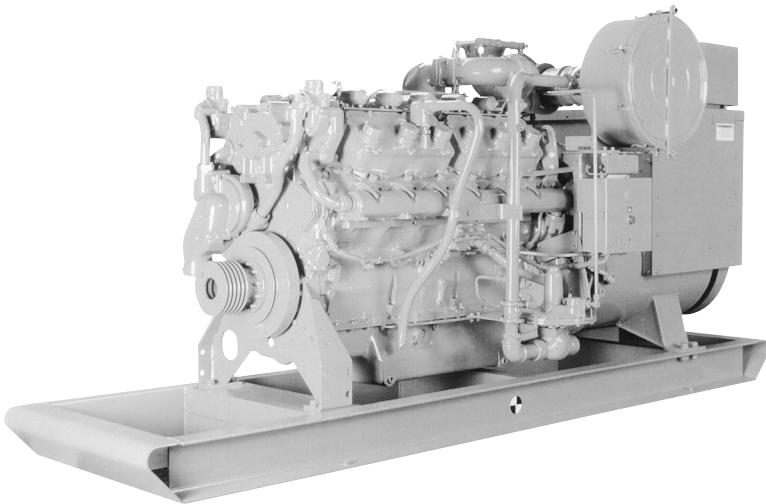


**G3400
GENERATOR SET**

**ENGINE
PERFORMANCE**

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This data contained herewith can be used for preliminary design. Before design is finalized, all data should be confirmed by your Caterpillar® dealer. Materials and specifications are subject to change without notice.

The International System of Units (SI) are used in this publication.

This gas engine performance book, sometimes referred to as the "Blue Book", is designed to provide performance data for Caterpillar G3400 industrial engines listed on the Gas Engine Supported Rating List as of the date of this publication. There are three sections to the book. This first section defines the data that will be displayed in the book. The second section of the book displays data for all of the supported ratings published in English units. The third section of the book displays data for the same supported ratings in Metric units.

Each set of engine performance data is to be used with Gas Engine Performance Parameter sheet DM5901 shown on pg. 8. Refer to the second page of each performance data sheet for reference to the proper parameter sheet.

Basic Engine and Common Performance Information

The first sets of data are those data sets that are generic to most G3400 series engines. Those data sets include Jacket Water Pump Curves, Aftercooler Pump Curves, and Block Resistance Curves.

Jacket Water Pump Curves

The jacket water pump curve, also known as the "jacket water system performance" curve, are supplied for G3406, G3408, and G3512 engine models. There are curves for both low and high speed ranges (1000 or 1200 rpm and 1500 or 1800 rpm). This curve takes into account pressure losses due to restrictions in the engine cooling system. The external resistance lines on the chart refer to the system resistance outside of the engine introduced from the piping and heat rejection equipment used on site. The system resistance must be known to properly calculate the expected water flow from the jacket water pump.

Aftercooler Pump Curves

Aftercooler pump curves, also known as "auxiliary water system performance" curves, are supplied for the G3406, G3408, and G3512 engines. There are curves for both low and high speed ranges (1000 or 1200 rpm and 1500 or 1800 rpm). The external resistance lines on the chart refer to the system resistance outside of the engine introduced from the piping and heat rejection equipment used on site. The system resistance must be known to properly calculate the expected water flow from the aftercooler water pump.

Block Resistance Curves

The block resistance curves are necessary to size a customer supplied jacket water pump for use in separate circuit cooling applications. Separate circuit cooling, or a jacket water only circuit, is commonly used in both low and high temperature cogeneration applications. The block resistance curve shows the pressure drop across the cylinder block as a function of jacket water flow. This resistance data is for the block only, and does not include the resistance of an oil cooler, thermostats or a jacket water pump. The chart also shows a range of water flow. The proper water flow design calculations and cooling system sizing information can be found in the Caterpillar "Gas Engine Application and Installation Guide" (LEKQ2368).

Caterpillar Gas Engine Performance Sheets

The data in the next two portions of the gas engine performance book is presented in nine general areas of interest. They are: Engine Configuration, Engine Rating, Engine Data, Engine Emissions Data, Engine Heat Balance Data, Engine Noise Data, Fuel Usage Guide, Altitude Deration Factors and Aftercooler Heat Rejection Factors.

Unless otherwise noted, all data was taken using natural gas with a lower heating value of $36.2 \text{ mJ/N}\cdot\text{m}^3$ (920 Btu/cu ft). Data is shown at 100%, 75% and 50% engine load levels. What follows are instructions on how to understand and apply the performance information contained in these sections of this book.

Engine Configuration

The first block of information on the performance data sheet defines the engine configuration for which the data applies. It defines the Engine Speed (in rpm), Compression Ratio, Jacket Water Outlet Temperature, Aftercooler Inlet Temperature, Ignition System type, Exhaust Manifold type and Combustion type. It also lists the primary Fuel the engine rating is designed to use, the Minimum Fuel Pressure and Minimum Methane Number required to achieve the Rated Power. The rated altitude and ambient temperature are noted as well.

Ignition System will be listed as "EIS" (Electronic Ignition System), "DIS" ((Cat) Digital Ignition System) or "MAG" (Magneto) type ignition system.

Exhaust Manifold will either be listed as dry "DRY" or "WATER COOLED".

Combustion system type will be listed as "LOW EMISSION", "STANDARD" or "CATALYST" (stoichiometric).

Fuel will be listed as "NAT GAS" for "pipeline" natural gas (methane) with methane numbers between 67 and 100, "LANDFILL" for low energy fuels with a methane number greater than 130, and "PROPANE" for propane fuel with a 34 methane number.

Fuel System will be listed as "HPG IMPCO" (high pressure gas with an Impco carburetor, "LPG IMPCO" (low pressure gas with an Impco carburetor), or "LPG DELTEC" (low pressure gas with a Woodward/Deltec carburetor). There are times when an air-fuel ratio control will be required to meet the emissions levels shown on the performance sheet at all load points. When this is the case, the words "with air-fuel ratio control" will appear on the line directly below fuel system.

This information, along with the title block at the top of the page, denotes the engine model and its intended application. It must be consistent with the engine to which the data is being applied.

Note: The data displayed in this book represents a gas engine used in an industrial power application. The actual data may vary due to site specific rating and operating conditions. Contact your local Caterpillar dealer for site specific performance information.

Engine Specific Rating Information

The engine without fan rating at standard conditions is displayed here at 100%, 75% and 50% load levels.

Light Engine Loading

Gas engines are designed to operate continuously at industry accepted high ratings and provide optimum service life. Unfortunately, an engine cannot be designed to operate efficiently at both continuous full load levels and at low loads. For example, engines operating at full load are designed to consume some oil in order to fully lubricate the engine and maintain good wear characteristics. This same engine operating at low load factors and the resulting lower cylinder and negative intake manifold pressures will result in more oil consumption than at high load factor. Since most engines are designed to operate at maximum loads, it is not recommended to operate an engine continuously at low load levels. A general rule used for most gas engines is that standard emission engines should be operated at 75% of their rated load (torque) or above while low emission engines should be operated at 50% load (torque) or above.

Engines operating with light loads will be operating with a negative intake manifold pressure. This negative manifold pressure tends to draw excessive oil down the valve guides and past the rings, leading to increased oil consumption. The lighter the load, and the longer the duration of the light load, the more oil an engine should be expected to consume over a given period of time. Longer periods of light loading could lead to carbon build-up on the valves, spark plugs, and behind the piston rings. Deposits in the cylinders can also develop, and in extreme cases, cylinder liner polishing can occur. Carbon build-up can result in power losses, poor performance and accelerated wear of components causing decreased times between maintenance intervals and increased maintenance costs.

Gas engine duty (load) cycles expected on an engine will vary from one application to another. Some applications expect cyclical daily load changes. These load fluctuations are often tied to production schedules or shift changes. Engines in these applications may operate at or near rated load most of the day while operating at part load during the night. Engines in these cyclical demand applications rarely will see full load for long periods of time. Depending on the duration of the low load on the engines, engines in these applications may expect to operate for many years without deviating from the normal maintenance schedule and practices.

Other application duty cycles may be tied to seasonal power demands or relatively short periods of planned light loads. Light engine loads experienced in these applications may be below recommended levels for periods up to a year. For these applications, modifying some operating parameters may enhance a lightly loaded engine performance. Ignition will be improved under light loads by setting the spark plug gap slightly wider than normal and by retarding the ignition timing. Retarding the ignition timing will also increase the intake manifold pressure. Adjusting the carburetor power screw to a leaner setting can also increase intake manifold pressure.

Changes to these parameters will enhance engine light load performance and may bring oil consumption to acceptable levels, but it might also impact the engine's full load performance capabilities. Excessive engine adjustment may not allow satisfactory load acceptance or higher load operation without further engine adjustment.

Natural gas engines can be operated at light loads for limited periods of time with no harmful effects. Table 1 lists engine low load operating intervals that are known to be safe operating intervals. After operation at the lower load levels, operate the engine for a minimum of two hours at a load level that is more than 70 percent of the engine rated load. The increased engine load raises the cylinder temperature and pressure, cleaning the deposits from the combustion chamber. Operating the engine at lighter loads for periods longer than those listed may increase oil consumption and overall maintenance costs. Valve and guide seals designed to reduce oil flow down the valve guides, decrease oil consumption and restore engine performance and maintenance intervals should be considered if a customer's light load is expected to regularly exceed the hour guidelines displayed in table below.

The following table is provided to define the recommended hours of continuous light load operation that can be tolerated at a given load.

Recommended Gas Engine Low Load Operation Intervals			
Engine Load (Torque)	G3300, G3400, G3500		G3600
	NA	TA	TA
0-30%	1/2 hour	1/2 hour	1/2 hour*
31-40%	2 hour	2 hour	2 hour*
41-50%	8 hour	8 hour	2 hour*
51-60%	24 hour	Continuous	Continuous
61-100%	Continuous	Continuous	Continuous

* When a G3600 series engine operating at load levels below 51%, it is not operating in auto air/fuel ratio control. Submit a light load profile to your local dealer for evaluation and system adjustment recommendations.

Engine Data

This section provides specific fuel consumption information, turbocharger compressor outlet pressure and temperature, intake manifold pressure and temperature, and timing information. This section also provides information about the mass and volume flows of the intake air and exhaust gases. Use this data when sizing intake air and ventilation systems, fuel piping, and exhaust equipment.

Engine Emissions Data

The information in the Engine Emissions Data section displays emission values for nitrous oxides (NO_x as NO₂), carbon monoxide (CO), total hydrocarbons (THC), non-methane hydrocarbons (NMHC), and exhaust oxygen. There is also a value for lambda, a calculated comparison of the air and fuel ratios.

There are large tolerances, ($\pm 20\%$) in the total hydrocarbons, non-methane hydrocarbons and carbon monoxide data. This large tolerance is made necessary due to engine-to-engine variability and tolerances designed into the measurement instrumentation. Because of these large tolerances, and the market need to guarantee engine emission levels, the data listed for THC, NMHC, and CO on low emission engines has an additional 20% added to the nominal measured data. The resulting value represents a "not to exceed" emission levels. Though the actual emission levels of an engine are probably closer to the measured (mean) levels, the additional 20% provides the necessary safety factor to allow this value to be a "not to exceed" emission level. The NO_x data has tolerances built into the displayed value, and is a "not to exceed" value as well, but it is not listed at the high side of the tolerance band. There is enough adjustment range in the engine to set the NO_x to a specific value despite the engine-to-engine variability.

Data in the Caterpillar on-line technical marketing information system (TMI) includes the same tolerances listed here. The emission data from either source will be used by the factory to calculate guaranteed emission levels for a given set of specific site conditions.

It is important to understand the trends depicted by this data, particularly for low emission engines applied to areas where emissions are closely watched. On engines without automatic air-fuel ratio control, the emission levels are not constant over the entire load range. The specific emissions tend to become higher on a g/bkW-hr (g/bhp-hr) basis as the load decreases. If an engine will be consistently running at a point less than full load, the engine air-fuel ratio can be adjusted so that the O₂% in the exhaust is set for the required emission levels at the less than rated load level.

The number represented by the term "lambda" is a comparison of the air-fuel ratio as the engine is actually set to the air-fuel ratio at a stoichiometric setting. The actual equation for lambda is:

$$\text{Lambda} = \text{air/fuel ratio (actual)} / \text{air/fuel ratio (stoichiometric)}$$

If the lambda of an engine is about 1.1 or below, the engine is considered to be a "rich burn", or "stoichiometric" ("Stoich") engine. (An engine operating at a lambda of 1 is an engine operating at a theoretically perfect air-fuel ratio, where all of the fuel and oxygen in the air is consumed in the combustion process). An engine with a 3-way catalyst will typically operate with a lambda of between 1 and 1.1. Engines with a lambda of about 1.4 or higher are considered to be "lean burn", or "low emission" engines.

Engine Heat Balance Data

The term heat balance refers to the fact that the heat input introduced as fuel into the engine equals the sum of the heat and work outputs. kW (Btu) values for energy input, work output, total exhaust, exhaust to 350°F (177°C) for engines in English units or 120°C (250°F) for engines in metric units, aftercooler, radiator and jacket water/oil cooler are listed in low heat value due to the fact that the latent heat of vaporization is lost to the exhaust in the combustion process.

Formula:

Total heat input = work output + total exhaust heat + radiation + jacket water rejection heat + oil cooler rejection heat + aftercooler rejection heat.

1. "Total Heat Input Energy" is figured by multiplying the BSFC (MJ/bkW-hr (Btu/bhp-hr)) times the kilowatt (horsepower) output to get kW/hr (Btu/hr). [To obtain kW/min (Btu/min), divide by 60]. Fuel volume consumed is obtained by dividing the total heat by the heat content of the fuel [36.2 MJ/N•m³ (920 Btu/cu ft) for low heat value and 37 MJ/N•m³ (995 Btu/cu ft) for high heat value]. The energy input is listed in low heat value (LHV).
2. "Work Output" is the total kilowatt (horsepower) developed expressed in terms of the heat required to develop the kilowatt (horsepower). It is expressed in kW (Btu/min) where 1 kW = 60 kJ/min (1 hp = 42.4 Btu/min).
3. "Heat Rejection to Jacket Water" is the total amount of heat picked up by the engine cooling system. On a standard temperature cooling system, those which do not exceed 99°C (210°F) outlet, the oil cooler heat rejection is typically included in this figure. To confirm this, look at the heat rejection to the lube oil. If the lube oil heat is included in the jacket water heat rejection, the value for the heat rejected to lube oil will not be listed or will be a value of zero ("0").
4. "Heat Rejection to Atmosphere (Radiation)" is the amount of heat loss from the surface of the engine into the engine room or surrounding ambient.
5. "Heat Rejection to Lube Oil" is the amount of heat rejected from the lube oil to the cooling media in the oil cooler. Depending on the cooling system design used, this heat will need to be dissipated in the jacket water cooling system, the aftercooler cooling system or will need to be cooled as a separate circuit. If the heat rejected to lube oil is zero ("0") or not listed, the lube oil heat is included in the heat rejected to jacket water value. If the heat rejected to lube oil is a value greater than zero (0), then this heat needs rejected. If the lube oil heat is to be rejected to the aftercooler circuit, add this heat value to the "Heat Rejection to Aftercooler" value.
6. "Total Heat Rejection to Exhaust (to 25°C (77°F))" is the total heat available in the exhaust when it is cooled from the stack temperature down to standard conditions of 25°C (77°F). When expressed in Higher Heating Value (HHV), it includes the latent heat of vaporization. At standard conditions, 465 kJ (970 Btu) are released as each Kg (pound) of steam is condensed to water. The figures shown for total exhaust are in terms of low heat value and, therefore, do not include the heat of vaporization.
7. "Heat Rejection to Exhaust (LHV to 350°F (177°C) for engines in English units or 120°C (250°F) for engines in metric units)" is not a separate component of the heat balance equation. It is a part of the "Total Heat Rejection to Exhaust (to 25°C (77°F))". It represents the easily recoverable exhaust heat rejection value typically used in exhaust heat recovery calculations. This value is the heat available when cooling the exhaust gas from the stack temperature down to the listed temperature. This figure, plus the jacket water heat rejection, is commonly used in determining steam or recoverable heat production available from the jacket water and exhaust without condensing the water vapor in the exhaust gas. Water will typically condense out of the exhaust gas at a temperature between 50-60°C (122-140°F), depending on how lean the engine is set.

There is a reason for the difference in reported temperatures between English and metric units. It is customary to report exhaust gas data at 350°F (177°C) levels in North America and other English unit countries while it is more common in metric unit areas, particularly Europe, to report the exhaust gas data at 120°C (250°F).

If an exhaust temperature other than reported temperature is desired, the recoverable heat can be calculated by using the following formula:

$$Q = CpM (T_1 - T_2)$$

Q = Heat Rejection in Btu/min

Cp = Specific Heat of Exhaust Gas:

0.258 Btu/lb/°F — Low Emission Engines

0.278 Btu/lb/°F — Standard Engines

$$M = \text{Exhaust Mass Flow} = \frac{Ev(CFM) \times 41.13}{(T_1 + 460^\circ)} \text{ lb/min}$$

T₁ = Exhaust From Engine °F

T₂ = Exhaust Out of Heat Recovery Silencer °F

Ev = Exhaust Flow by Volume (CFM)

8. "Heat Rejection to Aftercooler" is given for standard conditions of 25°C (77°F) and 153 m (500 ft) altitude. The actual heat rejection of the engine aftercooler circuit is increased for higher ambient temperatures and altitudes. To maintain a constant intake manifold temperature, as inlet temperature to the aftercooler goes up, so does the heat that must be removed. At higher altitudes, as the air pressure decreases, the turbocharger must work harder to compress the incoming air to the required boost pressure. Be sure to use the aftercooler heat rejection factor to adjust for ambient and altitude conditions. Failure to properly account for these factors could cause the engine to detonate and shut the engine down or, in extreme cases, can cause premature engine failure.

Heat Rejection Tolerances

In every calculation using engine data, there is a tolerance band or a deviation from norm. When using the heat balance, the following tolerance must be used.

Work Output	±3%
Aftercooler	±5%
Heat Input	±5%
Exhaust Total	±10%
Exhaust Recoverable	±10%
Jacket Water	±10%
Oil Cooler	±20%
Radiation	50%

For cooling systems using oil cooler and jacket water in series (combined circuit), use a tolerance of ± 10% for the combined oil cooler and jacket water heat rejection.

Engine Noise Data

The Engine Noise Data section contains noise data for both mechanical and exhaust noise. The measurements were made using the A-weighted (dB(A)) scale which adjusts the sound levels to account for the filtering properties of the human ear. For a complete discussion on noise, consult the Caterpillar Gas Engine Application and Installation Guide (LEKQ2368).

Fuel Usage Guide

The Fuel Usage Guide shows the engine derate factor required for a given fuel and what engine timing the engine should be set at to use that fuel. Note that engine deration occurs as the methane number decreases. Methane number is a scale to measure ignition and burning characteristics of various fuels. Representative values are shown below:

Methane Number of Selected Fuels

Fuel	Methane Number
Methane	100
Ethane	44
Propane	34
n-Butane	10
Hydrogen	0

Most dry pipeline natural gas has a methane number of 67 or above. A gas analysis should be made to determine the percentage of each constituent that exists in the fuel. The methane number of the fuel should then be determined by using the Caterpillar "Methane Number Program" (LEKQ6378-02). Once the methane number of the fuel is known, consult the fuel usage guide to determine if an engine derate is required to maintain the appropriate engine detonation margin. An asterisk (*) by the "Derate Factor/Engine Timing" numbers will indicate that an air-fuel ratio control will be required to maintain a safe detonation margin at the indicated load while achieving the NO_x emissions levels listed in the "Engine Emissions Data" section.

Generally speaking, use a high compression ratio engine for digester and pipeline quality gas, and a low compression ratio engine for propane and field gas. Consult your Caterpillar dealer or factory for assistance in determining the proper engine to use for a fuel in question.

Altitude Deration Factors

This chart shows the engine deration that will be required for various ambient temperatures and altitudes the engine may be applied at. The ambient temperature is defined as the temperature of the combustion air as it enters the engine at the air inlet. The identified derate factor should be multiplied times the total available kilowatt (horsepower) to determine the maximum power available from the engine at the specific site conditions. Use this information to help determine actual engine power available for your site.

Actual Engine Rating Calculation

It is important to note that the Altitude/Temperature Deration Factor and the Fuel Usage Guide deration are not cumulative, i.e., they are not to be added together. The actual power rating of the engine should be equal to the largest deration of the two. The same is true for the Low Energy Fuel deration and the Fuel Usage Guide deration. However, the Altitude/Temperature deration and low Energy Fuel deration are cumulative; and they must be added together in the method shown below. To determine the actual power available, take the lowest rating identified between the following two procedures.

- 1) (Altitude/Temperature Deration) + (Low Energy Fuel Deration)
- 2) Fuel Usage Guide Deration.

Note: For TA engines only add low energy fuel derate to altitude/temperature deration whenever the altitude/temperature derate factor is less than 1.0 (100% of the rating). This will give the actual rating for the engine at the conditions specified.

Aftercooler Heat Rejection Factors

The "Aftercooler Heat Rejection Factor" is stated for standard conditions of 25°C (77° F) and 153 m (500 ft) altitude. To keep the engine from going into detonation, it is important to maintain a constant inlet air temperature at the air intake manifold. Therefore, as the ambient air temperature goes up beyond standard conditions, so must the heat rejection for the aftercooler circuit. Also, as altitude increases, the turbocharger must work harder to overcome the lower atmospheric pressure. Both of these conditions increase the amount of heat that must be removed from the inlet air by the aftercooler. Use the aftercooler heat rejection factor to adjust for heat rejection increases due to ambient and/or altitude conditions above engine design levels. Multiply this factor times the listed aftercooler heat rejection and its tolerance to identify the actual heat rejection required of the aftercooler system to maintain proper engine operating conditions. Failure to properly account for these factors could result in detonation and cause the engine to shutdown or fail.

If the oil cooler is to be located on the same circuit as the aftercooler, the value of the oil cooler heat rejection should not be included in this calculation. Since the oil cooler heat rejection needs to be dissipated, it should be added back with the aftercooler heat rejection after the altitude and temperature factors have been calculated. Arbitrarily increasing the value of the oil cooler heat rejection by multiplying it times the Aftercooler Heat Rejection Factor will simply cause you to oversize this portion of the cooling system, adding cost to the system without improving the aftercooler cooling system performance or the value to the overall system.

Rating Conditions and Definitions

Ratings are based on ISO3046/1 standard reference conditions of 25°C (77°F) and 100 kPa (29.61 in Hg).

Continuous is the engine power and speed capability of the engine that can be used without interruption or load cycling.

Ratings are based on dry natural gas having an LHV (low heat value) of 36.2 mJ/N•m³ (920 Btu/cu ft). Variations in altitude, temperature, and gas compositions from standard conditions may require a reduction in engine horsepower.

LE refers to low emission engine configuration.

This data sheet contains the notes, conditions and definitions required to accurately apply a Caterpillar gas engine performance book specification.

Notes:

- (1) Fuel consumption tolerance according to ISO 3046/1. Tolerance is +5% of full load data.
- (2) Heat Rejection to Jacket Water and Heat Rejection to Exhaust tolerance is $\pm 8\%$ of full load data.
- (3) Heat Rejection to Aftercooler tolerance is $\pm 8\%$ of full load data.
- (4) Heat Rejection to Atmosphere (radiated) is $\pm 25\%$ of full load data.
- (5) Heat Rejection to Lube Oil tolerance is $\pm 20\%$ of full rated load. If heat rejection to lube oil = 0, then the lube oil heat is included in the jacket water heat rejection value.
- (6) Heat Rejection to Jacket Water:
-If Heat Rejection Lube Oil = 0, then Jacket Water Heat Rejection = Jacket Water heat + Oil Cooler heat (This is also known as a "combined" cooling circuit)
-If Heat Rejection Lube Oil > 0, then Jacket Water Heat Rejection = Jacket Water heat only (This is also known as a "two circuit" or a "three circuit" cooling system)
- (7) Heat Rejection to Aftercooler is recorded at standard conditions. The value of this number will increase for temperatures above standard conditions. Consult the "Aftercooler Heat Rejection Factors" table on page two of the performance sheet for correction factors.
- (8) For two circuit systems where the aftercooler and oil cooler are on the same circuit, add the "heat rejection to lube oil" to the "heat rejection to aftercooler" number only after any aftercooler heat rejection factors have been calculated and added to the "heat rejection to aftercooler" for the total heat load in this circuit. The "heat rejection to lube oil" should not be affected by the aftercooler heat rejection factor.
- (9) Emissions data shown are dry, not to exceed values. Published part load data may require engine adjustment. Consult the factory for special emission setting information.
- (10) Inlet Manifold Temperature measured at the intake manifold plenum.
- (11) Timing indicated is for use with the minimum fuel methane number specified. Consult the appropriate fuel usage guide for timing at other methane numbers.

Conditions and Definitions

Engine rating obtained and presented in accordance with ISO 3046/1 (standard reference conditions of 25°C (77°F) and 100 kPa (29.61 in Hg)). No overload permitted at rating shown. Consult the altitude derating curves for applications above maximum rated altitude and/or temperature.

G3400 Generator Set Engine Arrangement Index

G3412 NA Generator Set Engines, 60 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
250	271 (364)	1800	STD	9.7	99 (210)	N/A	N/A	N/A	LA3128	DM5216	22-23	96-97

G3412 NA Generator Set Engines, 60 hz, Propane Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
250	271 (364)	1800	STD	9.7	99 (210)	N/A	N/A	N/A	LA3128	DM5100	24-25	98-99

G3412 TA Generator Set Engines, 60 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
395	422 (566)	1800	STD	9.7	99 (210)	54 (130)	N/A	LPG	LA3124	DM5175	26-27	100-101
395	422 (566)	1800	STD	8.5	99 (210)	54 (130)	N/A	LPG	LA3126	DM5178	28-29	102-103
455	492 (660)	1800	STD	8.5	99 (210)	54 (130)	N/A	LPG	LA3126	DM5179	30-31	104-105
480	514 (690)	1800	STD	9.7	99 (210)	54 (130)	N/A	LPG	LA3124	DM5177	32-33	106-107
515	553 (742)	1800	STD	9.7	99 (210)	32 (90)	N/A	LPG	LA3125	DM5176	34-35	108-109

G3412 NA Generator Set Engines, 50 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
225	242 (325)	1500	STD	9.7	99 (210)	N/A	N/A	N/A	LA3128	DM5217	36-37	110-111

G3412 NA Generator Set Engines, 50 hz, Propane Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
225	242 (325)	1500	STD	9.7	99 (210)	N/A	N/A	N/A	LA3128	DM5099	38-39	112-113

G3412 TA Generator Set Engines, 50 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
325	352 (472)	1500	STD	9.7	99 (210)	54 (130)	N/A	LPG	LA3124	DM5181	40-41	114-115
325	352 (472)	1500	STD	8.5	99 (210)	54 (130)	N/A	LPG	LA3126	DM5193	42-43	116-117
350	377 (506)	1500	STD	9.7	99 (210)	32 (90)	N/A	LPG	LA3124	DM5180	44-45	118-119

G3412 LE Generator Set Engines, 50 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
370	396 (531)	1500	TA LUFT	11.4	99 (210)	54 (130)	N/A	LPG	LA0138	DM0973	46-47	120-121
395	419 (562)	1500	TA LUFT	11.4	99 (210)	32 (90)	N/A	LPG	LA0138	DM5103	48-49	122-123

G3400 Generator Set Engine Arrangement Index

G3408 NA Generator Set Engines, 60 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
175	190 (255)	1800	STD	9.7	99 (210)	N/A	N/A	N/A	LA3137	DM5091	50-51	124-125

G3408 NA Generator Set Engines, 60 hz, Propane Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
175	190 (255)	1800	STD	9.7	99 (210)	N/A	N/A	N/A	LA3137	DM5198	52-53	126-127

G3408 TA Generator Set Engines, 60 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
255	281 (377)	1800	STD	9.7	99 (210)	54 (130)	N/A	LPG	LA3135	DM5182	54-55	128-129
255	281 (377)	1800	STD	8.5	99 (210)	54 (130)	N/A	LPG	LA3136	DM5187	56-57	130-131
280	302 (405)	1800	STD	8.5	99 (210)	32 (90)	N/A	LPG	LA3136	DM0841	58-59	132-133
310	343 (460)	1800	STD	9.7	99 (210)	54 (130)	N/A	LPG	LA3135	DM5184	60-61	134-135

G3408 TA Generator Set Engines, 50 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
190	211 (283)	1500	STD	9.7	99 (210)	54 (130)	N/A	LPG	LA3135	DM5092	62-63	136-137
210	234 (314)	1500	STD	9.7	99 (210)	54 (130)	N/A	LPG	LA3135	DM5190	64-65	138-139
210	234 (314)	1500	STD	8.5	99 (210)	54 (130)	N/A	LPG	LA3136	DM5093	66-67	140-141
230	251 (337)	1500	STD	9.7	99 (210)	32 (90)	N/A	LPG	LA3135	DM5094	68-69	142-143

G3408 LE Generator Set Engines, 50 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number English Units</u>	<u>Metric Units</u>
240	264 (354)	1500	TA LUFT	11	99 (210)	54 (130)	N/A	LPG	LA3138	DM0978	70-71	144-145
255	279 (375)	1500	TA LUFT	11	99 (210)	32 (90)	N/A	LPG	LA3138	DM0976	72-73	146-147

G3400 Generator Set Engine Arrangement Index

G3406 NA Generator Set Engines, 60 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number</u>	
											<u>English Units</u>	<u>Metric Units</u>
150	172 (231)	1800	STD	10.3	99 (210)	N/A	N/A	N/A	LA1102	DM5080	74-75	148-149
160	172 (231)	1800	CAT	10.3	99 (210)	N/A	N/A	N/A	LA2111	DM0967	76-77	150-151

G3406 NA Generator Set Engines, 60 hz, Propane Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number</u>	
											<u>English Units</u>	<u>Metric Units</u>
150	172 (231)	1800	STD	10.3	99 (210)	N/A	N/A	N/A	LA2110	DM5079	78-79	152-153

G3406 NA Generator Set Engines, 50 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number</u>	
											<u>English Units</u>	<u>Metric Units</u>
125	138 (185)	1500	STD	10.3	99 (210)	N/A	N/A	N/A	LA1103	DM5073	80-81	154-155

G3406 LE Generator Set Engines, 50 hz, Natural Gas Fueled

<u>EKW</u>	<u>BKW (BHP)</u>	<u>Engine Speed</u>	<u>Emission Level</u>	<u>Engine C/R</u>	<u>J/W Temp Deg C (F)</u>	<u>A/C Temp Deg C (F)</u>	<u>2nd Stage A/C Temp Deg C (F)</u>	<u>Fuel Pressure</u>	<u>Engine Pricing Arrangement</u>	<u>Performance Number</u>	<u>Page Number</u>	
											<u>English Units</u>	<u>Metric Units</u>
180	193 (259)	1500	TA LUFT	11.6	99 (210)	54 (130)	N/A	LPG	PA5175	DM5082	82-83	156-157
190	206 (276)	1500	TA LUFT	11.6	99 (210)	32 (90)	N/A	LPG	PA5175	DM5083	84-85	158-159

