QSK50-G17 Specification

China CSIII

Description

The QSK50 is a V 16 cylinder engine with a 50 liter displacement. This Quantum series utilizes sophisticated electronics and premium engineering to provide outstanding performance levels, reliability and versatility for Standby, Prime and Continuous Power applications

CE	This engine has been built to comply with CE certification.
ISO 9001	This engine has been designed in facilities certified to ISO9001 and manufactured in facilities certified to ISO9001 or ISO9002.

Features

Cummins Extra High Pressure Injection (XPI) Fuel System – Most capable common-rail fuel system utilized. The new XPI utilizes an electric priming pump which is integrated with the off-engine stage-1 fuel filter head and is controlled and powered by the engine ECM. The stage-2 fuel filters are mounted on engine.

CTT (Cummins Turbo Technologies) HE800/HPRC turbo- charging utilizes exhaust energy with greater efficiency for improved emissions and fuel consumption.

Ferrous Cast Ductile Iron (FCD) Pistons - High strength design delivers superior durability.

G-Drive Integrated Design - Each component has been specifically developed and rigorously tested for G-Drive products, ensuring high performance, durability and reliability.

Service and Support - G-Drive products are backed by an uncompromising level of technical support and after sales service, delivered through a world class service network.

Fuel Consumption 1500 (50 Hz)

%	kWm	BHP	L/ph	US gal/ph
Standby Power				
100	1972	2645	453	119.5
Prime Power				
100	1784	2392	419	110.6
75	1338	1794	331	87.4
50	892	1196	223	58.7
25	446	598	124	32.8

Weight & Dimensions

Length	Width	Height	Weight (dry)
mm	mm	mm	kg
2769	2078	2055	5640

1500 rpm (50 Hz Ratings)

Gross Engine Output		Typical Generator Set Output			
Standby	Prime	Standby (ESP)		Prime (PRP)	
kWm/BHP		kWe	KVA	kWe	KVA
1972/2645	1784/2392	1800	2250	1636	2045

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General Engine Data

Installation Drawing Number		TBD	
Type		Four Cycle; Vee; 16 Cylinder	
Aspiration		Turbocharged and Charge Air Cooled	
Bore x Stroke	in x in (mm x mm)	6.26 x 6.26	(159 x 159)
Displacement	in^3 (L)	3039	(49.8)
Compression Ratio		14.7:1	
Dry Weight (Approximate)	lbm (kg)	12434	(5640)
Wet Weight (Approximate)	lbm (kg)	12996	(5895)
Moment of Inertia of Rotating Components			
with FW6066 Flywheel, SAE 00	in • lbf • sec^2 (kg • m^2)	114.2	(12.9)
Center of Gravity from Rear Face of Block	in (mm)	41.14	(1045)
Center of Gravity Above Crankshaft Centerline	in (mm)	9.25	(235)

Engine Mounting

Max Bending Moment at Rear Face of Block	lb • ft (N • m)	4499	(6100)

Exhaust System

Max Allowable Static Bending Moment @ Exhaust Outlet Flang	lb • ft (N • m)	124	(168)
Max Back Pressure, Standby Power, Turbo Outlet (1500rpm)	in Hg (kPa)	3.0	(10.1)

Air Induction System

Max Intake Air Restriction			
With Normal Duty Air Cleaner and Clean Filter Element	in H_2O (kPa)	15	(3.7)
With Heavy Duty Air Cleaner and Clean Filter Element	in H_2O (kPa)	15	(3.7)
With Dirty Filter Element	in H_2O (kPa)	25	(6.2)
Maximum allowable air temperature rise over ambient at Turbo Compressor inlet (Turbo-charged Engines):	Δ°F (Δ°C)	5	(3)

Cooling System

Jacket Water/ High Temperature Circuit Requirements			
Max Coolant Friction Head External to Engine (1500 rpm)	psi (kPa)	10.0	(69)
Engine Water Flow at Stated Friction Head External to Engine:			
2.5 psi Friction Head (1500 rpm)	US gpm (L/m)	526	(1993)
Maximum Friction Head (1500 rpm)	US gpm (L/m)	513	(1941)
Coolant Capacity - Engine	US gal (L)	37.1	(140.6)
Minimum Pressure Cap Rating at Sea Level	psi (kPa)	14	(97)
Max Static Head of Coolant Above Crankshaft Centerline	ft (m)	60	(18.3)
Max Coolant (Top Tank) Temperature for Standby/Prime Power	°F (°C)	228 / 212	(109 / 100)
Thermostat (Modulating) Range	°F (°C)	180 - 203	(82 - 95)
Max Intake Manifold Temp Warning/Shutdown	°F (°C)	N/A / N/A	(N/A / N/A)
Charge Air Cooler Requirements			
Max Allowable Pressure Drop Across Charge Air Cooler and OEM	in Hg (kPa)	5.0	(17)
Max Charge Air Cooler Outlet to Ambient at 77°F (25°C)(CAC dT)	Δ°F (Δ°C)	52	(29)

