

|                                                                                   |                                  |              |
|-----------------------------------------------------------------------------------|----------------------------------|--------------|
|  | Model : <b>12M55G10D2/5</b>      | Rev : 04     |
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## Ratings

| RPM  | Gross Engine Output |      |      | Net Engine Output * |        |        |
|------|---------------------|------|------|---------------------|--------|--------|
|      | PRP                 | DCP  | ESP  | PRP                 | DCP    | ESP    |
|      | kWm                 | kWm  | kWm  | kWm                 | kWm    | kWm    |
| 1500 | 2420                | 2420 | 2700 | 2418.4              | 2418.4 | 2698.4 |

1 kWm = 1,34 BHP

\* This data is calculated without radiator.

## Basic data

|                                                                    |                                 |
|--------------------------------------------------------------------|---------------------------------|
| Engine model                                                       | 12M55G10D2/5                    |
| N° of Cylinders / Valves                                           | 12 / 48                         |
| Cylinders arrangement                                              | At Vee                          |
| Bore x Stroke (mm)                                                 | 180 x 215                       |
| Displacement (L)                                                   | 65.65                           |
| Thermodynamic Cycle                                                | Diesel 4 stroke                 |
| Mean Piston Speed (m/s)                                            | 10.75                           |
| BMEP @ ESP (Bar)                                                   | 32.9                            |
| Cooling System                                                     | Liquid (water + 50% antifreeze) |
| Injection System                                                   | Direct                          |
| Fuel System                                                        | High Pressure Common Rail       |
| Aspiration                                                         | Turbocharged and Aftercooled    |
| Compression ratio                                                  | 16.5 : 1                        |
| Flywheel housing                                                   | SAE 00                          |
| Flywheel                                                           | 21"                             |
| N° of teeth on flywheel ring gear                                  | 202                             |
| Inertia of flywheel (kg•m <sup>2</sup> )                           | 20.78                           |
| Inertia of crankshaft (kg•m <sup>2</sup> )                         | 16.16                           |
| Emission standard                                                  | EPA Tier2                       |
| Overall Dimensions without radiator (Length x Width x Height) (mm) | 2958 × 1544 × 2616              |
| Engine dry weight without radiator and without radiator pipes (kg) | 9550                            |

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|                                                                                   |                                  |              |
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## Air intake system

|                                                  |       |
|--------------------------------------------------|-------|
| Air intake temperature rise (°C) .....           | ≤ 5   |
| Air intake restriction clean filter (mBar) ..... | ≤ 30  |
| Air intake restriction dirty filter (mBar) ..... | ≤ 70  |
| Recommended air flow @ PRP (m³/min) .....        | 177.3 |
| Recommended air flow @ ESP (m³/min) .....        | 181.1 |
| Min. diameter of intake pipe (mm) .....          | 250   |

## Aftercooling system

|                                                                               |              |
|-------------------------------------------------------------------------------|--------------|
| Aftercooler system type .....                                                 | Air to Water |
| Max. intake temperature @ 25°C ambient temperature (°C) .....                 | 55           |
| Max. difference between intake temperature and ambient temperature (°C) ..... | 30           |
| Max. intake pressure drop of aftercooler (mBar) .....                         | 50           |

## Lubrication system

|                                                                        |           |
|------------------------------------------------------------------------|-----------|
| Oil capacity Low / High (L) .....                                      | 330 / 380 |
| Oil pressure in normal condition idle speed (Bar) .....                | ≥ 1.8     |
| Oil pressure in normal condition at 1500 Rpm @ PRP (Bar) .....         | 4 - 6.5   |
| Lowest oil pressure alarm (shutdown) (Bar) .....                       | 1.8       |
| Max. oil temperature (°C) .....                                        | 105       |
| Oil flow at 1500 Rpm (L/min) .....                                     | 1080      |
| Oil fuel consumption ratio based on engine fuel consumption data ..... | ≤ 0.2 %   |
| Total system capacity (including filters) (L) .....                    | 460       |

## Heat balance test data (with ambient temperature 25 °C)

|                                                   |      |
|---------------------------------------------------|------|
| Total heat dissipation @ ESP (kJ/s) .....         | 3550 |
| - Heat Rejection to HT Circuit @ ESP (kJ/s) ..... | 1018 |
| - Heat Rejection to LT Circuit @ ESP (kJ/s) ..... | 556  |
| - Radiated Heat to Ambient @ ESP (kJ/s) .....     | 110  |
| - Heat Rejected to Exhaust @ ESP (kJ/s) .....     | 1866 |

## Exhaust system

|                                                           |       |
|-----------------------------------------------------------|-------|
| Max. exhaust back pressure (mBar) .....                   | 150   |
| Max. exhaust temperature before turbocharger (°C) .....   | 740   |
| Max. exhaust temperature after turbocharger (°C) .....    | 550   |
| Exhaust flow @ PRP (m³/min) .....                         | 542.9 |
| Exhaust flow @ ESP (m³/min) .....                         | 567.1 |
| Min. diameter of exhaust pipe (mm) .....                  | 280   |
| Max. bending moment of exhaust gas exit flange (Nm) ..... | 10    |

|                                                                                   |                                  |              |
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## Cooling system

|                                                                      |         |
|----------------------------------------------------------------------|---------|
| Min. inside diameter of coolant outlet pipe LT/HT(mm) .....          | 76 / 96 |
| Coolant alarm (shutdown) temperature (°C) .....                      | 112     |
| Thermostat opening temperature / full open temperature (°C) .....    | 80 / 92 |
| Coolant capacity of the engine (L) .....                             | 306     |
| Max. additional restriction for external cooling circuit (Bar) ..... | TBD     |
| Max additional restriction - Duct allowance (Pa) .....               | 150     |

