

Technical Operations



ENGINE MODEL: 6CTA8.3-G2
CURVE & DATASHEET: FR91961
FR92995
FR91651

REV 01 15APR2009



Generator Engine Performance Data

Basic Engine Model: **FR91961 @ 1500 RPM &1800RPM**
FR92995 @ 1500 RPM &1800RPM
FR91651 @ 1500 RPM &1800RPM

6CTA8.3-G2

FR91961
FR92995
FR91651

Configuration	CPL Code	Revision
D413059GX03	CPL: 1786	2009-4-15

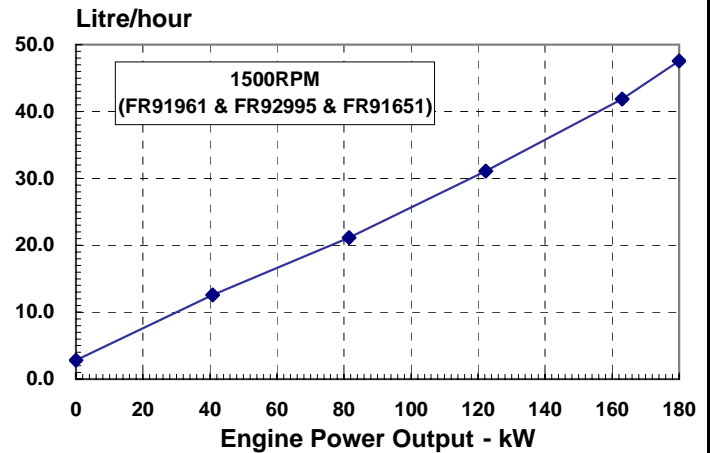
Compression Ratio:	17.3:1	Aspiration:	Turbocharged & Aftercooled
Bore:	114 mm	Displacement:	8.3 L
Stroke:	135 mm	No. of Cylinders:	6
Emission Certification:	MEP STAGE I	Fuel System:	FR91961: BYC PB/GAC
Governor Regulation:	≤3%		FR92995: BYC PB/SEGMA
			FR91651: BYC PB/FORTRUST

All data is based on the engine operating with fuel system, water pump, and 10 in H₂O (2.488 kPa) inlet air restriction with 5.98 in (152mm) inner diameter, and with 2.01 in Hg (7 kPa) exhaust restriction with 4.02 in (102 mm) inner diameter; not included are alternator, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolants as 50% ethylene glycol/50% water. All data is subject to change without notice.

Engine Speed RPM	Standby Power		Prime Power		Continuous Power	
	kW	HP	kW	HP	kW	HP
1500	180	241	163	218	133	178
1800	187	251	170	228	TBD	TBD

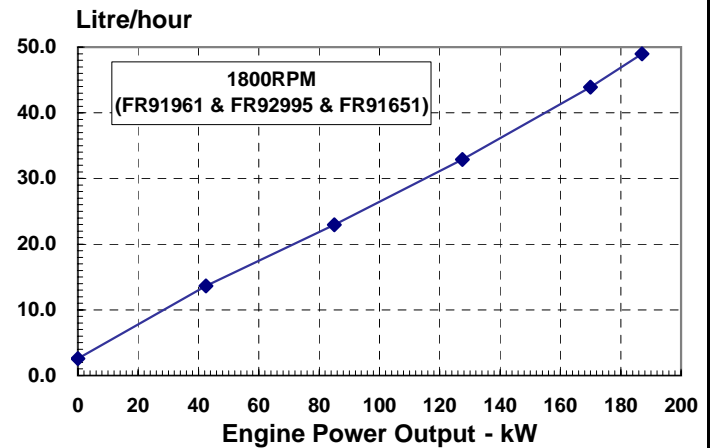
Engine Performance Data @ 1500 RPM

OUTPUT POWER			FUEL CONSUMPTION	
%	kW	HP	g/kW.h	L/h
STANDBY POWER				
100	180	241	218	48
PRIME POWER				
100	163	218	212	42
75	122	164	210	31
50	82	109	214	21
25	41	55	255	13
CONTINUOUS POWER				
100	133	178	211	34



Engine Performance Data @ 1800 RPM

OUTPUT POWER			FUEL CONSUMPTION	
%	kW	HP	g/kW.h	L/h
STANDBY POWER				
100	187	251	216	49
PRIME POWER				
100	170	228	213	44
75	128	171	213	33
50	85	114	223	23
25	43	57	265	14
CONTINUOUS POWER				
TBD	TBD	TBD	TBD	TBD



Curves shown above represent gross engine performance capabilities obtained and corrected in accordance with GB/T18297 conditions of 100kPa (29.61 in. Hg) barometric pressure [80 m (263 ft.) altitude], 25°C (77°F) inlet air temperature, and 1 kPa (0.30 in. Hg) water vapor pressure with No.0 diesel fuel. The engine may be operated without changing the fuel setting up to 2200 m (7218ft.) altitude.

