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WinGD opens new virtual reality engine room facilities

Winterthur Gas & Diesel (WinGD) has inaugurated a new installation of its sophisticated W-Xpert Full Mission Simulator (FMS) for training complete engine room crews at the Marine Power Academy Training Centre of Hudong Heavy Machinery Co., Ltd. (HHM), in Shanghai, China.

The simulator joins a network of some 20 further installations at strategic locations around the world. As well as being the first installation of WinGD's dedicated, multi-touchscreen simulation hardware in China, the Shanghai FMS system is also first to be pre-programmed with specially adapted versions of the engine-specific W-Xpert simulation software WinGD develops with its partner UNITEST Marine Simulators Ltd., based in Gdynia, Poland.

The FMS training facility at the Marine Power Academy, where some 500 crew are trained each year, is shared by HHM and WinGD, and both report that the system is proving very popular with course participants. Like the specially adapted W-Xpert software it runs, the FMS system is the result of a long-standing partnership with UNITEST. To cover large training courses in which a whole engine room crew can work simultaneously, the FMS hardware system utilises 18 touch screens located in up to four separate classrooms. In combination with the W-Xpert engine simulation software, it creates a multi-interface, virtual environment which includes not only the main engine but also all the auxiliary systems of a typical engine room.

W-Xpert software

Initially designed for use on personal computers and laptops or notebooks to provide a versatile, portable tuition tool, the W-Xpert software employs sophisticated thermodynamic models of diesel and gas engine processes to give high levels of virtual reality. To date, the range of engines which can be simulated by the W-Xpert software comprises the X35, X62, and X72 models the WinGD X-generation of diesel engines, as well as the RT-flex50DF dual-fuel engine models. During 2017, the X82 and X92 will be added, followed in quick succession by more dual-fuel engine software versions, WinGD confirms.

"The advanced features of the W-Xpert software, like our proprietary thermodynamic simulation algorithms which are capable of calculating accurately engine performance parameters including fuel consumption and emissions levels, mean that the FMS system enables high fidelity simulations of functional and thermodynamic factors," states Gregory Sudwoj, General Manager Technical Experts at WinGD. "The extensive, multi-interface virtual environment we can create also includes all the auxiliary systems of a typical engine room and enables a team to experience a wide range of simulations. To encourage decision making and to promote sharing of responsibility, these include both routine and distress

situations. Overall, the scope of the FMS gives WinGD unique opportunities to familiarise engine crews with all the systems involved in operating an engine in a ship.”

The W-Xpert Full Mission Simulator has been approved by Classification Societies for Marine Crew Training and Competence Assessment in accordance with IMO STCW (Standards of Training, Certification and Watchkeeping for Seafarers) regulations.

Engine simulation policy

Whenever new two-stroke engines are delivered, WinGD always can provide the ship’s crew and technical staff with the operational training needed for the engines and ancillary equipment found in the engine room. “During 2016 WinGD trained more than 350 personnel and the most popular tool for WinGD trainees is the W-Xpert virtual engine room simulator because it mimics very realistically situations happening on the bridge, in the control room and in the engine room at the same time,”, Sudwoj adds. “Previously, WinGD relied on a standard twin screen training but now, with the support of UNITEST, we can use the FMS for navigating around the engine and control room. This enables numerous trainees to replicate and rehearse very real operating sequences, conditions and emergency situations.”

Global training network

To ensure WinGD engine training is available worldwide, WinGD plans to offer high definition digital simulation training in strategic shipping industry locations around the world. With W-Xpert software, it is possible to provide basic operator training anywhere in the world using just a standard PC or laptop. However, the ideal crew training is provided using the high levels of simulation enabled by the FMS system, WinGD confirms.

WinGD trainers have been permanently located in the HHM Marine Power Academy in Shanghai since Summer 2015 and the W-Xpert FMS has been fully utilised ever since its inauguration.

In June 2017 W-Xpert Full Mission Simulators will also be commissioned in Athens Greece and Pusan Korea to provide crews with expanded virtual training possibilities in these two important shipping locations.



Caption: The W-Xpert Full Mission Simulator developed by WinGD and UNITEST Marine Simulators allows complete engine room teams to work in a multi-interface virtual environment where routine and emergency situations can be rehearsed. Seen here is WinGD training manager Tyson Liang Qin presenting the W-FMS virtual reality engine room to a delegation of ship owners.

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WinGD in brief:

Winterthur Gas & Diesel Ltd. (WinGD) is a leading developer of two-stroke low-speed gas and diesel engines used for propulsion power in merchant shipping. WinGD's target is to set the industry standard for reliability, efficiency and environmental friendliness. WinGD provides designs, licences and technical support to manufacturers, shipbuilders and ship operators worldwide. The engines are sold under the WinGD brand name and are manufactured under licence in four shipbuilding countries. WinGD has its headquarters in Winterthur, Switzerland, where its activities were founded in 1898.