



RATINGS 480 V - 60 Hz		
Standby	kVA	20
	kWe	16
Prime	kVA	18.20
	kWe	14.60



### 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	MITSUBISHI
Alternator commercial brand	KOHLER
Voltage (V)	480/277
Standard Control Panel	APM303
Optional control panel	APM403
Optional Control Panel	M80
Optional control panel	Terminal block
Consumption @ 100% load ESP (L/h) *	6
Consumption @ 100% load PRP (L/h) *	5
Emission level	Fuel consumption optimization
Type of Cooling	Mechanical driven fan
Performance class	G2

### GENERATOR SETS RATINGS

	Voltage	PH	Hz	Standby Rating			Prime Rating	
				kWe	kVA	Amps	kWe	kVA
T16U	480/277	3	60	16	20	24	14.60	18.20
	440/254	3	60	16	20	26	14.60	18.20
	220/127	3	60	16	20	52	14.60	18.20
	208/120	3	60	13.60	17	47	12.40	15.50

### DIMENSIONS COMPACT VERSION

Length (mm)	1405
Width (mm)	715
Height (mm)	1053
Tank capacity (L)	50
Dry weight (kg)	406

### DIMENSIONS SOUNDPROOFED VERSION

Type soundproofing	NOT AVAILABLE
Length (mm)	1750
Width (mm)	775
Height (mm)	1230
Tank capacity (L)	50
Dry weight (kg)	554
Acoustic pressure level @1m in dB(A) 60Hz (100% PRP)	74
Acoustic pressure level @7m in dB(A) 60Hz (100% PRP)	64

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	mitsubishi
Engine ref.	S4L2-SD *
Air inlet system	Atmo
Fuel	Diesel Fuel
Emission level	Fuel consumption optimization
Cylinder configuration	L
Number of cylinders	4
Displacement (l)	1.76
Bore (mm) * Stroke (mm)	78 * 92
Compression ratio	22 : 1
Speed (RPM)	1800
Maximum stand-by power at rated RPM 60Hz (kW)	19.60
Frequency regulation, steady state (%)	+/- 2.5%
Injection Type	Indirect
Governor type	Mechanical
Air cleaner type, models	Dry

#### Fuel system

Maximum fuel pump flow 60Hz (l/h)	18
Max head on fuel return line (m fuel)	1.50

#### Consumption with cooling system

Fuel consumption @ ESP Max Power 60Hz (l/h)	5.90
Fuel consumption @ PRP Max Power 60Hz (l/h)	5.30
Fuel consumption @ 75% of PRP Power 60Hz (l/h)	4.20
Fuel consumption @ 50% of PRP Power 60Hz (l/h)	3.30

#### Emissions

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

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

#### Lubrication System

Oil system capacity including filters (l)	5.90
Min. oil pressure (bar)	1
Max. oil pressure (bar)	4
Oil sump capacity (l)	5.40
Oil consumption 100% ESP 60Hz (l/h)	0.03

#### Air Intake system

Max. intake restriction (mm H2O)	200
Combustion air flow (l/s)	21.70

#### Exhaust system

	PRP	ESP
Exhaust gas flow (L/s)		58.30
Exhaust gas temperature @ ESP (°C)		430
Heat rejection to exhaust (kW)		16
Max. exhaust back pressure (mm H2O)		700

#### Cooling system

Radiator & Engine capacity (l)	4.90
Fan power 60Hz (kW)	1.60
Fan air flow w/o restriction (m3/s)	0.90
Available restriction on air flow (mm H2O)	10
Type of coolant	Glycol-Ethylene
Radiated heat to ambient (kW)	3
Heat rejection to coolant HT (kW)	17
Outlet coolant temperature (°C)	93
Max coolant temperature, Shutdown (°C)	111
Thermostat begin of opening HT (°C)	82
Thermostat end of opening HT (°C)	95

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### Alternator Specifications

Alternator commercial brand	KOHLER
Kohler Alternator description	KH00470T
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 (+/- %)	1
Wave form : NEMA=TIF	<45
Wave form : CEI=FHT	<2
Total Harmonic Distortion in no-load DHT (%)	2.8
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)	18
Unbalanced load acceptance ratio (%)	8

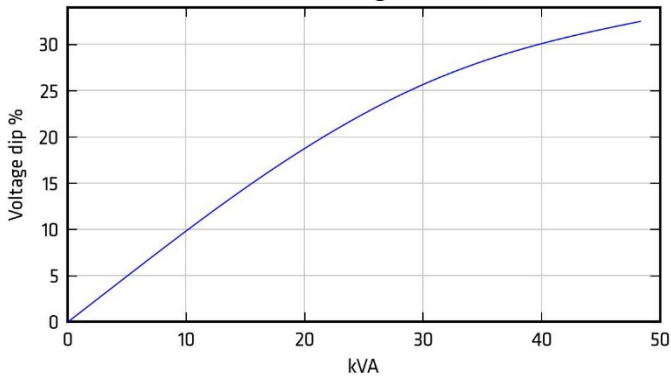
Peak motor starting (kVA) based on x% voltage dip power factor at 0.3

### 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.*

**Motor Starting @ P.F. 0,3**



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### Dimensions compact version

Length (mm) * Width (mm) * Height (mm)	1405 * 715 * 1053
Dry weight (kg)	406
Tank capacity (L)	50



### M126 - Dimensions soundproofed version

Length (mm) * Width (mm) * Height (mm)	1750 * 775 * 1230
Dry weight (kg)	554
Tank capacity (L)	50
Acoustic pressure level @1m in dB(A) 60Hz (100% PRP)	74
Acoustic pressure level @7m in dB(A) 60Hz (100% PRP)	64



### Dimensions DW compact version

Length (mm) * Width (mm) * Height (mm)	1797 * 775 * 1214
Dry weight (kg)	470
Tank capacity (L)	93



### M126 - Dimensions DW soundproofed version

Length (mm) * Width (mm) * Height (mm)	1797 * 775 * 1391
Dry weight (kg)	633
Tank capacity (L)	93
Acoustic pressure level @1m in dB(A) 60Hz (100% PRP)	74
Acoustic pressure level @7m in dB(A) 60Hz (100% PRP)	64

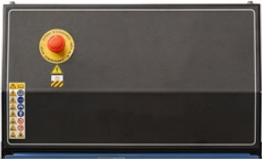


\* dimensions and weight without options

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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



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

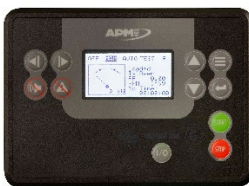


The APM303 is a versatile unit which can be operated in manual or automatic mode. It offers the following features:

- 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

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.

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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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