

**SealBoss®**

# **INJECTION PUMP SL1C**

**Operating Manual**

## Operating Instructions

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# Operating Instructions

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## 1.0 General

### Overview:

This section contains the following subsections:

- 1.1 Foreword
  - About the document
- 1.2 Details of manufacturer and contact person
- 1.3 Type description

## 1.1 Introduction

We are delighted that you have chosen a SealBoss Corp. device.

This manual is intended for use by operating and maintenance personnel. It contains important information necessary for the safe handling of the device.



**The machine operator must ensure that this manual is always available to the operating and maintenance personnel in a language that they understand.**

In addition to the operating instructions, additional information is essential for the safe use of this equipment:

- Please refer to the respective guidelines for your country.
- Furthermore, always observe the manufacturer's instructions and processing guidelines for conveying materials.

SealBoss Corp. recommends supplementing this manual with all relevant guidelines and accident prevention regulations. If problems occur with this device, or if questions arise, we will be happy to provide assistance.

## 1.2 Details of the manufacturer and contact person

SealBoss Corp.

Tel: +1 714 662 4445  
Fax: +1 714 662 4446  
Email: [info@sealboss.com](mailto:info@sealboss.com)  
Website: [www.sealboss.com](http://www.sealboss.com)

## 1.3 Type description

These operating instructions apply to the following machines:

Machine: SealBoss SL1C

## 2.0 Safety

### Overview:

This section contains the following subsections:

- 2.1 Designations used for instructions in the operating manual
  - Symbols
  - Signal words
- 2.2 Personal qualifications
- 2.3 Dangers of non-compliance with safety information
- 2.4 Safety-conscious work behavior
- 2.5 Safety instructions for the operator
- 2.6 Safety instructions for inspection and installation work
- 2.7 Unauthorized modification and manufacture of spare parts
- 2.8 Unauthorized operating modes
- 2.9 In case of emergency
- 2.10 Handling machines and auxiliaries
- 2.11 Basic hazards / hazardous locations

### 2.1 Designations used for the instructions in the operating manual

#### Symbols:



#### **WARNING!**

This symbol indicates that damage to the machine, the material, or the surroundings may occur.



#### **WARNING harmful!**

This symbol indicates that there may be health risks for humans and animals. Contact with the processed material or cleansing agent may lead to severe skin irritation.



#### **DANGER! (General danger symbol)**

This symbol indicates basic health risks to personnel. Potentially fatal hazards are indicated separately by the words "LIFE THREATENING"



#### **DANGER!**

This symbol indicates that there is electrical danger to the health of individuals because of electrical voltages. Potentially fatal hazards are indicated separately by the words "LIFE THREATENING"



#### **DANGER!**

Warning of an area in which explosive atmospheres may arise, in accordance with 1999/92/EC

# Operating Instructions



## **DANGER!**

This symbol indicates that there may be danger of slipping in these areas.



## **DANGER!**

This symbol indicates that burns or frostbite may occur if the hot or cold surfaces are touched.



## **DANGER!**

This symbol indicates that serious injury from clamping or crushing can occur.



## **DANGER!**

This symbol indicates that the machine may lead to posture problems during operation.



## **DANGER!**

This symbol indicates that there may be the exit of fluid under pressure.



## **PLEASE NOTE**

Useful information for handling the product. Here, potential problems are highlighted.



## **Wear protective clothing**

This symbol indicates that standard protective clothing must be worn.  
This can prevent skin injuries resulting from sprayed material.



## **Wear safety shoes**

This symbol indicates that safety shoes must be worn.  
Foot injuries resulting from falling or rolling objects can thus be prevented.



## **Wear protective gloves**

This symbol indicates that protective gloves must be worn.  
Skin injuries resulting from contact with the material can thus be prevented.



## **Wear safety goggles**

This symbol indicates that safety goggles must be worn.  
Eye injury resulting from splashes, vapor, or dust can thus be prevented.



## **Use hearing protection**

This symbol indicates that in the interest of your health, these instructions must be observed.



## **FIRST AID**

The instructions must be strictly followed in the case of injuries and accidents.

### **Signal words:**

#### **DANGER!**

Acutely hazardous situation. Non-compliance may lead to death or serious injury.

#### **WARNING!**

The user can suffer (serious) injuries. 'Warning' implies that (serious) personal injury is likely if the information is ignored.

#### **CAUTION!**

There is a risk of damage to the product/system. 'Caution' implies that damage to the product may result from non-compliance.

#### **NOTE**

Useful information on handling the product. Potential problems are also highlighted.  
Information attached directly to the product, e.g.

- rotational arrows,
- nameplate,
- warning labels,
- information labels

**must be observed and maintained in a legible condition.**

## 2.2 Personnel qualifications

The personnel responsible for installation, operation, and maintenance must be suitably qualified for this work. Individuals under 16 years of age may not operate the machine. The areas of responsibility, accountability, and supervision of the personnel shall be ensured by the operator. Personnel who do not have the necessary knowledge shall be trained and instructed. If necessary, this can be done by the manufacturer of the product on behalf of the operator.

Individuals under the influence of alcohol, medication, or drugs are “not authorized” to work on or with the machine.

### Minimum requirements: Installation and maintenance

#### mechanical:

- Sufficient basic knowledge of mechanics
- Completed training such as an industrial mechanic
- Must be familiar with the machine and its technology
- Must have read and understood this operating manual

#### electrical:

- Adequate basic knowledge of electrical engineering
- Completed training as an electrician
- Must be familiar with the machine and its technology
- Must have read and understood this operating manual

### Minimum requirements: Operation

- Sufficient knowledge of injection technology
- Must have read and understood this operating manual
- Must be familiar with the machine and its technology

## 2.3 Dangers resulting from failure to comply with safety instructions

Non-compliance with the safety instructions can result in danger to persons, the environment, and the product. Failure to follow the safety instructions shall result in the loss of any claims for damages. Non-compliance may result in the following hazards:

- Personal injury caused by electrical, mechanical, and bacteriological incidents;
- environmental risks caused by leakage of hazardous substances;
- property damage;
- failure of important functions of the product/system;
- failure of prescribed maintenance and repair procedures.

## 2.4 Safety conscious working practice

The safety instructions contained in this operating manual and the relevant national accident prevention regulations, as well as any internal provisions for work, operation, and safety of the operator must be observed.



In case of injury, immediately consult a doctor or visit the nearest hospital. If a processing material or cleansing agent penetrates the skin, the doctor should be informed through the respective medium.



Machine operators are obliged to report to the company any change to the machine that could adversely affect safety, because the company is responsible for the functionality of the machine.



The sound pressure level of this machine at a distance of 1m is **78 dB (A)** and thus under **80 dB (A)**. Appropriate soundproofing agents should still be used. The sound pressure level was determined according to EN ISO 11200 (using basic standard 11203).



## 2.5 Safety instructions for the operator

This device is not intended for use by individuals (including children) with reduced physical, sensory, or mental capabilities. It may also not be used by individuals who lack experience and/or knowledge unless they are supervised by a person responsible for their safety or have received instructions on how to use the device. Individuals under 16 years of age must be supervised to ensure that they do not play with the device.

