

**SCOPE OF SUPPLY****11 units of 2 x 25 kVA twin-sets for automatic mains failure operation followed up by cycling change-over for extended mains power cut**

each consisting of:

**1 (one) ISO-Container 10 feet**

containing:

**A) 2 (two) Diesel A. C. Generating Sets**

output each: 25 kVA  
stationary design, air-cooled, electrical starting,  
each consisting of:

**DEUTZ-Diesel Engine F3L912**

output: P = 26,5 kW,  
output: P = 23,9 kW, at site i.e. 45°C ambient temperature  
and 100 m above sealevel

speed: N = 1500 1/min.

for continuous operation to ISO 3046-1

Diesel fuel (gas oil) according to DIN 51601 resp. BS 2869 Class A  
or MDF-distillate according to BS 2869 Class B I

**1) Engine Specification**

engine design:

vertical 3-cylinder four-stroke Diesel engine  
anti-clockwise rotation, air-cooled, direct injection

starting system: 12 V

electric starter 12 V

dynamo 14 V

fuel system:

injection pump

injection pipes

fuel lift pump

fuel -filter

fuel connection pipes

speed control system:

speed governor

speed fine adjustment, manual

engine stop by solenoid

lub. oil system:

lub. oil pump

lub. oil filter, enlarged for 1500 h of operation

oil sump

oil-measuring stick

cooling system:  
cooling blower

combustion air system:  
air suction pipe  
dry-air cleaner, mounted

exhaust system:  
exhaust manifold, uncooled

power-take-off:  
engine flywheel with gear rim  
flywheel housing with SAE-bell

control of engine:  
lub. oil pressure controller  
cylinderhead temperature controller

2. **Three-Phase A.C. Synchronous Alternator self-regulated, brushless**

output: 25 kVA = 20 kW at power factor 0.8  
voltage-constancy: +/- 1,5 % at fluctuations of load between no load and rated load, and at fluctuations of power factor between 0.8 and 1.0  
voltage: 231/400 volts  
frequency: 50 cps  
speed: 1500 1/min  
insulation: class F, tropical and moisture insulation  
protection: IP 23  
radio-shielding: class N, according to VDE 0875  
designed: in accordance with VDE 0530  
with: anti condensation heater

3. **Flexible Coupling and Intermediate Link**

Engine and alternator are rigidly connected by a bell-type intermediate link, shafts are flexibly coupled.

4. **Elastical Mounting**

The power unit is elastically mounted on the base plate

5. **Common Base Plate**

of sheet steel, electrically welded, rigidly ribbed, for mounting of engine and alternator.  
with integrated lub.-oil tank, oilfilling regulator, gear driven oil pump  
designed for unattended operation of 1500 hours

6. **Accessories**

1 high efficiency exhaust silencer 15 dB(A)  
with exhaust gas compensator incl. insulation and touch protection  
1 starter battery 110 Ah with protection box  
located in front of the base plate  
2 operating instructions, maintenance books and spare parts lists

7. **Painting**

of the generating set grey RAL 7015 (standard execution)

**B) Fuel supply System**

1 fuel service tank, contents 250 ltrs.  
with sight glass, inlet socket, fuel stop cock  
and pipe connecting fittings  
1 electric / manual pumpcombination  
delivery-, filling-, venting- and returnline completely installed.

**C) Switchboard for automatic mains failure operation**

and cycling change-over operation of the gensets  
made of sheet steel, free standing  
cable input from bottom (consumer cables), from top (genset cables)  
cable inlet holes in the panel roof  
Colour: RAL 7032  
Measuring devices: 72 x 72 mm  
H x W x D in mm: approx. 1800 x 1000 x 400 mm + 200mm base frame

**Power Part**

2 Contactor 40A at duty AC1  
2 Alternator load disconnecter, 3-pole, 40A, manual operated,  
fix mounted, incl. protection overcurrent/ short circuit  
3 Current transformers, X/5 A for measuring (consumer feeder)  
2 Protection switch, 3-pole, for measuring, protection and control  
1 Incoming mains feeder  
1 3 surge arrestor  
1 fuse load disconnecter 3 pole, 35A  
1 mains contactor 40A at duty AC1  
1 Outgoing feeder terminal strip for cable connection

**Control Part**

Generating Set 1 – 2, each:  
Alternator protection  
Incl. in disconnecter, please see above

**Measuring**

1 Operation hour counter 48 x 48 mm  
1 Temperature gauge  
1 Potentiometer for alternator  
1 Gen. frequency monitor (incl. in Motor control and supervision unit)  
1 Gen. voltage monitor (incl. in Motor control and supervision unit)

**Common Measuring**

1 Voltmeter  
1 Frequency meter  
1 Voltmeter selector switch  
1 Measuring selector switch Gen1/Gen2/Mains  
3 Ammeters,

