

# Operating Instructions

Breathing Air

Filter Panels



Fig. Filter console with safety valve option



## TABLE OF CONTENTS

---

### **General Information and Technical Data**

General Information / Description of Warning Symbols .....	3
Scope of Delivery .....	4
Technical Data .....	5
Dimensions of 3x 1.7 ltr Filter Console .....	6
Unit Assembly.....	7
Flow chart .....	8

### **Safety Precautions**

Intended Use / Operators .....	10
General Safety Precautions .....	11
Unit customised safety notices .....	12
Maintenance instructions .....	13
Transportation instructions / Safety regulations .....	14

### **Operation**

Important operation instructions / First commissioning / Daily commissioning .....	16
------------------------------------------------------------------------------------	----

### **Maintenance and Service**

Service, Repair and Maintenance .....	18
Maintenance Overview .....	19
Drain filter housing .....	20
Function filter housing / Filter cartridge / Filter life .....	21
Filter cartridge change .....	22
Filter housing - maintenance .....	23
Pressure maintaining / non return valve .....	24
Option: Safety valve .....	25
Pressure gas vessel test.....	26
Maintenance records .....	28 - 30
Conservation / storage of the unit / Recommissioning / Transportation notes / Disposal .....	31

### **Spare parts lists / Detailed views**

Filter Housing 1.7 ltr .....	33 - 36
Filter Housing 2.3 ltr .....	37 - 40
Safety Valve .....	41 - 42
Pressure Maintaining Valve .....	43 - 44



## GENERAL INFORMATION

---

### General Information

We strongly recommend reading this manual thoroughly prior to operation and 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 and 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.



## DESCRIPTION

---

### Scope of Delivery

Filter panel, primarily for breathing air purification, can also be used for various gas filtration requirements. High pressure filter housings 1.7 ltr. or 2.3 ltr. are certified and documented in accordance with current pressure vessel regulations to a maximum working pressure of 350 bar (5250 psi) and 420 bar (6200 psi). Mounted on a sturdy wall panel, ready for connection, incl. pressure maintaining and non-return valve.

### Cartridges are available for:

Breathing air, with additional CO/CO<sub>2</sub> removal, drying, active charcoal, natural gas drying, and more...

### Specifications

- Nickel plated steel filter housing(s) with 1 drain tap on each panel
- Steel frame and housing, powder coated in RAL 6026
- Pressure maintaining and non-return valve, connection G 1/4"
- Inlet connector thread, connection G 1/4"

### Options

- Safety valve
- Puracon filter monitoring
- Div. filter cartridges



## DESCRIPTION

---

### Technical Data

Filter panel	Capacity at +20°C [m <sup>3</sup> ]	W x H x D [mm]	Weight [kg]	Max WP [bar]
1 x 1.7 l	900	270 x 570 x 180	27	350
2 x 1.7 l	1800	430 x 570 x 180	44	350
3 x 1.7 l	2700	560 x 570 x 180	61	350
1 x 2.3 l	1200	270 x 815 x 180	32	350
2 x 2.3 l	2400	430 x 815 x 180	54	350
3 x 2.3 l	3600	560 x 815 x 180	76	350
1 x 2.3 l	1200	270 x 815 x 180	38	420
2 x 2.3 l	2400	430 x 815 x 180	67	420
3 x 2.3 l	3600	560 x 815 x 180	95	420
1 x 10 l	8400	1116 x 320 x 460	165	350
1 x 10 l + 1 x 2.3 l	9600	1116 x 320 x 720	180	350
2 x 10 l	16800	1116 x 320 x 700	265	350
2 x 10 l + 1 x 2.3 l	18000	1116 x 320 x 1000	315	350

