O R I G I N A L

# Operating instructions
Compressor unit with DC motor

## Standard version

## KC100/ 1.21 – ; KC100/1.221 –
## KC200/ 1.21 – ; KC200/1.221 –
in the voltage range from 12VDC – 110VDC

Manufacturer:

**Koci Elektromaschinen GbR**
Zittauer Straße 12
D - 02796 Kurort Jonsdorf
Phone: +49 (0)35844/ 76 44 00
E-mail: info@e-koci.de
www.e-koci.de

As of: 03/2026

# Table of Contents

1 Introduction ..... 1
1.1 Compressor designation ..... 1
1.2 Dealing with these operating instructions ..... 1
1.3 Compliance ..... 1
2 Technical information ..... 2
2.1 Technical data ..... 2
2.2 Function and mode of action ..... 2
2.3 Components of the compressor ..... 3
3 Use and Responsibility ..... 4
3.1 Intended use ..... 4
3.2 use contrary to its intended purpose ..... 4
3.3 Responsibility of the operator ..... 4
3.4 Environmental protection ..... 4
4 Security ..... 5
4.1 Overview of possible sources of danger ..... 5
4.2 Safety signs used ..... 5
4.3 Safety devices ..... 5
4.4 Safety instructions ..... 6
5 Installation and assembly ..... 7
5.1 Safety instructions for the installation site ..... 7
5.2 Installation conditions ..... 7
5.3 Connection to the compressed air network ..... 8
5.4 Connection to the power supply ..... 8
5.5 Connecting the control switch ..... 9
6 Commissioning ..... 10
6.1 Putting the compressor into operation ..... 10
6.2 Adjust pressure ..... 10
6.3 Adjusting the antifreeze pump ..... 11
7 Maintenance ..... 11
7.1 Regular maintenance work ..... 11
7.2 Carrying out maintenance work ..... 12
7.3 Fasteners & Tightening Torques ..... 14
7.4 Performance Review ..... 15
8 Cause of malfunction and remedy ..... 16
9 Decommissioning, transport and disposal ..... 18
9.1 Decommissioning ..... 18
9.2 Storage ..... 18
9.3 Packaging ..... 18
9.4 Transport ..... 18
9.5 Disposal ..... 19
10 Warranty ..... 19
11 Appendix ..... 21
11.1 Connection of the control cable by means of toggle switch ..... 21
11.2 Connection of the main supply line from 48 DC ..... 21
11.3 Connection of the control line SIEMENS switch ..... 22

Additional documents:
Spare parts list

# 1 Introduction

## 1.1 Compressor designation

This operating manual was created for the following compressor. Please read these operating instructions carefully to ensure safe use of the machine and operator.

| Type designation | |
|---|---|
| KC100/1.21 – 12/24/48/80/110 | KC100/1.221 – 12/24/48/80/110 |
| KC200/1.21 – 12/24/48/80/110 | KC200/1.221 – 12/24/48/80/110 |

### 1.1.1 General information

Inquiries about spare parts and their delivery, repair information, as well as inquiries about technical problems with the compressor can only be processed if the **compressor number/machine number** is disclosed. If you have not purchased the compressor directly from the manufacturer, please always contact your dealer first.
It is forbidden to remove the device plate, otherwise it is no longer possible to identify it precisely.

## 1.2 Dealing with these operating instructions

This instruction manual is a part of the product. Accordingly, the operator must take responsibility to ensure that:

- the operating instructions are always accessible to the operating or maintenance personnel.
- these instructions are always available to the end consumer.
- this manual must be kept for the life of the machine.

### 1.2.1 Copyright

The reproduction of texts, technical data, drawings, etc. is prohibited and requires the consent of KOCI. Technical changes to the compressor unit are reserved for the manufacturer.

### 1.2.2 Symbols and hints

The following symbols and notes are used in this document. These must be read and observed carefully.



**GEFAHR!**

**Type and source of danger** – ***personal injury – life-threatening***

➢ Measures to protect yourself from danger to life



**ACHTUNG!**

**Type and source of danger** – ***personal injury – slight / property damage***

➢ Measures to protect yourself from injury



**VORSICHT!**

**Type and source of danger** – **property damage**

➢ Measures to protect the machine from damage



**HINWEIS**

Important information

*Material* ✓ Information on spare parts and operating materials

*Prerequisites* ✓ Conditions to be checked in advance in order to carry out an activity

## 1.3 Compliance

The current declaration of conformity is available for download on the website.

# 2 Technical information

## 2.1 Technical data

### 2.1.1 Nameplate

The type, machine number and technical data can be found on the machine's nameplate. This must not be removed. You can also find the type designation and machine number in point 1.1 Compressor designation

### 2.1.2 Compressor data

| Type designation | | **KC100** | **KC200** |
|---|---|---|---|
| Maximum Operating Pressure: | bar | 10 | 10 |
| Response pressure safety valve | bar | 11 | 11 |
| Switch-on pressure (standard) | bar | 7 | 7 |
| Switch-off pressure (standard) | bar | 8 – 9 | 8 - 9 |
| Suction volume: | l/min | 75 | 150 |
| Volume flow. 6 bar[2]: | l/min | 52 | 104-106 |

Factory Pressure Setting - Custom settings may vary.

### 2.1.3 Engine data

**KC100**

| Operating voltage | **V DC** | **12** | **24** | **48** | **80** | **110** |
|---|---|---|---|---|---|---|
| Performance | kW | 0,5 | 0,5 | 0,53 | 0,53 | 0,53 |
| Max. current consumption: | A | 48 | 24 | 13 | 8 | 5,5 |
| Speed: | RPM | 1500 | 1500 | 1500 | 1600 | 1600 |
| Overall dimensions L x W x H | mm | 390x255x320 mm | | 390x265x320 mm | | |

**KC200**

| Operating voltage | **V DC** | **12** | **24** | **48** | **80** | **110** |
|---|---|---|---|---|---|---|
| Performance | kW | 1 | 1 | 1 | 1,2 | 1,2 |
| Max. current consumption: | A | 96 | 48 | 24 | 16 | 11 |
| Speed: | RPM | 2400 | 2500 | 2500 | 2600 | 2600 |
| Overall dimensions L x W x H | mm | 440x255x320 mm | | 440x285x320 mm | | |

### 2.1.4 General data

| | | | | | |
|---|---|---|---|---|---|
| Degree of protection: | IP | 66 | | | |
| Radio interference suppression: | | Yes | | | |
| Weight KC100: | kg | 23 | | | |
| Weight KC200 | kg | 25 | | | |
| Sound power level LWA max.: | dB | 84 | | | |
| Sound pressure level L1m max.: | dB (A) | 71 | | | |
| Permissible ambient temperature without antifreeze pump | °C | 0 – 25[1] | | | |
| Permissible ambient temperature with antifreeze pump | °C | -40 – 25[1] | | | |
| | | | Calculation | | |
| Permissible duty cycle[2] | % | ≤ 70 | = | $\frac{\text{Time in LOAD RUNNING}}{\text{Cycle time}}$ | x 100 |
| Cycle time | min | 3 - 20 | = | Time in LOAD RUN + downtime | |

Deviating conditions[2] affect the machine's duty cycle. It is the operator's responsibility to check the environmental conditions on site and to adjust the compressor's duty cycle (by means of its own tests).

