

Name of Work: - Supply, Installation, Testing & Commissioning Mechanical Screen PS-B & PS-C, MOC-MS and Level Sensor At Dwarka District Devbhumi Dwarka. (2nd Attempt)

PRODUCT FEATURES, ADVANTAGES AND BENEFITS **SCREENS KUR-D* MULTIRAKE BAR SCREEN**

KUR-D* Multi Rake Bar Screen is a chain driven screen suitable for screening of sewage. The Raked Bar Screen is used for screening of floating material in municipal and industrial wastewater plants. The screen is typically installed at the inlet of the sewage treatment plants. It consists of an inclined stationary bar screen and a cleaning assembly for use inside a waste water channel. The submerged section in contact with the upstream effluent is a series of parallel bars that make up the fixed bar screen. The Raked Bar Screen is driven by a single electrical motor and automatically controlled by a programmed control panel. In normal operation it starts and stops as required in response to effluent flow levels in the channel with the use of level sensor.

The upstream effluent shall pass through the inclined bar screen, depositing solids content greater than the screens gap size (opening) on the bars. The surface of the screen is cleaned by means of multiples rakes with teeth that are moved by chains on either side. The rakes clean the screen and lift the screened material up to the discharge chute.

* Screens Designed by Passavant

*Kindly note that for mechanical Multirake bar screen differential head should not go above 500 mm as our screens are designed for 500 mm differential head.

The following lists the major components of Defender Multi Rake Bar Screen.

BAR SCREEN

The bars having gap size (opening) can be of minimum 6 mm and maximum as per the design requirements are bolted on to the frame. The MOC is SS 304/SS 316.

It will be installed at angle of inclination of 75°

RAKES

The surface of the screen is cleaned by means of multiples rakes with teeth that are moved by chains on either side. The speed of the rake is 6 to 8 m/min. The MOC is SS 304/SS 316.

CHAINS

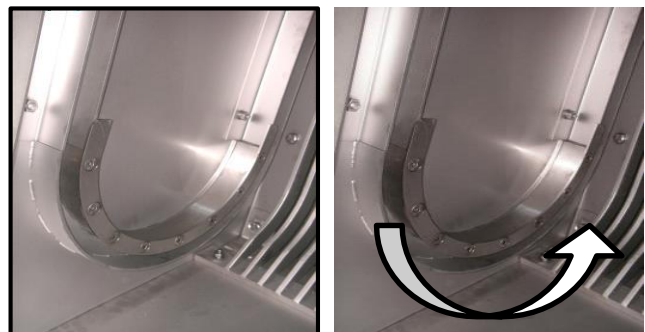
Each chain is driven by a sprocket (only on the upper part of the screen) on a common shaft and a flange mounted gear motor. Translation chains type roller chains are manufactured in SS 304/SS 316 resistance as maximum load.

SPROCKET

The screen is designed with a sprocket only on the upper portion of the screen (See Figure). Therefore, the sprocket is never in contact with the effluent. The MOC is SS 304/SS 316.

Lower Guides (Wearing Guide):

The lower guides at the bottom portion of the screen are used to guide the roller chains from the bottom. (There is no sprocket at the bottom portion). This guide replaces the usual lower sprocket. Our design includes the lower curve manufactured in stainless steel instead of the lower sprocket that submerged with the effluent could cause frequent blockage of the screen and requires frequent maintenance. With our design of lower curve (no sprocket at the bottom), frequent blockage and maintenance can be avoided.



DISCHARGE CHUTE

The discharge chute will be manufactured in SS 304/SS 316.

