

# Assembly and operating manual

**Blower block**

**OMEGA 4 B**

Number: 9\_9533 23 E

Manufacturer:

**KAESER KOMPRESSOREN SE**

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# 1 Regarding this document

## 1.1 Using this document

This document, hereafter called the service manual, contains important information about all life phases of the machine.

The operating manual is a component of the product. It describes the machine as it was at the time of first delivery after manufacture.

- Keep the operating manual in a safe place throughout the life of the machine.
- Supply any successive owner or user with this operating manual.
- Please insert any amendment or revision of the operating manual sent to you.
- Enter details from the machine nameplate and individual items of equipment in the table in chapter 2.

## 1.2 Further documents

Further documents included with this operating manual to assist in safe and sure operation of the block are:

- Installation declaration in accordance with applicable directives.

Missing documents can be requested from KAESER.

- Make sure all documents are complete and observe the instructions contained in them.
- Make sure you provide the data from the nameplate when ordering documents.

## 1.3 Copyright

This operating manual is protected by copyright. Any queries regarding the use or duplication of this documentation should be referred to KAESER. Correct use of information will be fully supported.

## 1.4 Symbols and labels

### 1.4.1 Warning notices

Warning notices indicate three levels of danger signified by the signal word.

- DANGER
- WARNING
- CAUTION



#### 1. DANGER!

The type and source of the imminent danger is shown here!

The possible consequences of ignoring a warning are shown here.

The signal word "DANGER" indicates that death or severe injury can result from ignoring the warning.

- The measures required to protect yourself from danger are shown here.

# 1 Regarding this document

## 1.4 Symbols and labels

2. Always read and comply with warning instructions.

Signal term	Meaning	Consequences of non-compliance
DANGER	Warns of an imminent danger	Will result in death or severe injury
WARNING	Warns of a potentially imminent danger	May result in death or severe injury
CAUTION	Warns of a potentially dangerous situation	May result in moderate physical injury or damage to objects

Tab. 1 Danger levels and their definition

### 1.4.2 Potential damage warnings

Contrary to the warnings shown above, damage warnings do not indicate a potential personal injury.

Damage warnings have only one danger level identified with this signal term:

- NOTE



1. **NOTICE!**  
The type and source of the imminent danger is shown here!  
Potential effects when ignoring the warning are indicated here.
  - The protective measures against the damages are shown here.
2. Carefully read and fully comply with warnings against damages.

### 1.4.3 Other alerts and their symbols



This symbol indicates particular important information.

**Material** Here you will find details on special tools, operating materials or spare parts.

**Precondition** Here you will find conditional requirements necessary to carry out the task.  
The conditions relevant to safety shown here will help you to avoid dangerous situations.

**Option B7** ➤ This symbol is placed by lists of actions comprising one stage of a task.  
In lists of actions with several stages the sequence of actions is numbered.  
Information related to just one option is marked with a symbol (e.g. B7 indicates that this section refers only to blower blocks with a drive shaft left). Option codes used in this service manual are explained in chapter 2.2.



Information referring to potential problems are identified by a question mark.  
The cause is identified in the help text ...  
➤ ... as is a remedy.



This symbol refers to important information or measures concerning environmental protection.

**Further information** Further subjects are introduced here.

## 2 Technical Specifications

### 2.1 Nameplate

Two nameplates are attached to the enclosure body at the control side of the blower block.

➤ Enter here the nameplate data as a reference:

Feature	Value
Type	
Material no.	
Serial No.	
Year of manufacture	
Equipment no.	

Tab. 2 Nameplate

### 2.2 Option codes

The table contains a list of possible options.

The nameplate shows any options installed.

➤ Enter options here as a reference.

Option	Option code	Available?
Flow direction: vertical	B5	✓
Drive shaft: left	B7	
Drive shaft: right	B8	
Direction of rotation: left	B11	
Direction of rotation: right	B12	
Operating mode: Vacuum	B14	✓
Rotors: 2-lobe	B15	✓
Material, rotors: Spheroidal graphite iron	B17	
Material, rotors: Stainless steel	B18	
Material, enclosure: Grey cast iron	B19	
Material, enclosure: Ni-Resist	B20	
Sealing, inside: Vacuum seal	B23	
Sealing, inside: Vacuum and gauge pressure sealing	B24	
Sealing, outside: Radial shaft sealing ring FKM	B25	
Sealing, outside: Radial shaft sealing ring PTFE	B26	
Sealing, outside: Sliding ring	B27	
Oil sight glasses, position: left	B28	
Oil sight glasses, position: right	B29	

available: ✓

not available: —

Option	Option code	Available?
Oil sight glasses, position: left/right	B30	
Oil sight glasses, design: flat	B31	
Oil sight glasses, design: domed	B32	
available: ✓		
not available: —		

Tab. 3 Option codes

## 2.3 Weight

The weight of the blower block depends on the materials used.

### Weight [kg]

Material	OMEGA 41 B	OMEGA 43 B
Rotors: Spheroidal graphite iron (Option B17); Enclosure: Grey cast iron (Option B19)	84	115
Rotors: Stainless steel (Option B18); Enclosure: Grey cast iron (Option B19)	86	118
Rotors: Stainless steel (Option B18); Enclosure: Ni-Resist (Option B20)	87	121

Tab. 4 Weight

## 2.4 Pressure

### 2.4.1 Option B14

#### Operating mode: Vacuum

	OMEGA 41 B	OMEGA 43 B
Maximum vacuum differential [mbar] *	500	500
Maximum compression ratio **	2.0	2.0

\* Differential: Discharge pressure to intake pressure

\*\* Quotient: Discharge pressure (absolute) to intake pressure (absolute)

Tab. 5 Pressure

**2.4.2 Option B23**
**Sealing, inside: Vacuum seal**

The blower block is designed exclusively for generating vacuum.  
 Operation at gauge pressure (even temporary) will damage the sealing system.

**2.4.3 Option B24**
**Sealing, inside: Vacuum and gauge pressure sealing**

Due to the special internal sealing (Option B24), a short-time gauge pressure up to 100 mbar maximum is permitted.

**2.5 Flow rate**

	<b>OMEGA 41 B</b>	<b>OMEGA 43 B</b>
Nominal flow rate [m <sup>3</sup> /min]	11.8	21.1

Tab. 6 Theoretical flow rate at maximum speed

The effective flow rate is dependent on speed and pressure conditions.

Further information The design diagrams in chapter 13.2 contain specifications of effective flow rate (delivery).

**2.6 Power and speeds**

The power requirement depends on the operating state and the internal seals.

**Power requirement [kW]**

<b>Sealing, inside</b>	<b>OMEGA 41 B</b>	<b>OMEGA 43 B</b>
Vacuum seal (Option B23)	0.85–11.1	1.40–18.97
Vacuum/gauge pressure seal (Option B24)	0.96–11.42	1.52–19.3

Tab. 7 Power requirement

**Permissible speeds**

<b>Rotor speed during operation</b>	<b>OMEGA 41 B</b>	<b>OMEGA 43 B</b>
Maximum [min <sup>-1</sup> ]	3800	3400

Rotor speed during operation	OMEGA 41 B	OMEGA 43 B
Minimum [min <sup>-1</sup> ]	900	900

Tab. 8 Rotational speeds

Further information Details of flow rate, temperature rise and blower shaft power in relation to rotor speed and pressure differential can be found in the design diagrams in chapter 13.2.

## 2.7 Drive shaft load

	OMEGA 41 B	OMEGA 43 B
Maximum radial load [N]	2570	2670

Tab. 9 Drive shaft load

## 2.8 Connection dimensions

Flange connection	OMEGA 41 B	OMEGA 43 B
Inlet port DN [mm]	80	100
Discharge port DN [mm]	80	100

Tab. 10 Connection dimensions

## 2.9 Temperature

	Delivery medium	OMEGA 41 B	OMEGA 43 B
Maximum block discharge temperature [°C]	Air	160	160
	Water vapour	130	130

Tab. 11 Block discharge temperature

	OMEGA 41 B	OMEGA 43 B
Maximum temperature differential [K] *	115	115

\* Discharge temperature minus inlet temperature

Tab. 12 Temperature difference

## 2.10 Recommended oil

The lubricant type to be used depends on the operating conditions.

	OMEGA FLUID
	SB 220
Description	Synthetic oil
Application:	Suitable for all applications, except food processing.
Oil temperature [°C]	-10 – +120*

\* Special measures are required for oil temperatures >120 °C. Consult KAESER for advice on this subject.

Tab. 13 Recommended oil

Further information An adhesive label identifying the used lubricant is attached to the blower block. Information on ordering oil is found in chapter 11.2.

## 2.11 Lubricating oil charge

The block oil chambers are filled with oil at the factory.

### Lubricating oil charge [l] – recommended values

Flow direction	Drive end	Control end
Vertical (Option B5)	0.25 ±15%	0.30 ±15%

Tab. 14 Lubricating oil charge

## 2.12 Ambient and intake conditions

	OMEGA 41 B	OMEGA 43 B
Permissible ambient temperature [°C]	-15 – +60	-15 – +60
Relative humidity [%]	0 – 80	0 – 80

Tab. 15 Ambient conditions

	Delivery medium	OMEGA 41 B	OMEGA 43 B
Permissible intake temperature [°C]	Air	-15 – +40	-15 – +40
	Water vapour	max. 85	max. 85

Tab. 16 Permissible intake temperature

## 2.13 Noise emission

The blower block is not a complete machine.

Data are obtained under the following conditions:

- with drive motor

- with inlet silencer
- with outlet silencer
- Without sound enclosure

Actual values are dependent upon:

- Pressure
- Speed
- Design and construction of the silencers

Measurement conditions:

- Free field measurement according to DIN EN ISO 2151 and basic standard ISO 9614-2
- Measurement distance 1 m

#### Sound pressure level [dB(A)]

Operating mode	OMEGA 41 B	OMEGA 43 B
Vacuum (Option B14)	81-90	81-93

Tab. 17 Sound pressure level

#### Sound power level [dB(A)]

Operating mode	OMEGA 41 B	OMEGA 43 B
Vacuum (Option B14)	96-105	96-108

Tab. 18 Sound power level



## 3 Safety and Responsibility

### 3.1 Basic instructions

The blower block is manufactured to the latest engineering standards and acknowledged safety regulations. Nevertheless, dangers can arise through its operation:

- danger to life and limb of the operator or third parties,
- damages of the blower block and other property.



Disregard of warning or safety instructions can cause serious injuries!

- Use the blower block only if it is in a technically perfect condition and only for the purpose for which it is intended; observe all safety measures and the instructions in the service manual.
- Immediately rectify (have rectified) any faults that could be detrimental to safety!

### 3.2 Intended use

The blower block is exclusively intended to form part of a machine for conveying air in an industrial environment. Any operation with different media, such as water vapour in evaporation plants is permitted only within the limits contractually agreed upon with KAESER. Any other use is considered incorrect. The manufacturer is not liable for any damages that may result from incorrect use. The user alone is liable for any risks incurred.

