



# 8K Pedestal Chopper Pump

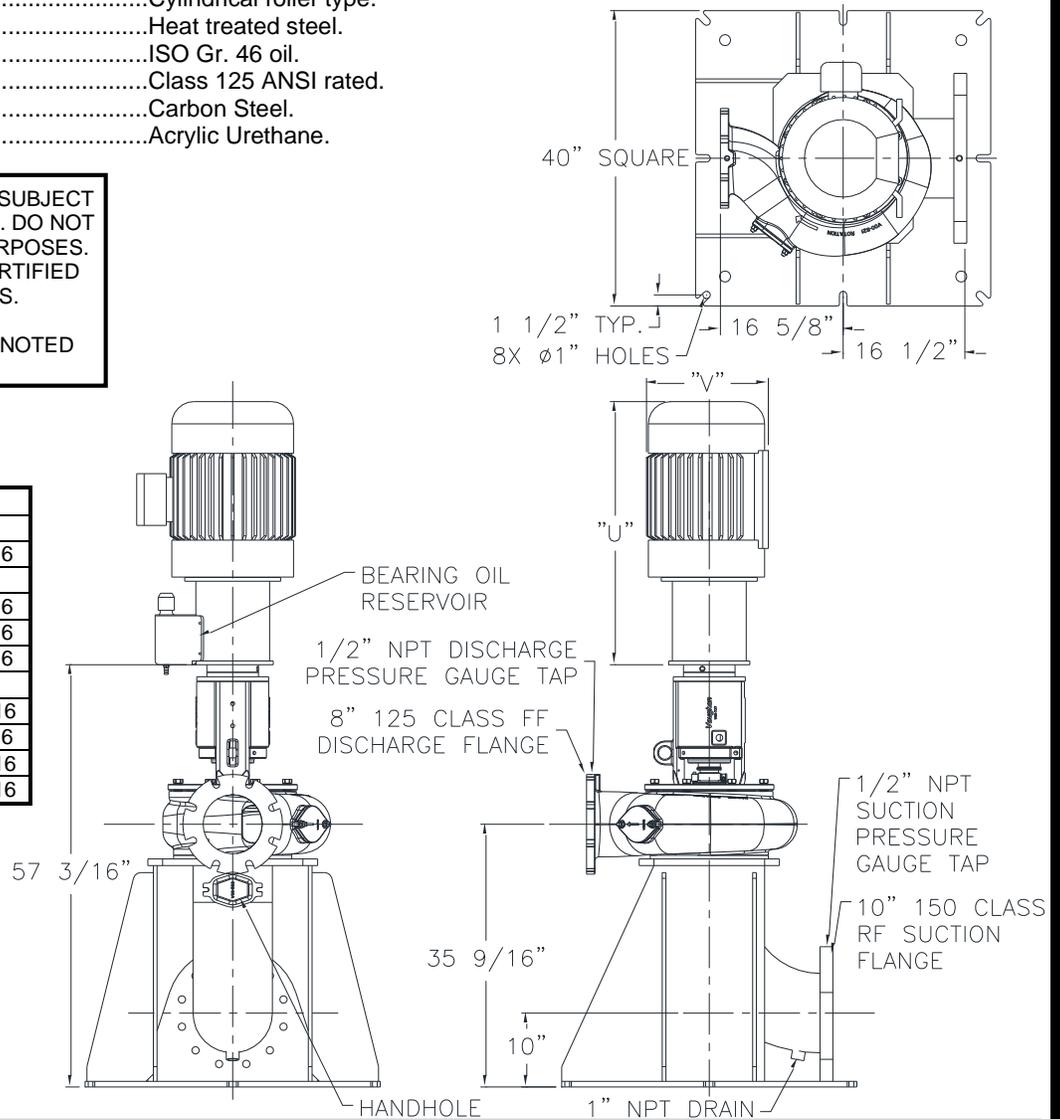
## Materials of Construction:

- Impeller/ Cutter Nose / Upper Cutter:.....Cast alloy steel, heat treated to minimum Rockwell C 60.
- Cutter Bar:.....Alloy steel, heat treated to minimum Rockwell C 60.
- Casing / Back Pull-Out Plate: .....Ductile cast iron.
- Flushless Mechanical Seal:.....Cartridge type with silicon carbide (or tungsten carbide) faces.
- Flushed Tandem Mechanical Seal: .....Tandem Cartridge type with silicon carbide (or tungsten carbide) faces.
- Seal Sleeve:.....Stainless steel.
- Thrust Bearings:.....Face to face tapered roller type.
- Radial Bearings:.....Cylindrical roller type.
- Shaft:.....Heat treated steel.
- Lubrication: .....ISO Gr. 46 oil.
- Flanges: .....Class 125 ANSI rated.
- Mounting Base: .....Carbon Steel.
- Paint:.....Acrylic Urethane.

