KOHLER
Power Systems

KV650C2

Engine type	TAD1642GE
Alternator type	AT02880T
Performance class	G3

GENERAL CHARACTERISTICS

Frequency (Hz)	50
Voltage (V)	400/230
Standard control panel	DEC4000
Optional control panel	APM802
Optional control panel	Basic terminal block

POWER

Voltage	ESP		PRP		Standby Amps
	kWe	kVA	kWe	kVA	
240 TRI	520	650	473	591	1564
230 TRI	520	650	473	591	1632
220 TRI	504	630	458	573	1653
415/240	520	650	473	591	904
400/230	520	650	473	591	938
380/220	520	650	473	591	988

DIMENSIONS COMPACT VERSION

Length (mm)	3470
Width (mm)	1630
Height (mm)	2095
Dry weight (kg)	3780
Tank capacity (L)	610

DIMENSIONS SOUNDPROOFED VERSION

Commercial reference of the enclosure	M230
Length (mm)	5031
Width (mm)	1690
Height (mm)	2662
Dry weight (kg)	5300
Tank capacity (L)	610
Acoustic pressure level @1m in dB(A)	80
Sound power level guaranteed (Lwa)	100
Acoustic pressure level @7m in dB(A)	70

DESCRIPTIVE

- Kohler Co. Provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- A one-year limited warranty covers all systems and components
- Electronic governor
- Mechanically welded chassis with antivibration suspension
- Main line circuit breaker
- Radiator for core temperature of 48/50°C max with mechanical fan
- Protective grille for fan and rotating parts (CE option)
- 9 dB(A) silencer supplied separately
- Charger DC starting battery with electrolyte
- 24 V charge alternator and starter
- Delivered with oil and coolant -30°C
- Manual for use and installation

POWER DEFINITION

PRP : Prime Power is available for an unlimited number of annual operating hours in variable load applications, in accordance with ISO 8528-1. ESP : The standby power rating is applicable for supplying emergency power in variable load applications in accordance with ISO 8528-1. Overload is not allowed

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.

ASSOCIATED UNCERTAINTY

For the generator sets used indoor, where the acoustic pressure levels depend on the installation conditions, it is not possible to specify the ambient noise level in the operating and maintenance instructions. You will also find in our operating and maintenance instructions a warning concerning the air noise dangers and the need to implement appropriate preventive measures.

Validated by:
Date:

Issued by:
Date:

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ENGINE CHARACTERISTICS

GENERAL ENGINE DATA

Engine model	VOLVO
Engine type	TAD1642GE
Air inlet	Turbo
Cylinders arrangement	L
Number of cylinders	6
Displacement (L)	16.12
Charge Air coolant	Air/Air DC
Bore (mm) x Stroke (mm)	144 x 165
Compression ratio	16.5 : 1
Speed (RPM)	1500
Pistons speed (m/s)	8.25
Maximum stand-by power at rated RPM (kW)	565
Frequency regulation, steady state (%)	+/- 0.5%
BMEP (bar)	25.5
Governor type	Electronic

COOLING SYSTEM

Radiator & Engine capacity (L)	60
Max water temperature (°C)	103
Outlet water temperature (°C)	93
Fan power (kW)	11
Fan air flow w/o restriction (m3/s)	10
Available restriction on air flow (mm H2O)	30
Type of coolant	Glycol-Ethylene
Thermostat modulating range HT (°C)	86-96

EMISSIONSE

Emission PM (g/kWh)	0.1
Emission CO (g/kWh)	1.2
Emission HCNOx (g/kWh)	N/A
Emission HC (g/kWh)	0.12

EXHAUST

Exhaust gas temperature @ ESP 50Hz (°C)	494
Exhaust gas flow @ ESP 50Hz (L/s)	1678
Max. exhaust back pressure (mm H2O)	1000

FUEL

Consumption @ 110% load (L/h)	129.75
Consumption @ 100% load (L/h)	115.93
Consumption @ 75% load (L/h)	85.21
Consumption @ 50% load (L/h)	57.1
Maximum fuel pump flow (L/h)	180

OIL

Oil capacity (L)	48
Min. oil pressure (bar)	0.7
Max. oil pressure (bar)	6.5
Oil consumption 100% load (L/h)	0.1
Oil sump capacity (L)	42

HEAT BALANCE

Heat rejection to exhaust (kW)	426
Radiated heat to ambient (kW)	20
Heat rejection to coolant (kW)	218