Control Part

## 1 Start Stop Automatic

Operating modes (indication by LED's):

- OFF- MANUAL- TEST-AUTO
  - LED indication:
  - Supervision ON, Gen CB ON, Voltage present
  - Engine failure
  - Overcurrent/ Short circuit (disconnect off)
  - Oil pressure low
  - High engine temperature
  - Overspeed/ gen voltage <<
  - Low fuel level day tank/ storage tank
  - Day tank level too high
  - Leakage
  - Storage tank </<<
  - Refiner fault/ oil level
- Push buttons:
- Gen. CB ON/OFF
  - LED Test
  - Reset

Controls

## 1 Set control MCB's

1 Siemens programable logic control PLC S7 300, CPU 312C incl. 10 digital inputs, 6 digital outputs for central control functions

1 DC/DC converter 12VDC/24 VDC for PLC power supply

2 Rectifier to realise central control voltage level 12VDC (both starter batteries will be connected in parallel)

1 Timer free settable

1 Central operation mode selector switch M-0-A

2 Control of alternator contactor

1 Set control relays for start - stop etc.

1 Emergency stop push button

Pot free contacts

2 Batt. U<

2 common alarm

2 geset in operation

1 Low level day tank

1 storage tank min

1 storage tank min min

1 Leakage

Aux. consumers

2 Battery charger, IU-characteristic 12 V, 10 A  
with undervoltage monitor and ammeter & voltmeter

2 Outgoing feeder for gen. heater 230V, 6A

2 Controls for louvers 24VDC

1 DC/DC converter 12VDC/24VDC, 1,7A for louvers

2 Outgoing feeder for purifiner heater 230V, 6A

2 Outgoing feeder for Oil pump 400V up to 2kW

1 Outgoing feeder for Container light 230V, 10A

1 Outgoing feeder for container socket 230V, 10A

2 Outgoing feeder for container fan, 0,6kW

1 Control for fuel transfer pump 400V, up to 2kW

**D) Container**

All above specified equipment will be mounted inside a Heavy-Duty closed sheet-metal enclosure with ISO-container outside dimensions.

**Construction:**

Load bearing ISO-container. Wall and ceiling made from trapezoidal corrugated sheet steel. The container floor is forming a collection tray und covered with chequered plates.

**Door:**

Access to the genset via one door. Panic lock is fitted in accordance with accident prevention regulations as well as one double folding door.

**Air in- and outlet:**

Weather protection grids with integrated electric motor driven louvers, fans and bird screens are fitted to the air inlet and outlet-openings.

**Lighting:**

Interior illumination of the container by 1 fluorescent lamp (230 V, min. 36 W).  
1 socket 230 V. 10 A

**Paint finish:**

The container is primed and painted in a single RAL-colour.

**E) Test**

The complete set with switchboard will be thoroughly tested on our works' test bed.

The documentation can be supplied in English language only.  
The generator set's are without CE-Certificate.

## F) Spare Parts

**1.) 16 sets of spare parts for 5.000 operating hours**  
each consisting of:

1.1) parts for diesel engine, P/N L30471-Z0891-D25:

- 12 hood cover gaskets
- 12 washer for dto.
- 8 filter cartridge
- 8 fuel filter cartridge
- 12 cylinder head screw
- 3 shim for cylinder head
- 2 airfilter cartridge
- 6 injection nozzle
- 6 washer for dto.
- 2 shaft seal
- 1 overflow valve
- 1 fuel feed pump
- 2 repair sets for dto.
- 2 O-seal for dto.
- 2 V- belt

1.2) parts for alternator, P/N L30841-Z8091-G25:

- 1 set of diodes
- 1 voltage regulator
- 1 set of bearings

1.3) parts for switchboard P/N L30481-Z8091-S25:

- 4 Relay 4co, 12VDC
- 2 Relay 1co, 12VDC
- 2 contactor 40A AC1, 12VDC
- 2 Aux. contactor 2no/2nc, 12VDC
- 2 MCB 1pol. 6A B
- 2 MCB 1pol. 10A B
- 2 MCB 1pol. 16A B

## G) Extra Spare Parts

**1.) 20 sets of spare parts for diesel engine for 5000 operating hours**

P/N L30471-Z0891-D25:

each consisting of:

- 12 hood cover gaskets
- 12 washer for dto.
- 8 filter cartridge
- 8 fuel filter cartridge
- 12 cylinder head screw
- 3 shim for cylinder head
- 2 airfilter cartridge
- 6 injection nozzle
- 6 washer for dto.
- 2 shaft seal
- 1 overflow valve
- 1 fuel feed pump
- 2 repair sets for dto.
- 2 O-seal for dto.
- 2 V- belt

