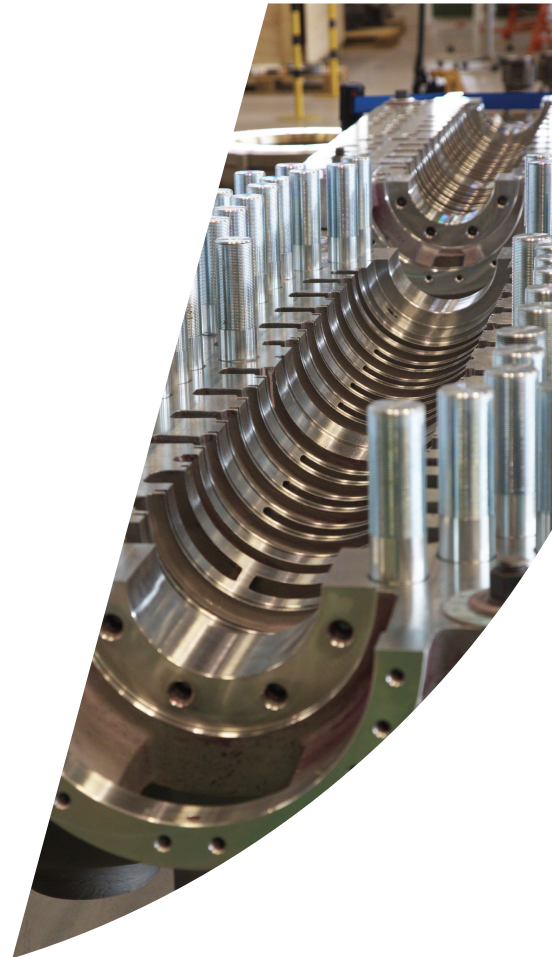


FLOWAY®

VERTICAL TURBINE PUMPS FOR MINING APPLICATIONS



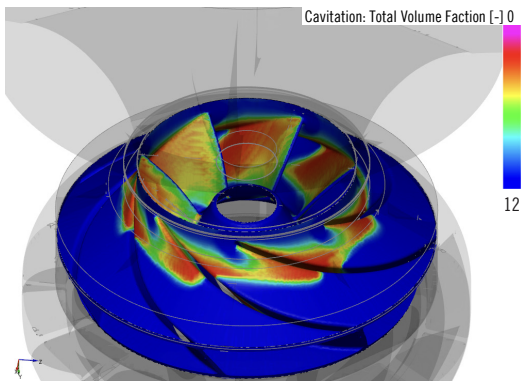
Meeting customer specifications is simply the first step in delivering whole life cycle performance. From design and installation, through service, maintenance and upgrades, we ensure continuity of excellence.

We can increase that benefit by offering a range of complementary products conducive to our portfolio of branded pumps.

THE HEART OF YOUR OPERATION

When designing and manufacturing the Floway® vertical turbine pump we keep in mind that the pump is the heart of the mining operation and the entire project depends on it. This is why the Floway® pump product line is designed to be the most versatile, reliable and long lasting on the market. Unlike our competitors, Floway® pumps are manufactured all under one roof. That means that every step from designing to manufacturing the finished product is controlled in our state of the art facility in Fresno, California, USA.

CFD Analysis



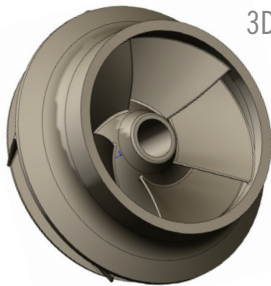
The specific application of our products have allowed our Floway brand to become an industry leaders in enhancing process efficiency. We are committed to providing a strong technological and engineering resource dedicated to minimizing downtime and preventing disruption to the customer's operation. Product durability reduces downtime and keeps the routine replacement of parts to a minimum. Product capacity maximizes flow, accelerating processes.

Trillium Flow Technologies is dedicated to pumping excellence. That means using our experience in the industry to produce products with long life cycles and unparalleled performance.

