

JCB ENERGY ELECTRIC POWER INDUSTRY











IVECO

















231 / 400 V - 50 Hz & 277 / 480 V - 60 Hz





GENERATOR GENERAL INFORMATION

GENERATOR	FREQUENCY	VOLTAGE	POWER FACTOR	SPEED	DIESEL E	NGINE		ALTERN	ATOR		TYPE OF	GENER	ATOR O	UTPUT
Model	Hz	V	Cos Q	Rpm	Brand	Model	Series	Brand	Model	Series	Operation	kVA	kW	А
					BF6M1013FC G2			<u>_</u>	ADB I		Standby	210,0	168,0	303,5
JCD 210	50	231/400	0.8	1500				H		270M1	Prime	191,0	152,8	276,0
						BF6M1013FC	D.F.	ENERG	ICD	2701011	Continuous	165,4	132,3	239,0
						BF	ΞĦ	JCB		Standby	230,0	184,0	332,4	
JCD 230	60	277/480	0.8	1800				GY.		270M	Prime	209,1	167,3	302,2
											Continuous	186,1	148,9	268,9

- Diesel Engines with Advanced Technology and Quality
- Alternators with Advanced Technology and Quality
- Low Exhaust Emission
- Control Panel Suitable for Flexible Application
- Patented Compact Designed and Sound proof Canopy
- Low Operating Cost, Suitable for Heavy-Duty
- Durability , Low Noise Level

- Tropical 50 °C Radiator, First Class Product Support
- Fuel Filter with Water and Particle Separator
- Low Fuel Consumption, Low Oil Consumption
- Global Technical Service and Maintenance Support
- Wide Range of Affordable Spare Parts
- High Quality and Reliable Technology
- Half Century Experience in Generator Manufacturing

STAND BY POWER RATING - (ESP):

ESP is applicable 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 Stand by Power rating. This rating should be applied where reliable utility power is available. A Stand By rated engine should be sized for a maximum of an 70% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Stand by Power rating. Stand By ratings should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

PRIME POWER RATING - (PRP):

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 (ULTP):

PRP (Prime Power) is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours. The total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period 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 (LTP):

LTP (Limited Time Prime Power) is available for a limited number of hours in a no 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, that the life of any engine will be reduced by this constant high load operation. Any operation

CONTINUOUS POWER RATING (COP):

COP is the power that the engine can continue to use under the prescribed speed and the specified environment condition in the normal maintenance period stipulated in the manufacturing plant. And Continuous Power is 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.



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PAY ATTENTION TO THE POINTS BELOW IN PICKING AND USING THE GENERATOR

- * Generators can work on Continuous Power at 70% of Prime power value if only all maintenances are done on time with original spare parts and high-quality oils that manufacturer advice.
- * Generators should not operate below 50% of Prime Power value. In such a case, the engine will burn excessive oil and eventually have irreparable damage.
- * If your need is 1000 kVA or above, you should prefer Synchronic Systems with 2-3 generators with failure back up and simultaneous aging.
- * These points will provide advantage for you with purchasing and operating the generator.

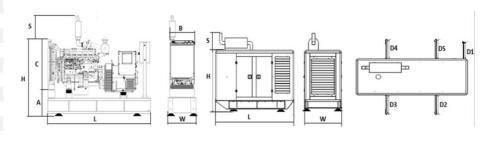
GENERATOR DIMENSIONS AND TECHNICAL DRAWINGS





VALUES		OPEN TYPE GENERATOR	CANOPY TYPE GENERATOR
WIDTH	mm	900	1153
LENGTH	mm	2400	2971
HEIGHT	mm	1549	2027
WEIGHT (NET)	Kg	1450	1810
FUEL TANK CAPACITY	L	256	376

SYMBOL	OPEN	CANOPY	
L	2400	2971	
W	900	1153	
Н	1002	1807	
S	547	220	
Α	696		
В	650		
С	680		
D1		520	
D2		604	
D3		604	
D4		604	
D5		604	



FUEL CONSUMPTION

PERCENT OF PRIME POWER	1500 rpm	1800 rpm
TENGENT OF THIME TOWER	I/hr	I/hr
110 %	44,26	49,34
100 %	40,15	44,85
75 %	29,82	33,32
50 %	20,07	22,43