## 2.2 Function and mode of action

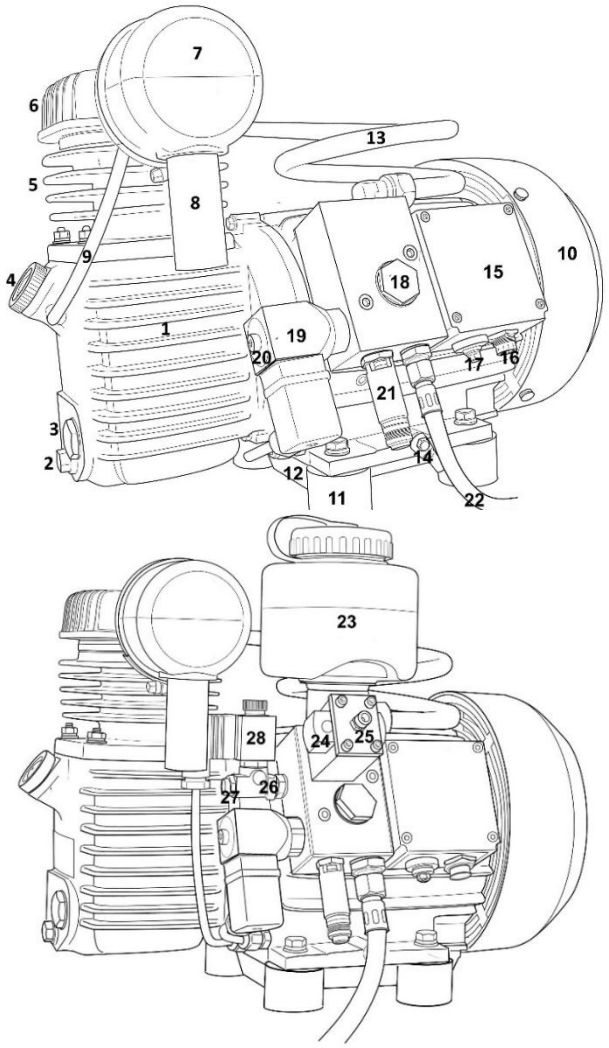
The compressor unit with DC motor and control unit is a compact, powerful unit. This is made up of two main parts, the single-cylinder compressor and the DC motor as the power source.
Furthermore, the following main technical details should be mentioned, which are integrated into the compressor unit and contribute to increased safety and functionality.

[1] Higher temperatures are possible, require sufficient cooling at the compressor
[2] at ambient temperature 20°C, relative humidity 30%, air pressure 1,013 mbar

| General area | Control block | Electrical Machine Area |
|---|---|---|
| ▪ Intake silencer with air filter<br>▪ Tubular Coolers<br>▪ 4 silent blocks for vibration damping<br>▪ Compressed air boiler (construction or delivery on request) | ▪ Solenoid Relief Valve[3]<br>▪ Check valve<br>▪ Pressure switch<br>▪ Safety valve<br>▪ Antifreeze device (installation on request)<br>▪ Silencer for the relief air[3] | ▪ Power Relays<br>▪ Interference suppression device<br>▪ Thermal Guard<br>▪ Undervoltage protection[4]<br>▪ Control voltage independent of the operating voltage<br>▪ Safety protection by circuit board against incorrect switching on from outside the compressor<br>▪ Ensuring a low control current<br>▪ Reclosing lock (approx. 5 sec.) |

In order to ensure electrical connection safety and the corresponding control of the unit, an indicator light outside the device, in the field of vision of the operating personnel, signals the respective operating status.
An integrated swing compensation in the motor reduces vibrations and enables low-noise and wear-resistant operation.

## 2.3 Components of the compressor




| | Fig. No. | Description |
|---|---|---|
| Compressor block | 1 | Crankcase |
| | 2 | Oil drain plug |
| | 3 | Oil check eye |
| | 4 | Oil filler plug |
| | 5 | Cylinder |
| | 6 | Cylinder head |
| | 7 | Air filter cap with air filter |
| | 8 | Intake muffler with foam sleeve |
| | 9 | Crankcase ventilation |
| DC Motor | 10 | Fan cover |
| | 11 | Silent blocks (rubber feet) |
| | 12 | Floor pan with printed circuit board |
| | 13 | Tubular Coolers |
| | 14 | 12/24VDC: Terminal 31 – from 48VDC: (potential-free) ground connection |
| Junction Box | 15 | Junction box cover |
| | 16 | 4-pin socket for control cable |
| | 17 | 12V/24VDC: Terminal 30+<br>from 48VDC: 2-pin connector |
| Control block | 18 | Check valve |
| | 19 | Pressure switch |
| | 20 | Pressure adjustment screw |
| | 21 | Safety valve |
| | 22 | Compressed air line – pneumatic connection with G3/8" |
| | **Additional antifreeze pump** | |
| | 23 | Antifreeze container |
| | 24 | Gate valve summer/winter operation of the antifreeze pump |
| | 25 | Dosing screw antifreeze |
| | 26 | Solenoid Relief Valve |
| | 27 | Noise damper of the relief air |
| | 28 | Solenoid coil |

[3] only in the version with antifreeze pump
[4] 48V compressors are standard WITHOUT undervoltage protection

# 3 Use and Responsibility

**HINWEIS**

The machine is delivered in perfect condition and is only to be used as intended. All instructions and safety regulations in these operating instructions must be observed and observed.

## 3.1 Intended use

The compressor is intended exclusively for the production of compressed air. Any use beyond this is considered not to be in accordance with its intended purpose. The manufacturer is not liable for any damage resulting from this – the risk for this is borne solely by the operator.
Intended use also includes compliance with the commissioning, operating and maintenance conditions prescribed by the manufacturer. The use is only within the performance limits and according to the environmental conditions described.

## 3.2 use contrary to its intended purpose

Incorrect use of the machine can cause personal injury and property damage. Please note the following information:
Without additional compressed air treatment, the compressed air from oil-lubricated compressors is **not suitable**

- for filling breathing air devices/ for breathing air purposes
- for use in the dental sector
- for operations in which compressed air comes into direct contact with food.

**GEFAHR!**

**Compressed air -** Since it is concentrated energy, there is a danger to life.

➢ Never direct **compressed air** at people and animals.

**GEFAHR!**

**Risk of explosion**

➢ The compressor must not be operated in potentially explosive atmospheres. The machine is not EX-protected!

## 3.3 Responsibility of the operator

### 3.3.1 Legal regulations and general information

In general, the laws, safety and accident prevention regulations applicable in the country of operation apply to the use of the compressors. During installation, maintenance and repair, the relevant legal regulations and recognised technical rules must be followed.

For use for private use, it is essential to observe and comply with the safety instructions in these operating instructions. In this case, and especially for all work on electrical components, we recommend consulting and/or carrying out work by qualified personnel in order to avoid personal injury and property damage.

For the commercial use of the compressors, the provisions of the Industrial Safety Ordinance also apply. ( ➢ Review periods)
Determine suitable personnel: Installation, maintenance and repairs to the compressors must only be carried out by suitable qualified personnel (electricians). (Appropriate training and authorization is available.) The operating personnel are also instructed and trained in the use of electrical and compressed air technology.

## 3.4 Environmental protection

The operating and auxiliary materials consumed during the operation of the compressor system as well as replacement parts must be disposed of in accordance with environmental protection regulations.

