



Operating manual

Air compressor COMP P-320

Safety, overview, operation and service



Item no. of the operating manual:

00837779

Air compressor COMP P-320, 230 V, 1 Ph, 50 Hz

Item no. 00746490



Read the operating manual prior to starting any work!

About us



About us

<u>Publisher</u>	Knauf PFT GmbH & Co. KG Postfach 60 ▪ 97343 Iphofen Einersheimer Straße 53 ▪ 97346 Iphofen Germany
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1 General information

1.1 Information regarding the operating manual

- This operating manual provides important information and instructions on the correct use of the machine. A prerequisite for safe working is the observance of all stated safety guidelines and instructions.
- Furthermore, the local accident prevention guidelines and general safety instructions for the application area of the device are to be adhered to.
- Read the operating manual thoroughly before starting any work! It is a part of the product and has to be kept near the device and easily accessible to the personnel at all times.
- If the device is given to third parties, also include the operating manual.
- The figures in this manual are for presentation purposes of facts, not necessarily to scale and may slightly differ from the actual model of the device.

1.2 Information on the safety instructions

These safety instructions give important information on handling the device. A prerequisite for safe working is the observance of all stated safety guidelines and instructions.

Furthermore, the local accident prevention guidelines and general safety instructions for the application area of the device are to be adhered to.

Read the operating manual thoroughly before starting any work! It is a part of the product and has to be kept near the device and easily accessible to the personnel at all times.

If the device is given to third parties, also include the operating manual.

The figures in this manual are for presentation purposes of facts, not necessarily to scale and may slightly differ from the actual model of the device.

1.3 Keep the manual for future reference

The operating manual has to be available during the whole service life of the product.



1.4 Symbols

Warning signs

Warning signs can be identified in the operating manual by symbols. The signs are implemented by using signal words, which indicate the intensity of the danger.

Follow the signs unconditionally and work with care to avoid accidents, injuries or material damage.

DANGER



Indicates an immediate dangerous situation, which leads to severe injuries or death if not averted.

WARNING



Indicates a possibly dangerous situation, which may lead to severe injuries or death if not averted.

CAUTION



Indicates a possibly dangerous situation, which may lead to minor injuries if not averted.

NOTE



Indicates a possibly dangerous situation, which may lead to material damage if not averted.

Tips and suggestions



Contains useful tips and recommendations, plus further information on efficient and problem-free operation.

Special safety instructions

The following symbols are used in conjunction with safety instructions in order to illustrate certain types of danger:

DANGER



Danger to life from electric current!

Indicates a potentially life-threatening situation caused by electricity in the affected area. Non-adherence to safety instructions may cause severe injuries or even death.

The work to be carried out must be carried out only by an electrician.

1.5 Limitation of liability

All specifications and instructions in this manual have been compiled considering the applicable standards and regulations, the status of technology as well as our long-term expertise and experiences.

The manufacturer is not responsible for any damage in the following cases:

- Failure to follow the instructions
- Non-intended use
- Deployment of untrained personnel
- Unauthorised conversions
- Technical modifications
- Use of non-approved spare parts

The actual scope of delivery may vary from the descriptions and illustrations given here in case of special deliveries, demand of additional order options or due to latest technical changes.

Additionally, the obligations defined in the delivery contract, the general terms and conditions, the delivery requirements of the manufacturer and the valid regulations at the time of contract conclusion all apply.

1.6 Copyright protection

Treat the operating manual as confidential. It is meant exclusively for the person operating the device. Giving the operating manual to a third party with prior written consent from the manufacturer is strictly prohibited.



The contents, texts, drawings, pictures and other representations are protected by copyright and are subject to industrial property rights. Any improper use shall be liable to prosecution.

All forms of reproduction

– both in whole and in part – plus the utilisation and/or publication of the manual contents are not permitted without prior written approval by the manufacturer. Violations may lead to damage compensation. Other claims are reserved.



1.7 Spare parts

WARNING



Danger of injury due to wrong spare parts!

Wrong or defective spare parts can cause damage, malfunctioning or total breakdown as well as hamper the safety.

Therefore:

- Only use original spare parts from the manufacturer.

Buy spare parts from an authorized dealer.

1.8 Customer service

Our customer hotline is available for technical help and information.

Information on the respective contact partners can be found by telephone, fax, e-mail or on the Internet. The address of the manufacturer can be found on the back page.

Our employees are always happy to receive new information resulting from practical operation. This information may be used for future product improvements.

1.9 Safety

This section gives an overview of all important safety aspects for optimum protection of personnel as well as for safe and efficient operation.

Non-compliance with the working instructions and safety instructions in this manual can cause considerable damage.

1.9.1 Owner responsibility

The device is used in the commercial field. The operator of the device is therefore liable to follow the legal duties for occupational safety.

Apart from the occupational safety instructions in this operating manual, the safety, accident prevention and environment protection regulations must be adhered to.

Here, the following is especially applicable:

- The owner must be aware of the valid health and safety regulations and is responsible for carrying out a hazard analysis in order to determine additional dangers resulting from the individual working conditions on the operating site of the device. He must implement these in the form of operating instructions for operating the device.
- During the entire operation time of the device, the owner is responsible for coordinating the operating instructions with the current operational status and for adapting them as required.
- The owner is responsible for clearly allocating and defining the responsibilities for installation, operation, maintenance and cleaning.
- The operator must ensure that all persons who handle the device have read and understood the manual.
Additionally, the operator must also carry out regular employee training and inform them of the dangers associated with device use.

Furthermore, the operator is responsible for keeping the device in technically flawless condition at all times.

The following therefore applies:

- The owner must ensure that the maintenance intervals detailed in this operating manual are observed.
- The owner must have all safety devices regularly checked for functionality and completeness.
- The owner must make the requisite safety equipment available to personnel.

1.9.2 Operating personnel

1.9.2.1 Requirements

WARNING



Risk of injury due to lack of qualification!

Improper use can lead to severe injuries or considerable material damage.

Therefore:

- Only let the people mentioned in the respective sections of this manual carry out the special activities.
- When in doubt, consult experts.

The following qualifications are given for various work fields in the operating manual:

■ **Instructed person**

has been instructed by the operator about the tasks assigned to him and possible dangers in the event of improper behaviour.

