CHONGQING CUMMINS ENGINE COMPANY LTD.
ENGINE PERFORMANCE CURVE

CONFIGURATION	ENGINE MODEL: KTA19-G8A	CURVE NUMBER: FR729	CPL No.: 4471
D193108GX03			DATE: 2021/12/2

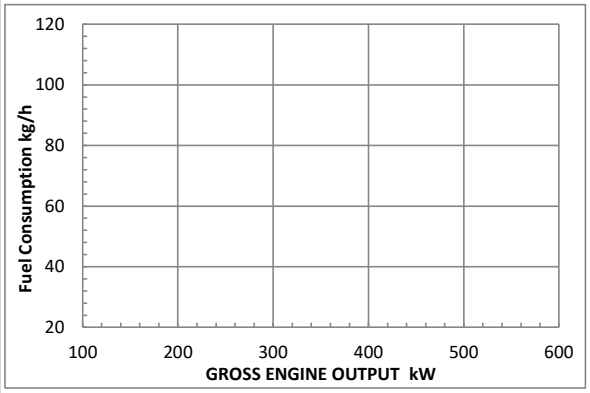
Displacement: 19 L (1150) in^3 Aspiration: Turbocharged , Aftercooled RATING
BoreXStroke: 159X159 mm (6.25X6.25 in.) Fuel System: Cummins PT Standby: 610 kW(817 BHP)@1500 r/min
Compress Ratio: 13.0:1 Prime: 550 kW(737 BHP)@1500 r/min

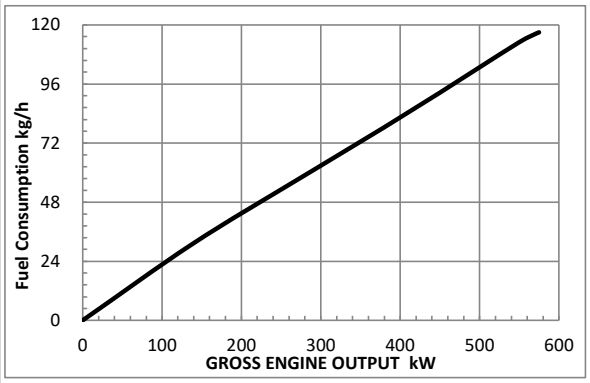
All data is based on the engine operating with fuel system, water pump, and 20 in. H2O(4.98kPa) inlet air restriction with 5.8 in.(147mm) inner diameter, and with 2 in. Hg(7kPa) exhaust restriction with 8 in.(203mm) inner diameter; not included are alternator, fan, optional equipment and driven components. 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	817	610	737	550	657	490

FUEL CONSUMPTION





OUTPUT POWER			CONSUMPTION		BFSC	
%	BHP	kW	Lb/h	kg/h	g/kW.h	Lb/BHP.h
			1800RPM			
			1500RPM			
STANDBY						
100	817	610	276	125	205	0.337
PRIME						
100	737	550	249	113	205	0.338
75	553	413	187	85	206	0.339
50	369	275	128	58	211	0.347
25	184	138	68	31	225	0.371
CONTINUOUS						
100	657	490	221	100	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 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.(1500m) and 104°F (40℃) without power deration.

1500RPM up to 5,000 ft.(1500m) 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):	**KTA19-G8A**	**REFERENCE INFORMATION:**	
STAND_BY:	**610 kW(817 BHP)@1500 r/min**	**CONFIGURATION……**	**D193108GX03**
PRIME:	**550 kW(737 BHP)@1500 r/min**	**DATASHEET……**	**FR729**
CPL NUMBER ……	**4471**	**DATE……**	**2021/12/2**

GENERAL ENGINE DATA

Type……	4 Cycle , In-line , 6 Cylinder	
Aspiration……	Turbocharged , Aftercooled	
Bore—in.(mm)×stroke—in.(mm)……	6.25×6.25	(159×159)
Displacement—in^3(L)……	1150	(19)
Compression Ratio……	13.0:1	
Dry Weight		
Fan Hub to Flywheel Engine —lb(kg)……	4085	(1853)
Wet Weight		
Fan Hub to Flywheel Engine —lb(kg)……	4245	(1925)
Moment of Inertia of Rotating Components		
·With FW 4001 Flywheel —$lbm.ft^2(kg•m^2)$……	170	(7.2)
·With FW 4006 Flywheel —$lbm.ft^2(kg•m^2)$……	199	(8.4)
C.G. from Rear Face of Flywheel Housing—in(mm)……	28.4	(721)
C.G. Distance Above Crank Centerline—in(mm)……	9.0	(229)
Maximum Allowable Bending Moment at Rear Face of Block —N•m(lb.ft)……	2000	(907)
Firing Order……	1-5-3-6-2-4	

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Block —lb.ft(N•m)……	1000	(1356)

EXHAUST SYSTEM

Maximum Allowable Back Pressure —in.Hg(kPa)……	3	(10)

