BAUER KOMPRESSOREN

Operating manual

Compressor unit

Breathing Air

Compact-Line

JUNIOR II-B
JUNIOR II-E
JUNIOR II-W
OCEANUS-B
OCEANUS-E
OCEANUS-W

Table of contents

1 Preface

1.1 About this manual

Depending on the version, the unit may look different from the images in this document.

1.1.1 Purpose of this manual

This manual will make it easier to become familiar with the product and make use of its intended application possibilities. The manual contains important information for operating the product safely, properly and economically. Following the instructions in this manual will help to avoid dangers, minimise repair costs and downtimes, and increase the reliability and service life of the product.

1.1.2 Contents of this manual

In addition to general safety instructions and a product description, this manual contains instructions for all life phases of the product ranging from unpacking to disposal.

Further information like drawings, diagrams, spare parts list or accompanying booklets as well as manuals of additional devices (if available) are enclosed at the end of this manual and are a part of this manual, refer to Chapter 11.1, Page 105 and the following.

All the information in this manual is correct at the time of printing. BAUER KOMPRESSOREN reserves the right to make technical changes that facilitate an improvement or raise the safety standard.

1.1.3 Target groups of this manual

The manual is intended for the following target groups:

- Operating company of the machine
- Operating personnel
- Assembly personnel and maintenance personnel
- Testing personnel

1.1.4 Symbols and abbreviations used

The following symbols are used in the manual:

Symbol	Meaning
	Dangers for persons. For more information, see Chapter 2.3 Display and meaning of warnings, Page 16.
	Information for understanding or optimising the work processes.
	Information for solving problems or for troubleshooting.
✓	Prerequisite for an operating procedure.
›	Operating procedure, also measures in a warning.
1. 2. ...	Step-by-step operating procedure. Follow the sequence.
	End result
	Follow the instructions for safe disposal.

Tab. 1 Symbols used and their meaning

The following abbreviations are used in the manual:

Abbreviation	Meaning
Fig.	Figure
barg	Pressure in bar
bara	Absolute pressure in bar
CNG	Compressed Natural Gas
DVGW	German Technical and Scientific Association for Gas and Water
No.	Number
Item	Item
P.	Page
Tab.	Table
TÜV	Technical Inspection Association

Tab. 2 List of abbreviations

1.2 About this product

1.2.1 Identifying the product

This manual is applicable for the models and series specified on the title page.

- Take the exact model and serial number from the type plate and enter into the figure below.
- In case of customer service enquiries, always specify the model and serial number of the product.

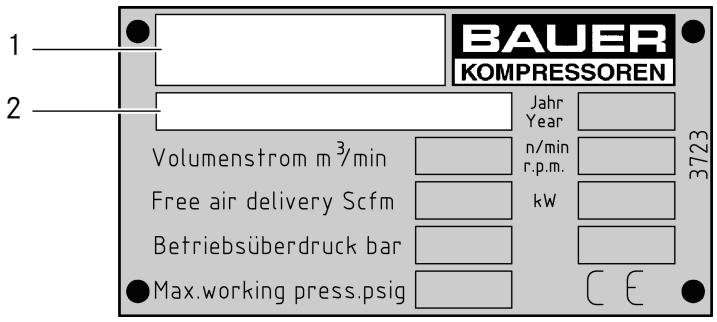

Fig. 1 Type plate

1 Model 2 Serial number

1.2.2 Application

The compressor units are used as mobile filling stations for the compression of breathing air in the high pressure range, mainly to fill cylinders for diving or breathing protection applications.

The compressor units are not designed for industrial application, especially continuously, and may not be used for such purposes.

1.2.3 Scope of supply

The minimum scope of supply comprises:

- the product
- all necessary consumable material such as oil and filter (except fuel), filled in an accessory kit already installed
- this manual

1.2.4 Versions and equipment

Equipment features	Delivery rate [l/min]	Drive motor	Motor power [kW (PS)]
JUNIOR II-B	100	Petrol engine	4.2 (5.7)
JUNIOR II-E	100	Three phase AC motor	2.2 (3.0)
JUNIOR II-W	100	Three phase AC motor	2.2 (3.0)
OCEANUS-B	140	Petrol engine	5.1 (6.9)
OCEANUS-E	140	Three phase AC motor	3.0 (4.1)
OCEANUS-W	140	Three phase AC motor	3.0 (4.1)

Tab. 3 Versions and equipment

The models contain the following components as standard:

- Carrier frame
- Filter system with B-TIMER
- TÜV type-tested final pressure safety valve
- Filling device for desired final pressure
- Manual condensate drain

1.2.5 Options

The actual range of options of the unit can be read about in the sales documents.

The following additional equipment is optionally available:

- Driving set
- Automatic condensate drain
- Changeover device
- Additional filling devices
- Automatic final pressure switch-off

1.2.6 Applied standards

Declaration of conformity

The product has been constructed in line with the directives listed in the conformity declaration or the state of the art and recognised safety-related regulations; see Chapter 11.1 Declaration of conformity, Page 105.

CE mark

With the EC mark affixed on the product, BAUER KOMPRESSOREN declares that the product satisfies the application requirements specified in the harmonisation legislation of the European Community provided for its affixing.

1.2.7 Contact data BAUER KOMPRESSOREN

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D-81477 Munich
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Fax: +49 89 7 80 49-167
www.bauer-kompressoren.de
info@bauer-kompressoren.de

2 For your safety

2.1 Intended usage

The machine is intended exclusively for the compression and the storage of the medium specified, under consideration of the conditions specified, see Technical Data.

Proper use also includes:

- the compliance with this manual and the installation instructions as well as the fulfilment of the installation requirements.
- the compliance with the maintenance intervals and the fulfilment of the maintenance works
- the fulfilment of the applicable regulations

Any use apart from those mentioned above is considered to be not intended.

2.2 Improper use

Any use apart from the intended use mentioned above is considered to be not intended. The manufacturer/supplier can assume no liability for damage resulting from this type of usage. The user alone bears the risk of this. A claim for guarantee shall be rendered inapplicable in the following cases:

- In the event of improper use
- In the event of non-compliance with the performance limits and the authorized operating conditions of the machine
- When operating without safety equipment or with incorrect or non-functional safety equipment
- If unauthorized or unqualified persons work with or an the machine
- If unauthorized operating supplies are used.
- If accessories and spare parts that are not made for the machine are used Only original spare parts may be used
- If unauthorised modifications, alterations or program changes are carried out on the machine
- If modifications or repairs are carried to pressure vessels that must be accepted, without having obtained consent or another acceptance by an expert technician or audit authority of the operator’s country

2.3 Display and meaning of warnings

2.3.1 Hazard classes

Important instructions regarding personal protection and safe operation are indicated in the manual in distinct hazard classes. The hazard classes explain how states or individual steps of an operation sequence are dangerous and can cause damage.

Hazard class	Description
DANGER	Indication of an immediate imminent danger. If the warning is not observed, this will result in death or serious injuries.
WARNING	Indication of a potentially dangerous situation. If the warning is not observed, this can result in death or serious injuries.
CAUTION	Indication of a potentially dangerous situation. If the warning is not observed, this can result in minor injuries.
NOTICE	Indication of a potentially dangerous situation. If the warning is not observed, this can result in material damage.

Tab. 4 Hazard classes

2.3.2 Structure of the warnings

The warnings describe the type and source of danger, the consequences of not heeding these warnings, and measures to be taken to avert the danger. A warning is always structured according to the following pattern:

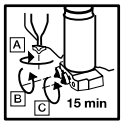
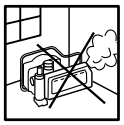
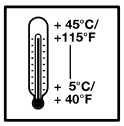
⚠ WARNING

Type and source of danger.
Consequences of not heeding the warning

❱ Measures for averting the danger.

2.3.3 Danger warnings on the machine

Depending on the construction and purpose of use, the following indications are affixed to the machine and included in the manual; these indications point to potential dangers:

Symbol	Meaning
	Always read the operating instructions before commissioning and operation.
	Check the oil level in the compressor and the motor before commissioning.
	Drain the condensate from the 3 manual drain cocks at least every 15 minutes.
	Units using petrol engines should be erected in such a way that exhaust gases cannot be drawn in.
	Units using petrol engines should never be operated in closed rooms.
	Install the unit in a horizontal position. Observe the maximum inclination of 5°.
	Operate only at ambient temperatures between +5 and +45 °C.
	Take care with hot surfaces on the motor and the compressor.
	Wear hearing protection when you are close to the unit.

Tab. 5 Danger warnings on the machine

2.4 Product safety

2.4.1 Fundamental safety information

Fundamental dangers

The following safety measures always include:

- The machine should only be used in a technically perfect condition and in an intended, safety and danger-aware method, taking into account the operating instructions.
- Faults that have a negative effect on safety must be immediately rectified.
- In addition to the manual, follow and advise the generally applicable binding regulations for accident prevention and for environmental protection.

Danger due to electric current

Work on electrical units or operating equipment may only be carried out by an electrical technician or other trained persons working under the guidance and supervision of an electrical technician and must be performed in accordance with electrotechnical regulations.

- Only use original fuses with the current stipulated. In the event of faults in the electrical power supply, switch off the machine immediately.
- Disconnect machine parts on which inspection, maintenance or repair work is carried out. Once the components have been isolated from the supply, first check that they are de-energised and then short-circuit them before also isolating neighbouring energised components.
- Check the electrical equipment of a machine on a regular basis. Defects such as loose connections or scorched cables must be rectified immediately.
- If work on live parts is required, enlist a second person who can activate the emergency stop switch in an emergency. Cordon off the working area with a red-and-white safety chain and a warning sign. Only use insulated tools.
- All persons who handle electrical components and equipment that is fitted in electrical components must be earthed.
- Measuring instruments and devices must be earthed. Measuring tips on potential-free measuring instruments must be briefly earthed on suitable earthed surfaces before being used to take measurements.

Danger due to pneumatics

Work on pneumatic devices must only be carried out by persons having special skills and experience with pneumatics.

- All lines, hoses and screwed fittings should be checked regularly for leaks and externally detectable damage. Any damage must be rectified immediately. Compressed air and gases coming out can cause injuries and fires.
- Before commencing repair work, depressurise any sections of the system and pressure lines that are going to be opened.
- Lay and fit the compressed air lines properly. Do not swap the connections over. The fittings, length and quality of the hoses must comply with requirements.

Danger due to gas, dust and smoke

Welding, flame-cutting or grinding work can pose a fire or explosion hazard.

- Execute welding, flame-cutting and grinding work on the machine only when the work has been specifically approved.
- Before welding, flame-cutting and grinding, clean the machine and surroundings of dust and flammable materials and ensure adequate ventilation to avoid a danger of explosion.
- When working in confined spaces, follow national regulations where applicable.

Danger due to oil, grease and other chemical substances

- When handling oils, grease and other chemical substances, observe the safety regulations applicable to the product.

Danger due to noise

- The noise protection equipment on the machine must be in the protection position when the equipment is running.
- Wear the specified personal hearing protection.

2.4.2 Safety instructions regarding transport and loading work

Carry out the following measures to ensure safe transport:

- Machines, individual parts and larger components must be securely fastened to lifting tackles.
- Do not stand or work under suspended loads.
- Use only experienced persons for slinging the loads and the instruction of the crane drivers. The instructor must be in view of the operator or in voice contact with him.
- Use only suitable lifting tackles, load carrying equipment and transport vehicles with adequate carrying capacity.
- Secure the load in a reliable manner. Use suitable lashing points.
- Fit transport securing devices to the machine for transporting if necessary. Fix the relevant sign. Remove the transport securing devices before commissioning/recommissioning.
- Re-fit and secure the parts removed for transport purposes before recommissioning.
- Isolate the machine from all external energy supplies, even if the location to be changed is over a small distance. Connect the machine properly to the mains before recommissioning.

2.4.3 Safety information regarding operation

Carry out the following measures to ensure safe operation:

- Refrain from any working practices which may compromise safety.
- Only operate the machine if all protection equipment and safety-related equipment (e.g. detachable protection equipment, emergency stop equipment and noise reduction devices) are present and functioning correctly.
- In the event of malfunctions, stop and secure the machine immediately. Any fault must be rectified or eliminated immediately.
- Switch the machine on and off and manage indicator displays as stipulated in the operating manual.
- Before switching on / starting up the machine, make sure that there is no risk of it harming anyone whilst in operation.
- Adhere to the activities and dates for setting, maintenance and inspection as stipulated in the manual, including specific information on replacing parts/ fitting components. These activities may only be carried out by specialist personnel.
- Inform the operating personnel about the special tasks and service work before starting it. Nominate a supervisor.

2.4.4 Safety instructions regarding maintenance, service and repairs

Carry out the following measures for ensuring safe maintenance, service and repair work:

- For all work that affects the operation, adjustment of production capacities, changeover or setting of the machine and its safety-relevant equipment and inspection, maintenance and repair, observe the switching on and switching off procedures in accordance with the operating instructions and instructions for servicing work.
- Service area to be made and secured as large as possible if required.
- If the machine is switched off completely for maintenance and repair work, you must ensure that it is secured against unexpectedly starting up: Lock the main control systems and affix a warning sign to the main switch.
- Begin maintenance/repair work by cleaning any oil, fuel or cleaning agents off the machine; in particular, the connections and screw fittings. Do not use aggressive cleaning agents. Use lint-free cleaning cloths.
- During maintenance and repair work, any screw connections that have been loosened must always be tightly screwed back in again.
- Use suitable tools for all the work to be carried out.
- If safety equipment needs to be removed for maintenance and repair purposes, it must be reattached and inspected as soon as the maintenance and repair work is complete.
- Make sure that auxiliary materials and replacement parts are disposed of safely and in an environmentally-friendly manner.
- When working above head height you must use access equipment and working platforms provided for the purpose or other safety-compliant equipment. Do not use machine parts as access aids. When carrying out maintenance work at higher levels you must wear fall arresting equipment.

2.4.5 Safety instructions regarding cleaning

Carry out the following measures to ensure safe cleaning:

- Before cleaning the machine with water, a steam jet (high pressure cleaner) or other cleaning agents, cover or seal off all openings that must not be penetrated by water/steam/cleaning agents for reasons of safety and/or functionality. Electric motors and control cabinets are particularly at risk.
- When carrying out cleaning work in the machine room, make sure that the temperature sensor on the fire alarm and extinguisher equipment does not come into contact with hot cleaning agents to prevent triggering the extinguisher equipment.
- After the cleaning work, completely remove the covers / seals.
- After cleaning, inspect all lines for leaks, loose connections, chafe marks and damage. Repair any defects detected immediately.

2.4.6 Particular dangers

Safe handling of pressure vessels

There are two types of pressure vessels:

- Pressure vessels for static load: The pressure vessels are under virtually constant operating pressure, and the pressure fluctuations are very small. Pressure vessels for static load are not specially marked and can be operated as long as no safety-relevant faults are found during the regular vessel repeat testing procedures.
- Pressure vessels for dynamic load: The pressure vessels are under fluctuating operating pressure, and the pressure can fluctuate between atmospheric pressure and the maximum permissible operating pressure. Pressure vessels for dynamic load are specially designated for dynamic loads in the type plate. In the technical documents for these vessels, you will find details concerning the permissible operating duration in the form of the permissible cycle figures depending on the fluctuation of the operating pressure. The change between two different pressures is designated as a load change. Two load changes, i.e. one pressure approach and one pressure departure, are a cycle.

Follow the following safety instructions to ensure safe handling of pressure vessels:

- Always observe the permissible operating method of the pressure vessel.
- Never open or release the vessel covers or pipe connectors under pressure. Always de-pressurise the vessel or machine.
- Never exceed the permissible vessel operating pressure.
- Never heat the vessel or other individual parts above the stated maximum operating temperature.
- Damaged pressure vessels should always be replaced completely. Pressurised vessel components cannot be obtained as spare parts because the vessels are only ever tested and documented as a unit (see pressure vessel documentation, serial numbers).
- Check pressure vessels regularly internally and externally for corrosion damage.
- Take particular care with used pressure vessels if their previous operating method has not been clarified.
- In order not to load the pressure vessel unnecessarily, always check the non-return valves and pressure maintaining valves at regular intervals for internal and external leaks and functionality.
- Replace aluminium pressure vessel at the latest after 15 years.
- In the case of pressure vessels for dynamic load: Record the number of cycles completed. Note down the number of cycles run if there is no automatic cycle counter.
- In the case of pressure vessels for dynamic load: When half the permissible number of cycles is reached, the vessel must be subjected to an internal test which includes testing the critically loaded vessel areas using suitable test procedures in order to ensure operational safety.
- In the case of pressure vessels for dynamic load: After reaching the permissible number of permissible cycles, the vessel must be replaced and scrapped.

