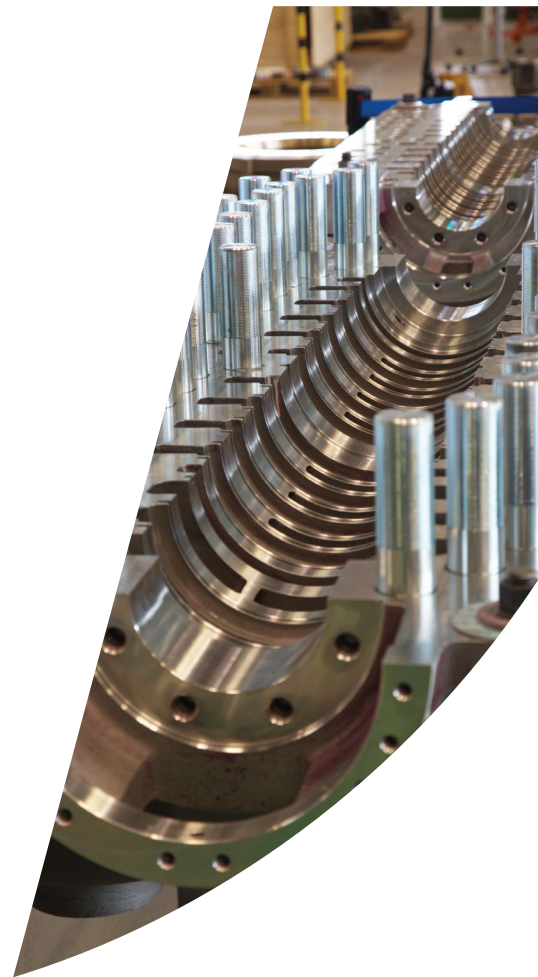


FLOWAY[®] WATER INDUSTRY





Floway has been manufacturing vertical turbines for more than 85 years. We are recognized by customers around the world for industry leading quality and performance and have evolved into an engineered-to order company that can solve the most complex and demanding of applications. From special materials and custom designs, Floway is dedicated to providing superior quality, top hydraulic performance, and long service life.

- Industry leading low vibration levels
- Dedicated project design support
- Reliable aftermarket sales and service
- Whole life-cycle solutions for your needs

FLOWAY® VERTICAL TURBINE PUMPS FOR THE WATER INDUSTRY

NSF/ANSI 61 AND 372 CERTIFICATION

NSF Certification for Potable Water

Floway has attained certification to NSF/ANSI 61 and 372 through UL LLC (Underwriters Laboratories) a global independent safety science company. UL is fully accredited by the American National Standards Institute and is a validated certifying body to the NSF/ANSI Standards 60, 61 and 372.

Codes require that pump manufacturers must fully comply with requirements and achieve certification to sell their products for drinking water and drinking water treatment chemicals. This certification includes NSF/ANSI 372 for low-lead content water products and confirms full compliance with the low lead requirements of the 2014 U.S. Safe Drinking Water Act (SDWA).

NSF/ANSI 61 and 372 Certification includes the following:

- Confirms compliance with individual state drinking water requirements as well as those of the 2014 Amendment of the U.S. Federal Safe Water Drinking Act
- NSF/ANSI 372 certifies that each product has a weighted average lead content of 0.25% or less
- Floway manufacturing facility in Fresno, California has been successfully audited and certified by UL
- Selected materials approved by NSF/ANSI 61 and 372 Certification



WATER QUALITY

Drinking Water System Component
ANSI/NSF 61
ALSO CLASSIFIED TO NSF/ANSI 372
MH61408

Our NSF/ANSI 61 and 372 certified equipment listings can be found on the following website: ul.com/database

PUMP SELECTOR TOOLS

Up-front project design solutions

As a service to our customers, Floway provides two specification assistance programs to help customers accurately specify the vertical turbine product.

SCORE Selector Program

SCORE is a web based program which allows customers to search pump selection by flow and head specifics. Create an account using the url below if you do not already have one.

select.floway.com

BUILD-A-SPEC™

Build-A-Spec™ is a specification writing program that provides a detailed specification in Microsoft Word format based on a series of inputs by the user. Detailed specifications are available for sump, barrel, and well pump applications.

Are you in need of a specification for a vertical turbine application? Build-A-Spec™ is the tool that will help you create a detailed specification in compliance with the latest industry standards.

buildaspec.floway.com/wizard.aspx



ENGINEERED TO ORDER

FLOWAY PUMPS ARE BUILT TO CUSTOMER SPECIFICATIONS USING SUPERIOR QUALITY COMPONENTS TO MEET VIRTUALLY ANY WATER APPLICATION.

