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2020

C07 SERIES ENGINE

TECHNICAL DATA SHEET

C07 SERIES DIESEL ENGINE



RATINGS DEFINITION

The power ratings of Emergency Standby and Prime are in accordance with the standard of ISO8528. Fuel Stop power in accordance with the standard of ISO3046.

Electric power (kW) should be estimated by considering generator efficiency, cooling fan power loss and power derating due to altitude and temperature.

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 25 hours per year at the Standby Power rating.

PRIME POWER RATING is available for an unlimited of hours per year in variable load application. Variable load should not exceed a 70% average the Prime Power rating during any operating period hours., The Total operating time at 100% Prime Power shall not exceed 500 hours per year.

10% overload capability is available for a period of 1 hour within a 12 hours period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year,

CONTINUOUS POWER RATING is the power that the engine can continue to use under the prescribed speed and the specific environment condition in the normal maintenance period stipulated in the manufacturing plant. And continuous power applicable for supplying utility power at a constant 100% for an unlimited number of hours per year. No overload capability is available for this rating.

GENERAL ENGINE DATA

Engine Model	C07A	C07B
Engine Type	6-Cylinder, Turbo charged & intercooled (air to air)	
Prime Power (kW/Ps)	185/251	206/280
Standby Power (kW/Ps)	206/280	226/308
Continuous Power (kW/Ps)	170/231	185/251
Speed	1500 rpm	1800 rpm
Bore x stroke	105*124 mm	
Displacement	6.5 L	
Compression ratio	15.5:1	
Rotation {Looking at flywheel}	Counter clockwise {CCW}	
Firing order	1-5-3-6-2-4	
Injection timing	7.5°±2.5° BTDC @ 1500 rpm	7.5°±2.5° BTDC@ 1800 rpm
Dry weight {W/O cooling system}	590 kg	
Dimension {L x W x H}	1343 * 741 *1178 mm	
Flywheel housing	SAE 3 #	
Flywheel	SAE (11-1/2) #	
Number of teeth on flywheel	127	
Piston speed	6.2 m/s	7.4 m/s

ENGINE MOUNTING

Max.Bending Moment at Rear Face to Block	1125 N.m	
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INTAKE & EXHAUST SYSTEM

Engine Model	C07A	C07B
Max.Intake Restriction (kPa)	4	6
Max.Exhaust Back Pressure (kPa)	<10	<10
Combustion Air Consumption (m ³ /h)	1425	1848
Max.Exhaust Temp.(After Turbo°C)	540	530
Exhaust Gas Flow (m ³ /h)	1468	1897

COOLING SYSTEM

Water circulation by centrifugal pump on engine

Coolant capacity	9.6 L
Max.Permissible Temperature	90 °C
Max.Coolant warning Temperature	95 °C
Max.Coolant Shutdown Temperature	105 °C
Thermostat Open Temperature	71 °C
Max.external coolant system restriction	Not available

Two radiator options are provided, based on allowable maximum Air temperature On radiator inlet (Air On 40 °C) Air On 50 °C

- ATB (Ambient Temperature before Boiling) of generator set varies depending on the engine room ventilation design, even if the same radiator applied. Adequate selection of radiator options by means of the cooling test is highly recommended, and generator set makers are responsible for the selection.

FUEL SYSTEM**In-line pump with integrated, electromagnetic actuator**

Engine Model	C07A	C07B
Governor	Electric type (Original GAC from USA)	
Speed drop	G2 Class (ISO 8528)	
Feed pump	Mechanical type in pump	
Injection nozzle	Multi hole type	
Opening pressure	28 MPa	
Fuel filter	Full flow, Cartridge type with water drain valve	
Maximum fuel inlet restriction	30 kPa	
Maximum fuel return restriction	60 kPa	
Fuel feed pump Capacity	630 liters / hr	
Fuel	Diesel fuel	
Fuel Consumption of generator set		
Standby power- 100% load (l/h)	49.1	52.6
Prime Power - 100% load (l/h)	41.9	47.9
- 75% load (l/h)	31.4	35.9
- 50% load (l/h)	20.9	24.0
- 25% load (l/h)	10.5	12.0
Continous power - 100% load (l/h)	39.5	44.2
Lowest Fuel Consumption Ratio(g/kW.h)	193.0	198.0

LUBRICATION SYSTEM**Force-feed lubrication by gear pump, lubricating oil cooling water circuit of engine**

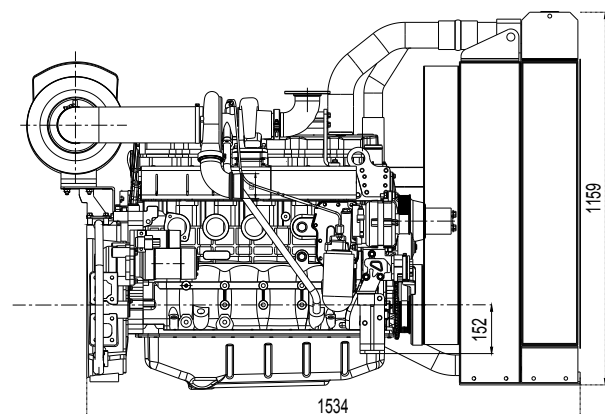
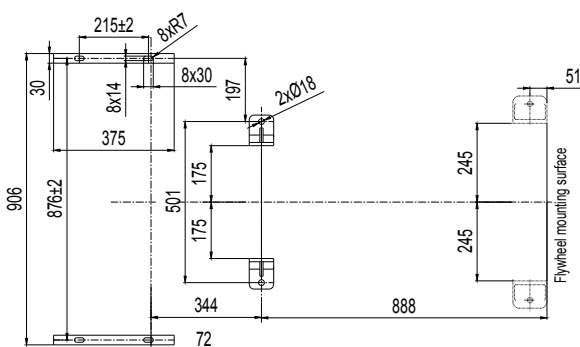
Force-feed lubrication by gear pump, lubricating oil cooling water circuit of engine	
Lub.Method	Fully forced pressure feed type
Oil filter	Full flow, cartridge type
Lube oil specification	CF-4
Lube oil pressure	Idle Speed : Min 160 kPa Governed Speed: Min 200 kPa
Maximum oil temperature	110 °C
Max.Permissible Oil Temperature	90 °C
Oil Consumption (as % of fuel consumption)	≤0.3
Oil capacity	20 L

ELECTRICAL SYSTEM

Charging Alternator Voltage	28V
Charging Alternator Capacity	45A
Voltage regulator	Built-in type IC regulator
Starting motor	7kW
Battery Voltage	24V
Battery Capacity	2 * 150 Ah (recommended)
Starting aid (Option)	Block heater (Min. Temperature for Unaided Cold Start -10°C)

VALVE SYSTEM

Type	Overhead valve type	
Number of valve	Intake 2, exhaust 2 per cylinder	
Valve lashes at cold	Intake 0.25 mm, Exhaust 0.50 mm	
Valve timing	Opening	Close
- Intake valve	24 deg.BTDC	36 deg.ABDC
- Exhaust valve	63 deg.BBDC	27 deg.ATDC

C07 Series diesel engine drawing

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