



BILFINGER WATER TECHNOLOGIES

## JOHNSON SCREENS® CENTRE-FLO™ Band Screen

### BENEFITS

- Improved solids capture due to efficient flow pattern
- Unique screen panels with one single panel for the entire width of the band screen
- Increased screen's open area and simplified panel replacement
- Screen perforations are a full bore profile for increased flow capacity and reduced head loss
- Extra effective washing of the screened solids
- Improvement of downstream biological treatment processes leads to reduced disposal costs

### TASK

Fine screening of raw sewage, fully customised and highly efficient machine to improve downstream treatment processes.

### SOLUTION

Bilfinger Water Technologies offers you a range of high-quality, Australian designed and manufactured band screens. The Centre-Flo™ band screen includes integral by-pass, fully contained enclosure for odour containment and control as well as a choice of slotted or perforated screen surfaces. Each machine is custom designed to suit the specific treatment needs, allowing the machine to handle all treatment processes, from conventional to membranes.

### FUNCTION

The diverter plates direct the influent flow into the submerged section of the screen. The flow then undergoes a 90 degree change in direction to flow through the Centre-Flo™ screen panels. The screen panels retain the solids and allow the screened effluent to pass through to the subsequent treatment processes. Centre-Flo's are typically controlled based on upstream water level, the band screen remains stationary allowing solids to build up on the screening element. This build-up of solids helps the screen capture finer particles, further increasing capture efficiency. While in this stationary mode, the head loss across the screening element increases, causing the upstream water level to rise. Once the upstream water level reaches a preset high level the screen will automatically enter a cleaning cycle. During the cleaning cycle, the band screen will rotate which lifts the collected solids and drops them into the discharge flume. The finer solids captured on the screen panels are flushed off the screen using the wash sparge system located on the opposite side of the screen. The cleaning cycle will typically run through a complete revolution of the band screen, effectively cleaning the entire screen in one cycle. During the cleaning cycle the upstream water level will continue to drop until the screen is completely cleaned and normal operating levels are reached.

### Design Features

- High capture efficiency (80 % >) to improve treatment plant processes by ensuring maximised reactor volumes.
- High open area with both slotted and perforated screen types to increase capacity and reduce head loss.
- Easily replaceable screen panels for maintenance or future aperture changes for plant process upgrades.
- Effective solids washing for organics recycling to improve treatment processes and reduce disposal costs.
- An excellent screening option to handle sewage with high grit and gravel loads.
- Modular design allows the Centre-Flo™ height and band screen width to be optimised to suit channel, capacity and head loss requirements.

- Drive shaft and wash water sparge assembly is on the outside of the screen, eliminating a potential catch point for screenings.
- Fully sealed guide link arrangement to ensure screenings cannot bypass the screen.
- Continuous clean screen operation to maintain low and consistent head loss.
- Proven design and operation with reference sites in many countries.
- Optional rear by-pass gate to eliminate the need for a separate by-pass channel.

#### DESIGN SIZES & PERFORMANCE

The Centre-Flo™ can be customised for channel depths up to 10 m and flow rates up to 3,000 litres per second. The Centre-Flo™ can also be integrated with various solids transport options including sluicing trough or screw conveying arrangements.

#### MATERIALS

The Centre-Flo™ is an extremely robust unit with no submerged chains or sprockets; the frame is constructed from 316 stainless steel.

#### APPLICATIONS & FIELDS OF USE

- Suitable for municipal water, wastewater and industrial wastewater applications
- Screening elements available in perforated plate (1 to 6 mm apertures) or heavy duty hooks and links (2 to 6 mm slots)
- 1 to 2 mm perforated plate is suitable for final pre-screening for Membrane Bioreactor (MBR) processes
- 3 to 6 mm perforated plate fine screens is suitable for conventional wastewater treatment processes
- Excellent retrofitting capability to existing channels to improve screenings capture efficiency e.g. coarse screen or step screen replacement
- Can be designed to accommodate channel dimensions and hydraulic requirements; highly suitable for deep channel designs

#### UNIQUE FEATURES

The Centre-Flo™ features easy installation, maintenance and operation:

- The Centre-Flo™ is typically supplied in one piece, ready to install in-channel, no on-site assembly is required.
- Our solids handling products such as screw wash presses are designed to easily and seamlessly integrate with our Centre-Flo™ band screens.
- All maintenance work is conducted outside of the channel.
- Numerous inspection panels provide easy access to all parts for routine maintenance.
- The Centre-Flo™ is installed in-channel using a guiderail and baseplate assembly which means that once in operation, the unit can be lifted and reinstalled into the channel without requiring channel access or draining.
- Wash water is typically run with recycled plant effluent to reduce operational costs.

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Perforated Plate Version with Lifters



Easy Maintenance Access