## CHAPTER OVERVIEW



A

B

C

D

E

### Manufacturer in terms of 97/23/EC

The full name and address of the manufacturer is:

Lenhardt & Wagner GmbH

An der Tuchbleiche 39
68623 Hüttenfeld / Germany

Phone: +49 (0) 62 56 - 85 88 0 - 0
Fax: +49 (0) 62 56 - 85 88 0 - 14

E-Mail: service@lw-compressors.com
Internet: www.lw-compressors.com

CE

## Compressor information

Type designation

Serial number

Date of construction

## Purchase information

Purchase date

First commissioned on

Warranty period

Dealer's stamp

## Warranty

L&W will uphold warranty claims made during a period of 12 months from the invoice date.
If the compressor was purchased from an official L&W dealer, the date on the dealer's invoice is valid. Warranty claims can only be made on presentation of the original invoice.
Should verifiably defective parts have been delivered, we will decide to either replace the parts or repair them. The resulting transport and assembly costs will be invoiced.
No reduction of the purchase price or changes to the contract can be made. The parts for which a claim is being made should be kept safe by the purchaser and, when requested, sent to us at their cost. Replaced parts become the property of L&W. If maintenance work is carried out without our knowledge or permission by the purchaser or a third party, we are absolved from any liability for warranty claims. As a matter of principle, warranty claims can only be made by the initial purchaser.

A

# Operating Instructions

## Breathing Air Compressor

## LW 570 E II


Version: 15/10/19-E

## Maintenance &Service



## Storage

## General Information

We strongly recommend to read this manual thoroughly prior to operation and to follow all the safety precautions precisely. Damage resulting from any deviation from these instructions is excluded from warranty and liability for this product. Carry out other commissioning steps only if you have fully understood the following contents.

Before commissioning and using the unit, carry out all the essential preliminary work and measures concerning legal regulations and safety.

These are described on the following pages of this operation manual.

## Description of Marks & Warning Signs

The following warning signs are used in this document to identify the corresponding warning notes which require particular attention by the user. The warning signs are defined as follows:

**Caution**
Indicates an imminently hazardous situation which, if not avoided, could result in serious injury, physical injury or death.

**Warning**
Indicates a potentially hazardous situation which, if not avoided, could result in physical injury or damage to the product or environment.

**Note**
Indicates additional information on how to use the unit.

## Scope of Delivery

Compressors are provided in different equipped versions.

## Versions

**Filling pressure versions:**

- PN 225 bar
- PN 330 bar
- PN 225 / 330 bar

## Specifications

- Electro motor (400V / 3 Phase / 50 Hz)
- Painted steel housing (RAL 6026)
- Automatic condensate drain
- Automatic stop at final pressure
- Hour counter
- Operating panel c/w start/stop and condensate test buttons, as well as emergency stop switch
- 4x Filling hose c/w filling valve
- Filling connectors to your choice (DIN 200 or 300 bar, CGA 200 or 300 bar, INT)
- Motor protection switch
- Safety switch
- Pressure maintaining and non return valve
- All pistons c/w steel piston rings
- Improved lubrication system c/w oil filter
- Low pressure oil pump c/w oil sieve
- Oil- / Water separators after each stage
- Safety valves after each stage
- 0.8 ltr. pre filter
- Condensate-stop-valve
- 10 ltr. condensate tank with venting silencer
- 4 concentric suction/pressure valves
- Breathing air purification an accordance to EN 12021

## Options

- Auto start system
- 200 and 300 bar parallel filling pressures
- Oil pressure gauge
- Intermediate pressure gauges
- Oil pressure monitoring c/w auto shut down
- Oil temperature display with auto shut down
- Cylinder head temperature monitoring with auto shut down
- Puracon filter monitoring (Auto shut down also available)
- ECC control in remote control box
- Additional high pressure outlet
- Power cable and plug
- Block heating device
- 420 bar Version
- Phase monitoring c/w shut down at wrong direction of rotation
- Special voltages / frequencies on request
- Air cooler connecting kit

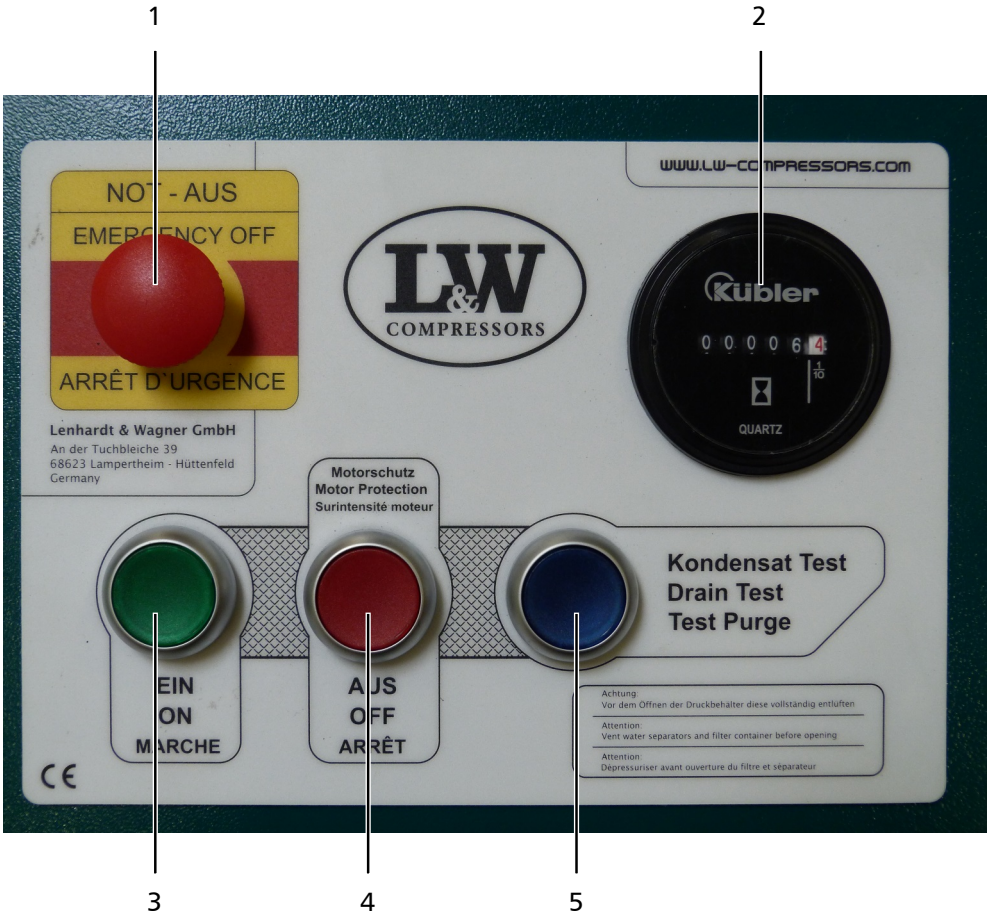
## Technical Data

| Technical Data | LW 570 E II |
|---|---|
| Flow Rate [l/min]: | 570 |
| Max. Operating Pressure [bar]: | 350 |
| RPM [$min^{-1}$]: | 1,060 |
| Number of Pressure Stages: | 4 |
| Cylinder Bore 1st Stage [mm]: | Ø 105 |
| Cylinder Bore 2nd Stage [mm]: | Ø 50 |
| Cylinder Bore 3rd Stage [mm]: | Ø 25 |
| Cylinder Bore 4th Stage [mm]: | Ø 14 |
| Medium: | Compressed Air / Breathing Air |
| Intake Pressure: | atmospheric |
| Oil Pressure (at operating temperature) [bar]: | +2.0 (±0.1) |
| Oil Capacity [l]: | 2.9 |
| Intake Temperature [°C]: | 0 < +45 |
| Ambient Temperature [°C]: | +5 < +45 |
| Cooling Air Volume [$m^3/h$]: | > 4,500 |
| Voltage: | 400 V / 3 phase / 50 Hz |
| Protection Class Drive Motor: | IP 54 |
| Drive Power [kW]: | 15 |
| RPM Motor [$min^{-1}$]: | 2,890 |
| Start: | Star/Delta |
| Noise Level [dB(A)]: | 82,7 at distance of 1 m<br>77 at distance of 3 m |
| Dimensions W x D x H [mm]: | 1,540 x 820 x 1,032 |
| Weight [kg]: | 405 |
| Content Volume Final Filter Housing [l]: | 2.3 |
| Content Volume Pre-Filter Housing [l]: | 0.8 |

## Front View

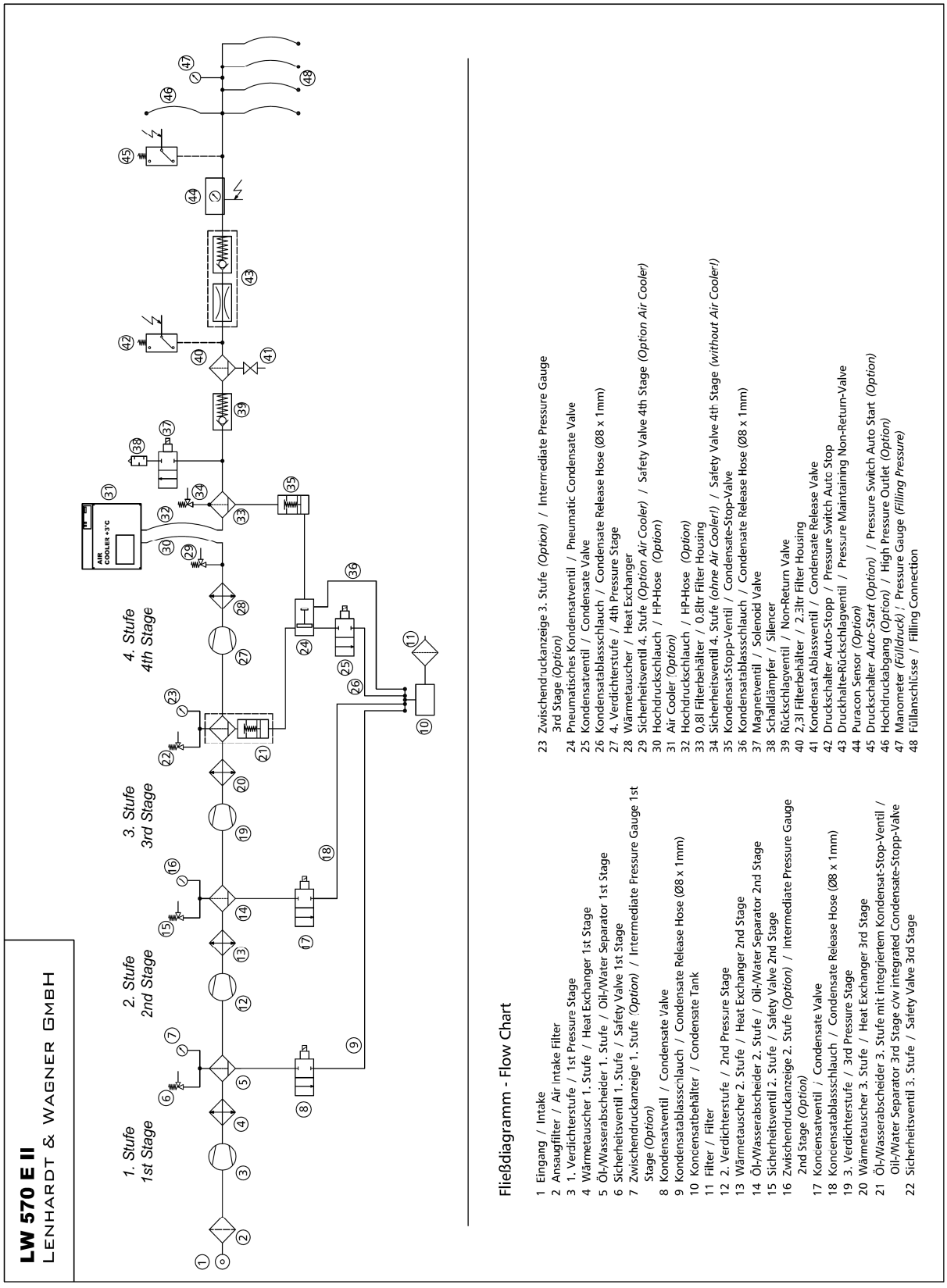

| No. | Designation |
|---|---|
| 1 | Filling Pressure Gauge |
| 2 | Switchboard |
| 3 | Filter Housing |
| 4 | Pre-Filter, Volume: 0.8 Litre |

## Switchboard




| No. | Designation |
|---|---|
| 1 | Emergency shut-off switch |
| 2 | Hour counter |
| 3 | ON button |
| 4 | OFF button |
| 5 | Drain test button |

## Flow Chart




Fließdiagramm - Flow Chart

1 Eingang / Intake
2 Ansaugfilter / Air intake Filter
3 1. Verdichterstufe / 1st Pressure Stage
4 Wärmetauscher 1. Stufe / Heat Exchanger 1st Stage
5 Öl-/Wasserabscheider 1. Stufe / Oil-/Water Separator 1st Stage
6 Sicherheitsventil 1. Stufe / Safety Valve 1st Stage
7 Zwischendruckanzeige 1. Stufe *(Option)* / Intermediate Pressure Gauge 1st Stage *(Option)*
8 Kondensatventil / Condensate Valve
9 Kondensatablassschlauch / Condensate Release Hose (Ø8 x 1mm)
10 Koncensatbehälter / Condensate Tank
11 Filter / Filter
12 2. Verdichterstufe / 2nd Pressure Stage
13 Wärmetauscher 2. Stufe / Heat Exchanger 2nd Stage
14 Öl-/Wasserabscheider 2. Stufe / Oil-/Water Separator 2nd Stage
15 Sicherheitsventil 2. Stufe / Safety Valve 2nd Stage
16 Zwischendruckanzeige 2. Stufe *(Option)* / Intermediate Pressure Gauge 2nd Stage *(Option)*
17 Koncensatventil / Condensate Valve
18 Koncensatablassschlauch / Condensate Release Hose (Ø8 x 1mm)
19 3. Verdichterstufe / 3rd Pressure Stage
20 Wärmetauscher 3. Stufe / Heat Exchanger 3rd Stage
21 Öl-/Wasserabscheider 3. Stufe mit integriertem Kondensat-Stop-Ventil / Oil-/Water Separator 3rd Stage c/w integrated Condensate-Stopp-Valve
22 Sicherheitsventil 3. Stufe / Safety Valve 3rd Stage
23 Zwischendruckanzeige 3. Stufe *(Option)* / Intermediate Pressure Gauge 3rd Stage *(Option)*
24 Pneumatisches Kondensatventil / Pneumatic Condensate Valve
25 Kondensatventil / Condensate Valve
26 Kondensatablassschlauch / Condensate Release Hose (Ø8 x 1mm)
27 4. Verdichterstufe / 4th Pressure Stage
28 Wärmetauscher / Heat Exchanger
29 Sicherheitsventil 4. Stufe *(Option Air Cooler)* / Safety Valve 4th Stage *(Option Air Cooler)*
30 Hochdruckschlauch / HP-Hose *(Option)*
31 Air Cooler *(Option)*
32 Hochdruckschlauch / HP-Hose *(Option)*
33 0,8l Filterbehälter / 0.8ltr Filter Housing
34 Sicherheitsventil 4. Stufe *(ohne Air Cooler!)* / Safety Valve 4th Stage *(without Air Cooler!)*
35 Kondensat-Stopp-Ventil / Condensate-Stop-Valve
36 Kondensatablassschlauch / Condensate Release Hose (Ø8 x 1mm)
37 Magnetventil / Solenoid Valve
38 Schalldämpfer / Silencer
39 Rückschlagventil / Non-Return Valve
40 2,3l Filterbehälter / 2.3ltr Filter Housing
41 Kondensat Ablassventil / Condensate Release Valve
42 Druckschalter Auto-Stopp / Pressure Switch Auto Stop
43 Druckhalte-Rückschlagventil / Pressure Maintaining Non-Return-Valve
44 Puracon Sensor *(Option)*
45 Druckschalter *Auto-Start (Option)* / Pressure Switch Auto Start *(Option)*
46 Hochdruckabgang *(Option)* / High Pressure Outlet *(Option)*
47 Manometer *(Füldruck)* / Pressure Gauge *(Filling Pressure)*
48 Füllanschlüsse / Filling Connection

# SAFETY PRECAUTIONS

## Intended Use

Only use the unit in perfect condition for its intended purpose, safety and intended use and observe the operating instructions! In particular disorders that may affect safety have to be eliminated immediately!

Use the unit exclusively for the determined medium (see "Technical Data"). Any other use that is not specified is not authorized. The manufacturer/supplier shall not be liable for any damages resulting from such use. Such risk lies entirely with the user. Authorization for use is also under the condition that the instruction manual is complied with and inspection and maintenance requirements are enforced.

No change and modification to the unit can be made without the written agreement of the manufacturer. The manufacturer is not liable for damage to persons or property resulting from unauthorised modifications.

## Operators

Target groups in these instructions;

**Operators**

Operators are persons who are authorized and briefed for using the compressor.

**Qualified personnel**

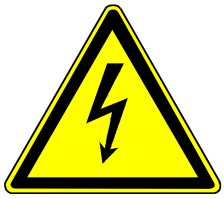
Qualified personnel are persons who are entitled to repair, service, modify and maintain the system.

**Warning**
Only trained personnel are permitted to work on the unit!

**Warning**
Work on the electrical equipment on / with the machine / unit may only be carried out by qualified electricians.

## Safety Instructions on the Unit

Importance of notes and warning signs that are affixed to the compressor according to the application or its equipment.



**Warning**

*High Voltage!*

**Note**

*Ensure correct direction of rotation!*

## General Safety Precautions

- Read the Operating Instructions of this product carefully prior to use.
- Strictly follow the instructions. The user must fully understand and strictly observe the instructions. Use the product only for the purposes specified in the intended use section of this document.
- Do not dispose the operating instructions. Ensure that they are retained and appropriately used by the product user.
- Only trained and competent personnel are permitted to use this product.
- Comply with all local and national rules and regulations associated with this product.
- Only trained and competent personnel are permitted to inspect, repair and service the product.
- Only authentic L&W parts and accessories may be used for maintenance work. Otherwise, the proper functioning of the product may be impaired.
- Do not use faulty or incomplete products. Do not modify the product.
- Inform L&W in the event of any product or component fault or failure.
- The quality of the air supply must meet EN12021 specifications for breathing air.
- Do not use the product in areas prone to explosion or in the presence of flammable gases. The product is not designed for these applications.
  An explosion might be the result if certain conditions apply.

## Unit Customised Safety Notices

### Organisational Measures

- In addition to the instruction manual, observe and comply with universally valid legal and other obligatory regulations regarding accident prevention and environment protection.
- In addition to the instruction manual, provide supplementary instructions for supervision and monitoring duties taking into consideration exceptional factors e.g. with regard to organisation of work, production, personnel employed.
- Supervise personnel's work in accordance with the instruction manual, taking into account safety and danger factors.
- Observe all safety and danger notices on the compressor and check readability and completeness.

### Safety Instructions Operation

- Take measures to ensure that the machine is only taken into operation under safe and functional conditions. Only operate the compressor if all protective and safety equipment, e.g. detachable protective equipment, are provided and in good working order.
- Check the compressor at least once per day for obvious damage and defects. Inform the responsible department / person immediately if anything is not as is should be (including operation performance). Shut down the machine immediately if necessary and lock it.
- In case of malfunction, stop the compressor immediately and lock it.
  Repair malfunctions immediately.
- If there is a failure in the electric energy supply, shut down the machine / unit immediately.
- Ensure safe and environmentally friendly disposal of consumables and old parts.
- The stipulated hearing protectors must be worn.
- Soundproofing equipment on the compressor has to be activated in safety function during operation.
- When handling with fats, oils and other chemical agents, observe the note for the product-related safety.

## Maintenance Instructions

- Hoses have to be checked by the operator (pressure and visual inspection) at predetermined intervals, even if no safety-related defects have been detected.
- Immediately repair any damage. Escaping compressed air can cause injury.
- Depressurise system and pressure lines before beginning repair work.
- Adjustment, maintenance and inspection activities and keep appointments, including information on replacement parts / equipment, prescribed in the operating instructions have to be respected.
- If the machine / equipment is completely off during maintenance and repair work, it must be protected against unexpected restart. Turn off main control device and remove the key and/or display a warning sign on the main switch.
- The machine and especially the connections and fittings should be cleaned from oil, fuel and maintenance products at the beginning of the maintenance / repair. Do not use aggressive cleaning agents. Use fibre-free cleaning cloths.
- Only clean the compressor with a slightly damp cloth. Remove dirt from cooling pipes by using a brush.
- After cleaning, examine all pipes for leaks, loose connections, chafing and damage. Immediately eliminate any faults.
- Always retighten any pipe connector looseed for maintenance or repair work.
- If it is necessary to remove safety devices for maintenance and/or repair work, these must be replaced and checked immediately after completion of the maintenance and/or repair work.
- The electrical equipment of the compressor must be regularly checked. Defects, such as loose screw connections or burnt wires, must be immediately rectified by electrically skilled personnel.
- Only personnel with particular knowledge and experience with pneumatics may carry out work on pneumatic equipment.
- Only personnel with particular knowledge and experience in gas equipment may carry out work on gas equipment.

## Transportation Instructions

- Parts which need to be dismantled for transport purposes must be carefully replaced and secured before taking into operation.
- The transport may only be carried out by trained personnel.
- For transportation, only use lifting devices and equipment with sufficient lifting power.
- Do not stand or work under suspended loads.
- Also separate from minor relocation machinery / system of any external energy supply. Before recommissioning, reconnect the machine to the mains according to regulations.
- When recommissioning, proceed according to the operating instructions..

## Safety Regulations

- Inspections according to legal and local obligatory regulations regarding accident prevention are carried out by the manufacturer or by authorised expert personnel. No guarantees whatsoever are valid for damage caused or favoured by the non-consideration of these directions for use.

# INSTALLATION

## Installation in Closed Rooms

**Danger**
No operation in explosion-hazard areas.
The unit is not approved for operation in areas prone to explosion.

**For installation in closed rooms, observe the following:**

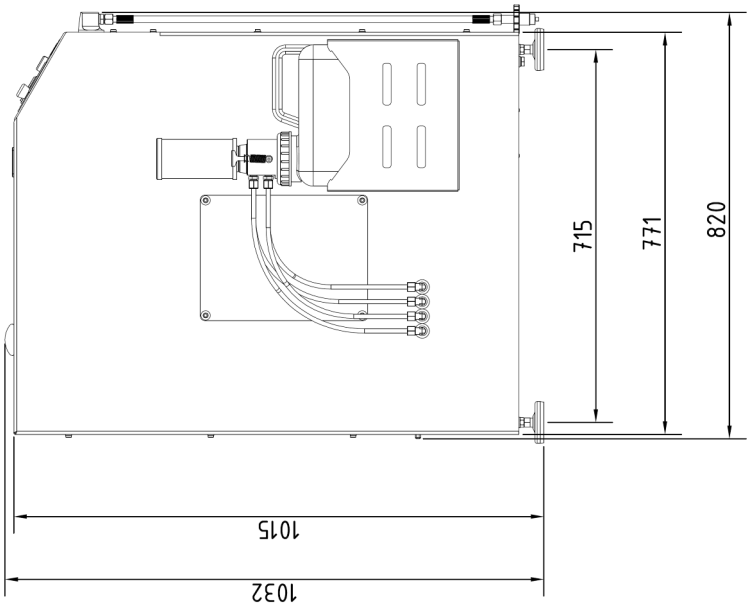
- Install the unit horizontally and level. The floor must be vibration-free and capable of taking the load of the system weight.
- The compressor room should be clean, dry, dust free and as cool as possible, but should not exceed the minimum temperature of +5°C. Avoid direct exposure to sunlight. If possible, install unit in such a manner that the compressor fan can intake fresh air from outside.
  Ensure adequate ventilation and exhaust air opening.
- When locating the compressor in rooms of less than 30 m³ space, where natural ventilation is not ensured or other systems having high radiation are operating in the same room, measures must be taken to provide artificial ventilation.
- Intake air must be free of noxious gas e.g. smoke, solvent vapours, exhaust fumes etc.
- Observe the specified operating temperature (see "Technical Data")!

**Note**
The intake air must be free of harmful gases.
We recommend to use an intake hose in order to get fresh air from the outside.

**Benchmarks - Diameter of the suction hose as a function of the suction hose length**

| Pos. | Length of suction hose [m] | Diameter suction hose [mm] |
|---|---|---|
| 1 | ≤ 3 | Ø 30 |
| 2 | ≤ 10 | Ø 80 |
| 3 | ≤ 15 | Ø 100 |
| 4 | ≤ 20 | Ø 120 |

## Dimensions



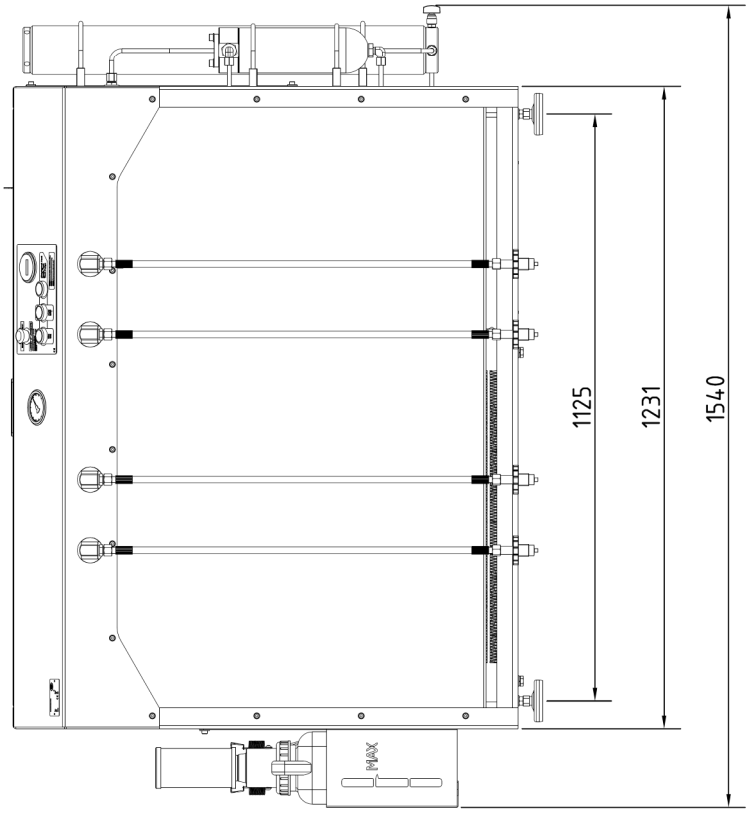




Fig. Dimensions

## Minimum Distances

**Note**
Minimum distances must be adhered!

- The following minimum distances must be adhered:
  Front side: > 1500 mm
  Sides and rear side: > 500 mm
  Distance to ceiling: > 500 mm
  Avoid anything in these areas which would restrict cooling air flow.

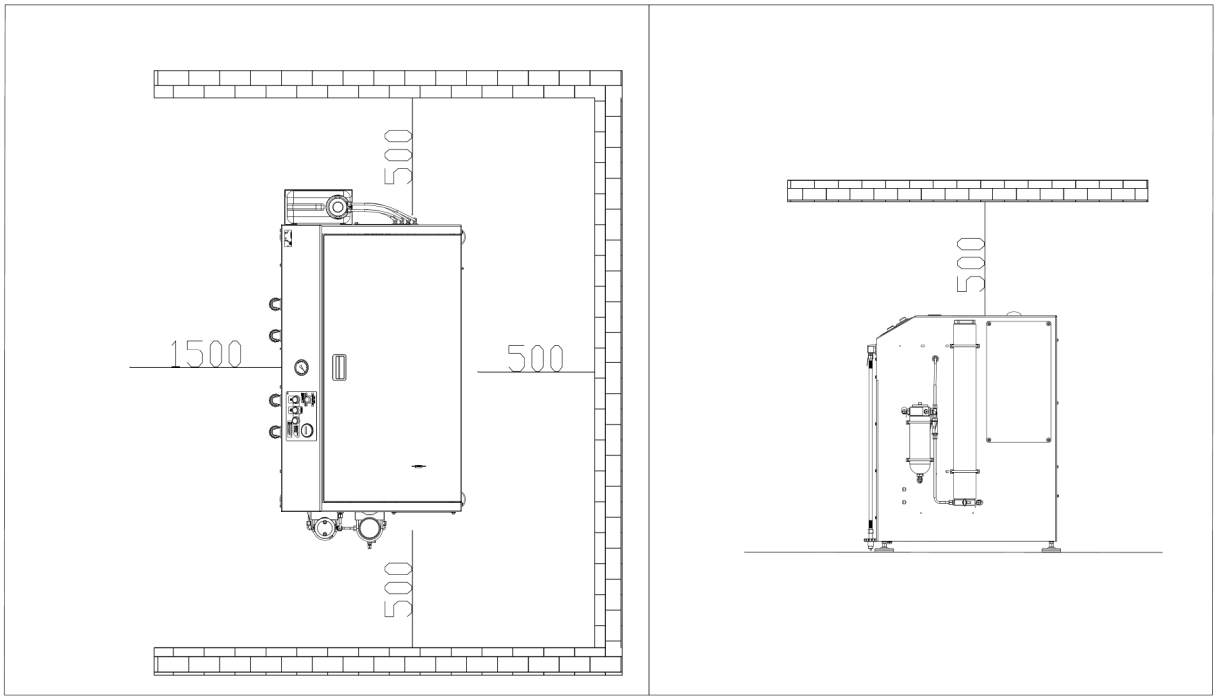



Fig. Minimum distances

## Ventilation

- Make sure that the compressor always has sufficient amount of fresh air available for cooling.
- To prevent serious damage, ensure that the cooling air flow can flow freely.
- The necessary cooling air flow can be calculated by using the following formula:
  300 x drive power [kW] = required cooling air flow [m³/h]
  Example 11 kW motor: 300 x 11 kW = 3300 m³/h = required cooling air flow.
- Fan capacity for cooling air in- & outlet must be sufficient.
  Always make sure that ambient temperatures are within the stated limits (+5°C < +45°C).

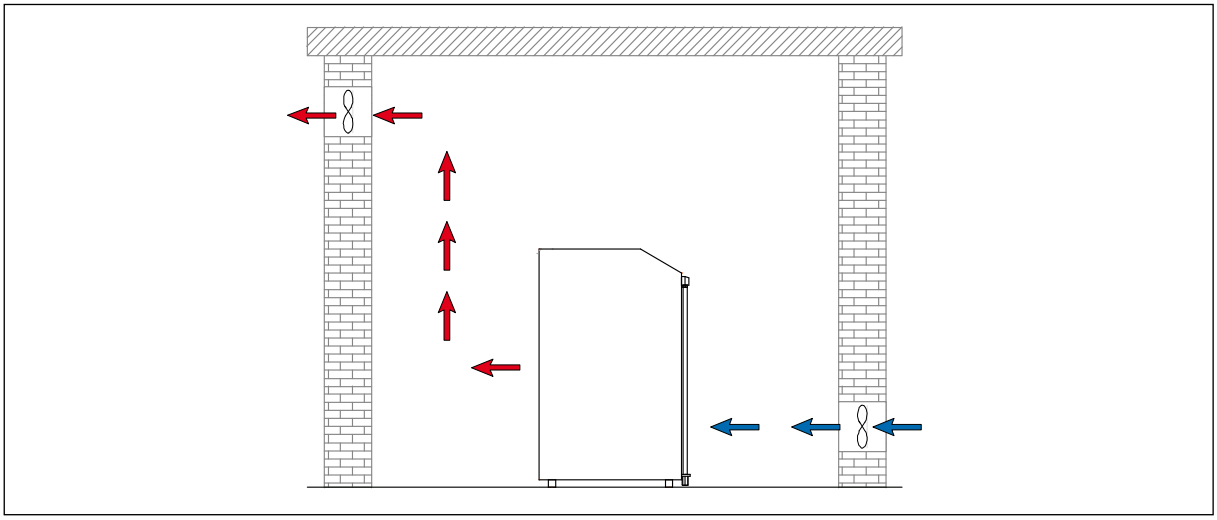


Fig. Ventilation through facade

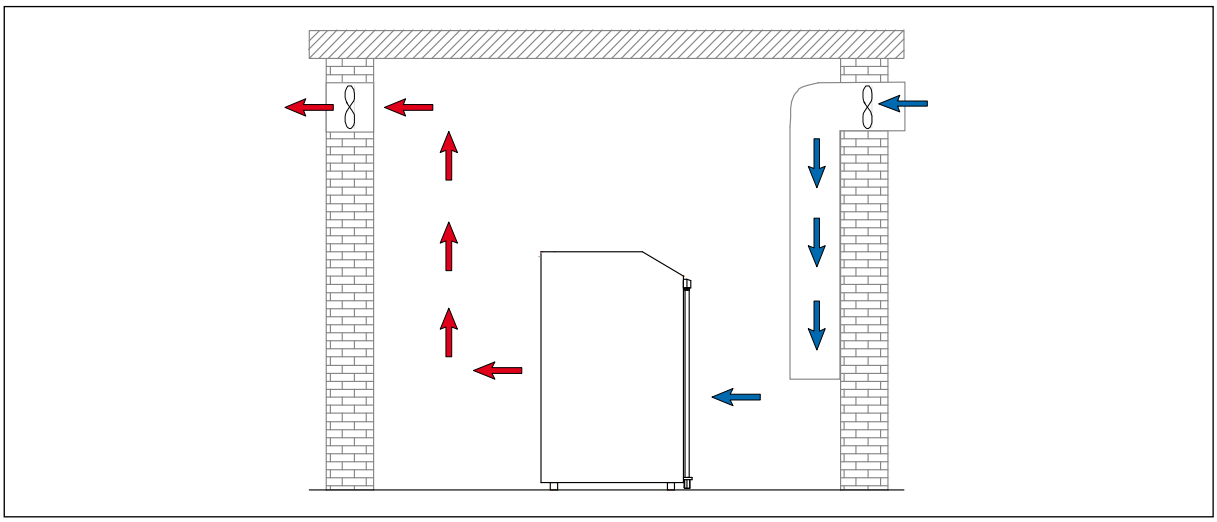


Fig. Ventilation via ventilation stack

## Electrical Installation

**Warning**
Work on the electrical equipment on / with the machine / unit may only be carried out by qualified electricians.

For installation of electrical equipment, observe the following:

- If control devices are delivered by the factory, refer to the appropriate wiring diagram.
- Ensure correct installation of protective conductors.
- Check conformity of motor and control device voltage and frequency with those of the electric network (see name plate on the compressor).
- The fusing should be done in accordance with the valid regulations of the responsible electricity supply company.
- When connecting the unit to the electrical supply, check the compressor direction of rotation (see chapter "Maintenance" -> Check turning direction).
- Fuse the motor correctly (see table; use slow-blow fuses).

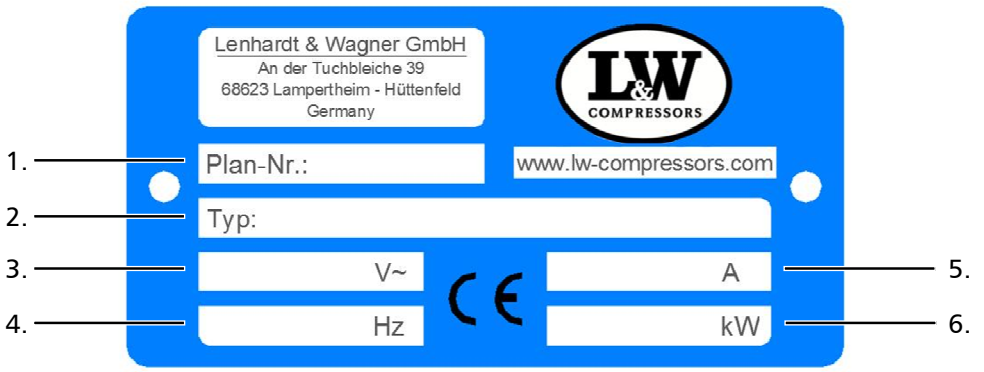



Fig. Compressor name plate

| No. | Designation |
|---|---|
| 1. | Circuit diagram number |
| 2. | Compressor type |
| 3. | Power supply |
| 4. | Frequency |
| 5. | Motor current consumption |
| 6. | Nominal motor power |

## Electrical Installation

The standard compressor version is prepared for the connection to three phases (brown, black, grey), neutral conductor (blue) and protective earth conductor (green/yellow).

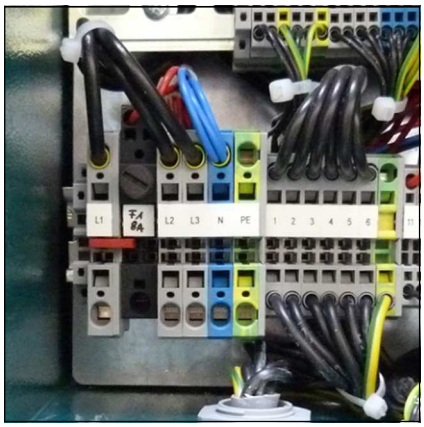


Fig. - Connection to the switch box

## Recommended fuses for 360 - 500 V operating voltage

| Nominal motor power | | Fusing start current A | | Connection in mm² | |
|---|---|---|---|---|---|
| [kW] | [A] | Direct | Star/Delta | Contactor supply | Motor S/D |
| 2.2 | 5 | 10 | - | 1.5 | 1.5 |
| 4 | 8.5 | 20 | - | 2.5 | 1.5 |
| 5.5 | 11.3 | 25 | 20 | 2.5 | 1.5 |
| 7.5 | 15.2 | 30 | 25 | 2.5 | 1.5 |
| 11 | 21.7 | - | 35 | 4 | 2.5 |
| 15 | 29.9 | - | 35 | 6 | 4 |
| 18.5 | 36 | - | 50 | 6 | 4 |
| 22 | 41 | - | 50 | 10 | 4 |
| 30 | 55 | - | 63 | 10 | 6 |

## Recommended fuses for 220 - 240 V operating voltage

| Nominal motor power | | Fusing start current [A] | | Connection in mm² | |
|---|---|---|---|---|---|
| [kW] | [A] | Direct | Star/Delta | Contactor supply | Motor S/D |
| 2.2 | 8.7 | 20 | - | 1.5 | 1.5 |
| 4 | 14.8 | 25 | - | 2.5 | 1.5 |
| 5.5 | 19.6 | 35 | 25 | 4 | 2.5 |
| 7.5 | 26.4 | 50 | 35 | 6 | 4 |
| 11 | 38 | - | 50 | 6 | 4 |
| 15 | 51 | - | 63 | 10 | 4 |
| 18.5 | 63 | - | 80 | 16 | 6 |
| 22 | 71 | - | 80 | 16 | 6 |
| 30 | 96 | - | 125 | 25 | 10 |

# OPERATION

## Important Operation Instructions

**Note**
Ensure that all persons handling the compressor are familiar with function and operation of the unit.

**Wear hearing protection**
When working on a running machine, always wear hearing protection.

## Prior to first commissioning, observe the following:

Necessary steps are described on the next page.

- Ensure that cooling air flow is not restricted.
- Check compressor oil level by the oil indicator glass (see page 27).
- Check all connections and retighten if necessary.
- Check if filter cartridge is in place (see "Service and Maintenance").
- Check V-belt tension.
- Connect HP-hose to pipework, storage or filling panel.
- Check if all filling / storage valves are closed.
- Grip filling connector and open filling valve
- Start the compressor by pushing the ON button (ECC Version: key 1).
- Check direction of rotation - see arrow marking near impeller (see page 28).
  If the direction of rotation is wrong, immediately stop the compressor by pushing the OFF button and contact an authorised electrician.
- Check oil pressure (if oil pressure gauge is fitted).
- Run compressor unit for about 2 minutes.
- Carefully close the open filling valve.
- Run the compressor up to maximum pressure and check if final pressure switch shuts off the machine. If the final pressure switch does not shut off, switch off the compressor by pressing the OFF button (see chapter "REMEDYING FAULTS").
- Check the compressor unit for any kind of leaks (see "SERVICE AND MAINTENANCE")
- Check the condensate drain valves:
  - Position and fix condensate hoses (use suitable container).
  - Press the blue “Condensate Test“ button .
  - Check if air escapes through every single drain hose.
- Stop the compressor by pushing the OFF button (ECC Version: key 0).

**Warning**

Motor is turning the wrong direction!
Immediately after switching on the compressor, check the direction of rotation.
Depending on the location, the phase sequence of the power line could change the direction.

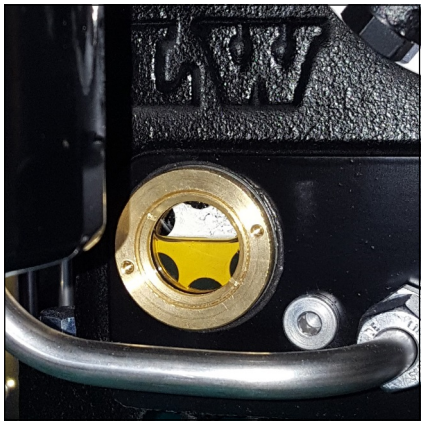
## Check Oil Level

**Warning**
Check oil level daily. Never start the compressor with low oil level.
Lack of lubrication can cause major damage.

Check oil before each operation of the system!

The oil level should be between the middle position and the upper end of the oil indicator glass.
Never start the compressor with low oil level.

Refill new compressor oil at least when the oil level has reached the middle position of the indicator.



Oil level indicator

## Check V-Belt Tension

The V-belts could lose tension during transportation.
Check the V-belt tension before starting the compressor.

## Tension V-Belt / Correct V-Belt Tension

See chapter "Service and Maintenance" -> "Tension V-belts"

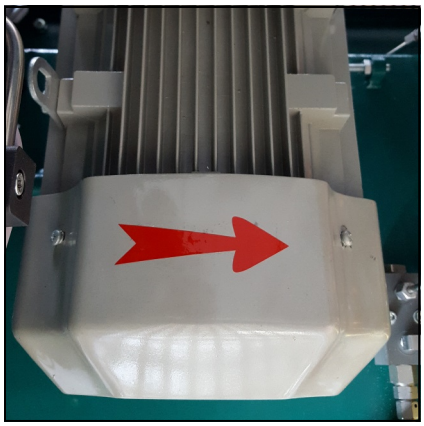
## Check Rotation Direction

**Warning!**
**Immediately after switching on the compressor, check direction of rotation.**

Before starting the compressor for the first time, check the direction of rotation - see arrow marking near impeller.

If the direction of rotation is wrong, the gear type oil pump would not supply any oil to the guide cylinders and so the guide pistons lack lubrication, which could lead to serious piston / cylinder damage.

Furthermore, cooling air flow will not be sufficient:
- Danger of overheating!



Arrow Marking

## Prior to daily operation observe the following:

- Ensure cooling air can flow freely.
- Check compressor oil level by the oil sight glass.
- Check if filter cartridge is in place / observe filter cartridge life!
- Ensure toxic-free, pure intake air.

## Filling Procedure

**Caution! Only fill cylinders which:**
- are marked with the test mark and the test stamp of the expert
- have been hydro tested (check last test date)
- are rated for at least the intended filling pressure
- are free of moisture, dust and dirt

**Note**
The unit shuts down when final pressure is reached.
- Semi Automatic Mode: needs to be restarted manually
- Automatic Mode: re-starts if restart pressure is reached

1. Close all filling valves.
2. Connect the compressed air cylinders.
3. Open cylinder valves.
4. Start compressor by pressing the ON button.
5. If the filling pressure increases, slowly open the filling valves.
6. Fill compressed air cylinders to the desired pressure, subsequently close the filling valves slowly.
7. Close all filling valves.
8. Vent filling connectors (L&W lever valves are self venting types)
9. Disconnect compressed air cylinders from filling valves.

## Switch off compressor Unit

As standard the compressor unit is equipped with a pressure switch which automatically shuts down the system when set pressure is reached.

During filling process, you can turn-off the system at any time by pushing the red button (OFF) or pressing the emergency stop (only in case of emergency!).

**Note**
After switching off, all intermediate oil / water separators plus the final 0,8 ltr. filter housing will be vented automatically .

# REMEDYING FAULTS

## Compressor does not reach final pressure

| Cause of fault | Remedy |
|---|---|
| Connections leaking | Retighten or clean/replace if necessary |
| Final pressure safety valve leaking | Replace |
| Pipes / heat exchanger damaged | Replace |
| Condensate drain valves leaking | Unscrew valves, check sealing surfaces, clean, replace if necessary |
| Final pressure switch stop unit | Verify settings, replace if necessary |
| Piston of pneumatic condensate valve seezed | Clean pneumatic condensate valve and restore function, check/replace o-rings, replace valve completely if necessary |

## Strong Compressor Vibration

| Cause of fault | Remedy |
|---|---|
| V-belt tension too loose | Tension V-belt |
| Drive motor / Compressor unit loosely | Retighten mounting screws |
| Anti vibration mounts used up | Replace |
| Ground not levelled | Ensure a solid and level ground |

## Flow Rate too Low

| Cause of fault | Remedy |
|---|---|
| Inlet and outlet valves contaminated / defective | Clean, replace if necessary |
| Cylinder(s), piston(s) or piston ring(s) used up | Replace |
| V-belt slips | Tension V-belt |
| See chapter "Final pressure can not be reached" | See chapter "Final pressure can not be reached" |

## Compressor Overheated

| Cause of fault | Remedy |
|---|---|
| Inlet filter cartridge contaminated | Replace |
| Ambient temperature too high | Improve room ventilation / |
| Cooling air inlet and outlet insufficient | Observe minimum distances (see Installation Instructions) |
| Air intake hose too long | Reduce length of the air intake hose |
| Air intake hose diameter too small | Use a larger diameter |
| Wrong compressor rotation direction | Ensure correct phase rotation, |
| Inlet and outlet valves contaminated / defective | Clean, replace if necessary |

## Safety Valve Leaks

| Cause of fault | Remedy |
|---|---|
| Inlet and outlet valves of the following pressure stage defective | Clean, replace if necessary |
| Sinter filter of the following water separator blocked | Replace |
| Safety valve leaky | Replace |

## Oil Taste in the Air

| Cause of fault | Remedy |
|---|---|
| Mole carbon filter cartridge saturated | Replace |
| Compressor oil unsuitable | Use prescribed oil quality |
| Filter cartridge unsuitable | Use prescribed filter type |
| Cylinder(s), piston(s) or piston ring(s) defective | Replace |

## Automatic Condensate Drain Defective

| Cause of fault | Remedy |
|---|---|
| Solenoid coils defective | Replace |
| Cable / supply cable defective | Repair, replace if necessary |
| Timer / relais defective | Replace |
| Sinter filter of pneumatic condensate valve blocked | Replace |
| Piston of pneumatic condensate valve sticks | Clean pneumatic condensate valve and restore function, check/replace o-rings, replace valve complete if necessary |

## Condensate Drain Starts before reaching Final Pressure

| Cause of fault | Remedy |
|---|---|
| Pressure stages are not as prescribed, control pressure of pneumatic condensate valve too low | Check corresponding inlet and outlet valve, replace if necessary. |
| Piston sealing of pneumatic condensate valve contaminated / used up | Clean, replace if necessary |
| Timer / relais settings not correct | Adjust as prescribed |
| Timer / relais defective | Replace |

## Compressor Stops before Final Pressure

| Cause of fault | Remedy |
|---|---|
| Final pressure switch settings not correct | Correct settings |
| Opening pressure of the pressure maintaining valve too high | Correct settings |
| Fuse / circuit breaker has tripped<br>Valid only for E models | Check fusing of the power supply / observe regulations |
| Emergency stop switch has tripped | Unlock emergency stop switch, close compressor housing door correctly |

## Filter Life not Sufficient

| Cause of fault | Remedy |
|---|---|
| Pressure maintaining valve settings not correct | Adjust as prescribed |
| Filter cartridge unsuitable | Replace by a prescribed filter cartridge type |
| Filter cartridge too old | Observe expiration date |
| Filter cartridge packaging incorrect / damaged / already opened. Filter cartridge already partly saturated before change | Store filter cartridges properly, dispose defective cartridges |
| Operating temperature too high | Ensure sufficient ventilation |
| Cylinder(s), piston(s) or piston ring(s) defective | Replace |

## Oil Consumption too High

| Cause of fault | Remedy |
|---|---|
| Cylinder(s), piston(s) or piston ring(s) defective | Replace |
| Compressor oil unsuitable | Use prescribed oil quality |
| Operating temperature too high | Observe prescribed operating temperatures |
| Oil leak at the compressor block | Tighten corresponding mounting screws, if necessary replace corresponding paper sealing / o-ring / shaft seal |

# MAINTENANCE AND SERVICE

## Service, Repair and Maintenance

Carry out service and maintenance work exclusively when the compressor is stopped and depressurised. The unit should be leak-checked regularly. Leaks can be preferably localised by using a leak detector spray (if necessary, brush pipes with soapy water).

We recommend that only authorised L&W service technicians carry out service work on the bearing of the compressor (crankshaft and connecting rods).

We urgently recommend that all maintenance, repair and installation work must only be carried out by trained personnel. This is necessary because all maintenance work can not be explained exactly and detailed in this manual.

Only use authentic L&W spare parts for service work.

**Danger**
Components under pressure, such as hose ends, can quickly come loose when manipulated and can cause potentially fatal injuries due to the pressure surge. Any work on system parts may only be performed in a pressure-compensated state.

**Warning**
The use of accessories that have not been tested can lead to death or serious injury or damage to the unit. Only use authentic L&W spare parts for service work.

**Warning**
Carry out maintenance or service work when the unit is switched off and protected against unexpected restart.

