



SmartFoam Selected by The Royal Australian Navy for Foam Control Aboard Seven Frigates

Since European settlement, Port Jackson, Sydney, with its vast and well protected natural harbour, has served as a major naval base for British and Australian maritime forces. Ships of the Royal Navy's Imperial Squadron were continuously based in Sydney throughout colonial times and it was for many years the premier naval facility of the Royal Australian Navy following the arrival of the Fleet Unit on 4 October 1913.

The naval precinct in Sydney has expanded greatly over the past 100 years, particularly during the war years of 1939-1945. Garden Island, the traditional centre of naval activity in Sydney Harbour, was connected to the mainland during the war when the Captain Cook graving dock was built. A number of shore establishments, such as HMAS Watson and Rushcutter, were also commissioned to support Sydney based naval forces. Several other establishments were commissioned in the post-war period. In 1987 the Australian Government announced the 'Two-Ocean Basing Plan' which established a permanent RAN major fleet unit and submarine presence in Western Australia. Since then, the RAN has maintained a two-ocean navy (Pacific and Indian) capable of responding quickly to national tasking from either seaboard. The two fleet bases are known as fleet base west (HMAS Stirling) and fleet base east (HMAS Kuttabul). Today Kutterbul serves as the administrative centre which includes the garden island dockyard and adjacent warf facilities at nearby Woolloomooloo.

It is here that seven frigates have recently undergone a major refit process which included new packaged sewerage systems fore and aft on each ship. 42 Hycontrol SmartFoam probes were selected for foam control for the project after completing a successful 3-month trial on board another ship.

The SmartFoam is a unique product, designed to measure and control foam in a single unit which is easy and quick to install. The sensor contains its own transmitter located inside the probe head so it can connect directly to a process controller or a pump. The SmartFoam can be used to create an effective foam control system without the need for any additional transmitter and is designed to be robust for industrial use. The sensor is designed using the unique patented IMA Sensing™ technology which enables foam to be measured reliably even when it is covered with a build-up of sticky material which frequently happens during foam measurement.

SmartFoam operates by passing a small alternating current through the foam being detected, and uses this to measure impedance. The impedance of the material being sensed is used to determine when foam is present. The SmartFoam is designed with two electrodes. One is used to sense foam while the other is designed to supply any leakage currents which pass along the body of the sensor. If the sensor is covered with a fouling layer deposited on it, then a leakage current must pass through that layer and down to earth. This leakage may be measure as part of the sensing current and consequently cause false readings. In the case of serious fouling this could cause a false alarm and an unnecessary intervention to the process. In the Hycontrol design, the guard electrode supplies all the leakage current leaving the sense electrode to sense only foam. The guard electrode effectively isolates the sensor from the interference caused by fouling. This gives the sensor the unique ability to continue working reliably even in conditions of extreme fouling.

The SmartFoam comes as a 24 V DC 4-wire device with a volt-free contact 500mA max in an IP66 NEMA4 Polypropylene enclosure with 20mm diameter 316 Stainless Steel probe in 600mm, 1000mm or 1500mm lengths with 3/4" BSP or NPT process connections. Maximum process temperature is 80°C (176°F). Maximum process pressure is 1.5 bar (22 psi).



The SmartFoam Probe