## DESCRIPTION

### Dimensions of 3x 1.7 ltr Filter Console

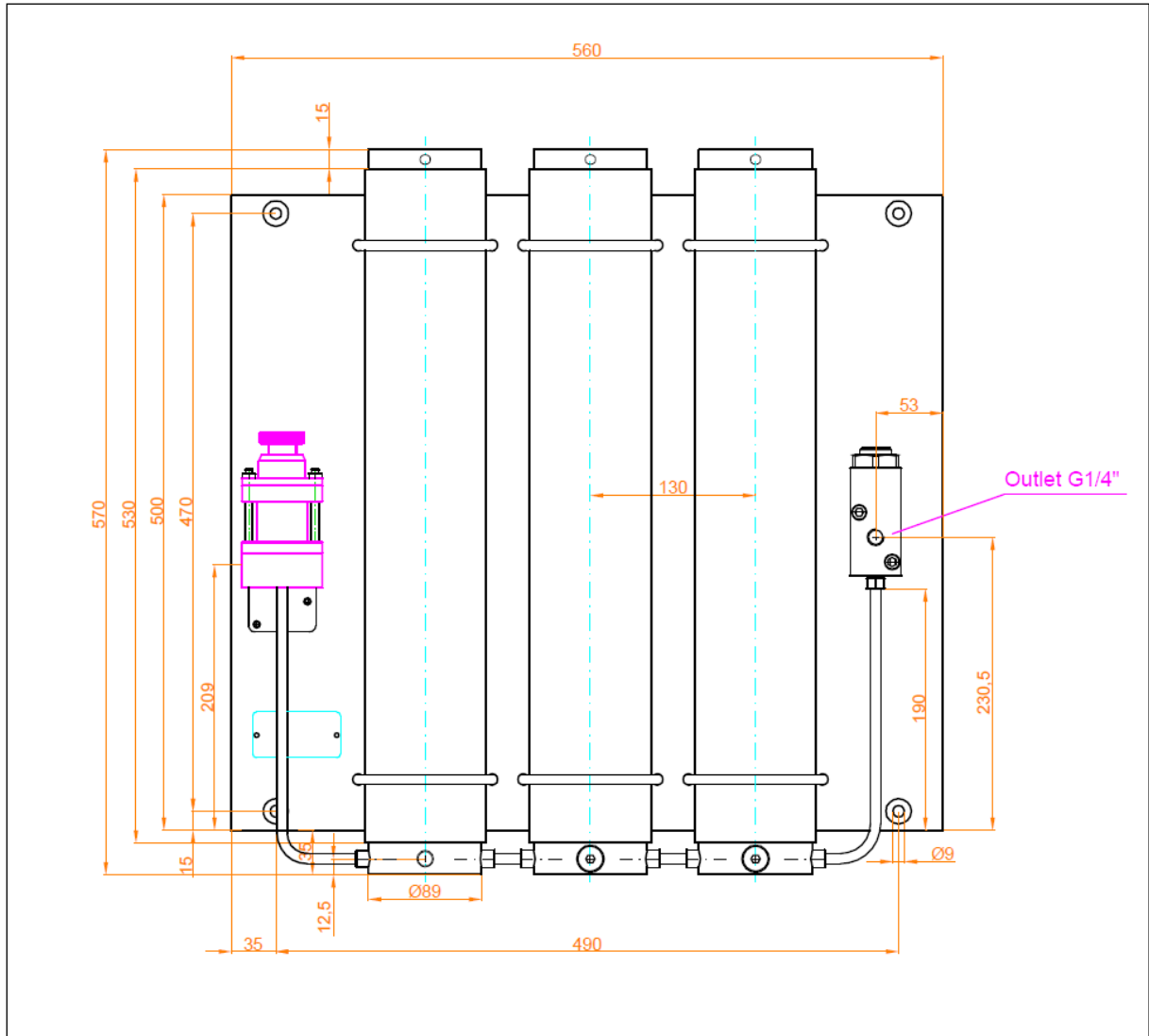
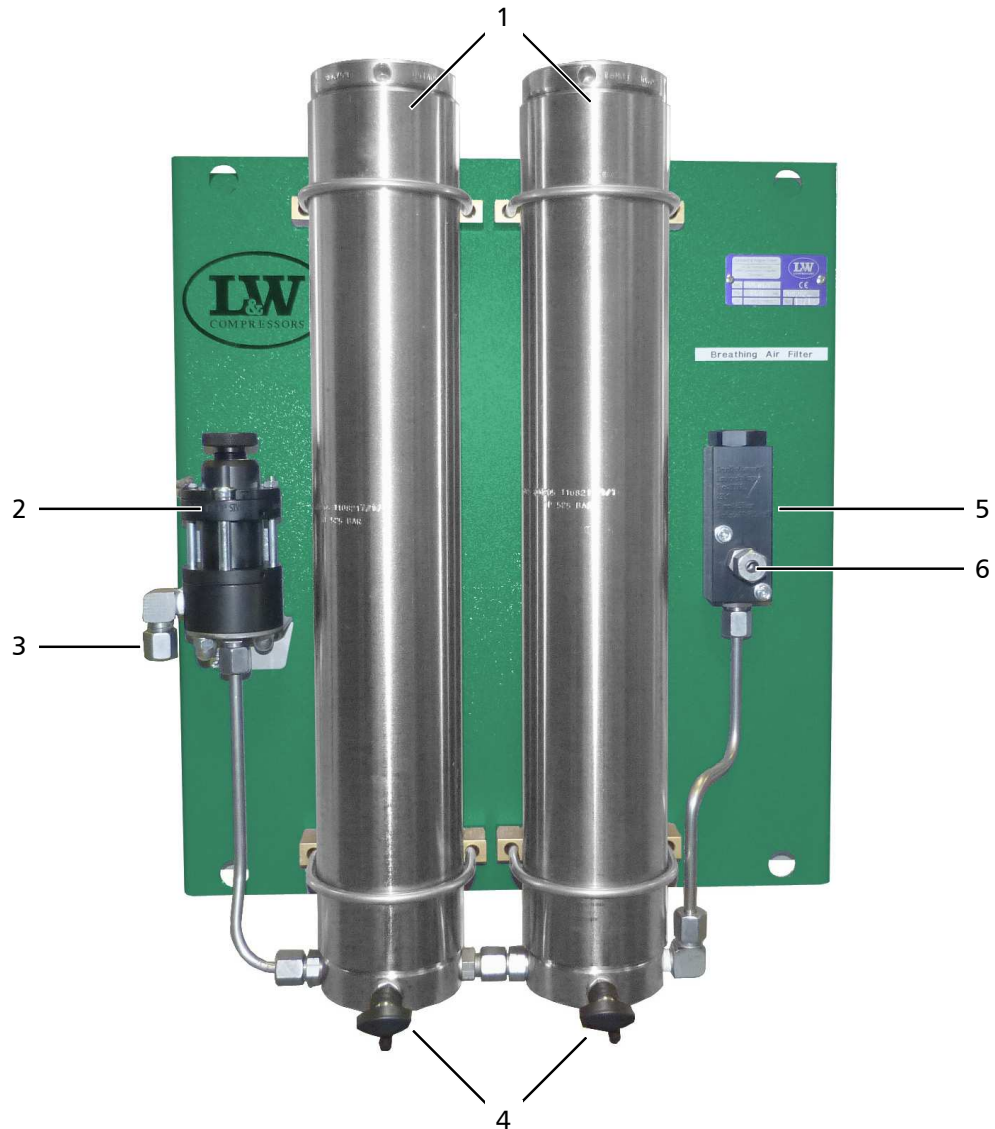


Fig. Dimensions

## DESCRIPTION

### Unit Assembly

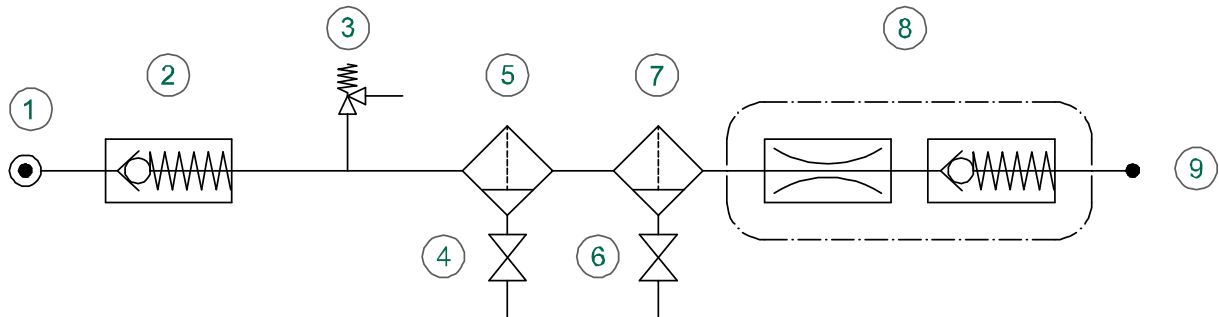


No.	Designation
1	Filterhousing
2	Safety Valve (Option)
3	Inlet Connection: 8S
4	Manual Condensate Drain Valve
5	Pressure Maintaining / Non-Return Valve
6	Outlet Connection: 8S

## DESCRIPTION

---

### Flow chart



- 
- |                                                              |                                                                    |
|--------------------------------------------------------------|--------------------------------------------------------------------|
| 1. Inlet 300 bar (Connector: 8S, M18x1.5)                    | 6. Drain Valve                                                     |
| 2. Non-Return Valve                                          | 7. Filter Housing, V= 1.7 l, c/w Molecarbon Filter Cartridge       |
| 3. Safety Valve, (Option)                                    | 8. Pressure Maintaining / -Non-Return Valve, Set Pressure: 170 bar |
| 4. Drain Valve                                               | 9. Outlet 300 bar (Connector: 8S, M18x1.5)                         |
| 5. Filter Housing, V= 1.7 l, c/w Molecarbon Filter Cartridge |                                                                    |





# SAFETY PRECAUTIONS



## **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 the use of 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 PRECAUTIONS**

---

### **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 EN 12021 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.