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DIESEL ENGINE MAIN TECHNICAL PARAMETERS

50 Hz – 1500 min ⁻¹			60 Hz – 1800 min ⁻¹		
Туре		BF6M1013FC	Туре		BF6M1013FC
Speed	min ⁻¹	1500	Speed	min ⁻¹	1800
Net Frequency	Hz	50	Net Frequency	Hz	60
Power I avail		LTP	Power Standard		LTP
Power Level Exhaust Emission Standard		G2 COM II	Power Level Exhaust Emission Standard		G2 COM II
GENERAL GENERAL		COIVI II	GENERAL		COIVI II
Aspiration		Turbo,CAC	Aspiration		Turbo,CAC
Governing System		Electronic	Governing System		Electronic
Governor Brand		Heinzmann	Governor Brand		Heinzmann
No of Cylinders		6	No of Cylinders		6
Configuration		in-line	Configuration		in-line
Injection System		single injection pumps	Injection System		single injection pumps
Displacement	L	7,15	Displacement	L	7,15
Bore	mm	108	Bore	mm	108
Stroke	mm	130	Stroke	mm	130
Compression Ratio		19:1	Compression Ratio		19:1
Mean Effective Pressure	Bar	20,50	Mean Effective Pressure	Bar	19,00
Piston Speed	m/s	6,50	Piston Speed	m/s	7,80
Rotation (looking at flywheel)	111,3	ccw	Rotation (looking at flywheel)	, 3	ccw
No of Teeth on Flywheel Ring Gear		129	No of Teeth on Flywheel Ring Gear		129
GOVERNOR PERFORMANCE		129	GOVERNOR PERFORMANCE		129
Speed droop (static) mech. gov.	%	4-5	Speed droop (static) mech. gov.	%	4-5
Speed droop (static) electr. gov.	%	0-3	Speed droop (static) electr. gov.	%	0-3
Governing standards	,,,	G3	Governing standards	70	G3
MOMENT OF INERTIA			MOMENT OF INERTIA		
Engine without flywheel	kg m²	0,23	Engine without flywheel	kg m²	0,23
Flywheel (standard genset spec.)	kg m²	2,60	Flywheel (standard genset spec.)	kg m²	2,60
Max. step load acceptance, 1st step	%	-	Max. step load acceptance, 1st step	%	-
Sound power at full load, incl. cooling system	dB(A)	108,80	Sound power at full load, incl. cooling system	dB(A)	113,10
Sound press. (1m average, full load), incl. cool. syst.	dB(A)	94,80	Sound press. (1m average, full load), incl. cool. syst.	dB(A)	99,10
ENGINE WEIGHT			ENGINE WEIGHT		
Engine Dry, w/o Cooling System	kg	708	Engine Dry, w/o Cooling System	Kg	708
Engine with cooling system	kg	785	Engine with cooling system	kg	785
LUBRICATION SYSTEM			YAĞLAMA SİSTEMİ		
Oil specification		15W40/CI-4/SL	Oil specification		15W40/CI-4/SL
Oil consumption (as % of fuel consumption)	%	0,30	Oil consumption (as % of fuel consumption)	%	0,30
Oil capacity (sump)	I	31	Oil capacity (sump)	I	31
Min. oil pressure (warning)	Bar	2,70	Min. oil pressure (warning)	Bar	2,70
Min. oil pressure (shut down)	Bar	2,00	Min. oil pressure (shut down)	Bar	2,00
Max. permissible oil temperature (oil pan)	°C	130	Max. permissible oil temperature (oil pan)	°C	130
OUTPUT	14	100	OUTPUT	1,	•••
Gross Output(LTP or StandBy Power)	Kw	183	Gross Output(LTP or StandBy Power)	Kw	204
Fan Reduction	Kw	7,20 175 80	Fan Reduction	Kw	12,40
Net flywheel Electrical Output (Stand By)	Kw Kva	175,80 210	Net flywheel Electrical Output (Stand By)	Kva	191,60 230
Gross Output (PRP or Prime Power)	Kva	166	Gross Output (PRP or Prime Power)	Kva	186
Gross Output(PAF of Filine Power)	kw	151	Gross Output(Continous Power)	kw	169



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DIESEL ENGINE MAIN TECHNICAL PARAMETERS

