Industrial Diesel Generator Set – KD2500-E

50 Hz - Emission Optimized

RATINGS 400 V - 50 Hz		
Standby	kVA	2500
	kWe	2000
Data Center / Mission Critical	kVA	2500
	kWe	2000
Prime	kVA	2273
	kWe	1818

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
- Generators sets are designed in accordance with ISO8528-5, performance class G3
- Generators sets accept the rated load in one step outside the ISO8528-5 operating limit values
- 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 flexible solution using an electrical 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

Conscious Care$_{TM}$ Qualified

- Reduce operating costs, fuel consumption, and greenhouse gas emissions with Conscious Care$_{TM}$ maintenance program.

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

* Volumetric fuel consumption is up to 4% higher when using HVO than Diesel Fuel

GENERAL SPECIFICATIONS	
Engine brand	KOHLER KD Series
Alternator commercial brand	KOHLER
Voltage (V)	400/230
Standard Control Panel	M80-D
Optional control panel	APM403
Optional Control Panel	APM802
Consumption @ 100% load ESP (L/h)*	563
Consumption @ 100% load PRP (L/h)*	521
Emission level	Low Emission optimization
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	2000	2500	3478	2000	2500	1818	2273
400/230	2000	2500	3609	2000	2500	1818	2273
380/220	1994	2492	3786	1994	2492	1812	2265

DIMENSIONS COMPACT VERSION (without cooling)	
Length (mm)	4566
Width (mm)	1952
Height (mm)	2724
Tank capacity (L)	0
Dry weight (kg)	16330

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

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; Fuel density at 0.85 kg/L.
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Engine

General	
Engine brand	KOHLER KD Series
Engine ref.	KD62V12A-5CES *
Air inlet system	Turbo
Fuel	Diesel Fuel/HVO
Emission level	Emission optimization
Cylinder configuration	V
Number of cylinders	12
Displacement (l)	62,06
Bore (mm) * Stroke (mm)	175 * 215
Compression ratio	16 : 1
Speed 50Hz (RPM)	1500
Maximum stand-by power at rated RPM (kW)	2148
Piston type & material	Forged Steel
Charge Air coolant	Air/Water
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)	
Fuel Inlet Minimum recommended size (mm)	25,40
Fuel Outlet Minimum recommended size (mm)	19,05
Max head on fuel return line (m)	3,50
Maximum allowed inlet fuel temperature (°C)	70

Consumption with cooling system **	PRP	ESP
Consumption @ 100% load (g/kW.h)	228	224
Consumption @ 75% load (g/kW.h)	221	223
Consumption @ 50% load (g/kW.h)	226	224
Consumption @ 25% load (g/kW.h)	255	250

Lubrication System	
Oil system capacity including filters (l)	328
Min. oil pressure (bar)	3,50
Max. oil pressure (bar)	
Oil sump capacity (l)	
Oil consumption 100% ESP 50Hz (l/h)	

Air Intake system	
Max. intake restriction (mm H2O)	510
Combustion air flow (l/s)	2975

Exhaust system	PRP	ESP
Heat rejection to exhaust (kW)	1890	2040
Exhaust gas temperature (°C)	496	514
Exhaust gas flow (L/s)	7755	8152
Max. exhaust back pressure (mm H2O)	867	

Optional cooling system (HT/LT)	
Type of coolant	GENCOOL
Radiated heat to ambiant (kW)	110
Heat rejection to coolant HT (kW)	791
HT circuit flow rate (l/min)	1700
Outlet coolant temperature (°C)	102
Coolant capacity HT, engine only (l)	180
Max coolant temperature, Shutdown (°C)	105
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
Heat rejection to coolant LT (kW)	700
LT circuit flow rate (l/min)	450
Temperature of inlet to LT engine water circuit (°C)	45
Coolant capacity LT, engine only (l)	80
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
LT Standard pressure cap setting (kPa)	100

