

24 September 2002

## Tests confirm cylinder lubrication savings

**Highly promising results in terms of cylinder oil savings, lower particle emissions and reduced combustion chamber wear figures are emerging from large-scale testing of a wide range of MAN B&W MC/MC-C two-stroke engines equipped with Alpha Adaptive Cylinder oil Control (Alpha ACC)**

The aim of the testing programme – based on engines in service with various shipowners – is to verify the savings in cylinder oil consumption delivered by the electronically-controlled Alpha Lubricator System. Such savings reduce operating costs and the environmental impact of ships, and the system fosters more uniform and optimal cylinder liner wear rates.

Large bore engines for both container ship (K-MC/MC-C) and VLCC (S-MC/MC-C) propulsion are covered in the current programme, along with small and medium bore MC/MC-C engines.



*A 12K98MC-C main engine with Alpha Lubricator*

MAN B&W Diesel A/S  
Teglholmegade 41  
DK-2450 Copenhagen SV  
Tel.: +45 33 85 11 00  
Fax: +45 33 85 10 30

[www.manbw.dk](http://www.manbw.dk)

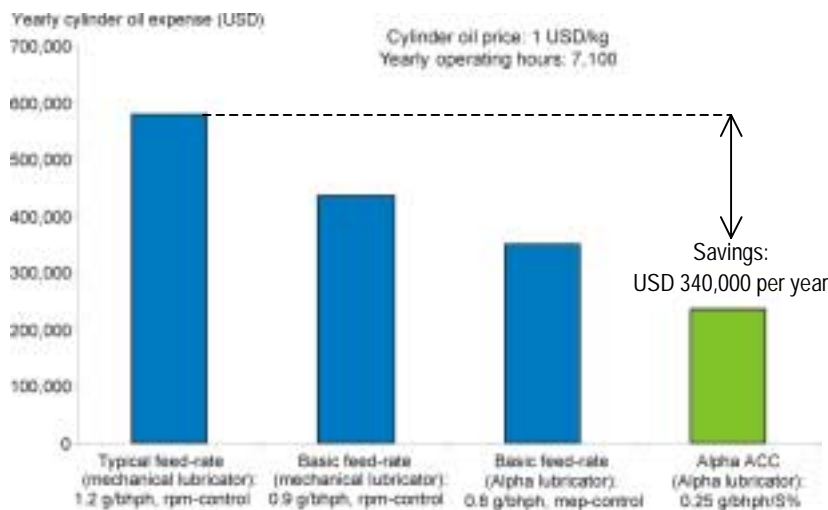
For further information,  
please contact:

Peter Dan Petersen  
Senior Manager PR &  
Documentation  
Tel.: +45 33 85 14 70  
Fax: +45 33 85 10 30  
e-Mail: [pdp@manbw.dk](mailto:pdp@manbw.dk)

DIESEL TEST

Alpha ACC allows the cylinder oil dosage (g/bhph) to be controlled in such a way that it is proportional to the amount of sulphur (g/bhph) entering the cylinder with the fuel.

This is achieved by making the cylinder oil dosage proportional to the sulphur percentage in the fuel and to the engine load (fuel amount).



The main element of cylinder liner wear is of a corrosive nature, and the amount of neutralizing alkaline components needed in the cylinder will therefore be proportional to the amount of sulphur (which generates sulphurous acids) entering the cylinders. A minimum cylinder oil dosage is set in order to satisfy other requirements of a lubricant, such as providing an adequate oil film and detergency properties.

In the present version of the Alpha Lubricator System the ship staff inputs the so-called 'HMI-setting' based on the sulphur percentage of the fuel used and a conversion table. An input is made at the appropriate system panel each time the fuel specification is changed.

Results from a 12K90MC engine powering a 6,800 TEU container ship illustrate (see diagram on page 3) the economic and environmental benefits of Alpha ACC, which was applied to the engine in December 2001.