- It is important to ensure that the machine is operated in a reasonable manner.
- Machines must not be operated by individuals who are tired or under the influence of alcohol, drugs, or medication.
- Protection against moving components (e.g. pistons) should not be removed while the machine is operating.
- Danger from electric power should be eliminated. Local or general regulations (e.g. IEC or VDE) as well as those of the local energy supply company must be observed.
- The area in the vicinity of the machine must be kept free of foreign particles in order to reduce the likelihood of a fire or explosion caused by the contact of foreign particles with the hot surfaces of the device. Please contact the manufacturer for further information.
- In case of doubt concerning the function or adjustment of components of the equipment, please consult the manufacturer immediately.
- Personal protective equipment and safety goggles must be worn at all times when working with the machine.
- The machine should be maintained with care. Moving parts should not jam or be broken; they should be checked for proper functioning.

## 2.6 Safety instructions for inspection and installation work

The operator must ensure that all installation and maintenance work is performed by authorized and qualified personnel who have studied the operating instructions and are sufficiently informed of their contents. Work on the injection machine must only be performed when it has been shut down. The procedure for shutting down the product described in the installation and operating instructions is to be strictly followed. Immediately after completing work, all safety and protective devices are to be re-installed and re-enabled.

## 2.7 Unauthorized modification and manufacture of spare parts

The unauthorized modification and manufacture of spare parts endanger the safety of the product/personnel and invalidate the manufacturer's safety instructions. The product may be modified only after consulting the manufacturer. Original spare parts and accessories authorized by the manufacturer ensure safety. The manufacturer shall bear no liability for consequences arising from the use of unauthorized parts.



### **DANGER!**

Faulty, damaged or unauthorized accessories may result in serious injury.

## 2.8 Unauthorized modes of operation

The safety of the delivered product is guaranteed only if it is used as directed in the operating manual. The limit values specified in the catalogue/data sheet must not be undershot or exceeded under any circumstances.

## 2.9 Course of action in an emergency

### **Machine-based:**



### **Caution!**

If the machine malfunctions, the pressure should be released and the machine should be shut down immediately.

- Any returning/recirculating ball valves should be opened.
- Ball valves at each injection head should be opened.
- Read Operating Instructions, (**See 11.0 Malfunction**)
- Notify qualified personnel
- Seek information from the manufacturer

## Person-related:



### Warning:

In the event of injury or poisoning, immediately provide first aid.

- Bleeding wounds should be cleaned immediately. If necessary, an emergency doctor should be notified.
- For more severe injuries (head injury, infection, allergic reaction, or poisoning), an emergency doctor should be notified and first aid should be provided.

## 2.10 Dealing with the machine and auxiliary equipment



### Caution!

Information in the technical data sheets of the auxiliary equipment must also be observed and adhered to.

### Installation, care, maintenance, and repair work

- Installation, care and cleaning work may only be carried out by qualified or trained personnel.
- Maintenance and repair work may only be carried out by trained and qualified personnel.
- After completion of work, the function of all safety devices as well as the correct operation of the machine must be ensured.

### Dealing with auxiliary equipment

- When dealing with the materials to be processed, detergents, oils, greases, and other chemical substances, the safety and dosing information of the respective manufacturer as well as the generally applicable regulations should be observed.
- Unused cleansing agents, oils, greases, and other chemical substances should be recycled or disposed of in accordance with the legal provisions.
- The local waste water protection laws apply.

## 2:11 Basic hazards / hazardous locations

This describes in which areas and between which parts hazards can occur during use.



### Danger of finger and hand injuries

#### Eccentric-bearing combination

- It is prohibited to use the machine without a screwed-on cover!
- Before any work is performed on the machine, the mains plug must be taken out!



### Warning of hot surfaces

#### Machine components can become very hot during operation

- Allow it to cool before starting work on the machine
- Wear safety gloves

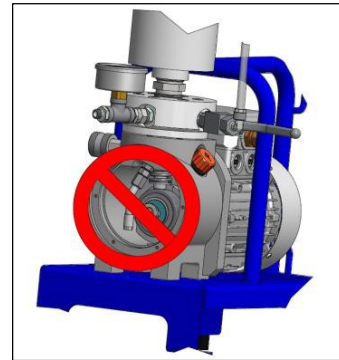


Fig.2.11.1



### WARNING of skin and eye damage and possible poisoning

#### There is danger of contact with the respective processing or cleaning agent

- Safety information of the respective processing or cleaning agents must be observed!
- Safety gloves / goggles must be worn.

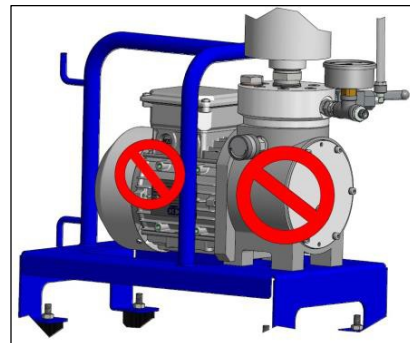


Fig.2.11.2

## 3.0 Transport

### Overview:

This section contains the following subsections:

- 3.1 Delivery
  - Transport inspection
  - Storage
- 3.2 Transport for installation / removal purposes

### 3.1 Dispatch

The machine is supplied from the factory in a cardboard box lashed on a pallet, and protected from dust and moisture.

**Transport inspection:** Upon receiving the pump, it should be checked immediately for damage from transit. If damage from transit is discovered, the necessary steps should be taken with the carrier or manufacturer within the deadlines.

**Storage:** Before use or in storage, the pump must be kept dry, in a frost-free environment, and protected from mechanical damage.



#### **CAUTION! Risk of injury when opening the packaging**

Injuries can occur when cutting through the straps.

- Take up an appropriate position so that no injury results when cutting the straps.
- When cutting through the straps, it is important to ensure that no other persons are in the hazard zone.
- Use protective gloves and goggles



#### **CAUTION!**

If the pump is transported again at a later time, it must be securely packed.

- The original packaging or equivalent packaging should be used for this purpose.

### 3.2 Transport for purposes of installation / disassembling



#### **WARNING!**

Risk of injury due to “heavy weight”! Improper transport can lead to injury. Both the machine itself as well as its components can be extremely heavy. There is a risk of potentially fatal cuts, bruises, contusions, or blows from falling components.

- Always use suitable lifting equipment, and secure parts to prevent them falling.
- Never stand under suspended loads.
- Always safeguard the machine against overturning or collapsing
- Wear protective gloves and safety shoes



## 4.0 Intended use

**Purpose:** The electric membrane pump is intended solely for professional use. All safety instructions indicated in the operating manual should be adhered to.

**Starting materials:** The materials that may be processed are:

- EP resins
- PUR foams
- PUR resins
- aqueous solutions

**Applications:** the injection works

- Crack injection

**Environmental requirements:** Care must be taken to ensure the following:

- Controls must be freely accessible
  - Adequate ventilation must be ensured
  - The machine must stand level and stable; tipping or rolling away should be prevented.
  - The machine should only be installed and used where no objects can fall on it.
  - This must be additionally ensured if the machine is operated above ground. It must also be ensured that there is no risk of falling components or accessories.
  - When working outdoors, the machine must be protected from severe weather.
  - Wheels, supports, and foundations should not sink into the ground.
  - Climatic conditions from 5 ° to 45 ° C
- It is important that the specifications of the technical data sheets of the respective processing materials are adhered to.**
- Maximum 1000 m above sea level



### Important information!

The safety data sheet of the medium to be used must always be observed. Furthermore, the cleaning agent specified by the manufacturer must be used.