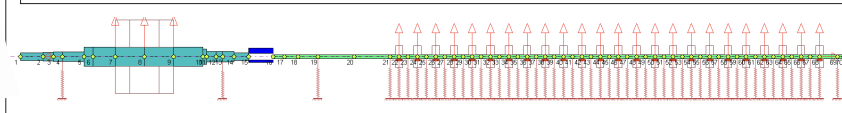
Trillium Flow Technologies utilizes an in-house staff of licensed professional engineers to ensure maximum control over design specifications. Engineering capabilities include:

- 3D solid modeling
- In-house hydraulic design
- Products engineered to customer specifications
- Special material selection
- Computational Fluid Dynamics (CFD) analysis
- Stress and deflection analysis using Finite Element Analysis (FEA)
- Lateral and torsional rotor dynamic analysis
- Structural natural frequency analysis (using FEA) and design for VFD operation
- Design for low vibration

3D solid modeling



Lateral and Torsional Rotordynamic Analysis



- Unparalleled vertical pump product
- Commitment to extending operating life and efficiency
- Customer-focused product development
- Worldwide network of support

TYPICAL SERVICES

Water Supply — Typically well pumps that supply the mine with their primary source of water.

Process Pumps — Pumps that move solutions throughout the mining processes such as raffinate, pregnant leach solution (PLS), thickener, acid water, cooling water, organic solvent, electrolyte, and dump leach.

Tailings Pumps — Post-processed solution is collected in tailings ponds to allow the solid particles to settle out. This liquid is then usually pumped to a treatment facility and recycled back into the process.

RO Treatment Pumps — Reverse osmosis water treatment facilities. Feed pumps, low pressure RO feed pumps, filter backwash pumps, recycle pumps, sea water RO pumps, and spray/flush pumps.

Dewatering Pumps — Sump pump design or deep well turbine design.

Seepage Water Pumps — Sump pump design or can/ booster design.

Reclaim Water Pumps — Sump pump design.

Overflow Water Pumps — Sump pump design.



1: 2000 HP raffinate pumps
2: Reclaim water pumps
3: Tailing water pumps



Trillium Flow Technologies has an advanced product range incorporating market leading brands covering virtually any application, in any environment.

MEETING THE NEEDS OF CUSTOMERS WORLDWIDE

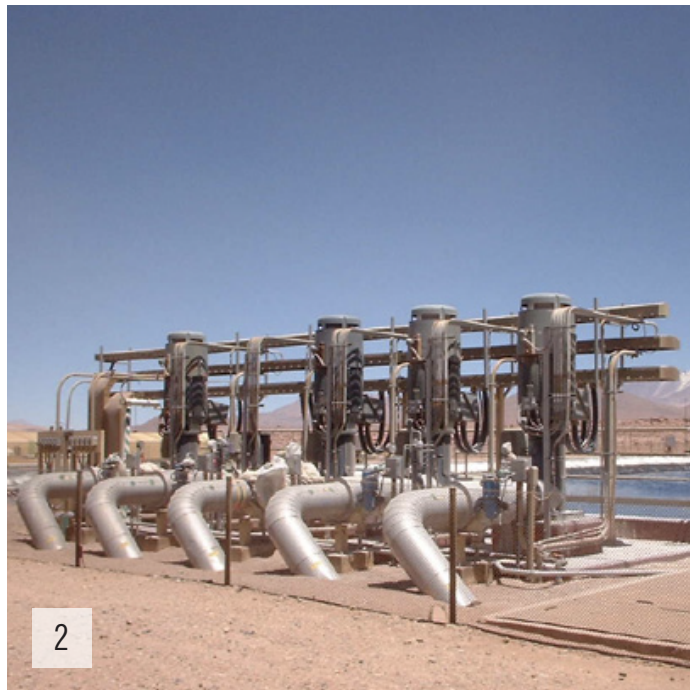
Geographical Footprint

Trillium Flow Technologies has the geographical presence to service all the major minerals markets around the world. This global supply capability provides a competitive advantage in this relatively fragmented market.

We own a valuable portfolio of intellectual property, which is continually being extended through research and development in materials and technology to enhance the wear life of our products.



1: Trillium Flow Technologies has the global capabilities to service all customer operations



2: Reclaim water pumps

Floway® Pumps feature industry leading low vibration levels.



MINIMUM DOWNTIME, MINIMUM DISRUPTION TO PROCESS

Through continuous improvements to materials, product design, engineering and manufacturing, we minimize downtime and reduce the risk of disruption to our customers' operations.

Wear/corrosion resistant materials

To increase pump longevity and enhance efficiency, Floway® pumps are constructed with wear/corrosion resistant materials such as duplex and super duplex stainless steels.