Lubrication System

Oil Pressure at Minimum Idle Speed	psi (kPa)	20	(138)
Oil Pressure at Governed Speed	psi (kPa)	51 - 70	(350 - 485)
Max Oil Temperature	°F (°C)	250	(121)
Oil Capacity with OP6105: Low - High	US gal (L)	32.0 - 39.9	(121 - 151)
Total System Capacity (With Combo Filter)	US gal (L)	47.8	(181)

Fuel System

Max Fuel Supply Restriction at Fuel Pump Inlet (clean/dirty filter)	in Hg (kPa)	7.7 / 11.8	(26 / 40)
Max Allowable Head on Injector Return Line			
(Consisting of Friction Head and Static Head)	in Hg (kPa)	10	(33.8)
Max Fuel Inlet Temperature	°F (°C)	158	(70)
Max Supply Fuel Flow (1500 rpm)	US gph (L/hr)	228	(863)
Max Return Fuel Flow (1500 rpm)	US gph (L/hr)	108	(410)

Electrical System

System Voltage	volts	24	N/A
Minimum Recommended Battery Capacity			
Cold Soak @ 0 °F (-18 °C)	CCA	1800	N/A
Max Starting Circuit Resistance	ohm	0.002	N/A

Cold Start Capability

Unaided Cold Start			
Minimum Cranking Speed110			
Minimum Ambient Temp for Unaided Cold Start	°F (°C)	10	(-12)

Performance Data

		STANDBY	PRIME
		50 Hz	50 Hz
Governed Engine Speed	rpm	1500	1500
Engine Idle Speed	rpm	700-1200	700-1200
Gross Engine Power Output	bhp (kWm)	2645 (1972)	2392 (1784)
Brake Mean Effective Pressure	psi (kPa)	460 (3168)	416 (2865)
Friction Power	hp (kWm)	155 (115)	155 (115)
Intake Air Flow	ft^3/min (L/sec)	4809 (2269)	4738 (2236)
Exhaust Gas Temp	°F (°C)	939 (504)	917 (492)
Exhaust Gas Flow	ft^3/min (L/sec)	12514 (5906)	12140 (5729)
Air Fuel Ratio		24.1:1	25.7:1
Radiated Heat to Ambient	BTU/min (kWm)	10348 (182)	9582 (168)
Heat to JW Radiator	BTU/min (kWm)	34775 (611)	31229 (549)
Heat to Exhaust	BTU/min (kWm)	75363 (1325)	72201 (1270)
* Heat to Fuel	BTU/min (kWm)	0 (0)	0(0)
Heat to Aftercooler Radiator	BTU/min (kWm)	26017 (457)	25067 (441)
Charge Air Flow	lb/min (kg/min)	341 (154)	336 (152)
Turbo Comp Outlet Pressure	psi (kPa)	51 (354)	50 (343)
Turbo Comp Outlet Temp	°F (°C)	445 (229)	438 (225)

Notes:
Rating data represents gross engine capabilities obtained and corrected in accordance with SAE J1995 and ISO 3046 conditions of 29.61 in Hg (100 kPa) barometric pressure (500 ft [152m] altitude), 77 °F (25 °C) inlet air temperature and 0.30 in Hg (1 kPa) water vapor pressure using dry processed natural gas fuel with 1035 BTU per standard cubic foot (38.56 kJ/l) lower heating value. However, when ambient and/or installed conditions vary from these conditions, performance characteristics can be expected to vary accordingly. Deration may by required due to altitude, temperature and type of fuel. Consult Sales Application Engineering for operation in conditions that vary from these conditions.
Steady-State emissions recorded per ISO8178-1 during operation at rated engine speed (+/- 2%) and stated constant load (+/-2%) with engine temperatures, pressures, and emission rates stabilized.