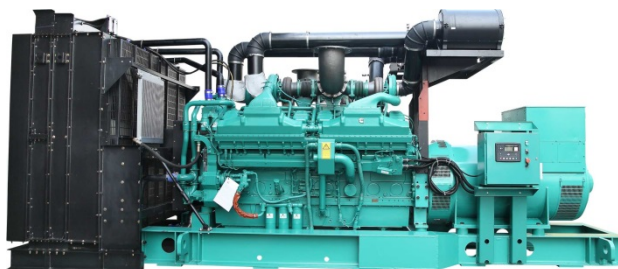


DATA SHEET

DIESEL GENERATOR 800KW
MODEL#FDK-CG800/H1
50HZ/1500RPM
CUMMINS MODEL: QST30-G3



General Features:

- ♦ All qualified generator sets are subjected to a comprehensive performance test which includes 50% load, 70% load, 100% load, 110% load and to check, verify that all control systems, alarm and shut-down protection.
- ♦ Equipped with battery charger and 24V high performance maintenance-free lead-acid starting batteries and connecting cables.
- ♦ Stainless galvanized zinc plates with strong corrosion-proof.
- ♦ Vibration isolators between the engine/alternator and base frame.
- ♦ Equipped with industrial silencer and flexible exhaust hose.
- ♦ Designed to comply with ISO8528/GB2820.
- ♦ Powered by Cummins engine and coupled with Stamford alternator.
- ♦ Water jacket preheater, oil heater and double air cleaner, etc. are available.

FDK Diesel Generator Set Data

Genset Model	FDK-CG800/H1
Prime Power	720KW/900KVA
Standby Power	800KW/1000KVA
Output Frequency / Rated speed	50Hz/1500rpm
Rated Voltage	230V/400V

Engine Make	Cummins Original
Engine Model	QST30-G3
Alternator model	Stamford HCI634H
Control System	DSE7320
Phase	Three

(1) **Prime power:** The rating is available for an unlimited of annual operating hours in variable load applications, in accordance with ISO8528-1.A 10% overload is available for a period of 1 hour within 12-hour period of operation, in accordance with ISO 3046-1.

(2) **Standby power:** The rating is applicable for supplying emergency power in variable load applications for up to 200 hours per year in accordance with ISO8528-1. Overload is not allowed.

(3) **Rated voltage:** available with customer requirement.

Engine Specifications (DETAILED in APPENDIX)

Engine Model	QST30-G3
Engine Manufacturer	Cummins ORIGINAL USA
Cylinder quantity	12
Cylinder Arrangement	50° Vee
Cycle	4

Aspiration	Turbo-charged
Bore x Stroke (mm x mm)	140x165
Displacement	30.48L
Compression Ratio	14.0:1
Prime power / Speed (KW/RPM)	806kw/1500
Standby power/ Speed (KW/RPM)	895kw/1500



ISO9001:2008

FDK reserves the right to change the specifications and designs without notice.

Type Injection System	Bosch P8500 Direct Injection	Fuel Consumption at 100% load (g/KWh)	194 at 1500rpm
Piston Speed	9.9m/s	Starter motor	DC24V
Friction Energy Output	82kw	Low idle	700-900pm
Total Lubrication System Capacity (L)	154	Coolant Capacity (L)	85

Alternator Specifications

Alternator model	HCI634H	Number of phase	3
Alternator manufacturer	STAMFORD	Rated voltage	400V (Available with custom requirements)
Exciter type	Single bearing, Brushless, Self-excited	Power factor	0.8
Rated output prime power	940KVA	Voltage regulation NL-FL	±1%
Rated speed	1500 rpm	Insulation grade	H
Rated frequency	50Hz	Protection grade	IP23

Alternator option: Leroy Somer, MECC, Marathon, Engga, Faraday

Control System DSE7320 (DETAILED in INSTRUCTION)

DSE7320 is an advanced control module based on micro-processor, containing all necessary functions for protection of the genset and the breaker control. It can monitor the mains supply, breaker control and automatically start the engine when the mains are abnormal. Accurately measure various operational parameters and display all values and alarms information on the LCD. In addition, the control module can automatically shut down the engine and indicate the engine failure.

