

**HAZLETON®**  
Specialty Slurry Pumps

Excellent  
Minerals  
Solutions

**WEIR**  
MINERALS

Slurry pump solutions for the power industry



In services where downtime is unacceptable, customers choose Hazleton® specialty slurry pumps to keep their plants running.

The power industry is known for its demanding applications and insistence on reliability. In challenging pump applications, more than 90% of the total life cycle cost comes after the initial purchase.

# Meeting the needs of the power industry worldwide

Hazleton® specialty slurry pumps have a reputation across the industry as being the “gold standard” for slurry pumps in power industry applications. Our pumps incorporate design features and standards that not only ensure durability and reliability, but also differentiate us from the competition.

## Pump design features

- Hydraulic design incorporates unique “Controlled Diffusion” process to minimize erosive vortices and reduce volute velocities for longer wear life
- Utilization of materials and specialty coatings to achieve maximum wear life
- Wear life requirements can be designed into the pump at the forefront of the design process
- Thick cast cross-sections include built-in wear allowances three times those of typical process pumps
- Back pullout and front pullout design allows in-place inspection and maintenance
- “True slurry pump” design utilizes front & rear impeller pumpout vanes to eliminate the need for radial wear rings
- Field adjustable impeller clearances allows for quick setting without the need to remove the pump from service
- Improved efficiencies versus the competition are typically 3-5% higher
- Pumps are designed to achieve the lowest vibration during operation
- Large diameter shafts and bearings for superior reliability
- Design to customer specifications
- Quick design/delivery

## Pump designs

- Submersible slurry pumps
- Submersible dewatering pumps
- Horizontal end suction slurry pumps
- Horizontal split case – single and multistage
- Horizontal double suction
- Vertical cantilever
- Vertical submerged bearing
- Self priming – diesel or electric driven



1: Pump components machined and manufactured locally in Hazleton, PA, USA



2: Installing a vertical submerged bearing pump

3: Testing a high pressure multistage slurry pump



Weir Minerals Hazleton's strength is providing value by improving efficiencies (reducing energy consumption), eliminating downtime (reducing maintenance and lost production costs), and minimizing inventories. These severe duty pumps are designed specifically to handle corrosion, abrasion, high pressures and high temperatures.

Weir Minerals Hazleton has a team of committed hydraulic, metallurgical, and applications engineers to work directly with our customers from system design to installation and commissioning. We pride ourselves on our ability to meet our customer's aggressive delivery expectations. Weir Minerals has been able to rapidly develop, design, engineer, and ship completely new engineered-to-order pump designs in order to meet our customer's accelerated project schedules.

Hazleton® specialty slurry pumps are quickly becoming the pumps of choice in a growing number of power generation systems. This is due in part to our commitment to fulfilling customer requirements and taking a flexible approach to the development, design, and rapid delivery.

#### Typical services

- Ash transport
- Reclaim tunnel
- Sludge return
- Coal pile runoff
- Washdown sump
- Demineralizer waste
- Chemical sump
- High pressure water supply
- Thickener underflow
- Scrubber recirculation
- Concentrated coal fines
- Refuse area pond dewatering
- Lime slurry



1: Hazleton® pumps are used in a variety of applications in power generation

2: Warman® SHW installation

3: Installing a Hazleton® vertical cantilever pump

## **Submersible slurry pumps**

The design process for Hazleton® specialty slurry submersible pumps has made extensive use of our finite element stress analysis and state of the art solids modeling to ensure rugged and dependable solids handling at the lowest possible cost. Weir Minerals Hazleton's broad range of submersible pumps means we have a pump tailored to your system or application.

Our pumps combine the ultimate in abrasion resistant metallurgy with a heavy duty motor designed and built by Weir Minerals to withstand the most demanding applications. Extra heavy duty pump ends and standard high chrome iron construction with heavy section thicknesses ensure ultimate wear life in heavy slurries.

### **Hazleton® Engineered to Order submersible pumps**

Weir Minerals Hazleton has developed an extensive line of Engineered to Order (ETO) submersible pumps for the wide variety of specialized and demanding applications encountered in power generation and slurry services. Design features include dry running capability, top and bottom suction, twin-volute design, and semi-open or enclosed impellers designed specifically for your application.

