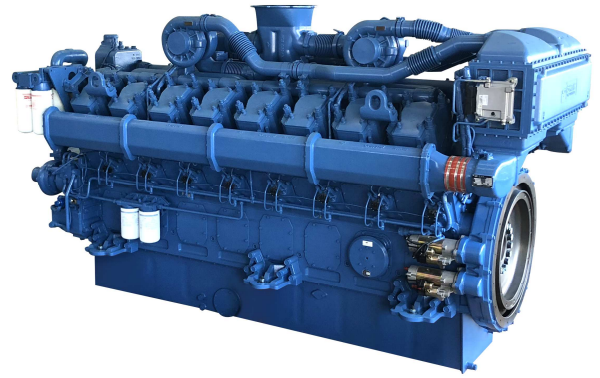


YC16VC3000-D31

Prime power: 2005 kW @ 1500 r/min

Standby power: 2206 kW @ 1500 r/min



Definitions

Prime Power

It corresponds to the prime rated power (PRP) of GB/T 2820 and ISO 8528, and refers to the maximum power accessible at the variable load for an unlimited running hours per year, with the maintenance intervals and procedures being carried out as prescribed by Yuchai, and the allowed average output power within 24 h shall not be higher than 70% of the prime power.

Standby Power

It corresponds to the emergency standby power (ESP) of GB/T 2820 and ISO 8528, and refers to the maximum power accessible at a certain variable load series in the event of a utility power outage or under test conditions for an limited running hours up to 200 h per year, with the maintenance intervals and procedures being carried out as prescribed by Yuchai. The allowed average output power within 24 h shall not be higher than 70% of the standby power.

Main technical parameters

Number of cylinders	16
Configuration	Vertical, V-type
Aspiration	Turbocharged, air-air intercooled
Combustion system	Direct injection
Compression ratio	13.5:1
Bore	200 mm
Stroke	210 mm
Displacement	105.56 L
Rotation	Counterclockwise (viewed from the flywheel end)
Firing order (viewed from the belt pulley end)	left
1—right 1-left 6—right 6-left 2—right 2-left 5—right 5-left 8—right	
8-left 3-right 3-left 7-right 7-left 4-right 4	
Dry weight (without radiator)	11400 kg
Wet weight (without radiator)	12000 kg

Overall dimensions

Length (from front end of pulley to flywheel shell face)	3635 mm
Width	1915 mm
Height	2370 mm

Centre of gravity (dry engine, with the center of the rear end face of the flywheel shell as the origin)

From the rear end face of the flywheel	1652 mm
Height relative to the center of the crankshaft	225 mm

Centerline deviation relative to the crankshaft center gravity	44 mm
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Moments of rotation inertia

Engine	44.42 kg·m ²
Flywheel	29.36 kg·m ²

Performance rating

Speed droop	≤1 %
Steady state speed band	≤0.5 %

Test conditions

Ambient temperature	25 °C
Atmospheric pressure	100 kPa
Relative humidity	30 %
Max. operating intake resistance	≤5 kPa
Exhaust backpressure limit	≤10 kPa
Fuel temperature (fuel inlet pump)	38±2 °C

Attention: Unless otherwise explicitly specified, all parameter data are measured under standard test condition as above. If the engine is operated under other test conditions rather than the test condition above, it shall be adjusted properly according to the actual environment. Contact the Yuchai Technical Service Department for details.

Parameters of YC16VC3000-D31 Diesel Engine(Basic Type) for Genset
Matching parameters

Designation	Unit	Matching parameters	
		Standby	Prime
		50 Hz @ 1,500 r/min	
Gross engine power	kW	2206	2005
Net engine power	kW	2084	1883
Fan power consumption (belt pulley driven)	kW	120	120
Other power loss	kW	2	2
Mean effective pressure	MPa	1.67	1.52
Intake air flow	m ³ /min	206	194
Exhaust temperature limit (after turbocharger)	°C	550	570
Exhaust flow	m ³ /min	457	426
Boost pressure ratio		3.15	2.95
Thermal efficiency	%	39.2	39.4
Mean piston speed	m/s	10.5	10.5
Coolant flow(high temperature)	L/min	≥1500	≥1500
Coolant flow(low temperature)	L/min	≥1300	≥1300
Cooling fan air flow	m ³ /min	3600	3600
Typical gen-set electrical output (power factor:0.8)	kW	2000	1800
	kVA	2500	2250
Assumed generator efficiency	%	95.9	95.5

Thermal balance parameters

Note: The calorific value of diesel is 42,770 kJ/kg

Designation	Unit	Thermal balance parameters	
		Standby	Prime
		50 Hz @ 1,500 r/min	
Total fuel chemical energy	kW	5625	5085
Output power (gross)	kW	2206	2005
Output power (net)	kW	2084	1883
Fan power consumption	kW	120	120
Other power loss	kW	2	2
Heat dissipation capacity(coolant circulation)	kW	550	500
Heat dissipation capacity(intake intercooled system)	kW	950	880
Heat dissipation of exhaust	kW	1730	1530
Heat dissipation of thermal radiation	kW	190	170