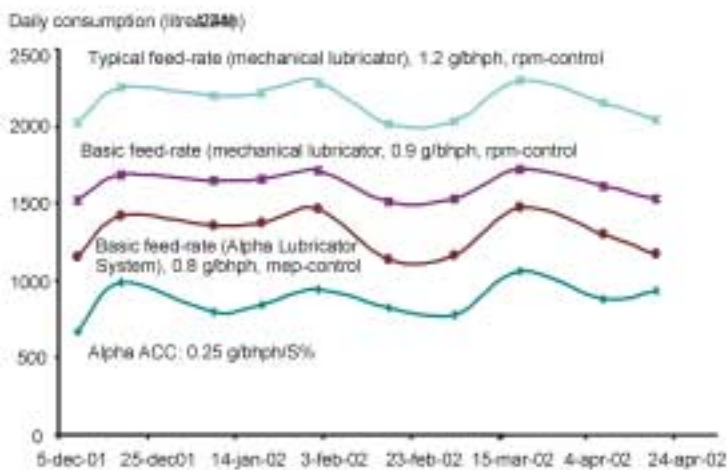
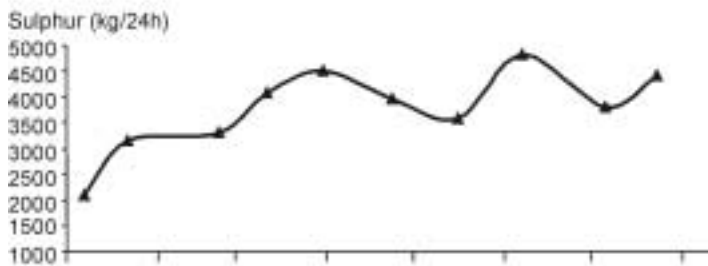
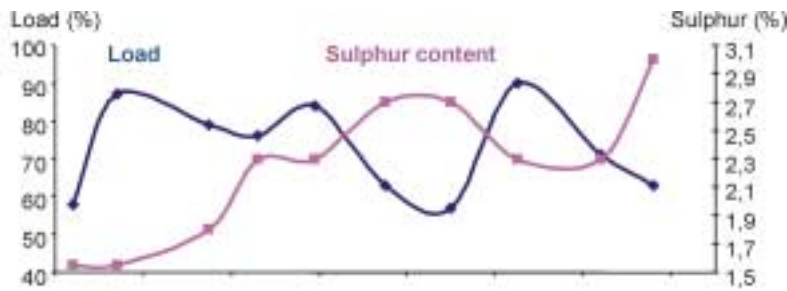
MAN B&W Diesel A/S  
Teglholmegade 41  
DK-2450 Copenhagen SV  
Tel.: +45 33 85 11 00  
Fax: +45 33 85 10 30

www.manbw.dk

For further information,  
please contact:

Peter Dan Petersen  
Senior Manager PR &  
Documentation  
Tel.: +45 33 85 14 70  
Fax: +45 33 85 10 30  
e-Mail: pdp@manbw.dk

DIESEL



The upper part of the diagram shows the load variation and the sulphur content variation in the fuel, both variations typical for this class of ship; the middle section shows the total amount of sulphur entering the cylinders with the fuel; and the lower part shows four curves for comparison.

- Typical feed rate (mechanical lubricator), 1.2 g/bhph, rpm-proportional control
- Basic feed rate (mechanical lubricator), 0.9 g/bhph, rpm-proportional control
- Basic feed rate (Alpha Lubricator System), 0.8 g/bhph, MEP-proportional control
- Alpha ACC, 0.25 g/bhph/S%

MAN B&W Diesel A/S  
Teglholmegade 41  
DK-2450 Copenhagen SV  
Tel.: +45 33 85 11 00  
Fax: +45 33 85 10 30  
[www.manbw.dk](http://www.manbw.dk)

For further information,  
please contact:

Peter Dan Petersen  
Senior Manager PR &  
Documentation  
Tel.: +45 33 85 14 70  
Fax: +45 33 85 10 30  
e-Mail: [pdp@manbw.dk](mailto:pdp@manbw.dk)

DIESEL

Significant savings in daily cylinder oil consumption through Alpha ACC of this 12K90MC engine – monitored over a five-month period since system implementation – equate to annual savings of 340 000 USD on cylinder oil. The economic benefit is accompanied by the favourable environmental impact; and the first cylinder wear measurements on the engine indicate that liner wear is very low, even with the very low lube oil consumption.

Alpha ACC can now be specified for all MC/MC-C engines equipped with the Alpha Lubricator System. Retrofitted to ships in service, such a system will have a payback time of less than one year on most types of MC/MC-C engines. Owners wishing to operate on 'green' low sulphur fuel thus have the possibility to operate with 'green' cylinder oil lubrication at the same time.

MAN B&W Diesel A/S  
Teglholmegade 41  
DK-2450 Copenhagen SV  
Tel.: +45 33 85 11 00  
Fax: +45 33 85 10 30

[www.manbw.dk](http://www.manbw.dk)

For further information,  
please contact:

Peter Dan Petersen  
Senior Manager PR &  
Documentation  
Tel.: +45 33 85 14 70  
Fax: +45 33 85 10 30  
e-Mail: [pdp@manbw.dk](mailto:pdp@manbw.dk)

DIESEL