### DANGER!

In accordance with 1999/92/EC, the machine must not be operated in "any" areas of explosive atmospheres.

- Pumps without Ex approval are **"not"** suitable to be operated in an explosive atmosphere.



### CAUTION! Risk of material damage!

The use of prohibited substances on the medium can damage the pump. Abrasive solids (e.g. reactive material residues) increase wear on the pump.

- It must be ensured that no foreign matter or other contaminants get into the machine.
- A material sieve should always be used in the intake.
- Compliance with these instructions also includes intended use.
- Any other use is considered improper.



### WARNING!

When the machine is operated above ground, there can be **"LIFE THREATENING RISK"** for individuals standing directly below the machine.

- caused by falling of the machine
- by falling of separate components
- by falling accessories

## 5.0 Information concerning the injection device

### Overview:

This section contains the following subsections:

- 5.1 Technical specifications
- 5.2 Scope of Delivery
- 5.3 Accessories
- 5.4 Warranty
- 5.5 EC Declaration of Conformity

### 5.1 Technical specifications

Injection machine: Design -230V-	
Power requirement	230V / 50Hz
Engine power	0.37 kW
Rotational speed	1400 rpm.
Operating pressure - infinitely variable	5-200 bar
Output	Max. 1.9 l/min.
Weight	22 kg
Height / width / length	(cm) 75/28/58

Injection machine: Design -110V-	
Power requirement	110V / 60Hz
Engine power	0.37 kW
Rotational speed	1680 rpm
Operating pressure - infinitely variable	5-200 bar
Output	Max. 1.6 l/min.
Weight	22 kg
Height / width / length	(cm) 75/28 / 58

### 5.2 Scope of delivery

- Transport structure
- Manometer combination with pressure gauge 0-250 bar
- 6 litre material container with material sieve
- 5 m HP material hose Ø6 mm
- HD-ball valve with mouthpiece
- Operating Instructions

#### Advantages:

- Large membrane - wear-resistant
- Large-diameter material passages - high flow rate
- Valve technology - also suitable for highly viscous materials
- Precise pressure setting - by an exact working pressure control valve
- Can also be used as a spraying device

### 5.3 Accessories



#### PLEASE NOTE

Accessories for the machine vary according to application and material. We will be happy to select the appropriate accessories for you to be able to achieve optimal injection performance if you provide us with details of the material and manufacturer.

#### General:

- Hydraulic oil HLP 68 (cleaning) 1 litre / 5 litre
- Hydraulic oil DTE 16M for hydraulics 1 litre / 5 litre
- Replacement devices and parts subject to wear
- Tool-Set
- HD-injection gun with pressure gauge 0-250 bar
- HD-injection gun without pressure gauge





## 6.0 Description and operation

### Overview:

This section contains the following subsections:

- 6.1 Description of the product
  - General
  - Operating principle of a membrane pump
  - Component descriptions

### 6.1 Description of machine

#### General:

The compact, robust and powerful LE-303 membrane pumps are designed for professional use on construction sites. The peculiarity of the membrane pump is the large membrane area and the generously dimensioned intake, which facilitates sucking highly viscous materials. Another special feature is the return ball valve, which allows depressurization of the entire pump and the material hose.

#### Operating principle of a membrane pump:

The membrane pump is a pump which is either mechanically, hydraulically or pneumatically operated. Moving the membrane causes the pumping chamber between the membrane and the inlet valve (intake valve) to fill with the respective medium that is then transported further by pumping via an outlet valve.

The advantage is that the injection material is separated from the drive, defined pressures can be achieved, and the material is treated carefully while it is pumped.

#### Component description:

- Membrane
- Intake valve
- Pressure control valve
- Pressure gauge combination

#### Membrane:

The large membrane is designed so that it is relatively resistant to wear when properly handled. The membrane is moved by a hydraulic oil, which is responsible for the upward and downward movement.

#### Intake valve:

The generously dimensioned intake valve is designed so that a process of highly viscous materials is made possible.

The construction of the valve is purely mechanical. Between the membrane and the suction, negative pressure is created by the up and down movement. Through this, the valve plunger of the valve is pulled down, and the processing material is sucked in. The valve is closed by a special compression spring which brings the valve stem into the closed valve position.

#### Pressure control valve:

By using the pressure control valve, the operating pressure of the membrane pump can be set precisely. It regulates the flow of hydraulic oil which is responsible for the function of the membrane pump. The structure of the pressure regulating valve is mechanical, a type of needle is screwed off or into place. As additional support a compression spring has been installed.

#### Pressure gauge combination:

The installed pressure gauge combination primarily serves as a pressure control for the set processing pressure. This can be accurately read via the installed 0-250 pressure gauge.



## 7.0 Installation

### Overview:

This section contains the following subsections:

- 7.1 Safety devices/equipment

### 7.1 Safety devices:

The machine is equipped with the following safety devices. These must not be removed or manipulated under any circumstances:

- Overload protection
- Rubber buffer
- Motor protection cover
- Protective enclosure
- HD Ball valves



**Always pay attention to proper functioning of the safety devices!  
The machine must not be operated with defective safety devices!**

### Safety:



#### **DANGER! Risk of death!**

Improper installation and improper electrical connections can be life-threatening.

- Electrical connection may only be performed by licensed electricians and in accordance with the applicable regulations!
- Observe the regulations for the prevention of accidents!



#### **DANGER! Risk of death!**

If protection devices are not installed on the pneumatic controllers or the entire injection unit, serious injury may result. In some circumstances this can be life threatening.

- Before startup and after maintenance work, any safety devices that have been removed (e.g. terminal box covers or coupling covers) must be reinstalled.
- Keep your distance during startup.
- Wear protective clothing, protective gloves, safety shoes, and goggles for all work.



#### **DANGER!**

In accordance with 1999/92/EC, the machine must not be operated in "any" areas of explosive atmospheres.

## 8.0 Startup procedure

### Overview:

This section contains the following subsections:

- 8.1 Preparations for initial start up
  - Check and refill the hydraulic unit
  - Bleeding the hydraulic unit
- 8.2 Procedure
  - Bleed intake valve
  - Attach connectors
  - Next procedure, starting up
- 8.3 Checks after the initial start up

### Safety:



#### **CAUTION! Danger of damage to the pump!**

Dry running will destroy the sealing elements.

- Ensure that no solids (debris) get into the pump
- Regularly check the oil level of the hydraulic unit and refill if necessary.



#### **DANGER! Risk of death!**

Non-installed or missing safety devices on the machine may result in serious injury. In some circumstances this can be life threatening.

- Before starting up and after maintenance work, the safety devices which have been removed, for example splash guard or safety screws, must be reinstalled and tightened.
- Wear protective clothing, protective gloves, safety shoes, and goggles for all work.



#### **WARNING! Risk of burns or frostbite when touching the pump!**

Depending on the operating status of the machine engine components can become very warm.

- Maintain a safe distance during operation!
- Wear protective clothing, protective gloves, safety shoes, and goggles for all work.



