SERVICE MANUAL

Reciprocating compressors

Model: Dental T

GL no.: 9_5861 03 USE

KAESER COMPRESSORS

Contents

Chapter – page

1 Regarding this Document ..... 1 – 1

1.1 Handling the Document ..... 1 – 1
1.2 Further Documents ..... 1 – 1
1.3 Copyright ..... 1 – 1
1.4 Symbols and Identification ..... 1 – 1
1.4.1 Warning notices ..... 1 – 1
1.4.2 Other notices and symbols ..... 1 – 2

2 Technical Specifications ..... 2 – 3

2.1 Weight ..... 2 – 3
2.2 Compressor Block ..... 2 – 3
2.3 Ambient Conditions ..... 2 – 3
2.4 Pressure Switch Setting ..... 2 – 4
2.5 Pressure ..... 2 – 4
2.6 Sound Pressure Level ..... 2 – 4
2.7 Motor and Power ..... 2 – 4
2.7.1 Drive motor ..... 2 – 4
2.8 Single–Phase Power Supply ..... 2 – 5
2.8.1 Power supply ..... 2 – 5
2.8.2 Electrical power connection ..... 2 – 5
2.9 Machine Duty Cycle ..... 2 – 6

3 Safety and Responsibility ..... 3 – 7

3.1 Proper Use ..... 3 – 7
3.2 Improper Use ..... 3 – 7
3.3 User's Responsibilities ..... 3 – 7
3.3.1 Qualified personnel ..... 3 – 7
3.3.2 Adherence to inspection schedules and accident prevention regulations 3 – 8
3.4 Dangers ..... 3 – 8
3.4.1 Safely dealing with sources of danger ..... 3 – 8
3.4.2 Safe machine operation ..... 3 – 10
3.4.3 Taking organisational measures ..... 3 – 11
3.4.4 Hazard areas ..... 3 – 11
3.5 Safety Devices ..... 3 – 12
3.6 Safety Signs ..... 3 – 12
3.7 Emergency ..... 3 – 13
3.7.1 Fire fighting ..... 3 – 13
3.8 Environmental protection ..... 3 – 13
3.9 Warranty ..... 3 – 13

4 Design and Function ..... 4 – 14

4.1 Machine Overview ..... 4 – 14
4.1.1 Primary components ..... 4 – 14
4.1.2 Function ..... 4 – 15
4.2 Operating States and Control Modes ..... 4 – 16
4.2.1 Operating states ..... 4 – 16

Chapter – page

4.3 Compressed Air Drying . . . . . 4 – 16
4.3.1 Function diagram . . . . . 4 – 16
4.3.2 Drying the compressed air . . . . . 4 – 16
4.3.3 Desiccant regeneration . . . . . 4 – 16
4.4 Safety Devices . . . . . 4 – 17
4.5 Accessories . . . . . 4 – 17
4.5.1 Sound enclosure (see chapter 6.6) . . . . . 4 – 17

5 Installation and Operating Conditions . . . . . 5 – 18

5.1 Surroundings . . . . . 5 – 18
5.2 Installation Conditions . . . . . 5 – 18
5.2.1 Place of installation and space required . . . . . 5 – 18
5.2.2 Ventilation . . . . . 5 – 19
5.2.3 Operating in a compressed air system . . . . . 5 – 19

6 Installation . . . . . 6 – 20

6.1 Safety . . . . . 6 – 20
6.2 Reporting Transport Damage . . . . . 6 – 20
6.3 Installing the Antivibration Mounts . . . . . 6 – 20
6.4 Install the Compressed Air Connection . . . . . 6 – 21
6.5 Electrical Connection . . . . . 6 – 21
6.6 Sound Enclosure (accessory) . . . . . 6 – 22
6.6.1 Dismantling the sound enclosure . . . . . 6 – 22
6.6.2 Fitting the sound enclosure . . . . . 6 – 23

7 Start–up . . . . . 7 – 24

7.1 Safety . . . . . 7 – 24
7.2 Before Every Start–Up . . . . . 7 – 24
7.3 Checking Installation and Operating Conditions . . . . . 7 – 24
7.4 Motor Protection . . . . . 7 – 25
7.4.1 Overload Protection on Single–Phase Motors . . . . . 7 – 25
7.5 Checking Direction of Rotation . . . . . 7 – 26
7.6 Initial Start–Up . . . . . 7 – 26

8 Operation . . . . . 8 – 27

8.1 Switching On and Off . . . . . 8 – 27
8.1.1 Switching on . . . . . 8 – 28
8.1.2 Switching off . . . . . 8 – 28

9 Fault Recognition and Rectification . . . . . 9 – 29

9.1 Faults . . . . . 9 – 29

10 Maintenance . . . . . 10 – 31

10.1 Safety . . . . . 10 – 31
10.2 Maintenance Schedule . . . . . 10 – 32
10.2.1 Regular maintenance tasks . . . . . 10 – 32
10.2.2 Regular service work . . . . . 10 – 32

Chapter – page

10.3 Changing the Filter Mat . . . . . 10 – 33
10.4 Air Filter Maintenance . . . . . 10 – 33
10.5 Electric Motor Maintenance . . . . . 10 – 34
10.6 Checking the Safety Relief Valve . . . . . 10 – 35
10.7 Air receiver . . . . . 10 – 36
10.8 Venting the Machine (depressurizing) . . . . . 10 – 36
10.9 Maintaining the Check Valve . . . . . 10 – 37
10.10 Seccomat Dryer Maintenance . . . . . 10 – 38
10.11 Inspecting or Replacing the Cylinder Head and Valves . . . . . 10 – 38
10.12 Logging Maintenance Work . . . . . 10 – 39

11 Spares, Service . . . . . 11 – 40

11.1 Note the nameplate . . . . . 11 – 40
11.2 Ordering consumable parts . . . . . 11 – 40
11.3 Maintenance Agreement . . . . . 11 – 41
11.4 Service Addresses . . . . . 11 – 41
11.5 Spare Parts for Service and Repair . . . . . 11 – 41

12 Decommissioning, Storage and Transport . . . . . 12 – 42

12.1 Decommissioning . . . . . 12 – 42
12.2 Packing . . . . . 12 – 42
12.3 Storage . . . . . 12 – 42
12.4 Transporting . . . . . 12 – 43
12.5 Disposal . . . . . 12 – 43

13 Annex . . . . . 13 – 44

13.1 Diagrams and Drawings . . . . . 13 – 44
13.1.1 Dimensional drawing . . . . . 13 – 44
13.1.2 Electrical Diagram . . . . . 13 – 55

Directory of Illustrations

Chapter – page

Fig. 1 Location of Safety Signs . . . . . 3 – 13
Fig. 2 Major components . . . . . 4 – 14
Fig. 3 Machine Overview . . . . . 4 – 15
Fig. 4 Installation recommendation . . . . . 5 – 18
Fig. 5 Antivibration mount . . . . . 6 – 21
Fig. 6 Compressed air connection . . . . . 6 – 21
Fig. 7 Fitting the sound enclosure . . . . . 6 – 23
Fig. 8 Trip button . . . . . 7 – 25
Fig. 9 Switching on and off . . . . . 8 – 27
Fig. 10 Changing the Filter Mat . . . . . 10 – 33
Fig. 11 Air filter maintenance. . . . . 10 – 34
Fig. 12 Checking the safety relief valve . . . . . 10 – 35
Fig. 13 Venting the machine . . . . . 10 – 36
Fig. 14 Cleaning the check valve . . . . . 10 – 37
Fig. 15 Transport using a fork lift truck or pallet truck . . . . . 12 – 43

Table Directory

Chapter – page

Tab. 1 Nameplate . . . . . 2 – 3
Tab. 2 Machine weight . . . . . 2 – 3
Tab. 3 Compressor block data . . . . . 2 – 3
Tab. 4 Ambient Conditions . . . . . 2 – 3
Tab. 5 Pressure Switch Setting . . . . . 2 – 4
Tab. 6 Safety relief valve activating pressure . . . . . 2 – 4
Tab. 7 Sound Pressure Level . . . . . 2 – 4
Tab. 8 Drive motor data . . . . . 2 – 4
Tab. 9 Power supply details 115V/1/60Hz . . . . . 2 – 5
Tab. 10 Power supply details 208–230V/1/60Hz . . . . . 2 – 5
Tab. 11 Hazard areas . . . . . 3 – 11
Tab. 12 Safety signs . . . . . 3 – 12
Tab. 13 Overview Ventilation . . . . . 5 – 19
Tab. 14 Installation conditions checklist . . . . . 7 – 25
Tab. 15 Faults and Remedies . . . . . 9 – 30
Tab. 16 Regular maintenance tasks . . . . . 10 – 32
Tab. 17 Regular service work . . . . . 10 – 32
Tab. 18 Logged maintenance tasks . . . . . 10 – 39
Tab. 19 Machine maintenance parts . . . . . 11 – 40
Tab. 20 Seccomat dryer maintenance parts . . . . . 11 – 41

1 Regarding this Document

1.1 Handling the Document

The service manual is part of the machine.

☞ Keep the service manual in a safe place throughout the life of the machine.

☞ Pass the manual on to the next owner/user of the machine.

☞ Ensure that all amendments received are entered in the manual.

☞ Enter details from the machine nameplate and individual equipment in the table in chapter 2 ”Technical Specifications”.

1.2 Further Documents

Included with this Service Manual are documents intended to assist in the safe operation of the machine:

- certificate of acceptance / operating instructions for the pressure vessel

☞ Make sure all documents are complete and observe the instructions contained in them.

Missing documents can be requested from KAESER.
Always quote the data on the nameplate.

1.3 Copyright

1.4 Symbols and Identification

1.4.1 Warning notices

DANGER

Here are given the type and source of the danger.

Here are consequences of ignoring the warning notice.
The word ’DANGER’ means that death or severe injury can result if the warning notice is ignored.

☞ Here are given the measures to protect yourself from the danger.

☞ Always read and comply with warning notices.

Danger levels

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

Signal word	Meaning	Consequences of non−compliance
DANGER	Warns of imminent threatening danger	Death or severe injury may result
WARNING	Warns of a possible threat of danger	Death or severe injury or serious damage to the machine is possible
CAUTION	Warns of a possibly dangerous situation	Light injury or damage to property possible

1.4.2 Other notices and symbols

☞ This symbol indicates that a task is to be carried out.

 This symbol identifies environmental protection measures.

 This symbol refers to particularly important information.

2 Technical Specifications

The model designation and important technical information are given on the machine's nameplate.

Please enter the data from the nameplate here:

Model	
Part no.	
Serial no.	
Year	
MWP	
FAD at	
Tank	
Voltage	
Hz/RPM	
Rhase	
HP	
FLA	

Tab. 1 Nameplate

2.1 Weight

Maximum weight is shown. Actual weight of individual machines is dependent on equipment fitted.

	Weight [lb]
Dental 1T	104/192*
Dental 3T	150/238*
Dental 3/2T	337
Dental 5T	192/313*
Dental 5/2T	331

* Machine with sound enclosure

Tab. 2 Machine weight

2.2 Compressor Block

	Displacement [cfm]	Capacity at 75 psig [cfm]	Number of cylinders
KCT 110	3.89	2.3	1
KCT 230	8.12	5.5	2
KCT 420	14.8	9.2	2

Tab. 3 Compressor block data

2.3 Ambient Conditions

Maximum elevation above sea level* [ft]	3000
Ambient temperature [°F]	40 – 95

* Higher elevation permissible only after consultation with the manufacturer

Tab. 4 Ambient Conditions

2.4 Pressure Switch Setting

Factory setting

Cut–in pressure [psig]	Cut–out pressure [psig]	Pressure differential Δp [psi]
80	100	20

Tab. 5 Pressure Switch Setting

2.5 Pressure

Maximum working pressure: see nameplate

Maximum working pressure [psig]	Safety relief valve blow–off setting [psig]
100	115

Tab. 6 Safety relief valve activating pressure

2.6 Sound Pressure Level

Operational state:

- under load at rated speed, rated delivery and rated pressure.

Measurement conditions:

- free–field measurement to CAGI/PNEUROP PN8 NTC 2.3 at 1 m distance

	Sound pressure level [dB(A)]	Sound pressure level with enclosure [dB(A)]
Dental 1T	65	52
Dental 3T	70.5	60
Dental 3/2T	73	–
Dental 5T	70.5	60
Dental 5/2T	73	–

Tab. 7 Sound Pressure Level

2.7 Motor and Power

2.7.1 Drive motor

Machine	Rated power [kW]	Rated speed [rpm]	Enclosure protection*
KCT 110	0.75	1800	
KCT 230	1.5	1800	
KCT 420	2.2	1800	

* Enter the information on the motor nameplate in the table

Tab. 8 Drive motor data

2.8 Single–Phase Power Supply

2.8.1 Power supply

The machine is designed for an electrical supply according to National Electric Code (NEC) NEC–670, particulary NFPA 79, section 5.7. In the absence of any user–specified alternatives, the limits given in these standards must be adhered to. Consult manufacturer for any other specific power supply.

2.8.2 Electrical power connection

The following multi–strand copper core wires are given according to 2002 NEC 310–15, Table 310–16 for 40 °C ambient temperature.

If other local conditions prevail, like for example high temperature, the cross section should be checked and adjusted according to 2002 NEC 110–14©, 220–3,310–15, Table 310–16, 430–6, 430–22, 430–24 and other local codes.

Dual element time delay fuses are selected according to 2002 NEC 240–6,430–52 and tables 430–52, 430–148 and 430–150.

We strongly suggest using a separate copper conductor for the equipment GROUNDING. NEC Table 250.122 will point out the ”minimum size”, however, we recommend a ground conductor the same size as the power leads, if local codes allow.

Rated power supply: 115V ±5%/1/60Hz

	Main disconnect fuse [A]	Supply cable [AWG]	Rated current [A]
Dental 1T	15	14	10.5

Tab. 9 Power supply details 115V/1/60Hz

Rated power supply: 208–230V ±5%/1/60Hz

	Main disconnect fuse [A]	Supply cable [AWG]	Rated current [A]
Dental 3T	15	14	10
Dental 3/2T	35	8	20
Dental 5T	20	12	15
Dental 5/2T	50	6	30

Tab. 10 Power supply details 208–230V/1/60Hz

2.9 Machine Duty Cycle

A 100 % duty cycle is possible on machines fitted with Seccomat.

The pressure switch and the time module settings are precisely set for the particular machine type and may not be altered.

3 Safety and Responsibility

DANGER

Disregard of these instructions can result in serious injury.

☞ Read the service manual carefully and take notice of the contents for safe machine operation.

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

- Danger to life and limb of the operator or third parties
- Detrimental to the machine and proerty.

☞ Use this machine only if it is in a technically perfect condition and only for the purpose for which it is intended, observing all safety measures and the instructions in the service manual.

☞ In particular, immediately rectify (have rectified) any faults that could be detrimental to safety.

3.1 Proper Use

- The machine is intended solely for industrial use in generating compressed air. Any other use is considered incorrect. The manufacturer is not liable for any damages resulting from unspecified use or application. The responsibility, in case, lies solely with the user.
- Specified use also includes compliance with the instructions in this manual.

☞ Operate the machine only within its performance limits and under the permitted ambient conditions.

3.2 Improper Use

☞ Never direct compressed air at persons or animals.

☞ Do not use untreated compressed air for breathing purposes.

☞ Do not use untreated compressed for any application that will bring it into direct contact with foodstuffs.

☞ Cooling air, warmed after passing through the machine, may be used for heating purposes but only when it poses no health risk to humans or animals. If necessary, the warmed cooling air should be treated to render it harmless.

☞ Do not allow the machine to take in toxic, acidic, flammable of explosive gases or vapors.

☞ Do not operate the machine in areas in which specific requirements with regard to explosion protection are applied.

3.3 User's Responsibilities

Observe statutory and accepted regulations.

Observe relevant statutory and accepted regulations during installation, operation and maintenance of the machine.

For example: nationally applied European directives and/or valid national legislation, safety and accident prevention regulations.

3.3.1 Qualified personnel

Ensure that operating, installation and maintenance personnel are qualified and authorized to carry out their tasks.

These are people who, by virtue of their training, knowledge and experience as well as their knowledge of the prevailing conditions, can assess the work to be done and recognize the possible dangers involved.

Operating personnel

Authorized operating personnel:

- must be adult,
- must be conversant with and adhere to the safety instructions and sections of the service manual relevant to operation of the machine,
- must have received adequate training and authorization to operate electrical and compressed air devices
- in the case of machines with refrigeration dryers, they must have training and qualification for safe operation of refrigeration devices.

Installation and maintenance personnel

Authorized installation and maintenance personnel:

- must be adult,
- must have read, be conversant with and adhere to the safety instructions and sections of the service manual applicable to installation and maintenance,
- must be fully conversant with the safety concepts and regulations of electrical and compressed air engineering,
- in the case of machines with refrigeration dryers, must be conversant with safety concepts and regulations relating to refrigeration equipment,
- must be able to recognize the possible dangers of electrical and compressed air devices and take appropriate measures to safeguard persons and property,
- in the case of machines with refrigeration dryers, must be able to recognize the possible dangers of refrigeration devices and take appropriate measures to safeguard persons and property,
- must have received adequate training and authorization for the safe installation and maintenance on these machines.

3.3.2 Adherence to inspection schedules and accident prevention regulations

The machine is subject to local inspection schedules.

3.4 Dangers

The general safety instructions in this chapter indicate possible dangers and how to deal with them.

Special safety instructions are found in this service manual at the beginning of each chapter or directly before operative instructions.

3.4.1 Safely dealing with sources of danger

Information concerning the various forms of danger that can arise in connection with machine operation are found here.

Electricity

☞ Allow only qualified electricians or trained personnel under the supervision of a qualified electrician to carry out work according to electrical engineering regulations on electrical equipment.

☞ Before initial start–up, make sure that adequate protection against electric shock from direct or indirect contact with the machine is installed and checked.

- ☞ Isolate all phases of the main power supply.
- ☞ Check and ensure that no power is present.
- ☞ Switch off any external power sources.
  These can be, for example, power supplied through a volt–free (dry) contact or electrical machine heating.
- ☞ Use fuses corresponding to the machine power.
- ☞ Regularly check that all electrical connections are tight.

Compressed energy

Compressed air is contained energy. Uncontrolled release of this energy can cause serious injury or death.

Before working on a pressurized system:

- ☞ close shut–off valves or otherwise isolate the machine from the compressed air system to ensure that no compressed air can flow back into the machine,
- ☞ vent all pressurized components and enclosures.
- ☞ Do not carry out welding, heat treatment or mechanical modifications to pressurized components (e.g. pipes and vessels) as this influences the component's pressure resistance.
  The safety of the machine is then no longer ensured.

Compressed air quality

- ☞ Use appropriate systems for air treatment before using the compressed air from this machine as breathing air and/or for the processing of food.
- ☞ Never directly inhale compressed air.

Spring forces

Springs under tension or compression represent contained energy. Uncontrolled release of this energy can cause serious injury or death.

The solenoid valve is spring loaded.

- ☞ Do not open or dismantle the valve.

Rotating components

Touching the fan while the machine is switched on can result in serious injury.

