



# PRM750 Gearbox

Full hydraulic operation: offset or down angle output shaft

The PRM750D and PRM750A marine gearboxes are purpose built for use in both pleasure craft and commercial boats; the 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 PRM750 is offered in two different configurations: with offset output shaft (PRM750D) and 8° down angle output shaft (PRM750A). Reduction ratios available are 1.09:1, 1.459:1, 1.935:1, 2.565:1, 2.904:1 and 3.952:1 (3.952:1 reduction is not available on down-angle gearboxes) all of which can provide either left-hand or right-hand propeller rotation in "ahead", making the gearbox particularly well suited to twin engine installations.

The robust and reliable hydraulic system uses lubricating oil of the same viscosity as that used in the engine, and helps ensure good boat handling by its rapid response to movements of the operating lever.

The operating lever has a positive neutral detent which assists the setting-up of the remote control operating unit whilst for added security, to guard against the unlikely event of hydraulic failure all gearboxes incorporate a mechanical lock-up device so the boat can be brought safely back to port.

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.

A special feature of the PRM750D & PRM750A 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, PRM750D Marine Gearbox (Drop Centre)

Model	Ahead Ratio	Pleasure		Light Commercial		Heavy Commercial	
		kW	BHP	kW	BHP	kW	BHP
750D1	1.09:1	7.85	10.52	6.07	8.13	5.86	7.85
750D1.5	1.459:1						
750D2	1.935:1	7.07	9.84	5.68	7.85	5.55	7.43
750D2.5	2.565:1						
750D3	2.904:1	5.96	8.00	5.60	7.50	5.24	7.02
750D4	3.952:1						

Maximum operating speeds: 4500 rev/min intermittent, 4000 rev/min continuous

### Nominal Power Ratings, PRM750A Marine Gearbox (Angle Drive Only)

Model	Ahead Ratio	Pleasure		Light Commercial		Heavy Commercial	
		kW	BHP	kW	BHP	kW	BHP
750A1	1.09:1	7.17	9.62	5.68	7.62	5.39	7.23
750A1.5	1.459:1						
750A2	1.935:1	7.07	9.48	5.68	7.62	5.39	7.23
750A2.5	2.565:1						
750A3	2.904:1	5.96	8.00	5.60	7.51	5.24	7.02

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 – 30.34 bar (440 lb./in<sup>2</sup>), Maximum – 33.44 bar (485 lb./in<sup>2</sup>). Two tapped holes 1/8" BSP on the top, and M18 x 1.5 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.

### Approximate Weight & Oil Capacity

Gearbox	Approximate dry weight	Oil capacity	
PRM750D	72kg (159lb)	excluding adaptor, drive coupling and oil cooler.	2.5 litres (4.40 pints)
PRM750D4	80kg (176lb)		3.5 litres (6.16 pints)
PRM750A	90kg (198lb)		3.0 litres (5.28 pints)
			plus the amount required to fill the cooling circuit

## Flexible Input Couplings for PRM750D & PRM750A

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	14.25	6	8.13	0.320	200.0	7.785	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		Perkins 6-3544
			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 PRM750D & PRM750A

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 (not suitable for 750D4 3.952:1 ratio gearbox)	4.2	9.25

## Other Accessories for PRM750D & PRM750A

Part Number	Description	Weight	
		kg	lb
MT4613S/A	Oil cooler kit: PRM750D engines up to 130 kW PRM750A engines up to 105 kW	1.00	2.20
MT4611S/A	Oil cooler kit: PRM750D engines over 130 kW PRM750A engines over 105 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
MT0193	Live PTO, for SAE 'B' hydraulic pump	6.90	15.20
MT0214	Neutral safety switch	0.04	0.10
MT5036	Oil pressure gauge (direct mounting)	0.10	0.20
MT0210	8° Angle drive unit (supplied loose)	17.70	38.94

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