

FLOWAY® PUMPS

Vertical Turbine Pumps

Water Industry

Excellent
Minerals
Solutions



Floway® vertical turbine pumps

- **Whole life cycle solutions for any application**
- **Industry leading low vibration levels**
- **Engineering support**
- **Total care, from upfront project design support to aftermarket sales and service**

Weir Minerals Floway Pumps has a more than 80 year history providing customers around the world with high quality products for their specific process needs.

Our products are recognized worldwide for superior quality, top hydraulic performance and long service life.

Examples of cities and states across the US relying on Floway® pumps:

Las Vegas, NV	Los Angeles, CA
Phoenix, AZ	Santa Rosa, CA
Niagara Falls, NY	Riverside, CA
Atlanta, GA	San Antonio, TX
Orlando, FL	Houston, TX
Seattle, WA	Kansas City, MO
Bloomington, MN	Albuquerque, NM
Orange County, CA	State of California

First choice for water industry pumping solutions

By concentrating solely on the vertical pump product line, Weir Minerals Floway Pumps has become a specialist in today's highly diversified market. Our products are recognized worldwide for superior quality, top hydraulic performance and long service life.

In applications where the cost of ownership often outweighs capital cost, we help our customers address such issues as longevity, efficiency of operation and ease of maintenance.

- Through continuous improvements to materials, product design, engineering and manufacturing techniques, we minimize downtime and disruption to our customers' operations.
- Working in close partnership with our customers allows us to develop end-to-end engineering solutions to the technical challenges they face, delivering a genuine competitive advantage.



Finished water pumps



Raw water pumps



Booster pumps



Recycled water pumps

More than 80 years of experience has provided us with the expertise to manufacture a versatile line of vertical turbine pumps for a wide range of applications.

Typical services

- High service
- Treated water
- Finished water
- Booster
- Effluent disposal
- Lake or river raw water intake
- Secondary recovery
- Service water
- Aquifer Storage and Recovery (ASR)
- Backwash
- Well water
- Screen wash
- Reverse osmosis
- Corrosive water services, sea water/brackish water

Floway® pumps are built around the versatility of the vertical pump design. Depending upon exact job specifications, our engineers select the best combination of pump components and materials of constructions to meet virtually any water application.

Industry leading low vibration levels

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

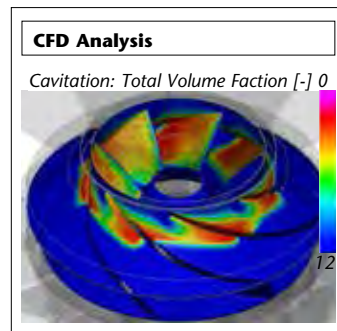
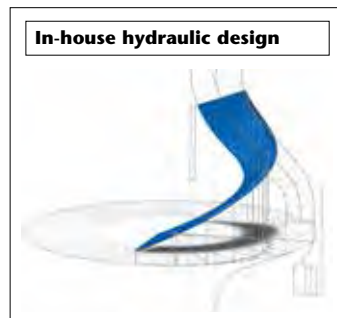
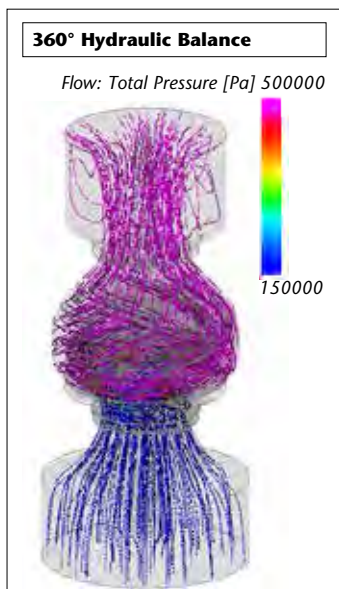
Optional features:

- Premium machined and balanced motor
- Specially toleranced motor coupling machined by Weir Minerals Floway Pumps
- Jacking posts for precise motor/pump shaft alignment
- Impellers balanced per API 610
- Reduced run-out on motor base

Excellent engineering solutions

Weir Minerals Floway Pumps 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 Variable Frequency Drive operation
- Design for low vibration



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 3,000 HP (2,235 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 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 when requested
- Two-part epoxy
- Fusion bonded epoxy
- Most any coating available for potable or non-potable service



Up-front project design solutions

As a service to our customers, Weir Minerals Floway Pumps 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. Scan the QR code to the right and create an account if you already do not have one.
select.floway.com/selector



Build-A-Spec™

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

Interested in building a specification for a Floway® pump? Build-A-Spec™ is the tool that will help you create a detailed specification for Floway® pumps. Scan the QR Code to the right to access.
www.weirminerals.com/buildaspec



Weir Minerals Floway Pumps takes pride in the fact that all of our products are manufactured in-house, giving total control and maximum capabilities.