- The cooling fins and the fan guard of the drive unit must be protected from contamination. Existing impurities must be removed.
- Defective or worn valves can lead to a premature reaction in the pump (the pump bodies). Components which are in contact with the material can become very hot!
- Protect against direct sunlight.



#### **WARNING harmful!**

Contact with the processing material may pose risks.

- Protective clothing, protective gloves, safety shoes and goggles must be worn.



- Upon contact, the affected area should be cleaned immediately.
- Technical data sheets and material safety data sheets of the processing material are to be observed.

## 8.1 Preparations for initial start up

The machine is supplied from the factory ready to operate. All machines undergo a quality inspection after installation, in which all functions are tested.

Upon receipt and before start up, all components of the machine and its accessories must be checked for damage. Damage of any kind must be reported in advance and corrected by appropriately trained personnel.

Furthermore, all components should be checked for secure and proper fit.

### Checking and refilling the hydraulic unit:

#### Note:



The oil level must never be under half of the oil gauge glass during the operation of the machine. The gauge glass must always be completely filled with oil.

- Hydraulic oil DTE 16M or an absolutely equivalent product must be used.
- Order number: 1 litre 25072
- Order number: 5 litres 25073

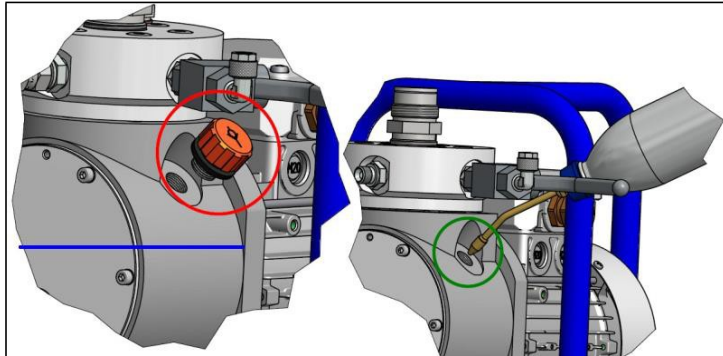


Fig. 8.1.1

1. (Fig.8.1.1) Unscrew oil filler neck and determine the oil level by visual inspection. The oil level should be within range of the blue line.
2. **Oil level too high:**  
Oil may leak out of the filler neck.
3. **Oil-level too low:**  
As a result of the eccentric rotation, this may result in increased foaming of the oil and thus air formation. This may adversely affect the machine.

Should it then continue to malfunction, the manufacturer should be contacted!



#### Warning:

Spilled hydraulic oil must be removed immediately because it could lead to hazards!

**Slipping and falling**

## 8.2 Procedure



### Caution!

Please note the processing times of the materials used. Material that is already hardened or reacted can damage any machine parts and accessories that come into contact with the material.



### Important!

A material sieve must always be used in the material container. This is the only way to ensure that no foreign bodies or any solids get into the machine.



### WARNING!

Contact with the respective processing medium may cause irritation of the skin, eye injuries or infections.

- Safety goggles, gloves and appropriate work clothing must be worn.



- Second or third persons must keep their distance during start up.
- Technical data sheets and safety data sheets of the manufacturer of the processing medium must be observed and adhered to.

### Bleeding of intake valve:

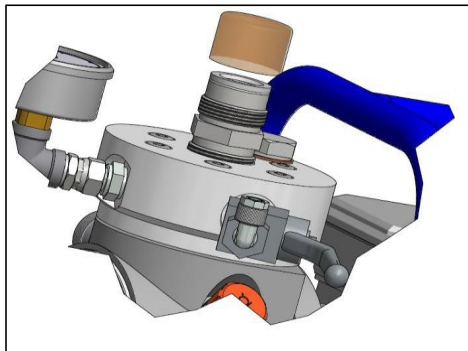


Fig.8.2.1

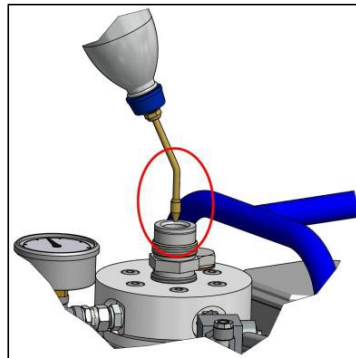


Fig.8.2.2

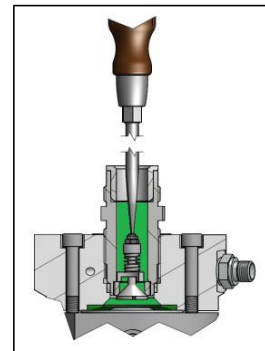


Fig.8.2.3

1. (Fig.8.2.1) remove the protective cap from the inlet valve (pull upwards)
2. (Fig.8.2.2) Fill the inlet valve with a little cleaning / preservation oil or detergent (specifying the material manufacturer). With, for example, a screwdriver, carefully push down the valve tappet into the inlet valve. Thereby, potential air can escape from the space between the valve and membrane.

### Attaching connectors:

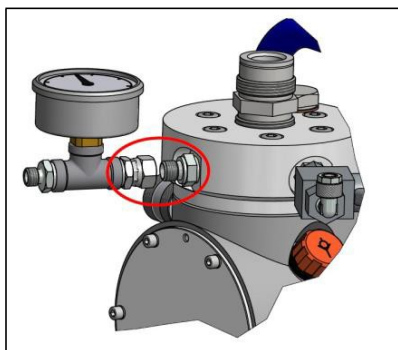


Fig.8.2.4

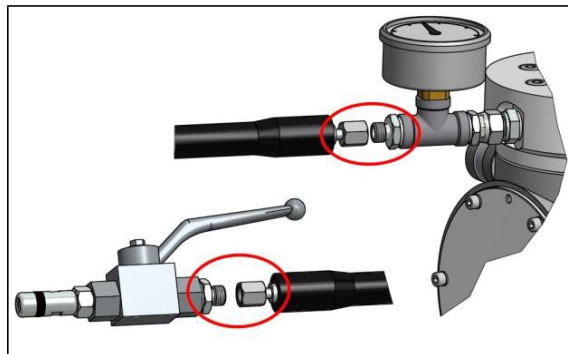


Fig.8.2.5

## Operating Instructions

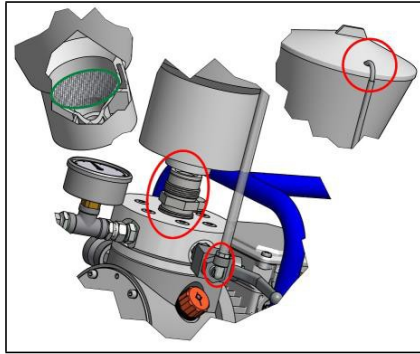


Fig.8.2.6

3. (Fig.8.2.4) Securely attach the pressure gauge combination over the connection nut to the valve block.
4. (Fig.8.2.5) Attach and securely screw the respective material hose to the pressure gauge combination and the respective injection head.
5. (Fig.8.2.6) Check the material sieve in the material container. In the event of any kind of contamination it must be cleaned or replaced. Now screw the material container onto the inlet valve. Connect the return hose to the ball valve on the valve block and the angle hook into the hole in the cover of the material container.

