

ENGINE DATASHEET



KOHLER®

Engine ref. : KD83V16-5CFP

General technical data

Cylinders configuration	V
Number of cylinders	16
Engine optimisation	Fuel optimisation
Dual Frequency	Yes
Speed (RPM)	1500
Speed (RPM)	1800
Displacement (L)	82.74
Bore (mm)	175
Stroke (mm)	215
Compression ratio	16 : 1
Engine Firing Order	A1-B7-A2-B5-A4-B3-A6-B1-A8-B2-A7-B4-A5-B6-A3-B8
Air inlet system	Turbo
Fuel	Diesel Fuel

Performance

	RPM	1500	1800
Maximum stand-by power at rated RPM (kW)		3007.40	
PRP Power (kW)		2734	
Pistons speed (m/s)		10.75	12.90
BMEP @ PRP 50 Hz (bar) /		26.40	
Friction Power Loss (kW)			
Max Combustion Pressure (Mpa)		240	

Electrical system

Governor type	Electronic
ECU type	KODEC
Frequency regulation, no-load to full-load	Isochrone
Frequency regulation, steady state (%)	+/- 0.25%
No. of teeth on ring gear	182
Idle speed (RPM)	650
Battery voltages (V)	24
Charging alternator (V/A)	24 / 28 / 140
Starter characteristics (V/kW)	24 / 9

Dimensions and weight

Length (mm)	3240
Width (mm)	1777
Height (mm)	2125
Dry weight (kg)	11300
Wet weight (kg)	12157
Center of Gravity from Rear Face of Block (mm)	-1200

Construction / Material

Main Bearing Type	Half shell bearing
Cylinder Head Material	Cast Iron

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Crankshaft Material	Steel
Intake and Exhaust Valve Material	Steel
Piston type & material	Steel
Exhaust manifold type	Dry

Installation

Maximum Bending Moment at Rear Face of Block (RFOB) (Nm)	
Maximum Rear Bearing Load (N)	
Maximal engine inclination, longitudinal front up/down (degree)	10
Maximal engine inclination, lateral (degree)	15
SAE Flywheel housing	00
SAE Flywheel	21
Inertia (kg.m ²)	42.10

Fuel system

	RPM	1500	1800
Maximum fuel pump flow (L/h)			
Maximum fuel return flow (L/h)		303	
Maximum heat rejected to return fuel (kW)		4.7	
Max. restriction at fuel pump (m)			3.50
Max head on fuel return line (m)			3.50
Maximum allowed inlet fuel temperature (°C)			70
Primary fuel filter rating (micron)			5
Fuel Prefilter / Water Separator Micron Size			10
Fuel Inlet Minimum recommended size (mm)			33.70
Fuel Outlet Minimum recommended size (mm)			33.70

Fuel consumption (Specific fuel consumption +5% ; ISO3046-1 ; 42.7 MJ/kg)

	RPM	1500	1800
Specific consumption 25% PRP load (g/kW.h)		239	
Specific consumption 50% PRP load (g/kW.h)		206	
Specific consumption 75% PRP load (g/kW.h)		194	
Specific consumption 100% PRP load (g/kW.h)		191	
Specific consumption 25% ESP load (g/kW.h)		233	
Specific consumption 50% ESP load (g/kW.h)		203	
Specific consumption 75% ESP load (g/kW.h)		193	
Specific consumption 100% ESP load (g/kW.h)		193	

Lubrication system

	RPM	1500	1800
Oil consumption 100% ESP (L/h)		1.42	
Oil system capacity including filters (L)			560
Oil sump capacity (L)			460
Oil capacity between dipstick marks Max-Min (L)			83
Min. oil pressure (bar)			

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Oil Pressure at rated speed (bar)	4.50
Max. oil pressure (bar)	
Oil temperature maximum (°C at 25°C ambient)	85
Oil filter micron size	10
Oil Filter Quantity and type	Spin On / 8
Oil cooler	Plate Exchanger

Air intake system

	RPM	1500	1800
Intake air flow (L/s)		3139.01	3731.83
Max. intake restriction (mm H2O)		510	

Exhaust system

	RPM	1500	1800
Heat rejection to exhaust (kW)		1760	1760
Max. exhaust back pressure (mm H2O)		867	
Exhaust gas temperature @ PRP 50Hz (°C)		500	
Exhaust gas temperature @ PRP 60Hz (°C)		390	
Exhaust gas flow @ PRP 50Hz (L/s)		8559	
Exhaust gas flow @ PRP 60Hz (L/s)		8685	

Cooling system

	RPM	1500	1800
Radiated heat to ambient (kW)		125	125
Heat rejection to coolant HT (kW)		1030	1070
Flow on the HT circuit at 0.7Bars pressure drop off engine (L/min)		1980	2480
Heat rejection to coolant LT (kW)		590	710
Flow on the LT circuit at 0.7Bars pressure drop off engine (L/min)		620	810
Temperature of inlet to LT engine water circuit (°C)		55	
Outlet coolant temperature (°C)		85	
Maximum Coolant temp without derating (°C)		100	
Max coolant temperature, Shutdown (°C)		103	
Coolant capacity HT, engine only (L)		270	
Restriction pressure drop off engine – HT circuit (mbar)		700	
Minimal pressure before HT pump (mbar)		400	
Max. pressure at inlet of HT water pump (mbar)		2500	
Thermostat begin of opening HT (°C)		71	
Thermostat end of opening HT (°C)		81	
HT Standard pressure cap setting (kPa)		100	
Coolant capacity LT, engine only (L)		105	
Restriction pressure drop off engine – LT circuit (mbar)		700	
Minimal pressure before LT pump (mbar)		400	
Max. pressure at inlet of LT water pump (mbar)		2500	
Thermostat begin of opening LT (°C)		45	

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Thermostat end of opening LT (°C)	57
LT Standard pressure cap setting (kPa)	100
Water Pump Type	Vane Wheel pump

Charge air cooling system

	RPM	1500	1800
CAC Heat Rejection (kW)			
CAC Temperature into Engine at 25°C Limit, (°C min / max)			
CAC Temperature into Engine Limit (max at any ambient temperature) (°C)		40	
Compressor Discharge Temp at 25°C (°C)			
Compressor Discharge Temp Max (°C)			
Maximum Pressure Drop through CAC (kPa)			
Turbocharger Boost Pressure (kPa)			