

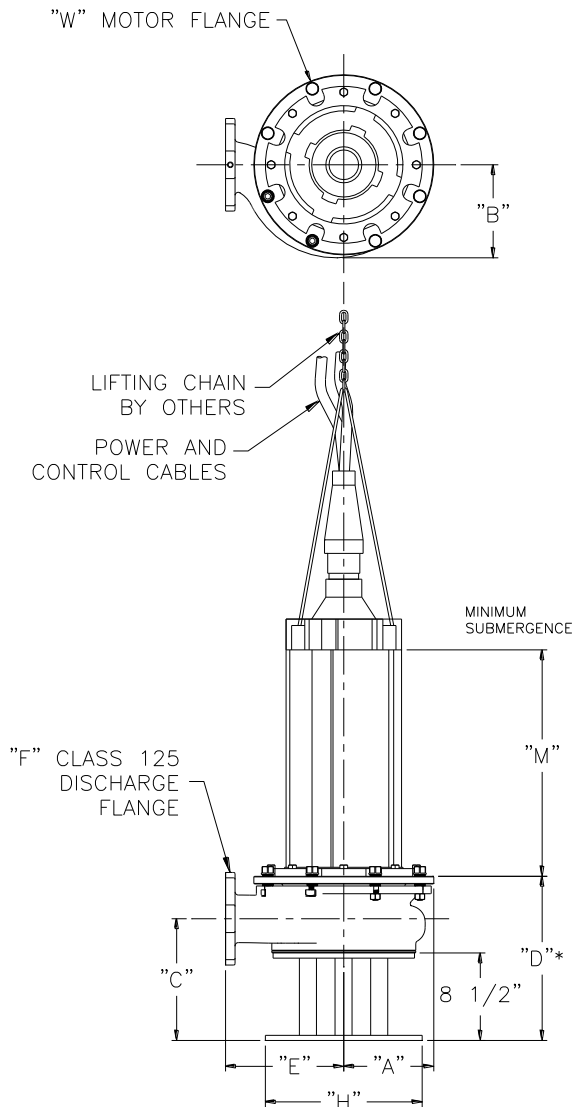


## 3"– 6" SE-SERIES PORTABLE SUBMERSIBLE CHOPPER PUMP

### Materials of Construction:

**Impeller/Cutter Bar/Upper Cutter/Cutter Nut:** ..... Cast alloy steel, heat treated to minimum Rockwell C 60.  
**Casing/Back Pull-Out Plate:** ..... 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.



DIMENSIONS IN INCHES

MODEL	A	B	C	D	E	F
SE3F/SE3G	6-3/8	5-7/8	11-1/2	15-1/4	7-5/8	3
SE3L/SE3M	6-3/8	6-1/2	11-1/4	14-1/4	8-5/8	3
SE3P	7-3/4	7-3/4	10-7/8	14-1/8	11-1/2	3
SE3V/SE3W	7-3/4	6	10-5/8	14-1/8	8-5/8	3
SE4K/SE4L	7-3/4	7-1/2	12	15-1/2	9-1/2	4
SE4S/SE4T	9-1/8	9	11-7/8	15-7/8	11-1/2	4
SE6W/SE6X	10-1/8	9-5/8	12-3/8	17	13-1/2	6

HP	SPEED	FRAME	M	W	H
5	1170				
5	1750	180TY	17-1/4	12-3/8	15-1/4
7.5	1750				
7.5	1170				
10	1170				
10	1750				
15	1750	210TY	21-7/8	15-1/4	15-1/4
15	3510				
20	1750				
20	3510				
15	1170				
20	1170				
25	1170				
25	1750				
25	3510	250TY	25	17	19-1/2
30	1750				
30	3510				
40	1750				
40	3510				
30	1170				
40	1170				
50	1170				
50	1750				
50	3510	320TY	25-1/2	18-3/4	19-1/2
60	1170				
60	1750				
60	3510				
75	1750				



### VAUGHAN CO., INC.

364 Monte Elma Road, Montesano, WA 98563  
 Phone: 1-360-249-4042 / Fax: 1-360-249-6155  
 Toll Free Phone (US only): 1-888-249-CHOP (2467)  
 Web Site: [www.chopperpumps.com](http://www.chopperpumps.com)  
 Company E-mail: [info@chopperpumps.com](mailto:info@chopperpumps.com)

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

## SE-SERIES 3"-6" PORTABLE SUBMERSIBLE CHOPPER PUMPS

The portable 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/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. 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 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 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 keyed to the shaft and shall have no axial adjustments 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 nut tooth, for the purpose of preventing intake opening blockage and wrapping of debris at the shaft area. Cutter bar shall be cast alloy steel or alloy steel heat-treated to minimum Rockwell C 60. Chopper pumps utilizing individually mounted shear bars shall not be acceptable.
- 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 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 alloy 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. 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. Portable Stand:** Shall be fabricated steel, with a base plate of suitable diameter to support the pump without tipping.
- J. Surface Preparation:** Solvent wash and a single coat of Tnemec 431 epoxy applied at 5 MDFT minimum (except motor).
- K. 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).