50 Hz – 1500 min ⁻¹			60 Hz – 1800 min ⁻¹		
COOLING SYSTEM, GENERAL ENGINE COOLING DATA	A.		COOLING SYSTEM, GENERAL ENGINE COOLING DATA	A	
Max. perm. Coolant Outlet Temperature	°C	105	Max. perm. Coolant Outlet Temperature	°C	105
Max. perm. Flow Resistance (cool. syst. and piping)	Bar	0,35	Max. perm. Flow Resistance (cool. syst. and piping)	Bar	0,35
Max. Temperature of Coolant (warning)	°C	108	Max. Temperature of Coolant (warning)	°C	108
Max. Temperature of Coolant (shutdown)	°C	110	Max. Temperature of Coolant (shutdown)	°C	110
Temperature at Which Thermostat Starts to open	°C	83	Temperature at Which Thermostat Starts to open	°C	83
Temperature at Which Thermostat is Fully Open	°C	98	Temperature at Which Thermostat is Fully Open	°C	98
Delivery of Coolant Pump	m³/h	10,90	Delivery of Coolant Pump	m³/h	13,10
Min. Pressure Before Coolant Pump	Bar	0.30	Min. Pressure Before Coolant Pump	Bar	0,30
Temperature at CAC outlet at standard conditions	°C	40	Temperature at CAC outlet at standard conditions	°C	40
ENGINE COOLING SYSTEM		0.00	ENGINE COOLING SYSTEM		0.00
Coolant Capacity (engine)	I .	9,80	Coolant Capacity (engine)		9,80
Coolant Capacity (incl. cooling unit)	ı	27,30	Coolant Capacity (incl. cooling unit)	I	27,30
Air to Boil (max. permissible cool. air temp. at fan)	°C	55	Air to Boil (max. permissible cool. air temp. at fan)	°C	57
Fan Power Consumption	kW	7,20	Fan Power Consumption	kW	12,40
Cooling air Flow	m³/h	11520	Cooling air Flow	m³/h	14760
Air Pressure Loss, external	mbar	1,50	Air Pressure Loss, external	mbar	2,00
HEAT BALANCE			HEAT BALANCE		
Heat Dissipation (engine radiator)	kW	85,10	Heat Dissipation (engine radiator)	kW	95,90
Heat Dissipation (CAC)	kW	35,90	Heat Dissipation (CAC)	kW	46,80
Heat Dissipation (convection)	kW	18,00	Heat Dissipation (convection)	kW	20,00
INLET / EXHAUST DATA			INLET / EXHAUST DATA		
Max. intake Depression (Switch setting)	mbar	25	Max. intake Depression (Switch setting)	mbar	25
Combustion Air Volume	m³/h	743,90	Combustion Air Volume	m³/h	931,40
Max. Exhaust Back Pressure	mbar	30	Max. Exhaust Back Pressure	mbar	30
Max. Exhaust Gas Temperature	°C	540	Max. Exhaust Gas Temperature	°C	515
Exhaust Gas Flow (at above temp)	m³/h	2108	Exhaust Gas Flow (at above temp)	m³/h	2526
Exhaust Flange / pipe diameter	mm	-	Exhaust Flange / pipe diameter	mm	-
ELECTRICAL SYSTEM			ELECTRICAL SYSTEM		
Voltage	V	24	Voltage	V	24
Starter	KW	6	Starter	KW	6
Alternator Output	Α	35	Alternator Output	Α	35
Batteries (minimum capacity, cold start limit -5°C)	Ah	2*85	Batteries (minimum capacity, cold start limit -5°C)	Ah	2*85



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ALTERNATOR TECHNICAL PARAMETERS



