



Version: 2020V01 Implemented on: Jan.15, 2020

YC6K600-D30

Prime power: 401 kW @ 1500 r/min

Standby power: 441 kW @ 1500 r/min

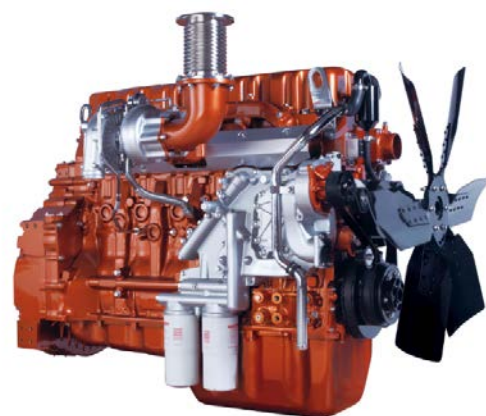
Definitions

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 a 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	6
Configuration	Vertical, in-line
Aspiration	Turbocharged, air-air intercooled
Combustion system	Direct injection
Compression ratio	16.5:1
Bore	129 mm
Stroke	165 mm
Displacement	12.94 L
Rotation	Counterclockwise (viewed from the flywheel end)
Firing order (viewed from the belt pulley end)	1-5-3-6-2-4
Dry weight (without radiator)	1275 kg
Wet weight (without radiator)	1320 kg

Overall dimensions

Length (from front end of radiator to rear end of air filter)	2372 mm
Width	1120 mm
Height (with radiator and mounting support)	1488 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	661.03 mm
Height relative to the center of the crankshaft	233 mm

Centerline deviation relative to the crankshaft center gravity	-5.58 mm
--	----------

Moments of rotation inertia

Engine	93.9 kg·m ²
Flywheel	2.78 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	55 %
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 YC6K600-D30 Diesel Engine(Base Type) for Genset



Matching parameters

Designation	Unit	Matching parameters	
		Standby	Prime
		50 Hz @ 1500 r/min	
Gross engine power	kW	441	401
Net engine power	kW	425	385
Fan power consumption (belt pulley driven)	kW	16	16
Other power loss	kW	1	1
Mean effective pressure	MPa	2.73	2.48
Intake air flow	m ³ /min	29.3	26.2
Exhaust temperature limit (after turbocharger)	°C	545	520
Exhaust flow	m ³ /min	87.8	76.1
Boost pressure ratio		2.85	2.8
Thermal efficiency	%	39	40.1
Mean piston speed	m/s	8.25	8.25
Coolant flow	L/min	395	395
Cooling fan air flow (Static pressure 459kPa)	m ³ /min	516	516
Typical gen-set electrical output (power factor:0.8)	kW	400	360
	kVA	500	450
Assumed generator efficiency	%	93.6	94

Energy balance parameters

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

Designation	Unit	Energy balance parameters	
		Standby	Prime
		50 Hz @ 1500 r/min	
Total fuel chemical energy	kW	1132	1000
Output power (gross)	kW	441	401
Output power (net)	kW	424	384
Fan power consumption	kW	16	16
Other power loss	kW	1	1
Heat dissipation capacity(coolant circulation)	kW	248	220
Heat dissipation capacity(intake intercooled system)	kW	68	66
Heat dissipation of exhaust	kW	359	246
Heat dissipation of thermal radiation	kW	44	40

Heat dissipating capacity of Yuchai engine with TD8D0-1316100SF1 radiator at an ambient temperature of 45 °C is as follows(water):

Designation	Unit	Energy balance parameters	
		Standby	Prime
		50 Hz @ 1500 r/min	
Total fuel chemical energy	kW	1168	1024
Output power (gross)	kW	441	401
Output power (net)	kW	424	384
Fan power consumption	kW	16	16
Other power loss	kW	1	1
Heat dissipation capacity(coolant circulation)	kW	289	239
Heat dissipation capacity(intake intercooled system)	kW	66	54
Heat dissipation of exhaust	kW	329	291

Parameters of YC6K600-D30 Diesel Engine(Base Type) for Genset



Heat dissipation of thermal radiation	kW	43	39
---------------------------------------	----	----	----

Cooling system

Total coolant capacity...../ L	
Engine coolant capacity.....20 L	
Radiator coolant capacity...../ L	
Pipeline coolant capacity...../ L	
Engine max. outlet coolant temperature.....95°C	
Thermostat operation temperature	
Initial open.....(83±2)°C	
full open.....(93±2)°C	
Max. coolant temperature rise:	
-Standby power.....8.0°C	
-Prime power.....7.5°C	

Radiator & Intercooler

Dry weight...../ kg	
---------------------	--

Radiator

Cooling area...../ m ²	
Core material.....Aluminum	
Width of core...../ mm	
Height of core...../ mm	
Thickness of core...../ mm	
Min. pressure of pressure cap.....(50±5)kPa	
Coolant resistance limit.....25 kPa	

Intercooler

Cooling area...../ m ²	
Core material.....Aluminum	
Width of core...../ mm	
Height of core...../ mm	
Thickness of core...../ mm	
Air resistance limit.....10 kPa	

Coolant pump

Rotation speed.....3090 r/min	
Drive mode.....Pulley driven	

Fan

Diameter.....950 mm	
Drive ratio.....1.09:1	
Material.....Plastic	
Number of blades.....8	
Type.....Blowing	

Intake system

Air filter

Max. intake resistance:	
-Clean air filter 3.5 kPa	
-Dirty air filter 5 kPa	
-Warning of intake resistance 6.2 kPa	
-Air filter type.....Dry-type, filter cartridge of paper	
Rated flow.....1950 kg/h	

