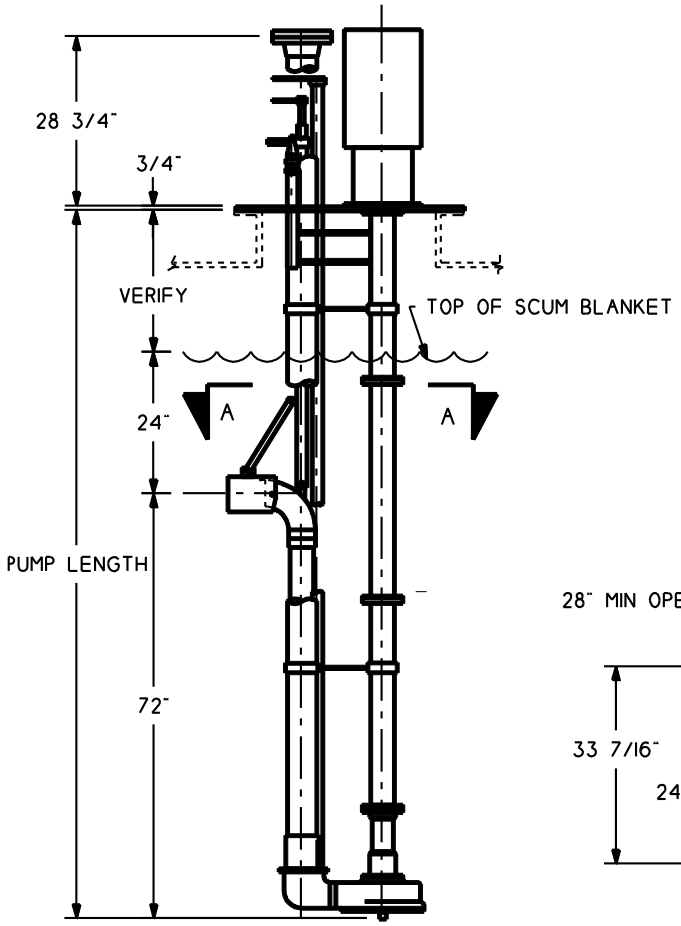
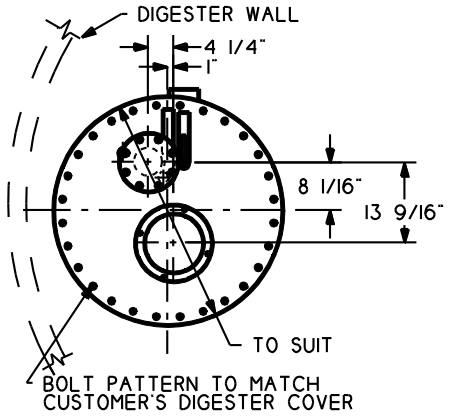
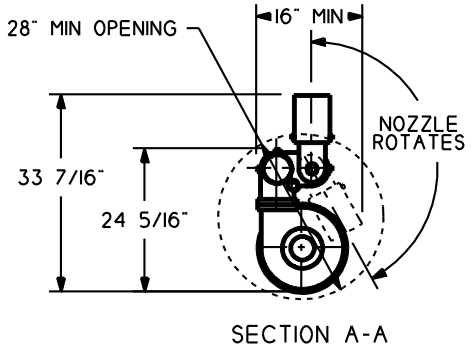
Scumbuster® Specs

Materials Of Construction:

Impeller / Cutter Bar /
Upper Cutter / Cutter Nut: ..... Cast steel, heat treated to minimum Rockwell C 60.
Casing: ..... Ductile cast iron.
Mechanical Seal: ..... Silicon carbide.
Thrust Bearings: ..... Back-to-back angular contact ball type.
Radial Bearings:..... Ball type.
Shaft:..... Heat treated steel.
Lubrication: ..... ISO Gr. 46 oil.
Discharge Flange: ..... 150 lb. ANSI rated.
Mounting Plate: ..... Carbon steel.
Paint:..... Stainless epoxy.







