

Inter-Sep Rotary Drum Strainer (Internally Fed Liquid Solids Separator)
Instruction, Operating & Maintenance Manual



Design Engineering Manufacturing Sales Installations
Food Industrial Process Sanitation Environmental Control

Representatives Throughout U.S. Canada & South America

Instruction, Operating
&
Maintenance Manual

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WARNING!

THIS MACHINE MUST BE TURNED OFF AND LOCKED OUT OF ANY ELECTRICAL SYSTEM BEFORE ATTEMPTING TO PREFORM ANY TYPE OF REPAIR OR MAINTENANCE!!!!!!

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Important:
Always refer to this page when ordering Replacement Parts and Spares

Machine serial Number
Machine model Number

Ordering spares or replacement parts is easy if you follow these simple instructions

- 1) Refer to the general assembly drawing # and serial # which you will find included with your IOM package
- 2) Find the part you need to replace as referenced on the drawing and write down the number and description of the part
- 3) Call or fax us the information as well as the model and serial number. Each machine has a serial number located on the nameplate.

Overview:

Dontech provides the necessary design, engineering and manufacturing services to supply a custom-designed sanitary internally fed rotary drum strainers (I-RDS) for fine screening of primary or secondary wastewater effluents, product recovery or other applications.

Each Dontech I-RDS consists of the following major assemblies and components. Some of the items listed below are optional and will be identified as such.

You will have to refer to the general assembly drawing(s) provided in this manual to determine which options apply to the particular screen model/design that you purchased.

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PEROFATED SCREEN ASSEMBLY

This screen consists of:

- (1) A perforated screen
- (2) Face plate consisting of a round plate with a manufactured bolt hole pattern to accept an attached drive shaft
- (3) End Ring(which the trunnion wheels ride on
- (4) And (2) complete sets of staggered helical solids discharge flights
construction is all 304 stainless steel.

The screen drive shaft is connected to the faceplate with nuts and bolts. Bolt heads are tack welded after the drive shaft is attached to the faceplate to prevent the shaft from becoming separated from the screen during operation.

If the screen's drive shaft needs replacement, these tack welds must be ground before the drive shaft can be removed from the faceplate. When the new drive shaft has been mounted, make sure that the nuts are again tack welded.

The screen assembly has welded ends to permit trunnion wheels to rotate the screen being driven by the direct drive electrical gearmotor.

DRIVE SYSTEM

The INER-SEP drive system(s) consists of few components. The gearmotor is a variable speed electric drive, which controls the rotational speed of the screen drum through the use of a mechanical sheave that varies the drives output speed. Optional variable frequency drive (VFD) controllers are available when Inter-Sep is purchased with System control panels.

Varying the screen's rotational speed will permit varying degrees of liquid solids separation and solids dewatering that can be achieved. Generally, the slower the drum rotates the longer the dwell time to dewater the solids and produce a dryer product.

Always make sure the screen is rotating in the correct direction (clockwise). Failure to do this will cause the solids to travel in the wrong direction.

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If the gearmotor should fail please call us directly and provide us with the **SO #** located on the gearmotor.

Gearmotor lubricant should be changed in accordance with the manufacturer's recommendations.

CLEAN IN PLACE SYSTEM (CIP)

The CIP System is located on the exterior of the screen and is used to prevent the screen from blinding. It consists of a manifold with $\frac{3}{4}$ " NPT male connection and spray nozzles located on 6" centers. Nozzles are offset from the opposite side of the screen by 3". Nozzles are arranged in a stagger position to prevent dissipation of pressure caused by overlapping of spray patterns.

Regulation of the CIP spray(s) can be done electronically with an electric solenoid valve with (optional) timer system or by using a manual ball valve located at the inlet of the spray manifold. Each of the methods will provide the necessary flow volume/pressure to adequately clean the assembly to prevent blinding or clogging.

Note: screen should be CIP "cleaned" at minimum on a daily basis. Most installations require the activation of the CIP System on a more frequent basis. Typically, this System is activated on a scheduled hourly run timer; however experience will dictate your requirements.

INTERNAL STAGGERED SOLIDS DISCHARGE FLIGHTS

Solids discharge flighting is located on the inside of the screen to ensure a constant and consistent path for the solids to travel from the influent point to the solids discharge point.

Direction of the rotation of the screen is critical to make the solids discharge flighting work correctly. The rotational movement of the screen will automatically move captured solids to the discharge point.

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BEARING

The bearing is a greasable self-aligning pillow block type located on the screen's drive shaft. This bearing supports the drive system, drive shaft and screen assembly.

This bearing should be checked and lubricated on a monthly basis. If the bearing is not properly maintained and fails due to neglect this could cause major damage and problems for the screen and its operation.

TRUNNIONS

Trunnion wheels are provided to rotate the screening drum assembly and are always located at the non-driven end of the screen assembly.

Trunnions are of nylon, HDPE or UHW construction with stainless steel shafts and set collar locks. The shafts are provide with zirc grease fittings and are to be lubricated on a minimum monthly basis. Actual operational conditions will dictate the frequency at which lubrication is required.

Trunnion wheels are easily removed from the screen by removal of the side access cover located on each side of the sump/tank: loosen the shaft set collar: removing the wheel and shaft, and replacing the worn wheel.

