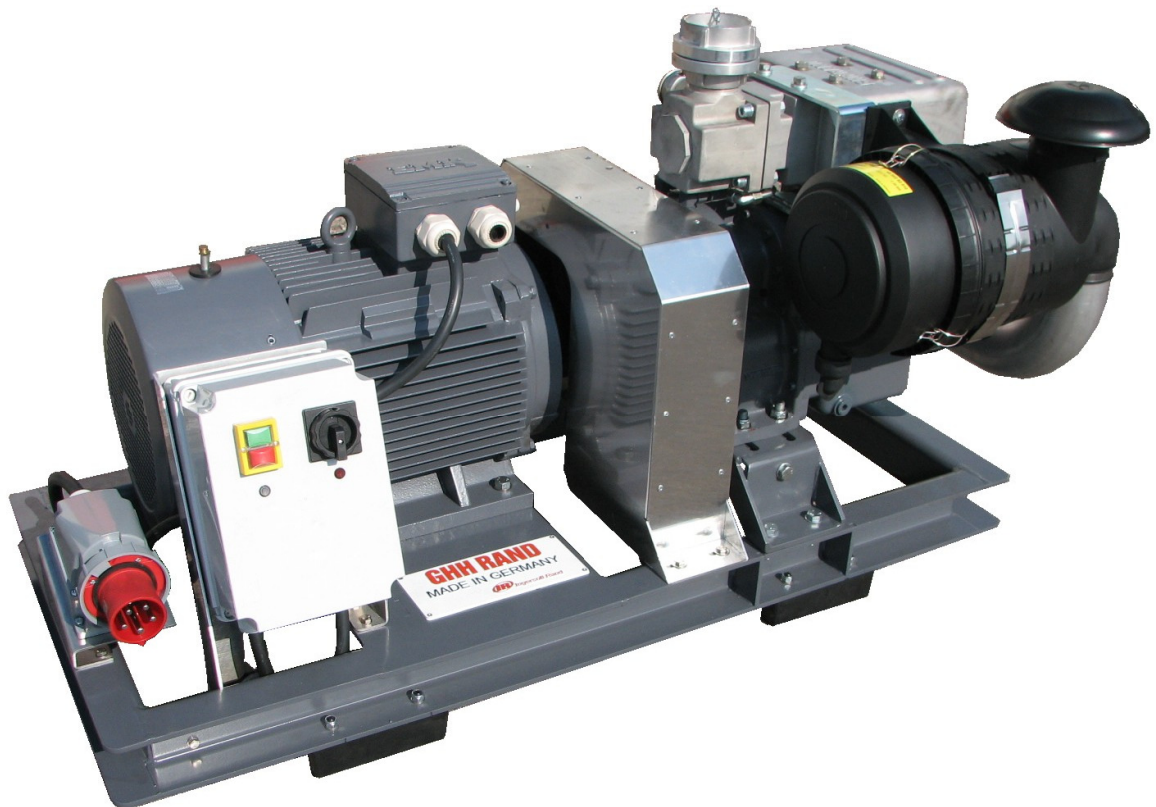


# GHH RAND

## Operating Instructions

Compressor Unit with Electric Motor

CG 600 EP-belt NON EU



# GHH RAND

## Foreword

Please read these operating instructions carefully before setting up and commissioning the compressor unit with electric motor. They provide essential information which are to be observed to ensure trouble-free operation and a long service life.

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## 1 General

### 1.1 Purpose

GHH RAND build and supply the compressor unit with motor SILU CG600 ready for operation. These units are used to handle bulk material pneumatically owing to their ability to compress atmospheric air free of oil. They can either be installed in a stationary unit or mounted on silo-type trucks.

### 1.2 Manufacturer's address

GHH RAND  
Schraubenkompressoren GmbH  
Erlenstrasse 67  
D-46149 Oberhausen  
Germany

### 1.3 Identification

The machine data can be found on the name plate.

