



| RATINGS 400 V - 50 Hz |     |     |
|-----------------------|-----|-----|
| Standby               | kVA | 200 |
|                       | kWe | 160 |
| Prime                 | kVA | 182 |
|                       | kWe | 146 |



### 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                        | JOHN DEERE                    |
| Alternator commercial brand         | KOHLER                        |
| Voltage (V)                         | 400/230                       |
| Standard Control Panel              | APM303                        |
| Optional control panel              | APM403                        |
| Optional Control Panel              | M80                           |
| Optional control panel              | Terminal block                |
| Consumption @ 100% load ESP (L/h) * | 43                            |
| Consumption @ 100% load PRP (L/h) * | 40                            |
| Emission level                      | Fuel consumption optimization |
| Type of Cooling                     | Mechanical driven fan         |
| Performance class                   | G3                            |

### GENERATOR SETS RATINGS

|      |         |    |    | Standby Rating |     |      | Prime Rating |     |
|------|---------|----|----|----------------|-----|------|--------------|-----|
| J200 | Voltage | PH | Hz | kWe            | kVA | Amps | kWe          | kVA |
|      | 415/240 | 3  | 50 | 160            | 200 | 278  | 146          | 182 |
|      | 400/230 | 3  | 50 | 160            | 200 | 289  | 146          | 182 |
|      | 380/220 | 3  | 50 | 160            | 200 | 304  | 146          | 182 |
|      | 240 TRI | 3  | 50 | 160            | 200 | 481  | 146          | 182 |
|      | 230 TRI | 3  | 50 | 160            | 200 | 502  | 146          | 182 |
|      | 220 TRI | 3  | 50 | 160            | 200 | 525  | 146          | 182 |

### DIMENSIONS COMPACT VERSION

|                   |      |
|-------------------|------|
| Length (mm)       | 2497 |
| Width (mm)        | 1103 |
| Height (mm)       | 1524 |
| Tank capacity (L) | 334  |
| Dry weight (kg)   | 1535 |

### DIMENSIONS SOUNDPROOFED VERSION

|   |               |
|---|---------------|
| Type soundproofing                                  | NOT AVAILABLE |
| Length (mm)   | 3590          |
| Width (mm)  | 1200          |
| Height (mm)   | 1775          |
| Tank capacity (L)                                   | 334           |
| Dry weight (kg)                                     | 2230          |
| Acoustic pressure level @1m in dB(A) 50Hz (75% PRP) | 80            |
| Acoustic pressure level @7m in dB(A) 50Hz (75% PRP) | 69            |

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                             | JOHN DEERE                    |
| Engine ref.                              | 6068HFG20-183 *               |
| Air inlet system                         | Turbo                         |
| Fuel                                     | Diesel Fuel/HVO               |
| Emission level                           | Fuel consumption optimization |
| Cylinder configuration                   | L                             |
| Number of cylinders                      | 6                             |
| Displacement (l)                         | 6.72                          |
| Bore (mm) * Stroke (mm)                  | 106 * 127                     |
| Compression ratio                        | 17 : 1                        |
| Speed 50Hz (RPM)                         | 1500                          |
| Maximum stand-by power at rated RPM (kW) | 184                           |
| Charge Air coolant                       | Air/Air                       |
| Injection Type                           | Direct                        |
| Governor type                            | Mechanical                    |
| Air cleaner type, models                 | Dry                           |

#### Fuel system

|                                       |      |
|---------------------------------------|------|
| Maximum fuel pump flow (l/h)          | 108  |
| Max head on fuel return line (m fuel) | 1.20 |

#### Consumption with cooling system

|   |       |
|---|-------|
| Fuel consumption @ ESP Max Power (l/h)    | 44.10 |
| Fuel consumption @ PRP Max Power (l/h)    | 40.80 |
| Fuel consumption @ 75% of PRP Power (l/h) | 30.60 |
| Fuel consumption @ 50% of PRP Power (l/h) | 20.50 |

#### Emissions

|                       |        |
|-----------------------|--------|
| Emission PM (g/kW.h)  | 0.3240 |
| Emission CO (g/kW.h)  | 1.70   |
| Emission NOx (g/kW.h) | 7.50   |
| Emission HC (g/kW.h)  | 0.10   |

\* 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) | 32    |
| Min. oil pressure (bar)                   | 1     |
| Max. oil pressure (bar)                   |       |
| Oil sump capacity (l)                     | 31.50 |
| Oil consumption 100% ESP 50Hz (l/h)       | 0.05  |

#### Air Intake system

|                                  |     |
|----------------------------------|-----|
| Max. intake restriction (mm H2O) | 625 |
| Combustion air flow (l/s)        | 195 |

#### Exhaust system

|                                     | PRP | ESP |
|-------------------------------------|-----|-----|
| Exhaust gas flow (L/s)              | 495 | 545 |
| Exhaust gas temperature @ ESP (°C)  |     | 593 |
| Heat rejection to exhaust (kW)      |     | 151 |
| Max. exhaust back pressure (mm H2O) |     | 750 |