Insulation Class			Н	Field Control S	ystem			Se	elf-Excited
Winding Pitch			2/3 - (N° 6)	A.V.R. Model			Standard		SX460
Wires			12	Voltage Regula	ation		%		± 1
Protection			IP 23	Sustained Sho	rt-Circuit Cu	rrent	10 sec	3	00% (3 IN)
Altitude	m		1000	Total Harmoni	c (*) TGH / 1	ГНС	%		< 4
Overspeed	rpm		2250	Wave Form: N	EMA = TIF -	(*)			< 50
Air Flow	m³/sec.		0.514	Wave Form: I	E.C. = THF -	(*)	%		< 2
Bearing Drive	N/A		-	Bearing Non-D	rive		Bearing		6310-2RZ
Rotor Winding	100%		Copper	Stator Winding	g		100%		Copper
50 HZ / 231-400V COSC	Q 0,8 / 1500 RPM								
STANDARD USING ALTERNATOR				OPTIONAL USING ALTERNATOR					
STANDARD OSING ALTE	ERNATOR			OPTIONAL U	SING ALTERN	IATOR			
BRAND/MODEL	JCBENERGY	JCB 270M1		LEROY-50	TM	TAL044M	STAMFORD	UC274H	
		JCB 270M1			TM	_		UC274H Stand By	
BRAND/MODEL		JCB 270M1		LEROY-SO	TM	_			
BRAND/MODEL DUTY	JCBENERGY	JCB 270M1		LEROY-50 Continuous	TM	_	S	Stand By	
BRAND/MODEL DUTY AMBIENT	JCBENERGY C°	JCB 270M1 380/220	400/231	LEROY-SC Continuous 40°C	TM	_	S	Stand By 27°C	1 Phase
BRAND/MODEL DUTY AMBIENT CLASS / TEMP. RISE	C° C°		400/231 200/115	LEROY-50 Continuous 40°C H/ 125° K	omer [™]	TAL044M	S	Stand By 27°C H/ 163° K	
BRAND/MODEL DUTY AMBIENT CLASS / TEMP. RISE SERIES STAR	C° C° V	380/220		LEROY-50 Continuous 40°C H/ 125° K 415/240	1 Phase	TAL044M 380/220	S H 400/231	Stand By 27°C H/ 163° K 415/240	1 Phase
BRAND/MODEL DUTY AMBIENT CLASS / TEMP. RISE SERIES STAR PARALLEL STAR	C° C° V	380/220 190/110	200/115	LEROY-50 Continuous 40°C H/ 125° K 415/240 208/120	1 Phase	380/220 190/110	400/231 200/115	Stand By 27°C H/ 163° K 415/240 208/120	1 Phase 220

60 HZ / 277-480V COSQ 0,8 / 1800 RPM									
STANDARD USING ALTE	C	OPTIONAL USING ALTERNATOR							
BRAND/MODEL	JCBENERGY	JCB 270S2		LEROY-SOM	ER" T.	AL044K	STAMF	ORD UC2	74F
DUTY				Continuous				Stand By	
AMBIENT	C°			40°C				27°C	
CLASS / TEMP. RISE	C°			H / 125° K				H / 163° K	
SERIES STAR	V	416/240	440/254	480/277	1 Phase	416/240	440/254	480/277	1 Phase
PARALLEL STAR	V	208/120	220/127	240/138	-	208/120	220/127	240/138	-
SERIES DELTA	V	240	254	277	240	240	254	277	240
OUTPUT POWER	kVA	184,0	194,0	204,0	-	202,0	213,0	224,0	-
OUTPUT POWER	kW	147,2	155,2	163,2	-	161,6	170,4	179,2	-



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CONTROL MODULE ALERTS

Emergency Stop Malfunction
High Generator Frequency
Low Generator frequency, Low Load
Over Current, Unbalanced Current
Low Generator Voltage
High generator Frequency
Phase sequence error
Overload, Heat Sensor Broken
Low Water Level (Optional)
Low Oil Pressure, Reverse Power

Start Error, Stop Error
Magnetic Pickup Error
Charge Alternator Error
Unbalanced Load
Maintenance Time Alarm
Low Speed, High Speed
Broken Oil Sensor Cable
High Oil Temperature (Optional)
Low Fuel Level (Optional), High Battery Voltage
Low Battery Voltage, High Water Temperature
Electronic Can bus Errors (ECU)

CONTROL PANEL SPECIFICATIONS



Low Water Temperature



- Powder Painted Steel Panel with Lockable Door
- ATS (Automatic Transfer Panel)
 Ontional
- Control Module
- Battery Charger
- Emergency Stop Button

- Terminal Blocks
- Load Output Terminal
- System Protection MSBs
- Circuit Breaker-Optional
- o LCD Screen
- Control Relays
- Backlit, 128x64 Pixels

