



BILFINGER WATER TECHNOLOGIES

## VERSA™ INCLINED ROTARY SCREEN

Versa inclined rotary screen is a reliable and proven inclined rotary inlet screen for municipal and industrial wastewater treatment plants

### COST EFFECTIVE SOLUTION FOR THE COMPACTION OF SCREENINGS

The Versa™ inclined rotary screen is designed to fit into an influent channel at a wastewater treatment plant and convey screened solids out for dewatering and disposal.

The integrated design of the Versa consists of a screen drum, screw conveyor and compactor - resulting in a lower head loss across the screen and better overall performance. The unique inlet screen design does not have a bearing or fixed rotating arms at the end of the screen.

The Versa's screen drum and screw conveyor are driven independently by two motors, which helps prevent problems with fibrous matter wrapping and building up around the fixed and rotating arms - greatly reducing maintenance time on removing the matter.

During operation, solids in the incoming flow, larger than the screen opening size progressively collect inside the screen drum, causing a gradual blinding. Upstream water level rises due to the resistance in flow caused by solids deposited on the screen. At the predetermined upstream level, the screen drum and screw conveyor starts rotating, immersing a clean section of the screen into the effluent and lifting the screenings out of the wastewater; transporting the screening to the top of the drum and dropping the screenings into the screw conveyor trough. Spray nozzles and a roller brush, are fixed to the periphery of the screen drum and clean any residual solids from the screen surface.

As the solids are removed from the submerged drum, a reduction in the resistance to flow upstream causes water levels to fall. When level reaches a preset low level, the drum mechanism turns off; the screw conveyor will continue to

rotate for a predetermined length of time to convey all residual solids into the compaction zone before it stops.

The screw conveyor trough is empty of solids at the beginning and end of each cycle, eliminating problems such as overflows and rejection.

The screenings are conveyed, compacted and dewatered as they travel up the screw conveyor. Depending upon the solids' properties, a volume reduction of up to 40 percent dry solids (DS) or greater can be achieved.

A jet wash facility in the compaction zone breaks down fecal and other semi-solid or soluble matter and returns it to the incoming flow. Additional jets can be installed in the transport zone to achieve higher specifications of organic solids removal. Fecal matter washing efficiencies greater than 90 percent and screenings weight reduction up to 50 percent can be achieved.

The compactor and wash system can be omitted to meet requirements such as a combined storm overflow (CSO) application where the screenings are returned to the downstream sewer. The Versa screen can be supplied for direct installation into a channel or as a complete package inside a stainless steel tank, with or without the option of a bypass bar screen.

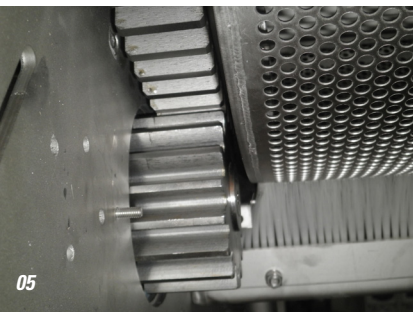
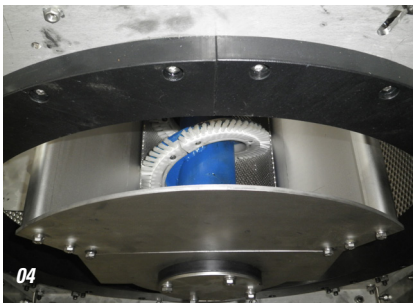
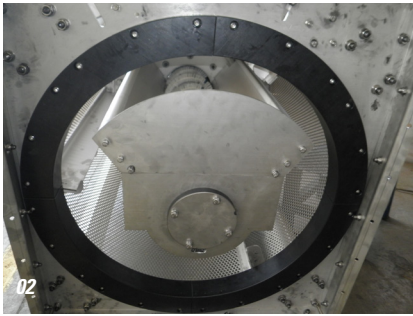
Continuous bagging systems are available to receive screenings and minimize odor by packaging the screenings without any personal contact.

The Versa is capable of handling flow rates from 1.70 to 29.16 mgd (6,435 to 110,382 m³/d) through a single unit.



