12M55D2700E311 / 2450E310 Engine Data Sheet

Model Name (rpm)	Gross Engine Output (kWm / PS)	
	PRP	ESP
12M55D2700E311 (1800)	2450 (3332)	2700 (3672)
12M55D2450E310 (1500)	2200 (2992)	2450 (3332)

Ratings Definitions

Rating	Prime Power (PRP)	Standby Power (ESP)
Annual Working Time	Unlimited	≤200 h
Mean Engine Load Factor	≤70% per 24 h	≤70% per 24 h
Time at Full Load	≤500 h per year	≤25 h per year
Overload Capacity	1 h per 12 h (10% overload) ≤25 h per year	No

1) All ratings are based on operating conditions under ISO 8528-1, ISO 3046, DIN6271.
2) Test conditions: 100 kPa, 25 °C air inlet temperature, relative humidity of 30%, with fuel density 0.84 kg/L.
3) The engine maybe operated at : up to 1000 m and 30°C without power deration. For sustained operation above these conditions, derate by 3% per 300m, and 2% per 11°C.
4) Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; notincluded are battery charging alternator, fan and optional equipment.

Basic Data

Engine Model	12M55D2700E311 12M55D2450E310	Cylinder / Valve No.	12 / 48
Bore / Stroke (mm)	180 × 215	Displacement (L)	65.65
Fuel System	ECU	Aspiration	Turbocharged / Intercooled
Compression Ratio	16.5 : 1	Emission Standard	N/A
Overall Dimension (L × W × H) (mm)	2,934 × 1,544 × 2,715	Engine Net Weight (kg)	9,550
Flywheel Size	SAE NO. 00 / 21	Tooth No.	202
Max. Permitted Installing Angle (°)	Longitudinal Inclination	Front / Rear	10 / 10
	Cross Inclination	Left / Right	25 / 25
Permitted Ambient Temperature (℃)	-20 ~ 40	Permitted Altitude Limit (m)	1000m / 1500rpm 2000m / 1800rpm

Performance Data

	50HZ	60HZ	50HZ	60HZ	50HZ	60HZ
Idle Speed (rpm)	700 ~ 750		Max. Speed Limit (rpm)		1,575	1,890
Mean Piston Speed (m/s)	10.75	12.9	BMEP (MPa)		2.99	2.74
Friction Power (kW)			Fan Power (kW)		77	111
Load Factor	**Power (kW)**		**SFC (g/kW.h)**		**Fuel Consumption (L/h)**	
110%	2,450	2,700	192.0	195.2	560.0	627.4
100%	2,200	2,450	187.2	190.6	490.3	555.9
90%	1,980	2,205	185.3	188.7	436.8	495.3
80%	1,760	1,960	184.9	191.2	387.4	446.1
70%	1,540	1,715	185.7	192.4	340.5	392.8
60%	1,320	1,470	187.4	196.9	294.5	344.6
50%	1,100	1,225	193.7	205.3	253.7	299.4
40%	880	980	197.5	215.9	206.9	251.9
30%	660	735	212.8	225.8	167.2	197.6
20%	440	490	224.4	238.6	117.5	139.2
10%	220	245	287.0	277.1	75.2	80.8

* BMEP : Brake Mean Effective Pressure
* SFC : Specific Fuel Consumption

Air Intake System

		50HZ	60HZ
Intake Air Temperature Rise (℃)	Permitted difference between turbocharger inlet temperatureand ambient temperature (this arameter impacts emission, LAT and altitude capability)	≤5	
Intake Air Resistance (kPa)	Clean filter	≤3	
	Dirty filter	≤7	
Combustion Air Flow (kg/h)	Rated Power	10,389	12,385
	Standby Power	11,693	13,932
Air Filter Clear Efficiency (%)		≥99.5%	
Recommended Min. Diameter of Intake Pipe (mm)		250	

