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Aqseptence Group

JOIS™ Johnson Offshore Intake System Desalination Plant Marina East, Singapore

Situation

JOIS™ Johnson Offshore Intake Systems provide uninterrupted water withdrawal from rivers, lakes and oceans. With its automated back-wash system via pressurized air the performance is reliable and automated.



Challenge

Desalination Plant Marina East is a large-scale drinking water plant able to treat both fresh water and seawater for a total production of about 30 million gallons (11 thousand cubic meters) of drinking water per day. During dry weather, the plant draws water from the sea to feed the desalination process. During rain, the plant instead uses stormwater collected in the Marina Reservoir to produce lower power consuming potable water. The plant was commissioned in 2020 and required a smooth water intake solution neither interrupting the Singapore's unique skyline nor disturbing the surrounding public life in optic or acoustic manner. Environmental regulations and two separate abstraction sources with different water conditions and intake structures called for a customized water intake solution.

Solution

The individual JOIST™ solutions have been adapted to the requirements of both intake locations in terms of flowrate, arrangement and material. The screens for the desalination part are made of Z-Alloy. This special CuNi alloy has particularly been developed to minimize the risk of biofouling, especially the settlement of certain mussels. Thanks to the screen's low through-slot velocity the risk of clogging is remarkably low and there is no impingement of aquatic life. Accumulated debris is effectively backflushed by a burst of pressurized air, only executed within a certain time frame so that surrounding traffic and people are not being disturbed.

Technical Details

6 Johnson Screens® S54 Passive Screens in Z-Alloy

- Flow Rate per screen: 2,150 m³/h
- Source: Sea Water
- Slot opening: 5 mm
- Water depth: 9.5 m

4 Johnson Screens® S48 Passive Screens in 316L

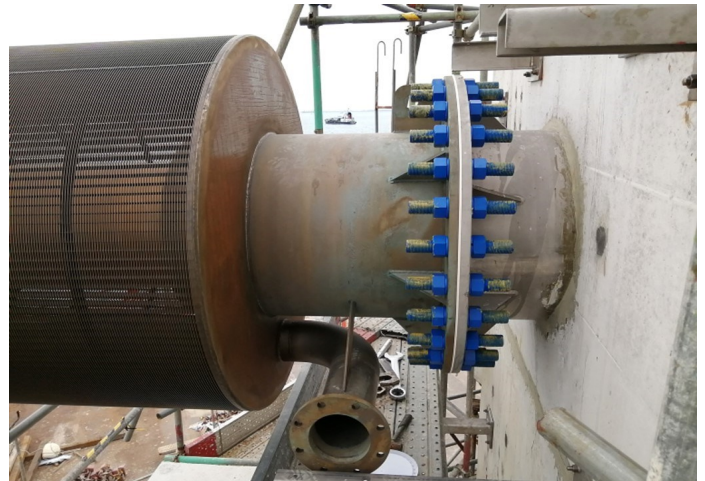
- Flow Rate per screen: 1,950 m³/h
- Source: Reservoir Water
- Slot opening: 5 mm
- Water depth: 6.7 m

Hydroburst™

All screens are regularly backwashed by pressurized air, controlled by an automated system logic from Aqseptence Group.

Advantages

- One stage water intake screening
- Customized - Highest flexibility on intake structure design
- Fish friendly design
- Lowest impact on environment as well as on flora & fauna
- No moving parts below the water lead to low maintenance needs
- Reliable performance thanks to automated intake cleaning



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Product Line: Water Intake

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