Engineering Capabilities for Vertical Products
Goulds Vertical Pumps.
Designed To Perform.
Proven To Last.

ITT custom hydraulic designs are featured on our large vertical circulating water pumps.

ITT, leader in high performance technology, once again sets the standard in critically engineered components with its Goulds Pumps Vertical Pumps Operations.

- State of the art hydraulics for performance optimization
- Thorough equipment re-rates to prolong service life
- Pro-E modeling in 3D to achieve accurate prototypes
- Pattern validation with advanced 3D solidification model
- Environmental analyses promote longevity in seismic activity, wind and thermal transient conditions
- Structural Dynamic Analysis helps maintain integrity of pumps
- Rotor Dynamic Analysis reduces field repairs
- Structural Static Stress Analysis for uniform loads
- Patented ITT “O” Discharge Head Design for pump reliability
- Computational Fluid Dynamics Analysis assesses fluid intake
- NPSH testing improves field performance
- Field service and support at every stage, from start-up to aftermarket. Anywhere in the world.
More Efficiency. Less Expense.

Draw upon ITT Goulds Pumps’ experience using the most sophisticated design tools and testing to save you money, time and energy.

3D CAD Tool

- Industry Pro-E tools are standard on every ITT Vertical Pump design.
- Every drawing utilizes parametric design approach for more effective data mapping and visualization.

3D Model Advantages

- 3D models can be scaled up with 100% accuracy from model pump to customer pump.
- 3D models are the inputs to validate patterns and to perform Computational Fluid Dynamics and Finite Element Analysis.

Pattern Validation

- 3D models have proven the accuracy of the hydraulics and component profile. Test results in the lab are reliable and projectable to field conditions.
- Software used:
  - Geomagic Qualify12
  - Geomagic Studio12
When We Test, Nobody Fails.

By performing sophisticated analyses, we create customized pumps that work day in and day out. Year after year. Under all types of adverse conditions.

Rotor Dynamic Analysis

- We analyze how much stress pump bearings can bear.
- Rotor dynamic analysis focuses on the mechanical behavior of rotating structures. In vertical pumps, the rotor “structure” consists of rotating masses (impellers, couplings, etc.) supported by bearings (bowl bearings, line shaft bearings, motor bearings) and are influenced by internal phenomena that rotate around a single axis. ITT Goulds Pumps performs extensive testing on sensitive rotating structures.
- Lateral critical speed and torsional speed analyses help ensure peak performance in the field.

Structural Static Stress Analysis

- Bowl assembly hydrotests, bolting to the sub-base, and other structural static stresses that do not change over time, help configure pumps with consistent force loads.
- ITT’s Patented “O” Discharge Head has enhanced structural strength, validated by custom studies.

Computational Fluid Dynamics

- ITT Goulds Pumps analyzes fluid flow through the internal pump passages to optimize pump performance and reliability.
- As a cost- and time-saving measure, ITT Goulds Pumps can perform preliminary customer fluid intake analyses to determine operational flow optimization.
- Pump performance correlates with fluid flow metrics. ITT Goulds Pumps’ expertise in conducting these specialized studies is unmatched in the industry.
- ITT’s expertise in computational fluid dynamics enables us to provide customers with the highest levels of pump testing and engineering analysis.
Designed for Real-World Challenges.

Pumps are designed and then tested in a laboratory, but they don’t do their work there. They’re often installed in remote areas with savage terrain and unmerciful conditions. ITT Goulds Pumps designs our products to withstand almost anything nature or man can dish out.

Structural Dynamic Analysis

- Structural dynamic analysis applies to the behavior of structures subjected to dynamic loading (accelerating action or forces).

- Our structural analyses subject customized, 3D model pumps to all types of dynamic forces that can include:
  - Wind loads
  - Blast loads
  - Tow loads for offshore platforms
  - Earthquake or seismic loads

Loads and Constraints
We Know Who We Work For: You

The Best In The Field

- Our field service network includes maintenance operations that offer rapid response diagnostics and replacement parts worldwide.

- Testing Capabilities
  - Performance testing, calibrated factory motor or customer motor
  - NPSH testing to demonstrate first-stage impeller characteristics
  - String testing with complete pump, driver, seal and seal support system
  - Vibration testing
  - Noise testing for reference
  - Minimum submergence testing
  - Natural frequency test

- Service Centers near your project site can assess your pump installation, troubleshoot the pump system, repair, perform material/design upgrades or rebuild all brands of pumps, valves and rotating equipment. This significantly reduces downtime, including the pump’s re-rate and re-bowl program.

- Highly trained engineers are stationed around the world to provide on-site assistance for any customer service or sales need.

- Installation Specialists serve as customer liaisons on every project. These professionals ensure that your equipment is installed properly and operating according to contracted specifications.

- Additional customer services include specification development, model sump analysis/testing and project management.

State of the Art Facilities

- Test capacities up to 400,000 GPM (90,850 m³/hour)
- 8,000 hp (6,000kW) capability, 300 PSIG multiple gear drives
- Enhanced data acquisition systems facilitate technical evaluation
- Video monitoring of testing for all vertical pumps
We Know Who We Work For: You

Engineering Capabilities

Parts & Inventory

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 provide the necessary programs to meet all repair needs.

Operation Performance

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.

Repairs & Upgrades

PRO Services provides an array of repair and upgrade 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.

Reliability has no quitting time.

Building on over 160 years of Goulds Pumps and Bornemann experience, 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.
We started as a fledgling wooden pump business in 1848 and have evolved into one of the largest and most respected pump providers to industry partners across the globe. More than 160 years later, Goulds Pumps is a thriving brand of ITT Corporation. Goulds Pumps Vertical Products Operations offers state of the art, custom equipment to the Oil and Gas, Power, Mining, Chemical, and Industrial sectors on six continents.