#### Cooling system

|  |                 |
|--|-----------------|
| Radiator & Engine capacity (l)             | 25.80           |
| Fan power 50Hz (kW)                        | 9.20            |
| Fan air flow w/o restriction (m3/s)        | 4.40            |
| Available restriction on air flow (mm H2O) | 20              |
| Type of coolant                            | Glycol-Ethylene |
| Radiated heat to ambient (kW)              | 18              |
| Heat rejection to coolant HT (kW)          | 74              |
| HT circuit flow rate (l/min)               | 144             |
| Coolant capacity HT, engine only (l)       | 11.30           |
| Max coolant temperature, Shutdown (°C)     | 105             |
| Thermostat begin of opening HT (°C)        | 82              |
| Thermostat end of opening HT (°C)          | 94              |

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#### Alternator Specifications

|  |                |
|--|----------------|
| Alternator commercial brand                              | KOHLER         |
| Kohler Alternator description                            | KH01680T       |
| Number of pole   | 4              |
| Number of bearing  | Single Bearing |
| Technology   | Brushless      |
| Indication of protection                                 | IP23           |
| Insulation class   | H              |
| Number of wires  | 06             |
| AVR Regulation   | Yes            |
| Coupling   | Direct         |
| Capacity for maintaining short circuit at 2.7 In for 5 s | Yes            |

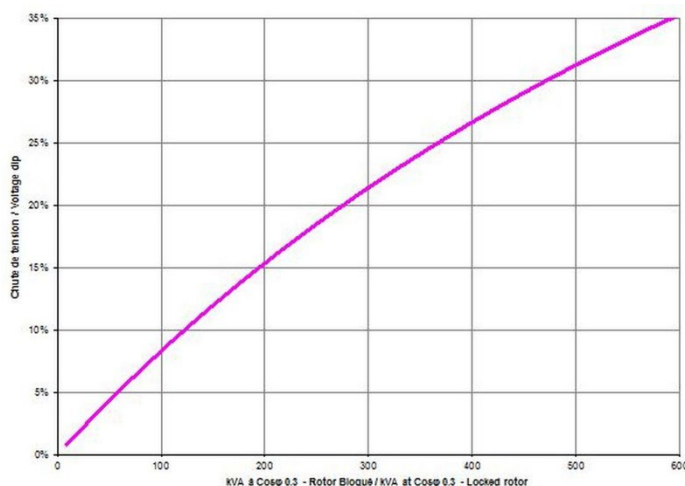
#### Application data

|   |      |
|---|------|
| 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 (%)      | <3.5 |
| Total Harmonic Distortion, on linear load DHT (%) | <5   |
| Recovery time (Delta U = 20% transient) (ms)      | 500  |

#### Performance datas

|                                      |     |
|--------------------------------------|-----|
| Continuous Nominal Rating 40°C (kVA) | 180 |
| 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) | 2497 * 1103 * 1524 |
| Dry weight (kg)                        | 1535               |
| Tank capacity (L)                      | 334                |

#### M139 - Dimensions soundproofed version

|   |                    |
|---|--------------------|
| Length (mm) * Width (mm) * Height (mm)              | 3590 * 1200 * 1775 |
| Dry weight (kg)                                     | 2230               |
| Tank capacity (L)                                   | 334                |
| Acoustic pressure level @1m in dB(A) 50Hz (75% PRP) | 80                 |
| Sound power level guaranteed (Lwa) 50Hz (75% PRP)   | 95                 |
| Acoustic pressure level @7m in dB(A) 50Hz (75% PRP) | 69                 |



#### Dimensions DW compact version

|  |                    |
|--|--------------------|
| Length (mm) * Width (mm) * Height (mm) | 3560 * 1200 * 1820 |
| Dry weight (kg)                        | 2065               |
| Tank capacity (L)                      | 868                |

#### M139 - Dimensions DW soundproofed version

|   |                    |
|---|--------------------|
| Length (mm) * Width (mm) * Height (mm)              | 3590 * 1200 * 2072 |
| Dry weight (kg)                                     | 2760               |
| Tank capacity (L)                                   | 868                |
| Acoustic pressure level @1m in dB(A) 50Hz (75% PRP) | 80                 |
| Sound power level guaranteed (Lwa) 50Hz (75% PRP)   | 95                 |
| Acoustic pressure level @7m in dB(A) 50Hz (75% PRP) | 69                 |



#### M139 - Dimensions DW 48h soundproofed version

|   |                    |
|---|--------------------|
| Length (mm) * Width (mm) * Height (mm)              | 3590 * 1200 * 2242 |
| Dry weight (kg)                                     | 2800               |
| Tank capacity (L)                                   | 1790               |
| Acoustic pressure level @1m in dB(A) 50Hz (75% PRP) | 80                 |
| Sound power level guaranteed (Lwa) 50Hz (75% PRP)   | 95                 |
| Acoustic pressure level @7m in dB(A) 50Hz (75% PRP) | 69                 |

\* 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; Fuel density at 0.85 kg/L.

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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

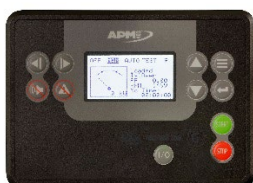


The APM303 is a versatile unit which can be operated in manual or automatic mode. It offers the following features:

- 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

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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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