Machine No.:
--------------

### 1.4 Service contact

Please see the Internet for addresses:  
[www.ghhrand.com](http://www.ghhrand.com)

### 1.5 Technical data - compressor unit with motor

**Type: CG600 EP-belt**

Dimensions: 165x65x75cm

Protection class:

V-belt drive ratio:

Weight: 500kg

IP 55

i=1.067

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## 1.6 Technical data motor

Motor:	Three-phase current
Type:	B3
Power:	30 kW
Motor speed:	2950 rpm
Voltage:	400 VAC/50Hz
Weight:	218 kg

## 1.7 Technical data compressor CG 80

Operating instructions:	(see CG 80)
Operating gauge pressure:	2.0 bar (g)
Suction pressure, abs.:	1.0 bar
Suction temperature:	20 C°
Suction temperature max.:	40 C°
Suction volume flow:	470 m <sup>3</sup> /h (at 2.0 bar(g))
Maximum temperature:	190 C°
Power:	30 kW
Speed compressor:	3170 rpm
Weight:	110 kg
Oil capacity:	9 liter

## Important !!

The function of the non-return valve installed in the compressor unit is to prevent the compressor, after having been switched off, from running in reverse at high speed for a long time as a result of residual pressure that exists in the discharge lines of the pneumatic system.

To avoid an unintended return blow of material into the compressor, it is mandatory that at least one further non-return valve is installed in the pneumatic system of the silo arrangement.

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## 1.8 Installation procedure

In addition to the general technical operating instructions per the regulations of the local authorities, special attention is drawn to the following guidelines:

- Use a suitable hoist which fulfills the local safety regulations for handling of the compressor unit. Securely fasten all loose or swinging parts prior to handling. Do not stand in the danger area of a lifted load.
- Remove all blank flanges, plugs and caps prior to installation of the piping. Ensure that the distribution pipes and pipe connections are of the correct size and suitable for the respective operating pressure.
- Install the unit in a place where the ambient air is as cool and clean as possible. If needed, provide for a suction duct. Never block the air inlet. The sucked-in air must not contain any flammable vapors or gases which might cause a fire or an explosion.
- Do not remove or modify any safety devices, protective covering or lagging. Protect any pressure tanks or accessory installed outside the compressor unit for storing compressed air by means of separate safety valves.
- The electrical connections must fulfill the local regulations. The compressor units must be grounded and protected against short circuits by means of fuses.
- If operation by remote control is provided for, a clearly visible sign must be attached to the unit reading the following:

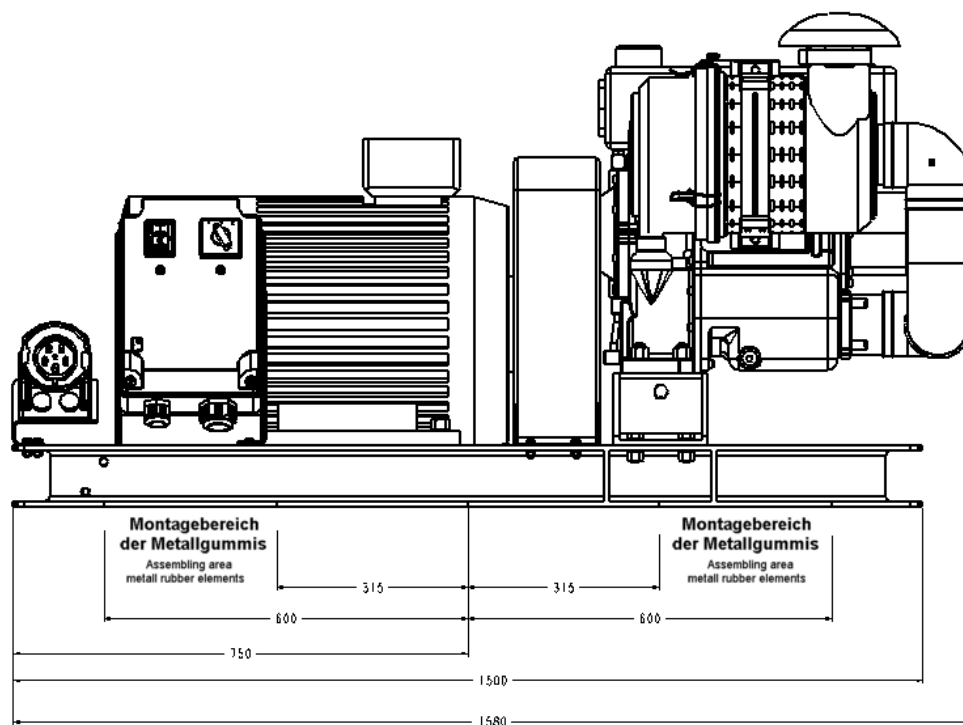
### **Caution !!**

**This unit is operated by remote control and might start without prior warning.**

Make sure that the electrical connection is interrupted when conducting maintenance and/or repair work.