FEATURES

- ♦ Microprocessor control, with high stability and credibility.
- ♦ Monitoring and measuring operational parameters of the mains supply and genset.
- ♦ Indicating operation status, fault conditions, all parameters and alarms.
- ♦ Multiple protections; multiple parameters display, like pressure, temp. etc.
- ♦ Manual, automatic and remote work mode selectable.
- ♦ Real time clock for time and date display, overall runtime display, 250 log entries.
- ♦ Overall power output display.
- ♦ Integral speed/frequency detecting, telling status of start, rated operation, overspeed etc.
- ♦ Communication with PC via RS485 OR RS232 interface, using MODBUS protocol.

Soundproof Enclosure Specification

FDK silent generator is designed by professional acoustic engineers based on years of experience. Now we can make the noise of the generator less than 80-85dB(A) at 1m, or 70-75dB(A) at 7m, 60-65dB(A) at 15m.

FEATURES

- ♦ Multi-way air intake and exhaust guarantee the power performance of the generator.
- ♦ Large-scale impedance combined type silencer effectively reduce noise of the generator.
- ♦ Internal high performance rubber damper and flexible materials reduce vibration.
- ♦ Base mounted fuel tank supports the generator running for 8 hours.



ISO9001:2008

FDK reserves the right to change the specifications and designs without notice.

Optional

Generator set	Alternator	Low environment Temp	ATS
<input type="checkbox"/> Open generator set <input type="checkbox"/> Silent generator set <input type="checkbox"/> Trailer generator set <input type="checkbox"/> ABB MCCB circuit breaker	<input type="checkbox"/> Stamford <input type="checkbox"/> Marathon <input type="checkbox"/> Mecc Alte <input type="checkbox"/> Leroy Somer <input type="checkbox"/> Farady <input type="checkbox"/> Engga	<input type="checkbox"/> Water heater <input type="checkbox"/> Oil heater <input type="checkbox"/> Battery heater	<input type="checkbox"/> CHINT <input type="checkbox"/> SCHNEIDER <input type="checkbox"/> ABB
Fuel system	Control system	Voltage	Synchronized system
<input type="checkbox"/> 12hrs base tank <input type="checkbox"/> 24hrs base tank <input type="checkbox"/> Dual wall base fuel tank <input type="checkbox"/> Outside fuel tank	<input type="checkbox"/> AMF function <input type="checkbox"/> ATS control cabinet <input type="checkbox"/> DSE7320 <input type="checkbox"/> DSE7510 <input type="checkbox"/> GU620A	<input type="checkbox"/> 415/240V <input type="checkbox"/> 400/230V <input type="checkbox"/> 380/220V <input type="checkbox"/> 220/127V <input type="checkbox"/> 200/115V	<input type="checkbox"/> CHINT Cabinet <input type="checkbox"/> SCHNEIDER Cabinet <input type="checkbox"/> DSE8610 Module <input type="checkbox"/> COMAQ Module <input type="checkbox"/> DEIF Module

Dimension & Weight

Open

Overall Size: LxWxH (mm)	3800x1818x2350
Weight (kg)	7450


Soundproof Version

Overall Size: LxWxH (mm)	5800x2000x2550
Weight (kg)	9700

Sales Promises

- ◆ FDK provides a full line of brand new and high quality products. Each and every unit is strictly factory tested before shipment.
- ◆ Quality warranty is according to our standard conditions: 12 months from BL date or 1000 running hours, whichever comes first.
- ◆ Service and parts are available from FDK or distributors in your location.
- ◆ FDK guarantee use **BRAND NEW & GENUINE MACHINE.**