- ☞ Do not open the enclosure while the machine is switched on.
- ☞ Isolate all phases of the main power supply.
- ☞ Check and ensure that no power is present.
- ☞ Wear close–fitting clothes and a hair net, if necessary.
- ☞ Make sure all covers and safety guards are in place and secured before starting.

Temperature

- ☞ Avoid contact with hot components.
  These include, for example, compressor blocks, compressed air lines, coolers, motors and machine heaters.
- ☞ Wear protective clothing.
- ☞ If welding is carried out on or near the machine take adequate measures to ensure that no parts of the machine or any oil vapors can ignite because of sparks or heat.

Noise

- ☞ Operate the machine only with soundproofing in place.

☞ Wear hearing protection if necessary.
The safety relief valve blowing off can be particularly loud.

Operating materials

☞ Strictly forbid fire, open flame and smoking.

☞ Follow safety regulations when dealing with chemical substances.

☞ Avoid contact with skin and eyes.

☞ Keep suitable fire extinguishing agents ready for use.

☞ Use only KAESER approved operating materials.

Unsuitable spare parts

☞ Use only spare parts approved by the manufacturer for use in this machine. Unsuitable spare parts compromise the safety of the machine.

☞ Use only genuine KAESER parts for pressurized components.

Conversion or modification of the machine

☞ Do not permit conversion or modification of the machine as this can compromize function and safe working.

3.4.2 Safe machine operation

Information on safe conduct when handling the machine is found here.

Transport

☞ Use suitable lifting gear that conforms to local safety regulations.

☞ Attach lifting gear only to suitable lifting points on the machine.

☞ Note the center of gravity to avoid danger of the machine tipping over.

☞ Make sure the danger zone is clear.

Installation

☞ Make sure no power is applied when electrical connections are made.

☞ Only use only electrical cables that are suitable and approved for the electrical loads applied.

☞ Install or remove pressure lines only when they are vented.

☞ Only use pressure lines that are suitable and approved for the maximum working pressure and medium used.

☞ Do not allow connection pipes to be placed under mechanical stress.

☞ Do not step onto machine components to climb up the machine.

Location

☞ Install the machine in a suitable room.
If installed outdoors, the machine must be protected from frost, direct sunlight, dust and rain.

☞ The machine is not explosion–proof.
Do not operate in areas in which specific requirements with regard to explosion prevention are applied.

☞ Ensure adequate ventilation.

☞ Observe the required ambient conditions:

- Ambient temperature and humidity.
- Clean inlet air with no damaging contaminants.
- Inlet air free of explosive or chemically unstable gases or vapours.
- Inlet air free of acid/alkaline forming substances, particularly ammonia, chlorine or hydrogen sulphide.

☞ Do not position the machine in warm exhaust air from other machines.

☞ Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.

Operation

☞ Keep the machine enclosure closed for safety and to ensure correct cooling function.

☞ Carry out regular inspections:
- for damage,
- of the safety devices,
- of parts needing monitoring.

☞ Machines drawing in air from the surroundings should not be operate without an air filter.

Maintenance

☞ Make sure the machine is disconnected from electrical power and vented before commencing any maintenance work.

☞ Wear close–fitting, flame–resistant clothing. Wear protective clothing as necessary.

☞ Do not leave any loose components, tools or cleaning rags on or in the machine.

☞ Components removed from the machine can still be dangerous.
Do not attempt to open or destroy any components taken from the machine.

Decommissioning / disposal

☞ Drain out fluids and dispose of according to environmental regulations.
These include condensate, for example.

☞ Dispose of the machine in accordance with local environmental regulations.

3.4.3 Taking organisational measures

☞ Designate personnel and their responsibilities.

☞ Give clear instructions on reporting faults and damage to the machine.

☞ Give instructions on fire reporting and fire–fighting measures.

3.4.4 Hazard areas

The table gives information on the hazard areas dangerous to personnel.

Only authorized personnel may enter these areas.

Activity	Hazard area	Authorised personnel
Transport	3 ft. perimeter around the machine	Installation or transport personnel. All personnel excluded during transport.
	Beneath the lifted machine.	All personnel excluded!
Installation	Within the machine. 3 ft. perimeter around machine and power lines.	Installation personnel
Operation	3 ft. perimeter around the machine	Operating personnel
Maintenance	Within the machine. 3 ft. perimeter around the machine	Maintenance personnel

Tab. 11 Hazard areas

3.5 Safety Devices

Do not change, bypass or disable safety devices.

Do not remove or obliterate labels and notices.

Ensure that labels and notices are clearly legible.

More information on safety devices is contained in chapter 4 'Design and Function', section 4.4 'Safety Devices'.

3.6 Safety Signs

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

Position	Symbol	Meaning
3		**Hot surface can cause burns.** ☞ Let the machine cool down. ☞ Work carefully. ☞ Wear protective cloth and gloves (not synthetics such as polyester).
		**Machine starts automatically.** Severe injury can result from rotating components, electrical voltage and air pressure. ☞ Isolate completely from the power supply (all conductors) and ensure the supply cannot be switched on again (lock off). ☞ Check that no voltage is present.
		**Injury and/or machine defects caused by improper use.** ☞ Maintenance should be performed by properly trained personnel only. ☞ Read and understand manual and all safety labels before switching the machine on. ☞ Never remove or cover safety labels.
4		**Voltage** Touching electrically live components can cause serious injury or death. ☞ Isolate completely from the power supply (all conductors) and ensure the supply cannot be switsched on again (lock off). ☞ Check that no voltage is present.
6		**Serious injury can result from compressed air.** ☞ Do not direct air stream at body.

Tab. 12 Safety signs

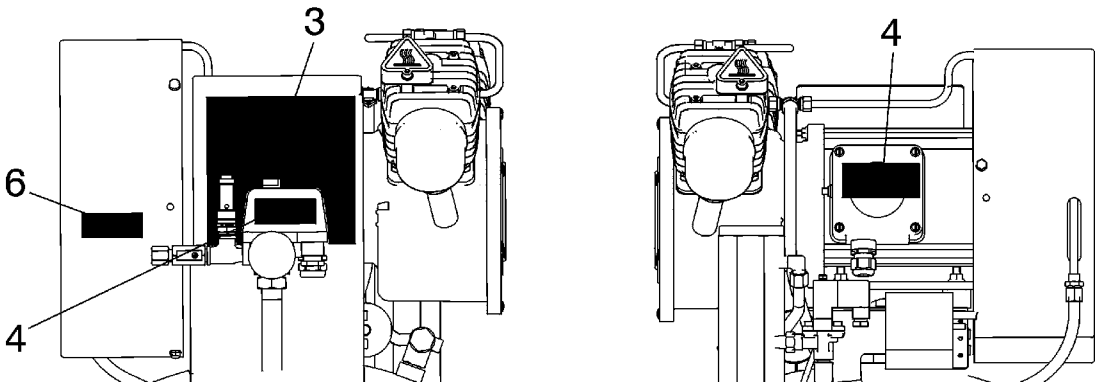


Fig. 1 Location of Safety Signs

3.7 Emergency

3.7.1 Fire fighting

☞ Immediately disconnect the machine's voltage supply.

Suitable extinguishing agents:

- Foam
- Powder
- Carbon dioxide
- Sand or earth

Unsuitable or unsafe extinguishing agents:

- Intense water jet.

3.8 Environmental protection

Store and dispose replaced parts in accordance with local environmental protection regulations. Observe relevant national regulations.

3.9 Warranty

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

A condition of our warranty is that the machine is used for the purpose for which it is intended under the conditions specified.
Due to the multitude applications for which the machine is suitable the obligation lies with the user to determine its suitability for his specific application.

☞ Obtain confirmation from the manufacturer that the machine is suitable for your specific application.

Furthermore, we accept no warranty obligation for:

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

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

4 Design and Function

4.1 Machine Overview

4.1.1 Primary components

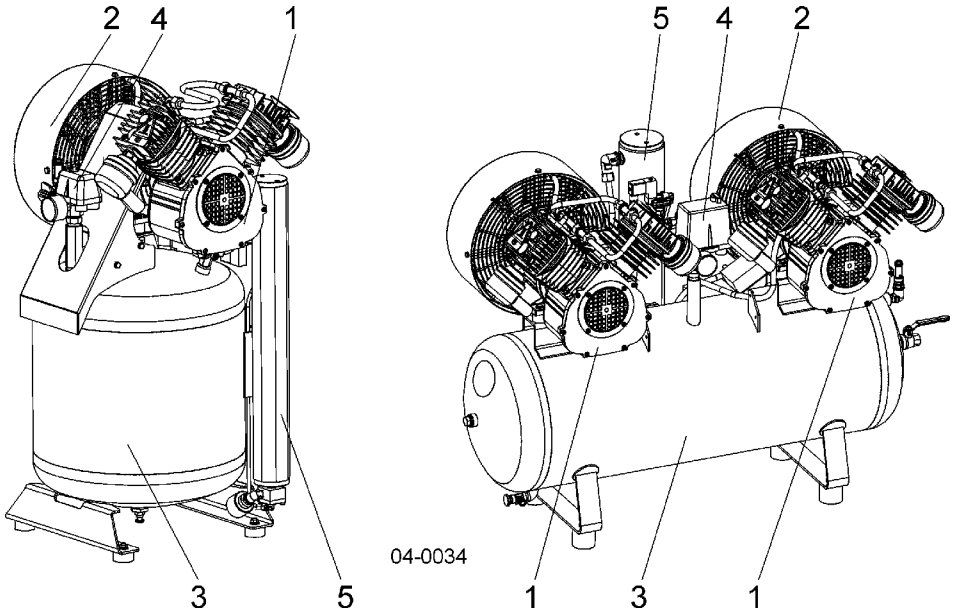


Fig. 2 Major components

1 *Compressor block*
2 *Drive motor*
3 *Air receiver*
4 *Pressure switch*
5 *Seccomat*

4.1.2 Function

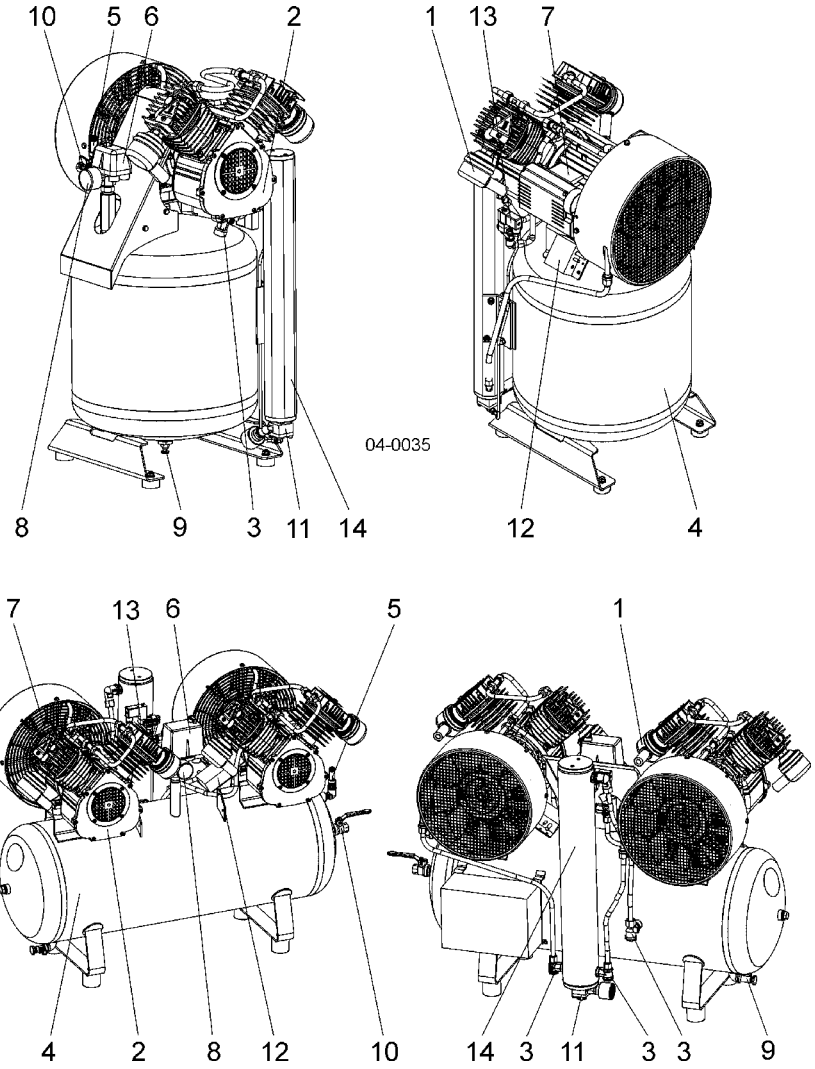


Fig. 3 Machine Overview

1	*Air filter*	*8*	*Pressure gauge*
2	*Compressor block*	*9*	*Condensate drain*
3	*Check valve*	*10*	*Compressed air connection*
4	*Air receiver*	*11*	*Venting valve*
5	*Pressure relief valve*	*12*	*Timer module*
6	*Pressure switch*	*13*	*Solenoid valve*
7	*Electric motor*	*14*	*Seccomat dryer*

Machine

Atmospheric air is drawn through a filter (1) into the compression chamber of the block (2). The air is drawn in during the downward stroke of the piston. Air in the compression chamber is compressed by the piston's upward stroke.

Compressed air is forced past the check valve (3) into the receiver (4). The check valve prevents the reverse flow of compressed air from the receiver to the compressor block.

4.2 Operating States and Control Modes

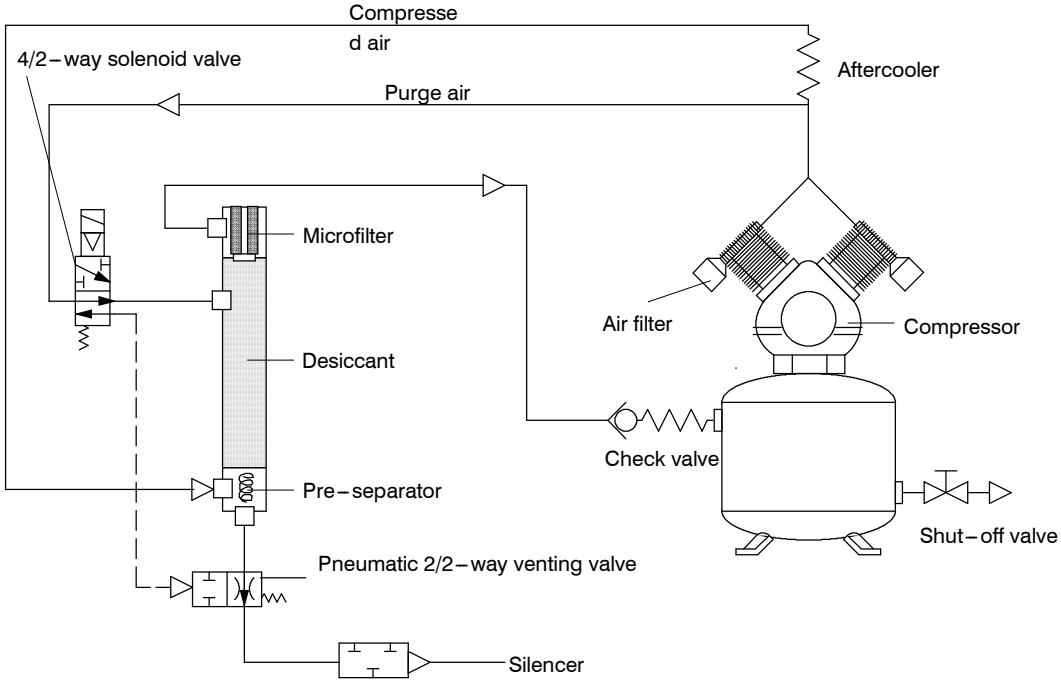
4.2.1 Operating states

There are two operating states:

- LOAD: Surrounding air is drawn in through a filter and compressed. Compressed air is discharged passed a check valve into an air receiver.
  The compressor motor runs under full load.
- STANDSTILL: Air is not compressed. The check valve prevents already compressed air flowing back into the compressor.
  The compressor motor is stopped.

4.3 Compressed Air Drying

4.3.1 Function diagram



4.3.2 Drying the compressed air

The hot, oil–free compressed air leaving the block is cooled by the aftercooler before entering the dryer.

Any condensate arising is accumulated in the dryer's pre–separator and drained at each regeneration cycle.

The dryer delivers clean and dry compressed air.

4.3.3 Desiccant regeneration

When the machine is switched on, the timer module begins the start phase T1.
The compressor runs under LOAD and usable compressed air is produced.

When the period runs out, the regeneration phase T2 begins and the desiccant is regenerated for 15 seconds, during which time, usable compressed air is not available.

After completion of the regeneration phase, the timer module switches to the operating phase T3 and the machine delivers usable compressed air again.

At the end of the operating phase T3 comes another regeneration phase T2.

This alternating between T3 and T2 repeats until the air receiver reaches cut–out pressure and the compressor switches off.

This method of regeneration – purging with full compressor delivery rate at reduced pressure – reduces regeneration time to a minimum, coupled with high machine availability (80–90 % depending on machine model).

4.4 Safety Devices

The following safety devices are provided and may not be changed:

- Safety valve
  The safety valve protects the system from excessive pressure. This is factory set.
- Check valve
  The check valve prevents the flow of compressed air from the receiver back to the compressor block when the machine is stopped.
- Housing and covers for moving parts and electrical connections.
  Protection from accidental contact.

4.5 Accessories

4.5.1 Sound enclosure (see chapter 6.6)

The compressor may be retrofitted with a sound enclosure to reduce noise emission.

5 Installation and Operating Conditions

5.1 Surroundings

☞ Strictly forbid fire, open flame and smoking.

☞ If welding is carried out on or near the machine take adequate measures to ensure that no parts of the machine can ignite because of sparks or heat.

☞ The machine is not explosion–proof.
Do not operate in areas in which specific requirements with regard to explosion prevention are applied.

☞ Observe the required ambient conditions:

- Ambient temperature and humidity.
- Clean inlet air with no damaging contaminants.
- Inlet air free of explosive or chemically unstable gases or vapors.
- Inlet air free of acid/alkaline forming substances, particularly ammonia, chlorine or hydrogen sulphide.

☞ Keep suitable fire extinguishing agents ready for use.

5.2 Installation Conditions

5.2.1 Place of installation and space required

Pre–condition: The floor must be level, firm and capable of bearing the weight of the machine.

The air filter intake must be unobstructed and have a minimum distance of 20 inches to the nearest wall.
Consult authorized KAESER Service representative if these conditions cannot be achieved.

☞ If installed outdoors, the machine must be protected from frost, direct sunlight, dust and rain.

☞ Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.