Instructions regarding handling breathing air

Follow the following instructions to ensure the safety of the user:

- Adhere to the filter service life.
- When changing the cartridge, particular attention must be paid to hygiene and general cleanliness.
- Use permissible lubricant and cleaning agent only for breathing air.
- Get a replacement cartridge and store it properly.
- Keep in mind the storage period of the filter cartridge.
- Do not use filter cartridges with damaged packaging.
- Record filling processes in a logbook.
- Check the air quality or have it checked at regular intervals.
- Do not fill breathing air from rooms that are used as a working space.

2.4.7 Safety and monitoring equipment

Provide the following safety equipment and ensure their function:

- Do not remove the protection guard from moving parts when the machine is being operated.
- If needed, design the return flow (e.g. natural gas) in such a manner that there is no danger to people and the environment. Comply with the statutory provisions.
- Rule out dangers arising due to electrical energy by earthing and using suitable fuses.

Emergency stop switch

In machines without a separate emergency stop switch, the red-yellow main switch assumes the function of an emergency stop switch.

- Press the emergency stop switch in case of an emergency.
  The control voltage will be interrupted and the machine will turn off.

2.5 Instructions regarding emergency

2.5.1 Behaviour in case of faults and emergencies

If safety-relevant faults occur in the machine or the operating behaviour indicates this:

- Switch off the machine using the emergency stop switch and notify the authority/person responsible of the fault.
- Only trained and authorised specialist personnel may rectify the faults.
- Restart the machine only after the cause of the fault has been determined and rectified.

2.6 Organisational duties

2.6.1 Duties of the operating company

The operating company is responsible for the intended use of the machine.

- Keep the instruction manual to hand near the machine and must be available to the personnel at all times. Ensure that the informations are complete and readable. If the product is resold, the manual must be handed over along with the product.
- In addition to the operating instructions, observe the local applicable regulations for accident prevention and environmental protection.. The operator must instruct the personnel accordingly.
- Complement this manual with local applicable regulations.
- Complement this manual with specifities about the operational processes and with informations about supervision and reporting obligations.
- Ensure the intended use of the machine, see Chapter 2.1 Intended usage, Page 15 and take appropriate measures to prevent the improper use of the machine, see Chapter 2.2 Improper use, Page 15.
- Take measures to ensure safe operation and fault-free condition of the machine.
- Ensure that only personnel with the relevant qualifications work on the machine, see Chapter 2.6.2 Personnel selection and qualification, Page 25. Observe the legal minimum age permissible.
- The operator must provide the necessary personal protective equipment, such as hearing protection or protective goggles.

2.6.2 Personnel selection and qualification

Pay attention to the following points when selecting the personnel:

- Ensure that statutory minimum age limits are observed.
- Ensure that only entrusted personnel work on the assigned tasks.
- Deploy only the trained, instructed or competent personnel.
- Ensure that only trained personnel operate the machine.
- Ensure that only the service personnel trained and authorised by BAUER KOMPRESSOREN carry out the assembly and installation activities.
- Ensure that only competent personnel carry out the first commissioning and recurrent tests.
- Ensure that only trained personnel carry out maintenance activities.
- Clearly define the responsibilities that personnel have in terms of operation, maintenance and repairs.
- Establish who is in charge of the machine and give him/her authorisation to reject any instructions by third parties that are in breach of safety procedures.
- Only allow apprentices or other personnel who are undergoing instruction or general training to work on/use the machine while under constant supervision by an experienced member of staff.

The qualification and knowledge of personnel can be summarised as follows:

Personnel	Qualification
Trained personnel (e.g. operators and employees)	The manual was read and understood. Instruction by the manufacturer or a person authorised by the manufacturer for this purpose.
Trained personnel and/or experts (e.g. expert electricians and maintenance personnel)	Completed professional education in metal working and electrical engineering in accordance with the statutory education ordinance with professional experience and regular follow-up training.
Competent personnel (e.g. service personnel of BAUER KOMPRESSOREN and experts)	Completed professional education in metal working and electrical engineering in accordance with the statutory education ordinance with professional experience, recent professional activity and regular follow-up training by a person certified by BAUER KOMPRESSOREN or by a person certified by the relevant authority.

Tab. 6 Personnel qualifications

2.6.3 Duties of the personnel

The personnel must comply with the following safety requirements:

- Read and understand the operating instruction manual.
- Refrain from any working practices which may compromise safety.
- Use personal protection equipment if required.
- Observe all the safety instructions and danger warnings on the machine.
- Check the machine for outwardly noticeable damage and defects at least once a day. If changes occur in the machine or in its operating behaviour and these could impact on safety, stop the machine immediately and report the fault to the department/person responsible.

2.7 Safety concept

The following components are part of the safety concept of the compressor unit.

2.7.1 Structure

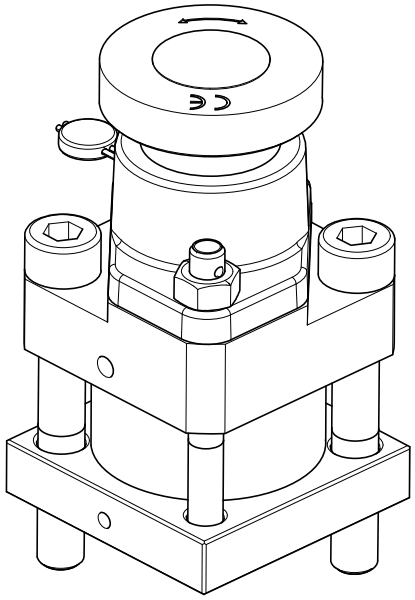


Fig. 2 Final pressure safety valve

2.7.2 Function

Safety valves

All intermediate pressures and the final pressure are protected by safety valves. All valves are set in the factory to the pressure applicable for each individual stage and sealed.

The safety valves open as soon as the set opening pressure is exceeded.

For the opening pressures of the safety valves, see Chapter 4.1 Technical data about the compressor unit, Page 39.

2.8 Safety regulations

The following list of safety regulations does not claim to be exhaustive and up-to-date, and is applicable only for the Federal Republic of Germany.

- Ensure that the equivalent provisions of the operator's country are observed.
- Ensure that all other statutory regulations and provisions, in particular, safety regulations, pertaining to the operation or conveying medium are observed.

The following regulations, provisions and trade association rules must be observed for commissioning and operation of compressor units as filling units in the Federal Republic of Germany:

- 14. ProdSV – German Ordinance on Pressure Vessels - fourteenth ordinance for the Product Safety Law dated 27 September 2002
- ProdSG – German Product Safety Law - law regarding the provision of products in the market dated 8 November 2011
- BetrSichV – German Ordinance on Industrial Safety and Health - ordinance on safety and health protection when using resources dated 3 February 2015

Adhere to the TRBS (technical regulations for operational safety) and TRGS (technical regulation for dangerous substances) for concrete specifications regarding the details of the German Ordinance on Industrial Safety and Health:

- TRBS 1111 - hazard assessment and safety assessment - TRBS dated 5 September 2006
- TRBS 1201 - tests of resources and units that need monitoring - TRBS dated 6 August 2012
- TRBS 1203 - competent persons - TRBS dated 17 March 2010
- TRBS 2141 - risks due to vapour and pressure - general requirements - TRBS dated 31 January 2007
- TRBS 3145 / TRGS 725 - transportable compressed gas tanks - filling, provision, intra-company transportation, emptying - TRBS / TRGS dated 14 June 2013
- TRBS 3146 / TRGS 726 - stationary pressure units for gases - TRBS / TRGS dated 14 April 2014

If a high pressure compressor is used for filling pressurised gas containers (cylinders) or for supplying pneumatic systems, the trade association regulations, rules, information and principles of safety and health while working apply to commissioning and operation within the Federal Republic of Germany:

- BGV A1 / DGUV Regulation 1 - principles of prevention (edition 04/2005; 01/2008; 01/2009)
- BGR 500 / DGUV Rule 100-500 - operating the resources (edition 10/2004; 07/2005; 09/2005; 11/2005; 12/2005; 03/2006; 08/2006; 10/2006; 03/2007; 04/2008)

Instructions for the licensing process and the testing of filling stations before commissioning

For further instructions for the licensing process and the testing of filling stations before commissioning, refer to the information sheet (can be obtained from BAUER KOMPRESSOREN).

The test certificates and documents supplied with the compressor are important and must be included in the application documents as part of the licensing process. The documents that relate to recurrent tests also have an important role to play and must, therefore, be stored carefully.

In accordance with the German Ordinance on Industrial Safety and Health (BetrSichV), compressor units used as filling stations must be subjected to an acceptance test by the relevant monitoring authority (TÜV in the Federal Republic of Germany) prior to commissioning.

If the compressor is going to be used for filling pressurised gas containers (cylinders) which are intended for others, the unit must be licensed by the relevant authority before the acceptance test (Trade Supervisory Board in the Federal Republic of Germany).

Tests governed by accident prevention regulations are carried out by the manufacturer or a specialist.

