New generation diesel engines

LDW 194 JMTI
LDW 245 JMTI/A

LOMBARDINI Marine

the Company

Lombardini Marine, a division of the Lombardini Group, was set up with the objective of preparing and marketing engines based on the innovative JMT design and on well established and proven FOCS and CHD families.

Having a very modern and well-equipped plant, it can count on a team with repuded experience in the marine sector and with some twenty years of expertise to enable the latest features and technological advances available to be designed into the product.

the Product

Lombardini Marine engines, which are extremely lightweight and compact, can now offer the highest reliability, thus allowing owners to face any situation and any operating condition within greatest confidence.

The design has addressed and optimised characteristics such as length and economy of operation, without compromising performance, also conforms to the new European environmental regulations in force.

The design concept and the marinization expertise make this range of engines the best that technology can offer in the marine world, highlighting and enhancing features such as the ease of maintenance and installation, as well as high resistance to the effects of salt water.

Moreover, Lombardini Marine offers one of the most efficient and well-trained after sale networks, thus ensuring rapid response, combined with the reliability and professionalism that has always been a boast of the Lombardini Group.

the Values

- **Quality**
- **Safety**
- **Innovation**
- **Respect for the environment**

JMT series engines

The JMT series engines represent the highest point of development of the technology applied to diesel engines for the marine sector for both pleasure and commercial applications.

Quality

We have worked intensively, taking advantage of the experience acquired over many years of work and experimentation on traditional engines, which were already at the leading edge, with the introduction of compact injector pumps, in order to be able to use the Common Rail injection system.

The new Common Rail generation

New EDC16 electronic control unit with high-tech injectors delivering 5 injections per phase. A direct injection diesel engine that is increasingly similar to a petrol engine.

- Excellent torque curve
- Flexibility and promptness of response
- Quieter
- Vibration-free

Innovation

The JMT series engines have been developed in order to strengthen the trust placed in us over the years and to keep our initial promises of always providing our customers with leading edge products equipped with innovative systems.

4 or 5-cylinder engines, in traditional inboard in-line versions and stern drive, with the standard stern drive leg coupling of the Bravo Mercruiser range.

Moreover, in order to handle the increasing number of requests from the re-engining market, we have designed and made available a kit for coupling JMT engines to the majority of existing stern drive legs.

This can be the quickest way to upgrade the on-board propulsion system without having to bear the cost of a total replacement

New generation components

To make the engine solid, tough and above-all reliable over time:

- cylinder heads with hydraulic tappets;
- 4 valves per cylinder;
- steel connecting-rods and drive shaft;
- pistons with internal channels for cooling oil circulation to crankshaft and big-end bearings;
- high efficiency aftercooler.

To preserve the finish for an extended period:

- advanced chemical treatment of the castings;
- electro-plating of sheet metal parts;
- two paint coats resistant to a marine environment.

Features

Consumption

The Common Rail – Multiple Injection combination has drastically reduced consumption, which in the marine sector is synonymous with greater range and being able to travel further without intermediate fuel stops.

For example, the LDW 194 JMTI engine has specific consumption of 162 gCV/h at 2750 RPM, which is one of the lowest in the category.

Environment

The Common Rail-Multiple Injection features enable this engine to improve the main aspect of diesel in environmental terms, by minimising the main defect represented by the emission of particulate and NOx.

The JMT engine meets exhaust emission requirements and already conforms to Directive 2003/44/EC and the strict Swiss BSO standard.

Weight and overall dimensions

A series of lightweight engines with minimal weight despite the cast-iron base, with thin walls to reduce vibrations and noise.

Reduced dimensions, also because of the study of marine issues, that is due to the long experience acquired by Lombardini Marine. The double cooling circuit is perfectly harmonised within the engine's architecture.

Noise

The soundproofing covers have been subject to extensive study and are produced with a suitable material that resists walking and high temperatures. It enables excellent reduction of the acoustic emissions coming from the upper part of the head, where most of the noise generated by the engine comes from.

A rear guard for guarding the belts and moving parts makes the engine safe and reduces the risk of injury.

Certified installation

Lombardini Marine's trained and qualified personnel certify the installation of the engine to ensure its complete efficiency and durability over time without drawbacks.

Furthermore, a direct connection to the control unit of the engine has been provided to enable the staff of the Customer Service to conduct rapid diagnostic check-ups with small handheld computers during the scheduled services.

Maintenance

Reduced consumption and deterioration of the lubricating oil, using top-quality filters has extended time between services to 250 hours.

The internal components do not require checks, maintenance or adjustments throughout the life of the engine.

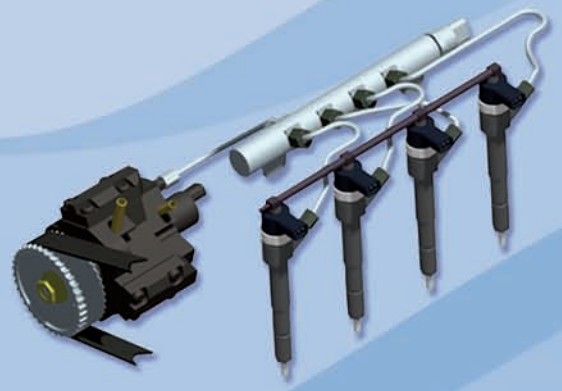
Technical features

Common Rail Injection System

The Common Rail injection system makes it possible to use a high injection pressure and a fuel delivery method which are controlled by an electronic control unit through electro-injectors (rather than by injection pumps as in traditional direct injection engines). The high injection pressure is the fundamental tool for optimising torque delivery, fuel consumption and amount of exhaust smoke.
The injection pressure is adjustable thanks to the constructional features of the system that is equipped with pressure pump and independent electro-injectors, all governed by a control unit. In this way, the injection pressure is independent of the engine rotation speed.