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)
Intake Air Alarm Temperature (1500/1800 rpm)—℃(°F)……	82	(180)

COOLING SYSTEM

Coolant Capacity		
Engine Only —U.S.Gal(L)……	8.0	(30)
Radiator Only —U.S.Gal(L)……	29.1	(110)
Minimum Allowable Pressure Cap @ sea level— PSI(kPa)……	15	(103)

Main Engine Circuit

Standard Thermostat (modulating) Range — °F(°C)……	180-202	(82-95)
Maximum Allowable Top Tank Temperature (Standby/Prime) —°F(°C)……	220/212	(104/100)
Maximum Coolant Friction Head External to Engine —PSI(kPa)……	5.0	(34.5)

Aftercooler (LTA) Circuit

LTA Thermostat (modulating) Range — °F(°C)……	150-170	(66-77)
Maximum Coolant Friction Head External to Engine —PSI(kPa)……	6.7	(46.0)
Target Coolant Inlet Temperature to Aftercooler@77°F(25°C) Ambient — °F(°C)……	127	(53)
Maximum Coolant Temperature to Aftercooler; Standby/Prime — °F(°C)……	160/150	(71/66)

LUBRICATION SYSTEM

Oil Pressure		
@ Idle —PSI(kPa)……	20	(138)
@ Rated Speed —PSI(kPa)……	50-70	(345-483)
Maximum Allowable Oil Temperature —°F(°C)……	250	(121)
Oil Pan Capacity (Option OP4019)		
High —U.S.Gal(L)……	10	(38)
Low —U.S.Gal(L)……	8.5	(32)
Total System Capacity (Including By-Pass Filter) —U.S.Gal(L)……	13.2	(50)
Angularty of Standard Oil Pan (Option OP4019)		

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ENGINE DATA SHEET

FUEL SYSTEM

Fuel Injection System	Cummins PT	
Maximum allowable Restriction to PT Fuel Pump		
With Clean Fuel Filter —in.Hg(kPa)	4.0	(13.5)
With Dirty Fuel Filter —in.Hg(kPa)	8.0	(27.1)
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)
Maximum Fuel Flow to Injection Pump —US gph(L/h)	58	(220)

ELECTRICAL SYSTEM

Starter (Heavy Duty, Positive Engagement)—Volt	24
Battary Recharge System,Negative ground—A	40
Maximum Allowable Resistance of Starting Circuit—Ω	0.002
Minimum Recommended Battary Capacity	
·Cold Soak at 50°F(10℃) or Above—0°F CCA	600
·Cold Soak at 32~50°F(0~10℃) or Above—0°F CCA	640
·Cold Soak at 0~32°F(-18~0℃) or Above—0°F CCA	900

COLD START CAPABILITY

PERFORMANCE DATA

All data is based on the engine operating with fuel system, water pump, lubricating oil pump, air cleaner, and muffler, not included are altemator, compressor, fan, optional equipment and driven components. Data represents gross engine performance capabilities obtained and corrected in accordance with SAE J1349 conditions fo 29.61 in Hg(100 kPa) barometric pressure[300ft. (90 m) altitude], 77°F (25°C) inlet air temperature, and 0.30 in. Hg (1kPa) water vapor pressure with No.2 diesel or a fuel corresponding to ASTM D2. All data is subject to change without notice.

	STAND_BY		PRIME	
	60 Hz	50 Hz	60 Hz	50 Hz
Engine Speed r/min		1500		1500
Idle Speed r/min		675-775		675-775
Gross Power Output BHP(kW)		817 (610)		737 (550)
Brake Mean Effective Pressure PSI(kPa)		374 (2582)		336 (2314)
Piston Speed ft/min(m/s)		1555 (7.9)		1555 (7.9)
Friction Horsepower BHP(kW)		60 (45)		60 (45)
Engine Water Flow at Stated Friction Head External to Engine:				
• 1 psi Friction Head US gpm(L/s)		162 (10.2)		162 (10.2)
• Maximum Friction Head US gpm(L/s)	N/A	144 (9.1)	N/A	144 (9.1)
Engine Data				
Intake Air Flow CFM(L/s)		1430 (675)		1345 (635)
Exhaust Gas Temperature °F(°C)		1022 (550)		896 (480)
Exhaust Gas Flow CFM(L/s)		3956 (1867)		3757 (1773)
Air to Fuel Ratio A/F		23.5:1		22.2:1
Heat Rejection to Ambient BTU/min(kW)		2787 (49)		2502 (44)
Heat Rejection to Coolant BTU/min(kW)		12966 (228)		11715 (206)
Heat Rejection to Exhaust BTU/min(kW)		31391 (552)		28377 (499)
Aftercooler(LTA) Requirement				
Heat Rejection to LTA Coolant BTU/min(kW)		8985 (158)		8075 (142)
LTA Coolant Flow@Maximum Friction Head US gpm(L/s)		30 (1.9)		30 (1.9)

Engine Model: KTA19-G8A
Datasheet: FR729
Date: 2021/12/2

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