# 4 Security

## 4.1 Overview of possible sources of danger

The following general list of safety instructions serves to provide an overview of possible sources of danger. Further, specific notes are described in more detail in the corresponding text passages in this operating manual.

| Source of danger | Follow | Recommended actions |
|---|---|---|
| Electricity | Contact with electrically energized components can cause electric shock, burns, or death | Work on electrical equipment only by a trained electrician, or under his supervision |
| Compressed air | The release of components under pressure can result in life-threatening injuries. | Make all components completely depressurized. Refrain from mechanical modifications to pressurized components. |
| Rotating parts | Contact with rotating fan wheel can lead to serious injuries. | Only operate the machine with a fan cover. After maintenance and repair work, the fan cover must be screwed firmly to the motor again |
| Temperature | Touching hot components (cylinder head, pipe cooler) can lead to injuries. | Avoid contact or wear protective clothing. |
| Noise | Noise pollution from compressor block, at a short distance (< 1 m). | Wear hearing protection. Operate the compressor only with a noise damper. (page 3, 2.3, Components of the compressor, Fig. No. 8) |
| Operating materials | Operating materials (oil, antifreeze) can cause damage to health. | Observe the manufacturer's safety regulations. Avoid direct physical contact. |

**HINWEIS**
**Protective equipment**
When working on the compressor, suitable protective clothing must be worn for your own safety. including: protective gloves, goggles, hearing protection, safety shoes, safe work clothes.

**HINWEIS**
**to Conversion and Changes**
Changes and modifications to the compressor can lead to unforeseen hazards. Unauthorized technical changes without consultation with the manufacturer are to be avoided.

## 4.2 Safety signs used

| Safety Signs | Note |
|---|---|
|  | Warning: Hot surface – please only touch with protective gloves! |

## 4.3 Safety devices

At the factory, the following components enable the safe handling of the compressor:

| Component | Function |
|---|---|
| Safety valve | Protects the compressor and the system from an increase in compressed air above the maximum permissible operating pressure. |
| Check valve | Prevents compressed air from flowing back from the vessel to the compressor. |
| Case & Covers/ Fan Cover | Protect against contact with rotating or electrical components. |

**HINWEIS**
**Verification of security elements**
These components must be regularly checked for correct functioning. They may not be altered, removed or circumvented.

# 4.4 Safety instructions

## 4.4.1 General safety instructions

**ACHTUNG!**

**Serious injury and property damage**
Failure to comply with the following measures/requirements can result in serious injuries and damage.

- **The following safety instructions must be checked and adhered to before any work on the compressor.**
- **All work on the compressor may only be carried out by authorized personnel!**
- Ensure that no personnel are working in the vehicle/machine.

**ACHTUNG!**

**The compressor does not have an EMERGENCY STOP switch**
or similar – this is the responsibility of the operator. (The compressor is integrated into other machines as a compressed air supply and is dependent on their electrical safety devices.)

- An emergency stop switch must be installed at the installation site, which also switches off the compressor.

**HINWEIS**

In addition, it is recommended to keep the following in mind:

- Open flames, open lights, flying sparks and smoking are prohibited in the immediate vicinity of the compressor.
- It must be ensured that the compressor can suck in clean air without harmful additives.
- It is forbidden to use the tube cooler as a carrying handle, as it can lead to the rupture of the cooling tube and thus to extreme loss of performance and injuries.

## 4.4.2 Working on live components

The following conditions must be **checked before any work** is carried out in order to avoid electric shock, burns or death:

***Prerequisites***

- ✓ **Work on electrical components should only be carried out by an authorised electrician.**
- ✓ Switch off/disconnect mains voltage, safe against reconnection and check that there is no voltage.
- ✓ Check that the potential-free contacts are free of voltage.

## 4.4.3 Working on the compressed air system

Compressed air and pressurized components can lead to serious injury or death due to the forces released when opened or released. After switching off, the compressor is still pressurized from the compressed air network to the check valve.
**Depressurize the compressor!**

***Prerequisites***

- ✓ **All work on components under pressure may only be carried out by a specialist/at the manufacturer's site. (this concerns: safety valve, check valve, pressure switch, compressed air hose, solenoid valve)**
- ✓ Disconnect the machine from the compressed air network. (if necessary by shut-off valves)
- ✓ Completely depressurize all pressurized components. (e.g. drain pressure vessel)
- ✓ Check the freedom from pressure using suitable measuring equipment (e.g. pressure gauges).
- ✓ The machine is out of order.
- ✓ The mains device is switched off, secured against reconnection and the absence of voltage has been checked.
- ✓ Compressor has cooled down.

# 5 Installation and assembly

## 5.1 Safety instructions for the installation site

**ACHTUNG!**

### Serious injury and property damage

Failure to comply with the safety instructions can result in serious injury and damage.

➢ All notes from the sections "Use and Responsibility" and "Security" have been read and implemented.

**GEFAHR!**

### Risk of explosion

➢ The compressor must not be operated in potentially explosive atmospheres. The machine is not EX-protected!

The following information should be observed for a suitable location:

- Fire, open lights and smoking are to be avoided.
- Do not store flammable materials near the compressor.
- Keep suitable fire extinguishing agent ready for use.
- Comply with required environmental conditions. This includes:
  - Maintain permissible ambient temperature and humidity
  - Observe the composition of the ambient air, i.e. clean, without harmful components (dust, sand, chemical gases, ...)
  - no wet or humid environment.

## 5.2 Installation conditions

**HINWEIS**

The following installation conditions are important prerequisites for trouble-free operation of the compressor. Ignoring these instructions can cause serious damage in the long run and lead to failure.

**VORSICHT!**

### DO NOT tilt the compressor.

Tilting and incorrect storage can cause property damage due to internal contamination with the compressor oil.

➢ The compressor in case of need (assembly, repairs, ...) **only place on the fan cover.**

✓ Soil is horizontal, firm and load-bearing according to the mass.
✓ Compressor must be firmly screwed to the site.
✓ The rubber buffers supplied are to be used for installation.
✓ Sufficient cooling must be provided.
✓ When installed in a vehicle, the airstream must not act against the direction of cooling. (Cooling direction acts from the fan hood to the compressor block)
✓ Ensure accessibility to carry out all work on the machine safely.
✓ The oil level eye must be clearly visible.
✓ The air supplied must be clean and dry. If necessary, bring in air supply by means of an elastic hose line from one place, without water and dirt admixtures.

## 5.3 Connection to the compressed air network

**GEFAHR!**

### Compressed air

Compressed air and pressurized components can lead to serious injury or death due to the forces released when opened or released.

➢ All safety instructions are observed. (page 6)

*Implementation*
- A flexible compressed air line is to be used.
- Lay the compressed air line with a slight slope towards the boiler.
- The compressed air outlet on the compressor is located below the control block via a double nipple, connection thread G3/8". A compressed air line is supplied at the factory for connection to the compressed air system.

*Prerequisites*
✓ The compressor is permanently mounted in the installation location.
✓ Compressor is out of service and secured against restarting.

## 5.4 Connection to the power supply

**GEFAHR!**

### Danger to life due to electrical voltage!

➢ All safety instructions are observed. (page 6)
➢ Carry out the necessary protective measures in accordance with the regulations (including accident prevention regulations).

**ACHTUNG!**

### The compressor does not have an EMERGENCY STOP switch

or similar – this is the responsibility of the operator. (The compressor is integrated into other machines as a compressed air supply and is dependent on their electrical safety devices.)

➢ An emergency stop switch must be installed at the installation site, which also switches off the compressor.

