

Perkins based INDUSTRIAL GAS ENGINES

Technical Data

Q6 Series

Gas Engine - Generating Set specification

Q6.71TASI

107.3 kWm @ 1500 rev/min

Basic technical data

Number of cylinders... 6
Cylinder arrangement... Vertical in-line
Cycle... Four stroke
Induction system... Turbocharged
Compression ratio... 13 : 1
Bore... 105 mm
Stroke... 135 mm
Cubic capacity... 7.01 litres
Direction of rotation... Clockwise view from front
Firing order... 1,5,3,6,2,4

Centre of gravity (wet)

- forward from rear of block... 476mm
- above centre line of block... 176mm
- offset of RHS of centre line... 16mm

Test conditions

Air temperature... 25 °C
Barometric pressure... 100 kPa
Relative humidity... 30%

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.

Estimated total weight (including radiator and mounting brackets)

Total weight (engine only)
-dry... 740kg
-wet... 784kg

Overall dimensions

-height... 1140mm
-length... 1660mm
-width (including mounting brackets)... 800mm

Moment of inertia (mk²)

Engine rotational components... 0.27 kgm²
Flywheel... 1.2 kgm²

General Installation

Designation	Units	Type of operation 50Hz	
		Prime	Stand-by
		Hz	Hz
		1500	1500
Gross engine power	kWm	107.3	117.9
Brake mean effective pressure	kPa	2602	2859
Engine coolant flow 35 kPa restriction	l/min	108	108
Combustion air flow	m ³ /min	8.6	9.2
Exhaust gas flow (max)	m ³ /min	17.6	23.1
Exhaust gas outlet temperature (max at standby)	°C	479	466
Cooling fan air flow (200kPa external restriction)	m ³ /min	220	220
Overall thermal efficiency (net)	%	36	37.0
Genset electrical output	kWe	95	105
	kVA	119	131
Power factor		0.8	0.8
Actual alternator efficiency	%	93.4	93.4
Fuel consumption	m ³ /hr	28.5	30.7
Energy balance			
Power in fuel (Fuel heat of combustion)	kW	281.9	303.7
Power output (gross)	kW	107.3	117.9
Power to cooling fan	kW	5.6	5.6
Power output (net)	kW	101.7	112.3
Power to coolant and lubricating oil	kW	67.0	64.2
Power to charge cooler	kW	8.9	10.7
Power to exhaust	kW	74.9	76.9
(Recoverable power, exhaust cooled to 120 °C)	kW	57.4	58.4
Power to radiation	kW	23.8	33.9

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.

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Cooling System

Radiator

- face area 0.35 m²
- 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

- diameter 457mm
- drive ratio 0.85 :1
- number of blades 7
- material Composite
- type Pusher

Coolant

- Total system capacity
 - with radiator 21.0 litres
 - without radiator 9.5 litres
- Maximum top tank temperature 105 °C
- Thermostat operating range 85 - 95 °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 12 V
- Starter motor voltage 12 V
- Starter motor power 4.0 kW
- Number of teeth on flywheel 126
- Pull in current of starter motor solenoid 62 amps
- Hold in current of starter motor solenoid 15 amps

Cold start recommendations

- Minimum cranking speed 100 rev/min

Battery Requirement

- Min. 2 x 647 12V battery (BS3911 510CCA / SAE J537 770CCA)

Exhaust system

- Maximum back pressure
 - 1500 rev/min 6.0 kPa
- Exhaust outlet size 90 mm

Fuel System

- Type of carburettor CV diaphragm mixer
- Throttle actuator Electronical 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

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/m³
- 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 (Sm³/hr)

Speed	Power rating % of prime rating				
	110	100	75	50	25
1500	30.66	28.46	23.66	18.24	13.04

Induction system

Maximum air intake restriction

- clean filter 3 kPa
- dirty filter 5 kPa
- air filter type Dry

Lubrication system

Lubricating oil capacity

- Total system 16.5 litres
- Sump only 12.5 / 15.5 litres (min/max)

Maximum engine operating angles:

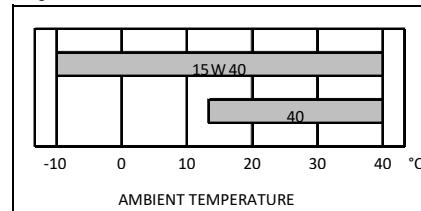
- front up, front down, right side or left side 25°

Lubricating oil pressure

- relief valve opens 430 kPa
- at maximum no-load speed 450 kPa
- Max continuous oil temperature (in rail) 125 °C

Recommended lubricating oils

A single or multigrade oil must be used of low ash type (<0.6 %wt), formulated 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.

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