## **SAFETY PRECAUTIONS**

---

### **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 unit at least once per day for obvious damage and defects. Inform the responsible department / person immediately if anything is not as it should be (including operation performance). Shut down the machine immediately if necessary and lock it.
- In case of malfunction, lock it. Repair malfunctions immediately.
- Ensure safe and environmentally friendly disposal of consumables and old parts.
- The stipulated hearing protectors must be worn.
- When handling with fats, oils and other chemical agents, observe the note for the product-related safety.



## **SAFETY PRECAUTIONS**

---

### **Maintenance instructions**

- Immediately repair any damage. Escaping compressed air can cause injury.
- Depressurise system and pressure lines before beginning repair work.
- Pressurised air lines must be laid and mounted by qualified personnel. Connections must not be mixed up. Fittings, length and quality of the piping must correspond to requirements.
- Adjustment, maintenance and inspection activities and keep appointments, including information on replacement parts / equipment, prescribed in the operating instructions have to be respected.
- 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.
- After cleaning, examine all pipes for leaks, loose connections, chafing and damage. Immediately eliminate any faults.
- Always retighten any screw connections loosened for maintenance or repair work.
- If it is necessary to remove safety devices for maintenance and repair work, these must be replaced and checked immediately after completion of the maintenance or repair work.
- 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.



## **SAFETY PRECAUTIONS**

---

### **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.



# OPERATION



## OPERATION

---

### Important operation instructions



**Note**

Ensure that all persons handling the filter panel are familiar with safety regulations and operation of the unit.

### **Prior to first commissioning, observe the following:**

Necessary steps are described on the next page.

- Check all connections and retighten if necessary.
- Check if the filter cartridge is in place (see "Service and Maintenance").
- Check if all drain valves are closed.

### **Prior to daily operation observe the following:**

- Check if filter cartridge is in place / observe filter cartridge life!
- Drain the filter housing





# MAINTENANCE AND SERVICE



## MAINTENANCE AND SERVICE

---

### Service, Repair and Maintenance

Carry out service and maintenance work exclusively when the unit 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 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 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 spare parts for service work.



#### **Warning**

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



## MAINTENANCE AND SERVICE

### Maintenance Overview

Maintenance Work	Interval	Qty.	Part. No.
Drain filter housing	Daily	-	-
Replace filter cartridge	When residual water content > 25mg/m <sup>3</sup> . We recommend using a moisture measuring device to control the saturation degree.	2	1.7 l: 000002 2.3 l: 000003
Verify screws and connections if installed correctly	After 15 operating hours, continuously every 500 operating hours	-	-
Check pressure maintaining valve	Every 200 operating hours	-	-
Check safety valve (if equipped)	Every 200 operating hours	-	-
Leak-check of pressure lines	Every 200 operating hours	-	-
Clean pressure lines from contaminations	Depending on pollution grade, at least once a year	-	-
Clean filter housing and check for corrosion damage	Every 1000 operating hours - by a qualified person	-	-
Replace filter housing o-rings	Every 1000 operating hours	4	001287
Replace filter housing back-up rings	Every 1000 operating hours	4	001285

## MAINTENANCE AND SERVICE

---

### Drain filter housing



#### Note

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



#### Warning

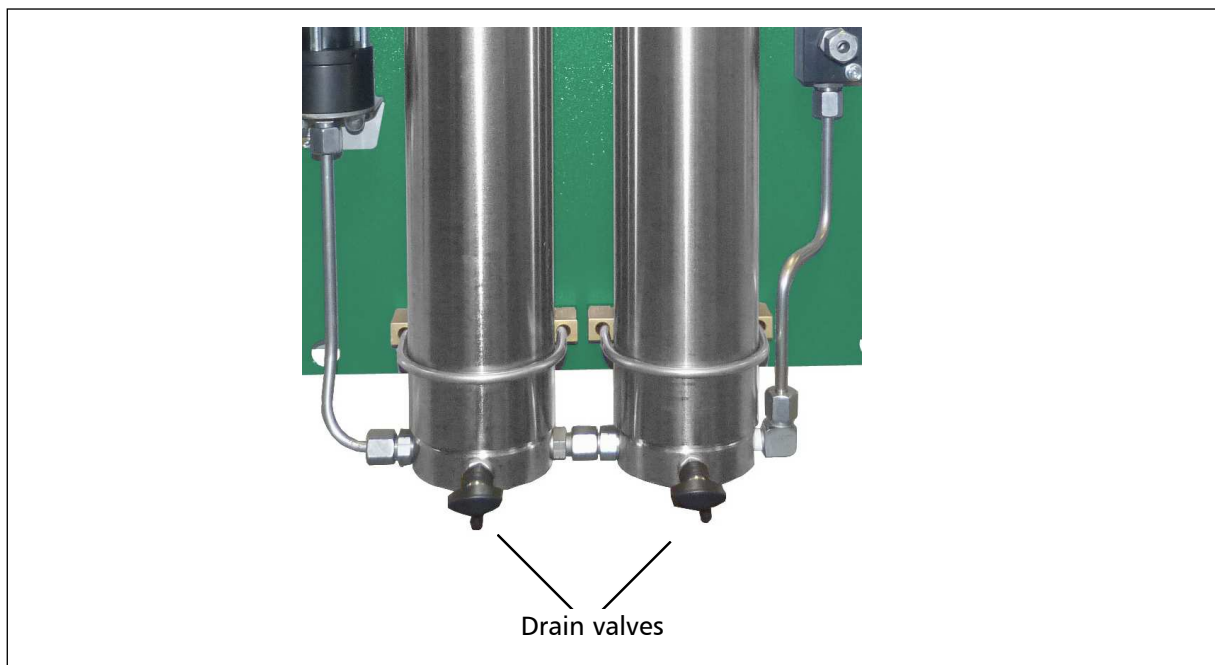
Open drain valve max. 1.5 turns. The pressure in the housing can shoot out the valve spindles at high speed.

