FUJIAN EPOS ELECTRIC MACHINERY CO., LTD

EMEAN POWER

Cummins®

ENGINE MODEL： KTA50-G15X

CURVE & DATASHEET： FR6423 CQ

EMEAN POWER

www.emeanpower.com
Email: sale5@fjepos.com
Phone: +86 19890349907

WHATSAPP

WECHAT

CHONGQING CUMMINS ENGINE COMPANY LTD.
ENGINE PERFORMANCE CURVE

CONFIGURATION	ENGINE MODEL: KTA50-G15X	DATA SHEET: FR6243 CQ	CPL No.: 2354CQ
D283022DX02			DATE: 2022/1/13

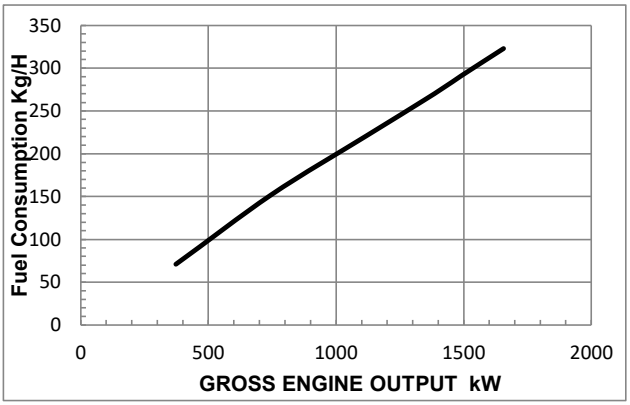
Displacement:	50.3L	(3067)	Aspiration: Turbocharged , LTA	RATING
BoreXStroke:	159X159mm	(6.25X6.25 in.)	Fuel System: Cummins PT	STANDBY: 1656 kW(2220 HP) 1500 RPM
Compress Ratio:	13.9:1		Emission: N.A.	PRIME: 1491 kW(1998 HP) 1500 RPM

All data is based on the engine operating with fuel system, water pump, lubricating oil pump, air cleaner, and muffler, and 20 in. H_2O(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	2220	1656	1998	1491	-	-
-	-	-	-	-	-	-

FUEL CONSUMPTION



OUTPUT POWER			CONSUMPTION		BFSC	
%	BHP	kW	Lb/h	kg/h	g/kW.h	Lb/BHP.h
			1500RPM			
STNADBY						
100	2220	1656	711	323	195	0.320
PRIME						
100	1998	1491	642	291	195	0.321
90	1798	1342	578	262	195	0.321
75	1498	1118	487	221	198	0.325
50	999	745	335	152	204	0.336
25	499	373	157	71	191	0.313

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.

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℃).

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ENGINE MODEL(S): KTA50-G15X

STAND_BY: 1656 kW(2220 HP) 1500 RPM

PRIME: 1491 kW(1998 HP) 1500 RPM

REFERENCE INFORMATION:

CONFIGURATION..... D283022DX02
CPL NUMBER 2354CQ
DATA SHEET ..... FR6243 CQ
DATE..... 2022/1/13

GENERAL ENGINE DATA

Type	4 Cycle , 60° Vee , 16 Cylinder	
Aspiration	Turbocharged , LTA	
Bore—in.(mm)×stroke—in.(mm)	6.25×6.25	(159×159)
Displacement—in^3(L)	3067	(50)
Compression Ratio	13.9:1	
Dry Weight		
Fan Hub to Flywheel Engine —lb(kg)	11820	(5361)
Radiator Cooled Engine —lb(kg)	12664	(5744)
Wet Weight		
Fan Hub to Flywheel Engine —lb(kg)	12485	(5663)
Radiator Cooled Engine —lb(kg)	14513	(6583)
Moment of Inertia of Rotating Components (Excluding Flywheel) —$lb_m.ft^2$($kg•m^2$)	0	0.00
·With FW 6009 Flywheel —$kg•m^2$($lb_m.ft^2$)	10.45	(248.0)
·With FW 6017 lywheel —$kg•m^2$($lb_m.ft^2$)	20.78	(493.0)
C.G. Distance From Rear Face of Flywheel Housing (FH6024))—in(mm)	47.5	(1207)
C.G. Distance From Front Face of Block—in(mm)	31.5	(801)
C.G. Distance Above Crank Centerline—in(mm)	11	(279)
Maximum Allowable Bending Moment at Rear Face of Block —N•m(lb.ft)	2000	(907)
Firing Order	1R-1L-3R-3L-2R-2L-5R-4L 8R-8L-6R-6L-7R-7L-4R-5L	

ENGINE MOUNTING

Moment of Inertia About Roll Axis —$lb.ft^2$($kg•m^2$)

EXHAUST SYSTEM

Maximum Allowable Back Pressure (1500/1800 rpm) —in.Hg(kPa)	2.3/3	(7.8/10.2)
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)	10	(2.49)

COOLING SYSTEM

Coolant Capacity		
Engine Only —U.S.Gal(L)	37	(140)
After-cooler Only —U.S.Gal(L)	(9)	(34)
With explantion tank & LTA—U.S.Gal(L)	122	(460)
Minimum Allowable Pressure Cap @ sea level— PSI(kPa)	7	(48)
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 Coolant Makeup Capacity —U.S.Gal(L)	6.3	(23.8)

