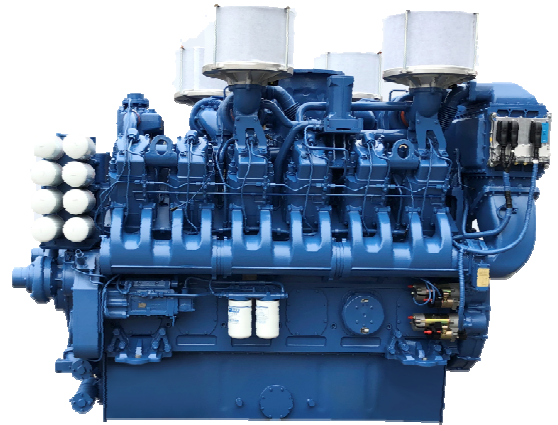


# YC12VC3000-D30

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 .....	12
Configuration.....	Vertical, V-type
Aspiration .....	Turbocharged, water-air intercooled
Combustion system.....	Direct injection
Compression ratio .....	13.5:1
Bore.....	200 mm
Stroke.....	210 mm
Displacement .....	79.17 L
Rotation.....	Counterclockwise (viewed from the flywheel end)
Firing order (viewed from the belt pulley end).....	B1-A1-B5-A5-B3-A3-B6-A6-B2-A2-B4-A4
Dry weight (without radiator) .....	8700 kg
Wet weight (without radiator) .....	9130 kg

## Overall dimensions

Length (from front end of radiator to rear end of air filter) .....	3170 mm
Width.....	1730 mm
Height.....	2400 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.....	1127 mm
Height relative to the center of the crankshaft.....	148 mm

Centerline deviation relative to the crankshaft center gravity .....	-31 mm
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## Moments of rotation inertia

Engine.....	44.119 kg·m <sup>2</sup>
Flywheel.....	25.045 kg·m <sup>2</sup>

## Performance rating

Speed droop.....	≤0.5 %
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.**

### Matching parameters

Designation	Unit	Matching parameters	
		Standby	Prime
		50 Hz @ 1,500 r/min	
Gross engine power	kW	2206	2005
Net engine power	kW	2085	1884
Fan power consumption (belt pulley driven)	kW	120	120
Other power loss	kW	1	1
Mean effective pressure	MPa	2.229	2.026
Intake air flow	m <sup>3</sup> /min	206	194
Exhaust temperature limit (after turbocharger)	°C	550	550
Exhaust flow	m <sup>3</sup> /min	457	426
Boost pressure ratio		3.77	3.43
Thermal efficiency	%	38.0	41.2
Mean piston speed	m/s	10.5	10.5
Coolant flow(high temperature)	L/min	≥1250	≥1250
Coolant flow(low temperature)	L/min	≥1250	≥1250
Cooling fan air flow	m <sup>3</sup> /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	5803	5098
Output power (gross)	kW	2206	2005
Output power (net)	kW	2085	1884
Fan power consumption	kW	120	120
Other power loss	kW	1	1
Heat dissipation capacity(high temperature)	kW	464	421
Heat dissipation capacity(low temperature)	kW	1161	1054
Heat dissipation of exhaust	kW	1857	1686
Heat dissipation of thermal radiation	kW	116	105

### Cooling system

Total coolant capacity.....	755 L
Engine coolant capacity	
- (high temperature).....	160 L
- (low temperature).....	70 L
Radiator coolant capacity	
- (high temperature).....	195 L
- (low temperature).....	270 L
Pipeline coolant capacity.....	60 L
Engine max. outlet coolant high temperature.....	95°C
Engine max. outlet coolant low temperature.....	75°C
Pressure difference between inlet and outlet of water pump (max. hydrostatic head)	
.....	135.5(high temperature)/331.9(low temperature) kPa
Thermostat operation temperature	
Initial open.....	(75±2)°C
full open.....	(85±2)°C
Max. coolant temperature rise(high temperature):	
- Standby power.....	8°C
- Prime power.....	8°C
Max. coolant temperature rise(high temperature):	
- Standby power.....	14.4°C
- Prime power.....	13.5°C

