

DRUM SCREEN SYSTEM

IDEA & SOLUTION



 **WILL SCREEN & PLANT CO., LTD**

TEL: +82-32-822-9801

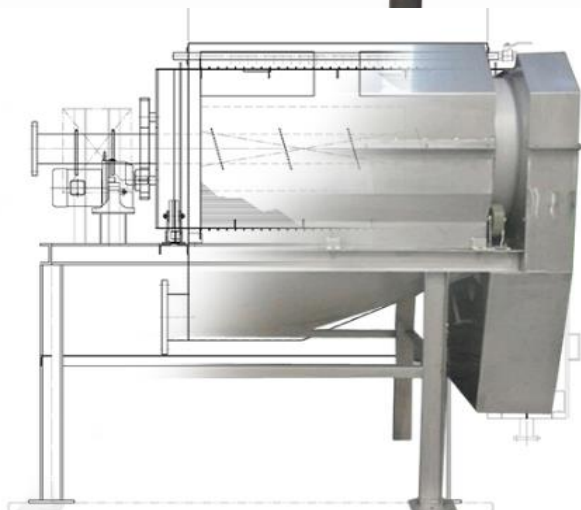
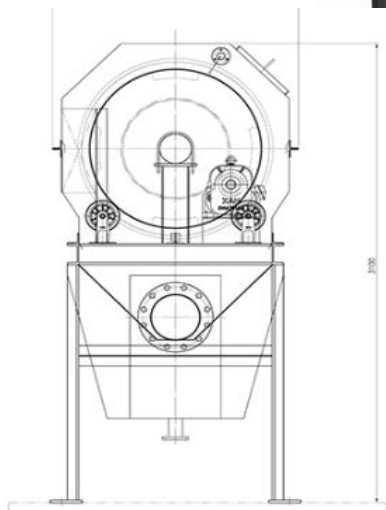
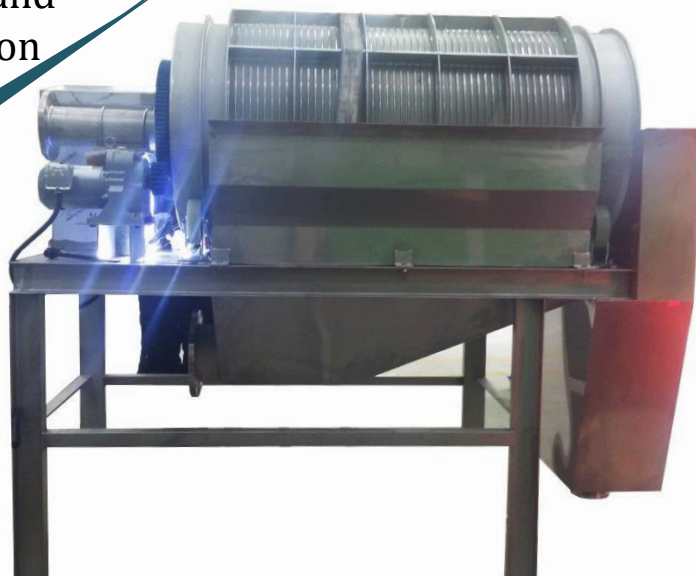
FAX: +82-32-822-9803

E-mail: willscreen@willscreen.com

WEB: www.willscreen.com

DRUM SCREEN SYSTEM

The most effective and
Eco-friendly Filtration
System



1. General Information

- WILL SCREEN & PLANT Drum Screen System is designed and engineered to keep the screens clean automatically with wash water supply while operating the machine without any interruption through which provides the cost and time efficiency.
- It consists of profile wedge wire screen made by wrapping the support rod helically with 'V' shaped wire design that can control the entrance velocity and provides high open area as well as non-clogging
- The filtration direction goes from the inlet gate to the outlet gate (FITO) and Profile wire surface is positioned at the inside and support profiles are placed at the outside.
- The wastewater flows in through inlet gate and it is filtered inside of drum screen while residues are excreted along the vane installed on the inside and the back shower spay operates automatically to keep clean.
- It is manufactured in accordance with ISO 9001, ISO 14001, OHSAS 18001 to satisfy the worldwide standard and to perform the highest efficiency in the given conditions.
- WILL S&P with a professional technique and know-how accumulated by extensive experiences of design & engineering, manufacturing and installation can prove that we delivery the products with the best quality to the customer for the highest efficiency.