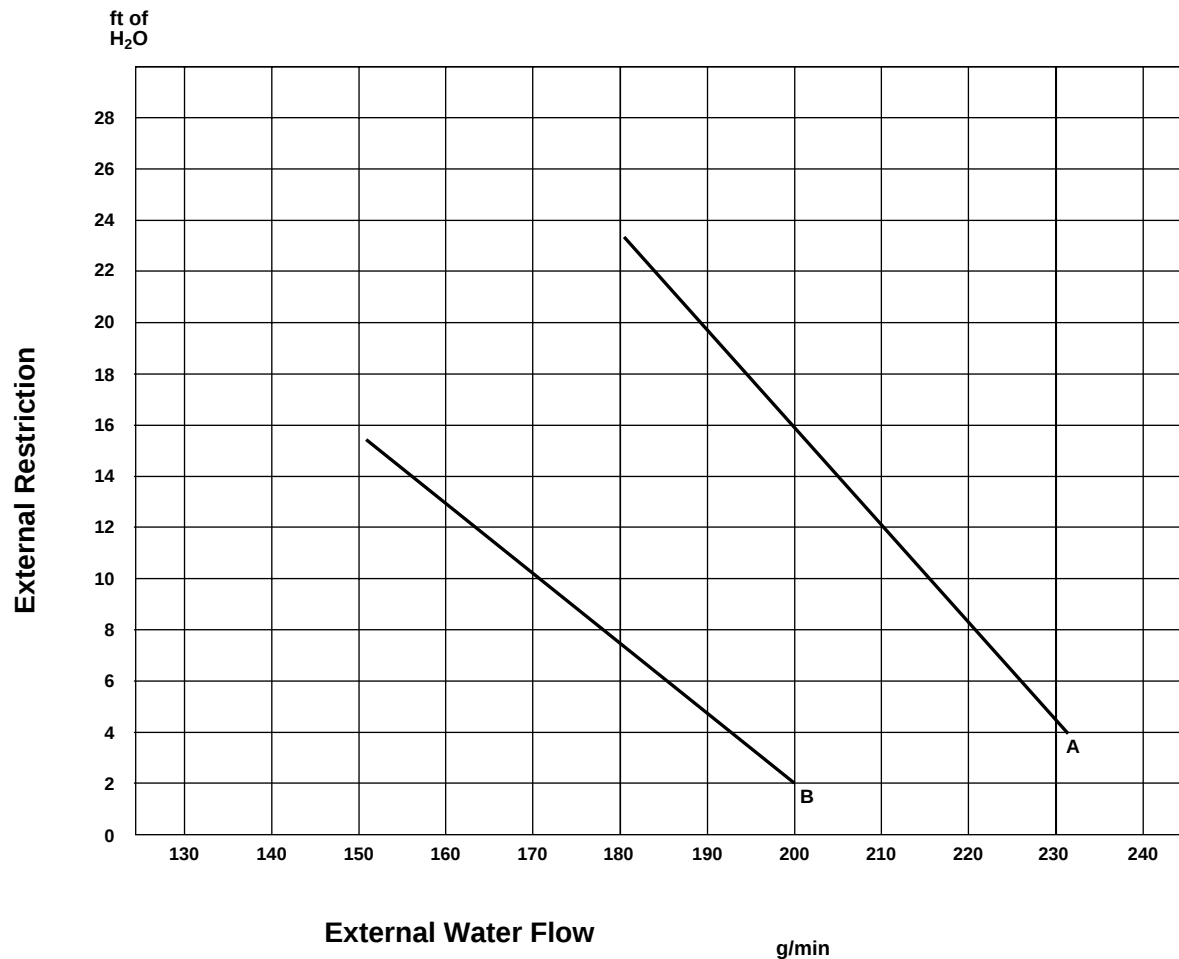




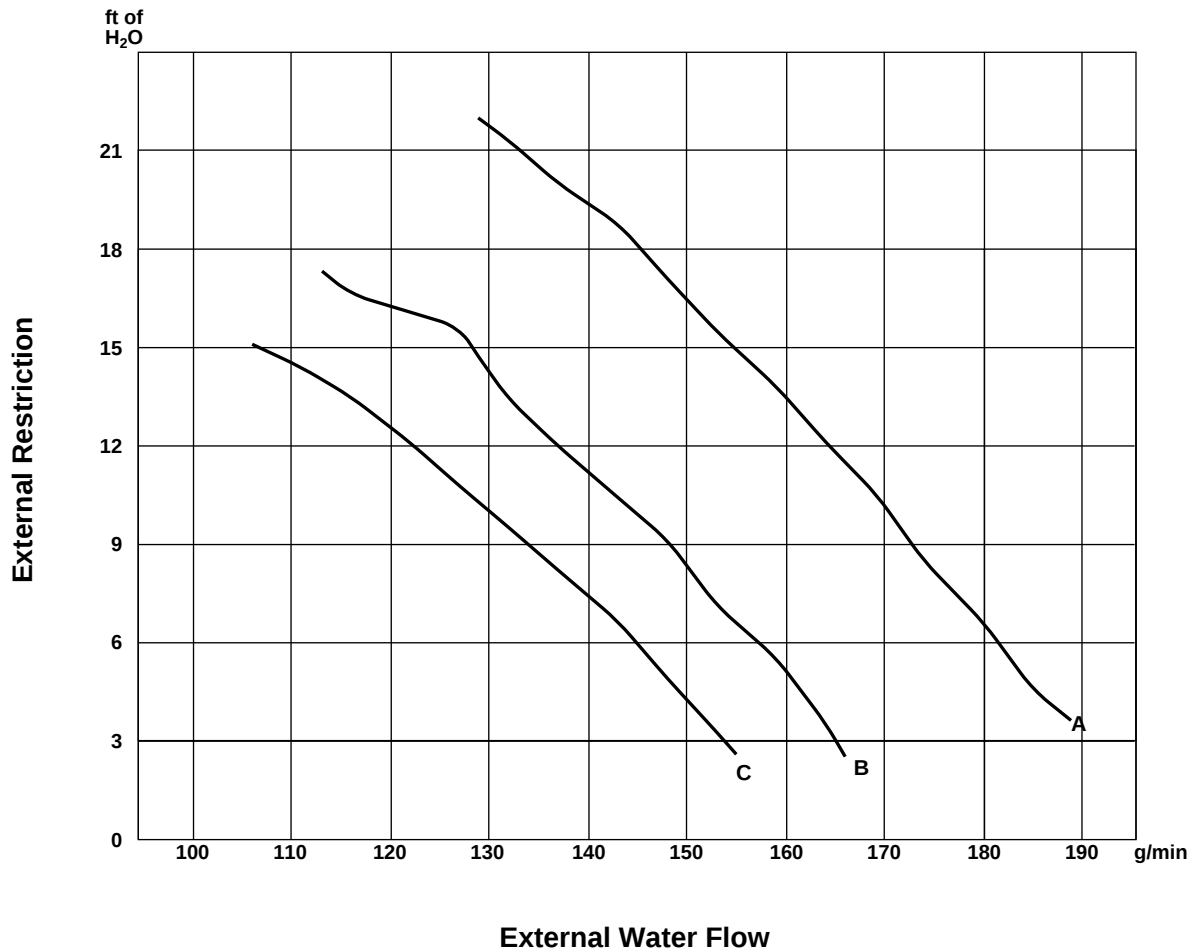
Engine Performance Data

English Units



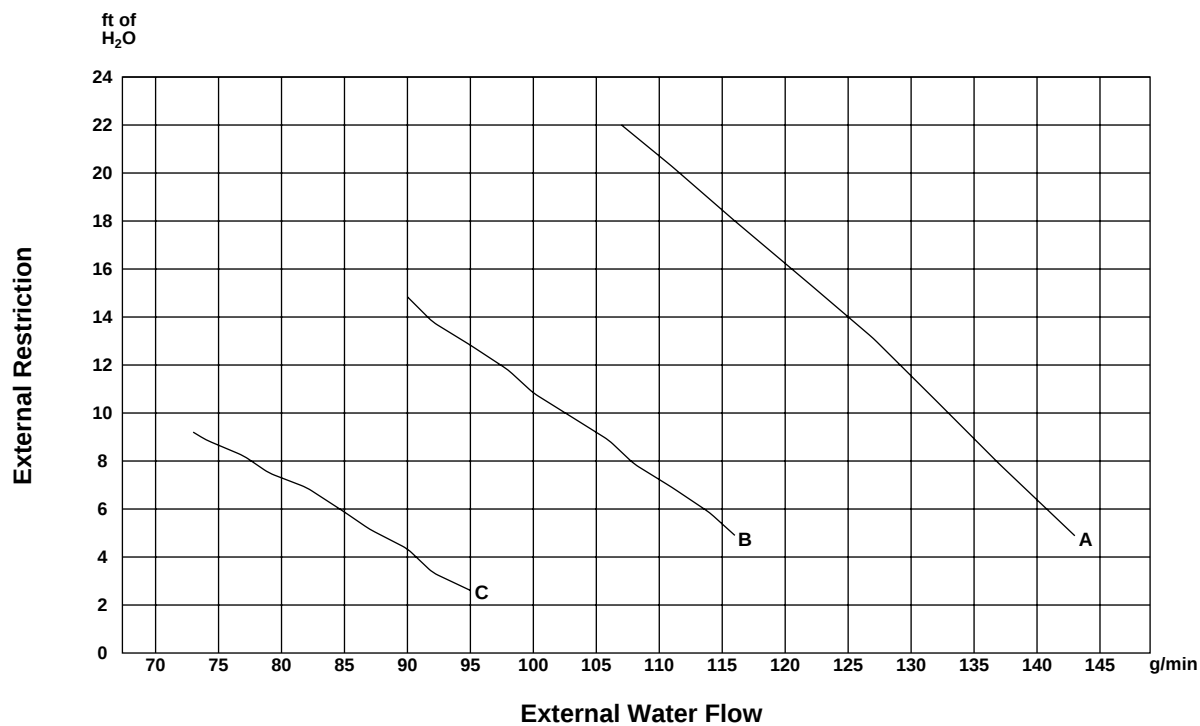
**Curve Data**

Curve Label	A	B
Engine Speed rpm	1800	1500
Pump Speed rpm	1800	1500
External Flow gal/min	External Resistance feet of water	
152		15.4
153		15.1
159		13.5
164		12.1
169		10.5
174		9.2
180	23.3	7.5
185	31.3	5.9
190	19.4	4.6
196	17.7	3.0
201	15.7	2.0
206	14.1	
211	12.1	
217	10.2	
222	8.2	
227	6.2	
232	3.9	



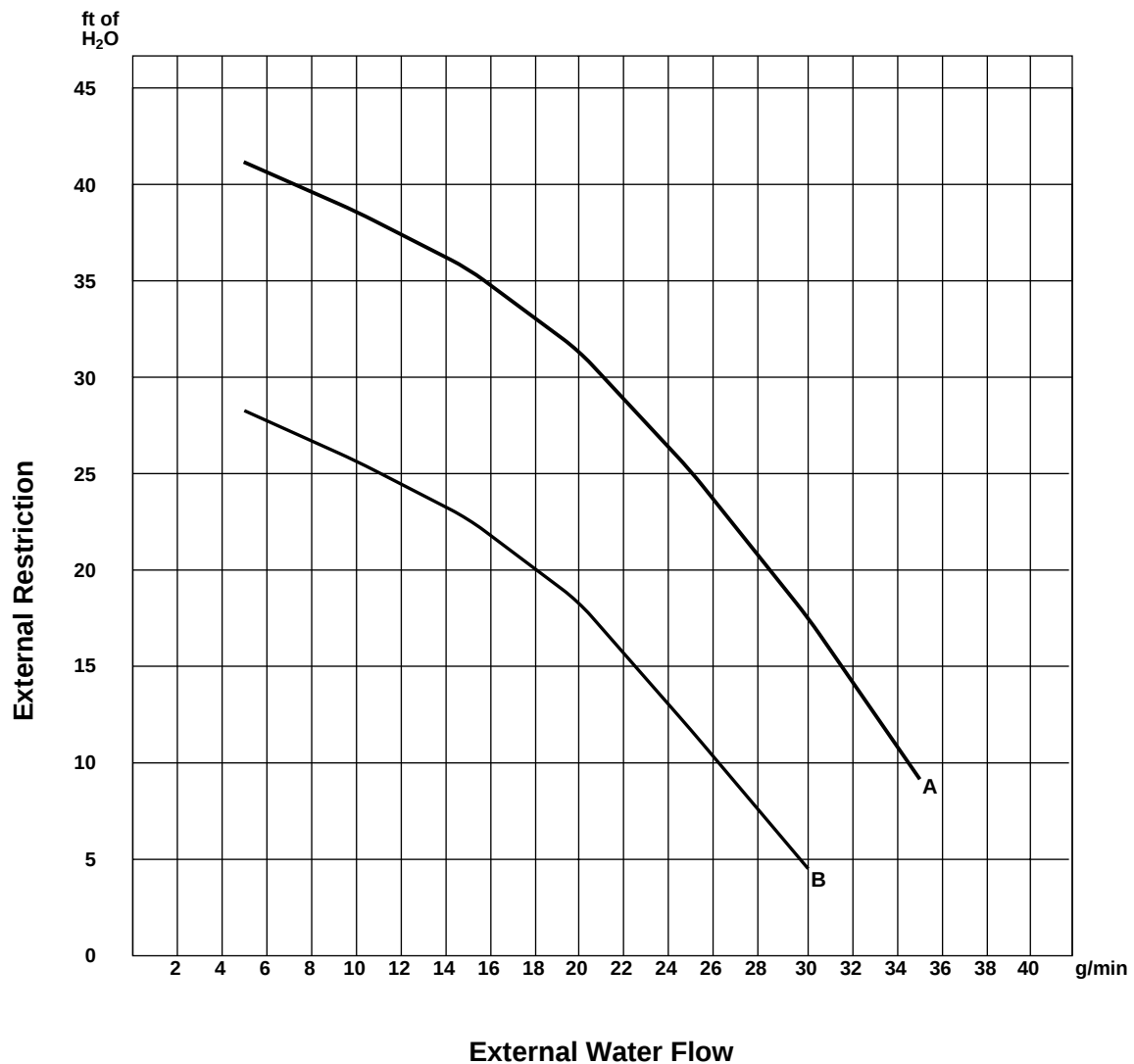
Curve Data

Curve Label	A	B	C
Engine Speed rpm	1800	1600	1500
Pump Speed rpm	1800	1600	1500
External Flow gal/min	External Resistance feet of water		
106			15.1
111			14.4
113		17.4	
116		16.7	13.5
122		15.7	12.1
127		14.8	10.8
129	22.0		
132	21.3	13.5	9.5
137	20.0	12.1	8.2
143	18.7	10.5	6.6
148	17.1	9.2	4.9
153	15.4	7.2	3.3
155			2.6
159	13.8	5.6	
164	12.1	3.6	
166		2.6	
169	10.5		
174	8.5		
180	6.6		
185	4.6		
189	3.6		



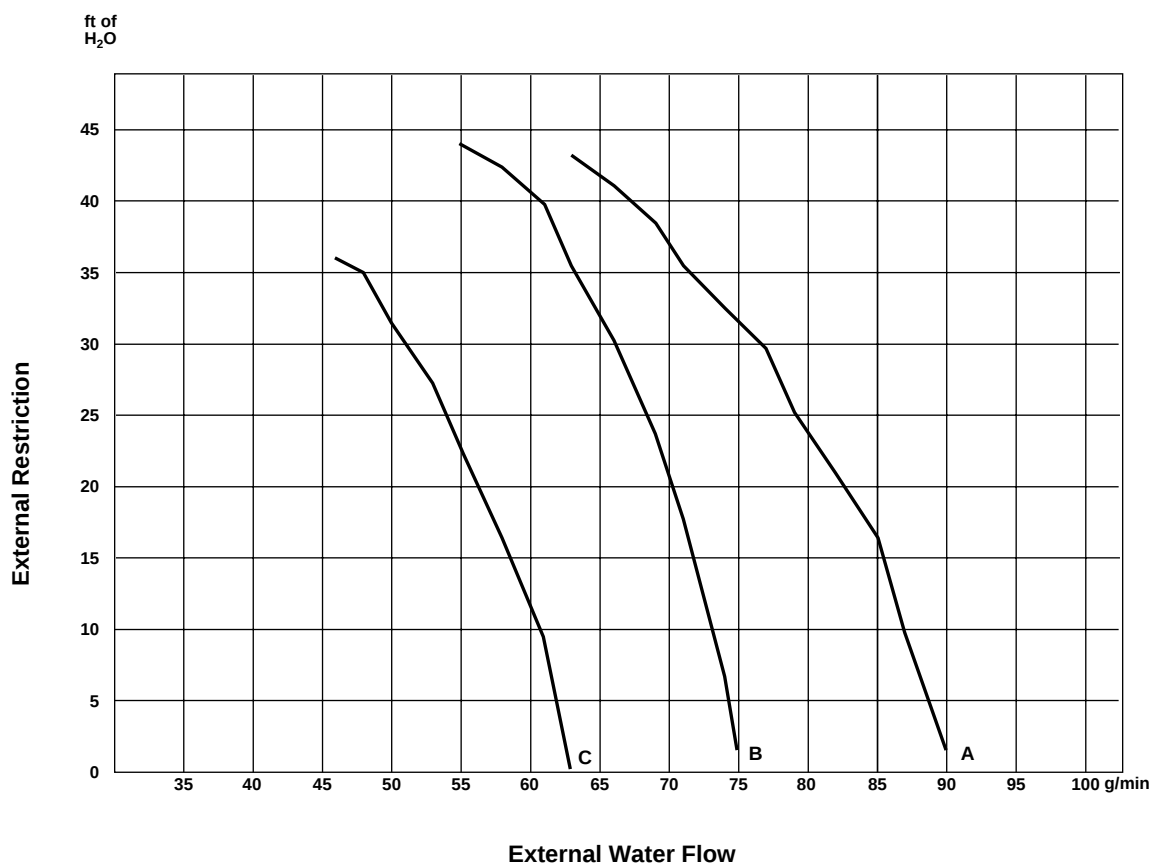
Curve Data

Curve Label	A	B	C
Engine Speed rpm	1800	1500	1200
Pump Speed rpm	1946	1622	1297
External Flow gal/min	External Resistance feet of water		
73			9.2
74			8.9
77			8.2
79			7.5
82			6.9
85			5.9
87			5.2
90		14.8	4.3
92		13.8	3.3
95		12.8	2.6
98		11.8	
100		10.8	
103		9.8	
106		8.9	
107	22.0		
108		7.9	
111	20.3	6.9	
114		5.9	
116	18.0	4.9	
122	15.4		
127	13.1		
132	10.5		
137	7.9		
143	5.2		
143	4.9		

**Curve Data**

Curve Label	A	B
Engine Speed rpm	1800	1500
Pump Speed rpm	1800	1500

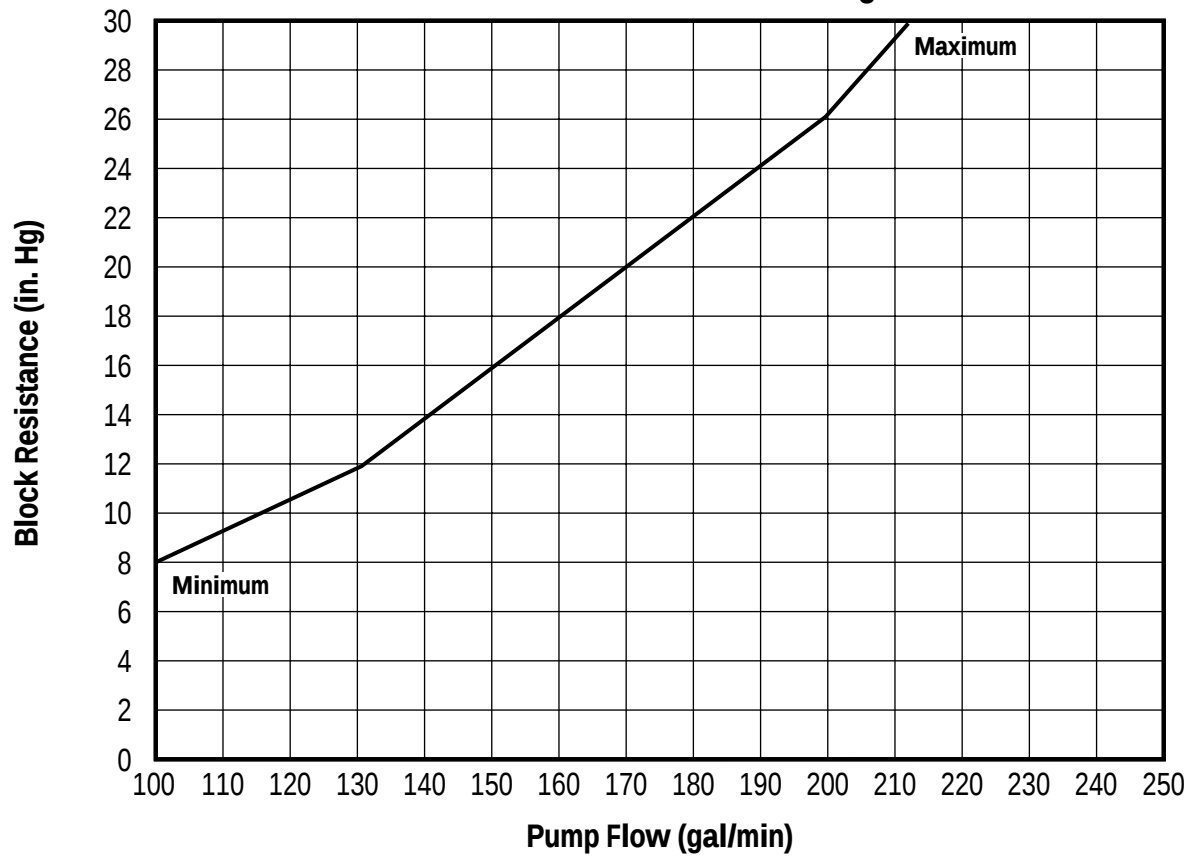
External Flow gal/min	-----External Resistance----- -----feet of water-----	
40	0	
35	9.1	
33		0
30	17.5	4.5
26		
25	25.1	11.8
20	31.4	18.4
15	35.6	22.6
10	38.6	25.6
5	41.1	28.1



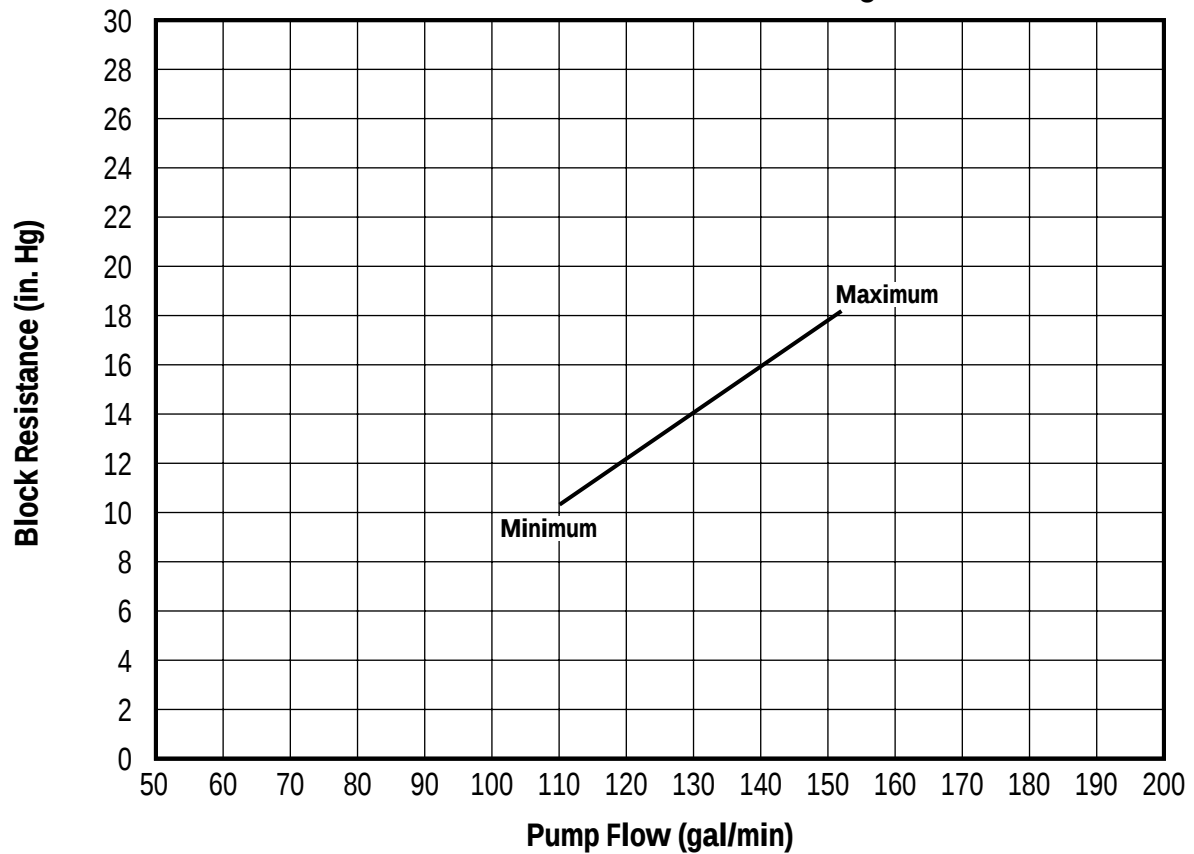
Curve Data

Curve Label	A	B	C
Engine Speed rpm	1800	1500	1200
Pump Speed rpm	1800	1500	1200
External Flow gal/min	External Resistance feet of water		
46			36.1
48			35.1
50			31.5
53			27.2
55		44.0	22.3
58		42.3	16.4
61	45.6	39.7	9.5
63	43.3	35.4	.3
66	41.0	30.2	
69	38.4	23.6	
71	35.4	15.7	
74	32.5	6.6	
75		1.6	
77	28.9		
79	25.3		
82	21.0		
85	16.4		
87	9.8		
90	1.6		

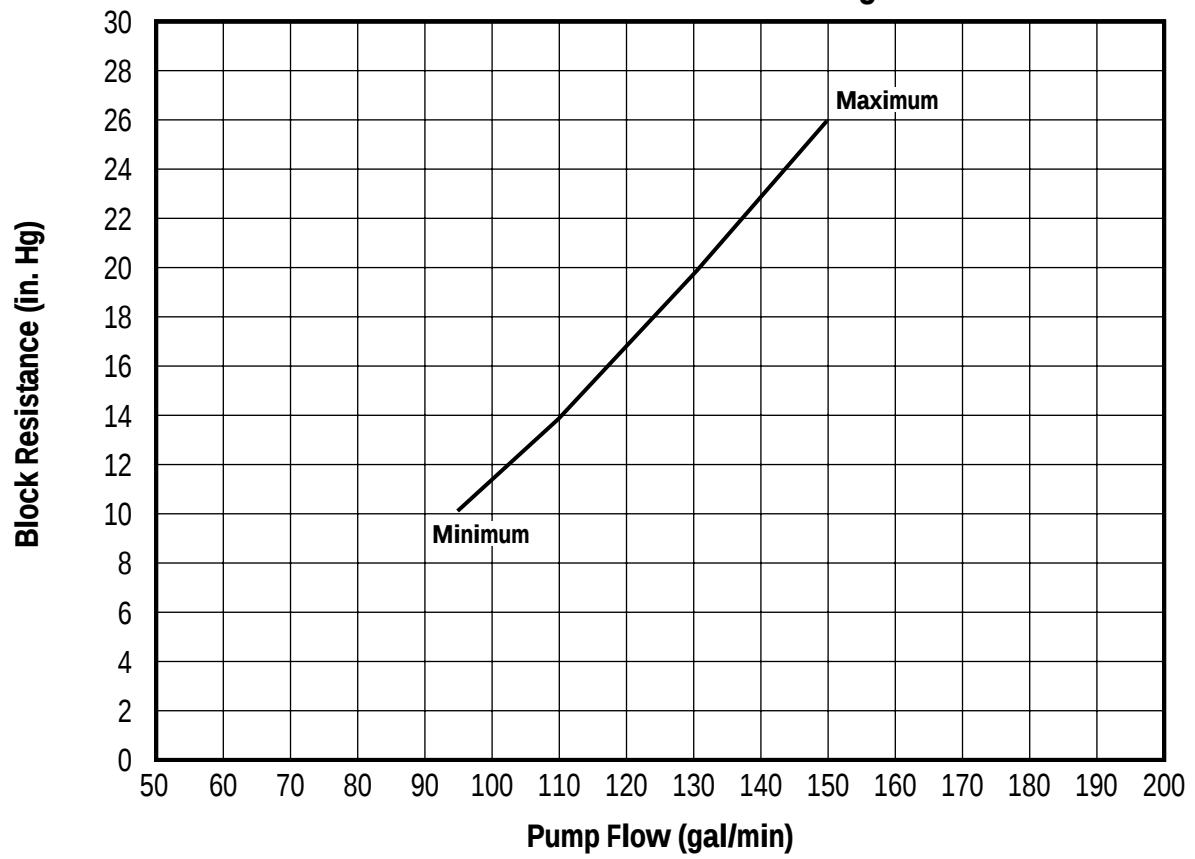
G3412 TA Block Resistance Diagram



G3408 TA Block Resistance Diagram



G3406 TA Block Resistance Diagram



Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	364	273	182
Generator Set Power (w/o fan)	kW	250	188	125

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7840	8500	9750
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2473	1987	1508
Air Mass Flow (Wet)	scfm	539	433	329
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	26.2	22.2	18
Inlet Manifold Temperature (10)	°F	102	106	113
Timing (11)	°BTDC	34	34	34
Exhaust Stack Temperature	°F	1152	1108	1080
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1957	1541	1133
Exhaust Gas Mass Flow (Wet)	lb/hr	2615	2102	1596

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	22.0	21.6	22.5
(Corr. 15% O2)	ppm	1583	1452	1338
Carbon Monoxide (CO) (9)	g/bhp-hr	1.5	1.5	1.5
(Corr. 15% O2)	ppm	175	165	148
Total Hydrocarbons (THC) (9)	g/bhp-hr	1.6	1.5	1.6
(Corr. 15% O2)	ppm	332	301	274
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.24	0.23	0.24
(Corr. 15% O2)	ppm	50	45	41
Exhaust Oxygen (9)	%	2.0	2.0	2.1
Lambda		1.18	1.17	1.15

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	47563	38675	29575
Work Output	Btu/min	15436	11577	7718
Heat Rejection to Jacket (2) (6)	Btu/min	17757	15944	13548
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1903	1547	1183
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	12912	9942	7340
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	9754	7404	5409
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64	0.61	0.59
	120	0.94	0.91	0.88	0.84	0.81	0.78	0.76	0.73	0.70	0.67	0.65	0.62	0.60
	110	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61
	100	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.73	0.70	0.67	0.65	0.62
	90	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	80	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	70	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	60	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67
	50	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5216-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	PROPANE
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	2269
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	364	273	182
Generator Set Power (w/o fan)	kW	225	169	113

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	8029	8600	9890
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2361	1894	1428
Air Mass Flow (Wet)	scfm	515	413	311
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	26.8	23	18.2
Inlet Manifold Temperature (10)	°F	100	102	109
Timing (11)	°BTDC	15	15	15
Exhaust Stack Temperature	°F	1238	1162	1130
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1949	1496	1112
Exhaust Gas Mass Flow (Wet)	lb/hr	2507	2012	1518

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	(Corr. 15% O2)	g/bhp-hr	19.5	19.8
		ppm	1465	1388
Carbon Monoxide (CO) (9)	(Corr. 15% O2)	g/bhp-hr	1.5	1.4
		ppm	179	162
Total Hydrocarbons (THC) (9)	(Corr. 15% O2)	g/bhp-hr	1.5	1.4
		ppm	317	287
Non-Methane Hydrocarbons (NMHC) (9)	(Corr. 15% O2)	g/bhp-hr	0.22	0.21
		ppm	48	43
Exhaust Oxygen (9)		%	2.0	2.0
Lambda			1.15	1.15

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	48707	39130	30000
Work Output	Btu/min	15436	11577	7718
Heat Rejection to Jacket (2) (6)	Btu/min	18929	16718	14292
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1948	1565	1200
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	12820	9575	6998
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	9935	7262	5253
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64	0.61	0.59
	120	0.94	0.91	0.88	0.84	0.81	0.78	0.76	0.73	0.70	0.67	0.65	0.62	0.60
	110	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61
	100	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.73	0.70	0.67	0.65	0.62
	90	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	80	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	70	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	60	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67
	50	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68
			0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
ALTITUDE (FEET ABOVE SEA LEVEL)														

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5100-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
		at 77°F Design Temperature	

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	566	425	283
Generator Set Power (w/o fan)	kW	395	296	198

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7266	7737	8780
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	3997	2985	2039
Air Mass Flow (Wet)	scfm	872	651	445
Compressor Out Pressure	in. Hg (abs)	46	43.9	39.5
Compressor Out Temperature	°F	186	165	151
Inlet Manifold Pressure	in. Hg (abs)	43.2	33	23.4
Inlet Manifold Temperature (10)	°F	138	133	134
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°F	892	885	882
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	2475	1846	1270
Exhaust Gas Mass Flow (Wet)	lb/hr	4202	3149	2163

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	(Corr. 15% O2)	g/bhp-hr	21.3	22.5
		ppm	1601	1588
Carbon Monoxide (CO) (9)	(Corr. 15% O2)	g/bhp-hr	1.6	1.6
		ppm	198	189
Total Hydrocarbons (THC) (9)	(Corr. 15% O2)	g/bhp-hr	1.8	1.8
		ppm	400	378
Non-Methane Hydrocarbons (NMHC) (9)	(Corr. 15% O2)	g/bhp-hr	0.28	0.28
		ppm	60	57
Exhaust Oxygen (9)		%	4.0	2.8
			1.24	1.16
Lambda				1.05

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	68547	54738	41411
Work Output	Btu/min	24003	18002	12001
Heat Rejection to Jacket (2) (6)	Btu/min	24869	21962	18786
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	2742	2190	1656
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	15453	11534	7953
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	10412	7736	5321
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	866	436	166

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/23	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
	120	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	110	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
	80	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
	60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	50	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
ALTITUDE (FEET ABOVE SEA LEVEL)														

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	120	110	100	90	80	70	60	50	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
	1.98	2.18	2.37	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47	2.47
	1.75	1.94	2.13	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23	2.23
	1.51	1.70	1.89	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98	1.98
	1.28	1.46	1.65	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74
	1.04	1.22	1.41	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	1.00	1.00	1.16	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

