



# Technical Data

## Q5 Series

### Gas Engine - Generating Set specification

## Q5.9TASI

203 kWm @ 1500 rev/min

#### Basic technical data

Number of cylinders. .... 5  
 Cylinder arrangement ... Vertical in-line  
 Cycle. .... Four stroke  
 Induction system... Turbocharged  
 Compression ratio. ....12.5 : 1  
 Bore ... 130 mm  
 Stroke ... 160 mm  
 Cubic capacity ... 9.3 litres  
 Direction of rotation... Clockwise view from front  
 Firing order ...1-2-4-5-3

#### Estimated total weight (including radiator and mounting brackets)

Total weight (engine only)  
 -dry ...950kg  
 -wet ...TBAkg

#### Overall dimensions

-height ... 1610mm  
 -length... 2260mm  
 -width (including mounting brackets) ...1215mm

#### Moment of inertia (mk<sup>2</sup>)

Flywheel ...2.63 kgm<sup>2</sup>

#### Base load rating

Continuous power according to the international performance standard ISO 3046.

#### Test conditions

Air temperature ... 26 °C  
 Barometric pressure... 984 kPa  
 Relative humidity ... .35%

If the engine is to operate in ambient conditions other than those of the test conditions, suitable adjustments must be made for these changes. For full details, contact Quantum Technical Service Department.

#### Load acceptance

Load steps according to ISO8528.5 class G2

#### General Installation

Designation	Units	PRP
		1500
Gross engine power	kWm	203
Brake mean effective pressure	kPa	1745
Engine coolant flow 35 kPa restriction	l/min	250
Combustion air flow	m <sup>3</sup> /min	15.2
Exhaust gas flow (max)	m <sup>3</sup> /min	43.1
Exhaust gas outlet temperature (max at standby)	°C	530
Cooling fan air flow (200kPa external restriction)	m <sup>3</sup> /min	220
Overall thermal efficiency (net)	%	40
Genset electrical output	kWe	188
	kVA	235
Power factor		0.8
Actual alternator efficiency @ pf 1	%	95.5
Fuel consumption	Sm <sup>3</sup> /hr	54.75
<b>Energy balance</b>		
Power in fuel (Fuel heat of combustion)	kW	497
Power output (net)	kW	203
Power to cooling fan	kW	6
Power to coolant and lubricating oil	kW	68
Power to charge cooler	kW	35
Power to exhaust	kW	178
(Recoverable power, exhaust cooled to 120 °C)	kW	150
Power to radiation	kW	25

Caution: The airflows shown in this table will provide acceptable cooling for an open power unit operating in ambient temperatures of up to 53 °C (127 °F) or 46 °C (114.8 °F) if a canopy is fitted. If the power unit is to be enclosed totally, a cooling test should be done to check that the engine cooling is acceptable. If there is insufficient cooling, contact Quantum Technical Service Department.  
 The tolerance for the specific fuel consumption is + 5 % at rated output.  
 Data within this sheet is subject to change at any time without notice.



## Cooling System (if fitted)

### Radiator

- face area .....1.1 m<sup>2</sup>
- rows and materials.....5 row aluminium
- matrix density and material..... 10 aluminium fins/inch
- width of matrix ..... 745 mm
- height of matrix ..... 1080 mm

### Fan (if fitted)

- diameter ..... 813mm
- drive ratio ..... 1:0.9
- number of blades ..... 7
- material ..... Plastic
- type ..... Pusher

### Coolant

- Total system capacity
  - with radiator..... 38 litres
  - without radiator .....16.5 litres
- Maximum top tank temperature..... 103 °C
- Thermostat operating range.....80-87 °C
- Recommended coolant: 50 % ethylene glycol with a corrosion

inhibitor (BS 658 : 1992 or MOD AL39) and 50% clean fresh water.

## Electrical system

- Type ..... Negative ground
- Alternator voltage..... 24 V
- Starter motor voltage..... 24 V
- Starter motor power ..... 6.0 kW
- Number of teeth on flywheel ..... 158
- Pull in current of starter motor solenoid ..... TBA amps
- Hold in current of starter motor solenoid ..... TBA amps

### Cold start recommendations

- Minimum cranking speed ..... TBA rev/min

### Battery Requirement

- Min. 2 x 624 24V battery (BS3911 510CCA / SAE J537 770CCA)

### Exhaust system

- Maximum back pressure
  - 1500 rev/min ..... 5.0 kPa
- Exhaust outlet size.....125 mm

### Fuel System

- Type of carburettor ..... Varifuel venturi mixer
- Throttle actuator ..... Electrical controlled butterfly
- Gas supply pressure ..... min 25 mbar \*
- \* For supply pressure below this value, please contact Quantum Technical Dept. for advice.
- Installation of gas supply and shut-off valves to be in accordance with local regulations.

### Ignition system

- Primary system type ..... Electronic inductive system
- Ignition coils.....1 per cylinder
- Ignition timing .....28 BTDC

All information in this datasheet is correct at time of print but is subject to change without prior notice.

### Fuel Specification

- Recommended fuel..... Natural Gas LHV at 35.66 MJ/m<sup>3</sup>
- Gas supplies must be filtered to the same standard as the engine intake air ie. maximum particle size not to exceed 5 micron.

