

# SEA-Mate<sup>®</sup> Blending-on-Board

Fit-for-Purpose lubrication



## Significant Lube-Oil cost and consumption savings

Lubrication of a modern 2-stroke engine depends on design, load and fuel sulphur content, and the cost of lubricants is normally the third-highest running cost. For cylinder lubrication, a "minimum feed rate" is specified by engine designers, but when using commercial cylinder oils, cylinder lubrication is automatically increased in order to avoid unwanted corrosion of the engine.

## Reduce cylinder oil consumption up to 40%

With a SEA-Mate Blending-on-Board unit (BOB) installed, it is possible to match the cylinder oils neutralization capabilities to the actual fuel sulphur. A high BN cylinder oil product is blended with in-use or fresh system oil - the result is a fit-for-purpose cylinder oil matching the sulphur content in the fuel. With a BN between 15 and 160, the blended cylinder oil will have optimal neutralization capabilities and it is possible to run cylinder lubrication at fixed low feed rates regardless of fuel sulphur. The result is up to 40% of documented savings in Lube-Oil consumption. When switching to a fuel with different sulphur, simply enter new sulphur value and cylinder oil BN will be adapted accordingly.

## Save fuel and extend TBO

Using in-use system oil for blending means fresh oil is frequently added to the main engine with improved viscosity, detergency and protection properties as a result. The result is reduced frictional energy losses, reduced system oil purifier energy consumption and sludge formation as well as longer component lifetime – piston ring lifetime will in many cases be doubled.

## Environmentally friendly, short ROI

A BOB unit is easily retrofitted onto existing vessels without need to interrupt vessel schedule. It is possible to blend existing lube-oil suppliers regular high BN cylinder oil or switch to BOB-only 300+ BN cylinder oil products. Once BOB is put into operation, feed rate and composition optimization is simple to implement. Monitoring continues as specified by the engine designer.

Return-on-Investment is usually 1-2 years, and the three available BOB sizes covers all 2-stroke engine sizes.



## Key Benefits

### Up to 40% Lube-Oil Savings

Automatic blending of optimal cylinder oil allows running at or close to specified "minimum lubrication" at all times, regardless of fuel sulphur content. Adding fresh system oil frequently reduces purifier waste by up to 40%.

### Up to 1.5% Fuel Savings

With BOB, the engine sump system oil is continuously refreshed. Fresh oil equals less friction and proven fuel savings.

### Mitigate Cold Corrosion

Hundreds of installations and performance monitoring, has proved that adaptive adjustment of cylinder oil acid neutralizer (BN) is a powerful way to mitigate liner wear.

### Reduced Maintenance Costs

Optimized system and cylinder liner lubrication eliminates unnecessary deposits and fouling, increasing lifetime of components like piston rings significantly.

### Proven Concept – 3rd Generation Equipment

200+ installations. Millions of cylinder running hours logged.

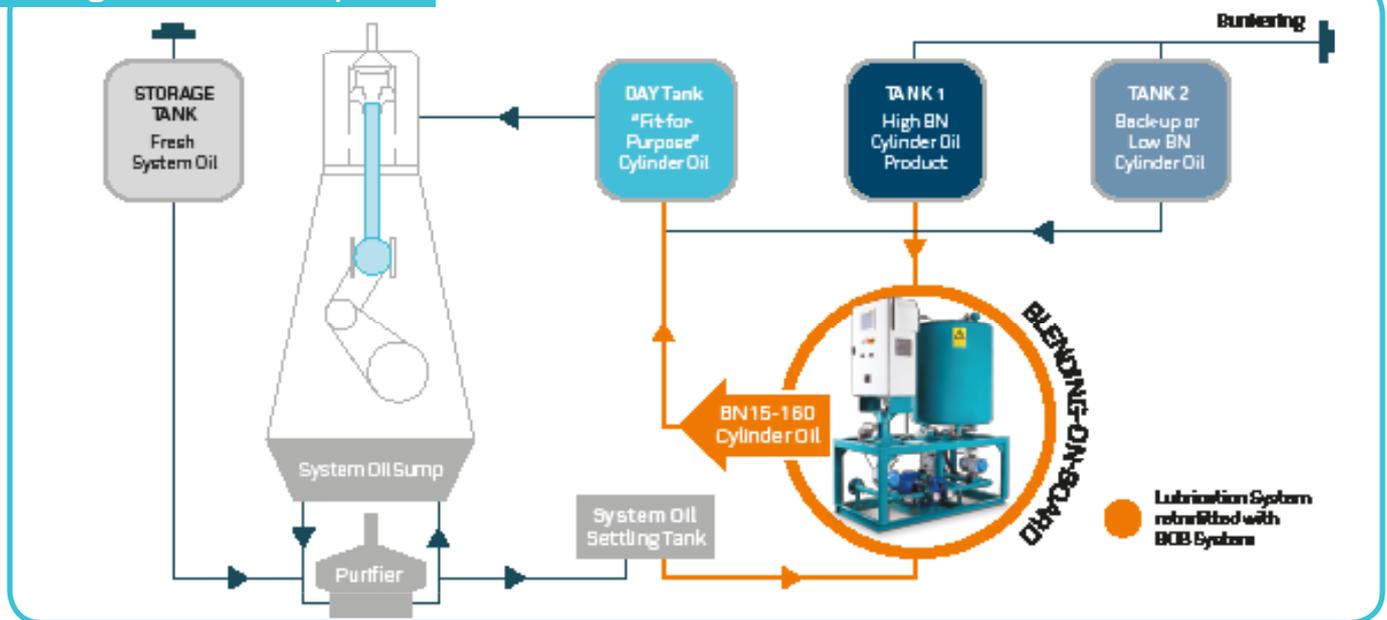
### Lube-Oil Supplier Independence

Blending-on-Board works with high BN cylinder oil products from any supplier.

### Easy to Install and Use

Class and OEM approved system can be fitted within a regular port-stay. Operation is easy and BOB runs fully automatically.

## Blending-on-Board set-up



## Product specifications

Performance	SEA-Mate® B500 Mk2	SEA-Mate® B1000 Mk2	SEA-Mate® B3000
Ingoing cylinder oil product range (BN)	15 - 325	15 - 325	15 - 325
Blended cylinder oil output (BN)	15 - 160	15 - 160	15 - 160
Standard deviation range (BN)	+/- 2	+/- 2	+/- 2
Blending capacity (ltr/workingday)	0 - 300	0 - 300	0 - 2000
Streams that can be blended	3	4+	4+
Operation	Manual	Manual or automatic with multiple options for signal input	Manual or automatic with multiple options for signal input
Technical			
Working temperature (°C)	5 - 50	5 - 50	5 - 50
Dimensions L x W x H (cm)	110 x 60 x 85	110 x 60 x 85	130 x 70 x 170
Weight (kg)	170	170	350
Power requirement	3 x x440V / 6A	3 x x440V / 6A	3 x x440V / 10A

Marine Fluid Technology Blending System has been type approved by Lloyds Register.

For more information, please visit us at [www.marinefluid.dk](http://www.marinefluid.dk)