#### Filter housing drain as follows:

- Start with the left drain valve by opening max. 1.5 turns and let it remain open until no more condensate comes out.
- Close valve.
- Repeat procedure for the right drain valve.

#### Filter housing drain is now completed.

We recommend using a condensate tank to collect the complete condensate.



Drain valves

## MAINTENANCE AND SERVICE

### Function filter housing

Inside the filter housing a jet blows air on to the housing wall. 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.



Filter housing

### Filter cartridge

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

All breathing air filter cartridges are factory 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.

### Filter life

The filter life is very much influenced by the inlet temperature and the contamination of the medium to be filtered. The indicated values refer to +20°C and an oil and water amount when the system is running properly. The pressure maintaining valve must be adjusted to a minimum opening pressure of 170 (+/- 10) bar.

#### Total service life per filter housing at +20°C:

Typ	Each 1.7 ltr. [m <sup>3</sup> ]	Each 2.3 ltr. [m <sup>3</sup> ]	Each 10 ltr. [m <sup>3</sup> ]
Breathing air (mole carbon)	900	1200	8400
Drying (molecular sieve)	1200	1600	11200
Oil removal (activated-carbon)	3600	4800	33600

Filter change at least when breathing air residual water content > 25mg/m<sup>3</sup>!

We recommend using a moisture measuring device to control the saturation degree.

## MAINTENANCE AND SERVICE

### Filter cartridge change



#### Note

The filter cartridges are vacuum sealed with metal foil. Do not use filter cartridges when packaging is damaged. Observe the expiry date.

#### Filter cartridge change as follows:

- Run the compressor up to a pressure of 100 bar.
- Stop compressor.
- Open drain valves and depressurise housings completely.
- Unscrew filter housing cover by using the special filter tool (Fig. 1).
- Place the T-piece end of the filter tool in the recess of the filter cartridge (Fig. 2).
- Unscrew the filter cartridge anti-clockwise and pull the cartridge out of the housing (Fig. 3).
- Open the packaging 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.
- Grease thread and o-ring of the closing screw lightly with silicone grease.
- 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.



#### Note

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



Fig. 1 - Unscrew the filter housing cover



Fig. 2 - Place the T-piece end of the filter key in the top of the filter cartridge.



Fig. 3 - Pull the cartridge out of the housing

## MAINTENANCE AND SERVICE

### 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.

#### Dismount filter housing

- Loosen pipe connections 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. 1 - Open Filter cover

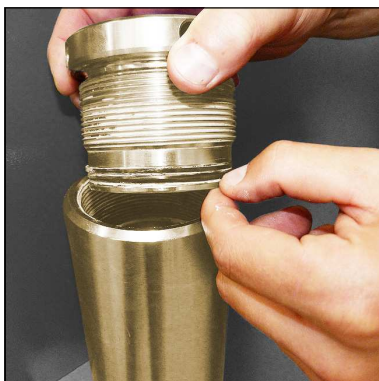


Fig. 2 - Change o-ring and back-up rings

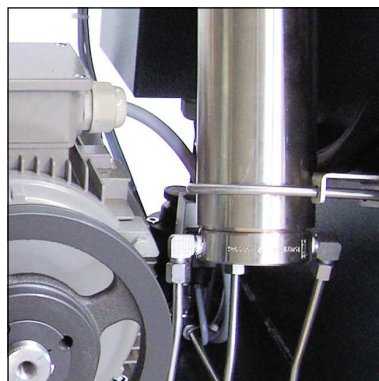


Fig. 3 - Loosen pipe connections and nuts



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

### 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 mole carbon filter housing. It maintains a pressure of at least 150 bar inside the filter housing - this optimises filter efficiency.

### 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 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.



Pressure maintaining/non-return valve



### Option: Safety valve



#### Note

Replace a defective safety valve immediately!

The filter panel can be equipped with an over pressure safety valve. The safety valve avoids a non permissible high pressure.

The adjusted blow-off pressure [bar] of the safety valve is indicated on its housing.

The safety valve is factory sealed with a special L&W safety seal 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 is furthermore equipped with a knurled screw to be activated once.

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

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



Safety valve



## MAINTENANCE AND SERVICE

---

### Test of pressure equipment

According to the Pressure Equipment Directive (PED 97/23/EC) and TÜV Darmstadt (German supervising authorities). State: 10th of December, 2005

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

$350 \text{ bar} \times 1.7 \text{ litres} = 595$

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

$350 \text{ bar} \times 2.3 \text{ litres} = 805$

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



## MAINTENANCE RECORDS

---

### Cartridge change

Date	Operating hours	Difference	Name



# MAINTENANCE RECORDS

---

## Maintenance work

Description	Date, signature



**MAINTENANCE RECORDS**

---

**Replaced Parts**

Designation	Part number	Date, signature



## **STORAGE**

---

### **Conservation / storage of the unit**

If the unit is not to be used for an extended period of time, we recommend the following conservation to be carried out before storage:

- Open condensate drain valves
- Open filter housing, lubricate thread with a food grade grease and close it afterwards.
- Store the unit in a dry and dust-free place. A cover is recommended as long as condensation can be avoided.

### **Recommissioning**

Before recommissioning the following steps have to be carried out:

- Clean pressure lines from contaminations
- Tighten all pressure lines and connections and check for leaks.
- Replace o-rings and back-up rings of the housing
- Replace intake filter cartridge.
- Check the correct function of the safety valve and pressure maintaining / non return valve.

### **Transportation notes**

- Parts which need to be dismantled for transport purposes must be carefully replaced and secured before recommissioning.
- 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.



