PEI
PROCESS EQUIPMENT INTERNATIONAL PTY LTD
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INTERTANK SCREEN TECHNICAL DESCRIPTION

SCREEN TECHNICAL DETAILS

The Process Equipment International intertank screen is a circular, mechanically swept device consisting of four main elements; the body, drive unit, shaft/rake assembly and the screening basket. All components are fabricated in stainless steel with all welds being treated with an approved pickling paste to eliminate heat induced weld corrosion.

The body is the structural component incorporating the base for the drive, the launder and the flanged screen basket connection. It is designed with a large discharge launder fared back into the body to minimise head loss as the slurry transitions from rising vertically within the body annulus to horizontal flow through the launder. Two support hooks are located at the top edges of the launder to attach to the client's tank launder.
Attached to these hooks are a pair of overcentre locking devices that pivot under the tank launder support pin. This effectively prevents a blocked screen attempting to "float" and become detached from the support pins.

Once installed, a rubber strip on the face of the launder seals securely against tank launder flange, with the weight of the screen providing the sealing force. The lifting lugs are positioned off center such that the screen hangs with the launder slightly low which assists in installing and removing the unit without damage to the seal.

The screen basket is a fully welded unit fabricated from the grade 304 stainless steel with profile bars selected to provide a robust self supporting structure with a high open area figure of 35% for screens with a 0.8mm aperture, or as otherwise specified by the Client.

For screens with high capacities we offer our double screening surface basket design which comprises of an outer cylindrical screen and an inner conical screen, providing maximum area for minimum overall dimensions.

The drive is a flange mounted hollow shaft geared motor which performs the dual role of driving the rake assembly and supporting it, thus eliminating the need for couplings or additional support bearings. This drive system has been a feature of all previous PEI intertank screens and has proven to be an exceptionally robust, quiet and trouble free design.

The rake assembly is of all stainless steel construction with pipe arms welded to a rigid "spider" base and incorporating a reinforcing ring connecting the top ends of the outer arms.

In the double basket design the top of the inner arms are connected to an impeller which draws slurry up through the center of the internal screen basket, expelling it out the scavenging ports in the sides of the screen body. In this manner carbon particles swept from the inner screen are forced back into the tank and cannot accumulate.

The screens are supplied packed horizontally on custom made steel feet designed to support the weight of the screen body and also to secure the rake assembly from movement during transport.

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MATERIAL SPECIFICATIONS

All materials of construction are normally grade 304 Stainless Steel however other alloys are also available including 316 Stainless, Hastelloy, etc.

Due to the corrosive / erosive nature of the environment in which the screens operate we do not recommend fabrication in mild steel, irrespective of the level of surface treatment, rubber lining, etc.

Past experience has demonstrated that any protective coating will eventually fail and the resulting corrosion of the underlying parent metal can rapidly lead to structural failure.

MAINTENANCE

It is recognised that a certain amount of fines settlement will occur in the bottom of the annulus between the inner and outer screening surfaces in the case of the double basket and between the outer screening surface and the inner cylinder in the case of the single basket screen.

It can generally be hosed out through the wedgewire but this is a tedious and time consuming process. On occasions carbon particles will build-up in this area possibly due to inadvertent launder overflow and slurry backup into the screen.

This results in carbon being on the wrong side of the wedgewire from where no amount of external hosing will shift it; screen dismantling is the only option.

The larger sizes in the PEI screen range overcome this by the incorporation of four clean out ports in the bottom plate of the screen basket annulus, positioned at 90^0 to each other. It is thus possible by a combination of hosing through the wedgewire and down into the annulus via the launder opening to quickly and effectively flush out any fines/carbon deposits without the need for dis-assembly.

Screen Selection

Nomenclature:

The model no. designation of the PEI screens is an indication of their size and configuration.
To use the RPA-24-1200DSH model as an example:

24:
defines the total area of screening medium as **24** sq m.

1250:
defines the screen nominal design capacity as **1200** cubic metres/hr.

DSH: "**DS**" indicates that the screen has inner and outer screening surfaces
("DS" for "double screen")

"**SS**" would be a single outer screening surface.
("SS" for "single screen")

"**H**" designates that the screen is supported on "hooks".