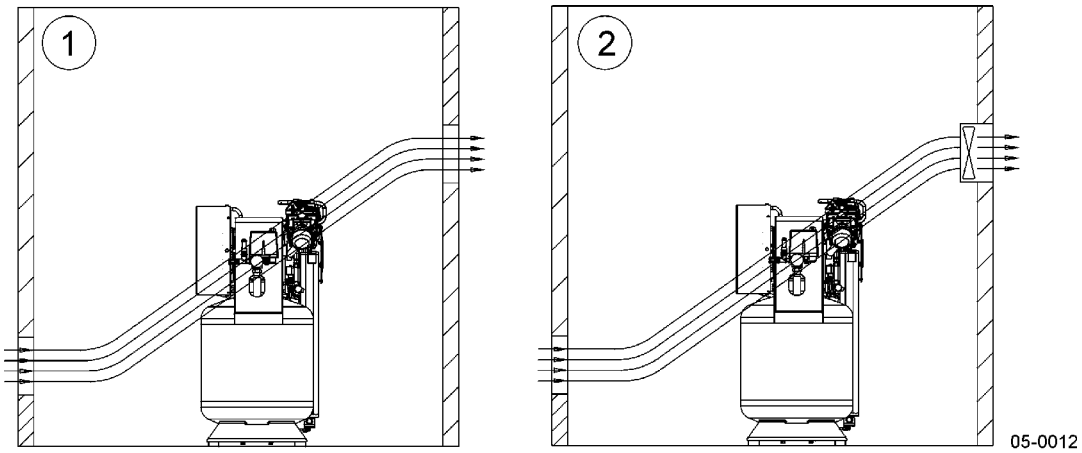


Fig. 4 Installation recommendation

1 Natural convection
2 Forced ventilation

5.2.2 Ventilation

Values given are minimum guide values.

If the cooling air is insufficient a dangerous vacuum can be created in the compressor room.

- ☞ Make sure that the cooling air flows around the machine.
- ☞ Ensure that the volume of air flowing into the compressor room is at least equivalent to that being removed from it by the compressor and exhaust fan.
- ☞ Make sure that the machine and exhaust fan can only operate when the inlet aperture is actually open.

Model	Inlet aperture [sq.ft.]	Forced ventilation: Required extractor capacitiy [cfm] at static pressure and maximum cut–in period (△T 18˚F)
Dental 1T	4.3	132
Dental 3T	4.3	389
Dental 3/2T	4.3	777
Dental 5T	4.3	389
Dental 5/2T	4.3	777

Tab. 13 Overview Ventilation

5.2.3 Operating in a compressed air system

When the machine is connected to an compressed air system, the system operating pressure must not exceed the permissible operating pressure of the machine.

KAESER is ready to offer good advice.

6 Installation

6.1 Safety

DANGER

Voltage!

There is danger of fatal injury caused by contact with live components.

☞ Isolate all phases of the main power supply.
(switch off the mains supply disconnecting device)

☞ Ensure that the power supply cannot be switched on again (locked off).

☞ Check that no voltage is present.

WARNING

Uncontrolled discharge of compressed air!

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

☞ Vent all pressurized components and chambers completely.

CAUTION

The solenoid valve is spring loaded.

☞ Close shut–off valves or otherwise isolate the machine from the air main to ensure that no compressed air can flow back into the machine.

☞ The machine pressure gauge must read zero.

Installation work may only be carried out by authorised personnel!

All functioning parts are factory set.
Do not change these settings without the permission of the manufacturer.

6.2 Reporting Transport Damage

☞ Check the machine for visible and hidden transport damage.

☞ Inform the carrier and the manufacturer in writing of any damage found.

6.3 Installing the Antivibration Mounts

CAUTION

There is a danger of tipping because of the center of gravity and weight of the machine.

☞ Use slings to lift the machine.

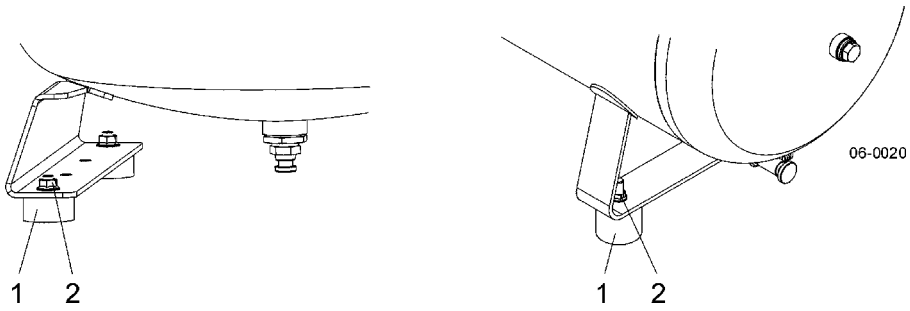


Fig. 5 Antivibration mount

1 Antivibration mount
2 Hexagonal nut

☞ Remove the wooden frame from the air receiver feet.

☞ Secure the antivibration mounts (1) to the air receiver feet with hexagon nuts (2).

6.4 Install the Compressed Air Connection

Pre–condition: The compressed air system must be at atmospheric pressure.

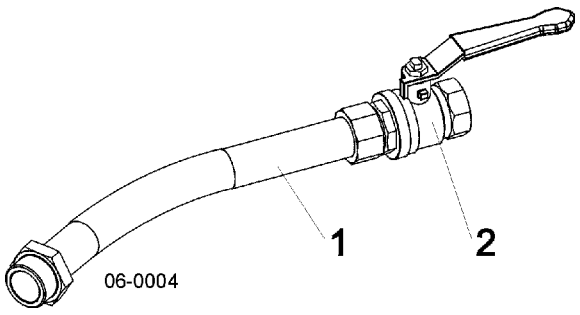


Fig. 6 Compressed air connection

1 Flexible hose line
2 Shut–off valve

☞ Shut–off valve (2) to be installed by the user in the connection line.

☞ Conect to the compressed air system with a flexible hose line (1).

6.5 Electrical Connection

Main power supply and overcurrent protection must be installed by a qualified electrician in accordance with NEC, OSHA, and any applicable local codes.

Use wire conductor dimensions and fuse ratings in accordance with local regulations. Guide values are given in chapter 2.8.

☞ The user must provide the machine with a lockable supply–disconnecting device. This could be, for example, a disconnect switch with fuses. If a circuit breaker is used it must be suitable for the motor starting characteristics.

Before initial start–up:

☞ Connect the machine to the main power supply in accordance with the electrical diagram in chapter 13.1.2.

6.6 Sound Enclosure (accessory)

The compressor may be retrofitted with a sound enclosure to reduce noise emission.

The sound enclosure is supplied ready assembled. It must be dismantled for fitting to the machine.

DANGER

Voltage!

There is danger of fatal injury caused by contact with live components.

☞ Isolate all phases of the main power supply.
(switch off the main supply disconnecting device)

☞ Ensure that the power supply cannot be switched on again (locked off).

WARNING

Uncontrolled discharge of compressed air!

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

☞ Close shut–off valves or otherwise isolate the machine from the compressed air system to ensure that no compressed air can flow back into the machine.

☞ Vent all pressurized components and chambers completely.

☞ The machine pressure gauge must read zero.

6.6.1 Dismantling the sound enclosure

Note how the parts fit together.

☞ Dismantle the sound enclosure

6.6.2 Fitting the sound enclosure

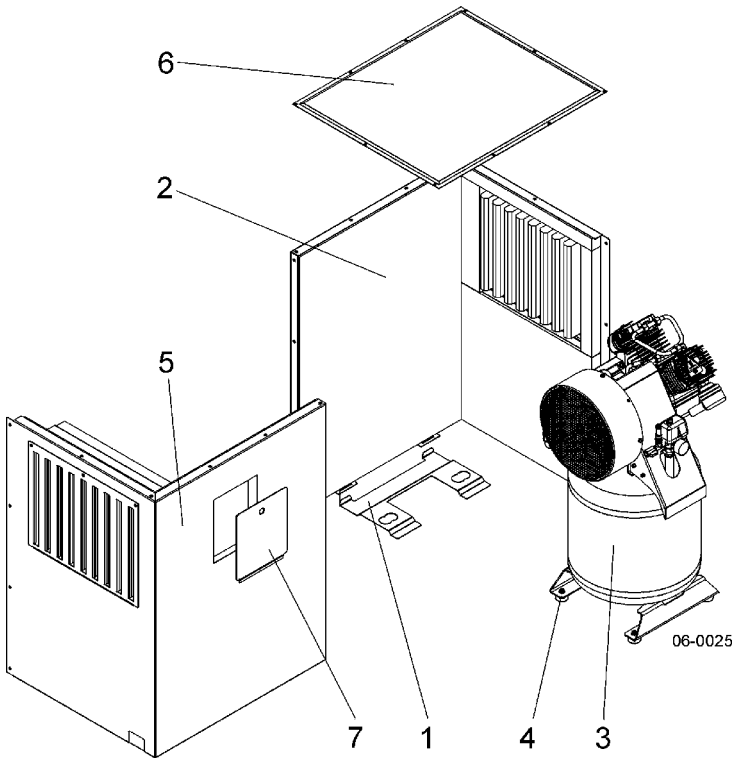


Fig. 7 Fitting the sound enclosure

1 Foot
2 Rear panel
3 Machine
4 Antivibration mounts
5 Front panel
6 Cover panel
7 Access panel

☞ Fit the foot (1) onto the rear panel (2).

☞ Seat the machine together with the rear antivibration mounts (4) into the boreholes provided in the foot (watch out for the motor size).

☞ Push the cable and hose through the hols provided in the font panel and connect up.

☞ Bolt the front panel (5) to the rear panel (2) and fit the cover panel.

The machine's fan guard must fit flush with the foam (see dimensional diagram).

☞ Open the access panel (7) with the toggle, switch the machine on with the pressure switch and close the access panel again.

7 Start–up

7.1 Safety

Voltage!

DANGER

Contact with live components can cause serious injury or death.

☞ Isolate all phases of the main power supply.
(switch off the mains supply disconnecting device)

☞ Ensure that the power supply cannot be switched on again (locked off).

☞ Check that no voltage is present.

Uncontrolled discharge of compressed air!

WARNING

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

☞ Close shut–off valves or otherwise isolate the machine from the air main to ensure that no compressed air can flow back into the machine.

☞ Vent all pressurized components and chambers completely.

The start–up may only be carried out by authorized personnel!

Before switching on ensure that:

- no one is working on the machine,
- all panels are in place and secured,

7.2 Before Every Start–Up

Only a trained specialist may carry out a start–up of the machine.

Incorrect or improper start–up can cause damage to the machine.

Special measures on start–up after storage

Storage period longer than...	Remedy
12 months	☞ Have the motor bearings checked by an authorized KAESER Service representative.
36 months	☞ Have the overall technical condition checked by an authorized KAESER Service representative.

7.3 Checking Installation and Operating Conditions

Check and confirm all the items in the checklist before starting the machine.

	Check	Chapter	Met?
1	☞ Are all the conditions for installation fulfilled?	5.2	
2	☞ User's lockable supply disconnecting device installed?	6.5	

	Check	Chapter	Met?
3	☞ Does the power supply conform to the specifications on the nameplate?	2	
4	☞ Are the supply cable cross–sections and fuse ratings adequate?	2.8	
5	☞ Have all electrical connections been checked for tightness?		
6	☞ Shut–off valve fitted to compressed air outlet?	6.4	
7	☞ Is the connection to the compressed air system made with a flexible hose?	6.4	
8	☞ Is the overcurrent protection set correctly with regard to the power supply?	7.4	
9	☞ Are the operators fully conversant with safety regulations?		
10	☞ Are all cabinet panels closed and locked?		

Tab. 14 Installation conditions checklist

7.4 Motor Protection

7.4.1 Overload Protection on Single–Phase Motors

Single phase motors are fitted with a so–called thermal overload protection switch that is adjusted to a fixed value. It ensures shutdown of the machine at levels of current above the value set on the motor overload protection switch.

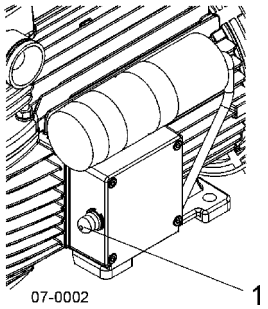


Fig. 8 Trip button

1 Trip button for the overload protection switch

If the machine is shut down by the thermal overload protection switch:

- ☞ switch off the user's main disconnect switch
- ☞ allow the motor to cool down.
- ☞ press the trip button on the motor overload protection switch,
- ☞ switch on the user's main disconnect.

If the motor overload protection switch shuts down the machine repeatedly over short periods have the compressor and/or motor checked.

7.5 Checking Direction of Rotation

The machine is designed for a clockwise field.

☞ Check the supply with a phase sequence indicator.

☞ If the compressor motor turns in the wrong direction, change the motor supply phases L1 and L2.

Alternatively, the direction of rotation can be checked by briefly switching the machine on and off again.

☞ Switch the machine off as soon as the direction of rotation is seen and compare it with the direction arrows on the fan guard.

7.6 Initial Start–Up

☞ Open the shut–off valve to the compressed air system.

☞ Switch on at the main power supply disconnecting device.

Turn the switch on the pressure switch to the ”I” position.

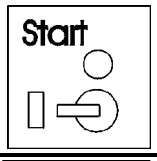
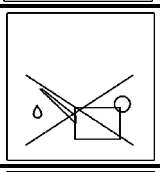
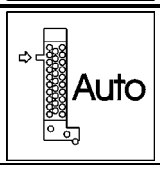
The machine switches to LOAD status and delivers compressed air.

Keep an eye on the machine during the first few hours of operation to ensure that it is operating correctly.

After the first 50 operating hours carry out the following work:

☞ Check that all electrical connections are secure.

8 Operation

Symbol	Meaning
	**Start** Turn the switch to the ”I” position to start.
	**Auto** The compressor is controlled automatically by the pressure switch.
	**Oil–free** Oil–free compressor. Do not pour oil into the crankcase.
	**Auto** Accumulating condensate is automatically drained.

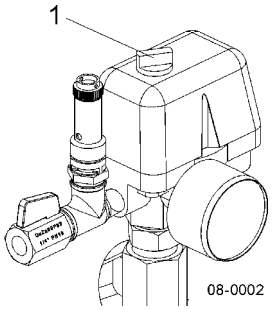


Fig. 9 Switching on and off

1 On/off switch
Position ”0”
Position ”I”

DANGER

Automatic restart

Serious injury is possible.

The machine restarts automatically when power is resumed after a power supply failure.

The machine is switched on by the pressure switch.

8.1 Switching On and Off

Always switch the machine on and off with the ON/OFF switch.

The power supply disconnecting device has been installed by the user.

8.1.1 Switching on

WARNING

Compressed air!

Serious injury is possible.

☞ Never direct compressed air at persons or animals.

Before starting the machine ensure that:

- no one is working on the machine,
- all panels are in place,
- no parts of the machine are colder than +40˚F.

☞ Switch on at the main power supply disconnecting device.

☞ Turn the ON/OFF switch (1) to position ”I”.

The compressor motor runs if compressed air system pressure is lower than the cut–out pressure.

8.1.2 Switching off

☞ Turn the ON/OFF switch (1) to position ”0”.

☞ Switch off and lock out the main power supply disconnecting device.

9 Fault Recognition and Rectification

Inform authorized KAESER Service representative if the fault cannot be rectified by the action suggested.

Do not attempt rectification measures other than those given in this manual.

The alarm indications valid for your machine are dependant on the individual equipment.

9.1 Faults

Fault	Possible cause	Remedy
Machine does not start.	Fuse blown or circuit breaker tripped.	Check motor connections and fuses (circuit breakers).
	Defective pressure switch contact.	Replace pressure switch.
	Overcurrent protection device tripped.	Allow the motor to cool down.
	Motor defective; bearing damage or windings shorted	Contact authorized KAESER Service representative
	Compressor block defective.	Contact authorized KAESER Service representative
Machine starts with difficulty.	Bearing damage.	Contact authorized KAESER Service representative
	Piston seized (piston PTFE guides worn).	Contact authorized KAESER Service representative
	Fault in the power supply.	Check power supply.
	Starting or running capacitor faulty.	Replace the starting or running capacitor.
Machine runs hot.	Ambient temperature too high.	Reduce ambient temperature.
	Wrong direction of rotation.	Change the connections to the drive motor.
	Fan cannot draw air freely.	Arrange unrestricted flow of air to the fan.
	Valve plate leaking or damaged.	Check or clean the valve plate.
	Valve reed broken.	Replace valve plate.
Overcurrent protection device trips after a short time.	Fault in the power supply.	Check power supply.
	Motor fault.	Contact authorized KAESER Service representative
Overcurrent protection device trips after a long time.	Current too high because of low voltage.	Check supply cable cross–section. Check and tighten connection terminals.

Fault	Possible cause	Remedy
Compressor runs continuously but final pressure is not reached.	Air inlet filter clogged.	Clean or replace the filter.
	Valve plate leaking or damaged.	Check or clean the valve plate.
	Valve reed broken.	Replace valve plate.
	Machine leaks air.	Seal leak or replace leaking part.
	Leakage from an air consumer connected to the network.	Check possible leakage points.
	The air demand is greater than the capacity of the compressor.	Use a larger machine.
Machine cuts in and out too often.	Air receiver filled with condensate.	Drain condensate. Check the Seccomat dryer
The machine switches off and air escapes from the venting valve.	Check valve defective.	Replace the check valve.
Air leaks from the pressure switch while the machine is running.	Defective switch diaphragm.	Replace the pressure switch.
Whistling sound from the cylinder head.	Cylinder head bolts loose. Gasket defective.	Tighten cylinder head bolts. Replace gasket.
The safety relief valve blows off before the cut–out pressure is reached.	Pressure switch incorrectly set.	Check setting.
	Valve spring defective.	Replace the safety relief valve.
	Dirt on the valve seat.	Let the safety relief valve blow off briefly.

Tab. 15 Faults and Remedies

10 Maintenance

10.1 Safety

Disregard of these instructions and/or incorrect handling can result in serious injuries.

DANGER

Voltage!

There is danger of fatal injury caused by contact with live components.

☞ Isolate all phases of the main power supply.
(switch off the mains supply disconnecting device)

☞ Ensure that the power supply cannot be switched on again (locked off).

WARNING

Uncontrolled discharge of compressed air!

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

☞ Close shut–off valves or otherwise isolate the machine from the compressed air system to ensure that no compressed air can flow back into the machine.

☞ Vent all pressurized components and chambers completely.

☞ The machine pressure gauge must read zero.

CAUTION

The check–valve is spring loaded.

☞ Close shut–off valves or otherwise isolate the machine from the compresse air system to ensure that no compressed air can flow back into the machine.

☞ Vent all pressurized components and chambers completely.

☞ The machine pressure gauge must read zero.

CAUTION

Hot surface

☞ Do not touch the surface

☞ Wear long–sleeved clothing and protective gloves.

CAUTION

Leakage

Leaks cause loss of performance.

Damage or complete breakdown can result.

☞ Carry out a trial run after maintenance and service work.

☞ Carry out a visual check of the machine.

Maintenance work may only be carried out by authorized personnel!

Before switching on again ensure that:

- no one is working on the machine,
- all panels are in place and secured

10.2 Maintenance Schedule

Maintenance intervals are recommendations only and should be adjusted to suit installation and operating conditions.

☞ Keep a log of all service work.

This enables the frequency of individual maintenance tasks and deviations from KAESER's recommendations to be determined. A prepared list is provided in chapter 10.12.

10.2.1 Regular maintenance tasks

Maintenance tasks must be carried out more frequently when operating conditions are unfavorable (e.g. dusty atmosphere) or when the equipment is in frequent use.