Industry Leading Low Vibration Levels

Floway is dedicated to manufacturing pumps with industry leading low vibration levels.

Optional features:

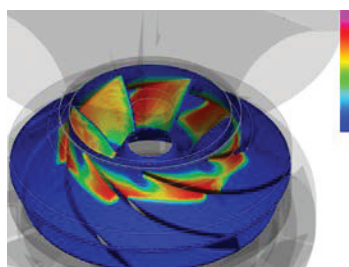
- Premium machined and balanced motor
- Dynamically balanced motor coupling
- Jacking posts for precise motor/pump shaft alignment
- Reduced run-out on motor base
- Confidential manufacturing techniques
- Nozzle loading analysis

Excellent Engineering Solutions

Floway 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
- Engineered products to customer specifications
- Computational Fluid Dynamics (CFD) analysis
- Stress and deflection analysis using Finite Element Analysis (FEA)
- Lateral and torsional rotor dynamic analysis
- Designs for VFD operation using structural natural frequency (FEA)
- Design for low vibration

CFD Analysis



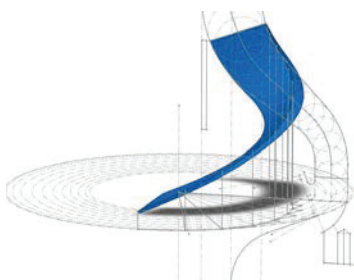
Performance Testing

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 test pits for flows ranging from 50 GPM 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 3,400 HP (2,535 KW)
- Equipment calibration to National Institute of Standards and Technology (NIST)
- Vibration testing available including spectrum analysis (FFT) with multiple simultaneous channels
- Available impact testing to determine the structural natural frequencies (Reed Critical Frequency) of the pump/motor structure
- Engine driven string testing capability
- 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

In-house hydraulic design



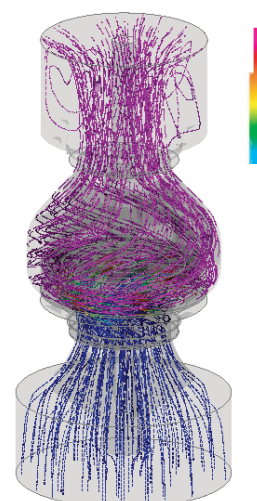
Non-Destructive Testing (NDT)

- Dye Penetrant (LP)
- Magnetic Particle 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)

Coating

- NSF certified coating available upon request
- Two-part epoxy
- Fusion bonded epoxy
- Wide range of coatings available for potable or non-potable services

360° Hydraulic Balance



Global Certification Standards

- NEMA
- IEEE
- IEC

Construction Standards

- Hydraulic Institute
- NSF/ANSI 61 & 372
- 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
- CE Marking
- API 610

Quality Assurance

Quality control never ends at Floway. It begins with the quotation phase and continues throughout the order process, manufacturing phase, warranty period, customer follow-up and servicing. 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 9001:2008 Quality Management Systems
- ISO 14001:2004 Environmental Management Systems
- OHSAS: 18001:2007 Occupational Health and Safety Management Systems

In-House Manufacturing Capabilities

Fabrication — Our fabrication facility is staffed by ASME Boiler Code Section IX certified welders.

Machining — Computer controlled lathes, large boring mills, and individual production equipment ensure an efficient and flexible manufacturing process.

Balancing — Dynamic and static balancing of rotating elements ensure low vibration performance.

Inspection — Products are inspected at multiple stages throughout the manufacturing process to ensure quality. Capabilities include a Coordinate Measuring Machine (CMM) that can measure complex curvatures for comparison to 3D solid models. The CMM is also used to measure large parts where conventional measurement techniques are limited.

Final Assembly — All pump components are assembled to customer specifications, ensuring top efficiency, long service life and a high quality product.



THE OPTIMAL SOLUTION (CAN / BARREL DESIGNS)

FLOWAY VTP - VERTICAL TURBINE PUMP

VF Head Design

Vertical close-coupled, single or multistage turbine with fabricated head discharging above ground, with a below ground suction mounted in a fabricated barrel or can.

VFR Head Design

Vertical close-coupled, single or multistage turbine with fabricated head discharging above ground with radius elbow, with below ground suction mounted in a fabricated barrel or can.

Typical service:

Booster applications for various water process services.
Capacity to 35,000 gpm (7,950 m³/hr)
Pressure to 1,500 psi (103 bars)

VC Head Design

Vertical close-coupled, single or multistage turbine, with fabricated head configured for an above ground suction and discharge mounted in a fabricated barrel or can.