*Information* The type of current, voltage and polarity of the power supply must match the information on the compressor's nameplate.
The fuses installed in the compressor can be found in the spare parts list.

*Implementation*
1. Loosen contacts on the compressor.
2. Select and design supply line cross-sections and fuses according to the table.
3. Screw and check the contacts. The tightening torque for the electrical connections is max. 3 Nm (KC100) or 10 Nm (KC200)

*Prerequisites*
✓ The compressor is permanently mounted in the installation location.

**HINWEIS**

### Ground contact

The compressors from 48V DC are manufactured potential-free. Nevertheless, we recommend the integration of the intended ground connection to the vehicle (e.g. via ground band, or similar). See page 3 Section 2.3 Components of the compressor – Fig. 1, item no. 14
This enables the dissipation of unforeseen fault currents of the compressor in the event of a malfunction.

**Selection of the supply cable cross-sections and fuse for the motor connection:**

| Compressor Type | Fuse Plus Supply Line | Cross-section supply line < 1m | Cross-section supply line > 1m |
|---|---|---|---|
| KC100/1.21 - 12 V | 80 A | 10.0 mm² | 16.0 mm² to max. 1.6 m |
| KC100/1.21 - 24 V | 40 A | 6.0 mm² | 10.0 mm² to max. 1.7 m |
| KC200/1.21 - 12 V | 150 A | 25.0 mm² | 35.0 mm² to max. 1.4 m |
| KC200/1.21 - 24 V | 80 A | 10.0 mm² | 16.0 mm² to max. 1.6 m |
| KC100/1.21 - 48 V | 16 A | 2.5 mm² | 4.0 mm² to max. 1.6 m |
| KC100/1.21 - 80 V | 10 A | 1.5 mm² | 2.5 mm² to max. 1.7 m |

| | | | |
|---|---|---|---|
| KC200/1.21 - 48 V | 40 A | 2.5 mm² | 4.0 mm² to max. 1.6 m |
| KC200/1.21 - 80 V | 20 A | 2.5 mm² | 4.0 mm² to max. 2.0 m |
| KC100/1.21 - 110 V | 10 A | 1.5 mm² | 2.5 mm² to max. 1.7 m |
| KC200/1.21 - 110 V | 16 A | 2.5 mm² | 4.0 mm² to max. 2.5 m |

**HINWEIS**
**Undervoltage protection**
The motor with integrated circuit board has undervoltage protection and a time-delayed reclosing lock of about 10 seconds. (except for customer-specific changes)[5]

### 5.4.1 Undervoltage protection

Trouble-free operation of the compressor requires an operating voltage in the range of -10 % to + 20 % of the nominal voltage[5]. The following disturbances occur when the operating voltage is not properly applied:

- The compressor won't turn on. = Operating voltage below 10% of the rated voltage.
- The compressor switches off automatically. = Operating voltage below 25% of the rated voltage.
- The compressor switches off automatically and can only be switched on again after switching off the control switch and waiting for about 10 seconds. = short interruption of the operating voltage or the control line (loose contact).

## 5.5 Connecting the control switch

**GEFAHR!**

**Danger to life due to electrical voltage!**

➢ All safety instructions are observed. (page 6)

To monitor the machine, use the switch with indicator light supplied. In order to ensure safe operation of the compressor, the connection must be made after the connection circuit of the manufacturing company, or a compatible circuit confirmed by the manufacturing company. Any modification of the circuit during the warranty period will result in an immediate loss of warranty claims. (see chapter 10.Warranty)

**HINWEIS**
**The compressor must be able to be switched off at all times!**
The switch must be placed in the field of vision of the operator.

**The exact connection can be found in the connection diagram in the appendix.** (page 21)
The supply line cross-sections and safeguards are to be designed in accordance with the following table.

| | Fuse supply cable | Cross-section supply cable |
|---|---|---|
| 61 (Green) Control Voltage Supply | 2 A | 0.25 mm² |
| KK (Yellow) Compressor Control | - | 0.25 mm² |

### 5.5.1 Function of the control switch

| Switch variant | Operation | Doesn't light up | Glows dark/ glows | Shines brightly |
|---|---|---|---|---|
| Standard compressors KC100/1.21- ; KC200/1.21 – 12V/ 24V DC/ 48V DC (Control Switch) | Move the toggle switch to the appropriate position. | Compressor is out of order | Compressor is in normal operation. | Fault message – the compressor switches off |
| Compressors with S2/circuit; KC200/1.221 (Indicator light) | Without touch/tilt function | Compressor is in normal operation. | - | Fault message – the compressor switches off |
| Compressors from 80V DC (large Siemens switch) | Red on/off button | Compressor is out of order | Compressor is in normal operation. | Fault message – the compressor switches off |

### 5.5.2 Possible causes of the fault message

- Overtemperature - motor switches off automatically and can only be switched on again after cooling down (approx. 45 min.)
- Interruption of the power supply to the supply line or control line (loose contact)
- Undervoltage (see page 9, 5.4.1 Undervoltage protection)

After a malfunction or the warning light comes on, the cause must be analysed and rectified as quickly as possible so that major consequential damage can be avoided as a precautionary measure.

[5] 48V compressors are standard WITHOUT undervoltage protection

# 6 Commissioning

**A C H T U N G !**

### Serious injuries and damage

Failure to comply with the safety instructions can result in serious injury and damage.

- All instructions from the section "Use and safety" and "Ensuring safety" have been read and implemented.
- All commissioning work must only be carried out by authorised personnel.
- The machine is fully assembled and equipped with all attachments (fan cover!).

**Observe and implement the following measures before commissioning.**

### Check the compressor oil level

*Prerequisites* ✓ The machine is out of order.

*Result* The oil level can be read from the oil sight glass.
**Oil level within the marking** (red circle/star): no need for action.
**Oil level above the marking/ there is no air bubble to be seen**: drain excess oil.
**Oil level has sunk to the lower edge of the marking/star, or can no longer be seen in oil sight glass**: Absolutely Top up the oil. (page 12, 7.2.2 Refill compressor oil)
**Milky colouring in the oil sight glass**: Absolutely Change the oil. (This is a sign of poor operational reasons. – Oil-water mixture) (page 13, 7.2.3 Changing the compressor oil)

## 6.1 Putting the compressor into operation

*Information* During the first few hours of operation, check the machine for malfunctions.
**After approx. 50 hours of operation, check all electrical connections and check the compressor oil level**

*Implementation* Turn on the compressor:
1. power supply. (Put the vehicle into operation.)
2. switch on the compressor using the control switch supplied.
3. The indicator light indicates the normal operating status.
4. The compressor starts as soon as the mains pressure is lower than the factory preset start-up pressure. (approx. 7 bar)

Turn off the compressor:
1. Switch off the compressor using the control switch supplied.
2. Interrupt the power supply and secure it against reconnection.

*Prerequisites*
- ✓ All instructions for installation and assembly were observed and implemented. (page 7, 5. Installation and assembly)
- ✓ All safety instructions are observed. (page 6)
- ✓ No staff is working on the machine.

*Result* After successful commissioning, the compressor is in two operating states.
- Load running: Compressor motor running, compressor block conveys compressed air.
- Ready to start/idle: The compressor motor is at a standstill, no compressed air is pumped, machine is ready for operation.

The pressure switch automatically switches between these two operating states according to the pressure setting.