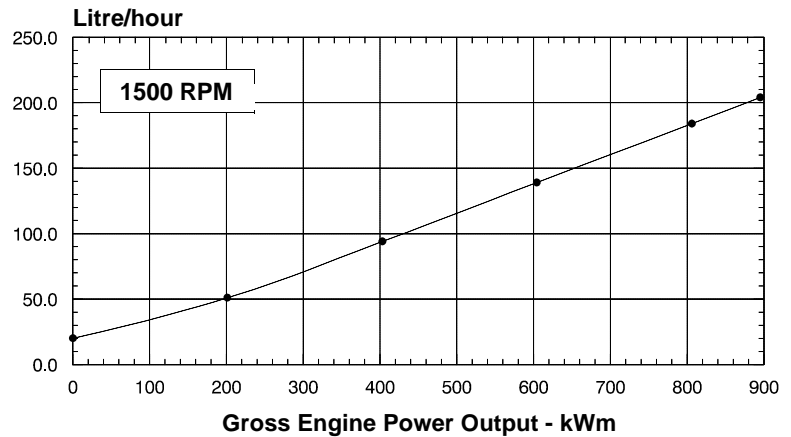


	CUMMINS ENGINE COMPANY, INC Columbus, Indiana 47201 ENGINE PERFORMANCE CURVE	Basic Engine Model: QST30-G3	Curve Number: FR-5188	<i>G-DRIVE</i> Q30 1
		Engine Critical Parts List: CPL: 2840	Date: 23Dec03	
Displacement : 30.48 liter (1860 in³)		Bore : 140 mm (5.51 in.) Stroke : 165 mm (6.50 in.)		
No. of Cylinders : 12		Aspiration : Turbocharged and Aftercooled		

Engine Speed RPM	Standby Power		Prime Power		Continuous Power	
	kWm	BHP	kWm	BHP	kWm	BHP
1500	895	1200	806	1080	634	850
1800	1007	1350	910	1220	731	980

Engine Performance Data @ 1500 RPM

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	kg/ kWm-h	lb/ BHP-h	liter/ hour	U.S. Gal/ hour
STANDBY POWER						
100	895	1200	0.194	0.319	204	53.9
PRIME POWER						
100	806	1080	0.194	0.319	184	48.5
75	604	810	0.195	0.321	139	36.6
50	403	540	0.198	0.325	94	24.7
25	201	270	0.215	0.353	51	13.4
CONTINUOUS POWER						
100	634	850	0.195	0.321	146	38.4



CONVERSIONS: (liters = U.S. Gal x 3.785) (kWm = BHP x 0.746) (U.S. Gal = liters x 0.2642) (BHP = kWm x 1.34)

These guidelines have been formulated to ensure proper application of generator drive engines in A.C. generator set installations. Generator drive engines are not designed for and shall not be used in variable speed D.C. generator set applications.

STANDBY POWER RATING

Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Standby Power rating. This rating should be applied where reliable utility power is available. A Standby rated engine should be sized for a maximum of an 80% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Standby Power rating. Standby ratings should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

PRIME POWER RATING

Applicable for supplying electric power in lieu of commercially purchased power. Prime Power applications must be in the form of one of the following two categories:

UNLIMITED TIME RUNNING PRIME POWER

Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours. The total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period of 1 hour within a 12-hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

LIMITED TIME RUNNING PRIME POWER

Limited Time Prime Power is available for a limited number of hours in a non-variable load application. It is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engines may be operated in parallel to the public utility up to 750 hours per year at power levels never to exceed the Prime Power rating. The customer should be aware, however, that the life of any engine will be reduced by this constant high load operation. Any operation exceeding 750 hours per year at the Limited Time Prime Power rating should use the Continuous Power rating.