AIR INTAKE

Max. intake restriction (mm H2O)	500
Intake air flow (L/s)	676

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ALTERNATOR CHARACTERISTICS

GENERAL DATA

Alternator type	AT02880T
Number of Phase	Three phase
Power factor (Cos Phi)	0.8
Altitude (m)	0 to 1000
Overspeed (rpm)	2250
Number of pole	4
Capacity for maintaining short circuit at 3 In for 10 s	No
Insulation class	H
T° class (H/125°), continuous 40°C	H / 125°K
T° class, standby 27°C	H / 163°K
AVR Regulation	Yes
Total Harmonic Distortion in no-load DHT (%)	<1.5
Total Harmonic Distortion, on load DHT (%)	<2
Wave form : NEMA=TIF	<50
Wave form : CEI=FHT	<2
Number of bearing	1
Coupling	Direct
Voltage regulation at established rating (+/- %)	0.5
Recovery time (Delta U = 20% transient) (ms)	500
Protection class	IP 23
Technology	Without collar or brush

OTHER DATA

Continuous Nominal Rating 40°C (kVA)	600
Standby Rating 27°C (kVA)	660
Efficiencies 100% of load (%)	94.5
Air flow (m3/s)	0.9
Short circuit ratio (Kcc)	0.37
Direct axis synchro reactance unsaturated (Xd) (%)	330
Quadrature-axis synchro reactance unsaturated (Xq) (%)	198
Open circuit time constant (T'do) (ms)	1997
Direct axis transient reactance saturated (X'd) (%)	16.5
Short circuit transient time constant (T'd) (ms)	100
Direct axis subtransient reactance saturated (X"d) (%)	11.4
Subtransient time constant (T"d) (ms)	10
Quadrature-axis subtransient reactance saturated (X"q) (%)	15
Subtransient time constant (T"q) (ms)	10
Zero sequence reactance unsaturated (Xo) (%)	0.9
Negative sequence reactance saturated (X2) (%)	13.2
Armature time constant (Ta) (ms)	15
No load excitation current (io) (A)	0.9
Full load excitation current (ic) (A)	3.7
Full load excitation voltage (uc) (V)	36
Engine start (Delta U = 20% perm. or 50% trans.) (kVA)	1258
Transient dip (4/4 load) - PF : 0,8 AR (%)	15
No load losses (W)	6780
Heat rejection (W)	27490
Unbalanced load acceptance ratio (%)	70

DIMENSIONS

CONTAINMENT DW

Commercial reference of the enclosure	M230 DW
Length (mm)	5083
Width (mm)	1690
Height (mm)	2922
Dry weight (kg)	5910
Tank capacity (L)	1950
Acoustic pressure level @1m in dB(A)	80
Sound power level guaranteed (Lwa)	100
Acoustic pressure level @7m in dB(A)	70

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CONTROL PANEL

DEC4000, ergonomic and user-friendly

The highly versatile DEC4000 control unit is complex yet accessible, thanks to the particular attention paid to optimising its ergonomics and ease of use. With its large display screen, buttons and scroll wheel, it places the accent on simplicity and communication.

The DEC4000 offers the following functions:

Electrical measurements: voltmeter, frequency meter, ammeter.

Engine parameters: working hours counter, oil pressure, coolant temperature, fuel level, engine speed, battery voltage.

Alarms and faults: oil pressure, coolant temperature, failure to start, overspeed, alternator min./max., battery voltage min./max., emergency stop, fuel level.

Ergonomics: wheel for navigating around the various menus.

Communication: remote control and operation software, USB connections, PC connection.

For more information on the product and its options, please refer to the sales documentation.

APM802 dedicated to power plant management

The new APM802 command/control system is specifically designed for operating and monitoring power plants for markets including hospitals, data centres, banks, the oil and gas sector, industries, IPP, rental and mining.

The Human Machine Interface, designed in collaboration with a company specialising in interface design, facilitates operations with a large 100% touch screen. The pre-configured system for power plant applications features a brand new customisation function which complies with the international standard IEC 61131-3. New communication functions (PLC and regulation), improve the high level of equipment availability in the installation.

Advantages:
Dedicated to power plant management.
Specially researched ergonomics.
High level of equipment availability.
Modularity and long service life guaranteed.
Making it easy to extend the installation

For more information, please refer to the sales documentation.

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CONTROL PANEL

Basic terminal block

The control unit can be used as a basic terminal block for connecting a control box.

Offers the following functions:

emergency stop button, customer connection terminal block, CE.