- Comply with the instructions in this operating manual.
- Operate the blower block only within its performance limits and under the permitted ambient and inlet conditions.
- Do not operate the block without pipework or silencers connected to the inlet and outlet.
- Do not use compressed air for breathing purposes unless it is specifically treated.
- Do not use compressed for any application that will bring it into direct contact with foodstuffs unless it is specifically treated.

### 3.3 Improper use

Improper usage can cause damage to property and/or (severe) injuries.

- Only use the blower block as intended.
- Never direct compressed air at persons or animals.
- Do not allow the machine to take in toxic, acidic, flammable or explosive gases or vapours.
- Do not operate the blower block in areas in which specific requirements with regard to explosion protection are in force.
- Intake of solid particles > 0.1 mm is not permitted.
- The formation of deposits on the rotor must be prevented using appropriate measures.

### **3.4 User's responsibilities**

#### **3.4.1 To be noted when integrating in a machine**

The block will become an integral part of the machine into which it is built. Therefore, it is the responsibility of the machine manufacturer to ensure that the block is suitable for the application and that the necessary conditions for its safe and reliable operation are maintained.

- Check the suitability of the block and the conditions under which it will operate.

#### **3.4.2 Observe statutory and universally accepted regulations**

This includes, for example, nationally implemented European directives and/or applicable national legislation, safety and accident prevention regulations.

- Observe the statutory and universally accepted regulations when operating the blower block.

#### **3.4.3 Determining personnel**

Suitable personnel are experts who, by virtue of their training, knowledge and experience as well as their knowledge of relevant regulations can assess the work to be done and recognize the possible dangers involved.

Authorised assembly personnel possess the following qualifications:

- are of legal age,
  - have read, understood and will abide by the safety instructions and operating manual,
  - must be fully conversant with the safety concepts and regulations of drive, vacuum and compressed air technology,
  - are able to recognise the possible dangers of drive, compressed air and vacuum technology and take appropriate measures to safeguard persons and property,
  - have received adequate training and authorization for safe assembly.
- Ensure that personnel entrusted with assembly are qualified and authorised to carry out their tasks.

### **3.5 Dangers**

#### **Basic instructions**

Information concerning the various forms of danger that can arise during block operation are found here.

Basic safety instructions are found in this service manual at the beginning of each chapter in the section entitled 'Safety'.

Warning instructions are found before a potentially dangerous task.

#### **3.5.1 Safely dealing with sources of danger**

Information concerning the various forms of danger that can arise during the operation of the blower block are found here.

**Forces of compression**

Compressed air is contained energy. Uncontrolled release of this energy can cause serious injury or death. The following information concerns work on components that could be under pressure.

- Close shut-off valves or otherwise isolate the block from the air distribution network to ensure that no compressed air can flow back into the block.
- De-pressurise all pressurised components and enclosures.
- Welding, heat treatment and mechanical changes are forbidden as they can effect the strength of the material.  
The safety of the machine is then no longer ensured.

**Compressed air quality**

The composition of the compressed air must be suitable for the actual application in order to preclude health and life-threatening dangers.

- Use appropriate systems for air treatment before using the compressed air from this block as breathing air and/or for the processing of foodstuffs.
- Use lubricating oil compatible with foodstuffs if compressed air can come into contact with them.

**Quality of discharge air**

The quality of the discharge air and any substances it may contain depends on the quality of the air drawn from the vacuum network.

- Never breathe in exhaust air.
- Ensure that the discharge air is led to the outdoors through a point far from any persons.

**Rotating components**

Contact with rotating drive shafts or rotors can cause severe injury.

- Secure the blower block against unintended starting.
- Wear close-fitting clothes and a hair net if necessary.
- Fit covers and guards to prevent accidental contact.

**Temperature**

High temperatures are generated during compression. Touching hot components may cause injuries.

- Do not touch the hot blower block.
- Avoid contact with hot oil when changing the oil.
- Wear protective clothing.

**Noise**

The non-insulated blower block generates high noise emissions potentially resulting in hearing damage.

- Operate the machine only with adequate sound damping.
- Wear hearing protection if necessary.

**Operating fluids/materials**

The used operating fluids and materials can cause adverse health effects. Suitable safety measures must be taken in order to prevent injuries.

- Strictly forbid fire, open flame and smoking.
- Follow safety regulations when dealing with oils, lubricants and chemical substances.
- Avoid contact with skin and eyes.
- Do not inhale oil mist and vapours.
- Do not eat or drink while handling cooling and lubricating fluids.
- Keep suitable fire extinguishing agents ready for use.
- Use only KAESER approved operating materials.

**Unsuitable spare parts**

Unsuitable spare parts compromise the safety of the blower block.

- Use only spare parts that have been approved by the manufacturer for this blower block.
- Use only genuine KAESER replacement parts on pressure bearing parts.

**Conversion or modification of the blower block**

Modifications, additions or conversions to or of the blower block can result in unpredictable hazards.

- Do not permit conversion or modification as this can compromise function and safe working.

**3.5.2 Organisational measures**

- Designate personnel and their responsibilities.
- Give clear instructions on reporting faults and damage to the block.
- Give instructions on fire reporting and fire-fighting measures.

**3.5.3 Safe operation of the blower block**

Information on conduct that will help in handling the blower block safely during individual product life phases is listed here.

**Personal protective equipment**

When working on the blower block, you may be exposed to dangers that can result in accidents with severe adverse health effects.

- Wear protective clothing as necessary.

Suitable protective clothing (examples):

- Safety workwear
- Protective gloves
- Safety boots
- Eye protection
- Ear protection

### Transporting

The weight and size of the blower block require safety measures during its transport to prevent accidents.

- Use suitable lifting gear that conforms to local safety regulations.
- Allow transportation only by personnel trained in the safe movement of loads.
- Attach lifting gear only to suitable lifting points.
- Be aware of the centre of gravity to avoid tipping.
- Make sure the danger zone is clear of personnel.

### Assembly

- Use suitable fixings to screw the blower block, without stress, to a firm and even base.
- Never dismantle compressed air pipes until they are fully vented.
- Only use pressure lines that are suitable and approved for the maximum working pressure, the intended medium and the temperatures to be expected.
- Do not allow connection pipes to be placed under mechanical stress.
- Do not induce any forces into the blower block via the connections, so that the compressive forces must be balanced by bracing.

### Installation

A suitable installation location for the machine prevents accidents and faults.

- Install the machine in a suitable compressor room.
- Ensure sufficient and suitable lighting for the work to be carried out comfortably and safely.
- Ensure accessibility to the blower block so that all work can be carried out without danger or hindrance.
- Do not operate in areas in which specific requirements with regard to explosion protection are in force.  
For instance, the requirements of ATEX directive 94/9/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- Ensure adequate ventilation.
- Place the blower block in such a manner that the working conditions in its environment are not impaired.
- Do not exceed the threshold values for the ambient temperature.
- The intake air must not contain any damaging contaminants.  
Damaging contaminants are for instance: explosive or chemically instable gases and vapours, acid or base forming substances such as ammonia, chlorine or hydrogen sulphide.
- Keep suitable fire extinguishing agents ready for use.

### Commissioning, operation and maintenance

During commissioning, operation and maintenance you may be exposed to dangers resulting from, e.g., pressure and temperature. Careless actions can cause accidents with severe adverse effects for your health.

- Allow maintenance work to be carried out only by authorised personnel.
- Wear close-fitting, flame-resistant clothing. Wear protective clothing as necessary.
- Close shut-off valves or otherwise isolate the blower block from the air distribution network to ensure that no compressed air can flow back into the blower block.

- De-pressurise all pressurised components and enclosures.
- Allow the blower block to cool down.
- Use only spare parts approved by KAESER for use in this blower block.
- Perform regular inspections for visible damages.
- Pay particular attention to cleanliness during all maintenance and repair work. Cover components and openings with clean cloths, paper or tape to keep them clean.
- Do not leave any loose components, tools or cleaning rags on or in the blower block.
- Components removed from the machine can still be dangerous.  
Do not attempt to open or destroy any components taken from the machine.

#### De-commissioning, storage and disposal

Improper handling of old operating fluids and components represent a danger for the environment.

- Drain off fluids and dispose of them according to environmental regulations.
- Return the blower block to KAESER for disposal and attach the completed Declaration of Contamination.

### 3.6 Danger areas

The table gives information on areas dangerous to personnel.

Only authorized personnel may enter these areas.

The danger areas related to the following activities are to be defined by the user of the machine into which the blower block is built:

- Commissioning
- Operation
- Maintenance
- Decommissioning

Activity	Danger area	Authorized personnel
Transport	1 m radius	Installation personnel for transport preparation. No personnel during transport.
	Beneath the lifted block.	No personnel!
Installation	1 m radius	Installation personnel

Tab. 19 Danger areas

### 3.7 Safety signs

The diagram shows the positions of safety signs on the blower block. The table lists the various safety signs used and their meanings.

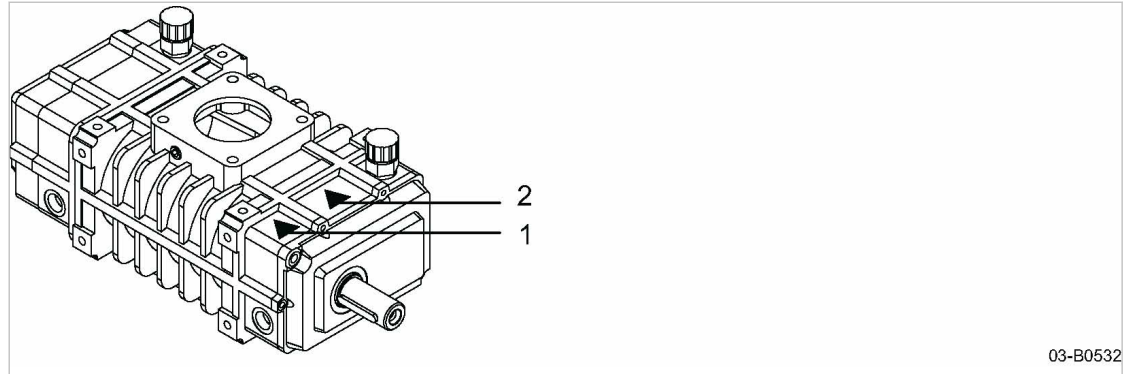


Fig. 1 Location of safety signs

Item	Sign	Meaning
1		Hot surface! Risk of burns caused by contact with hot components <ul style="list-style-type: none"> <li>➤ Do not touch the surface.</li> <li>➤ Wear long-sleeved garments (not synthetics such as polyester) and protective gloves.</li> </ul>
2		Risk of serious lacerations or even severing of extremities (fingers) from rotating components. <ul style="list-style-type: none"> <li>➤ Operate the machine only with closed flange connections.</li> <li>➤ Switch off and lock out the power supply disconnecting device.</li> </ul>

Tab. 20 Safety signs

## 3.8 In emergency

### 3.8.1 Correct fire fighting

Suitable extinguishing agents

- Foam
- Carbon dioxide
- Sand or earth

Unsuitable or unsafe extinguishing agents

- Strong jet of water

1. Keep calm.
2. Give the alarm.
3. Switch off the power supply disconnecting device, if possible.
4. Move to safety.
  - Warn persons in danger.
  - Help incapacitated persons.
  - Close the doors.
5. Try to extinguish the fire if you have the skill to do so.

