CHONGQING CUMMINS ENGINE COMPANY LTD.
ENGINE PERFORMANCE CURVE

CONFIGURATION: D283022DX02	ENGINE MODEL: KTA50-G7E	CURVE NUMBER: FR	CPL No.: TBD
			DATE: 2021/4/8

Displacement: 50.3L (3067 in3) Aspiration: Turbocharged and Aftercooled

BoreXStroke: 159X159mm (6.25X6.25 in.) Fuel System: Cummins PT

Compress Ratio: 14.7:1 Emission: N.A.

RATING

Stand by: 1320 kW(1769 HP)@1500 RPM

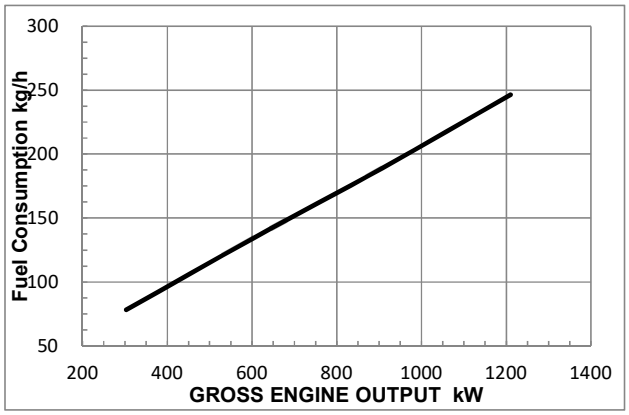
Prime: 1210 kW(1621 HP)@1500 RPM

All data is based on the engine operating with fuel system, water pump, lubricating oil pump, air cleaner, and muffler; not included are alternator, compressor, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolant as 50% ethylene glycol/50% water. All data is subject to change without notice.

GROSS ENGINE POWER OUTPUT

SPEED	STANDBY POWER		PRIME POWER		CONTINUOUS POWER	
rpm	BHP	kW	BHP	kW	BHP	kW
1500	1769	1320	1621	1210	1474	1100

FUEL CONSUMPTION



1500RPM

OUTPUT POWER			CONSUMPTION		BFSC	
%	BHP	kW	Lb/h	kg/h	g/kW.h	Lb/BHP.h
STNADBY						
100	1769	1320	592	268	203	0.335
PRIME						
100	1621	1210	543	246	204	0.335
75	1216	908	417	189	208	0.343
50	811	605	297	135	223	0.366
25	405	303	172	78	258	0.426
CONTINUOUS						
100	1474	1100	495	224	204	0.336

Curves shown above represent gross engine performance capabilites obtained and corrected in accordance with SAE J1995 conditions of 29.61 in. Hg(100kPa) barometric pressure [300ft.(91m) altitude] 77deg F (25 deg C) inlet temperature, and 0.30 in. Hg(1kPa) water vapor pressure with No. 2 diesel fuel or a fuel corresponding to ASTM D2.

TECHNICAL DATA DEPT. **CERTIFIED WITHIN 5%** **CHIEF ENGINEER**

POWER RATING APPLICATION GUIDELINES FOR GENERATOR DRIVE ENGINES

These guidelines have been foumulated 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 appliacations.

STANDBY POWER RATING is appliable 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.

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.

PRIME POWER RATING is 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 unli- mited number of hours per year in a variable load application. Variable load shouled not exceed a 70% average of period of 250 hours.

The total operating time at 100% Prime Power shall not exceed 500 hours per year.

A 10% overload capablility is available for aperiod 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

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, theat the life of any engine will be reduced by this constant high load operation. Any operation exceeding 750 hours per year at Prime Power rating should use the Continuous Power rating.

Reference Standards:

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

Operation At Elevated Temperatrue And Altitude:

The engine may be operated at:

1800RPM up to 5,000 ft.(1,500m) and 104°F (40℃) without power deration.