The principal characteristics of the fuel delivery system are:

- high injection pressure (up to 1600 bar);
- injection pressure adjustable from 150 to 1600 bar under any operating condition of the engine;
- injection control precision both in terms of advance and duration.

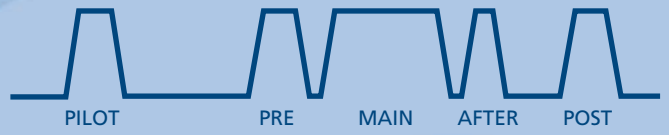


Multiple Injection Common Rail

High pressure injection and electronic control of the injectors, with one additional characteristic: for every cycle of the engine, the number of injections increases, up to 5 per cycle.
The quantity of diesel burnt is the same, but it is divided into more parts, resulting in a more gradual combustion and a better performance.
The reduction in start-up time and amount of exhaust smoke, an amazing torque even from 1700 rpm, noise damping and emission reduction, are the advantages provided by the Common Rail JMT

EDC16 control unit

The electronic control unit can manage, within the same combustion cycle, an advanced Pilot injection, a main injection consisting of a sequence of three close injections (Pre, Main, After) and a delayed Post injection, for the treatment of exhaust gases: this is made possible by varying timing depending on load output.



The EDC16 control unit also enables a more precise control over the pressures and the temperatures developed inside the combustion chamber, as well as better usage of the air fed into the cylinders. In this way other gobjectives can be attained: control of combustion noise, lower emissions and better performance.

Electro-injectors

The electro-injectors are fitted on the cylinder head and controlled by the injection control unit.

The single fuel manifold (rail) is mounted on the cylinder head suction side and allows to limit the fuel pressure oscillations caused by the pressure pump operation and the opening of the electro-injectors.

Technical features

Block - head - cylinders

The cylinders are formed directly in the block, which is in ductile cast iron, and are available in three dimensional classes plus oversize.

The cylinder head is a monoblock in aluminium and silicon alloy.

There are four valves for each cylinder, two for the inlet and two for the exhaust. Parallel and vertical, they are mounted in their respective valveguides and controlled by two camshafts whose eccentric cams actuate the hydraulic valve tappets.

Fixed geometry turbine

To ensure reliability and long-life in the demanding marine environment, and to avoid costly maintenance activities, a special fixed geometry Garrett turbine is fitted onto JMT engines, which combined with a wastegate valve for the control of the turbocharging pressure, provides excellent performance.

Fuel cooling

A heat exchanger on the diesel oil circuit enables fuel temperature fluctuations to be contained during operation of the engine, ensuring ideal safety conditions even in the presence of tanks with reduced capacity or which are partially empty.

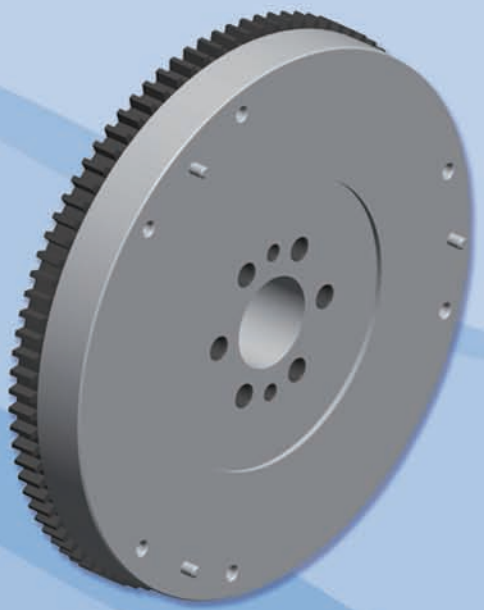
Alternator

To recharge the batteries, the 120 A at 14 V alternator has been installed.

Engine flywheel

The innovative engine flywheel is the double mass type.

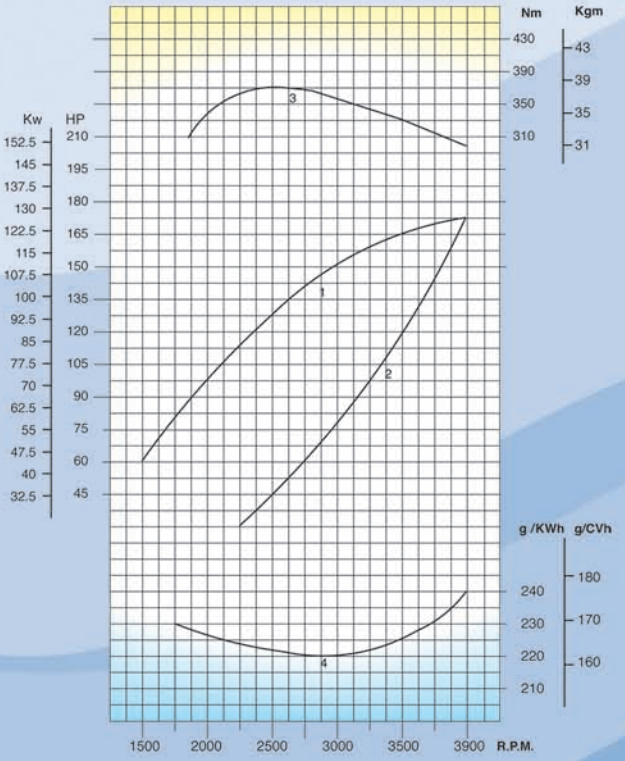
The first mass is integral with the drive shaft, the second with the gearbox, connected by an elastic torsional damping system.



