

Efficient handling of wastewater at a harbour

Using Flygt submersible wastewater pumps

According to the 1973 International Maritime Organization directives (MARPOL 73/78) on regulations for the prevention of pollution by sewage from ships, governments are required to ensure the provision of adequate sewage reception facilities at ports and terminals. The Ports of Stockholm in Sweden has, in line with the regulations and ambition to be a leading player in environmental issues, invested in a sewage reception facility at one of their ports incorporating two submersible waste water pumps installed in a Flygt pump station.

Background

The Ports of Stockholm Group comprises three ports and is the central port for freights and passengers to and from Finland, Russia and the Baltic states. The Ports of Stockholm are first and foremost cruise liner and ferry ports with frequent and regular connections across the Baltic but it also handles bulk, containers and oil freights.

In 2003 the number of ferry and cruise passengers exceeded 10 million and at the same time vessels transported 5.5 million tonnes of freight across the Baltic Sea.

The discharge of raw sewage into the sea can create a health hazard, while in coastal areas, sewage can also lead to oxygen depletion and an obvious visual pollution. The worldwide trend towards increasingly stringent marine environmental protection regulations means that ship's sewage must be disposed off at certain sewage reception facilities at ports and terminals. According to the MARPOL directives ships are prohibited from discharging sewage within four miles of the nearest land, unless they have in operation an approved treatment plant. Between 4 and 12 miles from land, sewage must be comminuted and disinfected before discharge.

The solution

One of the ports within the Ports of Stockholm were outfitted with a Flygt pump station for the handling of sewage and black and grey water. Black water is the sewage from toilets and sculleries, while grey water is waste water from bathing and washing up facilities.

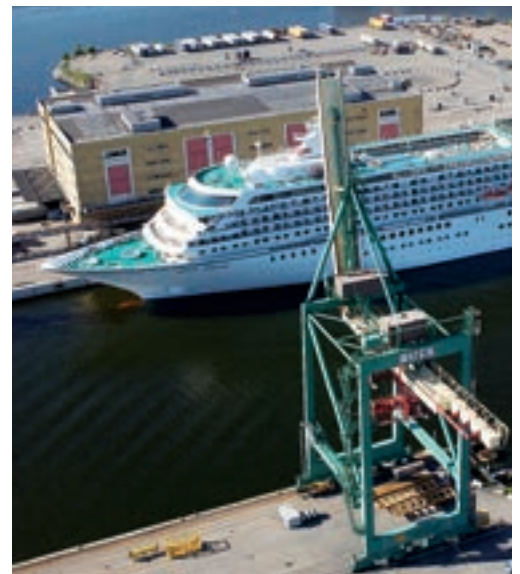


Photo: C.Lagerek



At different berth points along the dockside sewage deposit facilities were constructed to make the process as quick and easy as possible. Some of the large passenger ferries are often in the port for less than one hour and have to remove wastewater from the on-board tanks ranging in size up to 400 m³.

Once the ferries's sewage has been transferred to the land based pump stations it is pumped to the local sewage network. In order to handle such large amounts of waste water without clogging, it was decided to install Flygt pump stations equipped with two Flygt submersible NP 3153 HT at one of the three ports.

The benefits

The Flygt NP 3153 HT installed in a Flygt pump station is extremely suitable for the operation in marine waste-water applications because of the following advantages:

NP3153 HT wastewater pump:

- it has a compact and robust design
- it is highly efficient
- The patented N-technology with the unique impeller coupled with special relief grooves ensures clog-free operation.

TOP-pump station:

- construction costs are substantially reduced as the Flygt TOP pump station come complete and is ready for immediate connection.
- TOP-pump stations are hydraulically optimized to clean itself, resulting in very low maintenance costs.



Connection points located alongside the quays enable the ferries wastewater to be transported to nearby Flygt pump station.



Technical specifications	
Pump	NP 3127.180 HT
Application	Transport of ferries sewage
Capacity	50 l/s (800 USgpm)
Motor.....	11 kW (15 hp)
Weight.....	189 kg (500 lbs)