GENERAL ENGINE DATA

Approximate Engine Weight (wet).....	-kg	637
Mass Moment of Inertia of Rotating Components (No Flywheel).....	-kg·m ²	0.37
Center of Gravity from Front Face of Block.....	-mm	427
Center of Gravity above Crankshaft Centerline.....	-mm	163
Crankshaft Thrust Bearing Load Limit		
—Maximum Intermittent.....	-N	5338
—Maximum Continuous.....	-N	2670

ENGINE MOUNTING

Maximum (Static) Bending Moment at Front Support Mounting Surface.....	-N.m	495
Maximum (Static) Bending Moment at Side Pad Mounting Surface.....	-N.m	250
Maximum (Static) Bending Moment at Rear Face of Block.....	-N.m	1356
Moment of Inertia of Complete Engine		
— Roll Axis.....	-kg·m ²	29.8
— Pitch Axis.....	-kg·m ²	76.8
— Yaw Axis.....	-kg·m ²	66.9

EXHAUST SYSTEM

Maximum Back Pressure.....	-kPa	10
Exhaust Pipe Size Normally Acceptable.....	-mm	75
Maximum Static Supported Weight at the Turbocharger Outlet Flange.....	-N.m	14
Exhaust Manifold Insulation Acceptable.....	-Yes/No	No
Turbocharger Insulation Acceptable.....	-Yes/No	No

AIR INTAKE SYSTEM

Maximum Intake Air Restriction with Heavy Duty Air Cleaner		
— Dirty Element.....	-kPa	6
— Clean Element.....	-kPa	4
Minimum Dirt Holding Capacity with Heavy Duty Air Cleaner.....	-g/cfm	25
Maximum Temperature Rise from Ambient to the Inlet of the Turbocharger.....	-°C	17
Recommended intake piping size (inner diameter).....	-mm	75

LUBRICATION SYSTEM

Minimum Engine Oil Pressure for Engine Protection Devices:		
-Idle Speed.....	-kPa	103
-Governed Speed.....	-kPa	276 - 414
Maximum Oil Temperature.....	-°C	121
Minimum Required Lube System Capacity - Sump plus Filters.....	-litre	27.6
Angularity of Standard Oil Pan: (Values stated are for intermittent operation only):		
— Front Down.....	-°	45
— Front Up.....	-°	45
— Side to Side.....	-°	45

FUEL SYSTEM

Type Injection System.....		BYC PB Direct Injection
Maximum Restriction at Lift Pump.....	-kPa	27
Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head)		
.....	-kPa	33.7
Maximum Fuel Inlet Temperature.....	-°C	71
Maximum Fuel Flow on the Supply Side of the Fuel Pump.....	-kg/hr	193

COOLING SYSTEM

Coolant Capacity - Engine Only.....	-litre	12.3
Maximum Coolant Friction Head External to Engine... -1800 rpm.....	-kPa	35
-1500 rpm.....	-kPa	28
Maximum Static Head of Coolant Above Engine Crank Centerline.....	-m	18.3
Standard Thermostat (Modulating) Range.....	-°C	82 - 95
Minimum Pressure Cap.....	-kPa	69
Maximum Top Tank Temperature for Standby / Prime Power.....	-°C	104 / 100



ELECTRICAL SYSTEM

Cranking Motor (Heavy Duty, Positive Engagement).....	-volt	12V	24V
Battery Charging System, Negative Ground.....	-ampere	63	40
Maximum Allowable Resistance of Cranking Circuit.....	-ohm	0.00075	0.002
Minimum Recommended Battery Capacity			
—Cold Soak @ 10 °F (-12 °C) and Above.....	-0°F CCA	TBD	

EMISSIONS

Gaseous Emissions per GB 20891-2007, at 1500rpm:			
—Weight-Specific NOx.....	g/kW.h	9.2	
—Weight-Specific HC.....	g/kW.h	1.3	
—Weight-Specific CO.....	g/kW.h	5.0	
—Weight-Specific Particulates.....	g/kW.h	0.54	
Gaseous Emissions per GB 20891-2007, at 1800rpm:			
—Weight-Specific NOx.....	g/kW.h	9.2	
—Weight-Specific HC.....	g/kW.h	1.3	
—Weight-Specific CO.....	g/kW.h	5.0	
—Weight-Specific Particulates.....	g/kW.h	0.54	

Fuel Rating Option used for these Data: **FR91961, FR91651 and FR92995**

	STANDBY POWER		PRIME POWER	
	1800	1500	1800	1500
Governed Engine Speed.....	-rpm			
Engine Idle Speed.....	-rpm	700 - 900	700 - 900	700 - 900
Gross Engine Power Output.....	-kW	187	180	170
Piston Speed.....	-m/s	8.1	6.8	8.1
Friction Horsepower.....	-kW	22	17	22
Engine Water Flow to Engine:.....	-litre/sec.	4	3.3	4
Intake Air Flow.....	-litre/sec.	237	206	226
Exhaust Gas Flow.....	-litre/sec.	654	578	586
Exhaust Gas Temperature.....	-°C	550	563	500
Air to Fuel Ratio.....	-air:fuel	27.5 : 1	22.5 : 1	29.0 : 1
Radiated Heat to Ambient.....	-kW	33	26	29
Heat Rejection to Coolant.....	-kW	117	95	107
Heat Rejection to Exhaust.....	-kW	180	139	157

ALL DATA CERTIFIED WITHIN 5%

TBD = To Be Decided

N/A = Not Applicable

N.A. = Not Available

All data is subject to change without notice, sorry for inform.