**Warning**
Risk of burns!
Carry out maintenance or service work when the unit has cooled down.

## Daily before taking it into Operation

| Maintenance work | Type | Quantity | Order No. |
|---|---|---|---|
| Check oil level | - | - | 000001 |
| Check condition of all high pressure hoses | - | - | - |
| Check filter cartridge lifetime | - | - | - |
| Operate unit to final pressure and check function of final pressure switch | - | - | - |

## At 25 Operation Hours

| Maintenance work | Type | Quantity | Order No. |
|---|---|---|---|
| Oil change | - | 2,9 | 000001 |
| Replace oil filter cartridge | - | 1 | 009446 |

## Every 3 Months or as Required

| Maintenance work | Type | Quantity | Order No. |
|---|---|---|---|
| Check/Retorque all connections and bolts<br>Drain final filter housing in regular intervals, in dependance to the amount of liquids | - | - | - |
| Open solenoid valve at the 2.3ltr filter housing, drain condensate if necsessary | - | - | - |

## Annually

| Maintenance work | Type | Quantity | Order No. |
|---|---|---|---|
| Oil change, if less than 1000 operating hours | - | 2.9 | 000001 |
| Replace Oil Filter Cartridge, if less than 1000 operating hours | - | 1 | 009446 |
| Check V-belt tension and condition | LW 570 E II (50Hz) | 2 | 001413 |
| | LW 570 E II (60Hz) | 2 | 002878 |
| Check opening pressure of final safety valve | - | - | - |
| Clean coolers | - | - | - |
| Clean all oil/water separators, if less than 500 operating hours | - | - | - |
| Service intake filter (depends on condition - if less than 500 operating hours) | - | - | - |
| Check all connections for leakage | - | - | - |

## Every 500 Operating Hours

| Maintenance work | Type | Quantity | Order No. |
|---|---|---|---|
| Change intake filter * | - | 1 | 000170 |
| Check pressure maintaining/non-return valve | - | - | - |
| Check V-belt tension and condition | LW 570 E II (50Hz) | 2 | 001413 |
| | LW 570 E II (60Hz) | 2 | 002878 |

*** Note**
Article is part of our 1000h, 2000h and 4000h service kits.

## Every 1000 Operating Hours (Latest in 5 years)

| Maintenance work | Type | Quantity | Order No. |
|---|---|---|---|
| Replace sintered metal filter element of water separators | 1 / 2 / 3 Stage | 3 | 000173 |
| Replace o-rings of water separators | 1 / 2 / 3 Stage | 9 | 001272 |
| Replace sintered metal filter of water separators and condensate-stop-valve version 1 | - | 2 | 000188 |
| Replace sintered metal filter of pneumatic condensate valve and condensate-stop-valve v2 | - | 4 | 002914 |
| Replace oil sieve | - | 1 | 009545 |
| Replace oil pump cover gasket | - | 1 | 009546 |
| Replace Oil Filter Cartridge | - | 1 | 009446 |
| Oil change | - | 2,9 | 000001 |
| Replace o-rings of the final filter housing | - | 2 | 001287 |
| Replace back-up rings of the final filter housing | - | 2 | 001285 |
| Replace o-ring of the 0.8 ltr. Prefilter | - | 1 | 004221 |
| Replace back-up rings of the 0.8 ltr. Prefilter | - | 1 | 004222 |
| Replace Filter water separator 0.8 Ltr | - | 1 | 003980 |
| Replace o-ring, condensate-stop-valve | - | 2 | 001264 |
| Replace o-ring, condensate-stop-valve housing | - | 1 | 006382 |
| Replace sintered metal filter of solenoid valve 350bar | - | 1 | 003159 |
| Replace Filter Condensate Catch Tank | - | 1 | 006462 |
| Replace o-ring Filter Condensate Catch Tank | - | 1 | 002152 |
| Replace intake filter | - | 1 | 000170 |

**Note**
All stated quantities are parts of our 1000h, 2000h and 4000h service kits. You can find an overview on page Service Kits.

## Every 2000 Operating Hours (Latest in 10 years)

| Maintenance work | Type | Quantity | Order No. |
|---|---|---|---|
| **Replace all inlet and outlet valves incl. gaskets** | 1st stage | 1 | 000369 |
| | 2nd stage | 1 | 000256 |
| | 3rd stage | 1 | 010346 |
| | 4th stage | 1 | 010347 |
| | Upper gasket 1st | 1 | 000349 |
| | Upper gasket 2nd | 1 | 000254 |
| | Lower gasket 1st | 1 | 000350 |
| | Lower gasket 2nd | 1 | 003492 |

**Note**
All stated quantities are parts of our 2000h and 4000h service kits. You can find an overview on page Service Kits.

## Every 4000 Operating Hours (Latest in 20 years)

| Maintenance work | Type | Quantity | Order No. |
|---|---|---|---|
| **Replace shaft seal** | - | 1 | 008873 |
| **Replace o-ring shaft seal cover** | - | 1 | 008877 |
| **Replace needle bearings for conrod 2nd, 3rd and 4th stage** | - | 3 | 003281 |
| **Replace o-ring Cylinder flange** | - | 3 | 008874 |

**Note**
All stated quantities are parts of our 4000h service kits. You can find an overview on page Service Kits.

## Service Kits

The service kits contain parts for maintenance according to the factory requirements.

The use of the service kits ensures that all required parts are ordered and replaced and gives assurance that all parts are included in the order. Depending on the model and interval, the service kits include parts such as O-Rings, Sinter Filter, Inlet Filter, Silencers, In-&Outlet Valve, Valve Seals and Compressor oil.

Service Kits

## Service Kits LW 570 E II

| Compressor | Operating Hours | Order No. |
|---|---|---|
| LW 570 E II | 1000 h | 010013 |
| LW 570 E II | 2000 h | 010429 |
| LW 570 E II | 4000 h | 010355 |

**Note**
V-belts are not included in our 1000h, 2000h and 4000h service kits.

## Tension V-Belt

**Tension V-belt as follows:**

- Loose nuts (A)
- Loose lock nuts (B)
- Loose  adjusting screw (D)
- Tension / relieve V-belt with tensioning screw (C)
- Align the engine with adjusting screw (D)
- Tighten nuts (A)
- Tighten lock nuts (B)

**Tension V-belt**
Turn tensioning screw (C) clockwise

**Relieve V-belt**
Turn tensioning screw (C) anticlockwise

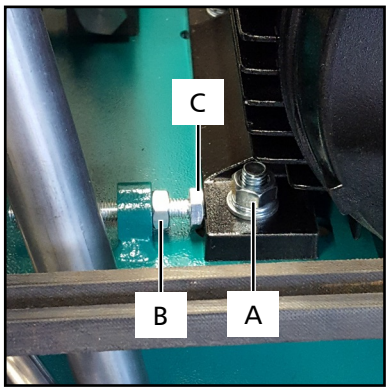


Fig. 1

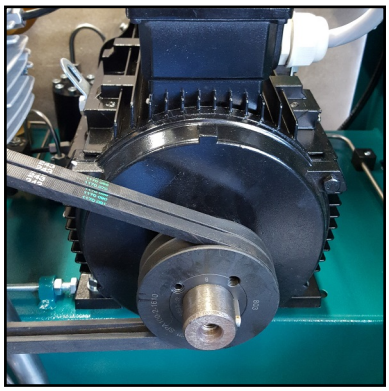


Fig. 2

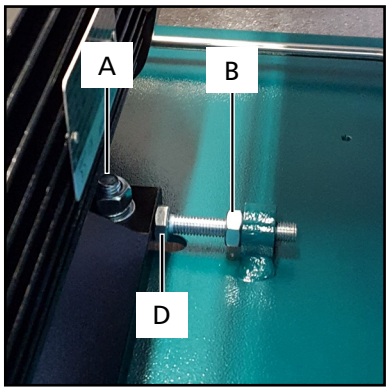


Fig. 3

## Correct V-Belt Tension

Do not tension V-belt too tight. This damages bearings of compressor and motor. The V-belt should only be tensioned until there is no noise caused by slipping during start.

We recommend using a V-belt tension gauge.

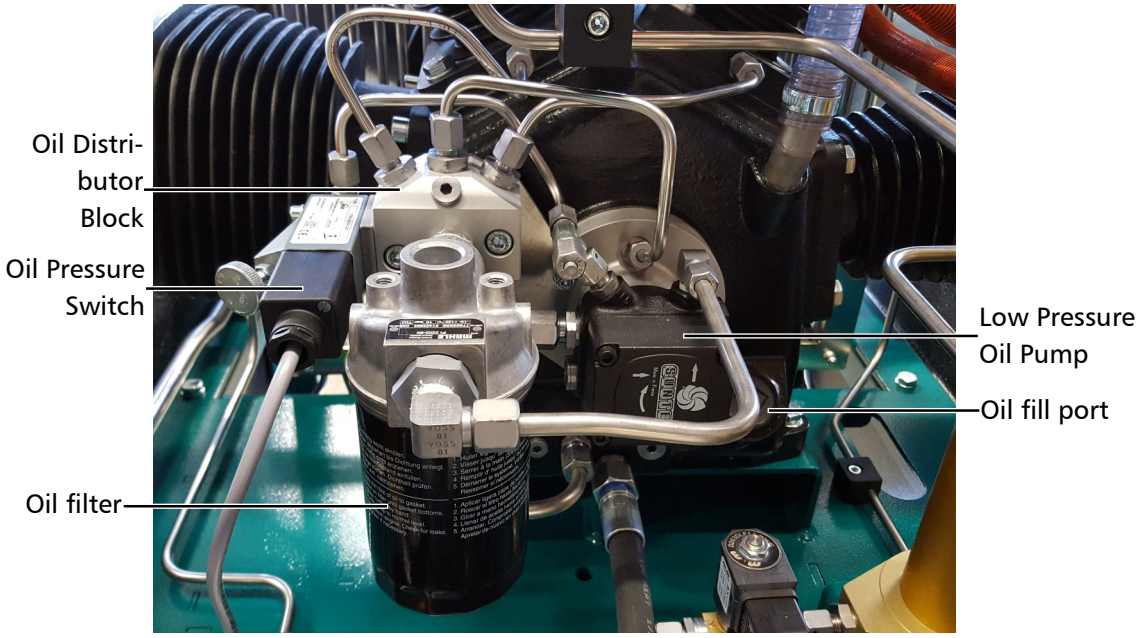
## Settings

| Motor Type | Initial Installation | Operation after running in |
|---|---|---|
| Electric motors 50Hz | 500 N | 400 N |
| Electric motors 60Hz | 400 N | 300 N |

## Compressor Lubrication

Main bearings (oil pump side), conrod big end bearings and guide cylinders of 3rd and 4th stages are all lubricated by a directly driven, low pressure oil pump (gear type).

Additionally oil spray is used to lubricate the main bearing (flywheel side), plus conrods and cylinders of 1st, 2nd, 3rd and 4th stage.




Lubricating System

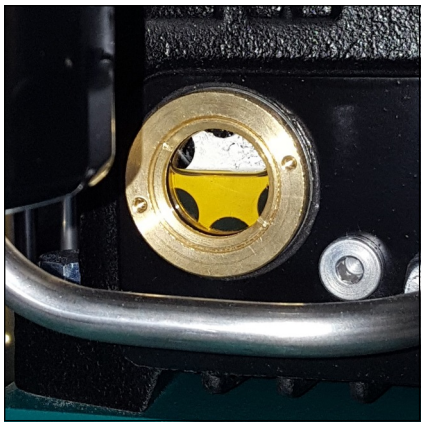
## Check Oil Level

**Warning**
Check oil level daily. Never start the compressor with a too low oil level. Risk of accidental loss, destruction or deterioration.

Check oil before each operation of the system!

The oil level should be between the middle and upper end of the oil sight glass. Never start the compressor with a too low oil level.

Refill new compressor oil at least when the oil level reached the middle of the indicated area.



Oil sight glass

## Oil Change

**Note**
We recommend oil change at least once a year - depending on total operating hours.

**Oil change as follows:**

- Run compressor warm for approx. 2 min.
- Switch off and vent compressor. Secure against restarting
- Place a suitable oil drain tray under the drain hose and oil filter.
- Open carefully oil drain valve and drain oil completely.
- Close oil drain valve.
- Change oil filter cartridge with a suitable oil filter key (Part number 009728)
  Pre-fill the new oil filter cartridge with 400 ml synthetic compressor oil
- Loose oil fill port with an appropriate adjustable wrench (AF 0-40 mm) and unscrew manually.
- Fill oil by using a funnel.
- Check oil level. The oil level should be between the middle and upper end of the oil sight glass.
- Screw oil fill port manually in and tighten with the adjustable wrench.

**The oil change is now completed.**

## Maintenance Intervals

- First oil– and oil filter change after 25 operating hours (total hours).
- All further changes after each 1,000 operating hours.

## Oil and Oil Capacity

Approx. 2,900 ml synthetic compressor oil is necessary for one oil change. Only use synthetic compressor oil which is recommended as suitable from L&W.

## Oil Sieve Change

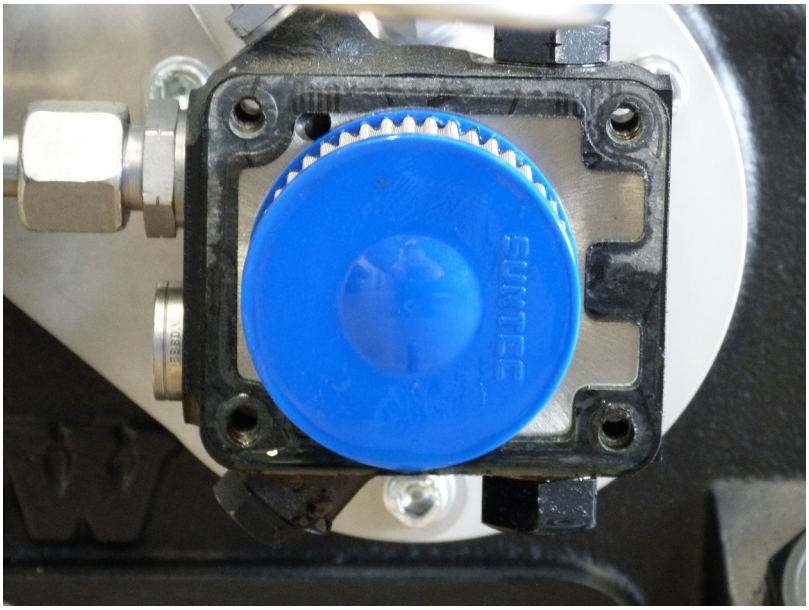
**Oil sieve change as follows:**

- Loose cover screws (4 pcs).
- Remove cover, cover gasket and oil sieve.
- Clean oil sieve with petroleum-ether or replace the defective oil sieve.
- Inset oil sieve
- Replace cover gasket.
- Cover gasket with oil before putting it in placing (Take care of the installation direction).
- Remount the cover with the 4 cover screws. Tightening torque: 4.5 - 8 N.

**The oil sieve change is now completed.**

## Maintenance Intervals

- We recommend cleaning or replacing the oil sieve every 1,000 working hours.
- 009545 - Oil sieve + 009546 - oil pump cover gasket



Correct oil sieve mounting direction

## Final Pressure Switch

**Note**
Do not adjust the final pressure switch to the safety valve pressure. The final pressure switch has to be adjusted to min. 10 bar below the safety valve pressure. Otherwise, the safety valve can open during operation. This considerably reduces the life of the safety valve.

The pressure switch shuts off the compressor automatically when the selected final pressure is reached. The final pressure switch is already adjusted to the corresponding cut-out pressure.

The pressure can be adjusted with the upper adjusting screw as follows:

**Increasing cut-out pressure:**

Turn the adjusting screw clockwise

**Reducing cut-out pressure:**

Turn the adjusting screw anti-clockwise

Adjust the pressure switch in steps of a quarter turn. Restart the compressor after every adjustment step to verify the actual cut-out pressure.

Final pressure switch

## Example Settings:

| Safety valve | Max. Operating Pressure |
|---|---|
| 225 bar | 215 bar |
| 250 bar | 240 bar |
| 330 bar | 320 bar |

## Automatic Condensation Dump System

**Note**
The collected condensate can contain oil and has to be disposed according to regulations.

The LW 570 ES II comes as standard with an automatic condensation dump system. Solenoids drain all condensate separators every 15 minutes.

To test the system, press the blue condensate test drain button on the operating panel.

## Oil / Water Separators

Condensate is separated after every stage of compression. All four oil / water separators are equipped with electronic timer controlled solenoids. The timer is located in the switch box and activates the dump valves about every 15 minutes.

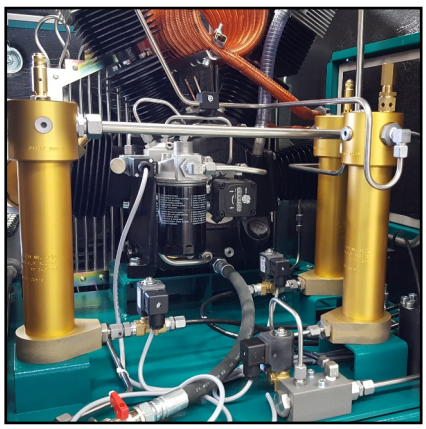
The condensate drains through the black plastic hoses into the 10 liter condensate catch tank.

The drain noise can be kept to a minimum by using a silencer.

## Maintenance Intervals

We recommend to clean oil and water separators every 500 operating hours or at least once a year, to check for corrosion damage and to replace o-rings if necessary.

All oil / water separators have an integrated sinter filter which has to be replaced every 1,000 operating hours.



Oil / water separators 1st, 2nd and 3rd stage

Condensate Catch Tank 10 Litre

## Oil / Water Separators 1st, 2nd and 3rd Stage - Maintenance

**Note**
Clean all parts thoroughly before assembly.

**Maintenance / cleaning of oil / water separators 2nd stage as follows:**

- Loose pipes and mounting screw
- Remove oil / water separator
- Unscrew and remove filter top (Fig. 1)
- Loose nut of separator top (Fig. 2)
- Change sinter filter (Fig. 3)
- Reassemble all parts and tighten nut
- *(Only for oil separator 3rd stage)*
  Pull the condensate stop valve out of the filter housing by using threated rod
- Change o-ring, previously grease new o-ring (Page 51, Fig. 4).
- Push the condensate stop valve into the filter housing by using a threated rod
- Change o-ring on the top of the filter housing, previously grease new o-ring (Page 51, Fig. 5)
- Place separator top and tighten
- Remove the base ring (Page 51, Fig. 6)
- Change o-rings, previously grease new o-rings (Page 51, Fig. 7)
- Remove the connection of the base ring and change the sinter filter (Page 51, Fig. 8)
- Reassemble the connection
- Mount the base ring
- Mount oil / water separator
- Tighten pipes and mounting screw

**The oil / water separator maintenance is now completed.**

Fig. 1 - Unscrew and remove filter top

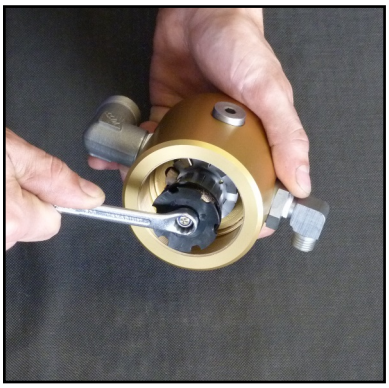


Fig. 2 - Loose nut at the separator top

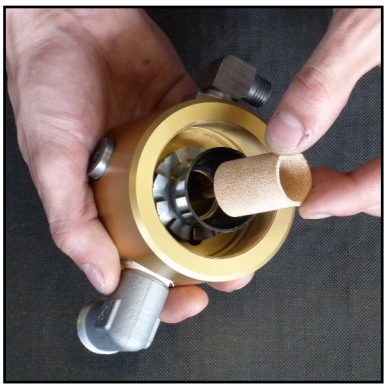


Fig. 3 - Change sinter filter

## Oil / Water Separators 1st, 2nd and 3rd Stage - Maintenance - continued from previous page

Abb. 4 - Change o-ring

Abb. 5 - Change o-ring

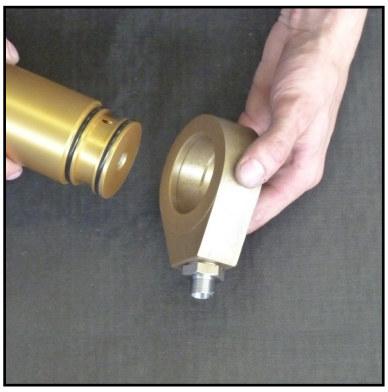


Abb. 6 - Remove the base ring

Abb. 7 - Change o-rings

Abb. 8 - Change sinter filter

## Condensate Stop Valve - Maintenance

**Note**
Clean all parts thoroughly before assembly.

**Change/clean condensate stop valve as follows:**

- Loose pipes and mounting screws.
- Remove condensate stop valve housing.
- Remove  allen bolts and pull off the cover by screwing two allen bolts into the threated holes (Fig. 2).
- Pull the condensate stop valve out of the filter housing by using a threated rod
- Change o-ring, previously grease new o-ring (Fig. 3).
- Push the condensate stop valve into the filter housing by using a threated rod.
- Change o-ring of the cover, previously grease new o-ring (Fig. 4).
- Mount the cover, tighten the allen bolts crosswise.
- Remove the connection on the cover ring and change the sinter filter *(version 1 non threated version & version 2 threated version)* (Fig. 5).
- Reassemble the connection
- Mount condensate valve housing.
- Tighten mounting screws and pipes

**The oil / water separator maintenance is now completed.**

Fig. 1 - Condensate stop valve housing

Fig. 2 - Remove the cover

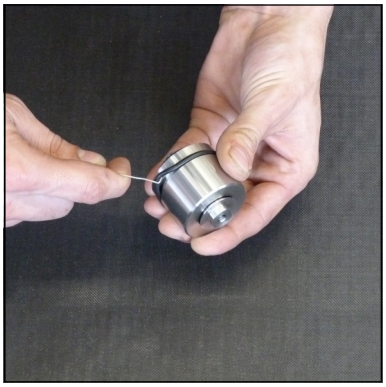


Abb. 3 - O-Ring wechseln (Kondensat-Stopp-Ventil)

Abb. 4 - O-Ring wechseln (Deckel Kondensat-Stopp-Ventil)

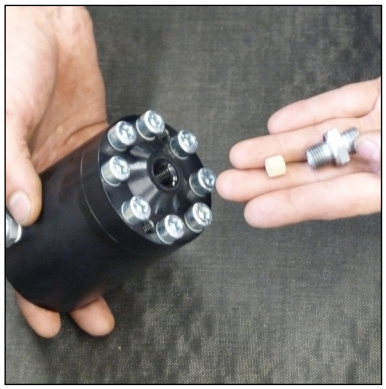


Abb. 5 - Sinterfilter wechseln

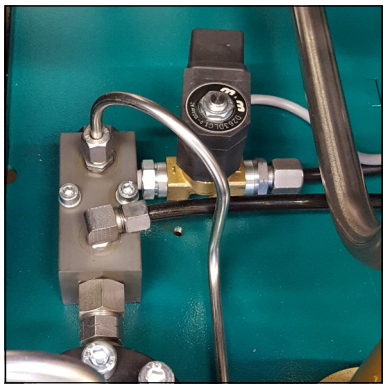
## Pneumatic Condensate Valve - Maintenance

**Note**
Clean all parts thoroughly before assembly.

**Pneumatic condensate valve change as follows:**

- Loose pipes and mounting screws
- Remove pneumatic condensate valve
- Loose connection (Fig. 2)
- Change sinter filter (Fig. 3)
- Tighten connection
- Mount pneumatic condensate valve
- Tighten pipes and mounting screws

**Pneumatic condensate valve maintenance is now completed.**



Pneumatic Condensate Valve

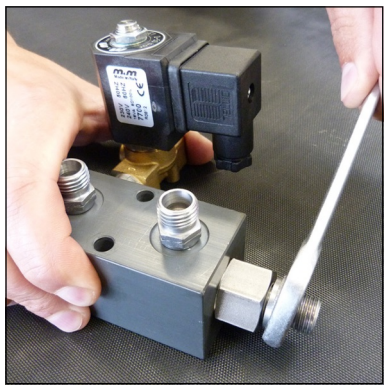


Fig. 2 - Loose connection

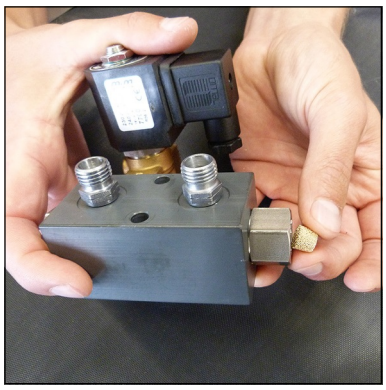


Fig. 3 - Change sinter filter

## Filter Housing 2.3 ltr

The mole carbon filter housing is installed at the right hand side of the front panel.

Inside the filter housing a jet blows air on to the wall of the housing. Condensation water and oil are led by centrifugal force to the bottom of the housing. Air flows through the mole carbon filter cartridge, which purifies the air from residual moisture and odours. The manual condensate drain valve needs to be opened if a drain is necessary and before filter cartridge change.

Filterhousing 2.3l, pressure maintaining non return valve and filter unit 0,8l with safety valve

## Filter Cartridge 2.3 ltr

The high-pressure compressor is equipped with an integrated breathing air purification system. Air is compressed up to 350 bar, dried and odour- and tasteless purified. Oil residues are bounded. The breathing air filter cartridge consists of a molecular sieve and activated-carbon filter.

Cartridge capacity: approx. 2.3 ltr

All breathing air filter cartridges are vacuum sealed.

We recommend unpacking the filter cartridges just before installation. Filter cartridges which are exposed too long could be saturated with moisture and become unusable.

## Maintenance Intervals

The life of the filter cardridge is substantially depend on the operating temperature, from the state of wear of the compressor, of the filter size and the operating pressure.

We recommend to monitor the state of the filter.

## Pre-Filter 0.8 ltr

In particle filter particles are filtererd out up to a size of 10 $\mu$m. The prefilter is separating water before the air enters final filter housing wich is extending the lifetime of the filter cartridge.

## Filter Cartridge Replacement

**Filter cartridge change as follows:**

- Open the condensate valve of the final filter housing until it's depressurized (Fig.1)
- Unscrew filter housing cover by using the special filter tool (Fig.2)
- Place the T-piece end of the filter tool in the recess of the filter cartridge (Fig.3)
- Unscrew the filter cartridge anti-clockwise and pull the cartridge out of the housing (Fig.4)
- Open the packing of the new filter cartridge and place it with the filter tool in the filter housing
- Screw the new filter cartridge hand tight in by using the filter tool
- Screw the cover of the filter housing first manually in
- After it has been completely screwed in, turn cover anticlockwise for 90°. This avoids tightening of the cover due to vibration

**The filter cartridge change is now completed.**

Fig. 1 - Drain tap

Fig. 2 - Unscrew the filter housing cover.

Fig. 3 - Place the T-piece end of the filter key in the top of the filter cartridge.

Fig. 4 - Pull the cartridge out of the housing.

**Note**

Ensure that the old filter cartridge is disposed correctly at an approved waste point.

## Filter Housing - Maintenance

**Note**
Clean all parts thoroughly before assembly.

**Filter housing maintenance as follows:**

- Open Filter Cover (Fig.1)
- Change o-ring and back-up ring, previously grease both (Fig.2)
- Grease filter cover thread and close

Fig. 1 - Open Filter cover

**Dismount filter housing**

- Loose pipes and nuts (Fig.3)
- Remove filter housing
- Dismount filter housing base
- Change o-ring and back-up ring, previously grease both (Fig.4)
- Screw filter base tight in

**Mount filter housing**

- Connect pipe connections and tighten
- Adjust holding clamp and tighten nuts.

**The filter housing maintenance is now completed.**

Fig. 2 - Change o-ring and back-up rings

Fig. 3 - Loose pipe connections and nuts

Fig. 4 - Change o-ring and back-up rings

## 0.8 ltr Filter Element Change

**Filter element change as follows:**

- Vent 0.8 ltr filter housing.
- Loosen pipes and nuts (Fig. 1 a. 2)
- Remove complete pre-filter housing.
- Open pre-filter cover (Fig. 3).
- Change the filter element (stuck in filter cover) (Fig. 4).
- Change filter element, previously grease new o-ring .
- Grease thread of filter cover, o-ring and back-up ring.
- Reassemble pre-filter cover and filter housing. Note the correct position of th filter back-up!
- Connect pipes and tighten.
- Adjust holding clamp and tighten nuts

**The filter element change is now completed.**

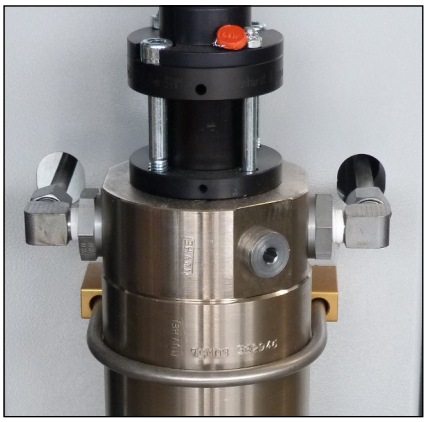


Fig. 1 - Loosen pipes and nuts

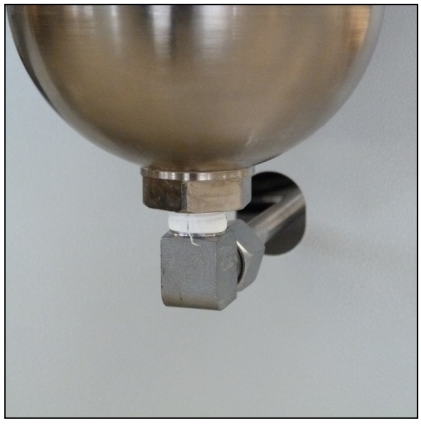


Fig. 2 - Loosen pipes and nuts

**Note**
Ensure that the old filter element is disposed correctly at an approved waste point.

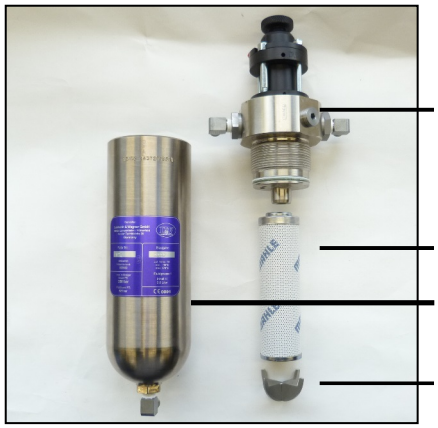



Fig. 4 - 0.8ltr pre-filter parts

Fig. 3 - Open pre-filter cover

## 0.8 ltr Pre-Filter Housing - Maintenance

**Note**
Clean all parts thoroughly before assembly.

**Pre-filter housing maintenance as follows:**

**Dismount pre-filter housing**

- Loosen pipes and nuts
- Remove pre-filter housing

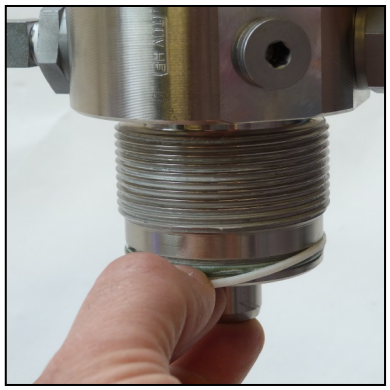


Fig. 1 - Change o-ring and back-up ring

**Pre-filter housing maintenance**

- Open pre-filter cover
- Change o-ring and back-up ring, previously grease both
- Grease thread of filter cover and reassemble pre-filter cover and filter housing

**Install pre-filter housing**

- Connect pipes and tighten.
- Adjust holding clamp and tighten nuts

**The pre-filter housing maintenance is now completed.**

**Caution**
If an air cooler is used, make sure the safety valve is positioned in front of the Air Cooler.

## Inlet Filters

**Note**
Dirty filters make intaking air difficult and reduce delivery capacity. Risk of compressor overheating.

A micro filter cartridge is used as an air inlet filter. Check air inlet filter regularly or replace if necessary. Defective air inlet filters should be immediately replaced.

## Maintenance Intervals

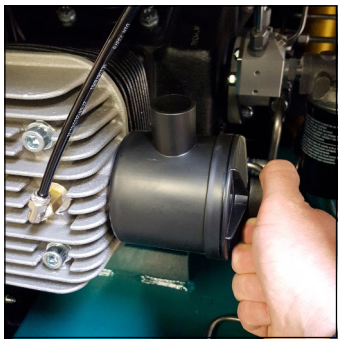
We recommend that the filter cartridge should be replaced every 1,000 working hours (depending on pollution grade).

## Inlet Filter Cartridge Change

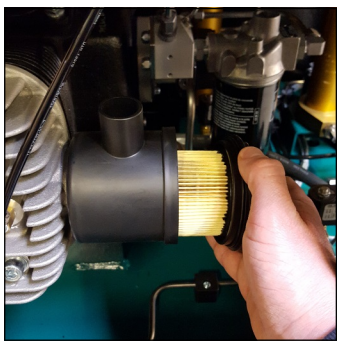
**Inlet filter cartridge change as follows:**

- Loose nut (Fig.1)
- Remove cover and replace filter cartridge by a new one (Fig.2)
- Assemble intake filter
- Tighten nut

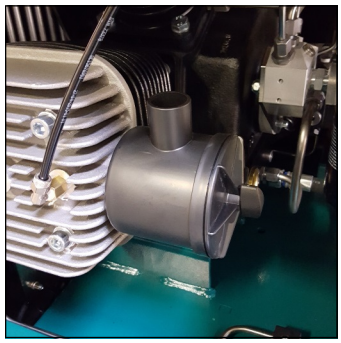
**The inlet filter cartridge change is now completed.**



(Fig.1) Loose nut



(Fig.2) Remove cover and replace filter cartridge

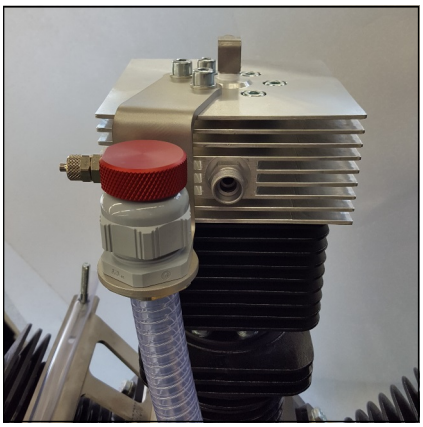


(Fig.3) Mount the intake filter

## Cylinder Heads and Valves

In- / outlet valves of the specific compressor stages are located between valve head and cylinder. Outlet valves open while piston upstroke or compression stroke, inlet valves open while downstroke.

Valves are subject to normal wear and tear and have to be replaced at certain intervals (depending on specific operating conditions). Dismount valve heads to change valves. The three valves are combined inlet and outlet valves. The first and second stage valves are plate valves. The third and fourth stage contains a spring operated piston which acts inside a bronze cylinder.



Valve head 3rd stage

## Maintenance Intervals

All valves should be replaced after 2,000 working hours due to normal wear and tear. To replace valves the cylinder heads have to be removed. There are no special tools required to replace these valves.

## Available Special Tools

Special tools are not necessary for dismounting inlet and outlet valves but make work easier.

Order number: 006847

Special tool

## Replace In- / Outlet Valves 1st and 2nd Stage

**Note**
The figures of the parts can differ due to the different stages.

**Change in- / outlet valves 1st and 2nd stage as follows:**

**Remove in- / outlet valve**

- Loose pipes
- Loose valve head screws (Fig. 1)
- Remove valve head
- Pull out inlet and outlet valve (Fig. 2). CAUTION: Observe that the lower copper valve ring is also pulled out. (It can still stick inside the cylinder)
- Check valve head if defective

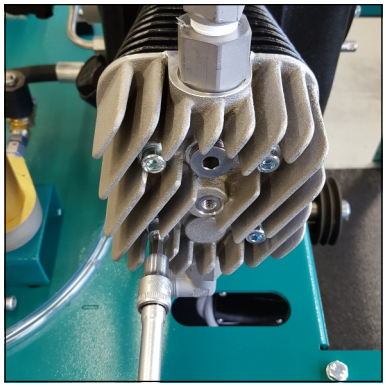


Fig. 1 - Loose valve head screws

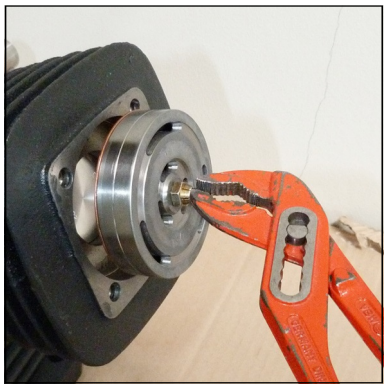


Fig. 2 - Pull out inlet and outlet valve

**Install in- / outlet valve - see following page**

## Replace In- / Outlet Valves 1st and 2nd Stage - Continued from previous Page

**Caution**
The exact alignment of upper and lower valve gasket is very important. In- / outlet channels have to be exactly centred. Do not turn in- / outlet valve after insertion. The copper valve ring could cover outlet channels.

### Install In- / Outlet Valve

- Grease the lower valve gasket slightly and place on the new in- / outlet valve.
  CAUTION: Observe correct copper valve ring position (centre in- / outlet channels).
- Place the new in- / outlet valve straightly into the cylinder (Fig. 3).
  CAUTION: Do not turn the in- / outlet valve inside the cylinder! The copper valve ring could cover outlet channels!
- Place the upper valve gasket on the in- / outlet valve.
  CAUTION: Observe the correct paper gasket position (centre in- / outlet channels). (Fig. 4)
  Note: Valve head screws can be inserted into the valve head to secure the upper valve gasket.
- Refit the valve head and tighten the valve head screws crosswise.

  Starting torques:
  1. nd Stage 45 Nm
  2. nd Stage 25 Nm

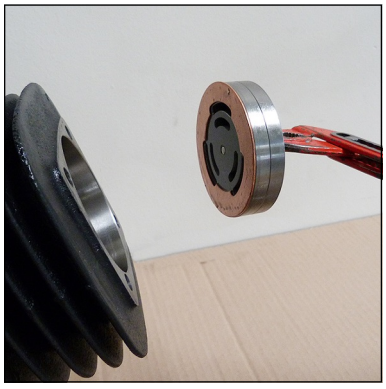


Fig. 3 - Place new inlet and outlet valve straightly into cylinder

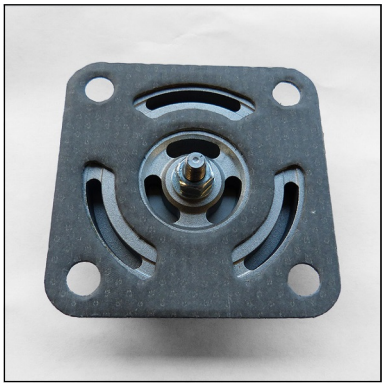


Fig. 4 - Ensure the correct mounting position of the paper gasket

**The replacement inlet and outlet valves 1st and 2nd stage is now completed.**

## Replace In- / Outlet Valves 3rd and 4th Stage

**Note**
The figures of the parts can differ due to the different stages.

**Replacement in- / outlet valves as follows:**

- Loose pipes
- Loose valve head screws (Fig. 1)
- Remove lower valve gasket (Fig. 2)
- Dismount in- / outlet valve (Fig. 3). Observe that the upper valve gasket is also pulled out. (It can still stick inside the cylinder head)
- Check valve head if defective (check centre pin)
- Mount valve gasket on in- / outlet valve.
  CAUTION: Ensure correct mounting position of the upper valve gasket (Fig. 4).
- Insert new in- / outlet valve into valve head.
  CAUTION: Observe correct position between valve centre hole and valve head centre pin
- Place lower valve gasket
- Place valve head with the new in- / outlet valve. Tighten valve head screws crosswise (tightening torque 25 Nm)

**Replacement inlet and outlet valves complete.**

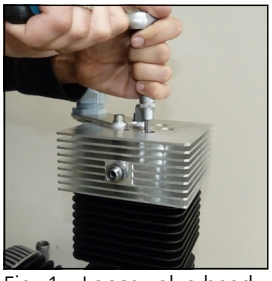


Fig. 1 - Loose valve head screws

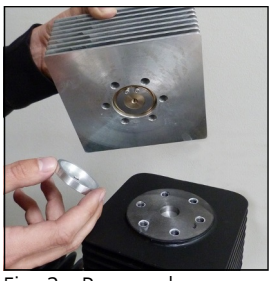


Fig. 2 - Remove lower valve gasket

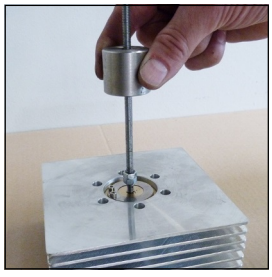


Fig. 3 - Remove in- / outlet valve

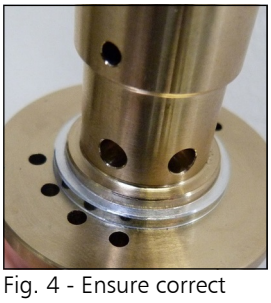


Fig. 4 - Ensure correct mounting position of the upper valve gasket

## Replace Piston Rings and Needle Bearings of the 2nd, 3rd and 4th Stage

**Replace piston rings and needle bearings of 2nd, 3rd and 4th stage as follows:**

- Remove in- & outlet pipework
- Remove valve head bolts
- Remove valve head
- Remove lower valve gasket (see "replace in- / outlet valves 2nd & 3rd stage)
- Check condition of valve head
- Remove flange nuts of compression cylinder
- Take off compression cylinder and o-ring

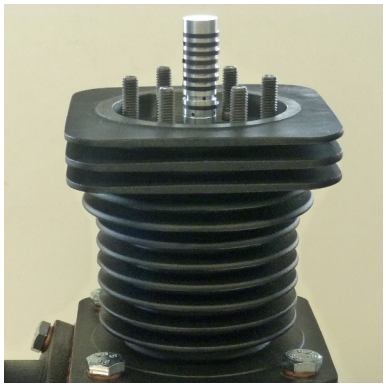


Fig. 1 - take off compression cylinder

- Turn crankshaft until piston is on TDC position
- Remove piston rings
- Fit piston rings in accordance to drawing "piston 2nd / 3rd stage" and lubricate by using compressor oil.
- *Remove cylinder flange bolts (only necessary small end bearing needs to be replaced*
- *Take-off guide cylinder*
- *Remove O-ring*
- *Clean sealing surfaces*
- *Remove circlips and piston pin, take-off piston*

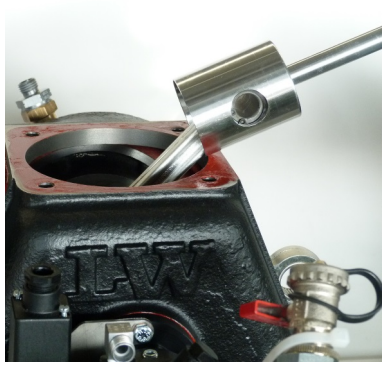


Fig. 2 - Piston 3rd Stage

- *Remove small end bearing by using L&W special tool (Part number: 006663 / 005456*
- *Fit new small end bearing by using special tool , lubricate brearing*
- *Lubricate piston pin bore*
- *Fit piston to conrod, secure piston pin by circlips*
- *Lubricate and fit O-ring to guide cylinder*
- *Refit guide cylinder*
- *Tighten flange bolts crosswise*
- Lubricate and fit O-ring to compression cylinder
- Lubricate piston skirt
- Compress piston rings by using L&W special tool and pipe wrench. Refit compression cylinder

## Change Piston Rings and Needle Bearings of the 2nd, 3rd and 4th Stage - Continue

- Fit washers and nuts, tighten crosswise

**See "In- / outlet valves 2nd and 3rd stage" for further instructions**

Fig. 1 - Fit Circlip

### L&W special tool

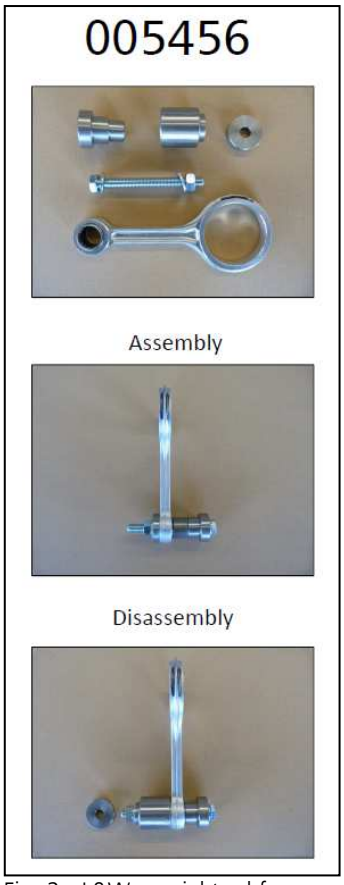



Fig. 2 - L&W special tool for needle bearing 005456

## Safety Valves

Every pressure stage is equipped with a separate over pressure safety valve. Safety Valves avoid a non permissible high pressure at the specific pressure stages and limit maximum operation pressure of the compressor.

**Safety valves are adjusted to:**

- 1st Stage: 8 bar
- 2nd Stage: 22 bar
- 3rd Stage: 90 bar
- 4th Stage: max. final pressure

The adjusted blow-off pressure [bar] of the safety valves is indicated on their housings.

All safety valves are factory sealed with special L&W safety seals to avoid manipulation of the limit value settings.

Safety valves with removed seals have to be immediately checked for the prescribed settings and replaced if necessary.

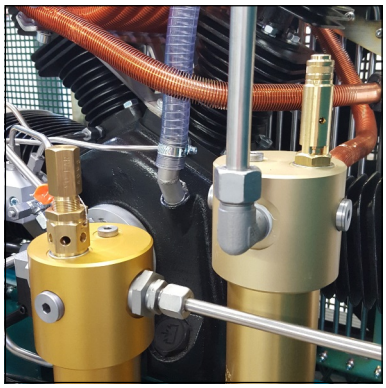
The safety valve of the final stage is furthermore equipped with a knurled screw to be activated once.

Turning the knurled screw clockwise could vent the valve completely and therefore the final filter housing.

During normal operation conditions, the knurled screw has to be turned anti-clockwise up to the upper stop. An integrated circlip avoids complete unscrewing.

If a safety valve blows off, it indicates problems with either inlet or outlet valve of the following stage.

Safety valve 1st stage



Safety valve 2nd and 3rd stage

Safety valve 4th stage

**Note**

Replace defective safety valves immediately!

## Pressure Maintaining / Non Return Valve

**Note**
If the adjusted opening pressure of the pressure maintaining valve is higher than the final pressure of the compressor, the final pressure safety valve blows off before pressure maintaining valve opens (final pressure = 0 bar). When valve settings are not clear (e.g. after disassembly / repair), start the adjustment with a low basic setting (turn adjusting screw approx. 3 times in).

A pressure maintaining / non return valve is installed after the filter housing. It maintains a pressure of at least 150-180 bar inside the filter housing - this optimises filter efficiency.

Pressure maintaining/non-return valve

### Pressure Maintaining Valve

The pressure maintaining valve drains a large part of the water content of the compressed air mechanically by ensuring the minimum outlet pressure. This guarantees optimal drying and purification of the breathing air.

After starting the compressor, the pressure inside the final filter housing constantly increases. The pressure maintaining the valve prevents the compressed air from blowing off (final pressure gauge = 0 bar).

When the adjusted opening pressure is reached (150 and 180 bar), the purified compressed air flows via pressure maintaining and non return valve to the filling valve.

The value of the opening pressure of the pressure maintaining valve can be read at the final pressure gauge. When opening pressure is reached, the pressure gauge value increases within a few seconds.

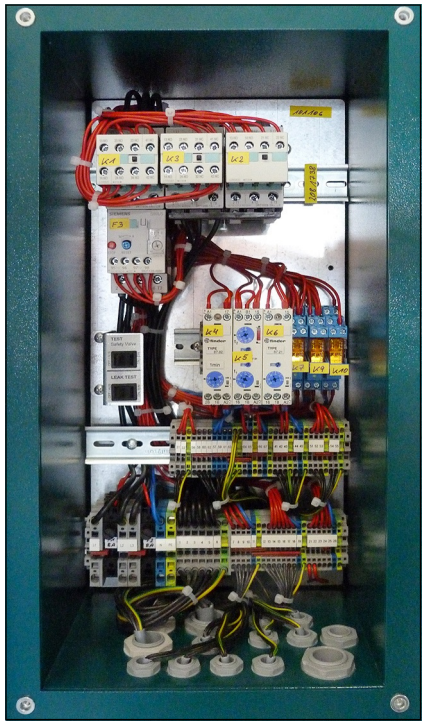
## Safety Valve Test

**Note**
Do not fill any tank during test phase!

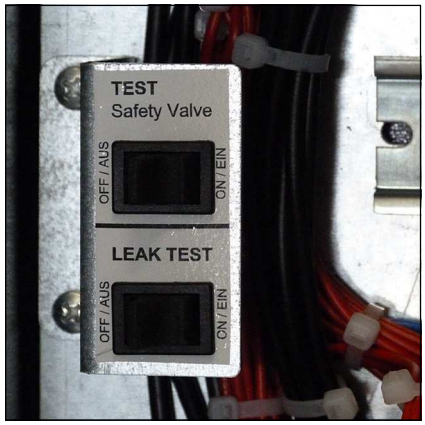
**Safety valve test as follows:**

- Disconnect compressor from the electrical power supply and protect against unexpected restart
- Open the cover of the switch box
- Switch on the "Test Safety Valve" switch (pressure switch will be deactivated!)
- Close the cover of the switch box
- Connect the compressor to the electrical power supply
- Close filling valves
- Start the compressor
- Watch the final pressure gauge. The safety valve should open when reaching working pressure of the compressor. If not, switch off the unit and take out of service until the safety valve has been replaced
- Switch off the compressor (Compressor vented)
- Disconnect the compressor from the electrical power supply and protect against unexpected restart
- Open the cover of the switch box
- Switch off the "Test Safety Valve" switch (pressure switch will be activated!)
- Close the cover of the switch box
- Connect the compressor to the electrical power supply

**The safety valve test is now completed.**



Switch box




Safety valve test switch (up)

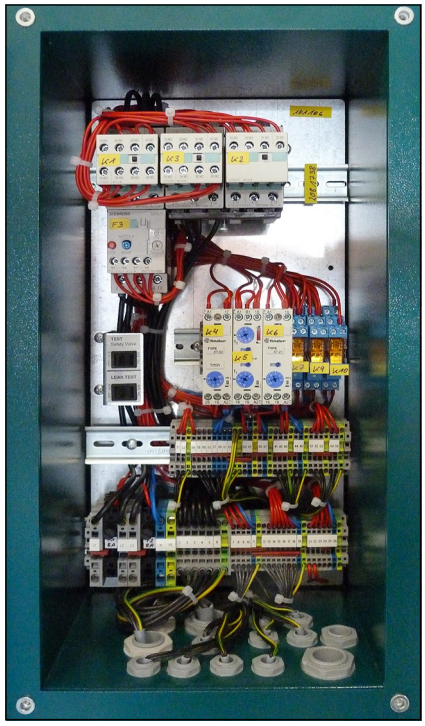
## Leak Test

**Note**
Do not fill any tank during test phase!

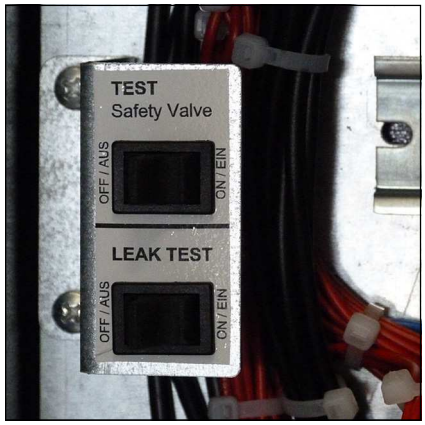
**Leak test as follows:**

- Disconnect the compressor from the electrical power supply and protect against unexpected restart
- Open the cover of the switch box
- Switch on the leak test switch (solenoid valves will be deactivated!)
- Close the cover of the switch box
- Connect the compressor to the electrical power supply
- Close filling valves
- Start the compressor
- Switch off the compressor at a pressure of approx. 150 bar
- Verify the compressor for release noises. (A slight hiss of the air inlet filter nozzle can be ignored). If release noises occur, localise blow off position(s)
- Switch off the compressor
- Disconnect the compressor from the electrical power supply and protect against unexpected restart
- Open the cover of the switch box
- Switch off the leak test switch (solenoids will be activated!)
- Close the cover of the switch box
- Connect the compressor to the electrical power supply (Compressor vented)

**The leak test is now completed.**



Switch box




Leak test switch (down)

## Pressure Vessel Test

**According to the German Industrial Safety Ordinance 2015, pressure equipment is subject to regular inspection.**

Subject: pressure equipment with a product permissible operating pressure [bar] x content volume [litres] from 200 up to 1000.