1500RPM up to 5,000 ft.1,500m) and 104°F (40℃) without power deration.

For sustained operation above these conditions, derate by 4% per 1,000ft. (300m), and 1% per 10°F (2% per 11℃).

CHONGQING CUMMINS ENGINE COMPANY LTD.
ENGINE DATA SHEET

ENGINE MODEL(S):	**KTA50-G7E**	**REFERENCE INFORMATION:**	
STAND_BY:	**1320 kW(1769 HP)@1500 RPM**	**CPL CODE .....**	**TBD**
PRIME:	**1210 kW(1621 HP)@1500 RPM**	**DATA SHEET NUMBER.....**	**FR**
CONFIGURATION	**D283022DX02**	**DATE.....**	**2021/4/8**

GENERAL ENGINE DATA

Type	4 Cycle ,60° Vee , 16 Cylinder	
Aspiration	Turbocharged and Aftercooled	
Bore—in.(mm)×stroke—in.(mm)	6.25×6.25	(159×159)
Displacement—in^3(L)	3067	(50)
Compression Ratio	14.7:1	
Dry Weight		
Fan Hub to Flywheel Engine —lb(kg)	11820	(5361)
Wet Weight		
Fan Hub to Flywheel Engine —lb(kg)	12485	(5663)
Moment of Inertia of Rotating Components (Excluding Flywheel)		
·With FW 6009 Flywheel —$lb_m.ft^2$($kg•m^2$)	301	(12.7)
·With FW 6017 lywheel —$lb_m.ft^2$($kg•m^2$)	515	(21.7)
C.G. Distance From Rear Face of Flywheel Housing (FH6024))—in(mm)	47.5	(1207)
C.G. Distance Above Crank Centerline—in(mm)	11	(279)
Maximum Static Load Allowable for Rear Main Bearing—kg(lb)	2000	(907)
Firing Order	1R-1L-3R-3L-2R-2L-5R-4L 8R-8L-6R-6L-7R-7L-4R-5L	

ENGINE MOUNTING

Maximum Allowable Bending Moment at Rear Face of Block —lb.ft(N•m)	4500	(6101)

EXHAUST SYSTEM

Maximum Allowable Back Pressure —in.Hg(kPa)	2	(5)
Exhaust Pipe Size Normally Acceptable —in(mm)	6	(152)

AIR INDUCTION SYSTEM

Maximum Allowable Intake Air Restriction With Heavy Duty Air Cleaner		
Dirty Element —in.H_2O(kPa)	25	(6.23)
Clean Element —in.H_2O(kPa)	15	(3.73)

COOLING SYSTEM

Coolant Capacity		
Engine Only —U.S.Gal(L)	42.5	(161.0)
Minimum Allowable Pressure Cap @ sea level— PSI(kPa)	7	(48)
Maximum Coolant Friction Heat External to Engine @1500 rpm —PSI(kPa)	10	(69)
Maximum Pressure Drop Across Any External Cooling System Circuit —PSI(kPa)	5.0	(34.5)
Maximum Allowable Top Tank Temperature (Stand_by/Prime) —°F(℃)	220/212	(104/100)
Standard Thermostat (modulating) Range— °F(℃)	180-200	(82-93)
Maximum Coolant Pressure (Exclusive of Pressure Cap) —PSI(kPa)	15	(103)
Maximum Allowable Coolant Temperature —°F(℃)	205	(96.1)
Minimum Allowable Fill Rate —U.S.GPM(L/min)	5	(18.9)
Minimum Allowable Coolant Expansion Space —% of System Capacity	5	
Maximum Allowable Deaeration Time —min	25	
Maximum Static Head of Coolant Above Engine Crank Centerline—ft.(m)	18.3	(60)