■ **Skilled personnel**

is, due to his technical training, knowledge and experience as well as knowledge of the relevant regulations, in a position to carry out the work assigned to him and to recognise possible dangers independently.

■ **Qualified electrician**

is able to carry out work on electrical systems and to recognise possible dangers independently due to his technical training, knowledge and experience as well as knowledge of the relevant standards and regulations.

The electrician is specially trained and qualified for his field of work, and is familiar with the relevant standards and regulations.

Only those people must be allowed as personnel, who can be expected to do their work properly. Persons, who are under the influence of drugs, alcohol or any medication, for example, are not permitted.

Select people who comply with the directives of age and profession applicable at the operational site.

1.9.2.2 Unauthorised individuals

⚠ WARNING



Danger for unauthorised personnel!

Unauthorised individuals who do not fulfil the requirements here are not fully aware of the dangers in the work area.

Therefore:

- Keep unauthorised persons away from the working area.
- When in doubt, speak to the persons and escort them out of the working area.
- Discontinue working until the unauthorised persons leave the work area.

1.9.3 Personal protective equipment

Wear protective gear is necessary while working in order to minimise health risks.

- Always wear the protective equipment required for the work in question during work.
- Observe signs for personal protective equipment in the work area.

Wear in principle

In principle, for all kinds of work, wear:



Protective clothing

Is tightly fitting clothing with low tear strength, with narrow sleeves and without parts sticking out. It mainly helps to protect from getting stuck into moving machine parts.

Do not wear any rings, chains and other jewellery.



Safety shoes

To protect from heavy parts that may fall and from slippery floors.



Protective goggles

To protect your the eyes against flying parts and liquid splashes.



Light breathing protection

To protect from harmful dust.



Hearing protection

To protect from hearing deficiencies.



Safety helmet

To protect from parts and materials that may fall or fly onto the person.



Protective gloves

To protect the hands from friction, abrasion, cuts or severe injuries as well as from coming into direct contact with hot surfaces.

Wear for special work

Special protective equipment is necessary for certain specialist tasks. It is separately mentioned in the individual chapters of this manual. This special protective equipment is explained below:



Face guard

To protect the eyes and the entire face from flames, sparks or heat as well as from particles or exhaust gases.

1.9.4 Special dangers

The residual risks are mentioned in the following section, which are obtained from the danger analysis.

Pay attention to the safety instructions and warnings in the other chapters of this manual in order to reduce health risks and avoid dangerous situations.

General information

Electric current

DANGER



Danger to life from electric current!

There is danger of immediate death if live parts are touched. Damage to electrical insulation or individual components can be potentially life-threatening.

Therefore:

- If insulation damage occurs, switch off the electrical supply immediately and organise repairs.
- Work on electrical systems should only be carried out by qualified electricians.
- When working on electrical systems, first ensure that they are completely switched off and isolated.
- Before starting maintenance, cleaning and repair work, switch off the power supply and secure to prevent switching on again.
- Do not bypass fuses or disable them. Observe the correct electrical amperage when replacing fuses.
- Keep electrical parts away from sources of moisture. It can lead to short-circuit.

Magnetic/electromagnetic fields

DANGER



Health hazard due to magnetic and electromagnetic fields!

Conductors that carry current and permanent magnets in motors generate magnetic and electromagnetic fields, which pose a serious risk to individuals who are fitted with pacemakers, metallic implants and hearing aids.

Therefore:

- Avoid machinery in which electrical equipment and components (e.g. frequency converters) are installed and operated.
- Avoid machinery in which motor parts with permanent magnets are installed and operated.
- However, if operation is necessary then consult a medical specialist beforehand.



Discharged material

DANGER



Risk of injury from discharged material!

Discharged material may lead to injuries to the eyes and face.

Therefore:

- Always wear protective goggles.
- Always position yourself in such a way that you are not hit by the mortar being discharged.

Noise

WARNING



Hearing impairment due to noise!

The noise level generated in the work area can cause serious hearing impairment.

Therefore:

- Always wear ear protection when working.
- Only remain in the danger zone for as long as absolutely necessary.

Hazardous dusts

WARNING



Health hazard caused by dust!

In the long term, inhaled dust can lead to lung damage or have other adverse health effects.

Therefore:

- Always wear light breathing protection in the danger zone.

Moving parts

WARNING



Risk of injury due to moving components!

Rotating and/or linear moving components can cause serious injuries.

Therefore:

- Do not reach into or handle moving parts during operation.
- Do not open safety covers during operation.
- Pay attention to run-down times: Before opening covers, ensure that parts are no longer moving.
- Wear close-fitting protective clothing in the danger zone.

General information



Dirt and objects lying around

⚠ CAUTION



Danger of stumbling due to dirt and objects lying around!

Dirt and objects lying around can be the cause to slip or stumble thus leading to severe injuries.

Therefore:

- Always keep the work area clean.
- Remove objects when they are no longer needed.
- Indicate tripping hazards with yellow and black tape.



1.9.5 Basic safety instructions

- Observe the guidelines and accident prevention regulations published by the employers' liability insurance association for handling compressors and pneumatic tools.
- Never work when affected by illnesses, fatigue, drugs, alcohol or medication that may impair concentration.
- The compressor and/or the motor become hot during operation. Never touch the motor or compressor pump during operation.
- Do not inhale the air generated by the compressor.
- Always use a respiratory protection system when spraying paint or chemicals or when sandblasting.
- Always wear a face mask or dust mask to avoid inhaling hazardous dust or airborne particles including wood dust, crystalline silica dust and asbestos dust while using pneumatic tools.
- Check that the compressor is switched off before connecting it to a power source.
- Do not wear loose clothing, ties or jewellery that could become caught in moving parts and be pulled in. Rubber gloves and non-slip shoes are recommended when working outdoors. A hairnet should be worn over long hair.
- Unauthorised persons are not permitted in the work area.
- Protect the compressor, power cable and the respective pneumatic tool from heat, oil and sharp edges.
- Always use a clean cloth for cleaning. Never use brake fluids, petrol, petroleum-based products or other solvents to clean the compressor.
- Check the pneumatic tool for damage before connecting it to the compressor.
- Never leave the compressor unattended while it is in operation. Only leave the compressor once it has come to a complete standstill.
- Do not leave any tools on the compressor during operation.
- Only use suitable accessories and original spare parts.
- Switch off the compressor and disconnect the mains plug before carrying out maintenance and adjustment work. Release the compressed air from the chamber and the compressed air lines.
- Keep the cooling fins of the compressor clean and clear of objects that could impair cooling.

