

Ratings					<h2 style="color: blue;">Gas Engine Data Sheet</h2> <p>Model : 6M16G2N0/5</p> <p>Frequency: 50HZ</p> <p>Fuel Type: Natural gas</p>															
Engine Speed (RPM)	Continuous Power (COP) (kWm/PS)		Rated Power (PRP) (kWm/PS)																	
	Gross Power	Net Power	Gross Power	Net Power																
1500	122/166	110/150	144/196	132/180																
Generator Set Output	Continuous Power (COP)		Rated Power (PRP)																	
	kW	kVA	kW	kVA																
	100	125	120	150																
Rating definitions																				
<p>Continuous Power (COP)</p> <ol style="list-style-type: none"> Power output available with constant load for unlimited time. For continuous operation at constant load. Without overload capacity. <p>Prime Power (PRP)</p> <ol style="list-style-type: none"> Power output available with varying load for unlimited time. Average power output is no more than 70% of the PRP over 24 h of operation. 100% load operation cannot exceed 500h every year. 10% overload can operate 1h within every 12h, and the accumulative overload operation cannot exceed 25h every year. 																				
<p>Note:</p> <ol style="list-style-type: none"> The power rating is in accordance with ISO 3046. Test conditions: 100 kPa, 25°C air inlet temperature, relative humidity of 30%. The derating in different altitude and temperature can be confirmed from the engineers of Baudouin. Natural gas refers to Standard Pipeline Natural gas, CNG and LNG with a methane number that is greater than 70. Consult Sales Application Engineering and perform gas analysis for fuel types that vary from these conditions. 																				
<p>Conversion table</p> <table style="width: 100%; border: none;"> <tr> <td>1 in = 25.4 mm</td> <td>1 ft = 0.3048 m</td> </tr> <tr> <td>1 cfm = 1.7 m³/h = 28.3 L/min</td> <td>1 lb_m = 0.45359 kg</td> </tr> <tr> <td>1 kW = 1.36 PS = 1.34 HP</td> <td>1 kcal/h = 1.163 W</td> </tr> <tr> <td>1 Imp gal = 4.546 lit.</td> <td>1 mm Hg = 133 Pa</td> </tr> <tr> <td>1 US gal = 3.785 lit.</td> <td>1 inch Hg = 3386 Pa</td> </tr> <tr> <td>1 BTU=1.055 kJ</td> <td>1 mm water = 9.789 Pa</td> </tr> <tr> <td>1 psi =6.89 kPa</td> <td>1 inch water = 248.64 Pa</td> </tr> <tr> <td>1 lbm.ft =1.356 J</td> <td>1 lb_f = 4.45 N</td> </tr> </table>					1 in = 25.4 mm	1 ft = 0.3048 m	1 cfm = 1.7 m ³ /h = 28.3 L/min	1 lb _m = 0.45359 kg	1 kW = 1.36 PS = 1.34 HP	1 kcal/h = 1.163 W	1 Imp gal = 4.546 lit.	1 mm Hg = 133 Pa	1 US gal = 3.785 lit.	1 inch Hg = 3386 Pa	1 BTU=1.055 kJ	1 mm water = 9.789 Pa	1 psi =6.89 kPa	1 inch water = 248.64 Pa	1 lbm.ft =1.356 J	1 lb _f = 4.45 N
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Contents of tested gas

The technical data is based on natural gas with the following contents.

Constituent	Abbrev	%Mole
Methane	CH4	93.56
Ethane	C2H6	2.75
Propane	C3H8	0.45
iso-Butane	C4H10	0.07
n-Butane	C4H10	0.09
neo-Pentane	C5H12	0.003
iso-Pentane	C5H12	0.02
n-Pentane	C5H12	0.02
Nitrogen	N2	2
Oxygen	O2	0.12
Carbon Dioxide	CO2	0.93
Density (at 100 kPa, 25°C)		0.76773 kg/m ³
Higher calorific value (at 100 kPa, 25°C)		39.91 MJ/m ³
Lower calorific value (at 100 kPa, 25°C)		36.04 MJ/m ³
Methane number (at 100 kPa, 25°C)		88.2

General Data

Engine model.....	6M16G2N0/5
No. of Cylinders/Valves.....	6/12
Cylinders arrangement	In line
Bore×Stroke mm (in)	126×130 (4.96×5.12)
Displacement L (in ³)	9.726 (593.5)
Thermodynamic Cycle.....	4 stroke
Fuel type.....	Natural gas
Control system.....	WOODWARD
Combustion system	Spark-ignited
Fuel system	Lean Burn
Aspiration.....	Turbocharged and Intercooled
Compression ratio.....	11.6:1
Flywheel housing	SAE1
Flywheel.....	11.5"
Inertia of flywheel kg·m ² (lbm·ft ²)	1.84 (43.7)
Inertia of crankshaft kg·m ² (lbm·ft ²).....	0.39 (9.3)
Emission standard	N/A
Engine dimensions and weight with radiator	
- Length mm (in.).....	1983 (78.1)
- Width mm (in.).....	1033 (40.7)
- Height mm (in.)	1264(49.8)
Engine dry weight kg (lbm).....	977 (2154)
Direction of rotation.....	Anticlockwise (from flywheel side)
Max. ambient temperature restriction °C (°F).....	45 (113)

Performance

Idle speed RPM.....	700
Rated engine speed RPM.....	1500
Mean piston speed m/s (ft/s)	6.5 (21.3)
BMEP @ PRP Bar (psi).....	11.8 (171.3)