LDW 194 JMTI - 180 hp 1910 cm³/ 4 cylinders

Technical data

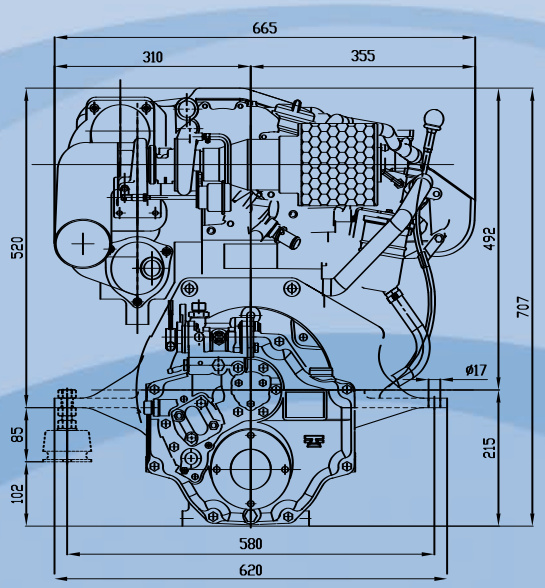
Cylinders		4
Bore	mm	82.0
Stroke	mm	90.4
Displacement	cm^3	1910
R.P.M.		3900
Max rating	KW/CV	132.3/180
Power at propeller shaft	KW/CV	127/173
Dry weight	Kg	284
Max inclination		10°

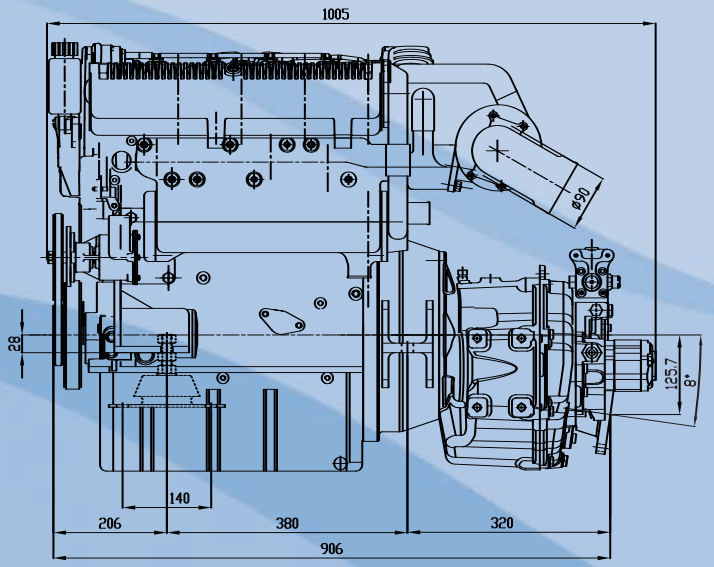


PERFORMANCE CURVES

1. Power at propeller shaft
2. Propeller demand curve
3. Maximum torque
4. Fuel consumption

Rating refers to engine after running in with reversing gear, air cleaner and water injected stainless steel exhaust elbow under environment conditions of 20°C. Max rating certified within 5%. Derating approximately every 100 m altitude and 2% approximately every 5°C beyond 20°C.



