Industrial Diesel Generator Set – V400C2
50 Hz

RATINGS 400 V - 50 Hz		
Standby	kVA	390
	kWe	312
Prime	kVA	355
	kWe	284

Benefits & features

KOHLER SDMO 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 SDMO 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 flexible solution using an electrical driven radiator fan
- Designed or optimized by KOHLER-SDMO
- 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	VOLVO
Alternator commercial brand	KOHLER
Voltage (V)	400/230
Standard Control Panel	APM403
Optional control panel	APM802
Optional Control Panel	M80
Optional control panel	Terminal block
Consumption @ 100% load ESP (L/h)	78
Consumption @ 100% load PRP (L/h)	71
Type of Cooling	Mechanical driven fan
Performance class	G3

GENERATOR SETS RATINGS

				Standby Rating			Prime Rating	
	Voltage	PH	Hz	kWe	kVA	Amps	kWe	kVA
V400C2	415/240	3	50	312	390	543	284	355
	400/230	3	50	312	390	563	284	355
	380/220	3	50	310	388	590	282	353
	200/115	3	50	312	390	1126	284	355
	240 TRI	3	50	308	385	926	280	350
	230 TRI	3	50	312	390	979	284	355
	220 TRI	3	50	312	390	1024	284	355

DIMENSIONS COMPACT VERSION	
Length (mm)	3160
Width (mm)	1340
Height (mm)	1805
Tank capacity (L)	470
Dry weight (kg)	3103

DIMENSIONS SOUNDPROOFED VERSION	
Type soundproofing	M228
Length (mm)	4475
Width (mm)	1410
Height (mm)	2430
Tank capacity (L)	470
Dry weight (kg)	4082
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	77
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	67

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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Engine

General	
Engine brand	VOLVO
Engine ref.	TAD1342GE-B *
Air inlet system	Turbo
Cylinders configuration	L
Number of cylinders	6
Displacement (l)	12,78
Bore (mm) * Stroke (mm)	131 * 158
Compression ratio	18.1 : 1
Speed (RPM)	1500
Maximum stand-by power at rated RPM (kW)	343
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)	115
Max head on fuel return line (m)	2
Maximum allowed inlet fuel temperature (°C)	50
Consumption with cooling system	
Consumption @ 100% load ESP (l/h)	77,90
Consumption @ 100% PRP load (l/h)	70,70
Consumption @ 75% PRP load (l/h)	53,30
Consumption @ 50% PRP load (l/h)	36,60

Emissions	
Emission PM (g/kW.h)	0,08
Emission CO (g/kW.h)	47
Emission NOx (g/kW.h)	5,62
Emission HC (g/kW.h)	0,20

Lubrication System	
Oil system capacity including filters (l)	36
Min. oil pressure (bar)	
Max. oil pressure (bar)	
Oil sump capacity (l)	30
Oil consumption 100% ESP 50Hz (l/h)	0,04

Air Intake system	
Max. intake restriction (mm H2O)	510
Intake air flow (l/s)	432

Exhaust system	PRP	ESP
Heat rejection to exhaust (kW)		213
Exhaust gas temperature (°C)	395	408
Exhaust gas flow (L/s)	897	950
Max. exhaust back pressure (mm H2O)	1020	

Cooling system	
Radiator & Engine capacity (l)	24
Fan power 50Hz (kW)	10
Fan air flow w/o restriction (m3/s)	7,50
Available restriction on air flow (mm H2O)	20
Type of coolant	Glycol-Ethylene
Radiated heat to ambiant (kW)	12
Heat rejection to coolant HT (kW)	144
Flow on the HT circuit at 0.7Bars pressure drop off engine (l/min)	300
Coolant capacity HT, engine only (l)	20
Outlet coolant temperature (°C)	92
Max coolant temperature, Shutdown (°C)	107
Max. pressure at inlet of HT water pump (mbar)	1000
Thermostat begin of opening HT (°C)	82
Thermostat end of opening HT (°C)	92

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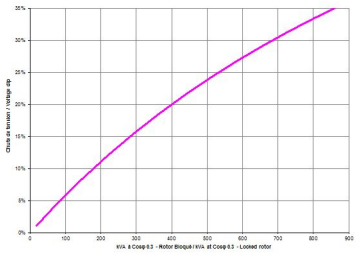
Alternator Specifications	
Alternator commercial brand	KOHLER
Alternator ref.	KH02101T
Number of pole	4
Number of bearing	Single Bearing
Technology	Brushless
Indication of protection	IP23
Insulation class	H
Number of wires	12
Capacity for maintaining short circuit at 3 In for 10 s	No
AVR Regulation	Yes
Coupling	Direct
Application data	
Overspeed (rpm)	2250
Power factor (Cos Phi)	0,80
Voltage regulation at established rating (+/- %)	0,50
Wave form : NEMA=TIF	<50
Wave form : CEI=FHT	<2
Total Harmonic Distortion in no-load DHT (%)	<2.5
Total Harmonic Distortion, on linear load DHT (%)	<2.5
Recovery time (Delta U = 20% transcient) (ms)	500
Performance datas	
Continuous Nominal Rating 40°C (kVA)	365
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
- 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)	3160 * 1340 * 1805
Dry weight (kg)	3103
Tank capacity (L)	470

DIMENSIONS AND NOISE LEVELS In compliance with 2000/14/CE standard

M228

Length (mm) * Width (mm) * Height (mm)	4475 * 1410 * 2430
Dry weight (kg)	4082
Tank capacity (L)	470
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	77
Measured acoustic power level (Lwa) 50Hz (75% PRP)	96,30
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	67

Dimensions soundproofed version

M228

Length (mm) * Width (mm) * Height (mm)	4475 * 1410 * 2430
Dry weight (kg)	4035
Tank capacity (L)	470
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	81
Measured acoustic power level (Lwa) 50Hz (75% PRP)	100,20
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	71

Dimensions DW compact version

Length (mm) * Width (mm) * Height (mm)	4527 * 1400 * 2068
Dry weight (kg)	3522
Tank capacity (L)	1368

DIMENSIONS DW AND NOISE LEVELS In compliance with 2000/14/CE standard

M228 DW

Length (mm) * Width (mm) * Height (mm)	4527 * 1410 * 2700
Dry weight (kg)	4612
Tank capacity (L)	1368
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	76
Measured acoustic power level (Lwa) 50Hz (75% PRP)	96,30
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	67

Dimensions DW soundproofed version

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M228 DW

Length (mm) * Width (mm) * Height (mm)	4527 * 1410 * 2700
Dry weight (kg)	4612
Tank capacity (L)	1368
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	80
Measured acoustic power level (Lwa) 50Hz (75% PRP)	100,20
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	70

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Basic terminal block

It is used as a basic terminal block for connecting a control unit. Offers the following functions:

- emergency stop button
- customer connection terminal block
- CE certified

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

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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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

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%.

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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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