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01\_ Independent drum drive

02\_ Two part UHMWPE seal insures no influent by-passes the screen

03\_ Drum bull gear drive

04\_ Two Part UHMWPE drum seal no lower bearing

05\_ Drum is driven by a pinion and bull gear

## APPLICATIONS

### MUNICIPAL AND INDUSTRIAL WASTEWATER TREATMENT

- The Versa is designed for higher flow rates above rotary drum screens and vertical screens. Furthermore, higher separation efficiencies can be achieved at peak flows with a lower head loss
- The Versa design ensures that the separated solids are captured and do not bypass the screen even at peak flow

### MEMBRANE BIO REACTOR (MBR) PRETREATMENT

- Versa's perforated plate screens with 0.04 or 0.08 in. (1 or 2 mm) openings are capable of providing pretreatment requirements for MBR plants using hollow fiber or flat sheet membranes
- Versa's Vee-Wire profile screens, 0.02 or 0.04 in. (0.5 or 1 mm), provide enhanced fiber or hair removal upstream of membrane processes. High solids removal and screenings capture, within the enclosed drum, ensures solids are retained and cannot pass through or be returned to screened effluent

### STORM OVERFLOW TREATMENT

- The Versa can be applied as combined storm overflow (CSO) screens using a 0.24 in. (6 mm) perforated plate
- To suit various requirements, drum screens can be supplied with or without washing and compaction zones. This allows for additional options for:
  - Screenings removal and compaction at the CSO station
  - Screenings removal and compaction at the
  - CSO station with return of washed fecal and other semi solid matter to the downstream sewer
  - Return of all screenings, fecal and other semi-solid matter to the downstream sewer

Applications include combined sewer systems, in addition to municipal and industrial wastewater treatment works - either CSO duty only, or as a single integrated preliminary treatment screen for all effluent entering the works

Improved storm overflow solids removal efficiencies can be gained with simultaneous reductions in BOD and COD by utilizing a 0.02 or 0.04 in. (0.5 or 1 mm) Vee-Wire screen drum

### HIGH SOLIDS SEPARATION

- Vee-Wire screens ensure high separation efficiencies at high flows while perforated hole screens obtain increased filtration efficiencies

### ENCLOSED DRUM SCREEN

- Ensures separated solids are retained and cannot pass through, bypass or overflow the screen

