



Industrial Diesel Generator Set – KD1650-E

50 Hz - Emission Optimized – EPA Tier 2 Compliant



RATINGS 400V - 50 Hz		
Standby	kVA	1650
	KWe	1320
Prime	kVA	1500
	KWe	1200

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**
- Smooth running thanks to engine conception and integral vibration isolation mounts between components and skid

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

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	
Standard Control Panel	M80-D, TELYS, APM802,	
Genset Fuel consumption	PRP	ESP
Consumption @ 100% load (L/h)	306,70	335,60
Type of Cooling	Radiator	

GENERATOR SETS RATINGS

	Standby Rating						Prime Rating	
	Voltage	PH	Hz	kWe	kVA	Amps	kWe	kVA
KD1650-E	415/240	3	50	1296	1620	2254	1178	1473
	400/230	3	50	1320	1650	2382	1200	1500
	380/220	3	50	1320	1650	2507	1200	1500

RATINGS: All three-phase units are rated at 0.8 power factor.

Standby Ratings: 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 Ratings: At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Average load factor is <75%. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time, continuous or other ratings, consult your contact and obtain technical information for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever

KOHLER DIESEL ENGINE

General

Engine brand	KOHLER
Engine ref.	KD45V20-5DES
Air inlet system	Turbo
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)	1463
Cylinder Head Material	Cast Iron
Crankshaft Material	Steel
Intake and Exhaust Valve Material	Steel
Piston type & material	Steel
Charge Air coolant	Air/Air DC
Injection Type	Direct
Governor type	Electronic
ECU type	KODEC
Air cleaner type, models	Dry

Fuel system

Maximum fuel pump flow (L/h)	470
Max. restriction at fuel pump (m)	3,50
Max head on fuel return line (m)	2,30
Maximum allowed inlet fuel temperature (°C)	60

Consumption with cooling system

	PRP	ESP
Consumption @ 100% load (L/h)	306,70	335,60
Consumption @ 75% load (L/h)	245,40	270,60
Consumption @ 50% load (L/h)	171,50	190,60
Consumption @ 25% load (L/h)	94,60	104,80

Lubrication System

Oil capacity (L)	180
Min. oil pressure (bar)	4,20
Max. oil pressure (bar)	6,50
Oil sump capacity (L)	165
Oil cooler	Plate Exchanger
Oil consumption 100% ESP (L/h)	0,17

Air Intake system

Max. intake restriction (mm H2O)	500
Intake air flow (L/s)	1501,41

Exhaust system

Heat rejection to exhaust (kW)	1077
Exhaust gas temperature (°C)	PRP 499 ESP 519
Exhaust gas flow (L/s)	PRP 3973 ESP 4218,50
Max. exhaust back pressure (mm H2O)	850

Radiator Charge Air Cooling System

Ambiant temperature design (°C)	40
CAC Heat Rejection (kW)	317
Radiator & Engine capacity (L)	264
Coolant capacity HT, engine only (L)	143
Flow on the HT circuit (L/min)	1904
Maximum Coolant temp without derating (°C)	100
Outlet coolant temperature (°C)	100
Type of coolant	Glycol-Ethylene
Compressor Discharge Temp at 25°C (°C)	212
Thermostat begin of opening HT (°C)	82
Thermostat end of opening HT (°C)	92
Fan power (kW)	38
Fan air flow w/o restriction (m3/s)	22
Available restriction on air flow (mm H2O)	30

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Alternator Specifications

Alternator commercial brand	KOHLER
Alternator ref.	KH03850T
Number of pole	4
Number of bearing	1
Technology	Without collar or brush
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 (%)	2,5
Total Harmonic Distortion, on linear load DHT (%)	3,0
Recovery time (Delta U = 20% transient) (ms)	200

Performance datas

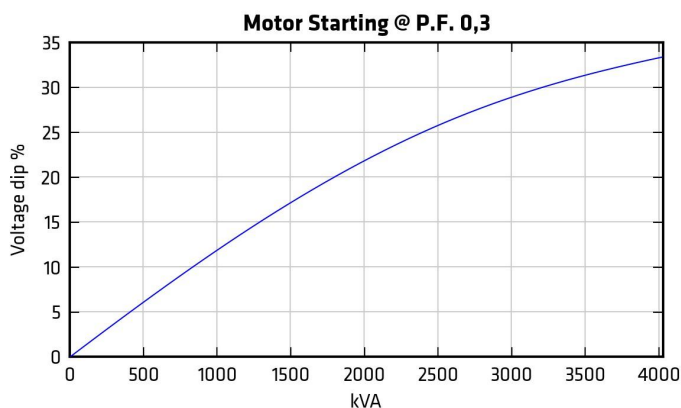
Continuous Nominal Rating 40°C (kVA)	1500
Unbalanced load acceptance ratio (%)	100

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)	5092* 2122 * 2480
Dry weight (kg)	10400



* 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)	16200
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A)	97
Measured acoustic power level (Lwa)	118
Acoustic pressure level @7m in dB(A)	90



* 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)	16700
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A)	80
Measured acoustic power level (Lwa)	102,70
Acoustic pressure level @7m in dB(A)	72



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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.

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 Directive 2014/30/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

WARRANTY INFORMATIONS

Standard Warranty Period:

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

The warranty expires when the first of the above dates is reached.

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

The warranty expires when the first of the above dates is reached.

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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