3 Product description

3.1 Structure and function

3.1.1 Unit overview

Structure

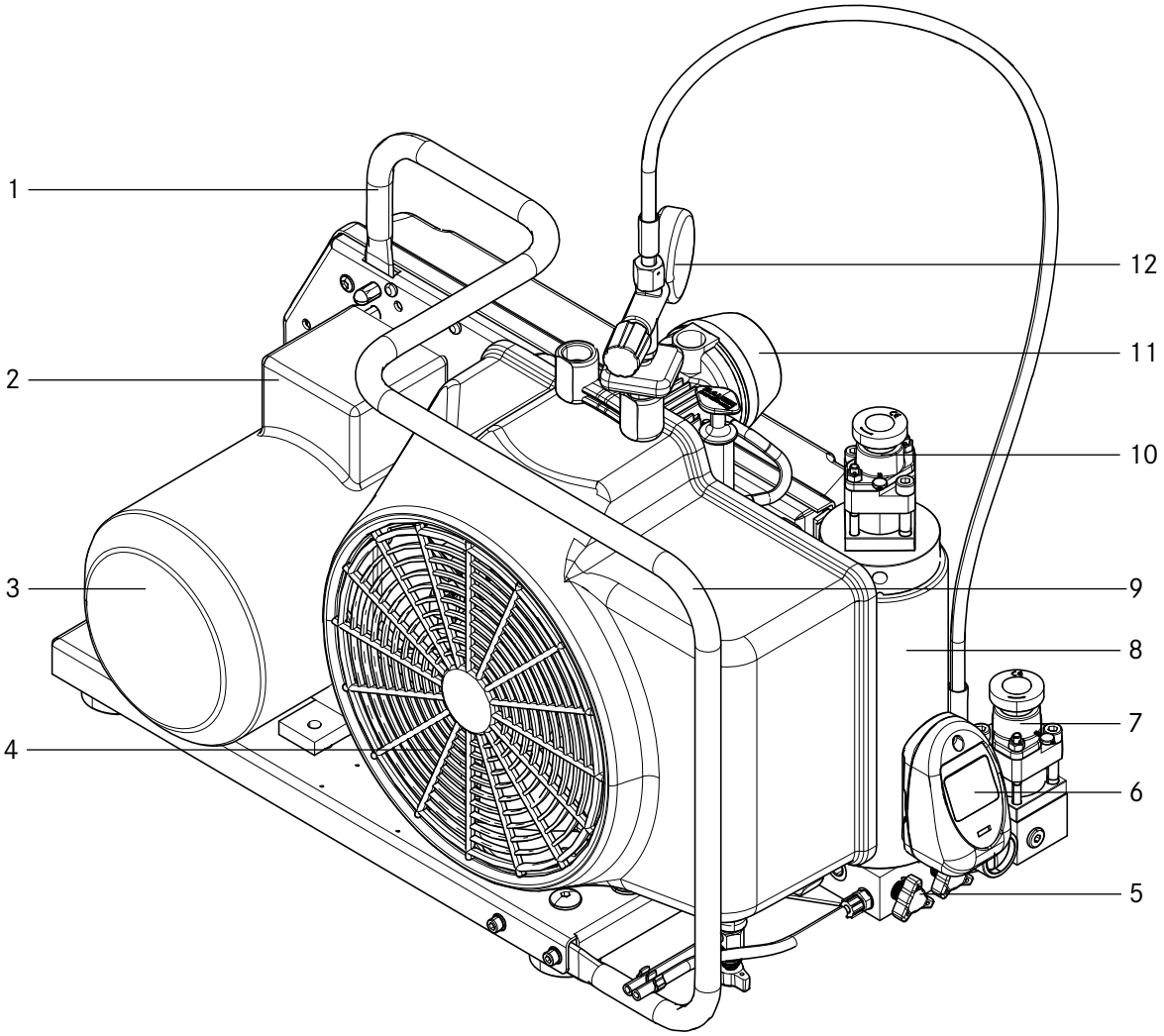


Fig. 3 Structure, version with electric motor

1	Carrying handle	5	Condensate drain cock	9	Carrying handle
2	Motor connection box	6	B-TIMER	10	Safety valve

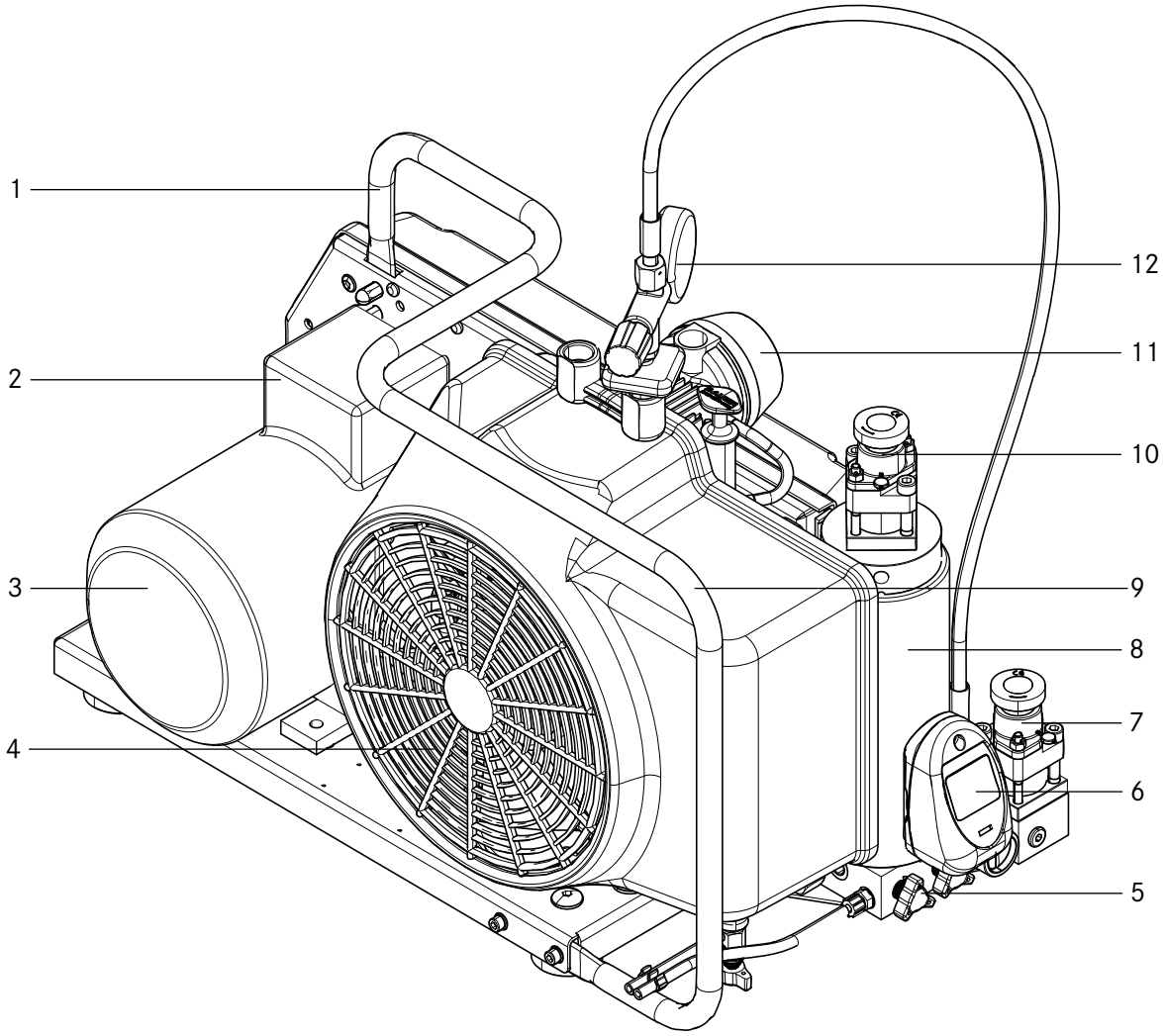


Fig. 3 Structure, version with electric motor

3	Electric motor	7	Safety valve	11	Suction filter
4	Fan cover	8	Filter system	12	Filling valve with final pressure gauge

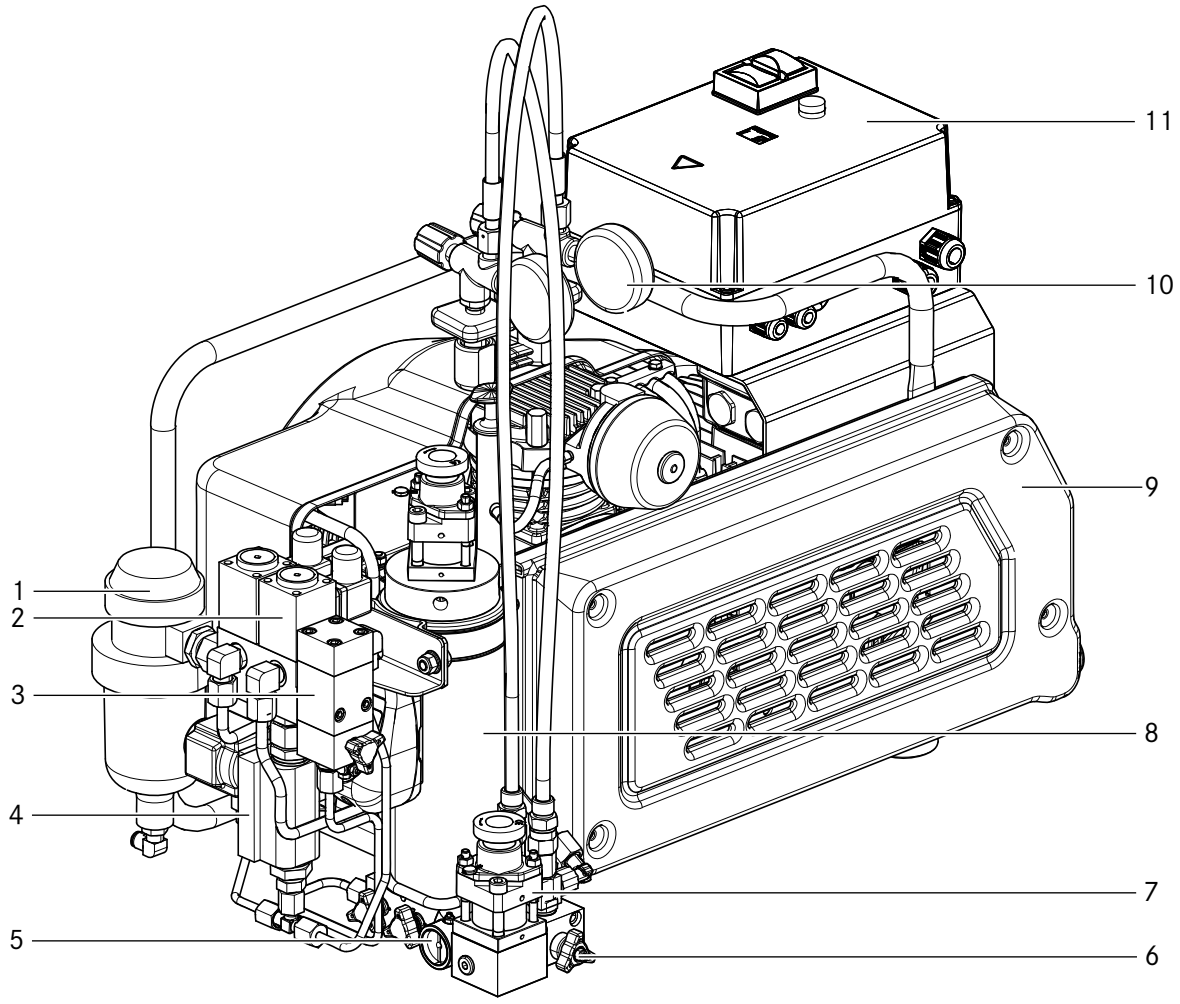


Fig. 4 Structure, version with electric motor, view from the rear

1	Condensate separator	5	Pressure retention valve	9	Belt guard
2	Final pressure switch	6	Switch-over valve	10	Filling valve with final pressure gauge
3	Condensate drain valve, last stage	7	Final pressure safety valve, PN200	11	Compressor control system
4	Condensate drain valve, second stage	8	Filter system		

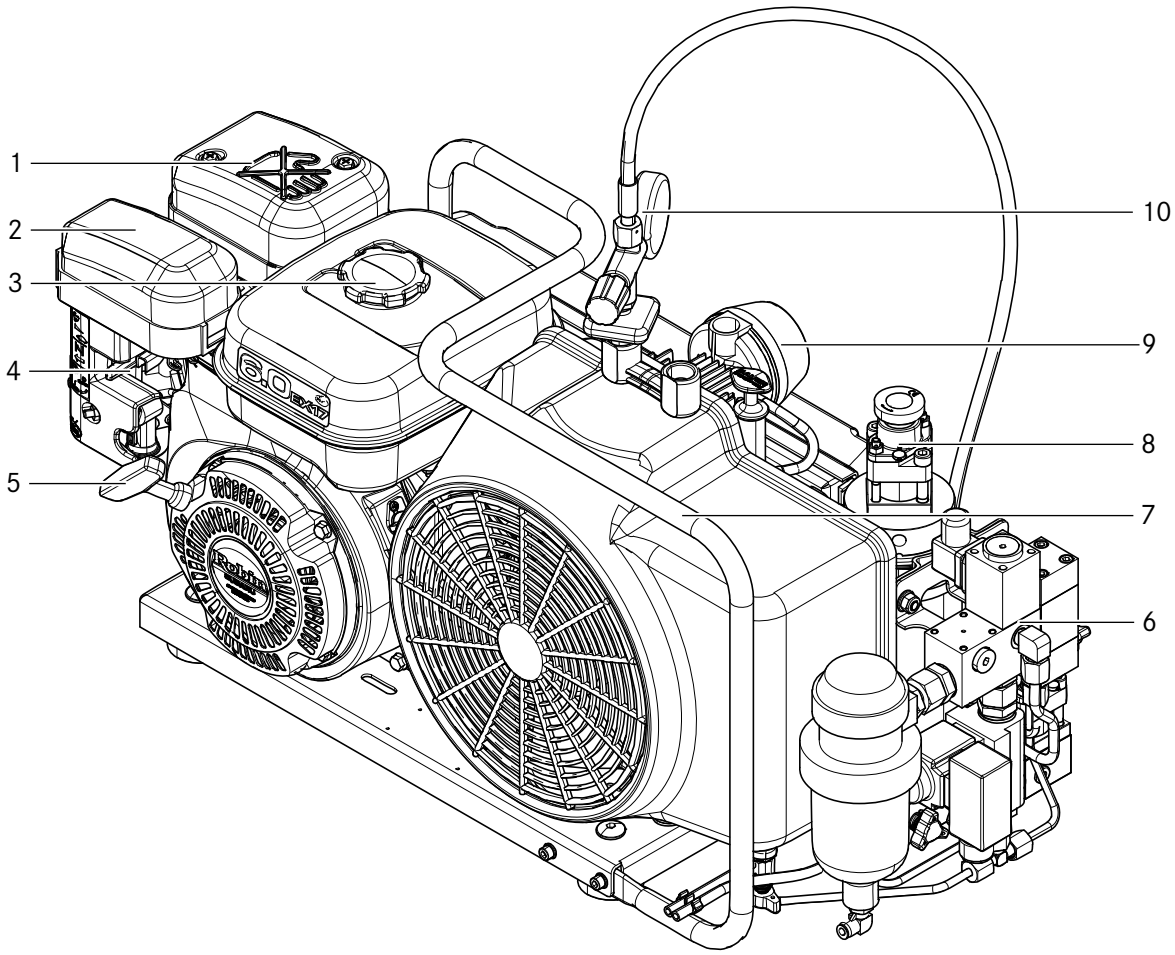


Fig. 5 Structure, version with petrol engine

1	Exhaust	5	Pull starter	9	Suction filter
2	Air filter	6	Automatic condensate drain	10	Filling valve with final pressure gauge
3	Tank	7	Carrying handle		
4	Choke	8	Safety valve		

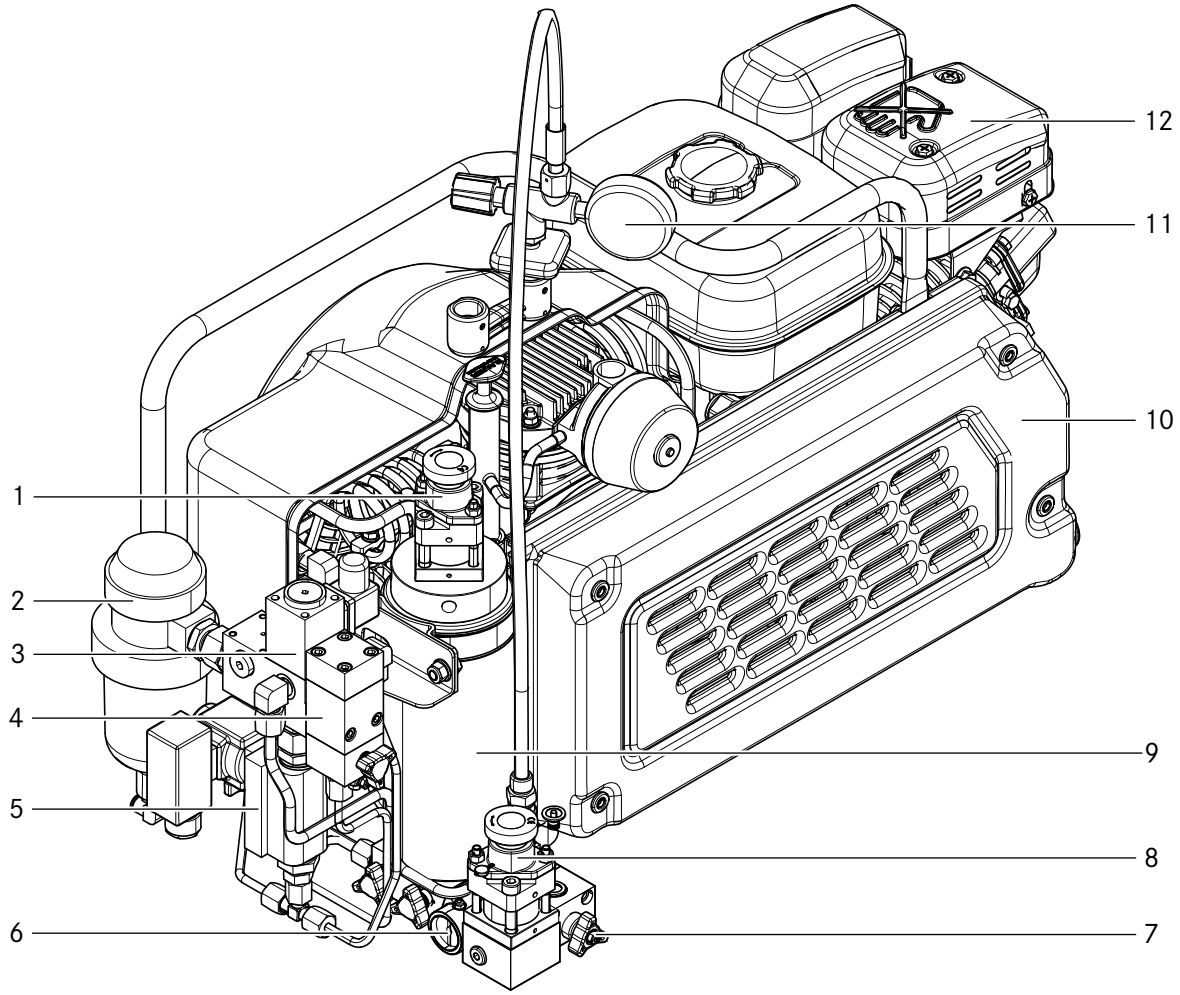


Fig. 6 Structure, version with petrol engine, view from the rear

1	Final pressure safety valve	5	Condensate drain valve, second stage	9	Filter system
2	Condensate separator	6	Pressure retention valve	10	Belt guard
3	Final pressure switch	7	Switch-over valve	11	Filling valve with final pressure gauge
4	Condensate drain valve, last stage	8	Final pressure safety valve on the changeover device	12	Exhaust

Function

Suction

The medium or gas mixture to be compressed is directed to the compressor via the suction section.

Compression

In the compressor block, the medium is compressed up to its final pressure. Parallel to the compression process, the medium is pre-cleaned using a separator and cooled using heat exchangers.

Filtration

The filter system is used for the final cleaning of compressed gas mixture.

Distribution

Filling fittings are used to distribute the prepared gas mixture. The consumers are connected to the compressor unit using special valves and filling couplings.

Drive

The motor drives the compressor using a V-belt.

Water removal

The automatic condensate drain regularly drains the separators and directs the accumulated condensate of water and oil into a collection vessel.

Control unit

The electric control system monitors and controls the operation of the compressor unit.

3.1.2 Monitoring units

B-TIMER

Structure

Fig. 7 Structure B-TIMER

Function

The B-TIMER is a self-activating mini-computer that keeps track of the compressor's operating hours and calculates the filter cartridges' lifetime with the help of the time, the temperature, the type of cartridge and the delivery volume of the compressor. It displays the operating hours, the cartridge's service life and the compressor's upcoming maintenance-related tasks.

3.2 Display elements

3.2.1 B-TIMER display and operating elements

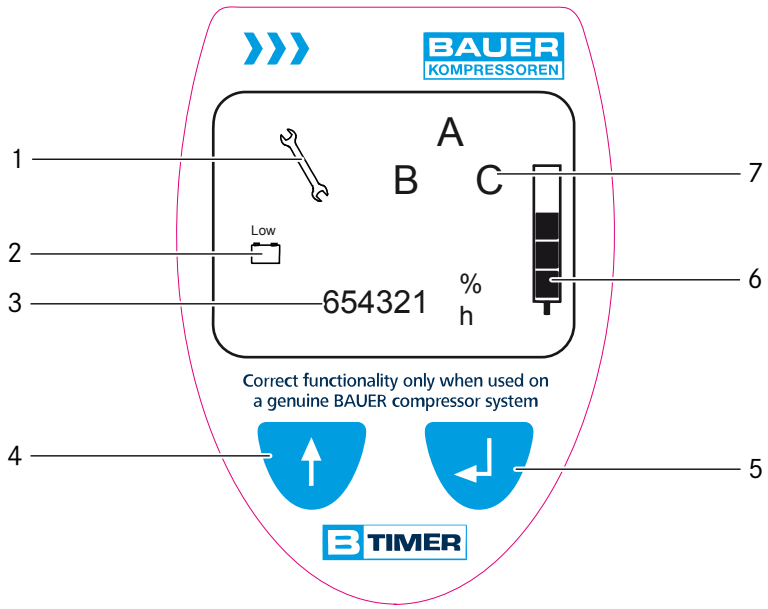


Fig. 8 Display and operating elements

1 Display of due maintenance
2 Display of low battery status
3 Display of operating hours or cartridge number
4 Selection key
5 Input key
6 Display of cartridge saturation
7 Display of due maintenance type or the setup menu