*Compressor without function?*
- ✓ Check the power supply on the machine. (Please note notes on undervoltage)
- ✓ control electrical connections.
- ✓ Control print settings.
- ✓ Check the connections of the 4-pin connector

## 6.2 Adjust pressure

*Information* Depending on the compressed air requirement, the compressor system is automatically controlled by a pressure switch. After the first switch-on, the pressure switch takes over the switching of the compressor on and off, according to the set pressure limits. (see table factory pressure switch setting

*Implementation*
1. Put the compressor into operation.
2. Vary the pressure setting using the adjustment screw (hexagon socket, M5) on the supplied pressure switch. (Arrows on the pressure switch indicate the direction of rotation – arrows can be seen on the compressor side)
   - Switch-on pressure is to be increased:
     Turn the screw to the right (away from the compressor)
   - Switch-off pressure is to be increased:
     Turn the screw to the left (towards the compressor)

3. Control print settings.

*Prerequisites*
- ✓ The pressure switch is mounted on the compressor or directly connected to the compressor's compressed air supply.
- ✓ The compressor is running and the pressure switch is pressurized.

*Material* Pressure gauge to control pressure setting

**HINWEIS**

**The maximum operating pressure of 10 bar must not be exceeded.**
From an operating pressure of 11 bar, the safety valve is triggered to protect the compressor system from damage. In this case, the pressure switch must be readjusted immediately according to the permissible pressure limits.
If the pressure adjustment of the pressure switch triggers the safety valve and the fault is not corrected, the machine will go into a permanent load run. The result is considerable material damage to the compressor due to excessive stress on the components.

**Factory Pressure Switch Adjustment**

| Max. operating overpressure of the system | Preset switch-off overpressure | preset switch-on pressure |
|---|---|---|
| 10 bar | 8 – 9 bar | approx. 7 bar |

## 6.3 Adjusting the antifreeze pump

### Switching between summer and winter operation

*Information* The compressor unit is optionally equipped with an antifreeze pump, including antifreeze tank. The pump is switchable for winter and summer operation of the compressor. Positioning of the pump gate valve see Fig. No. 24, page 3, 2.3 Components of the compressor

*Implementation* **Blue** – winter operation: Push to the right – blue dot can be seen.
**Red** – summer operation: Push to the left – red dot can be seen.

*Prerequisites* ✓ **Compressor is out of order.**

*Material* Commercially available antifreeze for compressor systems or compressed air and brake systems (e.g. Papan Sofro antifreeze).

### Setting the flow rate of the antifreeze

*Information* The pump is set to the minimum flow rate of the antifreeze. Depending on the weather conditions, the pump can be adjusted for a greater delivery of the antifreeze.
Positioning of the dosing screw see Fig. No. 25, page 3, 2.3 Components of the compressor

*Implementation*
1. Loosen the locking nut.
2. Adjust the set screw (hexagon socket, M6): Set screw reacts sensitively, make a half turn step by step
   Turn the screw outwards to increase the flow rate.
   Turn the screw inwards to reduce the flow rate.
3. Tighten the lock nut again.
4. Put the compressor into operation and control the dosage. The change in the flow rate only occurs after three to four cycles. Readjust if necessary and repeat steps 1 – 4.

*Prerequisites* None

*Material* Commercially available antifreeze for compressor systems or compressed air and brake systems (e.g. Papan Sofro antifreeze).

# 7 Maintenance

## 7.1 Regular maintenance work

The table gives an overview of the required maintenance work. Steps that can be carried out by the operator of the machine are described in more detail on the following pages. For all other maintenance work, a specialist company or the company KOCI must be commissioned.

| Maintenance work | Interval | Note |
|---|---|---|
| Check the oil level | at least every 6 months | |
| Perform oil change | Annually, or after 500 h | |
| Clean air filter/foam sleeve | 500 h | with heavily polluted intake air also more likely |

| | | |
|---|---|---|
| Air filter/foam sleeve replacement | at least every 2 years | with heavily polluted intake air also more likely |
| Check the fan cover (attachment and damage) | 500 h | |
| General overhaul | 10,000 h | in a specialist workshop / at the manufacturer |
| Clean cylinder head & valve plate | 2,000 h, at the latest every 2 years | in a specialist workshop / at the manufacturer |
| Renewing deep groove ball bearings | 10,000 h<br>5,000 h<br>at least every 3 years | In the course of a general overhaul<br>at high ambient temperature (40°C) |
| Cleaning engine interior | 1,500 h | In a specialist workshop/at the manufacturer's; Visual inspection of carbon brushes |
| Checking carbon brushes | 1,500 h | In the course of cleaning the engine interior |
| Bleeding the safety valve | Occasionally | Avoids sticking of the valve seat. |
| Drain condensation in the compressed air tank | daily | |

h = Operating hours

**HINWEIS**

In the event of unfavourable operating conditions (high operating temperature, high number of load changes, heavily contaminated intake air/dust, outdoor use, etc.), maintenance work must be carried out more frequently.

## 7.2 Carrying out maintenance work

The steps and instructions described below are for the care and maintenance of the compressor and must be read before commissioning. The corresponding maintenance intervals can be found in the table in the section "Regular maintenance work".

### 7.2.1 Check the compressor oil level

*Result* The oil level can be read from the oil sight glass.
**Oil level within the marking** (red circle/star): no need for action.
**Oil level above the marking/ there is no air bubble to be seen**: drain excess oil.
**Oil level has sunk to the lower edge of the marking/star, or can no longer be seen in oil sight glass**: be sure to top up the oil.
**Milky colouring in the oil sight glass**: be sure to change the oil. (This is a sign of poor operational reasons. – Oil-water mixture)

*Prerequisites*
- ✓ The machine is out of order.

### 7.2.2 Refill compressor oil

*Implementation* **Oil level has sunk to the lower edge of the marking/star, or can no longer be seen in oil sight glass**: be sure to fill up the oil:
1. Remove the oil filler neck.
2. Top up compressor oil to the top of the mark.
3. Check the oil filler neck seal.
4. Install the oil filler neck.
5. Switch on the machine, check the oil level after about 2 minutes and top up the oil if necessary.
6. Switch off the machine and perform a visual inspection for leaks.

*Prerequisites*
- ✓ The machine is out of order.
- ✓ All safety instructions are observed. (page 6)
- ✓ Machine has cooled down.

*Material* Engine oil SAE5W30

**VORSICHT!**

**Damage caused by incompatible types of oil and contamination!**

- ➢ Never mix different types of oil.
- ➢ Only add oil of the same type that is already present in the compressor.
- ➢ When refilling the oil, use a sieve or the original can with an integrated sieve.

## 7.2.3 Changing the compressor oil

*Implementation*

**Drain compressor oil:**

1. Prepare the oil collection container.
2. Remove the oil drain plug and collect all the oil in the container.
3. Check the oil drain plug seal for damage and install the oil drain plug.

**Refill compressor oil:**

1. Fill in new compressor oil to the top edge of the red marking.
2. Check the oil filler neck gasket and install the oil filler neck.
3. Switch on the machine, check the oil level after about 2 minutes and top up the oil if necessary.
4. Switch off the machine and perform a visual inspection for leaks.

*Prerequisites*

- ✓ The machine is out of order.
- ✓ The machine is in the operating warm state.
- ✓ All safety instructions are observed. (page 6)

*Material*

Engine oil SAE5W30
Oil collection container

**ACHTUNG!**

**Risk of burns due to hot components and hot compressor oil.**

➢ Wear protective clothing (gloves & long sleeves).