SECTION A-A

VAUGHAN CO., INC.
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E-Mail: info@chopperpumps.com

SPECIFICATIONS – SCUMBUSTER

The vendor shall furnish one vertical wet pit Scumbuster® chopper pump and all appurtenances as specified. The pump shall be specifically designed to mix and pump anaerobic digester scum at heavy consistencies. Materials shall be 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.

DETAILS OF CONSTRUCTION

A. Casing: Shall be of semi-concentric design, with the first half of the circumference being cylindrical beginning after the pump outlet, and the remaining circumference spiraling outward to the 150 lb. flanged discharge. Casing shall be ductile cast iron with all water passages to be smooth, and free of blowholes and imperfections for good flow characteristics.

B. Impeller: Shall be semi-open type with pump out vanes to reduce seal area pressure, and to draw lubricant down from the reservoir should seal leakage occur. 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 0.010" to 0.015". Impeller shall be cast 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 or set screws required.

C. Cutter bar: Shall be recessed into the pump bowl, with a funnel shaped inlet opening, and shall extend diametrically across entire pump suction opening. Cutter bar shall be cast steel heat treated to minimum Rockwell C 60.

D. Cutter nut: Shall secure the impeller to the shaft, designed to cut stringy materials and prevent binding. The cutter nut shall be cast steel heat treated to minimum Rockwell C 60.

E. Upper cutter: Shall 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 heat treated to minimum Rockwell C 60.

F. Pump shafting: Shall be heat treated. 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. Shaft column to be O-ring fitted through deck plate for gas-tight mounting.

G. Pump shaft ball bearings: Shall be oil bath lubricated by ISO Grade 46 turbine oil, with the exception of the top bearing, which shall be greased packed. The bearings shall have a minimum b-10 life rated 100,000 hours. Shaft thrust shall be taken up by two back-to-back mounted single row angular contact ball 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 1.2", with a mechanical seal to isolate the bearings from the pumped media at up to 250 degrees F.

H. Mechanical seal: Shall be cartridge type, and fitted with silicon carbide seal faces to provide long life expectancy in the presence of grit and abrasive solids. The seal shall include a 316 stainless steel shaft sleeve, with the seal tension held integral to the cartridge assembly. Seal shall be tested for flatness within 2 helium light bands under a helium light source and optical flat. All elastomers shall be Viton®. Remaining pump elastomers shall be Buna N.

I. 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.

J. Recirculation nozzle: Shall permit continuous recirculation of the scum layer. The recirculation nozzle shall be adjustable minimum 180 degrees horizontally and 45 degrees vertically.

K. Recirculation valve: Shall be connected to the pump discharge to adjust pump flow either to the recirculation nozzle or the pump discharge flange. Valve disk shall be 316 stainless steel, and valve body shall be ductile cast iron.

L. Operating levers: Shall be located above the mounting plate for easy access during pump operation. All lever penetrations through deck plate to be O-ring fitted for gas-tight mounting.

M. Pump discharge pipe: Shall include a 150 lb. ANSI rated discharge flange with end cap. A 1/4" NPT pressure tap shall be located above the deck plate. Discharge pipe penetration through deck plate to be O-ring fitted for gas-tight mounting.

N. 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 an guard meeting OSHA requirements.

O. Motor stool: Shall be a fabricated carbon steel machined with piloted fits to positively align the c-flanged motor and pump shaft, with no adjustments.

P. Pump base plate: Shall be fabricated carbon steel, ¾" minimum thickness, and shall include lifting lugs. Base plate dimensions and bolt holes to match existing manway, and to include gasket for gas-tight mounting.

Q. Stainless steel nameplates: Shall be attached to the pump and drive motor giving the manufacturer's pertinent data.

R. Motor requirements: Drive motor shall be __ HP, ____ RPM, ___ volts, __ phase, __hertz, ____ service factor, _____ enclosure. The motor shall be sized for non-overloading conditions.

S. Surface preparation: degreased and coated with 5-8 MDFT epoxy (except motor).

OPTIONAL ADDER SURFACE PREPARATION: SSPC-SP5 commercial sandblast (except motor), primed with 5-8 MDFT epoxy primer and finish coated with 5-8 MDFT epoxy (except motor).