



Picture for reference only

# Power Generator

## FD 450 F3-Q

Article:

Code: F.0450.F3EC2-Q4321T999-02

### Main Features

- Digital voltage regulation +/-0,25 %
- Three phase voltage control
- Low disturbance level THD < 2%
- Alternator short circuit capacity 320% 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 13,4 h with 75 % load
- Forklift manouvable from the front and side wall

### General Data

<b>Maximum power ESP</b>	495,0 kVA / 396,0 kW
<b>Nominal power PRP</b>	450,0 kVA / 360,0 kW
<b>Nominal Current PRP</b>	650,0 A
<b>Frequency</b>	50 Hz
<b>Voltage</b>	400 V
<b>Emission standard</b>	Stage III
<b>Fuel</b>	Diesel (EN 590)
<b>Fuel tank capacity</b>	999 l
<b>Fuel consumption @ 50% / 75% / 100% / 110% PRP</b>	44,4 / 66,7 / 91,9 / 106 l/h
<b>Autonomy @ 75% / 100% load</b>	13,4 / 9,7 h
<b>Dimensions L x W x H</b>	4320 x 1600 x 2500 mm

### Main Components & Equipment

- FOGO D500R3-CR-TA-612 engine
- FOGO / Linz PRO35S B/4 alternator
- Brushless alternator
- Digital AVR
- ComAp IL4-AMF25 Controller
- Schneider NS800 3P + Micrologic 2.0 type generator circuit breaker
- GCB shunt release coil
- Linear automatic battery charger
- Engine heater
- ECU speed governor
- Fuel system Common Rail
- Welded frame with 999 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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Code: F.0450.F3EC2-Q432IT999-02

## Engine

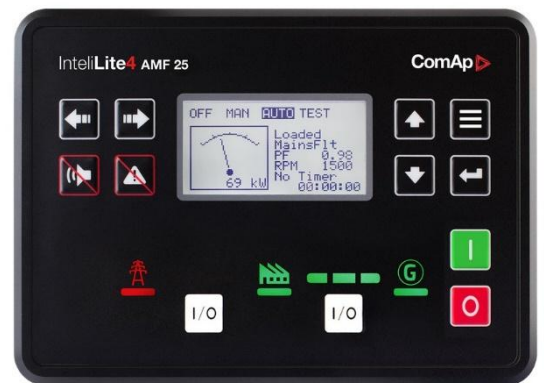
<b>Manufacturer</b>	FOGO
<b>Type</b>	D500R3-CR-TA-612
<b>Made in</b>	China
<b>Engine power</b>	387,0 kW
<b>Emission standard</b>	Stage III
<b>Rotation per minute</b>	1500 rpm
<b>Engine governor</b>	ECU
<b>Governor class</b>	G3 (ISO 8528-5)
<b>Displacement</b>	11,7 l
<b>No of cylinder</b>	6
<b>Fuel system</b>	Common Rail
<b>Electrical system</b>	24 V
<b>Cooling system capacity</b>	85,0 l
<b>Oil pan capacity</b>	37,0 l
<b>Fuel type</b>	Diesel (EN 590)

## Alternator

<b>Manufacturer</b>	FOGO / Linz
<b>Type</b>	PRO35S B/4
<b>Made in</b>	Italy
<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>	450,0 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>	320% 10s
<b>Efficiency</b>	94,2 %
<b>Insulation class</b>	H
<b>Total harmonic content THD</b>	< 2 %
<b>Reactance Xd"</b>	13,0 %
<b>Voltage regulator type</b>	Digital AVR
<b>Voltage measurement</b>	3 phase
<b>Voltage accuracy</b>	+/- 0,25 %
<b>AVR supply system</b>	Auxiliary winding
<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 – 1,
- A version for low temperature is also available





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## Standard equipment

- FOGO D500R3-CR-TA-612 engine
- Electronic engine speed governor
- Oil pressure sensor
- Engine high temperature sensor
- Engine preheating with thermostat
- Engine oil Titan Cargo 15W40
- Fuel filter with water separator
- Coolant Fuchs Maintain Fuchs Maintain Fricofin LL 50
- Coolant inlet outside, on the top of the canopy
- Starting batteries 2x180Ah
- Linear automatic battery charger
- FOGO / Linz PRO35S B/4 alternator
- Digital AVR DVR, cyfrowy
- GCB Schneider NS800 3P + Micrologic 2.0
- GCB shunt release coil
- Busbar power output
- 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
- 4P Schneider NS Micrologic 2.0 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 2x5x185 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>	114 mm
<b>Exhaust pipe min diameter (max. 15 m, 4 bends)</b>	133 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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