

SCOPE OF SUPPLY**16 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
- Leackage
- 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.

Consumable Parts

14 sets of consumables as per supplier's proposal

each consisting of:

parts for diesel engine:

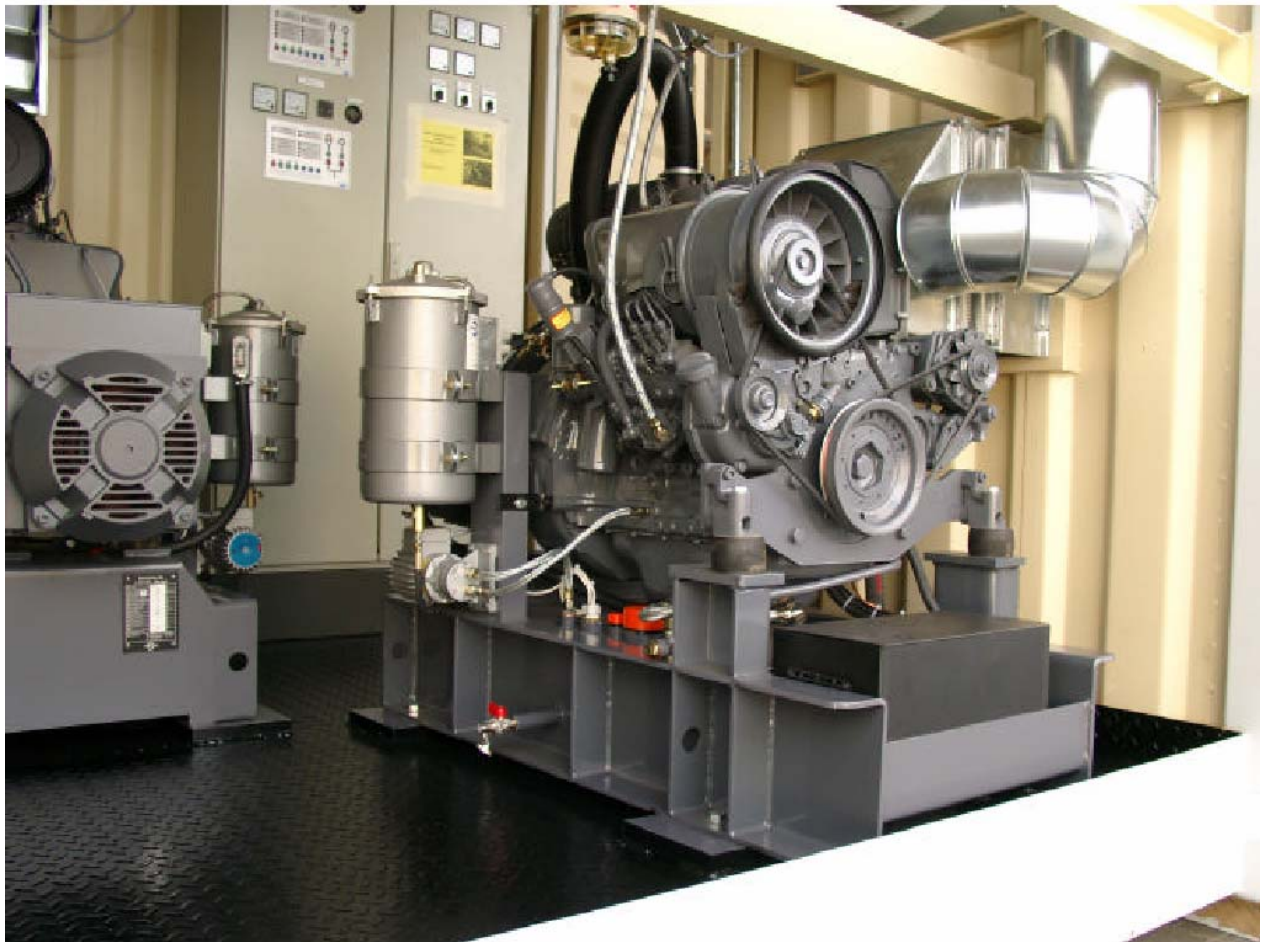
- 12 hood cover gaskets
- 12 washer for dto.
- 8 filter cartridge
- 8 fuel filter cartridge
- 12 cylinder head screw
- 3 shim for cylinder head
- 2 airfilter cartridge
- 6 injection nozzle
- 6 washer for dto.
- 2 shaft seal
- 1 overflow valve
- 1 fuel feed pump
- 2 repair sets for dto.
- 3 O-seal for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

