



# Cummins

## Technical Operations

Engine Model: QSZ13-G3

Curve and Datasheet: FR20322

Rev01

Date of Issue: 2010/03



## Cummins Engine Co.,Ltd

### Generator Engine Performance Data

Engine  
Model

QSZ13-G3

FR20322

@

1500RPM & 1800RPM

**Engine Model:** QSZ13-G3

**CPL:** 36□C

**Compression Ratio:** 17:1

**Engine Configuration:** D0C3004GX03

**Bore:** 130 mm

**Displacement:** 13.0 L

**Stroke:** 163 mm

**Cylinders:** 6

**Governor Regulation:** ≤1%

**Aspiration:** Turbocharged & Charge Air Cooled

**Emission Certification:** MEP STAGE II

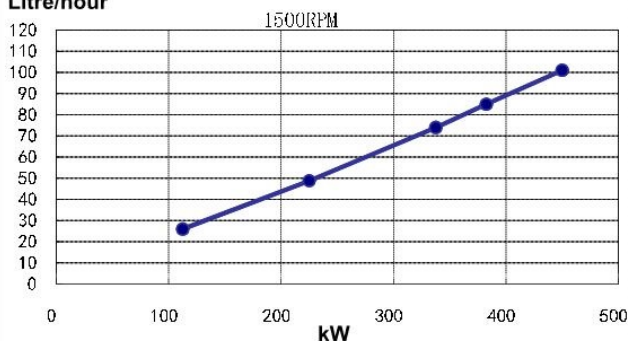
**Fuel System:** XPI

| Engine Speed | Standby Power |    | Prime Power |     | Continuous Power |     |
|--------------|---------------|----|-------------|-----|------------------|-----|
| RPM          | kW            | HP | Kw          | HP  | kW               | HP  |
| 1500         | —             | —  | 450         | 603 | 383              | 513 |

#### Engine Performance Data @ 1500 RPM

| OUTPUT POWER     |     |     | FUEL CONSUMPTION |      |
|------------------|-----|-----|------------------|------|
| %                | Kw  | HP  | g/kW.h           | L/h  |
| STANDBY POWER    |     |     |                  |      |
| 100              | —   | —   | —                | —    |
| PRIME POWER      |     |     |                  |      |
| 100              | 450 | 603 | 193              | 101  |
| 75               | 338 | 452 | 189              | 74.0 |
| 50               | 225 | 302 | 187              | 48.8 |
| 25               | 113 | 151 | 199              | 26.0 |
| Continuous Power |     |     |                  |      |
| 100              | 383 | 513 | 191              | 85.0 |

#### Litre/hour



Curves shown above represent gross engine performance capabilities obtained and corrected in accordance with GB/T18297 conditions of 100kPa (29.61 in. Hg) barometric pressure [80 m (263 ft.) altitude], 25°C (77°F) inlet air temperature, and 1 kPa (0.30 in. Hg) water vapor pressure with No.0 diesel fuel. The engine may be operated without changing the fuel setting up to 5200 m ( 8200ft.) altitude.



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1500RPM

#### GENERAL ENGINE DATA

Approximate Engine Weight - Dry: ..... - kg 1195  
Approximate Engine Weight - Wet: ..... - kg 1260  
Engine Idle Speed: ..... - RPM 700  
Compression Ratio: ..... 17:1  
Fire Order: ..... 1-5-3-6-2-4  
Center of Gravity  
from front face of block: ..... - mm 519  
above crankshaft centerline: ..... - mm 201

#### ENGINE MOUNTING

Maximum static mounting surface bending moment  
Rear face of block: ..... - N.m 1356

#### LUBRICATION SYSTEM

Oil pressure @ idle - minimum: ..... - kPa 89.6  
Total system capacity (standard pan): ..... - L 45.42  
Maximum lube oil flow to all accessories: ..... - L/min 7.57  
Typical oil pressure range - warm engine: ..... - kPa 207 - 345