⚠ CAUTION**Danger of injury!**

- When releasing the quick-release coupling, hold the end of the compressed air line to prevent it from being jerked away by the excess pressure.
- Allow the compressor to cool down before commencing maintenance work.
- Never remove or adjust the factory-set safety valve.
- Never point compressed air at people or animals.

1.9.5.1 Checking operational safety**NOTE**

According to section 15 of the German Ordinance on Occupational Health and Safety (BetrSichV), a system requiring monitoring may only be put into operation after being subjected to testing prior to commissioning. Periodic inspections must also be carried out in accordance with section 16 BetrSichV. Such inspections must be performed by an authorised inspection body or a qualified person. Details can be found in BetrSichV.

The compressor's pressure vessel is subject to inspection. The pressure vessel has been tested by the manufacturer in accordance with EC Directive 2014/29 EC in conjunction with the EC type examination in accordance with Article 10 and EN 286-1. A copy of this type approval certificate and/or declaration of conformity is enclosed with each compressor. With regards to all individual components subject to mandatory inspection requirements, the operating company must have these components inspected by an expert or a 'competent person' (service technician) at the prescribed intervals. The regulations for operation may differ in the EU member states.



1.9.5.2 Regulations for compressed air vessels in Germany

Inspection deadlines:

The listed inspection intervals are maximum values. These should be checked against the operating company's risk assessment/safety assessment. Exceeding these deadlines is prohibited. The deadlines can only be shortened.

The product of pressure and volume depends on the test intervals. To determine the value, multiply the maximum permissible pressure (PS) by the pressure vessel volume (V).

For example:

- Pressure vessel = 75 l; maximum permissible pressure = 13 bar
→ $75 \text{ l} \times 13 \text{ bar} = 975$

Inspection	Inspection period	Inspection organisation
Before commissioning/ Installation	$PS \times V \leq 200$	Authorised person
	with type approval certificate $PS \times V \leq 1000$	Authorised person
	$PS \times V \geq 200$	Authorised supervisory body
External inspection **	Every year or every 2 years	Authorised person
Internal inspection **	Every 5 years at $PS \times V \leq 1000$	Authorised person
	* Every 5 years with $PS \times V \geq 1000$	Authorised supervisory body
Strength test **	Every 10 years at $PS \times V \leq 1000$	Authorised person
	* Every 10 years with $PS \times V \geq 1000$	Authorised supervisory body

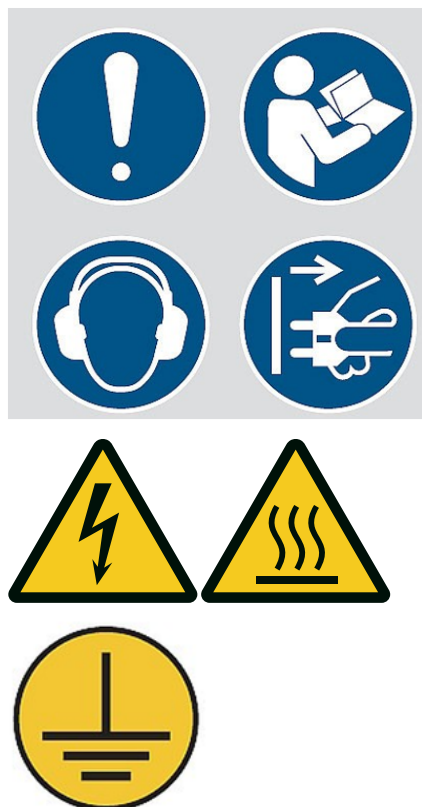
* The employer must notify the competent authority of the respective inspection deadlines within 6 months of commissioning the system (section 15 BetrSichV).

** External inspections can be omitted:

a) for pressure vessels according to BetrSichV number 2.2 lit. a), unless they are fire-heated, exhaust gas-heated or electrically heated, and b) for simple pressure vessels according to BetrSichV number 2.2 lit. d). The strength test interval can be extended to 15 years if it can be demonstrated during the external or internal test that the system can be operated safely. Proof must be provided the risk assessment documentation. Table in accordance with BetrSichV (status: 29/03/2017).

General information

1.9.5.3 Signs on the compressor



The following symbols and warning signs can be seen in the work area. They refer to environment in which they are installed.

⚠ WARNING



Danger of injury due to illegible symbols!

With time, the adhesive and the signs can become dirty and fade out in some other way.

Therefore:

- Always maintain all safety, warning and operating notices in legible condition.
- Replace damaged signs or labels immediately.

NOTE



Always observe the instructions on the compressor safety labelling. If the safety labelling fades or is damaged during the service life of the machine, new signs must be attached immediately.

As soon as the signs are not immediately recognisable and instantly understandable, the compressor must be taken out of operation until new signs are attached.

Figure 1: Safety and warning symbols on the compressor



1.10 Intended use

1.10.1 COMP P-320 purpose of use

The air compressor has been designed and constructed only for the intended use described in this document.

NOTE



The air compressor is used exclusively to generate compressed air and to operate pneumatic tools.

The compressor shall only draw in and compress clean, dust-free, dry and uncontaminated ambient air.

The air compressor is to be used only in technically perfect condition, as well as for its intended use and while taking into account the safety and hazard information in the operating manual!

In particular faults that can impair safety must be rectified immediately before the compressor is put back into operation.

⚠ CAUTION



Danger due to improper use!

Any use beyond the specified purpose and/or any other form of use of the device can lead to dangerous situations.

Therefore:

- Use the device only for the purpose specified.
- Always adhere to the usage directives of the material manufacturer.
- Strictly follow all instructions in this operating manual.

We accept no responsibility for damages caused by improper or unauthorised use.

The operator of the device is solely responsible for any damage arising from improper use.

The COMP P-320 air compressor is a piston compressor with a connected compressed air storage tank, which is driven by an electric motor. It is intended for sale and operation inside the EU and geographical European region.

1.10.2 Foreseeable misuse

Any use that goes beyond the intended use and any other use is considered misuse.

