PRM 1000

Full Hydraulic Operation

In-line, Offset or Down Angle Output Shaft

The PRM 1000 marine gearbox is purpose built for use in both pleasure craft and commercial boats; it's 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 PRM 1000 is offered either with output shaft, offset or 10°C down angle output shaft . Reduction ratios available are 1.53:1, 2.03:1, 4.00:1 (4.00:1 reduction is not available on down angle gearbox) 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 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 back to port. Access to this device is via a detachable cover located on top of the main gear case.

A special feature of the PRM 1000 is the clutched 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.

A trolling valve is 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.

Nominal Power Ratings - PRM 1000 'A' Marine Gearbox (Angle Drive Only)

Ratios	Pleasure		Light Commercial		Heavy Commercial	
	BHP	kW	BHP	kW	BHP	kW
1.53:1	12.95	9.66	9.52	7.10	8.95	6.67
2.03:1	12.64	9.43	9.52	7.10	8.95	6.67
2.857:1	11.50	8.58	9.52	7.10	8.95	6.67
Maximum operating speeds: 3500 rev/min intermittent, 3000 rev/min continuous						

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Nominal Power Ratings - PRM 1000 'D' Marine Gearbox (Drop Centre)

Ratios	Pleasure		Light Commercial		Heavy Commercial	
	BHP	kW	BHP	kW	BHP	kW
1.53:1	14.04	10.47	10.39	7.75	9.82	7.33
2.03:1	12.64	9.43	9.96	7.44	9.40	7.02
2.857:1, 4.000:1	11.50	8.58	9.96	7.44	9.40	7.02
Maximum operating speeds: 3500 rev/min intermittent, 3000 rev/min continuous						

Service Classification Definitions - Pleasure

Limited to planing hull pleasure craft: operation at full engine throttle should not exceed 5% of total time, with balance 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 long 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 if 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, lobster 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 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 its 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..**

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Operating Pressure

Minimum - 3000kPa (440 lb./in²). Maximum - 3300 kPa (485 lb./in²). 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.

Approximate Weight & Oil Capacity

Gearbox	Approximate Dry Weight		Oil Capacity	
PRM1000D	86kg (190lb)	Excluding adaptor, drive coupling and oil cooler	3.0 litres (5.28 pints)	Plus the amount required to fill the cooling circuit
PRM1000D4	93kg (205lb)		4.0 litres (7.04 pints)	
PRM1000A	118kg (260lb)		3.5 litres (6.16 pints)	

Flexible Input Coupling for PRM 1000

Part Number	Outside Diameter			Mounting Hole Pattern				Remarks
	in	mm	No.	Diameter		Pitch Circle Dia		
				in	mm	in	mm	
MT4915	13.875	352.4	8	0.433	10.99	13.125	333.40	SAE 11 ½ in.
MT4916	18.375	466.7	8	0.50	12.70	17.250	438.20	SAE 14 in.

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Other Accessories for PRM 1000

Part Number	Description	Weight	
		kg	lb
MT0205	Clutched power take-off for SAE 'B' hydraulic pump	11.2	24.7
MT4611S/A	Oil Cooler:PRM 1000D engines to 180kW PRM1000A & PRM 1000 + PTO - engines to 150kW	1.70	3.75
MT4735S/A	Oil Cooler: PRM1000D engines over 180kW PRM1000A & PRM1000 + PTO - engines over 150kW	4.40	9.70
MT915	Oil pipes (pair)	0.50	1.10
MT783	Tailshaft half coupling, pilot bored (not 4:1 ratio)	5.60	12.30
MT4594	Tailshaft half coupling, pilot bored (4:1 ratio)	10.10	22.30
MT1105	Tailshaft flexible coupling	2.50	5.30
MT4733	Oil pressure gauge (direct mounting)	0.10	0.20
MT345	10° Angle drive unit (supplied loose)	32.20	70.84
MT4991	Trolling Valve Assembly 12v	9.50	20.90
MT4993	Trolling Valve Assembly 24v	9.50	20.90