Cooling system

Total coolant capacity.....	623.5 L
Engine coolant capacity	
- (high temperature).....	140 L
- (low temperature).....	90 L
Radiator coolant capacity.....	334.5 L
Pipeline coolant capacity.....	50 L
Engine max. outlet coolant temperature(high temperature)....	95℃
Engine max. outlet coolant temperature(low temperature).....	67℃
Pressure difference between inlet and outlet of water pump	
(max. hydrostatic head).....	135.5/332 kPa
Thermostat operation temperature	
Initial open.....	(75±2)℃
full open.....	<85℃
Max. coolant temperature rise(high temperature):	
- Standby power.....	6.3℃
- Prime power.....	5.7℃
Max. coolant temperature rise(low temperature):	
- Standby power.....	12.5℃
- Prime power.....	11.6℃

Radiator

Cooling area(high temperature).....	490m ²
Cooling area(low temperature).....	914m ²
Dry weight.....	1645kg
Core material.....	Cuprum
Width of core.....	2450 mm
Height of core.....	2250 mm
Min. pressure of pressure cap.....	50kPa
Coolant resistance limit.....	30kPa

Intercooler

Cooling area.....	102 m ²
Core material.....	T2,B10
Air resistance limit.....	20 kPa

Coolant pump

Rotation speed.....	2700 r/min
Drive mode.....	gear driven

Intake system

Air filter

Max. intake resistance:

- Clean air filter	2.45 kPa
- Dirty air filter	6 kPa
- Air filter type.....	dry-type, filter cartridge of hardware cloth

Inclination

Transverse inclination/longitudinal inclination (volume of engine oil sump: 310 L) 20°/ 15°

Fuel system

Injection system..... electronic unit pump

Injector

Type..... S type, with multiple jets
 Injector opening pressure (26~27) MPa

Fuel pump

Drive mode Gear driven
 Fuel delivery pump flow @1,500 rpm 60 L/min
 Max. fuel inlet temperature limit..... 70 °C
 Allowed fuel inlet pressure of front end of fuel delivery pump (absolute pressure)..... (35~100) kPa
 Maximum fuel return pressure of fuel pump 20 kPa

Fuel filter

Pre- filter

Rated flow..... 30 L/min
 Max. original resistance..... 10 kPa
 Water separation efficiency at the rated flow ≥95 %
 Filter efficiency:
 For particles of 25 μm..... 99 %
 For particles of 10 μm..... 85 %

Fine- filter

Rated flow..... 60 L/min
 Max. original resistance..... 10 kPa
 Filtering efficiency:
 For particles of 10 μm..... 99.6 %
 For particles of 3 μm..... 98.5 %

Fuel consumption

Note: The density of diesel is 0.835 kg/L.

Load condition	1,500 r/min	
	g/(kW·h)	L/h
Standby	214.5	566.2
Prime	205.7	493.9
75% prime	209.0	376.4
50% prime	224.3	269.3

Lubricating system

- Total oil capacity(dry engine)430 L
- Total oil capacity(oil change)370 L
- Oil sump capacity370 L
- Max. oil temperature (in oil sump)110 °C
- Operating oil temperature(in oil sump)..... (70~110) °C
- Oil pressure(idle speed) (200-500) kPa
- Oil pressure(rated speed)..... (400~600) kPa
- Oil-fuel consumption ratio..... <0.25 %

Oil filter

- The filtering efficiency at the rated flow of 833 L/min and the assembly initial resistance ≤25 kPa:
- For 15µm≤particles<20µm.....>75%
 - For 20µm≤particles<30µm.....>95%
 - For 30µm≤particles<40µm.....>99%
 - For particles≥40µm.....>99.9999%

Electric system

Type.....Negative ground

Starter

- TypeElectric start, 2
- Voltage 24V
- Power 11 kW
- Number of teeth of flywheel.....199
- Number of teeth of starter..... 10

Cold start (test data, for reference only)

24 V					
Battery specification × quantity: 12V/210Ah×4 Attention: the minimum CCA of battery should not be less than 1200A when applied to the cold area or plateau.					
Starting temperature	°C	-15	-20	-25	-30
Starting speed	r/min	/	/	/	/
Starting current	A	/	/	/	/
Starting voltage	V	/	/	/	/
Starting time	s	/	/	/	/
Preheating time	s	/	/	/	/

Water preheater

- Recommended specification.25 kW/380 V
- Engine preheater water outlet interface..... NPT1/2×2
- Engine preheater water inlet interface NPT1×2

Oil heater

- Recommended specification.2.22kW/220 V
- Interface (oil sump, 4)..... M22×1.5

Exhaust system

- Max. exhaust backpressure..... 10 kPa
- Inner diameter of exhaust port pipe.....>Φ380 mm

Noise

Noise data (2005 kW @ 1500 r/min)

Position	Noise, dB(A)
1	108.8
2	109.5
3	110.1
4	108.2
5	106.3
6	106.6
7	109.7
8	109.7
9	106.1
10	106.1
11	107.8
12	109.8