**SPARE PARTS LISTS  
/ DETAILED VIEWS**



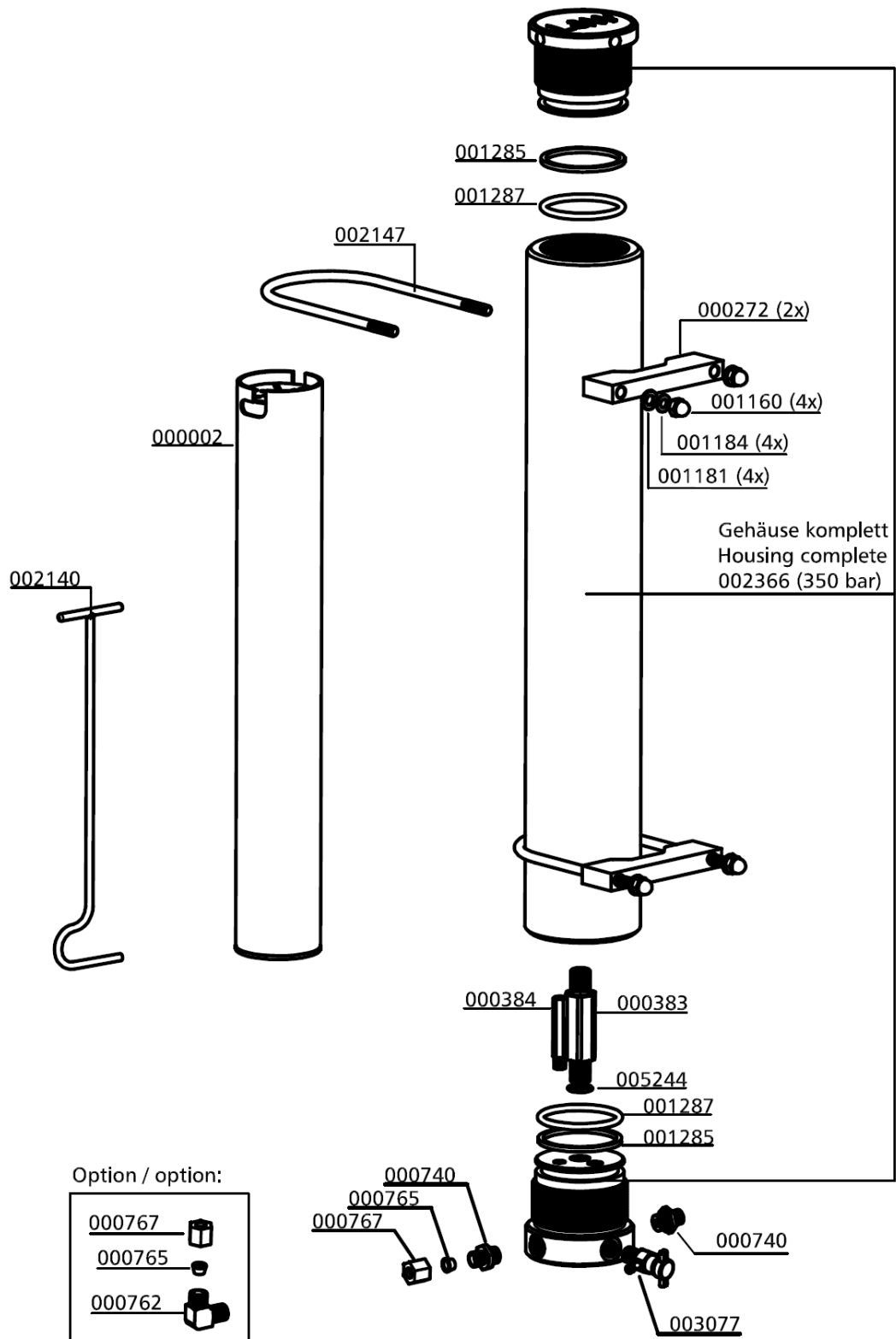
## SPARE PART LIST

### 1. Filtergehäuse 1,7 l / 1st Filter Housing 1.7 ltr

Best.-Nr. / Order No.	Benennung	Description
000002	Filterpatrone 1,7 l	Filter Cartridge 1.7 ltr
000272	Abstandshalter für Filtergehäuse	Spacer Bracket for Filtertower
000383	Messing Adapter für Filterpatrone	Brass Filter Adapter
000384	Düse Filtergehäuse	Jet Filter Housing
000740	Verschraubung GE 08 PSR 1/4"	Connection GE 08 PSR 1/4"
000762	Verschraubung WE 08 PSR 1/4"	Elbow Connection WE 08 PSR 1/4"
000765	Schneidring PSR 08 LX	Olive Seal PSR 08 LX
000767	Mutter M08SCFX	Union Nut M08SCFX
001160	Hutmutter M8 DIN1587 ZN	Domed Nut M8 DIN1587 ZN
001181	U-Scheibe A8 DIN125 ZN	Washer A8 DIN125 ZN
001184	Schnorr-Scheibe S8 N0110 ZN	Clamp Washer S8 N0110 ZN
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, beidseitig M8X35mm	Holder for filter housing, M8X35mm (both sides)
002366	Filtergehäuse, 1,7l	Filter housing 1.7ltr
003077	Kondensatablasshahn	Condensate Drain Valve
005244	O-Ring 16 x 2,5 NBR90	O-Ring 16 x 2,5 NBR90