HOOD ENCLOSURE

Each INTER-SEP is provided with a full hood assembly enclosure to control odors, fumes and workers safety during operation. Note: **DO NOT OPERATE THE INTER-SEP WITH SIDE PANELS/DOORS REMOVED.**

Enclosures are of stainless steel construction and provided with two (2 ea) sliding side panels and are designed to easily removed for service and inspection of the screen assembly, trunnions and CIP sprays and manifold.

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INFLUENT AND DISCHARGE PIPING

Influent pipe size and filtrate discharge pipe size are to be 6" and 8" respectively and are established by application and installation requirements. These pipes can vary depending on the flow rate of the influent source.

Influent piping and discharge piping specifications-type, size and location are shown on the enclosed general assembly drawing for this particular application/installation. *Note*, these pipes can be of stub (welded) or flange design and dependent on specific installation requirements.

SOLIDS DISCHARGE CHUTE

Solids discharge chute is integral to the screen's frame/chassis and discharge captured solids and dewatered solids to a collection point for specific recovery or disposal.

Solids chute is designed to provide for attachment of extended solids discharge chute, designed for specific installations. *Note*, these extended chutes can be provided by Dontech Industries (optional) or provided by others. The attachment points can be either of a bolt on design or stitch welding. Typically, these extended chutes require support bracing and are provided by others. If provided by Dontech Industries the bracing will be located on the chassis of the screen.

CHASSIS

The chassis is of stainless steel construction and provides an enclosure for the drum screen, trunnions, spray manifold, influent, discharge piping and solids discharge chute. Chassis is complete with four (4 ea) leveling legs and can be used to facilitate leveling of the Screen. We suggest that the solids discharge point/end be slightly elevated to provide better solids capture and dewatering. *Note*, the degree of elevation is installation dependent.

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SYSTEM CONTROL PANEL

System control panel to be of stainless steel design and as provided by Hoffman enclosures and be of NEMA 4 rating. The control panel houses the screening system's VFD, start/stop switches, running hour meter, in panel disconnect and are pre-wired and tested.

CONSTRUCTION

This unit is constructed of 304 stainless steel, except for bearings, trunnions and gearmotor.

OPERATION

Plant process wastewater is pumped to the influent connected to your INTER-SEP rotary drum strainer(s). The influent flow will be dampened by the flow directional plate.

Solids and other material such as congealed FOG, Scum etc. will be retained on the internal surface of the perforated screen assembly and removed via the directional flighting as the screen rotates.

Filtered wastewater passes through the center of the perforated screen assembly every revolution and discharge through chassis discharge piping.

INSTALLATION

Inspect each unit purchased for any in-transit damage and report it to the delivering carrier.

If damage is apparent contract the carrier immediately as damage in-transit is not the responsibility of the manufacturer.

Each IRDS unit is self-contained and is fully assembled, factory tested and is ready for installation.

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THE FOLLOWING PROCEDURES MUST BE IMPLEMENTED

1. Set your IRDS unit in place using a fork lift or overhead lifting device. Care should be taken not to lift the IRDS without the proper lifting apparatus. Always lift your IRDS unit from under the main chassis-box. Lifting from any other area could cause major damage to your unit.
2. Once the IRDS unit is in place, it should be leveled using the adjustable leveling legs. It is important for proper operation of this unit to have the discharge point to be slightly elevated. Degree of elevation is installation specific.
3. Connect the required electrical supply to the units control panel(optional) or drive system and CIP manifold solenoid valve
4. Connect your in-plant water supply or (optional) high pressure cleaning system to the ¾" NPT male connection provided with the CIP (clean-in-place) cleaning system.
5. Connect the influent and discharge pipes as required.
6. Check to see that all IRDS components and assemblies are tight.
7. Check to see that the drive system is securely fastened to the motor mounting torque bracket. If loose re-tighten as necessary.
8. Check the oil level in the drive system to make sure it has the proper recommended amount of oil according to the manufacturer's specification. You will find this information provided in this manual.
9. Check all bearings for the proper lubrication and lubricate as necessary.

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START-UP

The operator should perform the following procedures prior to start-up.

1. Check the oil level in the gearbox and fill if required.
2. Grease pillow block bearing if necessary. Do not over grease; this could cause damage to the seals in the bearing housing.
3. Check strainer drum alignment and position in frame so it that it turns true.
4. Start IRDS operation and ensure that the drum is rotating in the proper direction (clockwise). If not, change the wiring leads in the electric gearmotor's conduit box according to the schematic. This will change the rotation of the screen.
5. Introduce influent flow to the IRDS while running.
6. Collect captured solids in a container or other collection device for byproduct recovery.

SHUTDOWN

1. Shut off the in-feed to the rotary drum strainer.
2. Rotate strainer several revolution to remove any solids from the screen.
3. Activate the CIP (clean-in-place) spray cleaning system for several minutes to clean the perforated screen from the outside of cylinder.
4. Once it is clean the IRDS unit can be safely shutdown.

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MAINTENANCE

Minimal maintenance is to keep this IRDS unit in peak running condition.

Periodically perform the following:

1. Grease all bearings.
2. Check Trunnions for wear and replace as required.
3. Check the oil level in the drive system and fill as required.
4. See enclosed periodic procedures for maintenance.

OTHER

FOR ORDERING SPARES, REPLACEMENT PARTS OR COMPONENTS FOR THIS SPECIFIC SCREEN CALL OR FAX DONTECH DIRECTLY FOR PRICING AND AVAILABILITY.

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