

## CLARIFIERS

Clarifiers are settling tanks in RCC construction, generally circular in shape, designed as a general-purpose desludging mechanism for tanks with floors inclined to the horizontal. The mechanism also incorporates the scum removal mechanism wherever required.

In wastewater treatment processes the mechanisms used to rake solids in circular collectors (grit collectors, gravity thickeners and clarifiers) can be classified into two broad categories. The two types are those that are centrally driven and those that are peripherally driven.

Center driven mechanism has two different configurations:

- **Bridge mounted:** The bridge-mounted configuration has a bridge spanning the full diameter of the tank, at the center of which is mounted a drive. The output of the drive is a shaft, which is connected to the main rake drive shaft or torque tube.
- **Column mounted:** The column mounted center drive requires the construction of a column or post in the center of the clarifier tank. A drive is positioned on this post. The drive has an output drum on the outside on to which is suspended a rake cage. The rake cage rotates and supports the rake arms. This proves more economical for larger diameter tanks.



**Central Driven Bridge Mounted Clarifier**

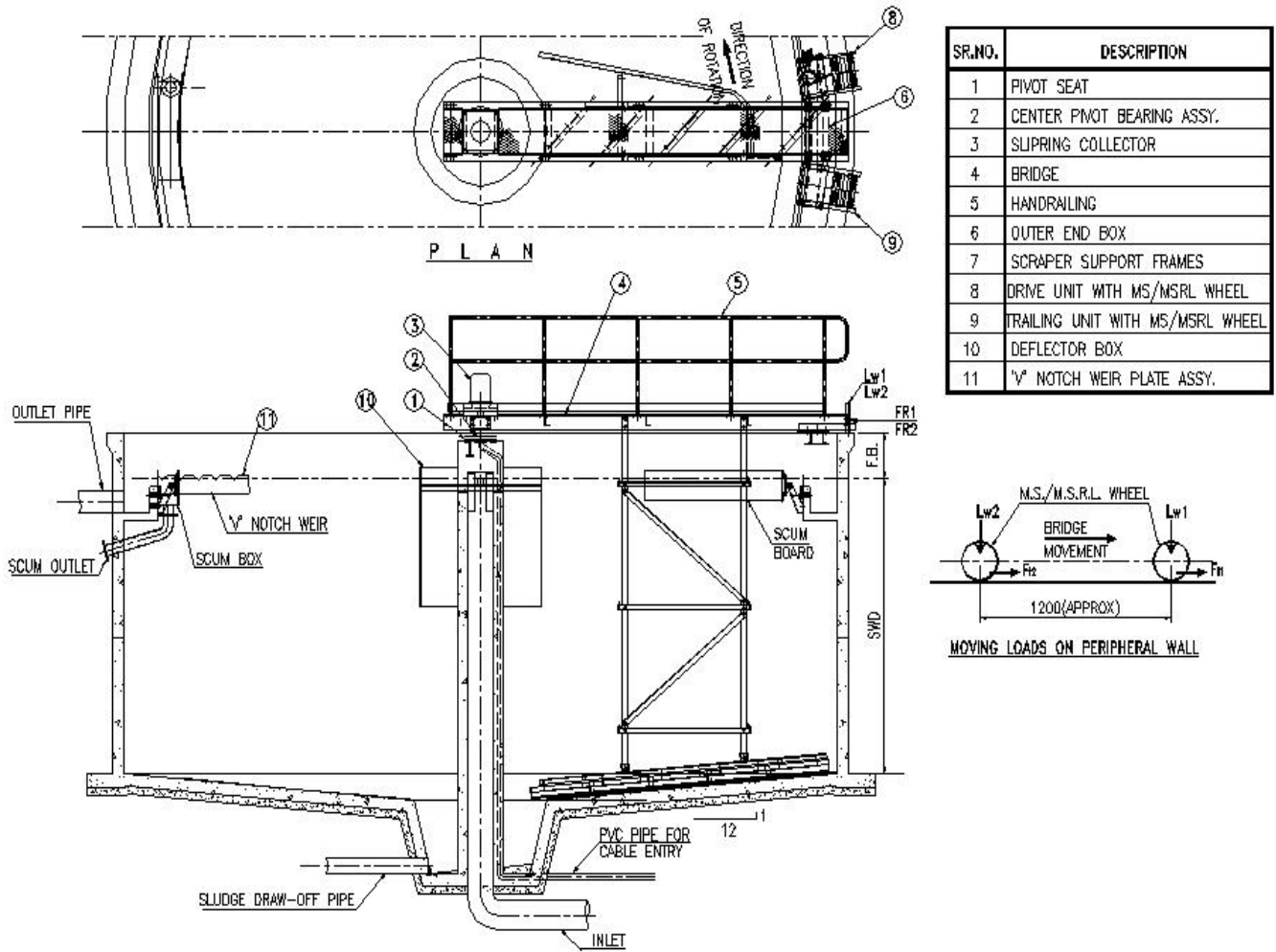


**Peripheral Driven Full Diameter Bridge Clarifier**

Peripherally driven units typically use small commercial gearboxes with elastomeric traction wheels. The tank wall needs to be wide, and the rim must be parallel, flat and in true circular form to ensure that the drive can operate correctly.

