SERVICE MANUAL E

Screw Compressor

Model: DSD 171 / 5,5 – 8,5 bar

GL–Nr.: 1_8701_2–00 02

Part No.: .....

Serial No.: .....

Manufacturer:

KAESER KOMPRESSOREN GmbH

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KAESER COMPRESSORS

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1 Technical Specification

1.1 Compressor Package

Model	DSD 171	
Permissible gauge working pressure	8,5	bar
Operating temperature, approx. (related to the gauge working pressure and climatic conditions such as humidity in the air and ambient temperature).	75 – 100	°C
Weight	3040	kg

Drawings:

Dimensional drawing	T9052.02 / T9443.01
P & I flow diagram (Pipework and instrument flow diagram)	FDSD141STL–0130.00
Electrical diagram	SDSD171.L–01003.02

1.2 Sound Pressure Level

Operational state of the compressor unit:

Full load, the compressor unit runs at: rated speed, rated pressure, rated capacity.

Setting up conditions:

Free field measurement

Measurement to CAGI/PNEUROP PN8 NTC 2.3:

Sound Pressure Level	70	dB (A)

1.3 Motor

Drive motor:

Rated power	90	kW
Rated speed	1500	min^{-1}
Protection class	IP 55	

Fan motor:

Rated power	2,5	kW
Rated speed	1000	min^{-1}
Protection class	IP 54	

1.4 Power Supply

(see chapter 6.3 for further details)

Mains voltage	400 ± 10%	V 3~/PE
Frequency	50	Hz
Max. mains fusing (slowblow or gl class)	224	A
Power supply cable cross–section (CU multicore cable)	4 x 120	mm^2
Current flow	179	A

1.5 Pressure Relief Valve

Activating pressure	11,5	bar

1.6 Installation Requirements

Max. height above sea level	1000	m

(consult with the manufacturer before installing at greater altitudes)

Min. ambient temperature	3	°C
Max. ambient temperature	40	°C
Min. cooling air/inlet air temperature	3	°C
Max. cooling air/inlet air temperature	40	°C
Air inlet opening	2	m^2

Exhaust air for solution A (see chapter 6.1):

Forced ventilation with exhaust fan	27500	m^3/h at 100 Pa

Exhaust air for solution B (see chapter 6.1):

Exhaust air used for space heating:

Heating duct w x h	975 x 975	mm

1.7 Oil Capacities

Total oil capacity	72	l

After oil change or after long period of storage

Amount required to top up the airend	4	l

Difference in oil volume between minimum and maximum levels

Top off volume	13	l

1.8 Recommended Cooling Fluid

Cooling and lubrication are decisive factors for reliable compressor operation.

Cooling fluids have vital tasks to fulfil:

- they function as a sealant in the airend to ensure maximum efficiency during the process of compression.
- they remove the heat caused by compression. This cools the airend and reduces the temperature of the compressed air.
- Cooling fluid must withstand heat and pressure, and absorb the contaminations encountered in every compressor.

1.8.1 General information

KAESER cooling fluid intended for fluid injected airends must be stored according to environmental regulations and protected such that contamination and hazards are prevented.

Attention! **It is imperative that national legislation covering transport, storage, use (especially regulations for oil changes) and disposal is observed.**

The user accepts overall responsibility for safe and secure handling as soon as the cooling fluid enters his or her area of responsibility.

Safety data sheets for the cooling fluids mentioned are available from KAESER.

1.8.2 KAESER cooling fluid

Several types of cooling fluid specially developed for use in KAESER's rotary screw compressors are available. Characteristics such as absorption of water, lubrication and resistance to aging are excellent.

Attention! **Under conditions of very high ambient temperature or contamination the cooling fluid should be changed more frequently.**

It is imperative that national oil change regulations must be observed.

The fluid separator tank is labelled with the type of cooling fluid used.

1.8.3 Change intervals

The duty cycle and ambient conditions are important criteria for the number and length of the change intervals:

Cooling fluid	**Description**	**maximal permissible fluid change interval in operating hours / years**	
		favourable operating conditions*	unfavourable operating conditions
SIGMA FLUID PLUS	Synthetic oil	9 000 / 3	6 000 / 1
SIGMA FLUID FGL	Synthetic oil	3 000 / 1	2 000 / 1

* cool to moderate ambient temperatures, low humidity, high duty cycle

1.8.4 SIGMA FLUID PLUS

SIGMA FLUID PLUS is the standard KAESER cooling fluid.

Based on synthetic poly–alpha–olefins, it is characterised by its long life, excellent lubrication and low evaporation loss.

It is recommended for ambient temperatures up to 45 °C.

KAESER SIGMA FLUID PLUS has the following properties:

• Viscosity at 40°C	DIN 51562–1	70 mm^2/s
• Viscosity at 100°C	DIN 51562–1	10.6 mm^2/s
• Density at 15°C	DIN 51757	843 kg/m^3
• Flash point (COC)	DIN ISO 2592	260°C
• Pour point	DIN ISO 3016	–39°C
• Water separability at 54°C	DIN 51599	30 min

- Very good oxidation stability
- Good anti–wear properties
- Excellent dispersant and detergent properties
- High viscosity index
- Very good demulsifying properties
- Low evaporation loss

Cooling fluid part number:

SIGMA FLUID PLUS 4 l	Part No.: 9.1468.2
SIGMA FLUID PLUS 20 l	Part No.: 9.1459.2
SIGMA FLUID PLUS 200 l	Part No.: 9.1454.2

1.8.5 SIGMA FLUID FGL

SIGMA FLUID FGL is a synthetic oil specially developed for use with rotary screw compressors intended for the supply of compressed air coming into occasional contact with foodstuffs.
This cooling fluid complies with USDA H–1 and is approved for the manufacture of foodstuff wrapping materials, for meat and poultry processing and for other foodstuff processing applications.

KAESER SIGMA FLUID FGL has the following properties:

- Viscosity to D 445 (ASTM Test) at 40°C: 50.7 mm^2/s
- Viscosity to D 445 (ASTM Test) at 100°C: 8.2 mm^2/s
- Flash point to D92 (ASTM Test): 254°C

Cooling fluid part No.:

SIGMA FLUID FGL 19 l	part No.: 9.1463.0
SIGMA FLUID FGL 208 l	part No.: 9.1462.0

1.8.6 Compatibility of KAESER cooling fluid

All the KAESER cooling fluids mentioned above are comparable with mineral oil with regard to their material compatibility with paints, sealants and hoses.

Attention!

Never mix different types of cooling fluid!

Synthetic cooling fluids can attack polycarbonate oil trays. For this reason, we recommend metal oil trays.

Certain plastic parts in the compressed air supply may not be resistant to synthetic cooling fluid.

When changing the type of cooling fluid, ensure that the fluid circulation system of the compressor package is completely drained before filling with the new fluid. As far as possible, remove any deposits in the cooling system.

It is possible that the separator cartridge will have to be changed because of existing cooling fluid deposits that detach themselves after changing the type of cooling fluid. This one–off, additional requirement is caused by the cleaning effect of the new cooling fluid.

1.9 Drive Motor Service Interval

Greasing the bearings:

Greasing interval . . . . . 2000 h*

Quantity per bearing . . . . . 35 g

*operating hours

Always use ESSO Unirex N3 high temperature grease for the bearings.

Bearing damages caused by the use of other brands of grease are excluded from the warranty.

ESSO Unirex N3 part numbers:

100 g	part No.: 9.0915.0
400 g	part No.: 6.3234.0

Renew the drive motor bearing:

Under normal operating conditions, after . . . . . 36000 h*
(ambient temperature up to 25°C)

Under unsuitable operating conditions, after . . . . . 20000 h*
(ambient temperature up to 40°C)

at the latest after . . . . . 8 years

*service hours

Renew the fan motor bearing:

Under normal operating conditions, after . . . . . 12000 h*
(ambient temperature up to 25°C)

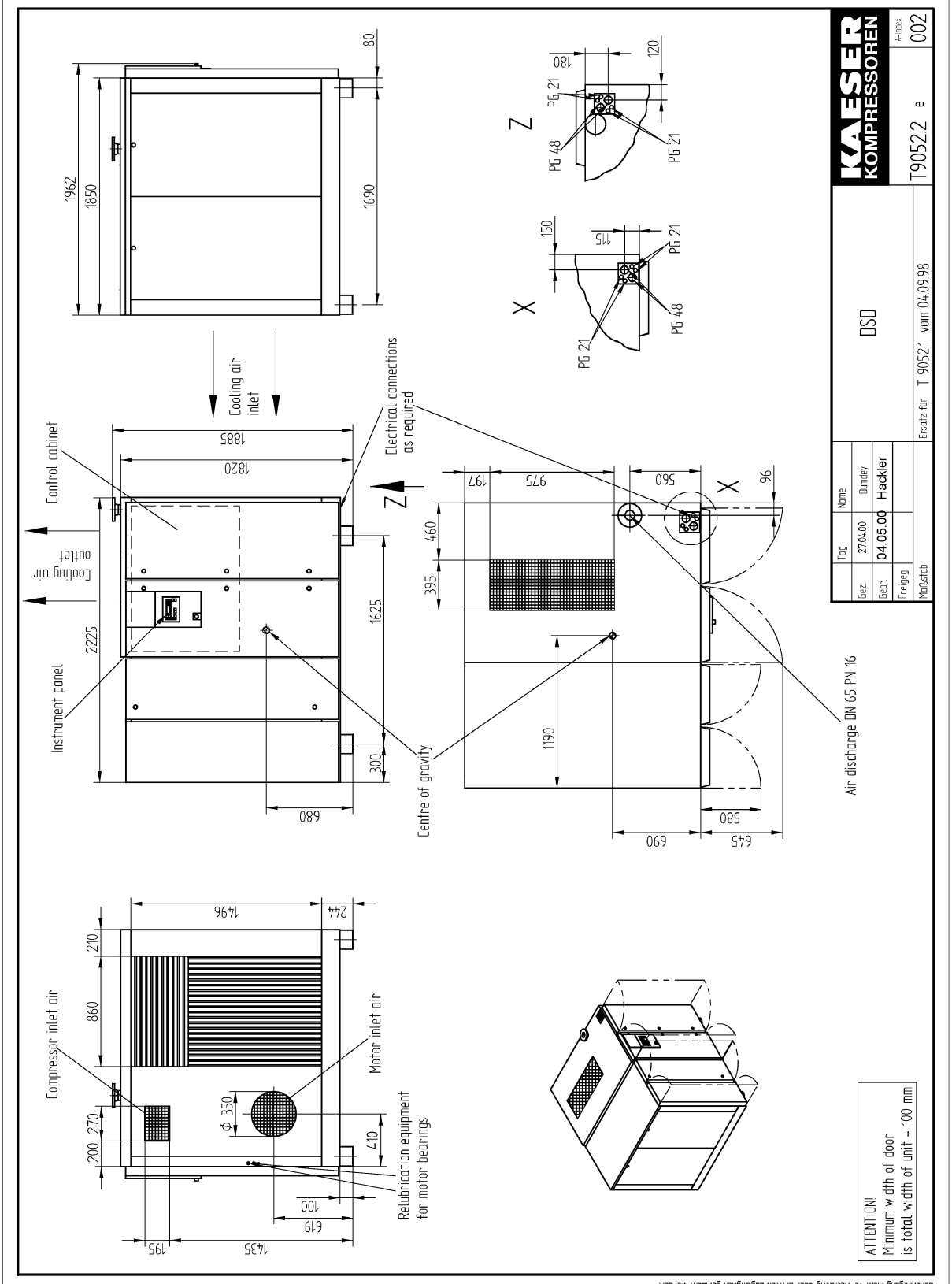
Under unsuitable conditions, after . . . . . 6000 h*
(ambient temperature up to 40°C)

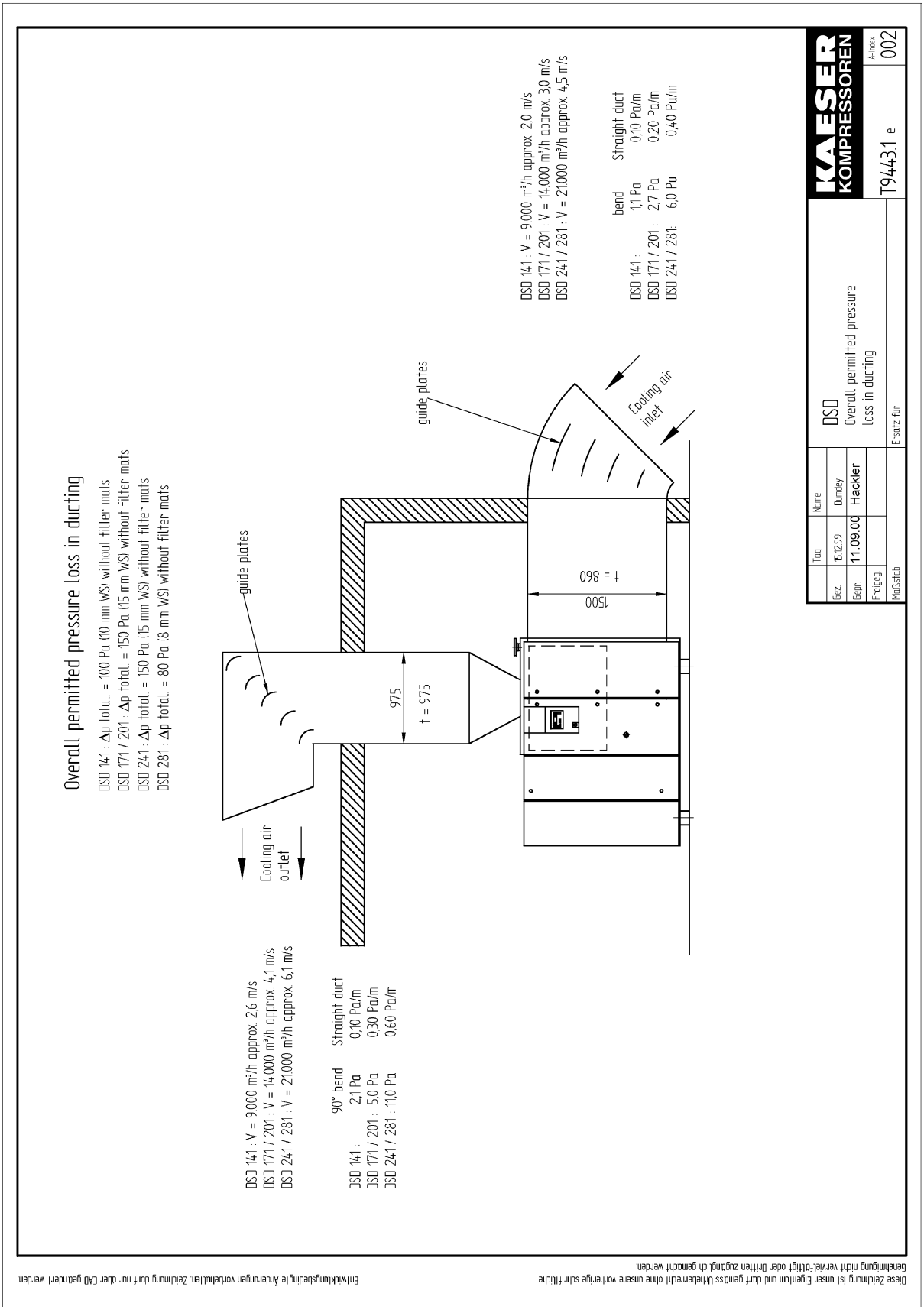
but at the latest after . . . . . 3 years

*service hours

1.10 Dimensional Drawing

(see following page)





2 Safety Regulations

Read this service manual carefully and observe cautionary references before putting this compressor package into operation and before carrying out any maintenance.

2.1 Explanation of Symbols and References

This symbol is placed before all references to safety where danger to life and limb can occur. It is especially important that these regulations are observed and that extreme care is taken. For their own protection, all other users must be informed of these safety regulations. Observe general safety and accident prevention regulations as well as the safety regulations laid down in this service manual.

Attention!

This symbol is placed by text where considerable attention must be paid so that recommendations, regulations, references and correct sequence of work are adhered to and that damage and/or destruction of the compressor package and/or other equipment is prevented.

This symbol identifies environmental protection measures.

This symbol indicates operations to be carried out by the user.

- **This bullet identifies listings.**

Explanation of warning labels:

Beware of hot surface. Do not touch surface; danger of burning.

Beware of high voltage. Do not touch electrical components; danger of electric shock.

Beware! Machine starts automatically. Machine can start automatically or by remote start command.

Beware of rotating parts. Do not touch rotating parts as this can cause pinching/injury.

2.2 General Safety Instructions

Work on power driven systems may only be carried out by trained or instructed personnel or by specialised personnel.

Work on electrical equipment in the compressor package may only be carried out by a trained electrician or trained personnel under the supervision of a trained electrician according to electrical engineering regulations.

Before work is carried out on electrical systems, carry out the following measures in the sequence shown:

Switch off all phases.

Ensure the unit cannot be switched on again.

Check that no voltage is present.

Unless the Service Manual states otherwise, all pressure lines must be vented or shut off.

Attention! **Any alterations or reconstruction carried out without consultation with and the previous consent of KAESER COMPRESSORS will invalidate the warranty.**

Attention! **No welding, heat--treatment or mechanical modifications may be carried out on pressurised components such as. pipework, air receivers, etc.**

Attention! **Safety devices may not be modified or deactivated.**

Signs and marks of reference may not be removed or rendered unreadable.

The relevant statutory regulations must be observed during installation, operation, maintenance and repair of the compressor package.

These are, for example, nationally applied European directives and / or valid national laws, safety and accident prevention regulations.

These instructions must also be observed:

- Allow no open flames and flying sparks at the place of installation.
- Ensure that sparks or high temperatures cannot cause fire or explosion if welding is carried out on or near the compressor.
- Ensure that the compressor unit can breathe clean intake air that contains no damaging components.
- Do not allow the maximum ambient temperature to be exceeded (see chapter 1.6), otherwise special measures must be agreed between the manufacturer and the customer.
- Carry out oil changes according to the service manual.
- Use only oils recommended by the manufacturer.

- Do not mix cooling oils of different types.
- The operating temperature stipulated must be kept to and checked constantly to avoid condensate in the oil circulation.
- If maintenance work is carried out on any part of the oil circulation system, top up the oil in the oil separator tank to the maximum level afterwards, run the compressor for a short period and keep it under constant observation. Check the oil level again and top up with oil to replace the oil taken up by the piping and the cooling system.
- Use the filter cartridge of the oil separator tank only as long as the pressure drop across the filter is less than the 1 bar specified. Check constantly.
- This machine is not explosion–proof.
  It may not be operated in areas in which specific requirements with regard to explosion protection are applied.
  These are, for example, the requirements for “specified use in hazardous explosive environments” according to the 94/9/EU ATEX Directive.

2.3 Electrical Safety

The electrical installation of the compressor package must conform to the requirements of European Standards EN 1012–1 and EN 60204–1. The regulations of the local electricity authority must also be complied with.

For this reason, the following measures must be carried out by the user to ensure the safe operation of the compressor package:

- Compressor packages fitted with a drive motor of 3 kW or above and a current rating of 16 amperes or above must be fitted with with a lockable main switch (see EN 60204–1, P 5.3) and mains fuses.
- The type of main switch used is dependent on the power consumption of the drive motor (see chapter 1.4 for value).
- The type of protective circuit breaker used is dependent on the starting characteristic of the drive motor.
- See chapter 1.4 for recommended cable cross–sections and fuses.

2.4 Spare Parts

Genuine KAESER parts are designed and matched to meet the technical requirements of the compressor package.

This means that safe and reliable operation of the compressor package can only be guaranteed if genuine KAESER spare parts and KAESER SIGMA FLUID is used.

Attention! **Use only original parts in assemblies subject to pressure.**

2.5 Compressed Air Installation

If a compressed air installation is extended or changed, check the blowoff pressure of the pressure relief valves on the air receiver tanks and in the pipework before the new compressor package is installed.

If the blowoff pressure is too low, fit a pressure relief valve with correspondingly higher blowoff pressure.

2.6 Environmental Protection

Condensate drainage

The condensate accumulating during compression must be fed via a suitable drainage system into special canisters and disposed of according to environmental regulations.

Lubricants / consumable materials / replacement parts

Ensure that all lubricants, consumable materials and replacement parts accumulating during operation and servicing of the compressor package are disposed of according to environmental regulations.

The following points must be observed when handling lubricating and cooling materials:

Avoid contact with skin and eyes.
Do not inhale vapours and oil mist.
Do not eat or drink when handling such materials.
Fire, open flame and smoking are strictly forbidden.

3 General

The service manual must always be available for use at the location of the compressor package.

3.1 Correct use

The compressor package is intended solely for the purpose of generating compressed air. Any other use is considered incorrect. The manufacturer cannot accept liability for any consequential damage caused by such incorrect use; the user alone is liable for any risks incurred.
Correct use of the compressor also encompasses adherence to the installation, disassembly, commissioning, operational and maintenance conditions laid down by the manufacturer.

This compressor package may only be used for industrial purposes.

If the compressor package is operated in an air distribution network, the maximum network pressure may not exceed 16 bar.

Attention! **The equipment may only be used or serviced by persons who are authorised and trained.**

3.2 Incorrect Use

Never direct compressed air toward any person at any time. As it represents contained energy, it is dangerous to life.

Attention! **Inlet air may not contain any explosive or chemically unstable gas or vapour.**

3.3 Compressed Air Treatment

Never use compressed air from oil injected compressor packages for breathing purposes and production methods where the air has direct contact with food, without subjecting the compressed air to additional treatment.

3.4 Copyright

3.5 Accompanying Documents

With this Service Manual are documents intended to assist in safe and sure operation of the compressor:

- Certificate of acceptance / operating instructions for the pressure vessel
- Conformity or Manufacturer's Declaration in accordance with applicable directives
- Service Manual and Declaration of Conforminty for pressure components (see compressor Declaration of Conformity)

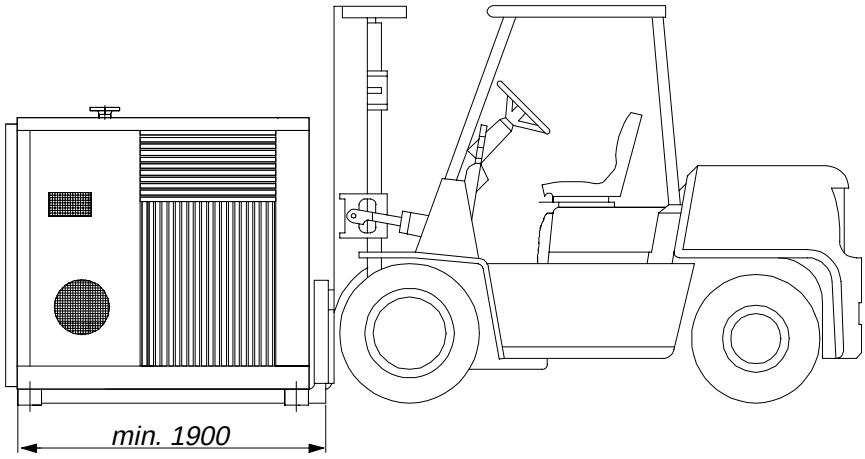
☞ Make sure all documents are to hand and their contents understood.

Request the supply of any missing documents from KAESER.
Make sure you give the data from the nameplate.

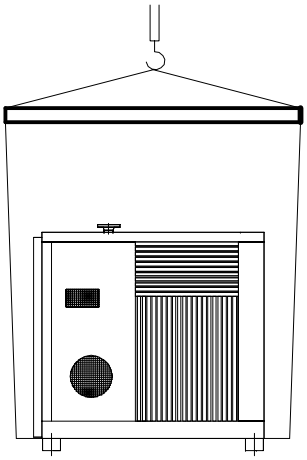
4 Transport

4.1 Transport Instructions

We recommend a fork lift truck or lifting equipment for transporting the compressor package to avoid damage to the cabinet and framework.



Measurements in mm



Attention! **Do not exert any side forces on the compressor package when transporting with lifting equipment!**

4.2 Packaging

Always observe the instructions in chapter 4.3 when packaging the machine for storage.

Use packaging suitable for the intended route if the machine is to be transported further by the customer.

Overland

The machine should be protected from mechanical damage by a sturdy crate and from moisture by plastic sheeting.

By sea or air

Special packaging instructions can be obtained from KAESER.

Dispose of the packaging according to environmental regulations and recycle where possible.

4.3 Storage

If the equipment is to stand idle for a long period the prescribed measures must be taken to avoid damage.

If any measures can not be taken, advice should be sought from the authorised KAESER Service depot.

Attention! **Basically, the equipment should be stored in a dry, frost--free room. Protect against ingress of moisture or formation of condensation. See chapter 7.8 for instructions on start--up.**

Storage up to 6 months (temporarily out of service):

As an alternative to storage, the equipment can be run once a week for 30 minutes at operating temperature to ensure adequate corrosion protection.
Otherwise, the measures described under "'Storage for longer than 6 months' are to be taken.

Storage for longer than 6 months:

Ensure the equipment is dry and cover in plastic sheeting. Protect the interior with sufficient quantities of desiccant (silica gel or similar).

Storage for longer than 12 months:

Carry out the following additional maintenance tasks before putting into operation:

- ☞ Change the cooling fluid filter (see chapter 9.11).
- ☞ Change the fluid separator cartridge(see chapter 9.14).
- ☞ Change the cooling fluid (see chapter 9.13).
- ☞ Have the motor bearings checked by an authorised KAESER service technician.

Storage for longer than 3 years:

After 3 years at the latest the complete technical condition of the equipment must be checked before start–up.

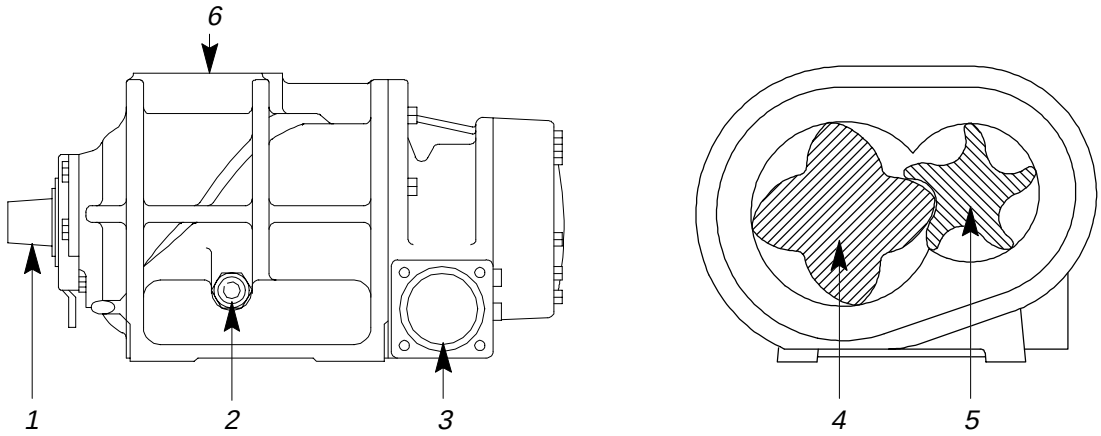
Attention! **Starting up the equipment without a full inspection can lead to damage.**

- ☞ Have the the start–up carried out by an authorised KAESER service technician.

5 Technical Description

5.1 Principle of Compression

The stationary compressor package is fitted with a single stage, oil–injected airend. Two rotors, the driven male rotor and the female rotor, both mounted in roller bearings, are fitted in the airend. As the rotors rotate, air is drawn into the upper side through the inlet port and is compressed on the lower side. The oil that is injected into the lower side absorbs heat generated by compression, prevents metallic contact between the rotors, seals the rotors and the housing from each other and also lubricates the roller bearings. The compressed air and oil mixture leaves the airend via the discharge port.



1 Drive shaft
2 Oil injection
3 Discharge port
4 Male rotor
5 Female rotor
6 Air inlet port

5.2 Short Description

The compressor airend is driven via a coupling from an electric motor.

An oil separator cartridge is fitted into the oil separator tank allowing a practically oil free compressed air supply.

