Floating Dry Dock Application uses Senix Ultrasonic Level Sensors

Floating Dry Dock design requires tough, accurate and flexible ultrasonic level and distance sensors, and selected Senix ToughSonic Sensors

Floating dock side view. It is 220 yards long and 18 yards height from upper deck to bottom

HINESBURG, VT, USA, August 26, 2020 /EINPresswire.com/ -- A dry dock is a narrow land-based basin or vessel that can be flooded to allow a load to be floated in, then drained to allow that load to come to rest on a dry platform. Dry docks are used for the construction, maintenance, and repair of ships, boats, and other types of watercraft.

A floating dry dock is in the form of "U" structure which is mainly used to carry ships that need repair or maintenance. Many regular sea-going, small and mid-size vessels also dry dock in a floating dock. The ship is brought near the channel where the floating dry dock will partly submerge itself and the ship is slid inside the dock. Once the ship is in the position, the floating dock is then de-ballasted to drain the water from its hollow floors and walls to support the vessel for maintenance or repair. The whole process takes about 8 hours, during which the dry dock is submerged.

> We have successfully completed the floating dry dock project with Tough Sonic sensors. We owe that to Senix sensors superb quality added to the versatility of their configuration. Totally satisfied!"
>
> *Horacio Venturino*

Floating Dry Docks have advantages over regular dry docks

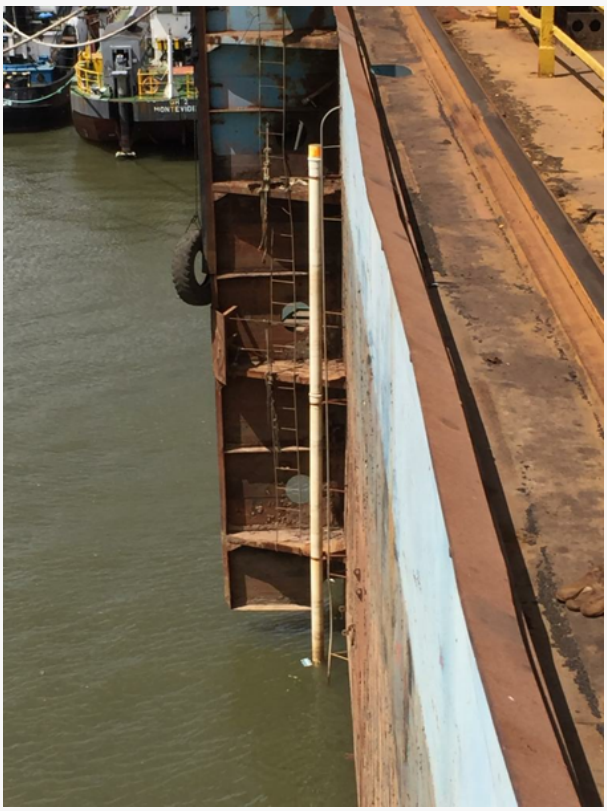
- They can be installed near or away from the shore inside the harbor, making them a portable and space-saving structure without taking space of the shore facility
- The complete floating dry dock can be aft or forward trim by ballasting the dock, which further assists the ship or the damaged vessel which cannot

be given a trim
•The floating dry dock can be altered and increased in size in all dimensions by extensive retrofitting/ rebuilding

Asistechio Ltd. of Uruguay needed a high quality and a sensitive level sensor to monitor all aspects of floating dry dock operation including submersion, leveling, and strain control. They selected Senix ToughSonic Ultrasonic sensors since they are designed to be tough. With its 316 Stainless Steel Housings, potted and protected electronics, and IP68 rating, Senix sensors can be used in tough environments such as marine applications with exposure to sea water.

Asistechio was using bubbler type sensor technology previously to measure liquid level, one sensor in each ballast tube. The application required a tougher sensor technology. Expected operating temperature range of 28 deg F to 122 deg F and humidity range of 50% - 100%. After doing rigorous testing, Horachio Venturino of Asistechio Ltd. stated “Our Floating dry dock project is advancing, and we haven’t had any problem with Senix sensors. In fact, I would say it is a pleasure to work with these superb quality sensors”

Front views. Ships being repaired resting on the dock’s working surface



The ToughSonic 50 sensors were mounted in the top of 37 feet long, 8 inches diameter stilling tubes

Asistechio’s project initiated in Oct 2017 with 24 tanks that required liquid level measure for their floating dry dock for either ocean or river use. Their dock is submerged, ship is floated over it, and air pressure is applied to tanks in the dock to raise it and the ship. Multiple sensors are used to measure level in vertical tanks used to sink and raise the dock. Other sensors used to measure overall dock freeboard and tilt management to control tilt and height.

Each ballast tube had a Senix ToughSonic 30 sensor mounted in the top of a closed "air pouch or bell" (a tube of 32 inches long and 8 inches diameter). The tube’s length was calculated so that at the maximum depth, the trapped air compressed but the water level stopped at around 32 cm below the sensors' surface to maintain the sensors required minimum working range. The sensor/tube array was mounted to the tank's ceiling. The multiple ToughSonic 30 sensors were used to measure both the tide and the dock’s inner ballast tanks water levels. The multiple ToughSonic 50 sensors were used to measure the dry dock’s outer ballast tanks water levels, and to measure the whole dock freeboard and draft and these were mounted high on each of the dock’s corners as well as the middle of the sides.

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