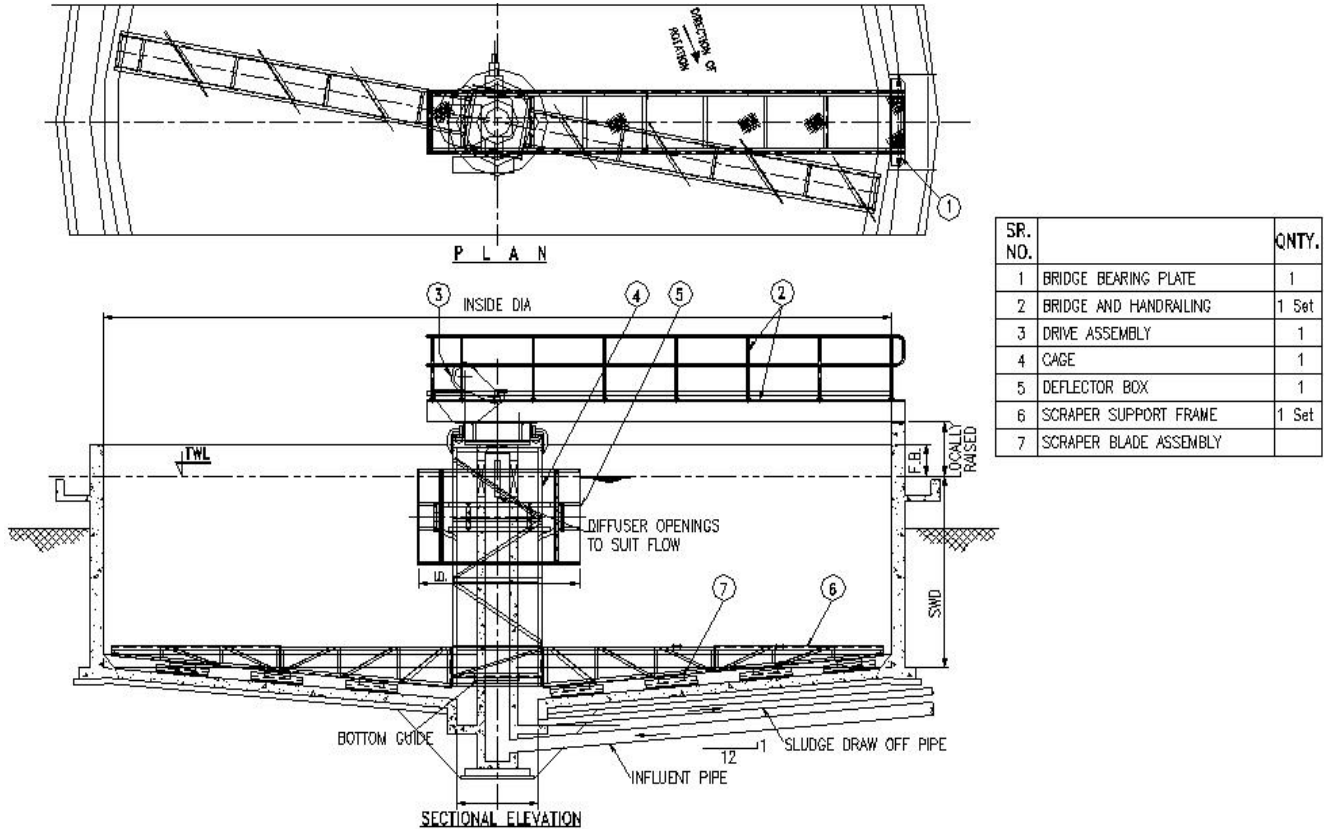
It is also necessary to use a slip ring contactor to get power from the static tripod in the center of the tank out to the drives. All electrical power must be fed underground and come up through the center column.

There are two categories of peripherally driven scraper mechanisms, namely



**General Arrangement of Clarifier with Half Bridge Peripheral Driven Scraper**

- Half-bridge scrapers:** Peripherally driven mechanisms require a static support in the center of the tank. A bearing located on the top of the static support allows the rotation of the complete bridge that spans from the center of the tank to the wall. Suspended from the bridge is a set of rake arms.
- Full-bridge scrapers:** Full bridge scrapers also require a static support or tripod at the center of the tank. Unlike a half bridge scraper, the bridge spans the full diameter of the tank passing over the center where it spins on the center bearing. Both ends of the full bridge scraper need to be driven and some form of load balancing is therefore necessary to ensure even wear across the two gearboxes.



**General Arrangement of Clarifier with Half Bridge Peripheral Driven Scraper (Cage Type)**

**Applications**

Clarifiers are suitable for dealing with primary sludge, activated sludge, humus sludge and a variety of settlement applications associated with process liquors and trade effluents.

**Size Range**

Voltas has the experience to provide for clarifier size ranging from as small as 2 M diameter to as large as 50 M diameter in central driven clarifiers and 5 M to 65 M diameter for peripheral driven clarifiers.

**Material of Construction (Under Water Parts)**

Mild Steel Epoxy Coated/ Galvanized/ FRP Coated/ Stainless Steel 304/ Stainless Steel 316

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