**2.) 12 sets of spare parts for alternator for 5000 operating hours**

P/N L30841-Z8091-G25:

each consisting of:

- 1 set of diodes
- 1 voltage regulator
- 1 set of bearings

**3.) 10 sets of spare parts for switchboard for 5000 operating hours**

P/N L30481-Z8091-S25:

each consisting of:

- 4 Relay 4co, 12VDC
- 2 Relay 1co, 12VDC
- 2 contactor 40A AC1, 12VDC
- 2 Aux. contactor 2no/2nc, 12VDC
- 2 MCB 1pol. 6A B
- 2 MCB 1pol. 10A B
- 2 MCB 1pol. 16A B

**H) Maintenance Parts for engine****1.) 40 sets of maintenance parts for diesel engine for 1.500 operating hours**

P/N L30471-Z0891-W25:

each consisting of:

- 6 hood cover gaskets
- 6 washer for dto.
- 4 filter cartridge
- 4 fuel filter cartridge
- 1 airfilter cartridge
- 2 repair sets for fuel pump
- 2 O-seal for fuel pump
- 2 V- belt

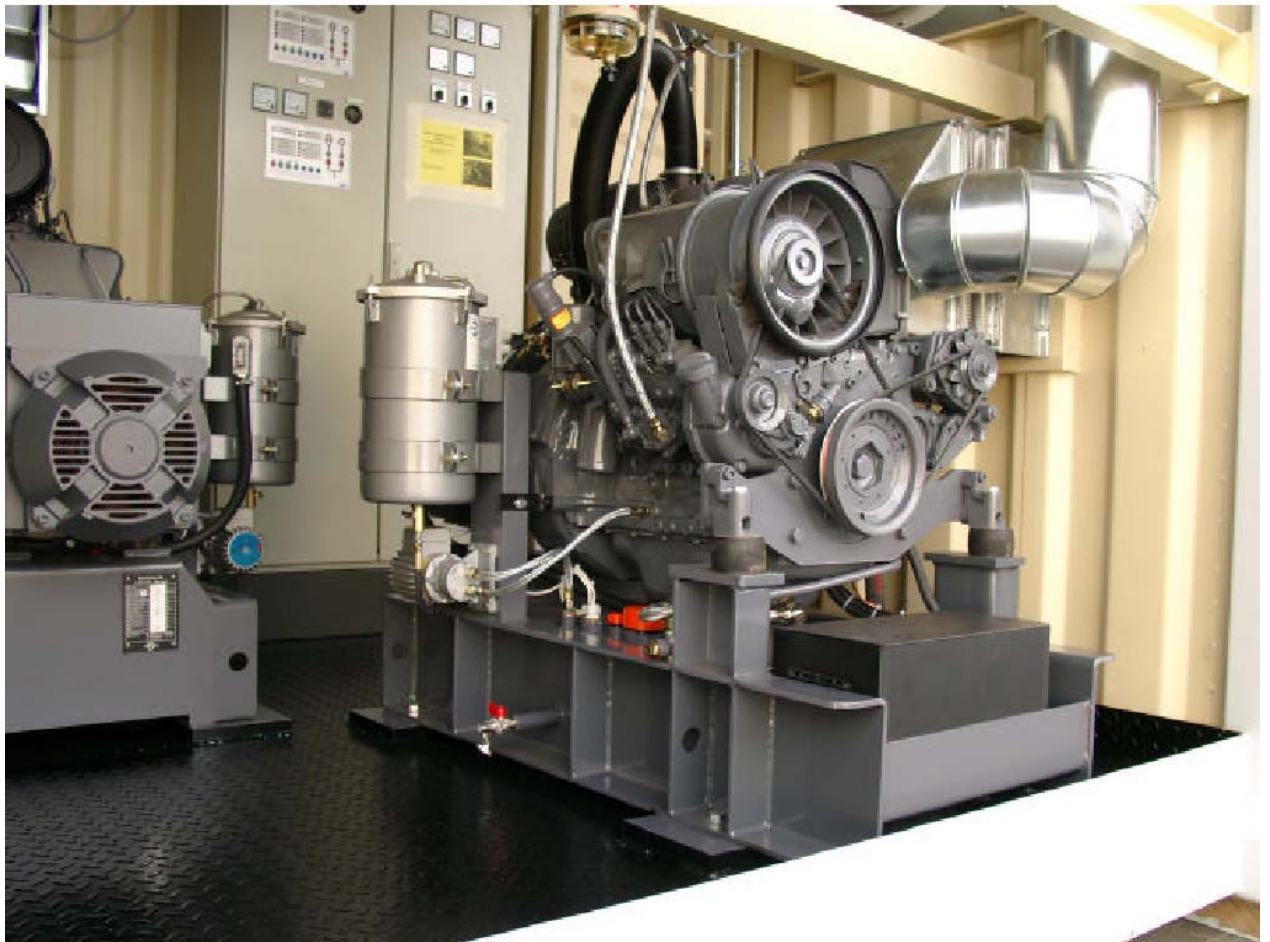
**I) Additional Equipment**

3 complete switchboards for the above gensets

1 partly equipped switchgear (approx. 50 % of the parts are included)