2. Application

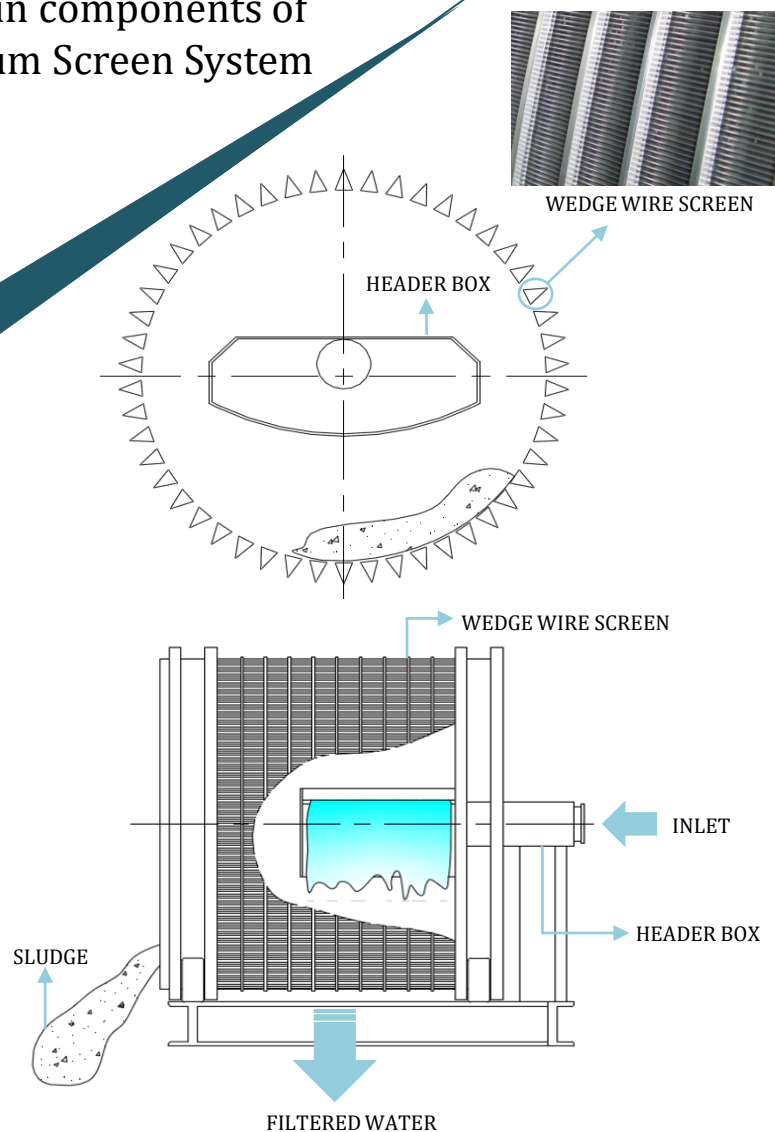
- Paper and Pulp industry
- Meat Industry
- Agriculture Industry
- Breweries
- Laundries

3. Features

- Vast amount of water withdrawal
- Non-Clogging
- Automatic cleaning system
- Controlled slot velocity
- Customized & Engineering Design
- Lower cost for installation, operating, maintenance

DRUM SCREEN SYSTEM

Main components of Drum Screen System



1. General Information

- WILL S&P Drum screen system has been widely used in the sewage and wastewater treatment plants. They are normally placed on the pre-conditioning process but it can be utilized in many ways based on the customer needs.
- Drum screen system is composed of drum sieve screen, header box, automatic shower spray, geared motor, auto valve and the other components.
- Drive motor makes a rotation during screening process while sludge on the screen surface goes along the vane and falls into scum box through outlet chute.
- Drum Sieve has 2 types: Profile Wedge wire screen and Mesh screen. Mesh screen may be cheaper than profile wedge wire screen in terms of price, however profile wire screen lasts longer than mesh screen which reduces the overall cost for maintenance and operation. It is not only a matter of durability of material, but the profile wedge wire screen is more efficient in terms of open area, less clogging, resistance to corrosion and Control of slot velocity