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## 1.9 Operation manual



The mounting area of the vibration dampers can be between 316 mm and 600 mm from the centre line on each side.

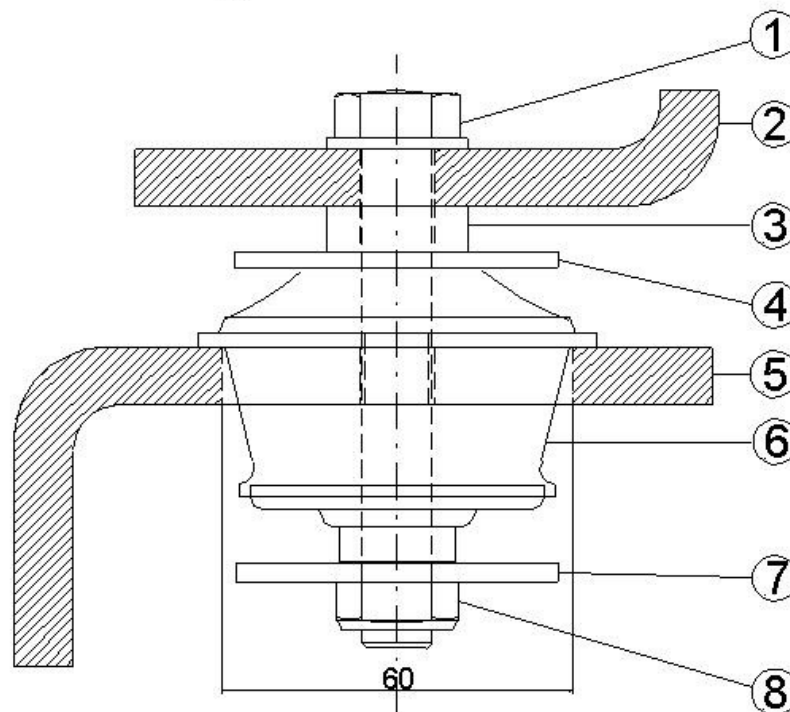
The position of the vibration dampers must be symmetrical to the centre line.

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## 1.9 Installation procedure - vibration dampers

After defining the mounting positions of the vibration dampers in the supporting frame, cut a hole of 60 mm diameter in each vibration damper by means of a hole saw. (please see drawing)

### Vibration damper



1. Screw M12 x 90
2. Compressor baseframe
3. Spacer 8mm
4. Lock washer above
5. Chassis baseframe
6. Metallgummi
7. Lock washer below
8. Lock nut



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## **2 Safety**

### **2.1 General**

These operating instructions provide important information which must be observed during operation and maintenance. The skilled personnel / operator / user therefore is required to read these operating instructions before commissioning. Furthermore, the instructions must be at hand where the machine is used at all times.

### **2.2 Skilled personnel**

Work on the compressor unit must be conducted by authorized personnel only according to the safety rules in force.

### **2.3 Safety information**

The operator / user is responsible for ensuring that the compressor unit is always in an operationally safe condition. Damaged parts must be replaced at once. If flammable goods are handled with the compressor, take appropriate precautions to avoid that the spontaneous-ignition temperature of a dust-and-air mixture that may arise is not reached.

### **2.4 Impermissible applications**

The compressor unit may not be used under other conditions than those specified in the chapter "Technical data" unless with authorization by GHH RAND Schraubenkompressoren GmbH.

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## **3 Commissioning**

### **3.1 Set-up**

Mount the compressor unit in horizontal position, if possible. If the unit is not mounted horizontally, please observe the specified limit values.

