TRANSDIESEL

KOHLER SDMO

Industrial Diesel Generator Set – KD1800-E

50 Hz - Emission Optimized – EPA Tier 2 Compliant

RATINGS 400V - 50 Hz		
Standby	kVA	1800
	KWe	1440
Prime	kVA	1636
	KWe	1309

Benefits & features

KOHLER SDMO premium quality

- KOHLER SDMO provides **one source responsibility** for the generating system 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

KOHLER SDMO 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, running without power derating up to 50°C

Control Panel

The KOHLER SDMO 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 SDMO 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	
Alternator commercial brand	KOHLER	
Voltage (V)	400/230	
Performance class	G3	
One step load acceptance (out of ISO criteria)	100%	
Standard Control Panel	M80-D, APM403, APM802,TELYS	
Genset Fuel consumption	**PRP**	**ESP**
Consumption @ 100% PRP load (L/h)	324,30	356,70
Engine optimisation	E	
Type of Cooling	Radiator	

GENERATOR SETS RATINGS

				Standby Rating			Prime Rating	
	Voltage	PH	Hz	kWe	kVA	Amps	kWe	kVA
KD1800-E	415/240	3	50	1440	1800	2504	1309	1636
	400/230	3	50	1440	1800	2598	1309	1636
	380/220	3	50	1440	1800	2735	1309	1636

Data Center Continuous (DCP) Power rating is the same as the prime rating when a reliable grid is available

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 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 is<75%.

Data Center Continuous Power (DCP): At varying or constant load, the number running hours is unlimited. 10% overload capacity is available for one hour within 12 hour of operation.

For limited running time, continuous or other ratings details, consult your contact and obtain technical information for ratings guidelines, complete ratings definitions, and site condition derates.

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.

Data was taken from a single engine test according to the test methods, fuel specification and reference conditions stated above and is subjected to instrumentation and engine-to-engine variability. Test conducted with alternate test methods, instrumentation, fuel or reference conditions can yield different results. Data and specifications subject to change without notice.

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KOHLER DIESEL ENGINE

General	
Engine brand	KOHLER
Engine ref.	KD45V20-5EES
Distribution	4T
Air inlet system	Turbo
Fuel	GO
Engine optimisation	E
Cylinders configuration	V
Number of cylinders	20
Displacement (L)	44,95
Bore (mm) * Stroke (mm)	135 * 157
Compression ratio	15 : 1
Speed (RPM)	1500
Maximum stand-by power at rated RPM (kW)	1547
Cylinder Head Material	Cast Iron
Crankshaft Material	Steel
Intake and Exhaust Valve Material	Steel
Piston type & material	Steel
Charge Air coolant	Air/Air DC
Frequency regulation, steady state (%)	+/- 0.25%
Injection Type	Direct
Governor type	Electronic
ECU type	KODEC
Air cleaner type, models	Dry

Fuel system	
Maximum fuel pump flow (L/h)	495
Fuel Inlet Minimum recommended size (mm)	19,05
Fuel Outlet Minimum recommended size (mm)	9,53
Max. restriction at fuel pump (m)	3,50
Max head on fuel return line (m)	3,10
Maximum allowed inlet fuel temperature (°C)	60

Consumption with cooling system	PRP	ESP
Consumption @ 100% PRP load (L/h)	324,30	356,70
Consumption @ 75% PRP load (L/h)	263,10	280
Consumption @ 50% PRP load (L/h)	184,50	198,90
Consumption @ 25% load PRP (L/h)	100,70	111,10

Lubrication System	
Oil system capacity including filters (L)	180
Min. oil pressure (bar)	3,50
Max. oil pressure (bar)	6,50
Oil sump capacity (L)	180
Oil cooler	Plate Exchanger
Oil consumption 100% ESP (L/h)	0,18

Air Intake system	
Max. intake restriction (mm H2O)	510
Intake air flow (L/s)	1588,37

Exhaust system		
Heat rejection to exhaust (kW)	1100	
	PRP	ESP
Exhaust gas temperature (°C)	498	504
Exhaust gas flow (L/s)	4040	4379
Max. exhaust back pressure (mm H2O)	867	