#### AIR INTAKE SYSTEM

Maximum temperature rise between ambient air and engine air inlet: ..... - °C 11.1  
Maximum intake air restriction (heavy duty air cleaner):  
dirty filter: ..... - kPa 6.2  
clean filter: ..... - kPa 2.5

#### Exhaust System

Max. back pressure imposed by complete exhaust system: ..... - kPa 21  
Maximum allowable static bending moment at exhaust outlet flange: ..... - N-m 27  
Exhaust pipe size normally acceptable: ..... - mm 130

#### FUEL SYSTEM

Maximum fuel drain restriction (total head) before (or without) check valve:  
..... - kPa 27  
Minimum fuel tank venting requirement: ..... - L/s 0.2  
Maximum fuel inlet temperature: ..... - °C 71  
Maximum heat rejection to return fuel: ..... - kW 5.36  
Maximum design fuel flow: ..... - kg/hr 204



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#### Cold Start Performance

Minimum ambient temperature for unaided cold start: ..... - °C -15  
Minimum ambient temperature for aided cold start: ..... - °C -30

#### Cooling System

Coolant Capacity: ..... - L 23.1  
Engine coolant circuit thermostat opening temperature: ..... - °C 82  
Engine coolant circuit thermostat fully open temperature: ..... - °C 94  
Maximum coolant pressure(exclusive of pressure cap; closed thermostat  
at maximum no load speed): ..... - kPa 107  
Maximum coolant temperature - engine out ..... - °C 102  
Maximum deaeration time: ..... - mins 25  
Minimum operating block coolant temperature: ..... - °C 71  
Minimum fill rate (low level alarm required for most engines): ..... - litre/mi 19  
Maximum coolant expansion space (% total system capacity) ..... - % 10  
Minimum coolant expansion space (% total system capacity) ..... - % 6  
Minimum pressure cap rating at sea level: ..... - kPa 103  
Maximum coolant temperature for engine protection controls ..... - °C 107  
Full-ON Fan engine coolant outlet temperature: ..... - °C 95  
Maximum allowable pressure drop across charge air cooler and OEM CAC  
piping (CACDP): ..... - kPa 10.1

#### Electrical System

System voltage: ..... - V 24  
Minimum battery capacity-cold soak at -18 C (0 F) or above  
Engine only (de-clutched load) cold cranking amperes: ..... - CCA 900

#### EMISSIONS

Gaseous Emissions per GB 20891-2007, at 1500rpm:

- Weight-Specific Nox: ..... - g/kW.h 5.341  
- Weight-Specific HC: ..... - g/kW.h 0.124  
- Weight-Specific CO: ..... - g/kW.h 0.393  
- Weight-Specific Particulates: ..... - g/kW.h 0.026



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Fuel Rating Option used for these Data: FR20322

Governed Engine Speed: .....-RPM  
Gross Engine Power Output: .....-kW  
Torque: .....-N.m  
Engine Idle Speed: .....-RPM  
Friction Horsepower: .....-kW  
Piston Speed: .....-m/s  
Engine Water Flow to Engine: .....-litre/sec  
Intake Air Flow: .....-litre/sec  
Exhaust Gas Temperature: .....-litre/sec  
Exhaust Gas Flow: .....-°C  
Radiated Heat to Ambien: .....-kW  
Heat Rejection to Coolant: .....-kW  
Heat Rejection to Fuel: .....-kW  
Turbocharger Compressor Outlet Pressure: .....-kPa  
Turbocharger Compressor Outlet Temperature: .....-°C

| Prime Power |
|-------------|
| 1500        |
| <b>450</b>  |
| 2865        |
| 37          |
| 8.15        |
| 6.5         |
| 35          |
| 36.45       |
| 530         |
| 104         |
| 155         |
| 250         |
| 198         |

ALL DATA CERTIFIED WITHIN 5%

TBD = To Be Decided N/A = Not Applicable N.A. = Not Available

All data is subject to change without notice, sorry for inform.

Cummins Engine Co., Ltd.