**HINWEIS**

The waste oil must be disposed of in accordance with the applicable environmental protection regulations.

## 7.2.4 Clean/Replace Air Filter

*Implementation*

1. Loosen the tension band (4).
2. Remove the air filter cap (3).
3. Remove the air filter insert (1) and foam sleeve (2).
4. Carefully blow out the air filter insert (1) and foam sleeve (2) with the help of compressed air.
5. Clean the air filter cap (3) and sealing surfaces.
6. Insert the air filter insert (1) and foam sleeve (2) back into the air filter cap (3) and attach it to the cylinder head (5) with a tension band (4).
7. Align the air filter cap (3) with the intake opening facing downwards.




*Prerequisites*

- ✓ The machine is out of order.
- ✓ All safety instructions are observed. (page 6)
- ✓ Machine has cooled down.

*Material*

Compressed air for blowing out
Spare part (if required)

## 7.2.5 Maintenance of the bearings and carbon brushes of the DC motor

*Remarks*

**Maintenance and repair work on the engine must only be carried out by trained personnel or KOCI.**
The ball bearings are permanently lubricated. Re-lubrication is not required.
In the course of an inspection and general overhaul, ball bearings, carbon brushes, commutator and carbon dust deposits must be checked.

*Prerequisites*

- ✓ The machine is out of order.
- ✓ All safety instructions are observed. (page 6)
- ✓ Machine has cooled down.

*Material*

Spare part (ball bearings, carbon brushes - if needed)

### 7.2.6 Safety valve inspection

*Information* If the maximum permissible operating pressure (10 bar) is exceeded in the pressure vessel, the safety valve opens to protect the compressor system and the connected compressed air consumers and blows off the excess air. (at approx. 11 bar) The safety valve must be operated occasionally, but at least once a year, to prevent the valve seat from sticking.
The knurled screw on the lower part of the valve is closed at the factory.

*Implementation* Turn the safety valve knurled screw counterclockwise until compressed air blows off. Then turn the knurled screw back again.

*Prerequisites*
- ✓ The machine was switched off during the load run. – The compressed air tank is pressurized.
- ✓ All safety instructions are observed. (page 6)

*Material* Spare part (if required)

*Safety valve does not blow off?* Defective safety valve must be replaced immediately by qualified personnel/KOCI

**ACHTUNG!**

**Risk of burns due to compressed air when the safety valve is blown off.**

**Hearing damage due to noise when blowing off the safety valve.**

- ➢ Wear protective clothing (gloves & long sleeves).
- ➢ Wear hearing and eye protection

### 7.2.7 Servicing the compressed air tank

*Information* The condensation water accumulated in the pressure vessel must be emptied daily through the condensation drain valve.
Leaking pipe fittings can cause considerable pressure losses.
Occasional retightening of the pipe fittings is necessary to avoid leakage losses.

*Material* Condensate collection tank

**HINWEIS**

In accordance with the applicable national regulations, pressure vessels must be inspected at regular intervals.
The permissible wall thickness of the entire compressed air tank must not be undercut.

## 7.3 Fasteners & Tightening Torques

| Dimension | Screw | Qty | Installation | Torque in Nm |
|---|---|---|---|---|
| M6x20 | Stud screw | 4 | Cylinder | 15 |
| M6x40 | Hexagon socket | 4 | Cylinder head | 15 |
| M8x65 | Hexagon + Retaining Ring | 1 | Crank flange | 30 |
| M5x25 | Stud screw | 4 | Bearing Shield/ Crankcase | 5 |
| M5x25 | Hexagon | 4 | Bearing Shield Fan Side | 5 |
| M6x16 | Hexagon socket | 1 | Fan blades | 3 |
| M5x8 | Lens head | 4 | Fan cover | 4 |
| M5x40 | Hexagon socket | 2 | Bottom pan | 2 |
| M8x20 | Hexagon | 4 | Rubber Bumper | 20 |
| M4x45 | Hexagon socket | 4 | Junction box KC100 | 3 |
| M4x75 | Hexagon socket | 4 | Junction box KC200 | 5 |
| M5x10 | Hexagon | 1 | E-connector -31 KC100 | 3 |
| M8x20 | Hexagon | 1 | Electrical connection -31 KC200 | 10 |
| M4x18 | Hexagon socket | 2 | FSMP container holder | |
| M4x60 | Hexagon socket | 4 | FSMP End Plate | |
| M6x20 | Hexagon socket | 1 | FSMP Dispensing Screw | |

| | | | | |
|---|---|---|---|---|
| M12x1 | Grub screw | 1 | FSMP Dosing Piston | |
| G 1/2 | Oil drain plug | 1 | Crankcase | 15 |
| G 1/4 | Oil level eye | 1 | Crankcase | 2 |

FSMP... Antifreeze pump

## 7.4 Performance Review

The effective performance of the compressor can be checked by measuring the filling time:

*Implementation*
1. Turn off the compressor.
2. Close the pressure vessel outlet.
3. Blow off the container pressure via the condensate drain valve and close it again.
4. Turn on the compressor and at the same time measure and compare the filling time to a pressure, according to the table.

*Material* Measuring equipment (stopwatch and pressure gauge)

Approximate filling time in seconds for 10 l compressed air tank at a uniform tension
(1 V deviation is approx. 100 rpm):

| Type | 3 bar | 6 bar | 8 bar | 10 bar |
|---|---|---|---|---|
| KC100/1.21 - 12V/ 24V | 30 | 60 | 90 | 120 |
| KC100/1.21 - 48V/ 80V | 28 | 55 | 80 | 115 |
| KC200/1.21 - 12V/ 24V | 20 | 35 | 50 | 65 |
| KC200/1.21 - 48V/ 80V | 20 | 35 | 50 | 65 |

# 8 Cause of malfunction and remedy

**A C H T U N G !**

### Serious injuries and damage

Failure to comply with the safety instructions can result in serious injury and damage.

➢ All safety instructions are observed. (page 6)

| Disruption | possible cause | Troubleshooting |
|---|---|---|
| Compressor is not running. | Engine is connected incorrectly. | Check the motor connection. |
| | Fuse has responded and turned off the compressor. | Check the motor connection and fuse. Fix the cause. |
| | Microswitch in the pressure switch defective. | Replaced pressure switches. |
| | Circuit board defective. | PCB. |
| | Relay / motor contactor defective. | Relay / motor contactor replaced. |
| | Motor defective – bearing damage or winding damage. | Contact KOCI / specialist workshop. |
| Compressor starts up hard, or slowly. | Bearing damage. | Contact KOCI / specialist workshop. |
| | Piston stuck due to lack of oil or wrong oil. | Check the oil level, change the oil if necessary. |
| | Oil level too high. | Check the oil level, drain the oil if necessary. |
| | Disruption of the power supply. | Check the power supply. It is possible that the cross-section of the pipeline is too small.<br>Line corroded/broken. |
| | Air filter contaminated | Clean or replace the air filter. |
| Compressor is running hot. | Ambient temperature that is too high. | Lower the ambient temperature/cool more. |
| | Fan can not suck freely. | Provide free supply air at the fan. |
| | Fan cover contaminated/ no longer consistent. | Clean the fan cover and check it regularly. |
| | Valve plate between cylinder head and cylinder leaking, dirty or damaged. | Contact KOCI. |
| Compressor runs constantly, final pressure is not reached. | Air filter dirty. | Maintain or replace air filters. |
| | Valve plate between cylinder head and cylinder leaking, dirty or damaged. | Contact KOCI. |
| | Leakage losses at the compressor. | Seal leaks. Replace components. |
| | Leakage losses in the compressed air system of the plant. | Check and seal possible leaks. |
| | Compressed air demand is higher than the machine's delivery quantity. | Use a larger machine. |
| | Check valve does not close. | Clean or replace check valve. |
| | Vent valve[6] does not close. | Check the coil, replace the bleed valve if necessary. |
| Engine sometimes switches off and can be switched on again after a short time. | Loose contact, loose, corroded or damaged connections | Checking the control system faults |
| | Undervoltage protection and reclosing lock were triggered. – Power supply too low | Check the electrical system in the vehicle! Switch off the control switch and switch it on again after approx. 10 seconds. |
| Compressor shifts too often. | Compressed air tank filled with condensate. | Drain condensate. |
| | Hysteresis of the pressure switch too low. | Replace the pressure switch. |
| Compressor turns on and off sporadically. | Pressure switch, or its contacts defective. | Replaced pressure switches. |
| | Circuit board defective. | PCB. |
| Air escapes from the vent valve during the rest period. | Vent valve does not close.<br>Solenoid defective. | Replace bleed valve. |
| Air escapes from the check valve during the runtime. | Check valve does not close. | Replace check valve. |