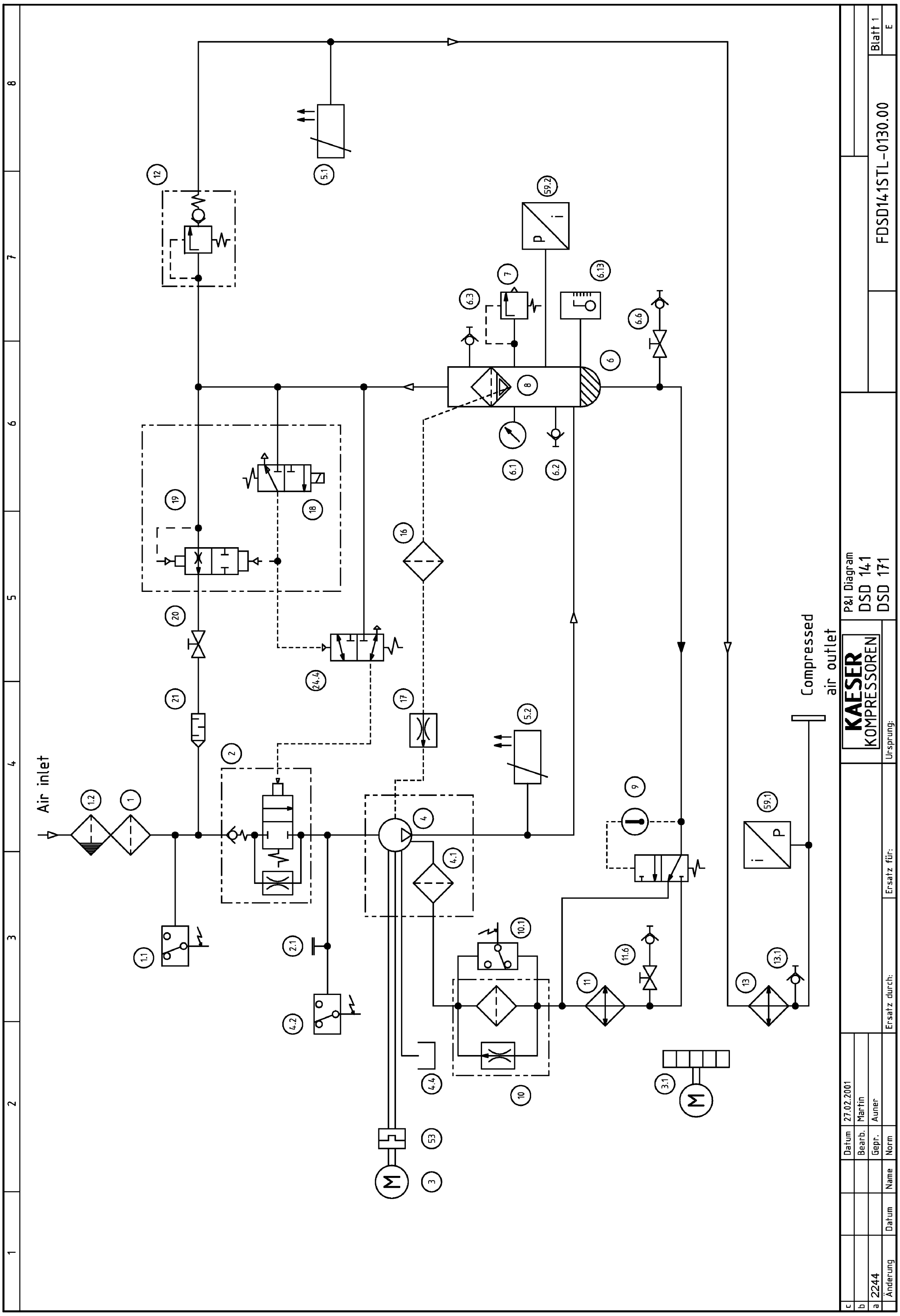
The regulation of the compressor ensures that compressed air is generated within the set pressure limits.

A safety function protects the compressor package against failure of important systems by automatic shut–down.

The fan ensures sufficient cooling air flow to the air–cooled oil cooler and air cooler.

5.3 Pipe and Instrument Flow Diagram (P & I Diagram)

(see following pages)


Air inlet
Compressed air outlet
P&I Diagram
DSD 141
DSD 171
KAESER KOMPRESSOREN
FDSD141STL-0130.00
Blatt 1
Datum 27.02.2001
Bearb. Martin
Gepr. Auner
Norm
2244
Änderung
Datum
Name
Ursprung:
Ersatz für:
Ersatz durch:

1	Air filter
1.1	Vacuum switch - Air filter
1.2	Dust collector
2	Inlet valve
2.1	Oil filler with plug
3	Drive motor
3.1	Fan motor
4	Airend
4.1	Strainer
4.2	Pressure switch - Wrong direction of rotation
4.4	Oil collector bottle
5.1	PTC thermistor sensor
5.2	PT100 sensor
6	Oil separator tank
6.1	Pressure gauge
6.2	Hose coupling (oil end)
6.3	Hose coupling (air end)
6.6	Shut-off valve with hose coupling - Oil drain
6.13	Oil level indicator
7	Pressure relief valve
8	Oil separator cartridge
9	Oil temperature controller
10	Oil filter
10.1	Differential pressure switch - Oil filter
11	Oil cooler
11.6	Shut-off valve with hose coupling - Oil drain
12	Minimum pressure check valve
13	Air cooler
13.1	Hose coupling
16	Dirt trap
17	Nozzle
18/19	Combined control/vent valve
	18 Control valve
	19 Vent valve
20	Shut-off valve - Vent line
21	Silencer
24.4	3/2-Directional control valve (amplifies the control volume for the inlet valve)
53	Coupling
59.1	Pressure measuring transducer - Air main pressure
59.2	Pressure measuring transducer - Internal pressure

c				Datum	27.02.2001		KAESER KOMPRESSOREN	P+I Diagram legend DSD 141 DSD 171	
b				Bearb.	Martin				
a				Gepr.	Auner				
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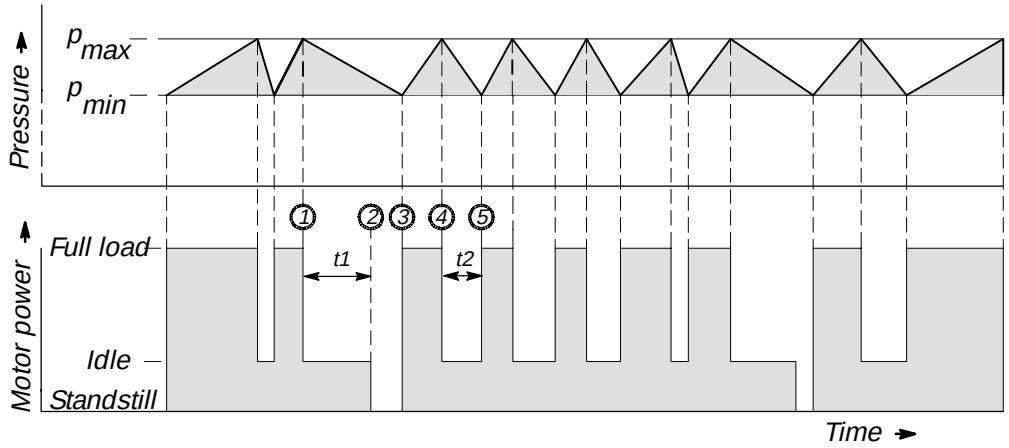
5.4 DUAL Control



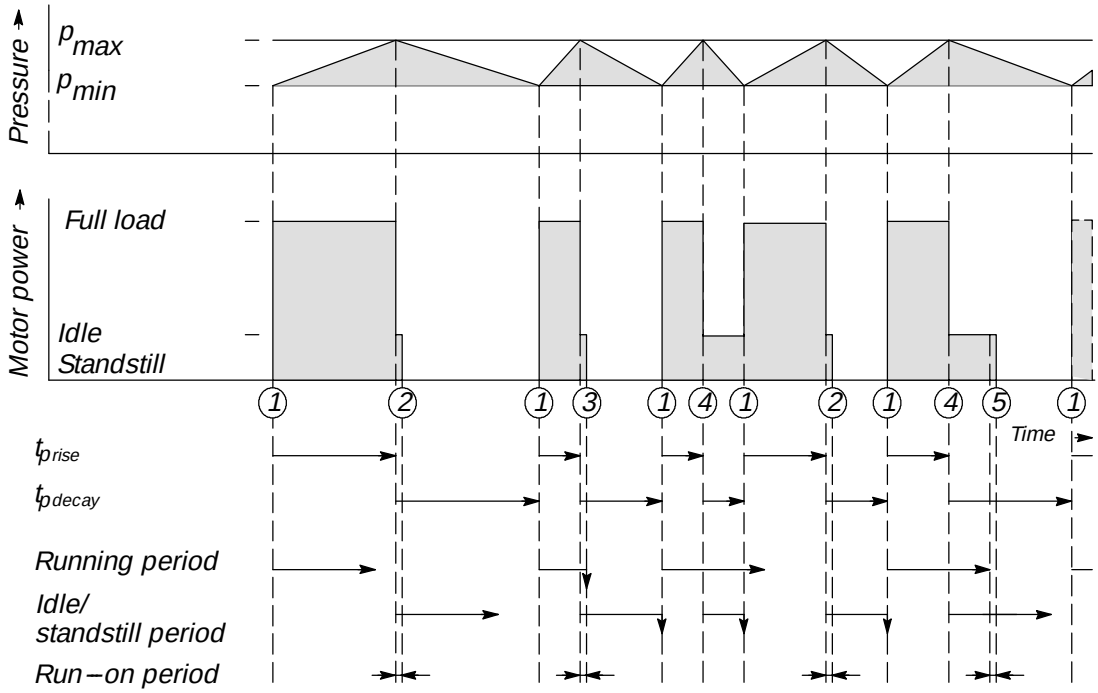
In DUAL Control mode (combined idle and start – stop) the compressor normally runs at **full – load, idle** or **standstill**.

The controller regulates the compressor package between **load** and **idle**.

If the compressor package runs in idle for longer than the preset period (1) to (2), for example t_1 = 6 min, the drive motor is stopped completely (2). When the lower switching point p_{min} (3) is reached the compressor package is automatically started again. Pressure rises to the upper switching point p_{max} (4), and the compressor package switches to idle. If the pressure falls again to, for example, p_{min} (5) within a shorter period (4) to (5), then the compressor is automatically switched from idle to load.

The idle period is dependent on the maximum motor starting frequency.

5.5 QUADRO Control



⊣	*Stop point for the running period or idle / standstill period*
p_{max}	*upper switching point*
p_{min}	*lower switching point*
t_{prise}	*pressure rise time (the time during which the air main pressure rises from the lower to the upper switching point)*
t_{pdecay}	*pressure decay time (the time during which the air main pressure decays from the upper to the lower switching point)*

Functional description

Two fixed periods – the **running period** and **idle/standstill period** – are taken as the criterium for selection of the operating mode of the compressor package when the air main pressure reaches the upper switching point. These two periods are set according to the maximum permissible starting frequency of the drive motor.

The running period starts every time the compressor package is switched on. It lasts as long as the drive motor runs and stops when the compressor package switches to standstill.

The idle/standstill period starts every time the operating mode changes from full load to idle. It runs during idle and also when the compressor package is switched to standstill after the idle period. It stops when the compressor package switches to full load.

Every switching off point is delayed by the run–on period, during which time the compressor package vents.

The following switching cycles are possible:

- If the air main pressure decays to the lower switching point, the compressor package switches to full load (**1**) irrespective of its previous operating mode. If the drive motor was at a standstill the opening of the inlet valve is delayed to allow an unloaded compressor package start.

- If the air main pressure rises to the upper switching point and the running period has already expired, the compressor package is switched off after the run–on period has expired (**2**).
- If the air main pressure rises to the upper switching point before the running period has expired then the pressure decay time of the previous switching cycle is taken as the criterium for the selection of the operating mode:

  -- If the pressure decay time t_{pdecay} was longer than the period set for the idle/standstill period, the compressor package is switched to standstill after the run–on period has expired (**3**).

  -- If the pressure decay time t_{pdecay} was shorter than the period set for the idle / standstill period, the idle mode is selected (**4**), that is, the inlet valve closes and the compressor is vented with running motor. When the running period expires the compressor package switches to standstill only after the run–on period has also expired (**5**).

5.6 VARIO Control Mode

Functional description:

The idle period is automatically lengthened or shortened by the variable idle control in relation to the number of motor starts. The number of motor starts during the preceding hour are measured.

A high switching frequency leads to longer idle periods.
A low switching frequency leads to shorter idle periods.

6 Installation

6.1 Installation Requirements

Attention!

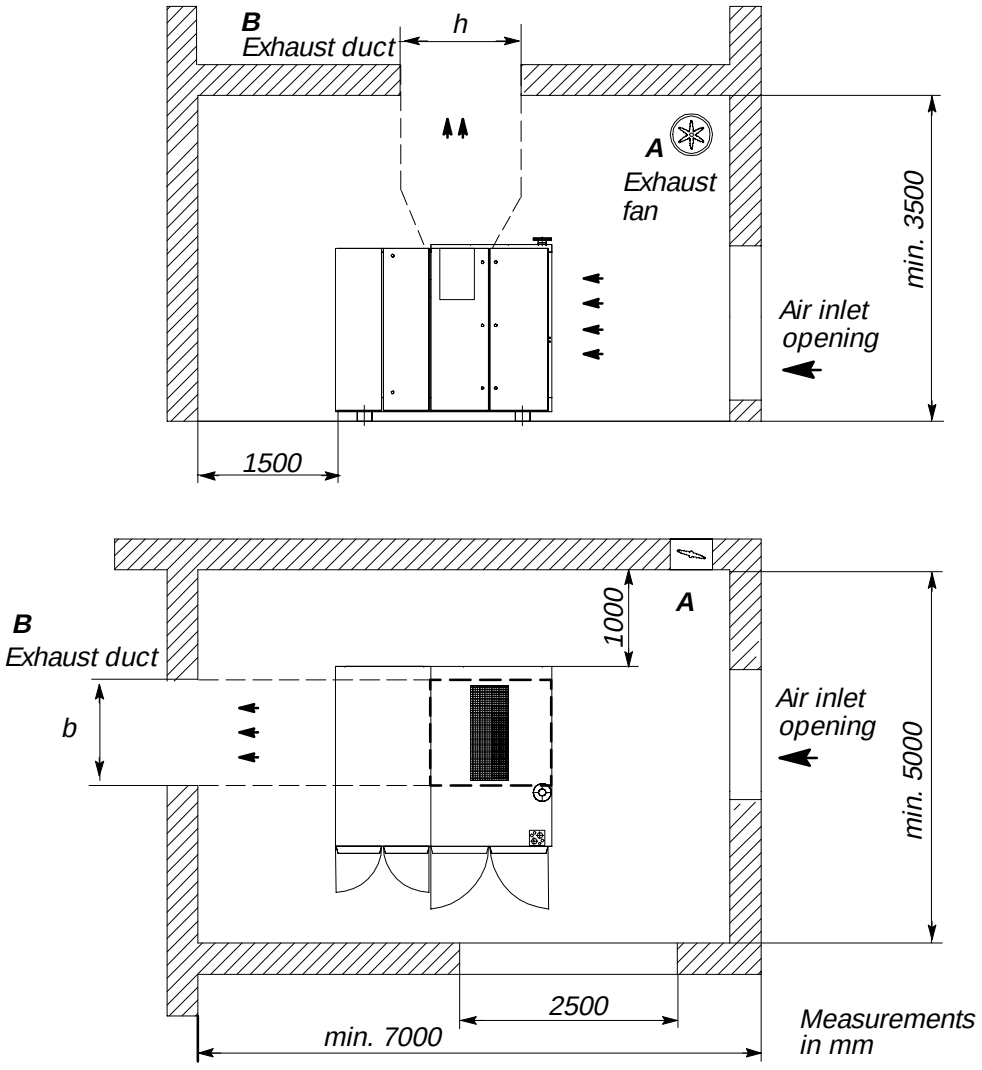
Ensure that the compressor package is level.
The floor must be solid with good loading characteristics.
See chapter 1.1 for the weight of the compressor package.

Safe operation of the compressor package is only ensured if the ambient temperature remains within the limits stated in chapter 1.6).

If the compressor package is used in the open, take care that it is protected against the direct rays of the sun and against the ingress of dust and rain.

Install the compressor package as detailed in the following diagram. Keep to the minimum distances shown to allow free access to the compressor package.

Adequate ventilation of the compressor space is ensured only if the minimum values (see chapter 1.6) are adhered to.



Solution A: forced ventilation

The exhaust fan fitted in the compressor space must provide adequate ventilation relative to the size of the compressor package (see chapter 1.6).

Solution B: exhaust air used for space heating

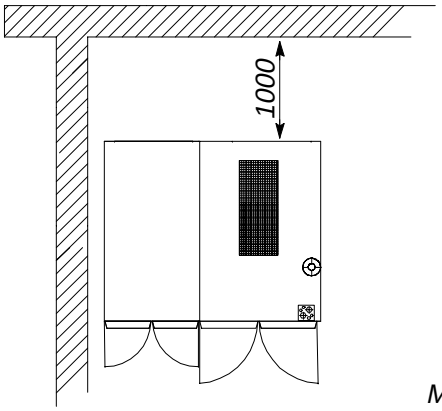
The hot air is forced through a duct into the room to be heated.

Attention! **The choice of exhaust air ducting, length of ducting and number of bends can affect the compressor cooling system and must be approved by the manufacturer.**

Reliable, safe operation of the compressor package is only warranted if the temperature limits (see chapter 1.6) of the air in the compressor space are kept to.

Further information on the discharge air ducts can be found in chapter 1.10.

Attention! **In confined places, the minimum distance between one side of the compressor package and any wall can be reduced.**
It is imperative that the minimum distance shown in the drawing is kept to, to allow servicing work to be carried out without hindrance.



Measurements in mm

6.2 Air Connection

The compressor package is piped ready for operation. Before initial start it must be connected to the air main with a flexible hose or axial compensator.

6.3 Electrical Connection

The connection to the main power supply and the protective measures required are to be carried out by an authorized electrician to the requirements of European Standard EN 1012--1 and EN 60204--1 and to the regulations of the local electricity authority.

The compressor package is wired ready for connection to the main power supply as detailed in the electrical diagram.

Attention! **The user of a compressor is obliged to carry out the following measures:**

Compressor packages fitted with a drive motor greater than 3 kW and a current rating greater than 16 ampere must be installed with a lockable main isolating switch and main fuses.

The type of main switch used is dependent on the power consumption of the drive motor (see chapter 1.4 for the value).

The type of protective power circuit breaker used is dependent on the starting characteristic of the drive motor.

Attention!

The cross--section of the supply cable and the fuse ratings are specified to DIN VDE 0100 part 430 and 523 for an ambient temperature of 30 °C. For other operating conditions, e.g. higher ambient temperatures or longer supply lines (over 50 m) check and determine the cross--section of the cable and the fuse ratings according to DIN VDE 0100 and local electricity authority regulations.

See chapter 1.4 for recommended cable cross--sections and fuses.

Attention!

The compressor package can be operated over a rated voltage range of 380V to 420V at a tolerance of ± 5% without reduction in performance because of the wide voltage range of the winding fitted in the drive motor.

If the compressor is operated at a mains voltage other than 400V then the tappings on the control transformer must be changed to --5% for a mains voltage of 380V or + 5% for a mains voltage of 420V.

7 Initial Start–up

7.1 Points to be Noted before Initial Start–up

Every compressor is given a test run in the factory and carefully checked before shipment. The test run confirms that the compressor conforms to specifications and runs perfectly. However, independent of the checks made at the factory, the compressor could be damaged during transport. For this reason, we recommend that the compressor package is examined for such possible damage. Observe the compressor package carefully during the first hours of operation for any possible malfunction.

Attention! **Important functional components in the compressor package (such as minimum pressure/check valve, pressure relief valve, inlet valve and combination valve) are adjusted and fitted in the factory to precise setting up regulations. Alterations to these components are not allowed without previous consultation with the manufacturer.**

The minimum pressure/check valve, pressure relief valve and inlet valve are spring biased.
There is considerable danger of injury through the release of the spring when these components are opened.

7.2 Observe the following before starting:

NON–OBSERVANCE OF THESE OR OTHER INSTRUCTIONS (WARNING; ATTENTION) CAN LEAD TO ACCIDENTS CAUSING INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.

The compressor starts automatically again when power returns after a power failure (standard setting).
This is conditional on system pressure being lower than the pressure setpoint (cut–out pressure) on SIGMA CONTROL.

Operation of the compressor with inspection doors open or cover panels removed is strictly forbidden, as injury can result from rotating parts or electrical components.

☞ Remove all packing materials, tools and transport devices on and in the machine.

- It is expected that safe working methods are used and that all locally applicable operational and safety regulations are complied with.
- The user is responsible for the safe operating condition of the compressor package.
- Do not operate this compressor package in environments where the air is heavily contaminated with dust or where toxic or inflammable gases may be present.
- Do not connect the compressor package to a power supply different to that shown on the nameplate.
- Do not install the compressor package in an environment subject to freezing temperatures. The air temperature specified for the air–intake must be kept to (see chapter 1.6).
- If exhaust ducting is fitted, it must have a cross sectional area at least equal to the cooling air outlet on the compressor package itself, and may not create a pressure drop greater than that specified by the compressor manufacturer.

- The compressor must be positioned with its cooling air inlet opening at least 1 m from any wall.

☞ Check the cooling fluid level in the fluid separator tank (see chapter 9.12).

- The airend shaft must rotate in the correct direction (see chapter 7.4).

☞ The shut–off valves (6.6 and 11.6, see chapter 5.3) must be closed.

☞ The shut–off valve (20, see chapter 5.3) must be open.

Carry out the following work only when power is removed from the compressor package.

Check all screws on the electrical connections for tightness (carry out this check again after 50 operating hours).

- This compressor package is fitted with a running–in oil filter. Replace the filter after the running–in period of 200 hours has elapsed (see chapter 9.11).

7.3 Checklist

☞ Is the floor at the place of installation solid and level?

❑ yes ❑ no

☞ Is the space large enough for the compressor package or its components?

❑ yes ❑ no

☞ Are inlet and exhaust air apertures available in sufficient size and number?

❑ yes ❑ no

☞ Are all components of the compressor package easily accessible?

❑ yes ❑ no

☞ Is the power supply cable of sufficient cross–section?
(have electrical connection carried out by qualified electrician or company familiar with local conditions)

❑ yes ❑ no

☞ Is a shut off valve fitted by the user?

❑ yes ❑ no

☞ Is a flexible connecting hose or axial compensator fitted between the compressor package and the air main?

❑ yes ❑ no

☞ Have all screws, bolts and electrical connections been checked for tightness?

❑ yes ❑ no

☞ Has the oil level in the oil separator been checked?

❑ yes ❑ no

☞ Is a main switch fitted (suited to the motor starting characteristics)?

❑ yes ❑ no

☞ Has the setting of the drive motor overload current trip been checked?

❑ yes ❑ no

☞ Have you ensured that there are no other air components located in the exhaust air flow of the compressor package?

❑ yes ❑ no

☞ Have service personnel been instructed on safety regulations?

❑ yes ❑ no

7.4 Direction of Rotation Check

Attention! **The compressor package is wired for connection to a clockwise phase sequence.**

A check of the direction of rotation can be made by testing the phase sequence.

Arrows showing the direction of rotation are located on the motor and on the air end housing.

If the direction of rotation is incorrect, change over the supply conductors L1 and L2.

Attention! **If the air end rotates in the wrong direction, the compressor package is automatically shut down by the pressure switch (4.2, see chapter 5.3).**

7.5 Setting up the Motor Overload Trip

⚠ **Disconnect the supply voltage to the compressor package by switching off and locking out the main switch before any adjustments are carried out on the compressor package. See chapter 2.3 for the main switch.**

The trip is set to the standard adjustment at the factory.

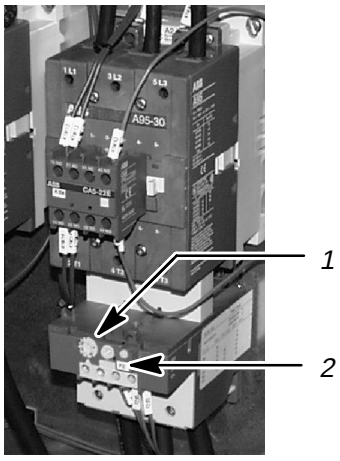
Compressor motor: star--delta start

In the star–delta configuration the phase current is fed via the motor overload trip. This phase current is 0.58 times the rated motor current.

See motor nameplate for the rated motor current.

Value:

To prevent the overload circuit breaker from triggering (because of voltage fluctuations, temperature influences or component tolerances), the set value can be up to 15% higher than the arithmetical phase current.



1 Motor phase current adjustment
2 Reset button

7.6 Setting the Motor Overload Protection Switch

Before any adjustments are carried out to the compressor package, break the power supply by operating and locking out the main isolating device (main switch) to prevent an accidental compressor start. See chapter 2.3.

The standard setting is made at the factory.

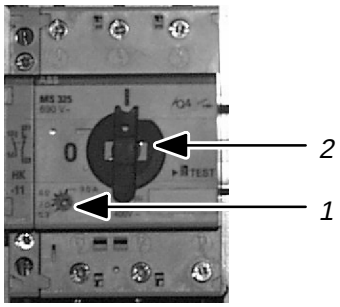
Fan Motor: direct on–line start

In direct on–line start the starting current is fed via the motor overload protection switch.

See the nameplate on the motor for rated motor current.

Setting:

This can be set to a maximum of 10% higher than the rated motor current to prevent triggering of the motor overload protection switch under conditions of voltage fluctuation.



1 Motor phase current
2 Adjusting lever

7.7 Setting the Air Main Pressure Threshold

The air main pressure threshold is preset at the factory. It can be changed in SIGMA CONTROL to match customer's operational requirements if the password is known. For further details, consult the SIGMA CONTROL service manual.

Attention! **Switching from full load to idle running may take place no more frequently than 2 times per minute.**

Switching frequency can be improved by increasing the difference between cut–in and cut–out pressure.

In addition, a larger air receiver can be installed to increase buffer capacity.

7.8 Measures to be taken before Initial Start

Take the following measures before initial start, after an oil change or a shutdown period of three months or longer:

7.8.1 Pour a small quantity of oil into the air inlet port.

Switch off and lock out the main switch.

Do not add oil unless the compressor package is completely vented.

See chapter 9.10 to vent the compressor.

☞ Unscrew the filler plug (1) on the inlet valve (2) and pour the prescribed quantity of oil (see chapter 1.7) into the airend.

☞ Turn the airend counterclockwise by hand using the coupling.

☞ Screw the plug back in again.

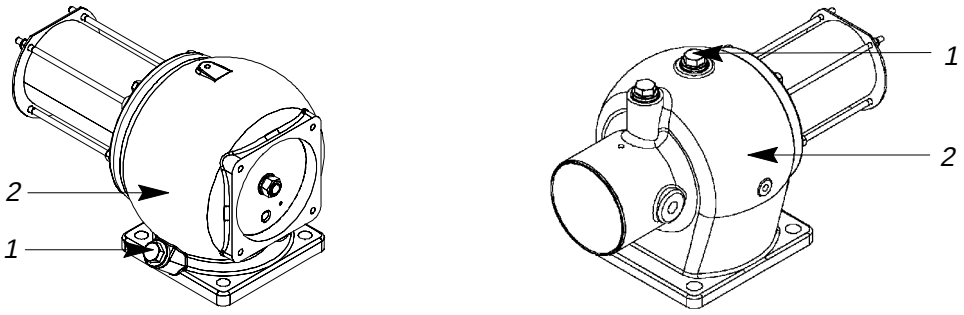
Attention!

This oil must be of the same type as used to run the compressor (see label near the oil filler plug on the oil separator tank).

If no additional oil is available then remove the required amount of oil from the oil separator tank. See chapter 9.13 for this procedure.

If the compressor package was shut down for longer than 12 months, further measures must be taken before putting it back into operation. Consult the manufacturer first.

☞ Open the shut–off valve between the compressor package and the air main.



