Unmatched Reliability

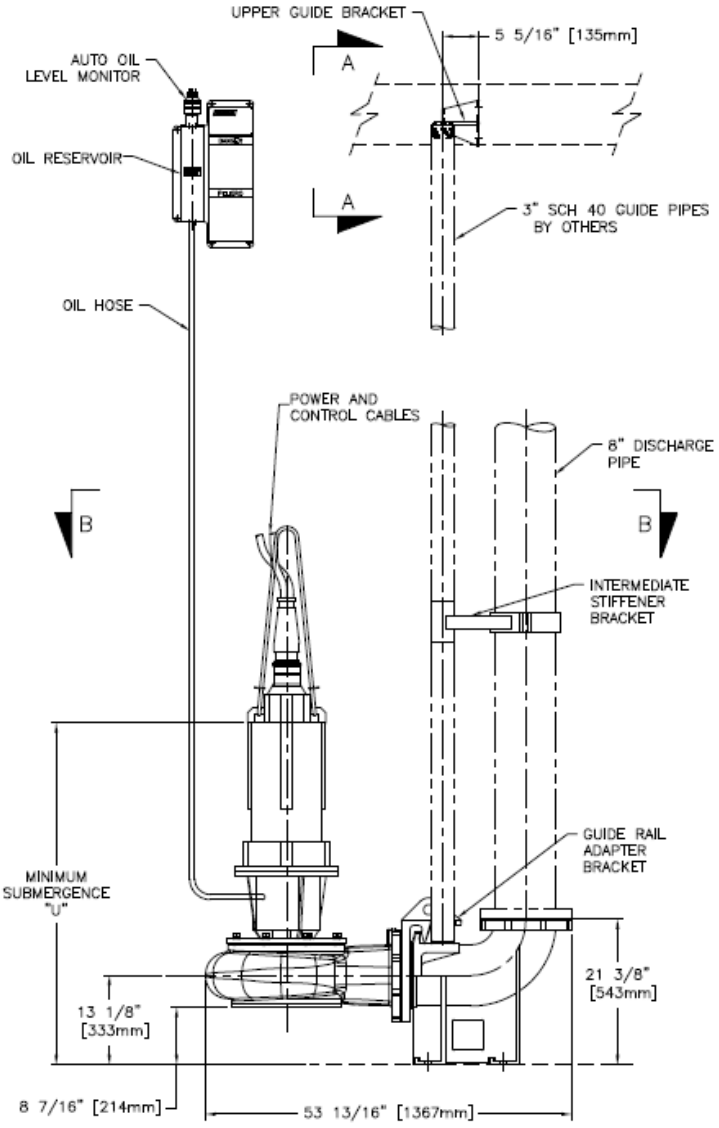
Vaughan®

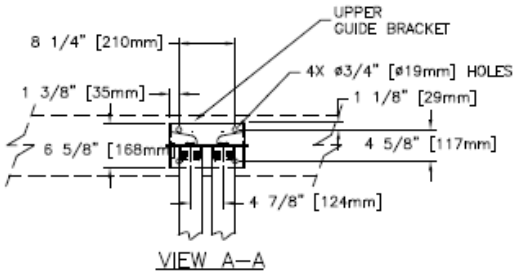
S8K Submersible Chopper Pump

Materials of Construction:

Casing/Bearing Housing/Backplate ..... Cast ductile iron
Impeller/Upper Cutter/External Cutter ..... Cast alloy steel, heat treated to minimum Rockwell C60.
Cutter Bar ..... Alloy steel heat treated to minimum Rockwell C60.
Mechanical Seal ..... Cartridge type with silicon carbide or tungsten carbide seal faces and stainless steel sleeve.
Thrust Bearings ..... Face to face tapered roller bearings.
Flange ..... 8" ANSI Class 125.
Paint ..... Epoxy.

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

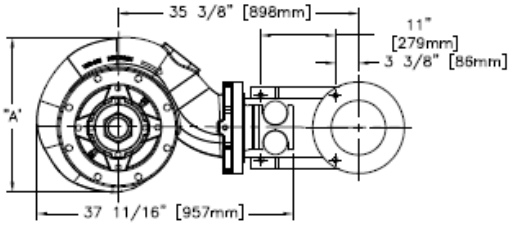




VIEW A–A

Frame Size	U	A
210TY	50.25" 1276 mm	22.75" 578 mm
250TY	53.50" 1359 mm	22.75" 578 mm
320TY	55.57" 1411 mm	22.75" 578 mm
360TY	60.75" 1543 mm	23.38" 594 mm

15 MINUTE IN AIR FRAME SIZES ONLY



SECTION B–B

S8K DWG. #120635

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Company E-mail: info@chopperpumps.com

MADE IN THE USA

For all current patents, see http://www.chopperpumps.com/patents.htm

SPECIFICATION: S8K SUBMERSIBLE CHOPPER PUMP

The submersible chopper pump shall be specifically designed to pump waste solids at heavy consistencies without plugging or dewatering of the solids. Materials shall be chopped 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 Backplate: The pump casing shall be of volute design, spiraling outward to the Class 125 flanged centerline discharge. Casing and backplate shall be cast ductile iron with all water passages to be smooth, and free of blowholes and imperfections for good flow characteristics. The backplate shall include a replaceable Rockwell C60 alloy steel cutter adjustable for 0.005–0.050" (0.015–1.25 mm) clearance to cut against the rotating impeller pump-out vanes for removing fiber and debris

B. Impeller: Shall be semi-open type with pump out vanes to reduce seal area pressure. Chopping 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 set clearance between the impeller and cutter bar of 0.015–0.025" (0.40–0.65 mm) cold. Impeller shall be cast alloy steel heat treated to minimum Rockwell C60 and dynamically balanced. The impeller shall be keyed to the shaft and shall have no axial adjustments and no set screws.

