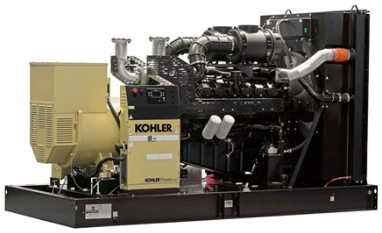
Industrial Diesel Generator Set – D700
50 Hz



RATINGS 400 V - 50 Hz		
Standby	kVA	697
	kWe	558
Prime	kVA	634
	kWe	507

Benefits & features

KOHLER premium quality
- Design offices using the latest technical innovations
- Modern fully certified factories
- A cutting edge laboratory
- The generating set, its components and a wide range of options have been fully developed, prototype tested, factory built, and production tested

KOHLER premium performances
- Optimized and certified sound levels
- Reliable power, even in extreme conditions
- Optimized fuel consumption
- Compact footprint
- Best quality of electricity, high starting and loading capacity, according to ISO8528-5
- Robust base frames and high-quality enclosures
- Protection of installations and people
- Approved in line with the most stringent standards

Engines
- Premium level engines, in-house or from strong partners
- High power density, small footprint
- Low temperature starting capability
- Long maintenance interval

Alternator
- Provide industry leading motor starting capability
- Made in Europe
- Built with a class H insulation and IP23

Cooling
- A compact and complete solution using a mechanically driven radiator fan
- Designed or optimized by KOHLER
- High temperature and altitude product capacity available

Base frame and enclosure
- High quality steel with enhanced corrosion resistance
- Highly durable QUALICOAT-certified epoxy paint
- Minimum 1000 hours of resistance to salt spray in accordance with ISO12944
- Ergonomic access to allow easy maintenance and connection of the generator
- Robust design optimized for transportation

GENERAL SPECIFICATIONS	
Engine brand	DOOSAN
Alternator commercial brand	KOHLER
Voltage (V)	400/230
Standard Control Panel	APM303
Optional control panel	APM403
Optional Control Panel	APM802
Optional control panel	M80
Consumption @ 100% load ESP (L/h)	150
Consumption @ 100% load PRP (L/h)	137
Emission level	Fuel consumption optimization
Type of Cooling	Mechanical driven fan
Performance class	G2

GENERATOR SETS RATINGS

				Standby Rating			Prime Rating	
	Voltage	PH	Hz	kWe	kVA	Amps	kWe	kVA
D700	415/240	3	50	556	695	967	506	632
	400/230	3	50	558	697	1006	507	634
	380/220	3	50	556	695	1056	506	632

DIMENSIONS COMPACT VERSION	
Length (mm)	3470
Width (mm)	1630
Height (mm)	2122
Tank capacity (L)	610
Dry weight (kg)	3633

DIMENSIONS SOUNDPROOFED VERSION	
Type soundproofing	NOT AVAILABLE
Length (mm)	5031
Width (mm)	1690
Height (mm)	2672
Tank capacity (L)	610
Dry weight (kg)	5381
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	88
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	78

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.

Industrial Diesel Generator Set – D700
50 Hz

Engine

General	
Engine brand	DOOSAN
Engine ref.	DP180LB *
Air inlet system	Turbo
Emission level	Fuel consumption optimization
Cylinder configuration	V
Number of cylinders	10
Displacement (l)	18,27
Bore (mm) * Stroke (mm)	128 * 142
Compression ratio	15 : 1
Speed 50Hz (RPM)	1500
Maximum stand-by power at rated RPM (kW)	612
Charge Air coolant	Air/Air
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)	540
Max head on fuel return line (m fuel)	1
Consumption with cooling system	
Fuel consumption @ ESP Max Power (l/h)	149,50
Fuel consumption @ PRP Max Power (l/h)	136,40
Fuel consumption @ 75% of PRP Power (l/h)	103,80
Fuel consumption @ 50% of PRP Power (l/h)	71,20

Emissions	
Emission PM (g/kW.h)	0,07
Emission CO (g/kW.h)	0,71
Emission NOx (g/kW.h)	13,60
Emission HC (g/kW.h)	0,13

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

Lubrication System	
Oil system capacity including filters (l)	34
Min. oil pressure (bar)	0,50
Max. oil pressure (bar)	
Oil sump capacity (l)	
Oil consumption 100% ESP 50Hz (l/h)	0,65

Air Intake system	
Max. intake restriction (mm H2O)	220
Combustion air flow (l/s)	600

Exhaust system	PRP	ESP
Heat rejection to exhaust (kW)		561
Exhaust gas temperature (°C)		587
Exhaust gas flow (L/s)		1967
Max. exhaust back pressure (mm H2O)	600	