**3.8.2 Remove lubricating oil from the skin.**

- Eye contact:  
Rinse eyes thoroughly with lukewarm water and seek medical assistance.
- Skin contact:  
Wash off immediately.

**3.9 Environment protection**

- Store and dispose of operating materials and replaced parts in accordance with local environment protection regulations.
- Observe national regulations.  
This applies particularly to parts contaminated with lubricating oil.



- Do not allow lubricating oil to escape to the environment or into the sewage system.

**3.10 Warranty**

This service manual contains no independent warranty commitment. Our general terms and conditions of business apply with regard to warranty.

A condition of our warranty is the specified use of the blower block under observation of the specific operating conditions.

Due to the numerous applications for which the blower block is suitable, the obligation lies with the user to determine its suitability for his specific application.

Furthermore, we do not assume any warranty obligation for damages caused by:

- the use of unsuitable parts or operating materials,
- un-authorized modifications,
- incorrect maintenance,
- incorrect repair.

Correct maintenance and repair includes the use of genuine KAESER spare parts and operating materials.

- Obtain confirmation from KAESER that your specific operating conditions are suitable.



## 4 Design and Function

### 4.1 Function

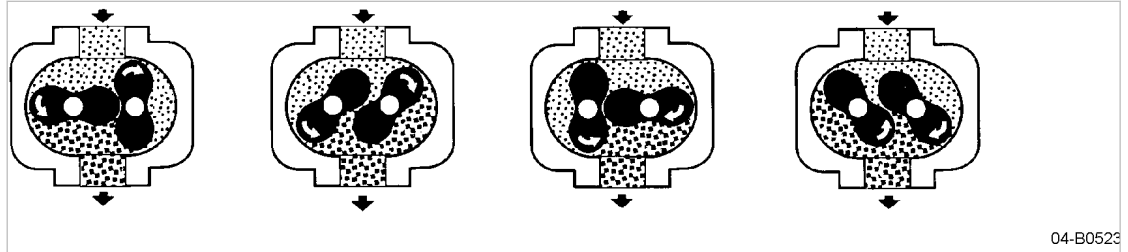


Fig. 2 Principle of compression

A pair of rotors with intermeshing lobes rotate in opposite directions within a casing. The rotors are synchronised by timing gears on one end. Air in the block inlet is trapped between the rotors and the casing and moved round to the discharge port.

There is no contact between the rotors themselves and the casing so no oil film lubrication is needed.

### 4.2 Options

The design of the blower block is defined by options:

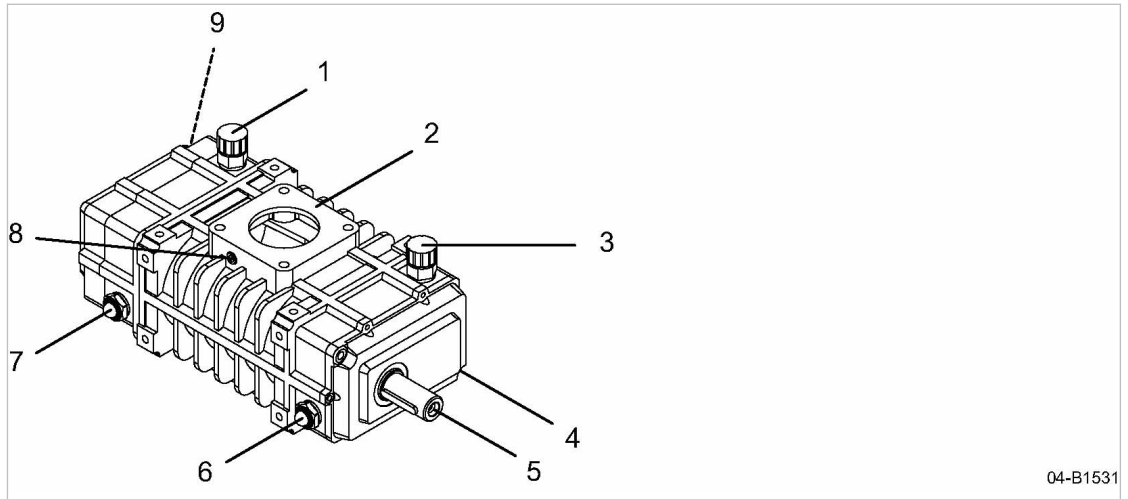
Option code for:

- Flow direction
- Position and direction of rotation of the drive shaft (view to the shaft end)
- Operating mode
- Rotor design
- Rotor and enclosure material
- Seals inside and out
- Position and design of the oil sight glasses

are printed on the nameplate of the blower block.

Further information An overview of the option codes are provided in chapter 2.2.

4.2.1 Option B5  
Flow direction: vertical



04-B1531

Fig. 3 Block overview – flow direction: vertical

- |   |                              |   |                                 |
|---|------------------------------|---|---------------------------------|
| ① | Gear-end oil inlet           | ⑥ | Drive-end oil sight glass       |
| ② | Flange connection, both ends | ⑦ | Gear-end oil sight glass        |
| ③ | Drive-end oil inlet          | ⑧ | Connection for measuring device |
| ④ | Drive-end oil drain          | ⑨ | Gear-end oil drain              |
| ⑤ | Drive shaft                  |   |                                 |

## 5 Installation and Operating Conditions

### 5.1 Ensuring safety

The conditions in which the block is installed and operated have a decisive effect on safety. Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

#### Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- Strictly forbid fire, open flame and smoking.
- The blower block is not explosion-proof!  
Do not operate in areas in which specific requirements with regard to explosion protection are in force.  
For instance, the requirements of ATEX directive 94/9/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- Ensure sufficient and suitable lighting for the work to be carried out comfortably and safely.
- Ensure that required ambient conditions are maintained.
- Do not operate the block without pipework or silencers connected to the inlet and outlet.

Required ambient conditions may be:

- Maintain ambient temperature and humidity
- Ensure the appropriate composition of the air within the machine room:
  - clean with no damaging contaminants (e.g., dust, fibres, fine sand)
  - free of explosive or chemically unstable gases or vapours
  - free of acid/alkaline forming substances, particularly ammonia, chlorine or hydrogen sulfide.

### 5.2 Determining the location

The blower block is intended for installing into a suitable machine.

1. Install the blower block only on a surface that is level and can support its weight.
2. If installed outdoors, the blower block must be protected from frost, direct sunlight, dust and rain.
3. Ensure accessibility to the blower block so that all work can be carried out without danger or hindrance.

## 6 Installation

### 6.1 Ensuring safety

Follow the instructions below for safe installation.

Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

#### Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- Follow the instructions in chapter 3 'Safety and Responsibility'.
- Installation work may only be carried out by authorised personnel.
- Make sure that no one is working on the machine.
- Make sure no personnel are working on the block before switching on.

#### When working on the compressed air system

Compressed air is contained energy. Uncontrolled release of this energy can cause serious injury or death. The following safety concerns relate to any work on components that could be under pressure.

- Close shut-off valves or otherwise isolate the block from the air distribution network to ensure that no compressed air can flow back into the block.
- De-pressurise all pressurised components and enclosures.
- Do not open or dismantle any valves.

Further information Details of authorised personnel are found in chapter 3.4.3.  
Details of dangers and their avoidance are found in chapter 3.5.

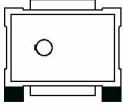
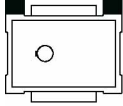
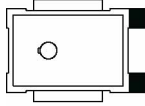
### 6.2 Reporting transport damage

1. Check the block for visible and hidden transport damage.
2. Inform the carrier and the manufacturer in writing of any damage without delay.

### 6.3 Installation options

The block has mounting feet on all sides to facilitate the various installation options.  
The blower block is shipped in vertical direction of delivery.

Installation possible as shown:

Mounted	Underslung	Hanging from the side
		
04-B0527	04-B0528	04-B0526

Tab. 21 Installation options

One of the rotors is shaft-driven as specified in the order.

- Contact KAESER if the drive should be on the other rotor.

## 6.4 Installing the blower block

**Precondition** Ensure that the machine in which the blower block is installed is isolated from the mains and fully vented.



**WARNING**

Serious injury or death can result from loosening or opening components under pressure.

- De-pressurise all pressurised components and enclosures.



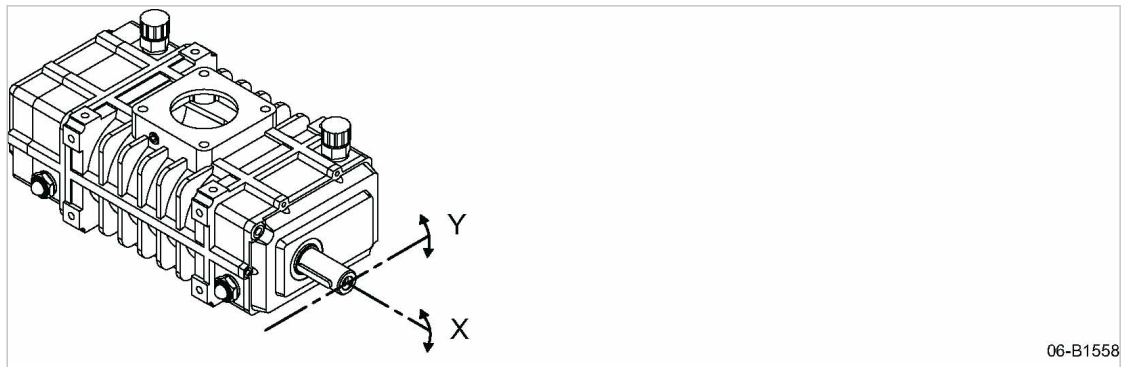
**CAUTION**

Rotating rotors.

Danger of squashing or severing.

- Do not reach into the interior of the block.

### Permissible angle deviation in horizontal position



06-B1558

Fig. 4 Permissible angle deviation:

- $\pm 5^\circ$
- $\pm 5^\circ$

1. Before installing the blower block, remove the two transport plugs from the gas drainage ports on the underside of the block to prevent oil being forced into the conveying chamber. Hold the gas drains open.



The gear-end and drive-end oil chambers must not be connected.