1 Filler plug
2 Inlet valve

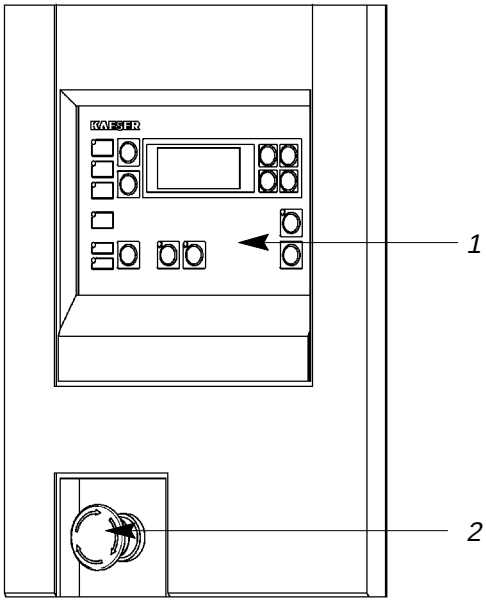
7.8.2 Running the compressor package in idle

At initial start run the compressor package in idle for 20 seconds by pressing the load/idle key (5, see chapter 8.3.1).

This measure ensures that the compressor package has sufficient time to flood the oil circulation.

8 Operation

8.1 Control Panel



1 SIGMA CONTROL
2 EMERGENCY STOP pushbutton

8.2 SIGMA controller

The SIGMA controller (1) is fitted in the control cabinet in the compressor package and serves as the control panel. It has 11 keys and 9 LEDs. Operation of the compressor package is determined by the settings programmed into the controller.

Further details on individual function keys, LEDs and plain text display relating to possible alarms and service messages, display of events, etc. are given in the service manual supplied for the SIGMA CONTROL controller.

8.3 Emergency Stop Pushbutton

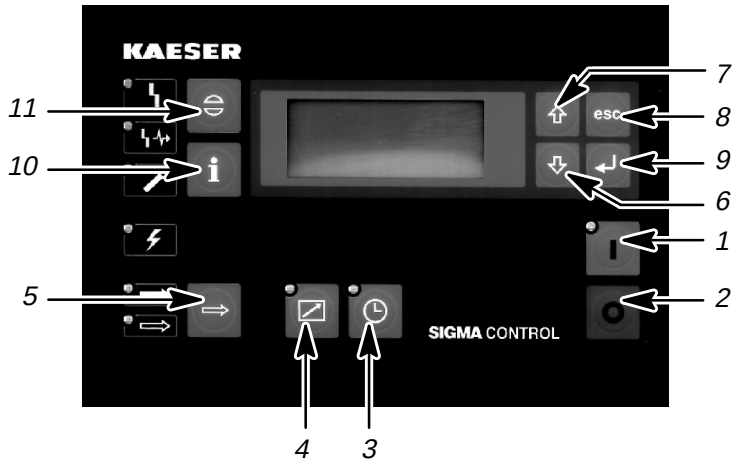
The Emergency Stop pushbutton shuts down the compressor package immediately.

If the Emergency Stop pushbutton is pressed because of an existing hazard, then this must be eliminated before the compressor package is reset. To accomplish this the following procedure must be carried out:

☞ Unlatch the Emergency Stop pushbutton by turning in the direction of the arrows.

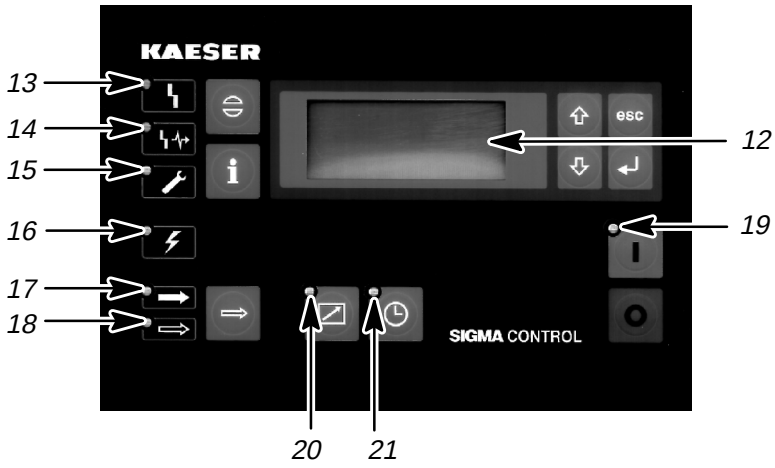
☞ Acknowledge the alarm message on the controller by pressing the acknowledge (reset) key. (function keys see chapter 8.3.1.)

8.3.1 Function keys



1 ON key (“I”)
2 OFF key (“0”)
3 Timer ON/OFF key
4 Remote ON key
5 Load/idle key
6 Menu scroll – DOWN key
7 Menu scroll – UP key
8 Escape key
9 Return key
10 Info – event key
11 Acknowledge (reset) key

8.3.2 Light emitting diodes and plain text display



12 Four–line display
13 Alarm LED
14 Communication alarm LED
15 Warning – maintenance LED
16 Power ON LED (to controller)
17 Load LED
18 Idle LED
19 Compressor ON LED
20 Remote ON LED
21 Timer ON LED

8.4 Compressor Package ON/OFF

Attention! **Do not switch the the compressor package on and off with the main switch. The compressor must always be switched ON and OFF with keys (1) and (2).**

Local ON:

☞ Switch on the main switch.

The controller carries out a self–test. The self–test sequence is visible in the display (12). Afterwards, the green LED (16) illuminates permanently.

☞ Press the ON key (1)– LED (19) illuminates.

The compressor status is indicated by LEDs (17) and (18):

Attention! **If LED (19) is illuminated and both LEDs (17) and (18) are extinguished the compressor package is at standstill but on duty.**

The compressor package can start at any moment.

Local OFF:

☞ Press the OFF key (2) – LED (19) extinguishes.

☞ Switch off and lock out the main switch.

See chapter 2.3 for details of the main switch.

8.5 Acknowledgement of Alarms

If an alarm occurs the compressor package is shut down immediately and the red LED (13) on SIGMA CONTROL flashes.

The bottom line in the display (12) shows the actual fault causing the alarm.
A list of alarms that may occur during operation is included in the SIGMA CONTROL service manual.

☞ Remove the fault.

☞ Acknowledge alarm with the reset key (11) – LED (13) extinguishes.

The compressor package is now ready to start again.

Attention! **If the compressor was shut down with the EMERGENCY STOP push-button, then reset by rotating the latched pushbutton in the direction of the arrow before acknowledging the alarm.**

8.6 Acknowledgement of Service Messages

When maintenance is due the yellow LED (15) on SIGMA CONTROL flashes.

Maintenance due is shown in the display (12).
A list of service messages that may occur during operation is included in the SIGMA CONTROL service manual.

☞ Carry out the maintenance work.

☞ Acknowledge service message with the reset key (11) – LED (15) extinguishes.

Attention! **When the respective maintenance has been carried out, the remaining interval period (programmed interval until the next maintenance is due) must be reset.**

Detailed information on resetting service counters is to be found in the service manual for SIGMA CONTROL.

8.7 Faults: Possible cause – Remedy

The removal of faults that are not explicitly described in this service manual may only be carried out by KAESER or by an authorised KAESER service agency.

8.7.1 Working temperature too high

Possible cause:	Remedy:
The distance from the cooling air inlet or outlet is too small.	Keep to the minimum distance and ensure sufficient ventilation.
Insufficient cooling air flow.	Ensure sufficient ventilation.
Ambient temperature too high.	Arrange for a supply of cooler air or move the machine to a cooler place (see chapter 1.6).
If ducting is used for cooling air discharge it could be too narrow or too long.	Have an authorised KAESER service agent install adequately sized ducting.
If the machine is air–cooled, the fluid/air cooler could be clogged.	Clean the fluid/air cooler (see chapter 9.5).
If the machine is water–cooled, the heat exchanger could be clogged by deposits.	Have an authorised KAESER service agent inspect, clean or replace the heat exchanger as necessary.
Air inlet filter mats clogged.	Clean or replace the filter mats.
Fluid level too low.	Top up to the correct level with recommended cooling fluid.
	Check and clean the dirt trap strainer in the fluid scavenge line.
Thermostatic valve not functioning correctly.	Check valve spring and activating piston. Replace defective parts.
Wrong cooling fluid used.	Drain off old cooling fluid and replace with recommended type.
	Ask an authorized KAESER service agent for recommendations on cooling fluid types.
Fluid filter clogged.	Change the fluid filter (see chapter 9.11).
Airend defective.	Have the airend checked by an authorised KAESER service agent.

8.7.2 Motor overload protection relay trips

Possible cause:	Remedy:
Protection relay is defective or incorrectly set.	Check the wiring and reset the relay if necessary.
	Replace a defective overload relay.
Motor runs on two phases; motor defective or one of the customer's fuses blown.	Check power supply and wiring.
	Change fuse(s) or motor as necessary.

Possible cause:	Remedy:
Oil separator cartridge clogged.	Check pressure drop over the oil separator cartridge. If necessary, change oil separator cartridge and dirt trap sieve.
Motor starts against pressure as the compressor has not vented.	Check that the vent line ball valve is open.
	Check the venting valve diaphragm and change if necessary.
	Have the minimum pressure/check valve inspected by an authorized KAESER Service Technician.
Airend defective.	Have the airend inspected by an authorized KAESER Service Technician.
Ambient temperature too high.	Arrange a supply of cooler air or move the machine to a cooler place (see chapter 1.6)
Motor defective; bearing damage or winding short	Have the motor repaired or replaced by an authorized KAESER Service Centre.

8.7.3 Compressor runs but does not reach pressure.

Possible cause:	Remedy:
Motor turning in the wrong direction.	Check motor connections.
Inlet valve not opening or only opening partially.	Have the valve inspected by an authorized KAESER Service Technician.
Venting valve not closing under full load.	Check the combination control/venting valve and lines and pipework. Replace defective parts.
Minimum pressure/check valve defective.	Have the valve inspected by an authorized KAESER Service Technician.
Leaks in the machine.	Tighten all loose connections, repair or replace defective parts.
Leaks in the air supply system.	Check for open valves, loose connections, defective parts or gaskets, etc. and seal or replace.
The air demand is greater than the capacity of the compressor.	Reduce the air demand or install additional compressor capacity.
The maintenance hose/coupling is still plugged into the oil separator or aftercooler.	Remove hose/coupling from the connection point.
Pressure relief valve blowing off.	see chapter 8.7.5.

8.7.4 Oil running out of air filter.

Possible cause:	Remedy:
Oil level in the separator tank too high.	Drain off oil till the correct level reached.
Defective inlet valve.	Have the valve inspected by an authorized KAESER Service Technician.

8.7.5 Too frequent switching between load and idle

Possible cause:	Remedy:
No air receiver installed or receiver too small to function correctly as a buffer.	Refer to a KAESER service agency for advice on correct air receiver size.
Diameter of pipe connecting compressor and air receiver too small.	The diameter of the air pipe should not be less than that of the air connection.
Minimum pressure/check valve not airtight.	Have the valve inspected by an authorised KAESER service agent.
Reduced flow to the air main connection.	Check filter elements for clogging. Open any partially opened valves fully. Defrost any frozen air lines. Replace defective pressure regulator.

8.7.6 Pressure relief valve blowing off

Possible cause:	Remedy:
Machine does not vent in idle running.	Ensure that the venting line ball valve is open. Have an authorized KAESER Service Technician check the control line, inlet valve and control venting valve.
Oil separator cartridge clogged.	Check the pressure drop and change the cartridge if necessary.
Minimum pressure/check valve not open.	Have the valve inspected by an authorized KAESER Service Technician.
Pressure relief valve not suitable for the compressor's pressure range.	Compare the valve blow–off pressure with the information on the compressor nameplate. If necessary, have an authorized KAESER Service Technician replace the valve.

8.7.7 Oil in the package

Possible cause:	Remedy:
Maintenance hose or coupling still plugged into the air receiver connection point.	Remove hose/coupling from the connection point.
Pressure relief valve blowing off.	see chapter 8.7.5.
Oil running out of air filter.	see chapter 8.7.4.
Air receiver hose coupling loose.	Tighten up hose coupling or replace as necessary.
Oil cooler leaking.	Have the oil cooler replaced by an authorized KAESER Service Technician.

8.7.8 Cooling fluid consumption too high

Possible cause:	Remedy:
Unsuitable cooling fluid used.	Replace with recommended cooling fluid. Refer to authorised KAESER service agent for advice on oil types.

Possible cause:	Remedy:
Fluid separator cartridge split.	Check pressure drop across the separator cartridge and replace if necessary.
Fluid separator tank cover not securely fixed.	Tighten up fixing screws.
Fluid level in the separator tank too high.	Drain off cooling fluid until the correct level is reached.
Fluid scavenge line clogged.	Check dirt trap strainer in the scavenge line. Clean or replace as necessary.

9 Maintenance

9.1 Observe the following during all maintenance and servicing

Work on power--driven systems may only be carried out by trained, supervised or specialised personnel.

Work on electrical equipment in the compressor package may only be carried out by a trained electrician or trained personnel under the supervision of a trained electrician according to electrical engineering regulations.

The compressor starts automatically again when power returns after a power failure (standard setting).
This is conditional on system pressure being lower than the pressure setpoint (cut--out pressure) on SIGMA CONTROL.

Switch off and lock out the main switch before attempting any maintenance work (see chapter 2.3).

Ensure that no maintenance personnel are working on the vacuum package, that all panels are screwed back on again and that all access doors are closed before restarting.

See chapter 8.4 to restart the vacuum package.

The following points must be observed when handling lubricating and cooling materials:

Avoid contact with skin and eyes.
Do not inhale vapours and oil mist.
Do not eat or drink when handling such materials.
Fire, open flame and smoking are strictly forbidden.

Ensure that all lubricants, consumable materials and replacement parts accumulating during operation and servicing of the compressor package are disposed of according to environmental regulations.

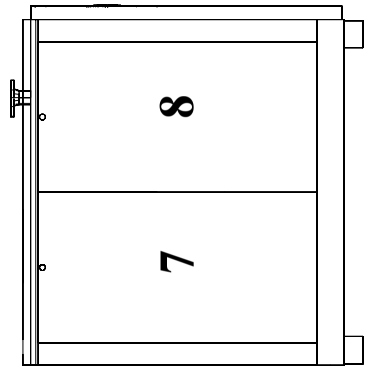
Attention!

The plug--in nipple with ball valve and attached hose required to vent the oil separator tank for maintenance work such as topping up the oil, oil changes and filter changes is located under the oil separator tank.

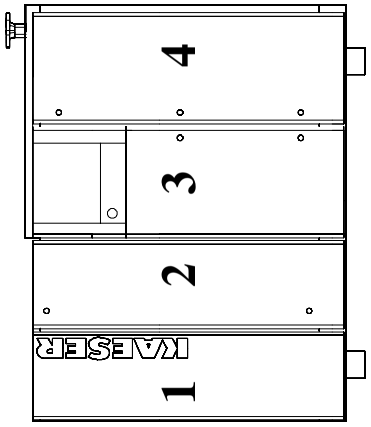
Attention!

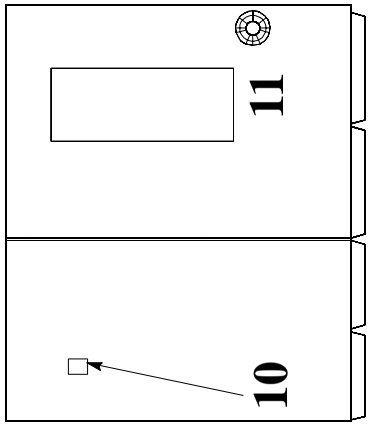
If the compressor package is installed directly in front of a wall then the accessibility of components may be limited.
If necessary, remove further panels.

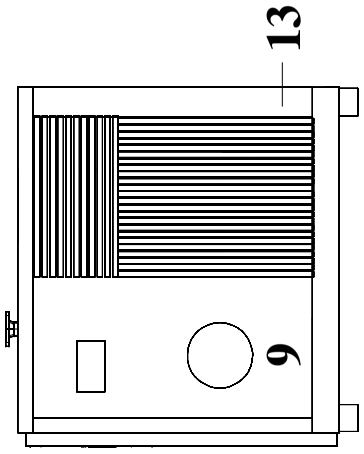
9.2 Location of Access Doors and Cover Panels

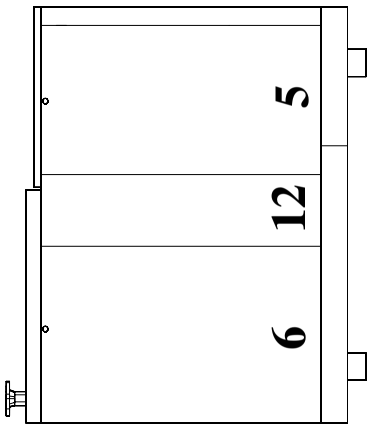


1,2 – Access doors
3,4 – Control cabinet doors
5–11 – Cover panels
12,13 – Upright panels









9.3 Regular Maintenance

Interval*	Maintenance work	see chapter
50 hours after initial start–up	Check all electrical terminals and tighten if necessary	
200 hours after initial start–up	Change fluid filter	9.11
weekly	Check fluid level	9.12
	Check fluid leak bottle	9.4
Indicated by SIGMA CONTROL	Clean or change air filter	9.6
	Change fluid filter	9.11
	Changing the fluid separator element	9.14
1000 h	Check fluid/air cooler for clogging	9.5
2000 h or at least annually	Grease the motor bearings	9.7
3000 h	Check the coupling	9.8
up to 3000 h, yearly at the latest	Change fluid filter	9.11
Variable (see chapter 1.8)	Change the cooling fluid	9.13
annually	Check all electrical terminals and tighten if necessary	
	Check the pressure relief valve	9.9
12000 h	Have the valves inspected by an authorized KAESER service agency	
up to 6000/12000 h, at the latest every 3 years	Change the fan motor bearings	9.7
up to 20000/36000 h, at the latest every 8 years	Change the drive motor bearings	9.7

* The maintenance interval may change according to the motor starting frequency and ambient conditions.

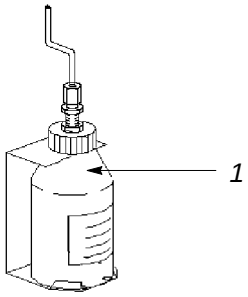
We strongly recommend keeping a maintenance record (see chapter 9.17) and to have the compressor package, particularly the safety devices, checked annually by an authorised KAESER service agent.

9.4 Oil Leak Collector Bottle

On airends with a sliding ring seal a small amount of oil may penetrate through this type of seal.

This small leakage is directed into an oil leak collector bottle located underneath the air-end.

Check the oil level in the oil leak collector bottle weekly. Contact KAESER COMPRESSORS if leakage becomes excessive.



1 Oil leak collector bottle

9.5 Cleaning the Oil Cooler and Air Cooler

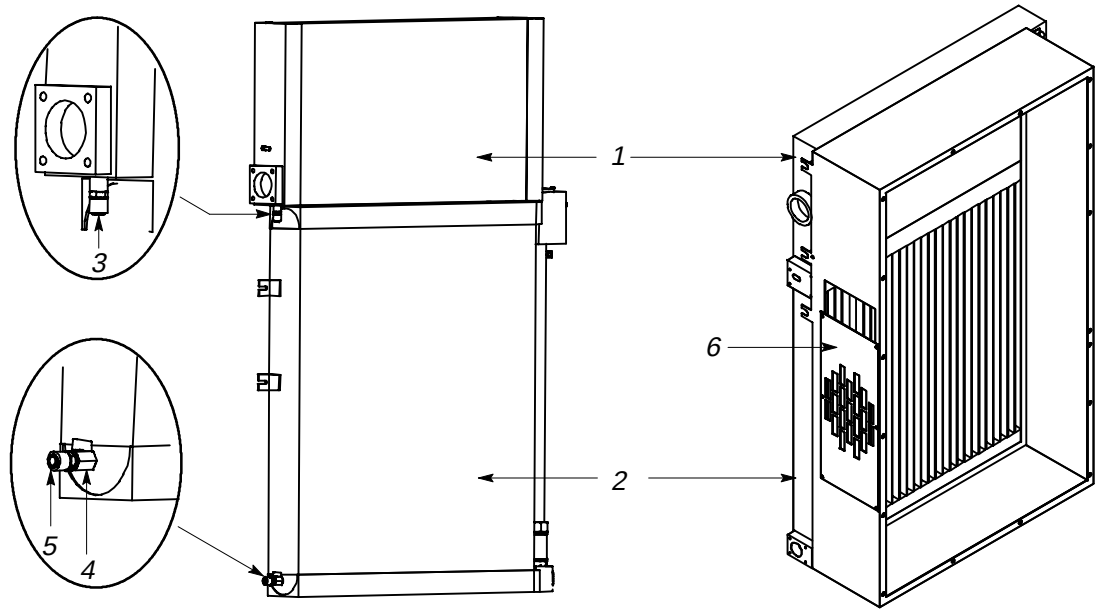
The oil cooler and air cooler must be checked for clogging regularly. Heavy clogging may cause high temperatures in the oil circulation.

See regular maintenance table for cooler service interval (chapter 9.3).

☞ Switch off the compressor unit under full load (see chapter 8.4).

⚠ **Switch off and lock out the main switch to prevent an accidental compressor start.**

☞ Remove cover panel (6, see chapter 9.2).



1 Air cooler
2 Oil cooler
3 Air cooler hose coupling
4 Shut–off valve
5 Oil cooler hose coupling
6 Cover plate

☞ Remove the cover plate (6).

⚠ **Never direct compressed air at persons. It is contained energy and as such is dangerous to life!**

Always wear eye protection when blowing out the coolers.

☞ Blow out the cooler from inside to outside and vacuum the dust.

☞ Replace the cover plate (6).

Attention! **If the coolers are badly clogged they should be cleaned by an authorized KAESER Service agency.**

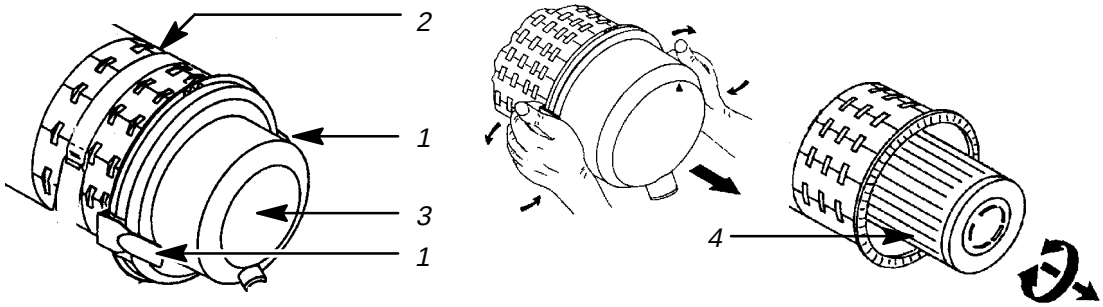
☞ Close all access doors and fit all cover panels.

9.6 Cleaning or Renewing the Air Filter

Clean the air filter when the corresponding service message on the SIGMA CONTROL is displayed (see chapter 8.1). Change the air filter cartridge after two years use at the latest.

☞ Stop the compressor package (see chapter 8.4).

⚠ **Switch off and lock out the main switch to prevent an accidental compressor run.**



1 Snap fastener for opening the air filter housing
2 Air filter
3 Dustcap
4 Air filter cartridge

☞ Open the access doors (1 and 2, see chapter 9.2).

To open the air filter housing:

☞ Open the snap fasteners (1) on the dust cap (3) and remove the dust cap (3), with the insert.

☞ Take the insert out of the dust cap (3).

☞ Pull out the air filter cartridge (4) by turning lightly.

☞ Clean the air filter housing, dust cap, insert and sealing surfaces.

Cleaning the air filter cartridge (4) by tapping:

☞ Tap the air filter cartridge several times on the front with the ball of the hand.

Attention! **Do not use force otherwise the air filter cartridge may be damaged.**

☞ Clean all sealing surfaces.

Cleaning the air filter cartridge with compressed air:

☞ Blow dry compressed air at a pressure of not more than 5 bar at a slant from the inside to the outside of the air filter cartridge surfaces.

Attention! **Do not clean the air filter cartridge with fluids. If the air filter cartridge is heavily contaminated or was already cleaned several times (max. five times), renew.**

To close the air filter housing:

☞ Insert the air filter cartridge (4).

Attention! **Note the insertion mark on the dust cap.**

☞ Guide the insert into the dust cap (3).

☞ Replace the dust cap (3) and close the snap fasteners (1).

☞ Close all access doors and fit all cover panels.

9.7 Servicing the Electric Motor

Drive motor:

The bearings can be greased using the external grease nipples.

See chapter 1.9 for greasing periods, quantity and approved greases.

Grease the bearings at the correct interval (chapter 1.9) from the external grease nipples while the motor is running. The grease pipes from the bearings to the nipples are full on delivery.

See chapter 1.10 for the location of the grease nipples.

Attention! **Motors manufactured to IP 55 protection have no outlet bores for the grease. The motor bearings must be renewed by an authorized KAESER Service agency after the maintenance interval (see chapter 1.9) quoted has elapsed.**

The bearing covers and/or the end shields must be removed and the old grease disposed of according to environmental regulations when the motor bearings are changed.

Fan motor:

The bearings of the fan motor are permanently greased.

Attention! **Have the bearings renewed by an authorized KAESER Service agency when the maintenance interval has elapsed (see chapter 1.9).**

9.8 Coupling

Visually check the coupling regularly and carefully when the operating hours quoted in the maintenance routine have expired (see chapter 9.3).

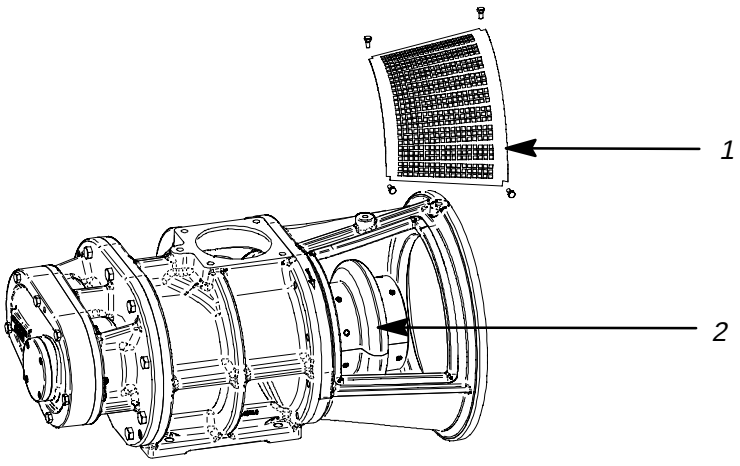
Pay attention to smooth running and surface cracks.

☞ Remove cover panel (3, see chapter 9.2).

☞ Visually check the rotating coupling for smooth running.

☞ Shut down the compressor package (see chapter 8.4).

Switch off and lock out the main switch to prevent an accidental compressor start.



1 Safety screen

2 Coupling

☞ Unscrew the safety screen (1)

☞ Rotate the coupling (2) by hand and check for damage.

Attention! **If the coupling is damaged have it replaced by an authorised KAESER service agent.**

☞ Replace the safety screen (1).

☞ Close all access doors and fit all cover panels.

9.9 Checking the Pressure Relief Valve on the Oil Separator Tank

To check the operating pressure of the pressure relief valve the final pressure of the compressor package must be increased above the pressure parameter entered in the controller.

See chapter 1.5 for the operating pressure of the pressure relief valve.

Attention! **The pressure relief valve must be checked by an authorized KAESER service agency when the interval quoted in the regular maintenance table (see chapter 9.3) has expired.**

Detailed information is to be found in the service manual for SIGMA CONTROL.