2. Specification

- Type: Profile Wedge Wire Screen & Mash Wire Screen (Optional: Perforated Plate)
- Scope of Work: Drum Screen equipped with control cleaning system
- Material: SS304, SS 316L, 321, 347, Monel 400, Hastelloy C-276, Cu/Ni
- Slot Opening: 0.2 ~ 10 mm
- Supply Parts:

- I. Drum Screen
- II. Header Box
- III. Safety Cover
- IV. Shower Pipe
- V. Scum box
- VI. Outlet Chute
- VII. Bed Frame & Leg
- VIII. Control Panel
- IX. Geared Motor
- X. Auto Valve & Roller
- XI. Name Plate
- XII. Others



DRUM SCREEN SYSTEM

Main components of Drum Screen System



1. Spay System

- Back shower spray system is one of the most important components of the drum screen system. Its main purpose is to clean the screens so as to maintain the highest open area and the screening efficiency.
- Automatic spray system is controlled by control panel and the screens can be cleaned periodically by predetermined timer. Preset time can be defined by end-users based on the given conditions, but WILL S&P recommend to operate the spray system for 5 minutes per 30 minutes at the minimum and for 5 minutes per 2~3 hours at the maximum. However the number of operating cycle should be frequently when it comes to MBR plants (Membrane Bio Reactor)
- To prevent water from splattering and for safety purpose, safety cover is put on the outside of drum body and the inside of drum body can be seen through body covers

2. Geared Motor

- Maker: Samyang Reduction Gears Co., Ltd
- Country: Republic of Korea
- Type: Horizontal, Vertical, Line Power
- Ratio: 1/5~1/120
- Power: 0.2kW~15kW



3. Control Panel

- Control Panel can control the machine operation such as speed, timer setting, selection of manual and automatic operation and operation status



4. Body & Header Box

- Body frame is designed to hold the drum screen sieve
- Header box provides highest open area and it is assembled with MC gear and inlet flange
- Material: 304 S.S



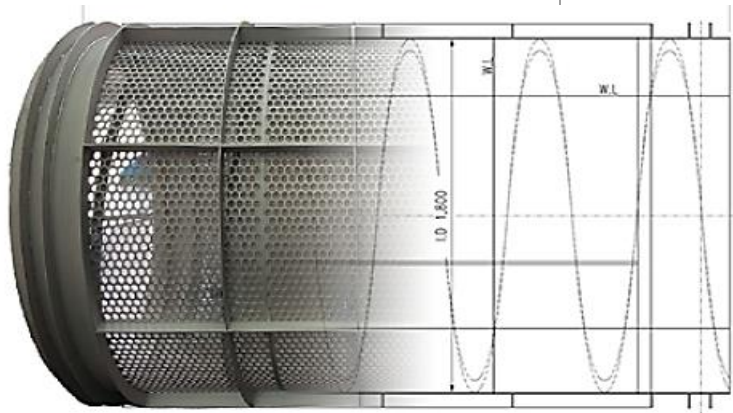
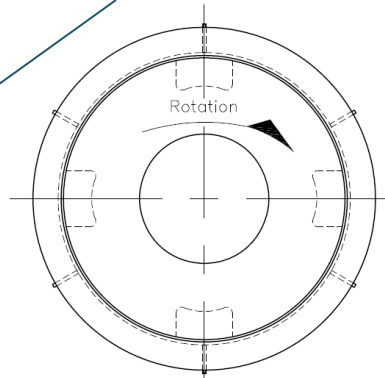
5. Other components

- Outlet chute
- MC Gear
- Scum box,
- Roller
- Auto Valve
- Name Plate
- Safety Cover
- Lubricants
- Others



DRUM SCREEN SYSTEM

Standard Model For Drum screen



1. General Information

- WILL S&P drum screen system is applicable to various industries and it can be designed in accordance with customer requirements.
- With a lot of experiences of manufacturing, installation in the different conditions, we have been able to develop our own technology and know-how as well as criteria for drum screen system.