2. Use suitable fixings to screw the blower block, without stress, to a firm and even base. Details of the anchoring holes are contained in the dimensional drawing in chapter 13.1.
3. Check that the drive shaft turns freely by hand.
4. Remove the flange connection covers. Check interior for dirt and foreign bodies. If necessary, have the blower block cleaned by an authorised KAESER Service Technician.
5. Fit suitable pipework without stress:
  - Intake line at the intake port,
  - Pressure pipe to the discharge port.
  - Use only elastic pipe connection when connecting the block to permanently installed pipelines.
  - Support the weight of the pipework so that its weight does not fall on silencers or other components.
6. Throttling or return of the gas drain openings to the inlet side is only permissible after consultation with KAESER.
7. Close any unused openings for injecting cooling fluid. Discuss with KAESER the type and position of the injection openings.
8. Specify the volume of injected cooling fluid to ensure that the block discharge temperature won't be exceeded.

## 6.5 Installing the drive

The blower block may be driven by readily available drives.

**Precondition** The drive power should be at least 12 % more than required by the block.

1. Drive the block only in the specified direction of rotation.
2. Ensure that the maximum permissible rotor speed is not exceeded.
3. Axial forces acting on the drive shaft are not permitted.
4. Use couplings and pulleys that do not need high axial force for fitting or removal.
5. Use the centre thread on the shaft end for handling pulleys and coupling parts.
6. Use suitable assembly elements to align and fix the block and the drive motor in relation to each other.

### Directly-coupled drive with flexible coupling

1. Ensure that the balance  $Q < 6.3$  at maximum speed.
2. Have the drive output shaft and the block input shaft precisely aligned.



Refer to the coupling manufacturer's technical data for the running tolerances of the coupling. It is recommended to calculate the critical rotational resonant frequency to avoid impermissible vibrations.

### Belt drive

1. Ensure that the belt drive out of alignment is no more than  $\pm 0.5^\circ$ .

This applies to the following:

- Parallelism of the drive shaft axes
- Run out of the belts because of axial offset

2. Ensure that the block pulley meets the following quality requirements:
  - Balance: Q 6.3
  - Maximum V-groove concentricity: 0.1 mm
3. Check belt tension and adjust if necessary:
  - after commissioning
  - after every belt change
    - after 30 minutes running
    - after 24 operating hours.

Further information Information about the maximum radial loading of the block input shaft is provided in chapter 2.7.

## 6.6 Safety devices installed by the user

Depending on the overall installation, various measures are needed to ensure safe and reliable block operation.

For example:

- A means of detecting incorrect block rotation direction with subsequent immediate shut-down of the drive.
- Flexible pipe connections that do not exert any stress on the blower block from heat expansion or any other force.
- Suitable filtration to prevent the intake of dust or other foreign bodies.
- Suitable components to reduce the sound emission from the block.
  - Inlet and discharge silencers.
  - Sound enclosure

Certain safety and regulating devices are needed for secure operation of the machine into which the blower block is installed:

- Blow-off or vacuum valve to prevent exceeding or falling short of the permissible operating pressure.

The initial pressure must be matched with the values from the design drawings, wherein a range of at least 30 mbar must be planned between the working pressure and the activating pressure of the valve.

If the valve activates during operation, an inadmissible operating state exists. In this event, an admissible operating state must be achieved immediately or the machine is to be taken out of service.

  - Highest activating pressure when operating under positive pressure:  
50 mbar above working pressure.
  - Highest activating pressure when operating under vacuum:  
50 mbar above maximum pressure differential.
- A check valve to prevent the return flow of air.

The valve must be dimensioned according to the following parameters:

  - the size of the inlet and discharge ports,
  - the permissible pressure differential.
- Unloaded start valve to avoid the machine starting against a back pressure.

- Indicators for monitoring the inlet and discharge parameters of:
  - Temperature
  - Pressure or vacuum
- Automatic safety devices to shut down the machine if the permissible limits are reached of:
  - Temperature
  - Pressure or vacuum
  - Current draw
- Carefully assess the installation situation and seek advice from KAESER.

Further information Design diagrams are given in chapter 13.2.



## 7 Initial Start-up

### 7.1 Ensuring safety

Here you will find instructions for a safe commissioning of the machine. Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

#### Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- Follow the instructions in chapter 3 'Safety and Responsibility'.
- Commissioning tasks may only be carried out by authorised personnel!
- Make sure that no one is working on the machine.
- Make sure no personnel are working on the block before switching on.

#### When working on the compressed air system

Compressed air is contained energy. Uncontrolled release of this energy can cause serious injury or death. The following safety concerns relate to any work on components that could be under pressure.

- Close shut-off valves or otherwise isolate the block from the air distribution network to ensure that no compressed air can flow back into the block.
- De-pressurise all pressurised components and enclosures.

Further information Details of authorised personnel are found in chapter 3.4.3.  
Details of dangers and their avoidance are found in chapter 3.5.

### 7.2 Checking installation and operating conditions

- Check and confirm all the items in the checklist before commissioning the block.

To be checked	See chapter	Complied?
➤ Have all packaging material and tools been removed from the machine?	–	
➤ Are the operators fully conversant with safety regulations?	–	
➤ Have all the positioning conditions been complied with?	5	
➤ Is there adequate lubricating oil in the drive-end and gear-end of the block? (level in the centre of the sight glass)	10.3	
➤ Has the blower been mounted free of stresses?	6.4	
➤ Has it been verified that the rotors can be turned freely by hand?		

Tab. 22 Installation conditions checklist

### 7.3 Instructions to be observed before commissioning or re-commissioning

Incorrect or improper commissioning can cause injury to persons and damage to the block.

- Commissioning may only be carried out by trained and authorised personnel.

#### Special measures for re-commissioning after storage

Storage period longer than	Remedy
12 months	➤ Change the lubricating oil.
36 months	➤ Have the overall technical condition checked by an authorised KAESER Service Technician.

Tab. 23 Re-commissioning after storage

### 7.4 Checking direction of rotation

The direction of rotation can be checked when the block is coupled to the drive. Necessary measures are dependent on the design of the drive and should be determined by the user.

An arrow indicating direction of rotation is fixed on the side of the block at the drive end.



- Install a safety device that will stop the drive and build-up of suction pressure if the direction of rotation is incorrect.

- Check the direction of rotation on first start-up of the block and stop the drive immediately if it is incorrect.



- The drive has been stopped because of incorrect direction of rotation?
  - Take appropriate measures to ensure correct direction of rotation.

## 8 Operation

### 8.1 Switching on and off

On and off switching conditions are defined by the design of the machine into which the blower block is installed.



1. **NOTICE!**

Ambient temperature too low!

Frozen condensate and highly viscous lubricating oil can cause damage when starting the machine.

- Make sure that the temperature of the block is at least +3 °C before starting the machine.

2. The block may only be started when the permissible operating conditions are met.

## 9 Fault Recognition and Rectification

### 9.1 Basic instructions

The following tables are intended to assist in locating faults.

1. Do not attempt fault rectification measures other than those given in this manual.
2. In all other cases, have the fault rectified by an authorised KAESER Service Technician.

### 9.2 Alarms

Fault	Possible cause	Remedy
Unusual noise when running.	Too much backlash in the timing gears.	Contact KAESER Service.
	Significant deposit on the rotors.	If possible, execute a cleaning cycle. Contact KAESER Service.
	Bearing damage.	Contact KAESER Service.
Block runs too hot.	Pressure differential too great.	Check and correct pressure differential.
	Clogged inlet filter reducing air intake volume.	Clean the inlet filter.
	Rotor clearance too large.	Contact KAESER Service.
	Sealing strips of rotor and/or enclosure wall worn.	Contact KAESER Service.
	Delivery medium water vapour: excessive high temperatures at the discharge port.	Check the injection cooling system.
Too much leakage from the gas drains.	Wear on the ring sealing from the flow chamber.	Contact KAESER Service.
Oil leaks from the gas drain.	Oil level too high.	Drain off oil until the correct level is reached.
	Wear on the ring sealing from the oil chamber.	Contact KAESER Service.
Oil leaking from around the drive shaft.	Shaft seal defective.	Contact KAESER Service.
	Wear on the shaft protection sleeve.	Contact KAESER Service.
	Defective external seals.	Contact KAESER Service.
Reduced air inlet flow.	Rotor clearance too large because of wear.	Contact KAESER Service.
	Intake resistance too high.	Clean the inlet filter.
	Excessive gas leakage in vacuum operation.	Contact KAESER Service.

<b>Fault</b>	<b>Possible cause</b>	<b>Remedy</b>
Black film on the oil sight glasses.	Lubricant replacement interval not met.	Change the lubricating oil. Clean or renew the sight glass.
	Insufficient oil.	Change the lubricating oil. Clean or renew the sight glass.
	Oil overheated.	Contact KAESER Service.
	Block overloaded.	Contact KAESER Service.
Water in the oil.	Condensate build-up by prolonged storage and high humidity.	Change the lubricating oil.
	Gas drains closed.	Remove transport plugs of the two gas drainage ports at the underside of the blower block. Change the lubricating oil.
	Defective internal seals.	Contact KAESER Service.

Tab. 24 Other faults and actions.

## 10 Maintenance

### 10.1 Ensuring safety

Follow the instructions below to ensure safe machine maintenance.  
Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

#### Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- Follow the instructions in chapter 3 'Safety and Responsibility'.
- Allow maintenance work to be performed by authorised personnel only.
- Make sure that no one is working on the machine.
- Make sure no personnel are working on the block before switching on.

#### When working on the compressed air system

Compressed air is contained energy. Uncontrolled release of this energy can cause serious injury or death. The following safety concerns relate to any work on components that could be under pressure.

- Close shut-off valves or otherwise isolate the block from the air distribution network to ensure that no compressed air can flow back into the block.
- De-pressurise all pressurised components and enclosures.

Further information Details of authorised personnel are found in chapter 3.4.3.  
Details of dangers and their avoidance are found in chapter 3.5.

### 10.2 Maintenance schedule

#### 10.2.1 Logging maintenance work



The maintenance intervals given are those recommended for average operating conditions.

- Maintenance tasks should be carried out more frequently where operating conditions are unfavourable (e.g. dusty atmosphere) or when the equipment is in constant use.
- Adjust the maintenance intervals with regard to local installation and operating conditions.

- Keep a log of all maintenance and service work.

This enables the frequency of individual maintenance tasks and deviations from our recommendations to be determined.

Further information A prepared list is provided in chapter 10.7.

#### 10.2.2 Regular maintenance tasks

The table below lists maintenance tasks required.



When operating conditions are unfavourable (e.g. dusty atmosphere) or when the equipment is in constant use, maintenance tasks must be carried out more frequently (shorter intervals).

- Carry out maintenance tasks punctually taking ambient and operating conditions into consideration.

Interval	Maintenance task	See chapter
50 hours after commissioning	Change the lubricating oil.	10.5
Weekly	Check the oil level.	10.3
Up to 1 000 h* at least once a year	Change the lubricating oil.	10.5
As required	Check rotors for contamination.	10.6

h = operating hours

\* The intervals for lubricating oil changes at high thermal stresses must be reduced and can be determined upon analyses of the oil.

Tab. 25 Regular maintenance tasks

### 10.2.3 Regular service tasks

The table below lists necessary service tasks.

- Only an authorised KAESER Service Technician should carry out service work.
- Have service tasks carried out punctually taking ambient and operating conditions into account.

