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NYK 14,000TEU container ship with Wärtsilä X82 two-stroke engine successfully completed its sea trial

Following successful sea trials, on 22nd February 2016, Japan Marine United Corporation delivered the 14,000 TEU container ship NYK Blue Jay who is chartered by Japanese shipping company Nippon Yusen Kaisha (NYK).

The vessel is the first of ten that the shipyard is building for NYK for operation on the vital Asia-European shipping lanes. In spite of its smaller capacity, the new container ship series is designed to be able to compete in terms of operating economy with new generation of ultra large container vessels carrying around 20,000 TEU.

The advanced propulsion concept includes a narrow dimensioned engine room allowing a hull design with exceptional hydrodynamic efficiency. Another significant part of the operating economy of the NYK Blue Jay stems from the latest Wärtsilä brand Generation X two-stroke diesel engine, the 9-cylinder Wärtsilä X82 designed by Winterthur Gas & Diesel (WinGD) in Winterthur, Switzerland, and manufactured by Diesel United Ltd. in Japan.

Specifically designed and developed by WinGD to meet ship owners' demands for the lowest total cost of ownership (TCO), the Generation X diesel and dual-fuel engines are conceived for maximised vessel payloads combined with low fuel consumption and emissions and for rational, economic production by WinGD's licensees. "A holistic approach was taken when designing the Generation X engines," said Rudolf Holtbecker, General Manager, Business & Application Development. "It is designed to enable total vessel efficiency to be optimised by a careful combination of main engine parameters and efficiency, the propulsion system and the ship hull. The capability to run lower engine speed fosters the higher efficiency of larger propellers. We took account of this in the engine design, like the Wärtsilä X82 used in the *NYK Blue Jay*, by employing higher stroke-to-bore ratios than in their predecessors. This not only facilitates the larger, slower turning propellers but also gives higher engine internal efficiency."

Dual-rating capability

A further TCO-saving aspect of the Wärtsilä X82 is its dual-rating feature. "As we have seen in the recent past, ship owners wish to be able to respond to market conditions by having closer control over the fuel costs of their ships," Mr. Holtbecker states. "In recent years this has led to owners operating their ships at lower speeds with engines running below their design ratings. With the X engines, the dual-rating option has been introduced to allow ship owners to use their engines either with a low or a high maximum power output, further improving fuel consumption in each operating mode without major modifications."

The basis of the dual-rating feature of the X engines is WinGD's 'flex' system of electronically controlled fuel injection and exhaust valve actuation, combined with turbochargers with very wide compressor maps. The sophisticated fuel injection and valve timing systems developed by WinGD allows the engine to be optimized for two different vessel operating profiles based primarily on changes of engine system settings. The owner thus has a tool to easily adapt the vessel speed for different market conditions, always ensuring the operation with the best possible performance and economy.

Ship details:

Length: ca. 364 meters
Width: 50.6 m
Load draft: 15.79 m
Main engine: Wärtsilä 9X82

Photo:



Caption: 14,000TEU container ship 'NYK Blue Jay'

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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 Wärtsilä brand name and are manufactured under licence in four shipbuilding countries. WinGD has its headquarters in Winterthur, Switzerland where, as one of the earliest exponents of diesel technology, it started the development of large internal combustion engines in 1898 under the "Sulzer" name.