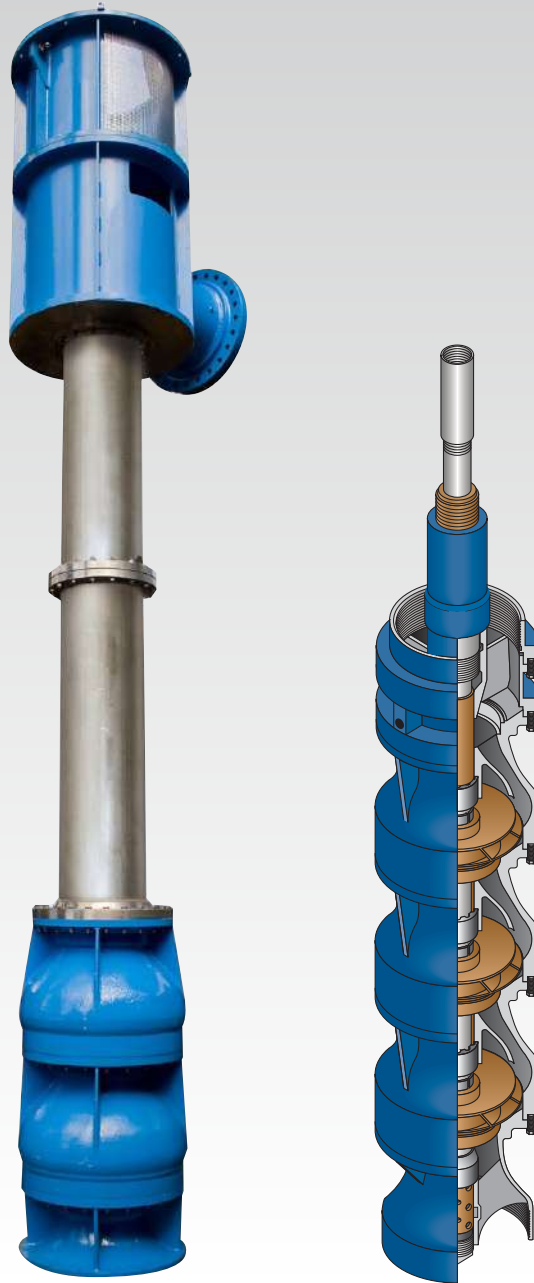


VERTICAL TURBINE PUMP VTC SERIES



Engineered Industrial Pumps

www.versar.com.sg

VERSAR[®]
INDUSTRIAL PUMPS

PUMPING SOLUTIONS

The VERSAR PUMPS[®] provides a wide range of hydraulic and mechanical coverage. VERSAR PUMPS[®] offers many different material and design configurations; these numerous configuration options allow for custom-engineered construction tailored to suit your requirements. Maximum value, high efficiency and economical long-term pump performance are assured in each application.

QUALITY, ENVIRONMENT, SAFETY & HEALTH PROGRAM

The principals of Quality Management System (QMS) are the foundation of our business. That is why all our Design and Manufacturing Processes are certified under:

- ISO 9001:2008
- ISO 9906:1999
- ISO 14001:2004
- OHSAS 18001:2007

And conforms or meets most recognized specifications, including:

- ANSI/HI
- ANSI/AWWA E101
- ISO 13709/API 610 Latest Edition.

**“Maximum efficiency,
lifetime and reliability”**



Versar Pumps[®] VTC " (1000 hp), Super Duplex 2507



Versar Pumps[®] VTC " (1400 hp), Duplex 2205

MATERIALS

- Duplex SS - 2304 , 2205, CD4MCu, 7 Mo Plus
- Super Duplex SS - 2507
- Super Austenitic - 254SMO, 654 SMO, 904L, AL-6XN
- Martensitic - AISI 416, 420, 440C
- Austenitic - AISI 304, 304L, 316, 316L, 317, 317L
- Gray Cast Iron - SAE J 431; 2500, 3000 grade (ASTM A 48 Class 30-60)
- Nodular Casting - ASTM A 536; 60-40-18/65-45-12/80-55-06
- White Cast Iron - High Chromium Content ASTM A 532 grades IIB, IID, IIIA
- Bronzes - SAE 660, 640
- Inconel -718, 625, 725
- Monel K500
- Zeron 100
- 17-4 PH
- Nitronic - 50, 60
- Ferralium 255 SD50

