Coromatic

Industrial Diesel Generator Set – KD1000-E

50 Hz - Emission Optimized – EPA Tier 2 Compliant

RATINGS 400 V - 50 Hz		
Standby	kVA	1000
	kWe	800
Data Center / Mission Critical	kVA	1000
	kWe	800
Prime	kVA	909
	kWe	727

Benefits & features

KOHLER premium quality

- KOHLER provides **one source responsibility** for the generating set and accessories
- The generator set, its components and a wide range of options have been **fully developed, prototype tested, factory built**, and production-tested
- The generator sets are designed in accordance to ISO8528-5 performance **class G3** and accepts rated load in one step
- Approved for use with HVO (Hydrotreated Vegetable Oil) according to EN15940

KOHLER premium performances

Engines

- Low fuel consumption thanks to a high technology common rail injection engine
- A smaller footprint thanks to a high power density
- Low temperature starting capability
- Long maintenance interval

Alternator

- Provide industry leading motor starting capability
- Excitation system to permit sustained overcurrent > 300% In, during 10 sec
- Built with a class H insulation and IP23

Cooling

- A compact and complete solution using a mechanically driven radiator fan
- High temperature and altitude product capacity available

Control Panel

- The KOHLER wide controller range provide the reliability and performances you expect from your equipment. You can program, manage and diagnose it easily and in an efficient way

KOHLER worldwide support

- A standard three-year or 1000-hour limited warranty for standby applications.
- A standard two-year or 8700-hour limited warranty for prime power applications.
- A worldwide product support

GENERAL SPECIFICATIONS	
Engine brand	KOHLER KD Series
Alternator commercial brand	KOHLER
Voltage (V)	400/230
Standard Control Panel	EasyGen 3200XT
Optional control panel	EasyGen 3500XT
Consumption @ 100% load ESP (L/h)	204
Consumption @ 100% load PRP (L/h)	180
Emission level	Emission optimization - EPA Tier
Type of Cooling	Mechanical driven fan
Performance class	G3
One step load acceptance (out of ISO criteria)	100%

GENERATOR SETS RATINGS

	Standby			Data Center / Mission Critical		Prime	
Voltage	kWe	kVA	Amps	kWe	kVA	kWe	kVA
415/240	800	1000	1391	800	1000	727	909
400/230	800	1000	1443	800	1000	727	909
380/220	800	1000	1519	800	1000	727	909

DIMENSIONS COMPACT VERSION	
Length (mm)	4190
Width (mm)	1720
Height (mm)	2275
Tank capacity (L)	500
Dry weight (kg)	6040

DIMENSIONS SOUNDPROOFED VERSION	
Type soundproofing	NOT AVAILABLE
Length (mm)	6413
Width (mm)	2160
Height (mm)	2750
Tank capacity (L)	1035
Dry weight (kg)	8800
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	86
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	77

Reference Conditions: 25°C Air Inlet Temperature, 40°C Fuel Inlet Temperature, 100 kPa Barometric Pressure; 10.7 g/kg of dry air Humidity. Intake Restriction set to maximum allowable limit for clean filter; Exhaust Back pressure set to maximum allowable limit.
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Engine

General	
Engine brand	KOHLER KD Series
Engine ref.	KD27V12-5CES *
Air inlet system	Turbo
Fuel	Diesel Fuel/HVO
Emission level	Emission optimization - EPA Tier 2 Compliant
Cylinder configuration	V
Number of cylinders	12
Displacement (l)	26,97
Bore (mm) * Stroke (mm)	135 * 157
Compression ratio	15 : 1
Speed 50Hz (RPM)	1500
Maximum stand-by power at rated RPM (kW)	905
Piston type & material	Forged Steel
Charge Air coolant	Air/Air
Frequency regulation, steady state (%)	+/- 0.25%
Injection Type	Direct
Governor type	Electronic
Air cleaner type, models	Dry

Fuel system	
Maximum fuel pump flow (l/h)	310
Fuel Inlet Minimum recommended size (mm)	19,05
Fuel Outlet Minimum recommended size (mm)	9,53
Max head on fuel return line (m fuel)	3,10
Maximum allowed inlet fuel temperature (°C)	60

Consumption with cooling system	PRP	ESP
Consumption @ 100% load (g/kW.h)	195	201
Consumption @ 75% load (g/kW.h)	198,50	196,80
Consumption @ 50% load (g/kW.h)	213	209
Consumption @ 25% load (g/kW.h)	235	232,50

Lubrication System	
Oil system capacity including filters (l)	101
Min. oil pressure (bar)	3,30
Max. oil pressure (bar)	5,50
Oil sump capacity (l)	89
Oil consumption 100% ESP 50Hz (l/h)	0,11

Air Intake system	
Max. intake restriction (mm H2O)	510
Combustion air flow (l/s)	923,82

