



4104G

Yavuz Motors engine model 4104G is 4 in-line cylinder diesel 4-cycle, water-cooled, natural aspirated designed for electric generator drive

Engine is design to provide excellent performance for a long service life and to comply with major international standards

Engine is completely equipped from fan to flywheel and ready to directly couple with wide range of industrial electric generator by SAE housing and flywheel disk coupling



PERFORMANCE DATA

	Engine model		4104G
1	Net Stand-by power (ESP) at 1500rpm	kW	43
2	Net Prime power (PRP) at 1500rpm	kW	38
3	Net Continuous power (COP) at 1500rpm	kW	34
4	Power lost for fan at 1500rpm	kW	≤ 0.8
5	Net Stand-by power (STB) at 1800rpm	kW	49
6	Net Prime power (PRP) at 1800rpm	kW	44
7	Net Continuous power (COP) at 1800rpm	kW	40
8	Power lost for fan at 1800rpm	kW	≤ 1.1
9	Speed variation at stable load	%	± 0.5
10	Speed static drop from no load to full load (%)	%	5
11	Step load for 10% speed transient drop (%)	%	90
12	Fuel consumption at LTP	Lt/ hr	12.0 ± 5%
13	Fuel consumption at PRP	Lt/ hr	10.6 ± 5%
14	Fuel consumption at 75% PRP	Lt/ hr	8.0 ± 5%
15	Fuel consumption at 50% PRP	Lt/ hr	5.6 ± 5%

Rating accuracy

Represent the engine performance capabilities guaranteed within plus or minus 3%

Rating conditions

25°C air inlet temperature, barometric pressure 100 kPa, relative humidity 30% in accordance with ISO 8528.

Ratings definitions

The power ratings of Emergency Standby and Prime are in accordance with ISO 8528.

EMERGENCY STANDBY POWER RATING

is applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. A standby rated engine should be sized for a maximum of a 70% average load factor and 200 hours of operation per year. This includes less than 50 hours per year at the Standby Power rating.

PRIME POWER RATING

is available for an unlimited number of hours per year in variable load application. Variable load should not exceed a 70% average load factor during any operating period of 24 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. The total operating time at the 10% overload power shall not exceed 50 hours per year.

CONTINUOUS POWER RATING

is available for an unlimited number of hours per year at constant load application. Constant load should not exceed a 100% of the Continuous power rating

Electric power must be considered, alternator efficiency, altitude derating and ambient temperature.

BASIC ENGINE SPECIFICATION

Engine cylinder block is made by cast iron and integrated with non-sleeve cylinders. Crankshaft is suspended by plain main bearing and connected to con-rod by plain con-rod bearing. Camshaft is supported by plain sleeve bearing and driven from crankshaft by gears.

Cylinder head is made by cast iron in mono-block type with two valves per cylinder and aluminum rocker cover.

1	Number of cylinder		4
2	Bore x stroke	mm	104 x 115
3	Displacement	cm ³	3905
4	Mean piston speed at 1500rpm		5.75
5	Compression ratio		17:1
6	Flywheel housing		SAE No. 3
7	Flywheel coupling size		SAE 11.5"
8	Dry weight	kg	415
9	Dimension L x W x H	cm	110 x 59 x 91

AIR INTAKE AND EXHAUST SYSTEM

Engine air intake is natural through dry air filter and aluminum intake manifold. Air filter has a restriction mechanical indicator

Exhaust is made through a cast iron exhaust manifold

1	Max restriction in air intake (vacuum)	bar	0.035
2	Max back pressure of exhaust	bar	0.08
3	Max exhaust temperature @1500 rpm	°C	600
4	Max combustion air flow	m ³ /hrs	240
5	Turbo charger make/ model		Not applicable
6	Max turbo charger pressure @1500 rpm	bar	Not applicable
7	Charge air cooler make/ model or size		Not applicable
8	Max charge air cooler inlet temperature	°C	Not applicable
9	Max charge air cooler outlet temperature	°C	Not applicable

COOLING SYSTEM

Engine is cooled by a radiator liquid cooling system. Water pump and push fan are driven by V-belt from crankshaft pulley. Temperature is controlled by a thermostat valve

Radiator is pressurized type and made by copper tubes and fins

1	Cooling air flow (fan) for both radiator and charge air cooler	m ³ /hr	3000
2	Max pressure drop of cooling air after radiator	bar	0.8
3	Max water pump flow	Lt/ min	100
4	Radiator core size	mm	450 x 450
5	Max radiator pressure	bar	1.1
6	Cooling water volume (including radiator)	Lt	14
7	Max allowable ambient temperature (Power derating must be applied)	°C	55

LUBRICATION SYSTEM

Engine is lubricated by a pressurized oil lubrication circuit. Oil pump is gear type and driven from crankshaft by gear. Lubrication oil is filled in a wet oil sump and cleaned by full flow spin-on filter

1	Max lube oil pump flow	Lt/ min	22
2	Max lube oil pressure	bar	8
3	Min lube oil pressure	bar	2
4	Max oil volume	Lt	12
5	Oil viscosity		SAE 15W-40
6	Oil quality class API recommendation		CH-4

FUEL SYSTEM

Fuel is fed from tank by diaphragm type transfer pump through water separator and fine fuel spin-on filter to injection pump. The injection pump is Bosch type in-line pump driven by gear from crankshaft for reliable operation with various kind and quality of fuel oil. Standard governor is mechanical type with 5% static speed droop.

Electronic governor is available as option

Fuel injection pump and injector is produced by Motorpal in Czech – Europe, an international manufacturer in Bosch supply chain

ELECTRIC SYSTEM

Electric system is 12VDC with motor starter and charging alternator produced by international Mako Manegtti Marelli in Turkey - Europe

Minimum battery capacity is 120Ah

1	Starter Voltage and power	12V – 2.7 kW
2	Alternator Voltage and Amperage	12V-45A
3	Battery Voltage and Ah capacity	12V-120AH
4	Solenoid stroke x force (mm x N)	33 x 90/210

Photograph are for illustrative purpose only and may not reflect final specification

All information in this document is substantially correct at time of printing and may be altered subsequently.



YAVUZ MÜHENDİSLİK SANAYİ VE TİCARET A.Ş.

Address: Ankara Konya Karayolu 38. Km GÖLBAŞI P.K.4 06831 ANKARA/ TÜRKİY

Phone: +90 312 499 5135

Fax: +90 312 499 5139

Website: <http://www.yavuzmotors.com/index-en.html>