3.3 Control elements

3.3.1 Overview of operating elements

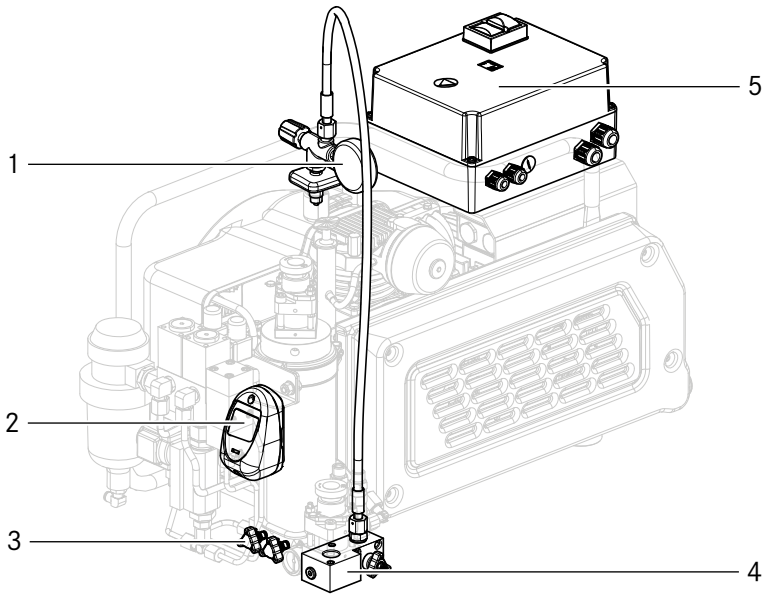


Fig. 9 Overview of operating elements

1 Filling equipment
2 B-TIMER
3 Condensate drain cocks
4 Changeover device
5 Compressor control system

3.3.2 Filling equipment

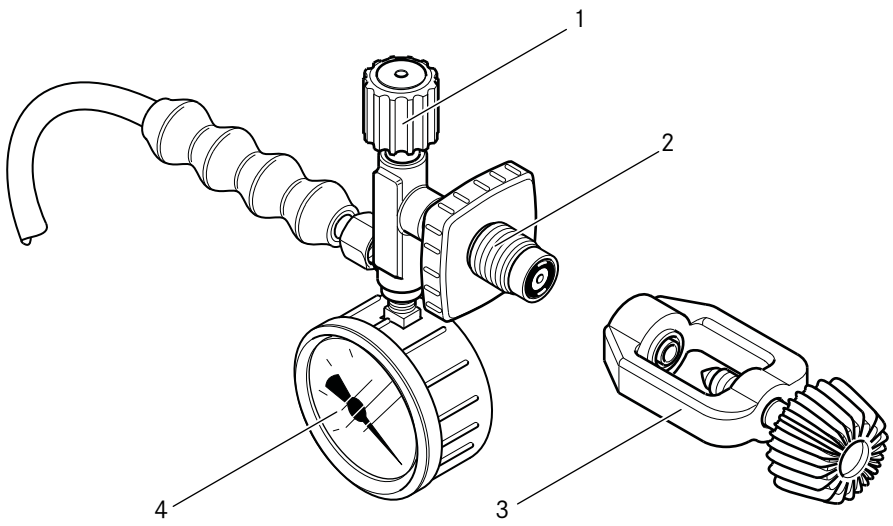


Fig. 10 Filling equipment

1	Filling cock	3	International bracket connection, 200 bar
2	Filling connection	4	Filling pressure gauge

4 Technical data

4.1 Technical data about the compressor unit

4.1.1 Technical data, Junior II-B

Compressor unit	Junior II-B
Performance characteristics	
Medium	Air
Suction pressure	atmospheric
Operating pressure max. [bar]	PN200 or PN300
Blow-off pressure, final pressure safety valve [bar]	225 / 330
Setting pressure, pressure retention/non-return valve [bar]	160
Compressor block	Junior II, manufacturing status 3
Delivery volume [l/min] measured using cylinder filling (10 l) from 0 to 200 bar, ± 5%	100
Speed [rpm]	2300
Drive motor type	Petrol engine
Ambient conditions	
Maximum permissible ambient temperature [°C]	+5 ... +45
Location [m above sea level]	0 ... 1500
Explosion protection	no
Maximum permissible inclination of the compressor	5°
Weights and measures	
Dimensions standard unit (L x B x H) [mm]	760 x 410 x 415
Dimensions unit with automatic condensate drain (L x W x H) [mm]	880 x 410 x 415
Weight [kg]	52
Operating and auxiliary materials	
Oil	see Chapter 9.3.4 Lubrication oil, Page 80
Emissions	
Noise pressure level [dB(A)]	88
Noise level [dB(A)]	106

Tab. 7 Technical data, Junior II-B

4.1.2 Technical data, Junior II-E

Compressor unit	Junior II-E
Performance characteristics	
Medium	Air
Suction pressure	atmospheric
Operating pressure max. [bar]	PN200 or PN300
Blow-off pressure, final pressure safety valve [bar]	225 / 330
Setting pressure, pressure retention/non-return valve [bar]	160
Compressor block	Junior II, manufacturing status 3
Delivery volume [l/min] measured using cylinder filling (10 l) from 0 to 200 bar, ± 5%	100
Speed [rpm]	2300
Drive motor type	Three phase AC motor
Ambient conditions	
Maximum permissible ambient temperature [°C]	+5 ... +45
Location [m above sea level]	0 ... 1500
Explosion protection	no
Maximum permissible inclination of the compressor	5°
Weights and measures	
Dimensions standard unit (L x B x H) [mm]	655 x 360 x 415
Dimensions unit with automatic condensate drain (L x W x H) [mm]	760 x 430 x 480
Weight [kg]	53
Operating and auxiliary materials	
Oil	see Chapter 9.3.4 Lubrication oil, Page 80
Emissions	
Noise pressure level [dB(A)]	84
Noise level [dB(A)]	97
Electricity	
Standard operating voltage [V]	400
Standard frequency [Hz]	50

Tab. 8 Technical data, Junior II-E

4.1.3 Technical data, Junior II-W

Compressor unit	Junior II-W
Performance characteristics	
Medium	Air
Suction pressure	atmospheric
Operating pressure max. [bar]	PN200 or PN300
Blow-off pressure, final pressure safety valve [bar]	225 / 330
Setting pressure, pressure retention/non-return valve [bar]	160
Compressor block	Junior II, manufacturing status 3
Delivery volume [l/min] measured using cylinder filling (10 l) from 0 to 200 bar, ± 5%	100
Speed [rpm]	2300
Drive motor type	Three phase AC motor
Ambient conditions	
Maximum permissible ambient temperature [°C]	+5 ... +45
Location [m above sea level]	0 ... 1500
Explosion protection	no
Maximum permissible inclination of the compressor	5°
Weights and measures	
Dimensions standard unit (L x B x H) [mm]	655 x 360 x 415
Dimensions unit with automatic condensate drain (L x W x H) [mm]	760 x 430 x 480
Weight [kg]	53
Operating and auxiliary materials	
Oil	see Chapter 9.3.4 Lubrication oil, Page 80
Emissions	
Noise pressure level [dB(A)]	83
Noise level [dB(A)]	96
Electricity	
Standard operating voltage [V]	230
Standard frequency [Hz]	50

Tab. 9 Technical data, Junior II-W

4.1.4 Technical data, OCEANUS-B

Compressor unit	OCEANUS-B
Performance characteristics	
Medium	Air
Suction pressure	atmospheric
Operating pressure max. [bar]	PN200 or PN300
Blow-off pressure, final pressure safety valve [bar]	225 / 330
Setting pressure, pressure retention/non-return valve [bar]	160
Compressor block	Oceanus, manufacturing status 1
Delivery volume [l/min] measured using cylinder filling (10 l) from 0 to 200 bar, ± 5%	140
Speed [rpm]	2300
Drive motor type	Petrol engine
Ambient conditions	
Maximum permissible ambient temperature [°C]	+5 ... +45
Location [m above sea level]	0 ... 2000
Explosion protection	no
Maximum permissible inclination of the compressor	20°
Weights and measures	
Dimensions standard unit (L x B x H) [mm]	790 x 350 x 415
Weight [kg]	47
Operating and auxiliary materials	
Oil	see Chapter 9.3.4 Lubrication oil, Page 80
Emissions	
Noise pressure level [dB(A)]	84
Noise level [dB(A)]	97

Tab. 10 Technical data, OCEANUS-B

4.1.5 Technical data, OCEANUS-E

Compressor unit	OCEANUS-E
Performance characteristics	
Medium	Air
Suction pressure	atmospheric
Operating pressure max. [bar]	PN200 or PN300
Blow-off pressure, final pressure safety valve [bar]	225 / 330
Setting pressure, pressure retention/non-return valve [bar]	160
Compressor block	Oceanus, manufacturing status 1
Delivery volume [l/min] measured using cylinder filling (10 l) from 0 to 200 bar, ± 5%	140
Speed [rpm]	2300
Drive motor type	Three phase AC motor
Ambient conditions	
Maximum permissible ambient temperature [°C]	+5 ... +45
Location [m above sea level]	0 ... 2000
Explosion protection	no
Maximum permissible inclination of the compressor	30°
Weights and measures	
Dimensions standard unit (L x B x H) [mm]	655 x 400 x 415
Weight [kg]	52
Operating and auxiliary materials	
Oil	see Chapter 9.3.4 Lubrication oil, Page 80
Emissions	
Noise pressure level [dB(A)]	83
Noise level [dB(A)]	95

Tab. 11 Technical data, OCEANUS-E

4.1.6 Technical data, OCEANUS-W

Compressor unit	OCEANUS-W
Performance characteristics	
Medium	Air
Suction pressure	atmospheric
Operating pressure max. [bar]	PN200 or PN300
Blow-off pressure, final pressure safety valve [bar]	225 / 330
Setting pressure, pressure retention/non-return valve [bar]	160
Compressor block	Oceanus, manufacturing status 1
Delivery volume [l/min] measured using cylinder filling (10 l) from 0 to 200 bar, ± 5%	140
Speed [rpm]	2300
Drive motor type	Three phase AC motor
Ambient conditions	
Maximum permissible ambient temperature [°C]	+5 ... +45
Location [m above sea level]	0 ... 2000
Explosion protection	no
Maximum permissible inclination of the compressor	30°
Weights and measures	
Dimensions standard unit (L x B x H) [mm]	655 x 400 x 415
Weight [kg]	52
Operating and auxiliary materials	
Oil	see Chapter 9.3.4 Lubrication oil, Page 80
Emissions	
Noise pressure level [dB(A)]	83
Noise level [dB(A)]	95

Tab. 12 Technical data, OCEANUS-W

4.2 Technical data Compressor block

4.2.1 Technical data about the compressor block

Compressor block	Junior II, manufacturing status 3
Number of stages	3
Number of cylinders	3
Cylinder bore 1st stage [mm]	60
Cylinder bore 2nd stage [mm]	28
Cylinder bore 3rd stage [mm]	12
Piston stroke [mm]	24
Direction of rotation (looking onto the fly-wheel)	left
Intermediate pressure 1st stage [bar]	6–7
Blow-off pressure of safety valve 1st stage [bar]	9.9
Intermediate pressure 2nd stage [bar]	40-60
Blow-off pressure of safety valve 2nd stage [bar]	80
Oil quantity [l]	0.36
Suction pressure / intake pressure [bar]	0 (atmospheric)

Tab. 13 Technical data about the compressor block

4.2.2 Technical data about the compressor block

Compressor block	Oceanus, manufacturing status 1
Number of stages	3
Number of cylinders	3
Cylinder bore 1st stage [mm]	70
Cylinder bore 2nd stage [mm]	28
Cylinder bore 3rd stage [mm]	12
Piston stroke [mm]	24
Direction of rotation (looking onto the fly-wheel)	left
Intermediate pressure 1st stage [bar]	6.5–7
Blow-off pressure of safety valve 1st stage [bar]	9.9
Intermediate pressure 2nd stage [bar]	52-61
Blow-off pressure of safety valve 2nd stage [bar]	80
Oil quantity [l]	1.3
Suction pressure / intake pressure [bar]	0 (atmospheric)

Tab. 14 Technical data about the compressor block

4.3 Technical data Filter system

4.3.1 Technical data about the filter system

Filter system	P21
Operating pressure max. [bar]	350
Pressure dew-point	<-20 °C, corresponding to 3 mg/m^3 at 300 bar
Filter content [l]	0.57
Classification as per the Pressure Equipment Guideline	Vessel category II
Residual water content	<10 mg/m^3
Residual oil content	<0.1 mg/m^3

Tab. 15 Technical data about the filter system

4.4 Technical data about the driving set

Driving set	168013
Dimensions (L x W x H) [mm]	987 x 659 x 555
Weight [kg]	15
Max. permissible carrying capacity [kg]	70
Max. permissible inclination in all directions	30°

Tab. 16 Technical data about the driving set

4.5 Technical data Motor

For technical data about the motor, see the motor rating plate.

5 Transport and storage

5.1 Transport

5.1.1 Checking the cargo

The shipping agent shall be liable for damage that can be traced back without a doubt to improper transport. The passage of risk is contractually regulated.

1. Ensure that the delivery item is packed by authorised personnel.
2. Check the delivered item immediately for transport damage.
3. Check the delivered item immediately against the packing lists for to ensure completeness.
4. Report any irregularities to BAUER KOMPRESSOREN immediately. Complaints made later cannot be considered.
5. Never put the machine into operation if it is damaged.

5.1.2 Preparing for transport

1. Ensure that the packaging and/or vessels are such that the parts inside can be handled safely and cannot be damaged during the transport.
2. Ensure that the unit is neither electrically nor pneumatically connected.
3. Pack loose parts such as tools and accessories in suitable individual packaging.
4. Secure moving parts on the unit.
5. Protect electric and electronic components and their connections from moisture and mechanical damage.

5.1.3 Transport

⚠ WARNING

Danger of crushing due to falling, tilting or swinging loads!
Crushing can result in death or serious injuries.

- Follow the safety instructions and safety regulations when transporting the machine.
- Follow the transport instructions.
- Keep in mind the transport weights and measurements.
- Use suitable transport equipment.

1. Ensure that the transport of machine has been properly prepared, see Chapter 5.1.2, Page 49.

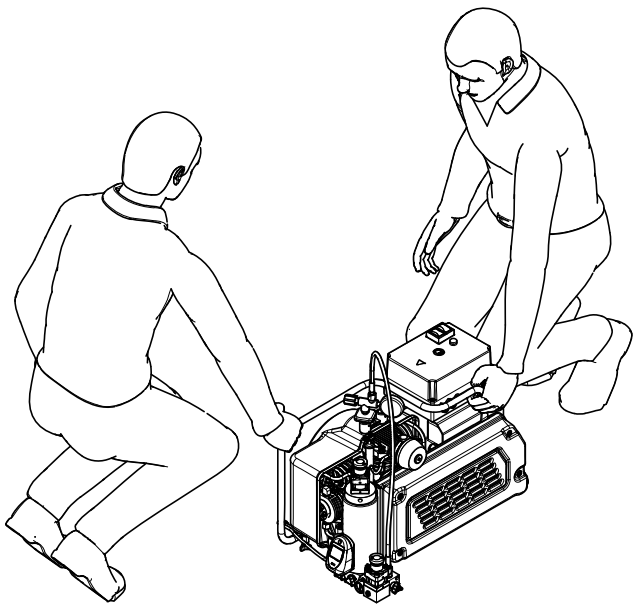


Fig. 11 Transport the compressor by two persons using the carrying handle

2. Transport the compressor by two or four persons using the carrying handle provided. Observe the transport weight!

Transport the units using the driving set

✓ The compressor unit is switched off, is de-pressurized and is isolated from the power supply and storage bottles.
✓ The cables and filling hoses are securely stowed on the compressor unit.

1. Place the driving set securely and as horizontal as possible next to the compressor unit.
2. Unscrew the clamping screw.

NOTICE

Material damage due to excessive load!

❱ Observe the maximum allowable load of the transport device.

3. Two persons should lift the compressor unit using the carrying handle and place it on the driving set.
4. Make sure that all four vibration elements on the compressor unit fit in the cut-outs.
5. Screw in the clamping screw, hand-tight.

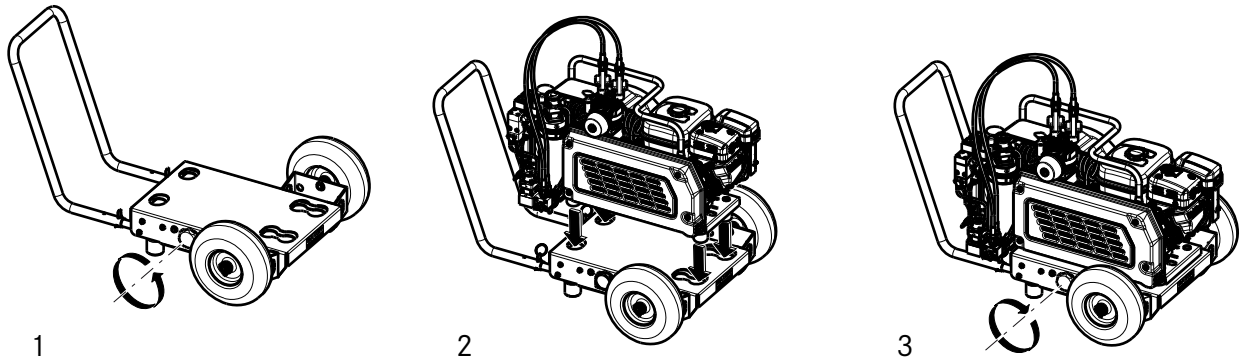


Fig. 12 Transport the unit using the driving set

1 Unscrew the clamping screw 2 Place the unit on the driving set 3 Screw in the clamping screw

⚠ CAUTION

Danger of injury due to tipping of the unit!

❱ Ensure prior to transport that the clamping screw of the transport device is tightened.

❱ Observe the maximum allowable inclination of the transport device.

6. Transport the compressor unit using the driving set.

5.2 Storage and preservation

5.2.1 Selecting the storage location

› Ensure that the storage space fulfils the following conditions: dry, frost-free, vibration-free.

Covering with plastic sheets is recommended only if it prevents condensation from being formed. Lift plastic sheets from time to time for monitoring.

Recommendation: Protect from direct sunlight.

Direct sunlight can lead to changes in colour and premature ageing of the plastic parts.