Exhaust system	PRP	ESP
Heat rejection to exhaust (kW)		648
Exhaust gas temperature (°C)	474	558
Exhaust gas flow (L/s)	2428	2727
Max. exhaust back pressure (mm H2O)	867	

Cooling system and charge air cooler	
Ambient temperature design (°C)	40
Radiator & Engine capacity (l)	116
Fan power 50Hz (kW)	20,80
Fan air flow w/o restriction (m3/s)	15
Available restriction on air flow (mm H2O)	20
Type of coolant	Gencool
Radiated heat to ambiant (kW)	65
Heat rejection to coolant HT (kW)	304
HT circuit flow rate (l/min)	817
Coolant capacity HT, engine only (l)	55
Outlet coolant temperature (°C)	100
Max coolant temperature, Shutdown (°C)	105
Max. pressure at inlet of HT water pump (mbar)	1000
Thermostat begin of opening HT (°C)	82
Thermostat end of opening HT (°C)	92
CAC Heat Rejection (kW)	203
Compressor Discharge Temp at 25°C (°C)	209

* Engine reference may be partially modified depending on genset application, options selected by the customer and lead time required.

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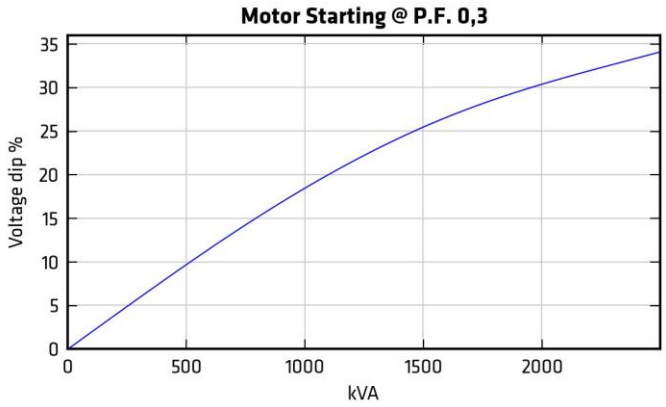
Alternator Specifications	
Alternator commercial brand	KOHLER
Kohler Alternator description	KH03450TO4D
Number of pole	4
Number of bearing	Single Bearing
Technology	Brushless
Indication of protection	IP23
Insulation class	H
Number of wires	12
AVR Regulation	Yes
Coupling	Direct

Application data	
Overspeed (rpm)	2250
Power factor (Cos Phi)	0,80
Voltage regulation at established rating (+/- %)	0,50
Wave form : NEMA=TIF	<40
Wave form : CEI=FHT	<2
Total Harmonic Distortion in no-load DHT (%)	2,7
Total Harmonic Distortion, on linear load DHT (%)	2,0
Recovery time (Delta U = 20% transcient) (ms)	200

Performance datas	
Continuous Nominal Rating 40°C (kVA)	930
Unbalanced load acceptance ratio (%)	8

Peak motor starting (kVA) based on x% voltage dip power factor at 0.3



Alternator Standard Features

- All models are brushless, rotating-field alternators
- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting
- The AVR voltage regulator provides superior short circuit capability
- Self-ventilated and dip proof construction
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds
- Superior voltage waveform

Note: See Alternator Data Sheets for alternator application data and ratings, efficiency curves, voltage dip with motor starting curves, and short circuit decrement curves.

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Dimensions compact version with baseframe fuel tank

Length (mm) * Width (mm) * Height (mm)	4190 * 1720 * 2275
Dry weight (kg)	6040
Tank capacity (L)	500

Dimensions compact version

Length (mm) * Width (mm) * Height (mm)	4190 * 1720 * 2275
Dry weight (kg)	5950
Tank capacity (L)	0

M427 - Dimensions soundproofed version

Length (mm) * Width (mm) * Height (mm)	6413 * 2160 * 2750
Dry weight (kg)	8800
Tank capacity (L)	1035
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	86
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	108
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	77

M427 SSi - Dimensions super soundproofed version

Length (mm) * Width (mm) * Height (mm)	6413 * 2160 * 2750
Dry weight (kg)	8900
Tank capacity (L)	1035
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	82
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	104
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	73

Container dimensions ISO20 soundproofed version

Length (mm) * Width (mm) * Height (mm)	6058 * 2438 * 3950
Dry weight (kg)	11780
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	86
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	107
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	77

Container dimensions ISO20 super soundproofed version

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Length (mm) * Width (mm) * Height (mm)	9140 * 2438 * 3950
Dry weight (kg)	12370
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	77
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	99
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	68

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EasyGen 3200XT

The EasyGen-3200XT application range spans from isolated operation of a single genset to load sharing of up to 32 gen-sets in islanded and/or parallel operation with a single utility. It combines complete engine-generator control and protection with advanced, peer-to-peer paralleling functionality and innovative features in a robust, attractive, user-friendly and all-in-one package. Its integrated LogicsManager™ and AnalogManager™ pro-grammable logic functionalities provide outstanding application flexibility and can often eliminate the need of an additional PLC control, yet can easily integrate with SCADA or PLC-based control systems where desired.

