



LYVE SC Series 100, 200 & 500 GPM Rotary Screens

Instruction, Operating and Maintenance Manual





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GENERAL OVERVIEW

LYVE SYSTEMS provide the design, engineering and manufacturing services to supply internally fed rotary drum screens for primary or secondary wastewater effluent screening for the food and beverage industry. This manual is intended to be generic across the range of models. Please refer to the component table on page 7 for model specific items.

CONSTRUCTION

The units are of 304 stainless steel construction and provide full enclosure for the drum screen, CIP system, electrical control cabinet, and includes influent, discharge piping and a solids discharge chute. A hinged lid and side panel allow access to the screen, drive motor and CIP leadscrew and spray nozzle for inspection and servicing. Removable access panels at the base of the unit allow access to the pressure cleaning system, clean water filter, isolating valve and electrical control cabinet. Note: DO NOT OPERATE THE SC SERIES SCREENS WITH ACCESS PANELS OPEN OR REMOVED

SCREEN ASSEMBLY

The stainless steel wedge-wire screen comes standard with a 1mm slot. A range of slot sizes are available on request. Perforated screens are available as an option. A full length continuous auger provides positive discharge of solids.

DRIVE SYSTEM

SEW-EURODRIVE helical-worm gear drive units control the screen rotation. Drive units are key mounted on to the central drive shaft. A torque arm mounted to the main frame prevents the gear motor from rotating. Ensure the correct clockwise screen rotation when commissioning the electrical system. Follow the SEW-EURODRIVE manual for recommended lubricant and lubricant changes. Optional variable frequency drive (VFD) controllers are available allowing variable screen rotation speeds to optimize solids dewatering. An adjustable timer allows programming 0-30 seconds screen overrun when influent flow stops. 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.



CLEAN IN PLACE SYSTEM (CIP)

The CIP System is located within the SC Series body and is used to prevent the screen from blinding. It consists of a single spray nozzle mounted on a self-reversing lead screw. This enables the nozzle to continually traverse the length of the screen. An RMI helical-worm gear drive unit provides the leadscrew rotation. A model M-I-TM CD 1002-2UMH pressure washer provides the necessary volume and pressure to clean the screen and prevent any blinding off or clogging. The pressure gauge mounted on the exterior of the screen will show the operating pressure of the spray wash system. Should the pressure drop below the operating range shown on the gauge the water supply and pre-filter need to be checked. Do not operate the system if the pressure is below the recommended range. The operating pressure should read between 800psi and 1000psi.

A programmable timer can be adjusted to set on/off delays for the spray wash system. A clean water supply to the Lyve SC Series Rotary Screen (>5GPM at 20PSI) must be connected to the 3/4" female NPT fitting at the inlet/outlet end of the Lyve SC Series screen. A solenoid valve will isolate the water supply to the unit when not in use. Water supply to the CIP system is protected by a 3/4" 155 mesh filter. The filter should be cleaned monthly or as required. A 25' hose and trigger gun is provided with the unit for incidental cleaning. Make sure isolating valves are left in the correct configuration after the manual hand trigger gun is used.

BEARINGS

The main bearings and leadscrew bearings are stainless steel sealed bearings in thermoplastic housings. The main bearings support the drive system, drive shaft and screen assembly. The leadscrew bearings support the leadscrew, nozzle block and leadscrew drive system. These bearings should be checked and lubricated on a two monthly basis. Do not over grease. One or two pumps with a grease gun is usually adequate. Over greasing may cause damage to the seal. The drum is axially supported instead of trunnions, for smoother running and to minimize servicing/maintenance.

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 each particular application/installation. Note, these pipes are ANSI 150 Class.



SOLIDS DISCHARGE CHUTE

The solids discharge chute is integral to the screen's frame and is designed to discharge dewatered solids to a collection bin for recovery or disposal. There is 36" clearance under the discharge chute on all models.