Interval	Service task
Up to 36 000 h	(Option B25 and B26) Replace the radial shaft seal.

h = operating hours

Tab. 26 Regular service tasks

## 10.3 Checking the oil level

The true oil level can be seen in the oil sight glass only when the machine is stopped.



The gear-end and drive-end oil chambers are not connected.



**WARNING**

Danger of burns from hot components!

- Wear long-sleeved clothing and gloves.

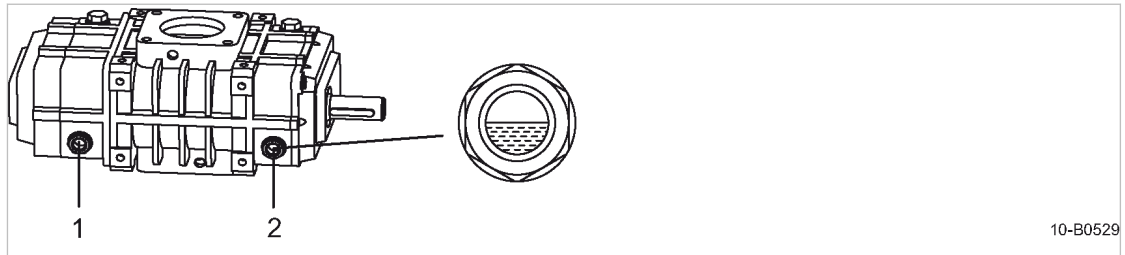


Fig. 5 Checking the oil level

- ① Gear-end oil sight glass
- ② Drive-end oil sight glass

1. Check the oil level in the sight glasses on both ends of the block.
2. Top up as soon as the level falls to 8 mm below the centre of the sight glass.

## 10.4 Replenishing lubricating oil

A sticker on the block specifies the type of oil used.



The block must be isolated from the compressed air network and completely vented before undertaking any work on the pressure system.

**Precondition** The power supply disconnecting device is switched off  
The disconnecting device is locked in the off position.  
The oil level has settled.



**NOTICE**

Unsuitable oil can damage the block.

- Never mix different types of oil.
- Never top up with a different type of oil to that already used in the block.



**WARNING**

Danger of burns from hot components and oil!

- Wear long-sleeved clothing and gloves.

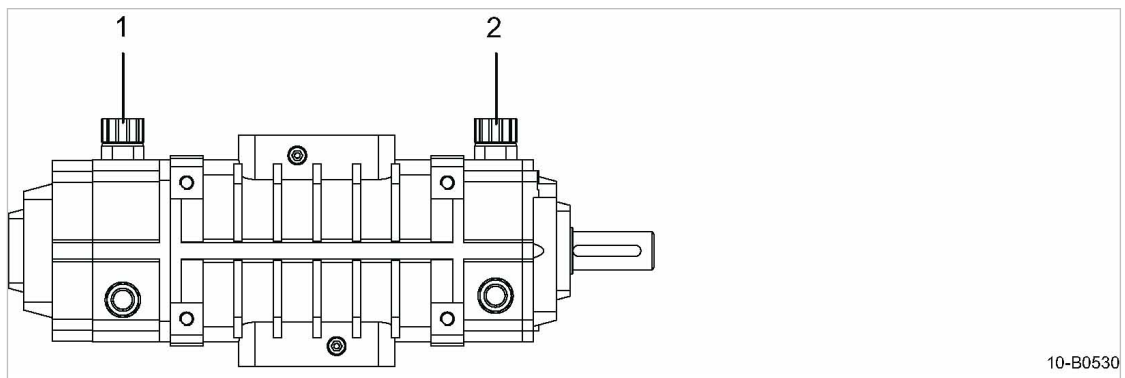


Fig. 6 Replenishing lubricating oil

- ① Plug (gear-end oil filling port)
- ② Plug (drive-end oil filling port)



1. Slowly remove the plug ① and/or ②.
2. Top up until the level is in the centre of the sight glass.
3. Screw in the plugs.
4. Visually check for leaks.

## 10.5 Changing the oil



The block must be isolated from the compressed air network and completely vented before undertaking any work on the pressure system.

The oil should be changed at a block temperature of approx. 55°C to ensure a free oil flow.

Drain the oil thoroughly from:

- Gear-end
- Drive-end

Material Lubricating oil  
Oil receptacle



### WARNING

Danger of burns from hot components and oil!

- Wear long-sleeved clothing and gloves.

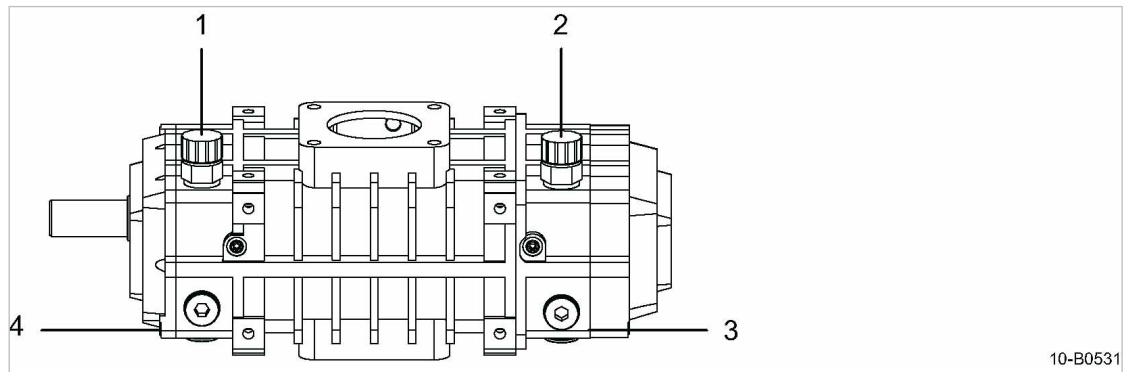


Fig. 7 Changing the oil

- |  |                                      |
|--|--------------------------------------|
| ① Plug<br>(drive-end oil filling port) | ③ Plug<br>(gear-end oil drain port)  |
| ② Plug<br>(gear-end oil filling port)  | ④ Plug<br>(drive-end oil drain port) |

### Drain the oil

1. Prepare an oil receptacle.
2. Loosen the plugs ① and ②.
3. Remove the plugs ③ and ④.
4. Drain the lubricating oil.
5. Replace the plugs in the drain ports.



Dispose of the old oil in accordance with local environmental protection regulations.

**Filling with fresh oil**

1. Fill with fresh oil.
2. Check the oil level.
3. Replace the plugs in the oil filling ports.
4. Visually check for leaks.

**10.6 Checking rotors for contamination**

Any dust in the conveyed medium can build up inside the block.



The block must be isolated from the compressed air network and completely vented before undertaking any work on the pressure system.

**Precondition** The power supply isolating device is switched off, the device is locked off, the absence of any voltage has been verified.  
The block has cooled down.

**WARNING**

Danger of burns from hot components!

- Wear long-sleeved clothing and gloves.

**CAUTION**

Rotating rotors.  
Danger of squashing or severing.

- Isolate the drive from the mains and lock off.

1. Disconnect the flange connections and look for contamination inside the block.
2. If necessary, have the blower block cleaned by an authorised KAESER Service Technician.



## 11 Spares, Operating Materials, Service

### 11.1 Note the nameplate

The nameplate contains all information to identify your blower block. This information is essential to us in order to provide you with optimal service.

- Please give the information from the nameplate with every enquiry and order for spares.

### 11.2 Ordering spares and operating fluids/materials

KAESER spares and operating fluids/materials have the same characteristics as the originals. They are specifically selected for use in KAESER machines.

**WARNING**

There is risk of personal injury or damage to the machine resulting from the use of unsuitable spares or operating fluids/materials.

Third-party parts and unsuitable or poor quality operating materials may damage the block or significantly impair its proper function.

Personal injury may result from damage.

- Use only original KAESER parts and operating fluids/materials.
- Have an authorised KAESER Service Technician carry out regular maintenance.

Name	Number
Lubricating oil	1600

Tab. 28 Ordering spares and operating fluids/materials

### 11.3 KAESER AIR SERVICE

KAESER AIR SERVICE offers:

- Authorised service technicians with KAESER factory training
- Increased operational reliability ensured by preventive maintenance
- Energy savings achieved by avoidance of pressure losses
- optimum conditions for operation of the compressed air system,
- The security of genuine KAESER spares.
- Increased legal certainty as all regulations are kept to.

- It make sense to sign a KAESER AIR SERVICE maintenance agreement.

Your advantage:

lower costs and higher compressed air availability.

### 11.4 Service Addresses

Addresses of KAESER agents are given at the end of this manual.

## 11.5 Declaration of Contamination

Every company (user) is responsible for the health and safety of its employees. This extends to personnel who carry out servicing work at the user or service contractor.

A Declaration of Contamination must be filled out and signed whenever maintenance or repair work is carried out on the blower block.

### 11.5.1 Shipment of the blower block

Precondition Correct preparation of the block for shipment.

1. Drain the oil.
2. Close off the oil drain port.
3. Close off the flange connections.
4. Appropriate packing.
5. Fix a copy of the Declaration of Contamination to the **outside** of the packing.

Further information A Declaration of Contamination form is given in chapter 13.3.

## 12 Decommissioning, Storage and Transport

### 12.1 De-commissioning

De-commissioning is necessary, for example, under the following circumstances:

- The block is temporarily not needed.
- The block is to be moved to another location.
- The block is to be scrapped.

#### Temporary de-commissioning

Precondition The can be run at regular intervals.

- Run the block once a week for at least 30 minutes at operating temperature to ensure corrosion protection.

#### Long-term de-commissioning

- Spray the block inside and out with a preserving oil to prevent corrosion.

Further information Details of conserving oils are found in chapter 12.4.

### 12.2 Packing

A crate is required for overland transport to protect the block from mechanical damage.

Consult KAESER Service for advice concerning sea or air transport.

- Close off the flange connections.

### 12.3 Transport

#### 12.3.1 Safety

The weight determines the means of transport.

Precondition Transport with lifting gear operated by personnel trained in the safe movement of goods.

- Make sure the danger area is clear of personnel.

Further information See chapter 2.3 for weight information.

#### 12.3.2 Transporting with a crane

Suitable lifting gear ensures correct transportation.