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

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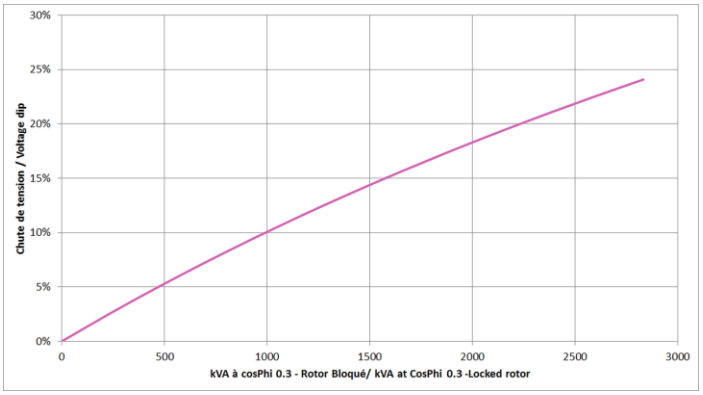
Alternator Specifications	
Alternator commercial brand	KOHLER
Kohler Alternator description	KH05794T
Number of pole	4
Number of bearing	Single Bearing
Technology	Brushless
Indication of protection	IP23
Insulation class	H
Number of wires	06
AVR Regulation	Yes
Coupling	Direct
Capacity for maintaining short circuit at 3 In for 10 s	Yes
Application data	
Overspeed (rpm)	2250
Power factor (Cos Phi)	0,80
Voltage regulation at established rating (+/- %)	0,50
Wave form : NEMA=TIF	<50
Wave form : CEI=FHT	<2
Total Harmonic Distortion in no-load DHT (%)	<3.5
Total Harmonic Distortion, on linear load DHT (%)	<3.5
Recovery time (Delta U = 20% transcient) (ms)	500
Performance datas	
Continuous Nominal Rating 40°C (kVA)	2360
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 without cooling

Length (mm) * Width (mm) * Height (mm)	4566 x 1952 x 2724
Dry weight (kg)	15 742
Tank capacity (L)	0

Container dimensions CPU40 soundproofed version

Length (mm) * Width (mm) * Height (mm)	12192 * 2438 * 5167
Dry weight (kg)	
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	86
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	109
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	78

Container dimensions CPU40 super soundproofed version

Length (mm) * Width (mm) * Height (mm)	12192 * 2438 * 5167
Dry weight (kg)	
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	80
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	103
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	72

* dimensions and weight without options

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M80-D

The M80-D can be used as a basic terminal block for connecting a control unit and as an instrument panel with a highly intuitive LCD screen giving an overview of your generating set's basic parameters:

- Oil gauge
- Coolant temperature
- Oil temperature
- Engine speed
- Battery voltage
- Charge air temperature
- Fuel consumption
- etc.

The engine main functions can be controlled and events are recorded to facilitate diagnostics:

- Starting
- Speed adjustment
- Stopping
- Droop
- etc.

APM403

BASIC GENERATING SET AND POWER PLANT CONTROL
The APM403 is a versatile control unit which allows operation in manual or automatic mode

- Measurements : voltage and current
- kW/kWh/kVA power meters
- Standard specifications: Voltmeter, Frequency meter.
- Optional : Battery ammeter.
- J1939 CAN ECU engine control
- Alarms and faults: Oil pressure, Coolant temperature, Overspeed, Start-up failure, alternator min/max, Emergency stop button.
- Engine parameters: Fuel level, hour counter, battery voltage.
- Optional (standard at 24V): Oil pressure, water temperature.
- Event log/ Management of the last 300 genset events.
- Mains and genset protection
- Clock management
- USB connections, USB Host and PC,
- Communications : RS485 INTERFACE
- ModBUS protocol /SNMP
- Optional : Ethernet, GPRS, remote control, 3G, 4G,
- Websupervisor, SMS, E-mails

APM802

ADVANCED POWER PLANT MANAGEMENT CONTROL
Dedicated to power plant management APM802 provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility

- Graphic display with touchscreen
- User language selectable
- Specially researched ergonomics
- High level of equipment availability
- USB and Ethernet ports
- Modbus protocol
- Making it easy to extend the installation
- Complies with the international standard IEC 61131-3

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STANDARD SCOPE OF SUPPLY

All our KD Series gensets are fitted with:

- Industrial water cooled DIESEL engine
- 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 85% vibration attenuation mounts
- M80-D control panel
- Flexible fuel lines & lub oil drain pump
- Fuel water separator filter
- Exhaust outlet with flexible and flanges
- User's manual (1 copy)
- Packing under plastic film
- Delivered with oil

STANDARD DELIVERY

All our gensets are fitted with:

- Industrial water-cooled DIESEL engine
- Electric starter & charge alternator
- Standard air filter
- Electric circuit breaker, adapted to the short-circuit current of the generating set
- Single bearing alternator IP 23 T° rise/ insulation to class H/H
- Welded steel base frame with 85% vibration attenuation mounts
- frame height optimized to allow it to be moved safely by forklift
- enclosure made of new high-quality European steel with enhanced corrosion resistance
- enclosures and base frames tested and analyzed by the French Corrosion Institut
- 100% of tanks tested for permeability
- Personal protection ensured by protective grilles on hot and rotating parts
- Separate 9 dB(A) silencer
- Fuel tank welded inside the genset frame
- Retention bund included for gensets up to 250 kVA ESP
- Charged DC starting battery with electrolyte
- Emergency stop button on the outside
- Flexible fuel lines & lub oil drain cock
- Exhaust outlet with flexible and flanges
- User's manual (1 copy)
- Packing under plastic film
- Delivered with oil and 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%.

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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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