Interval	Maintenance tasks	see chapter
50 h after initial start–up	Check that all electrical connections are tight.	
Every 1000 h or yearly	Air filter maintenance	10.4
	Maintain the check valve	10.9
	Check the safety relief valve.	10.6
	Renew filter mat	10.3
	Check that all electrical connections are tight.	

h = operating hours

Tab. 16 Regular maintenance tasks

10.2.2 Regular service work

Only authorized KAESER Service representatives should carry out service work.

Have service work should be carried out more frequently when operating conditions are unfavorable (e.g. dusty atmosphere) or when the equipment is heavily utilized.

Interval	Service tasks
Every 4,000 h or every 5 years	Inspect the cylinder head and valves
	Change the motor bearings
	Generally overhaul the compressor
every 10,000 h or every 5 years	maintenance of the Seccomat dryer

h = operating hours

Tab. 17 Regular service work

10.3 Changing the Filter Mat

The filter mat can be cleaned and should be changed after 1000 operating hours.

Pre–condition: Machine switched off.
Power supply disconnecting device locked out.
Machine cooled down.
Close the user's shut–off valve between the machine and the compressed air system.

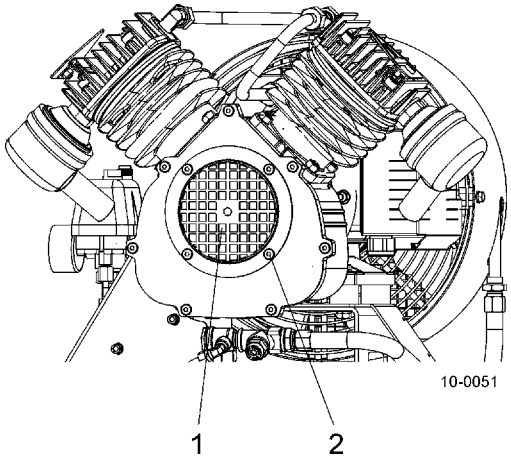


Fig. 10 Changing the Filter Mat

1 Crankcase end cover
2 Screw

☞ Unscrew the securing screws (2) and remove the crankcase end cover (1).

☞ Renew filter mat.

☞ Replace the crankcase end cover (1).

☞ Open the user's shut–off valve between the machine and the compressed air system.

☞ Switch on at the main power supply disconnecting device.

10.4 Air Filter Maintenance

Equipment: Compressed air for blowing out
Solvent–based cleaning agent
Spare parts (as required)

Pre–condition: Machine switched off.
Power supply disconnecting device locked out.
Machine cooled down.

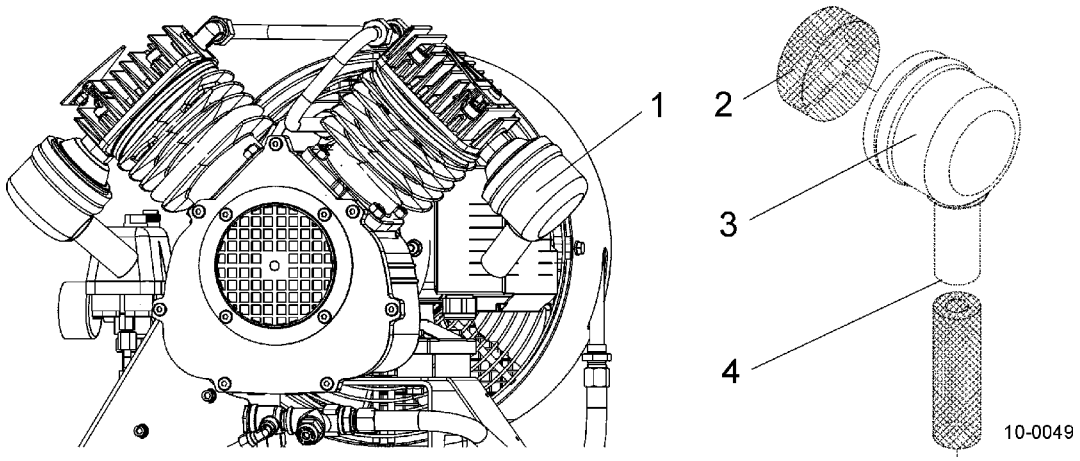


Fig. 11 Air filter maintenance.

1 Air filter
2 Air filter insert
3 Rubber cap
4 Inlet opening

The air filter insert (2) consists of foam.

Opening the air filter:

☞ Remove of the rubber cap (3).

☞ Extract the filter element (2).

Cleaning the filter element:

☞ Clean the filter element (2) with a solvent–based cleaner.

☞ Clean the housing and sealing faces.

Replace the filter element (2) if it is badly clogged or has been cleaned often.

Refitting the air filter

☞ Insert the dry element (2) in the rubber cap (3) and replace on the cylinder head.

The inlet opening (4) in the filter housing must face downwards.

☞ Switch on at the main power supply disconnecting device.

10.5 Electric Motor Maintenance

The motor bearings are permanently greased and need no further greasing.

Under normal operating conditions (ambient temperature around 77 °F) have the motor bearings changed at the latest after 4,000 operating hours. Higher wear takes place at at ambient temperatures around 95 °F.

☞ Regardless of operating hours, the motor bearings must be changed after 5 years.

☞ Have the motor bearings changed by an authorized KAESER Service representative.

10.6 Checking the Safety Relief Valve

Pre–condition: Machine switched off under load.
Power supply disconnecting device locked out.

To prevent the safety valve from sticking it should be activated at regular intervals or at least once a year.

CAUTION

Excessive noise is caused when the safety relief valve blows off.

☞ Wear ear and eye protection.

☞ Work with caution.

The valve opens to protect the machine if the maximum permissible working pressure is exceeded.

The machine may only be operated with a correctly functioning pressure relief valve.

Adjusting the safety valve is not permitted and doing so invalidates all liabilities.

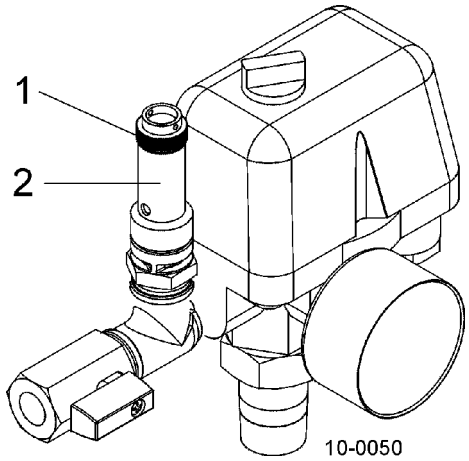


Fig. 12 Checking the safety relief valve

1 Knurled knob
2 Pressure relief valve

☞ Close the user's shut–off valve between the machine and the compressed air system.

☞ Turn the knurled knob (1) on the pressure relief valve (2) anticlockwise until air blows off. Then turn the knurled knob back to its original position.

CAUTION

Do not overtighten the knurled knob.

☞ Have a defective safety valve replaced by KAESER service.

☞ Open the user's shut–off valve between the machine and the compressed air system.

☞ Switch on the machine.

10.7 Air receiver

Air receivers must be inspected at regular intervals in accordance with legal requirements.
Observe national regulations.

The machine is fitted with a compressed air dryer (Seccomat). If the dryer works correctly, no condensate will be precipitated in the air receiver. Opening the condensate drain tap (1) once a month to check correct functioning of the dryer.

If condensate accumulates it should be collected in suitable container and disposed of according to environmental regulations and authorized KAESER Service representative informed.

10.8 Venting the Machine (depressurizing)

Pre–condition: Machine switched off.
Power supply disconnecting device locked out.
Machine cooled down.

DANGER

Compressed air can cause injury or death.

Compressed air and devices under pressure can injure or cause death if the contained energy is released suddenly or uncontrolled.

Even when switched off, the machine is still under pressure from the compressed air system back to the check valve.

☞ Close the shut–off valve provided by the user to isolate the machine from the compressed air system.

☞ Vent the air receiver.

Before undertaking any maintenance or service work on the pressure system the machine must be isolated from the air system and completely vented.

Vent the machine

☞ Close user's shut–off valve between the machine and the compressed air system.

If no shut–off valve is provided, the complete air system must be vented.

The machine is vented by means of the condensate drain tap.

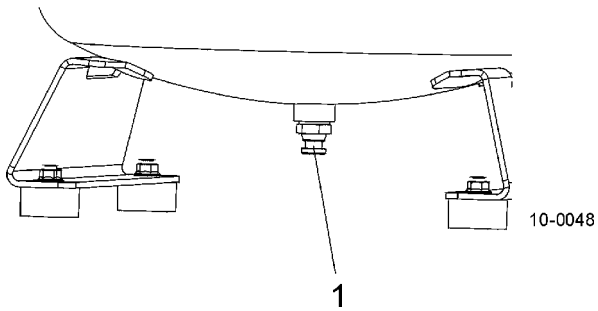


Fig. 13 Venting the machine

1 Condensate drain

☞ Open the condensate drain tap (1) slowly to release pressure.

☞ Check that the air receiver pressure gauge reads 0 psig.

The pressure gauge does not read 0 psig after automatic venting?

☞ Make sure that the shut–off valve is closed.

☞ If manual venting does **not** reduce the air receiver pressure gauge to 0 psig, call authorized KAESER Service representative.

10.9 Maintaining the Check Valve

Equipment: Compressed air for blowing out
Cleaning rags
Spare parts (as required)

Pre–condition: Switch off and lock out the main supply isolator.
Machine is fully depressurized, pressure gauge reads 0 psig.
Machine is cooled down.
The user's shut–off valve between the machine and the compressed air system is closed.

The check valve is installed on the air receiver inlet port. It prevents the return flow of compressed air from the receiver to the compressor.

CAUTION

Hot components -- danger of burns

☞ Wear long–sleeved clothing and gloves.

☞ Work carefully.

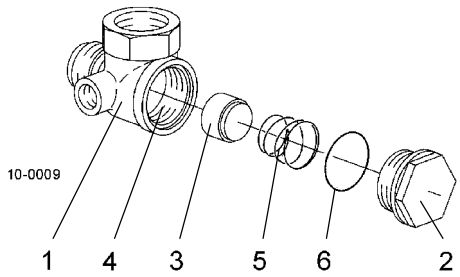


Fig. 14 Cleaning the check valve

1 Check valve
2 Screw plug
3 Valve cone
4 Valve seat
5 Spring
6 O–ring

Cleaning the check valve

☞ Remove the screw plug (2).

☞ Clean the valve cone (3) and seat (4).

Replace the valve cone (3), spring (5) and O–ring (6) if they are badly worn.

Replace the check valve if the valve seat is damaged.

☞ Insert the valve cone, spring and O–ring in the valve seat.

☞ Screw in the plug (2).

Start the machine and carry out a test run.

☞ Open the user's shut–off valve between the machine and the compressed air system.

☞ Switch the machine on.

☞ Carry out a visual check for leaks.

10.10 Seccomat Dryer Maintenance

The dryer must be maintained by authorized KAESER Service representative every 10,000 operating hours or at the latest every 5 years.

10.11 Inspecting or Replacing the Cylinder Head and Valves

Have the function of the cylinder head and valves checked or replaced after 4000 operating hours or at the latest every 5 years by an authorized KAESER Service representative.

10.12 Logging Maintenance Work

Machine number:

Date	Maintenance task carried out	Operating hours	Signature

Tab. 18 Logged maintenance tasks

11 Spares, Service

11.1 Note the nameplate

Make sure to quote the data on the nameplate **for all enquiries and spare parts orders.**

11.2 Ordering consumable parts

WARNING

Personal injury or damage to the machine may result from the use of unsuitable consumables.

Unsuitable or poor quality consumable parts may damage the machine or severely impair its proper function.

Damage to the machine can also result in personal injury.

☞ Always use genuine parts.

☞ Have an authorized KAESER Service representative carry out regular maintenance.

KAESER consumable parts and operating materials are genuine spares. They are designed for use in KAESER machines.

Machine

Model	Name	Quantity	Number
Dental 1T	Air filter insert	1	6.0206.0
Dental 3T	**Kit 4** The filter kit consists of: Air filter insert Filter mat	1	402076.0
Dental 3/2T	**Kit 4** The filter kit consists of: Air filter insert Filter mat	2	402076.0
Dental 5T	**Kit 5** The filter kit consists of: Air filter insert Filter mat	1	402077.0
Dental 5/2T	**Kit 5** The filter kit consists of: Air filter insert Filter mat	2	402077.0

Tab. 19 Machine maintenance parts

Seccomat dryer

Model	Name	Quantity	Number
Dental 1T	**Kit 1** Maintenance kit comprising: Filter element O–ring Desiccant (1.3 lb)	1	402073.0

Model	Name	Quantity	Number
Dental 3T	**Kit 1** Maintenance kit comprising: Filter element O–ring Desiccant (1.3 lb)	1	402073.0
Dental 3/2T	**Kit 3** Maintenance kit comprising: Filter element O–ring Desiccant (4.4 lb)	1	402075.0
Dental 5T	**Kit 2** Maintenance kit comprising: Filter element O–ring Desiccant (2.2 lb)	1	402074.0
Dental 5/2T	**Kit 3** Maintenance kit comprising: Filter element O–ring Desiccant (4.4 lb)	1	402075.0

Tab. 20 Seccomat dryer maintenance parts

11.3 Maintenance Agreement

☞ Arrange a SIGMA AIR SERVICE maintenance agreement

Benefits to you:
lower costs and higher compressed air availability.

SIGMA AIR SERVICE offers you:

- 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 spare parts.
- increased legal certainty as all regulations are kept to.

11.4 Service Addresses

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

11.5 Spare Parts for Service and Repair

Any inspection, maintenance or repair tasks not described in this manual should be carried out only by an authorized KAESER Service representative.

12 Decommissioning, Storage and Transport

12.1 Decommissioning

It is necessary to decommission the machine if:

- it will not be needed in the immediate future,
- it is to be moved to another location,
- it is no longer needed,
- it is to be scrapped.

Temporary decommissioning

Pre–condition: The machine can be started at regular intervals.

☞ Run the machine at operating temperature for at least 30 minutes each week.

Permanent decommissioning

Pre–condition: The machine must have run for at least 30 minutes before permanent decommissioning.
The machine is switched off and fully vented.
The supply disconnecting device is switched off and locked out.

☞ Allow the machine to cool down completely.

☞ Disconnect all air and electrical connections.

☞ Spray all electrical contacts and terminals with a protective lacquer.
(e.g. Rivalto, W.S.X.)

12.2 Packing

Equipment: Desiccant
Plastic sheeting
Corrugated paper carton and a palette for transport packing

Pre–condition: Machine is decommissioned.
Machine is dry and cooled down.

☞ Wrap the machine in plastic sheeting.

☞ Place sufficient desiccant (e.g. silica gel) inside the plastic sheeting.

Transport packaging

A a palette and corrugated paper carton is required for overland transport to protect the machine from mechanical damage.

Consult an authorized KAESER Service representative for advice on packaging for sea or air transport.

12.3 Storage

Pre–condition: The machine must be adequately packed.

☞ Store the machine in a dry room where the temperature remains above 32 °F.

☞ Prevent ingress of moisture and condensation.

12.4 Transporting

Use only a fork truck or pallet truck.

Make sure the lifting equipment is adequate for the weight of the machine.

Pre–condition: Machine must stand on a suitable transport medium (pallet).

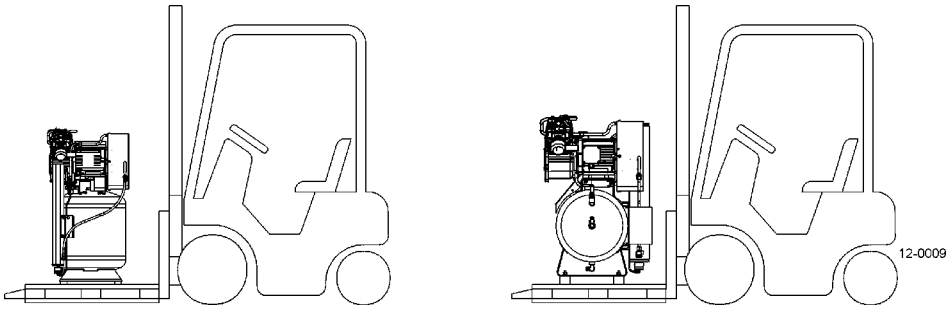


Fig. 15 Transport using a fork lift truck or pallet truck

12.5 Disposal

Pre–condition: The machine is taken out of service.

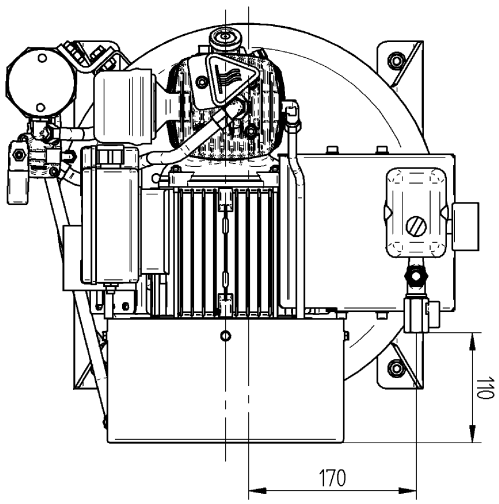
☞ Remove old filters.

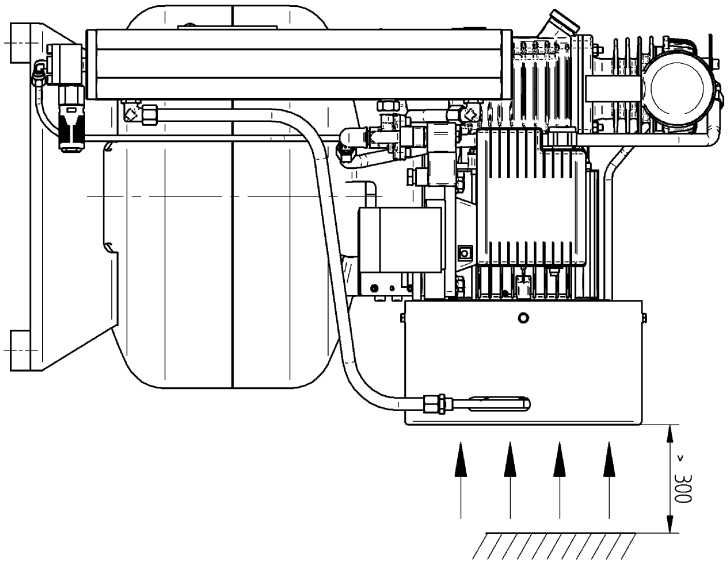
☞ Hand the machine over to an authorized disposal expert.