Possible misuse can be:

- Installation of spare parts and use of accessories and equipment that have not been approved by the manufacturer.
- Use of the compressor outside the performance limits specified in the 'Technical data' chapter.
- Use of the compressor without appropriate filtration in the food and medical sector, e.g. for filling breathing gas cylinders.
- Service work by untrained or unauthorised personnel.
- Use of the compressor in enclosed spaces without adequate ventilation.
- A failure to observe the information in these operating instructions, or a failure to observe the operating instructions for the pneumatic tools used.
- Use of the compressor in areas where aggressive or flammable substances are present in the air (the piston compressor is not explosion-proof as standard).
- Operating the compressor without the protective devices provided.
- Failure to observe signs of wear and damage.

Misuse of the compressor can lead to dangerous situations.

The operating company alone is liable for design and technical modifications and any resulting damage to the compressor.

No responsibility is accepted for damages caused by improper or unauthorised use.

1.10.3 Residual risks

Even if all safety regulations are observed and the compressor is used in accordance with the instructions, residual risks still exist. These are listed below:

- Heat build-up on components can lead to burns and other injuries.
- Hearing damage during prolonged work on the compressor if hearing protection is damaged.
- Danger due to electricity if power cables or mains plugs are not used correctly.
- Risk of injury and material damage due to parts flying off or tool attachments breaking off.



1.11 EC Declaration of Conformity

Company: Knauf PFT GmbH & Co. KG
 Einersheimer Straße 53
 97346 Iphofen
 Germany

declares under our sole responsibility that the machine:

Type of machine: COMP P-320

Type of equipment: Piston compressor

Serial number:

Guaranteed sound power level: 72 dB

is in conformity with the following CE directives:

- Outdoor Directive (2000/14/EC),
- Machinery Directive (2006/42/EC),
- Electromagnetic Compatibility Directive (2014/30/EU),.

Operative Conformity Assessment according to Outdoor Directive 2000/14/EC:

Internal production control as per article 14 paragraph 2 in connection with annex V.

This declaration only refers to the machine in the state in which it has been placed on the market. Parts subsequently added by the user and/or subsequent interventions are not covered. This declaration ceases to be valid if the product is converted or changed without consent.

Person authorised to compile the relevant technical documentation:

- (Dipl. in Industrial Engineering, University of Applied Sciences) Michael Duelli, Einersheimer Straße 53, 97346 Iphofen.

The technical documentation is available from:

- Knauf PFT GmbH & Co. KG, Technical Department, Einersheimer Straße 53, 97346 Iphofen.

Iphofen

Dr York Falkenberg
 Managing Director

Town/city




Name and signature

Details of signatory

General information



1.12 Name plate

Kolbenkompressor Piston compressor		  	
Typ Type	Compact-Air 320/24 OF E Knauf-PFT	Serien-Nr. Serial no.	
Artikel-Nr. Item no.	00746490	Baujahr Year of manufacture	Monat/Jahr month/year
Netzanschluss Power connection	230 V / 1 ~ / 50 Hz	Aufnahmeleistung absorbed power	2,2 kW
Gewicht Weight	54 kg	Max. Arbeitsdruck Max. working pressure	10 bar
Ansaugleistung Max. volume flow	320 l/min	Füllleistung bei 6 bar Fill capacity at 6 bar	230 l/min
Behältervolumen Tank capacity	24 l	Schallleistungspegel Sound power level	72 dB(A)



2 Technical data

2.1 General information

Detail	Value	Unit
Weight approx.	54	kg
Length	800	mm
Width	585	mm
Height	535	mm

2.2 Operating conditions

Environment

Detail	Value	Unit
Temperature range	5 – 40	°C
Relative humidity, max.	80	%

Electrical details

Detail	Value	Unit
Supply voltage	230	V
Rated input	2.2	kW
Delivery performance	2.1	kW
Mains frequency	50	Hz
Power consumption	10.5	A
Connected load	11	A

2.3 Power values

Detail	Value	Unit
Priming performance	320	l/min
Full capacity	230	l/min
Maximum pressure	10	bar
Motor efficiency class	70	%
Motor speed	1400	rpm
Hopper content	24	l
Number of cylinders	2	Unit
Protection class	IP 23	

Technical data



2.4 Sound power level

Guaranteed sound power level L_{WA}

■ 72 dB(A)

NOTE



The noise measurement was carried out in accordance with DIN EN ISO 3744 with the equipment fully loaded and describes the maximum value to be expected at a distance of 1 metre from the intake opening and at a height of 1.6 metres above the air compressor installed on the floor. Please note that communication may be disrupted.

2.5 Vibrations

Weighted effective value of acceleration to which the upper body parts are exposed $<2.5 \text{ m/s}^2$



3 Transport, packing and storage

3.1 Safety instructions for transport

Improper transport

NOTE



Damage from improper transport!

Improper transport may cause substantial property damage.

Therefore:

- When unloading the packages on delivery, as well as transport within the company, pay attention and observe the symbols and instruction on the package.
- Use only the specified anchorage points.
- Remove packaging only shortly before the assembly.

Internal transport

⚠ CAUTION



Risk of injury due to the air compressor tipping over!

If the air compressor is transported incorrectly, there is a risk that the compressor may tip over and cause personal injury and damage to property.

Therefore:

- The equipment may be lifted a maximum of 2 cm when unsecured.
- Employees must be outside the danger zone; the range of the load.
- Warn employees and draw their attention to the danger.

Transport must be carried out by authorised and qualified persons only. Act responsibly during transport and always consider the consequences. Refrain from daring and risky actions.

Uphill and downhill sections of transport routes (e.g. ramps, inclined accesses and similar) are particularly hazardous. If such sections are unavoidable, special care must be taken.

Before starting transport, check the transport route for possible hazards, unevenness and imperfections, as well as for sufficient strength and load-bearing capacity. Hazardous areas, unevenness and imperfections must be inspected before transport. The remedying of hazards, unevenness and imperfections by other employees at the time of transport leads to considerable risks.

Transport, packing and storage

3.2 Transport inspection

On receipt check the delivery immediately for completeness and transport damage.

In case of externally visible transport damage, proceed as follows:

- Do not accept the delivery or under reserve only.
- Note the extent of damage on the transport documentation or on the delivery note of the carrier.
- Initiate complaint process.