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ENGINE DATA SHEET

LUBRICATION SYSTEM

Oil Pressure		
@ Idle —PSI(kPa)	20	(138)
@ Rated Speed —PSI(kPa)	50-70	(345-483)
Oil Flow at Rated Speed —U.S.GPM(L/min)	40	(151)
Maximum Allowable Oil Temperature —°F(℃)	250	(121)
By-Pass Filter Capacity		
Spin-on Cartridge Type —U.S.Gal(L)	2 X 0.7	(2 X 2.6)
Oil Pan Capacity (Option OP6024)		
High —U.S.Gal(L)	40.0	(151.4)
Low —U.S.Gal(L)	32.0	(121.1)
Total System Capacity (Excluding By-Pass Filter) —U.S.Gal(L)	46.7	(176.8)

FUEL SYSTEM

Fuel Injection System	Cummins PT	
Maximum allowable Restriction to PT Fuel Pump		
With Clean Fuel Filter —in.Hg(kPa)	4	(13.55)
With Dirty Fuel Filter —in.Hg(kPa)	8	(27.09)
Maximum Fuel Supply at Rated Power and Speed —lb/h(kg/h)	1186	(538)
Maximum Allowable Injector Return Line Restriction		
With Check Valves —in.Hg(kPa)	6.5	(22.0)
Less Check Valves —in.Hg(kPa)	2.5	(8.5)
Minimum Allowable Fuel Tank Vent Capability —ft^3/h（L/h）	15	(425)
(With 2.5 in. Hg (8.4kPa) or Less Back Pressure)		
(With 2.5 in. Hg (63 mm Hg) or Less Back Pressure)		

ELECTRICAL SYSTEM AND START SYSTEM

Minimum Recommended Battary Capacity (Cold Soak at 0°F(-18℃) or Above V	24
Engine Only (De-clutched Load)	
Cold Cranking Amperes —CCA	1800
Reserve Capacity min	640
Starter (Heavy, Anode)—Volt	24
Battary Recharge System,Negative ground—A	35
Maximum Allowable Resistance of Starting Circuit—Ω	0.002
Minimum Recommended Battary Capacity	
·Cold Soak at 50°F(10℃) or Above—0°F CCA	1280
·Cold Soak at 32~50°F(0~10℃) or Above—0°F CCA	1800
·Cold Soak at 0~32°F(-18~0℃) or Above—0°F CCA	1800

PERFORMANCE DATA

Stability at Any Invariablenes Load —%	±0.25	
Minimum Ambient Temperature For Unaided Cold Start —°F(℃)	40	(4)
Minimum Cranking Speed Required For Unaided Cold Start —°F(℃)	150	

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ENGINE DATA SHEET

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	STAND_BY		PRIME	
	60 Hz	50 Hz	60 Hz	50Hz
Engine Speed r/min		1500		1500
Idle Speed r/min		700～800		700～800
Gross Power Output BHP(kW)		1769 (1320)		1621 (1210)
Nominal Rail Pressure PSI(kPa)		125 (862)		111 (765)
Intake Manifold Pressure in.Hg(kPa)		73 (246)		67 (228)
Brake Mean Effective Pressure PSI(kPa)		306 (2112)		281 (1936)
Piston Speed ft/min(m/s)	N/A	1565 (7.95)	N/A	1565 (7.95)
Friction Horsepower BHP(kW)		156 (116)		156 (116)
Intake Air Flow lb/min(kg/h)		268 (7305)		257 (6988)
Exhaust Gas Flow lb/min(kg/h)		278 (7573)		266 (7234)
Exhaust Gas Temperature °F(°C)		867 (464)		844 (451)
Heat Rejection to Ambient BTU/min(kW)		3759 (66)		3549 (62)
Heat Rejection to Jacket Coolant BTU/min(kW)		30108 (529)		27809 (489)
Heat Rejection to LTA BTU/min(kW)		16216 (285)		14392 (253)

Engine Model: KTA50-G7E
Data sheet: FR
Date: 2021/4/8

CHONGQING CUMMINS ENGINE CO., LTD. CHONGQING, CHINA, 400031