

Operator Manual

Portable Rotary Screw Compressor

MOBILAIR M55 PE SIGMA CONTROL SMART pV

No.: 902366 10 USE

WARNING

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- > Always start and operate the engine in a well-ventilated area.
- > If in an enclosed area, vent the exhaust to the outside.
- > Do not modify or tamper with the exhaust system.
- > Do not idle the engine except as necessary.

For more information go to www.P65warnings.ca.gov/diesel.

Manufacturer:

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Original instructions
/KKW/M55PE 2.09 en Z1 SBA-MOBILAIR

20220325 111411

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1 Regarding this Document

1.1 Using this document

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

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

1.2 Further documents

Further documents included with this operating manual are:

- Certificate of acceptance / operating instructions for the pressure vessel
- Declaration of Conformity in accordance with the applicable directive
- Engine documentation (where applicable)
- SIGMA CONTROL SMART operating manual

Missing documents can be requested from KAESER.

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

1.3 Copyright

This operator manual is copyright protected. Queries regarding use or duplication of the documentation should be referred to KAESER. Correct use of information will be fully supported.

1.4 Symbols and labels

- Please note the symbols and labels used in this document.

1.4.1 Warnings

Warning notices indicate risks potentially resulting in personal injury, if the measures specified are not taken.

Warning notices indicate three levels of danger identified by the corresponding signal word:

Signal word	Meaning	Consequences of ignoring the warning
DANGER	Warns of an imminent danger	Will very likely result in death or severe injury
WARNING	Warns of a potentially imminent danger	May result in death or severe injury

1 Regarding this Document

1.4 Symbols and labels

Signal word	Meaning	Consequences of ignoring the warning
CAUTION	Warns of a potentially dangerous situation	May result in a moderate physical injury

Tab. 1 Danger levels and their definition (personal injury)

Some warning notes may precede a chapter. They apply to the entire chapter including all subsections.

Example:

⚠ DANGER

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

The possible consequences of ignoring a warning are shown here.

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

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

Warning notes referring to a subsection or the subsequent action are integrated into the procedure and numbered as an action.

Example:

1. **⚠ WARNING** *The type and source of the imminent danger is shown here!*
The possible consequences of ignoring a warning are shown here.
The word "WARNING" indicates that death or severe injury may result from ignoring the warning.
➤ *The measures required to protect yourself from danger are shown here.*
2. Always read and comply with warning instructions.

1.4.2 Potential damage warnings

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

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

Signal word	Meaning	Consequences of non-compliance
NOTE	Warns of a potentially dangerous situation	Damage to property is possible

Tab. 2 Danger levels and their definition (damage to property)

Example:

NOTICE

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

Potential effects when ignoring the warning are indicated here.

➤ *The protective measures against the damages are shown here.*

➤ Carefully read and fully comply with warnings against damages.

1.4.3 Other alert notes and their symbols

This symbol indicates particular important information.

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

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

➤ This symbol is placed by lists of actions comprising one step of a task.

1. In process instructions with several steps ...
2. ... the sequence of steps is numbered.

Result Shows the expected conclusion of the previous action.

Option da ➤ Information relating to one option only is marked with an option code (e.g., "option da" means that this section is only valid for machines with the air treatment components "aftercooler and centrifugal separator"). Option codes used in this operating manual are explained in chapter 2.3.



Information referring to potential problems is identified by a question mark.

The cause is named in the help text ...

➤ ... and a remedy given.



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

Further information Further topics are introduced here.

2 Technical Data

2.1 Nameplate

The machine's nameplate contains the model type and important technical information. The nameplate is located on the outside of the machine (see illustration in chapter 13.1).

➤ Enter the data from the nameplate here as a reference:

Feature	Value
Portable rotary screw compressor	
Material no. / Serial no.	
Actual total weight	
Lifting point load capacity	
Rated power	
Rated engine speed	
Maximum gauge working pressure PS	

Tab. 3 Nameplate

2.2 Vehicle identification number

The vehicle identification number (VIN) is the only unmodifiable and therefore the most important identification feature on the machine.

The vehicle identification number remains associated with the machine throughout the entire duration of its service life. The vehicle identification number is stamped into the bodywork of the machine.

Further information For the location of the VIN stamp, see chapter 13.1.

2.3 Options overview

A list of the options built into your machine helps to correlate the information in this Operating Manual.

Available options are listed on the options label (option: code letters).

This label can be found:

- on the outside of the machine.
- see chapter 13.1.



Only the codes for those options fitted appear on the options label!

Options fitted:

da	—	df	dd	—
—	—	—	—	—
fa	—	—	—	—
—	—	—	—	—
—	—	—	—	—
ba	—	—	—	—
—	—	lc	lf	—
—	—	—	—	—
—	—	oc	—	—
—	—	—	—	—
—	—	—	—	—
r1	r2	r3	r4	r5
ta	tb	—	—	te
—	—	—	—	—

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Fig. 1 Option label MOBILAIR M55PE with options

- r1 Place holders for chassis options
- r3 Place holders for chassis options
- r4 Place holders for chassis options
- r5 Place holder for frame design options for stationary machines

- See the separate document "Chassis Operating Manual" for information about the option codes.
- Take a list of available options from the options label and enter these options as reference in the below overviews.

2.3.1 Option da, df, dd
Air treatment

Option	Option code	Equipped?
Compressed air aftercooler and water separator	da	
Heat exchanger (with bypass)	df	
Filter combination	dd	

Tab. 4 Air treatment options

2.3.2 Option fa
Air distributor

Option	Option code	Available?
Direct air flow	fa	
—	—	

Tab. 5 Air distributor option

2.3.3 Option ba, bb
Low temperature equipment

Option	Option code	Equipped?
Low temperature equipment	ba	

Option	Option code	Equipped?
Coolant preheating	—	

Tab. 6 Low temperature equipment options

2.3.4 Option lc, lf Exhaust gas after-treatment

Option	Option code	Available?
Exhaust gas after-treatment with diesel particulate filter	lc + lf	
Exhaust gas after-treatment with diesel oxidation catalytic converter	lf	

Tab. 7 Exhaust gas after-treatment options

2.3.5 Option oc GSM/GPS modem

Option	Option code	Available?
GSM/GPS modem	oc	

Tab. 8 GSM/GPS modem

2.3.6 Option ta, tb, tc, te Lighting

Option	Option code	Available?
None (stationary)	ta	
Reflective warning triangle	tb	
EG - 12 V	tc	
USA - 12 V (DOT conformity)	te	

Tab. 9 Lighting options

2.3.7 Option rw,rx Frame design for stationary machines



The frame design for stationary machines is defined by the option designations as follows:

Frame designs

Frame	Option code	Equipped?
Stationary (rw, rx):		
On skids	rw	

Frame	Option code	Equipped?
On frame	rx	

Tab. 10 Options for stationary frame design

2.4 Machine (without options)

2.4.1 Sound pressure level [dB(A)]

The sound pressure level conforms to the US EPA Standard.
 Measuring distance: 23 ft

Sound Pressure Level	M55PE
Sound pressure level [dB(A)]	76

Tab. 11 Guaranteed sound pressure level [dB(A)]

2.4.2 Tightening torque

2.4.2.1 Tightening torques for screws



Overview:

- Standard values for M4–M8 screws
 - Surface finish: zinc plated (bright)
 - Standard values for M10–M24 screws
 - Surface finish: zinc flake coating (matte).
- Set the torque as appropriate for the surface finish and friction coefficient.

Standard values for M4–M8 screws with steel grade 8.8:

Thread	M4	M5	M6	M8
Torque [lbf-in]	26.6	52.2	88.5	216.8

Surface finish: zinc plated (bright)

Standards based on VDI 2230.

Tab. 12 Torques for M4–M8 screws

Standard values for M10–M24 screws with steel grade 8.8:

Thread	M10	M12	M14	M16	M20	M24
Torque [lbf-in]	354	620	929	1416	2832	4868

Surface finish: zinc flake coating (matte).

Standards based on VDI 2230.

Tab. 13 Torques for M10–M24 screws

2.4.2.2 Torques for lifting eye

Recommended values for screws corresponding to the strength category:

Screws	Strength category	Thread	Torque [lbf-in]
Mushroom head screw	8.8	M12	620
Mushroom head screw	8.8	M12	620

Tab. 14 Torques for lifting eye screws

2.4.3 Ambient conditions

Positioning	Limit value
Maximum altitude amsl* [ft]	3000
Minimum ambient temperature [°F]	14
Maximum ambient temperature [°F]	113

* Higher altitudes are permissible only after consultation with the manufacturer.

Tab. 15 Ambient conditions

2.4.4 Additional specifications

For specifications, according to the machine's operating license, such as:

- dimensions,
- track width,
- footprint,

can be found in the dimensioned drawings in Chapter 13.3.



The dimensional drawings also show the position of the following inlets and outlets:

- Cooling air inlet
- Cooling air outlet
- Compressed air outlet
- Exhaust

2.5 Chassis

2.5.1 Chassis options

- See the technical data relating to the chassis in the separate document "Chassis Operating Manual".

2.6 Machines with stationary frame design

2.6.1 Option rw, rx

Weight of machines with stationary frame design

Actual weight of individual machines is dependent on equipment fitted (see machine nameplate).

➤ Enter the actual overall weight* from the nameplate into the table below for reference.

Option	rw	rx
Type of stationary frame design	Skids	Frame
Actual total weight [lb]*		

*Enter here for reference, the actual total weight taken from the nameplate of the machine.

Tab. 16 Weight of the machine

2.7 Compressor

2.7.1 Variable pressure flow rate control (pV control)

Overview:

- Maximum machine working pressure
- Nominal system pressure and flow rate
- Nominal system pressure and engine speed

2.7.1.1 Maximum machine working pressure

Maximum working pressure [psig]	125	150
SIGMA airend	17-G	17-G
Setting range, nominal system pressure [psig]	90–125	90–150

Tab. 17 Maximum working pressure

2.7.1.2 Nominal system pressure and flow rate



Definition of flow rate: Constant delivery volume relative to intake conditions.
Flow rate in accordance with ISO 1217:2009. Annex D

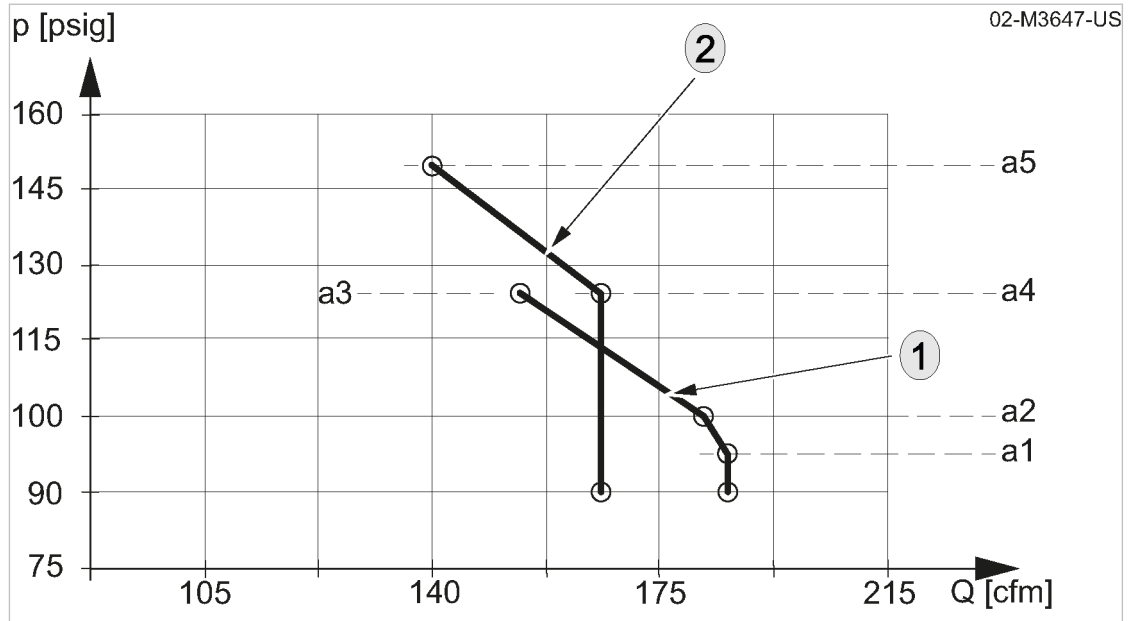


Fig. 2 Nominal system pressure / flow rate diagram

- ① Characteristic line, nominal system pressure 90–125 psig
 - ② Characteristic line, nominal system pressure 90–150 psig
- Q Flow rate [cfm]
p Nominal pressure [psig]

Flow rate for setting range, nominal system pressure 90–125 psig:



Use compressed air tools only with the pressure appropriate for its intended use (tool working pressure).

Measuring point	Maximum working pressure (Nominal pressure) [psig]	Flow rate [cfm]	Application example
a1	95	190	Hammer application, Blasting application
a2	100	185	Cable injection
a3	125	155	Hammer application, Blasting application

Tab. 18 Flow rate depending on the nominal system pressure

Flow rate for setting range, nominal system pressure 90–150 psig:



Use compressed air tools only with the pressure appropriate for its intended use (tool working pressure).

Measuring point	Maximum working pressure (Nominal pressure) [psig]	Flow rate [cfm]	Application example
a4	125	165	Hammer application, Blasting application

Measuring point	Maximum working pressure (Nominal pressure) [psig]	Flow rate [cfm]	Application example
a5	150	140	Cable injection, Drilling application

Tab. 19 Flow rate depending on the nominal system pressure

2.7.1.3 Nominal system pressure and engine speed

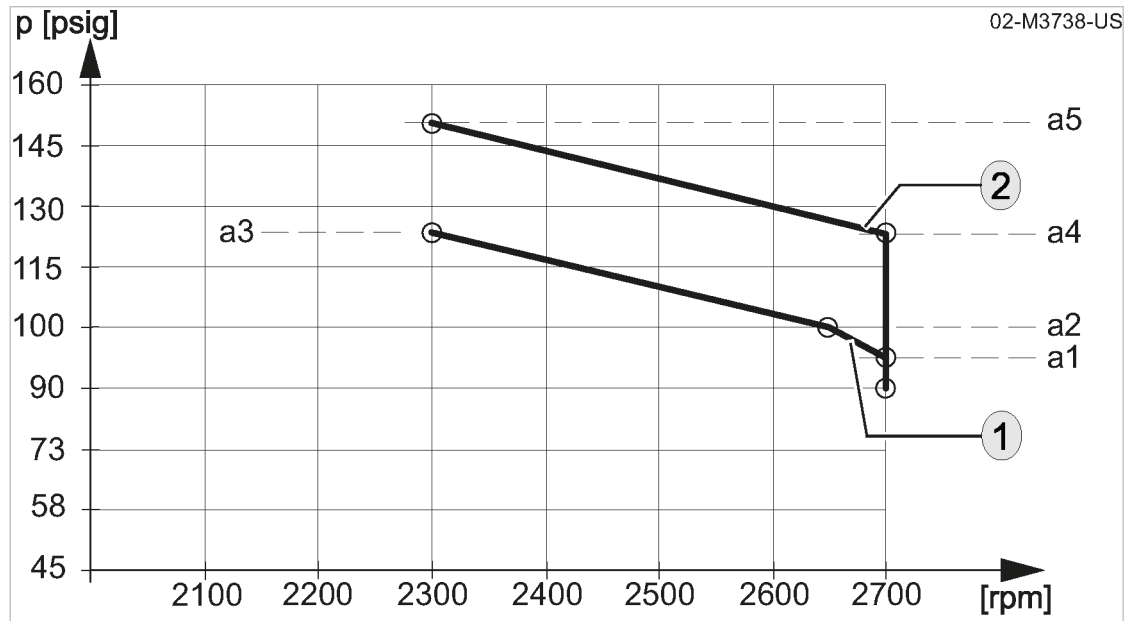


Fig. 3 Nominal system pressure / engine speed diagram

- ① Characteristic line, nominal system pressure 90–125 n Engine speed [rpm]
- ② Characteristic line, nominal system pressure 90–150 p Nominal pressure [psig]

Setting range, nominal system pressure 90–125 psig / engine speed

Measuring point	Pressure stage (nominal pressure) [psig]	Speed rpm
a1	95	2700
a2	100	2650
a3	125	2300

Tab. 20 Nominal system pressure and engine speed

Setting range, nominal system pressure 90–150 psig / engine speed

Measuring point	Pressure stage (nominal pressure) [psig]	Speed rpm
a4	125	2700

Measuring point	Pressure stage (nominal pressure) [psig]	Speed rpm
a5	150	2300

Tab. 21 Nominal system pressure and engine speed

2.7.2 Compressed air outlet

Outlet valve ["]	Number
G 3/4	2
G 1	1

Tab. 22 Compressed air distributor

2.7.3 Safety relief valves

Maximum working pressure: See machine nameplate

Maximum working pressure [psig]	125	150
Setting range, nominal system pressure [psig]	90–125	90–150
Safety relief valve activating pressure [psig]	160	232

Tab. 23 Safety relief valve activating pressure

2.7.4 Temperature

Required temperatures readiness to switch to LOAD mode	Values
Airend discharge temperature (ADT) [°F]	68
Engine coolant temperature (ECT) [°F]	68

Tab. 24 Required temperatures readiness to switch to LOAD mode

Airend discharge temperature	Values
Typical airend discharge temperature during operation [°F]	167 212
Maximum airend discharge temperature (automatic safety shut-down) [°F]	243

Tab. 25 Airend discharge temperature

2.7.5 Cooling oil recommendation

A sticker showing the type of oil used is located near the oil separator tank filler.

Information on ordering cooling oil is found in chapter 11.

Cooling oils for general applications

	SIGMA FLUID		
	MOL	S-460	S-570
Description	Mineral oil	Synthetic oil	Synthetic oil
Application	Standard oil for all applications except in connection with processing of food products. Particularly suitable for machines with a low duty cycle.	Standard oil for all applications except in connection with processing of food products. Particularly suitable for machines with a high duty cycle. Not suitable for East and Southeast Asia.	Special oil for ambient conditions with high temperatures and humidity. Standard oil for all applications except in connection with foodstuffs. Particularly suitable for machines with a high duty cycle.
Viscosity at 104 °F	0.07 in ² /s (D 445; ASTM test)	0.07 in ² /s (D 445; ASTM test)	0.08 in ² /s (D 445; ASTM test)
Viscosity at 212 °F	0.01 in ² /s (D 445; ASTM test)	0.01 in ² /s (D 445; ASTM test)	0.01 in ² /s (D 445; ASTM test)
Flash point	446 °F (D 92; ASTM test)	484 °F (D 92; ASTM test)	496 °F (D 92; ASTM test)
Density at 59 °F	54.2 lb/ft ³ (D 4052; ASTM test)	53.7 lb/ft ³ (D 4052; ASTM test)	54.2 lb/ft ³ (D 4052; ASTM test)
Pour point:	-22 °F (D 97; ASTM test)	-16.6 °F (D 97; ASTM test)	-65 °F (D 97; ASTM test)

Tab. 26 Cooling oil recommendation

Cooling oils for applications in food processing

	SIGMA FLUID	
	FG-460	FG-680
Description	Synthetic oil	Synthetic oil
Application	Specifically for machines in applications where the compressed air may come into contact with foodstuff.	Special oil for ambient conditions with high temperatures and humidity. Specifically for machines in applications where the compressed air may come into contact with foodstuff.
Approval	USDA H1, NSF approved for the manufacture of food packaging, meat and poultry processing and other food processing applications.	USDA H1, NSF approved for the manufacture of food packaging, meat and poultry processing and other food processing applications.
Viscosity at 104 °F	0.07 in ² /s (D 445; ASTM test)	0.10 in ² /s (D 445; ASTM test)
Viscosity at 212 °F	0.01 in ² /s (D 445; ASTM test)	0.02 in ² /s (D 445; ASTM test)
Flash point	475 °F (D 92; ASTM test)	460 °F (D 92; ASTM test)

	SIGMA FLUID	
	FG-460	FG-680
Density at 59 °F	54.5 lb/ft ³ (D 4052; ASTM test)	53.3 lb/ft ³ (D 4052; ASTM test)
Pour point:	-38.2 °F (D 97; ASTM test)	-38.2 °F (D 97; ASTM test)

Tab. 27 Cooling oil recommendation (food processing)

2.7.6 Cooling oil charge

Cooling oil	Fluid volume [qt]
Machine	9.0

Tab. 28 Cooling oil charge

2.8 Engine

2.8.1 Engine specification

Feature	Specification
Make/Model	Kubota / D 1803 CR-T
Engine control	Electronic
Fuel injection	Common rail system
Rated engine power [hp]	48.9
Speed at LOAD operation [rpm]	2700
Speed at IDLE operation [rpm]	Approx. 2100
Type of fuel	Diesel
Fuel consumption under LOAD operation [gal/h]	2.7
Oil consumption relative to fuel consumption [%]	Approx. 0.5

Tab. 29 Engine specification

2.8.2 Oil recommendations

The engine oil must meet the following classification:

- ACEA, class E9
- API, class CJ-4



- Only use engine with a low white ash build-up.
- Engine oils that do not conform to the above can reduce the useful life of the engine!
- The use of unlisted engine oils requires prior authorization by KAESER.
- Please contact an authorized KAESER service representative.

Viscosity:

The ambient temperature at the installation site and the application area is decisive in selecting the appropriate viscosity class. Excess viscosity can cause difficulties when starting up, while too low a viscosity reduces the lubricating effect of the engine oil, leading to high oil consumption.

Viscosity is classified by SAE.



Always use multigrade lubricating oils!

Always ensure the prescribed lubricating oil quality when selecting the viscosity class!

Ambient temperatures [°F]	Viscosity class
14 122	SAE 15W/40
-4 86	SAE 5W/30
-4 122	SAE 10W/40

Tab. 30 Engine oil recommendation

Viscosity class for first fill:

For the first fill, the machine engine is filled with oil of the following viscosity class:

Ambient temperatures [°F]	Viscosity class
-4 122	SAE 10W/40

Tab. 31 Viscosity class for first fill

2.8.3 Fuel recommendation

To comply with emission regulations, diesel engines fitted with an exhaust gas treatment system must be operated only with a sulphur-free diesel fuel. Compliance with the emission requirements but also the durability of the individual exhaust gas treatment components is not assured if this requirement is ignored!

The diesel fuel must meet the requirements of EN 590 and ASTM D975 respectively.

The use of other fuels as well as the mixing with additives is only permitted after consultation with the engine manufacturer.

The following fuel specifications are approved:

- Diesel fuels according to EN 590
 - ($\leq 0.0010\%$ Sulphur – EU: Level IIIB and higher)

For the US market the use of extremely low-sulphur diesel fuel is required by law:

- Diesel fuels according to ASTM D975
 - ($\leq 0.0015\%$ Sulphur – EPA: Tier 4 interim and higher)



Never store fuel in galvanized containers!

Biodiesel:

According to EN 590 and ASTM D975, a specific portion of biodiesel is permitted in the fuel.

Depending on the country of origin, biodiesel can be produced from different plant materials and thus have different properties.

Affected by temperature, atmospheric oxygen and time, these biodiesel components in the fuel may decompose in the fuel and thus cause damages within the fuel system.



The fuel must be filtered before it is filled into the machine when it has been supplied in barrels or canisters. This procedure prevents malfunctions in the fuel system caused by contamination.

2.8.4 Engine coolant recommendation

In fluid-cooled engines, the cooling fluid must be treated and monitored to prevent engine damage.

Water quality:

An important factor in the treatment of cooling fluid is the correct water quality.

As a rule, clear, clean fresh water must be used, which should be as soft as possible and in accordance with the following analytical values:

Feature		Value
pH value		6.5-8.0
Chloride	[mg/l]	Max. 80
Chloride + sulfate	[mg/l]	Max. 160
Alkaline ground ions	mmol/l	2.7
Hardness	°dH	15
1°dH = 0.1783 mmol/l; alkaline ground ions = 7.147 mg/l Ca ²⁺ or 4.336 mg/l Mg ²⁺		

Tab. 32 Water quality specification

Contact the local water utilities for information regarding water quality. If the water does not meet the above parameters, it must be treated.

If suitable water is not available, distilled or demineralized water should be used for treating the coolant. Seawater, brackish water, brine and industrial wastewater are not suitable. Salts may cause corrosion or the formation of disruptive residues.

Coolant quality:

In the course of ongoing technical development, a new corrosion inhibitor/antifreeze has been approved by the engine manufacturer.

This features the following advantages over the corrosion inhibitors/antifreeze that was approved previously:

- Less residue in the engine cooling system
- Improved heat flow
- Improved environmental compatibility

The coolant (cooling fluid) is treated by the addition of anti-freeze with ethylene glycol-based anti-corrosion additives to the water.

The coolant used must be in accordance with the stipulations provided by the engine manufacturer KUBOTA.

- Do not use a corrosion inhibitor/antifreeze that has not been approved by the engine manufacturer.
- Avoid impermissible mixing ratios of corrosion inhibitor/antifreeze and water.

Further information For information regarding the preparation/mixing of the coolant, please see chapter 10.4.1.3 "Mixing the Coolant".

Initial fill of corrosion inhibitor/antifreeze:

For the initial fill, the coolant cooler is filled with a mixture of the following fluid components:

Components	Description	Percentages [% vol.]
Corrosion inhibitor/antifreeze	KAESER FLUID ENGINE ANTIFREEZE / (Glysantin® G40®)	50
Water		50

Tab. 33 Initial fill of coolant cooler

Miscibility with other corrosion inhibitors/antifreezes:

Mixing with different corrosion inhibitors/antifreezes is not recommended, even if from the same manufacturer. This can result in significantly reduced corrosion/antifreeze protection, which may damage the engine cooling system and, consequently, the engine. A mixture of different types of anti-corrosion agent/antifreeze generally provides a lower level of performance than the specially balanced active components of a single coolant type.



Consequently, the use of different corrosion inhibitors/antifreezes is only permitted following consultation with and approval from the engine manufacturer!

2.8.5 Fluid volumes

Description	Fluid volume [gal]
Engine oil	1.8
Fuel	21.1
Coolant	2.8

Tab. 34 Fluid volumes

2.8.6 Batteries

Feature	Value
Voltage [V]	12
Capacity [Ah]	80
PTC testing current [A] (according to EN 50342)	680

Tab. 35 Batteries

2.9 Options

2.9.1 Air treatment options

2.9.1.1 Air quality at the compressed air outlets

Interrelation between compressed air treatment and compressed air quality:

Compressed air treatment		Compressed air quality	
Option designation	Components	Characteristics	Abbreviation
da	<ul style="list-style-type: none"> ■ Aftercooler ■ Water separator 	Cool and condensate-free	A
da + df	<ul style="list-style-type: none"> ■ Aftercooler ■ Water separator ■ Heat exchanger 	Dry and warmed	W
da + dd	<ul style="list-style-type: none"> ■ Aftercooler ■ Water separator ■ Filter combination 	Dry and technically oil-free	F
da + dd + df	<ul style="list-style-type: none"> ■ Aftercooler ■ Water separator ■ Filter combination ■ Heat exchanger 	Technically oil-free and warmed	G

Tab. 36 Interrelation between compressed air treatment and compressed air quality



The compressed air outlets at the air distributor are labelled with the identifiers of compressed air quality.

2.9.2 Option ba Low temperature equipment

2.9.2.1 Ambient conditions

Installation	Limit value
Maximum elevation amsl* [ft]	3000
Minimum ambient temperature [°F]	-13
Maximum ambient temperature [°F]	113

* Higher altitudes are permissible only after consultation with the manufacturer

Tab. 37 Ambient conditions, low temperature equipment

2.9.2.2 Insulated hose lines

Name	Material
Insulated pressure hoses for control air	Polyamide

Tab. 38 Insulated pressure hoses

3 Safety and Responsibility

3.1 Basic instructions

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

- Danger to life and limb of the operator or third parties,
- Impairments to the machine and other material assets.



Disregard of warning or safety instructions can cause serious injuries!

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

3.2 Specified use

The machine is intended solely for generating compressed air for industrial use. Any other use is considered incorrect. The manufacturer is not liable for any damages that may result from incorrect use. The user alone is liable for any risks incurred.

- Keep to the specifications listed in this service manual.
- Operate the machine only within its performance limits and under the permitted ambient conditions.
- Do not use compressed air for breathing purposes unless it is specifically treated.
- Do not use compressed air for any application that will bring it into direct contact with food products unless it is specifically treated.

3.3 Incorrect Use

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

- Only use the machine as intended.
- Never direct compressed air at persons or animals.
- Do not use untreated compressed air for breathing purposes.
- Do not allow the machine to take in toxic, acidic, flammable, or explosive gases or vapors.
- Do not operate the machine in areas in which specific requirements with regard to explosion protection are in effect.

3.4 User's responsibilities

3.4.1 Observe statutory and universally accepted regulations

- Observe all relevant statutory and accepted regulations during transportation, operation, cleaning, and maintenance of the machine.

3.4.2 Determining personnel

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

Authorized operating personnel must possess the following qualifications:

- They must be of legal age.
- They must have read and understood the safety instructions and sections of the operating manual applicable to operation, and they must be capable of observing them.
- They must have received adequate training in and authorization for the safe operation of automotive, electrical and compressed air devices.

Authorized maintenance personnel must possess the following qualifications:

- They must be of legal age.
- They must have read and understood the safety instructions and sections of the operating manual applicable to maintenance, and they must be capable of observing them.
- They must be completely familiar with the safety concepts and regulations of automotive, electrical, and compressed air engineering.
- They must be capable of recognizing the possible dangers associated with automotive, electrical, and compressed air devices and taking appropriate measures to safeguard persons and property.
- They must have received adequate training in and authorization for safe maintenance of this machine.

Authorized cleaning personnel must possess the following qualifications:

- They must be of legal age.
- They must have read and understood the safety instructions and sections of the operating manual applicable to cleaning, and they must be capable of observing them.
- They must be completely familiar with the safety concepts and regulations of automotive, electrical, and compressed air engineering.
- They must be capable of recognizing the possible dangers associated with automotive, electrical, and compressed air devices and taking appropriate measures to safeguard persons and property.
- They must have received adequate instruction in and authorization for the safe cleaning of this machine.

Authorized transport personnel must possess the following qualifications:

- They must be of legal age.
 - They must have read and understood the safety instructions and sections of the operating manual applicable to transportation, and they must be capable of observing them.
 - They must have received adequate training in and authorization for the safe transportation of this machine.
 - They must be completely familiar with the safety concepts and regulations of motor vehicles and transported goods.
 - They must be capable of recognizing the possible dangers associated with automotive devices and taking appropriate measures to safeguard persons and property.
- Ensure that personnel entrusted with transportation, operation, cleaning, and maintenance possess the necessary qualifications and authorizations to carry out their respective tasks.

3.4.3 Complying with inspection schedules and accident prevention regulations

The machine is subject to local inspection schedules.

- Have the pre-commissioning inspection carried out according to the Ordinance on Industrial Safety and Health, §15.
- Carry out recurring inspections:
The user must ensure that the machine's safety devices are checked for function as required or at least annually.
- Carry out oil changes:
The user must ensure that the cooling oil is changed as required or at least annually and the oil change must be documented. Intervals may be varied if an analysis proves that the oil is still usable.
- Keep to inspection intervals in accordance with the Ordinance on Industrial Health and Safety with maximum intervals as laid down in §16:

Inspection	Inspection interval	Inspection authority
Equipment inspection	Before commissioning	Approved supervisory body.
Internal inspection	Every 5 years after commissioning or the last inspection	Contact an authorized KAESER service representative.
Strength test	Every 10 years after commissioning or the last inspection	Contact an authorized KAESER service representative.

Tab. 39 Inspection intervals according to Ordinance on Industrial Health and Safety

Checking the lifting point

The user is responsible for ensuring that the machine's lifting point and fixings are inspected according to national regulations for wear and damage.

- Have lifting point checked.
Lifting point is not in order: The machine must not be transported by crane. Have the machine repaired immediately.

3.5 Dangers

Basic instructions

The following describes the various forms of danger that can occur during machine operation.

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

Warning instructions are found before a potentially dangerous task.

3.5.1 Safely dealing with sources of danger

The following describes the various forms of danger that can occur during machine operation.

Exhaust fumes

Exhaust gases from combustion engines contain carbon monoxide, a color- and odorless but highly toxic gas. The inhalation of minute quantities can be lethal.

Furthermore, diesel exhaust contains soot particles, some of which are noxious.

- Do not inhale exhaust fumes.
- Park the machine in such a manner that the exhaust cannot blow towards the operators.
- Never use the machine in enclosed spaces, only in the open.

Fire and explosion

Spontaneous ignition and combustion of fuel can result in serious injury or death.

- Do not allow open flames or sparks at the place of use.
- Do not smoke while refueling.
- Never refuel the machine when it is running.
- Do not allow fuel to overflow.
- Wipe up spilled fuel immediately.
- Provide a fire extinguisher in the immediate vicinity.
- For the operation in combustible environment, fit the machine with a spark arrestor (Option Ia).

Hot coolant

The cooling system of a liquid-cooled engine at running temperature is under high pressure. If the filler cap is unscrewed, hot coolant can spray out under pressure and cause severe burns.

- Let the machine cool down before opening the cooling system.
- Unscrew the filler cap carefully by a quarter to half a turn at first. Remove the filler cap only when pressure has escaped completely.

Electricity

Touching voltage-carrying components can result in electric shocks, burns or even death.

- Allow only qualified and authorized electricians or trained personnel under the supervision of a qualified and authorized electrician to carry out work on electrical equipment according to electrical engineering rules.
- Regularly check that all electrical connections are tight and in proper condition.
- Switch off any external power sources.
For example, the connection to the electrical engine coolant pre-heater.

Forces of compression

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

- Wait until the compressor has automatically vented (check the pressure gauge: it must read 0 psig!)
- Then open an outlet valve carefully to ensure that the line between the minimum pressure check valve and the compressed air outlet is vented.
- Do not carry out welding, heat treatment or mechanical modifications to pressurised components (e.g. pipes and vessels) as this influences the components' resistance to pressure. The safety of the machine is then no longer ensured.

Compressed air quality

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

- Use appropriate systems for air treatment before using the compressed air from this machine as breathing air (fresh air reinforcement) and/or for the processing of foodstuffs.
- Use food grade cooling oil whenever compressed air is to come into contact with foodstuffs.

Spring forces

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

Minimum pressure check valves, safety relief valves and inlet valves are powerfully spring-loaded.

- Do not open or dismantle any valves.

Rotating components

Touching the fan wheel, the coupling or the belt drive while the machine is switched on can result in serious injury.

- Do not open the service doors or panels while the machine is running.
- Prior to opening the service doors or the enclosure, switch off the engine, disconnect from power source and secure against unintended reactivation.
- Wear close-fitting clothes and a hair net if necessary.
- Ensure that all covers and safety guards are in place and secured before re-starting.

Temperature

The operation of the combustion engine and the compression generate high temperatures. Touching hot components may cause injuries.

- Avoid contact with hot components.
These include combustion engine, airend, oil and compressed air lines, coolers and oil separator tank. Any objects in or near the flow of exhaust gas or discharged cooling air will become very hot.
- Wear protective clothing.
- Wear protective gloves when connecting or disconnecting external compressed air hoses to the outlet valves.
- Allow the machine to cool down before commencing any maintenance work.
- If welding is carried out on or near the machine, take adequate measures to prevent sparks or heat from igniting oil vapors or parts of the machine.

Noise

The enclosure absorbs the machine noise to a tolerable level. This function will be effective only if the body is closed.

- Operate the machine only with closed body.
- Check machines that are lined with sound insulation material for perfect condition of the sound insulation material.
- Wear ear protection if necessary.
Safety relief valve blow-off results in high noise emission.
- Never generate compressed air without consumers being connected.

Operating fluids/materials

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

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

Unsuitable spare parts

Unsuitable spare parts compromise the safety of the machine.

- Use only spare parts approved by the manufacturer for use in this machine.
- Use only original KAESER spare parts on pressure bearing parts.

Conversion or modification of the machine

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

- Do not convert or modify the machine!
- Do not install any non-approved additional components.
- Do not make any changes to the machine that will increase its weight beyond the permissible limit and/or endanger its safe use or transportation. Any such changes invalidate the approval to use the machine or tow it on the road.
- Prior to any technical modification and expansions of the machine, obtain the written approval of the manufacturer.

3.5.2 Safe machine operation

The following information will provide you with the necessary code of conduct to ensure safe handling of the machine during individual product life phases.

Personal protective equipment

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

- Wear protective clothing as necessary.

Suitable protective clothing (examples):

- Safety work wear
- Protective gloves
- Safety boots
- Eye protection (protective glasses)
- Ear protection

3.5.2.1 Transporting

In order to prevent accidents, the weight and size of the machine require safety measures to be taken during its transport.

- Allow transport only by personnel trained in safely dealing with motor vehicles and the transport of goods.
- Ensure that no persons are on the machine when transporting.

Transporting as trailer

Non-compliance with the basic rules for safe trailer operation may cause severe accidents during machine transport.

- The maximum permissible load for the towing vehicle coupling and the maximum coupling load given for the machine must not be exceeded.
- Avoid causing a shift in the center of gravity by an excessive or incorrectly distributed load.
- Do not tow in a manner that will impose excessive stress on the machine or chassis.
- Adjust towing speed to accommodate road conditions. This applies particularly to unpaved roads and when negotiating curves.
- The towbar must be parallel with the ground otherwise towing instability can develop, resulting in damage to the machine and/or towing vehicle.
- Before moving the machine, make sure any security devices (e.g. anti-theft chain) are removed or turned off.

Transporting as trailer on public roads

- Do not tow machines without lighting and signaling equipment on public roads.
- Ensure all running gear, including chassis, wheels, brakes, signalling and lighting, is in safe condition.
- The local laws and regulations regarding the use of public roads must be observed.

Transporting with a crane

Non-compliance with the safety regulations for load suspension and hoisting equipment may cause severe accidents when lifting and moving the machine with cranes.

- Do not enter the danger zone while the machine is being lifted.
- Never lift and move the machine over people or occupied buildings.
- Avoid extreme weight shifting caused by additional loads or additions (tilting).
- Do not exceed the lifting capacity on the machine's lifting point (lifting eye).
- Only the designated lifting point should be used to attach lifting gear and under no circumstances are handles, tow-bar or other components to be used.
- Use only hooks and shackles that comply with local safety regulations.
- Do not attach cables, chains or ropes directly to the machine's lifting eye.
- Do not manipulate the crane suspension system, in particular the holding points of the crane lifting eye.
- If screwed crane fixings had to be removed, please use only new self-locking nuts when installing.
- Avoid jerking when lifting, as this may damage components.
- Loads must be slowly lifted and carefully set down.
- Never allow the load to hang from the hoist longer than necessary.



The following are forbidden:

- Air transport of the machine by slinging beneath a helicopter.
- Dropping the machine by parachute.

3.5.2.2 Positioning

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

- Do not position the machine directly against a wall. A build-up of heat from the exhaust can damage the machine.
- Ensure accessibility so that all work on the machine can be carried out without danger or hindrance.
- Do not operate in areas in which specific requirements with regard to explosion protection are in force.
For example, requirements on the "proper use in areas at risk of explosion" according to 2014/34/EU ATEX Directive.
- Ensure adequate ventilation.
- Place the machine in such a manner that the working conditions in its environment are not impaired.
- Comply with limit values for ambient temperatures and humidity.
- The intake air must not contain any damaging contaminants.

Damaging contaminants are for instance:

- Exhaust gases from combustion engines,
 - Flammable, explosive or chemically unstable gases or vapors,
 - Acid- or base-forming chemicals such as ammonia, chlorine, or hydrogen sulfide.
- Do not position the machine in the warm exhaust air flow from other machines.
 - Keep suitable fire extinguishing agents ready for use.
 - Chock the wheels to prevent unwanted movement.
 - Do not place additional loads on the machine (e.g. excavator bucket as anti-theft measure).

3.5.2.3 Commissioning, operation and maintenance

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

- Work should be carried out by authorized personnel only.
- Wear close-fitting, flame-resistant clothing. Wear protective clothing as necessary.
- Switch off the machine and lock out the power supply disconnecting device.
- Wait until the compressor has automatically vented (check: the pressure gauge must read 0 psig!)
- Then open the outlet valve carefully to ensure that the line between the minimum pressure check valve/check valve and the compressed air outlet is vented.
- Allow the machine to cool down.
- Do not open the body while the machine is switched on.
- Do not open or dismantle any valves.
- Use only spare parts approved by KAESER for use in this machine.
- Carry out regular inspections:

- for visible damage and leakage,
 - of safety devices,
 - of EMERGENCY STOP push button,
 - of parts needing monitoring.
- Pay particular attention to cleanliness during all maintenance and repair work. Cover components and exposed openings with clean cloths, paper or tape to keep them clean.
 - Do not leave any loose components, tools or cleaning rags on or in the machine.
 - Components removed from the machine can still be dangerous:
Do not attempt to open or destroy any components taken from the machine.
 - Use only suitable compressed air hoses.

Compressed air hoses must meet the following requirements:

- they are of the right type and size for the highest permissible machine working pressure,
 - they are not damaged, worn or of reduced quality,
 - they have couplings and connections of the right type and size.
- Make sure compressed air hoses are depressurized before disconnecting from the machine.
 - Secure the open end of an air hose before applying air pressure. An unsecured hose may whip and cause injury.
 - At working pressures >100 psig, compressed air hoses should be secured by a safety cable to their respective outlet valves.

3.5.2.4 Parking the machine

Improper parking and use of the parked machine endangers personnel and material.

- Select an even surface for parking.
- Use a coupled towing vehicle to move the machine into position.
- Place chocks under the wheels.
- Pull the parking brake.
- Loosen the lighting and signaling system.
- Detach the breakaway cable/safety chain.
- Lower the prop stand / wind down the jockey wheel.
- Uncouple the machine
- Ensure that the machine is properly separated from the towing vehicle.
- Remove the towing vehicle from the machine.
- Nobody must enter the parked machine or, in particular, its chassis.
- Nobody must sit on the parked machine or, in particular, its towing mechanism.

3.5.2.5 De-commissioning, storage and disposal

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

- Drain off fluids and dispose of them according to applicable environmental regulations. These include, for example, fuel, engine oil and compressor cooling oil and coolant.
- Dispose of the machine in accordance with local environmental regulations.

3.5.3 Organizational Measures

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

3.5.4 Danger areas

The table gives information on areas dangerous to personnel.
 Only authorized personnel may enter these areas.

Task	Danger area	Authorized personnel
Transport	Within a 10 ft radius of the machine.	Operating personnel to prepare for transport. No personnel during transport.
	Beneath the lifted machine.	No personnel!
Commissioning	Within the machine.	Maintenance personnel
	Within a 3 ft radius of the machine.	
Operation	Within a 3 ft radius of the machine.	Operating personnel
Maintenance	Within the machine.	Maintenance personnel
	Within a 3 ft radius of the machine.	

Tab. 40 Danger areas

3.6 Safety devices

Safety devices ensure safe working with the machine.

- Do not change, bypass or disable safety devices.
- Regularly check safety devices for their correct function.
- Do not remove or obliterate labels and notices.
- Ensure that labels and notices are clearly legible.

Further information More information on safety devices is contained in chapter 4.5.

3.7 Safety signs

The tables list the various safety signs used and their meanings. The figures show the position of the safety signs on the machine, inside and outside.



During cleaning or maintenance work, a check should be made that safety signs have not been removed or obliterated. Have missing or illegible signs replaced!

Safety signs outside

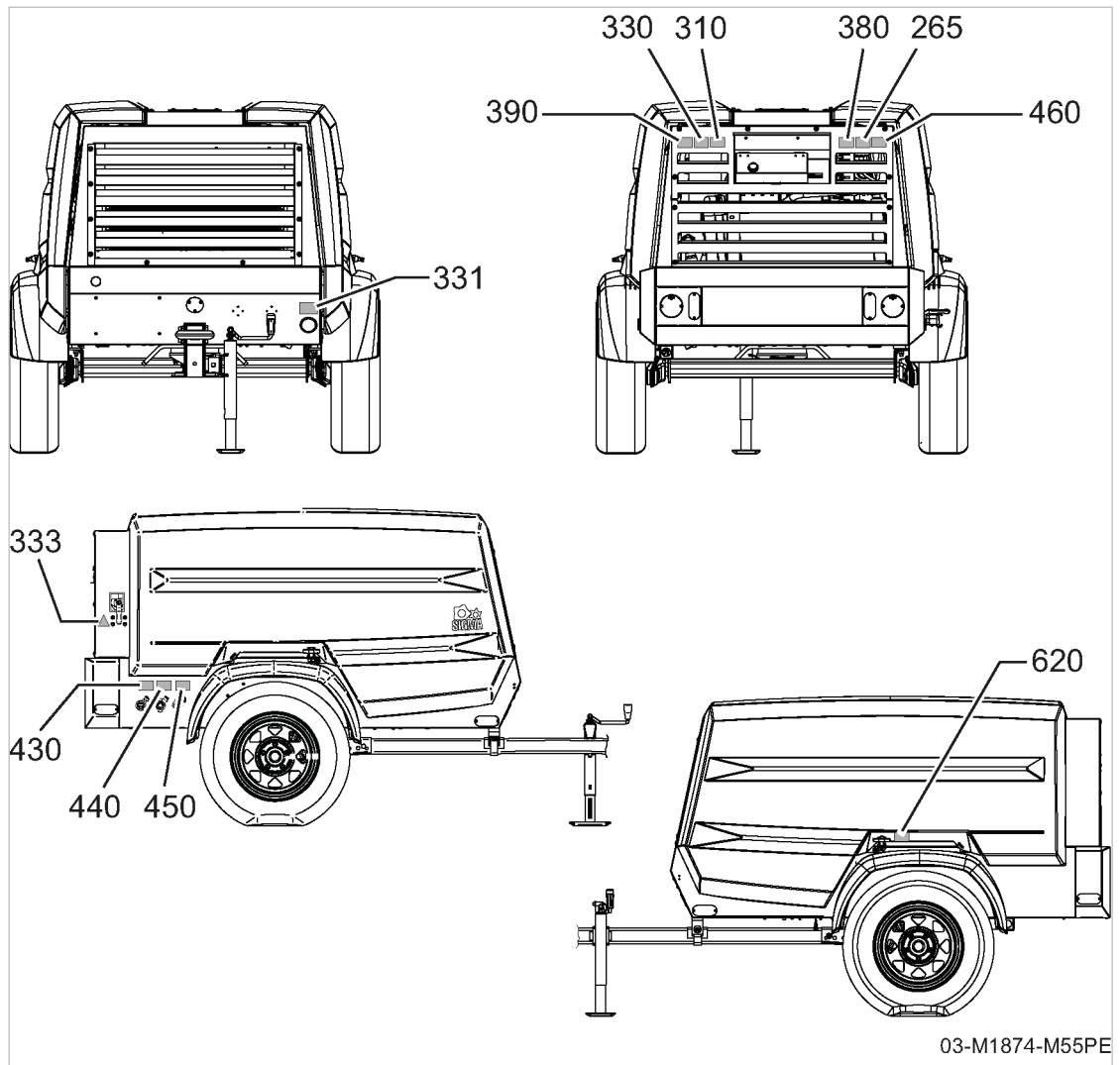











Fig. 4 Location of safety signs (outside)

Location	Sign	Meaning
265		<p>Personal injury or damage to the machine due to incorrect operation!</p> <ul style="list-style-type: none"> ➤ Read and understand the operating manual and all safety signs before switching on this machine.
310 311		<p>Injury or damage from open machine!</p> <ul style="list-style-type: none"> ➤ Operate the machine only when closed. ➤ Transport the machine only when closed.
330 331 333		<p>Hot surface can cause burns!</p> <ul style="list-style-type: none"> ➤ Let the machine cool down. ➤ Work carefully. ➤ Wear protective clothing and gloves. ➤ Do not inhale dangerous gases.

Location	Sign	Meaning
380		<p>Danger!</p> <p>Toxic gases in work area!</p> <ul style="list-style-type: none"> ➤ Operate machine outdoors only. ➤ Ensure exhaust gases are vented to the outdoors. ➤ Do not inhale dangerous gases.
430		<p>Connect air hoses only in full compliance with OSHA standard 29 CFR 1926,302 (bX7)!</p> <p>The required safety devices should be tested in accordance with their manufacturer's recommendations to verify that they reduce pressure in case of hose failure and will not nuisance trip with the hose and tool combinations in use.</p>
440		<p>Compressed air quality!</p> <p>Injury and/or contamination can result from breathing compressed air. Contamination of food can result from using untreated compressed air for food processing.</p> <ul style="list-style-type: none"> ➤ Never breathe untreated compressed air! ➤ Air from this compressor must meet OSHA 29 CFR1910.134 and FDA 21 CFR178.3570 standards, if used for breathing or food processing. Use proper compressed air treatment. ➤ Food grade coolant must be used for food processing.
450		<p>Loud noise and compressed air blast!</p> <p>Damage to hearing and injury if ball valve is opened without a compressed air hose being connected.</p> <ul style="list-style-type: none"> ➤ Connect a suitable compressed air hose. ➤ Open the ball valve.
460		<p>Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.</p> <ul style="list-style-type: none"> ➤ Always start and operate the engine in a well-ventilated area. ➤ If in an enclosed area, vent the exhaust to the outside. ➤ Do not modify or tamper with the exhaust system. ➤ Do not idle the engine except as necessary.
620 621		<p>Pinch point hazard!</p> <ul style="list-style-type: none"> ➤ Keep hands clear when opening the canopy.

Tab. 41 Safety signs

Safety signs inside

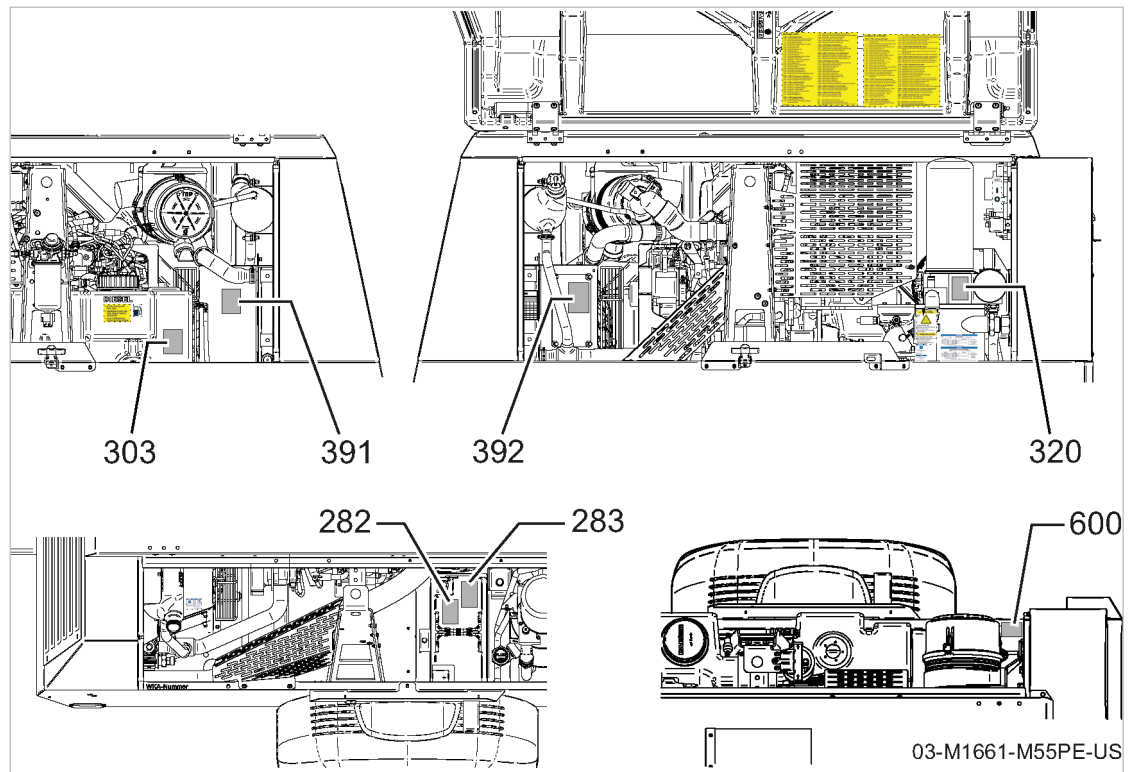






Fig. 5 Location of safety signs (inside)

Location	Sign	Meaning
282		<p>Explosive hydrogen gas! Severe injury or death could result from exploding gas.</p> <ul style="list-style-type: none"> ➤ Keep flames, sparks, and other sources of ignition away.
283		<p>Battery contains acid! Severe injury results from contact with battery acid.</p> <ul style="list-style-type: none"> ➤ Do not allow battery acid to contact eyes, skin, clothing, or painted surfaces. ➤ Do not attempt to jump-start if battery fluid is frozen. ➤ Bring temperature of battery up to at least 60°F before attempting to jump-start - it may explode!
303		<p>Fire or explosion caused by refueling! Severe injury or death result from inflaming fuel.</p> <ul style="list-style-type: none"> ➤ Use diesel fuel only. ➤ NEVER attempt to refuel the compressor while it is operating. ➤ Always replace fuel filter cap after refueling. ➤ Always wipe up fuel spills which may occur inside the compressor enclosure and allow the machine to ventilate.

Location	Sign	Meaning
320		Loud noise and oil mist when the safety relief valve opens! Ear damage and burns can result. <ul style="list-style-type: none"> ➤ Wear ear protection and protective clothing. ➤ Close all maintenance doors and cover panels. ➤ Work carefully.
391 392	 	Warning! Rotating fan blades and V-belt drive! Severe injury could result from touching the fan blades and V-belt drive while it is rotating. <ul style="list-style-type: none"> ➤ Never switch the machine on without guard in place over the fan blade. ➤ Isolate completely from the power supply (battery isolating switch) and ensure the supply cannot be switched on again.
600		Pressure and spring force! Risk of fatal injury caused by loosening, opening, or dismantling valves or other components that are under pressure or heavy spring loading. <ul style="list-style-type: none"> ➤ Do not open or dismantle valves. ➤ Contact an authorized KAESER service representative in the event of a fault.

Tab. 42 Safety signs

3.8 Noise control requirements



Tampering with the noise control system is prohibited!

Federal law prohibits the following acts or causing thereof:

- The removal or rendering inoperative by any persons, other than for purposes of maintenance, repair, or replacement, of any devices or element of design incorporated into any new compressor for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use; or
- the use of the compressor after such device or element of design has been removed or rendered inoperative by any person.

Among those acts included in the prohibition against tampering are the acts listed below:

- Removing any facing (doors, hood, service panels).
- Modifying the air inlet and outlet louvers.
- Modifying the air intake channels or hoses (if applicable).
- Modifying the air filter enclosure.
- Modifying the exhaust air silencer.
- Manipulating the machine's control and regulation system.

3.9 Emergencies

3.9.1 Correct actions in the event of a fire

Suitable extinguishing media:

- Foam
- carbon dioxide
- Sand or earth

Unsuitable extinguishing agents:

- Strong jet of water

1. Keep calm.
2. Give the alarm.
3. If possible: Turn off engine using control devices.
4. Make safe:
 - Warn persons in danger
 - Help incapacitated persons
 - Close the doors
5. When trained accordingly: Attempt to extinguish the fire.

3.9.2 Treating injuries from handling operating fluids/materials

The following operating fluids/materials are in the machine:

- Fuel
- Lubricating oils
- Compressor cooling oil
- Engine coolant
- Battery electrolyte
- tool lubricant (option e)

Eye contact:

Fuel, oil and other fluids/materials can cause irritation.

- Rinse eyes thoroughly with lukewarm water and seek medical assistance immediately.

Skin contact:

Fuel, oil and other fluids/materials may irritate after prolonged contact.

- Wash thoroughly with skin cleaner, then with soap and water.
- Contaminated clothing should be intensively cleaned before reuse.

If inhaled:

Fuel and oil vapours impair breathing.

- Clear the respirator tract from fuel or oil vapour.
Any difficulty with respiration: seek immediate medical help.

If swallowed:

- Wash out the mouth immediately.
- Do not induce vomiting.
- Seek medical aid.

3.10 Warranty

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

A condition of our warranty is that the machine is used for the purpose for which it is intended under the conditions specified.

Due to the multitude applications for which the machine is suitable the obligation lies with the user to determine its suitability for his specific application.

In addition, we accept no warranty obligation for:

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

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

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

3.10.1 Noise emissions warranty

The manufacturer warrants to the ultimate purchaser and each subsequent purchaser that this air compressor was designed, built, and equipped to conform, at the time of sale to the first retail purchaser, with all applicable American EPA noise control regulations.

This warranty is not limited to any particular part, component, or system of the air compressor.

Defects in the design, assembly, or in any part, component, or system of the compressor which, at the time of sale to the first retail purchaser, caused noise emissions to exceed Federal standards are covered by this warranty for the life of the air compressor.

3.11 Identifying the effects of improper modifications

The machine and various modules are designed according to applicable regulations and are submitted for approval procedures by the relevant authorities (where applicable).

Concerned modules include:

- Engine
- Fuel system
- Exhaust system
- Chassis (if available)
- Compressor
- Pressure-bearing components (e.g., valves, vessels, pipelines)

Remodeling or modifications can have the result that the interaction of the individual modules according to regulations is no longer ensured. Thus, the prerequisites required for approval by the authorities may no longer be given.

The concerned directives and regulations can be:

- Machinery directive
- Pressure vessel directive

- EMC directive
- Directive on environmental noise

In machines requiring a national road traffic permit, remodeling or modifications may adversely affect their approval for road traffic.

- Exhaust emission limits may not be met.
- The prerequisites for approval are no longer given.

Remodeling or modifications restrict the service work that can be performed for you (examples):

- Warranty (if directly and originally affected by the remodeling or modification)
- Reduced replacement part supply (scope, delivery times)
- SIGMA CONTROL SMART:
Program changes result in a reduced capability of software updating.

3.12 Environmental protection

The operation of this machine may cause dangers for the environment.

- Do not allow operating fluids/materials to escape into the environment or into the sewage system!
- Store and dispose of operating fluids/materials and replaced parts in accordance with local environment protection regulations.
- Observe relevant national regulations.
This applies particularly to parts contaminated with fuel, oil, coolants, reduction agents and acids.



For the emission output of the corresponding engine class to always comply with applicable requirements, the drive engine must only be operated, used and maintained in accordance with instruction provided to the end user.

Do not intentionally manipulate the engine management of the drive engine or operate it improperly or carry out deficient maintenance measures.

Intentional manipulations of the emission reduction system and its improper operation, especially deactivation or deficient maintenance of the exhaust gas after-treatment system or individual exhaust gas after-treatment components are not permitted.

Possible exhaust gas after-treatment components (if provided):

- Components for the reduction of particle emission
 - Diesel oxidation catalytic converter
 - Diesel particulate filter
- Components for the reduction of nitrogen oxide emissions
 - SCR catalytic converter with reduction agent addition

4 Design and Function

4.1 Bodywork

Bodywork is understood to be the exterior of the machine mounted on the chassis.

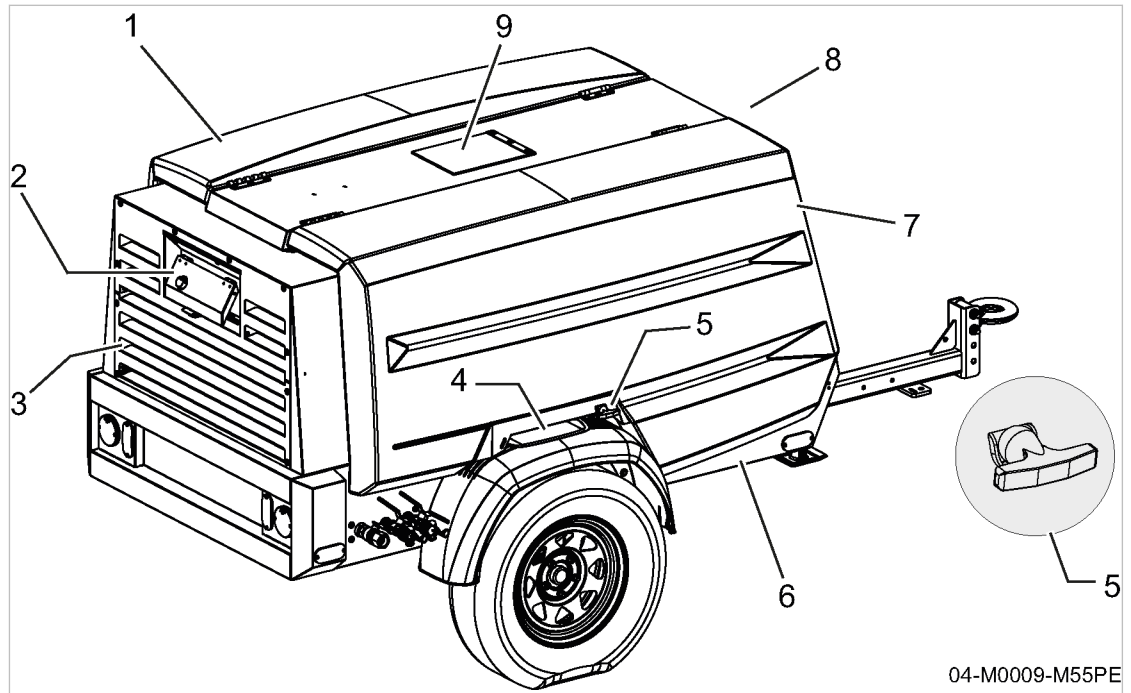


Fig. 6 Bodywork

- | | | | |
|---|--|---|-----------------------|
| ① | Left-hand wing door | ⑥ | Lower part |
| ② | Control panel cover
SIGMA CONTROL SMART | ⑦ | Right-hand wing door |
| ③ | Cooling air inlet | ⑧ | Cooling air outlet |
| ④ | Handle | ⑨ | Cover for lifting eye |
| ⑤ | Snap fastener | | |

The bodywork has several functions when it is closed:

- Weather protection
- Sound insulation
- Protection against touching
- Cooling air flow

The bodywork is not suitable for the following uses:

- Persons walking, standing, or sitting on it.
- As a place to rest or store any kind of load.

⚠ CAUTION

Pinch hazard!

Risk of serious pinch injury to fingers when closing doors and covers.

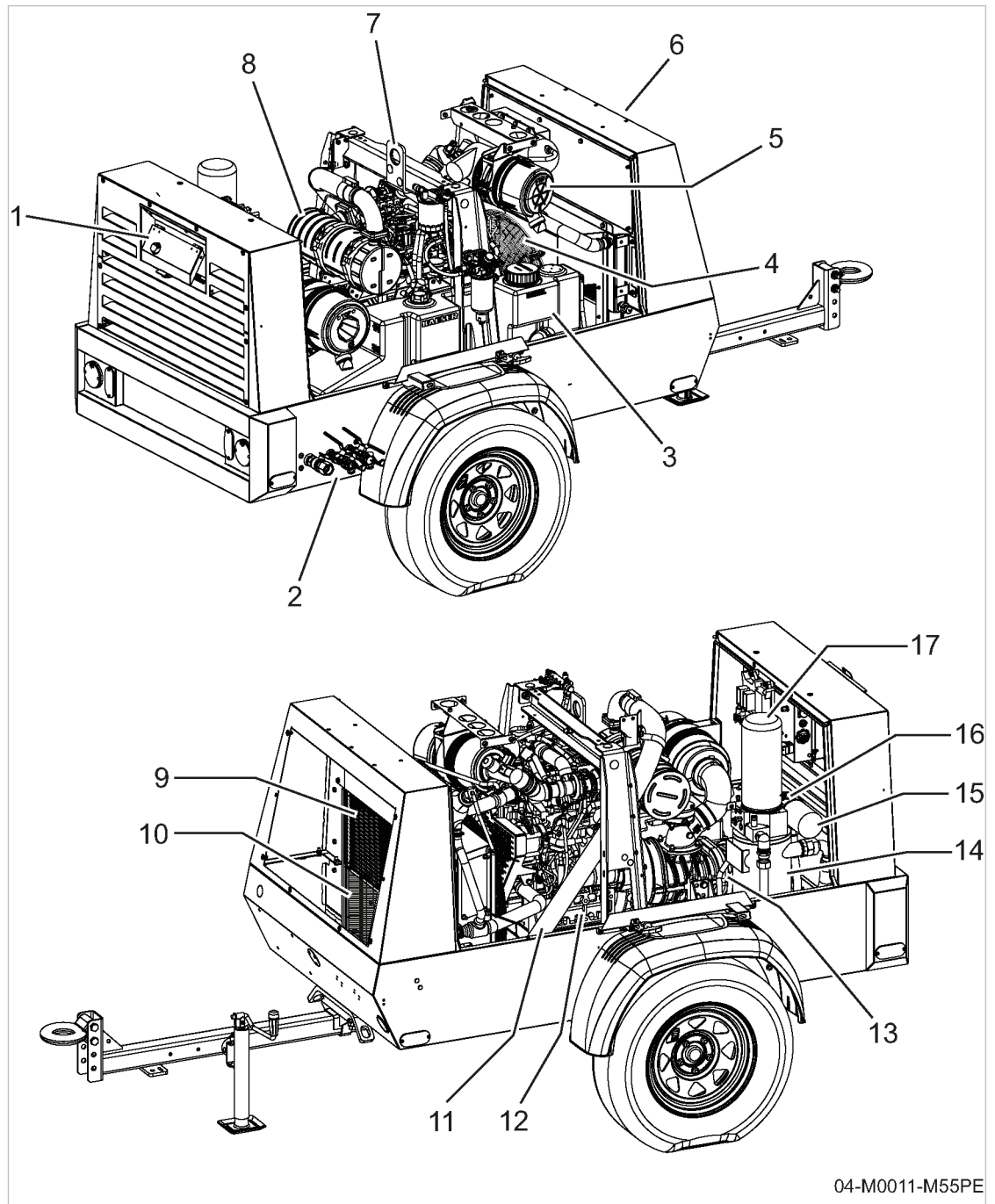
- *Work with caution.*
- *Wear protective gloves as necessary.*

Safe and reliable operation is only ensured when the bodywork is closed.

The wing doors are provided with handles for opening. Release the doors by the snap fasteners.

The doors are held open by gas springs.

4.2 Machine structure



04-M0011-M55PE

Fig. 7 Right-hand door opened

- | | | | |
|---|---|---|-------------------------|
| ① | Control panel cover
SIGMA CONTROL SMART | ⑩ | Oil cooler |
| ② | Compressed air outlet | ⑪ | Exhaust gas pipe |
| ③ | Fuel tank | ⑫ | Drive engine |
| ④ | Fan wheel | ⑬ | Airend |
| ⑤ | Engine air filter | ⑭ | Oil separator tank |
| ⑥ | Radiator block | ⑮ | Oil filter |
| ⑦ | Lifting eye | ⑯ | Thermostatic valve |
| ⑧ | Exhaust gas after-treatment with diesel
oxidation catalyst and diesel particulate filter | ⑰ | Oil separator cartridge |

4.3 Machine function

Machine function (without options).

Item numbers correspond to the pipe and instrument flow diagram (P&ID) in chapter 13.2.

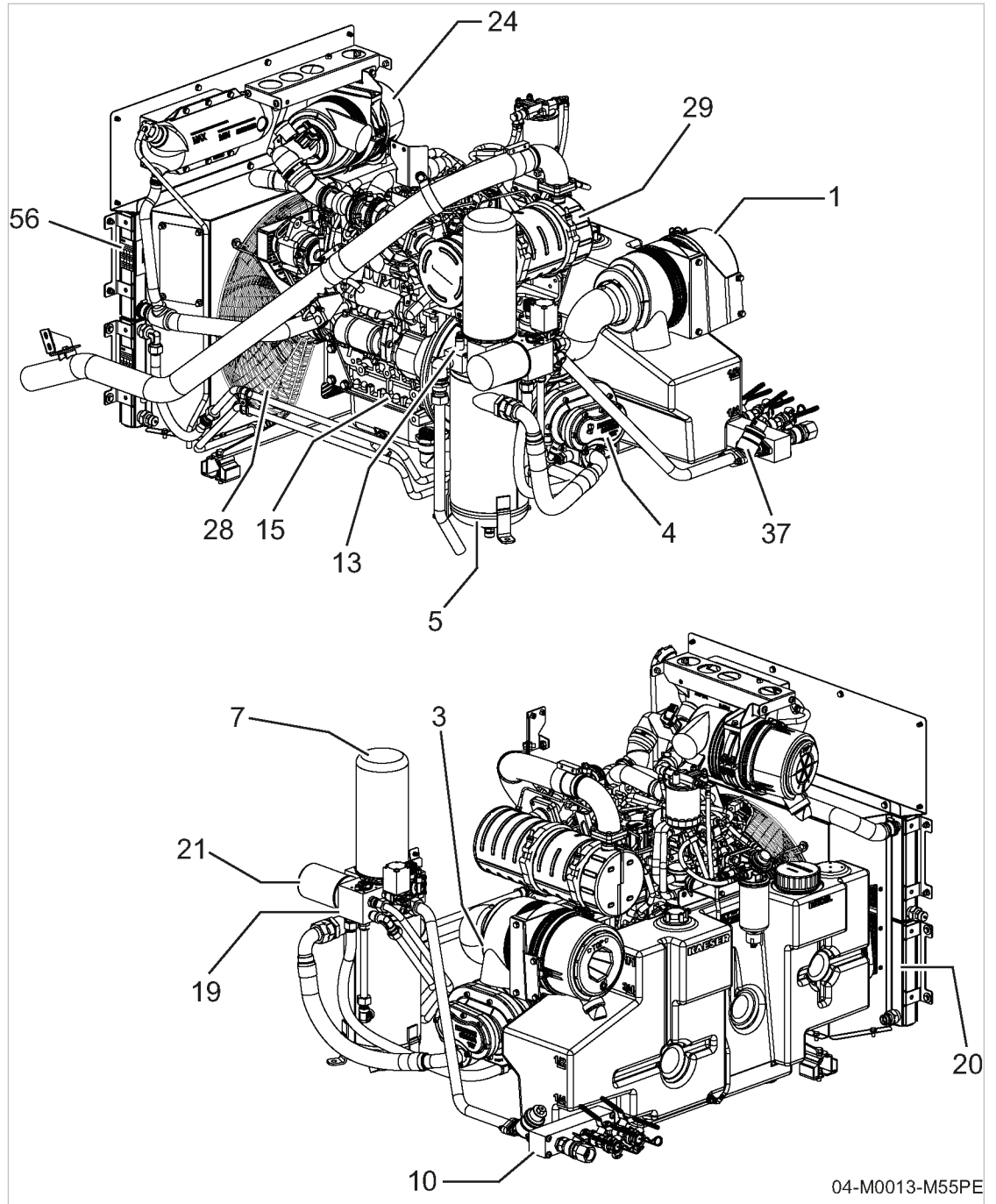


Fig. 8 Machine overview

- | | | | |
|---|-------------------------|---|--|
| ① | Compressor air filter | ⑲ | Thermostatic valve (oil temperature control) |
| ③ | Inlet valve | ⑳ | Oil cooler |
| ④ | Airend | ㉑ | Oil filter |
| ⑤ | Oil separator tank | ㉒ | Engine air filter |
| ⑦ | Oil separator cartridge | ㉓ | Fan wheel |
| ⑩ | Air distributor | ㉔ | Exhaust gas after-treatment with diesel oxidation catalyst and diesel particulate filter |
| ⑬ | Safety relief valve | ㉕ | Minimum pressure check valve |
| ⑮ | Engine | ㉖ | Coolant cooler |

Ambient air is cleaned as it is drawn in through the filter (1).

The air is then compressed in the airend (4).

The airend is driven by an internal combustion engine (15).

Cooling oil is injected into the airend. It lubricates moving parts and forms a seal between the rotors and between the rotors and the housing. This direct cooling in the compression chamber ensures a very low airend discharge temperature.

Cooling oil recovered from the compressed air in the oil separator tank (5) gives up its heat in the oil cooler (20). The oil then flows through the filter (21) and back to the point of injection. The internal machine pressure keeps the oil circulating. A separate pump is not necessary. A thermostatic valve (19) regulates and optimizes the cooling oil temperature.

The compressed air is released from the cooling oil in the oil separator tank (5) and then passes through the minimum pressure check valve (37) air distributor (10). The minimum pressure check valve always maintains a minimum system pressure to ensure continuous cooling oil flow in the machine.

The flow direction of the fan wheel (28) and arrangement of the cooling air inlet and outlet determine the cooling air flow of the machine within the enclosure. The cooling air continuously flows through the oil cooler and coolant cooler. The heated cooling air returns through the cooling air outlet back into the surroundings.

4.4 Operating modes and control mode

4.4.1 Machine operating modes

The machine operates in the following modes:

- WARM-UP
 - The inlet valve is nearly fully closed.
 - The minimum intake air volume escapes via the venting valve.
 - The drive engine runs at minimum speed.
- LOAD
 - The inlet valve is open.
 - The engine runs at maximum speed.
 - The airend delivers compressed air.
- MODULATING
 - With the help of a control valve (the proportional controller) the degree of opening of the inlet valve is steplessly varied in response to the air demand.
 - The load and fuel consumption of the engine rises and falls with the air demand.
 - The airend delivers compressed air.

- IDLE
 - The inlet valve is closed.
 - The control valve opens, allowing pressure in the oil separator tank to be applied to the inlet valve.
 - Compressed air then flows in a closed circuit through the compressor block, the oil separator tank and the control valve.
 - The pressure in the oil separator tank remains constant.
 - The engine runs at minimum speed.
- STANDSTILL
 - The inlet valve closes.
 - The venting valve opens to depressurize the machine.
 - Machine cools down.
 - The engine stops.

4.4.2 MODULATING control

The control system regulates the volume of air generated to match the actual demand. The machine keeps the working pressure constant by varying the volumetric flow rate within the machine's regulating range, independent of the air demand.

With the help of an electrical control valve (the proportional controller), the opening and closing of the inlet valve is continuously varied in response to the actual air demand. The airend provides compressed air for connected consumers.

This continuous delivery regulation minimizes the fuel consumption of the engine. The load and fuel consumption of the engine rises and falls with the air demand.

4.5 Safety devices

4.5.1 Monitoring functions with shut-down

The SIGMA CONTROL SMART monitors important machine parameters. The machine is automatically shut down if an alarm occurs.

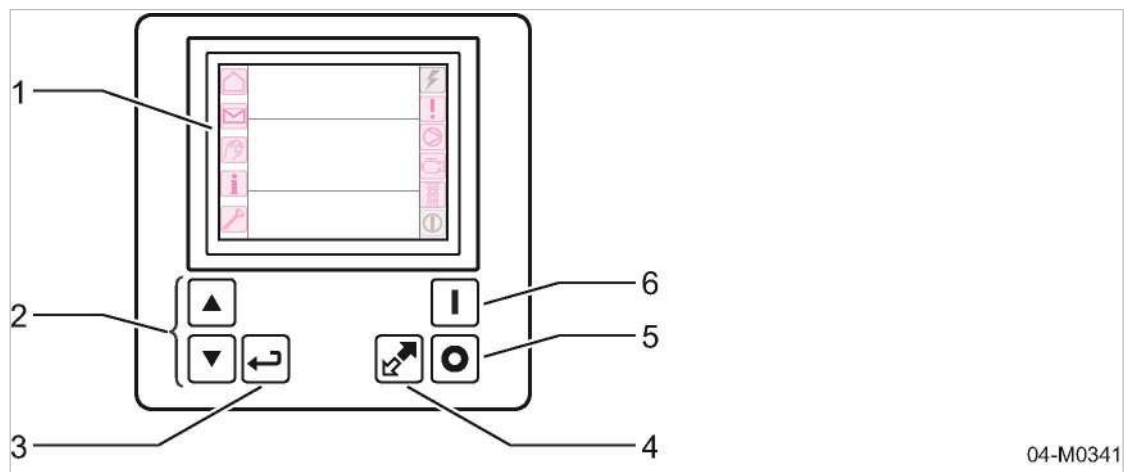
The SIGMA CONTROL SMART saves the alarm message in its event memory.

Further information Further information on alarm messages at the controller is provided in chapter 9.2.1.

4.5.2 Further safety devices






The following safety devices are provided and may not be modified in any way:


- «EMERGENCY STOP» push button
:«The EMERGENCY STOP» push button is for immediate shut-down of the machine. The motor/engine comes to a stop. The pressure system is vented.
- Safety relief valves:
Safety relief valves protect the system against unacceptable pressure rise. They are factory set.
- Enclosures and covers for moving parts and electrical connections:
Protect against unintentional contact.

4.6 SIGMA CONTROL SMART control panel


04-M0341

Fig. 9 SIGMA CONTROL SMART control panel – overview

Location	Symbol	Description	Function	Display
1	–	Indicator field or display	Graphic display.	–
2	 	«Up» key and «down» key	<ul style="list-style-type: none"> ■ Scrolls up or down through the menu options. ■ Enter settings. ■ Change values. ■ Switch between menu pages. 	–
3		«Enter» key	<ul style="list-style-type: none"> ■ Jumps to the selected submenu option. ■ Finish an entry. ■ Activate the input. ■ Acknowledges/resets maintenance tasks. ■ Returns to the superordinate menu item (press quickly) ■ Closes the menu (press for at least two seconds) 	–
4		Key «LOAD/IDLE»	Toggles the compressor between LOAD and IDLE operating modes.	Flashes when ready for switching to LOAD mode. Continuous light when the machine is running under LOAD.
5		«STOP» key	<ul style="list-style-type: none"> ■ Stops the machine. ■ Acknowledges/resets maintenance tasks. 	Continuous light when a fault has occurred.

Location	Symbol	Description	Function	Display
6		«START» key	Starts the machine.	Flashes when ready to start. Lights continuously, when the engine is running.

Tab. 43 Instrument panel keys and displays

Further information For more information about the controller's functionality, please see the separate SIGMA CONTROL SMART user manual.

4.7 Variable pressure flow rate control (pV control)

The machine is fitted with a variable pressure flow rate control.

The flow rate is flexible in accordance with the preselected pressure setting and adjustment of the engine speed. With it, the machine can be operated from the minimum pressure to the maximum working pressure.

Limiting by:

<Setting the maximum nominal pressure> at the SIGMA CONTROL SMART controller.

Further information

- ▶ For more information about setting the *maximum nominal pressure*, see the separate User Manual of the SIGMA CONTROL SMART controller, chapter "Set maximum nominal pressure".
- ▶ For further information about the variable pressure flow rate, please see chapter 2.7.1.

4.8 Exhaust gas after-treatment

The exhaust from a diesel engine contains invisible particles that are dangerous to health.

State-of-the-art engine technologies are used to reduce the emission of pollutants and to meet the tighter exhaust standards.

For a proper balance, all parameters affecting combustion must be optimally adjusted to each other. In interaction with injection and turbo-charging in particular, the exhaust gas recirculation allows for combustions with significantly less nitrogen oxides.

Furthermore, all engines are fitted with various after-treatment facilities. The total of these measures therefore contribute to the protection of human health and the environment.

4.8.1 Engine optimization

The engine series is equipped with a common rail diesel injection system and exhaust gas return. The engines are set to a maximum of efficiency and low particle emissions.

Electronic engine management

The engine system is equipped with an electronic engine management that communicates with the system controller SIGMA CONTROL SMART.

In addition to monitoring the engine and exhaust gas treatment, the engine control unit (ECU) also monitors itself. Any faults or malfunctions are stored as fault codes in the alarm memory and forwarded to the SIGMA CONTROL SMART controller.

Common rail injection system

The engine is fitted with a common rail injection system for mixture preparation. It is a high-pressure accumulator injection system for diesel engines. The common rail injection allows you to optimize the combustion process so that fewer contaminants are generated while consuming less fuel. The fuel is injected into the combustion chamber from a highly pressurized joint distributor pipe (common rail). The common rail injection system is controlled by the engine control unit.

Exhaust gas recirculation

Exhaust gas recirculation is a measure to reduce the emissions of nitrogen oxides. At high combustion temperatures, damaging nitrogen oxides (NO_x) increasingly develop in the engine. To reduce these levels, the combustion temperature must be lowered. The cooled and controlled exhaust gas recirculation circulates a portion of the exhaust gas back to the suction side of the engine where it is added to the inlet air. This reduces the available oxygen volume and thus the combustion temperature. Both measures reduce the development of nitrogen oxides.

Exhaust gas recirculation occurs only in the partial load area of the engine because the engine runs particularly lean in this area. Exhaust gas recirculation is not practical in cold start, warm-up and full load.

Exhaust gas turbo-charging

The performance of the combustion engine can be enhanced by means of turbo-charging. A turbo-charger compresses the air to allow more oxygen to flow into the combustion chamber. As a result, more fuel can be combusted and the engine performance increases accordingly. The turbocharger is driven by exhaust gas which makes turbo-charged engines very efficiently.

4.8.2 Exhaust gas treatment system

The exhaust gas treatment system primarily contributes to limiting the exhaust gas emissions of the machine.

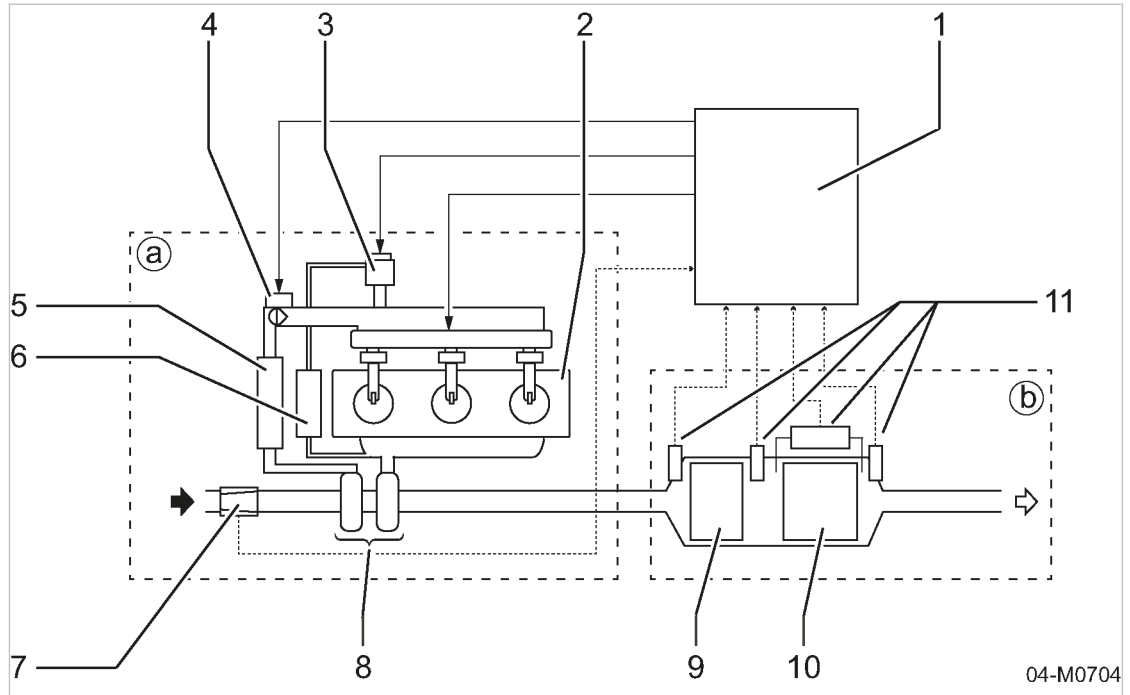


Fig. 10 Principle of treatment devices

- | | |
|-----------------------------------|--|
| ① Engine control unit (ECU) | ⑦ Air flow meter |
| ② Engine block | ⑧ Turbocharger |
| ③ Exhaust gas return valve (EGR) | ⑨ Diesel oxidation catalytic converter (DOC) |
| ④ Inlet throttle | ⑩ Diesel particulate filter (DPF) |
| ⑤ Intercooler | ⑪ Sensors |
| ⑥ Cooler exhaust gas return (EGR) | ⑫ SIGMA CONTROL SMART controller |

Diesel oxidation catalytic converter (DOC)

The diesel oxidation catalytic converter uses the fuel which has not been burnt during final injection for the active regeneration of the diesel particulate filter. The diesel oxidation catalytic converter serves a source of heat for the regeneration of the diesel particulate filter.

Diesel particulate filter (DPF)

The diesel particulate filter is used for reducing the particulates present in the diesel engine exhaust (fine solids and mostly soot). Nearly all of these particles are trapped in the filter and burnt to CO₂ at high exhaust gas temperature.

At a low exhaust gas temperature when the particulates do not burn spontaneously, a pressure difference occurs between inlet and outlet of the diesel particulate filter. This initiates a regeneration of the filter, during which the soot is removed. Regeneration is activated when the filter medium is saturated with soot to a certain degree.

4.8.3 Regeneration of the diesel particulate filter

The removal of soot from the diesel particulate filter is called regeneration.



As a rule, the engine control unit (ECU) automatically starts the regeneration. Regeneration must be manually initiated (parked regeneration) only in exceptional cases (adverse application conditions).

Function:

The exhaust gas treatment system of the KUBOTA diesel engine is a passive particulate filter system. A passive particulate filter system burns the soot in the filter with the nitrogen dioxides contained in the exhaust after they have been converted in the diesel oxidation catalyst (DOC). This process is continuous as soon as the exhaust gas temperature exceeds 660 °F. The passive particulate filter system does not contain a burner. Prerequisite for passive continuous regeneration is a sufficient ratio of nitrogen oxides and soot in the engine's exhaust gas.

Definition of nominal filter load:

The engine control unit internally monitors the soot level in the diesel particulate filter. The current soot load is displayed (in percentage) at the SIGMA CONTROL SMART controller. When the soot load in the diesel particulate filter has reached 100%, the system prompts a *parked regeneration*.

Standard operation (passive regeneration):

Under normal operational conditions (exhaust gas temperature > 660 °F), the exhaust gas treatment system operates without operator intervention. The soot particulate is continuously burnt without intervention by the engine control unit. This occurs mostly at high engine load. A reaction with nitrogen dioxide converts the soot particulate to carbon dioxide. The soot load of the diesel particulate filter remains in a permissible range.

Parked regeneration (activated by operator):

If the passive regeneration does not result in a sufficient reduction of the soot load, the particulate filter will further accept soot until a *parked regeneration* (particulate filter system load > 100%) becomes necessary.

A special engine operating status occurs during the *parked regeneration*. Compressed air production not possible for the entire duration of regeneration.

When an engine requests a *parked regeneration*, it displays the warning message:
Parked regeneration required.

The operator must then initiate the *parked regeneration*. This results in the compressor being unloaded and the engine can start the regeneration. The process requires approximately 20 to 30 minutes and, during this time, the engine can autonomously adjust its speed to arrive at the optimal operating point for the regeneration.



Because the regeneration will start only at temperatures above 660 °F, it is recommended to warm up the engine in LOAD before initiating *parked regeneration*.

4.9 Options

The options available for your machine are described below.

4.9.1 Option da, dd, df Air treatment options

For certain applications, the compressed air generated by this machine must be treated before use.

The following describes the possible air treatment options that may be fitted to the machine.

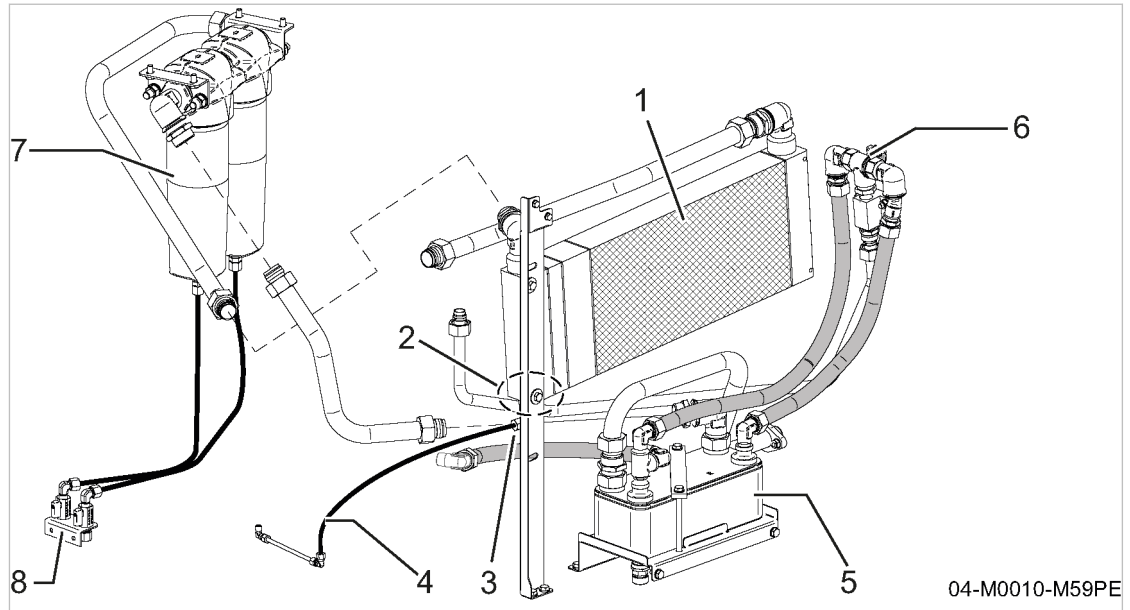


Fig. 11 Compressed air options

- | | | | |
|---|----------------------------|---|---------------------------|
| ① | Compressed air aftercooler | ⑤ | Heat exchanger |
| ② | Water separator | ⑥ | Directional control valve |
| ③ | Dirt trap | ⑦ | Filter combination |
| ④ | Condensate drain line | ⑧ | Condensate drain |

4.9.1.1 Option da
Compressed air aftercooler

The compressed air aftercooler lowers the compressed air temperature to only 9°F to 18°F above the ambient temperature. The exchange of heat lowers the compressed air temperature and the water contained in the compressed air precipitates to condensate. Most of the moisture carried in the air is removed in the aftercooler.

4.9.1.2 Option da
Water separator

The condensate generated during air cooling is collected in the water separator.

4.9.1.3 Option da
Dirt trap with condensate drain line

A dirt trap is located beneath the water separator. While the condensate flows through the dirt trap, existing dirt particles are retained.

Subsequently, the condensate flows through the connected condensate drain pipe to the exhaust gas pipe. Due to the high exhaust temperatures, the condensate evaporates completely here.

4.9.1.4 Option df
Heat exchanger

For warm compressed air, an oil/compressed air heat exchanger is installed, in which the cooled, dried compressed air is reheated using the hot cooling oil coming from the compressor.

This warm, dry compressed air is ideal for applications such as sandblasting.

Option df Compressed air quality with/without heat exchanger:

If heating is not required, you can use the bypass to bridge the heat exchanger.

Option designation	Heat exchanger	Compressed air quality
da + df	Activated	Heated and dry
	Bridged	Cool and condensate-free
da + dd + df	Activated	Heated and technically oil-free
	Bridged	Cool and technically oil-free

Tab. 44 Compressed air quality with/without heat exchanger

**4.9.1.5 Option dd
Filter combination**

For oil-free compressed air, the dried compressed air passes through a prefilter and microfilter combination, from which it emerges both oil-free and free from solid particles.

**4.9.2 Option oc
GSM/GPS modem**

The machine is equipped with a GSM/GPS modem. This modem can be equipped with a SIM card and serves for connection to the MOBILAIR fleet management system.

The GSM/GPS modem has only indicating functions.

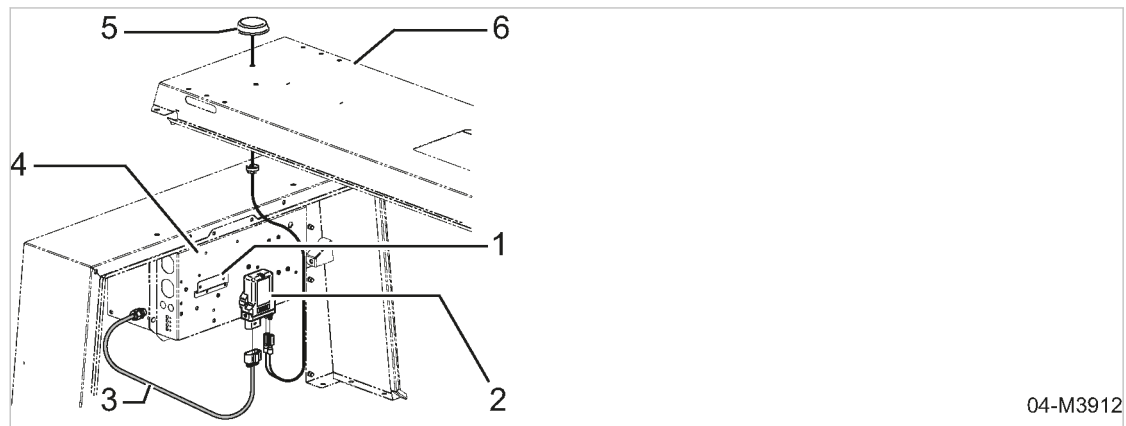


Fig. 12 Location of the GSM/GPS modem inside the machine

- | | |
|-----------------|------------------------------------|
| ① Modem bracket | ④ Control box |
| ② Modem | ⑤ Antenna |
| ③ Signal cable | ⑥ Central section of the enclosure |

4.9.3 Document bag

The document bag is used to store important accompanying documents for the machine safely and clean within the machine. This ensures that operating personnel always, and at any location, has access to the accompanying documents of the portable machine.



The document bag is not part of the standard equipment. It can be optionally selected!

Example for accompanying documents of machine:

- Machine's Operating Manual.
- User Manual of SIGMA CONTROL SMART.
- Chassis operating instructions (where applicable).

Position the document bag inside the machine, see the below figure.

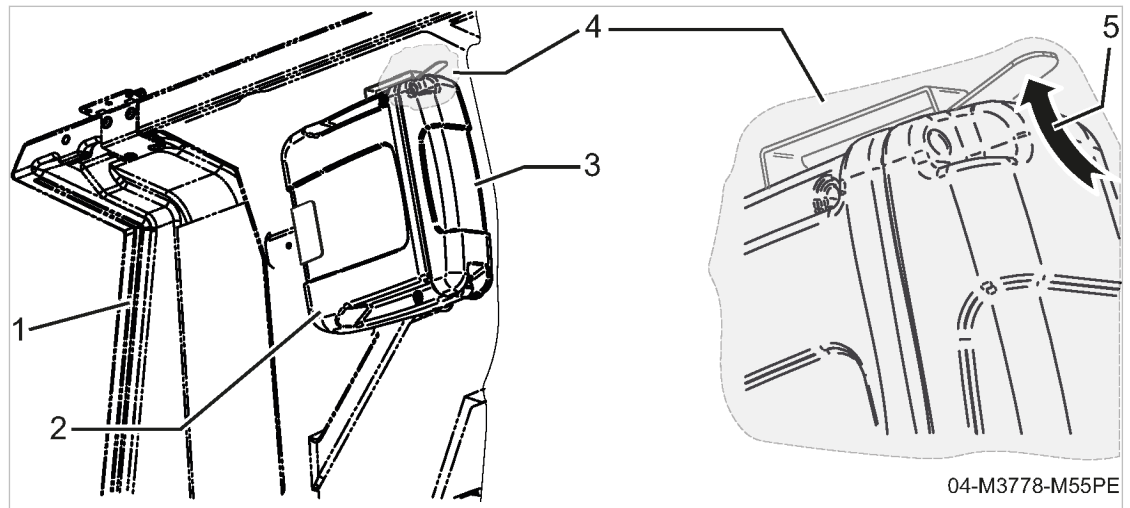


Fig. 13 Document bag option

- | | |
|------------------------------------|--|
| ① Right-hand gull-wing door opened | ④ Retaining clip |
| ② Document bag | ⑤ Direction of arrow (undo retaining clip) |
| ③ Document bag cover | |

The document bag cover is secured with a retaining clip. To unlock the cover, press the retaining clip in the direction of the arrow ⑤.

4.9.4 Transport options



See the separate document "Chassis Operating Manual" for information on the design of the individual chassis.

4.9.5 Frame design options for stationary machines

4.9.5.1 Option rw; rx Frame types of stationary machines

Option	Designation	Characteristics
rw	Skid	<ul style="list-style-type: none"> ■ Frame designed as skid ■ Use as stationary machine ■ Mounted on truck/trailer platform

Option	Designation	Characteristics
rx	Frame	<ul style="list-style-type: none">■ The mounting assembly is designed as a frame.■ Use as stationary machine■ Mounted on truck/trailer platform

Tab. 45 Stationary machines

Further information See chapter 13.3 for the dimensional drawings of machines with stationary frame designs.

5 Installation and Operating Conditions

5.1 Ensuring safety

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



Disregard of warning instructions can cause serious injuries!

Complying with safety notes

Disregard of safety notes can cause unforeseeable dangers!

- Strictly forbid fire, open flame and smoking.
- If welding is carried out on or near the machine, take adequate measures to prevent sparks or heat from igniting fuel or oil vapours or parts of the machine.
- Do not store inflammable material in the vicinity of the machine.
- The machine is not explosion-proof:
Do not operate in areas in which specific requirements with regard to explosion protection are in force.
For instance, the requirements of ATEX directive 2014/34/EC "Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres".
- Keep suitable fire extinguishing agents ready for use.
- Ensure that required ambient conditions are maintained.

Required ambient conditions may be:

- Ambient temperature
- Air composition at the installation site:
 - clean with no damaging contaminants (e.g., dust, fibres, fine sand)
 - free of explosive or chemically unstable gases or vapours
 - free of acid/alkaline forming substances, particularly ammonia, chlorine or hydrogen sulphide.

5.2 Installation conditions

Precondition The floor must be level, firm and capable of bearing the weight of the machine.

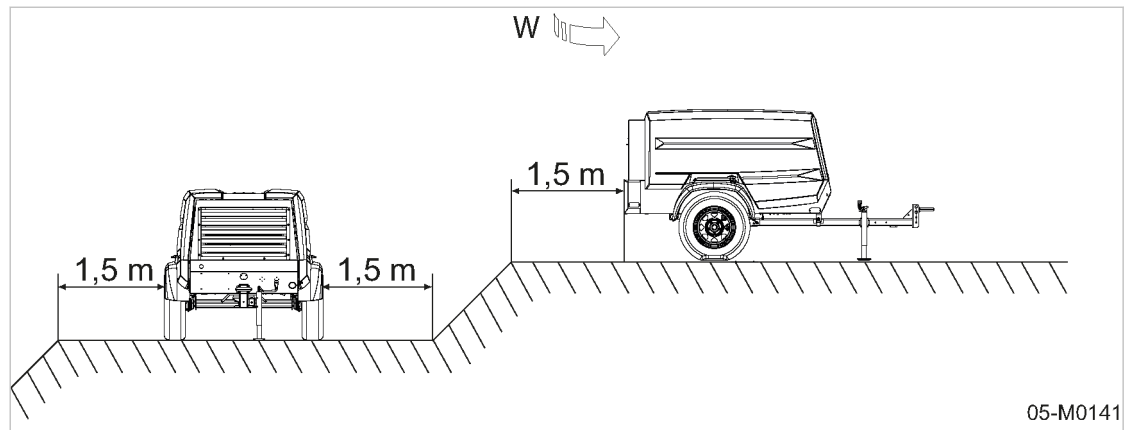



Fig. 14 Minimum distance from excavations/slopes and walls

 Wind direction

1. Keep sufficient distance (at least 5 ft) from the edges of excavations and slopes.
2. Ensure that the machine is as level as possible.



The machine can be temporarily operated on a slope of not more than 15°.

3. Ensure accessibility so that all work on the machine can be carried out without danger or hindrance. The operator panel with the «EMERGENCY STOP» push button must be accessible and within reach at any time.
4. **NOTICE** *Fire hazard from build-up of heat and hot exhaust system! Insufficient clearance above the machine may well cause heat build-up that could damage the machine.*
 - Do not position the machine directly under a low roof or covering.
 - Ensure always sufficient ventilation space around the machine.
5. Ensure there is enough free space all round and above the machine.
6. Keep air inlet and outlet openings free of obstructions so that the cooling air can flow freely through the machine.
7. Install the machine ensuring that
 - Exhaust gases and heated exhaust air can escape freely.
 - Do not allow exhaust gases and heated cooling air to be drawn into the compressor. Note the wind direction! (see figure 14)
 - Ensure the unimpeded intake of fresh air (air intake, cooling air).
8. **NOTICE** *Ambient temperature too low. Frozen condensate and highly viscous engine or compressor cooling oil can cause damage when starting the machine.*
 - Use winter grade engine oil.
 - Use winter diesel fuel.
 - Use low viscosity compressor cooling oil.
9. At ambient temperatures below 32 °F, follow the instructions in chapter 7.4.

5.3 Requirements for positioning on a lorry platform

For special applications, a stationary machine may be installed on the platform of a lorry. In this case, fasten the machine with bolt-down machine mounts on the load platform.



Special prerequisites for the installation on lorry platforms:

1. Follow the vehicle manufacturer's loading guidelines for safe operation and transportation.
2. Ensure sufficient clearance for access to the machine while fastened to the platform.
 - Ensure that operating activities are possible.
 - Ensure that monitoring activities are possible.
 - Ensure that maintenance activities are possible.
 - Ensure that an emergency shut-down is possible.
3. Ensure sufficient clearance for air supply to and exhaust lines from the machine while fastened to the platform.
 - Keep the intake air openings unobstructed.
 - Keep the exhaust air openings unobstructed.
4. Ensure sufficient clearance for the exhaust gas conduit from the machine while fastened to the platform.
 - Keep the exhaust gas opening unobstructed.
 - Ensure sufficient distance and discharge option for escaping exhaust gas.
5. If required, attach a hazardous goods label at the machine.

Further information For the installation of the bolt-down machine mounts, see chapter 6.4.

6 Installation

6.1 Ensuring safety

Follow the instructions below for safe installation.

Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

- Follow the instructions in chapter 3 "Safety and Responsibility".
- Installation work may only be carried out by authorized personnel.
- Replace self-locking nuts that have been removed, do not reuse old ones. The nut is no longer self-locking once it has been unscrewed.

Further information

Details of authorized personnel are found in chapter 3.4.2.

Details of dangers and their avoidance are found in chapter 3.5.

6.2 Reporting Transport Damage

1. Check the machine for visible and hidden transport damage.
2. Inform the carrier and the manufacturer in writing of any damage found.

6.3 Perform regular maintenance on the chassis

- See the separate document "Chassis Operating Manual" for instructions regarding maintenance on the chassis.

6.4 Securing the parked machine



Bolt-down machine feet and rubber pads are **not** part of the standard equipment. These items can be optionally selected!

For safe footing, a stationary machine can be secured with bolt-down machine feet.

Material

Bolt-down machine feet (anti-vibration elements)

Fastening screws

Wrench

Precondition

The machine is switched off.

The machine is installed on level ground and has cooled down.

Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig!

6.4.1 Fitting the machine feet

The support frame of the machine is provided with holes for fitting bolt-down machine feet (see dimensional drawing in chapter 13.3 for the location of these holes).



You must use machine feet if a stationary machine is placed on or bolted to surfaces not subject to acceleration (e.g., lorry load platform).

You may use rubber pads instead of the machine feet if the stationary machine is placed on or bolted to surfaces not subject to acceleration (static installation).

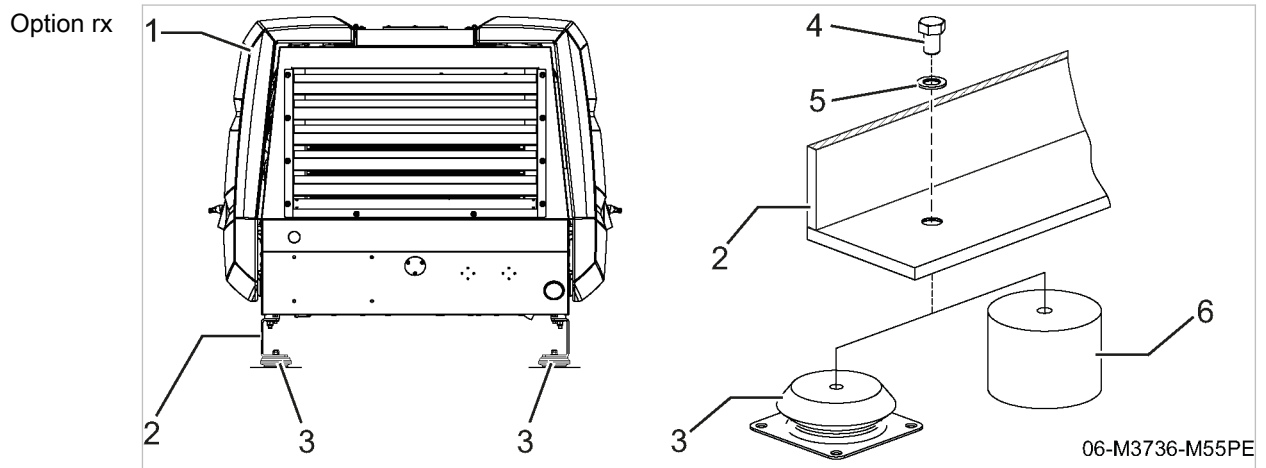


Fig. 15 Mounting machine foot/rubber pad

- | | |
|---|----------------|
| ① Machine | ④ Hexagon bolt |
| ② Machine's support frame (support) | ⑤ Washer |
| ③ Machine foot (anti-vibration metal element) | ⑥ Rubber pad |

1. Position the bolt-down machine feet underneath the corresponding drilled hole of the support frame.
2. Fit the washer to the hexagon bolt.
3. Insert the hexagon bolt through the drilled hole of the support frame.
4. Install the hexagon bolt in the thread of the machine foot.
5. Tighten the hexagon bolt.
6. Install and tighten the other machine feet correspondingly.

7 Initial Start-up

7.1 Ensuring safety

Follow the instructions below for safe commissioning of the machine.
Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

- Follow the instructions in chapter 3 "Safety and Responsibility".
- Commissioning work may only be carried out by authorized personnel!
- Make sure that no one is working on the machine.
- Ensure that all service doors and panels are locked.

Further information

Details of authorized personnel are found in chapter 3.4.2.

Details of dangers and their avoidance are found in chapter 3.5.

7.2 Before initial start-up (or recommissioning)

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

7.2.1 Instructions to be observed before commissioning or recommissioning



The initial start-up of every machine takes place at the factory. Every machine is also given a trial run and passes a careful check.

- Commissioning may only be carried out by authorized installation and service personnel who have been trained on this machine.
- Remove all packing materials on and in the machine.
- Observe the machine during the first few hours of operation to ensure that it is operating correctly.

7.2.2 Special measures for recommissioning after storage

- Carry out the following before every start-up after long period of storage:

Storage period longer than:	Action
5 months	<p>Drive engine:</p> <ul style="list-style-type: none"> ➤ Remove the desiccant from the opening in the air intake filter. ➤ Check the engine air and oil filters. ➤ Drain the preserving oil from the engine. ➤ Fill with engine oil. ➤ Check the engine coolant. ➤ Check the battery charge. ➤ Re-connect the battery (batteries). ➤ Check all fuel hoses for leaks, loose connections, wear, and damage. ➤ Check all pressure hoses of the drive engine (engine oil, coolant, charging air) for leaks, loose connections, wear, and damage. <hr/> <p>Compressor:</p> <ul style="list-style-type: none"> ➤ Remove the desiccant from the opening in the compressor air intake filter. ➤ Check the compressor air and oil filters. ➤ Drain the preserving oil from the separator tank. ➤ Fill with cooling oil. ➤ Check all pressure hoses/lines of the compressor (cooling oil, compressed air, control air, condensate) for leaks, loose connections, wear, and damage. <hr/> <p>Body:</p> <ul style="list-style-type: none"> ➤ Clean the body with a grease and dirt dissolving agent.
36 months	<p>Technical condition:</p> <ul style="list-style-type: none"> ➤ Have the overall technical condition checked by an authorized KAESER service representative.

Tab. 46 Special measures for recommissioning after storage

7.3 Checking installation and operating conditions

- Check and confirm all the items in the check list before first start-up of the machine.

To be checked	See chapter	Confirmed?
➤ Are the operators fully familiar with the safety regulations?	—	
➤ Have all the installation conditions been fulfilled?	5	
➤ Is there sufficient cooling oil in the separator tank?	10.6.1	
➤ Is the contamination indicator on the compressor air filter OK?	10.6.7	
➤ Is there sufficient oil in the engine?	10.4.6	
➤ Is the contamination indicator on the engine air filter OK?	10.4.2	
➤ Is there sufficient coolant in the coolant expansion tank?	10.4.1	

To be checked	See chapter	Confirmed?
➤ Is there sufficient fuel in the fuel tank?	—	
➤ All doors closed?	—	
➤ All panels installed?	—	

Tab. 47 Checking installation and operating conditions

7.4 Low-temperature operation



Cold ambient temperatures during winter operation require adjustments to operating fluids, components and the warm-up function of the machine.

- Adjusting the operating fluids.
 - Use winter engine oil
 - Use low-viscosity cooling oil for the compressor
 - Use winter diesel fuel
 - Adjusting the components
 - Use short compressed air hoses
 - Check the warm-up function when temperatures are low
 - Activate the automated start-up process
- Follow all instructions carefully.

Result These adjustments will increase the service life of your machine.

7.4.1 Checking the warm-up function in low-temperature conditions

When operating in low ambient temperatures, start-up of the machine is performed via an automated start-up process.

When the «START» key on the control panel of the SIGMA CONTROL SMART is pressed, the engine begins a maximum of three automatic start-up cycles of 30 seconds each.

Following every false start, the machine is vented. Following each time the machine is vented, a new start-up cycle begins automatically.

Should the third start-up cycle end with another false start, the operator must manually switch off the control voltage and, after a defined period of time, switch it back on again.

- Follow all instructions carefully.

7.4.1.1 Activating the automated start-up process

Precondition All compressed air discharge valves on the compressed air outlet are open.

1. Open the left-hand door.
2. Switch on the «Controller ON/OFF» switch.
The controller boots up.
The *Ready to start* indicator flashes.
3. Close the left-hand door.

4. Press the «START» key on the control panel of the SIGMA CONTROL SMART.
The machine begins a maximum of three automatic start-up cycles of 30 seconds each.
The machine is automatically vented should a false start occur.
After the machine has been vented, a new start-up cycle begins automatically.



The automated start-up process for low-temperature conditions ends after three automatic start-up cycles with false starts.

- For reactivating the automated start-up process, see Chapter 7.4.1.2.

7.4.1.2 Reactivating the automated start-up process

1. Open the left-hand door.
2. Switch off the «Controller ON/OFF» switch.
3. Wait for 20 seconds.
4. Switch the «Controller ON/OFF» switch back on.
5. Close the left-hand door.
6. Check if the *Ready to start* indicator on the control panel of the SIGMA CONTROL SMART flashes.
7. Press the «START» key on the control panel of the SIGMA CONTROL SMART.
Three more automatic start-up cycles will be performed.
One of the three automatic start-up cycles successfully starts up the machine.

7.4.1.3 Actions required following a successful start-up

1. Run the machine load-free with the compressed air discharge valves open until it has warmed up.
2. Switch the machine to LOAD operation.

7.4.2 Starting assistance



The machine's electrical equipment is designed for starting at ambient temperatures as low as 14 °F.

If the machine's starter battery is discharged, it can be started with the battery of another vehicle or engine-driven machine.

Material Jumper cables

Precondition The machine is disconnected from the towing vehicle and safely parked.

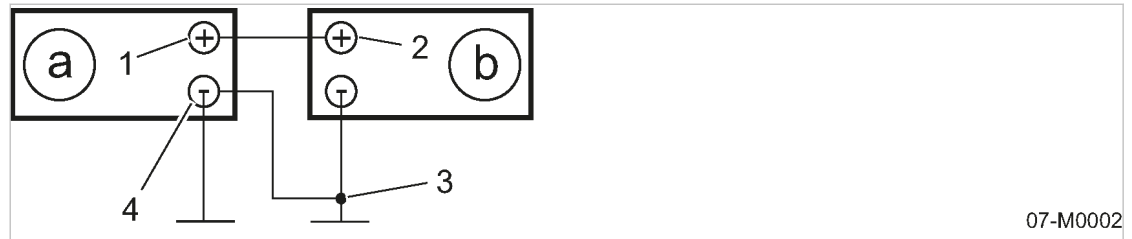
⚠ WARNING

Fire and explosion hazard.

High-circuit currents caused by short-circuited battery. A damaged battery can catch fire or explode.

Battery casing may crack and allow acidic fluid to spray out.

- *Observe the instructions provided with the battery jumper cables.*
- *Do not connect the battery jumper cables to the negative pole of the discharged battery or to the bodywork of the machine.*
- *Work with caution.*



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Fig. 16 Jumper cable connection diagram

- | | | | |
|---|--|---|--|
| Ⓐ | Assisting vehicle battery (external donor battery) | ② | Positive (+) terminal of the machine battery |
| Ⓑ | Engine battery (receiving battery) | ③ | Bare metal point on the engine block (ground) |
| ① | Positive (+) terminal starting assistance | ④ | Negative (-) terminal of assisting vehicle battery |

Complying with safety instructions

- ⚠ WARNING** *Fault in starting aid process!*
 - Connect batteries of the same voltage only.
 - Ensure that machine and assisting vehicle do not touch.
 - Switch off all consumers prior to connecting and disconnecting the batteries.
 - Only use battery jumper cables of sufficient diameter and with insulated terminal clamps.
 - Observe the instructions provided with the battery jumper cables.
 - Keep jumper cables away from rotating parts.
 - Avoid short-circuits due to incorrect poling and/or bridging with tools.
 - Do not bend over the battery when attaching jumper cables.
 - Do not attempt to start the machine if its battery is frozen. Allow the battery to thaw first!
 - Do not try to start the machine with a boost charger.
2. Comply with the safety instruction shown when using starting aids and starter batteries.

Preparations

1. Park the assisting vehicle in close distance to the engine, without their bodywork touching each other.
2. Stop the engine of the assisting vehicle.
3. Open the accesses to the batteries (remove maintenance panels/bonnet and pole caps).
4. Switch off all power consumers.

Connecting the battery jumper cables

1. Connect the positive terminals ② and ①.
- ⚠ DANGER** *Explosion hazard!*
A spark may ignite an explosive gas mixture.
 - Do not, under any circumstances, connect the negative pole of the assisting machine to the negative pole of the battery in the machine to be started.
This can cause sparks when connecting and disconnecting.
 - Work with caution.
3. Connect the minus pole of the assisting battery ④ to a bare metal point on the machine's drive engine ③ to be started (as far away from the battery as possible).

Starting the engine

1. Start the engine of the assisting vehicle and run at high speed.
2. Start the engine of the machine.



Let the two engines run for approximately 10-15 minutes after the successful start. This is important, in particular for fully discharged batteries. They will pick up little current only in the beginning and have a high internal resistance. Any voltage peaks occurring in the engine generator in this state can be attenuated only by the battery of the assisting vehicle. The engine electronics of the machine, in particular, is sensitive to high voltages and could be damaged easily.

Disconnecting the battery jumper cables

1. Stop the engine of the assisting vehicle.
2. Disconnect the jumper cables in the reverse order, first negative (-) then positive (+).
3. Place the pole caps.
4. Close the maintenance panels and/or bonnet.



A stop of the machine's engine as soon as the cables are disconnected could indicate major damage (e.g. to the engine generator or battery) which must be repaired by a specialized workshop.

8 Operation

8.1 Ensuring safety

Follow the instructions below for safe operation.

Warning instructions are located before a potentially dangerous task.



Disregard of warning instructions can cause serious injuries!

Complying with safety warnings

Disregard of safety warnings can cause unforeseeable dangers!

- Follow the instructions in chapter 3 "Safety and Responsibility".
- Make sure that no one is working on the machine.
- Ensure that all service doors and panels are closed and secured.

Preventing accidental contact

Intensely heated, rotating, or electrically-live components can cause severe injuries.

- Ensure that all doors, canopy and panels are closed.
- Do not carry out any checks or settings while the machine is running.
- Shut down the machine before opening any doors/canopy.

When working on live components

Touching voltage-carrying components can result in electric shocks, burns or death.

- Work on electrical equipment may only be carried out by authorized electricians.

Safe working with compressed air tools and hoses

Open pressurized compressed air hoses move erratically and can cause serious injury to people.

- Pressurize compressed air hoses only after the tool has been connected.
- Do not pressurize open compressed air hoses.
- Detach compressed air hoses only after the hose has been purged of compressed air.
- At working pressures >100 psig, compressed air hoses should be secured by a cable to their respective outlet valves.

Condensate formation in compressed air hoses

Use the shortest possible compressed air hoses to minimize the temperature difference between the machine's compressed air outlet and the air tool. The hose length represents a cooling section. With increasing cooling, the compressed air gives off moisture capable of damaging the air tool.

- Use short compressed air hoses.

Condensate formation in compressed air receivers

Compressed air stored in a containers will cool down. The compressed air precipitates moisture that collects at the container's bottom. Corrosion may damage the container.

- Regularly drain the condensate.

Further information Details of authorized personnel are found in chapter 3.4.2.
Details of dangers and their avoidance are found in chapter 3.5.

8.2 Starting up and shutting down

Precondition No personnel are working on the machine.

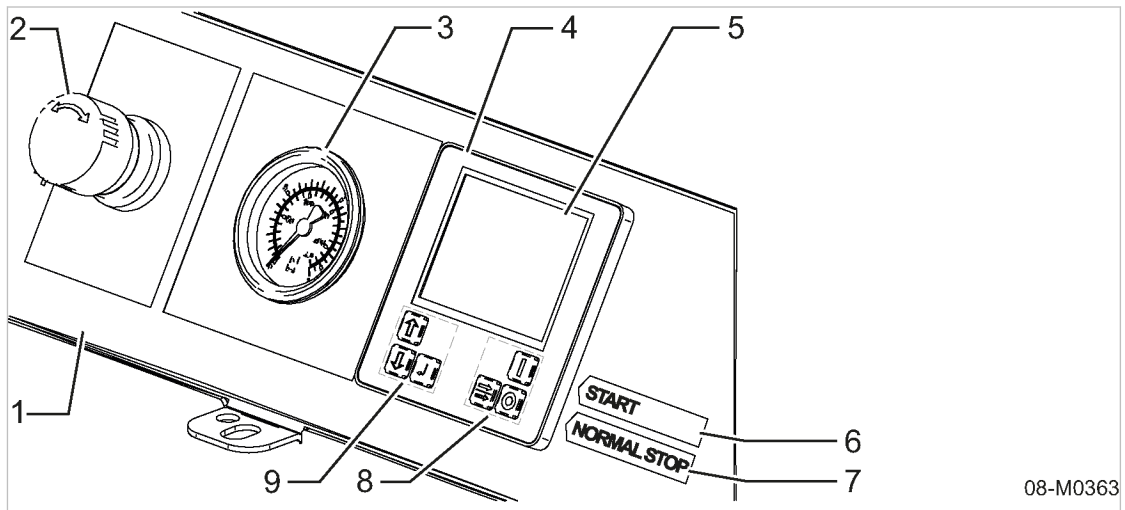
- To start up and shut down the machine correctly, the following instructions must be carried out in the sequence given here.
 - Starting instrument layout on control panel
 - Keys and indicators on the SIGMA CONTROL SMART control unit
 - «Controller ON/OFF» switch
 - Quick reference guide
 - Start-up procedure
 - Shutdown procedure



Detailed instructions can be found in the following two chapters:

- Starting the machine.
- Shutting down the machine.

8.2.1 Control panel



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Fig. 17 Control panel with starting instruments

- | | |
|--|---------------------------|
| ① Control panel | ⑥ <i>START</i> label |
| ② «EMERGENCY STOP» push button | ⑦ <i>NORMAL OFF</i> label |
| ③ Compressed air outlet pressure gauge | ⑧ Operating keys |
| ④ SIGMA CONTROL SMART control unit | ⑨ «Menu navigation» keys |
| ⑤ Display | |

- Memorize the layout of the starting instruments on the control panel.



To ensure a gentle shutdown, always switch off the machine using the «OFF» key on the control panel of the SIGMA CONTROL SMART. This is indicated clearly by the *NORMAL OFF* label to the right of the SIGMA CONTROL SMART control unit.

Use the «EMERGENCY STOP» push button for emergencies only.

8.2.2 SIGMA CONTROL SMART control unit

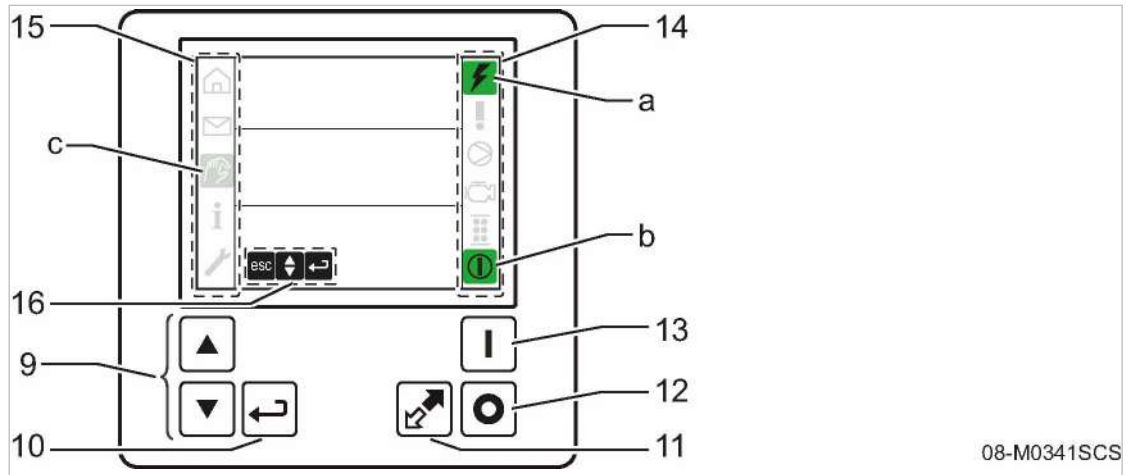


Fig. 18 Keys and indicators, SIGMA CONTROL SMART control unit

- | | |
|------------------------|-----------------------------|
| ⑨ «Up» and «Down» keys | ⓐ <i>Control voltage ON</i> |
| ⑩ «Enter» key | ⓑ <i>READY</i> (flashing) |
| ⑪ «LOAD/IDLE» key | ⑮ Menu bar |
| ⑫ «OFF» key | ⓒ <i>Settings menu</i> |
| ⑬ «START» key | ⑯ Navigation menu |
| ⑭ Status bar | |

- Memorize the keys and indicators on the control unit.

8.2.3 Controller ON/OFF switch

The control voltage for the SIGMA CONTROL SMART control unit is switched on when the «Controller ON/OFF» switch is set to *ON*. The «Controller ON/OFF» switch is located inside the machine.

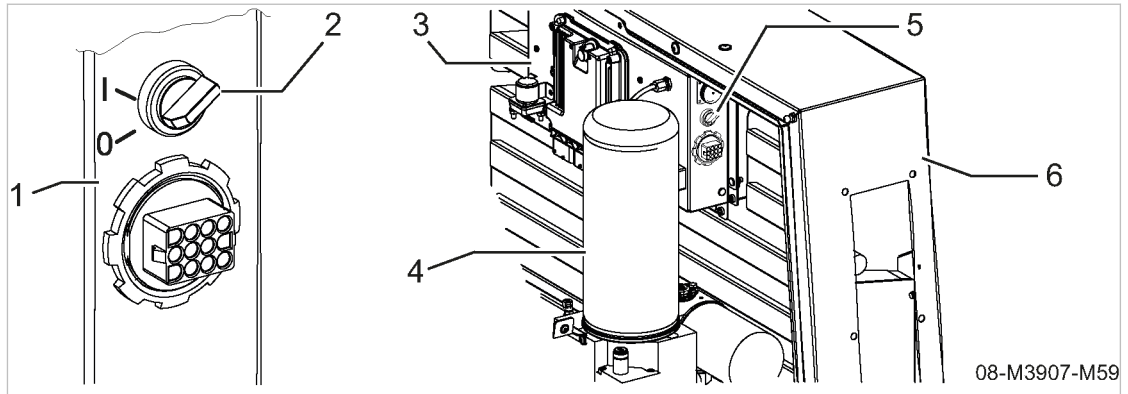


Fig. 19 Location, «Controller ON/OFF» switch

- | | |
|------------------------------|--|
| ① Control box detail | ④ Oil separator cartridge |
| ② «Controller ON/OFF» switch | ⑤ Location, «Controller ON/OFF» switch |
| ③ Control box | ⑥ Left-hand side of machine |

1. Open the left-hand door.
2. Memorize the location of the «Controller ON/OFF» switch.

8.2.4 Observing the quick reference guide

A quick reference guide, displayed as symbols for the start-up and shutdown procedures, can be found on a label on the control panel cover.

- Memorize the symbols for the start-up and shutdown procedures.

Start-up symbols:

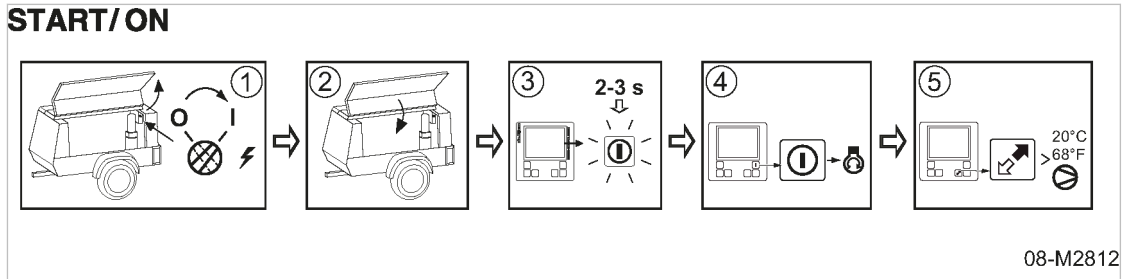


Fig. 20 Quick reference guide for start-up procedure

1. Open the control panel cover.
2. Follow the process step symbols on the quick reference guide to start up the machine.

Shutdown symbols:

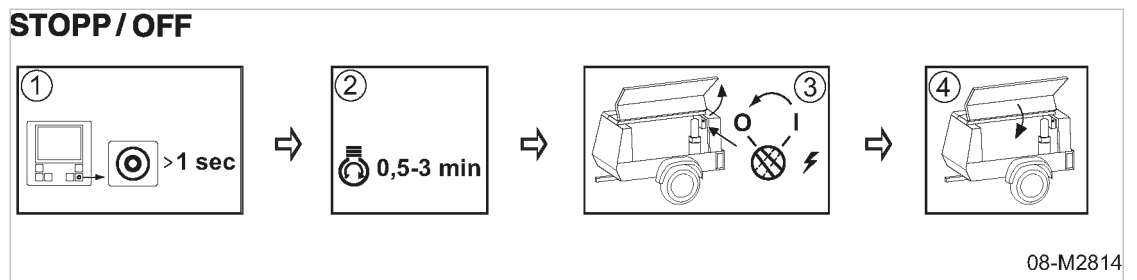


Fig. 21 Quick reference guide for shutdown procedure

1. Open the control panel cover.
2. Follow the process step symbols on the quick reference guide to shut down the machine.