**Example: Filter housing 1.7 l**

Maximum operating pressure: 350 bar

Content volume: 1.7 litres

350 bar x 1.7 litres = 595

595 is smaller than 1000 -> result: Test is applicable!!

**Example: Filter housing 2.3 l**

Maximum operating pressure: 350 bar

Content volume: 2.3 litres

350 bar x 2.3 litres = 805

805 is smaller than 1000 -> result: Test is applicable!!

## Pressure equipment from 200 up to 1000 have to be tested as follows:

**1. Examination after 5 years by a qualified person or authorized organisations.**

Visual inspection, inside and outside.

**2. Examination after 10 years by a qualified person or authorized organisations.**

Visual inspection, inside and outside.

In addition, a water pressure test is carried out at 1.5 times of the permissible vessel operating pressure.

# MAINTENANCE RECORDS

## Introduction form for the Operator

| No. | Surname, Name | Date | Place | Signature | Instructor |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

By adding themselves to this list, the person that signs it confirms having been given a yearly introduction/instruction about the function and operation of the compressor unit.Furthermore, they have be informed about the relevant safety rules and regualtions (TRG, DGRL, BetrSichV, GSG, GSGV).

## Top up Oil, Oil Change

| Date | Operating hours | Oil quantity [l] | Name |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## Cartridge Change

| Date | Operating hours | Difference | Name |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

## Maintenance Work

| Description | Date, signature |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

## Replaced Parts

| Designation | Part number | Date, signature |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

## Conservation / Storage of the Compressor

**If the compressor unit is not to be used for an extended period of time, we recommend to carry out the following work before storage time:**

- Run the compressor at 200 bar filling pressure for approximately ten minutes (control the flow with the filling valve to maintain constant pressure).
- Replace compressor oil, open filling valve(s) and run compressor for a few minutes.
- Stop compressor and open drain valves (depending on the compressor type, this may happens automatically). Remove top cap of final filter housing: clean threat, grease o-ring. and threat with a food grade grease or silicone grease. Close filter housing.
- Remove intake filter cartridge and undo intake pipes on all valve heads.
- Start compressor unit. Spray a few drops of compressor oil into intake connectors.
- Stop compressor unit and insert intake filter cartridge. Bring intake pipes back in position and fix connections and nuts. Close filling- and drain valves.
- Store the compressor in a cool dry place free from dust and contamination. A dust cover is recommended as long as condensation can be avoided.
- If compressor unit should be stored for a period of more than one year, an oil change is strongly recommended before it's been re-used.
- Fuel driven units only: fill up fuel tank to top level to avoid corrosion.

## De-Conservation, Commissioning

**After the compressor has been stored, the following steps are to be taken:**

- If compressor hasn't been used for longer than 12 months, we strongly recommend an oil change before any use.
- Replace intake filter cartridge and check oil level.
- Clean compressor unit, check for foreign objects. Check condition and tension of V-belts, replace if necessary. Check condition of filling hoses, replace if necessary.
- Secure hoses against whipping and open filling valves and run compressor for approximately 10 minutes.
- Check condition of final filter cartridge, replace if necessary.
- Close filling valves and run compressor up to final pressure.
- Check safety valve relief pressure of final stage and/or pressure switch setting.
- Check all connections and pipe work for leaks.

Once all above steps are completed, compressor unit is now ready for use.

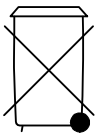
## Transportation Instructions

- Parts which need to be dismantled for transport purposes must be carefully replaced and secured before taking into operation.
- The transport may only be carried out by trained personnel.
- For transportation, only use lifting devices and equipment with sufficient lifting power.
- Do not stand or work under suspended loads.
- Also separate from minor relocation machinery / system of any external energy supply. Before recommissioning, reconnect the machine to the mains according to regulations.
- When recommissioning, proceed according to the operating instructions..

## Disposal

The product must be disposed in accordance with national waste disposal regulations and by an appropriate waste disposal company.

## Electric and Electronic Components



EU-wide regulations for the disposal of electric and electronic appliances which have been defined in the EU Directive 2002/96/EC and in national laws are effective from August 2005 and apply to this device.

Common household appliances can be disposed by using special collecting and recycling facilities. However, as this device has not been registered for household usage, it must not be disposed of through these means.

The device can be returned to L&W. Please do not hesitate to contact us if you have any further questions on this issue.

# ERSATZTEILLISTEN / SPARE PARTS LISTS
# DETAILANSICHTEN / DETAILED VIEWS

C

## Inhaltsverzeichnis

## Inhaltsverzeichnis

## Baugruppe: Gehäuse / Assembly: Housing

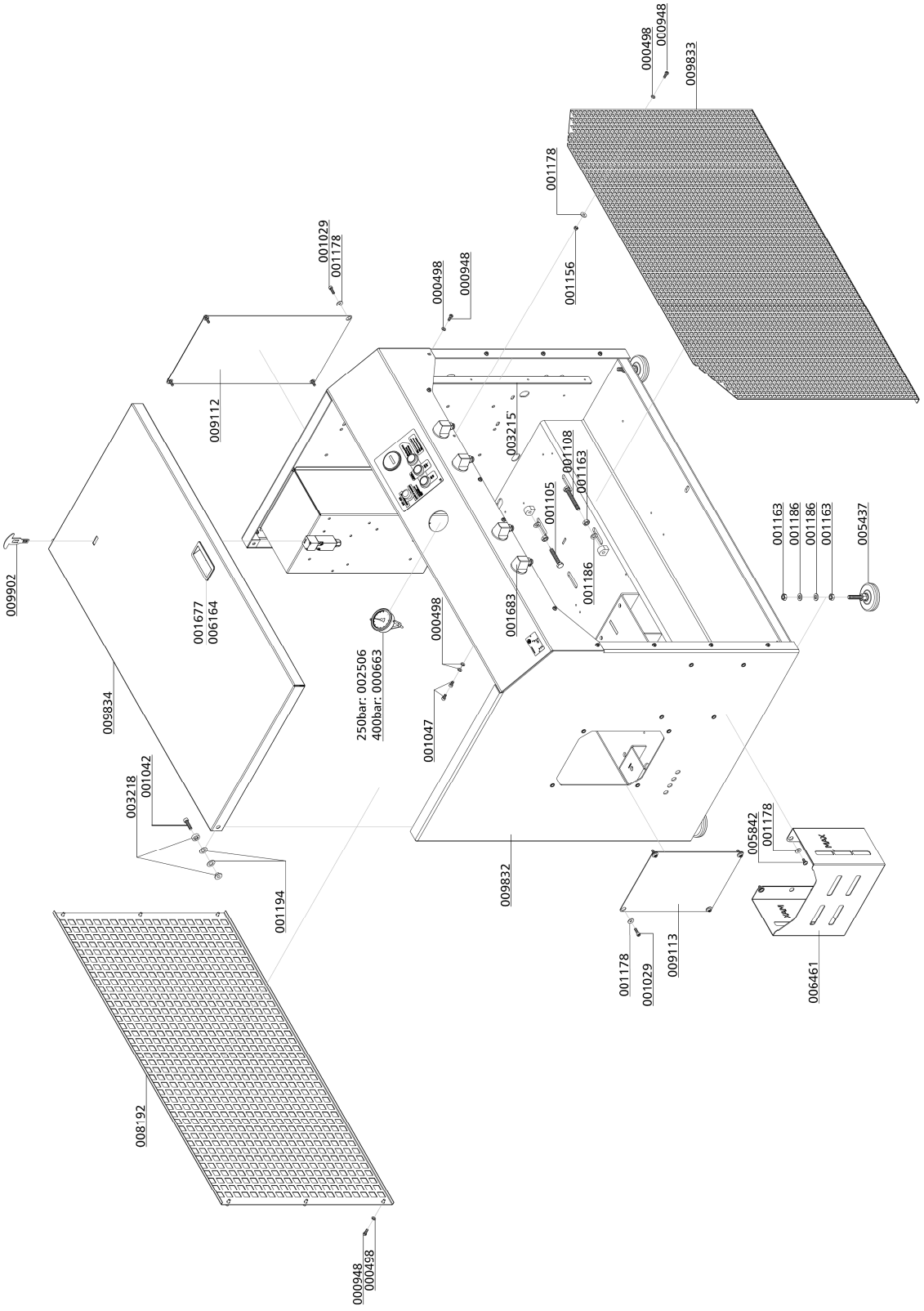
| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000498 | U-Scheibe A6 | Washer A6 |
| 000663 | Einbaumanometer mit Befestigungsbügel | Press. Gauge c/w fixing strap |
| 000948 | Flachkopfzylinderschraube M6x16mm DIN6912 8.8 ZN | Pan Head Bolt M6x16mm DIN6912 8.8 ZN |
| 001029 | Zylinderschraube M6x20mm DIN912 8.8 ZN | Allen Bolt M6x20mm DIN912 8.8 ZN |
| 001042 | Zylinderschraube M8x30mm DIN912 8.8 ZN | Allen Screw M8x30mm DIN912 8.8 ZN |
| 001047 | Zylinderschraube M6x12mm DIN912 8.8 ZN | Allen Bolt M6x12mm DIN912 8.8 ZN |
| 001105 | Sechskant Schraube M10X60mm DIN933 8.8 ZN | Hexagon Bolt M10X60mm DIN933 8.8 ZN |
| 001108 | Sechskkant Schraube M10x80mm DIN933 8.8 ZN | Hexagon Bolt M10x80mm DIN933 8.8 ZN |
| 001156 | Stoppmutter M6 DIN985 ZN | Lock Nut M6 DIN985 ZN |
| 001163 | Mutter M10 DIN934 ZN | Nut M10 DIN934 ZN |
| 001178 | U-Scheibe A6 | Washer A6 |
| 001186 | U-Scheibe A10 | Washer A10 |
| 001194 | Federscheibe (Klappdeckel E-Gehäuse) | Wave Spring Washer A12 |
| 001677 | Griffschale PVC-Schwarz | Plastic Snatch, PVC, black |
| 001683 | Schlauchanschlussstück, Alu | Alloy Hose Connector G1/4" |
| 002506 | Einbaumanometer 0-250bar | Pressure Gauge 0-250bar |
| 003215 | Klemmleiste Frontgitter | Terminal strip front guard |
| 003218 | Buchsen Deckelbefestigung | Fixing kit for casing cover |
| 005437 | Standfuß, Höhenverstellbar | Foot, Height adjustable Ø80 mm |
| 005842 | Linsenflanschschraube mit Innensechskant | Lens Head Screw |
| 006164 | Befestigungsklammer Griffschale | Clip for Moulded Recess |
| 006461 | Halteblech Kondensatbehälter | Bracket Condensate Catch Tank |
| 008192 | Schutzgitter, hinten | Rear Grating - zinc plated |
| 009112 | Elektrodeckel | Electro Cover |
| 009113 | Wartungsdeckel | Maintenance Cover |
| 009832 | Kompressorgehäuse LW 570 E II | Housing LW 570 E II standard |
| 009833 | Frontgitter, vorne | Front Grating - zinc plated |

## Baugruppe: Gehäuse / Assembly: Housing

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 009834 | Klappdeckel | Cover Lid |
| 009902 | Steckschlüssel Personenschutzschalter | Key safety switch |

C

## Baugruppe: Gehäuse / Assembly: Housing

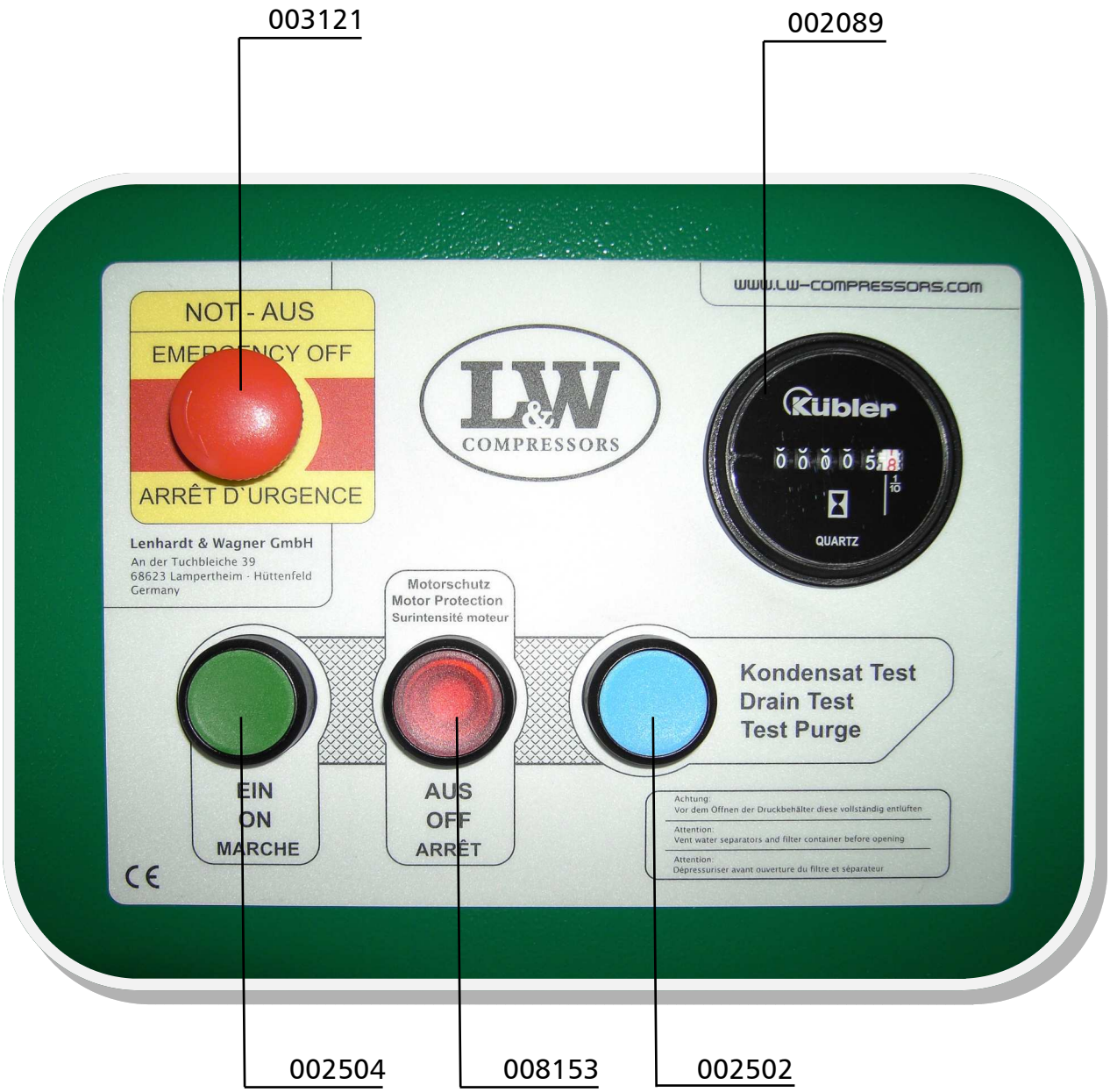


## Baugruppe: Bedienpaneel / Assembly: Dashboard

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000663 | Einbaumanometer mit Befestigungsbügel | Press. Gauge c/w fixing strap |
| 002089 | Betriebsstundenzähler 230 Volt | Hour counter 230 V |
| 002502 | Taster, kompl. Farbe: blau | Button blue - condensate test |
| 002504 | Taster, kompl., Farbe: grün | Start Button, colour green |
| 002506 | Einbaumanometer 0-250bar | Pressure Gauge 0-250bar |
| 003121 | Not-Aus Schalter komplett | Emergency switch compl. |
| 004169 | Manometerschlauch 1000 mm | Pressure Gauge Hose 1000 mm |
| 008153 | Taster rot, komplett, inkl. LED Leuchte | Button, colour: red, c/w LED |

## Baugruppe: Bedienpaneel / Assembly: Dashboard





## Rohrleitungssystem / Pipework

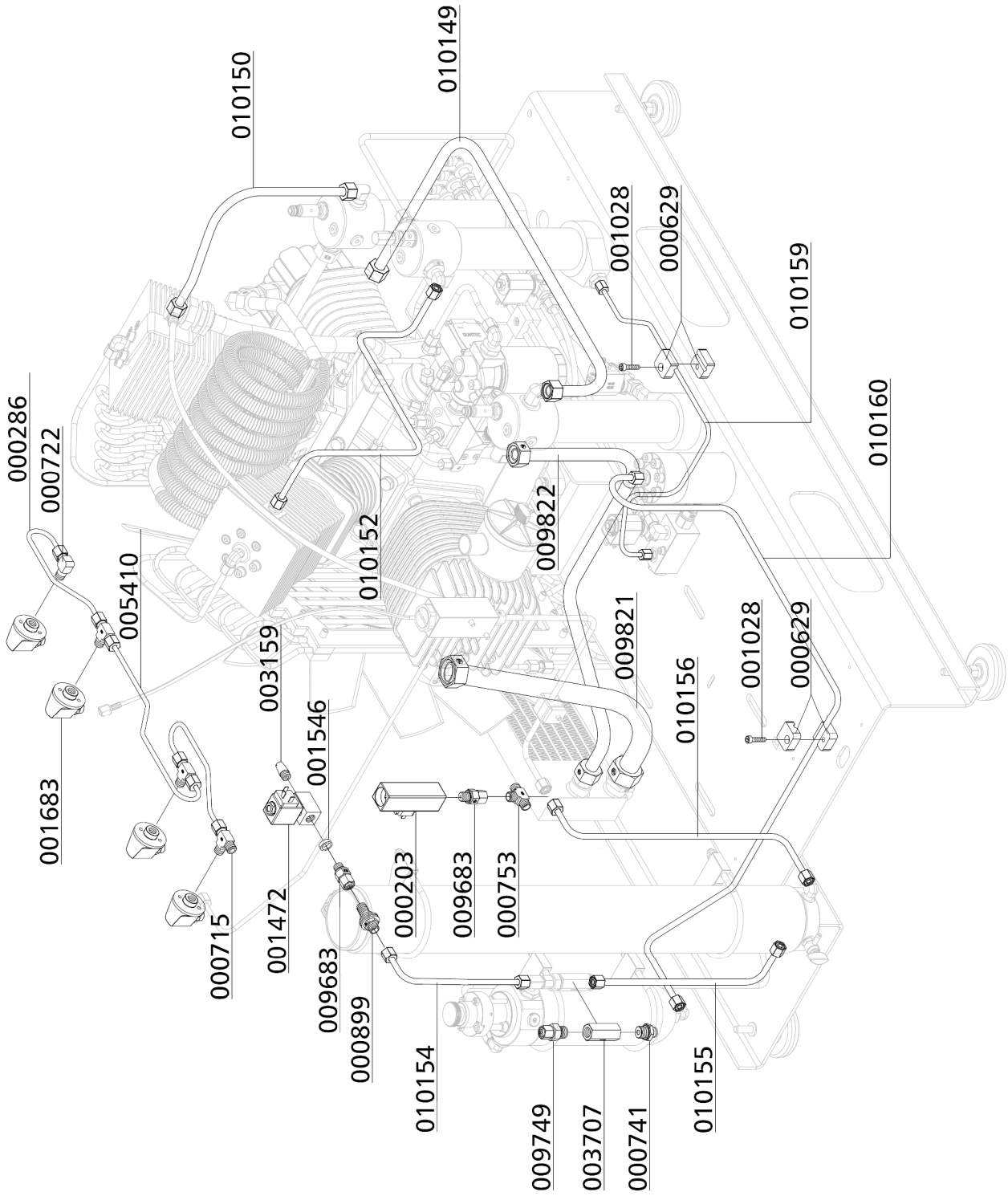
| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000203 | Druckschalter, G1/4" IG, PV 50 - 350 bar | Pressure Switch 50-350 bar |
| 000286 | Rohrleitung | Pipe |
| 000628 | Einfachschelle 1 x 8mm 1 Paar | Pipe Clamp 1x8mm 1pair PVC |
| 000629 | Doppelschelle 2 x 8mm 1 Paar | Pipe Clamp 2x8mm - 1 pair |
| 000715 | Verschraubung | Connection w/o nut& olive seal |
| 000722 | Verschraubung | Connection |
| 000741 | Verschraubung | Connection |
| 000753 | Verschraubung | Connection |
| 000783 | Verschraubung | Straight Connection |
| 000899 | Schottverschraubung 8L | Bulkhead Fitting 8L |
| 001027 | Zylinderschraube | Allen Bolt |
| 001028 | Zylinderschraube | Allen Bolt |
| 001198 | Schnorr-Scheibe S14 | Clamp Washer S14 |
| 001447 | Manometerschlauch 800mm | Pressure Gauge Hose 800mm |
| 001472 | Magnetventil, 350bar EDELSTAHL 230V/50Hz | Solenoid s/s 350 bar 230V/50Hz |
| 001546 | Aludichtring für Magnetventile G1/4" | Alloy Seal Ring for G1/4" male |
| 001683 | Schlauchanschlussstück, Alu | Alloy Hose Connector G1/4" |
| 002535 | Winkelschottverschraubung, WSV08L A3C | Bulkhead connection |
| 003159 | Sinterfilter G1/4" Stumpfkegel | Sintered filter G1/4" |
| 003684 | Füllventil Kreuzbauweise, 200 bar | Filling Valve cross, 200 bar |
| 003685 | Füllventil Kreuzbauweise, 300 bar | Filling Valve cross, 300 bar |
| 003707 | Rückschlagventil | Non-Return Valve |
| 004864 | Hochdruckschlauch, drehbar, 650mm | HP-Hose 650mm |
| 005410 | Rohrleitung 6mm | Pipe s/s |
| 009655 | Distanzstück 6mm | Alloy Spacer for Pipe Clamp |
| 009683 | Verschraubung | Connection with fixed nut |
| 009749 | Gerader Einschraubstutzen | Connection with fixed nut |
| 009821 | Rohr Ø28mm inkl. Muttern u. Schneidringe | Pipe Ø28mm incl. Nut u. Olive |
| 009822 | Rohr Ø18mm inkl. Muttern u. Schneidringe | Pipe Ø18mm incl. Nut u. Olive |

## Rohrleitungssystem / Pipework

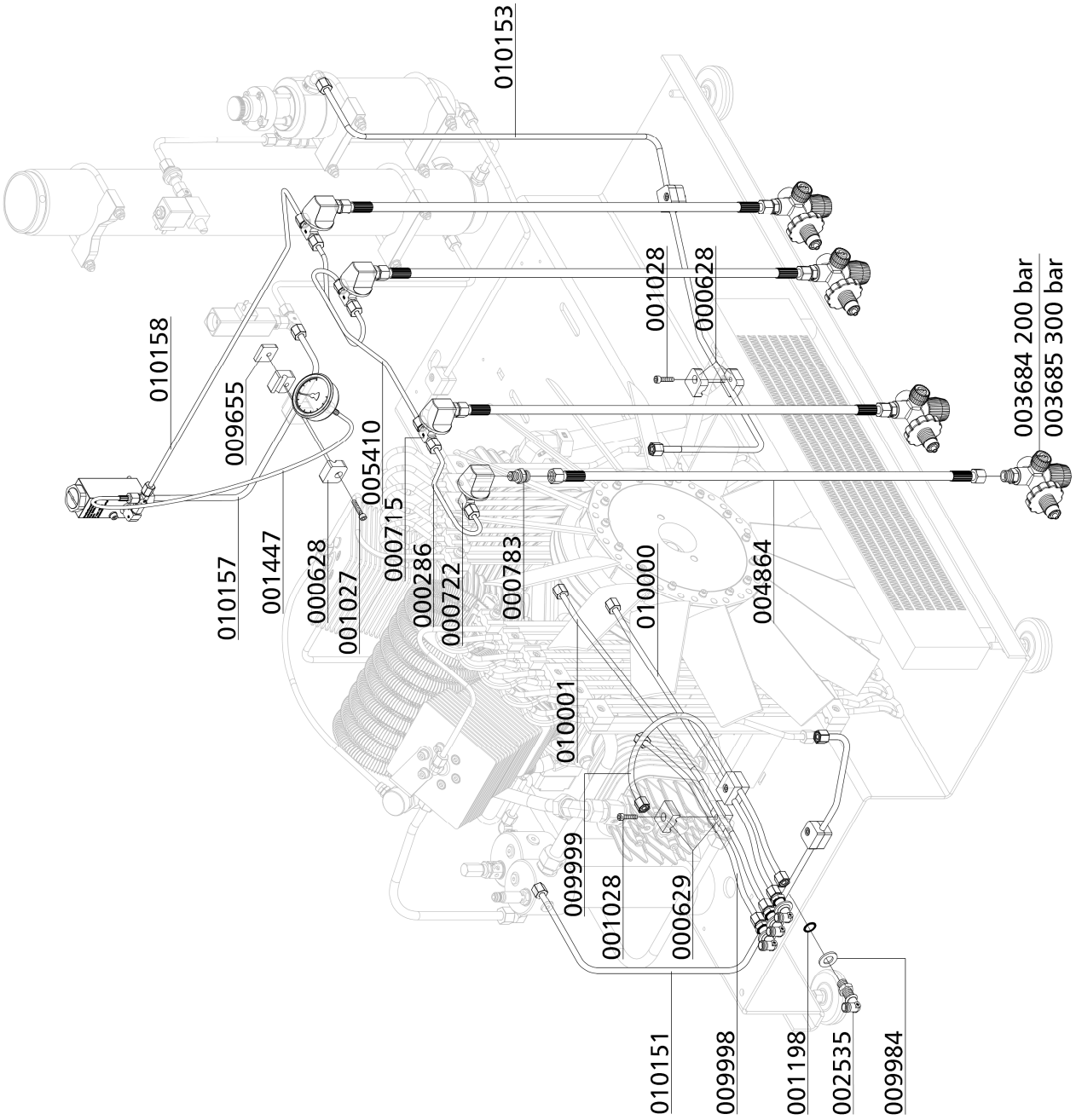
| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 009984 | U-Scheibe | Washer |
| 009998 | Kondensatschlauch, Ø8x1,5, L: 425mm | Condensate Hose Ø8x425mm |
| 009999 | Kondensatschlauch, Ø8x1,5, L: 580mm | Condensate Hose Ø8x580mm |
| 010000 | Kondensatschlauch, Ø8x1,5, L: 605mm | Condensate Hose Ø8x605mm |
| 010001 | Kondensatschlauch, Ø8x1,5, L: 680mm | Condensate Hose Ø8x680mm |
| 010149 | Rohrleitung Ø15mm, komplett mit M.&S. | Pipe Ø15mm |
| 010150 | Rohrleitung Ø12mm, komplett mit M.&S. | Pipe Ø12mm |
| 010151 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010152 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010153 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010154 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010155 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010156 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010157 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010158 | Rohrleitung Ø6mm, komplett mit M.&S. | Pipe Ø6mm |
| 010159 | Rohrleitung Ø6mm, komplett mit M.&S. | Pipe Ø6mm |
| 010160 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |

C

## Rohrleitungssystem / Pipework



## Rohrleitungssystem / Pipework



## Baugruppe: Kompressorblock / Assembly: Compressor Block

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000209 | Öleinfüllstopfen | Oil Filler Plug |
| 000254 | Ventildichtung obere für Ventil 2. Stufe | Upper Valve Gasket, Paper, 2nd |
| 000270 | Ventilkopf für Ventil, 2. Stufe | Valve Head for Valve 2nd Stage |
| 000343 | Zylinder 3. Stufe | Cylinder 3rd Stage LW 570 |
| 000344 | Führungszylinder mit 6x Gewindestift | Guide Cylinder c/w 6x setscrew |
| 000346 | Zylinder 4. Stufe | Cylinder 4th Stage |
| 000349 | Obere Ventildichtung | Upper Valve Gasket |
| 000350 | Untere Ventildichtung für Ventil 1.Stufe | Lower Valve Gasket, 1st Stage |
| 000351 | Zylinder 1. Stufe | Cylinder 1st Stage |
| 000409 | O-Ring Zylinderflansch 1. Stufe | O-Ring - 1st Stage |
| 000414 | Distanzhülse Kühlerhalter | Spacer Cooling Bracket s/s |
| 000498 | U-Scheibe A6 | Washer A6 |
| 000628 | Einfachschelle 1 x 8mm 1 Paar | Pipe Clamp 1x8mm 1pair PVC |
| 000710 | Verschraubung | Connection w/o nut& olive seal |
| 000738 | Gerade Verschraubung | Straight Connection |
| 000761 | Winkelverschraubung | Elbow Connection |
| 000817 | Verschraubung | Connection |
| 000820 | Verschraubung | Elbow-Connection |
| 000837 | Verschlussstopfen | Plug |
| 000838 | Verschlussstopfen | Plug |
| 000839 | Verschlussstopfen | Plug |
| 000866 | Verschraubung | Connection |
| 000867 | Winkelverschraubung | Elbow Connect. with fixed nut |
| 000919 | Reduzierung | Reducer |
| 000952 | 6-kant Schraube | Hexagon Bolt |
| 000961 | Stiftschraube | Threaded Stud |
| 001027 | Zylinderschraube | Allen Bolt |
| 001029 | Zylinderschraube | Allen Bolt |
| 001041 | Zylinderschraube | Allen Screw |
| 001047 | Zylinderschraube | Allen Bolt |

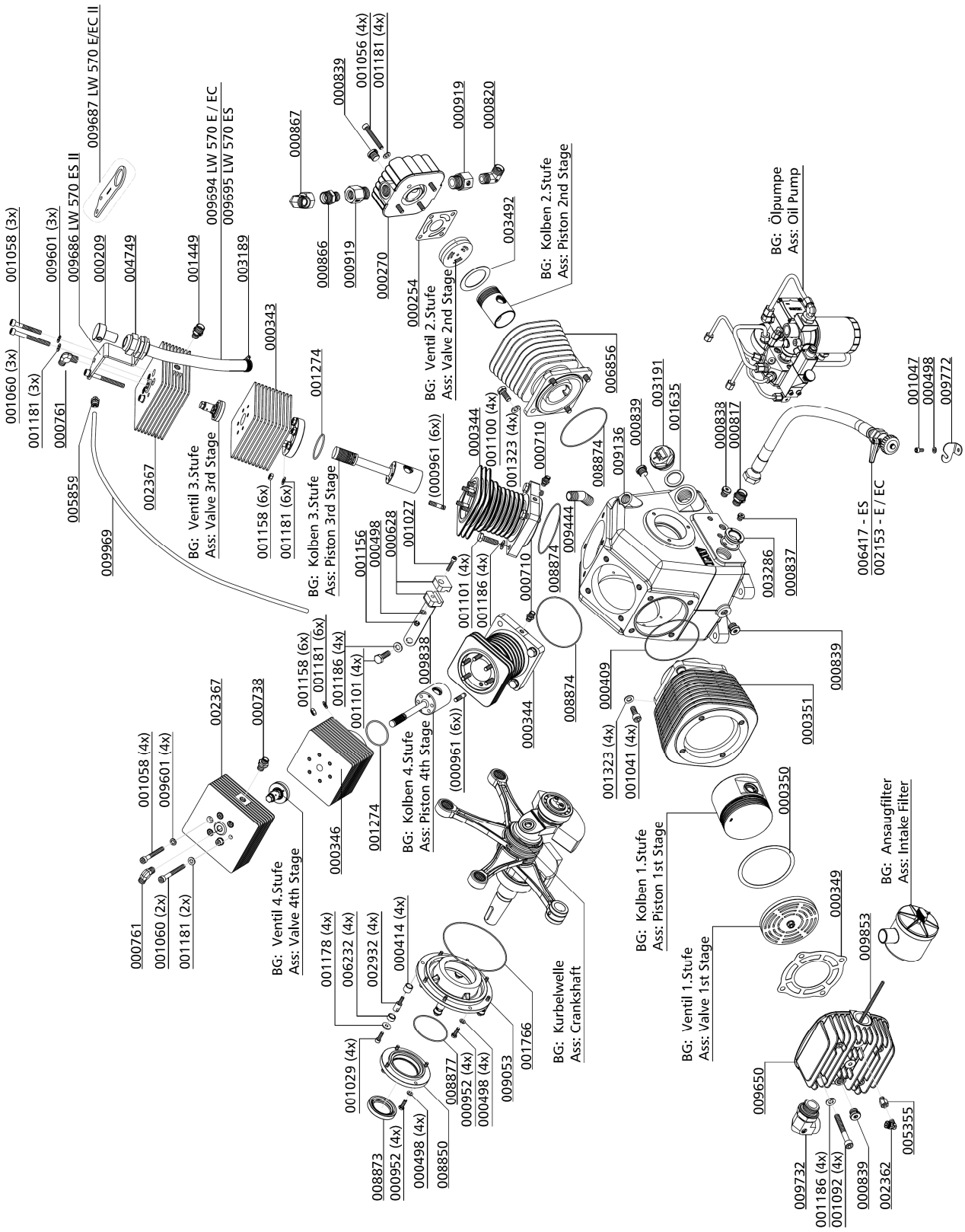
## Baugruppe: Kompressorblock / Assembly: Compressor Block

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 001056 | Zylinderschraube | Allen Bolt |
| 001058 | Zylinderschraube | Allen Bolt |
| 001060 | Zylinderschraube | Allen Bolt |
| 001092 | Zylinderschraube | Hexagon Bolt |
| 001100 | 6-kant Schraube | Hexagon Screw |
| 001101 | 6-kant Schraube | Hexagon Screw |
| 001156 | Stoppmutter | Lock Nut M6 |
| 001158 | Mutter | Nut M8 |
| 001178 | U-Scheibe A6 | Washer A6 |
| 001181 | U-Scheibe A8 | Washer A8 |
| 001186 | U-Scheibe A10 | Washer A10 |
| 001274 | O-Ring | O-Ring |
| 001323 | CU-Ring | Copper Seal Ring |
| 001449 | Verschraubung, | Connection, straight |
| 001635 | Dichtring für Öleinfüllstopfen G1" | Rubber Gasket Oil Filler Plug |
| 001766 | O-Ring, Lagerdeckel | O-Ring Bearing Cover |
| 002153 | Ölablassschlauch inkl. Kugelhahn | Oil drain hose c/w ball valve |
| 002362 | Winkeleinschraubverschraubung 6 mm | Elbow Hose Connection 6 mm |
| 002367 | Ventilkopf | Valve Head |
| 002932 | Distanzbolzen mit M6 Gewinde | Spacer |
| 003189 | Schlauchschelle Entlüftungsschlauch | Hose clamp |
| 003191 | Oeleinfüllstopfen LW 450 | Oil Filler Plug c/w gasket |
| 003286 | Ölschauglas | Oil Level Indicator c/w gasket |
| 003492 | Untere Ventildichtung, 2. Stufe | Lower valve gasket, 2nd stage |
| 004749 | PG Schlauchdurchführung | PG29 Fitting PVC |
| 005355 | Reduziernippel G1/8"IG - G1/8"AG Messing | Reducer Nipple G1/8"-G1/8" |
| 005859 | Gerade Einschraubverschraubung 6 mm | Straight Hose Connection 6 mm |
| 006232 | Distanzhülse für Kühler | Spacer Sleeve |
| 006417 | Ölablassschlauch | Oil drain hose |
| 006856 | Zylinder 2. Stufe | Cylinder Ø50 mm, 2nd Stage |

## Baugruppe: Kompressorblock / Assembly: Compressor Block

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 008850 | Wellendichtringdeckel | Shaft Seal Cover |
| 008850 | Wellendichtringdeckel | Shaft Seal Cover |
| 008873 | Wellendichtring NBR RX | Shaft Seal NBR RX |
| 008874 | O-Ring | O-Ring |
| 008877 | O-Ring | O-Ring |
| 009053 | Lagerdeckel GG25 | Main Bearing Flange |
| 009136 | Kurbelgehäuse | Crankcase |
| 009444 | Ölschlauchstutzen | Oil hose connector |
| 009601 | U-Scheibe | Washer |
| 009650 | Ventilkopf 1. Stufe | Valve Head, 1st Stage |
| 009686 | Halteblech-Ölschlauch | Bracket Oil Hose |
| 009687 | Halteblech-Ölschlauch | Bracket Oil Hose |
| 009694 | Öleinfüllschlauch Ø18mm | Oil filler hose Ø18mm |
| 009695 | Öleinfüllschlauch Ø18mm | Oil filler hose Ø18mm |
| 009732 | Winkelverschraubung | Elbow Connection |
| 009772 | Halter Öl-Ablassschlauch | Holder Oil drain hose |
| 009838 | Befestigungsblech Rohr Ø8mm | Holder Pipe Ø8mm |
| 009853 | Gewindestange M6x229mm | Threaded bar |
| 009969 | Entlüftungsschlauch Kurbelgehäuse | Crankcase Breather Hose |

## Baugruppe: Kompressorblock / Assembly: Compressor Block

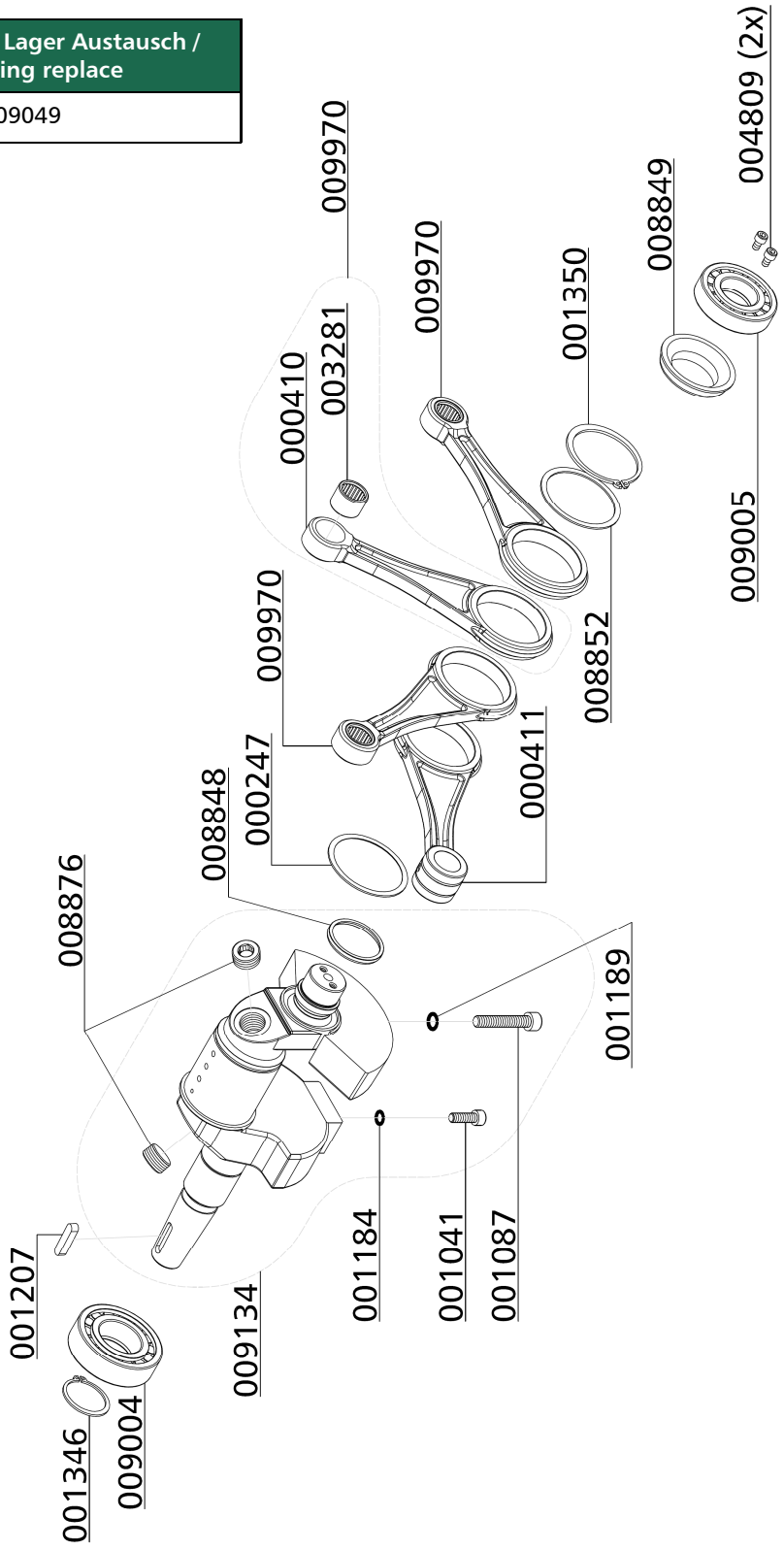


## Kurbelwelle / Crankshaft

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000247 | Anlaufscheibe Kurbelwelle, mit Innenfase | Thrust Washer chamfered Vers. |
| 000410 | Pleuel | Conrod, 2.,3. & 4. Stage |
| 000411 | Pleuel | Conrod 1st Stage |
| 001041 | Zylinderschraube | Allen Screw |
| 001087 | Zylinderschraube | Hexagon Bolt |
| 001184 | Schnorr-Scheibe | Clamp Washer S8 |
| 001189 | Schnorr-Scheibe S10 | Clamp Washer S10 |
| 001207 | Passfeder (Kurbelwelle LW 300/450) | Woodruff Key |
| 001346 | Sicherungsring | Circlip A40 |
| 001350 | Sicherungsring | Circlip A65 |
| 003281 | Nadellager Pleuel Ø28xØ22x20 mm | Needle bearing, con-rod |
| 004809 | Ölpumpenmitnehmerschraube | Drive bolt |
| 008848 | Ölschleuderring | Oil Ring |
| 008849 | Ölrohr | Oil Pipe |
| 008852 | Anlaufscheibe Kurbelwelle | Thrust Washer |
| 008876 | Verschlussschraube | Plug Screw |
| 009004 | Kurbelwellenlager (Schwungradseite) | Main Roller Bearing |
| 009005 | Kurbelwellenlager (Ölpumpenseite) | Main Roller Bearing |
| 009049 | Spezialwerkzeug Pleuellager | Special Tool, removal bearing |
| 009134 | Kurbelwelle, komplett; ab 19.10.16 | Crankshaft c/w Counter Weight |
| 009970 | Pleuel 2., 3. & 4.Stufe | Conrod, 2.,3. & 4. Stage |

## Kurbelwelle / Crankshaft

| Spezialwerkzeug Lager Austausch / Special Tool Bearing replace |
| --- |
| 009049 |



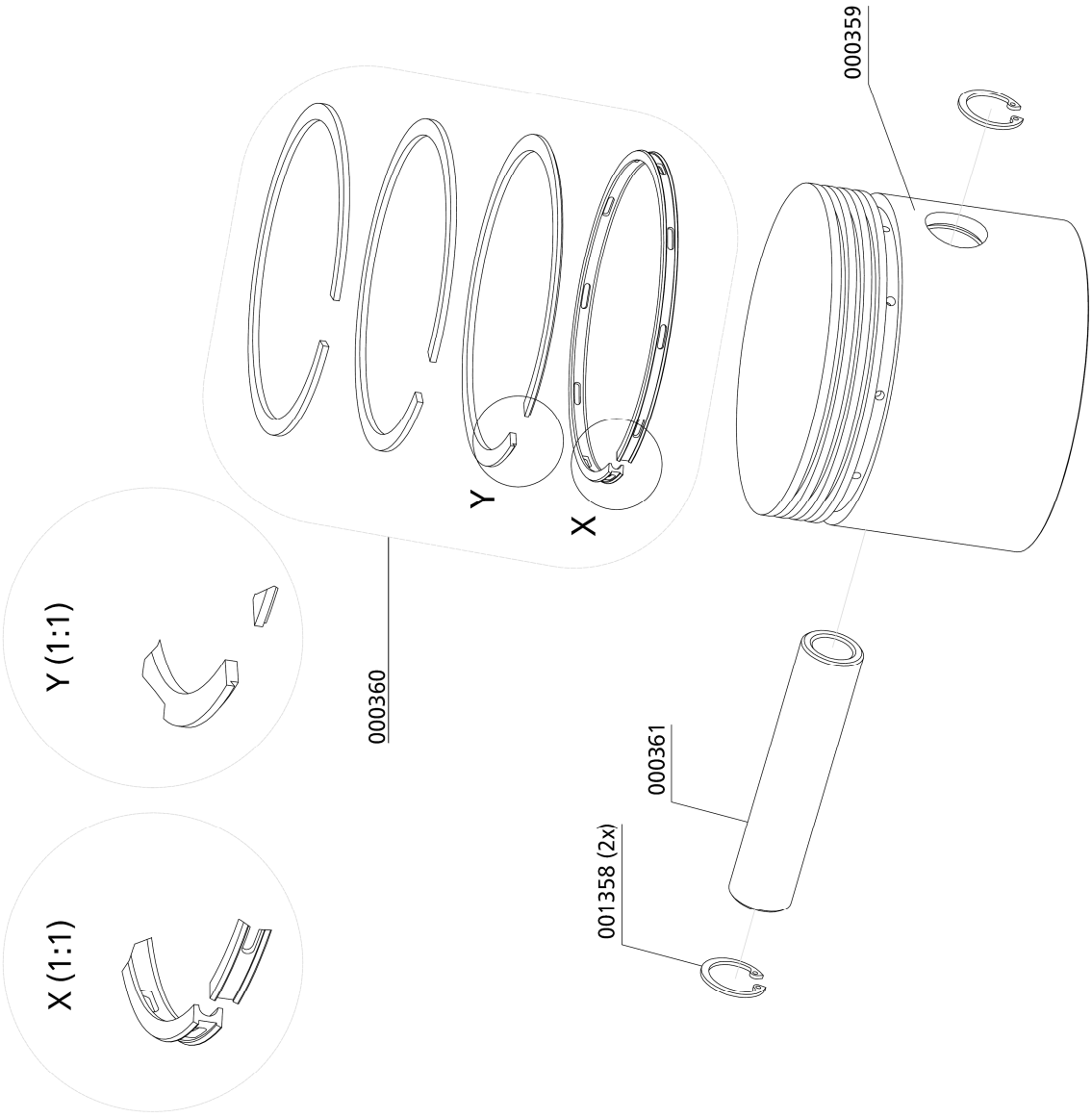
## Kolben 1. Stufe / Piston 1st Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000359 | Kolben, 1. Stufe, Ø105mm | Piston 1st Stage Ø105 mm |
| 000360 | Kolbenringsatz 1. Stufe Ø105mm | Set Piston Rings 1st Stage Ø105mm |
| 000361 | Kolbenbolzen, 1. Stufe Ø25x90 mm | Piston Pin Ø25x90mm |
| 001358 | Sicherungsring I 25 DIN472 | Circlip I 25 DIN472 |
| 005454 | Spezialwerkzeug, Spannband | Special Tool, tightening strap |

## Kolben 1. Stufe / Piston 1st Stage

| Spezialwerkzeug Kolbenmontage / Special Tool Piston fitting | Spezialwerkzeug Kolbenringmontage / Pistonring fitting Tool |
|---|---|
| 005454 | - |





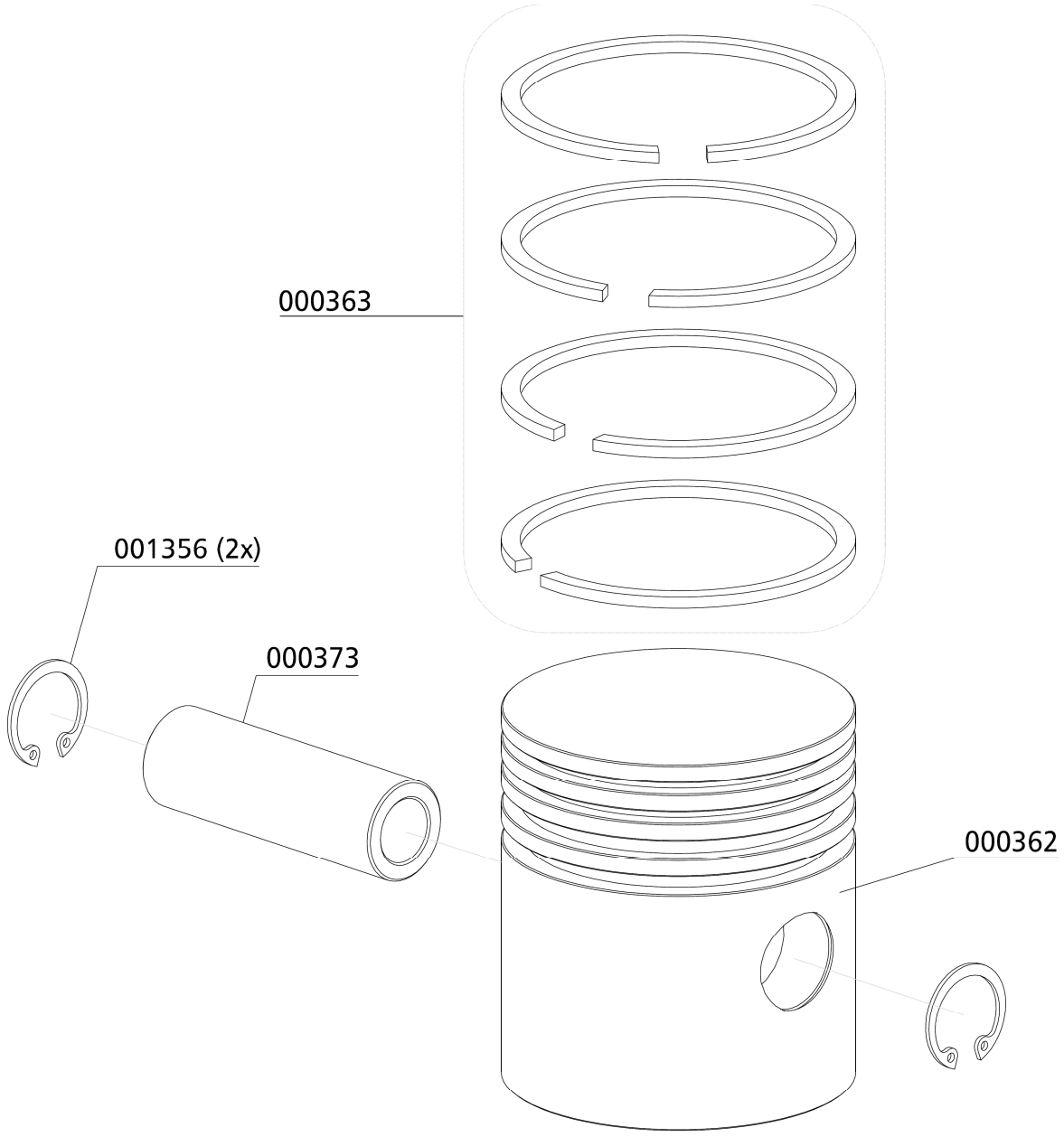
## Kolben 2. Stufe / Piston 2nd Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000362 | Kolben, 2. Stufe | Piston 2nd Stage |
| 000363 | Kolbenringsatz 2. Stufe, Ø50mm | Set Piston Rings 2nd Stage Ø50mm |
| 000373 | Kolbenbolzen, 2. / 3. / 4. Stufe | Piston Pin, 2nd Stage |
| 001356 | Sicherungsring, I 22 DIN472 | Circlip I22 DIN472 |
| 009397 | Spezialwerkzeug Kolbenmontage Ø50mm | Special Tool, Splitted bush |