2. Specification

- We have six standard model for drum screen system and they are commonly used in the water and wastewater treatment plants.
- The size of drum sieve screen normally ranges from 650 mm up to 1800 mm with profile wire slot opening 0.2 ~ 10 mm and its individual size can be decided in accordance with flow calculation and the particle size
- Unlike other general types of drum screen, our product provides highest open area and efficiency



Model No.	I.D (mm)	Length (mm)	Slot Opening (mm)	Power (KW)	Speed (Rpm)	Inlet (mm)	Outlet (mm)
WSDS-650	650	1400	0.2 ~ 10	0.75	15	80A	100A
WSDS-750	750	1400	0.2 ~ 10	0.75	13	100A	125A
WSDS-1000	1000	1500	0.2 ~ 10	2.2	10	125A	200A
WSDS-1200	1200	1500	0.2 ~ 10	2.2	8	125A	200A
WSDS-1500	1500	2500	0.2 ~ 10	3.7	6	150A	200A
WSDS-1800	1800	3500	0.2 ~ 10	3.7	5	150A	200A

DRUM SCREEN SYSTEM

Processing Flow rate
By industry



❖ Processing Flow Rate based on Size, Slot and Type of Industry

Type of Industry	Slot (mm)	Size (Diameter * Length - mm)					
		500*900	600*1000	700*1000	800*1000	1000*1200	1200*1300
Urban Sewage Pretreatment (Comminution)	2.0	83	166	223	332	635	947
Urban Sewage Primary Treatment (Quiescent Tank)	1.5	73	147	198	294	564	840
Urban Sewage Secondary Treatment (Quiescent Tank)	0.5	25	40	60	80	250	350
Meat, General Process, Wastewater	0.8	25	40	68	90	150	230
Livestock Wastewater	0.8	25	40	70	90	170	220
Leather Wastewater	1.0	30	45	60	86	140	200
Fish Wastewater	0.8	32	50	70	100	170	250
Concentrated Paper & Pulp	0.5	30	60	80	100	150	200
Paper & Pulp Wastewater	0.8	30	40	60	95	150	250
Plywood, Lumbering, Log, Lavation	1.0	28	57	76	114	217	300
Textile, Wool Fines	0.5	20	40	80	130	240	320
Fruit, Canned Food Processing Water	1.0	40	65	120	180	340	450
Fruit, Canned Food General Wastewater	1.0	74	148	199	296	267	550
Butchery Chicken coop, Primary meat collection	1.0	35	45	85	120	180	280
Butchery Chicken Coop, Plumage meat combination	0.8	30	45	85	127	200	300
Butchery Chicken Coop,, Secondary Processing	0.5	25	45	75	100	180	370
Sugar Processing	0.8	25	51	68	102	195	290
Casting	0.8	35	60	90	120	200	350
Alcohol	0.5	17	35	48	71	136	204
Extract Particle of Petrochemical PVC	1.5	35	70	100	150	280	400
Domestic Waste Water	0.8	19	38	52	77	147	2118

DRUM SCREEN SYSTEM

Operation Guideline



1. General Information

To ensure smooth operation and prevent accidents, make sure you fully understand this manual before operating the Drum Screen.

Be sure to observe the following safety instructions when using the Drum Screen:

- 1) Never attempt to move the Drum Screen while operating the machine
- 2) Never attempt to put your hand, foot, and/or tools into the cover during operation
- 3) Prior to conducting repair and maintenance of the Drum Screen, be sure to remove all residues from the header pipe and all pipes when the machine is not activated

2. Preparation

- 1) Refill the driving unit with sufficient lubricant and grease.
- 2) Check if the machine is properly connected to a power source.
- 3) Check if the wash water supply line is in the required level.

3. Operation

- 1) Operate the Drum Screen initially with no load applied for about one minute before feeding wastewater into it.
- 2) Supply wash water into the Drum Screen.
- 3) After feeding wastewater into the Drum Screen, check if the slurries are properly filtered. If any irregularity is observed, stop operating the machine immediately to troubleshoot problems before resuming operation

4. Starting the Drum Screen

- 1) Turn on the power switch and slowly rotate the Drum Screen while opening the manual gate valve on the inlet.
- 2) Set the manual gate valve on the inlet to the flow rate required for processing and start the pump by feeding raw material into the machine.
- 3) Check the Drum Screen for rotation speed and processing status (either overflow or reject) and adjust the rotation speed of the geared motor, which will adjust the rotation speed of the Drum Screen.
- 4) Adjust the amount of raw material to be fed using the manual gate valve.
- 5) Use the Back Shower Spray only when removing the sludge in the screen drum.