[6] Only in the version with antifreeze pump

| Disruption | possible cause | Troubleshooting |
|---|---|---|
| whistling noises at the cylinder head. | Loosen the screws on the cylinder head. | Tighten the screws. |
| | Gasket defective. | gasket. |
| Safety valve blows off even though the shutdown pressure has not yet been reached. | Valve seat dirty. | Check the safety valve. |
| | Valve spring in the safety valve defective. | Replace the safety valve. |
| Piston rings wear out or damaged after a short time. | contaminated oil. | Carry out an oil change. |
| | | Clean the air filter more regularly. Install air filters with higher filter fineness. |
| Warning light does not light up | Check backup | Changing the fuse, bending contacts and fuse holders |
| | no voltage from the alternator | Check alternator |
| | wrong connection | electrical system in the vehicle. |
| Indicator light shines brightly | Undervoltage protection tripping | Check operating voltage at terminal 30 relay (+) against terminal 31 (-) on the motor |
| | | In case of voltage drop at the supply line, use a stronger cable cross-section. |
| | Interruption of the supply line, or control line.- Loose contact | Check supply lines. |
| Indicator light shines brightly. | Temperature sensor has triggered. | Ambient temperature is too high (max. 50°C), or insufficient cooling. |
| Engine gets very hot during prolonged operation, switches off and can only be switched on again after a long waiting time (approx. 45 min..) | | |
| When the compressor has switched off, air escapes from the air filter cap. | Check valve does not close. | Contact KOCI. |

In the event of errors or malfunctions of your device that **are not** listed in this operating manual or that no troubleshooting is successful, please contact us directly. We are happy to help.

# 9 Decommissioning, transport and disposal

## 9.1 Decommissioning

Step-by-step procedure for decommissioning the compressor:

*Prerequisites*
- ✓ The compressor is switched off by means of a switch and has no function.
- ✓ All the information from Chapter 4 Safety has been observed and implemented

*Implementation*
1. Switch off/disconnect the power supply (supply voltage and control voltage), secure it against reflection switching and check that it is not energized (including potential-free contacts).
2. Disconnect connection contacts on the junction box and/or housing.
3. Disconnect the bayonet fitting of the control cable.
4. Depressurize the compressor system and check that it is free of pressure (in the case of compressors with control block, optionally open the safety valve to check).
5. Loosen the compressed air connection on the control block and remove the compressed air line.
6. Loosen the screw connections of the vibration dampers.
7. Remove the compressor from the installation site.

*Material*
- ✓ Measuring equipment for voltage testing
- ✓ Pressure gauge for pressure testing

## 9.2 Storage

NOTE

Moisture leads to corrosion damage to the surfaces of the compressor block.
Frost can damage seals and valve diaphragms.

*Prerequisite storage location*
- ✓ No moisture must penetrate the compressor.
- ✓ The formation of condensation must be avoided.
- ✓ The storage temperature must not fall below 0°C.

## 9.3 Packaging

### 9.3.1 Disposal of packaging

The packaging supplied must be disposed of in accordance with the attached form. Deviating actions are at the sole responsibility of the end consumer.

### 9.3.2 Packing the compressor for shipping

*Prerequisites*
- ✓ The compressor has been taken out of service and cooled down.
- ✓ Packaging material complies with Regulation (EU) 2025/40 (from 12.08.2026)
- ✓ Shipping is preferably carried out by a freight forwarder in order to avoid transport damage by parcel services.

*Implementation*
- ✓ Attach the compressor to a wooden pallet
- ✓ If necessary, protect the compressor from moisture during transport, e.g. with cardboard or foil
- ✓ Make sure that the package and packaging are sufficiently stable to avoid damage during transport.

*Material*
- ✓ Wooden pallet that meets the shipping requirements of a freight forwarder (can be driven under with a pallet truck)
- ✓ Cardboard or foil

## 9.4 Transport

In order to avoid damage during transport, the following instructions must be observed:

- The compressor must only **be transported upright** and must not tip **over during transport**.
- No oil must leak from the compressor during transport.
- The compressor is preferably transported by freight forwarder. The use of a parcel service provider is not recommended by the manufacturer. Experience has shown that the risk of transport damage caused by parcel services is many times higher.

*Prerequisites*
- ✓ All instructions on packaging have been taken into account and implemented.

NOTE – **Delivery with parcel service**

The standard packaging of the compressors is designed for shipping by freight forwarder. If the delivery is made on behalf of the customer (EXW, FCA), we assume no liability for transport damage caused by the handling of the parcel service provider.
If you do not have the option of hiring a freight forwarder, we will be happy to do this for you.

## 9.5 Disposal

*Prerequisites*
- ✓ The compressor has been taken out of service and cooled down.
- ✓ All instructions for decommissioning were taken into account and implemented.

*Implementation*
1. Disassemble and remove the compressor from the installation site.
2. Drain the compressor oil from the machine.
3. Remove the antifreeze from the container. (if available)
4. Remove dirty air filters and foam sleeve.
5. hand in the compressor and its removed components to an authorised waste disposal company.



NOTE

Dispose of components contaminated with compressor oil in accordance with the applicable environmental directive.

# 10 Warranty

Warranty processing is carried out on the legal basis of the German Civil Code (BGB). Please also note the following business policies:

- The warranty work is generally only carried out in the company's own workshop area, as the units are classified as easily transportable.
- We reserve the right to determine how and by whom defects or damage are to be repaired.
- The warranty is limited exclusively to the compressor unit and includes material and manufacturing defects.
- Costs incurred as a consequence of the failure of the compressor are not covered.

**We do not assume any warranties for:**

- Unlawful use (see chapter "Unlawful use")
- improper operating conditions at the installation site. (see chapter "Installation and commissioning")
- Third-party interference within the warranty period.
- arbitrary restructuring and changes.
- improper maintenance and repair.
- burnt windings or power switching relays if they have been destroyed by operation without undervoltage protection.

**Defects that are subject to natural wear and tear are not taken into account. The following are considered wear parts:**

- Pressure switch
- Air filter & foam sleeve
- Fuses

Furthermore, the tube cooler is excluded from the warranty if it can be proven that it has been used as a carrying handle. The resulting leakage at the cylinder head and/or control block leads to wear on the commutator and carbon brushes. These consequential damages are also excluded from the warranty obligation.