### Further start up procedure:

6. Connect the machine to an appropriate power source.
7. Pump out the hydraulic oil, which is in the machine for preservation purposes. To do this, turn on the machine at the main switch and open the injection head. Here it must be ensured that the relief and circulation ball valve remains closed. Heat the oil in a separate clean container. Optionally, slacken the pressure regulator valve.
8. Then, fill the material container with 1 litre of detergent (prescribed by the material manufacturer) and rinse the remaining oil from the pump until pure detergent is discharged.
9. Finally pump the remaining detergent in circulation for 1 minute.
10. Then, take out the remaining detergent from the pump and the hoses, and turn off the pump.
11. Now slowly pour the material over the wall of the material container. The relief and circulation ball valve must be opened. Start the pump again.
12. Once no more air bubbles come from the overflow tube, close the relief and circulation ball valve and set the desired operating pressure on the pressure regulating valve. The pressure can be read on the pressure gauge. To vent the material tube, the injection head must be opened. Catch the cleaning-material mixture in an external receptacle until pure material escapes from the injection head, close injection head.
13. A pressure should be available to read on the pressure gauge. By turning the pressure control valve on/ off, the pressure can be adjusted individually.
14. The machine is now ready for use.
15. It is recommended to take a reserve sample before starting work

### 8.3 Checks after the initial start up

After the initial start-up, check for correct setting of the desired material parameters. Check the settings. If all the desired parameters are correct, you can begin processing.

## 9.0 Cleaning

### Content:

The following describes the regular cleaning required in order to ensure the correct functioning of the machine. Contamination can lead to problems with the operation. The machine should therefore be cleaned as needed and at least every eight hours.



### Caution!

Do not spray the machine with high-pressure cleaners or high-pressure steam cleaners.



### Caution!

Please note that contact with processing materials, cleaning agents, or auxiliary lubricants may cause skin irritation or allergic shock. Certain circumstances can be "LIFE THREATENING"!

- In the event of contact with skin, clean the affected skin immediately with clear water.
- In case of contact with eyes, immediately rinse the affected area.
- Upon any signs of infection, poisoning or allergic reaction, seek an emergency doctor.
- Wear protective goggles, suitable clothing and protective gloves



### Note

- Do not leave material in the machine – always fully empty out and clean the material.
- The cleaning agent specified by the manufacturer must always be used!
- In order to keep wear low, you should never let the processing unit run dry!

### Description:

1. Drive out all non-essential or residual material from the material container. Then turn off the pump.
2. Pour half a litre of hydraulic oil into the material container.
3. Unhook the overflow hose from the container, open the relief and circulation ball valve and place the remaining material in a separate container, to turn on the pump. Once the hydraulic oil flows from the tube, close the relief and circulation ball valve and pump the hydraulic fluid through the fluid hose until the engine runs dry. Then turn off the machine.
4. Now pour 2-3 litres of detergent (solvent material prescribed by the manufacturer) into the material container and start the pump. Collect the residual hydraulic oil from the material hose and the overflow hose and continue pumping until pure detergent escapes.
5. Then leave the the pure detergent pump to circulate for 5 minutes (holding the fluid hose under the container) and thereby open and close the material ball valve, increase and reduce the pressure (adjust the pressure regulating valve); so that the cleaning agent can reach all parts of the pump.
6. Now drain cleaning agent from the machine and switch off.
7. The machine is now cleaned, but should not remain in the cleaning agent! Therefore, pour about 1 litre of clean and new hydraulic oil into the material container. Bleed the machine and the material hose with the hydraulic oil and leave to circulate for about 1 min, so that the oil can be optimally distributed in the pump parts and valves; then the machine can be turned off.
8. The machine can now be stored until the next use. The hydraulic oil remains in the machine and the material hoses for preservation.

## 10.0 Maintenance and repairs

### Overview:

This section contains the following subsections:

- 10.1 Replacing worn parts
  - Procedures (suction valve, membrane and exhaust valve)
  - Bleeding the hydraulic unit
  - Tightening of screw connections:
- 10.2 Maintenance and inspection intervals

### Safety:



#### **NOTE: Maintenance and repair work should only be performed by qualified personnel!**

It is recommended that the machine be maintained and inspected by SEALBOSS CORP...



#### **DANGER! of pressurised liquid!**

During maintenance or repair work, make sure that the complete pump unit has been de-pressurised. This may otherwise lead to an unexpected discharge of pressurised hot liquid when the screws are released.

- Bring injection head carefully to the open position
- Check the pressure gauge if this still indicates pressure.
- Never direct the respective injection head toward or directly at people or other living things.
- Wear protective goggles!



#### **DANGER! of slipping or tripping**

During maintenance or repair work, slippery surfaces may be formed from leakage of liquids in connection with the operational environment.

- Leaking or spilled liquid must be removed immediately.



#### **WARNING! Risk of injury by incorrect body posture (postural problems)**

A healthy posture must be maintained throughout any work on the machine.

- Bring the machine to an elevated position during maintenance or repair work e.g. set on a work bench.



#### **DANGER! of clamping and crushing between moving components**

Maintenance or repair work on the machine may lead to serious injuries from clamping or crushing.

- Before working on the machine ensure that no other person is able to operate the machine at the same time.
- Entry into an emerging danger area must be prevented.



#### **DANGER! Risk of death!**

Life threatening hazards from electric shock may occur when working on electrical equipment.

- Work on electrical equipment should only be performed by electricians authorised by the local power company.
- Before working on electrical equipment, disconnect the power supply and secure it from reconnection.
- Observe the installation and operating instructions for the pump and other accessories!



#### **DANGER! Risk of death!**

Contact to voltage can cause injury. Because of the risk of electric shocks (capacitors), work on the terminal box should only be done after waiting for 5 min.

- Before beginning work, disconnect power supply and wait 5 minutes.
- Check that all connections (including potential-free contacts) have been disconnected.
- Never insert anything into the openings of the terminal box!

## 10.1 Replacing worn parts

### When worn parts (components) should be replaced:

- When capacity is noticeably reduced



#### Note:

- Check whether there are enough spare wearing parts
- Only use original spare parts !!!!

### Checking / replacing the suction valve (item 27):

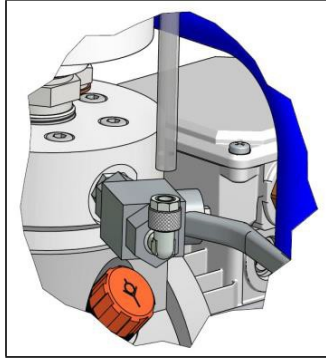


Fig.10.1.1

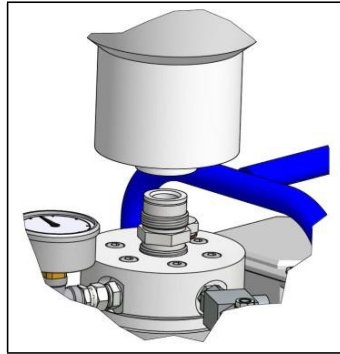


Fig.10.1.2

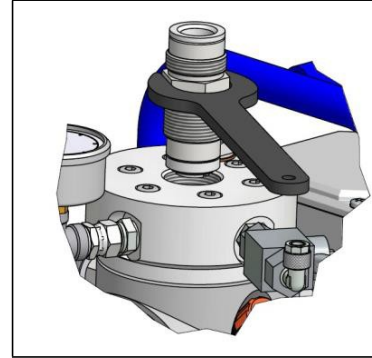


Fig.10.1.3

1. Clean the machine as described in section 9.0 Cleaning.
2. Disconnect power supply to the machine. Ensure that the entire machine is completely unpressurised.
3. (Fig.10.1.1) Dismantle the discharge hose by unscrewing the nut of the elbow connector.
4. (Fig.10.1.2) Disassembly of the material container (take down from intake valve by manual force)
5. (Fig.10.1.3) Unscrew intake valve from the valve block with an SW36 wrench.
6. Now the suction valve can be checked for dirt or wear.
7. Reassemble in the reverse order of disassembly.