9.10 Venting the Compressor Package

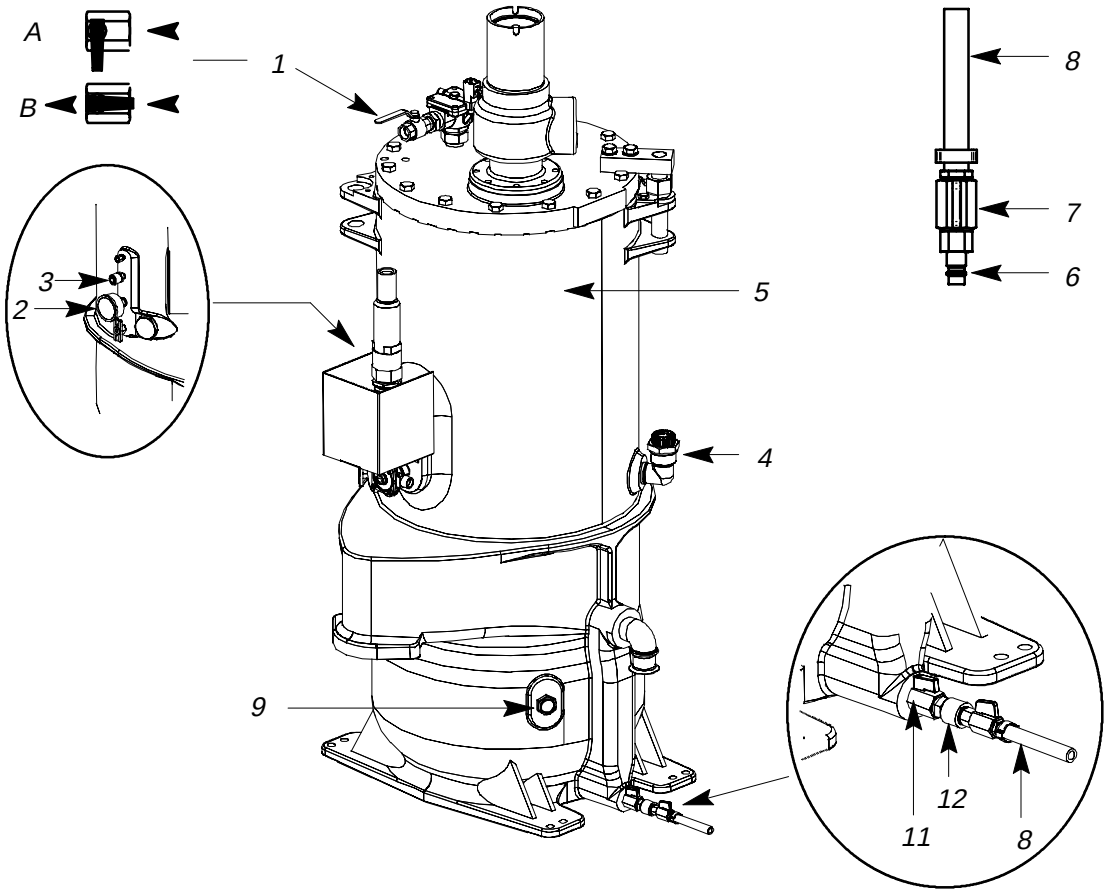
☞ Shut down the compressor package (see chapter 8.4).

Switch off and lock out the main switch to prevent an accidental compressor run.

☞ Close the shut–off valve between the compressor package and the air main.

The oil circulation vents automatically.

Venting the oil separator tank:



1 Shutoff valve
A closed
B open
2 Pressure gauge
3 Hose coupling
4 Threaded plug (topping off oil)
5 Oil separtor tank
6 Plug –in nozzle
7 Ball valve
8 Maintenance hose
9 Oil level indicator
11 Oil drain shutoff valve
12 Hose coupling

☞ Remove cover panels (5 and 9, see chapter 9.2).

☞ The pressure gauge on the oil separator tank must indicate zero bar.

Oil mist can escape when the oil separator tank is vented.

☞ Insert the nipple with attached hose (6) – **ball valve closed** – in the hose coupling (3) on the oil separator tank.

☞ Slowly open the ball valve (7) and the remaining pressure in the oil separator tank escapes.

☞ Remove the nipple with attached hose (6) from the hose coupling (3) on the oil separator tank.

Venting the air cooler:

☞ Insert the nipple with attached hose (6) – **ball valve closed** – in the hose coupling (3, chapter 9.5) on the air cooler.

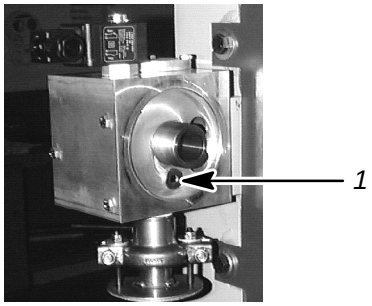
☞ Slowly open the ball valve (7), the air cooler and pipework up to the minimum pressure/check valve are depressurized.

☞ Remove the nipple with attached hose (6) from the hose coupling on the air cooler.

Close all access doors and panels correctly before starting the compressor package.

9.11 Oil Filter Change

Hot oil; beware of scalding.



1 Screw plug

A special oil filter is fitted to clean the oil system during the running in period, during which time the main oil bore in the combination valve is closed with a screw plug.

Attention! **Replace the special oil filter with a standard oil filter after approximately 200 service hours. Ensure that the screw plug is removed from the main oil bore in the combination valve.**

A further filter change is recommended after the interval quoted in the regular maintenance table (see chapter 9.3) or when the corresponding service message is displayed on SIGMA CONTROL (see chapter 8.1). The filter must be changed after every oil change.

9.11.1 Removal and replacement of the oil filter

☞ Shut down the compressor package under full load (see chapter 8.4).

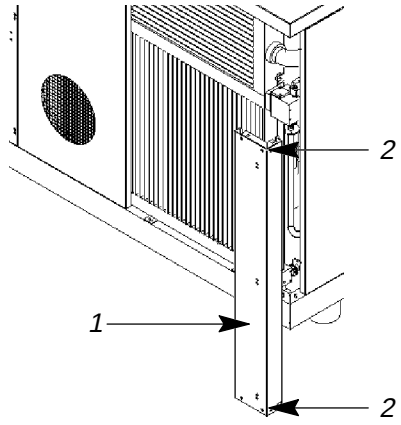
Switch off and lock out the main switch to prevent an accidental compressor run.

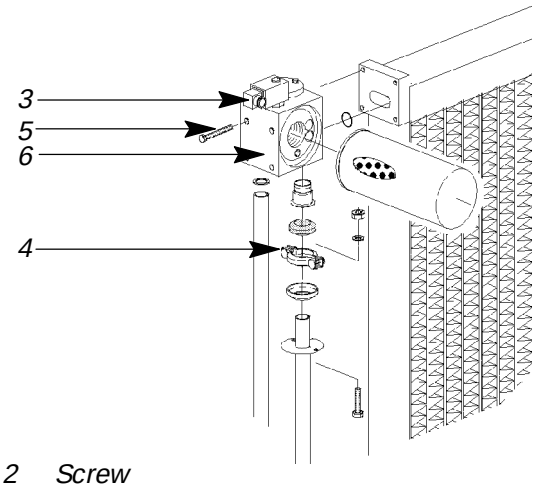
Before opening or removing pressurized components (pipes, hoses, tanks, etc.) it is imperative that the compressor package is completely depressurized.

☞ Venting the compressor package (see chapter 9.10).

☞ Remove cover panel (6, see chapter 9.2).

Attention! **If, because of lack of space, the oil filter is not accessible then remove the corner post (1) and the oil filter together with its components. Reassemble in the reverse order correspondingly.**





1 Corner post
2 Screw
3 Screw
4 Flexible pipe connection
5 Bolt
6 Combination valve

☞ Remove the corner post (1) by unscrewing the screws (2).

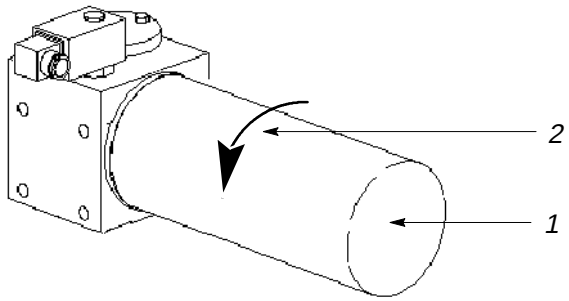
☞ Unscrew the screw (3) and pull out the plug.

☞ Open the flexible pipe connection (4).

Attention! **Oil can leak out of the openings.**

☞ Remove the bolts (5) on the combination valve (6).

☞ Take out the combination valve (6) and hold with a suitable jig.



1 Oil filter cartridge
2 Turn in this direction to unscrew the cartridge

☞ Spin off the used or contaminated oil filter counter–clockwise and catch escaping oil in a suitable container.

Dispose of the used filter and used oil carefully according to environmental regulations.

☞ Clean the sealing faces carefully with lint free cloth.

☞ Lightly oil the gasket of the new oil filter before screwing into position.

☞ Spin on the new oil filter clockwise by hand until the gasket fits tightly.

Attention! **Do not use a tool as this may cause damage to the oil filter and the gasket.**

☞ Check the oil level (see chapter 9.12).

☞ Close all access doors and fit all cover panels.

☞ Open the shut–off valve between the compressor package and the air main.

Carry out a trial run.

When the operating temperature is reached (see chapter 1.1) shut down the compressor package (see chapter 8.4) and lock out the main switch to prevent an accidental compressor run.

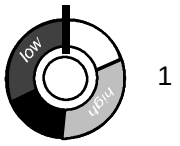
Carry out a visual check for leaks.

9.12 Topping up the cooling fluid

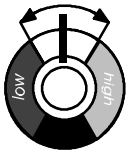
The fluid level shown by the indicator (9) should be checked weekly with the machine at operating temperature and under load. The machine should be topped up with cooling fluid as soon as the “minimum fluid level” (1) (border of green and red) is reached.

For the quantity of fluid needed to top up to “maximum fluid level” (3) see chapter 1.7.

Attention! **The machine may only be operated when the fluid level indicator is in the green zone.**



1



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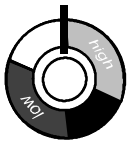


3

1 Lowest oil level *2 Optimum oil level* *3 Highest oil level*

☞ Check the oil level when the machine is under full load and at operating temperature.

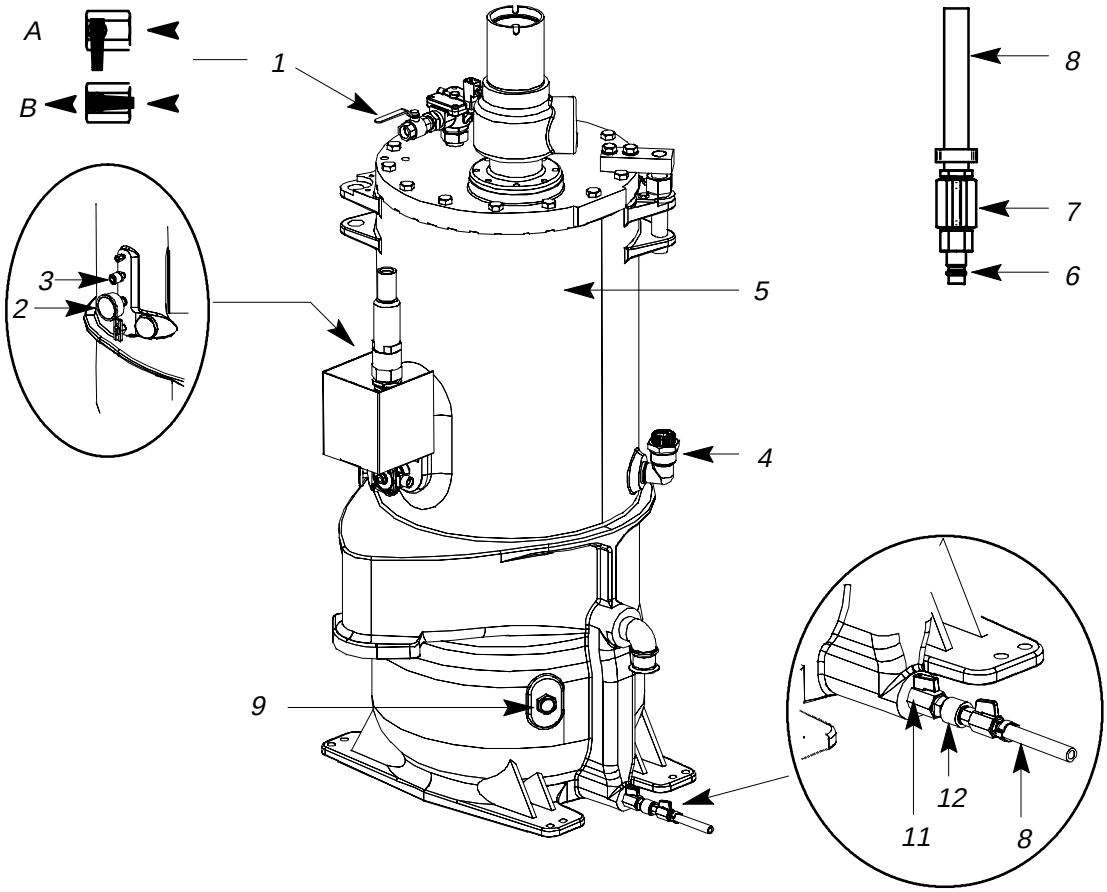
☞ Shut down the compressor package under full load (see chapter 8.4).

Switch off and lock out the main switch to prevent an accidental compressor run.

☞ Remove cover panel (5, see chapter 9.2).

Before opening or removing pressurized components (pipes, hoses, tanks, etc.) it is imperative that the compressor package is completely depressurized.

☞ Venting the compressor package (see chapter 9.10).



1 Shutoff valve
A closed
B open
2 Pressure gauge
3 Hose coupling
4 Threaded plug (topping off oil)
5 Oil separtor tank
6 Plug–in nozzle
7 Ball valve
8 Maintenance hose
9 Oil level indicator
11 Oil drain shutoff valve
12 Hose coupling

☞ Unscrew the oil filler plug (4) on the oil separator tank.

☞ Fill with oil up to the maximum indicator level. See chapter 1.7 for the oil volume needed to increase the indicated level from minimum to maximum.

☞ Check the sealing ring of the filler plug (4) for damage and then replace the filler plug.

☞ Close all access doors and fit all cover panels.

☞ Open the shut–off valve between the compressor package and the air main.

Attention!

After carrying out the oil change or oil cooler cleaning (with removal of the oil cooler) run the compressor package up to operating temperature to ensure that the combination valve closes and that the oil cooler is flooded with oil.

Afterwards, repeat the procedures ‘‘Venting the Compressor Package’’ (chapter 9.10) and “Topping up the Oil” (chapter 9.12).

Attention! **Always use the same brand and type of oil when topping up (see label on the oil separator tank).**

If the type of oil is changed, drain the old oil completely and renew the oil filter.

Never use different types of oil.

9.13 Oil Change (Oil Separator and Oil Cooler)

Carry out the oil change with the compressor at operating temperature.

Hot oil; beware of scalding!

The oil change interval is dependent on the degree of cooling air contamination and on the ambient temperature.

If the compressor package is operated close to the maximum permissible ambient temperature (see chapter 1.6), the oil must be changed more often, if necessary, the interval should be halved.

See regular maintenance table (chapter 9.3) for oil change interval.

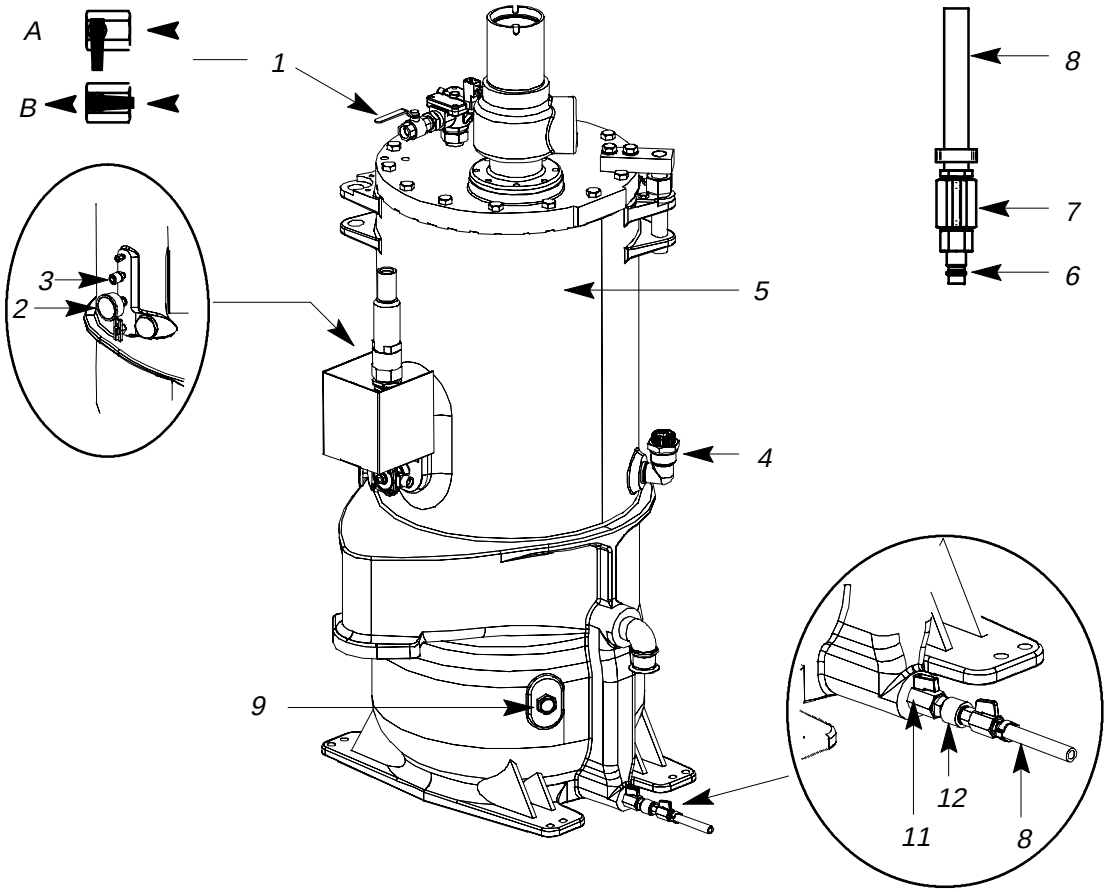
Attention! **Drain the oil out of the separator tank, cooler and the pipework completely. See chapter 9.13.4 for putting back into operation.**

☞ Shut down the compressor package under full load (see chapter 8.4).

Switch off and lock out the main switch to prevent an accidental compressor run.

Before opening or removing pressurized components (pipes, hoses, tanks, etc.) it is imperative that the compressor package is completely depressurized.

☞ Venting the compressor package (see chapter 9.10).



1 Shutoff valve
A closed
B open
2 Pressure gauge
3 Hose coupling
4 Threaded plug (topping off oil)
5 Oil separtor tank
6 Plug –in nozzle
7 Ball valve
8 Maintenance hose
9 Oil level indicator
11 Oil drain shutoff valve
12 Hose coupling

☞ Remove cover panels (5, 6 and 9, see chapter 9.2).

9.13.1 Draining the oil using external pressure source

Draining the oil on the oil separator tank:

☞ Insert the nipple with attached hose (6) – **ball valve closed** – in the hose coupling (3) on the oil separator tank (5).

☞ Apply separate pressurization to the attached hose. Pressurize the oil separator tank (5) by slowly opening the ball valve (7) until the pressure gauge (2) on the oil separator tank (5) shows approximately 3 bar.

☞ Remove the nipple with attached hose (6) from the hose coupling (3) on the oil separator tank (5).

☞ Prepare a clean container to catch escaping oil.

Attention! **The container must be large enough to hold the total oil content of the compressor package (see chapter 1.7).**

☞ Insert the nipple with attached hose (6) – **ball valve closed** – in the hose coupling (12) on the oil separator tank (5).

☞ Hang the attached hose hose into the container and secure.

☞ Open the shut–off valve (11).

☞ Slowly open the ball valve (7). The remaining pressure in the oil circulation forces out the oil. When air escapes, close the ball valve (7) immediately.

☞ Close the shut–off valve (11).

☞ Remove the nipple with attached hose from the hose coupling (12) on the oil separator tank (5).

Draining the oil on the oil cooler:

☞ Place the oil container under the oil cooler.

☞ Insert the nipple with attached hose (6) – **ball valve closed** – in the hose coupling (5, chapter 9.5) on the oil cooler.

☞ Hang the attached hose into the container and secure.

☞ Open the shut–off valve (4, see chapter 9.5).

☞ Slowly open the ball valve (7) (the remaining pressure in the oil separator tank escapes).

☞ Close the shut–off valve (4, see chapter 9.5).

☞ Remove the nipple with attached hose from the hose coupling (5, chapter 9.5) on the oil cooler.

Dispose of the used oil according to environmental regulations.

☞ Open the ball valve (1).

9.13.2 Adding oil

Before opening or removing pressurized components (pipes, hoses, tanks, etc.) it is imperative that the compressor package is completely depressurized.

☞ Venting the compressor package (see chapter 9.10).

☞ Unscrew the oil filler plug (4) on the oil separator tank.

Attention!

Always use the same brand and type of oil when topping up the oil. (see label on the oil separator tank).

If a different type of oil is used drain the old oil completely and always renew the oil filter.

Never mix different types of oil.

☞ Top up the oil to the maximum mark.

For oil quantity see chapter 1.7.

☞ Check the sealing ring on the oil filler plug (4) for damage and then screw in the oil filler plug.

☞ Close all access doors and fit all cover panels.

9.13.3 Draining the oil using own compressed air

☞ Shut down the compressor package under full load (see chapter 8.4).

Switch off and lock out the main switch to prevent an accidental compressor run.

☞ Close the shut–off valve between the compressor package and the air main.

The compressor oil circulation vents automatically.

☞ Remove cover panel (5, see chapter 9.2).

☞ The pressure gauge on the oil separator tank must indicate zero bar.

☞ Close the shut–off valve (1).

☞ Close all access doors and fit all cover panels.

☞ Start the compressor package (see chapter 8.4) and allow to run for approximately 30 seconds.

☞ Shut down the compressor package under full load (see chapter 8.4).

Switch off and lock out the main switch to prevent an accidental compressor run.

☞ Remove cover panels (5 and 6, see chapter 9.2).

☞ Check the actual pressure on the pressure gauge (2). Open the shut–off valve (1), let the pressure on the pressure gauge (2) sink to approximately 3 bar and then close the shut–off valve (1) again.

☞ Drain the oil from the oil separator tank and the oil cooler. Proceed as detailed in chapter 9.13.1.

☞ Open the shut–off valve (1).

☞ Top up with oil as described in chapter 9.13.2.

☞ Close all access doors and fit all cover panels.

9.13.4 Measures for putting back into operation

☞ Carry out measures detailed in ‘‘Pouring a small quantity of oil into the air inlet port” see chapter 7.8.1.

☞ Carry out measures detailed in ‘‘Running the compressor package in idle” see chapter 7.8.2.

☞ Carry out the measures detailed in ‘‘Venting the compressor package” see chapter 9.10.

☞ Top up with oil, see chapter 9.13.2.

☞ Open the shut–off valve between the compressor package and the air main.

☞ Switch on the compressor package, see chapter 8.4, and allow to run until the operating temperature is reached, see chapter 1.1.

☞ Top up the oil again, see chapter 9.12.

Carry out a trial run.

When the operating temperature is reached (see chapter 1.1) shut down the compressor package (see chapter 8.4) and lock out the main switch to prevent an accidental compressor run.

Carry out a visual check for leaks.

9.14 Changing the Oil Separator Cartridge

The service life of the oil separator cartridge is strongly influenced by the degree of contamination of inlet air and on strict adherence to the recommended maintenance intervals of the air and oil filters.

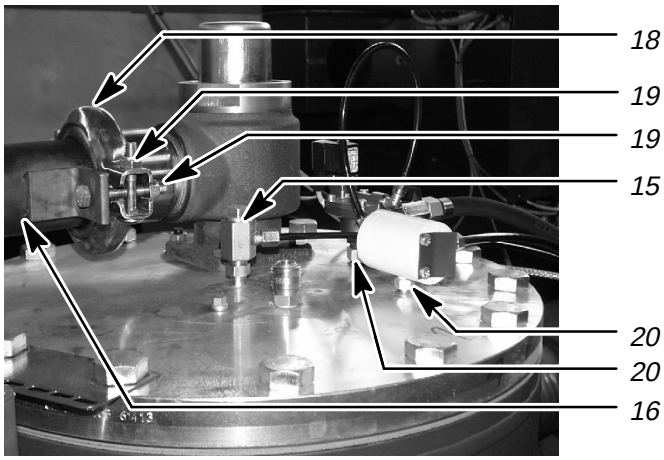
We recommend that the oil separator cartridge is changed with the oil or when the relevant service message / alarm message is displayed on SIGMA CONTROL (see chapter 8.1).

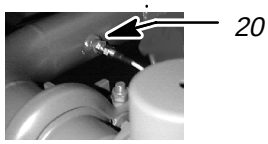
☞ Shut down the compressor package under full load (see chapter 8.4).

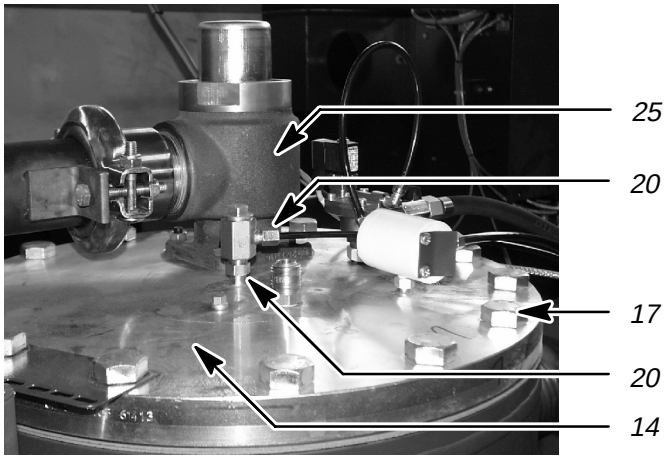
Switch off and lock out the main switch to prevent an accidental compressor run.

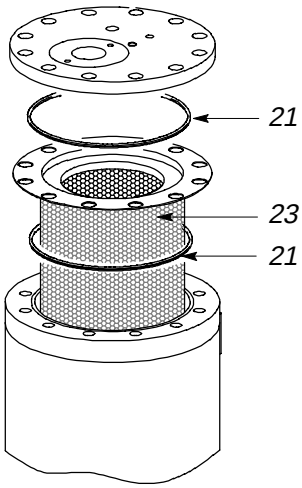
Before opening or removing pressurized components (pipes, hoses, tanks, etc.) it is imperative that the compressor package is completely depressurized.

☞ Venting the compressor package (see chapter 9.10).









14 Cover
15 Dirt trap (with copper pipe)
16 Air pipe
17 Hexagonal bolts
18 Ring clamps
19 Self – locking nut
20 Union nut
21 Gasket
23 Oil separator cartridge

25 Minimum pressure/check valve

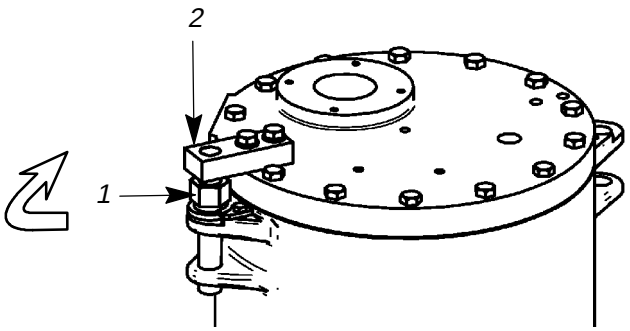
☞ Remove cover panels (5, 6 and 9, see chapter 9.2).

☞ Loosen the union nuts (20) and lay the parts with the connections carefully to one side– pull out the copper pipe at position (15).

☞ Unscrew the self locking nuts (19) on both ends of the air pipe (16) (on the oil separator tank and the air cooler) and remove the air pipe (16).

☞ Remove the minimum pressure/check valve (25).

☞ Unscrew the bolts (17) holding down the cover plate (14).



