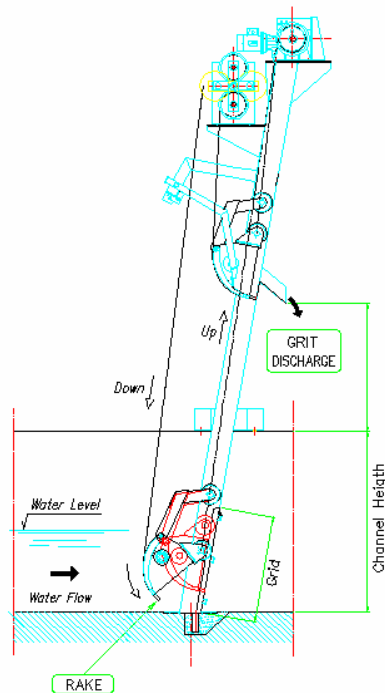


AUTOMATIC SCREEN

WITH CABLE LIFTING DEVICE FOR DEEP CHANNELS



Model **EM32D**

Spacing 15 - 150 mm.

AUTOMATIC SCREEN WITH CABLE LIFTING DEVICE

Bar screens characteristics change according to the size of the materials they have to retain. They are mainly divided into:

- coarse screens (spacing between the bars = 40-150 mm)
- medium screens (spacing between the bars = 10-40 mm)
- fine screens (spacing between the bars = 3-10 mm)

The automatic bucket screen is operated by a cable lifting device and the whole drive unit is installed above water level.

This type of screen can have a spacing between the bars which goes from 15 to 150 mm.

The material stopped by the screen is removed by a bucket operated by a drive unit installed on the equipment upper part.

The screenings are discharged into a hopper which is also installed above water level.

The bucket is cleaned by a movable counterweight device.

The equipment is designed to be installed in a concrete channel with right section. The screen is supplied completely assembled and ready to be placed in the channel.

TECHNICAL AND DIMENSIONAL DATA

1. Channel width : mm.
2. Channel height : mm.
3. Discharge height from channel bottom : mm.
4. Distance between the bars : mm.
5. Peak flow rate : m³/hr.
6. Regular design flow rate : m³/hr.
7. Water level in the channel with peak flow and : mm.
regular design flow
8. Water speed in the channel with peak flow : m./sec.
9. Water speed in the channel with design flow : m./sec.

If we know the figures from item 1 to 9, we can calculate:

10. Head loss at the max. flow rate : bar
11. Head loss at the regular design flow rate : bar
12. Screening speed : m./min.

DESCRIPTION OF A STANDARD SCREEN

MOD. EM 32D

1. Technical and dimensional data

1.1	Peak flow rate in the channel	m ³ /h	
1.2	Channel width	mm.	
1.3	Channel height	mm.	
1.4	Discharge level from the channel bottom	mm.	
1.5	Water level in the channel	mm.	
1.6	Spacing between the bars	mm.	
1.7	Bars thickness	mm.	8x50
1.8	Screening speed	m./min.	4
1.9	Max. pull on the rake	Kg.	
1.10	Orthogonal axle type geared motor for bucket lifting.		
1.11	Gearbox reduction ratio	i	1 : 286.5
1.12	Geared motor outlet revolutions	rpm	5
1.13	Worm geared motor for bucket drive.		
1.14	Gearbox reduction ratio	i	1 : 750
1.15	Geared motor outlet revolutions	rpm	2

.../...

.../... **Technical and dimensional data**

1.16	Cable diameter	mm.	10
1.17	Orthogonal axle gearbox shaft dia.	mm.	60
1.18	Worm gearbox shaft dia.	mm.	45
1.19	Limit switches installed for the equipment operation	no.	8
1.20	Installed power for bucket lifting	kW.	2.2
1.21	Installed power for bucket opening	kW.	1.1
1.22	Power	V-f-Hz	380-3-50
1.23	Electric motor poles	no.	4
1.24	Motor protection	IP	55
1.25	Insulation class		F
1.26	Equipment total weight	Kg.	