5. Stopping the Drum Screen

- 1) Turn off the power switch and material feed pump switch.
- 2) Close the manual gate valve when halting operation of the machine.
- 3) To spot operation of the drum screen may affect more than one of the units attached to the drum screen.
- 4) When work is halted, remove the residues from the sieve using a Back Shower Spray.

DRUM SCREEN SYSTEM

Operation Guideline

6. Restarting the Drum Screen

- 1) If the speed of the geared motor is not adjusted during downtime, place the drum screen at the start mode when restarting the machine.
- 2) If you have to readjust the speed of the geared motor, execute the start mode during operation.
- 3) Restart the drum screen in the same manner as its initial startup.
- 4) Check all screening devices for proper balance.

7. Drum Screen Clogging

An insufficient flow of raw material during operation indicates that the screen sieve hole "slot" is clogged with foreign matter. If it is clogged, remove the foreign matter by using a Back Shower. (It does not matter whether the Back Shower is used in a continuous manner or not.)

8. Speed Control

Adjust the speed of the Drum Screen using a motor controller installed in the control panel.

9. Post-Operation

Make sure the debris inside the screen are completely discharged before flushing the Drum Screen with wash water and turning the switch off.



DRUM SCREEN SYSTEM

Maintenance Guideline



1. Pre-Operation Checklist

- Check the Drum Screen for operational hitches and safety problems.
- Check if the equipment is fastened securely and horizontally.
- Check the sieve for contaminants and foreign matter. Should there be contaminants or foreign matter in the sieve, flush out the sieve using the Back Shower before operating the drum screen.
- Check the gate valve on the inlet header for proper operation.
- Check if the speed of the motor on the control panel is properly set.
- Check if electrical wirings are properly installed in the Drum Screen.

2. Maintenance & Repairs

If a specific flow rate of raw material is fed into the screen on a continual basis, screen throughput will decline due to widened gaps between screen slots. This requires periodic maintenance and repairs as well as replacement of the screen. It is recommended that the screen be replaced every 365 to 400 days.

3. Method of Disassembling the Drum Screen

- 1) Stop operating the Drum Screen.
- 2) Disassemble the Back Shower before disassembling the cover.
- 3) Disassemble the bolts fastening the screen cover and the Inlet Header installed inside the Screen Drum.
- 4) After disassembled the Screen Drum, lift it vertically with a hoist because it is placed over the spinning Support Roller. (Care should be taken so as not to deform the screen during disassembly)

4. Method of Assembling the Screen

Assemble the screen according to the reverse sequence of disassembly. Upon completion of the assembly, start operating the screen to check if the material flows properly into the screen.

5. Cleaning

- After equipment installation, keep the Drum Screen as clean as possible by cleaning it on a regular basis to prevent it from being clogged.
- Make sure to clean the Drum Screen when restarting it if it has been kept dry for a long time.
- Do not attempt to clean the surface of the screen sieve with a wire brush but operate the back washing spray manually instead.

