Bowl Assembly: The pump bowls shall be of close grained, ASTM A48 class 30 high tensile cast iron or other specified material. The water passages on bowl sizes 6” through 15” shall be lined with vitreous enamel porcelain glass to reduce friction loss and increase efficiency, shall be free of blow holes, sand holes and any other detrimental defects. Heavy wall allows for generous corrosion allowance with a 20 year design life. Bowl sizes from 6” through 15” also feature o-ring construction ensuring leak–free operation. All bowls (5” through 42”) feature flanged construction allowing a much easier assembly and disassembly process over threaded bowls. Bronze bearings are standard with a dozen optional materials based on job-site requirements. In addition to optional materials, bowl bearings can also be supplied in an exclusive grease packed orientation providing maximum protection against abrasives and high calcium carbonate applications. Bowl wear rings are available upon request and are standard on 20” and larger sizes. Bowls are available in nearly every optional material alloy. CCR bowl models (8”, 10”, 12” & 14”) feature larger shaft bores, longer bearing dimensions and cast integral sand lugs protecting the bowl from severe erosion. These bowls are perfectly suited for aggressive applications such as municipal water well and mining applications.

Discharge Case: The discharge case shall be of close grained, ASTM A536 high tensile ductile iron or other specified material. Flanged to threaded column and flanged to flanged column discharge cases are available in discharge sizes from 4” to 20”. Dual bearing design is standard for maximum shaft support. Integral ports are also standard that can be used in open and enclosed lineshaft applications allowing product, pressurized water, oil and grease lubrication of the lineshaft.

Impellers: The impeller is of the single suction, enclosed or semi-open, non-overloading type. It is constructed of investment cast 304 stainless steel or other specified material, machined and dynamically balanced. Impellers through 16” shall be securely fastened to the shaft with taper split bushings (collets) of carbon steel or other specified material. Impellers 18” and larger shall be double-keyed. Any impeller smaller than 18” can be double-keyed upon request. Impellers shall be adjusted vertically by an external means. The pump shaft shall be of A582 grade 416 stainless steel, turned, ground and polished or other specified material. Optional impeller wear rings are available upon request.

Strainer: A basket or conical type strainer can be provided upon request having a net inlet area equal to at least four times the suction pipe area. The maximum opening size shall not be more than 75% on the minimum opening of the water passage through the bowl and impeller. Engineered vortex suppressors can be supplied upon request. Strainers can be supplied in galvanized steel, all bronze and a many different grades of stainless steel.

Column Assembly: The outer column pipe shall be 4” and larger of ASTM A53 grade B steel pipe of ASTM A120 in interchangeable sections not over 10’ in length for 1800 RPM and 5’ in length for 2200 RPM and above. Maximum runout in 10’ shall not exceed 0.005’. Column pipe may be supplied in a threaded or flanged configuration. Top and bottom sections of column pipe on product lubricated pumps shall not exceed 5’ in length.

The lineshafts shall be provided with ASTM A269 grade 304 stainless steel threaded sleeves at the location of each lineshaft bearing. Bearing spacing shall not exceed 10’ for 1800 RPM and 5’ for 2200 RPM and above. Shaft diameters and bearing spans are engineered to ensure trouble free operation from a shaft critical speed standpoint.

Discharge Head: The discharge head shall be of close grained, ASTM A48 class 30 high tensile cast iron or other specified material. Discharge flange shall be machined and drilled to ANSI standards for 125# rating. Discharge heads are available in 4”, 6”, 8”, 10”, 12”, 14” & 16” discharge size. The top of the discharge head shall have a rabbbet fit to accurately locate the vertical hollow or vertical solid shaft driver and have a diameter equal to the drive base diameter (BD). Specially engineered deepset heads are also available in ASTM A536 high tensile ductile iron with 8”, 10” & 12” discharge sizes available for extremely deep water well applications. Optional fabricated steel discharge heads of schedule 40 fabricated steel can be supplied upon request. The fabricated steel discharge head shall be accurately machined with an above ground or below ground discharge. Discharge flange shall be machined and drilled to ANSI standards and can be supplied in 150#, 300#, 600# & 900# ratings. For barrel applications, a “T” discharge head can be supplied. The discharge head shall be fabricated of carbon steel materials using ASTM A181 flanges, ASTM A53 grade B body pipe and ASTM A36 steel plate with the suction and discharge flanges inline with each other and located 180° apart, or as specified. The suction and discharge flanges shall be machined and drilled to ANSI raised face standards with bolt holes straddling discharge centerline.