1 Hex nut
2 Swivel mechanism

☞ Turn the hex nut (1) on the swivelling device (2) in the direction of the arrow until the cover (14) is slightly raised.

☞ Swivel the cover (14) to one side.

Attention! **When tightening the cover (14) to the oil separator tank take care that the hex nut (1) is turned until the cover sits flat on the gasket (21). This applies when the hex nut (1) can be turned by hand.**

☞ Take out the old oil separator cartridge (23) together with the gaskets (21) and dispose according to environmental regulations.

☞ Clean the sealing surfaces of the oil separator tank.

Attention! **The oil separator cartridge cannot be cleaned.**

☞ Insert the new oil separator cartridge (23) with new gaskets (21) and fit and tighten down the cover (14) with the hex bolts (17).

☞ Renew the strainer and O–ring in the dirt trap (15) when the oil separator cartridge (23) is renewed.

☞ Reassemble in the reverse order.

For instructions on assembly of the flexible pipe connection see chapter 9.15.

☞ Close all access doors and fit all cover panels.

☞ Open the shut–off valve between the compressor package and the air main.

⚠ **Carry out a trial run.**

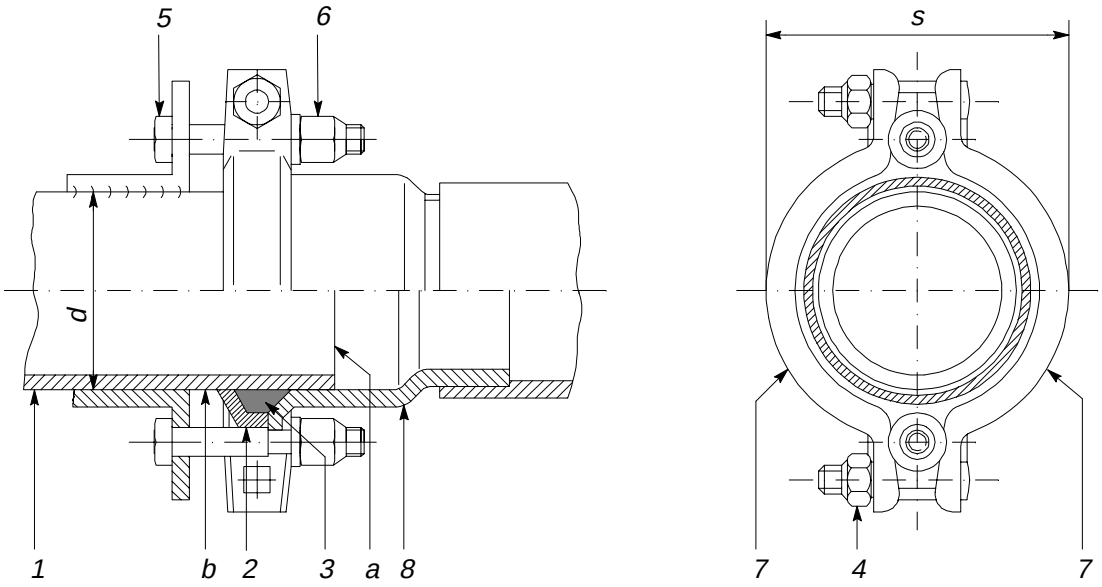
When the operating temperature is reached (see chapter 1.1) shut down the compressor package (see chapter 8.4) and lock out the main switch to prevent an accidental compressor run.

Carry out a visual check for leaks.

9.15 Assembly of the Flexible Pipe Connections

☞ Stop the compressor package (see chapter 8.4).

Switch off and lock out the main switch to prevent an accidental compressor run.



1 Pipe
2 Sealing ring holder
3 Sealing ring
4 Self locking nut
5 Tensioning screw
6 Self kocking nut
7 Ring clamp halves
8 Sleeve

Ensure that the pipe (1) is free of burrs on the cut edge ”a” and that the sealing surface ”b” is clean and undamaged.

☞ Slide the sealing ring holder (2) and the sealing ring (3) over the pipe (1).

☞ Insert the pipe (1) into the sleeve (8) without straining; slide the sealing ring (3) with the sealing ring holder (2) up to the bevelled edge of the sleeve (8). Realign the pipe if necessary.

☞ Lay the two halves of the ring clamp (7) over the sealing ring holder (2) and sealing ring (8) and tighten up to the ”s” measurement (see chapter 9.16). The ”s” measurement is a guide and may vary by up to 2%.

☞ Tighten the tensioning screws (5) with the nuts (6) such that all tensioning screws can be just moved by hand when the compressor package is shut down. Under full load, all tensioning screws must be equally loaded.

Replace the self locking nuts (4) and (6) after loosening and tightening three times.

9.16 Flexible Pipe Connection Measurements

The measurement ”s” is a standard value and can vary by approx. 2 % dependent upon production.

Pipe outside dia. ”d” in mm	Clamp outside dia. ”s” in mm	Part No. of the seal
76,1	131,0	5.1393.0
28,0	63,5	5.1389.1

9.17 Record of Maintenance Work

Serial number of the unit:

Date	Description of work	Service hours	Signature

10 Spare Parts and After Sales Service

10.1 Service parts and expendable parts

The removal of faults that are not explicitly described in this service manual may only be carried out by KAESER or by an authorised KAESER service agent. (see chapter 9.1).

KAESER KOMPRESSOREN

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Carl – Kaeser – Str. 26, 96450 Coburg
GERMANY Telefon + 49 95 61 64 00
Fax + 49 95 61 01 30

Model .....
Part No. .....
Serial No. .....
Year of production .....
Rated power ..... **kW**
Rated motor speed **1/min**
Max. working pressure(g) ..... **bar**
Ambient temperature ..... **°C /** ..... **°C**

Important for all queries:

☞ Enter the data on your compressor's nameplate in the nameplate shown above.

Always quote the data on the nameplate when making a query or ordering spares.

Attention! **Always order original spares from the compressor manufacturer to avoid lowering the quality of your compressor package.**

Supplementary information for specialised personnel concerning spare parts is found in chapter 11.2.

Description	No. off	Order No.
Oil filter	1	1200
Air filter cartridge	1	1250
Oil separator cartridge Complete set, comprising: Separator cartridge Gasket Dirt trap strainer O Ring	 1 1 2 1 1	 1450

10.2 Service and Maintenance Agreement

We recommend that you take out a service and maintenance agreement with an authorized KAESER service agency. This is your best guarantee of reliable air supplies.

11 Appendix

11.1 Electrical Diagram

Electrical diagrams

Compressor DSD 171

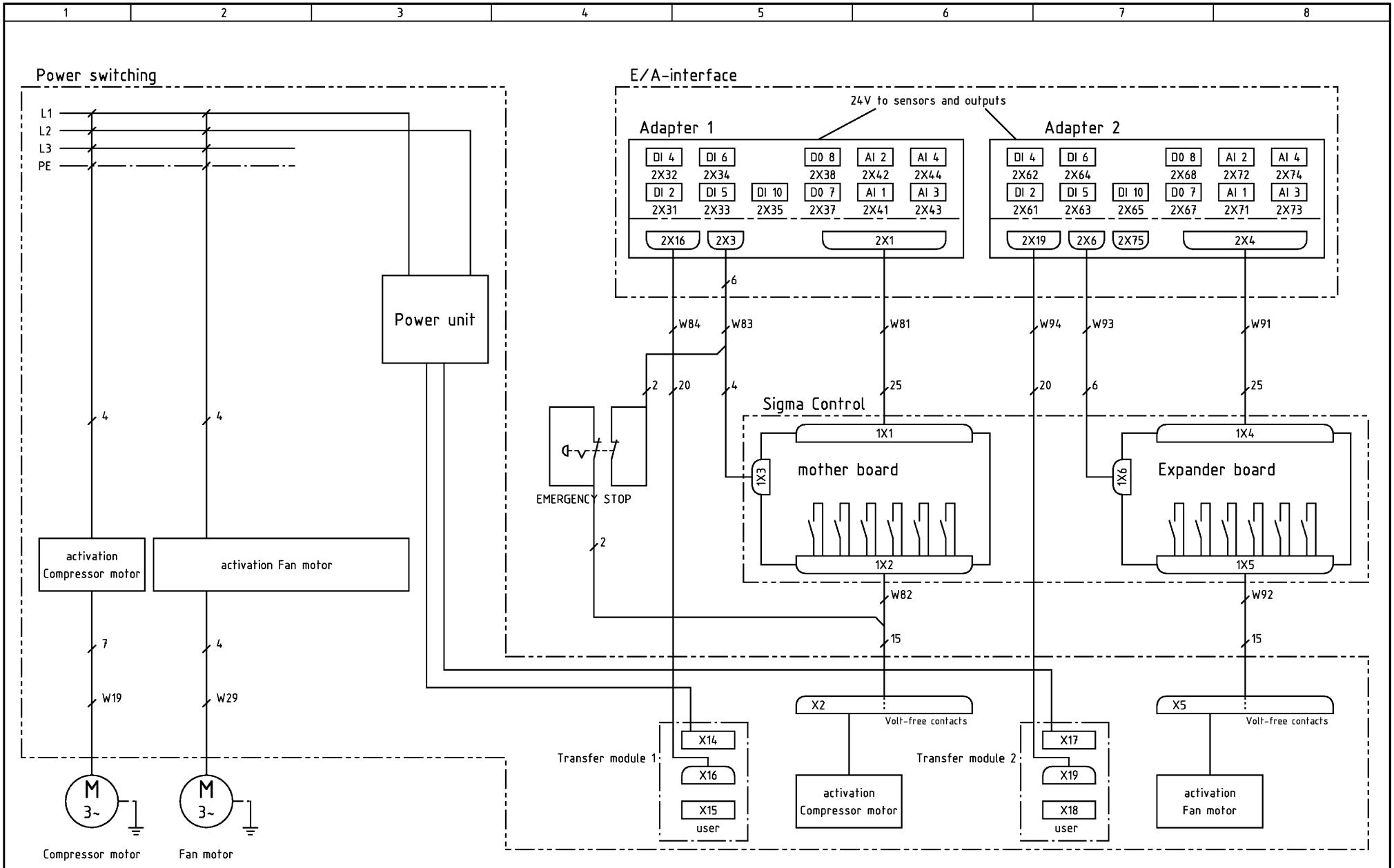
Air cooled

380-400-420V 50Hz

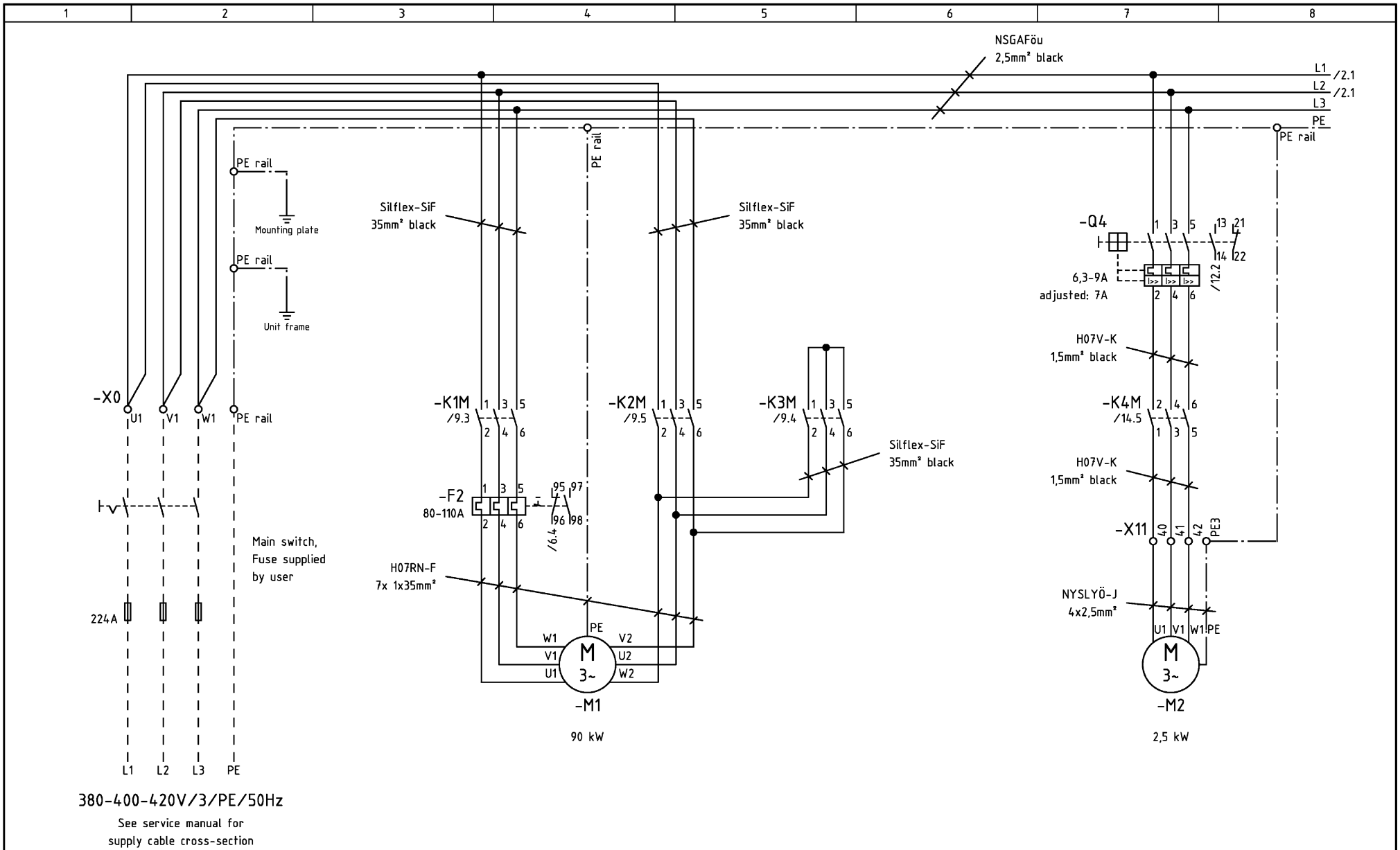
Manufacturer: Kaeser Kompressoren GmbH
Postfach 2143
96410 Coburg

c				Datum	03.05.2001 E		KAESER KOMPRESSOREN	Cover page Compressor DSD 171		=02
b				Bearb.	Sitter					+
a				Gepr.	Büchner				Sigma Control	DDSD171.L-01003.02 Blatt 1
A	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02		Bl.

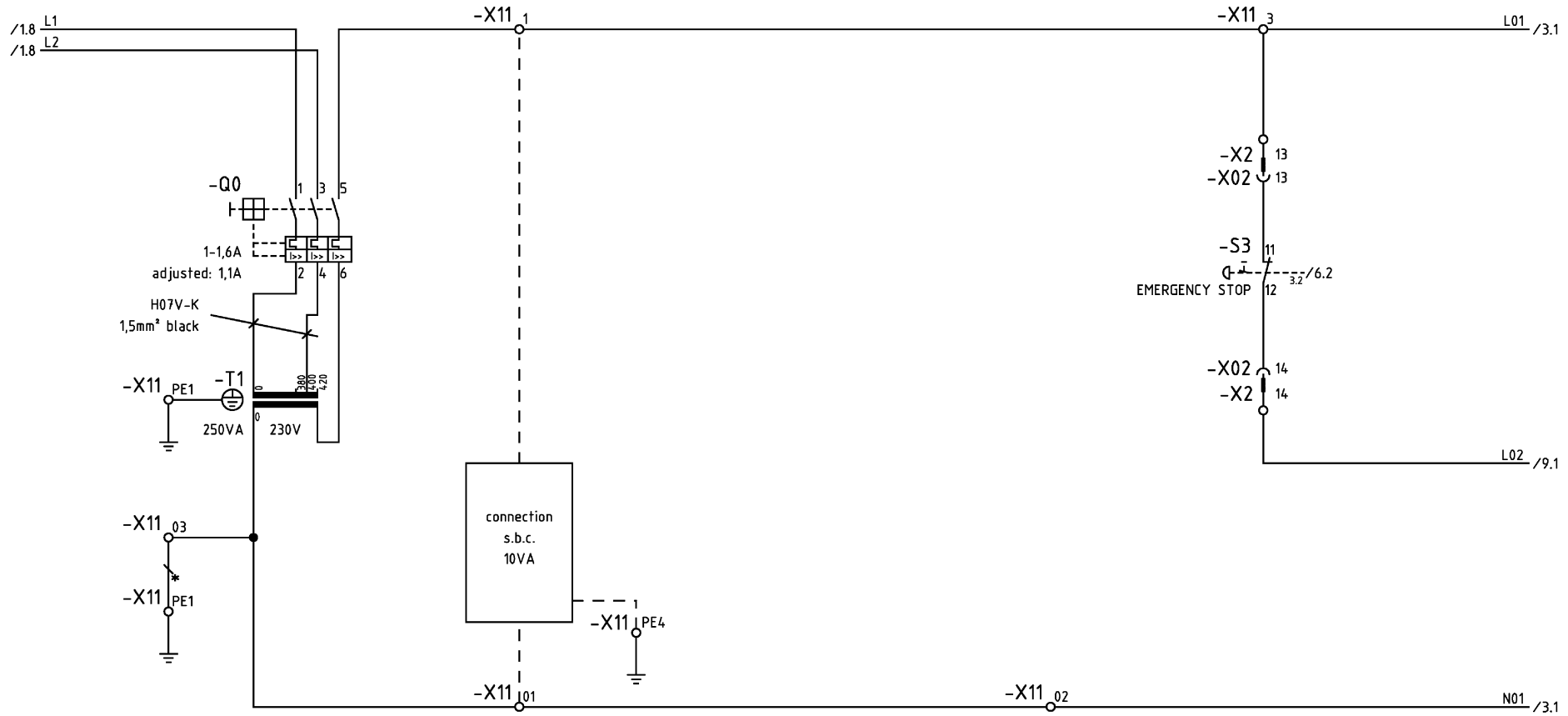
Lfd. Nr. No.	Benennung Name		Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page			DDSD171.L-01003.02	1	=02
2	List of contents			ZDSD171.L-01003.02	1	=02
3	Block diagram			UDSD171.L-01003.02	1	=02
4	Circuit diagram	Power switching		SDSD171.L-01003.02	1	=02
5	Circuit diagram	Control voltage tapping		SDSD171.L-01003.02	2	=02
6	Circuit diagram	Power supply unit		SDSD171.L-01003.02	3	=02
7	Circuit diagram	Temperature monitoring		SDSD171.L-01003.02	4	=02
8	Circuit diagram	mother board/Inputs		SDSD171.L-01003.02	5	=02
9	Circuit diagram	mother board/Inputs		SDSD171.L-01003.02	6	=02
10	Circuit diagram	mother board/Inputs		SDSD171.L-01003.02	7	=02
11	Circuit diagram	mother board/Outputs		SDSD171.L-01003.02	8	=02
12	Circuit diagram	mother board/Outputs		SDSD171.L-01003.02	9	=02
13	Circuit diagram	Expander board/Inputs		SDSD171.L-01003.02	10	=02
14	Circuit diagram	Expander board/Inputs		SDSD171.L-01003.02	11	=02
15	Circuit diagram	Expander board/Inputs		SDSD171.L-01003.02	12	=02
16	Circuit diagram	Expander board/Outputs		SDSD171.L-01003.02	13	=02
17	Circuit diagram	Expander board/Outputs		SDSD171.L-01003.02	14	=02
18	Circuit diagram	Volt-free contacts		SDSD171.L-01003.02	15	=02
19	Electrical equipment identification			SDSD171.L-01003.02	16	=02
20	Equipment parts list	Control cabinet		GDSD171.L-01003.02	1	=02
21	Terminal schedule	Terminal strip -X0,-PE rail		KDSD171.L-01003.02	1	=02
22	Terminal schedule	Terminal strip -X2,-X5		KDSD171.L-01003.02	2	=02
23	Terminal schedule	Terminal strip -X11		KDSD171.L-01003.02	3	=02
24	Terminal schedule	Terminal strip -X14,-X15		KDSD171.L-01003.02	4	=02
25	Terminal schedule	Terminal strip -X17,-X18		KDSD171.L-01003.02	5	=02
26	Component layout	Mounting plate		ADSD171.L-01003.02	1	=02



c				Datum	03.05.2001		KAESER KOMPRESSOREN	Block diagram Compressor DSD 171		=02
b				Bearb.	Sitter					+
a				Gepr.	Büchner					
C	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02	UDSD171.L-01003.02	Blatt 1 Bl.



Function:						Compressor motor			Fan motor	
Group of functions:				Main power supply		Power switching				
c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram		=02
b				Bearb.	Sitter			Compressor DSD 171		+
a				Gepr.	Büchner			Power switching		
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02	SDSD171.L-01003.02	Blatt 1 Bl.



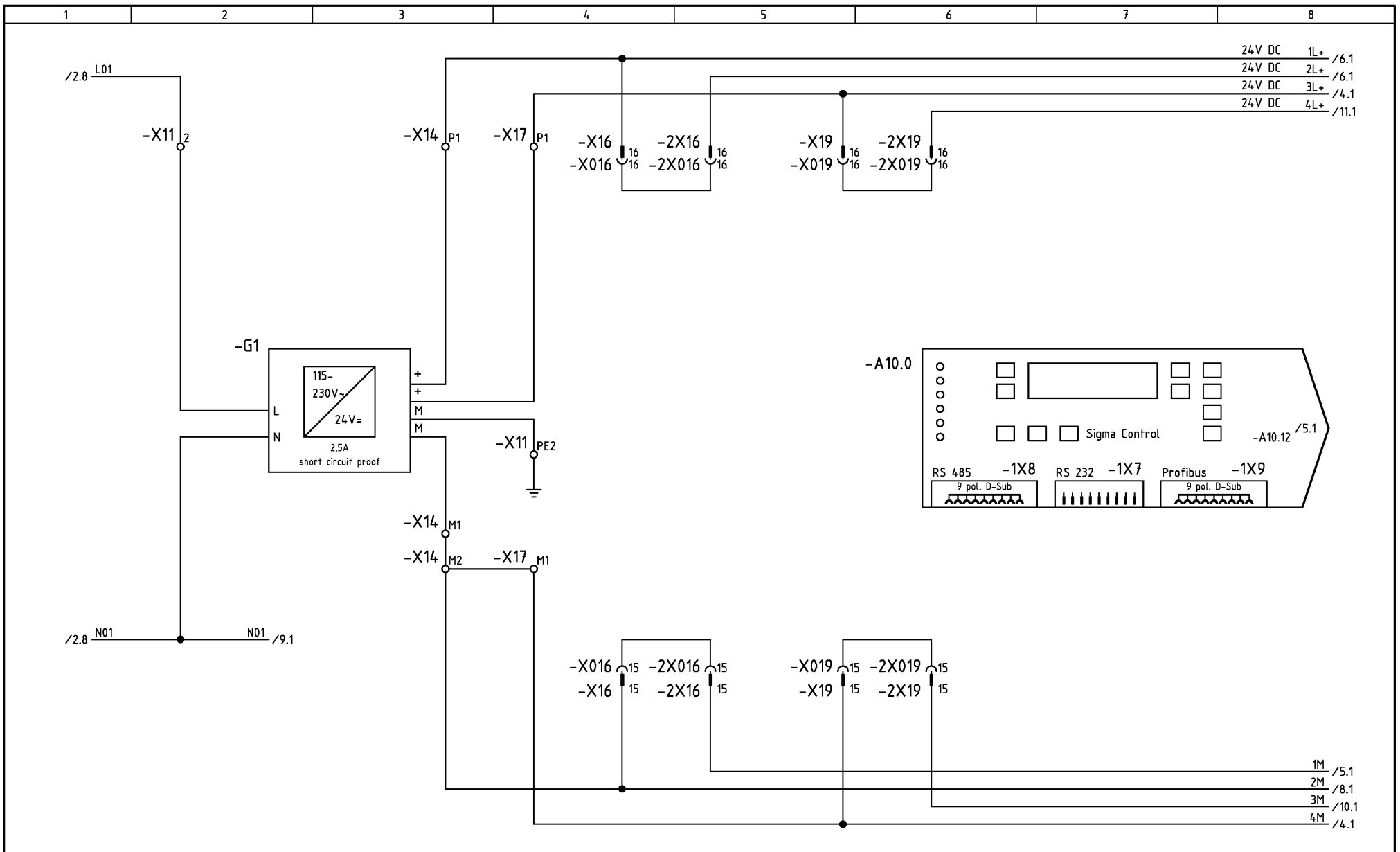
Secondary side is earthed.

* If the shorting link is removed, insulation monitoring must be installed

Control cabinet wiring:
All non-designated conductors
230V AC: 1mm² red H05V-K
24V DC: 1mm² blue H05V-K

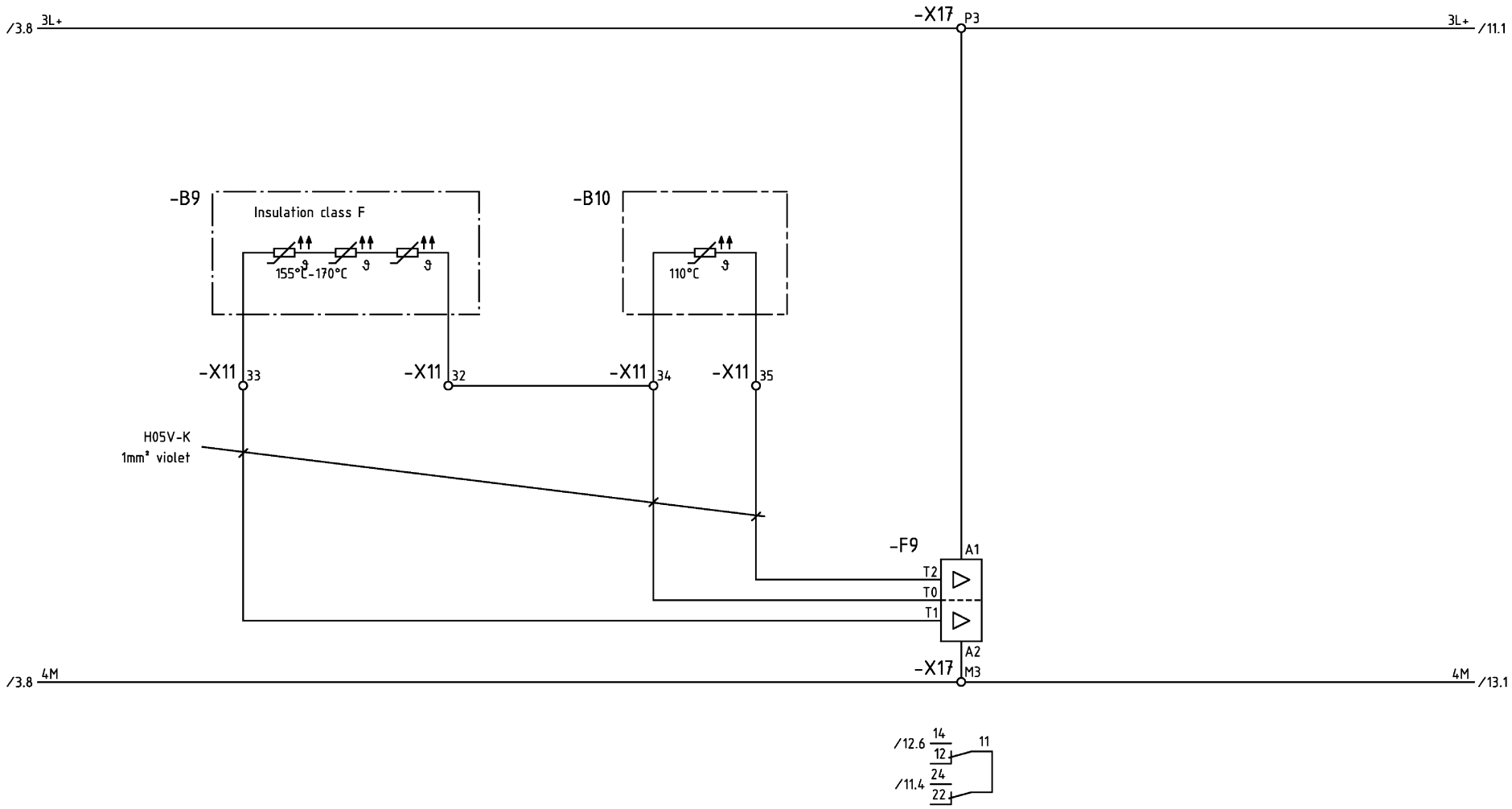
Function:	230V/1~/50Hz		EMERGENCY STOP
Group of functions:	Control voltage tapping		Safety chain

c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram	=02
b				Bearb.	Sitter			Compressor DSD 171	+
a				Gepr.	Büchner			Control voltage tapping	
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02	SDSD171.L-01003.02 Blatt 2 Bl.