## DETAILED VIEW

### 1. Filtergehäuse 1,7 l / 1st Filter Housing 1.7 ltr



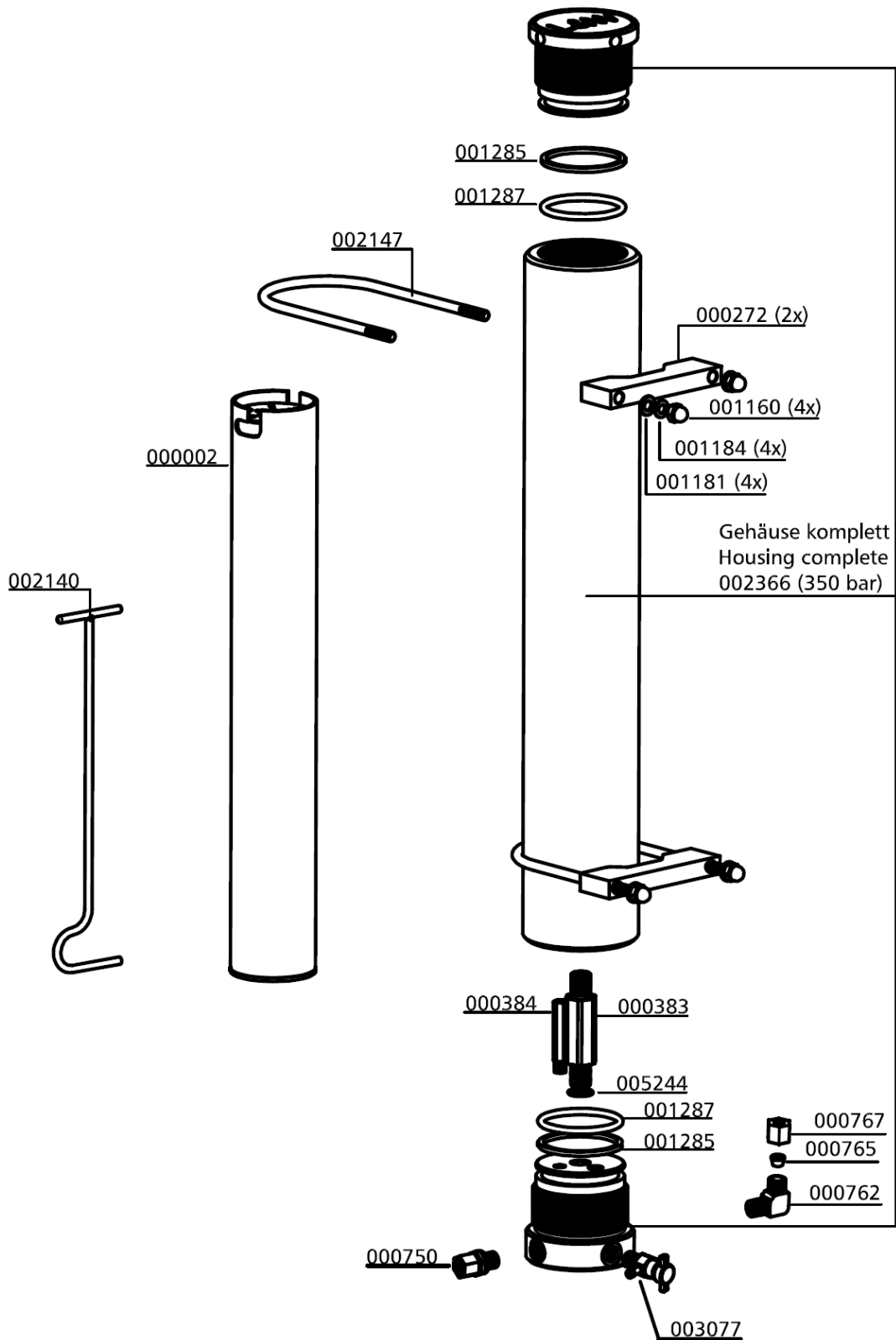
## SPARE PART LIST

### 2.-4. Filtergehäuse 1,7 l / 2nd to 4th Filter Housing 1.7 ltr

Best.-Nr. / Order No.	Benennung	Description
000002	Filterpatrone 1,7 l	Filter Cartridge 1.7 ltr
000272	Abstandshalter für Filtergehäuse	Spacer Bracket for Filtertower
000383	Messing Adapter für Filterpatrone	Brass Filter Adapter
000384	Düse Filtergehäuse	Jet Filter Housing
000750	Verschraubung EGE 08 PSR 1/4"	Connection EGE 08 PSR 1/4"
000762	Verschraubung WE 08 PSR 1/4"	Elbow Connection WE 08 PSR 1/4"
000765	Schneidring PSR 08 LX	Olive Seal PSR 08 LX
000767	Mutter M08SCFX	Union Nut M08SCFX
001160	Hutmutter M8 DIN1587 ZN	Domed Nut M8 DIN1587 ZN
001181	U-Scheibe A8 DIN125 ZN	Washer A8 DIN125 ZN
001184	Schnorr-Scheibe S8 N0110 ZN	Clamp Washer S8 N0110 ZN
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, beidseitig M8X35mm	Holder for filter housing, M8X35mm (both sides)
002366	Filtergehäuse, 1,7l	Filter housing 1.7ltr
003077	Kondensatablasshahn	Condensate Drain Valve
005244	O-Ring 16 x 2,5 NBR90	O-Ring 16 x 2,5 NBR90