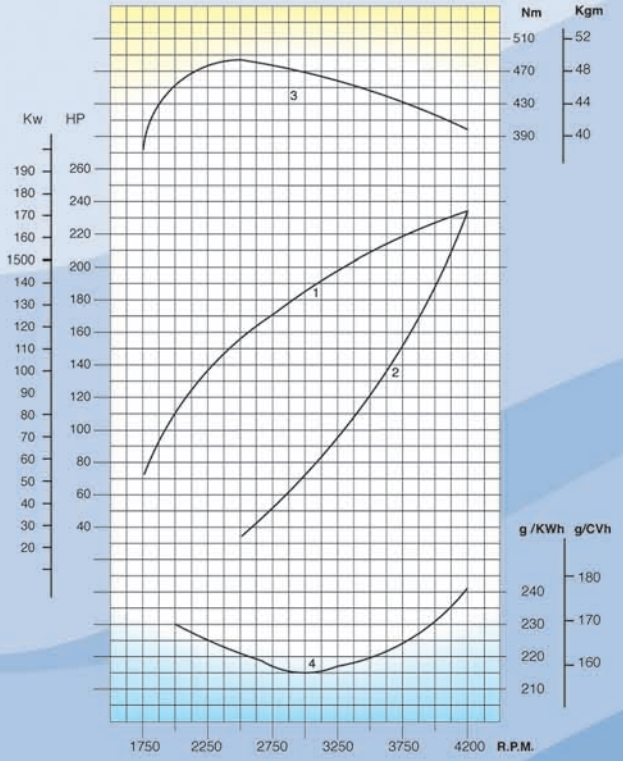


The data and the drawings relate to the engine coupled with the TM485 A gearbox

LDW 245 JMTI/A - 240 hp 2387 cm³/ 5 cylinders

Technical data

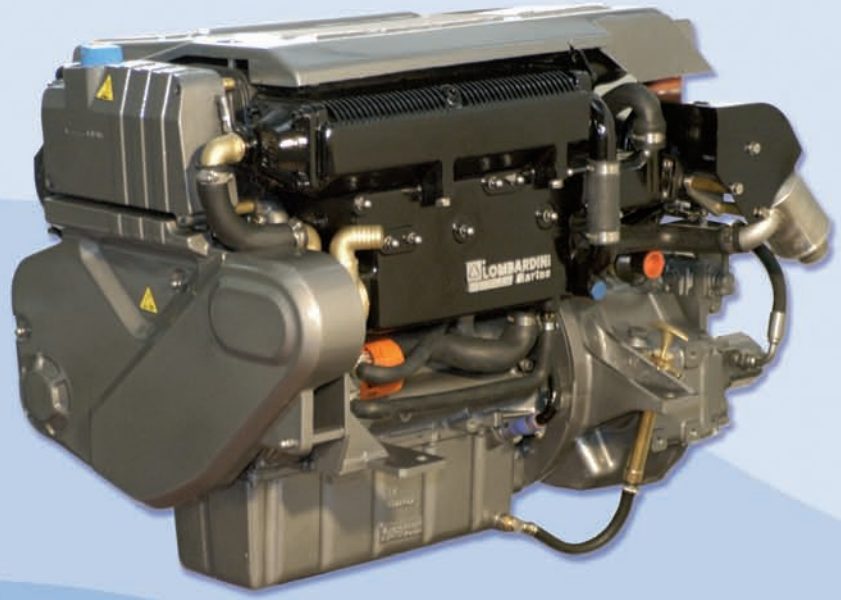
Cylinders		5
Bore	mm	82.0
Stroke	mm	90.4
Displacement	cm³	2387
R.P.M.		4200
Max rating	KW/CV	176.4/240
Power at propeller shaft	KW/CV	171.4/233
Dry weight	Kg	315
Max inclination		10°

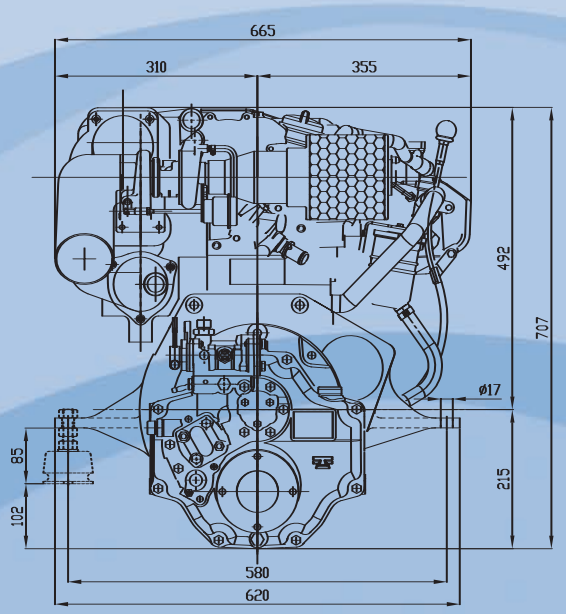


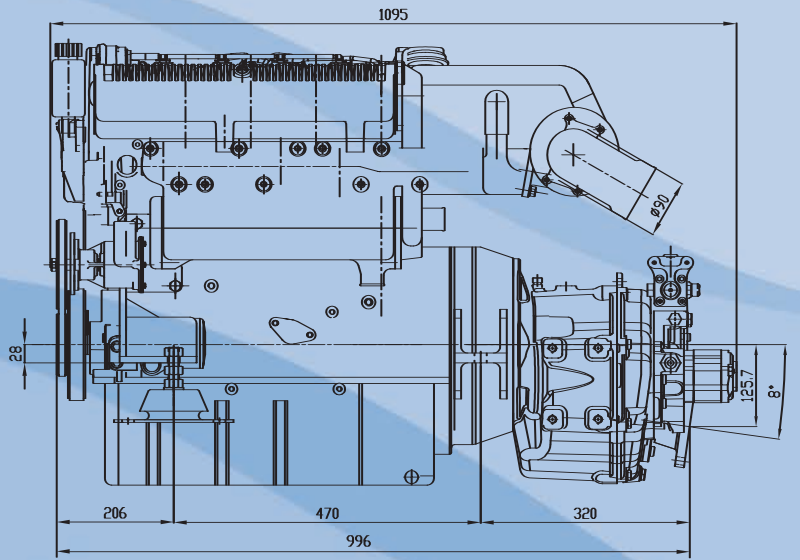
PERFORMANCE CURVES

1. Power at propeller shaft
2. Propeller demand curve
3. Maximum torque
4. Fuel consumption

Rating refers to engine after running in with reversing gear, air cleaner and water injected stainless steel exhaust elbow under environment conditions of 20°C. Max rating certified within 5%. Derating approximately every 100 m altitude and 2% approximately every 5°C beyond 20°C.