### **Important !!**

Maximum permissible angles of tilt during operation:  
forward and backward: 10°  
to the right and left: 10°

### **Electrical connection:**

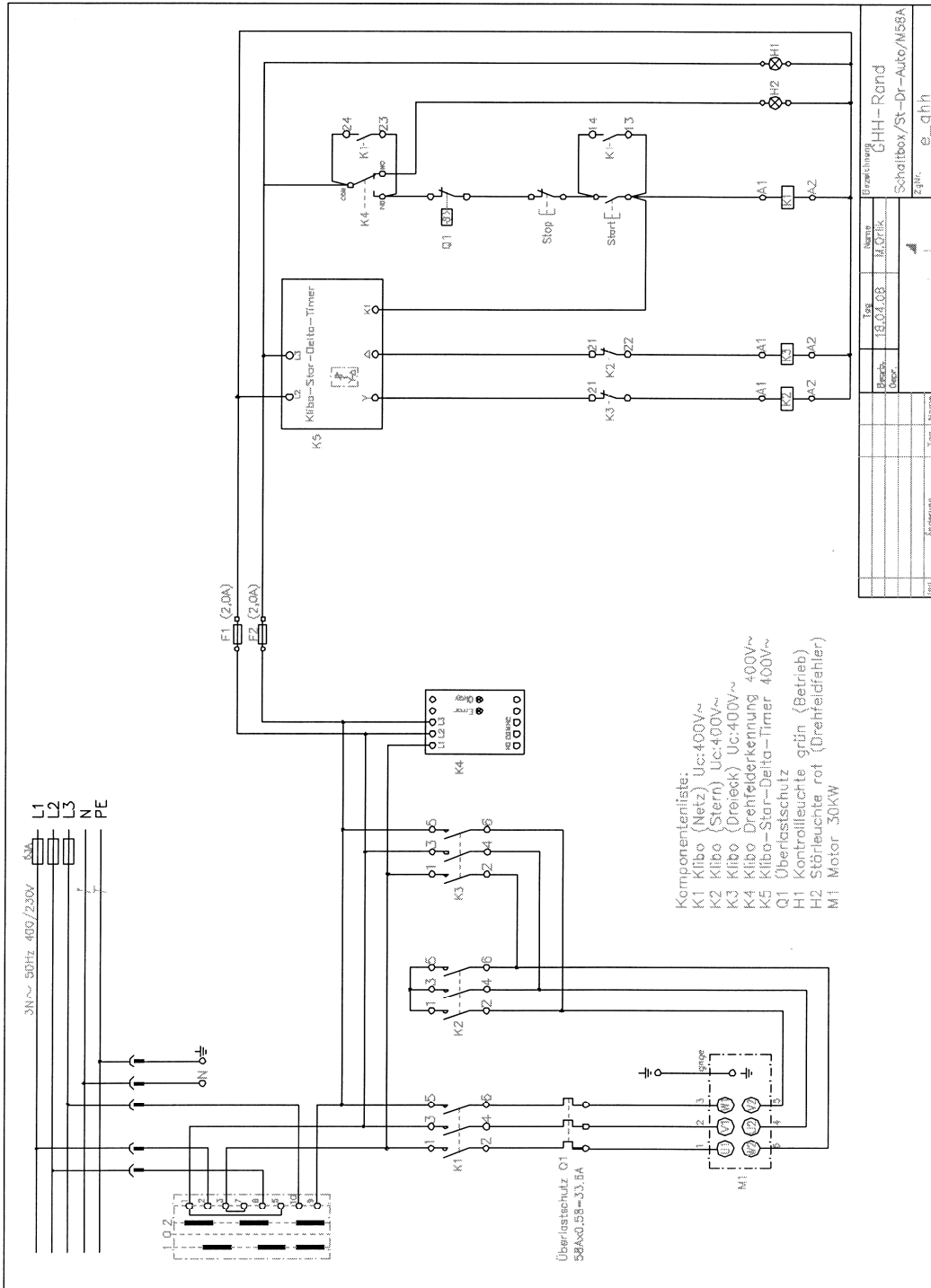
The standard electrical connection is realized by means of a junction box with feeder clamps.

As an option, the unit can be delivered with a CEE connector plug installed.

### **Attention !!**

Work on the heavy current unit must be conducted by specially authorized experts only.