**“Wide range of exotic alloys
for highly corrosive fluids”**

MAXIMUM RELIABILITY AND HYDRAULIC COVERAGE

Versatility is one of the main characteristics of our Vertical Turbine Pumps: langed bowl construction, high-efficiency difuser type design, single or multiple stage design, depending on your total head requirements, for continuous service. VERSAR PUMPS[®] delivers one of the world's most comprehensive lines of Vertical Turbine Pumps for long term operation in industrial applications.



Versar Pumps[®] VTC " (2000 hp)

OPERATING PARAMETERS

- Capacities up to 40,000 gpm (7,500 m³/h)
- Head up to 1,200 Feet (400 m)
- Power through 2000 hp (1500 kW)
- Pressures up to 590 psi (4,067 kPa)
- Frequency 50/60 Hz
- Temperatures to 400°F (200°C)
- Bowls sizes from 8" to 40"

DESIGN FEATURES

- VERSAR PUMPS[®] high-efficiency design
- High-quality investment cast impellers and bowls
- Maximum versatility and reliability
- Low NPSH first stage construction
- No priming required
- Thrust balanced impellers available
- Product lube or enclosed lineshaft
- Minimum space requirement
- Special material selection for standard or abrasive/corrosive service
- Packing or mechanical seal
- Independent axial-thrust bearing assembly
- Multiple discharge configurations and sizes

SERVICES

- Primary Water Supply – Fresh water or Sea water
- Mining Processes: Cooling Water, Thickener Overflow, Reclaim Water, Mine Seepage, Well Pumps-Process, Water Supply, Mine De-Watering, Electrolyte, Pressure Boosting and Transfer
- Solvent Extraction/Electro-Winning (SX/EW): Rainate, Pregnate Leach Solution (PLS), Heap Leach, Pressure Boosting and Transfer
- Seepage Water – Sump or Can/Booster
- Tailings – Post Processed Solutions
- Dewatering – Sump, Deep Well, Ponds
- Oil & Gas Production – Onshore, Offshore and Pipeline
- Marine
- Pulp and Paper
- Municipal Water & Wastewater
- Irrigation – Agriculture

**"Most reliable, durable
and energy efficient
pumps in the industry"**



Cast Duplex VTC (1400 hp), Reclaim Water System

VERTICAL TURBINE PUMP (VTC) OPEN SHAFT

Design Features

Open lineshaft construction allowing bearing lubrication by the pumped liquid

Driver Stand

- Mechanical cartridge seal or stuing box arrangements with piping plans
- Reliable sealing and simple maintenance

Shaft Sealing

- Mechanical cartridge seal or stuing box arrangements with piping plans
- Reliable sealing and simple maintenance

Discharge Head

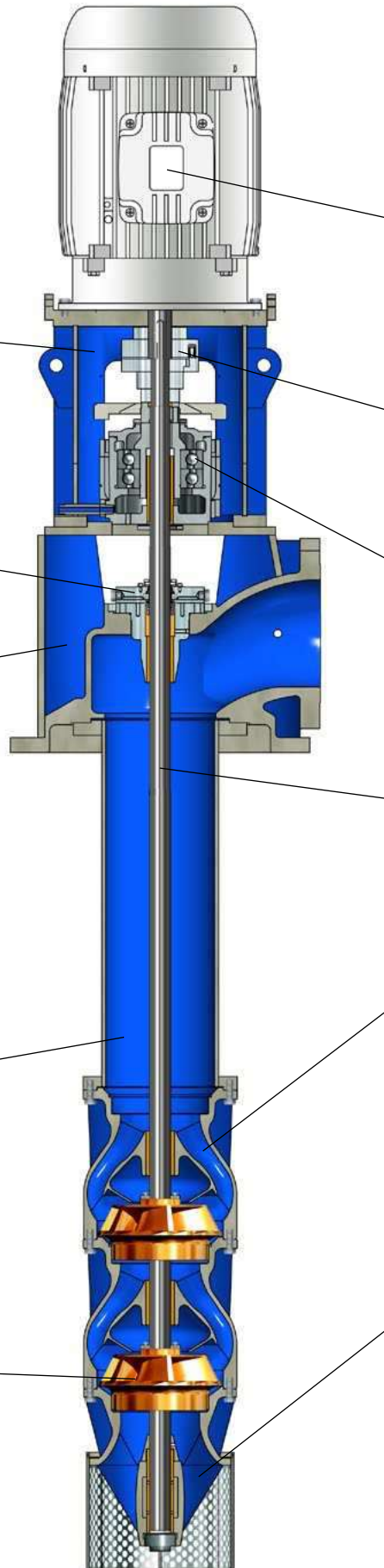
- Fabricated or fully Casted Heavy-Duty and Low-loss design
- Fabricated segmented elbow available for efficiency improvement
- Multiple configurations for connection to pipe work
- Smoothly transitions fluid
- Custom designed to all models of drives
- Flanges ratings of ASME Class 150-300 depending on pressure requirements