ALTITUDE (FEET ABOVE SEA LEVEL)

DM5175-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	566	425	283
Generator Set Power (w/o fan)	kW	395	296	198

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7331	7869	8846
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	4037	3027	2050
Air Mass Flow (Wet)	scfm	881	660	447
Compressor Out Pressure	in. Hg (abs)	66.1	63.2	47.9
Compressor Out Temperature	°F	277	262	212
Inlet Manifold Pressure	in. Hg (abs)	63	48.4	33.5
Inlet Manifold Temperature (10)	°F	149	145	140
Timing (11)	°BTDC	32	32	32
Exhaust Stack Temperature	°F	801	793	820
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	2339	1755	1224
Exhaust Gas Mass Flow (Wet)	lb/hr	4244	3194	2175

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	21.2	20.2	21.2
(Corr. 15% O2)	ppm	1636	1509	1596
Carbon Monoxide (CO) (9)	g/bhp-hr	1.5	1.5	1.4
(Corr. 15% O2)	ppm	188	189	178
Total Hydrocarbons (THC) (9)	g/bhp-hr	1.8	1.9	2.7
(Corr. 15% O2)	ppm	383	407	579
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.27	0.28	0.40
(Corr. 15% O2)	ppm	57	61	87
Exhaust Oxygen (9)	%	4.0	4.0	4.0
Lambda		1.25	1.16	1.05

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	69155	55672	41722
Work Output	Btu/min	24003	18002	12001
Heat Rejection to Jacket (2) (6)	Btu/min	25666	22886	19107
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	2766	2227	1669
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	13769	10310	7360
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	8685	6464	4717
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	2359	1622	690

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/18	0.90/20	0.90/22	0.90/24	0.90/26	0.90/26	1.0/26	01.0/27	1.0/29	1.0/30	1.0/32

Altitude Deration Factors

AIR INLET TEMP. (°F)		ALTITUDE (FEET ABOVE SEA LEVEL)													
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	
130		1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	
120		1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64	
110		1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	
100		1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67	
90		1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68	
80		1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	
70		1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71	
60		1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	
50		1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)		ALTITUDE (FEET ABOVE SEA LEVEL)													
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	
130		1.45	1.53	1.62	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	1.66	
120		1.35	1.43	1.51	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	
110		1.24	1.32	1.40	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	
100		1.13	1.21	1.29	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	
90		1.03	1.10	1.18	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	
80		1.00	1.00	1.07	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	
70		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
60		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
50		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

DM5178-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	5000
		at 77°F Design Temperature	

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	660	495	330
Generator Set Power (w/o fan)	kW	243	182	122

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7252	7691	8491
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	4345	3199	2312
Air Mass Flow (Wet)	scfm	948	698	504
Compressor Out Pressure	in. Hg (abs)	66.3	61.9	54.5
Compressor Out Temperature	°F	273	264	237
Inlet Manifold Pressure	in. Hg (abs)	64.4	48.3	35.3
Inlet Manifold Temperature (10)	°F	142	142	143
Timing (11)	°BTDC	25	25	25
Exhaust Stack Temperature	°F	955	936	892
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	2939	2055	1450
Exhaust Gas Mass Flow (Wet)	lb/hr	4583	3388	2452

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)	(Corr. 15% O2)	g/bhp-hr	22.0	20.2	21.2
		ppm	1685	1527	1477
Carbon Monoxide (CO) (9)	(Corr. 15% O2)	g/bhp-hr	2.9	3.2	3.6
		ppm	575	238	412
Total Hydrocarbons (THC) (9)	(Corr. 15% O2)	g/bhp-hr	1.3	1.4	1.6
		ppm	276	299	317
Non-Methane Hydrocarbons (NMHC) (9)	(Corr. 15% O2)	g/bhp-hr	0.19	0.20	0.23
		ppm	41	45	48
Exhaust Oxygen (9)		%	2.0	2.0	2.0
Lambda			1.21	1.06	1.05

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	79772	63453	46702
Work Output	Btu/min	27989	20992	13995
Heat Rejection to Jacket (2) (6)	Btu/min	27218	24264	20088
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	3191	2538	1868
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	18261	13316	9137
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	12748	9198	6155
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	2617	1814	1005

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96	dBA
Noise - Exhaust @ 1.5 m	112	dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/14	0.90/16	0.90/17	0.90/18	0.90/20	0.90/20	1.0/21	1.0/22	1.0/23	1.0/24	1.0/25

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	1.00	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70
	120	1.00	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71
	110	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	100	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
	90	1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75
	80	1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.85	0.82	0.79	0.76
	70	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.90	0.87	0.84	0.81	0.77
	60	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.85	0.82	0.79
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.94	0.90	0.87	0.84	0.80
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
ALTITUDE (FEET ABOVE SEA LEVEL)														

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.42	1.50	1.58	1.66	1.74	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82
	120	1.32	1.40	1.48	1.55	1.63	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72
	110	1.22	1.30	1.37	1.45	1.53	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
	100	1.12	1.20	1.27	1.35	1.42	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
	90	1.02	1.10	1.17	1.24	1.32	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
	80	1.00	1.00	1.07	1.14	1.22	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
	70	1.00	1.00	1.00	1.04	1.11	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
	60	1.00	1.00	1.00	1.00	1.01	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
			0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
ALTITUDE (FEET ABOVE SEA LEVEL)														

DM5179-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
		at 77°F Design Temperature	

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	690	518	345
Generator Set Power (w/o fan)	kW	480	360	240

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7340	7704	8530
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	4869	3654	2493
Air Mass Flow (Wet)	scfm	1062	797	544
Compressor Out Pressure	in. Hg (abs)	57	54.5	45.6
Compressor Out Temperature	°F	242	225	188
Inlet Manifold Pressure	in. Hg (abs)	52.9	40.2	28.1
Inlet Manifold Temperature (10)	°F	146	142	135
Timing (11)	°BTDC	20	20	20
Exhaust Stack Temperature	°F	936	918	918
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	3123	2316	1591
Exhaust Gas Mass Flow (Wet)	lb/hr	5121	3853	2639

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	(Corr. 15% O2)	g/bhp-hr	21.7	21.3
		ppm	1694	1555
Carbon Monoxide (CO) (9)	(Corr. 15% O2)	g/bhp-hr	1.5	1.6
		ppm	196	187
Total Hydrocarbons (THC) (9)	(Corr. 15% O2)	g/bhp-hr	1.3	1.5
		ppm	290	310
Non-Methane Hydrocarbons (NMHC) (9)	(Corr. 15% O2)	g/bhp-hr	0.20	0.23
		ppm	43	47
Exhaust Oxygen (9)		%	4.0	3.0
			1.23	1.17
Lambda				1.08

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	84410	66450	49050
Work Output	Btu/min	29261	21946	14631
Heat Rejection to Jacket (2) (6)	Btu/min	29214	25162	20964
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	3376	2658	1962
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	19890	14693	10130
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	13741	10049	6927
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	2127	1378	601

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/17	1.0/19	1.0/20

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
	120	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	110	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
	80	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
	60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	50	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
ALTITUDE (FEET ABOVE SEA LEVEL)														

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.56	1.67	1.77	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	1.83	
	120	1.43	1.53	1.64	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	1.69	
	110	1.29	1.40	1.50	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	
	100	1.16	1.26	1.37	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	
	90	1.03	1.13	1.23	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	
	80	1.00	1.00	1.09	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	
	70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
ALTITUDE (FEET ABOVE SEA LEVEL)														

ALTITUDE (FEET ABOVE SEA LEVEL)

DM5177-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	90	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
		at 77°F Design Temperature	

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	742	557	371
Generator Set Power (w/o fan)	kW	515	386	258

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7274	7537	8279
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	5221	3874	2618
Air Mass Flow (Wet)	scfm	1139	845	571
Compressor Out Pressure	in. Hg (abs)	59.3	56.7	47.1
Compressor Out Temperature	°F	252	231	195
Inlet Manifold Pressure	in. Hg (abs)	55.1	41.2	28.6
Inlet Manifold Temperature (10)	°F	119	110	101
Timing (11)	°BTDC	22	22	22
Exhaust Stack Temperature	°F	919	900	905
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	3298	2417	1653
Exhaust Gas Mass Flow (Wet)	lb/hr	5489	4083	2771

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)		g/bhp-hr	21.6	21.6
	(Corr. 15% O2)	ppm	1686	1469
Carbon Monoxide (CO) (9)		g/bhp-hr	1.5	1.6
	(Corr. 15% O2)	ppm	193	155
Total Hydrocarbons (THC) (9)		g/bhp-hr	1.4	1.6
	(Corr. 15% O2)	ppm	311	374
Non-Methane Hydrocarbons (NMHC) (9)		g/bhp-hr	0.21	0.23
	(Corr. 15% O2)	ppm	47	56
Exhaust Oxygen (9)		%	4.0	3.1
Lambda			1.23	1.17

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	89959	69905	51192
Work Output	Btu/min	31467	23600	15733
Heat Rejection to Jacket (2) (6)	Btu/min	30223	25471	20979
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	3598	2796	2048
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	20895	15216	10464
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	14306	10297	7104
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	3152	2143	1123

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/20	1.0/21	1.0/22

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
	120	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	110	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
	80	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
	60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	50	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
ALTITUDE (FEET ABOVE SEA LEVEL)														

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.40	1.47	1.55	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	
	120	1.30	1.38	1.46	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	
	110	1.21	1.28	1.36	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	
	100	1.11	1.19	1.26	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	
	90	1.02	1.09	1.16	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	
	80	1.00	1.00	1.07	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	
	70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
			0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
ALTITUDE (FEET ABOVE SEA LEVEL)														

ALTITUDE (FEET ABOVE SEA LEVEL)

DM5176-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	500
		at 77°F Design Temperature	

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	325	244	163
Generator Set Power (w/o fan)	kW	225	169	113

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7690	8255	9372
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2156	1716	1265
Air Mass Flow (Wet)	scfm	470	374	276
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	27.1	22.9	18.2
Inlet Manifold Temperature (10)	°F	106	108	117
Timing (11)	°BTDC	34	34	34
Exhaust Stack Temperature	°F	1058	1040	1022
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1560	1241	912
Exhaust Gas Mass Flow (Wet)	lb/hr	2280	1816	1341

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)	(Corr. 15% O2)	g/bhp-hr	21.2	21.3	22.8
		ppm	1565	1481	1437
Carbon Monoxide (CO) (9)	(Corr. 15% O2)	g/bhp-hr	1.6	1.5	1.6
		ppm	188	174	161
Total Hydrocarbons (THC) (9)	(Corr. 15% O2)	g/bhp-hr	1.6	1.6	1.6
		ppm	333	318	285
Non-Methane Hydrocarbons (NMHC) (9)	(Corr. 15% O2)	g/bhp-hr	0.23	0.24	0.23
		ppm	50	48	43
Exhaust Oxygen (9)		%	2.0	2.0	2.1
Lambda			1.14	1.14	1.12

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	41654	33536	25383
Work Output	Btu/min	13783	10337	6891
Heat Rejection to Jacket (2) (6)	Btu/min	16374	14135	11861
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1666	1341	1015
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	10255	8009	5805
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	7495	5812	4181
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64	0.61	0.59
	120	0.94	0.91	0.88	0.84	0.81	0.78	0.76	0.73	0.70	0.67	0.65	0.62	0.60
	110	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61
	100	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.73	0.70	0.67	0.65	0.62
	90	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	80	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	70	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	60	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67
	50	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5217-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	PROPANE
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	2269
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	500
		at 77°F Design Temperature	

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	325	244	163
Generator Set Power (w/o fan)	kW	225	169	113

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7915	8347	9500
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2158	1738	1265
Air Mass Flow (Wet)	scfm	471	379	276
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	27.1	22.9	18.2
Inlet Manifold Temperature (10)	°F	113	108	106
Timing (11)	°BTDC	15	15	15
Exhaust Stack Temperature	°F	1130	1112	1094
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1618	1265	932
Exhaust Gas Mass Flow (Wet)	lb/hr	2287	1840	1342

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	(Corr. 15% O2)	g/bhp-hr	21.2	21.3
		ppm	1560	1462
Carbon Monoxide (CO) (9)	(Corr. 15% O2)	g/bhp-hr	1.6	1.5
		ppm	187	172
Total Hydrocarbons (THC) (9)	(Corr. 15% O2)	g/bhp-hr	1.6	1.6
		ppm	332	314
Non-Methane Hydrocarbons (NMHC) (9)	(Corr. 15% O2)	g/bhp-hr	0.23	0.24
		ppm	50	47
Exhaust Oxygen (9)		%	2.0	2.0
			1.16	1.16
Lambda				1.14

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	42874	33910	25729
Work Output	Btu/min	13783	10337	6891
Heat Rejection to Jacket (2) (6)	Btu/min	17338	14188	11973
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1715	1356	1029
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	10537	8323	5964
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	7909	6209	4421
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64	0.61	0.59
	120	0.94	0.91	0.88	0.84	0.81	0.78	0.76	0.73	0.70	0.67	0.65	0.62	0.60
	110	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61
	100	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.73	0.70	0.67	0.65	0.62
	90	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	80	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	70	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	60	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67
	50	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5099-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2460
		at 77°F Design Temperature	

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	472	354	236
Generator Set Power (w/o fan)	kW	325	244	163

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7053	7561	8597
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	3175	2352	1604
Air Mass Flow (Wet)	scfm	693	513	350
Compressor Out Pressure	in. Hg (abs)	44.8	41.1	35.1
Compressor Out Temperature	°F	177	160	135
Inlet Manifold Pressure	in. Hg (abs)	41.2	31.3	22.1
Inlet Manifold Temperature (10)	°F	136	134	131
Timing (11)	°BTDC	29	29	29
Exhaust Stack Temperature	°F	849	851	833
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1902	1419	969
Exhaust Gas Mass Flow (Wet)	lb/hr	3340	2485	1705

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	(Corr. 15% O2)	g/bhp-hr	24.3	22.8
		ppm	1938	1633
Carbon Monoxide (CO) (9)	(Corr. 15% O2)	g/bhp-hr	1.5	1.6
		ppm	205	191
Total Hydrocarbons (THC) (9)	(Corr. 15% O2)	g/bhp-hr	2.0	2.1
		ppm	448	453
Non-Methane Hydrocarbons (NMHC) (9)	(Corr. 15% O2)	g/bhp-hr	0.30	0.32
		ppm	67	68
Exhaust Oxygen (9)		%	4.0	2.2
			1.21	1.12
Lambda				1.01

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	55482	44611	33814
Work Output	Btu/min	20017	15012	10008
Heat Rejection to Jacket (2) (6)	Btu/min	20486	18216	15701
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	2219	1784	1353
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	11622	8725	5890
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	7611	5720	3811
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	585	281	24

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96	dBA
Noise - Exhaust @ 1.5 m	112	dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/26	1.0/28	1.0/29

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	120	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	110	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71	0.68
	80	1.00	1.00	1.00	0.97	0.94	0.90	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.70
	60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	50	1.00	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	2.15	2.37	2.59	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.70
	120	1.88	2.09	2.31	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41
	110	1.60	1.82	2.03	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.13
	100	1.33	1.54	1.75	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85
	90	1.06	1.26	1.47	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57	1.57
	80	1.00	1.00	1.19	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28
	70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	ALTITUDE (FEET ABOVE SEA LEVEL)												
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000

ALTITUDE (FEET ABOVE SEA LEVEL)

DM5181-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
		at 77°F Design Temperature	

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	472	354	236
Generator Set Power (w/o fan)	kW	325	244	163

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7059	7560	8562
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	3203	2345	1586
Air Mass Flow (Wet)	scfm	699	512	346
Compressor Out Pressure	in. Hg (abs)	60.7	51.7	40.3
Compressor Out Temperature	°F	251	215	167
Inlet Manifold Pressure	in. Hg (abs)	56.3	42.2	29.3
Inlet Manifold Temperature (10)	°F	143	141	137
Timing (11)	°BTDC	35	35	35
Exhaust Stack Temperature	°F	761	781	783
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1795	1346	925
Exhaust Gas Mass Flow (Wet)	lb/hr	3369	2478	1687

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	(Corr. 15% O2)	g/bhp-hr	21.3	20.2
		ppm	1684	1602
Carbon Monoxide (CO) (9)	(Corr. 15% O2)	g/bhp-hr	1.5	1.6
		ppm	203	212
Total Hydrocarbons (THC) (9)	(Corr. 15% O2)	g/bhp-hr	2.0	2.2
		ppm	449	514
Non-Methane Hydrocarbons (NMHC) (9)	(Corr. 15% O2)	g/bhp-hr	0.30	0.33
		ppm	67	77
Exhaust Oxygen (9)		%	4.0	4.0
			1.23	1.12
Lambda				1.01

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	55533	44601	33677
Work Output	Btu/min	20017	15012	10008
Heat Rejection to Jacket (2) (6)	Btu/min	20841	18522	15840
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	2221	1784	1347
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	10320	7878	5425
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	6282	4885	3369
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	1576	792	222

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/19	0.90/21	0.90/23	0.90/25	0.90/27	0.90/27	1.0/27	1.0/29	1.0/31	1.0/33	1.0/35

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
	120	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	110	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
	80	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
	60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	50	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
ALTITUDE (FEET ABOVE SEA LEVEL)														

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.54	1.63	1.73	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78	1.78
	120	1.41	1.51	1.60	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
	110	1.29	1.38	1.47	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52
	100	1.16	1.25	1.34	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39
	90	1.04	1.12	1.21	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26
	80	1.00	1.00	1.08	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
	70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
			0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
ALTITUDE (FEET ABOVE SEA LEVEL)														

ALTITUDE (FEET ABOVE SEA LEVEL)

DM5193-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	90	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2460
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	506	380	253
Generator Set Power (w/o fan)	kW	350	263	175

Engine Data

Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7040	7652	8458
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	3408	2539	1698
Air Mass Flow (Wet)	scfm	743	554	371
Compressor Out Pressure	in. Hg (abs)	46.7	43.4	35.9
Compressor Out Temperature	°F	185	168	138
Inlet Manifold Pressure	in. Hg (abs)	42.7	32.9	22.4
Inlet Manifold Temperature (10)	°F	100	96	92
Timing (11)	°BTDC	31	31	31
Exhaust Stack Temperature	°F	842	847	833
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	2033	1532	1028
Exhaust Gas Mass Flow (Wet)	lb/hr	3585	2683	1805

Engine Emissions Data

Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	23.7	23.8	23.7
(Corr. 15% O2)	ppm	1936	1713	1594
Carbon Monoxide (CO) (9)	g/bhp-hr	1.5	1.6	1.9
(Corr. 15% O2)	ppm	204	197	209
Total Hydrocarbons (THC) (9)	g/bhp-hr	2.0	2.2	2.9
(Corr. 15% O2)	ppm	449	459	567
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.30	0.33	0.44
(Corr. 15% O2)	ppm	67	69	85
Exhaust Oxygen (9)	%	4.0	2.3	0.5
Lambda		1.22	1.11	1.02

Engine Heat Balance Data

Input Energy LHV (1)	Btu/min	59372	48401	35666
Work Output	Btu/min	21458	16094	10729
Heat Rejection to Jacket (2) (6)	Btu/min	21298	19502	16044
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	2375	1936	1427
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	12348	9377	6233
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	8044	6132	4033
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	1301	841	361

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/29	1.0/30	1.0/31

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	120	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	110	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71	0.68
	80	1.00	1.00	1.00	0.97	0.94	0.90	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.70
	60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	50	1.00	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.55	1.66	1.77	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82	1.82
	120	1.42	1.53	1.63	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.68
	110	1.29	1.39	1.50	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.55
	100	1.16	1.26	1.36	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41
	90	1.03	1.13	1.23	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
	80	1.00	1.00	1.09	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
	70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

DM5180-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.4:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	DELTEC
Jacket Water Outlet Temperature (°F)	210	Air Fuel Ratio Control Required	
Ignition System	EIS	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (ft)	984
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	531	398	266
Generator Set Power (w/o fan)	kW	370	278	185

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	6759	7097	7729
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	4689	3657	2622
Air Mass Flow (Wet)	scfm	1023	798	572
Compressor Out Pressure	in. Hg (abs)	61.6	53.9	43.5
Compressor Out Temperature	°F	243	209	161
Inlet Manifold Pressure	in. Hg (abs)	59.2	46.8	34.2
Inlet Manifold Temperature (10)	°F	138	139	136
Timing (11)	°BTDC	28	28	28
Exhaust Stack Temperature	°F	667	662	660
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	2375	1847	1324
Exhaust Gas Mass Flow (Wet)	lb/hr	4868	3797	2724

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)	(Corr. 15% O2)	g/bhp-hr	1.1	1.2	1.3
		ppm	90	90	90
Carbon Monoxide (CO) (9)	(Corr. 15% O2)	g/bhp-hr	1.4	1.5	1.5
		ppm	188	191	181
Total Hydrocarbons (THC) (9)	(Corr. 15% O2)	g/bhp-hr	4.4	5.3	6.3
		ppm	1031	1208	1328
Non-Methane Hydrocarbons (NMHC) (9)	(Corr. 15% O2)	g/bhp-hr	0.66	0.80	0.95
		ppm	155	181	199
Exhaust Oxygen (9)		%	8.9	8.9	8.9
Lambda			1.67	1.65	1.63

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	59818	47106	34200
Work Output	Btu/min	22519	16889	11259
Heat Rejection to Jacket (2) (6)	Btu/min	19113	15976	12484
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	2393	1884	1368
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	13621	11232	8811
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	6831	5239	3738
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	2173	1124	278

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/24	1.0/25	1.0/26	1.0/28

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.94	0.91	0.88	0.85	0.81	0.78	0.76	0.73	0.70	0.67	0.65	0.62	0.60
	120	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61
	110	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.73	0.70	0.67	0.65	0.62
	100	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	90	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	80	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	70	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	60	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
	50	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.52	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
	120	1.40	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48
	110	1.28	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36
	100	1.16	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
	90	1.04	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
	80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000

ALTITUDE (FEET ABOVE SEA LEVEL)

DM0973-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.4:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	90	Fuel System	DELTEC
Jacket Water Outlet Temperature (°F)	210	Air Fuel Ratio Control Required	
Ignition System	EIS	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (ft)	1804
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	562	422	281
Generator Set Power (w/o fan)	kW	395	296	198

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	6707	6965	8484
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	4935	3838	2816
Air Mass Flow (Wet)	scfm	1077	837	614
Compressor Out Pressure	in. Hg (abs)	63.9	55.2	44.7
Compressor Out Temperature	°F	249	215	167
Inlet Manifold Pressure	in. Hg (abs)	60	46.5	34.2
Inlet Manifold Temperature (10)	°F	108	108	109
Timing (11)	°BTDC	30	30	30
Exhaust Stack Temperature	°F	664	660	658
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	2488	1911	1396
Exhaust Gas Mass Flow (Wet)	lb/hr	5123	3984	2935

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	(Corr. 15% O2)	g/bhp-hr	1.1	1.1
		ppm	90	90
Carbon Monoxide (CO) (9)	(Corr. 15% O2)	g/bhp-hr	1.6	1.6
		ppm	215	205
Total Hydrocarbons (THC) (9)	(Corr. 15% O2)	g/bhp-hr	5.6	6.1
		ppm	1327	1396
Non-Methane Hydrocarbons (NMHC) (9)	(Corr. 15% O2)	g/bhp-hr	0.84	0.91
		ppm	199	209
Exhaust Oxygen (9)		%	9.0	8.9
			1.67	1.65
Lambda				1.48

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	62827	48931	39731
Work Output	Btu/min	23833	17875	11917
Heat Rejection to Jacket (2) (6)	Btu/min	19391	15481	15044
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	2513	1957	1589
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	14028	11813	10467
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	7105	5464	4029
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	3061	1805	715

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/26	1.0/27	1.0/28	1.0/30

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.97	0.94	0.90	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67	0.64	0.62
	120	0.99	0.95	0.92	0.89	0.85	0.82	0.79	0.76	0.73	0.71	0.68	0.65	0.63
	110	1.00	0.97	0.94	0.90	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67	0.64
	100	1.00	0.99	0.95	0.92	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.68	0.65
	90	1.00	1.00	0.97	0.93	0.90	0.87	0.84	0.80	0.77	0.75	0.72	0.69	0.66
	80	1.00	1.00	0.99	0.95	0.92	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.68
	70	1.00	1.00	1.00	0.97	0.93	0.90	0.87	0.83	0.80	0.77	0.74	0.72	0.69
	60	1.00	1.00	1.00	0.99	0.95	0.92	0.88	0.85	0.82	0.79	0.76	0.73	0.70
	50	1.00	1.00	1.00	1.00	0.97	0.94	0.90	0.87	0.84	0.80	0.77	0.74	0.71
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
ALTITUDE (FEET ABOVE SEA LEVEL)														

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.39	1.46	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	
	120	1.30	1.37	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	
	110	1.21	1.28	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	
	100	1.12	1.18	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	
	90	1.03	1.09	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	
	80	1.00	1.00	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	
	70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
ALTITUDE (FEET ABOVE SEA LEVEL)														

ALTITUDE (FEET ABOVE SEA LEVEL)

DM5103-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	PROPANE
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	2269
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	255	191	128
Generator Set Power (w/o fan)	kW	175	131	88

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7703	8151	9159
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	1716	1342	1012
Air Mass Flow (Wet)	scfm	374	293	221
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	27.6	24.2	18.2
Inlet Manifold Temperature (10)	°F	91	90	90
Timing (11)	°BTDC	15	15	15
Exhaust Stack Temperature	°F	1166	1121	1058
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1263	975	699
Exhaust Gas Mass Flow (Wet)	lb/hr	1815	1420	1071

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	20.4	20.9	22.0
(Corr. 15% O2)	ppm	1482	1457	1375
Carbon Monoxide (CO) (9)	g/bhp-hr	1.5	1.5	1.5
(Corr. 15% O2)	ppm	180	174	155
Total Hydrocarbons (THC) (9)	g/bhp-hr	1.4	1.4	1.5
(Corr. 15% O2)	ppm	289	280	274
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.20	0.21	0.23
(Corr. 15% O2)	ppm	43	42	41
Exhaust Oxygen (9)	%	2.0	2.0	2.3
Lambda		1.16	1.16	1.15

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	32739	25981	19463
Work Output	Btu/min	10814	8111	5407
Heat Rejection to Jacket (2) (6)	Btu/min	12208	10490	8739
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1310	1039	779
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	8663	6483	4576
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	6578	4852	3346
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64	0.61	0.59
	120	0.94	0.91	0.88	0.84	0.81	0.78	0.76	0.73	0.70	0.67	0.65	0.62	0.60
	110	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61
	100	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.73	0.70	0.67	0.65	0.62
	90	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	80	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	70	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	60	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67
	50	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5091-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	255	191	128
Generator Set Power (w/o fan)	kW	175	131	88

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7499	8172	9393
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	1683	1340	1001
Air Mass Flow (Wet)	scfm	367	292	218
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	27.8	23	18.5
Inlet Manifold Temperature (10)	°F	91	90	90
Timing (11)	°BTDC	34	34	34
Exhaust Stack Temperature	°F	1144	1112	1054
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1326	1045	750
Exhaust Gas Mass Flow (Wet)	lb/hr	1778	1418	1061

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	20.4	20.9	22.0
(Corr. 15% O2)	ppm	1513	1460	1358
Carbon Monoxide (CO) (9)	g/bhp-hr	1.5	1.4	1.5
(Corr. 15% O2)	ppm	184	165	153
Total Hydrocarbons (THC) (9)	g/bhp-hr	1.3	1.3	1.5
(Corr. 15% O2)	ppm	274	255	271
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.19	0.19	0.23
(Corr. 15% O2)	ppm	41	38	41
Exhaust Oxygen (9)	%	2.0	2.0	1.9
Lambda		1.20	1.18	1.14

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	31871	26048	19960
Work Output	Btu/min	10814	8111	5407
Heat Rejection to Jacket (2) (6)	Btu/min	11335	10329	9041
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1275	1042	798
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	8707	6727	4749
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	6562	5016	3466
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93	dBA
Noise - Exhaust @ 1.5 m	106	dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64	0.61	0.59
	120	0.94	0.91	0.88	0.84	0.81	0.78	0.76	0.73	0.70	0.67	0.65	0.62	0.60
	110	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61
	100	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.73	0.70	0.67	0.65	0.62
	90	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	80	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	70	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	60	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67
	50	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5198-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIS	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	377	283	189
Generator Set Power (w/o fan)	kW	230	173	115

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7356	7725	8967
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2638	1836	1300
Air Mass Flow (Wet)	scfm	575	401	283
Compressor Out Pressure	in. Hg (abs)	46.5	40.3	35
Compressor Out Temperature	°F	194	182	149
Inlet Manifold Pressure	in. Hg (abs)	42.4	34.9	25.2
Inlet Manifold Temperature (10)	°F	133	133	131
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°F	836	798	745
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1663	1266	874
Exhaust Gas Mass Flow (Wet)	lb/hr	2776	1945	1384

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	21.5	21.6	20.7
(Corr. 15% O2)	ppm	1256	1114	776
Carbon Monoxide (CO) (9)	g/bhp-hr	1.1	1.2	1.2
(Corr. 15% O2)	ppm	105	115	57
Total Hydrocarbons (THC) (9)	g/bhp-hr	2.4	2.2	2.5
(Corr. 15% O2)	ppm	593	543	556
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.35	0.33	0.38
(Corr. 15% O2)	ppm	89	81	83
Exhaust Oxygen (9)	%	4.0	4.6	3.1
Lambda		1.29	1.29	1.19

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	46223	36403	28173
Work Output	Btu/min	15988	11991	7994
Heat Rejection to Jacket (2) (6)	Btu/min	17689	15781	14234
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1849	1456	1127
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	9438	6267	4147
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	6121	3944	2485
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	733	413	106

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/23	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
	120	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	110	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
	80	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
	60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	50	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

ALTITUDE (FEET ABOVE SEA LEVEL)

G3408

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.86	2.03	2.20	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29
	120	1.66	1.82	1.99	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08
	110	1.45	1.61	1.78	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86	1.86
	100	1.25	1.41	1.57	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
	90	1.04	1.20	1.36	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44
	80	1.00	1.00	1.14	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
	70	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
			0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
ALTITUDE (FEET ABOVE SEA LEVEL)														

ALTITUDE (FEET ABOVE SEA LEVEL)

DM5182-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	377	283	189
Generator Set Power (w/o fan)	kW	255	191	128

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7242	7495	8237
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2523	1969	1388
Air Mass Flow (Wet)	scfm	550	430	303
Compressor Out Pressure	in. Hg (abs)	56.3	50.1	39.4
Compressor Out Temperature	°F	250	217	156
Inlet Manifold Pressure	in. Hg (abs)	54.4	42.2	29.8
Inlet Manifold Temperature (10)	°F	137	131	130
Timing (11)	°BTDC	35	35	35
Exhaust Stack Temperature	°F	819	817	806
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1517	1160	813
Exhaust Gas Mass Flow (Wet)	lb/hr	2659	2075	1466

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	22.9	23.1	21.5
(Corr. 15% O2)	ppm	1818	1682	1405
Carbon Monoxide (CO) (9)	g/bhp-hr	1.0	1.0	1.1
(Corr. 15% O2)	ppm	129	123	117
Total Hydrocarbons (THC) (9)	g/bhp-hr	2.0	2.1	2.6
(Corr. 15% O2)	ppm	454	435	483
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.30	0.31	0.38
(Corr. 15% O2)	ppm	68	65	72
Exhaust Oxygen (9)	%	4.0	3.2	2.2
Lambda		1.21	1.19	1.14

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	45505	35322	25878
Work Output	Btu/min	15988	11991	7994
Heat Rejection to Jacket (2) (6)	Btu/min	17082	13770	11294
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1820	1413	1035
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	8873	6912	4824
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	5679	4418	3056
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	1303	777	164

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/16	0.90/17	0.90/19	0.90/20	0.90/20	0.90/22	1.0/24	1.0/27	1.0/30	1.0/32	1.0/35

Altitude Deration Factors

AIR INLET TEMP. (°F)	ALTITUDE (FEET ABOVE SEA LEVEL)													
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	
130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	
120	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64	
110	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	
100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67	
90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68	
80	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	
70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71	
60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	
50	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)		ALTITUDE (FEET ABOVE SEA LEVEL)												
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130 120 110 100 90 80 70 60 50		1.48	1.58	1.68	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73	1.73
		1.37	1.46	1.56	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.61
		1.25	1.34	1.44	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49
		1.13	1.23	1.32	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37
		1.02	1.11	1.20	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
		1.00	1.00	1.08	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13
		1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

DM5187-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	90	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	405	304	203
Generator Set Power (w/o fan)	kW	280	210	140