Typical service:

In-line, above ground, closed suction booster applications for various water process services.
Capacity to 35,000 gpm (7,950 m³/hr)
Pressure to 3,000 psi (207 bars)

AF Head Design

Vertical close-coupled, single or multistage turbine with cast iron head discharging above ground, with below ground suction in a fabricated barrel or can.

Typical service:

Booster applications for various water process services.
Capacity to 5,000 gpm (1,140 m³/hr)
Pressure to 300 psi (20.7 bars)



VFR Head

VC Head

AF Head



FLOWAY VTP - VERTICAL TURBINE PUMP

F Head Design

Vertical close-coupled, single or multistage turbine with a fabricated head discharging above ground with below ground suction.

FR Head Design

Vertical close-coupled, single or multistage turbine with fabricated head discharging above ground with radius elbow, with below ground suction.

Typical service:

Large wet-pits, water treatment plants, lake and river intake, and various water process applications.
Capacity to 35,000 gpm (7,950 m³/hr)
Pressure to 1,500 psi (103 bars)

VU Head Design

Vertical close-coupled, single or multistage turbine with a fabricated head discharging below ground with below ground suction.

Typical service:

Large wet-pit for flood control, water treatment plants and any surface water source.
Capacity to 35,000 gpm (7,950 m³/hr)
Pressure to 1500 psi (103 bars)

A Head Design

Vertical close-coupled, single or multistage turbine with cast iron head discharging above ground, with below ground suction.

Typical services:

Large wet pits, water treatment plants, lake and river intake, and various water process applications.
Capacity to 5,000 gpm (1,140 m³/hr)
Pressure to 300 psi (20.7 bars)



F Head

VU Head

A Head



THE OPTIMAL SOLUTION (DEEPWELL DESIGNS)

FLOWAY VTP - VERTICAL TURBINE PUMP

F Head Design

Vertical deep-set multistage turbine with fabricated head discharging above ground, with below ground suction.

Typical services:

Well pumps for various water process applications.
Capacity to 35,000 gpm (7,950 m³/hr)
Pressure to 1,500 psi (103 bars)

A Head Design

Vertical deep-set multistage turbine with cast iron head discharging above ground, with below ground suction.

Typical services:

Well pumps for various water process applications.
Capacity to 5,000 gpm (1,140 m³/hr)
Pressure to 300 psi (20.7 bars)

FLOWAY VSB - VERTICAL TURBINE SUBMERSIBLE PUMP

Vertical deep-set multistage submersible motor pump with fabricated surface plate. Suitable for multiple applications.

Typical service:

Well pumps for various water process applications.
Capacity to 7,000 gpm (1,590 m³/hr)
Pressure to 750 psi (52 bars)



Floway Pumps Typical Construction Options

- Semi-open or enclosed impellers
- Bowl and impeller wear rings
- Thrust balanced impellers (reduced down-thrust on motor bearings)
- Flanged or threaded column pipe
- Product lubricated, water flush or oil lubricated shafting
- Hardened bearing journals
- Hardened shaft journals
- Special materials of construction (stainless steel, nickel aluminum bronze, duplex, super duplex, titanium)
- Electrical motors available in Vertical Solid Shaft (VSS) or Vertical Hollow Shaft (VHS) construction
- Abrasive service — special materials and construction to increase pump life
- Shaft sealing options include mechanical seals, packing boxes, water flush, oil lubricated or grease packed configurations
- Engineered to order options, ask your representative or the factory today.

Floway Pumps Typical Services

- Finished water
- High service
- Barrel / can mounted booster
- Well pump
- Raw water intake (lake, river, canal)
- Reverse osmosis feed
- Recycled water
- Reclaimed water
- Final effluent
- Tertiary water
- Secondary water
- Backwash water
- Decant water
- Corrosive water (sea water, brackish water)
- Aquifer storage and recovery

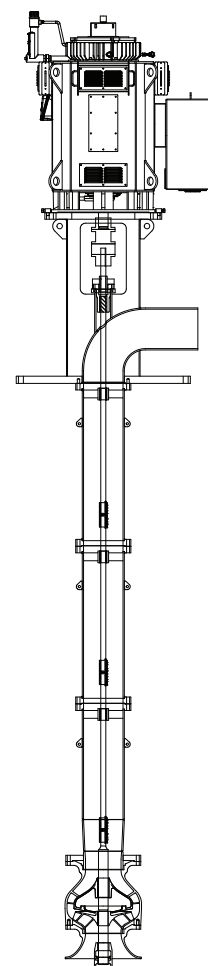
Pumps to Suit Your Application

Floway Pumps are installed in thousands of vital water applications throughout the world. Our pumps can be designed to withstand the harshest of environments.

