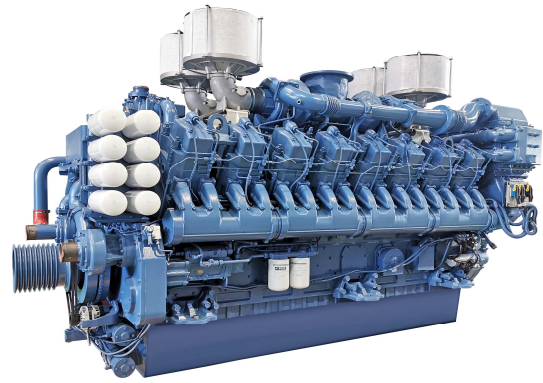


YC16VC4900-D30

Prime power: 3280 kW @ 1500 r/min

Standby power: 3608 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, water-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)	12200 kg
Wet weight (without radiator)	13000 kg

Overall dimensions

Length (from front end of radiator to rear end of air filter)	
.....	3910 mm
Width	1690 mm
Height (with radiator and mounting support)	2450 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

Moments of rotation inertia

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

Performance rating

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

Test conditions

Ambient temperature	25 °C
Atmospheric pressure	100 kPa
Relative humidity	35 %
Max. operating intake resistance	≤3.7 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	3608	3280
Net engine power	kW	3501	3173
Fan power consumption (Motor driven fan)	kW	105	105
Other power loss	kW	2	2
Mean effective pressure	MPa	2.74	2.49
Intake air flow	m ³ /min	329	298
Exhaust temperature limit (after turbocharger)	°C	≤580	≤560
Exhaust flow	m ³ /min	749	675
Boost pressure ratio		4.7	4.3
Thermal efficiency	%	38.2	39.2
Mean piston speed	m/s	10.5	10.5
Coolant flow(high temperature)	L/min	1800	1800
Coolant flow(low temperature)	L/min	2000	2000
Cooling fan air flow	m ³ /min	6300	6300
Typical gen-set electrical output (power factor:0.8)	kW	3300	3000
	kVA	4125	3750
Assumed generator efficiency	%	94.3	94.6

(Note: the engine does not have a fan, and the power consumption and air volume of the fan are for reference only. The parameters are designed and provided by each water tank manufacturer according to their own selection.)

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	9458	8369
Output power (gross)	kW	3608	3280
Output power (net)	kW	3501	3173
Fan power consumption	kW	105	105
Other power loss	kW	2	2
Heat dissipation capacity(coolant circulation)	kW	1220	1067
Heat dissipation capacity(intake intercooled system)	kW	1300	1122
Heat dissipation of exhaust	kW	3100	2700
Heat dissipation of thermal radiation	kW	220	190
Heat dissipation of fuel	kW	10	10

Cooling system

Total coolant capacity.....	885 L
Engine coolant capacity.....	450 L
Radiator coolant capacity.....	435 L
Pipeline coolant capacity.....	Calculate according to radiator pipe
Engine max. outlet coolant temperature(high temperature).	≤98℃
Engine max. inlet coolant temperature(low temperature)....	≤64℃
Pressure difference between inlet and outlet of water pump (max. hydrostatic head).....	159/343 kPa
Thermostat operation temperature	
Initial open.....	(75±2)℃
full open.....	<85℃
Max. coolant temperature rise(high temperature):	
-Standby power.....	11.6℃
-Prime power.....	10.2℃
Max. coolant temperature rise(low temperature):	
-Standby power.....	11.0℃
-Prime power.....	9.6℃

Radiator(horizontal)

Cooling area(high temperature).....	1050m ²
Cooling area(low temperature).....	1850m ²
Dry weight.....	2456kg
Core material.....	Aluminum
Width of core.....	/ mm
Height of core.....	/ mm
Min. pressure of pressure cap.....	(70±5)kPa
Coolant resistance limit.....	50 kPa

Intercooler

Cooling area.....	220 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: 460 L)	20°/15°
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Fuel system

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

Type.....	Electronically controlled, with multi
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 ℃
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	15kPa
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	220.6	953.2
Prime	214.6	843.0
75% prime	204.5	602.5
50% prime	208.5	409.5

Lubricating system

- Total oil capacity(dry engine)520 L
- Total oil capacity(oil change)460 L
- Oil sump capacity460 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)..... (400~900) kPa
- Oil-fuel consumption ratio <0.5 %

Oil filter

The filtering efficiency at the rated flow of 200 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 2×11 kW
- Number of teeth of flywheel..... 199
- Number of teeth of starter..... 11

Charger

- Voltage 27V
- Electric current55 A

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

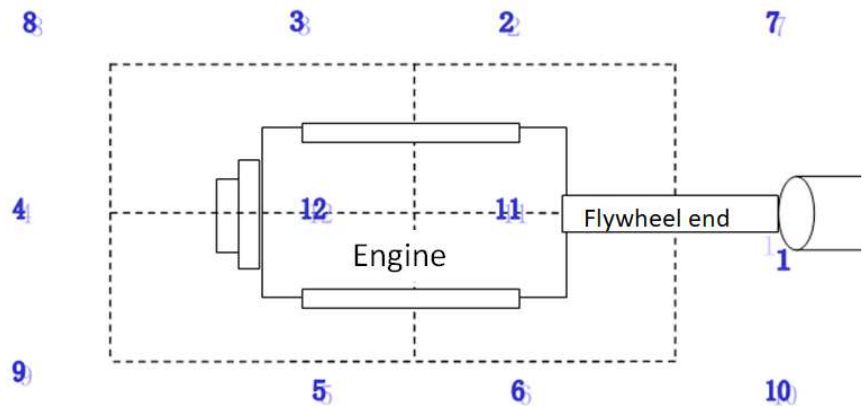
Exhaust system

- Max. exhaust backpressure..... 10 kPa
- Inner diameter of single exhaust port pipe..... ≥Φ300 mm

Noise

Noise data (3280 kW @ 1500 r/min)

Position	Noise, dB(A)
1	107.3
2	110.7
3	110.0
4	107.0
5	109.8
6	108.6
7	107.5
8	104.6
9	104.8
10	105.5
11	108.7
12	108.0



Noise spectrum (3280 kW @ 1500 r/min)

Frequency, Hz	Noise, dB(A)
63	50.7
125	75.7
250	81.9
500	86.5
1K	90.6
2K	90.0
4K	91.8
8K	100.3
16K	85.1

