



PRM 500



Full Hydraulic Operation In-line or Offset Output Shaft

The PRM 500 gearbox is purpose built for use with both pleasure craft and commercial boats; it's twin countershaft design provides separate oil-operated multi-disc clutches (no adjustment required) for ahead or astern drive allowing full rated power to be transmitted continuously in either direction.

To cater for the widest possible variety of boats the PRM 500 is offered with a choice of reduction ratios (1.459:1, 1.935:1, 2.565:1 and 2.904:1). All can provide either left-hand or right hand propeller rotation in 'ahead', making the PRM 500 particularly well suited to twin engine installations.

The gearcase is constructed of high grade cast iron, internally ribbed for rigidity and strength, and consists of two separate halves to facilitate servicing the oil pump and hydraulic control valves being externally mounted for easy accessibility.

The hydraulic operating system functions on normal lubricating oil of the same viscosity as that used in the engine, avoiding the need to use automatic transmission fluid, and ensures rapid response to movements of the operating lever for good boat handling. The operating lever has a positive neutral detent and is suitable for use with proprietary single lever remote control operating systems.

Robust and reliable, the hydraulic is nevertheless provided with a mechanical lock up device for added security, so that in the unlikely event of a hydraulic failure the boat can be brought safely back to port. Access to this device is via the detachable manifold on the rear of the gear case.

A special feature of the PRM 500 is the direct drive power take-off which is available as an optional extra: this will power a hydraulic pump to SAE J744C type 'B' specification, thus providing an economical and space efficient means of driving on-board machinery.

The trolling valve is also offered as an optional extra. This is electronically operated which allows variable speed of the propeller to zero whilst allowing a maximum engine speed of up to 1200rpm.

PRM 500 Marine Gearbox - Nominal Power Ratings

Ratios	Pleasure		Light Commercial		Heavy Commercial	
	BHP	kW	BHP	kW	BHP	kW
1.459:1, 1.935:1	6.38	4.75	6.19	4.62	5.90	4.40
2.565:1, 2.904:1	6.19	4.62	5.90	4.40	5.90	4.40

Maximum operating speeds - 4500rev/min intermittent - 4000 rev/min continuous

Note: These powers have been measured at the engine flywheel. Ratings have been established to ensure the long trouble free life of the gearbox which should not, therefore be used at powers in excess of those shown.



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Service Classification Definitions - Pleasure

Limited to planing hull pleasure craft, operation at full engine throttle should not exceed 5% of total time, with balance of usage at 90% of full throttle engine speed or less. Maximum operation 500 hours per year. The selection of PRM marine transmissions according to this classification for any commercial boat, or in sport-fishing charter boats or in range pleasure cruisers is not approved.

Service Classification Definitions - Light Commercial

Planing or semi-displacement craft used in pleasure or commercial applications may qualify for light commercial rating is annual usage is less than 1500 hours and full throttle operation is limited, with most operating time at partial throttle.

Service Classification Definitions - Heavy Commercial

PRM Marine Ltd recommends that all displacement and semi-displacement craft used for commercial applications should be classed as heavy commercial duty. In vessels of this type (including trawlers, purse seiners, lobsters and crab boats, tugs, ferries, offshore supply boats etc.) the marine gearbox is expected to work at full governed engine speed. The power setting of the engine must be known and must be written within the gearbox's permissible heavy commercial rating.

Important Note:

- 1) It is essential for the engine, transmission model, reduction ratio and propeller size to be correctly matched so that the engine can attain it's rated speed appropriate to the relevant service classification without labouring.**
- 2) It is also necessary to ensure the torsional compatibility of the complete propulsion system from engine through to propeller, since disregarding this may result in gear noise, particularly at low speed operation, and may even result in damage to the engine as well as the transmission components.**

Operating Pressure

Minimum - 1800kPa (265lb/in²). Maximum - 2180kPa (320lb/in²). Two tapped holes 1/8" BSP on the top, and M18 on the side of the valve block are provided so that a pressure gauge can be fitted if required.

Oil Cooling

The normal operating temperature should be in the range of 50°C to 80°C range and should not be permitted to exceed 90°C. An oil cooler is necessary to ensure that correct operating temperature are maintained, and the valve block is provided with two 3/8" BSP connections are provided on the valve block to allow it to be fitted. The size of the cooler required depends on a number of factors including the transmitted horsepower, operating speed, duty cycle, inlet water temperature and ambient temperature.

Propeller Thrust

Both ahead and astern thrust is carried by the output shaft bearings which are of adequate capacity for all factory approved ratings.



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Approximate Weight & Oil Capacity

Approximate Dry Weight	PRM500D 68kg (150lb), excluding adaptor, coupling and cooler
Oil Capacity	2.5 litres (4.40 pints), plus the amount required to fill the cooling circuit.

Propeller Free Wheeling

Part Number	Description	Weight - kg	Weight - lbs
MT1212S/A	SAE 2 Adaptor Flange	13.0kg	28.7lb
MT1211S/A	SAE 3 Adaptor Flange	11.0kg	24.2lb
MT1216S/A	SAE 4 Adaptor Flange	9.6kg	21.2lb
MT1563S/A	B/W (Velvet Drive) Adaptor Flange	4.2kg	9.25lb

Other Accessories for PRM 500

Part Number	Description	Weight - kg	Weight - lbs
MT4613S/A	Oil cooler kit - PRM500D, engines up to 130kW	1.00kg	2.20lb
MT4611S/A	Oil cooler kit - PRM500D, engines over 130kW	1.70kg	3.75lb
MT915	Oil pipes (pair)	0.50kg	1.10lb
MT784	Oil cooler mounting bracket	0.20kg	0.50lb
MT783	Tailshaft half coupling (pilot bored)	5.60kg	12.30lb
MT1105	Tailshaft flexible coupling	2.50kg	5.30lb
MT0214	Neutral safety start switch	0.04kg	0.10lb
MT0193	Live PTO, for SAE 'B' hydraulic pump	6.9kg	15.20lb
MT4733	Oil pressure gauge (direct mounting)	0.10kg	0.20lb
MT4992	Trolling Valve Assembly 12v	9.50kg	20.90lb
MT4993	Trolling Valve Assembly 24v	9.50kg	20.90lb



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Flexible Input Coupling for PRM 500

Part Number	Outside Diameter		No.	Mounting Hole Pattern				Remarks
	in	mm		Diameter		Pitch Circle Diameter		
				in	mm	in	mm	
MT1358	12.375	314.4	6	0.320	8.13	7.875	200.0	SAE 10 in
			6	0.320	8.13	9.853	250.0	
			6	0.320	8.13	10.625	269.9	
			6	0.320	8.13	10.750	273.1	
			8	0.375	9.53	11.625	295.3	
MT1359	13.875	352.4	8	0.433	10.99	13.125	333.4	SAE 11½ in
MT1357	14.25	362.0	6	0.320	8.13	7.785	200.0	Perkins 6-3544 Ford 2720 series
			6	0.320	8.13	8.268	210.0	
			6	0.320	8.13	10.375	263.5	
			6	0.320	8.13	10.625	269.9	
			6	0.320	8.13	10.875	276.20	
			6	0.320	8.13	11.375	288.9	
			6	0.320	8.13	11.625	295.3	
			6	0.344	8.74	12.000	304.8	
			6	0.320	8.13	12.375	314.3	
			6	0.375	9.53	12.625	320.7	
			6	0.320	8.13	13.500	342.9	
			6	0.375	9.53	13.500	342.9	



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