



New low-speed, G-type engine

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MAN Diesel & Turbo Announce Revolutionary, Ultra-Long-Stroke Engine

G-type promises lower rpm with significant fuel and CO₂ reductions of up to 7% as part of propulsion package

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The first G-type engine, designated G80ME-C, has a design that follows the principles of the large-bore Mk-9 engine series that MAN Diesel & Turbo introduced in 2006. The G-type is designed with a longer stroke to reduce engine speed, thereby paving the way for ship designs with unprecedented high-efficiency.

Ole Grøne, Senior Vice President Low-Speed Sales and Promotions, MAN Diesel & Turbo, said: "MAN Diesel & Turbo always follows developments in the shipping market closely and we have kept a close eye on the trend for fuel optimisation in recent years. As such, we have experienced great interest in the G-type engine during extensive consultation with industry partners and are currently working on a variety of projects with shipyards and major shipping lines. As a result, we have reached the conclusion that the introduction of the G-type engine programme is both viable and timely."

Grøne added: "The G-type is an ultra-long-stroke engine and represents the biggest development within our engine portfolio since the successful introduction of the ME electronic engine within the last decade."

Rationale for G-type introduction

Tankers and bulk carriers have traditionally used MAN B&W S-type engines with their long stroke and low engine speed as prime-movers, while larger container vessels have tended to use the shorter-stroke K-type with its higher engine speed.

Larger container vessels, in recent years, have also been specified with S80ME-C9 and S90ME-C8 engines because of the opportunity they offer to employ larger propeller diameters. Following efficiency optimisation trends in the market, MAN Diesel & Turbo has also thoroughly evaluated the possibility of using even larger



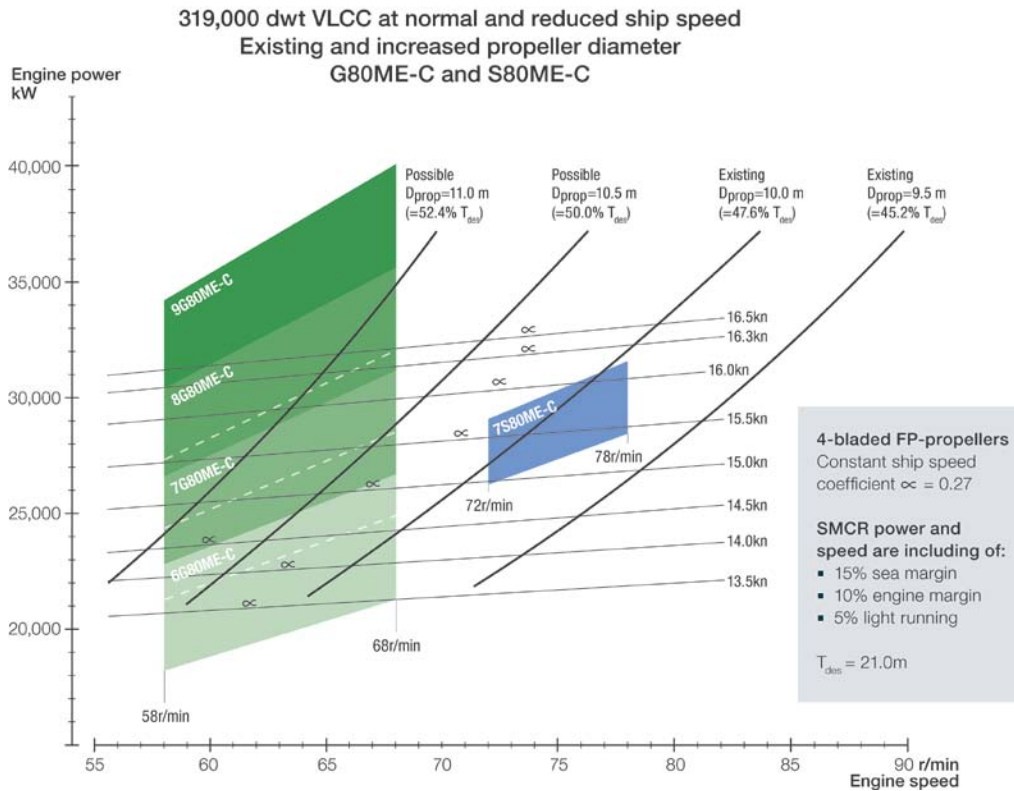
propellers and thereby engines with even lower speeds for the propulsion of tankers and bulk carriers.

Such vessels may be compatible with propellers with larger diameters than current designs, and facilitate higher efficiencies following adaptation of the aft-hull design to accommodate a larger propeller. It is estimated that such new designs offer potential fuel-consumption savings of some 4-7%, and a similar reduction in CO₂ emissions. Simultaneously, the engine itself can achieve a high thermal efficiency using the latest engine process parameters and design features.

G-type progress

MAN Diesel & Turbo reports that design work for the first G-type is already in progress and final drawings for the structure, moving parts and fuel equipment are scheduled to be ready for delivery in mid-2011. The delivery of piping and gallery drawings is scheduled to follow in the second half of 2011, assuming final order confirmation has been received by the end of 2010.

MAN Diesel & Turbo also confirms that other G-type engines of different cylinder diameter will be introduced on demand.



For VLCCs, it is estimated that the application of a 7G80ME-C will prompt an overall efficiency increase of 4-5%, compared with a 7S80ME-C9 or an alternative engine design with the same engine speed

Engine Data

	S80ME-C9	G80ME-C9
Power (kW/cyl.)	4,510	4,450
Engine Speed (r/min)	78	68
Stroke (mm)	3,450	3,720
MEP (bar)	20	21
Mean Piston Speed (m/s)	8.97	8.43
Length, 7 cyl. (mm)	12,034	12,500
Dry mass, 7 cyl. (ton)	910	960
SFOC, L ₁ (g/kWh)	168	167



Savings in operating costs

	%
Propeller	3.6
Engine	1.0
Total	4.6

About MAN Diesel & Turbo

MAN Diesel & Turbo SE, based in Augsburg, Germany, is the world's leading provider of large-bore diesel engines and turbomachinery for marine and stationary applications. It designs two-stroke and four-stroke engines that are manufactured both by the company and by its licensees. The engines have power outputs ranging from 450 kW to 87 MW. MAN Diesel & Turbo also designs and manufactures gas turbines of up to 50 MW, steam turbines of up to 150 MW and compressors with volume flows of up to 1.5 million m³/h and pressures of up to 1,000 bar. The product range is rounded off by turbochargers, CP propellers, gas engines and chemical reactors. MAN Diesel & Turbo's range of goods includes complete marine propulsion systems, turbomachinery units for the oil & gas as well as the process industries and turnkey power plants. Customers receive worldwide after-sales services marketed under the MAN PrimeServ brand. The company employs around 12,700 staff at more than 100 international sites, primarily in Germany, Denmark, France, Switzerland, the Czech Republic, Italy, India and China. MAN Diesel & Turbo is a company of the Power Engineering business area of MAN SE, which is listed on the DAX share index of the 30 leading companies in Germany.

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