Flanged Column Assembly

- Flanged ends for ease of assembly
- Custom fabricated to fit any size

Impellers

- VERSAR PUMPS[®] high-efficiency design
- Fully investment casted to provide smooth passageways for low-loss fluid flow
- Precisely trimmed and balanced to reduce vibration and wear
- Located with either collet or keyed construction depending on horsepower
- Wear rings for extended operation life



Driver

- Vertical Solid Shaft (VSS)
- Fixed or variable speed drives
- Specified to customer needs and location data

Coupling

- Flexible with spacer or rigid (large adjustable)
- Allows servicing the thrust bearing and mechanical seal as needed

Independent Axial Thrust Bearing Assembly

- Withstands the total hydraulic thrust as well with the rotor weight
- Allows servicing with standard drives

Pumpshaft

- Fully machined and sized for application thrust and torque
- Different engineered alloys for aggressive applications

Bowls

- VERSAR PUMPS[®] high-efficiency hydraulics
- Fully investment casted to provide smooth passageways for low-loss fluid flow
- Available in different engineered alloys
- Wear rings and bearings available in a wide range of materials for extended operation life

Suction Bell

- Provides efficient low into first stage impeller
- Basket strainer available to restrict large solids from entering the pump

VERTICAL TURBINE PUMP (VTC) ENCLOSED SHAFT

Design Features

Completely isolated lineshaft and bearing from the pumped liquid, for abrasive applications. Different lubricants can be used as external lubrication such as oil, grease or water.

Driver Stand

- Mechanical cartridge seal or stuffing box arrangements with piping plans
- Reliable sealing and simple maintenance

Shaft Sealing

- Mechanical cartridge seal or stuffing box arrangements with piping plans
- Reliable sealing and simple maintenance

Discharge Head

- Fabricated or fully Casted Heavy-Duty and Low-loss design
- Fabricated segmented elbow available for efficiency improvement
- Multiple configurations for connection to pipe work
- Smoothly transitions liquid
- Custom designed to all models of drives
- Flanges ratings of ASME Class 150-300 depending on pressure requirements

Flanged Column Assembly

- Flanged ends for ease of assembly
- Custom fabricated to it any size

Pumpshaft

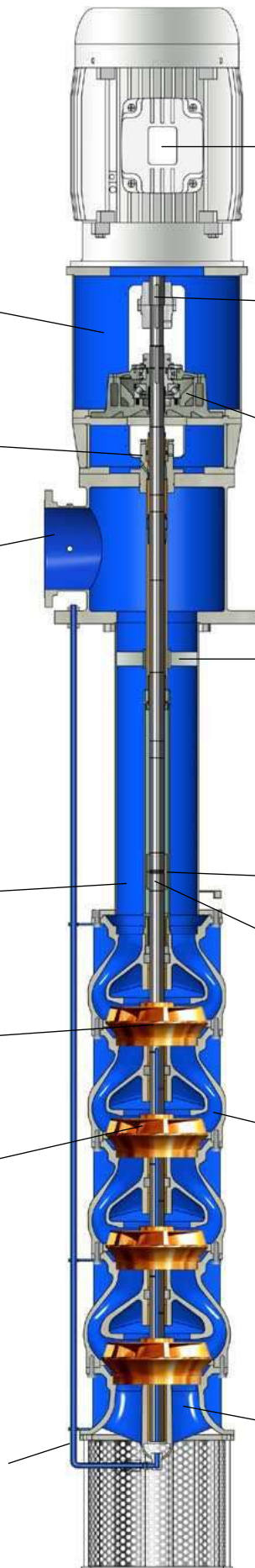
- Fully machined and sized for application thrust and torque
- Different engineered alloys for aggressive applications