### Radiator

Cooling area(high temperature).....	660m <sup>2</sup>
Cooling area(low temperature).....	1220m <sup>2</sup>
Dry weight.....	2200kg
Core material.....	Cuprum
Number of lines.....	254
Density of core.....	13 cooling fins/inch
Width of core.....	2250 mm
Height of core.....	2450 mm
Min. pressure of pressure cap.....	(50±5) kPa
Coolant resistance limit.....	30 kPa

### Intercooler

Cooling area.....	140.36 m <sup>2</sup>
Core material.....	Cuprum
Density of core.....	16 cooling fins/inch
Width of core.....	1200 mm
Height of core.....	260 mm
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) .....	10°
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### Fuel system

Injection system.....	High pressure common rail
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#### Injector

Type.....	Electronically controlled, with multiple jets
Injector opening pressure.....	Electronically controlled

#### Fuel pump

Drive mode .....	Gear driven
Fuel delivery pump flow @1,500 rpm .....	10 L/min
Max. fuel inlet temperature limit.....	75 °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.....	40 L/min
Max. original resistance .....	7 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 15 μm.....	99.9 %
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	215.4	569.1
Prime	210.7	505.9
75% prime	213.0	383.6
50% prime	226.3	271.7

### Lubricating system

Total oil capacity(dry engine) .....370 L  
 Total oil capacity(oil change) .....310 L  
 Oil sump capacity - low level/high level .....220/315 L  
 Max. oil temperature (in oil sump) .....110 °C  
 Operating oil temperature(in oil sump)..... (70~105) °C  
 Oil pressure(idle speed) .....≥250 kPa  
 Oil pressure(rated speed)..... (200~500) kPa  
 Oil-fuel consumption ratio..... <0.25 %

### Oil filter

The filtering efficiency at the rated flow of 200 L/min and the assembly initial resistance ≤30 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

### Charger

Voltage ..... 28V  
 Output current ..... 55A

### Starter

Type .....Electric start, 2  
 Voltage ..... 24V  
 Power ..... 11 kW  
 Number of teeth of flywheel..... 199  
 Number of teeth of starter..... 11

### 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	/	/	/	/

### Auxiliary intake heater

Type..... /  
 Specification ..... /

### Water preheater

Recommended specification. .... 2×5kW/220V  
 Engine preheater water outlet interface..... NPT1/2×2  
 Engine preheater water inlet interface ..... NPT 1×2

### Oil heater

Recommended specification. .... 800W/220 V  
 Interface (oil sump, 1)..... M22×1.5

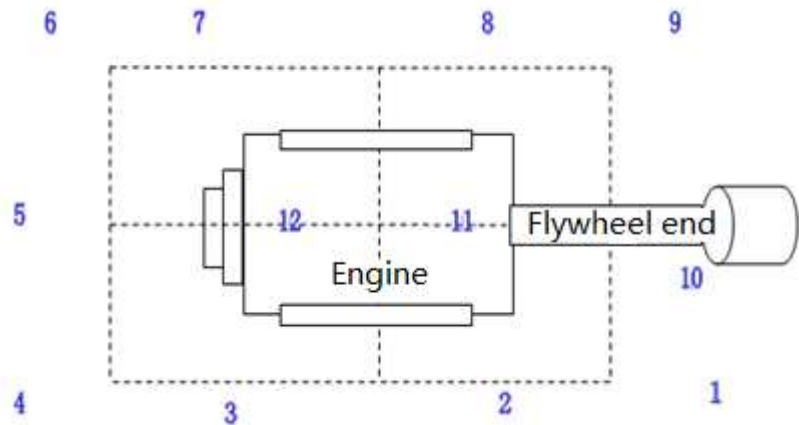
### Exhaust system

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	105.7
2	102.9
3	104.5
4	104.6
5	105.8
6	105.8
7	105.8
8	106.5
9	105.7
10	110.3
11	109.4
12	109.5



### Noise spectrum (2005 kW @ 1500 r/min)

Frequency, Hz	Noise, dB(A)
63	65.5
125	80.5
250	85.2
500	90.5
1K	91.6
2K	90.3
4K	90.9
8K	91.3
16K	85.3