### Checking / replacing the membrane:

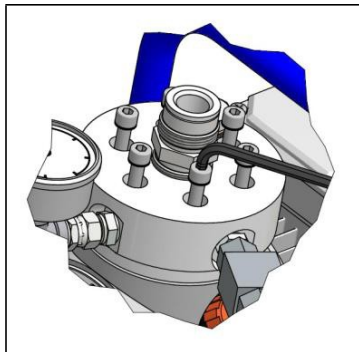


Fig.10.1.4

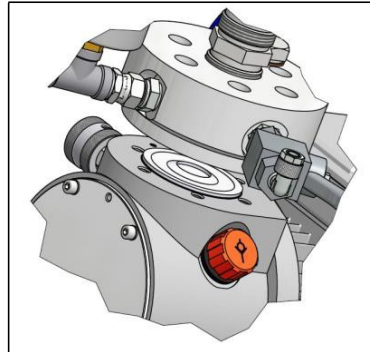


Fig.10.1.5

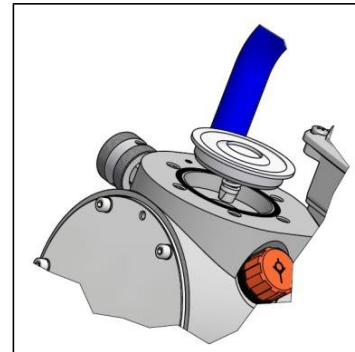


Fig.10.1.6

1. For procedure see sections 1-4 (suction)
2. (Fig.10.1.4) With an allen wrench, unscrew the six cylinder head screws with hexagon sockets.
3. (Fig.10.1.5) Valve block can now be upwardly removed. It is important to make sure that the sealing disk of the valve block is not lost.
4. (Fig.10.1.6) Membrane is also upwardly removed. It should be ensured that no contaminants enter the pump
5. Reassemble in the reverse order of disassembly. The six-cylinder head screws with hexagon sockets must be tightened with an 18Nm torque.



## Operating Instructions

### Bleeding the hydraulic unit:

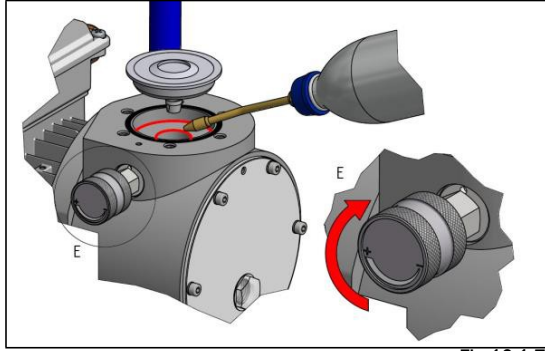


Fig.10.1.7

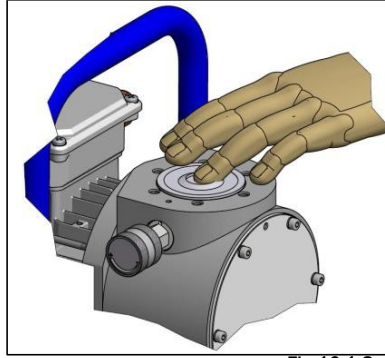


Fig.10.1.8

1. Ensure that the entire machine is completely unpressurised.
2. Dismantle the material container, return hose and the complete valve head. (See point 10.1 Replacement of wearing parts)
3. (Fig.10.1.7) Lift membrane and using the oil bottle, fill the casing with hydraulic oil until the red marked area is just covered. Now reinsert the membrane. Now just turn the pressure control valve clockwise.
4. Connect the machine to a suitable power source.
5. (Fig.10.1.8) Press the membrane with your hand and turn on the machine using the power switch. As soon as the hydraulic oil between the membrane and the casing is pushed out, turn the machine off again. The leaked oil must be immediately removed. The hydraulic unit is now vented!
6. Complete machine reinstallation (do not remove the membrane again!)

### Checking / replacing the exhaust valve

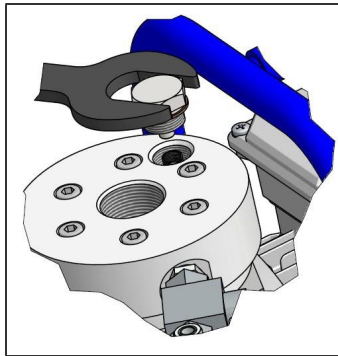


Fig.10.1.9

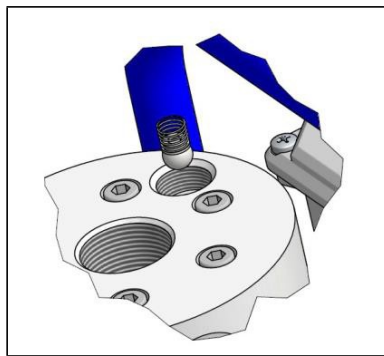


Fig.10.1.10

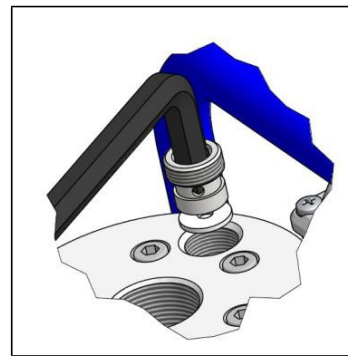


Fig.10.1.11

1. For procedure see sections 1-4 (suction)
2. (Fig.10.1.9) Unscrew the screw from the valve block with an SW27 screw-wrench. Upon removal, make sure that the sealing disk is not lost.
3. (Fig.10.1.10) Using, for example, a pair of pliers, the pen ball-set can be removed.
4. (Fig.10.1.11) Unscrew the valve seat from the valve block using an SW12 allen wrench. Check for contamination or wear. Contamination must be removed immediately. If this does not solve the issue, or the valve seat shows signs of wear, this must be replaced. When replacing, the sealing disc should be carefully be removed from the valve block using a screwdriver or a pointed object.
5. Reassemble in the reverse order of disassembly.

### Tightening of screw connections:

Position number	Description	Recommended tightening torque
Pos. 24	Screw connection M22 x 1.5	60 Nm
Pos. 28	Valve seat	55 Nm
Pos. 80	Cylinder screw M8 x 60 (DIN 912) 8.8 galvanized	18 Nm
Pos. 84	Cylinder screw M5 x 16 (DIN 912) 8.8 galvanized	6 Nm

## 10.2 Maintenance and inspection intervals



**CAUTION:**

If defects are found, they must be eliminated by appropriately qualified personnel before starting work.

