

# TRITON

## 4" - 6" Horizontal Screw Centrifugal Pumps

### Materials of Construction:

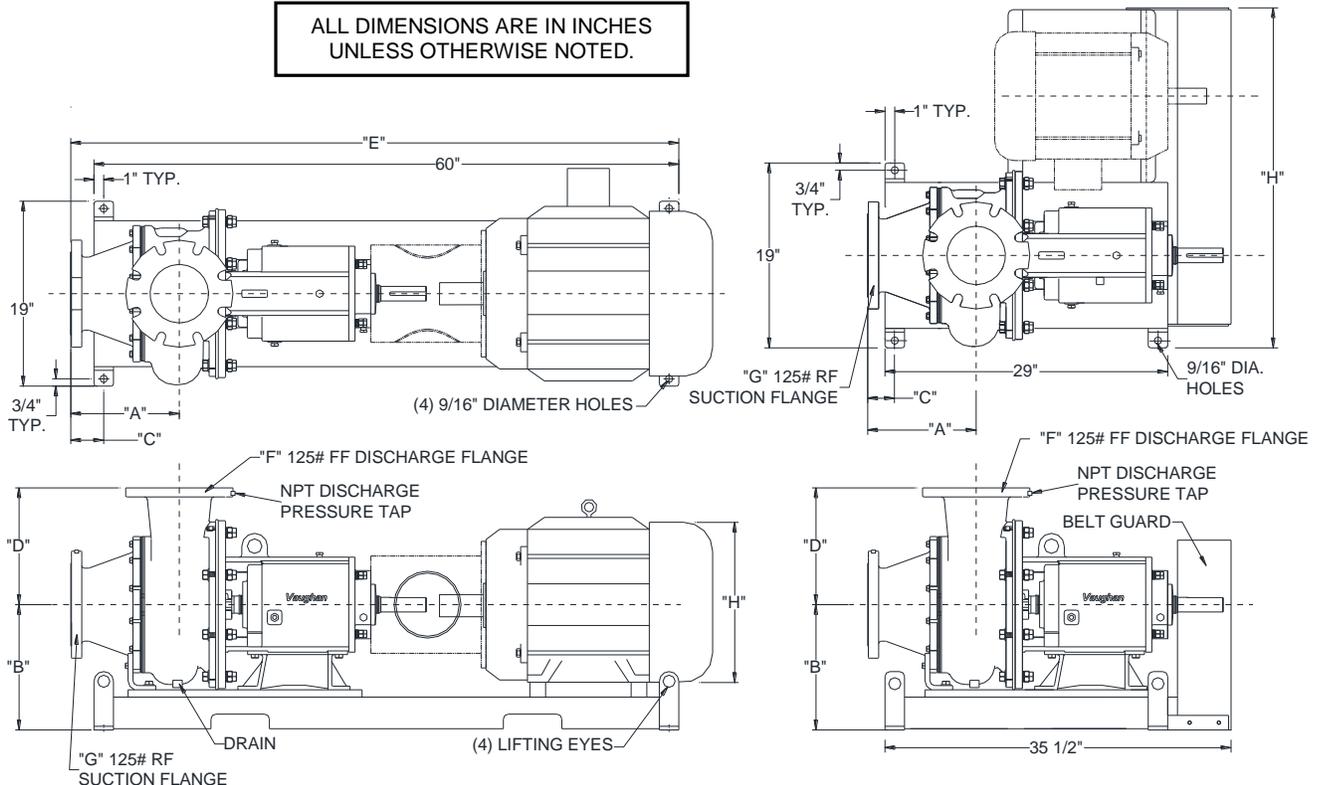
**Impeller/Casing/Suction Cone/ Back Pull-Out Plate:** ..... Ductile cast iron.  
**Upper Cutter** ..... Cast steel, heat treated to minimum Rockwell C 60.  
**Mechanical Seal:** ..... Stainless steel cartridge type with silicon carbide or tungsten carbide faces.  
**Optional Packing:** ..... 5-ring packing with split Teflon lantern ring.  
**Seal Sleeve:** ..... Stainless steel.  
**Thrust Bearings:** ..... Back-to-back angular contact ball type.  
**Radial Bearings:** ..... Cylindrical roller bearing type.  
**Shaft:** ..... Heat treated steel.  
**Lubrication:** ..... ISO Gr. 100 oil.  
**Flanges:** ..... 125 lb. ANSI rated.  
**Mounting Base:** ..... Steel.  
**Paint:** ..... Acrylic Urethane.

