

# Market Update Note



11 February 2019

## G80ME-C10.5 and G60ME-C10.5

### Introduced as Mark 10 engines

MAN Energy Solutions is continuously pursuing further design optimisations that benefit our customers and the environment. Therefore, we are pleased to introduce the Mark 10 version of our G-type 80 and 60-bore engines, i.e. the G80ME-C10.5 and the G60ME-C10.5.

Together with our other existing Mark 10 engines, these engines will be ready for the newbuilding market when it expectedly picks up after 2020, when the fuel oil situation is expected to be more clear, and the EEDI will require lower CO<sub>2</sub> emissions. The optimised Mark 10 includes the necessary engine design and performance changes to suit the relevant ship types and their required optimum SMCR.

#### G80

The G80ME-C10.5 utilises the full Mark 10 design platform introduced with the G90ME-C10.5.

The main result will be an approximately 5% weight reduction for a 7 cylinder engine and the SFOC will be reduced by 2 g/kWh over the whole load range, as illustrated in Fig. 1. The weight reduction is the result of a reduced cylinder distance enabled by the flexrod connecting rod, the flexible main bearing support, and the optimised cylinder frame. To cater for the increased maximum pressure, the

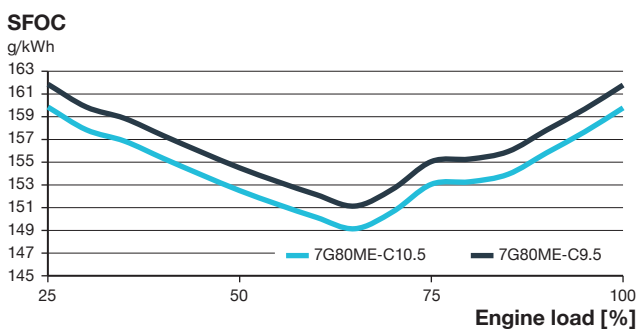


Fig. 1: G80ME-C10.5

latest design of combustion chamber components from our G95ME-C10.5 engine will be used.

For a VLCC with a 7G80ME-C10.5 main engine with an SMCR of 22,500 kW, and with a 500 USD/t price tag for a 0.5% VLSFO, the reduction in daily fuel oil consumption (DFOC) and fuel costs will be as outlined in Table 1, when comparing with the Mk. 9 version.

#### G60

The G60ME-C10.5 will have a reduced SFOC of 2.6-3.6 g/kWh depending on load and tuning methods, see Fig. 2. Detailed information on SFOC can be calculated by CEAS on our webpage. The design will largely be similar to the G60ME-C9.5, with the same outline, footprint, cylinder distance, and height of structural parts, to minimise the necessary changes in production and for ship installation. However, the uprated combustion pressures require a review of the material, structure, and dimensions of moving parts and bearings as well as of the combustion chamber parts.

For a 2,500 teu vessel with a 6G60ME-C10.5 main engine with an SMCR of 12,400 kW, and with a 500 USD/t price tag for a 0.5% VLSFO, the reduction in DFOC and fuel costs will be as outlined in Table 2, compared to the Mk. 9 version.

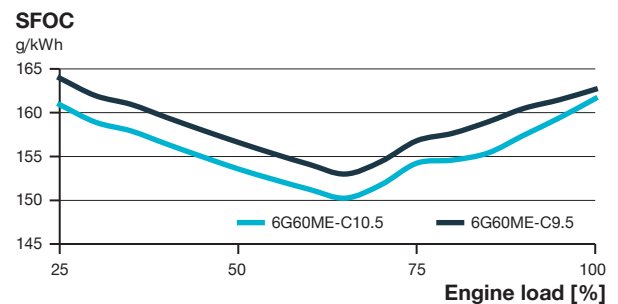


Fig. 2: G60ME-C10.5

# Market Update Note



Table 1

## 7G80ME-C

	Time %	Load %	Power kW	Mk. 10.5	Mk. 9.5	Fuel reduction for Mk. 10	
				DFOC t/day	DFOC t/day	ΔDFOC t/day	Fuel cost U\$/day
Tier II	0.5	100	22,500	86.3	87.4	1.1	531
	8	90	20,250	75.7	76.7	1.0	499
	13.5	80	18,000	66.2	67.1	0.9	439
	27.5	70	15,750	56.9	57.7	0.8	401
	25	60	13,500	48.6	49.3	0.7	348
	11.5	50	11,250	41.2	41.7	0.5	258
	3.5	40	9,000	33.6	34.0	0.4	194
	4	30	6,750	25.6	25.9	0.3	148
	6.5	25	5,625	21.6	21.9	0.3	125
	<b>LOAD PROFILE</b>				<b>51.6</b>	<b>52.3</b>	<b>0.7</b>

Table 2

## 6G60ME-C

	Time %	Load %	Power kW	Mk. 10.5	Mk. 9.5	Fuel reduction for Mk. 10	
				DFOC t/day	DFOC t/day	ΔDFOC t/day	Fuel cost U\$/day
Tier II	10	90	11,160	42.2	43.0	0.8	410
	30	85	10,540	39.3	40.2	0.9	450
	40	65	8,060	29.1	29.6	0.5	266
	15	50	6,200	22.9	23.3	0.5	226
	5	25	3,100	12.0	12.2	0.2	113
	<b>LOAD PROFILE</b>				<b>31.7</b>	<b>32.3</b>	<b>0.6</b>

Questions regarding this Market Update Note can be directed to our Two-stroke Sales & Promotion department at [lars.bryndum@man-es.com](mailto:lars.bryndum@man-es.com)

For more details:  
MAN Energy Solutions  
Tegholmegade 41  
2450 Copenhagen SV, Denmark  
[www.marine.man-es.com/](http://www.marine.man-es.com/)