

RATINGS 400 V - 50 Hz		
Standby	kVA	650
	kWe	520
Prime	kVA	591
	kWe	473



### 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
- Approved for use with HVO (Hydrotreated Vegetable Oil) according to EN15940

#### 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	VOLVO
Alternator commercial brand	KOHLER
Voltage (V)	400/230
Standard Control Panel	APM403
Optional control panel	M80-D
Optional Control Panel	Terminal block
Consumption @ 100% load ESP (L/h) *	129
Consumption @ 100% load PRP (L/h) *	115
Emission level	Emission optimization - Stage II Compliant
Type of Cooling	Mechanical driven fan
Performance class	G3

### GENERATOR SETS RATINGS

	Voltage	PH	Hz	Standby Rating			Prime Rating	
				kWe	kVA	Amps	kWe	kVA
V650C2	415/240	3	50	520	650	904	473	591
	400/230	3	50	520	650	938	473	591
	380/220	3	50	520	650	988	473	591
	200/115	3	50	520	650	1876	473	591
	240 TRI	3	50	520	650	1564	473	591
	230 TRI	3	50	520	650	1632	473	591
	220/127	3	50	527	659	1729	479	599

### DIMENSIONS COMPACT VERSION

Length (mm)	3620
Width (mm)	1892
Height (mm)	1993
Tank capacity (L)	717
Dry weight (kg)	4180

### DIMENSIONS SOUNDPROOFED VERSION

Type soundproofing	NOT AVAILABLE
Length (mm)	5303
Width (mm)	1892
Height (mm)	2661
Tank capacity (L)	717
Dry weight (kg)	5930
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	84
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	74

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; Fuel density at 0.85 kg/L.

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.

#### Engine

##### General

Engine brand	VOLVO
Engine ref.	TAD1642GE-B *
Air inlet system	Turbo
Fuel	Diesel Fuel/HVO
Emission level	Emission optimization - Stage II Compliant
Cylinder configuration	L
Number of cylinders	6
Displacement (l)	16.12
Bore (mm) * Stroke (mm)	144 * 165
Compression ratio	17.0 : 1
Speed 50Hz (RPM)	1500
Maximum stand-by power at rated RPM (kW)	565
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)	180
Max head on fuel return line (m fuel)	2
Maximum allowed inlet fuel temperature (°C)	60
<b>Consumption with cooling system</b>	
Fuel consumption @ ESP Max Power (l/h)	130.30
Fuel consumption @ PRP Max Power (l/h)	116.70
Fuel consumption @ 75% of PRP Power (l/h)	88.90
Fuel consumption @ 50% of PRP Power (l/h)	59.90

##### Emissions

Emission PM (g/kW.h)	0.11
Emission CO (g/kW.h)	0.67
Emission NOx (g/kW.h)	5.42
Emission HC (g/kW.h)	0.25

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

\*\* Volumetric Fuel consumption is up to 4% higher when using HVO than Diesel Fuel

##### Lubrication System

Oil system capacity including filters (l)	48
Min. oil pressure (bar)	2.20
Max. oil pressure (bar)	6.50
Oil sump capacity (l)	42
Oil consumption 100% ESP 50Hz (l/h)	0.11

##### Air Intake system

Max. intake restriction (mm H2O)	510
Combustion air flow (l/s)	650

##### Exhaust system

	PRP	ESP
Exhaust gas flow (L/s)	1573	1708
Exhaust gas temperature @ ESP (°C)	482	
Heat rejection to exhaust (kW)	427	
Max. exhaust back pressure (mm H2O)	1010	

##### Cooling system

Type of coolant	Glycol-Ethylene
Radiated heat to ambient (kW)	20
Heat rejection to coolant HT (kW)	218
HT circuit flow rate (l/min)	384
Coolant capacity HT, engine only (l)	33
Outlet coolant temperature (°C)	93
Max coolant temperature, Shutdown (°C)	107
Max. pressure at inlet of HT water pump (mbar)	1000
Thermostat begin of opening HT (°C)	86
Thermostat end of opening HT (°C)	96

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### Alternator Specifications

Alternator commercial brand	KOHLER
Kohler Alternator description	KH02713T
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 (%)	2.2
Recovery time (Delta U = 20% transient) (ms)	200

### Performance datas

Continuous Nominal Rating 40°C (kVA)	625
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)	3620 * 1892 * 1993
Dry weight (kg)	4180
Tank capacity (L)	717



#### M240 - Dimensions soundproofed version

Length (mm) * Width (mm) * Height (mm)	5303 * 1892 * 2661
Dry weight (kg)	5930
Tank capacity (L)	717
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	84
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	105
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	74



#### Dimensions DW compact version

Length (mm) * Width (mm) * Height (mm)	5367 * 1960 * 2268
Dry weight (kg)	5100
Tank capacity (L)	2420



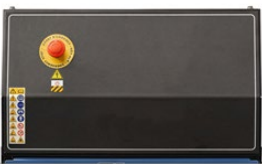
#### M240 - Dimensions DW soundproofed version

Length (mm) * Width (mm) * Height (mm)	5367 * 1960 * 2933
Dry weight (kg)	6810
Tank capacity (L)	2420
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	84
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	105
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	74

\* dimensions and weight without options

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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

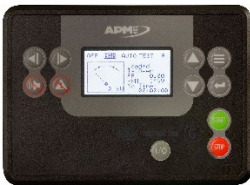
**M80-D**

The M80-D can be used as a basic terminal block for connecting a control unit 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.

**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

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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 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

## 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 Inlet 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.

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