- Three-phase true RMS power sensing with Class I accuracy
- Operation modes: AUTO, STOP, MANUAL, and TEST modes accessible through face plate or discrete input
- Breaker control: Slip frequency/phase matching synchronization, open/close control, breaker monitoring
- Load transfer: open/closed transition, interchange, soft loading/unloading, Utility parallel
- Load share and device to device communication over Ethernet or CAN ("warm redundancy" possible)
- Remote control via interface (Modbus TCP, Modbus RTU) and via discrete/analog inputs for adjusting speed, frequency, voltage, power, reactive power, and power factor set points
- Freely configurable PID controllers for various control purposes, such as heating circuit control (CHP applications), water level, fuel level, pressure and/or other process values
- Direct support to several ECUs: Scania S6, MTU ADEC ECU7/8, Volvo EMS2 & EDC4, Deutz EMR2 & EMR3, MAN MFR/EDC7, SISU EEM, Cummins and Woodward EGS02 ECU
- Field ECU support and additional I/O expansion board connectivity through sequencer files
- "System Update" function for online troubleshooting and adding / removing generator sets
- Time/Date synchronization over Simple Network Time Protocol (SNTP)
- Cylinder head/exhaust temperature monitoring (Temperatures come from J1939 or CANopen devices)
- Woodward ToolKit™ software for flexible setup from a single connection to the network. The ToolKit can be accessed either via USB, or via Ether-net, or via CAN port.
- Multi-lingual capability: English, German, Spanish, French, Italian, Portuguese, Japanese, Chinese, Russian, Turkish, Polish, Slovakian, Finnish, Swedish

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STANDARD SCOPE OF SUPPLY

All our KD Series gensets are fitted with:

- Industrial water cooled DIESEL engine
- Radiator with coolant
- Electric starter & charge alternator 24 V D.C
- Electronic governor
- Standard air filter
- Single bearing alternator IP 23 T° rise/ insulation to class H/H
- Welded steel base frame with 80% vibration attenuation mounts
- Flexible fuel lines & lub oil drain pump
- Fuel water separator filter
- Exhaust outlet with flexible and flanges
- M80-D control panel
- User's manual (1 copy)
- Packing under plastic film
- Delivered with oil
- Delivered with antifreeze liquid

CODES AND STANDARDS

Engine-generators set is designed and manufactured in facilities certified to standards ISO9001:2015 & ISO14001:2015. The generator sets and its components are prototype-tested, factory built and production tested and are in compliance with the relevant standards:

- Machinery Directive 2006/42/EC of May 17th 2006
- EMC Directive2014/30/UE
- Safety objectives set out in the Low Voltage Directive 2014/35/UE
- EN ISO 8528-13, EN 60034-1, EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 55011, EN 1679-1 et EN 60204-1

POWER RATINGS DEFINITION according to ISO8528-1 (2018-02 edition) and ISO-3046-1

Emergency Standby Power (ESP): The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Average load factor per 24 hours of operation is <85%.

Prime Power (PRP): At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour within 12 hour of operation. Average load factor per 24 hours of operation is <75%.

Data Center Mission Critical (DCP): Data Center Mission Critical power is defined as being the maximum power which a generating set is capable of delivering while supplying a variable or continuous electrical load and during unlimited run hours. Depending on the sites to supply and the availability of reliable utility, the generating set manufacturer is responsible to define what power level is able to supply to fulfil that requirement including hardware or software or maintenance plan adaptation.

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TERMS OF USE

According to the standard, the nominal power assigned by the genset is given for 25°C Air Intlet Temperature, of a barometric pressure of 100 kPA (100 m A.S.L), and 30% relative humidity. For particular conditions in your installation, refer to the derating table.

WARRANTY INFORMATIONS

Standard Warranty Period:

- for Products in "back-up" service
  - 30 months from the date the Product leaves the plant, **extended to 42 months for KD series**
  - 24 months from the Product's commissioning date, **extended to 36 months for KD series**
  - 1,000 running hours

  The warranty expires when one of the above conditions is met.

- for Products in "continuous" service (continuous supply of electricity, either in the absence of any normal electricity grid or to complement the grid),
  - 18 months from the date the Product leaves the plant, **extended to 30 months for KD series**
  - 12 months from the Product's commissioning date, **extended to 24 months for KD series**
  - 2,500 running hours, **extended to 8700 running hours for KD series**

  The warranty expires when one of the above conditions is met.

For more details regarding conditions of application and scope of the warranty please refer to our General "terms & conditions of sales".

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