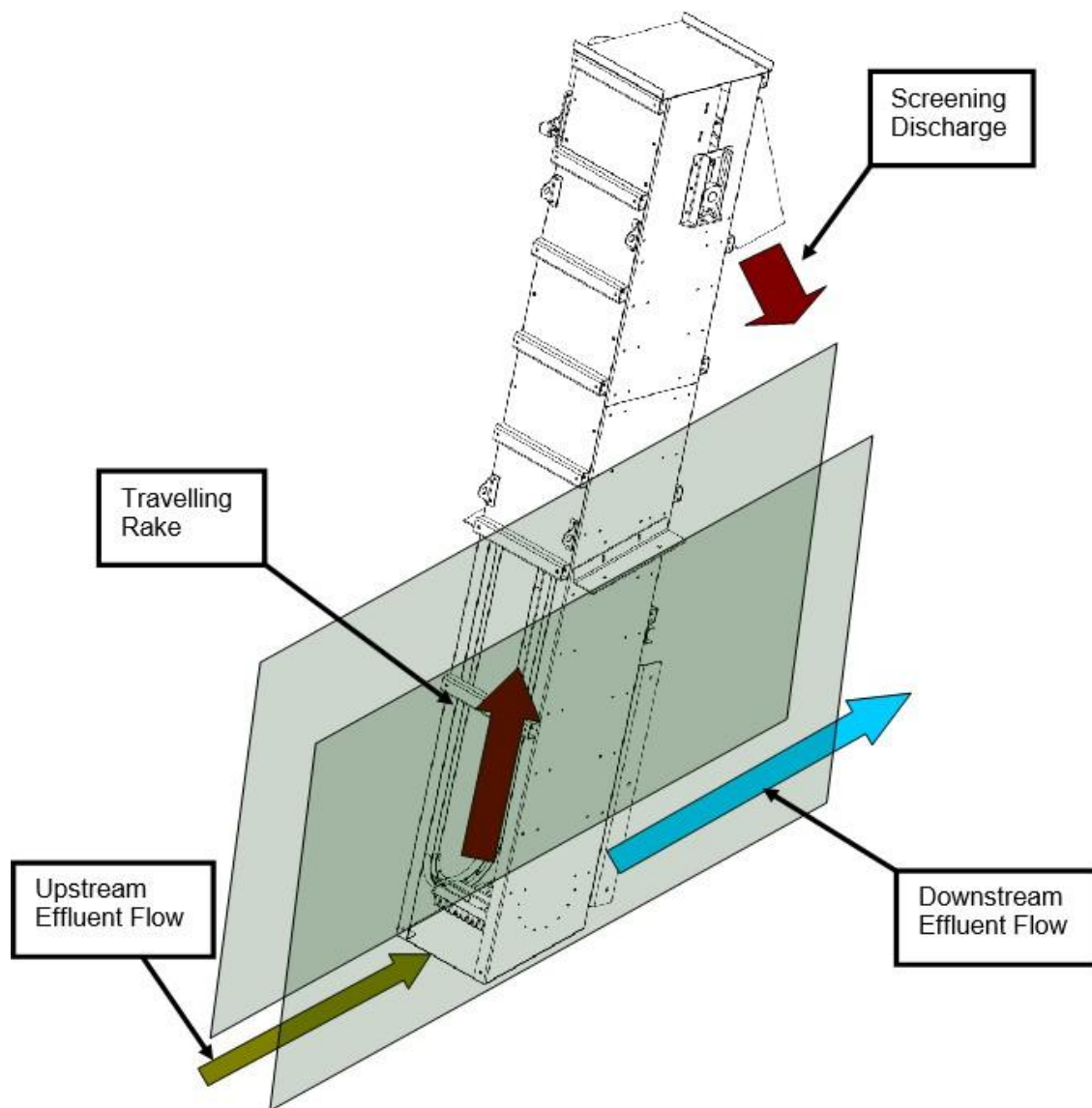


Figure 2: Standard Raked Bar Screen shown in channel indicating direction of flow.