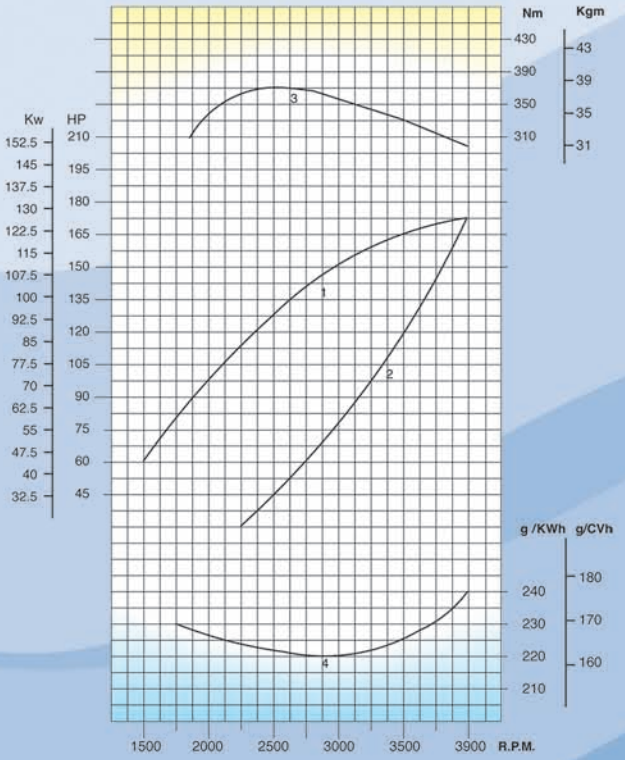


The data and the drawings relate to the engine coupled with the TM485 A gearbox

LDW 194 JMTI - Mercruiser Bravo I stern-drive version

Technical data

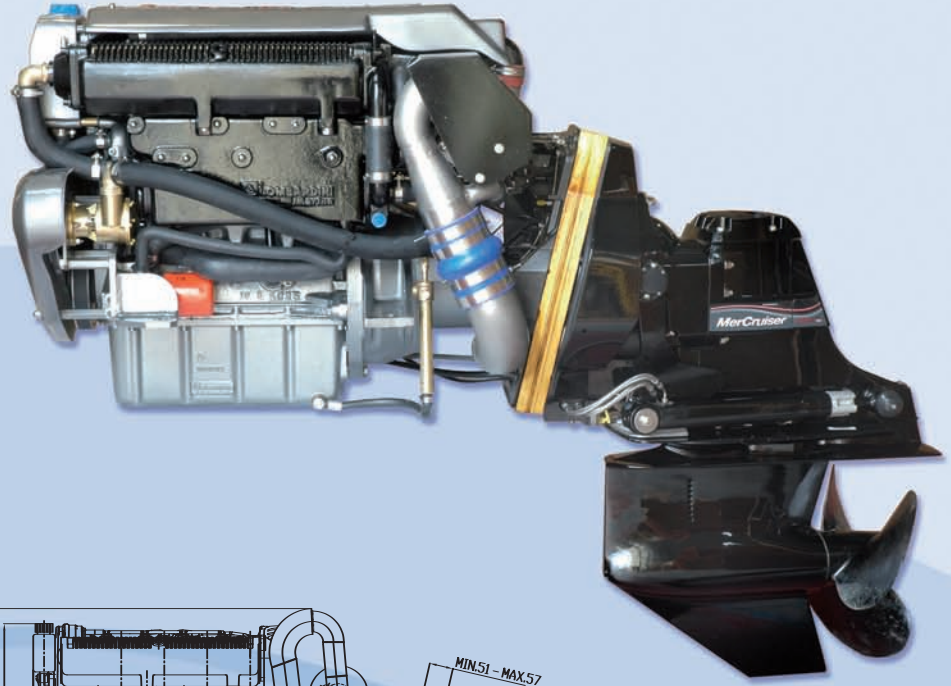
Cylinders		4
Bore	mm	82.0
Stroke	mm	90.4
Displacement	cm^3	1910
R.P.M.		3900
Max rating	KW/CV	132.3/180
Power at propeller shaft	KW/CV	127/173
Dry weight	Kg	340

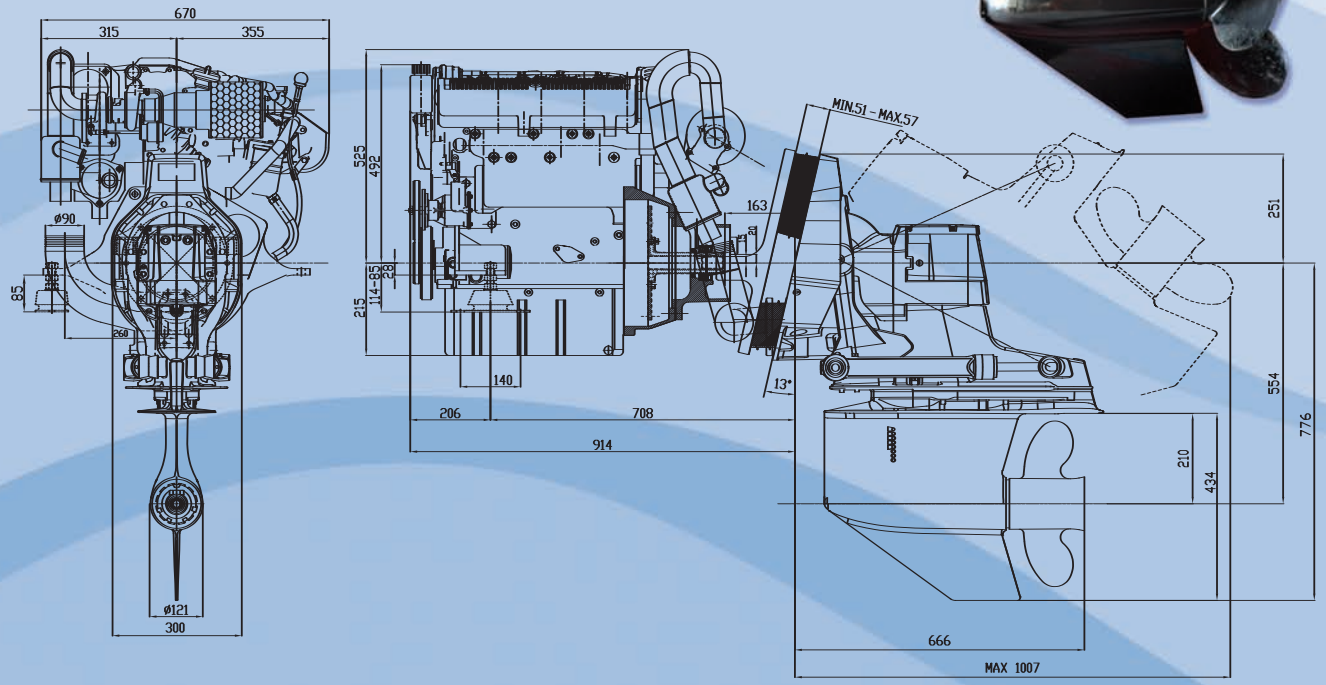


PERFORMANCE CURVES

1. Power at propeller shaft
2. Propeller demand curve
3. Maximum torque
4. Fuel consumption

Rating refers to engine after running in with reversing gear, air cleaner and water injected stainless steel exhaust elbow under environment conditions of 20°C. Max rating certified within 5%. Derating approximately every 100 m altitude and 2% approximately every 5°C beyond 20°C.