Unlike some competitors, Floway® pumps are manufactured all under one roof. That means that every step from designing to fabrication to assembly and the finished product is controlled in our state-of-the-art facility in Fresno, California, USA.



Meeting global standards through excellent manufacturing processes

Manufactured to meet global certification standards

Electrical standards

- NEMA
- IEEE
- IEC

Construction standards

- Hydraulic Institute
- 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
- NSF61 coating



Quality assurance

Quality control never ends at Weir Minerals Floway Pumps. 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 — The Weir Minerals Floway Pumps 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.



Final assembly



NSF certified epoxy coating being applied to pump

Vertical Can/Barrel

Submersible



Model VF and VFR



Model VC



Submersible

The submersible pump utilizes a submersible motor coupled directly to the bowl assembly and is designed to operate completely submerged in the fluid being pumped.

Typical service: well pump

Capacity to 7,000 GPM (1,590 m³/hr)

Setting to 1,500 ft (457 m)

Pressure to 750 psi (52 Bars)

Model VF and VFR

VF — Vertical close coupled, single or multi-stage turbine with fabricated head discharging above ground, with a below ground suction mounted in a fabricated barrel or can (not shown)

VFR — 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 (shown)

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)

Model VC

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)

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
- Hard chrome bearing journals

- Special materials of construction (stainless steel, bronze, duplex, super duplex)
- 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

Sump/Wet Pit/Dry Pit

Model F and FR



Model VU



Model A and AF



Model F and FR

F — Vertical close coupled single or multistage turbine with fabricated head discharging above ground (shown)

FR — Vertical close coupled single or multistage turbine with fabricated head discharging above ground with radius elbow (not shown)

Typical service: large wet pits, well pumps, water treatment plants, lake and river intake, and various water process applications

Capacity to 35,000 GPM (7,950 m³/hr)

Setting to 600 ft (183 m)

Pressure to 1,500 PSI (103 Bars)

Model VU

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

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)

Setting to 600 ft (183 m)

Pressure to 1500 PSI (103 Bars)

Model A and AF

A — Vertical close coupled, single or multistage turbine with a radius cast iron head with an above ground discharge (shown)

AF — Vertical close coupled, single or multistage turbine with cast iron head discharging above ground, in a fabricated barrel or can (not shown)

Typical services: wet pit, well pumps, and booster applications for water treatment plants, various water process applications

Capacity to 5,000 GPM (1,140 m³/hr)

Setting to 600 ft (183 m)

Pressure to 300 PSI (20.7 Bars)

Column assembly and impeller configurations

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.



Threaded column pipe (open lineshaft for product lubrication shown)

Pump setting with water levels over 30' (9m) require driver non-reverse ratchet and lineshaft pre-lubrication. Available for 3" (8cm) through 14" (34cm) threaded pipe size. Threaded column generally preferred for well pumps where clearance is minimal.

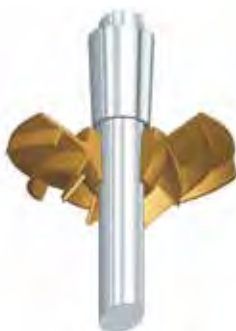
Impellers



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.