5.2.2 Preparing for preservation

1. Bring unit to operating temperature.
2. Operate unit for 10 minutes once the required operating pressure is reached.
3. Check all pipes, filters and valves (including safety valves) to see if they are leak-proof.
4. Open the outlet cock and run the unit at the set minimum pressure for 5 minutes.
5. Stop the unit.
6. Drain the condensate from the intermediate separators and the final separator.
   ↳ The pressure goes down to 0 bar.
7. Close the filling cocks and outlet cock.
8. Open the fittings on the intermediate separators and lubricate the thread.
9. Tighten all the fittings on the unit.
10. For unit with filter system: Keep the cartridge in the purifier in order to absorb the penetrating moisture.
11. Let the unit cool down.

↳ The unit is prepared for preservation.

5.2.3 Preservation

If the unit has to be stored for more than 2 years, request special instructions from BAUER KOMPRESSOREN, see Chapter 1.2.7 Contact data BAUER KOMPRESSOREN, Page 13.

If the unit is put out of operation for more than 6 months, preserve it as follows:

1. Start up the unit.
2. Then spray approximately 10 cm^3 of compressor oil into the suction opening of the 1ststage whilst the compressor is running. Do not allow the compressor to run too long, in order to prevent heating of the oil, thus reducing the compressor oil's adhesive properties.
3. Switch the unit off.
4. Close the outlet cock.

Preserving the motor

Treat the motor as per the instructions issued by the motor manufacturer.

5.2.4 Inspecting the unit during storage

When a unit is preserved and stored: Put unit into operation every 6 months as follows:

After an extended period of storage the oil in the compressor and the motor will age. For this reason, you should drain the old off after 2 years and then replace it with new oil, see Chapter 9.5.2 Changing the oil, Page 83.

1. Open the outlet cock.
2. Operate unit for 10 minutes.
3. For compressors with compressed oil lubrication: Ensure that the compressed oil lubrication is working correctly. In doing so, check the oil flow in the sight glass and/or oil pressure at the pressure gauge.
4. Stop the unit.
5. Open the condensate drain cocks and release the pressure.
   ↳ The unit is pressure-free.
6. Close condensate drain cocks.
7. Preserve unit again, see Chapter 5.2.3 Preservation , Page 53.

6 Installation

6.1 Preparing the installation site

1. Ensure necessary environmental conditions, see Technical data.
2. Make sure that the surface is even and clean.
3. Ensure that the machine's own weight and all operating forces can be accepted and that the stability of the machine is guaranteed.
4. Ensure that the undergrund is suitable for the fixation of the machine according to the fundation plan.
5. Ensure that there is enough space around the machine. Observe the minimum required distances and the pivot range of the doors.
6. Ensure that the cooling air openings leave free.

6.2 Assembling the unit

6.2.1 Installing the unit

⚠ DANGER

Danger of poisoning!

- Never use units with a gas engine inside closed rooms.
- Never use units around open flames.

⚠ WARNING

Danger of injuries due to improper assembling!

Improper assembling can result in personal and material damage.

- Install and connect the unit properly and in accordance with the relevant guidelines.

1. Install the unit such that it is not exposed to direct sunlight.
2. Ensure that the machine can be accessed from all sides.
3. Ensure that there is 50 cm of space around the machine for fitting and disassembling the lines as well as for maintenance work and disassembling and assembling the machine.
4. The unit should be installed in such a way that the cooling fan on the compressor can draw in cool air from the outside. For this, install the unit as close as possible to the suction opening.
5. Install the unit in such a way that intake of heated up or even hot air is avoided.

Erecting the unit outdoors

NOTICE

Material damage due to seawater and corrosion!

- In case of operation in salty atmosphere, spray the unit with coating against corrosion.
- Always use and keep units with an electric motor below deck.
- Always keep units with a gas engine below deck.

1. Install the unit in a horizontal position.
2. Erect the unit with respect to the wind direction so that the exhaust gases are not drawn in. Use the intake telescope or intake hose with pre-filter to increase the distance between the exhaust gases and the air intake. If the wind changes you must turn the unit accordingly.

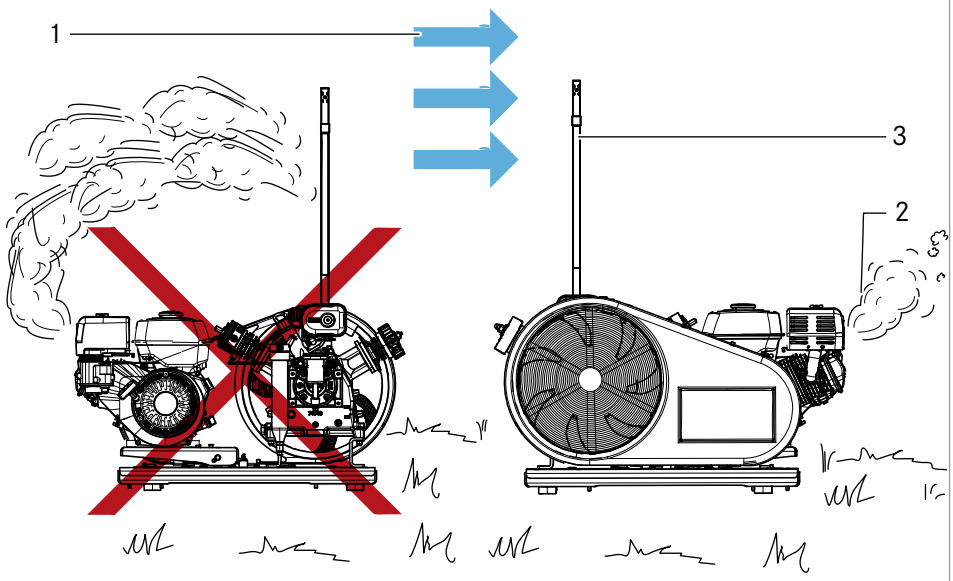


Fig. 13 Erection of a unit with a petrol engine

1	Wind direction	3	Intake telescope or intake hose with pre-filter
2	Exhaust gases		

3. Make sure that there are no vehicles with their engines running close to the suction section.

6.2.2 Installing the B-TIMER

› Mount the B-TIMER on the filter housing of the filter to be monitored using a fastener.

6.3 Connecting the unit to the electrical mains

⚠ DANGER

Danger to life due to electric voltages!
Contact with live parts can lead to death or serious injuries.

› Work on the electrical unit may be carried out by an electrician only.

› Make sure that the unit is tension-free for the necessary work.

1. Follow the basic safety instructions, see Chapter 2.4.1 Fundamental safety information, Page 18.
2. Observe the local electricity supply company's regulations.
3. Check for perfect protection line laying.
4. Check that the motor voltage, switchgear voltage and frequency agree with the mains voltage and mains frequency.
5. Secure the unit properly. For this, use only slow-acting fuses.
6. The customer must supply the required cabling, main fuse and a main switch (power circuit breaker).
7. Ensure that the main switch can be related distinctly and directly to the unit.
8. For permanently fixed installations: Fit an isolator for isolation from the mains having a contact opening distance of at least 3mm at each terminal.

6.4 Inspection of the unit

At the BAUER KOMPRESSOREN factory, components such as the compressor, storage system and other accompanying components are subjected to a technical partial acceptance inspection by the TÜV.

› Before commissioning the unit, have it inspected at the installation site by a qualified person or authorised inspection agency, see Chapter 2.8 Safety regulations, Page 27.

7 Commissioning and operation

7.1 Starting up the unit

7.1.1 Checks before each commissioning

✓ The unit is correctly installed and connected.
✓ All the safety equipment is installed and tested for proper function.

1. Ensure that only trained, instructed or competent personnel operate the machine, see Chapter 2.6.2 Personnel selection and qualification, Page 25.
2. Determine whether maintenance work needs to be performed, see Chapter 9.2 Maintenance table, Page 77.
3. Perform oil level check and if needed, refill oil, see Chapter 9.5 Maintenance activities - Lubricating oil system, Page 82.
4. Perform a visual inspection of all components. If there are any irregularities, switch off the unit immediately and locate and rectify any errors or get in touch with the BAUER customer service department, see Chapter 1.2.7 Contact data BAUER KOMPRESSOREN, Page 13.
5. For first commissioning, observe Chapter 7.1.2 Starting up the unit for the first time, Page 60 in addition.
6. When commissioning after a long standstill, observe Chapter 7.1.3 Starting up the unit after longer downtimes, Page 61 in addition.

↳ The unit is ready for operation.

7.1.2 Starting up the unit for the first time

1. Follow the instructions on commissioning, see Chapter 7.1.1 Checks before each commissioning, Page 59.
2. Turn the compressor over by hand using the flywheel to check that all components are capable of moving freely.
3. Check all fixing screws for tightness. If needed, re-tighten them with the specified torque.
4. Check all screwed pipe fittings for leaks. If needed, re-tighten them with the specified torque.
5. Make sure that the rotation direction of the motor is correct, see Chapter 7.1.4 Checking the direction of rotation of the motor, Page 62.

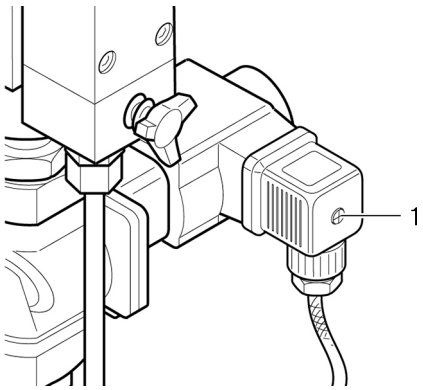


Fig. 14 Plug of solenoid valve coil

1 Screw to pull out the plug

6. Remove the plug from the solenoid valve coil and allow the compressor to run with open condensate drain valves for 10 minutes in order to ensure perfect lubrication before starting to build up the pressure.
7. After 10 minutes, fit the plug of the solenoid valve coil again.
8. Observe the pressure build-up in the unit properly. If there are any irregularities, switch off the unit immediately and locate and rectify any errors or get in touch with the BAUER customer service department, see Chapter 1.2.7 Contact data BAUER KOMPRESSOREN, Page 13.

7.1.3 Starting up the unit after longer downtimes

1. Follow the instructions on commissioning, see Chapter 7.1.1 Checks before each commissioning, Page 59.
2. Treat the motor in accordance with the instructions provided by the motor manufacturer.
3. After an extended period of storage, or after a standstill time of more than 2 years: the oil should be drained off and replaced with fresh oil, see Chapter 9.5.2 Changing the oil, Page 83.
4. After the unit has been at a standstill for longer than 6 months: replace the filter cartridge in the fine after-cleaner, see Chapter 9.7.2 Changing the cartridge of the fine after-cleaner, Page 87.

⚠ WARNING

Danger of injuries due to highly compressed escaping gas!
The escaping gas stream may cause uncontrolled movements of hoses and flexible pressure lines. In addition, the escaping gas may generate a hazardously loud noise.

❱ Wear ear defenders.

❱ Fasten or tighten the valves that are attached to hoses.

5. Start the unit with open outlet cock or filling valve and run for 10 minutes to warm up.
6. Check the oil flow and/or oil pressure.

Is the oil flow and/or oil pressure incorrect?

❱ Check the compressed oil lubrication and, if necessary, vent the oil circuit.

7. Close the outlet cock or the filling valve.
8. Test the final pressure safety valve for proper function, see Chapter 9.10.1 Checking the function, Page 92.
9. Check the intermediate pressure safety valve for leaks.
10. If the unit operates normally, stop it.

↳ The unit is ready for operation.

7.1.4 Checking the direction of rotation of the motor

⚠ DANGER

Danger to life due to electric voltages!
Contact with live parts can lead to death or serious injuries.

- Work on the electrical unit may be carried out by an electrician only.
- Make sure that the unit is tension-free for the necessary work.
- Switch off the unit and secure it from being accidentally switched on again.
- Do not make any changes in the motor terminal box.
- Before switching on the unit, make sure that all panels have been fitted properly.

NOTICE

Material damage due to incorrect direction of rotation of the unit!
The integrated oil pump lubricates the compressor block only if the direction of rotation is correct. Inadequate lubrication can result in damage to the unit.

- Ensure that the direction of rotation of the motor corresponds to the direction of rotation arrow on the unit.

- Check the direction of rotation of the motor immediately after switching on with the direction of rotation arrow on the unit.

? *Does the direction of rotation of the motor not correspond with the direction of rotation arrow on the unit?*

- Switch off the unit.
- Swap two of the three phases at the input terminals in the switchgear box.

7.1.5 Preparing for the operation with B-TIMER

1. Ensure that the compressor's pressure retention valve is set to 160 bar and that it is functioning correctly. Otherwise, the operation detection and the display of filter capacity do not function correctly.
2. Ensure that the settings in the setup menu are correct. Otherwise, the B-TIMER can only be used as an operating hours counter.
3. Reset all maintenance counters, see Resetting the B-TIMER, Page 68. Otherwise, incorrect maintenance intervals are shown since storage periods are not taken into account.

7.2 Operation

⚠ CAUTION

Danger of injury due to automatic re-start of the unit!
The unit can re-start automatically depending on the version.

- Follow the safety instructions for the unit.
- Operate the unit only if the safety devices are installed.
- Ensure that a suddenly restarted unit does not pose dangers to people or the machine.

7.2.1 Switching the unit on

- ✓ First commissioning has been performed correctly, see Chapter 7.1.2 Starting up the unit for the first time, Page 60.
- ✓ The unit has been prepared correctly for commissioning, see Chapter 7.1.1 Checks before each commissioning, Page 59.
- ✓ All covers are kept closed.

1. Open the condensate drain cocks to allow the pressure to dissipate and to allow the engine to start under zero load.

The compressor is automatically unloaded on units with automatic condensate drain.

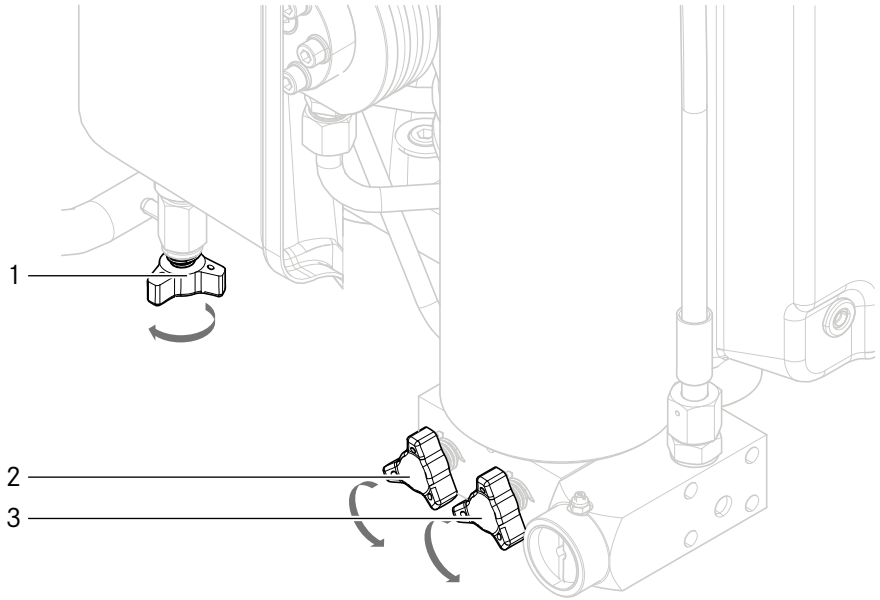


Fig. 15 Open the condensate drain cocks

1	Condensate drain cock	3	Condensate drain cock
2	Condensate drain cock		

2. For units with electric motor: Set main switch to **I**.

   - Or -

   For units with petrol engine: Open the fuel tap. Set ignition switch to **I**. Set the choke on the petrol engine to Start and start the engine using the pull starter. As soon as the engine starts and is running smoothly, set the choke to Run.

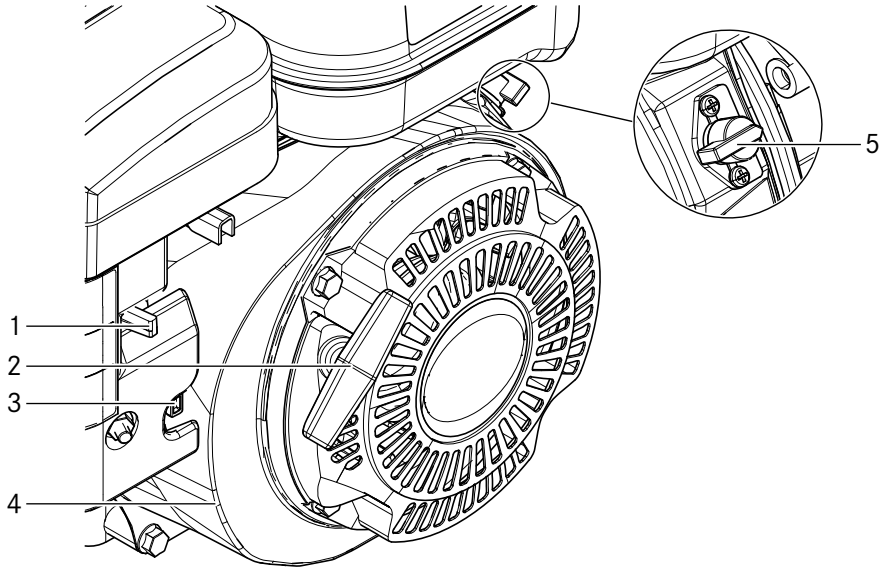


Fig. 16 Starting units with petrol engine

1	Choke	4	Petrol engine
2	Pull starter	5	Ignition switch
3	Fuel tap		

3. Close the condensate drain cocks and run the unit to final pressure.
4. Check the final pressure safety valve and pressure gauge.
5. Open the condensate drain cocks and drain the condensate when the final pressure is reached.