- ✓ Check screw connections - after 2 hours of operation, then every 25 hours of operation
- ✓ Check the level of the auxiliary lubricants - check the level daily, and replace every 100 hours of operation
- ✓ Oil level of the hydraulics - Check daily at the start of work
- ✓ Connections - Check daily at the start of work
- ✓ Sealing elements of wear parts - Daily when cleaning the machine

**Perform regular visual checks daily before starting work!**

- ✓ Outwardly recognizable defects - Must be dealt with by qualified personnel
- ✓ Checking electrical components for damage - Must be dealt with by qualified personnel
- ✓ Check all accessories for wear and damage - replace even the smallest defect immediately

**Hydraulic lines (material hose):**

Requirements for hydraulic hose assembly (Material hose)	Recommended inspection period
Normal requirements	12 months
Increased operating times, <ul style="list-style-type: none"> <li>- increased operating times, e.g. several shifts of operation, or short cycle time of the machine and pressure pulses.</li> <li>- strong external and internal influences which greatly reduce the life of the hose.</li> </ul>	6 Months

Requirements for hydraulic hose assembly (Material hose)	Recommended replacement intervals
Normal requirements, for example:	6 years (operating time including maximum 2 years duration)
Increased operating times, <ul style="list-style-type: none"> <li>- increased operating times, e.g. several shifts of operation, or short cycle time of the machine and pressure pulses.</li> <li>- strong external and internal influences which greatly reduce the life of the hose.</li> </ul>	2 years (operational life)

BG-regulation for hydraulic hose lines

## 11.0 Faults

Fault	Cause	Solution
Pump will not start	<ol style="list-style-type: none"> <li>1. Energy supply is missing</li> <li>2. System pressure is too high</li> </ol>	<ol style="list-style-type: none"> <li>1. Prepare the energy supply, check the fuses</li> <li>2. Pressure relief</li> </ol>
Pumps do not have suction	<ol style="list-style-type: none"> <li>1. Inlet and outlet valve clogged / defective</li> <li>2. Material sieve in the material container faulty</li> <li>3. Oil level too low</li> <li>4. Air in the hydraulic system</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and clear the valves</li> <li>2. Clean / replace material sieve</li> <li>3. Fill up hydraulic oil</li> <li>4. Bleeding the hydraulic unit</li> </ol>
Pump does nothing	<ol style="list-style-type: none"> <li>1. Power supply has been interrupted</li> <li>2. Power unit is defective</li> <li>3. Start capacitor is defective (only for 110V)</li> </ol>	<ol style="list-style-type: none"> <li>1. Check/ restore power supply</li> <li>2. Replace drive unit</li> <li>3. Replace capacitor (only for 110V)</li> </ol>
Pump does not build pressure	<ol style="list-style-type: none"> <li>1. Pressure control valve defective</li> <li>2. Dirty suction outlet</li> <li>3. Oil level too low</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace</li> <li>2. Clean and replace if necessary</li> <li>3. Fill up hydraulic oil and, where appropriate, bleed again.</li> </ol>

## 12.0 Decommissioning

### Overview:

This section contains the following subsections:

- 12.1 Temporary decommissioning
- 12.2 Disposal

### 12.1 Decommissioning

#### Content:

The following measures are required to put the machine out of service.

#### Temporary decommissioning:

- Clean the machine and all accessories as described.
- Disconnect the power source (e.g. mains plug).
- Relieve pressure of the entire system.

#### Permanent decommissioning:

- Clean the machine and all accessories as described.
- Disconnect the power source (e.g. mains plug).
- Relieve pressure of the entire system.
- Only store the machine in a dry, dust-free, and frost-free space

## 12.2 Disposal (Recycling)

### Content:

Here you will find information regarding disposal of the machine.



All parts of the machine should be disposed of in accordance with national and regional waste disposal regulations so that health or environmental damages are avoided,

With the proper disposal or recycling of this machine, environmental damage and danger to personal health can be prevented.

Proper disposal requires emptying and cleaning. Lubricants must be collected. The pump components must be separated according to material (e.g. metal, plastic, and electronics).

- Public or private waste collection services can assist with the disposal of the products or components thereof.
- More information on proper disposal shall be provided by the city office, the waste disposal service, or the shop where the product was purchased.

### Special disposal information can also be obtained:

- from the documentation and the data sheets of the suppliers
- from your environmental officer

## 13.0 Additional information

### Overview:

This section contains the following subsections:

- 13.1 Service addresses
- 13.2 Part list
- 13.3 Drawings
- 13.4 Auxiliary assembly drawings
- 13.5 Notes

### 13.1 Servicing addresses

Here you will find information on servicing addresses.

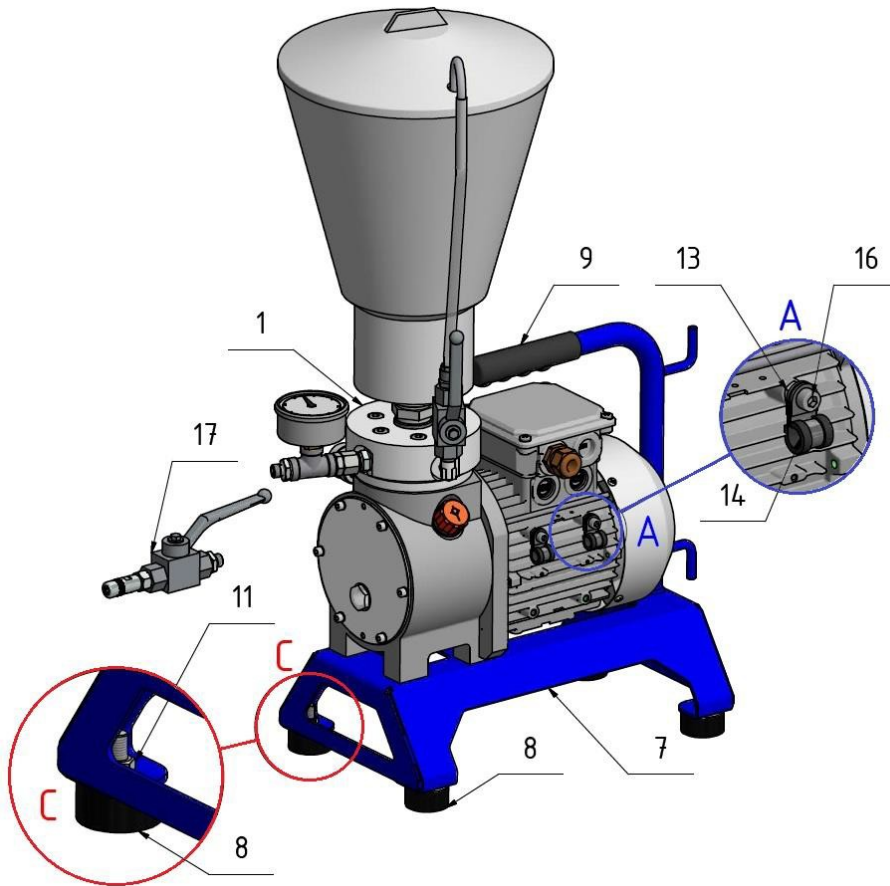
Servicing exclusively by:

SealBoss Corp.