## Fuel system

|                                                                                                 |             |
|-------------------------------------------------------------------------------------------------|-------------|
| Governor .....                                                                                  | ECU         |
| Governor steady state speed stability at constant load (ISO 8528-5 Class G3) <sup>1</sup> ..... | ≤ +/- 0.5 % |
| Max. restriction at fuel inlet (Bar) .....                                                      | 0.1         |
| Max. pressure at fuel inlet (Bar) .....                                                         | 1           |
| Max. fuel return restriction (Bar) .....                                                        | 0.2         |
| Max. fuel inlet temperature (°C) .....                                                          | 70          |
| Fuel supply flow (L/hr) .....                                                                   | 2800        |
| Min. internal diameter of inlet pipe (mm) .....                                                 | 19          |
| Min. internal diameter of return pipe (mm) .....                                                | 19          |

## Electrical system

|                                                                                               |             |
|-----------------------------------------------------------------------------------------------|-------------|
| Electrical system voltage (negative to ground) (Vdc) .....                                    | 24          |
| Starter power (kW) .....                                                                      | 2 x 10      |
| Battery charger current (A) .....                                                             | 55          |
| Battery charger absorbed power (kW) .....                                                     | 1.6         |
| Battery discharge current requirement at -18°C (CCA) .....                                    | 1800 - 2800 |
| Max. electric resistance of starting circuit (Ω) .....                                        | 0.008       |
| Min. sectional area of wire (mm²) .....                                                       | 2 x 95      |
| Min. ambient cold start temperature without auxiliary starting device (°C) <sup>2</sup> ..... | -10         |
| Min. ambient cold start temperature with auxiliary starting device (°C) <sup>2</sup> .....    | TBD         |

<sup>1</sup> This refers only to the frequency response of the engine and should not be confused with the performance class of the Generator Set, which is subject to additional contributing factors such as alternator selection and control settings.

<sup>2</sup> Engines used in emergency standby application or applications that require immediate start under load, they must be equipped with coolant heaters. Baudouin recommend heaters installation to be executed by providing constant coolant circulation across all the engine components. Two heaters are required for V-type engines, one per each side.

|                                                                                   |                                  |              |
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## Noise

|                                                    |       |
|----------------------------------------------------|-------|
| Diesel engine noise (Acoustic power level) (dB(A)) | 123.7 |
| Noise - upper side (dB(A))                         | 106.4 |
| Noise - right side (view from flywheel) (dB(A))    | 106.2 |
| Noise - left side (view from flywheel) (dB(A))     | 107.1 |
| Noise – front (radiator) side (dB(A))              | 104.1 |
| Noise – rear (flywheel) side (dB(A))               | 105.4 |

### Notes :

- Noise test made at 100% of the ESP power, at 1 mt. distance, on engine without radiator, without cooling fan and without silencer.
- Noise test refers to GB/T 1859 norm : "Reciprocating internal combustion engines. Measurement of emitted airborne noise. Engineering method and survey method".

## Fuel consumption

| Rating                           | gr/kWh | L/hr  |
|----------------------------------|--------|-------|
| 100% ESP                         | 195.8  | 629.4 |
| 100% PRP                         | 197.8  | 576.9 |
| 75% PRP                          | 209.2  | 457.7 |
| 50% PRP                          | 221.6  | 323.2 |
| 25% PRP                          | 229.8  | 164.1 |
| Fuel consumption tolerance + 3 % |        |       |

## Ratings definitions

### Emergency Standby Power (ESP)

Emergency Standby Power is the maximum power available for a varying load for the duration of a main power network failure. The average load factor over 24 hours of operation should not exceed 70% of the engine's ESP power rating. Typical operational hours of the engine is 200 hours per year, with a maximum usage of 500 hours per year. This includes an annual maximum of 25 hours per year at the ESP power rating. No overload capability is allowed. The engine is not to be used for sustained utility paralleling applications.

### Prime Power (PRP)

Prime Power is the maximum power available for unlimited hours of usage in a variable load application. The average load factor should not exceed 70% of the engine's PRP power rating during any 24 hour period. An overload capability of 10% is available, however, this is limited to 1 hour within every 12 hour period.

### Data Centre Power (DCP)

Data Centre Power is defined as being the maximum power which a generating set is capable of delivering while supplying a variable or continuous electrical load and during unlimited run hours. Depending on the sites to supply and the availability of reliable utility, the generating set manufacturer is responsible to define what power level he is able to supply to fulfil that requirement including hardware or software or maintenance plan adaptation.

Note : The engine driven alternating current generating set is a reliable source of power for the data centre and it can be also used to back up a reliable utility. Prolonged operation at load in parallel with a utility is not permitted.

- All ratings are based on operating conditions under ISO 8528-1, ISO 3046, DIN6271. Performance tolerance of  $\pm 5\%$ .
- Test conditions : 100 kPa, 25°C air inlet temperature, relative humidity of 30%, with fuel density 0.84 kg/L. Derating may be required for conditions outside these; please contact the factory for details.
- Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; not included are battery charging alternator, fan and optional equipment.