## Kolben 2. Stufe / Piston 2nd Stage

| Spezialwerkzeug Kolbenmontage / Special Tool Piston fitting | Spezialwerkzeug Kolbenringmontage / Pistonring fitting Tool |
|---|---|
| 009397 | - |



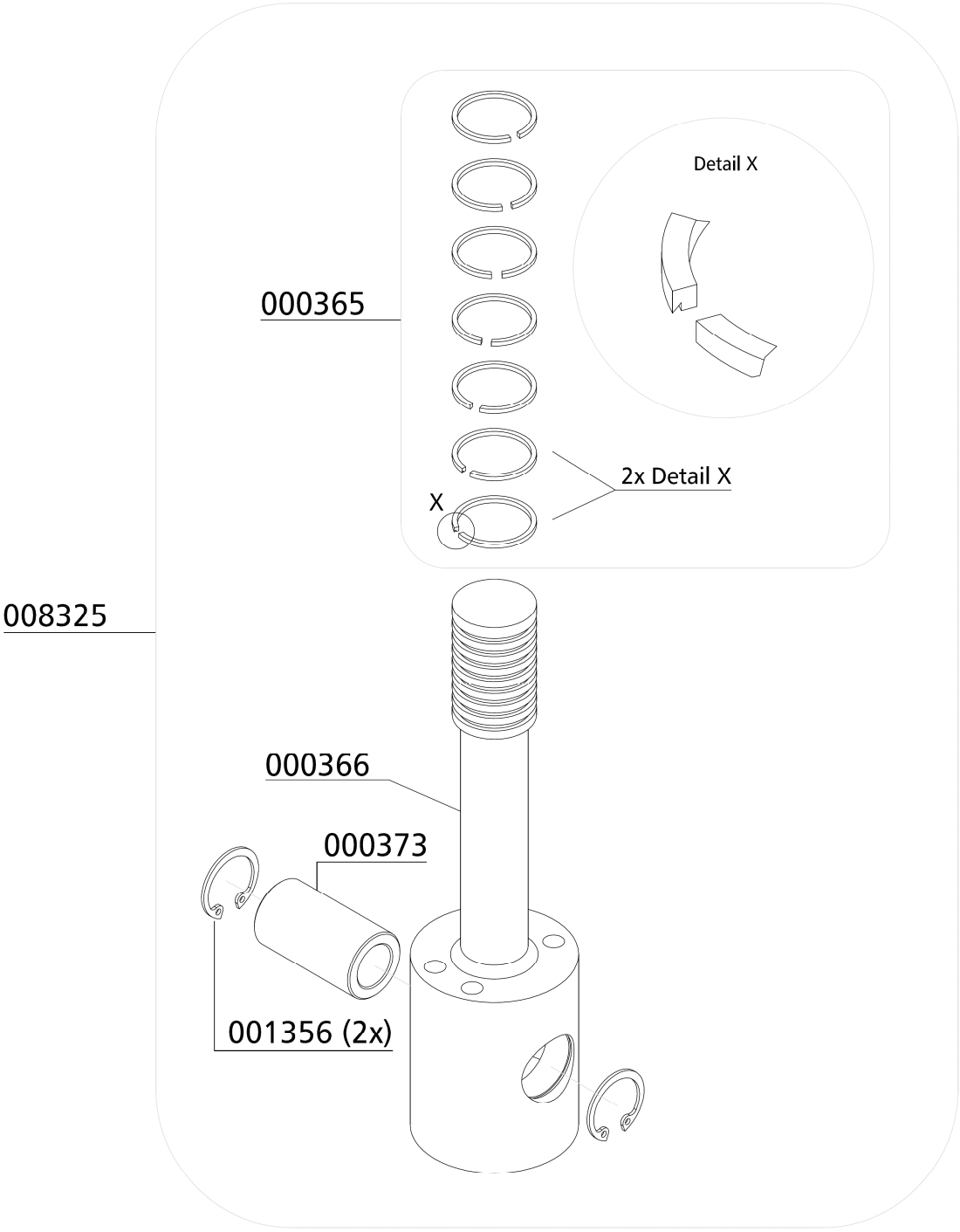


## Kolben 3. Stufe / Piston 3rd Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000365 | Kolbenringsatz Ø25mm | Set Piston Rings Ø25mm |
| 000366 | Kolben Ø25mm/50mm, 3. Stufe | Piston Ø25mm/50mm, 3rd Stage |
| 000373 | Kolbenbolzen Ø22 x 40mm | Piston Pin Ø22 x 40mm |
| 001356 | Sicherungsring, I 22 DIN472 | Circlip I22 DIN472 |
| 005461 | Spezialwerkzeug, Halbschalen, Ø22mm | Special Tool, Splitted bush |
| 008325 | Kolben Ø25/50, komplett | Piston Ø25/50, complete |
| 008735 | Spezialwerkzeug Kolbenringe, 2-teilig Ø25 mm Montagezange & Hülse | Special Tool Piston Rings Ø25 |

## Kolben 3. Stufe / Piston 3rd Stage

| Spezialwerkzeug Kolbenmontage / Special Tool Piston fitting | Spezialwerkzeug Kolbenringmontage / Pistonring fitting Tool |
|---|---|
| 005461 | 008735 |



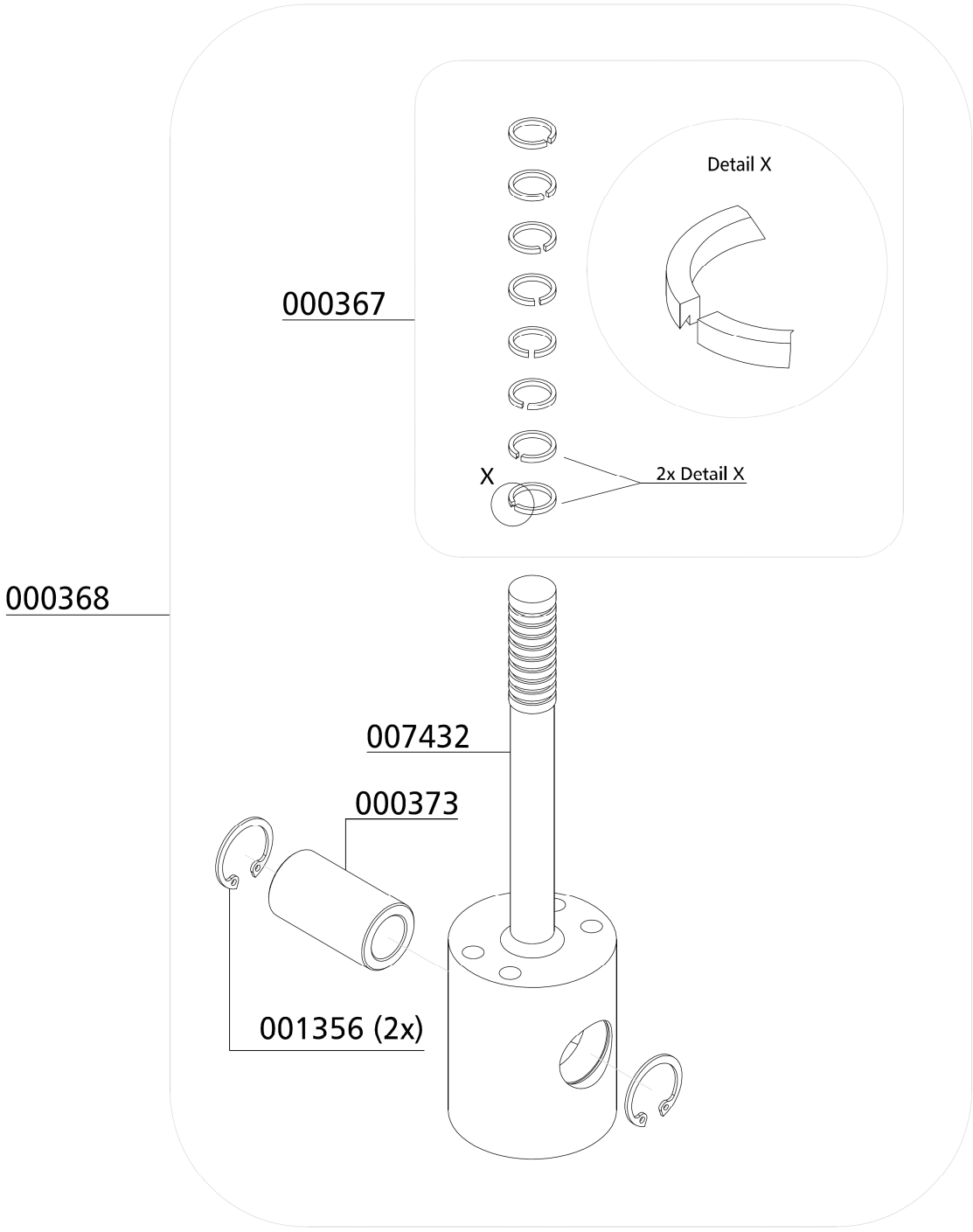
## Kolben 4. Stufe / Piston 4th Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000367 | Kolbenringsatz Ø14mm | Set Piston Rings Ø14mm |
| 000368 | Kolben Ø14mm/50mm, komplett | Piston Ø14mm/50mm, complete |
| 000373 | Kolbenbolzen Ø22 x 40 mm | Piston Pin Ø22 x 40 mm |
| 001356 | Sicherungsring I 22 DIN472 | Circlip I 22 DIN472 |
| 005458 | Spezialwerkzeug, 2 Halbschalen für Montage Kolben Ø14mm | Special Tool, Splitted bush |
| 005459 | Spezialwerkzeug, Montagehülse für Montage Kolbenringe Ø 14mm | Special Tool, Fitting tool |
| 005460 | Spezialwerkzeug, Montagezange für Montage Kolbenringe Ø 14mm | Special Tool, Pliers |
| 007432 | Kolben Ø14mm/50mm | Piston Ø14mm/50mm |

## Kolben 4. Stufe / Piston 4th Stage

| Spezialwerkzeug Kolbenmontage / Special Tool Piston fitting | Spezialwerkzeug Kolbenringmontage / Pistonring fitting Tool |
|---|---|
| 005458 | 005459 / 005460 |



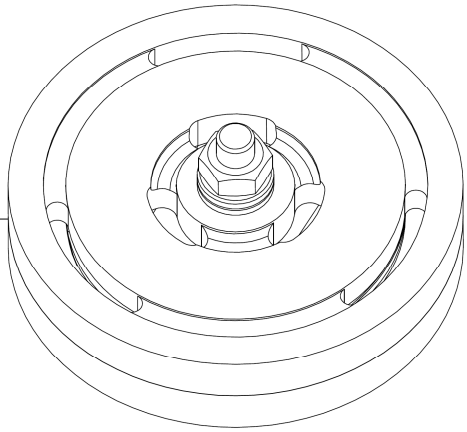


## Ventil 1. & 2. Stufe / Valve 1st & 2nd Stage

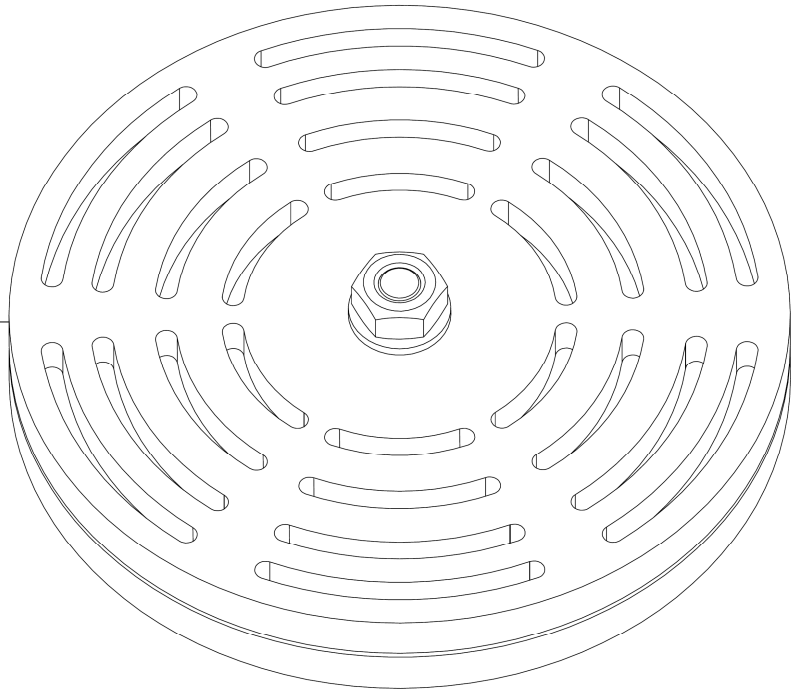
| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000256 | Saug- Druckventil, 2. Stufe | In-&Outlet Valve, 2nd Stage |
| 000369 | Saug- Druckventil, 1. Stufe | In-&Outlet Valve, 1st Stage |

## Ventil 1. & 2. Stufe / Valve 1st & 2nd Stage

000256
Ventil 2.Stufe
Valve 2nd Stage



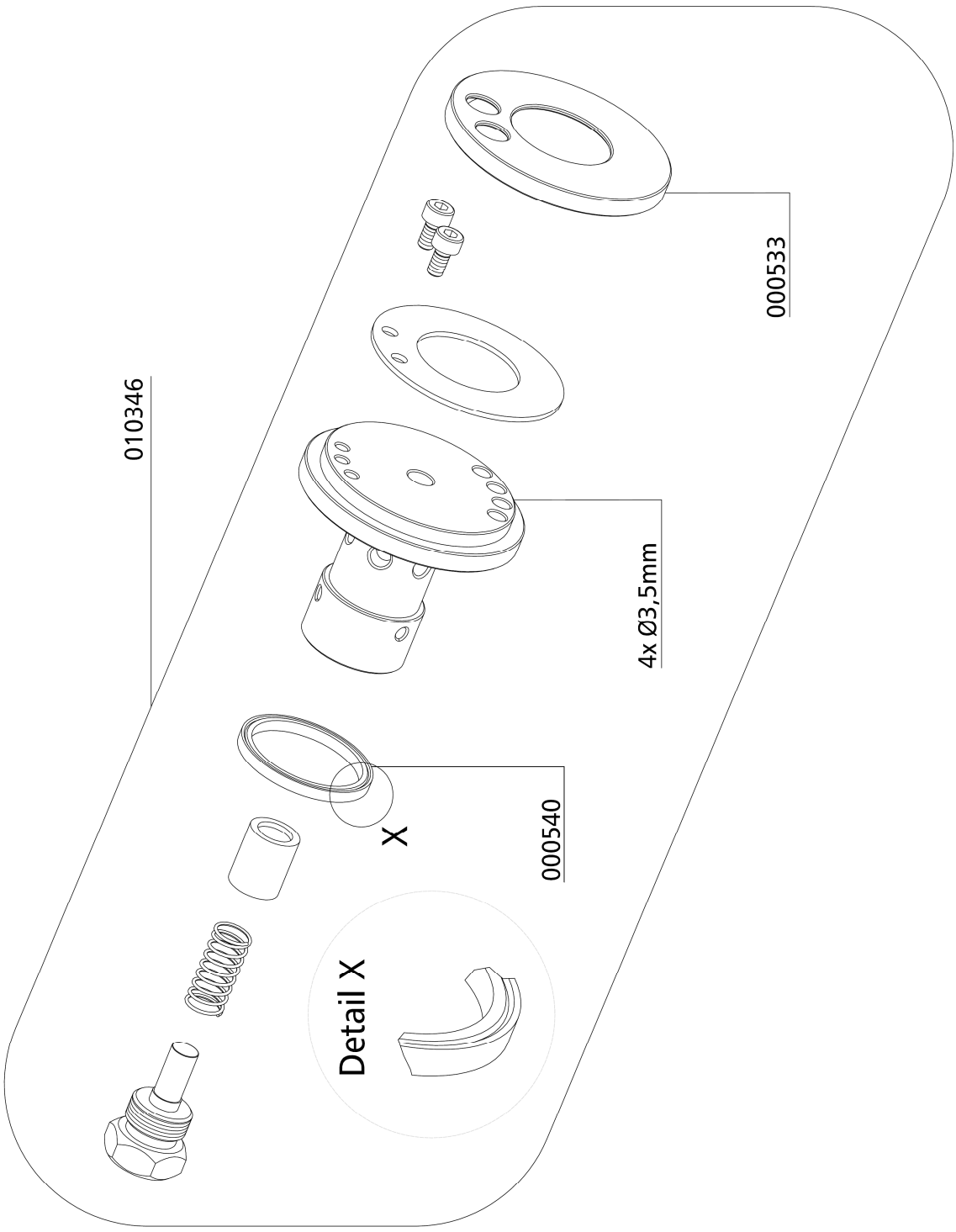
000369
Ventil 1.Stufe
Valve 1st Stage



## Baugruppe: Ventil 3. Stufe / Assembly: Valve 3rd Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000533 | Ventildichtung, Saug-& Druckventil unten | Lower Valve Gasket, 3rd Stage |
| 000540 | Dichtring / Dichtung, 3. Stufe | Upper Alloy Seal Ring, 3rd Stage |
| 010346 | Saug-Druckventil, 3. Stufe, komplett | In- & Outlet Valve, 3rd Stage |

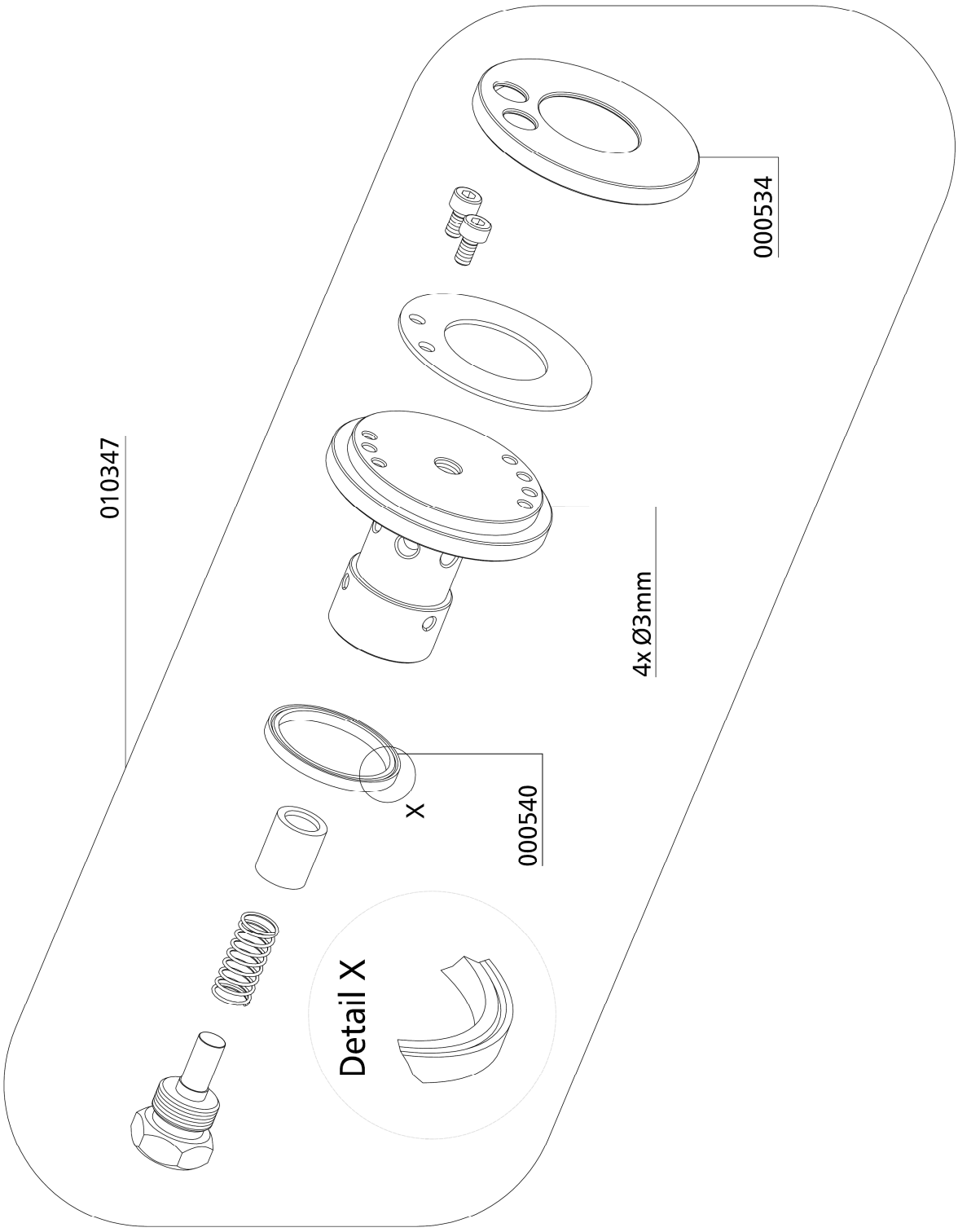
## Baugruppe: Ventil 3. Stufe / Assembly: Valve 3rd Stage



## Ventil 4. Stufe / Valve 4th Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000534 | Ventildichtung, Saug- & Druckventil, Typ 44/15/36-0,3, Al | Lower Valve Gasket, Type 44/15/36-0,3, Alloy |
| 000540 | Dichtring, Saug- u. Druckventil oben, Al | Upper Alloy Seal Ring, Alloy |
| 010347 | Saug-Druckventil, 4. Stufe, komplett | In- & Outlet Valve, 4th Stage |

## Ventil 4. Stufe / Valve 4th Stage

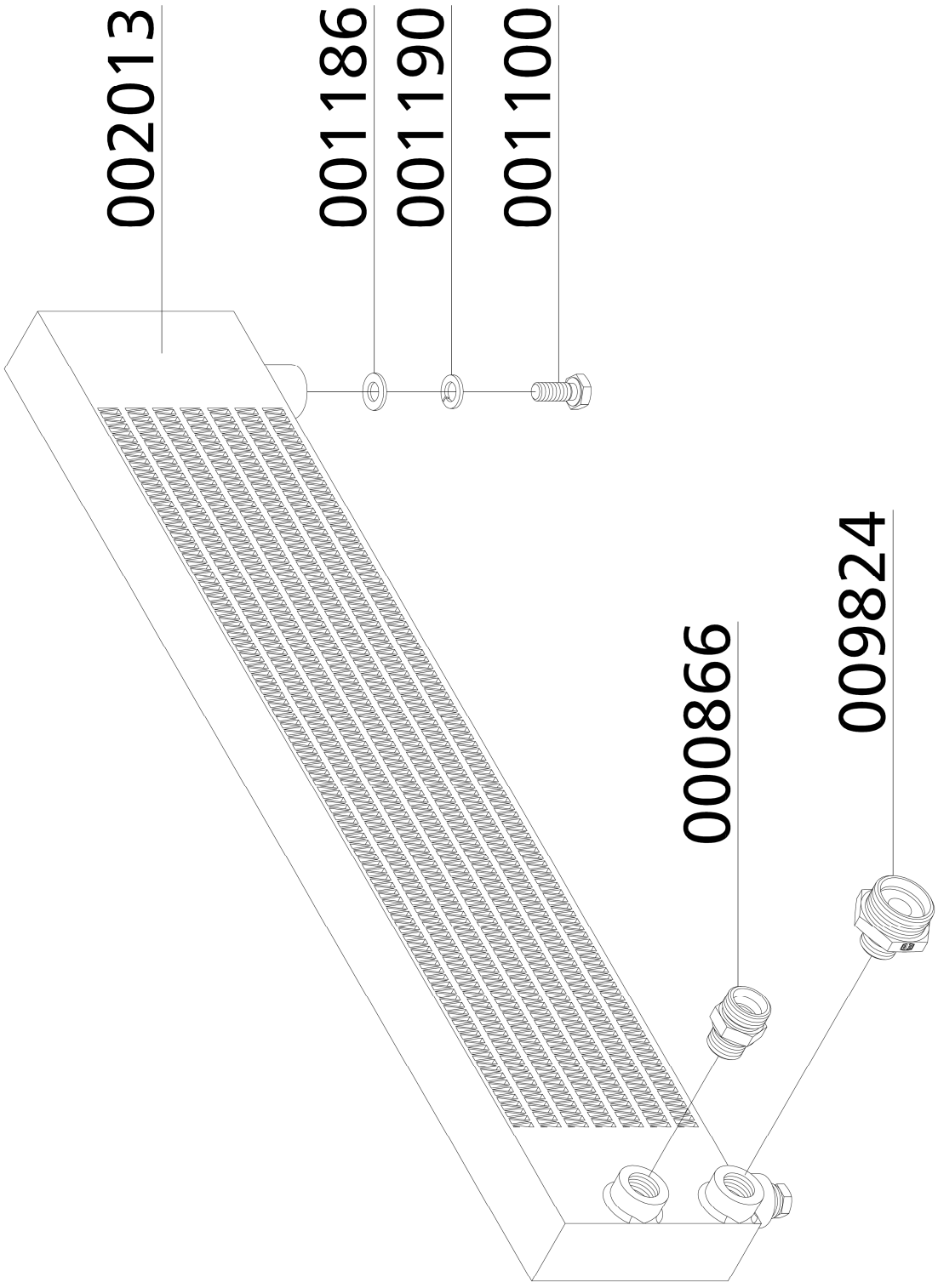


## Kühler 1. Stufe / Cooler 1st Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000866 | Verschraubung | Connection |
| 001100 | 6-kant Schraube | Hexagon Screw |
| 001186 | U-Scheibe A10 | Washer A10 |
| 001190 | Federring A10 | Spring Washer A10 |
| 002013 | Kühler 1. Stufe | Cooler 1st Stage |
| 009824 | Gerade Verschraubung | Straight Connection |

C

## Kühler 1. Stufe / Cooler 1st Stage

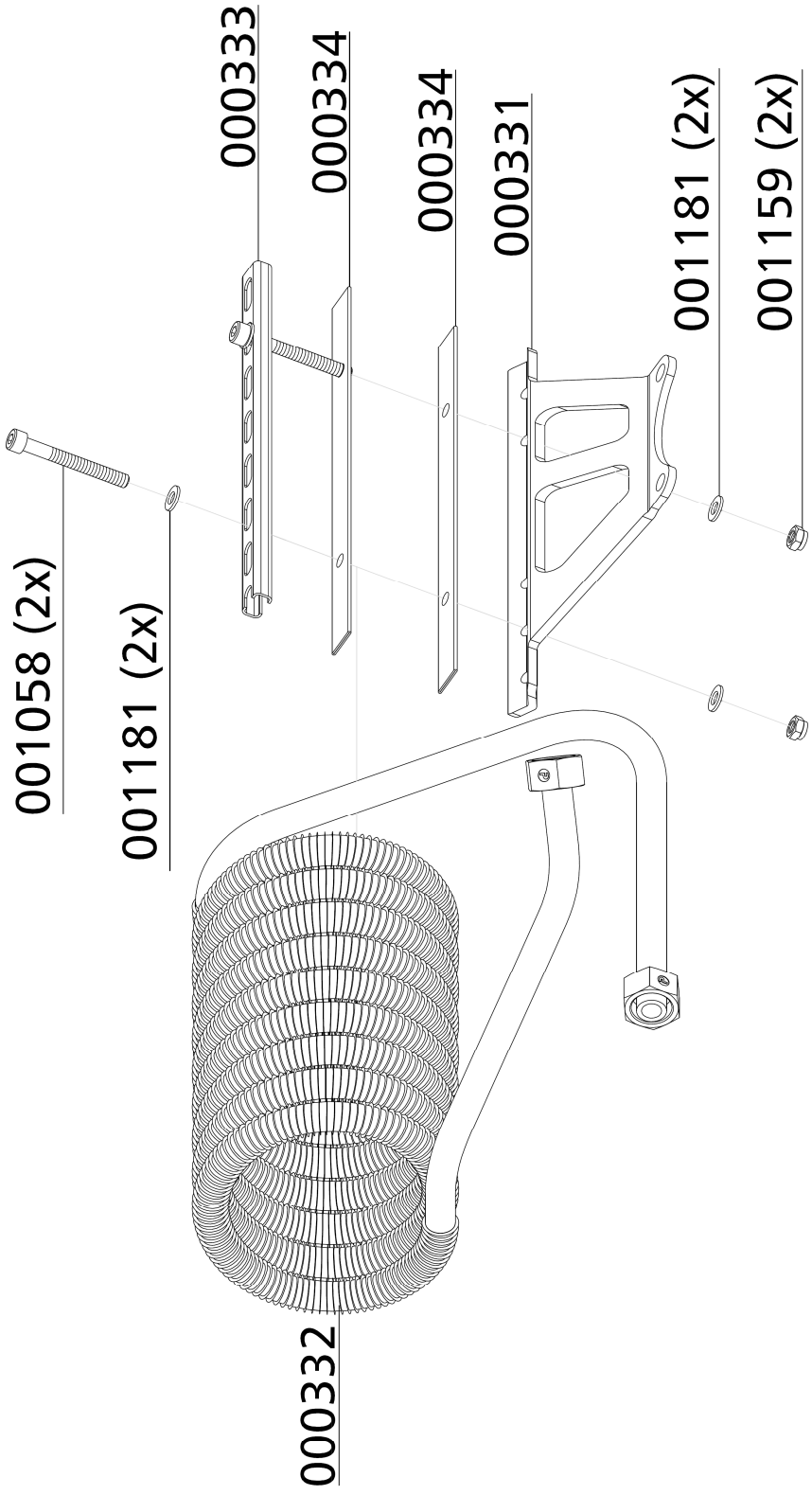


## Kühler 2. Stufe / Cooler 2nd Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000331 | Halteblech Kühlspirale 2. Stufe | Bracket 2nd Stage Cooling Pipe |
| 000332 | Wärmetauscher 2. Stufe, Cu | Heat Exchanger 2nd Stage |
| 000333 | Klemmschiene Wärmetauscher, Halteschiene | Clamp Bar for Heat Exchanger |
| 000334 | PVC Schlauch, transparent | PVC Hose for Bracket |
| 001058 | Zylinderschraube | Allen Bolt |
| 001159 | Stoppmutter | Lock Nut M8 |
| 001181 | U-Scheibe A8 | Washer A8 |

C

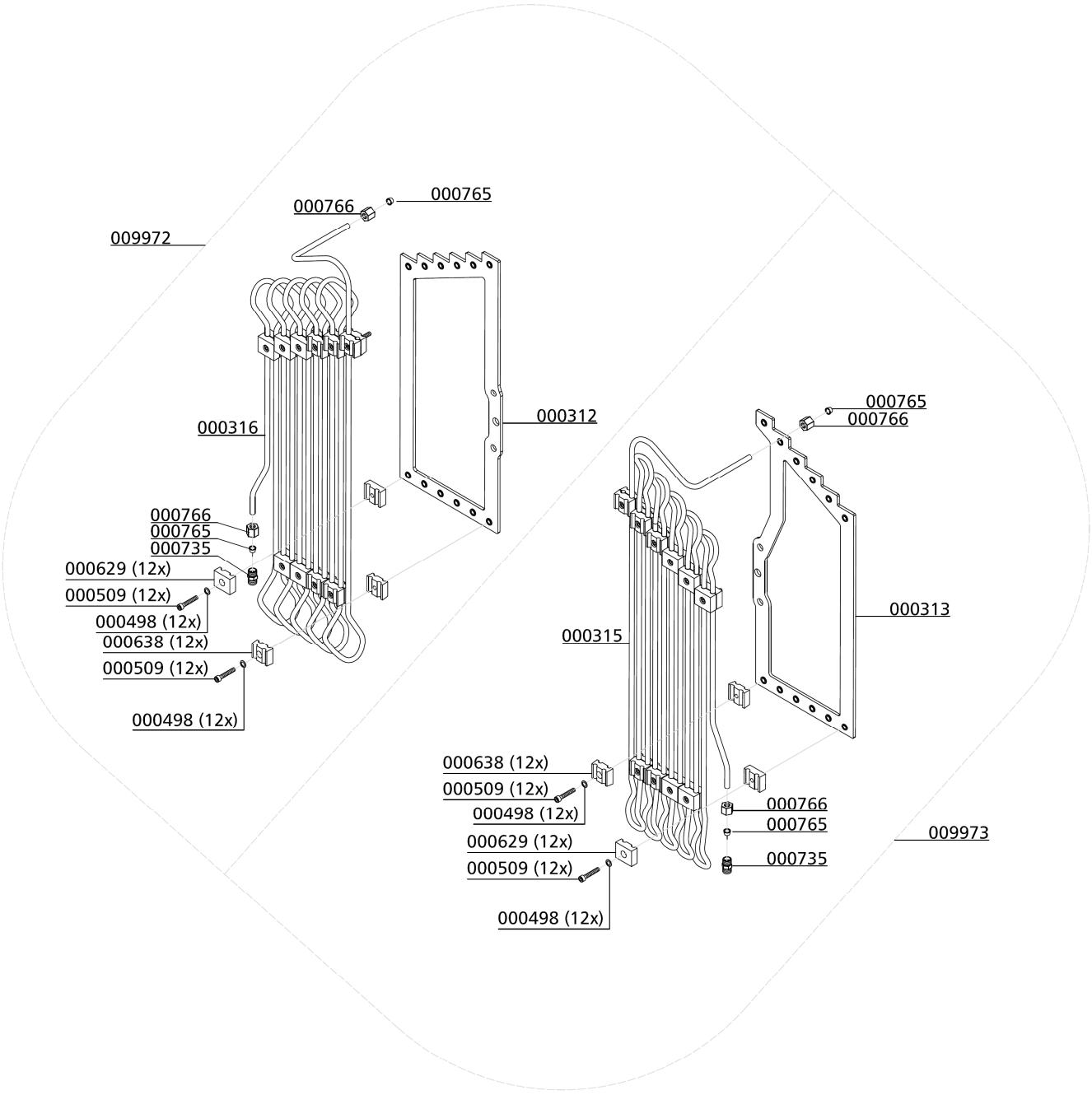
## Kühler 2. Stufe / Cooler 2nd Stage



## Kühler 3. & 4. Stufe / Cooler 3rd & 4th Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000312 | Kühlerhalter links, m. Gewindenieten | Bracket c/w threated rivets |
| 000313 | Kühlerhalter rechts, m. Gewindenieten | Bracket c/w threated rivets |
| 000315 | Kühlrohr links ohne Halter u. Klemmen | Cooling Pipe 4th Stage |
| 000316 | Kühlrohr rechts ohne Halter u. Klemmen | Cooling Pipe 3rd Stage |
| 000498 | U-Scheibe A6 | Washer A6 |
| 000509 | Zylinderschraube | Allen Bolt |
| 000628 | Einfachschelle 1 x 8mm 1 Paar | Pipe Clamp 1x8mm 1pair PVC |
| 000629 | Doppelschelle 2 x 8mm 1 Paar | Pipe Clamp 2x8mm - 1 pair |
| 000638 | Doppelschelle 2 x 8 mm 1 Paar | Pipe Clamp 2x8mm - 1 pair |
| 000735 | Verschraubung | Connection |
| 000765 | Schneidring 8 mm | Olive Seal 8 mm |
| 000766 | Mutter | Nut |
| 001013 | Zylinderschraube | Allen Bolt |
| 001027 | Zylinderschraube | Allen Bolt |
| 001156 | Stoppmutter | Lock Nut M6 |
| 005841 | Linsenflanschschraube mit Innensechskant | Lens Head Screw |
| 005842 | Linsenflanschschraube mit Innensechskant | Lens Head Screw |
| 006400 | Zusatzkühler, Endstufe, kompl. | Additional Cooler, Final Stage |
| 006401 | Befestigungsblech für Kühlrohrklemmen | Mounting sheet for clamps |
| 006402 | Kühlerrohr Zusatzkühler | Cooling Pipe Additional Cooler |
| 009972 | Kühler 3.Stufe | Cooler 3rd Stage complete |
| 009973 | Kühler 4.Stufe | Cooler 4th Stage complete |

## Kühler 3. & 4. Stufe / Cooler 3rd & 4th Stage

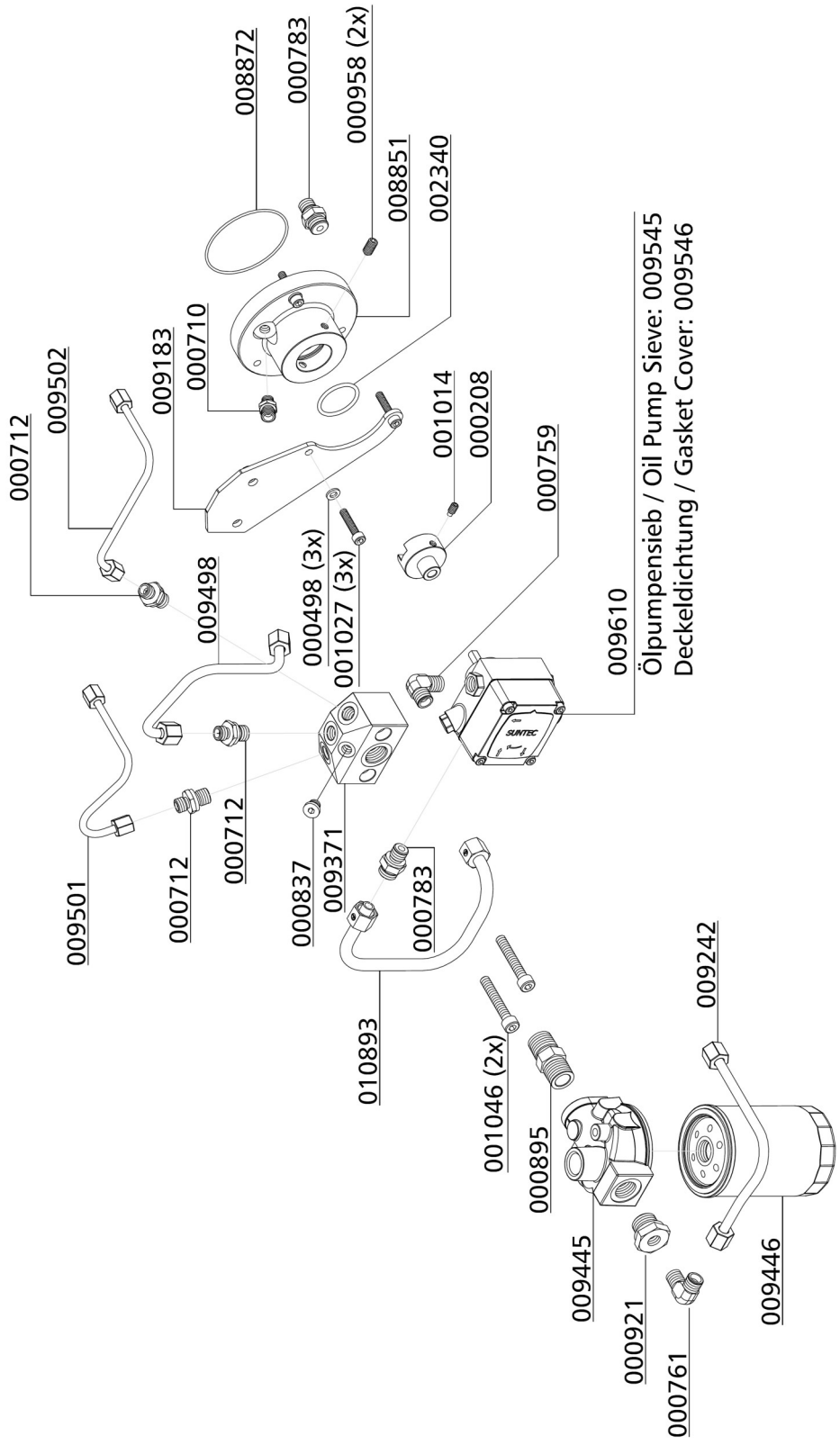


## Ölpumpe / Oil Pump

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000208 | Ölpumpenantriebsflansch | Drive Flange Oil Pump |
| 000498 | U-Scheibe A6 | Washer A6 |
| 000710 | Verschraubung | Connection w/o nut& olive seal |
| 000712 | Verschraubung | Connection w/o nut& olive seal |
| 000759 | Verschraubung | Elbow connection c/w nut&olive |
| 000761 | Winkelverschraubung | Elbow Connection |
| 000783 | Verschraubung | Straight Connection |
| 000837 | Verschlussstopfen | Plug |
| 000895 | Doppelnippel | Double Nipple |
| 000921 | Reduzierung | Reducer |
| 000958 | Gewindestift, Madenschraube | Hexagon Socket Screw |
| 001014 | Gewindestift mit Zapfen | Hexagon Socket Screw |
| 001027 | Zylinderschraube | Allen Bolt |
| 001046 | Zylinderschraube | Allen Screw |
| 002340 | O-Ring Ölpumpenflansch | O-Ring, oil pump flange |
| 008851 | Ölpumpenflansch | Oil Pump Flange |
| 008872 | O-Ring | O-Ring |
| 009183 | Halter Ölverteilerblock LW 450 | Bracket oil distributor block |
| 009242 | Öldruckleitung Ø8mm | Oil Suction Pipe |
| 009371 | Ölverteilerblock, Alu | Oil distributor block, alloy |
| 009445 | Niederdruckfilter | Low-Pressure Filter, 10 bar |
| 009446 | Ölfilterwechselpatrone | Oil Filter Cartridge |
| 009498 | Öldruckleitung Ø6mm, mit 2mm Düse | Oil Suction Pipe |
| 009501 | Öldruckleitung Ø6mm, mit 0,7mm Düse | Oil Pressure Pipe |
| 009502 | Öldruckleitung Ø6mm, mit 0,7mm Düse | Oil Pressure Pipe |
| 009545 | Ölpumpensieb für Ölpumpe | Sieve Oil Pump |
| 009546 | Dichtung Ölpumpendeckel | Gasket Oil Pump Cover |
| 009610 | Ölpumpe | Oil Pump |
| 010893 | Ölsaugleitung Ø10mm | Oil Suction Pipe |

C

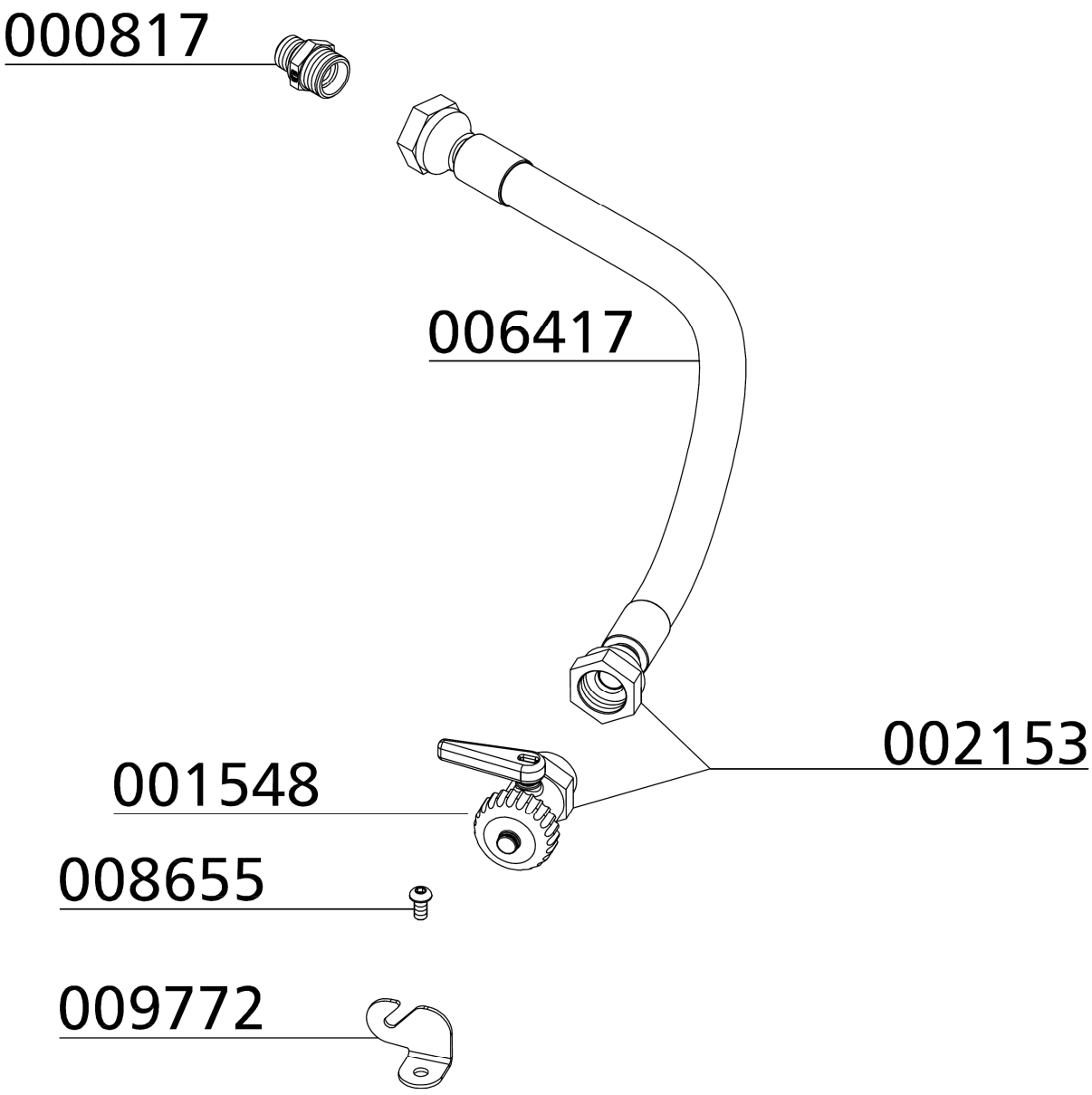
## Ölpumpe / Oil Pump



## Baugruppe: Ölablassschlauch / Assembly: Oil Drainage Tube

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000817 | Verschraubung | Connection |
| 001548 | Ölablassventil (Kugelhahn) | Oil Drain Valve - ball valve |
| 002153 | Ölablassschlauch inkl. Kugelhahn | Oil drain hose c/w ball valve |
| 006417 | Ölablassschlauch | Oil drain hose |
| 008655 | Linsenflanschschraube mit Innensechskant M6x12 mm, DIN 7380F, 10.9 | Lens Head Screw M6x12 mm, DIN 7380F, 10.9 |
| 009772 | Halter Öl-Ablassschlauch | Holder Oil drain hose |

## Baugruppe: Ölablassschlauch / Assembly: Oil Drainage Tube

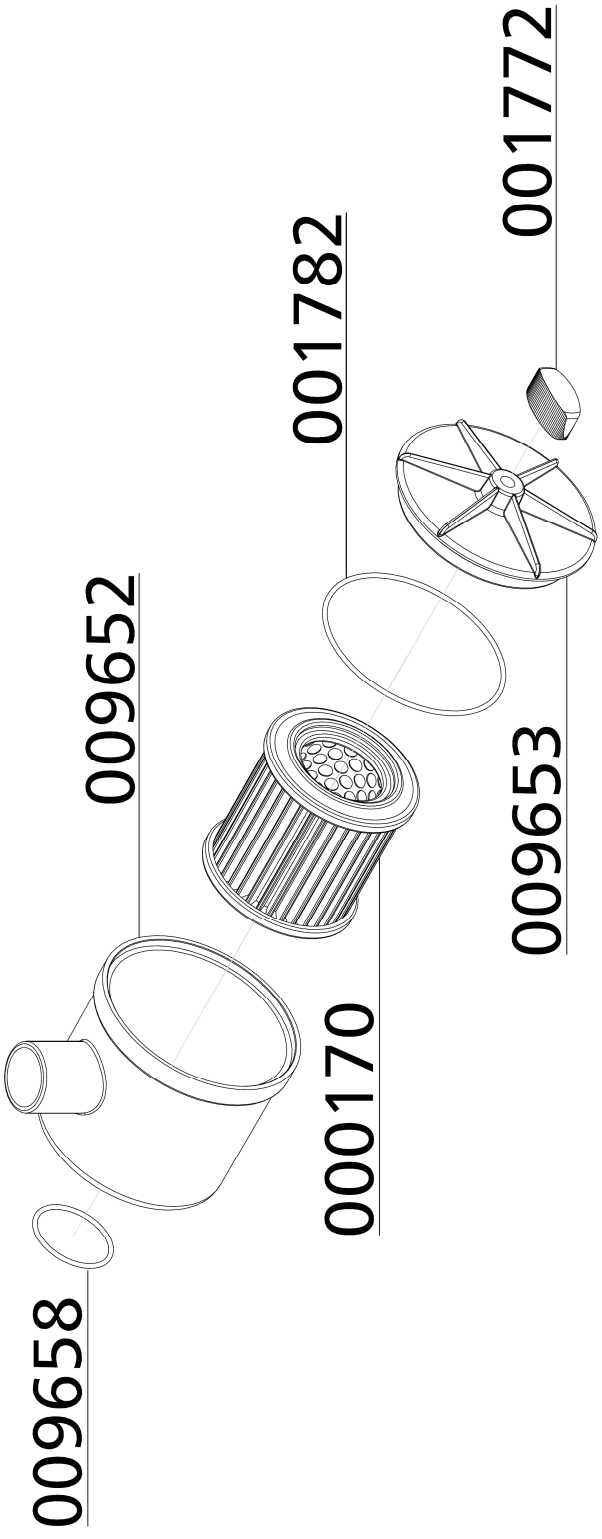


## Baugruppe: Ansaugfilter / Intake Filter

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000170 | Ansaugfilterpatrone | Air Intake Filter Cartridge |
| 001772 | Flügelmutter, PVC-schwarz | Winged Nut, PVC black |
| 001782 | O-Ring, Ansaugfiltergehäuse | O-Ring, Intake Filter Housing |
| 009652 | Gehäuse für Ansaugfilter | Intake Filter Housing |
| 009653 | Deckel für Ansaugfilter | Cover Intake filter housing |
| 009658 | O-Ring | O-Ring |

