

The BMW D190Z Marine Engine with stern drive: 121 kW (165 bhp). Particularly suitable for medium-size fast planing cruisers with twin-engine installation up to approx 10 metres (33') length.

This turbocharged diesel is ideally suited for the motor boat enthusiast who wishes to combine the rugged dependability of a diesel engine with the low weight and smoothness of a petrol unit.

The stern drive provides a unique combination of advantages in this class: smooth 6-cylinder inline diesel with turbocharging and twin-circuit cooling, electro-hydraulic power trim and a wide range of instruments fitted as standard. And a power-to-weight ratio that hails a new era in marine engineering: 121 kW (165 bhp) out of a stern drive unit that weighs only 470 kg (1061 lb).

Special features:

- One piece crankcase of cast iron built to the "tunnel" design, with transverse sections. Giving maximum stability and low weight
- 6 individual lightweight aluminium cylinder heads: better sealing properties with easy inexpensive maintenance
- Very quiet exhaust gas turbo-charger providing a smooth power curve throughout a wide engine speed range
- Aftercooler provides optimum efficiency
- Extra-large air filter for fresh air and a low noise level
- Water jacketed exhaust manifold made of V4A stainless steel
- Bosch distributor-type fuel injection pump with fuel supply geared to turbocharger pressure, maximum efficiency, improved fuel economy and considerably reduced exhaust emissions. Efficient com-

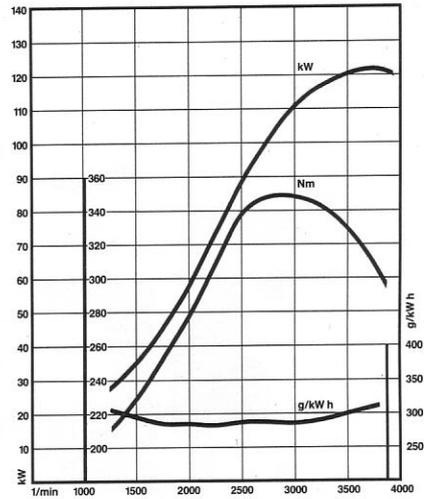
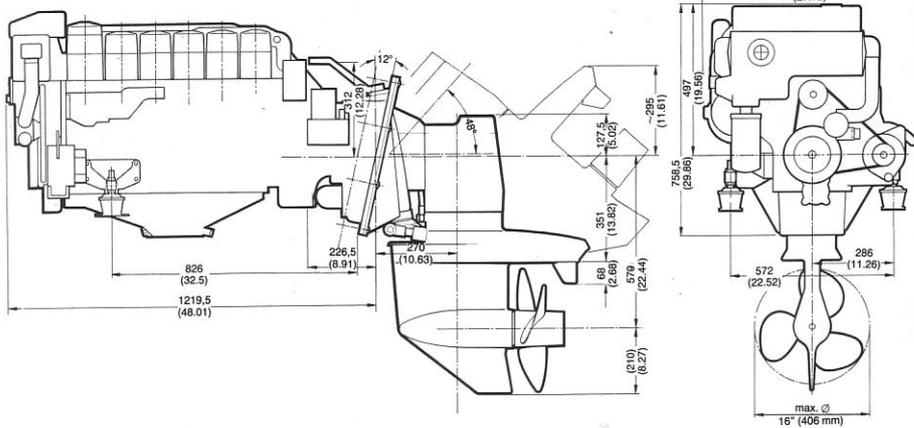
bustion to provide optimum running smoothness free of vibrations

- All fuel pipes made of steel for maximum safety
- Compact twin-circuit cooling system with integrated header tank, heat exchanger and thermostat, oil cooler and thermostat
- Maintenance-free direct drive salt water pump by the camshaft and single-belt drive of the circulation pump and alternator by the crankshaft
- Extra pulley for driving additional components
- Complete corrosion-proofing by the application of a special two-component paintwork in the advance and main painting process
- Stern drive fitted with power trim and tilt, trim gauge and warning buzzer to prevent excessive trimming

Conclusion:

The D190 Z has a wide range of exceptional advantages. This applies not only to the D190 Z but to all marine engines that bear the symbol of progressive engineering.

BMW's complete range of marine engines for motor yachts and sailing boats offers all kinds of options and a wide choice of diesel and petrol units. In addition, you can choose from a wide range of optional extras and accessories to meet your personal requirements. And to make sure that you enjoy sheer boating pleasure for a long time to come, BMW Marine's international dealer organization has trained marine technicians at your service as well as a reliable and quick supply of parts.



Specifications D 190Z

Displacement and output (DIN 6270 B)	Displacement 3590 cc (219 cu in) Stroke 90 mm (3.54"), bore 92 mm (3.62") Max output 121 kW (165 bhp) at 3800 rpm Max torque 350 Nm (258 ft/lb) at 2750 rpm Compression ratio 21:1 Wide-open throttle neutral 4350 rpm
Design and installation	Four-stroke diesel engine with water-cooled exhaust turbocharger and aftercooler 6-cylinder inline engine with individual cylinder heads Forged, heat-treated steel crankshaft Three-point suspension: adjustable at the front, ringshaped engine mount at the rear
Weight	Dry weight of engine only 396 kg (871 lb) Weight of stern drive including transom plate 74 kg (163 lb) Weight of complete drive unit 470 kg (1034 lb)
Valves	Camshaft, tappet rods and rocker arms located next to engine block; inclined valves in parallel arrangement
Lubrication	Forced-feed lubrication by Eaton pump, replaceable oil filter, thermostat-controlled oil cooler
Fuel supply system	Bosch fuel injection pump Fuel supply pump with additional manual control Ultra-fine filters with water separator Air filters
Engine cooling	Twin-circuit cooling system with water-cooled exhaust
Electrical system	Motorola 1000 W, 14 V, 75 A alternator Bosch 12 V, 3 kW starter Electrical engine cut-off Glow plugs with automatic glow time control
Power transmission	Torsion damper, double universal joint
Outdrive components/ stern drive	Gear ratio: 1.61:1 Max propeller diameter 16" (406 mm) Max steering angle $\pm 30^\circ$ Trailer position (removed from water) 48° Electro-hydraulic trim/tilt system, trimmable up to the max permissible engine speed of 3800 rpm
Standard fittings	Engine with complete wiring and multi-pin plug connections, 6-m wiring harness; instrument panel with rev counter, hour meter, water and oil temperature gauge, voltmeter, warning lamps for oil pressure, glow control and battery charge; warning buzzer for oil and water temperature; trim rocker switch (protected from water) and trim display; 3-position starter/ignition switch; adjustable instrument illumination; fuses for starter and instrument illumination; oil extraction pump fitted on engine as standard feature; salt water filter including all connection pieces and hoses; toolkit
Optional fittings	Single-lever gear shift and throttle control; propeller; various additional instruments Subject to change in design and technical features

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