8.2.5 Operating the machine in winter conditions

Please note the following when operating in winter conditions:

- It is possible for the «EMERGENCY STOP» push button to become iced over.
- It is possible for the machine to exceed its permissible total weight when snowed or iced over.

⚠ WARNING

*«EMERGENCY STOP» push button key jammed!
 The machine's emergency shutdown function will not work.*

- Check that the «EMERGENCY STOP» push button functions correctly.
- Do not operate the machine if the «EMERGENCY STOP» push button does not function.

NOTICE

Permissible total weight of the machine exceeded!

- Remove snow and/or ice from the machine.

Checking the EMERGENCY STOP push button

1. Activate the «EMERGENCY STOP» push button.
 The «EMERGENCY STOP» push button cannot be activated or does not engage.
2. Defrost the «EMERGENCY STOP» push button.
3. Try the «EMERGENCY STOP» push button again.



In the event that the «EMERGENCY STOP» push button still does not function after multiple attempts.

- Arrange for an authorized KAESER service representative to replace the «EMERGENCY STOP» push button.

Observing the permissible total weight of the machine

- Remove snow and/or ice from the machine.

8.2.6 Starting the machine**NOTICE**

Serious damage to the engine from cold starting sprays!

Cold-start assists, such as ether or other sprays, can cause severe engine damage.

➤ *Do not use cold start sprays.*

Preparing the start:

1. Open the control panel cover.
2. Switch on the «Controller ON/OFF» key to ON.
 - The controller boots up and the front page is displayed.
 - If the temperature is below zero, the engine control unit will switch on engine pre-heating.
 - If the controller does not display any unacknowledged messages (see separate SIGMA CONTROL MOBILE operating manual, chapter "Functional description"), the display switches to *Operating mode* and signals readiness.
 - The «Start» key flashes.

Starting the engine:

- Press the «START» key.
- The engine starts and runs in IDLE until the following conditions are fulfilled:
 - The required airend discharge temperature (ADT) has been attained.
 - The required engine coolant temperature (ECT) has been attained.
 - The «START» key illuminates and the «LOAD» key flashes.



If the starting sequence fails or is interrupted by pressing the «QUICK STOP» button, the "re-start inhibit" is activated for 20 seconds. The display shows the remaining time before another start can be attempted.

Switching the machine to LOAD operation:

- Press «LOAD/IDLE» key.
- The machine switches to LOAD mode and is ready to deliver compressed air.
 - The «LOAD/IDLE» key illuminates.



If the «LOAD» key is pressed before the required ADT or ECT are attained, the engine continues to run at IDLE speed. The controller switches automatically to LOAD when these temperature limits are reached.

Further information A representation of the operating sequence of the SIGMA CONTROL MOBILE is provided in the separate operating manual for the controller.

8.2.7 Setting the compressed air discharge pressure

The compressed air discharge pressure can be modified only when this option is activated in the machine controller.

(See also the separate user manual for SIGMA CONTROL SMART.)

The compressed air discharge pressure (nominal pressure) can be set when the engine is in stand-still (with the controller activated) or during operation (with the machine running).

- The pressure can only be set at lower than the nominal working pressure of the machine.

- You can adjust the settings in increments of 0,1 bar or 1 psi.
- The adjustment is displayed.

⚠ CAUTION

Danger from incorrectly set pressure!

Danger from malfunctioning or not functioning compressed air tools when the machine's discharge pressure is set incorrectly.

- *Use connected compressed air tools only with the pressure appropriate for its purpose (tool working pressure).*
- *Comply with the information and notes provided in the compressed air tool's operating instruction.*

The Settings menu for the compressed air discharge pressure can be reached in two ways:

- Quick access from the main menu
- Access via menu structure

Precondition Controller switched on

The pressure adjustment option is enabled.

- Select the access type.

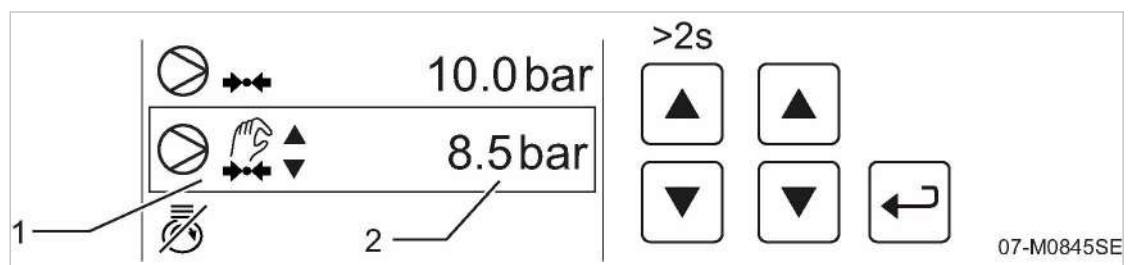
Quick access from the main menu


Fig. 22 Quick access adjustment compressed air output pressure

- ① Symbolic setting the compressed air discharge pressure
- ② Setting value

1. Press «UP» or «DOWN» for more than two seconds and release.
The display immediately jumps to the line for "Setting the compressed air discharge pressure".
The Settings menu has a flashing frame.
2. Press the «UP» and/or «DOWN» keys to select the required pressure.
The set value for the compressed air discharge pressure is immediately active and remains saved.
3. Press «Enter».
The frame disappears.
4. Press «Enter».
Jump back to the menu bar, the "Main menu" symbol receives a black background.

Access via menu structure

Precondition The Settings menu (hand symbol) is selected.

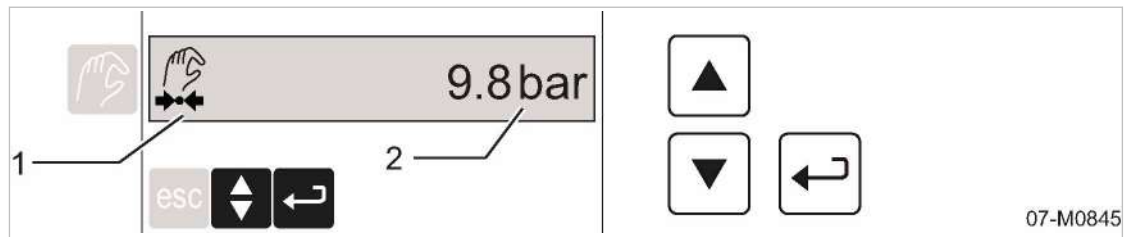


Fig. 23 Setting the compressed air discharge pressure

- ① Adjustment compressed air output pressure
- ② Setting value

1. Press «down» for a short time.
The "Setting compressed air discharge pressure" line is framed.
2. Press «Enter».
The frame flashes and thus signals that input is possible.
You can set the required compressed air discharge pressure.
3. Press the «UP» and/or «DOWN» keys to select the required pressure.
The set value for the compressed air discharge pressure is immediately active and remains saved.
4. Press «Enter».
The frame stops flashing.
5. Press «Enter» for at least two seconds.
Jump back to the menu bar, the "Settings menu" symbol receives a black background.

or:

1. Press «UP» or «DOWN» until all lines of the Settings menu no longer have a frame.
2. Press «Enter» for just a moment.
Jump back to the menu bar, the "Settings menu" symbol receives a black background.



The modification of the pressure setting at the display can be blocked upon the entry of the Customer password (password level 1). The last setting of the compressed air discharge pressure is retained.

8.2.8 Shutting down the machine

NOTICE

Thermal overload of the turbocharger!

Abrupt stopping of the engine under load can cause a fault or damage to the turbocharger.

- *Use the controller to shut down the machine as normal; do not use the «EMERGENCY STOP» push button to save time.*

Switching the machine to the run-on phase

- Switch the machine to the run-on phase.
 - ➤ Press «LOAD/IDLE» key.
 - The machine switches to *unloaded run-on*.
 - The engine runs at IDLE speed.
 - Oil separator tank (OST) is vented.
 - The inlet valve closes.
 - ⏳ 0.5 - 3 minutes (engine can be switched off).
 - ➤ Press and hold the «STOP» key for more than 1 second.
 - The engine switches off.

Stopping the drive engine

- Turn the engine off after the cooling-down phase.
 - ➤ Press and hold the «STOP» key for more than 1 second.
 - The machine switches to *unloaded run-on*.
 - The engine runs at IDLE speed
 - Oil separator tank (OST) is vented.
 - The inlet valve closes.
 - The engine switches off, controlled by a timer.



- The controller display shows *back pressure* if the pressure in the oil separator tank is still > 14.5 psi.
- When the machine is fully vented, the display changes to *Ready to start*.
- When the OST is fully vented after shut down, the re-start inhibitor is activated and is indicated by the timer counting down from 20 seconds.

Shutting down the controller

1. **NOTICE** *Memory fault!*
Damage to the machine electronics and/or controller is possible.
 - *Shut down the controller only after the engine control unit has completed its save process.*
2. Shut down the controller.
 - ➤ Switch off the «controller ON/OFF» key.

Shutting down the machine

1. Switch off the «controller ON/OFF» switch.
2. Close all «compressed air outlet valves» on the air outlet.
3. Close the control panel cover.
4. Close both doors.

8.2.9 Shutting down in an emergency

In the event of danger, shut the machine down immediately by activating the «EMERGENCY STOP» push button.



Only use the «EMERGENCY STOP» push button for shutting down the machine in **emergencies**.

Shutting down the machine quickly:

- Activate the «EMERGENCY STOP» push button.
The engine shuts down immediately,
The «EMERGENCY STOP» push button is locked.
The compressed air system is vented,
The machine is secured against restarting.

Resolving a fault on the machine:

Precondition Operational safety of the machine and its immediate environment is ensured.

1. Determine the cause of the fault.
2. Rectify the fault appropriately.

Restarting the machine:

Once the fault has been resolved, the machine must be unlocked.

Precondition The fault has been rectified.

1. Turn the «EMERGENCY STOP» push button in the direction of the arrow until it unlocks automatically.
2. Confirm the alarm message using the «Enter» key.
3. Restart the SIGMA CONTROL SMART to acknowledge the alarm message.

Result The machine is ready to start.

8.3 Refueling the machine

In order to avoid accidents caused by igniting fuel, special caution must be exercised when filling the fuel tank.

⚠ DANGER

Fuel constitutes a fire hazard!

Overflowing or spilled fuel can ignite upon contact with hot engine parts, open flames or sparks, resulting in serious burns.

- *Only refuel the machine once it has been switched off and allowed to cool down.*
 - *Never refuel the machine in the vicinity of open flames or sparks.*
 - *Do not allow fuel to spill or overflow.*
 - *Do not smoke.*
- Follow all instructions carefully.

8.3.1 Using the correct type of fuel

In the worst case scenario, use of the incorrect fuel type in a modern diesel engine can result in irreparable damage to the injection system and drive engine.

The worst case scenario occurs when a modern diesel engine is started up using petrol or premium-grade fuel. Because these types of fuel lack the special lubricating properties of diesel, it is primarily the precision components in the injection system that will be irreparably damaged. Secondary damage may occur to the drive engine.

Example: Machine with diesel engine	Measures
<ul style="list-style-type: none"> ■ Fuel tank is filled with petrol or premium-grade fuel. ■ Error is noticed. ■ Engine is not started. 	<ul style="list-style-type: none"> ➤ Do not start the engine under any circumstances. ➤ Drain / pump out the incorrect fuel from the tank. ➤ Arrange for the fuel tank to be cleaned. ➤ Fill the tank with diesel fuel.
<ul style="list-style-type: none"> ■ Fuel tank is filled with petrol or premium-grade fuel. ■ Error is not noticed. ■ Engine is started. 	<ul style="list-style-type: none"> ➤ Switch off the engine immediately. ➤ Contact an engine workshop. ➤ Drain / pump out the incorrect fuel from the tank. ➤ Arrange for the fuel tank to be cleaned. ➤ Arrange for the fuel system to be cleaned. ➤ Arrange for the injection system to be checked / replaced. ➤ Arrange for the engine to be checked / replaced. ➤ Fill the tank with diesel fuel.

Tab. 48 Measures required should the fuel tank be filled with the incorrect fuel type

The manufacturer shall not be liable for any damage caused due to filling the tank with the incorrect fuel type.

The fuel tank must be filled exclusively with liquid fuel of the correct type and the recommended specification.

A label placed on the fuel tank in the vicinity of the filler port indicates the correct fuel type, see Fig. 24.

NOTICE

Operating the machine with the incorrect fuel type will result in damage to the injection system and the engine!

- *Arrange for the fuel tank to be emptied and cleaned.*
- *Arrange for the entire fuel system to be cleaned.*
- *If necessary, arrange for the injection system / engine to be replaced.*
- *Only fill the fuel tank with diesel that complies with the recommended specifications.*

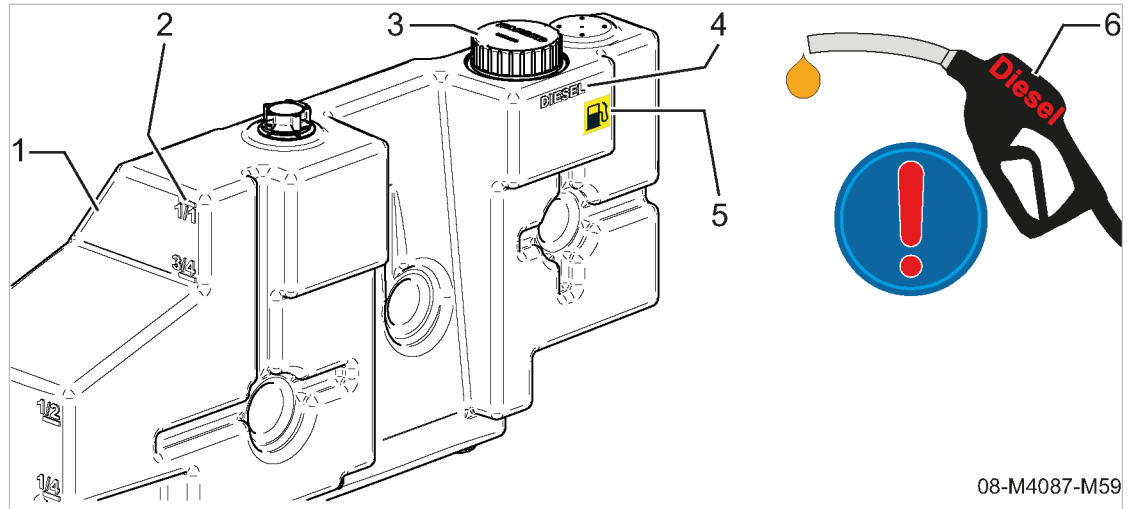


Fig. 24 Filling the tank with the correct fuel type

- | | |
|-------------------------------------|----------------------|
| ① Fuel tank | ④ Correct fuel type |
| ② <i>Maximum fill level</i> marking | ⑤ Refuelling label |
| ③ Fuel tank cap | ⑥ Diesel fuel nozzle |

► Check the correct fuel type and specifications by referring to Table 49.

Fuel / fuel specification	Designation / standard
Fuel type	Diesel fuel
Recommended fuel specification	EN 590 ⁽¹⁾
Recommended fuel specification	ASTM D975 ⁽²⁾

⁽¹⁾ ≙ Sales region Europe, ⁽²⁾ ≙ Sales region USA

Tab. 49 Fuel / fuel specification



Fuel type / specification does not comply with regulations.
 ► Under no circumstances must the fuel tank be filled with the incorrect fuel type.

Further information For more details on the correct fuel specification, see Chapter 2.8.3.

8.3.2 Filling the fuel tank at a pump by means of a refuelling nozzle



Liquid fuels expand at high ambient temperatures. To avoid overflowing, the fuel tank must not be filled to the brim.
 The *maximum fill level* is indicated on the fuel tank.

- Precondition
- The machine is standing level.
 - The machine has cooled down.
 - The enclosure is open.
 - All compressed air consumers are disconnected, the discharge valves are open, the machine is fully vented, the pressure gauge reads 0 psig.
 - The negative cable to the battery is disconnected.
 - The selected fuel meets the requirements specified in Table 49.

1. Loosen and remove the fuel tank cap.
2. Insert the diesel fuel nozzle into the filler port.
3. Activate the nozzle.
Refueling begins.
4. Wait until the maximum fill level of the fuel tank has been reached.
Sufficient expansion volume remains.
5. Shut off and remove the fuel nozzle.
6. Close the filler port with the cap.



Dispose of any spilled fuel and fuel-contaminated working materials in accordance with applicable environmental regulations.

Preparing for operation

1. Connect the negative cable to the battery.
2. Close the enclosure.

8.3.3 Filling the fuel tank on a construction site by means of a canister

Liquid fuels expand at high ambient temperatures. To avoid overflowing, the fuel tank must not be filled to the brim.

The *maximum fill level* is indicated on the fuel tank.

Material Funnel

Precondition The machine is standing level.
The machine has cooled down.
The enclosure is open.
All compressed air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
The negative cable to the battery is disconnected.
The selected fuel meets the requirements specified in Table 49.

1. Loosen and remove the fuel tank cap.
2. Insert the funnel into the filler port.
3. Carefully pour the contents of the canister into the funnel.
4. Do not allow fuel to spill or overflow.
5. Fill the tank to the *maximum fill level* marking.
Sufficient expansion volume remains.
6. Remove the funnel.
7. Close the filler port with the cap.



Dispose of any spilled fuel and fuel-contaminated working materials in accordance with applicable environmental regulations.

Preparing for operation

1. Connect the negative cable to the battery.
2. Close the enclosure.

8.4 Confirming alarm and warning messages

- Information evaluated by the controller is stored in the event memory.
- Warning and alarm messages are indicated on the display.
- The message is stored in the controller's event memory at the same time.

8.4.1 Confirming alarm messages

When an alarm message is displayed:

- The machine is shut down and/or cannot be restarted.
- The assigned signal indicator illuminates red.

Precondition Fault rectified.

- Confirm the message using the «Enter» key.
The alarm indicator is extinguished.
The alarm symbol on the status bar remains active.



If the fault is not yet rectified:
The message line in the event memory has a coloured (red) frame.

Acknowledging the message:

The event memory status bar continues to display the confirmed message.

Once the fault has been successfully remedied, the message still needs to be acknowledged by restarting the SIGMA CONTROL SMART.

- Restart the SIGMA CONTROL SMART to acknowledge the alarm message.
The message is acknowledged.
The machine can be started.

8.4.2 Confirming warning messages

Before an alarm, a warning message is displayed:

- The assigned signal indicator illuminates orange.

Precondition The cause of the warning is rectified

- Confirm the message using the «Enter» key.
The warning message is extinguished.
The warning symbol on the status bar remains active.



If the fault is not yet rectified:
The message line in the event memory has a coloured (orange) frame.

Acknowledging the message:

The event memory status bar continues to display the confirmed message.

Once the fault has been successfully remedied, the message still needs to be acknowledged by restarting the SIGMA CONTROL SMART.

- Restart the SIGMA CONTROL SMART to acknowledge the warning message.
The message is acknowledged.
The machine can be started.

Further information For more information regarding the event memory, see the separate operating manual for the SIGMA CONTROL SMART.

8.5 Cleaning the machine after operation



Proper technical condition of the machine also includes cleanliness. The interior of the machine in particular should not be heavily contaminated with oil.

When cleaning the interior of the machine by using a high-pressure cleaner you must take appropriate measures to effectively protect the electrical components from any penetrating water.

- The machine must be cleaned by authorized and trained personnel only!

Maintain the following minimum distances to the object to be cleaned:

- Circular section jet nozzles: approximately 28 inches
- Fan jet nozzles: approximately 12 inches
- Dirt blasters: approximately 12 inches



Cleaning by using dry-ice blasting is strictly forbidden! This can result in unforeseen damage.

Material Eye protection (protective glasses)
Cleaning cloth
High-pressure washer

Precondition The machine has been set down in a cleaning area equipped with an oil separator.
The machine is on level ground and has cooled down.
The machine is completely depressurized,
the pressure gauge reads 0 psig!
Controller ON/OFF switch is switched off,
the minus cable of the battery has been disconnected.

⚠ WARNING

*Stirred up dirt particles and hazardous materials!
Injuries to eyes.*

- *Wear safety glasses.*

NOTICE

Damage can be caused to the machine by water or steam jets!

Direct water or steam jets can damage or destroy electrical components and sensitive indicating instruments.

- *Do **not direct** strong jets of water at electrical components, such as control box and starter, or sensitive indicating instruments.*
- *Deploy the extension pole of the pressure washer at the required distance to the object to be cleaned.*
- *Keep the extension pole of the pressure washer in constant motion.*

- Comply with all instructions!

8.5.1 Cleaning the exterior of the machine

Overview:

- Close the control panel cover
- Clean the exterior
- Cleaning sensitive indicating instruments

Close the control panel cover

- Close control panel cover of SIGMA CONTROL SMART.
Sensitive indicating instruments are protected against direct water or steam jets.

Cleaning the machine from the outside

Maintain the following minimum distances to the object to be cleaned in order to prevent damages to the object when cleaning with the high-pressure washer:

- Circular section jet nozzles: approximately 28 inches
- Fan jet nozzles: approximately 12 inches
- Dirt blasters: approximately 12 inches

- Clean the machine from the outside with a high-pressure cleaner.

Result Exterior cleaning completed.

Clean display instruments:

Precondition Exterior cleaning completed.

1. Open the control panel cover of SIGMA CONTROL SMART.
2. Manually clean sensitive indicating instruments with a cleaning cloth.

8.5.2 Clean the interior of the machine

Overview:

- Cover the intake openings of both air filters
- Clean the interior of the machine
- Remove the covers from the two air filters

Cover the intake openings of both air filters:

1. Cover the intake opening of the engine air filter.
2. Cover the intake opening of the compressor air filter.

Cleaning the interior of the machine:

1. **NOTICE** *Damage can be caused to the machine by water or steam jets! Direct water or steam jets can damage or destroy electrical components and sensitive indicating instruments.*
 - *Do **not direct** strong jets of water at electrical components, such as control box, starter, generator or sensitive indicating instruments.*
 - *Deploy the extension pole of the pressure washer at the required distance to the object to be cleaned.*
 - *Keep the extension pole of the pressure washer in constant motion.*
2. Carefully clean the interior of the machine!

Remove cover from the two air filters

1. Remove cover from engine air filter intake opening.
2. Remove cover from compressor air filter intake opening.



Dispose of dirty covers, adhesive tape and cleaning cloths in accordance with applicable environmental protection regulations.

8.6 Operating the options

- Comply with all instructions.

8.6.1 Option da/df, da/dd/df**Bypassing/switching on the heat exchanger**

A heat exchanger serves to reheat the treated compressed air. This heating system features a bypass function via a directional control valve. An intermediate position between the two positions "I" - open (red marking) and "0" - closed (blue marking) can also be selected. This allows the compressed air temperature to be roughly preset.

The bypass permits infinitely variable setting of the compressed air discharge temperature, from 45 °F above ambient to approximately 185 °F.

The lever for the directional control valve is located on the exterior of the machine, on the right-hand side. This enables the required compressed air quality to be adjusted easily and conveniently during operation of the machine.

Material Protective gloves

⚠ WARNING

Danger of burns from hot surfaces!

- *Always wear protective gloves.*
- *Always wear protective gloves when adjusting the directional control valve lever.*

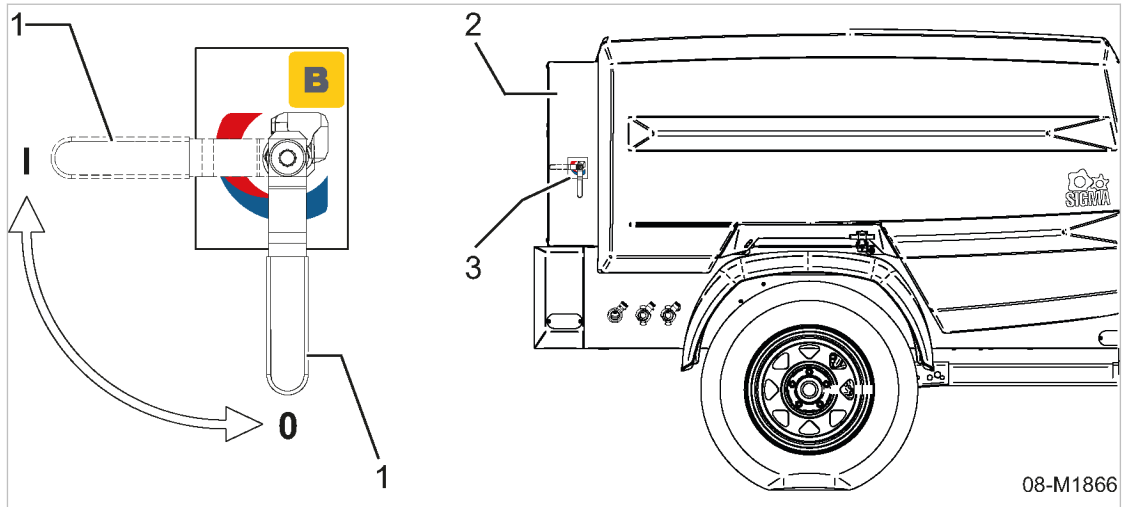


Fig. 25 Bypassing/switching on the heat exchanger

- ① Directional control valve lever
- ② Machine, right-hand side
- ③ Location of lever on the machine

➤ Follow all instructions carefully.

**8.6.1.1 Option da/df
Selecting compressed air quality B or A**

The following options can be selected for compressed air treatment:

- Condensate-free and reheated compressed air
→ Compressed air quality B
- Condensate-free compressed air only
→ Compressed air quality A

Heat exchanger directional control valve	Compressed air quality at compressed air outlet	Compressed air quality symbols
I	Condensate-free and warm compressed air	B
0	Condensate-free compressed air	A

I – directional control valve open; 0 - directional control valve closed

Tab. 50 Directional control valve position and selected compressed air quality

Switching on the heat exchanger

1. Always wear protective gloves.
2. Open the directional control valve on the heat exchanger (position I) → red marking.
The oil/compressed air heat exchanger is incorporated into the compressor oil circuit. Compressed air fed through the heat exchanger is reheated by the hot cooling oil from the compressor. “Condensate-free and warm compressed air” is available from the compressed air distributor.

Switching off the heat exchanger

1. Always wear protective gloves.
2. Close the directional control valve on the heat exchanger (position 0) → blue marking.
The oil/compressed air heat exchanger is circumvented by the bypass line and therefore is not incorporated into the compressor oil circuit. Compressed air fed through the heat exchanger is not reheated. Consequently, only “condensate-free compressed air” is available from the compressed air distributor.

8.6.1.2 Option da/dd/df

Selecting compressed air quality G or F

The following options can be selected for compressed air treatment:

- Moisture-reduced, oil-free and reheated compressed air
→ Compressed air quality G
- Moisture-reduced, oil-free compressed air
→ Compressed air quality F

Heat exchanger directional control valve	Compressed air quality at compressed air outlet	Compressed air quality symbols
I	Moisture-reduced, technically oil-free and warm compressed air	G
0	Moisture-reduced, technically oil-free compressed air	F

I – directional control valve open; 0 - directional control valve closed

Tab. 51 Directional control valve position and selected compressed air quality

Switching on the heat exchanger

1. Always wear protective gloves.
2. Open the directional control valve on the heat exchanger (position I) → red marking.
The oil/compressed air heat exchanger is incorporated into the compressor oil circuit. Compressed air fed through the heat exchanger is reheated by the hot cooling oil from the compressor. “Technically oil-free, dry and warm compressed air” is available from the compressed air distributor.

Switching off the heat exchanger

1. Always wear protective gloves.
2. Close the directional control valve on the heat exchanger (position 0) → blue marking.
The oil/compressed air heat exchanger is circumvented by the bypass line and therefore is not incorporated into the compressor oil circuit. Compressed air fed through the heat exchanger is not reheated. Consequently, only “technically oil-free and dry compressed air” is available from the compressed air distributor.

9 Fault Recognition and Rectification

9.1 Basic instructions

The following tables are intended to assist in fault finding and rectification.

1. Do not attempt fault rectification measures other than those given in this manual!
2. In all other cases:
Have the fault rectified by an authorized KAESER service representative.

Further information Observe the instructions in chapter 3 "Safety and Responsibility" and prevailing local safety regulations when rectifying faults and malfunctions.
Comply with local applicable safety provisions!

9.2 Analysing SIGMA CONTROL SMART messages

There are three types of message:

- Alarm messages, see chapter 9.2.1
- Warning messages, see chapter 9.2.2
- Maintenance messages, see chapter 10.2

The messages valid for your machine are dependent on the controller factory settings and individual equipment with which the machine is provided.

9.2.1 Fault messages on the controller (machine off)

Fault with automatic shutdown of the machine.



Following rectification of the fault, the alarm message must be acknowledged before the machine can be restarted.

Further information Further information regarding the acknowledgement of alarm messages can be found in Chapter 8.4.

Fault codes, range 1100 – 1199 "Engine faults":

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1100	Fault - engine oil pressure (p76) low.	Check the engine oil level.	10.4.4	–	–
		Arrange for the engine oil pressure to be checked.	–	X	–
		Arrange for the oil pressure switch to be checked.	–	X	X

SW = Specialist Workshop; KS = KAESER SERVICE; DPF = Diesel Particulate Filter
SCS - SIGMA CONTROL SMART; ECU - Engine Control Unit

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1110	Fault – coolant temperature (T70) high.	Check the coolant level.	10.4.1	–	–
		Clean the cooler.	10.7	–	–
		Check the water-cooling system.	–	X	X
1111	Fault – coolant level too low.	Check the coolant level.	10.4.1	–	–
1121	Fault – charge air temperature (T73) high.	Check installation conditions. Allow the machine to cool down.	5.2	–	–
1124	Fault - engine fault air flow meter.	Arrange for it to be checked.	–	X	X
1130	Fault – fuel level too low.	Refuel.	–	–	–
1132	Fault – fuel pressure low.	Arrange for it to be checked.	–	–	–
1135	Fault – fuel pump.	Arrange for it to be checked.	–	X	X
1137	Fault - fuel solenoid.	Arrange for it to be checked.	–	X	X
1140	Fault - engine alternator does not charge.	Arrange for it to be checked.	–	X	X
1150	Fault – other ECU faults.	Arrange for it to be checked.	–	X	X
1151	Fault – ECU/SCS communication.	Arrange for it to be checked.	–	X	X
1160	Fault – rail pressure sensor.	Arrange for it to be checked.	–	X	X
1161	Fault – speed sensor.	Arrange for it to be checked.	–	X	X
1162	Fault - engine speed high.	Arrange for it to be checked.	–	X	X
1164	Fault - fuel system.	Arrange for it to be checked.	–	X	X
1165	Fault - engine speed low.	Arrange for it to be checked.	–	X	X
1170	Fault – automatic start mode fault.	Arrange for it to be checked.	–	X	X
1180	Fault – exhaust gas after-treatment fault.	Arrange for DPF to be checked.	–	X	X
1186	Fault – exhaust gas after-treatment temperature high.	Arrange for DPF to be checked.	–	X	X

SW = Specialist Workshop; KS = KAESER SERVICE; DPF = Diesel Particulate Filter
 SCS - SIGMA CONTROL SMART; ECU - Engine Control Unit

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1192	Fault diesel particulate filter system.	Arrange for it to be checked.	–	X	X

SW = Specialist Workshop; KS = KAESER SERVICE; DPF = Diesel Particulate Filter
SCS - SIGMA CONTROL SMART; ECU - Engine Control Unit

Tab. 52 Alarm messages and actions relating to “engine fault”

Alarm codes, range 1200 – 1299 “Compressor faults”:

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1200	Fault - ADT high.	Check installation conditions. Allow the machine to cool down.	5.2	–	–
		Check the cooling oil level.	10.6.1	–	–
		Clean the cooler.	10.7	–	–
1201	Fault - OST pressure high.	Arrange for it to be checked.	–	–	X
1202	Fault - OST temperature high at the air outlet.	Arrange for it to be checked.	–	–	X

SW = Specialist Workshop; KS = KAESER SERVICE
ADT = Airend discharge temperature; OST = Oil separator tank

Tab. 53 Fault messages and actions relating to “compressor fault”

Alarm codes, range 1300 – 1399 “Controller faults”:

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1300	Fault – PLC memory error.	Arrange for it to be checked.	–	–	X
1302	Fault – PLC-HMI communication.	Arrange for it to be checked.	–	–	X
1303	Fault - PLC temperature high.	Check installation conditions. Allow the machine to cool down.	5.2	–	–
1304	Fault – PLC power supply.	Arrange for it to be checked.	–	–	X

SW = Specialist Workshop; KS = KAESER SERVICE
PLC = Programmable logic controller; HMI = Human-machine interface; Watchdog = Function monitoring; ECU = Engine control unit

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1306	Fault – PLC-ECU communication.	Arrange for it to be checked.	–	–	X
1310	Fault – Watchdog fault.	Arrange for it to be checked.	–	–	X
1311	Fault – I/O module.	Arrange for it to be checked.	–	–	X

SW = Specialist Workshop; KS = KAESER SERVICE

PLC = Programmable logic controller; HMI = Human-machine interface; Watchdog = Function monitoring; ECU = Engine control unit

Tab. 54 Fault messages and actions relating to “controller fault”

Alarm codes, range 1400 – 1499 “General faults”:

Code	Meaning	Action	See chapter	Where can I get help?	
				SW	KS
1400	Fault – EMERGENCY STOP.	Unlock.	8.2.9	–	–
		Arrange for it to be checked.	–	–	X
1410	Fault - OST pressure sensor open circuit.	Arrange for it to be checked/repared.	–	–	X
1412	Fault – inlet valve pressure transducer open circuit.	Arrange for it to be checked/repared.	–	–	X
1414	Fault – ADT sensor open circuit.	Arrange for it to be checked.	–	–	X
1416	Fault – fuel level sensor open circuit.	Arrange for it to be checked.	–	–	X
1420	Fault – venting valve open circuit.	Arrange for it to be checked/repared.	–	–	X
1424	Fault – inlet valve control valve open circuit.	Arrange for it to be checked.	–	–	X
1450	Fault - GSM module control locked.	Have the GSM modem unlocked.	–	–	X

SW = Specialist Workshop; KS = KAESER SERVICE

GSM = Global system for mobile communications; OST = Oil separator tank

ADT = Airend discharge temperature

Tab. 55 Fault messages and actions relating to “General faults”

9.2.2 Warning messages on the controller

The machine is not shut down.



- In the case of an over-temperature warning, the machine switches automatically to IDLE mode to cool down.
- The warning message must be confirmed after remedying the fault.

Further information Further information on the acknowledgement of warning messages can be found in chapter 8.4.

Message codes, range 3100 – 3199 “Motor/engine warning”:

Code	Meaning	Remedy	See chapter	Where can I get help?	
				SW	KS
3112	Warning - sensor coolant temperature (T70) faulty.	Have it checked.	–	–	–
3120	Warning - turbo air pressure fault.	Have the turbo air pressure sensor checked.	–	X	X
3124	Warning - air flow meter fault.	Have it checked.	–	X	X
3130	Warning – fuel level low.	Refuel.	–	–	–
3135	Warning - fuel pump.	Have it checked.	–	X	X
3136	Warning - fuel filter water level.	Empty the fuel filter water trap.	10.4.3	–	–
3150	Warning - ECU miscellaneous error.	Have it checked.	–	–	–
3154	Warning – drive motor/engine sensor fault.	Have it checked.	–	X	X
3155	Warning – drive motor/engine actuator fault.	Have it checked.	–	X	X
3164	Warning - fuel system fault	Have it checked.	–	X	X
		Clean / replace the fuel filter.	10.4.3	–	–
3185	Warning message - fault in emission treatment.	Check DPF.	–	X	X
3188	Warning - emission treatment - regeneration necessary.	Initiate parked regeneration.	UM SCS	–	–

SW = Specialized workshop; KS = KAESER SERVICE

DPF = Diesel particulate filter; ECU = Electronic Control Unit

UM SCS = Separate user manual for the SIGMA CONTROL SMART controller

Tab. 56 Warning messages and measures relating to the engine.

Message codes, range 3200 – 3299 “Compressor unit warnings”:

Code	Meaning	Remedy	See chapter	Where can I get help?	
				SW	KS
3200	Warning – ADT high.	Check operating conditions. Allow the machine to cool down.	5.2	–	–
		Check the cooling oil level.	10.6.2	–	–
		Clean the cooler.	10.7	–	–
3201	Warning – OST pressure high.	Have it checked.	–	–	X

SW = Specialized workshop; KS = KAESER SERVICE

ADT = Airend discharge temperature; OST - Oil separator tank

Tab. 57 Warning messages and measures relating to the compressor

Alarm codes, range 3300 – 3399 “Controller warnings”:

Code	Meaning	Remedy	See chapter	Where can I get help?	
				SW	KS
3303	Warning - PLC temperature high.	Check setup conditions. Allow the machine to cool down.	5.2	–	–
3313	Warning - HMI temperature high.	Check operating conditions. Allow the machine to cool down.	5.2	–	–

SW = Specialized workshop; KS = KAESER SERVICE

PLC - Programmable logic controller; HMI = Human-machine interface

Tab. 58 General warning messages and measures

9.3 Evaluating engine faults and alarms

9.3.1 Engine refuses to start or does not turn over

Possible cause	Remedy	Where can I get help?	
		SW	KS
«EMERGENCY STOP» push button activated.	Unlatch the «EMERGENCY STOP» push button, see chapter 8.2.9.	–	–
Defective starter.	Have it checked.	X	–
Engine electrical fault	Have it repaired/changed.	X	–

SW = Specialized workshop; KS = KAESER SERVICE

Possible cause	Remedy	Where can I get help?	
		SW	KS
Fuel tank empty.	Fill up the fuel tank	–	–
Airlock in the fuel line between fuel tank and injector pump.	Bleed the fuel line (see chapter 10.4.3).	–	–
Fuel filter clogged.	Clean or replace, see chapter 10.4.3.	–	–
Fuel line broken.	Have it checked.	X	–
Defective control fuse or relay.	Have it repaired or replaced if necessary.	X	X
Discharge temperature too high.	Have it checked.	–	X
SIGMA CONTROL SMART defective.	Have it repaired/changed.	–	X
Electrical connections and/or cables loose or broken	Tighten the connection or have the cable replaced.	X	–
Defective battery or low charge.	Maintain battery, see chapter 10.9.1.	–	–
Motor alternator defective.	Have it checked.	X	–
Defective alternator regulator.	Have it checked.	X	–
Oil pressure switch indicating insufficient oil pressure.	Check the engine oil level (see chapter 10.4.4).	–	–
	Have the engine repaired or exchanged.	X	–

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 59 Fault: engine refuses to start or comes to a stop.

9.3.2 Engine does not reach full speed

Possible cause	Remedy	Where can I get help?	
		SW	KS
Airlock in the fuel line between fuel tank and injector pump.	Bleed the fuel line (see chapter 10.4.3).	–	–
Fuel filter clogged.	Clean or replace, see chapter 10.4.3.	–	–
Fuel line broken.	Have it checked.	X	–
Engine electrical fault	Have it repaired/changed.	X	–
SIGMA CONTROL SMART defective.	Have it repaired/changed.	–	X

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 60 Alarm: "engine does not reach full speed".

9.4 Analyzing compressor faults and alarms

9.4.1 Working pressure too high

Possible cause	Remedy	Where can I get help?	
		SW	KS
Proportional controller defective.	Have repaired or replaced if necessary.	–	X
Inlet valve does not close.	Check the controller, control line and inlet valve and replace if necessary.	–	X
Pressure gauge indicating incorrect reading.	Have it repaired or replaced if necessary.	–	X
Venting valve does not blow off.	Check the connections and function and have it repaired or replaced as necessary.	–	X

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 61 Fault: working pressure too high

9.4.2 Working pressure too low

Possible cause	Remedy	Where can I get help?	
		SW	KS
Proportional controller defective.	Have repaired or replaced if necessary.	–	X
Inlet valve not opening or only opening partially.	Repair or have it replaced if necessary.	–	X
Pressure gauge indicating incorrect reading.	Have it repaired or replaced if necessary.	–	X
Safety relief valve maladjusted and/or leaking.	Have it repaired or replaced if necessary.	–	X
Venting valve blowing off.	Check the connections and function and have it repaired or replaced as necessary.	–	X
Engine does not run at maximum speed (in LOAD mode).	See chapter 9.3	X	X
Engine air filter and/or compressor air filter clogged.	Clean or change, see chapters 10.4.2 and 10.6.7.	–	–
Oil separator cartridge heavily clogged.	Change, see chapter 10.6.6.	–	–

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 62 Fault: working pressure too low

9.4.3 Safety relief valve blows off

Possible cause	Remedy	Where can I get help?	
		SW	KS
Oil separator cartridge heavily clogged.	Change, see chapter 10.6.6.	–	–
Inlet valve does not close.	Check the controller, control line and inlet valve and replace if necessary.	–	X
Safety relief valve maladjusted and/or leaking.	Adjust or have it replaced if necessary.	–	X

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 63 Fault: safety relief valve blowing off

9.4.4 Machine overheating

Possible cause	Remedy	Where can I get help?	
		SW	KS
Defective cooling fan.	Have the blades or the complete fan wheel replaced.	–	X
Oil cooler surface clogged.	Clean surface, see chapter 10.7.	–	–
The working element of the thermostatic valve not working.	Have it repaired or replaced if necessary.	–	X
Working pressure too high (proportional controller maladjusted).	Reset to the permissible value or have it replaced.	–	X
Oil separator cartridge heavily clogged.	Measure the pressure differential and change the cartridge if greater than 14.5 psi. Change, see chapter 10.6.6.	–	X
Compressor oil filter cartridge clogged.	Change, see chapter 10.6.4.	–	–
Compressor cooling oil level too low.	Replenish, see chapter 10.6.2.	–	–
Oil pipes leaking.	Seal leaks or have pipes changed.	X	X
Engine cooling system or cooling fan defective.	Have repaired.	X	X
Ambient temperature too high.	See installation conditions in chapter 5.2.	–	–

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 64 Fault: machine overheating

9.4.5 Too much oil residue in the compressed air

Possible cause	Remedy	Where can I get help?	
		SW	KS
Oil separator cartridge oil return line of compressor clogged.	Clean the oil separator cartridge dirt trap or replace the strainer and nozzle if necessary. See chapter 10.6.5	–	X
Cracked oil separator cartridge.	Change, see chapter 10.6.6.	–	–
Oil level in the oil separator tank too high.	Reduce to maximum level, see chapters 10.6.1 and 10.6.3.	–	–

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 65 Alarm: "Too much oil residue in the compressed air"

9.4.6 Oil flows from the compressor air filter after shutdown

Possible cause	Remedy	Where can I get help?	
		SW	KS
Defective non-return function of the inlet valve.	Repair or have it replaced if necessary.	–	X

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 66 Alarm: "Oil flows from the compressor air filter after shutdown"

**9.4.7 Option da
High moisture content in the compressed air**

Possible cause	Remedy	Where can I get help?	
		SW	KS
Blocked condensate drain on the water trap.	Clean the water trap dirt trap or replace the strainer and nozzle if necessary. See chapter 10.12.2	–	X

SW = Specialized workshop; KS = KAESER SERVICE

Tab. 67 Fault: high moisture content in the compressed air

10 Maintenance

10.1 Ensuring safety

Follow the safety instructions below to ensure safe machine maintenance.
Warning instructions are given prior to a potentially dangerous task.





Disregarding warning instructions can result in life-threatening injuries!

Observing safety instructions

Ignoring safety instructions can cause unforeseeable dangers.

- Follow the instructions in chapter 3 'Safety and Responsibility'.
- Allow maintenance work to be carried out only by authorized personnel.
- Do not reuse removed self-locking nuts but replace with new ones. The non-positive safety against loosening is no longer ensured when the nut is unscrewed.
- Use one of the safety signs below to advise others that the machine is currently being serviced:

Symbol	Meaning
	Do not switch on the machine.
	Warning: The machine is being serviced.

Tab. 68 Advise others that the machine is being serviced.

- Before switching on, make sure that:
 - nobody is working on the machine,
 - all protective guards and cover panels are attached,
 - all doors and panels are closed
 - all tools have been removed from the machine.
- Do not perform any checks or maintenance while the machine is running.



The access doors are held up by gas struts.

- Check that the doors remain open.

If door does not remain opened: Have the gas-filled spring changed.

When working on the compressed air system

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

- Disconnect the air consumers.
- Depressurize all pressurized components and enclosures. Verify the vented state.
 - Wait until the machine has automatically vented.

- Carefully open the compressed air outlet valve.
- Check: The pressure gauge must read 0 psig!
- Do not open or dismantle any valves.

When working on the drive system

Touching rotating, very hot or current-carrying components can cause severe injuries.

- Shut down the machine before opening any doors.
- Switch off the «controller ON/OFF» switch.
- Disconnect the negative cable from the battery.
- Ensure that the machine has cooled down.

Further information Details of authorized personnel are found in chapter 3.4.2.
 Information regarding dangers and their avoidance can be found in chapter 3.5.

10.2 Observing maintenance messages in the controller

The controller SIGMA CONTROL SMART displays selected maintenance cycles for the machine. Display begins 25 hours before the expiration of the current maintenance cycle.

When the machine is switched on, the «Information» key is illuminated on the controller. The «Stop» key also flashes.

- Read off the message code from the controller display.

10.2.1 Evaluating maintenance messages

- Determine any upcoming maintenance tasks using the table below and perform the maintenance in accordance with the maintenance schedule provided in Chapter 10.3.3.1.

Code	Meaning	Action	See chapter
Message code, range 2100 – 2199 “Engine maintenance”			
2100	Maintenance – Replace drive engine oil filter.	Replace engine oil filter. (every 500h)	10.4.7
2101	Maintenance – Clean/replace drive engine air filter.	Clean or replace air filter. (every 500h)	10.4.2
2102	Maintenance – Change drive engine oil.	Change engine oil. (every 500h)	10.4.6
Message codes, range 2200 – 2299 “Compressor maintenance”:			
2200	Maintenance – Replace compressor oil filter.	Replace compressor oil filter. (every 1000h)	10.6.4
2201	Maintenance – Clean/replace compressor air filter.	Clean or replace air filter. (every 500h)	10.6.7
2202	Maintenance – Change compressor cooling oil.	Change cooling oil. (every 1000h)	10.6.3

h - operating hours

Tab. 69 Maintenance messages and required measures

10.2.2 Completing maintenance**Acknowledging maintenance messages:**

Precondition Maintenance has been completed.

- Acknowledge the maintenance message as described in chapter 8.4.

Resetting maintenance timer:

Precondition Maintenance has been completed and the maintenance message acknowledged.

- Reset the maintenance timer as described in the separate user manual for SIGMA CONTROL SMART, chapter "Reset maintenance timer".

10.3 Following the maintenance plans

10.3.1 Logging maintenance work



The maintenance intervals given are those recommended for KAESER original components with average operating conditions.

- In adverse conditions (e.g. oil and filter changes), perform maintenance work at shorter intervals.

Adverse conditions are, e.g.:

- Poor fuel quality
- High/low temperatures
- Much dust
- Frequent use

- Adjust the maintenance intervals with regard to local installation and operating conditions.

- Logging all maintenance work.

This enables you to determine the frequency of individual maintenance tasks and deviations from our recommendations.

Further information A list is available in chapter 10.13.

10.3.2 Maintenance tasks after commissioning

The table below lists maintenance tasks required after commissioning (initial start-up).

10.3.2.1 Maintenance tasks on the machine after commissioning

- Carry out maintenance tasks according to the following schedule:

Component: Task	E10	E50	See chapter	Note
Engine:				
Check the fuel lines and clamps. If necessary, tighten the hose clamps.		X		KS; SW

E10 = after the first 10 operating hours; E50 = after the first 50 operating hours

KS = Contact KAESER SERVICE; SW = Contact specialized workshop

Tab. 70 Maintenance tasks on the machine after commissioning

10.3.3 Regular maintenance tasks

The following table lists the various maintenance intervals for the machine.

Maintenance interval	Short description
Daily	–

Maintenance interval	Short description
Every 250 h, at least annually	A250
Every 500 h, at least annually	A500
Every 1000 h, at least every 2 years	A1000
Every 1500 h, at least every 3 years	A1500
Every 3000 h, at least every 6 years	A3000

Tab. 71 Maintenance intervals and regular maintenance tasks

The table below lists regular maintenance tasks.

1. Carry out maintenance tasks in a timely manner, taking ambient and operating conditions into consideration.
2. Change spare parts and operating fluids according to each site.

10.3.3.1 Machine maintenance schedule

- Carry out maintenance tasks on time in accordance with the table below:



The maintenance tasks marked with ⁽¹⁾ depend on the engine oil and fuel used. The replacement intervals can be halved when using low-quality operating fluids/materials.

Observe the maintenance activities marked with ⁽²⁾ in accordance with country-specific regulations.

Change the oil as per requirement, once per year at a minimum.

Observe the maintenance tasks marked with ⁽³⁾ in accordance with country-specific regulations.

Assembly: Task	Daily	A250	A500	A1000	A1500	A3000	See Chapter	Note
Engine:								
Check engine air filter maintenance indicator.	X						10.4.2	
Check engine oil level.	X						10.4.4	
⁽¹⁾ Change engine oil.			X				10.4.6	
⁽¹⁾ Change engine oil filter.			X				10.4.7	
Change the oil separator element.				X			10.4.8	
Check/adjust the drive belt tension.			X				10.4.9	KS; SW
Change the drive belt.					X		10.4.9	KS; SW
Clean the primary filter element of the engine air filter, replace if necessary.			X				10.4.2	

KUBOTA = Is serviced by a representative from the engine manufacturer (Kubota Corporation)

KS = Contact KAESER SERVICE; SW = Contact Specialist Workshop

DPF = Diesel Particulate Filter

Assembly: Task	Daily	A250	A500	A1000	A1500	A3000	See Chapter	Note
Change the secondary filter element in the engine air filter.				X			10.4.2	
Check the intake air line between the air filter and engine.			X					KS; SW
Have valves adjusted.				X				KS; SW
Have turbocharger checked.						X		KS; SW
Check engine coolant level.	X						10.4.1	
Clean water cooler.		X					10.7	
Check coolant antifreeze concentration.				X			10.4.1	KS; SW
Change the coolant.					X		10.4.1	KS; SW
Fill fuel tank.	X							
Check/empty the fuel water separator.	X						10.4.3	
⁽¹⁾ Change fuel prefilter.			X				10.4.3	
⁽¹⁾ Change fuel filter.			X				10.4.3	KS; SW
Check the fuel tank for dirt and clean, if necessary.			X					
Clean tank strainer.			X					
Have the injection valve tip checked.					X			KS; SW
Check and maintain the battery.			X				10.4.11	
Have the antivibration mount checked.				X			10.4.10	KS; SW
Exhaust gas after-treatment:								
Check the exhaust system for leaks, including the exhaust gas after-treatment components.	X							
Service the exhaust gas after-treatment components.			X				10.5	KS; SW
Have DPF cleaned.						X		KUBOTA
Have all lines to and from the DPF checked.			X					KS; SW KUBOTA
Have exhaust gas recirculation system checked.					X			KS; SW KUBOTA

KUBOTA = Is serviced by a representative from the engine manufacturer (Kubota Corporation)

KS = Contact KAESER SERVICE; SW = Contact Specialist Workshop

DPF = Diesel Particulate Filter

Assembly: Task	Daily	A250	A500	A1000	A1500	A3000	See Chapter	Note
Have all lines to and from the exhaust gas recirculation system checked.			X					KS; SW KUBOTA
Compressor:								
Check compressor air filter maintenance indicator.	X						10.6.7	
Check cooling oil level.	X						10.6.1	
Clean compressor oil cooler.		X					10.7	
Replace the dirt trap in the oil separator tank valve unit.				X			10.6.5	
Clean/check the dirt trap in oil separator tank valve unit.			X				10.6.5	
Clean the primary filter element of the compressor air filter, replace if necessary.			X				10.6.7	
Replace the primary filter element in the compressor air filter.				X			10.6.7	
Replace the secondary filter element in the compressor air filter.				X			10.6.7	
⁽²⁾ Change cooling oil.				X			10.6.3	
Replace compressor oil filter.				X			10.6.4	
Replace oil separator cartridge.				X			10.6.6	
Safety functions:								
Check EMERGENCY STOP push button.	X						10.11.1	
Have EMERGENCY STOP push button tested.			X					KS; SW
Have safety relief valve(s) checked.			X				10.11.2	KS
Have excess temperature safety shutdown tested for proper function.			X				10.11.3	KS
Gull-wing doors:								
Service rubber sealing strips.			X				10.9.1	
Check the "gull-wing doors closed" function.			X				10.9.2	
Check connection elements.			X				10.9.3	

KUBOTA = Is serviced by a representative from the engine manufacturer (Kubota Corporation)

KS = Contact KAESER SERVICE; SW = Contact Specialist Workshop

DPF = Diesel Particulate Filter

Assembly: Task	Daily	A250	A500	A1000	A1500	A3000	See Chapter	Note
Bodywork/chassis:								
Have lifting eye checked.			X					KS; SW
Pipes and hose lines (fuel hoses, pressure hoses):								
⁽³⁾ Check all pipes and hose lines on the machine are tightly fitted and without leaks or wear; replace if necessary.			X				10.10	KS; SW
Other maintenance tasks:								
Check all accessible screw fittings, lines and clamps on machine for wear and tightness.			X				10.8	
Check all electrical connections for tightness.			X					
KUBOTA = Is serviced by a representative from the engine manufacturer (Kubota Corporation)								
KS = Contact KAESER SERVICE; SW = Contact Specialist Workshop								
DPF = Diesel Particulate Filter								

Tab. 72 Regular machine maintenance tasks

10.3.3.2 Options maintenance schedule

- Carry out maintenance tasks according to the following schedule:

Option: Task	Daily	A250	A500	A1000	A2000	A20000	See chapter	Note
Option da - Compressed air aftercooler:								
Clean cooler.		X					10.12.1	
Option da – Water separator:								
Clean and check the dirt trap.			X				10.12.2	
Option dd – Filter combination:								
Drain condensate.	X						10.12.3	
Change the filter elements.			X				10.12.3	
Replace seal of filter element (*).			X				10.12.3	
EL = Qualified electrician								
KS = Contact KAESER SERVICE; SW = Contact specialized workshop								

Tab. 73 Regular maintenance tasks for options

10.4 Drive engine maintenance

- Carry out maintenance according to the schedules in chapter 10.3.

10.4.1 Coolant cooler maintenance

Material	Coolant
	Coolant tester
	Receptacle
	Male hose coupling (supplied loose with the machine)
	Funnel
	Cleaning cloth

Precondition	The machine is switched off and has cooled down. The machine is standing level. Air consumers are disconnected, the discharge valves are open, the machine is fully vented, the pressure gauge reads 0 psig. The «Controller ON/OFF» switch is switched off, the negative cable of the battery has been disconnected.
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⚠ WARNING

*Danger of scalding from hot coolant!
Serious injuries can be caused by hot coolant.*

- *Allow the machine to cool down before opening the cooling system.*

⚠ CAUTION

Risk of chemical burns from coolants containing antifreeze!

- *Avoid eye and skin contact with coolant. In case of contact, rinse immediately with running water.*
- *Wear protective glasses and protective gloves.*

NOTICE

*Insufficient coolant levels can damage the machine!
Insufficient coolant levels will cause the engine to overheat. Overheating can cause serious damage to the engine.*

- *Check the coolant level daily.*
- *Replenish the coolant as necessary.*

- Open the left-hand door.

10.4.1.1 Checking the coolant level

The coolant level in the engine cooling circuit must be checked daily prior to start-up.
The level is checked on the coolant expansion tank:

- The tank is transparent so the coolant level can be seen from outside.
- The fluid level should be between the *minimum and maximum marks* when the engine is cool.

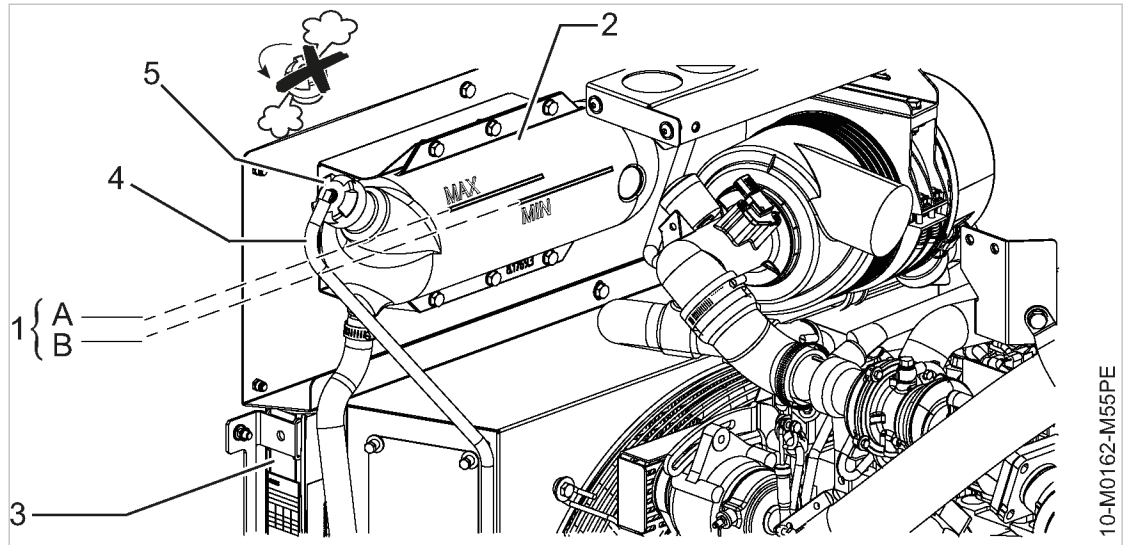


Fig. 26 Checking the coolant level

- | | | | |
|---|------------------------|---|----------------------|
| ① | Coolant level | ③ | Coolant cooler |
| A | Maximum mark (FULL) | ④ | Overflow |
| B | Minimum mark (LOW) | ⑤ | Filler neck with cap |
| ② | Coolant expansion tank | | |

1. Check the level of coolant in the expansion tank.
When the coolant level falls below the *minimum mark* (B): Replenish the coolant.
2. Close the door.



Determine the cause for the coolant loss and rectify.

10.4.1.2 Checking the coolant

The coolant should be checked in line with the maintenance schedule to ensure quality and long service life.

Coolant quality can be determined by the following parameters:

- Visual check
 - Measuring the concentration of the antifreeze
- Loosen and remove the filler cap (5).

Performing a visual check:

The coolant should be checked for discoloration and any particles or sediments floating in it.

- Take a coolant sample and analyze it.
If the coolant is heavily discolored and/or contains floating particles: Change the coolant.

Measuring the concentration of the antifreeze:

An instrument (e.g. refractometer) is used to check the antifreeze concentration of the coolant.

Maximum frost protection is ensured with an antifreeze concentration of 55% volume, as frost protection and heat transfer properties deteriorate beyond this point. Higher concentration also leads to higher operating temperatures for the engine.

1. **NOTICE** *The engine can be damaged if the antifreeze concentration is insufficient.*

Corrosion.

Damage to the cooling system.

Engine housing fracture.

- *Check coolant.*
- *Protect the coolant against freezing.*
- *Replenish immediately if necessary.*

2. To test the coolant, use the coolant tester as instructed by the manufacturer.

Concentration of antifreeze is too low: Change the coolant.

Performing final work steps:

1. Replace the filler cap.
2. Close the door.

10.4.1.3 Mixing the coolant

The coolant is a mixture of clean, fresh water and an antifreeze containing added anti-corrosion agent.

For corrosion protection reasons and the need to raise the boiling point, the coolant must remain in the cooling system throughout the year.

The maximum permissible coolant life is 3 years.

Never use water without coolant added. Water alone is corrosive at engine operating temperatures. Water alone does not offer sufficient protection from boiling or freezing of the coolant.

An adhesive label with the recommended mixture ratio for the coolant is fitted by the coolant expansion tank, see Figure 27.

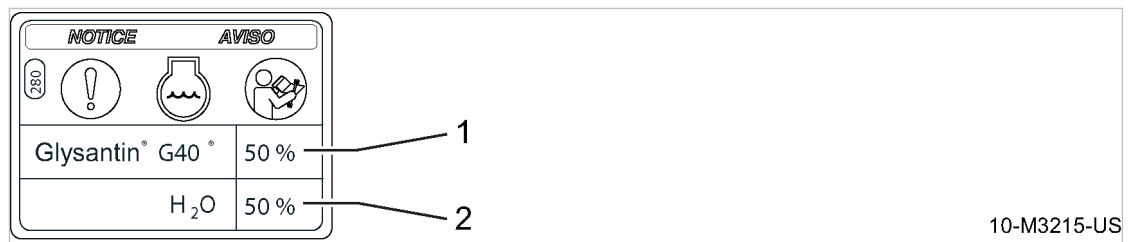


Fig. 27 Recommended mixture ratio for coolant

- ① Anti-corrosion agent/antifreeze
- ② Water

- Observe the coolant recommendations given in Chapter 2.8.4!

Preparing the coolant:

Precondition The coolant used must meet the specification of ASTM D4985.

- The coolant should be mixed in the ratio specified by the manufacturer.

Coolant mixture table:

Percentages [% vol.]		Frost protection down to approx. [°F]
Anti-corrosion agent/anti-freeze	Water	
50	50	-35

Tab. 74 Coolant mixture table



Do not use a higher concentration than 55% vol. of anti-corrosion agent/antifreeze, even at extremely low ambient temperatures. Maximum frost protection is achieved with 55% vol. of anti-corrosion agent/antifreeze. This corresponds to frost protection down to approx. -49 °F. The concentration of antifreeze should not be less than 33%, since corrosion protection can no longer be guaranteed and heat transfer properties deteriorate beyond this point!

10.4.1.4 Filling/refilling the coolant

The percentage of antifreeze in the coolant should not fall below 33%, so as to ensure optimal frost and corrosion protection and prevent the build-up of deposits (sludge) in the cooling circuit. Replenishing solely with water dilutes the antifreeze concentration and is therefore prohibited.



Ensure that there is sufficient space for the coolant to expand without overflowing when hot.

Precondition The «Controller ON/OFF» switch is switched off, the negative cable of the battery has been disconnected.

- Loosen and remove the coolant expansion tank filler cap.
- Mix a quantity of coolant as per the table and replenish to the level indicated.
Replenish the coolant to just below the *maximum mark* (A).
- Install lid.
- Connect the negative cable to the battery.
- Switch on the «Controller ON/OFF» switch.
- Close the door.
- Start the engine and allow to run in IDLE for about 1 minute.
- Stop the engine.
- Open the left-hand door.
- Check the coolant level.
If the coolant level in the coolant expansion tank has decreased: Replenish the coolant.
- Visually inspect for leaks.
- Close the door.

10.4.1.5 Draining the coolant

Precondition The machine has cooled down.
Both doors are open.
The «Controller ON/OFF» switch is switched off, the negative cable of the battery has been disconnected.

A hose coupling has been integrated into the coolant cooler, so as to allow user-friendly draining of the coolant from the engine. The hose coupling is located on the right-hand side of the coolant cooler.

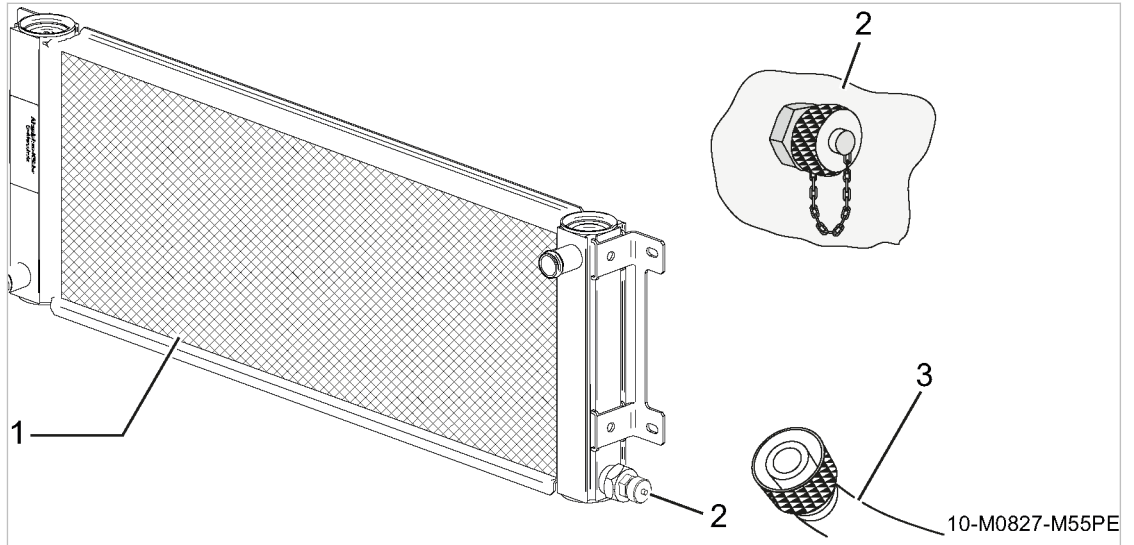


Fig. 28 Draining the coolant

- ① Coolant cooler
- ② Hose coupling
- ③ Male hose coupling

1. Position a collecting vessel beneath the hole in the floor panel.
2. Loosen and remove the coolant expansion tank filler cap.
3. Suspend and fasten the free end of the hose in the receptacle.
4. Loosen and remove the protective cap for the hose coupling.
5. Attach the male hose coupling to the hose coupling.
The hose coupling is open.
Coolant drains completely.
6. Remove the male hose coupling from the hose coupling.
The hose coupling is closed.
7. Fit the protective cap onto the hose coupling.



- Dispose of used coolant in accordance with environmental protection regulations.

Removing scaling from inside the coolant cooler

After extended periods of use, scaling may form inside the cooling circuit, and the coolant cooler in particular. The resulting reduced heat transfer can lead to the engine overheating.

1. **NOTICE** *Scaling in the cooling circuit!*
Damage caused by engine overheating.
➤ Use a cooler cleaning agent to remove scaling from inside the coolant cooler.
2. Read and observe the manufacturer's instructions regarding the use of cooler cleaning agent.
3. Having drained the coolant, use a coolant cleaning agent to descale the water cooler.

10.4.2 Engine air filter maintenance



- Operating the engine without filter elements fitted is not permitted!
- Do not use filter elements with damaged folds or seals.
- The use of unsuitable or damaged filter elements can allow dirt into the engine, causing premature wear and damage.

Service the engine air filter when any of the following occur:

- Warning message with specific message code (see Table 75) on the display of the SIGMA CONTROL SMART.
- Maintenance indicator is activated.
- Maintenance interval as per the maintenance schedule has expired.

Message code	Action
2101	Replace / clean the filter element

Tab. 75 Specific message code for “Service engine air filter”

Material Compressed air for blowing out
Spare part (if required)
Cleaning cloth

Precondition The machine is switched off and has cooled down.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
Both doors are open,
the «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

NOTICE

Damaged filter element.

Engine wear from contaminated intake air.

- Do not try to clean the filter element by striking or tapping it.
 - Do not wash the filter element.
- Follow all instructions carefully.

Checking the air filter contamination level:

Air filter maintenance is required when the yellow piston inside the maintenance indicator reaches the red zone.

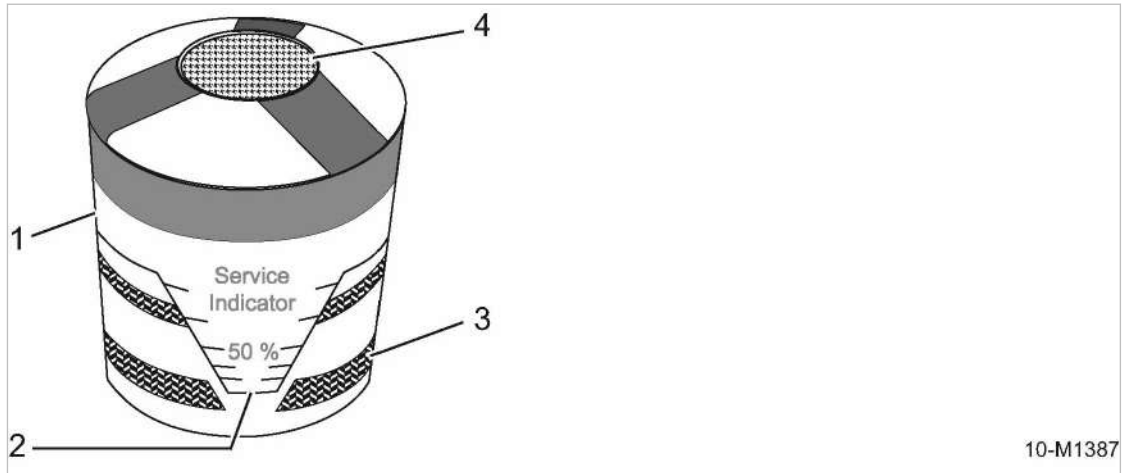


Fig. 29 Maintenance indicator

- | | |
|--|--------------------------------------|
| ① Maintenance indicator | ③ Red zone indicator scale |
| ② Indicating piston, maintenance indicator | ④ Maintenance indicator reset button |

- Check the air filter maintenance indicator.
- If the yellow piston has reached the red zone: Replace the primary filter element.

Cleaning the dust evacuator valve:

Coarse dirt particles in the intake air fall to the base of the filter housing and are deposited around the dust evacuator valve. When maintaining the engine air filter, these dirt particles must be removed.

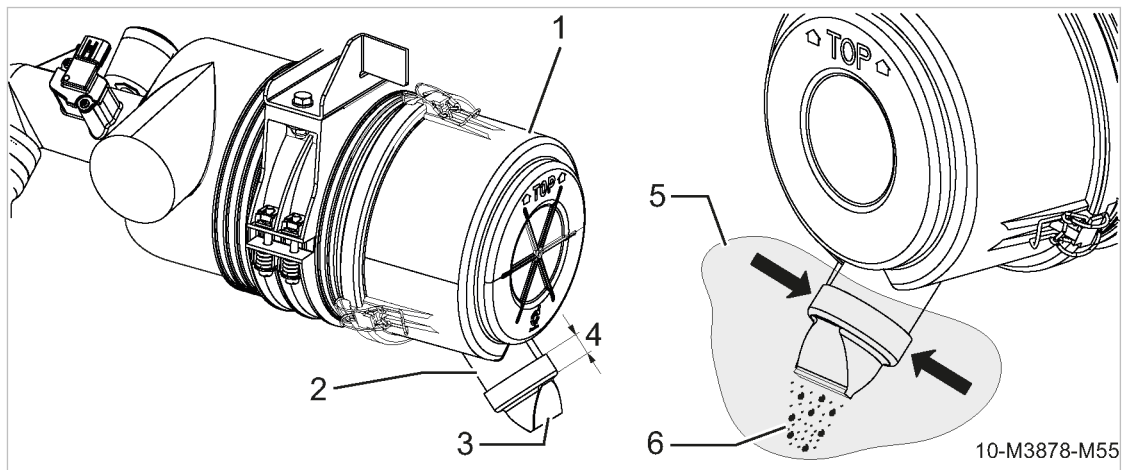


Fig. 30 Cleaning the dust evacuator valve

- | | |
|------------------------|-------------------------|
| ① Filter cap | ④ Valve area |
| ② Dust evacuator valve | ⑤ Cleaning procedure |
| ③ Evacuator vent | ⑥ Coarse dirt particles |

1. Compress valve area ④ during cleaning procedure ⑤.
Evacuator vent opens.
Coarse dirt particles and accumulated dust are expelled.
2. Release the valve area.

3. Clean the evacuator vent.
4. Check that both seal lips on the evacuator vent are still close together.



Ideally, the filter cap should be fitted so that the dust evacuator valve is pointing vertically downwards. A deflection of $\pm 30^\circ$ to the vertical axis is permitted.

Removing the filter cap:

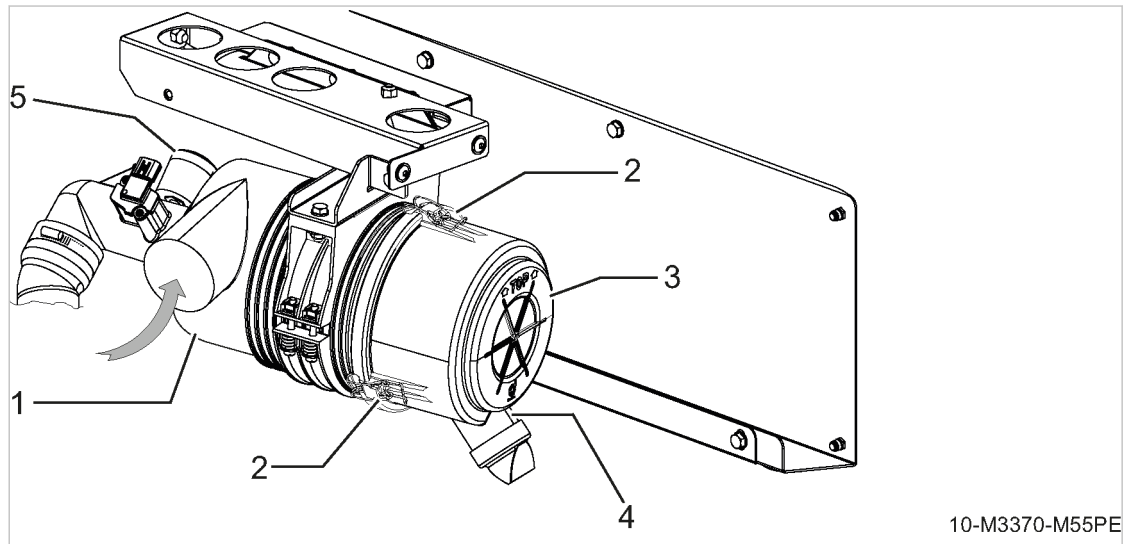


Fig. 31 Engine air filter maintenance

- | | |
|-------------------|-------------------------|
| ① Filter housing | ④ Dust evacuator valve |
| ② Retaining clamp | ⑤ Maintenance indicator |
| ③ Filter cap | |

1. Unlock all three retaining clamps.
2. Remove the filter cap.

Replacing the filter elements:

The engine air filter is fitted with two filter elements.

- Primary filter element
- Secondary filter element



The secondary filter element must be replaced at every third change of the primary filter element, or after two years at the latest. The secondary filter element cannot be cleaned and reused!

The efficiency of the engine air filter is not increased by the secondary filter element. The secondary filter element provides an additional level of protection, in case the primary filter element is damaged or incorrectly fitted.

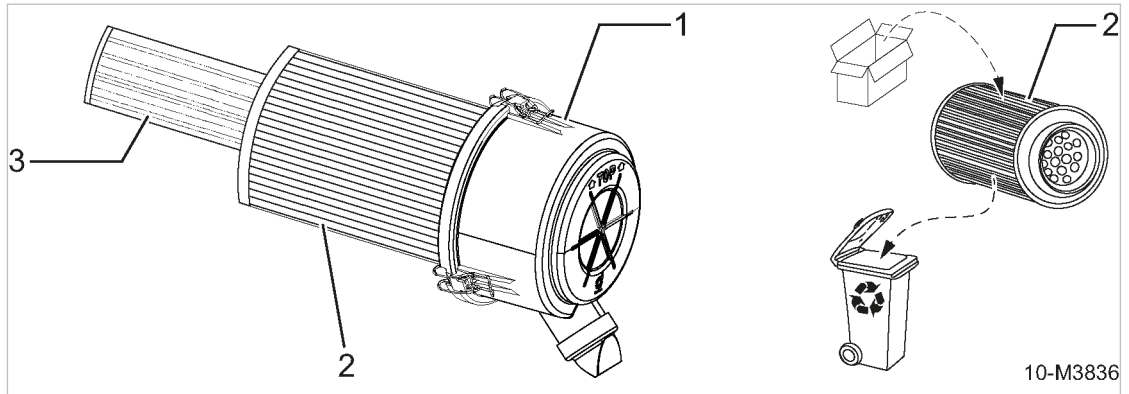


Fig. 32 Removing both filter elements

- ① Filter cap
- ② Primary filter element
- ③ Secondary filter element

1. Remove the secondary filter element.
2. Remove the old primary filter element.
3. Carefully clean the filter housing, filter cap and sealing surfaces with a damp cloth.
4. Insert a new primary filter element into the filter housing. Ensure that the primary filter element is correctly secured and its seals can function properly.
5. Insert the secondary filter element.
6. Position the filter cap in front of the filter housing, with the dust evacuator valve pointing vertically downwards.
7. Place the filter cap on the filter housing and press down lightly.
8. Secure the filter cap with all three retaining clamps.

Resetting the maintenance indicator:

- Press the reset button on the maintenance indicator repeatedly.
The yellow piston within the indicator is reset and the maintenance indicator is ready for use again.
- Close both doors.

Cleaning the primary filter element



Reuse cleaned primary filter elements only as an exceptional case.
Always use new filter elements if possible.

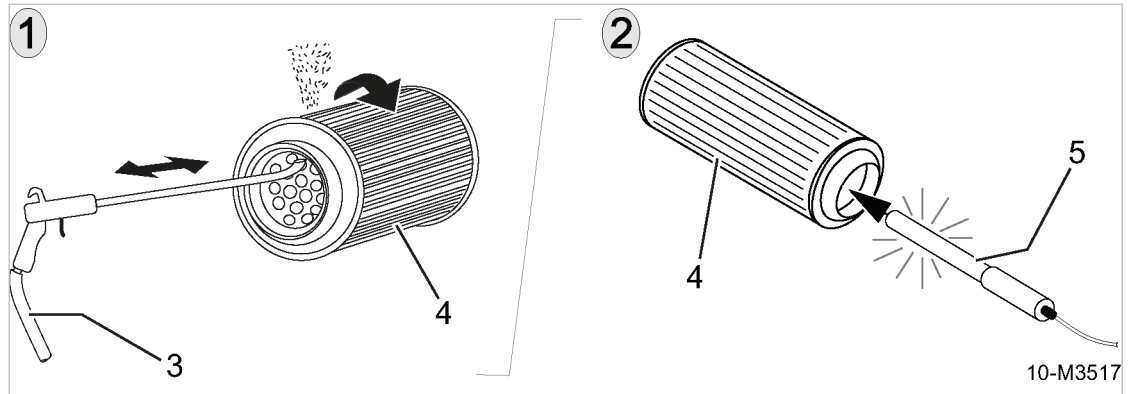


Fig. 33 Cleaning the primary filter element

- | | | | |
|---|---|---|------------------------|
| ① | Cleaning the primary filter element | ④ | Primary filter element |
| ② | Checking the primary filter element | ⑤ | Flashlight |
| ③ | Compressed air gun with blast pipe (bent to approx. 90° at the end) | | |

1. Use dry compressed air (<30 psi!) to blow out dirt from the filter element at an angle, from the inside to the outside.
2. Blow out the primary filter element until no more dust appears.
3. In a darkened room, use a suitable flashlight to shine a light through the cleaned primary filter element.
The cleaned primary filter element displays no cracks or holes.
The cleaned filter element is in the correct condition.
4. Insert the cleaned and checked primary filter element into the filter housing.
5. Position the filter cap in place.
6. Secure the filter cap with all three retaining clamps.
7. Check to ensure the filter cap is correctly attached.



Dispose of old parts and contaminated materials in accordance with environmental protection regulations.

10.4.3 Fuel system maintenance

Make sure no dirt can get into the fuel system during maintenance. Clean components and their surroundings before disassembling.

Material Spare parts
Receptacle
Cleaning cloth

Precondition The machine is switched off.
The machine is standing level.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
The machine has cooled down.
«Controller ON/OFF» switch is switched off, the minus cable of the battery has been disconnected.

⚠ DANGER

Danger of fire from spontaneous ignition of fuel!

Serious injury or death could result from the ignition and combustion of fuel.

- *Allow no open flames or sparks in the immediate vicinity.*
- *Ensure that the maximum ambient temperature is not exceeded in the immediate vicinity.*
- *Stop the engine.*
- *Wipe up any spilled fuel.*
- *Keep fuel away from hot machine parts.*

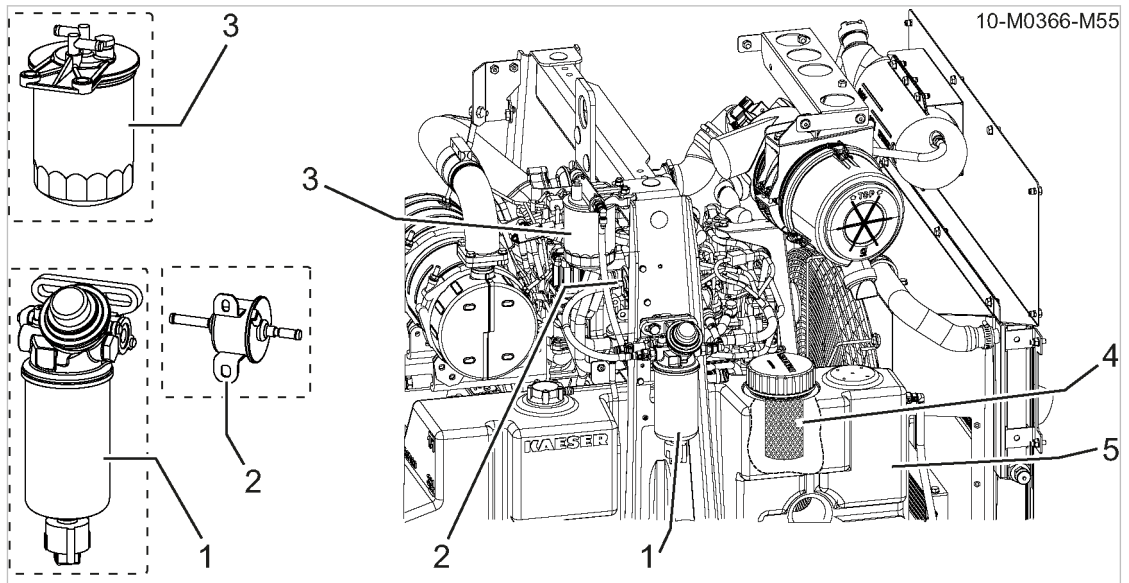


Fig. 34 Servicing the fuel system

- | | |
|--|-----------------|
| ① Fuel prefilter with integrated water separator | ④ Fuel strainer |
| ② Fuel pump | ⑤ Fuel tank |
| ③ Fuel filter | |

- Open the right-hand access door.

10.4.3.1 Bleeding the fuel system

Air can enter the fuel system if the fuel tank is empty after a fuel filter change or when carrying out work on the fuel lines.

If the engine refuses to start despite a full tank, bleed the fuel system.

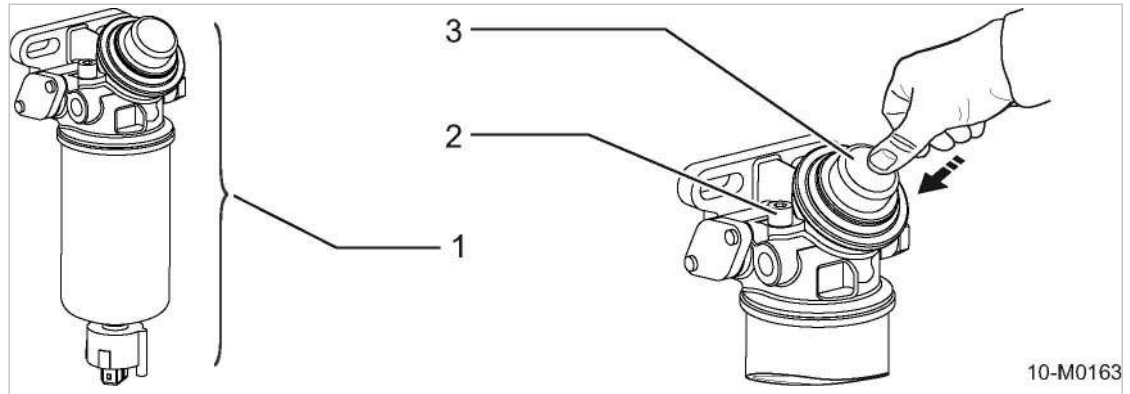


Fig. 35 Bleeding the fuel system

- ① Fuel prefilter with integrated water separator
- ② Bleed screw
- ③ Manual fuel pump

1. Place a receptacle beneath the fuel pre-filter housing.
2. Open the bleed screw at the filter head.
3. Connect the negative cable to the battery.
4. Switch on the «Controller ON/OFF» switch.
The electric fuel pump is running.
5. Actuate the manual fuel pump until the bleed screw does no longer emit air bubbles.
6. Close the bleed screw at the filter head.
7. Close both doors.



Start the engine as soon as the fuel system has been bled and allow to run for at least 5 minutes in IDLE mode.

8. Open the right-hand door.
9. Check the fuel prefilter for leaks.
If any fuel has escaped: Retighten filter cartridge and all screw connections.
10. Close the door.

10.4.3.2 Fuel pre-filter maintenance

Emptying the fuel/water separator

The fuel prefilter is equipped with an integrated water separator. Contaminants in the water are trapped in the water receptacle of the filter cartridge.

The water separator is connected by a sensor to the controller. If the water in the separator reaches a set level, the controller displays a warning.

The display indicates water in the fuel filter by showing *Fuel filter water level*.



The water separator must be emptied immediately when this warning is displayed.

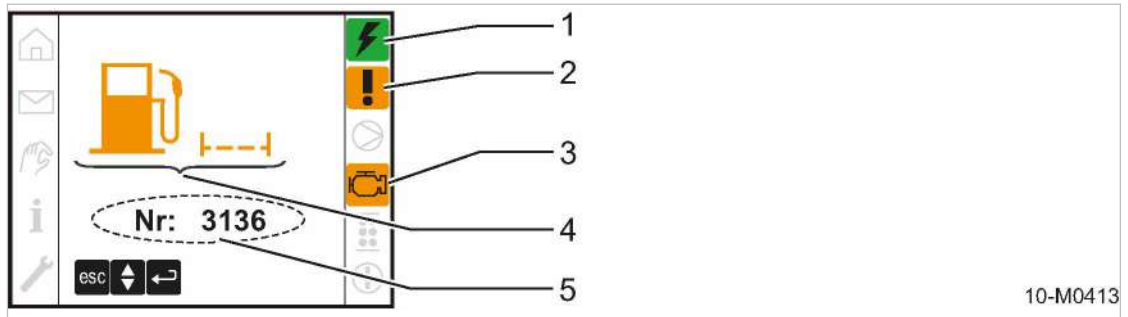


Fig. 36 Warning message: Water level, fuel prefilter

- | | |
|---|--|
| ① Controller voltage ON (green) indicator | ④ Symbols for fault localization (Fuel + level) (orange display indicates warning) |
| ② Warning indicator (orange) | ⑤ Fault code |
| ③ Engine (orange display indicates a warning) | |

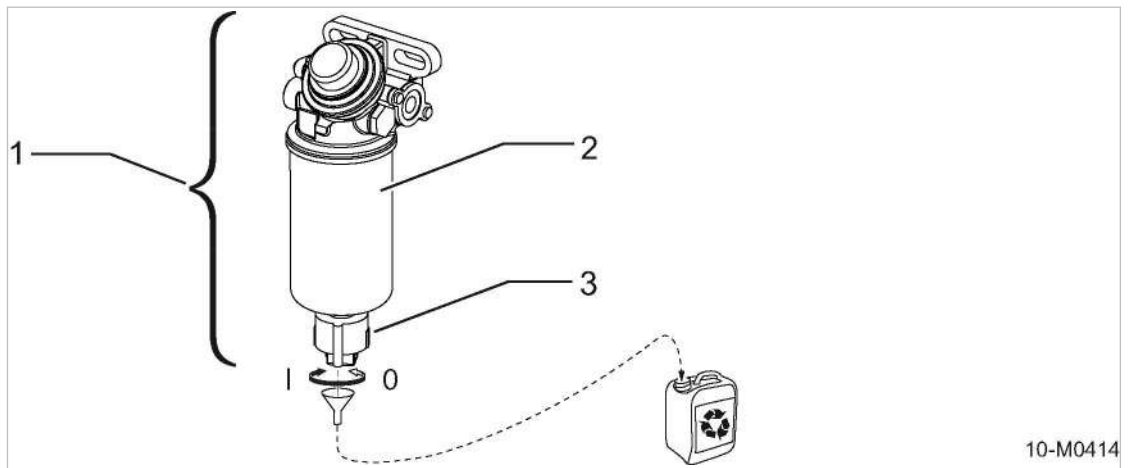


Fig. 37 Empty the fuel prefilter and water separator

- | |
|--|
| ① Fuel prefilter |
| ② Filter cartridge with integrated water receptacle. |
| ③ Water draining stopper with integrated level sensor
1 - open
0 - close |

1. Place a receptacle beneath the fuel pre-filter housing.
2. Unscrew the draining stopper on the bottom of the filter cartridge (2 turns max.) and drain water and contamination.
3. Close the draining stopper.
4. Close the door.

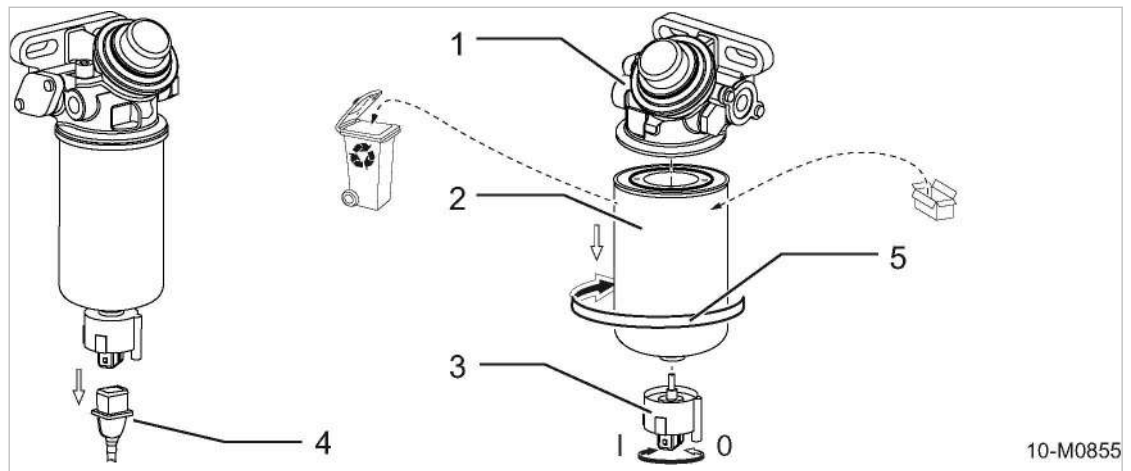
Maintenance must be acknowledged after the water separator has been emptied.

Precondition The water separator is emptied.

- Confirm the warning with the «Enter» key.



The mixture of fuel and water and any materials contaminated with fuel must be disposed of in accordance with environmental protection regulations.

Changing the filter cartridge

Fig. 38 Changing the fuel prefilter cartridge

- | | | | |
|---|---|---|--|
| ① | Filter head | ④ | Water level sensor connecting plug (fuel filter maintenance) |
| ② | Filter cartridge with integrated water receptacle | ⑤ | Direction of rotation to unscrew the filter cartridge and the water trap |
| ③ | Draining stopper with integrated level sensor | | |

1. Place a receptacle beneath the fuel prefilter housing.
2. Unscrew the draining stopper on the bottom of the filter cartridge (2 turns max.) and drain water and contamination.
3. Remove the connecting plug of the water level sensor.
4. Use a standard wrench to loosen (counter-clockwise) and remove the filter cartridge.
5. Empty any remaining fuel into the receptacle.
6. Remove the draining stopper of the filter cartridge and clean with lint-free cloth.
7. Check the seal of the draining stopper.
Seal damaged: replace seal.
8. Mount the draining stopper to a new filter cartridge.
9. Clean the sealing faces of the filter cartridge and opposite side of the filter head with a lint-free cloth.
10. Mount the filter cartridge to the filter head:
 - Moisten the sealing faces of the new filter cartridge with some fuel.
 - Manually mount the filter cartridge to the filter head (clockwise), until seal is tight.
 - Continue to manually turn until the filter cartridge is seated tightly ($\frac{3}{4}$ turn approximately).
11. Fasten the connecting plug of the water level sensor.
12. Connect the negative cable to the battery.
13. Switch on the «Controller ON/OFF» switch.
14. Close the door.



The fuel system must be bled after the filter cartridge has been changed.



Dispose of fuel and any materials and components contaminated with it in accordance with environmental protection regulations.

10.4.3.3 Fuel filter maintenance

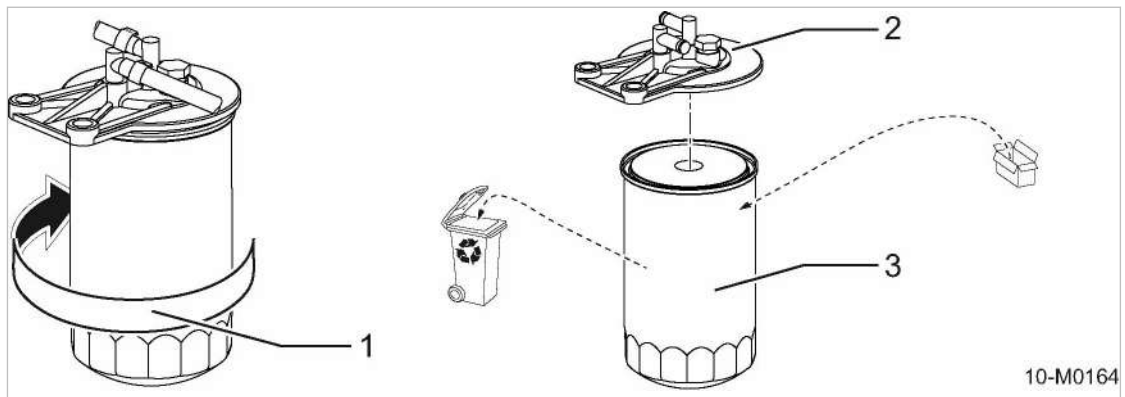


Fig. 39 Fuel filter maintenance

- ① Direction of rotation to unscrew the filter cartridge
- ② Filter holder
- ③ Filter cartridge

1. Place a receptacle beneath the fuel filter housing.
2. Use a filter wrench to loosen and remove the fine filter cartridge. Collect any escaping fuel.
3. Clean the sealing faces of the new filter cartridge and the opposite side of the filter holder with a lint-free cloth.
4. Mount the filter cartridge to the filter holder:
 - Moisten the rubber seals of the filter holder and the sealing faces of the new filter cartridge with some fuel.
 - Manually mount the filter cartridge to the filter holder (clockwise), until the seal is tight.
 - Continue manually turning until the filter cartridge is secured tightly ($\frac{1}{2}$ to $\frac{3}{4}$ turn approximately).
5. Connect the negative cable to the battery.
6. Switch on the «Controller ON/OFF» switch.
7. Close the door.



The fuel system must be bled after the filter cartridge has been changed.

Dispose of fuel and any materials and components contaminated with it in accordance with environmental protection regulations.

Starting the machine and performing a test run:

1. Switch on machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Warm-up machine by letting it run in IDLE mode.
Warm-up has been successful when required airend discharge temperature has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
The machine is switched off.
4. Wait until the machine has automatically vented.
The pressure gauge reads 0 psig!

5. Open the outlet valves.
6. Open the right-hand access door.
7. Visually check the fuel system for leaks.
8. If necessary, re-tighten the screw connections.
9. Close the door.

10.4.4 Checking the engine oil level

The oil level can be read from a dipstick at the oil pan. The oil level should ideally be between the two marks on the dipstick. The oil level should not be allowed to fall below the *minimum level*.

Material Cleaning cloth

Precondition The machine is switched off.
The engine has cooled down.
The machine is standing level.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
«Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

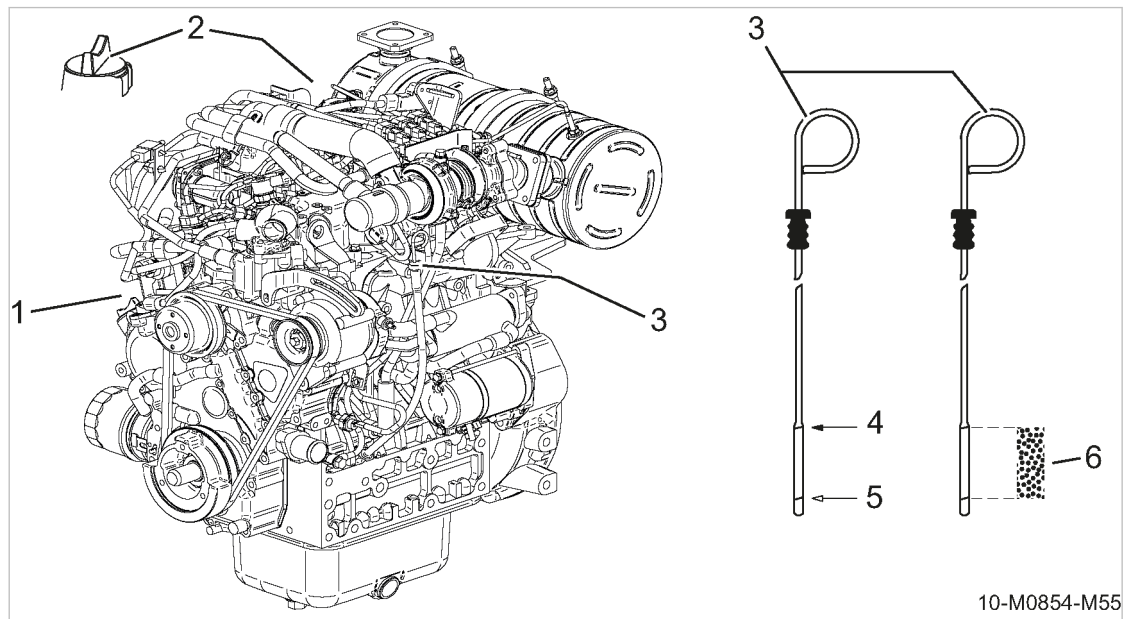


Fig. 40 Checking the engine oil level

- | | |
|-------------------------------------|---|
| ① Engine | ④ Upper mark for <i>maximum oil level</i> |
| ② Oil filler neck cover, engine oil | ⑤ Lower mark for <i>minimum oil level</i> |
| ③ Dip-stick | ⑥ <i>Correct range for oil level</i> |

1. Open the door.
2. Pull out the dipstick.
3. Wipe with a clean lint-free cloth.
4. Push in the dipstick.

5. Remove the dipstick once more and read off the oil level.
 The oil level is between the upper and the lower mark: The oil level is in the correct range.
 The level has reached the lower mark *minimum level* or is below the mark: Replenish engine oil.
6. Close the door.



The marked *maximum oil level* should not be exceeded in order for the level of oil in the crankcase not to reach the crankshaft. If this were to occur, it could create oil bubbles that would reduce the oil's lubricating capability and impair engine performance.

10.4.5 Engine oil filling and topping off

- Material** New engine oil, see chapter 2.8.5 for drive engine filling quantity.
 Cleaning cloth
 Funnel
- Precondition** The machine is switched off.
 The machine is standing level.
 Air consumers are disconnected,
 the outlet valves are open,
 the machine is fully vented, the pressure gauge reads 0 psig.
 «Controller ON/OFF» switch is switched off, the minus cable of the battery has been disconnected.

Filling with engine oil



Pay attention to the «maximum oil level» mark on the oil dipstick.

1. Open the left-hand door.
2. Loosen and remove the oil filler cover.
3. Fill with fresh engine oil.



It takes a few minutes for oil to reach the sump.

4. Wait for at least 5 minutes.
5. Check the oil level.
 Low oil level: Replenish engine oil.
6. Replace the plug in the filler port.

Preparing for operation

1. Connect the negative battery terminal.
2. Switch on the «Controller ON/OFF» switch.
3. Close the door.

Starting the machine and performing a test run

1. Switch on machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Warm-up machine by letting it run in IDLE mode.

3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
The machine is switched off.
4. Wait until the machine has automatically vented.
The pressure gauge reads 0 psig!
5. Open the door.
6. After approximately 5 minutes: Check the engine oil level.
Low oil level: Replenish engine oil.
7. Visually inspect for leaks.
8. Close the door.

10.4.6 Changing the engine oil

Carry out the “Change engine oil” service when any of the following events occur:

- Warning message indicated with specific message code (see table 76) on the display of SIGMA CONTROL SMART.
- Maintenance interval of the maintenance schedule has expired.

Message code	Remedy
2102	Changing the engine oil

Tab. 76 Specific message code for “Change the engine oil”

Material Fresh engine oil
Receptacle
Male hose coupling (separately enclosed with machine)
Cleaning cloth

Precondition The machine is switched off.
The engine is at operating temperature.
The machine is standing level.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
«Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

⚠ CAUTION

Danger of burns from hot components and escaping engine oil!

➤ *Wear long-sleeved clothing and gloves.*

Open the oil drain valve at the engine

To drain the oil from the engine, it is necessary to attach the enclosed male hose coupling to the hose coupling of the drive engine.

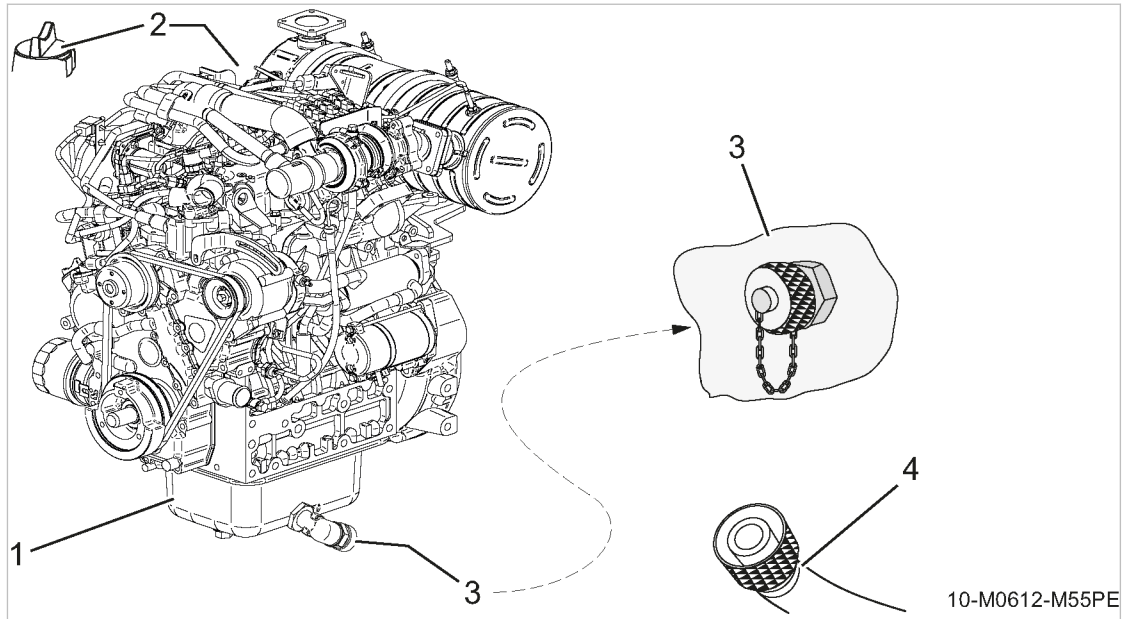


Fig. 41 Draining the engine oil

- | | |
|-------------------------------------|----------------------|
| ① Drive engine oil pan | ③ Hose coupling |
| ② Oil filler neck cover, engine oil | ④ Male hose coupling |

1. Open the left-hand door.
2. Loosen and remove the oil filler cover.
3. Position a receptacle beneath the oil pan (hole in the floor panel).
4. Suspend and fasten the free end of the hose in the receptacle.
5. Loosen and remove the protective cap for the hose coupling.
6. Install male hose coupling on the hose coupling.
Engine oil drains.

Draining the engine oil

- Allow the oil to drain out.



Dispose of old oil and oil-soaked working materials according to environmental protection regulations.

Close the hose coupling of the engine

1. Loosen and remove the male hose coupling.
The hose coupling is closed.
2. Additionally close the hose coupling with the protective cap.

Further information See chapter 10.4.5 for filling with fresh engine oil.

10.4.7 Replacing the engine oil filter



Standard tools, such as filter wrench or belts may be used in order to loosen the old oil filter for removal. The new oil filter, however, may only be installed and tightened by hand force.

Service the oil filter when any of the following events occur:

- Warning message indicated with specific message code (see table 77) on the display of SIGMA CONTROL SMART.
- Maintenance interval of the maintenance schedule has expired.

Message code	Remedy
2200	Changing the oil filter

Tab. 77 Specific message code for "Change the oil filter"

Material Long-sleeved protective clothing
Protective gloves
Eye protection (protective glasses)
Spare part
Receptacle
Cleaning cloth

Precondition The machine is switched off,
the engine has cooled down.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
Controller ON/OFF switch is switched off,
the minus cable of the battery has been disconnected.

⚠ CAUTION

Danger of burns from hot components and escaping engine oil!
➤ *Wear long-sleeved protective clothing and protective gloves.*

NOTICE

Overstraining of components!
Leaking engine oil circuit.
➤ *Install and tighten new oil filter only by hand force.*

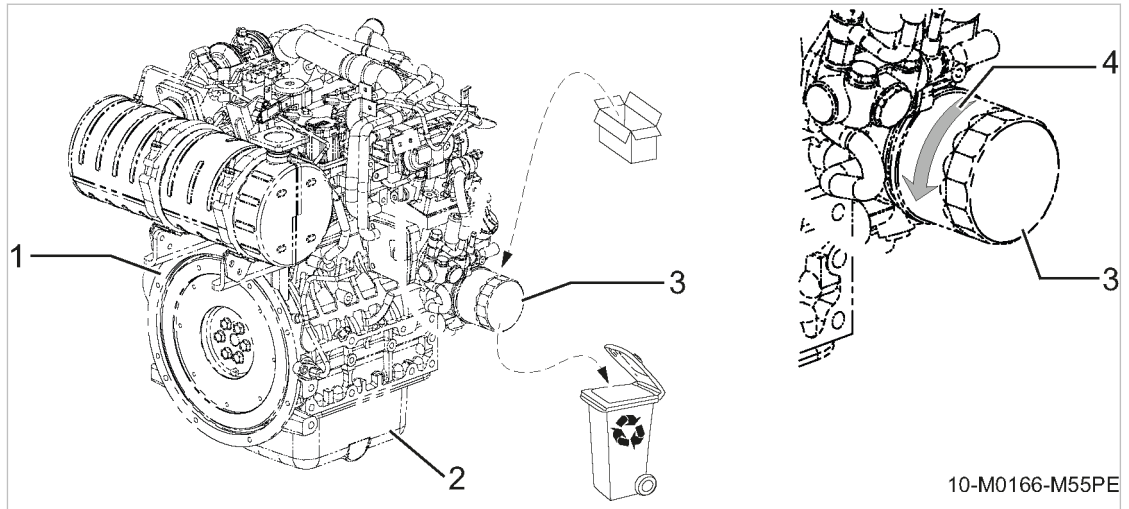


Fig. 42 Changing the oil filter

- | | |
|----------------|---|
| ① Engine | ③ Oil filter |
| ② Engine block | ④ Direction of rotation (loosen oil filter) |

Removing the old oil filter


1. Open the right-hand access door.
2. Prepare a receptacle.
3. Loosen oil filter (turn in direction of arrow ④).
4. Remove the oil filter.
5. Catch any escaping engine oil.
6. Carefully clean sealing surface using lint-free cloth.

Installing the new oil filter


1. Lightly oil the gasket of the new filter.
2. Set oil filter into installation position.
3. Turn the new oil filter clockwise using only hand force until the gasket fits tightly on the sealing surface.
4. Tighten new oil filter by hand force.

Checking the oil level

- Check the engine oil level.


Engine oil level too low.

- Replenish engine oil.


Dispose of old oil filter, old oil and materials contaminated with oil according to applicable environmental protection regulations.

10.4.8 Replacing the engine oil separator cartridge

Material Spare part
Cleaning cloth

Precondition The machine is shut down and standing on level ground.
The engine has cooled down.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
Both doors are open,
the «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

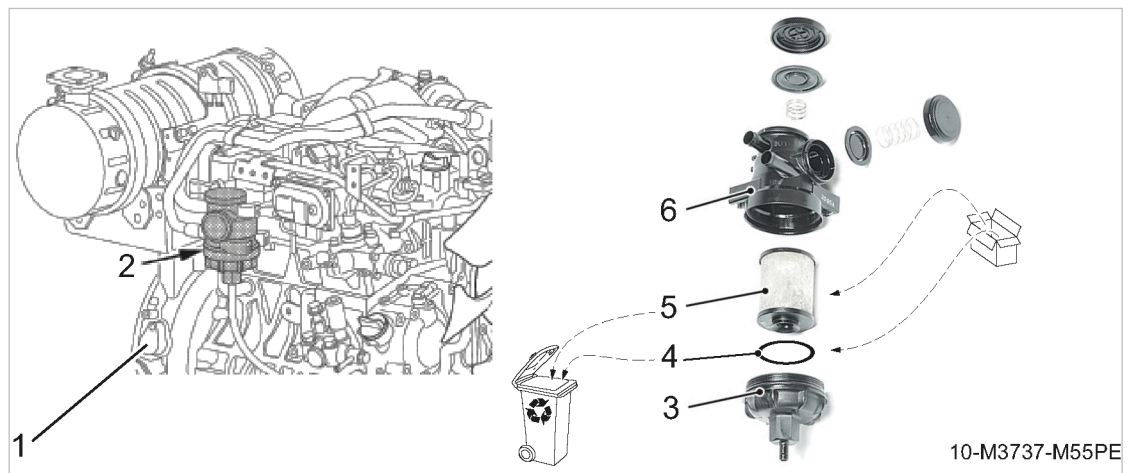


Fig. 43 Replacing the oil separator element

- | | |
|-------------------------|---------------------------|
| ① Engine | ④ O-ring |
| ② Oil separator | ⑤ Oil separator cartridge |
| ③ Lower part of housing | ⑥ Upper part of housing |

1. Remove the lower part of the housing ③.
2. Remove the old oil separator cartridge.
3. Remove the old O-ring.
4. Clean both housing parts using a lint-free cloth.
5. Remove any oil or grease residues from both housing parts.
6. Insert a new O-ring into the lower part.
7. Insert a new oil separator element.
8. Refit the lower part of the housing.
9. Tighten the lower part of the housing by force of hand.
10. Connect the negative cable to the battery.
11. Switch on the «Controller ON/OFF» switch.
12. Close both doors.



Dispose of the old oil separator element, old O-ring and any contaminated materials in accordance with the applicable environmental protection regulations.

10.4.9 Drive belt maintenance

The lifespan of the drive belts is affected by belt tension.

- Slack belts can slip and become damaged and may result in engine overheating.
- Excessive tension on the belt causes excessive stretch and results in a shorter life span. Over-tight belts also place unnecessary stress on bearings and shorten their life.

Material Wrench
Suitable clamping lever (short, thin rod)
Spare part

Precondition The machine is switched off and has cooled down.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
«Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

⚠ WARNING

*Beware of rotating pulleys and moving belts!
There is danger of serious injury from pinching.*

- Check the belt only when the drive engine is at standstill.
- Never operate the machine without a belt guard.

- Open both doors.

Removing the belt guard

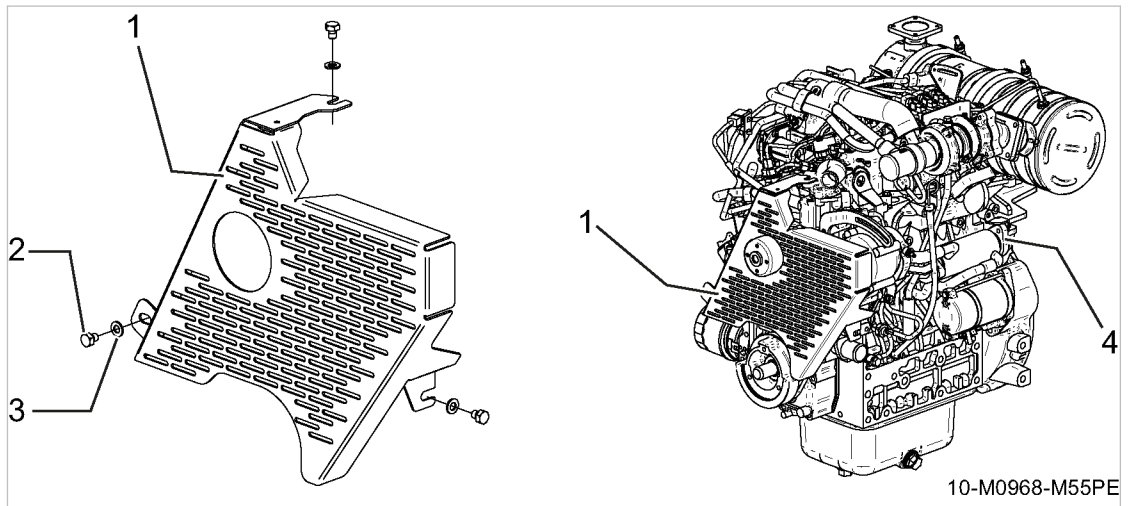


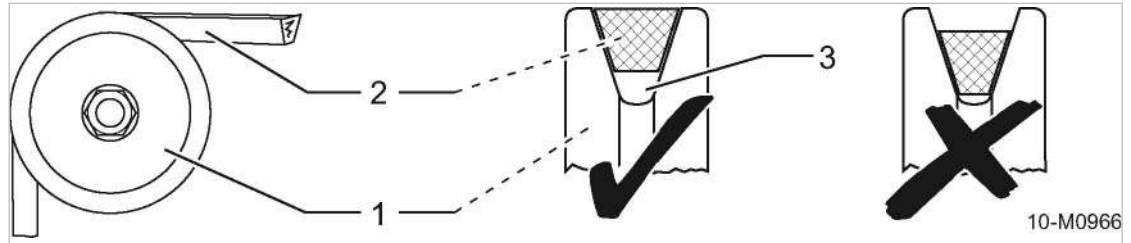
Fig. 44 Belt guard attachment

- | | |
|----------------|----------------|
| ① Belt guard | ③ Washer |
| ② Hexagon bolt | ④ Drive engine |

1. Loosen the hexagon bolts at the belt guard.
2. Remove the hexagon bolts and washers.
3. Remove the belt guard.

10.4.9.1 Carrying out a visual check**Visual inspection for damages**

- Check the belt thoroughly for cracks, fraying, or stretching.
When damaged or worn: Replace the drive belt immediately.

Checking the belt seating**Fig. 45** Check the drive belt seating

- ① Belt pulley
- ② Drive belt
- ③ Pulley guidance groove

- Check the drive belt seating.
Belt is positioned too deeply in the guidance groove: Replace the drive belt immediately.

 1. Replace the belt guard.
 2. Connect the negative cable to the battery.
 3. Switch on the «Controller ON/OFF» switch.
 4. Close the doors.

10.4.9.2 Checking belt tension

Check belt when it is warm, not hot, to avoid length differences caused by temperature differences.
The belt tension can be checked by hand: To check the tension, press the belt inwards with the thumb at the mid-point between pulleys.

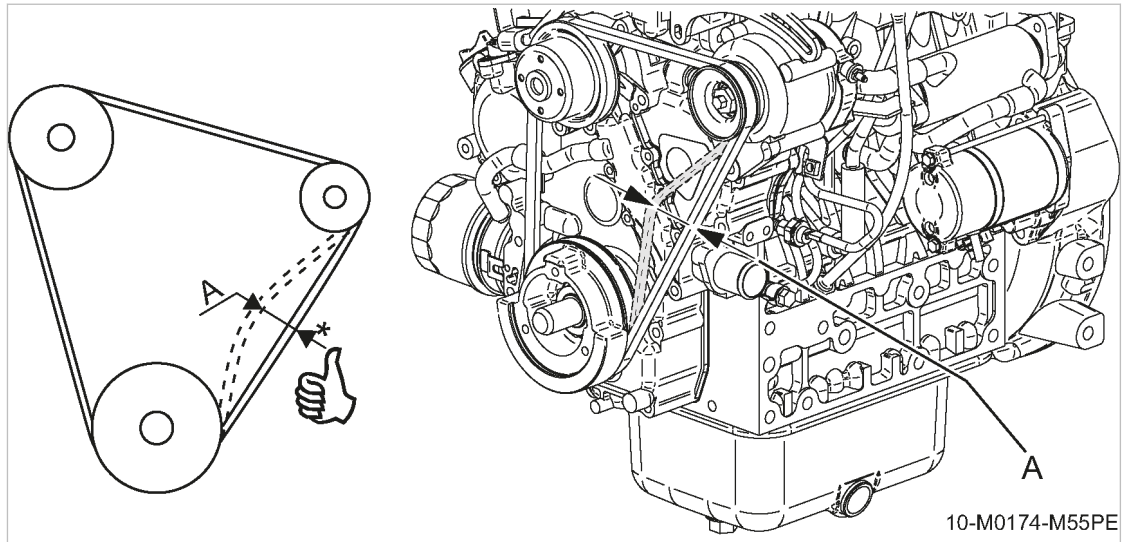


Fig. 46 Manually checking the belt tension

- (A) Drive belt testing position
- (*) - Compressive load approximately: 22 lb
- Play approximately: 0.3 – 0.4 inches

1. Check belt tension by hand (see Fig. 46).
2. Increase the tension on a loose belt.
3. Replace the belt guard.
4. Connect the negative cable to the battery.
5. Switch on the «Controller ON/OFF» switch.
6. Close the doors.

10.4.9.3 Changing/tensioning the drive belt

The drive belt is tensioned via the screw connection of the three-phase alternator.

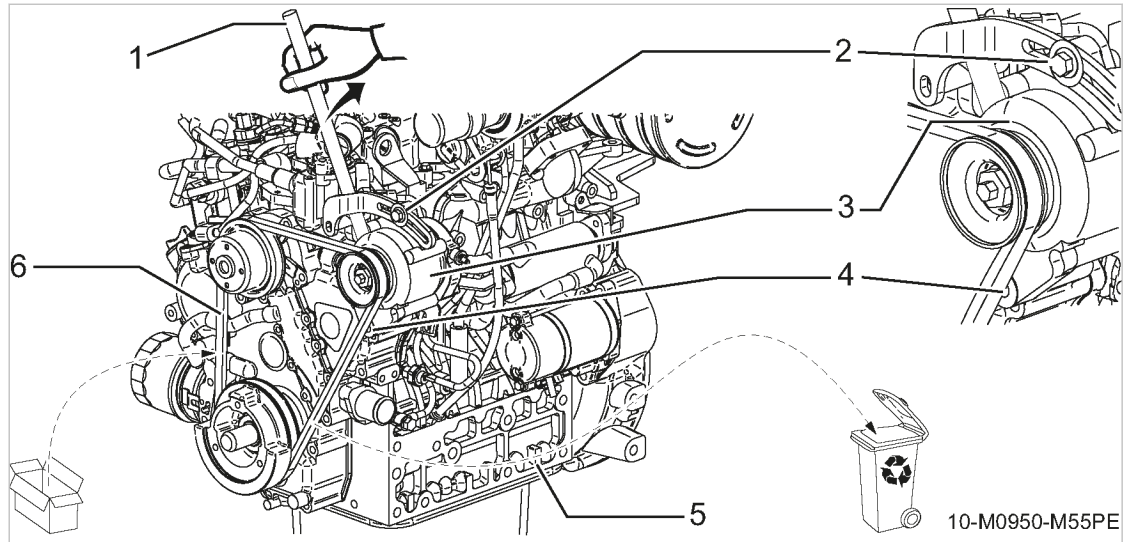


Fig. 47 Changing/tensioning the drive belt

- | | | | |
|---|----------------------------------|---|--------------------------------|
| ① | Lever | ④ | Hexagon screw (securing screw) |
| ② | Hexagon screw (tensioning screw) | ⑤ | Engine block |
| ③ | Three-phase alternator | ⑥ | Drive belt |

Tensioning the drive belt

1. Loosen the three-phase alternator securing screw and tensioning screw.
2. Place a suitable lever between the alternator and engine block.
3. Gently push the three-phase alternator in the direction of the arrow (outwards) using the lever until the drive belt is tensioned.
4. Re-tighten the securing screw and tensioning screw.
5. Remove the lever.
6. Check the belt tension (see Fig. 46).

Belt tension too low: Press the three-phase alternator further into the direction of the arrow.

Belt tension too high: Slightly swivel the three-phase alternator against the direction of the arrow.

Replace the drive belt

1. Loosen the alternator securing screw and tensioning screw until the drive belt can be taken off the pulleys.
2. Remove the belt.
3. Check the pulleys for dirt and/or wear.
If the pulley is dirty: Clean the pulley.
If the pulley is worn: Have the pulley changed.
4. Manually route the new drive belt over the pulleys without using force.
5. Tension the drive belt. Ensure that the drive belt is correctly positioned in its guide.



A belt that has been replaced may not be used again.

After running for two to three hours, check the belt tension again.



Old belts should be disposed of in accordance with the latest environmental regulations.

Putting in operation

1. Replace the belt guard.
2. Connect the negative cable to the battery.
3. Switch on the «Controller ON/OFF» switch.
4. Close the doors.

10.4.10 Having the anti-vibration mount checked

Anti-vibration mounts are elastomer metal elements, that are used, for example, for vibration-dampened bearing of the drive of construction machines. They consist of two U-profiles that are fastened to each other through an elastomer.

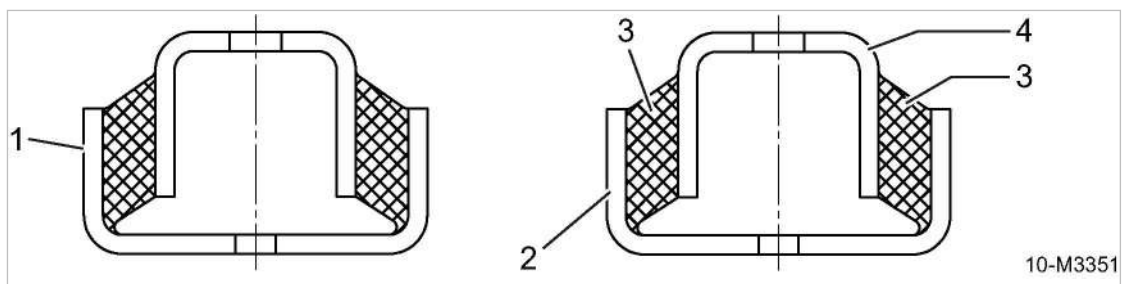


Fig. 48 Example for anti-vibration mount of drive engine

- | | |
|------------------------|-----------------|
| ① Anti-vibration mount | ③ Elastomer |
| ② Bottom U-profile | ④ Top U-profile |

- Have the anti-vibration mount of the drive engine checked by an authorized KAESER service representative.



Elastomer of anti-vibration mount is destroyed or porous.

- Have the anti-vibration mount replaced by an authorized KAESER service representative.

10.4.11 Battery maintenance

- Check the charging system if the batteries discharge for no obvious reason.

10.4.11.1 Safety

⚠ WARNING

Danger of acid burns from escaping electrolyte!

- *Wear appropriate protective clothing including acid-proof rubber gloves.*
- *Always wear eye and face protection.*
- *Do not tip the battery. Electrolyte may run out of vent holes.*
- *Work with caution.*

When working on batteries, comply with the following safety signs

A warning label with safety signs is attached to the battery.



10-M0167

Fig. 49 Safety signs - warning labels on the battery

- Take heed of any safety signs on the battery warning label.
The individual safety signs have the following meaning:
 - ① – Fire, sparks, open flame and smoking are forbidden!
 - ② – Eye and face protection must be worn due to the danger of acid burns!
 - ③ – Keep children well away from batteries and acids!
 - ④ – Wear protective gloves, batteries are filled with caustic electrolyte!
 - ⑤ – Observe the battery manufacturer's instructions!
 - ⑥ – Explosion hazard, follow safety rules!

Further instructions on working with batteries


- Do not remove battery terminal covers unnecessarily.
- Do not lay tools on the battery. This can cause the battery to short-circuit, overheat or explode!
- Take particular care when the battery has been in service for a long time or has just been charged, as highly explosive gas is emitted!
Ensure adequate ventilation!

10.4.11.2 Ensuring battery charge condition

If the machine has not been operated for a long period of time, the batteries may self-discharge. In this case, the starting voltage is insufficient to start the engine when needed. Total discharge may result in battery damage.



The following applies to starter batteries:
Recharge if stored for 30 days or longer!

The current charge level of the starter batteries can be checked on the SIGMA CONTROL SMART controller display via the  *Battery voltage* indicator.

Starter batteries charge level

Charge level [%]		Voltage display [V]	Electrolyte density [kg/l]	Notes
100		12.7 - 12.85	1.27	Battery OK, fully charged.
75		12.5	1.24	Recharge required!
65		12.4	1.22	
50		12.3	1.21	Starting capacity limit!
25		12.0	1.16	Battery discharged below permitted discharge limit.
20		11.9	1.14	
0		11.6	1.09	Battery permanently damaged due to total discharge!

Values at 77° F

Tab. 78 Starter batteries charge level

- Check battery charge and recharge using suitable charging device if necessary.

10.4.11.3 Battery check and care

Even so-called 'maintenance-free' batteries need a certain degree of care to obtain their maximum operational life.



The outside of the battery and the terminals should be cleaned regularly with a soft cloth. This avoids current leakage and minimizes the discharge rate.

- Material
- Terminal grease
 - Distilled water
 - Cleaning cloth
 - Protective gloves
 - Eye protection

Precondition

The machine is switched off and has cooled down.
 The machine is standing level.
 Air consumers are disconnected,
 the outlet valves are open,
 the machine is fully vented, the pressure gauge reads 0 psig.
 «Controller ON/OFF» switch is switched off,
 the minus cable of the battery has been disconnected.

- Open the left-hand door.
 1. Clean the casing and terminals. Do not use a wire brush!
 2. Lightly grease the terminals to prevent corrosion.
 3. Check that the batteries and cable connections are properly secured and tighten if necessary.

Checking the battery electrolyte level

The amount of electrolyte is generally sufficient for the lifetime of the battery. Nevertheless, the electrolyte level should be checked once per year. The electrolyte level should reach up to the mark, i.e. 0.4 inch above the plates.



Replace the battery immediately if the casing leaks!

1. **NOTICE** *Irreparable battery damage!*
Topping off with pure electrolyte will increase the level of concentration and can irreparably damage the battery.
 - *Top off only with distilled water.*
2. Check the electrolyte level.



If the electrolyte level does not reach the mark:

- Top off with distilled water.
- Close the door.

Winter operation

The batteries are particularly stressed in winter. Only a fraction of the normal starting energy is available at low temperatures.

1. **NOTICE** *Danger of batteries freezing!*
Discharged batteries are subject to frost damage and can freeze at 14 °F.
 - *Check battery charge condition with an electrolyte density tester.*
 - *Recharge the batteries.*
 - *Clean the battery terminals and wipe with grease.*
2. Check the battery charge weekly.
 Recharge as necessary.
3. For machine standstill times of several weeks: Remove the batteries and store in a frost-free environment.



In extreme cases, the use of a heavy-duty cold-start battery and/or an additional booster battery is recommended.

10.4.11.4 Battery removal and installation

Precondition The machine is switched off and has cooled down.
 The machine is standing level.
 Air consumers are disconnected,
 the outlet valves are open,
 the machine is fully vented, the pressure gauge reads 0 psig.
 The «Controller ON/OFF» switch is switched off.