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7109	7411	8097
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2698	2099	1469
Air Mass Flow (Wet)	scfm	589	458	321
Compressor Out Pressure	in. Hg (abs)	58.4	52.7	40.7
Compressor Out Temperature	°F	262	231	164
Inlet Manifold Pressure	in. Hg (abs)	56.7	43.9	30.8
Inlet Manifold Temperature (10)	°F	133	130	129
Timing (11)	°BTDC	35	35	35
Exhaust Stack Temperature	°F	808	811	805
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1588	1227	858
Exhaust Gas Mass Flow (Wet)	lb/hr	2842	2211	1551

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	21.3	22.1	20.5
(Corr. 15% O2)	ppm	1925	1856	1613
Carbon Monoxide (CO) (9)	g/bhp-hr	1.5	1.5	1.5
(Corr. 15% O2)	ppm	199	187	172
Total Hydrocarbons (THC) (9)	g/bhp-hr	1.8	2.0	2.4
(Corr. 15% O2)	ppm	425	437	482
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.28	0.30	0.36
(Corr. 15% O2)	ppm	64	66	72
Exhaust Oxygen (9)	%	4.0	3.3	2.4
Lambda		1.21	1.19	1.14

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	47988	37518	27327
Work Output	Btu/min	17175	12881	8588
Heat Rejection to Jacket (2) (6)	Btu/min	17526	14388	11736
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1920	1501	1093
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	9337	7305	5099
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	5925	4647	3228
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	1589	965	236

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93	dBA
Noise - Exhaust @ 1.5 m	106	dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/18	0.90/19	0.90/20	0.90/21	0.90/22	0.90/23	1.0/25	1.0/28	1.0/31	1.0/33	1.0/35

Altitude Deration Factors

AIR INLET TEMP. (°F)		ALTITUDE (FEET ABOVE SEA LEVEL)												
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130		1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
120		1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
110		1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
100		1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
90		1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
80		1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
70		1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
60		1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
50		1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)		ALTITUDE (FEET ABOVE SEA LEVEL)												
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130 120 110 100 90 80 70 60 50	1.43	1.52	1.60	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
	1.33	1.41	1.50	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54
	1.22	1.31	1.39	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43	1.43
	1.12	1.20	1.29	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
	1.02	1.10	1.18	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
	1.00	1.00	1.07	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

DM0841-01 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	460	345	230
Generator Set Power (w/o fan)	kW	310	233	155

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7346	7566	8724
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	3213	2597	1904
Air Mass Flow (Wet)	scfm	701	566	415
Compressor Out Pressure	in. Hg (abs)	53.6	46.2	41.7
Compressor Out Temperature	°F	226	210	185
Inlet Manifold Pressure	in. Hg (abs)	51.9	41.4	30.5
Inlet Manifold Temperature (10)	°F	153	153	155
Timing (11)	°BTDC	20	20	20
Exhaust Stack Temperature	°F	878	842	806
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	2129	1575	1178
Exhaust Gas Mass Flow (Wet)	lb/hr	3381	2727	2003

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	16.2	16.3	12.1
(Corr. 15% O2)	ppm	1227	1156	805
Carbon Monoxide (CO) (9)	g/bhp-hr	1.1	1.2	1.4
(Corr. 15% O2)	ppm	148	149	184
Total Hydrocarbons (THC) (9)	g/bhp-hr	3.6	2.3	2.3
(Corr. 15% O2)	ppm	798	462	445
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.53	0.34	0.35
(Corr. 15% O2)	ppm	120	69	67
Exhaust Oxygen (9)	%	4.0	4.1	4.7
Lambda		1.32	1.29	1.30

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	56318	43506	33442
Work Output	Btu/min	19508	14631	9754
Heat Rejection to Jacket (2) (6)	Btu/min	20365	16506	14936
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	2253	1740	1338
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	12148	9348	6531
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	8112	6091	4139
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	1081	670	257

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/17	1.0/19	1.0/20

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
	120	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	110	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
	80	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
	60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	50	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
ALTITUDE (FEET ABOVE SEA LEVEL)														

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.67	1.80	1.93	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
	120	1.51	1.64	1.77	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84	1.84
	110	1.35	1.47	1.60	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67
	100	1.19	1.31	1.44	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51
	90	1.03	1.15	1.28	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
	80	1.00	1.00	1.11	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
	70	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	ALTITUDE (FEET ABOVE SEA LEVEL)													
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	

ALTITUDE (FEET ABOVE SEA LEVEL)

DM5184-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210	Air Fuel Ratio Control Required	
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	CATALYST	Rated Altitude (ft)	2500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	283	212	142
Generator Set Power (w/o fan)	kW	190	143	95

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7682	8480	10161
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	1760	1410	1023
Air Mass Flow (Wet)	scfm	384	308	223
Compressor Out Pressure	in. Hg (abs)	40	37.3	32
Compressor Out Temperature	°F	161	140	112
Inlet Manifold Pressure	in. Hg (abs)	36.4	30.5	23.3
Inlet Manifold Temperature (10)	°F	133	133	131
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°F	891	831	747
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1111	856	580
Exhaust Gas Mass Flow (Wet)	lb/hr	1868	1500	1095

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	10.9	10.6	8.1
(Corr. 15% O2)	ppm	785	705	505
Carbon Monoxide (CO) (9)	g/bhp-hr	12.9	11.6	12.8
(Corr. 15% O2)	ppm	1512	1288	1269
Total Hydrocarbons (THC) (9)	g/bhp-hr	3.6	3.6	4.4
(Corr. 15% O2)	ppm	759	701	759
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.54	0.54	0.65
(Corr. 15% O2)	ppm	114	105	114
Exhaust Oxygen (9)	%	0.4	0.4	0.4
Lambda		1.04	1.01	0.90

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	36233	29999	23962
Work Output	Btu/min	12001	9001	6001
Heat Rejection to Jacket (2) (6)	Btu/min	14996	13983	13002
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1449	1200	958
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	6953	5170	3368
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	4679	3341	2020
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	228	48	-93

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/23	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
	120	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	110	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
	80	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
	60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	50	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	3.02	3.43	3.85	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06	4.06
	120	2.53	2.93	3.35	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55	3.55
	110	2.05	2.44	2.85	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05
	100	1.56	1.95	2.35	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55	2.55
	90	1.07	1.46	1.85	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04
	80	1.00	1.00	1.35	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54
	70	1.00	1.00	1.00	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

DM5092-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	314	236	157
Generator Set Power (w/o fan)	kW	210	158	105

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7210	7524	8602
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2181	1744	1235
Air Mass Flow (Wet)	scfm	476	381	269
Compressor Out Pressure	in. Hg (abs)	42.7	40.3	35
Compressor Out Temperature	°F	172	154	127
Inlet Manifold Pressure	in. Hg (abs)	40.6	34.9	25.2
Inlet Manifold Temperature (10)	°F	136	131	130
Timing (11)	°BTDC	28	28	28
Exhaust Stack Temperature	°F	836	798	745
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1358	1027	698
Exhaust Gas Mass Flow (Wet)	lb/hr	2294	1833	1302

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	22.6	22.3	22.6
(Corr. 15% O2)	ppm	1633	1560	1397
Carbon Monoxide (CO) (9)	g/bhp-hr	1.1	1.3	1.2
(Corr. 15% O2)	ppm	147	161	119
Total Hydrocarbons (THC) (9)	g/bhp-hr	2.8	2.7	3.1
(Corr. 15% O2)	ppm	593	543	556
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.43	0.40	0.46
(Corr. 15% O2)	ppm	89	81	83
Exhaust Oxygen (9)	%	4.0	4.6	3.1
Lambda		1.29	1.29	1.19

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	37732	29532	22509
Work Output	Btu/min	13316	9987	6658
Heat Rejection to Jacket (2) (6)	Btu/min	14227	11780	10497
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1509	1181	900
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	7799	5905	3902
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	5058	3716	2338
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	355	184	-13

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/25	1.0/27	1.0/28

Altitude Deration Factors

AIR INLET TEMP. (°F)		ALTITUDE (FEET ABOVE SEA LEVEL)											
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
130 120 110 100 90 80 70 60 50	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	2.48	2.77	3.06	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21	3.21
	120	2.13	2.41	2.70	2.84	2.84	2.84	2.84	2.84	2.84	2.84	2.84	2.84	2.84
	110	1.77	2.05	2.34	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48	2.48
	100	1.42	1.69	1.97	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11
	90	1.07	1.34	1.61	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
	80	1.00	1.00	1.25	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38
	70	1.00	1.00	1.00	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
			0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000
ALTITUDE (FEET ABOVE SEA LEVEL)														

DM5190-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	314	236	157
Generator Set Power (w/o fan)	kW	210	158	105

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7077	7402	7913
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	1905	1467	1067
Air Mass Flow (Wet)	scfm	416	320	233
Compressor Out Pressure	in. Hg (abs)	48.7	41.4	34.2
Compressor Out Temperature	°F	209	168	124
Inlet Manifold Pressure	in. Hg (abs)	46.7	36.1	25.6
Inlet Manifold Temperature (10)	°F	129	128	122
Timing (11)	°BTDC	30	30	30
Exhaust Stack Temperature	°F	840	826	792
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1172	894	620
Exhaust Gas Mass Flow (Wet)	lb/hr	2016	1554	1129

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	21.0	19.1	15.0
(Corr. 15% O2)	ppm	1663	1439	985
Carbon Monoxide (CO) (9)	g/bhp-hr	1.5	1.4	1.4
(Corr. 15% O2)	ppm	87	87	149
Total Hydrocarbons (THC) (9)	g/bhp-hr	2.1	2.2	3.0
(Corr. 15% O2)	ppm	474	479	575
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.31	0.33	0.45
(Corr. 15% O2)	ppm	71	72	86
Exhaust Oxygen (9)	%	2.0	1.6	0.6
Lambda		1.12	1.10	1.10

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	37036	29052	20705
Work Output	Btu/min	13316	9987	6658
Heat Rejection to Jacket (2) (6)	Btu/min	14184	11950	9000
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1481	1162	828
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	6972	5278	3651
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	4536	3397	2285
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	699	270	12

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/14	0.90/16	0.90/18	0.90/20	0.90/22	1.0/23	1.0/24	1.0/25	1.0/26	1.0/28	1.0/30

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
	120	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	110	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
	80	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
	60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	50	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000

ALTITUDE (FEET ABOVE SEA LEVEL)

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.62	1.75	1.88	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95
	120	1.47	1.60	1.73	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79
	110	1.32	1.45	1.57	1.64	1.64	1.64	1.64	1.64	1.64	1.64	1.64	1.64	1.64
	100	1.17	1.29	1.42	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48
	90	1.02	1.14	1.26	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
	80	1.00	1.00	1.11	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
	70	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000

ALTITUDE (FEET ABOVE SEA LEVEL)

DM5093-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	90	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	2500
		at 77°F Design Temperature	

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	337	253	169
Generator Set Power (w/o fan)	kW	230	173	115

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7047	7473	8218
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2290	1916	1420
Air Mass Flow (Wet)	scfm	500	418	310
Compressor Out Pressure	in. Hg (abs)	44.3	41.7	37.3
Compressor Out Temperature	°F	185	176	159
Inlet Manifold Pressure	in. Hg (abs)	41.9	35.1	25.8
Inlet Manifold Temperature (10)	°F	127	129	139
Timing (11)	°BTDC	31	31	31
Exhaust Stack Temperature	°F	862	810	754
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1463	1115	792
Exhaust Gas Mass Flow (Wet)	lb/hr	2408	2010	1489

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	16.7	14.1	9.9
(Corr. 15% O2)	ppm	1249	1018	649
Carbon Monoxide (CO) (9)	g/bhp-hr	0.8	1.0	1.0
(Corr. 15% O2)	ppm	111	126	133
Total Hydrocarbons (THC) (9)	g/bhp-hr	3.1	2.6	2.8
(Corr. 15% O2)	ppm	660	530	532
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.47	0.38	0.41
(Corr. 15% O2)	ppm	99	80	80
Exhaust Oxygen (9)	%	4.0	4.6	4.8
Lambda		1.30	1.30	1.32

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	39582	31482	23078
Work Output	Btu/min	14291	10719	7146
Heat Rejection to Jacket (2) (6)	Btu/min	14630	12515	10394
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1583	1259	923
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	8479	6585	4488
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	5602	4186	2714
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	597	403	126

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93	dBA
Noise - Exhaust @ 1.5 m	106	dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/29	1.0/30	1.0/31

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63
	120	1.00	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	110	1.00	1.00	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	100	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69	0.67
	90	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.79	0.76	0.74	0.71	0.68
	80	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.69
	70	1.00	1.00	1.00	0.99	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73	0.71
	60	1.00	1.00	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72
	50	1.00	1.00	1.00	1.00	1.00	0.96	0.92	0.89	0.86	0.82	0.79	0.76	0.73
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	120	110	100	90	80	70	60	50	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
	1.87	2.05	2.24	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
	1.66	1.84	2.02	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11	2.11
	1.45	1.63	1.80	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89	1.89
	1.24	1.41	1.59	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67
	1.03	1.20	1.37	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
	1.00	1.00	1.15	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
	1.00	1.00	1.00	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

ALTITUDE (FEET ABOVE SEA LEVEL)

DM5094-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.0:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG DELTEC
Jacket Water Outlet Temperature (°F)	210	Air Fuel Ratio Control Required	
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (ft)	1149
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	354	266	177
Generator Set Power (w/o fan)	kW	240	180	120

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7139	7296	7809
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	3343	2533	1710
Air Mass Flow (Wet)	scfm	729	552	373
Compressor Out Pressure	in. Hg (abs)	62.9	55.4	40.2
Compressor Out Temperature	°F	318	254	163
Inlet Manifold Pressure	in. Hg (abs)	60.2	44	31.9
Inlet Manifold Temperature (10)	°F	174	160	158
Timing (11)	°BTDC	28	28	28
Exhaust Stack Temperature	°F	646	650	659
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1617	1214	843
Exhaust Gas Mass Flow (Wet)	lb/hr	3469	2629	1779

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	1.2	1.2	1.3
(Corr. 15% O2)	ppm	90	90	90
Carbon Monoxide (CO) (9)	g/bhp-hr	2.5	2.5	2.7
(Corr. 15% O2)	ppm	172	214	212
Total Hydrocarbons (THC) (9)	g/bhp-hr	5.1	6.3	8.1
(Corr. 15% O2)	ppm	946	1046	1057
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.76	0.95	1.22
(Corr. 15% O2)	ppm	142	157	158
Exhaust Oxygen (9)	%	8.2	8.1	7.9
Lambda		1.64	1.60	1.54

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	42120	32286	23037
Work Output	Btu/min	15012	11259	7506
Heat Rejection to Jacket (2) (6)	Btu/min	14520	11905	9780
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1685	1291	921
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	8613	6584	4535
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	4543	3495	2440
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	2291	1246	294

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93	dBA
Noise - Exhaust @ 1.5 m	106	dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/24	1.0/26	1.0/28	1.0/30

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.95	0.92	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.68	0.65	0.63	0.60
	120	0.97	0.93	0.90	0.87	0.83	0.80	0.77	0.74	0.72	0.69	0.66	0.64	0.61
	110	0.98	0.95	0.91	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.68	0.65	0.62
	100	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64
	90	1.00	0.98	0.95	0.91	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.67	0.65
	80	1.00	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66
	70	1.00	1.00	0.98	0.95	0.91	0.88	0.85	0.81	0.78	0.75	0.73	0.70	0.67
	60	1.00	1.00	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.68
	50	1.00	1.00	1.00	0.98	0.95	0.91	0.88	0.85	0.82	0.78	0.75	0.73	0.70
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.37	1.46	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47
	120	1.28	1.37	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.38
	110	1.19	1.27	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29
	100	1.10	1.18	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
	90	1.00	1.08	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
	80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

DM0978-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.0:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	90	Fuel System	LPG DELTEC
Jacket Water Outlet Temperature (°F)	210	Air Fuel Ratio Control Required	
Ignition System	DIG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (ft)	1149
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	375	281	188
Generator Set Power (w/o fan)	kW	255	191	128

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7055	7260	7748
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	3508	2482	1646
Air Mass Flow (Wet)	scfm	765	541	359
Compressor Out Pressure	in. Hg (abs)	65.2	57.1	41.5
Compressor Out Temperature	°F	316	265	170
Inlet Manifold Pressure	in. Hg (abs)	62.4	44.1	32.5
Inlet Manifold Temperature (10)	°F	136	123	114
Timing (11)	°BTDC	30	30	30
Exhaust Stack Temperature	°F	657	650	661
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1708	1245	867
Exhaust Gas Mass Flow (Wet)	lb/hr	3639	2583	1718

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	1.2	1.2	1.3
(Corr. 15% O2)	ppm	91	91	91
Carbon Monoxide (CO) (9)	g/bhp-hr	2.3	2.3	2.5
(Corr. 15% O2)	ppm	167	204	203
Total Hydrocarbons (THC) (9)	g/bhp-hr	9.9	10.7	12.1
(Corr. 15% O2)	ppm	882	964	1004
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	1.49	1.61	1.82
(Corr. 15% O2)	ppm	132	145	151
Exhaust Oxygen (9)	%	8.2	8.0	7.7
Lambda		1.64	1.55	1.50

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	44096	34032	24213
Work Output	Btu/min	15903	11927	7951
Heat Rejection to Jacket (2) (6)	Btu/min	14308	12566	10321
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1764	1361	969
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	9205	6482	4402
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	4935	3440	2374
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	2916	1696	570

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93	dBA
Noise - Exhaust @ 1.5 m	106	dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/24	1.0/26	1.0/28	1.0/30

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.95	0.92	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.68	0.65	0.63	0.60
	120	0.97	0.93	0.90	0.87	0.83	0.80	0.77	0.74	0.72	0.69	0.66	0.64	0.61
	110	0.98	0.95	0.91	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.68	0.65	0.62
	100	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64
	90	1.00	0.98	0.95	0.91	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.67	0.65
	80	1.00	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66
	70	1.00	1.00	0.98	0.95	0.91	0.88	0.85	0.81	0.78	0.75	0.73	0.70	0.67
	60	1.00	1.00	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.68
	50	1.00	1.00	1.00	0.98	0.95	0.91	0.88	0.85	0.82	0.78	0.75	0.73	0.70
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.31	1.38	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39
	120	1.24	1.30	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31
	110	1.16	1.22	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23
	100	1.08	1.15	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
	90	1.01	1.07	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
	80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

DM0976-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	10.3:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	MAG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	231	173	116
Generator Set Power (w/o fan)	kW	150	113	75

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7612	8375	9548
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	1470	1186	913
Air Mass Flow (Wet)	scfm	321	259	199
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	27.8	24	18.7
Inlet Manifold Temperature (10)	°F	91	88	90
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°F	1161	1117	1072
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1102	893	642
Exhaust Gas Mass Flow (Wet)	lb/hr	1557	1258	968

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	21.7	22.5	22.5
(Corr. 15% O2)	ppm	1661	1621	1354
Carbon Monoxide (CO) (9)	g/bhp-hr	1.6	1.6	1.7
(Corr. 15% O2)	ppm	196	184	167
Total Hydrocarbons (THC) (9)	g/bhp-hr	2.7	2.6	2.9
(Corr. 15% O2)	ppm	603	552	509
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.41	0.39	0.44
(Corr. 15% O2)	ppm	91	83	76
Exhaust Oxygen (9)	%	2.0	2.2	1.5
Lambda		1.06	1.07	1.04

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	29306	24183	18380
Work Output	Btu/min	9796	7347	4898
Heat Rejection to Jacket (2) (6)	Btu/min	10542	9762	8137
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1172	967	735
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	7823	6049	4452
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	5926	4518	3272
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	107 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/16	1.0/17	1.0/18	1.0/19	1.0/20	1.0/21	1.0/22	1.0/23	1.0/24	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64	0.61	0.59
	120	0.94	0.91	0.88	0.84	0.81	0.78	0.76	0.73	0.70	0.67	0.65	0.62	0.60
	110	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61
	100	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.73	0.70	0.67	0.65	0.62
	90	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	80	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	70	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	60	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67
	50	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5080-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	10.3:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210	Air Fuel Ratio Control Required	
Ignition System	MAG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	CATALYST	Rated Altitude (ft)	500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	231	173	116
Generator Set Power (w/o fan)	kW	160	120	80

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7780	8420	9620
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	1419	1144	880
Air Mass Flow (Wet)	scfm	310	250	192
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	27.1	23.5	18.5
Inlet Manifold Temperature (10)	°F	91	88	90
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°F	1182	1148	1099
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1080	854	622
Exhaust Gas Mass Flow (Wet)	lb/hr	1509	1217	935

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	11.3	11.5	12.1
(Corr. 15% O2)	ppm	826	788	717
Carbon Monoxide (CO) (9)	g/bhp-hr	12.5	12.8	12.5
(Corr. 15% O2)	ppm	990	811	665
Total Hydrocarbons (THC) (9)	g/bhp-hr	1.4	1.4	1.5
(Corr. 15% O2)	ppm	289	275	251
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.20	0.21	0.22
(Corr. 15% O2)	ppm	43	41	38
Exhaust Oxygen (9)	%	0.5	0.5	0.5
Lambda		1.00	0.99	0.98

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	29953	24313	18519
Work Output	Btu/min	9796	7347	4898
Heat Rejection to Jacket (2) (6)	Btu/min	11379	10024	8463
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1198	973	741
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	7781	6072	4450
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	5932	4581	3303
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	107 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/16	1.0/17	1.0/18	1.0/19	1.0/20	1.0/21	1.0/22	1.0/23	1.0/24	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64	0.61	0.59
	120	0.94	0.91	0.88	0.84	0.81	0.78	0.76	0.73	0.70	0.67	0.65	0.62	0.60
	110	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61
	100	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.73	0.70	0.67	0.65	0.62
	90	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	80	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	70	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	60	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67
	50	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM0967-01 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	PROPANE
Compression Ratio	10.3:1	LHV of Fuel (Btu/SCF)	2277
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210	Air Fuel Ratio Control Required	
Ignition System	MAG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	CATALYST	Rated Altitude (ft)	500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	231	173	116
Generator Set Power (w/o fan)	kW	150	113	75

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	8013	8652	9570
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	1617	1267	1010
Air Mass Flow (Wet)	scfm	353	276	220
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	27.6	22.3	18.2
Inlet Manifold Temperature (10)	°F	90	88	91
Timing (11)	°BTDC	13	13	13
Exhaust Stack Temperature	°F	1143	1056	1013
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1086	841	594
Exhaust Gas Mass Flow (Wet)	lb/hr	1710	1342	1065

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)	(Corr. 15% O2)	g/bhp-hr	10.8	10.4	12.1
		ppm	701	639	624
Carbon Monoxide (CO) (9)	(Corr. 15% O2)	g/bhp-hr	12.0	13.2	12.5
		ppm	1271	1331	1054
Total Hydrocarbons (THC) (9)	(Corr. 15% O2)	g/bhp-hr	1.4	1.3	1.5
		ppm	255	236	218
Non-Methane Hydrocarbons (NMHC) (9)	(Corr. 15% O2)	g/bhp-hr	0.20	0.20	0.22
		ppm	38	35	33
Exhaust Oxygen (9)		%	0.5	0.4	0.3
Lambda			1.07	1.08	1.06

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	30852	24983	18422
Work Output	Btu/min	9796	7347	4898
Heat Rejection to Jacket (2) (6)	Btu/min	12021	11038	8506
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1234	999	737
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	8000	5739	4345
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	6029	4194	3119
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	107 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/13	1.0/15	1.0/17	1.0/19	1.0/20	1.0/21	1.0/22	1.0/23	1.0/24	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64	0.61	0.59
	120	0.94	0.91	0.88	0.84	0.81	0.78	0.76	0.73	0.70	0.67	0.65	0.62	0.60
	110	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61
	100	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.73	0.70	0.67	0.65	0.62
	90	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	80	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	70	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	60	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67
	50	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
ALTITUDE (FEET ABOVE SEA LEVEL)														

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5079-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	10.3:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210		
Ignition System	MAG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (ft)	500
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	178	134	89
Generator Set Power (w/o fan)	kW	125	94	63

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7591	8114	9134
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	1173	946	704
Air Mass Flow (Wet)	scfm	256	206	154
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	in. Hg (abs)	27.1	22.8	18.4
Inlet Manifold Temperature (10)	°F	91	88	90
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°F	1099	1053	982
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	855	665	462
Exhaust Gas Mass Flow (Wet)	lb/hr	1240	1000	744

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	27.5	27.7	28.1
(Corr. 15% O2)	ppm	2044	1914	1728
Carbon Monoxide (CO) (9)	g/bhp-hr	2.0	2.0	2.0
(Corr. 15% O2)	ppm	239	224	204
Total Hydrocarbons (THC) (9)	g/bhp-hr	1.8	1.8	1.9
(Corr. 15% O2)	ppm	379	361	338
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.26	0.27	0.28
(Corr. 15% O2)	ppm	57	54	51
Exhaust Oxygen (9)	%	2.0	2.0	1.9
Lambda		1.12	1.12	1.08

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	22520	18054	13549
Work Output	Btu/min	7549	5661	3774
Heat Rejection to Jacket (2) (6)	Btu/min	8369	7244	6129
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	901	722	542
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	5832	4476	3088
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	4329	3264	2185
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	107 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/16	1.0/17	1.0/18	1.0/19	1.0/20	1.0/21	1.0/22	1.0/23	1.0/24	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64	0.61	0.59
	120	0.94	0.91	0.88	0.84	0.81	0.78	0.76	0.73	0.70	0.67	0.65	0.62	0.60
	110	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.63	0.61
	100	0.98	0.94	0.91	0.88	0.84	0.81	0.78	0.75	0.73	0.70	0.67	0.65	0.62
	90	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66	0.63
	80	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67	0.64
	70	1.00	0.99	0.96	0.92	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68	0.66
	60	1.00	1.00	0.98	0.94	0.91	0.87	0.84	0.81	0.78	0.75	0.72	0.70	0.67
	50	1.00	1.00	1.00	0.96	0.93	0.89	0.86	0.83	0.80	0.77	0.74	0.71	0.68
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

Aftercooler Heat Rejection Factors

NOT APPLICABLE

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.6:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	130	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°F)	210	Air Fuel Ratio Control Required	
Ignition System	MAG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (ft)	1148
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	259	194	130
Generator Set Power (w/o fan)	kW	180	135	90

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7237	7694	8248
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2334	1808	1313
Air Mass Flow (Wet)	scfm	509	395	287
Compressor Out Pressure	in. Hg (abs)	57.9	49.7	40.1
Compressor Out Temperature	°F	239	198	147
Inlet Manifold Pressure	in. Hg (abs)	54.1	43.5	30.6
Inlet Manifold Temperature (10)	°F	132	126	123
Timing (11)	°BTDC	24	24	24
Exhaust Stack Temperature	°F	777	781	784
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1287	1006	724
Exhaust Gas Mass Flow (Wet)	lb/hr	2428	1883	1367

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	1.1	1.2	1.3
(Corr. 15% O2)	ppm	91	90	90
Carbon Monoxide (CO) (9)	g/bhp-hr	1.6	1.6	1.7
(Corr. 15% O2)	ppm	208	202	199
Total Hydrocarbons (THC) (9)	g/bhp-hr	4.8	5.3	6.0
(Corr. 15% O2)	ppm	1117	1173	1220
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.72	0.79	0.90
(Corr. 15% O2)	ppm	168	176	183
Exhaust Oxygen (9)	%	8.7	8.6	8.5
Lambda		1.57	1.53	1.54

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	31238	24908	17803
Work Output	Btu/min	10984	8238	5492
Heat Rejection to Jacket (2) (6)	Btu/min	9668	8441	6272
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1250	996	712
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	7491	5850	4268
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	4631	3628	2655
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	1108	577	138

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	108 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/18	1.0/20	1.0/22	1.0/24

Altitude Deration Factors

AIR INLET TEMP. (°F)		ALTITUDE (FEET ABOVE SEA LEVEL)												
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130 120 110 100 90 80 70 60 50	130	0.95	0.92	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.68	0.65	0.63	0.60
	120	0.97	0.93	0.90	0.87	0.83	0.80	0.77	0.74	0.72	0.69	0.66	0.64	0.61
	110	0.98	0.95	0.91	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.68	0.65	0.62
	100	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64
	90	1.00	0.98	0.95	0.91	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.67	0.65
	80	1.00	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66
	70	1.00	1.00	0.98	0.95	0.91	0.88	0.85	0.81	0.78	0.75	0.73	0.70	0.67
	60	1.00	1.00	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.68
	50	1.00	1.00	1.00	0.98	0.95	0.91	0.88	0.85	0.82	0.78	0.75	0.73	0.70

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)		ALTITUDE (FEET ABOVE SEA LEVEL)												
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
130 120 110 100 90 80 70 60 50		1.48	1.57	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59
		1.37	1.46	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47
		1.25	1.34	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
		1.14	1.23	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24
		1.03	1.11	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
		1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

DM5082-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.6:1	LHV of Fuel (Btu/SCF)	920
Aftercooler Inlet Temperature (°F)	90	Fuel System	LPG DELTEC
Jacket Water Outlet Temperature (°F)	210	Air Fuel Ratio Control Required	
Ignition System	MAG	Minimum Fuel Pressure (psig)	1.5
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (ft)	1149
at 77°F Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	bhp	276	207	138
Generator Set Power (w/o fan)	kW	190	143	95

Engine Data				
Specific Fuel Consumption (BSFC) (1)	Btu/bhp-hr	7123	7556	8165
Air Flow (Wet, @77°F, 28.8 in Hg)	lb/hr	2433	1896	1351
Air Mass Flow (Wet)	scfm	531	414	295
Compressor Out Pressure	in. Hg (abs)	59.4	50.6	41
Compressor Out Temperature	°F	246	199	153
Inlet Manifold Pressure	in. Hg (abs)	53.5	42.7	30.7
Inlet Manifold Temperature (10)	°F	102	97	92
Timing (11)	°BTDC	24	24	24
Exhaust Stack Temperature	°F	779	781	783
Exhaust Gas Flow (Wet, @ stack temperature, 29.7 in Hg)	CFM	1345	1053	749
Exhaust Gas Mass Flow (Wet)	lb/hr	2531	1974	1407

Engine Emissions Data				
Nitrous Oxides (NOx as NO2) (9)	g/bhp-hr	1.1	1.2	1.3
(Corr. 15% O2)	ppm	90	90	90
Carbon Monoxide (CO) (9)	g/bhp-hr	1.5	1.6	1.6
(Corr. 15% O2)	ppm	202	196	190
Total Hydrocarbons (THC) (9)	g/bhp-hr	4.3	4.8	5.4
(Corr. 15% O2)	ppm	1006	1071	1114
Non-Methane Hydrocarbons (NMHC) (9)	g/bhp-hr	0.65	0.72	0.81
(Corr. 15% O2)	ppm	151	161	167
Exhaust Oxygen (9)	%	8.5	8.4	8.3
Lambda		1.56	1.53	1.51

Engine Heat Balance Data				
Input Energy LHV (1)	Btu/min	32766	26069	18779
Work Output	Btu/min	11705	8778	5852
Heat Rejection to Jacket (2) (6)	Btu/min	9668	8471	6546
Heat Rejection to Atmosphere (Radiated) (4)	Btu/min	1311	1043	751
Heat Rejection to Lube Oil (5)	Btu/min	0	0	0
Total Heat Rejection to Exhaust (to 77°F) (2)	Btu/min	7834	6134	4387
Heat Rejection to Exhaust (LHV to 350°F) (2)	Btu/min	4851	3804	2725
Heat Rejection to Aftercooler (3) (7) (8)	Btu/min	1543	854	363

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	108 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/18	1.0/20	1.0/22	1.0/24

Altitude Deration Factors

AIR INLET TEMP. (°F)	130	0.95	0.92	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.68	0.65	0.63	0.60
	120	0.97	0.93	0.90	0.87	0.83	0.80	0.77	0.74	0.72	0.69	0.66	0.64	0.61
	110	0.98	0.95	0.91	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.68	0.65	0.62
	100	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66	0.64
	90	1.00	0.98	0.95	0.91	0.88	0.85	0.82	0.79	0.76	0.73	0.70	0.67	0.65
	80	1.00	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66
	70	1.00	1.00	0.98	0.95	0.91	0.88	0.85	0.81	0.78	0.75	0.73	0.70	0.67
	60	1.00	1.00	1.00	0.96	0.93	0.90	0.86	0.83	0.80	0.77	0.74	0.71	0.68
	50	1.00	1.00	1.00	0.98	0.95	0.91	0.88	0.85	0.82	0.78	0.75	0.73	0.70
	ALTITUDE (FEET ABOVE SEA LEVEL)													
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	

ALTITUDE (FEET ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°F)	130	1.37	1.44	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
	120	1.28	1.35	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36
	110	1.19	1.26	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
	100	1.11	1.17	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
	90	1.02	1.08	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09
	80	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
	70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	60	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
		0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000
		ALTITUDE (FEET ABOVE SEA LEVEL)												

ALTITUDE (FEET ABOVE SEA LEVEL)