### Fuel consumption (kg/hr)

Speed	Power rating % of prime rating				
	110	100	75	50	25
1500	TBA	42.2	TBA	TBA	TBA

## Induction system

### Maximum air intake restriction

- clean filter ..... 3 kPa
- dirty filter..... 6.5 kPa
- air filter type..... Dry

## Lubrication system

### Lubricating oil capacity

- Maximum ..... 36 litres
- Minimum .....31 litres

### Maximum engine operating angles:

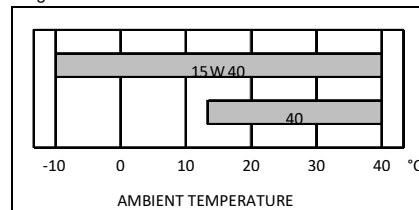
- front up, front down, right side or left side..... 25°

### Lubricating oil pressure

- relief valve opens ..... 300 kPa
- at maximum no-load speed..... 450 kPa
- Max continuous oil temperature (in rail) ..... 110 °C

### Recommended lubricating oils

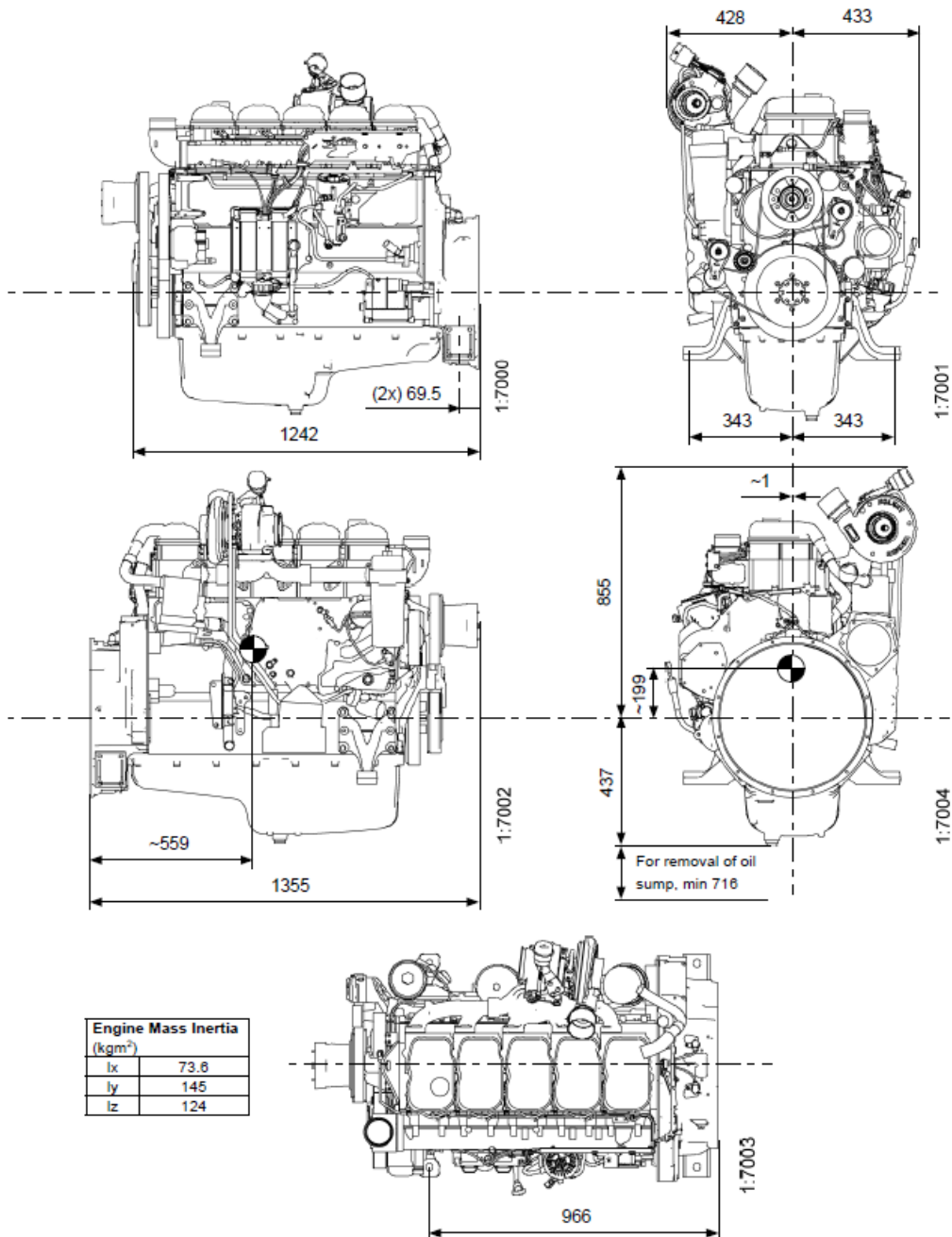
A single or multigrade oil must be used of low ash type (<0.6 %wt), formulated for natural gas engines. See chart below for temperature range.



### Mountings

- Maximum static bending moment at rear face of block..... 1130Nm

The information given in this document is for guidance only. All tests were conducted using an engine installed and services to Quantum ES Ltd recommendations.



Engine Mass Inertia (kgm <sup>2</sup> )	
lx	73.8
ly	145
lz	124