1. **CAUTION** *There is danger of batteries bursting!*
A short-circuited battery heats up quickly and can burst.
 - *Never short-circuit a battery (e.g. with a hand tool).*
 - *Wear protective gloves and safety glasses.*

2. **NOTICE** *Excessive voltage produced by the engine generator! Voltage peaks can destroy the engine generator regulator and diodes.*
 - *The battery serves as a buffer and must not be disconnected while the engine is running.*
 - *Carry out work on batteries only with the machine shut down.*
3. Open the left-hand door.
4. First, remove the cable connection on the negative pole of the battery.
5. Then, remove the cable connection on the positive pole of the battery.
Both cable connections for the battery are now removed.
6. Remove the battery mounting.
7. Remove the battery from the machine.
8. Position serviced or new battery in the machine.
9. Install the battery mounting.
10. Make sure the battery is properly secured.
11. First, attach the cable connection on the positive pole of the battery.
12. Then, attach the cable connection on the negative pole of the battery.
Both cable connections for the battery are now attached.
13. Switch on the «Controller ON/OFF» switch.
14. Close the door.

Battery replacement

Replacement batteries must have the same capacity, current strength and form as the original batteries.

- Always replace batteries with the same type.



Old batteries are hazardous waste and must be disposed of correctly in accordance with local environmental protection regulations.

10.5 Servicing components in the exhaust gas after-treatment system

Components in the exhaust gas after-treatment system reach extremely high temperatures during operation, especially when regenerating the diesel particulate filter.



To protect against contact with extremely hot surfaces, several heat shields are fitted around the exhaust gas after-treatment system.

Material	Protective gloves Protective clothing
Precondition	The machine is switched off, all components in the exhaust gas after-treatment system have cooled down, the engine has cooled down. The machine is standing level. Air consumers are disconnected, the discharge valves are open, the machine is fully vented, the pressure gauge reads 0 psig. The «Controller ON/OFF» switch is switched off, the negative cable of the battery has been disconnected.

⚠ CAUTION

Danger of burning from extremely hot surfaces.

- *Allow all components in the exhaust gas after-treatment system to cool down.*
 - *Allow the engine to cool down.*
- Conduct maintenance tasks in accordance with the maintenance schedule in Chapter 10.3.3.1.

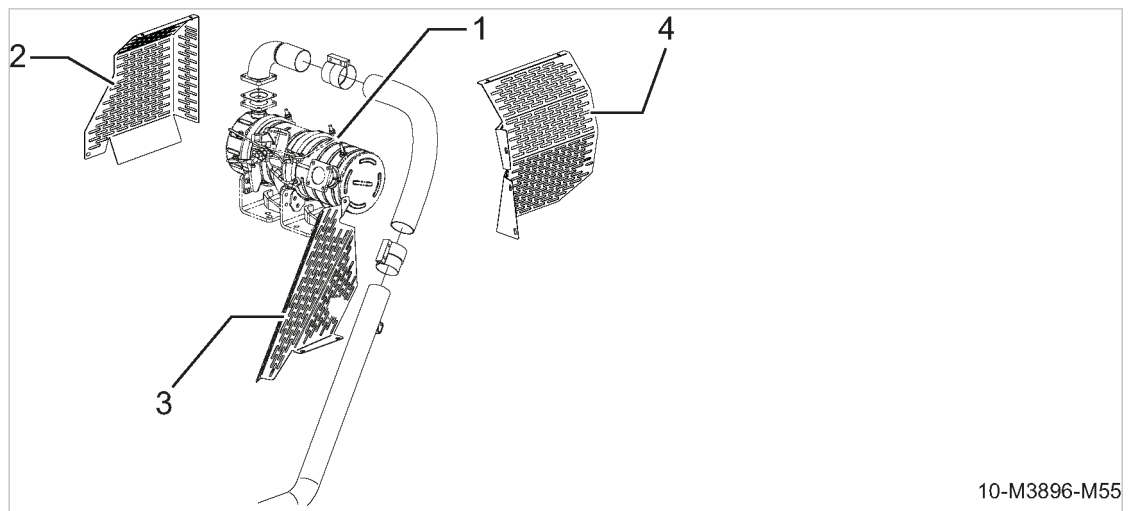
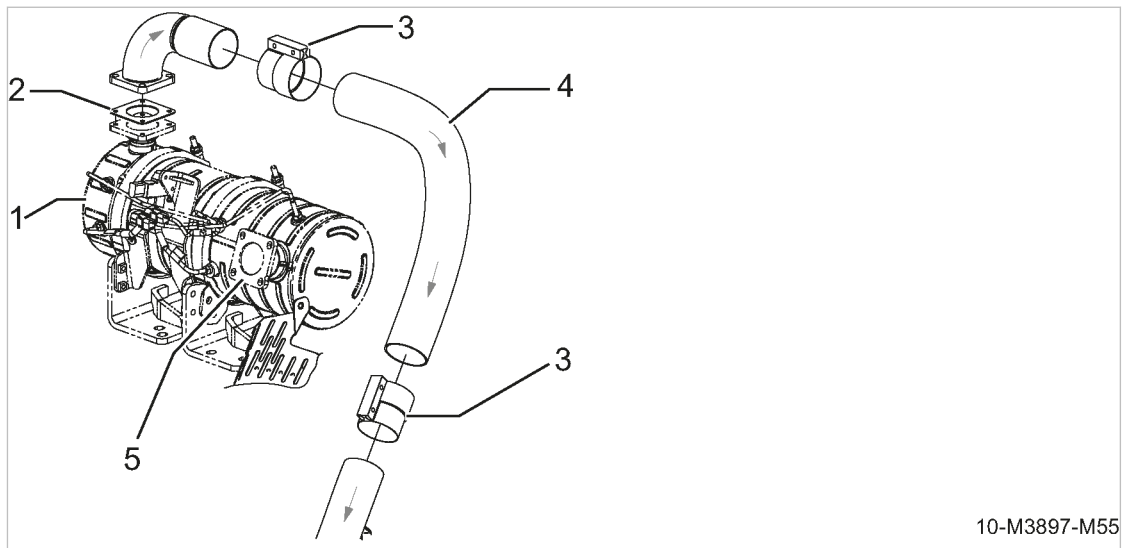
Removing the heat shield:

Fig. 50 Heat shield, exhaust gas after-treatment

- | | |
|---|--|
| ① Exhaust gas after-treatment | ③ Heat shield, exhaust gas pipe |
| ② Heat shield, diesel particulate filter exhaust manifold | ④ Heat shield, diesel particulate filter |

- If necessary, remove the heat shields so as to be able to conduct the following checks correctly.

Checking the diesel particulate filter housing:



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Fig. 51 Exhaust gas after-treatment with diesel particulate filter

- | | |
|-------------------------------------|---------------------|
| ① Diesel particulate filter housing | ④ Exhaust gas pipe |
| ② Flange connection | ⑤ Flange connection |
| ③ Stepped band clamp | |

- Check the diesel particulate filter housing is tightly fitted and free from damage.
The housing is damaged: Contact KAESER SERVICE.

Checking the flange connection:

- Check both flange connections; tighten the screw connection if required.
The flange connection is damaged: Contact KAESER SERVICE or KUBOTA.

Checking the fixing elements

- Check all stepped band clamps are tightly fitted; tighten if necessary.

Checking the exhaust manifold insulation:

- Check the exhaust manifold insulation is tightly fitted and free from damage.
The insulation is damaged: Contact KAESER SERVICE.

Refitting the heat shield:



The machine must not be operated without the heat shields fitted.

Precondition Maintenance of all components in the exhaust gas after-treatment system has been completed correctly.

1. Refit all heat shields.
2. Check that all heat shields are fitted correctly.

10.6 Compressor Maintenance

➤ Perform maintenance tasks according to the schedule in chapter 10.3.3.1.

10.6.1 Checking the cooling oil level

The cooling oil level is checked by opening the oil filler port on the oil separator tank.
Condition: The cooling oil must be visible in the oil filler port.

Material Long-sleeved protective clothing
Protective gloves
Eye protection
Cleaning cloth

Precondition The machine is switched off,
the machine is standing on level ground.
All compressed air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 psig!
The left-hand door is open,
the «Controller ON/OFF» switch is switched off,
the negative cable for the battery has been disconnected.

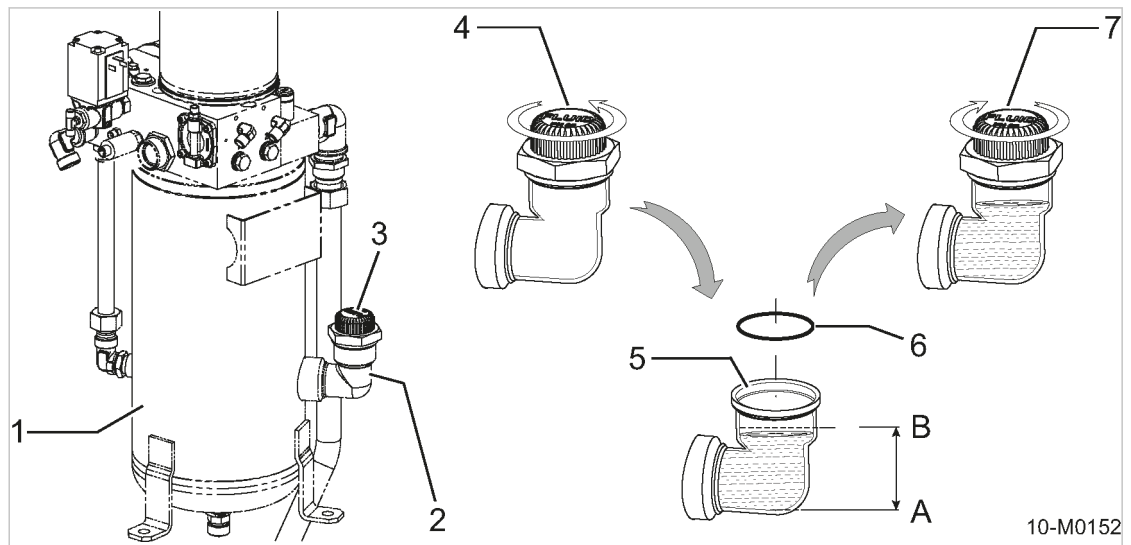


Fig. 52 Checking the cooling oil level

- | | |
|--------------------------------|------------------------------------|
| ① Oil separator tank | ⑥ O-ring |
| ② Oil filler | ① A Minimum cooling oil fill level |
| ③ Screw plug | ① B Maximum cooling oil fill level |
| ④ Loosen in direction of arrow | ① 7 Tighten in direction of arrow |
| ⑤ Oil filler port open | |

Removing the screw plug

1. Turn the screw plug in the direction of the arrow ④.
The screw plug is loosened.
2. Release and remove the screw plug.


Checking the sealing

1. Check that the O-ring is in an appropriate condition.
2. If the O-ring is damaged, replace it.

Checking the cooling oil level

1. Check whether the cooling oil is visible in the oil filler port.
2. If necessary, replenish the cooling oil.

Reinserting the screw plug


1. Insert the screw plug.
2. Manually turn the screw plug in the direction of the arrow .
3. Close the door.

10.6.2 Filling or topping off the cooling oil

Material	Cooling oil Funnel Cleaning cloth Wrench
Precondition	The machine is switched off and has cooled down. The machine is standing level. Air consumers are disconnected, the outlet valves are open, the machine is fully vented, the pressure gauge reads 0 psig! Left door is open, «Controller ON/OFF» switch is switched off, the minus cable of the battery has been disconnected.

Filling in cooling oil

A sticker on the oil separator tank specifies the type of oil used.

1. **NOTICE** *The machine could be damaged by unsuitable oil!*
 - *Never mix different types of oil.*
 - *Never top off with a type of oil that differs from the one already used in the machine.*
2. Loosen and remove screw plug from the filler port.
3. Top off the cooling oil to the maximum level  with the help of a funnel.
4. Check the oil level.
5. Check the filler plug gasket for damage.
Damaged gasket: replace gasket.
6. Replace the screw plug in the filler port.

Preparing for operation

1. Connect the negative battery terminal.
2. Switch on the «Controller ON/OFF» switch.
3. Close the door.

Starting the machine and performing a test run

1. Switch on machine by using the START key on the control panel of SIGMA CONTROL SMART.
2. Let machine run in IDLE mode.
Warm-up has been successful when required airend discharge temperature has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
The machine is switched off.
4. Wait until the machine has automatically vented.
The pressure gauge reads 0 psig!
5. Open the outlet valves.
6. Open the left-hand door.
7. Check the oil level after about 5 minutes.
Cooling oil level too low: Top off the cooling oil.
8. Visually inspect for leaks.
9. Close the door.

10.6.3 Changing the cooling oil



All of the oil must always drain fully from the following components:

- Airend
- Oil separator tank
- Oil cooler
- Oil pipes

Carry out the “Change cooling oil” service when any of the following events occur:

- Warning message indicated with specific message code (see table 79) on the display of SIGMA CONTROL SMART.
 - Maintenance interval of the maintenance schedule has expired.
- Always change the oil filter when changing the cooling oil.

Message code	Remedy
2202	Changing the cooling oil

Tab. 79 Specific message code for “Change the cooling oil”

- Material See chapter 2.7.6 for compressor oil filling volumes.
Receptacle
Male hose coupling (separately enclosed with machine)
New gasket for the screw plug
Funnel
Cleaning cloth
- Precondition Machine is switched off.
The machine is standing level.
The machine is at operating temperature.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
«Controller ON/OFF» switch is switched off, the minus cable of the battery has been disconnected.

⚠ CAUTION

Danger of burning from hot components and escaping cooling oil!

- *Wear long-sleeved clothing and gloves.*

- Open the left-hand door.

10.6.3.1 Draining the cooling oil

In order to drain all of the cooling oil from the machine in a user-friendly manner, it is necessary to attach the two male hose couplings provided to the corresponding hose couplings on the oil separator tank and oil cooler.

- Remove the screw plug from the oil filler port on the oil separator tank.
- Attach one male hose coupling to the hose coupling on the oil separator tank.
- Attach the other male hose coupling to the hose coupling on the oil cooler.
- Remove the screw plug from the airend.

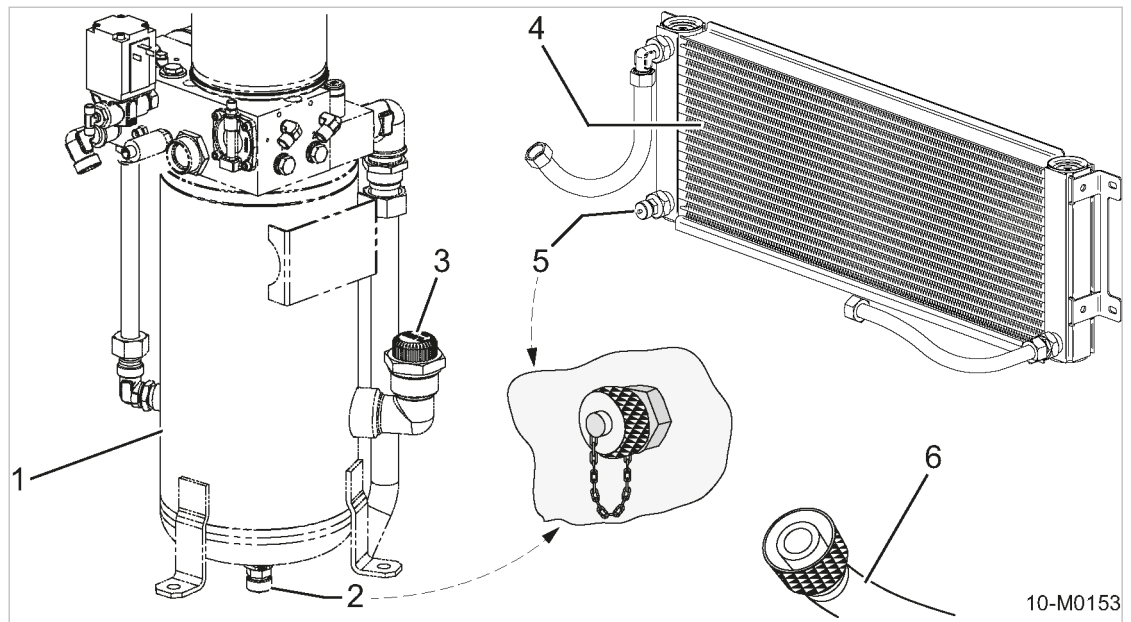


Fig. 53 Draining the compressor cooling oil

- | | | | |
|---|----------------------------------|---|--------------------------|
| ① | Oil separator tank | ④ | Oil cooler |
| ② | Oil separator tank hose coupling | ⑤ | Oil cooler hose coupling |
| ③ | Oil filler port screw plug | ⑥ | Male hose coupling |

➤ Follow all instructions carefully.

Removing the oil filler port screw plug

1. Loosen and remove the screw plug from the oil filler port on the oil separator tank.
2. Remove the old gasket from the oil filler port.
3. Dispose of the old gasket.

Draining the cooling oil from the oil separator tank

1. Position a receptacle beneath the oil separator tank (accessible through a hole in the floor panel).
2. Feed the free end of the male hose coupling through the opening in the floor panel.
3. Suspend and fasten the free end of the male hose coupling inside the receptacle.
4. Loosen and remove the protective cap from the hose coupling.
5. Attach the male hose coupling to the hose coupling.
The cooling oil drains out.

Draining the cooling oil from the oil cooler

1. Position a receptacle beneath the oil cooler (accessible through a hole in the floor panel).
2. Feed the free end of the male hose coupling through the opening in the floor panel.
3. Suspend and fasten the free end of the male hose coupling inside the receptacle.
4. Loosen and remove the protective cap for the hose coupling.
5. Attach the male hose coupling to the hose coupling.
The cooling oil drains out.

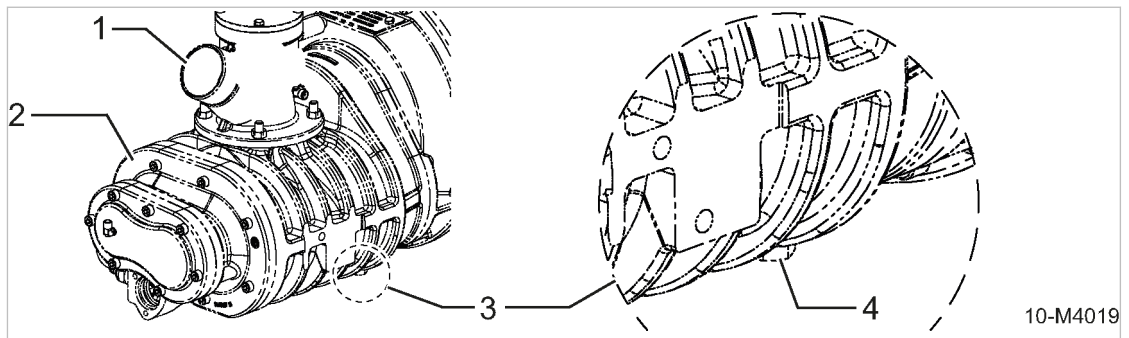
Draining the cooling oil from the airend


Fig. 54 Airend screw plug

- | | | | |
|---|-------------|---|-----------------------|
| ① | Inlet valve | ③ | Airend drainage point |
| ② | Airend | ④ | Screw plug |

1. Position a receptacle beneath the airend (accessible through a hole in the floor panel).
2. Loosen and remove the screw plug ④ underneath the airend.
The cooling oil drains out.
3. Dispose of the old sealing ring.

Draining the cooling oil from the machine

- Drain all of the cooling oil from the machine at operating temperature.

Removing the oil filter component

- For removing the oil filter, see chapter 10.6.4.

Closing the hose coupling on the oil separator tank

1. Loosen and remove the male hose coupling.
The hose coupling is closed.
2. Return the protective cap to the hose coupling.

Closing the hose coupling on the oil cooler

1. Loosen and remove the male hose coupling.
The hose coupling is closed.
2. Return the protective cap to the hose coupling.

Closing the screw plug on the airend

1. Place a new sealing ring over the contact surface of the screw plug.
2. Fit the new sealing ring to the screw plug.
3. Properly tighten the screw plug.

Installing the oil filter component

- For installing of the new oil filter, see chapter 10.6.4.

10.6.3.2 Filling in cooling oil

To properly fill the machine with new cooling oil, the filling process must be carried out in three filling steps, each with three specific cooling oil volumes. After each filling step, run the machine for a short time in IDLE speed.

For specific cooling oil quantities of the three filling steps, see table 80.

Specific cooling oil volume	Value [qt]
Filling step 1	4.8
Filling step 2	3.2
Filling step 3	1.1

Tab. 80 Specific cooling oil volumes

Precondition Old cooling oil has drained completely.
Screw plug on the filler port has been removed.

Filling step 1

1. Fill the specific cooling oil volume for filling step 1 into a suitable container.
2. Fill the cooling oil into the filler port on the oil separator tank using a funnel.
3. Replace the plug in the filler port.
4. Close the door.
5. Prepare machine for operation.
6. Start the machine and run it in IDLE speed for a short time.
7. Switch off the machine.
8. Wait until the machine has automatically vented.
9. Open the door.
10. Loosen and remove the screw plug from the filler port.

Filling step 2

1. Fill the specific cooling oil volume for filling step 2 into a suitable container.
2. Repeat steps 2 - 10 from "Filling step 1".

Filling step 3

1. Fill the specific cooling oil volume for filling step 3 into a suitable container.
2. Repeat steps 2 - 10 from "Filling step 1".

Checking the cooling oil level

1. Check the cooling oil level after about 5 minutes.



Cooling oil level too low.

- Top off with more cooling oil.

2. Install the screw plug with a new gasket on the filler port.
3. Tighten the screw plug.

Performing final work steps:

- Close the door.



Dispose of used oil and oil-contaminated working materials according to environmental protection regulations.

10.6.4 Replacing the compressor oil filter



Standard tools, such as filter wrench or belts may be used in order to loosen the old oil filter for removal. The new oil filter, however, may only be installed and tightened by hand force.

Service the oil filter when any of the following events occur:

- Warning message indicated with specific message code (see table 81) on the display of SIGMA CONTROL SMART.
- Maintenance interval of the maintenance schedule has expired.

Message code	Remedy
2200	Changing the oil filter

Tab. 81 Specific message code for “Change the oil filter”

- Material
- Long-sleeved protective clothing
 - Protective gloves
 - Eye protection (protective glasses)
 - Spare part
 - Receptacle
 - Cleaning cloth

- Precondition
- The machine is switched off.
 - The machine is at operating temperature.
 - Air consumers are disconnected,
 - the outlet valves are open,
 - the machine is fully vented, the pressure gauge reads 0 psig.
 - Left door is open, «Controller ON/OFF» switch is switched off,
 - the minus cable of the battery has been disconnected.

⚠ CAUTION

Danger of burning from hot components and escaping cooling oil!

- *Wear long-sleeved protective clothing and protective gloves.*

NOTICE

*Overstraining of components!
Leaking cooling oil circuit.*

- *Install and tighten new oil filter only by hand force.*

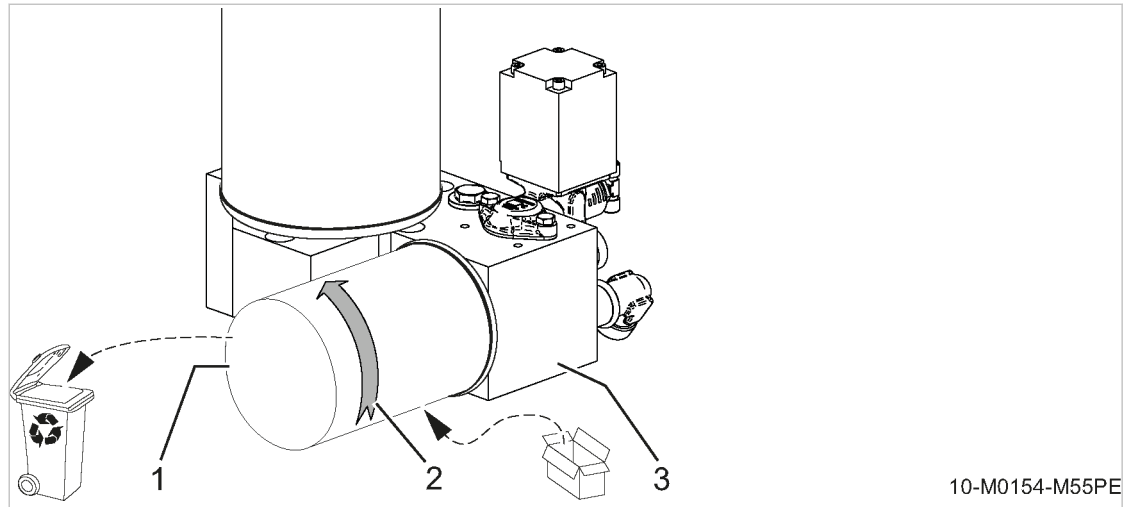


Fig. 55 Changing the oil filter

- ① Oil filter
- ② Direction of arrow (loosen oil filter)
- ③ Thermostatic valve

Removing the old oil filter

1. Prepare a receptacle.
2. Loosen oil filter (turn in direction of arrow ②).
3. Remove the oil filter.
4. Catch any escaping cooling oil.
5. Carefully clean sealing surface using lint-free cloth.

Installing the new oil filter

1. Lightly oil the gasket of the new filter.
2. Set oil filter into installation position.
3. Turn the new oil filter clockwise using only hand force until the gasket fits tightly on the sealing surface.
4. Tighten new oil filter by hand force.

Check the cooling oil level

- Check the cooling oil level in the oil separator tank.



- Cooling oil level too low.
 - Top off the cooling oil.

Preparing for operation

1. Connect the negative battery terminal.
2. Switch on the «Controller ON/OFF» switch.
3. Close the door.

Starting the machine and performing a test run

1. Switch on machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Let machine warm up in IDLE mode.
Warm-up has been successful when required discharge temperature has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
The machine is switched off.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
5. Open the discharge valves.
6. Open the left-hand door.
7. After approximately 5 minutes: Check the cooling oil level.



- Cooling oil level too low.
 - Top off the cooling oil again.

8. Visually inspect for leaks.
9. Close the door.



- Dispose of old cooling oil and any materials or parts contaminated with oil according to environment protection regulations.

Resetting maintenance timer

- Reset the maintenance timer as described in the separate User Manual of SIGMA CONTROL SMART, chapter "Reset maintenance timer".

10.6.5 Oil separator tank dirt trap maintenance

The control valve is mounted on the oil separator tank cover. The control valve has two different dirt traps that must be cleaned at least once a year.

Material	Cleaning cloth Wrench Small screwdriver Maintenance kit, control valve Petroleum ether or spirit
Precondition	The machine is switched off and has cooled down. Air consumers are disconnected, the outlet valves are open, the machine is fully vented, the pressure gauge reads 0 psig! Left door is open, «Controller ON/OFF» switch is switched off, the minus cable of the battery has been disconnected.

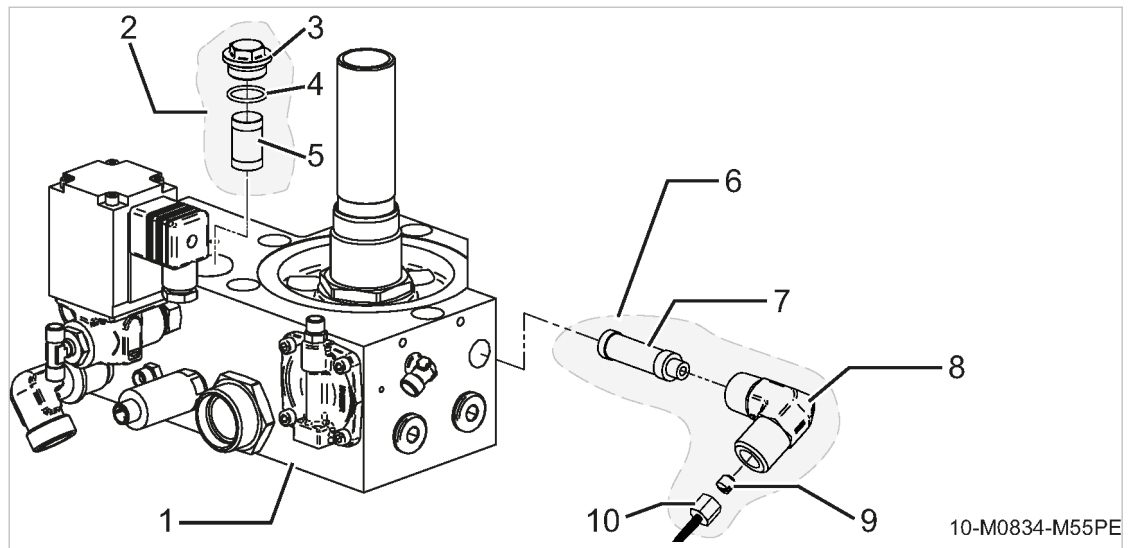


Fig. 56 Oil separator tank dirt trap maintenance

- | | |
|--|--------------------------------------|
| ① Control valve | ⑥ Detail: Dirt trap, oil return line |
| ② Detail: Dirt trap, proportional controller | ⑦ Strainer |
| ③ Screw plug | ⑧ Male stud fitting |
| ④ O-ring | ⑨ Nozzle |
| ⑤ Strainer | ⑩ Oil return line pipe union nut |

➤ Follow all instructions carefully.

10.6.5.1 Maintenance of the proportional controller dirt trap

See Fig. 56; Detail: 2.

1. Remove the screw plug.
2. Pull off the strainer.
3. Clean the plug, strainer and O-ring with cleaning solvent or spirit.
4. Check the strainer and O-ring for wear.
When severely worn: replace components.
5. Place the screw plug on the strainer.
6. Install the screw plug, making sure the O-ring sits in the correct position.
7. Tighten the screw plug with the specific torque required, see table 82.

Screw plug torque	Value
Thread [“]	G1/2
Torque [lbf-in]	133–177

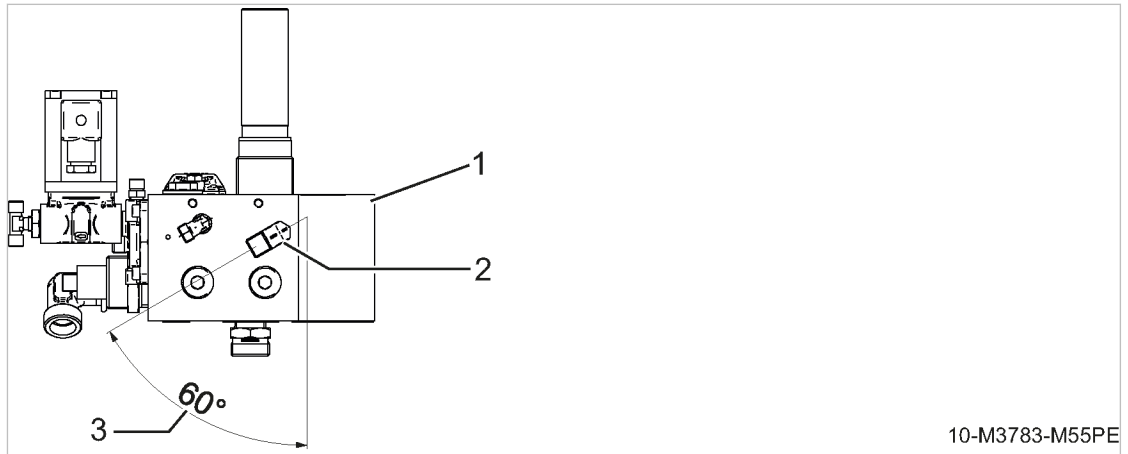
Tab. 82 Dirt trap screw plug torque

10.6.5.2 Oil return line dirt trap maintenance

See Fig. 56; Detail: 6.

1. Loosen the oil return line clamping nut.
2. Use a screwdriver to remove the nozzle.
3. Remove the male stud fitting.

4. Remove the strainer.
5. Clean the male stud fitting, nozzle and strainer with cleaning solvent or spirit.
6. Check the nozzle and strainer for wear.
When severely worn: replace components.
7. Install the nozzle and strainer in/on the male stud fitting.
8. Install male stud fitting by using the correct angular adjustment (see Fig. 57).



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Fig. 57 Install the male stud fitting

- ① Control valve
- ② Male stud fitting
- ③ Angle bracket

9. Install the oil return line clamping nut.

10.6.5.3 Preparing for operation

1. Connect the negative battery terminal.
2. Switch on the «Controller ON/OFF» switch.
3. Close the door.

10.6.5.4 Starting the machine and performing a test run

1. Switch on machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Warm-up machine by letting it run in IDLE mode.
Warm-up has been successful when required airtend discharge temperature has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
The machine is switched off.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
5. Open the outlet valves.
6. Open the left-hand door.
7. Visually inspect for leaks.
8. Close the door.



Dispose of old parts and contaminated materials according to environmental regulations.

10.6.6 Changing the oil separator cartridge



The oil separator cartridge cannot be cleaned.

The life of the oil separator cartridge is influenced by:

- contamination in the air drawn into the compressor,
- and adherence to the replacement intervals for the:
 - Cooling oil
 - Oil filter
 - Air filter

Material Spare part
Cleaning cloth
Filter strap wrench

Precondition The machine is switched off.
The machine has cooled down.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
«Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

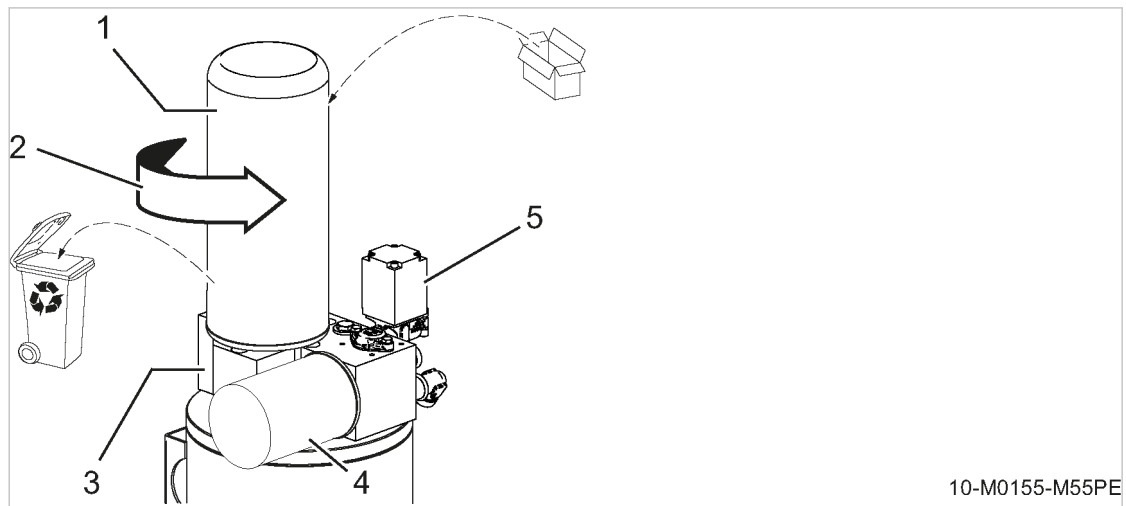


Fig. 58 Changing the oil separator cartridge

- | | |
|---|------------------|
| ① Oil separator cartridge | ④ Oil filter |
| ② Direction of arrow (loosen oil separator cartridge) | ⑤ Solenoid valve |
| ③ Thermostatic valve | |

➤ Open the left-hand door.

Changing the oil separator cartridge

1. Loosen the old oil separator cartridge (turn in direction of arrow (2)).
2. Remove the old oil separator cartridge.
3. Clean the sealing surface.
4. Lightly oil the new filter's gasket.
5. Set new oil separator cartridge into installation position.
6. Turn the new oil separator cartridge clockwise by hand until the oil separator cartridge fits tightly on the sealing surface.
7. Tighten new oil separator cartridge by hand.
8. Check the oil level in the oil separator tank.
Cooling oil level too low: Top off the cooling oil.



Maintenance of both control valve dirt trap must be carried out whenever the oil separator cartridge is changed.

Further information See chapter 10.6.5 for information on the maintenance of the two dirt traps.

Preparing for operation

1. Connect the negative battery terminal.
2. Switch on the «Controller ON/OFF» switch.
3. Close the left-hand door.



Dispose of old parts and contaminated materials according to environmental regulations.

Starting the machine and performing a test run

1. Switch on machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Warm-up machine by letting it run in IDLE mode.
Warm-up has been successful when required airend discharge temperature has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
The machine is switched off.
4. Wait until the machine has automatically vented.
The pressure gauge reads 0 psig!
5. Open the outlet valves.
6. Open the left-hand door.
7. After approximately 5 minutes: Check the cooling oil level.
Cooling oil level too low: Top off the cooling oil.
8. Visually inspect for leaks.
9. Close the door.

10.6.7 Compressor air filter maintenance



- Operating the machine without filter elements fitted is not permitted!
- Do not use filter elements with damaged folds or seals.
- The use of unsuitable or damaged filter elements can allow dirt to enter the pressure system and cause premature wear and damage to the machine.

Service the compressor air filter should any of the following occur:

- Warning message with specific message code (see Table 83) on the display of the SIGMA CONTROL SMART.
- Maintenance indicator is activated.
- Maintenance interval as per the maintenance schedule has expired.

Message code	Action
2201	Replace / clean the filter element

Tab. 83 Specific message code for “Service air filter”

Material Compressed air for blowing out
Spare part (if required)
Cleaning cloth

Precondition The machine is switched off and has cooled down.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
Both doors are open,
the «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

NOTICE

Damaged filter element.

Machine damaged due to contaminated intake air.

- Do not try to clean the filter element by striking or tapping it.
- Do not wash the filter element.
- Follow all instructions carefully.

Checking the air filter contamination level:

Air filter maintenance is required when the yellow piston inside the maintenance indicator reaches the red zone.

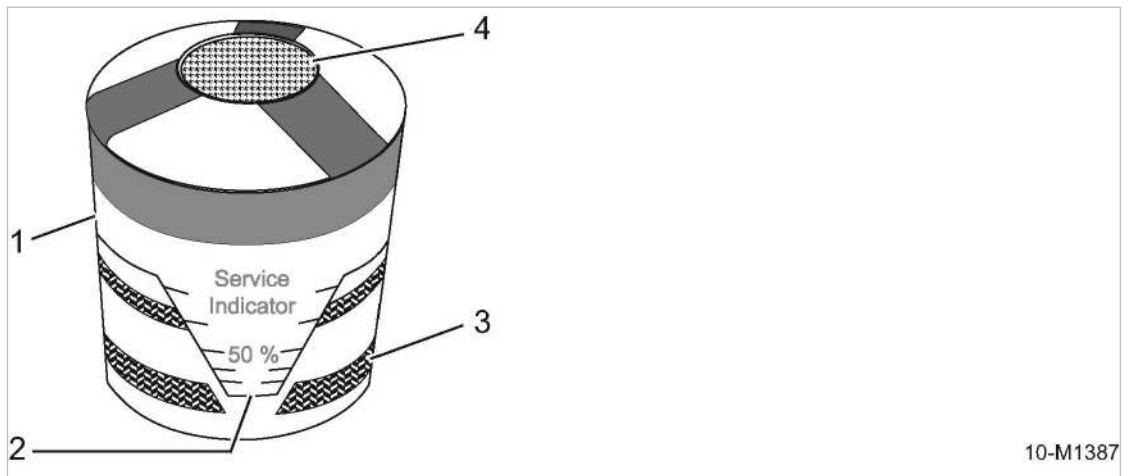


Fig. 59 Maintenance indicator

- | | |
|--|--------------------------------------|
| ① Maintenance indicator | ③ Red zone indicator scale |
| ② Indicating piston, maintenance indicator | ④ Maintenance indicator reset button |

- Check the air filter maintenance indicator.
- If the yellow piston has reached the red zone: Replace the filter element.

Cleaning the dust evacuator valve:

Coarse dirt particles in the intake air fall to the base of the filter housing and are deposited around the dust evacuator valve. When maintaining the compressor air filter, these dirt particles must be removed.

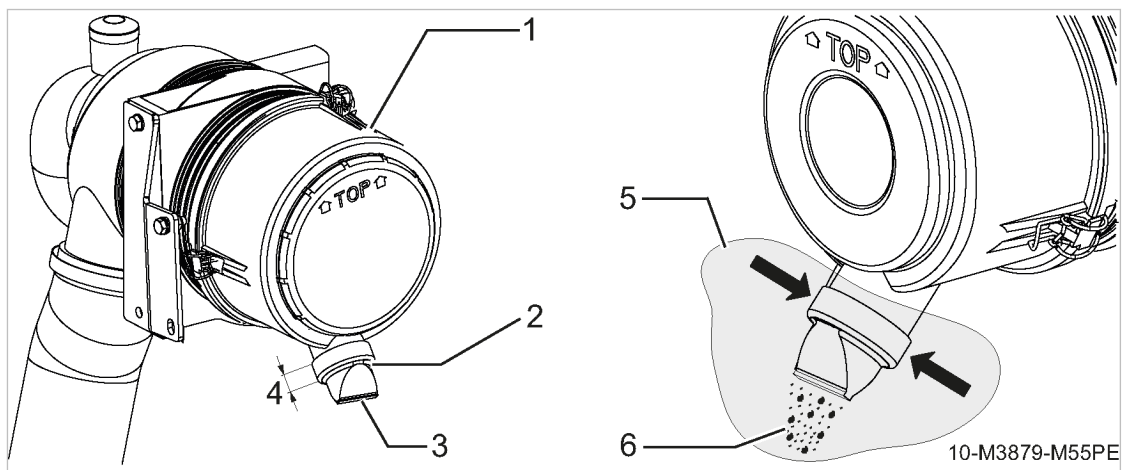


Fig. 60 Cleaning the dust evacuator valve

- | | |
|------------------------|-------------------------|
| ① Filter cap | ④ Valve area |
| ② Dust evacuator valve | ⑤ Cleaning procedure |
| ③ Evacuator vent | ⑥ Coarse dirt particles |

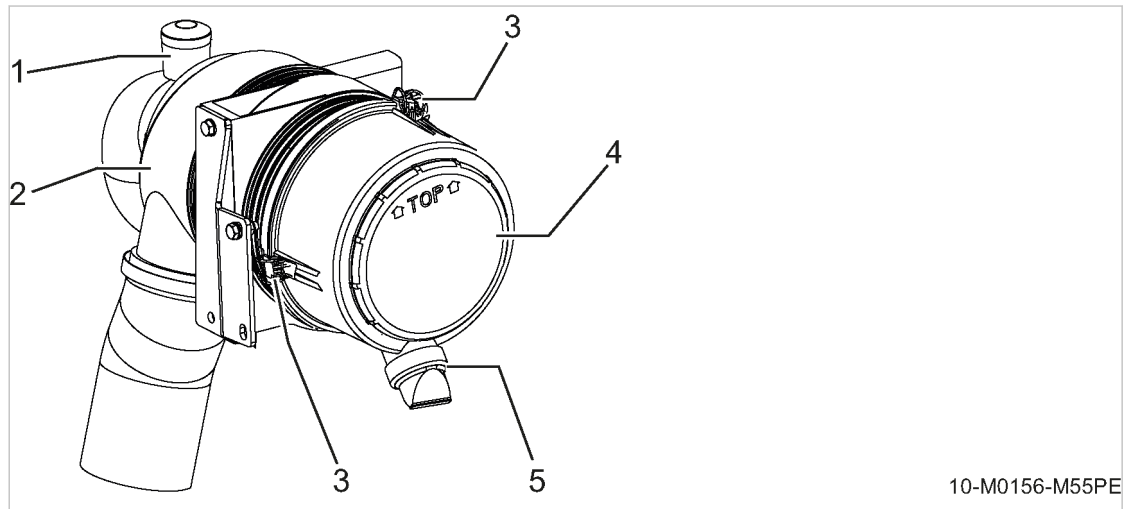
1. Compress valve area ④ during cleaning procedure ⑤.
Evacuator vent opens.
Coarse dirt particles and accumulated dust are expelled.
2. Release the valve area.

3. Clean the evacuator vent.
4. Check that both seal lips on the evacuator vent are still close together.



Ideally, the filter cap should be fitted so that the dust evacuator valve is pointing vertically downwards. A deflection of 30 ° to the vertical axis is permitted.

Removing the filter cap:



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Fig. 61 Compressor air filter maintenance

- | | |
|-------------------------|------------------------|
| ① Maintenance indicator | ④ Filter cap |
| ② Filter housing | ⑤ Dust evacuator valve |
| ③ Retaining clamp | |

1. Unlock all three retaining clamps.
2. Remove the filter cap.

Replacing the filter elements:

The compressor air filter is fitted with two filter elements.

- Primary filter element
- Secondary filter element



The secondary filter element must be replaced at every third change of the primary filter element, or after two years at the latest. The secondary filter element cannot be cleaned and reused!

The efficiency of the compressor air filter is not increased by the secondary filter element. The secondary filter element provides an additional level of protection, in case the primary filter element is damaged or incorrectly fitted.

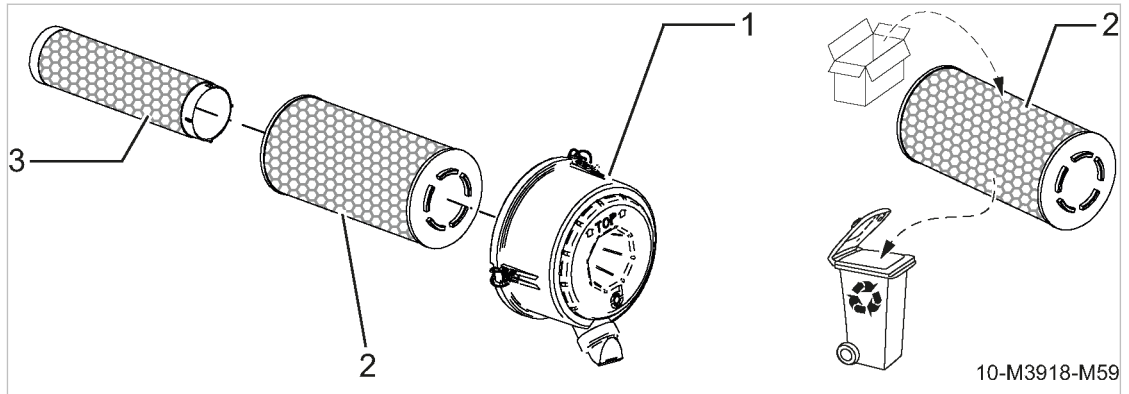


Fig. 62 Removing both filter elements

- ① Filter cap
- ② Primary filter element
- ③ Secondary filter element

1. Remove the secondary filter element.
2. Remove the old primary filter element.
3. Carefully clean the filter housing, filter cap and sealing surfaces with a damp cloth.
4. Insert a new primary filter element into the filter housing. Ensure that the primary filter element is correctly secured and its seals can function properly.
5. Insert the secondary filter element.
6. Position the filter cap in front of the filter housing, with the dust evacuator valve pointing vertically downwards.
7. Place the filter cap on the filter housing and press down lightly.
8. Secure the filter cap with all three retaining clamps.

Resetting the maintenance indicator:

1. Press the reset button on the maintenance indicator repeatedly.
The yellow piston within the indicator is reset and the maintenance indicator is ready for use again.
2. Close both doors.

Cleaning the primary filter element



Reuse cleaned primary filter elements only as an exceptional case. Always use new filter elements if possible.

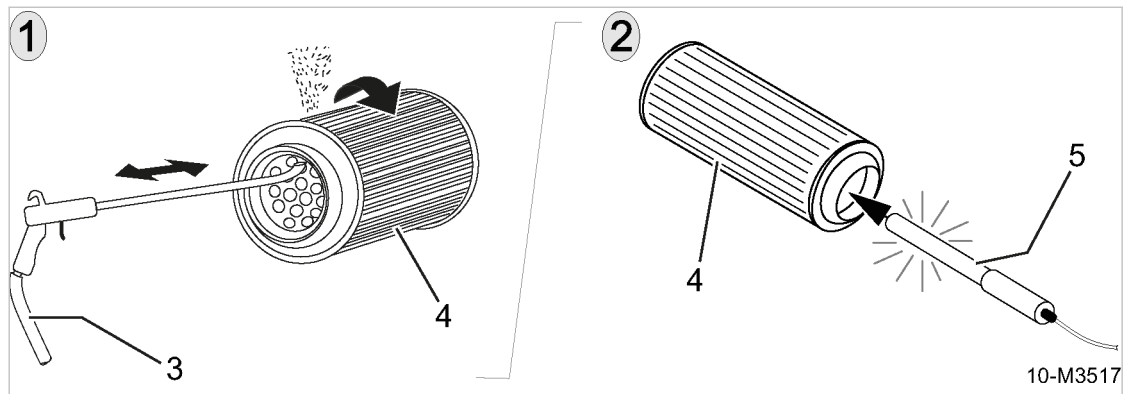


Fig. 63 Cleaning the filter element

- | | | | |
|---|---|---|------------------------|
| ① | Cleaning the primary filter element | ④ | Primary filter element |
| ② | Checking the primary filter element | ⑤ | Flashlight |
| ③ | Compressed air gun with blast pipe (bent to approx. 90° at the end) | | |

1. Use dry compressed air (<30 psi!) to blow out dirt from the filter element at an angle, from the inside to the outside.
2. Blow out the primary filter element until no more dust appears.
3. In a darkened room, use a suitable flashlight to shine a light through the cleaned primary filter element.

The cleaned primary filter element displays no cracks or holes.

The cleaned filter element is in the correct condition.

4. Insert the cleaned and checked primary filter element into the filter housing.
5. Position the filter cap in place.
6. Secure the filter cap with all three retaining clamps.
7. Check to ensure the filter cap is correctly attached.



Dispose of old parts and contaminated materials in accordance with environmental protection regulations.

10.7 Cleaning the cooler

The respective engine and compressor coolers are arranged together in a radiator block.

Heavy contamination of both coolers will result in cooler overheating, and therefore overheating of the machine. The frequency of cleaning is mainly dependent on local operating conditions.

Check both coolers regularly for clogging. Severe contamination should be cleaned by an authorized KAESER service representative.

Material	Compressed air Breathing mask (if necessary) Water or steam jet washer
Precondition	The machine is switched off. Both doors are open, «Controller ON/OFF» switch is switched off, the negative cable of the battery has been disconnected. The machine has been set down in cleaning area with oil separator, the machine has been set down on level ground, the machine has cooled down. Air consumers are disconnected, the outlet valves are open, the machine is fully vented, the pressure gauge reads 0 psig.

⚠ CAUTION

*Swirling dust due to cleaning with compressed air!
Illness of the respiratory tract.*

- *Wear breathing mask.*

NOTICE

*Damage to the machine can be caused by water or steam jets!
Direct water or steam jets can damage or destroy electrical components and indicator gauges.*

- *Cover up electrical components such as the control box, alternator, starter or indicating instruments.*
- *Do **not** direct water or steam jets at sensitive components such as the display instruments.*
- *Deploy the extension pole of the pressure washer at a distance of at least 20 inches and at an approximate 90° angle to the cooler/radiator surface.*

NOTICE

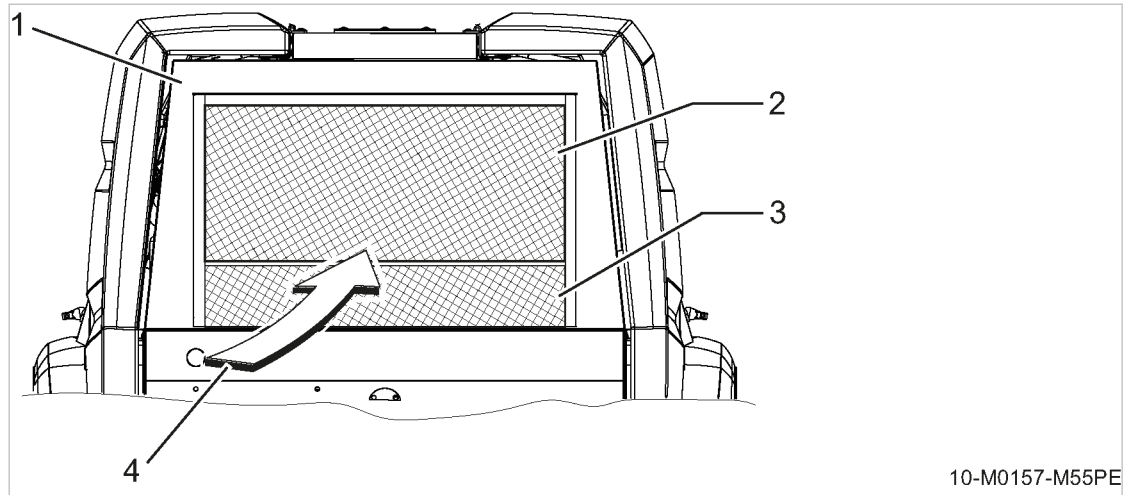
*Improper cleaning with hard objects!
Damage to oil cooler/coolant cooler.*

- *Do not use hard objects to clean the oil cooler/coolant cooler.*

- Follow all instructions.

10.7.1 Cleaning the oil cooler and coolant cooler

The cleaning direction by means of compressed air, water or steam jet must always be in the opposite direction of the cooling air flow.



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Fig. 64 Cleaning the cooler

- | | |
|--|---|
| <ul style="list-style-type: none"> ① Front end of machine, radiator grill removed ② Coolant cooler (drive engine). | <ul style="list-style-type: none"> ③ Oil cooler (compressor) ④ Direction of impacting water or steam jet (from outside to inside) |
|--|---|

Cover the intake openings of both air filters

1. Cover the intake openings of both the engine and compressor air filters.
2. Close both doors.

Removing the exhaust air grating

1. Loosen all screws of the exhaust air grating.
2. Remove all screws.
3. Removing the exhaust air grating.

Cleaning the oil cooler and coolant cooler

- Clean the cooler fins with compressed air, water or steam jet in the opposite direction to the cooling air flow (from inside to outside).

Installing the exhaust air grating

1. Position the exhaust air grating.
2. Position all screws.
3. Tighten screws.

Remove the protective coverings from the two air filters

1. Open both doors.
2. Remove the covers from the intake openings of both the drive engine and compressor air filters.

Preparing for operation

1. Connect the negative battery terminal.

2. Turn the «Controller ON/OFF» switch to *ON*.
3. Close both doors.

Start the machine

1. Switch on machine by using the «START» key on the operating panel of SIGMA CONTROL SMART.
2. Start the machine in IDLE mode and run up to operating temperature so that excess water is evaporated.
Warm-up has been successful when required airtend discharge temperature (ADT) has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
The machine is switched off.
4. Wait until the machine has automatically vented.
Pressure gauge reads 0 psig!
5. Open the discharge valves.

Inspecting both cooler for leaks

1. Open both doors.
2. Visually inspect for leaks: Is cooling oil/coolant leaking out?



Is the oil cooler/coolant cooler leaking?

- Have the defective oil cooler/coolant cooler repaired or replaced immediately by KAESER SERVICE.

- Close both doors.

10.8 Checking the screw connections

Overview:

- Guideline values for tightening torques.
 - General guideline values for tightening torques.
 - Specific guideline values for tightening torques.
 - Sealed screw connections.
- Follow all instructions carefully.

10.8.1 General guideline values for tightening torques

Guideline values for the required tightening torques are dependent upon the size of the screw connection, the strength class of the screw material and the friction coefficient.

NOTICE

Damage to the machine from insufficient clamping force at screw connections

- *Tighten all screw connections with the defined tightening torque.*

1. Determine the thread size for the screw connection.

2. For determining the defined torque, see chapter 2.4.2.
3. Tighten all screw connections with the defined torque.

10.8.2 Specific guideline values for tightening torques

Screw connections for components that are either safety-related or under particular stress must be tightened with specific tightening torques.

Examples:

- For details of specific tightening torques, see chapter 2.4.2.
 - E.g. Screw connections on lifting eyes.
 - E.g. Cover screws on the oil separator tank.
- Values for further specific tightening torques are provided in the section covering the relevant maintenance task.

NOTICE

Damage to the machine from insufficient clamping force at screw connections

- *Screw connections for components that are either safety-related or under particular stress must be tightened exclusively with the correct specific tightening torque.*

1. Determine the correct specific tightening torque.
2. Tighten the screw connections with the specific tightening torque.

10.8.3 Sealed screw connections

Screw connections which must not be adjusted are sealed with a colored locking varnish.

NOTICE

Damage to the machine caused by adjusting the settings

- *Leave sealed screw connections in their original condition.*

- Do not loosen or adjust sealed screw connections.



Failure to comply with these instructions will invalidate all warranty claims.

10.9 Check wing doors



The machine's closed wing doors fulfill the following functions during the machine's operation: Protection against contact, cooling air flow, sound proofing and weather protection.

In order to ensure these functions at any time, the wing doors and its connecting elements must always be in a perfect condition.

Overview:

- Maintain rubber sealing strips
- Check closed wing doors
- Check connecting elements

- Precondition The machine is switched off.
The machine is installed on level ground,
the machine has cooled down.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig!
- Follow all instructions.

10.9.1 Maintain rubber sealing strips

Material Cleaning cloth
Silicone or Vaseline

The rubber sealing strips inside the enclosure seal against rain water and additionally reduce noise emissions. Care of the rubber sealing strips is especially necessary prior to winter to prevent the strips from sticking and tearing when the enclosure is opened.

1. Open the enclosure.
2. Carefully clean all rubber sealing strips using a lint-free cloth.
3. Check the rubber sealing strips for cracks, holes and other damage.
4. Grease all rubber sealing strips.



Rubber sealing strips are damaged.

- Have an authorized KAESER service representative replace the damaged rubber sealing strips.

10.9.2 Checking function of closed enclosure

1. Close all enclosure.
2. Lock all snap fasteners.



The enclosure does not properly rest on the body or cannot be locked.

- Contact an authorized KAESER service representative.

10.9.3 Checking connecting elements of enclosure

Material Acid-free oil

The connecting elements of the enclosure may include:

- Screw connections
- Hinges
- Grip
- Snap fasteners
- Gas struts

1. Check all connecting elements of the enclosure for damages, wear, and firm seating.
2. If necessary, grease the hinges.

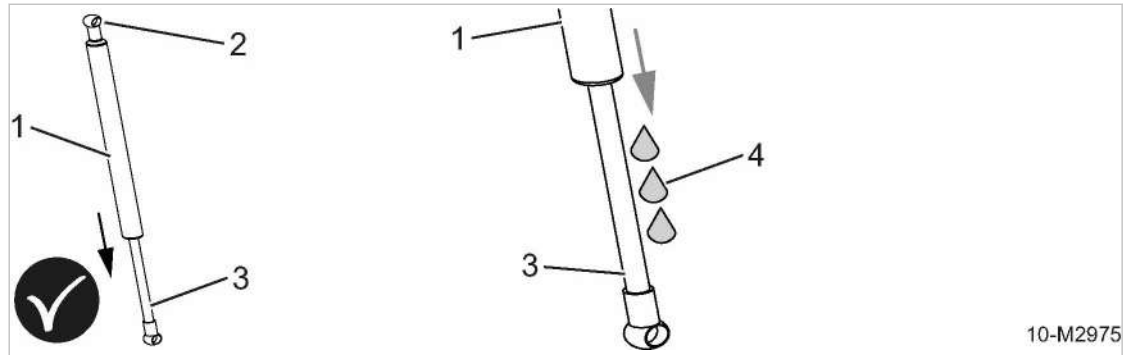


Fig. 65 Connecting rod alignment

- | | |
|------------------------|------------------|
| ① Gas strut - cylinder | ③ Connecting rod |
| ② Ball cup | ④ Lubrication |

3. Check both gas struts.



In order to ensure lubrication of the connecting rod, the connecting rod must always be aligned towards the ground.

4. Check if both gas struts open the unlocked enclosure independently.
 Enclosure opens independently until the technically possible opening angle.
5. Check if the already opened enclosure stays open.



Enclosure does not open properly or do not stay open.

- Replace both gas struts.

10.10 Check/replace hose lines

Overview of hose lines of machine:

- Fuel lines of the drive engine
- Pressure hoses of the drive engine
- Pressure hoses of the compressor



The hose lines are subject to natural aging regardless of proper storage or permitted utilization during machine operation. This aging changes the material and compound properties and reduces the performance capability of the hose lines. As a result the period of use for hose lines is limited.

The operator must ensure that all hose lines are checked at reasonable intervals and are replaced if required, see maintenance schedule 10.3.3.1

- Comply with all instructions!

10.10.1 Replace the fuel lines of the drive engine

- Have an authorized KAESER service representative replace the fuel lines of the drive engine.

10.10.2 Replace the pressure hoses of the engine

Overview of all pressure hoses at engine:

- Engine oil
- Coolant for the water cooler
- Charge air (if available)

➤ Have an authorized KAESER service representative replace the pressure hoses of the engine.

10.10.3 Replace the pressure hoses of the compressor

Overview of all pressure hoses on the compressor:

- Cooling oil
- Compressed air
- Control air
- Condensate

➤ Have an authorized KAESER service representative replace the pressure hoses of the compressor.

10.11 Check safety functions

➤ Perform inspection tasks/have them performed according to the maintenance schedule in chapter 10.3.3.1.

10.11.1 Check the EMERGENCY STOP push button

In order to shut down the machine in the event of danger, the machine is equipped with an EMERGENCY STOP push button. The EMERGENCY STOP push button of the machine is referred to as «EMERGENCY» push button

The position of the «EMERGENCY-STOP» push button is shown in Chapter 4.2 "Machine Design".



Use the «EMERGENCY STOP» push button to stop the machine only in emergencies!

Check the mechanical function of the «EMERGENCY STOP» push button daily with the machine shut down.

⚠ WARNING

*«EMERGENCY STOP» push button locked out!
The machine cannot be stopped quickly in an emergency.*

- Check the function of the «EMERGENCY STOP» push button.
- Do not operate the machine if the «EMERGENCY STOP» push button does not work.

Precondition The machine is switched off.
The drive motor stands still.

1. Push the «EMERGENCY STOP» push button.
2. Check if «EMERGENCY STOP» push button locks properly and remains locked.
3. Check if the «EMERGENCY STOP» push button unlocks by turning it in the direction of the arrow.



- The «EMERGENCY STOP» push button cannot be pressed or does not engage.
- Do not start the machine.
 - Have the «EMERGENCY STOP» push button replaced.

10.11.2 Have the actuating pressure of the safety relief valve checked

The machine should shut down if the actuating pressure of the safety relief valve reaches a maximum of P_{max} . (P_{max} see table 84).



Check in accordance with section: "Check actuating pressure of safety relief valve" in the separate User Manual for the SIGMA CONTROL SMART controller, chapter "Have safety functions checked".

Maximum working pressure: see machine nameplate

Maximum working pressure [psig]	Activating pressure [psig]
125	160
150	232

Tab. 84 Safety relief valve actuating pressure

Material Hearing protection
Eye protection

⚠ WARNING

Risk of hearing damage when air is blown out through the safety valve!

- Close all the doors/enclosure.
- Wear hearing protection.

⚠ WARNING

Risk of burns due to released cooling oil and compressed air when blowing off the safety valve!

- Wear eye protection.

- Have the actuating pressure of the safety relief valve checked.

Result When the "activating pressure" is reached, the safety relief valve actuates (blows off).



- When the "activating pressure" is reached, the safety relief valve does not actuate (blow off).
- Immediately shut down the machine and cease any further operation.
 - Request an inspection and/or replacement of the safety relief valve.

10.11.3 Having excessive temperature shut-down function checked

The machine should shut down if the discharge temperature reaches a maximum of T_{max} ; T_{max} [°F] see table 85.



Check in accordance with section: "Check safety shut-down at excessive airend discharge temperature" in the separate User Manual for the SIGMA CONTROL SMART controller, chapter "Have safety functions checked".

Machine temperature	Value
Maximum airend discharge temperature (automatic safety shut-down) [°F]	243

Tab. 85 Safety shut-down at excessive airend discharge temperature

- Have shut-down at excessive airend discharge temperature checked.

Result When the maximum airend discharge temperature is exceeded, the SIGMA CONTROL SMART controller switches the machine off.



The machine does not shut down?

The excessive temperature shut-down function is no longer ensured.

- Immediately shut down the machine and cease any further operation.
- Have machine checked.

10.12 Maintenance for Optional Items

- Perform maintenance tasks according to the schedule in chapter 10.3.3.2.

10.12.1 Option da Compressed air aftercooler maintenance

The compressed air aftercooler is installed separately to the compressed air treatment components. The frequency of cleaning is mainly dependent on local operating conditions.

Check the compressed air aftercooler regularly for contamination.

Have severe contamination cleaned by an authorized KAESER service representative.

Material Compressed air
Breathing mask (if necessary)
Water or steam jet blaster

Precondition The machine is switched off.
The machine has been set down in cleaning area with oil separator, the machine has been set down on level ground, the machine has cooled down.
Air consumers are disconnected, the outlet valves are open, the machine is fully vented, the pressure gauge reads 0 psig!
Both doors are open, «Controller ON/OFF» switch is switched off, the minus cable of the battery has been disconnected.

⚠ CAUTION

*Swirling dust due to cleaning with compressed air!
Risk of injury to respiratory tract*

- *Wear breathing mask.*

NOTICE

Damage to the machine can be caused by water or steam jets!

Direct water or steam jets can damage or destroy electrical components and indicator gauges.

- *Cover up electrical components such as the control cabinet, alternator, starter, and instruments.*
- *Do **not** direct water or steam jets at sensitive components such as the control cabinet.*
- *Deploy the extension pole of the pressure washer at a distance of at least 20 inches and an approximately 90° angle to the cooler/radiator surface.*

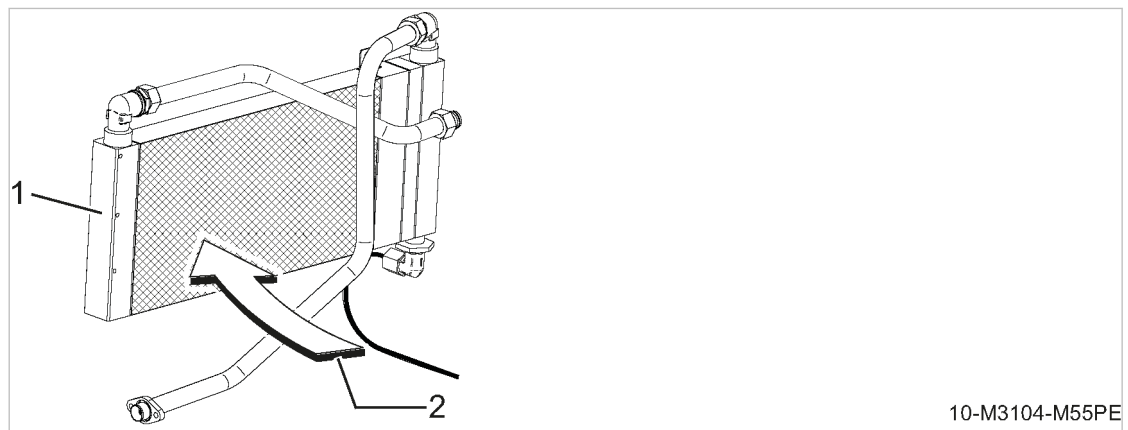
NOTICE

Improper cleaning with hard objects!

The compressed air aftercooler will be damaged.

- *Do not clean the compressed air aftercooler with hard objects.*

- Comply with all instructions!

10.12.1.1 Cleaning the compressed air aftercooler


10-M3104-M55PE

Fig. 66 Cleaning the compressed air after-cooler

- ① Compressed air aftercooler
- ② Cleaning direction for water or steam jet

Cover the intake openings of both air filters

- Cover the intake openings of both the engine and compressor air filters.

Cleaning the compressed air aftercooler

- Clean the cooler blades with compressed air, water or steam jet in the opposite direction of the cooling air flow.

Remove the protective coverings from the two air filters

- Remove the covers from the intake openings of both the engine and compressor air filters.

Putting in operation

1. Connect the negative battery terminal.
2. Turn the «Controller ON/OFF» switch to *ON*.
3. Close both doors.

Start the machine

1. Start machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Let the machine warm up in IDLE mode to allow residual water to evaporate.
Warm-up has been successful when required airtend discharge temperature (ADT) has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
The machine is switched off.
4. Wait until the machine has automatically vented.
The pressure gauge reads 0 psig!
5. Open the outlet valves.

Inspect compressed air aftercooler for leaks

1. Open both doors.
2. Visually inspect for leaks: Does condensate escape?



Is the compressed air aftercooler leaking?

- Have defective compressed air aftercooler immediately repaired/replaced by an authorized KAESER service representative.



Clean the cooler blades only at cleaning locations equipped with an oil separator!

10.12.2 Maintenance of the water separator dirt trap

Clean the water separator dirt trap if the water concentration in the compressed air is too high. The dirt trap (4) is mounted below the water separator (3).

Material Cleaning cloth
Wrench
Small screwdriver
Dirt trap maintenance kit
Cleaning solvent or spirit

Precondition The machine is switched off.
the machine is installed on level ground,
the machine has cooled down.
Air consumers are disconnected,
the outlet valves are open,
the machine is fully vented, the pressure gauge reads 0 psig!
Both doors are open, «Controller ON/OFF» switch is switched off,
the minus cable of the battery has been disconnected.

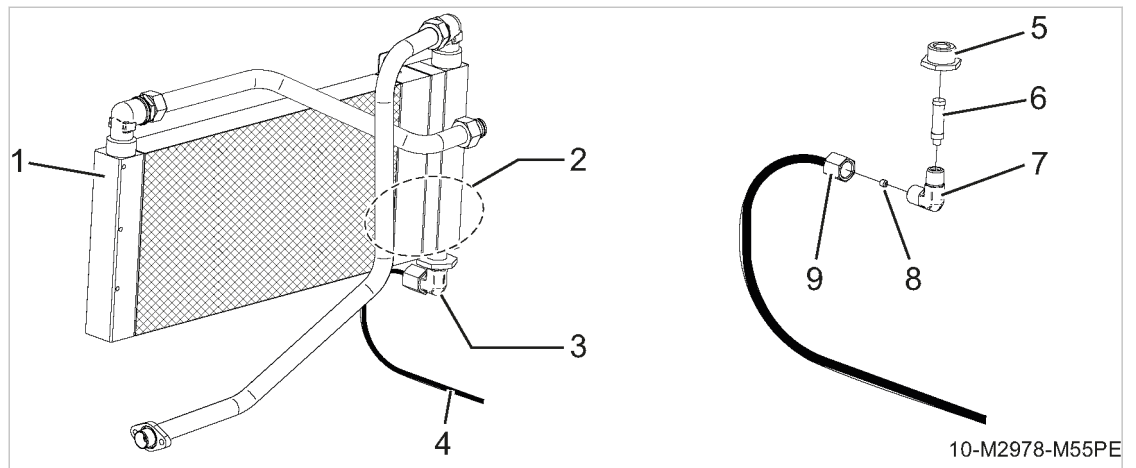


Fig. 67 Clean the dirt trap

- | | | | |
|---|----------------------------|---|--------------------------------|
| ① | Compressed air aftercooler | ⑥ | Strainer |
| ② | Water separator | ⑦ | Male stud fitting |
| ③ | Dirt trap | ⑧ | Nozzle |
| ④ | Condensate hose line | ⑨ | Condensate hose line union nut |
| ⑤ | Reducer | | |

- Follow all instructions carefully.

Removing the dirt trap

1. Loosen the union nut ⑨.
2. Remove union nut and condensate hose line ④.
3. Use a screwdriver to unscrew the nozzle ⑧.
4. Remove the nozzle from the male stud fitting.
5. Loosen and remove the male stud fitting ⑦.
6. Pull off the strainer ⑥.

Cleaning the components

- Clean the nozzle, strainer and male stud fitting with cleaning solvent or spirit.

Checking the components

- Check the nozzle and strainer for wear.



Components are damaged or show signs of wear.

- Replace components.

Installing the dirt trap

1. Position strainer in the male stud fitting.
2. Install the male stud fitting.
3. Position the nozzle in the male stud fitting.
4. Use a screwdriver to tighten the nozzle.

5. Install clamping nut and condensate hose line.
6. Tighten condensate hose line clamping nut

Preparing for operation

1. Connect the negative battery terminal.
2. Switch on the «Controller ON/OFF» switch.
3. Close both doors.

Starting the machine and performing a test run

1. Switch on machine by using the «START» key on the control panel of SIGMA CONTROL SMART.
2. Let machine warm up in IDLE mode.
Warm-up has been successful when required discharge temperature has been reached.
3. Press and hold the «OFF» key on the control panel of SIGMA CONTROL SMART for more than 1 second.
The machine is switched off.
4. Wait until the machine has automatically vented.
The pressure gauge reads 0 psig!
5. Open the outlet valves.

Check the dirt trap and condensate hose line for leaks

1. Open both doors.
2. Visually inspect dirt trap for leaks.
3. Visually inspect condensate hose line for leaks.

**10.12.3 Option dd
Filter combination maintenance**

Overview:

- Draining the condensate
- Changing the filter elements

⚠ WARNING

Danger of injury from escaping compressed air!

The filter combination is pressurized during operation. Serious injury can result from loosening or opening components under pressure.

- *Wait until the machine is completely vented (check: pressure gauge reads 0 psig).*
- *Depressurize the filter combination.*

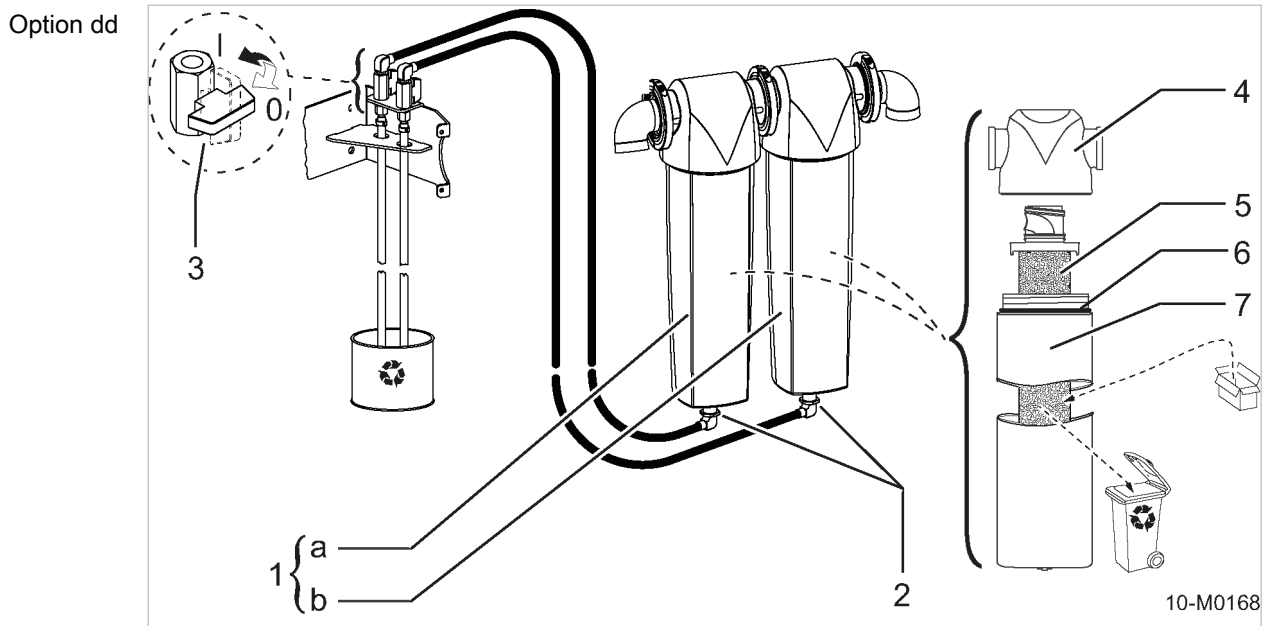


Fig. 68 Combination filter maintenance

- | | | | |
|---|---|---|----------------|
| ① | Filter combination | ④ | Filter head |
| ⓐ | Prefilter | ⑤ | Filter element |
| ⓑ | Fine filter (microfilter) | ⑥ | Housing seal |
| ② | Condensate drain hose screw connection | ⑦ | Filter housing |
| ③ | Shut-off valves (ball valve) for condensate drain | | |
| | 0 – Closed | | |
| | I – Open | | |

➤ Open door/s.

10.12.3.1 Draining the condensate

To blow out the condensate that has been discharged into the filter combination housings, the machine must be run with the condensate drain shut-off valves open for a short period of time.

Material Receptacle
Cleaning cloth

Precondition The machine is switched off.
The machine is standing level and has cooled down.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.

Positioning the receptacle

1. Place the receptacle beneath the filter combination hose lines.
2. Open both condensate drain shut-off valves.

Preparing for operation

1. Switch on the «Controller ON/OFF» switch.
2. Close the door/s.

Starting the machine

1. Switch on the machine using the «START» key on the control panel of the SIGMA CONTROL SMART.
2. Allow the machine to run in IDLE.
The condensate discharged into the filter combination housings is blown out.
3. Wait until only compressed air is emitted.
4. Press and hold down the «OFF» key on the control panel of the SIGMA CONTROL SMART for longer than 1 second.
The machine is switched off.
5. Wait until the machine has automatically vented.
The pressure gauge reads 0 psig.
6. Open the door/s.
7. Switch off the «Controller ON/OFF» switch.
8. Close both condensate drain shut-off valves.
9. Remove the receptacle from the machine.
10. Close the door/s.



Condensate must be stored in suitable containers and disposed of in accordance with applicable environmental protection regulations.

10.12.3.2 Replacing the filter elements

The prefilter and fine filter contain two different elements, which must be replaced as a pair. Note positioning!



Operating the filter combination without filter elements installed is not permitted!

Handle new filter elements only with clean fabric gloves. Do not touch the new filter elements with bare fingers – contamination risk!

Material Spare parts
Filter wrench
Wrench
Cleaning cloth
Clean fabric gloves

Precondition The machine is switched off.
The machine is standing level and has cooled down.
Air consumers are disconnected,
the discharge valves are open,
the machine is fully vented, the pressure gauge reads 0 psig.
The «Controller ON/OFF» switch is switched off,
the negative cable of the battery has been disconnected.

Ensuring that the filter combination is not under pressure:

- Slowly open the shut-off valves on the prefilter and fine filter condensate drain.
Remaining pressure escapes.

Accessing the filter housing:

To remove the housing from the prefilter and fine filter, the clamping nuts on the hose lines must first be removed.

1. Loosen both clamping nuts on the hose lines for the condensate drain.
2. Remove both hose lines from the prefilter and fine filter.

Replacing both filter elements on the filter combination:

- Follow all instructions carefully.

Replace the filter element on the prefilter	Replace the filter element on the fine filter
➤ Remove the filter housing in an counterclockwise direction	➤ Remove the filter housing in an counterclockwise direction
➤ Pull off the filter element in a downwards direction.	➤ Pull off the filter element in a downwards direction.
➤ Clean the filter head and housing with a lint-free cloth.	➤ Clean the filter head and housing with a lint-free cloth.
➤ Clean all sealing surfaces with a lint-free cloth.	➤ Clean all sealing surfaces with a lint-free cloth.
➤ Check the housing seal, replace with new if required.	➤ Check the housing seal, replace with new if required.
➤ Wear gloves.	➤ Wear gloves.
➤ Insert new filter element.	➤ Insert new filter element.
➤ Install the filter housing by turning clockwise.	➤ Install the filter housing by turning clockwise.

Tab. 86 Replacing the filter elements

Preparing for operation:

1. Fit both clamping nuts on the hose lines for the condensate drain to the screw connections on the prefilter and fine filter.
2. Close the condensate drain shut-off valves.
3. Tighten all screw connections on the compressed air filter combination.
4. Connect the negative cable to the battery.
5. Switch on the «Controller ON/OFF» switch.
6. Close the door/s.



Dispose of old parts and contaminated materials in accordance with environmental regulations.

Further information

Further information on replacing filter elements can be found in the “Filter Operating Instructions” in chapter 13.6.

Starting the machine and performing a test run:

1. Switch on the machine using the «START» key on the control panel of the SIGMA CONTROL SMART.
2. Warm-up the machine by allowing it to run in IDLE.
Warm-up has been achieved when the required airend discharge temperature is reached.
3. Press and hold down the «OFF» key on the control panel of the SIGMA CONTROL SMART for longer than 1 second.
The machine shuts down.
4. Wait until the machine has automatically vented.
The pressure gauge reads 0 psig!
5. Open the discharge valves.

Checking the filter combination for leaks:

1. Open the door/s.
2. Visually inspect the filter combination for leaks.
3. Visually inspect the condensate hose lines for leaks.
4. Close the door/s.

11 Spares, Operating Materials, Service

11.1 Note the nameplate

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

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

11.2 Ordering maintenance parts and operating fluids/materials

KAESER maintenance parts and operating fluids/materials are genuine parts. They are specifically selected for use in our machines and ensure trouble-free operation.

Unsuitable or poor-quality maintenance parts and operating fluids/materials may result in damage to the machine or significantly impair its proper function.

Personal injury may result from such damage.

⚠ WARNING

Risk of personal injury or damage to the machine resulting from the use of unsuitable spare parts or operating fluids/materials!

- *Only use genuine parts and operating fluids/materials.*
- *Do not use alternative maintenance parts and operating fluids/materials.*

Compressor

Name	Unit/quantity	Number
Primary filter element, air filter	1	1260
Secondary filter element, air filter	1	1261
Filter element, oil filter	1	1210
Oil separator cartridge, complete set	1	1450
Cooling oil	1	1600

Tab. 88 Compressor maintenance parts

Kubota engine parts

Name	Unit/quantity	Number
Primary filter element, air filter	1	1280
Secondary filter element, air filter	1	1281
Fuel/water separator	1	1980
Fuel filter (cartridge)	1	1920
Oil filter (cartridge)	1	1905
Oil separator element	1	1216
Injector nozzle	1	4475
Injector nozzle seal	1	4476
Engine belt	1	4470

Name	Unit/quantity	Number
Glow plug	1	4466
Engine oil	1	1925

Tab. 89 Engine maintenance parts

11.3 KAESER AIR SERVICE

KAESER AIR SERVICE offers:

- Authorized service technicians with KAESER factory training.
 - Increased operational reliability ensured by preventive maintenance.
 - Energy savings achieved by avoidance of pressure losses.
 - The security of genuine KAESER spare parts.
 - Increased legal certainty as all regulations are kept to.
- Why not sign a KAESER AIR SERVICE maintenance agreement.
The advantages:
Lower costs and higher compressed air availability.

11.4 Replacement parts for service and repair

With the help of the below spare parts list you can plan your material requirement according to operating conditions, and order the spare parts you need.

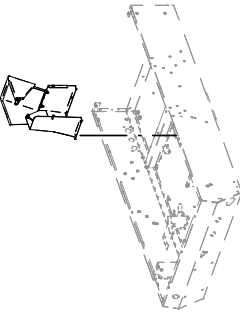
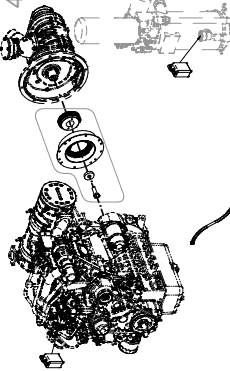
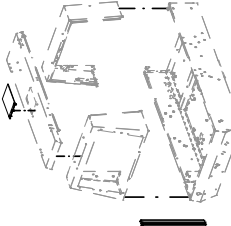
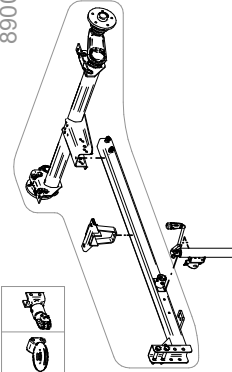
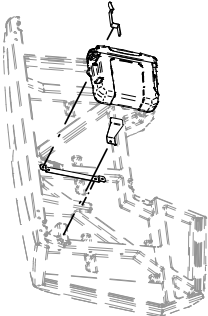
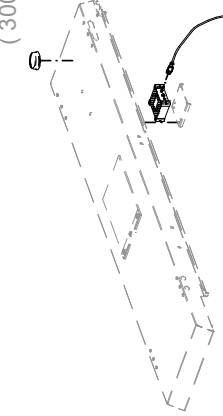
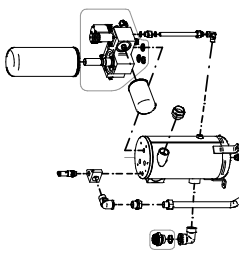
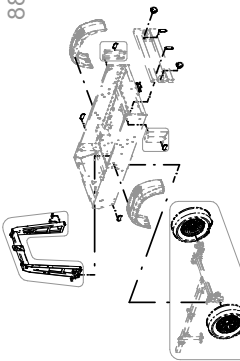
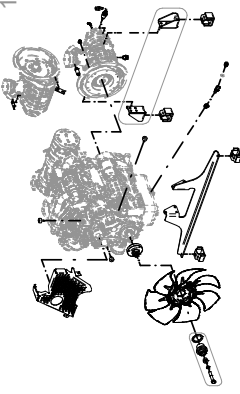
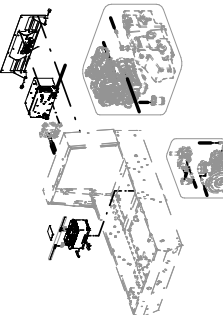
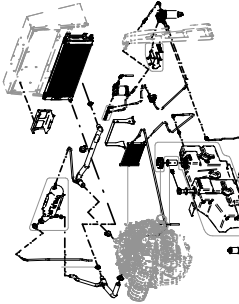
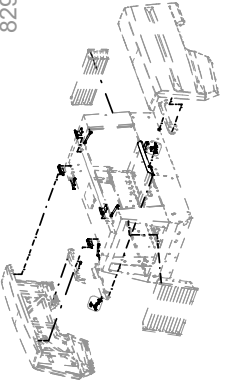
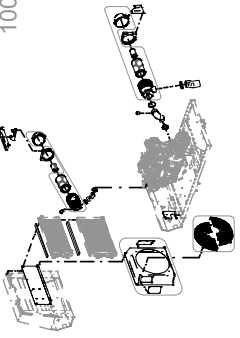
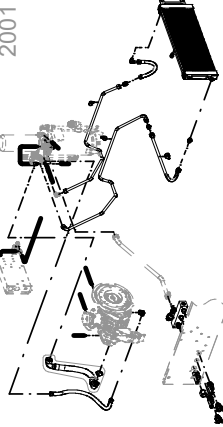
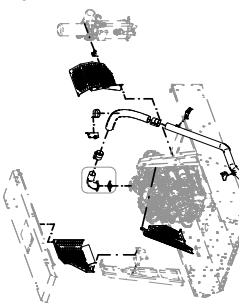
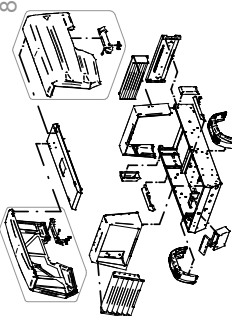
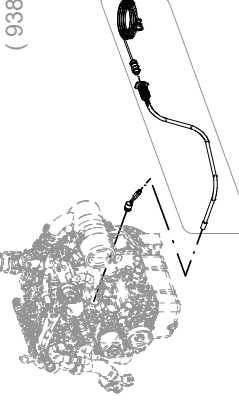
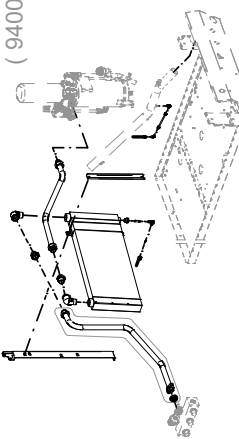
⚠ WARNING

*Personal injury or machine damage due to incorrect working on the machine!
Incorrect inspection, service and/or repair can damage the machine or severely impair its function. Personal injury may result from damage.*

- *Inspections, preventive maintenance or repair tasks not described in this Operating Manual must not be carried out by unqualified personnel.*
- *Have further tasks, not described in this Operating Manual, carried out by motor vehicle workshops or KAESER SERVICE only.*

11.4.1 Spare parts overview

Validity: M55PE

 <p>(1088)</p>	 <p>4001</p>	 <p>8000</p>	 <p>8900</p>
 <p>(1087)</p>	 <p>(3008)</p>	 <p>6001</p>	 <p>8800</p>
 <p>1006</p>	 <p>3001</p>	 <p>5001</p>	 <p>8296</p>
 <p>1001</p>	 <p>2001</p>	 <p>4004</p>	 <p>8005</p>
 <p>(9380)</p>	 <p>(9400)</p>		

KAESER KOMPRESSOREN

Original Name: Erteilt mit
 Datum: 04.03.2022
 Zeichnungstyp: PUFFI
 Service spare part drawing / Service-Ersatzteil-Zeichnung: A1
 Zeichnung: 04.03.2022
 SECS-Nummer: PUFFI
 SEG-13792: PUFFI
 Blatt: 1 von 1

Subassembli / Untereinheit: (Option) Subassembli / Untereinheit

Blattgruppe: (Option) Subassembli / Untereinheit

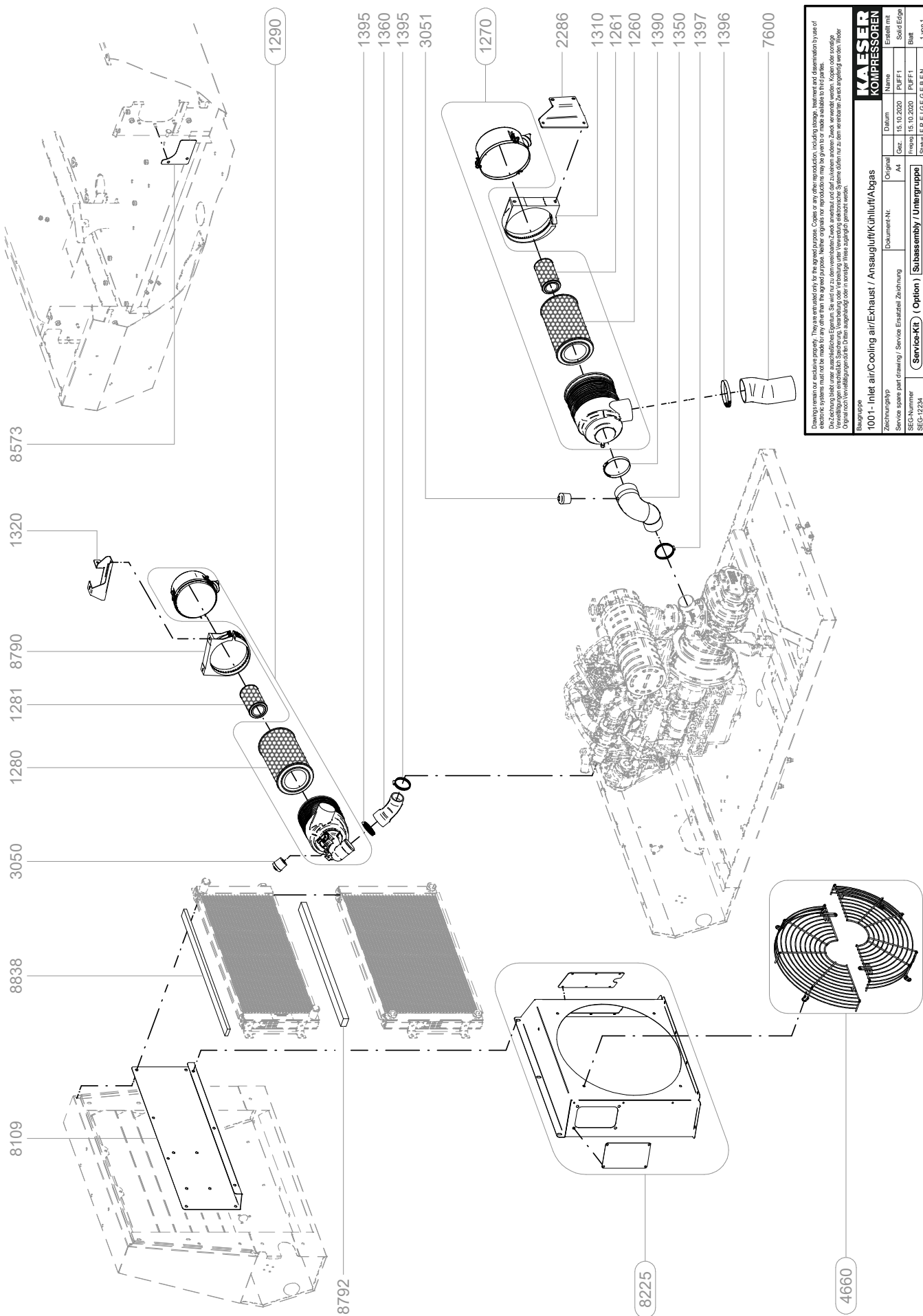
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<p>(1087)</p>	<p>(3008)</p>	<p>6001</p>	<p>8800</p>
<p>1006</p>	<p>3001</p>	<p>5001</p>	<p>8296</p>
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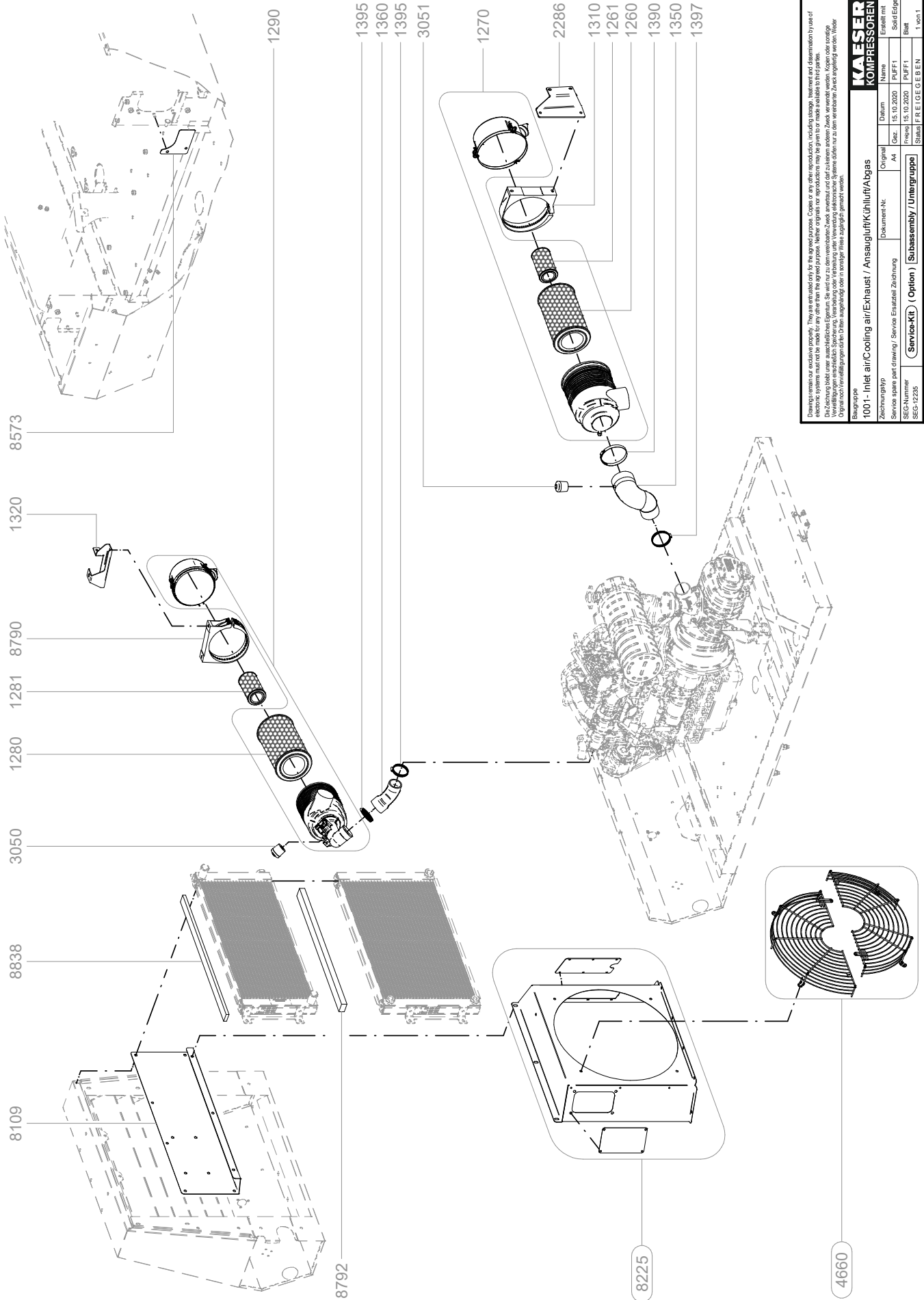
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Service spare part drawing / Service Ersatzteil Zeichnung	Original	04.03.2028	PUFFI
SEK-Nummer	Subassembly / Untereinheit	04.03.2028	PUFFI
SEK-13793	(Service-Kit) (Option)	04.03.2028	PUFFI
	Sheet / Blatt	FILE G E E E N	1 von 1

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 Zeichnungs-Nr.: _____ Datum: 15.10.2020
 Service spare part drawing / Service Ersatzteil Zeichnung A1 Gez.: _____ PUFFI
 SECS-Nummer: _____ Revisek.: 15.10.2020 PUFFI
 8109/1001 Inlet air/Cooling air/Exhaust / Ansaugluft/Kühlluft/Abgas Status: F R E I G E G E B E N Blatt: 1 von 1



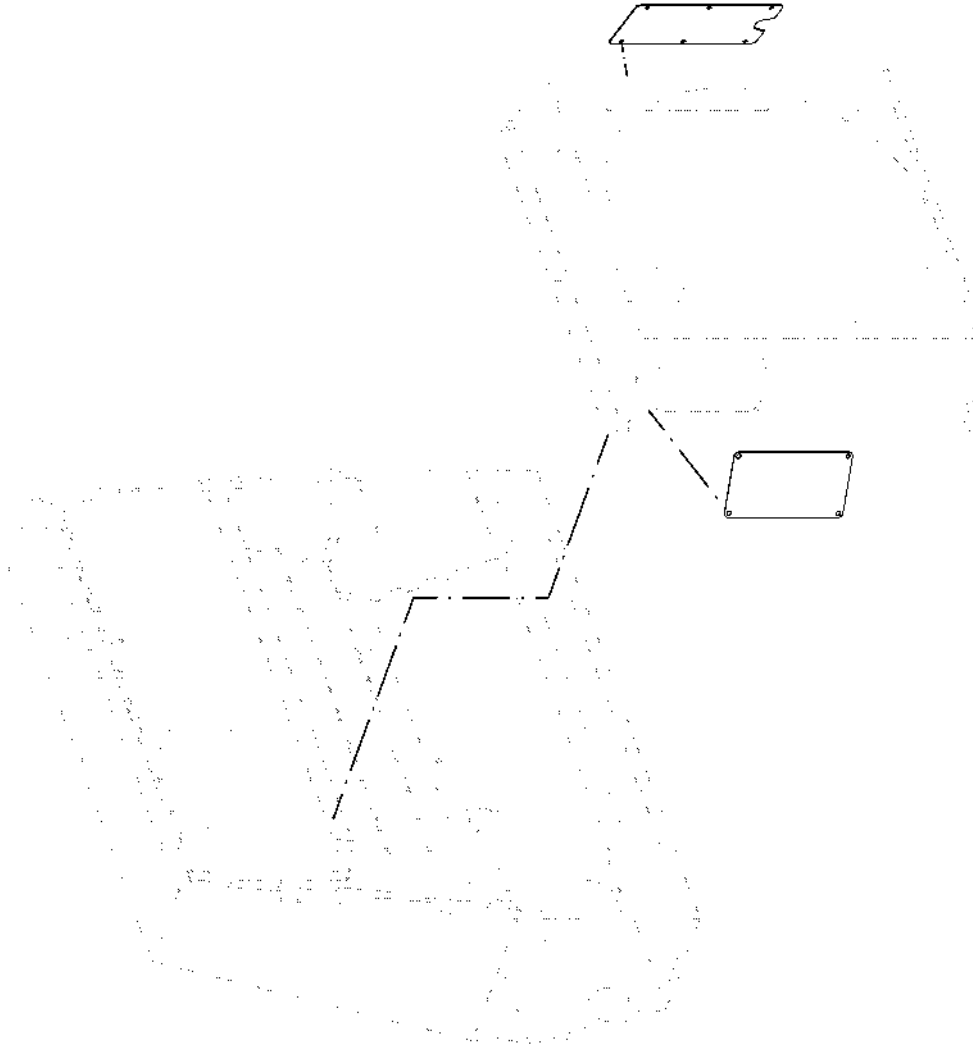
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1001 - Inlet air/Cooling air/Exhaust / Ansaugluft/Kühlluft/Abgas

Blattgruppe: Original
 Zeichnungspapier: PUFF1
 Service spare part drawing/ Service Ersatzteil Zeichnung: PUFF1
 SECS-Nummer: SEG-12.235
 (Service-Kit) (Option) / Subassembly / Untereinheit: PUFF1

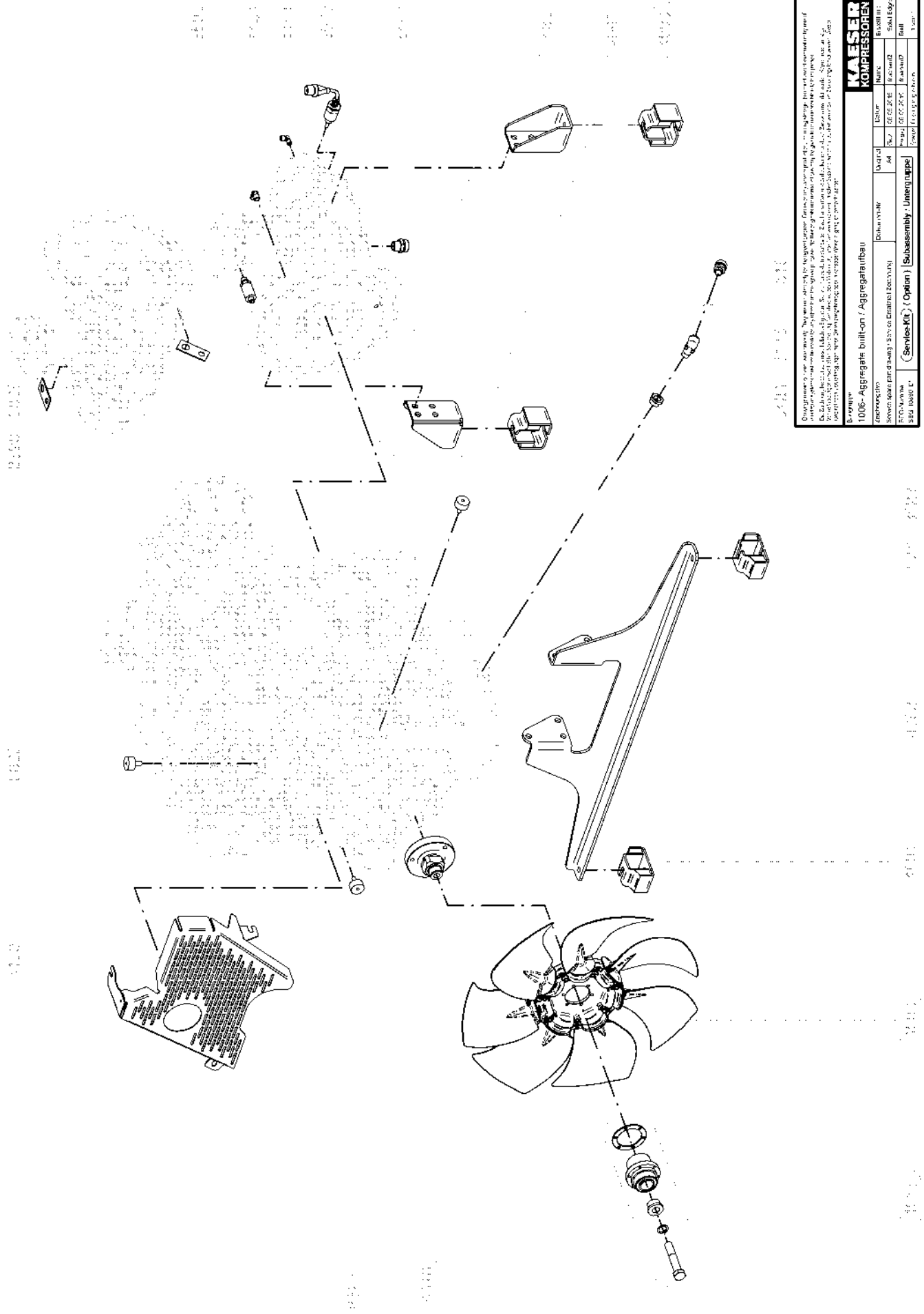
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 Revisur: 15.10.2020
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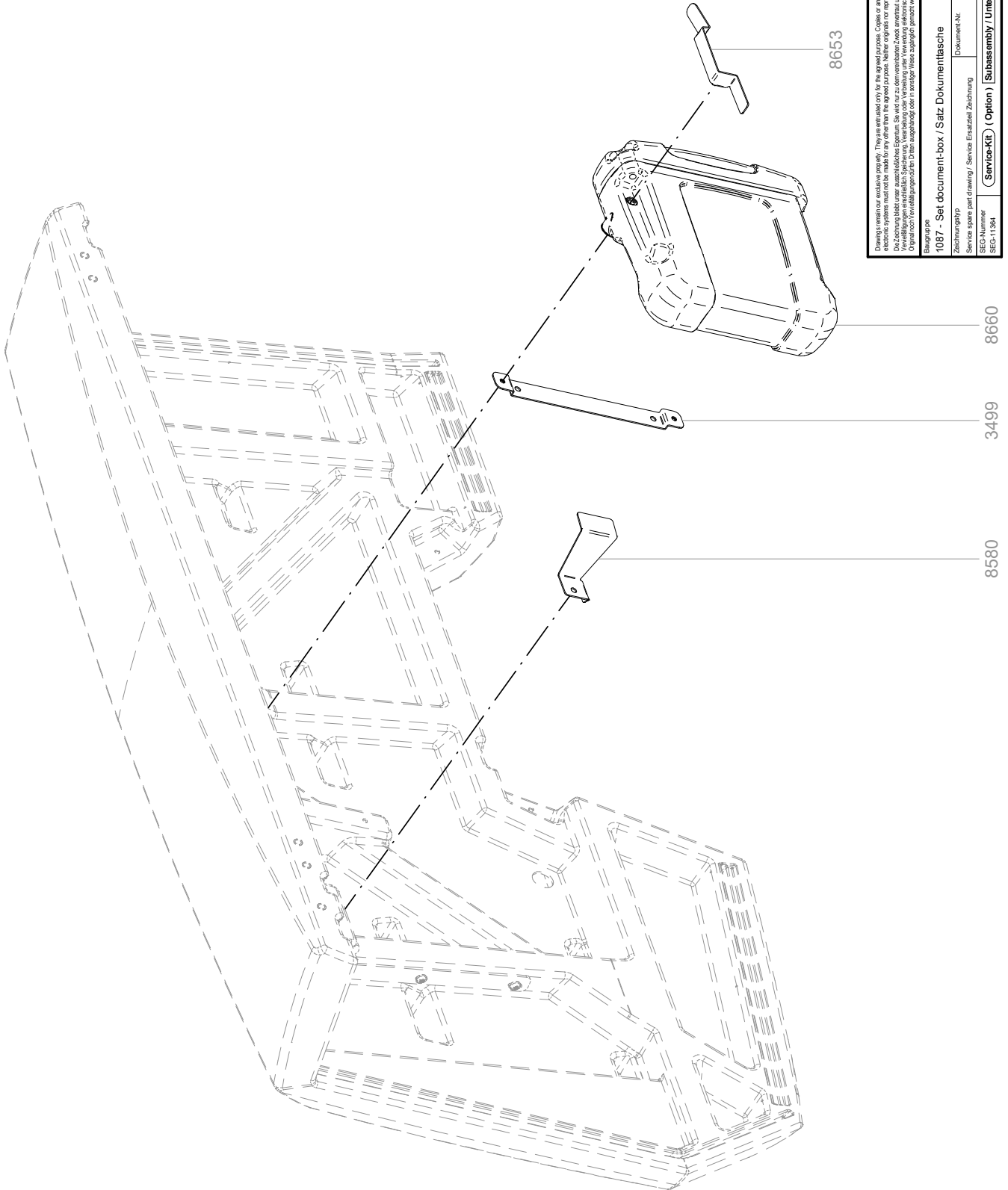
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KAESER KOMPRESSOREN	
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Material:	Material:
Fertigung:	Fertigung:
Lagerort:	Lagerort:
Datum:	Datum:
Zeichner:	Zeichner:
Gezeichnet:	Gezeichnet:
Geprüft:	Geprüft:
Freigegeben:	Freigegeben:
Unterschrift:	Unterschrift:
Datum:	Datum:



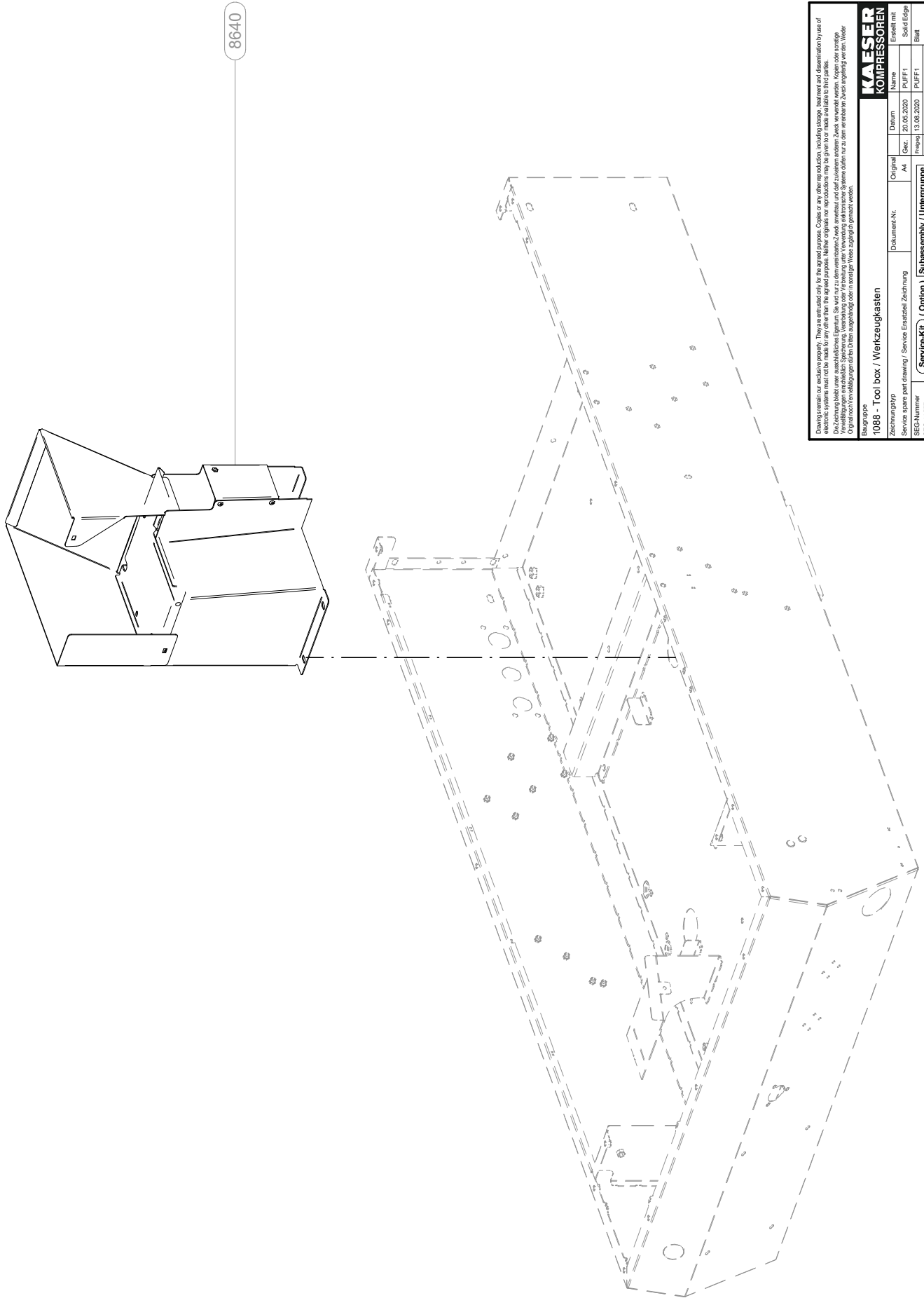
1000e- Aggregate built-on / Aggregatbau
 1000e- Aggregate built-on / Aggregatbau
 1000e- Aggregate built-on / Aggregatbau

KAESER KOMPRESSOREN		Name		Date		Status	
Part No.	Part Name	Year	Rev.	Year	Rev.	Year	Rev.
1000e-001	1000e-001	2010	01	2010	01	2010	01
1000e-002	1000e-002	2010	01	2010	01	2010	01
1000e-003	1000e-003	2010	01	2010	01	2010	01
1000e-004	1000e-004	2010	01	2010	01	2010	01
1000e-005	1000e-005	2010	01	2010	01	2010	01
1000e-006	1000e-006	2010	01	2010	01	2010	01
1000e-007	1000e-007	2010	01	2010	01	2010	01
1000e-008	1000e-008	2010	01	2010	01	2010	01
1000e-009	1000e-009	2010	01	2010	01	2010	01
1000e-010	1000e-010	2010	01	2010	01	2010	01
1000e-011	1000e-011	2010	01	2010	01	2010	01
1000e-012	1000e-012	2010	01	2010	01	2010	01
1000e-013	1000e-013	2010	01	2010	01	2010	01
1000e-014	1000e-014	2010	01	2010	01	2010	01
1000e-015	1000e-015	2010	01	2010	01	2010	01
1000e-016	1000e-016	2010	01	2010	01	2010	01
1000e-017	1000e-017	2010	01	2010	01	2010	01
1000e-018	1000e-018	2010	01	2010	01	2010	01
1000e-019	1000e-019	2010	01	2010	01	2010	01
1000e-020	1000e-020	2010	01	2010	01	2010	01
1000e-021	1000e-021	2010	01	2010	01	2010	01
1000e-022	1000e-022	2010	01	2010	01	2010	01
1000e-023	1000e-023	2010	01	2010	01	2010	01
1000e-024	1000e-024	2010	01	2010	01	2010	01
1000e-025	1000e-025	2010	01	2010	01	2010	01
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1000e-033	1000e-033	2010	01	2010	01	2010	01
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1000e-099	1000e-099	2010	01	2010	01	2010	01
1000e-100	1000e-100	2010	01	2010	01	2010	01



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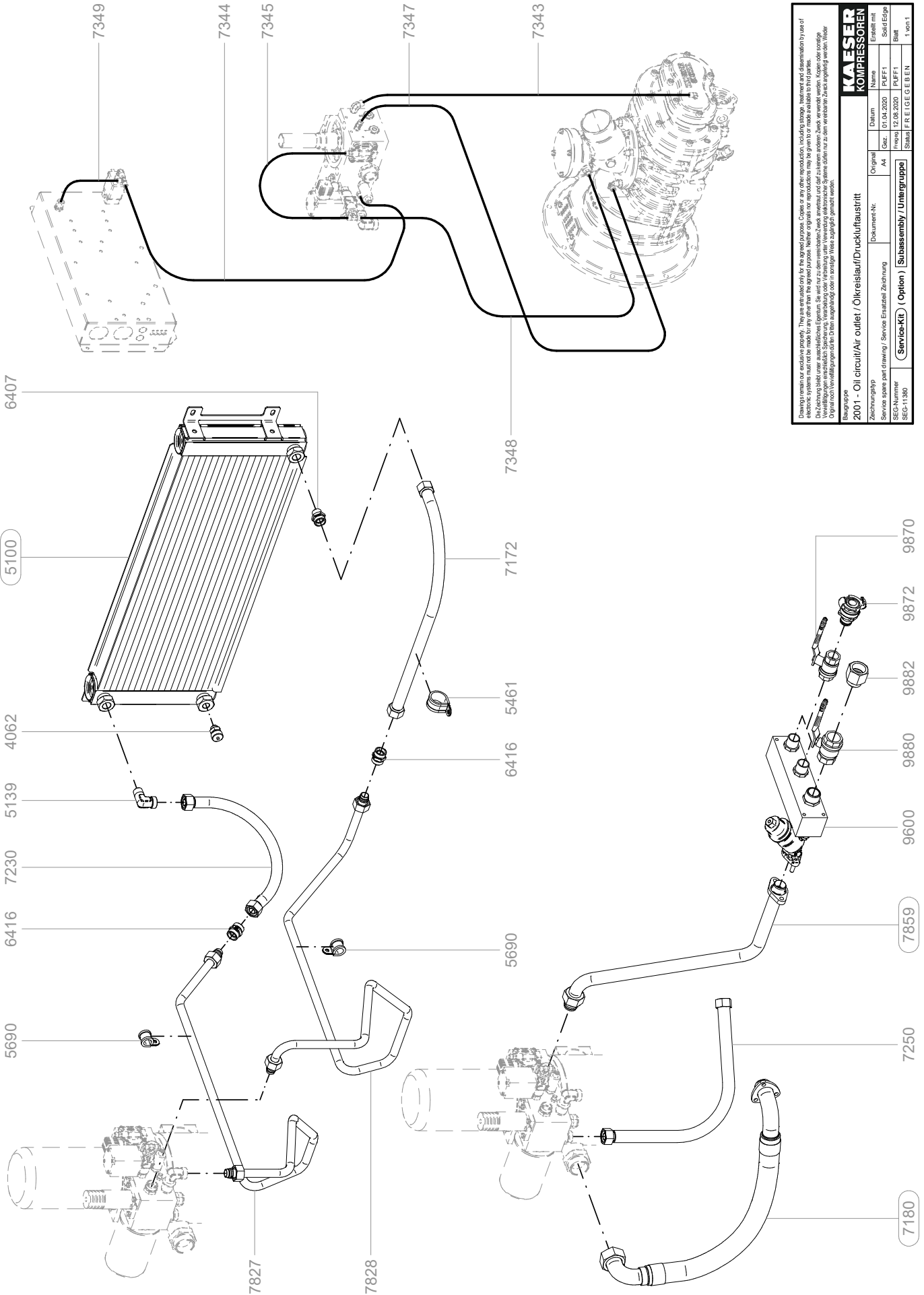
KAESER KOMPRESSOREN		Erstellt mit	
Name		Solid Edge	
Datum		28.03.2020	
Original		PUFF1	
Zachnungstyp		A1	
Service spare part drawing / Service Ersatzteil Zeichnung		Revised: 12.08.2020	
SECS-Nummer		PUFF1	
SEG-11.964		Status: F R E I G E G E B E N	
Blattgruppe		Subassembly / Untereinheit	
1087 - Set document-box / Satz Dokumenttasche		1 von 1	



Blattgruppe
1088 - Tool box / Werkzeugkasten

KAESER KOMPRESSOREN		Erstellt mit	
Zeichnungsmappe	Dokument-Nr.	Original	Name
Service spare part drawing/ Service Ersatzteil Zeichnung	A1	Gez. 20.05.2020	PUFFI
SECS-Nummer	Subassembly / Untereinheit	Revised 13.08.2020	PUFFI
SEG-11.057	Stahl F R E I G E G E B E N		Boht
			1 von 1

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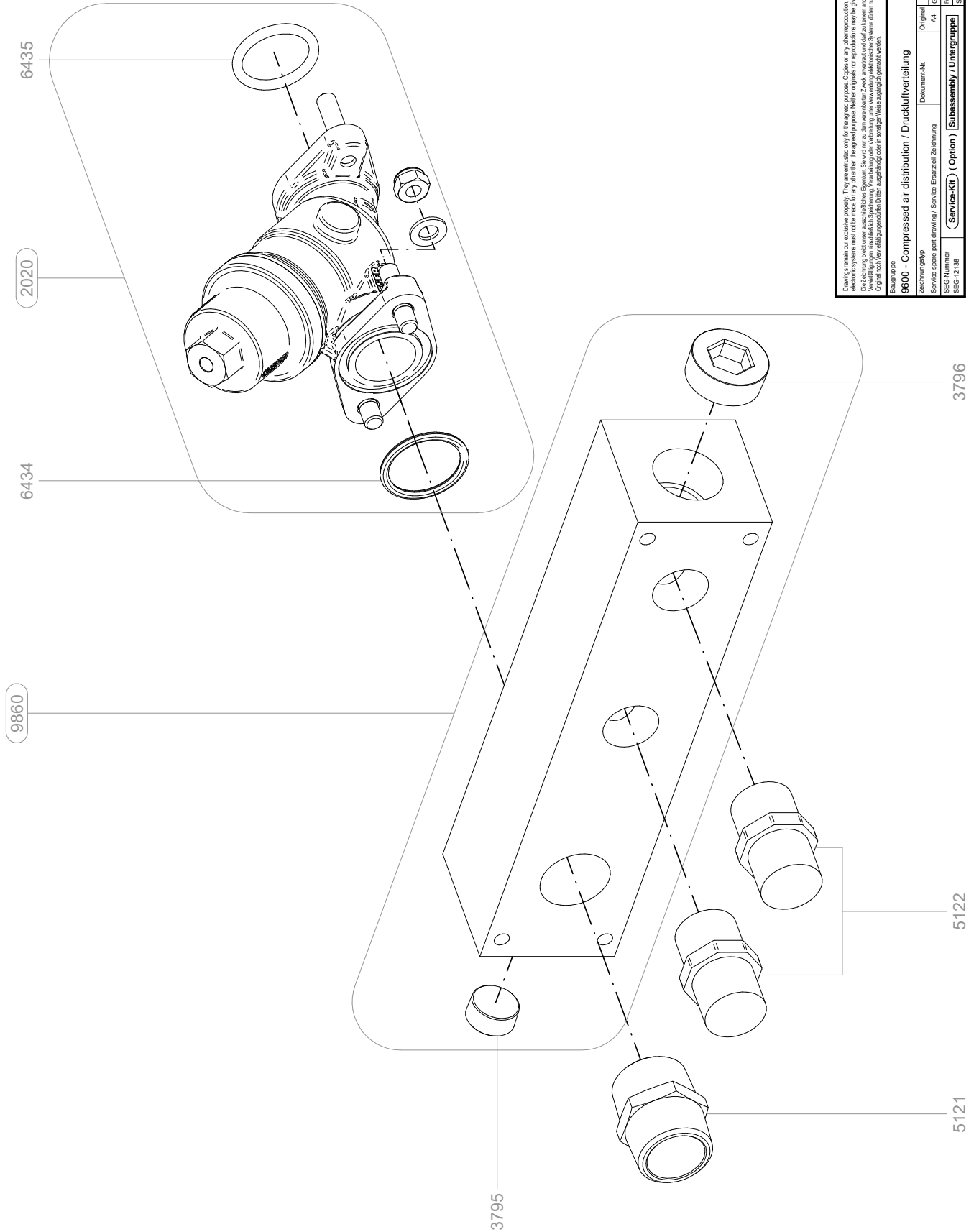


KAESER KOMPRESSOREN

2001 - Oil circuit/Air outlet / Ölkreislauf/Druckluftaustritt

Original Name Datum
 Zeichnungspapier PUFFI 01.04.2020
 Service spare part drawing / Service Ersatzteil Zeichnung A1 Gez. 12.08.2020
 SEC-Nummer SEG-11390 (Status) FLEGGEBEN (Subassembly / Untereinheit) BWF 1 von 1

Druckluftsysteme sind explosionsgefährlich! Diese sind nicht geeignet für die Verwendung in explosionsgefährlichen Umgebungen. Die Verwendung dieser elektrischen Systeme kann zu einem Verstoß gegen die geltenden Vorschriften führen. Die Zeichnung ist nur für Ersatzteile geeignet. Nachdruck ist ohne schriftliche Genehmigung von KAESER KOMPRESSOREN ist ausdrücklich untersagt. Die Zeichnung ist nur für Ersatzteile geeignet. Nachdruck ist ohne schriftliche Genehmigung von KAESER KOMPRESSOREN ist ausdrücklich untersagt. Die Zeichnung ist nur für Ersatzteile geeignet. Nachdruck ist ohne schriftliche Genehmigung von KAESER KOMPRESSOREN ist ausdrücklich untersagt. Die Zeichnung ist nur für Ersatzteile geeignet. Nachdruck ist ohne schriftliche Genehmigung von KAESER KOMPRESSOREN ist ausdrücklich untersagt.