## DETAILED VIEW

### 2.-4. Filtergehäuse 1,7 l / 2nd to 4th Filter Housing 1.7 ltr





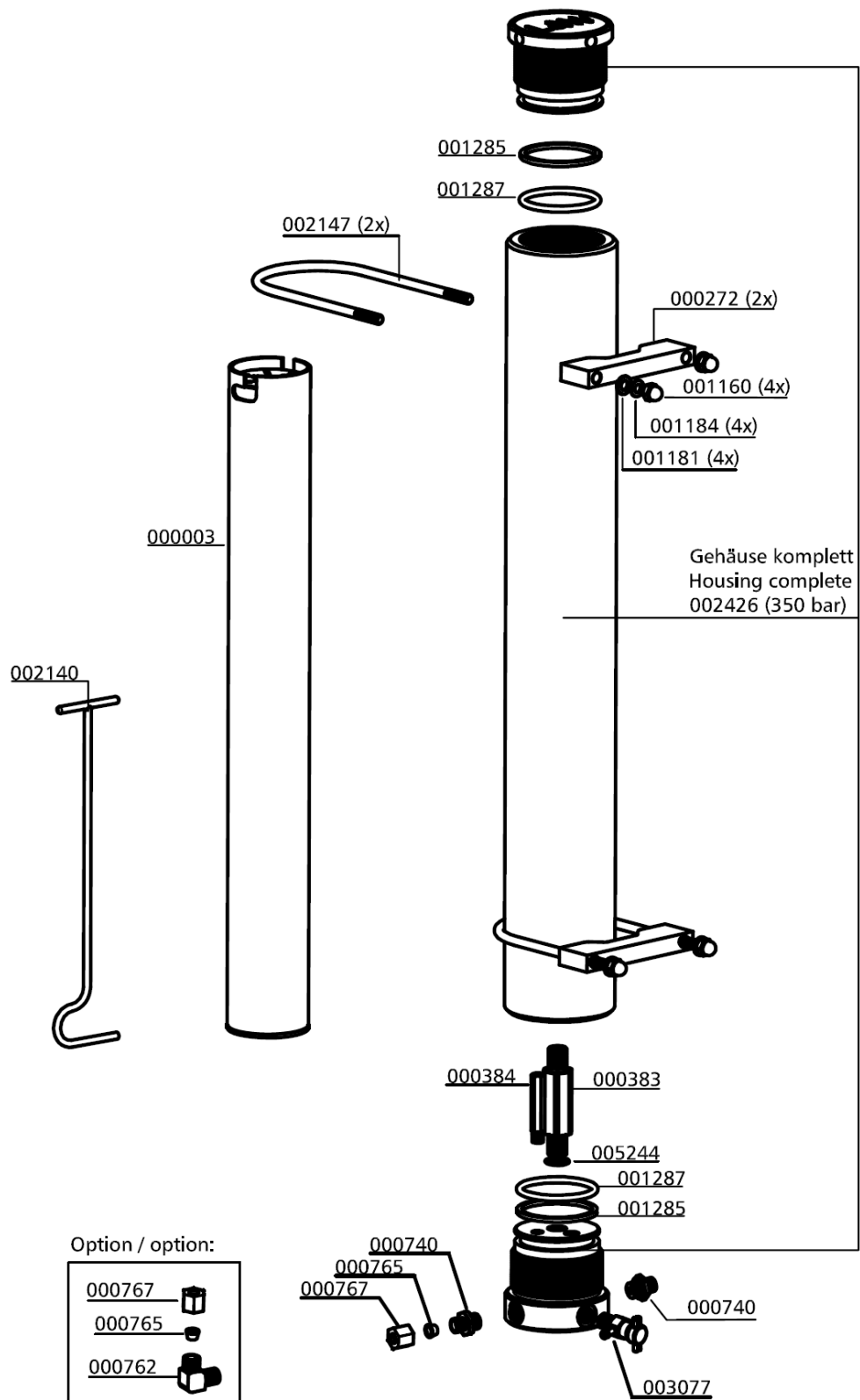
## SPARE PART LIST

### Filter Housing 2.3 ltr

Best.-Nr. / Order No.	Benennung	Description
000003	Filterpatrone 2,3l	Filter Cartridge 2.3ltr BA
000272	Abstandshalter für Filtergehäuse	Spacer Bracket for Filtertower
000383	Messing Adapter für Filterpatrone	Brass Filter Adapter
000384	Düse Filtergehäuse	Jet Filter Housing
000738	Verschraubung GE 08 PLR 1/4"	Connection GE 08 PLR 1/4"
000761	Verschraubung WE 08 PLR CFX 1/4"	Elbow Connection WE 08 PLR CFX 1/4"
000765	Schneidring PSR 08 LX	Olive Seal PSR 08 LX
000767	Mutter 08 S	Union Nut 08 S
001159	Stopfmutter M8 DIN985 ZN	Lock Nut M8 DIN985 ZN
001181	U-Scheibe A8 DIN125 ZN	Washer A8 DIN125 ZN
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, beidseitig M8X35mm	Holder for filter housing, M8X35mm (both sides)
002426	Filtergehäuse, 2,3l	Filter housing 2.3ltr
005244	O-Ring	O-Ring