C

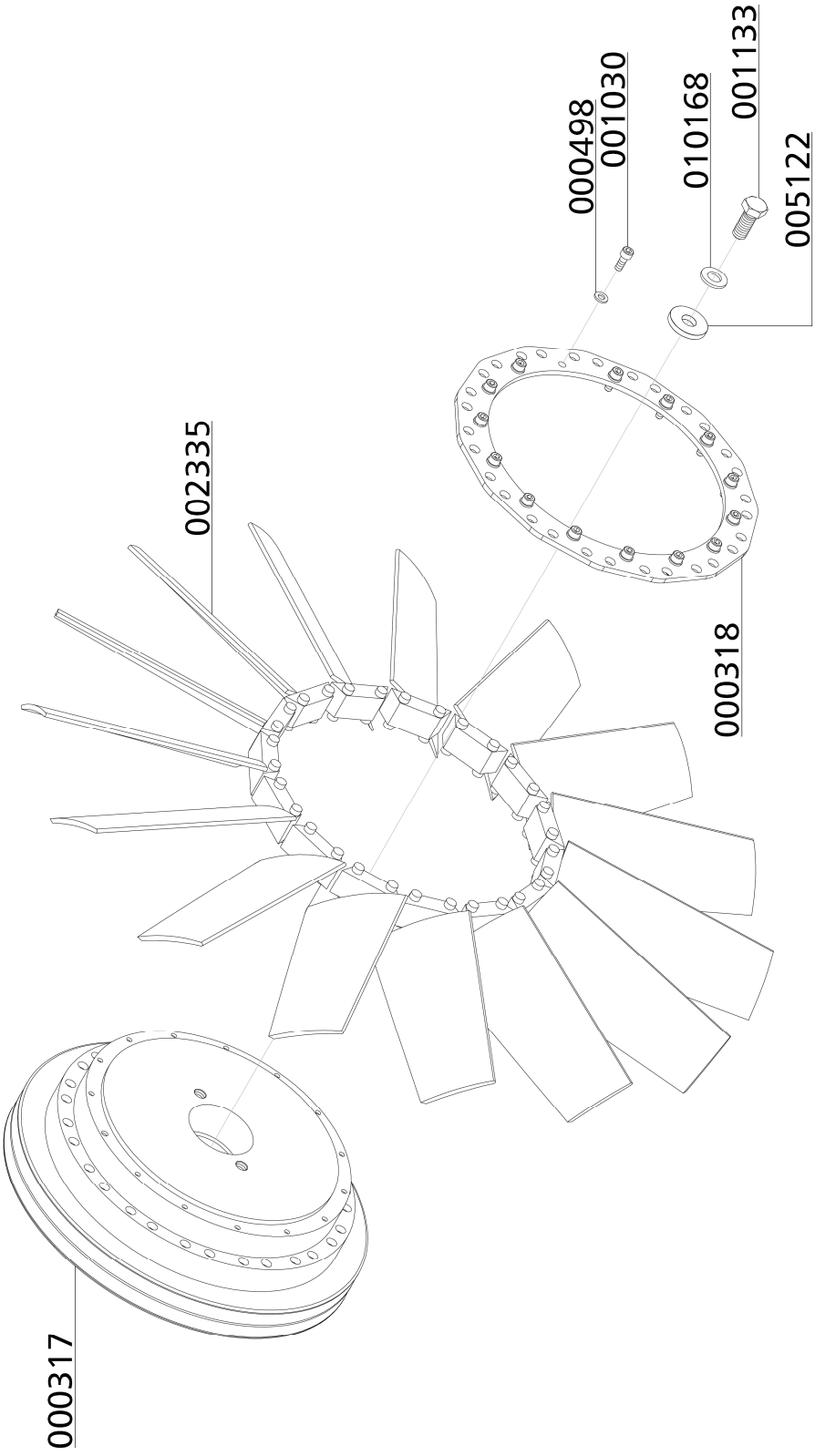
## Baugruppe: Ansaugfilter / Intake Filter



## Lüfterrad / Cooling Fan

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000317 | Schwungscheibe | Flywheel |
| 000318 | Zentrierring, Lüfterblätter | Fixing Ring Fan Blades |
| 000498 | U-Scheibe A6 | Washer A6 |
| 001030 | Zylinderschraube, M6x16mm DIN912 8.8 ZN | Allen Bolt, M6x16mm DIN912 8.8 ZN |
| 001133 | 6-kant Schraube | Hexagon Bolt M12x30 |
| 002335 | Ventilatorflügelblatt, schwarz | Fan Blade, black, new version |
| 005122 | U-Scheibe Kurbelwelle | Washer, crank shaft |
| 010168 | Zahnscheibe A12 | Lock Washer A12 |

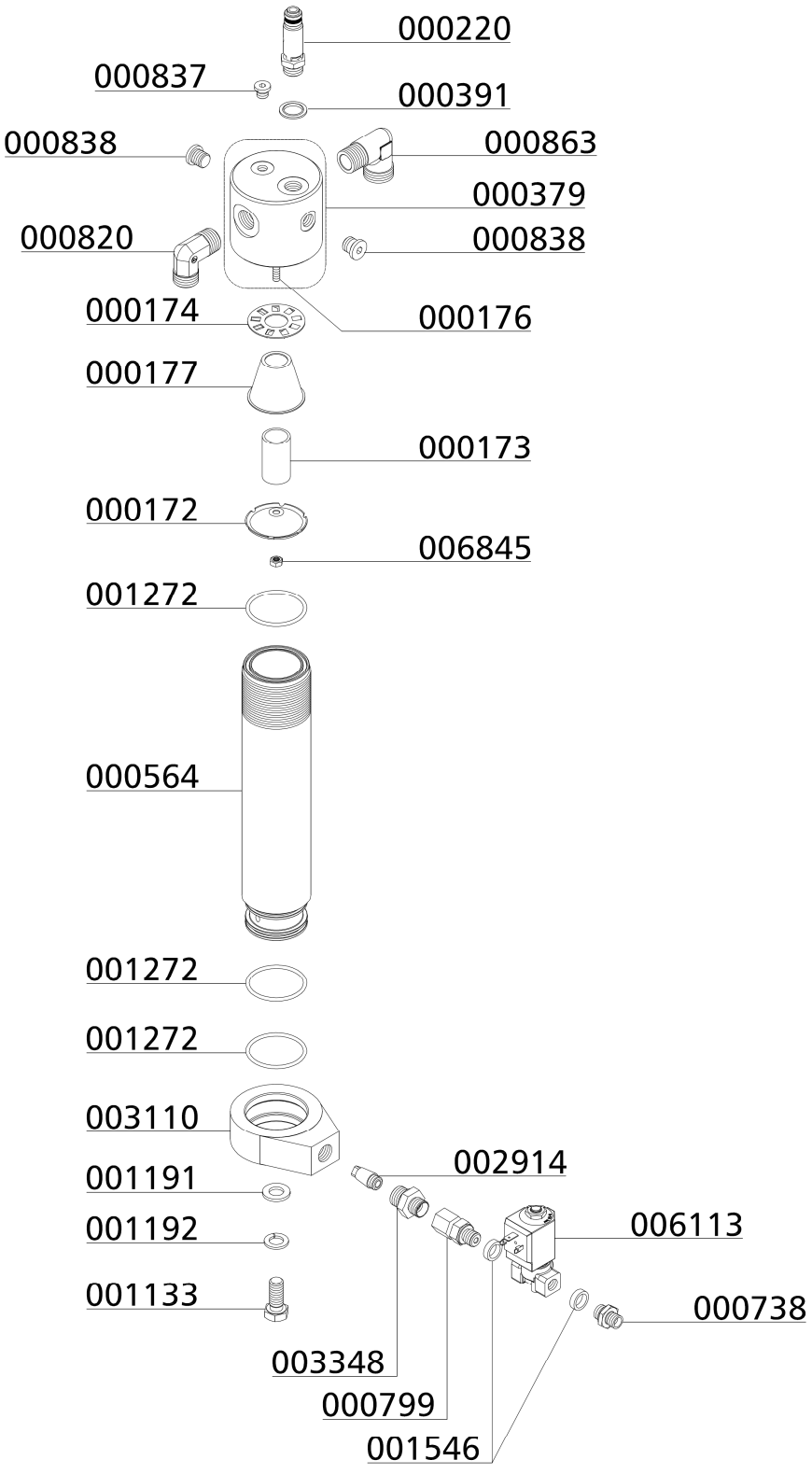
## Lüfterrad / Cooling Fan



## Öl- / Wasserabscheider 1. Stufe / Oil- / Water Separator 1st Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000177 | Trichter f. Wasserabscheider | Water Deflector |
| 000220 | Sicherheitsventil G3/8" | Safety Valve G3/8" 8 bar |
| 000379 | Wasserabscheider - Oberteil G1/2" IG | Top Water Separator 1/2"female |
| 000391 | U-Sit Ring | Seal Ring U-Sit |
| 000564 | Öl-/Wasserabscheider - Druckbehälter | Container Water Separ. |
| 000738 | Gerade Verschraubung | Straight Connection |
| 000799 | Verschraubung | Connection with fixed nut |
| 000820 | Verschraubung | Connection |
| 000837 | Verschlussstopfen | Plug |
| 000838 | Verschlussstopfen | Plug |
| 000869 | Verschraubung | Connection |
| 001133 | 6-kant Schraube | Hexagon Bolt M12x30 |
| 001191 | U-Scheibe A12 | Washer A12 |
| 001192 | Federring A12 | Spring Washer A12 |
| 001272 | O-Ring | O-Ring Water separator |
| 001546 | Aludichtring für Magnetventile G1/4" | Alloy Seal Ring for G1/4" male |
| 002914 | Sinterfilter für Wasserabscheidersockel | Sintered filt. water sep. base |
| 003110 | Sockel Wasserabscheider | Water separator base |
| 003348 | Filterverschraubung für Wasserabscheider | Connec. for sintered filter |
| 006113 | Magnetventil 0-55 bar | Solenoid 0-55 bar |
| 006845 | Stoppmutter Edelstahl | Lock Nut M6 s/s |

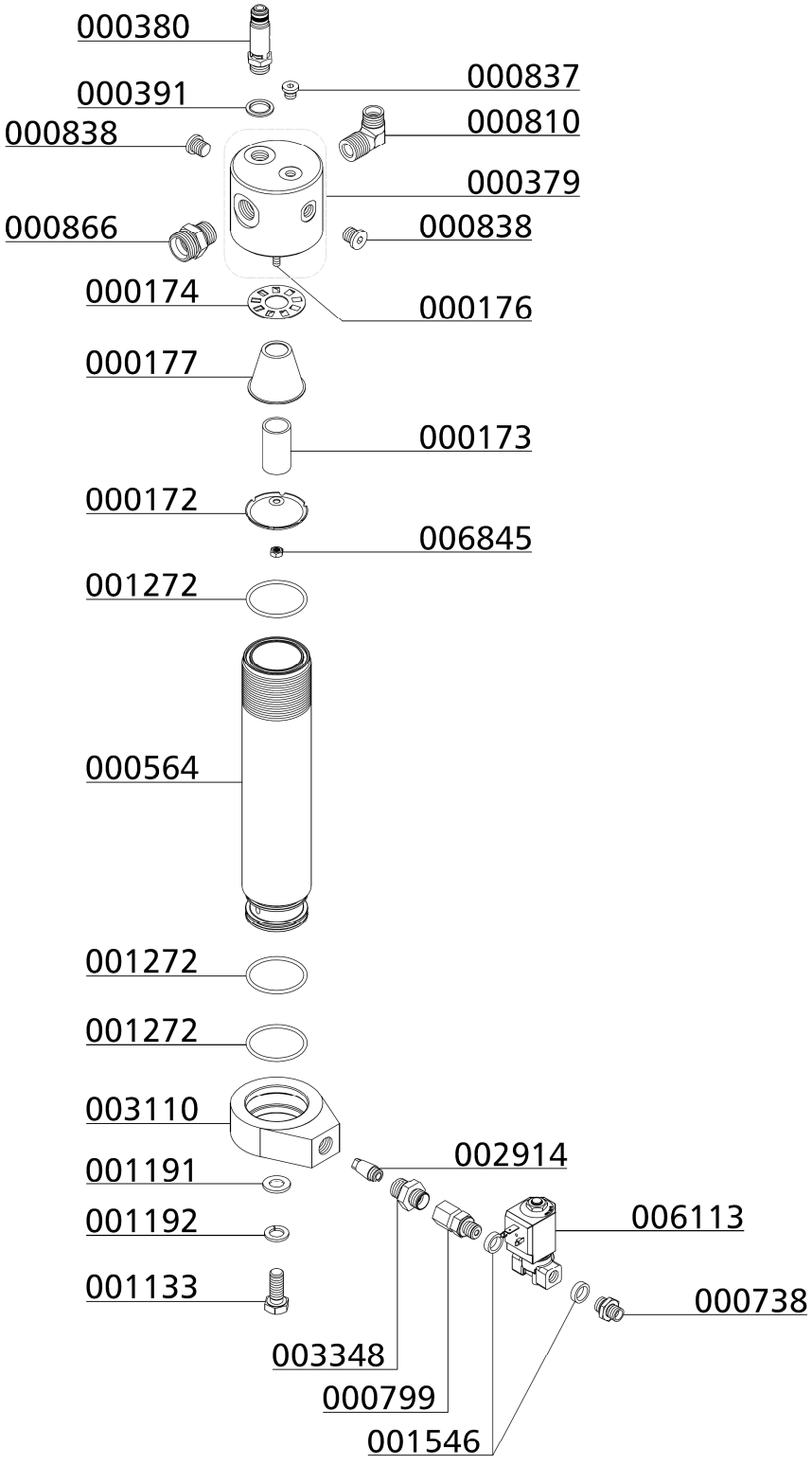
## Öl- / Wasserabscheider 1. Stufe / Oil- / Water Separator 1st Stage



## Öl- / Wasserabscheider 2. Stufe / Oil- / Water Separator 2nd Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000172 | Prallscheibe | Mounting plate water separator |
| 000173 | Sinterfilter Wasserabscheider | Sintered Filter Water separat. |
| 000174 | Drallscheibe, Wasserabscheider | Twist Disk, Water separator |
| 000176 | Stiftschraube, Wasserabscheider 2. Stufe | Treaded Stud |
| 000177 | Trichter f.  Wasserabscheider | Water Deflector |
| 000379 | Wasserabscheider - Oberteil G1/2" IG | Top Water Separator 1/2"female |
| 000380 | Sicherheitsventil G3/8" | Safety Valve G3/8" 22 bar |
| 000391 | U-Sit Ring | Seal Ring U-Sit |
| 000564 | Öl-/Wasserabscheider - Druckbehälter | Container Water Separ. |
| 000738 | Gerade Verschraubung | Straight Connection |
| 000799 | Verschraubung | Connection with fixed nut |
| 000810 | Verschraubung | Connection |
| 000837 | Verschlussstopfen | Plug |
| 000838 | Verschlussstopfen | Plug |
| 000866 | Verschraubung | Connection |
| 001133 | 6-kant Schraube | Hexagon Bolt M12x30 |
| 001191 | U-Scheibe A12 | Washer A12 |
| 001192 | Federring A12 | Spring Washer A12 |
| 001272 | O-Ring | O-Ring  Water separator |
| 001546 | Aludichtring für Magnetventile G1/4" | Alloy Seal Ring for G1/4" male |
| 002914 | Sinterfilter für Wasserabscheidersockel | Sintered filt. water sep. base |
| 003110 | Sockel  Wasserabscheider | Water separator base |
| 003348 | Filterverschraubung für Wasserabscheider | Connec. for sintered filter |
| 006113 | Magnetventil 0-55 bar | Solenoid 0-55 bar |
| 006845 | Stoppmutter Edelstahl | Lock Nut M6 s/s |

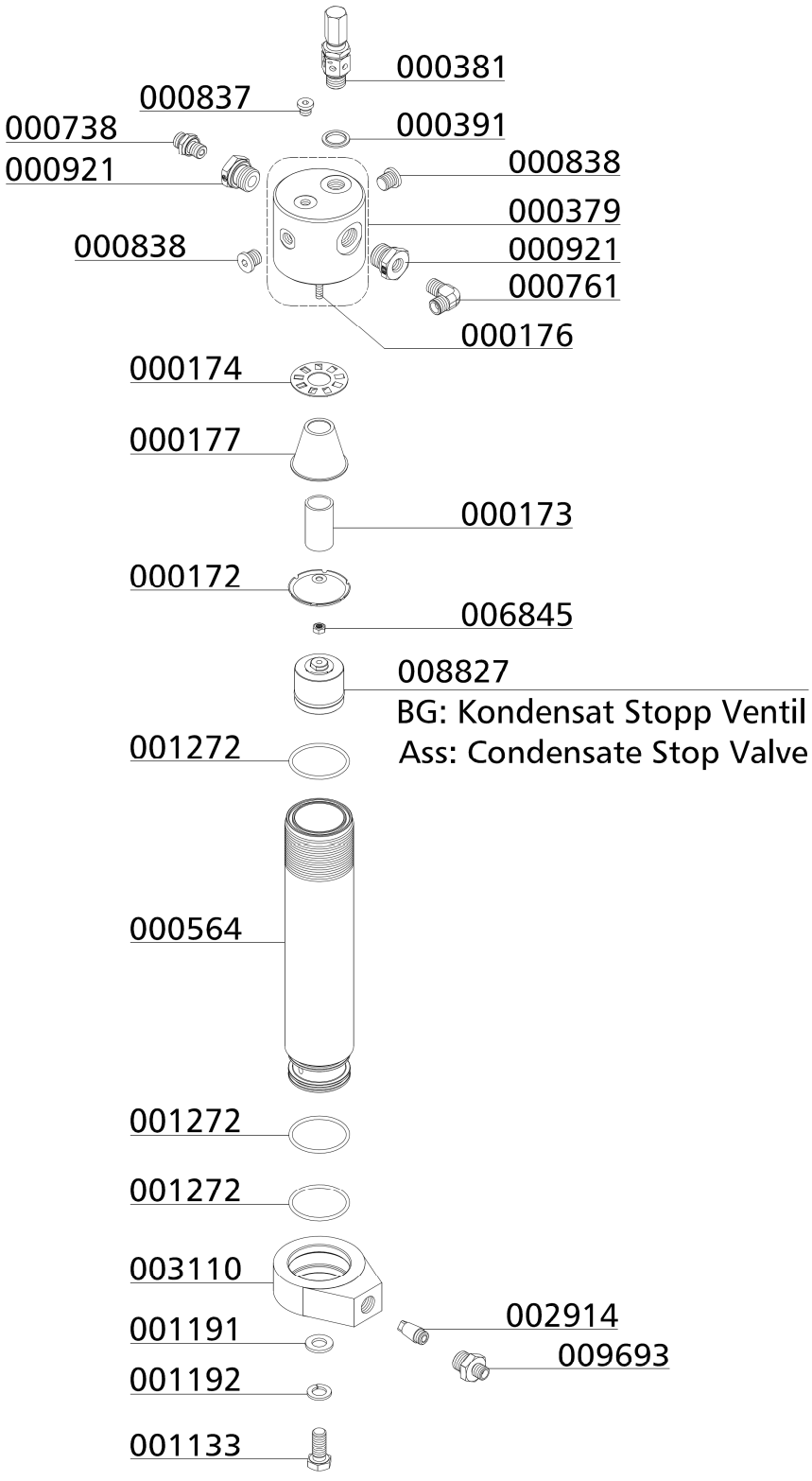
## Öl- / Wasserabscheider 2. Stufe / Oil- / Water Separator 2nd Stage



## Öl- / Wasserabscheider 3. Stufe / Oil- / Water Separator 3rd Stage

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000172 | Prallscheibe | Mounting plate water separator |
| 000173 | Sinterfilter Wasserabscheider | Sintered Filter Water separat. |
| 000174 | Drallscheibe, Wasserabscheider | Twist Disk, Water separator |
| 000176 | Stiftschraube, Wasserabscheider 2. Stufe | Treaded Stud |
| 000177 | Trichter f. Wasserabscheider | Water Deflector |
| 000379 | Wasserabscheider - Oberteil G1/2" IG | Top Water Separator 1/2"female |
| 000381 | Sicherheitsventil G3/8" | Safety Valve G3/8" 90 bar |
| 000391 | U-Sit Ring | Seal Ring U-Sit |
| 000564 | Öl-/Wasserabscheider - Druckbehälter | Container Water Separ. |
| 000738 | Gerade Verschraubung | Straight Connection |
| 000761 | Winkelverschraubung | Elbow Connection |
| 000837 | Verschlussstopfen | Plug |
| 000838 | Verschlussstopfen | Plug |
| 000921 | Reduzierung | Reducer |
| 001133 | 6-kant Schraube | Hexagon Bolt M12x30 |
| 001191 | U-Scheibe A12 | Washer A12 |
| 001192 | Federring A12 | Spring Washer A12 |
| 001272 | O-Ring | O-Ring Water separator |
| 002914 | Sinterfilter für Wasserabscheidersockel | Sintered filt. water sep. base |
| 003110 | Sockel Wasserabscheider | Water separator base |
| 006845 | Stoppmutter Edelstahl | Lock Nut M6 s/s |
| 008827 | Kondensat-Stopp-Ventil Einsatz | Condensate-Stop-Valve Assembly |
| 009693 | Filterverschraubung für Wasserabscheider | Connec. for sintered filter |

## Öl- / Wasserabscheider 3. Stufe / Oil- / Water Separator 3rd Stage



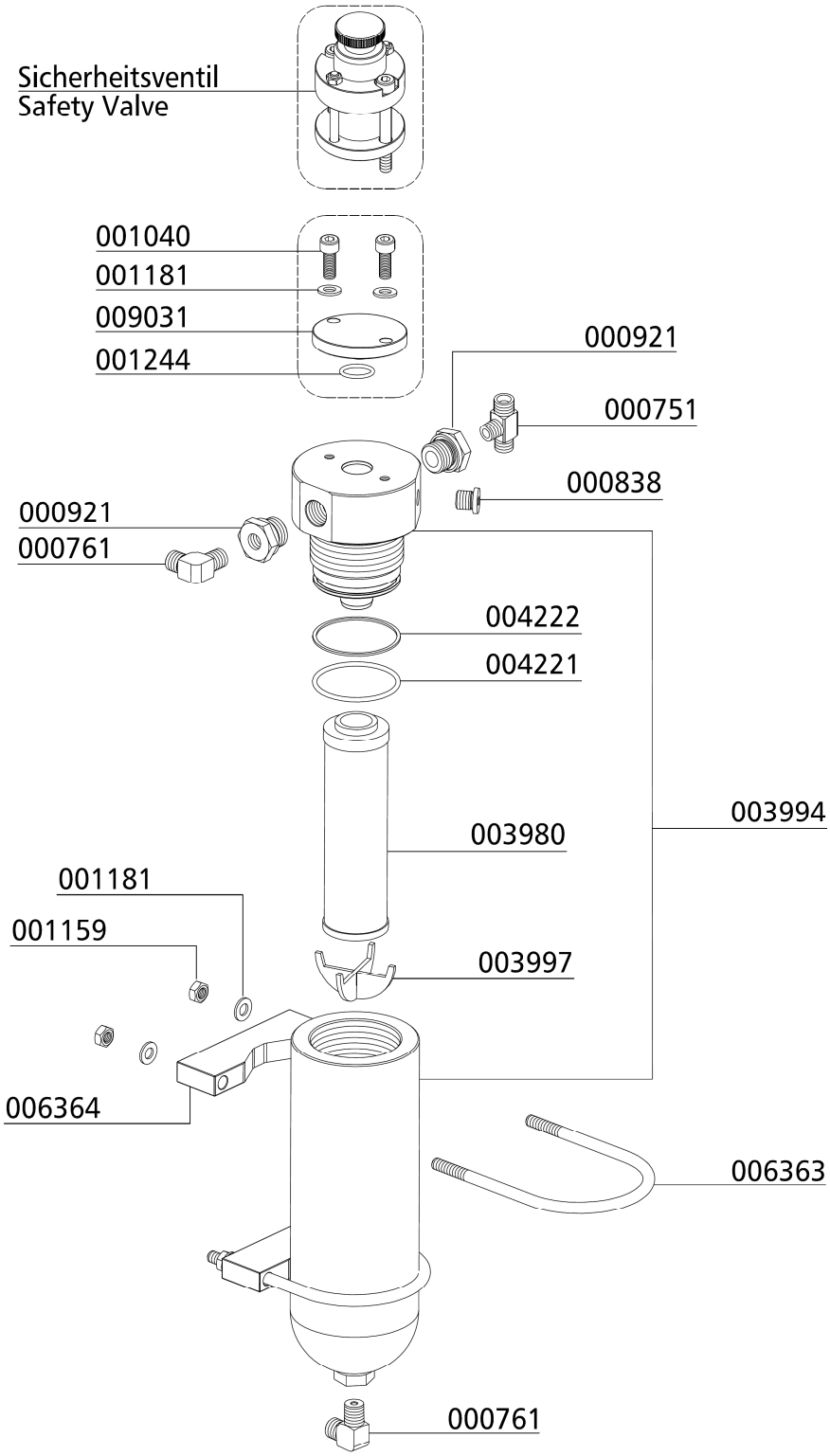

C

## Filter 0,8l / Filter 0.8ltr

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000751 | T - Verschraubung | T - Connection |
| 000761 | Verschraubung WE08LRCFX | Elbow Connection WE08LRCFX |
| 000838 | Verschlussstopfen VSTIR1/4EDCF | Plug VSTIR1/4EDCF |
| 000921 | Reduzierung RI1/2X1/4CFX | Reducer RI1/2X1/4CFX |
| 001040 | Zylinderschraube M8x20mm DIN912 8.8 ZN | Allen Screw M8x20mm DIN912 8.8 ZN |
| 001159 | Stoppmutter M8 | Lock Nut M8 |
| 001181 | U-Scheibe A8 DIN125 ZN | Washer A8 DIN125 ZN |
| 001244 | O-Ring Ø16 x 2 NBR70 | O-Ring Ø16 x 2 NBR70 |
| 003980 | Partikelfilterpatrone | Particle filter cartridge |
| 003994 | Filterbehälter 350 bar, 0,8 l, komplett | Filter case 350 bar, 0.8ltr, complete |
| 003997 | Filterstütze Partikelfilter 0,8 l | Filter support 0,8 ltr |
| 004221 | O-Ring, 54,2 x 3,0 FKM80 | O-Ring, 54,2 x 3,0 FKM80 |
| 004222 | Stützring 55,4x60x1,4 | Back-up Ring 55,4x60x1,4 |
| 006363 | Haltebügel Filtergehäuse 0,8 l | U-Clamp Filterhousing 0.8 ltr |
| 006364 | Halteschalen Filtergehäuse 0,8 l | Bracket Filter Housing 0.8 ltr |
| 009031 | Verschlussstopfen für CE-TÜV Sicherheitsventilsockel | Plug for CE Safety Valve Base |

C

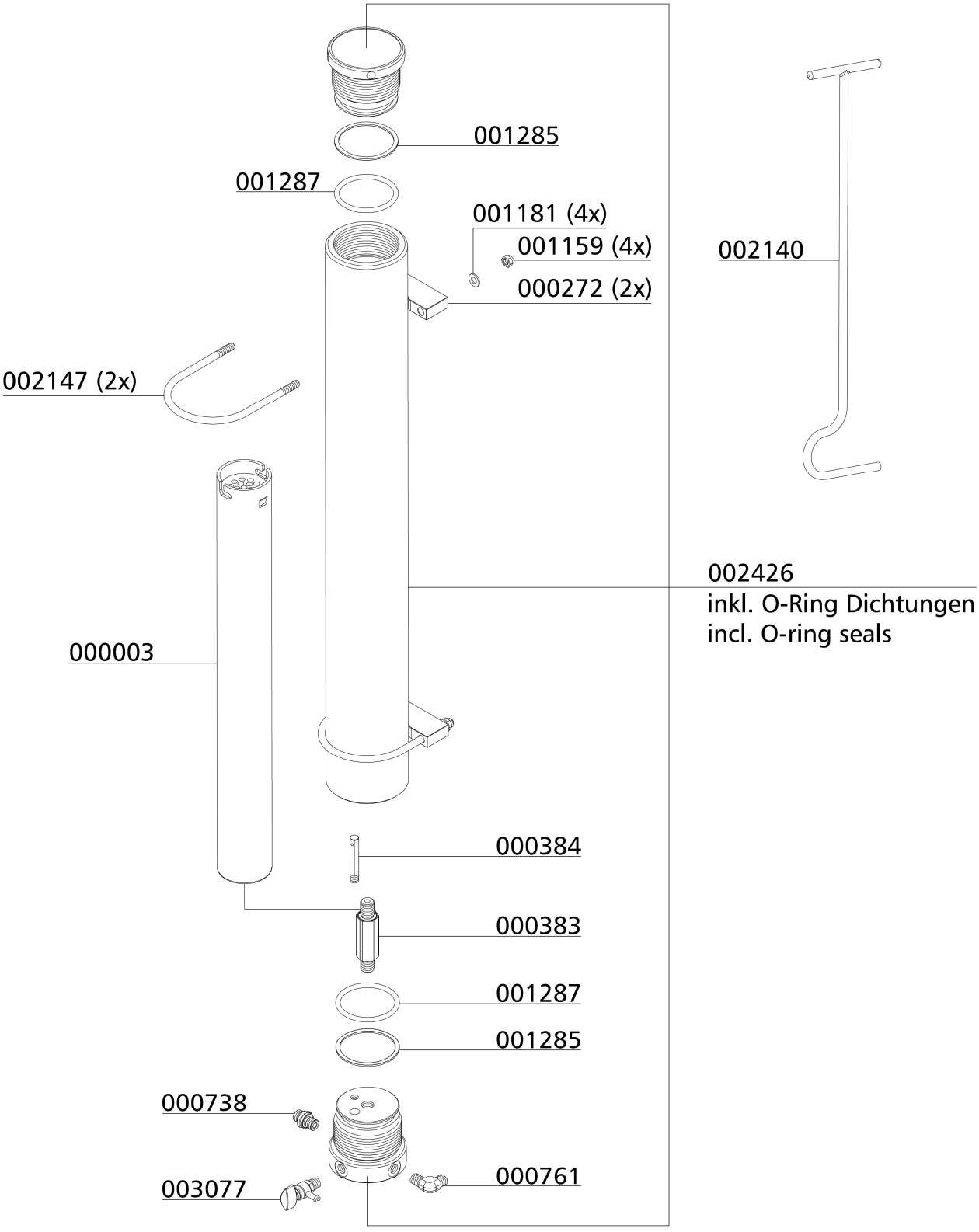
## Filter 0,8l / Filter 0.8ltr



## Filtergehäuse 2,3 l / Filter Housing 2.3 ltr

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000003 | Filterpatrone 2,3 Liter | Filter Cartridge 2.3 ltr BA |
| 000272 | Abstandshalter für Filtergehäuse | Spacer Bracket for Filtertower |
| 000383 | Messing Adapter für Filterpatrone | Brass Filter Adapter |
| 000384 | Düse für Filtergehäuse | Jet Filter Housing |
| 000738 | Verschraubung | Connection |
| 000761 | Winkelverschraubung | Elbow Connection |
| 001159 | Stoppmutter | Lock Nut M8 |
| 001181 | U-Scheibe A8 | Washer A8 |
| 001285 | Stützring, Filtergehäuse | Back-up Ring Filter Housing |
| 001287 | O-Ring, Filtergehäuse | O-Ring filter housing |
| 002140 | Filterschlüssel 1,7 & 2,3 Liter Behälter | Filter tool 1,7 & 2,3 Litre |
| 002147 | Haltebügel für Filtergehäuse (ES) | U-Clamp for filter housing ES |
| 002426 | Filtergehäuse, kompl. | Filter housing |
| 003077 | Entwässerungsventil G1/4" AG, konisch | Drain Valve G1/4" male |

## Filtergehäuse 2,3 l / Filter Housing 2.3 ltr

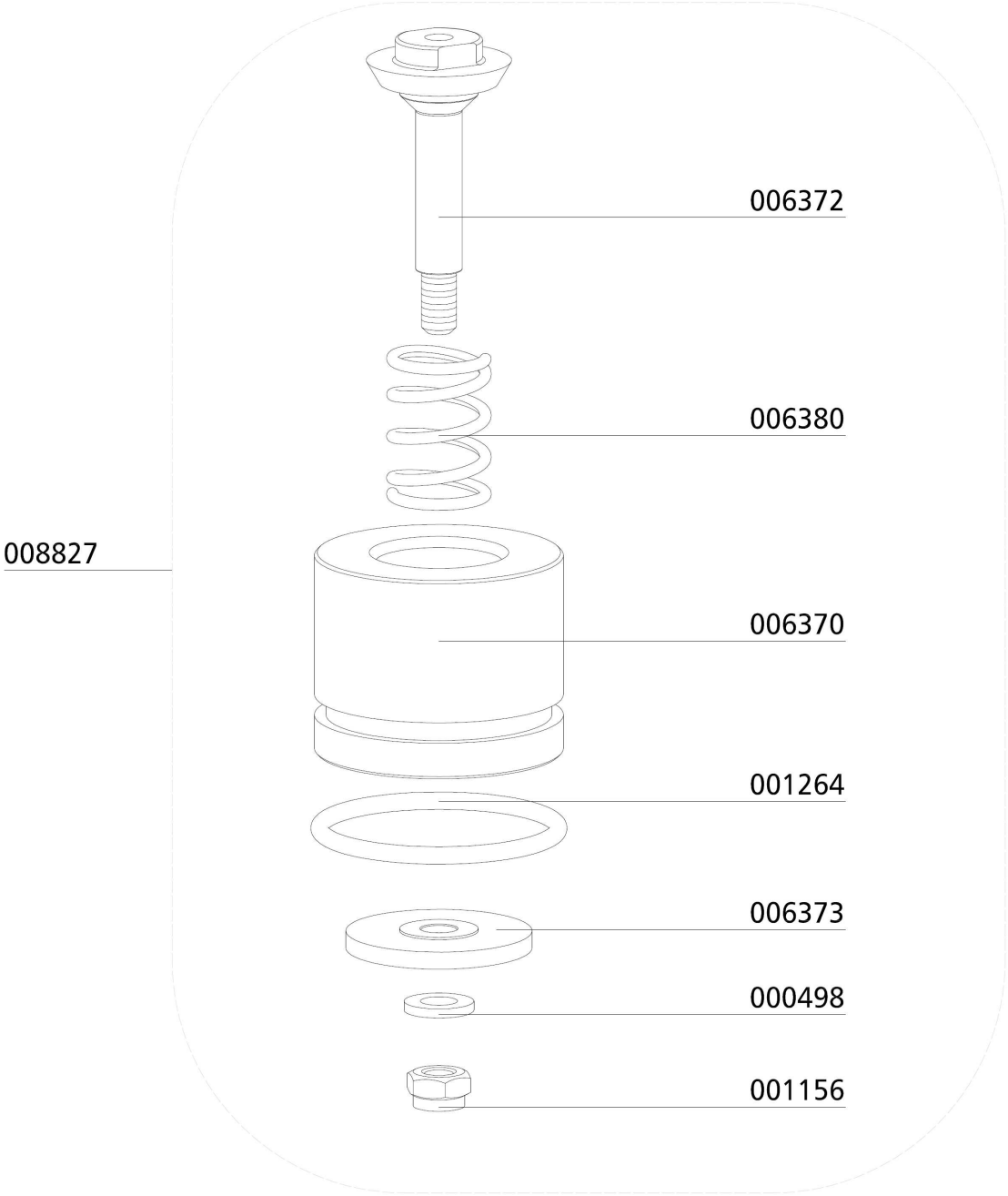


## Baugruppe: Kondensat-Stopp-Ventil / Assembly: Condensate-Stop-Valve

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000498 | U-Scheibe DIN 125 A6 | Washer DIN 125 A6 |
| 001156 | Stoppmutter M6 DIN985 ZN | Lock Nut M6 DIN985 ZN |
| 001264 | O-Ring, 38 x 3 NBR70 | O-Ring, 38 x 3 NBR70 |
| 006370 | Gehäuse Kondensat-Stopp-Ventil | Housing-Condensate-Stop-Valve |
| 006372 | Ventilkegel Kondensat-Stopp-Ventil | Valve Condensate Stop Valve |
| 006373 | Stauscheibe Kondensat-Stopp-Ventil | Baffle Plate Condensate Stop Valve |
| 006380 | Druckfeder | Compression Spring |
| 008827 | Kondensat-Stopp-Ventil Einsatz | Condensate-Stop-Valve Assembly |

## Baugruppe: Kondensat-Stopp-Ventil / Assembly: Condensate-Stop-Valve

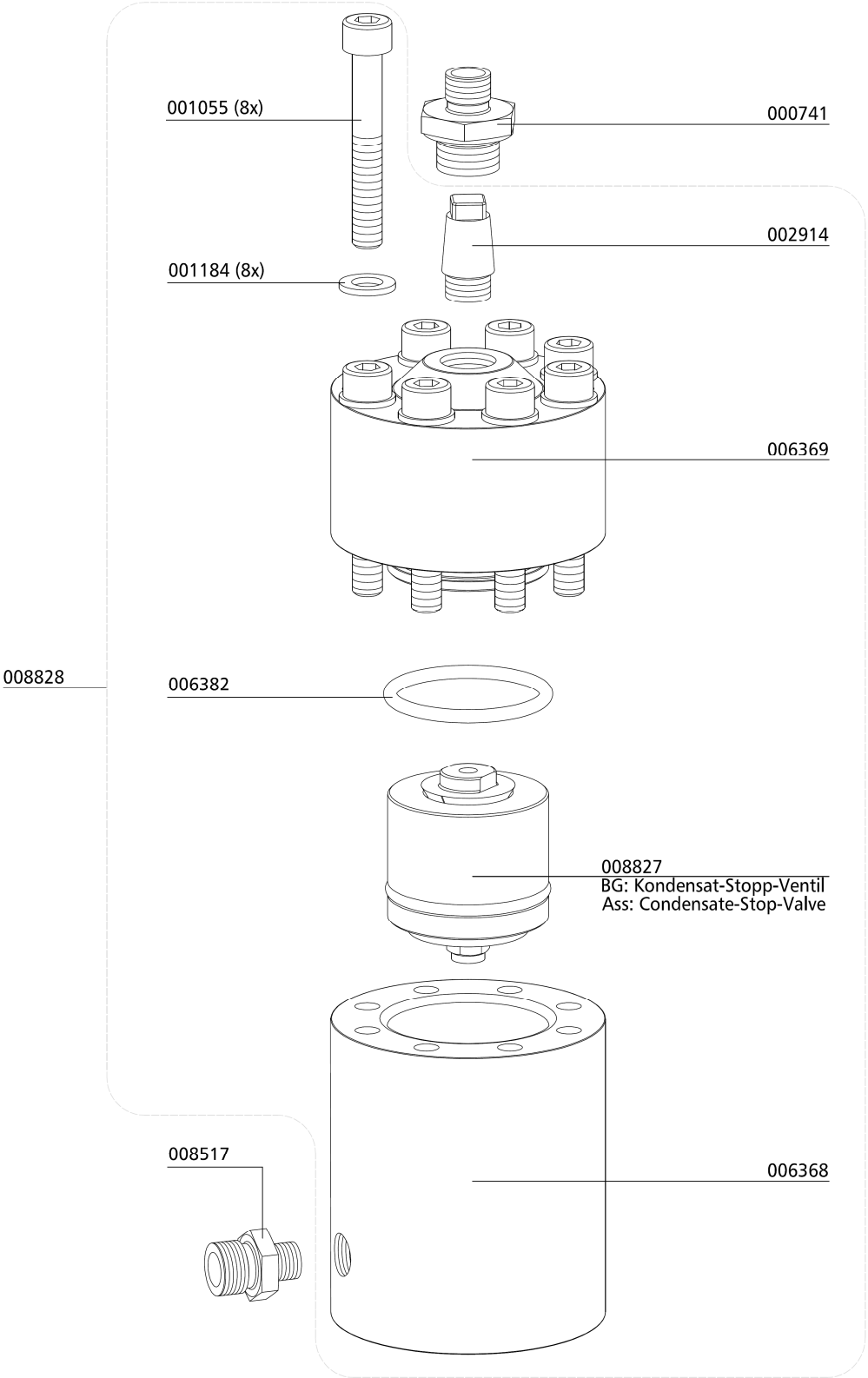




## Baugruppe: Kondensat-Stopp-Ventil-Gehäuse / Assembly: Housing Condensate-Stop-Valve

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000741 | Verschraubung, GE08LR3/8CFX | Connection, GE08LR3/8CFX |
| 000765 | Schneidring PSR 08 LX | Olive Seal PSR 08 LX |
| 000766 | Mutter M08LCFX | Nut M08LCFX |
| 001055 | Zylinderschraube,M8x55mm DIN912 8.8 ZN | Allen Screw, M8x55mm DIN912 8.8 ZN |
| 001184 | Schnorr-Scheibe S8 N0110 ZN | Clamp Washer S8 S8 N0110 ZN |
| 002914 | Sinterfilter für Wasserabscheidersockel, M12x1,5mm AG | Sintered filt. water sep. Base, M12x1,5mm AG |
| 006368 | Behälter Kondensat-Stopp-Ventil | Container Condensate-Stop-Valve |
| 006369 | Behälterdeckel Kondensat-Stopp-Ventil | Cover Condensate-Stop-Valve |
| 006382 | O-Ring 38x3,5 NBR90 | O-Ring 38x3,5 NBR90 |
| 008517 | Verschraubung GE 08L R1/4" kegelig .71 | Connection |
| 008827 | Kondensat-Stopp-Ventil Einsatz | Condensate-Stop-Valve Assembly |
| 008828 | Kondensat-Stopp-Ventil kompl., inkl. Ventileinsatz 008827 | Condensate-Stop-Valve, compl., incl. valve assembly 008827 |

## Baugruppe: Kondensat-Stopp-Ventil-Gehäuse / Assembly: Housing Condensate-Stop-Valve

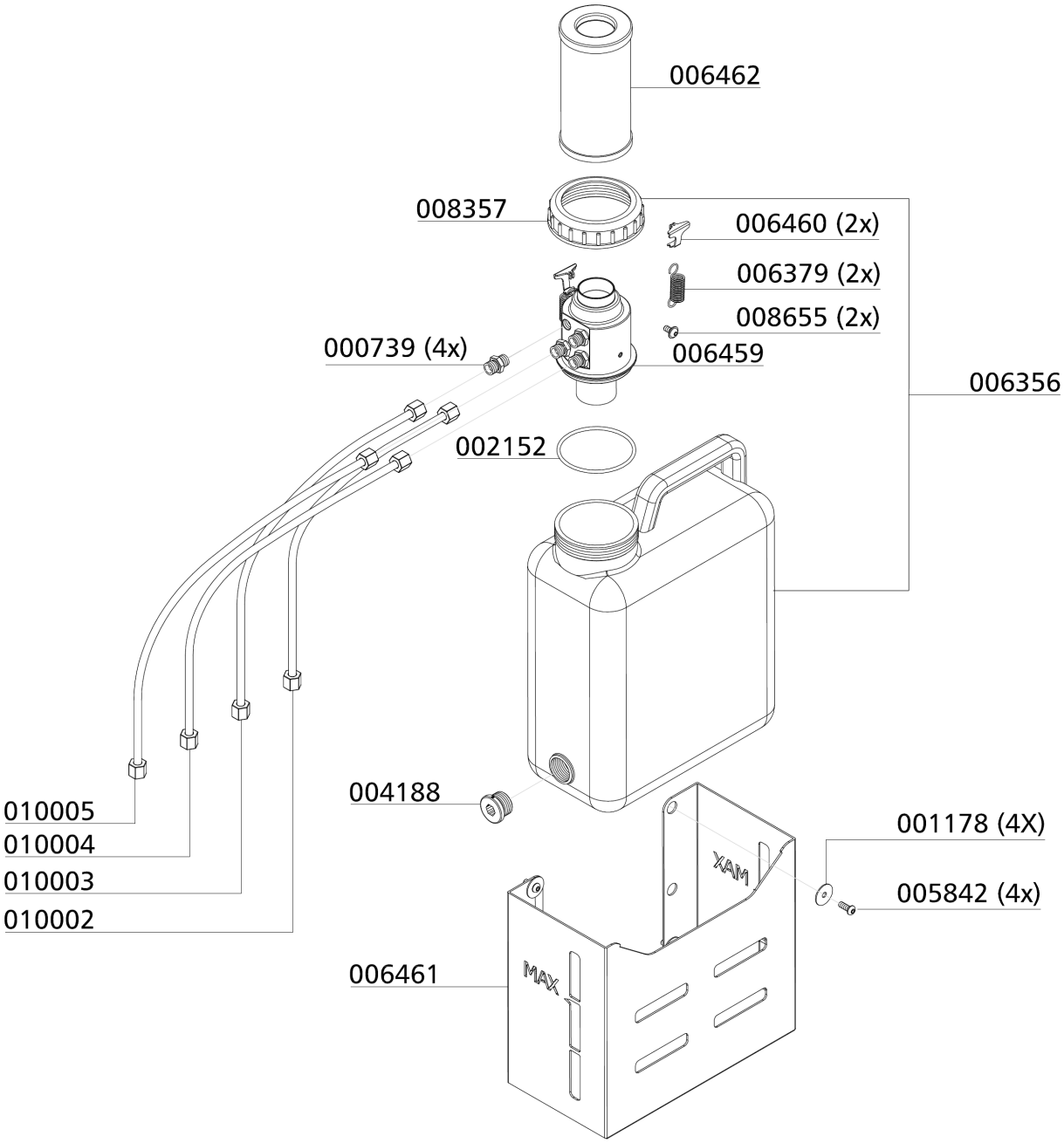


## Baugruppe: Kondensat-Sammelbehälter / Assembly: Housing Condensate-Catch-Tank

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000739 | Verschraubung | Connection |
| 001178 | U-Scheibe A6 | Washer A6 |
| 002152 | O-Ring | O-Ring |
| 004188 | Verschlussschraube G3/4 | Plug G3/4 |
| 005842 | Linsenflanschschraube mit Innensechskant | Lens Head Screw |
| 006356 | Kondensatbehälter 10 Liter | Condensate Catch Tank 10 Litre |
| 006379 | Zugfeder Kondensatfilterpatrone | Spring Condensate Filter Cartr |
| 006459 | Adapter Kondensatbehälter | Adapter Condensate Catch Tank |
| 006460 | Federspannblech Kondensatbehälter | Spring Clamping Plate CCT |
| 006461 | Halteblech Kondensatbehälter | Bracket Condensate Catch Tank |
| 006462 | Filter Kondensatbehälter | Filter Condensate Catch Tank |
| 008357 | Verschlusskappe für 006356 | Cap for Condensate Catch Tank |
| 008655 | Linsenflanschschraube mit Innensechskant | Lens Head Screw |
| 010002 | Kondensatschlauch, Ø8x1,5, L: 418mm | Condensate Hose Ø8x418mm |
| 010003 | Kondensatschlauch, Ø8x1,5, L: 455mm | Condensate Hose Ø8x455mm |
| 010004 | Kondensatschlauch, Ø8x1,5, L: 480mm | Condensate Hose Ø8x480mm |
| 010005 | Kondensatschlauch, Ø8x1,5, L: 517mm | Condensate Hose Ø8x517mm |

C

## Baugruppe: Kondensat-Sammelbehälter / Assembly: Housing Condensate-Catch-Tank



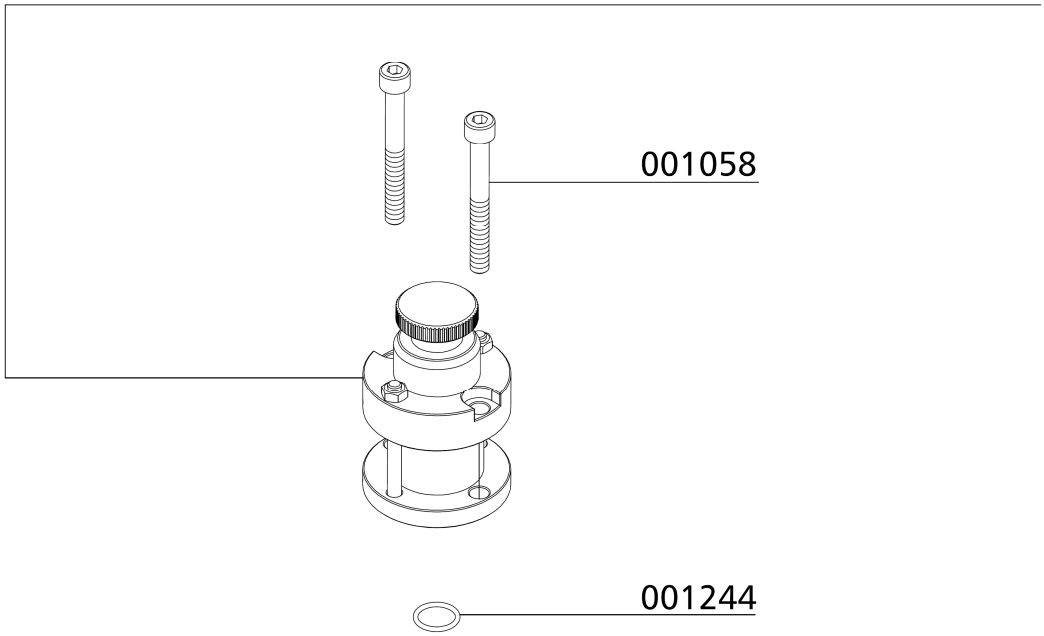
## Sicherheitsventil / Safety Valve

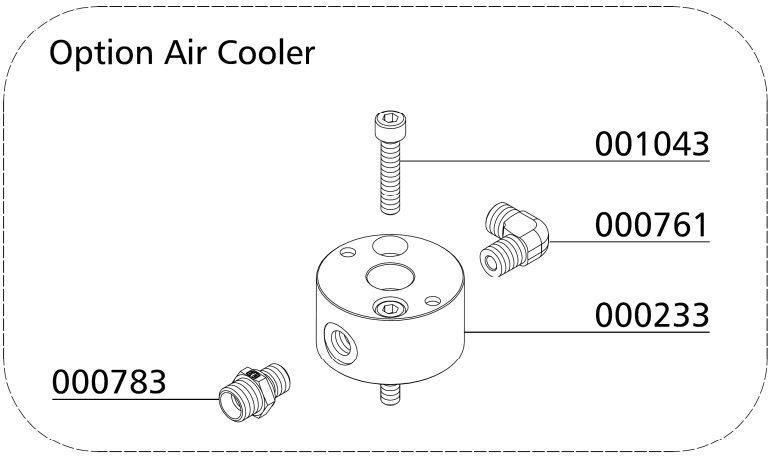
| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000233 | Sockel für Sicherheitsventil mit TÜV/CE | Base f. Safety Valve TÜV type |
| 000553 | Sicherheitsventil - Bauteilgeprüft | Safety Valve TÜV 225 bar |
| 000554 | Sicherheitsventil - Bauteilgeprüft | Safety Valve TÜV 250 bar |
| 000555 | Sicherheitsventil - Bauteilgeprüft | Safety Valve TÜV 300 bar |
| 000556 | Sicherheitsventil - Bauteilgeprüft | Safety Valve TÜV 330 bar |
| 000557 | Sicherheitsventil - Bauteilgeprüft | Safety Valve TÜV 350 bar |
| 000738 | Gerade Verschraubung | Straight Connection |
| 000761 | Winkelverschraubung | Elbow Connection |
| 001043 | Zylinderschraube | Allen Screw |
| 001058 | Zylinderschraube | Allen Bolt |
| 001244 | O-Ring | O-Ring, flange safety valve |
| 001814 | Sicherheitsventil - Bauteilgeprüft | Safety Valve |
| 001815 | Sicherheitsventil - Bauteilgeprüft | Safety Valve |
| 001816 | Sicherheitsventil - Bauteilgeprüft | Safety Valve |
| 001817 | Sicherheitsventil - Bauteilgeprüft | Safety Valve |

## Sicherheitsventil / Safety Valve

| Druck<br>Pressure | SV-Ventil mit CE-Prüfung<br>Safety Valve with CE | SV-Ventil mit TÜV-Prüfung<br>Safety Valve with TÜV |
|---|---|---|
| 225 bar | 001814 | 000553 |
| 250 bar | 001815 | 000554 |
| 285/300 bar | ---------- | 000555 |
| 330 bar | 001816 | 000556 |
| 350 bar | 001817 | 000557 |

Sonder-Einstelldrücke auf Anfrage!
Special relieve pressures are available on request!



