



# PRM500 Gearbox

Full hydraulic operation, lightweight, compact & rugged.

The PRM500 marine gearbox is purpose built for use in both pleasure craft and commercial boats; its twin countershaft design provides separate oil-operated multi-disc clutches (which need no adjustment) for ahead and astern drive allowing full rated power to be transmitted continuously in either direction.

To cater for the widest possible variety of boats the PRM500 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 PRM500 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 system is nevertheless provided with a mechanical lock-up device for added security, so that in the unlikely event of hydraulic failure the boat can be brought safely back to port. Access to this device is via a detachable cover located on top of the main gearcase

A special feature of the PRM500 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.

An electronically operated trolling valve can be fitted, which will allow variable speed of the propeller to zero whilst allowing a maximum engine speed of up to 1200 rpm.

## Nominal Power Ratings, PRM500 Marine Gearbox

Model	Ahead Ratio	Pleasure		Light Commercial		Heavy Commercial	
		kW	BHP	kW	BHP	kW	BHP
500D1.5	1.459:1	4.76	6.38	4.62	6.19	4.40	5.90
500D2	1.935:1						
500D2.5	2.565:1	4.62	6.19	4.40	5.90	4.40	5.90
500D3	2.904:1						

Maximum operating speeds: 4500 rev/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.

## Operating Pressure

Minimum – 18.27 bar (265 lb./in<sup>2</sup>), Maximum – 22.06 bar (320 lb./in<sup>2</sup>). Two tapped holes 1/8" BSP on the top, and M18 on the side of the valve block are provided so that the pressure gauge can be fitted if required.

## Oil Cooling

The normal operating temperature of the oil should be in the 50°C - 80°C range and should not be permitted to exceed 90°C. An oil cooler is necessary to ensure that correct operating temperatures are maintained, and 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.

### Propeller Free Wheeling

The PRM500 output shaft can be rotated continuously with the gearbox in neutral. It is therefore not necessary to fit a propshaft brake when running with the engine shut down, e.g. in multi-engine installations or in motor sailers.

### Approximate Weight & Oil Capacity

Approximate dry weight	68kg (150lb), excluding adaptor, coupling and cooler
Oil capacity	2.5 litres (4.4 pints) plus the amount require to fill the cooling circuit

### Flexible Input Couplings for PRM500

Part Number	Outside Diameter		Mounting Hole Pattern				Remarks	
	mm.	in.	No.	Diameter		Pitch Circle Dia.		
				mm	in	mm		in
MT1358	314.4	12.375	6	8.13	0.320	200.0	7.875	SAE 10 in
			6	8.13	0.320	250.0	9.853	
			6	8.13	0.320	269.9	10.625	
			6	8.13	0.320	273.1	10.750	
			8	9.53	0.375	295.3	11.625	
MT1359	352.4	13.875	8	10.99	0.433	333.4	13.125	SAE 11 ½ in
MT1357	362.0	14.250	6	8.13	0.320	200.0	7.785	Perkins 6-3544 Ford 2720 Series
			6	8.13	0.320	210.0	8.268	
			6	8.13	0.320	263.5	10.375	
			6	8.13	0.320	269.9	10.625	
			6	8.13	0.320	276.2	10.875	
			6	8.13	0.320	288.9	11.375	
			6	8.13	0.320	295.3	11.625	
			6	8.74	0.344	304.8	12.000	
			6	8.13	0.320	314.3	12.375	
			6	9.53	0.375	320.7	12.625	
			6	8.13	0.320	342.9	13.500	
			6	9.53	0.375	342.9	13.500	

### Adaptor Flanges for PRM500

Part Number	Description	Weight	
		kg	lb
MT1212S/A	SAE2 adaptor flange	13.0	28.7
MT1211S/A	SAE3 adaptor flange	11.0	24.2
MT1216S/A	SAE4 adaptor flange	9.6	21.2
MT1563S/A	B/W (Velvet Drive) adaptor flange	4.2	9.25

### Other Accessories for PRM500

Part Number	Description	Weight	
		kg	lb
MT4613S/A	Oil cooler kit – PRM500D engines up to 130 kW	1.00	2.20
MT4611S/A	Oil cooler kit – PRM 500D engines over 130 kW	1.70	3.75
MT915	Oil pipes (pair)	0.50	1.10
MT784	Oil cooler mounting bracket	0.20	0.50
MT783	Tail shaft half coupling (pilot bored)	5.60	12.30
MT1105	Tail shaft flexible coupling	2.50	5.30
MT0214	Neutral safety switch	0.04	0.10
MT0193	Live PTO, for SAE 'B' hydraulic pump	6.90	15.20
MT5036	Oil pressure gauge	0.10	0.20

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