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KOMPRESSOREN

Blattgruppe
98000 - Compressed air distribution / Druckluftverteilung

Zachnungstyp	Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part Drawing / Service Ersatzteil Zeichnung		AI	11.09.2020	PUFFI	Solid Edge
SECS-Nummer	Subassembly / Untereinheit	Stand	Freigegeben	Blatt	1 von 1
SEG-12/138					

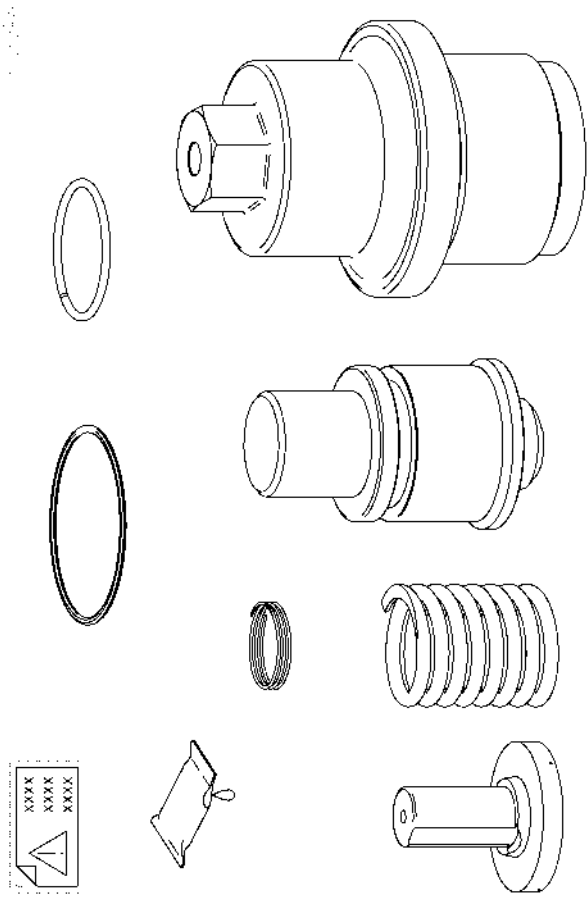


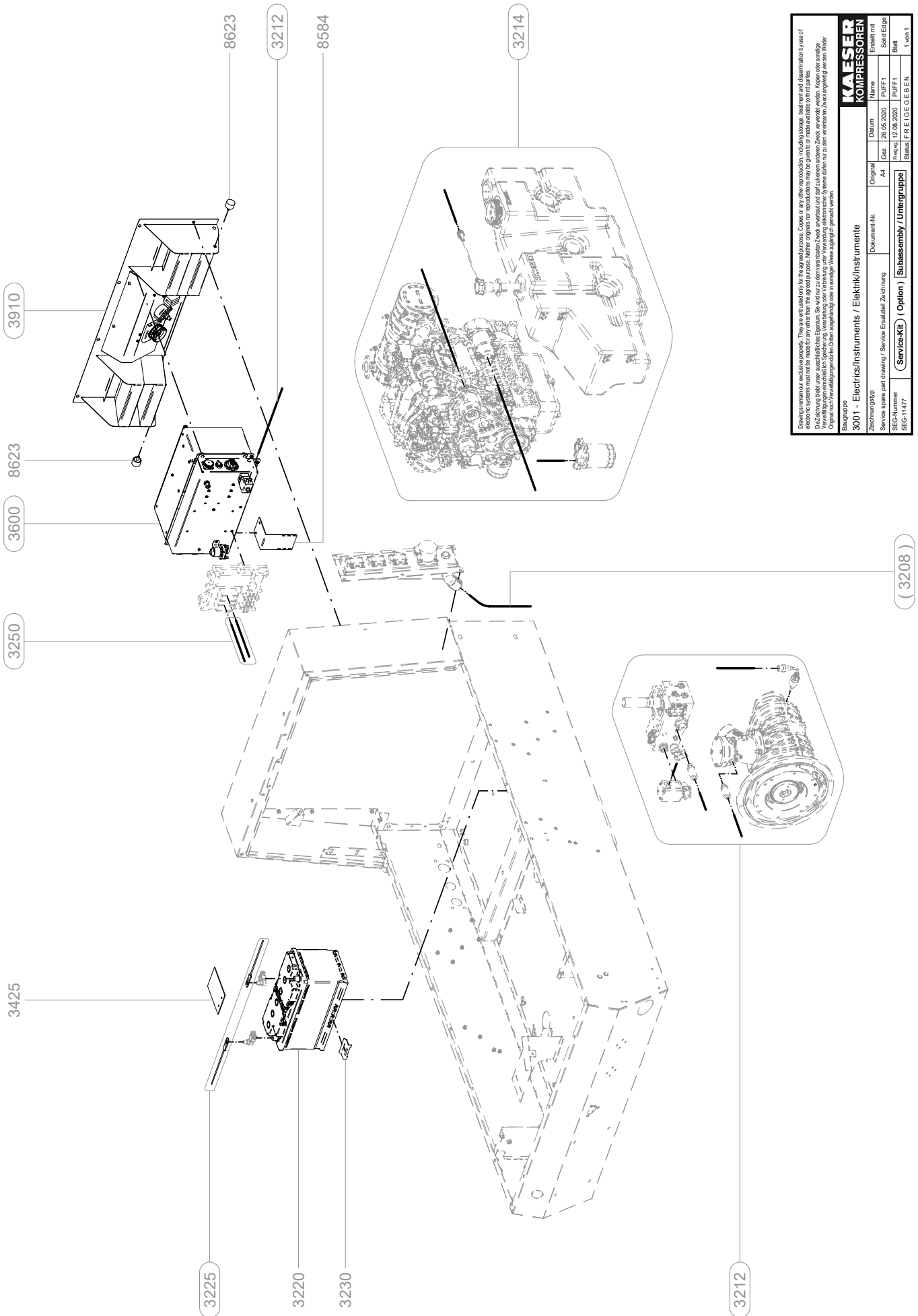
2002 - Valves / Ventil

1. Lesen Sie die Betriebsanleitung für Ihr Kompressor-Modell sorgfältig durch. Ein falscher Einbau kann zu Schäden an Ihrem Kompressor führen.
 2. Lesen Sie die Bedienungsanleitung für das Kompressor-Modell sorgfältig durch. Ein falscher Einbau kann zu Schäden an Ihrem Kompressor führen.
 3. Lesen Sie die Bedienungsanleitung für das Kompressor-Modell sorgfältig durch. Ein falscher Einbau kann zu Schäden an Ihrem Kompressor führen.
 4. Lesen Sie die Bedienungsanleitung für das Kompressor-Modell sorgfältig durch. Ein falscher Einbau kann zu Schäden an Ihrem Kompressor führen.
 5. Lesen Sie die Bedienungsanleitung für das Kompressor-Modell sorgfältig durch. Ein falscher Einbau kann zu Schäden an Ihrem Kompressor führen.
 6. Lesen Sie die Bedienungsanleitung für das Kompressor-Modell sorgfältig durch. Ein falscher Einbau kann zu Schäden an Ihrem Kompressor führen.
 7. Lesen Sie die Bedienungsanleitung für das Kompressor-Modell sorgfältig durch. Ein falscher Einbau kann zu Schäden an Ihrem Kompressor führen.
 8. Lesen Sie die Bedienungsanleitung für das Kompressor-Modell sorgfältig durch. Ein falscher Einbau kann zu Schäden an Ihrem Kompressor führen.
 9. Lesen Sie die Bedienungsanleitung für das Kompressor-Modell sorgfältig durch. Ein falscher Einbau kann zu Schäden an Ihrem Kompressor führen.
 10. Lesen Sie die Bedienungsanleitung für das Kompressor-Modell sorgfältig durch. Ein falscher Einbau kann zu Schäden an Ihrem Kompressor führen.

Eigenschaften		Nennleistung		Nennleistung		Nennleistung	
2002	2002	2002	2002	2002	2002	2002	2002
2002	2002	2002	2002	2002	2002	2002	2002
2002	2002	2002	2002	2002	2002	2002	2002

KAESER
KOMPRESSOREN





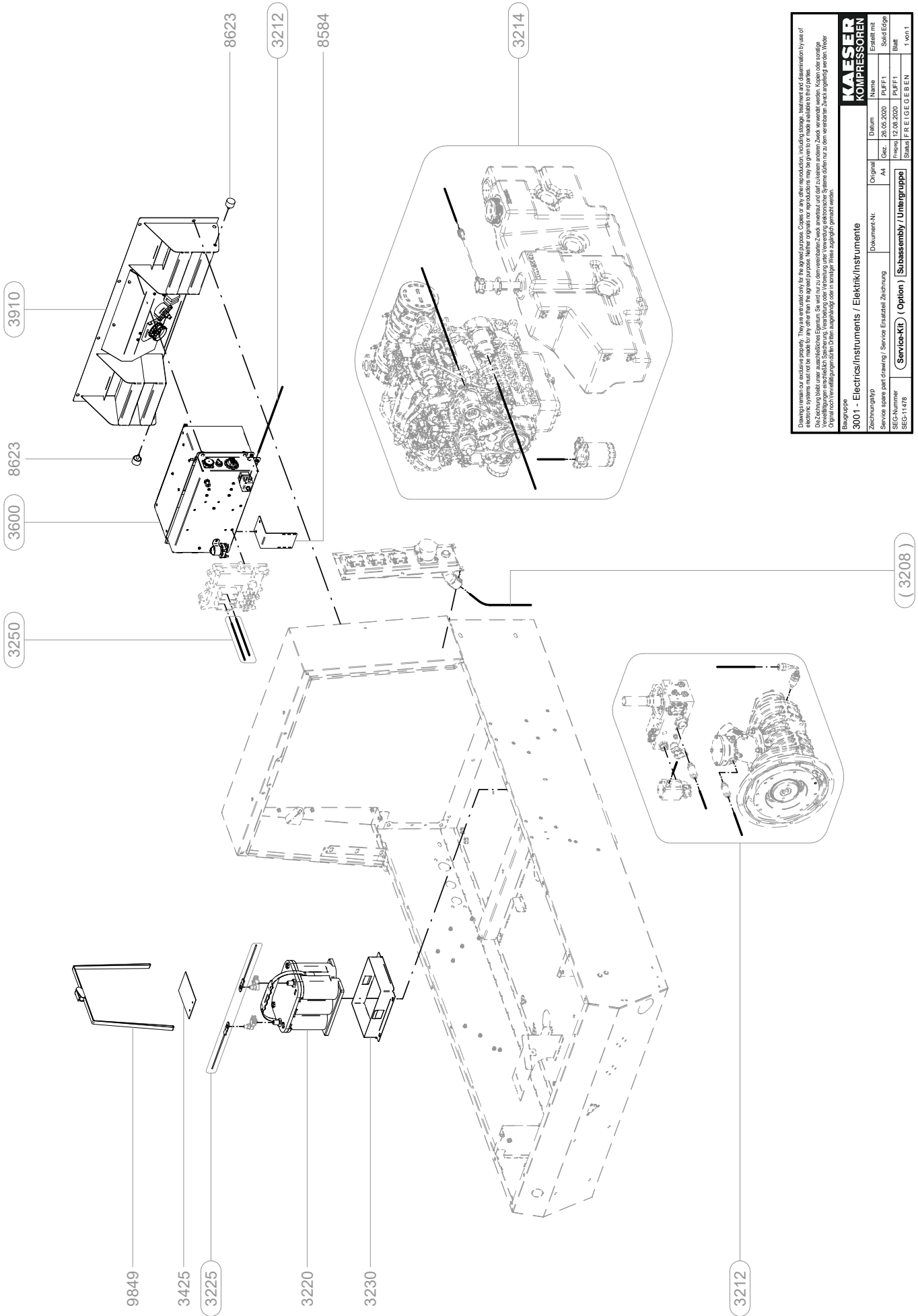
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KAESER KOMPRESSOREN

Bagruppe: 3001 - Electrics/Instruments / Elektrik/Instrumente

Zachungsnr.	Original	Datum	Name	Erstellt mit	
Service spare part Drawing/ Service Ersatzteil Zeichnung	A1	28.05.2020	PUFF1	Solid Edge	
SEG-Nummer		Revised	12.08.2020	PUFF1	BW
SEG-11477		Status	F R E I G E G E B E N		1 von 1

Service-Kit (Option) / Subassembly / Unterguppe



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KAESER KOMPRESSOREN

Original	Name	Erstellt mit
A1	PUFFI	Solid Edge
Gez. 28.05.2020	PUFFI	Rev. 1
Revised 12.08.2020	PUFFI	Rev. 1
Skizze	PUFFI	Rev. 1

3001 - Electrics/Instruments / Elektrik/Instrumente

Zachnungstyp: Dokument-Nr. Original

Service spare part drawing / Service Ersatzteil Zeichnung A1

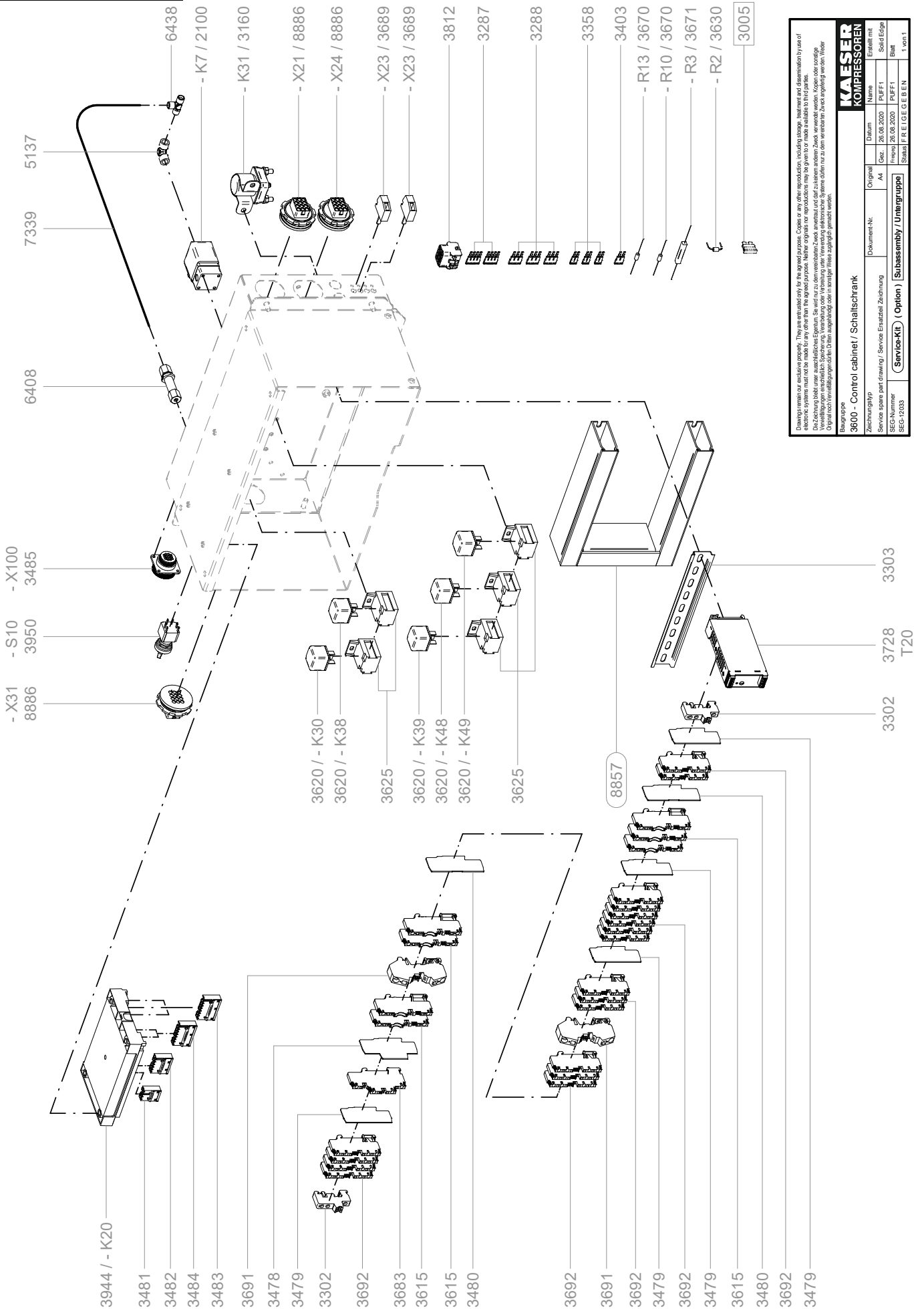
SEG-Nummer: SEG-11/73

Service-Kit (Option) / Subassembly / Untereinheit

Status: F R E I G G E B E N

1 von 1

11.4 Replacement parts for service and repair



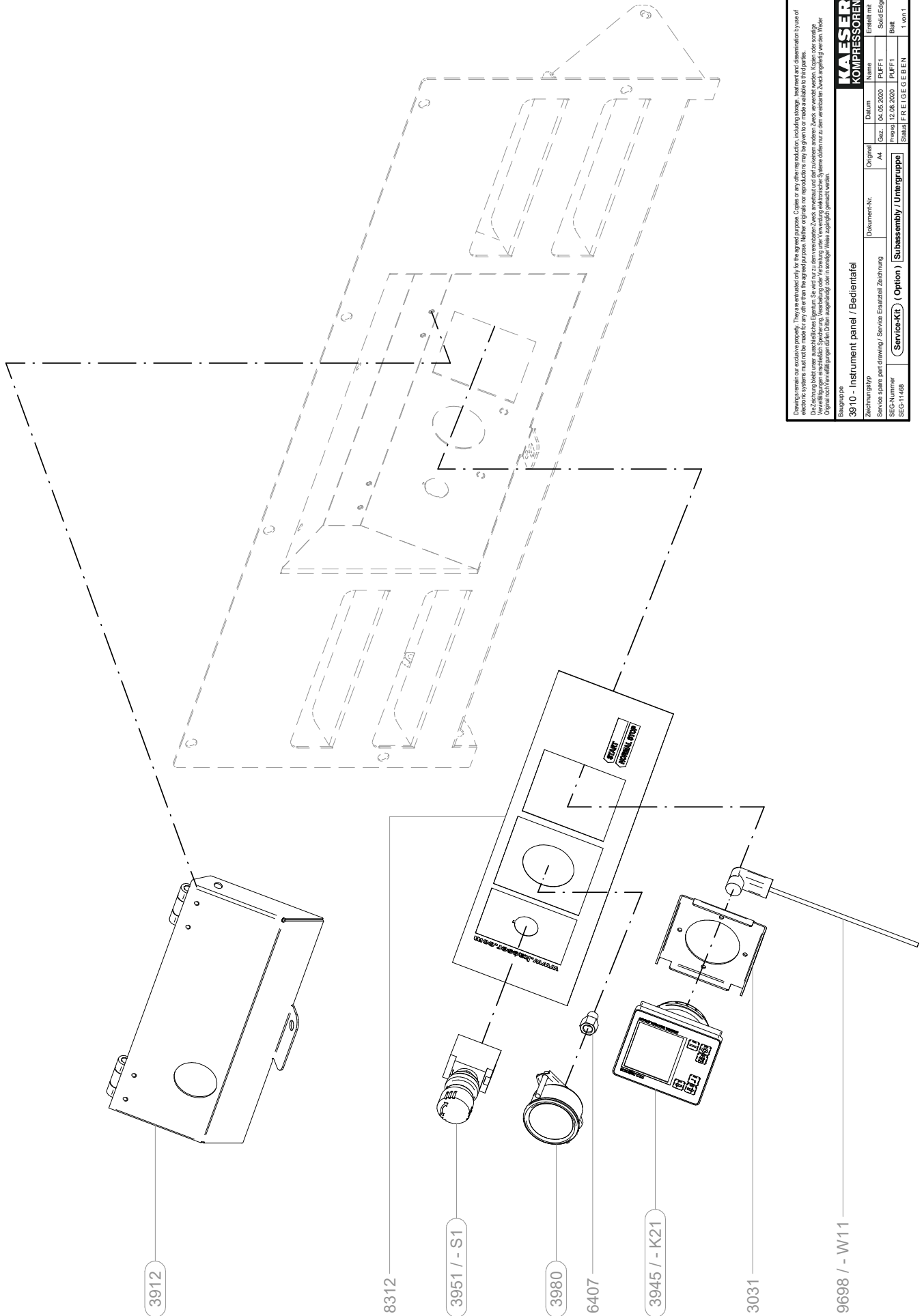
KAESER KOMPRESSOREN

Original Name Datum
 Zeichnungspapier: A1 28.08.2020
 Service spare part drawing / Service Ersatzteil Zeichnung PUFFI
 SECS-Nummer: SEG-12/033 Subassembly / Untereinheit PUFFI
 Status: F R E G E B E N Blatt 1 von 1

3600 - Control cabinet / Schaltschrank

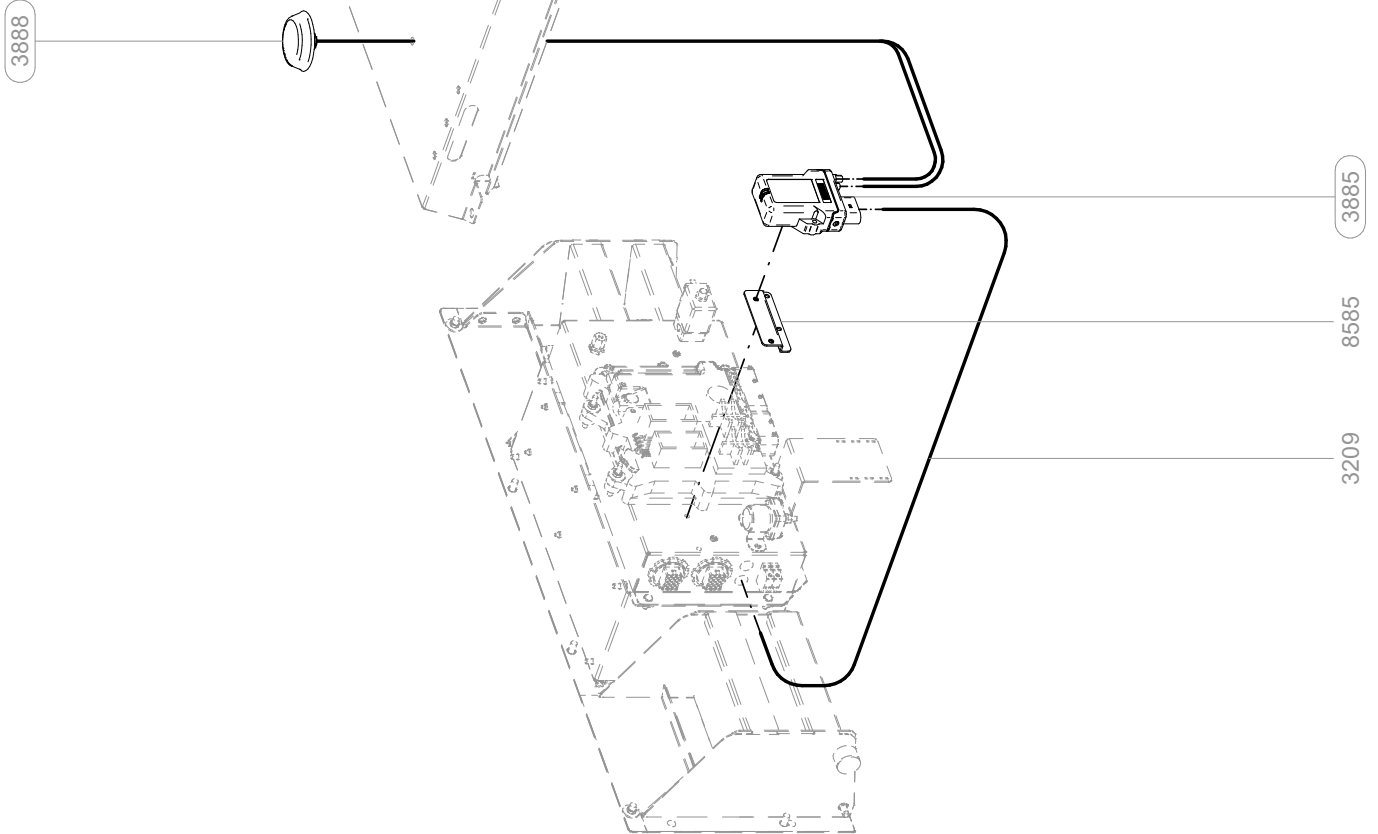
Blattgruppe

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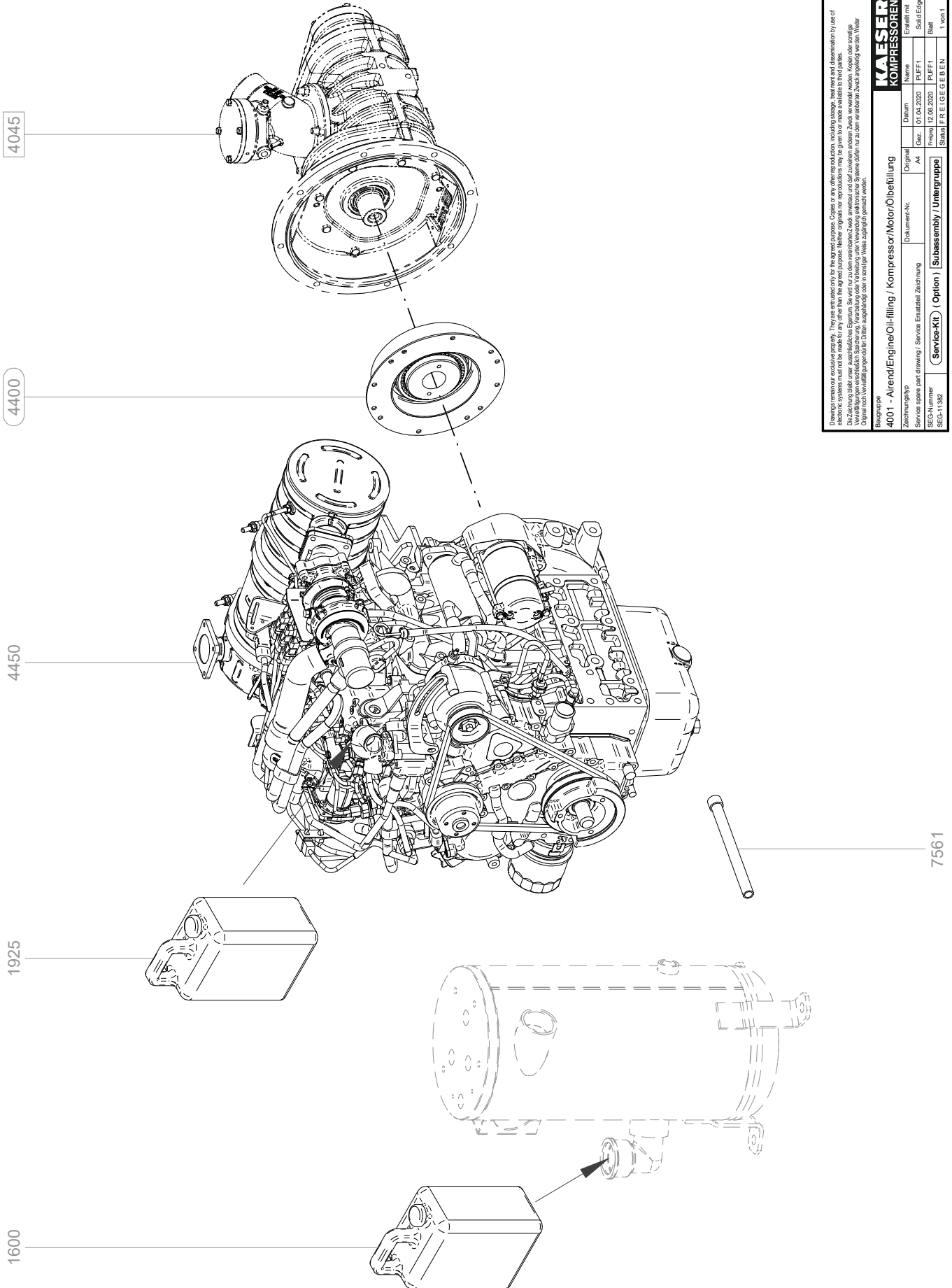
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KAESER KOMPRESSOREN		Erstellt mit	
Zachungsnr.	Dokument-Nr.	Original	Datum
Service spare part drawing / Service Ersatzteil Zeichnung		A1	04.05.2020
SECS-Nummer	Subassembly / Untereinheit	Reviz.	12.08.2020
SEG-1488	(Service-Kit) (Option)	Status	F R E I G E B E N
			1 von 1



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Baugruppe 3008 - GSM modem/GPS receiver / GSM-Modem/GPS-Empfänger		Original		Erstellt mit	
Zachnungstyp Service spare part drawing/ Service Ersatzteil Zeichnung	Dokument-Nr.	Name	Datum	PUFF1	Solid Edge
SECS-Nummer SEG-11448		A1	23.04.2020	PUFF1	BW
Service-Kit (Option) Subassembly / Untereinheit		Erstellt	12.08.2020	PUFF1	BW
		Status	F R E I G E B E N		1 von 1



KAESER KOMPRESSOREN

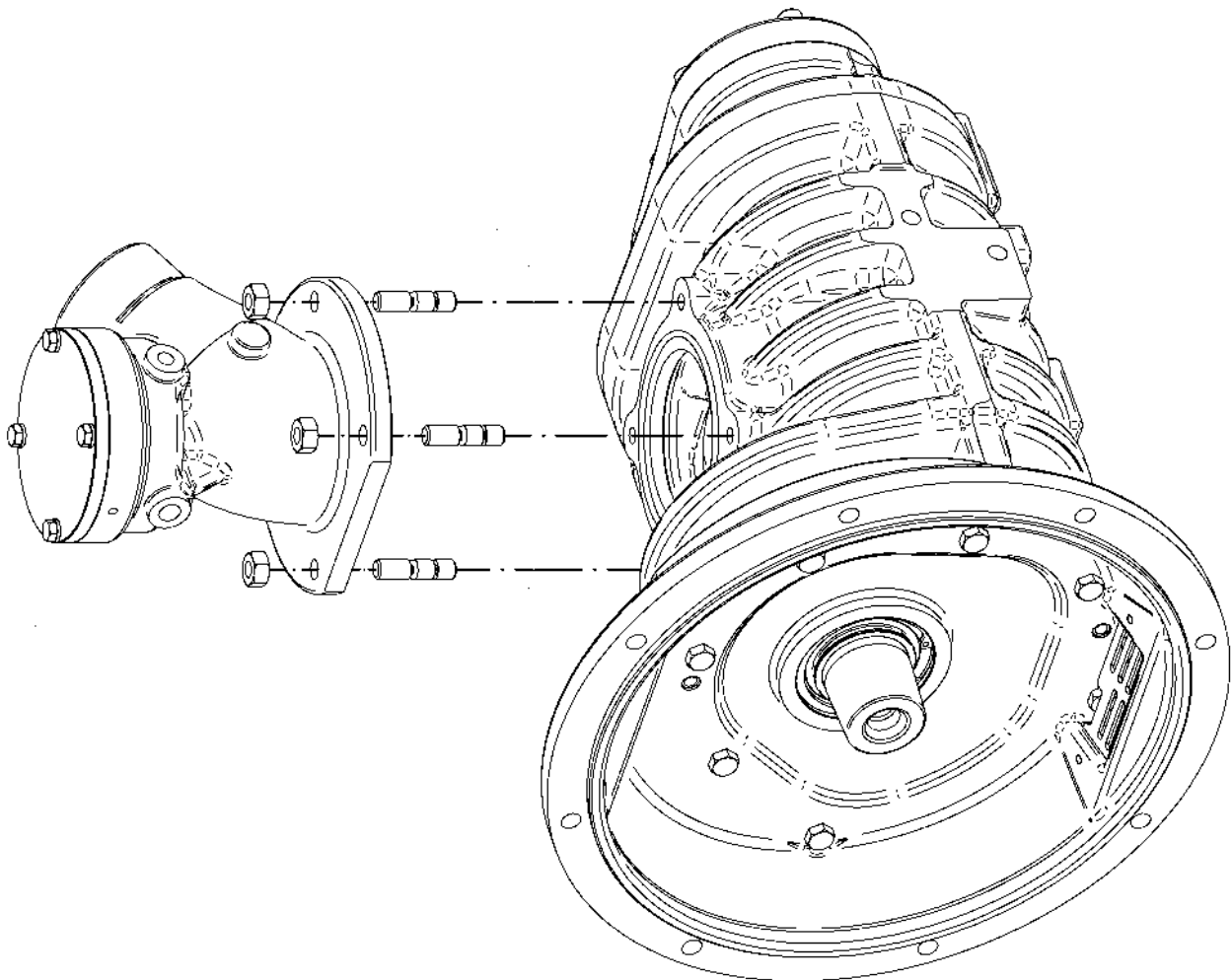
Bitte lesen Sie diese Anweisung sorgfältig durch. Diese Anweisung ist für die Reparatur, den Ersatz von Teilen und die Wartung des Kompressors bestimmt. Die falsche Handhabung kann zu Schäden an der Maschine und zu Verletzungen führen. Lesen Sie die Bedienungsanleitung des Kompressors sorgfältig durch. Diese Anweisung ist für die Reparatur, den Ersatz von Teilen und die Wartung des Kompressors bestimmt. Die falsche Handhabung kann zu Schäden an der Maschine und zu Verletzungen führen. Lesen Sie die Bedienungsanleitung des Kompressors sorgfältig durch.

4001 - Airene/Engine/Oil-filling / Kompressor/Motor/Ölbefüllung

Zachungsnr.	Original	Name	Erstellt mit
Service spare part drawing/ Service Ersatzteil Zeichnung	A1	PUFF1	Solid Edge
SECS-Nummer	Dokument-Nr.	Datum	Reviz.
SEG-11392	41	01.04.2020	1
		Gez.	12.08.2020
		Zeichner	PUFF1
		Statist.	F.L.G.E.G.E.N.
		Subassembly / Untereinheit	1 von 1

11.1.1

11.1.2



KAESER KOMPRESSOREN

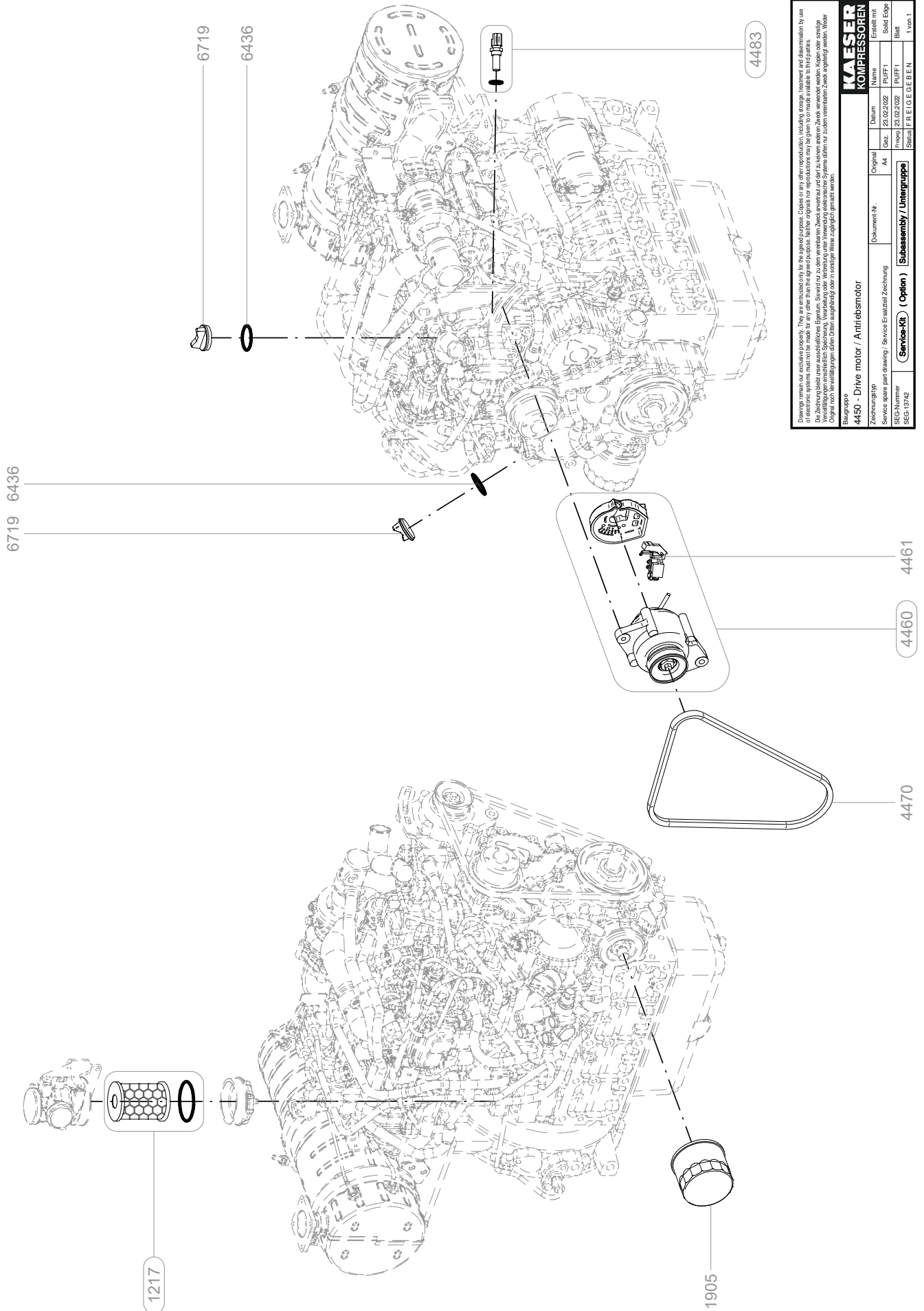
Bitte zurückgeben an: KAESER COMPRESSOR SYSTEMS (UK) LTD., Unit 10, The Old Rectory, Church Lane, Boreham, Essex, SS16 4NF, England, UK. Tel: +44 (0)1702 522525. Fax: +44 (0)1702 522526. Email: sales@kaeser-compressors.com. Web: www.kaeser-compressors.com

Name		Date		Status	
Customer		Order No.		Order No.	
Order No.		Order No.		Order No.	
Order No.		Order No.		Order No.	

4045 - Compressor flange / Verdichter-Einheit

Order No.		Order No.		Order No.	
Order No.		Order No.		Order No.	

(Service-KIT) (Option) | Subassembly: Untereinheit

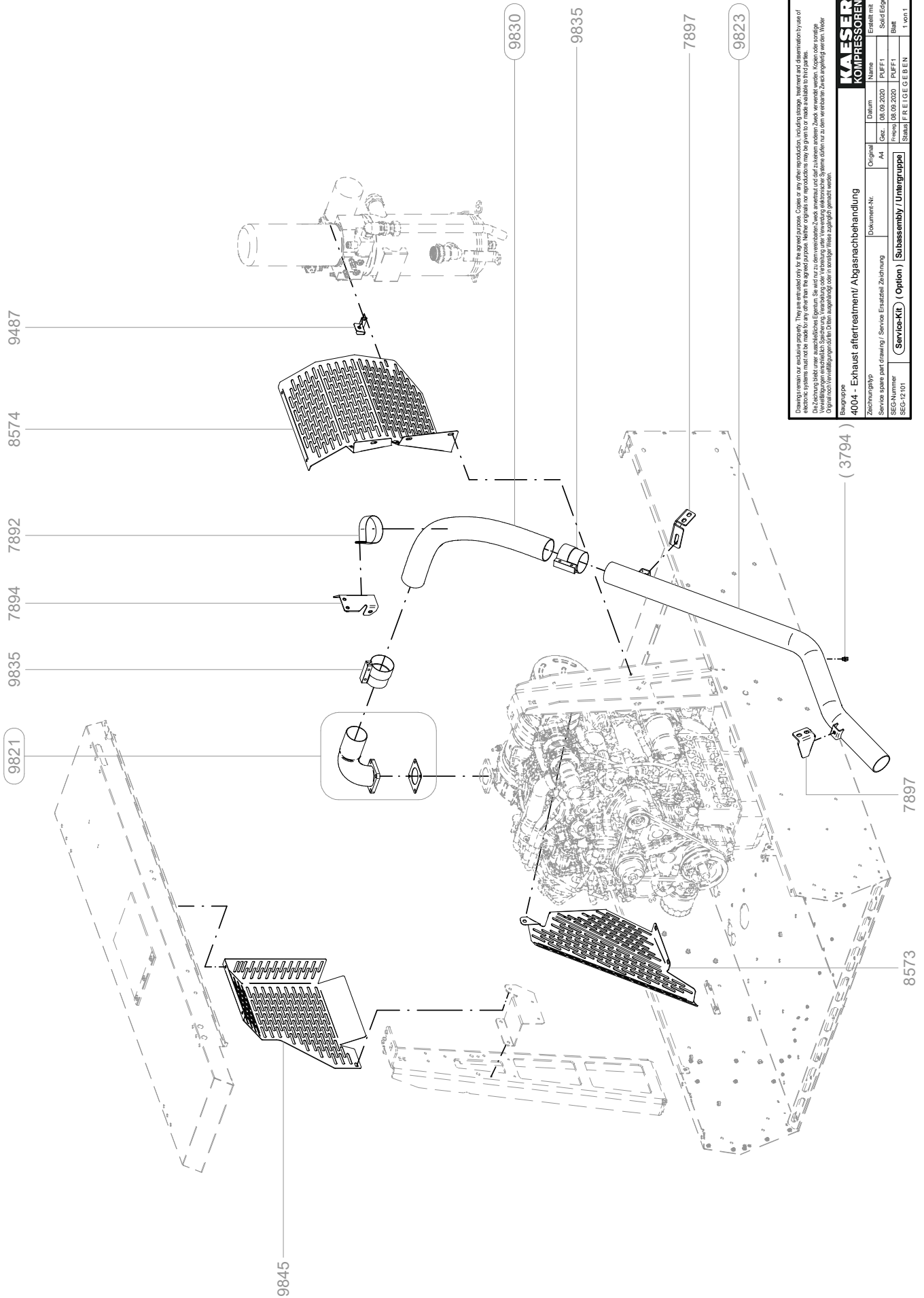


KAESER KOMPRESSOREN

Blattgruppe: 4450 - Drive motor / Antriebsmotor

Zzeichnungstyp	Dokument-Nr.	Original	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung	A1	Original	PUFFI	Solid Edge
SEK-Nummer	SEK-Gruppe	SEK-Status	SEK-Name	SEK-Info
SEG-13742	(Option) Subassembly / Untereinheit	Staub / FLE G E B E N	PUFFI	1 von 1

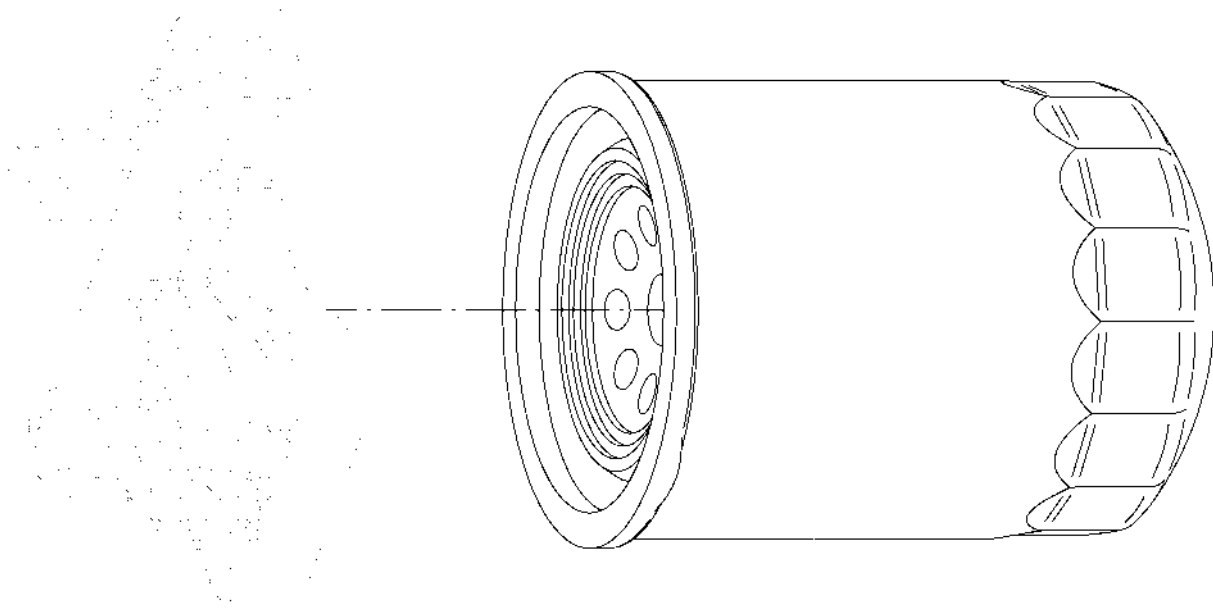
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KAESER KOMPRESSOREN		Erstellt mit	
Zachungsnr.	Datum	Name	Erstellt mit
Service spare part drawing/ Service Ersatzteil Zeichnung	08.09.2020	PUFFI	Solid Edge
SECS-Nummer	Reviz.	Ar	Blatt
SEG-12/01	08.09.2020	PUFFI	1 von 1
Status		F R E I G E G E B E N	
Subassembly / Untereinheit		Option	

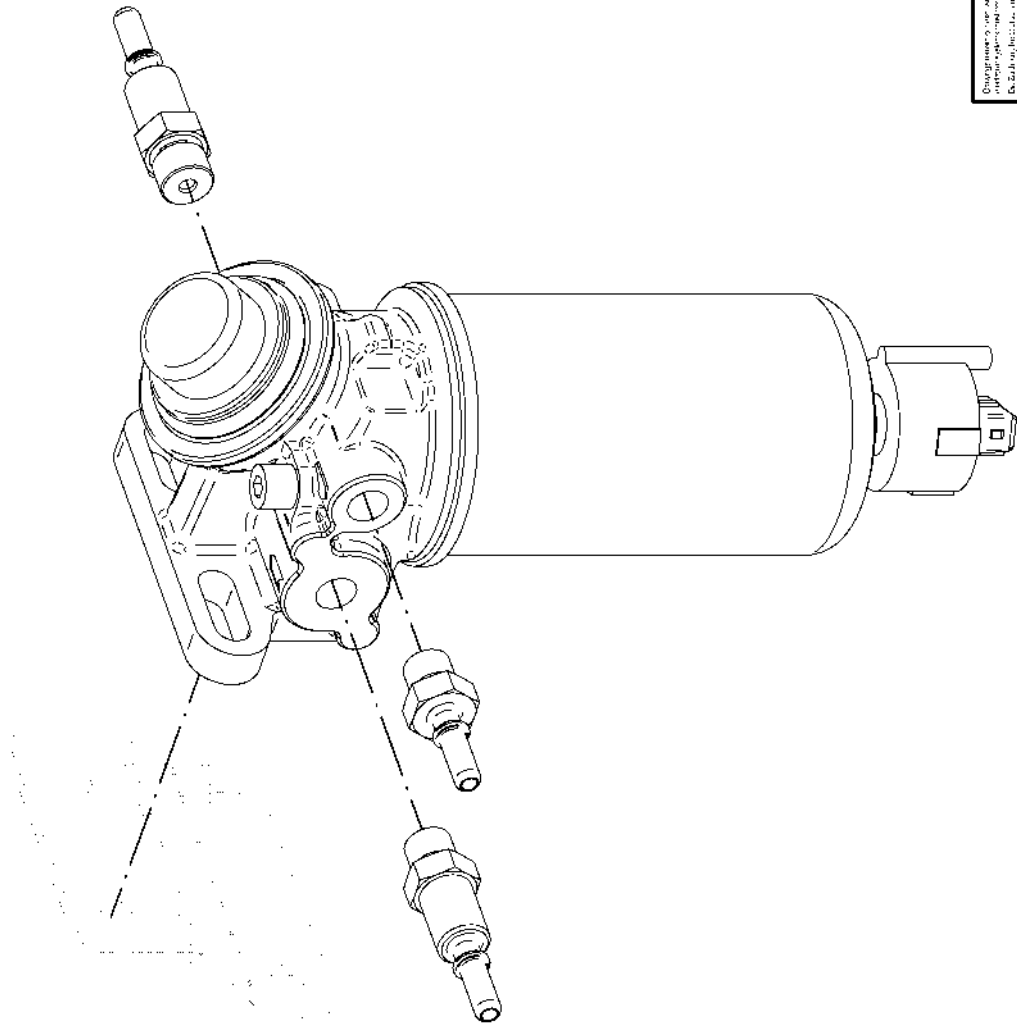
4004 - Exhaust aftertreatment/ Abgasnachbehandlung
(3794)



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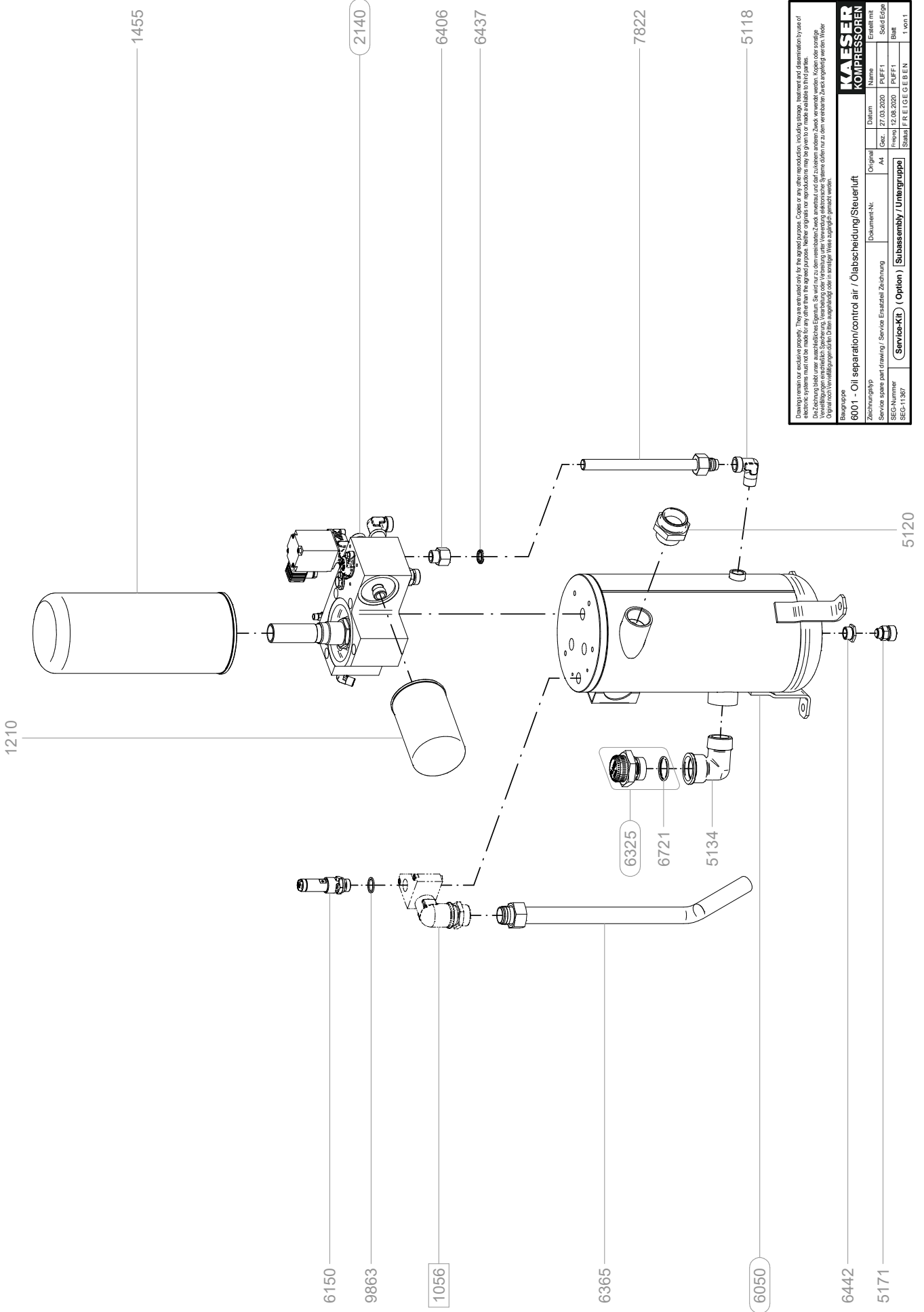
KAESER KOMPRESSOREN	
Bezeichnung: 1910 - Fuel Filter / Kraftstoff-Filter	Name: ...
Zeichnungs-Nr.: ...	Zeichnungs-Nr.: ...
Hersteller: ...	Hersteller: ...
...	...

194



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Brennwert:		6480 - Water trap / Wasserfallventil		KESSELNR.	
Hersteller:	Linne	Skizze:	24.05.2018	Zeichnungs-Nr.:	3044 E&Z
Skizzen vom Kundendienst:	Skizzen vom Kundendienst:	Skizzen vom Kundendienst:	Skizzen vom Kundendienst:	Skizzen vom Kundendienst:	Skizzen vom Kundendienst:
8700-Motoren	(Service-KIT) (Option)	Subassembly:	Untereinheit	Teil-Nr.:	Year:
8553 10011 U					

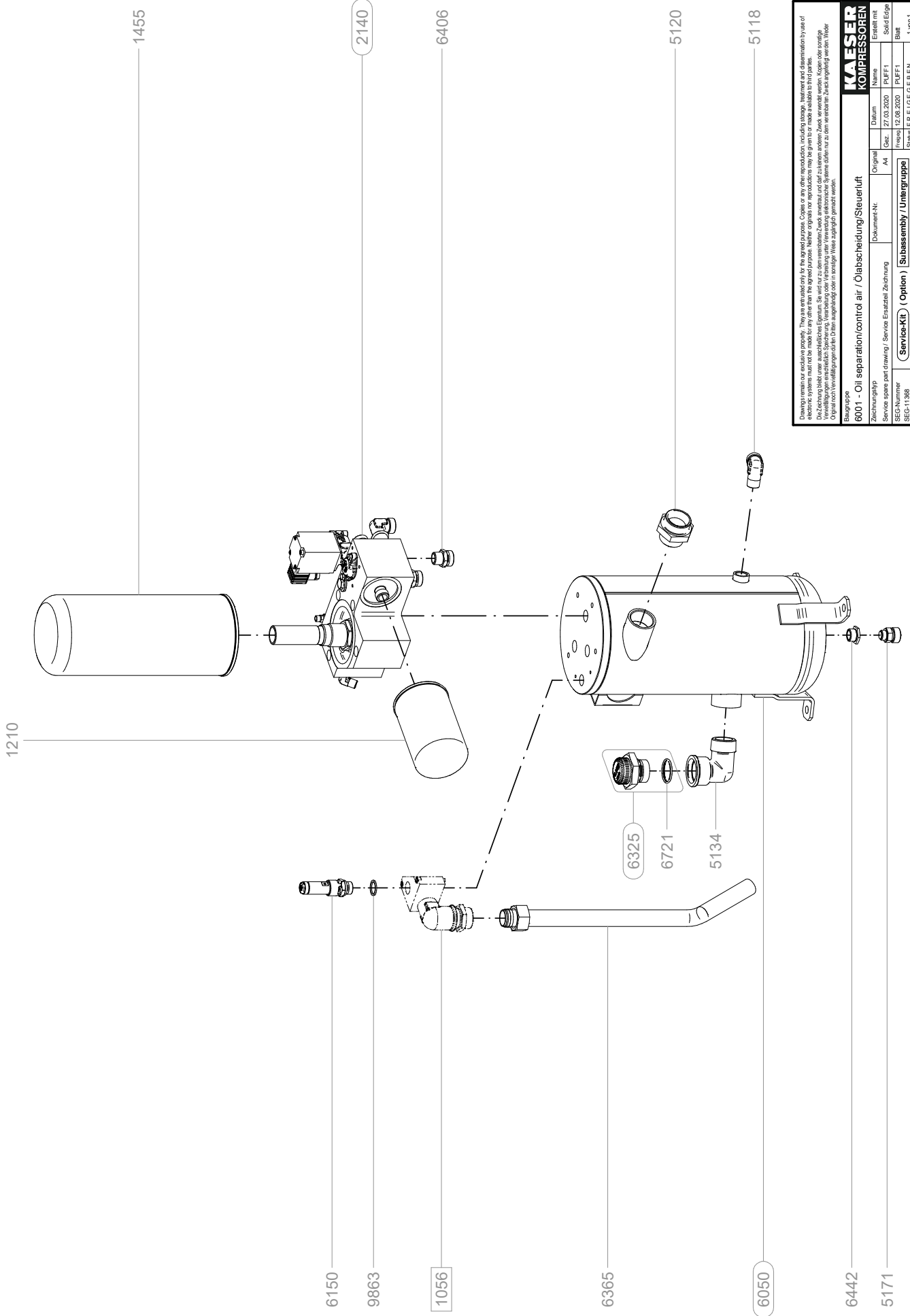


KAESER
KOMPRESSOREN

Original Name Datum
 Zeichnungstyp: Original Name Datum
 Service spare part drawing/ Service Ersatzteil Zeichnung A1 27.03.2020
 SEG-Nummer: Original Name Datum
 SEG-11.907 (Service-KIT) (Option) Subassembly / Untereinheit 12.08.2020
 Status: F R E I G E G E B E N Blatt: 1 von 1

6001 - Oil separation/control air / Ölabscheidung/Steuerluft

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KAESER KOMPRESSOREN

6001 - Oil separation/control air / Ölabscheidung/Steuerluft

Blattgruppe: 1 von 1

Original	Name	Datum	Erstellt mit
AI	PUFF1	27.03.2020	Solid Edge
AI	PUFF1	12.08.2020	Blatt

Service spare part drawing / Service Ersatzteil Zeichnung

SEK-Nummer: SEG-11.363

Subassembly / Untereinheit: **Service-KIT (Option)**

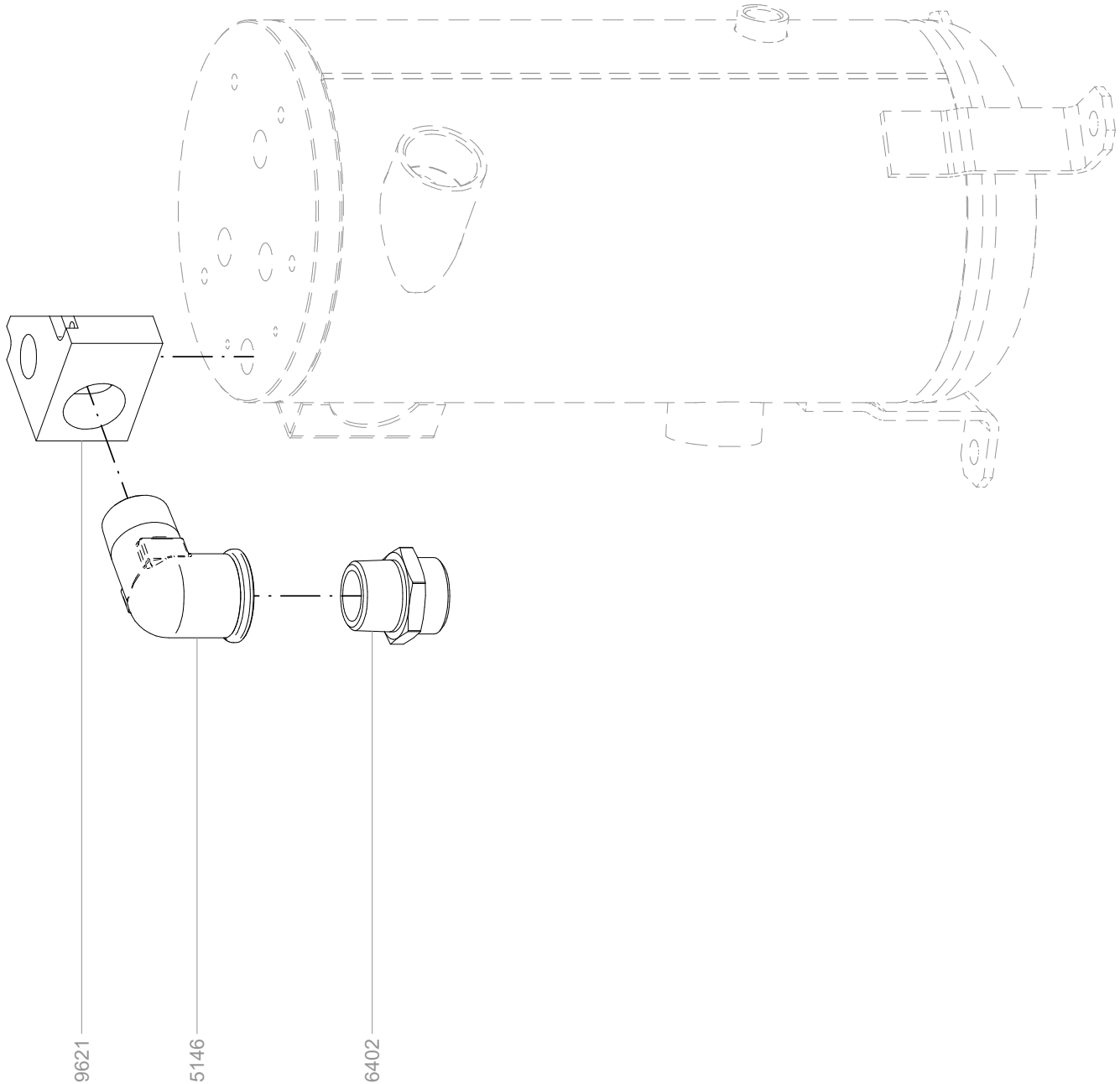
Zeichnung: 6001 - Ölabscheidung/Steuerluft

Document-Nr.: SEG-11.363

Revised: 12.08.2020

Status: F R E G E B E N

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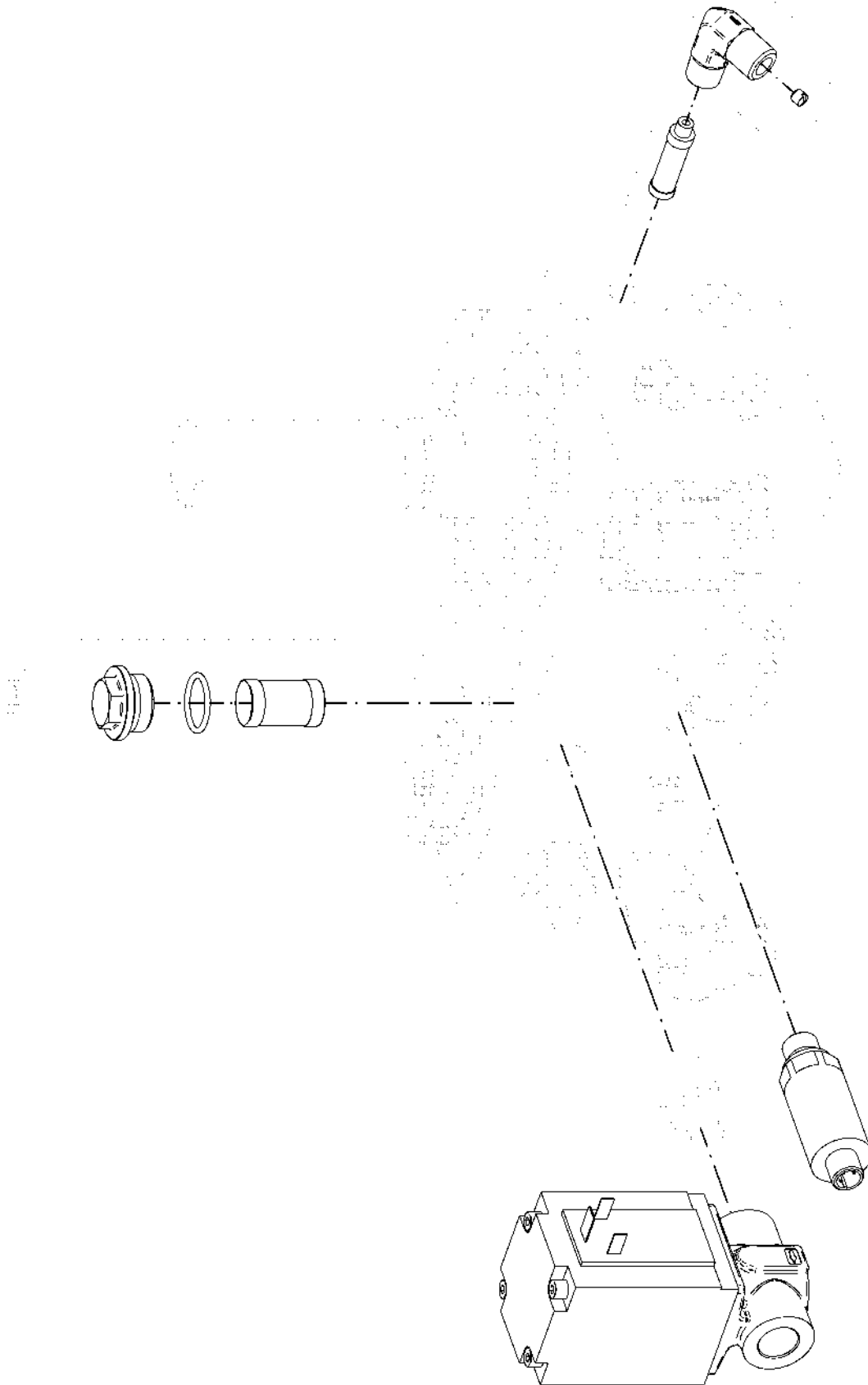
1056 - Venting / Entlüftung

KAESER KOMPRESSOREN

Zeichnungs-Nr. | Dokument-Nr. | Original | Name | Erteilt mit
 1056 | 1056 | A1 | Venting / Entlüftung | Solid Edge

SECS-Nummer | Subassembly / Untereinheit | Status | F.R.E.I.G.E.B.E.N. | Blatt | von 1
 1056 | 1056 | 1056 | 1056 | 1056 | 1056

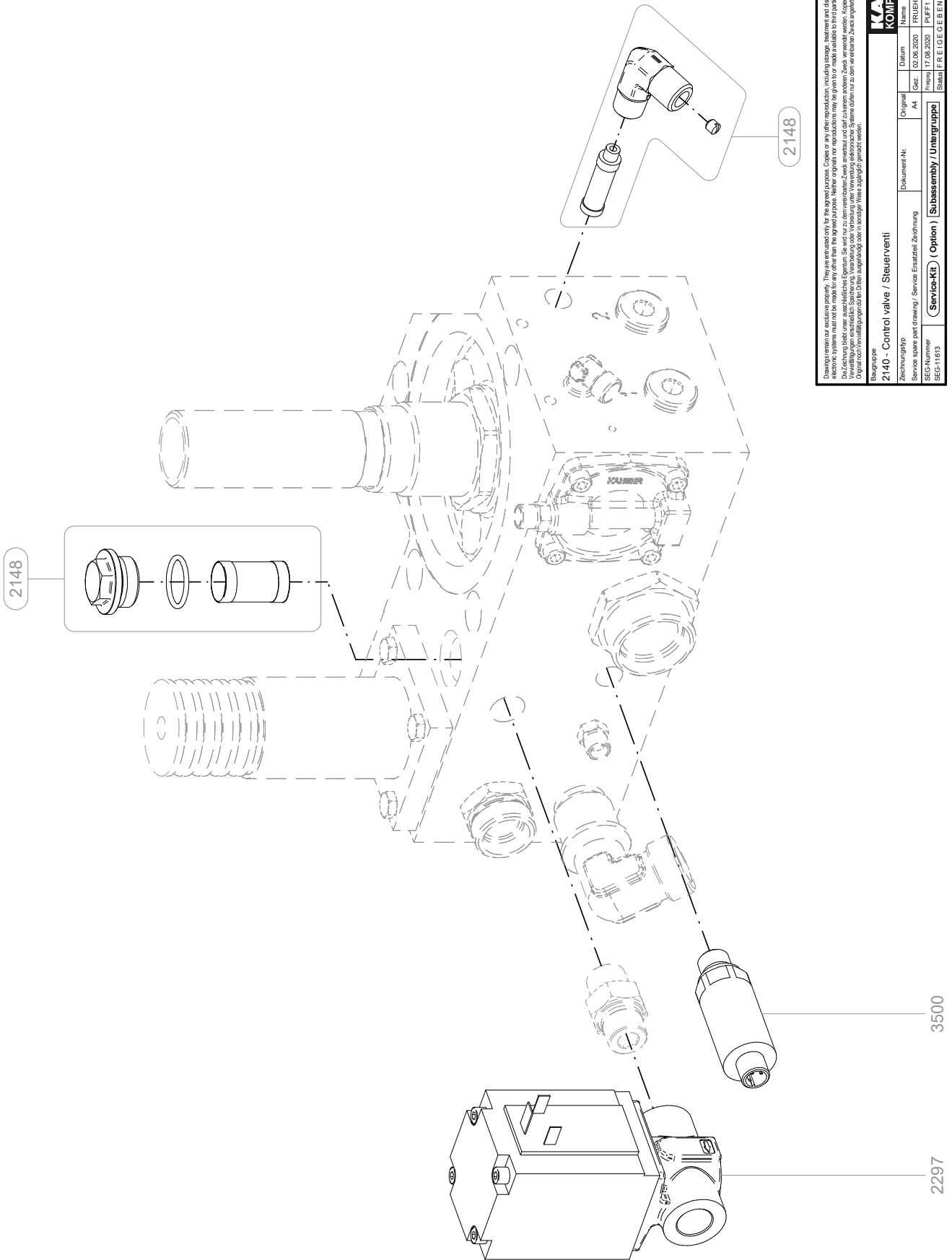
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21 dD- Control valve / Steuerventil
 21 dD-Steuerung
 21 dD-Steuerung
 21 dD-Steuerung
 21 dD-Steuerung

KAESER KOMPRESSOREN		Name		Beschreibung	
Teil-Nr.	Bezeichnung	Material	Maße	Material	Maße
21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung
21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung
21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung
21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung	21 dD-Steuerung

(Service-KIT) (Option) | Subassembly: Untereinheit
 21 dD-Steuerung



KAESER KOMPRESSOREN

Original Name Datum Erteilt mit
 Zeichnungsart Original A1 12.08.2020 FRUEHAUFG Sold Edge
 Service spare part drawing/ Service Ersatzteil Zeichnung A1 17.08.2020 PUFF Ball
 SECS-Nummer (Service-Kit) (Option) Subassembly / Untereinheit
 SEG-11613 Status F R E I G E G E B E N 1 von 1

Bezeichnung: 2140 - Control valve / Steuerventil

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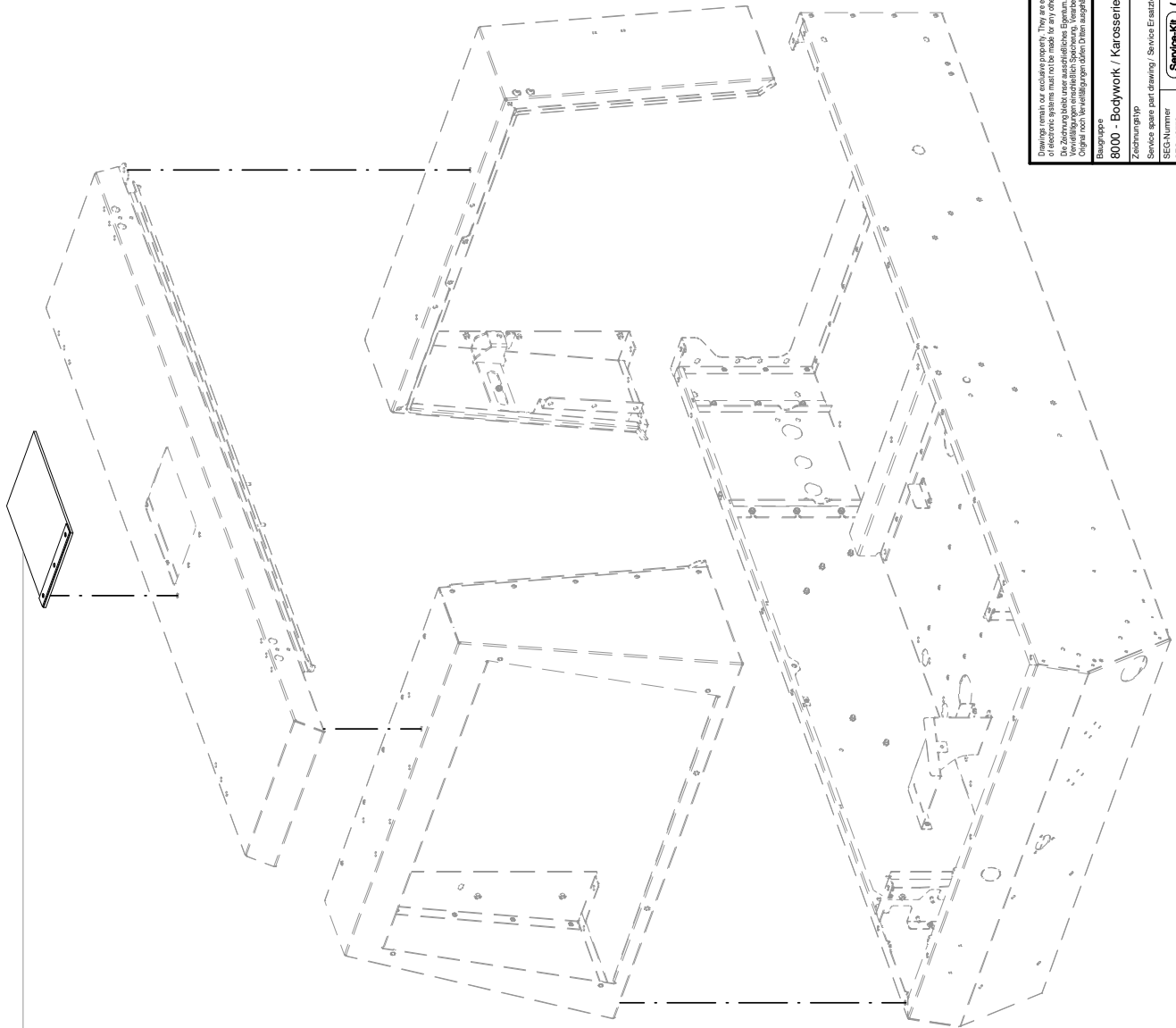
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Original
A1
03.03.2022
PUFFI
Solid Edge
1 von 1

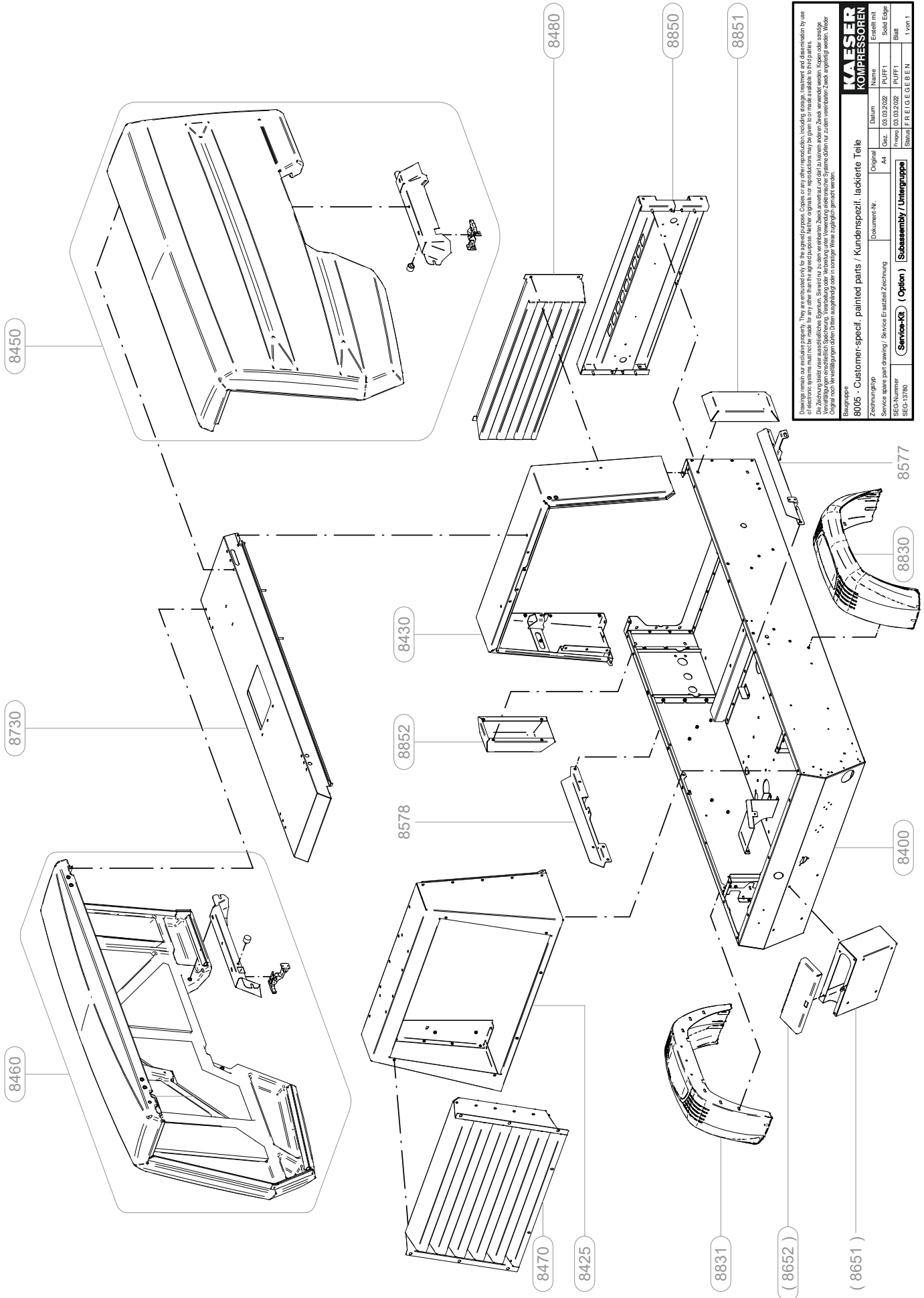
86300 - Bodywork / Karosserie

Zzeichnungstyp: Service spare part drawing / Service Ersatzteil Zeichnung
Dokument-Nr.:
Original
A1
03.03.2022
PUFFI
Solid Edge
1 von 1

SEG-Nummer: SEG-13773
(Service-Kit) (Option) Subassembly / Untereinheit



8630

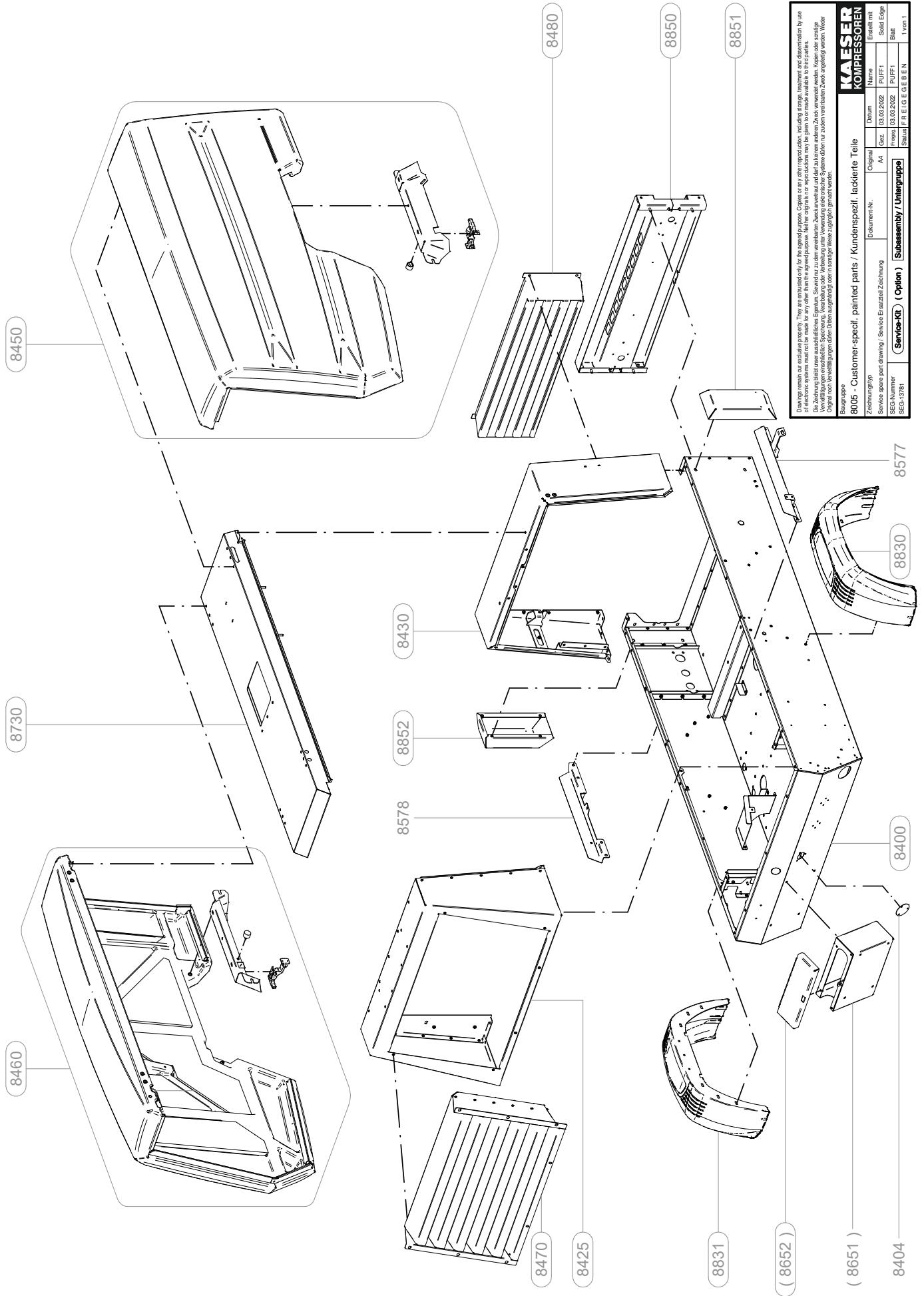


KAESER KOMPRESSOREN

8005 - Customer-specif. painted parts / Kundenspezif. lackierte Teile

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Subgruppe
Zzeichnungsp. Original Datum
Service spare part drawing / Service Ersatzteil Zeichnung A1 Gez. 03.03.2028
SECS-Number Document-Nr. Inves 03.03.2028
SEG-13780 (Service-Kit) (Option) Subassembly / Untereinheit Stahl F L E G E E N Blatt 1 von 1



KAESER KOMPRESSOREN

8605 - Customer-specif. painted parts / Kundenspezif. lackierte Teile

Original A1
Datei: 03.03.028
Reviz: 03.03.028
Status: F T E G E B E N

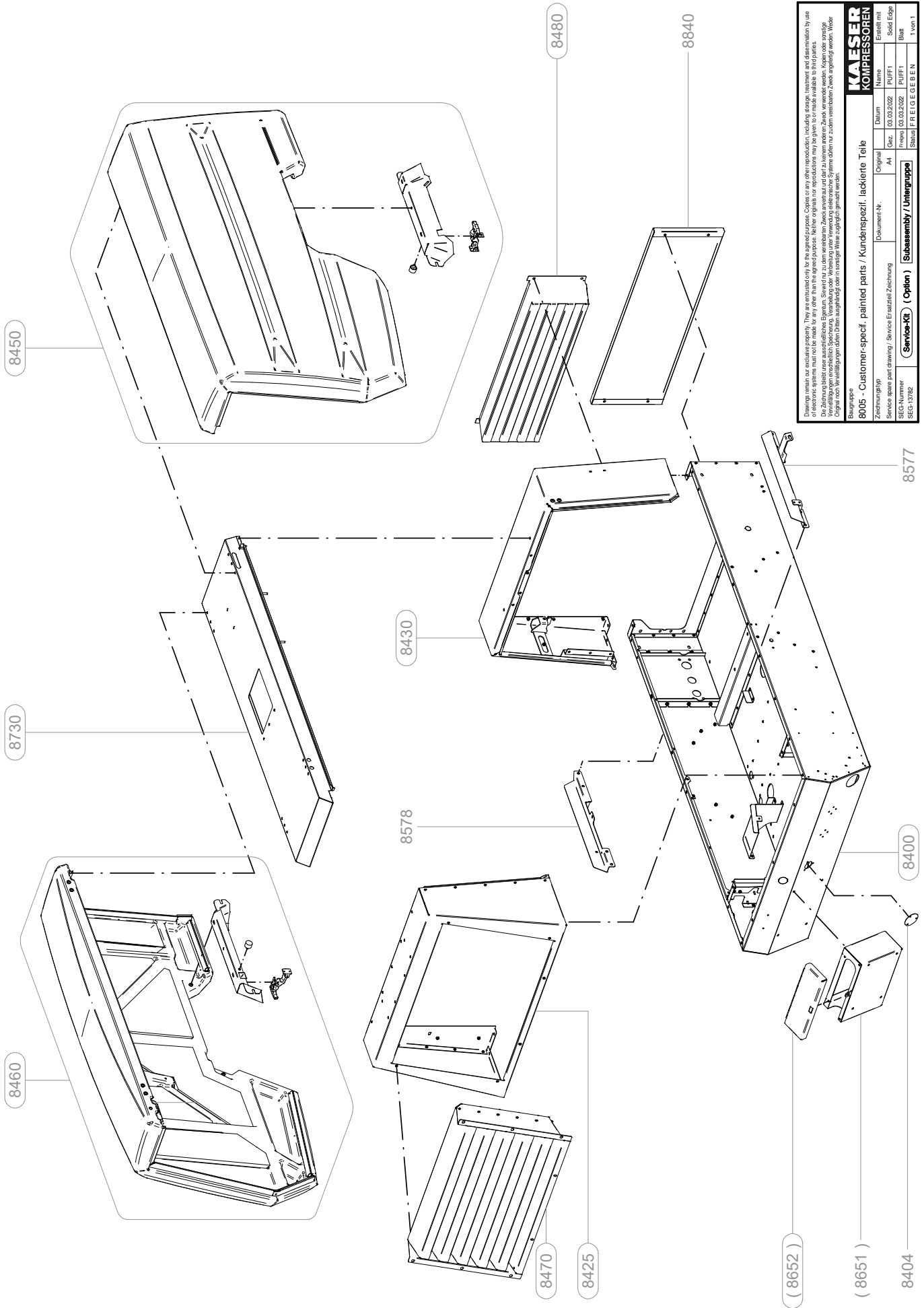
Blattgruppe
Zachung-Nr.
SEK-Nummer
SEG-12781

Erstellt mit
PUFFI
BME
1 von 1

Original A1
Datei: 03.03.028
Reviz: 03.03.028
Status: F T E G E B E N

(Service-Kit) (Option) Subassembly / Untereinheit

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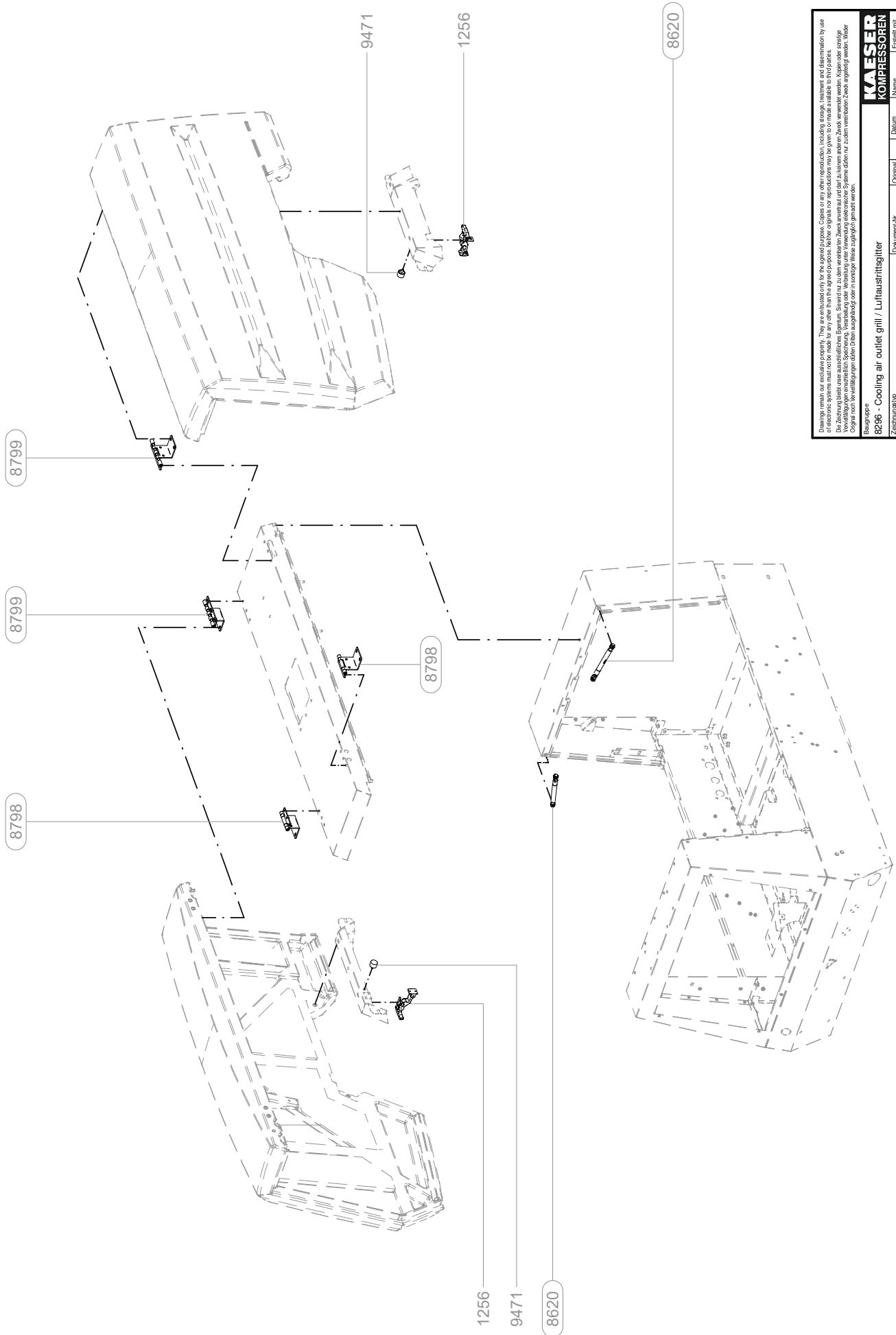


KAESER KOMPRESSOREN

8005 - Customer-specif. painted parts / Kundenspezif. lackierte Teile

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Zzeichnungsp.	Original	Datum	Erstellt mit
Service spare part drawing / Service-Ersatzteil-Zeichnung	A1	03.03.2022	PUFFI
SECS-Nummer	Subassembly / Untereinheit	Reviz.	Blatt
SEG-13782	(Service-Kit) (Option)	03.03.2022	PUFFI
		Skizze	1 von 1



KAESER KOMPRESSOREN

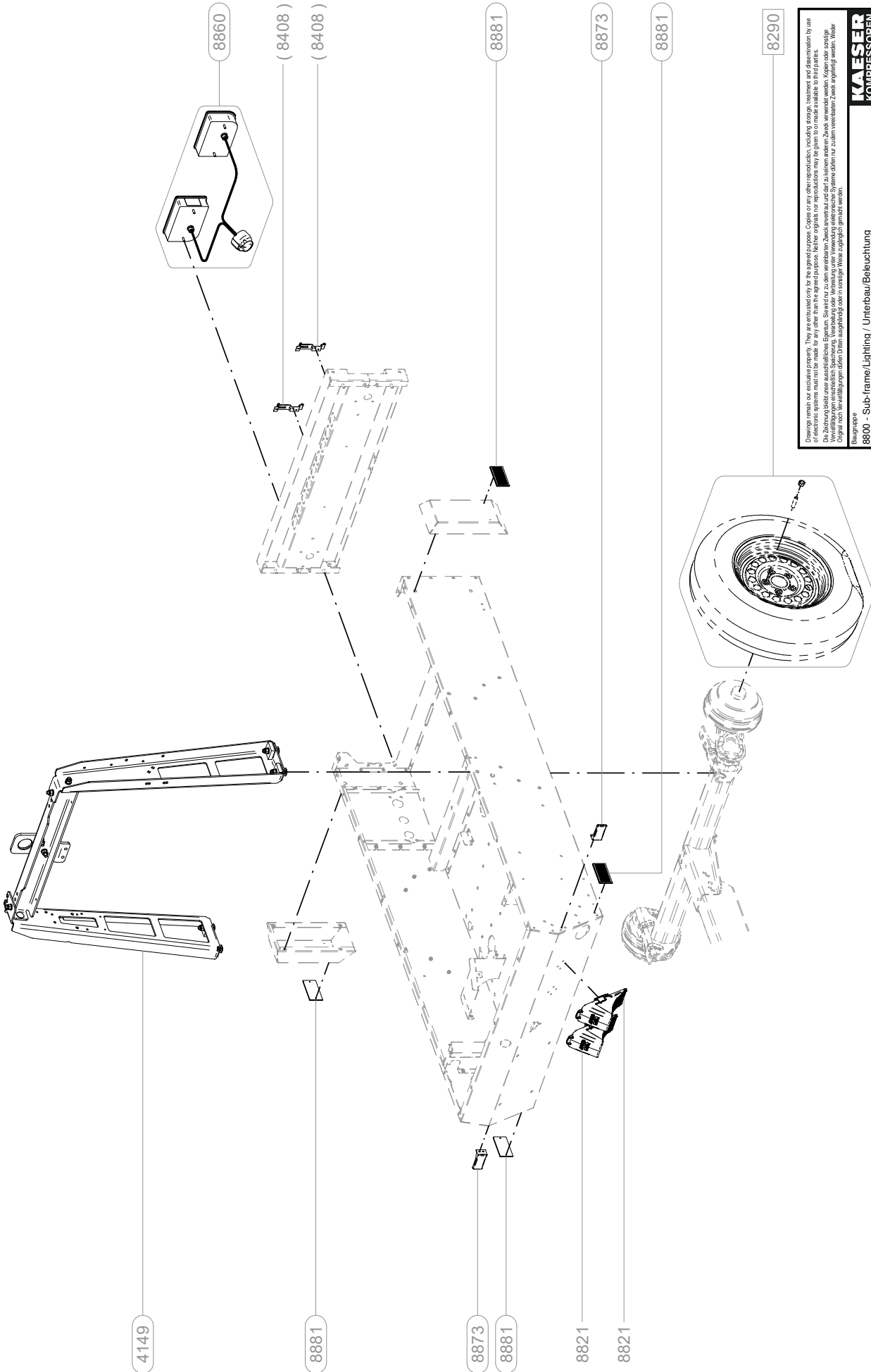
Original Name: PUFFI
Date: 03.03.2022
Original: A1
Drawing No.: 8620
Service spare part drawing / Service-Ersatzteil-Zeichnung: PUFFI
SECS-Number: 8620
Subassembly / Untereinheit: PUFFI

Subgroup: 8296 - Cooling air outlet grill / Luftaustrittsgitter

Drawing No.: 8620
Date: 03.03.2022
Original: A1
Drawing No.: 8620
Service spare part drawing / Service-Ersatzteil-Zeichnung: PUFFI
SECS-Number: 8620
Subassembly / Untereinheit: PUFFI

Sheet: 1 of 1

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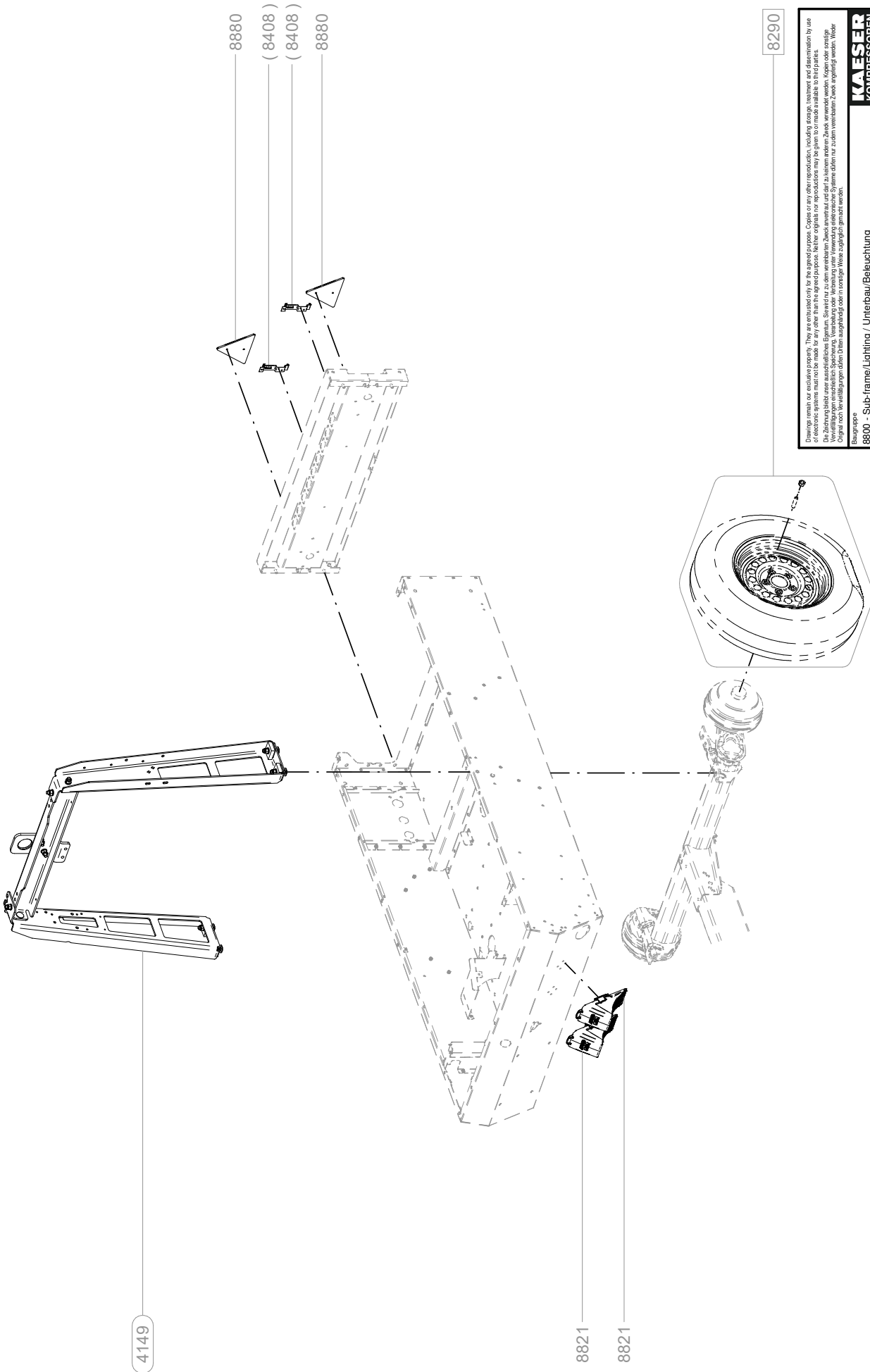


KAESER KOMPRESSOREN

8800 - Sub-frame/Lighting / Unterbau/Beleuchtung

Zzeichnungstyp		Datum	
Original	A4	Original	A4
Service spare part drawing / Service-Ersatzteil-Zeichnung		03.03.2022	
SECC-Nummer		Revisi	
SEG-13774		03.03.2022	
(Service-Kit) (Option) Subassembly / Untereinheit		Statu	F.T.E.G.E.B.E.N.
			1 von 1

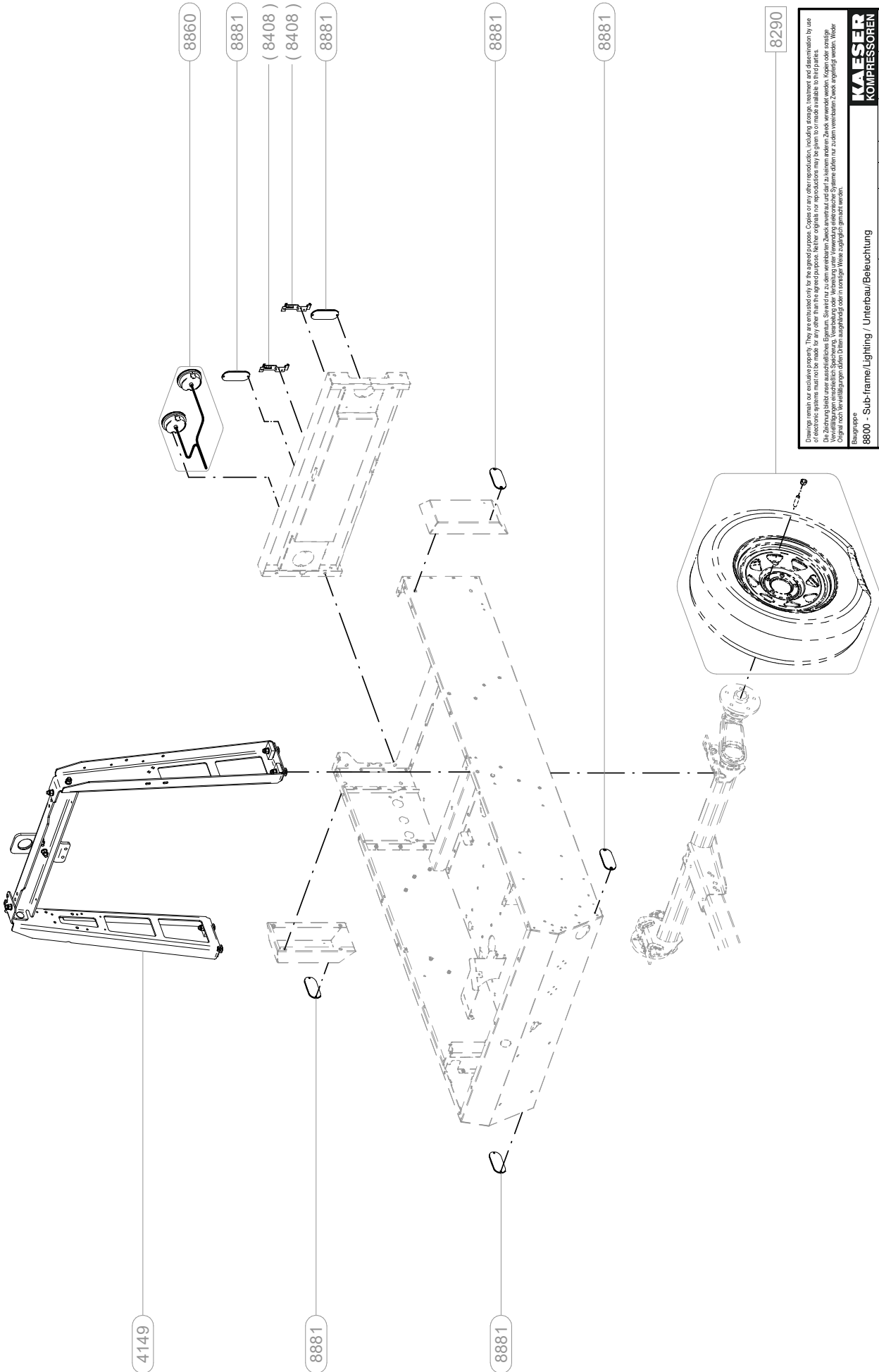
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Blattgruppe
8800 - Sub-frame/Lighting / Unterbau/Beleuchtung

KAESER KOMPRESSOREN		Erstellt mit	
Zzeichnungstyp	Dokument-Nr.	Name	Datum
Service spare part drawing / Service-Ersatzteil-Zeichnung	A1	PUFFI	03.03.2022
SEK-Nummer	Original	PUFFI	03.03.2022
SEG-13775	(Service-Kit) (Option)	PUFFI	03.03.2022
	Subassembly / Untereinheit	PUFFI	03.03.2022
		Blatt	1 von 1

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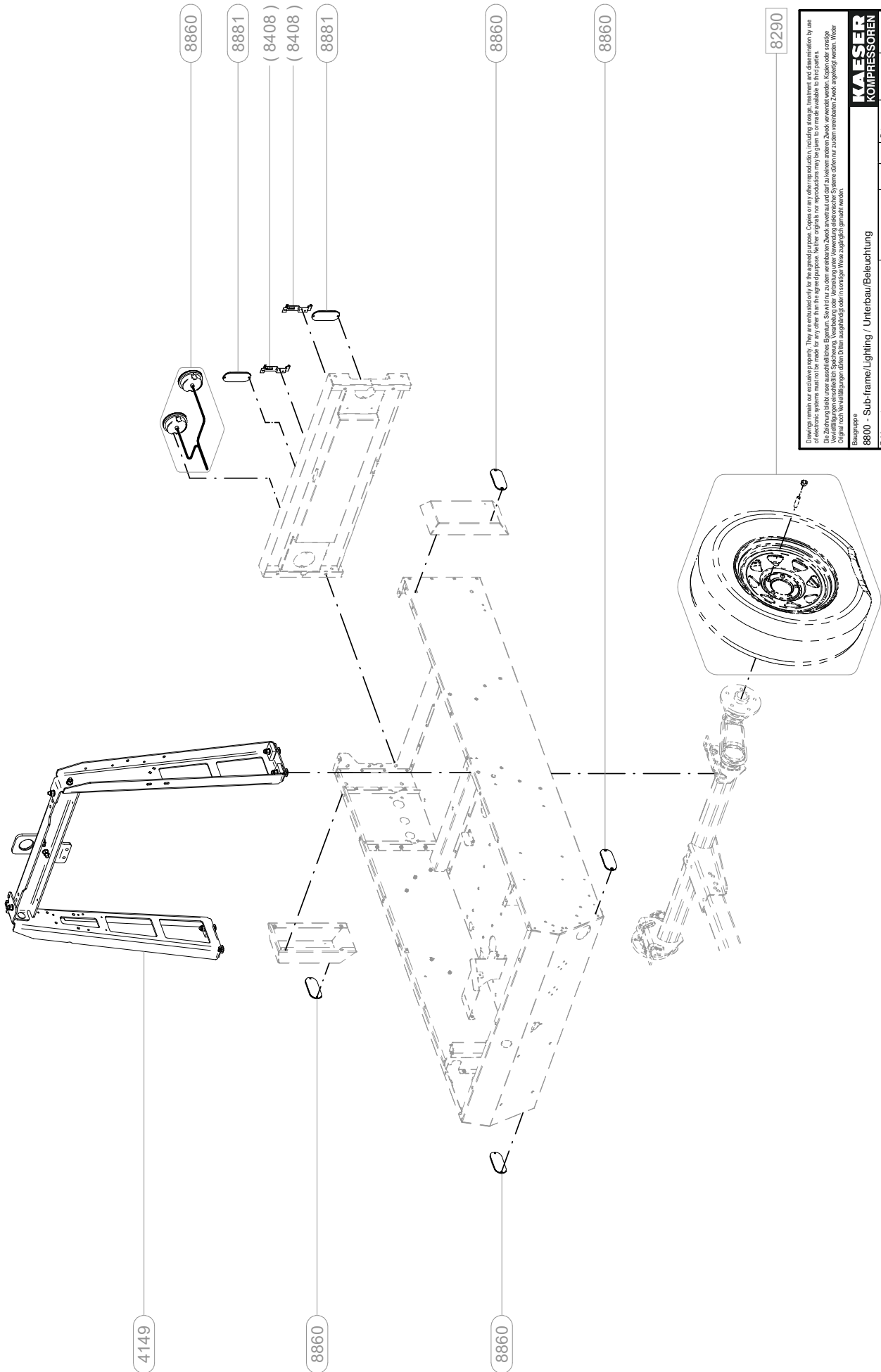
KAESER KOMPRESSOREN

8800 - Sub-frame/Lighting / Unterbau/Beleuchtung

Blattgruppe: SEG-13/76 (Service-Kit) (Option) Subassembly / Untereinheit

Zzeichnungstyp	Original	Datum	Erstellt mit
Service spare part drawing / Service-Ersatzteil-Zeichnung	A1	03.03.2022	PUFFT
SECS-Nummer	SECS	03.03.2022	PUFFT
SEG-13/76	Subassembly / Untereinheit	Blatt	1 von 1

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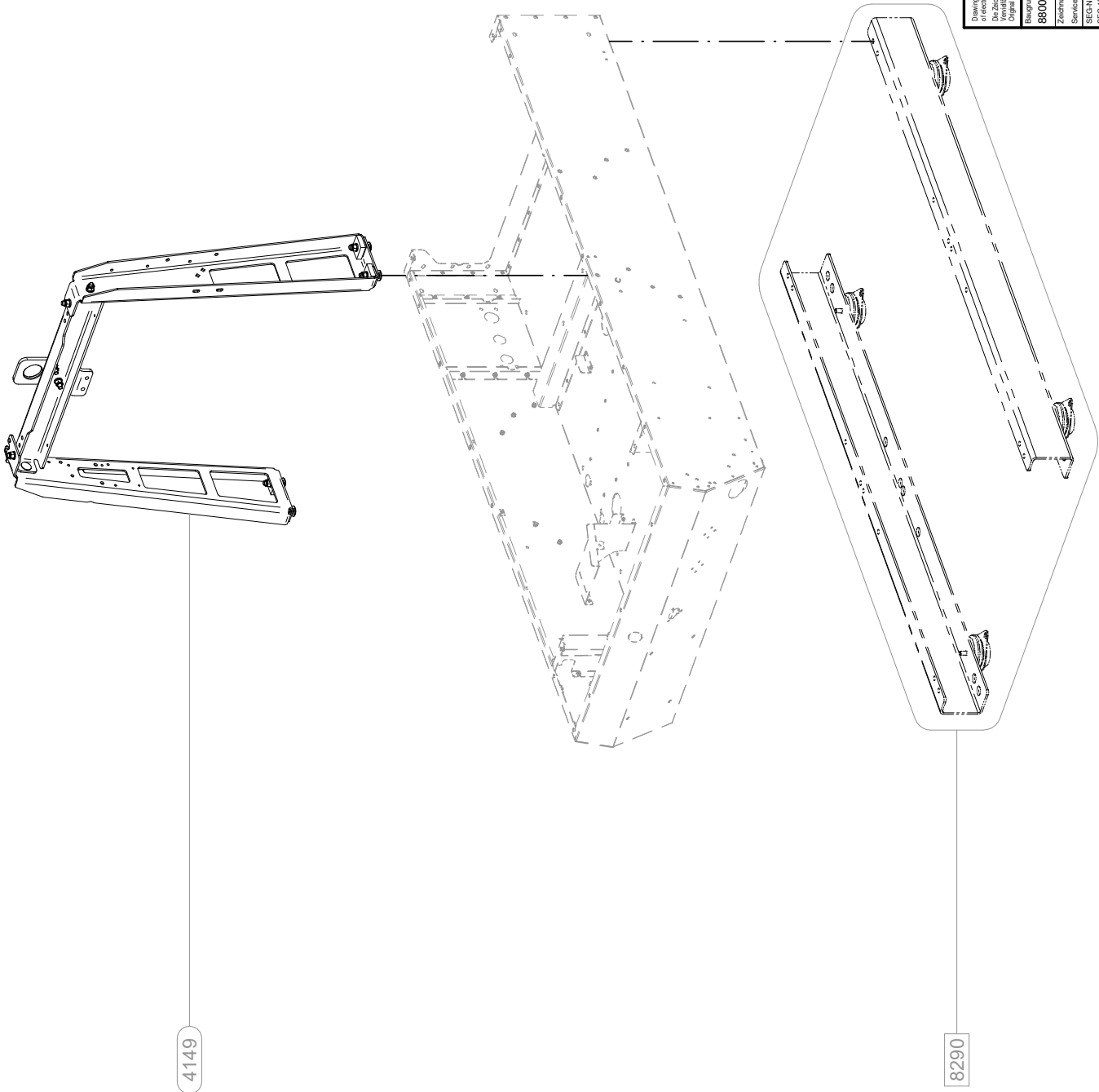
KAESER KOMPRESSOREN

8800 - Sub-frame/Lighting / Unterbau/Beleuchtung

Blattgruppe: 1 von 1

Zzeichnungstyp	Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part drawing / Service-Ersatzteil-Zeichnung	A1	03.03.2022	PUFFI	Solid Edge	
SECS-Nummer	Subassembly / Untereinheit	Reviz	Datum	Erstellt mit	Blatt
SEG-13777	(Service-Kit) (Option)	03.03.2022	PUFFI	Solid Edge	
			Blatt		

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Original Name: Einseitl mit

Gez.: 03.03.2022 PUUFF Solid Edge

Revis.: 03.03.2022 PUUFF Blatt

Status: F T E L G E E N

1 von 1

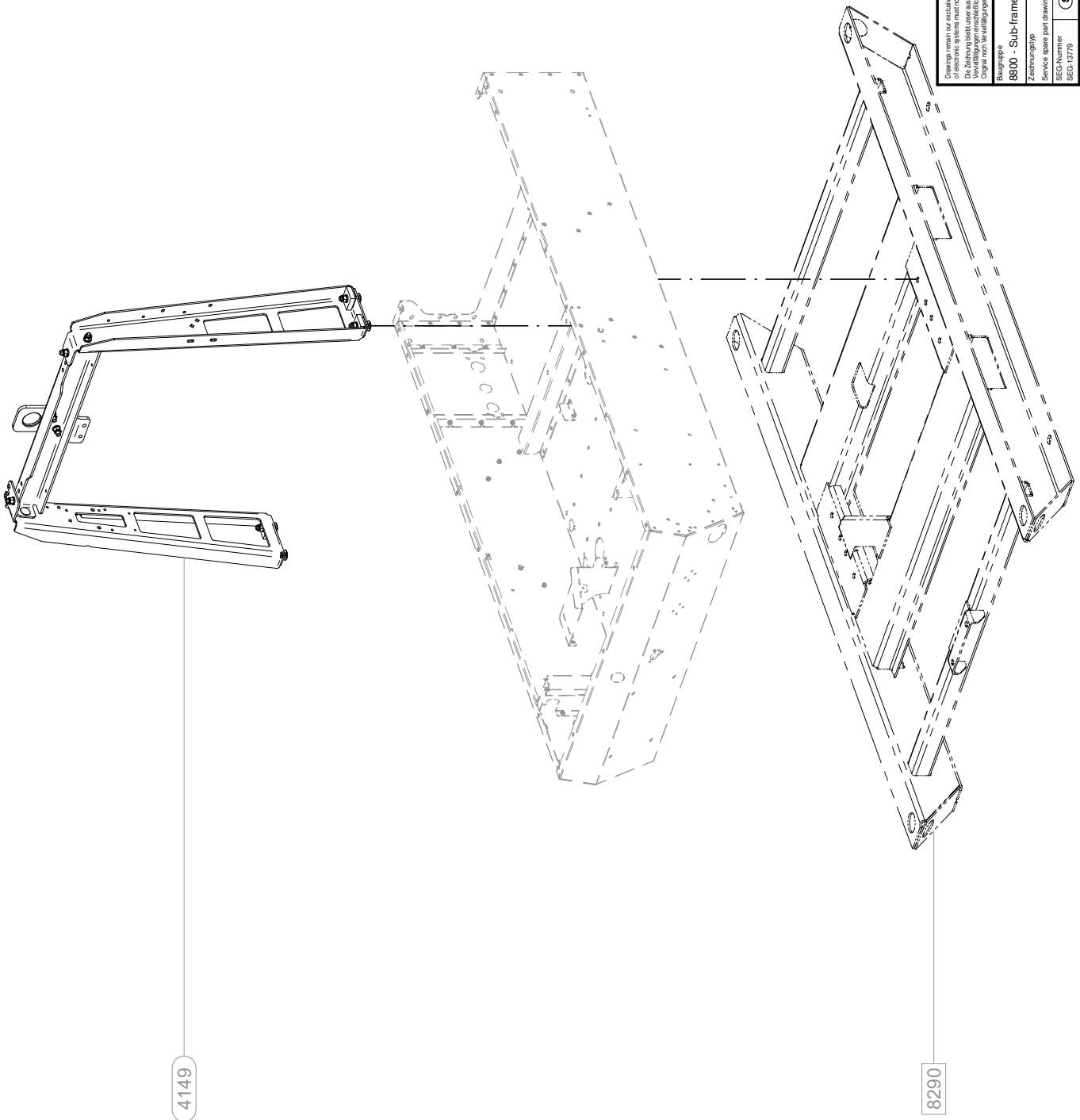
Blattgruppe: 8800 - Sub-frame/Lighting / Unterbau/Beleuchtung

Zzeichnungstyp: Dokument-Nr.