#### **Duties:**

Models: SS, SSB, SSM, SCB-H  
Heads to 700 ft  
Flows to 10,000+ gpm



Warman® SHW

### **Warman® SHW submersible slurry pump**

The Warman® SHW submersible slurry pump offers exceptional wear life and reliability, engineered to provide the lowest possible cost of ownership. The Warman® SHW has a unique combination of features not found in any other submersible slurry pump.

#### **Duties:**

Heads to 425 ft  
Flows to 12,000 gpm

#### **Submersible slurry pump design features**

- High flow rates (12,000+ gpm, 2725 m<sup>3</sup>/hr)
- High heads (Up to 700 ft, 213m)
- Superior seal design: proven balanced double seal arrangement that runs in an oil bath, isolated from solids and subject to submergence pressure only
- Explosion proof rated motors for Class 1 Div 1 Groups C and D Hazardous Areas
- A wide range of options, including quick disconnect systems with slide rails, lifting slings, discharge elbows and discharge hose
- Temperature sensors and moisture detection to ensure the motor is protected
- Oversized shaft and bearings to handle high specific gravity slurries

# **Submersible slurry pumps**

**The industry's largest portfolio of submersible slurry pumps for all your on-site needs**

## **Vertical slurry pumps**

Weir Minerals Hazleton's line of vertical slurry pumps is second to none for reliability and flexibility. There are several designs available that can be built to any sump depth. We offer submerged bearing designs in applications where a clean water flush is available. These pumps can be made in lengths exceeding 50 ft (15m). The cantilever design is offered up to 9 ft (3m) long for applications where bearings cannot be used below the floor plate.

These rugged, heavy duty designs utilize several features not seen in competitors' pumps. The patented Hazleton® twin volute design balances the radial loads created by the impeller and casing, providing longer bearing and shaft life far exceeding that of the competition's single volute design.

# Vertical slurry pumps

**The world's leading vertical cantilever and submerged bearing pumps for slurry**



Hazleton® VNCB vertical cantilever slurry pump

### **Hazleton® cantilever pumps**

With no seals or packing and no submerged bearings, vertical cantilever pumps are ideal for handling corrosive and abrasive slurries, and all models are designed to maximize reliability, durability, and to provide the lowest cost of ownership. Added flexibility is provided with different wet end designs to meet various slurry requirements. Castings can be supplied in a variety of materials for abrasive and corrosive applications.

#### **Duties**

Models: VNCB, VNCT, VN, VNM, VND

Heads to 900 ft

Flows to 25,000 gpm

### **Hazleton® vertical pump design features**

- Severe duty design to withstand very high solids content and high hydraulic forces
- High volume and high head designs
- High temperature designs
- Top, bottom, and double suction designs
- Optional casing designs include the patented twin volute design that balances thrust and radial loads
- Recessed impeller options available
- Wear adjustment above the support plate for ease of maintenance
- A variety of alloys for erosive and corrosive applications
- Line shaft with intermediate journal bearings
- Proven design in difficult applications that competitors can not match

### **Hazleton® submerged bearing pumps**

Ideal for deep sumps, vertical submerged bearing pumps can be made in custom lengths over 50 ft long. Unlike most pump manufacturer's submerged bearing pumps, the Weir Minerals Hazleton line is designed to handle gritty material and solids. Engineered-to-order, a variety of pump and bearing materials, mounting plates, sparge systems, and bearing flush systems can be provided based on customer's requirements.