↳ The unit is ready for filling.

7.2.2 Switching the unit off

1. Close filling valve.
2. For units with electric motor: Set main switch to **0**.

   - Or -

   For units with petrol engine: Set the ignition switch to **0** and close the fuel tap.
3. Drain the condensate.
4. De-pressurize the unit to approx. 50-80 bar using the filling valve.
5. Close the condensate drain cocks and filling valve to prevent moisture from penetrating and causing saturation of the filter cartridge.

7.2.3 Behaviour in case of emergency

Switching the unit off in case of an emergency

The unit is equipped with at least one emergency stop switch, see Chapter 2.4.7 Safety and monitoring equipment, Page 23.

❱ Press the emergency stop switch.

↳ The control voltage will be interrupted.

Restarting the unit after an emergency

✓ The emergency situation no longer exists. The cause has been rectified.

1. Turn the red button of the emergency stop switch clockwise.
2. If applicable, reset the alarm message on the control unit.
3. Switch the unit on.

7.2.4 Monitoring operation

1. For units without an operating hours counter: Note the operating hours down in order to ensure precise compliance with the maintenance intervals.
2. Monitor the operating hours to observe the permissible cartridge idle times of the filter system, see Chapter 9.7 Maintenance activities - Filter system, Page 86.
3. Monitor the number of load cycles to adhere to the permissible load cycle numbers of pressure vessels, see Safe handling of pressure vessels, Page 22. If there is no automatic cycle counter: Note down the number of load cycles run.
4. Drain condensate every 15 minutes.

   - Or -

   For units with an automatic condensate drain, ensure that it drains water off every 15 minutes.

7.2.5 Operating the B-TIMER

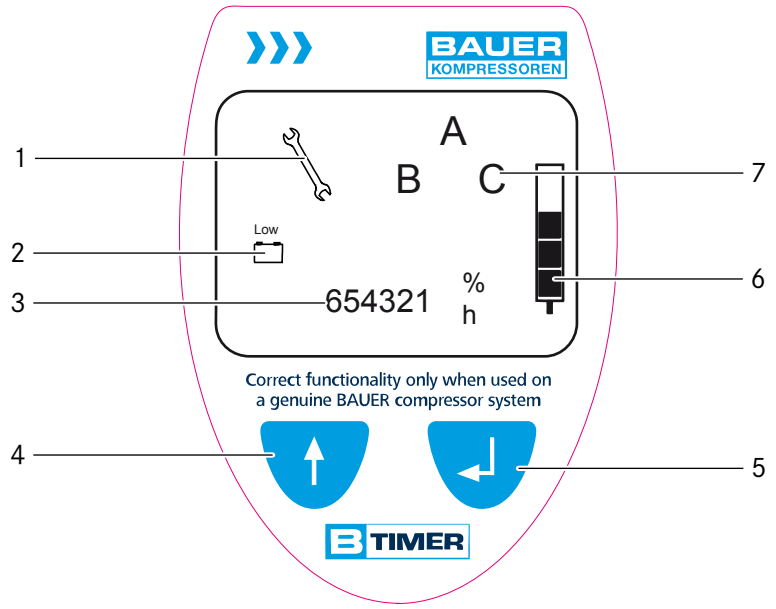


Fig. 17 Display and operating elements

1	Display of due maintenance	5	Input key
2	Display of low battery status	6	Display of cartridge saturation
3	Display of operating hours or cartridge number	7	Display of due maintenance type or the setup menu
4	Selection key		

Switching on the B-TIMER

The B-TIMER switches itself on when the compressor is activated. The compressor operation is indicated in the display of the B-TIMER using a flashing "h".

› Press one of the buttons to switch on the B-TIMER without compressor operation.

↳ The main menu is displayed.

If no button is actuated within 1 minute, the display reverts to the main menu.

2 minutes without pressing a button and compressor operation causes the B-TIMER to switch off.

Toggling the display

The B-TIMER shows the following information:

- Main menu
- Remaining filter capacity in percent
- Number of operating hours until service interval A (500 hours or yearly)
- Number of operating hours until service interval B (1000 hours or every 2 years)
- Number of operating hours until service interval C (2000 hours or every 4 years)
- Filter cartridge number (the filter icon blinks)

❯ Press the selection key to toggle between the displays.

Resetting the B-TIMER

✓ The filter cartridge was replaced or corresponding maintenance activities have been carried out.

1. Switch to the corresponding display to reset the filter capacity of maintenance interval A, B, C.
2. Press the input key on the corresponding display for longer than 5 seconds.

Setting the B-TIMER

The following values can be set on the B-TIMER:

- Enter the numbers of filter cartridges used
- Set the delivery volume
- Set the operating pressure
- Set the operating hours

After changing the set values, the B-TIMER must be reset.

1. Invoke the display of cartridge number to access the setup menu.
2. Press the selection key and the input key on the display simultaneously for longer than 5 seconds.

↳ The filter icon blinks and shows the setup menu.

Press the selection key twice to return to the main menu.

Setting the filter cartridge number

1. In the setup mode, press the selection key until the corresponding sub-menu is reached.

   ↳ The filter icon blinks and "A" is shown.
2. Refer to the order documents for the number of the filter cartridge used.
3. Press the input key for 3 seconds if you want to change the setting.

   ↳ The filter cartridge number starts blinking.
4. Use the selection key to select the desired filter cartridge number.

   - Or -

   For filter cartridge numbers that start with 999: Select 999000 using the selection key. Then set the respective flashing zero using the selection key and always confirm the changes using the input key.
5. Confirm the change using the input key.

Setting the delivery volume

1. In the setup mode, press the selection key until the corresponding sub-menu is reached.
   ↳ The filter icon blinks and “B" is shown.
2. Refer to the order documents for the delivery volume of the compressor in l/min.
3. Press the input key for 3 seconds if you want to change the setting.
   ↳ The 1stposition starts blinking.
4. Use the selection key to set the 1stposition as desired.
5. Confirm the change using the input key.
   ↳ The 2ndposition starts blinking.
6. Set the 2nd and 3rdpositions accordingly.

Setting the operating pressure

1. In the setup mode, press the selection key until the corresponding sub-menu is reached.
   ↳ The filter icon blinks and “C" is shown.
2. Press the input key for 3 seconds if you want to change the setting.
3. Use the selection key to set the operating pressure (200 bar, 200 bar or 200/300 bar).
4. Confirm the change using the input key.

Setting the operating hours

1. In the setup mode, press the selection key until the corresponding sub-menu is reached.
   ↳ The filter icon blinks.
2. Press the input key for 2 seconds if you want to change the setting.
   ↳ The last position starts blinking.
3. Use the selection key to set the last position as desired.
4. Confirm the change using the input key.
   ↳ The next position starts blinking.
5. Set the next positions accordingly.

7.2.6 Filling operation

⚠ DANGER

Danger of poisoning due to pollutants in breathing air!
Inhaling harmful gases can be dangerous to life.

- Make sure that the air drawn in is free from toxic gases, exhaust gases or solvent vapours.
- Do not fill breathing air cylinders with air from workrooms.
- Do not fill breathing air cylinders if the air drawn has a CO component of more than 25 ppmV (parts per million by volume). This is applicable even when using a CO filter cartridge.
- After a standstill period of more than 6 hours, flush the compressor unit before connecting breathing air cylinders.

Flushing the unit

⚠ CAUTION

Danger of injury due to loud noises!

- Wear ear defenders.

1. Switch on unit.
2. Secure the filling valve, point it downwards and open it slowly.
3. Release the compressed air into the atmosphere for 2 minutes.
4. Close filling valve.

↳ The unit is ready for the filling operation.

Filling the compressed air cylinders

⚠ WARNING

Danger of injuries due to the use of non-approved or damaged filling equipment and compressed air cylinders!
Unsuitable or damaged material may explode or rupture under pressure. The use of non-approved intermediate pieces is prohibited.

- Ensure that filling equipment and compressed air cylinders are in a flawless condition.
- Ensure that the compressed air cylinder to be connected for the filling pressure are approved; refer to the stamp on the shoulder of the cylinder.

Compressed air cylinders with an international filling connection can be connected with the international bracket filler connection (order number 79375).

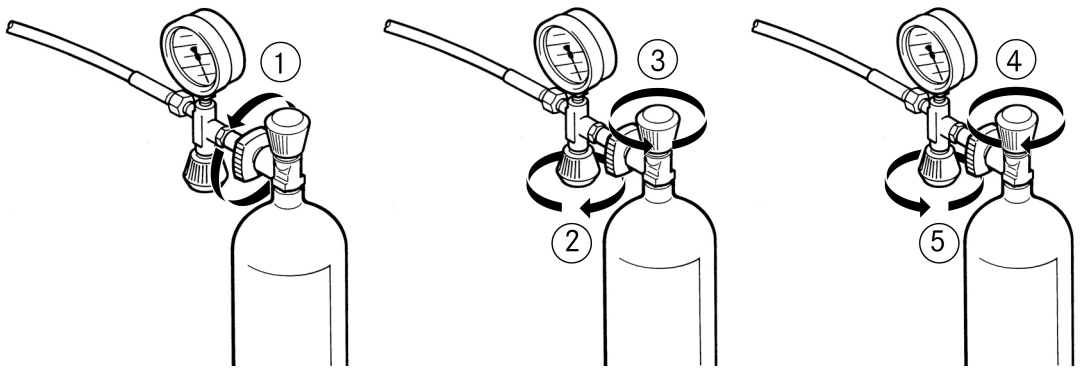


Fig. 18 Filling the compressed air cylinders

1	Connect compressed air cylinder	3	Open cylinder cock	5	Close filling cock
2	Open filling cock	4	Close cylinder cock		

1. Connect the compressed air cylinder to the cylinder connection.
2. Open filling cock.
3. Open cylinder cock.
   - The compressed air cylinder is filled.
4. Close the cylinder cock once the final pressure is reached.
5. Close filling cock.

6. Remove the compressed air cylinder.

During filling, the compressed air cylinder heats up because of the subsequent compression in the compressed air cylinder. Allow the cylinder to cool after removing it: this causes the pressure in the compressed air cylinder to drop. The compressed air cylinder can then be reconnected and filled until the relevant nominal filling working pressure is achieved.

Operating the changeover device

On units having a changeover device you can fill compressed air cylinders with a filling pressure of 200 bar from a unit with PN 300.

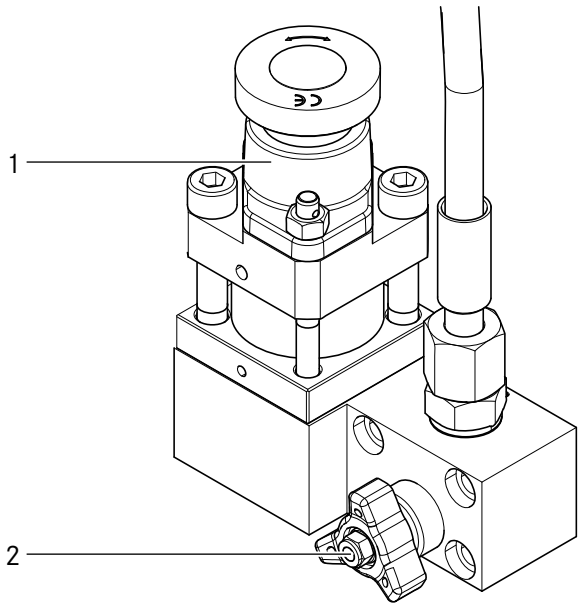


Fig. 19 Structure of changeover device

1 Safety valve 2 Switch-over valve

1. Open the switchover valve.
   The safety valve and the PN 200 bar filling device are actuated in addition.
2. Fill the compressed air cylinders with a filling pressure of 200 bar.
3. Close the changeover valve again to fill compressed air cylinders with 300 bar.

8 Troubleshooting

8.1 Fault finding and fault correction

8.1.1 Fault finding in drive motor

Description	Cause	Rectification
Motor does not start.	Fault in the electrical power supply.	Check lines and fuses. Compare the motor data with the mains supply.

8.1.2 Fault finding in compressor block

Description	Cause	Rectification
No oil pressure.	Air in the oil pump.	Vent the oil pump and lines.
The compressor does not achieve final pressure.	Line or condensate drain valves leaking. Final pressure safety valve blows off too early. Piston rings stuck or worn. Piston clearance too large.	Tighten and seal lines. Clean condensate drain valves and replace if worn. Clean and reset final pressure safety valve. Free the piston rings or replace them if needed. Check clearance and replace parts if necessary.
Delivery rate drops.	Pipings leaking.	Tighten and seal lines.
Intermediate pressure safety valve blows off.	Intermediate pressure too high, suction valves or pressure valves leaking.	Check suction and pressure valves and replace if needed.
Compressor getting too hot.	Cooling air feed is inadequate. Suction valves or pressure valves leaking. Direction of rotation is incorrect.	Check installation. Observe a max. ambient temperature of +45 °C. Check suction and pressure valves and replace if needed. Check and rectify direction of rotation.
Taste of oil in the air.	The filters are not serviced, and the filter cartridges are saturated. Incorrect oil type used.	Maintain the filters and replace the filter cartridge. Use approved oil. Carbonised valves should be cleaned.

8.1.3 Fault finding in electrical control system

Description	Cause	Rectification
Control system does not switch on.	No control voltage present. Control fuse defective. Control voltage circuit interrupted due to loose line or terminals. Thermal over-current relay has responded.	Check the supply line. Replace fuse and rectify the cause. Tighten the terminals. Check compressor drive and correct the settings.
Thermal over-current relay for drive motor responds.	Power consumption too high. Over-current relay is set too low.	Check compressor drive. Rectify the setting.
Control system does not switch off; the final pressure safety valve blows off.	Final pressure monitor is set too high. Final pressure safety valve defective.	Rectify the setting. Replace the safety valve.

8.1.4 Error display B-TIMER

Description	Cause	Rectification
"Error 1" or "Error 2" is shown on the display.	Temperature sensor defective.	B-TIMER must not be used any longer. BAUER Contact the Customer Service and get the device repaired.

8.1.5 Fault finding in automatic condensate drain

Description	Cause	Rectification
Condensate drain valves do not close.	No pilot air present. Condensate drain valves contaminated and therefore leaking.	Check the feed of the pilot air. Remove and clean condensate drain valves.
Condensate drain valves do not open.	Condensate drain valve piston blocked.	Remove and clean condensate drain valves. Replace condensate drain valves, if necessary.
Solenoid valve does not close.	Solenoid valve defective. Solenoid valve does not receive power.	Check solenoid valve and replace if necessary. Check electrical control system and timer.
Solenoid valve does not open.	Solenoid valve defective. Continuous voltage on solenoid valve.	Check solenoid valve and replace if necessary. Check electrical control system and timer.
Inadequate water removal, a lot of condensate when the manual drain cocks are opened.	Nozzles in the condensate drain valves associated with the 3rd or 4thstage blocked.	Unscrew and clean the nozzles of the condensate drain valves associatedwith the 3rd and 4th stages.

9 Maintenance

9.1 Evidence of maintenance

For the evidence of regular maintenance activities, we recommend using the service log book supplied with the station, in which details of all work carried out should be entered together with the date on which it took place. This helps to prevent the need for costly repairs as a result of neglecting to carry out maintenance work. Acknowledge with date and signature.

In the event of warranty claims being made, the service log book will help you to prove that this work has been carried out and that damage cannot be attributed to insufficient maintenance. BAUER KOMPRESSOREN refers to its General Terms and Conditions.

9.2 Maintenance table

The following chapters describe the maintenance activities that are listed in the maintenance table, and which are necessary for optimal and fault-free operations. If the regularly scheduled checks reveal an enhanced degree of wear and tear, the required maintenance intervals must be shortened in accordance with the observed wear and tear.

Information regarding the maintenance intervals can be found in the maintenance booklet.

In case of queries related to maintenance work and maintenance intervals, please contact the service department of BAUER KOMPRESSOREN, see Chapter 1.2.7 Contact data BAUER KOMPRESSOREN, Page 13.

9.3 Resources for maintenance and repairs

9.3.1 Bolt torques

Unless otherwise stated, the following torques must be used. The specified values apply to greased bolts.