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

UNITS ARE INCHES UNLESS NOTED OTHERWISE

Frame Size	V	U
184TC	8 11/16	23
213TC	10 1/4	24 9/16
215TC	10 1/4	26
254TC	13	29 7/16
256TC	13	31 3/16
284TC	14 9/16	32 3/16
286TC	14 9/16	34
324TC	16 5/8	35 13/16
326TC	16 5/8	37 5/16
364TC	18 3/4	39 11/16
365TC	18 3/4	39 11/16



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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: 8K PEDESTAL CHOPPER PUMP

The horizontal chopper pump shall be specifically designed to pump waste solids at heavy consistencies without plugging or dewatering of the solids. Materials shall be chopped/macerated and conditioned by the pump as an integral part of the pumping action. The pump must have demonstrated the ability to chop through and pump high concentrations of solids such as plastics, heavy rags, grease and hair balls, wood, paper products and stringy materials without plugging, both in tests and field applications. 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 class 125 flanged centerline discharge. Back pull-out design shall incorporate jacking bolts for accurate adjustment of impeller-to-cutter bar 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 0.005-0.050" clearance to cut against the rotating impeller pumpout vanes for removing fiber and debris.
- B. Impeller: Shall be semi-open type with pump out vanes to reduce seal area pressure. Chopping/maceration of materials shall be accomplished by the action of the cupped and sharpened leading edges of the impeller blades moving across the cutter bar at the intake openings, with a maximum set clearance between the impeller and cutter bar of 0.015-0.025" cold. Impeller shall be cast alloy steel heat treated to minimum Rockwell C 60 and dynamically balanced. The impeller shall be threaded to the shaft and shall have no axial adjustments independent of bearings and no set screws.
- C. Cutter Bar Plate: Shall be recessed into the pump bowl and shall contain at least 2 shear bars extending diametrically across the intake opening to within 0.010" – 0.030" of the rotating cutter nose, for the purpose of preventing intake opening blockage and wrapping of debris at the shaft area. Chopper pumps utilizing individually mounted shear bars shall not be acceptable. Cutter bar shall be alloy steel heat-treated to minimum Rockwell C 60.
- D. Cutter Nose: Designed to cut stringy materials and prevent binding using two opposing cutter edges that cut against the inside of the cutter bar fingers. The cutter nose shall be cast alloy steel heat treated to minimum Rockwell C 60.
- E. Upper Cutter: Shall be threaded into the back pull-out 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 teeth are positioned as closely as possible to the center of shaft rotation to minimize cutting torque and nuisance motor tripping. The ratio of upper cutter cutting diameter to shaft diameter in the upper cutter area of the pump shall be 3.0 or less.
- F. Pump Shafting: Shall be heat treated alloy steel.
- G. Bearings: Shall be oil-bath lubricated with ISO Gr. 46 hydraulic oil. Shaft thrust in both directions shall be taken up by two face-to-face mounted tapered roller bearings. One single-row cylindrical roller radial bearing shall also be provided. L10 bearing life shall be minimum 100,000 hours.
- H. Bearing Housing: Shall be ductile cast iron and machined with piloted bearing fits for concentricity of all components. Bearing housing shall include a side-mounted site glass. Viton® double lip seals riding on chromed and ground stainless steel shaft sleeves are to provide sealing at each end of the bearing housing. Thrust bearings are mounted in an adjustable cartridge to allow external upper cutter adjustment.
- I. Stuffing Box: Shall be ductile cast iron. The stuffing box shall be designed to accommodate the mechanical seal, or packing. Mechanical seal with no seal water flush and flushed tandem mechanical seal as described below does not require stuffing box.
- J. Seal: [NOTE TO CONSULTING ENGINEER: Please choose one of the four options below]:
  - Mechanical Seal system specifically designed to require no seal flush: The mechanical seal shall be located immediately behind the impeller hub to eliminate the stuffing box and maximize the flushing available from the impeller pumpout vanes. The seal shall be a cartridge-type mechanical seal with Viton O-rings and silicon carbide faces. This cartridge seal shall be a pre-assembled, and 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 stainless steel seal housing.
  - Flushed Tandem Mechanical Seal: The seal shall be cartridge-type tandem mechanical seal with Viton O-rings and 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 stainless steel seal housing. Contractor is to provide a 3 gal./hr. minimum seal flush with filtered grey water or better, a rotameter, and a throttle valve.
  - Mechanical seal with throttle bushing and water fitting for seal water flush. The seal shaft sleeve shall be AISI 316 SS. Mechanical seal materials shall be either 316 stainless steel or Alloy 20 with silicon carbide or tungsten 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.
  - 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.
- K. Inlet Manifold: The pump assembly shall be mounted vertically on a 90 degree forged steel elbow with a class 150 standard inlet flange, cleanout, 1/4" NPT suction pressure tap, drain connection and pedestal base.
- L. Shaft Coupling: 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.
- M. Stainless Steel Nameplates: Shall be attached to the pump and drive motor giving the manufacturer's model and serial number, rated capacity, head, speed and all pertinent data.
- N. Motor Requirements: Drive motor shall be \_\_\_\_ HP, \_\_\_\_\_ RPM, \_\_\_\_\_ volts, \_\_\_\_ phase, \_\_\_\_\_ hertz, \_\_\_\_\_ service factor, C-flange mounted, \_\_\_\_\_ enclosure. The motor shall be sized for non-overloading conditions.
- O. Surface Preparation: Degreased and coated with 1-3 MDFT of acrylic urethane (except motor).
- P. 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).