



Picture for reference only

# Power Generator

## FD 20 F-Q

Article: 50361

Code: F.0020.4.FFC2-Q2170T190-02

### Main Features

- Electronic voltage regulation +/-1 %
- One phase voltage control
- Low disturbance level THD <2,5%
- Alternator short circuit capacity 300% I<sub>n</sub> 10s
- Class H insulation
- Protection index IP23
- Performance class G3 (acc. ISO 8528-5)
- Ready to load just after start
- AMF and MRS functionality and protection
- Autonomy 41,7 h with 75 % load

### General Data

<b>Maximum power ESP</b>	22,0 kVA / 18,0 kW
<b>Nominal power PRP</b>	20,0 kVA / 16,0 kW
<b>Nominal Current PRP</b>	29,0 A
<b>Frequency</b>	50 Hz
<b>Voltage</b>	400 V
<b>Emission standard</b>	Stage II
<b>Fuel</b>	Diesel (EN 590)
<b>Fuel tank capacity</b>	190 l
<b>Fuel consumption @ 50% / 75% / 100% / 110% PRP</b>	3,0 / 4,1 / 5,3 / 5,9 l/h
<b>Autonomy @ 75% / 100% load</b>	41,7 / 32,2 h
<b>Weight without fuel</b>	~735 kg
<b>Dimensions L x W x H</b>	2170 x 1020 x 1300 mm
<b>Guaranteed noise power L<sub>wa</sub></b>	95 dBA
<b>Acoustic pressure @7mL<sub>pa</sub></b>	65,6 ± 1 dBA

### Main Components & Equipment

- FOGO D22R2-MP-EN-425 engine
- A4Gen A4G184-20 alternator
- Brushless alternator
- Electronic AVR
- ComAp IL4-AMF25 Controller
- Schneider Z32/4 type generator circuit breaker
- GCB shunt release coil
- Linear automatic battery charger
- Engine heater
- Electronic speed governor
- Fuel system Mechanical pump
- Welded frame with 190 l fuel tank, spill containment and noise insulation
- Two fuel inlets
- Four lifting eyes
- Extended forklift skids for easy attachment to the ground

For details see page 3

### Definitions

#### Nominal Power PRP:

Refers to the maximum power accessible at the variable load for unlimited running hours per year, with the maintenance intervals and procedures being carried out as prescribed by Yuchai. The allowed average output power within 24 h shall not be higher than 70% of the prime power.

#### Maximum power ESP:

Standby power rating is applicable for supplying emergency power for the duration of a utility power interruption. No overload allowed, average power consumption should not exceed 70% ESP. Limited to 200h of operation per year.

### Norms and Directives

- Machinery directive 2006/42/EC
- Low voltage directive 2014/35/EU
- EMC directive 2014/30/EU
- Noise directive 2000/14/EC
- ISO 8528-1/2018, ISO 8528-5/2022
- ISO 8528-13:2016
- IEC 60204-1

### Contact data

#### FOGO Sp. z o.o.

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## Engine

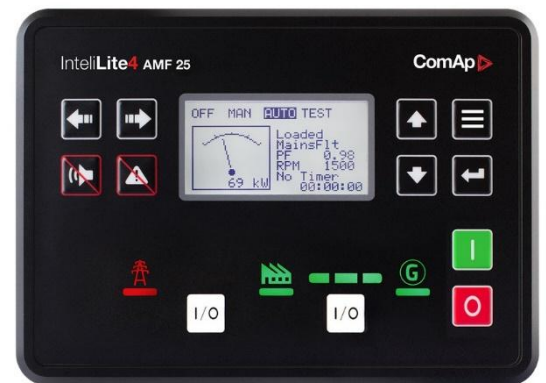
<b>Manufacturer</b>	FOGO
<b>Type</b>	D22R2-MP-EN-425
<b>Made in</b>	China
<b>Engine power</b>	21,0 kW
<b>Emission standard</b>	Stage II
<b>Rotation per minute</b>	1500 rpm
<b>Engine governor</b>	Electronic
<b>Governor class</b>	G3 (ISO 8528-5)
<b>Displacement</b>	2,5 l
<b>No of cylinder</b>	4
<b>Fuel system</b>	Mechanical pump
<b>Electrical system</b>	12 V
<b>Cooling system capacity</b>	13,5 l
<b>Oil pan capacity</b>	6,5 l
<b>Fuel type</b>	Diesel (EN 590)