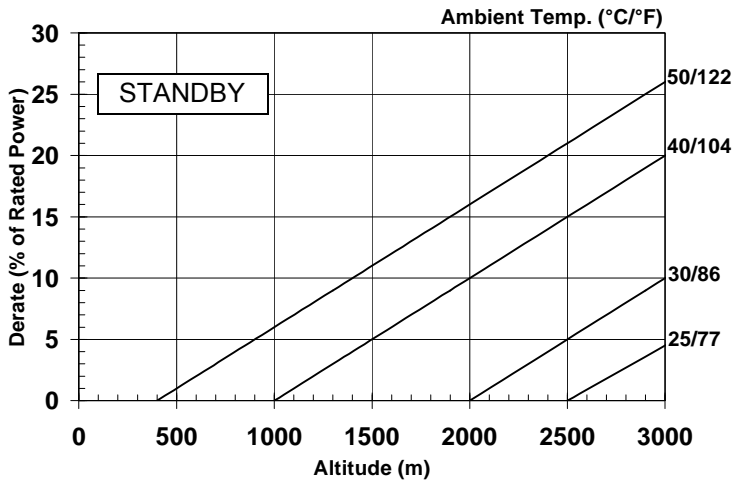
CONTINUOUS POWER RATING

Applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

Data shown above represent gross engine performance capabilities obtained and corrected in accordance with ISO-3046 conditions of 100 kPa (29.53 in Hg) barometric pressure [110 m (361 ft) altitude], 25 °C (77 °F) air inlet temperature, and relative humidity of 30% with No. 2 diesel or a fuel corresponding to ASTM D2. See reverse side for application rating guidelines.

The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/liter (7.1 lbs/U.S. gal).

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, optional equipment and driven components.

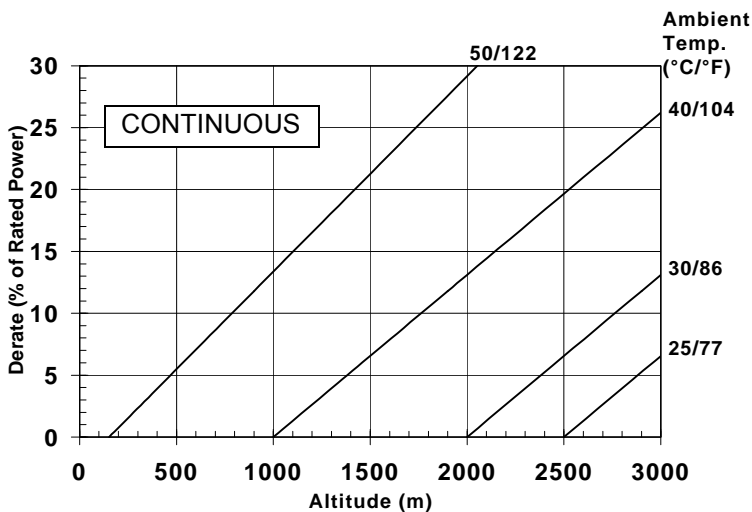
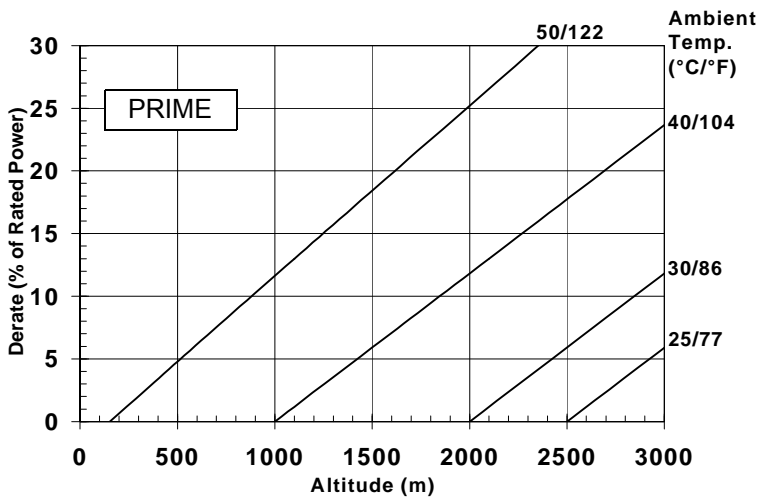


Reference Standards:


BS-5514 and DIN-6271 standards are based on ISO-3046.