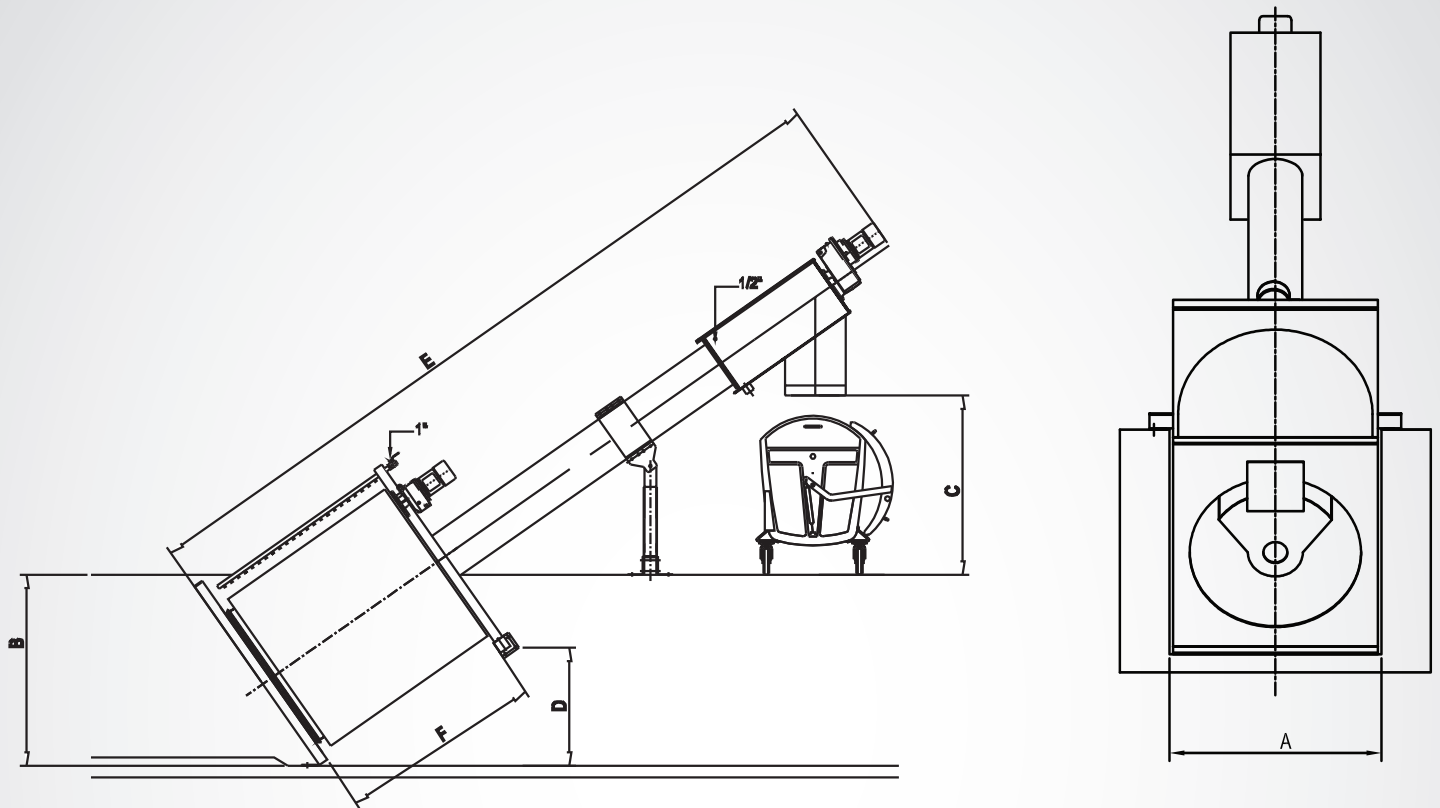
### LOW HEAD LOSS

- An inclination angle of 35 degrees and large surface profile imparts increased immersed screening area and exposure to the incoming flow

### LOW FOOTPRINT

- Compact, space-saving design, including screenings removal, washing and compaction

## DIMENSIONS



MODEL	A		B		C		D		E		F	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
<b>IRS V8</b>	31.50	800	39.37	1,000	63.00	1,600	22.83	580	216.54	5,500	31.50	800
<b>IRS V10</b>	39.37	1,000	47.24	1,200	63.00	1,600	30.31	770	228.35	5,800	39.37	1,000
<b>IRS V12</b>	47.24	1,200	55.12	1,400	63.00	1,600	36.61	930	267.72	6,800	47.24	1,200
<b>IRS V14</b>	55.12	1,400	62.99	1,600	63.00	1,600	41.34	1,050	287.40	7,300	55.12	1,400
<b>IRS V16</b>	62.99	1,400	74.80	1,900	63.00	1,600	47.24	1,200	299.21	7,600	63.00	1,600
<b>IRS V18</b>	70.89	1,800	82.68	2,100	63.00	1,600	55.12	1,400	314.96	8,000	70.87	1,800
<b>IRS V20</b>	78.74	2,000	94.49	2,400	63.00	1,600	61.02	1,550	334.65	8,500	78.74	2,000
<b>IRS V22</b>	86.61	2,200	102.36	2,600	63.00	1,600	66.93	1,700	354.33	9,000	86.61	2,200
<b>IRS V24</b>	94.49	2,400	110.24	2,800	63.00	1,600	72.83	1,850	374.02	9,500	94.49	2,400
<b>IRS V26</b>	102.36	2,600	122.05	3,100	63.00	1,600	78.74	2,000	397.64	10,100	102.36	2,600

The data contained in this document is for reference only and the values are typical. Please contact Bilfinger Water Technologies for more information.



## VERSA INCLINED ROTARY SCREEN ADVANTAGES

- **Independent Drum and Conveyor Operation:** No submerged bearing at the drum inlet. Independent operation results in the conveyor operating an average of one minute for every 30-minutes of drum operation resulting in almost no wear to the screw conveyor and its wear bars.
- **Drum Contained in Rigid Frame:** No alignment issues during installation. Drum is factory aligned with the screw and the frame maintains this alignment during transport, installation and operation.
- **High Solids Separation:** Vee-Wire® screens ensure high separation efficiencies at high flows while perforated-hole screens obtain increased filtration efficiencies and removal of fibers and hair.
- **Enclosed Drum Screen:** Ensures separated solids are retained and cannot pass through, bypass, or overflow the screen.
- **Low Head Loss:** An angle of inclination of 35° and large surface profile results in increased immersed screening area and exposure to the incoming flow.
- **Low Footprint:** Compact, space-saving design
- **No Submerged Lower Bearing:** No wear parts in the water
- **UHMWPE Radial and Axial Drum Guides:** Provide a positive and maintenance free seal at the drum inlet. The VERSA has no brushes around the upstream side of the drum to leak and require replacement.

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