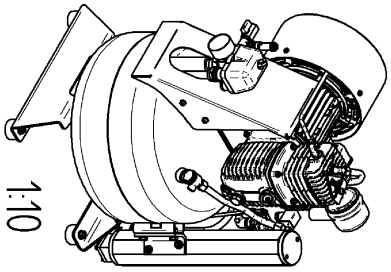
13 Annex

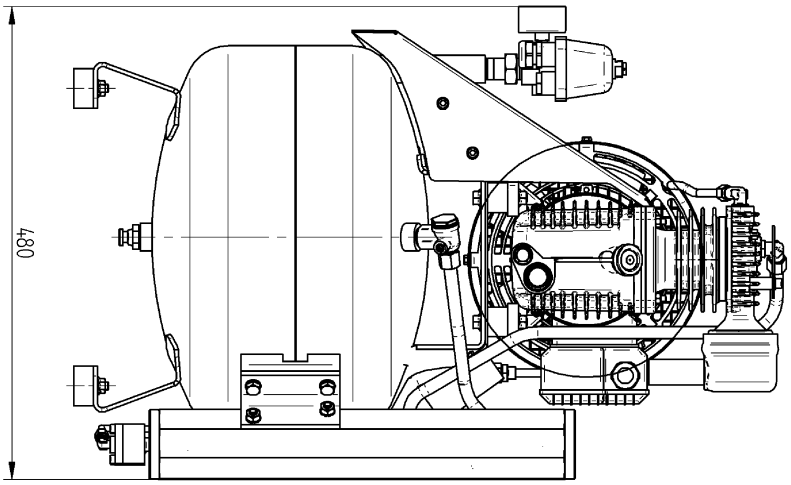
13.1 Diagrams and Drawings

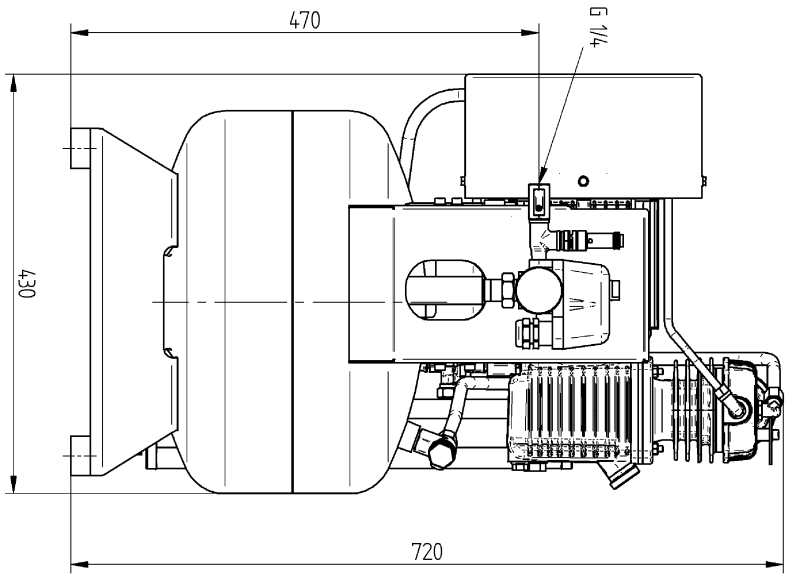
13.1.1 Dimensional drawing











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Gepr.			
Freigeg.	schaef1	22.06.2005	
Maßstab 15			

Dental 1T

Ersatz für

KAESER KOMPRESSOREN

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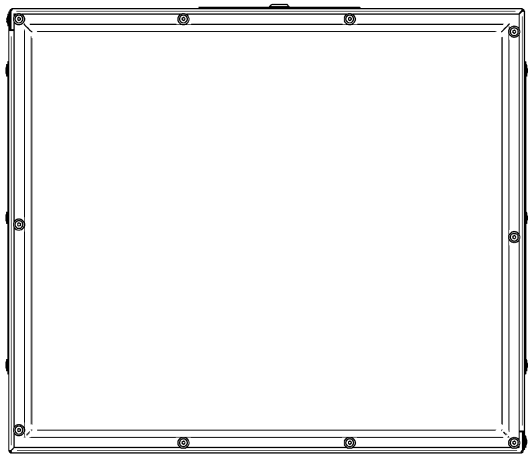
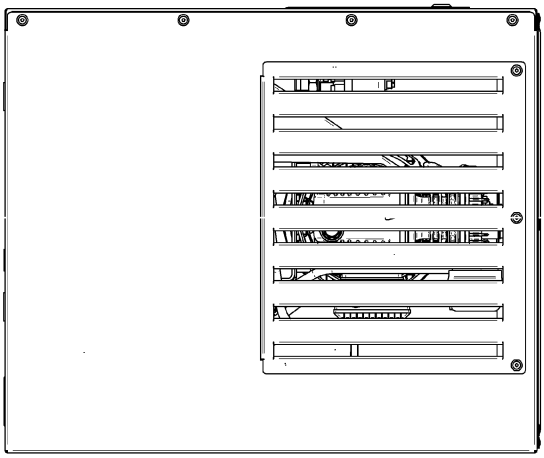
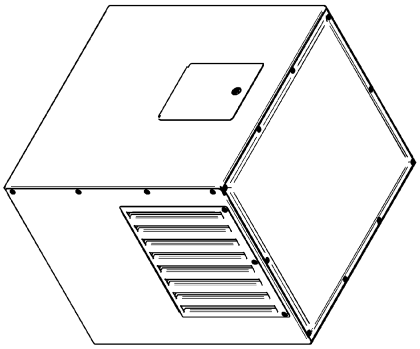
A-Index







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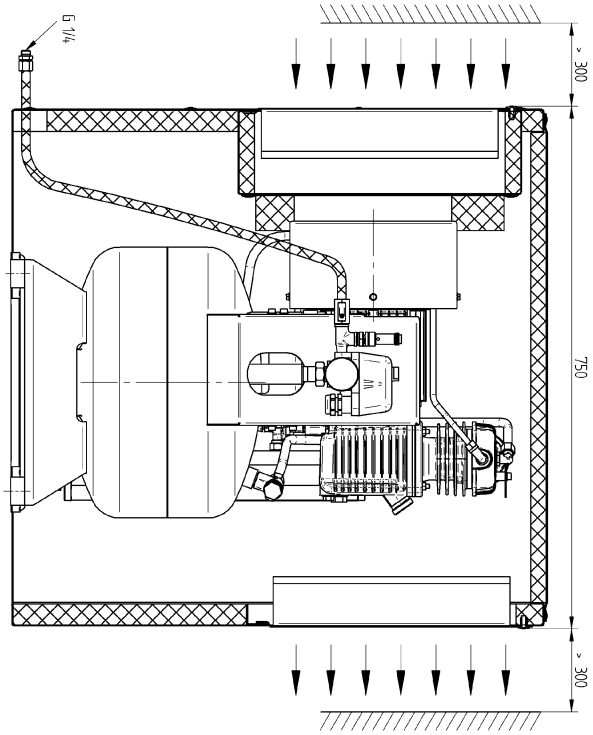

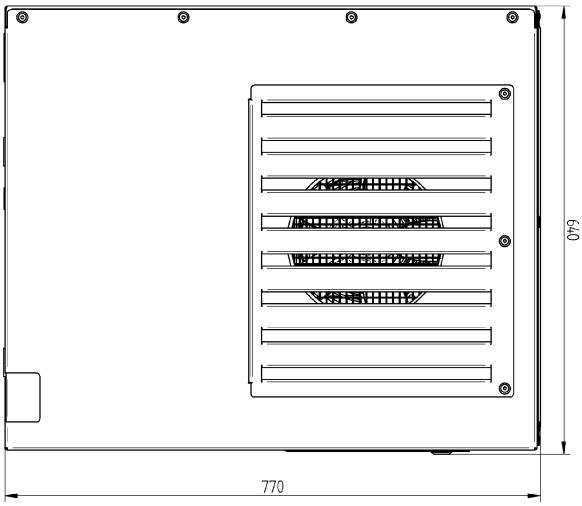

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Sound enclosure for Dental 1T

Ersatz für

KAESER KOMPRESSOREN

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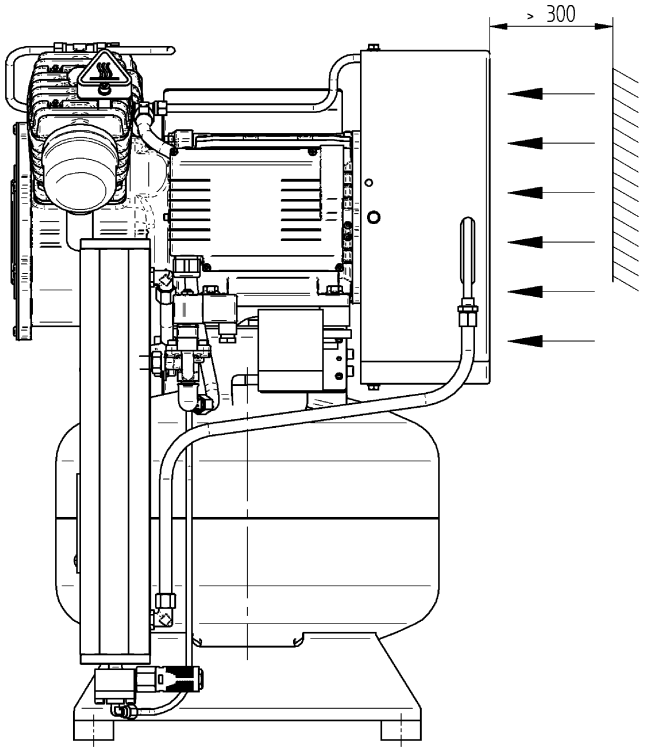
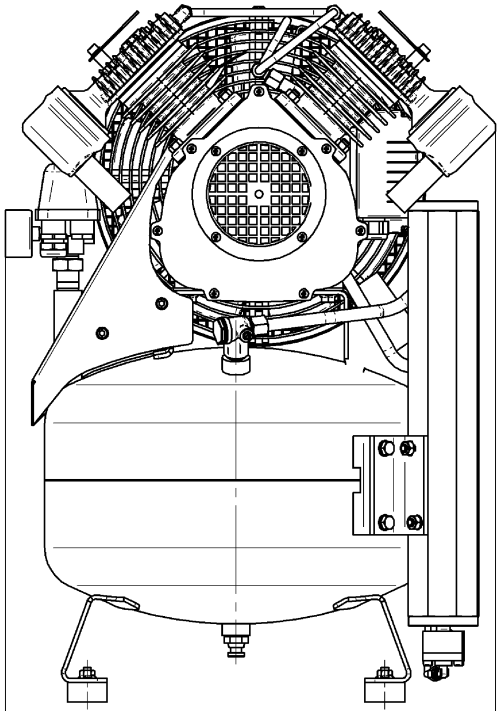
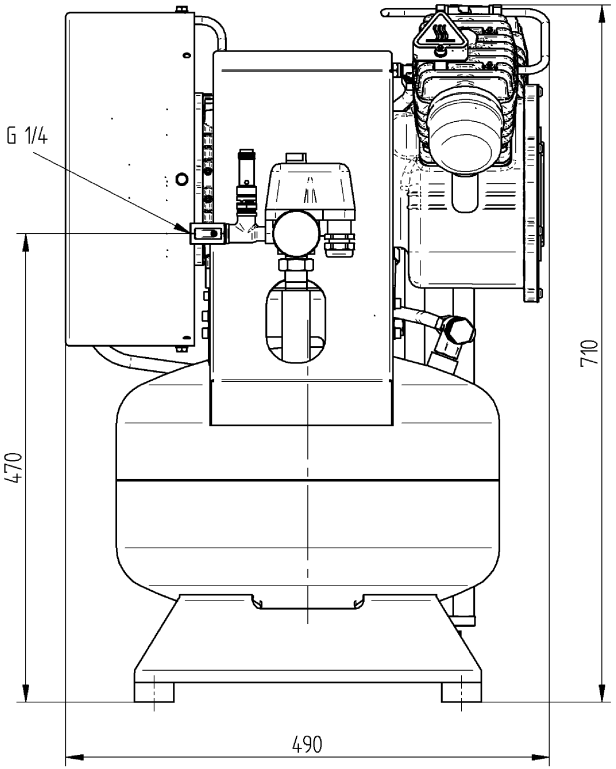
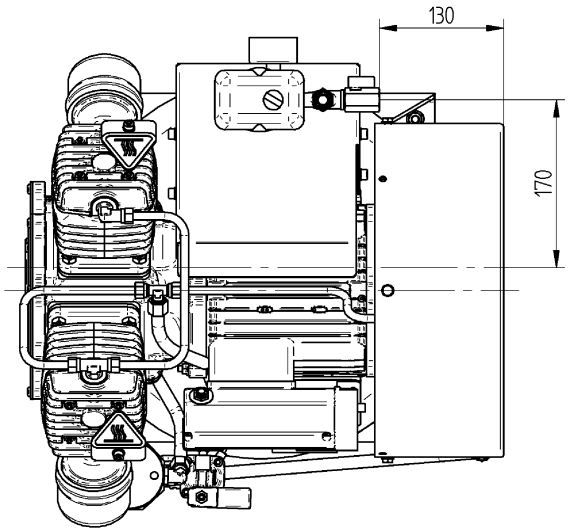
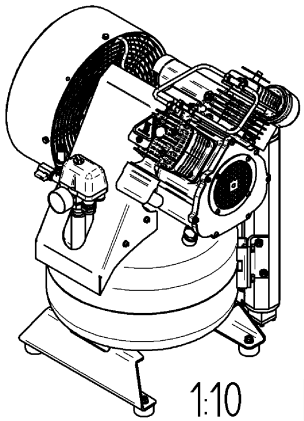
A-Index











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Freigeg.	22.06.2005	schaef1
Maßstab 1:5		

Dental 3T

Ersatz für

KAESER KOMPRESSOREN

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A-Index

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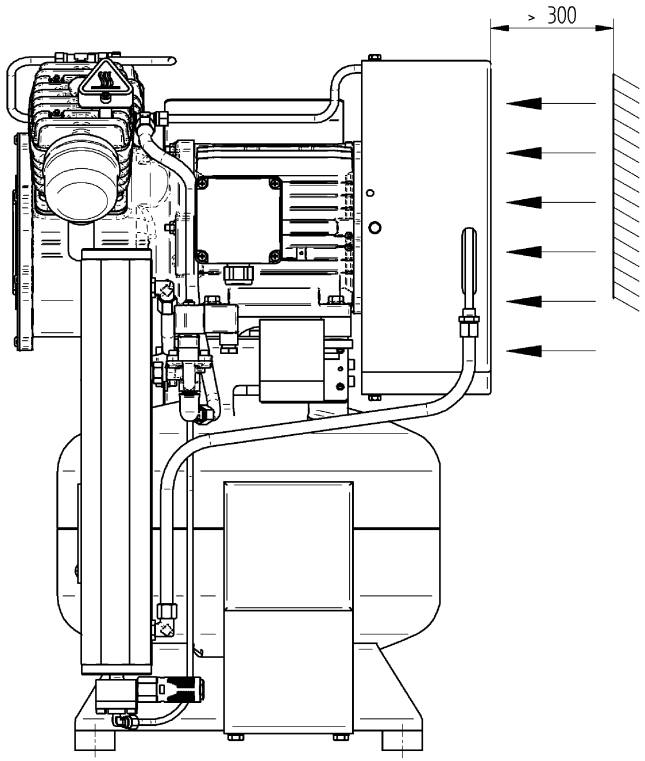

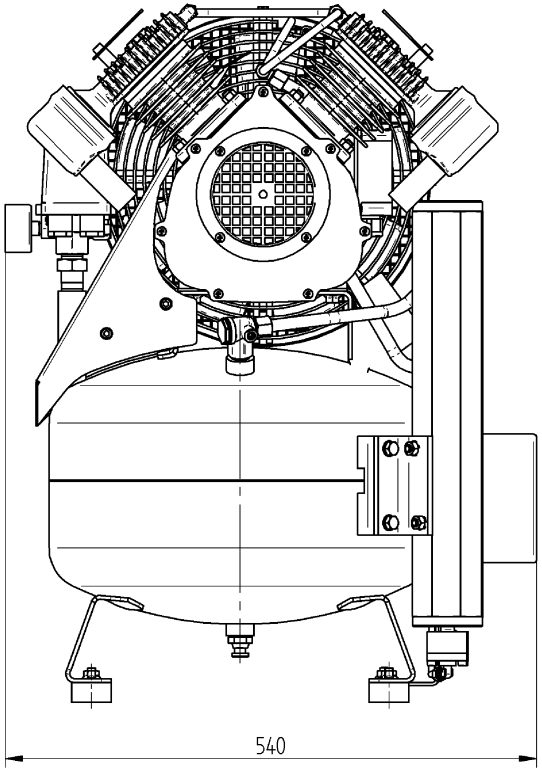

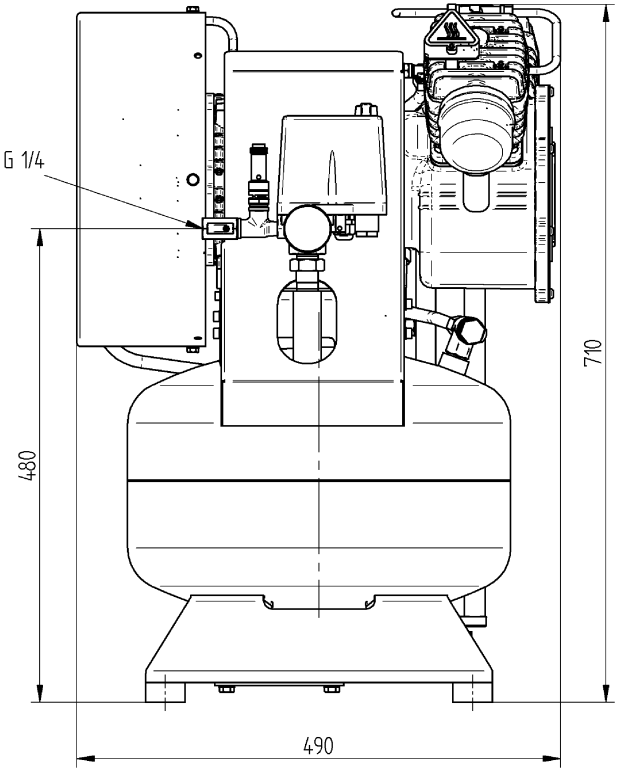

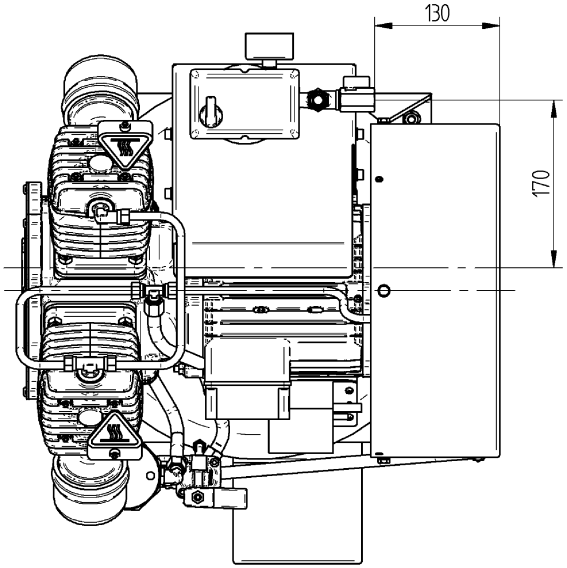

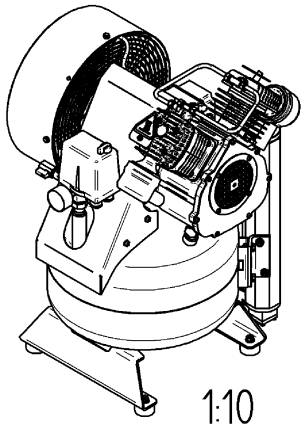

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Dental 3T

Ersatz für

KAESER KOMPRESSOREN

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A-Index

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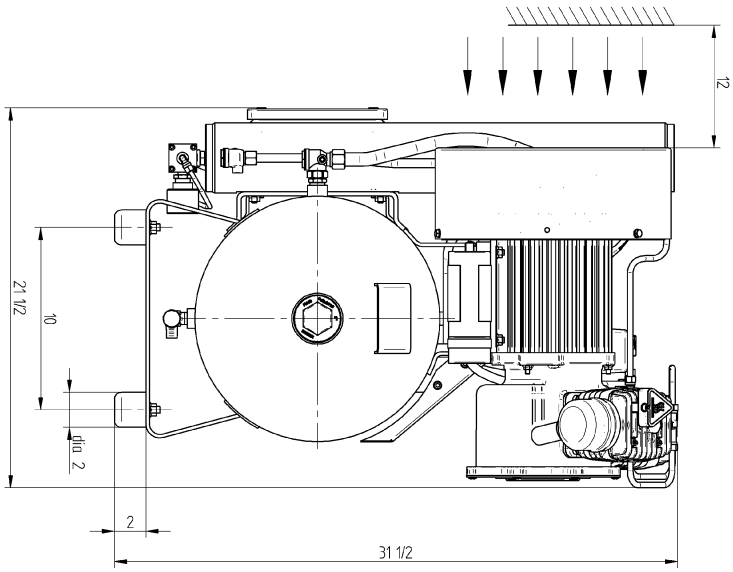