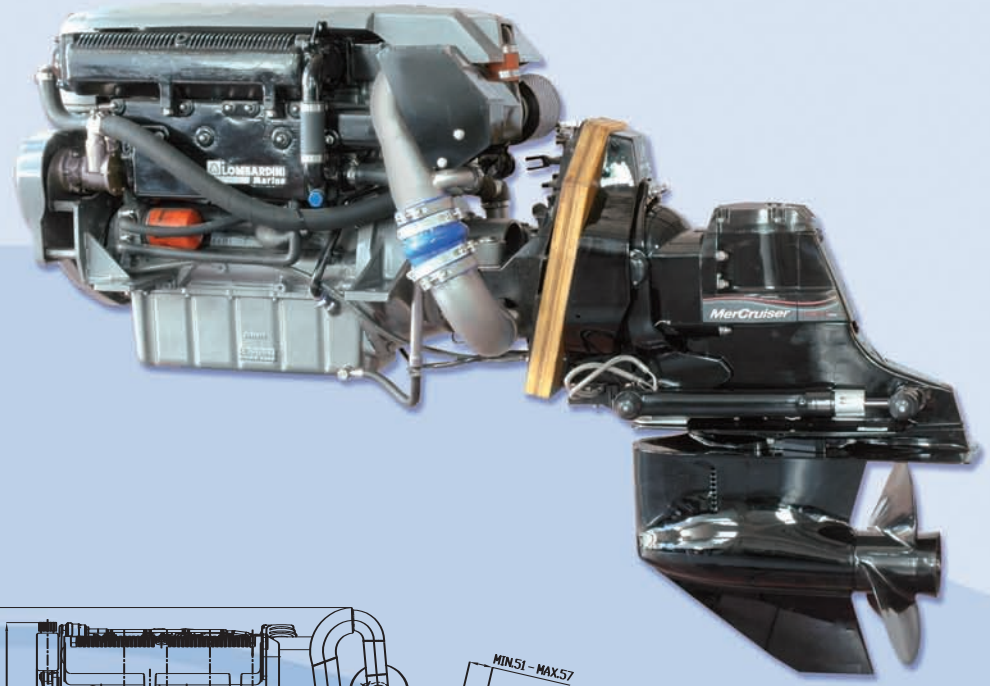


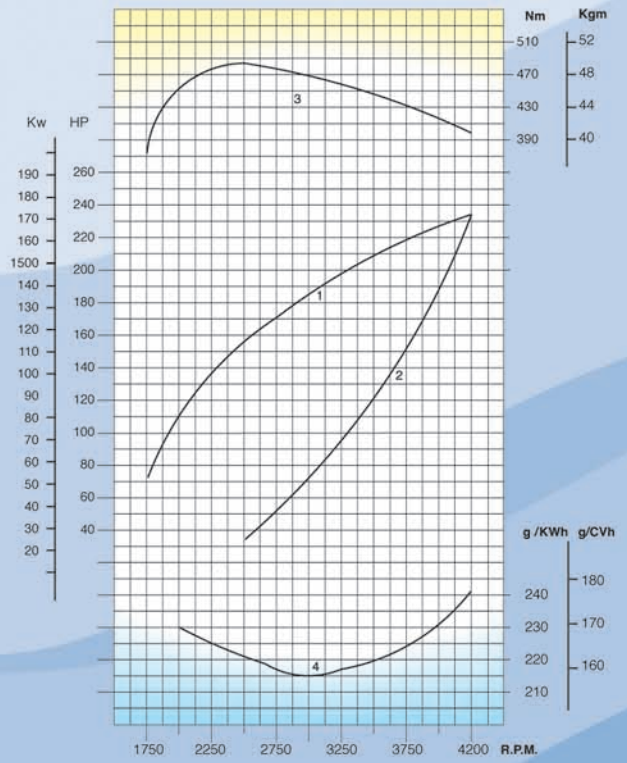


LDW 245 JMTI/A - Mercruiser Bravo I stern-drive version

Technical data

Cylinders		5
Bore	mm	82.0
Stroke	mm	90.4
Displacement	cm^3	2387
R.P.M.		4200
Max rating	KW/CV	176.4/240
Power at propeller shaft	KW/CV	171.4/233
Dry weight	Kg	376