Original: A1

SECS-Nummer: SEG-13778

(Service-Kit) (Option) Subassembly / Untereinheit



4149

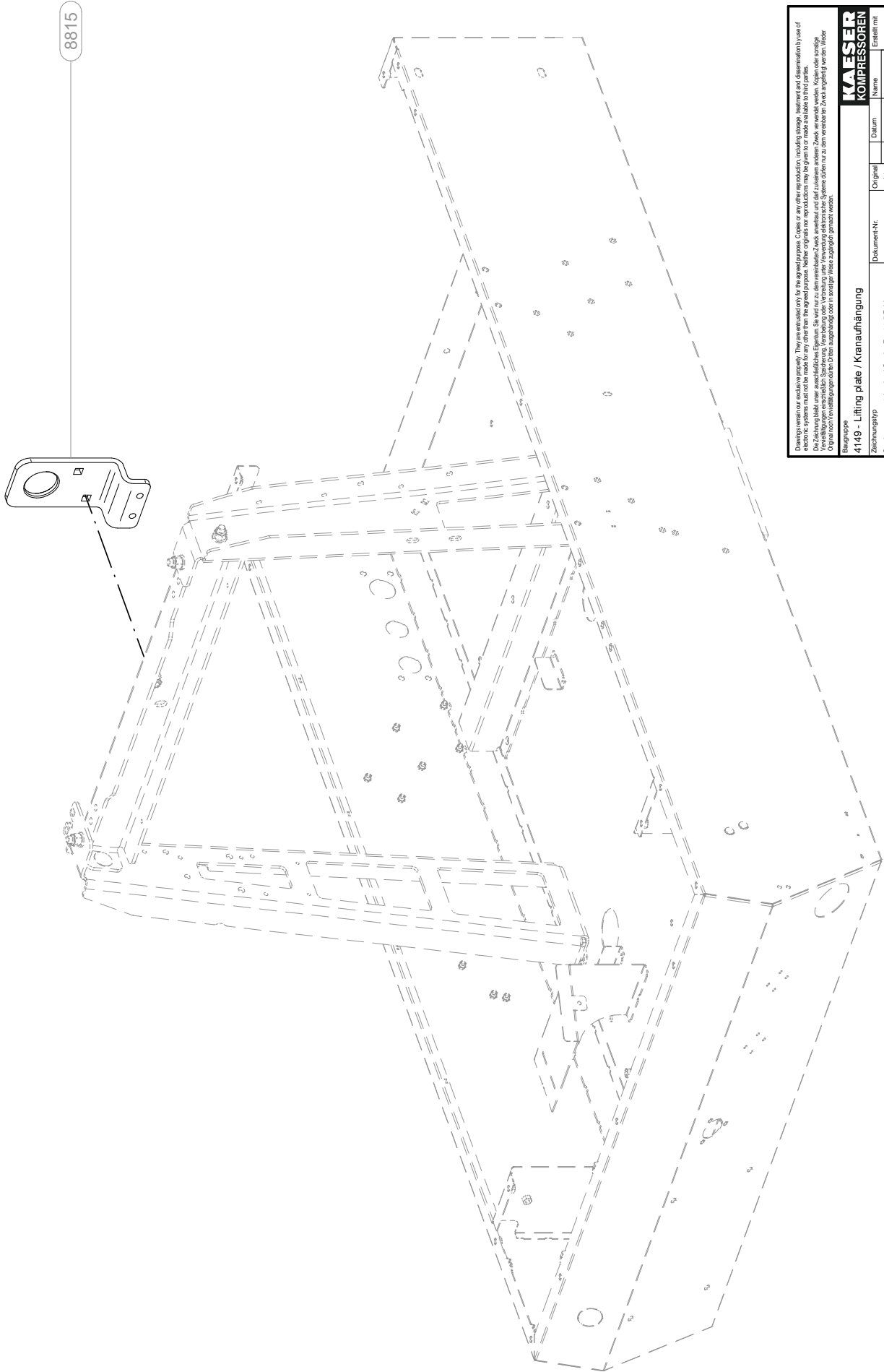
8290

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Original Name Datum
Erstellt mit
PUUFF PUUFF Solid Edge
Gez. 03.03.2022
Reviz. 03.03.2022
Status F T E G E B E N 1 von 1

Blattgruppe
8800 - Sub-frame/Lighting / Unterbau/Beleuchtung
Zzeichnungstyp Dokument-Nr.
Service spare part drawing / Service-Ersatzteil-Zeichnung
A1
SEK-Nummer (Option) Subassembly / Untereinheit
SEG-13779

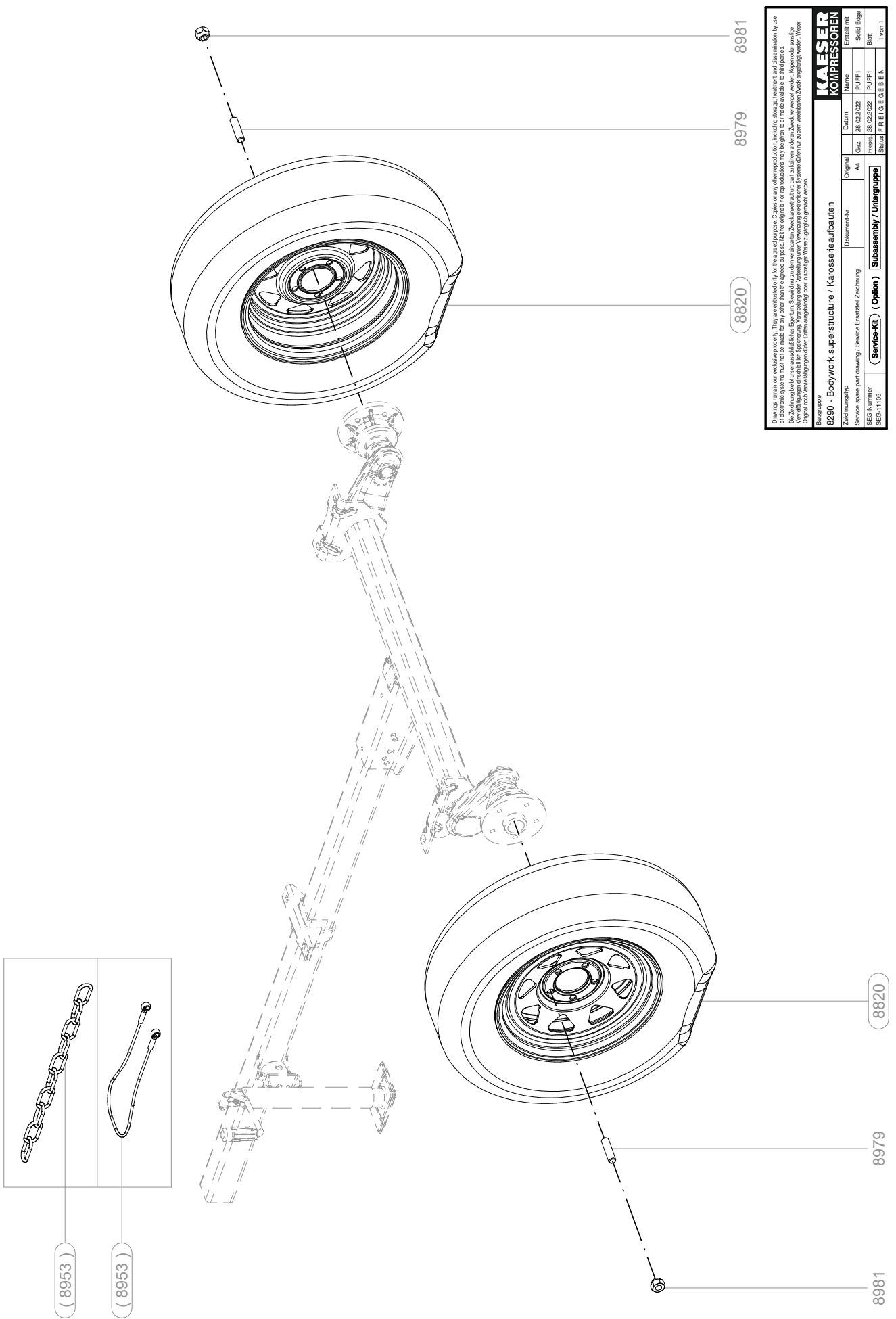
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Original		Solid Edge	
Zachnungstyp	Datum	Name	
Service spare part drawing / Service Ersatzteil Zeichnung	10.02.2020	PUFFI	
SECS-Nummer	Ar	Gez.	PUFFI
SEG-11110		Revised	28.07.2020
		Status	F R E I G E G E B E N
		Blattgruppe / Unterguppe	
		1 von 1	

Blattgruppe
4149 - Lifting plate / Krananhangung



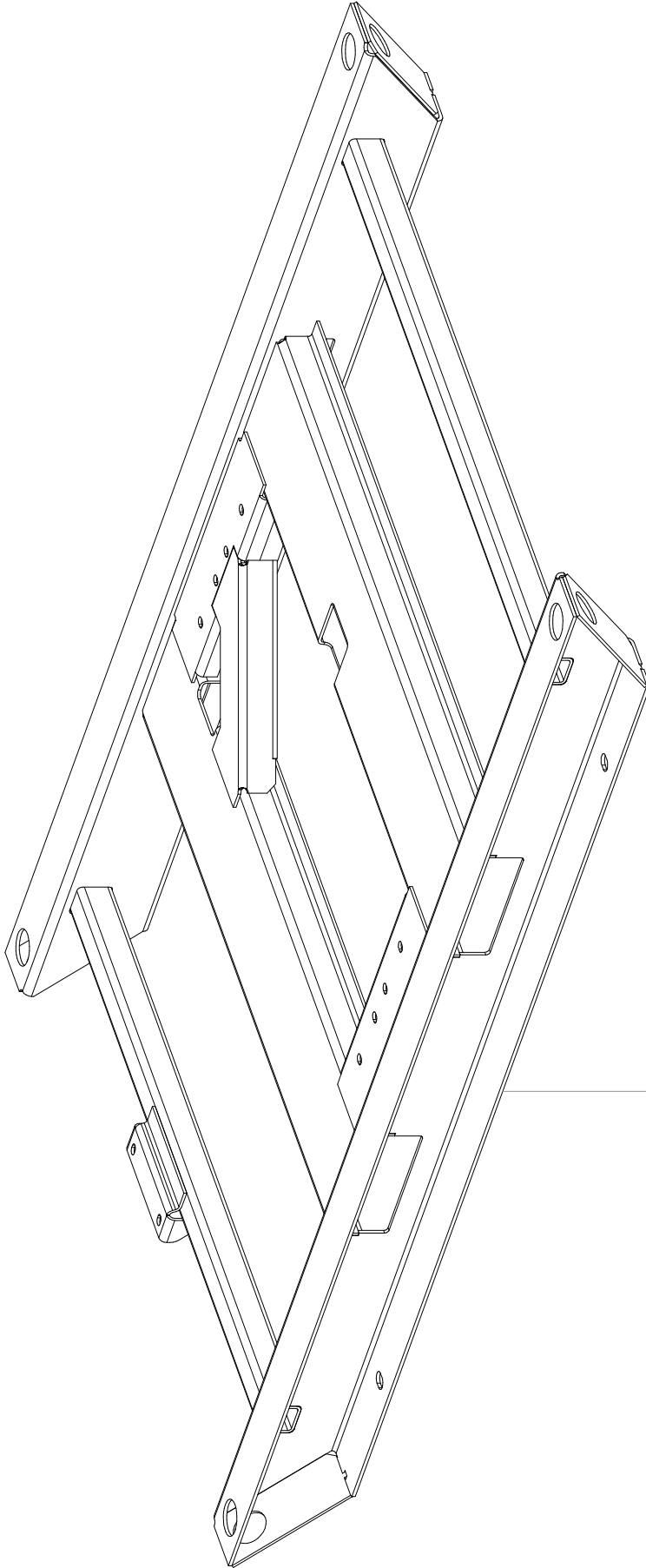
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Blattgruppe: 88290 - Bodywork superstructure / Karosserieaufbauten

Zzeichnungstyp	Dokument-Nr.	Original	Datum	Name	Erstellt mit
Service spare part drawing / Service-Ersatzteil-Zeichnung	A1		28.02.2022	PUFFI	Solid Edge
SECS-Nummer			Revised: 28.02.2022	PUFFI	BAW
SEG-11 026			Skizze / F.T.E.G.E.B.E.N.		1 von 1

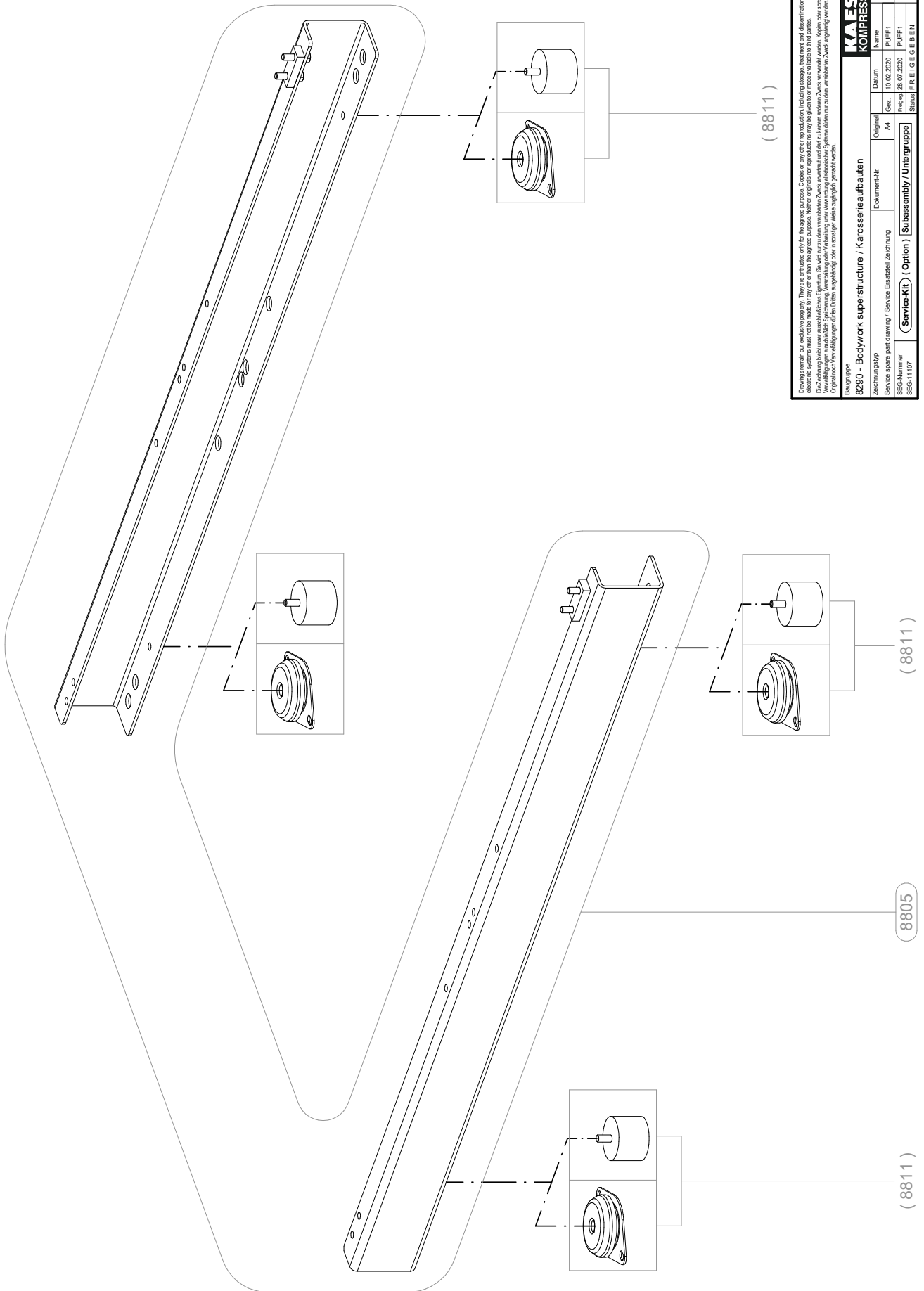
(Service-Kit) (Option) Subassembly / Untereinheit



8810

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KAESER KOMPRESSOREN		Erstellt mit	1 von 1
Bezeichnung/Typ	Original	Datum	
Service spare part drawing / Service Ersatzteil Zeichnung	Dokument-Nr.	Gez.	10.02.2020
SEG-Nummer	Original	Reviz.	07.2020
SEG-11/103	Service-Kit (Option) / Subassembly / Untereinheit	Status	F R E I G E G E B E N



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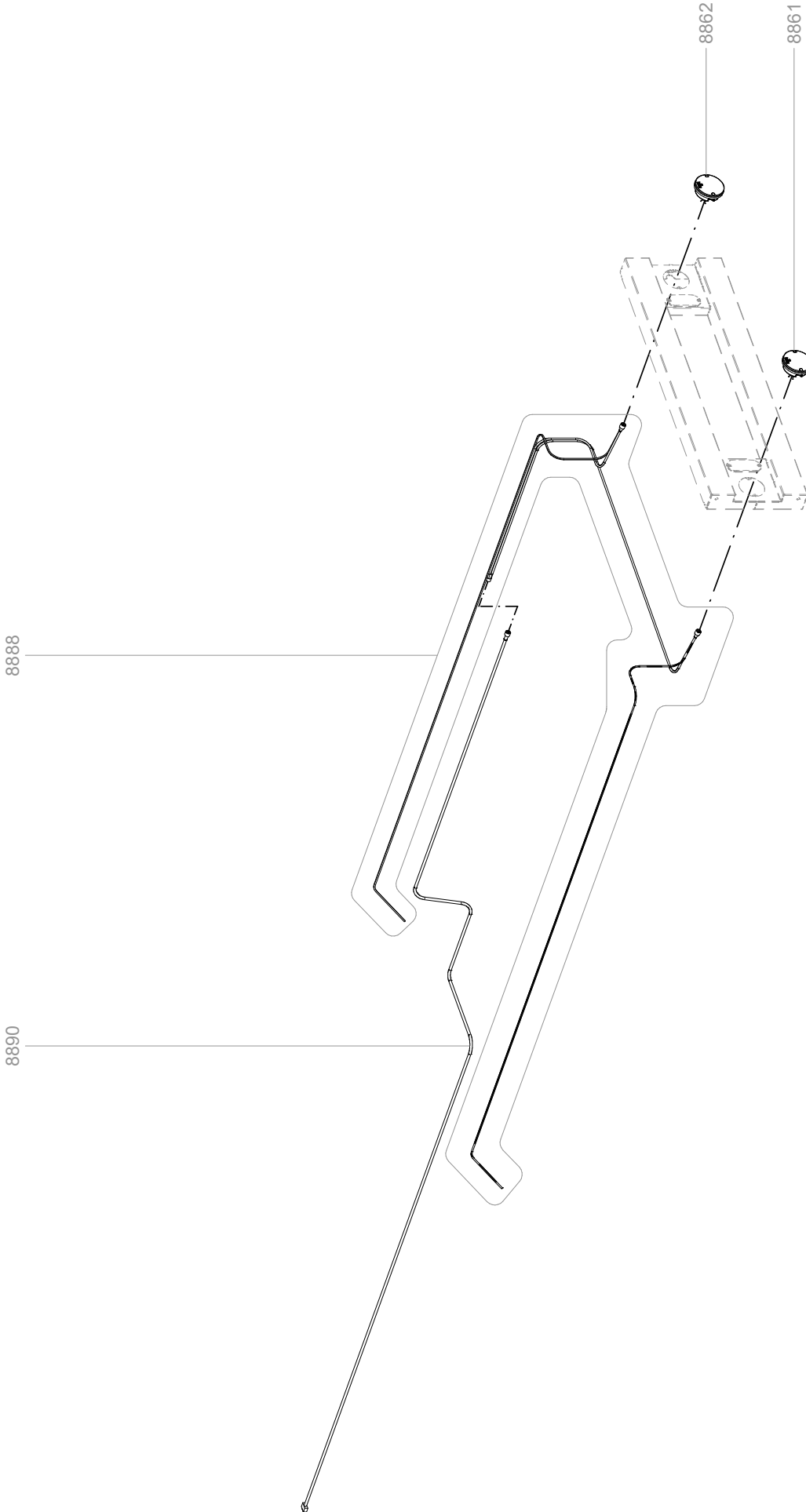
Original Name Datum
 Service spare part drawing/ Service Ersatzteil Zeichnung Original Name Datum
 A1 10.02.2020
 PUFF1
 PUFF1
 PUFF1
 PUFF1

SECC-Nummer SEG-11/07
 Subassembly / Untereinheit
 Status F R E L G E B E N

Blatt 1 von 1

8290 - Bodywork superstructure / Karosserieaufbauten
 Dokument-Nr.
 Zeichnungsart
 Datei
 Reviz. / Änderung
 Reviz. / Änderung
 Reviz. / Änderung
 Reviz. / Änderung

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Beleggruppe: 88600 - Lighting set / Beleuchtungssatz

Zeichnungsmappe: Original

Service spare part drawing / Service Ersatzteil Zeichnung: Dokument-Nr. Original

SECS-Nummer: SEG-11/03

Service-Kit (Option) / Subassembly / Untereinheit: Subassembly / Untereinheit

Stand: F R E I G E G E B E N

Erstellt mit: Datum: 10.02.2020

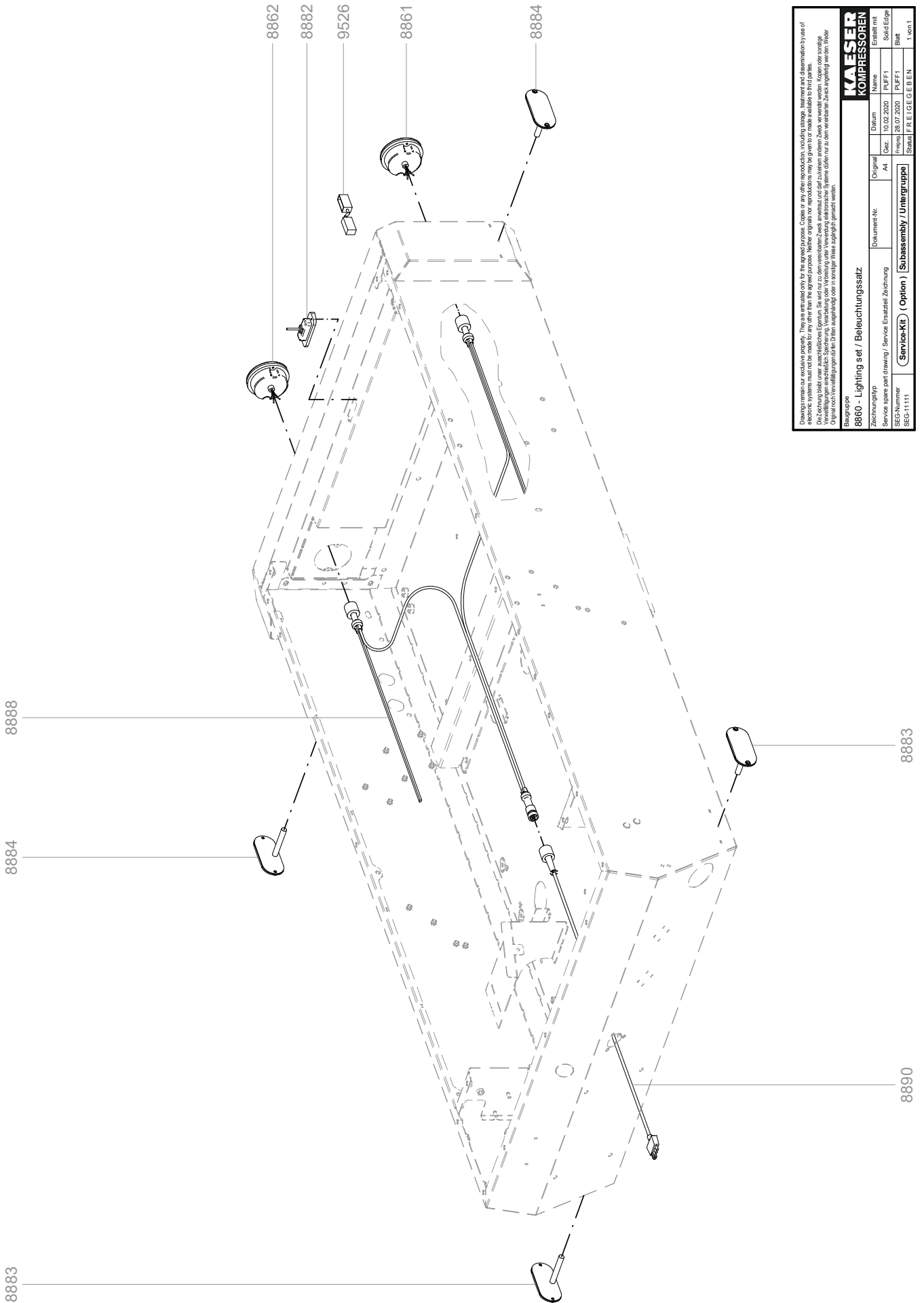
PUFFI

Reviz. 28.07.2020

PUFFI

Blatt: 1 von 1

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Original
 Zeichnungstyp: Service spare part drawing / Service Ersatzteil Zeichnung
 SEG-Nummer: SEG-11111
 Original: A1
 Gez.: 10.02.2020
 Datum: 10.02.2020
 Name: PUFFI
 Erteilt mit: Solid Edge
 Blatt: 1 von 1
 Status: F R E I G E G E B E N

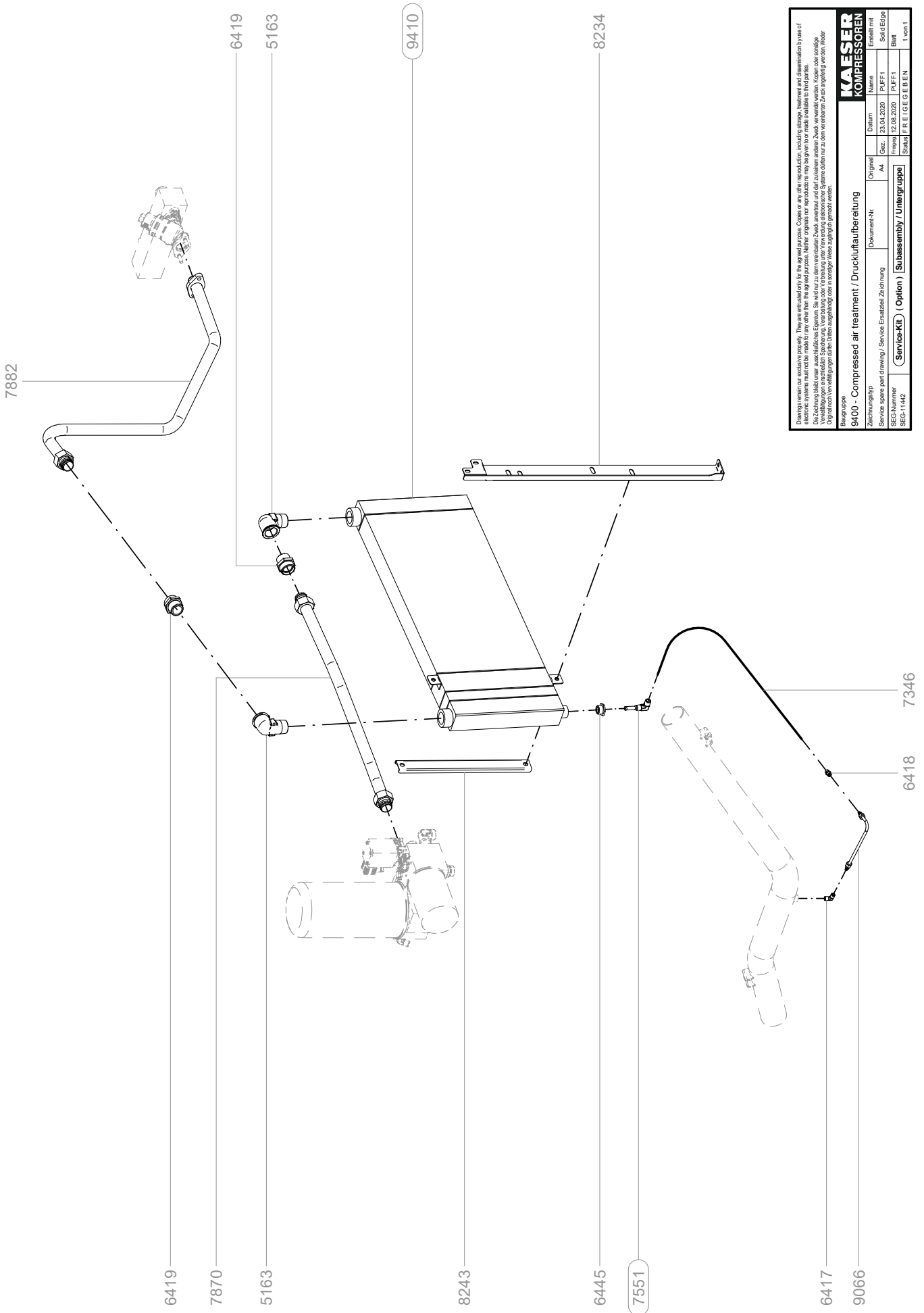
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8860 - Lighting set / Beleuchtungssatz
 Baugruppe
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Zachungsname	Dokument-Nr.	Original	Datum
Service spare part drawing / Service Ersatzteil Zeichnung	A1	102.04.2020	PUFFI
SECS-Nummer	SECS-Gruppe / Unterguppe	Revised	12.08.2020
SEG-11.391	Service-KIT (Option) / Subassembly / Unterguppe	Status	F.R.E.G.E.B.E.N.
			1 von 1



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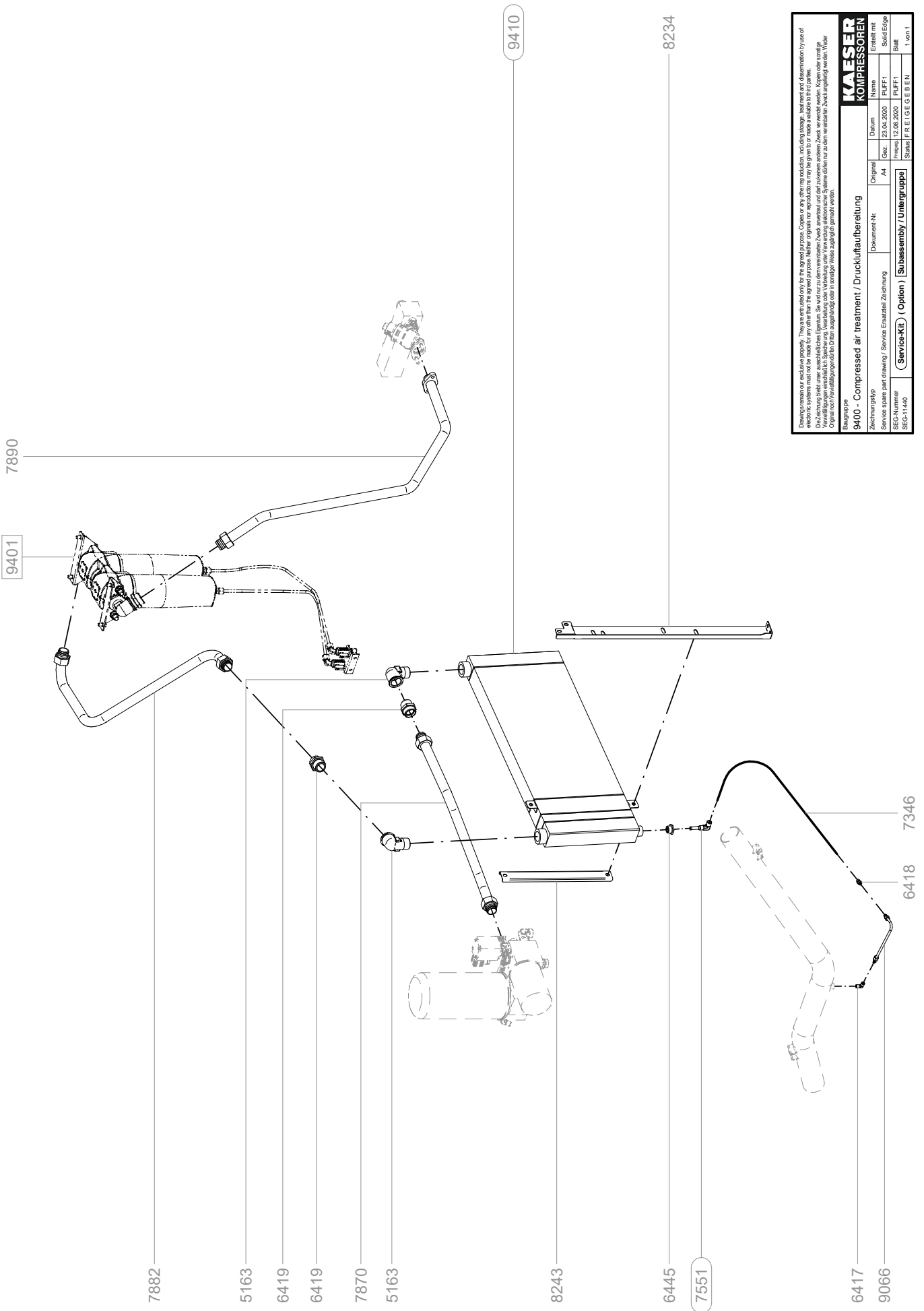
9400 - Compressed air treatment / Druckluftaufbereitung

Original / Original
 Zeichnungstyp / Drawing type
 Service spare part drawing / Service Ersatzteil Zeichnung
 Dokument-Nr. / Document No.
 Original / Original
 Name / Name
 PUFFI / PUFFI
 Datum / Date
 23.04.2020
 A1 / A1
 Gez. / Gez.
 12.08.2020
 PUFFI / PUFFI
 Erteilt mit / Issued with
 Blatt / Sheet
 F R E I G E G E B E N / F R E I G E G E B E N
 1 von 1 / 1 von 1

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Blattgruppe / Sheet group
 (Service-Kit) (Option) / (Service-Kit) (Option) / Untereinheit / Subassembly

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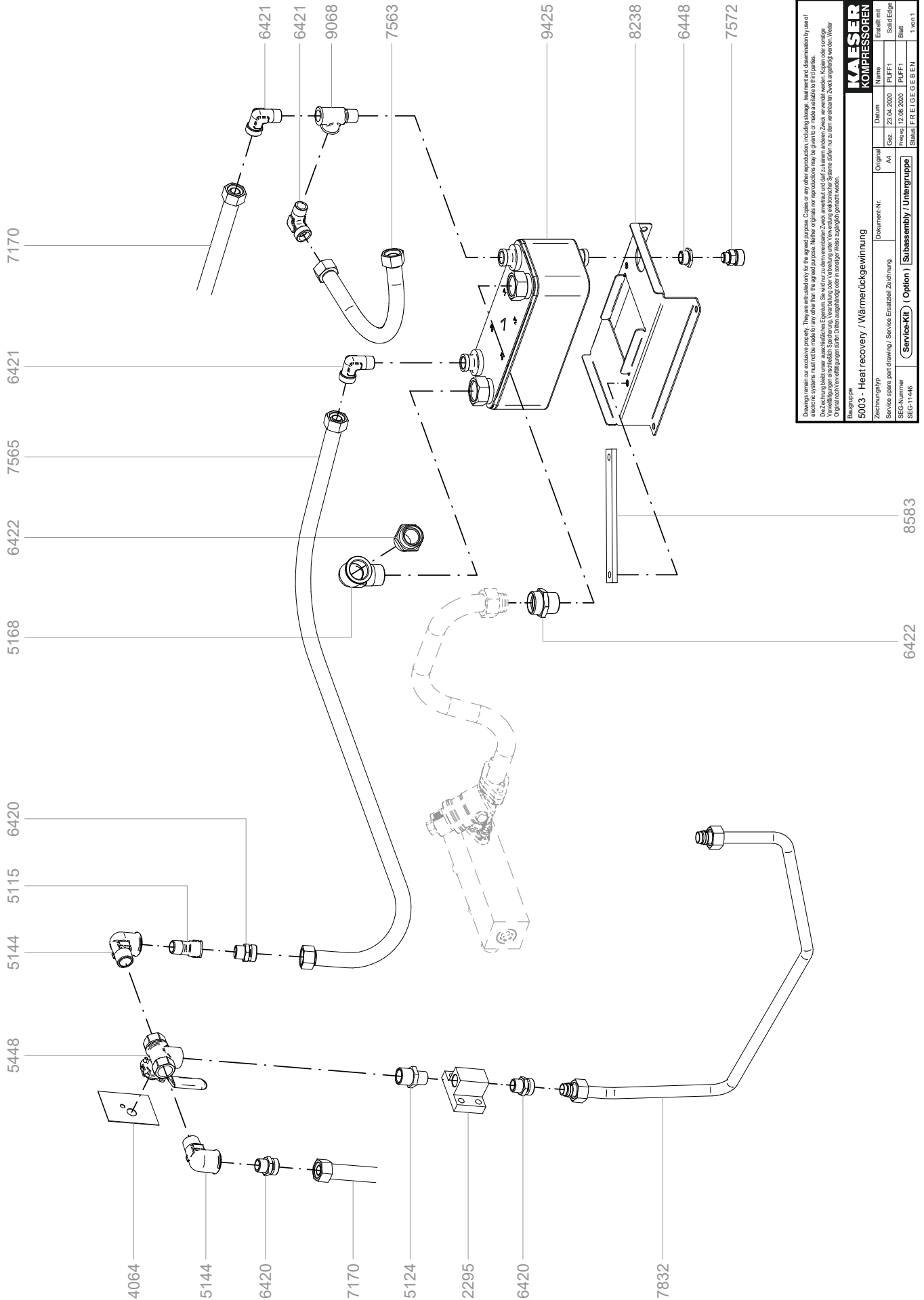


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Blattgruppe
9400 - Compressed air treatment / Druckluftaufbereitung

Zachnungstyp	Dokument-Nr.	Original	Name	Datum	Erstellt mit
Service spare part drawing/ Service Ersatzteil Zeichnung	A1	Original	PUFF1	23.04.2020	Solid Edge
SECS-Nummer	Subassembly / Untereinheit	Stanz	PUFF1	12.08.2020	Blatt
SEG-11440	(Service-Kit) (Option)	Stanz	PUFF1	12.08.2020	Blatt
			PUFF1		1 von 1

Druckluftsysteme sind explosionsgefährlich. Diese sind ausschließlich für den bestimmungsgemäßen Einsatz in explosionsgeschützten Bereichen und ausschließlich für den bestimmungsgemäßen Einsatz in explosionsgeschützten Bereichen. Nach dem originalen Hersteller sind diese Systeme nicht für andere Zwecke geeignet. Die Zeichnung bildet unser ausschließliches Eigentum. Sie wird nur zu dem vereinbarten Zweck anvertraut und darf zu keinem anderen Zweck verwendet werden. Kopieren oder sonstiger Vervielfältigungen sind ausdrücklich untersagt. Änderungen oder Verbesserungen ohne schriftliche Genehmigung sind ausdrücklich untersagt. Die Verantwortung für die Einhaltung der geltenden Vorschriften liegt bei dem Anwender. Die Verantwortung für die Einhaltung der geltenden Vorschriften liegt bei dem Anwender. Die Verantwortung für die Einhaltung der geltenden Vorschriften liegt bei dem Anwender.



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5003 - Heat recovery / Wärmerückgewinnung

Blattgruppe: 1 von 1

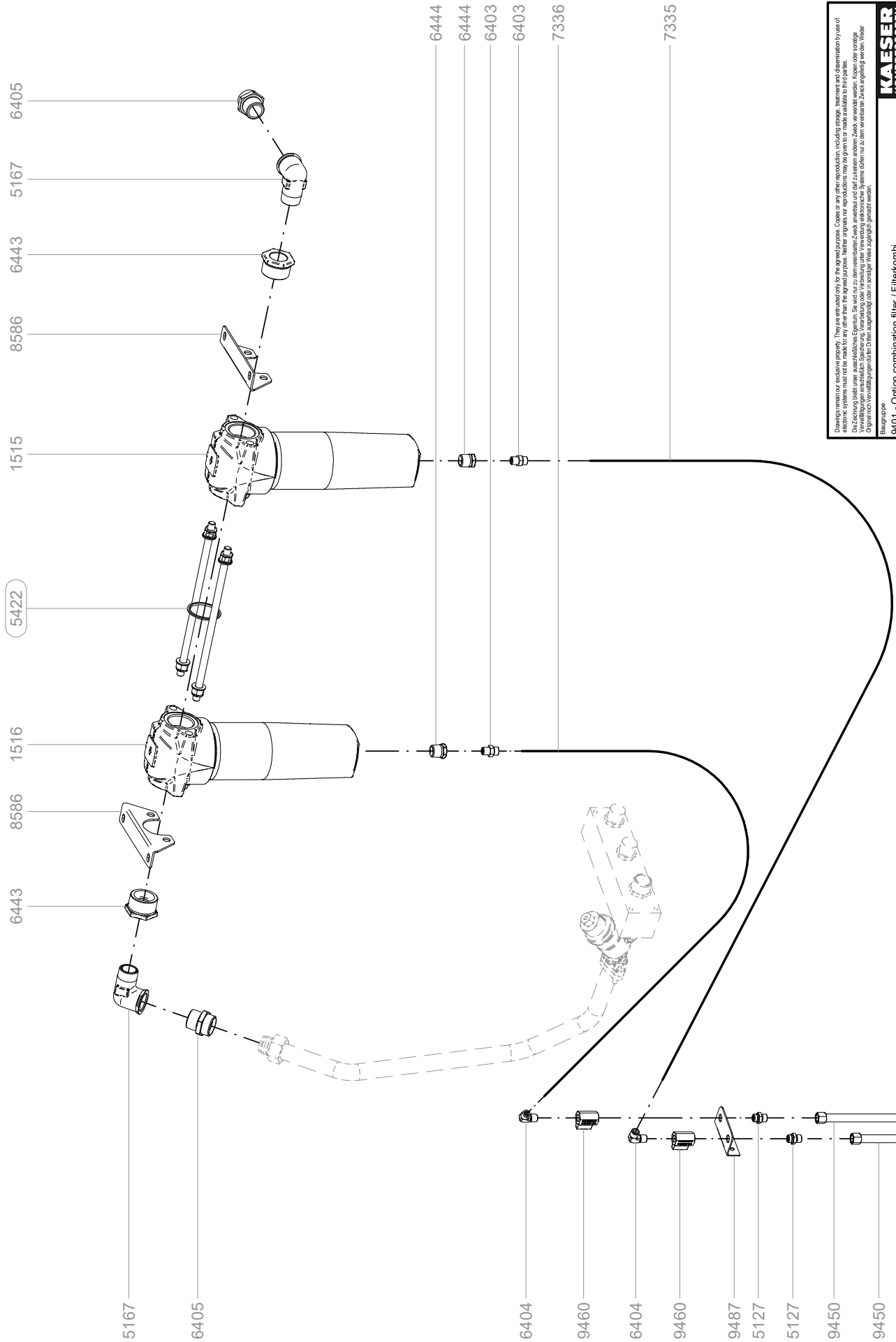
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Date: 23.04.2020
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Date: 23.04.2020

Service spare part drawing / Service Ersatzteil Zeichnung
Document No.:
Date: 12.08.2020
Revised: 12.08.2020

SEG-Nummer: SEG-11446
Status: F R E I G E G E B E N

Subassembly / Untereinheit: (Service-Kit) (Option)

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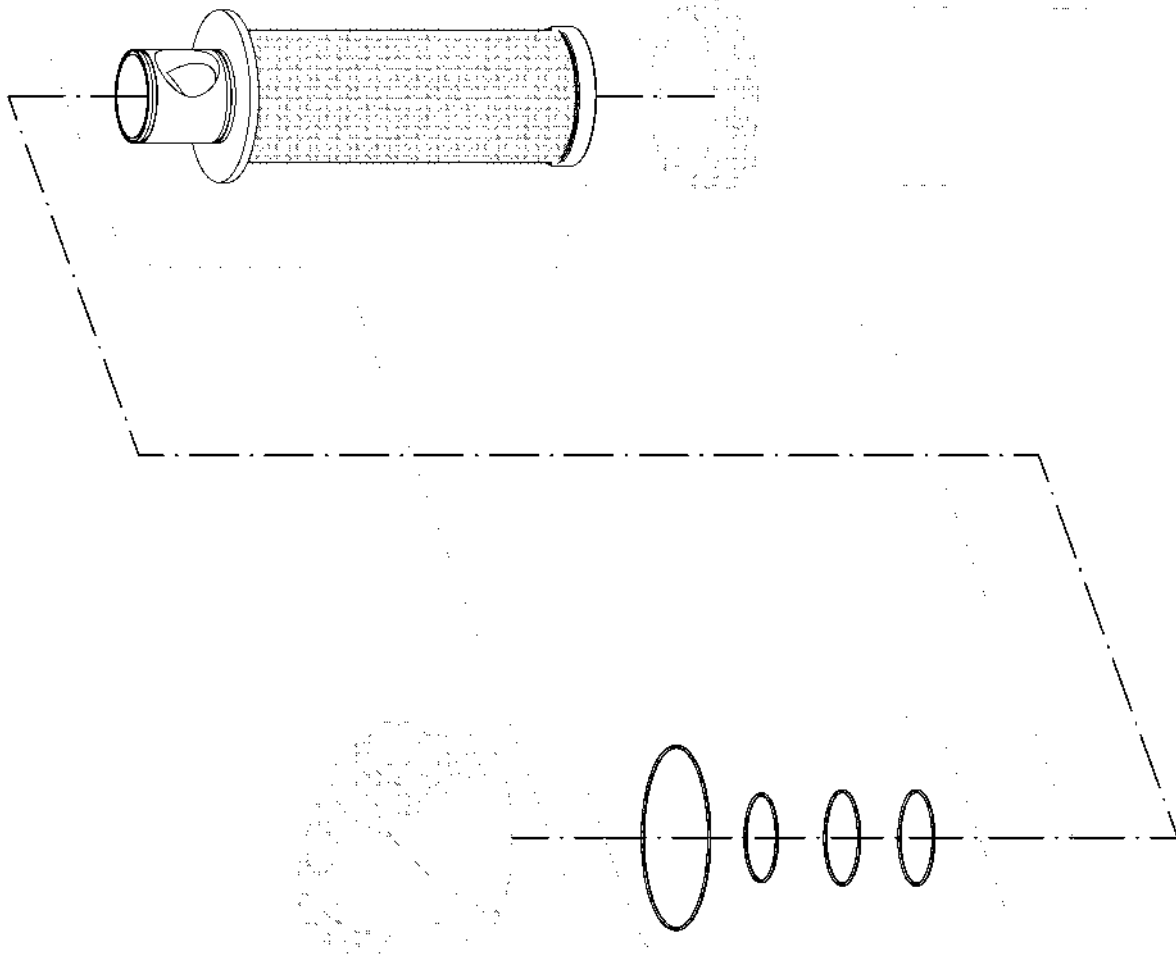


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Blattgruppe: 9401 - Option combination filter / Filterkombi

Zachnungstyp	Original	Name	Erstellt mit
Service spare part drawing / Service Ersatzteil Zeichnung	A1	PUFFI	Solid Edge
SECS-Nummer	Dokument-Nr.	Datum	Reviz.
SEG-11447	9401	23.04.2020	1
		Erstellt	12.08.2020
		Revised	12.08.2020
		Status	F R E I G E G E B E N
		Subassembly / Untereinheit	1 von 1



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Original-Bezeichnung: 1519 - Compressed air pre-filter / Druckluft-Vorfilter

Zeichnungsgruppe	Druckluft	Gruppe	Umfang	15.001.001
Service-Kit-Code	1519	AC	15.10.2017	15.10.2017
ST-Nummer	1519	1519	15.10.2017	15.10.2017
SES 90236 01	(Service-Kit)	(Option)	(Subassembliert)	(Untergruppe)

12 Decommissioning, Storage and Transport

12.1 Decommissioning

Decommissioning is necessary, for example, under the following circumstances:

- The machine is temporarily not needed
- The machine will not be needed for a considerable time.
- The machine is to be scrapped.

Precondition The machine is shut down.

Machine dry and cool.

1. Carry out the following decommissioning procedures.
2. Place a notice on the instrument panel describing the decommissioning procedures carried out.

12.1.1 Temporary decommissioning

Decommissioning the machine for periods of approximately 4 months.

Material Plastic sheeting

Moisture-resistant adhesive tape

1. Disconnect the battery/batteries (negative pole first, then the positive pole).
2. Close off the following openings with plastic foil and moisture-resistant adhesive tape:
 - Engine air inlet
 - Compressor air inlet
 - Exhaust silencer
3. Attach the following notice on the instrument panel, showing the decommissioning measures taken:

Attention!

1. This machine is temporarily decommissioned.
 2. The following openings have been closed off:
 - Engine air inlet
 - Compressor air inlet
 - Exhaust silencer
 3. Recommission in accordance with the operating manual.
- Date / signature:

Tab. 90 "Temporarily decommissioned" information notice

Decommissioning the machine for several weeks during severe frost:

1. **NOTICE** *Danger of batteries freezing!*
Discharged batteries are susceptible to frost damage and can freeze at 14°F.
 - *Store batteries in a frost-proof location.*
 - *Store batteries as fully charged as possible.*

2. Remove the battery/batteries and store in a frost-free room.
3. Ensure batteries are fully charged; charge if necessary.

12.1.2 Long-term de-commissioning/storage

De-commissioning the machine for 5 months or longer.



The classification of the preserving oil for the drive engine must at least correspond to the classification for the engine oil, see chapter .2.8.2

- Material
- Receptacle
 - Preserving oil
 - Preservative
 - Desiccant
 - Plastic sheeting
 - Moisture-resistant adhesive tape

➤ The following measures must be taken for long-term decommissioning and storage:

Long-term decommissioning and storage tasks	see Chapter	Confirmed?
➤ Check the drive engine coolant.	10.4.1	
➤ Drain the engine oil.	10.4.6	
➤ Drain the oil from the oil separator tank and the oil cooler.	10.6.3	
➤ Fill the oil separator tank with preserving oil.	10.6.2	
➤ Fill the drive engine with preserving oil.	10.4.5	
➤ Run the machine for about 10 minutes to coat all parts with a protective oil film.	–	
➤ Disconnect the battery/batteries, the negative pole first and then the positive pole, and store in a frost-free room.	–	
➤ Check the battery liquid level.	10.9.1	
➤ Check the battery charge monthly and recharge if necessary to prevent the battery fluid from freezing.	–	
➤ Clean the battery terminals and coat with acid-resistant grease.	–	
➤ Close the compressed air outlet valves.	–	
➤ Cover the following openings with plastic foil and moisture-proof duct tape: <ul style="list-style-type: none"> ■ Drive engine air inlet ■ Compressor air inlet ■ Exhaust gas pipe 	–	
➤ Clean the bodywork and treat with preservative.	–	
➤ Attach a notice on the instrument panel informing of the decommissioning measurements taken.	–	

Tab. 91 "Long-term decommissioning/storage" checklist

- Attach the following notice on the instrument panel showing the de-commissioning measures taken.

Attention!

1. The machine is decommissioned.
2. It is filled with preserving oil.
3. For recommissioning:
 - Perform tasks specified for re-commissioning after a long-term decommissioning/storage.
 - Re-commission according to Operating Manual.

Date / signature:

Tab. 92 Notice text: "Long-term decommissioned/storage"

- Store machine in a dry place at constant temperature.

12.2 Transportation

Depending on the options fitted, the following possibilities are available for moving the machine locally or transporting it as a load:

- Transport by crane.
 - Transport by crane is permitted for all machines fitted with a lifting eye.
- Transport by forklift truck.
 - Transport by forklift is permitted exclusively for stationary machines fitted with a skid frame (Option rw).
- Transporting the machine as load.



Instructions for transporting the machine as a trailer on public roads can be found in the operating manual for the chassis.

- Precondition The machine is shut down.
The machine is secured against unintentional activation.
The machine is fully vented, the pressure gauge reads 0 psig!
The machine has cooled down.
All compressed air consumers are disconnected.
All connecting lines and hoses have been disconnected and removed.
Any loose or movable parts that could fall off during transportation have been removed or secured.
- Follow all instructions carefully.

12.2.1 Safety



Only allow transport by authorized personnel who are trained in the safe handling of motor vehicles and the transportation of goods.

- Ensure that the danger area is clear of personnel.

12.2.2 Transporting the machine by crane

The crane lifting eye is rated for the permissible total mass of the machine.

The crane lifting eye is identified by a mandatory sign, upon which a crane hook is depicted. Only a crane hook should be inserted through the lifting eye in preparation for suspended transport.

⚠ WARNING

Death or serious injury can be caused by the machine falling or swinging!

- Use a suitable crane and hoist that correspond to the permissible total mass of the machine.
- Only lift the machine in a position that conforms with its basic structural shape.
- Avoid swinging.

Additional precautions for conditions of snow and ice:

Significant snow or ice build-up can occur on the machine when operating in winter conditions. This may adversely effect the machine's centre of gravity (tilting).

The permissible load of both the crane and machine hoists could be exceeded.

- Carry out the following preliminary tasks in conditions snow and ice:
 - Remove any snow and/or ice from the machine before lifting by crane.
 - Ensure that the lifting eye cover plate is freely accessible and can be opened.

Carry out the following preliminary tasks before lifting the machine by crane:

A lifting eye is provided for transportation by crane. The lifting eye is located beneath a lift-up cover plate in the centre of the enclosure.

Precondition The machine is switched off.
The machine is securely parked.

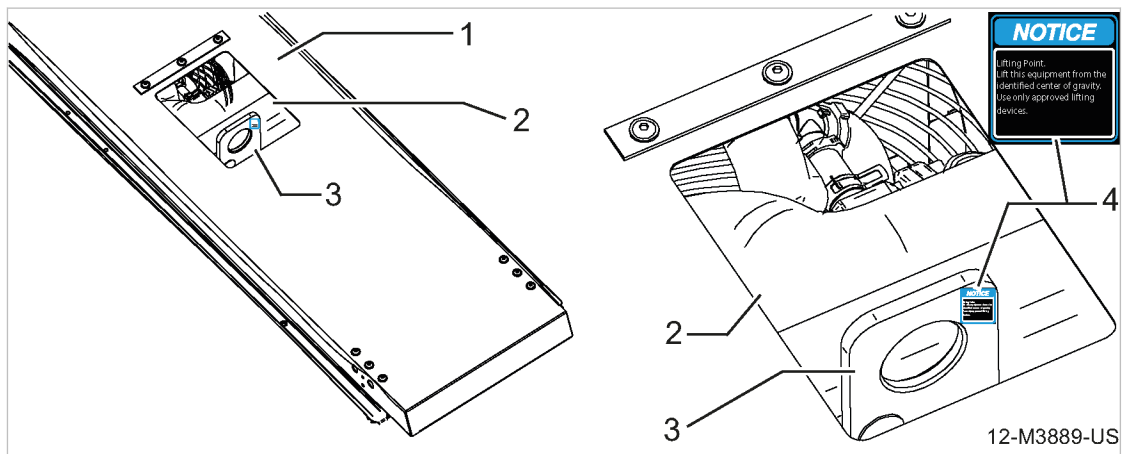


Fig. 69 Lifting eye for transportation by crane

- | | |
|---|---|
| ① Central section of enclosure | ③ Crane lifting eye |
| ② Opening in central section of enclosure | ④ Mandatory <i>Crane lifting point</i> sign |

1. Open the lifting eye cover plate.
2. Position the crane hook vertically above the lifting eye.
3. Insert the crane hook into the lifting eye.

Lifting the machine by crane:

1. **NOTICE** *Damage to the machine from jolting during lifting!
Danger of components breaking.*
 - *Lift the machine carefully.*
2. Lift the machine slowly and carefully.
3. Transport the machine slowly and carefully.

Setting down by crane:

1. **NOTICE** *Damage to the machine from it setting down incorrectly!
Danger of components breaking; in particular, chassis components may be damaged.*
 - *Set the machine down carefully.*
2. Set the machine down slowly and carefully.
3. Ensure the machine is not set down unevenly.
4. Unhook and remove the crane hook.
5. Close the lifting eye cover plate.

12.2.3 Option rw Transporting by forklift truck

Only stationary machines specified with a skid frame (Option rw) may be lifted and transported locally using a forklift. Stationary machines specified with optional skids are equipped with two lifting lugs into which two fork prongs can be inserted.

- Precondition
- Qualified transport personnel are available and in receipt of written instructions.
 - Information regarding the weight of the machine is readily available (nameplate).
 - A suitable forklift (appropriate for the weight of the machine) is available.
 - The machine is switched off.
 - All connecting lines and hoses have been disconnected and removed.
- Follow all instructions carefully.

12.2.3.1 Ensuring safety

⚠ WARNING

Death or serious injury from falling loads!

- *Standing beneath raised loads is prohibited.*
- *Driving with a raised load is prohibited.*

⚠ WARNING

Death or serious injury can occur should the machine fall off or roll over.

- *Transporting personnel using the forklift is prohibited.*
- Observe the specific accident prevention regulations regarding transport by forklift.
- Instruct personnel in the immediate danger area around the forklift or load to leave the area.

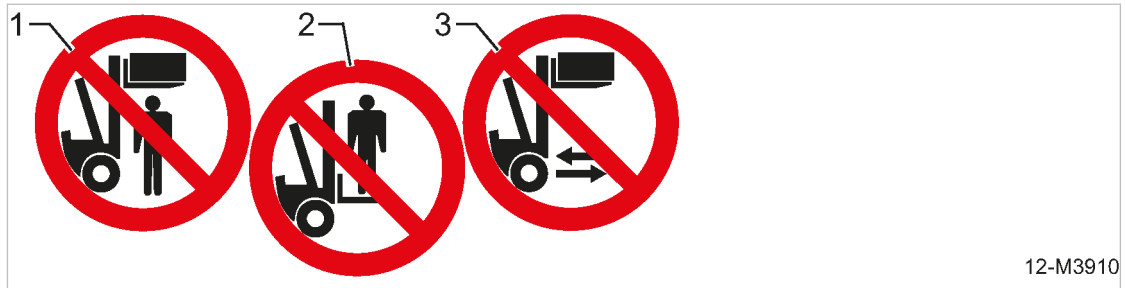


Fig. 70 Prohibition signs for forklift transport

- ① Standing beneath a raised load
- ② Transporting personnel on the forklift
- ③ Driving with a raised load

1. Never stand beneath a raised load.
2. Never move a raised load above personnel.
3. Never transport personnel on the forklift.
4. Never drive with a raised load.

12.2.3.2 Checking the lifting accessory

The lifting accessory of a forklift consists of a lift mast, a fork carriage and the two fork prongs themselves. The lifting accessory is positioned in front of the forward axle of the forklift.

The fork consists of two prongs which are mounted on the fork carriage. Chain hoists or hydraulic cylinders move the fork carriage up and down the lift mast.

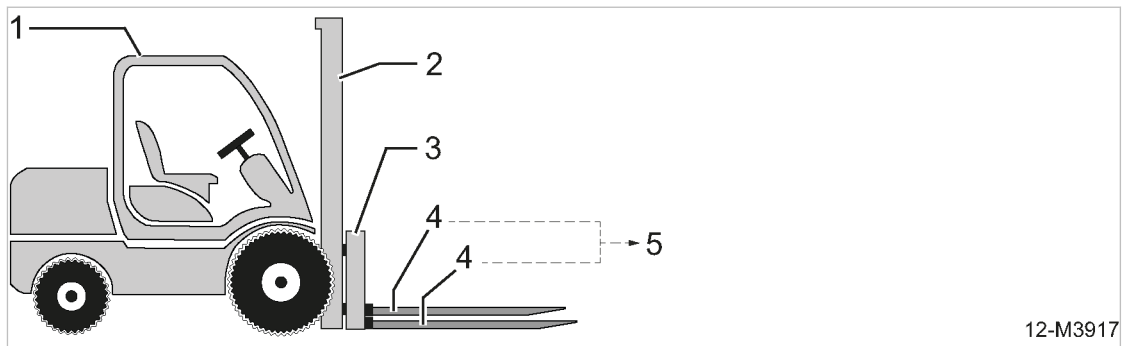


Fig. 71 Forklift example: Lifting accessory components

- ① Forklift
- ② Lift mast
- ③ Fork carriage
- ④ Fork prongs
- ⑤ Fork

1. Check the fork prongs for cracks and deformation.
2. Check that both fork prongs are correctly mounted on the fork carriage.
3. Check the fork carriage for deformation.
4. Check the lift mast.
5. Check the chain hoist or hydraulic cylinders.



Both fork prongs show cracks and deformation.
➤ Replace both fork prongs.

12.2.3.3 Positioning the fork prongs under the machine

When using a forklift to transport a stationary machine with optional skids, the fork prongs must first be inserted into the lifting lugs.

NOTICE

Damage from incorrect insertion of the fork prongs!

➤ *Insert the fork prongs solely into the lifting lugs provided for this purpose.*

Option rw

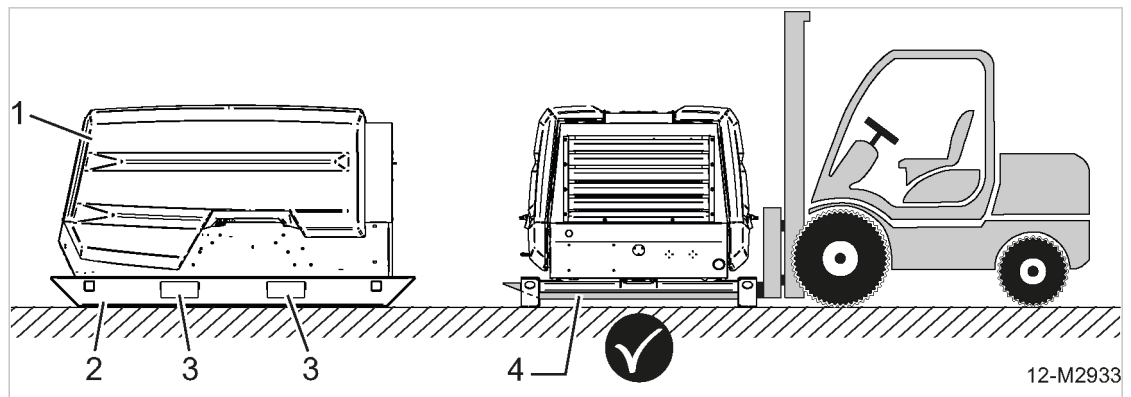


Fig. 72 Ensure both fork prongs are positioned under the machine

- | | | | |
|---|-----------------|---|---|
| ① | Transverse side | ③ | Lifting lugs |
| ② | Optional skids | ④ | Machine with fork prongs correctly positioned |

Precondition The machine is parked on even ground.

1. Close and lock both doors of the machine.
2. Position the forklift at the transverse side of the machine, facing the lifting lugs.
3. Align the fork prongs with the lifting lugs on the machine.
4. Carefully drive the full length of the fork prongs into the lifting lugs on the skids.

Result The fork prongs are correctly positioned under the machine.

12.2.3.4 Lifting the machine

The lift mast remains vertical throughout the lifting procedure. Once the load has been lifted, the lift mast will be inclined in the direction of the arrow.

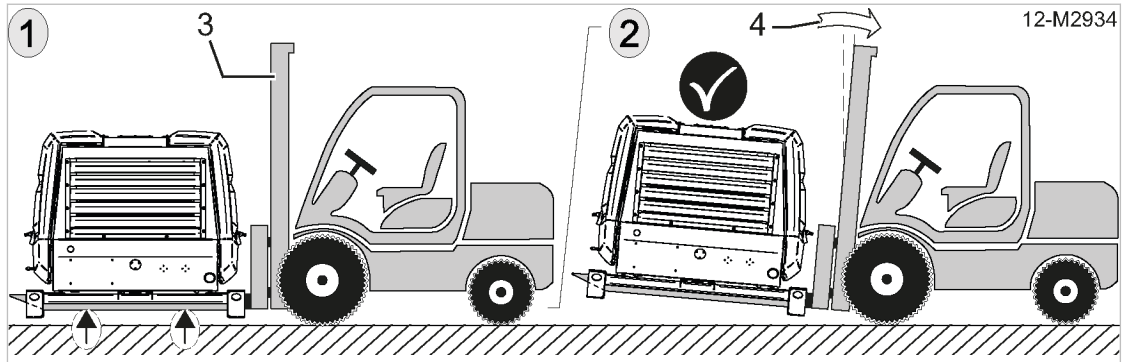


Fig. 73 Lifting the machine with a forklift

- | | | | |
|---|-------------------------|---|--------------------|
| ① | Lifting the load | ③ | Lift mast |
| ② | Inclining the lift mast | ④ | Direction of arrow |

Precondition The fork prongs are correctly positioned under the machine.

1. Lift the machine carefully.
2. Incline the lift mast in the direction of the arrow ④.

Result The machine is resting completely on the two fork prongs, the specified transport height (minimum ground clearance) for horizontal transport has been reached.

Inclining the lift mast provides the optimum center of gravity for forklift and load, thereby increasing the stability of the forklift.

Inclining the load also serves to prevent it from sliding along the fork prongs under braking.

12.2.3.5 Transporting the machine

Example:

- The machine is being unloaded from a loading ramp/HGV loading bed.
- The unloaded machine will be transported from Point A to Point B.

Precondition The machine has been unloaded and is resting on the fork prongs. The fork prongs are elevated, see Fig. 74.

NOTICE

*The machine falls off the elevated fork prongs during transportation!
Severe damage to the machine.*

- *Driving with a raised load is prohibited.*
- *After unloading from the loading ramp/HGV loading bed, the fork carriage must be lowered immediately.*

Option rw

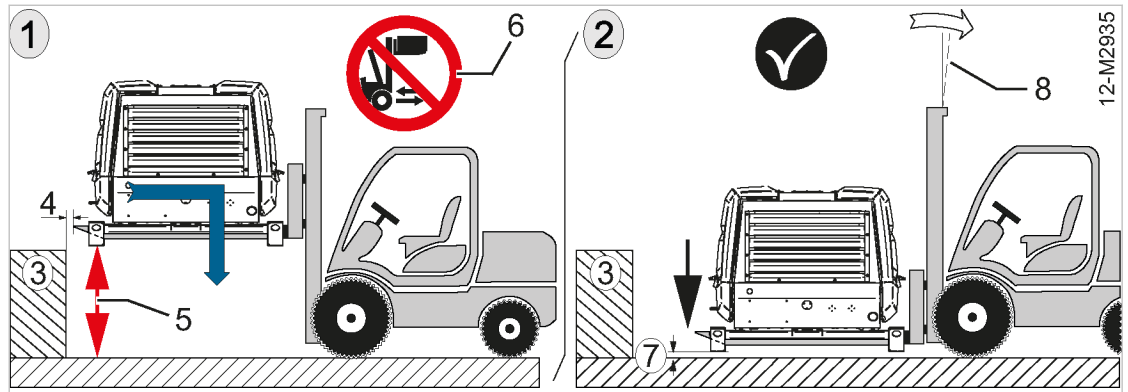


Fig. 74 Example: Transporting a machine by forklift

- | | |
|---|---|
| ① Lifting the machine from the loading ramp/HGV loading bed | ⑤ Incorrect transport height |
| ② Lowering the machine for horizontal transportation | ⑥ Prohibition sign "Driving with a raised load" |
| ③ Loading ramp/HGV loading bed | ⑦ Correct transport height |
| ④ Loading sill clearance | ⑧ Incline the lift mast in the direction of the arrow |

1. Carefully reverse the forklift with the raised machine away from the loading ramp/HGV loading bed.
2. As soon as the specified horizontal clearance from the loading sill ④ has been reached, apply the brakes on the forklift.
Forklift comes to a standstill.
3. Lower the fork carriage.
Specified transport height (minimum ground clearance) is reached.
4. Incline the lift mast in the direction of the arrow.
5. Transport the machine at the specified transport height and with inclined lift mast from Point A to Point B.

12.2.3.6 Lowering the machine

Precondition The forklift has arrived at Point B with the machine raised to the specified transport height.

1. Carefully apply the brakes.
Forklift comes to a standstill.
2. Return the lift mast to the vertical position.
3. Lower the fork carriage as slowly as possible, until both fork prongs have vertical clearance inside the lifting lugs.
The machine is parked on even ground at Point B.
4. Reverse the forklift until both fork prongs are fully withdrawn from the lifting lugs.

12.2.4 Transporting as a load

The type of packing and securing required is determined by the medium of transport. Packing and securing methods must be such that, with proper handling, the goods arrive at their destination in perfect condition.

Always observe the applicable accident and safety regulations during transportation.



- National directives and regulations for securing loads during transport must always be complied with.
- The load must be secured in such a manner that it cannot slide, fall, roll around or cause avoidable noise under emergency braking or sudden turning. Recognized technical regulations should be observed.
- The driver, owner and carrier are all responsible for proper securing of the load.



Contact an authorized KAESER service representative with any questions regarding transportation or load securing.

KAESER accepts no liability and provides no warranty for damage arising from improper transportation or insufficient/incorrect load securing provisions.

When transporting machines for the purposes of loans, rentals and trade shows, any transportation safety devices used for the delivery must also be used for the return transport.

Material Chocks

Stop blocks or squared timbers

Tension belts

- Follow all instructions carefully.

Further information

Additional measures must be taken for the transportation of machines by sea or air freight. Please contact KAESER SERVICE for more details.

12.2.4.1 Load securing for portable machines

If necessary, attach tension belts or other bracing devices to the lashing points provided.

NOTICE

Damage from incorrect bracing!

Forces of movement can damage bodywork and supporting devices on the chassis.

- Do not use bracing over the bodywork.
- Secure portable machines only via the lashing points provided, see Fig. 76.
- Protect the prop stand on portable machines against overload when lashing down.

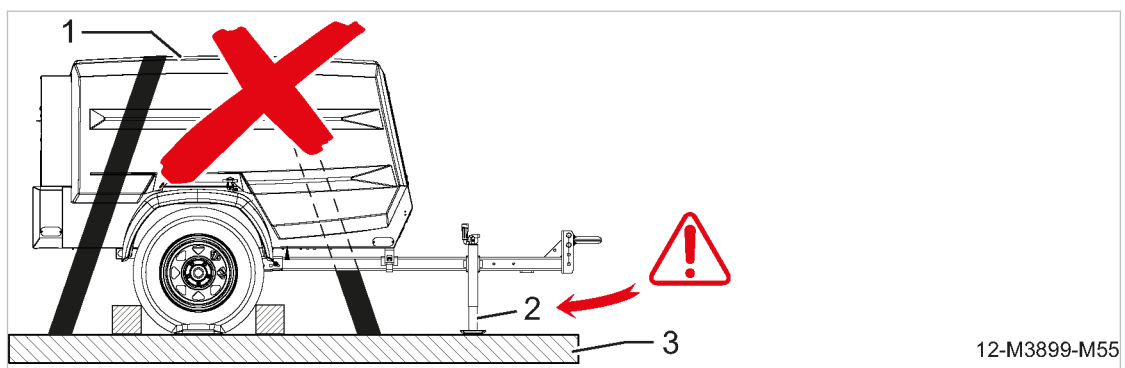


Fig. 75 Example: improper load securing

- ① Incorrect bracing
- ② Incorrectly loaded prop stand
- ③ Loading bed

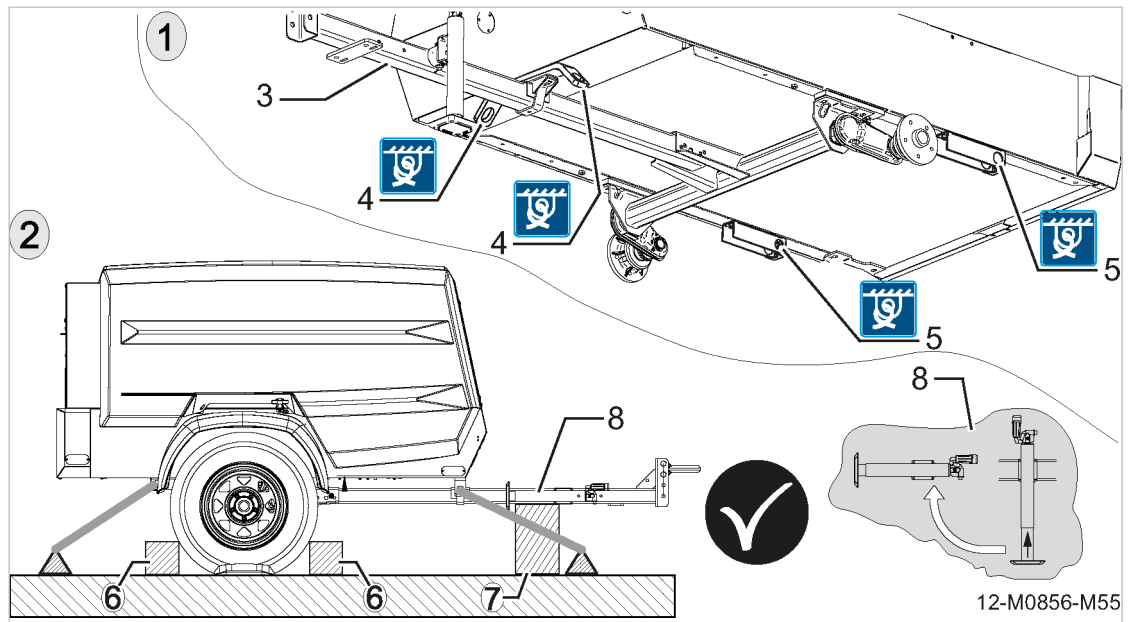


Fig. 76 Example: proper load securing via lashing points provided

- | | | | |
|---|-----------------------|---|-------------------------------|
| ① | View, lashing points | ⑤ | Lashing point, rear |
| ② | View, correct bracing | ⑥ | Squared timber |
| ③ | Drawbar tube | ⑦ | Squared timber |
| ④ | Lashing point, front | ⑧ | Correctly relieved prop stand |

1. Placing the machine on the loading bed.
2. Crank the prop stand inner tube in/out until the machine is standing level.
3. Position a squared timber ⑥ in front of and behind the wheels to secure portable machines against rolling away.
4. Position a suitable squared timber ⑦ by the prop stand beneath the drawbar tube, so as to protect against overloading.
5. Crank in the inner tube of the prop stand until it stops.
6. Swivel the prop stand into the transport position.
7. Lash the machine down properly with all the tension belts.

Result The lashing forces from the forward lashing points act on the drawbar tube and the squared timber ⑦.

The prop stand is relieved.

The portable machine is secured against rolling away, tipping over, sliding or falling for transportation as a load.

12.2.4.2 Load securing for stationary machines

If necessary, attach tension belts or other bracing devices to the lashing points provided.

NOTICE

Damage from incorrect bracing!

Forces of movement can damage the bodywork.

- Under no circumstances should the lashing points be used as crane lifting points.
- Do not use bracing over the bodywork.
- Secure stationary machines equipped with skids or mounts only via the skids or the lashing points provided, see Fig. 77.

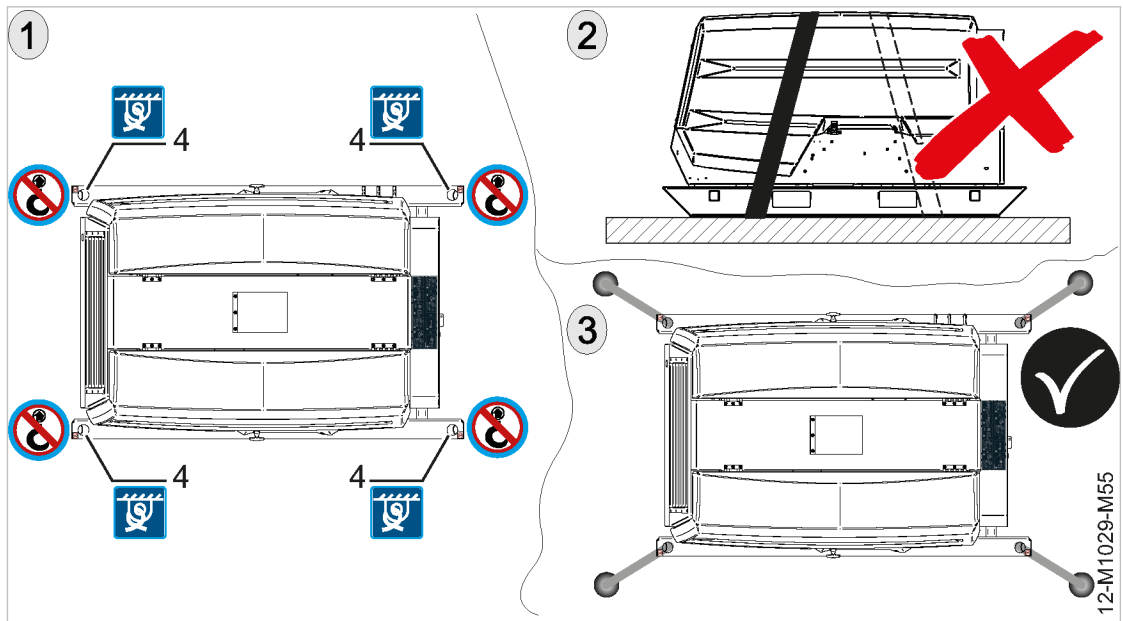


Fig. 77 Bracing as load securing (machine in stationary configuration)

- | | |
|---------------------|-------------------|
| ① Lashing points | ③ Correct bracing |
| ② Incorrect bracing | ④ Lashing points |

- Lash the machine down properly with all the tension belts.

Result The stationary machine is secured against tipping over, sliding or falling for transportation as a load.

12.2.4.3 To be noted before shipment as air freight

The machine is designated as hazardous goods for the purposes of air freight; non-compliance can result in heavy fines!

1. **⚠ WARNING** *Danger of fire or explosion from operating fluids/materials!*
The machine is equipped with an internal combustion engine.
 - Any dangerous fluids/materials contained within the machine must be removed before transport by air.
2. Remove all dangerous fluids/materials.
These include:
 - Residues of fuel or fuel vapors.
 - Lubricants in the engine and compressor.
 - Electrolyte in rechargeable batteries.

12.3 Storage

Moisture can lead to corrosion, particularly in the engine, airend and oil separator tank.

Frozen moisture can damage components, valve diaphragms and gaskets.

The following measures also apply to machines not yet commissioned.



Please consult with KAESER if you have questions to the appropriate storage and commissioning.

NOTICE

Moisture and frost can damage the machine!

- *Prevent ingress of moisture and formation of condensation.*
 - *Maintain a storage temperature of >32 °F.*
- Store the machine in a dry place, free from frost if possible.

12.4 Disposal



To dispose of the machine in accordance with environmental regulations, all batteries must be removed and delivered to a designated disposal system. Substances that are harmful to living things and the environment can thus be removed and disposed of efficiently or reprocessed. In particular, this procedure facilitates the recycling of batteries.

All operating fluids in the machine must be drained and disposed of in accordance with environmental regulations. All components contaminated with operating fluids must be removed and disposed of in accordance with environmental regulations.

Any residual quantities of condensate must be drained and disposed of in accordance with environmental regulations.

Once these conditions have been fulfilled, deliver the machine to an authorised disposal agent.

Overview:

- Remove all batteries.
 - Drain all operating fluids.
 - Drain the condensate.
 - Remove used filters/filter elements.
 - Deliver the machine to an authorized disposal agent.
- Follow all instructions carefully.

12.4.1 Removing the batteries

Overview:

- Remove the batteries
- Dispose of batteries in accordance with environmental regulations

1. Observe the safety instructions for handling batteries.
2. Observe the safety signs on the battery.

Further information When handling batteries, observe the specific safety rules and safety signs, see chapter 10.4.11.

- Remove all starter batteries from the internal combustion engine.

Disposing of batteries in accordance with environmental regulations:

Batteries contain substances that are harmful to living things and the environment. For this reason, batteries must not be disposed of with unsorted municipal waste.

Disposal facilities may be local recycling centers for used electrical devices and electronic waste, or the original points of sale.

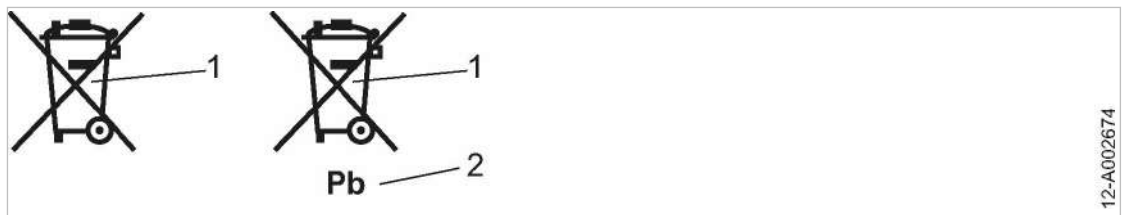


Fig. 78 Battery labelling

- ① Do not dispose of battery with municipal waste
- ② Battery contains lead (if applicable)

1. Observe national disposal regulations!
2. Deliver batteries to the designated disposal system.



You actively contribute to the protection of the environment when you take used batteries to the designated disposal system.

12.4.2 Draining operating fluids

Material Receptacle
Cleaning cloth



To prevent it from accidentally igniting, always drain the fuel when working on the interior of the machine.

1. Drain and collect the following operating fluids from your machine.

Designation	Engine	Compressor
Fluid	Fuel	Cooling oil
	Engine oil	Transmission oil
	Coolant	Hydraulic oil
	Reduction agent additive from the exhaust gas after-treatment system	—

Tab. 93 Machine fluids

2. Drain and collect the following operating fluids from the options specified on your machine.

Designation	Low-temperature version option
Operating fluid	Antifreeze from the defroster

Tab. 94 Machine option fluids



Dispose of operating fluids and working materials and components contaminated with them in accordance with applicable environmental protection regulations.

12.4.3 Draining condensate

Material Receptacle
Cleaning cloth

1. Check compressed air options with condensate separation.
2. Drain and collect any residual quantities of condensate.



Dispose of any residual quantities of condensate and contaminated working materials in accordance with applicable environmental protection regulations.

12.4.4 Removing filters/filter elements

Material Cleaning cloth
Receptacle

1. Remove all filters/filter elements from the machine.

Designation	Engine	Compressor
Filters/filter elements	Oil filter	Oil filter
	Engine oil separator cartridge	Oil separator cartridge
	Filter/filter element, fuel prefilter	—
	Fuel filter	—
	Filter/filter element, fuel/water separator	—

Tab. 95 Machine filters/filter elements

2. Remove all filters/filter elements from the options specified on the machine.

Designation	Filter combination option	Fresh air filter option
Filters/filter elements	Prefilter	Adsorption filter element
	Fine filter	High-performance filter element

Tab. 96 Machine option filters/filter elements



Dispose of working materials and components contaminated with operating fluids in accordance with applicable environmental protection regulations.

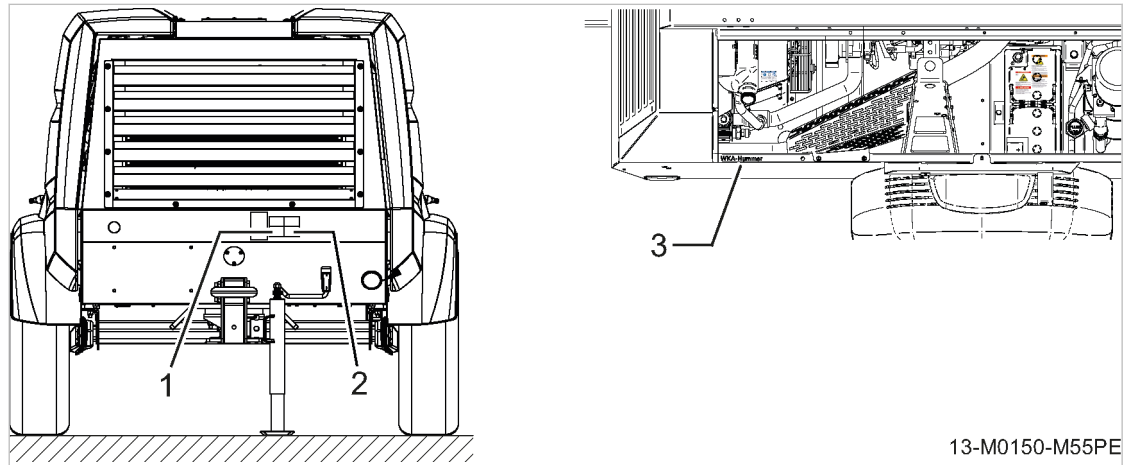
12.4.5 Disposing of the machine

- Precondition All batteries have been removed and delivered to the designated disposal system.
- All operating fluids have been drained and disposed of in accordance with applicable environmental regulations.
- All residual quantities of condensate have been drained and disposed of in accordance with applicable environmental regulations.
- All used filters/filter elements have been removed and disposed of in accordance with applicable environmental regulations.
- Deliver the machine to an authorized disposal agent.

13 Annex

13.1 Identification

13.1.1 Identification of the machine

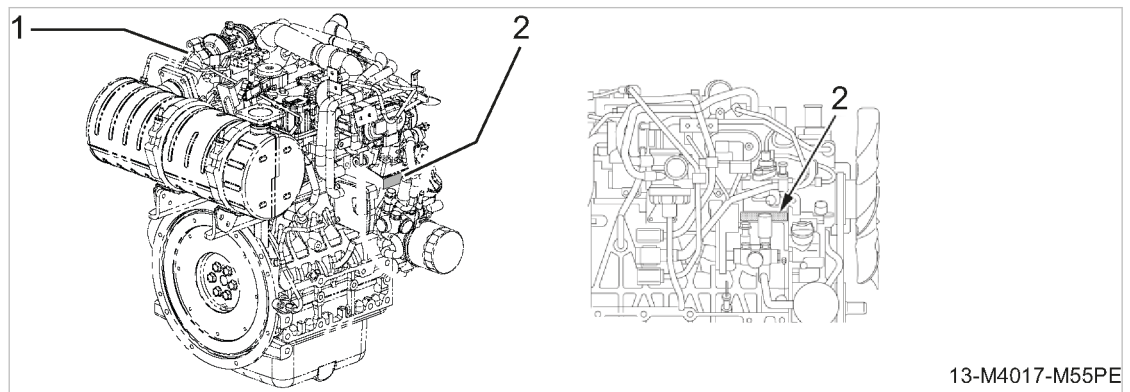


13-M0150-M55PE

Fig. 79 Identification of the machine

- ① Options label
 - ② Machine nameplate with unit serial number
 - ③ VIN number *) (stamped on the bodywork)
- * Vehicle identification number

13.1.2 Identification of the drive engine

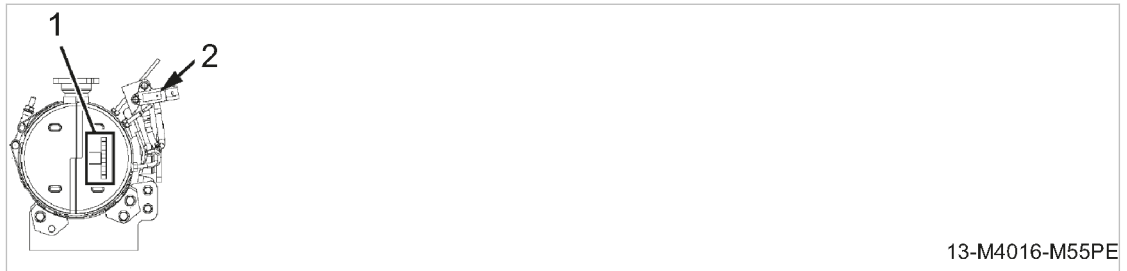


13-M4017-M55PE

Fig. 80 Identification of the drive engine

- ① Drive engine, with engine serial number
- ② Location of engine serial number

13.1.3 Identification of the exhaust gas after-treatment system

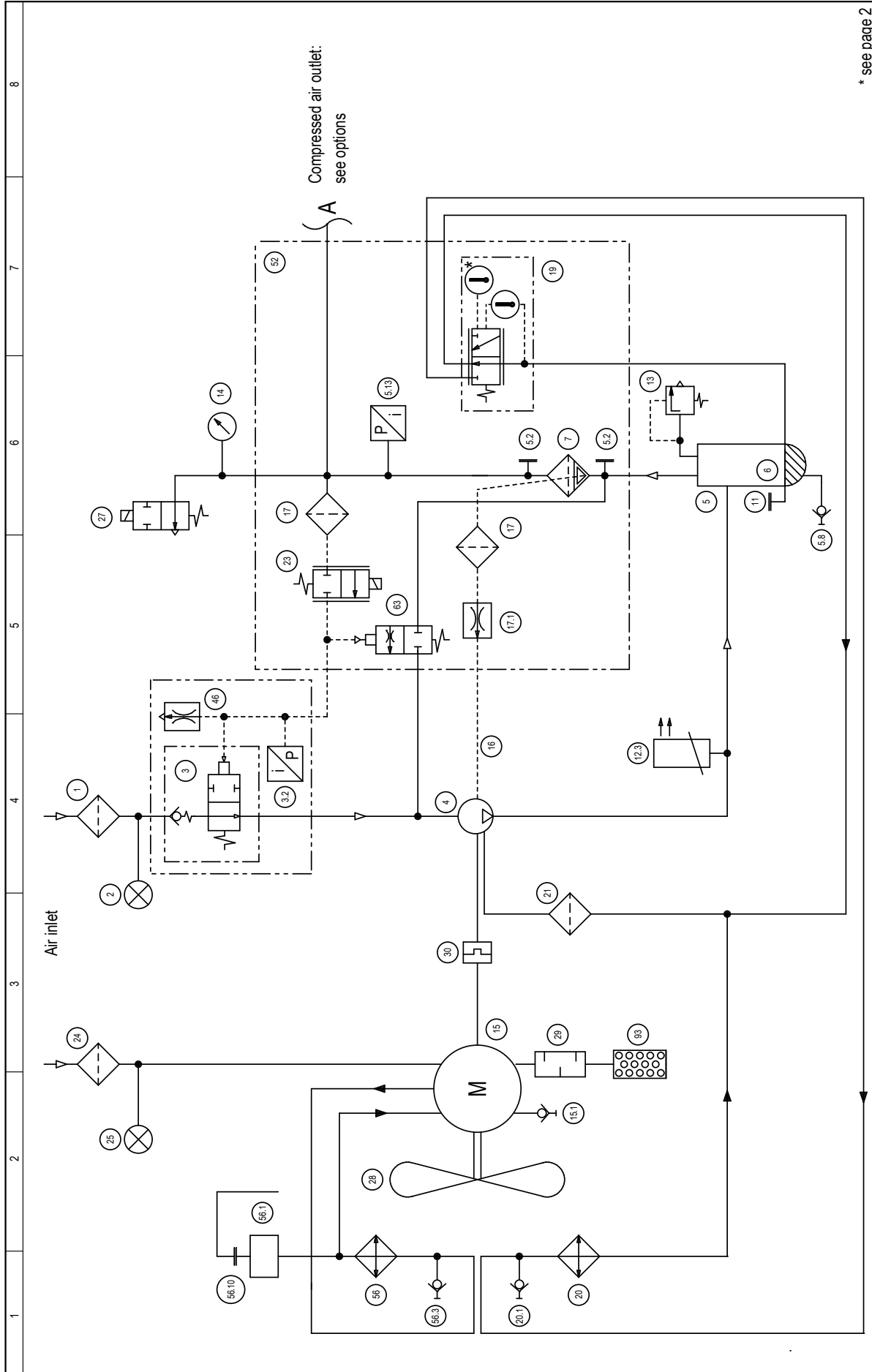


13-M4016-M55PE

Fig. 81 Identification of the exhaust gas after-treatment system

- ① Serial number for DPF silencer assembly
- ② Serial number for DPF silencer large assembly

13.2 Pipeline and instrument flow diagram (P+I diagram)



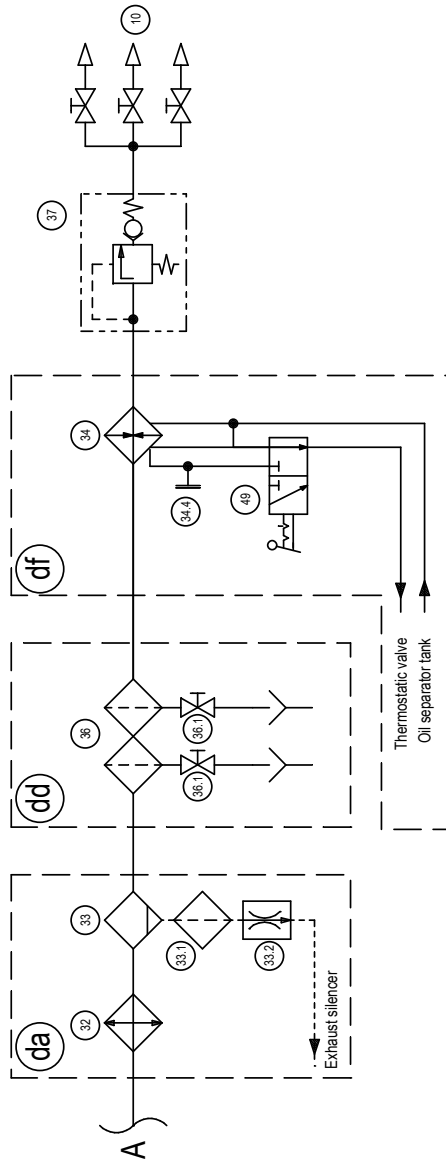
* see page 2

Date		17.07.2019	
Drawn		Piau	
Released		Mähler	
Revision	Date	Name	
a	A-Nr. 47078		
b			
c			
P&I diagram			Sheet: 1
MOBILAIR			USE
M55PE			
FFMM55T-01112.00			

1	2	3	4	5	6	7	8
1	Compressor - Air filter						
2	Filter maintenance indicator, Compressor - Air filter						
3	Inlet valve						
3.2	Pressure transducer - Control pressure						
4	Rotary screw airtend						
5	Oil separator tank						
5.2	Screw plug						
5.8	Hose coupling - Oil drain device						
5.13	Pressure transducer - Internal pressure						
6	Oil reserve						
7	Oil separator cartridge						
11	Oil filler with screw plug						
12.3	Sensor - Airtend discharge temperature						
13	Safety relief valve						
14	Pressure gauge Compressed air - Control panel						
15	Diesel engine						
15.1	Hose coupling - Oil drain device						
16	Oil return line						
17	Dirt trap						
17.1	Nozzle						
19	Thermostatic valve						
20	Oil cooler						
20.1	Hose coupling - Oil drain device						
21	Oil filter						
23	Electric proportional controller						
24	Motor - Air filter						
25	Filter maintenance indicator, Motor - Air filter						
27	Venting valve						
28	Fan						
29	Exhaust gas after-treatment with diesel oxidation catalyst						
30	Coupling						
46	Nozzle (Secondary side Proportional controller)						
52	Control valve						
56	Radiator						
56.1	Coolant expansion tank						
56.3	Hose coupling - Coolant drain						
56.10	Coolant filler with screw plug and overpressure valve						
63	Control valve (Recirculation valve)						
93	Control valve (Diesel particulate filter)						
*	only with the heat exchanger option or without compressed air treatment						

Date		17.07.2019		P&I Diagram legend		FFMM55ST-01112.00	
c	Drawn	Planu		MOBILAIR		Sheet 2	
b	Released	Mahler		M55PE		USE	
a	Name						
Revision	Date						

1 2 3 4 5 6 7 8



c	Date	17.07.2019
b	Drawn	Plau
a	Released	Mähler
Revision	Date	Name

P&I diagram
KAESER
KOMPRESSOREN
MOBILAIR M55PE
Compressed air outlet-options
FFMM55DLAO-01076.01

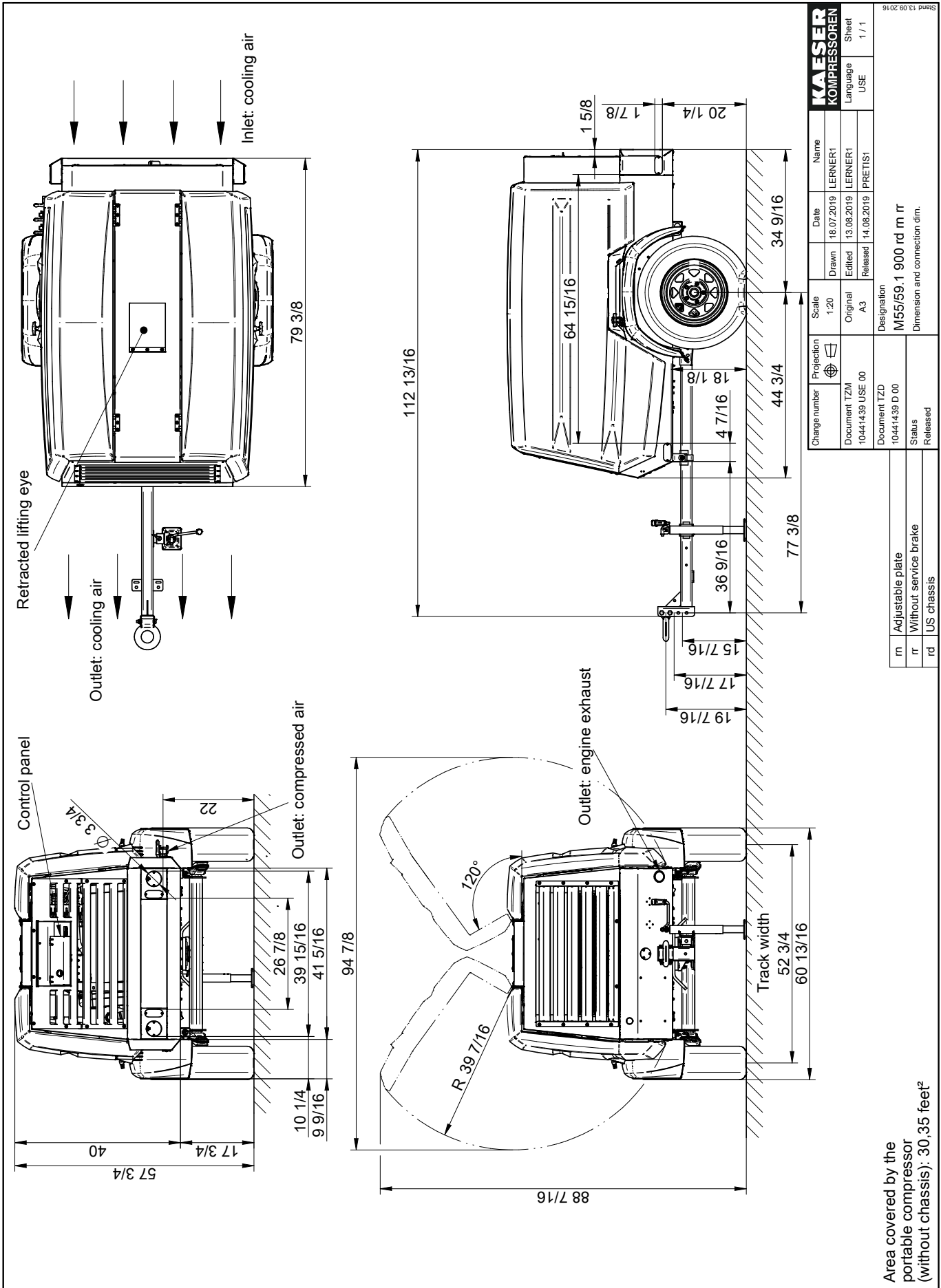
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Sheet 1
USE

13.3 Dimensional drawings

13.3.1 Option rd/ro/rr Dimensional drawing – chassis

- Option rd - Chassis, US type
- Option rn - Chassis with height adjustment
- Option rr - Chassis without service brake



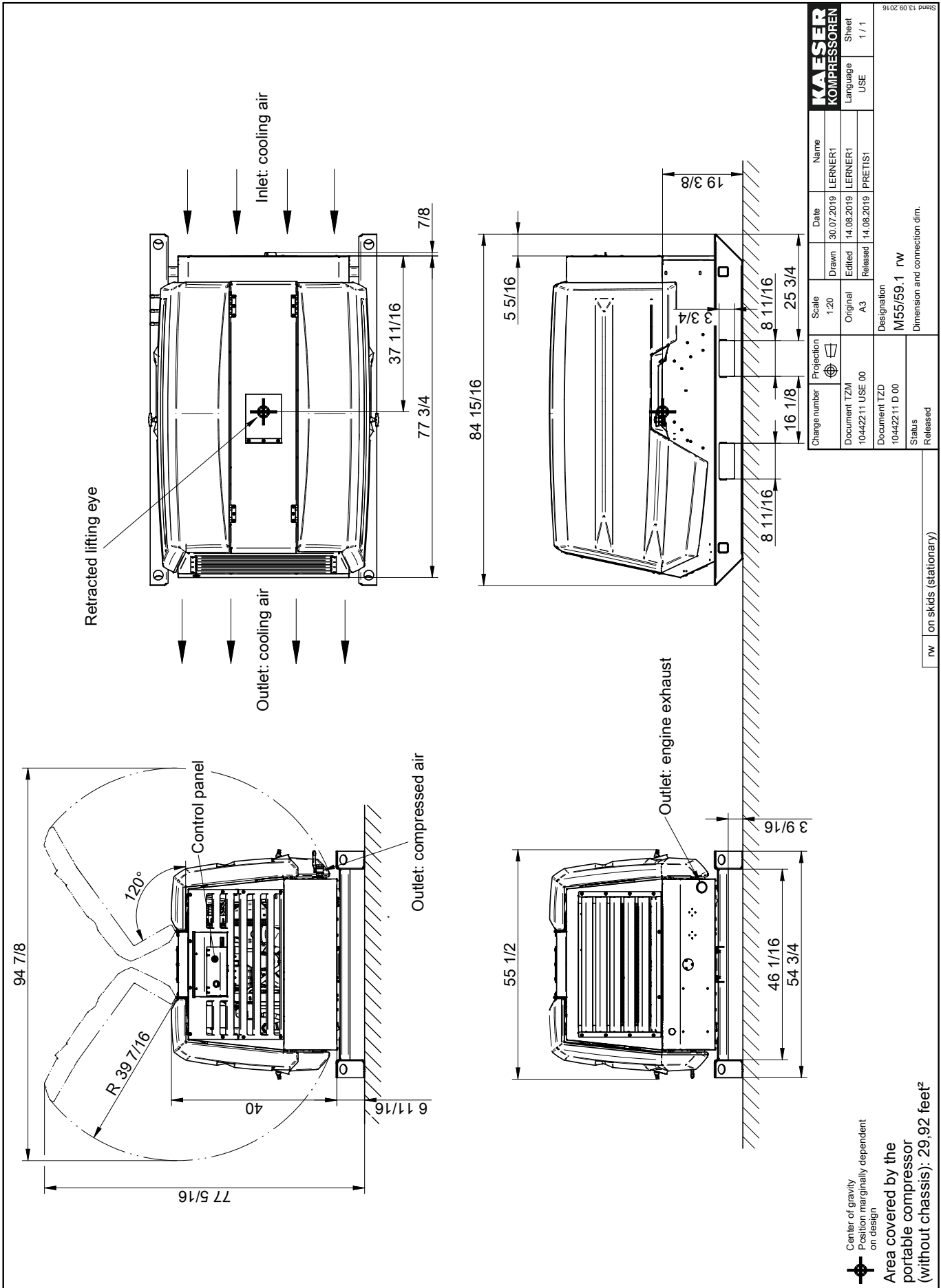
Area covered by the portable compressor (without chassis): 30,35 feet²

Subject to development-related changes. Drawing may be altered only via CAD.

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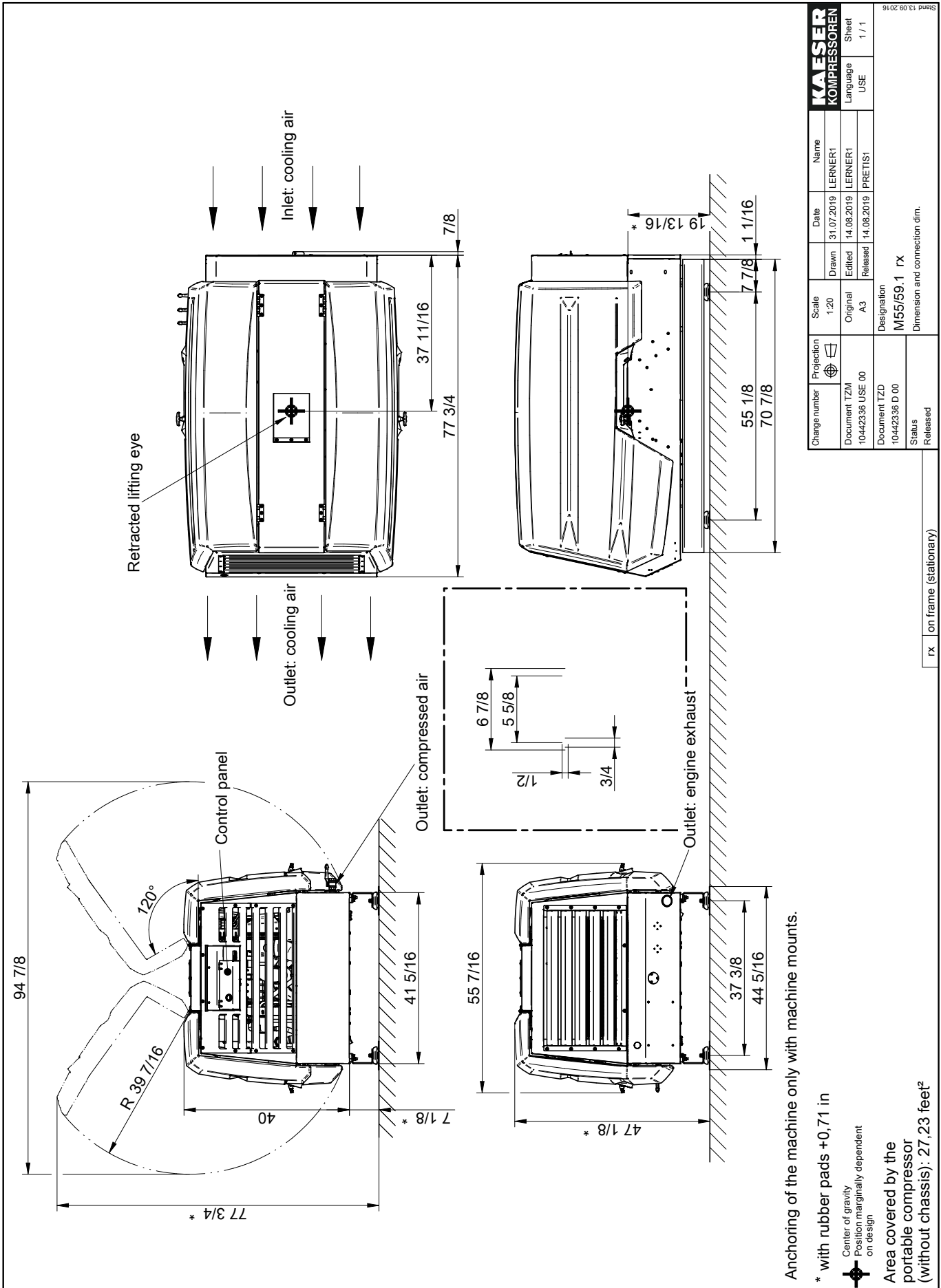
13.3.2 Option rw Dimensional drawing, stationary version

- Option rw - Skid frame on runners



13.3.3 Option rx Dimensional drawing, stationary version

- Option rx - On frame



Anchoring of the machine only with machine mounts.

* with rubber pads +0,71 in
Center of gravity
Position marginally dependent
on design

Area covered by the
portable compressor
(without chassis): 27,23 feet²

Change number		Projection	Scale	Date	Name
Document TZM	10442336 USE 00		Original	31.07.2019	LERNER1
Document TZD	10442336 D 00		A3	14.08.2019	LERNER1
Status	Released		Released	14.08.2019	PRETIS1
Designation		M55/59.1 rx			
Dimension and connection dim.					

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Language	USE
Sheet	1 / 1

Stand 13.09.2016

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13.4 Wiring diagrams

13.4.1 Electrical Diagram

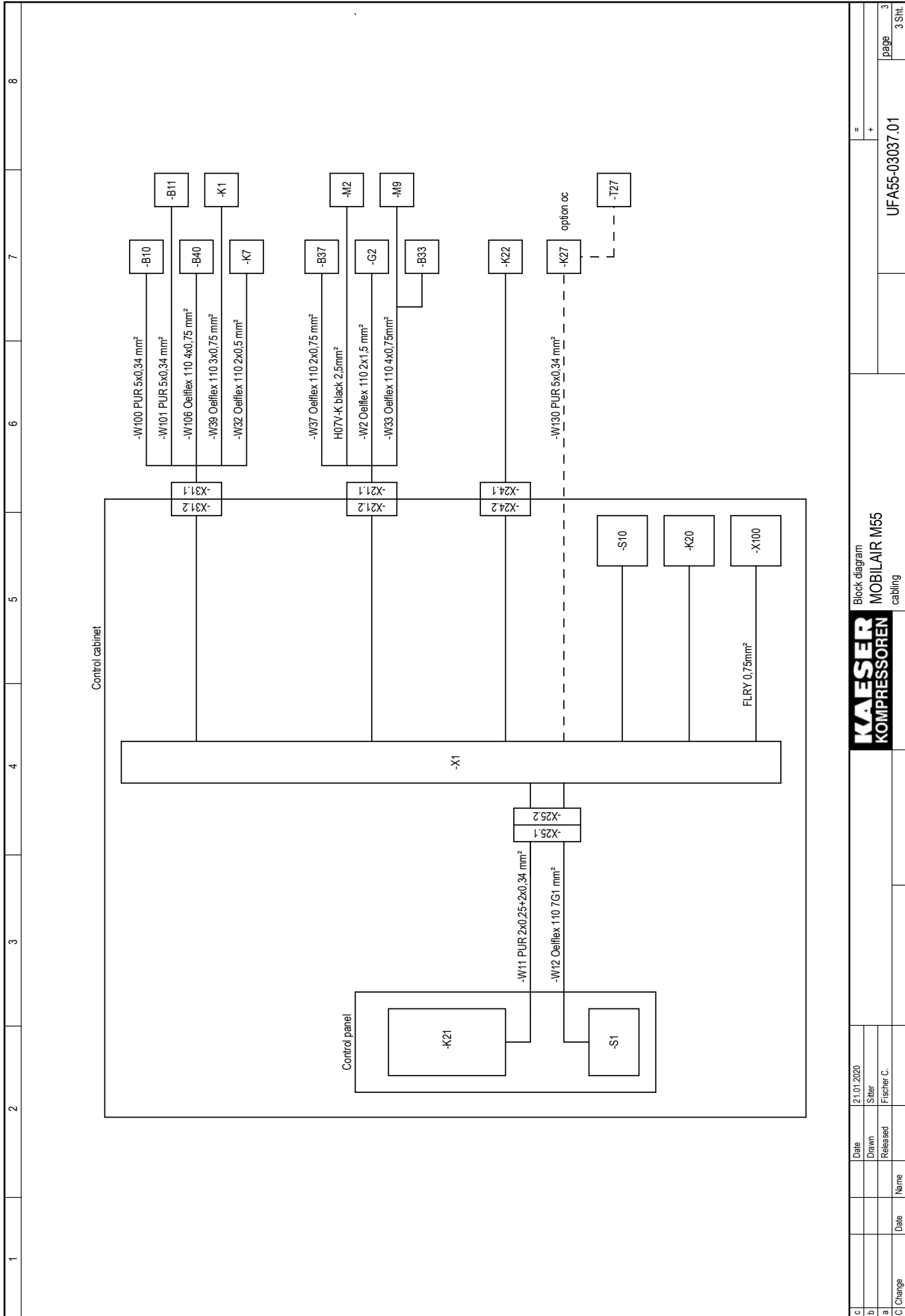
1	2	3	4	5	6	7	8	
<p>Electrical diagrams</p> <p>MOBILAIR M55</p> <p>KUBOTA Tier 4f Engine</p> <p>SIGMA CONTROL SMART</p>								
<p>Manufacturer: KAESER KOMPRESSOREN SE Postfach 2143 96410 Coburg</p>								
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c	Date	21.01.2020	E	Cover page				=
b	Drawn	Sittler		MOBILAIR M55				+
a	Released	Fischer C.						DFA55-03037.01
A	Change	Date	Name					page 1
								1 Stk.

Lfd. Nr. No.	Benennung Name	Zeichnungsnummer (Kunde) Drawing No. (customer)	Zeichnungsnummer (Hersteller) Drawing No. (manufacturer)	Blatt Page	Anlagenkennzeichen Unit designation
1	Cover page		DA55-03037.01	1	
2	List of contents		ZFA55-03037.01	1	
3	Block diagram		UFA55-03037.01	1	
4	Block diagram		UFA55-03037.01	2	
5	Block diagram	cabling	UFA55-03037.01	3	
6	Circuit diagram		SFA55.IKM-03037.01	1	=IKM
7	Circuit diagram	Cable set Engine	SFA55.IKM-03037.01	2	=IKM
8	Circuit diagram	Cable set Engine	SFA55.IKM-03037.01	3	=IKM
9	Circuit diagram		SFA55.SK-03037.01	1	=SK
10	Circuit diagram	activation ECU	SFA55.SK-03037.01	2	=SK
11	Circuit diagram		SFA55.SK-03037.01	3	=SK
12	Circuit diagram	analogue input building group	SFA55.SK-03037.01	4	=SK
13	Circuit diagram	analogue input building group	SFA55.SK-03037.01	5	=SK
14	Circuit diagram	Digital output assembly	SFA55.SK-03037.01	6	=SK
15	Circuit diagram		SFA55.SK-03037.01	8	=SK
16	Circuit diagram	GSM/GPS Modem - option oc	SFA55.SK-03037.01	9	=SK
17	Circuit diagram	analogue input building group	SFA55.SK-03037.01	7	=SK
18	Equipment parts list	Control cabinet	GF A55-03037.01	1	
19	Equipment parts list	Control panel/unit components	GF A55-03037.01	2	
20	Terminal schedule	Terminal strip-X1	KFA55-03037.01	1	=SK
21	Terminal schedule	Plug connection -X21	KFA55-03037.01	10	=SK
22	Terminal schedule	Plug connection -X24	KFA55-03037.01	11	=SK
23	Terminal schedule	Plug connection -X25	KFA55-03037.01	12	=SK
24	Terminal schedule	Plug connection -X31	KFA55-03037.01	20	=SK
25	Component layout	Switchboard / Side panel	AFA55-03037.01	1	
26	Component layout	rear panel Switchboard	AFA55-03037.01	2	
27	Component layout	Control panel	AFA55-03037.01	3	

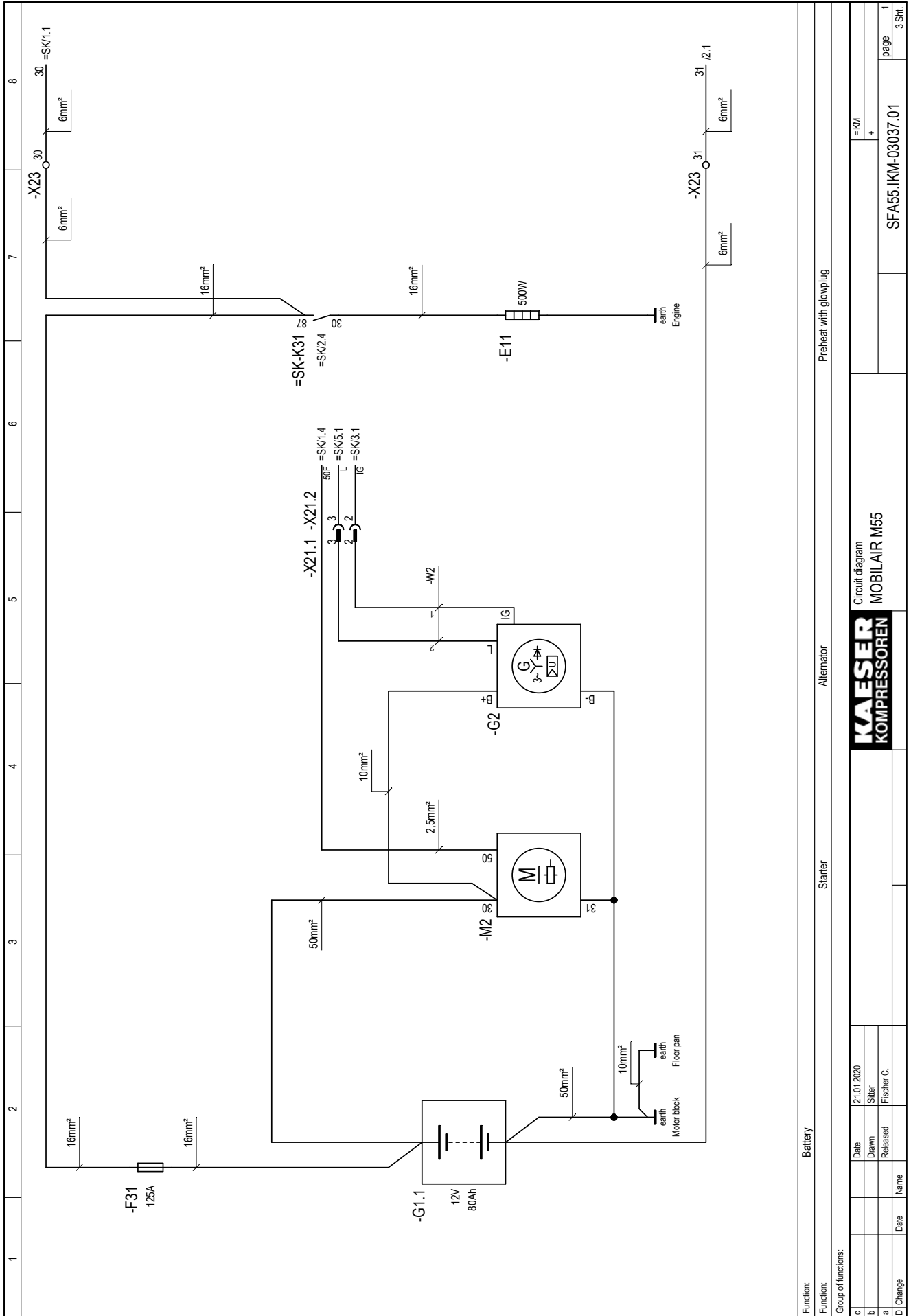
Date		21.01.2020	List of contents		=
a	Drawn	Sittler	MOBILAIR M55		+
b	Released	Fischer C.			
B	Change				ZFA55-03037.01
					page 1
					1 SHL

1	2	3	4	5	6	7	8												
<p>general instructions</p> <p>Control voltage 12VDC All non-designated conductors FLRY 0,75mm² white All control lines marked a) are 1,5mm² FLRY white All control lines marked b) are 2,5mm² FLRY white All control lines marked c) are 0,75mm² FLRY brown</p>																			
<p>potentials:</p> <p>15 switched plus + (unit ON) 19 Preheat with glowplug 30 + terminal (Battery) 31 - terminal (Battery), earth 50 Starter-Control</p>																			
<p>wiring colors:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">BU = blue</td> <td style="width: 50%;">OG = orange</td> </tr> <tr> <td>BN = brown</td> <td>PK = pink</td> </tr> <tr> <td>YE = yellow</td> <td>RD = red</td> </tr> <tr> <td>GN = green</td> <td>BK = black</td> </tr> <tr> <td>GNYE = green-yellow</td> <td>VT = violet</td> </tr> <tr> <td>GY = grey</td> <td>WH = white</td> </tr> </table>								BU = blue	OG = orange	BN = brown	PK = pink	YE = yellow	RD = red	GN = green	BK = black	GNYE = green-yellow	VT = violet	GY = grey	WH = white
BU = blue	OG = orange																		
BN = brown	PK = pink																		
YE = yellow	RD = red																		
GN = green	BK = black																		
GNYE = green-yellow	VT = violet																		
GY = grey	WH = white																		
<p>option oc = GSM/GPS Modem</p>																			
<p>Block diagram MOBILAIR M55</p>																			
<p>KAESER KOMPRESSOREN</p>																			
<p>UFA55-03037.01</p>																			
<p>page 1 3 Str.</p>																			

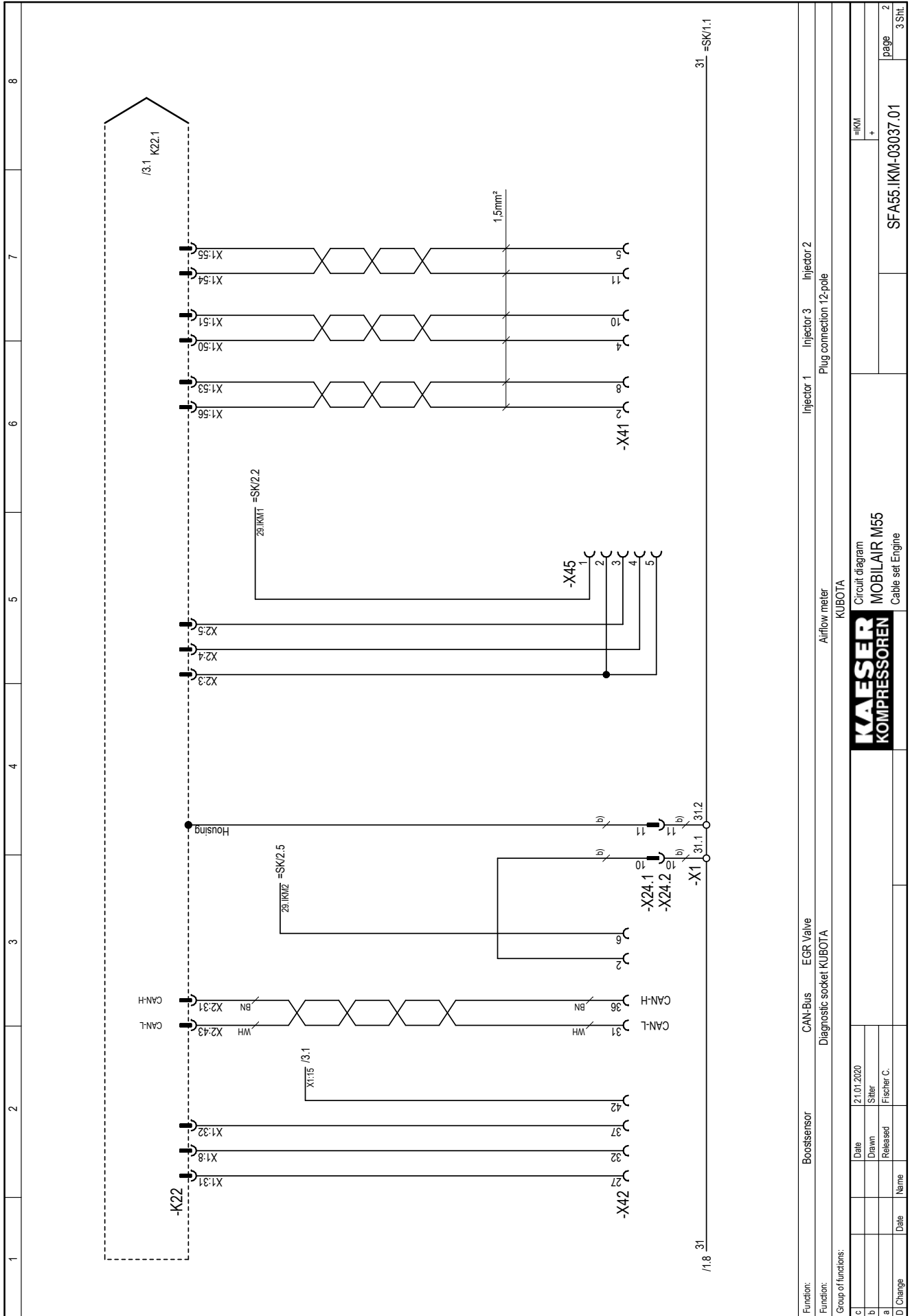
1	2	3	4	5	6	7	8					
<p>components Control cabinet</p> <ul style="list-style-type: none"> -K20 Control board SCS -K22 Control board -F13,-F15,-F20,-F30,-F39,-F51,-F100 -K30 Fuse Relay Starter glow relay Relay ECU ON Relay ECU switching on Relay Control voltage ON-OFF Relay Control voltage Diode Resistor -R3,-R10,-R11,-R13 switch "Control ON" -S10 Voltage transformer DC/DC -T20 Terminal strip -X1 plug connection -X21,-X24,-X25,-X31 Diagnostic socket KAESER -X100 Lead-through terminal -X23 		<p>components Control panel</p> <ul style="list-style-type: none"> -S1 EMERGENCY STOP pushbutton -K21 Operating unit SCS <p>components unit</p> <ul style="list-style-type: none"> -B10 Pressure transducer Oil separator -B11 Pressure transducer Inlet valve -B33 Filter maintenance fuel sensor fuel level -B37 temperature sensor Aircend discharge temperature -B40 Control valve Inlet valve -K1 Valve Venting -K7 Fuse -F31 Resistor -R14 fuel pump -M9 <p>components Drive motor</p> <ul style="list-style-type: none"> -G2 Alternator -G1.1 Battery -M2 Starter -E11 heating flange 		<p>model-dependent components:</p> <ul style="list-style-type: none"> -K27 GSM/GPS Modem -T27 GSM/GPS antenna -X13 GSM/GPS Modem interface 		<p>Block diagram MOBILAIR M55</p>		=	+	UFA55-03037.01	page 2	3 Str.
c	Date	21.01.2020										
b	Drawn	Siller										
a	Released	Fischer C.										
C	Change	Date	Name									



c	Date	21.01.2020	Block diagram		=	+	UFA55-03037.01	page	3
b	Drawn	Sittler	MOBILAIR M55						
a	Released	Fischer C.	cabling						
c	Change	Date	Name						



Function:		Preheat with glowplug	
Group of functions:		Alternator	
Function:		Starter	
Group of functions:		Battery	
c	Date	21.01.2020	Circuit diagram MOBILAIR M55
b	Drawn	Sittler	
a	Released	Fischer C.	
D	Change	Date	Name
		SFA55.1KM-03037_01	
		page 1	
		3 Str.	