Impellers

- VERSAR PUMPS[®] high-efficiency design
- Fully investment casted to provide smooth passageways for low-loss liquid
- Precisely trimmed and balanced to reduce vibration and wear
- Located with either collet or keyed construction depending on horsepower
- Wear rings for extended operation life

External Lubrication System

- Allows flow of lineshaft bearing lubricant into enclosing tube



Driver

- Vertical Solid Shaft (VSS)
- Fixed or variable speed drives
- Specified to customer needs and location data

Coupling

- Flexible with spacer or rigid (range adjustable)
- Allows servicing the thrust bearing and mechanical seal as needed

Independent Axial Thrust Bearing Assembly

- Withstands the total hydraulic thrust as well with the rotor weight
- Allows servicing with standard drives

Bearing Retainer / Lineshaft Bearing

- Provides shaft support and maintains alignment
- Retainers spaced between column sections
- Polymer or metal bearings available

Enclosing Tube

- Provides lineshaft protection from pumped liquid and support

Lineshaft Coupling

- Threaded or sleeve available depending on shaft diameter and horsepower
- Locks lineshaft sections together

Bowls

- VERSAR PUMPS[®] high-efficiency design
- Fully investment casted to provide smooth passageways for low-loss liquid
- Available in different engineered alloys
- Wear rings and bearings available in a wide range of materials for extended operation life

Suction Bell

- Provides efficient flow into first stage impeller
- Basket strainer available to restrict large solids from entering the pump

VERTICAL CAN TYPE (VTCX)

Design Features

Driver Stand

- Mechanical cartridge seal or stuing box arrangements with piping plans
- Reliable sealing and simple maintenance

Shaft Sealing

- Mechanical cartridge seal or stuing box arrangements with piping plans
- Reliable sealing and simple maintenance

Suction/Discharge Head

- Fabricated or fully Casted Heavy-Duty and Low-loss design
- Fabricated segmented elbow available for efficiency improvement
- Multiple configurations for connection to pipe work
- Smoothly transitions fluid
- Custom designed to all models of drives
- Flanges ratings of ASME Class 150-300 depending on pressure requirements

Flanged Column Assembly

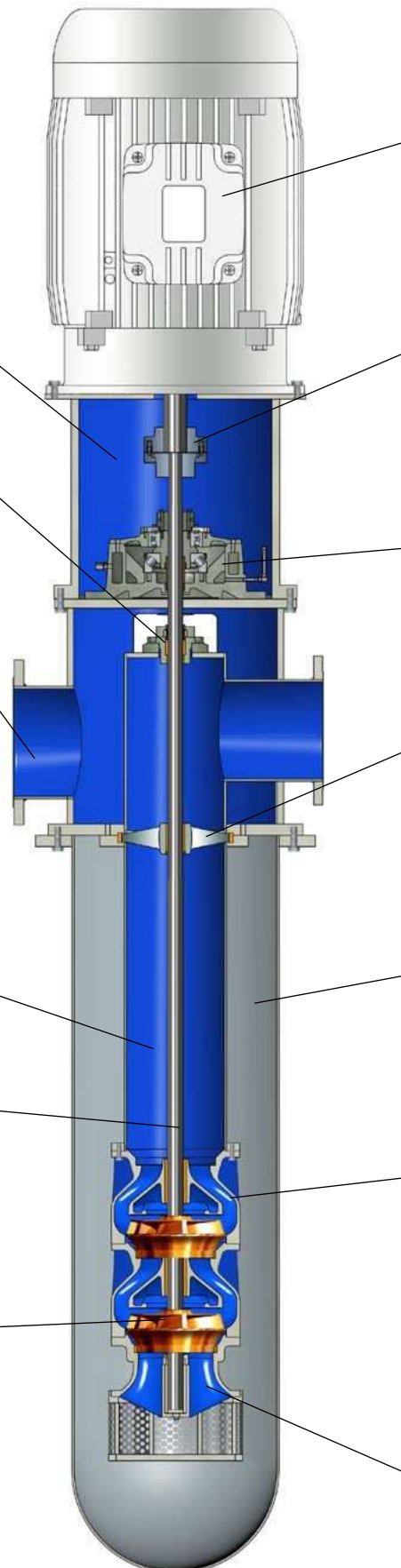
- Flanged ends for ease of assembly
- Custom fabricated to it any size