Valve head screws must be tightened with a torque wrench. Self-locking nuts must not be re-used, replace them.

Exception related to the following torques: Ensure that the fixing screws for the final pressure safety valve (059410, M 8) are only tightened with 10 Nm (7 ft. lbs.).

Type of bolt	Thread	Max. torque
Hex head bolts, hexagon socket bolts	M 6	10 Nm (7 ft. lbs.)
Hex head bolts, hexagon socket bolts	M 8	25 Nm (18 ft. lbs.)
Hex head bolts, hexagon socket bolts	M 10	45 Nm (32 ft. lbs.)
Hex head bolts, hexagon socket bolts	M 12	75 Nm (53 ft. lbs.)
Hex head bolts, hexagon socket bolts	M 14	120 Nm (85 ft. lbs.)
Hex head bolts, hexagon socket bolts	M 16	200 Nm (141 ft. lbs.)
Pipe fittings (cutting ring fittings)		hand tight + 1/2 turn

Tab. 17 Bolt torques

9.3.2 Bolt tightening sequence

All the valve head screws, cylinder fixing screws and the corresponding nuts must be tightened evenly in a cold condition, and this must be done in the following order.

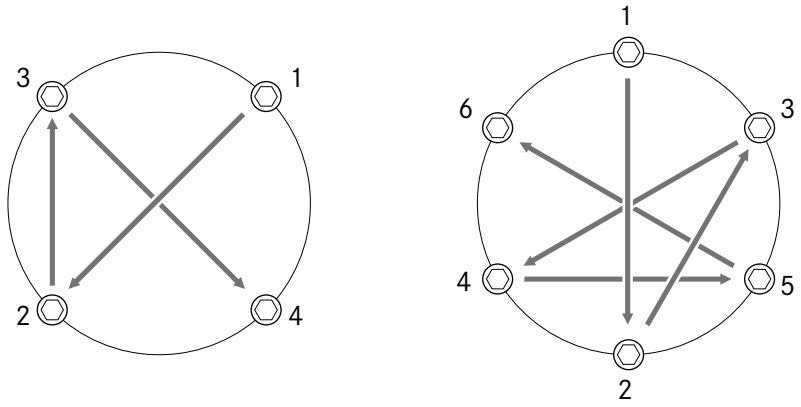


Fig. 20 Bolt tightening sequence

9.3.3 Lubricant

Application range	Lubricant
Rubber parts, plastic parts, thread of the filter housing	BAUER special grease, order number N19752 (container - 350 g) or BAUER special grease, order number 072500 (container - 3 g)
O-rings	BAUER special grease, order number 072500 (container - 3 g)
Shaft seal rings: Ring and shaft	BAUER special grease, order number 072500 (container - 3 g)
Bolts, pins, threaded pins	BAUER special grease, order number N19753 or similar material with copper or MoS_2 additive

Tab. 18 Lubricant table

9.3.4 Lubrication oil

Depending on the type of application of the unit, the following is demanded of the lubrication oil that is used:

- low residue formation
- no carbon deposits in the valves
- good corrosion protection
- emulsification of condensed water in crankcase

To ensure perfect operation, BAUER KOMPRESSOREN recommends using only those oils listed in this operating instructions and that have been tested and approved by us, see Lubrication oil list, Page 80.

Lubrication oil list

BAUER KOMPRESSOREN units are delivered ex factory with oil filling (order number N28355).

Oil type			Type of application	Ambient temperature
Designation	Order no.	Oil type		
BAUER compressor oil	N28355	Synthetic	Breathing air	+5...+45°C
BAUER compressor oil	N22138	Mineral	Breathing air	+5...+45°C

Tab. 19 Lubrication oil list

BAUER compressor oil can be delivered in the following packing units:

Volume	Oil type	
	Synthetic oil N28355	Mineral oil N22138
0.5-l cylinder	N28355-0.5	N22138-0.5
1-l cylinder	N28355-1	N22138-1
5-l can	N28355-5	N22138-5
20-l can	N28355-20	N22138-20

Tab. 20 Packing units - BAUER compressor oil

9.3.5 Adhesive and sealants

Application range	Adhesive or sealant
Bolt locking, gluing in of threaded studs	Order number N25834
Sealing conical threads	Order number N28220
Metal-on-metal sealing, high-temperature bonds, e.g. valve heads, cylinders	Temperature-resistant sealant, e.g. order number N18247
Paper gaskets	Order number N18247

Tab. 21 Adhesive and sealant table

9.3.6 Test medium

Application range	Test medium
Screwed fittings, lines	Leak detection spray, order number N25833

Tab. 22 Test medium table

9.4 De-pressurising the unit

✓ The unit is switched off.

1. Open the condensate drain cocks.

⚠ CAUTION

Danger of injury due to loud noises!

❱ Wear ear defenders.

2. Secure the filling valve, point it downwards and open it slowly.
3. Channel the compressed air out in the open until the pressure gauge shows 0 bar or the unit is pressure-free.
4. Close the filling valve and condensate drain cocks.

↳ The unit is pressure-free.

9.5 Maintenance activities - Lubricating oil system

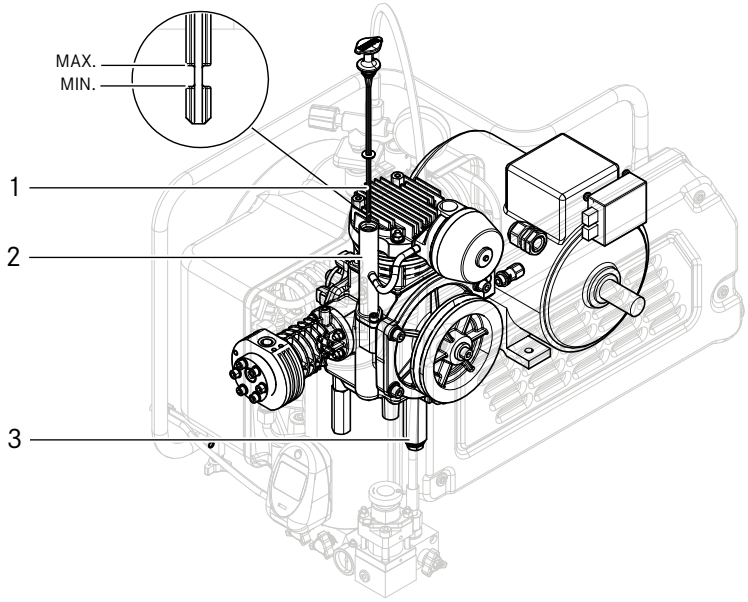


Fig. 21 Lubrication oil system, view from the rear

1	Oil dipstick	3	Oil drain screw
2	Oil filler spigot		

9.5.1 Checking the oil level

NOTICE

Damage to unit due to incorrect oil level!

› Ensure that the oil level does not undercut the minimum level or exceed the maximum level, otherwise the compressor gets over-lubricated and the valves carbonise.

› Pull out the oil dipstick and check the oil level. The oil level must be within the two markings on the oil dipstick.

Is the oil level under the minimum mark?

› Refill oil, see Filling oil, Page 83.

9.5.2 Changing the oil

NOTICE

Damage to the compressor due to contaminated oil filter!
If the oil filter is contaminated, the bypass valve in the oil filter opens. The unfiltered oil then circulates through the compressor.

❱ Replace the oil filter after each oil change operation.

Draining the oil

✓ Unit is at operating temperature.
✓ Suitable container is available for collecting the oil.

1. Remove oil drain screw at the bottom of the crankcase using a 17 mm open-ended spanner.
2. Collect the oil in a suitable container.
3. Replace the oil drain screw.

The seal is cast in place and can be used several times.

NOTICE

Environmental damage due to oil that has not been disposed of properly!

❱ Dispose of used oil as special waste. Be mindful of the local regulations relating to the disposal of special waste.

4. Dispose of used oil.

Filling oil

✓ Suitable BAUER compressor oil is available, see lubrication oil list. Refer to technical data for the required quantity.

1. Open oil filler spigot.
2. Pour fresh oil in up to the upper mark on the oil dipstick.

   - Or -

   If a new oil (as opposed to the type that has been used so far) is supposed to be used: Change the oil.
3. Close oil filler spigot.
4. Check the oil level.
5. Wait for a few minutes, then start up the unit when the oil level is as it should be.

9.5.3 Changing the oil type

✓ Oil is drained

NOTICE

Damage to unit due to improper change of oil type!

❱ Adhere to the following instructions when switching over to another oil type.

1. Check the valves, coolers, separators and lines for deposits.

Are deposits present in valves, coolers, separators or lines?

❱ Remove deposits, or replace valves, coolers, separators and lines.

2. Fill compressor with new oil.
3. After 100 operating hours: Check the compressor oil for total contamination level. Change the oil if it is severely contaminated.

9.6 Maintenance activities - Intake section

9.6.1 Replacing the suction filter

The maintenance intervals are dependent on the condition of the air being drawn in. If there is a lot of dust it may be necessary to carry out maintenance monthly or weekly.

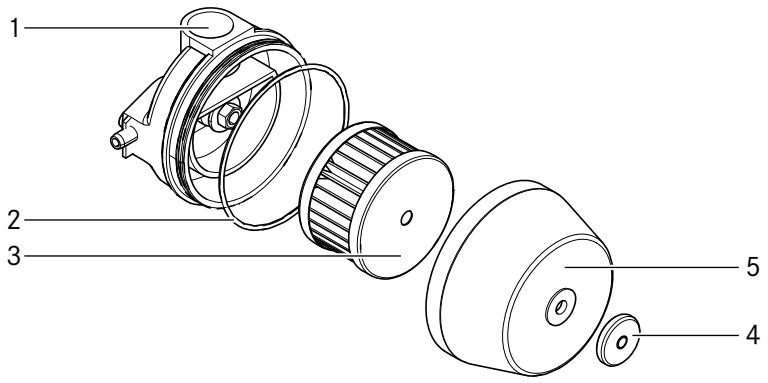


Fig. 22 Suction filter

1	Suction opening	4	Knurled nut
2	O-ring	5	Filter head
3	Filter element		

⚠ WARNING

Danger of poisoning due to contaminated breathing air!

- Ensure cleanliness and hygiene.
- Only use cleaning agents and sealant that are suitable for breathing air.

1. Remove knurled nut.
2. Remove filter head.
3. Remove the filter element from the housing.
4. Clean the filter housing with a damp cloth. Make sure that no dust gets into the intake tube.
5. Replace the O-ring in the event of wear.
6. Insert new filter element.
7. Replace the filter head and secure the knurled nut.

9.7 Maintenance activities - Filter system

9.7.1 Determine the service life of the cartridge

- ✓ New filter cartridge is available.
- ✓ The service life card is available; it is included with the filter cartridge.
- ✓ Scales are available.

1. Unpack the new filter cartridge.
2. Weigh the new weight of the unpacked filter cartridge and enter on the service life card.
3. Check the weight of the filter cartridge in use again at regular intervals. Use the same scales as used for the determination of the new weight.
4. Replace the filter cartridge when the permissible weight gain from the service life card has been reached.

9.7.2 Changing the cartridge of the fine after-cleaner

When the system has been used for the maximum permissible number of operating hours, the cartridge must be replaced.

- ✓ Vacuum packing of the cartridge is undamaged.
- ✓ Special filter spanner (part of the scope of supply).
- ✓ A clean cloth is provided.
- ✓ A suitable grease for breathing air application is available, see Chapter 9.3.3 Lubricant, Page 79.

⚠ WARNING

Danger of injury due to high pressure in the pressure vessel!

❱ De-pressurise the pressure vessel before carrying out any maintenance activities on it.

⚠ WARNING

Danger of poisoning due to contaminated breathing air!

❱ Ensure cleanliness and hygiene.

❱ Only use cleaning agents and sealant that are suitable for breathing air.

⚠ WARNING

Danger of poisoning due to unfiltered air!

When they are in mint condition, the filter cartridges are vacuum-packaged and capable of being stored for two years (see durability date on the filter cartridge). Defective vacuum packing or an overshot durability date cannot protect the filter cartridge adequately from environmental influences in storage. Under such circumstances, the filter cartridge can be saturated before it is used.

❱ Only use filter cartridges with undamaged vacuum packing.

❱ Do not use filter cartridges with overshot durability date.

1. De-pressurise the unit, see Chapter 9.4 De-pressurising the unit, Page 81, and drain the condensate.
2. Use the special filter spanner tool to unscrew and remove the filter head.
3. Pull the cartridge out of the filter using the bracket.

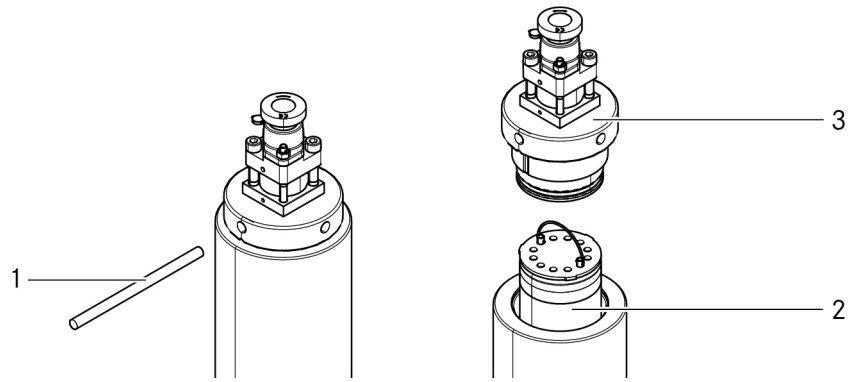


Fig. 23 Changing the cartridge of the fine after-cleaner

1 Special tool
2 Cartridge
3 Filter head

4. Wipe out the inside of the filter housing with a clean cloth. Check the filter housing for corrosion and, if necessary, replace the defective parts.
5. Remove the new cartridge from the vacuum packing, and remove the protection caps from both ends.
6. Insert the cartridge into the filter and push it firmly down into the mounting.
7. Clean and lightly lubricate the screwed fitting and thread of the filter head.
8. Screw in the filter head manually, and use the special wrench to tighten it. Maximum torque: 1 Nm

NOTICE

Environmental damage due to filter cartridges that have not been disposed of properly!

❱ Dispose of saturated filter cartridges as special waste. Be mindful of the local regulations relating to the disposal of special waste.

9. Dispose of saturated cartridge.

9.8 Maintenance activities - Pressure maintaining valve

9.8.1 Checking the pressure retention valve

A pressure gauge is connected upstream to the pressure retention valve.

❱ Check the pressure retention valve for leak-tightness on both the inside and the outside, and check its functioning.

As long as the pressure delivered by the compressor is below the set opening pressure of the pressure retention valve, the display on the final pressure gauge and the final pressure shows zero, the pressure increase before the pressure retention valve can be watched on the pressure gauge. As soon as the pressure retention valve starts to open, the final pressure gauge ad the final pressure display shows the initial rise in pressure. The opening pressure can be checked on the pressure gauge before the pressure retention valve.

See technical data for the opening pressure of the pressure retention valve.

Does the opening pressure of the pressure retention valve deviate from the specified setting value?

❱ Set the pressure retention valve.

9.8.2 Adjusting the pressure retention valve

The pressure retention valves may only be adjusted by trained personnel. For more information, contact the BAUER customer service department, see Chapter 1.2.7 Contact data BAUER KOMPRESSOREN, Page 13.

1. Disengage locknuts (if they are present).
2. Unscrew the setting screw a little.
3. Use the setting screw to re-adjust the opening pressure.

A rotation to the right increases the pressure, while a rotation to the left reduces it.

4. After the adjustment has been made, check whether the pressure retention valve is working properly, see Chapter 9.8.1 Checking the pressure retention valve, Page 89.

9.9 Maintenance activities for filling equipment

9.9.1 Maintaining the filling valves

A sintered filter in the filling valve body protects the filling valve from contamination.

Dismantle and clean the sintered filter of the filling valve as follows; in case of severe contamination, replace it if necessary:

✓ The compressor unit is switched off.
✓ The compressor unit is secured against restarting.

⚠ WARNING

Danger of poisoning due to contaminated breathing air!

❱ Ensure cleanliness and hygiene.

❱ Only use cleaning agents and sealant that are suitable for breathing air.

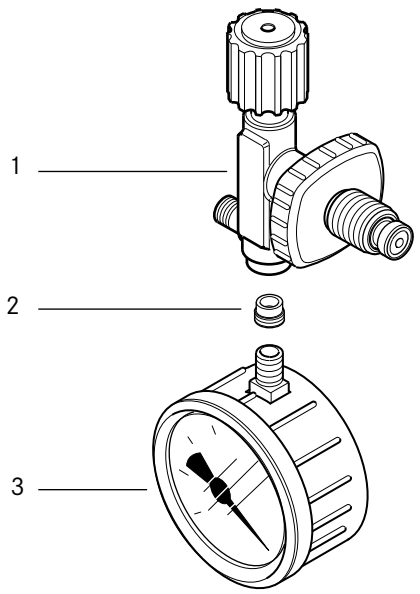


Fig. 24 Maintaining the sintered filter

1 Filling valve
2 Sintered filter
3 Pressure gauge

1. De-pressurise the compressor unit, see Chapter 9.4 De-pressurising the unit, Page 81.
2. Unscrew the pressure gauge from the filling valve body.
3. Unscrew the sintered filter using an adequately wide screwdriver.