NOTE



Report any defect as soon as it is detected. Claims for damages can be asserted only within the valid warranty period.

3.3 Packaging

For packaging

The individual packages have to be packed in accordance with the transport conditions to be expected. Only environmentally-friendly materials were used for the packaging.

The packaging should protect the individual components until the assembly from transport damage, corrosion and other damage. Therefore do not destroy the packaging and remove only shortly before the assembly.

Handling packaging materials

If no agreement for the recovery of the packaging has been made, separate materials according to type and size and reuse or recycle.

NOTE



Environmental damage due to incorrect disposal!

Packaging materials are valuable raw materials and in many cases they can be reused or reconditioned and recycled.

- Dispose of packaging materials in an environmentally-friendly way.
- Observe the applicable local disposal regulations. If required hand over the disposal to a specialist.

3.4 Transport

⚠ CAUTION



Risk injury due to unsecured load!

All persons involved in the loading are responsible for securing the load properly during road transport. The relevant vehicle driver is responsible for the operational loading.



Transport, packing and storage



Figure 2: Fold carrying handle

1. The carrying handle (1) can be folded for easier transport by car.

NOTE



Only transport the compressor with the motor switched off and disconnected from the power supply.

The vessel must not be pressurised during transport.

3.5 Storage

NOTE



Clean the compressor thoroughly and store it in a dry, clean and frost-free environment.

Do not store or transport the compressor unprotected outdoors or in a damp environment.

Description

4 Description

4.1 Overview



Figure 3: Table of the assembly groups

[1] Carrying handle	[2] Wheel
[3] Pressure switch with on/off switch	[4] Pressure vessel
[5] Foot	[6] Bleed valve (drainage)
[7] Compressed air connections for extraction pressure	[8] Pressure regulator for extraction pressure
[9] Pressure gauge for extraction pressure	[10] Pressure gauge for vessel pressure

5 Operation

5.1 Safety

Personal protective equipment

The following protective equipment has to be worn for all operative work:

- Protective clothing
- Protective goggles
- Protective gloves
- Safety shoes
- Hearing protection



Further protective equipment that is to be worn during particular jobs will be pointed out separately in the warning instructions of this chapter.

Basic information

WARNING



Danger of injury due to incorrect operation!

Improper operation may lead to serious damage to persons or property.

Therefore:

- Carry out all operating steps according to the instructions in this user manual.
- Prior to starting your work, ensure that all components are complete and undamaged.
- Prior to starting your work, ensure that all covers and protection devices are installed and work as intended.
- Never operate the machine with defective components and protection devices.
- Never disable protective devices during operation.
- Ensure order and cleanliness in the work area! Loose components and tools on top of one another or lying about pose potential accident risks.
- Increased noise level may cause permanent hearing deficiencies. At close range of the machine 72 dB(A) can be exceeded due to operational conditions. Close range is a distance of less than 5 metres to the machine.

Operation



5.1.1 Safety rules

NOTE



The compressor is designed for intermittent operation. To ensure faultless operation, a duty cycle of 70 % must not be exceeded. For example, if spraying takes 10 minutes, the compressor must not run for longer than 7 minutes.

⚠ CAUTION



Avoid switching the compressor on and off several times in quick succession, as this can damage the motor.

⚠ CAUTION



The connected compressed air tools must be designed for the output pressure of the compressor, or they must be operated with a pressure reducer.

5.1.2 Monitoring the machine

⚠ WARNING



Access by unauthorised persons!

- The machine may only be operated when monitored.

5.1.3 Safety system

5.1.3.1 Pressure switch

Due to thermal interaction (cold and warm) and vibrations of the compressor, the pressure switch setting may change. If necessary, have the pressure switch adjusted by customer service.

⚠ WARNING



The air compressor must be switched off for adjustment work!

Before setting the pressure, the pressure switch must be released. Pressure adjustment is only possible on the installed pressure switch and only on a pressurised air compressor.

5.1.3.2 Motor protection switch

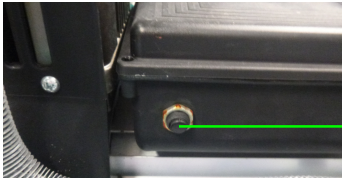


Figure 4: Motor protection switch

The compressor is equipped with a motor protection switch (1) that automatically interrupts the power supply in the event of an overload. If the motor protection triggers a forced shutdown, the compressor must be disconnected from the power supply. The compressor must cool down for approx. 5 to 20 minutes before the motor protection switch (1) is pressed again and the compressor is restarted. Eliminate the cause of the overload before switching on. If the compressor does not start, please contact an authorised customer service centre.

⚠ WARNING



Danger to life if safety devices are overridden!

Never perform improper actions on safety equipment that endanger the life or health of employees.

5.1.3.3 Safety valve



Figure 5: Safety valve

The safety valve (1) is located on the pressure switch. It is set to the maximum permissible pressure in the pressure vessel.

If the maximum permissible pressure is exceeded, the safety valve (1) opens automatically and releases air until the pressure is back within the permissible range.

After triggering the safety valve (1), the operator must switch off the compressor and request a check by the maintenance personnel.

5.2 Inspection by machine operator

- Prior to each shift, the machine operator has to examine the effectiveness of the control and safety devices, as well as the proper fitting of the protection devices.
- The safe working condition of construction machinery has to be checked by the machine operator during operation.
- If the safety devices show any defects or if any other defects are detected that compromise a safe operation, the supervisor has to be informed immediately.
- In case of defects that cause harm to persons, the operation of the construction machine has to be stopped to eliminate the defects.

5.3 Preparing the air compressor

Prior to operating the air compressor, carry out the following preparatory steps:

NOTE



Please note and ensure the following before commissioning:

- The mains voltage must match the voltage specifications on the name plate.
- The on/off switch must be in the 'OFF' position.
- The safety devices and protective covers must be fully functional.

5.3.1 Setting up the air compressor

Install the machine on stable and even ground and secure it against accidental movements:

- Do not tilt or roll the machine away.
- Place the machine where it cannot be hit by any falling objects.
- The controls must be freely accessible.
- Maintain a clearance of approx. 1.5 metres around the machine.

The compressor should be installed in a location dimensioned such that the room temperature can be kept at a maximum of 40 °C while the compressor is in operation.