C. Cutter Bar: Shall be recessed into the pump bowl and shall contain at least 2 shear bars extending diametrically across the intake opening to within 0.025–0.040" (0.65–1.0 mm) of the rotating external cutter 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 C60.

D. External Cutter: The impeller shall be secured to the shaft using a cutter bolt, designed to cut stringy materials and prevent binding using a rotating cutter tooth. The cutter bolt shall be cast alloy steel heat treated to minimum Rockwell C60.

E. Upper Cutter: Shall be threaded into the backplate 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 alloy steel heat treated to minimum Rockwell C60. 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: Shafting shall be heat treated alloy steel, with a minimum diameter of 1.5" (38 mm) in order to minimize deflection during solids chopping.

G. Bearing Housing: Shall be cast ductile iron, and machined with piloted bearing fits for concentricity of all components. Piloted motor mount shall securely align motor on top of bearing housing.

H. Thrust Bearings: Shaft thrust in both directions shall be taken up by a matched set of face to face tapered roller bearings, with a minimum L-10 rated life of 100,000 hours. Overhang from the centerline of the lower thrust bearing to the seal faces shall be a maximum of 1.7" (43 mm). A pump mechanical seal shall also be provided to isolate the bearings from the pumped media. The pump seal, as well as the thrust bearings shall be oil bath lubricated in the bearing housing by ISO 46 hydraulic oil. Shaft overhang exceeding 1.7" (43 mm) from the center of the lowest thrust bearing to the seal faces shall be considered unacceptable.

I. 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 or tungsten 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 cast ductile iron seal gland.

J. Automatic Oil Level Monitor: An oil level switch shall be mounted at the top of the wet well, with a hose feeding down to the side of the bearing housing to monitor oil level and shut off the motor in event of low oil level. A relay shall be included for mounting in the motor control panel.

K. Shaft Coupling: The submersible motor shall be close coupled directly to the pump shaft using a solid sleeve coupling, which is keyed to both the pump and motor shafts. Slip clutches and shear pins between the shaft and the motor are considered unacceptable.

L. Stainless Steel Nameplate: The stainless steel nameplate giving the manufacturer's model and serial number, rated capacity, head, speed and all pertinent data shall be mounted to a larger stainless steel plaque. Warning tags and oil reservoir will be mounted to this same plaque. Plaque is to be fastened to wall or structure adjacent to pump.

M. Submersible Motor: The submersible motor shall be U/L or FM listed and suitable for Class I, Group C & D, Division I hazardous locations, rated at __ HP, ___ RPM, __ Volts, 50 or 60 Hertz, 3 phase, 1.15 service factor (1.0 for Continuous In-Air) with Class F insulation. Motor shall have tandem mechanical seals in oil bath and dual moisture sensing probes. Moisture probes must be connected to indicate water intrusion. The lower motor seal shall be exposed only to the lubricant in the pump bearing housing, with no exposure to the pumped media. Motor shall include two normally closed automatic resetting thermostats connected in series and embedded in adjoining phases. The thermostats must be connected per local, state, and/or the National Electric Code to maintain hazardous location rating and to disable motor starter if overheating occurs. Motor frame shall be cast iron, and all external hardware and shaft shall be stainless steel. Motor shall be sized for non-overloading conditions.

N. Guide Rail System: Provide a guide rail system consisting of two galvanized or stainless steel guide rails (by others), cast ductile iron pump guide bracket, cast ductile discharge elbow with mounting feet and Class 125 flanges, 316 stainless steel upper guide rail mounting bracket, and 316 stainless steel intermediate guide rail stiffener bracket every 10 feet (3m).

O. *Optional* Spark Proof Guide Rail System: Provide a non-sparking guide rail system consisting of two galvanized or stainless steel guide rails (by others), cast bronze pump guide bracket, cast ductile iron discharge elbow with mounting feet and Class 125 flanges, 316 stainless steel upper guide rail mounting bracket, and 316 stainless steel intermediate guide rail stiffener bracket every 10 feet (3m). System design shall prevent spark ignition of explosive gases during pump installation and removal.

P. Surface Preparation: Solvent wash and a single coat of Tnemec 431 epoxy (except motor).

Q. *Optional* Premium Surface Preparation: Solvent wash, sandblast, and coat with minimum 30 MDFT Tnemec Perma-Shield PL Series 431 epoxy (except motor).