

## Hydroflo Pumps USA, Inc.

7118 Loblolly Pine Blvd.

Fairview, TN 37062



### Booster Pump Installation

## Specifications: Booster Can Vertical Turbine T Head

### A. Scope

This specification is for a canister in-line booster pump with above ground intake and discharge, manufactured for water lubrication of the lineshaft bearings by the water being pumped and furnished with as specified driver and accessories. The pumping unit shall be designed and manufactured in accordance with the latest hydraulic institution and ASSA specifications for linshaft 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  
Max. Shut Off Head: \_\_\_\_\_ Feet Head  
Liquid pumped: \_\_\_\_\_  
Pump Bowl setting: \_\_\_\_\_ (From top of can to bottom of pump intake)  
Min. Can OD: \_\_\_\_\_ Inches OD.  
Min. Can HT.: \_\_\_\_\_ Inches  
TEE Head Intake: \_\_\_\_\_ Inches  
TEE Head Discharge: \_\_\_\_\_ Inches  
Bowl Model: \_\_\_\_\_  
Number of Stages: \_\_\_\_\_  
Max. Bowl O.D. \_\_\_\_\_ Inches  
Min. H.P. of Motor: \_\_\_\_\_ Horse Power

### 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 304 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 416 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. TEE Head shall be of the high profile type and have a suitable motor base. It shall be constructed of high grade fabricated steel. The head shall have a 10.0" size suction x 8.0" size discharge flanges, ASTM 150 lb., suitable for the capacity of water being pumped. The base of the head will have a 14.0" ANSI flanged fit for the top of the can. The head shall allow the top shaft to couple above the stuffing box. The head shall be threaded to accept the desired flanged column pipe in this specification.

2. The stuffing box shall be cast 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 bearing shall be bronze B584-836. A rubber slinger shall be provided to operate on the top shaft, above the packing gland.

3. The Can shall be constructed of high grade fabricated steel. The Can shall be sized so that the velocity of the water past the pump shall not exceed 4.0 fps. The can shall have a min. wall thickness of 0.375". The top of the can shall have a 24.0" square plate that has a min. of 1.375" thickness. The can shall be a min. of 14.0" OD with a max. 97.0" HT.

#### **F. Column Assembly – Water lubricated**

1. Column pipe shall be a minimum grade B steel flanged pipe. Column pipe shall be flanged and made of 8.0" ID, schedule 40 (.322 wall) or thicker material.

2. Lineshaft shall be min. of 1.5" 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.

#### **H. Electric Motor**

The motor shall be a heavy duty squirrel cage induction type manufactured by GE Motors or equal.

The motor will be rated for a NEMA MG-1, Part 31 (VFD DUTY RATING). The motor will have the following features: (rated at 40.0 hp., 1.15 s.f., 1770 rpm, min. 93.0% eff., vertical hollow shaft motor, non-reverse ratchet, 5,700# thrust bearing, WP-1 type,)

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