G3406

DM5083-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

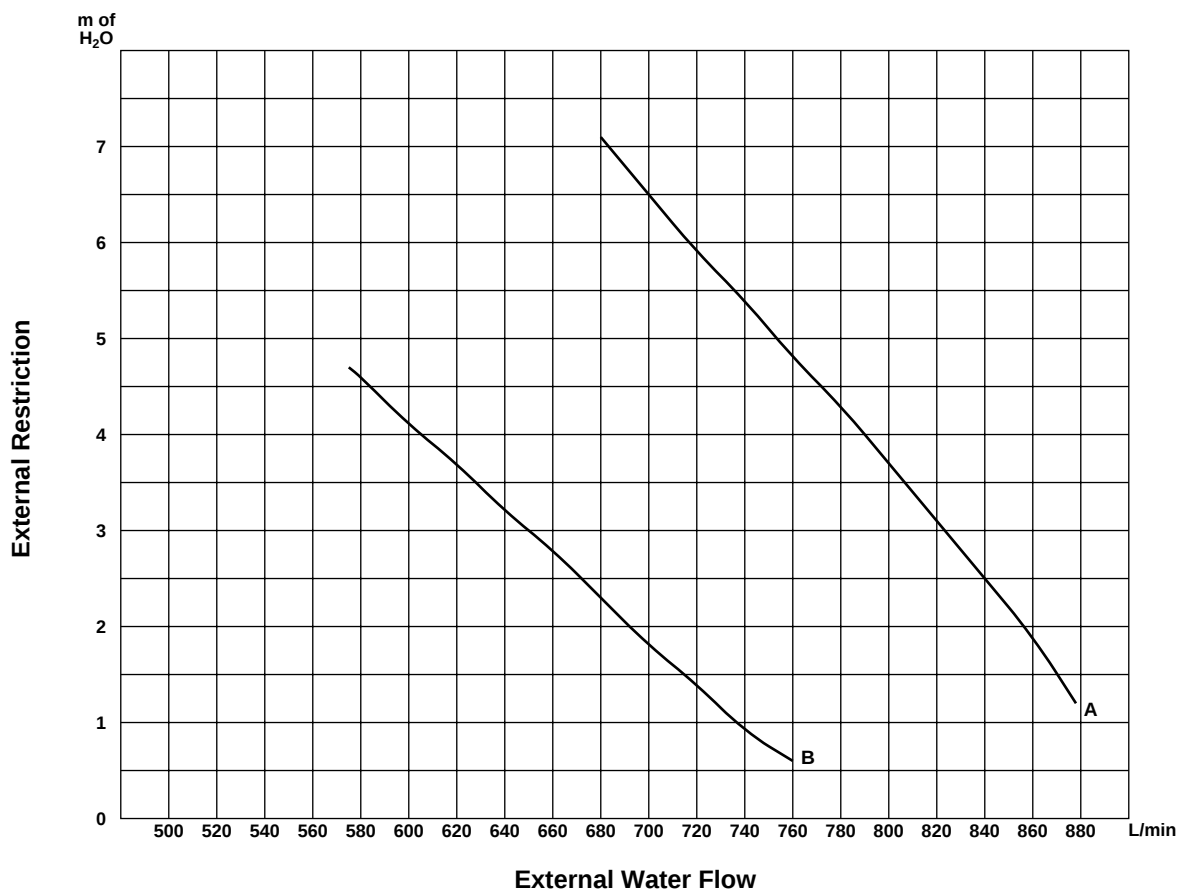




Engine Performance Data

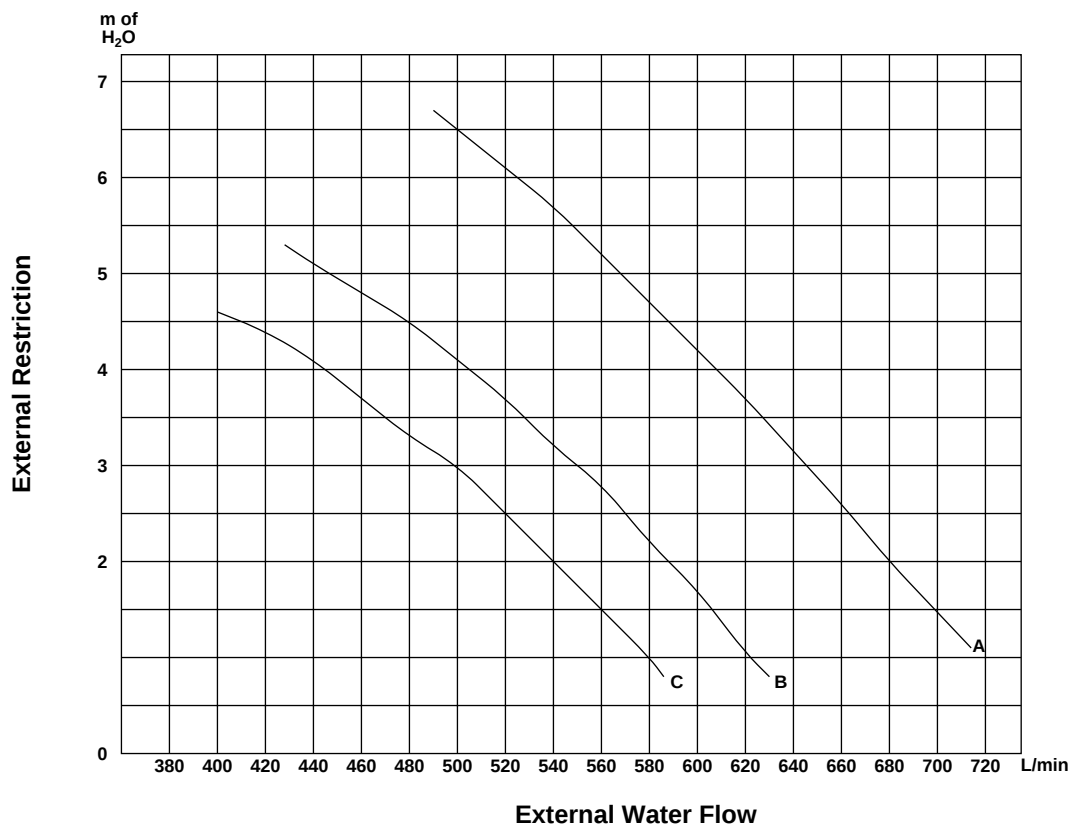
Metric Units





Curve Data

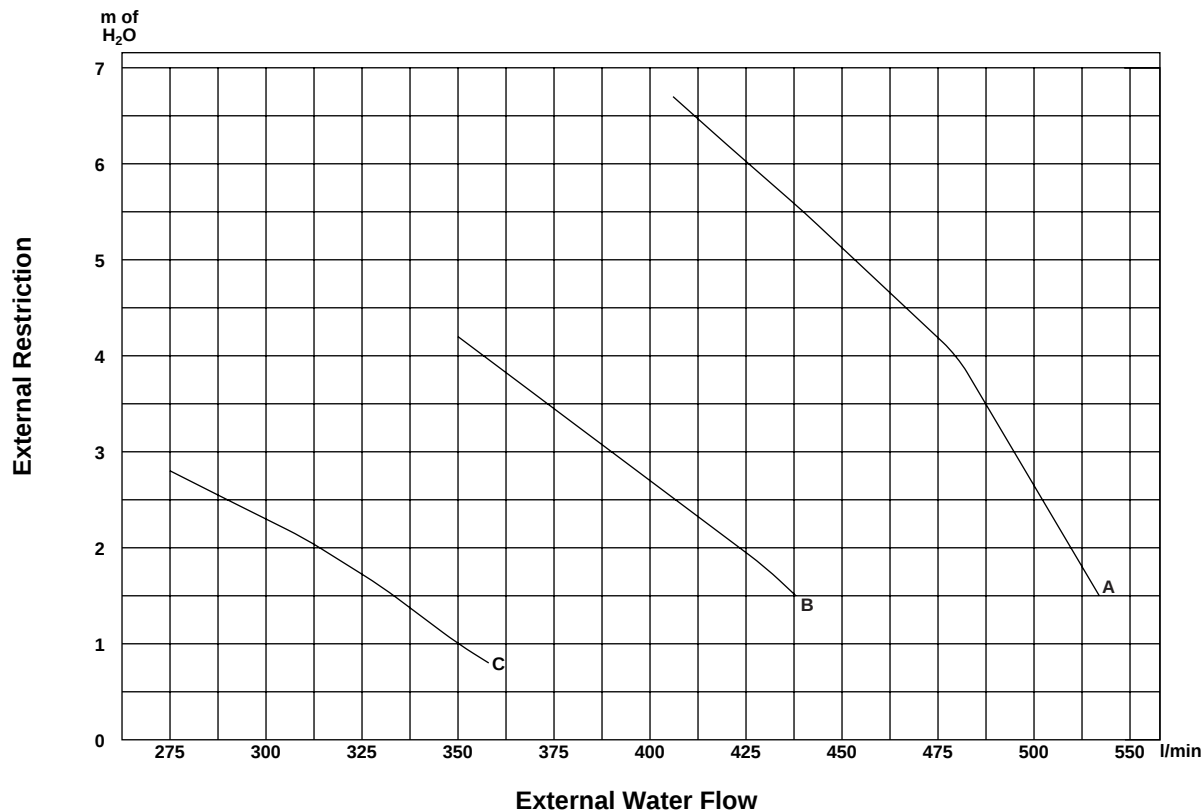
Curve Label	A	B
Engine Speed rpm	1800	1500
Pump Speed rpm	1800	1500
External Flow L/min	External Resistance meter of water	
575		4.7
580		4.6
600		4.1
620		3.7
640		3.2
660		2.8
680	7.1	2.3
700	6.5	1.8
720	5.9	1.4
740	5.4	.9
760	4.8	.6
780	4.3	
800	3.7	
820	3.1	
840	2.5	
860	1.9	
878	1.2	



Curve Data

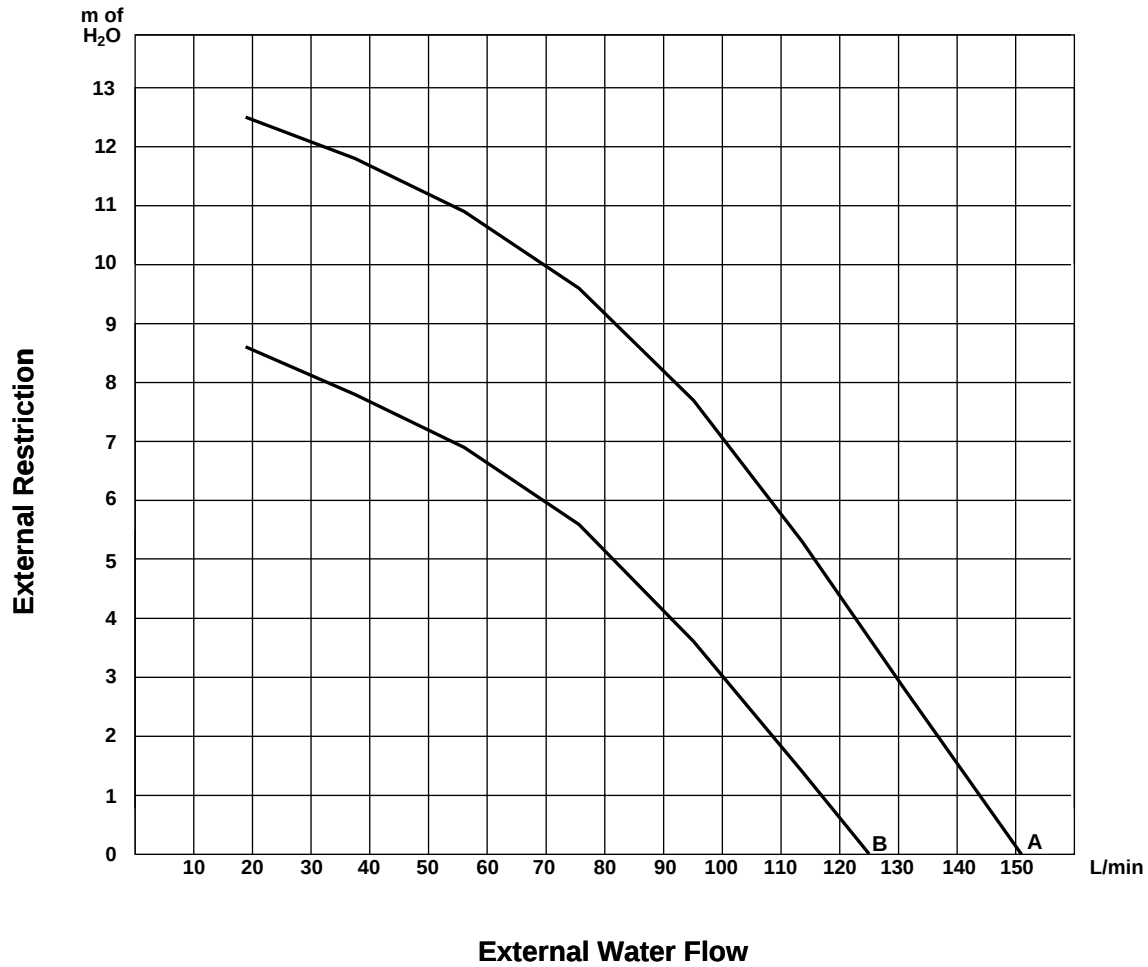
Curve Label	A	B	C
Engine Speed rpm	1800	1600	1500
Pump Speed rpm	1800	1600	1500

External Flow L/min	External Resistance meter of water		
400			4.6
420			4.4
428		5.3	
440		5.1	4.1
460		4.8	3.7
480		4.5	3.3
490	6.7		
500	6.5	4.1	2.9
520	6.1	3.7	2.5
540	5.7	3.2	2.0
560	5.2	2.8	1.5
580	4.7	2.2	1.0
586			.8
600	4.2	1.7	
620	3.7	1.1	
630		.8	
640	3.2		
660	2.6		
680	2.0		
700	1.4		
714	1.1		



Curve Data

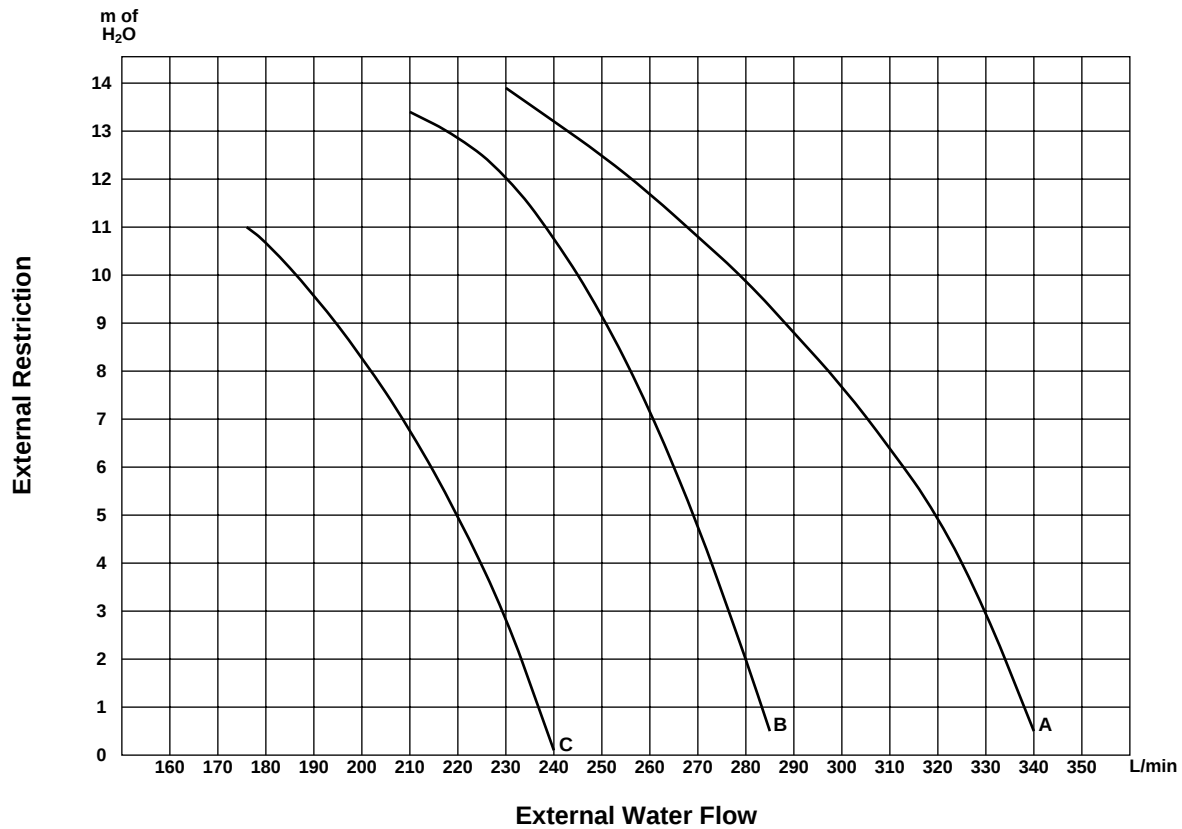
Curve Label	A	B	C
Engine Speed rpm	1800	1500	1200
Pump Speed rpm	1946	1622	1297
External Flow L/min	-----External Resistance----- -----meter of water-----		
275			2.8
280			2.7
290			2.5
300			2.3
310			2.1
320			1.8
330			1.6
340		4.5	1.3
350		4.2	1.0
358			.8
360		3.9	
370		3.6	
380		3.3	
390		3.0	
400		2.7	
406	6.7		
410		2.4	
420	6.2	2.1	
430		1.8	
438		1.5	
440	5.5		
460	4.7		
480	4.0		
500	3.2		
520	2.4		
540	1.6		
542	1.5		



Curve Data

Curve Label	A	B
Engine Speed rpm	1800	1500
Pump Speed rpm	1800	1500

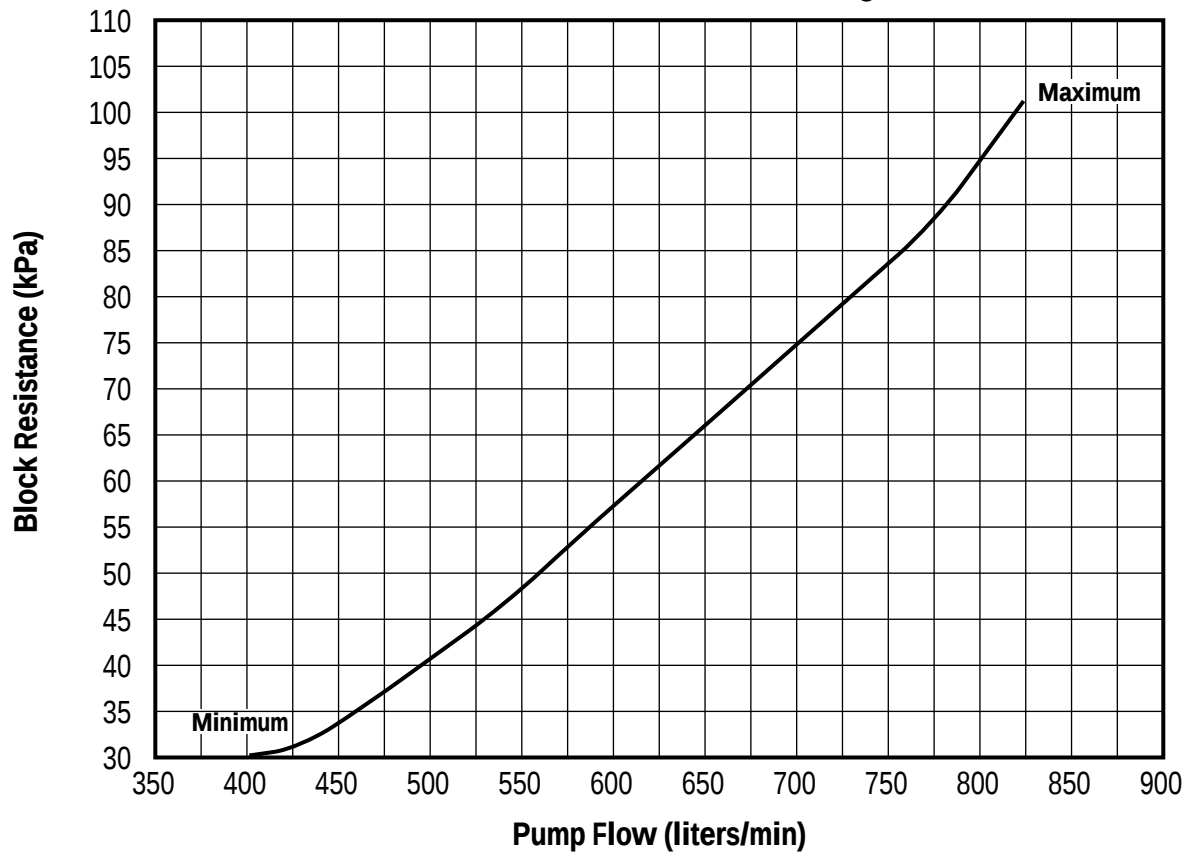
External Flow L/min	-----External Resistance----- -----meter of Water -----	
151	0	
132	2.8	
125		0
117		
114	5.3	1.4
98		
95	7.7	3.6
76	9.6	5.6
57	10.9	6.9
38	11.8	7.8
19	12.5	8.6



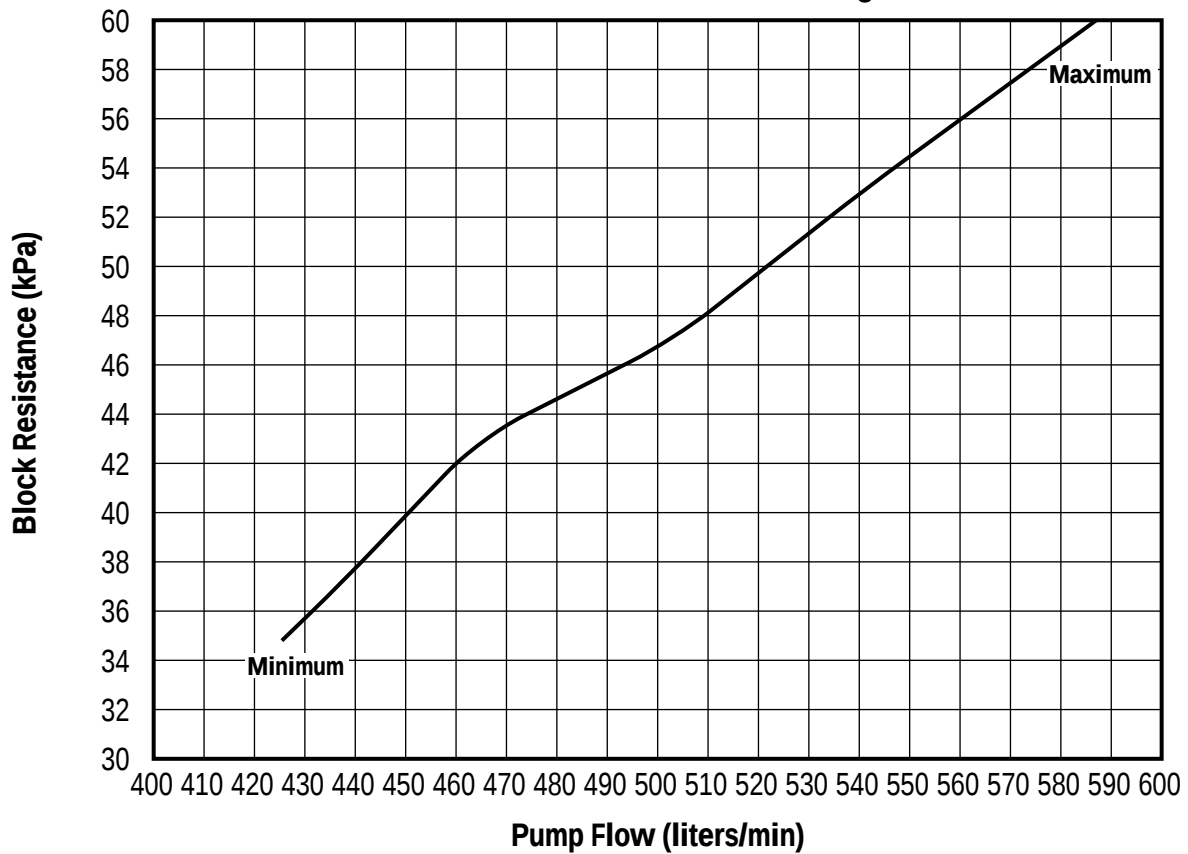
Curve Data

Curve Label	A	B	C
Engine Speed rpm	1800	1500	1200
Pump Speed rpm	1800	1500	1200
External Flow	External Resistance		
L/min	meter of water		
176			11.0
180			10.7
190			9.6
200			8.3
210		13.4	6.8
220		12.9	5.0
230	13.9	12.1	2.9
240	13.2	10.8	.1
250	12.5	9.2	
260	11.7	7.2	
270	10.8	4.8	
280	9.9	2.0	
285		.5	
290	8.8		
300	7.7		
310	6.4		
320	5.0		
330	3.0		
340	.5		

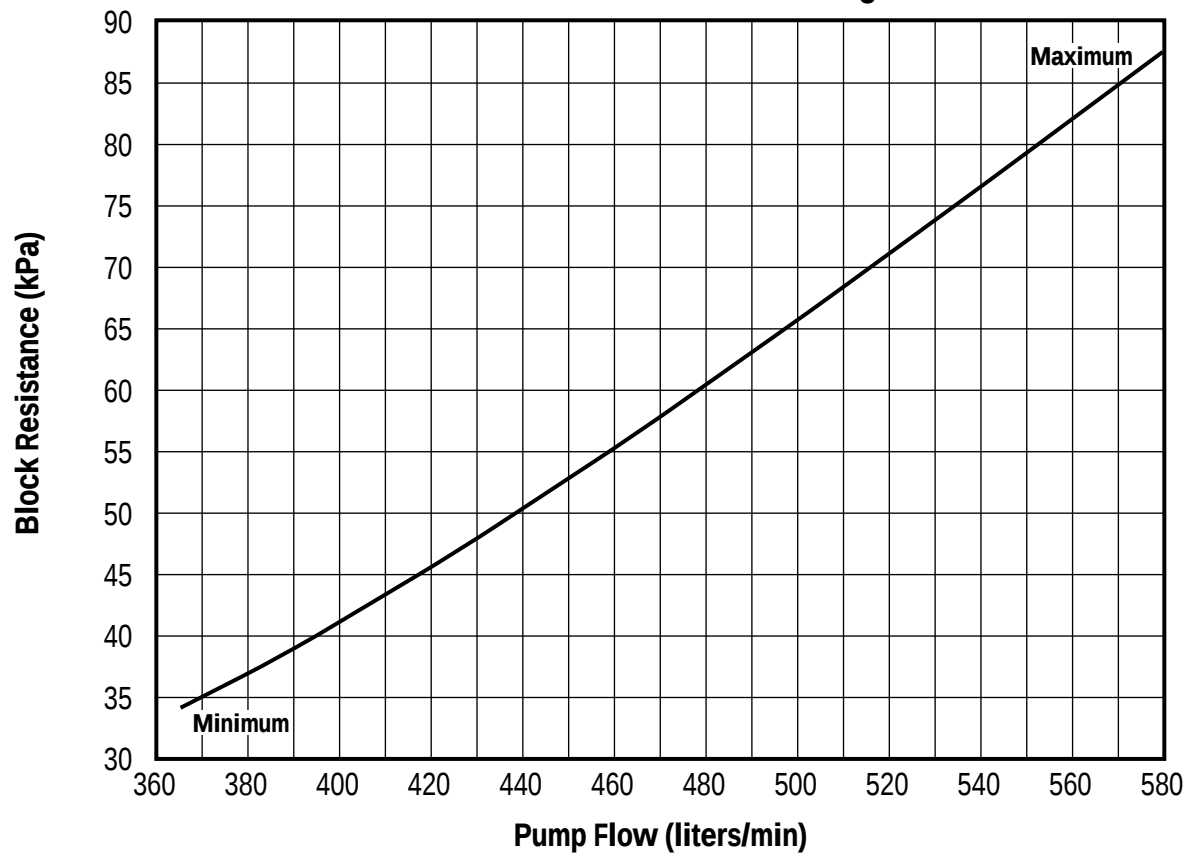
G3412 TA Block Resistance Diagram



G3408 TA Block Resistance Diagram



G3406 TA Block Resistance Diagram



Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	200
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	271	204	136
Generator Set Power (w/o fan)	kW	250	188	125

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	11.09	12.03	13.79
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.14	4.44	5.05
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.25	3.48	3.97
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	kPa (abs)	89	75	61
Inlet Manifold Temperature (10)	°C	39	41	45
Timing (11)	°BTDC	34	34	34
Exhaust Stack Temperature	°C	622	598	582
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.44	3.69	4.2
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.37	4.69	5.34

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	29.5	29.0	30.2
(Corr. 15% O ₂)	ppm	1583	1452	1338
(Corr. 5% O ₂)	mg/Nm ³	8743	8020	7391
Carbon Monoxide (CO) (9)	g/bkW-hr	2.0	2.0	2.0
(Corr. 15% O ₂)	ppm	175	165	148
(Corr. 5% O ₂)	mg/Nm ³	591	556	498
Total Hydrocarbons (THC) (9)	g/bkW-hr	2.1	2.1	2.1
(Corr. 15% O ₂)	ppm	332	301	274
(Corr. 5% O ₂)	mg/Nm ³	1117	1014	922
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.32	0.31	0.32
(Corr. 15% O ₂)	ppm	50	45	41
(Corr. 5% O ₂)	mg/Nm ³	168	152	138
Exhaust Oxygen (9)	%	2.0	2.0	2.1
Lambda		1.18	1.17	1.15

Engine Heat Balance Data				
Input Energy LHV (1)	kW	836	680	520
Work Output	kW	271	204	136
Heat Rejection to Jacket (2) (6)	kW	312	280	238
Heat Rejection to Atmosphere (Radiated) (4)	kW	33	27	21
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	227	175	129
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	193	148	108
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67	0.65
	45	0.95	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68	0.66
	40	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67
	35	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	30	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69
	25	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73	0.70
	20	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72
	15	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73
	10	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
ALTITUDE (METERS ABOVE SEA LEVEL)														

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5216-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	PROPANE
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	89
Aftercooler Inlet Temperature (°C)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	200
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	271	204	136
Generator Set Power (w/o fan)	kW	225	169	113

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	11.36	12.17	13.99
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	3.95	4.23	4.78
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.1	3.32	3.76
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	kPa (abs)	91	78	62
Inlet Manifold Temperature (10)	°C	38	39	43
Timing (11)	°BTDC	15	15	15
Exhaust Stack Temperature	°C	670	628	610
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.3	3.53	3.99
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.19	4.49	5.08

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	26.2	26.5	28.0
	(Corr. 15% O2)	ppm	1465	1388	1304
	(Corr. 5% O2)	mg/Nm3	8093	7670	7203
Carbon Monoxide (CO) (9)		g/bkW-hr	2.0	1.9	1.9
	(Corr. 15% O2)	ppm	179	162	142
	(Corr. 5% O2)	mg/Nm3	603	546	478
Total Hydrocarbons (THC) (9)		g/bkW-hr	2.0	1.9	1.9
	(Corr. 15% O2)	ppm	317	287	252
	(Corr. 5% O2)	mg/Nm3	1068	968	848
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.29	0.28	0.28
	(Corr. 15% O2)	ppm	48	43	38
	(Corr. 5% O2)	mg/Nm3	160	145	127
Exhaust Oxygen (9)		%	2.0	2.0	2.1
Lambda			1.15	1.15	1.14

Engine Heat Balance Data				
Input Energy LHV (1)	kW	856	688	528
Work Output	kW	271	204	136
Heat Rejection to Jacket (2) (6)	kW	333	294	251
Heat Rejection to Atmosphere (Radiated) (4)	kW	34	28	21
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	225	168	123
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	195	144	104
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67	0.65
	45	0.95	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68	0.66
	40	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67
	35	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	30	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69
	25	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73	0.70
	20	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72
	15	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73
	10	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
		ALTITUDE (METERS ABOVE SEA LEVEL)												

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5100-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	800
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	422	317	211
Generator Set Power (w/o fan)	kW	395	296	198

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.28	10.95	12.42
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.3	4.29	4.39
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.38	3.37	3.45
Compressor Out Pressure	kPa (abs)	156	149	134
Compressor Out Temperature	°C	86	74	66
Inlet Manifold Pressure	kPa (abs)	147	112	79
Inlet Manifold Temperature (10)	°C	59	56	56
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°C	478	474	472
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.55	3.55	3.66
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.52	4.52	4.65