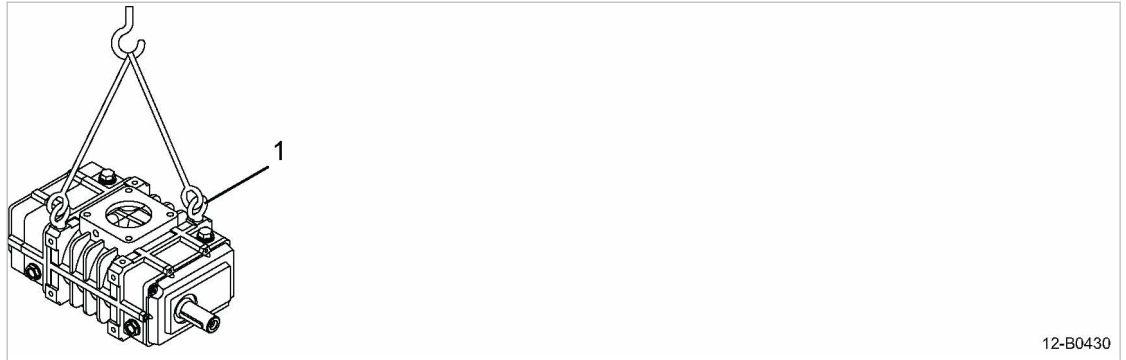


Fig. 8 Transport with a crane

① Eye bolt

- Screw the supplied eye bolts diagonally into the prepared holes in the block base.
- Lift and transport only by means of the eye bolts.

## 12.4 Storage

Moisture can lead to corrosion, particularly on the surfaces of the blower block. Storage temperature must not fall below  $-30\text{ }^{\circ}\text{C}$ .



Advice can be obtained from KAESER on storage and recommissioning.



### **NOTICE**

Damage to the block by moisture and frost.

- Prevent ingress of moisture and formation of condensation.



### **CAUTION**

Rotating piston!

Danger of squashing or severing of limbs.

- Do not reach into the interior of the block.

- Store the block in a dry room.
- Protect the flange connections, drive shaft and delivery space of the block by spraying with appropriate an conservation oil, e.g., ANTICORIT OHK.
- Seal openings at the block to prevent the introduction of foreign particles and dirt.
  - Screw closing plugs into bores.
  - Close flange connections with plastic caps.
- Change the lubricating oil annually.

### **After lengthy storage**

- Remove the preservative from the flow chamber with cleaning solvent.
- Change the lubricating oil.

## 12.5 Disposal

Precondition Blower block without oil. Flange connections are closed.

- Return the block to KAESER.



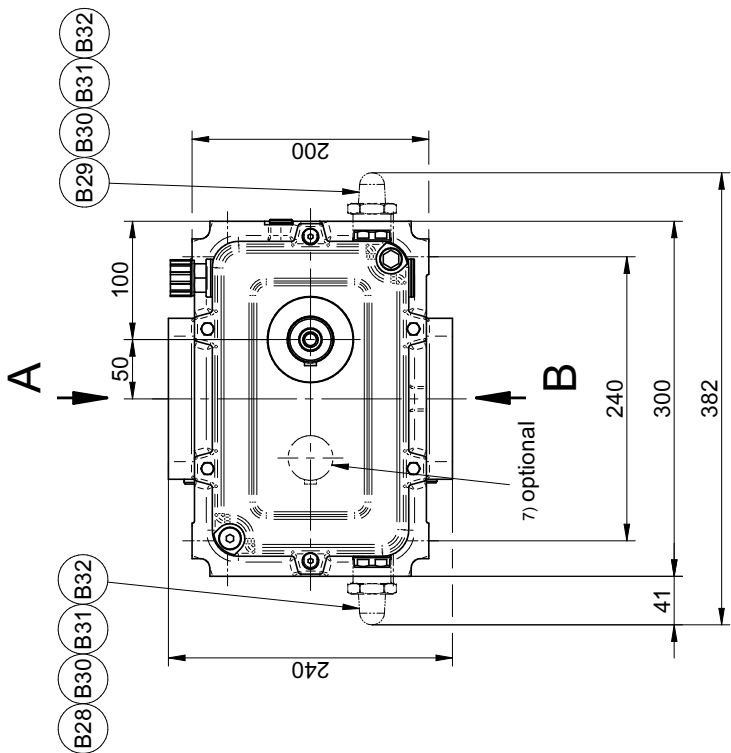
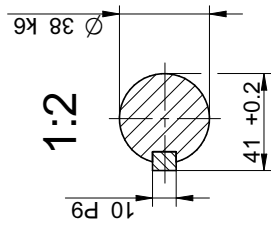
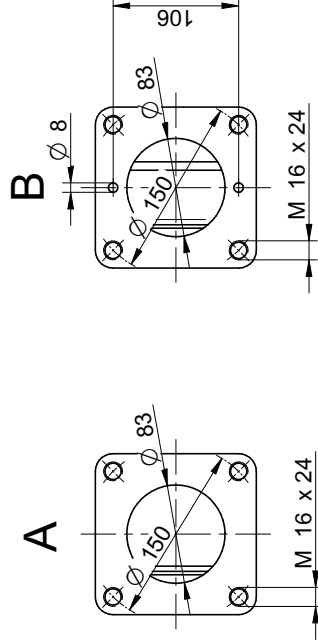
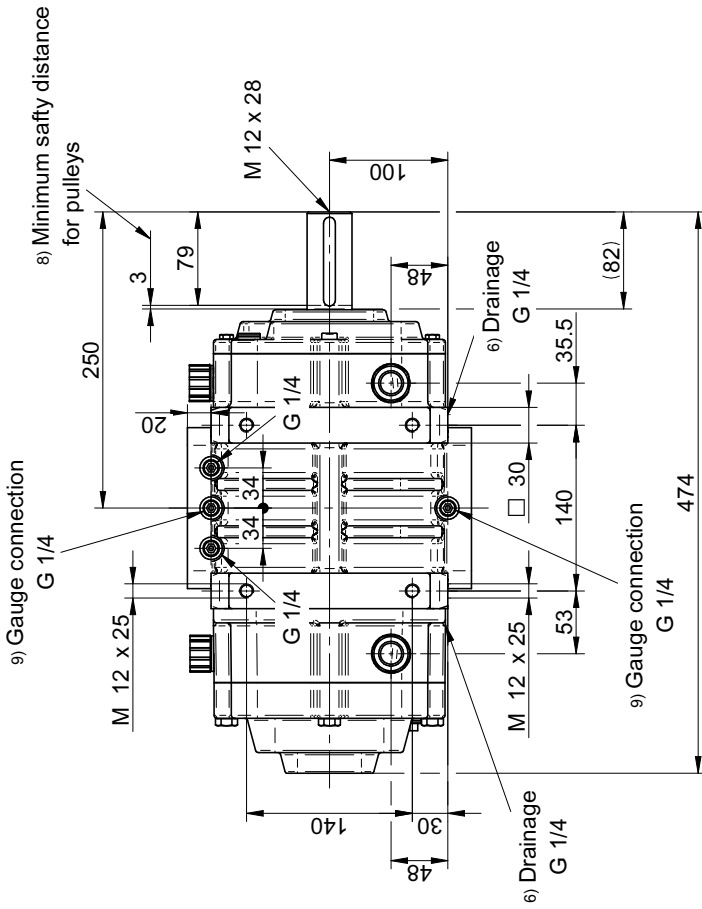
## 13 Annex

### 13.1 Dimensional drawing

If the texts of the dimensional drawing are not provided in the chosen language, a translation can be found here.

Text position Dimensional drawing	Legend
1	Translation of texts in the installation/operating manual
2	Flange connection X ND 6 DIN EN 1092-2 Permissible deviation of the base surface to the levelness 0.05 mm
6	Drainage
7	Optional
8	Minimum safety distance for pulleys
9	Pressure gauge connection
22	Option code
57	two-sided
70	Oil sight glass position: left
71	Oil sight glass position: right
72	Oil sight glass positions: left + right
73	Oil sight glass design: flush
74	Oil sight glass design: dome
75	Options

Tab. 29 Legend, dimensional drawing



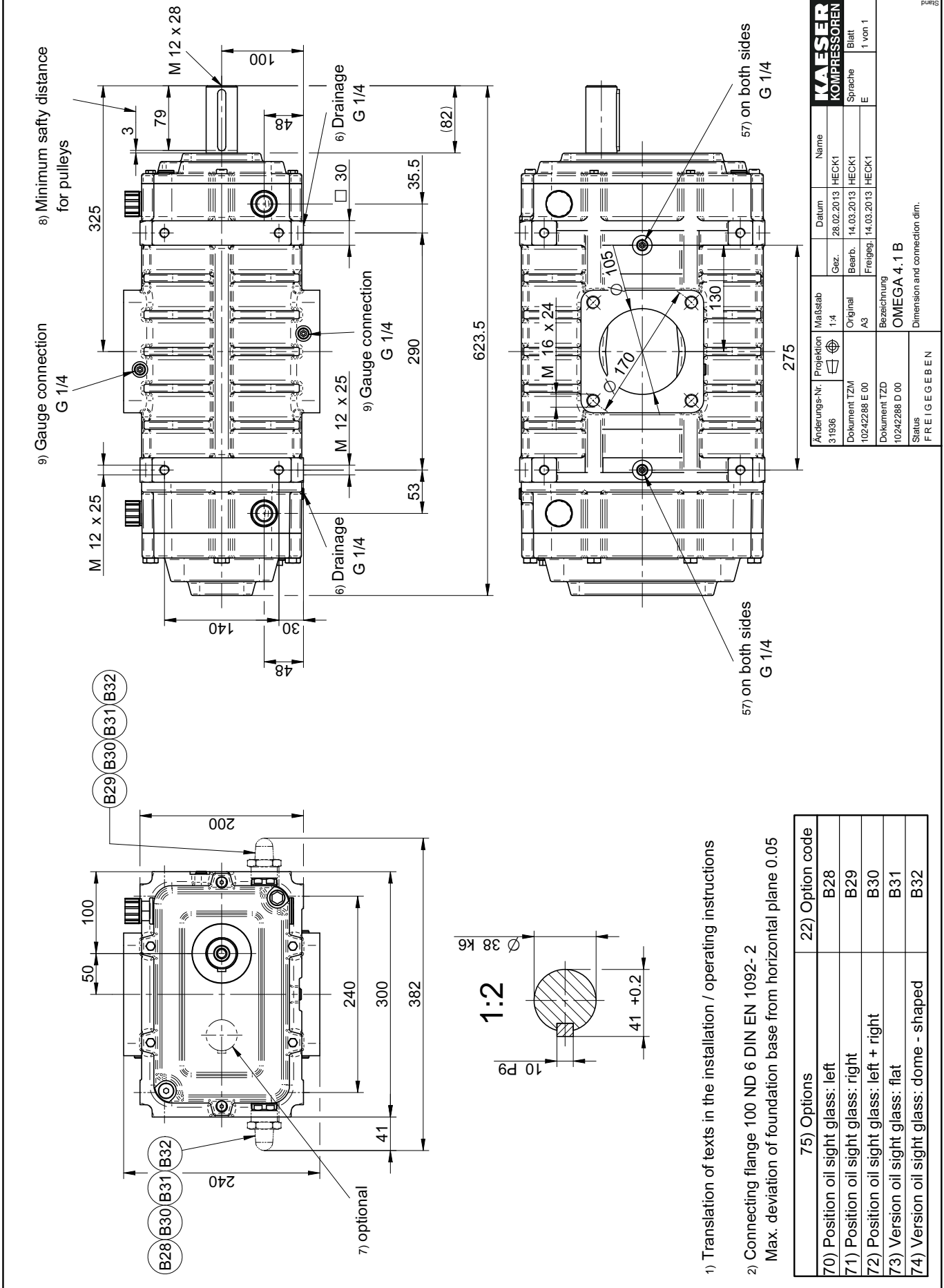
- 1) Translation of texts in the installation / operating instructions
- 2) Connecting flange 80 ND 6 DIN EN 1092- 2  
Max. deviation of foundation base from horizontal plane 0.05

