

Category A: Coarse Screens and Compactor

1. Scope of supply

General Data:

Below are the Specifications and Schedule of Particulars and Guarantees for the supply of two (2) coarse bar screens. Each screen is located in a 0.70 m width channel as shown according to drawing no. 04037-11. The peak flow for design is 850 m³/h.

Tag Numbers:

Coarse screens: **M11-PT, M12-PT**

Compactor: **M13-PT**

Component	Number of Units	Bidder Confirmation
Coarse Bar Screen	2	
Screw Compactor	1	
Local PLC	2 (one for each screen)	
Differential level transmitters	2 (4 sensors)	
Lifting Hooks	Included	
<u>Submittals</u>		
Electrical drawings format dwg.	2D	
Machine drawing format rvt./ifc.	3D	

2. Specifications

Item	Minimum requirement	Guaranteed value
<u>Design Criteria</u>		
Design flow rate, m ³ /h	850	
Emergency flow rate, m ³ /h	850	
Type of medium	Non-screened wastewater, prior to grit removal	
Temperature min./max. °C	10-50	
pH	6-9	
TDS, gr/m ³	Up to 1,500	
Sulfides, gr/m ³	Up to 15	
Chlorides, gr/m ³	250	
Screen width, mm		
Channel width, m	0.70	
Installation	Indoor	

Item	Minimum requirement	Guaranteed value
Installation depth, m	10.05	
Area classification	Explosion proof as required in the NFPA 820 Class 1, division 2, group D	
Control panel	Included - for screens and screw compactor	
<u>Coarse Bar Screen</u>		
Manufacturer	LD Systems, Kuhn or approved equivalent	
Type or model		
Installation angle, °	90	
Maximum permissible head loss, cm	50	
Size of clear openings, mm	15	
Bar thickness, mm	8	
Chain's breaking load, kN		
Rake's speed, m/min		
Rake's speed at emergency flow rate, m/min	8.4-8.0	
Velocity through the bars, m/s	Max. 1.2	
Number of rakes	Every 1 meter or back cleaning bar screen	
Bar shape	Trapeze	
Bar shape factor	<1	
Operation mechanism	Continuous cleaning or automatically cleaned according to level difference as measured by the differential ultrasonic level gauge, or back cleaning bar screen	
Cleaning cycle	Three options:	
	1. Operation according to differential water level	
	2. Operation according to timer	
	3. Continuous operation	
Emergency manual shutdown switch	Included	
Discharge cone	The discharge cone will be completely closed and directly connected to the conveyer-compactor hopper.	
Installation	On-site supervision by a qualified representative of the manufacturer	

Item	Minimum requirement	Guaranteed value
	On-site training by the manufacturer's technician	
	All parts required for on-site erection, ready for operation, including lubricants for three months	
<u>Materials:</u>		
Bars	SS316	
Frame	SS316	
Cover for odor protection	SS316	
Rakes and rakes scrapers	SS316	
Drive chain; solid pins; solid rollers	SS316	
Drive chain	Hardened corrosion resistant steel or SS316	
Cog wheel	SS316	
<u>Electric Motor:</u>		
Manufacturer	Siemens or equivalent	
Type	KAD 109	
Motor rating, kW	3	
Voltage, V	400	
Frequency, Hz	50	
Reducer		
Service factor		
Power factor at full load		
Motor protection rating, IP	55	
Explosion proof code according to NFPA 820	Class 1, Division 2	
Alerts	Overload, temperature	
Protections	Overload Switch	
Warranty	2 years from date of commissioning of plant with wastewater	
<u>Compactor</u>		
Manufacturer	Same as for Bar-Screen	
Type or model		
Components	Feed trough	
	Totally enclosed for dusty, corrosive or hazardous environments	
	Inspection cover	

Item	Minimum requirement	Guaranteed value
	Wash water connections	
	Wash water and Press Water outlet	
	Discharge Pipe Connection	
Screw length, mm	Approx. 3600	
Screw diameter, mm	200	
Flight thickness, mm	25	
Number of heavy duty, adjustable stands	4x	
<u>Materials</u>		
Compacting Screw	SS316	
Feed trough	SS316	
Stands/brackets	SS316	
Cover	SS316	
Press zone	SS316	
Discharge pipe Flange connection	DIN PN 10	
<u>Electric Motor:</u>		
System	Electric motor and direct drive	
Motor type		
Rated power, kW	2	
Frequency, Hz	50	
Rated voltage, V	400	
Motor efficiency standard	IE3	
Control method	Direct drive	
Insulation rating	H	
Number of poles		
Service factor		
Protection rating, IP	55	
Duty type	Continuous operation periodic duty with related load/speed changes	
Overload protection	Included	
Torque limiter	Included	
<u>PLC</u>		
Communication protocol	MODBUS or other approved by client	
HMI screen dimensions	>12''	

Item	Minimum requirement	Guaranteed value
PLC program	In all machines it is mandatory to configure open-source PLC software, when all parts of the programs will be recorded and opened subject to the signing of a confidentiality agreement.	
Data display & data storage	<ul style="list-style-type: none"> -Alerts -Cleaning mode -Malfunction -Overload -Number of cycles per day 	

3. FAT (Factory Acceptance Test)

After complete manufacturing of the equipment, the manufacturer shall notify the client that all the scope of supply has been checked in accordance with the equipment at the factory, and add a signed document for the factory acceptance test.

4. Running

1. Dry run

- i. The manufacturer representative shall submit a report confirming the installation.
- ii. Connection of the equipment to the power supply system and first operation; Inspection of proper operation of the rakes: The rakes should move smoothly within the bars, there are no deflections in the chains or in the bars, and there are no vibrations or irregular noises.

2. Operation of the screen and the compactor: a complete synchronization between the operation of the screen, the rakes and the compactor.

3. Running with wastewater

- i. Running with wastewater shall be done by closing the gates upstream and downstream to the screen and filling the channel with wastewater.
- ii. The running with wastewater shall last for three (3) days. The flow through the bars and the proper operation of the rakes shall be inspected. The inspection shall consist of examining the synchronization between the rakes and the compactor.

4. Full run of the system with wastewater via the control system for 30 days. All the above-mentioned parameters shall be inspected.