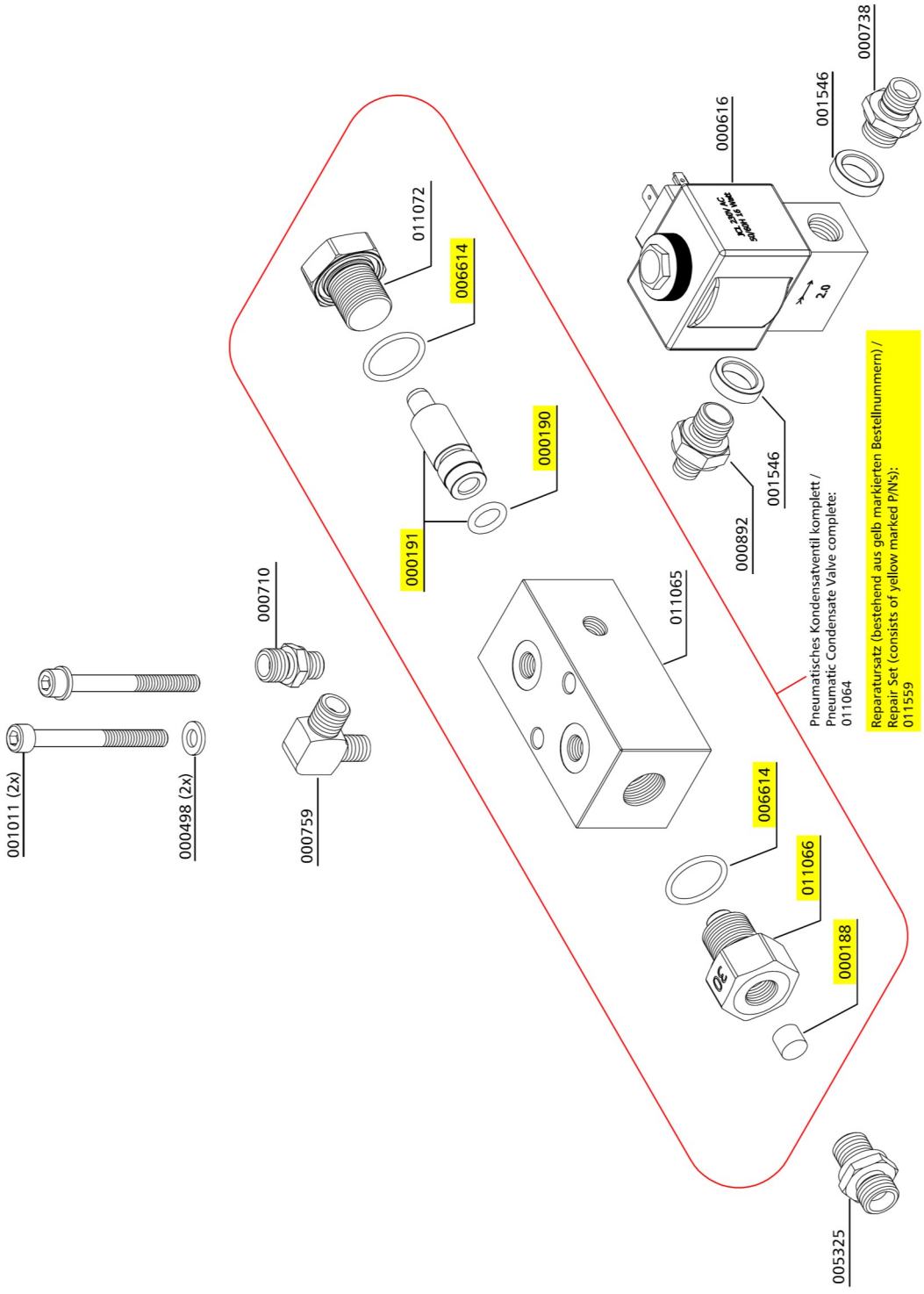



## Pneum. Kondensat-Ablassventil / Pneumatic Condensate Valve

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000188 | Sinterfilter, pneum. Kondensatventil | Sintered Filter |
| 000190 | O-Ring 10 x 2,5 NBR90 | O-Ring 10 x 2,5 NBR90 |
| 000191 | Steuerkolben, pneum. Kondensatventil | Piston |
| 000498 | U-Scheibe A6 | Washer A6 |
| 000616 | Magnetventil 80 bar | Solenoid 80 bar |
| 000710 | Gerade Verschraubung GE06L | Straight Connection GE06L |
| 000738 | Gerade Verschraubung GE08LRCFX | Straight Connection GE08LRCFX |
| 000759 | Doppelnippel WE 08 LL R 1/8" | Double Nipple WE 08 LL R 1/8" |
| 000892 | Doppelnippel G1/8"-1/4" | Double Nipple G1/8"-1/4" |
| 001011 | Zylinderschraube | Allen Bolt |
| 001546 | Aludichtring für Magnetventile G1/4" | Alloy Seal Ring for G1/4" male |
| 005325 | Verschraubung GE 08L R1/4" .71 | Connection GE 08L R1/4" .71 |
| 006614 | O-Ring 20x2 NBR90 | O-Ring 20x2 NBR90 |
| 011064 | Pneum. Kondensatablassventil, PN 420 bar, Einlass Ø3,0 mm | Pneumatic Condensate Valve, PN 420 bar, intake Ø3,0 mm |
| 011065 | Gehäuse, pneum. Kondensatventil | Housing PCV |
| 011072 | Verschlussstopfen, pneum. Kondensat-ventil | Plug PCV |
| 011559 | Reparatursatz pneum. Kondensatventil | Repair Kit PCV |

C

## Pneum. Kondensat-Ablassventil / Pneumatic Condensate Valve

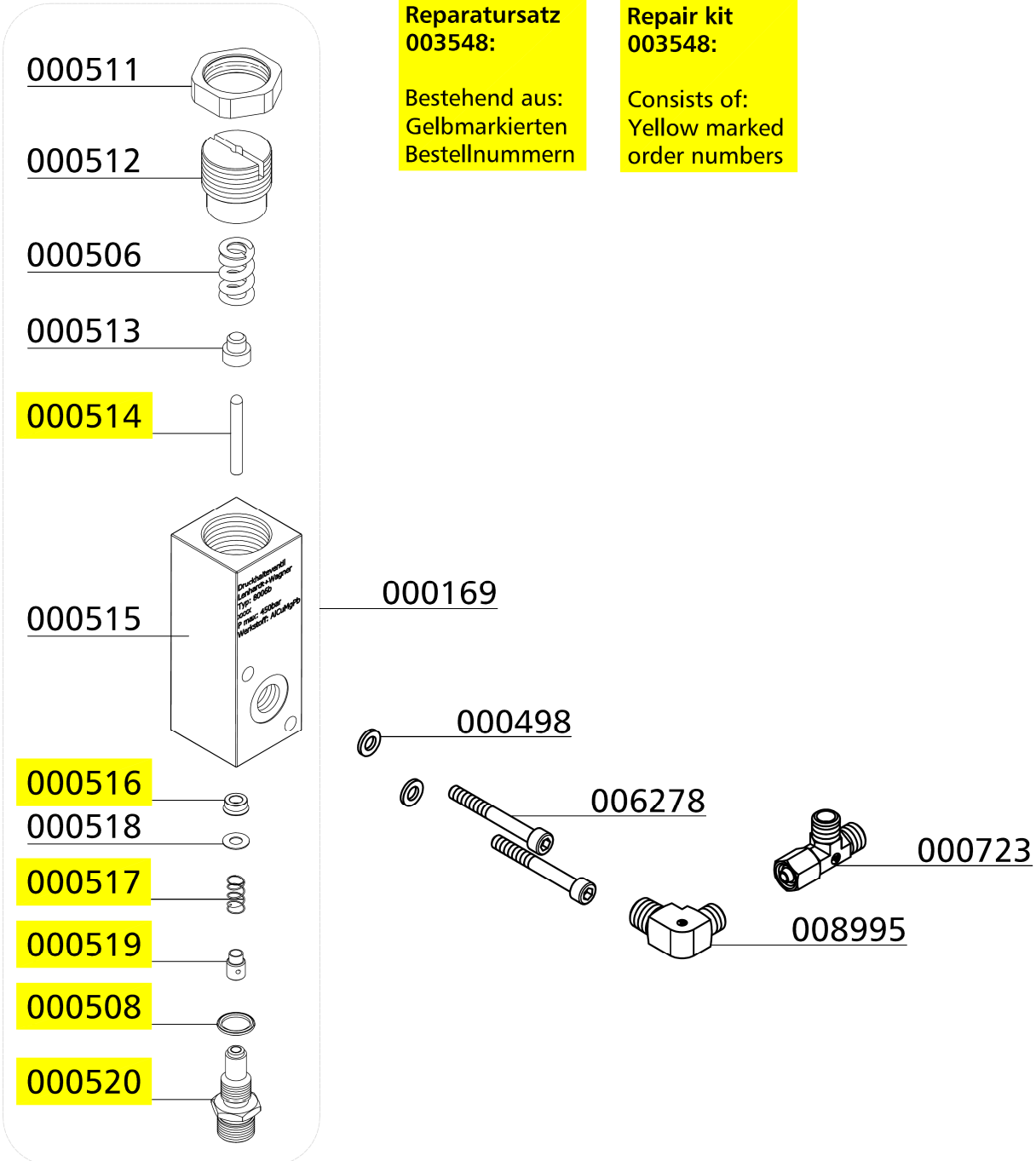


## Druckhalte- Rückschlagventil / Pressure Maintaining- Non-Return Valve

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000169 | Druckhalterückschlagventil | Pressure Maint. Valve black |
| 000498 | U-Scheibe A6 | Washer A6 |
| 000506 | Druckfeder | Spring |
| 000508 | USIT Ring | Gasket Ring U-Sit |
| 000511 | Mutter, DHRV | Lock Nut PMV |
| 000512 | Einstellschraube, DHRV | Set Bolt PMV |
| 000513 | Druckstück, DHRV | Spring Adapter PMV, |
| 000514 | Stift, DHRV | Stud PMV |
| 000515 | Gehäuse, DHRV | Main Body PMV |
| 000516 | Nutring, DHRV | Seal Ring PMV |
| 000517 | Druckfeder, DHRV | Coil Spring PMV |
| 000518 | U-Scheibe | Washer, M5, brass |
| 000519 | Dichtkappe, DHRV | Plastic Seal Piston PMV |
| 000520 | Eingangsdüse | Inlet Jet PMV (black version) |
| 000723 | Verschraubung | Connection with fixed nut side |
| 003548 | Reparatursatz DHRV | Repair kit, PMV |
| 006278 | Zylinderschraube | Allen Bolt |
| 008995 | Winkelverschraubung | Elbow Connection |

## Druckhalte- Rückschlagventil / Pressure Maintaining- Non-Return Valve






**Reparatursatz 003548:**

Bestehend aus:
Gelbmarkierten Bestellnummern

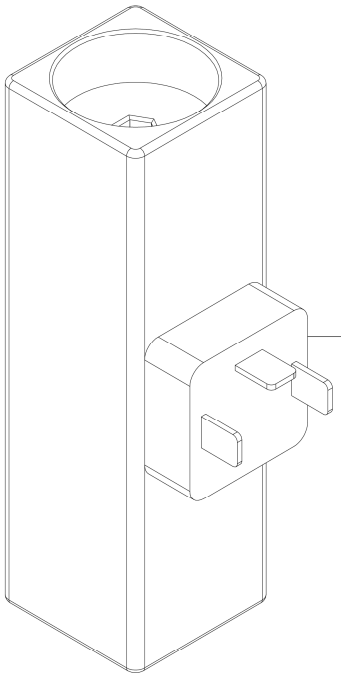
**Repair kit 003548:**

Consists of:
Yellow marked order numbers

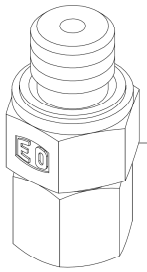
## Druckschalter / Pressure Switch

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000203 | Druckschalter, G1/4" IG, PV 50 - 350 bar | Pressure Switch 50-350 bar |
| 000753 | Verschraubung | Connection |
| 009683 | Verschraubung mit fester Mutter | Connection with fixed nut |

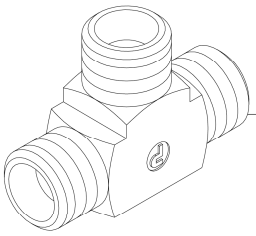
## Druckschalter / Pressure Switch



000203



009683

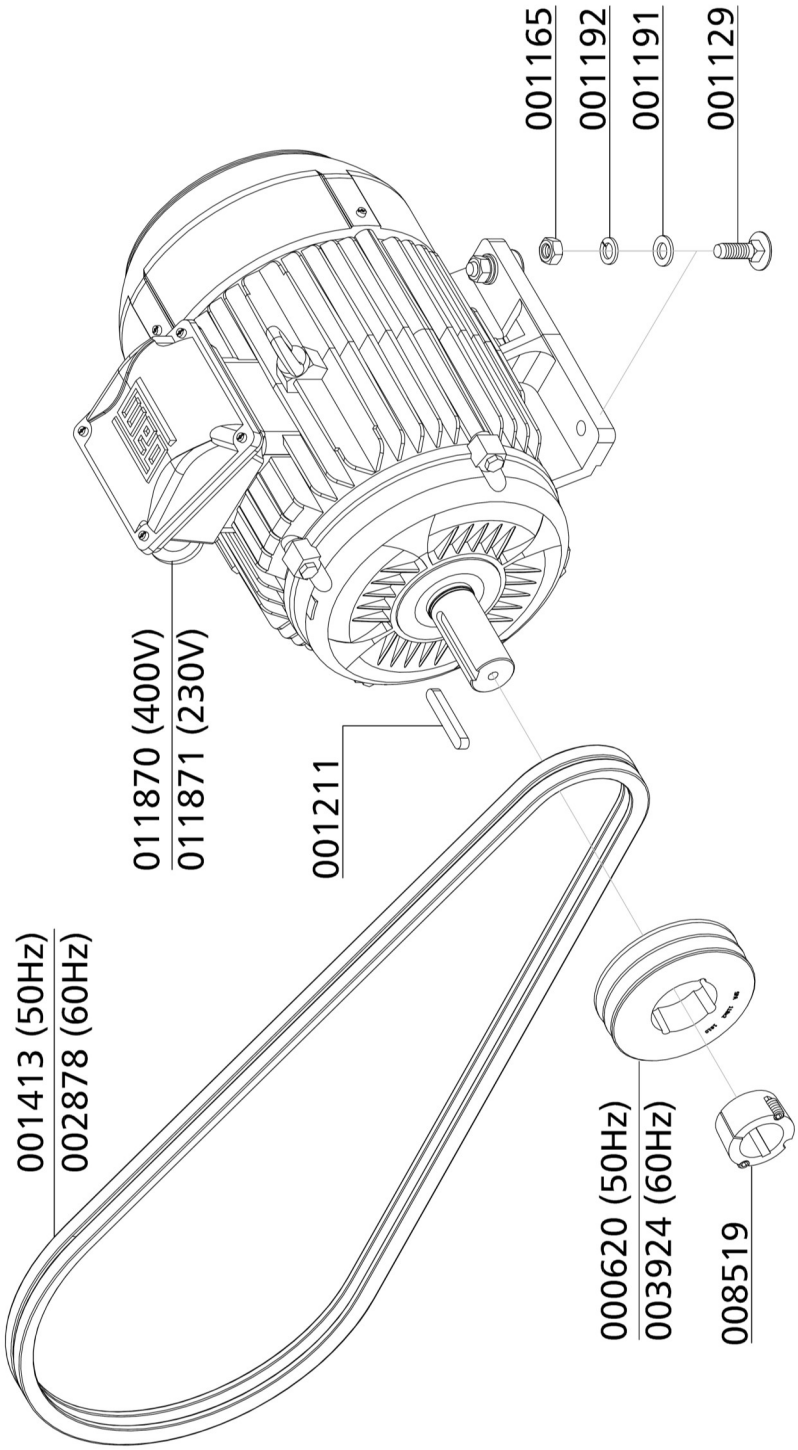


000753

## Baugruppe: Motor / Assembly: Engine

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000620 | Riemenscheibe | Pulley & Boss Kit |
| 001129 | Schlossschraube | Carriage Bolt |
| 001165 | Mutter | Nut M12 |
| 001191 | U-Scheibe A12 | Washer A12 |
| 001192 | Federring A12 | Spring Washer A12 |
| 001211 | Passfeder | Woodruff Key |
| 001413 | Keilriemen | V-Belt |
| 002878 | Keilriemen | V-Belt |
| 003924 | Riemenscheibe | V-belt pulley for motor 7.5 kW |
| 008519 | Spannbuchse für Riemenscheibe | Pulley Clamp Bush Ø38 mm |
| 011870 | Antriebsmotor 15 kW,400V | Drive Motor |
| 011871 | Antriebsmotor 15 kW, 230V | Drive Motor |

## Baugruppe: Motor / Assembly: Engine



# OPTIONS

D

## Table of Contents

# AUTO START FUNCTION

D

## Auto Start Function

The auto start function allows operating the compressor optionally in automatic or semi-automatic mode by turning the selector switch.

Selector switch auto start function

**Semi-Automatic Operation:**

Start the compressor by pushing the Start button. The compressor automatically shuts off when final pressure is reached. To restart the compressor, push the Start button again. The unit can be shut down at any time during operation by pushing the Stop button.

**Automatic Operation:**

Start the compressor only once by pushing the Start button. The Start button lights up and the unit automatically shuts off when final pressure is reached. If outlet pressure decreases below the selected minimum pressure, the unit automatically restarts.

**Note**
The compressor can not be started manually during automatic operation.

To enable a manual start, shut off automatic operation by pushing the Stop button (Start button lamp goes out). Now turn selector switch to semi-automatic mode and start the compressor with the Start button.

## Adjust re-start pressure (minimum filling pressure)

The pressure switch for start pressure is located after the pressure maintaining valve. The pressure can be adjusted with the upper adjusting screw.

Increasing re-start pressure: turn adjusting screw clockwise

Reducing re-start pressure: turn adjusting screw anti-clockwise

Adjust pressure switch in steps of a quarter turn. Check settings after every adjustment step.


Pressure switch for start pressure

## Filling Procedure Semi-Automatic Operation

**Caution! Only fill cylinders which:**
- are marked with the test mark and the test stamp of the expert.
- have been hydro static tested (check last test date).
- are rated for the final pressure.
- are free from humidity.

**Note**
The unit shuts down when final pressure is reached. Thus, the unit always has to be restarted manually.



1. Turn selector switch to semi-automatic mode.
2. Close all filling valves.
3. Connect closed compressed air cylinders.
4. Open cylinder valves.
5. Start compressor by pushing the ON button.
6. If the filling pressure increases, open the filling valves slowly.
7. Fill compressed air cylinders to the desired pressure, subsequently close filling valves slowly.
8. Close and vent all filling valves.
9. Disconnect all compressed air cylinders from filling valves.

## Filling Procedure Automatic Operation

**Caution! Only fill cylinders which:**
- are marked with the test mark and the test stamp of the expert.
- have been hydro static tested (check last test date).
- are rated for the final pressure.
- are free from humidity.

**Note**
The unit shuts down when final pressure is reached. Thus, the unit always has to be restarted manually.



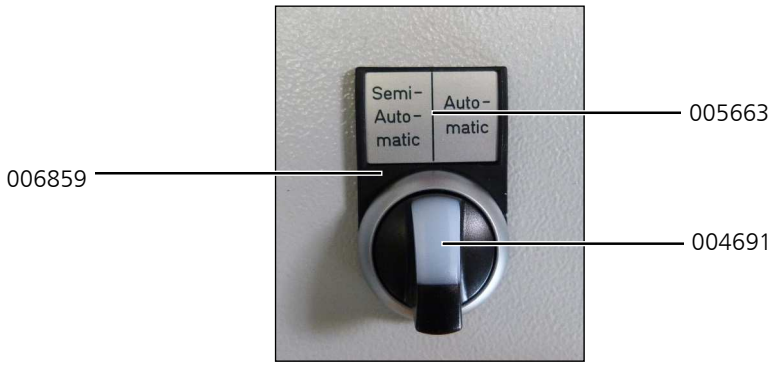
1. Turn selector switch to automatic mode.
2. Close all filling valves.
3. Connect closed compressed air cylinders.
4. Open cylinder valves.
5. Start compressor by pushing the ON button.
6. If the filling pressure increases, open the filling valves slowly.
7. Fill compressed air cylinders to the desired pressure, subsequently close filling valves slowly.
8. Close and vent all filling valves.
9. Disconnect all compressed air cylinders from filling valves.
10. If automatic operation is interrupted by:
    - pushing the OFF button
    - turning the selector switch
    - tripping the emergency shut-off switch
    - opening of the doors or the cover

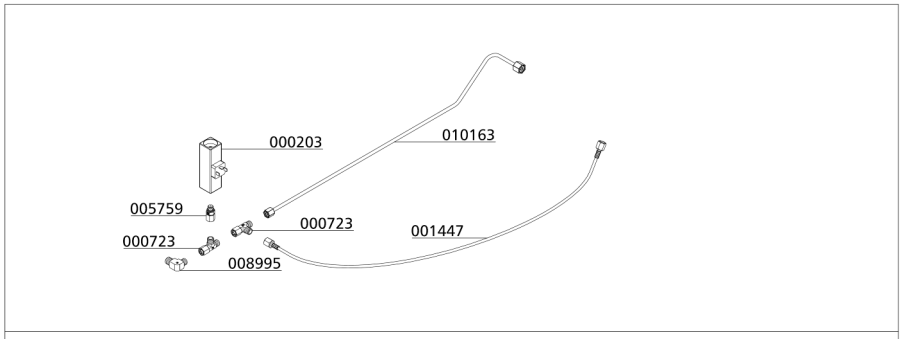
    the unit has to be restarted.

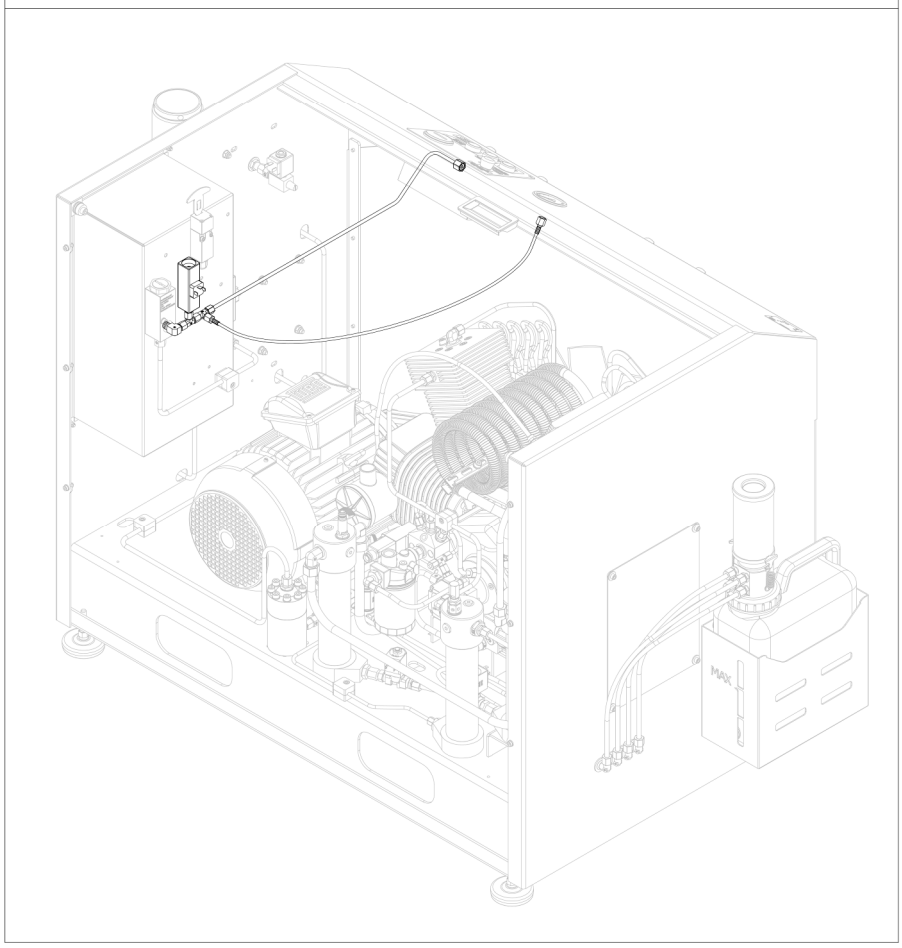
## Spare Part Lists

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000203 | Druckschalter, G1/4" IG, PV 50 - 350 bar | Pressure Switch 50-350 bar |
| 000723 | Verschraubung | Connection with fixed nut side |
| 000793 | Verschraubung | Connection |
| 000799 | Verschraubung | Connection with fixed nut |
| 000858 | Reduzierung | Reducer with fixed nut |
| 001447 | Manometerschlauch 800 mm | Pressure Gauge Hose 800 mm |
| 004691 | Schließer-Kontakt, Front | Closing contact (front) |
| 005663 | Einlegeschild | Insert Label |
| 005759 | Verschraubung | Straight Connection |
| 006859 | Klemmrahmen (Schildträger) | Label holder |
| 007558 | Verschraubung | Connection |
| 008995 | Winkelverschraubung | Elbow Connection |
| 009827 | Verschraubung | T-Connection |
| 010163 | Rohrleitung Ø6mm, komplett mit M.&S. | Pipe Ø6mm |

## Option: Auto-Start

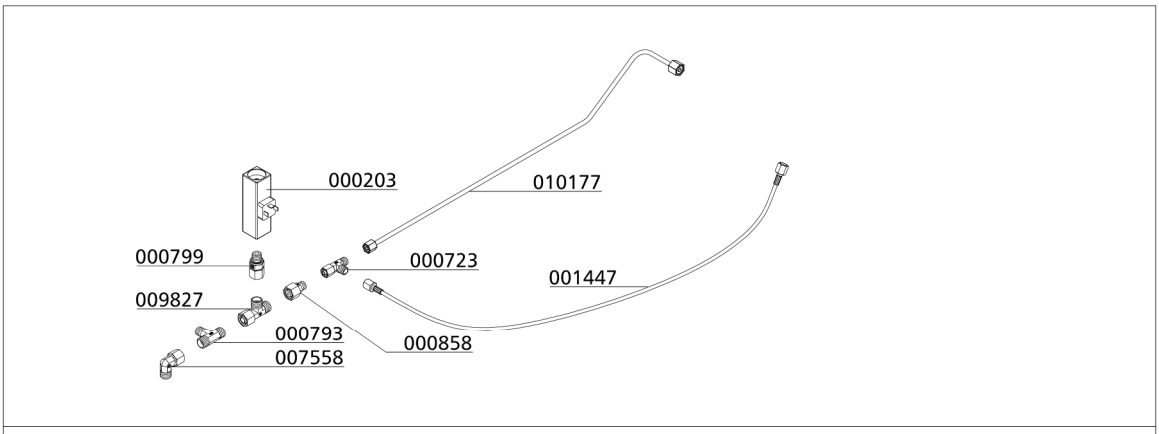


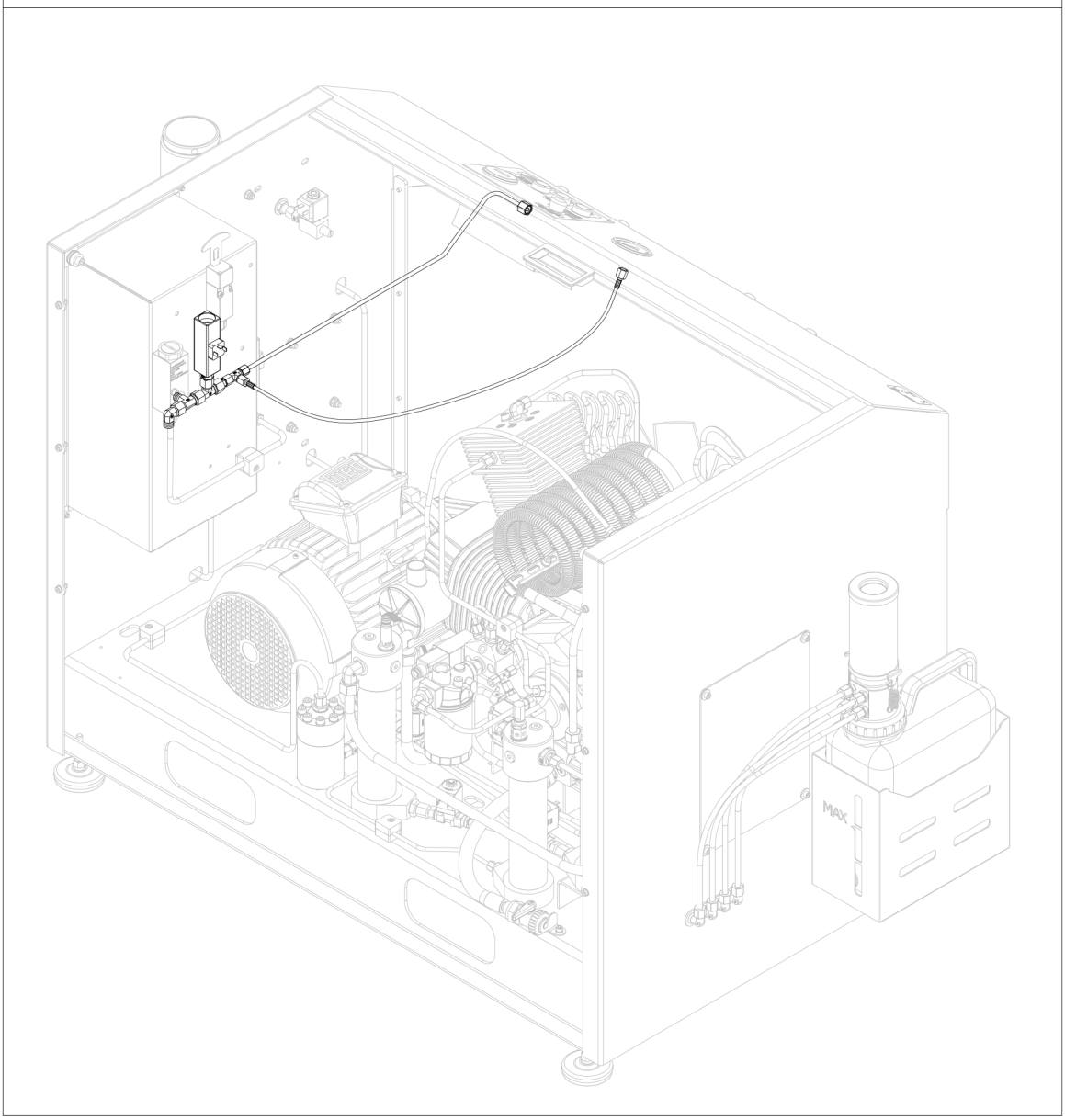



D

## Option: Auto-Start and High Pressure Outlet




D

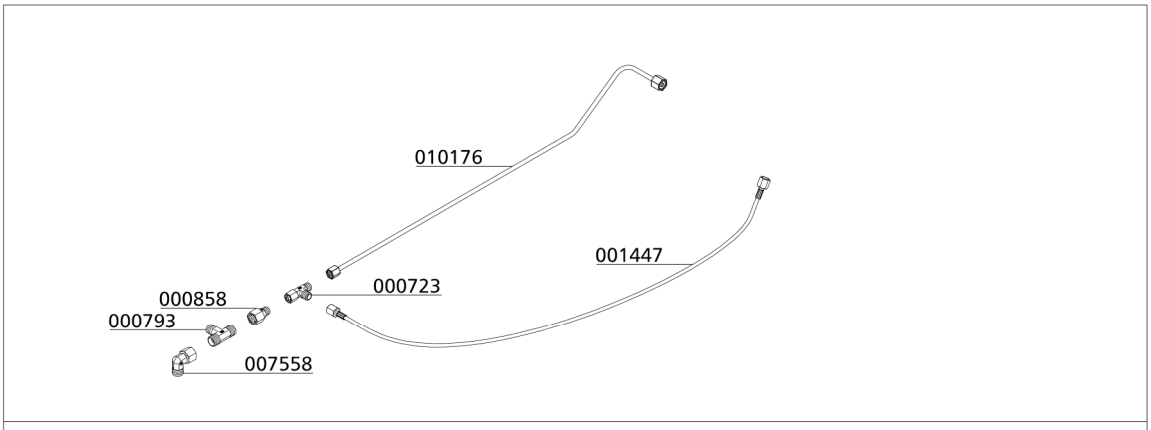
# ADDITIONAL HIGH PRESSURE OUTLET

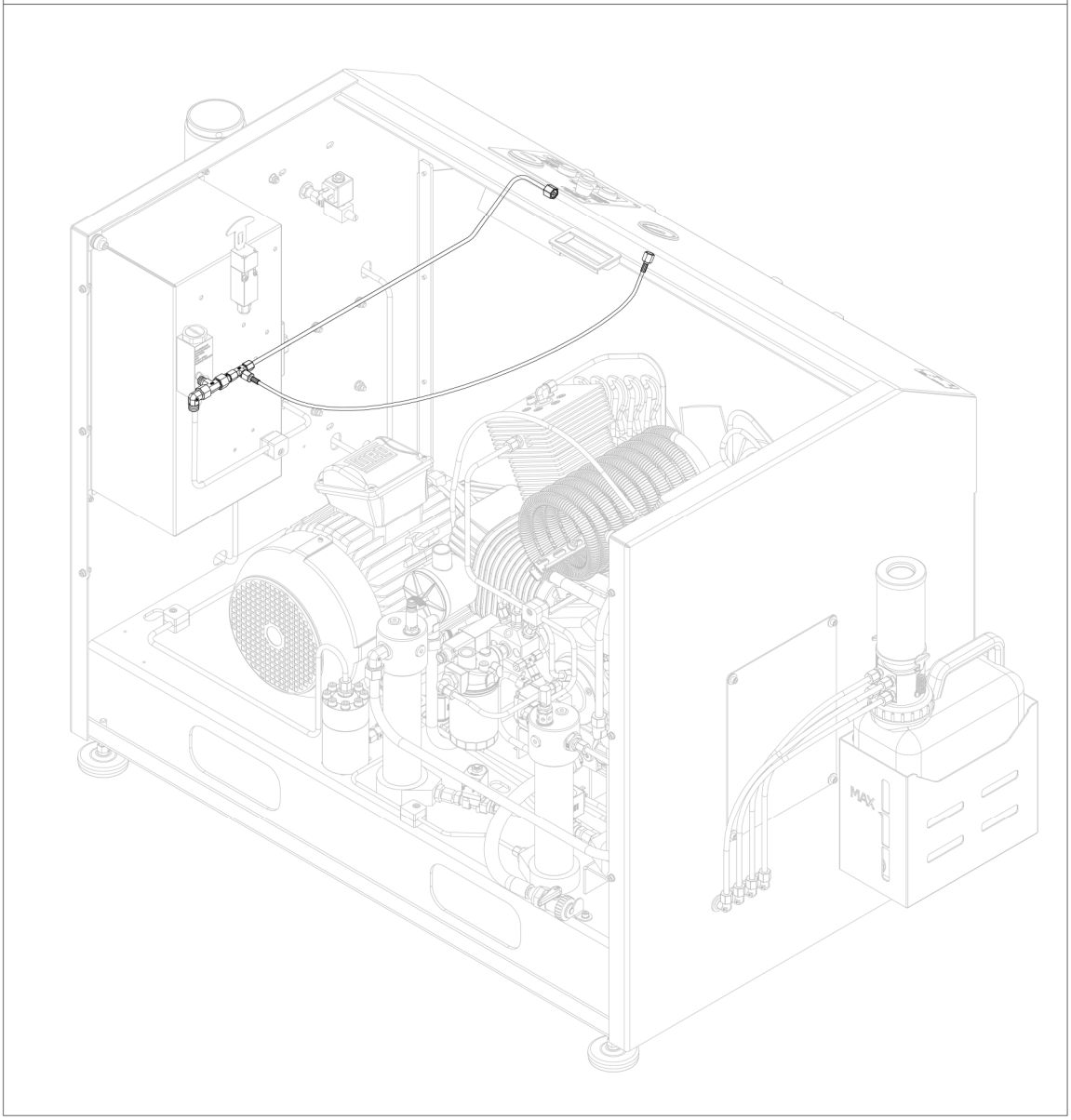
C

## Spare Part Lists

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000723 | Verschraubung | Connection with fixed nut side |
| 000793 | Verschraubung | Connection |
| 000858 | Reduzierung | Reducer with fixed nut |
| 001447 | Manometerschlauch 800 mm | Pressure Gauge Hose 800 mm |
| 007558 | Verschraubung | Connection |
| 010176 | Rohrleitung Ø6mm, komplett mit M.&S. | Pipe Ø6mm |

## Spare Part Lists



# 200 / 300 BAR
# PARALLEL FILLING
# PRESSURE OPERATION

D

## 200 bar / 300 bar Parallel Filling Pressure Operation

This option allows the filling of 200 bar and 300 bar at the same time.

In this case, the compressor is equipped with a pressure reducer, a second final pressure safety valve and a second filling pressure gauge.

The handwheels or gaiters are colour-coded to allow an optical differentiation:

- 200 bar: black
- 300 bar: red

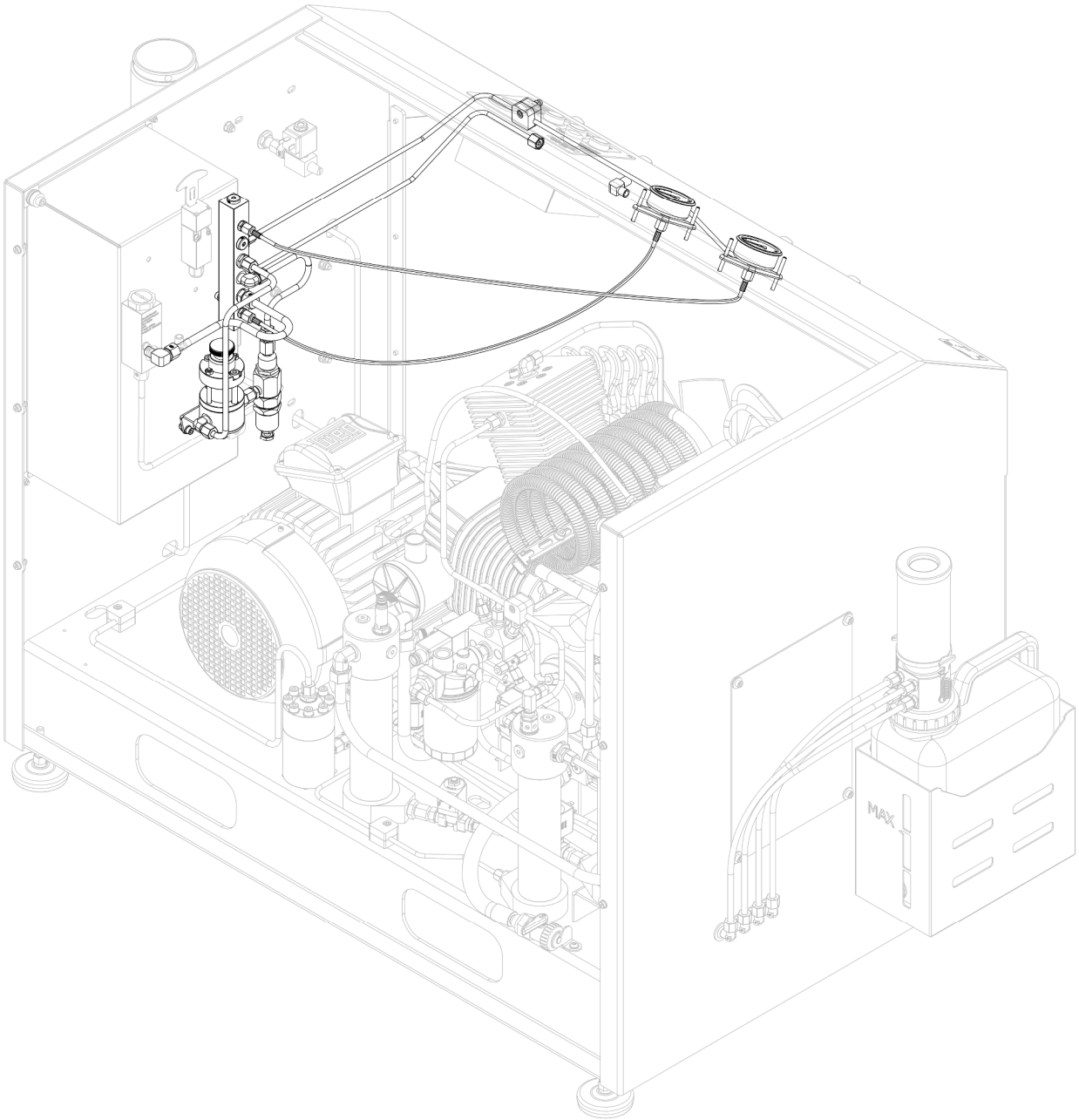
Furthermore, the corresponding filling pressures at the compressor are marked with labels.

DIN handwheels 200 bar and 300 bar

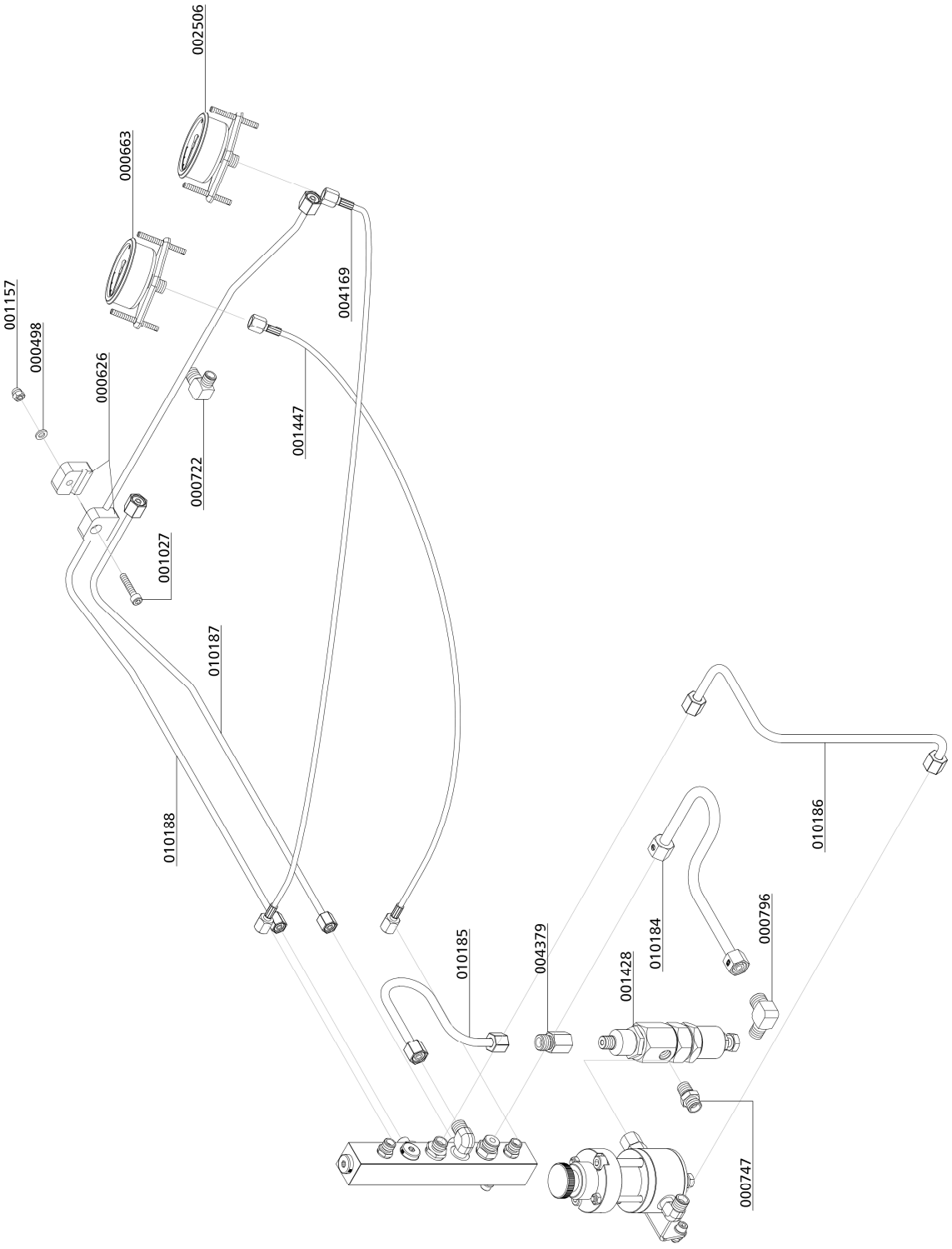
## Spare Part Lists

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000498 | U-Scheibe A6 | Washer A6 |
| 000626 | Einfachschelle 1 x 6mm 1 Paar | Pipe Clamp 1x6mm 1pair PVC |
| 000663 | Einbaumanometer mit Befestigungsbügel | Press. Gauge c/w fixing strap |
| 000722 | Verschraubung | Connection |
| 000747 | Gerade Verschraubung | Straight Connection |
| 000796 | Verschraubung | Elbow Connection |
| 001027 | Zylinderschraube | Allen Bolt |
| 001157 | Hutmutter | Domed Nut M6 |
| 001428 | Druckminderer "High Flow" einstellbar | Pressure Reducer-Bolt version |
| 001447 | Manometerschlauch 800mm | Pressure Gauge Hose 800mm |
| 002506 | Einbaumanometer 0-250bar | Pressure Gauge 0-250bar |
| 004169 | Manometerschlauch 1000 mm | Pressure Gauge Hose 1000 mm |
| 004379 | Verschraubung - Edelstahl | Connect.(inlet press. reducer) |
| 010184 | Rohrleitung Ø10mm, komplett mit M.&S. | Pipe Ø10mm |
| 010185 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010186 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010187 | Rohrleitung Ø6mm, komplett mit M.&S. | Pipe Ø6mm |
| 010188 | Rohrleitung Ø6mm, komplett mit M.&S. | Pipe Ø6mm |

## Spare Part Lists



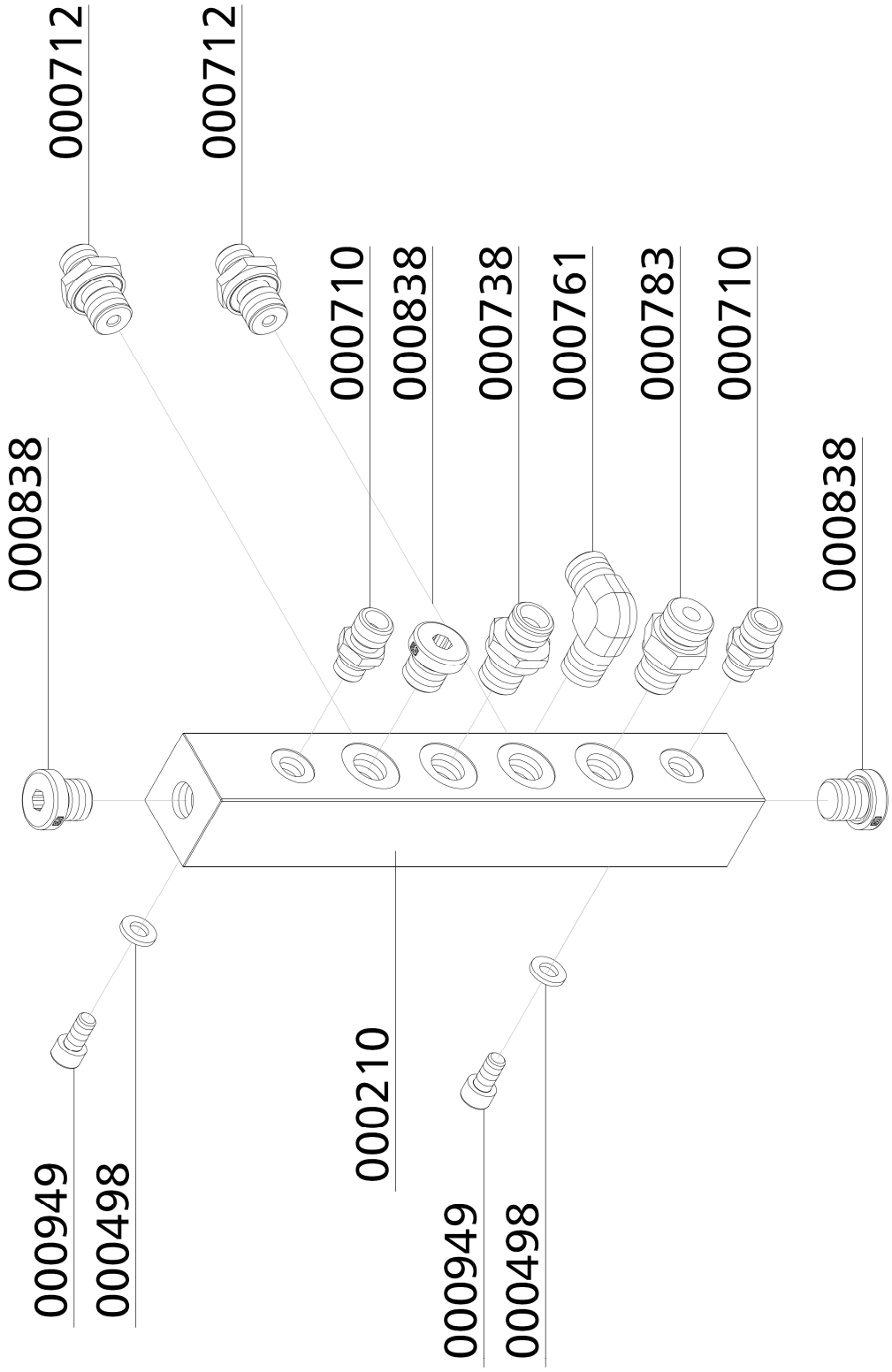
## Spare Part Lists



## Spare Part Lists

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000210 | Verteilerblock Alu | Distributor Block, alloy |
| 000498 | U-Scheibe A6 | Washer A6 |
| 000710 | Verschraubung | Connection w/o nut& olive seal |
| 000712 | Verschraubung | Connection w/o nut& olive seal |
| 000738 | Gerade Verschraubung | Straight Connection |
| 000761 | Winkelverschraubung | Elbow Connection |
| 000783 | Verschraubung | Straight Connection |
| 000838 | Verschlussstopfen | Plug |
| 000949 | Flachkopfzylinderschraube | Pan Head Bolt |

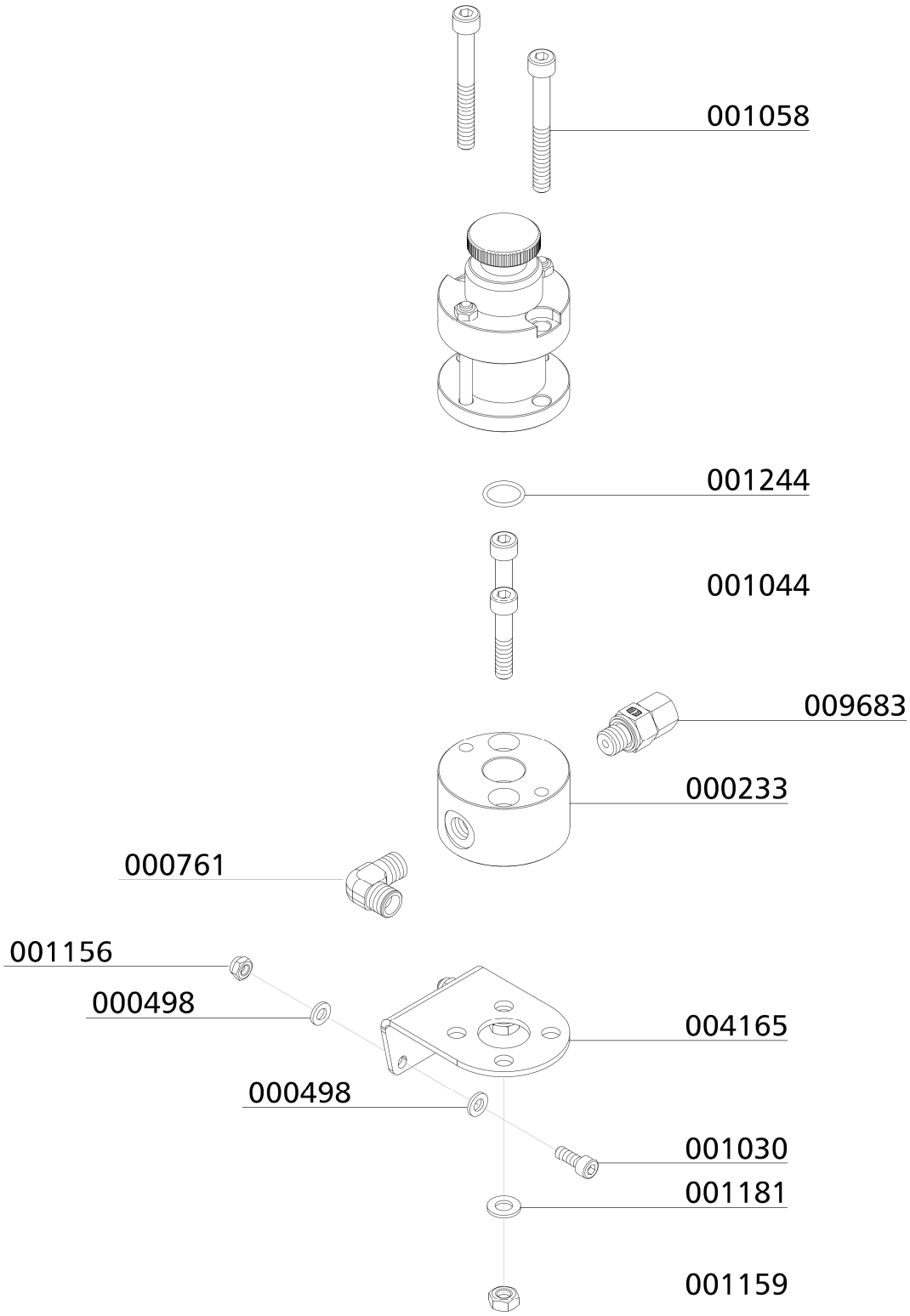
## Spare Part Lists



## Spare Part Lists

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000233 | Sockel für Sicherheitsventil mit TÜV/CE | Base f. Safety Valve TÜV type |
| 000498 | U-Scheibe A6 | Washer A6 |
| 000761 | Winkelverschraubung | Elbow Connection |
| 001030 | Zylinderschraube | Allen Bolt |
| 001044 | Zylinderschraube | Allen Screw |
| 001058 | Zylinderschraube | Allen Bolt |
| 001156 | Stoppmutter | Lock Nut M6 |
| 001159 | Stoppmutter | Lock Nut M8 |
| 001181 | U-Scheibe A8 | Washer A8 |
| 001244 | O-Ring | O-Ring, flange safety valve |
| 004165 | Halteblech Sicherheitsventilsockel - std | Bracket for Safety valve base |
| 009683 | Verschraubung | Connection with fixed nut |

## Spare Part Lists

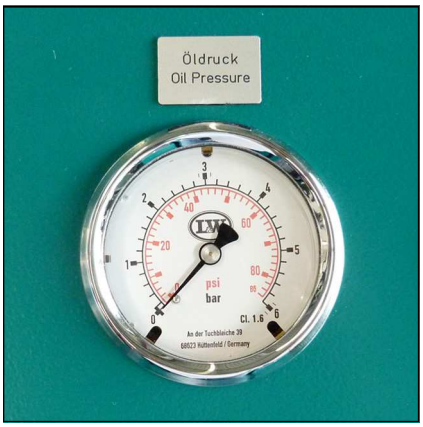


# OIL PRESSURE GAUGE

## Oil Pressure Gauge

The oil pressure gauge shows the compressor oil pressure during operation. Oil pressure gauge at operating temperature should display between:

- min. + 1,9 bar
- max. + 2,1 bar



Oil Pressure Gauge

**If oil pressure value stays below the minimum value:**

- Wrong compressor rotation direction
  (see rotation direction arrow)
- Oil level too low
- Oil pump sieve contaminated
- Oil intake pipe damaged / defective
- Oil temperature below +5 °C - lubrication not possible
- Oil temperature higher than +120 °C - oil viscosity too low
- Oil pump defective

**If oil pressure value stays above the maximum value:**

- Low oil temperature, between +5 °C and +10 °C
  (Should stay within the range of tolerance when operation temperature is reached)

## Oil pressure control

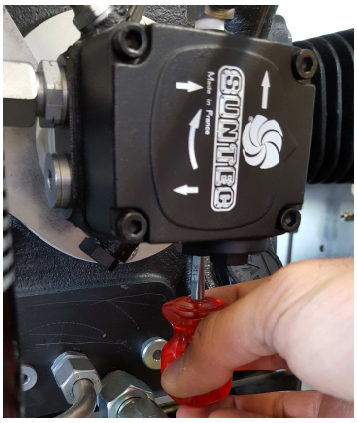
If oil pressure remains outside the range of tolerance, it can be adjusted at the oil pump.

