

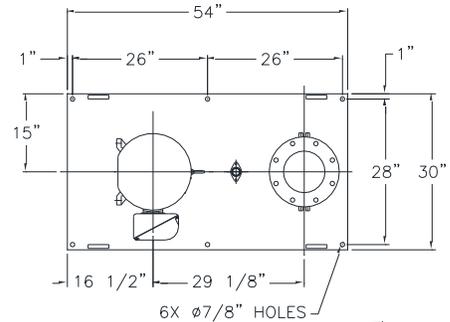
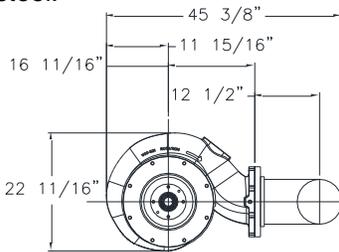


## 8K Vertical Wet Well Chopper Pump

### Materials of Construction:

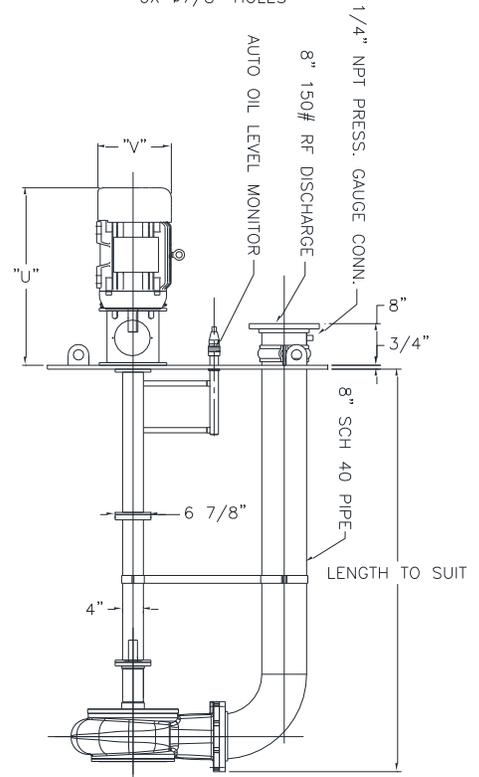
**Casing:** .....Ductile Cast Iron.  
**Impeller/Cutter Bar/**  
**Upper Cutter/Cutter Nose:** .....Cast Steel, heat treated to minimum Rockwell C 60.  
**Mechanical Seal:** .....Cartridge type with silicon carbide (or tungsten carbide) faces.  
**Thrust Bearings:** .....Face to face tapered roller type.  
**Radial Bearings:** .....Ball type.  
**Shaft:** .....Heat treated steel.  
**Lubrication:** .....ISO Gr. 46 oil.  
**Discharge Flange:** .....Class 150 ANSI rated.  
**Mounting Plate:** .....Carbon steel.  
**Paint:** .....Epoxy.

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



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

UNITS: INCHES



**Vaughan Co., Inc.**  
 364 Monte Elma Road  
 Montesano, WA 98563  
 Phone: 360-249-4042, FAX: 360-249-6155  
 E-mail: info@chopperpumps.com

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 VERTICAL WET WELL CHOPPER PUMP

The Vendor shall furnish one vertical wet pit chopper pump and all appurtenances as specified. The pump shall be specifically designed to pump waste solids at heavy consistencies. Materials shall be 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.

### 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. Backplate shall include a replaceable Rockwell C 60 alloy 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 0.010-0.020" of the rotating cutter nut tooth, 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 casing 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. Upper shaft extension shall be turned, ground and polished. The shaft column shall be minimum 4" inch O.D. precision steel tubing welded to steel flanges and machined with piloted bearing fits for concentricity of all components. All support column tubes shall be leak tested. Distance between shaft bearings shall not exceed critical speed dimensions.
- G. Pump Shaft Bearings: Shall be oil bath lubricated by I.S.O. Grade 46 turbine oil, with the exception of the top bearing, which shall be greased packed. The bearings shall have a minimum L-10 life rated 100,000 hours. Shaft thrust in both directions shall be taken up by two face-to-face mounted tapered roller bearings, which bear against a machined shoulder on one side and the seal sleeve on the other side. Overhang from the centerline of the lower thrust bearing to the seal faces shall be a maximum of 1.7", with a mechanical seal to isolate the bearings from the pumped media at up to 250 F.
- H. Pump Mechanical Seal: The mechanical seal shall be located immediately behind the impeller hub to 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 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 ductile cast iron seal gland. Seal faces shall be tested for flatness within 2 Helium light bands under a Helium light source and optical flat.
- I. Automatic Oil Level Monitor: Shall be located above the mounting plate and be fitted with an internal oil level switch to detect oil level and shut off the motor in event of low oil level.
- J. Pump Discharge Pipe: The pump assembly shall be mounted vertically on a common steel base plate with a class 150 rated discharge flange. An NPT pressure tap shall be located above the deck plate.
- K. Shaft Coupling: Shall be T.B. Woods Sureflex elastomeric type with a minimum 1.5 service factor based on the drive rated horsepower, and shall be protected with an guard meeting OSHA requirements.
- L. Motor Stool: Shall be a fabricated carbon steel weldment machined with piloted fits to positively align the C-flanged motor and pump shaft, with no adjustments.
- M. Pump Base Plate: Shall be fabricated carbon steel, 3/4" minimum thickness, and shall include lifting lugs.
- N. Stainless Steel Nameplates: Shall be attached to the pump and drive motor giving the manufacturer's pertinent data.
- O. Motor Requirements: Drive motor shall be \_\_ HP, \_\_\_\_ RPM, \_\_ volts, \_\_ phase, \_\_ hertz, \_\_\_\_ service factor, \_\_\_\_\_ enclosure. The motor shall be sized for non-overloading conditions.
- P. Surface Preparation: Degreased and coated with 5-8 MDFT epoxy (except motor)
- Q. OPTIONAL ADDER Surface Preparation: SSPC-SP5 commercial sandblast (except motor), primed with 5-8 MDFT epoxy primer and finish coated with 5-8 MDFT epoxy (except motor).