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Circuit diagram
MOBILAIR M55
Cable set Engine

SFA55.1KM-03037.01

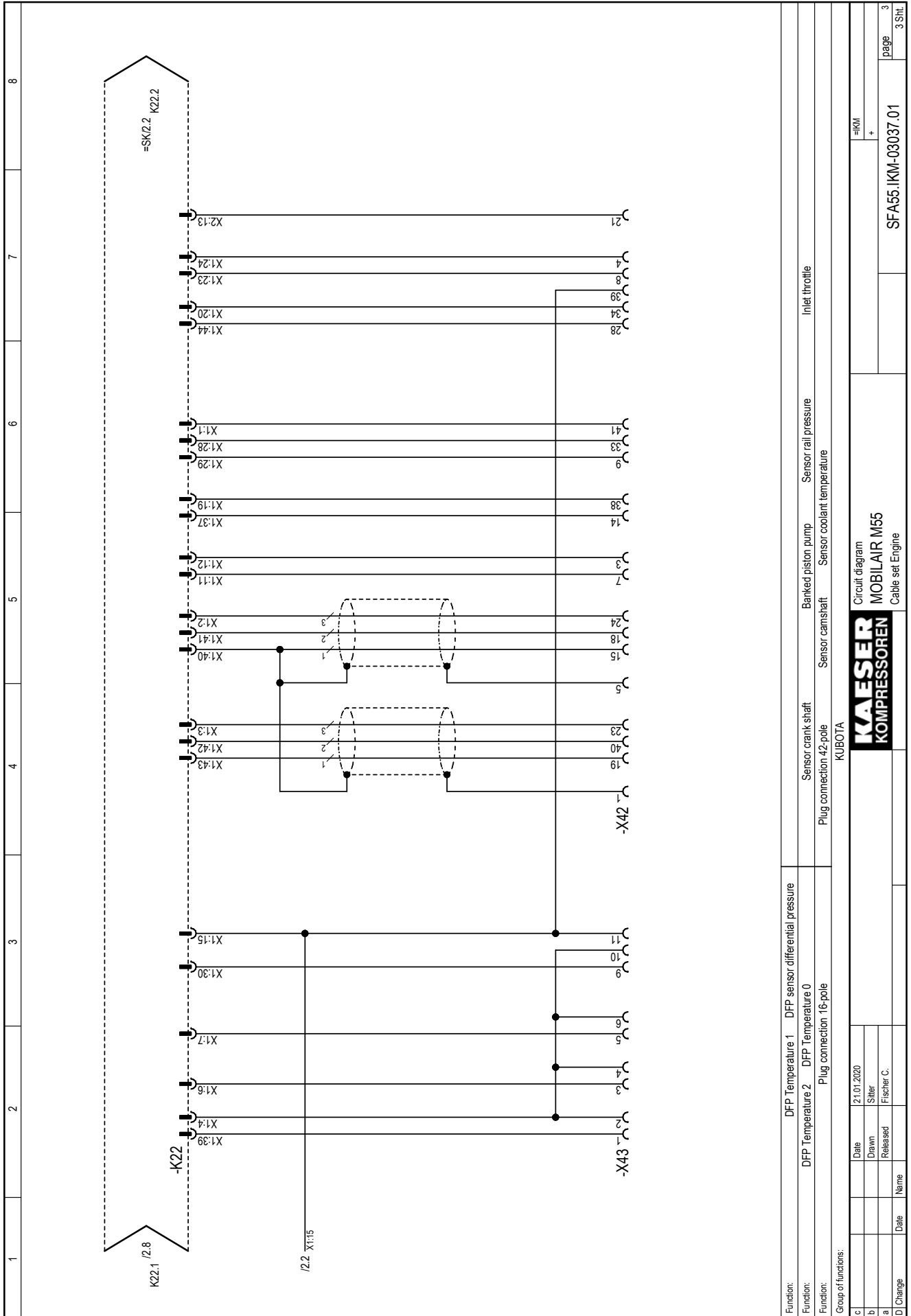
page 2
3 SHL

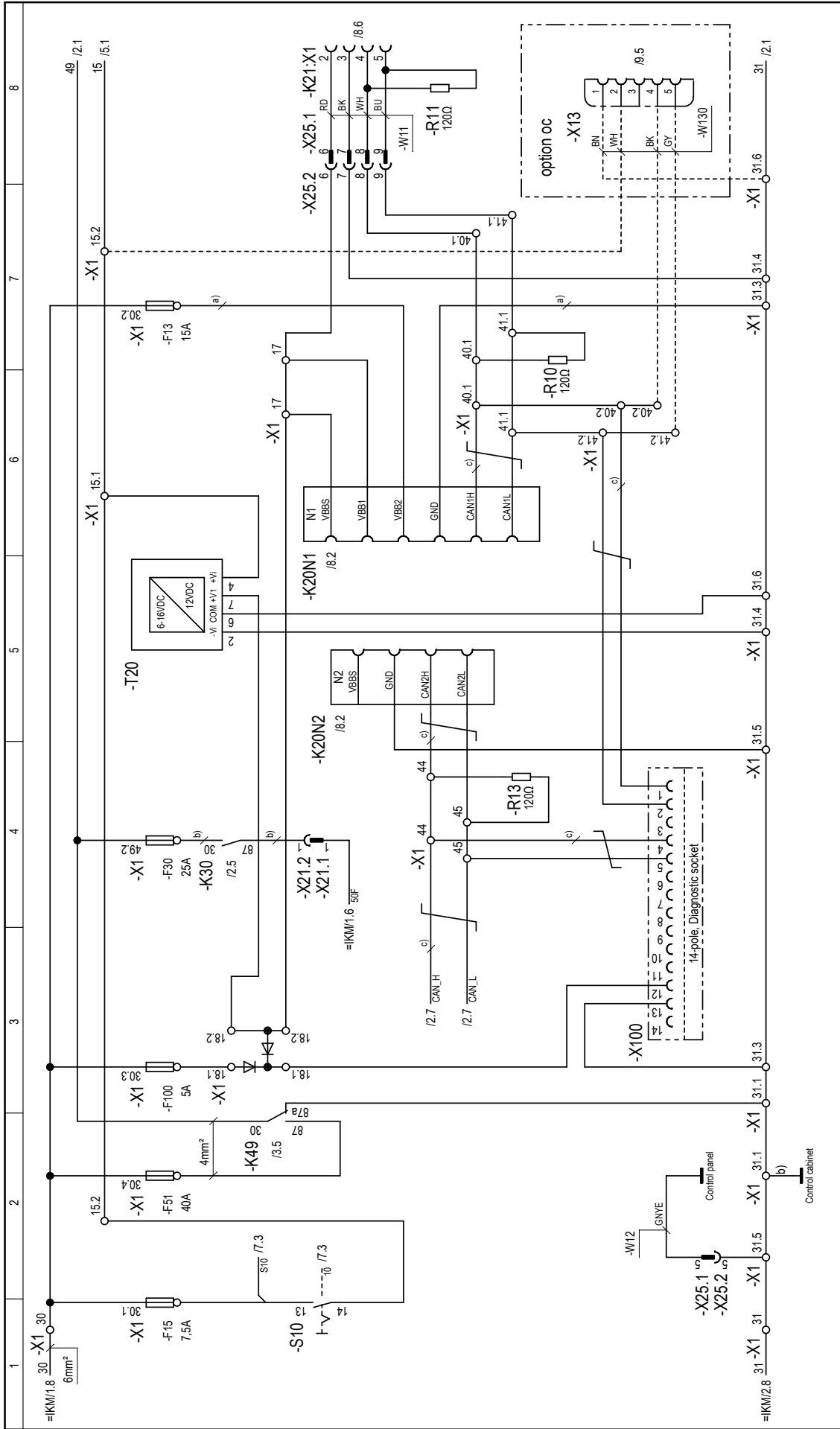
Function: CAN-Bus EGR Valve
Diagnostic socket KUBOTA

Group of functions: Bootsensor

Airflow meter KUBOTA

Injector 1
Injector 2
Injector 3
Plug connection 12-pole

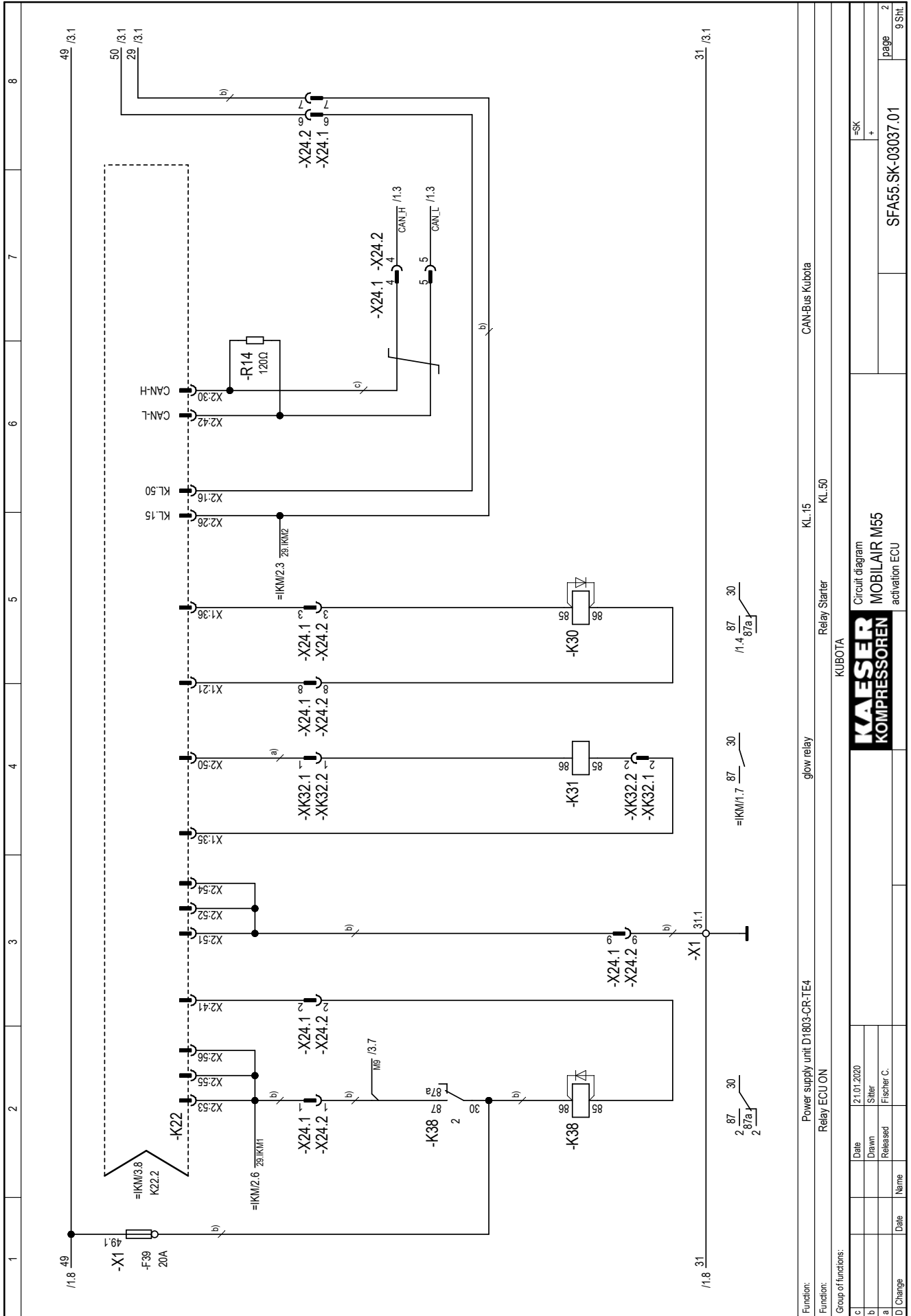




Function:		Control ON-OFF		Control voltage		Starter ON		CAN-interface KAESER		CAN-interface KAESER		Power supply unit PLC		interface GSM/GPS-Modem	
Function:		Control ON-OFF		ON-OFF		Starter ON		CAN-interface KAESER		CAN-interface KAESER		Power supply unit PLC		interface GSM/GPS-Modem	
Function:		Control ON-OFF		ON-OFF		Starter ON		CAN-interface KAESER		CAN-interface KAESER		Power supply unit PLC		interface GSM/GPS-Modem	
Group of functions:															
c	Date	21.01.2020													
b	Drawn	Sittler													
a	Released	Fischer C.													
D	Change	Date	Name												
												-SK		+	
												SFA55-SK-03037.01			
												page		1	
												9 SHL			

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Circuit diagram
MOBILAIR M55



Function: Power supply unit D1803-CR-TE4
Group of functions: Relay ECU ON

Function: Relay Starter
Group of functions: Relay Starter

Function: glow relay
Group of functions: glow relay

Function: KUBOTA
Group of functions: KUBOTA

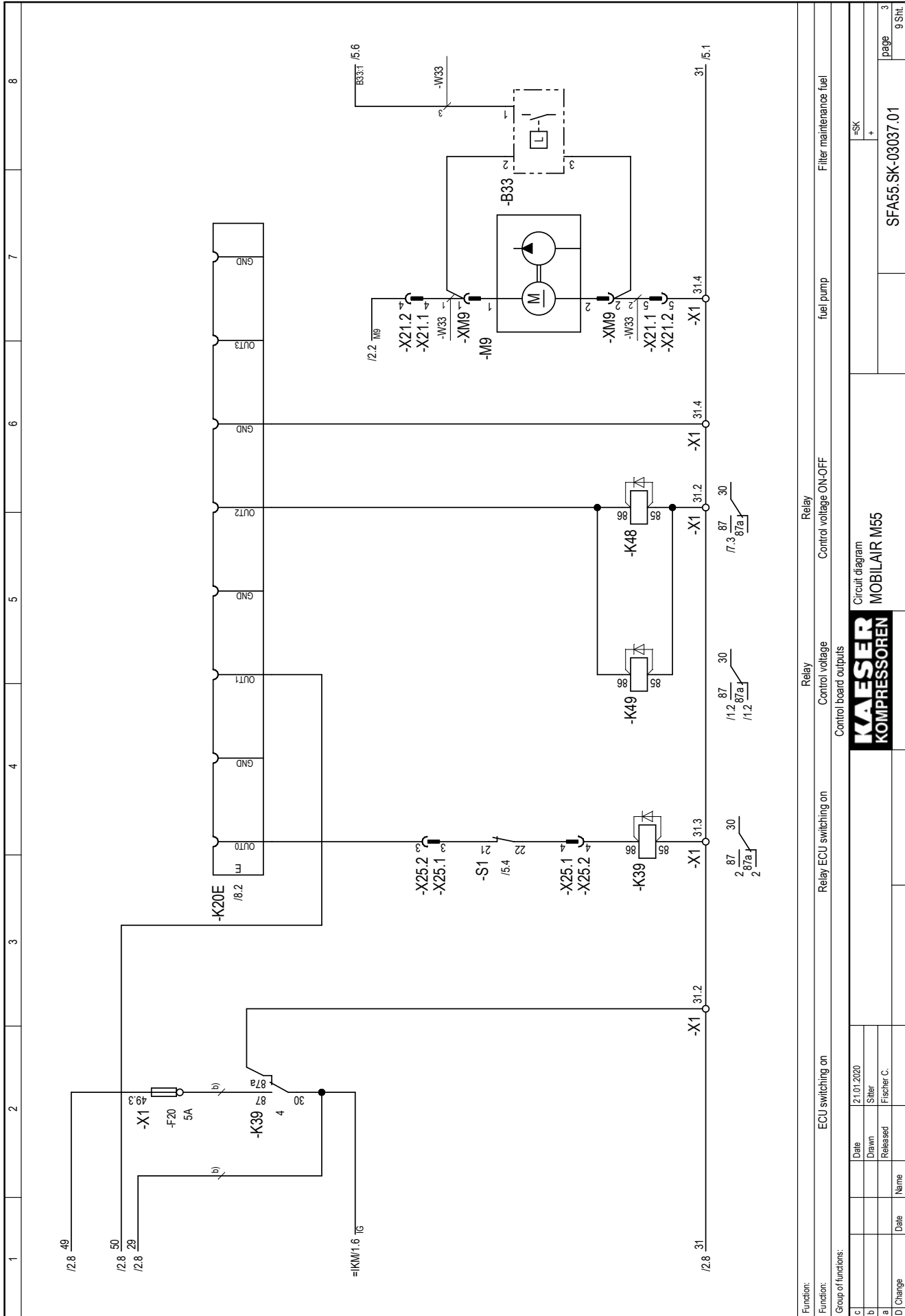
Function: CAN-Bus Kubota
Group of functions: CAN-Bus Kubota

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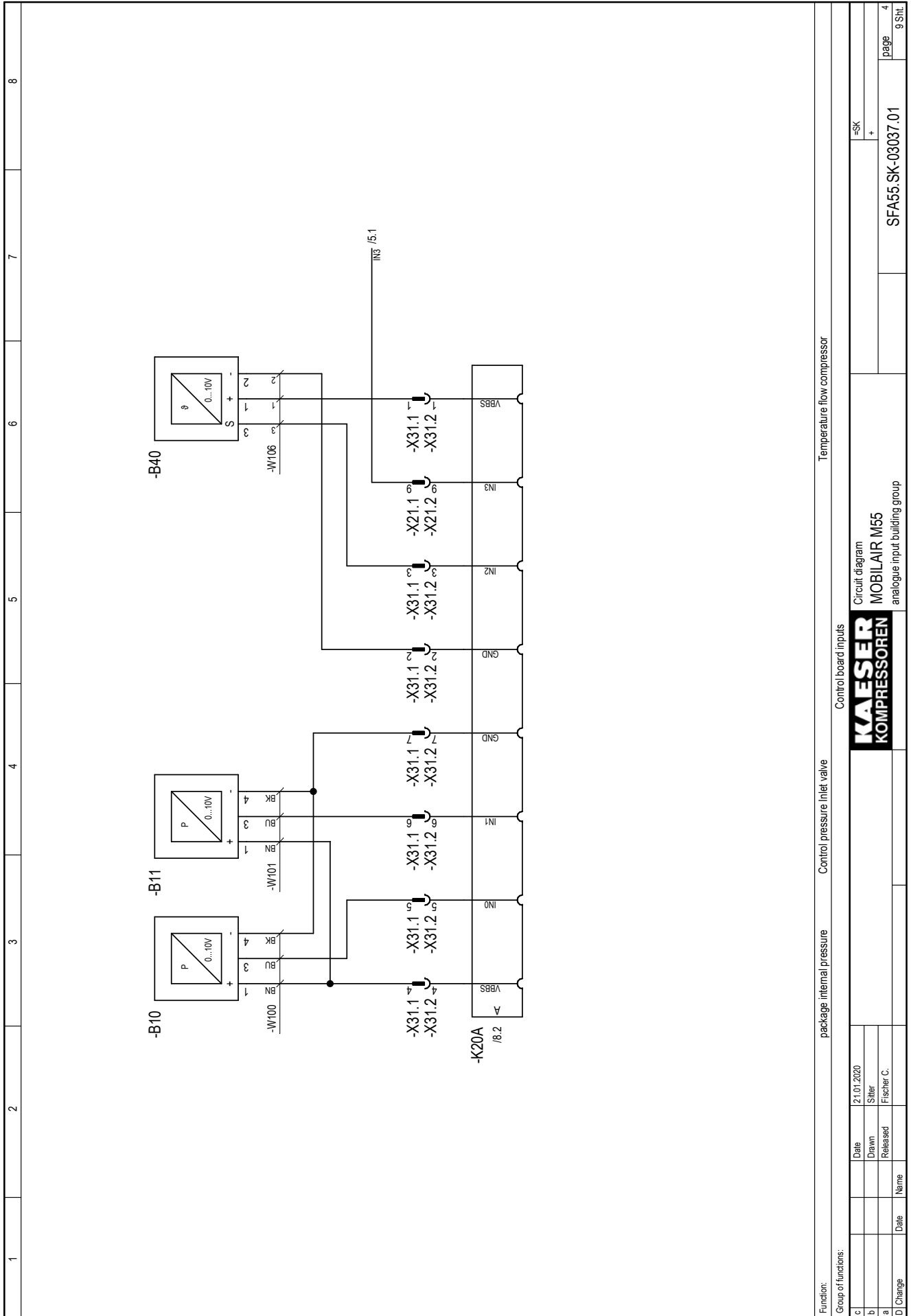
Circuit diagram
MOBILAIR M55
activation ECU

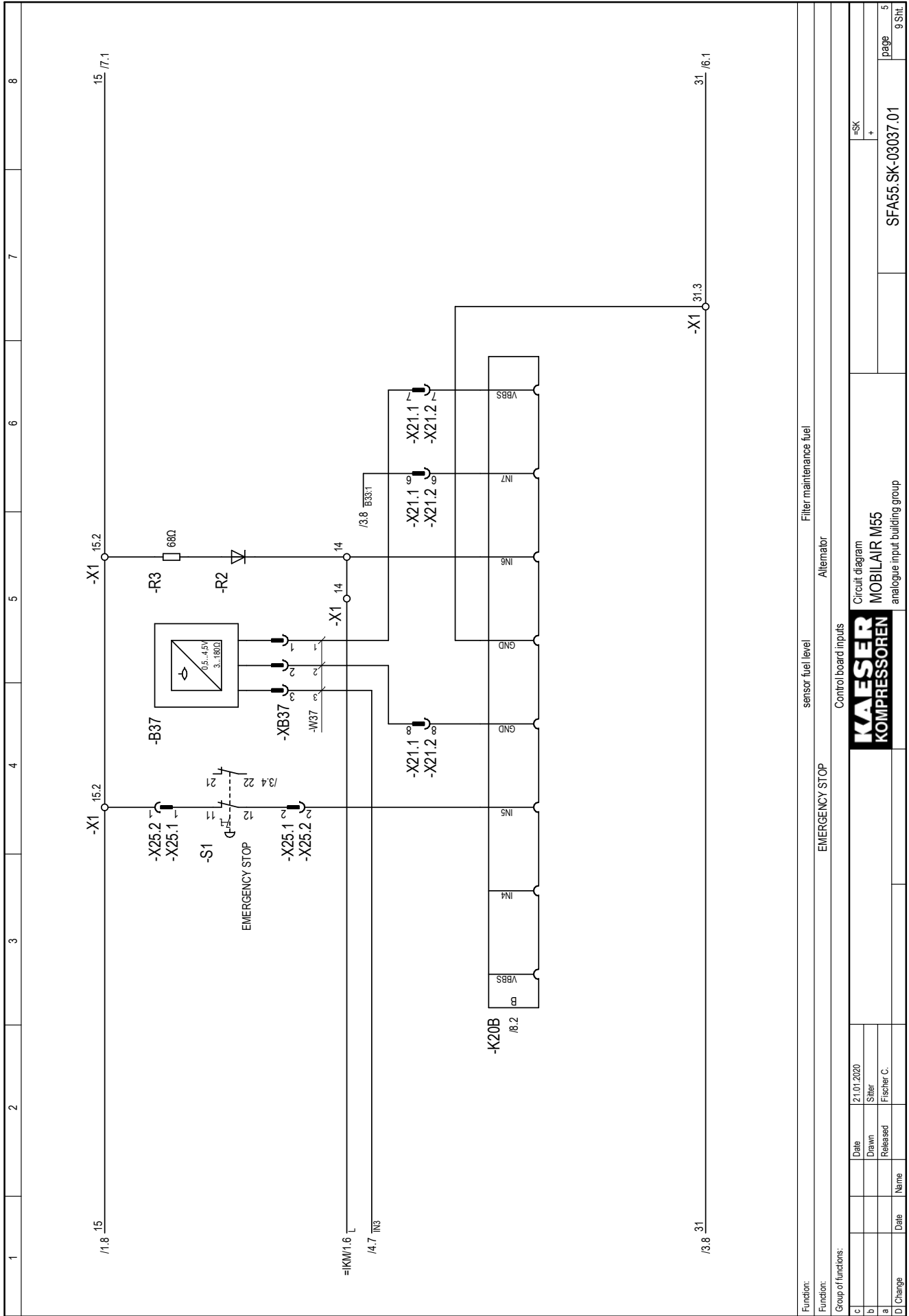
SFA55-SK-03037.01

page 2
9.5/11

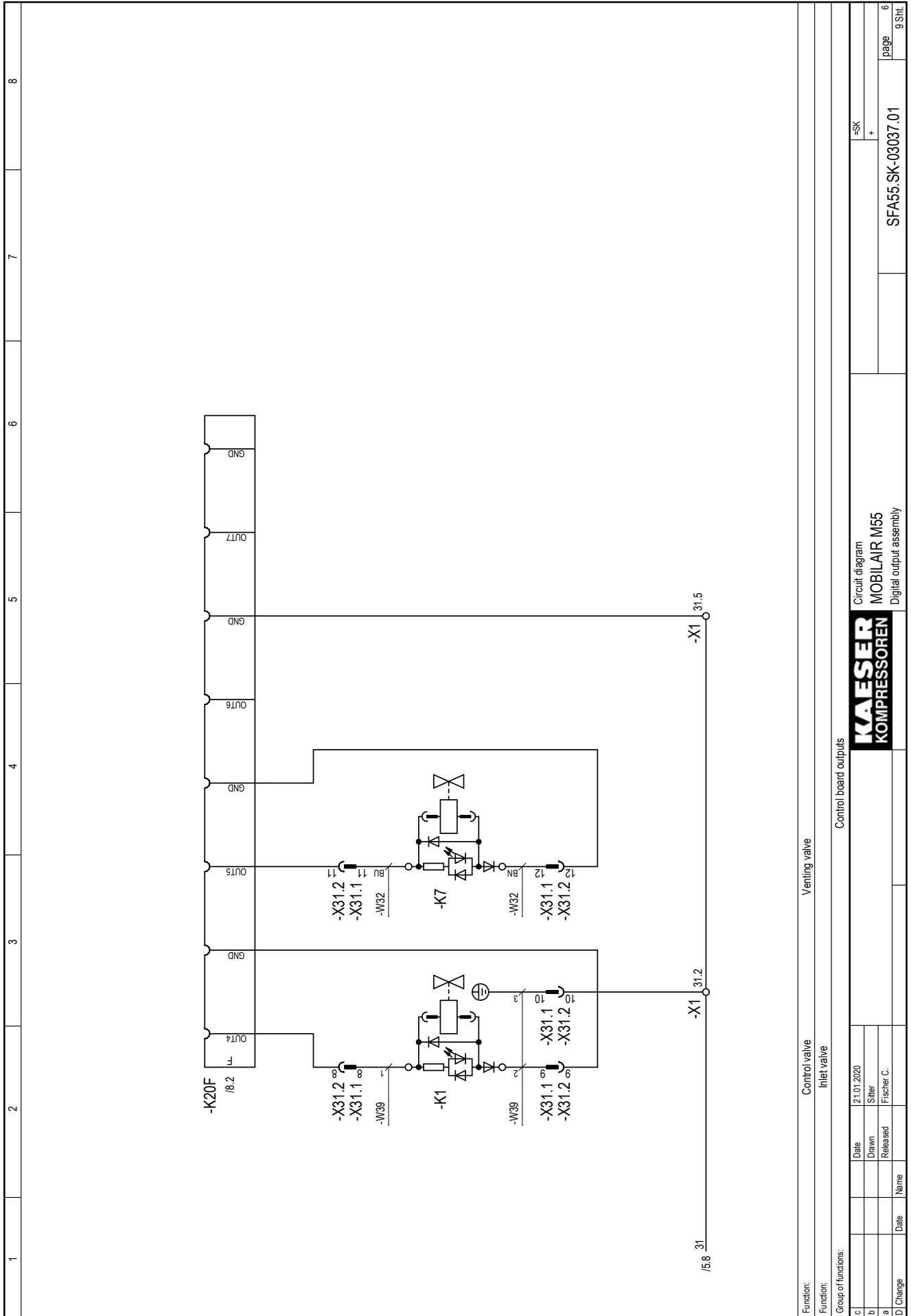


Function:		ECU switching on	Relay ECU switching on	Control voltage	Relay	Control voltage ON-OFF	fuel pump	Filter maintenance fuel
Group of functions:		Control board outputs						
c	Date	21.01.2020						
b	Drawn	Siller						
a	Released	Fischer C.						
D	Change	Date	Name					
						Circuit diagram MOBILAIR M55		
			SFA55-SK-03037.01			-SK +		
			page 3			9 SHL		

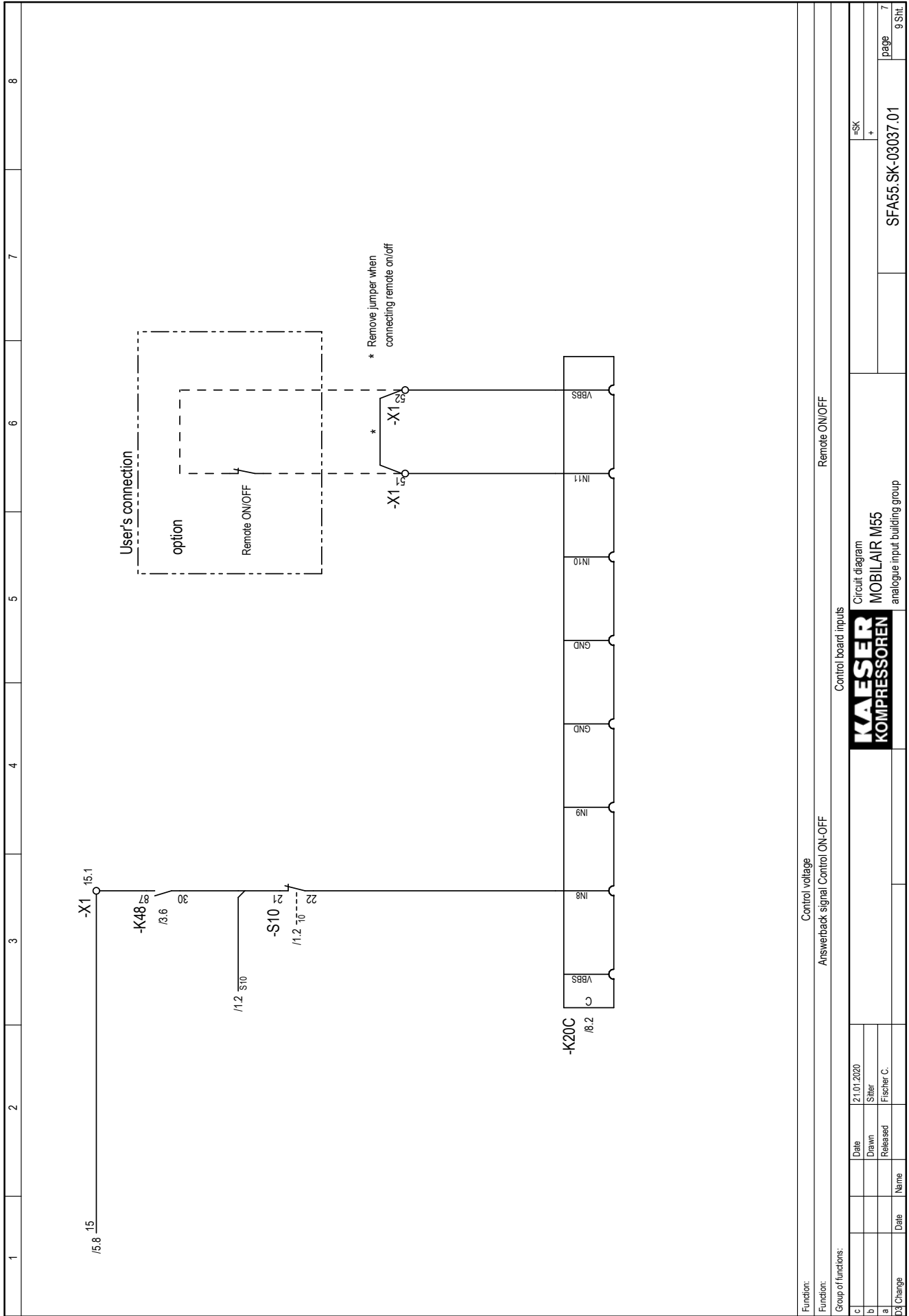


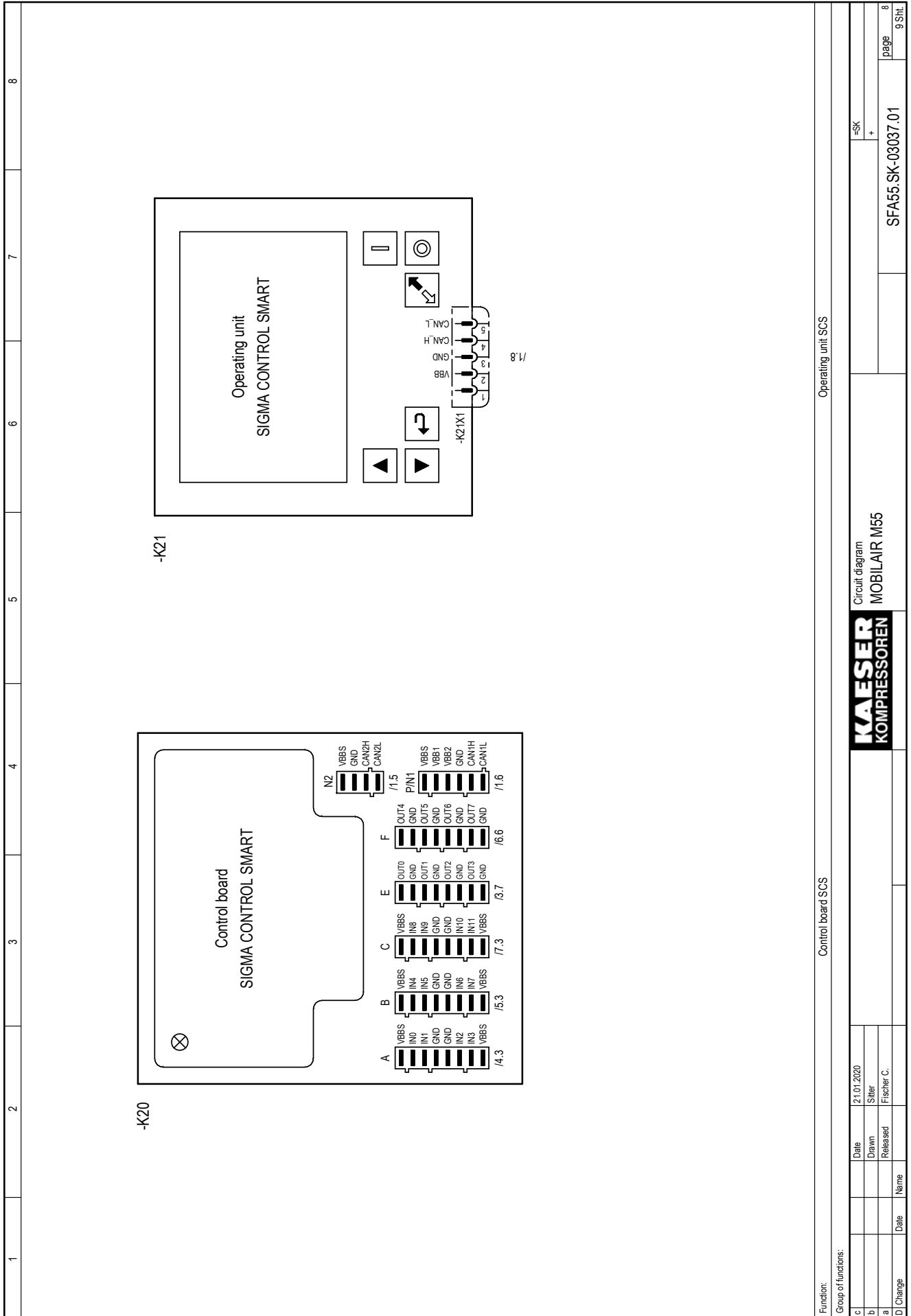


Function:		sensor fuel level		Filter maintenance fuel	
Function:		EMERGENCY STOP		Alternator	
Group of functions:		Control board inputs		analogue input building group	
c	Date	21.01.2020	Drawn	Sittler	-SK
b	Released		Released	Fischer C.	+
a	Date		Name		SFA55-SK-03037.01
D	Change				page 5
					9 SHL

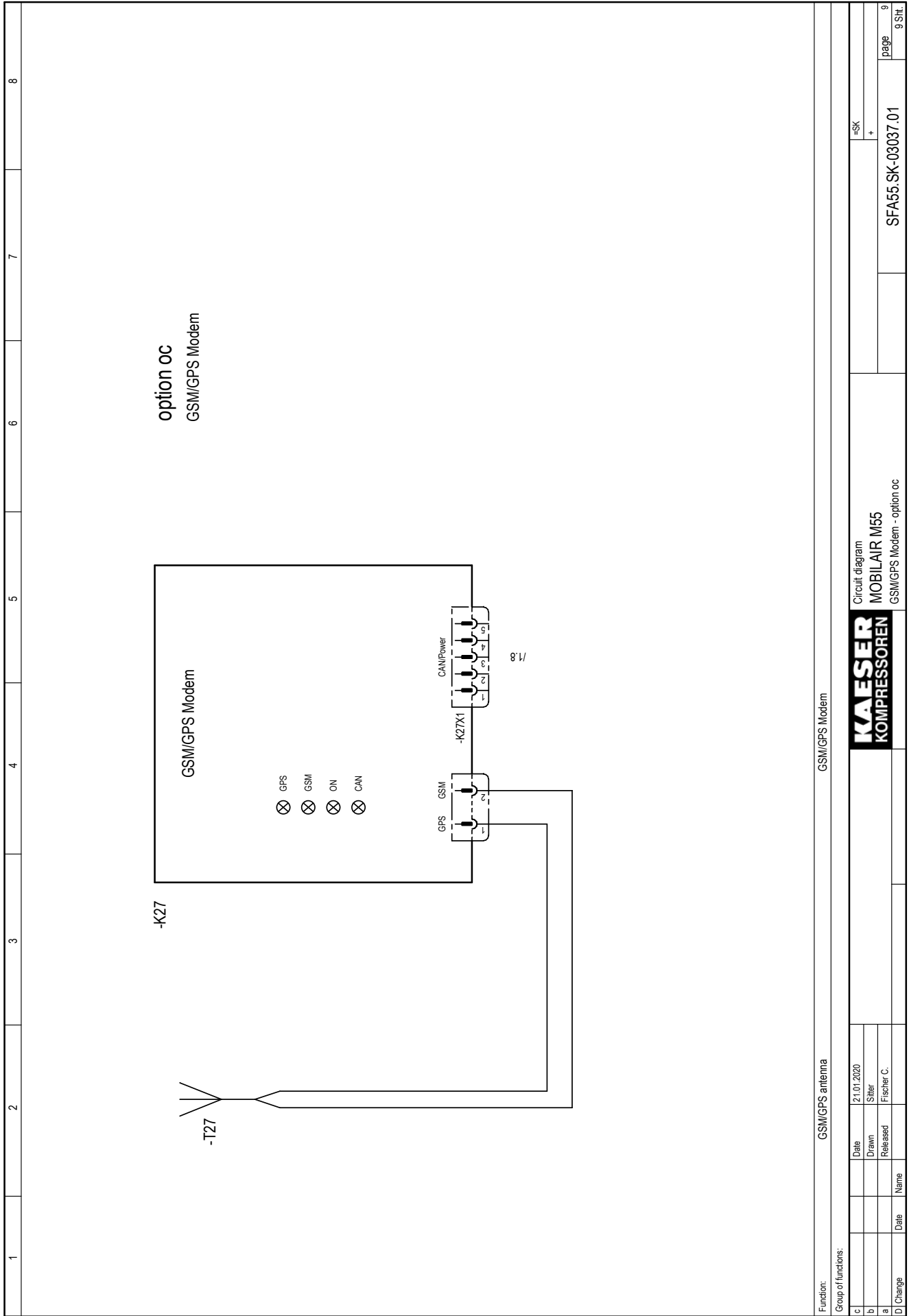


Function:		Control valve		Venting valve		Control board outputs	
Function:		Inlet valve					
Group of functions:							
c	Date	21.01.2020					-SK
b	Drawn	Sittler					+
a	Released	Fischer C.					SFA55-SK-03037.01
D	Change	Date	Name			page 6	
							9 SHL





Function:		Operating unit SCS	
Group of functions:		Control board SCS	
c	Date	21.01.2020	-SK
b	Drawn	Sittler	+
a	Released	Fischer C.	SFA55-SK-03037.01
D	Change	Date	page 8
			9 SHL



1	2	3	4	5	6	7	8										
A Stück- zahl Qty.	B Benennung und Verwendung Description and function		C Fabrikatsbezeichnung Typ: notwendige techn. Daten (z.B. Steuerspannung, Frequenz, Einbaubereich); Bestell-Nr.; Hersteller Identification data Type: basic technical data (e.g. control voltage, frequency, adjustable range); order No., manufacturer		D Lfd. Nr. Item	E Betriebsmittel-Kennz. nach DIN 40719, Teil 2 Identifying symbol of device	F Stromlaufplan Planabschnitt Circuit diagram sheet No., section No.	G Einbauort Location	Concerns only the manufacturer								
	H Schabl. Nr.	I BZ- Pos.	J VA (Kz *)	K Eingangs- vermerk													
	Control cabinet:																
1	Control cabinet		226799.0	Wagner													
1	Mounting plate		226834.0	Wagner													
1	Control board SCS		CR9062	ifm		-K20											
5	Relay		12V, -1W, 30/40A	FTM		-K30, -K38, -K39, -K48, -K49											
5	Relay socket			FTM		-K30, -K38, -K39, -K48, -K49											
1	glow relay			KUBOTA		-K31											
2	Lead-through terminal		HDFK-10 / 10mm ²	Phoenix		-X23:30, -X23:31											
18	Terminal		WKFN 2.5D2/2/35	Wieland		-X1											
2	Terminal		WKF 16/35 P/1/WKFN	Wieland		-X1											
1	Terminal		WKFN 2.5E/35/G2	Wieland		-X1											
7	Fuse terminal		WKFN 4FSI	Wieland		-X1											
2	Fuse UNIVAL		5 A	FTM		-F20, -F100											
1	Fuse UNIVAL		7.5 A	FTM		-F15											
1	Fuse UNIVAL		15 A	FTM		-F13											
1	Fuse UNIVAL		20 A	FTM		-F39											
1	Fuse UNIVAL		25 A	FTM		-F30											
1	Fuse UNIVAL		40 A	FTM		-F51											
2	Resistor		120 Ω	Bürklin		-R10, -R13											
1	Resistor		66 Ω	Bürklin		-R3											
1	Diode		BY-550-600	Bürklin		-R2											
1	Voltage transformer		6-16VDC/12VDC	Bürklin		-T20											
1	Diagnostic socket KAESER			TDK-Lambda		-X100											
1	plug connection 4-pole		14-pole	Boersig		-K20N2											
1	plug connection 6-pole		7.9200.01300	Boersig		-K20N1											
3	plug connection 8-pole		7.9200.01310	Boersig		-K20A, -K20B, -K20C											
2	plug connection 8-pole		7.9200.01320	Boersig		-K20E, -K20F											
4	plug connection 12-pole		7.9200.01330	Boersig		-X21, -X24, -X25, -X31											
1	Solenoid valve		1604941-1	Boersig		-K7											
			12VDC G18 3/2W	Bürkert													

*) Versandanschrift - Kennzeichen

B and C should be stated in the list of equipment, order as the type of equipment, order as also quote the serial No. of the

When ordering the equipment, all data enclosed by the heavy lines of columns B and C should be stated in columns B and C of the order form. If the order form is not available, please contact your local distributor. The German version applies in cases of doubt.

Spalten B und C angegebenen Daten des Gerätes sind in den Spalten B und C der Bestellung anzugeben. Falls die Bestellform nicht zur Verfügung steht, wenden Sie sich an Ihren örtlichen Vertriebspartner. Die deutsche Version gilt in Zweifelsfällen.

Bei Nachbestellung von Geräten und Maschinen sind alle in den stark umrandeten Spalten B und C angegebenen Daten des Gerätes in den Spalten B und C der Bestellung anzugeben. Falls die Bestellform nicht zur Verfügung steht, wenden Sie sich an Ihren örtlichen Vertriebspartner. Die deutsche Version gilt in Zweifelsfällen.

Equipment parts list		MOBILAIR M55	
Control cabinet			
Date		21.01.2020	
Drawn		Sittler	
Released		Fischer C.	
Date		Name	
Change		Date	
=		+	
GFA55-03037.01		page 1	
		2 SHL	

1	2		3	4	5	6	7	8											
A Stück- zahl Qty.	B Benennung und Verwendung Description and function		C Fabrikatsbezeichnung Typ, notwendige techn. Daten (z.B. Steuerspannung, Frequenz, Einstellbereich); Bestell-Nr.; Hersteller Identification data Type, basic technical data (e.g. control voltage, frequency, adjustable range); order No., manufacturer		D Lfd. Nr. Item	E Betriebsmittel-Kemz- nach DIN 40719, Teil 2 Identifying symbol of device	F Stromlaufplan Planabschnitt Circuit diagram sheet No., section No.	G Einbauort Location	Concerns only the manufacturer										
			H Schabl. Nr.	I BZ- Pos.					J VA (Kz *)	K Eingangs- vermerk									
		Control cabinet																	
1		switch Control voltage ON/OFF		RKWA 7.9027-10050 Schlegel	-S10														
1		Switching element		BTL5 24VDC, 2A Schlegel	-S10														
1		Control board		Bosch	-K22														
		Control panel																	
1		Operating unit SCS		CR9047 7.9200.11010 ifm	-K21														
1		EMERGENCY STOP		QRUV 7.3217.0 Schlegel	-S1														
1		Switching element		MHT00 7.3218.0 Schlegel	-S1														
1		plug connection 12-pole		350735-1 7.6589-00500 Boersig	-X25														
		unit components																	
1		Pressure transducer		0...16 bar 7.9204.0 Huba	-B10														
1		Pressure transducer		-1...5 bar 7.9203.0 Huba	-B11														
1		Temperature probe		-30...130 °C 7.9202-40010 Bebia	-B40														
1		sensor fuel level		ITS-60 l=520mm 7.9201-10100 Bebia	-B37														
1		Fuel filter		8.9038.0 KUBOTA	-B33														
1		Fuse		125A 7.6411.00025 FTM	-F31														
1		Heating		500W KUBOTA	-E11														
1		Solenoid valve		12V DC G3/8 2/2W Bürkert	-K1														
1		fuel pump		8.9164.0 KUBOTA	-M9														
		model-dependent components																	
1		GSM/GPS Modem		ifm CR3114 7.9208.01000 Proemion	-K27														
1		GSM/GPS antenna		7.9208.01010 Proemion	-T27														

*) Versandanschrift - Kennzeichen

B and C should be stated in the list of equipment, together as the order reference, together as also quote the serial No. of the

When rendering the equipment, all data enclosed by the heavy lines of columns 4 and 5 in column C should be given together with the No. of the product if stated on the rating plate.
The German version applies in cases of doubt.

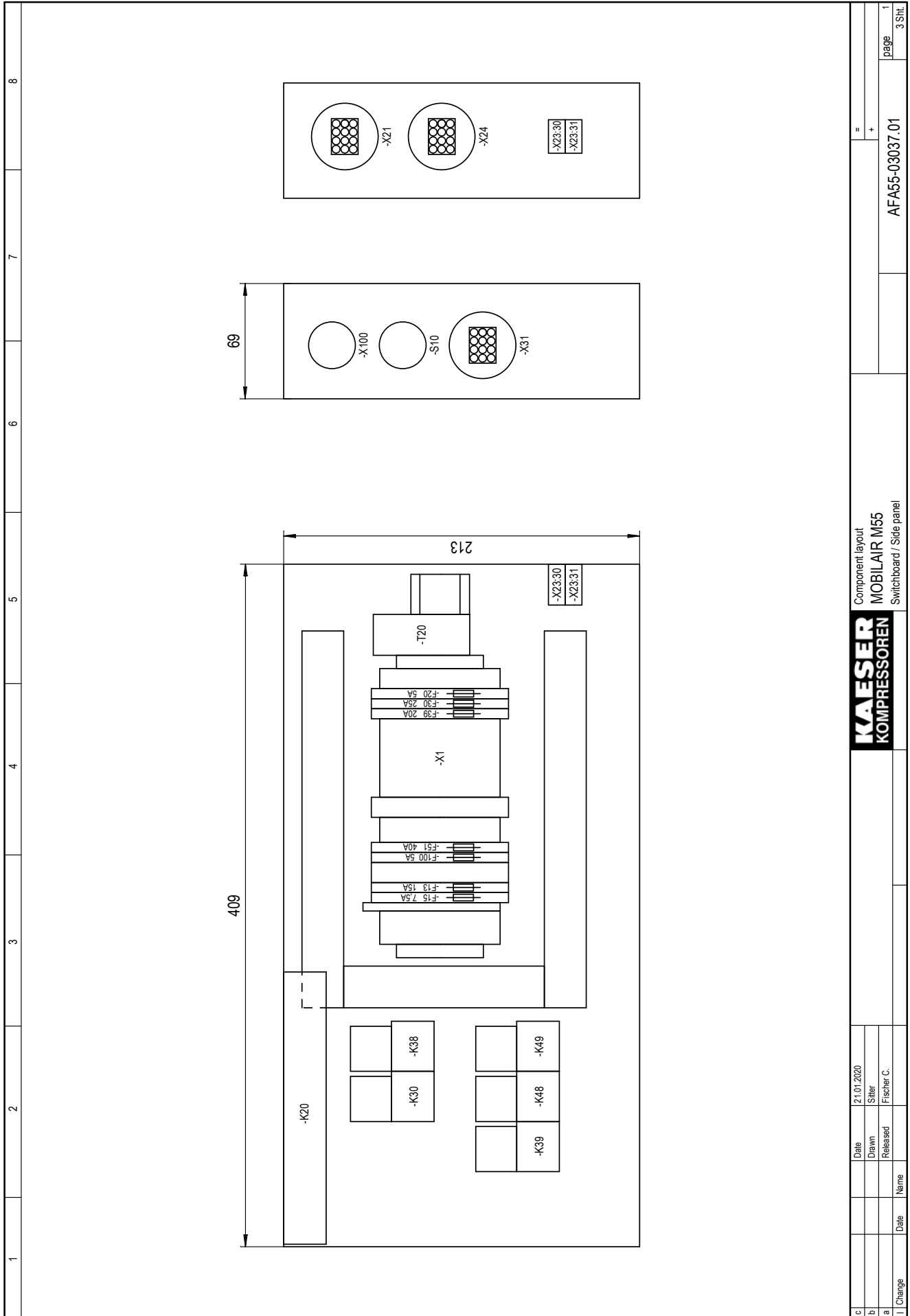
Spalten B und C angegebenen Daten des Erzeugnisses sind in der Spalte D des Erzeugnisses anzugeben, falls diese auf dem Typenschild des Erzeugnisses genannt ist.

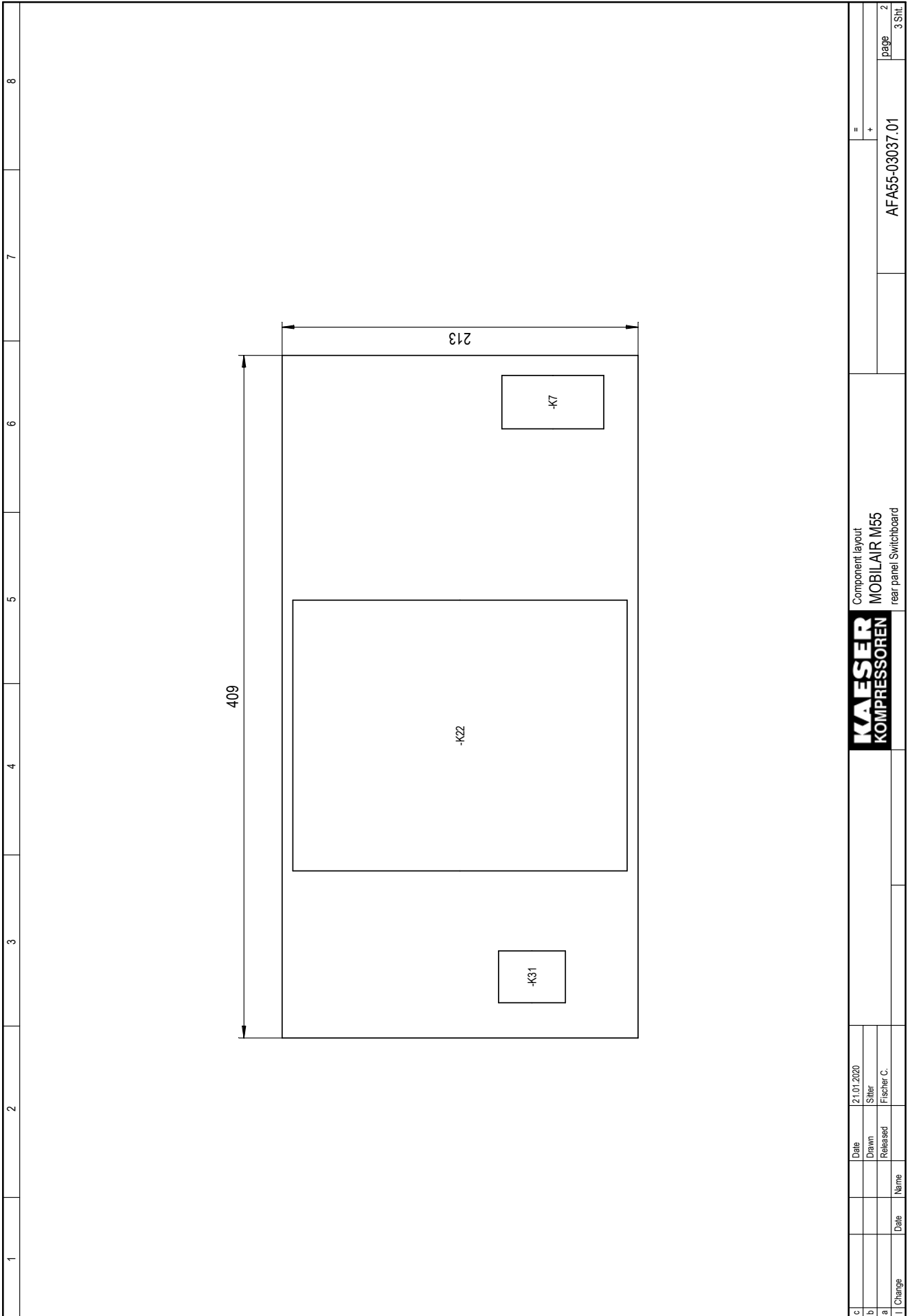
Bei Nachbestellung von Geräten und Maschinen sind alle in den stark umrandeten Zeilen D bis E des Erzeugnisses anzugeben, falls diese auf dem Typenschild des Erzeugnisses genannt ist.
In Zweifelsfällen gilt die deutsche Fassung.

Equipment parts list		MOBILAIR M55	
Control panel/unit components		GFA55-03037.01	
KAESER KOMPRESSOREN		=	
Date: 21.01.2020		+	
Drawn: Siffer			
Released: Fischer C.			
Date: Name			
Change			
page 2		2 SHL	

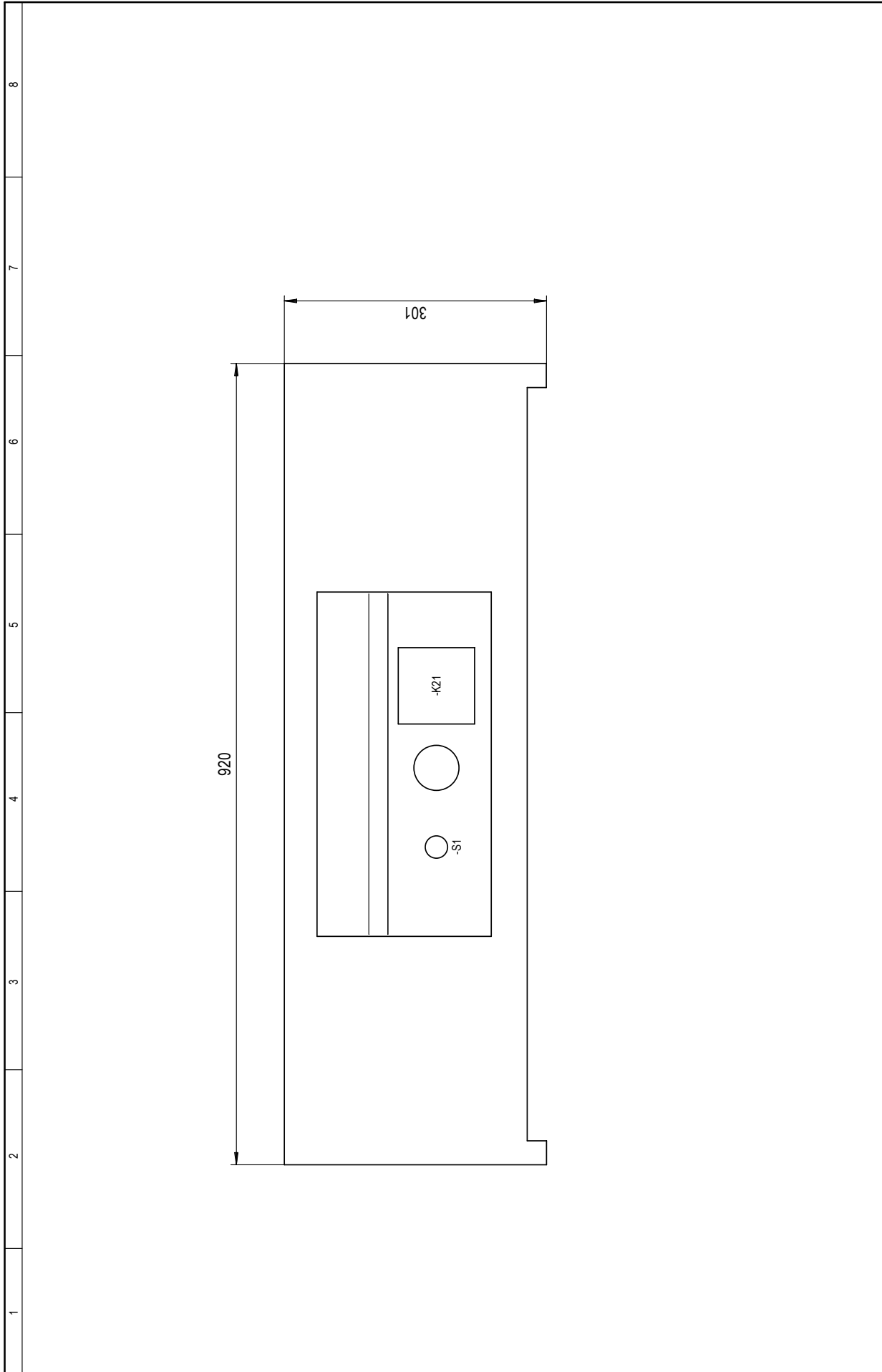
Cable identification		Terminal strip		Destination external		Cable identification		Destination internal	
H. Change	Date	Name	Terminal number	Terminal legend Link	Location	Component identification	Connection number	Component identification	Connection number
			1	/2.2	-K38	87			
			2	/2.3	-K38	85			
			3	/2.5	-K30	85			
			4	/2.7	-X1	44			
			5	/2.7	-X1	45			
			6	/2.8	-K20E	OUT1			
			7	/2.8	-K39	30			
			8	/2.5	-K30	86			
			9	/2.3	-X1	31.1			
			10	/2.3	=IKM/2.3	-X1	31.1		
			11		=IKM/2.4	-X1	31.2		
			12						
total 12 Terminals									
Plug connection: -X24.1									
			1	/2.2	-K22	X2:55			
			2	/2.3	-K22	X2:41			
			3	/2.5	-K22	X1:36			
			4	/2.7	-K22	X2:30			
			5	/2.7	-K22	X2:42			
			6	/2.8	-K22	X2:16			
			7	/2.8	-K22	X2:26			
			8	/2.5	-K22	X1:21			
			9	/2.3	-K22	X2:51			
			10		=IKM-X42	2			
			11		=IKM-K22	Housing			
			12						
total 12 Terminals									
Plug connection: -X24.2									
			1	/2.2	-K38	87			
			2	/2.3	-K38	85			
			3	/2.5	-K30	85			
			4	/2.7	-X1	44			
			5	/2.7	-X1	45			
			6	/2.8	-K20E	OUT1			
			7	/2.8	-K39	30			
			8	/2.5	-K30	86			
			9	/2.3	-X1	31.1			
			10	/2.3	=IKM/2.3	-X1	31.1		
			11		=IKM/2.4	-X1	31.2		
			12						

Date		21.01.2020	
Drawn	Sitter		
Released	Fischer C.		
Date		Name	
			
Terminal schedule MOBILAIR M55 Plug connection -X24			
-SK		+	
KFA55-03037.01			
page	11		
5 Str.			





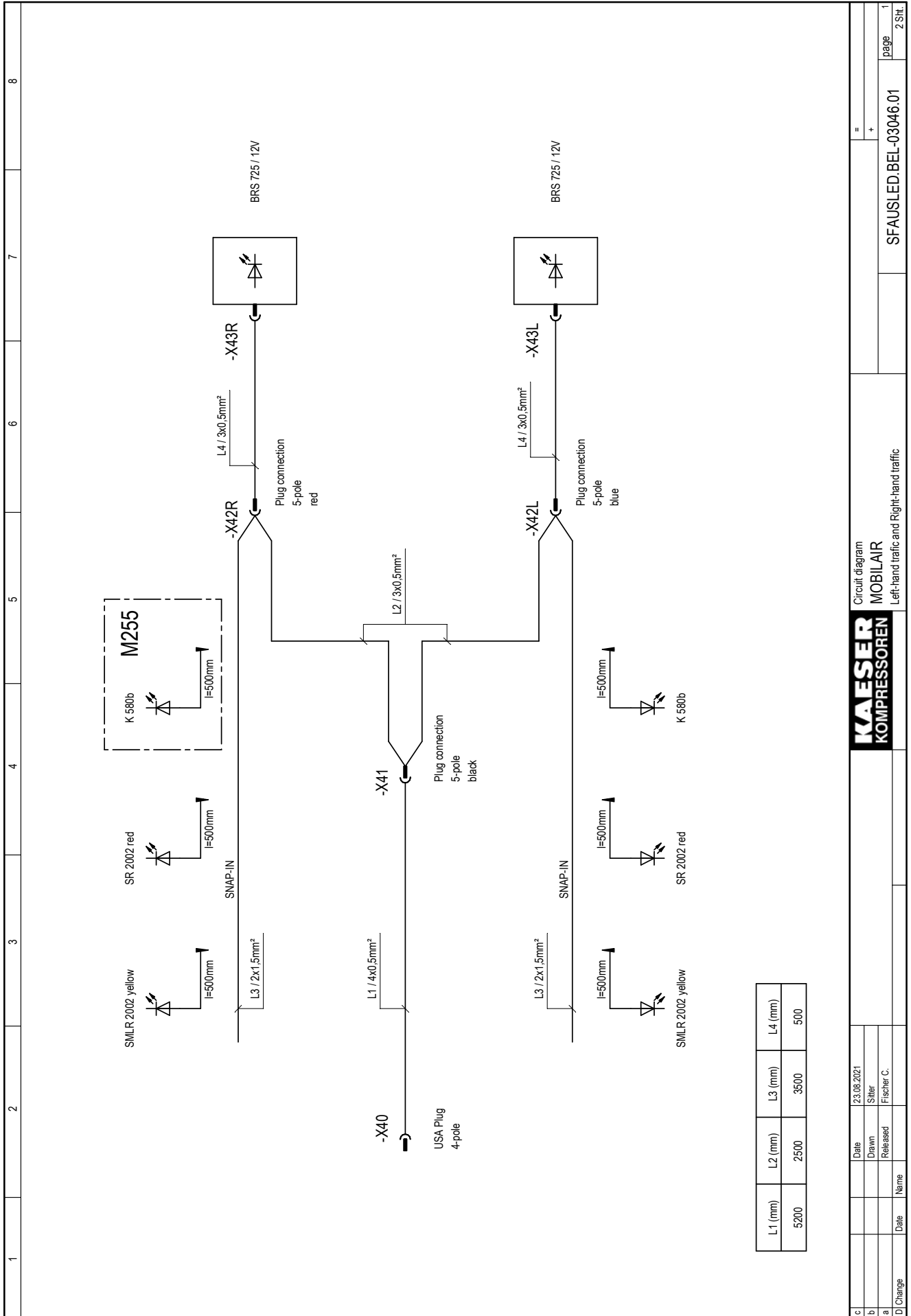
c	Date	21.01.2020			=		+		AFA55-03037.01	
b	Drawn	Sittler							page 2	
a	Released	Fischer C.							3 SHL	
l	Change	Date	Name							
			KAESER KOMPRESSOREN			Component layout MOBILAIR M55 rear panel Switchboard				



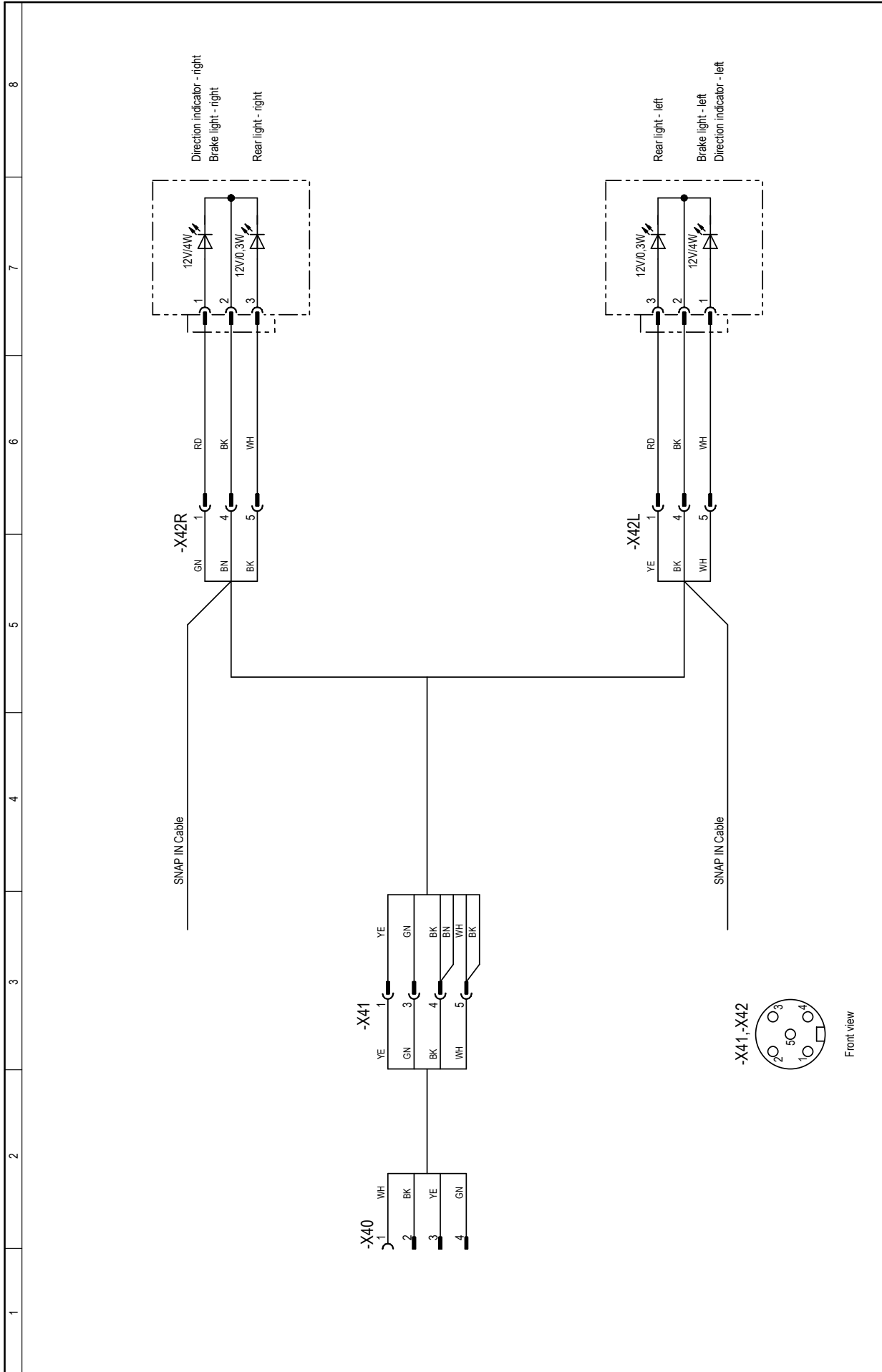
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b	Drawn	Sittler					
a	Released	Fischer C.					
l	Change						
	Date		Name				

**13.4.2 Option te
Lighting and signaling system connection**

1	2	3	4	5	6	7	8	
<p>Electrical diagrams</p> <p>MOBILAIR</p> <p>LED-Lighting equipment</p> <p>for USA / CAN</p>								
<p>Manufacturer: KAESER KOMPRESSOREN SE Postfach 2143 96410 Coburg</p>								
<p>The drawings remain our exclusive property. They are entrusted only for the agreed purpose. Copies or any other reproductions, including storage, treatment and dissemination by use of electronic systems must not be made for any other than the agreed purpose. Neither originals nor reproductions must be forwarded or otherwise made accessible to third parties.</p>								
c	Date	23.08.2021	E	Cover page				=
b	Drawn	Sittler		MOBILAIR				+
a	Released	Fischer C.						
A	Change	Date	Name					
							DFAUSLED.BEL-03046.01	
							page 1	
							1 Str.	

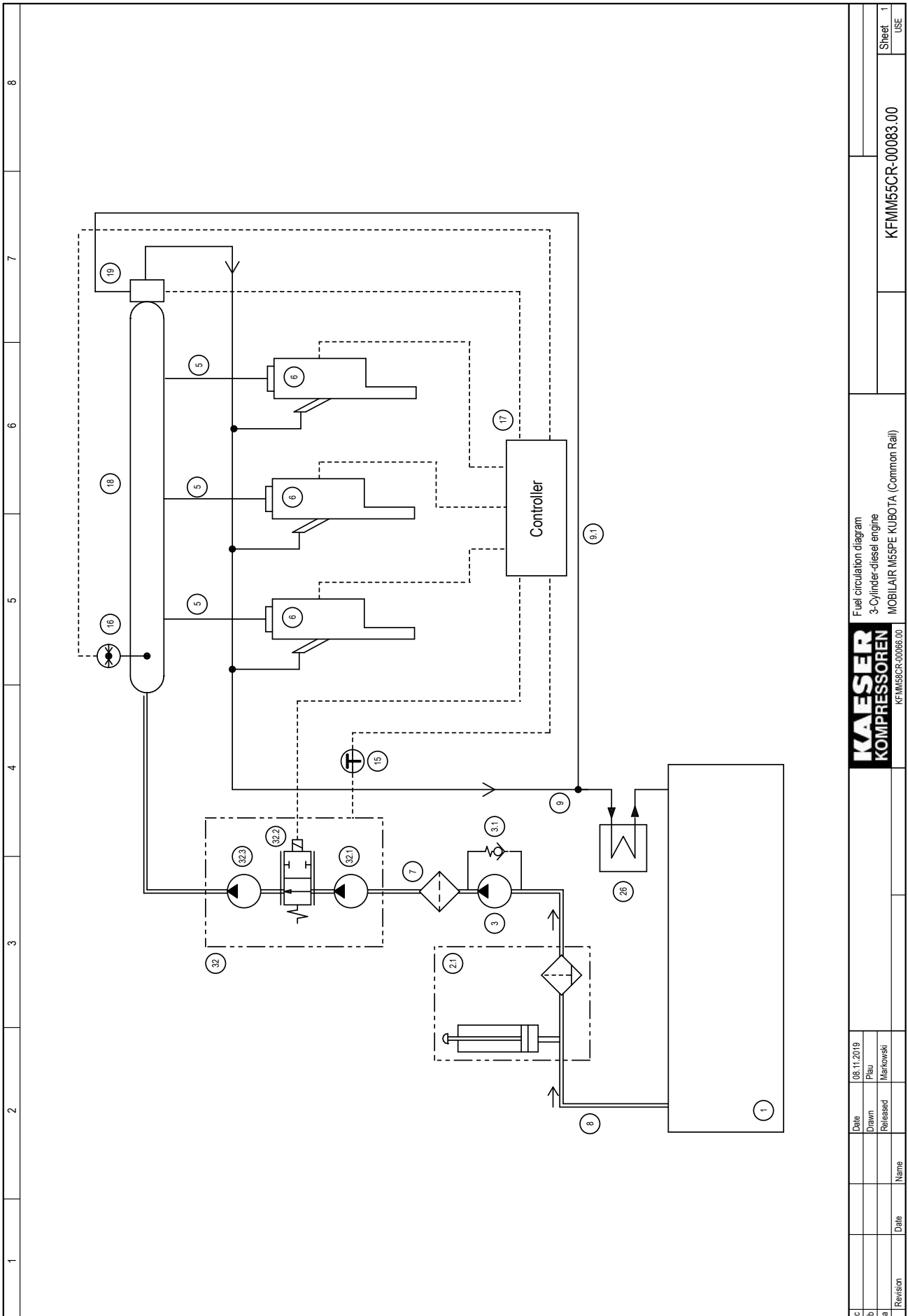


c	Date	23.08.2021		
b	Drawn	Sittler		
a	Released	Fischer C.		
D	Change	Date	Name	
			SFAUSLED BEL-03046.01	
			page	1
			2 Str.	



c	Date	23.08.2021	=		SFAUSLED BEL-03046.01		page	2
b	Drawn	Sittler	+				2	
a	Released	Fischer C.					2 Sht.	
D	Change	Date	Name					
			Circuit diagram					
			MOBILAIR					
			LED-lighting equipment					

13.5 Fuel circulation diagram



c	Date	08.11.2019
b	Drawn	Plau
a	Released	Markowski
Revision	Date	Name

KAESER
KOMPRESSOREN
KFM55CR-00983.00

Fuel circulation diagram
3-Cylinder-diesel engine
MOBILAIR M55PE KUBOTA (Common Rail)

KFM55CR-00983.00

Sheet: 1
USE

1	2	3	4	5	6	7	8	
		1 Fuel tank						
		2.1 Fuel prefilter with water separator and manual pump						
		3 Fuel feed pump						
		3.1 Bypass valve						
		5 High pressure line						
		6 Injection nozzle						
		7 Fuel filter						
		8 Fuel supply line						
		9 Fuel return line						
		9.1 Fuel leakage pipe						
		15 Temperature transducer						
		16 Pressure transducer						
		17 Engine control unit						
		18 Rail						
		19 Pressure limiting valve						
		26 Fuel cooler						
		32 High-pressure pump						
		32.1 Feed pump (motor-mounted)						
		32.2 Control valve (fuel feed pump)						
		32.3 Pump unit						
c	Date	08.11.2019						Sheet: 2 USE
b	Drawn	Plau						
a	Released	Markowski						
Revision	Date	Name	Fuel circulation diagram 3-Cylinder-diesel engine MOBILAIR M55PE KUBOTA (Common Rail)					KFMM55CR-00083.00

13.6 Option dd
Operating instructions for compressed air filter (combination filter)



Filters for Compressed Air P010 - P055 (WS, A0, AA, ACS)

User Guide

EN Original Language

NL DE FR FI SV NO DA EL ES PT IT PL
SK CS ET HU LV LT RU SL TR MT RO BG

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



ENGINEERING YOUR SUCCESS.

(EN) ONE YEAR AIR QUALITY GUARANTEE

Your air quality has been guaranteed for 1 year and will be renewed at every annual filter element change.

Annual filter element changes ensure:

- Optimal performance is maintained
- Air quality continues to meet international standards
- Protection of downstream equipment, personnel and processes
- Low operational costs
- Increased productivity and profitability
- Peace of mind

(NL) LUCHTKWALITEITSGARANTIE VAN ÉÉN JAAR

De luchtkwaliteit wordt 1 jaar lang gegarandeerd. De garantie wordt elk jaar verlengd wanneer het filterelement wordt vervangen.

Een jaarlijkse vervanging van het filterelement heeft de volgende voordelen:

- Een onverminderde optimale prestatie
- Luchtkwaliteit die blijft voldoen aan de internationale normen
- Bescherming van apparatuur, personeel en processen achter de compressor
- Lage bedrijfskosten
- Hogere productiviteit en rentabiliteit
- Gemoedsrust

(DE) EIN JAHR GARANTIE AUF DIE LUFTQUALITÄT

Wir gewähren Ihnen eine 1-jährige Garantie auf die Luftqualität, die bei jedem jährlichen Austausch des Filterelements erneuert wird.

Ein jährlicher Austausch des Filterelements stellt Folgendes sicher:

- Optimale Leistung wird gewährleistet
- Die Luftqualität erfüllt weiterhin internationale Standards
- Schutz der nachgeschalteten Geräte, der Arbeitskräfte und Produktionsabläufe
- Geringe Betriebskosten
- Höhere Produktivität und Wirtschaftlichkeit
- Sorgenfreiheit

(FR) QUALITÉ DE L'AIR GARANTIE PENDANT 1 AN

La qualité de l'air est garantie pendant 1 an, garantie renouvelable à chaque remplacement annuel de la cartouche filtrante.

Le remplacement annuel des cartouches filtrantes garantit :

- La préservation de performances optimales
- Une qualité de l'air conforme aux normes internationales
- Une protection de l'équipement, des processus et du personnel en aval
- Des coûts d'utilisation réduits
- Un niveau de productivité et de rentabilité accru
- Votre tranquillité d'esprit

(ES) GARANTÍA DE CALIDAD DEL AIRE PARA UN AÑO

La calidad del aire tiene una garantía de 1 año y se renovará con cada cambio anual del filtro

El cambio anual del filtro le asegura:

- Se mantiene un rendimiento óptimo.
- La calidad del aire sigue cumpliendo las normas internacionales
- Protección del equipo, personal y procesos aguas abajo.
- Bajos costes de funcionamiento.
- Mayor productividad y rentabilidad.
- tranquilidad.

(IT) GARANZIA DI UN ANNO SULLA QUALITÀ DELL'ARIA

La qualità dell'aria è garantita per un anno e la garanzia sarà rinnovata dopo ogni sostituzione annuale dell'elemento filtrante.

La sostituzione annuale dell'elemento filtrante assicura:

- Prestazioni ottimali nel tempo
- Aria di qualità sempre conforme alle norme internazionali
- Protezione del personale, delle apparecchiature e dei processi a valle
- Bassi costi di esercizio
- Maggiore produttività e redditività
- Tranquillità



Model Coding example:

Model						
Element Grade	Premium Energy Efficient Element	Model Size	Port Size	Thread Type	Drain Option	DP Indicator
WS AO AA ACS	P	3 digit code as shown below	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Float M = Manual	X = None I = Incident Monitor
AA	P	030	A	G	F	I

Voorbeeld van model codering:

Model						
Elementklasse	Premium energie-efficiënt element	Afmetingen model	Poortafmeting	Schroefdraadtype	afvoer (optioneel)	DP-indicator
WS AO AA ACS	P	3-cijferige code zoals hieronder afgebeeld	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Vlotter M = Handmatig	X = Geen I = Incidentmonitor
AA	P	030	A	G	F	I

Beispiel für Modellschlüssel:

Modell						
Element-Klasse	Energieeffizientes Element der Premiumklasse	Baugröße	Anschlussgröße	Gewindetyp	Entleerung	DD-Anzeige
WS AO AA ACS	P	Dreistelliger Code wie unten dargestellt	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Schwimmer M = Hand-	X = Keine I = Verschmutzungsanzeige
AA	P	030	A	G	F	I

Exemple de code de modèle:

Modèle						
Grade d'élément	Élément de rendement énergétique de qualité supérieure	Dimensions du modèle	Taille de l'orifice	Type de filetage	Option de purge	Indicateur PD
WS AO AA ACS	P	Code à 3 chiffres (ex. ci-dessous)	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Flotteur M = Réactivation	X = Aucun I = Contrôle des incidents
AA	P	030	A	G	F	I

⑤ Ejemplo de códigos de modelos:

Modelo						
Grado del elemento	Elemento eficiente energéticamente premium	Tamaño del modelo	Tamaño de puerto	Tipo de rosca	Opción de drenaje	Indicador DP
WS AO AA ACS	P	Código de 3 dígitos, tal y como se muestra a continuación	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Flotador M = Manual	X = Ninguno I = Monitor de incidencias
AA	P	030	A	G	F	I

⑥ Esempio di codifica dei

Modello						
Tipo elemento	Elemento ad efficienza energetica Premium	Dimensioni modello	Dimensioni attacco	Tipo di filettatura	Opzione di scarico	Indicatore DP
WS AO AA ACS	P	Codice a 3 cifre come indicato di seguito	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Galleggiante M = Ripristino	X = Nessuno I = Monitor criticità
AA	P	030	A	G	F	I

⑦ Product Selection

Stated flows are for operation at 7 bar g (100 psi g) with reference to 20°C, 1 bar a, 0% relative water vapour pressure. For flows at other pressures apply the correction factors shown.

⑧ Productselectie

De weergegeven stroomsnelheden zijn voor een werking bij 7 bar (g) (100 psi g) met betrekking tot 20°C, 1 bar (a), 0% relatieve waterdampdruk. Voor stroomsnelheden bij andere drukverhoudingen dient u de vermelde correctiefactoren toe te passen.

⑨ Produktauswahl

Die angegebenen Durchflussraten beziehen sich auf den Betrieb bei 7 bar ü (100 psi g), 20 °C, 1 bar ü und einem relativen Wasserdampfdruck von 0 %. Wenden Sie zur Bestimmung der Durchflussraten bei anderen Drücken die angegebenen Korrekturfaktoren an.

⑩ Choix du produit

Les débits indiqués correspondent à un fonctionnement à une pression de 7 bar eff (100 psi eff) et aux conditions de référence suivantes : 20 °C, 1 bar (a) et 0 % de pression de vapeur d'eau relative. Pour les débits de pression différente, appliquez les facteurs de correction indiqués.

⑪ Selección de productos

Los caudales se indican para el funcionamiento a 7 bar g (100 psi g), referidos a 20 °C (1 bar) y presión relativa del vapor de agua del 0%. Para caudales a otras presiones, aplique los factores de corrección que se muestran.

⑫ Scelta del prodotto

Le portate indicate si riferiscono al funzionamento con una pressione di 7 bar g (100 psi g) a 20°C, 1 bar a, pressione relativa del vapore acqueo 0%. Per altri valori di pressione applicare i fattori di correzione indicati.

Water Separator Flow Rates

Stroomsnelheden waterafscheider, Durchflusswerte des Wasserabscheiders, Débit du séparateur d'eau, Caudales del separador de agua, Portate del separatore d'acqua

Model	Port Size	L/s	m3/min	m3/hr	cfm
WS P010A	¼	10	0.6	36	21
WS P010B	¾	10	0.6	36	21
WS P010C	½	10	0.6	36	21
WS P015C	½	40	2.4	144	85
WS P020D	¾	40	2.4	144	85
WS P025D	¾	110	6.6	396	233
WS P025E	1	110	6.6	396	233
WS P030G	1 ½	110	6.6	396	233
WS P035G	1 ½	350	21.0	1260	742
WS P040H	2	350	21.0	1260	742
WS P045I	2 ½	350	21.0	1260	742
WS P050I	2 ½	800	48.0	2880	1695
WS P055J	3	800	48.0	2880	1695

CFP - Correction Factor Minimum Inlet Pressure (Water Separators)

CFP - Correctiefactor minimale inlaatdruk (waterafscheiders), CFP - Korrekturfaktor minimaler Einlassdruck (Wasserabscheider), CFP - Facteur de correction de la pression d'admission minimale (Séparateurs d'eau), CFP: factor de corrección de presión mínima de entrada (separadores de agua), CFP - Fattore di correzione della pressione minima di ingresso (separatori d'acqua),

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232
Correction Factor		4.00	2.63	2.00	1.59	1.33	1.14	1.00	0.94	0.89	0.85	0.82	0.79	0.76	0.73	0.71	0.68

Filter Flow Rates

Stroomsnelheid filter, Filter-Durchflussraten, Débits du filtre, Caudales del filtro, Portate del filtro

Model	Port Size	L/s	m3/min	m3/hr	cfm	Replacement Element kit	No.
[grade] P010A	¼	10	0.6	36	21	P010	[grade] 1
[grade] P010B	¾	10	0.6	36	21	P010	[grade] 1
[grade] P010C	½	10	0.6	36	21	P010	[grade] 1
[grade] P015C	½	20	1.2	72	42	P015	[grade] 1
[grade] P020C	½	30	1.8	108	64	P020	[grade] 1
[grade] P020D	¾	30	1.8	108	64	P020	[grade] 1
[grade] P025D	¾	60	3.6	216	127	P025	[grade] 1
[grade] P025E	1	60	3.6	216	127	P025	[grade] 1
[grade] P030G	1 ½	110	6.6	396	233	P030	[grade] 1
[grade] P035G	1 ½	160	9.6	576	339	P035	[grade] 1
[grade] P040H	2	220	13.2	792	466	P040	[grade] 1
[grade] P045I	2 ½	330	19.8	1188	699	P045	[grade] 1
[grade] P050I	2 ½	430	25.8	1548	911	P050	[grade] 1
[grade] P055I	2 ½	620	37.3	2232	1314	P055	[grade] 1
[grade] P055J	3	620	37.3	2232	1314	P055	[grade] 1

[grade] = grade
 [Klasse] = Klasse
 [grade] = grade
 [grado] = grado
 [grado] = grado

CFP - Correction Factor Minimum Inlet Pressure (Coalescing and Dry Particulate Filters)

CFP - Correctiefactor minimale inlaatdruk (coalescentiefilters en drogedeeltesfilters), CFP - Korrekturfaktor minimaler Einlassdruck (Koaleszenz- und Trockenpartikelfilter), CFP - Facteur de correction de la pression d'admission minimale (Filtres coalescents et à particules sèches), CFP: factor de corrección de presión mínima de entrada (filtros de partículas secas y coalescentes), CFP - Fattore di correzione della pressione minima di ingresso (filtri anti-particolato a coalescenza e per particolato asciutto)

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232	248	263	277	290
Correction Factor		2.65	1.87	1.53	1.32	1.18	1.08	1.00	0.94	0.88	0.84	0.80	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.61	0.59

㉞ Product Selection and Correction Factors

To correctly select a Water Separator or Filter model, the flow rate of the filter must be adjusted for the minimum operating pressure of the system.

- 1 Obtain the minimum operating pressure and maximum compressed air flow rate at the inlet of the Water Separator or Filter.
- 2 Select the correction factor for minimum operating pressure from the CFP table (always round down e.g. for 5.3 bar, use 5 bar correction factor)
- 3 Calculate the minimum filtration capacity. Minimum Filtration Capacity = Compressed Air Flow Rate x CFP
- 4 Using the minimum filtration capacity, select a Water Separator or Filter model from the flow rate tables above (Water Separator or Filter selected must have a flow rate equal to or greater than the minimum filtration capacity).

㉞ Productselectie en correctiefactoren

Om het juiste waterafscheidings- of filtermodel te selecteren, dient u de stroomsnelheid van het filter aan te passen aan de minimale bedrijfsdruk van het systeem.

- 1 Bepaal de minimale bedrijfsdruk en de maximale stroomsnelheid van de perslucht bij de inlaat van de waterafscheider of het filter.
- 2 Kies de correctiefactor voor de minimale bedrijfsdruk uit de CFP-tabel (altijd naar beneden afronden, bijv. bij 5,3 bar gebruikt u 5 bar als correctiefactor).
- 3 Bereken de minimale filtratiecapaciteit. Minimale filtratiecapaciteit = persluchtstroming x CFP
- 4 Selecteer een filtermodel uit de bovenstaande tabel met stroomsnelheden aan de hand van de minimale filtercapaciteit (de stroomsnelheid van het geselecteerde filter moet gelijk zijn aan of hoger zijn dan de minimale filtercapaciteit).

㉞ Produktauswahl und Korrekturfaktoren

Zur richtigen Auswahl eines Wasserabscheiders oder Filtermodells muss die Durchflussrate des Filters entsprechend dem Mindestbetriebsdruck des Systems gewählt werden.

- 1 Bestimmen Sie den Mindestbetriebsdruck sowie die maximale Druckluftdurchflussrate am Einlass des Wasserabscheiders oder Filtereinlass.
- 2 Wählen Sie den Korrekturfaktor für den Mindestbetriebsdruck aus der CFP-Tabelle aus (immer abrunden, d. h. bei 5,3 bar einen Korrekturfaktor von 5 bar auswählen).
- 3 Berechnen Sie die Mindestfiltrationsleistung. Mindestfiltrationsleistung = Druckluftdurchflussrate x CFP (Korrekturfaktor)
- 4 Wählen Sie anhand der Mindestfiltrationsleistung einen Wasserabscheider oder Filter aus den obigen Tabellen mit der Durchflussrate (die Durchflussrate des ausgewählten Wasserabscheiders oder Filters muss gleich oder größer der Mindestfiltrationsleistung sein).

㉞ Sélection du produit et facteurs de correction

Pour sélectionner le bon modèle de filtre ou de séparateur d'eau, il convient de régler le débit du filtre en fonction de la pression de service minimale du système.

- 1 Déterminez la pression de service minimale et le débit d'air comprimé maximal au niveau de l'admission du séparateur d'eau ou du filtre.
- 2 Dans le tableau Facteurs de correction de pression (CFP), sélectionnez le facteur de correction correspondant à la pression de fonctionnement minimale (arrondissez toujours au chiffre inférieur. P. ex., pour 5,3 bar, utilisez un facteur de correction de 5 bar).
- 3 Calculez la capacité de filtration minimale. Capacité de filtration minimale = Débit d'air comprimé x CFP
- 4 À l'aide de la capacité de filtration minimale, sélectionnez un modèle de séparateur d'eau ou de filtre dans les tableaux de présentation des débits ci-dessus (le débit du séparateur d'eau ou du filtre sélectionné doit être égal ou supérieur à la capacité de filtration minimale).

㉞ Selección de productos y factores de corrección

Para seleccionar correctamente un modelo de filtro o separador de agua, el caudal del filtro se debe ajustar a la presión de trabajo mínima del sistema.

- 1 Determine la presión de trabajo mínima y el caudal máximo de aire comprimido en la entrada del filtro o del separador de agua.
- 2 Seleccione en la tabla de factores de corrección de presión (CFP) el factor de corrección para la presión de trabajo mínima (redondee siempre a la baja: por ejemplo, en el caso de 5,3 bar, utilice el factor de corrección correspondiente a 5 bar).
- 3 Calcule la capacidad mínima de filtración. Capacidad mínima de filtración = Caudal de aire comprimido x CFP
- 4 Use la capacidad mínima de filtración para seleccionar un modelo de separador de agua o filtro de las tablas de caudal anteriores (el separador de agua o el filtro seleccionados deben tener un caudal igual o superior a la capacidad mínima de filtración).

㉞ Selezione dei prodotti e fattori di correzione

Per selezionare il separatore d'acqua o modello di filtro corretto, regolare la portata del filtro per la pressione di esercizio minima dell'impianto.

- 1 Ricavare la pressione di esercizio minima e la portata massima dell'aria compressa all'ingresso del separatore d'acqua o del filtro.
- 2 Selezionare il fattore di correzione per la pressione di esercizio minima indicato nella tabella CFP (arrotondare sempre per difetto: ad esempio, per 5,3 bar scegliere il fattore di correzione 5 bar)
- 3 Calcolare la capacità di filtrazione minima. Capacità di filtrazione minima = Portata aria compressa x CFP
- 4 Considerando la capacità di filtrazione minima ottenuta, selezionare un separatore d'acqua o un modello del filtro dalla tabella in alto relativa alle portate (la portata del separatore d'acqua o del filtro selezionato deve essere pari o superiore alla capacità di filtrazione minima)

Technical Data

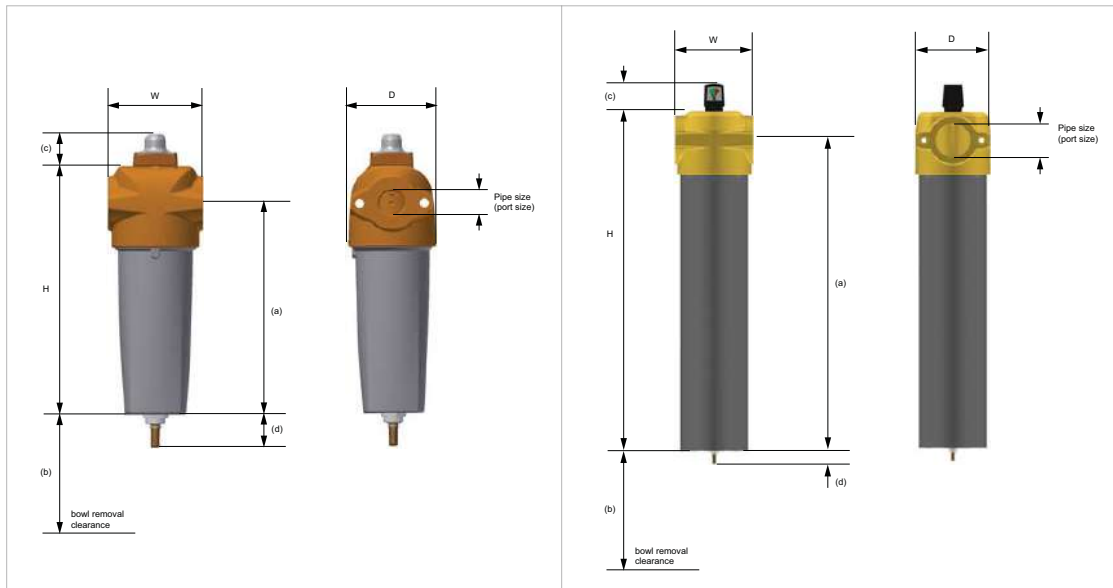
Technische gegevens, Technische Daten, Données techniques, Datos técnicos, Dati tecnici

Model	Filter Models										Min Operating Pressure		Max Operating Pressure		Min Recommended Operating Temp		Max Recommended Operating Temp				
	bar g	psi g	bar g	psi g	°C	°F	°C	°F													
WS	P010	[] [] F [] - 055	[] [] F []	1	15	16	232	2	35	80	176										
AO	P010	[] [] F [] - 055	[] [] F []	1	15	16	232	2	35	80	176										
AO	P010	[] [] M [] - 055	[] [] M []	1	15	20	290	2	35	100	212										
AA	P010	[] [] F [] - 055	[] [] F []	1	15	16	232	2	35	80	176										
AA	P010	[] [] M [] - 055	[] [] M []	1	15	20	290	2	35	100	212										
ACS	P010	[] [] M [] - 055	[] [] M []	1	15	20	290	2	35	50	122										

Note: AO / AA / WS grade filters for use up to 16 bar g (232 psi g) are supplied with a float drain [F] as standard. For pressures between 16 and 20 bar g (232 and 290 psi g) a manual drain [M] must be used. ACS grade filters are supplied with a manual drain [M] as standard.

Weights and Dimensions

Gewichten en afmetingen, Gewichte und Abmessungen, Poids et dimensions, Pesos y dimensiones, Pesi e dimensioni



Model	Pipe Size	Height (H)		Width (W)		Depth (D)		(a)		(b)		(c)		(d)		Weight	
		mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	kg	lbs
WS / P010A	¼"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010B	⅜"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010C	½"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P015C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.16	2.55
P020C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P020D	¾"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P025D	¾"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P025E	1"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P030G	1 ½"	367	14.45	120	4.72	114.5	4.5	323	12.7	70	2.76	32	1.3	38	1.5	2.68	5.91
WS / P035G	1 ½"	531	20.9	164	6.46	156	6.10	384	15.1	100	3.94	68	2.68	38	1.5	6.90	15.20
WS / P040H	2"	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.30	16.10
WS / P045I	2 ½"	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.10	15.65
WS / P050I	2 ½"	745	29.3	192	7.56	183	7.20	587	23.1	120	4.72	68	2.68	38	1.5	10.30	22.71
P055I	2 ½"	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73
WS / P055J	3"	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73

Note: Water Separators do not include a DP Indicator, use dimension H + d for the total height.

EN Installation recommendations

It is recommended that the compressed air is treated prior to entry into the distribution system and also at critical usage points / applications.

Installation of compressed air dryers to a previously wet system could result in additional dirt loading for point of use filters for a period whilst the distribution system dries out. Filter elements may need to be changed more frequently during this period.

For installations where oil-free compressors are used, water aerosol and particulate are still present, general purpose and high efficiency grades should still be used.

A general purpose filter must always be installed to protect the high efficiency filter from bulk liquid aerosols and solid particulate.

Install purification equipment at the lowest temperature above freezing point, preferably downstream of after coolers and air receivers.

Point of use purification equipment should be installed as close to the application as possible.

Purification equipment should not be installed downstream of quick opening valves and should be protected from possible reverse flow or other shock conditions.

Purge all piping leading to the purification equipment before installation and all piping after the purification equipment is installed and before connection to the final application.

If by-pass lines are fitted around purification equipment, ensure adequate filtration is fitted to the by-pass line to prevent contamination of the system downstream.

Fit drain lines from the coalescing filters directly to a condensate separator. If it is not possible to connect the drain lines directly to a separator, the lines should be vented in to a condensate manifold (vented at one end) and then in to a single inlet of a condensate separator.

Provide a facility to drain away collected liquids from the purification equipment. Collected liquids should be treated and disposed of in a responsible manner.

NL Aanbevelingen voor de installatie

Aanbevolen wordt de perslucht te zuiveren voordat de lucht in het distributiesysteem wordt toegelaten, en ook bij kritieke gebruikspunten of -toepassingen.

De aansluiting van persluchtdrogers op een systeem dat nat was, kan extra vuilophoping veroorzaken bij de gebruikspuntenfilters terwijl het distributiesysteem uitdroogt. Het is mogelijk dat gedurende deze periode de filterelementen vaker vervangen moeten worden.

Voor installaties met olievrĳe compressoren, waarin water-aerosols en deeltjes nog steeds aanwezig zijn, moeten filters voor algemeen gebruik en filters met een hoge efficiëntiegraad worden gebruikt.

Een filter voor algemeen gebruik moet altijd geïnstalleerd worden om het filter met hoge efficiëntiegraad tegen bulkvloeistof-aerosols en vaste deeltjes te beschermen.

Installeer zuiveringsapparatuur op de laagste temperatuur boven het vriespunt, bij voorkeur op een punt in het systeem na de nakoelers en luchtontvangers.

De zuiveringsapparatuur bij gebruikspunten moet zo dicht mogelijk bij de applicatie geïnstalleerd worden.

Zuiveringsapparatuur dient niet op een punt in het systeem na snel-openende kleppen te worden geïnstalleerd en moet worden beschermd tegen mogelijke tegenstroom of andere schoksituaties.

Reinig alle leidingen naar de zuiveringsapparatuur voorafgaand aan de installatie en ook nadat de zuiveringsapparatuur is geïnstalleerd, voorafgaand aan de aansluiting op de definitieve applicatie.

Als er omloopleidingen rond de zuiveringsapparatuur zijn gemonteerd, zorg er dan voor dat er voldoende filtering bij deze leidingen bestaat om te voorkomen dat het systeem verderop vervuild raakt.

Bevestig de afvoerleidingen van de coalescentiefilters direct aan een condensaatafscheider. Als het niet mogelijk is om de afvoerleidingen direct op een afscheider aan te sluiten, moeten de leidingen worden ontluicht in een condensaatverdeelstuk (dat aan één zijde wordt ontluicht) en daarna in een enkele inlaat van een condensaatafscheider.

Zorg ervoor dat het mogelijk is om de verzamelde vloeistof uit het zuiveringssysteem af te voeren. Deze vloeistof moet eerst worden gezuiverd en dan op verantwoorde wijze van de hand worden gedaan.

DE Installationsempfehlungen

Es wird empfohlen, die Druckluft vor dem Eintritt in das Verteilungssystem bzw. in kritische Einsatzstellen/Anwendungspunkte aufzubereiten.

Der Anschluss von Drucklufttrocknern an Systeme, die zuvor nass waren, könnte während der Trocknung des Verteilungssystems bei eingebauten Filtern zu einer zusätzlichen Verschmutzung führen. Die Filterelemente sind in dieser Phase ggf. häufiger auszutauschen.

Bei Einrichtungen, in denen ölfreie Kompressoren eingesetzt werden und noch Wassertropfen und Schmutzpartikel vorhanden sind, müssen universelle und Hochleistungsfilter verwendet werden.

Zum Schutz des Hochleistungsfilters vor großen Mengen an Flüssigkeitstropfen und festen Schmutzpartikeln muss immer ein universeller Filter vorgeschaltet werden.

Installieren Sie den Filter bei der niedrigsten Temperatur über dem Gefrierpunkt vorzugsweise hinter den Nachkühler und Luftbehälter.

Der Einsatzort des Filters muss sich in unmittelbarer Nähe zur Anwendung befinden. Der Filter darf sich schnell öffnenden Ventilen nicht nachgeschaltet werden. Außerdem muss ein Schutz gegen Rückflusss und andere Schockzustände gewährleistet sein.

Spülen Sie alle zum Filter führenden Rohrleitungen vor der Installation sowie nach der Installation des Filters und auch vor dem Anschluss an die endgültige Anwendung.

Sofern Bypass-Leitungen den Filter umgehen, muss zum Schutz des nachgeschalteten Systems gegen Verschmutzung für eine ausreichende Filterung dieser Leitungen gesorgt werden.

Führen Sie Ablassleitungen von den Koaleszenzfiltern direkt zu einem Kondensatabscheider. Wenn es nicht möglich ist, die Ablassleitungen direkt an einen Abscheider anzuschließen, müssen die Leitungen an ein Kondensatsammelrohr (mit Entlüftung an einem Ende) und dann an einen einzelnen Einlass eines Kondensatabscheiders angeschlossen werden.

Sorgen Sie für eine Einrichtung, die angesammelte Flüssigkeit von dem Filter entfernt. Die angesammelte Flüssigkeit muss sicher aufbereitet und entsorgt werden.

FR Consignes d'installation

Il est recommandé de traiter l'air comprimé avant l'entrée dans le système de distribution, ainsi qu'au niveau des applications/points d'utilisation stratégiques.

L'installation d'un sécheur à air comprimé sur un ancien système humide peut entraîner une teneur en poussière supplémentaire pour les points d'utilisation des filtres pendant la période durant laquelle le système de distribution sèche. Il sera peut-être nécessaire de changer les cartouches filtrantes plus souvent au cours de cette période.

Pour les installations équipées de compresseurs sans huile et où des particules et un aérosol d'eau sont toujours présents, il faut continuer d'utiliser des filtres polyvalents et des filtres haute efficacité.

Un filtre polyvalent doit toujours être installé pour protéger le filtre haute efficacité des aérosols de liquide en masse et des particules solides.

Installez l'équipement de purification à la température la plus basse avant le point de gel, de préférence en aval des réfrigérants et des collecteurs d'air.

L'équipement de purification au point d'utilisation doit être installé aussi près que possible de l'application.

L'équipement de purification ne doit pas être installé en aval de soupapes à ouverture rapide et doit être protégé d'un éventuel flux en sens inverse ou des chocs.

Purgez tous les conduits menant à l'équipement de purification avant l'installation, et recommencez une fois l'équipement installé et avant la connexion à l'application finale.

Si des conduites de dérivation sont en place autour de l'équipement de purification, assurez-vous qu'un élément filtrant approprié est monté sur la conduite de dérivation pour éviter la contamination du système en aval.

Installez directement les conduites d'évacuation des filtres coalescents sur un séparateur de condensation. S'il n'est pas possible de raccorder directement les conduites à un séparateur, elles doivent disposer d'une évacuation vers un collecteur de condensation (avec une extrémité d'évacuation), puis vers un séparateur de condensation à entrée unique.

Installez un dispositif permettant d'évacuer les liquides collectés dans l'équipement de purification. Ces liquides doivent être traités et éliminés comme il convient.

ES Recomendaciones de instalación

Se recomienda tratar el aire comprimido antes de que entre en el sistema de distribución y también en aplicaciones o puntos de utilización críticos.

La instalación de secadores de aire comprimido en un sistema húmedo existente puede producir una carga de suciedad adicional en los puntos de uso de los filtros durante un tiempo, hasta que el sistema de distribución se seque. Filter elements may need to be changed more frequently during this period.

En instalaciones que utilicen compresores sin aceite, sigue habiendo aerosoles de agua y partículas, por lo que deben utilizarse filtros de grados de alta eficiencia y carácter general.

Siempre debe instalarse un filtro de carácter general para proteger el filtro de alta eficiencia frente a altas cantidades de aerosoles líquidos y partículas sólidas.

Instale equipos de purificación en el punto de mínima temperatura sobre el punto de congelación, preferentemente aguas abajo de postenfriadores y depósitos de aire.

Los equipos de purificación en punto de utilización se deben instalar lo más cerca posible de la aplicación.

Los equipos de purificación no deben instalarse aguas abajo de válvulas de apertura rápida y deben protegerse del posible flujo inverso o de otras condiciones de cambio brusco.

Antes de instalar los equipos de purificación, purgue todas las tuberías aguas arriba de los mismos; y todas las tuberías entre la citada instalación y la conexión a la aplicación final.

Si se instalan líneas para derivar los equipos de purificación, asegúrese de montar unos filtros adecuados en la línea de derivación para evitar la contaminación del sistema aguas abajo.

Instale conductos de drenaje desde los filtros coalescentes hasta el separador de condensado. Si no es posible conectar los conductos de drenaje directamente a un separador, los conductos deberían derivarse a un colector de condensado (a un extremo) y luego a una entrada individual de un separador de condensado.

Disponga los medios para drenar los líquidos recogidos en los equipos de purificación. Los líquidos recogidos se deben tratar y desechar de forma responsable.

IT Istruzioni di installazione

L'aria compressa deve essere trattata prima di entrare nel sistema di distribuzione e anche in corrispondenza dei punti di utilizzo / applicazione critici.

L'installazione di essiccatori per aria compressa su un impianto "umido" può provocare un ulteriore accumulo di impurità sui filtri del punto di utilizzo mentre il sistema di distribuzione si asciuga. In questo intervallo di tempo potrebbe essere necessario sostituire gli elementi filtranti con maggiore frequenza.

Gli impianti che utilizzano compressori senza olio richiedono comunque l'uso di filtri universali e ad alto grado di efficienza per la presenza di acqua sotto forma di aerosol e particelle.

Occorre sempre installare un filtro universale per proteggere il filtro ad alta efficienza dai liquidi misti in forma di aerosol e da particelle solide.

Installare depuratori a una temperatura immediatamente superiore al punto di congelamento, preferibilmente a valle di postrefrigeratori e serbatoi d'aria.

I depuratori destinati ai punti di utilizzo si devono installare il più vicino possibile alle applicazioni.

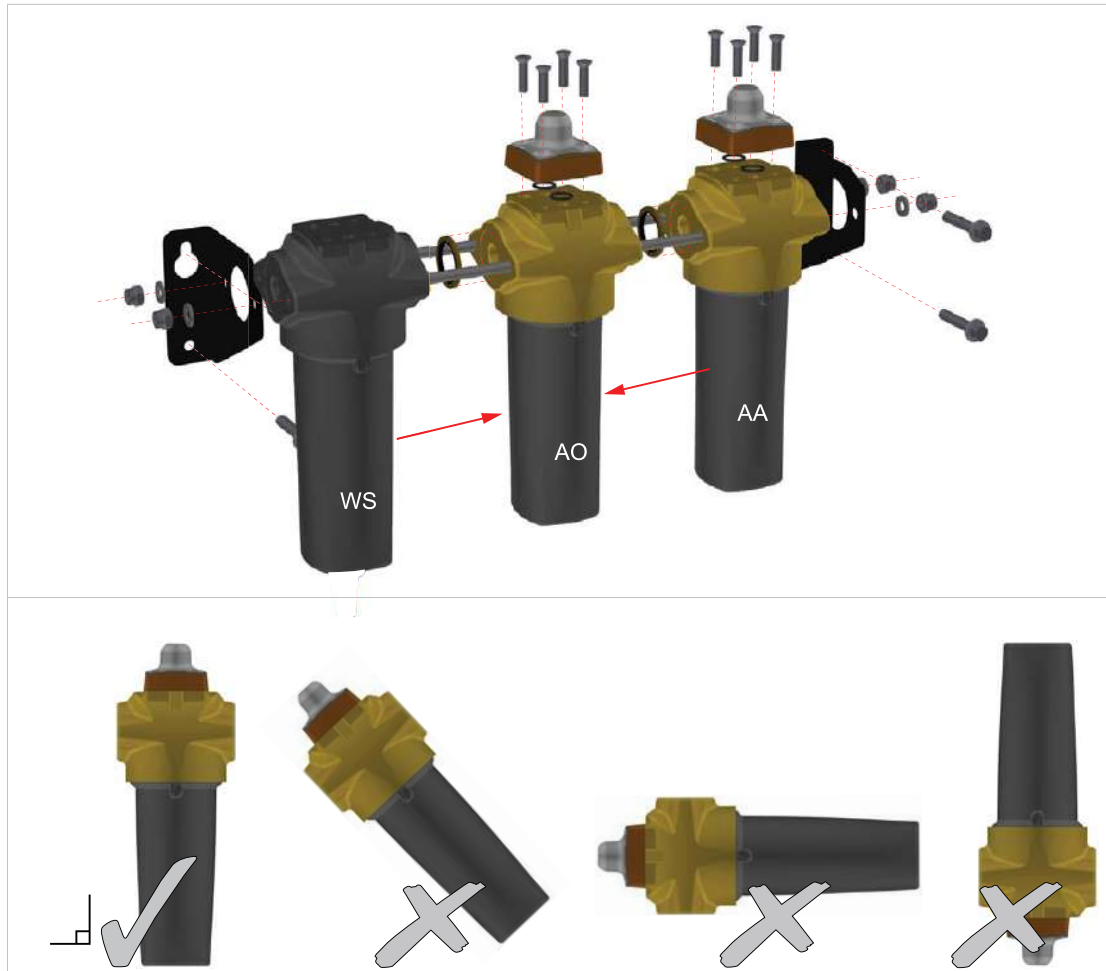
I depuratori non si devono installare a valle delle valvole ad apertura rapida e si devono proteggere dal riflusso o da altre condizioni d'urto.

Spurgare tutti i tubi che portano al depuratore prima dell'installazione, dopo aver installato il depuratore e prima di collegarli all'applicazione finale.

Se il depuratore è provvisto di linee di derivazione controllare che siano adeguatamente filtrate per evitare di contaminare il sistema a valle.

Montare le linee di scarico dai filtri a coalescenza direttamente su un separatore di condensato. Qualora non sia possibile collegare le linee di scarico direttamente a un separatore, le linee devono essere scaricate in un collettore di condensato (con sfianto su un'estremità) e quindi in un'unica entrata di un separatore di condensato.

Prevedere un sistema di deflusso dei liquidi raccolti dal depuratore. Trattare e smaltire i liquidi raccolti in modo responsabile.



Models 050 and 055 only

(EN) The lower closure plate may move when the filter is not pressurised



The lower closure plate is a non serviceable item and should never be removed.

(NL) De onderste sluitplaat kan verschuiven als het filter niet onder druk staat



De onderste sluitplaat behoeft geen onderhoud en mag nooit verwijderd worden.

(DE) Die untere Verschlussplatte kann sich bewegen, wenn der Filter nicht mit Druck beaufschlagt ist.



Die untere Verschlussplatte ist wartungsfrei und darf nicht entfernt werden.

(FR) La plaque de fermeture inférieure peut se déplacer si le filtre n'est pas pressurisé.



La plaque de fermeture inférieure ne peut pas être remplacée et ne doit jamais être retirée.

(ES) El plato de cierre inferior se puede mover cuando el filtro no está presurizado



El plato de cierre inferior no tiene piezas que requieran mantenimiento y no se debe desinstalar nunca.

(IT) Se il filtro non è pressurizzato la piastra di chiusura inferiore potrebbe spostarsi



La piastra di chiusura inferiore non è soggetta a manutenzione e non deve mai essere rimossa.

EN Startup and Operation


Before pressurising the filter ensure that the head and bowl are correctly fitted and that the locking detail is properly aligned as shown in the maintenance section (maintenance procedure 6) of this manual.

1. Open inlet valve slowly to gradually pressurise the unit.
2. Open outlet valve slowly to re-pressurise the downstream piping.

Do not open inlet or outlet valves rapidly or subject unit to excessive pressure differential or damage may occur.

NL Starten en bediening


Voordat het filter onder druk wordt gezet, moet u ervoor zorgen dat de kop en de kom juist zijn gemonteerd en dat de vergrendeling goed is uitgelijnd, zoals aangegeven in de onderhoudsinformatie (onderhoudsprocedure 6) van deze handleiding.

1. Doe de inlaatklep langzaam open om de druk in het toestel geleidelijk op te voeren.
2. Doe de uitlaatklep langzaam open om de druk in de leidingen verderop in het systeem opnieuw op te voeren.

Doe de inlaat- en uitlaatkleppen niet snel open en stel het toestel niet aan een te groot drukdifferentieel bloot om schade te voorkomen.

DE Starten und Betrieb


Bevor Sie den Filter mit Druck beaufschlagen, stellen Sie sicher, dass der Filterkopf und die Filterschale ordnungsgemäß montiert sind und dass die Sperrklinke wie im Abschnitt „Wartung“ dieser Anleitung (Wartungsverfahren 6) dieser Anleitung beschrieben ordnungsgemäß ausgerichtet ist.

1. Einlassventil langsam öffnen, damit die Einheit allmählich mit Druck beaufschlagt wird.
2. Auslassventil langsam öffnen, damit nachgeschaltete Rohrleitungen erneut mit Druck beaufschlagt werden.

Einlass- und Auslassventil nicht schnell öffnen. Einheit nicht extremen Druckunterschieden aussetzen. Gefahr von Schäden.

FR Démarrage et exploitation


Avant de mettre le filtre sous pression, vérifiez que la tête et la cuve sont montées correctement et que l'indicateur de verrouillage est bien aligné, comme indiqué dans la section de maintenance (procédure de maintenance 6) du présent manuel.

1. Ouvrez lentement la soupape d'admission pour mettre progressivement l'unité sous pression.
2. Ouvrez lentement la soupape de refoulement pour faire remonter la pression des conduits en aval.

Ne pas ouvrir la soupape d'admission ou la soupape de refoulement trop rapidement, ne pas soumettre l'unité à une pression différentielle trop importante. Vous risqueriez d'endommager l'équipement.

ES Puesta en marcha y funcionamiento


Antes de presurizar el filtro, asegúrese de que la cabeza y el cilindro están correctamente ajustados y que el detalles de bloqueo está alineado de la forma apropiada, como se muestra en la sección de mantenimiento (procedimiento de mantenimiento 6) de este manual.

1. Abra lentamente la válvula de admisión para presurizar gradualmente la unidad.
2. Abra lentamente la válvula de descarga para volver a presurizar las tuberías aguas abajo.

Para evitar daños, no abra bruscamente las válvulas de admisión o de descarga ni someta la unidad a una diferencia de presiones excesiva.








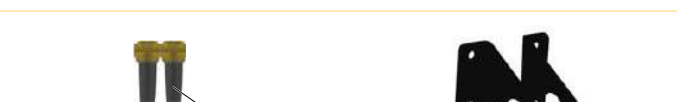











IT Avvio e funzionamento


Prima di pressurizzare il filtro assicurarsi che la testa e il bicchiere siano montati correttamente e che l'elemento di bloccaggio sia allineato in maniera adeguata, come indicato nella sezione relativa alla manutenzione (procedura di manutenzione 6) del presente manuale.

1. Aprire lentamente la valvola di mandata per aumentare gradualmente la pressione nell'unità.
2. Aprire lentamente la valvola di scarico per pressurizzare nuovamente i tubi a valle.

Non aprire rapidamente le valvole di mandata o scarico né sottoporre l'unità a una differenza di pressione eccessiva, rischio di danni.

Accessories / Spare Parts (Service Kits)
 Toebehoren / reserveonderdelen (onderhoudskits), Zubehör / Ersatzteile (Wartungssätze), Accessoires / Pièces de rechange (kits d'entretien),
 Accesorios / Piezas de repuesto (kits de mantenimiento), Accessori / Parti di ricambio (kit di manutenzione)

Filter Models	Catalogue Number	Contents
010	TRK1-2	
015 - 020	TRK2-2	
025 - 030	TRK3-2	
035 - 045	TRK4-2	
050 - 055	TRK5-2	
010	MBK1-1	
015 - 020	MBK2-1	
025 - 030	MBK3-1	
035 - 045	MBK4-1	
050 - 055	MBK5-1	
010	MBK1-2	
015 - 020	MBK2-2	
025 - 030	MBK3-2	
035 - 045	MBK4-2	
050 - 055	MBK5-2	
010 - 055	EM1	
010 - 055	PD15NO	
010 - 030	DPI-K	
035 - 055	ZD90GL	

Maintenance

Onderhoud, Wartung, Maintenance, Mantenimiento, Manutenzione

EN Maintenance Intervals

To ensure optimal filter performance the AO, AA, grade elements require changing every 12 months along with the automatic drain.

The performance of the ACS element is based upon a maximum oil vapour inlet concentration of 0,018mg/m³. Replace the carbon filter element upon detection of vapour, odour or taste.

Unlike oil aerosol removal filters which are changed annually to guarantee compressed air quality, the lifetime of an oil vapour removal filter can be attributed to various factors and require more frequent changes (unless OVR is used which is sized for 6000hrs life):

Factors affecting the lifetime of adsorption filters

Oil vapour concentration

The higher the inlet concentration of oil vapour, the faster the activated carbon capacity will expire.

Bulk oil

Adsorption filters are designed to remove oil vapour and odours, not liquid oil or aerosols. Poorly maintained or non-existent pre-filtration will cause the OVR filter capacity to quickly expire.

Temperature

Oil vapour content increases exponentially to inlet temperature, reducing element life. Additionally, as temperature increases, the adsorption capacity decreases, again reducing element life.

Relative Humidity or Dewpoint

Wet air reduces the adsorptive capacity of the carbon.

Compressor oil changes

When compressor oil is changed, the new lubricant burns off "light ends" which increases the oil vapour content for hours or even weeks afterwards. This increase in oil vapour content is adsorbed by the OVR filter, significantly reducing its adsorptive life.

NL Onderhoudsintervallen

Voor een optimale filterprestatie moeten de elementen van graad AO, AA, om de 12 maanden worden vervangen, samen met de automatische afvoer.

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DE Wartungsintervalle

Um eine optimale Filterleistung zu gewährleisten, müssen die Elemente der Klassen AO, AA alle 12 Monate zusammen mit dem automatischen Ablass ausgetauscht werden.

Im Gegensatz zu Filtern für die Abscheidung von Ölaerosolen, die zur Gewährleistung der Druckluftqualität jährlich ausgetauscht werden, kann die Lebensdauer eines Ölnebel-Abscheidefilters von zahlreichen verschiedenen Faktoren abhängen, die einen häufigeren Austausch erfordern. Negative Faktoren für die Lebensdauer von Adsorptionsfiltern sind:

Ölnebel-Konzentration: Je höher die Ölnebel-Einlasskonzentration ist, desto schneller ist die Kapazität der Aktivkohle erschöpft.

Öl: Adsorptionsfilter sind entwickelt worden, um Ölnebel und Gerüche abzuscheiden, sie dienen nicht der Entfernung von flüssigem Öl oder Aerosolen. Schlecht gewartete oder nicht vorhandene Vorfiltration führt dazu, dass die OVR-Filterkapazität für die Ölnebelabscheidung schnell erschöpft ist.

Temperatur: Der Ölnebelgehalt steigt exponentiell zur Einlasstemperatur an und verringert so die Lebensdauer des Filterelements. Zudem verringert sich mit steigender Temperatur auch die Adsorptionskapazität, was ebenfalls die Lebensdauer des Filterelements verkürzt.

Relative Feuchtigkeit oder Taupunkt: Feuchte Luft verringert die Adsorptionsfähigkeit der Aktivkohle.

Austausch des Kompressoröls: Bei einem Austausch des Kompressoröls werden durch den neuen Schmierstoff „lose Enden“ abgebrannt, was zu einem Anstieg des Ölnebelgehalts für Stunden oder sogar Wochen führt. Dieser erhöhte Ölnebelgehalt wird vom OVR-Filter für die Ölabscheidung adsorbiert, wodurch sich die Lebensdauer des Filters erheblich reduziert.

Die Filterelementleistung nach ACS/AC basiert auf einer maximalen Ölnebel-Einlasskonzentration von 0,018 mg/m³, mit einer Drucklufttemperatur von 21 °C und einem Drucktaupunkt von -40 °C.

Diese Elemente sollten ausgetauscht werden, wenn Ölnebel, Gerüche oder Geschmack festgestellt werden.

FR Intervalles de maintenance

Pour assurer des performances de filtrage optimales, les cartouches de grade AO, AA, doivent être changées tous les 12 mois, en même temps que le purgeur automatique.

Contrairement aux filtres de suppression des aérosols d'huile remplacés chaque année pour garantir la qualité de l'air comprimé, la durée de vie d'un filtre d'élimination des vapeurs d'huile dépend de différents facteurs et nécessite des remplacements plus fréquents. Facteurs influant sur la durée de vie des filtres d'adsorption :

concentration de vapeur d'huile - Plus la concentration d'entrée des vapeurs d'huile est élevée, plus vite la capacité d'adsorption du charbon actif est épuisée.

présence massive d'huile - les filtres à adsorption sont conçus pour éliminer les vapeurs et les odeurs d'huile, et non pas l'huile ou les aérosols. Si la pré-filtration est mal entretenue, voire inexistante, le filtre OVR devient rapidement inefficace.

Température - la teneur en vapeurs d'huile augmente de façon exponentielle selon la température d'admission, réduisant ainsi la durée de vie de l'élément. En outre, plus la température augmente, plus la capacité d'adsorption diminue, ce qui réduit encore la durée de vie de l'élément.

Humidité relative ou point de rosée - l'air humide réduit la capacité d'adsorption du carbone.

Vidanges d'huile de compresseur - lorsque l'huile de compresseur est changée, le nouveau lubrifiant brûle « des extrémités légères » ce qui augmente la teneur en vapeur d'huile pendant des heures, voire des semaines après. Cette augmentation de la teneur en vapeur d'huile est adsorbée par le filtre OVR, réduisant de manière significative la durée de vie d'adsorption.

Les performances des filtres ACS/AC sont basées sur une concentration maximale des vapeurs d'huile d'entrée de 0,018 mg/m³, avec de l'air comprimé à 21°C et un point de rosée sous pression de -40°C PDP.

Ces éléments doivent être remplacés en cas de détection de vapeur, d'odeur ou de goût.

ES Intervallos de mantenimiento

Para asegurar un óptimo rendimiento del filtro, es necesario cambiar los elementos de grado AO, AA cada 12 meses junto con el drenaje automático.

A diferencia de los filtros de eliminación de aerosoles de aceite que se cambian anualmente con el fin de garantizar la calidad del aire comprimido, la vida útil de un filtro de eliminación de vapores de aceite puede atribuirse a diversos factores y requiere cambios más frecuentes. Los factores que afectan a la vida útil de los filtros de adsorción son:

Concentración de vapores de aceite - Cuanto mayor sea la concentración de vapores de aceite en la entrada, más rápidamente se agotará la capacidad del carbón activado.

Aceite - Los filtros de adsorción se han diseñado para eliminar los vapores y los olores de aceite, pero no los aerosoles ni el aceite líquidos. Si no existe prefiltrado o su mantenimiento es inadecuado, se agotará rápidamente la capacidad del filtro OVR.

Temperatura - El contenido de vapores de aceite aumenta de forma exponencial a la temperatura de admisión, lo que reduce la vida útil del elemento. Asimismo, a medida que aumenta la temperatura disminuye la capacidad de adsorción, lo que una vez más reduce la vida útil del elemento.

Humedad relativa o punto de condensación - El aire húmedo reduce la capacidad de adsorción del carbón.

Cambios del aceite del compresor - Cuando se cambia el aceite del compresor, se evaporan las fracciones más ligeras del aceite nuevo, lo cual aumenta el contenido de vapores de aceite durante las horas o incluso las semanas posteriores. El filtro OVR adsorbe este aumento del contenido de vapores de aceite, lo que reduce considerablemente la vida útil de adsorción.

El rendimiento de los elementos ACS/AC se calcula tomando como base una concentración de entrada de vapores de aceite máxima de 0,018 mg/m³, con aire comprimido a 21 °C y un punto de condensación de presión a -40 °C PDP.

Estos elementos deberán sustituirse si se detecta vapor, olor y gusto.

IT Intervalli di manutenzione

Per garantire prestazioni ottimali del filtro è necessario sostituire gli elementi filtranti di grado AO, AA ogni 12 mesi, insieme allo scarico automatico.

A differenza dei filtri per l'eliminazione di aerosol, che vengono cambiati una volta all'anno per garantire la qualità dell'aria compressa, i filtri per la rimozione dei vapori d'olio hanno una durata variabile e devono essere sostituiti più frequentemente. Fattori che influenzano la durata dei filtri ad adsorbimento:

Concentrazione di vapori d'olio - La capacità del carbone attivo si esaurisce tanto più rapidamente quanto maggiore è la concentrazione di vapori d'olio in ingresso.

Oli misti - I filtri ad adsorbimento sono studiati per eliminare vapori d'olio e odori, ma non oli liquidi e aerosol. La scarsa manutenzione o la mancanza di prefiltrazione causano il rapido esaurimento della capacità dei filtri OVR.

Temperatura - Il contenuto di vapori d'olio aumenta proporzionalmente con la temperatura di mandata, riducendo la durata del filtro. Inoltre, all'aumentare della temperatura, diminuisce la capacità di adsorbimento e ancora una volta si riduce la durata del filtro.

Umidità relativa o punto di rugiada - L'aria umida riduce la capacità di adsorbimento del carbone.

Cambio olio del compressore - Quando si cambia l'olio del compressore, il nuovo lubrificante brucia completamente gli idrocarburi leggeri provocando l'aumento del contenuto di vapori d'olio per alcune ore o addirittura per settimane. Il maggiore contenuto di vapori d'olio viene assorbito dal filtro OVR e provoca una riduzione significativa della durata di adsorbimento.

Le prestazioni degli elementi ACS / AC si basano su una concentrazione massima dei vapori d'olio in ingresso pari a 0,018 mg/m³ con aria compressa a 21°C e un punto di rugiada in pressione di -40°C PDP.

Questi elementi devono essere sostituiti non appena vengono percepiti vapori, odori o sapori.

EN Maintenance Procedure 1

Slowly close the inlet (1) and outlet (2) valves and depressurise the filter (3) using the drain.

NL Onderhoudsprocedure 1

Sluit de inlaat- (1) en uitlaatkleppen (2) langzaam en haal de druk van het filter (3) af met de afvoer.

DE Wartungsverfahren 1

Einlass- (1) und Auslassventile (2) langsam schließen und den Druck vom Filter (3) mit dem Ablass ablassen.

FR Procédure de maintenance 1

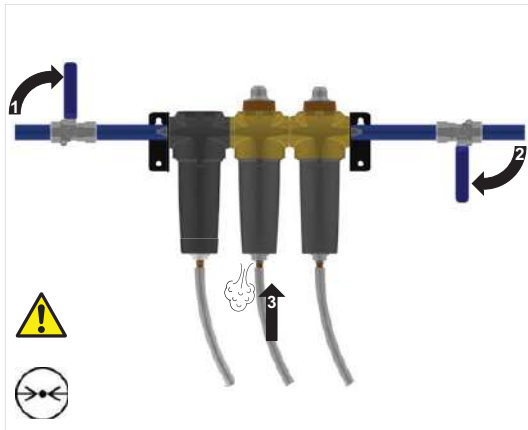
Fermez lentement la soupape d'admission (1) et la soupape de refoulement (2), puis dépressurisez le filtre (3) à l'aide du purgeur.

ES Procedimiento de mantenimiento 1

Cierre lentamente las válvulas de admisión (1) y de descarga (2) y despresurize el filtro (3) utilizando el drenaje.

IT Procedura di manutenzione 1

Chiudere lentamente le valvole di mandata (1) e di scarico (2) e depressurizzare il filtro (3) tramite lo scarico.



EN Maintenance Procedure 2

Unscrew the filter bowl (1 & 2) and remove the used element (3)

NL Onderhoudsprocedure 2

Schroef de filterkom (1 & 2) los en verwijder het gebruikte element (3)

DE Wartungsverfahren 2

Filterschale lösen (1 & 2) und das verbrauchte Element entfernen (3)

FR Procédure de maintenance 2

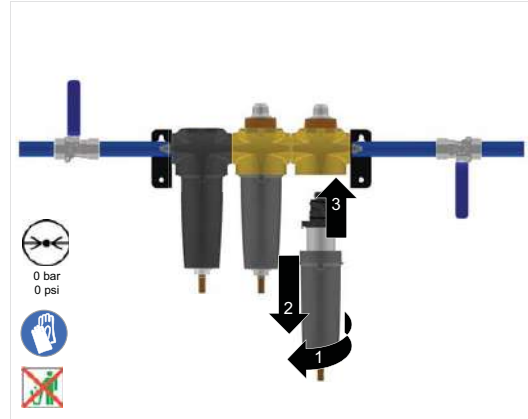
Dévissez la cuve du filtre (1 et 2) et retirez la cartouche usagée (3)

ES Procedimiento de mantenimiento 2

Desenrosque el cilindro del filtro (1 y 2) y retire el elemento utilizado (3)

IT Procedura di manutenzione 2

Svitare il bicchiere del filtro (1 e 2) e rimuovere l'elemento filtrante usato (3)



EN Maintenance Procedure 3

Unscrew the automatic drain (1) and discard (2). Fit the new drain (3) and tighten (4).

NL Onderhoudsprocedure 3

Schroef de automatische afvoer (1) los en verwijder hem (2). Plaats de nieuwe afvoer (3) en draai hem vast (4).

DE Wartungsverfahren 3

Den automatischen Ablass abschrauben (1) und entsorgen (2). Den neuen Ablass anbringen (3) und festziehen (4).

FR Procédure de maintenance 3

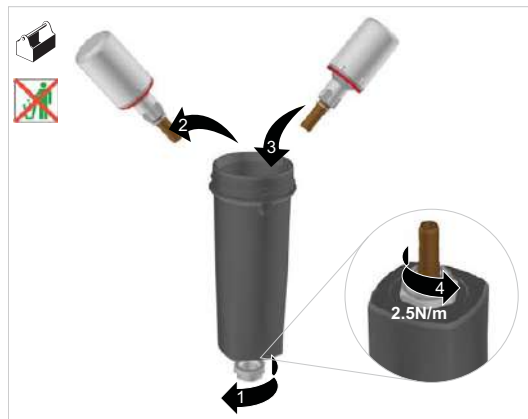
Dévissez le purgeur automatique (1) puis mettez-le au rebut (2). Montez le nouveau purgeur (3) puis serrez (4).

ES Procedimiento de mantenimiento 3

Desenrosque el drenaje automático (1) y deséchelo (2). Instale el nuevo drenaje (3) y apriételo (4).

IT Procedura di manutenzione 3

Svitare lo scarico automatico (1) ed eliminarlo (2). Montare lo scarico nuovo (3) e serrare (4).



EN Maintenance Procedure 4

Insert the new element into the filter bowl ensuring that the lugs are seated correctly in the grooves.

NL Onderhoudsprocedure 4

Steek het nieuwe element in de filterkom, waarbij de lipjes goed in de groeven steken.

DE Wartungsverfahren 4

Das neue Filterelement in die Filterschale einsetzen und sicherstellen, dass die Führungen richtig in den Nuten sitzen.

FR Procédure de maintenance 4

Insérez la nouvelle cartouche dans la cuve en vérifiant que les languettes sont bien enfoncées dans les encoches.

ES Procedimiento de mantenimiento 4

Inserte el nuevo elemento en el cilindro del filtro, asegurándose de que los anillos están correctamente asentados en las ranuras.

IT Procedura di manutenzione 4

Inserire il nuovo elemento filtrante nel bicchiere del filtro assicurandosi che le alette siano inserite correttamente nelle scanalature.



EN Maintenance Procedure 5

Replace the O-ring located in the filter head with the new O-ring provided.



Ensure to lubricate the O-ring and threads with a suitable acid free petroleum jelly.

NL Onderhoudsprocedure 5

Vervang de O-ring in de filterkop door de nieuwe meegeleverde O-ring.



Zorg ervoor dat de O-ring en de draden worden gesmeerd met een geschikt soort zuurloze vaseline.

DE Wartungsverfahren 5

Den O-Ring im Filterkopf durch den mitgelieferten neuen O-Ring ersetzen..



Sicherstellen, den O-Ring und das Gewinde mit geeigneter säurefreier Vaseline zu schmieren.

FR Procédure de maintenance 5

Remplacez le joint torique qui se trouve dans la tête du filtre par le nouveau joint fourni..



Lubrifiez le joint torique et le filetage à l'aide d'une gelée de pétrole sans acide.

ES Procedimiento de mantenimiento 5

Sustituya la junta tórica localizada en la cabeza del filtro por la nueva junta tórica proporcionada.



Asegúrese de lubricar la junta tórica y las roscas con un gel ácido sin petróleo apropiado.

IT Procedura di manutenzione 5

Sostituire l'O-ring situato nella testa del filtro con il nuovo O-ring fornito in dotazione.



Assicurarsi che l'O-ring e le filettature siano lubrificati con vaselina senza acido idonea.



EN Maintenance Procedure 6 (a)

Refit the filter bowl and head ensuring that the threads are fully engaged and the locking details are aligned.

Note: To ensure that the bowl is fully engaged into the head, the 010-030 bowl requires 360° of rotation until the thread stop and 720° for the 035-045 bowl

NL Onderhoudsprocedure 6 (a)

Zet de filterkom en de kop terug op hun plaats en zorg ervoor dat de draden volledig gegrepen zijn en de vergrendeling uitgelijnd is.

Opmerking: Zorg ervoor dat de kop volledig in de kop steekt. De 010-030 kom moet 360° gedraaid worden, tot aan de draadstop en 720° voor de 035-045 kom

DE Wartungsverfahren 6 (a)

Die Filterschale und den Filterkopf wieder anbringen und dabei sicherstellen, dass die Gewinde vollständig fassen und die Sperrklinken richtig ausgerichtet sind.

Hinweis: Um sicherzustellen, dass die Filterschale vollständig im Filterkopf sitzt, müssen die Schalen 005 bis 030 um 360° und die Schalen 035 bis 045 um 720° gedreht werden, bis das Gewinde stoppt.

FR Procédure de maintenance 6 (a)

Remontez la cuve et la tête du filtre en vérifiant que le filetage est vissé à fond et que les indicateurs de verrouillage sont alignés.

Remarque: pour vérifier que la cuve est bien enfoncée dans la tête, le modèle de cuve 005-030 doit opérer une rotation de 360° jusqu'à la fin du filetage et le modèle de cuve 035-045 doit opérer une rotation de 720°.

ES Procedimiento de mantenimiento 6 (a)

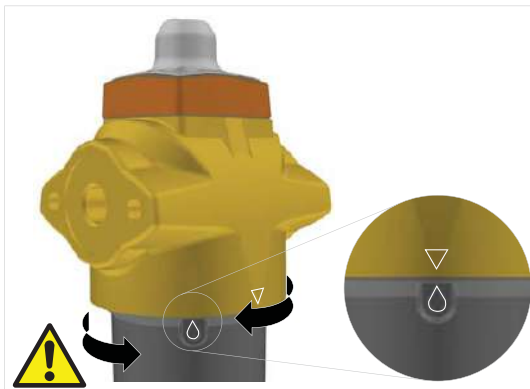
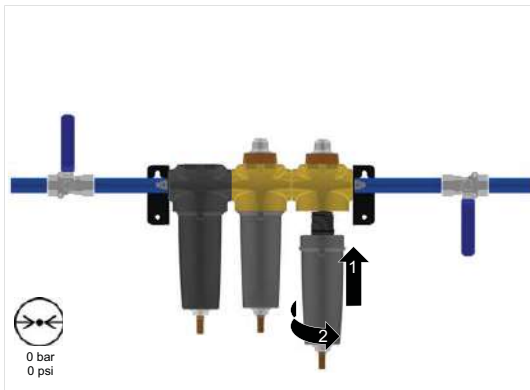
Reinstale el cilindro y la cabeza del filtro, asegurándose de que las roscas están completamente acopladas y que los detalles de bloqueo están alineados.

Nota: Para asegurarse de que el filtro está completamente acoplado a la cabeza, el cilindro de 010-030 necesita 360° de rotación, hasta que la rosca se detenga y 720° para el cilindro de 035-045.

IT Procedura di manutenzione 6 (a)

Rimontare il bicchiere e la testa del filtro assicurandosi che le filettature siano completamente inserite e gli elementi di bloccaggio siano allineati.

Nota: per assicurarsi che il bicchiere sia completamente inserito nella testa, è necessaria una rotazione di 360° fino al termine della filettatura per il bicchiere 010-030 e una rotazione di 720° per il bicchiere 035-045.



EN Maintenance Procedure 7

Attach the element change date label to the filter bowl and write on the date the element is to be replaced. i.e. 12 months after element change.



Do not use solvents or alcohol to clean the labels as this could cause damage.

NL Onderhoudsprocedure 7

Plak het etiket met de vervangingsdatum aan de kom en schrijf de datum erop waarop het element weer vervangen moet worden, ofwel 12 maanden later..



Gebruik geen oplosmiddelen of alcohol om de etiketten te reinigen, omdat dit schade kan veroorzaken.

DE Wartungsverfahren 7

Den Austauschdatum-Aufkleber des Filterelements an der Filterschale anbringen und darauf das Datum notieren, zu dem das Filterelement ausgetauscht werden muss (d.h. 12 Monate nach dem Austausch des Elements).



Zur Reinigung der Aufkleber keine Lösungsmittel oder Alkohol verwenden. Gefahr von Schäden.

FR Procédure de maintenance 7

Attachez l'étiquette de date de remplacement de la cartouche à la cuve de filtre et notez la date du prochain remplacement, dans 12 mois.



Ne pas utiliser de solvants ou d'alcool pour nettoyer les étiquettes car cela peut endommager l'équipement.

ES Procedimiento de mantenimiento 7

Ponga la etiqueta de cambio de fecha en el cilindro del filtro y escriba en ella la fecha en la que hay que sustituir el elemento; i.e. 12 meses después del cambio de elemento.



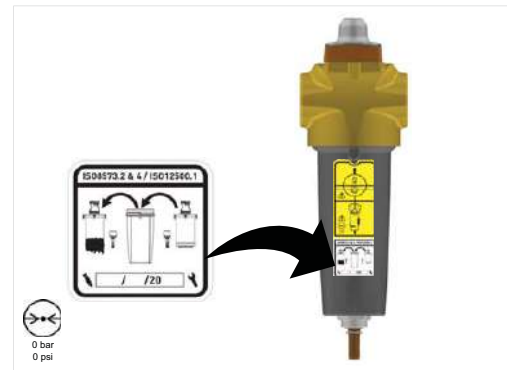
No utilice disolventes o alcohol para limpiar las etiquetas, puesto que podría dañarlas.

IT Procedura di manutenzione 7

Attaccare l'etichetta della data di sostituzione dell'elemento filtrante al bicchiere del filtro riportando la data in cui l'elemento deve essere sostituito, ovvero 12 mesi dopo la sostituzione dell'elemento.



Non usare solventi o alcol per pulire le etichette poiché potrebbero provocare danni.



EN - Maintenance Procedure 8

Open the inlet valve (1) slowly to gradually pressurise the unit, slowly open outlet valve (2) to re-pressurise the downstream piping.



Do not open inlet or outlet valves rapidly or subject unit to excessive pressure differential as damage may occur.

NL Onderhoudsprocedure 8

Open de inlaatklep (1) langzaam om de druk in het toestel geleidelijk op te voeren. Zet de uitlaatklep (2) langzaam open om de druk in de uitgaande leidingen opnieuw op te voeren.



Doe de inlaat- en uitlaatkleppen niet snel open en stel het toestel niet aan een te groot drukdifferentieel bloot om schade te voorkomen.

DE Wartungsverfahren 8

Einlassventil langsam öffnen (1), damit die Einheit allmählich mit Druck beaufschlagt wird. Auslassventil langsam öffnen (2), damit nachgeschaltete Rohrleitungen erneut mit Druck beaufschlagt werden.



Einlass- und Auslassventil nicht schnell öffnen. Einheit nicht extremen Druckunterschieden aussetzen. Gefahr von Schäden.

FR Procédure de maintenance 8

Ouvrez la soupape d'admission (1) pour mettre progressivement l'unité sous pression, puis ouvrez lentement la soupape de refoulement (2) pour repressuriser les conduits en aval.



Ne pas ouvrir la soupape d'admission ou la soupape de refoulement trop rapidement. Ne pas soumettre l'unité à une pression différentielle trop importante. Vous risqueriez d'endommager l'équipement.