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	28.6	30.1	28.4
(Corr. 15% O ₂)	ppm	1601	1588	1362
(Corr. 5% O ₂)	mg/Nm ³	8843	8772	7524
Carbon Monoxide (CO) (9)	g/bkW-hr	2.1	2.1	2.1
(Corr. 15% O ₂)	ppm	198	189	166
(Corr. 5% O ₂)	mg/Nm ³	668	637	558
Total Hydrocarbons (THC) (9)	g/bkW-hr	2.5	2.5	3.4
(Corr. 15% O ₂)	ppm	400	378	468
(Corr. 5% O ₂)	mg/Nm ³	1348	1275	1576
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.37	0.37	0.51
(Corr. 15% O ₂)	ppm	60	57	70
(Corr. 5% O ₂)	mg/Nm ³	202	191	236
Exhaust Oxygen (9)	%	4.0	2.8	1.0
Lambda		1.24	1.16	1.05

Engine Heat Balance Data				
Input Energy LHV (1)	kW	1205	963	728
Work Output	kW	422	317	211
Heat Rejection to Jacket (2) (6)	kW	437	386	330
Heat Rejection to Atmosphere (Radiated) (4)	kW	48	39	29
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	272	203	140
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	218	162	112
Heat Rejection to Aftercooler (3) (7) (8)	kW	15	8	3

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/23	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	0.98	0.97	0.98	0.97	0.98	0.97	0.99	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.95	0.94	0.95	0.94	0.95	0.94	0.96	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
	0.92	0.91	0.92	0.91	0.92	0.91	0.93	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
	0.90	0.88	0.89	0.88	0.89	0.88	0.90	0.89	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
	0.87	0.86	0.87	0.86	0.87	0.86	0.88	0.87	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
	0.84	0.83	0.84	0.83	0.84	0.83	0.85	0.84	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
	0.82	0.81	0.82	0.81	0.82	0.81	0.83	0.82	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
	0.79	0.78	0.79	0.78	0.79	0.78	0.81	0.80	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
	0.77	0.76	0.77	0.76	0.77	0.76	0.79	0.78	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
	0.74	0.73	0.74	0.73	0.74	0.73	0.76	0.75	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
	0.72	0.71	0.72	0.71	0.72	0.71	0.74	0.73	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
	0.70																					

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.80	1.58	1.37	1.16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.95	1.74	1.52	1.31	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.11	1.89	1.68	1.46	1.24	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.27	2.05	1.83	1.61	1.39	1.18	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.43	2.21	1.99	1.77	1.55	1.33	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.60	2.37	2.15	1.92	1.70	1.48	1.25	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.76	2.54	2.31	2.08	1.86	1.63	1.41	1.18	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.93	2.70	2.47	2.25	2.02	1.79	1.56	1.33	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.10	2.87	2.64	2.41	2.18	1.95	1.71	1.48	1.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.28	3.04	2.81	2.58	2.34	2.11	1.87	1.64	1.40	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.46	3.22	2.98	2.75	2.51	2.27	2.03	1.80	1.56	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.46	3.22	2.98	2.75	2.51	2.27	2.03	1.80	1.56	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.46	3.22	2.98	2.75	2.51	2.27	2.03	1.80	1.56	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

ALTITUDE (METERS ABOVE SEA LEVEL)

DM5175-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	800
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	422	317	211
Generator Set Power (w/o fan)	kW	395	296	198

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.37	11.13	12.51
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.35	4.35	4.42
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.41	3.41	3.47
Compressor Out Pressure	kPa (abs)	224	214	162
Compressor Out Temperature	°C	136	128	100
Inlet Manifold Pressure	kPa (abs)	214	164	114
Inlet Manifold Temperature (10)	°C	65	63	60
Timing (11)	°BTDC	32	32	32
Exhaust Stack Temperature	°C	427	423	438
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.59	3.6	3.68
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.56	4.58	4.68

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	28.4	27.0	28.4
	(Corr. 15% O2)	ppm	1636	1509	1596
	(Corr. 5% O2)	mg/Nm3	9038	8336	8816
Carbon Monoxide (CO) (9)		g/bkW-hr	2.0	2.0	1.9
	(Corr. 15% O2)	ppm	188	189	178
	(Corr. 5% O2)	mg/Nm3	634	638	601
Total Hydrocarbons (THC) (9)		g/bkW-hr	2.4	2.5	3.6
	(Corr. 15% O2)	ppm	383	407	579
	(Corr. 5% O2)	mg/Nm3	1290	1372	1950
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.36	0.38	0.54
	(Corr. 15% O2)	ppm	57	61	87
	(Corr. 5% O2)	mg/Nm3	194	206	293
Exhaust Oxygen (9)		%	4.0	4.0	4.0
Lambda			1.25	1.16	1.05

Engine Heat Balance Data				
Input Energy LHV (1)	kW	1216	979	734
Work Output	kW	422	317	211
Heat Rejection to Jacket (2) (6)	kW	451	402	336
Heat Rejection to Atmosphere (Radiated) (4)	kW	49	39	29
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	242	181	129
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	187	140	101
Heat Rejection to Aftercooler (3) (7) (8)	kW	41	29	12

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/18	0.90/20	0.90/22	0.90/24	0.90/26	0.90/26	1.0/26	01.0/27	1.0/29	1.0/30	1.0/32

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	0.98	0.97	0.98	0.97	0.98	0.97	0.99	0.98	0.99	0.98	0.98	0.96	0.95	0.94	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86
	0.95	0.94	0.95	0.94	0.95	0.94	0.96	0.95	0.96	0.95	0.95	0.93	0.92	0.91	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83
	0.92	0.91	0.92	0.91	0.92	0.91	0.93	0.92	0.93	0.92	0.92	0.90	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.80
	0.90	0.88	0.89	0.88	0.89	0.88	0.90	0.89	0.90	0.89	0.89	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.77
	0.87	0.86	0.87	0.86	0.87	0.86	0.88	0.87	0.88	0.87	0.87	0.85	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.77	0.76	0.75
	0.84	0.83	0.84	0.83	0.84	0.83	0.85	0.84	0.85	0.84	0.84	0.82	0.81	0.80	0.79	0.78	0.77	0.76	0.75	0.74	0.73	0.72
	0.82	0.81	0.82	0.81	0.82	0.81	0.83	0.82	0.83	0.82	0.82	0.80	0.79	0.78	0.77	0.76	0.75	0.74	0.73	0.72	0.71	0.70
	0.79	0.78	0.79	0.78	0.79	0.78	0.80	0.79	0.80	0.79	0.79	0.77	0.76	0.75	0.74	0.73	0.72	0.71	0.70	0.69	0.68	0.67
	0.77	0.76	0.77	0.76	0.77	0.76	0.78	0.77	0.78	0.77	0.77	0.75	0.74	0.73	0.72	0.71	0.70	0.69	0.68	0.67	0.66	0.65
	0.74	0.73	0.74	0.73	0.74	0.73	0.75	0.74	0.75	0.74	0.74	0.72	0.71	0.70	0.69	0.68	0.67	0.66	0.65	0.64	0.63	0.62
	0.72	0.71	0.72	0.71	0.72	0.71	0.73	0.72	0.73	0.72	0.72	0.70	0.69	0.68	0.67	0.66	0.65	0.64	0.63	0.62	0.61	0.60
	0.70	0.69	0.70	0.69	0.70	0.69	0.71	0.70	0.71	0.70	0.70	0.68	0.67	0.66	0.65	0.64	0.63	0.62	0.61	0.60	0.59	0.58

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.37	1.27	1.18	1.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.43	1.34	1.24	1.14	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.50	1.40	1.31	1.21	1.11	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.57	1.47	1.37	1.27	1.17	1.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.64	1.54	1.44	1.34	1.24	1.14	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.71	1.61	1.51	1.41	1.30	1.20	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.78	1.68	1.58	1.47	1.37	1.27	1.17	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.85	1.75	1.65	1.54	1.44	1.34	1.23	1.13	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.93	1.82	1.72	1.61	1.51	1.40	1.30	1.20	1.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.00	1.90	1.79	1.68	1.58	1.47	1.37	1.26	1.16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.08	1.97	1.86	1.76	1.65	1.54	1.44	1.33	1.22	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.08	1.97	1.86	1.76	1.65	1.54	1.44	1.33	1.22	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.08	1.97	1.86	1.76	1.65	1.54	1.44	1.33	1.22	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.08	1.97	1.86	1.76	1.65	1.54	1.44	1.33	1.22	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

ALTITUDE (METERS ABOVE SEA LEVEL)

DM5178-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	1500
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	492	369	246
Generator Set Power (w/o fan)	kW	243	182	122

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.26	10.88	12.01
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.01	3.94	4.27
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.15	3.09	3.35
Compressor Out Pressure	kPa (abs)	225	210	185
Compressor Out Temperature	°C	134	129	114
Inlet Manifold Pressure	kPa (abs)	218	164	120
Inlet Manifold Temperature (10)	°C	61	61	62
Timing (11)	°BTDC	25	25	25
Exhaust Stack Temperature	°C	513	502	478
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.32	3.28	3.56
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.23	4.17	4.52

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	29.5	27.1	28.5
	(Corr. 15% O2)	ppm	1685	1527	1477
	(Corr. 5% O2)	mg/Nm3	9308	8433	8159
Carbon Monoxide (CO) (9)		g/bkW-hr	3.9	4.2	4.9
	(Corr. 15% O2)	ppm	575	238	412
	(Corr. 5% O2)	mg/Nm3	1938	803	1388
Total Hydrocarbons (THC) (9)		g/bkW-hr	1.7	1.8	2.1
	(Corr. 15% O2)	ppm	276	299	317
	(Corr. 5% O2)	mg/Nm3	930	1006	1068
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.26	0.27	0.31
	(Corr. 15% O2)	ppm	41	45	48
	(Corr. 5% O2)	mg/Nm3	140	151	160
Exhaust Oxygen (9)		%	2.0	2.0	2.0
Lambda			1.21	1.06	1.05

Engine Heat Balance Data				
Input Energy LHV (1)	kW	1403	1116	821
Work Output	kW	492	369	246
Heat Rejection to Jacket (2) (6)	kW	479	427	353
Heat Rejection to Atmosphere (Radiated) (4)	kW	56	45	33
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	321	234	161
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	262	190	129
Heat Rejection to Aftercooler (3) (7) (8)	kW	46	32	18

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/14	0.90/16	0.90/17	0.90/18	0.90/20	0.90/20	1.0/21	1.0/22	1.0/23	1.0/24	1.0/25

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.34	1.40	1.47	1.53	1.60	1.66	1.73	1.80	1.87	1.94	2.01	2.08	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85	2.95	3.05
	1.25	1.31	1.38	1.44	1.50	1.57	1.63	1.70	1.77	1.84	1.91	1.98	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85	2.95
	1.16	1.22	1.29	1.35	1.41	1.47	1.54	1.61	1.67	1.74	1.81	1.88	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85
	1.07	1.13	1.19	1.26	1.32	1.38	1.44	1.51	1.58	1.64	1.71	1.78	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75
	1.00	1.04	1.10	1.16	1.22	1.29	1.35	1.41	1.48	1.54	1.61	1.68	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65
	1.00	1.00	1.01	1.07	1.13	1.19	1.25	1.32	1.38	1.44	1.51	1.58	1.64	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55
	1.00	1.00	1.00	1.00	1.04	1.10	1.16	1.22	1.28	1.35	1.41	1.48	1.54	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45
	1.00	1.00	1.00	1.00	1.00	1.00	1.06	1.12	1.19	1.25	1.31	1.38	1.44	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.03	1.09	1.15	1.21	1.27	1.34	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25

ALTITUDE (METERS ABOVE SEA LEVEL)

DM5179-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	800
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	515	386	257
Generator Set Power (w/o fan)	kW	480	360	240

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.38	10.9	12.07
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.3	4.3	4.4
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.38	3.38	3.46
Compressor Out Pressure	kPa (abs)	193	185	155
Compressor Out Temperature	°C	117	107	86
Inlet Manifold Pressure	kPa (abs)	179	136	95
Inlet Manifold Temperature (10)	°C	63	61	57
Timing (11)	°BTDC	20	20	20
Exhaust Stack Temperature	°C	502	492	492
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.55	3.56	3.66
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.52	4.53	4.66

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	29.2	28.5	28.0
	(Corr. 15% O2)	ppm	1694	1555	1381
	(Corr. 5% O2)	mg/Nm3	9356	8591	7631
Carbon Monoxide (CO) (9)		g/bkW-hr	2.1	2.1	2.0
	(Corr. 15% O2)	ppm	196	187	161
	(Corr. 5% O2)	mg/Nm3	660	628	543
Total Hydrocarbons (THC) (9)		g/bkW-hr	1.8	2.0	2.5
	(Corr. 15% O2)	ppm	290	310	353
	(Corr. 5% O2)	mg/Nm3	976	1046	1191
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.27	0.30	0.38
	(Corr. 15% O2)	ppm	43	47	53
	(Corr. 5% O2)	mg/Nm3	146	157	179
Exhaust Oxygen (9)		%	4.0	3.0	1.6
Lambda			1.23	1.17	1.08

Engine Heat Balance Data				
Input Energy LHV (1)	kW	1484	1168	863
Work Output	kW	515	386	257
Heat Rejection to Jacket (2) (6)	kW	514	442	369
Heat Rejection to Atmosphere (Radiated) (4)	kW	59	47	35
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	350	258	178
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	284	208	144
Heat Rejection to Aftercooler (3) (7) (8)	kW	37	24	11

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/17	1.0/19	1.0/20

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	0.98	0.97	0.98	0.97	0.98	0.97	0.99	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.95	0.94	0.95	0.94	0.95	0.94	0.96	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
	0.92	0.91	0.92	0.91	0.92	0.91	0.93	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
	0.90	0.88	0.89	0.88	0.89	0.88	0.90	0.89	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
	0.87	0.86	0.87	0.86	0.87	0.86	0.88	0.87	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
	0.84	0.83	0.84	0.83	0.84	0.83	0.85	0.84	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
	0.82	0.81	0.82	0.81	0.82	0.81	0.83	0.82	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
	0.79	0.78	0.79	0.78	0.79	0.78	0.80	0.79	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
	0.77	0.76	0.77	0.76	0.77	0.76	0.78	0.77	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
	0.74	0.73	0.74	0.73	0.74	0.73	0.75	0.74	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
	0.72	0.71	0.72	0.71	0.72	0.71	0.73	0.72	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
	0.70	0.69	0.70	0.69	0.70	0.69	0.71	0.70	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.45	1.33	1.21	1.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.54	1.42	1.30	1.18	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.63	1.50	1.38	1.26	1.14	1.02	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.72	1.59	1.47	1.34	1.22	1.10	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.81	1.68	1.56	1.43	1.31	1.18	1.14	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.90	1.77	1.64	1.52	1.39	1.26	1.22	1.14	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.99	1.86	1.73	1.61	1.48	1.35	1.31	1.22	1.14	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.08	1.95	1.82	1.69	1.57	1.44	1.48	1.39	1.31	1.22	1.14	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.18	2.05	1.92	1.79	1.65	1.52	1.57	1.48	1.39	1.31	1.22	1.14	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.27	2.14	2.01	1.88	1.75	1.61	1.75	1.65	1.57	1.48	1.39	1.31	1.22	1.14	1.06	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.37	2.24	2.11	1.97	1.84	1.70	1.84	1.75	1.65	1.57	1.48	1.39	1.31	1.22	1.14	1.06	1.00	1.00	1.00	1.00	1.00	1.00
	2.37	2.24	2.11	1.97	1.84	1.70	1.84	1.75	1.65	1.57	1.48	1.39	1.31	1.22	1.14	1.06	1.00	1.00	1.00	1.00	1.00	1.00
	2.37	2.24	2.11	1.97	1.84	1.70	1.84	1.75	1.65	1.57	1.48	1.39	1.31	1.22	1.14	1.06	1.00	1.00	1.00	1.00	1.00	1.00
	2.37	2.24	2.11	1.97	1.84	1.70	1.84	1.75	1.65	1.57	1.48	1.39	1.31	1.22	1.14	1.06	1.00	1.00	1.00	1.00	1.00	1.00

ALTITUDE (METERS ABOVE SEA LEVEL)

DM5177-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	32	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	800
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	553	415	277
Generator Set Power (w/o fan)	kW	515	386	258

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.29	10.66	11.71
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.29	4.24	4.3
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.37	3.33	3.38
Compressor Out Pressure	kPa (abs)	201	192	160
Compressor Out Temperature	°C	122	111	90
Inlet Manifold Pressure	kPa (abs)	187	140	97
Inlet Manifold Temperature (10)	°C	49	43	39
Timing (11)	°BTDC	22	22	22
Exhaust Stack Temperature	°C	493	482	485
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.54	3.51	3.58
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.5	4.47	4.55

Engine Emissions Data				
Nitrous Oxides (NO _x as NO ₂) (9)	g/bkW-hr	28.9	28.9	28.9
(Corr. 15% O ₂)	ppm	1686	1613	1469
(Corr. 5% O ₂)	mg/Nm ³	9316	8913	8117
Carbon Monoxide (CO) (9)	g/bkW-hr	2.0	2.1	2.0
(Corr. 15% O ₂)	ppm	193	191	155
(Corr. 5% O ₂)	mg/Nm ³	651	643	521
Total Hydrocarbons (THC) (9)	g/bkW-hr	1.9	2.1	2.6
(Corr. 15% O ₂)	ppm	311	327	374
(Corr. 5% O ₂)	mg/Nm ³	1049	1101	1261
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.29	0.31	0.39
(Corr. 15% O ₂)	ppm	47	49	56
(Corr. 5% O ₂)	mg/Nm ³	157	165	189
Exhaust Oxygen (9)	%	4.0	3.1	1.7
Lambda		1.23	1.17	1.09

Engine Heat Balance Data				
Input Energy LHV (1)	kW	1582	1229	900
Work Output	kW	553	415	277
Heat Rejection to Jacket (2) (6)	kW	531	448	369
Heat Rejection to Atmosphere (Radiated) (4)	kW	63	49	36
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	367	268	184
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	297	215	148
Heat Rejection to Aftercooler (3) (7) (8)	kW	55	38	20

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/20	1.0/21	1.0/22

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	0.98	0.97	0.98	0.97	0.98	0.97	0.99	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.95	0.94	0.95	0.94	0.95	0.94	0.96	0.95	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
	0.92	0.91	0.92	0.91	0.92	0.91	0.93	0.92	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
	0.90	0.88	0.89	0.88	0.90	0.89	0.91	0.90	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	0.87	0.86	0.87	0.86	0.87	0.86	0.88	0.87	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
	0.84	0.83	0.84	0.83	0.84	0.83	0.85	0.84	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
	0.82	0.81	0.82	0.81	0.82	0.81	0.83	0.82	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
	0.79	0.78	0.79	0.78	0.79	0.78	0.80	0.79	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
	0.77	0.76	0.77	0.76	0.77	0.76	0.78	0.77	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
	0.74	0.73	0.74	0.73	0.74	0.73	0.75	0.74	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
	0.72	0.71	0.72	0.71	0.72	0.71	0.73	0.72	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
	0.70	0.69	0.70	0.69	0.70	0.69	0.71	0.70	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.32	1.24	1.15	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.38	1.30	1.21	1.13	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.45	1.36	1.27	1.19	1.10	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.51	1.42	1.34	1.25	1.16	1.07	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.58	1.49	1.40	1.31	1.22	1.13	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.64	1.55	1.46	1.37	1.28	1.19	1.16	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.71	1.62	1.53	1.44	1.35	1.25	1.22	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.78	1.69	1.59	1.50	1.41	1.32	1.29	1.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.85	1.75	1.66	1.57	1.47	1.38	1.35	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.92	1.82	1.73	1.63	1.54	1.45	1.42	1.26	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.99	1.89	1.80	1.70	1.61	1.51	1.42	1.32	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.99	1.89	1.80	1.70	1.61	1.51	1.42	1.32	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	1.99	1.89	1.80	1.70	1.61	1.51	1.42	1.32	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

ALTITUDE (METERS ABOVE SEA LEVEL)

DM5176-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	200
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	242	182	121
Generator Set Power (w/o fan)	kW	225	169	113

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.88	11.68	13.26
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.04	4.29	4.75
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.18	3.37	3.73
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	kPa (abs)	92	78	62
Inlet Manifold Temperature (10)	°C	41	42	47
Timing (11)	°BTDC	34	34	34
Exhaust Stack Temperature	°C	570	560	550
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.36	3.57	3.95
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.27	4.54	5.02

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	28.5	28.6	30.5
	(Corr. 15% O2)	ppm	1565	1481	1437
	(Corr. 5% O2)	mg/Nm3	8646	8182	7940
Carbon Monoxide (CO) (9)		g/bkW-hr	2.1	2.1	2.1
	(Corr. 15% O2)	ppm	188	174	161
	(Corr. 5% O2)	mg/Nm3	633	586	542
Total Hydrocarbons (THC) (9)		g/bkW-hr	2.1	2.1	2.1
	(Corr. 15% O2)	ppm	333	318	285
	(Corr. 5% O2)	mg/Nm3	1121	1073	960
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.31	0.32	0.31
	(Corr. 15% O2)	ppm	50	48	43
	(Corr. 5% O2)	mg/Nm3	168	161	144
Exhaust Oxygen (9)		%	2.0	2.0	2.1
Lambda			1.14	1.14	1.12

Engine Heat Balance Data				
Input Energy LHV (1)	kW	732	590	446
Work Output	kW	242	182	121
Heat Rejection to Jacket (2) (6)	kW	288	249	209
Heat Rejection to Atmosphere (Radiated) (4)	kW	29	24	18
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	180	141	102
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	151	117	85
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67	0.65
	45	0.95	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68	0.66
	40	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67
	35	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	30	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69
	25	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73	0.70
	20	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72
	15	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73
	10	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
		ALTITUDE (METERS ABOVE SEA LEVEL)												

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5217-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	PROPANE
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	89
Aftercooler Inlet Temperature (°C)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	200
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	242	182	121
Generator Set Power (w/o fan)	kW	225	169	113

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	11.2	11.81	13.44
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.05	4.35	4.75
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.18	3.41	3.73
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	kPa (abs)	92	78	62
Inlet Manifold Temperature (10)	°C	45	42	41
Timing (11)	°BTDC	15	15	15
Exhaust Stack Temperature	°C	610	600	590
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.37	3.61	3.95
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.28	4.6	5.03

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	28.5	28.6	30.5
	(Corr. 15% O2)	ppm	1560	1462	1436
	(Corr. 5% O2)	mg/Nm3	8621	8076	7931
Carbon Monoxide (CO) (9)		g/bkW-hr	2.1	2.1	2.1
	(Corr. 15% O2)	ppm	187	172	161
	(Corr. 5% O2)	mg/Nm3	631	579	541
Total Hydrocarbons (THC) (9)		g/bkW-hr	2.1	2.1	2.1
	(Corr. 15% O2)	ppm	332	314	285
	(Corr. 5% O2)	mg/Nm3	1118	1059	959
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.31	0.32	0.31
	(Corr. 15% O2)	ppm	50	47	43
	(Corr. 5% O2)	mg/Nm3	168	159	144
Exhaust Oxygen (9)		%	2.0	2.0	2.1
Lambda			1.16	1.16	1.14

Engine Heat Balance Data				
Input Energy LHV (1)	kW	754	596	452
Work Output	kW	242	182	121
Heat Rejection to Jacket (2) (6)	kW	305	249	211
Heat Rejection to Atmosphere (Radiated) (4)	kW	30	24	18
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	185	146	105
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	157	124	88
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67	0.65
	45	0.95	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68	0.66
	40	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67
	35	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	30	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69
	25	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73	0.70
	20	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72
	15	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73
	10	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
		ALTITUDE (METERS ABOVE SEA LEVEL)												

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5099-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	700
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	352	264	176
Generator Set Power (w/o fan)	kW	325	244	163

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	9.98	10.7	12.16
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.1	4.05	4.14
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.22	3.18	3.25
Compressor Out Pressure	kPa (abs)	152	139	119
Compressor Out Temperature	°C	81	71	57
Inlet Manifold Pressure	kPa (abs)	140	106	75
Inlet Manifold Temperature (10)	°C	58	56	55
Timing (11)	°BTDC	29	29	29
Exhaust Stack Temperature	°C	454	455	445
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.39	3.36	3.46
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.31	4.27	4.4

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	32.5	30.6	28.4
	(Corr. 15% O2)	ppm	1938	1633	1400
	(Corr. 5% O2)	mg/Nm3	10704	9021	7735
Carbon Monoxide (CO) (9)		g/bkW-hr	2.1	2.1	2.7
	(Corr. 15% O2)	ppm	205	191	221
	(Corr. 5% O2)	mg/Nm3	690	643	744
Total Hydrocarbons (THC) (9)		g/bkW-hr	2.7	2.9	4.0
	(Corr. 15% O2)	ppm	448	453	575
	(Corr. 5% O2)	mg/Nm3	1510	1527	1935
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.40	0.43	0.60
	(Corr. 15% O2)	ppm	67	68	86
	(Corr. 5% O2)	mg/Nm3	227	229	290
Exhaust Oxygen (9)		%	4.0	2.2	0.4
Lambda			1.21	1.12	1.01

Engine Heat Balance Data				
Input Energy LHV (1)	kW	976	784	595
Work Output	kW	352	264	176
Heat Rejection to Jacket (2) (6)	kW	360	320	276
Heat Rejection to Atmosphere (Radiated) (4)	kW	39	31	24
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	204	153	104
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	161	121	81
Heat Rejection to Aftercooler (3) (7) (8)	kW	10	5	0

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/26	1.0/28	1.0/29

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	0.98	0.97	0.98	0.97	0.98	0.97	0.99	0.97	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
	0.95	0.94	0.95	0.94	0.95	0.94	0.96	0.94	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
	0.92	0.91	0.92	0.91	0.92	0.91	0.93	0.91	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
	0.90	0.88	0.89	0.88	0.89	0.88	0.90	0.88	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
	0.87	0.86	0.87	0.86	0.87	0.86	0.88	0.86	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
	0.84	0.83	0.84	0.83	0.84	0.83	0.85	0.83	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
	0.82	0.80	0.81	0.80	0.81	0.80	0.82	0.80	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
	0.79	0.78	0.79	0.78	0.79	0.78	0.80	0.78	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
	0.77	0.76	0.77	0.76	0.77	0.76	0.78	0.76	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
	0.74	0.73	0.74	0.73	0.74	0.73	0.75	0.73	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
	0.72	0.71	0.72	0.71	0.72	0.71	0.73	0.71	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73
	0.70																					

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.93	1.69	1.44	1.19	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.11	1.86	1.61	1.36	1.11	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.29	2.04	1.79	1.53	1.28	1.03	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.47	2.22	1.96	1.71	1.45	1.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.66	2.40	2.14	1.88	1.63	1.37	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	2.84	2.58	2.32	2.06	1.80	1.54	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.03	2.77	2.51	2.24	1.98	1.72	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.23	2.96	2.69	2.43	2.16	1.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.42	3.15	2.88	2.62	2.35	2.08	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.62	3.35	3.08	2.80	2.53	2.26	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.79	3.52	3.24	2.97	2.69	2.42	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.79	3.52	3.24	2.97	2.69	2.42	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	3.79	3.52	3.24	2.97	2.69	2.42	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

ALTITUDE (METERS ABOVE SEA LEVEL)

DM5181-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	760
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	352	264	176
Generator Set Power (w/o fan)	kW	325	244	163

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	9.99	10.69	12.11
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.14	4.04	4.1
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.25	3.17	3.22
Compressor Out Pressure	kPa (abs)	206	175	137
Compressor Out Temperature	°C	122	101	75
Inlet Manifold Pressure	kPa (abs)	191	143	99
Inlet Manifold Temperature (10)	°C	62	61	58
Timing (11)	°BTDC	35	35	35
Exhaust Stack Temperature	°C	405	416	417
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.42	3.35	3.42
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.35	4.26	4.35

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	28.5	27.1	28.4
(Corr. 15% O ₂)	ppm	1684	1602	1715
(Corr. 5% O ₂)	mg/Nm ³	9304	8853	9474
Carbon Monoxide (CO) (9)	g/bkW-hr	2.1	2.1	2.6
(Corr. 15% O ₂)	ppm	203	212	262
(Corr. 5% O ₂)	mg/Nm ³	684	713	882
Total Hydrocarbons (THC) (9)	g/bkW-hr	2.7	3.0	4.0
(Corr. 15% O ₂)	ppm	449	514	703
(Corr. 5% O ₂)	mg/Nm ³	1513	1733	2369
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.40	0.44	0.60
(Corr. 15% O ₂)	ppm	67	77	106
(Corr. 5% O ₂)	mg/Nm ³	227	260	355
Exhaust Oxygen (9)	%	4.0	4.0	4.0
Lambda		1.23	1.12	1.01

Engine Heat Balance Data				
Input Energy LHV (1)	kW	977	784	592
Work Output	kW	352	264	176
Heat Rejection to Jacket (2) (6)	kW	366	326	279
Heat Rejection to Atmosphere (Radiated) (4)	kW	39	31	24
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	181	139	95
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	138	106	73
Heat Rejection to Aftercooler (3) (7) (8)	kW	28	14	4

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96	dBA
Noise - Exhaust @ 1.5 m	112	dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number											
<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/19	0.90/21	0.90/23	0.90/25	0.90/27	0.90/27	1.0/27	1.0/29	1.0/31	1.0/33	1.0/35

Altitude Deration Factors

°C)	50	ALTITUDE (METERS ABOVE SEA LEVEL)												
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
AIR INLET TEMP.	45	1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70
	40	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	0.71
	35	1.00	1.00	0.98	0.95	0.93	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72
	30	1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73
	25	1.00	1.00	1.00	0.98	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75
	20	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77
	15	1.00	1.00	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.78
	10	1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	1.44	1.51	1.59	1.67	1.75	1.83	1.91	2.00	2.08	2.17	2.26	2.26	2.26
	45	1.32	1.40	1.48	1.55	1.63	1.71	1.79	1.88	1.96	2.04	2.13	2.13	2.13
	40	1.21	1.29	1.36	1.44	1.51	1.59	1.67	1.75	1.84	1.92	2.00	2.00	2.00
	35	1.10	1.17	1.25	1.32	1.40	1.47	1.55	1.63	1.71	1.80	1.88	1.88	1.88
	30	1.00	1.06	1.13	1.20	1.28	1.35	1.43	1.51	1.59	1.67	1.75	1.75	1.75
	25	1.00	1.00	1.01	1.09	1.16	1.24	1.31	1.39	1.47	1.55	1.63	1.63	1.63
	20	1.00	1.00	1.00	1.00	1.04	1.12	1.19	1.27	1.34	1.42	1.50	1.50	1.50
	15	1.00	1.00	1.00	1.00	1.00	1.00	1.07	1.14	1.22	1.30	1.37	1.37	1.37
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.10	1.17	1.25	1.25	1.25
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
ALTITUDE (METERS ABOVE SEA LEVEL)														

DM5193-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	32	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	700
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	377	283	189
Generator Set Power (w/o fan)	kW	350	263	175

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	9.96	10.83	11.97
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.11	4.08	4.09
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.22	3.2	3.21
Compressor Out Pressure	kPa (abs)	158	147	122
Compressor Out Temperature	°C	85	76	59
Inlet Manifold Pressure	kPa (abs)	145	112	76
Inlet Manifold Temperature (10)	°C	38	35	33
Timing (11)	°BTDC	31	31	31
Exhaust Stack Temperature	°C	450	453	445
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.39	3.39	3.42
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.31	4.3	4.34

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	31.8	31.9	31.8
(Corr. 15% O ₂)	ppm	1936	1713	1594
(Corr. 5% O ₂)	mg/Nm ³	10697	9462	8805
Carbon Monoxide (CO) (9)	g/bkW-hr	2.0	2.2	2.5
(Corr. 15% O ₂)	ppm	204	197	209
(Corr. 5% O ₂)	mg/Nm ³	686	662	705
Total Hydrocarbons (THC) (9)	g/bkW-hr	2.7	2.9	3.9
(Corr. 15% O ₂)	ppm	449	459	567
(Corr. 5% O ₂)	mg/Nm ³	1513	1547	1909
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.40	0.44	0.59
(Corr. 15% O ₂)	ppm	67	69	85
(Corr. 5% O ₂)	mg/Nm ³	227	232	286
Exhaust Oxygen (9)	%	4.0	2.3	0.5
Lambda		1.22	1.11	1.02

Engine Heat Balance Data				
Input Energy LHV (1)	kW	1044	851	627
Work Output	kW	377	283	189
Heat Rejection to Jacket (2) (6)	kW	375	343	282
Heat Rejection to Atmosphere (Radiated) (4)	kW	42	34	25
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	217	165	110
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	171	130	86
Heat Rejection to Aftercooler (3) (7) (8)	kW	23	15	6