## Alternator

<b>Manufacturer</b>	A4Gen
<b>Type</b>	A4G184-20
<b>Made in</b>	China
<b>Nominal Voltage</b>	400 V
<b>Nominal power factor (cos φ)</b>	0,8
<b>Ambient temperature, altitude</b>	40 °C, 1000 m a.s.l.
<b>Nominal Power</b>	20,0 kVA
<b>Protection index</b>	IP 23
<b>No of bearing</b>	Single bearing
<b>Coupling</b>	Direct
<b>Technology</b>	Brushless
<b>Short circuit maintaining capacity</b>	300% 10s
<b>Efficiency</b>	83,7 %
<b>Insulation class</b>	H
<b>Total harmonic content THD</b>	<2,5 %
<b>Reactance Xd"</b>	10,5 %
<b>Voltage regulator type</b>	Electronic AVR
<b>Voltage measurement</b>	1 phase
<b>Voltage accuracy</b>	+/- 1 %
<b>AVR supply system</b>	XAW
<b>AVR supply optional</b>	PMG

## Controller

- Controller type: ComAp IntelliLite 4 AMF 25
- Support of Dual AMF/MRS applications
- Direct communication with EFI engines
- Total remote monitoring and control
- Intuitive operator interface, adjustable Main Screen
- Real time clock with battery back-up
- Comprehensive history log with up to 350 events
- 3 phase true RMS current and voltage measurement
- Both mains and generator voltage detection
- Active/Reactive Power and Power Factor per phase measurement
- Run Hours counter with source selector
- 3 maintenance timers (counting even under zero)
- Multipurpose flexible timers (also for rental)
- Battery voltage measurement
- Complete engine and alternator protection
- CAN modules support
- USB port on-board
- Inbuild RS485
- 2 slots for plug-in modules
- Full remote communications support (AirGate 2.0)
- Plug-in module concept for more remote communication capabilities (Ethernet /4G, Modbus TCP/RTU, SNMP v1/v2c.)
- Cloud-based monitoring and control via WebSupervisor (optional module required)
- Geofencing and tracking based on GPS position (optional module required)
- Active SMS and emails
- 3 levels of password protection
- Cyber security improvement
- In-built PLC, complemented with a monitoring/debugging tool, for additional functionality, if required
- Spare inputs and outputs available by default: binary input – 1, binary output – 3, analogue input – 0,
- A version for low temperature is also available





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## Standard equipment

- FOGO D22R2-MP-EN-425 engine
- Electronic engine speed governor
- Oil pressure sensor
- Engine high temperature sensor
- Engine preheating with thermostat
- Engine oil Titan Cargo 15W40
- Coolant Fuchs Maintain Fuchs Maintain Fricofin LL 50
- Coolant inlet outside, on the top of the canopy
- Starting batteries 100 Ah
- Linear automatic battery charger
- A4Gen A4G184-20 alternator
- Digital AVR VR 438
- GCB Schneider Z32/4
- GCB shunt release coil
- ComAp IL4-AMF25 controller
- Acoustic alarm
- Emergency stop button
- Silenced canopy, RAL 7024
- Fuel tank integrated with a frame and spill containment
- Two fuel inlets inside the canopy
- Fuel level indicator
- Engine and alternator anti vibration mounts
- Exhaust silencer with compensator
- Forklift supports and lifting eyes

## Optional equipment

- Oil draining hand pump
- Battery disconnecter
- GCB
- Power Lock type power output
- Power sockets box
- Transfer switch controlled by generator controller
- Transfer switch with ATS controller
- ATS accessories for outdoor application
- GPRS communication card
- Ethernet card
- RS 485, RS 232 card
- Remote display
- Fuel inlet outside of the canopy with lock
- Generator spill containment level detector
- External, double wall fuel tank 1 000 – 10 000 l
- Fuel tank filling pump and shut-off valve

## Maintenance guidelines

<b>Fuel filters replacement</b>	500 h / 1 year
<b>Oil replacement</b>	After first 100h / year, then every 500 h / 1 year
<b>Oil filters replacement</b>	After first 100h / 1 year, then every 500 h / 1 year
<b>Coolant replacement</b>	3000h / 2 years
<b>Air filter replacement</b>	1000 h
<b>Battery replacement</b>	2 years
<b>Electrical installation</b>	According to local requirements, at least once per year

## Installation guidelines

<b>Power terminal</b>	GCB terminal
<b>Recommended cable for up to 30m power cable way</b>	Flexible 5x6 mm <sup>2</sup>
<b>Recommended cable for do 30m generator heater supply</b>	Flexible 3x2,5 mm <sup>2</sup>
<b>Exhaust pipe min diameter (max. 7 m, 4 bends)</b>	48,3 mm
<b>Exhaust pipe min diameter (max. 15 m, 4 bends)</b>	48,3 mm

\*For additional cable connection with FOGO ATS see ATS wiring diagram

## Warranty

<b>Continuous operation generators</b>	12 months up to 1000 working hours
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