<p>MW Classic Multiphase Pump</p> <ul style="list-style-type: none"> Capacity: Up to 1,206,000 GPM (1 - 8000 m³/h) Temperature: 320°F (160°C) Pressure: 725 PSIG (50 bar) 	<p>MPC Multiphase Pump Compressor</p> <ul style="list-style-type: none"> Capacity: Up to 1,206,000 GPM (1 - 8000 m³/h) Temperature: 320°F (160°C) Pressure: 1,000 PSIG (70 bar) 	<p>MSL Single Well Multiphase Pumps</p> <ul style="list-style-type: none"> Capacity: 137 - 16,800 GPM (1 - 110 m³/h) Temperature: 320°F (160°C) Pressure: up to 230 PSIG (16 bar) 	<p>W / HC / HP Liquid Twin Screw Pumps</p> <ul style="list-style-type: none"> Capacity: Up to 19,800 GPM Temperature: Up to 250°F (120°C) Pressure: 1,500 PSIG (100 bar) 	<p>EH Universal Pumps</p> <ul style="list-style-type: none"> Capacity: 4 - 1,100 GPM (1 - 250 m³/h) Temperature: 270°F (130°C) Pressure: 360 PSIG (24 bar) 	<p>3196 i-FRAME™ / IC (OH1) Process Pumps (ANSI / ISO)</p> <ul style="list-style-type: none"> Capacity: 7,000 GPM (1364 m³/h) Head: 730 feet (223 m) Temperature: 700°F (371°C) Pressure: 375 PSIG (26 bar) 	<p>3600 (BB3) Heavy-Duty Multi-Stage Axially Split Pumps</p> <ul style="list-style-type: none"> Capacity: 8,500 GPM (1930 m³/h) Head: 9,000 feet (2740 m) Temperature: 400°F (204°C) Pressure: 4,000 PSIG (276 bar) 	<p>3700 (OH2) Single-Stage, Overhung</p> <ul style="list-style-type: none"> Capacity: 8,500 GPM (1930 m³/h) Head: 1,200 feet (360 m) Temperature: 800°F (425°C) Pressure: 870 PSIG (60 bar)

Multiphase Pump Benefits

Multiphase Pump Benefits to Shale Market

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

ITT Bornemann's technology delivers more in a smaller package compared to the conventional centrifugal pump systems used by most shale companies.

ITT Bornemann's twin screw pump portfolio offers a mix of complementary technologies to meet various needs for the shale market delivering flexibility, simplicity and reliability in dry running conditions due to patented technologies relating to multiphase pumps and positive displacement.

One Bornemann multiphase pump system can replace conventional separation pumping and compressing systems, with a smaller footprint, more portability and increased capability tackling unknown mixtures of liquids and gases in one pump system.

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



Multiphase pump installation

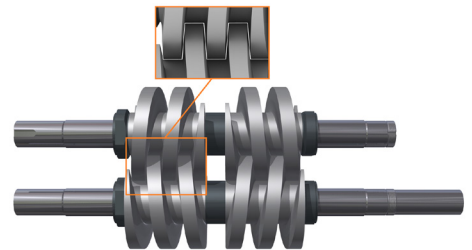
Non Contact Screw

Improved Reliability

The Bornemann Twin-Screw multiphase pump series all feature non-contacting screw sets. The benefit of this design is the durability and reliability of the pump, even under the most severe operating conditions it encounters.

The design uses process liquids to seal the compression chambers: no special lubrication fluids are required.

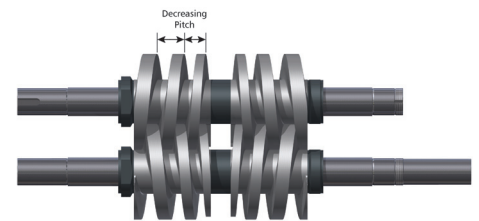
In addition, the clearances between the screws and special coating permits frac-sand to pass without damaging the rotor.