SYSTEM CONTROL PANEL

The system control panel is of stainless steel design and is NEMA 4 rated. The control panel houses the main isolating disconnect, screening system's VFDs (when fitted), start/stop switches and overloads and pressure washer control Auto/Off/Manual switch. The main disconnect and pressure washer control switch are accessible at the inlet/outlet end of the Lyve SC Series Screen. All panels are wired to accept a 480V 3 phase supply and are pre-wired and tested. All Lyve SC Series screens are supplied with a 480/120V transformer for pressure washer 120v power supply.

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 LYVE SC SERIES ROTARY SCREEN unit is self-contained and is fully assembled, factory tested and is ready for installation.

- Set your LYVE unit in place using a fork lift or overhead lifting device. Care should be taken not to lift the unit without the proper lifting apparatus.
- **Always lift your LYVE rotary screen using both lifting eyes provided at the top of the machine.** Lifting from any other area could cause overturning due to high COG.
- Once the unit is in place, it should be leveled using the shim supplied.
- Connect the required 3 phase electrical supply to the machines control panel.
- Connect your in-plant water supply to the ¾" NPT female connection provided with the CIP (clean-in-place) cleaning system.
- Connect the influent and discharge pipes as required.
- Check to see that all unit components and assemblies are tight.
- 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.



START-UP

- The operator should perform the following procedures prior to start-up:
- Check the oil level in the gearboxes.
- Grease bearings if necessary. Do not over grease; this could cause damage to the seals in the bearing housing.
- Ensure the lead screw is thoroughly covered with the recommended waterproof grease and grease the nozzle block until grease is evident through to the lead screw.
- Start screen operation and ensure that the drum is rotating in the proper direction (clockwise). If not, disconnect power at the main supply and change the wiring leads in the control panel according to the schematic. This will change the rotation of the screen.
- Introduce influent flow to the screen while running.
- Collect captured solids in a container or other collection device for byproduct recovery.

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

MAINTENANCE

Minimal maintenance is to keep the Lyve SC Series Rotary Screen unit in peak running condition. Periodically perform the following:

- Grease all bearings.
- Grease lead screw and nozzle block monthly
- Check the oil level in the drive systems and fill as required.
- See enclosed periodic procedures for maintenance.



LUBRICATION CHART

Recommended Lubricants:

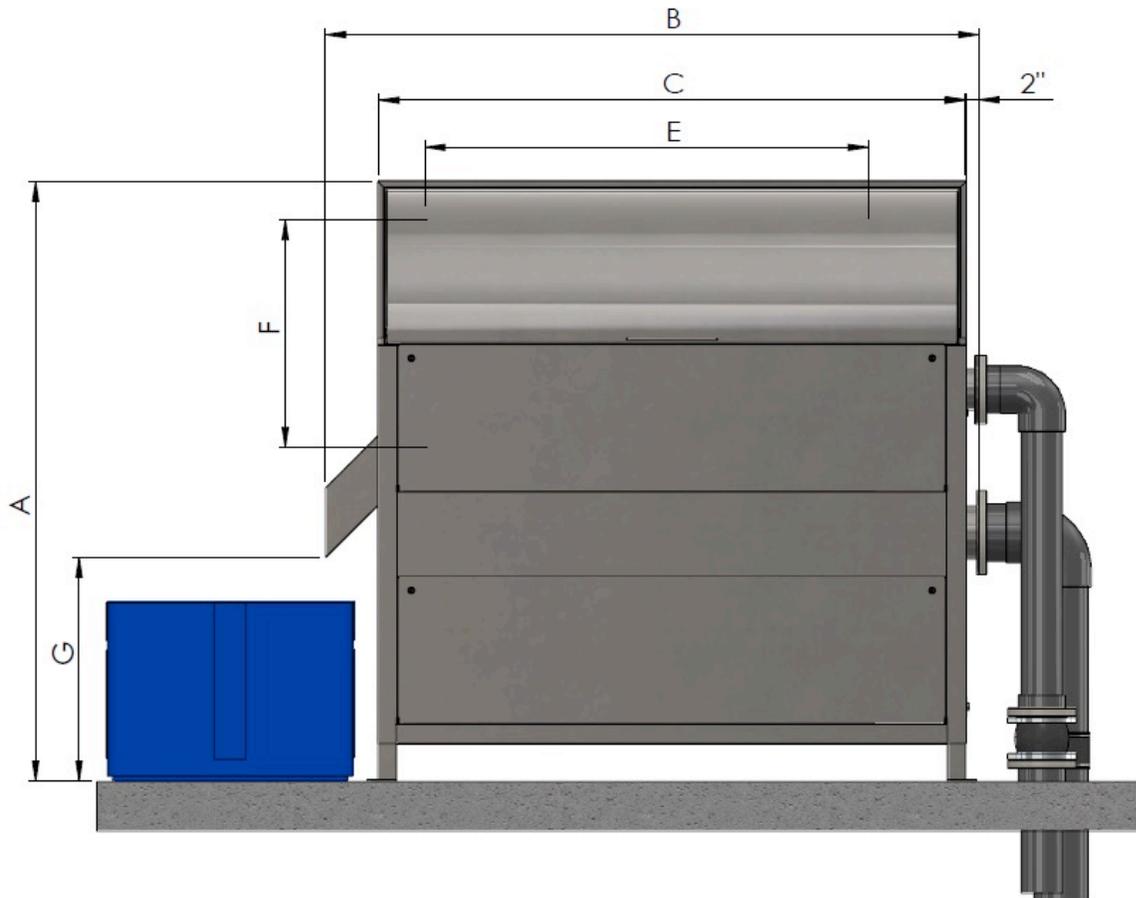
SEW -EURODRIVE GEARBOX	Shell Omala S2G680 or Equivalent
LEAD SCREW	Moly-Graph Grease
BEARINGS	SKF LGLT-2 Low temp grease or Equivalent