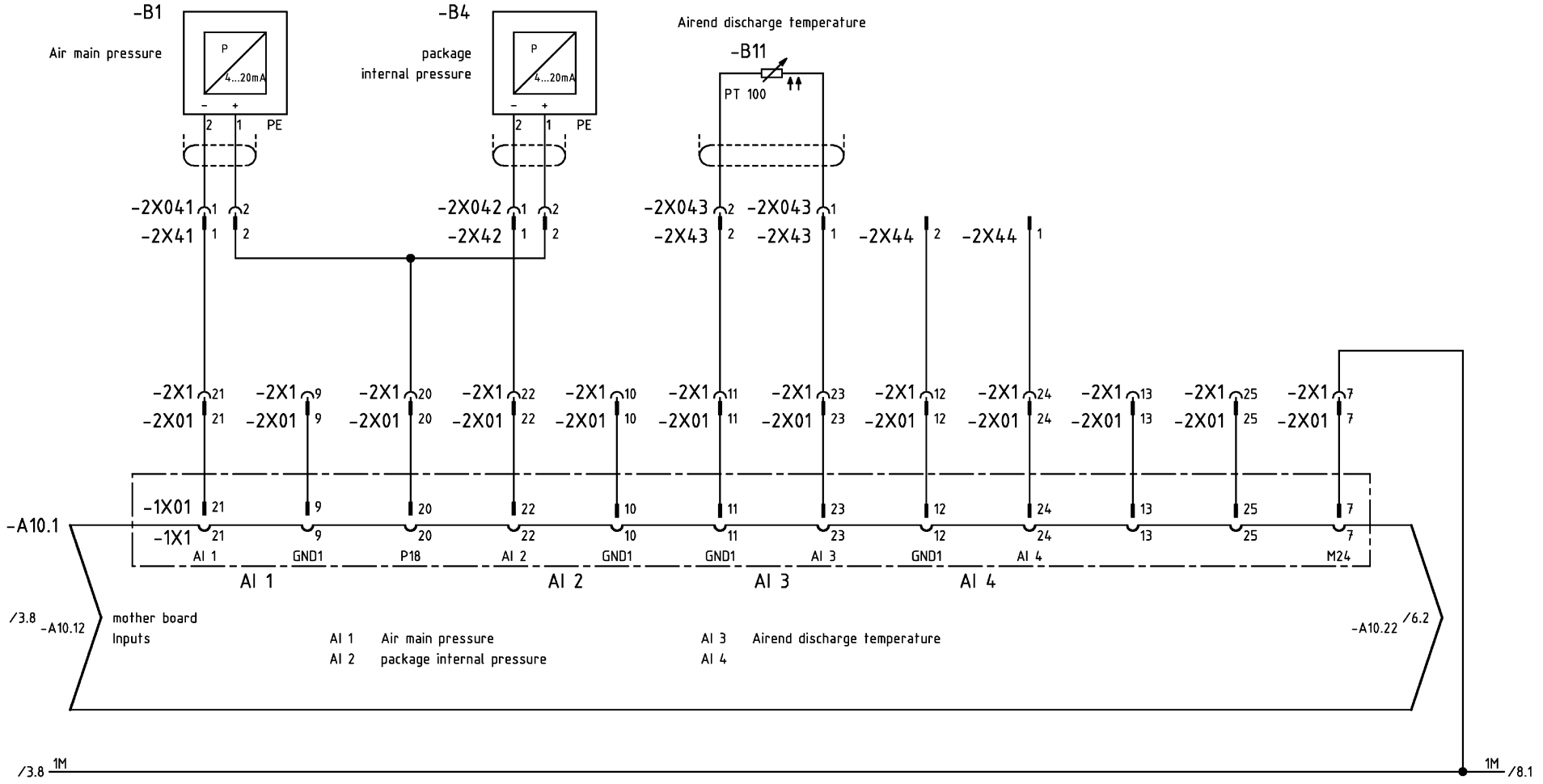


Function:	24V DC						
Group of functions:	Control voltage tapping		Transfer module	Adapter 1	Transfer module	Adapter 2	

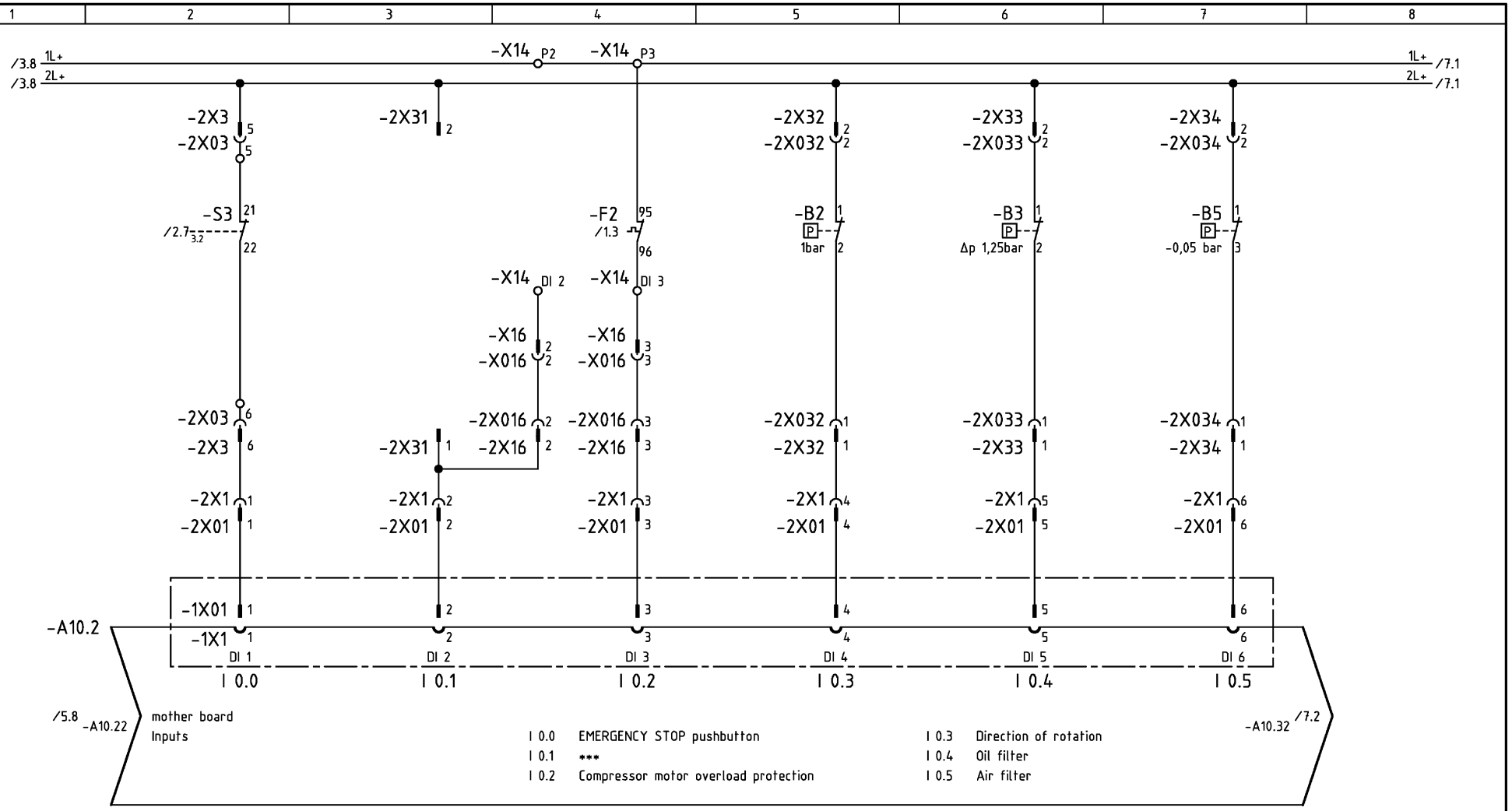
c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram	=02
b				Bearb.	Sitter			Compressor DSD 171	+
a				Gepr.	Büchner			Power supply unit	
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02	SDSD171.L-01003.02	Blatt 3 Bl.



Function:					Compressor motor			Oil separator tank air discharge			
Group of functions:					Temperature monitoring						
c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram		=02	
b				Bearb.	Sitter			Compressor DSD 171		+	
a				Gepr.	Büchner			Temperature monitoring			
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02	SDSD171.L-01003.02		Blatt 4 Bl.

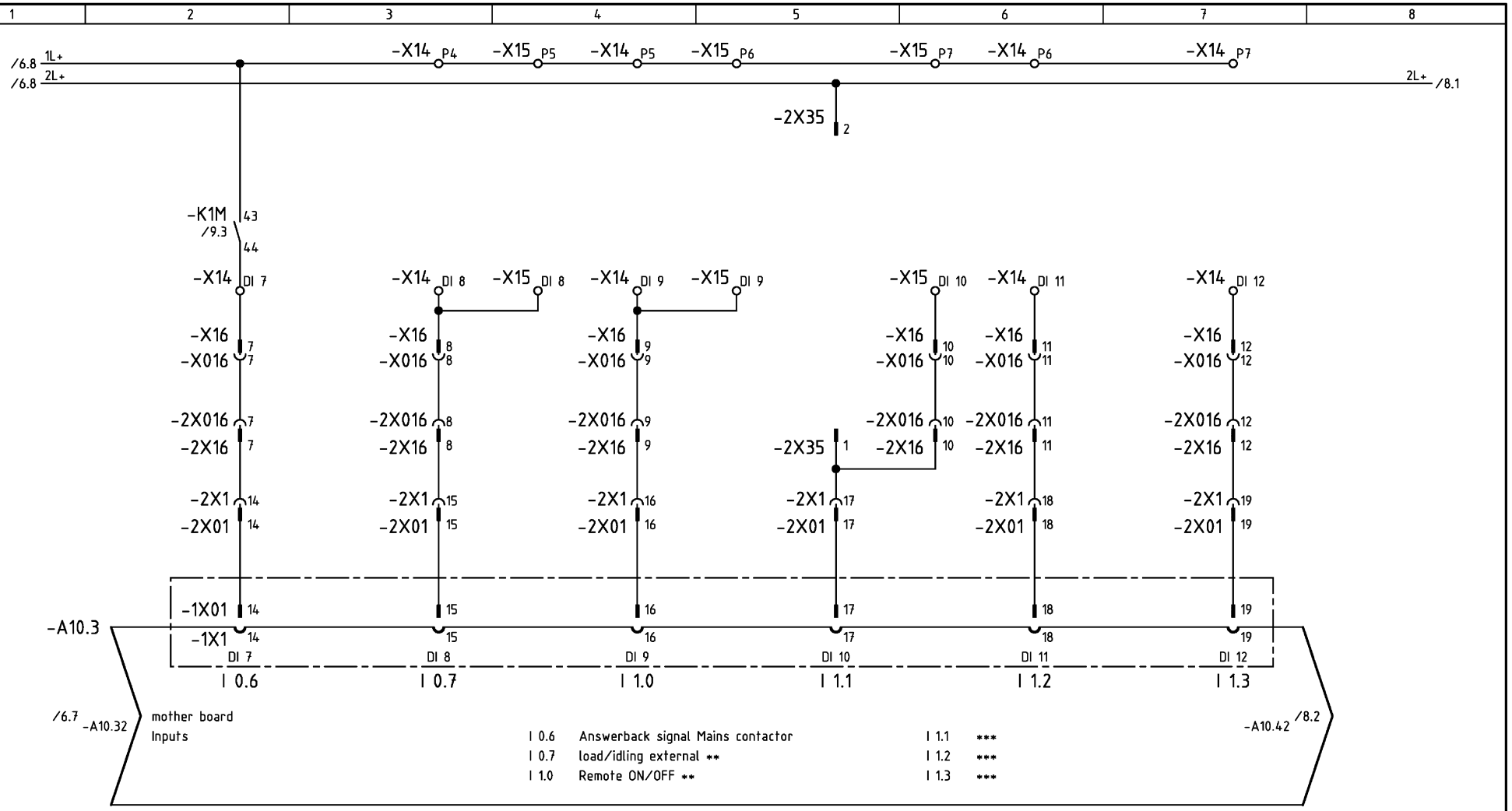


Function:										
Group of functions:				Pressure control						
c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram		=02
b				Bearb.	Sitter			Compressor DSD 171		+
a				Gepr.	Büchner			mother board/Inputs		
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02	SDSD171.L-01003.02	Blatt 5 Bl.



*** The setting can be set on the user interface

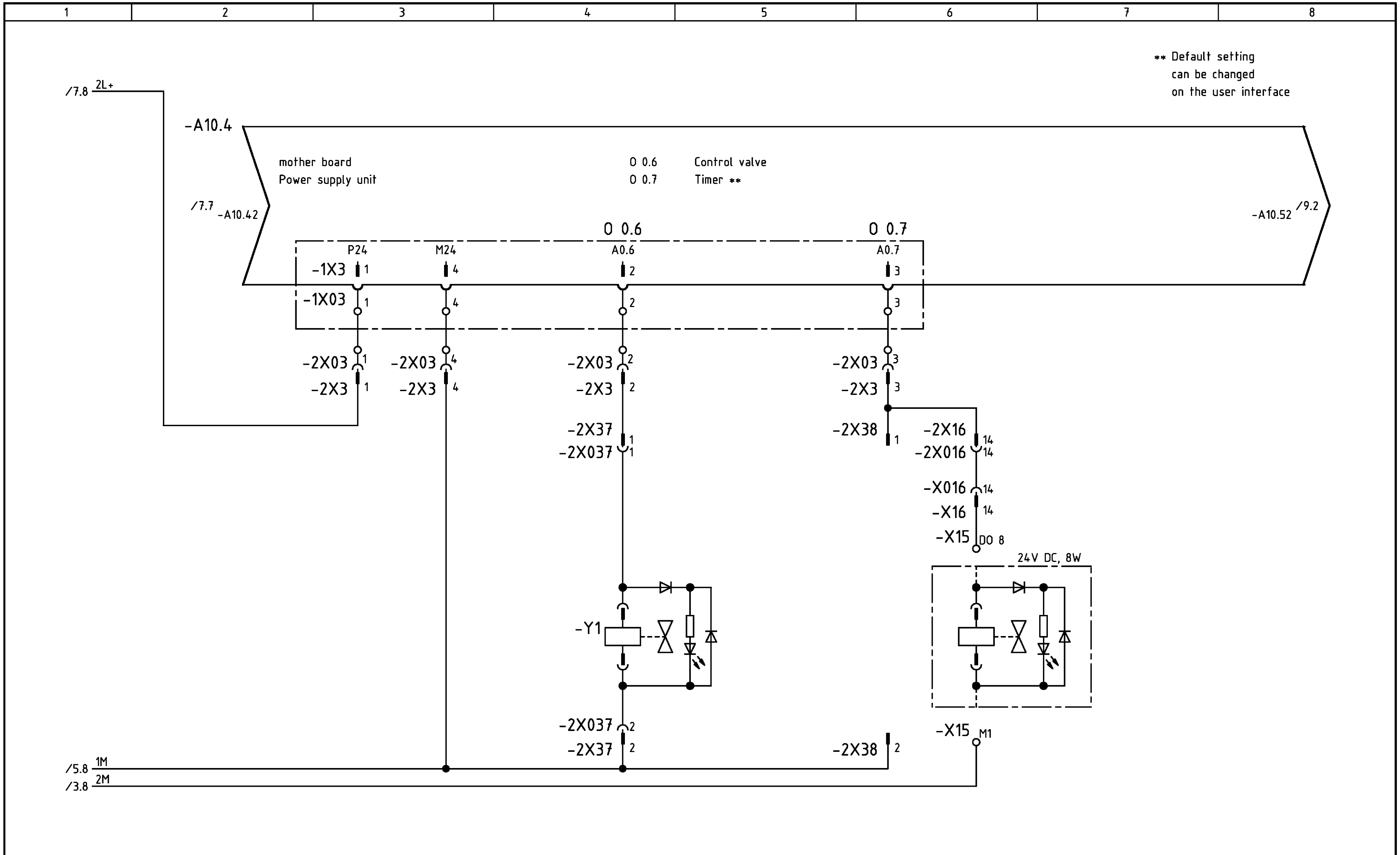
Function:											
Group of functions:					Alarm/maintenance indications						
c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram		=02	
b				Bearb.	Sitter			Compressor DSD 171		+	
a				Gepr.	Büchner			mother board/Inputs			
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02	SDSD171.L-01003.02		Blatt 6 Bl.



Function:

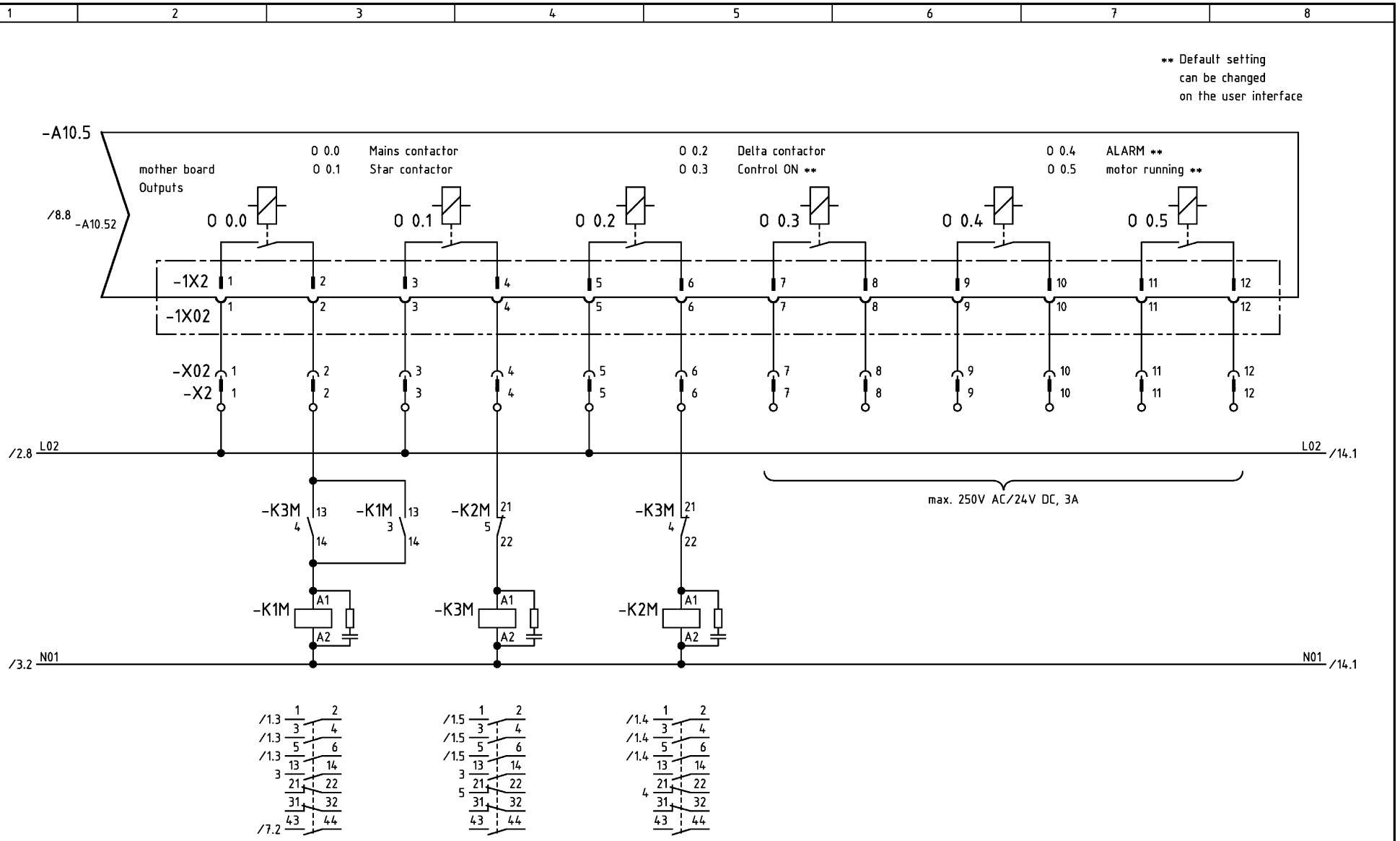
Group of functions: Alarm/maintenance indications

c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram		=02
b				Bearb.	Sitter			Compressor DSD 171		+
a				Gepr.	Büchner			mother board/Inputs	SDSD171.L-01003.02	Blatt 7
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02		Bl.

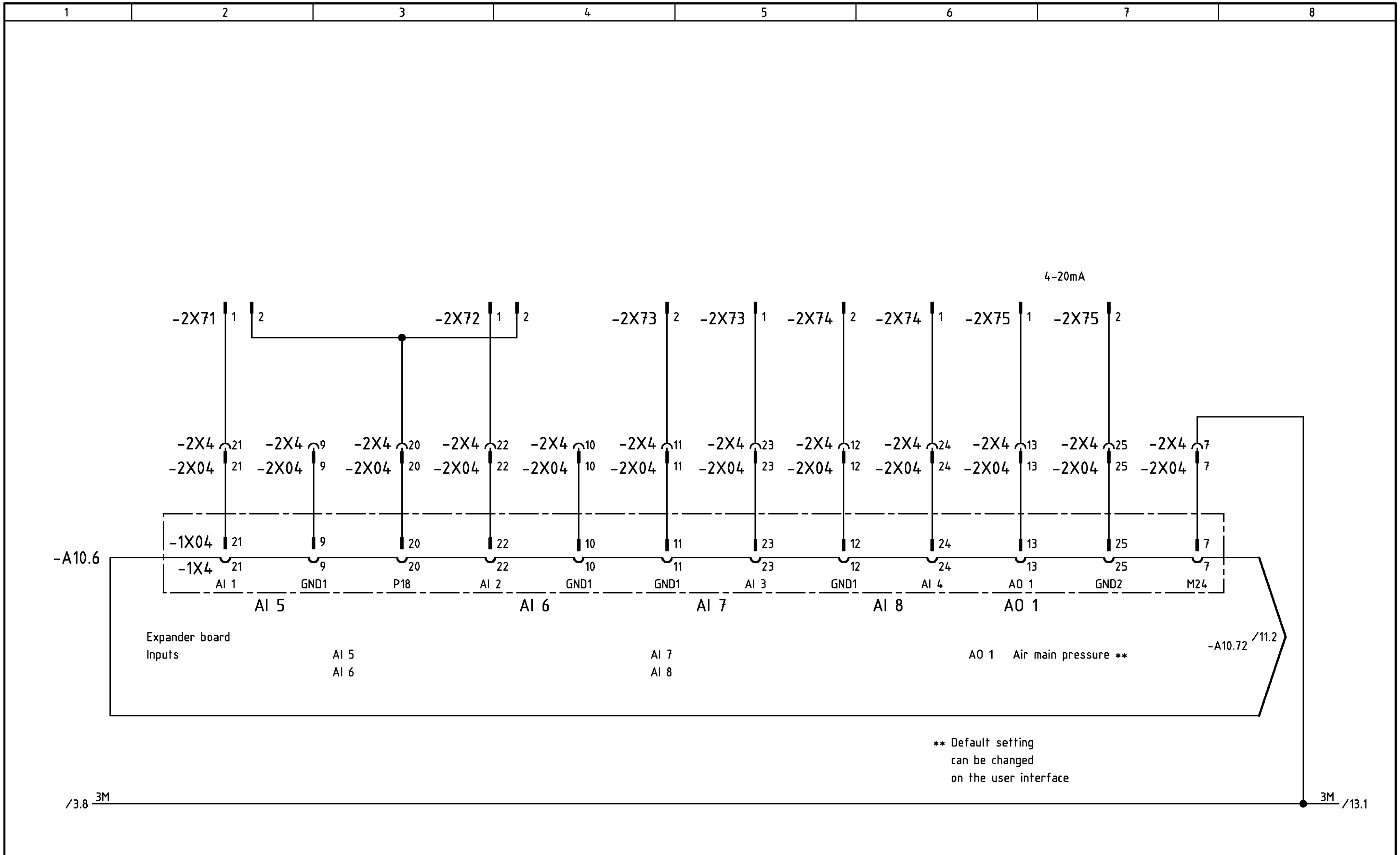


Function:	Inlet/ Venting; Condensate drain, User's connection
Group of functions:	mother board

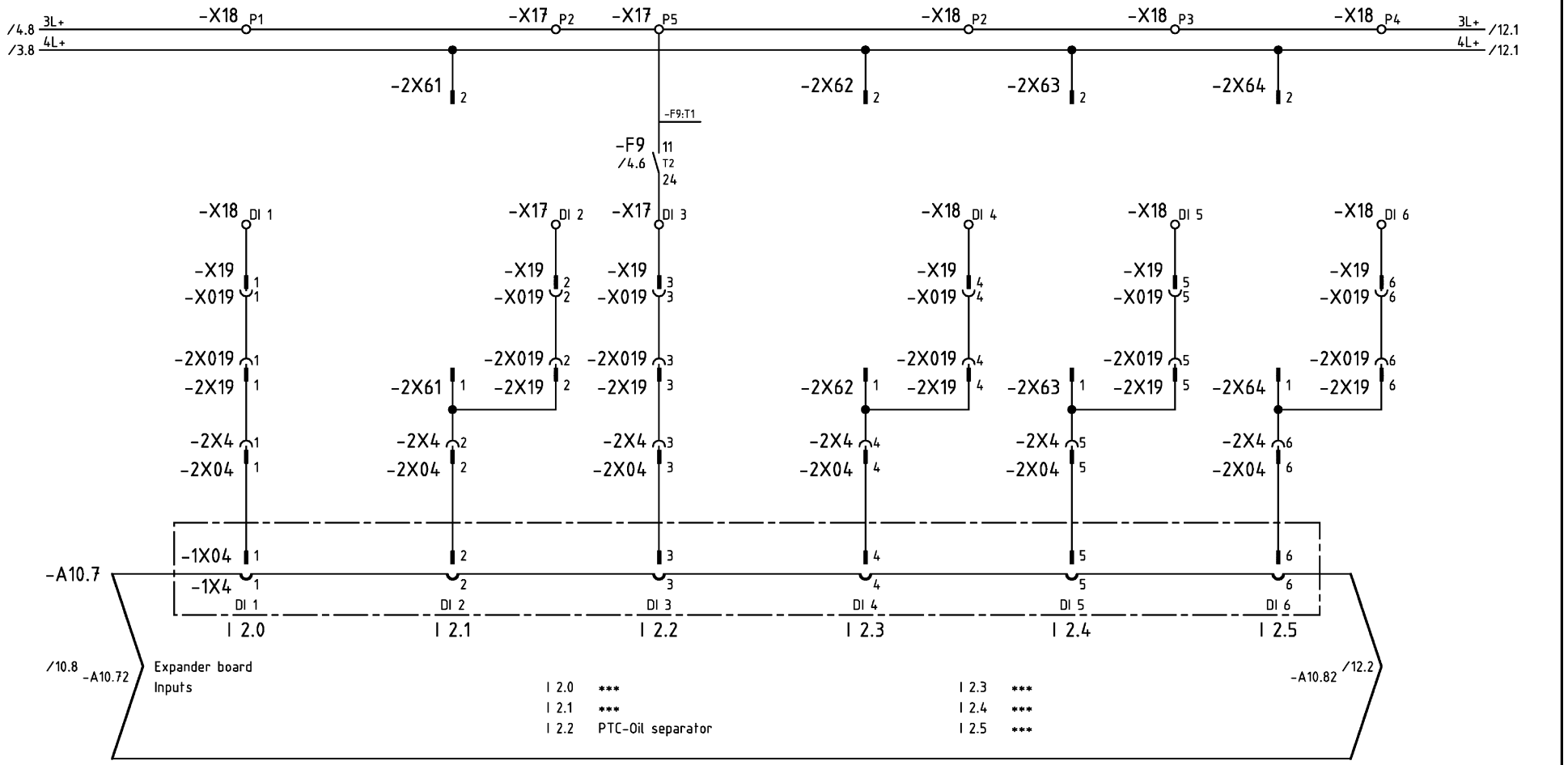
Datum	03.05.2001	KAESER KOMPRESSOREN	Circuit diagram Compressor DSD 171 mother board/Outputs	=02 +
Bearb.	Sitter			
Gepr.	Büchner			SDSD171.L-01003.02
D Änderung / Datum / Name / Norm	Ersatz durch: / Ersatz für:	Ursprung: ADS01001.02		Blatt 8 Bl.