Operation At Elevated Temperature And Altitude:

For sustained operation above these conditions, derate by an additional 10% per 500 m (1640 ft), and 15% per 10° C (18° F).



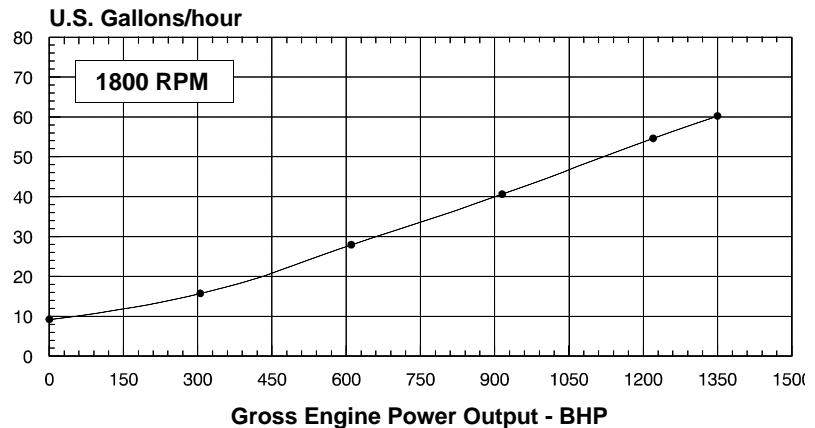
Note: Derates shown are based on 15 in H₂O air intake restriction and 2 in Hg exhaust back pressure.

	CUMMINS ENGINE COMPANY, INC Columbus, Indiana 47201 ENGINE PERFORMANCE CURVE	Basic Engine Model: QST30-G3	Curve Number: FR-5188	<i>G-DRIVE</i> Q30 3
		Engine Critical Parts List: CPL: 2840	Date: 23Dec03	
Displacement : 30.48 liter (1860 in³)		Bore : 140 mm (5.51 in.) Stroke : 165 mm (6.50 in.)		
No. of Cylinders : 12		Aspiration : Turbocharged and Aftercooled		

Engine Speed RPM	Standby Power		Prime Power		Continuous Power	
	kWm	BHP	kWm	BHP	kWm	BHP
1500	895	1200	806	1080	634	850
1800	1007	1350	910	1220	731	980

Engine Performance Data @ 1800 RPM

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	kg/ kWm-h	lb/ BHP-h	liter/ hour	U.S. Gal/ hour
STANDBY POWER						
100	1007	1350	0.194	0.319	228	60.2
PRIME POWER						
100	910	1220	0.193	0.318	207	54.6
75	683	915	0.192	0.315	154	40.6
50	455	610	0.198	0.325	106	27.9
25	228	305	0.222	0.365	59	15.7
CONTINUOUS POWER						
100	731	980	0.192	0.315	165	43.5



CONVERSIONS: (liters = U.S. Gal x 3.785) (kWm = BHP x 0.746) (U.S. Gal = liters x 0.2642) (BHP = kWm x 1.34)

These guidelines have been formulated to ensure proper application of generator drive engines in A.C. generator set installations. Generator drive engines are not designed for and shall not be used in variable speed D.C. generator set applications.

