

SCREW PUMP

(For Sludge Digestion Plants)



Screw Pump

The screw pump is used in a sludge digester to keep the sludge in a thoroughly intermixed condition. As a result

- Formation of scum is prevented.
- Tank contents are thoroughly mixed
- Newly added crude sludge is evenly distributed
- Gas bubbles of digesting sludge are freed rapidly
- Even temperatures are maintained throughout the mass of sludge

Mechanism

The entablature of the screw pump is arranged centrally on the roof of the sludge digester tank and carries a vertical spindle driving motor. The body and vertical spindle descend into the tank, the spindle carrying a screw impeller and a conical dispenser with vanes. The screw impeller is positioned just below sludge level within a throat pipe at the end of a vertical uptake tube.

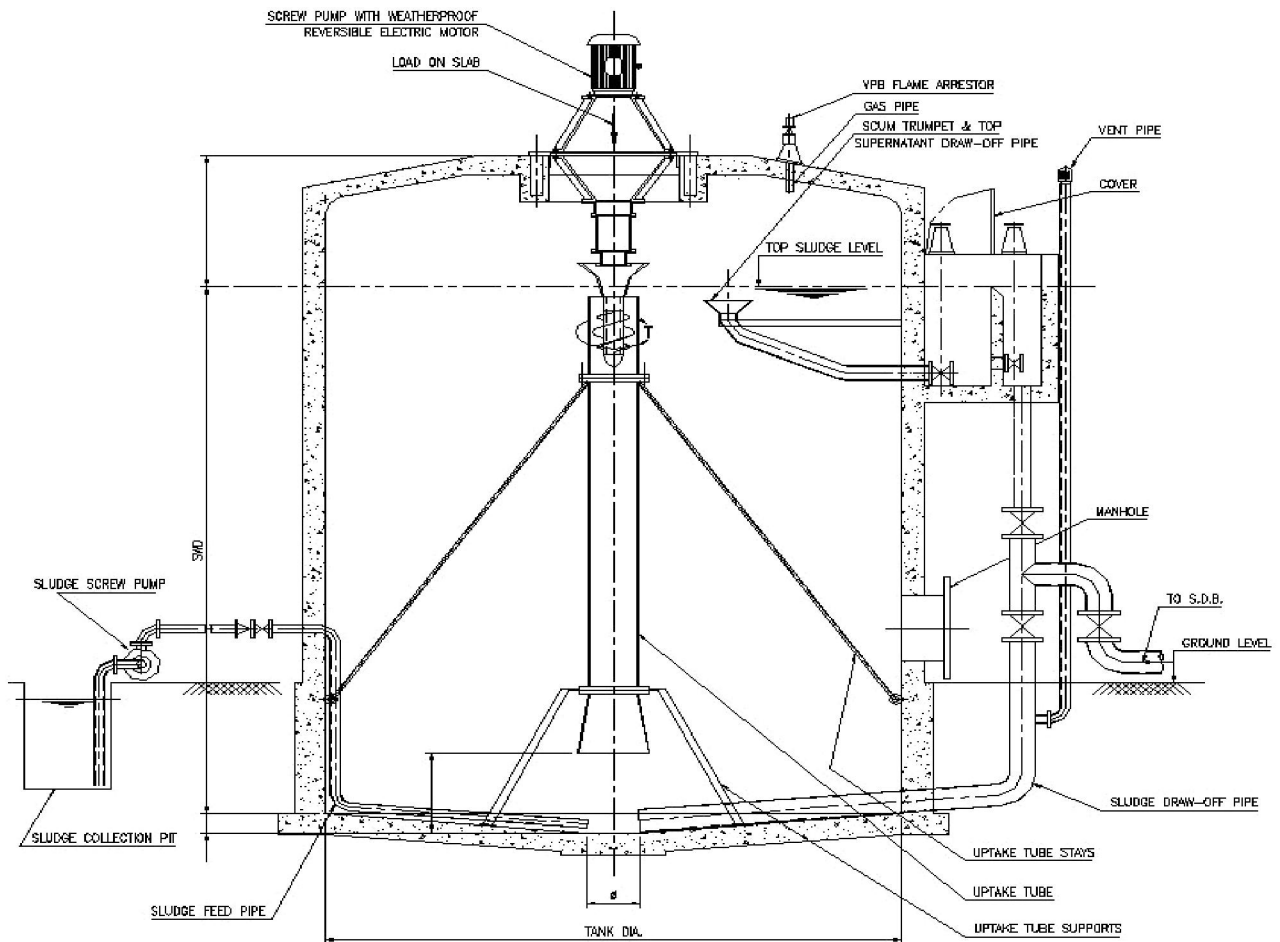
When the pump is in normal operation, sludge is drawn up the vertical tube from the bottom of the tank and scattered over the surface of the sludge by the conical dispenser. A reversing starter is fitted incorporating a time delay between forward and reverse motions. The reverse motion induces a rapid flow of sludge from the surface of the tank into the body of the tank and a large volume of gas is entrained. The gas bubbles rise through the sludge and create a vigorous disturbance as they break the surface.

Special Features

- The screw pump is extremely robust.
- The screw impeller is of a special non-choking design.
- For digestion tank of very large dimensions, many screw pumps can be suitably arranged on the roof. A frequently adopted arrangement is of three screw pumps disposed in cloverleaf fashion on the roof spaced at 120° from each other, on a radius to ensure that combined throws of the three pumps covers the entire tank surface.
- Screws are dynamically balanced.

Performance

Voltas screw pump ensures complete mixing with its normal and reverse actions controlled by an automatic time switch. The period is adjusted to turn over the complete tank contents daily.



Typical Arrangement of Screw Pump in Sludge Digester

Size Range

Voltas screw pumps are available in standard sizes as mentioned below

Size of Screw Pump (Dia. of Uptake Tube) (Inches)	Pumping Capacity (lit/ sec)	Motor Rating (HP/ kW)	Motor Synchronous Speed (rpm)
12	91	20/15	750
18	189	30/22	750
24	447	40/30	750
30	712	60/45	750
33	1012	75/55	750

Material of Construction of Screw

Cast Iron (2% Ni)/ Mild Steel Epoxy Coated/ Stainless Steel 304/ Stainless Steel 316

For more information contact:

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