ES Procedimiento de mantenimiento 8

Abra lentamente la válvula de admisión (1) para presurizar gradualmente la unidad. Abra lentamente la válvula de descarga (2) para repressurizar las tuberías aguas abajo.



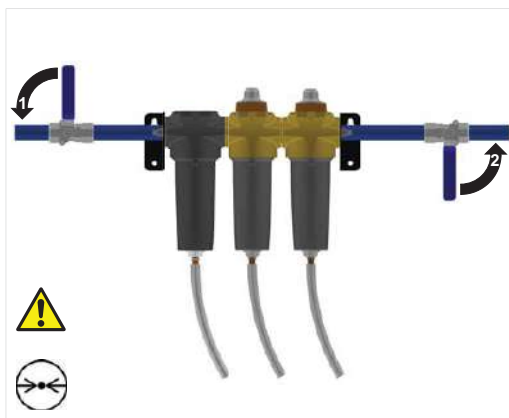
No abra bruscamente las válvulas de admisión o de descarga ni someta la unidad a una diferencia de presiones excesiva, ya que podría ocasionar daños.

IT Procedura di manutenzione 8

Aprire lentamente la valvola di mandata (1) per aumentare gradualmente la pressione nell'unità, aprire lentamente la valvola di scarico (2) per pressurizzare nuovamente i tubi a valle.



Non aprire rapidamente le valvole di mandata o scarico né sottoporre l'unità a una differenza di pressione eccessiva; rischio di danni.



(FI) YHDEN VUODEN ILMANLAATUTAKUU

Ilmanlaatusi taataan 1 vuodeksi ja takuu uusitaan aina vuosittaisen suodatinelementin vaihdon yhteydessä.

Vuosittainen suodatinelementin vaihtaminen varmistaa

- ihanteellisen suorituskyvyn
- kansainvälisten standardien vaatimukset täyttävän ilmanlaadun
- tuotantovälineiden, henkilökunnan ja menetelmien suojaamisen
- alhaiset käyttökustannukset
- lisääntyneen tuottavuuden ja tuoton
- mielenrauhan

(SV) ETT ÅRS LUFTKVALITETSGARANTI

Din luftkvalitet garanteras under ett år och garantin förnyas vid varje årligt filterelementbyte.

Årliga filterelementbyten säkerställer att:

- Optimala prestanda upprätthålls
- Luftkvaliteten fortsätter uppfylla internationella standarder
- Skydd för nedströms utrustning, personal och processer
- Låga driftkostnader
- Ökad produktivitet och lönsamhet
- Du själv får sinnesfrid

(NO) ETT ÅRS LUFTKVALITETSGARANTI

Din luftkvalitet er garantert for 1 år og garantien vil bli fornyet ved hver årlige utskifting av filterelement.

Årlig utskifting av filterelement sikrer:

- Optimal ytelse opprettholdes
- Luftkvalitet som til enhver tid møter internasjonale standarder
- Beskyttelse av nedstrøms utstyr, personell og prosesser
- Lave driftkostnader
- Økt produktivitet og lønnsomhet
- Sinnsro

(DA) ET ÅRS GARANTI PÅ LUFTKVALITET

Der gives 1 års luftkvalitetsgaranti, og den bliver fornyet ved hver årlig udskiftning af filterelementet.

Årlig udskiftning af filterelementet sikrer:

- At optimal ydelse bevares
- At luftkvaliteten fortsat opfylder de internationale standarder
- Beskyttelse af udstyr, personer og processer længere fremme
- Lave driftsomkostninger
- Øget produktivitet og rentabilitet
- Ro i sinde

(EL) ΕΓΓΥΗΣΗ ΠΟΙΟΤΗΤΑΣ ΑΕΡΑ ΕΝΟΣ ΕΤΟΥΣ

Παρέχεται εγγύηση για την ποιότητα του αέρα σας για 1 έτος, η οποία ανανεώνεται με κάθε ετήσια αλλαγή στοιχείου φίλτρου.

Με τις ετήσιες αλλαγές στοιχείου φίλτρου διασφαλίζονται τα εξής:

- Ότι θα διατηρείται η βέλτιστη απόδοση
- Ότι η ποιότητα του αέρα συνεχίζει να ικανοποιεί τα διεθνή πρότυπα
- Προστασία του κατόντι εξοπλισμού, του προσωπικού και των διαδικασιών
- Χαμηλές δαπάνες λειτουργίας
- Αυξημένη παραγωγικότητα και κερδοφορία
- Ξενοιασιά

(PT) GARANTIA DE QUALIDADE DO AR DE UM ANO

A qualidade do seu ar tem garantia de um ano, a qual será renovada a cada substituição anual do elemento do filtro.

As substituições anuais do elemento do filtro asseguram que:

- É mantido o desempenho ideal
- A qualidade do ar continua a respeitar as normas internacionais
- Protecção dos processos, do pessoal e do equipamento a jusante
- Baixos custos operacionais
- maior produtividade e rentabilidade
- paz de espírito



☞ Mallikoodiesimerkki:

Malli						
Elementin laatu	Erittäin energiatehokas elementti	Mallin koko	Liitäntäaukon koko	Kierretyyppi	Vedenpoisto	Paine-eroilmaisin
WS AO AA ACS	P	3-numeroinen koodi (kuten alla)	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Uimuri M = Manuaalinen	X = Ei mitään I = Ongelmanvalvonta
AA	P	030	A	G	F	I

☞ Exempel på modellkodning:

Modell						
Elementklass	Energisnålt premiumelement	Modellstorlek	Portstorlek	Gängtyp	Dräneringsalternativ	DP-indikator
WS AO AA ACS	P	Tresiffrig kod enligt nedan	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Flyt M = Handbok	X = Ingen I = Incidentövervakning
AA	P	030	A	G	F	I

☞ Eksempel på modellkodning:

Modell						
Elementgradering	Premium energieffektivt element	Modellstørrelse	Portstørrelse	Gjengetype	Dreneringsmulighet	DP-indikator
WS AO AA ACS	P	Tresifret kode som vist nedenfor	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Flyt M = Manuell	X = Ingen I = Hendelsesmonitor
AA	P	030	A	G	F	I

☞ Eksempel på kodning af model:

Model						
Elementkvalitet	Energieffektivt element i premiumkvalitet	Modelstørrelse	Portstørrelse	Gevindtype	Afløbsmulighed	DP indikator
WS AO AA ACS	P	3-cifret kode som vist nedenfor	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Flyde M = Manuel	X = Ingen I = Blokeringsindikator
AA	P	030	A	G	F	I

Ⓔ Παράδειγμα κωδικοποίησης μοντέλου:

Μοντέλο						
Βαθμίδα στοιχείου	Premium ενεργειακά αποδοτικό στοιχείο	Μέγεθος μοντέλου	Μέγεθος θύρας	Τύπος σπειρώματος	Επιλογή αποστράγγισης	Δείκτης DP
WS AO AA ACS	P	3ψήφιος κωδικός όπως φαίνεται παρακάτω	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Φλοτέρ M = Μη αυτόματο	X = Κανένα I = Δείκτης συμβάντων
AA	P	030	A	G	F	I

Ⓙ Exemplo da codificação do modelo:

Modelo						
Grau do elemento	Elemento de eficiência energética de excelência	Dimensão do modelo	Dimensão da entrada	Tipo de rosca	Opção de drenagem	Indicador de pressão diferencial
WS AO AA ACS	P	Código de 3 dígitos como indicado abaixo	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Boia M = Manual	X = Nenhum I = Monitor de incidentes
AA	P	030	A	G	F	I

Ⓚ Tuotevalinta

Virtaamat on tarkoitettu käytettäväksi paineessa 7 bar g (100 psi g), olosuhteiden ollessa 20 °C, 1 bar/a, 0 % suhteellinen vesihöyryn paine. Muiden paineiden virtausarvoja varten noudata annettuja kertoimia.

Ⓛ Val av produkt

Uppgivna flöden är för drift vid 7 bar g (100 psi g) med referens till 20°C, 1 bar a, 0 % relativt vattenångstryck. Använd angivna korrektionsfaktorer till flöden vid andra tryck.

Ⓜ Produktvalg

Oppgitte strømningshastigheter er for drift ved 7 bar (g) (100 psi g) med referanse til 20 °C, 1 bar (a), 0 % relativt vanddamptrykk. Benytt korrigeringsfaktorene under for å finne strømningshastigheter ved andre trykk.

Ⓨ Produktudvalg

De anførte flow gælder for drift ved 7 bar g (100 psi g) med referenceværdierne 20°C, 1 bar a, 0 % relativt vanddamptryk. Ved flow med andre tryk skal de viste korrektionsfaktorer anvendes.

Ⓩ Επιλογή προϊόντος

Οι αναφερθείσες παροχές είναι για λειτουργία σε 7 bar g (100 psi g) με αναφορά στους 20°C, 1 bar a, σχετική πίεση υδρατμών 0%. Για ροές σε άλλες τιμές πίεσης, εφαρμόστε τους εμφανιζόμενους συντελεστές διόρθωσης.

Ⓩ Seleção de Produtos

Os débitos referidos são para um funcionamento a 7 bar g (100 psi g) com referência a 20°C, 1 bar a, 0% de pressão relativa do vapor de água. Para débitos a pressões diferentes, aplique os factores de correcção apresentados.

Vedenerottimen virtausnopeudet

Flödeshastigheter för vattenavskiljare, Flytrater for vannseparator, Vandudskillers gennemløbshastigheder, Παροχές διαχωριστή νερού, Taxas de fluxo do separador de água

Model	Port Size	L/s	m ³ /min	m ³ /hr	cfm
WS P010A [] [] []	¼	10	0.6	36	21
WS P010B [] [] []	¾	10	0.6	36	21
WS P010C [] [] []	½	10	0.6	36	21
WS P015C [] [] []	½	40	2.4	144	85
WS P020D [] [] []	¾	40	2.4	144	85
WS P025D [] [] []	¾	110	6.6	396	233
WS P025E [] [] []	1	110	6.6	396	233
WS P030G [] [] []	1 ½	110	6.6	396	233
WS P035G [] [] []	1 ½	350	21.0	1260	742
WS P040H [] [] []	2	350	21.0	1260	742
WS P045I [] [] []	2 ½	350	21.0	1260	742
WS P050I [] [] []	2 ½	800	48.0	2880	1695
WS P055I [] [] []	2 ½	800	48.0	2880	1695
WS P055J [] [] []	3	800	48.0	2880	1695

Korjauserroinpaine (CFP) – korjauserroin, pienin tulopaine (vedenerottimet)

CFP – korrigeringsfaktor för minsta inloppstryck (vattenavskiljare), CFP – korreksjonsfaktor for minimums inntakstrykk (vannseparatorer), CFP – Korrektionsfaktor for minimalt indgangstryk (vandudskillere), CFP - Συντελεστής διόρθωσης ελάχιστης πίεσης εισαγωγής (διαχωριστές νερού), CFP – Pressão de admissão mínima do fator de correção (separadores de água),

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232
Correction Factor		4.00	2.63	2.00	1.59	1.33	1.14	1.00	0.94	0.89	0.85	0.82	0.79	0.76	0.73	0.71	0.68

Suodattimen virtausnopeudet

Flödeshastigheter för filter, Flytrater for filter, Filters gennemløbshastigheder, Παροχές φίλτρου, Taxas de fluxo do filtro

Model	Port Size	L/s	m ³ /min	m ³ /hr	cfm	Replacement Element kit	No.
[grade] P010A [] [] []	¼	10	0.6	36	21	P010	[grade] 1
[grade] P010B [] [] []	¾	10	0.6	36	21	P010	[grade] 1
[grade] P010C [] [] []	½	10	0.6	36	21	P010	[grade] 1
[grade] P015C [] [] []	½	20	1.2	72	42	P015	[grade] 1
[grade] P020C [] [] []	½	30	1.8	108	64	P020	[grade] 1
[grade] P020D [] [] []	¾	30	1.8	108	64	P020	[grade] 1
[grade] P025D [] [] []	¾	60	3.6	216	127	P025	[grade] 1
[grade] P025E [] [] []	1	60	3.6	216	127	P025	[grade] 1
[grade] P030G [] [] []	1 ½	110	6.6	396	233	P030	[grade] 1
[grade] P035G [] [] []	1 ½	160	9.6	576	339	P035	[grade] 1
[grade] P040H [] [] []	2	220	13.2	792	466	P040	[grade] 1
[grade] P045I [] [] []	2 ½	330	19.8	1188	699	P045	[grade] 1
[grade] P050I [] [] []	2 ½	430	25.8	1548	911	P050	[grade] 1
[grade] P055I [] [] []	2 ½	620	37.3	2232	1314	P055	[grade] 1
[grade] P055J [] [] []	3	620	37.3	2232	1314	P055	[grade] 1

[luokka] = luokka
[klass] = klass
[type] = type
[kvalitet] = kvalitet
[βαθμίδα] = βαθμίδα
[grau] = grau

Korjauserroinpaine (CFP) – korjauserroin, pienin tulopaine (saostus- ja kuivat hiukkassuodattimet)

CFP – korrigeringsfaktor för minsta inloppstryck (avskiljnings- och partikelfilter), CFP – korreksjonsfaktor for minimums inntakstrykk (koagulerings- og tørrpartikelfiltre), CFP – Korrektionsfaktor for minimalt indgangstryk (koalescens- og tørrpartikelfiltre), CFP - Συντελεστής διόρθωσης ελάχιστης πίεσης εισαγωγής (φίλτρα σωματιδίων προσκόλλησης και ξηρών), CFP – Pressão de admissão mínima do fator de correção (filtros coalescentes e de partículas secas)

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232	248	263	277	290
Correction Factor		2.65	1.87	1.53	1.32	1.18	1.08	1.00	0.94	0.88	0.84	0.80	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.61	0.59

① Tuotteen valinta ja korjauskertoimet

Jotta osaat valita oikean vedenerottimen tai suodattimen mallin, suodattimen virtausnopeus pitää säätää järjestelmän pienimpään käyttöpaineeseen.

- Selvitä pienin käyttöpain ja suurin paineilman virtausnopeus vedenerottimen tai suodattimen tulossa.
- Valitse korjauserroinpaineiden taulukosta pienimmän käyttöpaineen korjauserroin (pyöristä aina alaspäin; esim. 5,3 baarin tapauksessa on käytettävä 5 baarin korjauserrointa).
- Laske vähimmäissuodatuskapasiteetti. Vähimmäissuodatuskapasiteetti = paineilman virtausnopeus x CFP
- Valitse pienintä suodatuskapasiteettia käyttäen vedenerottimen tai suodattimen malli yllä olevasta virtausnopeustaulukosta (valitun vedenerottimen tai suodattimen virtausnopeus pitää olla vähintään yhtä suuri kuin vähimmäissuodatuskapasiteetti).

② Produkturval och korrigeringsfaktorer

För att du ska kunna välja rätt modell på vattenavskiljare eller filter måste flödes hastigheten för filtret justeras efter minsta driftstryck i systemet.

- Mät minsta driftstryck och maximal flödes hastighet för tryckluft vid inloppet för vattenavskiljaren eller filtret.
- Välj korrigeringsfaktor för minsta driftstryck från CFP-tabellen (runda alltid av nedåt – för 5,3 bar använder du till exempel korrigeringsfaktor 5 bar).
- Beräkna minsta filtreringskapacitet. Minsta filtreringskapacitet = flödes hastighet för tryckluft x CFP
- Använd den minsta filtreringskapaciteten för att välja en modell på vattenavskiljare eller filter från de ovanstående tabellerna med flödes hastighet (den vattenavskiljare eller det filter du väljer måste ha en flödes hastighet som motsvarar eller är högre än den minsta filtreringskapaciteten).

③ Produktvalg og korreksjonsfaktorer

Flytraten for filteret må være justert til minimum driftstrykk for systemet for å korrekt kunne velge vannseparator eller filtermodell.

- Oppnå minimum driftstrykk og maksimum flytrate for komprimert luft ved inntaket til vannseparatoren eller filteret.
- Velg korreksjonsfaktoren for minimum driftstrykk fra CFP-tabellen (rund alltid ned: f.eks. for 5,3 bar bør du bruke korreksjonsfaktoren for 5 bar)
- Beregn minimum filtreringskapasitet. Minimum filtreringskapasitet = flytrate for komprimert luft x CFP
- Bruk minimum filtreringskapasitet når du velger en vannseparator eller filtermodell fra flytratetabellene ovenfor (valgt vannseparator eller filter må ha en flytrate lik eller høyere enn minimum filtreringskapasitet).

④ Produktvalg og korreksjonsfaktorer

For at vælge den rigtige vandudskiller og filtermodel skal filterets gennemløbshastighed justeres i forhold til systemets mindste driftstryk.

- Det mindste driftstryk og den maksimale luftgennemløbshastighed kan aflæses ved vandudskillerens eller filterets indløb.
- Vælg korreksjonsfaktoren for det mindste driftstryk på CFP-tabellen (rund altid ned – ved f.eks. 5,3 bar, bruges korreksjonsfaktor på 5 bar)
- Beregn den minimale filtreringskapacitet. Minimal filtreringskapacitet = trykløbsstrømning x CFP
- Brug den minimale filtreringskapacitet til at vælge en vandudskiller eller filtermodel på tabellen over gennemløbshastigheder ovenfor (valgt vandudskiller eller filter skal have en gennemløbshastighed, der er lig med eller større end den minimale filtreringskapacitet).

⑤ Επιλογή προϊόντος και συντελεστής διόρθωσης

Για να επιλέξετε σωστά ένα μοντέλο διαχωριστή νερού ή φίλτρου, η παροχή του φίλτρου πρέπει να ρυθμιστεί ανάλογα με την ελάχιστη πίεση λειτουργίας του συστήματος.

- Μάθετε ποιες είναι οι τιμές της ελάχιστης πίεσης λειτουργίας και της μέγιστης παροχής πεπιεσμένου αέρα του διαχωριστή νερού ή του φίλτρου.
- Επιλέξτε τον συντελεστή διόρθωσης για την ελάχιστη πίεση λειτουργίας από τον πίνακα CFP (στρογγυλοποιώντας πάντα προς τα κάτω, π.χ. για 5,3 bar, χρησιμοποιήστε συντελεστή διόρθωσης 5 bar)
- Υπολογίστε την ελάχιστη ικανότητα φιλτραρίσματος. Ελάχιστη ικανότητα φιλτραρίσματος = Παροχή πεπιεσμένου αέρα x CFP
- Χρησιμοποιήστε την ελάχιστη ικανότητα φιλτραρίσματος για να επιλέξετε ένα μοντέλο διαχωριστή νερού ή φίλτρου από τους παραπάνω πίνακες παροχών (ο διαχωριστής νερού ή το φίλτρο που θα επιλέξετε πρέπει να έχουν παροχή μεγαλύτερη από ή ίση με την ελάχιστη ικανότητα φιλτραρίσματος).

⑥ Seleção de produto e fatores de correção

Para seleccionar corretamente um separador de água ou modelo de filtro, a taxa de fluxo do filtro deve ser ajustado para a pressão mínima de funcionamento do sistema.

- Obtenha a pressão mínima de funcionamento e a taxa máxima de fluxo de ar comprimido na entrada do separador de água ou filtro.
- Selecione o fator de correção da pressão mínima de funcionamento a partir da tabela CFP (arredondar sempre por defeito, por ex. para 5,3 bar, utilize um fator de correção de 5 bar)
- Calcule a capacidade mínima de filtração. Capacidade mínima de filtração = taxa de fluxo de ar comprimido x CFP
- Ao usar a capacidade mínima de filtração, selecione um separador de água ou modelo de filtro a partir das tabelas de taxa de fluxo acima (separador de água ou filtro selecionado deve ter uma taxa de fluxo igual ou superior à capacidade mínima de filtração).

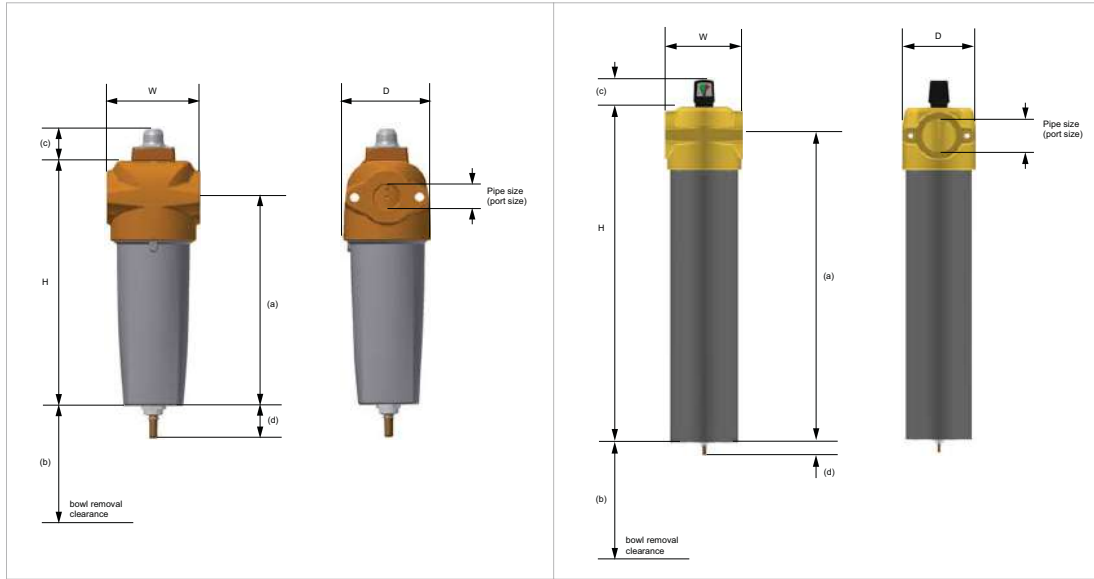
Tekniset tiedot
Tekniska data, Tekniske data, Tekniske specifikationer, Τεχνικά δεδομένα, Datos Técnicos

Model	Filter Models								Min Operating Pressure		Max Operating Pressure		Min Recommended Operating Temp		Max Recommended Operating Temp				
									bar g	psi g	bar g	psi g	°C	°F	°C	°F			
WS	P010	[]	[]	F	[]	-	055	[]	[]	F	[]	1	15	16	232	2	35	80	176
AO	P010	[]	[]	F	[]	-	055	[]	[]	F	[]	1	15	16	232	2	35	80	176
AO	P010	[]	[]	M	[]	-	055	[]	[]	M	[]	1	15	20	290	2	35	100	212
AA	P010	[]	[]	F	[]	-	055	[]	[]	F	[]	1	15	16	232	2	35	80	176
AA	P010	[]	[]	M	[]	-	055	[]	[]	M	[]	1	15	20	290	2	35	100	212
ACS	P010	[]	[]	M	[]	-	055	[]	[]	M	[]	1	15	20	290	2	35	50	122

Note: AO / AA / WS grade filters for use up to 16 bar g (232 psi g) are supplied with a float drain [F] as standard.
For pressures between 16 and 20 bar g (232 and 290 psi g) a manual drain [M] must be used.
ACS grade filters are supplied with a manual drain [M] as standard.

Painot ja mitat

Vikter och dimensioner, Vekt og dimensjoner, Vægt og mål, Βάρη και διαστάσεις, Pesos e Dimensões



Model	Pipe Size	Height (H)		Width (W)		Depth (D)		(a)		(b)		(c)		(d)		Weight	
		mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	kg	lbs
WS / P010A	¼"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010B	⅜"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010C	½"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P015C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.16	2.55
P020C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P020D	¾"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P025D	¾"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P025E	1"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P030G	1 ½"	367	14.45	120	4.72	114.5	4.5	323	12.7	70	2.76	32	1.3	38	1.5	2.68	5.91
WS / P035G	1 ½"	531	20.9	164	6.46	156	6.10	384	15.1	100	3.94	68	2.68	38	1.5	6.90	15.20
WS / P040H	2"	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.30	16.10
WS / P045I	2 ½"	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.10	15.65
WS / P050I	2 ½"	745	29.3	192	7.56	183	7.20	587	23.1	120	4.72	68	2.68	38	1.5	10.30	22.71
P055I	2 ½"	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73
WS / P055J	3"	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73

Note: Water Separators do not include a DP Indicator, use dimension H + d for the total height.

FI Asennussuositukset

On suositeltavaa, että painelma käsitellään ennen jakelujärjestelmään syöttämistä ja kriittisissä käyttöasteissa/käyttökohteissa.

Painelmakuivaimien asennus alemmin märkään järjestelmään saattaa kasvattaa käyttöpisteen suodattimen likakuormitusta jakelujärjestelmän kuivumisen aikana. Suodatinelementit on ehkä vaihdettava tavallista useammin tänä ajanjaksona.

Asennuksissa, joissa käytetään öljytöntä kompressoreja, on yhä vesiaerosoleja ja hiukkasia. Tällöin on käytettävä edelleen yleiskäyttö- ja suurtehotyyppejä.

Yleiskäyttöinen suodatin on aina asennettava suojaamaan suurtehosuodatinta nestemäisiltä aerosoleilta ja kiinteiltä hiukkasilta.

Puhdistuslaitteisto on asennettava kohtaan, jossa on alhaisin jäätympisteen yläpuolinen lämpötila, mieluiten jälkijäähdyttimistä ja ilmanvastaanottoilteista alavirtauksen suuntaan.

Käyttöasteiden puhdistuslaitteisto on asennettava mahdollisimman lähelle käyttökohtetta.

Puhdistuslaitteisto ei saa asentaa pikaventtiileistä alavirtauksen suuntaan, ja se on suojattava mahdollisilta vastavirtauksilta ja muilta hätöolosuhteilta.

Kaikkista puhdistuslaitteiston vievistä putkista on poistettava ilma ennen asennusta ja kaikista putkista on poistettava ilma puhdistuslaitteiston asennuksen jälkeen ja ennen liittämistä lopulliseen käyttökohteeseen.

Jos puhdistuslaitteiston ympärille asennetaan ohitusputket, ohitusputkeen on asennettava riittävät suodattimet, jotta alavirtauksen suunnassa olevia järjestelmiä ei saastu.

Sovita poistoputket hiilisuodattimista suoraan kondenssieroittimeen. Jos poistoputkien liittämisen suoraan erottimeen ei ole mahdollista, putket on limittävä jakoputkistoon (ilmattava toisesta päästä) ja sen jälkeen yksittäissään-tuloon kondenssieroittimeen.

Puhdistuslaitteiston keräytävälle nesteelle on oltava poistomenetelmä. Keräytyneet nesteet on hävitettävä ja käsiteltävä vastuuntuntoisesti.

SV Rekommendationer för installation

Vi rekommenderar att tryckluftens behandlas innan den leds in i distributionssystemet och även vid viktiga luftförbrukningspunkter/applikationer.

Installation av tryckluftstorkar i system som tidigare varit våta kan orsaka ytterligare belastning p.g.a. smuts i filtern vid förbrukningspunkterna medan distributionssystemet torkar. Under denna period kan filterelementen behöva bytas ut oftare.

För installationer där oljefria kompressorer används och där vattenaerosol och partiklar fortfarande förekommer, ska universalvarianter och högeffektiva modeller fortfarande användas.

Ett universalfilter måste alltid monteras för att skydda högeffektivitetsfilteret från vätskeerosoler i stora mängder samt fasta partiklar.

Installera rensningsutrustningen vid lägsta temperatur över fryspunkten, helst nedströms från efterkylare och tryckluftsbekämpare.

Rensningsutrustning vid förbrukningspunkterna ska installeras så nära applikationen som möjligt.

Rensningsutrustningen bör inte installeras nedströms från snabböppnande ventiler, och den bör skyddas från eventuella backflöden och andra slagreolser.

Töm alla rör som leder till rensningsutrustningen före installationen, och töm även alla rör efter att rensningsutrustningen har installerats samt före anslutning till den slutliga applikationen.

Om shuntledningar monteras runt rensningsutrustningen ska tillräcklig filtrering monteras på shuntledningarna för att förhindra att systemet förorenas nedströms.

Dra dräneringsledning direkt från koalescensfilter till kondensseparator. Om inte ledningarna kan dras direkt till en separator bör ledningarna dras till ett kondensgrenrör (med utsläpp i ena änden) och sedan till en enda ingång på en kondensseparator.

Ombesörj en anordning för att tömma ut uppsamlade vätskor från rensningsutrustningen. Uppsamlade vätskor ska behandlas och bortskaffas på ett ansvarsfullt sätt.

NO Anbefalinger for installering

Det anbefales at den komprimerte luften behandles før den føres inn i distribusjonssystemet og også ved kritiske brukspunkter eller enheter.

Installering av lufttørkere for komprimert luft til tidligere fuktig system kan føre til midlertidig smussbelastning for filtre ved brukspunkt i en periode mens distribusjonssystemet tørker ut. Filterelementene må kanskje skiftes oftere i denne perioden.

For installeringer der det brukes oljefrie kompressorer og det fortsatt finnes vannerosoler og partikler, bør det fortsatt brukes universal- og mikrofilterkvalitet.

Et universalfilter må alltid installeres for å beskytte mikrofilteret fra store volumer av væskeerosoler og faste partikler.

Installer rensestyrt ved laveste temperatur over frysepunktet, fortrinnsvis nedstrøms for etterkjølere og luftmottakere.

Rensestyrt ved brukspunkt skal installeres så nær enheten som mulig.

Rensestyrt skal ikke installeres nedstrøms for hurtigåpningsventiler og skal beskyttes mot mulig motstrøm eller andre støtsituasjoner.

Spyl alle rør som fører til rensestyrt før installering, og alle rør etter installering av rensestyrt og før tilkobling til slutenheten.

Hvis det kobles til stikkør rundt rensestyrt, skal man sørge for at det kobles tilstrekkelig filtrering til stikkørret for å hindre kontaminering av systemet nedstrøms.

Fest avløpsrør fra vannutskillerfilterne direkte til en kondensatutskiller. Dersom det ikke er mulig å koble avløpsrør direkte til en separator, skal linjene være ventilt inn i en kondensatmanifold (luftet i den ene enden) og deretter inn i et enkelt inntak på en kondensatseparator.

Sørg for at det finnes mulighet for å drenerer bort oppsamlede væsker fra rensestyrt. Oppsamlede væsker bør behandles og avhendes på en ansvarlig måte.

DA Installationsanbefalinger

Det anbefales at behandle trykluft, før den sendes ind i fordelingsystemet, samt på kritiske brugssteder/apparatur.

Installation af trykluftørræanlæg i et tidligere vådanlæg kan i en periode medføre ekstra belastning p.g.a. snavs for filtre på brugsstedet, mens fordelingsystemet udtørres. Filterelementerne skal muligvis udskiftes oftere i denne periode.

I installationer med oljefrie kompressorer vil der stadig være vanddråber og -partikler, og der bør fortsat bruges universalfiltre samt filtre med høj effektivitetsklassificering.

Der skal altid installeres et universalfilter for at beskytte det højeffektive filter mod store mængder væskedråber og faste partikler.

Installer rensningsudstyr ved den lavest mulige temperatur over frysepunktet og helst efter efterkølere og luftudskillere.

Rensningsudstyr på brugsstedet bør installeres så tæt på apparaturet som muligt.

Rensningsudstyr bør ikke installeres efter lynbøventiler og bør beskyttes mod eventuel modstrøm eller andre stødsitici.

Udluft alle rør, der fører til rensningsudstyret, før det installeres, og samtlige rør efter at rensningsudstyret er installeret, og før det tilsluttes det endelige apparatur.

Hvis der er monteret omløbsrør rundt om rensningsudstyret, skal der altid monteres passende filtreringsudstyr på disse omløbsrør for at forhindre forurening af systemet længere fremme.

Monter afløbsrør fra koalescensfilterne direkte på en kondensseparator. Hvis det ikke er muligt at tilslutte afløbsrørene direkte på en separator, skal rørene udluftes ind i et kondensatorgrenrør (udluflet i den ene ende) og derefter ind i et enkelt indløb på en kondensseparator.

Sørg for, at der er et anlæg til at fjerne den opsamlende væske fra rensningsudstyret. Opsamlet væske skal behandles og bortskaffes på ansvarlig vis.

EL Συστάσεις εγκατάστασης

Ο χειρισμός του πιεσιμένου αέρα συνιστάται να πραγματοποιείται πριν την εισαγωγή στο σύστημα διανομής, καθώς επίσης και σε κρίσιμα σημεία/εφαρμογές χρήσης.

Η εγκατάσταση εφρανήτρων πιεσιμένου αέρα σε προηγούμενος υγρό σύστημα μπορεί να έχει ως αποτέλεσμα πρόσθετη βρομιά στο σημείο χρήσης των φίλτρων για ένα χρονικό διάστημα, έως ότου στεγνώσει το σύστημα διανομής. Τα φίλτρα ενδέχεται να πρέπει να αλλάζονται πιο συχνά κατά το χρονικό αυτό διάστημα.

Για τις εγκαταστάσεις όπου χρησιμοποιούνται συμπίετες χωρίς λάδι, εξακολουθεί να υπάρχει νερό με μορφή αερολύματος και αιωρούμενων σωματιδίων, για αυτό και θα πρέπει να συνεχίσουν να χρησιμοποιούνται φίλτρα γενικής χρήσης υψηλής απόδοσης.

Το φίλτρο γενικής χρήσης πρέπει πάντα να τοποθετείται έτσι ώστε να προστατεύει το φίλτρο υψηλής απόδοσης από μεγάλους όγκους υγρών με μορφή αερολύματος και στερεών σωματιδίων.

Τοποθετήστε τον εξοπλισμό καθαρισμού στη χαμηλότερη θερμοκρασία πάνω από το σημείο τήξης, κατά προτίμηση κατόπι των μεταφικτών και των καταναλωτών αέρα.

Το σημείο χρήσης του εξοπλισμού καθαρισμού πρέπει να είναι τοποθετημένο όσο το δυνατό πιο κοντά στην εφαρμογή.

Ο εξοπλισμός καθαρισμού δεν πρέπει να τοποθετείται κατόπι των ταχυβελθίδων και θα πρέπει να είναι προστατευμένος από πιθανή αντίστροφη ροή ή άλλες πιθανές αιτίες πρόκλησης κραδασμών.

Πριν την εγκατάσταση, κάντε εξερεύνηση όλων των σωληνώσεων που οδηγούν στον εξοπλισμό καθαρισμού. Επίσης, κάντε εξερεύνηση όλων των σωληνώσεων μετά την εγκατάσταση του εξοπλισμού καθαρισμού και πριν τη σύνδεση στην τελική εφαρμογή.

Εάν πριν και μετά τον εξοπλισμό καθαρισμού είναι τοποθετημένοι αγωγοί παράκαμψης, βεβαιωθείτε ότι εφαρμόζεται επαρκής φιλτράρισμα στον αγωγό παράκαμψης, για να αποφευχθεί η μόλυνση του συστήματος κατόπι.

Προσάρμοστε τους αγωγούς αποστράγγισης από τα φίλτρα προσκόλλησης απευθείας σε έναν διαχωριστή υγροποιημένων καταλοίπων. Αν δεν είναι δυνατό να συνδεθούν οι αγωγοί αποστράγγισης απευθείας σε έναν διαχωριστή, οι αγωγοί θα πρέπει να εκτονώνονται σε μια πολλαπλή υγροποιημένων καταλοίπων (με εξερεύνηση στο ένα άκρο) και στη συνέχεια σε μια ενιαία εισαγωγή ενός διαχωριστή υγροποιημένων καταλοίπων.

Παρέχετε δυνατότητα αποστράγγισης των συσσωρευμένων υγρών από τον εξοπλισμό καθαρισμού. Ο χειρισμός και η απόρριψη των συσσωρευμένων υγρών πρέπει να πραγματοποιείται με υπεύθυνο τρόπο.

PT Recomendações sobre a instalação

Recomenda-se que o ar comprimido seja tratado antes da entrada no sistema de distribuição e também em aplicações/pontos de utilização críticos.

A instalação dos secadores de ar comprimido num sistema previamente húmido pode resultar numa acumulação adicional de sujidade nos pontos de utilização dos filtros durante o período em que o sistema de distribuição seca. Os elementos do filtro podem necessitar de ser substituídos com mais frequência durante este período.

Para instalações em que são utilizados compressores sem óleo, estão ainda presentes os aerossóis e partículas de água e ainda devem ser utilizados graus gerais e de elevado rendimento.

Um filtro geral deve ser sempre instalado para proteger o filtro de elevado rendimento dos aerossóis líquidos em bruto e das partículas sólidas.

Instale o equipamento de purificação na temperatura mais baixa acima do ponto de congelamento, preferencialmente a jusante dos refrigeradores posteriores e dos receptores de ar.

O ponto de utilização do equipamento de purificação deve ser instalado o mais próximo possível da aplicação.

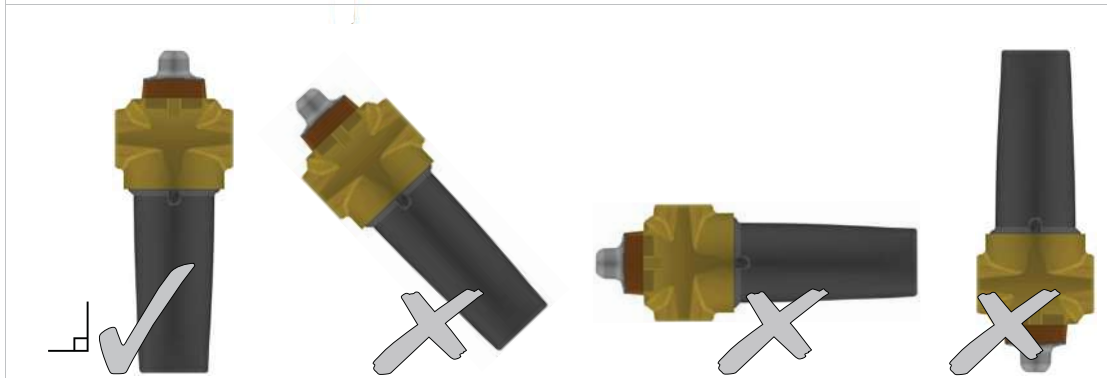
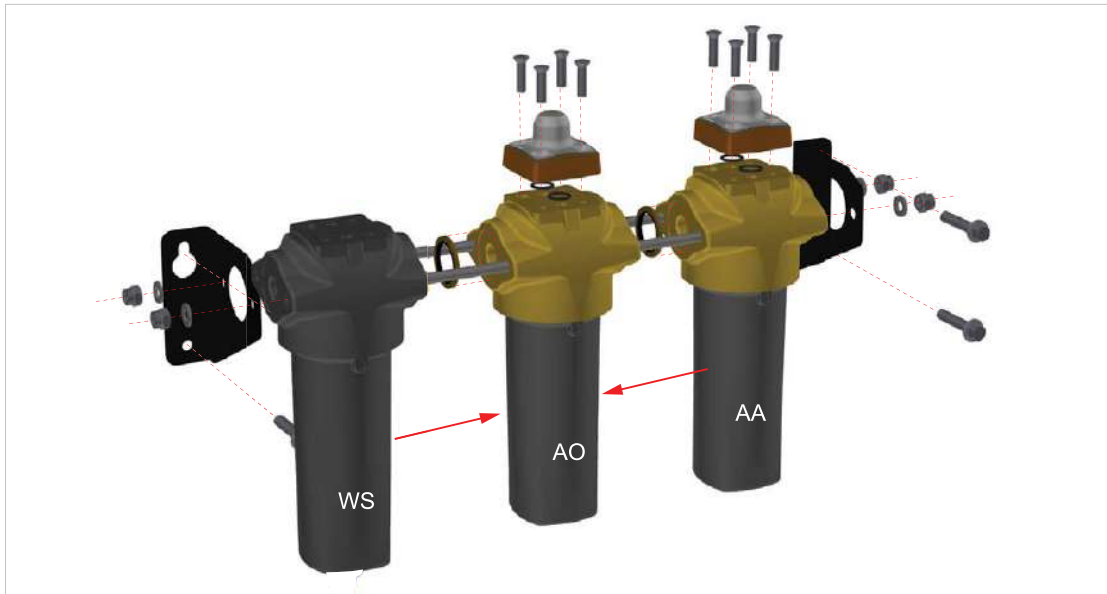
O equipamento de purificação não deve ser instalado a jusante das válvulas de abertura rápida e deve ser protegido de um possível fluxo inverso ou de outras condições de choque.

Purgue todos os tubos que levam ao equipamento de purificação antes da instalação e todos os tubos após a instalação do equipamento de purificação e antes da ligação para a aplicação final.

Se as linhas de by-pass forem instaladas em volta do equipamento de purificação, certifique-se de que a filtragem adequada é instalada na linha de by-pass para evitar a contaminação do sistema a jusante.

Instale os tubos de drenagem a partir dos filtros coalescentes directamente para um separador de condensado. Se não for possível ligar directamente os tubos de drenagem a um separador, os tubos devem ser ventilados para um colectador de condensado (ventilado numa extremidade) e, em seguida, para uma entrada única de um separador de condensado.

Forneça um instrumento para drenar os líquidos recolhidos do equipamento de purificação. Os líquidos recolhidos devem ser tratados e eliminados de uma forma responsável.



FI Alempi sulkulevy voi liikkua, kun suodatinta ei ole paineistettu



Alempi sulkulevy ei vaadi huoltoa eikä sitä saa koskaan irrottaa.

SV Den nedre stängningsplattan kan röra sig om filtret inte trycksätts



Den nedre stängningsplattan går inte att utföra service på och ska aldrig tas bort.

NO Den nedre lukkeplaten vil kunne bevege seg når filteret ikke er trykksatt



Den nedre lukkeplaten skal ikke vedlikeholdes og bør aldri fjernes.

DA Den nederste lukkeplade kan flytte sig, når filteret ikke er under tryk



Den nederste lukkeplade kan ikke serviceres, og den må ikke afmonteres.

EL Η κάτω πλάκα κλεισίματος μπορεί να μετακινηθεί εάν το φίλτρο δεν βρίσκεται υπό πίεση



Η κάτω πλάκα κλεισίματος δεν επιδέχεται σέρβις και δεν πρέπει να αφαιρείται ποτέ.

PT A placa de isolamento inferior pode deslocar-se se o filtro não estiver pressurizado



A placa de isolamento inferior não necessita de manutenção e nunca deve ser retirada.

FI Käynnistys ja käyttö


Varmista ennen suodattimen paineistusta, että pää ja pesä on asetettu oikein ja että lukitusmekanismi on tässä oppaassa olevan kuvan osoittamalla tavalla huoltotilassa (huoltotoimenpide 5).

1. Paineista yksikkö asteittain avaamalla tuloverkko.
2. Paineista laskuputkisto uudelleen avaamalla lähtöventtiili hitaasti.

Älä avaa tulo- tai lähtöventtiiliä nopeasti tai altista yksikköä liialliselle paine-erolle, sillä yksikkö voi vaurioitua.

SV Start och drif


Före trycksättning ska du kontrollera att huvudet och filterskålen är ordentligt monterade och att låsanordningen är korrekt inriktad så som visas i underhållsavsnittet (underhållsproceduren 6) i den här manualen.

1. Öppna inloppsventilen långsamt så att enheten trycksätts gradvis.
2. Öppna utloppsventilen långsamt för att trycksätta rörsystemet nedströms igen.

Öppna inte inlopps- eller utloppsventilerna snabbt och utsätt inte enheten för överdrivet differentialtryck, eftersom det kan orsaka skador.

NO Oppstart og drift


Før trykksætning av filteret, påse at filterhodet og filterskålen er korrekt monteret og at låsemekanismen er riktig justert, som vist i vedlikeholdsavsnittet (vedlikeholdsprosedyre 6) i denne håndboken.

1. Åpne inntaksventilen langsomt for å sette enheten gradvis under trykk.
2. Åpne uttaksventilen langsomt for å sette nedstrømsrørene under trykk igjen.

Ikke åpne inntaks- eller uttaksventilene raskt, eller utsett enheten for høyt differensialtrykk, da dette kan føre til skade.

DA Start og drif


Inden filteret sættes under tryk, skal det sikres, at hovedet og beholderen er korrekt monteret, og at låsemærkerne står ud for hinanden som vist i afsnittet om vedligeholdelse (vedligeholdelsesproceduren 6) i denne manual.

1. Åbn indgangsventilen langsomt for gradvist at sætte enheden under tryk.
2. Åbn udløbsventilen langsomt for at sætte rørene længere fremme under tryk igen.

Åbn ikke indgangs- eller udgangsventiler hurtigt, og udsæt ikke enheden for store trykforskelle, da det kan medføre skader.

EL Έναρξη λειτουργίας και χειρισμός


Πριν θέσετε το φίλτρο υπό πίεση, βεβαιωθείτε ότι η κεφαλή και το ποτήρι του φίλτρου είναι σωστά προσαρμοσμένα και ότι τα σημεία ασφάλισης είναι σωστά ευθυγραμμισμένα, όπως απεικονίζεται στην ενότητα συντήρησης (διαδικασία συντήρησης 6) αυτού του εγχειριδίου.

1. Ανοίξτε αργά τη βαλβίδα εισαγωγής για να ανέβει σταδιακά η πίεση της μονάδας.
2. Ανοίξτε αργά τη βαλβίδα εξαγωγής για να ανέβει η πίεση της σωλήνωσης κατόπι.

Μην ανοίγετε γρήγορα τις βαλβίδες εισαγωγής ή εξαγωγής και μην υποβάλλετε τη μονάδα σε υπερβολική διαφορική πίεση, διότι μπορεί να προκύψει βλάβη.

PT Arranque e Funcionamento


Antes de pressurizar o filtro, certifique-se de que a cabeça e o corpo estão instalados correctamente e de que o detalhe de bloqueio está correctamente alinhado, conforme ilustrado na secção de manutenção (procedimento de manutenção 6) deste manual.

1. Abra lentamente a válvula de entrada para pressurizar gradualmente a unidade.
2. Abra lentamente a válvula de saída para voltar a pressurizar a tubagem a jusante.

Não abra rapidamente as válvulas de entrada ou de saída nem sujeite a unidade a uma pressão diferencial excessiva, caso contrário poderão ocorrer danos.

Lisävarusteet / varaosat (Huoltopakkaukset)
Tilbehør / Reservedeler (servicepaket), Tilbehør / Reservedeler (Service Kits), Tilbehør / Reservedele (Servicesæt),
Εξαρτήματα / Ανταλλακτικά (Kit σέρβις), Acessórios / Peças Sobressalentes (Kits de Manutenção)

Filter Models	Catalogue Number	Contents
010	TRK1-2	
015 - 020	TRK2-2	
025 - 030	TRK3-2	
035 - 045	TRK4-2	
050 - 055	TRK5-2	
010	MBK1-1	
015 - 020	MBK2-1	
025 - 030	MBK3-1	
035 - 045	MBK4-1	
050 - 055	MBK5-1	
010	MBK1-2	
015 - 020	MBK2-2	
025 - 030	MBK3-2	
035 - 045	MBK4-2	
050 - 055	MBK5-2	
010 - 055	EM1	
010 - 055	PD15NO	
010 - 030	DPI-K	
035 - 055	ZD90GL	

Huolto

Underhåll, Vedlikehold, Vedligeholdelse, Συντήρηση, Manutenção

(FI) Huoltovälit

Jotta voitaisiin varmistaa suodattimen ihanteellinen suorituskyky, vaaditaan AO, AA, ja luokituksen elementtien vaihto 12 kuukauden välein yhdessä automaattipoistoputken kanssa.

ACS-elementin suoritus perustuu tulevan öljyhöyryn enimmäispitoisuuteen, joka on 0,018 mg/m³. Korvaa hiilisuodatinelementti, kun huomaat höyryä, hajua tai makua.

Toisin kuin öljyaerosolien poistosuodattimet, jotka vaihdetaan vuosittain paineistetun ilman laadun takkaamisen takia, öljyhöyryn poistosuodattimen käyttöikä riippuu monista asioista, ja se on ehkä vaihdettava useammin (päästi jos käytetään poistosuodatinta, joka on mitoitettu 6 000:lle tunnille):

Adsorbentisuodattimien käyttöikään vaikuttavat tekijät

Öljyhöyrypitoisuus

Mitä korkeampi öljyhöyryn tulopitoisuus on, sitä nopeammin aktiivihiilikapasiteetti vanhenee.

Irtoöljy

Adsorbentisuodattimet on tarkoitettu poistamaan öljyhöyryä ja -hajuja, mutta ei nestemäistä öljyä tai aerosoleja. Huonosti hoidettu tai olematon esisuodatus vähentää öljyhöyryn poistosuodattimen kapasiteettia nopeasti.

Lämpötila

Öljyhöyrysisältö lisääntyy eksponentiaalisesti tulolämpötilassa ja vähentää näin ollen elementin käyttöikä. Lisäksi lämpötilan noustessa adsorptiokyky vähenee, mikä myös vähentää elementin käyttöikää.

Suhteellinen kosteus tai kastepiste

Märkä ilma vähentää hiilen adsorptiokykyä.

Kompressoröljyn vaihdot

Kun kompressoröljyt vaihdetaan, uusi voiteluaine polttaa "kevyet loppujakeet" pois, mikä lisää öljyhöyrypitoisuutta tunneiksi tai jopa viikoiksi sen jälkeen. Öljyhöyryn poistosuodatin imee lisääntyneen öljyhöyryn ja näin ollen vähentää huomattavasti sen adsorptiokäyttöikää.

(SV) Underhållsintervall

För att säkerställa optimal funktion ska elementen klassade AO, AA, bytas ut var 12:e månad tillsammans med den automatiska tömningen.

Prestandan hos ACS -elementet baseras på en maximal inloppskoncentration av oljedimma på 0,018 mg/m³. Byt ut kolfilterelementet vid detektering av dimma, odör eller smak.

Till skillnad från filter för borttagning av oljeaerosol som byts ut årligen för att säkerställa tryckluftskvaliteten, kan livslängden på ett oljedimmeborttagningsfilter påverkas av olika faktorer och kräva mer frekventa byten (om inte OVR används som är utformat för en livslängd på 6 000 timmar):

Faktorer som påverkar adsorptionsfilters livslängd

Oljedimmans koncentration

Ju högre inloppskoncentration av oljedimma desto snabbare försämrars det aktiva kolets kapacitet.

Bulkolja

Adsorptionsfilter är utformade för att avlägsna oljedimma och odörer, inte flytande olja eller aerosoler. Dåligt underhåll eller obehörig förfiltrering gör att OVR-filterets kapacitet snabbt försämrars.

Temperatur

Oljedimminivån ökar exponentiellt mot inloppstemperaturen och minskar elementlivslängden. Dessutom försämrars adsorptionskapaciteten när temperaturen stiger, vilket även detta minskar elementlivslängden.

Relativ fuktighet eller daggpunkt

Fuktig luft minskar kolets adsorptionskapacitet.

Byte av kompressorolja

Vid byte av kompressorolja bränner det nya smörjmedlet av "lätta produkter" vilket ökar mängden oljedimma i timmar eller till och med veckor efteråt. Denna ökning av mängden oljedimma adsorberas av OVR-filteret, vilket minskar dess livslängd avsevärt.

(NO) Vedlikeholdsintervaller

For å sikre optimal filterytelse, krever klasse AO, AA, -elementene utskiftning hver 12. måned sammen med det automatiske avløpet.

Ytelsen til ACS-elementet er basert på maksimal oljedampinntakskonsentrasjon på 0,018 mg/m³. Skift ut karbonfilterelementet hvis du oppdager damp, lukt eller smak.

Til forskjell fra filtre for fjerning av oljespray, som skiftes ut hvert år for å garantere kvaliteten på den komprimerte luften, kan levetiden til et filter for fjerning av oljespray tilskrives forskjellige faktorer og kreve hyppigere skift (bortsett fra hvis OVR brukes, da det har en levetid på 6000 timer):

Faktorer som påvirker levetiden til adsorpsjonsfilter

Oljedampkonsentrasjonen

Jo høyere inntakskonsentrasjon av oljedamp, jo raskere eksipirerer den aktiverte karbonkapasiteten.

Bulkolje

Adsorpsjonsfiltere er utformet for å fjerne oljedamp og lukt, ikke flytende olje eller aerosoler. Hvis det ikke finnes forfiltrering, eller den er dårlig vedlikeholdt, kan det føre til at OVR-filterkapasiteten utløper raskere.

Temperatur

Oljedampinnholdet øker eksponentielt i forhold til inntakstemperaturen, og reduserer elementets levetid. I tillegg reduseres adsorpsjonskapasiteten etter hvert som temperaturen øker, og reduserer elementets levetid.

Relativ fuktighet eller duggpunkt

Våt luft reduserer karbonets adsorberende kapasitet.

Kompressoroljeskift

Når kompressoroljen skiftes, brenner det nye smøremiddelet av lettkomponenter som øker oljedampinnholdet i mange timer eller til og med uker etterpå. Denne økningen i oljedampinnhold adsorberes av OVR-filteret, noe som reduserer levetiden betraktelig.

(DA) Vedligeholdelsesintervaller

For at sikre optimal filterydelse, skal elementer i kvalitet AO, AA, udskiftes hver 12. måned sammen med det automatiske afløb.

ACS-elementets ydelse er baseret på en maksimal indgangskoncentration i oljedamp på 0,018 mg/m³. Udskift kulfilterelementet ved registrering af damp, lugt eller smag.

Mødsat filtre til fjernelse af oliedråber, der udskiftes årligt for at sikre trykluftkvaliteten, kan levetiden for filteret til fjernelse af oljedamp tilskrives forskellige faktorer og kræve hyppigere udskiftninger (medmindre der bruges OVR, som er beregnet til en levetid på 6.000 timer):

Faktorer, der påvirker adsorptionsfiltere

Oljedampkoncentration

Jo højere oljedampindgangens koncentration er, jo hurtigere ophører det aktive kuls kapacitet.

Olje

Adsorptionsfiltere er udviklet til at fjerne oljedamp og -lugt, ikke flydende olie eller dråber. Dårligt vedligeholdt eller ikke-eksisterende forfiltrering vil få OVR-filterkapaciteten til at ophøre hurtigt.

Temperatur

Oljedampindholdet øges eksponentielt ift. indgangstemperaturen, hvilket reducerer elementets levetid. Derudover mindkes adsorptionskapaciteten også i takt med, at temperaturen stiger, hvilket også medfører reduceret levetid.

Relativ luftfugtighed eller duggpunkt

Våd luft reducerer kullets adsorptionskapacitet.

Udskiftning af kompressorolie

Når kompressorolien udskiftes, brænder det nye smøremiddel "lette ender" af, hvilket øger oljedampindholdet i flere timer eller endda uger efterfølgende. Forøgelsen af oljedampindholdet adsorberes af OVR-filteret, hvilket nedsætter dets adsorptionsmæssige levetid.

(EL) Διαστήματα συντήρησης

Για να εξασφαλίσετε τη βέλτιστη απόδοση του φίλτρου, τα στοιχεία βαθμίδας AO, AA, χρειάζεται να αλλάζονται κάθε 12 μήνες, μαζί με την αυτόματη αποστράγγιση.

Η απόδοση του στοιχείου ACS έχει υπολογιστεί για μέγιστη συγκέντρωση ατμών λαδιού στην εισαγωγή 0,018 mg/m³. Αντικαθιστάτε το στοιχείο φίλτρου άνθρακα όταν ανιχνεύετε ατμούς, οσμές ή γεύσεις.

Αντίθετα με τα φίλτρα αφαίρεσης αερολυμάτων λαδιού, τα οποία αντικαθίστανται μία φορά το χρόνο για να εξασφαλίζουν την ποιότητα του πιεσιμένου αέρα, η διάρκεια ζωής ενός φίλτρου αφαίρεσης ατμών λαδιού μπορεί να επηρεάζεται από διάφορους παράγοντες και να απαιτούνται πιο τακτικές αλλαγές (εκτός αν χρησιμοποιείται φίλτρο OVR, το οποίο είναι κατάλληλο για διάρκεια ζωής 6000 ωρών):

Παράγοντες που επηρεάζουν τη διάρκεια ζωής των φίλτρων προσρόφησης

Συγκέντρωση ατμών λαδιού

Όσο μεγαλύτερη είναι η συγκέντρωση των ατμών λαδιού στην εισαγωγή, τόσο πιο γρήγορα θα λήξει η ικανότητα φιλτραρίσματος του ενεργού άνθρακα.

Μεγάλος όγκος λαδιού

Τα φίλτρα προσρόφησης είναι σχεδιασμένα για να αφαιρούν ατμούς λαδιού και οσμές, όχι υγρό λάδι ή αερολύματα. Η κακή συντήρηση ή η συντομία προφίλτραρίσματος προκαλεί ταχεία λήξη της ικανότητας φιλτραρίσματος ενός φίλτρου OVR.

Θερμοκρασία

Η περιεκτικότητα σε ατμούς λαδιού αυξάνει εκθετικά σε σχέση με τη θερμοκρασία της εισαγωγής, μειώνοντας τη διάρκεια ζωής του φίλτρου. Επιπλέον, καθώς αυξάνεται η θερμοκρασία, η ικανότητα προσρόφησης ελαττώνεται, μειώνοντας και πάλι τη διάρκεια ζωής του φίλτρου.

Σχετική υγρασία ή σημείο δρόσου

Η μεγάλη υγρασία στον αέρα μειώνει την ικανότητα προσρόφησης του άνθρακα.

Αλλαγές λαδιών του συμπιεστή

Όταν αλλάζει το λάδι στον συμπιεστή, καίγονται τα "ελαφρά συστατικά" του λιπαντικού, αυξάνοντας έτσι την περιεκτικότητα σε ατμούς λαδιού για μερικές ώρες ή ακόμα και εβδομάδες μετά την αλλαγή. Η αυξημένη περιεκτικότητα σε ατμούς λαδιού προσροφάται από το φίλτρο OVR, μειώνοντας σημαντικά την προσροφητική διάρκεια ζωής του.

(PT) Intervalos de Manutenção

Para garantir um desempenho ideal do filtro, os elementos de grau AO, AA, necessitam de ser substituídos a cada 12 meses juntamente com o dreno automático.

O desempenho do elemento ACS é baseado numa concentração máxima da entrada de vapor do óleo de 0,018 mg/m³. Substitua o elemento do filtro de carvão mediante a detecção de vapor, odor ou sabor.

Ao contrário dos filtros de remoção dos aerossóis do óleo que são anualmente substituídos para garantir a qualidade do ar comprimido, a duração de um filtro de remoção do vapor do óleo pode ser atribuída a diversos fatores e requer substituições mais frequentes (exceto se o OVR for utilizado, aumentando assim para uma duração de 6000 hrs):

Fatores que afetam a duração dos filtros de adsorção

Concentração do vapor do óleo

Quanto maior for a concentração de entrada do vapor de óleo, mais rapidamente irá expirar a capacidade do carvão ativado.

Óleo em bruto

Os filtros de adsorção foram concebidos para remover os vapores e odores do óleo e não o óleo líquido ou os aerossóis. A pré-filtragem não existente ou com uma fraca manutenção irá fazer com que a capacidade do filtro OVR se extinga rapidamente.

Temperatura

O conteúdo do vapor do óleo aumenta exponencialmente para a temperatura de entrada, reduzindo o tempo de vida útil do elemento. Para além disso, à medida que a temperatura aumenta, a capacidade de adsorção diminui, reduzindo novamente o tempo de vida útil do elemento.

Humidade Relativa ou Ponto de Condensação

O ar húmido reduz a capacidade de adsorção do carvão.

Substituição do óleo do compressor

Quando o óleo do compressor for substituído, o novo lubrificante queima as "extremidades leves" aumentando o conteúdo do vapor do óleo durante horas ou até mesmo durante algumas semanas. Este aumento do conteúdo do vapor do óleo é adsorvido pelo filtro OVR, reduzindo significativamente a respectiva duração da adsorção.

FI Huoltotoimenpiteet 1

Sulje sisäänmenoputki (1) ja poistoventtiili (2) rauhallisesti ja poista paineistus venttiilistä (3) poistoputkea käyttäen.

SV Underhållsprocedur 1

Stäng långsamt inlopps- (1) och utloppsventilerna (2) och sänk trycket i filtret (3) med tömningen.

NO Vedlikeholdsprosedyre 1

Steng ventilene i innløp (1) og uttak (2) langsomt og reduser trykket i filteret (3) ved hjelp av avløpet.

DA Vedligeholdelsesprocedure 1

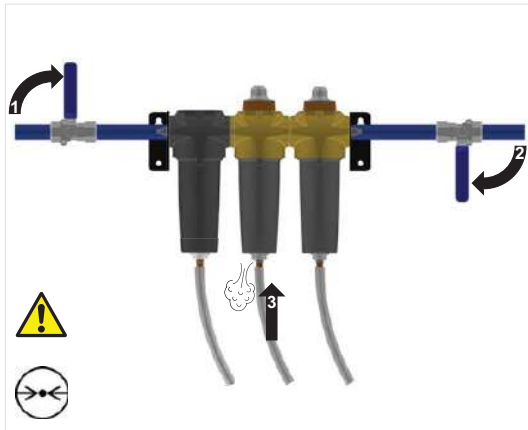
Luk indgangs- (1) og udgangsventilerne (2) langsomt, og tag trykket af filteret (3) ved hjælp af afløbet.

EL Διαδικασία συντήρησης 1

Κλείστε αργά τις βαλβίδες εισαγωγής (1) και εξαγωγής (2) και αποσυμπέστε το φίλτρο (3) με τη βοήθεια της αποστράγγισης.

PT Procedimento de Manutenção 1

Feche lentamente as válvulas de entrada (1) e de saída (2) e despressurize o filtro (3) utilizando o dreno.



FI Huoltotoimenpiteet 2

Avaa suodatinnastiat (1 ja 2) ja poista käytetty elementti (3).

SV Underhållsprocedur 2

Skruva loss filterskålen (1 och 2) och ta bort det förbrukade elementet (3).

NO Vedlikeholdsprosedyre 2

Skru løs filterskålene (1 & 2) og fjern de brukte elementene (3)

DA Vedligeholdelsesprocedure 2

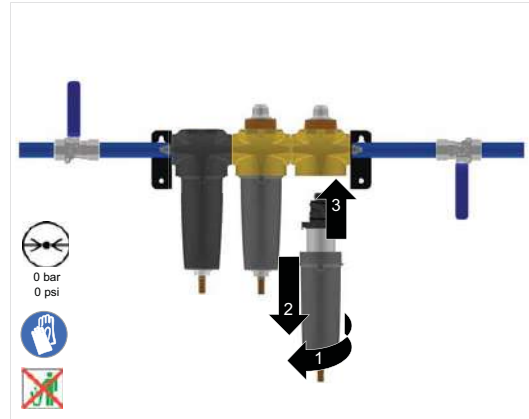
Skru filterbeholderen af (1 og 2), og fjern det brugte element (3)

EL Διαδικασία συντήρησης 2

Ξεβιδώστε το ποτήρι του φίλτρου (1 & 2) και αφαιρέστε το μεταχειρισμένο στοιχείο (3)

PT Procedimento de Manutenção 2

Desaperte o copo (1 e 2) do filtro e retire o elemento utilizado (3)



FI Huoltotoimenpiteet 3

Ruuvaa auki automaattinen poistoputki (1) ja hävitä se (2). Sovita paikalleen uusi putki (3) ja kiristä (4).

SV Underhållsprocedur 3

Skruva loss den automatiska tömningen (1) och avyttra den (2). Sätt den nya tömningen på plats (3) och dra åt (4).

NO Vedlikeholdsprosedyre 3

Skru løs det automatiske avløpet (1) og kast det (2). Monter det nye avløpet (3) og stram til (4).

DA Vedligeholdelsesprocedure 3

Skru det automatiske afløb af (1), og bortskaf det (2). Monter det nye afløb (3), og spænd (4).

EL Διαδικασία συντήρησης 3

Ξεβιδώστε την αυτόματη αποστράγγιση (1) και πετάξτε την (2). Τοποθετήστε τη νέα αποστράγγιση (3) και σφίξτε την (4).

PT Procedimento de Manutenção 3

Desaperte o dreno automático (1) e elimine-o (2). Instale o novo dreno (3) e aperte (4).



FI Huoltotoimenpiteet 4

Sijoita uusi elementti suodatinastiaan varmistuen, että nokat ovat asianmukaisesti koloissaan.

SV Underhållsprocedur 4

Sätt i det nya elementet i filterskålen och se till att stiften passar i spåren.

NO Vedlikeholdsprosedyre 4

Sett det nye elementet inn i filterskålen og sikre at hakene sitter riktig i sporene.

DA Vedligeholdelsesprocedure 4

Sæt det nye element i filterbeholderen, og sørg for, at tapperne sidder korrekt i rillerne.

EL Διαδικασία συντήρησης 4

Τοποθετήστε το νέο στοιχείο μέσα στο ποτήρι του φίλτρου, προσέχοντας οι προεξοχές να καθίσουν καλά μέσα στις εγκοπές.

PT Procedimento de Manutenção 4

Introduza o novo elemento no copo do filtro certificando-se de que as patilhas estão correctamente assentes nas ranhuras.



FI Huoltotoimenpiteet 5

Vaihda suodatinpään kummallakin puolella olevat O-renkaat uusiin..



Varmista, että voitelet O-renkaan ja säikeet sopivalla hapottomalla vaseliinilla.

SV Underhållsprocedur 5

Byt ut O-ring som sitter i filterhuvudet mot den nya, medföljande O-ring..



Se till att smörja O-ring och gängorna med någon passande syrefri oljegel.

NO Vedlikeholdsprosedyre 5

Bytt ut O-ring som ligger i filterskålen med den nye O-ring som følger med.



Sørg for å smøre O-ring og gjengene med en passende syrefri vaselin.

DA Vedligeholdelsesprocedure 5

Udskift O-ring i filterhovedet med den nye medfølgende O-ring.



Smør O-ring og gevindet med en egnet syrefri vaselin.

EL Διαδικασία συντήρησης 5

Αντικαταστήστε τον δακτύλιο O που βρίσκεται μέσα στην κεφαλή του φίλτρου με τον νέο παρεχόμενο δακτύλιο O.



Μην παραλείψετε να λιπάνετε τον δακτύλιο O και τα σπειρώματα με κατάλληλη γέλη πετρελαίου χωρίς οξέα.

PT Procedimento de Manutenção 5

Substitua o O-ring situado na cabeça do filtro pelo novo O-ring fornecido.



Certifique-se de que lubrifica o O-ring e as roscas com vaselina adequada e sem ácido.



FI Huoltotoimenpiteet 6 (a)

Sijoita suodatinastia ja -pää paikalleen varmistuen siitä, että se sopii paikalleen ja lukitusmekanismi ovat kohdakkain.

Huomautus: Jotta voidaan varmistaa astian kiinnittyminen päähän, 010-030-astia vaatii 360 °:n käännöksen ja 035-045-astia 720°:n käännöksen siihen asti, että kierre pysähtyy.

SV Underhållsprocedur 6 (a)

Sätt tillbaka filterskålen och huvudet och se till att de är ordentligt åtdragna och att läsanordningarna är korrekt inriktade.

OBS! För att säkerställa att skålen är ordentligt fastsatt i huvudet kräver skålen 010-030 360° vridning tills gängorna tar emot och skålen 035-045 kräver 720°.

NO Vedlikeholdsprosedyre 6 (a)

Monter filterskålen og hodet og sikre at gjengene griper riktig og låsmekanismene er justert.

Obs! For å sikre at skålen er satt helt inn i hodet, krever skål 005-030 360°rotasjon for gjengen stopper, og 720° for skål 035-045.

DA Vedligeholdelsesprocedur 6 (a)

Genmonter filterbeholderen og filterhovedet. Gevindet skal være skruet helt i bund, og læsemærkerne skal stå ud for hinanden.

Bemærk: For at sikre, at beholderen sidder korrekt i hovedet, skal 005-030-beholderen drejes 360° indtil gevindstoppet og 720° for 035-045-beholderen

EL Διαδικασία συντήρησης 6 (a)

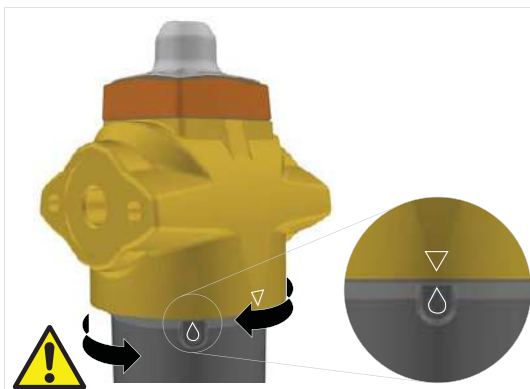
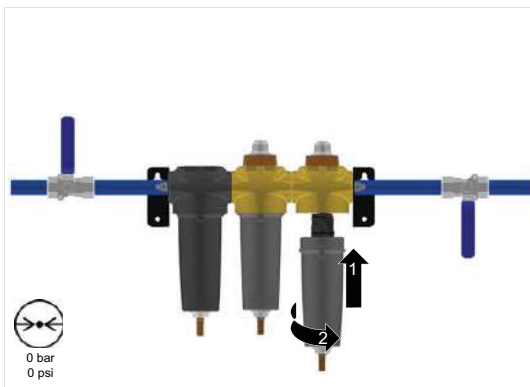
Επανατοποθετήστε το ποτήρι του φίλτρου και την κεφαλή, προσέχοντας τα σπειρώματα να βιδώσουν καλά μεταξύ τους και να ευθυγραμμιστούν τα σημάδια ασφάλισης.

Σημείωση: Για να βεβαιωθείτε ότι το ποτήρι έχει τοποθετηθεί καλά μέσα στην κεφαλή, να έχετε υπόψη σας ότι το ποτήρι 010-030 απαιτεί περιστροφή 360° μέχρι να βιδώσει εντελώς και 720° για το ποτήρι 035-045.

PT Procedimento de Manutenção 6 (a)

Volte a instalar a cabeça e o corpo do filtro certificando-se de que as rosca estão totalmente encaixadas e de que os detalhes de bloqueio estão alinhados.

Nota: Para se certificar de que o corpo está totalmente encaixado na cabeça, o corpo 010-030 necessita de uma rotação de 360° até atingir o batente da rosca e o corpo 035-045 necessita de uma rotação de 720°.



FI Huoltotoimenpiteet 7

Kiinnitä suodatinastia vaihtopäivätarra ja kirjoita siihen päivämäärä, jolloin elementti on jälleen vaihdettava, esim. 12 kk kuluttua tämänkertaisesta vaihdosta.



Älä käytä liuottimia tai alkoholia tarrojen puhdistukseen, sillä ne voivat aiheuttaa vaurioita.

SV Underhållsprocedur 7

Fäst elementets etikett för bytesdatum på filterskålen och skriv dit datumet som elementet ska bytas ut, d.v.s. 12 månader efter bytet av elementet.



Använd inga lösningsmedel eller alkohol för att rengöra etiketterna eftersom det kan orsaka skador.

NO Vedlikeholdsprosedyre 7

Fest element endre dato etiketten til filteret bolle og skriv på datoen elementet skal erstattes. i.e 12 måneder etter element endring.



Ikke bruk løsemidler eller alkohol for å rengjøre etikettene, da dette kan forårsake skade.

DA Vedligeholdelsesprocedur 7

Fastgør mærkaten med dato for elementudskiftning på filterbeholderen, og skriv datoen for, hvornår elementet skal udskiftes - d.v.s. 12 måneder efter elementudskiftningen.



Brug ikke opløsningsmidler eller alkohol til rengøring af mærkaterne, da det kan medføre beskadigelse.

EL Διαδικασία συντήρησης 7

Κολλήστε την ετικέτα ημερομηνίας αλλαγής του στοιχείου στο ποτήρι του φίλτρου και σημειώστε την ημερομηνία που πρέπει να αλλάξει το στοιχείο, δηλ. 12 μήνες μετά την αλλαγή του στοιχείου.



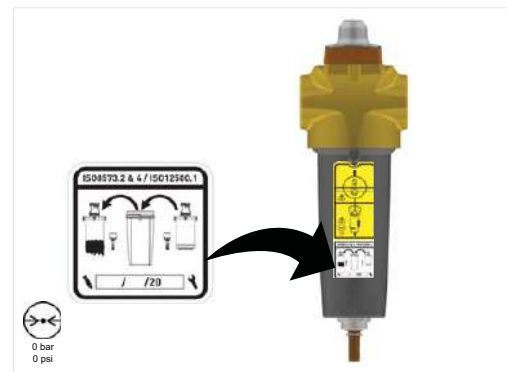
Μην χρησιμοποιείτε διαλύτες ή αλκοόλες για να καθαρίσετε τις ετικέτες, γιατί έτσι μπορεί να προκληθεί ζημιά.

PT Procedimento de Manutenção 7

Prenda a etiqueta com a data de substituição do elemento no corpo do filtro e anote a data em que o elemento deve ser substituído. Por ex.: 12 meses após a substituição do elemento.



Não utilize solventes nem álcool para limpar as etiquetas, pois tal poderá provocar danos.



FI Huoltotoimenpiteet 8

Avaa sisääntuloventtiili (1) hitaasti paineistaaksesi yksikön, avaa hitaasti ulostuloventtiili (2) paineistaaksesi laskuputkiston



Älä avaa tulo- tai lähtöventtiiliä nopeasti tai altista yksikköä liialliselle paine-erolle, sillä yksikkö voi vaurioitua.

SV Underhållsprocedure 8

Öppna långsamt inloppsventilen (1) för att gradvis släppa ut trycket och öppna långsamt utloppsventilen (2) för att släppa ut trycket ur rörledningarna nedströms.



Öppna inte inlopps- eller utloppsventilerna snabbt och utsätt inte enheten för överdrivet differentialtryck, eftersom det kan orsaka skador.

NO Vedlikeholdsprosedyre 8

Åpne inntaksventilen (1) sakte for gradvis å trykksette enheten, og åpne utløpsventilen (2) sakte for å trykksette nedstrømsrørene igjen



Du må ikke åpne inntaks- eller utløpsventilene raskt, eller utsette enheten for høyt differensialtrykk, da dette kan føre til skade.

DA Vedligeholdelsesprocedure 8

Åbn indgangsventilen (1) langsomt for gradvist at sætte enheden under tryk, og åbn udgangsventilen (2) langsomt for at sætte rørene længere fremme under tryk igen..



Åbn ikke indgangs- eller udgangsventiler hurtigt, og udsæt ikke enheden for store trykforskelle, da det kan medføre skader.

EL Διαδικασία συντήρησης 8

Ανοίξτε τη βαλβίδα εισαγωγής (1) αργά, για να ανέβει σταδιακά η πίεση της μονάδας, ανοίξτε αργά τη βαλβίδα εξαγωγής (2) για να ανέβει η πίεση της σωληνώσης κατόπι.



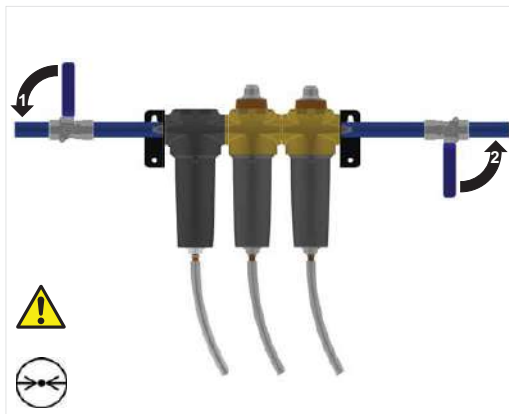
Μην ανοίγετε γρήγορα τις βαλβίδες εισαγωγής ή εξαγωγής και μην υποβάλλετε τη μονάδα σε υπερβολική διαφορική πίεση, διότι μπορεί να προκύψει βλάβη.

PT Procedimento de Manutenção 8

Abra lentamente a válvula de entrada (1) para pressurizar gradualmente a unidade, abra lentamente a válvula de saída (2) para voltar a pressurizar a tubagem a jusante.



Não abra rapidamente as válvulas de entrada ou de saída nem sujeite a unidade a uma pressão diferencial excessiva, caso contrário poderão ocorrer danos.



PL ROCZNA GWARANCJA JAKOŚCI POWIETRZA

Jakość powietrza jest gwarantowana przez okres 1 roku, a gwarancja jest odnawiana po każdej corocznej wymianie wkładu.

Coroczna wymiana wkładu filtra zapewnia:

- Utrzymanie optymalnej wydajności
- Jakość powietrza spełniająca normy międzynarodowe
- Ochronę urządzeń podłączonych za filtrem, osób oraz procesów
- Niski koszt obsługi
- Większą produktywność i zyski
- Brak problemów



SK JEDNOROČNÁ ZÁRUKA KVALITY VZDUCHU

Kvalita vzduchu je zaručená na jeden rok a bude obnovená po každoročnej výmene filtračnej vložky.

Každoročné výmeny filtračných vložiek zabezpečujú:

- zachovanie optimálnej výkonnosti,
- plnenie medzinárodných noriem kvality vzduchu,
- ochranu zariadení v smere prúdenia, personálu a procesov,
- nízke prevádzkové náklady,
- zvýšenú produktivitu a ziskovosť,
- pokoj v duši.

CS ROČNÍ ZÁRUKA KVALITY VZDUCHU

Na kvalitu vzduchu je poskytována záruka 1 rok, která se obnovuje při každoroční výměně filtračního prvku.

Každoroční výmeny filtračního prvku zajišťují:

- Zachování optimálního výkonu
- Trvalé dodržování mezinárodních norem týkajících se kvality vzduchu
- Ochranu zařízení, pracovníků a procesů za filtrem
- Nízké provozní náklady
- vyšší produktivitu a ziskovost
- klid na duši



ET AASTANE GARANTII ÕHU KVALITEEDILE

Teie õhu kvaliteet on garanteeritud aastaks ja pärast iga-aastast filtrielemendi vahetamist algab garantiiperiood uuesti.

Iga-aastane filtrielemendi vahetamine tagab:

- optimaalse jõudluse säilimise;
- õhukvaliteedi jätkuva vastavuse rahvusvahelistele nõuetele;
- allavoolu paiknevate seadmete, töötajate ja protsesside kaitset;
- madalad käituskulud;
- suurema tootlikkuse ja kasumlikkuse;
- meelerahu.

HU EGY ÉV LEVEGŐMINŐSÉG GARANCIA

A levegőminőséget 1 évre garantáljuk, azt a szűrőbetét éves cseréjekor egy évvel meghosszabítjuk.

Az éves szűrőbetét-csere a következő előnyöket biztosítja:

- Optimális teljesítmény fenntartása
- Nemzetközi szabványoknak megfelelő levegőminőség
- A folyamat későbbi pontján elhelyezett eszközök, a dolgozók és a folyamatok védelme
- Alacsony üzemeltetési költségek
- Jobb termelékenység és magasabb profit
- Lelki nyugalom

LV GAISA KVALITĀTES VIENA GADA GARANTIJA

Gaisa kvalitātes garantija ir spēkā 1 gadu, turklāt tiks atjaunota pēc katras ikgadējās filtra elementa maiņas.

Mainot filtra elementu reizi gadā, tiek nodrošināta:

- optimālas veiktspējas uzturēšana,
- gaisa kvalitātes pastāvīga atbilstība starptautiskajiem standartiem,
- aiz filtra pievienotā aprīkojuma, personāla un procesu aizsardzība,
- nelielas ekspluatācijas izmaksas,
- palielināts ražīgums un ienesīgums,
- nav iemesla satraukumam



☞ Przykład kodowania modeli:

Model						
Klasa wkładu filtra	Wkład o wysokiej efektywności energetycznej	Rozmiar modelu	Rozmiar przyłącza	Typ gwintu	Opcja drenażu	Wskaźnik różnicy ciśnienia
WS AO AA ACS	P	3-cyfrowy kod jak poniżej	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Pływak M = Instrukcja	X = Brak I = Wskaźnik kontrolny zdarzeń
AA	P	030	A	G	F	I

☞ Příklad kódování modelu:

Model						
Třída vložky	Přemiová energeticky výkonná vložka	Velikost modelu	Velikost otvoru	Typ závitů	Možnost odtoku	Indikátor DP
WS AO AA ACS	P	3-číselný kód (zobrazený níže)	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Plávající M = Manuální	X = Žádný I = Monitorování událostí
AA	P	030	A	G	F	I

☞ Příklad kódu modelu:

Model						
Stupeň prvku	Prvotřídní energeticky úsporný prvek	Velikost modelu	Velikost hrdla	Typ závitů	Možnost vypouštění	Indikátor diferenčního tlaku
WS AO AA ACS	P	3-číselný kód znázorněný níže	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Plovák M = Ruční	X = Žádný I = Monitor nehody
AA	P	030	A	G	F	I

☞ Mudeli koodi näide:

Mudel						
Elemendi klass	Premium-tüüpi energiatõhus element	Mudeli suurus	Pordi suurus	Keerme tüüp	Äravoolu variant	DP-indikaator
WS AO AA ACS	P	3-numbriline kood, nagu allpool on näidatud	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Ujuk M = Manuaalne	X = Puudub I = Sündmuse monitor
AA	P	030	A	G	F	I

☞ Példa az egyes modellek kódjelölésére:

Típus						
Betét minőségi osztálya	Prémium energiahatékonyságú elem	Típus mérete	Csatlakozófurat mérete	Menet típusa	Leeresztés módja	Nyomáskülönbőségjelző
WS AO AA ACS	P	Az alább látható 3-jegyű kód	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Úszó M = Kézi	X = Nincs I = Problémafigyelő
AA	P	030	A	G	F	I

☞ Modelja kodu piešķiršanas piemērs

Modelis						
Elementa kategorija	Augstākās klases enerģiju taupošs elements	Modelja izmērs	Pieslēgvietas izmērs	Vītnes veids	Notecināšanas iespēja	DP indikators
WS AO AA ACS	P	Trīsciparu kods, kā redzams tālāk	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Pludīņš M = Manuāls	X = Nevien I = Incidentu uzraudzības ierīce
AA	P	030	A	G	F	I

☞ Dobór produktów

Wymienione przepływy dotyczą pracy przy ciśnieniu 7 bar g (100 psi g) w odniesieniu do temp. 20°C, ciśnienia 1 bar (a) i ciśnienia względnego pary wodnej 0%.

W przypadku przepływów w innych ciśnieniach należy zastosować przedstawione współczynniki korekcji.

☞ Výber produktu

Uvedené prietoky sú pre prevádzku pri tlaku 7 bar g (100 psi g) s referenciou 20°C, 1 bar (a), 0 % relatívny tlak vodnej pary.

V prípade prietokov pri iných tlakoch sa musia uplatňovať uvedené korekčné koeficienty.

☞ Výběr produktu

Uvedené průtoky platí při provozu na 7 bar g (100 psi g) při teplotě 20 °C, 1 bar a, 0 % relativního tlaku vodní páry.

Pro průtoky při jiném tlaku použijte uvedené korekční faktory.

☞ Toote valimine

Toodud voolukiirused on mõeldud töötamiseks võimsusel 7 baari g (100 psi g), kusjuures referentsväärtuseks on 20°C, 1 baari a, 0% suhteline veeauru surve.

Muude survete puhul rakendage näidatud korrigeerimisfaktoreid.

☞ Termékiválasztás

A megadott átfolyási értékek 7 bar g (100 psi g) nyomáson való üzemeltetés esetén, 20°C hőmérsékletnél, 1 bar a és 0% relatív vízpárányomás referenciaértékeken érvényesek.

Más nyomásértékek mellett az átfolyásra alkalmazza a bemutatott korrekciós tényezőket.

☞ Produktu atlase

Noteiktās plūsmas darbībai ar 7 stieniem g (100 psi g) ar norādi 20 °C, 1 stienis (a), 0% relatīvais ūdens tvaika spiediens.

Plūsmām pie citām spiediena vērtībām lietojiet norādītos labošanas faktorusus.

Natężenia przepływu przez separator wody

Prietokové rýchlosti odľučovača vody, Prútokové rychlosti odľučovače vody, Veeseparaatori vooluhulgad, Vízleválasztó átfolyási sebességei, Üdens separatora plüsmas ätruma vërtības

Model	Port Size	L/s	m ³ /min	m ³ /hr	cfm
WS P010A [] [] []	¼	10	0.6	36	21
WS P010B [] [] []	¾	10	0.6	36	21
WS P010C [] [] []	½	10	0.6	36	21
WS P015C [] [] []	½	40	2.4	144	85
WS P020D [] [] []	¾	40	2.4	144	85
WS P025D [] [] []	¾	110	6.6	396	233
WS P025E [] [] []	1	110	6.6	396	233
WS P030G [] [] []	1 ½	110	6.6	396	233
WS P035G [] [] []	1 ½	350	21.0	1260	742
WS P040H [] [] []	2	350	21.0	1260	742
WS P045I [] [] []	2 ½	350	21.0	1260	742
WS P050I [] [] []	2 ½	800	48.0	2880	1695
WS P055J [] [] []	3	800	48.0	2880	1695

CFP — współczynnik korekcji dla minimalnego ciśnienia wlotowego (separator wody)

CFP – korekčný faktor minimálneho tlaku na prívode (odľučovače vody), CFP – korekční faktor, minimální vstupní tlak (odľučovače vody),

CFP – minimaalse sisselaskerõhu parandustegur (veeseparaatorid), CFP - Minímális bemeneti nyomás korrekciós tényezője (vízleválasztók),

CFP — korekcijas faktora minímálais iëplüdes spiediens (üdens separatoris) ,

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232
Correction Factor		4.00	2.63	2.00	1.59	1.33	1.14	1.00	0.94	0.89	0.85	0.82	0.79	0.76	0.73	0.71	0.68

Natężenia przepływu przez filtr

Prietokové rýchlosti filtra, Prútokové rychlosti filtru, Filtri vooluhulgad, Szűrő átfolyási sebességei, Filtra plüsmas ätruma vërtības

Model	Port Size	L/s	m ³ /min	m ³ /hr	cfm	Replacement Element kit	No.
[grade] P010A [] [] []	¼	10	0.6	36	21	P010	[grade] 1
[grade] P010B [] [] []	¾	10	0.6	36	21	P010	[grade] 1
[grade] P010C [] [] []	½	10	0.6	36	21	P010	[grade] 1
[grade] P015C [] [] []	½	20	1.2	72	42	P015	[grade] 1
[grade] P020C [] [] []	¾	30	1.8	108	64	P020	[grade] 1
[grade] P020D [] [] []	¾	30	1.8	108	64	P020	[grade] 1
[grade] P025D [] [] []	¾	60	3.6	216	127	P025	[grade] 1
[grade] P025E [] [] []	1	60	3.6	216	127	P025	[grade] 1
[grade] P030G [] [] []	1 ½	110	6.6	396	233	P030	[grade] 1
[grade] P035G [] [] []	1 ½	160	9.6	576	339	P035	[grade] 1
[grade] P040H [] [] []	2	220	13.2	792	466	P040	[grade] 1
[grade] P045I [] [] []	2 ½	330	19.8	1188	699	P045	[grade] 1
[grade] P050I [] [] []	2 ½	430	25.8	1548	911	P050	[grade] 1
[grade] P055I [] [] []	2 ½	620	37.3	2232	1314	P055	[grade] 1
[grade] P055J [] [] []	3	620	37.3	2232	1314	P055	[grade] 1

[klasa] = klasa

[stupeň] = stupeň

[Třída] = třída

[puhastusaste] = puhastusaste

[osztály] = osztály

[Kategorija] = Kategorija

CFP — współczynnik korekcji dla minimalnego ciśnienia wlotowego (filtry koalescencyjne i suchych cząstek stałych)

CFP – korekčný faktor minimálneho tlaku na prívode (zlučovače a suché časticové filtre), CFP – korekční faktor, minimální vstupní tlak (slučovací filtry a filtry suchých částic), CFP – minimaalse sisselaskerõhu parandustegur (koalescents- ja kuivade osakeste filtrid), CFP - Minimális bemeneti nyomás korrekciós tényezője (Koaleszcens és száraz részecskeszűrők), CFP — korekcijas faktora minimālais ietilpdes spiediens (koalescences filtrs un sauso daļiņu filtrs)

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232	248	263	277	290
Correction Factor		2.65	1.87	1.53	1.32	1.18	1.08	1.00	0.94	0.88	0.84	0.80	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.61	0.59

☞ Dobór produktów i współczynniki korekcji

W celu doboru właściwego modelu filtra lub separatora wody należy skorygować natężenie przepływu przez filtr ze względu na minimalne ciśnienie robocze systemu.

- 1 Uzyskaj informacje na temat minimalnego ciśnienia roboczego i maksymalnego natężenia przepływu sprężonego powietrza na wlocie filtra lub separatora wody.
- 2 Z tabeli CFP wybierz współczynnik korekcji dla minimalnego ciśnienia roboczego (zawsze zaokrąglając w dół — np. dla ciśnienia 5,3 bara użyj współczynnika korekcji dla 5 barów).
- 3 Oblicz minimalną wydajność filtracji. Minimalna wydajność filtracji = natężenie przepływu powietrza sprężonego x CFP
- 4 Na podstawie minimalnej wydajności filtracji wybierz model filtra lub separatora wody z tabeli natężenia przepływu powyżej (wybrany filtr lub separator wody musi charakteryzować się natężeniem przepływu większym lub równym minimalnej wydajności filtracji).

☞ Výber produktov a korekčné faktory

Pre výber správneho modelu odlučovača vody alebo filtra je potrebné prietokovú rýchlosť filtra prispôbiť minimálnemu prevádzkovému tlaku systému.

- 1 Na prívode odlučovača vody alebo filtra dosiahnite minimálny prevádzkový tlak a maximálnu prietokovú rýchlosť stlačeného vzduchu.
- 2 Z tabuľky CFP vyberte korekčný faktor pre minimálny prevádzkový tlak (vždy zaokrúhľte nadol, napr. v prípade 5,3 bar použite korekčný faktor 5 bar).
- 3 Vypočítajte minimálnu filtračnú kapacitu. Minimálna filtračná kapacita = prietoková rýchlosť stlačeného vzduchu x CFP
- 4 Na základe minimálnej filtračnej kapacity vyberte z hore uvedených tabuliek prietokových rýchlostí vhodný model odlučovača vody alebo filtra (vybratý odlučovač vody alebo filter musí mať prietokovú rýchlosť rovnakú alebo vyššiu ako je minimálna filtračná kapacita).

☞ Výběr produktu a korekční faktory

Ke správnému výběru modelu odlučovače vody nebo filtru je třeba přizpůsobit průtokovou rychlost filtru minimálnímu provoznímu tlaku systému.

- 1 Na vstupu odlučovače vody nebo filtru dosáhněte minimálního provozního tlaku a maximálního průtoku stlačeného vzduchu.
- 2 Podle tabulky faktorů CFP zvolte korekční faktor odpovídající minimálnímu provoznímu tlaku (zaokrouhľte vždy dolů, např. při tlaku 5,3 bar použijte korekční faktor pro tlak 5 bar).
- 3 Vypočítejte minimální filtrační kapacitu. Minimální filtrační kapacita = průtoková rychlost stlačeného vzduchu x CFP
- 4 Na základě minimální filtrační kapacity zvolte model odlučovače vody nebo filtru podle výše uvedených tabulek průtokové rychlosti (vybraný odlučovač vody nebo filtr musí mít průtokovou rychlost stejnou nebo vyšší než minimální filtrační kapacita).

☞ Toote valimine ja parandustegurid

Veeseparaatori või filtri mudeli õigesti valimiseks tuleb filtri vooluhulka reguleerida vastavalt süsteemi minimaalsele töö rõhule.

- 1 Minimaalse töö rõhu ja maksimaalse suruõhu vooluhulga saate veeseparaatori või filtri sisselaskes avalit.
- 2 Valige minimaalse töö rõhu parandustegur CFP-tabelist (alati ümardage allapoole, nt töö rõhu 5,3 bar puhul kasutage töö rõhu 5 bar parandustegurit)
- 3 Arvutage minimaalne filtreerimisvõimsus. Minimaalne filtreerimisvõimsus = suruõhu vooluhulk x CFP
- 4 Kasutades minimaalset filtreerimisvõimsust, valige veeseparaatori või filtri mudel eespool olevatest vooluhulga tabelitest (valitud veeseparaatoril või filtril peab olema vooluhulk, mis on võrdne minimaalse filtreerimisvõimsusega või mis on sellest suurem).

☞ Termékválasztás és korrekciós tényezők

A vízleválasztó- vagy szűrőtípus megfelelő kiválasztásához a szűrő átfolyási sebességét a rendszer minimális üzemi nyomásához kell állítani.

- 1 Határozza meg a vízleválasztó vagy a szűrő bemeneténél érvényes minimális üzemi nyomást és maximális sűrített levegő-átfolyási sebességet.
- 2 A CFP táblázatból válassza ki a minimális üzemi nyomáshoz tartozó korrekciós tényezőt (mindig lefelé kerekítsen, pl.: 5,3 bar esetén 5 bar korrekciós tényezőt használjon)
- 3 Számítsa ki a minimális szűrőképességet. Minimális szűrőképesség = Sűrített levegő átfolyási sebessége x CFP
- 4 A minimális szűrőképesség alapján válasszon egy vízleválasztó- vagy szűrőtípust az átfolyási sebességekkel kapcsolatos fenti táblázatokból (a kiválasztott vízleválasztó vagy szűrő átfolyási sebességének legalább akkorának kell lennie, mint a minimális szűrőképesség).

☞ Izstrādājumu atlase un korekcijas faktori

Lai pareizi atlasītu ūdens separatoru vai filtra modeli, filtra plūsmas ātrums ir jāpielāgo sistēmas minimālajam darba spiedienam.

- 1 Iegūstiet minimālo darba spiedienu un maksimālo saspiesta gaisa plūsmas ātrumu pie ūdens separatora vai filtra ietilpdes.
- 2 Atlasiet korekcijas faktoru minimālajam darba spiedienam no CFP tabulas (vienmēr noapaļojiet uz leju, piemēram, 5,3 bāriem izmantojiet 5 bāru korekcijas faktoru)
- 3 Aprēķiniet minimālo filtrācijas kapacitāti. Minimālā filtrācijas kapacitāte = saspiesta gaisa plūsmas ātrums x CFP
- 4 Izmantojot minimālo filtrācijas kapacitāti, atlasiet ūdens separatora vai filtra modeli no iepriekš dotajām plūsmas ātruma tabulām (atlasītajam ūdens separatoram vai filtram ir jābūt tādām plūsmas ātrumam, kas vienāds ar minimālo filtrācijas ātrumu vai lielāks par to).

Parametry techniczne

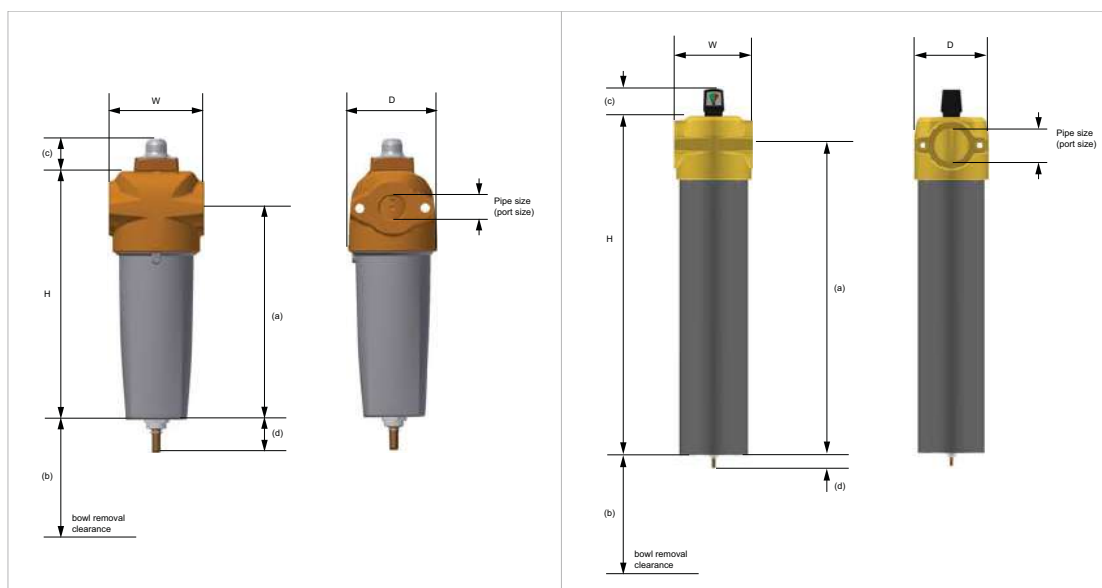
Technické údaje, Technické údaje, Tehniline teave, Műszaki adatok, Tehniskie dati

Model	Filter Models								Min Operating Pressure		Max Operating Pressure		Min Recommended Operating Temp		Max Recommended Operating Temp				
									bar g	psi g	bar g	psi g	°C	°F	°C	°F			
WS	P010	[]	[]	F	[]	-	035	[]	[]	F	[]	1	15	16	232	2	35	80	176
AO	P010	[]	[]	F	[]	-	035	[]	[]	F	[]	1	15	16	232	2	35	80	176
AO	P010	[]	[]	M	[]	-	035	[]	[]	M	[]	1	15	20	290	2	35	100	212
AA	P010	[]	[]	F	[]	-	035	[]	[]	F	[]	1	15	16	232	2	35	80	176
AA	P010	[]	[]	M	[]	-	035	[]	[]	M	[]	1	15	20	290	2	35	100	212
ACS	P010	[]	[]	M	[]	-	035	[]	[]	M	[]	1	15	20	290	2	35	50	122

Note: AO / AA / WS grade filters for use up to 16 bar g (232 psi g) are supplied with a float drain [F] as standard. For pressures between 16 and 20 bar g (232 and 290 psi g) a manual drain [M] must be used. ACS grade filters are supplied with a manual drain [M] as standard.

Masy i wymiary

Hmotnosti a rozmery, Hmotnosti a rozměry, Massid ja mõõtmed, Tömeg- és méretadatok, Svarts un izmēri



Model	Pipe Size	Height (H)		Width (W)		Depth (D)		(a)		(b)		(c)		(d)		Weight	
		mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	kg	lbs
WS / P010A	¼"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010B	⅜"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010C	½"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P015C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.16	2.55
P020C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P020D	¾"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P025D	¾"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P025E	1"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P030G	1 ½"	367	14.45	120	4.72	114.5	4.5	323	12.7	70	2.76	32	1.3	38	1.5	2.68	5.91
WS / P035G	1 ½"	531	20.9	164	6.46	156	6.10	384	15.1	100	3.94	68	2.68	38	1.5	6.90	15.20
WS / P040H	2	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.30	16.10
WS / P045I	2 ½	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.10	15.65
WS / P050I	2 ½	745	29.3	192	7.56	183	7.20	587	23.1	120	4.72	68	2.68	38	1.5	10.30	22.71
P055I	2 ½	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73
WS / P055J	3	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73

Note: Water Separators do not include a DP Indicator, use dimension H + d for the total height.

PL Zalecenia dotyczące instalacji

Zalecane jest oczyszczenie sprężonego powietrza przed punktami wlotowymi systemu rozprowadzania, jak też w głównych punktach stosowania.

Instalowanie osuszacza sprężonego powietrza w wilgotnym układzie może prowadzić do gromadzenia się dodatkowych zanieczyszczeń w punktach stosowania filtrów do czasu osuszenia układu rozprowadzającego. W tym czasie może być konieczna częstsza wymiana wkładów filtrów.

W instalacjach, w których stosuje się sprężarki bezolejowe, aerozol wodny i cząsteczki zanieczyszczeń nadal będą występować; należy wtedy nadal używać filtrów uniwersalnych i wysokowydajnych.

Filtr uniwersalny powinien być zawsze instalowany w celu ochrony filtra wysokowydajnego przed większymi ilościami aerozoli cieczy i cząstkami stałymi.

Sprzęt oczyszczający należy zainstalować w najniższej temperaturze powyżej temperatury krzepnięcia, najlepiej za chłodnicą końcową i odbiornikami powietrza.

Punkt stosowania sprzętu oczyszczającego powinien znajdować się jak najbliżej miejsca stosowania powietrza.

Sprzęt oczyszczający nie może być instalowany za zaworami szybko otwierającymi i powinien być zabezpieczony przed ewentualnym przepływem wstecznym i innymi warunkami uderzeniowymi.

Przed instalacją należy oczyścić wszystkie przewody rurowe prowadzące do sprzętu oczyszczającego; należy również oczyścić wszystkie przewody rurowe po instalacji sprzętu oczyszczającego i przed podłączeniem do odbiorników końcowych.

Jeżeli do sprzętu oczyszczającego są zamontowane boczniki, należy sprawdzić, czy są do nich zamontowane odpowiednie filtry chroniące przed zanieczyszczeniem systemu w dół kierunku przepływu.

Przewody drenażowe z filtrów koalescencyjnych należy przymocować do separatora skroplin. Jeśli podłączenie przewodów drenażowych bezpośrednio do separatora nie jest możliwe, przewody należy doprowadzić do kolektora skroplin (odpowietrzonego na jednym końcu), a następnie do pojedynczego wlotu separatora skroplin.

Należy zapewnić system drenażu cieczy ze sprzętu oczyszczającego. Zebrana ciecz powinna zostać oczyszczona i usunięta w odpowiedni sposób.

SK Doporučenia týkajúce sa inštalácie

Stlačený vzduch sa odporúča spracúvať pred vstupom do distribučného systému a tiež v kritických používateľských bodoch alebo aplikáciách.

Inštalácia ťlakových vzduchových sušičov do predtým mokrého systému by mohla zapríčiniť ďalšie ukladanie nečistoty pri používaní filtrov počas obdobia, kým distribučný systém vyschne. Filtračné vložky bude potrebné počas tohto obdobia vymieňať častejšie.

Pri inštaláciách, kde sa používajú bezolejové kompresory, je stále prítomný vodný aerosól a častice, a preto by sa stále mali používať univerzálne a vysokoúčinné stupne.

Vždy musí byť nainštalovaný univerzálny filter, ktorý má chrániť vysokoúčinný filter pred voľne loženými aerosólmi a pevnými časticami.

Čistiace zariadenie inštalujte pri čo najnižšej teplote nad bodom mrazu, najlepšie v smere prúdenia chladivého vzduchu a prijímačov vzduchu.

Bod použitia čistiaceho zariadenia by mal byť nainštalovaný čo najbližšie k aplikácii.

Čistiace zariadenie by sa nemalo inštalovať v smere prúdenia rýchlootváracích ventilov a malo by byť chránené pred možným opačným prúdením alebo pred inými nepriaznivými podmienkami.

Pred inštaláciou vyčistíte všetky potrubia vedúce k čistiacemu zariadeniu a po nainštalovaní čistiaceho zariadenia a pred pripojením ku koncovkej aplikácii vyčistíte všetky potrubia.

Ak sú okolo čistiaceho zariadenia nainštalované obtokové trubicе, zabezpečte, aby bola do obtokových trubic nainštalovaná primeraná filtračia, aby sa zabránilo znečisteniu systému v smere prúdenia.

Odtokové trubicе z koalescenčných filtrov nasadte priamo na separátor kondenzátu. Ak nie je možné pripojiť odtokové trubicе priamo na separátor, mali by sa odventilovať do zberného potrubia kondenzátu (na jednom konci) a potom do jedného ventilu separátora kondenzátu.

Zabezpečte príslušenstvo na odvádzanie nahromadenej kvapaliny z čistiaceho zariadenia. Pri zaobchádzaní s nahromadenou kvapalinou a jej likvidácii je potrebné postupovať zodpovedným spôsobom.

CS Doporučení k instalaci

Před připojením do rozvodného systému a v kritických místech použití / v přívodech doporučujeme stlačený vzduch upravit.

Instalace vysoušečů stlačeného vzduchu do vlhkého systému může vést k nanesení dalších nečistot do filtrů po dobu vysoušení rozvodného systému. Během této doby může být potřeba častější výměna filtračních prvků.

V instalacích, kde se využívají bezolejové kompresory, je vodní aerosol a jeho částice stále přítomen. Přesto je stále třeba použít všeobecné využitelné filtry s vysokým stupněm účinnosti.

Všeobecné využitelný filtr musí být vždy instalován tak, aby chránil vysoce účinný filtr před velkým objemem kapalinových aerosolů a pevnými částicemi.

Čistící zařízení instalujte při nejnižší teplotě nad bodem mrazu, nejlépe ve směru dochlazovače a zásobníku vzduchu.

Čistící zařízení v místě použití by mělo být instalováno co nejlépe k přívodu.

Čistící zařízení by nemělo být instalováno ve směru rychlootváracích ventilů a mělo by být chráněno před případným zpětným průtokem či jinými podobnými situacemi.

Před instalací vyčistíte veškeré potrubí vedoucí k čistícímu zařízení. Čistění veškerého potrubí opakujte po instalaci a před připojením zařízení k poslednímu přívodu.

Pokud jsou kolem čistícího zařízení umístěna obtoková potrubí, zkontrolujte, zda je filtrace upevněna k obtokovému potrubí, aby nedošlo ke kontaminaci ve směru systému.

Odtoková potrubí upevněte od koalescenčních filtrů přímo k oddělovači kondenzátu. Pokud není možné připojit odtoková potrubí přímo k oddělovači, měli byste potrubí odvětrat do potrubí kondenzátu (odvětrávaného na jednom konci) a pak do jediné vstupní oddělovače kondenzátu.

Opatřete si vybavení pro odvod nahromaděné kapaliny z čistícího zařízení. S nahromadenou kapalinou je nutné zacházet odpovědným způsobem a stejným způsobem ji také likvidovat.

ET Paigaldussoovitused

Suruõhku on soovitatav töödelda enne jaotussüsteemi sisenemist, samuti enne kriitilisi kasutuspunkte/rakendusi.

Suruõhukuiivate paigaldamine eelnevalt märga süsteemi võib põhjustada saasta täiendava kogunemise kasutuspunktide filtrites ajavahemikul, mil jaotussüsteem kuivab. Sel ajal võib osutada vajalikuks filterelementide sagedasem vahetamine.

Seadmetes, kus kasutatakse õlivabu kompressoreid, on vesiaerosool ja mikroosakesed siiski olemas, mis nõuavad ikkagi üldotstarbeliste ja kõrgtootlike klasside kasutamist. Üldotstarbeline filter peab olema alati paigaldatud, et kaitsa kõrgtootlikku filtrit vedelaine aerosoolide ja tahkete osakeste eest.

Puhastusseadmed paigaldage kõige madalama temperatuuriga kohtadesse, enne hangumispunkti, eelistatavalt väljavoolule järelejähtust ja õhuressiiveritest.

Puhastusseadme kasutuspunkt peaks asuma rakenduskohtale võimalikult lähedal.

Puhastusseadet ei tohiks paigaldada kiiresti avanevatest ventiilidest allavoolu ning seade peaks olema kaitstud võimaliku tagasivoolu või muude löökkoormuste eest.

Kogu puhastusseadmeni viiv torustik tuleb enne puhastusseadme paigaldamist läbi puhuda, samuti pärast seadme paigaldamist ning enne selle ühendamist lõpliku rakenduskohtaga.

Kui puhastusseade varustatakse möödavooluliniga, tuleb tagada selle vastav filtreerimine, hoidmaks ära väljavoolusüsteemi saastumist.

Ühendage kogumisfiltrite äravooluliinid otse kondensaadi separaatoriga. Kui äravooluline ei ole võimalik otse separaatoriga ühendada, tuleks liinid ventileerida kondensaadikollektorisse (ühest otsast ventileeritud) ja seejärel kondensaadi separaatori ühisesse sisselaskeavasse.

Puhastusseadme sinna kogunenud vedeliku välja laskmiseks varustage see kraaniga. Kogunenud vedelikku tuleb käidelda ja utiliseerida ettenähtud viisil.

HU Üzeme helyezési javaslatok

Javasoljuk, hogy az elosztórendszerbe, valamint a kritikus felhasználási pontokhoz/alkalmazásokhoz is kezeljék sűrített levegőt biztonságosan.

A sűrített levegős szűrők korábban nedves rendszerre telepítése járulékos szennyezései terhelést jelenthet a szűrő használatának kezdetétől számítva a szállítórendszer kizáróadásáig terjedő időtartamig. Ezen időszak alatt esetleg gyakrabban kell cserélni a szűrőbetéteket.

Olajmentes kompresszorokat tartalmazó összeállítások esetén vízpermet és (szilárd) részecskék jelenléte mellett általános rendeltetésű és nagy hatékonyságú fokozatokat is kell használni.

Az általános rendeltetésű szűrőt a nagy hatékonyságú szűrő nagy mennyiségű folyadék- aeroszollal és szilárd részecskékkel való védelme érdekében mindig használni kell.

A tisztítóberendezést telepítse a fagyponthoz felelő legalacsonyabb hőmérsékletű helyre, lehetőleg az utóhűtők és levegő beömlők utáni vezetékcsatlakozásra.

A használat helyéhez tervezett tisztítóberendezést helyezze el a lehető legközelebb az alkalmazáshoz.

A tisztítóberendezések nem telepíthetők a gyorsnyitással szelepek elmenő oldalára, azokat meg kell védeni az esetleges ellenáramlástól és más hirtelen behatásoktól.

A telepítés előtt fúvasson át minden, a tisztítóberendezéshöz vezető csövezetékét, a telepítés után és az alkalmazás végső beállítás előtt pedig még egyszer fúvassa át az összes csövezetékét.

Ha a tisztítóberendezés körül megkerülő csövezetékek találhatók, a rendszer elmenő oldal elszennyeződésének megelőzése érdekében gondoskodjon a kerülővezetéseken megfelelő szűrésről.

Illessze a koaleszcenciás szűrő leeresztő vezetékét közvetlenül a kondenzát-levélasztóra. Ha a leeresztő vezeték nem lehet közvetlenül a levélasztóra csatlakoztatni, akkor a vezetékkel a kondenzát elosztócsőnél kell levegővel szellőztetni (egyébként vegyél), majd azt a kondenzát-levélasztó önálló bemenetéhez kell csatlakoztatni.

A tisztítóberendezés leürítésénél gondoskodjon az összegyűlt folyadék megfelelő elszállításáról. Az összegyűjtött folyadékot kezelje és selejtezze le környezetbarát módon.

LV Ieteikumi uzstādīšana

Ieteicams saspiegt gaisu apstrādāt pirms ievadīšanas sadales sistēmā un arī izšķirošajos lietošanas punktos / lietojumos.

Uzstādot saspiegtā gaisa žvētāju uz sistēmas, kas pirms tam bijusi mitra, filtrus, kas uzstādīti lietošanas vietā, laikā, kamēr sadalīšanas sistēma izžūst, attiecīgi var sakrāties neīrūmi. Filtra elementi, iespējams, šajā laikā jāmaina daudz biežāk.

Ja uzstādījat, kur izmantoti saspiegti bez eļļas, joprojām atrodas ūdens aerosols un daļiņas, joprojām jāpiemēro vispārējā nolūka un augstas produktivitātes kritēriji.

Vienmēr jābūt uzstādītam vispārējā nolūka filtram, lai augstas produktivitātes filtrs būtu pasargāts no šķidruma balonu aerosoliem un cietām daļiņām.

Uzstādot attīrīšanas iekārtu viszemākajā temperatūrā vīrs sasaldēšanas punkta, vislabāk aiz pēdējsējājiem un gaisa uztvērējiem.

Attīrīšanas iekārtas lietošanas punktam jābūt uzstādītam pēc iespējas tuvu lietojumam.

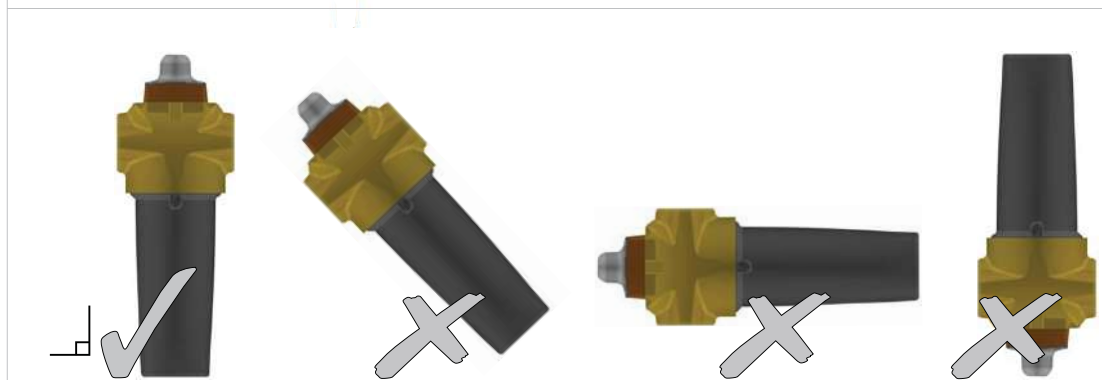
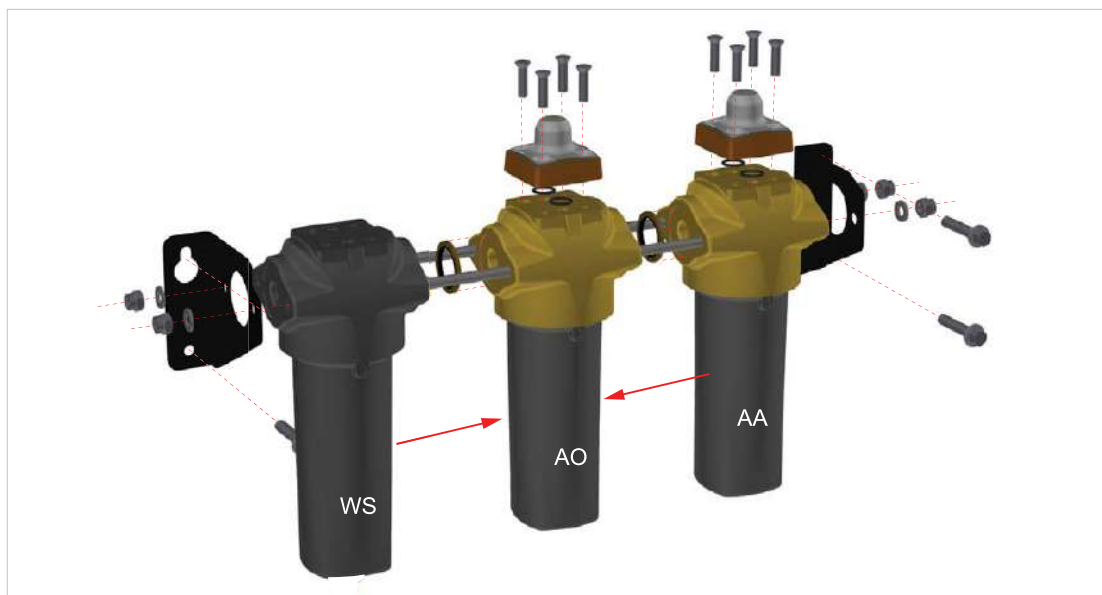
Attīrīšanas iekārtu nedrīkst uzstādīt aiz ātrās atveres vārstiem, un tā ir jāaizsargā no atpūšamas pretplūsmas vai cietiem triecienu apstākļiem.

Pirms uzstādīšanas izīrīriet visas caurules, kas virzītas uz attīrīšanas iekārtu; izīrīriet tās vērtreiz pēc attīrīšanas iekārtas uzstādīšanas, kā arī pirms pievienošanas pēdējam lietojumam.

Ja ap attīrīšanas iekārtu ir uzstādītas apvadlīnijas, nodrošiniet, ka apvadlīnijas ir aprīkotas ar piemērotu filtru, lai nepiesārņotu tālāk esošo sistēmu.

Uzstādot novadcaurules, kas ved no koalescējošajiem filtriem tieši līdz kondensāta atdalītājam. Ja novadcaurules nav iespējams savienot tieši ar separatoru, tās jāzavda kondensāta kolektorā (ar izveidotu vienā galā) un pēc tam vienā kondensāta separaatora ielūdes vietā.

Apģādājiet attīrīšanas iekārtu ar ierīci, ar ko no tās iztecina uzkrāto šķidrumu. Savāktais šķidrums jāapstrādā un no tā jāatbrīvojas atbilstoši veidā.



- Ⓐ Dolna plyta zamykajúca môže porušať sa, gdy filtr nie jest pod ciśnieniem.

Warning Dolna plyta zamykajúca nie jest elementem przeznaczonym do serwisowania, dlatego nigdy nie należy jej demontować.
- Ⓒ Spodný doskový uzáver sa môže hýbať, keď filter nie je pod tlakom.

Warning Spodný doskový uzáver nie je opraviteľnou časťou a nikdy sa nesmie odmontovať.
- Ⓒ Dolní uzavírací deska se může dát do pohybu, pokud filtr není natlakován

Warning Dolní uzavírací deska je neopravitelná položka a nikdy by se neměla demontovat.
- Ⓔ Alumine sulgurplaat võib liikuda, kui filter on survestamata.

Warning Alumist sulgurplati ei saa hooldada ja seda ei tohi kunagi eemaldada.
- Ⓔ Az alsó zárólemez elmozdulhat, ha a szűrőt nem helyezi nyomás alá.

Warning Az alsó zárólemez nem javítható, azt tilos elmozdítani.
- Ⓔ Ja filtrā nav paaugstināta spiediena, apakšējā noslēgplāksne var kustēties

Warning Apakšējā noslēgplāksne ir detaļa, kam nav nepieciešama apkope, un to nedrīkst noņemt.

PL Uruchomienie i eksploatacja


Przed zwiększeniem ciśnienia w filtrze należy się upewnić, że głowica oraz obudowa są prawidłowo zamontowane, a elementy blokujące są prawidłowo ustawione, jak pokazano w sekcji dotyczącej konserwacji (procedura konserwacji 6) w niniejszym podręczniku.

1. Powoli otwórz zawór wlotowy, aby stopniowo zwiększyć ciśnienie w urządzeniu.
2. Powoli otwórz zawór wylotowy, aby zwiększyć ciśnienie w dalszej części instalacji.

Nie wolno szybko otwierać zaworów wlotowych ani wylotowych, ponieważ może to doprowadzić do zbyt dużej różnicy ciśnień w urządzeniu i do jego uszkodzenia.

SK Spustenie a prevádzka


Pred natlakovaním filtra sa uistite, že hlavica a teleso sú nasadené správne a zaisťovacia súčiastka je správne zarovnaná, ako je zobrazené v časti o údržbe (postup údržby 6) tejto príručky.

1. Pomalým otvorením prírodného ventilu postupne natlakujte jednotku.
2. Pomalým otvorením vývodného ventilu opätovne natlakujte potrubie v smere prúdenia.

Prírodný ani vývodný ventil neotvárajte rýchlo ani nevystavujte jednotku nadmernému rozdielu tlaku, inak môže dôjsť k poškodeniu.

CS Spuštění a provoz


Než natlakujete filtr, zkontrolujte, zda je hlavice a baňka řádně nasazena a že pojistný detail je správně zarovnan v souladu s ustanoveními oddílu údržby (postup údržby č. 6) v tomto návodu.

1. Pomalým otevřením přírodního ventilu jednotku pozvolna natlakujte.
2. Pomalým otevřením výstupního ventilu znovu natlakujte potrubí ve směru rozvodu.

Přírodní ani výstupní ventily neotvírejte rychle, ani jednotku nevystavujte nadměrným rozdílu tlaku, v opačném případě může dojít k poškození.

ET Käikulaskmine ja käitamine


Enne filtri survestamist veenduge, et kate ja nõu on õigesti paigaldatud ning lukustusdetaili õigesti joondatud, nagu on näidatud käesoleva juhendi hooldusjaotises (hooldustoiming nr 6).

1. Üksuse järkjärguliseks survestamiseks avage sisselaskeventiil aeglaselt.
2. Avage väljalaskeventiil aeglaselt surve taastamiseks väljavoolutorustikus.

Sisselaske- ja väljalaskeventiile ei tohi avada kiiresti ega põhjustada üksuses liiga suurt survelangu, mis võib seda kahjustada.

HU Beindítás és üzemeltetés


A szűrő nyomás alá helyezése előtt győződjön meg arról, hogy a szűrőedény és a szűrőfej megfelelően van felszerelve, és a zárószerszék megfelelően igazodik - a kézikönyv karbantartási fejezetében látható módon (6-os karbantartási eljárás).

1. Az egység fokozatosan történő nyomás alá helyezéséhez a bemenő szelepet lassan nyissa meg.
2. Az elvezető csővezeték nyomásának visszaállításához lassan nyissa meg az elvezető szelepet.

A berendezés károsodásának elkerülése érdekében ne nyissa meg túl gyorsan a bemenő vagy az elvezető szelepet, és ne tegye ki az egységet nagy nyomáskülönbségnek.

LV Darbības uzsākšana un darbība


Pirms spiediena paaugstināšanas filtrā pārlicinieties, vai filtra galva un korpuss ir uzstādīts pareizi un vai fiksēšanas atzīmes atrodas viena pret otru, kā parādīts šīs rokasgrāmatas apkopes sadaļā (6. apkopes procedūra).

1. Lēni atveriet ieplūdes vārstu, lai iekārtā pakāpeniski paaugstinātu spiedienu.
2. Lēni atveriet izplūdes vārstu, lai atkal paaugstinātu spiedienu aiz iekārtas esošajās caurulēs.

Neatveriet ieplūdes vai izplūdes vārstus strauji un nepakļaujiet iekārtu pārmērīgai spiedienam starpībai, citādi var radīt bojājumus.

Akcesoria / części zamienne (zestawy serwisowe)
Prislušenstvo / náhradné diely (servisné súpravy), Příslušenství / Náhradní díly (Servisní sady), Tarvikud / varuosad (teeninduskomplektid),
Tartozékok / cserealkatrész lista (szervizkészletek), Piederumi / rezerves dajas (apkopes komplekti)

Filter Models	Catalogue Number	Contents
010	TRK1-2	
015 - 020	TRK2-2	
025 - 030	TRK3-2	
035 - 045	TRK4-2	
050 - 055	TRK5-2	
010	MBK1-1	
015 - 020	MBK2-1	
025 - 030	MBK3-1	
035 - 045	MBK4-1	
050 - 055	MBK5-1	
010	MBK1-2	
015 - 020	MBK2-2	
025 - 030	MBK3-2	
035 - 045	MBK4-2	
050 - 055	MBK5-2	
010 - 055	EM1	
010 - 055	PD15NO	
010 - 030	DPI-K	
035 - 055	ZD90GL	

Konserwacja

Üdržba, Udržba, Hooldamine, Karbantartás, Tehniskä apkove

PL Częstotliwość konserwacji

W celu zapewnienia optymalnego działania filtra należy co 12 miesięcy wymieniać wkłady filtra klasy AO, AA, oraz dren automatyczny. Skuteczność działania wkładu ACS jest oparta na maksymalnym stężeniu oparów oleju wynoszącym 0,018mg/m³. W przypadku wykrycia oparów, zapachu lub smaku wymieniać wkład węglowy filtra.

W przeciwieństwie do filtrów usuwających aerozol olejowy, które są wymieniane co roku w celu zagwarantowania odpowiedniej jakości sprężonego powietrza, trwałość filtra usuwającego opary oleju zależy od różnych czynników; filtr wymaga częstszej wymiany (chyba że stosowany jest filtr OVR o trwałości 6000 godzin).

Czynniki wpływające na trwałość filtrów adsorbujących

Stężenie oparów oleju

Im większe stężenie oparów oleju na wlocie, tym mniejsza trwałość węgla aktywowanego.

Ciekły olej

Filtry adsorbujące są przeznaczone do usuwania oparów oleju i zapachów, a nie ciekłego oleju i aerozoli. Nieprawidłowo konserwowany układ filtracji wstępnej lub jego brak powoduje znaczne zmniejszenie trwałości filtra OVR.

Temperatura

Zawartość oparów oleju rośnie wykładniczo ze wzrostem temperatury na wlocie, co powoduje spadek trwałości wkładu. Ponadto ze wzrostem temperatury spada skuteczność adsorpcji, co powoduje dodatkowe zmniejszenie trwałości wkładu.

Wilgotność względna lub punkt rosy

Wilgotne powietrze zmniejsza zdolność adsorbcyjną węgla.

Wymiany oleju w sprężarce

Po wymianie oleju w sprężarce nowy środek smarny wypala związki organiczne o niskiej masie cząsteczkowej, co powoduje wzrost zawartości oparów oleju na wiele godzin, a nawet tygodni. Ta zwiększona ilość oparów oleju jest pochłaniana przez filtr OVR, co powoduje znaczne zmniejszenie jego trwałości adsorbcyjnej.

SK Intervaly údržby

Na zabezpečenie optimálnej výkonnosti filtra sa výmena vložiek stupňa AO, AA spolu s automatickým výpusťom vyžaduje každých 12 mesiacov.

Výkon prvku ACS je založený na maximálnej vstupnej koncentrácii olejových výparov 0,018 mg/m³. Vymeríte vložku uhlíkového filtra po zaznamenaní výparov, zápachu alebo chuti.

Na rozdiel od filtrov odstraňujúcich olejový aerosól, ktoré sa vymieňajú každý rok z dôvodu zaručenia kvality stlačeného vzduchu, môže byť životnosť filtra odstraňujúceho olejové výpary ovplyvnená rôznymi faktormi, a preto si tento filter vyžaduje častejšiu výmenu (ak sa nepoužíva OVR, ktoré je dimenzované na životnosť 6000 hodín):

Faktory ovplyvňujúce životnosť adsorbčných filtrov

Koncentrácia olejových výparov

Čím vyššia je vstupná koncentrácia olejových výparov, tým rýchlejšie sa kapacita aktivovaného uhlíka spotrebuje.

Objemový olej

Adsorbčné filtre sú navrhnuté na odstraňovanie olejových výparov a zápachov, nie kvapalného oleja alebo aerosólov. Slabá údržba alebo neexistencia predfiltrácie spôsobí, že sa kapacita OVR filtra rýchlo spotrebuje.

Teplota

Obsah olejových výparov sa exponenciálne zvyšuje so vstupnou teplotou, čo znižuje životnosť vložky. Okrem toho pri zvyšovaní teploty sa adsorbčná kapacita znižuje, čo ešte viac znižuje životnosť vložky.

Relatívna vlhkosť alebo rosný bod

Vlhký vzduch znižuje adsorbčnú kapacitu uhlíka.

Výmeny kompresorového oleja

Po výmene kompresorového oleja nové mazivo spáli „lahké častice“, čo zvyšuje obsah olejových výparov na celé nasledujúce hodiny, alebo dokonca týždne. Takýto zvýšený obsah olejových výparov adsorbuje OVR filter, čo však výrazne zníži jeho adsorbčnú životnosť.

CS Intervaly údržby

Chcete-li zaručit optimální výkonnost filtru, je nutné vyměňovat vložky třídy AO, AA společně s automatickým vypouštěním každých 12 měsíců.

Funkčnost vložky ACS je založena na maximální koncentraci vstupujících olejových par 0,018 mg/m³. Při zjištění výparu, zápachu nebo pachuti vyměňte uhlíkovou filtrační vložku.

Na rozdíl od filtrů určených pro odstranění aerosolu, které se pro zajištění kvality stlačeného vzduchu mění každý rok, je životnost filtru pro odstranění olejových par závislá na různých faktorech a vyžaduje častější výměny (pokud se nepoužije OVR s životností 6000 provozních hodin):

Faktory ovlivňující životnost adsorbčních filtrů

Koncentrace olejových par

Čím vyšší je koncentrace olejových par na vstupu, tím rychleji bude vyčerpána kapacita aktivního uhlí.