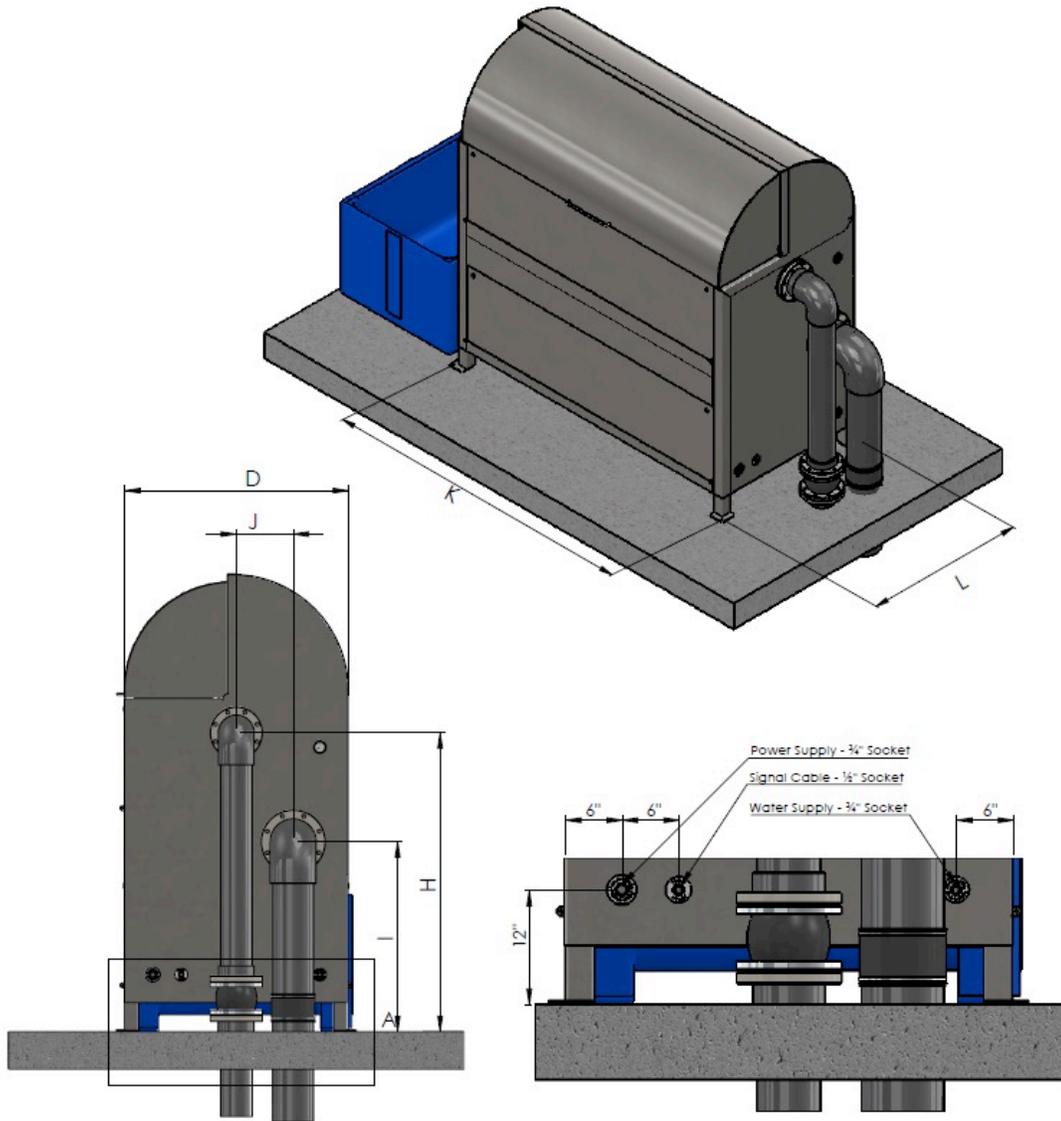
DIMENSION TABLE

MODEL	SC100	SC200	SC500
A Overall Height	76"	84"	96"
B Overall Length	53"	82"	105"
C Body Length	44"	71"	95"
D Body Width	30"	36"	48"
E Screen Length	24"	48"	72"
F Screen Diameter	18"	24"	36"
G Solids Chute Clearance	36"	36"	36"
H Inlet Height	55"	59"	63"
I Outlet Height	40"	40"	40"
J Outlet Offset from Centre	6"	9"	12"
K Anchor Centers (Length)	46"	74"	96"
L Anchor Centers (Width)	31"	38"	49"
Anchor Size	3/8"	3/8"	1/2"
Inlet Size	3" (ANSI 150)	4" (ANSI 150)	6" (ANSI 150)
Outlet Size	4" (ANSI 150)	6" (ANSI 150)	8" (ANSI 150)
Mass	750 lbs	1400 lbs	2300lbs
Screen Drive motor	.37kW	.37kW	1.1kW
Spray Jet Drive Motor	.09kW	.09kW	.18kW
Spray jet inlet Connection	3/4"NPT Female	3/4" NPT Female	3/4" NPT Female
Note - All dimensions approximate - rounded to nearest inch			

SCHEMATICS

Screen Dimensions







MECHANICAL EQUIPMENT SPECIFICATIONS

M-I-TM CD 1002-2UMH Pressure Washer

Model CD-1002-2MUH* 1000psi 2.0GPM 1.5 HP, 120V, 1Ø, 12.5A

Pump: – Forged brass manifold – Thermal and safety relief valves

Totally enclosed fan-cooled electric motor with thermal overload protection –with ground fault circuit interrupter, GFCI

25-foot x 3/8-inch non-marking high pressure hose with quick connects.

Professional-grade insulated trigger gun with safety lock-off.

Drive Unit Specifications:

SC 100 – SEW-Euro-drive SA/47-T DRS71S4 – 0.37kW – 30mm Hollow Shaft

SC 200 – SEW-Euro-drive SA/57-T DRS71S4 – 0.37kW – 35mm Hollow Shaft

SC 500 – SEW-Euro-drive SA/67-T DRS71S4 – 1.1kW – 40mm Hollow Shaft

Lead Screw Drive Motor:

SC100 and SC200 – STM model RMI-PP28 0-100 0.09kW

SC500 - STM model RMI-PP40 0-100 0.18kW