## DETAILED VIEW

### 1. Filtergehäuse 2,3 l / 1st Filter Housing 2.3 ltr



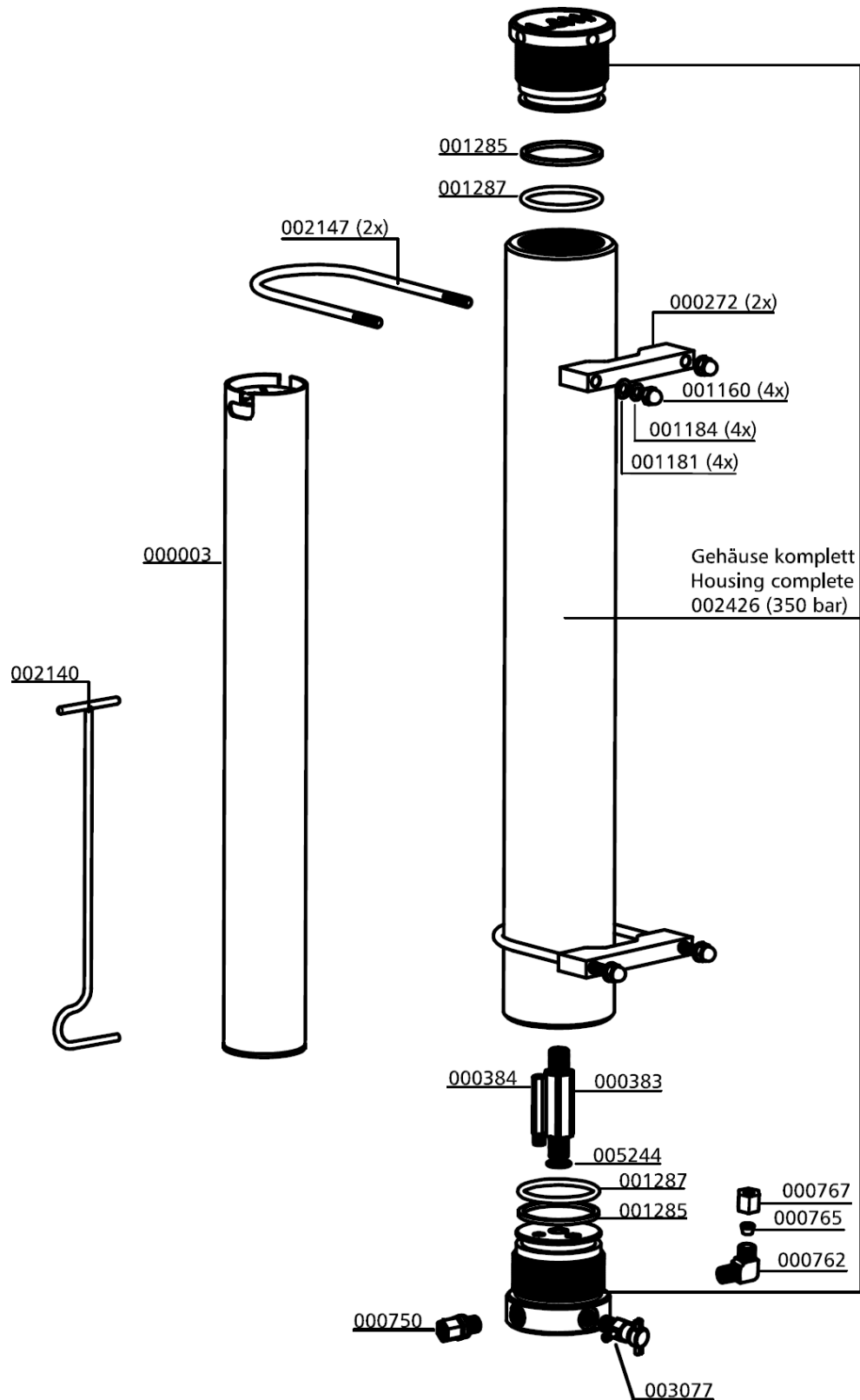
## SPARE PART LIST

### 2.-4. Filtergehäuse 2,3 l / 2nd to 4th Filter Housing 2,3 ltr

Best.-Nr. / Order No.	Benennung	Description
000003	Filterpatrone 2,3 l	Filter Cartridge 2.3 ltr
000272	Abstandshalter für Filtergehäuse	Spacer Bracket for Filtertower
000383	Messing Adapter für Filterpatrone	Brass Filter Adapter
000384	Düse Filtergehäuse	Jet Filter Housing
000750	Verschraubung EGE 08 PSR 1/4"	Connection EGE 08 PSR 1/4"
000762	Verschraubung WE 08 PSR 1/4"	Elbow Connection WE 08 PSR 1/4"
000765	Schneidring PSR 08 LX	Olive Seal PSR 08 LX
000767	Mutter M08SCFX	Union Nut M08SCFX
001160	Hutmutter M8 DIN1587 ZN	Domed Nut M8 DIN1587 ZN
001181	U-Scheibe A8 DIN125 ZN	Washer A8 DIN125 ZN
001184	Schnorr-Scheibe S8 N0110 ZN	Clamp Washer S8 N0110 ZN
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, beidseitig M8X35mm	Holder for filter housing, M8X35mm (both sides)
002426	Filtergehäuse, 2,3l	Filter housing 2.3ltr
003077	Kondensatablasshahn	Condensate Drain Valve
005244	O-Ring 16 x 2,5 NBR90	O-Ring 16 x 2,5 NBR90

## DETAILED VIEW

### 2.-4. Filtergehäuse 2,3 l / 2nd to 4th Filter Housing 2,3 ltr







## SPARE PART LIST

---

### Sicherheitsventil / Safety Valve

Best.-Nr. / Order No.	Benennung	Description
000234	Sockel für Sicherheitsventil mit TÜV/CE	Base f. Safety Valve TÜV
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
000740	Verschraubung	Connection
001044	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

## DETAILED VIEW

### Sicherheitsventil / Safety Valve

SV-Ventil mit CE-Prüfung

Safety Valve with CE

225 bar 001814

250 bar 001815

285/300 bar \_\_\_\_\_

330 bar 001816

350 bar 001817

Sonder-Einstelldrücke auf Anfrage! /

Special relieve pressures are available on request!

SV-Ventil mit TÜV-Prüfung/

Safety Valve with TÜV

225 bar 000553

250 bar 000554

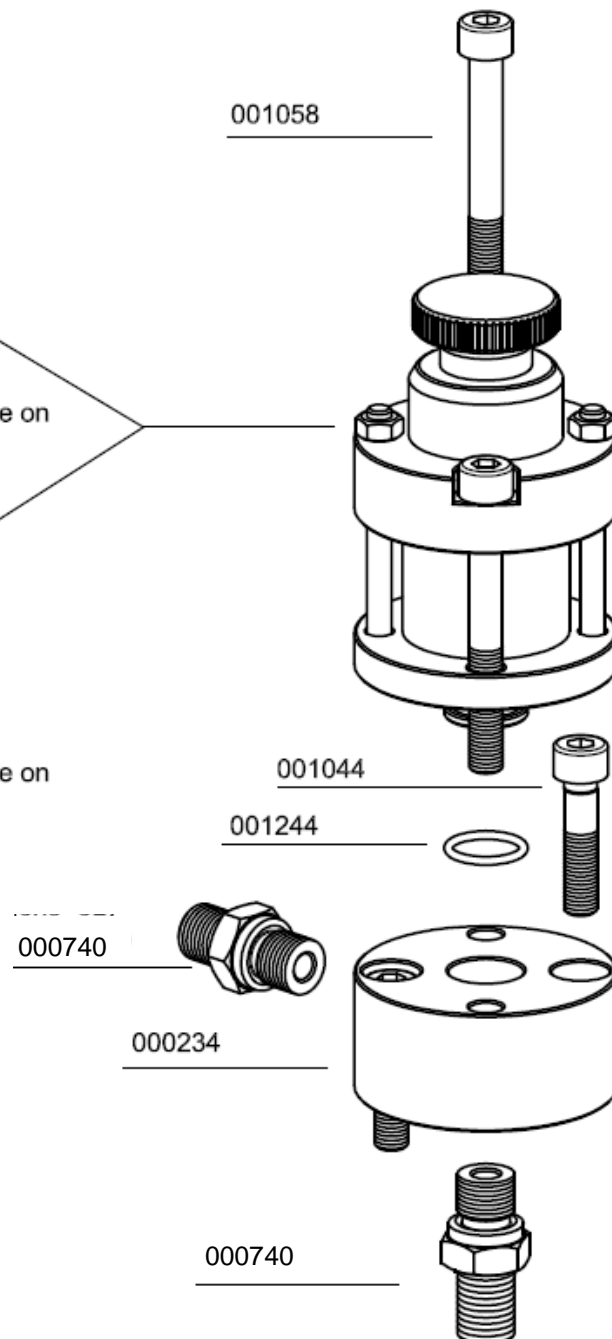
285/300 bar 000555

330 bar 000556

350 bar 000557

Sonder-Einstelldrücke auf Anfrage! /

Special relieve pressures are available on request!





## SPARE PART LIST

### Pressure Maintaining Valve

Best.-Nr. / Order No.	Benennung	Description
000169	Druckhalterückschlagventil, schwarz	Pressure Maint. Valve black
000498	U-Scheibe DIN 125 A6	Washer DIN 125 A6
000506	Feder	Spring
000508	USIT Ring 13,7 x Ø20 x 1,5	Gasket Ring U-Sit 13,7 x Ø20 x 1,5
000511	Mutter, Druckhalterückschlagventil	Lock Nut PMV
000512	Schraube, Druckhalte-Rückschlagventil	Set Bolt PMV
000513	Druckstück für Druckhalteventil, Federadapter	Spring Adapter PMV, spring adapter
000514	Stift Druckhalte-/Rückschlagventil	Stud PMV
000515	Gehäuse, Druckhalte-Rückschlagventil	Main Body PMV
000516	Nutring, Druckhalterückschlagventil 5 x 10 x 5/2,5 90° Blau	Seal Ring PMV 5 x 10 x 5/2,5 90° blue
000517	Feder, Druckhalterückschlagventil	Coil Spring PMV
000518	Unterlegscheibe, 10 x 6 x 1, Messing	Washer, 10 x 6 x 1, Brass
000519	Dichtkappe, Druckhalte Rückschlagventil, schwarz	Plastic Seal Piston PMV, black
000520	Hohlschraube, DHRV	Inlet Jet PMV
000765	Schneidring PSR 08 LX	Olive Seal PSR 08 LX
000767	Mutter 08 S	Union Nut 08 S
001023	Zylinderschraube	Allen Bolt

## DETAILED VIEW

### Pressure Maintaining Valve