75) Options	22) Option code
70) Position oil sight glass: left	B28
71) Position oil sight glass: right	B29
72) Position oil sight glass: left + right	B30
73) Version of oil sight glass: flat	B31
74) Version of oil sight glass: dome - shaped	B32

KAESER KOMPRESSOREN		Name	
Änderungs-Nr.	3/1936	Datum	01.03.2013
Projektion	1:4	Gez.	HECK1
Dokument Tz/M	10242338 E 00	Bearb.	08.01.2015
Dokument TzD	10242338 D 00	Freigez.	08.01.2015
Status	Released	Bezeichnung	OMEGA 4.1 B
		Dimension and connection dim.	
		Sprache	E
		Blatt	1 von 1

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- 1) Translation of texts in the installation / operating instructions
- 2) Connecting flange 100 ND 6 DIN EN 1092-2  
Max. deviation of foundation base from horizontal plane 0.05

75) Options	22) Option code
70) Position oil sight glass: left	B28
71) Position oil sight glass: right	B29
72) Position oil sight glass: left + right	B30
73) Version oil sight glass: flat	B31
74) Version oil sight glass: dome - shaped	B32

KAESER KOMPRESSOREN		Name	
Änderungs-Nr.	31936	Datum	28.02.2013
Projektion	1:4	Gez.	HECK1
Maßstab	Original	Bearb.	14.03.2013
Dokument Tz/M	A3	Freigegeben	14.03.2013
Dokument Tz/D	10242288 D 00	Bezeichnung	OMEGA 4.1 B
Status	PRELIEGEBEN	Dimension and connection dim.	
		Sprache	E
		Blatt	1 von 1

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Entwicklungsbedingungen  
Zeichnung darf nur über CAD  
geändert werden.

**13.2 Design diagrams****13.2.1 Option B14****Operating mode: Vacuum**

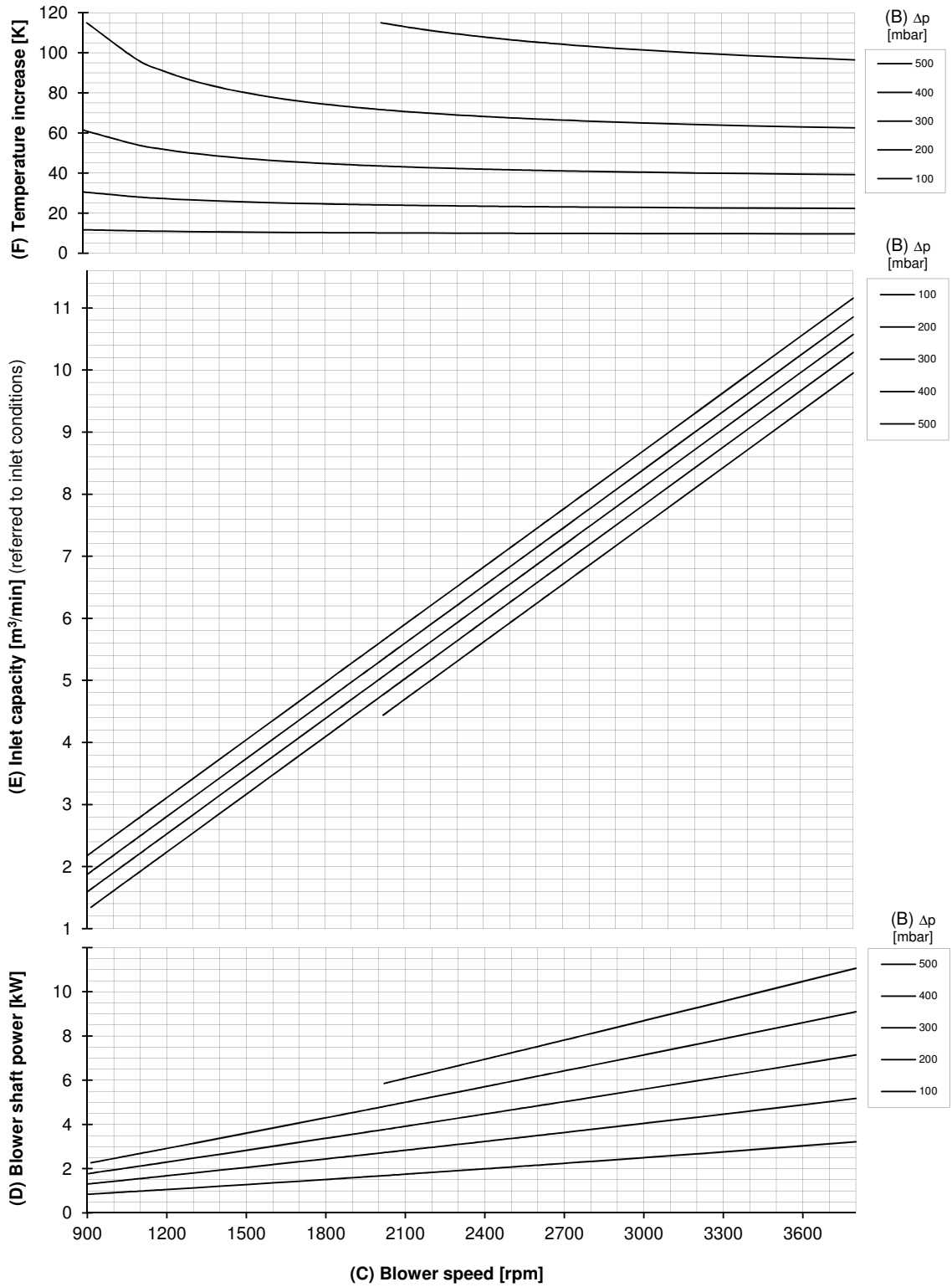
If the texts of the diagrams is not provided in the chosen language, a translation can be found here.

	<b>Diagram legend</b>
A	Vacuum operation Intake state: air at 20 °C / final pressure: 1013 mbar
B	$\Delta p$ [mbar]
C	Blower speed [ $\text{min}^{-1}$ ]
D	Blower shaft power [kW]
E	Intake capacity [ $\text{m}^3/\text{min}$ ] (relative to the intake condition)
F	Temperature rise [K]

Tab. 30 Legend, vacuum diagrams

**OMEGA 41B vac**

(A) Vacuum operation  
Inlet conditions: air at 20°C / discharge pressure: 1013mbar

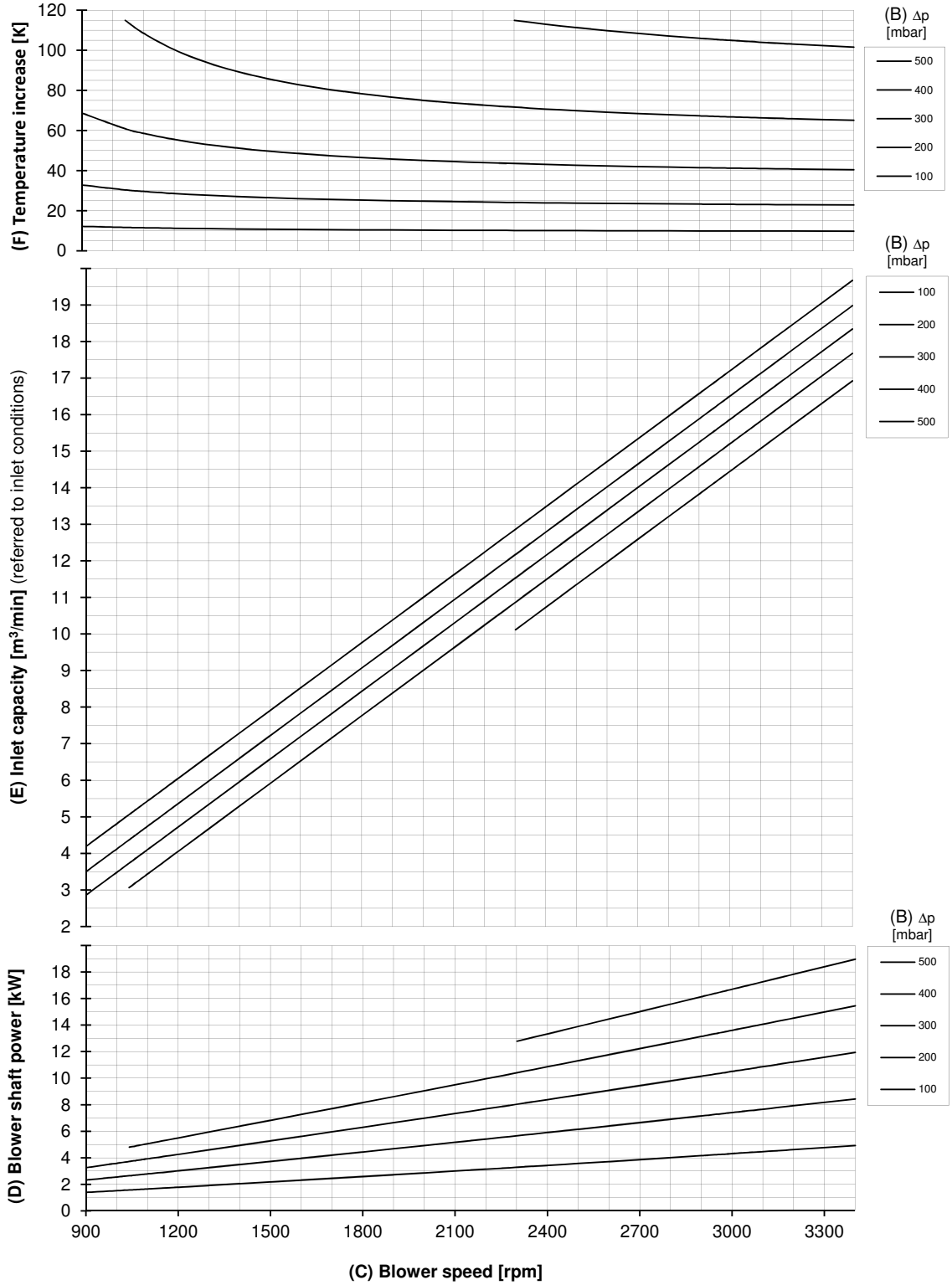


Auslegung O41B-vac

Stand:04-2011  
Mrotzek TB1

**OMEGA 43B vac**

(A) Vacuum operation  
Inlet conditions: air at 20°C / discharge pressure: 1013mbar



Auslegung O43B-vac

Stand:04-2011  
Mrotzek TB1

**13.2.2 Option B24****Sealing, inside: Vacuum and gauge pressure sealing**

Due to the special internal sealing (Option B24), a short-time gauge pressure up to 100 mbar maximum is permitted.