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/29	1.0/30	1.0/31

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	0.98	0.97	0.98	0.97	0.98	0.97	0.99	0.97	0.99	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
	0.95	0.94	0.95	0.94	0.95	0.94	0.96	0.94	0.96	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
	0.92	0.91	0.92	0.91	0.92	0.91	0.93	0.91	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	0.90	0.88	0.90	0.88	0.90	0.88	0.90	0.88	0.90	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
	0.87	0.86	0.87	0.86	0.87	0.86	0.88	0.86	0.88	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
	0.84	0.83	0.84	0.83	0.84	0.83	0.85	0.83	0.85	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
	0.82	0.80	0.82	0.80	0.82	0.80	0.82	0.80	0.82	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
	0.79	0.78	0.79	0.78	0.79	0.78	0.80	0.78	0.80	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
	0.77	0.76	0.77	0.76	0.77	0.76	0.78	0.76	0.78	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
	0.74	0.73	0.74	0.73	0.74	0.73	0.75	0.73	0.75	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
	0.72	0.71	0.72	0.71	0.72	0.71	0.73	0.71	0.73	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
	0.70																					

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	45	40	35	30	25	20	15	10	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	1.45	1.33	1.21	1.09	1.00	1.00	1.00	1.00	1.00	1.45	1.41	1.38	1.34	1.30	1.26	1.22	1.18	1.13	1.13	1.29	1.29	1.29
	1.53	1.41	1.29	1.17	1.05	1.00	1.00	1.00	1.00	1.53	1.50	1.46	1.43	1.39	1.35	1.31	1.26	1.22	1.22	1.39	1.39	1.39
	1.62	1.50	1.38	1.26	1.14	1.02	1.00	1.00	1.00	1.62	1.59	1.55	1.51	1.48	1.44	1.40	1.35	1.31	1.31	1.48	1.48	1.48
	1.71	1.59	1.46	1.34	1.22	1.10	1.06	1.00	1.00	1.71	1.68	1.64	1.60	1.56	1.52	1.48	1.43	1.39	1.39	1.56	1.56	1.56
	1.80	1.68	1.55	1.43	1.30	1.18	1.06	1.00	1.00	1.80	1.76	1.73	1.69	1.65	1.61	1.56	1.52	1.48	1.48	1.65	1.65	1.65
	1.89	1.76	1.64	1.51	1.39	1.26	1.14	1.01	1.00	1.89	1.86	1.82	1.78	1.73	1.69	1.64	1.60	1.56	1.56	1.73	1.73	1.73
	1.98	1.86	1.73	1.60	1.48	1.35	1.22	1.10	1.00	1.98	1.95	1.91	1.87	1.82	1.78	1.73	1.69	1.65	1.65	1.82	1.82	1.82
	2.08	1.95	1.82	1.69	1.56	1.44	1.31	1.18	1.05	2.08	2.04	2.01	1.97	1.92	1.88	1.83	1.79	1.75	1.75	1.92	1.92	1.92
	2.17	2.04	1.91	1.78	1.65	1.52	1.39	1.26	1.13	2.17	2.14	2.11	2.07	2.03	1.99	1.94	1.90	1.86	1.86	2.03	2.03	2.03
	2.27	2.14	2.01	1.87	1.74	1.61	1.48	1.35	1.22	2.27	2.22	2.19	2.15	2.11	2.07	2.03	1.98	1.94	1.94	2.11	2.11	2.11
	2.35	2.22	2.08	1.95	1.82	1.69	1.56	1.42	1.29	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35
	2.35	2.22	2.08	1.95	1.82	1.69	1.56	1.42	1.29	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35
	2.35	2.22	2.08	1.95	1.82	1.69	1.56	1.42	1.29	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35

ALTITUDE (METERS ABOVE SEA LEVEL)

DM5180-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.4:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	DELTEC
Jacket Water Outlet Temperature (°C)	99	Air Fuel Ratio Control Required	
Ignition System	EIS	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (m)	300
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	396	297	198
Generator Set Power (w/o fan)	kW	370	278	185

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	9.56	10.04	10.93
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	5.38	5.6	6.02
Air Mass Flow (Wet)	Nm ³ /bkW-hr	4.23	4.4	4.73
Compressor Out Pressure	kPa (abs)	209	183	147
Compressor Out Temperature	°C	117	99	71
Inlet Manifold Pressure	kPa (abs)	201	159	116
Inlet Manifold Temperature (10)	°C	59	60	58
Timing (11)	°BTDC	28	28	28
Exhaust Stack Temperature	°C	353	350	349
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	4.39	4.56	4.91
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	5.58	5.81	6.25

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	1.5	1.6	1.7
	(Corr. 15% O2)	ppm	90	90	90
	(Corr. 5% O2)	mg/Nm3	500	500	500
Carbon Monoxide (CO) (9)		g/bkW-hr	1.9	2.0	2.0
	(Corr. 15% O2)	ppm	188	191	181
	(Corr. 5% O2)	mg/Nm3	634	642	608
Total Hydrocarbons (THC) (9)		g/bkW-hr	5.9	7.2	8.5
	(Corr. 15% O2)	ppm	1031	1208	1328
	(Corr. 5% O2)	mg/Nm3	3474	4068	4474
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.88	1.07	1.27
	(Corr. 15% O2)	ppm	155	181	199
	(Corr. 5% O2)	mg/Nm3	521	610	671
Exhaust Oxygen (9)		%	8.9	8.9	8.9
Lambda			1.67	1.65	1.63

Engine Heat Balance Data				
Input Energy LHV (1)	kW	1052	828	601
Work Output	kW	396	297	198
Heat Rejection to Jacket (2) (6)	kW	336	281	220
Heat Rejection to Atmosphere (Radiated) (4)	kW	42	33	24
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	240	198	155
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	159	122	87
Heat Rejection to Aftercooler (3) (7) (8)	kW	38	20	5

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/24	1.0/25	1.0/26	1.0/28

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68	0.66
	45	0.97	0.94	0.91	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69	0.67
	40	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	35	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69
	30	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.78	0.75	0.73	0.71
	25	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72
	20	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73
	15	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74
	10	1.00	1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.80	0.78	0.75
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
		ALTITUDE (METERS ABOVE SEA LEVEL)												

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	1.42	1.49	1.57	1.64	1.71	1.71	1.71	1.71	1.71	1.71	1.71	1.71	
	45	1.31	1.38	1.46	1.53	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60	
	40	1.20	1.27	1.34	1.42	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	
	35	1.10	1.16	1.23	1.30	1.37	1.37	1.37	1.37	1.37	1.37	1.37	1.37	
	30	1.00	1.06	1.12	1.19	1.26	1.26	1.26	1.26	1.26	1.26	1.26	1.26	
	25	1.00	1.00	1.01	1.08	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	
	20	1.00	1.00	1.00	1.00	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	
	15	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.4:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	32	Fuel System	DELTEC
Jacket Water Outlet Temperature (°C)	99	Air Fuel Ratio Control Required	
Ignition System	EIS	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (m)	500
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	419	314	210
Generator Set Power (w/o fan)	kW	395	296	198

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	9.49	9.85	12
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	5.35	5.55	6.11
Air Mass Flow (Wet)	Nm ³ /bkW-hr	4.2	4.36	4.8
Compressor Out Pressure	kPa (abs)	217	187	151
Compressor Out Temperature	°C	120	102	75
Inlet Manifold Pressure	kPa (abs)	203	157	116
Inlet Manifold Temperature (10)	°C	42	42	43
Timing (11)	°BTDC	30	30	30
Exhaust Stack Temperature	°C	351	349	348
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	4.36	4.52	5
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	5.55	5.75	6.36

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	1.5	1.5	1.7
	(Corr. 15% O2)	ppm	90	90	90
	(Corr. 5% O2)	mg/Nm3	500	500	500
Carbon Monoxide (CO) (9)		g/bkW-hr	2.1	2.1	2.0
	(Corr. 15% O2)	ppm	215	205	183
	(Corr. 5% O2)	mg/Nm3	724	690	618
Total Hydrocarbons (THC) (9)		g/bkW-hr	7.5	8.1	10.0
	(Corr. 15% O2)	ppm	1327	1396	1583
	(Corr. 5% O2)	mg/Nm3	4471	4702	5332
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	1.12	1.22	1.49
	(Corr. 15% O2)	ppm	199	209	237
	(Corr. 5% O2)	mg/Nm3	671	705	800
Exhaust Oxygen (9)		%	9.0	8.9	8.9
Lambda			1.67	1.65	1.48

Engine Heat Balance Data				
Input Energy LHV (1)	kW	1105	860	699
Work Output	kW	419	314	210
Heat Rejection to Jacket (2) (6)	kW	341	272	265
Heat Rejection to Atmosphere (Radiated) (4)	kW	44	34	28
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	247	208	184
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	166	128	94
Heat Rejection to Aftercooler (3) (7) (8)	kW	54	32	13

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	96 dBA
Noise - Exhaust @ 1.5 m	112 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/26	1.0/27	1.0/28	1.0/30

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	ALTITUDE (METERS ABOVE SEA LEVEL)												
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
	45	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	40	1.00	0.97	0.94	0.91	0.89	0.86	0.84	0.81	0.78	0.76	0.74	0.71	0.69
	35	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70
	30	1.00	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.71
	25	1.00	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73
	20	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74
	15	1.00	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75
	10	1.00	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.81	0.79	0.76
		1.00	1.00	1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.85	0.83	0.80	0.78

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
	50	1.32	1.37	1.43	1.48	1.54	1.60	1.65	1.71	1.72	1.72	1.72	1.72	1.72	
	45	1.24	1.29	1.34	1.40	1.45	1.51	1.57	1.62	1.64	1.64	1.64	1.64	1.64	
	40	1.16	1.21	1.26	1.31	1.37	1.42	1.48	1.53	1.55	1.55	1.55	1.55	1.55	
	35	1.07	1.13	1.18	1.23	1.28	1.34	1.39	1.45	1.46	1.46	1.46	1.46	1.46	
	30	1.00	1.04	1.09	1.14	1.20	1.25	1.30	1.36	1.37	1.37	1.37	1.37	1.37	
	25	1.00	1.00	1.01	1.06	1.11	1.16	1.22	1.27	1.28	1.28	1.28	1.28	1.28	
	20	1.00	1.00	1.00	1.00	1.03	1.08	1.13	1.18	1.19	1.19	1.19	1.19	1.19	
	15	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.09	1.11	1.11	1.11	1.11	1.11	
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.02	1.02	1.02	1.02	1.02	

DM5103-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	PROPANE
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	89
Aftercooler Inlet Temperature (°C)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	200
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	190	143	95
Generator Set Power (w/o fan)	kW	175	131	88

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.9	11.53	12.96
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.1	4.28	4.84
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.22	3.36	3.8
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	kPa (abs)	94	82	62
Inlet Manifold Temperature (10)	°C	33	32	32
Timing (11)	°BTDC	15	15	15
Exhaust Stack Temperature	°C	630	605	570
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.41	3.56	4.02
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.33	4.52	5.11

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	27.4	28.1	29.5
(Corr. 15% O ₂)	ppm	1482	1457	1375
(Corr. 5% O ₂)	mg/Nm ³	8189	8049	7595
Carbon Monoxide (CO) (9)	g/bkW-hr	2.0	2.0	2.0
(Corr. 15% O ₂)	ppm	180	174	155
(Corr. 5% O ₂)	mg/Nm ³	606	588	522
Total Hydrocarbons (THC) (9)	g/bkW-hr	1.8	1.9	2.0
(Corr. 15% O ₂)	ppm	289	280	274
(Corr. 5% O ₂)	mg/Nm ³	973	943	925
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.27	0.28	0.30
(Corr. 15% O ₂)	ppm	43	42	41
(Corr. 5% O ₂)	mg/Nm ³	146	141	139
Exhaust Oxygen (9)	%	2.0	2.0	2.3
Lambda		1.16	1.16	1.15

Engine Heat Balance Data				
Input Energy LHV (1)	kW	576	457	342
Work Output	kW	190	143	95
Heat Rejection to Jacket (2) (6)	kW	215	184	154
Heat Rejection to Atmosphere (Radiated) (4)	kW	23	18	14
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	152	114	80
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	130	97	67
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93	dB(A)
Noise - Exhaust @ 1.5 m	106	dB(A)

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67	0.65
	45	0.95	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68	0.66
	40	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67
	35	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	30	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69
	25	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73	0.70
	20	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72
	15	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73
	10	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
		ALTITUDE (METERS ABOVE SEA LEVEL)												

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5091-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5091-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	200
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	190	143	95
Generator Set Power (w/o fan)	kW	175	131	88

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.61	11.56	13.29
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.02	4.27	4.79
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.16	3.35	3.76
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	kPa (abs)	94	78	63
Inlet Manifold Temperature (10)	°C	33	32	32
Timing (11)	°BTDC	34	34	34
Exhaust Stack Temperature	°C	618	600	568
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.34	3.55	3.98
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.25	4.51	5.06

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	27.4	28.1	29.5
	(Corr. 15% O2)	ppm	1513	1460	1358
	(Corr. 5% O2)	mg/Nm3	8357	8063	7504
Carbon Monoxide (CO) (9)		g/bkW-hr	2.0	1.9	2.0
	(Corr. 15% O2)	ppm	184	165	153
	(Corr. 5% O2)	mg/Nm3	618	557	515
Total Hydrocarbons (THC) (9)		g/bkW-hr	1.7	1.7	2.0
	(Corr. 15% O2)	ppm	274	255	271
	(Corr. 5% O2)	mg/Nm3	924	859	914
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.26	0.25	0.30
	(Corr. 15% O2)	ppm	41	38	41
	(Corr. 5% O2)	mg/Nm3	139	129	137
Exhaust Oxygen (9)		%	2.0	2.0	1.9
Lambda			1.20	1.18	1.14

Engine Heat Balance Data				
Input Energy LHV (1)	kW	560	458	351
Work Output	kW	190	143	95
Heat Rejection to Jacket (2) (6)	kW	199	182	159
Heat Rejection to Atmosphere (Radiated) (4)	kW	22	18	14
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	153	118	83
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	130	100	70
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/15	1.0/17	1.0/19	1.0/21	1.0/23	1.0/25	1.0/27	1.0/29	1.0/31	1.0/32	1.0/34

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67	0.65
	45	0.95	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68	0.66
	40	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67
	35	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	30	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69
	25	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73	0.70
	20	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72
	15	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73
	10	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000

ALTITUDE (METERS ABOVE SEA LEVEL)

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Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5198-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIS	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	800
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	281	211	141
Generator Set Power (w/o fan)	kW	230	173	115

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.41	10.93	12.69
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.26	3.96	4.2
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.35	3.11	3.3
Compressor Out Pressure	kPa (abs)	158	136	119
Compressor Out Temperature	°C	90	83	65
Inlet Manifold Pressure	kPa (abs)	144	118	86
Inlet Manifold Temperature (10)	°C	56	56	55
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°C	447	425	396
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.53	3.29	3.51
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.48	4.19	4.47

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	28.8	28.9	27.7
(Corr. 15% O ₂)	ppm	1256	1114	776
(Corr. 5% O ₂)	mg/Nm ³	6939	6155	4288
Carbon Monoxide (CO) (9)	g/bkW-hr	1.5	1.5	1.5
(Corr. 15% O ₂)	ppm	105	115	57
(Corr. 5% O ₂)	mg/Nm ³	353	387	193
Total Hydrocarbons (THC) (9)	g/bkW-hr	3.2	3.0	3.4
(Corr. 15% O ₂)	ppm	593	543	556
(Corr. 5% O ₂)	mg/Nm ³	1996	1829	1872
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.48	0.45	0.51
(Corr. 15% O ₂)	ppm	89	81	83
(Corr. 5% O ₂)	mg/Nm ³	299	274	281
Exhaust Oxygen (9)	%	4.0	4.6	3.1
Lambda		1.29	1.29	1.19

Engine Heat Balance Data				
Input Energy LHV (1)	kW	813	640	495
Work Output	kW	281	211	141
Heat Rejection to Jacket (2) (6)	kW	311	277	250
Heat Rejection to Atmosphere (Radiated) (4)	kW	33	26	20
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	166	110	73
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	130	85	55
Heat Rejection to Aftercooler (3) (7) (8)	kW	13	7	2

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93	dBA
Noise - Exhaust @ 1.5 m	106	dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/23	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50		1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	
45		1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	0.71	
40		1.00	1.00	0.98	0.95	0.93	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	
35		1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	
30		1.00	1.00	1.00	0.98	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75	
25		1.00	1.00	1.00	1.00	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	
20		1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	
15		1.00	1.00	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.78	
10		1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50		1.70	1.84	1.97	2.11	2.25	2.40	2.54	2.69	2.84	2.99	3.15	3.15	3.15	
45		1.51	1.65	1.78	1.92	2.06	2.20	2.34	2.49	2.64	2.79	2.94	2.94	2.94	
40		1.33	1.46	1.59	1.73	1.87	2.01	2.15	2.29	2.44	2.58	2.73	2.73	2.73	
35		1.14	1.27	1.40	1.54	1.67	1.81	1.95	2.09	2.23	2.38	2.52	2.52	2.52	
30		1.00	1.09	1.21	1.35	1.48	1.61	1.75	1.89	2.03	2.17	2.32	2.32	2.32	
25		1.00	1.00	1.02	1.15	1.28	1.42	1.55	1.69	1.83	1.97	2.11	2.11	2.11	
20		1.00	1.00	1.00	1.00	1.09	1.22	1.35	1.49	1.62	1.76	1.90	1.90	1.90	
15		1.00	1.00	1.00	1.00	1.00	1.02	1.15	1.29	1.42	1.56	1.69	1.69	1.69	
10		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.08	1.22	1.35	1.49	1.49	1.49	

DM5182-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	800
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	281	211	141
Generator Set Power (w/o fan)	kW	255	191	128

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.25	10.6	11.65
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.08	4.24	4.49
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.2	3.33	3.53
Compressor Out Pressure	kPa (abs)	191	170	133
Compressor Out Temperature	°C	121	103	69
Inlet Manifold Pressure	kPa (abs)	184	143	101
Inlet Manifold Temperature (10)	°C	59	55	55
Timing (11)	°BTDC	35	35	35
Exhaust Stack Temperature	°C	437	436	430
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.38	3.51	3.72
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.29	4.47	4.73

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	30.8	31.0	28.9
(Corr. 15% O ₂)	ppm	1818	1682	1405
(Corr. 5% O ₂)	mg/Nm ³	10045	9290	7764
Carbon Monoxide (CO) (9)	g/bkW-hr	1.3	1.4	1.5
(Corr. 15% O ₂)	ppm	129	123	117
(Corr. 5% O ₂)	mg/Nm ³	436	413	393
Total Hydrocarbons (THC) (9)	g/bkW-hr	2.6	2.8	3.4
(Corr. 15% O ₂)	ppm	454	435	483
(Corr. 5% O ₂)	mg/Nm ³	1528	1464	1627
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.40	0.41	0.51
(Corr. 15% O ₂)	ppm	68	65	72
(Corr. 5% O ₂)	mg/Nm ³	229	220	244
Exhaust Oxygen (9)	%	4.0	3.2	2.2
Lambda		1.21	1.19	1.14

Engine Heat Balance Data				
Input Energy LHV (1)	kW	800	621	455
Work Output	kW	281	211	141
Heat Rejection to Jacket (2) (6)	kW	300	242	199
Heat Rejection to Atmosphere (Radiated) (4)	kW	32	25	18
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	156	122	85
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	122	95	66
Heat Rejection to Aftercooler (3) (7) (8)	kW	23	14	3

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93	dBA
Noise - Exhaust @ 1.5 m	106	dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/16	0.90/17	0.90/19	0.90/20	0.90/20	0.90/22	1.0/24	1.0/27	1.0/30	1.0/32	1.0/35

Altitude Deration Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50		1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	
45		1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	0.71	
40		1.00	1.00	0.98	0.95	0.93	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	
35		1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	
30		1.00	1.00	1.00	0.98	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75	
25		1.00	1.00	1.00	1.00	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	
20		1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	
15		1.00	1.00	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.78	
10		1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50		1.39	1.47	1.55	1.63	1.71	1.79	1.88	1.96	2.05	2.14	2.23	2.23	2.23	
45		1.28	1.36	1.44	1.52	1.60	1.68	1.77	1.85	1.94	2.02	2.11	2.11	2.11	
40		1.18	1.26	1.33	1.41	1.49	1.57	1.65	1.74	1.82	1.91	1.99	1.99	1.99	
35		1.08	1.15	1.23	1.30	1.38	1.46	1.54	1.62	1.71	1.79	1.88	1.88	1.88	
30		1.00	1.05	1.12	1.20	1.27	1.35	1.43	1.51	1.59	1.68	1.76	1.76	1.76	
25		1.00	1.00	1.01	1.09	1.16	1.24	1.32	1.40	1.48	1.56	1.64	1.64	1.64	
20		1.00	1.00	1.00	1.00	1.06	1.13	1.21	1.29	1.36	1.45	1.53	1.53	1.53	
15		1.00	1.00	1.00	1.00	1.00	1.02	1.10	1.17	1.25	1.33	1.41	1.41	1.41	
10		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.06	1.14	1.21	1.29	1.29	1.29	

DM5187-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	32	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	800
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	302	227	151
Generator Set Power (w/o fan)	kW	280	210	140

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.06	10.48	11.46
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.06	4.21	4.42
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.19	3.31	3.47
Compressor Out Pressure	kPa (abs)	198	179	138
Compressor Out Temperature	°C	128	111	74
Inlet Manifold Pressure	kPa (abs)	192	149	104
Inlet Manifold Temperature (10)	°C	56	55	54
Timing (11)	°BTDC	35	35	35
Exhaust Stack Temperature	°C	431	433	430
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.36	3.49	3.67
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.27	4.43	4.66

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	28.5	29.7	27.4
(Corr. 15% O ₂)	ppm	1925	1856	1613
(Corr. 5% O ₂)	mg/Nm ³	10635	10254	8911
Carbon Monoxide (CO) (9)	g/bkW-hr	2.0	2.0	2.0
(Corr. 15% O ₂)	ppm	199	187	172
(Corr. 5% O ₂)	mg/Nm ³	670	629	578
Total Hydrocarbons (THC) (9)	g/bkW-hr	2.5	2.7	3.2
(Corr. 15% O ₂)	ppm	425	437	482
(Corr. 5% O ₂)	mg/Nm ³	1431	1472	1624
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.37	0.40	0.48
(Corr. 15% O ₂)	ppm	64	66	72
(Corr. 5% O ₂)	mg/Nm ³	215	221	244
Exhaust Oxygen (9)	%	4.0	3.3	2.4
Lambda		1.21	1.19	1.14

Engine Heat Balance Data				
Input Energy LHV (1)	kW	844	660	481
Work Output	kW	302	227	151
Heat Rejection to Jacket (2) (6)	kW	308	253	206
Heat Rejection to Atmosphere (Radiated) (4)	kW	34	26	19
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	164	128	90
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	127	100	69
Heat Rejection to Aftercooler (3) (7) (8)	kW	28	17	4

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/18	0.90/19	0.90/20	0.90/21	0.90/22	0.90/23	1.0/25	1.0/28	1.0/31	1.0/33	1.0/35

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70
	45	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	0.71
	40	1.00	1.00	0.98	0.95	0.93	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72
	35	1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73
	30	1.00	1.00	1.00	0.98	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75
	25	1.00	1.00	1.00	1.00	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76
	20	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77
	15	1.00	1.00	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.78
	10	1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000

ALTITUDE (METERS ABOVE SEA LEVEL)

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	1.35	1.42	1.49	1.56	1.63	1.71	1.78	1.86	1.94	2.01	2.09	2.09	2.09
	45	1.25	1.32	1.39	1.46	1.54	1.61	1.68	1.76	1.83	1.91	1.99	1.99	1.99
	40	1.16	1.23	1.30	1.37	1.44	1.51	1.58	1.66	1.73	1.81	1.89	1.89	1.89
	35	1.07	1.13	1.20	1.27	1.34	1.41	1.48	1.56	1.63	1.70	1.78	1.78	1.78
	30	1.00	1.04	1.11	1.18	1.24	1.31	1.38	1.46	1.53	1.60	1.68	1.68	1.68
	25	1.00	1.00	1.01	1.08	1.15	1.21	1.28	1.35	1.43	1.50	1.57	1.57	1.57
	20	1.00	1.00	1.00	1.00	1.05	1.12	1.18	1.25	1.32	1.40	1.47	1.47	1.47
	15	1.00	1.00	1.00	1.00	1.00	1.02	1.09	1.15	1.22	1.29	1.36	1.36	1.36
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.05	1.12	1.19	1.26	1.26	1.26
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000

ALTITUDE (METERS ABOVE SEA LEVEL)

DM0841-01 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	800
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	343	257	172
Generator Set Power (w/o fan)	kW	310	233	155

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.39	10.7	12.34
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.26	4.59	5.04
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.34	3.6	3.96
Compressor Out Pressure	kPa (abs)	182	156	141
Compressor Out Temperature	°C	108	99	85
Inlet Manifold Pressure	kPa (abs)	176	140	103
Inlet Manifold Temperature (10)	°C	67	67	68
Timing (11)	°BTDC	20	20	20
Exhaust Stack Temperature	°C	470	450	430
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.52	3.78	4.17
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.47	4.81	5.3

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	21.8	21.9	16.3
(Corr. 15% O ₂)	ppm	1227	1156	805
(Corr. 5% O ₂)	mg/Nm ³	6779	6385	4448
Carbon Monoxide (CO) (9)	g/bkW-hr	1.5	1.6	1.9
(Corr. 15% O ₂)	ppm	148	149	184
(Corr. 5% O ₂)	mg/Nm ³	500	502	619
Total Hydrocarbons (THC) (9)	g/bkW-hr	4.8	3.0	3.1
(Corr. 15% O ₂)	ppm	798	462	445
(Corr. 5% O ₂)	mg/Nm ³	2689	1557	1499
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.71	0.45	0.46
(Corr. 15% O ₂)	ppm	120	69	67
(Corr. 5% O ₂)	mg/Nm ³	403	234	225
Exhaust Oxygen (9)	%	4.0	4.1	4.7
Lambda		1.32	1.29	1.30

Engine Heat Balance Data				
Input Energy LHV (1)	kW	990	765	588
Work Output	kW	343	257	172
Heat Rejection to Jacket (2) (6)	kW	358	290	263
Heat Rejection to Atmosphere (Radiated) (4)	kW	40	31	24
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	214	164	115
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	170	129	89
Heat Rejection to Aftercooler (3) (7) (8)	kW	19	12	5

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/17	1.0/19	1.0/20

Altitude Deration Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50		1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	
45		1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	0.71	
40		1.00	1.00	0.98	0.95	0.93	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	
35		1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	
30		1.00	1.00	1.00	0.98	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75	
25		1.00	1.00	1.00	1.00	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	
20		1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	
15		1.00	1.00	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.78	
10		1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	1.54	1.65	1.75	1.86	1.97	2.09	2.20	2.32	2.44	2.56	2.68	2.68	2.68
	45	1.39	1.50	1.61	1.71	1.82	1.94	2.05	2.16	2.28	2.40	2.52	2.52	2.52
	40	1.25	1.35	1.46	1.57	1.67	1.78	1.89	2.01	2.12	2.24	2.36	2.36	2.36
	35	1.11	1.21	1.31	1.42	1.52	1.63	1.74	1.85	1.96	2.08	2.20	2.20	2.20
	30	1.00	1.06	1.17	1.27	1.37	1.48	1.59	1.70	1.81	1.92	2.03	2.03	2.03
	25	1.00	1.00	1.02	1.12	1.22	1.33	1.43	1.54	1.65	1.76	1.87	1.87	1.87
	20	1.00	1.00	1.00	1.00	1.07	1.18	1.28	1.39	1.49	1.60	1.71	1.71	1.71
	15	1.00	1.00	1.00	1.00	1.00	1.02	1.13	1.23	1.34	1.44	1.55	1.55	1.55
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.07	1.18	1.28	1.39	1.39	1.39
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
ALTITUDE (METERS ABOVE SEA LEVEL)														

DM5184-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99	Air Fuel Ratio Control Required	
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	CATALYST	Rated Altitude (m)	760
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	211	158	106
Generator Set Power (w/o fan)	kW	190	143	95

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.87	12	14.37
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	3.79	4.05	4.41
Air Mass Flow (Wet)	Nm ³ /bkW-hr	2.98	3.18	3.46
Compressor Out Pressure	kPa (abs)	135	126	109
Compressor Out Temperature	°C	72	60	44
Inlet Manifold Pressure	kPa (abs)	123	104	79
Inlet Manifold Temperature (10)	°C	56	56	55
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°C	477	444	397
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.16	3.38	3.7
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.02	4.3	4.71

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)		g/bkW-hr	14.6	14.2
	(Corr. 15% O ₂)	ppm	785	705
	(Corr. 5% O ₂)	mg/Nm ³	4338	3897
Carbon Monoxide (CO) (9)		g/bkW-hr	17.3	15.6
	(Corr. 15% O ₂)	ppm	1512	1288
	(Corr. 5% O ₂)	mg/Nm ³	5092	4340
Total Hydrocarbons (THC) (9)		g/bkW-hr	4.9	4.8
	(Corr. 15% O ₂)	ppm	759	701
	(Corr. 5% O ₂)	mg/Nm ³	2556	2362
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.73	0.72
	(Corr. 15% O ₂)	ppm	114	105
	(Corr. 5% O ₂)	mg/Nm ³	383	354
Exhaust Oxygen (9)		%	0.4	0.4
Lambda			1.04	1.01

Engine Heat Balance Data				
Input Energy LHV (1)	kW	637	528	421
Work Output	kW	211	158	106
Heat Rejection to Jacket (2) (6)	kW	264	246	229
Heat Rejection to Atmosphere (Radiated) (4)	kW	25	21	17
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	122	91	59
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	98	71	45
Heat Rejection to Aftercooler (3) (7) (8)	kW	4	1	-2

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/23	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
	50	1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	
	45	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	0.71	
	40	1.00	1.00	0.98	0.95	0.93	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	
	35	1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	
	30	1.00	1.00	1.00	0.98	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75	
	25	1.00	1.00	1.00	1.00	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	
	20	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	
	15	1.00	1.00	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.78	
	10	1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50		2.63	2.96	3.30	3.64	3.98	4.34	4.69	5.05	5.42	5.79	6.17	6.17	6.17	
45		2.19	2.52	2.85	3.19	3.53	3.87	4.22	4.58	4.94	5.31	5.68	5.68	5.68	
40		1.75	2.08	2.40	2.73	3.07	3.41	3.75	4.11	4.46	4.82	5.19	5.19	5.19	
35		1.32	1.63	1.95	2.28	2.61	2.95	3.29	3.63	3.98	4.34	4.70	4.70	4.70	
30		1.00	1.19	1.51	1.83	2.15	2.48	2.82	3.16	3.50	3.85	4.21	4.21	4.21	
25		1.00	1.00	1.06	1.37	1.69	2.02	2.35	2.68	3.02	3.36	3.71	3.71	3.71	
20		1.00	1.00	1.00	1.00	1.24	1.56	1.88	2.21	2.54	2.88	3.22	3.22	3.22	
15		1.00	1.00	1.00	1.00	1.00	1.09	1.41	1.73	2.06	2.39	2.73	2.73	2.73	
10		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.26	1.58	1.91	2.24	2.24	2.24	

DM5092-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	800
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	234	176	117
Generator Set Power (w/o fan)	kW	210	158	105

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.2	10.64	12.17
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.23	4.51	4.79
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.33	3.55	3.76
Compressor Out Pressure	kPa (abs)	145	136	119
Compressor Out Temperature	°C	78	68	53
Inlet Manifold Pressure	kPa (abs)	138	118	86
Inlet Manifold Temperature (10)	°C	58	55	54
Timing (11)	°BTDC	28	28	28
Exhaust Stack Temperature	°C	447	425	396
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.5	3.73	3.97
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.45	4.74	5.05

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	30.2	29.9	30.3
(Corr. 15% O ₂)	ppm	1633	1560	1397
(Corr. 5% O ₂)	mg/Nm ³	9021	8617	7718
Carbon Monoxide (CO) (9)	g/bkW-hr	1.5	1.7	1.5
(Corr. 15% O ₂)	ppm	147	161	119
(Corr. 5% O ₂)	mg/Nm ³	495	542	400
Total Hydrocarbons (THC) (9)	g/bkW-hr	3.8	3.6	4.1
(Corr. 15% O ₂)	ppm	593	543	556
(Corr. 5% O ₂)	mg/Nm ³	1996	1829	1872
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.57	0.54	0.61
(Corr. 15% O ₂)	ppm	89	81	83
(Corr. 5% O ₂)	mg/Nm ³	299	274	281
Exhaust Oxygen (9)	%	4.0	4.6	3.1
Lambda		1.29	1.29	1.19

Engine Heat Balance Data				
Input Energy LHV (1)	kW	663	519	396
Work Output	kW	234	176	117
Heat Rejection to Jacket (2) (6)	kW	250	207	185
Heat Rejection to Atmosphere (Radiated) (4)	kW	27	21	16
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	137	104	69
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	108	80	52
Heat Rejection to Aftercooler (3) (7) (8)	kW	6	3	-0

