

Hydroflo Pumps USA, Inc.
7118 Loblolly Pine Blvd.
Fairview, TN 37062



Short Set Pump Installation Specifications: Vertical Turbine Pump, Product Lubricated

A. Scope

This specification is for a short set lineshaft vertical turbine pump with an above ground discharge, manufactured for product lubrication of the lineshaft bearings by the water being pumped and furnished with a specified driver and accessories. The pumping unit shall be designed and manufactured in accordance with the latest hydraulic institute and AWWA specifications for lineshaft turbine pumps.

B. Service Conditions

The pumps shall be designed and built to operate satisfactorily with a reasonable service life, when installed in a proper turbine pump application. The product shall be manufactured by Hydroflo Pumps USA, Inc. or other manufacturers that can meet the required material standards and performance specifications.

C. Operating Conditions

Design conditions: _____ Gallons per minute
Design head: _____ Feet TDH (total dynamic head)
Minimum pump eff: _____ Percent
Maximum Pump speed: _____ RPM
Liquid pumped: Water
Pump Bowl setting: _____ Feet (From base plate to bottom of basket strainer)
Well diameter I.D. _____ Inches
Bowl Model: _____ Inches
Bowl O.D. _____ Inches

D. Pump Construction

1. Bowl assembly: the intermediate bowls, discharge cases and suction bowls shall be flanged type constructed from close grain cast iron, and shall conform to ASTM A48, class 30. They shall be free from sand holes, blow holes or other faults and must be accurately machined and fitted to close tolerances. The intermediate bowls shall have glass lined enamel or epoxy enamel coated waterways for maximum efficiency. All threaded discharge cases shall be threaded to an 8 TPI butt standard for product lubricated column assembly. Bearings shall be bronze B584-836 material. All assembly bolting shall be stainless steel.

2. Impellers: the impellers shall be investment cast 201 stainless steel, ASTM A296 and shall be enclosed type. They shall be free from defects and must be investment cast, machined, backfiled and balanced for optimum efficiency and performance. They shall be securely fastened to the bowl shaft with stainless steel taper locks, C1045 steel will not be accepted. The impellers shall be adjustable by means of a top shaft adjusting nut or adjustable solid shaft coupling.

3. Bowl shaft shall be constructed from PSQ 416 stainless steel, ASTM A582 pump shaft material. It shall be precision machined and straightened within .002 - .004 tolerance.

E. Discharge Head Assembly – Water Lubricated

1. Discharge head shall be of the high profile type and have a suitable motor base. It shall be constructed of high grade ductile iron, ASTM A536, class 65 or fabricated steel. The head shall have a _____ size discharge flange, ASTM 125 lb., suitable for the capacity of water being pumped. The head shall allow the top shaft to couple above the stuffing box. The head shall be threaded to accept the desired column pipe in this specification.

2. The stuffing box shall be CL65 ductile iron and shall contain a minimum of five rings of John Crane 1345 packing. It shall have an available fitting for pressure relief if needed. The packing gland follower shall be bronze B584-836 and secured in place by stainless steel studs and nuts. The packing box lantern ring shall be bronze B584-836. The packing box will have a Hydroflo FEP bearing. A rubber slinger shall be provided to operate on the top shaft, above the packing gland.

F. Column Assembly – Water lubricated

1. Intermediate column lengths and lineshaft bearing spacing shall not exceed 10 feet with pump speeds up to 2200rpm. Pump speeds between 2200rpm and 3600rpm shall have column and bearing spacing no greater than 5 feet.

2. Column pipe shall be a minimum grade B steel pipe. Pipe shall be with flanged type or by threaded type. Flanged pipe will have machined fit register fit. Threaded pipe will be with ends machined with 8 TPI butt thread and faced. Pipe shall be connected with threaded sleeve type ductile iron couplings and accept 3/4" ring spider bearing retainers. Column pipe shall be made of schedule 40 or thicker material.

3. Spiders shall be stainless steel material and furnished for shaft stabilization at each column pipe coupling or flange. A Hydroflo FEP (Flow Engineered Polymer) bearing retained shall be installed in each spider.

4. Lineshaft shall be 416 stainless steel and be sized according to the horsepower requirements of the designed pump. The butting faces shall be machined square to the axis of the shaft, with the maximum permissible axial misalignment on the thread axis with the shaft axis .002" in 6". These shafts shall be coupled with 416 stainless steel lineshaft couplings.

G. Suction Strainer

A suitable size basket strainer of stainless steel (bolt on type) shall be provided.

H. Electric Motor

The motor shall be a heavy duty squirrel cage induction type, NEMA MG-1, Part 31 (VFD DUTY RATED) _____ RPM, vertical hollow shaft motor or vertical solid shaft, with a non-reverse ratchet to prevent reverse rotation. A suitable thrust bearing shall be required to meet the designed pump's hydraulic thrust load plus the weight of the rotating parts under the operating conditions. The motor shall be high efficiency with a WVP-1 enclosure, a 1.15 service factor and match the required voltage and phase at 60HZ. Bronze B584-836 steady bushing shall be provided for speeds of 3450 rpm.

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