Radiator Charge Air Cooling System	
Ambiant temperature design (°C)	40
Radiated heat to ambiant (kW)	109
CAC Heat Rejection (kW)	357
Heat rejection to coolant HT (kW)	579
Radiator & Engine capacity (L)	264
Coolant capacity HT, engine only (L)	143
Flow on the HT circuit at 0.7Bars pressure drop off engine (L/min)	1952
Maximum Coolant temp without derating (°C)	105
Outlet coolant temperature (°C)	100
Type of coolant	Gencool
Compressor Discharge Temp at 25°C (°C)	222
Thermostat begin of opening HT (°C)	82
Thermostat end of opening HT (°C)	92
Fan power (kW)	37,60
Fan air flow w/o restriction (m3/s)	26
Available restriction on air flow (mm H2O)	30

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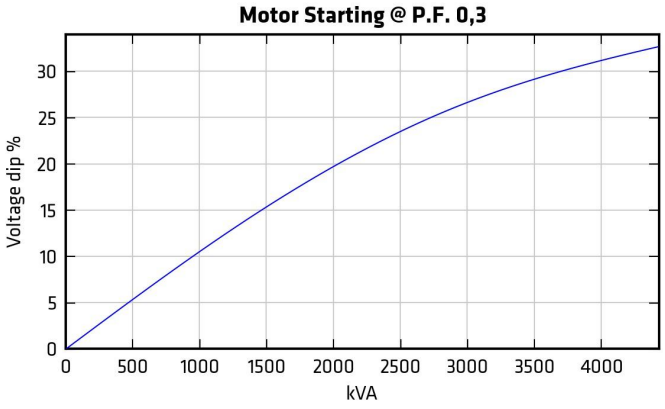
Alternator Specifications	
Alternator commercial brand	KOHLER
Alternator ref.	KH04590T
Number of pole	4
Number of bearing	Single Bearing
Technology	Brushless
Indication of protection	IP23
Insulation class	H
Number of wires	12
Capacity for maintaining short circuit at 3 In for 10 s	Yes
AVR Regulation	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 (%)	2,9
Total Harmonic Distortion, on linear load DHT (%)	3,3
Recovery time (Delta U = 20% transcient) (ms)	200
Performance datas	
Continuous Nominal Rating 40°C (kVA)	1650
Unbalanced load acceptance ratio (%)	100

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

Length (mm) * Width (mm) * Height (mm)	5090* 2122 * 2480
Dry weight (kg)	10800
Tank capacity (L)	465

* Sounds level in dB(A) are given at 75% Prime Power

Contener dimensions ISO20 version

ISO20 Si

Length (mm) * Width (mm) * Height (mm)	6058* 2438 * 2896
Dry weight (kg)	16500
Tank capacity (L)	465
Acoustic pressure level @1m in dB(A)	97
Measured acoustic power level (Lwa)	118
Acoustic pressure level @7m in dB(A)	88

* Sounds level in dB(A) are given at 75% Prime Power

Contener dimensions ISO20 super soundproofed version

ISO20 SSi

Length (mm) * Width (mm) * Height (mm)	9140* 2438 * 2896
Dry weight (kg)	17100
Tank capacity (L)	465
Acoustic pressure level @1m in dB(A)	80
Measured acoustic power level (Lwa)	102,70
Acoustic pressure level @7m in dB(A)	72

* Sounds level in dB(A) are given at 75% Prime Power

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M80-D

The M80-D can be used as a basic terminal block for connecting an electrical cabinet box 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.

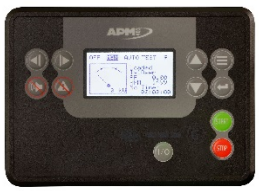
The engine main functions can be controlled and events are recorded to facilitate diagnostics:

- starting
- speed adjustment
- stopping
- droop
- etc.

TELYS

ERGONOMIC AND USER FRIENDLY
Large display screen,
buttons and scroll wheel,
Electrical measurements: voltmeter, frequency meter, ampmeter, voltage.
Engine parameters: working hours counter, oil pressure, coolant temperature, fuel level, engine speed, battery
Alarms and faults: oil pressure, coolant temperature, failure to start, overspeed, alternator min/max., battery voltage min. /max., emergency stop, fuel level.
Ergonomics: wheel for navigating around the various menus.
Communication: remote control and operation software,
USB connections, PC connection.
For more information on the product and its options, please refer to the sales documentation.

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,

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- 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
- 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 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

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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