Function:										
Group of functions:						Star-delta changeover			Volt-free contacts, User's connection	
c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram		=02
b				Bearb.	Sitter			Compressor DSD 171		+
a				Gepr.	Büchner			mother board/Outputs		
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02	SDSD171.L-01003.02	Blatt 9 Bl.

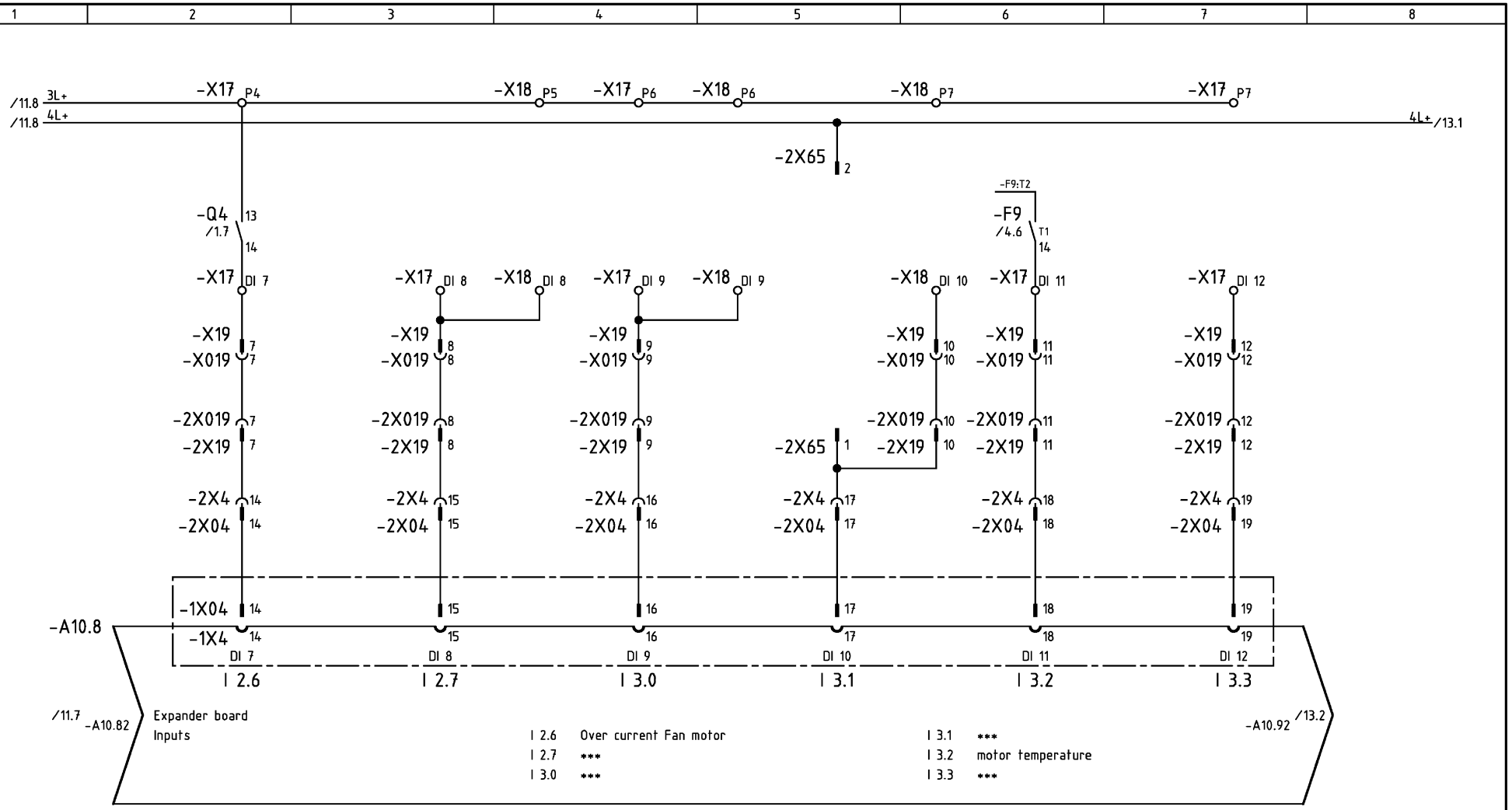


Function:						
Group of functions:						
c			Datum	03.05.2001	Circuit diagram	=02
b			Bearb.	Sitter	Compressor DSD 171	+
a			Gepr.	Büchner	Expander board/Inputs	SDSD171.L-01003.02
D Änderung	Datum	Name	Norm	Ersatz durch: / Ersatz für:	KAESER KOMPRESSOREN, Ursprung: ADS01001.02	Blatt 10 Bl.



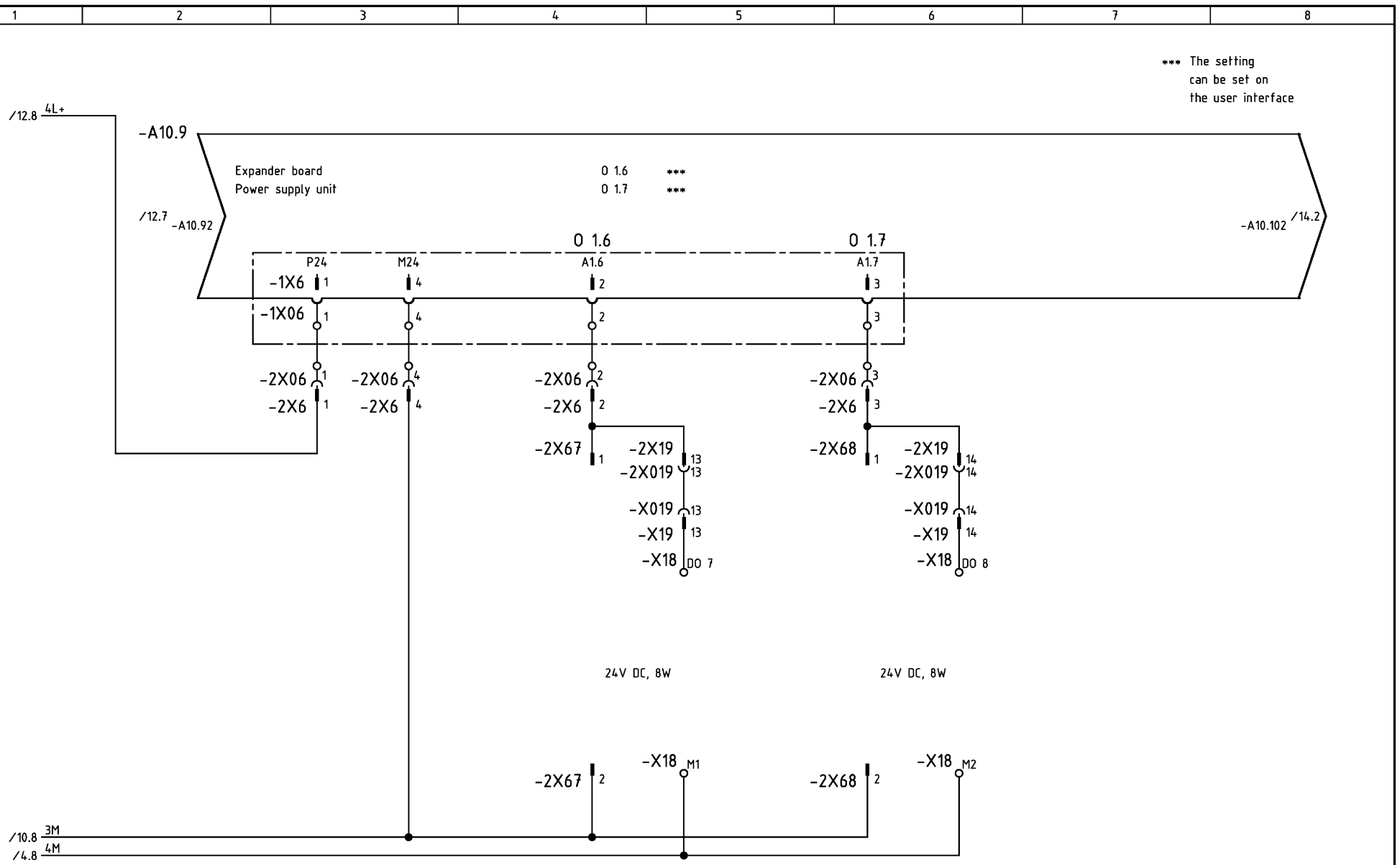
*** The setting can be set on the user interface

Function:										
Group of functions:						Alarm/maintenance indications				
c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram		=02
b				Bearb.	Sitter			Compressor DSD 171		+
a				Gepr.	Büchner			Expander board/Inputs		
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02	SDSD171.L-01003.02	Blatt 11 Bl.



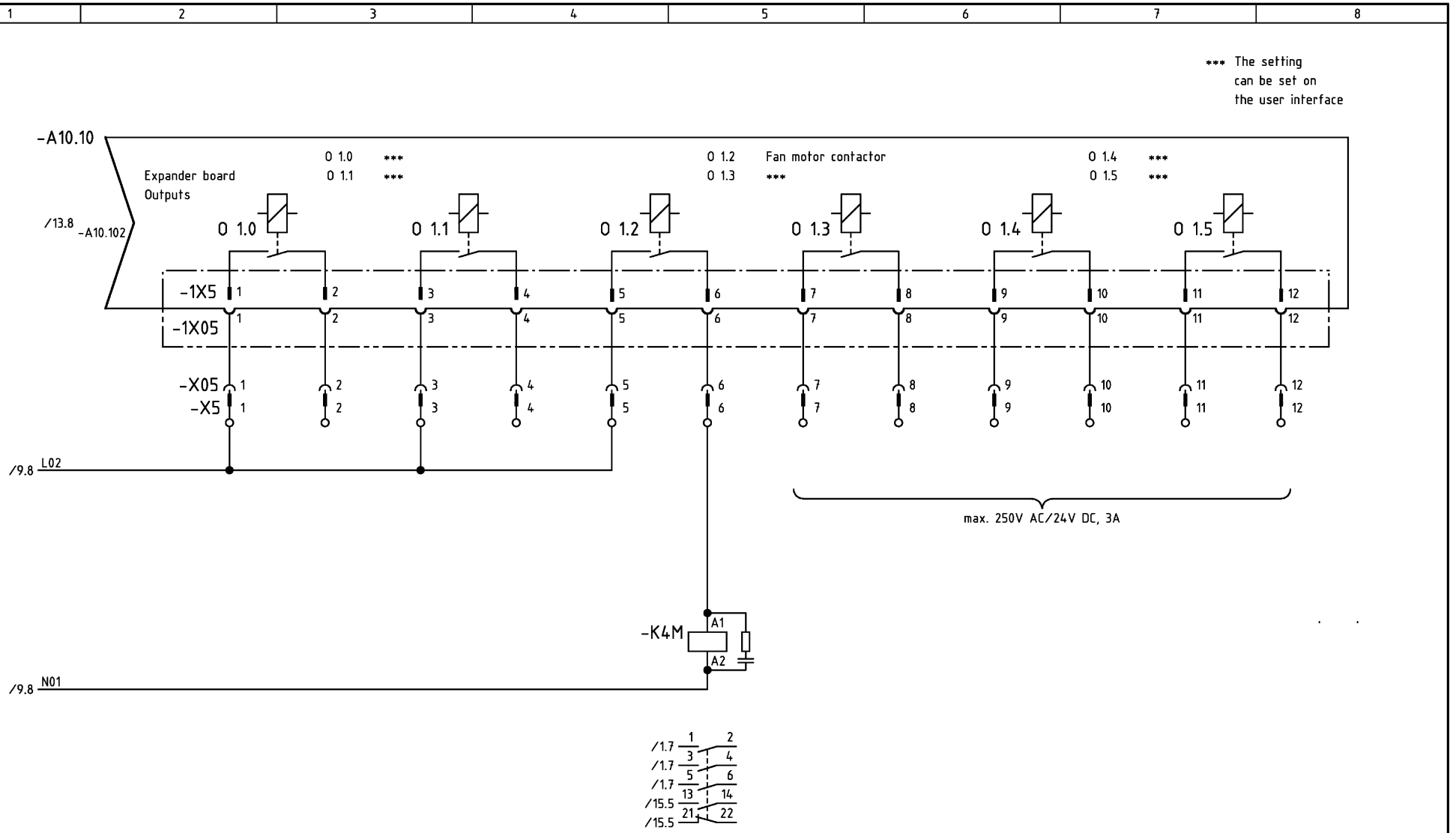
*** The setting can be set on the user interface

Function:											
Group of functions:							Alarm/maintenance indications				
c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram		=02	
b				Bearb.	Sitter			Compressor DSD 171		+	
a				Gepr.	Büchner			Expander board/Inputs			
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02	SDSD171.L-01003.02		Blatt 12 Bl.



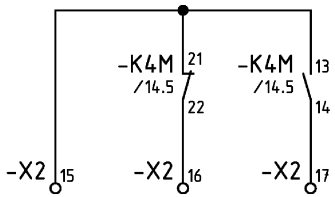
Function:	
Group of functions:	Expander board

c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram	=02
b				Bearb.	Sitter			Compressor DSD 171	+
a				Gepr.	Büchner			Expander board/Outputs	Blatt 13
D	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung: ADS01001.02	SDSD171.L-01003.02	Bl.



Function:							Fan motor contactor		Volt-free contacts, User's connection		
Group of functions:							Expander board				
c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram		=02	
b				Bearb.	Sitter			Compressor DSD 171		+	
a				Gepr.	Büchner			Expander board/Outputs			
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02		SDSD171.L-01003.02	Blatt 14 Bl.

Volt-free contacts
User's connection



max. 250V AC/24V DC, 3A

All non-designated conductors,
1,5mm² orange H07V-K

Function:							motor running				
Group of functions:							Volt-free contacts				
c				Datum	03.05.2001		KAESER KOMPRESSOREN	Circuit diagram		=02	
b				Bearb.	Sitter			Compressor DSD 171		+	
a				Gepr.	Büchner			Volt-free contacts			
D	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02		SDSD171.L-01003.02	Blatt 15 Bl.

-A10	Sigma Control
-A10.1...-A10.5	mother board, Inputs/Outputs
-A10.6...-A10.10	Expander board, Inputs/Outputs
-B9	PTC resistor sensor / compressor motor
-B10	PTC resistor sensor / oil separator tank air discharge
-G1	Power unit
-K1M	Mains contactor
-K2M	Delta contactor
-K3M	Star contactor
-K4M	Motor contactor Fan motor
-M1	Compressor motor
-M2	Fan motor
-Q0	Overload protection switch, Control transformer
-S3	EMERGENCY STOP pushbutton
-T1	Control transformer
-X0	Terminal strip, Power supply
-X11	Terminal strip, Control
-X2,-X5	Terminal strip, Outputs/Volt-free contacts
-X14,-X15	Terminal strip, digital inputs Transfer module 1
-X16	connector strip, digital inputs Transfer module 1
-X17,-X18	Terminal strip, digital inputs Transfer module 2
-X19	connector strip, digital inputs Transfer module 2
-X016	Connector plug, Transfer module 1
-X019	Connector plug, Transfer module 2
-X02,-X05	Connector plug, Outputs/Volt-free contacts
-1X1...-1X3	connector strip Sigma Control, mother board
-1X4...-1X6	connector strip Sigma Control, Expander board
-1X7...-1X9	interface, connector strip Sigma Control
-1X01...-1X06	Connector plug, Sigma Control
-2X1,-2X3	connector strip Adapter 1, internal
-2X16	connector strip Adapter 1, internal
-2X01,-2X03	Connector plug Adapter 1, internal
-2X016	Connector plug Adapter 1, internal
-2X4,-2X6	connector strip Adapter 2, internal
-2X19	connector strip Adapter 2, internal
-2X04,-2X06	Connector plug Adapter 2, internal
-2X019	Connector plug Adapter 2, internal
-2X31...-2X44	connector strip Adapter 1, external
-2X61...-2X74	connector strip Adapter 2, external
-2X031...-2X043	Connector plug Adapter 1, external
-2X75	Connector plug Adapter 2, internal, Analog output
-Y1	Control valve

Fault indicator

-F2	Compressor motor overload protection	Shutdown function and Indicating function
-Q4	Overload protection switch Fan motor	
-F9	Oil separator tank air discharge PTC thermistor trigger and Compressor motor	
-B2	Direction of rotation pressure switch	
-B11	Temperature probe Airend discharge temperature	
-B1	Pressure transducer, Air main pressure	Indicating function
-B3	Oil filter differential pressure switch	
-B4	Pressure transducer, package internal pressure	
-B5	Air filter vacuum switch	

c				Datum	03.05.2001		KAESER KOMPRESSOREN	Electrical equipment identification		=02
b				Bearb.	Sitter			Compressor DSD 171		+
a				Gepr.	Büchner				SDSD171.L-01003.02	Blatt 16
E	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.02		Bl.

1	2	3	4	5	6	7	8

A Stück-zahl Qty.	B Benennung und Verwendung Description and function	C Fabrikatsbezeichnung Typ; Bestell-Nr.; Unterlagen-Nr.; Normkurzbezeichnung notwendige techn. Daten, z.B. Steuerspannung, Frequenz, Einstellbereich Identification data Type; order No.; document No.; equipment code No.; basic technical data				D Lfd. Nr. Item	E Betriebsmittel-Kennz. nach DIN 40719, Teil 2 Identifying symbol of device	F Stromlaufplan Planabschnitt Circuit diagramm 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	Mounting plate			207042.0	CKC								
2	Motor contactor	A 110-30-22-80		7.4831.0	ABB		-K1M,-K2M						
1	Motor contactor	A 95-30-22-80		7.4830.0	ABB		-K3M						
3	Interference suppressor	RC5-2/250		7.3946.00050	ABB		-K1M,-K2M,-K3M						
1	Motor contactor	A 9-30-10-80		7.5750.0	ABB		-K4M						
1	Interference suppressor	RC5-1/250		7.3946.00060	ABB		-K4M						
1	Auxiliary switch	CA 5-01		7.4835.0	ABB		-K4M						
1	Overload protection	TA110 DU110	80-110A	7.4833.0	ABB		-F2						
1	Overload protection switch	MS325-1,6	1-1,6A	7.4527.0	ABB		-Q0						
1	Overload protection switch	MS325-9	6,3-9A	7.4531.0	ABB		-Q4						
1	Auxiliary switch	HK-11		7.4536.0	ABB		-Q4						
1	Control transformer	250VA	400/230V	7.0772.2	Block		-T1						
1	Power supply	230V AC/24V DC	2,5A	7.7030.0	Siemens		-G1						
1	PTC thermistor trigger	MS220K2	24V UC	7.2711.00030	Ziehl		-F9						
3	Terminal	RFK1/185FPA		7.3600.0	Wieland		-X0						
1	Terminal strip			7.7114.00030	Wieland		-X2,-X5,-X11						
2	Transfer module	FLB20/8191 E		7.7012.0	Wieland		-X14...-X19						
2	Adapter	A11		7.7010.0	Wieland		-2X...						
1	Compressor control "Sigma Control"	Typ 2		7.7001.0	Siemens		-A10						
1	EMERGENCY STOP pushbutton	KPMT2-10R		7.3629.0	ABB		-S3						
1	Switching element	KCBH-02	2 OE	7.3169.00080	ABB		-S3						

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 Fabriknummer 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 columnes B and C should be stated. In addition, the data in columnes 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	03.05.2001		KAESER KOMPRESSOREN	Equipment parts list Compressor DSD 171 Control cabinet		=02
b				Bearb.	Sitter					+
a				Gepr.	Büchner					
F	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung: ADS01001.01	GDSD171.L-01003.02	Blatt 1 Bl.

Terminal strip: -X0 (total 3 Terminals)

Destination internal: Connection number / Component identification	Terminal strip: Location	Wire link	Terminal legend / Link / Terminal number	Destination external: Connection number / Component identification	Cable identification: s.b.c. **
-K1M/-K2M 1	/1.1		U1	supply	X
-K1M/-K2M 3	/1.2		V1	supply	X
-K1M/-K2M 5	/1.2		W1	supply	X

Terminal strip: -PE rail (total 5 Terminals)

Destination internal: Connection number / Component identification	Terminal strip: Location	Wire link	Terminal legend / Link / Terminal number	Destination external: Connection number / Component identification	Cable identification: s.b.c. **
	/1.2		PE rail	supply	X
	/1.2		PE rail	Unit frame	
	/1.2		PE rail	Mounting plate	
	/1.4		PE rail	-M1 PE	
	/1.8		PE rail	-X11 PE3	

** See service manual for supply cable cross-section

s.b.c. = supplied by customer

c			Datum	04.05.2001
b			Bearb.	Sitter
a			Gepr.	Büchner
H Änderung	Datum	Name	Norm	

Ersatz durch: | Ersatz für: | Ursprung:

KAESER KOMPRESSOREN

Terminal schedule
Compressor DSD 171
Terminal strip -X0,-PE rail

=02
+

KDSD171.L-01003.02

Blatt 1
Bl.

Volt-free contacts, User's connection

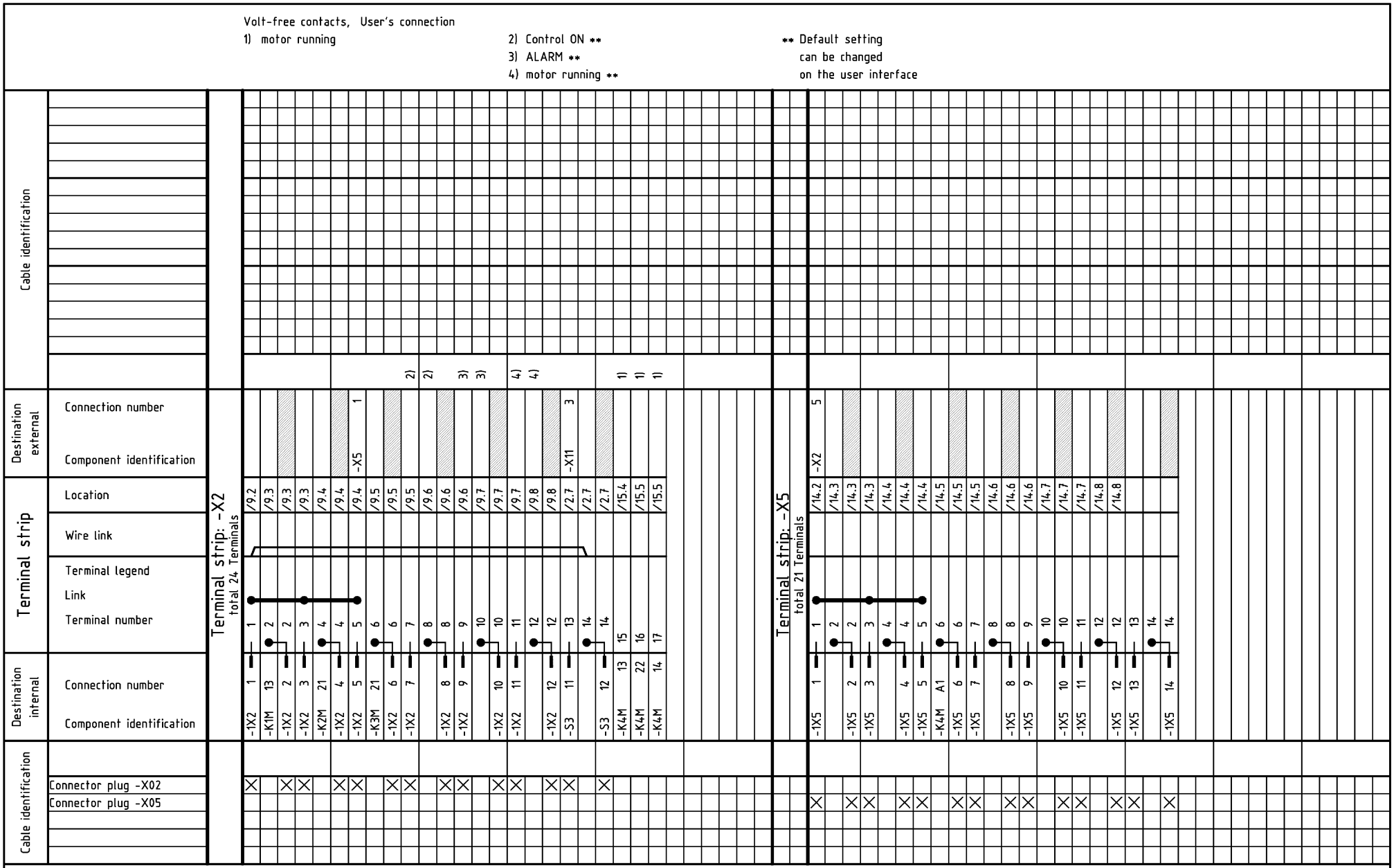
1) motor running

2) Control ON **

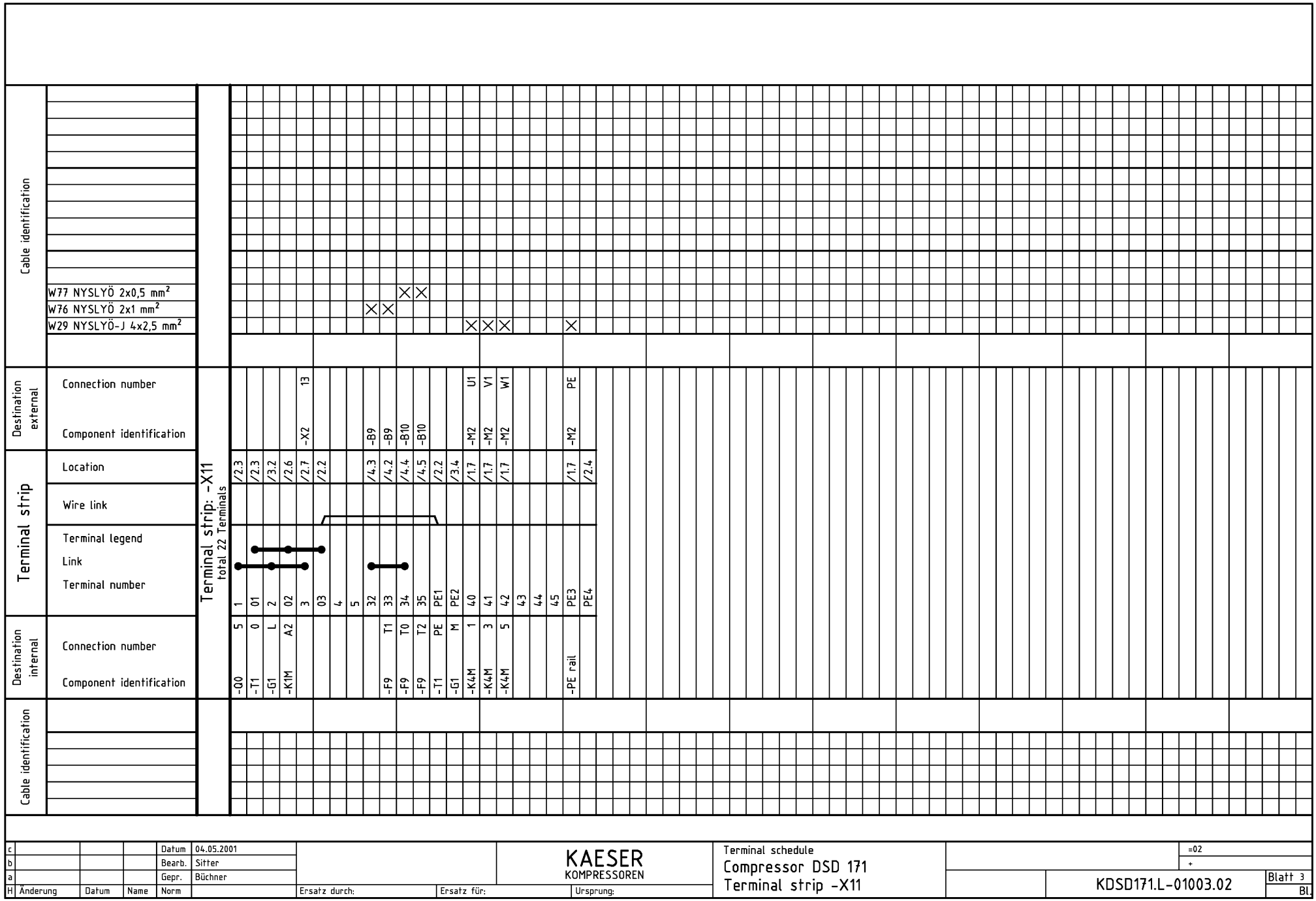
3) ALARM **

4) motor running **

** Default setting
can be changed
on the user interface



c				Datum	04.05.2001		KAESER KOMPRESSOREN	Terminal schedule		=02	
b				Bearb.	Sitter			Compressor DSD 171		+	
a				Gepr.	Büchner			Terminal strip -X2,-X5			
H	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung:	KDSD171.L-01003.02		Blatt 2
											BL


