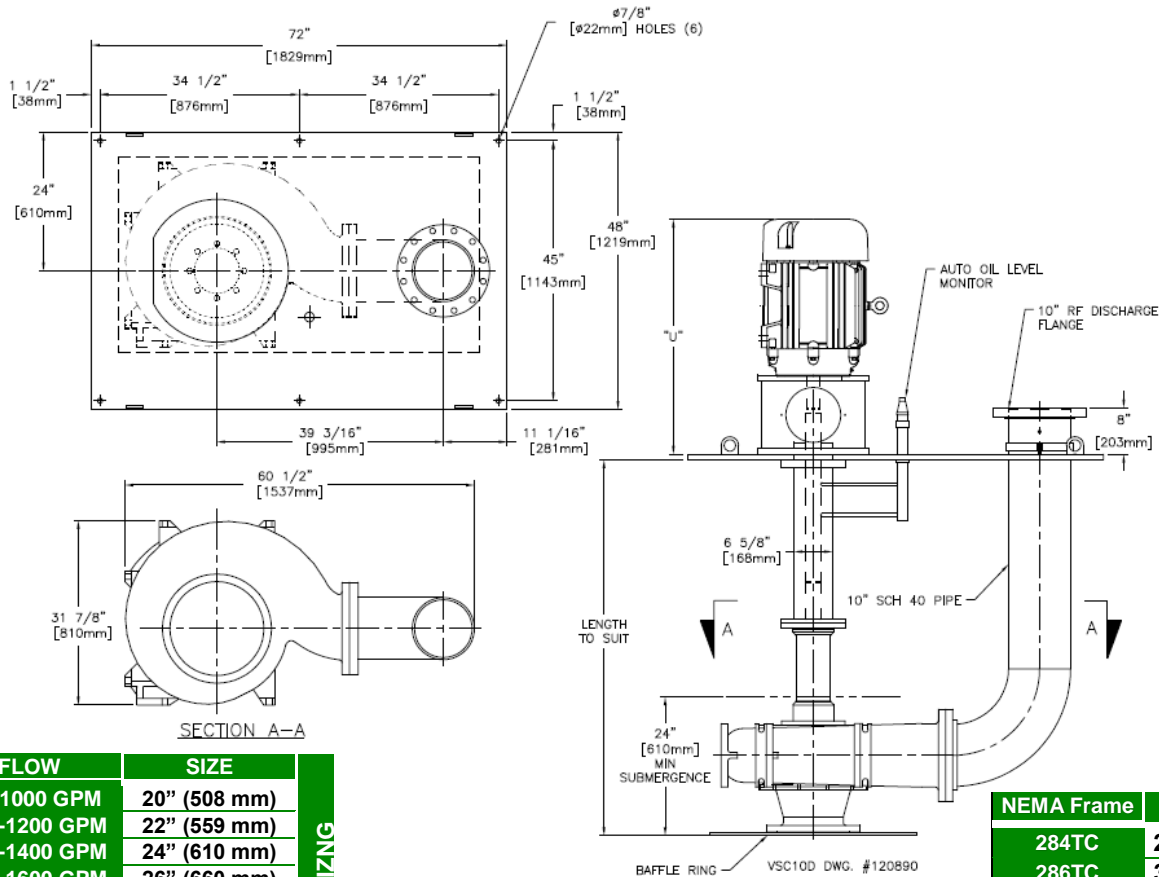


## VSC10D VERTICAL WET WELL SCREW CENTRIFUGAL PUMP

### Materials of Construction

<b>Impeller/Casing/Suction Cone/Backplate</b> .....	Cast ductile iron.
<b>Wearplate:</b> .....	Alloy steel, heat treated to minimum Rockwell C60
<b>Mechanical Seal:</b> .....	Cartridge type with silicon carbide (or tungsten carbide) faces and stainless-steel sleeve.
<b>Thrust Bearings:</b> .....	Angular contact ball or tapered roller.
<b>Radial Bearings:</b> .....	Deep groove ball or spherical roller.
<b>Shaft:</b> .....	Heat treated alloy steel.
<b>Lubrication:</b> .....	ISO 46 hydraulic oil.
<b>Discharge Flange:</b> .....	ANSI Class 150.
<b>Deck Plate:</b> .....	Carbon Steel.
<b>Paint:</b> .....	Ceramic Epoxy