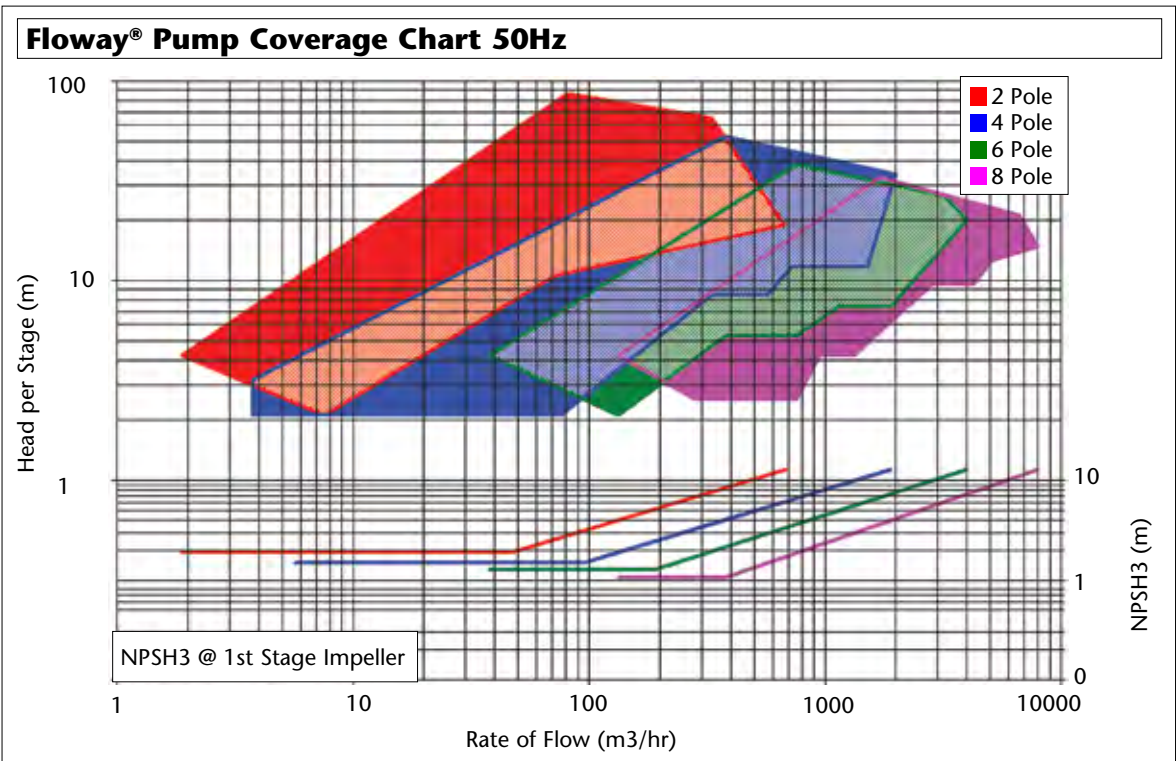
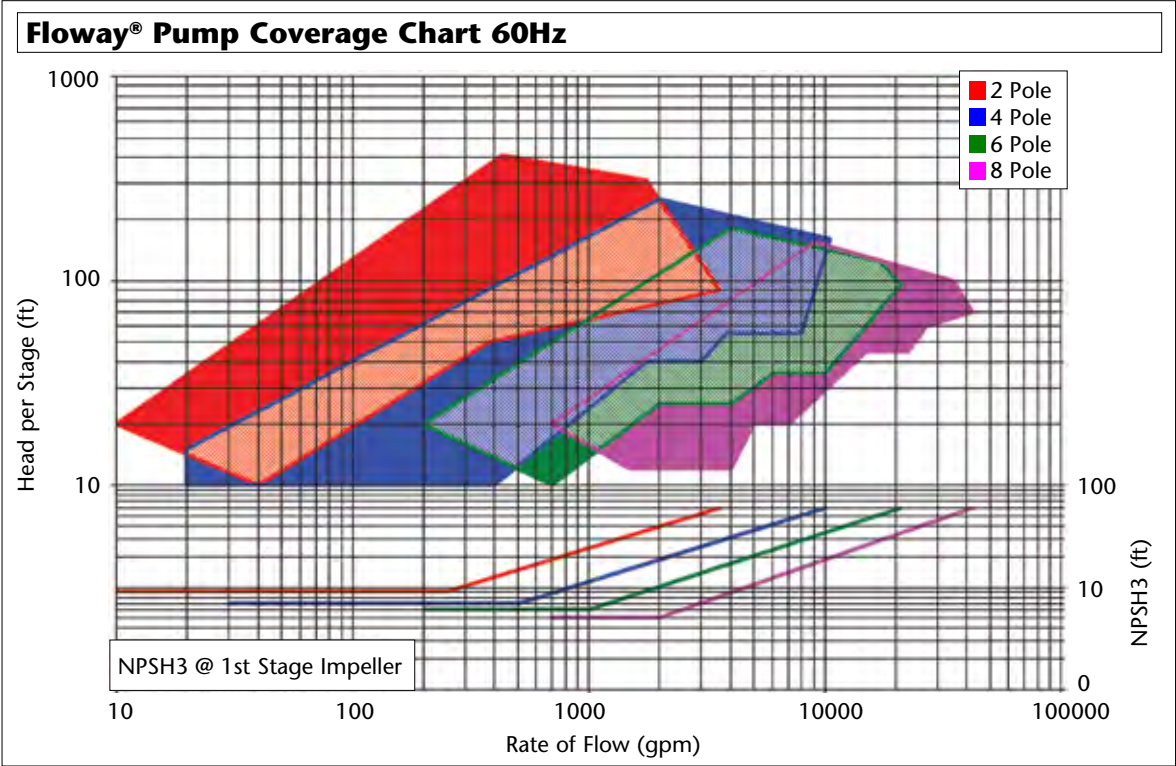
Features — Designed to improve impeller life when handling suspended solids



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



Performance data shown is approximate. For actual pump performance contact your local Weir Minerals Floway Pumps representative or visit our online pump selector website at select.floway.com/selector

Geographical footprint

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

Weir Minerals has operations across:

- North America
- Latin America
- Africa
- Former Soviet Union
- Europe
- Australia
- Asia

Aftermarket service and support

For more than 80 years, Weir Minerals Floway Pumps aftermarket sales and service department has provided customers across the globe with quality parts and service. If you need replacement parts and service, please contact us today by email,

flowayparts@weirminerals.com

Floway® pumps genuine replacement parts — make the right choice for your pumping system.

For additional information please contact your local Weir Minerals Floway Pumps representative or visit,

www.weirminerals.com/Floway



Looking for a Representative in your area to discuss a project? Check out our representative locator website by scanning the QR code at right.



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