1. TECHNICAL DETAILS

I. Screens KUR-D Mechanical Coarse screen PS-B - 20 mm Spacing.

FLOW & HEAD LOSS CALCUALTION FOR MULTIRACK BAR COARSE SCREEN FOR DWARKA PS-B			
SR.NO.	DETAILS FOR MACHINE	UNIT	
1	Channel Width CW	mm	750
2	MACHINE WIDTH SELCTED	mm	450
3	SCREEN WIDTH FOR MACHINE		328
4	Spacing between bar	mm	20
5	Bar width	mm	12
6	Bar depth		50
7	WATER LEVEL at Peak Flow	mm	580
8	Flow per unit PEAK FLOW	MLD	10.00
9	Flow per unit PEAK FLOW	m3/SEC	0.116
10	Free Board Height	mm	1270
11	Channel Depth	mm	1850
12	Discharge Height (from Channel Platform to Discharge chute)	mm	750
13	Water Depth at Inclination	mm	600
14	OPEN WIDTH OF BARS (OPEN AREA OF BARS)	mm	205.00
15	OPEN AREA OF SCREEN	M^2	0.123
16	WATER VELOCITY THROUGH SCREEN V2	m/s	0.94
	HEAD LOSS THROUGH SCREEN		
1	Open channel width	mm	750.00
2	Open channel water depth	mm	580.00
3	Velocity in channel V1= Q/(CDX WD)	m/s	0.27
4	Head loss through screen H= 0.0729 X (V2^2 - V1^2)	m	0.0593
		mm	59.29
5	Angle of inclination	N°	75
6	Screen length in Inclination (in water)	mm	600
7	Total machine vertical height (Approx)	mm	3750
8	OPEN AREA OF SCREEN at 50 % Clogging	mm	0.062
9	WATER VELOCITY THROUGH SCREEN V2	m/s	1.88
10	Head Loss At 50 % Clogging	m	0.25264
		mm	253
17	NUMBER OF RACKS		2
18	Rack travel speed	m/min	6-8
19	Screen height required	mm	880
20	Inclined height requierd (Approx)		911
21	Drive Motor Manufacture		
a)	Rated Output	0.75KW-2.2 KW	0.75
b)	Power	Hp	1.00
c)	Class of Insulation		F
d)	Protection	IP	55
22	Gear Box		Yes

23	Level Sensor	TYPE	Differential
24	Control Panel	IP	65
25	Rake movement	Drive	Chain
26	Material of Construction		
a)	Screen Bar	SS 316	Yes
b)	Screen Frame	SS 316	Yes
c)	Dead plate	SS 316	Yes
d)	Discharge chute	SS 316	Yes
e)	Sprocket	SS 316	Yes
f)	Scraper	UHMWPE	Yes
g)	Chain	SS 316	Yes
h)	Control Panel	MS Powder coated	Yes

2. TECHNICAL DETAILS FOR CONTROL PANEL

1. The control panel will be made of MS Powder coated & will have the followings control.

- ❖ The panel will be for Screens KUR-D* Multirake bar screen.
- ❖ The panel will have overload relay for motor protection.
- ❖ The circuit for operating machine with level sensor.
- ❖ Kindly note Electrical Control Panel will be made as per our standard specifications.

3. SCOPE OF SUPPLY

A) 1 Nos. KUR-D* Multi Rake bar Coarse screen with gap size of 20 mm with Followings -

1. Complete Mechanical screen.
2. Drive mechanism for Multi Rack bar screen.
3. Rack mechanism. (In-built with machine).
4. Electrical panel made of MS Powder coated for KUR-D* MultiRake bar screen.

B) 1 Nos. KUR-D* Multi Rake bar Coarse screen with gap size of 20 mm with Followings -

1. Complete Mechanical screen.
2. Drive mechanism for Multi Rack bar screen.
3. Rack mechanism. (In-built with machine).
4. Electrical panel made of MS Powder coated for KUR-D* MultiRake bar screen.

C) Belt Conveyor (Optional)

- 1400 mm x 600 mm – 1 nos.
- 1800 mm x 600 mm – 1 nos.

D) Differential Type ultrasonic level sensor (Make :- Pune Techtrol – 2 Set.(Optional)