Materials:

- Austenitic-304L (J92500)
- 316L (J92800)
- Duplex SS-2205 (J92205)
- CD4MCu (J93370)
- Super Duplex SS-2507 (J93380)
- Super Austenitic 254SMO (J31254)
- Compatible wrought alloys are available for above cast materials



1: Machining discharge head



2: Super duplex impellers

Optional features:

- Premium machined and balanced motor
- Specially toleranced motor coupling machined in house
- Jacking posts for precise motor/pump shaft alignment
- Impellers balanced per API 610
- Reduced run-out on motor base

Manufactured to meet global certifications and standards:

Electrical standards

- NEMA
- IEEE
- IEC

Construction standards

- ANSI B16.5 Class 150 through 1500 flange ratings
- Welding to ASME section IX on all listed materials
- ASTM standards met for all materials supplied - castings, forgings, and wrought materials
- Stress relief carbon steel to ASME Section VIII
- DIN
- BS
- Hydraulic Institute
- API 610

Quality assurance

Quality control never ends at Trillium Flow Technologies. It begins with the quotation phase and continues throughout the order process, manufacturing phase, warranty period, customer follow-up and service. This dedication to quality has given us the reputation for having one of the finest products in the vertical turbine pump industry. Certifications include:

- ISO 9001: Quality Management Systems
- ISO 14001: Environmental Management Systems
- OHSAS: 45001: Occupational Health and Safety Management Systems

Welding and fabrication

Trillium Flow Technologies Floway brand utilizes in-house fabrication staffed with welders certified to ASME Code Section IX on all listed materials.

Performance testing

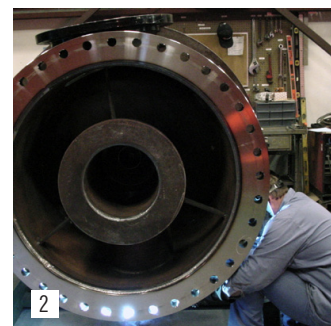
A major engineering function of any pump manufacturer is hydraulic performance testing under a variety of operational conditions. Testing ensures that pump performance matches specifications and that all components are operating properly.

Testing and analysis capabilities include:

- Three testing pits for flows to 45,000 GPM (10,220 m³/hr)
- Hydrostatic testing equipment for pressures to 5,000 PSI (345 Bars)
- NPSH testing equipment available for flows to 30,000 GPM (6,814 m³/hr)
- Pressures to 2,500 PSI (172 Bars)
- Electrical power through 2,500 HP (1,850 KW)
- All measuring equipment calibrated on a scheduled basis with traceability to National Institute of Standards and Technology (NIST)
- Vibration testing available including spectrum analysis (FFT) with multiple simultaneous channels. Proximity probes available for measuring dynamic shaft vibration
- Impact testing available to determine the structural natural frequencies (Reed Critical Frequency) of the pump/motor structure
- Capable of testing a complete engine driven pump
- Both 50 Hz and 60 Hz power available
- Pump testing using a Variable Frequency Drive (VFD) available upon request
- Coating spark test (low voltage/high voltage)
- Pump thrust testing
- Noise testing

Non-Destructive Testing (NDT)

- Dye Penetrant (LP)
- Magnetic Partical Inspection (MP)
- Radiography Exam (RT)
- Ultrasonic Testing (UT)
- Positive Material Identification (PMI)
- Hardness Testing (Rockwell and Brinell)
- CMTR upon request
- AWS Certified Welding Inspection (CWI)