Air intake system

Max. temperature rise before turbocharger °C (°F).....	≤5 (41)
Air intake restriction with clean filter kPa (psi)	≤3 (0.44)
Air intake restriction with dirty filter kPa (psi)	≤6 (0.87)
Air flow Mass @ PRP kg/h (lb/hr)	661.5 (1458.4)
Air flow Volume @ PRP m ³ /min (cfm).....	9.3 (328.2)

Fuel system

Min. gas pressure of mixer inlet kPa (psi).....	2 (0.29)
Max. gas pressure of mixer inlet kPa (psi)	4 (0.58)
Pressure loss of gas mixer kPa (psi)	0.5 (0.073)
Suction pressure max. kPa (psi).....	2.5 (0.36)
Max. gas inlet temperature °C (°F).....	35 (95)
Min. diameter of inlet pipe mm (in.)	50 (1.97)

Exhaust system

Max. exhaust back pressure kPa (psi)	7.5 (1.09)
Max. exhaust temperature before turbocharger °C (°F).....	680 (1256)
Max. exhaust temperature after turbocharger °C (°F).....	580 (1076)
Exhaust flow Mass @ PRP kg/h (lb/hr)	689.6 (1520.4)
Exhaust flow Volume @ PRP m ³ /min (cfm)	32.2 (1136.5)
Min. diameter of the exhaust pipe mm (in.)	100 (3.94)
Max. bending moment at the turbocharger flange (N • m)	10
Exhaust Manifold	dry

Cooling system

Coolant capacity of engine without radiator L (Imp gal)	22 (4.84)
Coolant flow of engine pump @ rated speed m ³ /h (cfm)	15.3 (9)
Min. pressure in cooling system kPa (psi)	50 (7.26)
Max. additional restriction kPa (psi)	50 (7.26)
Min. inner diameter of coolant outlet pipe mm (in.)	45 (1.77)
Alarm temperature of coolant °C (°F).....	95 (203)
Shut down temperature of coolant °C (°F).....	105 (221)
Thermostat opening temp. /full open temp. °C (°F)	71/82 (160/180)
Fan	
- rotating speed RPM	1765
- diameter mm (in.).....	760 (29.92)
- number of blades	10
- Material.....	Plastic
- type.....	Belt driven pusher
- air flow m ³ /min (cfm)	415 (14647)
- power consumption kW (PS)	11 (14.9)

Intercooler system

Intercooler system type	Air to Air
Max. intake temperature after intercooler °C (°F).....	55 (131)
Coolant capacity of intercooler L (Imp gal)	N/A
Max. pressure drop of the intercooler kPa (psi)	12 (1.74)
Coolant flow of intercooler @ rated speed m ³ /h (cfm)	N/A

Lubrication system

Oil capacity Low/High L (Imp gal)	22/26 (4.84/5.7)
Oil pressure at idel speed kPa (psi).....	100~250 (14.5~36.3)
Oil pressure at rated speed kPa (psi)	350~600 (50.8~87.1)
Oil pressure limit. Lowest value kPa (psi).....	80 (11.6)
Oil pressure limit. Highest value kPa (psi)	1000 (145.1)
Max. oil temperature °C (°F).....	105 (221)
Oil consumption %Gas	≤0.2
Total system capacity including filter L (Imp gal)	30 (6.6)
Oil flow L/min (cfm).....	118 (4.16)

Electrical system

Electrical system voltage V	24
Starter power kW	7.5
Battery charger current A	55
Max. electric resistance of the starting circuit mΩ	4
Min. sectional area of wire mm ² (in ²)	50 (0.0775)
No. of teeth on flywheel ring gear	136
No. of teeth on starter gear.....	10

Cold start capability

Min. cold start temp. without air preheating °C (°F)	-10 (14)
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Noise

Sound pressure level dB(A) 1m	110
Acoustic power level dB(A)	117.7

Emission Limit

NOx mg/Nm ³	≤500
CO g/kW·h	≤1.35
NMHC g/kW·h.....	≤0.5
HC g/kW·h.....	≤1.5

Heat balance test data

Ambient temperature	°C (°F)	28 (82.4)		
Load		100% of PRP	75% of PRP	50% of PRP
ISO standard rating	kWm (PS)	144 (196)	108 (146.9)	72 (98)
Air ratio		1.33	1.28	1.25
Engine total heat	kJ/s (BTU/s)	374 (354.5)	290.5 (275.3)	212.8 (201.7)
Heat taken away by the coolant	kJ/s (BTU/s)	84.9 (80.5)	67.3 (63.8)	51.9 (49.2)
Intercooler heat dissipating capacity	kJ/s (BTU/s)	14 (13.3)	10.4 (9.8)	7.0 (6.6)
Heat taken away by the exhaust	up to 120°C kJ/s (BTU/s)	89.1 (84.5)	72.1 (9.3)	55.5 (52.6)
Radiated heat to ambient	kJ/s (BTU/s)	18.7 (17.7)	14.5 (13.8)	10.6 (10.1)
Gas Consumption	(g/kW.h)	195.46	206.1	226.8
Gas Consumption	(kg/h)	28.15	22.3	16.3
Mechanical Efficiency	%	38.5	37.2	33.8
Therma Efficiency	%	50.3	51.5	53.7
Total Efficiency	%	88.8	88.7	87.6

Note: The above data are obtained from the laboratory and for reference only.