## 3.2 Circuit diagram 30 kW



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## 3.3 Controls - Operating elements and monitoring gauges

List / Designation:

- Start button (I) green
- Stop button (0) red
- Phase switch - Position 1-0-2
- Operation control lamp (white)
- Phase switch lamp (red)
- Oil pressure gauge compressor
- Maintenance indicator of compressor air filter

## 3.4 Start

### Starting the motor / compressor

- Provide for electrical power connection
- Check phase circuit / direction of rotation
- (switch to 1 or 2 until lamp goes out)
- Press start button "green"
- Check start procedure

## Important !!

Start the compressor unit completely relieved of load only.  
Never start it trying to overcome any backpressure that may exist.

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## 3.5 Stop/Shut-down

### Shut-down motor / compressor

- Relieve compressor discharge pipe
- Press stop button "red"
- Wait for shut-down
- Turn rotary switch to position "0"



## 3.6 Allowable operating time

- Maximum running time of the compressor without oil cooler: **3 hours** followed by a 1-hour cool-down time.
- Continuous duty of the compressor is only possible with oil cooler which can be supplied as an option.

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## 3.7 Compressor monitoring during operation Oil pressure gauge

The oil pressure is indicated on the oil pressure gauge.  
The oil pressure must not drop below 0.3 bar.

### **Important !!**

If the oil pressure does not build up within a short period of time, switch off the motor / compressor. Check the oil level and clean the oil suction strainer, if necessary (see operating instructions of compressor, chapter Maintenance).

### **Maintenance indicator for air filter**

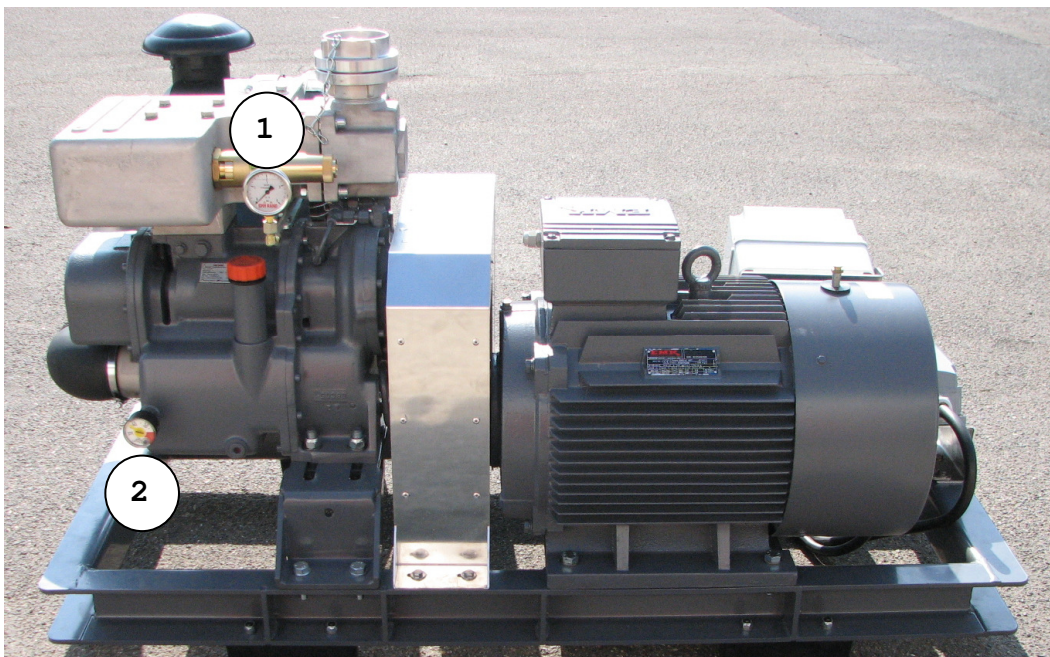
Negative pressure is indicated on the maintenance indicator of the compressor unit.

### **Important !!**

If the 65 mbar indication is reached, the negative pressure has dropped below the permissible limit. Clean the filter element in the suction filter of the compressor unit or replace it if it is heavily constricted. Reset the maintenance indicator.  
(see operating instructions of compressor, chapter Maintenance)

① Oil pressure gauge

② Maintenance indicator



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## 4 Maintenance / Service

### 4.1 Maintenance intervals of motor / compressor

#### Important !!

In case of compressor units with V-belt drive, retension the V-belts and the quick-lock taper bushes of the V-belt pulleys and retighten the fastening screws of the discharge silencer with a torque of 65 Nm after the first **two hours of operation**.