Olej

Absorbční filtry jsou navrženy tak, aby odstraňovaly olejové páry a zápach, nikoli kapalný olej nebo aerosoly. Špatně udržovaná nebo neexistující předfiltrace způsobí rychlé vyčerpání kapacity filtru OVR.

Teplota

Obsah olejových par se zvyšuje exponenciálně podle teploty vstupu a snižuje životnost vložky. Kromě toho se se zvyšující teplotou snižuje adsorbční kapacita, což rovněž snižuje životnost vložky.

Relativní vlhkosť nebo rosný bod

Mokrý vzduch snižuje adsorbční kapacitu uhlí.

Výměna oleje kompresoru

Když vyměníte olej kompresoru, nové mazivo spaluje „lehké konce“, což zvyšuje obsah olejových par po dobu následujících hodin nebo týdnů. Toto zvýšení obsahu olejových par je absorbováno filtrem OVR, což významně snižuje adsorbčnú životnosť.

ET Hooldusintervallid

Filtri optimaalse jõudluse tagamiseks tuleb AO, AA klassi elemente vahetada iga 12 kuu tagant koos automaatse väljalaskeseadmega.

ACS elemendi jõudlus põhineb maksimaalsel õliaurude kontsentratsioonil 0,018mg/m³. Auru, lõhna või maitse tuvastamise korral vahetage välja söefiltri element.

Erinevalt õliaerosooli eemaldusfiltritest, mida tuleb surnuõhu kvaliteedi tagamiseks vahetada kord aastas, sõltub õliauru eemaldusfiltri tööiga erinevatel teguritel ja seda tuleb vahetada sagedamini (kui ei kasutata OVR-i, mille tööiga on 6000 tundi).

Adsorptsioonifiltri tööiga mõjutavad tegurid

Õliaurude kontsentratsioon

Mida suurem on sisselastava õliauru kontsentratsioon, seda kiiremini saab täis aktiivsõe maht.

Jääköli

Adsorptsioonifiltrid on mõeldud õliaurude ja lõhnade eemaldamiseks, mitte vedela õli või aerosooli eemaldamiseks. Halvasti hooldatud või puuduval eelfiltratsioon põhjustab OVR-filtri mahu kiiret vähenemist.

Temperatuur

Õliaurude maht suureneb eksponentsiaalselt sisend-temperatuuri suhtes, vähendades elemendi tööiga. Lisaks väheneb temperatuuri suurenedes adsorptsioonivõime, vähendades omakorda elemendi tööiga.

Suhteline niiskus või kastepunkt

Niiske õhk vähendab sõe adsorptsioonivõimet.

Kompressorõli vahetus

Kompressorõli vahetamisel põleb ära uue määrdeaine ülejääk, mis suurendab õliaurude mahtu veel tunde või koguni nädalaid hiljem. See õliaurude suurenenud maht adsorbentakse OVR-filtri poolt, mis vähendab oluliselt selle adsorbimisvõimet.

HU Karbantartási gyakoriság

Az optimális szűrési teljesítményhez az AO, AA, osztályú szűrőbetéteket 12 havonta kell cserélni az automatikus leeresztéssel együtt.

Az ACS szűrőbetét megfelelő működésének feltétele a maximum 0,018mg/m³ bemeneti olajgőz-koncentráció. Gőz, szag vagy íz észlelése esetén cserélje ki a szén szűrőbetétet.

A szűrtet levegő minőségének garatalására évente cserélt olajpermet-eltávolító szűrőkkel ellentétben az olajgőz-eltávolító szűrők élettartamát különböző tényezők befolyásolhatják és gyakrabban cserére lehet szükség (kivéve a 6000 üzemóra élettartamra méretezett olajgőz-eltávolító szűrőket).

Az elnyelő szűrők élettartamát befolyásoló tényezők

Az olajgőz koncentrációja

Minél magasabb az olajgőz bemeneti koncentrációja, annál gyorsabban merül ki az aktív szén kapacitása.

Nagy sűrűségű olaj

Az elnyelő szűrők olajgőzök és szagok, nem pedig folyadék halmazállapotú olaj vagy permet eltávolítására szolgálnak. A nem megfelelően karbantartott vagy hiányzó előszűrés az olajgőz-eltávolító szűrők kapacitásának túl gyors kimerüléséhez vezet.

Hőmérséklet

Az olajgőztartalom a bemeneti hőmérséklet növekedésével exponenciálisan nő, csökkentve a szűrőbetétek élettartamát. Ezen kívül a hőmérséklet növekedésével csökken az elnyelőképeség, ami ugyancsak csökkenti a szűrőbetétek élettartamát.

Relatív nedvességtartalom vagy harmatpont

A nedves levegő csökkenti a szén elnyelőképességét.

Olajcserék a kompresszorban

A kompresszor olajának cseréjekor az új kenőanyag mint „előpárlat” kiég, ami órákra, esetleg hetekre is megnöveli az olajgőz-tartalmat. Az olajgőz-tartalom ezen növekményét az olajgőz-eltávolító szűrő nyeli el, amelynek elnyelési élettartama így jelentősen csökken.

LV Apkopes intervāli

Lai nodrošinātu optimālu filtra veiktspēju, ik pēc 12 mēnešiem jānomaina AO, AA, klases elementi un automatiskā novadcaurulīte.

ACS klases elementa veiktspēja ir atkarīga no maksimālās eļļas tvaiku ietilpības koncentrācijas 0,018 mg/m³. Ja tiek konstatēti tvaiki, aromāti vai garša, nomainiet oglekļa filtra elementu.

Pretēji eļļas aerosolu atdāļšanas filtrim, kas tiek mainīti katru gadu, lai nodrošinātu satpīestā gaisa kvalitāti, eļļas tvaiku atdāļšanas filtra kalpošanas laiku var saīsināt ar dažādiem faktoriem, un tas ir jānomaina daudz biežāk (ja vien netiek izmantots OVR, kura kalpošanas laiks ir noteikts 6000 stundām).

Faktori, kas ietekmē adsorbcijas filtru kalpošanas laiku

Eļļas tvaiku koncentrācija

Jo augstāka ietilpības koncentrācija, jo ātrāk beidzas aktīvā oglekļa kapacitāte.

Eļļa lielā apjomā

Adsorbcijas filtri ir paredzēti eļļas tvaiku un aromātu likvidēšanai, nevis šķidrās eļļas vai aerosolu likvidēšanai. Ja priekšfiltrācija ir vāji uzturēta vai tas nav vispār, OVR filtra kapacitāte ātri beidzas.

Temperatūra

Eļļas tvaiku saturs palielinās atbilstoši ietilpības temperatūrai, samazinot elementa kalpošanas laiku. Turklāt, palielinoties temperatūrai, samazinās adsorbcijas kapacitāte, kas arī samazina elementa kalpošanas laiku.

Relatīvais mitrums vai kondensācijas temperatūra

Mitrš gaisš samazina oglekļa adsorbcijas kapacitāti.

Kompresora eļļas maiga

Kad tiek mainīta kompresora eļļa, jaunais eļļošanas materiāls sadedzina vieglās frakcijas, kas palielina eļļas tvaiku saturu uz vairākām stundām vai pat nedēļām. Ar to tiek palielināts eļļas tvaiku saturs, ko adsorbē OVR filtrs, ievērojami samazinot tā adsorbēšanas kapacitāti.

PL Procedura konserwacji 1

Powoli zamknąć zawór wlotowy (1) i wylotowy (2) i obniżyć ciśnienie w filtrze (3) przy użyciu drena.

SK Postup údržby 1

Pomalu zatvorte prívodný (1) a vývodný (2) ventil a vypustite tlak z filtra (3) použitím vypustu.

CS Postup údržby č. 1

Pomalu uzavřete vstupní (1) a výstupní (2) ventily a odtlakujte filtr (3) pomocí vypouštění.

ET Hooldustoiming nr 1

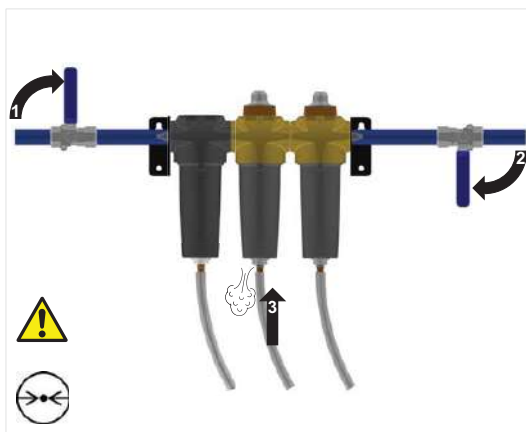
Sulgege aeglaselt sisselaske- (1) ja väljalaskeventiilid (2) ning rõhutustage filter (3) äravoolu abil.

HU 1-es karbantartási eljárás

Lassan zárja el a bemenő (1) és a kimenő (2) szelepeket és nyomásmentesítse a szűrőt (3) a leeresztő segítségével.

LV 1. apkopes procedūra

Lēni aizveriet ieplūdes (1) un izplūdes (2) vārstu un samaziniet spiedienu filtrā (3), izmantojot novadcauruli.



PL Procedura konserwacji 2

Odkręć obudowę filtra (1 i 2) i wyjąć zużyty wkład (3).

SK Postup údržby 2

Odskrutkujte teleso filtra (1 a 2) a vyberte použitú vložku (3).

CS Postup údržby č. 2

Odsróbujte baňku filtru (1 a 2) a sejměte použitý prvek (3)

ET Hooldustoiming nr 2

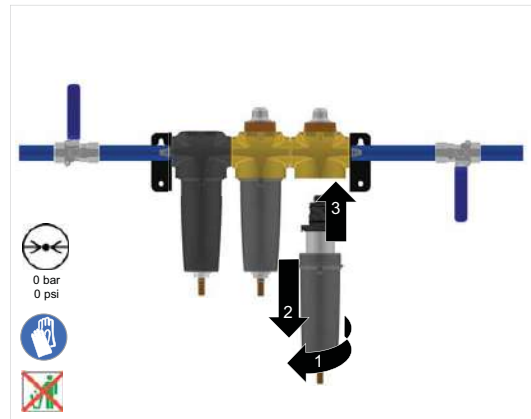
Keerake filtrinõu (1 ja 2) lahti ja eemaldage kasutatud element (3)

HU 2-es karbantartási eljárás

Csavarja le a szűrőedényt (1 és 2) és vegye ki belőle a használt szűrőbetétet (3).

LV 2. apkopes procedūra

Atskrūvējiet filtra korpusu (1 un 2) un izņemiet izlietoto elementu (3).



PL Procedura konserwacji 3

Odkręć dren automatyczny (1) i wyrzucić go (2). Zamontować nowy dren (3) i dokręcić go (4).

SK Postup údržby 3

Odskrutkuje automatický výpust (1) a zlikvidujte ho (2). Nasadte nový výpust (3) a utiahnite (4).

CS Postup údržby č. 3

Odsróbujte automatické vypouštění (1) a zlikvidujte je (2). Nasadte nové vypouštění (3) a utáhněte (4).

ET Hooldustoiming nr 3

Keerake automaatne väljalaskeade (1) lahti ja visake ära (2). Paigaldage uus väljalaskeade (3) ja kinnitage (4).

HU 3-as karbantartási eljárás

Csavarja le azt automatikus leeresztést (1) és selejtezze azt le (2). Helyezze el az új leeresztést (3) és húzza azt meg (4).

LV 3. apkopes procedūra

Noskrūvējiet automātisko novadcauruli (1) un izmetiet to (2). Uzstādiet jauno novadcauruli (3) un pievelciet to (4).



PL Procedura konserwacji 4

Włożyć nowy wkład do obudowy filtra i upewnić się, że występy są prawidłowo ustawione w rowkach.

SK Postup údržby 4

Do telesa filtra vložte novú vložku a uistite sa, že výstupky sú správne nasadené do drážok.

CS Postup údržby č. 4

Zasuňte nový prvek do baňky filtra a zkontrolujte, zda jsou čepy řádně usazeny v drážkách.

ET Hooldustoiming nr 4

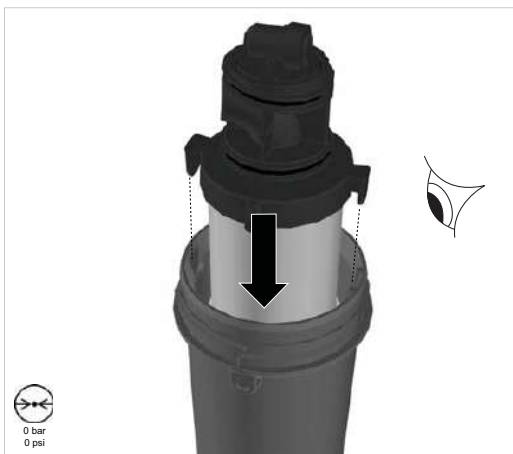
Sisestage uus element filtrinõusse, veendudes, et tugikäpad on õigesti soontes.

HU 4-es karbantartási eljárás

Helyezze az új szűrőbetétet a szűrőedénybe úgy, hogy a fülek jól illeszkedjen a kiképzett hornyokba.

LV 4. apkopes procedūra

Ievietojiet jauno elementu filtra korpusā, nodrošinot, lai izcilņi pareizi iegultu rievās.



PL Procedura konserwacji 5

Wymienić pierścień typu o-ring na głowicy filtra na dostarczony nowy pierścień.



Nasmarować pierścień typu o-ring oraz gwinty odpowiednią wazeliną nie zawierającą kwasów.

SK Postup údržby 5

Tesniaci krúžok umiestnený v hlavici filtra nahraďte novým dodaným tesniacim krúžkom.



Tesniaci krúžok a závitý namažte vhodnou vazelinou neobsahujúcou kyselinu.

CS Postup údržby č. 5

Vyměňte těsnicí kroužek umístěný v hlavici filtru za nový dodaný těsnicí kroužek..



Nezapomeňte těsnicí kroužek a závitý namažat vhodnou vazelinou bez kyseliny.

ET Hooldustoiming nr 5

Asendage filtri kattes olev rõngastihend uue kaasasoleva rõngastihendiga.



Määrige kindlasti rõngastihendit ja keermeid sobiva happevaba vaseliiniga.

HU 5-ös karbantartási eljárás

Cserélje le a szűrőfejben található O-gyűrűt a mellékelt O-gyűrűre.



Ne feledje megkenni az O-gyűrűt és a meneteket arra alkalmas savmentes ásványi olaj zselével.

LV 5. apkopes procedūra

Nomainiet filtra galvā esošo blīvgredzenu ar komplektā iekļauto jauno blīvgredzenu.



Noteikti ieeļojiet blīvgredzenu un vītnes ar piemērotu vazelinu, kas nesatur skābi.



PL Procedura konserwacji 6 (a)

Zamontować obudowę filtra oraz głowicę i upewnić się, że gwinty są całkowicie dokręcone, a elementy blokujące są prawidłowo ustawione.

Uwaga: Upewnij się, że obudowa jest pewnie przymocowana do głowicy — obudowa 0010-030 wymaga obrócenia o 360° do ogranicznika gwintu, a obudowa 035-045 wymaga obrócenia o 720°

SK Postup údržby 6 (a)

Znovu nasadte teleso a hlavici filtra a uistite sa, že závitý úplne zapadli a zaisťovacie súčiastky sú zarovnané.

Poznámka: S cieľom uistiť sa, či teleso úplne zapadlo do hlavice, sa pri telese 010-030 vyžaduje 360° rotácia, kým sa závit nezastaví, a 720° sa vyžaduje pri telese 035-045.

CS Postup údržby č. 6 (a)

Nasadte zpět baňku a hlavici filtru a zkontrolujte, zda jsou závitý řádně zapojeny a pojistné detaily jsou v rovině.

Poznámka: Abyste měli jistotu, že baňka je plně zapojena do hlavice, baňka 010-030 vyžaduje otáčení o 360°, dokud se závit nedotočí, a 720° u baňky 035-045.

ET Hooldustoiming nr 6 (a)

Paigaldage tagasi filtrinõu ja kate neid korralikult lõpuni keerates, nii et lukustusdetailid on kohakuti.

Märkus. Nõu lõpuni kätte külge kinnitamiseks on vaja nõu 010-030 pöörata 360° kuni keermete lõpuni ja 720° nõu 035-045 korral.

HU 6-os karbantartási eljárás (a)

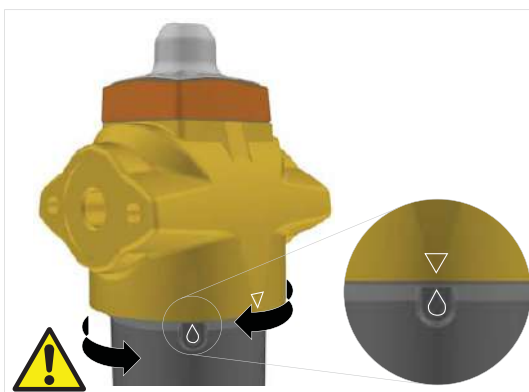
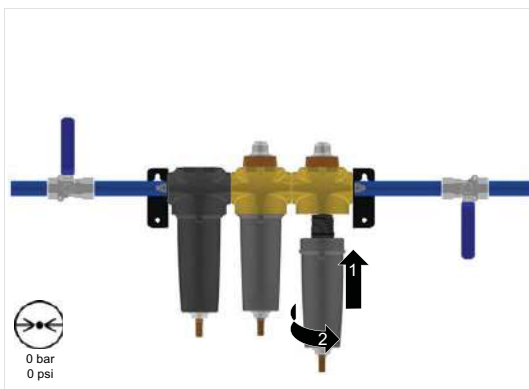
Szerelje vissza a szűrőedényt és a fejet. Győződjön meg a menetek és a záróelemek megfelelő illeszkedéséről.

Megjegyzés: Annak biztosításához, hogy az edény teljesen a fejbe illeszkedjen a 010-030 edényt 360°-ban el kell forgatni, míg a menet el nem fog, ill. a 035-045 edényt 720°-ban.

LV 6. apkopes procedūra (a)

Atkal samontējiet filtra korpusu un galvu, nodrošinot, lai vītņs būtu pilnībā savienotas un fiksēšanas atzīmes atrastos viena pret otru.

Piezīme. Lai nodrošinātu, ka korpusis ir pilnībā ieskrūvēts galvā, korpusis 010-030 jāpagriež par 360°, līdz vītne ir pilnībā izmantota (korpusis 035-045 jāpagriež par 720°).



PL Procedura konserwacji 7

Przymocować etykietę z datą wymiany wkładu do obudowy filtra i zapisać na niej datę kolejnej wymiany wkładu przypadającą 12 miesięcy po ostatniej wymianie



Do czyszczenia etykiet nie należy używać rozpuszczalników ani alkoholu, ponieważ może to spowodować ich uszkodzenie.

SK Postup údržby 7

Na teleso filtra pripojte štítok s dátumom výmeny vložky a napíšte dátum, kedy sa má vložka vymeniť, t. j. 12 mesiacov po výmene vložky..



Na čistenie štítkov nepoužívajte rozpúšťadlá ani alkohol, pretože môže dôjsť k poškodeniu.

CS Postup údržby č. 7

Připevněte štítek s datem výměny prvku k baňce filtru a zapište datum příští výměny prvku, tj. 12 měsíců po výměně prvku



Nečistěte štítky rozpouštědly ani alkoholem, mohlo by dojít k poškození.

ET Hooldustoiming nr 7

Kinnitage elemendi vahetamise kuupäeva silt filtrinõu külge ja kirjutage sellele elemendi asendamise kuupäev (12 kuud pärast elemendi vahetamist).



Ärge puhastage silte piirituse või lahustitega, kuna need võivad silte rikkuda.

HU 7-es karbantartási eljárás

Helyezze el a szűrőbetét-csere dátumát megadó címkét a szűrőedényre, és jegyezze fel a következő csere időpontját; értsd: 12 hónappal a mostani szűrőbetét-csere utáni időpontot..



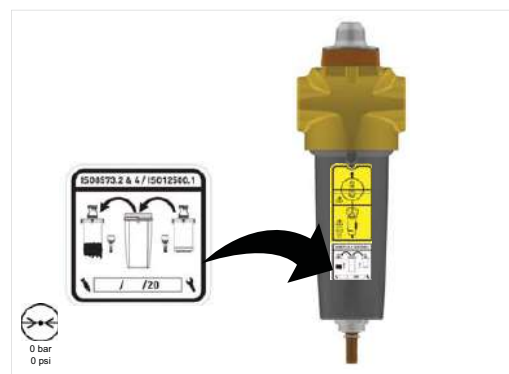
Ne használjon oldószert vagy alkoholt a címkék tisztításához, mert az sérüléseket okozhat.

LV 7. apkopes procedūra

Pie filtra piestipriniet elementa maiņas datuma etiķeti un norādiet tajā nākamās elementa maiņas datumu, t. i., pēc 12 mēnešiem pēc elementa maiņas.



Etiķešu tīrīšanā neizmantojiet šķīdinātājus vai spirtu, jo tā var radīt bojājumus.



PL Procedura konserwacji 8

Powoli otworzyć zawór wlotowy (1), aby stopniowo zwiększyć ciśnienie w urządzeniu, a następnie powoli otworzyć zawór wylotowy (2), aby zwiększyć ciśnienie w dalszej części instalacji.



Nie wolno szybko otwierać zaworów wlotowych ani wylotowych, ponieważ może to doprowadzić do zbyt dużej różnicy ciśnień w urządzeniu i do jego uszkodzenia.

SK Postup údržby 8

Pomalým otvorením prírodného ventilu (1) postupne natlakujte jednotku, pomalým otvorením vývodného ventilu (2) opätovne natlakujte potrubie v smere prúdenia.



Prívodný ani vývodný ventil neotvárajte rýchlo ani nevystavujte jednotku nadmernému rozdielu tlaku, pretože môže dôjsť k poškodeniu.

CS Postup údržby č. 8

Pomalým otevíráním vstupního ventilu (1) jednotku postupně natlakujte, pomalým otevíráním výstupního ventilu (2) znovu natlakujte potrubí ve směru rozvodu.



Prívodní ani výstupní ventily neotvírejte rychle, ani jednotku nevystavujte nadměrným rozdílu tlaku, v opačném případě může dojít k poškození.

ET Hooldustoiming nr 8

Avage aeglaselt sisselaskeventiil (1), et üksus järk-järgult survestada, ning avage aeglaselt väljalaskeventiil (2) surve taastamiseks väljavoolutorustikus..



Sisselaske- ja väljalaskeventiile ei tohi avada kiiresti ega põhjustada üksuses liiga suurt survelangu, mis võib tekitada sellele kahjustusi.

HU 8-as karbantartási eljárás

Az egység fokozatos nyomás alá helyezéséhez a bemenő szelepet (1) nyissa meg lassan, az elvezető csővezeték nyomásának visszaállításához lassan nyissa meg az elvezető szelepet (2)..



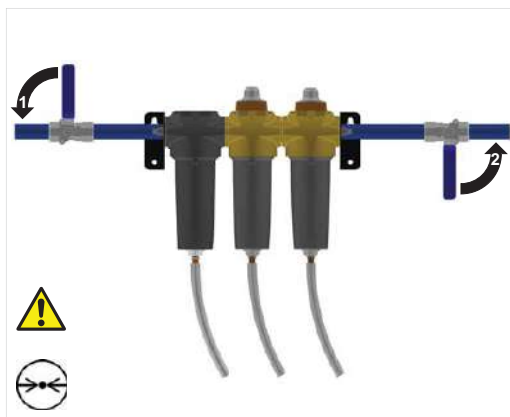
A berendezés károsodásának elkerülése érdekében ne nyissa meg túl gyorsan a bemenő vagy az elmenő szelepet, és ne tegye ki az egységet nagy nyomáskülönbségnek.

LV 8. apkopes procedūra

Lēni atveriet ieplūdes vārstu (1), lai pakāpeniski palielinātu spiedienu iekārtā, lēni atveriet izplūdes vārstu (2), lai atkal paaugstinātu spiedienu aiz iekārtas esošajās caurulēs.



Neatveriet ieplūdes vai izplūdes vārstus strauji un nepakļaujiet iekārtu pārmērīgai spiedienam starpībai, citādi var radīt bojājumus.



LT VIENERIŲ METŲ KOKYBĖS GARANTIJA

Jūsų oro kokybė garantuojama 1 metų laikotarpiu ir bus atnaujinta kasmet pakeitus filtro elementą. Kasmetiniai filtro elemento keitimai užtikrina, kad:

- bus išlaikomos optimalios charakteristikos
- oro kokybė ir toliau atitiks tarplautinius standartus
- bus apsaugoti filtruotoje aplinkoje esantys įrenginiai, darbuotojai ir procesai
- išliks mažos eksploataavimo išlaidos
- padidės produktyvumas ir pelningumas
- sumažės rūpesčiai

RU ГОДОВАЯ ГАРАНТИЯ КАЧЕСТВА ВОЗДУХА

Качество воздуха гарантируется в течение одного года. Эту гарантию можно продлевать ежегодно за счет замены фильтрующего элемента.

Ежегодная замена фильтрующего элемента обеспечивает следующие преимущества.

- Поддержание оптимальных рабочих характеристик.
- Соответствие качества воздуха международным стандартам.
- Защита оборудования, расположенного ниже по потоку, персонала и процессов.
- Снижение эксплуатационных расходов.
- Повышение продуктивности и доходности.
- Уверенность в исправной работе.

SL ENOLETNA GARANCIJA ZA KAKOVOST ZRAKA

Garancija za kakovost zraka velja eno leto in se obnovi pri vsakoletni zamenjavi filtrirnega elementa.

Vsakoletna zamenjava filtrirnega elementa zagotavlja:

- vzdrževanje optimalne učinkovitosti,
- nadaljnjo skladnost kakovosti zraka z mednarodnimi standardi,
- zaščito priključene opreme, osebja in procesov,
- nizke obratovalne stroške,
- zvišano produktivnost in donosnost ter
- brezskrbnost.

TR BİR YIL HAVA KALİTESİ GARANTİSİ

Havanızın kalitesi 1 yıllığına garanti edilmiştir ve garanti, her yıllık filtre öğesi değişikliğinde yenilenecektir.

Yıllık filtre öğesi değişikliği şunları sağlar:

- En iyi performansın devam etmesi sağlanır
- Hava kalitesi uluslararası standartları karşılamaya devam eder
- Aşağı akım ekipmanının, personelin ve süreçlerinin korunması
- Düşük işletim masrafları
- artan verimlilik ve kârlılık
- gönül rahatlığı.

MT GARANZIJA TA' SENA FUQ IL-KWALITÀ TAL-ARJA

Il-kwalità tal-arja tieghek giet iggarantita ghal sena u sejra tiġġedded ma' kull tibdil tal-element tal-filtru kull sena.

Tibdiliet tal-element tal-filtru kull sena jiżguraw:

- Żamma tal-aqwa prestazzjoni
- Il-kwalità tal-arja tibqa' tissodisfa l-istandards internazzjonali
- Il-protezzjoni ta' apparat, persunal u proċessi '1 isfel
- Spejjeż operattivi baxxi
- zieda fil-produttività u fil-profitabilità
- serħan il-moħħ

RO UN AN GARANȚIE A CALITĂȚII AERULUI

Calitatea aerului a fost garantată pentru 1 an și va fi reînnoită la fiecare înlocuire anuală a elementului filtrului.

Înlocuirile anuale ale elementului filtrului asigură:

- menținerea unor performanțe optime
- respectarea continuă a standardelor internaționale referitoare la calitatea aerului
- protecția echipamentului din aval, a personalului și a proceselor
- costuri operaționale scăzute
- productivitate și profitabilitate crescută
- liniște sufletească

BG ЕДНА ГОДИНА ГАРАНЦИЯ ЗА КАЧЕСТВО НА ВЪЗДУХА

Качеството на Вашия въздух е гарантирано за 1 година и ще бъде подновявано с всяка годишна смяна на филтърен елемент.

Годишните смени на филтърен елемент осигуряват:

- Поддържане на оптимална ефективност
- Качеството на въздуха продължава да отговаря на международните стандарти
- Защита на изходните елементи на оборудването, персонала и процесите
- Ниски оперативни разходи
- Увеличена продуктивност и рентабилност
- Душевно спокойствие



☞ Modelio kodavimo pavyzdys:

Modelis						
Elemento klasė	Aukštesniosios klasės energiją taupantis elementas	Modelio dydis	Prievado dydis	Gijų tipas	Išleidimo parinktis	DP indikatorius
WS AO AA ACS	P	3 skaitmenų kodas, kaip parodyta toliau	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Plūdė M = Rankinis	X = Nėra I = Jvykių monitorius
AA	P	030	A	G	F	I

☞ Пример кодировки модели:

Модель						
Марка фильтрующего элемента	Высококачественный энергоэффективный фильтрующий элемент	Размер модели	Размер отверстия	Тип резьбы	Вариант сливного устройства	Индикатор перепада давления
WS AO AA ACS	P	Трёхзначный код, как указано ниже	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Поплавок M = Руководство	X = Нет I = Монитор аварийных сообщений
AA	P	030	A	G	F	I

☞ Primer kodiranja modela:

Model						
Razred elementa	Element energetske učinkovitosti »Premium«	Velikost modela	Velikost odprtine	Tip navoja	Možnost praznjenja	Indikator diferencialnega tlaka
WS AO AA ACS	P	Koda s 3 števками, kot je prikazano spodaj	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Plavajoče M = Ročno	X = Brez I = Monitor pojavitve
AA	P	030	A	G	F	I

Model Kodlama örneği:

Model						
Eleman Sınıfı	Premium Enerji Verimli Eleman	Model Boyutu	Port Boyutu	Diş Tipi	Tahliye Seçeneği	DP Göstergesi
WS AO AA ACS	P	Aşağıdaki gibi 3 basamaklı bir kod	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Şamandıra M = Manuel	X = Yok I = Olay Monitörü
AA	P	030	A	G	F	I

Exempju ta' Kodifikazzjoni tal-Mudell:

Mudell						
Grad ta' Element	Element ta' Effiċjenza ta' Energija Primjum	Daqs tal-Mudell	Daqs tal-Port	Tip ta' Kamin	Opzjoni ta' Drejn	Indikator DP
WS AO AA ACS	P	kodiċi bi 3 ċifri kif muri taht	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Flowt M = Manwali	X = Xejn I = Monitor tal-Inċidenti
AA	P	030	A	G	F	I

Exemplu codificare model:

Model						
Calitate element	Element cu eficiență energetică premium	Dimensiunea modelului	Dimensiunea orificiului	Tip de filet	Opțiune de golire	Indicator de presiune diferențială
WS AO AA ACS	P	Cod din 3 cifre, după cum se arată mai jos	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = Flotant M = Manual	X = Niciunul I = Monitor incident
AA	P	030	A	G	F	I

Пример за кодиране на модел:

Модел						
Клас на елемента	Надежден енергоэффективен елемент	Размер на модела	Размер на порта	Тип с резба	Опция за дрениране	Индикатор за диференциално налягане
WS AO AA ACS	P	3-цифрен код, както е показано по-долу	A = 1/4" B = 3/8" C = 1/2" D = 3/4" E = 1" G = 1 1/2" H = 2" I = 2 1/2" J = 3"	G = BSPP N = NPT	F = С поплавок M = Ръчно	X = Няма I = Монитор за инциденти
AA	P	030	A	G	F	I

LI Gaminio pasirinkimas

Nurodyti srautai skirti veikimui esant 7 barams (100 psi g), kai atskaita 20°C, 1 baras ir 0 % santykinis vandens garų slėgis. Kito slėgio srautams taikykite nurodytus korekcijos veiksnius.

RU Выбор продуктов

Значения расхода определены для работы под давлением 7 бар (100 фунтов на кв. дюйм) при температуре 20 °С, атмосферном давлении 1 бар и относительном давлении водяного пара 0 %.

Для определения расхода при других значениях давления используйте указанные поправочные коэффициенты.

SL Izbira izdelka

Navedeni pretoki so za delovanje pri 7 barg (100 psig) pri 20° C, 1 bar (a), 0% relativni tlak vodne pare.

Za pretoke z drugačnimi tlaki uporabite prikazane korekcijske faktorje.

TR Ürün Seçimi

Belirtilen akışlar, 20°C, 1 bar a, %0 nispi su buharı basıncına referansla 7 bar g'de (100 psi g) işletme içindir.

Diğer basınçlarda akış miktarı için aşağıda verilen düzeltme faktörleri kullanılır.

MT Għażla tal-Prodott

Il-flussi indikati huma għal thaddim ta' 7 bar g (100 psi g) b'referenza ta' 20°C, 1 bar a, 0% pressjoni relattiva tal-fwar ta' ilma.

Għal flussi f'kundizzjonijiet oħrajn, applika l-fatturi ta' korrezzjoni murija.

RO Selecție produs

Valorile indicate ale debitelor sunt destinate operației la 7 bar g (100 psi g) cu referință la 20°C, 1 bar a, 0% presiune relativă a vaporilor de apă.

Pentru debitele aflate la alte presiuni, se aplică factorii de corecție prezentați anterior.

BS Избор на продукт

Посочените потоци са за работа при налягане 7 бара (изм.) (100 фунта на кв. инч (изм.)) при референтна температура от 20°C, 1 бар (атм.), 0% относително налягане на водни пари.

За потоци при други налягания прилагайте показаните коефициенти на корекция.

Vandens separatoriaus debitai

Расход на водяном сепараторе, Nitrosti pretoka izločevalnikov vode, Su Ayrıştırıcısı Akış Hızları, Rati tal-Fluss tas-Separatur tal-Ilma, Debite separator de apă, Дебити на водните сепаратори

Model	Port Size	L/s	m3/min	m3/hr	cfm
WS P010A [] [] []	¼	10	0.6	36	21
WS P010B [] [] []	¾	10	0.6	36	21
WS P010C [] [] []	½	10	0.6	36	21
WS P015C [] [] []	¾	40	2.4	144	85
WS P020D [] [] []	¾	40	2.4	144	85
WS P025D [] [] []	¾	110	6.6	396	233
WS P025E [] [] []	1	110	6.6	396	233
WS P030G [] [] []	1 ½	110	6.6	396	233
WS P035G [] [] []	1 ½	350	21.0	1260	742
WS P040H [] [] []	2	350	21.0	1260	742
WS P045I [] [] []	2 ½	350	21.0	1260	742
WS P050I [] [] []	2 ½	800	48.0	2880	1695
WS P055J [] [] []	3	800	48.0	2880	1695

CFP – mažiausias pataisos koeficientas (angl. Correction Factor Minimum) įleidimo angos slėgiui (vandens separatoriai)

CFP — поправочный коэффициент при минимальном входном давлении (водяные сепараторы), CFP – korekcijski faktor pri minimalnem dovodnem tlaku (izločevalniki vode), CFP – Düzeltme Faktörü Minimum Giriş Basıncı (Su Ayrıştırıcıları), CFP – Pressjoni Minima tal-İzbokk tad-Dhul tal-Fattur ta' Korrezzjoni (Separaturi tal-Ilma), CFP - Factor de corec ie presiune de intrare minimă (Separatoare de apă), CFP - коригирац коефициент, минимално входно налягане (водни сепаратори) ,

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232
Correction Factor		4.00	2.63	2.00	1.59	1.33	1.14	1.00	0.94	0.89	0.85	0.82	0.79	0.76	0.73	0.71	0.68

Filtro debitai

Расход на фильтре, Nitrosti pretoka filtrov, Filtre Akış Hızları, Rati tal-Fluss tal-Filtru, Debite filtru, Дебити на филтрите

Model	Port Size	L/s	m3/min	m3/hr	cfm	Replacement Element kit	No.
[grade] P010A [] [] []	¼	10	0.6	36	21	P010 [grade]	1
[grade] P010B [] [] []	¾	10	0.6	36	21	P010 [grade]	1
[grade] P010C [] [] []	½	10	0.6	36	21	P010 [grade]	1

[grade]	P015C	[]	[]	[]	½	20	1.2	72	42	P015	[grade]	1
[grade]	P020C	[]	[]	[]	½	30	1.8	108	64	P020	[grade]	1
[grade]	P020D	[]	[]	[]	¾	30	1.8	108	64	P020	[grade]	1
[grade]	P025D	[]	[]	[]	¾	60	3.6	216	127	P025	[grade]	1
[grade]	P025E	[]	[]	[]	1	60	3.6	216	127	P025	[grade]	1
[grade]	P030G	[]	[]	[]	1 ½	110	6.6	396	233	P030	[grade]	1
[grade]	P035G	[]	[]	[]	1 ½	160	9.6	576	339	P035	[grade]	1
[grade]	P040H	[]	[]	[]	2	220	13.2	792	466	P040	[grade]	1
[grade]	P045I	[]	[]	[]	2 ½	330	19.8	1188	699	P045	[grade]	1
[grade]	P050I	[]	[]	[]	2 ½	430	25.8	1548	911	P050	[grade]	1
[grade]	P055I	[]	[]	[]	2 ½	620	37.3	2232	1314	P055	[grade]	1
[grade]	P055J	[]	[]	[]	3	620	37.3	2232	1314	P055	[grade]	1

[klase] = klasé
 [klass] = класс
 [razred] = razred
 [derece] = derece
 [grad] = grad
 [grad] = grad
 [razredka] = razredka

CFP – mažiausias pataisos koeficientas (angl. Correction Factor Minimum) įleidimo angos slėgiui (koalescenciniai ir sausų kietųjų dalelių filtrai)

CFP — поправочный коэффициент при минимальном входном давлении (коалесцирующий фильтр и сухой фильтр для улавливания твердых частиц), CFP – korekcijski faktor pri minimalnem dovodnem tlaku (koalescentni filtri in filtri suhih delcev), CFP - Düzeltme Faktörü Minimum Giriş Basıncı (Biriştime ve Kuru Partikül Filtreleri), CFP – Pressjoni Minima taž-žbokk tad-Dhul ta' Fattur ta' Korrezzjoni (Filtri Koalexenti u ta' Frak Xott), CFP - Factor de corec ie presiune de intrare minimă (Filtru de coalescen ă i de particule uscate), CFP - коригирац коэффициент, минимално входно налягане (коалесцираци филтри и сухи филтри за улавяне на частици)

Minimum Inlet Pressure	bar g	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	psi g	15	29	44	58	73	87	100	116	131	145	160	174	189	203	218	232	248	263	277	290
Correction Factor		2.65	1.87	1.53	1.32	1.18	1.08	1.00	0.94	0.88	0.84	0.80	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.61	0.59

13.1 Gaminio atrankos ir korekcijos koeficientai

Norint teisingai pasirinkti vandens separatoriaus arba filtro modelį, filtro debitas turi būti suderintas pagal mažiausią darbinį sistemos slėgį.

- 1 Gaukite mažiausią darbinį slėgį ir didžiausią suspausto oro debitą ties vandens separatoriaus arba filtro įleidimo anga.
- 2 Iš CFP lentelės pasirinkite pataisos koeficientą mažiausiam darbiniam slėgiui (jį visada suapvalinkite, pvz., esant 5,3 barų naudokite 5 barų pataisos koeficientą).
- 3 Apskaičiuokite mažiausią filtravimo talpą. Mažiausia filtravimo talpa = suspausto oro debitas x CFP
- 4 Naudodami mažiausią filtravimo talpą, pasirinkite vandens separatoriaus arba filtro modelį iš anksčiau pateiktų debito lentelių (pasirinkto vandens separatoriaus arba filtro debitas turi būti lygus arba didesnis nei mažiausia filtravimo talpa).

13.2 Выбор изделия и поправочные коэффициенты

Для правильного выбора модели водяного сепаратора или фильтра необходимо отрегулировать расход на фильтре при минимальном рабочем давлении в системе.

- 1 Определите минимальное рабочее давление и максимальный расход сжатого воздуха на входе водяного сепаратора или фильтра.
- 2 Выберите поправочный коэффициент для минимального входного давления из таблицы коэффициентов CFP (всегда округляйте значения, например для 5,3 бар используйте поправочный коэффициент для 5 бар).
- 3 Рассчитайте минимальную фильтрующую способность. Минимальная фильтрующая способность = расход сжатого воздуха x CFP
- 4 Используя минимальную фильтрующую способность, выберите модель водяного сепаратора или фильтра из представленных выше таблиц расхода (выбранный водяной сепаратор или фильтр должен иметь расход, равный или больший минимальной фильтрующей способности).

13.3 Dejavniki za izbiro izdelka in korekcija

Da bi pravilno izbrali model izločevalnika vode ali filtra, morate hitrost pretoka filtra nastaviti na minimalni delovni tlak sistema.

- 1 Ugotovite minimalni delovni tlak in maksimalno hitrost pretoka stisnjenega zraka pri vstopu izločevalnika vode ali filtra.
- 2 Izberite korekcijski faktor za minimalni delovni tlak iz tabele CFP (vedno zaokrožite navzdol, npr. pri 5,3 bara uporabite korekcijski faktor 5 barov)
- 3 Izračunajte minimalno kapaciteto filtriranja. Minimalna kapaciteta filtriranja = hitrost pretoka stisnjenega zraka x CFP
- 4 S pomočjo minimalne kapacitete filtriranja v zgornjih tabelah hitrosti pretokov izberite model izločevalnika vode ali filtra (izbrani izločevalnik vode ali filter mora imeti hitrost pretoka enako ali večjo kot minimalno kapaciteto filtriranja).

13.4 Ürün Seçimi ve Düzeltme Faktörleri

Su Ayrıştırıcısı ve Filtre modelinin doğru seçilebilmesi için filtrenin akış hızının, sistemin minimum çalışma basıncına göre ayarlanması gerekir.

- 1 Su Ayrıştırıcısı veya Filtre'nin girişindeki minimum çalışma basıncı ve maksimum sıkıştırılmış hava akış hız değerlerini öğrenin.
- 2 CFP tablosundan minimum çalışma basıncı için düzeltme faktörünü seçin (her zaman aşağıya yuvarlayın, 5,3 bar için 5 bar düzeltme faktörü gibi)
- 3 Minimum filtrasyon kapasitesini hesaplayın. Minimum Filtrasyon Kapasitesi = Sıkıştırılmış Hava Akış Hızı x CFP
- 4 Minimum filtrasyon kapasitesini kullanarak yukarıdaki akış hızı tablolarından bir Su Ayrıştırıcısı ve Filtre modeli seçin (Seçilen Su Ayrıştırıcısı veya Filtre'nin akış hızı, minimum filtrasyon kapasitesine eşit veya ondan daha fazla olmalıdır).

13.5 Għażla tal-Prodott u Fatturi ta' Korrezzjoni

Bixx tagħżel b' mod korrett Separatur tal-Ilma jew mudell ta' Filtru, ir-rata tal-fluss għandha tiġi aġġustata għall-pressjoni ta' tħaddim minima tas-sistema.

- 1 Ikkalkula l-pressjoni ta' tħaddim minima u r-rata tal-fluss tal-arja kkompessata massima fl-izbokk tad-dhul tas-Separatur tal-Ilma jew Filtru.
- 2 Aghżel il-fattur ta' korrezzjoni għal pressjoni ta' tħaddim minima mit-tabella CFP (dejjem qarreb għal numru sħiħ iżgħar eż. għal 5.3 bar, uża fattur ta' korrezzjoni ta' 5 bar)
- 3 Ikkalkula l-kapaċità tal-filtrazzjoni minima. Kapaċità tal-Filtrazzjoni Minima = Rata tal-Fluss tal-Arja Kkompessata x CFP
- 4 Billi tuża l-kapaċità tal-filtrazzjoni minima, aghżel Separatur tal-Ilma jew mudell ta' Filtru mit-tabelli tar-rata tal-fluss ta' hawn fuq (Separatur tal-Ilma jew Filtru magħżul għandu jkollu rata ta' fluss ugwali jew ikbar mill-kapaċità ta' filtrazzjoni minima).

13.6.1 Selectarea produsului și factori de corecție

Pentru a selecta corect un model de separator sau filtru de apă, debitul filtrului trebuie reglat la presiunea minimă de funcționare a sistemului.

- 1 Obțineți presiunea minimă de funcționare și debitul maxim de aer comprimat la intrarea separatorului sau filtrului de apă.
- 2 Selectați factorul de corecție pentru presiunea minimă de funcționare din tabelul CFP (rotunjiți în întotdeauna, de ex., pentru 5,3 bari, utilizați factorul de corecție 5 bari)
- 3 Calculați capacitatea minimă de filtrare. Capacitatea minimă de filtrare = Debitul de aer comprimat x CFP
- 4 Utilizând capacitatea minimă de filtrare, selectați un model de separator sau filtru de apă din tabelele pentru debit de mai sus (Separatorul sau filtrul de apă selectat trebuie să aibă un debit egal cu sau mai mare decât capacitatea minimă de filtrare).

13.6.2 Избор на продукт и коригиращи коефициенти

За да се направи правилен избор на модел на воден separator или филтър, дебитът на филтъра трябва да бъде съгласуван с минималното работно налягане на системата.

- 1 Проверете минималното работно налягане и максималния дебит на компресиран въздух на входа на водния separator или филтъра.
- 2 Изберете коригиращ коефициент за минималното работно налягане от таблицата с CFP (винаги закръгляйте надолу, напр. за 5,3 bar използвайте коригиращ коефициент за 5 bar)
- 3 Изчислете минималния капацитет на филтрация. Минимален капацитет на филтрация = Дебит на компресиран въздух x CFP
- 4 Като използвате минималния капацитет на филтрация, изберете модел на воден separator или филтър от таблиците за дебити по-горе (избраният воден separator или филтър трябва да има дебит, равен на или по-голям от минималния капацитет на филтрация).

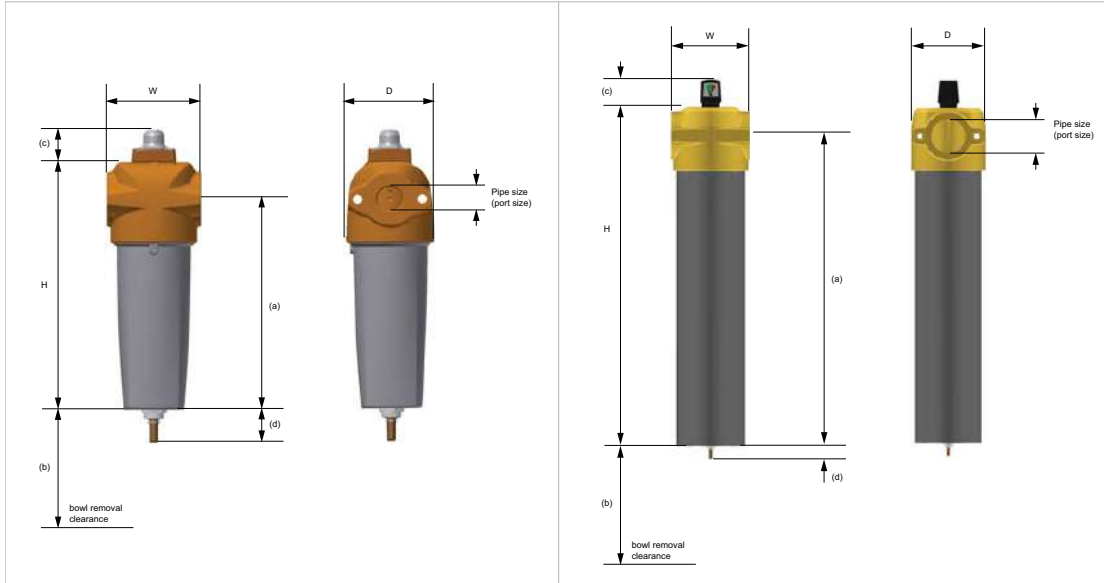
Технически данни

Технические данные, Tehnični podatki, Teknik Veriler, Dejta Teknika, Date tehnice, Технически данни

Model	Filter Models										Min Operating Pressure		Max Operating Pressure		Min Recommended Operating Temp		Max Recommended Operating Temp	
	bar g	psi g	bar g	psi g	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
WS	P010	[] [] F [] - 035	[] [] F []	1	15	16	232	2	35	80	176							
AO	P010	[] [] F [] - 035	[] [] F []	1	15	16	232	2	35	80	176							
AO	P010	[] [] M [] - 035	[] [] M []	1	15	20	290	2	35	100	212							
AA	P010	[] [] F [] - 035	[] [] F []	1	15	16	232	2	35	80	176							
AA	P010	[] [] M [] - 035	[] [] M []	1	15	20	290	2	35	100	212							
ACS	P010	[] [] M [] - 035	[] [] M []	1	15	20	290	2	35	50	122							

Svoris ir matmenys

Вес и габаритные размеры, Teža in mere, Ağırlıklar ve Boyutlar, Pizijiet u Dimenzjonijiet, Greutăți și dimensiuni, Тегло и размери



Model	Pipe Size	Height (H)		Width (W)		Depth (D)		(a)		(b)		(c)		(d)		Weight	
		mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	mm	ins	kg	lbs
WS / P010A	¼"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010B	⅜"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P010C	½"	180	7.09	76	2.99	66	2.60	154	6.1	50	1.97	32	1.3	38	1.5	0.61	1.34
WS / P015C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.16	2.55
P020C	½"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P020D	¾"	238.5	9.36	89	3.5	83.5	3.29	202	8.0	50	1.97	32	1.3	38	1.5	1.12	2.58
WS / P025D	¾"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P025E	1"	227	10.9	120	4.72	114.5	4.5	232	9.1	70	2.76	32	1.3	38	1.5	2.21	4.86
WS / P030G	1 ½"	367	14.45	120	4.72	114.5	4.5	323	12.7	70	2.76	32	1.3	38	1.5	2.68	5.91
WS / P035G	1 ½"	531	20.9	164	6.46	156	6.10	384	15.1	100	3.94	68	2.68	38	1.5	6.90	15.20
WS / P040H	2	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.30	16.10
WS / P045I	2 ½	623	24.5	164	6.46	156	6.10	476	18.7	100	3.94	68	2.68	38	1.5	7.10	15.65
WS / P050I	2 ½	745	29.3	192	7.56	183	7.20	587	23.1	120	4.72	68	2.68	38	1.5	10.30	22.71
P055I	2 ½	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73
WS / P055J	3	935	36.8	192	7.56	183	7.20	772	30.4	120	4.72	68	2.68	38	1.5	15.30	33.73

Note: Water Separators do not include a DP Indicator, use dimension H + d for the total height.

LT Montavimo rekomendacijos

Rekomenduojama suspausta orą apdoroti prieš jam patenkant į skirstymo sistemą ir kritiniuose naudojami taškuose / įrenginiuose.

Suspausto oro džiūvintuvus sumontavus drėgnose sistemose, džiūstant paskirstymo sistemai daugiau nešvarumų kaupiasi taškuose, kuriuose naudojami filtrai. Šiuo laikotarpiu gali reikėti dažniau keisti filtravimo elementus.

[rangoje, kurioje naudojami kompresoriai be alvyvos, vis tiek yra vandens aerosolių ir dalelių, todėl jų reikia naudoti bendrosios paskirties didelio efektyvumo klasių filtrus.

Bendrosios paskirties filtrai visada turi būti įrengti siekiant apsaugoti didelio efektyvumo filtrus nuo suskystų aerosolių ir kietųjų dalelių pagrindinio kiekio poveikio.

Gryninimo įrangą sumontuokite ten, kur yra žemiausia teigiama temperatūra, geriausia – už galinių aušintuvų ir oro surinkimo rezervuaro.

Naudojimo gryninimo įrangos tašką reikia sumontuoti kuo arčiau įrenginio.

Gryninimo įrangos nereikėtų montuoti už greito atidarymo vožtuvų, ją reikia apsaugoti, kad nesudarytų galima atbulinė srovė ar kiti hidrauliniai smūgiai.

Prieš montuodami išvalykite visus į gryninimo įrangą einančius vamzdžius, taip pat išvalykite visus vamzdžius, kai sumontuosite valymo įrangą, prieš prijungdami ją prie galutinio įrenginio.

Jei aplink gryninimo liniją įlaisytos apėjimo linijos, įsitikinkite, jog atitinkami filtrai įtaisyti apėjimo linijoje tam, kad neužstierštų už jų esanti sistemos dalis.

Prijunkite išleidimo linijas nuo sujungiamųjų filtrų tiesiai prie kondensato skyriklio. Jeigu neįmanoma prijungti išleidimo linijų tiesiai prie skyriklio, linijos turi būti nukreiptos į kondensato kolektorį (atviro viename gale), tada į vieną kondensato skyriklio įvadą.

Pasirūpinkite įrangą, kuri išleisti surinktus skysčius iš gryninimo įrangos. Surinktus skysčius reikia linkamai apdoroti ir išmesti.

RU Рекомендации по установке

Перед входом в распределительную систему, а также в критических точках использования / подвода рекомендуется использовать сжатый воздух.

Установка осушителей сжатого воздуха во влажную систему может привести к дополнительному загрязнению фильтрующего элемента, которое накапливается в период высыхания системы. В этот период может потребоваться чаще менять фильтрующие элементы.

В станциях, в которых используются безмасляные компрессоры, присутствуют водные аэрозоли и твердые частицы, следует использовать универсальные и высокоэффективные фильтры.

Для защиты высокоэффективного фильтра от масляных аэрозолей и твердых частиц следует обязательно установить универсальный фильтр.

Устанавливайте очистительное оборудование при низкой температуре, максимально приближенной, но не достигающей температуры замерзания, предпочтительно после добавочных охладителей и воздухоприемников.

Место установки очистительного оборудования должно находиться как можно ближе к подводу.

Очистительное оборудование не должно устанавливаться после быстро открывающихся клапанов, а также должно быть защищено от возможного обратного потока или других условий, создающих ударную нагрузку.

Перед установкой очистите все трубопроводы, ведущие к очистительному оборудованию, а также все трубопроводы, отходящие от очистительного оборудования, до подключения последнего подвода.

Если вокруг очистительного оборудования проложен обводной трубопровод, убедитесь, что к обводному трубопроводу подключена соответствующая фильтрующая система, чтобы предотвратить загрязнение основного потока системы.

Подсоединяйте дренажные трубопроводы из коалесцентных фильтров непосредственно к сепаратору конденсата. Если невозможно подсоединить дренажные трубопроводы непосредственно к сепаратору, необходимо вывести эти трубопроводы в коллектор конденсата (вентилируемый с одной стороны), а затем в один вход сепаратора конденсата.

Установите средства для дренажа жидкости из очистительного оборудования. Собранные жидкости должны быть утилизированы в соответствии с указанными требованиями.

SL Priporočila za namestitve

Sisnjeni zrak je priporočljivo obdelati še pred vstopom v distribucijski sistem in ob odločilnih točkah uporabe.

Namestitvev sušilnikov stisnjeneга zraka na moker sistem lahko povzroči dodatno nalaganje umazanije v filtrih med obdobjem sušenja distribucijskega sistema. Med tem obdobjem bo morda potrebna pogostejša menjava filtrirnih elementov.

Pri namestitvah, kjer so v uporabi kompresorji brez olja in kjer so še vedno prisotni vodni in trdni delci, je treba uporabiti običajne in visoko učinkovite enote.

Za zaščito visoko učinkovitega filtra pred veliko količino vodnih in trdnih delcev mora biti vedno nameščen običajni filter.

Namestite čistilno opremo pri najnižji temperaturi nad zmrziščem, po možnosti za hladilniki polnilnega zraka in sprejemniki zraka.

Čistilna oprema naj bo nameščena kolikor je mogoče blizu mesta uporabe.

Čistilna oprema naj ne bo nameščena za zapornimi ventili in naj bo zaščiten pred morebitnim nasprotnim tokom ali ostalimi neobičajnimi situacijami.

Pred namestitvijo očistite vse cevi, ki vodijo do čistilne opreme, po namestitvi čistilne opreme in pred priključitvijo na zaključeni sistem pa očistite vse cevi.

Če so blizu čistilne opreme predvideni obvodi, zagotovite ustrezno filtriranje teh cevi, da ne pride do kontaminacije priključeneга sistema.

Odločne vode iz razvalnih filtrov priključite neposredno na ločevalnik kondenzata. Če odtočnih vodov ni možno napeljati neposredno v ločevalnik, je treba te vode napeljati v razdelilnik kondenzata (izliv na enem koncu voda) in zatem na posamezni dotok na ločevalniku kondenzata. Zagotovite način za odvajanje zbrane tekočine iz čistilne opreme. Zbrano tekočino je treba ravnanj in jo odstraniti preudarno in odgovorno.

TR Kurulum tavsiyeleri

Sıkıştırılmış havanın dağıtım sistemine girmeden önce ve kritik kullanim noktalarında / uygulamalarda işlemden geçirilmesi tavsiye edilir.

Önceden yağ olan bir sisteme sıkıştırılmış hava kurutucularının kurulması, dağıtım sistemi kurarken kullanılmaması filtrelerin fazladan kir yüklenmesine yol açabilir. Bu süre içinde filtre öğelerinin daha sık değiştirilmesi gerekebilir.

Yağsız kompresörlerin kullandığı kurulumlarda, su spreyi ve zerreçikler yine mevcuttur, bu durumlarda da genel amaçlı ve yüksek etkinlik düzeylerini kullanılmalarıdır.

Yüksek etkinliktli filtreleri hacimli sıvı spreylerden ve kati zerreçiklerden korumak için her zaman genel amaçlı bir filtre takılmalıdır.

Arındırma ekipmanını doğru noktaların üstündeki en düşük ısıda ve tercihen son soğutucuların ve hava depolarının aşağı akım tarafına kurun.

Kullanma noktası arındırma ekipmanı, uygulamanın mümkün olduğu kadar yakınına kurulmalıdır.

Arındırma ekipmanı, çabuk açma valflerinin aşağı akım tarafına kurulmamalı ve ters akım olasılığına ve başka şok koşullarına karşı korunmalıdır.

Arındırma ekipmanına giden tüm borular kurulumdan önce, bütün boruları da arındırma ekipmanı kurulduktan sonra ve son uygulamaya bağlanmadan önce arındırın.

Arındırma ekipmanının çevresine by-pass hatları takılıyorsa, sistemin aşağı akımında kirlenmeyi önlemek için by-pass hattına yeterli filtre donanımının takılması sağlansın.

Birleştirme filtrelerinden gelen süzdürme hatlarını doğrudan yoğunlaşma separatorüne takın. Süzdürme hatlarını doğrudan separatoré bağlamak mümkün değilse, hatları yoğunlaşma manifolduna salınmalı (bir uçtan salınır), ardından da yoğunlaşma separatorünün tek bir girişine salınmalıdır.

Biriken sıvılar arındırma ekipmanından süzülürcek bir tertibat olmasını sağlansın. Biriken sıvılar sorumlu bir şekilde işlenmeli ve atılmalıdır.

MT Rakkomandazzjonijiet għall-Installazzjoni

Nirakkomandaw li l-arja kompressata tiġi trattata qabel ma tidhol fis-sistema ta' distribuzzjoni kif ukoll fil-punti / l-applikazzjonijiet kritiċi ta' l-użu.

L-installazzjoni ta' tagħmir li jinxeff l-arja kompressata fuq sistema li kienet imxarra jista' jirriżulta f'aktar tagħbija ta' hmieg għall-filtri li jintużaw f'punt wieħed, għall-perjodu sakemm is-sistema ta' distribuzzjoni tinxef. L-elementi tal-filtri jista' jkolhom bzonn li jinbidu aktar spiss matul dan il-perjodu.

Għal installazzjonijiet fejn jintużaw kompressuri mingħajr żejt, xorta jkun hemm preżenti ajrusols u partijiet ta' l-imla, għalhekk xorta għandhom jintużaw gradi bi skop ġenerali u b'effiċjenza kbira. Filtru għal skopijiet ġenerali għandu dejjem jiġi installat biex jiproteġi l-filtru ta' effiċjenza kbira mill-volum kbir ta' ajrusols likwidu u partijiet solidi.

Installa tagħmir ta' purifikazzjoni fil-aktar temperatura baxxa possibbli imma b'mod li ma jkun hemm ifriżar, preferibbilment aktar 'l isfel mill-aftercoolers u mir-riċevituri ta' l-arja.

Tagħmir tal-purifikazzjoni fil-punt ta' l-użu għandu jiġi installat kemm jista' jkun qrib tal-post fejn għandu jappjika.

It-tagħmir ta' purifikazzjoni m'għandux jiġi installat aktar 'l isfel mill-valv li jiftu malajr u għandu jkun protett minn possibbiltà ta' fluss bl'ura jew kundizzjonijiet oħra stressanti.

Naddaf il-pajps kollha li jwasslu għat-tagħmir ta' purifikazzjoni qabel installa u l-pajps kollha wara li installa t-tagħmir ta' purifikazzjoni u qabel ma tqabbad ma' l-applikazzjoni finali.

Jeżi tiffittja linja ta' by-pass madwar it-tagħmir ta' purifikazzjoni, kun żgur li hemm biżżejjed filtrazzjoni fil-ftaħta mal-linja tal-by-pass biex ma tħallix li jkun hemm kontaminazzjoni tas-sistema aktar 'l isfel.

Wahhal il-linji tad-drejn mill-filtri koalescenti direttament mas-separatur tal-kondensat. Mhux possibbli li tesabdu l-linji tad-drejniet direttament mal-separatur, il-linji għandu jkolhom vent għall-manifold tal-kondensat (b'vent minn naħa waħda) u mbagħad għal gewwa żbokk wahdieni ta' separatur tal-kondensat.

Ipprova faċilità biex tidrejnja l-likwidu li jinġabru mit-tagħmir tal-purifikazzjoni. Il-likwidu li jinġabru għandhom jiġu trattati u mormija b'mod responsabbli.

RO Recomandări de instalare

Se recomandă ca aerul comprimat să fie tratat anterior pătrunderii în sistemul de distribuție și, de asemenea, în punctele de utilizare/aplicație critice.

Instalarea uscătoarelor cu aer comprimat pe un sistem de tip umed anterior poate avea ca rezultat acumularea suplimentară, pentru o perioadă, de impurități în filtrele de la punctele de utilizare, în timpul uscării sistemului de distribuție. Este posibil ca, pe durata acestor perioade, să fie necesară înlocuirea mai frecventă a elementelor filtrului.

La instalații unde se utilizează compresoare fără ulei, aerosolii de apă și macroparticulele sunt în continuare prezente, deci este necesară utilizarea în continuare a filtrelor de uz general și a celor cu grade de eficiență ridicată.

Un filtru de uz general trebuie instalat întotdeauna, pentru a proteja filtrul de eficiență ridicată de aerosolii lichizi în cantități mari și de macroparticulele solide.

Instalați echipamentul de purificare la cea mai redusă temperatură deasupra punctului de îngheț, preferabil în aval de răcitoarele secundare și de recipientele de aer.

Echipamentul de purificare de la punctul de utilizare trebuie instalat cât mai aproape de aplicația propriu-zisă.

Echipamentul de purificare nu trebuie instalat în aval de supapele cu deschidere rapidă și trebuie protejat de posibili contracurenți sau de alți factori de șoc.

Purtați toate conductele care duc spre echipamentul de purificare înainte de instalare și toate conductele după instalarea echipamentului de purificare și înainte de conectarea la aplicația finală.

Dacă sunt montate conducte de trecere în jurul echipamentului de purificare, verificați să fie montate sisteme adecvate de filtrare la conducta de trecere, pentru a preveni contaminarea sistemului în aval.

Montați conductele de recuperare de la filtrele de coalescență direct la un separator de condens. Dacă nu este posibilă cuplarea directă a conductelor de recuperare la un separator, conductele trebuie ventilate la un colector de condens (ventilă la un capăt), apoi la o singură intrare a unui separator de condens.

Furnizați o instalație care să elimine, prin drenare, lichidele colectate din echipamentul de purificare. Lichidele colectate trebuie tratate și evacuate într-o manieră responsabilă.

ES Препоръки за инсталацията

Препоръчително е компресиранят въздух да се обработва преди влизането в системата за разпределение, а също така в точките/приложения с изключително значение.

Инсталирането на сушилня за компресиран въздух към намокрена система може да доведе до натрупване на допълнително замърсяване при използването на филтрите за определен период, докато системата за разпределение изсъхва. Елементите на филтъра може да се нуждаят от смяна по-често по време на този период.

За инсталации, където се използва безмаслени компресори, а водни aerosoli и частици все още са различни, все още трябва да се използва високоэффективни разрези, както и разрези с общо предназначение.

Филтърът с общо предназначение трябва винаги да е инсталира, за да предпази високоэффективния филтър от обемни aerosoli и твърди частици.

Инсталирайте пречистващо оборудване при най-ниската температура над точката на замръзване, за предпочитане крайните допълнителни охладители и въздухоприемници.

Точката на използване на пречистващо оборудване трябва да се инсталира възможно най-близо до уреда.

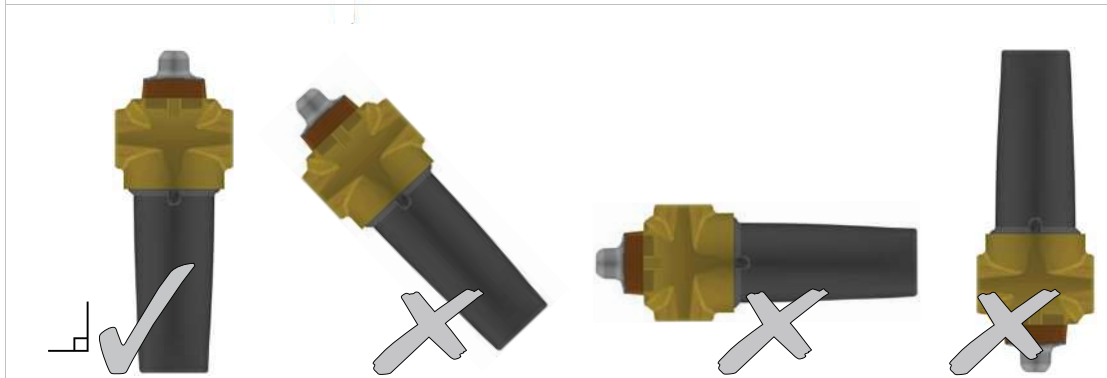
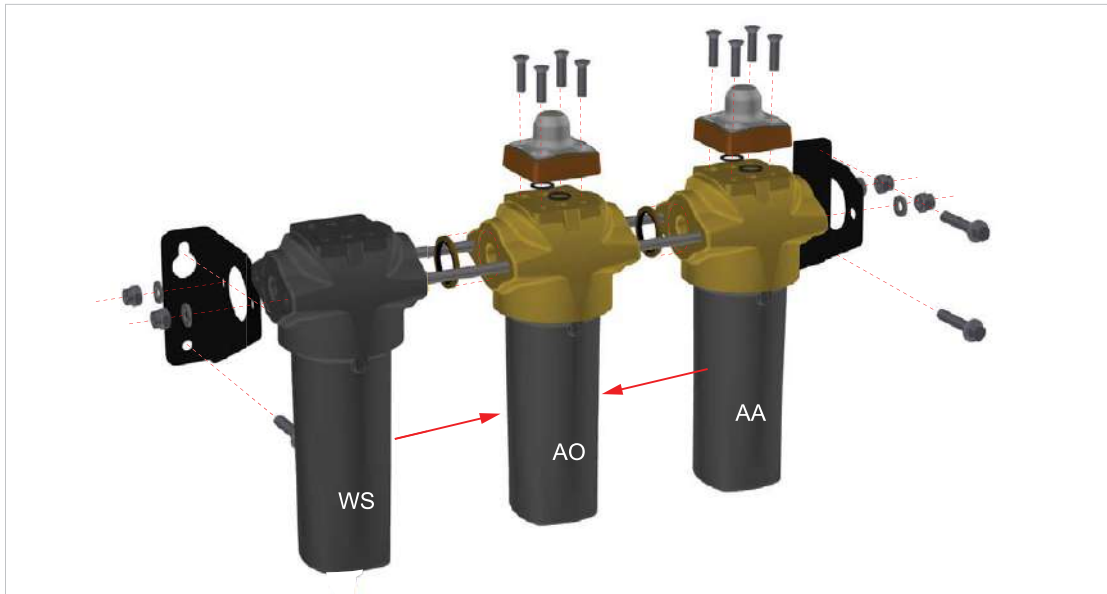
Пречистващото оборудване не трябва да се инсталира в края на бързо отварящи се клапани и трябва да се предпази от възможен обратен поток или други ударни условия.

Продуквайте всички тръби, водещи към пречистващото оборудване, преди инсталацията, както и всички тръби след инсталацията на пречистващото оборудване и преди свързването на крайния уред.

Ако байпасни тръби са поставени около пречистващото оборудване, се уверете, че към байпасната тръба е нагласено подходящо филтриране, което да предотврати замърсяване нагатаж по системата.

Поставете отточни тръби от съединителните филтри директно към сепаратор на кондензат. Ако не е възможно директно свързване на отточни тръби към сепаратор, тръбите трябва да се оттичат към един колектор на кондензат (отворен от единия край) и след това в един вход на сепаратор на кондензат.

Осигурете условия за отичане на натрупаните флуиди от пречистващото оборудване. Натрупаните флуиди трябва да се обработват и изхвърлят по подходящия начин.



(LT) Apatinė uždarymo plokštė gali judėti, kai filtrė nėra slėgio



Apatinei uždarymo plokštei nereikia techninės priežiūros ir jos niekada nereikia nuimti.

(RU) Если в фильтре отсутствует давление, нижняя пластина корпуса может перемещаться.



Нижняя пластина корпуса не подлежит обслуживанию и ее демонтаж не предусмотрен.

(SL) Če filter ni pod tlakom, se lahko spodnja zapiralna plošča premika.



Spodnje zapiralne plošče ni možno popravljati in je nikoli ne odstranjujte.

(TB) Alttaki kapatma plakası, filtreye basınç uygulanmadığında hareket edebilir



Alttaki kapatma plakası servis hizmeti verilen öğelerden değildir ve asla çıkarılmamalıdır.

(MT) Il-plakka tal-gheluq t'isfel tista' timxi meta l-filtru ma jkunx taht pressjoni



Il-plakka tal-gheluq t'isfel hija oġġett li ma jistax isirli servis u qatt ma għandu jitneħħa.

(RO) Placa inferioară de acoperire se poate deplasa atunci când filtrul nu este presurizat



Placa inferioară de acoperire este un element care nu poate fi remediat în service și care nu trebuie demontat.

(BG) Долната затваряща пластина може да помръдне, когато филтърът не е под налягане.



Долната затваряща пластина не може да се обслужва и не трябва никога да се сваля.

LT Paleidimas ir naudojimas



Prieš nukreipdami slėgį į filtrą įsitikinkite, kad galvutė ir indas yra gerai pritvirtinti, o fiksuojamo detalės tinkamai sulgyjuotos, kaip parodyta techninės priežiūros skyriuje (6 techninės priežiūros procedūra) šiose vadove.

1. Lėtai atidarydami įleidimo vožtuvą palaipsniui didinkite slėgį įrenginyje.
2. Lėtai atidarydami išleidimo vožtuvą, iš naujo sudarykite slėgį už jo esančiame vamzdyje.

Negalima staigiai atidaryti įleidimo ar išleidimo vožtuvų, paveikti įrenginio pelyng didelių diferencialinių slėgių, nes galima sugadinti įrangą.

RU Запуск и эксплуатация



Перед созданием давления в фильтре убедитесь, что стакан и головка фильтра правильно установлены и фиксатор правильно выровнен, как показано в разделе технического обслуживания данного руководства (процедура технического обслуживания 6).

1. Впускной клапан следует открывать плавно, чтобы постепенно создать давление в устройстве.
2. Плавно откройте выпускной клапан, чтобы создать давление в системе трубопровода.

Запрещено резко открывать впускной или выпускной клапаны, а также использовать устройство, так как это может привести к перепаду давления и повреждениям.

SL Zagon in uporaba



Pred obremenitvijo filtra s tlakom zagotovite, da sta glava in posoda filtra pravilno nameščeni in da sta označbi na glavi in posodi filtra ustrezno poravnani druga z drugo, kot je prikazano v poglavju o vzdrževanju v tem priročniku (postopek vzdrževanja – korak 6).

1. Počasi odprite dovodni ventil, da enoto postopoma obremenite s tlakom.
2. Počasi odprite odvodni ventil za ponovno tlačno obremenitev cevovoda za tem ventilom.

Dovodnih ali odvodnih ventilov nikoli ne odpirajte naglo in enote ne izpostavljajte prekomernim nihanjem tlaka, saj lahko to povzroči škodo.

TR Çalıştırma ve işletme



Filtreye basınç uygulamadan önce, başın ve haznenin düzgün bir şekilde takıldığından ve kilitleme tertibatının, bu kılavuzun bakım bölümünde (bakım prosedürü 6) gösterildiği gibi, düzgün bir şekilde hizalandığından emin olun.

1. Giriş valfini yavaşça açıp üniteye yavaş yavaş basınç uygulayın.
2. Aşağı akım borularına yeniden basınç uygulamak için çıkış valfini yavaşça açın.

Giriş ve çıkış valflerini hızla açmayın veya üniteyi aşırı basınç farklarına maruz bırakmayın; aksi halde hasar oluşabilir.

MT Kif Tixghel u Kif Thaddem



Qabel tiffa' pressjoni fuq il-filtru, aghmel žgur li l-ras u l-bowl huma mwahhlin b'mod korrett u li d-detall tas-sokor huwa allinjat kif jixraq kif muri fis-sezzjoni tal-manutenzjoni (proċedura ta' manutenzjoni 6) ta' dan il-manwal.

1. Iftah il-valv tad-dhul bil-mod, biex iżżid gradwalment il-pessjoni fl-unità.
2. Iftah il-valv tal-hruġ bil-mod biex terġa' tibni l-pessjoni fil-pajps li jwassal 'l isfel.

Ara li ma tiffahx il-valvs tad-dhul jew tal-hruġ f'daqqa jew b'xi mod tikkawza differenza eċċessiva fil-pessjoni tat-taġhmir għax tista' taġhmel il-hsara.

RO Pornire și operare



Înainte de presurizarea filtrului, asigurați-vă că paharul și capul filtrului sunt corect montate și că detaliul de fixare este corect aliniat, așa cum se arată în secțiunea de întreținere (procedura de întreținere 6) a acestui manual.

1. Deschideți încet supapa de admisie, pentru a presuriza gradat aparatul.
2. Deschideți încet supapa de evacuare pentru a represuriza sistemul de conducte din aval.

Nu deschideți rapid supapele de admisie sau de evacuare și nu supuneți aparatul la o diferență excesivă de presiune; în caz contrar, aparatul poate suferi deteriorări.

BG Начало и работа



Преди херметизиране на филтъра се уверете, че главата и чашката са монтирани правилно и заключващият детайл е подходящо подравнен, както е показано в раздела за поддръжка (процедура по поддръжка 6) на това ръководство.

1. Отворете бавно входния вентил, за да пуснете постепенно налягане на уреда.
2. Отворете бавно изходния вентил, за да премахнете налягането по протежението на тръбите.

Не отваряйте входния или изходния вентил бързо и не подлагайте уреда на голяма разлика в налягането, тъй като това може да доведе до повреда.

Priedai / atsarginės dalys (techninės priežiūros komplektai)
 Принадлежности / запасные части (ремонтные комплекты), Dodatna oprema / nadomestni deli (servisni kompleti), Aksesuarlar / Yedek Parçalar (Servis Kitleri),
 Accessorji / Lista tal-Parts (Settjiet tas-Servis), Accesorii / Pieșe de schimb (Truse de service), Принадлежности / резервни части (сервисни комплекти)

Filter Models	Catalogue Number	Contents
010	TRK1-2	
015 - 020	TRK2-2	
025 - 030	TRK3-2	
035 - 045	TRK4-2	
050 - 055	TRK5-2	
010	MBK1-1	
015 - 020	MBK2-1	
025 - 030	MBK3-1	
035 - 045	MBK4-1	
050 - 055	MBK5-1	
010	MBK1-2	
015 - 020	MBK2-2	
025 - 030	MBK3-2	
035 - 045	MBK4-2	
050 - 055	MBK5-2	
010 - 055	EM1	
010 - 055	PD15NO	
010 - 030	DPI-K	
035 - 055	ZD90GL	

Techninė priežiūra

Техническое обслуживание, Vzdrževanje, Bakım, Manutenzjoni, İntreținere, Поддръжка

LT Techninės priežiūros intervalai

Norint užtikrinti optimalias filtro charakteristikas AO, AA tipo elementus reikia keisti kas 12 mėnesių kartu su automatinio išleidimo čiupu.

Elemento ACS veikimas paremtas didžiausia alyvos garų leidimo koncentracija 0,018 mg/m³. Pakeiskite anglies filtro elementą aptikę garų, keistą kvapą arba skonį.

Kitaip nei alyvos aerozolių šalinimo filtrai, kurie keičiami kasmet siekiant užtikrinti suspausto oro kokybę, alyvos garų šalinimo filtro tarnavimo laikas priklauso nuo įvairių veiksnių ir jį reikia daug dažniau keisti (nebent naudojamas OVR, kurio tarnavimo laikas apskaičiuotas 6000 valandų).

Veiksniai, darantys poveikį adsorbicijos filtrų tarnavimo laikui

Alyvos garų koncentracija

Kuo didesnė alyvos garų leidimo koncentracija, tuo greičiau baigsis aktyvuotosios anglies talpa.

Karterio alyva

Adsorbicijos filtrai skirti pašalinti alyvos garus ir kvapus, o ne suskystintą alyvą ar aerozolius. Dėl blogai prižiūrimų filtrų arba apskritai neudėtų išankstinių filtrų OVR filtro talpa greitai pasibaigia.

Temperatūra

Alyvos garų kiekis didėja eksponentiškai pagal leidimo temperatūrą, taip sutrumpindamas elemento tarnavimo laiką. Be to, didėjant temperatūrai, mažėja adsorbicijos galia, ir elemento tarnavimo laikas taip pat trumpėja.

Santykinis drėgnumas arba rasos taškas

Drėgnas oras sumažina adsorbicines anglies savybes.

Kompresoriaus alyvos pūkyčiai

Pakeitus kompresoriaus alyvą, naujas tepalas išdeginą „lengvąją frakciją“, todėl po to alyvos garų kiekis padidėja vėlams ar net savaitėms. Šį padidėjusį alyvos garų kiekį adsorbuoja OVR filtras, žymiai sumažinant adsorbicinį tarnavimo laiką.

RU Интервалы технического обслуживания

Для обеспечения оптимальной эффективности фильтра требуется менять элементы классов AO, AA каждые 12 месяцев вместе с автоматическим дренажным устройством.

Эффективность элемента ACS рассчитана на максимальную концентрацию входящих паров масла, не превышающую 0,018 мг/м³. При обнаружении испарений или запаха замените угольный элемент фильтра.

В отличие от масляных аэрозольных фильтров, которые подлежат ежегодной замене в целях обеспечения сжатим воздухом надлежащего качества, срок службы фильтров масляных паров зависит от различных факторов, и требует более частой замены (если только не используется OVR, срок службы которого 6 000 часов):

Факторы, влияющие на продолжительность срока службы адсорбционных фильтров:

Концентрация паров масла

Чем выше концентрация паров масла на входе, тем быстрее произойдет насыщение парами активированного угля.

Масло в емкостях.

Адсорбционные фильтры предназначены для поглощения паров масла и запахов, а не жидкой нефти или аэрозолей. Плохо выполняющаяся предварительная фильтрация или ее отсутствие приводит к быстрому ухудшению свойств фильтра OVR.

Температура

Содержание паров масла увеличивается в экспоненциальной зависимости от температуры на входе, что сокращает срок службы элемента. Кроме того, при увеличении температуры способность элемента к адсорбции уменьшается, что также сокращает срок службы элемента.

Относительная влажность или точка росы

Влажный воздух ухудшает способность углерода к адсорбции.

Замена масла в компрессоре

При замене компрессорного масла, в новом масле происходит сжигание легких углеводородов, что приводит к увеличению содержания паров масла на несколько часов или даже недель. Эти пары поглощаются фильтром OVR, что значительно сокращает его срок службы.

SL Intervali vzdrževanja

Da bi zagotovili optimalno delovanje filtra, je treba elemente razredov AO, AA zamenjati vsakih 12 mesecev, skupaj z avtomatskim izpustom.

Zmogljivost elementa ACS temelji na največji koncentraciji naftnih hlapov na dovodu 0,018mg/m³. Ko zaznate hlapce, vonj ali okus, zamenjajte filtrirni element z ogljem.

Za razliko od filtrov za odstranjevanje naftnih aerosolov, ki se jih za zagotavljanje kakovosti stisnjene gasi zamenjuje enkrat letno, je življenjska doba filtra za odstranjevanje hlapov odvisna od različnih dejavnikov in zahtevajo bolj pogoste zamenjave (razen, če se uporablja OVR, z zasnovano trajnostjo 6000 ur).

Dejavniki, ki vplivajo na življenjsko dobo adsorbcijskih filtrov

Koncentracija oljnih hlapov

Večja kot je koncentracija oljnih hlapov na vstopu, hitreje bo sposobnost aktivnega oglja zasihena.

Tekoče olje

Adsorbcijski filtri so namenjeni odstranjevanju oljnih hlapov in vonjav, ne tekočega olja ali aerosolov. Slabo vzdrževano predhodno filtriranje ali brez telega bo povzročilo hitro iztrošenje zmogljivosti OVR filtra.

Temperatura

Vsebnost oljnih hlapov narašča eksponentno glede na vstopno temperaturo, s tem se življenjska doba elementa skrajša. Poleg tega se z naraščanjem temperature zmanjšuje sposobnost adsorbpcije, ravno tako tudi življenjska doba elementa.

Relativna vlažnost ali rosišče

Vlažnost zraka zmanjšuje adsorbcijsko sposobnost oglja.

Menjave kompresorskega olja

Ko se kompresorsko olje zamenja, novo mazivo izloči "lahke frakcije", kar za več ur ali celo tednov poveča vsebnost oljnih hlapov. To večjo količino oljnih hlapov adsorbira OVR filter, s tem pa se bistveno skrajša njegova življenjska doba.

TR Bakım Aralıkları

En iyi performansı sağlamak için AO, AA, düzey öğelerin otomatik süzdürme tertibatı ile birlikte her 12 ayda bir değiştirilmesi gerekir.

ACS öğesinin performansı, 0,018mg/m³ maksimum yağ buharı giriş konsantrasyonuna dayanır. Buhar, koku veya tat saplandığında karbon filtre öğesini değiştirin.

Yağ buharı giderme filtresinin kullanım süresi, basınçlı hava kalitesini garanti etmek için her yıl değiştirilen yağ aerosolu giderme filtrelerinden farklı olarak, çeşitli faktörlere bağlanabilir ve daha sık değiştirilmeleri gerekebilir (6000 saatlik ömür için boyutlandırılmış OVR kullanılmadığı sürece):

Emiş filtrelerinin kullanım süresini etkileyen faktörler

Yağ buharı konsantrasyonu

Yağ buharının giriş konsantrasyonu arttıkça, aktif karbon kapasitesi daha hızlı biçimde tükenir.

Yağ kütlesi

Emiş filtreleri, sıvı yağ veya aerosoller değil, yağ buharını ve kokuları gidermek için tasarlanmıştır. Yeterli bakım yapılmayan veya mevcut olmayan ön filtrasyon, OVR filtre kapasitesinin hızlı biçimde tükenmesine neden olur.

Sıcaklık

Yağ buharı içeriği, giriş sıcaklığına göre katlanarak artar ve öğenin ömrünü kısaltır. Ayrıca, sıcaklık arttıkça emilim kapasitesi düşer ve yine öğenin ömrünü kısaltır.

Nispi Nem veya Çiylenme Noktası

Yağ hava, karbonun emilim kapasitesini düşürür.

Kompresör yağı değişimleri

Kompresör yağı değiştirildiğinde, yeni yağlayıcı "hafif uçları" yakar; bu da sonraki saatler, hatta haftalar boyunca yağ buharı içeriğini artırır. Yağ buharı içeriğindeki bu artış, OVR filtresi tarafından emilerek, emiş ömrünü önemli ölçüde kısaltır.

MT Intervalli tal-Manutenzjoni

Biox tižgura l-aqwa prestazzjoni tal-filtru, l-elementi ta' grad AO, AA jehtiegu tibdil kull 12-il xahar filmkien mad-drejn awtomatiku.

Il-prestazzjoni tal-element ACS hija bbażata fuq koncentrazzjoni massima tal-iżbokk tal-fwar taż-żejt ta' 0.018mg/m³. Ibdel l-element tal-filtru tal-faham wara l-ixif ta' fwar, riha jew toghma.

B'differenza mill-filtri ta' tnehhija tal-aerosol taż-żejt li jinbidlu kull sena biox tiġi ggarantita l-kwalità tal-arja kkompressa, il-hajja ta' filtru ta' tnehhija taż-żejt tista' tiġi attribwita ghal diversi fatturi u jista' jkun hemm bżonn li l-filtri jinbidlu aktar ta' spiss (sakemm ma jintużax OVR li huwa mahsub ghal hajja ta' 6000 siegħa).

Fatturi li jaffettwaw l-ghomor tal-filtri ta' assorbiment

Koncentrazzjoni ta' fwar taż-żejt

Aktar ma l-koncentrazzjoni tal-iżbokk tal-fwar taż-żejt tkun ogħla, aktar il-kapaċità ta' karbonju attiv tiskadi malajr.

Żejt tal-buk

Filtri ta' assorbiment huma mahsubin biox inehhu fwar taż-żejt u l-irwejjah, żejt mhux likwidu jew aerosols. Filtrazzjoni minn qabel miżmuma hażin jew inezistenti tikkawża l-kapaċità ta' assorbiment tonqos, u għal darb'ohra tnaqqas il-hajja tal-element.

Temperatura

Il-kontenut tal-fwar taż-żejt jidjed b'mod esponenzjali skont temperatura tal-iżbokk tad-dhul, u tnaqqas il-hajja tal-element. Barra minn hekk, hekk kif tiżdied it-temperatura, il-kapaċità ta' assorbiment tonqos, u għal darb'ohra tnaqqas il-hajja tal-element.

Umdità jew Punt tan-nida

L-arja niedja tnaqqas il-kapaċità adsorbivta tal-faham.

Tibdil taż-żejt tal-kompresur

Meta jinbidel iż-żejt tal-kompresur, il-lubrikant il-ġdid jhraq it-truf irraq li jżidu l-kontenut tal-fwar taż-żejt għal sigħat jew saħansitra għal ġimgħat wara. Din iż-żieda fil-kontenut tal-fwar taż-żejt hija adsorbta mill-filtru OVR, u tnaqqas b'mod sinifikanti l-hajja adsorbivta tiegħu.

RO Intervale de întreținere

Pentru a asigura performanțe optime ale filtrului, elementele de grad AO, AA necesită înlocuire la fiecare 12 luni, alături de evacuarea automată.

Performanța a elementului ACS se bazează pe o concentrație maximă a vaporilor de ulei care intră de 0,018mg/m³. Înlocuiți elementul filtrului de carbon la detectarea de vapori, miros sau gust.

Spre deosebire de filtrele de îndepărtare a vaporilor de ulei, care sunt modificate anual pentru a garanta calitatea aerului comprimat, durata de viață a unui filtru de îndepărtare a vaporilor de ulei poate fi atribuită mai multor factori și necesită schimbări mai frecvente (cu excepția cazului în care OVR este folosit, acesta fiind dimensionat pentru 6000 ore de funcționare):

Factori care influențează durata de viață a filtrelor de adsorbție

Concentrația vaporilor de ulei

Cu cât concentrația de intrare a vaporilor de ulei este mai mare, cu atât mai repede va expira capacitatea cărbunelui activ.

Ulei la vrac

Filtrele de adsorbție sunt concepute pentru a îndepărta vaporii de ulei și mirosurile, nu uleiul lichid sau vaporii. Un filtru rău întreține sau absența unei prefiltrări va determina expirarea rapidă a capacității filtrului OVR.

Temperatură

Conținutul de vapori de ulei crește exponențial la temperatura de intrare, reducând durata de viață a elementului. În plus, odată cu creșterea temperaturii, capacitatea de adsorbție scade, reducând din nou durata de viață a elementului.

Umiditatea relativă sau punctul de rouă

Aerul umed reduce capacitatea de adsorbție a carbonului.

Schimbări ale uleiului de compresor

La schimbarea uleiului de compresor, noul lubrifcant arde "capetele uleiului", care măresc conținutul de vapori de ulei timp de câteva ore sau chiar săptămâni după aceea. Această creștere a conținutului de vapori de ulei este adsorbită prin filtrul OVR, reducând în mod semnificativ durata adsorbției.

LT 1 techninės priežiūros procedūra

Lėtai uždarykite išleidimo (1) ir išleidimo (2) vožtuvus ir išleiskite slėgį iš filtro (3) per išleidimo angą.

RU Процедура технического обслуживания 1

Медленно закройте впускной (1) и выпускной (2) клапаны и сбросьте давление в фильтре (3) с помощью дренажа.

SL Postopek vzdrževanja – korak 1

Počasi zaprite dotočni (1) in odtočni (2) ventili in iz filtra (3) prek odtoka izpustite ves tlak.

TR Bakım Prosedürü 1

Giriş (1) ve çıkış (2) valflerini yavaşça kapatın ve süzdürme tertibatını kullanarak filtredeki (3) basıncı boşaltın.

MT Procedura ta' Manutenzjoni 1

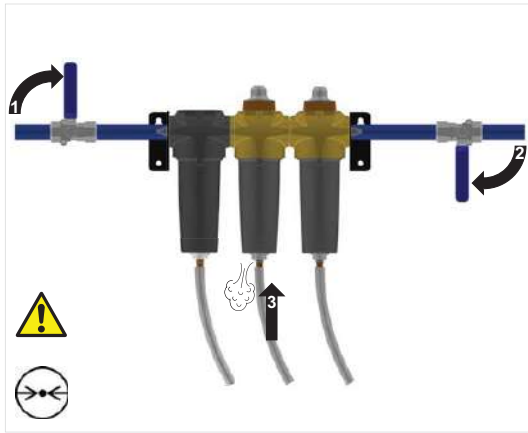
Aghlaq bil-mod il-valvi tal-iżbökk tad-dhul (1) u tal-hruġ (2) u neĥhi l-i-pressjoni tal-filtru (3) billi tuża d-drejn.

RO Procedură de întreținere 1

Închideți încet supapa de admisie (1) și de evacuare (2) și depresurizați filtrul (3) utilizând evacuarea.

BG Процедура по поддръжка 1

Бавно затворете входния (1) и изходния (2) вентил и изпуснете налягането от филтъра (3) с помощта на дренажа.



LT 2 techninės priežiūros procedūra

Atsukite filtro indą (1 ir 2) ir išimkite panaudotą elementą (3)

RU Процедура технического обслуживания 2

Открутите стакан фильтра (1 и 2) и снимите использованный элемент (3)

SL Postopek vzdrževanja – korak 2

Odvijte posodo filtra (1 in 2) in odstranite uporabljeni element (3).

TR Bakım Prosedürü 2

Filtre haznesini (1 ve 2) gevşetin ve kullanılan öğeyi (3) çıkarın

MT Procedura ta' Manutenzjoni 2

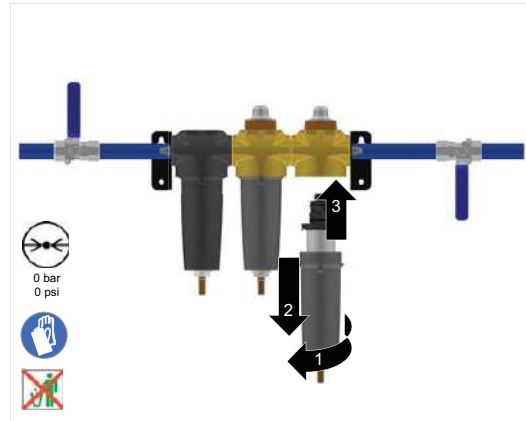
Holl il-bowl tal-filtru (1 u 2) u neĥhi l-element użat (3)

RO Procedură de întreținere 2

Deșurubați paharul filtrului (1 și 2) și demontați elementul uzat (3)

BG Процедура по поддръжка 2

Развийте филтърната чашка (1 и 2) и свалете използвания елемент (3)



LT 3 techninės priežiūros procedūra

Atsukite automatinio išleidimo čiaupą (1) ir išmeskite (2). Įstatykite naują išleidimo čiaupą (3) ir priveržkite (4).

RU Процедура технического обслуживания 3

Открутите автоматический дренаж (1) и утилизируйте его (2). Установите новый дренаж (3) и затяните его (4).

SL Postopek vzdrževanja – korak 3

Odvijte samodejni odtok (1) in ga zavržite (2). Namestite nov samodejni odtok (3) in ga privijte (4).

TR Bakım Prosedürü 3

Otomatik süzme tertibatını gevşetin (1) ve atın (2). Yeni süzdürme tertibatını takın (3) ve sıkın (4).

MT Procedura ta' Manutenzjoni 3

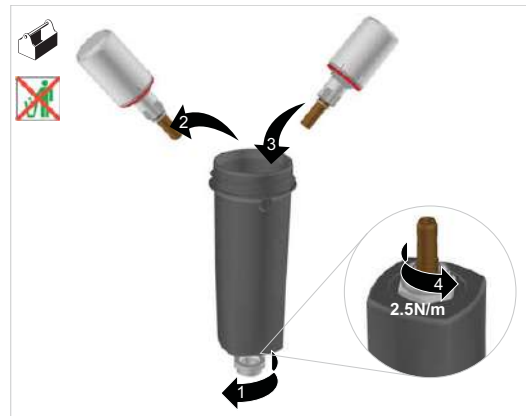
Holl id-drejn awtomatiku (1) u armi (2). Waħħal id-drejn il-ġdid (3) u ssikka (4).

RO Procedură de întreținere 3

Deșurubați evacuarea automată (1) și aruncați (2). Montați noua evacuare (3) și strângeți (4).

BG Процедура по поддръжка 3

Отвийте автоматичния дренаж (1) и го изхвърлете (2). Поставете новия дренаж (3) и затегнете (4).



LT 4 techninės priežiūros procedūra

Istatykite naują elementą į filtro indą, įsitikindami, kad ašelės tinkamai įstatytos į išpyvas.

RU Процедура технического обслуживания 4

Вставьте новый элемент в стакан фильтра, проверив, что ушки правильно сели в пазы.

SL Postopek vzdrževanja – korak 4

V posodo filtra vstavite nov filterni element in zagotovite, da so nastavki elementa pravilno nameščeni v utorih.

TR Bakım Prosedürü 4

Yeni öğeyi filtre haznesine yerleştirerek tırnakların oluklara düzgün bir şekilde oturmasını sağlayın.

MT Procedura ta' Manutenzjoni 4

Dañhal l-element il-ġdid fil-bowl tal-filtru u aghmel żgur li l-Hugs ikunu mpoġġja tajjeb fil-gruv.

RO Procedură de întreținere 4

Introduceți noul element în paharul filtrului, asigurându-vă că inelele sunt corect amplasate în canale.

SR Procedura po podržka 4

Поставте новия елемент в чашката на филтъра, като се уверите, че издадените части влизат правилно в каналите.



LT 5 techninės priežiūros procedūra

Pakeiskite sandarinimo žiedą filtro galvutėje pateikiamais naujais sandarinimo žiedais.



Caution

Būtinai patepkite sandarinimo žiedą ir sriegius tinkamu techniniu vazelinu be rūgščių.

RU Процедура технического обслуживания 5

Замените кольцевое уплотнение в головке фильтра новым кольцевым уплотнением.



Caution

Смажьте кольцевое уплотнение и резьбу вазелином, не содержащим кислоты.

SL Postopek vzdrževanja – korak 5

Stari tesnilni O-obroč v glavi filtra zamenjajte z novim.



Caution

O-obroč in navoje namažite z ustreznim brezislinskim petrolejevim gelom.

TR Bakım Prosedürü 5

Filtrenin başında yer alan O-halkasını, verilen yeni O-halkasıyla değiştirin.



Caution

O-halkasının ve yivlerin uygun bir asitsiz vazelin ile yağlanmasını sağlayın.

MT Procedura ta' Manutenzjoni 5

Ibdel l-O-ring li jinsab fir-ras tal-filtru bi-O-ring il-ġdid ipprovdut.



Caution

Aghmel żgur li tillubrifika l-O-rings u l-kamini b'jelly tal-petroleum hieles minn acidi xieraq.

RO Procedură de întreținere 5

Înlocuiți garnitura inelară situată în capul filtrului cu noua garnitură inelară furnizată.



Caution

Asigurați-vă că lubrifiați garnitura inelară și filetele cu vaselină rectificată adecvată, fără acid.

SR Procedura po podržka 5

Заменете O-пръстена, разположен във филтърната глава с предоставения нов O-пръстен.



Caution

Осигурете смазване на O-пръстена и резбите с подходящ безкиселинен вазелин.



LT 6 techninės priežiūros procedūra (a)

Vėl uždėkite filtro indą ir galvutę, ištikindami, kad sriegiai iki galo priveržti, o fiksavimo detalės sulygiuotos.

Pastaba. Kad įsitikintumėte, jog indas yra gerai pritvirtintas prie galvutės, 010-030 indą sukite 360°, kol sriegis nebesisuks, o 035-045 indą 720°.

RU Процедура технического обслуживания 6 (a)

Установите на место стакан и головку фильтра, проверив, что резьбы полностью закручены и фиксаторы выровнены.

Примечание. Для полной установки стакана в головку необходимо повернуть стакан на 360° до полной остановки хода резьбы (стакан 005-030) или на 720° (стакан 035-045).

SL Postopek vzdrževanja – korak 6 (a)

Ponovno namestite posodo filtra in filtrsko glavo ter pazite, da so navoji priviti do konca in da sta označbi na glavi in posodi filtra ustrezno poravnani druga z drugo.

Opomba: posoda filtra je popolnoma privita na glavo, če posodo 010-030 zavrtite za 360° do konca navoja. Posodo 035-045 je treba zavrteti za 720°.

TR Bakım Prosedürü 6 (a)

Filtre haznesini ve başını, yivler tamamen yerine oturacak ve kilitleme tertibatı aynı hizaya gelecek şekilde yeniden takın.

Not: Haznenin başa tamamen yerleşmesini sağlamak için, 010-030 hazne için yiv durana kadar 360° dönuş, 035-045 hazne için ise 720° dönuş için gerekir.

MT Procedura ta' Manutenzjoni 6 (a)

Erga' waħħda il-bowl tal-filtru u r-ras filwaqt li tiżgura li l-kamini jkunu mqabbdin sew u d-dettalji tas-sokor ikunu allinjati.

Nota: Biex ikun żgurat li l-bowl tkun imqabbdha għal kollox fir-ras, il-bowl 010-030 teħtieġ rotazzjoni ta' 360° sakemm jiegħaf il-kamin u 720° għall-bowl 035-045.

RO Procedură de întreținere 6 (a)

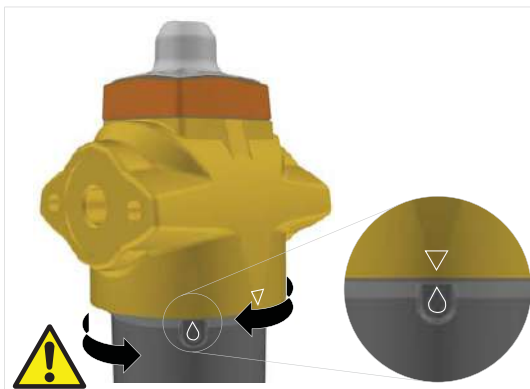
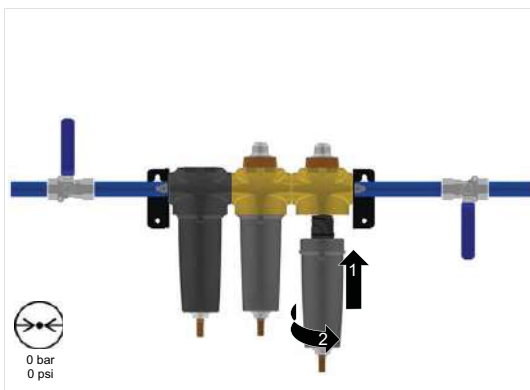
Montați la loc paharul și capul filtrului, asigurându-vă că filetele sunt complet cuplate și că detaliile de blocare sunt aliniate.

Notă: Pentru a vă asigura că paharul este complet cuplat în capul filetelui, paharul 010-030 necesită o rotație de 360° până la oprirea filetelui, respectiv de 720° pentru paharul 035-045.

SK Procedura po poddržka 6 (a)

Postavte obratno filtřnyrite aška a glava, kato se uverite, e rezbitye sa napřlyno navity i zaključvačitye detaljy sa podřvneny.

Zaběžka: Za da e sigurno, e aška e dobre zadržvna v glava, 010-030 aška z iziskva zadržvna na 360° do zastopřvane na rezba i na 720° za 035-045 aška.



LT 7 techninės priežiūros procedūra

Prikljuokite elemento keitimo datos etiketę prie filtro indo ir užrašykite datą, kada elementas turės būti pakeistas, t. y. 12 mėnesių po elemento keitimo.



Nevalykite etiketę tirpikliais arba spiritu, nes galite jas sugadinti.

RU Процедура технического обслуживания 7

Прикрепите к стакану фильтра табличку с датой замены элемента и впишите в нее дату следующей замены (то есть через 12 месяцев после текущей замены).



Не используйте растворители или спиртосодержащие растворы для очистки табличек, так как это может привести к повреждению.

SL Postopek vzdrževanja – korak 7

Na posodo filtra prilepite novo nalepko z datumom, ko je treba ponovno zamenjati filtrirni element (čez 12 mesecev).



Za odstranjevanje nalepk ne uporabljajte alkohola ali čistil, ker lahko poškodujejo posodo filtra.

TR Bakım Prosedürü 7

Öğde deęiřtirme tarihi etiketlini filtre haznesine yapıřtırın ve öęinen yenisiyle deęiřtineceęi tarihi yazın, örneęin öęde deęiřtiklięinden 12 ay sonra...



Zarar verebileceęi için, etiketleri temizlemek için özücü veya alkol kullanmayın.

MT Procedura ta' Manutenzjoni 7

Waħħal it-tikketta tad-data tat-tibdil tal-element mal-bowl tal-filtru u iktib id-data li fiha għandu jinfideli l-element, jięifieri 12-il xahar wara li jinfideli l-element.



Tużax solventi jew alkohol biex tnaqqaf it-tikketti għalhej dan jista' jikkawża ħsara.

RO Procedură de întreținere 7

Atașati eticheta cu data de înlocuire a elementului la paharul filtrului și notați pe aceasta data la care elementul trebuie înlocuit, adică după 12 luni de la înlocuirea elementului.



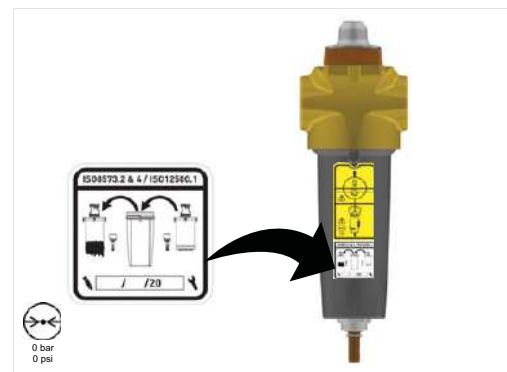
Nu utilizați solvenți sau alcool pentru curățarea etichetelor, deoarece puteți provoca deteriorări.

SK Procedura po poddržka 7

Zaplepete etiket s datata na smřna na elementa vřřru filtřrnata aška i zaęiřte na nego datata, na kotoj trřbva da se smřni elementa, t.j. 12 mřsřca sled smřnata na elementa.



Ne izpolzvajte raztvoritelj ili alkohol za počiřtvane na etiketite, tų kato tova može da dovede do povreda.



LT 8 techninės priežiūros procedūra

Lėtai atidarykite išleidimo vožtuvą (1) palaipsniui didindami slėgį įrenginyje, lėtai atidarykite išleidimo vožtuvą (2) paleisdami slėgį už jo esančius vamzdžius.



Negalima staigiai atidaryti išleidimo ar išleidimo vožtuvų, paveikti įrenginio pertelg didelių diferencialinių slėgių, nes gali būti sugadinta įranga.

PLU Процедура технического обслуживания 8

Медленно откройте выпускной клапан (1), чтобы постепенно создать давление в приборе, медленно откройте выпускной клапан (2) для сброса давления в трубопроводе ниже по потоку.



Запрещено резко открывать впускной или выпускной клапаны, а также используемое устройство, так как это может привести к перепаду давления и повреждениям.

SL Postopek vzdrževanja – korak 8

Počasi odprite dovodni ventil (1), da enoto postopoma obremenite s tlakom, zatem pa počasi odprite še odvodni ventil (2) za ponovno tlačno obremenitev cevovoda za tem ventiliom..



Dovodnih ali odvodnih ventilov nikoli ne odpirajte naglo in enote ne izpostavljajte prekomernim nihanjem tlaka, saj lahko to povzroči škodo.

TR Bakım Prosedürü 8

Üniteye aşamalı olarak basınç uygulamak için giriş valfini (1) yavaşça açın ve aşağı akım borularına yeniden basınç uygulamak için çıkış valfini (2) yavaşça açın..



Giriş ve çıkış valflerini hızla açmayın veya üniteyi aşırı basınç farklarına maruz bırakmayın; aksi halde hasar oluşabilir.

MT Procedura ta' Manutenzjoni 8

Iftaħ il-valv tad-dhul (1) bil-mod biex terġa' tibni l-pressjoni fil-unità, iftaħ il-valv tal-truġ (2) biex terġa' tibni l-pressjoni fil-pajpijiet li jwasslu l'isfel.



Ara li ma tiftaħx il-valvs tad-dhul jew tal-truġ f'daqqa jew b'xi mod tikkawża differenza eċċessiva fil-pressjoni tat-tagħmir għax tista' tagħmel il-hsara.

RO Procedură de întreținere 8

Deschideți încet supapa de admisie (1) pentru a presuriza gradat aparatul, deschideți încet supapa de evacuare (2) pentru a represiuriza sistemul de conducte din aval.



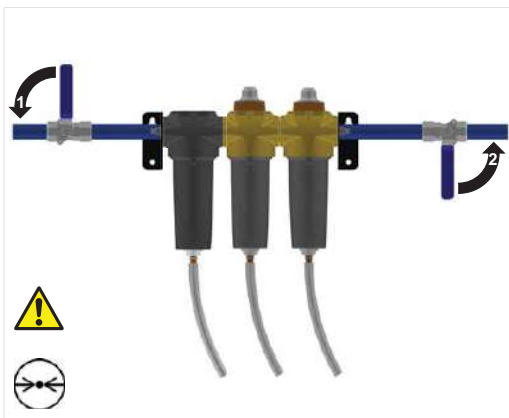
Nu deschideți rapid supapele de admisie sau de evacuare și nu supuneți aparatul la o diferență excesivă de presiune; în caz contrar, aparatul poate suferi deteriorări.

BS Процедура по поддръжка 8

Отворете бавно входния вентил (1), за да пуснете постепенно налягане на уреда, отворете бавно изходния вентил (2), за да премахнете налягането по протежението на тръбите.



Не отваряйте входния или изходния вентил бързо и не подлагайте уреда на голяма разлика в налягането, тъй като това може да доведе до повреда.



Declaration of Conformity**EN**

Parker Hannifin Manufacturing Limited
Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK

Compressed Air Filters
Oil-X AO/AA/ACS/WS (Size 1-5)

Directives 2014/68/EU

Standards used Generally in accordance with ASMEVIII Div 1 : 2015 & AS1210

PED Assessment Route :
Size 1-3 Article 4, Paragraph 3 (SEP)
Size 4 Category I according to module B & D
Size 5 Category II according to module B & D

EU Certificate of Conformity COV0912556/1
Notified body for PED: Lloyds Register Verification
71 Fenchurch St. London
EC3M 4BS

Authorised Representative Damian Cook
Divisional Engineering Manager
Parker Hannifin Manufacturing Limited, GSFE



Declaration

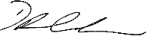
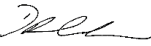
I declare that as the authorised representative, the above information in relation to the supply / manufacture of this product, is in conformity with the standards and other related documents following the provisions of the above Directives.

Signature: 

Date: 21/10/2016

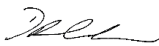
Declaration Number: 00298/211016

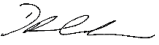
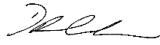
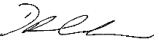
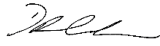
Verklaring van Conformiteit		NL	Konformitätserklärung		DE
Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK			Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK		
Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)			Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)		
Richtlijnen	2014/68/EU		Richtlinien	2014/68/EU	
Gehanteerde normen	Gewoonlijk volgens ASMEVIII Div 1 : 2015 & AS1210.		Angewandte Normen	Allgemein in Übereinstimmung mit ASMEVIII Div 1 : 2015 & AS1210.	
PED-beoordelingstraject:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D Size 5 Category II according to module B & D COV0912556/1		Beurteilungsrouten der Druckgeräterichtlinie: EG-Baumusterprüfbescheinigung:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1	
EC Type onderzoekscertificaat:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS		Benannte Stelle für die Druckgeräterichtlinie:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS	
Aangemelde instantie voor PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS		Bevollmächtigter Vertreter	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE	
Bevoegde vertegenwoordiger	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE				
Verklaring			Erklärung		
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Handtekening:	 Datum: 21/10/2016		Unterschrift:	 Datum: 21/10/2016	
Verklaringnummer: 00298/211016			Nummer der Erklärung: 00298/211016		
Déclaration de conformité		FR	Vaatimustenmukaisuusvakuutus		FI
Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK			Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK		
Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)			Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)		
Directives	2014/68/EU		Direktiivit	2014/68/EU	
Normes utilisées	Généralement conforme à ASMEVIII div. 1 : 2015 & AS1210.		Käytetyt standardit	Yleensä seuraavan standardin mukaisesti: ASMEVIII Div 1 : 2015 & AS1210.	
Méthode d'évaluation de la directive d'équipements de pression : Certificat d'examen de type CE :	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1		PED-arviointimenetely: EY-tyyppihyväksynnän sertifikaatti:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1	
Organisme de notification pour la directive d'équipement sous pression :	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS		PED-säännösten ilmoitettu laitos:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS	
Représentant agréé	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE		Valtuutettu edustaja	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE	
Déclaration			Vakuutus		
Je déclare à titre de représentant agréé que les informations ci-dessus liées à la fourniture/fabrication de ce produit sont en conformité avec les normes et autres documents liés déclarés selon les dispositions des directives susmentionnées.			Valtuutettuna edustajana vakuutan, että yllä olevat tiedot, jotka liittyvät tämän tuotteen toimittamiseen tai valmistamiseen, ovat standardien ja muiden asiaan liittyvien asiakirjojen mukaisia ja noudattavat yllä mainittuja direktiivejä.		
Signature :	 Date : 21/10/2016		Allekirjoitus:	 Päiväys: 21/10/2016	
N° de déclaration : 00298/211016			Vakuutuksen numero: 00298/211016		

Försäkran om överensstämmelse SV		Konformitetserklæring NO	
<p>Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, UK</p> <p>Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)</p>		<p>Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, UK</p> <p>Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)</p>	
Direktiv	2014/68/EU	Direktiver	2014/68/EU
Anvånda standarder	Generellt i enlighet med ASMEVIII Div 1: 2015 & AS1210.	Benyttede standarder	Hovedsakelig i samsvar med ASMEVIII div 1: 2015 & AS1210.
Fastställningsväg för PED: EG-intyg om typprovning:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1	Rute for vurdering av PED (direktivet for trykklågt utstyr): EC-typegodkjenningsattest:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1
Anmålt organ för PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS	Underrettet organ for PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Autoriserad representant	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE	Autorisert representant	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE
<p>Försåkran</p> <p>Jag försåkrar, i egenskap av auktoriserad representant, att ovannåmnda information avseende leverans/tilverking av denna produkt överensstämmer med standarder och övriga relaterade dokument enligt villkoren i ovanstående direktiv.</p>		<p>Erklæring</p> <p>Jag erklærer som autorisert representant at informasjonen ovenfor med hensyn til levering/produksjon av dette produktet, er i overensstemmelse med standardene og andre relaterte dokumenter ifølge bestemmelsene i direktivene ovenfor.</p>	
Underskrift:	 Datum: 21/10/2016	Signatur:	 Dato: 21/10/2016
Försåkran nummer: 00298/211016		Erklæring nr: 00298/211016	
Overensstemmelseserklæring DA		Δήλωση συμμόρφωσης EL	
<p>Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, UK</p> <p>Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)</p>		<p>Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ, UK</p> <p>Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)</p>	
Direktiver	2014/68/EU	Οδηγίες	2014/68/EU
Anvendte standarder	Generelt i overensstemmelse med ASMEVIII div. 1: 2015 & AS1210.	Πρότυπα που χρησιμοποιήθηκαν	Γενικά σε συμφωνία με το ASMEVIII Div 1: 2015 & AS1210.
Forløb for PED-bedømmelse: EF-typeafprøvningsattest:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1	Διαδρομή αξιολόγησης για κανονισμούς PED: Πιστοποιητικό εξέτασης τύπου ΕΚ:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1
Notificeret organ for PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS	Ενήμερος οργανισμός για κανονισμούς PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS
Autoriseret repræsentant	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE	Εξουσιοδοτημένος αντιπρόσωπος	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE
<p>Erklæring</p> <p>Jeg erklærer hermed som autoriseret repræsentant, at ovennævnte oplysninger vedrørende levering/produktion af dette produkt er i overensstemmelse med de anførte standarder og øvrige tilknyttede dokumenter i henhold til bestemmelserne i ovenstående direktiver.</p>		<p>Δήλωση</p> <p>Δηλώνω ως ο εξουσιοδοτημένος αντιπρόσωπος ότι οι παραπάνω πληροφορίες σε σχέση με τη διάθεση / κατασκευή αυτού του προϊόντος, συμμορφώνονται ως προς τα πρότυπα και ως προς τα άλλα σχετικά έγγραφα που συνοδεύουν τις διατάξεις των πιο πάνω οδηγιών.</p>	
Underskrift:	 Dato: 21/10/2016	Υπογραφή:	 Ημερομηνία: 21/10/2016
Erklæringsnummer: 00298/211016		Αριθμός δήλωσης: 00298/211016	

Declaración de conformidad		ES	Declaração de Conformidade		PT
Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK			Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK		
Compressed Air Filters			Compressed Air Filters		
Oil-X AO/AA/ACS/WS (Size 1-5)			Oil-X AO/AA/ACS/WS (Size 1-5)		
Directivas	2014/68/EU		Directivas	2014/68/EU	
Normas utilizadas	Generalmente de conformidad con ASMEVIII Div 1: 2015 & AS1210.		Padrões utilizados	De forma geral em concordância com ASMEVIII Div 1: 2015 & AS1210.	
Ruta de evaluación de la normativa PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1		Percurso de Avaliação do PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1	
Certificado de examen CE de tipo:			Certificado de Inspeção Tipo CE:		
Organismo notificado para la normativa PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS		Notificado para o PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS	
Representante autorizado	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE		Revendedor Autorizado	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE	
Declaración			Declaração		
Como representante autorizado, declaro que la información anteriormente expuesta en relación con el suministro y/o fabricación de este producto cumple las normativas indicadas y otros documentos afines según las disposiciones de las Directivas citadas anteriormente.			Declaro, na qualidade de representante autorizado, que as informações acima contidas referentes ao fornecimento / fabrico deste produto estão em conformidade com as normas e outros documentos relacionados, de acordo com as disposições das Directivas anteriores.		
Firma:		Fecha: 21/10/2016	Assinatura:		Data: 21/10/2016
Número de declaración: 00298/211016			Número da Declaração: 00298/211016		
Dichiarazione di conformità		IT	Deklaracja zgodności		PL
Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK			Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK		
Compressed Air Filters			Compressed Air Filters		
Oil-X AO/AA/ACS/WS (Size 1-5)			Oil-X AO/AA/ACS/WS (Size 1-5)		
Direttive	2014/68/EU		Dyrektywy	2014/68/EU	
Norme utilizzate	Generalmente conforme a ASMEVIII Div 1: 2015 & AS1210.		Stosowane standardy	Ogólnie zgodny z ASMEVIII dział 1: 2015 & AS1210.	
Procedura di valutazione PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1		Ścieżka potwierdzania zgodności z PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1	
Attestato di certificazione tipo CE:			Certyfikat badania typu WE:		
Organismo accreditato per PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS		Organ/instytucja powiadamiana na mocy PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS	
Rappresentante autorizzato	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE		Autoryzowany przedstawiciel	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE	
Dichiarazione			Deklaracja		
In qualità di rappresentante autorizzato dichiaro che le informazioni di cui sopra, in merito alla fornitura/fabbricazione del prodotto in oggetto, sono conformi alle norme indicate e a qualsiasi altro documento correlati alla fornitura basato su quanto prescritto dalle direttive menzionate.			Oświadczam, jako autoryzowany przedstawiciel, że powyższe informacje dotyczące dostawy / wytworzenia niniejszego produktu są zgodne ze standardami i innymi dokumentami powiązanymi zgodnie z postanowieniami powyższych dyrektyw.		
Firma:		Data: 21/10/2016	Podpis:		Data: 21/10/2016
Dichiarazione numero: 00298/211016			Numer deklaracji: 00298/211016		

Vyhlásenie o zhode		SK	Prohlášení o shodě		CS
Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK			Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK		
Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)			Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)		
Smernice	2014/68/EU		Směrnice	2014/68/EU	
Použité normy	Vo všeobecnosti v zhode s ASMEVIII oddiel 1 : 2015 & AS1210		Použité normy	Obecně v souladu ASMEVIII Div 1 : 2015 & AS1210.	
Spôsob posudzovania podľa smernice PED Osvvedčenie typovej skúšky ES	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1		Metoda stanovení shody pro tlaková zařízení (PED): Osvědčení o zkoušce typu ES:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1	
Oboznámený orgán podľa smernice PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS		Notifikovaný orgán pro PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS	
Splnomocnený zástupca	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE		Oprávněný zástupce	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE	
Vyhlásenie			Prohlášení		
Ako splnomocnený zástupca vyhlasujem, že informácie uvedené vyššie, sú v súvislosti s dodávkou / výrobou tohoto výrobku v zhode s normami a inými súvisiacimi dokumentmi podľa ustanovení uvedených smerníc.			Jako oprávněný zástupce prohlašuji, že výše uvedené informace týkající se dodávky / výroby tohoto produktu jsou v souladu s normami a jinými souvisejícími dokumenty vyplývajícími z ustanovení výše uvedených směrnic.		
Podpis:	 Dátum: 21/10/2016		Podpis:	 Datum: 21/10/2016	
Číslo vyhlásenia: 00298/211016			Číslo prohlášení: 00298/211016		
Vastavusdeklaratsioon		ET	Megfelelősegi nyilatkozat		HU
Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK			Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK		
Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)			Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)		
Direktívid	2014/68/EU		Direktívák	2014/68/EU	
Kasutatud standardid	Üldiselt vastavuses standardiga ASMEVIII Div 1: 2015 & AS1210.		Alkalmazott szabványok:	Általánosan a következő alapján: ASMEVIII Div 1 : 2015 & AS1210.	
PED-vastavushinnangu jaotus: EÜ tüübihindamistöönd:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1		PED értékelési irányvonal EC típusvizsgálati bizonyítvány:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1	
PEDist (surveedmete direktiivist) teavitatud asutus:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS		PED-del kapcsolatban értesített testület:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS	
Voititud esindaja	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE		Hivatalos képviselő	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE	
Deklaratsioon			Nyilatkozat		
Voititud esindajana kinnitan, et ülaltoodud teave seoses antud toote tarnimisega/tootmisega on vastavuses standardite ja muude seotud dokumentidega vastavalt ülaltoodud direktiivide sätetele.			Hivatalos képviselőként kijelentem, hogy a termék szállításával / gyártásával kapcsolatos fent olvasható információk megfelelnek a fenti Direktívák előírásai szerinti szabványoknak és egyéb kapcsolódó dokumentumoknak.		
Alkiri:	 Kuupäev: 21/10/2016		Aláírás:	 Dátum: 21/10/2016	
Deklaratsiooni number: 00298/211016			Nyilatkozat száma: 00298/211016		

Atbilstības deklarācija		LV	Atitikties deklaracija		LT
<p>Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK</p> <p>Compressed Air Filters</p> <p>Oil-X AO/AA/ACS/WS (Size 1-5)</p> <p>Direktivas 2014/68/EU</p> <p>Izmantotie standarti Parasti saskaņā ar ASMEVIII Div 1 : 2015 & AS1210.</p> <p>Par PED novērtējums : Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1</p> <p>EK sastādīts Eksaminācijas sertifikāts: COV0912556/1</p> <p>Par PED informētā organizācija Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS</p> <p>Pilnvarotais pārstāvis Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE</p> <p>Deklarācija</p> <p>Es kā pilnvarots pārstāvis ar šo paziņoju, ka iepriekšminētā informācija, kas attiecas uz šī produkta piegādi / ražošanu, atbilst standartiem un citiem atbilstošiem dokumentiem saskaņā ar iepriekšminētajām Direktīvām.</p> <p>Paraksts:  Datums: 21/10/2016</p> <p>Deklarācijas numurs: 00298/211016</p>			<p>Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK</p> <p>Compressed Air Filters</p> <p>Oil-X AO/AA/ACS/WS (Size 1-5)</p> <p>Direktyvos 2014/68/EU</p> <p>Naudoti standartai Atitinka bendrąsias ASMEVIII Div 1 : 2015 & AS1210 nuostatas</p> <p>Par PED įvertinimo pakopa: Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1</p> <p>EB tipo testavimo sertifikatas: COV0912556/1</p> <p>PED notifikuoti institucija: Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS</p> <p>Igaliojasis atstovas Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE</p> <p>Deklaracija</p> <p>Aš, įgaliojasis atstovas, patvirtinu, kad aukščiau pateiktą gaminio tiekimo/pagamavimo informaciją atitinka aukščiau nurodytus standartus ir kitą su nurodytų direktyvų nuostatomis susijusią dokumentaciją.</p> <p>Parašas:  Data: 21/10/2016</p> <p>Deklaracijos numeris: 00298/211016</p>		
Декларация соответствия		RU	Izjava o skladnosti		SL
<p>Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK</p> <p>Compressed Air Filters</p> <p>Oil-X AO/AA/ACS/WS (Size 1-5)</p> <p>Требования 2014/68/EU</p> <p>Применяемые стандарты В большинстве случаев обеспечивается соответствие стандарту ASMEVIII, Раздел 1: 2015 & AS1210.</p> <p>Система обеспечения качества PED: Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1</p> <p>Сертификат ЕС на проведение типовых испытаний: COV0912556/1</p> <p>Уполномоченный орган для PED: Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS</p> <p>Уполномоченный представитель Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE</p> <p>Декларация</p> <p>Как уполномоченный представитель, я заявляю, что приведенная выше информация относительно поставши/производства данного продукта соответствует стандартам, другим связанным документам и положениям указанных выше требований.</p> <p>Подпись:  Дата: 21/10/2016</p> <p>Номер декларации: 00298/211016</p>			<p>Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK</p> <p>Compressed Air Filters</p> <p>Oil-X AO/AA/ACS/WS (Size 1-5)</p> <p>Direktive 2014/68/EU</p> <p>Uporabjeni standardi Splošno skladno z ASMEVIII Div 1: 2015 & AS1210.</p> <p>Ocenevalna pot PED: Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1</p> <p>Certifikat o tipiskem pregledu ES COV0912556/1</p> <p>Priglašeni organ za PED: Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS</p> <p>Pooblašeni zastopnik Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE</p> <p>Izjava</p> <p>Kot pooblašeni zastopnik izjavljam, da so zgornji podatki glede dobave/proizvodnje tega izdelka skladni s standardi in ostalimi sorodnimi dokumenti, ki sledijo določbam zgornjih direktiv.</p> <p>Podpis:  Datum: 21/10/2016</p> <p>Številka izjave: 00298/211016</p>		

Uyum Beyanı		TR	Dikjarazzjoni tal-Konformità		MT
Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK			Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK		
Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-3)			Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)		
Direktifler	2014/68/EU		Direttivi	2014/68/EU	
Kullanılan standartlar	Genelce ASMEVIII Div 1 : 2015 & AS1210'e uygun.		Standards uzati	Generalment f'konformità ma' ASMEVIII Div 1 : 2015 & AS1210.	
PED (Basınçlı Ekipman Direktifi) Değerlendirmesi Yolu: AT Tip İncelemesi Sertifikası:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1		Rotta ta' l-Assessjar tal-PED: Certifikat tal-KE ta' l-eżaminazzjoni tat-Tip:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1	
PED için bildirimde bulunan kuruluş:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS		Korp notifikat għall-PED:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS	
Yetkili Temsilci	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE		Rappreżentant Awtorizzat	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE	
Beyan			Dikjarazzjoni		
Yetkili temsilci olarak beyan ederim ki bu ürünün teminine / üretimine ilişkin olarak yukarıda verilen bilgiler yukarıda anılan Direktiflerin hükümlerine uyan standartlara ve ilgili başka belgelere uygundur.			Niddikjara li bhala r-rappreżentant awtorizzat, l-informazzjoni ta' hawn fuq, f'dak li għandu x'jaqsam mal-forniment/manifattura ta' dan il-prodott, hija f'konformità ma' l-istandards u d-dokumenti l-oħra relatati li jsegwu d-dispożizzjonijiet tad-Direttivi msemmija hawn fuq.		
İmza: 	Tarih: 21/10/2016		Firma: 	Data: 21/10/2016	
Beyan No: 00298/211016			Numru tad-Dikjarazzjoni: 00298/211016		
Декларация за съответствие		BU	Declarația de conformitate		RO
Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK			Parker Hannifin Manufacturing Limited Dukesway, TVTE, Gateshead, Tyne & Wear, NE11 0PZ. UK		
Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-3)			Compressed Air Filters Oil-X AO/AA/ACS/WS (Size 1-5)		
Директиви	2014/68/EU		Directive	2014/68/EU	
Исползвани стандарти	Generalment f'konformità ma' ASMEVIII Div 1 : 2015 & AS1210.		Standardele folosite	Generalment f'konformità ma' ASMEVIII Div 1 : 2015 & AS1210.	
Начин на оценка от PED :	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1		Cale de evaluare PED:	Size 1-3 Article 4, Paragraph 3 (SEP) Size 4 Category I according to module B & D COV0912556/1	
Сертификат за ЕС типово изпитване:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS		Certificat de examinare EC de tip:	Lloyds Register Verification 71 Fenchurch St. London EC3M 4BS	
Упълномощен представител	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE		Reprezentant autorizat	Damian Cook Divisional Engineering Manager Parker Hannifin Manufacturing Limited, GSFE	
Декларация			Declarație		
Декларирам като упълномощен представител, че горната информация относно доставката / производството на този продукт е в съответствие със стандартите и други свързани документи следващи разпоредбите на горепосочените директиви.			Declar, în calitate de reprezentant autorizat, faptul că informația de mai sus referitoare la livrarea / fabricarea acestui produs este în conformitate cu standardele și alte documente asociate care urmăresc prevederile directivelor de mai sus.		
Подпис: 	Дата: 21/10/2016		Semnătura: 	Data: 21/10/2016	
Номер на декларацията: 00298/211016			Numărul declarației: 00298/211016		

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