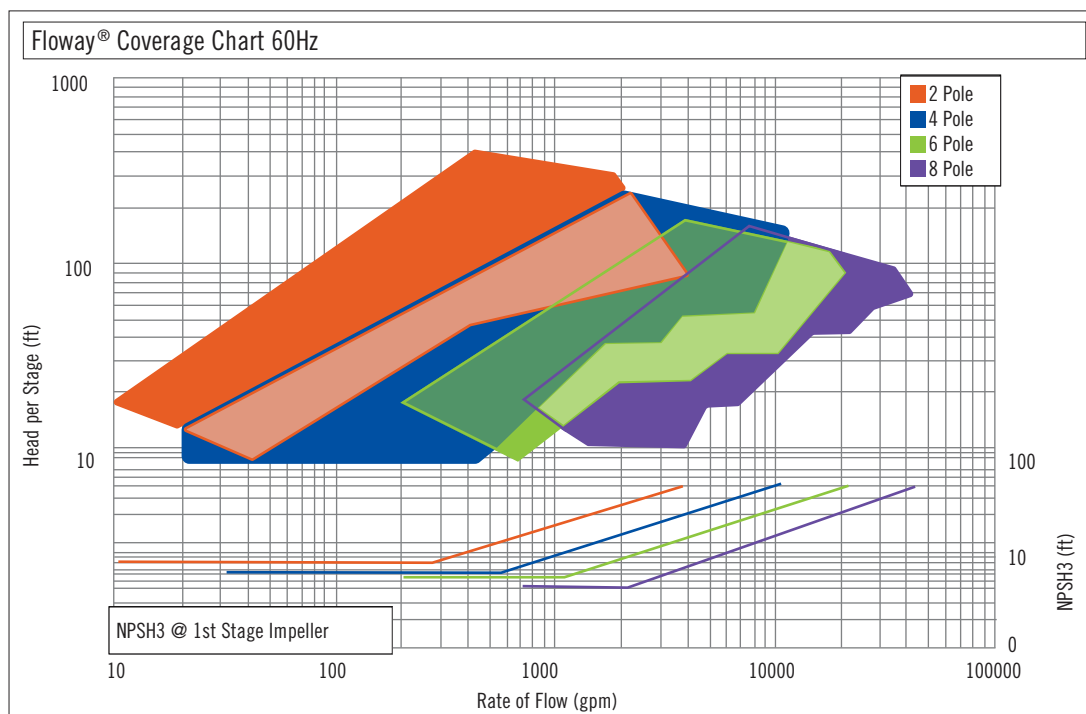
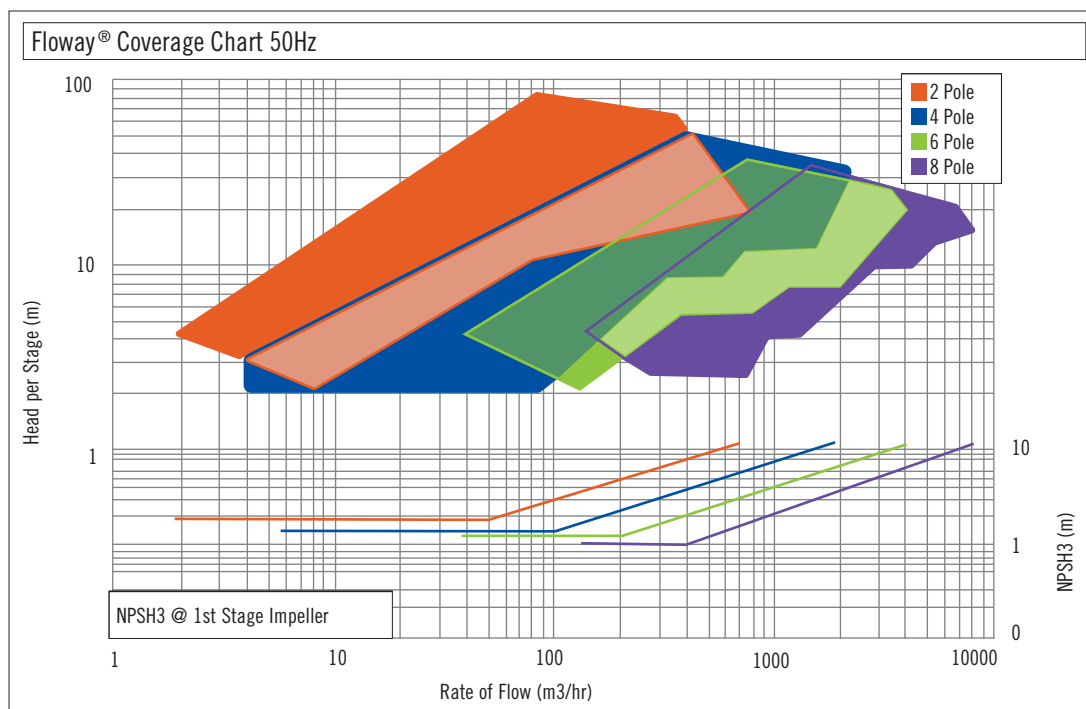


- 1: Test lab
- 2: Fabrication of stainless steel discharge head
- 3: The manufacturing facility is ISO 9001 and 14001 certified

