



4" - 6" Self-Priming Chopper Pumps

Materials of Construction:

Casing/Housing/

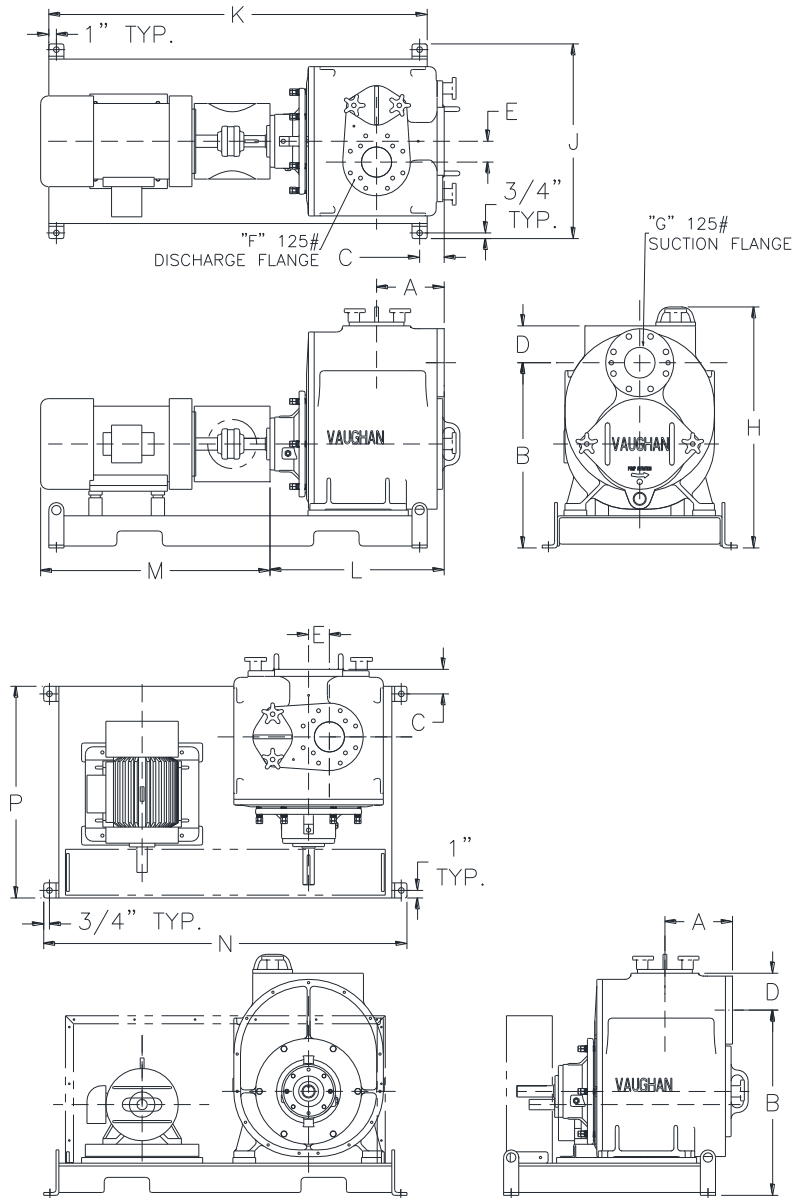
- Bearing Frame:** Ductile cast iron.
- Impeller/Upper Cutter:** Cast steel, heat treated to min. 60 Rockwell C Hardness.
- Cutter Bar:** Plate steel, heat treated to min. 60 Rockwell C Hardness.
- Shaft:** Heat treated steel.
- Thrust Bearings:** Double-row angular contact ball type.
- Radial Bearings:** Ball type.
- Lubrication:** ISO Gr. 100 oil.
- Mechanical Seal:** Cartridge type, with silicon carbide (or tungsten carbide) faces.
- Flanges:** ANSI Class 125 rated.
- Paint:** Ceramic Epoxy.

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

MODEL	A	B	C	D	E	F	G
SP4C	9	24 1/2	3 1/4	4 7/8	2 3/4	4	4
SP6K	10 9/16	27 7/8	3 1/4	5 7/8	2 3/4	6	6

MODEL	H	J	K	L	N	P
SP4C	32	25 3/4	50	23	48	28
SP6K	36	28	60	24 1/4	56 1/2	30 1/2

MOTOR FRAME SIZE	M
184TC	23
213TC / 215TC	26
254TC / 256TC	30
284TC / 286TC	33
324TC / 326TC	36
364TC / 365TC	40



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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 – 4”-6” SELF-PRIMING CHOPPER PUMPS

The self-priming chopper pump shall be a centrifugal pump 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. Housing: Shall include ANSI Class 125 flanged inlet and discharge flanges, an oversized cleanout and mounting feet. The housing shall be ductile cast iron with all water passages to be smooth, and free of blowholes and imperfections for good flow characteristics.
- B. Casing and Back Pull-Out Plate: The pump casing shall be of volute design, spiraling outward to the ANSI 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 0.005-0.015" clearance to cut against the rotating impeller pumpout vanes for removing fiber and debris. Casing shall be a separate parts component of the housing.
- C. 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 and no set screws.
- 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 steel heat treated to minimum Rockwell C 60.
- E. Cutter Bar: Shall be recessed into the pump bowl, and shall extend diametrically across entire pump suction opening. Cutter bar shall be alloy steel and heat treated to minimum 60 Rockwell C Hardness.
- F. 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 steel and heat treated to minimum 60 Rockwell C Hardness.
- G. Pump Shafting: Shall be heat treated alloy steel.
- H. Bearings: Shall be oil bath lubricated with ISO Gr. 100 hydraulic oil and site glass indication. Shaft thrust in both directions shall be taken up by a double-row angular contact ball bearing. A single-row radial bearing shall also be provided. B10 bearing life shall be minimum 100,000 hours.
- I. Back Pull-Out Bearing Housing: Shall be ductile cast iron, and machined with piloted bearing fits for concentricity of all components. 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 housing from inlet or discharge piping. Viton® double lip seals riding on a stainless steel shaft sleeve shall provide sealing at both ends of the bearing housing.
- J. Mechanical Seal: Mechanical seal shall be cartridge type with silicon carbide (or tungsten carbide) faces. Seal shall be positively driven by set screws. Elastomers shall be Viton. 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 CF8M stainless steel seal gland.
- K. 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.
- L. Optional Belt Drive: Adjustable brackets shall be used to support a side-mounted motor. Sheaves and belts shall be properly sized for horsepower ratings, and all guards are to be supplied with the belt drive system.
- 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:** Solvent wash and a single coat of Tnemec 431 epoxy applied at 5 MDFT minimum (except motor).
- P. 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).