Stuffing Box: The seal arrangement provided shall be one of the following (packing or mechanical seal):

The standard cast iron stuffing box shall be rated for 125 PSI discharge pressure and shall be fitted with graphite acrylic packing. It shall have a lantern ring or grease chamber placed as required below the top packing ring. Throttle bearing shall be bronze with stainless steel bolting and with brass or stainless steel adjusting nuts. Sealing between the stuffing box and the discharge head shall be accomplished by means of an o-ring. A unit which requires a mechanical seal shall have a housing bolted to the head with an o-ring seal. The housing shall have a lower bronze throttle bushing. The housing seal chamber shall accommodate a single sleeved (balanced/unbalanced) mechanical seal suitable for the maximum pressure developed by the pump and temperature of the pumped fluid. Seal materials shall be compatible with the liquid pumped.

Motor: The electric motor shall be vertical hollow shaft or vertical solid shaft, three phase (50 or 60 Hz), a non-reverse ratchet, P-base, squirrel cage induction design. Enclosure shall meet NEMA weather protected type 1 design with stainless steel screens to prevent entrance of rodents. Motor shall have Class B or Class F insulation with temperature rise as specified by NEMA standards for class insulation used and shall have a 1.15 service factor.
Model CVT-OLS
Vertical Turbine

Sizes: 5" (125 mm) to 42" (1100 mm)
Flows: 35,000 GPM (7,950 m³/hr)
Heads: 2500+ Feet (762+ m)
Temps: 400° F (204° C)
Settings: 1000+ Feet (305+ m)

Services:
- Building Trades
- Chemical
- Construction
- General Industry
- Marine
- Mining & Aggregate
- Oil & Gas
- Power Generation
- Petro-Chemical
- Pharmaceutical
- Pulp & Paper
- Water & Wastewater

**Discharge Head**
- Heavy duty ASTM A48 class 30 cast iron available in 4", 6", 8", 10", 12", 14" & 16" sizes
- Optional engineered fabricated heads available in almost any conceivable orientation
- The high ring base allows for room to access packing or mechanical seal
- Adjustable spacer couplings available when using a vertical solid shaft motor
- Integral drip basin to collect leakage from packing or mechanical seal

**Bowl Assembly**
- Heavy duty ASTM A48 cast iron construction with vitreous enamel lining to increase efficiency
- Flanged construction with stainless steel fasteners and o-ring construction standard
- Impellers are supplied in high quality investment cast 304 stainless steel or other specified alloy
- All impellers are dynamically balanced to ISO G6.3 for vibration free operation
- 416 stainless steel bowl shaft is standard
- Bronze bowl bearings standard
- Bronze bowl & impeller wear rings are optional
- Tapered collets used through 14" bowls and keyed construction on the 16" and bowls
- Oversized and grease lubricated suction case bearing with sand cap standard
- Entire bowl assembly can be provided in optional metallurgy depending on job site requirements

**Stuffing Box**
- Packing with lantern ring is standard
- Exclusive grease port for pre-lubrication on demanding applications
- For extremely high pressure applications reverse porting is available upon request

**Column Assembly**
- Heavy wall schedule 40 column pipe with high pressure construction
- Oversized shafting with higher horsepower requirements
- All shafting is heat straightened prior to assembly
- Investment cast 304 stainless steel bearing retainers for maximum life and strength
- Bearings are lubricated by the pumped fluid
- Column is available in sizes from 5" through 48"+
- The overall length of the pump can be engineered to meet job site requirements

**Discharge Case**
- Heavy duty ASTM A536 ductile iron construction standard
- Two bronze bearings for additional support
- Additional vanes for minimizing turbulence thus improving efficiency

**Strainer**
- Basket or cone strainers are available upon request
- Galvanized steel, bronze or stainless steel materials are available
- Vortex suppressors can be supplied to minimize inlet losses