

2. Product explanation

2.2.2 Fresh Water Cooling Type, GMF series

Engine Model				2GM20F			3GM30F		
Type				Vertical 4-cycle water cooled diesel engine					
Combustion system				Swirl pre-combustion chamber					
Number of cylinders				2			3		
Bore × stroke			mm (in.)	75 × 72 (2.95 × 2.83)					
Displacement			ℓ (cu.in.)	0.636 (38.81)			0.954 (58.21)		
Continuous rating output	Output/crankshaft speed	kW/rpm (HP/rpm)		11.8/3400 (16.0/3400)			17.7/3400 (24.1/3400)		
	Brake mean effective pressure	kg/cm² (lb./in.²)		6.66 (94.71)					
	Piston speed	m/sec. (ft./sec.)		8.16 (26.77)					
One hour rating output	Output/crankshaft speed	kW/rpm (HP/rpm)		13.4/3600 (18.2/3600)			20.1/3600 (27.3/3600)		
	Brake mean effective pressure	kg/cm² (lb./in.²)		7.07 (100.54)					
	Piston speed	m/sec. (ft./sec.)		8.64 (28.35)					
Compression ratio				23.0					
Fuel injection timing (b.T.D.C.)			°	15±1			18±1		
Fuel injection pressure			kg/cm² (lb./in.²)	170±5 (2347 – 2489)					
Main power take off				at Flywheel side					
Front power take off				at Crankshaft V-pulley side					
Direction of rotation	Crankshaft		Counter-clockwise viewed from stern						
	Propeller shaft (Ahead)		Clockwise viewed from stern						
Cooling system				Fresh water cooling with heat exchanger					
Lubrication system				Complete enclosed forced lubrication					
Starting system	Type		Electric						
	Starting motor		DC 12V, 1.0kW						
	AC generator		12V, 55A						
Marine gear system	Model		KM2P			KM2P		KM3P	
	Type		Mechanical cone clutch with single stage for both ahead and astern						
	Reduction ratio	Forward	2.21	2.62	3.22	2.21	2.62	3.20	
		Reverse	3.06	3.06	3.06	3.06	3.06	3.16	
	Propeller speed	Forward rpm	1540	1298	1055	1540	1298	1063	
		Reverse rpm	1113	1113	1113	1113	1113	1076	
Lubricating oil capacity			ℓ (cu.in.)	0.3 (18.31)			0.3 (18.31)		0.35(21.36)
Weight			kg (lb.)	10.3 (22.71)			10.3 (22.71)		11.5(25.36)
Dimensions	Overall length	mm (in.)	650 (25.59)			735 (28.93)		745(29.33)	
	Overall width	mm (in.)	482 (19.00)			455 (17.91)		455(17.91)	
	Overall height	mm (in.)	545 (21.46)			545 (21.45)		545(21.45)	
Lubricating oil capacity (rake angle 8°)	Total	ℓ (cu.in.)	2.0 (122.05)			2.6 (158.65)		2.6(158.65)	
	Effective	ℓ (cu.in.)	1.3 (79.33)			1.6 (97.63)		1.6(97.63)	
Engine weight with marine gear			kg (lb.)	114 (251)			137 (301.4)		138(303.6)
Cooling water capacity (fresh water)	Fresh water tank	ℓ (cu.in.)	2.9(176.97)			3.4 (207.48)			
	Sub-tank	ℓ (cu.in.)	0.8 (48.82)						

(Note) 1. Rating condition: ISO 3046-1. 2. 1hp=0.7355 kW.