

6M33D605E200 G-Drive Engine Data Sheet

Speed	Gross Engine Output		
	COP	PRP	ESP
rpm	kWm	kWm	kWm
1500	460	550	605

Ratings Definitions

	Continuous Power (COP)	Prime Power (PRP)	Standby Power (ESP)
Mean engine load factor	100%	≤70% per 250 h	≤80% per 24 h
Annual working time	Unlimited	Unlimited	≤200 h
Time at full load	Unlimited	≤500 h per year	≤25 h per year
Overload capacity	No	1 h per 12 h (10% overload)	No

1) The power ratings are in accordance with ISO 3046.

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 1000m 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; not included are battery charging alternator, fan and optional equipment.

Engine basic data

Engine model	6M33D605E200	Cylinder number	6/24
bore diameter /stroke mm	150×185	Displacement(L)	19.6
Fuel System	Mechanical Pump	Aspiration	Turbocharged and Intercooled
Compression Ratio	15	Emission Standard	/
Overall Dimension (Length×Width×Height) (mm)	1698×1068×1513	Engine net weight (kg)	2090
Injection timing (°CA)	21-22		
Flywheel housing	SAE1	Flywheel	14
Max. Permissible Fixing Angle (°)	Longitudinal Inclination	Front /Rear	/
	Cross Inclination	Left/Right	/
Dynamic angle (°)	Longitudinal Inclination	Front/Rear	/
	Cross Inclination	Exhaust pipe side /Intake pipe side	/

Permitted temperature ambient °C	-10~50	Permitted altitude limit m	2000
Valve lashes at cold (mm)	0.3/0.4		

Performance Data

Idle Speed (rpm)	700-750	Over Speed limit (rpm)	1545
Mean Piston Speed (m/s)	9.25	BMEP (MPa)	2.245
Friction Power (kW)	/	Fan Power (kW)	15
Load factor	Power kW	Fuel consum. g/kW.h	Fuel consum. L/h
10%	55	283.9	18.59
25%	137.5	217.3	35.57
50%	275	197.7	64.72
75%	412.5	193.8	95.17
85%	467.5	194	107.97
100%	550	198.2	129.77
110%	605	200.6	144.48

Air intake system

Intake air temperature rise (°C)	Permitted difference between turbocharger inlet temperature and ambient	5
Intake air resistance (kPa)	Clean filter	≤3
	Dirty filter	≤5
Air filter mass flow (kg/h)		/
Air mass flow (kg/h)	Rated Power	2868
	Standby Power	3039
Clear efficiency of air filter		≥99.5
Recommended Min. diameter of intake pipe (mm)		160

Inter cooling system

Intercooler heat dissipating capacity (KJ/S)	Rated Power	107.5
	Standby Power	123.3
Intercooler efficiency	Rated Power	≥85
	Standby Power	≥85
Max. intake temperature (°C)		55
Max. difference between intake temperature and ambient temperature (°C)		30
Permitted max. intake pressure drop of intercooler (kPa)		15
Recommended intercooler radiator cooling area (m ²)		100.6

Exhaust system

Max. exhaust back pressure (kPa)		7.5
Max. exhaust temperature (°C)	Before turbocharger	700
	After turbocharger	550
Recommended muffler mass flow/volume (kg/h)		/
Exhaust-gas mass flow (kg/h)	Rated Power	2977
	Standby Power	3160
Recommended Min. diameter of exhaust pipe (mm)		220
Max.bending moment of turbocharged flange (N·m)		10

Lubrication system

Volume of oil pan (L)		60.5
Oil pressure in normal condition (kPa)	Idle speed	≥350
	Rated Power	450~650
Alarm for low & high oil pressure (kPa)		200/1000
Temperature range in main oil passage at rated working condition (°C)		85~105
max. oil temperature (°C)		/
Max. oil pressure while engine starting (kPa)		1000
Opening pressure of main oil passage pressure limiting valve (kPa)		550±25
Max.Oil flow (L/min)		≥263
Oil consumption		≤0.4

Noise and Emission

Emission standard		Off-road stageII
Exhaust smoke (FSN)	Rated Power	≤1.5
	Standby Power	/
Diesel engine noise dB(A)		108.8

Fuel system

Injection pump type		Mechanical pump
Governor		Electric governor
Steady speed governing factor		≤3%
Max supply fuel restriction at rated power conditon (kPa)		13
Return restriction in pipe (kPa)		15
Max. supply fuel temperature at rated power condition (°C)		45
Max. flow of fuel suply	Rated Power	109.42

(kg/h)	Standby Power	120.6
Min. pressure of fuel pump (kPa)		35
Min. Ventilation rate of fuel tank (L/h)		/
Recommended diameter of inlet pipe (mm)		10
Recommended diameter of return pipe (mm)		10

Electrical system

Electrical system voltage (V)		24
Motor power/ working voltage (kW/V)		8.5/24
Battery charging Alternator/ working voltage (kW/V)		1.5/28
Permitted max. electric resistance of motor control lines (Ω)		0.002
Recommended Min. conductor cross-sectional area (mm^2)		70
The lowest cold starting temperature ($^{\circ}\text{C}$)	No aided starting device	-5
	Aided starting device	-10

Cooling system

Water pump Transmission ratio		2
Min. coolant temperature of engine working ($^{\circ}\text{C}$)		50
Min. water fill rate (L/min)		18.1
Max. initial fill time (min)		2.3
Recommended Min diameter of outside water pipe(mm)		45
Min. pressure at water pump inlet at No or only a part of degassing Device (kPa)		50
Min. pressure at water pump inlet at Complete degassing device (kPa)		0
Max. deaeration time(min)		15
Min. expansion tank volume (% total cooling system capacity)		/
Min expansion space (% total cooling system capacity)		/
Coolant capacity of engine (L)		41.63
Coolant capacity of radiator (L)		/
High temperature of alarm ($^{\circ}\text{C}$)		95
Thermostat opening temp./ full open temp. ($^{\circ}\text{C}$)		77/87
Min. permitted pressure in cooling system (kPa)		50

Max. permitted external resistance (at rated speed) (kPa)	50
---	----

Heat balance test data (environment temperature: 41.2°C)

Pressure of water in/ water out (kPa / kPa)	Rated Power	-33.1/86.6
	Standby Power	-30.9/83.5
Coolant mass flow (m ³ /h)	Rated Power	37.5
	Standby Power	36.7
Temperature of water in/ water out (°C/°C)	Rated Power	83.7/88.4
	Standby Power	85.5/90.6
Temperature of intake air : before/after intercooler (°C/°C)	Rated Power	188.7/54.4
	Standby Power	205.6/60.2
Pressure of intake air :before /after intercooler (kPa / kPa)	Rated Power	218.9/212.7
	Standby Power	245.1/238.3
Heat be taken away by Coolant (kJ/s)	Rated Power	191.9
	Standby Power	201.3
Heat be taken away by intercooler (kJ/s)	Rated Power	107.5
	Standby Power	123.3
Heat be taken away by exhaust gas (kJ/s)	Rated Power	406.6
	Standby Power	454.1
Gross Heat of Engine (kJ/s)	Rated Power/Standby Power	1276.7/1407.1

Mounting system

Inertia of complete engine (kg•m ²)		/
		/
		/
Inertia of flywheel (kg•m ²)		4.76
Inertia of crankshaft (including crankshaft gear) (kg•m ²)		2.22
Centroid position mm	X	0
	Y	0
	Z	0
Permitted static bending moment at flywheel housing flange face		0