Pumpshaft

- Fully machined and sized for application thrust and torque
- Different engineered alloys for aggressive applications

Impellers

- VERSAR PUMPS[®] high-efficiency design
- Fully investment casted to provide smooth passageways for low-loss fluid flow
- Precisely trimmed and balanced to reduce vibration and wear
- Located with either collet or keyed construction depending on horsepower
- Wear rings for extended operation life



Driver

- Vertical Solid Shaft (VSS)
- Fixed or variable speed drives
- Specified to customer needs and location data

Coupling

- Flexible with spacer or rigid (large adjustable)
- Allows servicing the thrust bearing and mechanical seal as needed

Independent Axial Thrust Bearing Assembly

- Withstands the total hydraulic thrust as well with the rotor weight
- Allows servicing with standard drives

Bearing Retainer / Lineshaft Bearing

- Provides shaft support and maintains alignment
- Retainers spaced between column sections
- Polymer or metal bearings available

Suction Can

- Fabricated Suction Can for optimum hydraulic conditions
- Provides uniform and adequate velocity low downstream along the can length

Bowls

- VERSAR PUMPS[®] high-efficiency design
- Fully investment casted to provide smooth passageways for low-loss fluid flow
- Available in different engineered alloys
- Wear rings and bearings available in a wide range of materials for extended operation life

Suction Bell

- Provides efficient flow into first stage impeller
- Basket strainer available to restrict large solids from entering the pump

VERTICAL SUMERSIBLE (VB-S) Design Features

Incorporated Non-Return Valve

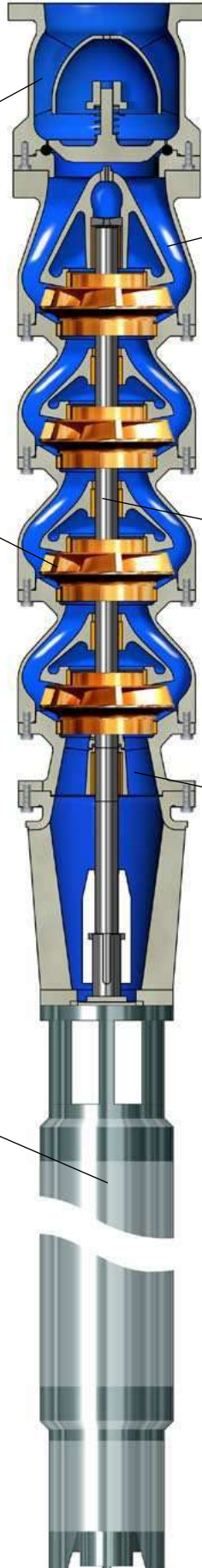
- Protects pump from water column

Impellers

- VERSAR PUMPS[®] high-efficiency hydraulics
- Fully investment casted to provide smooth passageways for low-loss fluid flow
- Precisely trimmed and balanced to reduce vibration and wear
- Located with either collet or keyed construction depending on horsepower
- Wear rings for extended operation life