CONTROL MODULE TECHNICAL PARAMETERS

Brand	JCBENERGY	Brand	Trans-MIDIAMF.232.GP
Dimensions	120mmx94mm.	Protection Class	IP65 From the Front
Weight	260 gr.	Environmental Conditions	2000 meters above sea level
Ambient Humidity	Max. %90.	Ambient Temperature	-20°C to +70°C
DC Battery Supply Voltage	8 - 32 V	Battery Voltage Measurement	8 – 32 V
Network Frequency	5 - 99,9 Hz	Mains Voltage Measurement	3 - 300 V phase -Neutral, 5 - 99,9 Hz
Generator Voltage Measurement	3 - 300 V	Generator Frequency	5 - 99,9 Hz
Current Transformer Secondary	5A	Working Period	Continuous
Charge Alternator Voltage Measurement	8 - 32 V	Charge Alternator Excitation	210mA &12V, 105mA &24V Nominal 2.5W
Communication Interface	RS-232	Analog Sender Measurement	0 - 1300ohm
Generator Contactor Relay Output	5A & 250V	Mains Contactor Relay Output	5A & 250V
Solenoid Transistor Outputs	1A with DC Supply	Start Transistor Outputs	1A with DC Supply
Configurable-3 Transistor Outputs	1A with DC Supply	Configurable-4 Transistor Outputs	1A with DC Supply



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CONTROL MODULE FUNCTION

Mains Voltage Level Control	Generator Voltage Level Control	3 Phase Generator Protections	3 Phase AMF Function	Alarm Horn
Network Frequency Level Control	Generator Frequency level Control	- High / Low Voltage	- High / Low Frequency	Heater Tube Thermostat Control
Engine Operating Option Control	Generator Current Level Control	- High / Low Frequency	- High / Low Voltage	Modbus and SNMP
Engine Stop Option Control	Generator Powder Level Control	- Current / Voltage Asymmetry	- High / Low Water Temperature	Working Hour
Engine Speed (RPM) Level Control	Generator work Schedule and Timing Control	- Overcurrent / Overload	- High / Low Load	Ground Leakage
Battery Voltage Options Times	Oil Pressure Controllers Control	Overheat Control	Mains., Generator ATS Control	Analog Modem
Check Engine Maintenance Times	Configurable Analog Inputs and Outputs	1 Phase or 3 Phase, Phase Selection	Network, Voltage, Frequency Display	Ethernet, USB, RS232, RS485
Communication Interfaces GPRS, GSM	Keeping Error Records of Past Events	Parameter Setting via Control Module	Parameter Setting via Computer	Selectable Protection Alarm / Shutdown
Engine Speed, Voltage, Earning	Configurable Programmable Digital Inputs and Outputs	Water Temperature Current and Frequency	Hours of Operation Phase sequence	Battery Voltage Oil Pressure

SOUND PROOF CANOPY AND BASE FRAME (CHASIS) SPECIFICATIONS



- Special, Registered JCB Energy Design and Colour
- A1 Quality DKP / HRU / Galvanized Steel
- Sensitive Twist on Automatic Press Brake
- Delicate Cut on Automatic Punch and Laser Bench
- Sensitive Welding on Robotic Welding Bench
- Chemical Cleaning Nano Technology Before Painting
- Robotic Painting with Electrostatic Powder Paint
- o Drying and stabilizing on 200 ºC Ovens
- 1500 Hour Salt Test
- o Glass wool Isolation, A1 Class Material -50/+500 ºC
- Special Covering Over Glass Wool
- Best Sound Level (in Dba)
- Temperature Tests
- Rustproof Accessories

- Cable Exit Connectors and Glands
- Emergency Stop Button
- Fuel Level Gauge
- Fuel Drain Cap
- Fuel Inlet and Return Records
- I permeability Test for Fuel Tank
- Vacuumed Rubber Mounted
- High Quality weatherstrips
- High Quality Shock Absorbers
- Fuel Filling Cap (with ventilation)
- Lifting and Carrying Equipment
- Internal Exhaust Mufflers (Silencers)
- External Exhaust Mufflers (Silencers)
- Radiator water Filling Cap
- Daily Fuel Tank, External Fuel Tank

Our Quality Certificates