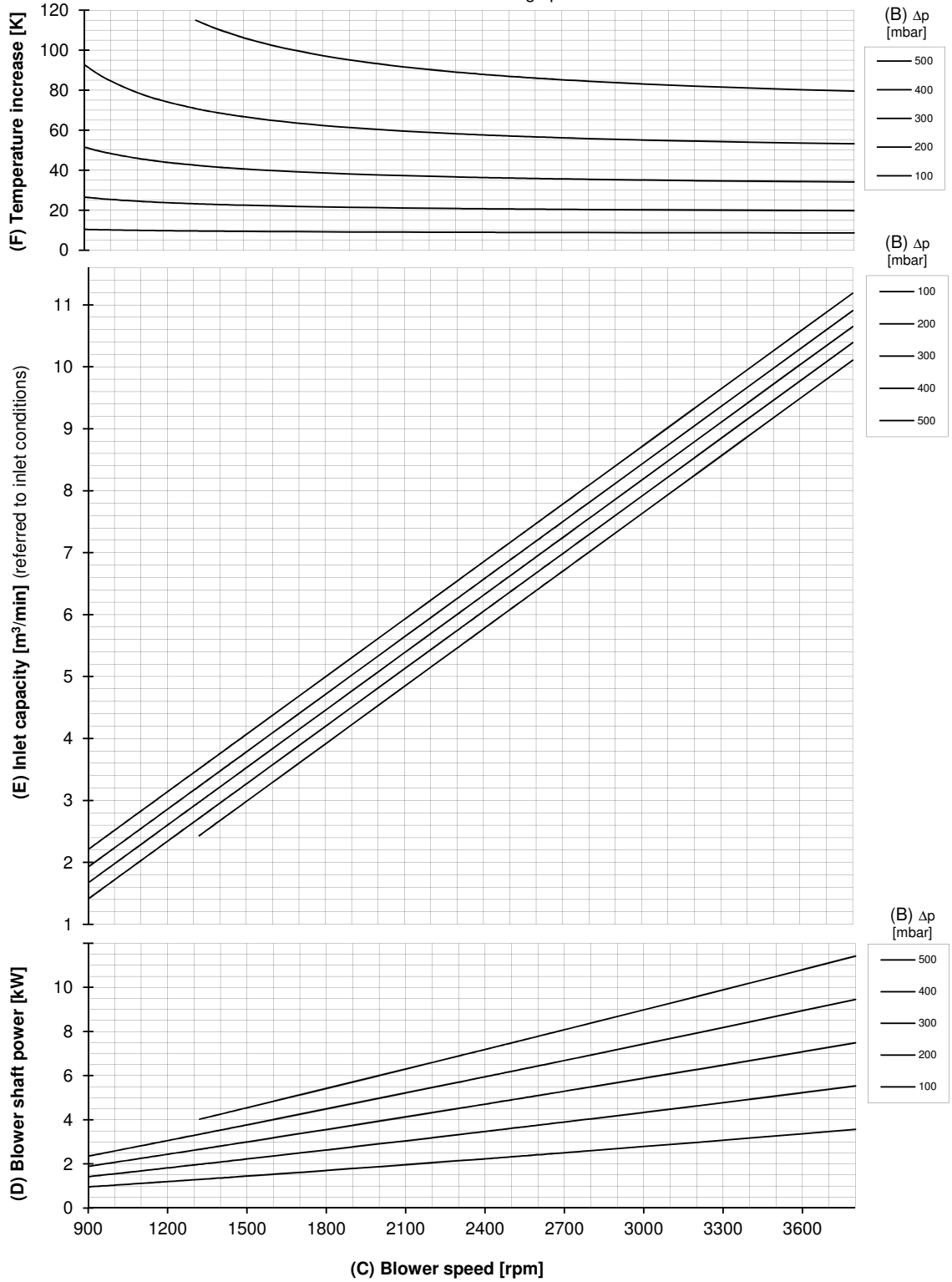
If the texts of the diagrams is not provided in the chosen language, a translation can be found here.

Diagram legend	
A	Vacuum/gauge pressure operation Intake condition: Air at 20 °C / final pressure: 1113 mbar
B	$\Delta p$ [mbar]
C	Blower speed [ $\text{min}^{-1}$ ]
D	Blower shaft power [kW]
E	FAD [ $\text{m}^3/\text{min}$ ] (relative to the intake condition)
F	Temperature rise [K]

Tab. 31 Legend, gauge pressure diagrams

**OMEGA 41B vac-pr**

(A) Vacuum /gauge pressure operation  
Inlet conditions: air at 20 °C / discharge pressure: 1113mbar



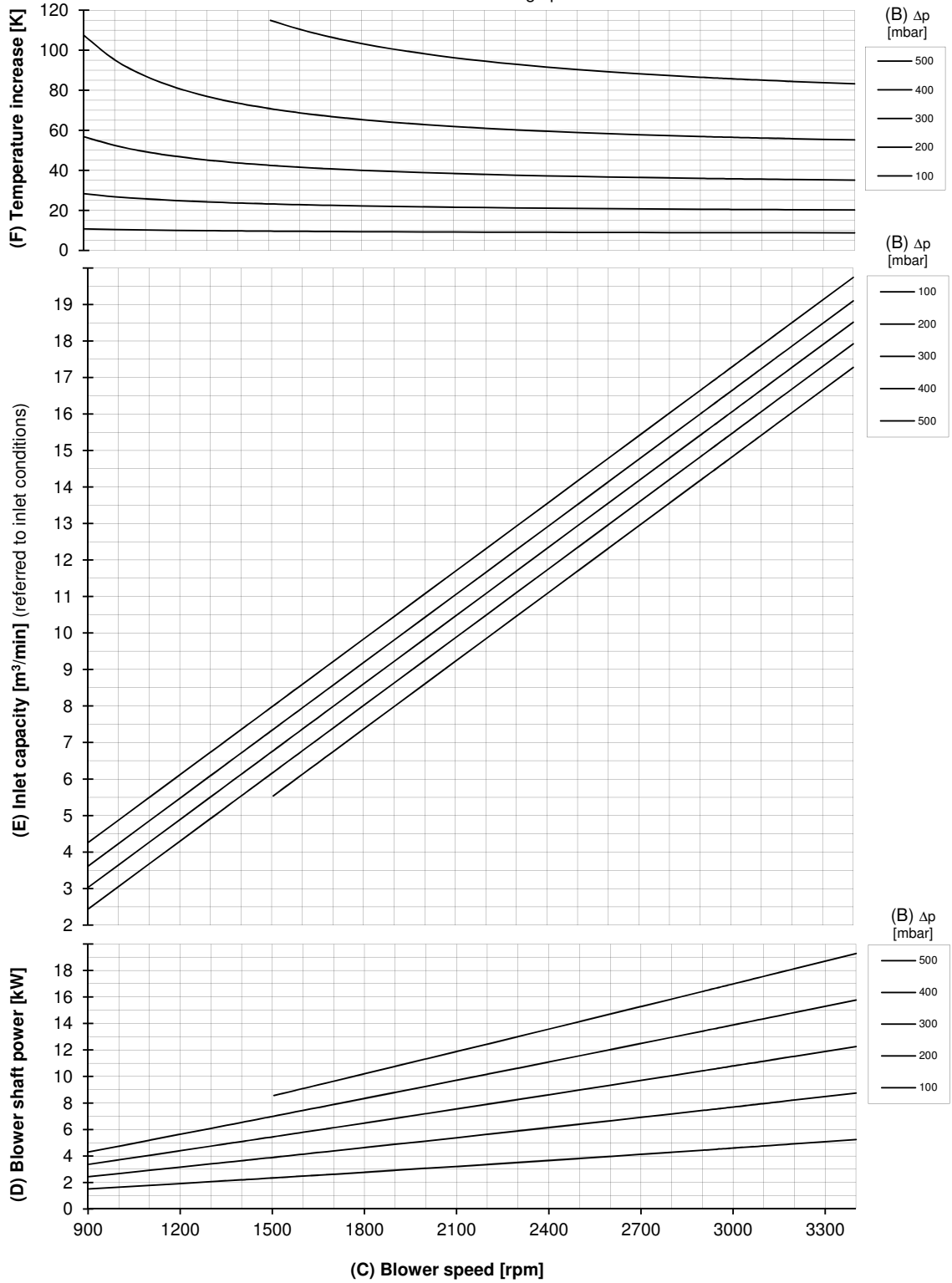
Auslegung O41B-vac-pr

Stand:04-2011  
Mrotzek TB1



**OMEGA 43B vac-pr**

(A) Vacuum /gauge pressure operation  
Inlet conditions: air at 20 °C / discharge pressure: 1113mbar



Auslegung O43B-vac-pr

Stand:04-2011  
Mrotzek TB1

### 13.3 Declaration concerning contamination



**Declaration of Contamination**  
concerning compressors, blowers, vacuum pumps and components

Repair and/or maintenance work will only be carried out on items for which a Declaration of Contamination form has been filled out and attached. **A completed Declaration is required for each item.** Any item not accompanied by a Declaration is liable to be returned untouched. Items that have been contaminated with microbiological, explosive or radioactive substances will only be accepted when accompanied by confirmation that they have been **fully decontaminated** according to regulation. This Declaration may only be filled out and signed by the authorized representative of the ordering party (sender of the item).

Sender/dept.:	_____
Contact name:	_____
Address:	_____ _____
Phone / Fax:	_____

Reason for sending the item: _____ _____ _____ _____ _____ _____  (use rear side of form if necessary)
--

**Specification of the item:**

Model/type name: \_\_\_\_\_

Part no.: \_\_\_\_\_

Serial no.: \_\_\_\_\_

Oil used: \_\_\_\_\_

Accessories: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Condition of the item:**

	yes	no	not known
- has it been used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- emptied/vented?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- all openings airtight closed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- cleaned / decontaminated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Cleaning substance used: \_\_\_\_\_

Cleaning method: \_\_\_\_\_

**Information on contaminants:**

- with what substances has the item been in contact?

	Trade name	Chemical name	Characteristics
a)			
b)			
c)			
d)			

	yes	no	not known
- Are the substances listed above hazardous to health?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Are any hazardous substances given off by heating?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which? \_\_\_\_\_

We declare that the information given in this declaration is true and complete and that the signatory is authorized and in a position to make this declaration. We are aware of our liability for any damages resulting from false or incomplete information given in this declaration and we engage to hold the contractor free of claims from third parties for compensation for damages resulting from such incomplete or false information.

Name of the authorized signatory (please print): \_\_\_\_\_

\_\_\_\_\_ Date                      \_\_\_\_\_ Authorized signature                      \_\_\_\_\_ Sender's company seal:

Gera/QUM/V-190501 Kontaminierungserklärung Gebläse-2/28.09.2007-E