Floway Pumps are manufactured all under one roof. That means every step from designing, to fabrication, to assembling the finished product is controlled in our facility in Fresno, California, USA.

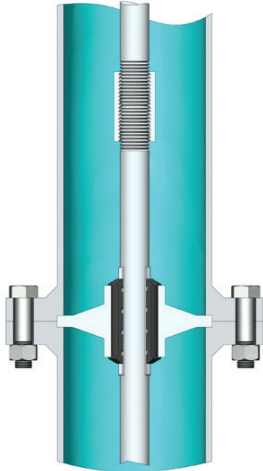
We take pride in the fact that our brand stands for superior quality, top hydraulic performance, and low maintenance cost. Our exceptional brand recognition makes Floway Pumps one of the industry leading VTP manufacturers in the world.

Ask a representative today or contact us by email floway@trilliumflow.com



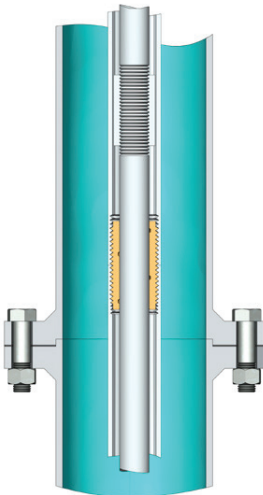
COLUMN ASSEMBLIES AND IMPELLERS CONFIGURATION

Column Assemblies



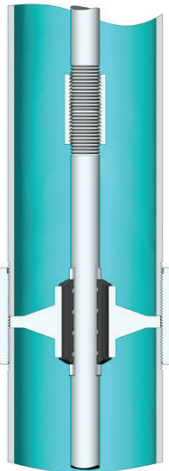
Flanged column pipe (open lineshaft for product lubrication shown)

Standard construction 16" (41cm) diameter and larger column pipe recommended when ease of assembly is required. Flanged column pipe can be furnished in either oil, water flush or product lubricated construction.

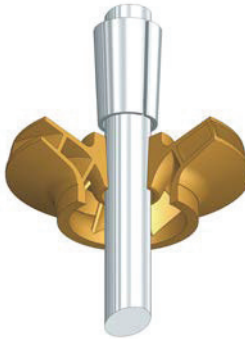


Flanged column pipe (enclosed lineshaft for oil lubrication or fresh water flush shown)

Applications include pumpages with suspended particles which require bearing protection and deep settings.



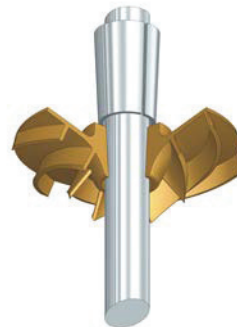
Impellers



Enclosed type impeller with tapered collet shaft mounting

Standard construction features tapered friction drive collet furnished on pump bowls through size 22" (56cm.)

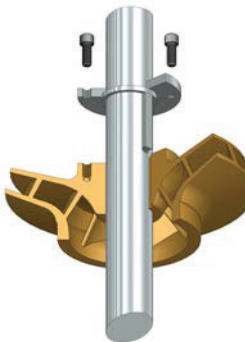
Features — Easy installation, lateral adjustment and low hydraulic thrust.



Semi-open type impeller with tapered collet shaft mounting

Standard construction features tapered friction drive collet. Semi-open impeller construction is available on pump bowls through size 27" (69cm) and on larger sizes when required.

Features: Designed to improve impeller life when handling suspended solids.



Enclosed type impeller with double keyed shaft mounting

The double keyed impeller shaft mounting features both axial and radial keys. This construction is standard on bowl sizes 23" (58cm) and larger. Smaller enclosed and semi-open type impellers are also available.

Features: Allows for ease of removal and replacement of impeller wear parts.

Aftermarket Service and Support

Our aftermarket sales and service department is dedicated to providing excellent service to our customers. Make the right choice for your pumping system by choosing Floway Pumps genuine replacement parts.

Contact us today by email, floway@trilliumflow.com





Trillium Pumps USA, Inc.

2495 S. Golden State Boulevard
Fresno, CA 93706 USA
P: +1 559 442 4000
F: +1 559 442 3098
floway@trilliumflow.com

TRILLIUMFLOW.COM