Terminal strip: -X11
total 22 Terminals
Cable identification
W77 NYSLYÖ 2x0,5 mm²
W76 NYSLYÖ 2x1 mm²
W29 NYSLYÖ-J 4x2,5 mm²
Destination external
Connection number
Component identification
Terminal strip
Location
Wire link
Terminal legend
Link
Terminal number
Destination internal
Connection number
Component identification
Cable identification
-X2 13
-B9
-B9
-B10
-B10
-M2 U1
-M2 V1
-M2 W1
-M2 PE
/2.3
/2.3
/3.2
/2.6
/2.7
/2.2
/4.3
/4.2
/4.4
/4.5
/2.2
/3.4
/1.7
/1.7
/1.7
/1.7
/2.4
1
01
2
02
3
03
4
5
32
33
34
35
PE1
PE2
40
41
42
43
44
45
PE3
PE4
5
0
L
A2
T1
T0
T2
PE
M
1
3
5
-Q0
-T1
-G1
-K1M
-F9
-F9
-F9
-T1
-G1
-K4M
-K4M
-K4M
-PE rail
KAESER
KOMPRESSOREN
Terminal schedule
Compressor DSD 171
Terminal strip -X11
=02
+
KDSD171.L-01003.02
Blatt 3
BL
Datum 04.05.2001
Bearb. Sitter
Gepr. Büchner
Norm
Änderung
Datum
Name
Ersatz durch:
Ersatz für:
Ursprung:

Terminal strip: -X14
total 18 Terminals

Terminal number	Location	Wire link	Destination internal: Component identification	Destination internal: Connection number	Destination external	Note
DI 2	/6.4					
DI 3	/6.4		-F2	96		
DI 7	/7.2		-K1M	44		
DI 8	/7.3					
DI 9	/7.4					
DI 11	/7.6					1)
DI 12	/7.7					2)
P1	/3.3		-G1	+		
P2	/6.4					
P3	/6.4		-F2	95		
P4	/7.3					
P5	/7.4					
P6	/7.6					1)
P7	/7.7					2)
M1	/3.3		-G1	M		
M2	/3.3		-X17	M1		
M3						
M4						

Terminal strip: -X15
total 18 Terminals

Terminal number	Location	Wire link	Destination internal	Destination external	Note
DI 1					
DI 4					
DI 5					
DI 6					
DI 8	/7.4				3)
DI 9	/7.5				4)
DI 10	/7.6				
DO 7					
DO 8	/8.6				
P1					
P2					
P3					
P4					
P5	/7.4				3)
P6	/7.5				4)
P7	/7.6				
M1	/8.6				
M2					

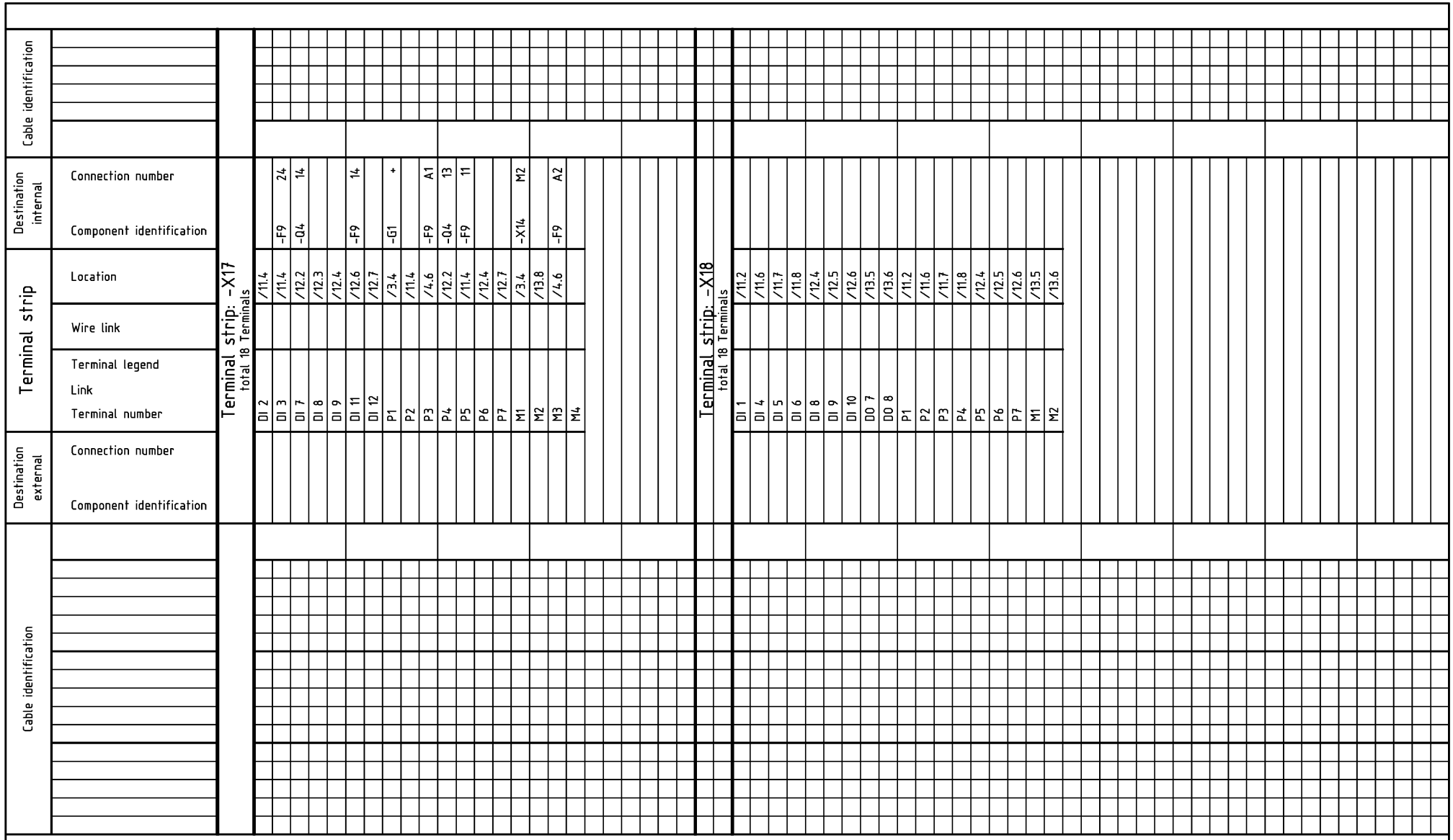
1) ***
2) ***
3) load/idling external **
4) Remote ON/OFF **

** Default setting can be changed on the user interface

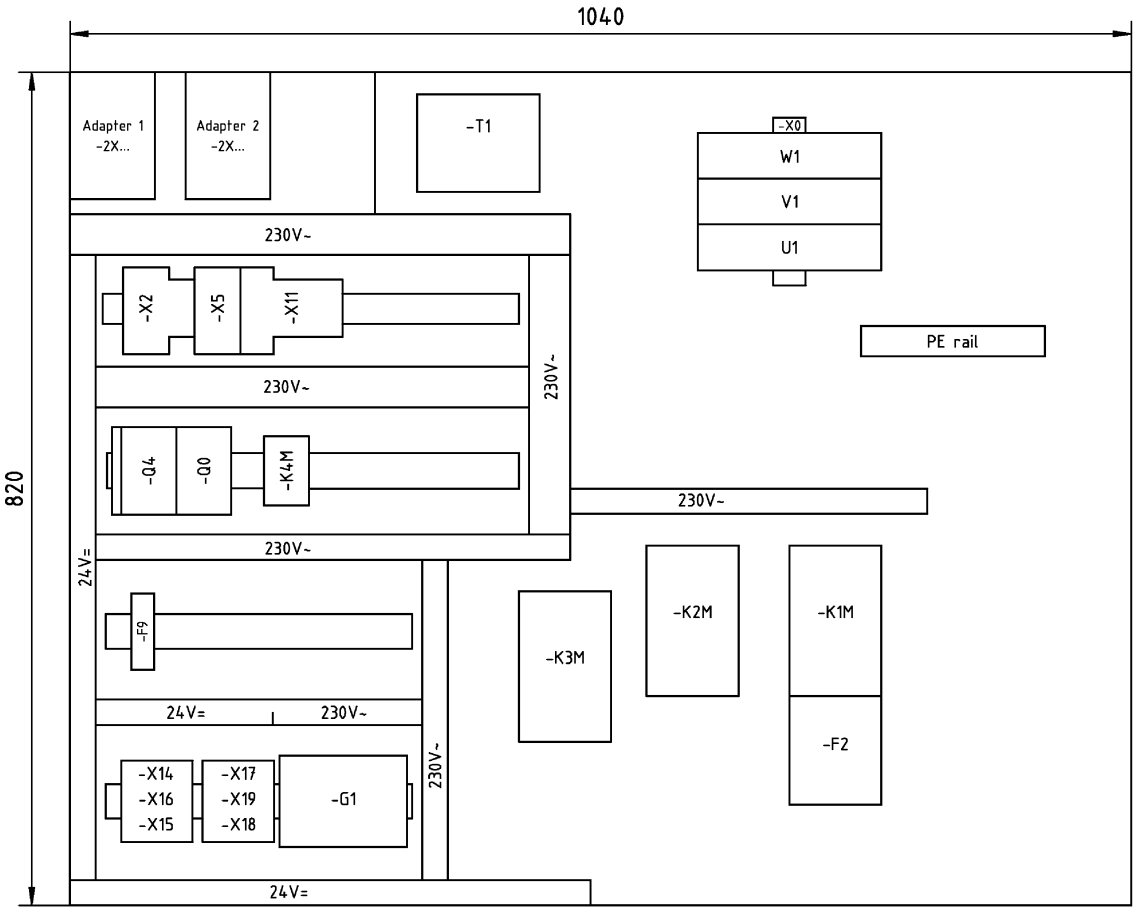
*** The setting can be set on the user interface

Datum	04.05.2001	KAESER KOMPRESSOREN	Terminal schedule	=02
Bearb.	Sitter		Compressor DSD 171	+
Gepr.	Büchner		Terminal strip -X14,-X15	KDSD171.L-01003.02
Norm		Ersatz durch: / Ersatz für: / Ursprung:		Blatt 4 Bl.

H Änderung Datum Name



c				Datum	04.05.2001		KAESER KOMPRESSOREN	Terminal schedule		=02	
b				Bearb.	Sitter			Compressor DSD 171		+	
a				Gepr.	Büchner			Terminal strip -X17,-X18		KDSD171.L-01003.02	Blatt 5
H	Änderung	Datum	Name	Norm		Ersatz durch:	Ersatz für:	Ursprung:			BL



c				Datum	03.05.2001		KAESER KOMPRESSOREN	Component layout Compressor DSD 171 Mounting plate	=02 +
b				Bearb.	Sitter				
a				Gepr.	Büchner				
l	Änderung	Datum	Name	Norm		Ersatz durch: / Ersatz für:	Ursprung: ADS01001.01	ADSD171.L-01003.02	Blatt 1 Bl.

11.2 Spare Parts List

KAESER
http://www.kaeser.com
Dok.Nr. **SEL-1002_01D**

Ersatzteilliste
Schraubenkompressor Typ DSD

Spare parts list
Rotary screw compressor series DSD

Liste de pièces de rechange
Compresseur à vis Type DSD

Lista de las piezas de recambio
Compresor de tornillo modelo DSD

Inhalt	Ersatzteilzeichnung und Legende Wartungspakete
Contents	Spare parts drawing and caption Maintenance packages
Contenu	Vue éclatée et légende Packages d'entretien courant
Indice	Dibujo y leyenda de las piezas de recambio Paquetes de mantenimiento

Typ
Model
Type
Modelo

Materialnummer
Part number
Référence
Número material

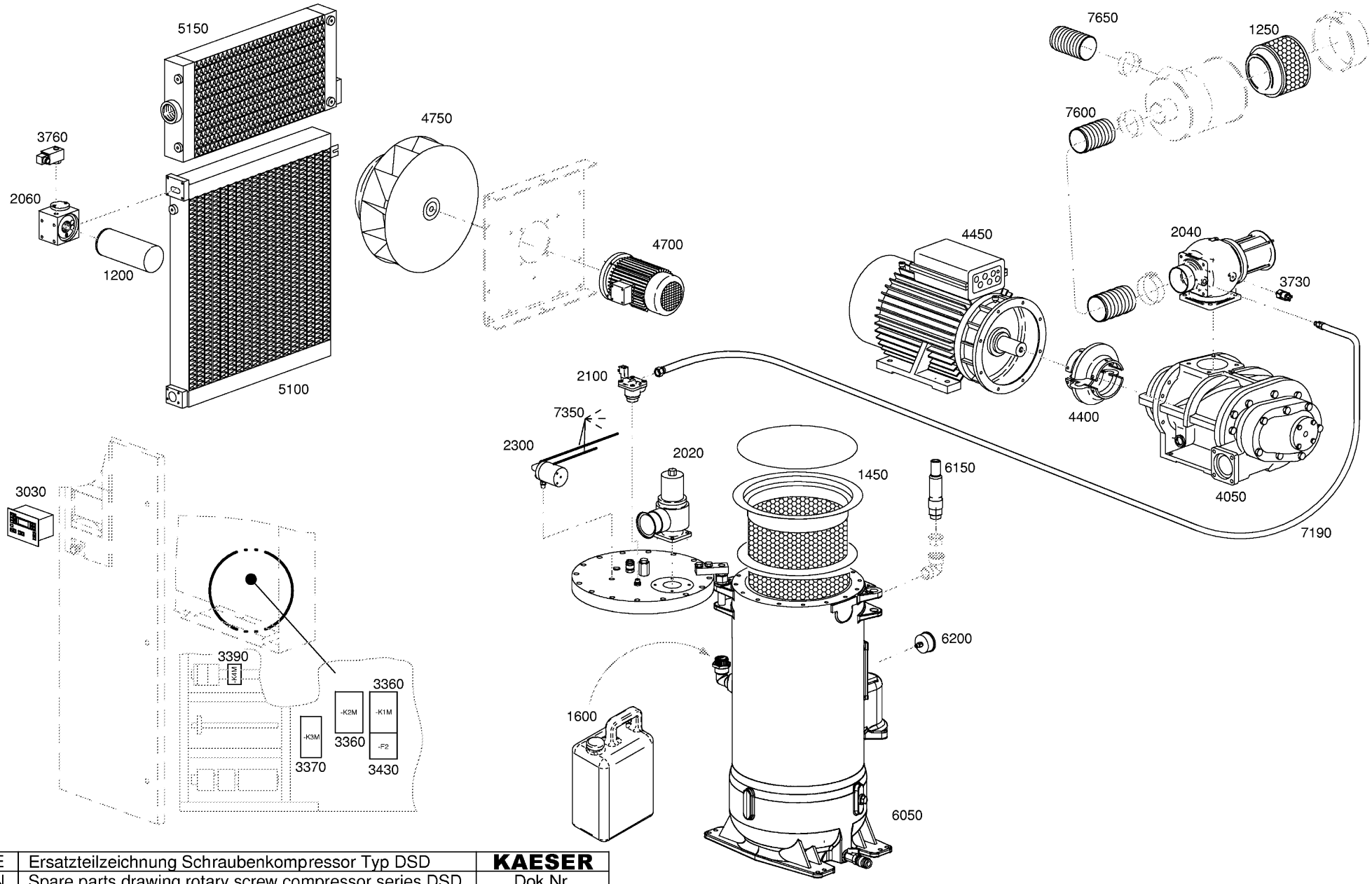
Serialnummer
Serial number
No. de série
Número de serie

ACHTUNG !
Bitte geben Sie bei der Ersatzteilbestellung Material- und Serialnummer der Anlage sowie Positionsnummer und Bezeichnung der Ersatzteile an.

ATTENTION !
Please quote the part number and serial number of the package together with the item number and the name of the part when ordering.

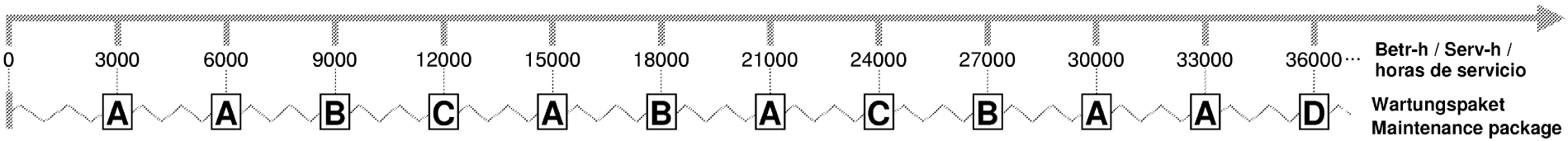
ATTENTION !
Indiquer sur chaque commande de pièces de rechange la référence et le No. de série de l'appareil, de même que le No. du repère et la désignation de la pièce de rechange.

¡ ATENCION !
Cuando pidan piezas de recambio les rogamos nos indiquen el número de material y de la serie, así como el número de la posición y la designación de las piezas de recambio.



DE	Ersatzteilzeichnung Schraubenkompressor Typ DSD	**KAESER**
EN	Spare parts drawing rotary screw compressor series DSD	Dok.Nr.
FR	Vue éclatée compresseur à vis Type DSD	**SEL-1002_01D**
ES	Designación compresor de tornillo modelo DSD	

Nr./No.	Stck/Qty	Benennung	Description	Désignation	Designación
1200	1	Ölfilterpatrone	Oil filter element	Cartouche du filtre à huile	Cartucho filtrante de aceite
1250	1	Luftfilterpatrone	Air filter element	Cartouche du filtre à air	Cartucho filtrante de aire
1450	1	Ölabscheidepatrone kpl.	Oil separator cartridge cpl.	Cartouche séparateur cpl.	Cartucho separador de aceite cpl.
1600	5	Kühlmittel 20 l	Coolant 20 l	Agent réfrigérant 20 l	Fluido refrigerante 20 l
2020	1	Mindestdruckrückschlagventil kpl.	Minimum pressure / check valve cpl.	Soupape pression mini cpl.	Válvula de retención pres.mínima cpl.
2022	1	Wartungs-Kit Mind.dr.rücks.vtl.	Maintenance kit Min.press.check v.	Kit d'entretien Soup. pression min	Kit de mantenimiento Vál.rete./pres.mín
2024	1	Reparatur-Kit Mind.dr.rücks.vtl.	Repair kit Min.press.check v.	Kit de réparation Soup. pression min	Kit de reparación Vál.rete./pres.mín
2040	1	Einlaßventil kpl.	Inlet valve cpl.	Soupape d'aspiration d'air cpl.	Válvula de admisión cpl.
2042	1	Wartungs-Kit Einlaßventil	Maintenance kit Inlet valve	Kit d'entretien Soup.d'aspir.d'air	Kit de mantenimiento Vál. de admisión
2044	1	Reparatur-Kit Einlaßventil	Repair kit Inlet valve	Kit de réparation Soup.d'aspir.d'air	Kit de reparación Vál. de admisión
2060	1	Kombiventil kpl.	Combination valve cpl.	Vanne thermostatique cpl.	Valvula combinada cpl.
2062	1	Wartungs-Kit Kombiventil	Maintenance kit Combination valve	Kit d'entretien Vanne thermostat.	Kit de mantenimiento Valvula combinada
2064	1	Reparatur-Kit Kombiventil	Repair kit Combination valve	Kit de réparation Vanne thermostat.	Kit de reparación Valvula combinada
2100	1	Kombiniertes Entlüftungs-Hilfsventil kpl.	Combined discharge / auxiliary valve cpl.	Vanne auxiliaire et de décharge combinée	Válvula auxiliar combinada de despresurización cpl.
2102	1	Wartungs-Kit komb.Entl.HV	Maintenance kit Com.aux.vent.valve	Kit d'entretien Van. aux. décharge	Kit de mantenimiento Vál.aux.comb.desp.
2104	1	Reparatur-Kit komb.Entl.HV	Repair kit Com.aux.vent.valve	Kit de réparation Van. aux. décharge	Kit de reparación Vál.aux.comb.desp.
2300	1	Pneumatikventil kpl.	Pneumatic valve	Valve pneumatique compl.	Válvula neumática cpl.
3030	1	Kompressorsteuerung "Sigma Control"	Compressor Controller Sigma Control	Sigma Control	Sigma Control
3360	2	Schütz (-K1M, -K2M)	Contactor (-K1M, -K2M)	Contacteur (-K1M, -K2M)	Contactor (-K1M, -K2M)
3370	1	Schütz (-K3M)	Contactor (-K3M)	Contacteur (-K3M)	Contactor (-K3M)
3390	1	Schütz (-K4M)	Contactor (-K4M)	Contacteur (-K4M)	Contactor (-K4M)
3430	1	Überstromauslöser	Overcurrent relay	Relais de surcharge	Relé de sobreintensidad
3730	1	Sicherheitsdruckschalter	Safety pressure switch	Pressostat de sécurité	Presostato de seguridad
3732	1	Schutzkappe	Protective cap	Protection caoutchouc	Cubierta de protección
3760	1	Differenzdruckschalter	Pressure differential switch	Pressostat différentiel	Interruptor por presión diferencial
4050	1	Tausch – Block	Exchange airend	Bloc échange standard	Bloque de cambio
4052	1	Gleitringdichtung kpl.	Sliding ring seal cpl.	Joint tournant cpl.	Cierre de anillo deslizante
4100	1	Montage Kit Tauschblock	Exchange airend fitting kit	Kit montage bloc	Kit montaje bloque de cambio
4400	1	Kupplung	Coupling	Accouplement	Acoplamiento
4450	1	Antriebsmotor	Drive motor	Moteur de commande	Motor de accionamiento
447	1	Motorlager A-Seite	Motor bearings D-end	Roulement moteur côté A	Rodamientos del motor lado A
448	1	Motorlager B-Seite	Motor bearings N-end	Roulement moteur côté B	Rodamientos de motor lado B
4700	1	Lüftermotor	Fan motor	Moteur ventilé	Motor de ventilador
472	1	Motorlager A-Seite	Motor bearings D-end	Roulement moteur côté A	Rodamientos del motor lado A
473	1	Motorlager B-Seite	Motor bearings N-end	Roulement moteur côté B	Rodamientos de motor lado B
4750	1	Lüfterrad	Fan wheel	Ventilateur	Rueda ventilador
5100	1	Ölkühler kpl.	Oil cooler cpl.	Refroidisseur d´huile cpl.	Refrigerador de aceite cpl.
5150	1	Luftkühler kpl.	Air cooler cpl.	Refroidisseur d'air cpl.	Refrigerador de aire cpl.
6050	1	Ölabscheidebehälter kpl.	Oil separator tank cpl.	Réservoir séparateur d´huile cpl.	Despós.separ.aceite cpl.
6150	1	Sicherheitsventil kpl.	Pressure relief valve cpl.	Soupape de sûreté	Válvula de seguridad
6200	1	Manometer	Pressure gauge	Manomètre	Manometro
7190	1	Schlauchleitung komb.Entl.HV-Einlaßventil	Hose line Com.aux.vent.valve-Inlet valve	Tuyau flexible Van.aux.décharge-Soup.d'aspri.d'air	Tubo flexible Vál.aux.comb.desp.-Vál. de admisión
7350	1	Steuerleitungs-Kit	Control line Kit	Kit conduite de régulation	Kit conducto de control
7600	1	Luftansaugschlauch	Air inlet hose	Tuyau	Tubo de aspiración de aire
7650	1	Luftansaugschlauch	Air inlet hose	Tuyau	Tubo de aspiración de aire



Wartungsintervalle bei günstigen Umgebungs- und Betriebsbedingungen wie kühle bis mäßige Umgebungstemperatur, niedrige Luftfeuchtigkeit und saubere Ansaugluft.
Maintenance intervals under good ambient and operating conditions, such as low to moderate ambient temperature and dry, clean inlet air.
Périodicités d'entretien dans des conditions ambiantes et de service favorables telles que température ambiante basse à modérée, faible degré d'humidité de l'air et air d'aspiration propre.
Intervalos de mantenimiento en condiciones de ambiente y de servicio favorables, así como temperaturas frescas hasta moderadas, humedad atmosférica baja y aire de aspiración limpio.

Abhängig von den Umgebungs- und Betriebsbedingungen können sich die Wartungsintervalle verkürzen.
Maintenance intervals may decrease due to ambient and operating conditions.
Les périodicités d'entretien peuvent se réduire en fonction des conditions ambiantes et de service.
Los intervalos de mantenimiento pueden acortarse según las condiciones del entorno y del servicio.

Wartungspaket Maintenance package Package d'entretien Paquete de mantenimiento	A
Nr. / No.	Stück / Qty.
1200	1
1250	1
1600*)	5

*) Sigma Fluid FGL

Wartungspaket Maintenance package Package d'entretien Paquete de mantenimiento	B
Nr. / No.	Stück / Qty.
1200	1
1250	1
1450	1
1600*)	5

*) Sigma Fluid Plus / Sigma Fluid FGL

Wartungspaket Maintenance package Package d'entretien Paquete de mantenimiento	C
Nr. / No.	Stück / Qty.
1200	1
1250	1
1600*)	5
2022	1
2042	1
2062	1
2102	1
472	1
473	1

*) Sigma Fluid FGL

Wartungspaket Maintenance package Package d'entretien Paquete de mantenimiento	D
Nr. / No.	Stück / Qty.
1200	1
1250	1
1450	1
1600*)	5
2024	1
2044	1
2064	1
2104	1
4400	1
447	1
448	1
472	1
473	1
7190	1
7600	1
7650	1

*) Sigma Fluid Plus / Sigma Fluid FGL

Vor und bei Ausführung aller Arbeiten sind die Sicherheits- und Servicehinweise in der Betriebsanleitung der Maschine zu beachten!

Before and during all work, be sure to read and follow the safety and service instructions contained in the machine Service Manual!

Avant et lors de l'exécution de travaux, il est impératif de respecter les consignes de sécurités et de maintenance décrites dans la notice d'utilisation de la machine.

¡Se ruega observar las indicaciones de seguridad y mantenimiento en las instrucciones de servicio de la máquina antes de efectuar cualquier trabajo y durante el mismo!

DE	Wartungspakete Schraubenkompressor Typ DSD	**KAESER**
EN	Maintenance packages rotary screw compressor series DSD	Dok.Nr.
FR	Packages d'entretien courant compresseur à vis Type DSD	**SEL-1002_01D**
ES	Paquetes de mantenimiento compresor de tornillo modelo DSD	