Inclination

Transverse inclination/longitudinal inclination (volume of engine oil sump: 52 L) 15°/20°

Fuel system

Injection system.....High pressure common rail

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/	
Max. fuel inlet temperature limit.....70 °C	
Allowed fuel inlet pressure of front end of fuel delivery pump (absolute pressure).....(15~70) kPa	
Maximum fuel return pressure of fuel pump20 kPa	

Fuel filter

Pre- filter

Rated flow.....7 L/min	
Max. original resistance 12 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.....7 L/min	
Max. original resistance 10 kPa	
Filtering efficiency:	
For particles of 10 μm..... ≥98 %	
For particles of 3 μm..... ≥95 %	

Parameters of YC6K600-D30 Diesel Engine(Base Type) for Genset



Fuel consumption

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

Load condition	1500 r/min	
	g/(kW·h)	L/h
Standby	216	114
Prime	210	100
75% prime	245	88
50% prime	268	64

Lubricating system

Total oil capacity(dry engine)34 L
 Total oil capacity(oil change)32 L
 Oil sump capacity - low level/high level 16/32 L
 Max. oil temperature (in oil sump)120 °C
 Operating oil temperature(in oil sump)..... (90~115) °C
 Oil pressure(idle speed) ≥200 kPa
 Oil pressure(rated speed)..... (300~600) kPa
 Oil-fuel consumption ratio..... <0.1 %

Oil filter

The filtering efficiency at the rated flow of 180 L/min and the assembly initial resistance ≤50 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 27A

Starter

TypeElectric start, 2
 Voltage 24V
 Power8.5kW
 Number of teeth of flywheel..... 143
 Number of teeth of starter..... 11

Cold start (test data, for reference only)

24 V					
Battery specification×quantity:12V/195Ah×4					
Starting temperature	°C	-15	-20	-25	-32
Starting speed	r/min	850	900	950	1100
Starting current	A	460	455	470	480
Starting voltage	V	15.6	15.8	15.3	15
Starting time	s	3.9	4.9	6	7
Preheating time	s	25	30	35	45

Auxiliary intake heater

Type..... Grating-type
 Specification2.5 kW

Water preheater

Recommended specification.1 kW/220 V
 Engine preheater water outlet interface..... NPT 3/8
 Engine preheater water inlet interface M18x1.5

Oil heater

Recommended specification.300 W/220 V
 Interface (oil sump, 1)..... M38x1.5

Exhaust system

Max. exhaust backpressure..... 10 kPa
 Inner diameter of exhaust port pipe.....Φ108 mm

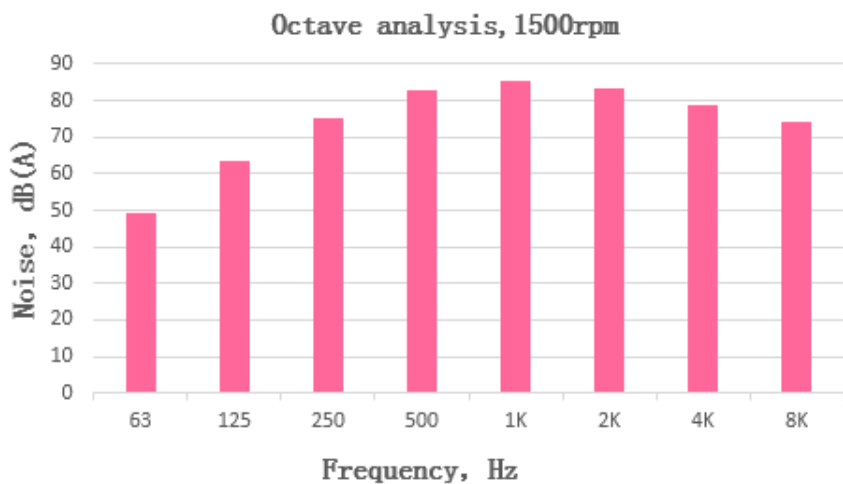
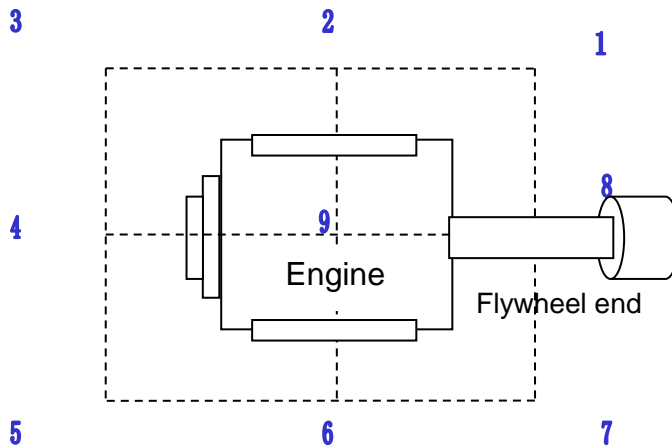
Parameters of YC6K600-D30 Diesel Engine(Base Type) for Genset



Noise

Noise data (356 kW @ 1500 r/min)

Position	Noise, Lp dB(A)
1	92.5
2	97.9
3	94.1
4	93.6
5	92.2
6	97.4
7	89.9
8	93.7
9	94.3



Rate, Hz	Noise dB(A)
63	49.2
125	63.5
250	75
500	83.1
1K	85.3
2K	83.4
4K	78.8
8K	74.4