#### Daily:

Check the oil level in the compressor, adjust oil level, if necessary.

#### Weekly:

Clean the filter element in the suction filter of the compressor or replace it in case of heavy fouling. Check the V-belt tension and adjust it, if necessary.

#### Quarterly:

##### Motor

Check electrical connections for tightness.  
Relubricate rotor bearing, if necessary.  
(see operating instructions)

##### Compressor

Check non-return valve and safety valve for proper function.  
(see operating instructions of compressor).

### 4.2 Safety information

- Conduct all checks and maintenance work only with the motor / compressor switched off and with the system being depressurized.
- Prior to conducting any work on the compressor unit with motor, make sure that the main power cable is unplugged and without power.
- In case of stationary units, remove the fuses.

#### Important !!

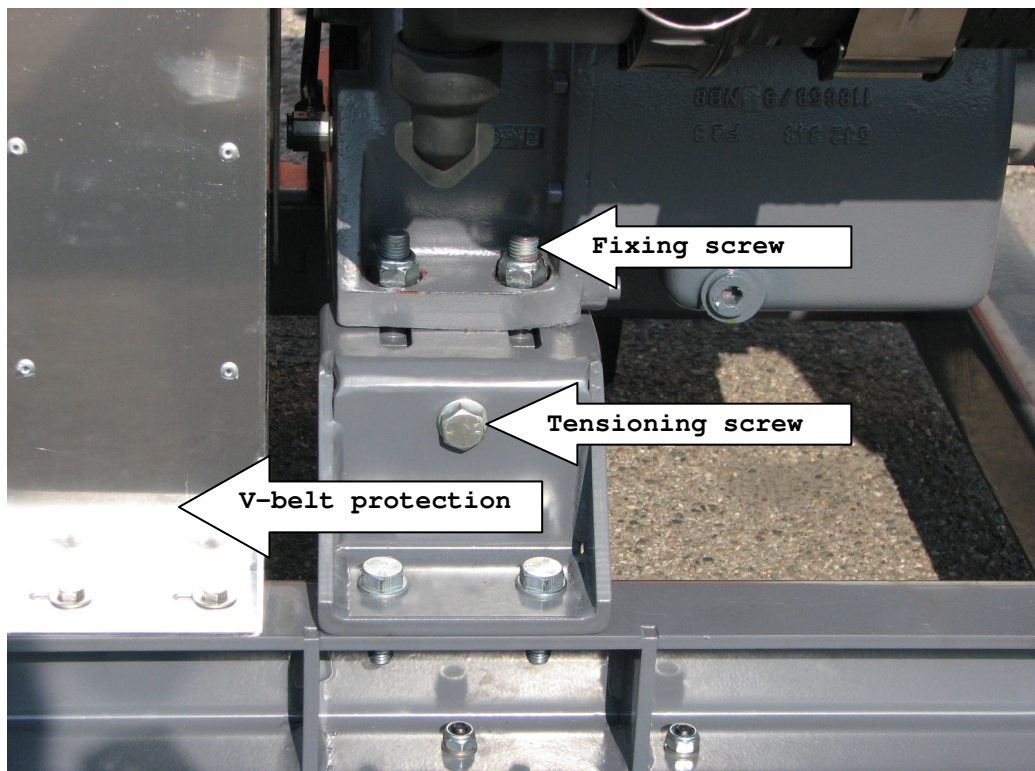
- Hazard of burning due to hot machine parts.
- Wear protective gloves



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## 4.3 Motor / V-belt drive

Tension the V-belts using the tensioning screw and a measuring device in line with the instructions of the V-belt manufacturer.



In order to change or retension the V-belts, remove the V-belt protection to be able to check the V-belt tension. To this end, unscrew the four screws at the foot of the V-belt protection and lift off the protection the protection completely.