Submersible Motor

- High-efficiency electrical design
- Sand slinger and shaft seal



Bowls

- VERSAR PUMPS[®] high-efficiency hydraulics
- Fully investment casted to provide smooth passageways for low-loss fluid flow
- Available in different engineered alloys
- Wear rings and bearings available in a wide range of materials for extended operation life

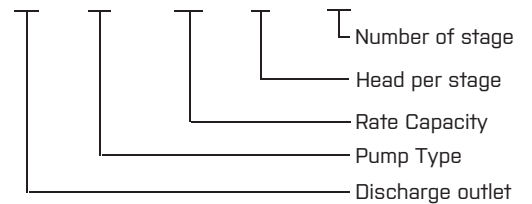
Pumpshaft

- Fully machined and sized for application thrust and torque
- Different engineered alloys for aggressive applications

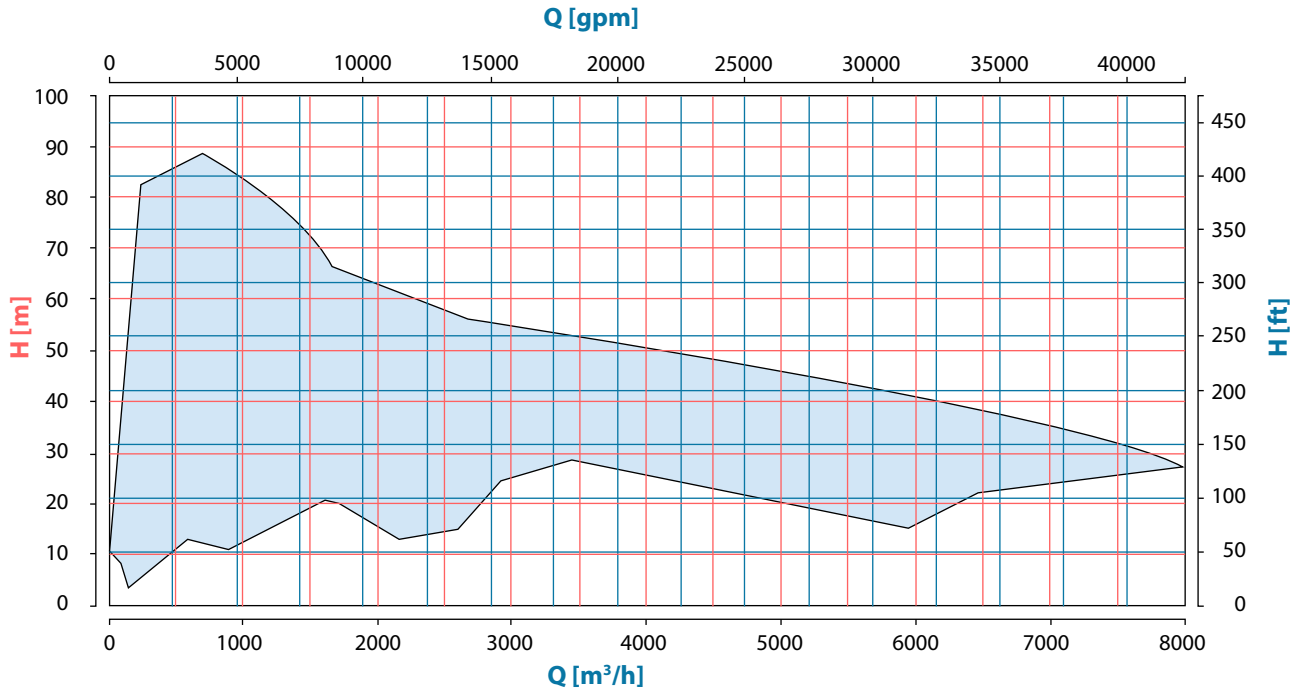
Suction Bell

- Provides efficient low into first stage impeller
- Basket strainer available to restrict large solids from entering the pump