The installation site should also fulfil the following requirements:

- Dry and dust-free
- Cool, well ventilated and protected against frost
- Level and firm floor

If it is not possible to avoid placing the air compressor on uneven ground, do not exceed a floor slope of 15°.

5.3.2 Connecting the power supply

DANGER



Danger to life from electric current!

The electrical connection must be fused correctly:

- Only connect the compressor to plug sockets with PE contact. For increased safety we recommend an RCD with a GFCI switch with a rated residual current of 30 mA for the circuit to which the air compressor will be connected.

5.3.3 Closing the bleed valve



Figure 6: Closing the bleed valve

1. Close the bleed valve (1) on the pressure vessel.

5.3.4 Connecting the air hose

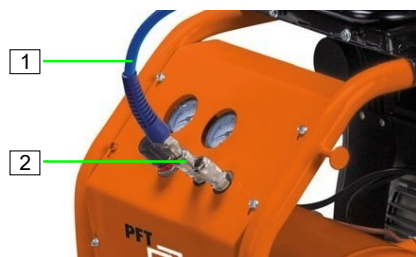


Figure 7: Connecting the air hose

1. Connect the compressed air hose (1) to the compressed air connection (2) of the compressor.

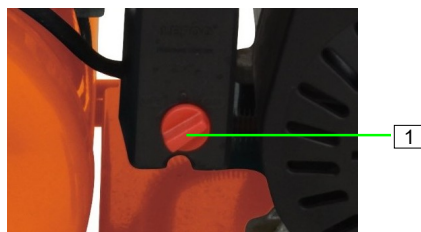
WARNING



- Never undo hose couplings while the compressed air hose is pressurised.

5.4 Shutdown in case of emergency

Shutdown in case of emergency



In dangerous situations, machine movements have to be stopped as quickly as possible, and the power supply has to be disconnected.

In case of danger proceed as follows:

1. Immediately switch off at the on/off switch (1).
2. Unplug the connector plug.
3. Inform responsible person at the operational site.
4. If necessary call for medical assistance and fire brigade.
5. Recover persons from the danger zone, initiate First Aid measures.
6. Keep access routes free for emergency vehicles.
7. If the severity of the emergency permits, inform the competent authorities.
8. Assign specialised personnel with the troubleshooting.

After the rescue operations

WARNING



Danger to life from premature reactivation!

On reactivation there is danger to life for all persons in the danger zone.

- Ensure that the danger zone is clear before switching the machine back on.
- Check the system before reactivation and ensure that all safety equipment is installed and functional.

Operation

5.5 Putting the air compressor into operation

5.5.1 Switching on the air compressor

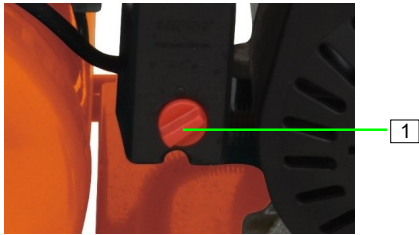


Figure 8: Switching on the air compressor

1. Switch on the air compressor at the on/off switch (1).

NOTE



Function of the on/off switch:

- The on/off switch releases the function of the pressure switch. The pressure switch switches the compressor on or off depending on the container pressure reached. The compressor operates automatically, stops when the maximum pressure is reached and then restarts when the switch-on pressure is reached.

5.5.2 Setting the working pressure

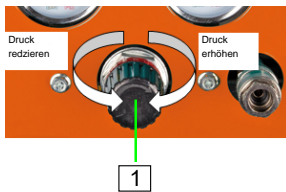


Figure 9: Pressure regulator

⚠ WARNING



The maximum pressure of the connected tool must not be exceeded!

1. The working pressure is set using the pressure regulator (1) and read on the pressure gauge.



- The working pressure must be set with the tool connected and running, in order that it is possible to set the actual working pressure required.
- It is recommended to reset the pressure value to zero after using the air compressor. If pneumatic tools are used, check the optimum application pressure.

5.6 Switching off the air compressor

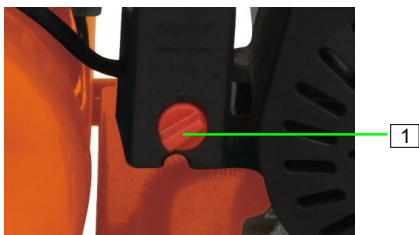


Figure 10: Switching off the air compressor

1. Switch off the air compressor at the on/off switch (1).
2. Pull the connector plug out of the socket.
3. Place a collection container under the bleed valve.
4. Open the bleed valve to drain the pressure tank and reduce the tank pressure.
5. Then close the bleed valve again.



5.7 Reaction in the event of faults

Reaction in the event of faults

The following applies as a general rule:

1. In the event of faults presenting immediate danger to persons or property, activate the emergency OFF function immediately.
2. Determine cause of the fault.
3. If the rectification of faults requires works in the danger zone, switch off the system and secure against restarting.
4. Inform the manager on site immediately about the fault.
5. Depending on the type of fault, commission authorised skilled personnel or rectify the fault yourself.



The following fault table gives information on who is authorised to rectify the fault.

5.7.1 Safety

Personnel

- The work for rectification of faults described here can be carried out by the operator, unless marked otherwise.
- Some works must be carried out only by specially trained skilled personnel or exclusively by the manufacturer. Information on this can be found in the description of the individual faults.
- Work on electrical systems must always only be carried out by qualified electricians.

Personal protective equipment

The following protective equipment has to be worn for all maintenance work:

- Protective clothing
- Protective goggles
- Protective gloves
- Safety shoes

5.7.2 Faults

The following chapter describes possible causes for faults and the activities carried out for their rectification.

In case faults occur frequently, shorten the maintenance intervals in accordance with the actual load.

Contact your dealer if malfunctions occur that cannot be solved using this manual.