CHECK LIST FOR MAINTENANCE

Checklist	Date of Inspection	Maintenance Tips
Decelerator	Once per day	<ol style="list-style-type: none"> 1. A rapid increase in the decelerator's surface temperature during operation (ambient temperature – above +50°C; measured temperature – above 90°C) indicates that the lubricant is insufficient or there is an installation problem. Be sure to troubleshoot problems with the decelerator before operation. 2. An abrupt, severe noise generated from the decelerator indicates that there is a lack of lubricant or an abnormality in the bearing. 3. Check the decelerator for lack of lubricant and for oil leakage.
Lubricant Decelerator	Once per day	<ol style="list-style-type: none"> 1. Replace lubricants 300 hours after initial operation. Afterwards, replenish or replace lubricants every 1,200 hours. 2. Be sure to refill the device with an appropriate level of lubricant. An above optimum lubricant level will most likely result in leakage.
Bearing & Chain	Once per day	<ol style="list-style-type: none"> 1. Use a grease gun when refilling every bearing, chain, and chain sprocket with oil. 2. Be sure to refill the device with an appropriate level of lubricant. An above optimum lubricant level will most likely result in leakage.
Bearing	Once per day	<ol style="list-style-type: none"> 1. Because insufficient lubrication will likely result in a rapid increase in the decelerator's surface temperature during operation, refill the bearing with lubricant. 2. Insufficient lubrication will likely generate severe noise from the bearing's rotation unit. The noise that continuously occurs following lubricant replenishment indicates damage of the bearing's rotation unit. Replace the rotation unit with another unit immediately.
Couplings	Once per day	<ol style="list-style-type: none"> 1. Check to see if coupling bolts are separated or loosened. Make sure loose couplings are securely fastened.
Washing Device	Once per day	<ol style="list-style-type: none"> 1. Check if the pressurized spray nozzle installed inside the cover on the top is operating properly. If dewatering bores in the cylinder are choked with foreign matter, dewatering performance will deteriorate. This device is made of highly corrosion-resistant stainless steel; however, particle solids deposited at the bottom of the washing device over a long period of time may lead to the formation of rust on the device. The frequent removal of foreign matter from each unit of your equipment will ensure longer equipment life as well as clean up your workplace. 2. Use warm water with temperature of 50°C to 60°C during the winter months to prevent device malfunction caused by a decline in the wash water temperature. In particular, if you use oils and fats as well as adhesive matter, be sure to use warm water that can improve the device's screening performance.

MAJOR PROJECT REFERENCE FOR DRUM SCREEN SYSTEM

DATE	SITE	CLIENT	ENGINEERING	ITEM NO.	DESCRIPTION
May. '10	KOREA	DAESANG CORPORATION	WILL S&P	WSDS 750	DRUM SCREEN SYSTEM
Mar. '12	VIETNAM	MIWON VIETNAM CO.,LTD	WILL S&P	WSDS 750	DRUM SCREEN SYSTEM
July. '12	KOREA	DAESANG CORPORATION	WILL S&P	WSDS 1000	DRUM SCREEN SYSTEM
Sep. '12	KOREA	KUMKANGTECH	WILL S&P	WSDS 400	DRUM SCREEN SYSTEM
Jun. '13	KOREA	TJENTHECH	WILL S&P	WSDS 500	DRUM SCREEN SYSTEM
Dec. '13	VIETNAM	MIWON VIETNAM CO.,LTD	WILL S&P	WSDS 750	DRUM SCREEN SYSTEM
Sep. '14	KOREA	DAESANG CORPORATION	WILL S&P	WSDS 1000	DRUM SCREEN SYSTEM
Oct. '14	KOREA	HYUNDAI POWERTECH	WILL S&P	WSDS-800	DRUM SCREEN SYSTEM
Jan. '15	KOREA	KYUNGWON ENG	WILL S&P	WSDS-500	DRUM SCREEN SYSTEM
May. '15	KOREA	THANH TREATMENT PLANT	WILL S&P	WSDS-1500	DRUM SCREEN SYSTEM
Dec. '15	KOREA	HYUNDAI DINOS	WILL S&P	WSDS-800	DRUM SCREEN SYSTEM
Dec. '15	KOREA	HANLAYOUNGSACHON	WILL S&P	M-608(A)	DRUM SCREEN SYSTEM
Mar. '16	KOREA	SK HYNIX	WILL S&P	WSDS-1500	DRUM SCREEN SYSTEM
Nov. '16	KOREA	HYUNDAI POWER TECH	WILL S&P	WSDS-750	DRUM SCREEN SYSTEM
Dec. '16	KOREA	JOOGYEONG TECH	WILL S&P	WSDS-300/400/500	DRUM SCREEN SYSTEM

Thanks!



65, Mongnae-ro, Danwon-gu, Ansan-si,
Gyeonggi-do, Republic of Korea (15605)
TEL: 032-822-9801, FAX: 032-822-9803
E-MAIL: willscreen@willscreen.com
WEB: www.willscreen.com