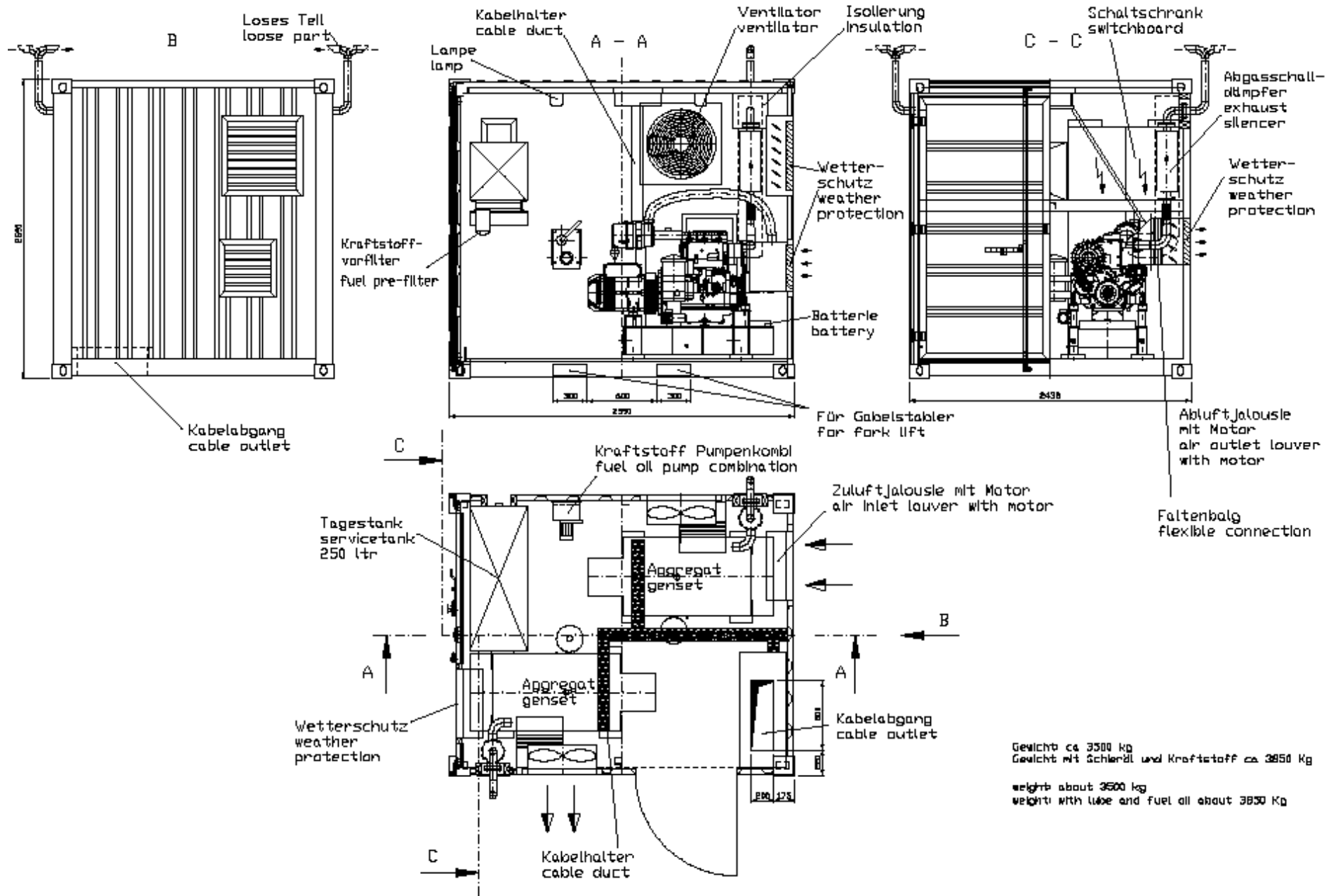
24 fan units for the genset containers

1 set of fuel hoses for the connection of external fuel storage tanks (not our scope of supply) with the fuel day tank inside of the containers





# Containerized Gensets



Gewicht ca 3500 kg  
 Gewicht mit Scherndl und Kraftstoff ca 3850 kg  
 weight about 3500 kg  
 weight with lube and fuel oil about 3850 kg