

ENGINE DATASHEET



KOHLER®

Engine ref. : KD27V12-5AFP

General technical data

Cylinders configuration	V
Number of cylinders	12
Engine optimisation	Fuel optimisation
Dual Frequency	Yes
Speed (RPM)	1500
Speed (RPM)	1800
Displacement (L)	26,97
Bore (mm)	135
Stroke (mm)	157
Compression ratio	15 : 1
Engine Firing Order	1-12-2-11-3-10-6-7-5-8-4-9
Air inlet system	Turbo
Fuel	Diesel Fuel

Performance

	RPM	1500	1800
Maximum stand-by power at rated RPM (kW)		709	809
PRP Power (kW)		644,50	735,50
Pistons speed (m/s)		7,85	9,42
BMEP @ PRP 50 Hz (bar) / BMEP @ PRP 60 Hz (bar)		19,10	18,20
Friction Power Loss (kW)		63,40	
Max Combustion Pressure (Mpa)		220	

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	174
Idle speed (RPM)	1000
Battery voltages (V)	24
Charging alternator (V/A)	24 / 28 / 140
Starter characteristics (V/kW)	24 / 7.8

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Dimensions and weight

Length (mm)	2022
Width (mm)	1356
Height (mm)	1343
Dry weight (kg)	2100
Wet weight (kg)	2242
Center of Gravity from Rear Face of Block (mm)	516

Construction / Material

Main Bearing Type	Half shell bearing
Cylinder Head Material	Cast Iron
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)	8000
Maximum Rear Bearing Load (N)	600
Maximal engine inclination, longitudinal front up/down (degree)	10
Maximal engine inclination, lateral (degree)	15
SAE Flywheel housing	0
SAE Flywheel	18
Inertia (kg.m ²)	7,48

Fuel system

	RPM	1500	1800
Maximum fuel pump flow (L/h)		225	250
Maximum fuel return flow (L/h)			
Maximum heat rejected to return fuel (kW)			
Max. restriction at fuel pump (m)		3,50	
Max head on fuel return line (m)		3,10	
Maximum allowed inlet fuel temperature (°C)		60	
Primary fuel filter rating (micron)		5	
Fuel Prefilter / Water Separator Micron Size		10	
Fuel Inlet Minimum recommended size (mm)		19,05	
Fuel Outlet Minimum recommended size (mm)		9,53	

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

	RPM	1500	1800
Specific consumption 25% PRP load (g/kW.h)		224,40	240,10
Specific consumption 50% PRP load (g/kW.h)		201,40	206,10
Specific consumption 75% PRP load (g/kW.h)		194,60	197,50
Specific consumption 100% PRP load (g/kW.h)		198	191,70
Specific consumption 25% ESP load (g/kW.h)		219,10	233,40
Specific consumption 50% ESP load (g/kW.h)		199,10	203,10
Specific consumption 75% ESP load (g/kW.h)		193,40	195,90
Specific consumption 100% ESP load (g/kW.h)		196	193,40

Lubrication system

	RPM	1500	1800
Oil consumption 100% ESP (L/h)		0,08	0,10
Oil system capacity including filters (L)		101	
Oil sump capacity (L)		89	
Oil capacity between dipstick marks Max-Min (L)		13	
Min. oil pressure (bar)		3,30	
Oil Pressure at rated speed (bar)		4,40	
Max. oil pressure (bar)		5,50	
Oil temperature maximum (°C at 25°C ambient)		118	
Oil filter micron size		14	
Oil Filter Quantity and type		Spin On / 2	
Oil cooler		Plate Exchanger	

Air intake system

	RPM	1500	1800
Intake air flow (L/s)		754,57	917,49
Max. intake restriction (mm H2O)		510	500

Exhaust system

	RPM	1500	1800
Heat rejection to exhaust (kW)		475	503
Max. exhaust back pressure (mm H2O)		867	850
Exhaust gas temperature @ PRP 50Hz (°C)		472	
Exhaust gas temperature @ PRP 60Hz (°C)		417	
Exhaust gas flow @ PRP 50Hz (L/s)		1985	
Exhaust gas flow @ PRP 60Hz (L/s)		2229	

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Cooling system

	RPM	1500	1800
Radiated heat to ambient (kW)		46	
Heat rejection to coolant HT (kW)		237	275
Flow on the HT circuit at 0.7Bars pressure drop off engine (L/min)		833	997
Outlet coolant temperature (°C)		100	
Maximum Coolant temp without derating (°C)		100	
Max coolant temperature, Shutdown (°C)		105	
Coolant capacity HT, engine only (L)		55	
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)		1000	
Thermostat begin of opening HT (°C)		82	
Thermostat end of opening HT (°C)		92	
HT Standard pressure cap setting (kPa)		100	
Water Pump Type		Vane Wheel pump	
Fan drive ratio		0.82	
Radiator & Engine capacity (L)		97	

Charge air cooling system

	RPM	1500	1800
CAC Heat Rejection (kW)		114	177
CAC Temperature into Engine at 25°C Limit, (°C min / max)		45	52
CAC Temperature into Engine Limit (max at any ambient temperature) (°C)		60	
Compressor Discharge Temp at 25°C (°C)		162	184
Compressor Discharge Temp Max (°C)		230	
Maximum Pressure Drop through CAC (kPa)		100	13
Turbocharger Boost Pressure (kPa)		258	271