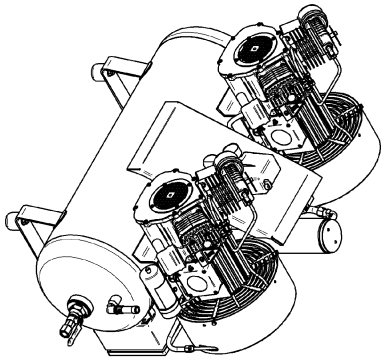

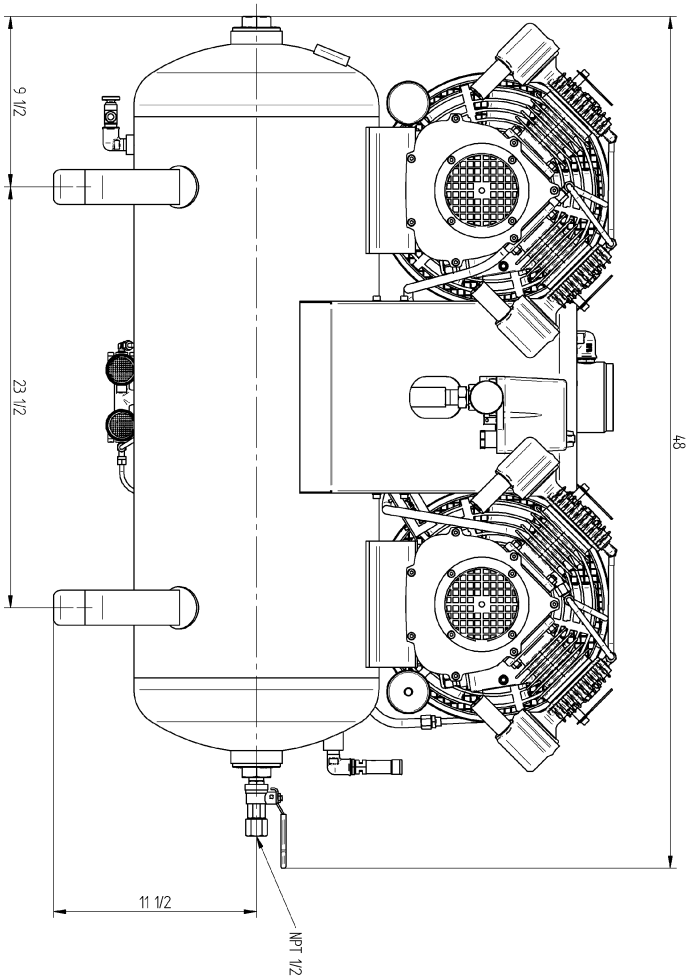

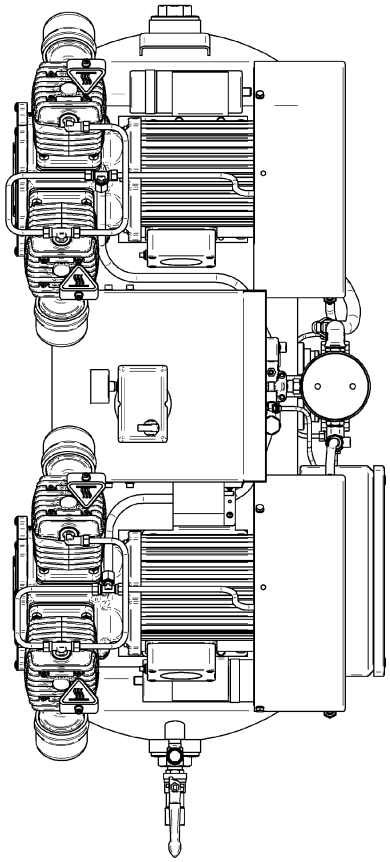

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Dental 3-2T

KAESER KOMPRESSOREN

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A-Index

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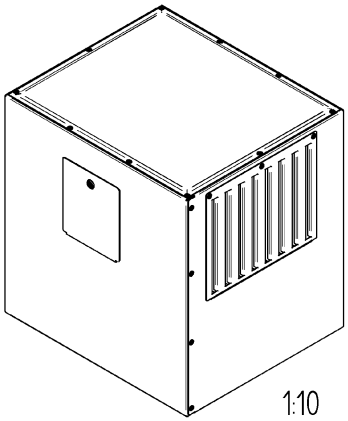

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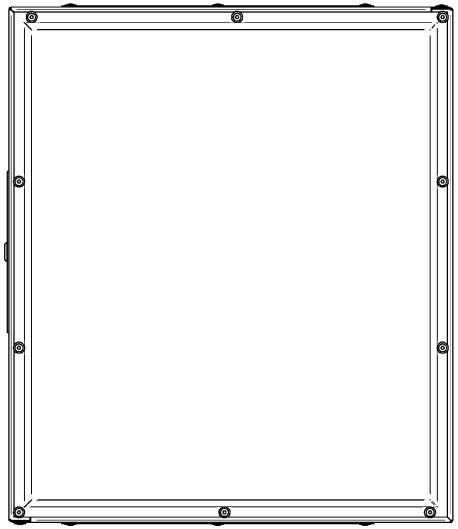

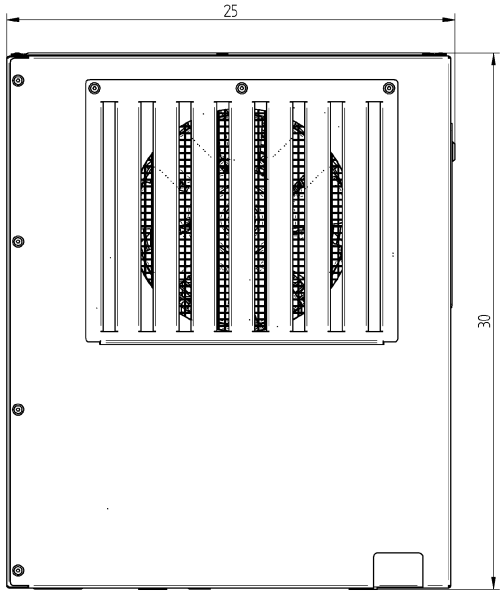

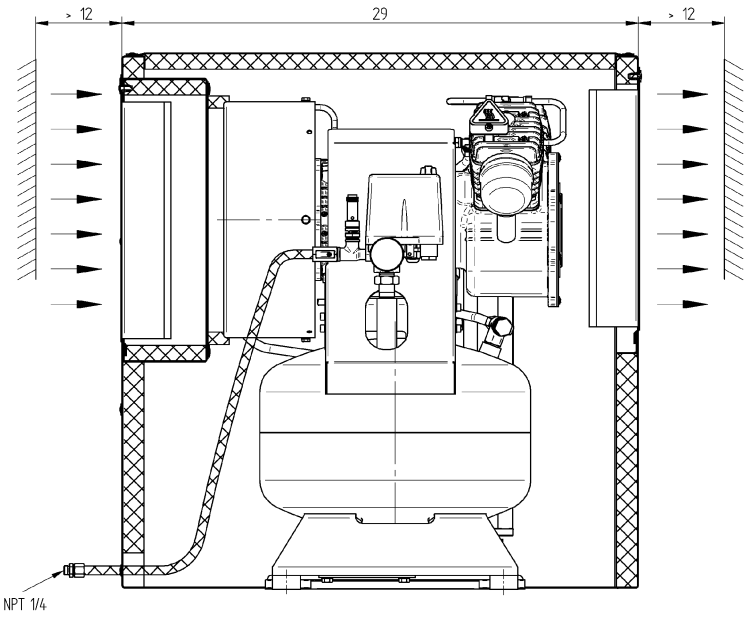

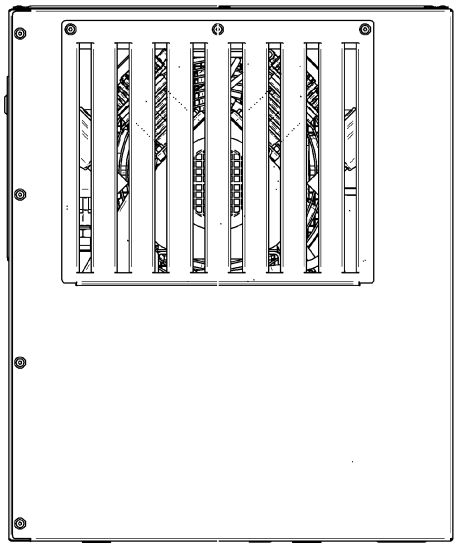

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Freigeg.	06.04.2006	schaef1	
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KAESER KOMPRESSOREN

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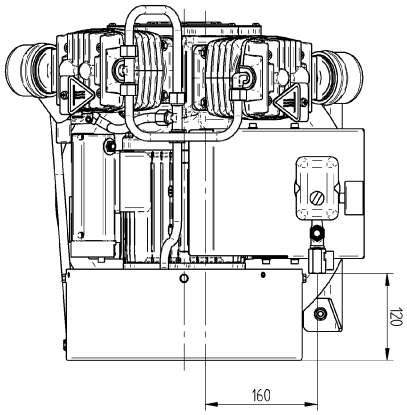

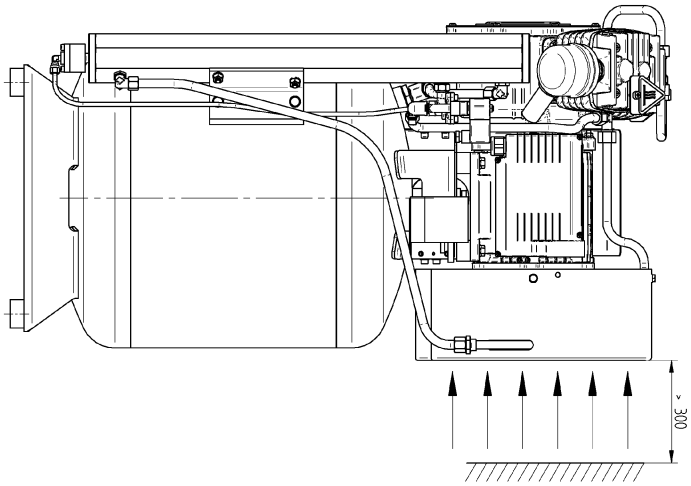

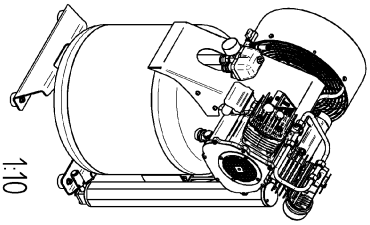

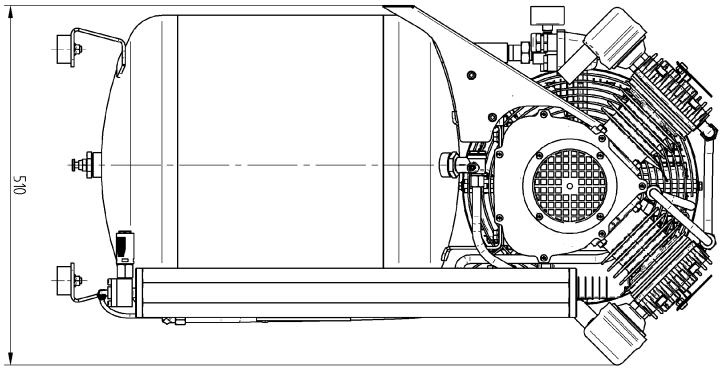

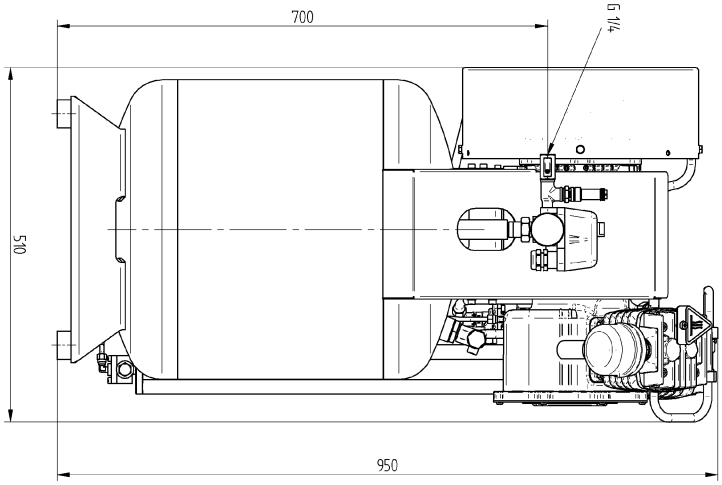

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Maßstab:	15	Ersatz für:	

Dental 5T

KAESER KOMPRESSOREN

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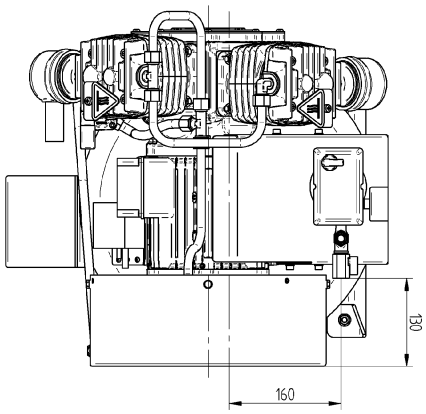
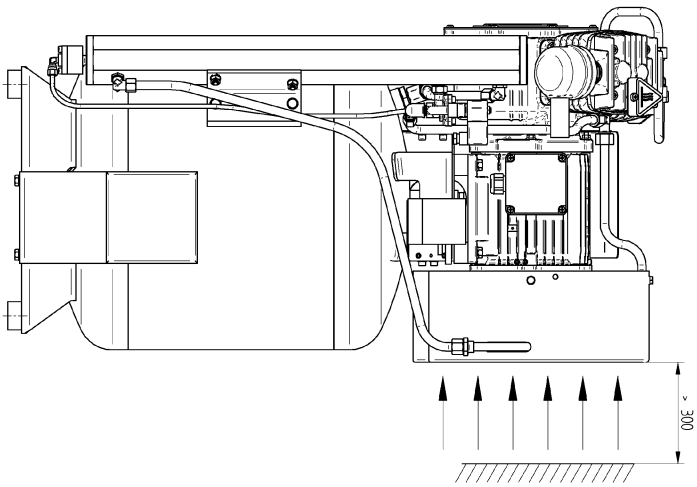
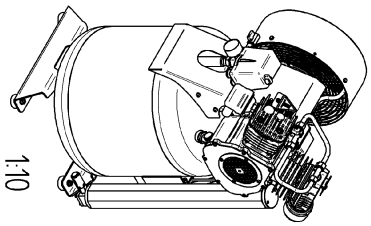
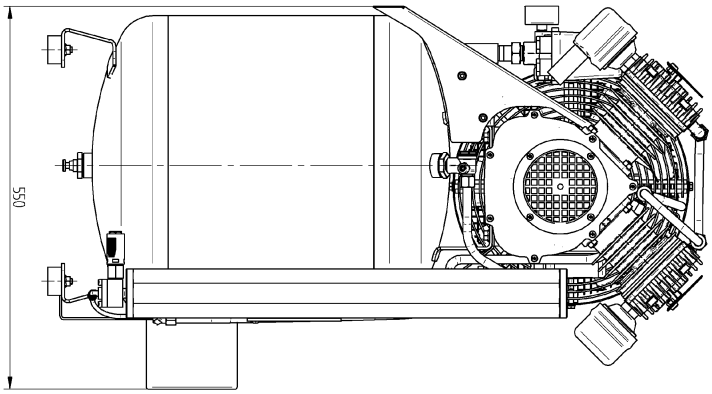
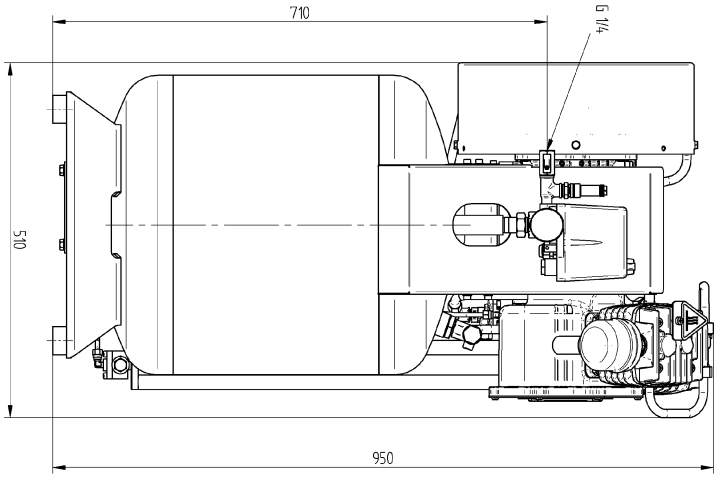
A-Index











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Maßstab	1:5	Ersatz für	

Dental 5T

KAESER KOMPRESSOREN

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A-Index

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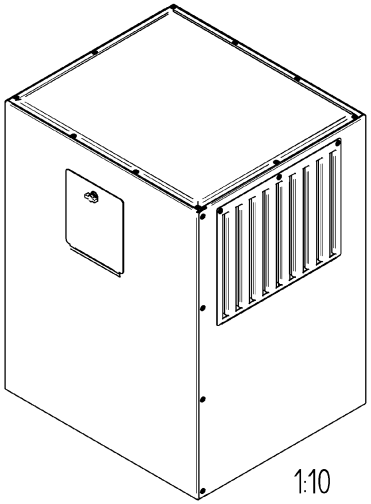