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Maximum Raw water Inlet Friction —PSI(kPa)	10	(254.0)
Maximum Raw water Pump Suction —ft.(m)	15	(4.6)
Maximum Raw water Pump head —ft.(m)	67	(20.5)
Minimum Allowable Fill Rate —U.S.GPM(L/min)	5	(18.9)
Maximum Allowable Initial Fill Time —min	5	
Minimum Allowable Coolant Expansion Space —% of System Capacity	5	
Maximum Static Head of Coolant Above Engine Crank Centerline—ft.(m)	18.3	(60)
Target Coolant Inlet Temperature to Aftercoolers @ 77 °F (25 °C) Ambient—°F(℃)	102	(39)
Maximum Coolant Temperature to Aftercoolers; Standby Power / Prime Power —°F(℃)	(150/140)	65/60
Maximum Coolant Friction Head External to Engine— High Flow (Jacket) — psi (kPa)	10	(70)
— Low Flow (Aftercooler) — psi (kPa)	5	(35)
Thermostat Modulating Range — Low Flow (Aftercooler) — °F(℃)	150-175	(66-79)

LUBRICATION SYSTEM

Oil Pressure		
@ Idle —PSI(kPa)	20	(138)
@ Rated Speed —PSI(kPa)	45-65	(310-448)
Oil Flow at Rated Speed —U.S.GPM(L/min)	40	(151.4)
Maximum Allowable Oil Temperature —°F(℃)	250	(121.0)
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)	47.0	(177.9)
Low —U.S.Gal(L)	39.0	(147.6)
Total System Capacity (Excluding By-Pass Filter) —U.S.Gal(L)	54.0	(204.4)
Angularty of Standard Oil Pan (Option OP		
Front Down	30°	
Front Up	30°	

FUEL SYSTEM

Fuel Injection System	Cummins PT	
Maximum Fuel Consumption at Maximum Rated Output and Speed —lb/h(kg/h)		
Maximum allowable Restriction to PT Fuel Pump		
With Clean Fuel Filter —in.Hg(kPa)	5	(16.93)
With Dirty Fuel Filter —in.Hg(kPa)	8	(27.09)
Maximum Fuel Supply at Rated Power and Speed —lb/h(kg/h)	(711)	323
Maximum Allowable Injector Return Line Restriction		
With Check Valves —in.Hg(kPa)	7	(22)
Less Check Valves —in.Hg(kPa)	3	(8)
Minimum Allowable Fuel Tank Vent Capability —ft^3/h（L/h）	15	(425)
(With 2.5 in. Hg (63 mm Hg) or Less Back Pressure)		
Minimum Recommended Battary Capacity (Cold Soak at 0°F(-18℃) or Above V	12	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	1200	
·Cold Soak at 32~50°F(0~10℃) or Above—0°F CCA	1280	
·Cold Soak at 0~32°F(-18~0℃) or Above—0°F CCA	1800	

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ENGINE DATA SHEET

PERFORMANCE DATA

Stability at Any Invariablenes Load —%..... ±0.25
Idle —r/min..... 725-775
Minimum Ambient Temperature For Unaided Cold Start —°F(℃)..... 40 (4)
Minimum Cranking Speed Required For Unaided Cold Start —°F(℃)..... 150

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. 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 fuel 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		725-775		725-775
Gross Power Output BHP(kW)		2220(1656)		1998(1491)
Torque lb.ft(N·m)		7773(10539)		6996(9491)
Nominal Rail Pressure PSI(kPa)		152(1048)		137(943)
Intake Manifold Pressure in.Hg(kPa)		82(278)		74(250)
Brake Mean Effective Pressure PSI(kPa)		382(2635)		344(2371)
Piston Speed ft/min(m/s)		1555(7.9)		1555(7.9)
Friction Horsepower BHP(kW)		155(116)		155(116)
Intake Air FlowCFM(L/s)		4100(1935)		3690(1742)
Exhaust Gas Flow CFM(L/s)		10700(5050)		9630(4545)
Exhaust Gas Temperature °F(℃)		1114(601)		1004(540)
Heat Rejection to Ambient BTU/min(kW)	N/A	13920(245)	N/A	12528(220)
Heat Rejection to Coolant BTU/min(kW)		62872(1106)		56585(995)
Heat Rejection to Exhaust BTU/min(kW)		94401(1660)		84165(1480)
Engine Water Flow U.S.GPM(L/s) @ 4psi		499(31.5)		499(31.5)
Additional Engine Aftercooler Data (1 Pump / 2 Loop)				
Engine Jacket Coolant Flow at Stated Friction Head External to Engine:				
• 4 psi Friction Head U.S.GPM(L/s)		352(22.2)		352(22.2)
• Maximum Friction Head U.S.GPM(L/s)		320(20.2)		320(20.2)
Heat to be Rejected by Low Temperature Radiator*BTU/min(kW)		35264(621)		31738(559)
Heat to be Rejected by Jacket Water Radiator*BTU/min(kW)		25555(452)		23000(407)
Aftercooler Coolant Flow at Stated Friction Head External to Engine:				
• 2 psi Friction Head U.S.GPM(L/s)		85(5.4)		85(5.4)
• Maximum Friction Head U.S.GPM(L/s)		80(5.0)		80(5.0)