Unmatched Reliability

Vaughan®

3"- 6" SE-SERIES SUBMERSIBLE CHOPPER PUMPS

Materials of Construction:

Impeller/Upper Cutter/Cutter Nut/Cutter Bar: ..... Cast alloy steel, heat treated to minimum Rockwell C 60.
Casing/Backplate: ..... Ductile cast iron.
Mechanical Seal: ..... Silicon carbide or tungsten carbide.
Flange: ..... ANSI Class 125
Paint: ..... Ceramic Epoxy.

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

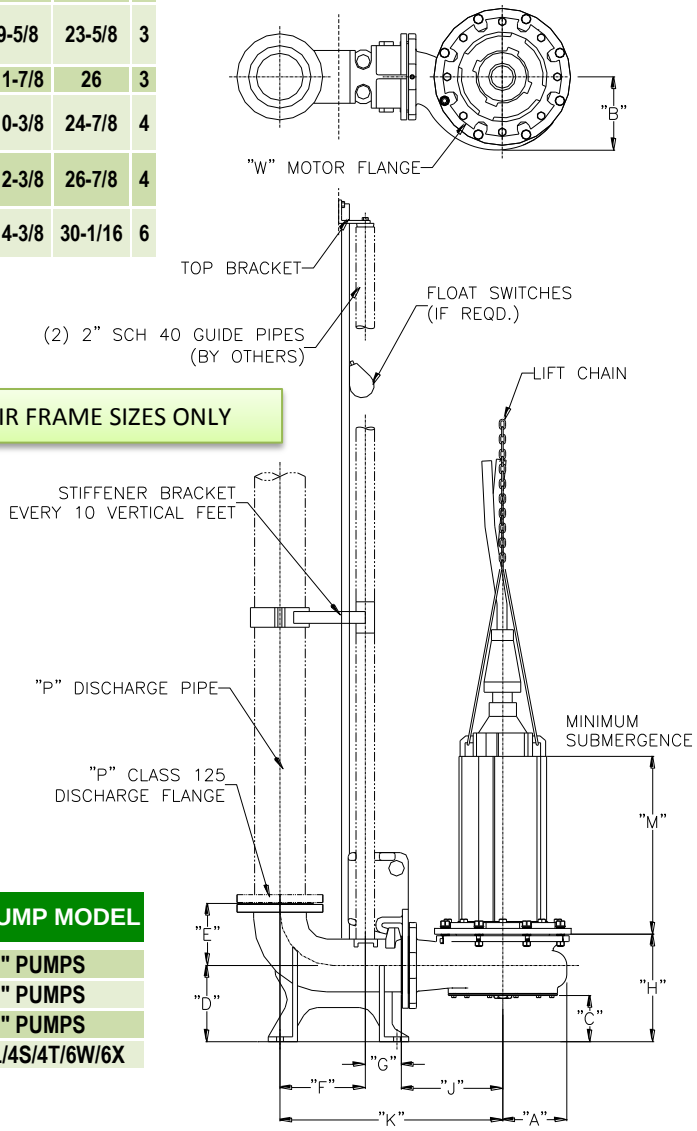
	A	B	C	D	E	F	G	H	J	K	P
SE3F SE3G	6-3/8	6-3/8	4-7/8	7-7/8	7-7/8	9-7/16	4-9/16	11-9/16	8-5/8	22-5/8	3
SE3L SE3M	6-3/8	6-3/8	5-1/8	7-7/8	7-7/8	9-7/16	4-9/16	10-7/8	9-5/8	23-5/8	3
SE3P	7-11/16	7-11/16	5-9/16	7-7/8	7-7/8	9-7/16	4-9/16	11-1/8	11-7/8	26	3
SE4K SE4L	7-11/16	7-11/16	4-3/8	7-7/8	7-7/8	9-13/16	4-9/16	11-5/16	10-3/8	24-7/8	4
SE4S SE4T	9-1/16	9-9/16	4-1/2	7-7/8	7-7/8	9-13/16	4-9/16	11-7/8	12-3/8	26-7/8	4
SE6W SE6X	10-1/8	11-1/16	6	9-7/8	7-7/8	11	4-9/16	14-1/2	14-3/8	30-1/16	6

HP	SPEED	FRAME	M	W
5	1170	180TY	17-1/4	12-3/8
5	1750			
7.5	1750			
7.5	1170	210TY	21-7/8	15-1/4
10	1170			
10	1750			
15	1750			
15	3510			
20	1750			
20	3510			
15	1170	250TY	25-1/8	17
20	1170			
25	1170			
25	1750			
25	3510			
30	1750			
30	3510			
40	1750			
40	3510			
30	1170	320TY	25-1/2	18-3/4
50	1750			
60	1750			
75	1750			

DIMENSIONS IN INCHES

15 MINUTE IN AIR FRAME SIZES ONLY

FRAME	FITS PUMP MODEL
180TY	ALL 3"-6" PUMPS
210TY	ALL 3"-6" PUMPS
250TY	ALL 3"-6" PUMPS
320TY	3P/4K/4L/4S/4T/6W/6X



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MADE IN THE USA

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

SPECIFICATIONS, 3”-6” SE-SERIES SUBMERSIBLE CHOPPER PUMPS

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. Back pull-out design shall incorporate adjusting sleeves for accurate adjustment of impeller-to-cutter bar clearance. Casing & backplate shall be cast ductile 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 C60 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 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” 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 0.010-0.030” 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 cast alloy steel or alloy steel heat-treated to minimum Rockwell C60.

D. **Cutter Nut:** The impeller shall be secured to the shaft using a cutter nut, designed to cut stringy materials and prevent binding using a raised, rotating cutter tooth. The cutter nut 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. **Shafting:** Pump shafting shall be heat-treated alloy steel. The pump shaft shall directly couple to the motor shaft, with a bolt and keyway.

G. **Submersible Electric 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, 60 Hertz and 3 phase, 1.15 service factor (1.0 for Continuous In-Air) with Class F insulation. Motor shall be equipped with tandem independently mounted mechanical seals in oil bath and with dual moisture sensing probes. Moisture probes must be connected to indicate water intrusion. The inner and outer seals shall be separated by an oil-filled chamber. The oil chamber shall act as a barrier to trap moisture and provide sufficient time for a planned shutdown. The oil shall also provide lubrication to the internal seal. The inner seal shall be a standard UL listed John Crane Type 21 or equal, with carbon rotating faces and ceramic stationary faces. The outer seal construction shall be designed for easy replacement. Outer mechanical seal shall be 316 stainless steel metal bellows type with silicon carbide or tungsten carbide faces. Seal shall be positively driven by set screws. Elastomers shall be of Viton®. Motor shall include two normally closed automatic resetting thermostats connected in series and imbedded 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.

H. **Stainless Steel Nameplate**: Shall be attached to the pump giving the manufacturer’s model and serial number, rated capacity, head, speed and all pertinent data.

I. **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 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.

J. ***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 intermediate guide rail stiffener bracket every 10 feet. System design shall prevent spark ignition of explosive gases during pump installation and removal.

K. **Surface Preparation:** Solvent wash and a single coat of Tnemec 431 epoxy applied at 5 MDFT minimum (except motor).

L. ***Optional*** **Surface Preparation:** SSPC-SP6 commercial sandblast (except motor), a prime coat of Tnemec 431 epoxy and a finish coat of Tnemec 431 epoxy for total finish of 30 MDFT minimum (except motor).