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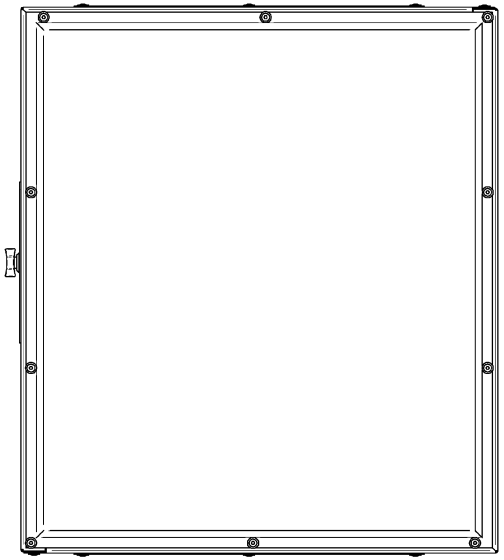
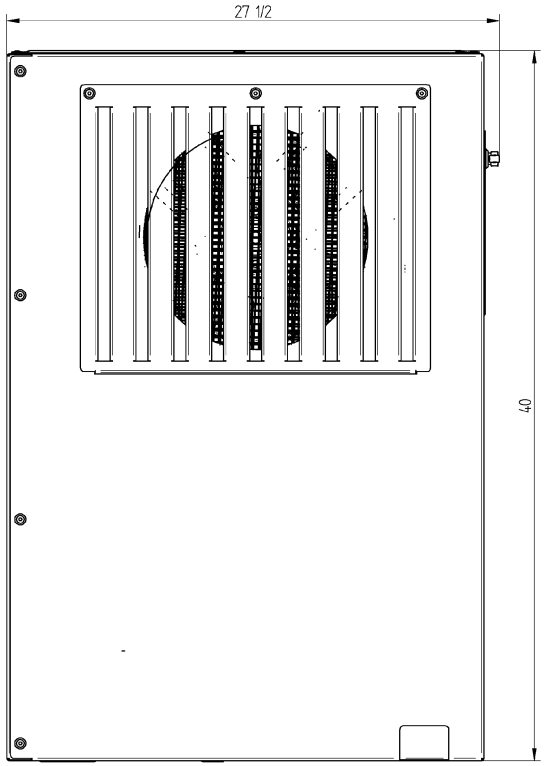
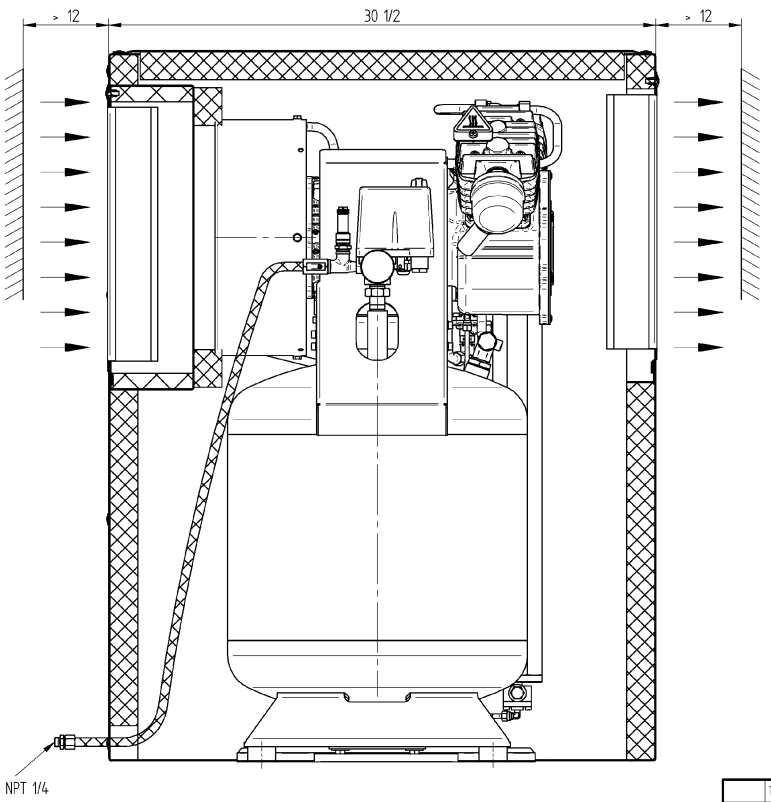
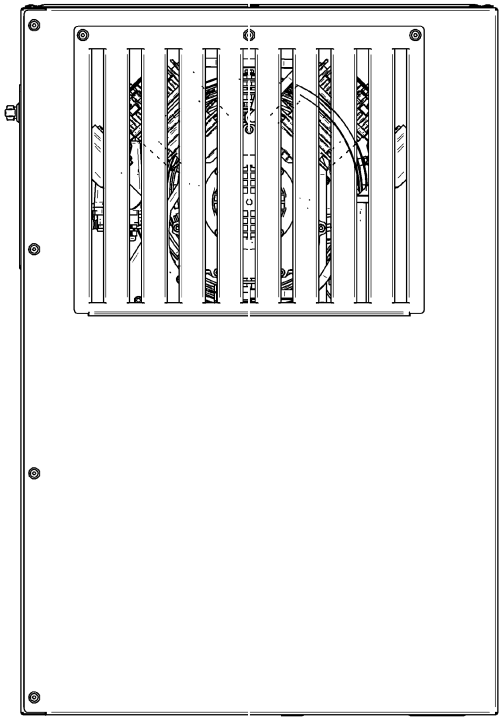








	Tag	Name
Gez.	05.10.2005	koch4
Gepr.		
Freigeg.	06.04.2006	schaef1
Maßstab	1:5	

Sound enclosure for Dental 5T

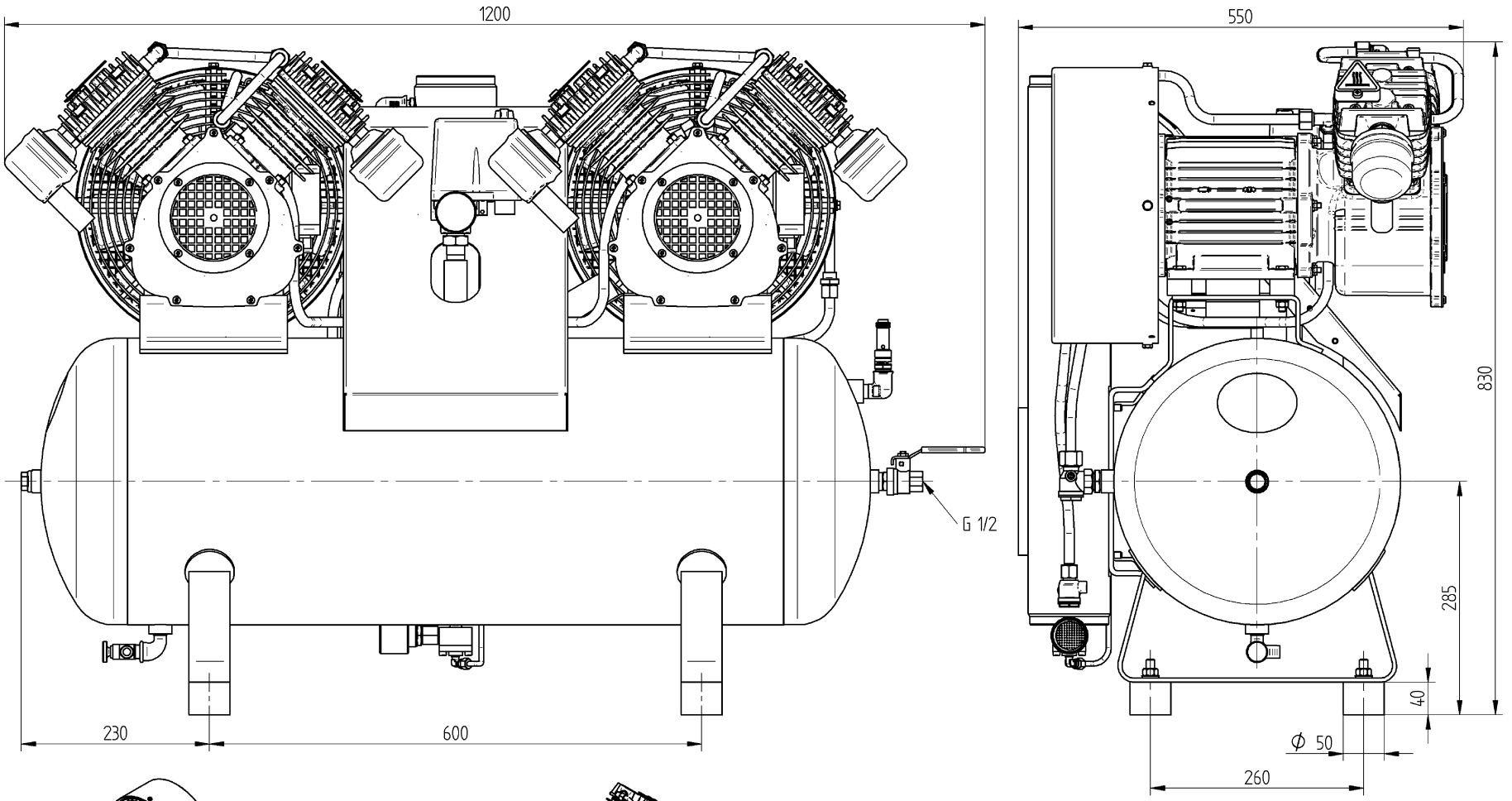
Ersatz für

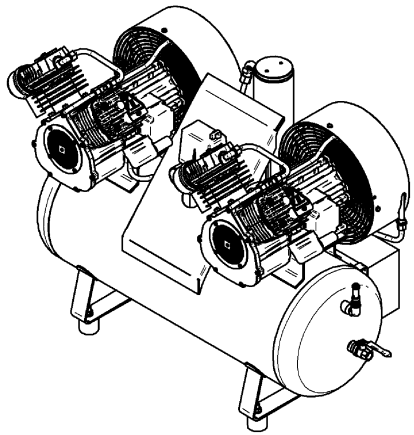
KAESER KOMPRESSOREN

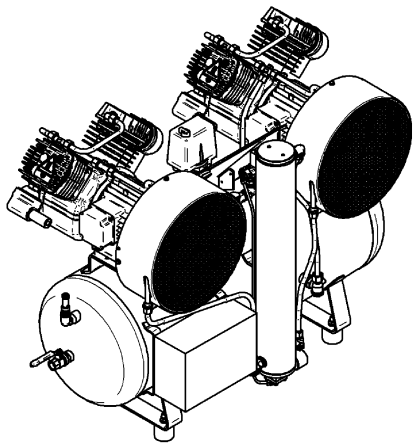
K402055_0

A-Index

10067788 D 01







	Tag	Name
Gez.	12.09.2005	koch4
Gepr.		
Freigeg.	14.09.2005	schaef1
Maßstab 1:5		

Dental 5-2T

Ersatz für

KAESER KOMPRESSOREN

K1_5203_0-P01

A-Index

10066309 D 01

13.1.2 Electrical Diagram

Wiring Diagram

Dental 3T

Dental 5T

208-230V ±5% 60CY

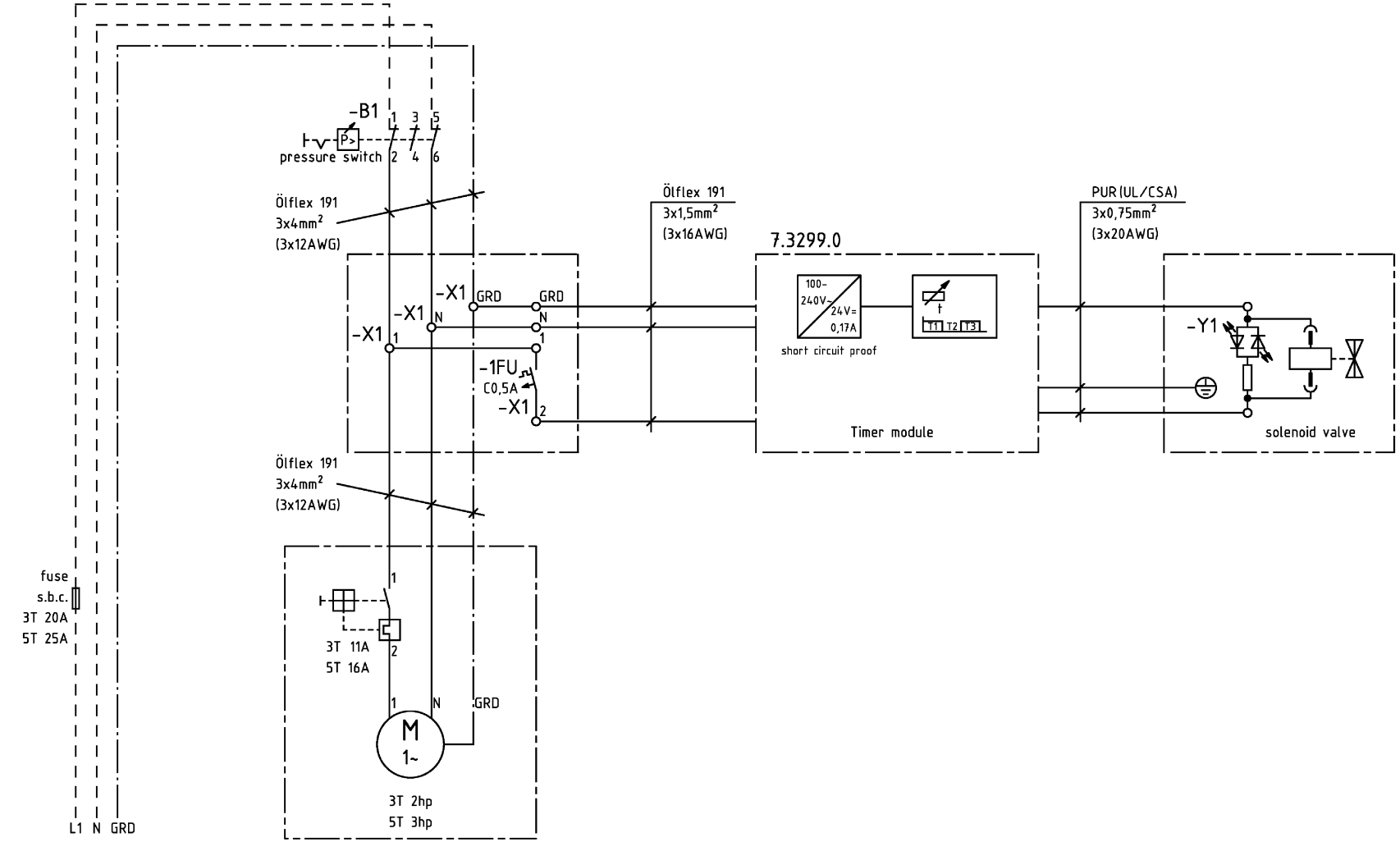
TT/TN power supply with common point grounding

manufacturer: KAESER COMPRESSORS
96450 Coburg
GERMANY

c				Datum	19.04.2006 USE		KAESER KOMPRESSOREN	cover page piston compressor - Dental		=
b				Bearb.	Sitter					+
a				Gepr.	Gegner					
A	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung:		DKK-U1026.01	Blatt 1 Bl.

Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	cover page		DKK-U1026.01	1	
2	list of contents		ZKK-U1026.01	1	
3	wiring diagram		SKK-U1026.01	1	
4	lay-out		GKK-U1026.01	1	
5	lay-out		AKK-U1026.01	1	

c				Datum	19.04.2006		KAESER KOMPRESSOREN	list of contents piston compressor - Dental		=
b				Bearb.	Sitter					+
a				Gepr.	Gegner				ZKK-U1026.01	Blatt 1
B	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung:			Bl.



s.b.c. = supplied by customer

c				Datum	19.04.2006		KAESER KOMPRESSOREN	wiring diagram piston compressor - Dental	=	
b				Bearb.	Sitter				+	
a				Gepr.	Gegner					
D	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung:		SKK-U1026.01	Blatt 1 Bl.

1	2	3	4	5	6	7	8

A Stück- zahl Qty.	B Benennung und Verwendung Description and function	C Fabrikatsbezeichnung Typ; notwendige techn. Daten (z.B. Steuerspannung, Frequenz, Einstellbereich); Bestell-Nr.; Hersteller Identification data Type; basic technical data (e.g. control voltage, frequency, adjustable range); order No.; manufacturer				D Lfd. Nr. Item	E Betriebsmittel-Kennz. nach DIN 40719, Teil 2 Identifying symbol of device	F Stromlaufplan Planabschnitt Circuit diagram sheet No.; section No.	G Einbauort Location	Concerns only the manufacturer Wst.-Nr.			
										H Schabl. Nr.	I BZ- Pos.	J VA Kz. *)	K Eingangs- vermerk
1	housing	PC1313-10-o	130x130x99mm	7.3079.00010	Spelsberg								
1	cut-out	5SY4105-7	0,5A	7.6862.0	Siemens		-1FU						
5	series terminal	WKF4/35		7.3149.01320	Wieland		-X1						
2	GRD terminal	WKF4SL/35		7.3149.00920	Wieland		-X1						
2	terminal jumper	IVB WKF4-2		7.3149.01330	Wieland		-X1						
2	End clamp	WEF 1/35		7.3328.1	Wieland								
2	screwed cable gland	M20x1,5		7.5289.0	PROTEC								
2	Counter-nut	M20x1,5		7.5812.0	Jacob								
1	screwed cable gland	M16x1,5		7.5288.0	PROTEC								
1	Counter-nut	M16x1,5		7.5811.0	Jacob								

Bei Nachbestellung von Geräten und Maschinen sind alle in den stark umrandeten Spalten B und C angegebenen Daten aufzuführen. Die Daten in den Spalten D bis G sind zusätzlich unter Nennung dieser Gerätestücklisten-Nummer anzugeben, soweit sie die Beantwortung technischer Rückfragen erleichtern. Für Ersatzteilbestellung ist zusätzlich die Angabe der Serialnummer erforderlich, falls diese auf dem Typenschild des Erzeugnisses genannt ist.

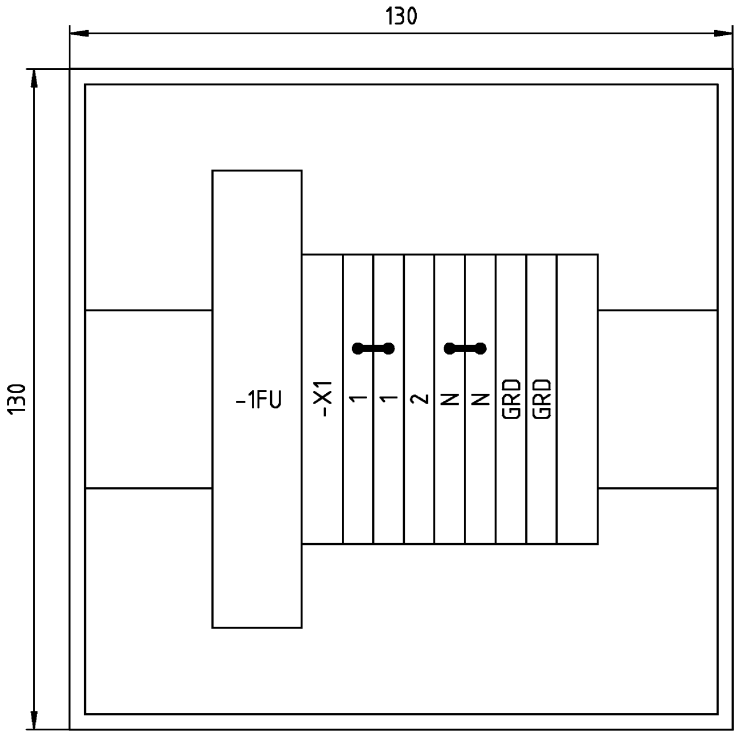
In Zweifelsfällen gilt die deutsche Fassung.