Operation



5.7.3 Table of faults

Fault	Possible cause	Troubleshooting	Rectification by
The compressor does not switch on	Connector plug not plugged in	Check the connector plug and plug in if necessary	Operator
	Shut-off pressure in the pressure vessel is not reached	Continue to operate the pneumatic tool. The compressor starts automatically when the switch-on pressure is reached	Operator
Compressed air does not reach the pneumatic tool	The pressure reducer is closed	Turn on the pressure reducer	Operator
	No pressure in the pressure vessel	Switch on the compressor	Operator
The compressor overheats	Clogged air filter	Clean or replace filter	Service technician
	Compressor dirty	Clean the compressor	Operator
	Pressure is too high	Reduce operating pressure	Operator
	Operating time of the compressor too long	Reduce operating time, the maximum duty cycle is 70 %	Operator
Compressor starts and stops unevenly	Leaks in the air system	Check air system	Service technician
	Pressure switch differential set too low	Check pressure switch and adjust if necessary	Service technician
	Defective compressor valves	Check valves and replace if necessary	Service technician
	Insufficient performance of the compressor	Use a more powerful compressor	Operator
	Overload protection switch triggered	Allow the compressor to cool down for approx. 20 minutes and then restart it	Operator
Insufficient output power and output pressure too low	Clogged air filter	Clean the filter and replace if necessary	Service technician
	Leaks in the air system	Check air system	Service technician
	Bleed valve is open	Closing the bleed valve	Operator
	Pressure gauge defective	Replace pressure gauge	Service technician
	Head gasket damaged	Replace head gasket	Service technician
	Pressure switch set incorrectly or defective	Adjust or replace pressure switch	Service technician
	Valves defective	Check valves and replace if necessary	Service technician
	Piston damaged	Check piston and replace if necessary	Service technician



Operation

Fault	Possible cause	Troubleshooting	Rectification by
Unusual noises in the compressor	Compressor valves loose or broken	Check valves and replace if necessary	Service technician
	Low pressure in the non-return valve	Clean the non-return valve and replace if necessary	Service technician
Unusual vibrations	Motor is loose	Tighten the motor fastening screws	Service technician
	Outlet pressure too high	Reduce operating pressure	Operator
	Feet are loose	Check the feet and tighten if necessary	Service technician
	Worn parts in the compressor	Check compressor and repair if necessary	Service technician
The compressor does not build up pressure	Safety valve is leaking	Replace safety valve	Service technician
	Bleed valve is open	Closing the bleed valve	Operator
	Air leak on the compressor	Find and seal air leaks	Service technician
	Air filter dirty	Clean the air filter and replace if necessary	Service technician
Motor at a standstill	Non-return valve defective	Replace non-return valve	Service technician
	Valves defective	Check valves and replace if necessary	Service technician

Maintenance



6 Maintenance

6.1 Safety

Personnel

- The maintenance works described here can be carried out by the operator, unless marked otherwise.
- Some maintenance work must only be carried out by specially trained technical personnel or exclusively by the manufacturer.
- Work on electrical systems must always only be carried out by qualified electricians.

Basic information

WARNING



Risk of injury due to improperly carried out maintenance work!

Improper maintenance can lead to severe injuries or considerable property damage.

- Prior to starting the works ensure that there is enough space to carry out the works.
- Ensure order and safety at the assembly site! Unattached components or tools left lying around or stacked on one another can cause accidents.
- If components have been previously removed, ensure that they are mounted again correctly, reattach all fastening elements and adhere to the specified screw tightening torques.

Electrical system

DANGER



Danger to life from electric current!

Contact with live components can lead to death or serious injury. Live electrical components can move uncontrollably and cause serious injury.

- Switch off the energy supply before starting any work and secure against restarting.

6.1.1 Measures for personal safety

Electrical system

WARNING



Danger to life from electric current!

There is danger to life if you come in contact with live parts. Activated electrical components can carry out uncontrolled movements and cause serious injuries.

Therefore:

- Switch off the energy supply before starting any work and secure against restarting.
- Disconnect the power supply by removing the connection cable.

Secure against restarting

WARNING



Danger to life from unauthorised restarting!

When working with the tool, there is the risk that the energy supply is switched on without authorisation. This poses a danger to life for the persons in danger area.

Therefore:

- Switch off all power supplies before starting any work and secure against restarting.

Depressurise the system

WARNING



Switch off the air compressor and allow it to cool down completely before starting maintenance work.

Release the compressed air completely via the bleed valve. The pressure vessel and lines must not be pressurised.

Damage to the air compressor

CAUTION

Any damage to the air compressor results in a loss of output power and creates dangers for persons and/or material assets.

6.2 Environmental protection

Environmental protection

Observe the following notes on environmental protection when carrying out maintenance works:

- Remove the discharged, exhausted or surplus grease at all greasing points that are lubricated manually and dispose of in accordance with the local applicable regulations.
- Collect used oil in suitable containers and dispose of it according to the applicable local regulations.

6.3 Maintenance plan

The following paragraphs describe the maintenance works required for an optimal and trouble-free operation.

In the event that increased wear is detected during regular checks, the required maintenance intervals have to be shortened according to the actual signs of wear.

Should you have any queries regarding maintenance works and intervals contact the manufacturer, see back page for service address.



The maintenance is limited to a few checks.

Thorough cleaning after use is the most important maintenance.

NOTE



Observe inspection intervals for pressure vessels.

Interval	Maintenance work	To be carried out by
Daily	Check/replace compressed air lines.	Operator
Daily	Check the screws (especially the cylinder head and frame) and retighten if necessary when the compressor has warmed up.	Operator
Daily	Check for/remove dust accumulations inside the cladding.	Operator
Daily	Check the compressor for unusual noises/vibrations.	Operator
Daily	Drain condensation water.	Operator
Weekly	Thoroughly clean all components, e.g. cylinder head, motor and fan.	Service technician
Weekly	Clean/replace filter of compressor.	Service technician
Monthly	Check the compressor for air leaks.	Service technician
Quarterly or every 300 hours	Check the compressor for corrosion or other damage.	Service technician
	Replace air filter.	Service technician
Half-yearly	Check function of the safety valve.	Service technician



6.4 Maintenance work

In the event that increased wear is detected during regular checks, the required maintenance intervals have to be shortened according to the actual signs of wear.

Should you have any queries regarding maintenance works and intervals contact the manufacturer, see back page for service address.

6.4.1 Implementation by a service technician



A service technician is responsible for the assembly and commissioning of machines. In addition, service technicians carry out maintenance and repair work. If work is required on the control box or on other electrical parts, the service technician must have completed vocational training as an electrician.