parts for alternator

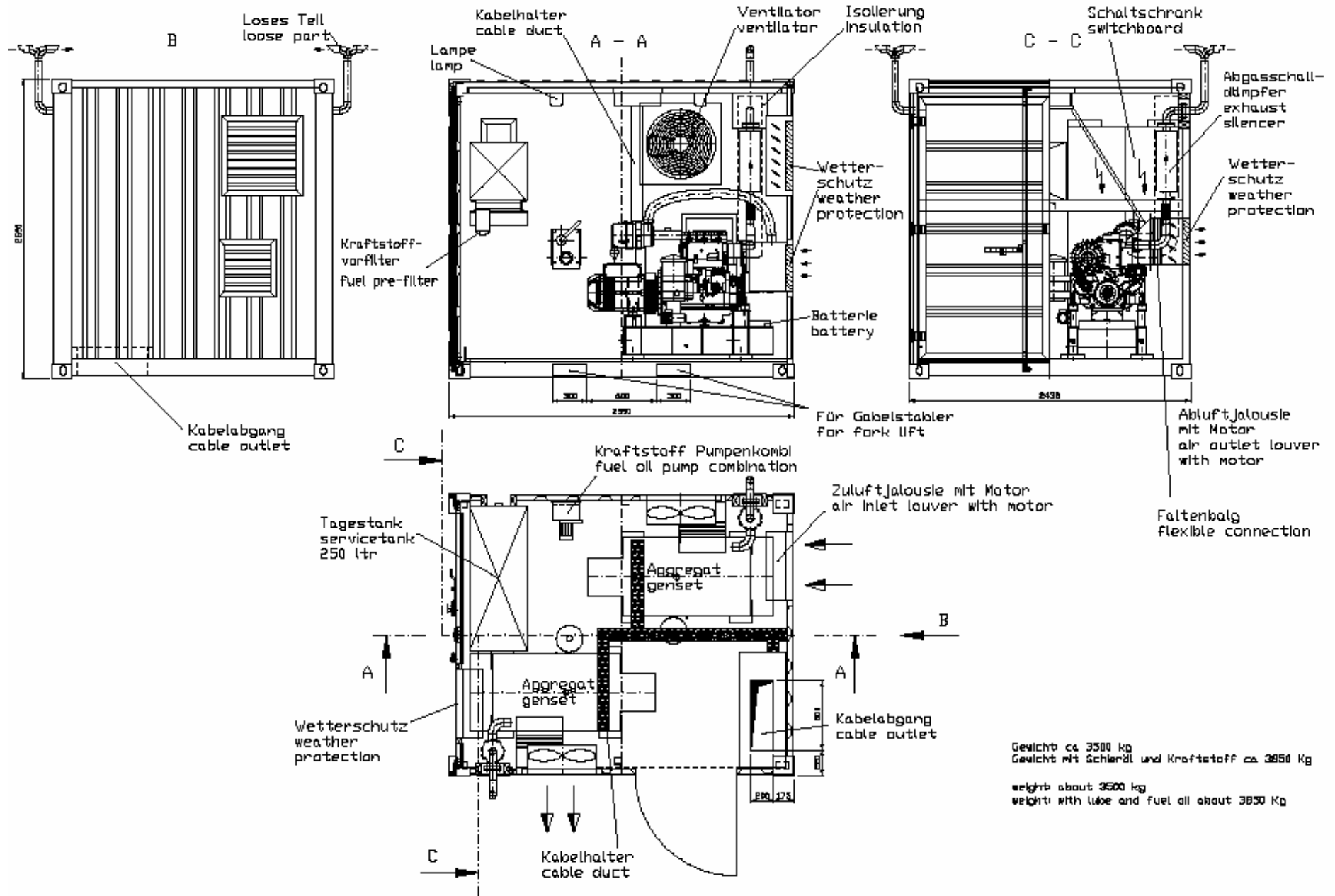
- 1 set of diodes
- 1 voltage regulator
- 1 set of bearings

parts for switchboard

- 4 Relay 4co, 12VDC
- 2 Relay 1co, 12VDC
- 2 contactor 40A AC1, 12VDC
- 2 Aux. contactor 2no/2nc, 24VDC
- 2 MCB 1pol. 6A B
- 2 MCB 1pol. 10A B
- 2 MCB 1pol. 16A B



Containerized Gensets



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