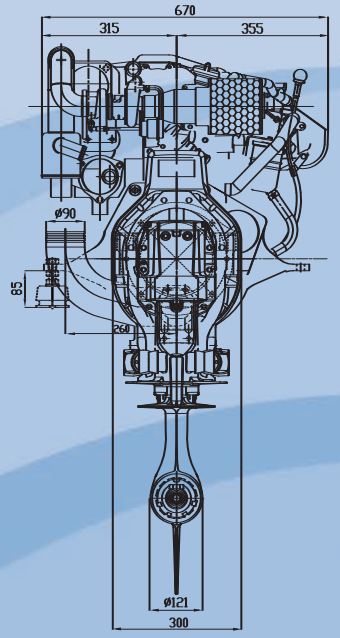


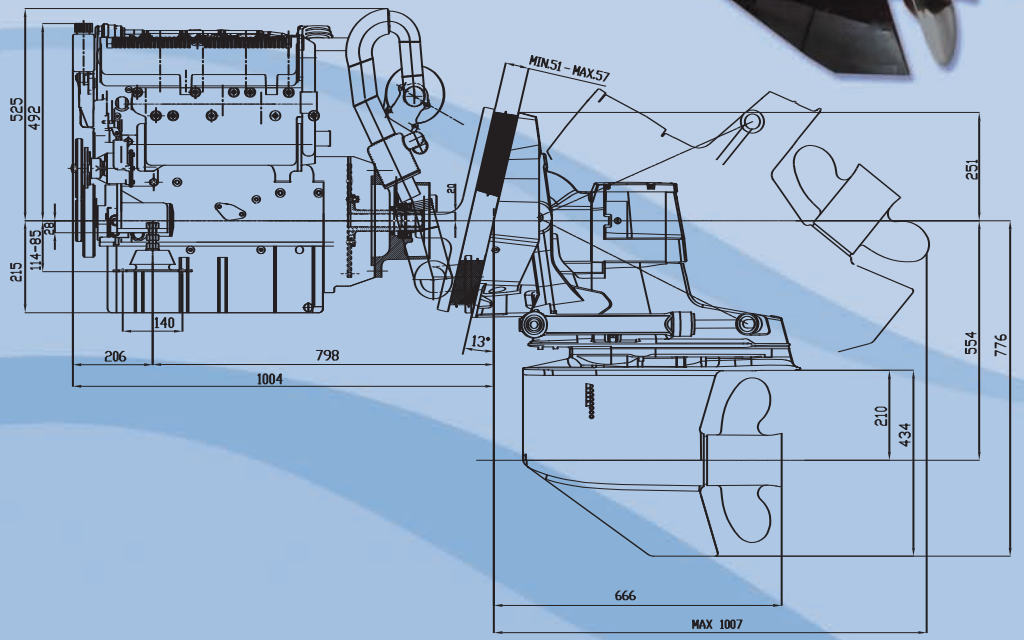


PERFORMANCE CURVES

1. Power at propeller shaft
2. Propeller demand curve
3. Maximum torque
4. Fuel consumption

Rating refers to engine after running in with reversing gear, air cleaner and water injected stainless steel exhaust elbow under environment conditions of 20°C. Max rating certified within 5%. Derating approximately every 100 m altitude and 2% approximately every 5°C beyond 20°C.





LDW 194 JMTI / LDW 245 JMTI/A - Gearboxes - Accessories

Gearbox type	TM93				TM485A*		
Reduction ratio	1,51:1	2,09:1	2,40:1	2,77:1	1,51:1	2,09:1	2,40:1
Weight	53 kg				36 kg		
ENGINES							
LDW 194 JMTI	X	X	X	X	X	X	X
LDW 245 JMTI/A	X	X	X		X	X	X

* Gearbox output flange 8° inclined

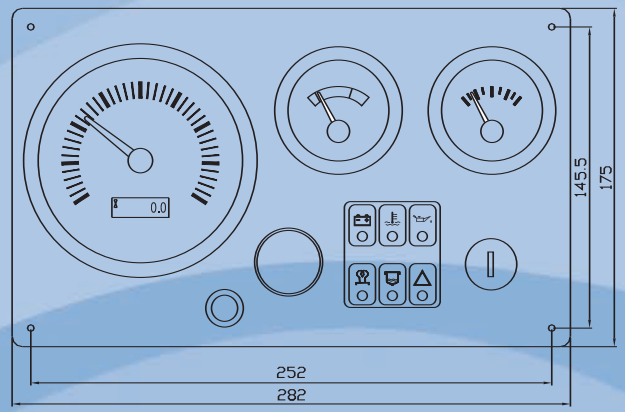
Accessories

- Kit Boiler
- Hot water take-off kit
- Stern drive arrangement

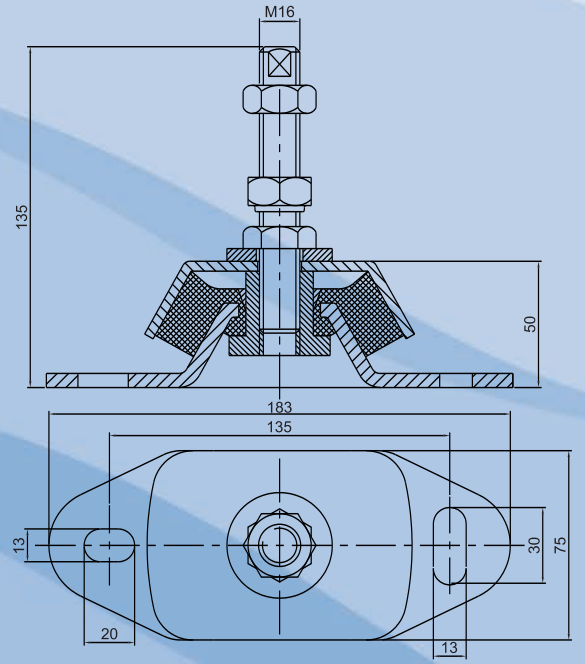
Engine equipment

Electric starting with 12V motor, alternator 120 A, sea water pump, electric fuel supply pump, mounted oil extraction pump, hydraulic inverter-reduction unit, sockets for inverter and accelerator controls, De Luxe Maxi instrumentation panel, 5 metre extension, set of spanners and tools, anti-vibration mounts, use and maintenance manual.

