

# Industrial Diesel Generator Set – **KD2000-F**50 Hz – Fuel Consumption Optimized



RATINGS 400V - 50 Hz			
Standby	kVA	2000	
	KWe	1600	
Prime	kVA	1818	
	KWe	1454	

#### **Benefits & features**

#### **KOHLER premium quality**

- KOHLER SDMO 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

### **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

#### **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	KOH	ILER
Voltage (V)	400,	/230
Performance class	G	3
Standard Control Panel	APM	1403
Genset Fuel consumption	PRP	ESP
Consumption @ 100% PRP load (L/h)	358.3	384
Engine optimisation	F	=
Type of Cooling	Air-c	ooler

#### **GENERATOR SETS RATINGS**

		Standby Rating			Prime Rating			
	Voltage	PH	Hz	kWe	kVA	Amps	kWe	kVA
KD2000-F	415/240	3	50	1596	1995	2776	1451	1814
KD2000-F	400/230	3	50	1600	2000	2887	1454	1818
	380/220	3	50	1586	1982	3011	1442	1802

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





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KOHLER DIESEL ENGINE				
General				
Engine brand	KOHLER	KD Series		
Engine ref.	KD62V12-5AFS			
Distribution	4T			
Air inlet system	Turbo			
Fuel	GO			
Engine optimisation	F			
Cylinders configuration	V			
Number of cylinders	1	2		
Displacement (L)	62.	.06		
Bore (mm) * Stroke (mm)	175 *	* 215		
Compression ratio	16	: 1		
Speed (RPM)	15	00		
Maximum stand-by power at rated RPM (kW)	1718			
Cylinder Head Material	Cast Iron			
Crankshaft Material	Steel			
Intake and Exhaust Valve Material	Steel			
Piston type & material	Steel			
Charge Air coolant	Air/Water 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)	400			
Fuel Inlet Minimum recommended size (mm)	25.4			
Max. restriction at fuel pump (m) 3.5				
Max head on fuel return line (m)	11.8			
Maximum allowed inlet fuel temperature (°C)	•	0		
Consumption with fan (L/h)	PRP	ESP		
Consumption @ 100% PRP load (L/h)	358.3	384		
Consumption @ 75% PRP load (L/h)	274.2	297.1		
Consumption @ 50% PRP load (L/h)	194.8	210.2		
Consumption @ 25% load PRP (L/h)	113.5	120.8		

Lubrication System			
Oil system capacity including filters (L)	375		
Min. oil pressure (bar)	3.5		
Max. oil pressure (bar)			
Oil sump capacity (L)	30	08	
Oil cooler	Plate Ex	changer	
Oil consumption 100% ESP 50Hz (L/h)	0.81		
Air Intake system			
Max. intake restriction (mm H2O)	510		
Intake air flow (L/s)	209	3.3	
Exhaust system			
Heat rejection to exhaust (kW)	12	20	
	PRP	ESP	
Exhaust gas temperature (°C)	465	440	
Exhaust gas flow (L/s)	4994	5255	
Max. exhaust back pressure (mm H2O)	86	57	
Optional cooling system (HT/LT)			
Radiated heat to ambiant (kW)	9	0	
Heat rejection to coolant HT (kW)	580		
Flow on the HT circuit at 0.7Bars pressure drop off engine (L/min)	16	31	
Outlet coolant temperature (°C)	10	00	
Maximum Coolant temp without derating (°C)	10	00	
Max coolant temperature, Shutdown (°C)	10	05	
Coolant capacity HT, engine only (L)	25	54	
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) 250			
Thermostat begin of opening HT (°C)	7	1	
Thermostat end of opening HT (°C) 81			
HT Standard pressure cap setting (kPa) 100			
Heat rejection to coolant LT (kW) 390			
Flow on the LT circuit at 0.7Bars pressure drop off engine (L/min)	45	50	
Temperature of inlet to LT engine water circuit (°C)	2	5	
Coolant capacity LT, engine only (L) 102			
Restriction pressure drop off engine – LT circuit (mbar)	70	00	
Minimal pressure before LT pump (mbar)	400		
Max. pressure at inlet of LT water pump (mbar)	25	00	
LT Standard pressure cap setting (kPa)	100		





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Alternator Specifications		
Alternator commercial brand	KOHLER	
Alternator ref.	KH04404T	
Number of pole	4	
Number of bearing	Single Bearing	
Technology	Brushless	
Indication of protection	IP23	
Insulation class	Н	
Number of wires	6	
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)	0.8	
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)	1860	
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.





### Industrial Diesel Generator Set - KD2000-F 50 Hz - Fuel Consumption Optimized

#### **Dimensions compact version**

Length (mm) * Width (mm) * Height (mm)	4741* 2100 * 2561
Dry weight (kg)	14938
Tank capacity (L)	0

#### Contener dimensions CPU40 soundproofed version

CPU40 Si	
Length (mm) * Width (mm) * Height (mm)	12192* 2438 * 2896
Dry weight (kg)	29020
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	86
Measured acoustic power level (Lwa) 50Hz (75% PRP)	109
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	78

#### Contener dimensions CPU40 super soundproofed version

CPU40 SSi	
Length (mm) * Width (mm) * Height (mm)	12192* 2438 * 2896
Dry weight (kg)	29570
Tank capacity (L)	500
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	80
Measured acoustic power level (Lwa) 50Hz (75% PRP)	103
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	72





## Industrial Diesel Generator Set - KD2000-F

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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.

#### **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.

 $\label{lem:encoder} \mbox{Ergonomics: wheel for navigating around the various menus.}$ 

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.



**DEC4000** 



#### 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, Startup 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

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

Distributed By:

ECG

EAST COAST GENERATORS

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**APM802** 

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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 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

#### **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

#### **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),
  - o 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
  - o 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".

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