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Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours. The total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period of 1 hour within a 12-hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

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CONTINUOUS POWER RATING

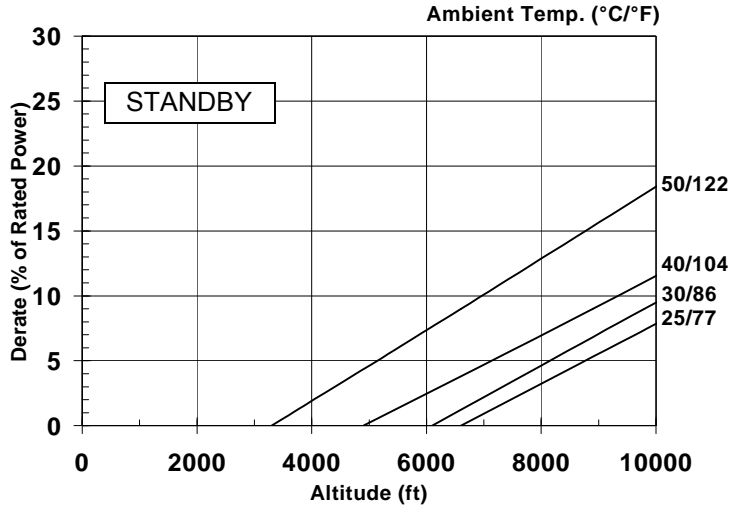
Applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

Data shown above represent gross engine performance capabilities obtained and corrected in accordance with ISO-3046 conditions of 100 kPa (29.53 in Hg) barometric pressure [110 m (361 ft) altitude], 25 °C (77 °F) air inlet temperature, and relative humidity of 30% with No. 2 diesel or a fuel corresponding to ASTM D2. See reverse side for application rating guidelines.

The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/liter (7.1 lbs/U.S. gal).

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, optional equipment and driven components.

QST30-G3 Derate Curves @ 1800 RPM

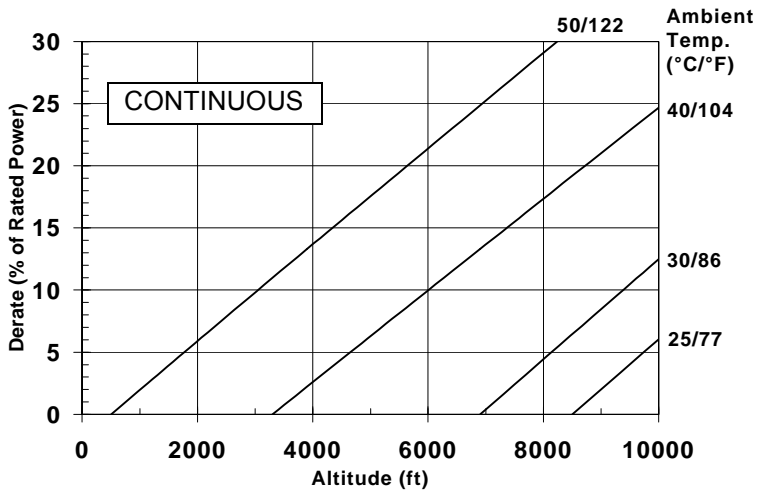
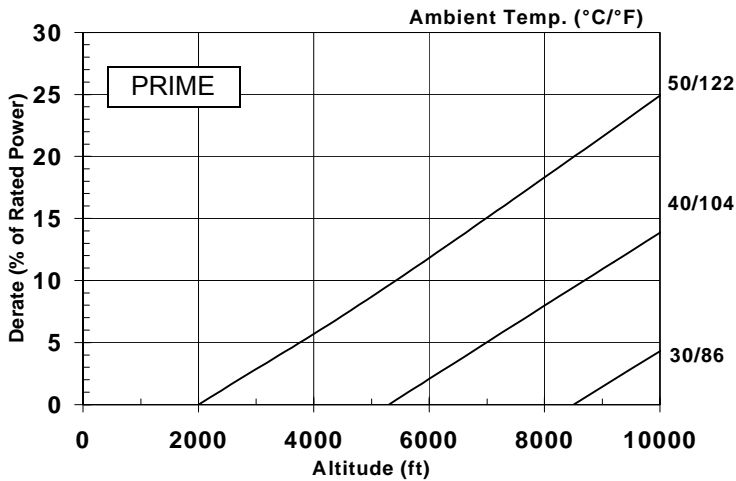


Reference Standards:

BS-5514 and DIN-6271 standards are based on ISO-3046.