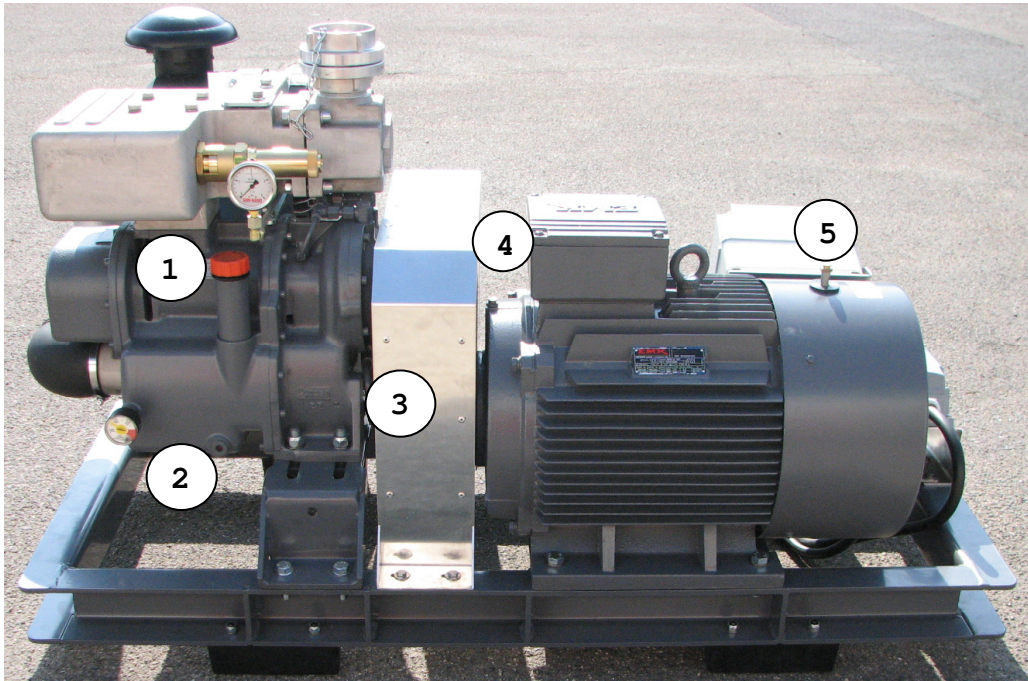
Loosen the four fixing screws at the compressor foot afterwards and decrease the tension of the V-belts by turning the tensioning screw to the left or increase it by turning the tensioning screw to the right.

After tensioning, tighten the fixing screws. Install the V-belt protection.



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## 4.4 Oil change / Bearing lubrication



- 1 Oil change and oil level control  
(see operating instructions - compressor)
- 2 Oil drain screw
- 3 Cleaning of the oil suction strainer  
(see operating instructions - compressor)
- 4 Bearing lubrication - 45g/side every 3125 hrs  
(see operating instructions - motor)
- 5 Bearing lubrication - 45g/side every 3125 hrs  
(see operating instructions - motor)

## 5 Malfunctions / Remedies Compressor

Malfunction	Possible cause	Remedy
Oil pressure below 0.3 bar at operating temperature	Drive speed too low Oil strainer soiled Wrong oil grade Oil level too low	Check drive speed Clean oil strainer Replace oil Top up oil
Oil pressure varies	Oil level too low Oil intake pipe leaking	Top up oil Check screwed connection
Oil foams	Wrong oil grade Water in the oil Oil level too high	Top up with approved oil grade Change the oil Reduce oil
Oil leakages	Screwed connection leaking	Check screwed connection
Compressed air pressure too high	Speed too high Non-return valve defective Safety valve does not blow off	Adjust speed Replace non-return valve Check safety valve
Negative pressure gauge reading 65 mbar	Suction filter clogged Speed too high	Clean / replace filter elements Adjust speed

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## **6 Spare parts**

Please always state the machine no.:.....  
when ordering spare parts.

Ordering spare parts

Phone (++49)208-690 3843

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## **7 Service**

**GHH RAND Schraubenkompressor GmbH**

**Erlenstrasse 67  
D-46149 Oberhausen  
Germany**

<b>SILU service hotline</b>	<b>Phone (+49) 208-690 3888</b>
<b>Fax</b>	<b>Fax (+49) 208-690 3844</b>
<b>Service</b>	<b>Phone (+49) 208-690 3840</b>
<b>Spare parts</b>	<b>Phone (+49) 208-690 3843</b>

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Subject to modification of technical  
Details on the data and figures in the  
Operating instructions

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**Notes:**