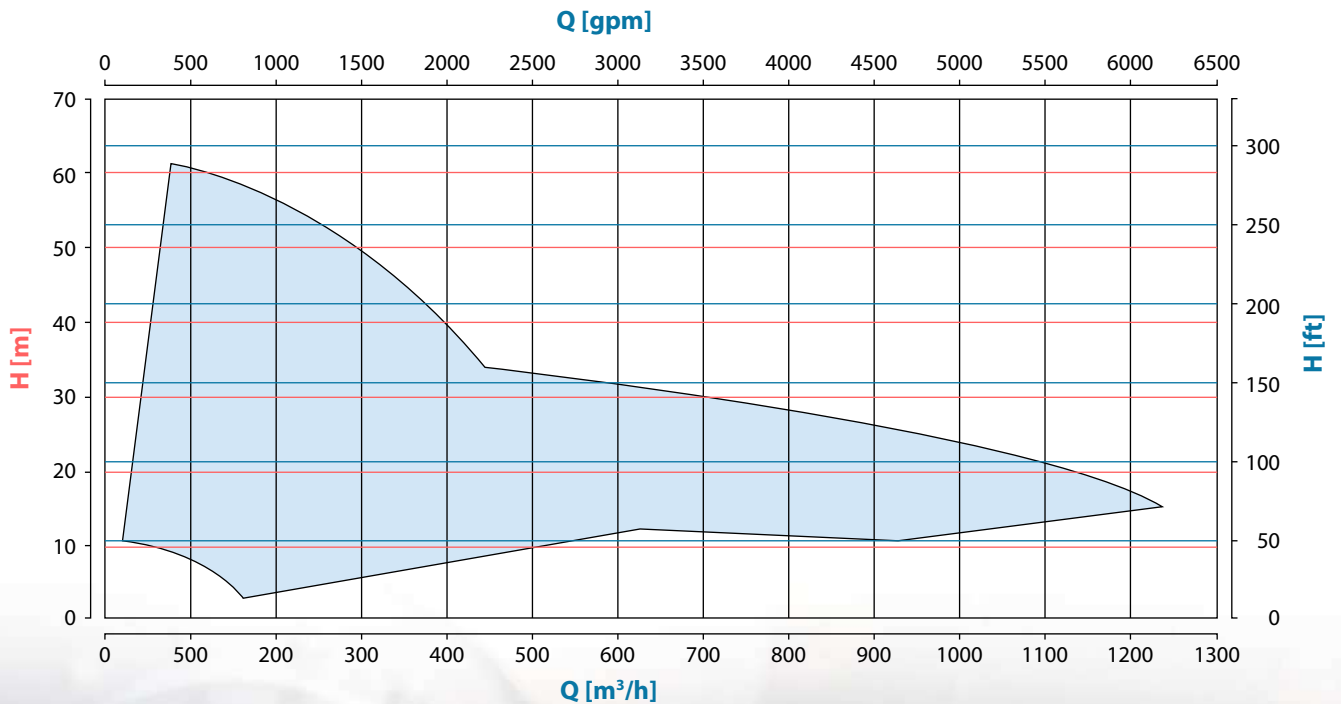
150 VB-S 300- 30 x 5



VERTICAL TURBINE PUMPS (VTC) HYDRAULIC COVERAGE 50/60 HZ-1 STAGE



VERTICAL SUBMERSIBLE PUMPS (VB-S) HYDRAULIC COVERAGE 50/60 HZ-1 STAGE



200 VTC 500- 20 x 3

- Number of stage
- Head per stage
- Rate Capacity
- Pump Type
- Discharge outlet

VERSAR BARGE PUMP SYSTEM™

All the advantages of our high efficiency and reliable line of Self-Priming Vertical Turbine Pumps (VTC) without all the large infrastructure costs of normal pump stations.

With the Versar Barge Pump System™ civil works can be eliminated and large quantities of fluids can be pumped at high heads on a continual basis with these all-in one pump systems.



Versar Barge Pump System™: High-efficiency pumps for heavy-duty applications.