Intercooler System

Intercooler Heat Dissipating Capacity (kJ/s)	Rated Power	499.0	550.0
	Standby Power	622.0	680.6
Intercooler Efficiency	Rated Power	83% ~ 92%	
	Standby Power	/	
Max. Intake Temperature at Amb. Temp. 25 ℃ (℃)		55	
Permited Temperature Difference between Intake Temperature and Ambient Temperature (℃)		30	
Permitted Max. Intake Pres. Drop of Intercooler (kPa)		5	
Recommended Intercooler Radiator Cooling Area (m2)		/	

Exhaust System

Permitted Max. Exhaust Back Pressure (kPa)		7.5	
Max. Exhaust Temperature (℃)	Before turbocharger	≤ 650	
	After turbocharger	≤ 470	
Exhaust Gas Mass Flow (kg/h)	Rated Power	10,801	12,840
	Standby Power	12,164	14,459
Recommended Min. Diameter of Exhaust Pipe (mm)		280	
Max. Bending Moment of Turbocharger Flange (N•m)		10	

Lubrication System

Quantity of Oil (L)	Oil Pan Full Level	480	
	Oil Pan Low Level	380	
	Others (Filter etc.)	80	
Oil Pressure in Normal Condition (kPa)	Idle Speed	≥200	
	Rated Power	400 - 550	
Lowest Oil Pressure Alarm / Highest Alarm (kPa)		200 / 650	
Temperature Range in Main Oil Passage under Rated Working Condition (℃)		80 ~ 105	
Max. Oil Pressure while Engine Starts (kPa)		1000	
Opening Pressure of Main Oil Passage Pressure Limiting Valve (kPa)		450 ~ 500	
Oil Flow (L/min)		≥ 1080	≥ 1315
Oil Fuel Consumption Ratio		≤0.25%	

Noise and Emission

Exhaust Smoke (FSN)	Rated Working Station	≤0.5
	Max. Torque Working Condition	/
Diesel Engine Noise (Acoustic Power Level) (dB(A))		124

Fuel System

Governor		ECU	
Steady Speed Drop		≤ 5%	
Max. Fuel Supply Resistance of the Fuel Pump at Rated Working Condition (kPa)		1000	
Max. Fuel Return Resistance (kPa)		20	
Permitted Max. Fuel Inlet Temperature (℃)		70	
Fuel Supply Flow (kg/h)	Rated Power	411.8	467.0
	Standby Power	470.5	527.1
Min. Pressure of Fuel Pump (kPa)		50	
Recommended Diameter of Inlet Pipe (mm)		19	
Recommended Diameter of Return Pipe (mm)		19	

Electric System

Electric System Voltage (V)		24
Starter Power / Voltage (kW/V)		(8.5 / 24) x 2
Alternator Power / Voltage (kW/V)		1.54 / 28
Battery Capacity		400 Ah (12V / 200 Ah x 4 EA)
Permitted Max. Electric Resistance of Starting Circuit (Ω)		0.008
Recommended Min. Sectional Area of Wire (mm^2)		70
The Lowest Cold Starting Temperature (℃)	Without Auxiliary Starting Device	-10
	With Auxiliary Starting Device	-20