De Luxe Maxi instrument panel

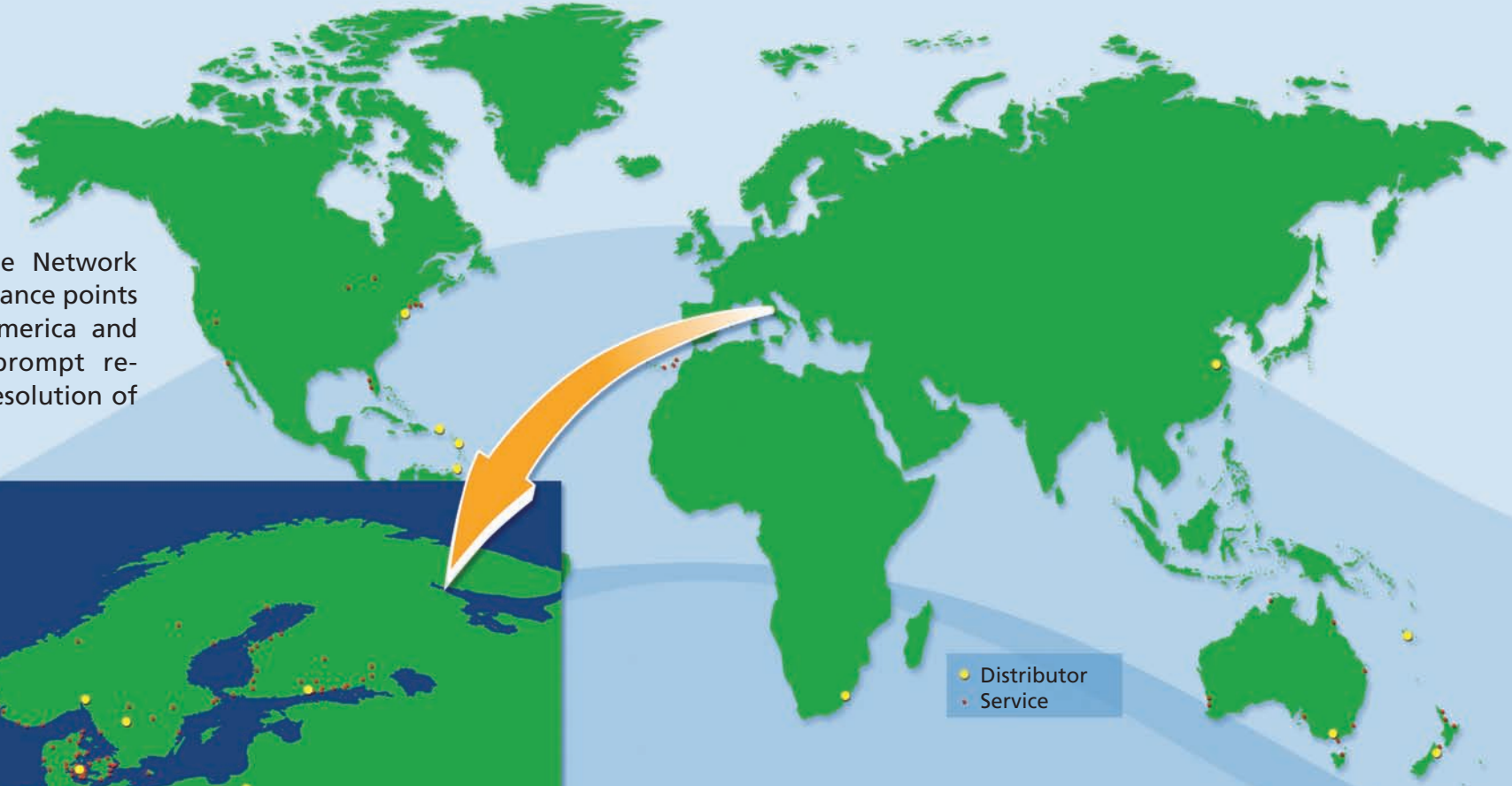


Engine rubber mounts



Lombardini Marine Service

A widespread Service Network with almost 300 assistance points in Europe, Africa, America and Oceania ensure a prompt response and a rapid resolution of any type of problem.



Lombardini Marine constantly maintain the skill levels of the network personnel by means of periodic in-house training courses .
The updated list of the nearest workshops can be viewed on the web-site:
www.lombardinimarine.com

Components and consumable spare parts are available at the assistance points of the Lombardini Marine Service Network.

All other parts are delivered in Europe within an average of 24/48 hours, while all other destinations are covered by our shipping departments.

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Codice 0053027350

LOMBARDINI Marine

Factory:
02100 Vazia - Rieti - Italia
Via E. Greco, 3/a
Tel. +39 0746.220131
Fax +39 0746.221122
info@lombardinimarine.com
www.lombardinimarine.com

Sales office:
42100 Reggio Emilia - Italia
Via Cav. del Lavoro Adelmo Lombardini, 2
Tel. +39 0522.934598
Fax +39 0522.935343
sales@lombardinimarine.com
www.lombardinimarine.com

Lombardini Marine is a division of:
LOMBARDINI A KOHLER COMPANY
Capitale Sociale 44.000.000,00 euro int. vers.
42100 Reggio Emilia - Italia - Via Cav. del Lavoro Adelmo Lombardini, 2
Cas. post. 1074 - Tel. 0522.3891 - Telegr.: Lombarmotor - Internet: www.lombardini.it
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