When reordering the equipment, all data enclosed by the heavy lines of columns B and C should be stated. In addition, the data in columns D to G should be given together with the No. of this list of equipment, insofar as they ar helpful in answering technical enquiries. When ordering spare parts, also quote the serial No. of the product if stated on the rating plate.

The German version applies in cases of doubt.

*) Versandanschrift – Kennzeichen

c				Datum	19.04.2006		KAESER KOMPRESSOREN	lay-out piston compressor - Dental		=	
b				Bearb.	Sitter					+	
a				Gepr.	Gegner						
F	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung:		GKK-U1026.01	Blatt 1 Bl.



c				Datum	19.04.2006		KAESER KOMPRESSOREN	lay-out piston compressor - Dental		=
b				Bearb.	Sitter					+
a				Gepr.	Gegner				AKK-U1026.01	Blatt 1
l	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung:			Bl.

Wiring Diagram

Dental 3/2T

Dental 5/2T

208-230V ±5% 60CY

TT/TN power supply with common point grounding

manufacturer: KAESER COMPRESSORS
96450 Coburg
GERMANY

c				Datum	28.06.2006 USE		KAESER KOMPRESSOREN	cover page piston compressor - Dental		=
b				Bearb.	Sitter					+
a				Gepr.	Gegner					
A	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung:		DKK-U1030.00	Blatt 1 Bl.

Lfd. Nr. No.	Benennung Name		Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	cover page			DKK-U1030.00	1	
2	list of contents			ZKK-U1030.00	1	
3	block diagram	Dental		UKK-U1030.00	1	
4	wiring diagram			SKK-U1030.00	1	
5	wiring diagram	Dental		SKK-U1030.00	2	
6	electrical component parts list	Dental		GKK-U1030.00	1	
7	terminal connection	terminal strip -X1		KKK-U1030.00	1	
8	lay-out	Dental		AKK-U1030.00	1	

c				Datum	28.06.2006		KAESER KOMPRESSOREN	list of contents piston compressor - Dental		=
b				Bearb.	Sitter					+
a				Gepr.	Gegner				ZKK-U1030.00	Blatt 1
B	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung:			Bl.

general instructions

ATTENTION !!!
Install supplies, grounding and shock protection
to local safety regulations.
Control circuits are single-end-grounded, if they are floating
they may only be used together with insulation monitoring.
Do not make or break
live plug-in connectors.

control cabinet wiring for non-designated conductors

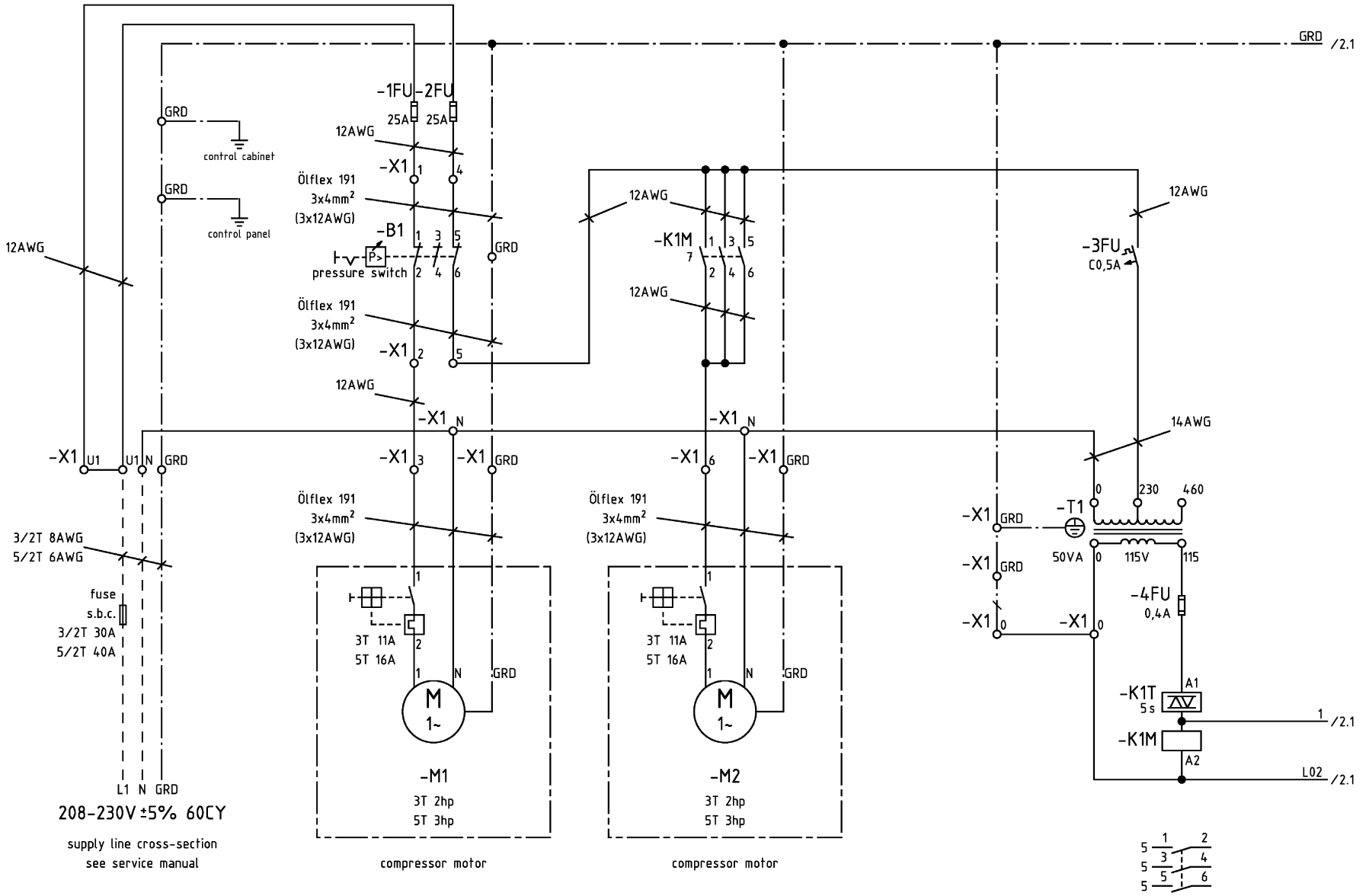
primary circuits:	black
control voltage AC:	red 1mm^2 H05V-K, 18AWG UL-Style 1015, CSA-TEW
ground conductor:	green/yellow H07V-K, UL-Style 1015, CSA-TEW

electrical equipment identification

general components

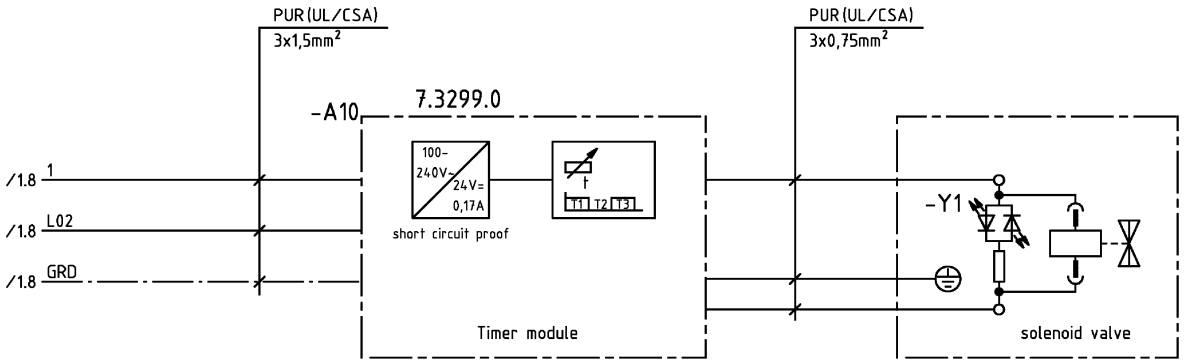
-A10	Timer module
-B1	air pressure switch
-1FU,-2FU	fuse motor -M1, -M2
-3FU	control fuse
-K1M	motor starter
-K1T	time relay
-M1,-M2	compressor motor
-T1	control transformer
-X1	terminal strip
-Y1	venting valve

c				Datum	28.06.2006		KAESER KOMPRESSOREN	block diagram piston compressor - Dental		=
b				Bearb.	Sitter					+
a				Gepr.	Gegner					
C	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung:		UKK-U1030.00	Blatt 1 Bl.



s.b.c. = supplied by customer

c				Datum	28.06.2006		KAESER KOMPRESSOREN	wiring diagram piston compressor - Dental	=	
b				Bearb.	Sitter				+	
a				Gepr.	Gegner					
D	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung:		SKK-U1030.00	Blatt 1 Bl.



c				Datum	28.06.2006		KAESER KOMPRESSOREN	wiring diagram	=	
b				Bearb.	Sitter			piston compressor - Dental	+	
a				Gepr.	Gegner				SKK-U1030.00	Blatt 2
D	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung:			Bl.

1	2	3	4	5	6	7	8

A Stück-zahl Qty.	B Benennung und Verwendung Description and function	C Fabrikatsbezeichnung Typ; notwendige techn. Daten (z.B. Steuerspannung, Frequenz, Einstellbereich); Bestell-Nr.; Hersteller Identification data Type; basic technical data (e.g. control voltage, frequency, adjustable range); order No.; manufacturer				D Lfd. Nr. Item	E Betriebsmittel-Kennz. nach DIN 40719, Teil 2 Identifying symbol of device	F Stromlaufplan Planabschnitt Circuit diagram sheet No.; section No.	G Einbauort Location	Concerns only the manufacturer Wst.-Nr. H Schabl. Nr.	I BZ-Pos.	J VA Kz. *)	K Eingangs-vermerk
1	control cabinet	KL1503	300x200x120mm	7.3146.01460	Rittal								
1	contactor	3RT1025-1AK60	120V 60CY	7.6865.00010	Siemens		-K1M						
1	time relay	3RT1926-2CH21	0,5-10sec	7.3078.0	Siemens		-K1T						
1	control transformer	50VA	230/460/115V	7.3902.10020	Block		-T1						
1	cut-out	5SY4105-7	0,5A	7.6862.0	Siemens		-3FU						
1	fuse	5x20 0,4A		893937.0	Siba		-4FU						
2	fuse socket	31295	1-pole	7.3320.00050	Wöhner		-1FU,-2FU						
2	fuse	ATDR 25	25A 600V	7.3309.00010	Gould		-1FU,-2FU						
5	series terminal	WKN10/U		7.4727.0	Wieland		-X1						
1	terminal jumper	IVB WKN10-2		7.3149.00700	Wieland		-X1						
1	terminal jumper	IVB WKN10-3		7.3149.01780	Wieland		-X1						
1	GRD terminal	WKN10SL/U		7.4731.0	Wieland		-X1						
3	tiered terminals	WK4/DEU		7.3149.00250	Wieland		-X1						
1	series terminal	WK4/D2/2U		7.4726.0	Wieland		-X1						
2	GRD terminal	WK4/D2/2SLU		7.4729.0	Wieland		-X1						
1	screwed cable gland	M16x1,5		7.5288.0	PROTEC								
1	Counter-nut	M16x1,5		7.5811.0	Jacob								
4	screwed cable gland	M20x1,5		7.5289.0	PROTEC								
4	Counter-nut	M20x1,5		7.5812.0	Jacob								
1	screwed cable gland	M25x1,5		7.5290.0	PROTEC								
1	Counter-nut	M25x1,5		7.5813.0	Jacob								

Bei Nachbestellung von Geräten und Maschinen sind alle in den stark umrandeten Spalten B und C angegebenen Daten aufzuführen. Die Daten in den Spalten D bis G sind zusätzlich unter Nennung dieser Gerätestücklisten-Nummer anzugeben, soweit sie die Beantwortung technischer Rückfragen erleichtern. Für Ersatzteilbestellung ist zusätzlich die Angabe der Serialnummer erforderlich, falls diese auf dem Typenschild des Erzeugnisses genannt ist.

In Zweifelsfällen gilt die deutsche Fassung.

When reordering the equipment, all data enclosed by the heavy lines of columns B and C should be stated. In addition, the data in columns D to G should be given together with the No. of this list of equipment, insofar as they ar helpful in answering technical enquiries. When ordering spare parts, also quote the serial No. of the product if stated on the rating plate.

The German version applies in cases of doubt.

*) Versandanschrift – Kennzeichen

c				Datum	28.06.2006		KAESER KOMPRESSOREN	electrical component parts list piston compressor – Dental		=		
b				Bearb.	Sitter					+		
a				Gepr.	Gegner							
F	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung:		GKK-U1030.00		Blatt 1 Bl.

terminal strip: -X1
total 18 terminals

terminal-no.	link	jumper wire	location	destination inside: name of device	destination inside: connection	destination external: name of device	destination external: connection	cable-no. (top): -W1.1 Ölflex 191 3x4 mm² (12AWG)	-W0 s.b.c. **	-W1.1 Ölflex 191 3x4 mm² (12AWG)	-W1.2 Ölflex 191 3x4 mm² (12AWG)	-W2 PUR(UL/CSA) 3x1,5 mm²	-W10 Ölflex 191 3x4 mm² (12AWG)	-W20 Ölflex 191 3x4 mm² (12AWG)
GRD			/1.2	-B1		-supply		X	X					
U1	●		/1.2	-1FU		-supply			X					
U1	●		/1.2	-2FU										
N	●		/1.2			-supply			X					
N	●		/1.3			-M1	N						X	
N	●		/1.5	-T1	0	-M2	N							X
1			/1.3	-1FU		-B1	1			X				
2		⊓	/1.3			-B1	2				X			
3		⊓	/1.3			-M1	1						X	
4			/1.3	-2FU		-B1	5			X				
5			/1.3	-K1M	1	-B1	6				X			
6			/1.5	-K1M	2	-M2	1							X
0	●		/1.7	-K1T	A2	-T1	0							
0	●	⊓	/1.6											
GRD		⊓	/1.6	.		-M1	GRD						X	
GRD			/1.5	control cabinet		-M2	GRD							X
GRD			/1.6	-T1	GRD	-A10						X		
GRD				-control panel		-B1					X			

** 3/2T = 8AWG
5/2T = 6AWG

s.b.c. = supplied by customer

c				Datum	28.06.2006
b				Bearb.	Sitter
a				Gepr.	Gegner
H	Änderung	Datum	Name	Norm	

Ersatz durch: | Ersatz für: | Ursprung:

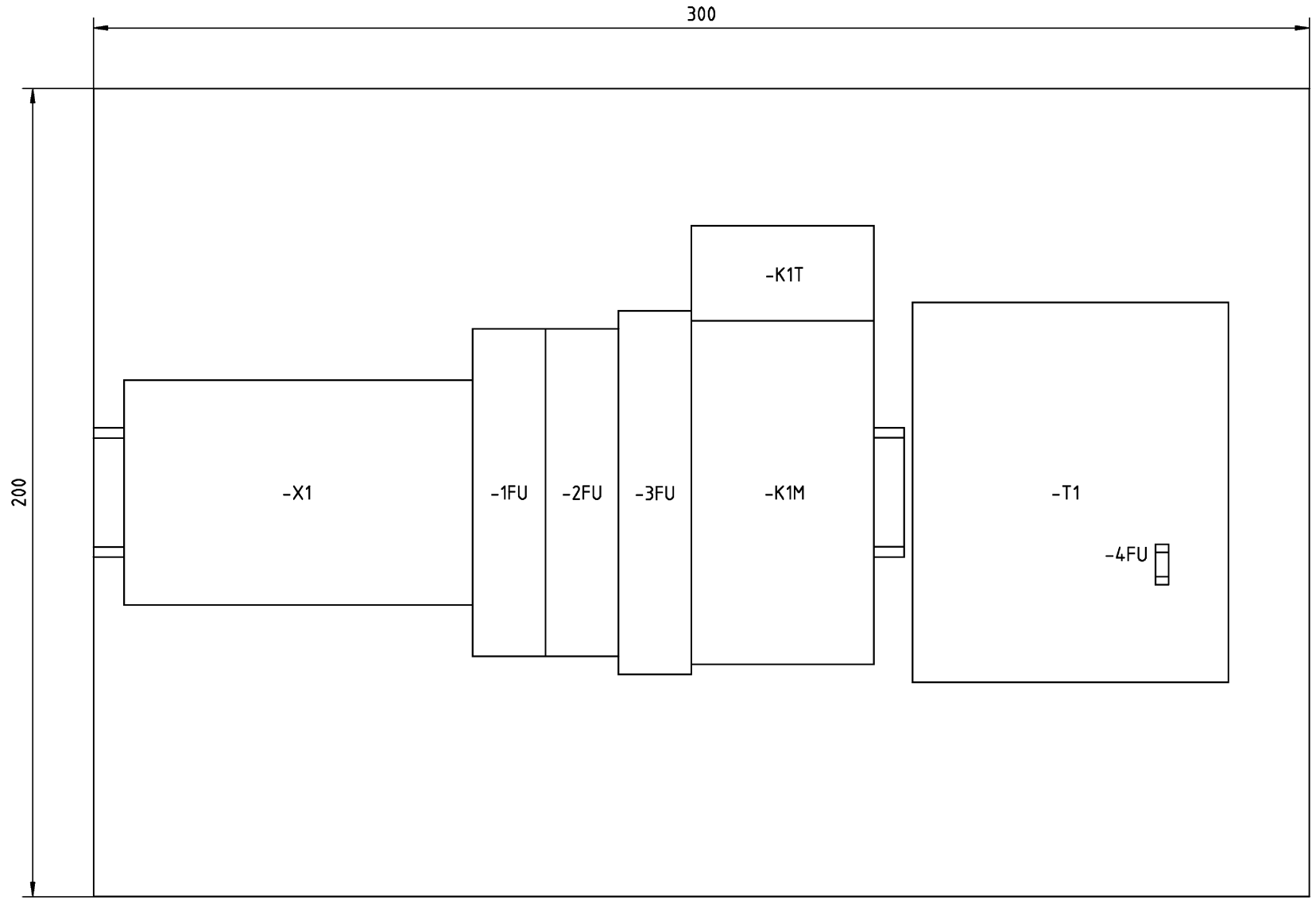
KAESER KOMPRESSOREN

terminal connection
piston compressor - Dental
terminal strip -X1

=
+

KKK-U1030.00

Blatt 1
Bl.



c				Datum	28.06.2006		KAESER KOMPRESSOREN	lay-out piston compressor - Dental		=	
b				Bearb.	Sitter					+	
a				Gepr.	Gegner						
I	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung:		AKK-U1030.00		Blatt 1 Bl.