THE FLOWAY® VERTICAL MINING PUMP - SERIES

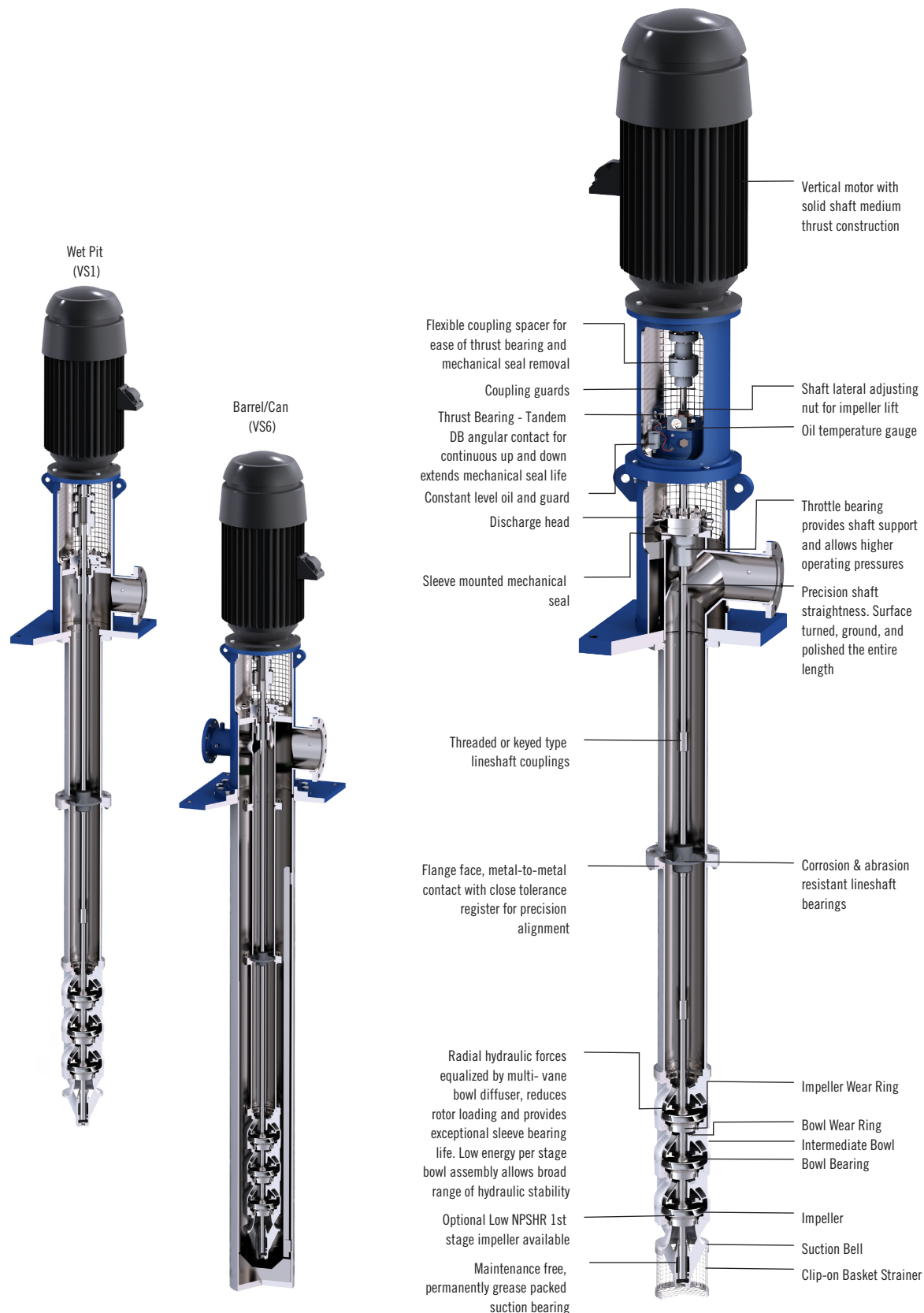
Wet Pit and Barrel Can design features

- Pump configuration - vertically suspended close coupled single or multi- staged turbine within a closed suction system
- Capacity - to 35,000 USGPM (8,000 M3/HR)
- Pressure - Wet Pit to 1,500 PSI (100 bars) and Barrel Can to 3,000 PSI (200 Bars)
- Liquid Handled - Water, Raffinate, PLS, Thickener, Tailings, Brine, & Other Various Mining Applications
- Temperature range - to 175 Deg F (80 Deg C)
- HP range - to 2,500 HP (1,850 KW)
- Drivers - Engine and gear drive, electric motor with or without thrust pot, used with or without a VFD



Performance data shown is approximate. For actual pump performance contact your local Floway representative.

THE FLOWAY® VERTICAL TURBINE PUMP IS SPECIALLY DESIGNED TO REDUCE VIBRATION LEVELS AND IMPROVE CORROSIVE AND ABRASIVE RESISTANCE.





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