# **KOHLER**.

## Industrial Diesel Generator Set – **KD2800-F** 50 Hz – Fuel Consumption Optimized



# RATINGS 400V - 50 Hz Standby kVA 2800 KWe 2240 Prime kVA 2545 KWe 2036

#### **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 H	CD Series
Alternator commercial brand	КОН	LER
Voltage (V)	400/	230
Performance class	G	3
Standard Control Panel	APM	403
Genset Fuel consumption	PRP	ESP
Consumption @ 100% PRP load (L/h)	501.8	537.8
Engine optimisation	F	:
Type of Cooling	Air-co	ooler
GENERATOR SETS RATINGS		

				Standby Rating		Prime Rating		
	Voltage	PH	Hz	kWe	kVA	Amps	kWe	kVA
KD2800-F	415/240	3	50	2240	2800	3895	2036	2545
KD2800-F	400/230	3	50	2240	2800	4042	2036	2545
	380/220	3	50	2240	2800	4254	2036	2545

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

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



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#### KOHLER DIESEL ENGINE

General			
Engine brand	KOHLER	KD Series	
Engine ref.	KD62V1	L2-5DFS	
Distribution	4	т	
Air inlet system	Tu	rbo	
Fuel	G	0	
Engine optimisation	I	F	
Cylinders configuration	١	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)	24	06	
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	Dir	ect	
Governor type	Elect	ronic	
ECU type	KODEC		
Air cleaner type, models	D	ry	
Fuel system			
Maximum fuel pump flow (L/h)	56	50	
Fuel Inlet Minimum recommended size (mm)	25.4		
Max. restriction at fuel pump (m)	3.5		
Max head on fuel return line (m)	3.5		
Maximum allowed inlet fuel temperature (°C)	7	0	
Consumption with fan (L/h)	PRP	ESP	
Consumption @ 100% PRP load (L/h)	501.8	537.8	
Consumption @ 75% PRP load (L/h)	368.6	399.1	
Consumption @ 50% PRP load (L/h)	267.6	281.6	
Consumption @ 25% load PRP (L/h)	148	159.2	

Oil system canacity including filters (L)	27	15	
Oil system capacity including filters (L)	37		
Min. oil pressure (bar)	3.	5	
Max. oil pressure (bar)			
Oil sump capacity (L)	30		
Oil cooler	Plate Exchanger		
Oil consumption 100% ESP 50Hz (L/h)	1.:	13	
Air Intake system			
Max. intake restriction (mm H2O)	51		
Intake air flow (L/s)	2912	39	
Exhaust system			
Heat rejection to exhaust (kW)	16	50	
	PRP	ESP	
Exhaust gas temperature (°C)		450	
Exhaust gas flow (L/s)	6984	7414	
Max. exhaust back pressure (mm H2O)	867		
Optional cooling system (HT/LT)			
Radiated heat to ambiant (kW)	110		
Heat rejection to coolant HT (kW)	720		
Flow on the HT circuit at 0.7Bars pressure drop off engine (L/min)	1631		
Outlet coolant temperature (°C)	10	10	
Maximum Coolant temp without derating (°C)	10	0	
Max coolant temperature, Shutdown (°C)	10	15	
Coolant capacity HT, engine only (L)	25	4	
Restriction pressure drop off engine – HT circuit (mbar)	70	0	
Minimal pressure before HT pump (mbar)	40	0	
Max. pressure at inlet of HT water pump (mbar)	25	00	
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)	670		
Flow on the LT circuit at 0.7Bars pressure drop off engine (L/min)	450		
Temperature of inlet to LT engine water circuit (°C)	5	5	
Coolant capacity LT, engine only (L)	10	12	
Restriction pressure drop off engine – LT circuit (mbar)	70	0	
Minimal pressure before LT pump (mbar)	40	0	
Max. pressure at inlet of LT water pump (mbar)	25	00	
LT Standard pressure cap setting (kPa)	10	0	

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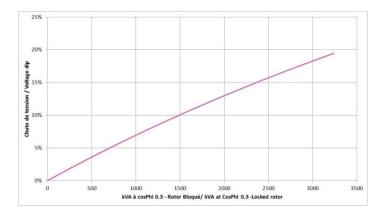


# Industrial Diesel Generator Set – **KD2800-F** 50 Hz – Fuel Consumption Optimized

#### Alternator Specifications

Alternator specifications	
Alternator commercial brand	KOHLER
Alternator ref.	KH08560T
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)	2750
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**

Length (mm) * Width (mm) * Height (mm)	4741* 2100 * 2561
Dry weight (kg)	17045
Tank capacity (L)	0

#### Contener dimensions CPU40 soundproofed version

CPU40 Si	
Length (mm) * Width (mm) * Height (mm)	12192* 2438 * 2896
Dry weight (kg)	30100
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)	30650
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

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



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## Industrial Diesel Generator Set – **KD2800-F** 50 Hz – Fuel Consumption Optimized

#### 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.

Ergonomics: wheel for navigating around the various menus.

Communication: remote control and operation software,

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.

#### 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.



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**DEC4000** 



# Industrial Diesel Generator Set - KD2800-F **50 Hz – Fuel Consumption Optimized**

#### APM802



compatibility

ADVANCED POWER PLANT MANAGEMENT CONTROL

- 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

Dedicated to power plant management APM802 provides advanced control,

system monitoring, and system diagnostics for optimum performance and

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



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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 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
  - 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
  - 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
  - o 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".

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

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



