

Brackett Green® StopGate™ and Bar Screens

For the isolation of intakes and coarse screening

Key features & benefits

- Allows safe and easy plant maintenance
- Automatic cill sensing probe helps eliminate premature unlatching of lifting beam
- Integral equalizing valves enable water levels to be balanced as part of the lift sequence

How we create value

- Flexible design to suit particular applications
- Durable materials protects against corrosion
- Vertical storage simplifies handling



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StopGate™ Modules

Carrying out maintenance on equipment downstream from a cooling water inlet is essential for ensuring reliable operation of the intake system. The StopGate™ solution, designed by Ovivo's experienced engineers, provides a means to isolate flow streams, thereby ensuring a safe and dry access for routine maintenance on downstream screening equipment and pump intakes.

The modular, welded carbon steel StopGate module is coated with an epoxy paint finish suitable for use in either a marine or fresh water. This is supplemented by sacrificial anode cathodic protection for seawater applications. Ovivo can also supply StopGate modules completely fabricated in stainless steel. Each StopGate module is fitted with neoprene edge seals and are available for either single or dual direction sealing.

The StopGate module is normally designed for installation at the bottom of the intake channel, with a civil work apron wall extending up from the top of the opening at deck level. However, the modular construction of the gates also makes it possible to locate one module above the other so it extends above the highest water level. This arrangement removes the need for a concrete apron wall.

A cill sensing device is incorporated in the StopGate technology to facilitate the automatic release and recovery by the lifting beam when the StopGate module is being positioned at the channel invert or storage location.

The StopGate modules are generally designed for installation in still water conditions, although alternative designs incorporating heavy duty rollers on the edges of the gates are available when the StopGate module is required to be operated in flowing or non-balanced water conditions.

Widely used on cooling water intakes, StopGate™ modules are designed to provide temporary channel isolation enabling the chamber to be dewatered thereby allowing safe access for inspection and maintenance of the equipment and civil works located downstream.



Application

Installation of the StopGate modules enable the selected channel to be isolated and dewatered allowing the equipment located downstream to be inspected and maintained. Careful planning of a multi-screen installation minimizes the number of gates required. Care should be taken to standardize the StopGate sizes wherever possible, so as to enable a minimum unit number to be used at various locations on the installation.

Guides

When installed in the chamber the StopGate module is located within stainless steel guides embedded in the civil structure. These guides, together with the cill and lintel also provide a sealing face for the neoprene seals. The guides, cill and lintel comprise of stainless steel angle sections fitted with studs and adjusting nuts. During construction anchor plates are provided for casting into the first stage concrete. The guide studs are then welded to the anchor plates and adjusted to accurately align the guides, cill and lintel prior to grouting.

Valves

The StopGate modules are normally fitted with equalizing valves, enabling the isolated chamber to be flooded prior to gate removal. After engagement

of the lifting beam, the initial lift opens the valves without raising the gate. This allows the water to pass through each module, equalizing the pressure on both sides. The gate can be easily removed once equalization is achieved.

Lifting beam

Ovivo provide a purpose designed lifting beam for installation and recovery of the StopGate modules. The ends of the lifting beam are fitted with guide blocks: these locate in the guides and align it with the StopGate lifting points. Lifting hooks are linked and connected to a pivot weight assembly, which determines the open or closed bias. Operation of the assembly causes the beam to automatically engage or disengage with the gate during raising and lowering operations. An interlock is incorporated in the lifting beam to prevent it disengaging from the StopGate module until the cill sensing device operates.

Storage rack

When the gates are not in use it is advisable to store them vertically. This simplifies handling and minimizes the risk of seal damage. Ovivo can offer various storage options based on either a rack or pit arrangement.



Complementary Equipment for Location in StopGate™ Guides



Bar screens



Static mesh screens



Chemical dosing frames

When the StopGate modules are removed from the channel it is possible to locate other equipment in the same guides to perform various tasks; this includes coarse bar screens, static mesh screens and chemical dosing frames. Outline details are given below.

Bar screens

Ovivo manufactures a wide range of bar screens for intake protection; these can be either permanently fixed to the civil structure or removable. Removable bar screens are commonly located in the StopGate guides once the StopGate module is removed. They are not normally mechanically raked and therefore need to be raised to deck level for cleaning using the same automatic lifting beam as employed for the StopGates module and can be stored in the Stopgate storage rack when not in use.

Removable bar screens can be used on permanent or temporary basis in conditions where debris levels are low but protection is still required.

Removable bar screens can be manufactured in carbon steel or stainless steel and a range of

corrosion protection options are available.

Bar gaps from 12mm to 300mm (1/2 an inch to 12 inches) are available.

Static Mesh Screens

The Brackett Green static screens are an efficient and inexpensive method for protecting downstream equipment and processes from debris and disintegrating cooling tower elements that can be found in flow streams. The Brackett Green static screens can be located in StopGate guides or dedicated guides. Two are sometimes installed in series: a spare screen is lowered into place to continue screening while the upstream screen is cleaned.

Screens are framed wire mesh, and include a debris pan on the lower cross member for capturing loose debris as the screens are raised.

Mesh sizes range from 6mm to 18mm (1/4 inch to 3/4 inch) square openings, and can be supplied in electro galvanized carbon steel or stainless steel.

Frames are available in either epoxy

coated carbon steel or stainless steel. Other materials can be provided on request.

Chemical Dosing Frames

Chemical dosing frames provide a means of injecting chemicals such as Mexel 432® emulsion or chlorine into the intake flow to control biofouling.

As the StopGate guides are normally located at the inlet of the intake this provides an ideal position for chemical dosing and Ovivo can provide a range of purpose designed dosing frames complete with integral piping and injection nozzles.

The dosing frames can be located and recovered using the StopGate lifting beam and stored in the Stopgate storage rack when not in use.

Dosing frames are available in either epoxy coated carbon steel, stainless steel or polymeric materials depending on the application and chemicals being dosed.

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