Operation At Elevated Temperature And Altitude:

For sustained operation above these conditions, derate by an additional 8% per 500 m (1640 ft), and 15% per 10° C (18° F).



Note: Derates shown are based on 15 in H₂O air intake restriction and 2 in Hg exhaust back pressure.

Cummins Engine Company, Inc.

Engine Data Sheet

G-DRIVE
Q30
5

ENGINE MODEL : QST30-G3

CONFIGURATION NUMBER : D573001GX03

DATA SHEET : DS-5188

DATE : 23Dec03

PERFORMANCE CURVE : FR-5188

INSTALLATION DIAGRAM

• Fan to Flywheel : 3170342

CPL NUMBER

• Engine Critical Parts List : 2840

GENERAL ENGINE DATA

Type	4-Cycle; 50° Vee; 12-Cylinder Diesel
Aspiration	Turbocharged and Aftercooled
Bore x Stroke	140 x 165 (5.51 x 6.50)
Displacement	30.48 (1860)
Compression Ratio	14.0
 Dry Weight	
Fan to Flywheel Engine	2967 (6540)
Wet Weight	
Fan to Flywheel Engine	3062 (6750)
 Moment of Inertia of Rotating Components	
• with FW 5050 Flywheel	8.7 (206)
Center of Gravity from Rear Face of Flywheel Housing (FH 5031)	845 (33.3)
Center of Gravity above Crankshaft Centerline	195 (7.7)
Maximum Static Loading at Rear Main Bearing	950 (2100)

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Block	3100 (2286)
--	-------------

EXHAUST SYSTEM

Maximum Back Pressure	76 (3.0)
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AIR INDUCTION SYSTEM

Maximum Intake Air Restriction	
• with Dirty Filter Element	635 (25)
• with Normal Duty Air Cleaner and Clean Filter Element	254 (10)
• with Heavy Duty Air Cleaner and Clean Filter Element	381 (15)

COOLING SYSTEM

Coolant Capacity — Engine Only	85 (22.4)
Maximum Coolant Friction Head External to Engine	
— 1800 rpm	69.0 (10.0)
— 1500 rpm	48.0 (7.0)
Maximum Static Head of Coolant Above Engine Crank Centerline	14 (46)
Standard Thermostat (Modulating) Range	82 - 95 (180 - 203)
Minimum Pressure Cap	69.0 (10)
Maximum Top Tank Temperature for Standby / Prime Power	104 / 100 (220 / 212)

LUBRICATION SYSTEM

Oil Pressure @ Idle Speed	166 (24.0)
@ Governed Speed	310 - 386 (45.0 - 56.0)
Maximum Oil Temperature	121 (250)
Oil Capacity with OP 5133 Oil Pan : High - Low	133 - 114 (35 - 30)
Total System Capacity (Including Bypass Filter)	154 (40.7)
Angularity of OP 5133 Oil Pan	
— Front Down	17°
— Front Up	35°
— Side to Side	35°

FUEL SYSTEM

Type Injection System.....		Bosch P8500 Direct Injection
Maximum Restriction at Lift Pump — with Clean Fuel Filter.....	— mm Hg (in Hg)	102 (4)
— with Dirty Fuel Filter.....	— mm Hg (in Hg)	203 (8)
Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head).....	— mm Hg (in Hg)	508 (20)
Maximum Fuel Flow to Injection Pumps (LB and RB Combined) — 1800 RPM.....	— liter / hr (US gph)	570 (150)
— 1500 RPM.....	— liter / hr (US gph)	550 (145)
Maximum Drain Flow (@ Minimum load) — 1800 RPM.....	— liter / hr (US gph)	550 (145)
— 1500 RPM.....	— liter / hr (US gph)	530 (140)
Maximum Fuel Inlet Temperature.....	— °C (°F)	66 (150)