2. Equipment main components description

2.1 Structure.

Enbloc frame made of electro-welded structural steel c/w runways for the screening rake trolley.

2.2. Bar screen.

Enbloc bar screen made of galvanized steel and fixed to the machine frame.

2.3 Drive unit.

Mainly consisting of no. 1 shaft and no. 3 drums. The trolley lifting cables are wound on no. 2 side drums while the central drum regulates both the rake teeth insert into the screen and their release during the return phase.

2.4 Rake trolley.

It is equipped with wheels which slide on the runways fixed onto the machine frame. The rake upward and downward translation is made by means of a stainless steel cable driven by a gearbox.

2.5 Screening rake system.

It consists of a screening rake mounted on a movable trolley. The rake is lifted from the bar screen by a special device.

The rake insert into the bar screen and its lifting are carried out by a cable driven by a gearbox.

2.6 Screening rake movable cleaning system.

2.7 **Gearbox** c/w self-braking motor directly keyed to the pulley drive motor shaft to wind and unwind the cable which moves the screening rake trolley. The motor shutdown by high torque is made by an ammetrical relays installed in the electric control panel.

2.8 **Gearbox** c/w self-braking motor directly keyed to the pulley drive motor shaft to control the screening rake insert into the screen and its lifting.

2.9 ***Electric panel for local control.***

Placed in a stamped plate or fiberglass casing, with class of protection IP 55, c/w galvanized screws, handles and closing plates and suitably sized to contain all the components detailed below, assembled and wired on extractable plates:

- three-pole switch, rotary control type, with door lock device;
- mono-phase transformer 380/110 V;
- no. 3 protections fuses;
- motor remote control switch;
- ON/OFF push button;
- ON/OFF lights;
- device for the release of the remote control on motor shut-down signal from the ammetrical relay;
- ammetrical relay for high torque control;
- no. 2 timers for the operation setting;
- junction box for power cables and free terminals for possible outgoing signals.

3. **Surface protection**

Rake and bar screen: hot galvanized

All the other parts are protected by the following painting cycle, after having been white-metal sand-blasted Sa 2.5:

Parts below water level

- epoxy-tar for a total thickness of the dry film of 350 micron

Parts above water level

- inorganic zinc - thickness 50 microns

- finish by chlorocaoutchouc - thickness 100 micron

- total thickness of dry film = 150 microns

Alternatively, the machine can be completely hot dip galvanized for an average thickness of 75 microns equal to 500 gr./m².

4. Operation description

The bar screen is driven by no. 2 gearboxes, one for the screening rake lifting and lowering and the second one for the rake insert into and lifting from the bar screen.

In the drive unit upper part, there are no. 3 drums (no. 2 side drums + no. 1 central drum). They are driven by a gearbox and they wind the cables which lift and lower the screening rake.

The second gearbox operates a pulley which approaches and moves away the screening rake from the bar screen, by moving the central cable.

When the truck goes down, the screening rake is in open position and remains open as long as the truck gets to its lowest position.

When the screening rake lays on the bottom, the traction cable is loosened and a limit switch intervenes to shut-down the motor (this limit switch is connected to the cable).

Then, the first gearbox rotation direction is reversed, the second gearbox starts up to wind the central cable and the screening rake is inserted into the bar screen.

Then, the rake is lifted again and during the lifting it cleans the bar screen and keeps the screening inside the bucket.

Before the rake gets to its highest position, a special device cleans the bucket and discharges the screening outside into a container or belt conveyor.

In the upper part a limit switch intervenes to shut-down the motor of the bar screen lifting and to reverse the screen running direction to begin the downwards run.

In the meanwhile, the second gearbox operates the central drum which lifts the screening rake from the bar screen.

During the downwards run the screening rake remains lifted.