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



FLOW	SIZE	BAFFLE RING SIZING
900-1000 GPM	20" (508 mm)	
1100-1200 GPM	22" (559 mm)	
1300-1400 GPM	24" (610 mm)	
1500-1600 GPM	26" (660 mm)	
1700-1900 GPM	28" (711 mm)	
2000-2200 GPM	30" (762 mm)	
2300-2500 GPM	32" (813 mm)	
2600-3800 GPM	34" (864 mm)	
2900-3200 GPM	36" (914 mm)	
3300-3500 GPM	38" (965 mm)	
3600-3900 GPM	40" (1016 mm)	
4000-4300 GPM	42" (1067 mm)	
4400-6600 GPM	44" (1118 mm)	

IEC Frame	*U
200L	995 mm
250S	1157 mm
250M	1192 mm
280S	1292 mm
280M	1342 mm
315S	1407 mm
315M	1457 mm

NEMA Frame	*U
284TC	28.80"
286TC	32.70"
324TC	34.25"
326TC	35.75"
364TC	39.45"
365TC	39.45"
404TC	48.20"
405TC	48.20"
444TC	54.00"
445TC	54.00"



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## SPECIFICATION: VSC10D VERTICAL WET WELL SCREW CENTRIFUGAL PUMP

The Vendor shall furnish ( ) vertical wet well screw-centrifugal pump(s) and all appurtenances as specified below. The pump(s) shall be of heavy-duty construction intended for services requiring reliable solids handling, gentle pumping action, high efficiency, and low NSPH<sub>R</sub>. Pump shall be manufactured by Vaughan Co., Inc.

### DETAILS OF CONSTRUCTION

- A. **Casing, Backplate and Wear Plate:** The pump casing shall be of volute design, spiraling outward to the 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. Backplate will include a replaceable alloy steel wear plate heat treated to Rockwell C60 adjustable for 0.010-0.020" (25-50mm) clearance to shear against a cutter in the impeller hub.
- B. **Inlet Suction Cone:** The inlet suction cone shall be ductile cast iron with all water passages to be smooth, and free of blowholes and imperfections for good flow characteristics. The suction cone shall incorporate a spiral groove to channel trapped fiber into the casing that would otherwise bind between the impeller OD and the inlet cone ID.
- C. **Impeller:** Shall be open channel, screw-centrifugal type. The impeller shall be cast ductile iron and shall be dynamically balanced. The single-passage impeller shall combine the action of a positive displacement screw and a single-vane centrifugal impeller.
- D. **Pump Shafting:** Shall be 2-7/16" (62mm) diameter minimum. Lower stub shaft shall be heat treated. Upper shaft extension shall be turned, ground and polished. The shaft column shall be 6-5/8" (168mm) 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.
- E. **Pump Shaft Bearings:** Shall be oil bath lubricated by ISO 46 hydraulic oil, with the exception of the top bearing, which shall be greased packed. The bearings shall have a minimum L-10 rated life of 100,000 hours. Shaft thrust shall be taken up by two back-to-back mounted single row angular contact ball bearings, or a matched set of 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 2.75" (70mm), with a mechanical seal to isolate the bearings from the pumped media.
- F. **Mechanical Seal:** The mechanical seal shall be located immediately behind the impeller hub to eliminate the stuffing box and maximize the flushing available from the impeller. The seal shall be a screw-in, cartridge-type mechanical seal with Viton O-rings and silicon carbide (or tungsten carbide) faces. This cartridge seal shall be a pre-assembled, 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 iron seal gland.
- G. **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.
- H. **Discharge Pipe:** The pump assembly shall be mounted vertically on a common steel base plate with ANSI Class 150 discharge flange. A 1/4" NPT pressure tap shall be located above the deck plate.
- I. **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 guards meeting OSHA requirements.
- J. **Motor Stool:** Shall be a fabricated carbon steel weldment machined with piloted fits to positively align the C or B5 flanged motor and pump shaft, with no adjustments.
- K. **Base Plate:** Shall be fabricated carbon steel, 1" (25mm) minimum thickness, and shall include lifting lugs and anchor bolt holes. A stainless-steel nameplate shall be attached to the base plate giving the manufacturer's model and serial number, rated capacity, head, speed and all pertinent data.
- L. **Motor Requirements:** Drive motor shall be \_\_\_ HP (KW), \_\_\_ RPM, \_\_\_ volts, \_\_\_ phase, \_\_\_ hertz, \_\_\_ service factor, TEFC enclosure. The motor shall be sized for non-overloading conditions.
- M. **Surface Preparation:** Solvent wash and a single coat of Tnemec 431 epoxy applied at 5 MDFT minimum (except motor).
- N. **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).