Digressive Screws for Vapor Recovery Applications

Higher Compression Ratios

Bornemann multiphase compressors systems utilize digressive screw designs to achieve greater compression ratios and improved efficiencies. A proven design over one applications in the tough Canadian Oil Sands market, the Bornemann MPC is designed for high gas applications

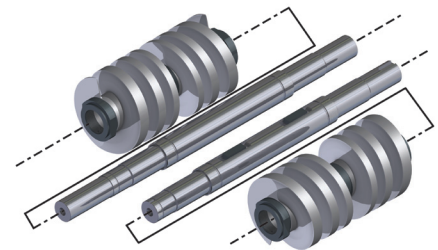


Two-Piece Screw Design

High Strength Shaft – Abrasion Resistant Screw

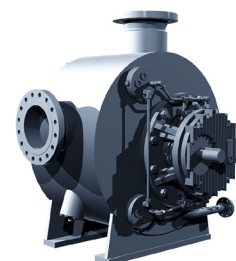
Bornemann twin screw pumps all use a two-piece shaft / screw assembly design whereas most competitors hog their screws and shaft out of single piece of bar-stock.

The advantage of the two piece design is that we can select the highest strength materials for torsional and tensile loads (shafts) while selecting materials and coatings ideal for abrasion resistance (screws). We mate the two pieces using a proprietary process that locks them together. End result: the most durable and reliable screw design in the market.



Just the Right Size

As the market leader in Multi Phase pumping solutions, Bornemann has the right size solution for your application. Our portfolio spans not only multiphase boosting pumps for medium / high gas applications, it includes multiphase compressors for gas operations and single-rotor pump designs for high sand content applications.



Visit our website at

www.ittoilgas.com

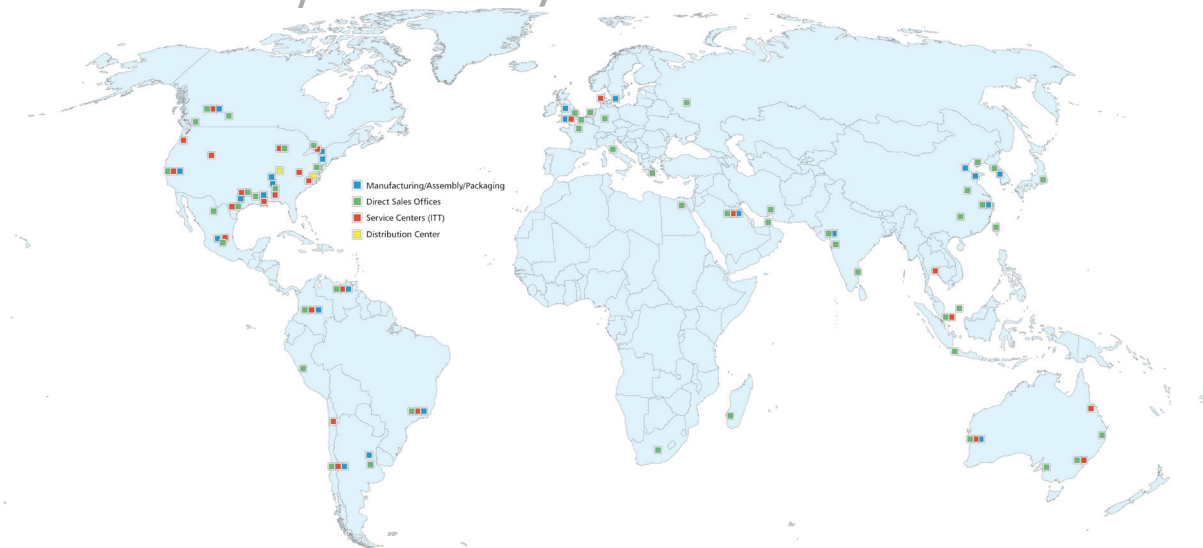
Upgrade and Improve your standard Medium Voltage VFD Pumping System!

- 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:



ENGINEERED FOR LIFE

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