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/25	1.0/27	1.0/28

Altitude Deration Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50		1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	
45		1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	0.71	
40		1.00	1.00	0.98	0.95	0.93	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	
35		1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	
30		1.00	1.00	1.00	0.98	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75	
25		1.00	1.00	1.00	1.00	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	
20		1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	
15		1.00	1.00	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.78	
10		1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	2.20	2.43	2.67	2.91	3.15	3.40	3.65	3.90	4.16	4.42	4.68	4.68	4.68
	45	1.88	2.11	2.34	2.58	2.82	3.06	3.31	3.56	3.81	4.07	4.33	4.33	4.33
	40	1.56	1.79	2.02	2.25	2.48	2.72	2.97	3.21	3.46	3.71	3.97	3.97	3.97
	35	1.24	1.47	1.69	1.92	2.15	2.39	2.63	2.87	3.11	3.36	3.62	3.62	3.62
	30	1.00	1.15	1.37	1.59	1.82	2.05	2.29	2.52	2.77	3.01	3.26	3.26	3.26
	25	1.00	1.00	1.04	1.26	1.49	1.71	1.95	2.18	2.42	2.66	2.90	2.90	2.90
	20	1.00	1.00	1.00	1.00	1.15	1.38	1.61	1.84	2.07	2.31	2.55	2.55	2.55
	15	1.00	1.00	1.00	1.00	1.00	1.04	1.27	1.49	1.72	1.95	2.19	2.19	2.19
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.15	1.37	1.60	1.83	1.83	1.83
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000
ALTITUDE (METERS ABOVE SEA LEVEL)														

DM5190-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	8.5:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	800
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	234	176	117
Generator Set Power (w/o fan)	kW	210	158	105

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.01	10.47	11.19
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	3.7	3.8	4.14
Air Mass Flow (Wet)	Nm ³ /bkW-hr	2.9	2.98	3.25
Compressor Out Pressure	kPa (abs)	165	140	116
Compressor Out Temperature	°C	98	76	51
Inlet Manifold Pressure	kPa (abs)	158	122	87
Inlet Manifold Temperature (10)	°C	54	53	50
Timing (11)	°BTDC	30	30	30
Exhaust Stack Temperature	°C	449	441	422
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.07	3.16	3.44
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	3.91	4.02	4.38

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	28.2	25.7	20.1
(Corr. 15% O ₂)	ppm	1663	1439	985
(Corr. 5% O ₂)	mg/Nm ³	9185	7952	5444
Carbon Monoxide (CO) (9)	g/bkW-hr	2.0	1.9	1.8
(Corr. 15% O ₂)	ppm	87	87	149
(Corr. 5% O ₂)	mg/Nm ³	293	294	501
Total Hydrocarbons (THC) (9)	g/bkW-hr	2.8	2.9	4.0
(Corr. 15% O ₂)	ppm	474	479	575
(Corr. 5% O ₂)	mg/Nm ³	1595	1613	1935
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.41	0.44	0.60
(Corr. 15% O ₂)	ppm	71	72	86
(Corr. 5% O ₂)	mg/Nm ³	239	242	290
Exhaust Oxygen (9)	%	2.0	1.6	0.6
Lambda		1.12	1.10	1.10

Engine Heat Balance Data				
Input Energy LHV (1)	kW	651	511	364
Work Output	kW	234	176	117
Heat Rejection to Jacket (2) (6)	kW	249	210	158
Heat Rejection to Atmosphere (Radiated) (4)	kW	26	20	15
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	123	93	64
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	96	73	49
Heat Rejection to Aftercooler (3) (7) (8)	kW	12	5	0

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0.90/14	0.90/16	0.90/18	0.90/20	0.90/22	1.0/23	1.0/24	1.0/25	1.0/26	1.0/28	1.0/30

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70
	45	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	0.71
	40	1.00	1.00	0.98	0.95	0.93	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72
	35	1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73
	30	1.00	1.00	1.00	0.98	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75
	25	1.00	1.00	1.00	1.00	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76
	20	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77
	15	1.00	1.00	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.78
	10	1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000

ALTITUDE (METERS ABOVE SEA LEVEL)

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)	50	1.50	1.61	1.71	1.82	1.93	2.04	2.15	2.27	2.38	2.50	2.62	2.62	2.62
	45	1.37	1.47	1.57	1.68	1.79	1.90	2.01	2.12	2.23	2.35	2.47	2.47	2.47
	40	1.23	1.33	1.44	1.54	1.65	1.75	1.86	1.97	2.08	2.20	2.31	2.31	2.31
	35	1.10	1.20	1.30	1.40	1.50	1.61	1.72	1.82	1.93	2.05	2.16	2.16	2.16
	30	1.00	1.06	1.16	1.26	1.36	1.46	1.57	1.68	1.79	1.90	2.01	2.01	2.01
	25	1.00	1.00	1.02	1.12	1.22	1.32	1.42	1.53	1.64	1.74	1.85	1.85	1.85
	20	1.00	1.00	1.00	1.00	1.08	1.18	1.28	1.38	1.49	1.59	1.70	1.70	1.70
	15	1.00	1.00	1.00	1.00	1.00	1.03	1.13	1.23	1.34	1.44	1.55	1.55	1.55
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.09	1.19	1.29	1.40	1.40	1.40
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000

ALTITUDE (METERS ABOVE SEA LEVEL)

DM5093-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	9.7:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	32	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	760
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	251	188	126
Generator Set Power (w/o fan)	kW	230	173	115

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	9.97	10.57	11.63
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.14	4.62	5.14
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.25	3.63	4.03
Compressor Out Pressure	kPa (abs)	150	142	126
Compressor Out Temperature	°C	85	80	70
Inlet Manifold Pressure	kPa (abs)	142	119	88
Inlet Manifold Temperature (10)	°C	53	54	59
Timing (11)	°BTDC	31	31	31
Exhaust Stack Temperature	°C	461	432	401
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.42	3.81	4.23
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.35	4.84	5.38

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)	g/bkW-hr	22.5	18.9	13.3
(Corr. 15% O ₂)	ppm	1249	1018	649
(Corr. 5% O ₂)	mg/Nm ³	6903	5623	3583
Carbon Monoxide (CO) (9)	g/bkW-hr	1.1	1.3	1.4
(Corr. 15% O ₂)	ppm	111	126	133
(Corr. 5% O ₂)	mg/Nm ³	374	423	448
Total Hydrocarbons (THC) (9)	g/bkW-hr	4.2	3.4	3.7
(Corr. 15% O ₂)	ppm	660	530	532
(Corr. 5% O ₂)	mg/Nm ³	2223	1787	1791
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.63	0.51	0.56
(Corr. 15% O ₂)	ppm	99	80	80
(Corr. 5% O ₂)	mg/Nm ³	333	268	269
Exhaust Oxygen (9)	%	4.0	4.6	4.8
Lambda		1.30	1.30	1.32

Engine Heat Balance Data				
Input Energy LHV (1)	kW	696	554	406
Work Output	kW	251	188	126
Heat Rejection to Jacket (2) (6)	kW	257	220	183
Heat Rejection to Atmosphere (Radiated) (4)	kW	28	22	16
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	149	116	79
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	118	90	60
Heat Rejection to Aftercooler (3) (7) (8)	kW	11	7	2

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/29	1.0/30	1.0/31

Altitude Deration Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50		1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	
45		1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	0.71	
40		1.00	1.00	0.98	0.95	0.93	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	
35		1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	
30		1.00	1.00	1.00	0.98	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75	
25		1.00	1.00	1.00	1.00	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	
20		1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	
15		1.00	1.00	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.78	
10		1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50		1.71	1.85	2.00	2.15	2.30	2.45	2.61	2.77	2.93	3.09	3.25	3.25	3.25	
45		1.52	1.66	1.80	1.95	2.10	2.25	2.40	2.56	2.72	2.88	3.04	3.04	3.04	
40		1.33	1.47	1.61	1.75	1.90	2.05	2.20	2.35	2.51	2.67	2.83	2.83	2.83	
35		1.14	1.27	1.41	1.56	1.70	1.85	2.00	2.15	2.30	2.46	2.61	2.61	2.61	
30		1.00	1.08	1.22	1.36	1.50	1.65	1.79	1.94	2.09	2.24	2.40	2.40	2.40	
25		1.00	1.00	1.03	1.16	1.30	1.45	1.59	1.74	1.88	2.03	2.19	2.19	2.19	
20		1.00	1.00	1.00	1.00	1.10	1.24	1.39	1.53	1.67	1.82	1.97	1.97	1.97	
15		1.00	1.00	1.00	1.00	1.00	1.04	1.18	1.32	1.47	1.61	1.76	1.76	1.76	
10		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.12	1.26	1.40	1.54	1.54	1.54	

DM5094-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.0:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG DELTEC
Jacket Water Outlet Temperature (°C)	99	Air Fuel Ratio Control Required	
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (m)	350
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	264	198	132
Generator Set Power (w/o fan)	kW	240	180	120

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.1	10.32	11.05
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	5.76	5.81	5.89
Air Mass Flow (Wet)	Nm ³ /bkW-hr	4.52	4.57	4.62
Compressor Out Pressure	kPa (abs)	213	188	136
Compressor Out Temperature	°C	159	123	73
Inlet Manifold Pressure	kPa (abs)	204	149	108
Inlet Manifold Temperature (10)	°C	79	71	70
Timing (11)	°BTDC	28	28	28
Exhaust Stack Temperature	°C	341	343	348
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	4.69	4.74	4.81
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	5.97	6.03	6.12

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)		g/bkW-hr	1.6	1.7
	(Corr. 15% O ₂)	ppm	90	90
	(Corr. 5% O ₂)	mg/Nm ³	500	500
Carbon Monoxide (CO) (9)		g/bkW-hr	3.4	3.4
	(Corr. 15% O ₂)	ppm	172	214
	(Corr. 5% O ₂)	mg/Nm ³	579	722
Total Hydrocarbons (THC) (9)		g/bkW-hr	6.8	8.5
	(Corr. 15% O ₂)	ppm	946	1046
	(Corr. 5% O ₂)	mg/Nm ³	3186	3524
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	1.02	1.27
	(Corr. 15% O ₂)	ppm	142	157
	(Corr. 5% O ₂)	mg/Nm ³	478	529
Exhaust Oxygen (9)		%	8.2	8.1
Lambda			1.64	1.60

Engine Heat Balance Data				
Input Energy LHV (1)	kW	741	568	405
Work Output	kW	264	198	132
Heat Rejection to Jacket (2) (6)	kW	255	209	172
Heat Rejection to Atmosphere (Radiated) (4)	kW	30	23	16
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	151	116	80
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	107	82	57
Heat Rejection to Aftercooler (3) (7) (8)	kW	40	22	5

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/24	1.0/26	1.0/28	1.0/30

Altitude Deration Factors

AIR INLET TEMP. (°C)	ALTITUDE (METERS ABOVE SEA LEVEL)													
	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73	0.71	0.69	0.67	
45	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	0.68	
40	0.99	0.96	0.94	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73	0.71	0.69	
35	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	
30	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.80	0.78	0.76	0.73	0.71	
25	1.00	1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	
20	1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	
15	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75	
10	1.00	1.00	1.00	1.00	0.97	0.94	0.92	0.89	0.86	0.83	0.81	0.78	0.76	

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50	1.30	1.37	1.44	1.51	1.59	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	
	1.22	1.29	1.36	1.43	1.50	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	
	1.13	1.20	1.27	1.34	1.41	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	
	1.05	1.12	1.18	1.25	1.32	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	
	1.00	1.03	1.10	1.17	1.23	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	1.28	
	1.00	1.00	1.01	1.08	1.15	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	
	1.00	1.00	1.00	1.00	1.06	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	
15	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	
	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

DM0978-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.0:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	32	Fuel System	LPG DELTEC
Jacket Water Outlet Temperature (°C)	99	Air Fuel Ratio Control Required	
Ignition System	DIG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (m)	350
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	280	210	140
Generator Set Power (w/o fan)	kW	255	191	128

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	9.98	10.27	10.96
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	5.7	5.38	5.35
Air Mass Flow (Wet)	Nm ³ /bkW-hr	4.48	4.22	4.2
Compressor Out Pressure	kPa (abs)	221	194	141
Compressor Out Temperature	°C	158	129	77
Inlet Manifold Pressure	kPa (abs)	212	149	110
Inlet Manifold Temperature (10)	°C	58	51	46
Timing (11)	°BTDC	30	30	30
Exhaust Stack Temperature	°C	347	343	349
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	4.65	4.4	4.39
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	5.91	5.59	5.58

Engine Emissions Data				
Nitrous Oxides (NOx as NO ₂) (9)		g/bkW-hr	1.6	1.6
	(Corr. 15% O ₂)	ppm	91	91
	(Corr. 5% O ₂)	mg/Nm ³	500	500
Carbon Monoxide (CO) (9)		g/bkW-hr	3.1	3.1
	(Corr. 15% O ₂)	ppm	167	204
	(Corr. 5% O ₂)	mg/Nm ³	564	688
Total Hydrocarbons (THC) (9)		g/bkW-hr	13.3	14.4
	(Corr. 15% O ₂)	ppm	882	964
	(Corr. 5% O ₂)	mg/Nm ³	2971	3247
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	1.99	2.16
	(Corr. 15% O ₂)	ppm	132	145
	(Corr. 5% O ₂)	mg/Nm ³	446	487
Exhaust Oxygen (9)		%	8.2	8.0
Lambda			1.64	1.55

Engine Heat Balance Data				
Input Energy LHV (1)	kW	775	598	426
Work Output	kW	280	210	140
Heat Rejection to Jacket (2) (6)	kW	252	221	181
Heat Rejection to Atmosphere (Radiated) (4)	kW	31	24	17
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	162	114	77
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	116	81	55
Heat Rejection to Aftercooler (3) (7) (8)	kW	51	30	10

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	106 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/24	1.0/26	1.0/28	1.0/30

Altitude Deration Factors

AIR INLET TEMP. (°C)	ALTITUDE (METERS ABOVE SEA LEVEL)													
	0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73	0.71	0.69	0.67	
45	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	0.68	
40	0.99	0.96	0.94	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73	0.71	0.69	
35	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	
30	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.80	0.78	0.76	0.73	0.71	
25	1.00	1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	
20	1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	
15	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75	
10	1.00	1.00	1.00	1.00	0.97	0.94	0.92	0.89	0.86	0.83	0.81	0.78	0.76	

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Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50		1.25	1.31	1.36	1.42	1.47	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	
45		1.18	1.24	1.29	1.35	1.40	1.44	1.44	1.44	1.44	1.44	1.44	1.44	1.44	
40		1.11	1.17	1.22	1.27	1.33	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	
35		1.05	1.10	1.15	1.20	1.26	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	
30		1.00	1.03	1.08	1.13	1.19	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	
25		1.00	1.00	1.01	1.06	1.11	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	
20		1.00	1.00	1.00	1.00	1.04	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
15		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
10		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

DM0976-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	10.3:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	MAG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	200
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	172	129	86
Generator Set Power (w/o fan)	kW	150	113	75

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.77	11.85	13.51
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	3.88	4.17	4.82
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.05	3.28	3.78
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	kPa (abs)	94	81	64
Inlet Manifold Temperature (10)	°C	33	31	32
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°C	627	603	578
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.23	3.48	4.01
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.1	4.42	5.1

Engine Emissions Data				
Nitrous Oxides (NO _x as NO ₂) (9)		g/bkW-hr	29.0	30.2
	(Corr. 15% O ₂)	ppm	1661	1621
	(Corr. 5% O ₂)	mg/Nm ³	9176	8954
Carbon Monoxide (CO) (9)		g/bkW-hr	2.1	2.1
	(Corr. 15% O ₂)	ppm	196	184
	(Corr. 5% O ₂)	mg/Nm ³	662	621
Total Hydrocarbons (THC) (9)		g/bkW-hr	3.6	3.5
	(Corr. 15% O ₂)	ppm	603	552
	(Corr. 5% O ₂)	mg/Nm ³	2033	1858
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.54	0.53
	(Corr. 15% O ₂)	ppm	91	83
	(Corr. 5% O ₂)	mg/Nm ³	305	279
Exhaust Oxygen (9)		%	2.0	2.2
Lambda			1.06	1.07

Engine Heat Balance Data				
Input Energy LHV (1)	kW	515	425	323
Work Output	kW	172	129	86
Heat Rejection to Jacket (2) (6)	kW	185	172	143
Heat Rejection to Atmosphere (Radiated) (4)	kW	21	17	13
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	138	106	78
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	117	90	66
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	107 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/16	1.0/17	1.0/18	1.0/19	1.0/20	1.0/21	1.0/22	1.0/23	1.0/24	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67	0.65
	45	0.95	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68	0.66
	40	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67
	35	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	30	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69
	25	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73	0.70
	20	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72
	15	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73
	10	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5080-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	NAT GAS
Compression Ratio	10.3:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99	Air Fuel Ratio Control Required	
Ignition System	MAG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	CATALYST	Rated Altitude (m)	200
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	172	129	86
Generator Set Power (w/o fan)	kW	160	120	80

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	11.01	11.91	13.61
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	3.74	4.02	4.64
Air Mass Flow (Wet)	Nm ³ /bkW-hr	2.94	3.16	3.65
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	kPa (abs)	92	80	63
Inlet Manifold Temperature (10)	°C	33	31	32
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°C	639	620	593
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.13	3.36	3.88
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	3.98	4.28	4.93

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	15.1	15.5	16.3
	(Corr. 15% O2)	ppm	826	788	717
	(Corr. 5% O2)	mg/Nm3	4563	4352	3963
Carbon Monoxide (CO) (9)		g/bkW-hr	16.7	17.2	16.7
	(Corr. 15% O2)	ppm	990	811	665
	(Corr. 5% O2)	mg/Nm3	3336	2734	2239
Total Hydrocarbons (THC) (9)		g/bkW-hr	1.8	1.9	2.0
	(Corr. 15% O2)	ppm	289	275	251
	(Corr. 5% O2)	mg/Nm3	972	927	844
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.27	0.28	0.29
	(Corr. 15% O2)	ppm	43	41	38
	(Corr. 5% O2)	mg/Nm3	146	139	127
Exhaust Oxygen (9)		%	0.5	0.5	0.5
Lambda			1.00	0.99	0.98

Engine Heat Balance Data				
Input Energy LHV (1)	kW	527	428	326
Work Output	kW	172	129	86
Heat Rejection to Jacket (2) (6)	kW	200	176	149
Heat Rejection to Atmosphere (Radiated) (4)	kW	21	17	13
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	137	107	78
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	117	91	66
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	107 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/16	1.0/17	1.0/18	1.0/19	1.0/20	1.0/21	1.0/22	1.0/23	1.0/24	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67	0.65
	45	0.95	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68	0.66
	40	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67
	35	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	30	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69
	25	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73	0.70
	20	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72
	15	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73
	10	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM0967-01 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1800	Fuel	PROPANE
Compression Ratio	10.3:1	LHV of Fuel (MJ/Nm ³)	90
Aftercooler Inlet Temperature (°C)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99	Air Fuel Ratio Control Required	
Ignition System	MAG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	CATALYST	Rated Altitude (m)	200
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	172	129	86
Generator Set Power (w/o fan)	kW	150	113	75

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	11.34	12.24	13.54
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.27	4.46	5.33
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.35	3.5	4.19
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	kPa (abs)	94	76	62
Inlet Manifold Temperature (10)	°C	32	31	33
Timing (11)	°BTDC	13	13	13
Exhaust Stack Temperature	°C	617	569	545
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.54	3.71	4.42
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.51	4.72	5.61

Engine Emissions Data				
Nitrous Oxides (NO _x as NO ₂) (9)		g/bkW-hr	14.5	13.9
	(Corr. 15% O ₂)	ppm	701	639
	(Corr. 5% O ₂)	mg/Nm ³	3871	3533
Carbon Monoxide (CO) (9)		g/bkW-hr	16.0	17.7
	(Corr. 15% O ₂)	ppm	1271	1331
	(Corr. 5% O ₂)	mg/Nm ³	4281	4483
Total Hydrocarbons (THC) (9)		g/bkW-hr	1.8	1.8
	(Corr. 15% O ₂)	ppm	255	236
	(Corr. 5% O ₂)	mg/Nm ³	858	794
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.27	0.26
	(Corr. 15% O ₂)	ppm	38	35
	(Corr. 5% O ₂)	mg/Nm ³	129	119
Exhaust Oxygen (9)		%	0.5	0.4
Lambda			1.07	1.08

Engine Heat Balance Data				
Input Energy LHV (1)	kW	543	439	324
Work Output	kW	172	129	86
Heat Rejection to Jacket (2) (6)	kW	211	194	150
Heat Rejection to Atmosphere (Radiated) (4)	kW	22	18	13
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	141	101	76
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	120	84	63
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	107 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/13	1.0/15	1.0/17	1.0/19	1.0/20	1.0/21	1.0/22	1.0/23	1.0/24	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67	0.65
	45	0.95	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68	0.66
	40	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67
	35	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	30	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69
	25	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73	0.70
	20	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72
	15	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73
	10	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5079-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	10.3:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	N/A	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99		
Ignition System	MAG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	STANDARD	Rated Altitude (m)	200
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	133	100	66
Generator Set Power (w/o fan)	kW	125	94	63

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.74	11.48	12.92
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	4.02	4.32	4.82
Air Mass Flow (Wet)	Nm ³ /bkW-hr	3.15	3.39	3.79
Compressor Out Pressure	N/A	N/A	N/A	N/A
Compressor Out Temperature	N/A	N/A	N/A	N/A
Inlet Manifold Pressure	kPa (abs)	92	77	63
Inlet Manifold Temperature (10)	°C	33	31	32
Timing (11)	°BTDC	26	26	26
Exhaust Stack Temperature	°C	593	567	528
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	3.33	3.59	4
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	4.24	4.56	5.09

Engine Emissions Data				
Nitrous Oxides (NO _x as NO ₂) (9)	g/bkW-hr	36.9	37.2	37.7
(Corr. 15% O ₂)	ppm	2044	1914	1728
(Corr. 5% O ₂)	mg/Nm ³	11293	10574	9546
Carbon Monoxide (CO) (9)	g/bkW-hr	2.6	2.7	2.7
(Corr. 15% O ₂)	ppm	239	224	204
(Corr. 5% O ₂)	mg/Nm ³	803	756	688
Total Hydrocarbons (THC) (9)	g/bkW-hr	2.4	2.4	2.5
(Corr. 15% O ₂)	ppm	379	361	338
(Corr. 5% O ₂)	mg/Nm ³	1277	1218	1139
Non-Methane Hydrocarbons (NMHC) (9)	g/bkW-hr	0.35	0.36	0.38
(Corr. 15% O ₂)	ppm	57	54	51
(Corr. 5% O ₂)	mg/Nm ³	192	183	171
Exhaust Oxygen (9)	%	2.0	2.0	1.9
Lambda		1.12	1.12	1.08

Engine Heat Balance Data				
Input Energy LHV (1)	kW	396	317	238
Work Output	kW	133	100	66
Heat Rejection to Jacket (2) (6)	kW	147	127	108
Heat Rejection to Atmosphere (Radiated) (4)	kW	16	13	10
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	103	79	54
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	86	66	45
Heat Rejection to Aftercooler (3) (7) (8)	N/A	N/A	N/A	N/A

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	107 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	1.0/16	1.0/17	1.0/18	1.0/19	1.0/20	1.0/21	1.0/22	1.0/23	1.0/24	1.0/25	1.0/26

Altitude Deration Factors

AIR INLET TEMP. (°C)	50	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67	0.65
	45	0.95	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68	0.66
	40	0.97	0.94	0.91	0.89	0.86	0.83	0.81	0.78	0.76	0.74	0.71	0.69	0.67
	35	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.80	0.77	0.75	0.73	0.70	0.68
	30	1.00	0.97	0.94	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72	0.69
	25	1.00	0.99	0.96	0.93	0.90	0.88	0.85	0.82	0.80	0.77	0.75	0.73	0.70
	20	1.00	1.00	0.98	0.95	0.92	0.89	0.86	0.84	0.81	0.79	0.76	0.74	0.72
	15	1.00	1.00	0.99	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73
	10	1.00	1.00	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000

ALTITUDE (METERS ABOVE SEA LEVEL)

Aftercooler Heat Rejection Factors**NOT APPLICABLE**

DM5073-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.6:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	54	Fuel System	LPG IMPCO
Jacket Water Outlet Temperature (°C)	99	Air Fuel Ratio Control Required	
Ignition System	MAG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (m)	350
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	193	145	97
Generator Set Power (w/o fan)	kW	180	135	90

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.24	10.88	11.67
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	5.49	5.67	6.18
Air Mass Flow (Wet)	Nm ³ /bkW-hr	4.31	4.46	4.86
Compressor Out Pressure	kPa (abs)	196	169	136
Compressor Out Temperature	°C	115	92	64
Inlet Manifold Pressure	kPa (abs)	183	147	104
Inlet Manifold Temperature (10)	°C	56	52	51
Timing (11)	°BTDC	24	24	24
Exhaust Stack Temperature	°C	414	416	418
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	4.49	4.64	5.05
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	5.71	5.9	6.42

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	1.5	1.6	1.7
	(Corr. 15% O2)	ppm	90	90	90
	(Corr. 5% O2)	mg/Nm3	500	500	500
Carbon Monoxide (CO) (9)		g/bkW-hr	2.1	2.2	2.3
	(Corr. 15% O2)	ppm	208	202	199
	(Corr. 5% O2)	mg/Nm3	699	680	670
Total Hydrocarbons (THC) (9)		g/bkW-hr	6.5	7.1	8.1
	(Corr. 15% O2)	ppm	1117	1173	1220
	(Corr. 5% O2)	mg/Nm3	3764	3952	4110
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.97	1.06	1.21
	(Corr. 15% O2)	ppm	168	176	183
	(Corr. 5% O2)	mg/Nm3	565	593	617
Exhaust Oxygen (9)		%	8.7	8.6	8.5
Lambda			1.57	1.53	1.54

Engine Heat Balance Data				
Input Energy LHV (1)	kW	549	438	313
Work Output	kW	193	145	97
Heat Rejection to Jacket (2) (6)	kW	170	148	110
Heat Rejection to Atmosphere (Radiated) (4)	kW	22	18	13
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	132	103	75
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	101	79	58
Heat Rejection to Aftercooler (3) (7) (8)	kW	19	10	2

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	108 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/18	1.0/20	1.0/22	1.0/24

Altitude Deration Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50		0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73	0.71	0.69	0.67	
45		0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	0.68	
40		0.99	0.96	0.94	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73	0.71	0.69	
35		1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	
30		1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.80	0.78	0.76	0.73	0.71	
25		1.00	1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	
20		1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	
15		1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75	
10		1.00	1.00	1.00	1.00	0.97	0.94	0.92	0.89	0.86	0.83	0.81	0.78	0.76	

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50 45 40 35 30 25 20 15 10	50	1.39	1.46	1.54	1.61	1.69	1.74	1.74	1.74	1.74	1.74	1.74	1.74	1.74	
	45	1.29	1.36	1.43	1.51	1.58	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63	
	40	1.18	1.26	1.33	1.40	1.47	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	
	35	1.08	1.15	1.22	1.29	1.37	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	
	30	1.00	1.05	1.12	1.19	1.26	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	
	25	1.00	1.00	1.01	1.08	1.15	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	
	20	1.00	1.00	1.00	1.00	1.05	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	
	15	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

DM5082-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8

Engine Speed (rpm)	1500	Fuel	NAT GAS
Compression Ratio	11.6:1	LHV of Fuel (MJ/Nm ³)	36.2
Aftercooler Inlet Temperature (°C)	32	Fuel System	LPG DELTEC
Jacket Water Outlet Temperature (°C)	99	Air Fuel Ratio Control Required	
Ignition System	MAG	Minimum Fuel Pressure (kPag)	10.0
Exhaust Manifold	WATER COOLED	Methane Number at Conditions Shown	80
Combustion System Type	LOW EMISSION	Rated Altitude (m)	350
at 25°C Design Temperature			

Engine Rating Data	% Load	100%	75%	50%
Engine Power (w/o fan)	kW	206	154	103
Generator Set Power (w/o fan)	kW	190	143	95

Engine Data				
Specific Fuel Consumption (BSFC) (1)	MJ/bkW-hr	10.08	10.69	11.55
Air Flow (Wet, @ 25°C, 96 kPaa)	kg/bkW-hr	5.37	5.58	5.97
Air Mass Flow (Wet)	Nm ³ /bkW-hr	4.22	4.39	4.69
Compressor Out Pressure	kPa (abs)	201	172	139
Compressor Out Temperature	°C	119	93	67
Inlet Manifold Pressure	kPa (abs)	181	145	104
Inlet Manifold Temperature (10)	°C	39	36	34
Timing (11)	°BTDC	24	24	24
Exhaust Stack Temperature	°C	415	416	417
Exhaust Gas Flow (Wet, @ stack temperature, 99 kPaa)	Nm ³ /bkW-hr	4.39	4.57	4.88
Exhaust Gas Mass Flow (Wet)	kg/bkW-hr	5.58	5.81	6.21

Engine Emissions Data					
Nitrous Oxides (NOx as NO2) (9)		g/bkW-hr	1.5	1.6	1.7
	(Corr. 15% O2)	ppm	90	90	90
	(Corr. 5% O2)	mg/Nm3	500	500	500
Carbon Monoxide (CO) (9)		g/bkW-hr	2.1	2.1	2.2
	(Corr. 15% O2)	ppm	202	196	190
	(Corr. 5% O2)	mg/Nm3	679	659	639
Total Hydrocarbons (THC) (9)		g/bkW-hr	5.8	6.5	7.2
	(Corr. 15% O2)	ppm	1006	1071	1114
	(Corr. 5% O2)	mg/Nm3	3390	3609	3753
Non-Methane Hydrocarbons (NMHC) (9)		g/bkW-hr	0.87	0.97	1.09
	(Corr. 15% O2)	ppm	151	161	167
	(Corr. 5% O2)	mg/Nm3	509	541	563
Exhaust Oxygen (9)		%	8.5	8.4	8.3
Lambda			1.56	1.53	1.51

Engine Heat Balance Data				
Input Energy LHV (1)	kW	576	458	330
Work Output	kW	206	154	103
Heat Rejection to Jacket (2) (6)	kW	170	149	115
Heat Rejection to Atmosphere (Radiated) (4)	kW	23	18	13
Heat Rejection to Lube Oil (5)	kW	0	0	0
Total Heat Rejection to Exhaust (to 25°C) (2)	kW	138	108	77
Heat Rejection to Exhaust (LHV to 120°C) (2)	kW	106	83	59
Heat Rejection to Aftercooler (3) (7) (8)	kW	27	15	6

Engine Noise Data - at 100% load

Noise - Mechanical @ 1 m	93 dBA
Noise - Exhaust @ 1.5 m	108 dBA

Fuel Usage Guide

Derate Factor / Engine Timing vs Methane Number

<30	30	35	40	45	50	55	60	65	70	75	80 to 100
0	0/--	0/--	0/--	0/--	0/--	0/--	0/--	1.0/18	1.0/20	1.0/22	1.0/24

Altitude Deration Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50 45 40 35 30 25 20 15 10	50	0.96	0.93	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73	0.71	0.69	0.67	
	45	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	0.68	
	40	0.99	0.96	0.94	0.91	0.88	0.85	0.83	0.80	0.78	0.75	0.73	0.71	0.69	
	35	1.00	0.98	0.95	0.92	0.89	0.87	0.84	0.82	0.79	0.77	0.74	0.72	0.70	
	30	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.80	0.78	0.76	0.73	0.71	
	25	1.00	1.00	0.98	0.95	0.92	0.90	0.87	0.84	0.82	0.79	0.77	0.74	0.72	
	20	1.00	1.00	1.00	0.97	0.94	0.91	0.88	0.86	0.83	0.81	0.78	0.76	0.73	
	15	1.00	1.00	1.00	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.77	0.75	
	10	1.00	1.00	1.00	1.00	0.97	0.94	0.92	0.89	0.86	0.83	0.81	0.78	0.76	

Aftercooler Heat Rejection Factors

AIR INLET TEMP. (°C)		ALTITUDE (METERS ABOVE SEA LEVEL)													
		0	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	
50 45 40 35 30 25 20 15 10	50	1.30	1.35	1.41	1.47	1.53	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	
	45	1.22	1.28	1.33	1.39	1.45	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	
	40	1.14	1.20	1.25	1.31	1.36	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40	
	35	1.06	1.12	1.17	1.23	1.28	1.31	1.31	1.31	1.31	1.31	1.31	1.31	1.31	
	30	1.00	1.04	1.09	1.14	1.20	1.23	1.23	1.23	1.23	1.23	1.23	1.23	1.23	
	25	1.00	1.00	1.01	1.06	1.12	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	
	20	1.00	1.00	1.00	1.00	1.03	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	
	15	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
	10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

DM5083-00 Data is intended to be used with Gas Engine Performance Book Parameters – DM5901-00 on page 8