#### **Duties**

Models: VS, VSM, VSHW

Heads to 700 ft

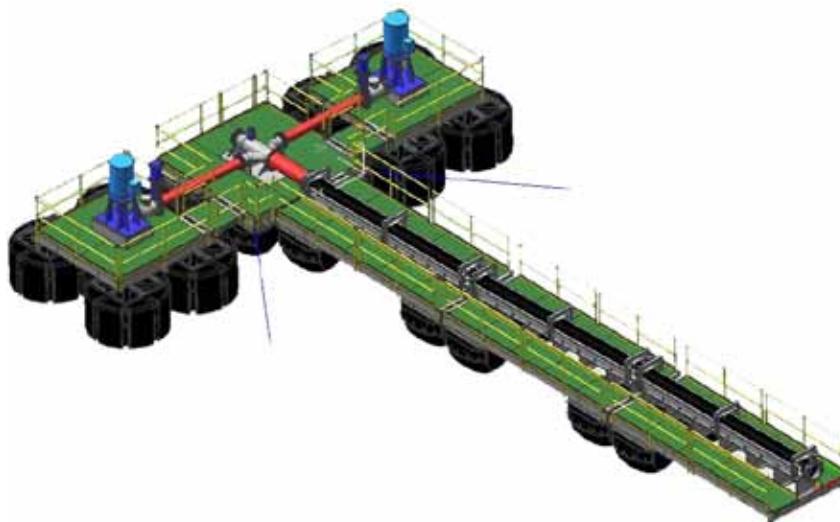
Flows to 9000+ gpm

Weir Minerals Multiflo has the ability to custom engineer a pontoon to meet a customer's specific requirements.

Whether you are looking for diesel or electric drive, a simple float for a single pump or a pontoon to house multiple pumps, our in-house design group can provide the optimal solution.

# Pontoon mounted pumps

**Custom designed and built to ensure the very best performance for your specific dewatering needs.**



CAD rendering of a pontoon mounted vertical cantilever pumps with walkway



## Custom engineered solutions

One of the many advantages at Weir Minerals is that we bring the complete pontoon and pumpset under a single company; no dealing with separate suppliers. Using state-of-the-art 3D-CAD modeling, our engineers ensure the pumpset and pontoon is matched and goes together properly; lead times are reduced, assembly and installation problems are eliminated. Our wide offering of pontoon mounted pump units includes polyethylene floats, steel hulled and fiberglass pontoons. Large units are designed in multiple sections for simplified logistics and ease of assembly. This flexibility allows Weir Minerals to tailor a unit to your specific needs or budget.

## Advantages of electric pontoon units

- All configurations are self priming
- Minimizes or eliminates suction lift
- Can eliminate NPSH / cavitation issues
- Can move around pond and/or be located where needed
- Eliminates flooding issues
- Raises and lowers with water level while maintaining prime
- Can be designed to handle multiple pumps

## Pumpsets available in any configuration

- Vertical cantilever pumps
- Submersible pumps
- Horizontal pumps mounted at 30° angle
- Vertical turbine pumps

1: Single and double electric pontoon pump units

2: Hazleton® vertical cantilever with 800 HP motor on 11' pontoon

3: Twin diesel driven barge units

Weir Minerals Multiflo offers multistage horizontal pumps designed for high lift shaft dewatering along with the industry's most complete range of self priming trailer, skid, pontoon and barge mounted units. Multiflo® barges are specifically designed and customized for the harsh and arduous conditions encountered in the power industry to provide maximum reliability and performance.

# Horizontal and self priming pump units

**Designed to withstand the harsh operating conditions found throughout the power generation industry.**

## **Reliable long lasting equipment**

Weir Minerals Mutlflo units offer the optimum solution for your dewatering needs rather than a "one-size-fits-all" approach with fully customizable features. They are available in a skid or trailer mounted units, with your choice of diesel or electric drive. Any diesel engine or electric motor manufacturer can be specified. A wide range of pump ends and materials can be coupled to the customer's preferred drive.

## **Hazleton® horizontal pumps**

Weir Minerals Hazleton continues to offer a comprehensive line of horizontal end suction and split case slurry pumps, including the industry's only high pressure multistage pump designed for solids handling. In applications with high heads and pressures, high temperatures, or low NPSH requirements, the Hazleton® horizontal pumps are second to none.

## **Multiflo® auto prime units**

Multiflo® self priming units are designed to provide years of reliable performance with features such as:

- Heavy duty skids and trailers
- Continuous welded joints
- Internal painting
- Customizable instrumentation
- Stainless and fully galvanized hardware and fittings
- Mechanical and Vactronic® auto-priming vacuum system
- High chrome pump ends
- 24 hour fuel tank standard



1: Multiflo® MF4x3AH on-site pumping pond water

2: Hazleton® model MS multistage slurry pump