6.4.2 Drain condensation water



Figure 11: Open the bleed valve

The condensation water must be drained from the tank every day, at the latest every 10 working hours:

1. Switch off air compressor.
2. Tilt/angle the air compressor towards the bleed valve (1).
3. Open the bleed valve (1).
4. Keep the air compressor tilted until the condensation water has drained off.
5. Close the bleed valve (1).

NOTE



The condensation water from the pressure vessel contains oil residues. Dispose of the condensation water in an environmentally friendly manner at an appropriate collection point.

Maintenance



6.4.3 Clean the air filter

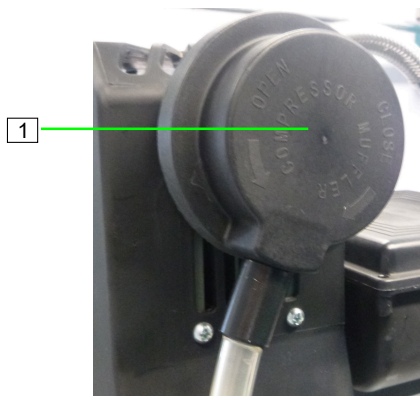


Figure 12: Remove air filter cover

1. Open the air filter by unscrewing the air filter cover (1).

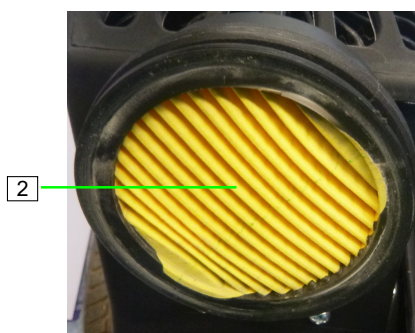


Figure 13: Air compressor air filter

2. Remove the air filter (2) and clean it thoroughly.
3. Replace the air filter if it is heavily soiled or worn.

6.4.4 Clean the air compressor



Clean the air compressor immediately after each use.

Keep the protective devices as free of dust and dirt as possible. Wipe the air compressor with a clean cloth or blow it off with compressed air at low pressure.

Clean the air compressor regularly with a damp cloth. Do not use any cleaning agents or solvents as these could damage the plastic parts of the compressor. Ensure that no water can get inside the compressor.

6.4.5 Function test of the safety valve



Figure 14: Safety valve version A

Version A (safety valve with ring)

The safety valve must be actuated regularly to ensure that it works properly when required.

Open the safety valve every 6 months by briefly pulling on the ring until the compressed air escapes and then releasing it again (the pressure vessel must be under pressure).

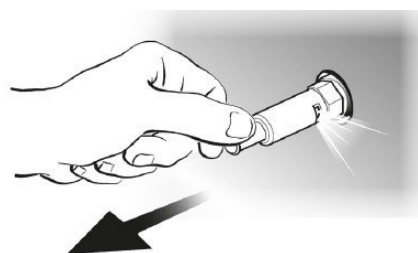


Figure 15: Safety valve version B

Version B (safety valve with clamp)

The safety valve must be actuated regularly to ensure that it works properly when required.

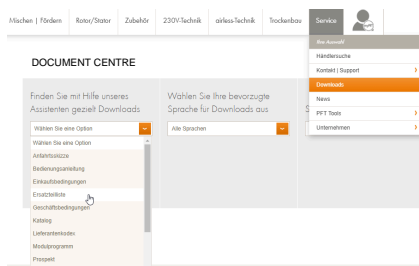
Open the safety valve every 6 months by briefly pulling on the clamp until the compressed air escapes and then releasing it again (the pressure vessel must be under pressure).

6.5 Actions after completed maintenance

After finishing the maintenance works and prior to switching on the machine, the following steps have to be carried out:

1. Check all previously loosened screw connections for secure fit.
2. Check if all previously removed safety systems and covers are properly reinstalled.
3. Ensure that all tools, materials and other equipment used have been removed from the work area.
4. Clean the work area and remove any spilled materials such as liquids, processing material or similar.
5. Ensure that all safety systems of the installation work perfectly.

6.6 Spare parts lists



The spare parts lists for the machine can be found on the Internet at www.pft.net.

- Open the Document Centre under Service → Downloads.
- In this area, select the spare parts list category.
- In addition, select the machine you are looking for.

6.6.1 Accessories



Recommended accessories/equipment can be found in the PFT machine and equipment catalogue or under www.pft.net



7 Disassembly

After the useful service life has been reached, the device has to be dismantled and disposed of in an environment-friendly manner.

7.1 Safety

Personnel

- Disassembly must be carried out by specially trained technical personnel only.
- Work on the electrical system must be carried out by qualified electricians only.

Basic information

WARNING



Risk of injury in case of improper disassembly!

Stored residual energies, sharp components, points or edges at and inside the device or on the required tools might cause injuries.

Therefore:

- Prior to starting the works ensure that there is sufficient space.
- Carefully handle components with sharp edges.
- Ensure order and cleanliness at the working place! Loose components and tools on top of one another or lying about pose potential accident risks.
- Dismantle components correctly. Pay attention to partly high dead weight of the components. If required, use lifting equipment.
- Secure components that they do not fall down or topple over.
- In case of doubt, consult the dealer.

Electrical system

DANGER



Danger to life from electric current!

Contact with live components can lead to death or serious injury. Activated electrical components can carry out uncontrolled movements and cause serious injuries.

Therefore:

- Prior to beginning the disassembly, switch off the power supply and fully disconnect it.

7.2 Disassembly

When decommissioning, clean the device and dismantle it according to the applicable work safety and environmental protection regulations.

Prior to starting the disassembly:

- Switch off device and secure against restarting.
- Disconnect the entire energy supply from the machine and discharge the residual energy.
- Remove operating and auxiliary materials as well as residual processing materials and dispose of them in an environmentally sound manner.

8 Disposal

Provided no return or disposal agreements have been made, recycle the disassembled parts:

- Scrap metals.
- Recycle plastic elements.
- Dispose of remaining components, sorted according to the type of material.

NOTE



Environmental damage due to incorrect disposal!

- Electrical scrap and components, lubricants and other process materials are subject to special guidelines and may only be disposed of by approved waste disposal specialists!



Local authorities and waste disposal specialists can provide more details on the correct disposal of materials.

PFT - ALWAYS AT YOUR SITE



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