Increasing oil pressure

- Turn adjusting screw clockwise

Reduce oil pressure

- Turn adjusting screw anti-clockwise



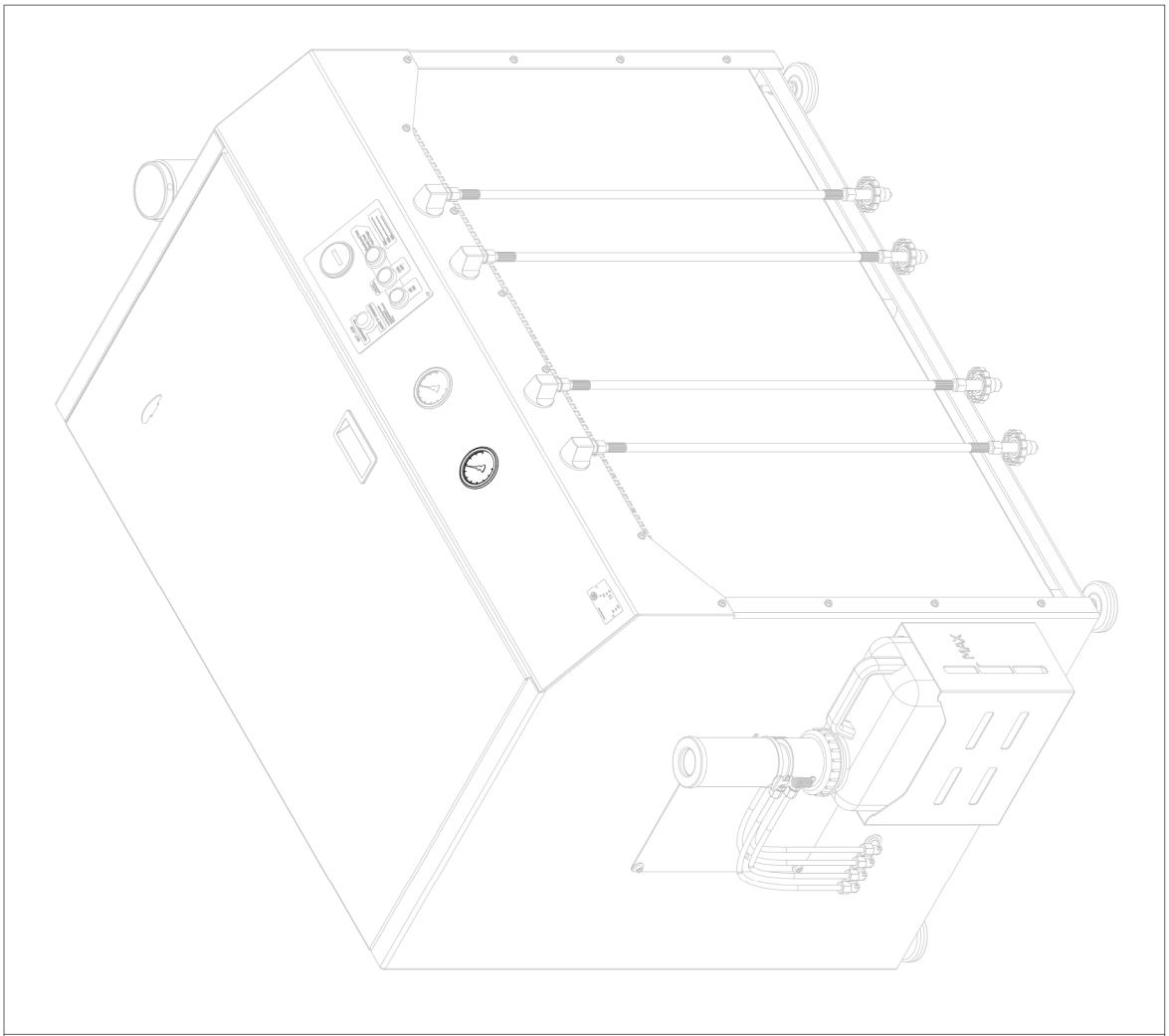
Adjusting the oil pressure

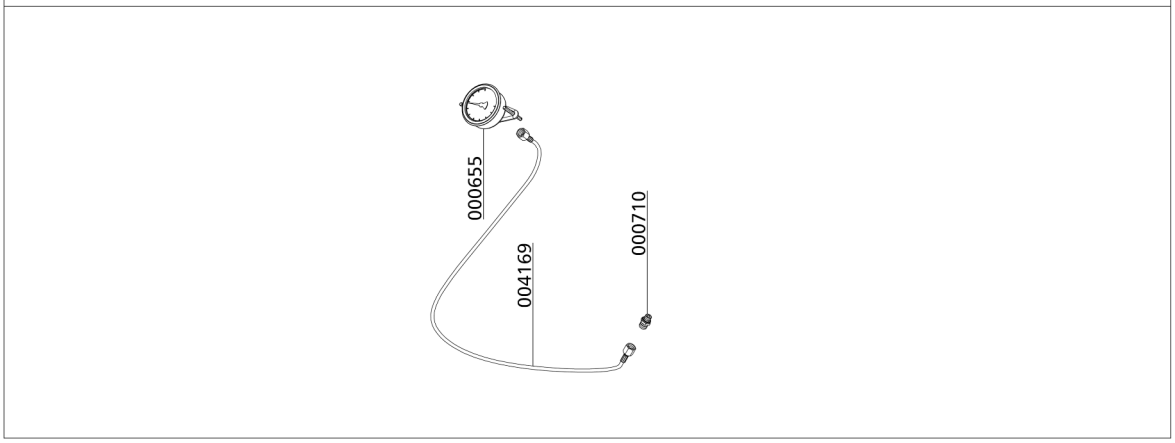
**Warning**
Only adjust the oil pressure at operating temperature!

## Spare Part Lists

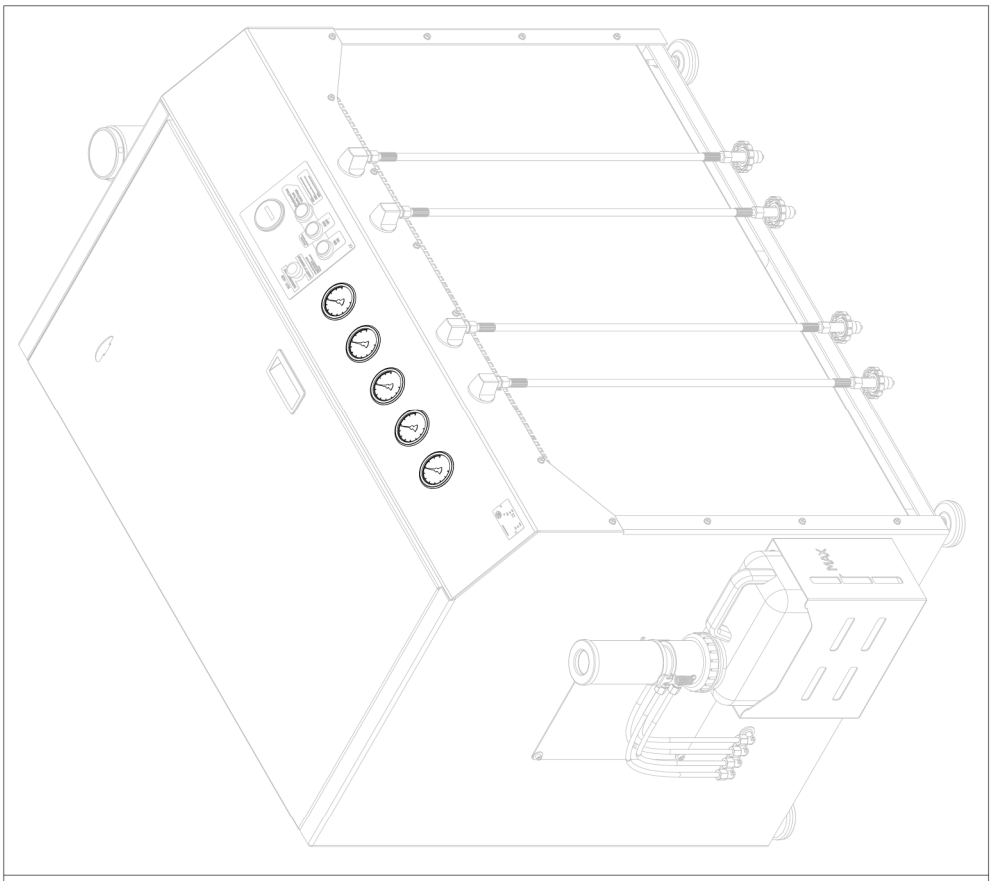
| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000655 | Einbaumanometer mit Befestigungsbügel | Press.Gauge, glycerine, brass |
| 000660 | Einbaumanometer mit Befestigungsbügel | Press. Gauge c/w fixing strap |
| 000663 | Einbaumanometer mit Befestigungsbügel | Press. Gauge c/w fixing strap |
| 000710 | Verschraubung | Connection w/o nut& olive seal |
| 001447 | Manometerschlauch 800 mm | Pressure Gauge Hose 800 mm |
| 002507 | Einbaumanometer mit Befestigungsbügel | Pressure Gauge 0-10bar |
| 004169 | Manometerschlauch 1000 mm | Pressure Gauge Hose 1000 mm |
| 005539 | Einbaumanometer glyzeringefüllt Messing | Press. Gauge c/w fixing strap |

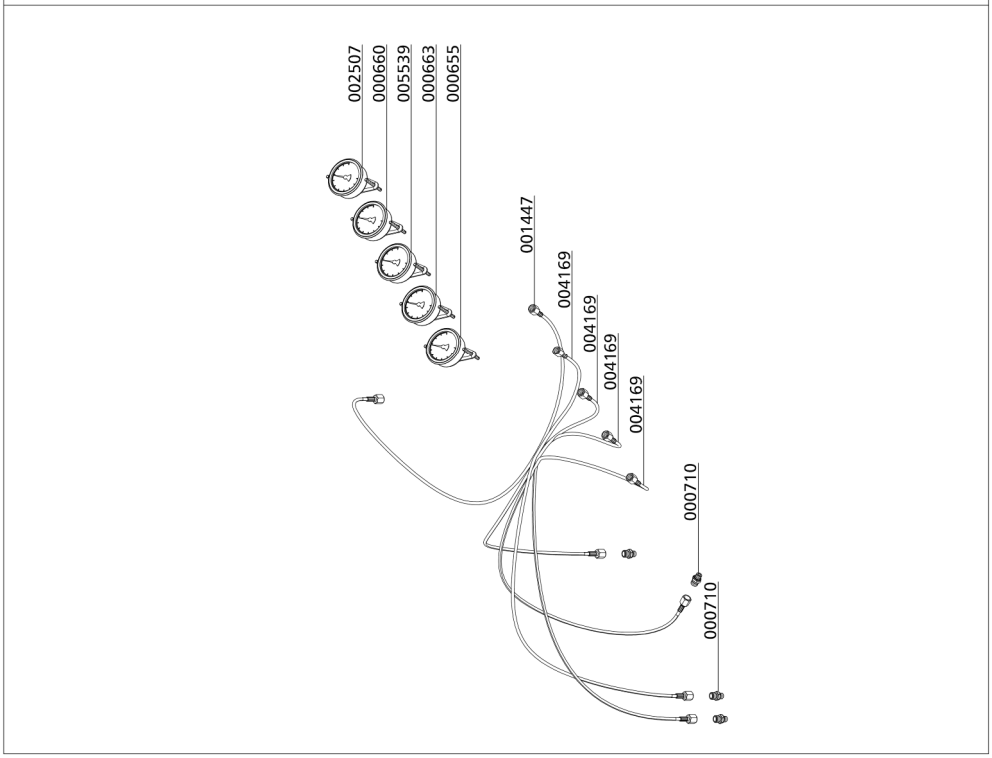
## Option: Oil Pressure Gauge





## Option: Oil Pressure Gauge and Interstage Pressure Gauge






D

# INTERSTAGE PRESSURE GAUGE

## Interstage Pressure Gauge

Each of the 4 pressure stages is monitored by it´s own pressure gauge. This is helpful for troubleshooting and allows detecting faults at an early stage.


Indicated interstage pressure depends on actual final pressure.

The pressure gauges should show the following values at a final pressure of 200 bar:

1st stage: approx. 3.6 bar

2nd stage: approx. 15 bar

3rd stage: approx. 59 bar

The pressure gauges should show the following values at a final pressure of 300 bar:

1st stage: approx. 3.7 bar

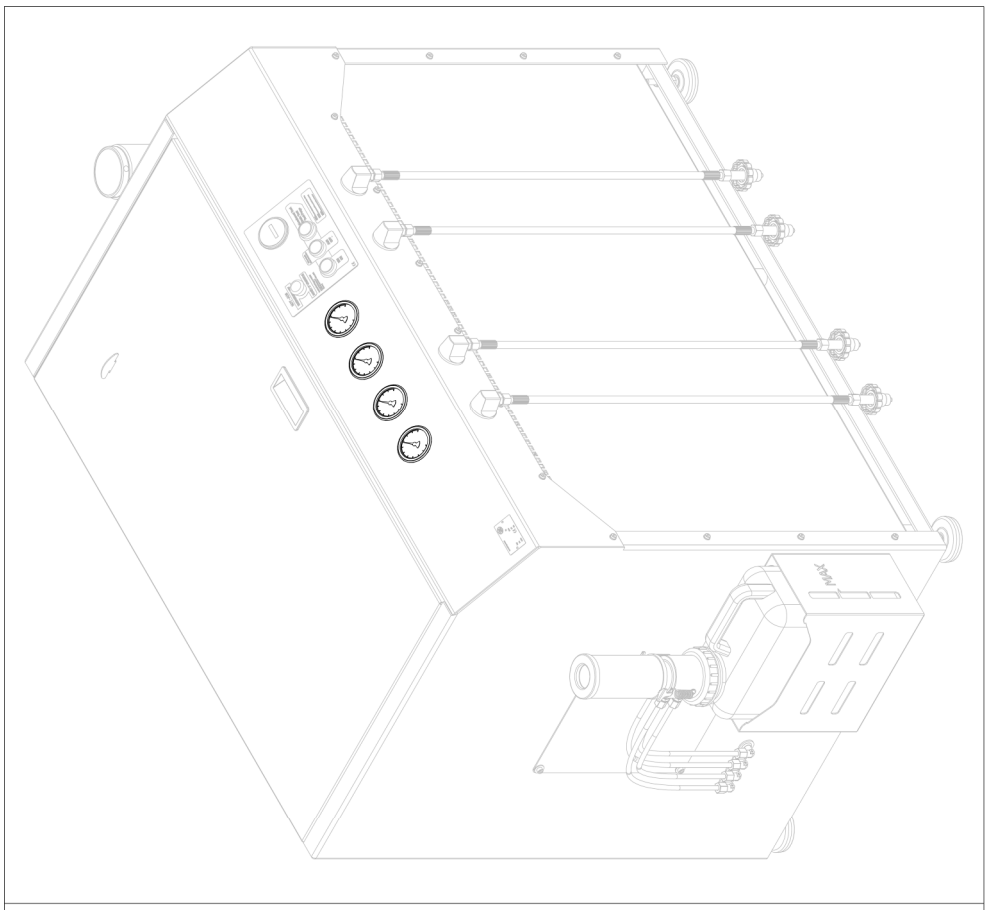
2nd stage: approx. 16 bar

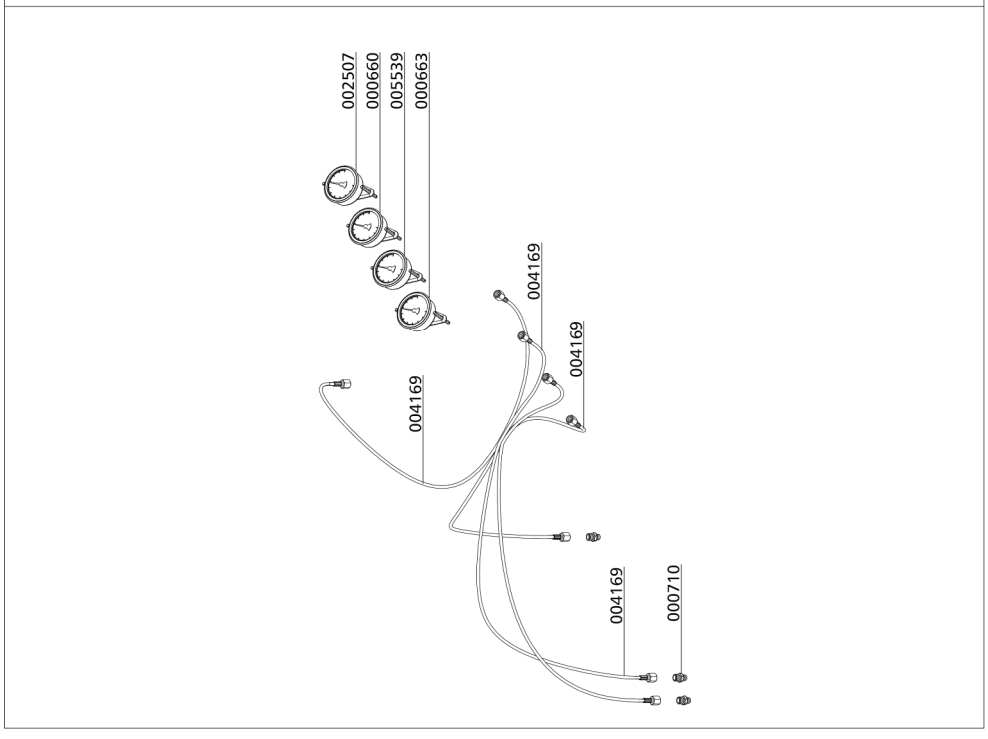
3rd stage: approx. 66 bar

## Spare Part Lists

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000170 | Ansaugfilterpatrone | Air Intake Filter Cartridge |
| 000660 | Einbaumanometer mit Befestigungsbügel | Press. Gauge c/w fixing strap |
| 000663 | Einbaumanometer mit | Press. Gauge c/w fixing strap |
| 002507 | Einbaumanometer mit | Pressure Gauge 0-10bar |
| 004169 | Manometerschlauch 1000 mm | Pressure Gauge Hose 1000 mm |
| 005539 | Einbaumanometer glyzeringefüllt | Press. Gauge c/w fixing strap |

## Spare Part Lists





# OIL PRESSURE MONITORING

## Oil pressure monitoring

The oil pressure is maintained by a pressure switch during operation. The compressor automatically shuts off when oil pressure decreases below the minimum pressure of +0.5 bar. The red warning lamp "Oil Pressure Monitoring" lights up.

Oil Pressure Monitoring

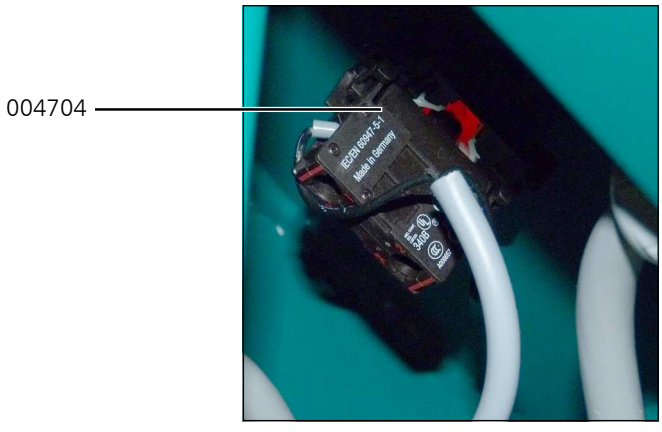
Possible causes of fault:

- Wrong compressor rotation direction (see rotation direction arrow)
- Oil level too low
- Oil pump sieve contaminated
- Oil intake pipe damaged / defective
- Oil temperature below +5 °C - lubrication not possible
- Oil temperature higher than +120 °C - oil viscosity too low
- Oil pump defective

## Spare part lists

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 004701 | Warnlampe | Warning Lamp |
| 004703 | Schild | Label |
| 004704 | Relais für Warnlampe | Relais for warning lamp |
| 006859 | Schildträger | Label holder |

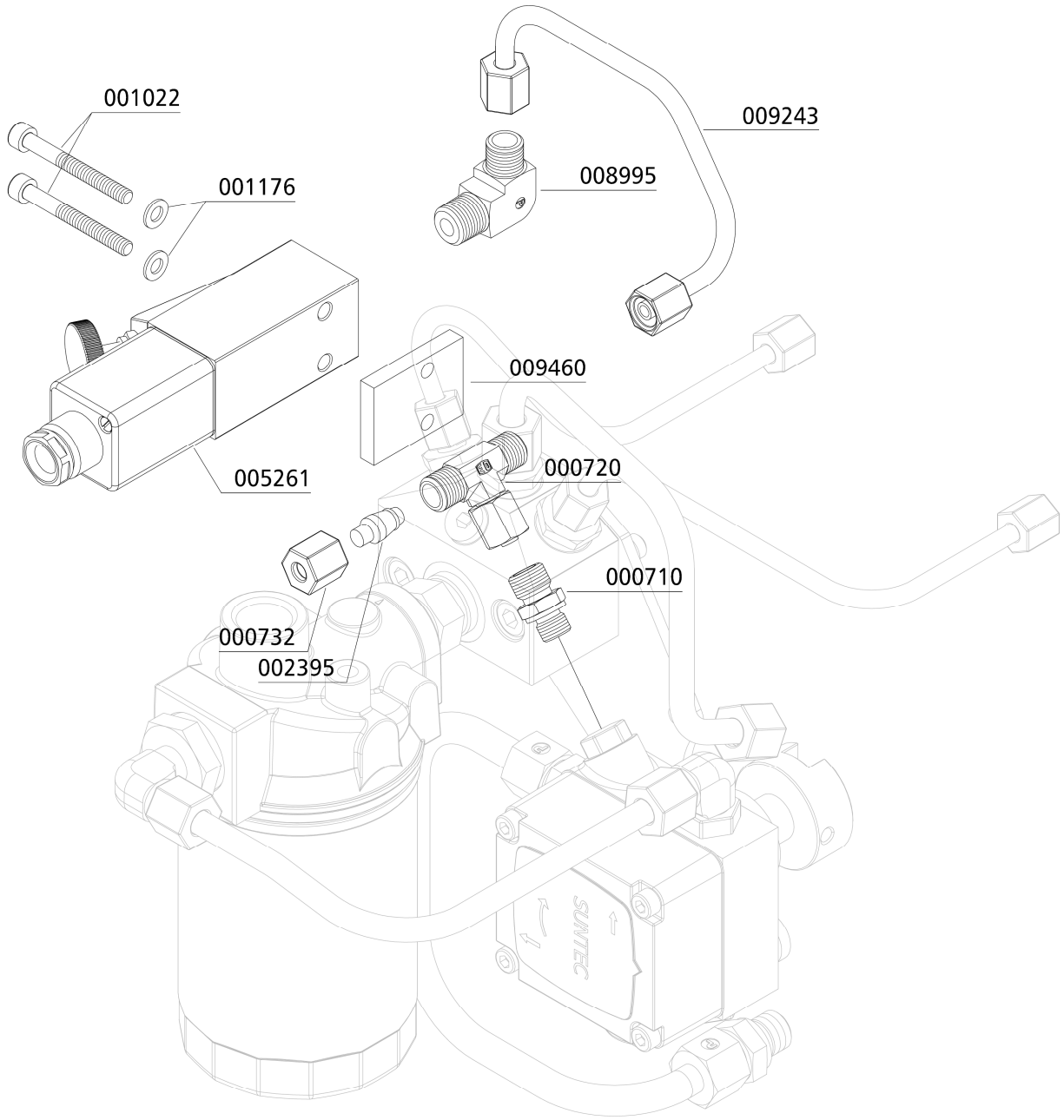


## Baugruppe: Öldrucküberwachung / Assembly: Oil Pressure Monitoring

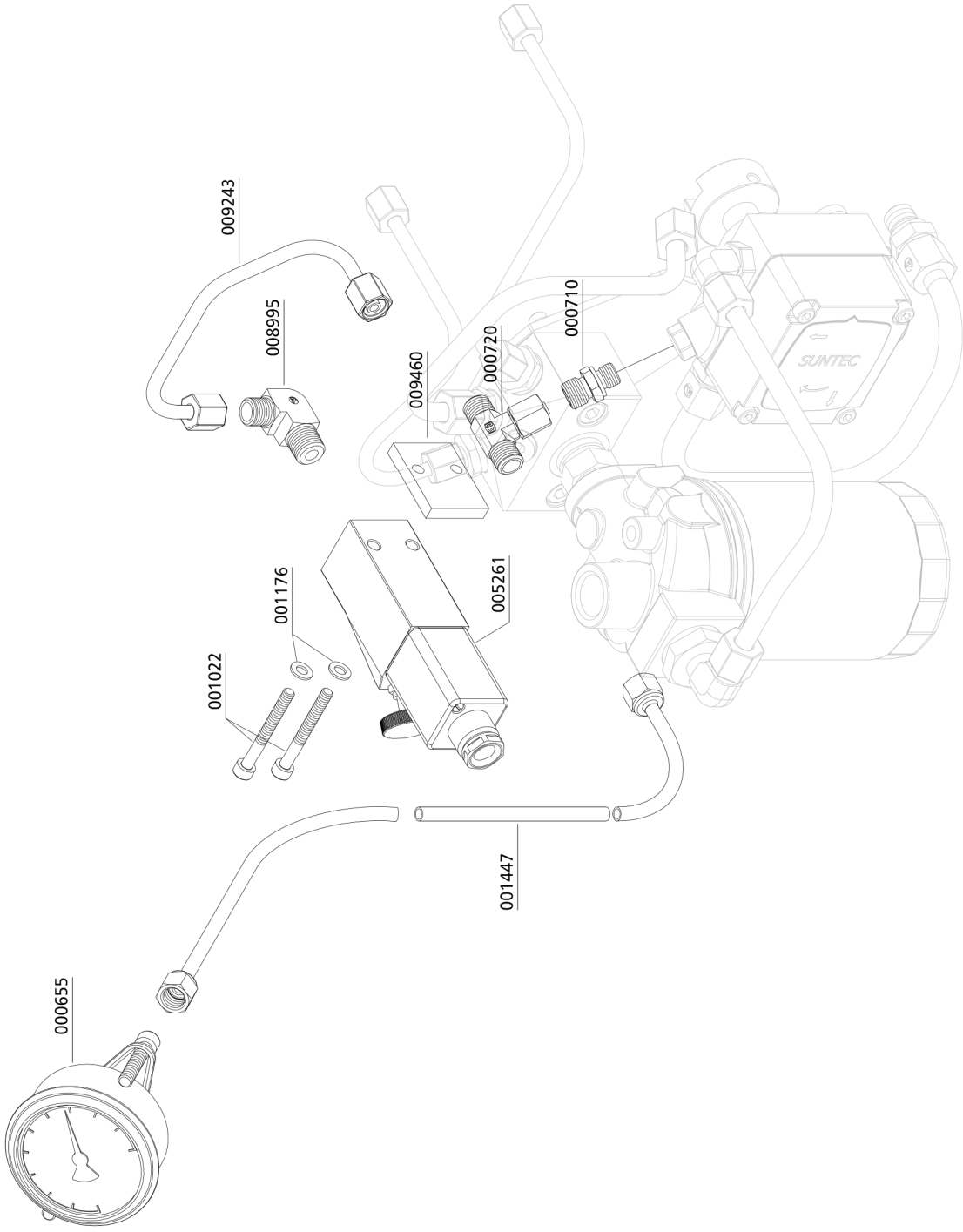
| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000655 | Einbaumanometer mit Befestigungsbügel | Press.Gauge, glycerine, brass |
| 000710 | Verschraubung | Connection w/o nut& olive seal |
| 000720 | Verschraubung | Connection with fixed nut |
| 000732 | Mutter | Union Nut 06L |
| 001022 | Zylinderschraube | Allen Bolt |
| 001176 | U-Scheibe A5 | Washer A5 |
| 001447 | Manometerschlauch 800mm | Pressure Gauge Hose |
| 002395 | Verschlusskegel 06mm | Locking cone 06mm |
| 005261 | Druckschalter inkl. Stecker | Oil Pressure Switch 0.2-2 bar |
| 008995 | Winkelverschraubung | Elbow Connection |
| 009243 | Öldruckleitung 6mm | Oil Suction Pipe |
| 009460 | Abstandhalter | Spacer |

## Baugruppe: Öldrucküberwachung / Assembly: Oil Pressure Monitoring




D

## Baugruppe: Öldrucküberwachung / Assembly: Oil Pressure Monitoring




D

# CYLINDER HEAD TEMPERATURE MONITORING

## Cylinder Head Temperature Monitoring


The cylinder head temperature is maintained by a temperature sensor at the cylinder head of the high pressure stage during operation. The compressor shuts off automatically when cylinder head temperature exceeds the maximum pressure of +140° C. The red warning lamp "Cylinder Head Temperature Monitoring" lights up.

Possible causes of fault:

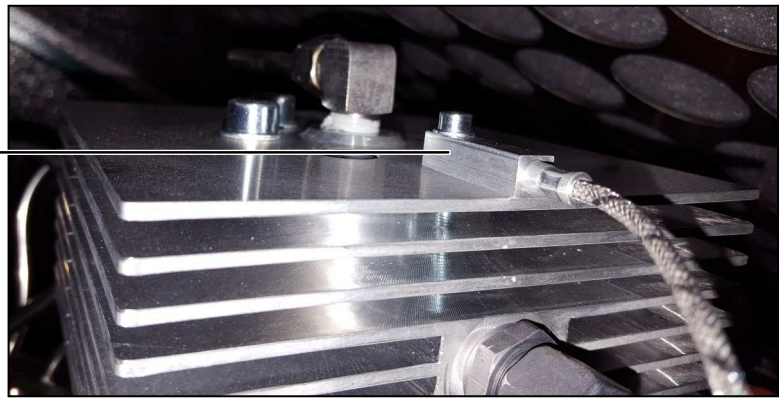
- Ventilation of the compressor room is not sufficient
- Cooling air flow not sufficient
- Cooling pipes contaminated

**Warning**
Risk of burns!
Allow the unit to cool before beginning troubleshooting.

## Spare Part Lists

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 004726 | Display | Display |
| 005585 | Sensor | Sensor |


004726



005585

# OIL TEMPERATURE MONITORING

## Oil Temperature Monitoring

Oil temperature monitoring

The oil temperature is maintained by a temperature sensor inside the compressor block during operation.

The compressor automatically shuts off when oil temperature exceeds the maximum pressure of +100 °C. The red warning lamp "Oil Temperature Monitoring" lights up.


Oil Pressure Monitoring

Possible causes of fault:

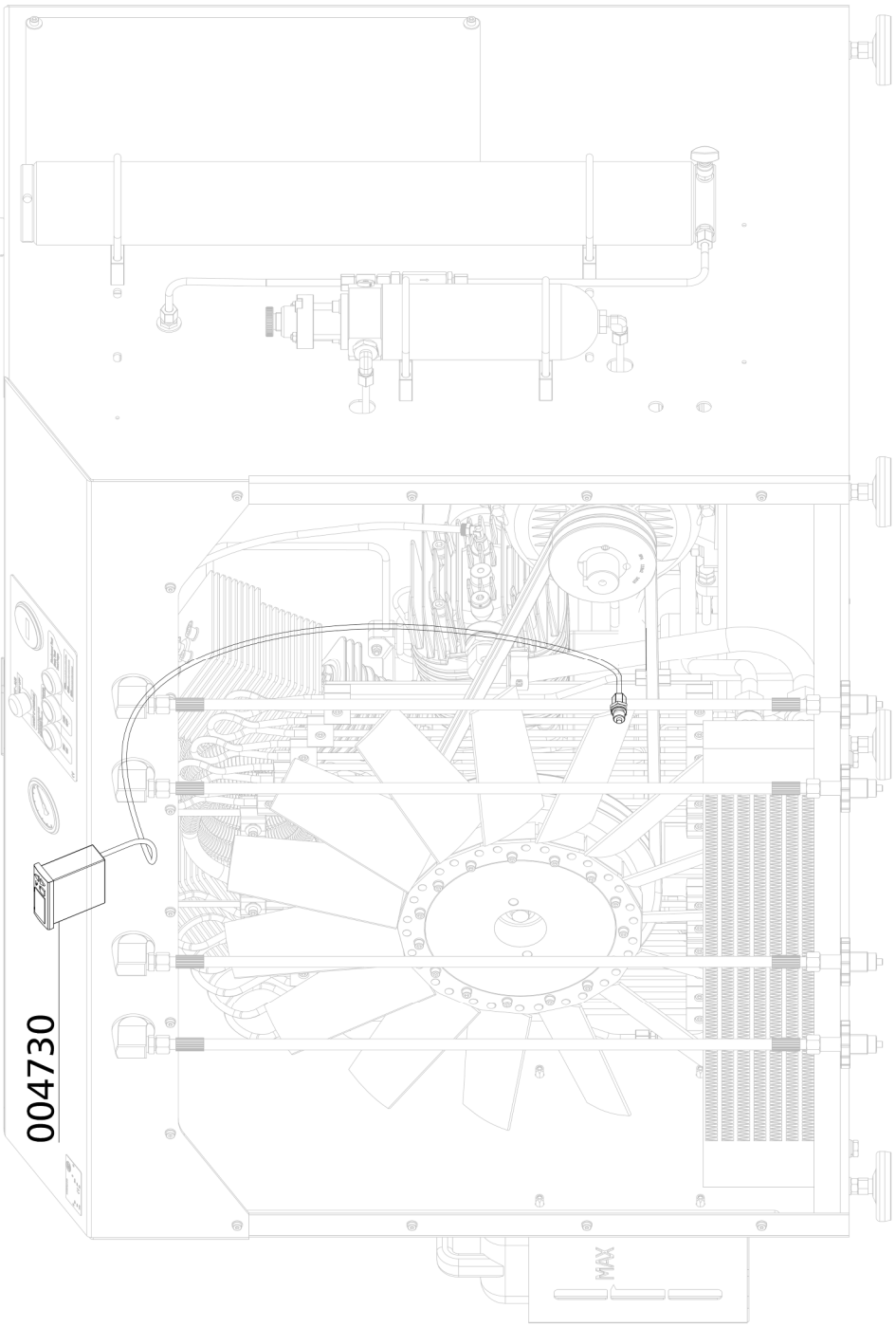
- Ambient temperature too high
- Cooling air flow not sufficient
- Oil level too low
- Cooling pipes contaminated

**Warning**
Risk of burns!
Allow the unit to cool before beginning troubleshooting.

D

## Spare Part Lists

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 004342 | Display | Display |
| 004730 | Display und Sensor | Display and Sensor |



# PURACON FILTER MONITORING

## Puracon Filter Monitoring

The usage of a humidity controller is the most reliable and economic method for filter monitoring.

Puracon Stationary PRO

### Puracon Stationary PRO

Puracon Stationary PRO is the professional solution for humidity monitoring during the filling procedure. The PRO version provides separated sensor and display unit. The sensor is connected directly to the high-pressure line after the humidity filter and is linked to the display unit via a data cable.

D

### Specifications

- Stainless steel sensor housing with screw joint and G¼“ inlet and outlet
- Display unit (120 x 120 x 60 mm) for wall mounting with sensor cable (length: 2 m)
- Power supply cable (length: 1.2 m) with CE plug 230 V AC ~ 50/60 Hz (12/24V DC versions available)
- Digital LCD display with humidity display in mg/m³ and error warnings
- Pressure compensation
- 3 monitoring LEDs, adjustable limits
- Language can be selected in German, English, French or Spanish
- Sensor cables with 5, 10, 15 or 30 m available for surcharge
- Approved up to 420 bar

### Available Versions

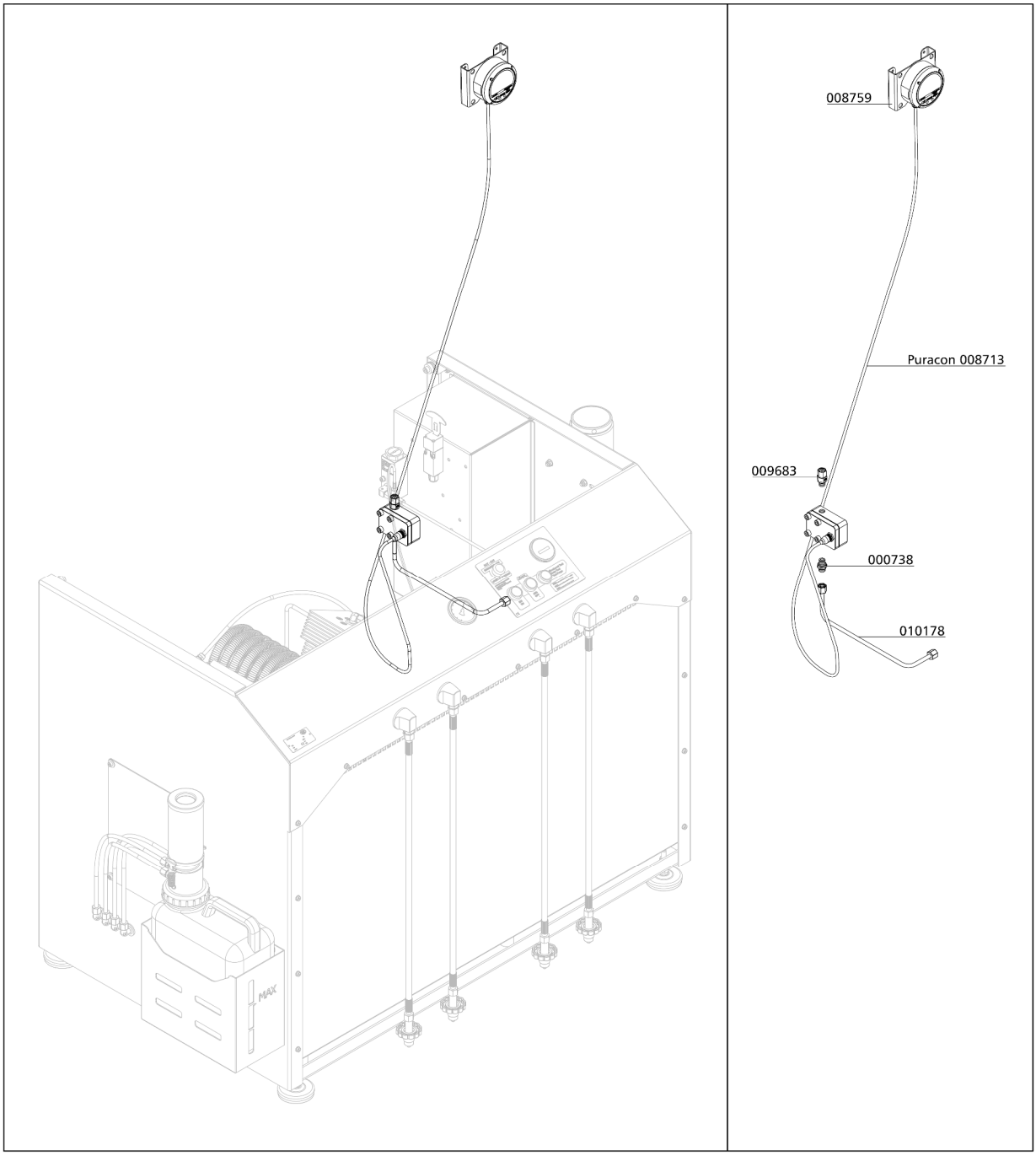
- 230 V AC, 12 V DC, 24 V DC
- Eex with ATEX certification

| Technical Data | Puracon Stationary PRO |
|---|---|
| Operating pressure | 150 to 420 bar - adjustable pressure range |
| Power supply | 240VAC / optional 12V or 24VDC |
| Connector | Sensor: G1/4 thread |
| Protection rating | IP64 |
| Operating temperature | -10°C to +40°C |

## Spare Part Lists

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000738 | Gerade Verschraubung | Straight Connection |
| 008713 | Puracon Stationary Pro SP350, mit Sensor | Puracon SP350 Humidity Control |
| 008759 | Wandhalterung Puracon Display | Mounting Bracket Puracon Displ |
| 009683 | Verschraubung | Connection with fixed nut |
| 010178 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |

## Spare Part Lists



# BLOCK HEATING DEVICE

D

## Block Heating Device

Option "Block Heater" enables to run the compressor unit at temperatures below +5°C.

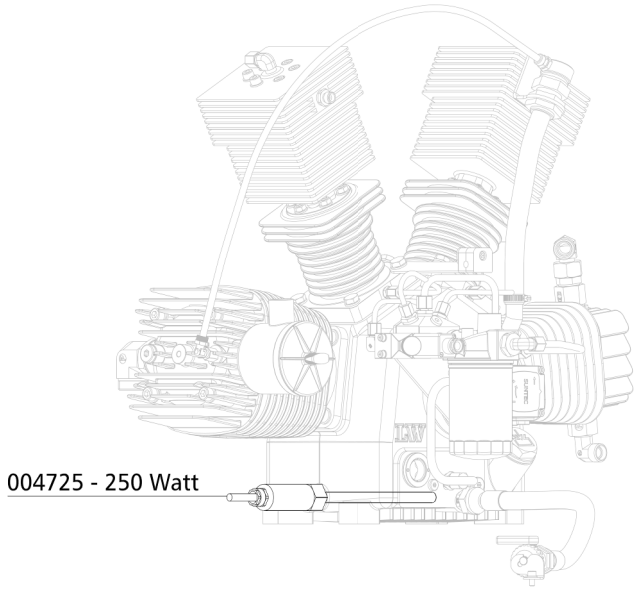
Block heater is controlled by a temperature sensor, which ensures that oil temperature is always at least +12°C. Above +12°C oil heater unit is deactivated.

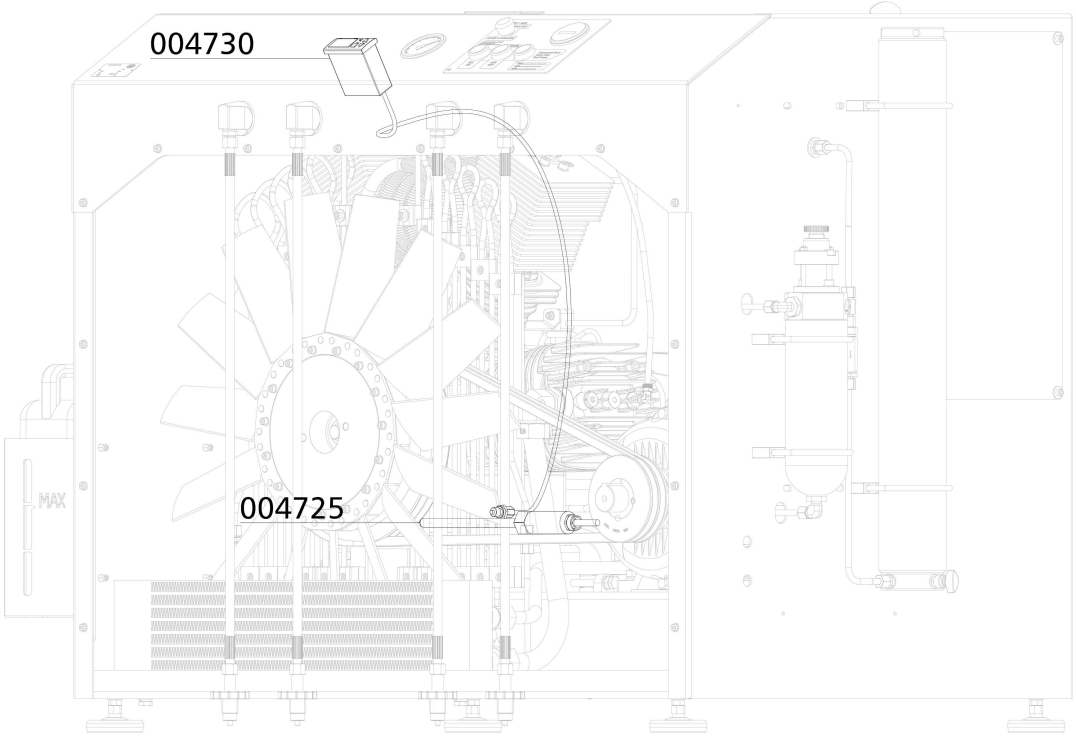
If oil temperature is below +12°C (in case that power supply has been turned off), compressor can not be started until oil temperature has reached at least +12°C.