ELECTRICAL SYSTEM

Cranking Motor (Heavy Duty, Positive Engagement).....	— volt	24
Battery Charging System, Negative Ground.....	— ampere	35
Maximum Allowable Resistance of Cranking Circuit.....	— ohm	0.002
Minimum Recommended Battery Capacity		
• Cold Soak @ 10 °C (50 °C) and Above.....	— 0°F CCA	1200
• Cold Soak @ 0 °C to 10 °C (32 °F to 50 °F).....	— 0°F CCA	1280
• Cold Soak @ -18 °C to 0 °C (0 °F to 32 °F).....	— 0°F CCA	1800

COLD START CAPABILITY

Minimum Ambient Temperature for Aided (with Coolant Heater) Cold Start within 10 seconds to Rated Speed....	— °C (°F)	10 (50)
Minimum Ambient Temperature for Aided (with Grid Heater) Cold Start.....	— °C (°F)	-10 (14)
Minimum Ambient Temperature for Unaided Cold Start.....	— °C (°F)	0 (32)

PERFORMANCE DATA

- All data is based on:
- Engine operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer; not included are battery charging alternator, fan, and optional driven components.
 - Engine operating with fuel corresponding to grade No. 2-D per ASTM D975.
 - ISO 3046, Part 1, Standard Reference Conditions of:

Barometric Pressure	: 99 kPa (29.3 in Hg)	Air Temperature	: 25 °C (77 °F)
Altitude	: 110 m (361 ft)	Relative Humidity	: 30%

Steady State Stability Band at any Constant Load.....	— %	+/- 0.25
Estimated Free Field Sound Pressure Level of a Typical Generator Set; Excludes Exhaust Noise; at Rated Load and 7.5 m (24.6 ft); 1800 / 1500 rpm.....	— dBA	96.1 / 93.2 (est.)
Exhaust Noise at 1 m Horizontally from Centerline of Exhaust Pipe Outlet Upwards at 45°; (1800 / 1500 rpm).....	— dBA	119.7 / 116.9 (est.)

	STANDBY		PRIME POWER	
	60 hz	50 hz	60 hz	50 hz
Governed Engine Speed.....	1800	1500	1800	1500
Engine Idle Speed.....	700 - 900	700 - 900	700 - 900	700 - 900
Gross Engine Power Output.....	1007 (1350)	895 (1200)	910 (1220)	806 (1080)
Brake Mean Effective Pressure.....	2206 (320)	2358 (342)	1993 (289)	2117 (307)
Piston Speed.....	9.9 (1949)	8.3 (1634)	9.9 (1949)	8.3 (1634)
Friction Horsepower.....	82 (110)	58 (78)	82 (110)	58 (78)
Engine Water Flow at Stated Friction Head External to Engine:				
• 5 psi Friction Head.....	15.5 (246)	12.5 (198)	15.5 (246)	12.5 (198)
• Maximum Friction Head.....	15.0 (238)	12.0 (190)	15.0 (238)	12.0 (190)
Engine Data with Dry Type Exhaust Manifold				
Intake Air Flow.....	1270 (2690)	935 (1985)	1190 (2520)	865 (1830)
Exhaust Gas Temperature.....	481 (897)	563 (1046)	464 (867)	541 (1005)
Exhaust Gas Flow.....	3280 (6945)	2720 (5755)	3000 (6365)	2430 (5150)
Air to Fuel Ratio.....	27.3 : 1	22.7 : 1	28.4 : 1	23.1 : 1
Radiated Heat to Ambient.....	115 (6570)	105 (5840)	105 (5920)	90 (5250)
Heat Rejection to Coolant.....	490 (27940)	405 (22970)	455 (25790)	375 (21200)
Heat Rejection to Exhaust.....	695 (39590)	650 (37060)	615 (34890)	580 (32830)

- N.A. - Data is Not Available
 N/A - Not Applicable to this Engine
 TBD - To Be Determined