4. Wash the sintered filter in a grease dissolving hot soap solution and blow out with compressed air; replace it in case of severe contamination or damage.
5. Screw in the sintered filter.
6. Seal the pressure gauge (see Chapter 9.3.5 Adhesive and sealants, Page 81, sealing conical threads) and screw in up to the desired position.

9.10 Maintenance activities for safety valves

⚠ WARNING

Danger of injuries due to the gas escaping at high pressure!
The resultant noise can damage hearing. Ejected particles may cause eye injuries.

- Wear protective goggles and personal ear defenders.
- Check the safety valves with utmost care when the compressor is running.
- Do not repair safety valves; replace them completely.

Only competent personnel may check the safety valves, see Chapter 2.6.2 Personnel selection and qualification, Page 25.

9.10.1 Checking the function

The final pressure safety valve can be vented in order to check its function.

1. Start the compressor unit.

NOTICE

Material damage due to excessively high test pressure!
- Restrict the test pressure to 80% of the final pressure.

2. On reaching the test pressure, rotate the knurled knob at the top of the final pressure safety valve towards the right until the final pressure safety valve blows off.

The final pressure safety valve blows off. It is functional.

Does the final pressure safety valve not blow off?

- Switch off the compressor unit immediately and replace the final pressure safety valve.
- Send the safety valve for repair, see Chapter 1.2.7 Contact data BAUER KOMPRESSOREN, Page 13.

The functional test ensures only the mobility of moving parts. For checking the actual blow-off pressure, see Chapter 9.10.2, Page 93.

9.10.2 Checking the blow-off pressure

BAUER KOMPRESSOREN recommends that the intermediate pressure safety valves be replaced very carefully. A the blow-off pressure can be tested only with considerable expenditure.

1. The final pressure switch is bypassed.
   Set the unit to the final pressure when the drain cock or filling valve is closed.
   ↳ The final pressure safety valve blows off.
2. Compare the blow-off pressure of the final pressure safety valve with the final pressure display.

9.11 Maintenance activities for pressure gauges

Pressure gauges must be checked in accordance with the maintenance schedule. Using a special testing manometer is recommended for checking the pressure gauges, see BAUER KOMPRESSOREN catalogue of high-pressure accessories.

Allowances should be made for minor deviations during operation. If the pressure gauge shows large inaccuracies, however, it will need to be replaced.

✓ A testing manometer is available.

1. Connect the testing manometer parallel to the pressure gauge to be checked.
2. Compare the display of the pressure gauge under operating conditions.
3. If the pressure gauge shows large inaccuracies, however, it will need to be replaced.

9.12 Maintenance activities - Intake valves and pressure valves

9.12.1 Servicing the suction valves and pressure valves

While servicing the valves, be mindful of the following action steps:

1. Clean contaminated suction and pressure valves. Do not use any sharp tools. Instead, soak the valves with diesel oil or petroleum and clean them with a soft brush.
2. Check the individual parts for excessive wear. If the valve seats and valve plates are showing indentations, replace the valves, see Chapter 9.12.2 Replacing the suction valves and pressure valves, Page 94.
3. Check the valve chamber in the valve heads for contamination and clean if required.
4. During reassembly, follow the correct sequence.
5. Check the seals and O-rings for perfect condition when re-assembling, and replace them if necessary.
6. Use a torque wrench to tighten the valve head screws, see Chapter 9.3.1 Bolt torques, Page 78.
7. After all the maintenance work has been completed, turn the compressor over by hand at the flywheel in order to determine that all parts have been fitted correctly.
8. Start up the unit.
9. 30 minutes after re-starting, switch the unit off and allow it to cool down.
10. Re-tighten the valve head screws with the specified torque, see Chapter 9.3.1 Bolt torques, Page 78. The settling of the seals can otherwise lead to loosening of the valves.

9.12.2 Replacing the suction valves and pressure valves

Only competent personnel may replace the valves of the compressor. For more information, contact the BAUER customer service department, see Chapter 1.2.7 Contact data BAUER KOMPRESSOREN, Page 13.

NOTICE

Material damage due to dissimilar suction and pressure valves!

❯ Replace the suction and pressure valves only in sets.

9.13 Maintenance activities - Automatic condensate drain

9.13.1 Checking the function of the automatic condensate drain

⚠ WARNING

Danger of injuries due to the gas escaping at high pressure!

❱ Wear protective goggles and personal ear defenders.

❱ After a water removal operation has been carried out by the automatic condensate drain, open the condensate drain cock of the automatic condensate drain.

↳ If almost no condensate is emerging, it means that the automatic condensate drain is working properly.

Is a lot of condensate emerging?

The automatic condensate drain or the condensate drain valve is not working properly.

❱ Find the fault and eliminate it.

9.13.2 Adjusting the timer

Only competent personnel may set the timer. For more information, contact the BAUER customer service department, see Chapter 1.2.7 Contact data BAUER KOMPRESSOREN, Page 13.

NOTICE

Material damage due to unsuitable condensate drain intervals!

Excessively short condensate drain intervals lead to the flooding of the separator and damage the downstream units.

› In case of humid air and humid gas, set the condensate drain intervals accordingly lower or get their settings configured.

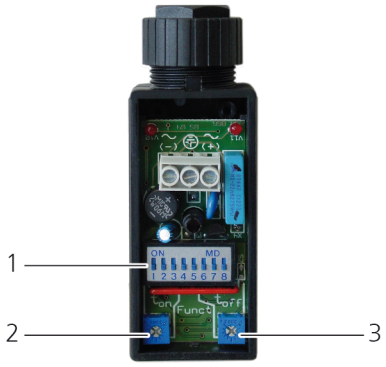


Fig. 25 Overview of the timer

1	DIP switch	3	Potentiometer t_{off}
2	Potentiometer t_{on}		

For the default setting of the timer, see Chapter 4.1 Technical data about the compressor unit, Page 39.

Set the timer as follows:

✓ Voltage is turned off.

1. Disengage the screw and remove the cover.

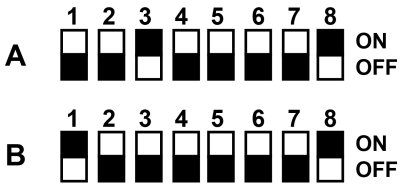


Fig. 26 Adjustment of DIP switch

2. Ensure that all DIP switches are set to OFF.
3. Set DIP switches 3 and 8 to ON, see part A.
   - This switch-over allows determining the drain interval in a setting range between 1.5 s and 30 s.
4. Switch on the voltage.

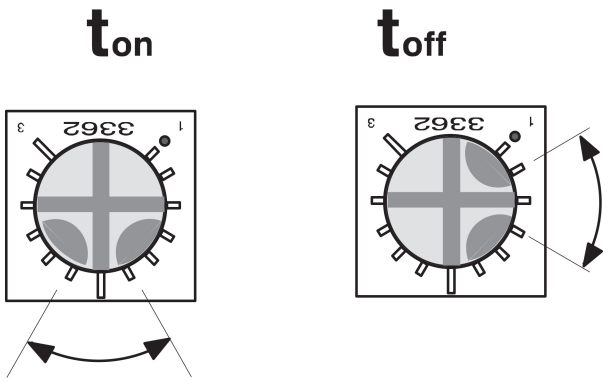


Fig. 27 Adjustment of potentiometer

5. Use potentiometer t_{on}, which is assigned to DIP switches 1 to 3, to set the drain interval (temporarily 15 seconds). To do so, turn the potentiometer to the extreme left.
   - The temporary drain interval of 15 s in the set range from 1.5 to 30 s lies approximately between 5 o'clock and 7 o'clock.
6. Determine the exact position using a stopwatch, and correct it if necessary.
7. Set the drain duration (temporarily set to 6 s) with the help of the potentiometer t_{off}, which is assigned to DIP switches 6 through 8. To do so, turn the potentiometer to the extreme left.
   - The temporary drain duration of 6 s in the set range from 1.5 to 30 s lies approximately between 2 o'clock and 4 o'clock.
8. Determine the exact position using a stopwatch, and correct it if necessary.
9. Switch DIP switch 3 and DIP switch 1 to OFF and ON, respectively, see part B.
   - The drain interval is now counted by the switch-over in minutes.

Adjusting the timer

Only competent personnel may set the timer. For more information, contact the BAUER customer service department, see Chapter 1.2.7 Contact data BAUER KOMPRESSOREN, Page 13.

The following timer is fitted to units having an electric motor:

NOTICE

Material damage due to unsuitable condensate drain intervals!
Excessively short condensate drain intervals lead to the flooding of the separator and damage the downstream units.

› In case of humid air and humid gas, set the condensate drain intervals accordingly lower or get their settings configured.

The timer controls the automatic condensate drain and is an industrial timer with a changeover contact. The automatic condensate drain is controlled using the setting regulators t1 and t2 for pulse time and pause time. The sliding switch is set to pulse start. t1 is set in the factory to 15 minutes, t2 is set to a blow-off time of 6 seconds.

9.14 Maintenance activities - Electrical system

9.14.1 Maintaining the electrical control systems

⚠ DANGER

Danger to life due to electric voltages!
Contact with live parts can lead to death or serious injuries.

- Work on the electrical unit may be carried out by an electrician only.
- Make sure that the unit is tension-free for the necessary work.

- Check all the screwed terminal connections in the switchgear box for tightness. Pay particular attention to the contacts on the power contactors.

Regardless of this, the required safety checks associated with BGV, DIN VDE or local regulations must be carried out by the operating company.

9.14.2 Adjusting the final pressure switch

Only competent personnel may set the final pressure switch. The warranty shall be void if the wax seal is removed.

The final pressure switch is set to the final pressure as per the order. If a readjustment is required, set the final pressure switch as follows:

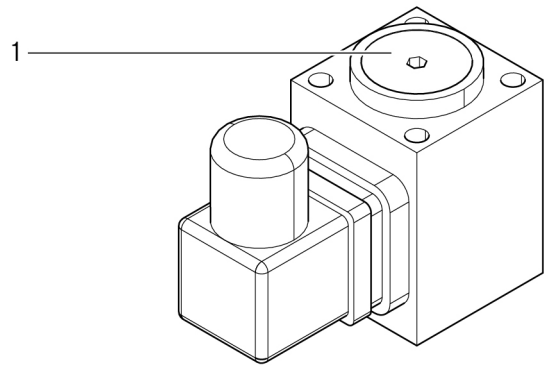


Fig. 28 Final pressure switch

1 Setting screw

› Use a 6-mm hexagon socket wrench to set the setting screw to the required pressure.

A rotation to the right increases the pressure, while a rotation to the left reduces it.

9.14.3 Replace the battery of the B-TIMER

The battery (BAUER order number: 82743) is placed in the battery compartment. A battery symbol is used to indicate that the battery is weak and must be replaced. The data is saved and is not lost when the battery is replaced.

Proceed as follows to replace the battery:

1. Unscrew the housing of the B-TIMER (2 screws).
2. Open the housing.
3. Pull out the plug.
4. Pull out the battery from the battery compartment.
5. Insert a new battery.
6. Connect the plug.
7. Close and screw the housing.

9.15 Maintenance activities - Drive system

9.15.1 Servicing the electric motor

1. Clean the exterior of the electric motor on an occasional basis.
2. Be mindful of the instructions on the electric motor that deal with additional maintenance activities.

9.15.2 Servicing the V-belt

Checking the the V-belt

› Check the V-belt for damage and wear and tear.

Replacing the the V-belt

› If the V-belts are damaged or worn out, replace them. In case the situation involves multiple V-belts, always replace them in sets.

10 Disassembly and disposal

10.1 Decommissioning

› If the unit is to be de-commissioned for more than 6 months, contact the technical customer service department of BAUER KOMPRESSOREN, see Chapter 1.2.7 Contact data BAUER KOMPRESSOREN, Page 13.

10.2 Disposal

NOTICE

Environmental damage in case of faulty disposal!
Electrical waste, electronic components, lubricants and other auxiliary materials are subject to the provisions regarding the treatment of special waste.

› Ensure that these materials are only disposed of by licensed specialised companies.

1. Be mindful of the local regulations.
2. Collect the emerging oil and gas, separate the two from each other, and dispose of them in accordance with the locally-applicable regulations.
3. Ensure that the disassembled components of the unit are, in accordance with the applicable local regulations, recycled or disposed of in an orderly fashion.

- Metallic components to be turned into scrap metal.
- Electrical and electronic components to be turned into electrical waste.
- Plastic parts, cardboard and paper should be recycled.
- Dispose of the remaining components after sorting them with respect to the nature of the materials.

11 Appendix

11.1 Declaration of conformity

The following conformity serves as an example. The original conformity declaration bearing the serial number and signature is delivered along with the machine.

EG-Konformitätserklärung
entweder im Sinne der EG-Maschinenrichtlinie 2006/42/EG
oder der Druckgeräterichtlinie 97/23/EG (Modul A1 bzw. H/H1*)

EC-Conformity declaration
either according to EC-machine directive 2006/42/EC or to the Pressure Equipment Directive 97/23/EC (Modul A1 respectively H/H1)*

BAUER KOMPRESSOREN

Hiermit erklären wir,
We
Firma
BAUER KOMPRESSOREN GMBH
Stäblistr. 8
D-81477 München

dass die nachfolgend bezeichneten Baueinheiten bzw. Baugruppen (Verdichter für Gase der Fluidgruppe 2) aufgrund ihrer Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Anforderungen der EG-Richtlinien entsprechen. Bei einer nicht mit uns abgestimmten Änderung der Baueinheiten bzw. Baugruppen verliert diese Erklärung ihre Gültigkeit.	*herewith confirm that the units or the assemblies (compressors for gas fluid group 2) mentioned below comply with the basic requirements of the EC directives concerning design, construction and putting the model into circulation. This declaration is no longer valid if the units or assemblies are modified without our approval.*
Die für das Erstellen der technischen Unterlagen zugelassene Person ist Hr. Thomas Zahner von Bauer Kompressoren GmbH.	*The person authorized to compile the Technical File is Mr. Thomas Zahner at Bauer Kompressoren GmbH*

Kennzeichnung (siehe Anlagentypenschild)/ *Sign (please see name plate on the unit):*
CE 0036 **bzw./ or** CE

Anlagen-Nr. / ***unit no.:*** _____

Einschlägige EG-Richtlinien (soweit zutreffend)	***Relevant EC directives (if applicable)***
EG-Maschinenrichtlinie (2006/42/EG)	*EC machine directive (2006/42/EC)*
Druckgeräterichtlinie (97/23/EG)	*Pressure Equipment Directive (97/23/EC)*
Niederspannungsrichtlinie 2006/95/EG	*Low Voltage Directive 2006/95/EC*
Elektromagnetische Verträglichkeit (EMV) 2004/108/EG	*Electromagnetic compatibility 2004/108/EC*
2000/14/EG (trifft zu nur für JuniorII, Oceanus, S30)	*2000/14/EC (only valid for JuniorII, Oceanus,S30)*

Angewandte harmonisierte Normen insbesondere	***Applicable and adapted norms, in particular***
EN 60 204-1	*EN 60 204-1*
EN12021 (bei Verwendung des zutreffenden BAUER Filtersystems)	*EN12021 (if using the appropriate BAUER filter system)*
EN1012-1 (trifft zu nur für JuniorII, Oceanus, S30)	*EN1012 (only valid for JuniorII, Oceanus,S30)*

Angewandte nationale Normen und technische Spezifikationen insbesondere	***Applicable national norms and technical specifications particulary***
- Betriebssicherheitsverordnung vom 27.September 2002	- *Operating safety regulation dtd. Sept. 27, 2002*
- AD 2000	- *AD 2000*
- Unfallverhütungsvorschrift BGR 500	- *Accident prevention regulation BGR 500*

Benannte Stelle	***Notified Body***
TÜV SÜD Industrie Service	*TÜV SÜD Industrie Service*

München/ *Munich,* **2013-12-05**

Qualitätssicherung/
Quality Assurance

Technischer Leiter/
Technical Director

Diese Bescheinigung ist nur in Verbindung mit dem Anhang zur Konformitätserklärung vom 2013-12-05 gültig !
This certificate is only valid with the enclosed annex to the EC-conformity declaration dated 2013-12-05 !

Konformitätserklärung
Ausg. 15, 2013-12-05

BAUER KOMPRESSOREN GmbH, Stäblistr. 8, 81477 München
Tel.: (089) 7 80 49-0, Fax: (089) 7 80 49-167

Fig. 29 Example of conformity declaration