Cooling system	
Radiator & Engine capacity (l)	123
Fan power 50Hz (kW)	24
Fan air flow w/o restriction (m3/s)	13,80
Available restriction on air flow (mm H2O)	25
Type of coolant	Glycol-Ethylene
Radiated heat to ambiant (kW)	57
Heat rejection to coolant HT (kW)	268
Coolant capacity HT, engine only (l)	21
Max coolant temperature, Shutdown (°C)	103
Thermostat begin of opening HT (°C)	71
Thermostat end of opening HT (°C)	85

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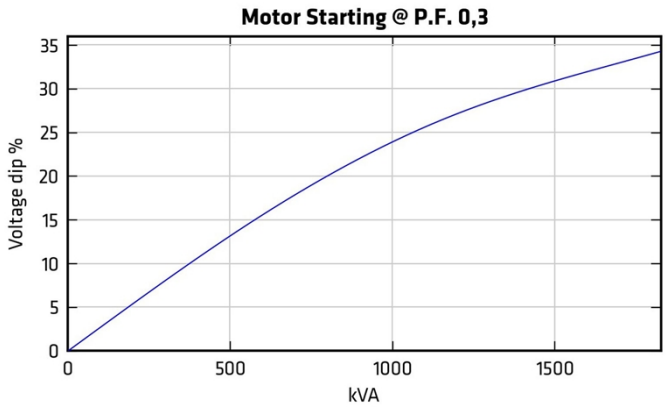
Alternator Specifications	
Alternator commercial brand	KOHLER
Kohler Alternator description	KH02953T
Number of pole	4
Number of bearing	Single Bearing
Technology	Brushless
Indication of protection	IP23
Insulation class	H
Number of wires	12
AVR Regulation	Yes
Coupling	Direct
Capacity for maintaining short 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	<40
Wave form : CEI=FHT	<2
Total Harmonic Distortion in no-load DHT (%)	2,4
Total Harmonic Distortion, on linear load DHT (%)	2,1
Recovery time (Delta U = 20% transcient) (ms)	200
Performance datas	
Continuous Nominal Rating 40°C (kVA)	680
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
- 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)	3470 * 1630 * 2122
Dry weight (kg)	3633
Tank capacity (L)	610

M230 - Dimensions soundproofed version

Length (mm) * Width (mm) * Height (mm)	5031 * 1690 * 2672
Dry weight (kg)	5381
Tank capacity (L)	610
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	88
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	109
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	78

Dimensions DW compact version

Length (mm) * Width (mm) * Height (mm)	5083 * 1690 * 2422
Dry weight (kg)	4351
Tank capacity (L)	1950

M230 - Dimensions DW soundproofed version

Length (mm) * Width (mm) * Height (mm)	5083 * 1690 * 2932
Dry weight (kg)	6099
Tank capacity (L)	1950
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	88
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	109
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	78

* dimensions and weight without options

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.
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M80

The M80 is a dual-function control panel. It can be used as a basic terminal block for connecting a control unit and as an instrument panel with a direct read facility, with displays giving a global view of your generating set's basic parameters. Offers the following functions:

- Engine parameters: tachometer, working hours counter, coolant temperature indicator, oil pressure indicator
- emergency stop button
- customer connection terminal block
- CE certified

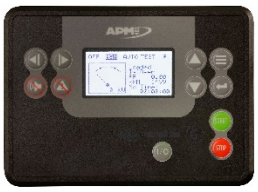
APM303

The APM303 is a versatile unit which can be operated in manual or automatic mode. It offers the following features:

- Measurements: phase-to-neutral and phase-to-phase voltages, fuel level (In option : active power currents, effective power, power factors, Kw/h energy meter, oil pressure and coolant temperature levels)
- Supervision: Modbus RTU communication on RS485
- Reports: (In option : 2 configurable reports)
- Safety features: Overspeed, oil pressure, coolant temperatures, minimum and maximum voltage, minimum and maximum frequency (Maximum active power P<66kVA)
- Traceability: Stack of 12 stored events

For further information, please refer to the data sheet for the APM303

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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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.

STANDARD SCOPE OF SUPPLY

All our gensets are fitted with:

- Industrial water cooled DIESEL engine
- Electric starter & charge alternator
- Standard air filter
- Schneider or ABB 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
- 4 lifting points on the chassis, lifting bar on the top included from 165 kVA ESP or optional
- highly durable QUALICOAT certified epoxy paint
- frame height optimized to allow it to be moved safely by forklift
- enclosure made of new high-quality European steel with enhanced corrosion resistance
- IP 64 locks, made from stainless materials
- 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 110 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

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 <70%.

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 <70%.

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
    - 24 months from the Product's commissioning date
    - 1,000 running hours

  The warranty expires when one of the above conditions is met.

- for Products in "prime" or "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
    - 12 months from the Product's commissioning date
    - 2,500 running hours

  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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