DRAWINGS AND DIMENSIONS SUBJECT TO CHANGE WITHOUT NOTICE. DO NOT USE FOR CONSTRUCTION PURPOSES. CONTACT VAUGHAN FOR CERTIFIED CONSTRUCTION PRINTS.

MODEL	A	B	C	D	E	F	G
HSC4X6A	11 3/4	12 7/8	2 3/4	11 1/2	61 3/4	4	6
HSC6X6A	11 1/8	12 7/8	2 3/4	12	61 3/4	6	6

MOTOR FRAME SIZE	H (max)
184T	30
213T / 215T	32 3/16
254T / 256T	35
284T / 286T	37
324T / 326T	40
364T / 365T	42 1/16

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.



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CURRENT U.S. PATENTS: Nos. 7,125,221, 5,460,482; 5,460,483; 5,456,580; 5,256,032; 5,076,757; 4,840,384; 4,842,479.

CURRENT FOREIGN PATENTS: Nos. 2 371 834; 2 188 138; 1,290,981; 276224; 0 774 045. OTHER PATENTS PENDING.

## SPECIFICATIONS HORIZONTAL SCREW CENTRIFUGAL PUMPS

The Vendor shall furnish ( ) horizontal, screw-centrifugal pump(s) and all appurtenances as specified. The pump(s) shall be of heavy-duty construction intended for services requiring reliable solids handling, gentle pumping action, high efficiency, and low NSPH<sub>R</sub>. Pump shall be manufactured by Vaughan Co., Inc.

