3”–6” VERTICAL WET WELL SCREW CENTRIFUGAL PUMPS

**Materials of Construction:**
- Impeller/Casing/Suction Cone/Back Pull-Out Plate: Ductile cast iron.
- Insert Cutter: Alloy steel, heat treated to minimum Rockwell C 60.
- Mechanical Seal: Cartridge type with silicon carbide (or tungsten carbide) faces and stainless steel sleeve. (See following page for other sealing options)
- Thrust Bearings: Angular contact ball type or tapered roller type.
- Radial Bearings: Ball bearing type.
- Shaft: Heat treated alloy steel.
- Lubrication: ISO Grade 46 oil.
- Flanges: ANSI Class 150 discharge.
- Deck Plate: Carbon Steel.
- Paint: Ceramic Epoxy

**BAFFLE RING REQUIREMENT**

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MINIMUM FLOW</th>
<th>SIZE</th>
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</thead>
<tbody>
<tr>
<td>VSC3DS</td>
<td>200 GPM</td>
<td>10” – 14”</td>
</tr>
<tr>
<td>VSC4DH</td>
<td>300 GPM</td>
<td>12” – 16”</td>
</tr>
<tr>
<td>VSC6EM</td>
<td>400 GPM</td>
<td>14” – 20”</td>
</tr>
<tr>
<td>VSC6ES</td>
<td>400 GPM</td>
<td>14” – 20”</td>
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</tbody>
</table>

**DIMENSIONS IN INCHES**

*VSC3DS 12” SUBMERGENCE REQUIRED BELOW 600 GPM
VSC4DH 12” SUBMERGENCE REQUIRED BELOW 700 GPM
VSC6EM 12” SUBMERGENCE REQUIRED BELOW 1100 GPM
VSC6ES 12” SUBMERGENCE REQUIRED BELOW 1100 GPM

**FOR REFERENCE ONLY. DIMENSIONS WILL VARY SLIGHTLY BY MOTOR MANUFACTURER**

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

MADE IN THE USA
SPECIFICATIONS: 3”–6” VERTICAL WET WELL SCREW CENTRIFUGAL PUMPS

The Vendor shall furnish (__) vertical wet pit, 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 NSPHR. 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. 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.

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 fiber into the casing that would otherwise bind between the impeller OD and the inlet cone ID. The clearance of the impeller to the cone shall be externally adjustable without requiring pump or piping disassembly or special tools. A baffle ring will be provided when required to prevent vortexing.

C. Impeller: Shall be open channel, screw-centrifugal. The impeller shall be ductile cast 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. Backplate Insert Cutter: Shall be fitted into the back plate behind the impeller, designed to cut against a cutter in the impeller hub, reducing and removing stringy materials from the mechanical seal area. Insert cutters shall be alloy steel heat treat hardened to minimum Rockwell C 60.

E. Impeller Hub Cutter: Shall be alloy steel hardened to minimum Rockwell C 60 and fitted into the impeller hub (except 3” model).

F. Pump Shafting: Shall be heat treated alloy steel. Upper shaft extension shall be turned, ground and polished. The shaft column shall be minimum 4” inch 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.

G. Pump Shaft Bearings: Shall be oil bath lubricated by I.S.O. grade 46 oil, with the exception of the top bearing, which shall be grease packed. The bearings shall have a minimum L-10 life of 100,000 hours. Shaft thrust in both directions shall be taken up by two back-to-back mounted single-row angular contact ball bearings or two face to face mounted tapered roller bearings, with a mechanical seal to isolate the bearings from the pumped media.

H. Pump Mechanical Seal: The mechanical seal shall be located immediately behind the impeller hub to maximize the flushing available from the impeller. 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 ductile cast iron seal gland.

I. Automatic Oil Level Monitor: Shall be located above the mounting plate and be fitted with an internal oil level switch 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.

J. 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 a guard meeting OSHA requirements.

K. Motor Stool: Shall be a fabricated carbon steel weldment machined with piloted fits to positively align the C-flanged motor and pump shaft, with no adjustments.

L. Pump Deck Plate: Shall be fabricated carbon steel, and shall include lifting lugs.

M. 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.

N. Motor Requirements: Drive motor shall be ____ HP, ____ RPM, ____ volts, 3 phase, 60 hertz, 1.15 service factor, TEFC 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).