D

## Spare Part Lists

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 004725 | Heizstab Blockheizung | Heater bar, compressor block |
| 004730 | Temperaturanzeige digital inkl. Sensor | Temperature digital display |



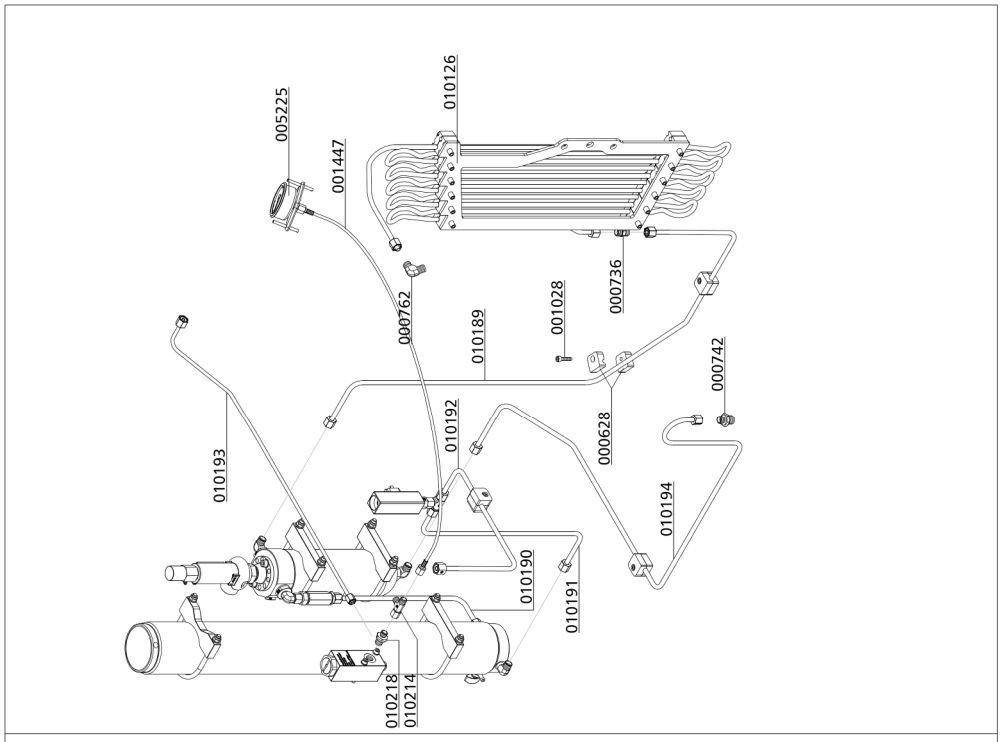



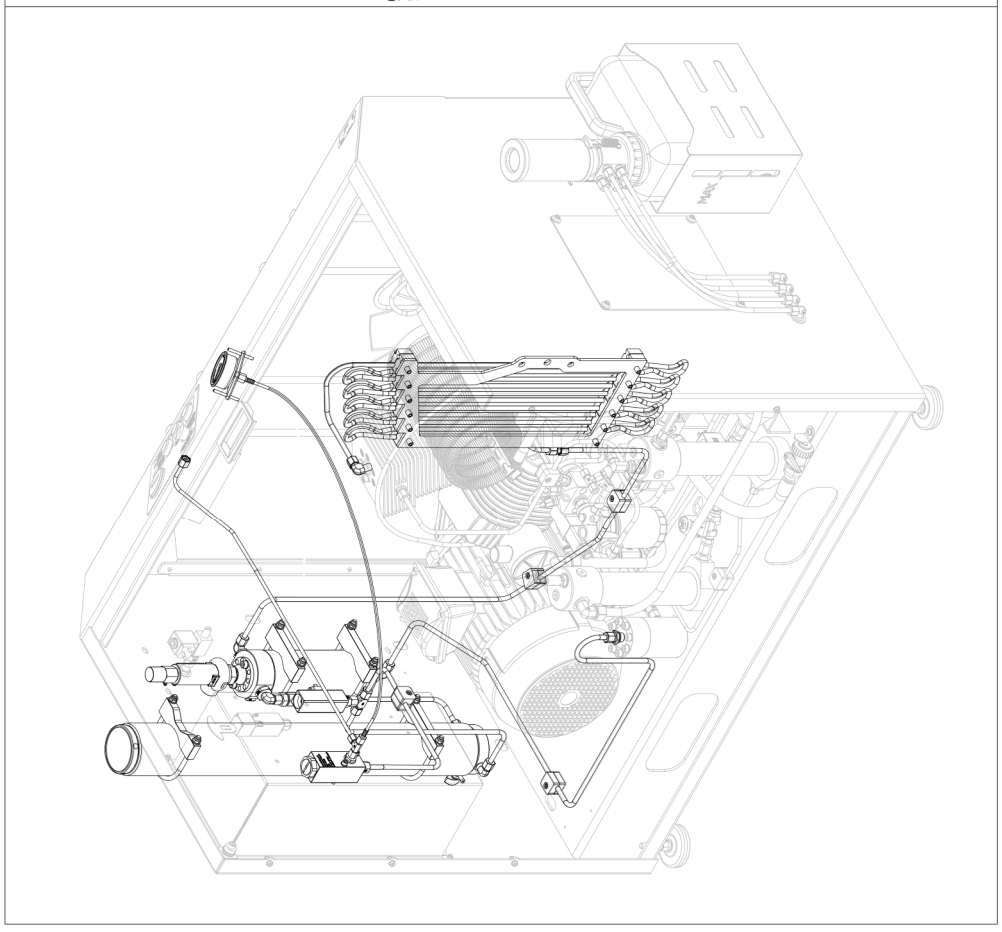
# 420 BAR VERSION

## Baugruppe: Verrohrung / Assembly: Pipework

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000628 | Einfachschelle 1 x 8mm 1 Paar | Pipe Clamp 1x8mm 1pair PVC |
| 000736 | Verschraubung | Connection |
| 000742 | Verschraubung | Connection |
| 000762 | Verschraubung | Elbow Connection |
| 001028 | Zylinderschraube | Allen Bolt |
| 001447 | Manometerschlauch 800 mm | Pressure Gauge Hose 800 mm |
| 005225 | Manometer 0-600bar Ø 63mm | Pressure Gauge 0-600 bar Ø63mm |
| 010126 | Kühler 4.Stufe | Cooler 4th Stage complete |
| 010189 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010190 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010191 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010192 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010193 | Rohrleitung Ø6mm, komplett mit M.&S. | Pipe Ø6mm |
| 010194 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010214 | T-Verschraubung, seitlich feste Mutter | Connection EL 06L |
| 010218 | Gerader Einschraubstutzen | Connection GE06L-1/4" |

## Baugruppe: Verrohrung / Assembly: Pipework

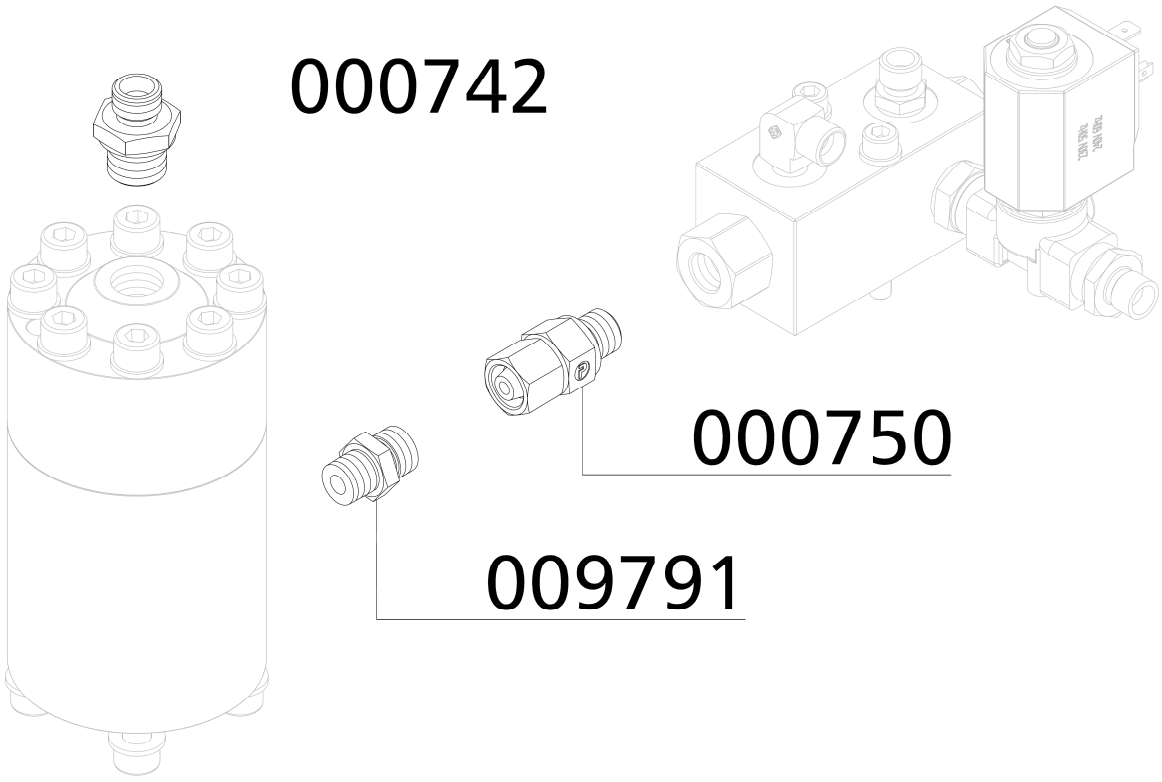


D

## Baugruppe: Verrohrung / Assembly: Pipework

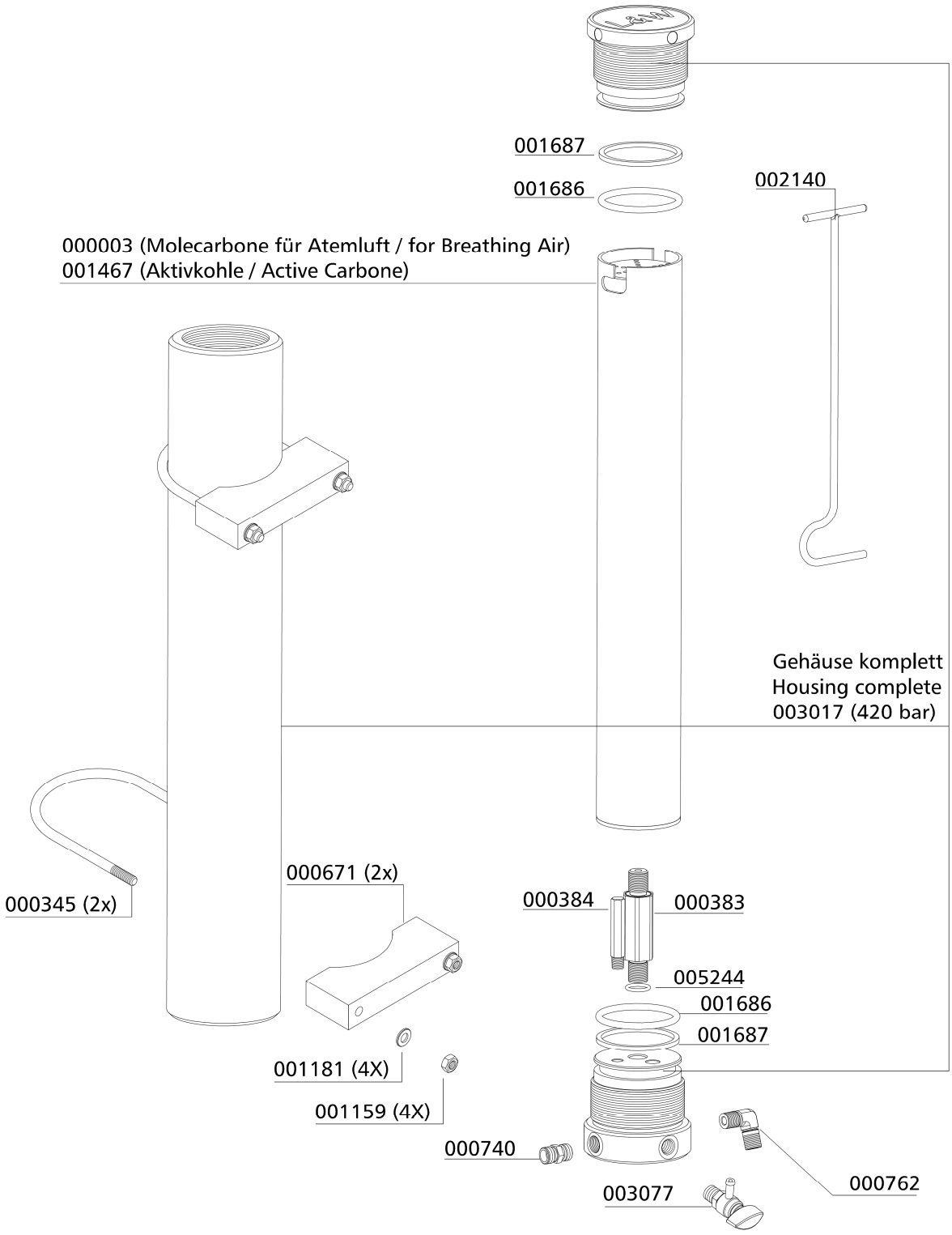
| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000742 | Verschraubung GE08S 3/8“ | Connection |
| 000750 | Verschraubung EGE08S 1/4“ | Connection with fixed nut |
| 009791 | Gerade Verschraubung kegelig | Connection GE08S 1/4“ KEG |



## Filtergehäuse 2,3 l 420 bar / Filter Housing 2.3 ltr 420 bar

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000003 | Filterpatrone 2,3 Liter | Filter Cartridge 2.3 ltr BA |
| 000345 | Haltebügel für Filtergehäuse | U-Clamp for filter housing |
| 000383 | Messing Adapter für Filterpatrone | Brass Filter Adapter |
| 000384 | Düse für Filtergehäuse | Jet Filter Housing |
| 000671 | Abstandshalter für Filtergehäuse | Alloy Spacer Filter Housing |
| 000740 | Verschraubung GE08S | Connection |
| 000762 | Verschraubung | Elbow Connection |
| 000765 | Schneidring 8 mm | Olive Seal 8 mm |
| 000767 | Mutter | Union Nut 08 S |
| 001159 | Stoppmutter | Lock Nut M8 |
| 001181 | U-Scheibe A8 | Washer A8 |
| 001467 | Filterpatrone, Aktivkohle, Entölung | Filter Cartr. Activ Carbon |
| 001686 | O-Ring, Druckbehälter | O-Ring, pressure vessel |
| 001687 | Stützring, für Druckbehälter | Retainer Ring, pressure vessel |
| 002140 | Filterschlüssel 1,7 & 2,3 Liter Behälter | Filter tool 1,7 & 2,3 Litre |
| 003017 | Filtergehäuse, 2,3 ltr. | Filter housing 2,3 ltr. |
| 003077 | Entwässerungsventil G1/4" AG, konisch | Drain Valve G1/4" male |
| 005244 | O-Ring | O-Ring |

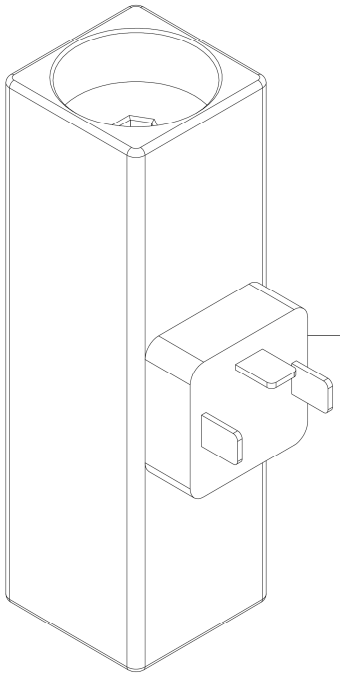
## Filtergehäuse 2,3 l 420 bar / Filter Housing 2.3 ltr 420 bar



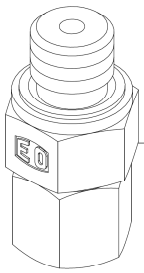
## Druckschalter 420 bar / Pressure Switch 420 bar

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000750 | Verschraubung mit fester Mutter, EGE 08 PSR-ED / G1/4 | Connection with fixed nut, EGE 08 PSR-ED / G1/4 |
| 000754 | Verschraubung T08S | Connection |
| 000765 | Schneidring PSR 08 LX | Olive Seal PSR 08 LX |
| 000767 | Mutter 8S M16x1,5 IG | Nut 8S M16x1,5 IG |
| 001512 | Druckschalter 50-600 bar, 250 Volt AC G1/4" | Pressure Switch 50-600 bar, 250 Volt AC G1/4" |

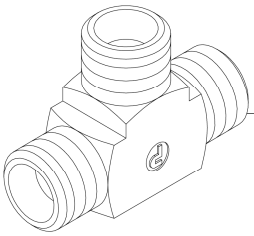
## Druckschalter 420 bar / Pressure Switch 420 bar



001512



000750



000754

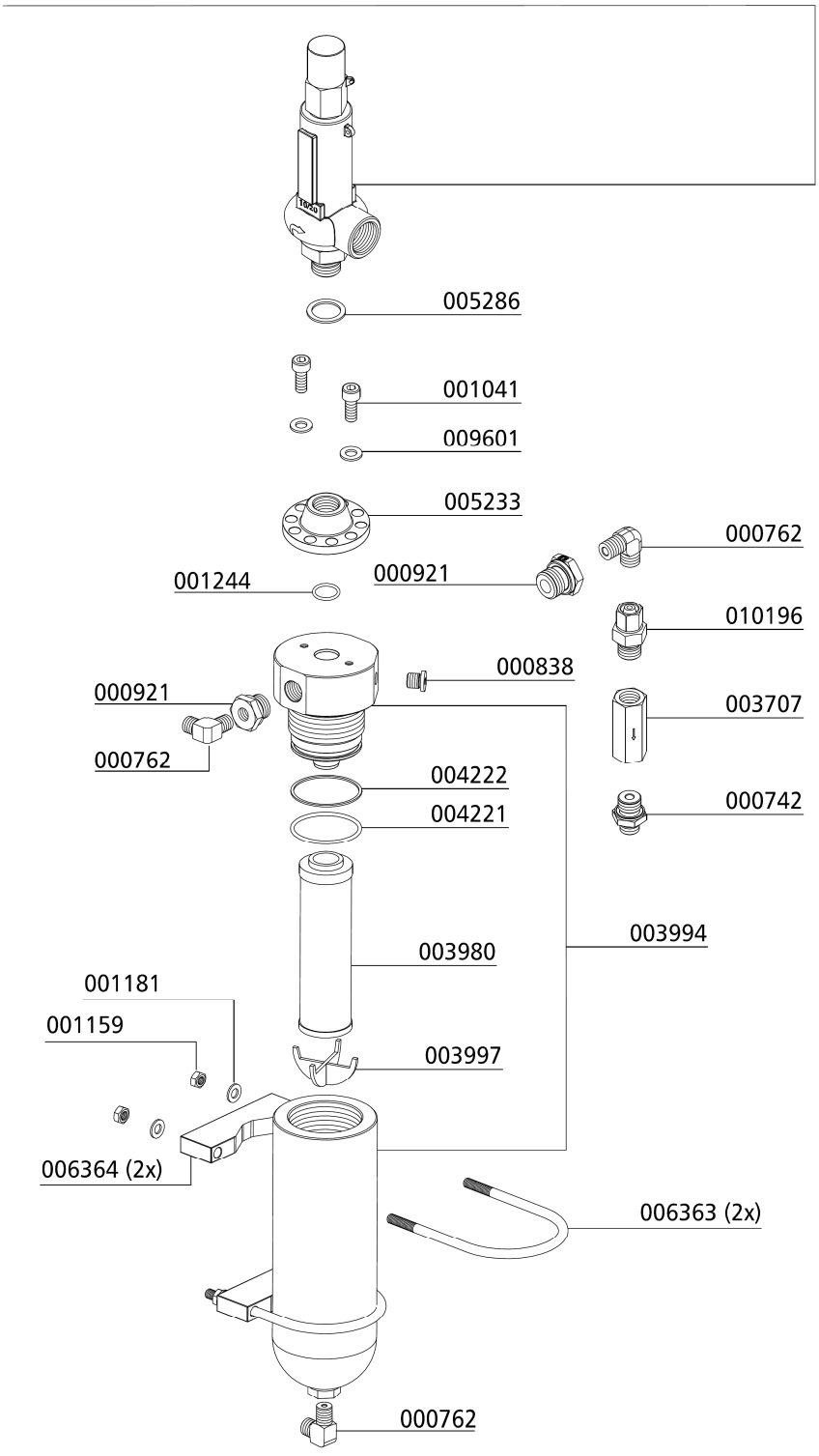
D

## Sicherheitsventil 420 bar / Safety Valve 420 bar

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000742 | Verschraubung | Connection |
| 000762 | Verschraubung | Elbow Connection |
| 000838 | Verschlussstopfen | Plug |
| 000921 | Reduzierung | Reducer |
| 001041 | Zylinderschraube | Allen Screw |
| 001159 | Stoppmutter M8 | Lock Nut M8 |
| 001181 | U-Scheibe A8 | Washer A8 |
| 001244 | O-Ring | O-Ring, flange safety valve |
| 003707 | Rückschlagventil | Non-Return Valve |
| 003980 | Filterelement | Filter water separator 0.8 Ltr |
| 003994 | Filterbehälter 350 bar, V: 0,8 ltr | Filter Unit 0.8 ltr / 350 bar |
| 003997 | Filterstütze Partikelfilter 0,8 ltr | Filter support 0,8 ltr |
| 004221 | O-Ring | O-Ring |
| 004222 | Stützring | Back-up Ring |
| 005233 | Adapter Stecksockel auf G1/2" IG | Adapter plug base to1/2"female |
| 005286 | Cu-Dichtring 21x28x1,5 mm | Copper Seal Ring 21x28x1.5 mm |
| 006363 | Haltebügel Filtergehäuse 0,8 Liter | U-Clamp Filterhousing 0.8 Ltr |
| 006364 | Halteschalen Filtergehäuse 0,8 Liter | Bracket Filter Housing 0.8 ltr |
| 006376 | Sicherheitsventil 420 bar | Safety Valve 420 bar |
| 006919 | Sicherheitsventil 420 bar | Safety Valve 420 bar incl. TÜV |
| 009601 | U-Scheibe | Washer |
| 010196 | Gerader Einschraubstutzen | Connection |

## Sicherheitsventil 420 bar / Safety Valve 420 bar

| Druck / Pressure: 420 bar | SV-Ventil mit CE-Prüfung / Safety Valves with CE-Approval: 006376 | SV-Ventil mit TÜV-Prüfung / Safety Valves with TÜV-Approval: 006919 |
|---|---|---|




D

# PHASE MONITORING

## Phase Monitoring

With this option the direction of rotation is controlled by a phase monitoring system during the operation.

If the compressor is incorrectly connected the power supply does not allow to start the machine. Is this the case the red warning lamp will indicate the problem. A changing of the direction of rotation is inevitable then.

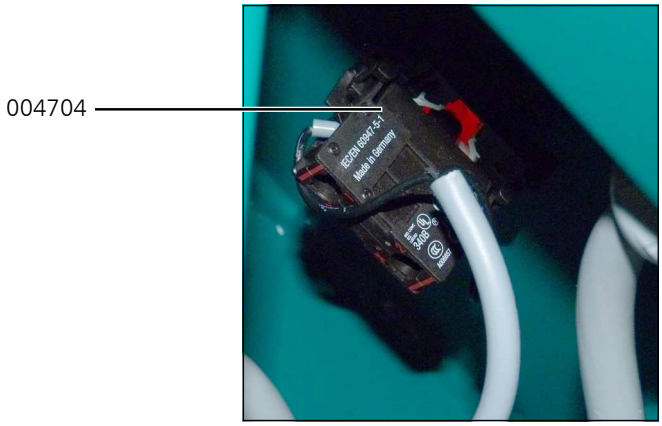
Another advantage is the control during the operation. In case of dissolving a phase, the compressor will shut-down automatically. The red warning lamp will indicate to this after shut-down directly.


Phase Monitoring

## Spare Part List

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 004701 | Warnlampe | Warning Lamp |
| 004704 | Relais für Warnlampe | Relais for warning lamp |
| 006859 | Schildträger | Label holder |
| 008551 | Einlegeschild Phasenüberwachung | Label Phase Control |

## Spare Part List


D

# SPECIAL VOLTAGE

## Special Voltage

The compressor unit can be equipped with different voltages and frequencies. The power of the compressor motor can be lower and higher based on the needed requirement.

The following table will show possible voltages and frequencies. The associated data sheets can be found in the following pages.

**Note**
If your required data sheet is missing, please contact us directly under service@lw-compressors.com.



## Possible special voltages and frequencies

| Voltage | Frequency |
|---|---|
| 440 V | 50 Hz |
| 440 V | 60 Hz |
| 230 V | 50 Hz |
| 230 V | 60 Hz |

## Technical Data

| Technical Data | LW 570 E II |
|---|---|
| Flow Rate [l/min]: | 570 |
| Max. Operating Pressure [bar]: | 350 |
| RPM [$min^{-1}$]: | 1,060 |
| Number of Pressure Stages: | 4 |
| Cylinder Bore 1st Stage [mm]: | Ø 105 |
| Cylinder Bore 2nd Stage [mm]: | Ø 50 |
| Cylinder Bore 3rd Stage [mm]: | Ø 25 |
| Cylinder Bore 4th Stage [mm]: | Ø 14 |
| Medium: | Compressed Air / Breathing Air |
| Intake Pressure: | atmospheric |
| Oil Pressure (at operating temperature) [bar]: | +2.0 (±0.1) |
| Oil Capacity [l]: | 2.9 |
| Intake Temperature [°C]: | 0 < +45 |
| Ambient Temperature [°C]: | +5 < +45 |
| Cooling Air Volume [$m^3/h$]: | > 4,500 |
| Voltage: | 400 V / 3 phase / 50 Hz |
| Protection Class Drive Motor: | IP 54 |
| Drive Power [kW]: | 15 |
| RPM Motor [$min^{-1}$]: | 2,890 |
| Start: | Star/Delta |
| Noise Level [dB(A)]: | 82,7 at distance of 1 m<br>77 at distance of 3 m |
| Dimensions W x D x H [mm]: | 1540 x 820 x 1020 |
| Weight [kg]: | 405 |
| Content Volume Final Filter Housing [l]: | 2.3 |
| Content Volume Pre-Filter Housing [l]: | 0.8 |

## Technical Data

| Technical Data | LW 570 E II |
|---|---|
| Flow Rate [l/min]: | 570 |
| Max. Operating Pressure [bar]: | 350 |
| RPM [$min^{-1}$]: | 1,060 |
| Number of Pressure Stages: | 4 |
| Cylinder Bore 1st Stage [mm]: | Ø 105 |
| Cylinder Bore 2nd Stage [mm]: | Ø 50 |
| Cylinder Bore 3rd Stage [mm]: | Ø 25 |
| Cylinder Bore 4th Stage [mm]: | Ø 14 |
| Medium: | Compressed Air / Breathing Air |
| Intake Pressure: | atmospheric |
| Oil Pressure (at operating temperature) [bar]: | +2.0 (±0.1) |
| Oil Capacity [l]: | 2.9 |
| Intake Temperature [°C]: | 0 < +45 |
| Ambient Temperature [°C]: | +5 < +45 |
| Cooling Air Volume [$m^3/h$]: | > 5,400 |
| Voltage: | 400 V / 3 phase / 60 Hz |
| Protection Class Drive Motor: | IP 54 |
| Drive Power [kW]: | 18 |
| RPM Motor [$min^{-1}$]: | 3,480 |
| Start: | Star/Delta |
| Noise Level [dB(A)]: | 82,7 at distance of 1 m<br>77 at distance of 3 m |
| Dimensions W x D x H [mm]: | 1540 x 820 x 1020 |
| Weight [kg]: | 405 |
| Content Volume Final Filter Housing [l]: | 2.3 |
| Content Volume Pre-Filter Housing [l]: | 0.8 |

## Technical Data

| Technical Data | LW 570 E II |
|---|---|
| Flow Rate [l/min]: | 570 |
| Max. Operating Pressure [bar]: | 350 |
| RPM [$min^{-1}$]: | 1,060 |
| Number of Pressure Stages: | 4 |
| Cylinder Bore 1st Stage [mm]: | Ø 105 |
| Cylinder Bore 2nd Stage [mm]: | Ø 50 |
| Cylinder Bore 3rd Stage [mm]: | Ø 25 |
| Cylinder Bore 4th Stage [mm]: | Ø 14 |
| Medium: | Compressed Air / Breathing Air |
| Intake Pressure: | atmospheric |
| Oil Pressure (at operating temperature) [bar]: | +2.0 (±0.1) |
| Oil Capacity [l]: | 2.9 |
| Intake Temperature [°C]: | 0 < +45 |
| Ambient Temperature [°C]: | +5 < +45 |
| Cooling Air Volume [$m^3/h$]: | > 4500 |
| Voltage: | 230 V / 3 phase / 50 Hz |
| Protection Class Drive Motor: | IP 54 |
| Drive Power [kW]: | 15 |
| RPM Motor [$min^{-1}$]: | 2,910 |
| Start: | Star/Delta |
| Noise Level [dB(A)]: | 82,7 at distance of 1 m<br>77 at distance of 3 m |
| Dimensions W x D x H [mm]: | 1540 x 820 x 1020 |
| Weight [kg]: | 405 |
| Content Volume Final Filter Housing [l]: | 2.3 |
| Content Volume Pre-Filter Housing [l]: | 0.8 |

## Technical Data

| Technical Data | LW 570 E II |
|---|---|
| Flow Rate [l/min]: | 570 |
| Max. Operating Pressure [bar]: | 350 |
| RPM [$min^{-1}$]: | 1,060 |
| Number of Pressure Stages: | 4 |
| Cylinder Bore 1st Stage [mm]: | Ø 105 |
| Cylinder Bore 2nd Stage [mm]: | Ø 50 |
| Cylinder Bore 3rd Stage [mm]: | Ø 25 |
| Cylinder Bore 4th Stage [mm]: | Ø 14 |
| Medium: | Compressed Air / Breathing Air |
| Intake Pressure: | atmospheric |
| Oil Pressure (at operating temperature) [bar]: | +2.0 (±0.1) |
| Oil Capacity [l]: | 2.9 |
| Intake Temperature [°C]: | 0 < +45 |
| Ambient Temperature [°C]: | +5 < +45 |
| Cooling Air Volume [$m^3/h$]: | > 5,400 |
| Voltage: | 230 V / 3 phase / 60 Hz |
| Protection Class Drive Motor: | IP 54 |
| Drive Power [kW]: | 18 |
| RPM Motor [$min^{-1}$]: | 3,510 |
| Start: | Star/Delta |
| Noise Level [dB(A)]: | 82,7 at distance of 1 m<br>77 at distance of 3 m |
| Dimensions W x D x H [mm]: | 1540 x 820 x 1020 |
| Weight [kg]: | 405 |
| Content Volume Final Filter Housing [l]: | 2.3 |
| Content Volume Pre-Filter Housing [l]: | 0.8 |

# AIR COOLER CONNECTION KIT

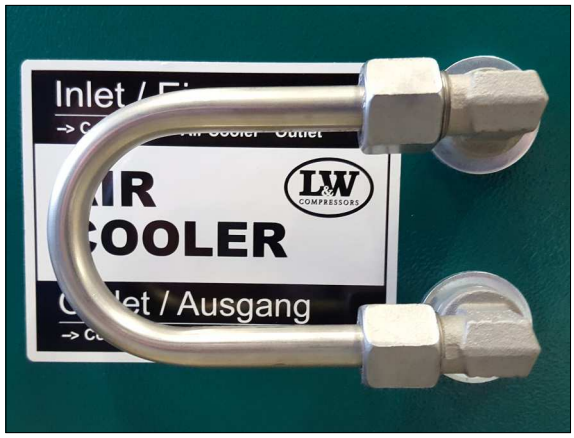
D

## Air Cooler Connection Kit

The Air Cooler Connection Kit provides an easy connection and a simple and time-saving installation or backfitting.

The piping inside the compressor is completely installed. Just disconnect the U-pipe at the outside and connect the air cooler according to the connection designation (inlet/outlet).

To operate the unit without air cooler, reinstall the U-pipe and the compressor is ready for use.



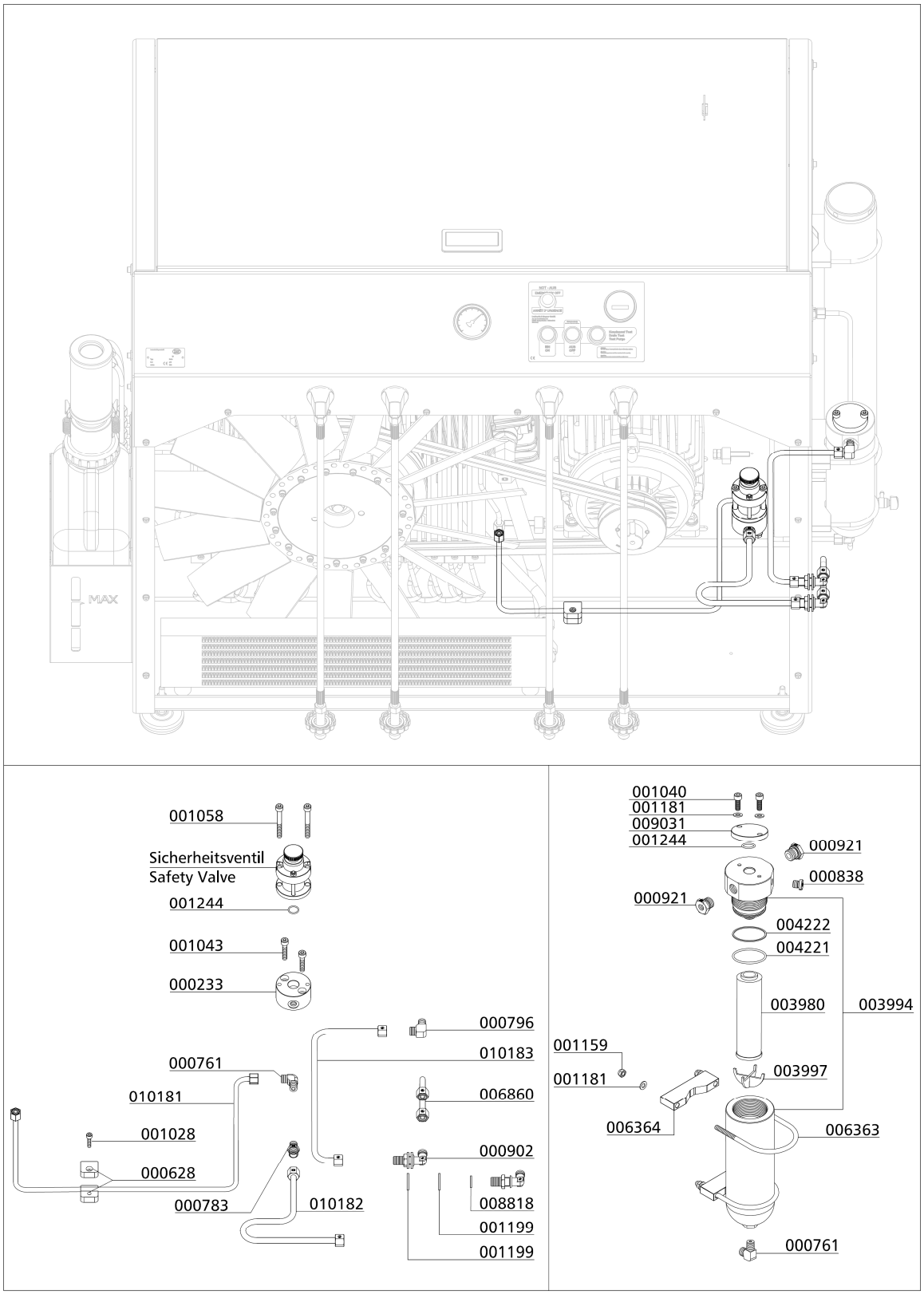

Air cooler connection kit

## Spare Part List

| Best.-Nr. / Order No. | Benennung | Description |
|---|---|---|
| 000233 | Sockel für Sicherheitsventil mit TÜV/CE | Base f. Safety Valve TÜV type |
| 000628 | Einfachschelle 1 x 8mm 1 Paar | Pipe Clamp 1x8mm 1pair PVC |
| 000761 | Winkelverschraubung | Elbow Connection |
| 000783 | Verschraubung | Straight Connection |
| 000796 | Verschraubung | Elbow Connection |
| 000838 | Verschlussstopfen | Plug |
| 000902 | Winkelschottverschraubung | Elbow Bulkhead Fitting |
| 000921 | Reduzierung | Reducer |
| 001028 | Zylinderschraube | Allen Bolt |
| 001040 | Zylinderschraube | Allen Screw |
| 001043 | Zylinderschraube | Allen Screw |
| 001058 | Zylinderschraube | Allen Bolt |
| 001158 | Mutter | Nut M8 |
| 001159 | Stoppmutter | Lock Nut M8 |
| 001181 | U-Scheibe A8 | Washer A8 |
| 001199 | U-Scheibe A17 | Washer A17 |
| 001244 | O-Ring | O-Ring, flange safety valve |
| 003980 | Filterelement | Filter water separator 0.8 Ltr |
| 003994 | Filterbehälter 350 bar, V: 0,8 ltr | Filter Unit 0.8 ltr / 350 bar |
| 003997 | Filterstütze Partikelfilter 0,8 ltr | Filter support 0,8 ltr |
| 004221 | O-Ring | O-Ring |
| 004222 | Stützring | Back-up Ring |
| 006363 | Haltebügel Filtergehäuse 0,8 Liter | U-Clamp Filterhousing 0.8 Ltr |
| 006364 | Halteschalen Filtergehäuse 0,8 Liter | Bracket Filter Housing 0.8 ltr |
| 006860 | Rohrbogen 180° - 10L inkl. Muttern | U-Connection 180° - 10L Pipe |
| 008818 | Schnorr-Scheibe S16 | Clamp Washer S16 |
| 009031 | Verschlussstopfen | Plug for CE Safety Valve Base |
| 010181 | Rohrleitung Ø8mm, komplett mit M.&S. | Pipe Ø8mm |
| 010182 | Rohrleitung Ø10mm, komplett mit | Pipe Ø10mm |
| 010183 | Rohrleitung Ø10mm, komplett mit M.&S. | Pipe Ø10mm |

## Spare Part List





# ATTACHMENT

E

Version: 11/12-E

**Lenhardt & Wagner GmbH**

**An der Tuchbleiche 39**
**D-68623 Lampertheim – Hüttenfeld**

**www.lw-compressors.com**

# Operating Instruction

## Safety valve

**Typ:**

**SiV2 BKZ 989 TÜV.SV.12-989.5.G.V.P CE 0091 AlMgSi1 F31 1100* Lenhardt & Wagner**

**SiV BKZ TÜV.SV.14-1140.5.G.V.p CE 0091 AlMgSi1 F31 1100* Lenhardt & Wagner**

| | |
|---|---|
| **Set pressure:** | **see mark (hand wheel on top of valve)** |
| **Maximum outflow:** | **Set pressure 100-159 bar: 750 l / min**<br>**Set pressure 160-350 bar: 1.100 l / min** |
| **Suitable media:** | **Media-resistant, non-corrosive gases** |

The safety valve is used for protection of pressurized components, eg pipelines, pressure vessels, or the compressor itself.

The hand wheel on the top of the safety valve is marked with the adjusted set pressure.


Safety valve with socket

1) ***Identification of set pressure***
2) ***Seal***
3) ***Fixing screws***[1]
4) ***Venting srew (hand wheel)***
5) ***Identification serial number***
6) ***Socket for safety valve***

[1] und die Anforderungen des AD 2000 Merkblatts W7 erfüllen. The fixing screws M8 must be strength class 8.8 and meet the requirements of Merkblatt AD 2000 leaflet W7. Shaft length 70mm.

In order to prevent manipulation of the set pressure, all safety valves are factory fitted with a seal.

A safety valve on which the seal has been removed, must be returned to the manufacturer for repair / adjustment before further use.

In addition, the safety valve has a venting device (hand wheel).
When rotated clockwise, the safety valve and the filter housing of the final stage are completely vented.

During normal operation, the screw is unscrewed to the upper stop anticlockwise; an integrated safety ring prevents the screw from being removed.

If a safety valve blows off, the system must be switched off immediately and the cause of the error, investigated.

There are two possible reasons:
1. The safety valve is defective and blows off before the set pressure.
In this case the safety valve should be submitted immediately to the manufacturer for repair or replaced with a new one.

2. The safety valve opens properly, the problem is on the system.
A constant blowing of the safety valve is not permitted, the sealing seat of the valve can be damaged.
The error on the system must be detected and repaired before further filling operations.

The safety valve may only be used if it is ensured that the maximum flowrate of the system does not exceed the blow-off rate of the safety valve.

The safety valve may only be used with the approved media.
Repair work on compressors must only be performed by trained personnel.

**Dismantling of the safety valve**

Ensure that on the safety valve is no pressure.

Loosen and remove the two M8 fixing bolts with a 6 mm Allen key.

The safety valve can now be removed by turning and simultaneously pulling out of the socket.

**Mounting**
1. Clean the safety valve socket.
2. Oil the insert pin of the safety valve including the O-ring with 1 to 2 drops of oil.
3. Press the safety valve pin complete into the socket.
4. Fasten the safety valve with the two 8 mm allen screws into the socket
   (Tightening torque: 10 Nm)
5. Screw the venting screw (hand wheel) anticlockwise to its upper limit.
6. Start the System (Compressor), check installation for leaks and proper function.

**Manufacturer:** **Lenhardt & Wagner GmbH**
**An der Tuchbleiche 39**
**D-68623 Lampertheim – Hüttenfeld**

**Contact:** **E-Mail: service@lw-compressors.com**
**Web: www.lw-compressors.com**
**Tel.: +49 (0) 6256 – 85880 0**
**Fax: +49 (0) 6256 – 85880 14**

*Note:*
*Only use safety valves which are in a technically perfect condition, for its intended purpose, safety and danger awareness, in compliance with the operating instructions!*
*Faults* which could affect safety must be rectified immediately!

Notes:
- The safety valve must be installed directly on the protected pressure vessel and / or the plant.
- The safety valve must be installed in an upright position.
- The flow area of the port must be greater than the valve opening.
- Protect valve against splashes

Maintenance:

- In accordance with current Pressure Equipment Directives, the safety valve must be periodically checked for operation and reliability.

- Refill annually lubricating oil:
  Oil filling position:
  Hole on the spacer (see arrow, Figure 1)

- Oil level: Fill oil into the hole until oil comes out of the hole.

Figure 1: Position for oil refill

*To be used lubricating oil for the safety valve: L&W Article N°.: 008500 (content: 30 ml)*

# INFORMATIONON THE SERVICE LIFE OF L&W HIGH PRESSURE HOSES

CONTENTS

## Testing hose lines

An essential factor in ensuring operational safety when handling L&W compressors is the proper testing of the hose lines used.
Tests are necessary:

- After assembly and before commissioning the hose line.
- After accidents, changes (modifications) to the compressor system, longer periods of non-use and damage due to, for example, collisions or natural phenomena (extraordinary test).
- After carrying out repair work on the compressor system that could compromise safety.
- Recurrently at fixed, regular intervals.

The proprietor must determine the type, scope and deadlines for the tests according to his or her individual operating conditions and on the basis of a risk assessment. **The specifications and recommendations of the manufacturer must be observed.** The specifications made regarding type, scope and deadlines (as well as the replacement intervals) must be documented in writing as occupational health and safety measures.
The results of the tests must also be recorded, e.g. together with the test report of the machine, and kept at least until the next test.
The above-mentioned tests may only be carried out by persons who are qualified to do so and who are authorized by the company (employer).

## Testing after assembly and before commissioning

In the test after assembly and before commissioning, factors relating to assembly or factors that can only be evaluated on the fully assembled machine must be assessed.
The assembled hose lines must also be assessed.
Some test points can already be assessed during a visual inspection when the machine is switched off.
An overview of the recommended scope of testing for a visual inspection of hose lines is given in the appendix.
Further test points included in the test of hose lines before commissioning, require a functional test with the machine running.
A recommendation for the scope of testing is given in the appendix.

## Recurring test

Since hose lines are subject to influences that cause damage during operation and can lead to dangerous situations, they must be tested recurrently at fixed intervals. The aim of recurring tests is to detect and repair damage in good time.
The objective is to ensure that the system remains in a safe condition.

## Procedure for hose lines found to be "defective"

If defects are found during the testing of the hose line that impair the safe condition of the work equipment, these must be rectified immediately. If this is not possible, suitable measures must be taken to ensure that the machine cannot be used further before it is repaired. Defective hose lines must be replaced before the machine can be used further.
It is not permitted to repair or reassemble damaged hose lines with old, previously used parts!
If several hose lines are replaced at the same time, precautions must be taken to prevent mix-ups of the connections or the installation points.

## Test intervals

Deadlines for the recurring tests of the hose lines should already be set before commissioning. Otherwise, there is a risk that work equipment will continue to be used or operated for too long without being tested.
The intervals between the recurring tests must be selected in such a way that deviations from the safe operating condition of work equipment can be detected and eliminated in good time.
The intervals for recurring tests specified here are guidelines and based on experience. Shorter test intervals may have to be specified on the basis of the risk assessment; special operating conditions; or according to the manufacturer's specific instructions in the machine operating manual. Longer test intervals may also be specified, provided that this is justifiable and tenable from a safety point of view.
The determination of the test intervals should be documented.

| **Type of test** | **Recommended test intervals** |
|---|---|
| Visual inspection | Before commissioning the system |
| Functional test | Annually with previous visual inspection |

## Persons qualified to test hose lines

A qualified person is a person who, through his or her professional training, professional experience and recent professional activity, has the necessary specialist knowledge required for testing work equipment - in this case for testing hose lines.
These requirements are defined in the Technical Rules for Industrial Safety TRBS 1203
"Qualified persons - general requirements" fulfilled if:

- the qualified person has completed a professional training that enables his or her professional knowledge to be determined in a comprehensible manner, i.e. based on professional qualifications or comparable evidence. For the testing of hose lines, the person concerned must have completed a technical professional training or another technical qualification sufficient for the intended testing tasks. The object is to guarantee that the tests will be carried out properly.
- proof of practical use at work of the equipment to be tested as well as the associated professional experience is provided. The qualified person must be sufficiently familiar with the conditions that demand the performance of tests, such as the result of the risk assessment or observations during the working day.
- there is proof of recent professional activity in the area of the upcoming tests and appropriate further training. The qualified person must also have gained experience with regard to the tests to be performed or comparable tests. He or she must also have knowledge of the state of the art with regard to the work equipment or components to be tested as well as the hazards to be considered. This also includes knowledge of the relevant technical regulations and the updating of this knowledge, e.g. through participation in training courses/instruction.

The qualified person is not subject to any technical instruction during the course of his or her testing activity and must not be disadvantaged because of this.
Experts who have carried out tests on the hose lines up to now and who meet the three criteria mentioned above and who have familiarized themselves with the contents of the German Ordinance on Industrial Safety and Health and the changes associated with it are also considered qualified persons to whom the tests can continue to be assigned.
See also:

⇒ § 2 para. 7 of the German Ordinance on Industrial Safety and Health,

⇒ Technical Rules for Operational Safety TRBS 1203.

## Replacing hose lines

As a general rule, even when stored properly and subjected to permissible stress during use, all hose lines are subject to natural aging, which changes the material and composite properties and reduces the performance of the hose lines.
This limits the service life of a hose line and the operator must ensure that hose lines are replaced at appropriate intervals.

## Immediate replacement of hose lines

Hose lines must be replaced immediately in the event of the following defects:

- External visible damage to the hose line or fittings.
- Internal damage to the tube or the reinforcement.
- Leakage from the hose line or the fittings.
- Deformation of the hose line or the fittings.

## Service life of L&W high pressure hoses

When determining the service life or the replacement interval of the individual hose lines, the concrete specifications and recommendations of the hose line or machine manufacturer must be observed. Furthermore, empirical values resulting from previous tests done under the prevailing operating conditions on site are also relevant.
Guideline values for recommended replacement intervals of hose lines which have proven themselves in practice are summarized below.

| **Hose line requirements** | **Recommended replacement intervals** |
|---|---|
| Standard requirements | 6 years<br>(Service life including a maximum of 2 years storage time) |
| Increased requirements, e.g. due to<br>- increased operating time,<br>e.g. multi-shift operation, or short machine or pressure pulse cycle times<br>- strong external and internal influences (due to the medium), which greatly reduce the service life of the hose line | 2 years (service life) |

The guideline given above for a replacement interval of six years for hose lines meeting normal requirements includes a maximum storage period of two years. The guideline value of two years for hose lines meeting increased requirements represents the maximum permissible service life.

A prolongation of the guideline values given above for replacement intervals is possible if

- appropriate test values and empirical values are available from the operator of the machine which permit safe continued use beyond the recommended maximum service period,
- a hazard or risk assessment, documented in writing, has been carried out by the operator, which also takes into account protective measures in the event of failure of hose lines, and
- tests for safe working conditions are carried out by qualified persons at appropriately set, if necessary reduced, intervals.

It must be ensured that the prolongation of the replacement intervals does not result in a dangerous situation that could injure employees or other persons.
If hose lines fail during operation or if damage or defects are frequently detected during the recurring tests, then, in addition to investigating the causes, the test and replacement intervals must be shortened.

## Storing hose lines

When storing hose lines, storage conditions must be aimed at minimizing the natural aging that occurs over time and the associated change in material and composite properties.
For this purpose, the following information must be provided:

- Store in a cool, dry and low-dust place.
  Low-dust storage can be achieved, for example, by wrapping the hoses in plastic film.
- Avoid direct sun or UV radiation.
- Shield from nearby heat sources.
- Avoid storage temperatures below -10 °C for elastomers.
- Do not use ozone-generating light fittings or electrical devices that may produce sparks in the immediate vicinity.
  (Ozone-generating light fittings are, for example, fluorescent light sources, mercury vapor lamps).

The most favorable storage conditions are temperatures between +15 °C and +25 °C, as well a relative humidity below 65 %.
During storage, hose lines must not come into contact with substances that could cause damage, e.g. acids, alkalis, solvents. Penetration of ozone or other harmful air constituents can be prevented by sealing the ends or by wrapping the hoses in plastic film. They must be stored flat and free of tension.
The storage period for hose lines should not exceed two years.

# ANNEX

## Recommended scope of testing "visual inspection" (before initial commissioning or recommissioning)

- Is all user information required for safe operation of the system available (e.g. flow chart, operating instructions)?
- Do the hose lines comply with the flow chart or parts list?
- Are there protective measures in place, such as pressure relief valves, for cases of unusually high pressure pulses or pressure amplifications?
- Are the hose lines marked with the name or abbreviation of the manufacturer, maximum permissible operating pressure, nominal diameter, quarter/year of manufacture?
- Are the hose lines installed in such a way that, in accordance with DIN 20 066
  - the natural position does not hinder movement?
  - turning or twisting of the hose is prevented, likewise tensile load caused by a line that is too short and a bending radii that is too small?
  - the hose is routed via a kink protector (if necessary on the connecting element)?
  - sufficient clearance prevents external mechanical influences or abrasion on the edges?
  - hose bridges prevent damage being caused by driving over the hose line?
  - hose guides (such as hose saddles and sufficiently wide hose brackets) protect loosely laid hose lines and
  - a heat shield protects against high temperature exposure?
- Are suitable protective measures, such as fixtures, safety gear or shielding provided for hose lines that, in the event of failure, pose a risk of whipping?
  A risk is to be assumed if persons are generally present in the immediate vicinity of the hose lines, for example.
- Do the hose lines of newly commissioned or re-commissioned machines already show signs of damage?
- Are the installed hose lines still within the storage/use period recommended by the relevant manufacturer?
- Are the hose lines free of paint?
- Are the hose lines free of chafe marks?
- Does the operating manual contain information on test intervals? If so, what?

Note:
The installed hose lines should not be made from used hoses or used press fittings that have already been in use as part of a hose assembly!

## Recommended scope of testing "Functional test" (before initial or recommissioning)

Note:
Visual inspection must be carried out before the functional test

- All parts of the system must be tested at least at the maximum working pressure that could be achieved taking into account all intended applications:
  - Are the hose lines and connecting elements free of leakage?
  - Have all hose lines withstood the pressure?

Note:
The installed hose lines should not be made from used hoses or used press fittings which have already been in use as part of a hose assembly!