Cooling System

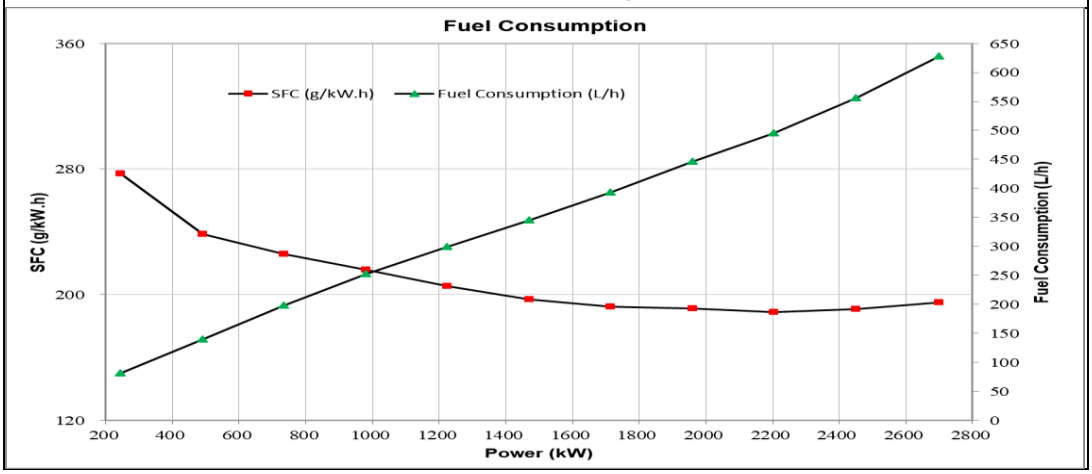
Water Pump Transmission Speed Ratio	1.71	
Permited Min. Coolant Temp. When Engine Working (℃)	50	
Fan Air Flow (m3/min)	2400	3200
Water pump Flow (m3/h)	LT ≤ 54.1, HT ≤ 88.9	
Recommended Min. Inside Dia of Outlet Water Pipe (mm)	LT : 76, HT : 96	
Min. Pressure at Water Pump Inlet without Degassing Device or with Some Degassing Device (kPa)	/	
Min. Pressure At Water Pump Inlet With Full Degassing Device (kPa)	/	
Max. Degassing Time (min)	15	
Coolant Capacity of Engine (L)	306	
Coolant Capacity of Radiator (L)	LT : 180, HT : 230	
High Alarm / Shut Down Temperature (℃)	95 / 103	
Thermostat Opening / Full Open Temp. (℃)	LT : 40 / 52, HT : 82 / 92	
Permitted Min. Pressure in Cooling System (kPa)	/	
Permitted Max. External Resistance (at Rated Speed) (kPa)	LT ≤ 40, HT ≤ 60	

Mounting System

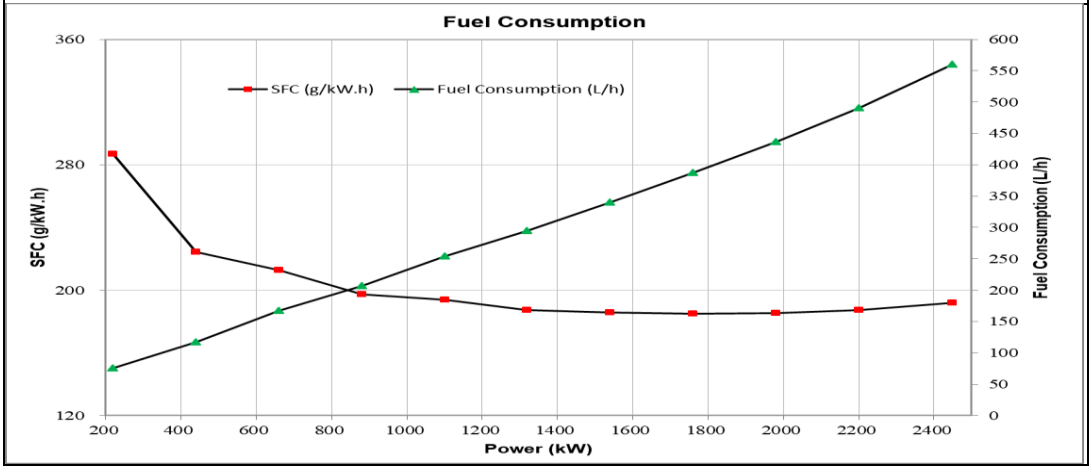
Inertia of Flywheel (kg•m2)	20.78
Inertia of Crankshaft (kg•m2)	16.16

Fuel Consumption Curve

Fuel Consumption Curve versus Engine Power (60HZ)



Fuel Consumption Curve versus Engine Power (50HZ)



※ Specifications are subject to change without prior notice. [End]