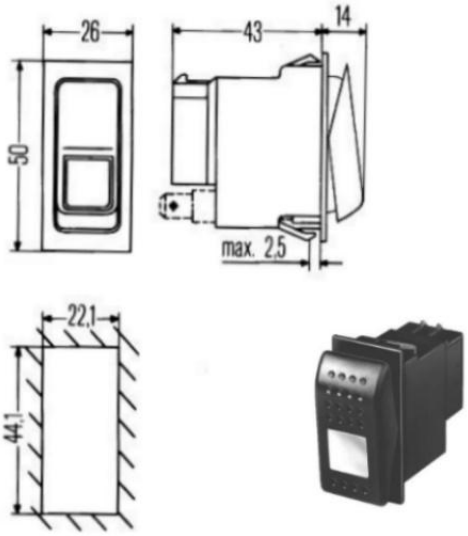
.

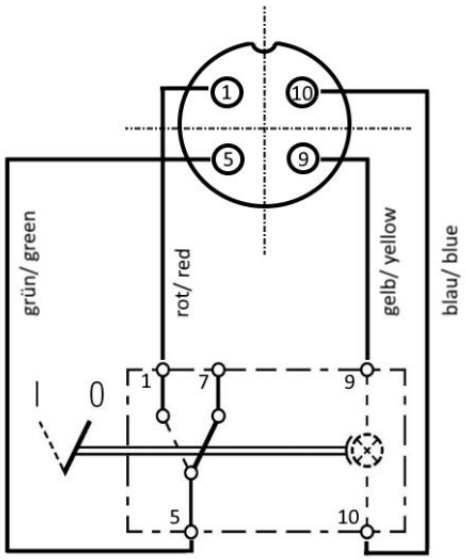
# 11 Appendix

## 11.1 Connection of the control cable by means of toggle switch

Connection of the 4-pin socket to the junction box for connection to the included toggle switch.

For compressors up to 24V DC - included control switch & 4-pin socket - view from the compressor

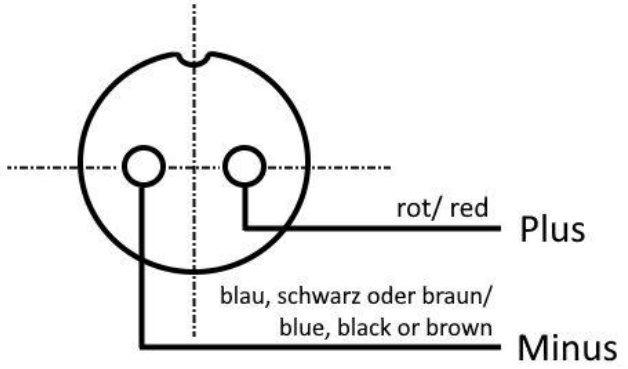



| Number | Color | Contact Now | |
|---|---|---|---|
| 1 | Red | D | Feed to control switch when alternator indicator light cable is not in use. |
| 5 | Green | 61 | Feeding of the control voltage of alternator indicator light cables.<br>Or from the switch ignition lock to switches, if alternator indicator light cables are not available. |
| 7 | - | - | Blind / without function |
| 9 | Yellow | KK | Compressor control.<br>Dark glow in normal operation. Brightly shining in the event of a fault |
| 10 | Blue | 31a | Dimensions for indicator light, or similar |

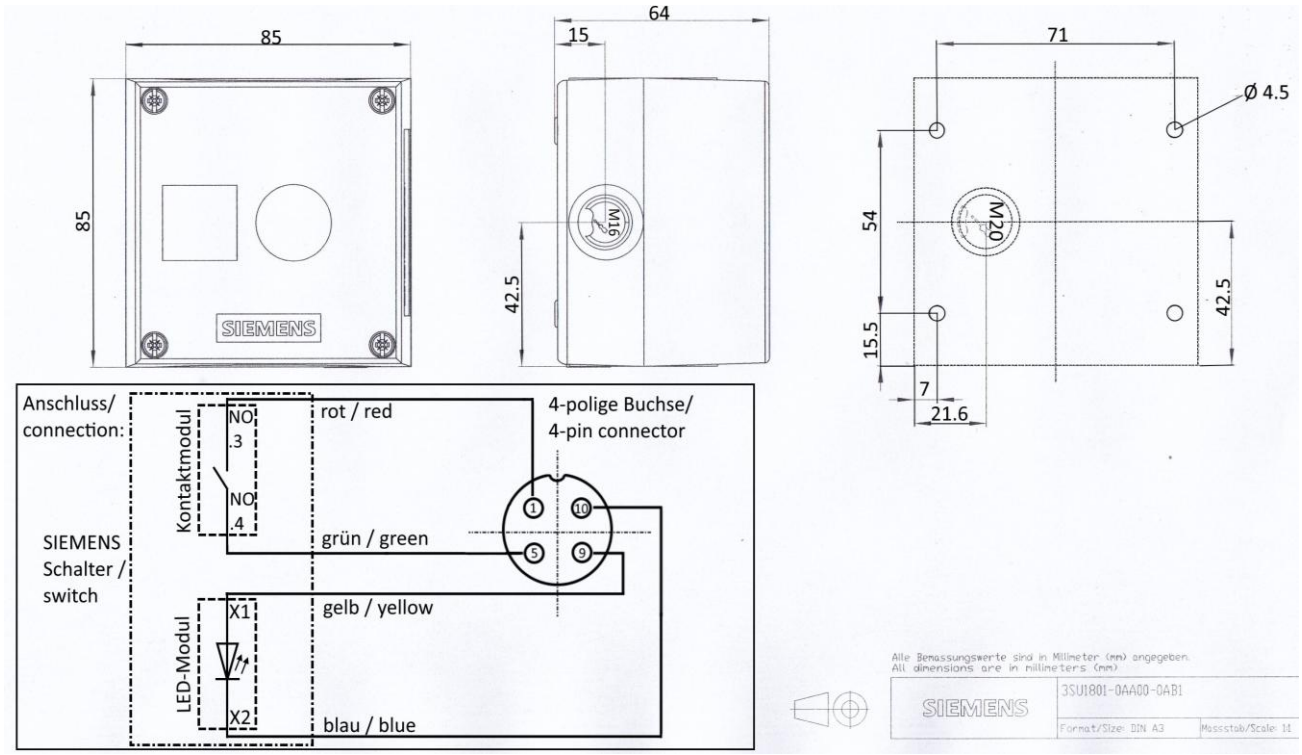
## 11.2 Connection of the main supply line from 48 DC

Connection of the main supply cable by means of the 2-pin plug on the junction box.



## 11.3 Connection of the control line SIEMENS switch

by means of SIEMENS switches:




| Number | Color | Contact Now | |
|---|---|---|---|
| 1 | Red | NO .3 | Feed to control switch when alternator indicator light cable is not in use. (D) |
| 5 | Green | NO .4 | Feeding of the control voltage of alternator indicator light cables.<br>Or from the switch ignition lock to switches, if alternator indicator light cables are not available. (61) |
| 9 | Yellow | X1 | Compressor control. (KK)<br>Dark glow in normal operation. Brightly shining in the event of a fault |
| 10 | Blue | X2 | Dimensions for indicator light, o.a. (31a) |