### DETAILS OF CONSTRUCTION

- A. Casing and Back Pull-Out Plate: The pump casing shall be of volute design, spiraling outward to the 125 lb. flanged centerline discharge. Back pull-out design shall incorporate jacking bolts for accurate adjustment of impeller-to-suction cone clearance, and shall allow removal of pump components without requiring disconnection of casing from inlet or discharge piping. Casing & backplate shall be ductile cast iron with all water passages to be smooth, and free of blowholes and imperfections for good flow characteristics. A pressure tap shall be included on or near the discharge flange. Backplate shall include a replaceable Rockwell C 60 steel cutter adjustable for 0.005-0.015" clearance to cut against the rotating impeller pumpout vanes for removing fiber and debris.
- B. Inlet Suction Cone: The inlet suction cone shall be ductile cast iron with all water passages to be smooth, and free of blowholes and imperfections for good flow characteristics. The suction cone shall incorporate a spiral groove to channel into the casing trapped fiber that would otherwise bind between the impeller OD and the inlet cone ID. The clearance of the impeller to the cone shall be externally adjustable without requiring pump or piping disassembly or special tools.
- C. Impeller: Shall be open channel, screw-centrifugal type with pump out vanes to reduce seal area pressure. The impeller shall be ductile cast iron and shall be dynamically balanced. The single-passage impeller shall combine the action of a positive displacement screw and a single-vane centrifugal impeller.
- D. Upper Cutter: Shall be threaded into the back pullout adapter plate behind the impeller, designed to cut against the pump-out vanes and the impeller hub, reducing and removing stringy materials from the mechanical seal area. Upper cutter shall be cast steel heat treated to minimum Rockwell C 60. The upper cutter clearance from the impeller shall be externally adjustable without requiring pump disassembly.
- E. Pump Shafting: The pump shaft and impeller shall be supported by ball or roller bearings. Shafting shall be heat treated steel.
- F. Stuffing Box: The stuffing box shall be ductile cast iron. The stuffing box shall be designed to accommodate the mechanical seal, packing, or mechanical seal with no seal water flush as described below.
- G. Seal: [NOTE TO CONSULTING ENGINEER: Please choose one of the 3 options below]:
- Packing design with 5-ring Kevlar packing, split Teflon lantern ring and water fitting. The packing shaft sleeve shall be 316 SS with Nickel-Chrome-Boron coating. Contractor is to provide a 6-10 gal./hr. packing flush with filtered water, a rotameter, throttle valve, and solenoid operated isolation valve interlocked with an auxiliary contact of the motor starter.
  - Mechanical seal with throttle bushing and water fitting for seal water flush. The seal shaft sleeve shall be 316 SS. Mechanical seal materials shall be Alloy 20 with silicon carbide faces. Seal shall be positively driven by set-screws. Elastomers shall be of Buna N, and stationary seal member shall be of the cup-mounted type to ensure cushioning of face material from mechanical shock. Contractor is to provide a 6-10 gal./hr. seal flush with filtered water, a rotameter, throttle valve, and solenoid operated isolation valve interlocked with an auxiliary contact of the motor starter.
  - Mechanical Seal system *specifically designed to require no seal flush*: The mechanical seal shall be located immediately behind the impeller hub to minimize the depth of the stuffing box and maximize the flushing available from the impeller pumpout vanes. The seal shall be made of 316 stainless steel and shall be a screw-in, cartridge-type mechanical seal with Viton® O-rings and controlled silicon carbide or tungsten carbide faces. This cartridge seal shall be a pre-assembled, pre-tested so that no seal settings or adjustments are required from the installer. Any springs used to push the seal faces together must be shielded from the fluid to be pumped. The cartridge shall also include a 17-4PH, heat-treated seal sleeve and a ductile iron (or stainless steel) seal gland.
- H. Bearings: Shaft thrust in both directions shall be taken up by two back-to-back mounted single-row angular contact ball bearings. Roller bearings shall be provided for radial loads. Bearings shall be rated with a minimum B10 bearing life of 100,000 hours at the operating point.
- I. Bearing Housing: Shall be cast iron, and machined with piloted bearing fits for concentricity of all components. Bearing housing shall have oil bath lubrication using ISO Gr. 100 turbine oil and a side mounted pvc oil reservoir to provide a permanently lubricated assembly. Fill and drain ports shall be provided. Viton double lip seals riding on stainless steel shaft sleeves are to provide sealing at each end of the bearing housing. Bearing housing shall include a cast-in lifting eye to aid in removing the back-pullout assembly from the pump casing during maintenance.
- J. Shaft Coupling:
- [for direct-drive pumps]: Bearing housing and motor stool design is to provide accurate, self-aligning mounting for a C-flanged electric motor. Pump and motor coupling shall be T.B. Woods Sureflex elastomeric type.
  - [for belt-drive pumps]: Adjustable brackets shall be used to support an over-head [or optional side-mounted] mounted motor. Sheaves and belts shall be properly sized for horsepower ratings with a service factor of at least 1.3, and all guards are to be supplied with the belt drive system and shall meet the requirements of ANSI B15.1.
- K. Stainless Steel Nameplates: Shall be attached to the pump and drive motor giving the manufacturer's model and serial number, rated capacity, head, pump and motor speed and motor horsepower.
- L. Drive Motor: Shall be \_\_\_ HP, \_\_\_ RPM, \_\_\_ volts, \_\_\_ phase, \_\_\_ hertz, \_\_\_ service factor, C-flange mounted, \_\_\_\_\_ enclosure. The motor shall be sized for non-overloading conditions.
- M. Surface Preparation: Degreased and coated with 1-3 MDFT of acrylic urethane (except motor).  
OPTIONAL ADDER Surface Preparation: SSPC-SP5 commercial sandblast (except motor), primed with 5-8 MDFT epoxy primer and finish coated with 2-4 MDFT acrylic (except Motor).