OPERATING PARAMETERS

- Capacities up to 6,000 gpm (1,150 m³/h)
- Head up to 2,130 Feet (650 m)
- Power through 1000 hp (750 kW)
- Pressures up to 960 psi (6,620 kPa)
- Frequency 50/60 Hz
- Temperatures to 400°F (200°C)
- Bowls sizes from 8" to 20"



Versar Barge Pump System™ VTC 170-5E (200 hp)



Versar Barge Pump System™ VTC (300 hp) for Mine Dewatering

DESIGN FEATURES

- VERSAR PUMPS® high-efficiency design
- Free-Floating Barge Design requires no civil works
- Easily handled and installed
- Always at proper submergence
- No priming required
- Minimum space requirement
- Fluids with up to 20% solid concentration
- Special material selection for standard or abrasive/corrosive service
- Packing or mechanical seal
- Independent axial-thrust bearing assembly
- Neptuno Booster Pump System™ also available for complete dewatering solutions

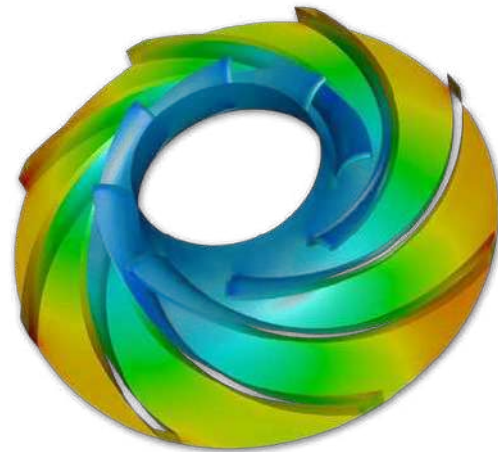
SERVICES

- Mine De-Watering
- Water Supply
- Solvent Extraction/Electro-Winning (SX/EW):
Rinate, Pregate Leach Solution (PLS), Heap Leach
- Dewatering – Sump, Deep Well, Ponds
- Tailings – Post Processed Solutions
- Marine

“Eliminate civil works and booster stations with the VERSAR Barge Pump System™”



“Serving industries with advanced pumping technology”



State-of-the-art CAE tools for high-efficiency designs

RESEARCH & DEVELOPMENT

VERSAR PUMPS[®] is continually working with business partners and most prestigious universities and institutions in the areas of mechanical, hydraulic, aerospace engineering and material science. Our active in-house R&D Department is permanently doing research for new designs and developing new technologies always focusing on maximizing efficiency and delivering innovative pumping solutions, to keep your business going strong.



“Commitment to extending operating life and efficiency”

TECHNOLOGY

VERSAR PUMPS[®] counts with a highly skilled team of engineers and well-trained personnel; state-of-the-art computer assisted design software, advanced manufacturing technologies and rigorous quality control systems that guarantee high quality products and services with its emphasis on total customer satisfaction.

- Hydraulic Engineering
- Mechanical Design
- Material Science
- Rapid Prototyping
- Manufacturing Technology

*Versar Pumps[®]: Where ideas come to life.
From CFD simulation to actual manufacturing (VTC)*

PUMPS REPAIR CENTER (PRC)

Our engineers and technicians are experienced with reconditioning all types of pumps and rotating equipment, restoring equipment to original specification. Close your pump life cycle with VERSAR PUMPS[®] PRC and keep your maintenance and operating costs low.

Capabilities

- Overhauling
- Hydraulic re-rates and upgrades
- Rebowling
- Reliability and energy improvement
- Material upgrade
- Hydraulic performance tests (ISO 9906 Certified)
- Reverse engineering
- Design & engineering



Vertical Turbine Pump assembly



Engineered spare parts with the lowest lead-times in the market

CUSTOMER SUPPORT SERVICE

VERSAR PUMPS[®] commitment to help you improve efficiency goes far beyond our product and solution offerings. To ensure your equipment and process is running at optimum performance, we offer world class customer support. Our team is always ready to help you find the right solution to satisfy and exceed your most demanding needs.

Capabilities

- Original spare parts
- Quick response programs
- Mechanical inspection
- Engineering consulting
- Performance analysis
- Inventory management

"One stop repair, engineering and upgrade service"

VERSAR[®]
INDUSTRIAL PUMPS

The best solution for fluid control

VERSAR INDUSTRIAL SOLUTIONS PTE.LTD

#470 North Bridge Road,
#05-12 Bugis Cube, Singapore 188735.

Email: sales@versar.com.sg
www.versar.com.sg