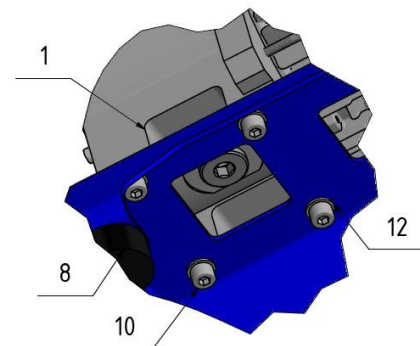
Tel: +1 714 662 4445  
Fax: +1 714 662 4446  
Email: info@sealboss.com  
Website: www.sealboss.com

## 13.2 Part list and drawings

Carrier frame version

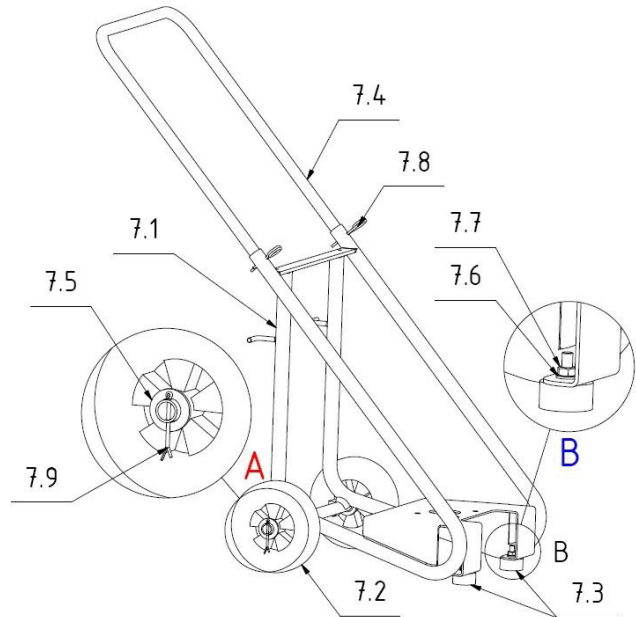


Position	Item	Designation
1	1	Pump unit LE-303 complete
1 (E)		Pump unit LE-303 complete stainless steell
7	1	Frame
7 (F)	1	Frame 2
8	4	Rubber-metal-buffer M8
9	1	Handle Ø21 mm
10	4	Cylinder screw M8 x 25 mm
11	4	Hexagon nut M8
12	4	Washer inside Ø 8.4 x outside Ø 16 x 1.6 mm
13	2	Hexagon nut M6
14	2	Fixing clamp inside Ø10 mm
16	2	Cylinder screw M6 x 12 mm
17	1	HP ball valve R1/4"
17 (E)	1	"HP ball valve stainless steel (inox) R1/4""
18	1	5 m HP material hose steel Ø6 mm
18 (E)	1	5 m HP material hose stainless steel Ø 6 mm

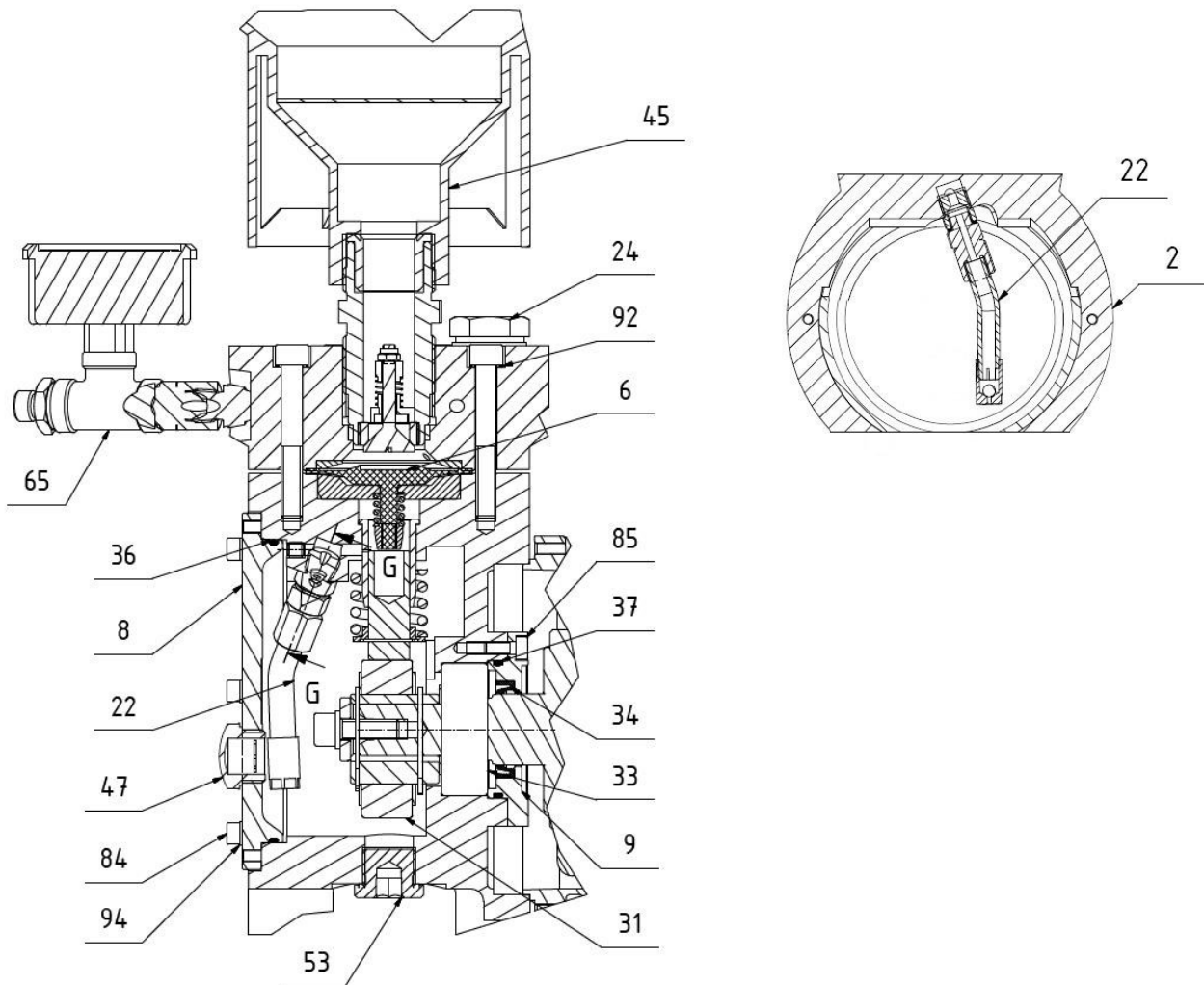


## Chassis (F)

Position	Item	Designation
7	1	Chassis (complete)
7.1	1	Chassis
7.2	2	Wheel Ø 160 mm
7.3	2	Rubber-metal-buffer M8
7.4	1	Handle
7.5	2	Disc inside Ø 21 x outside Ø 37 x 3,0 mm
7.6	2	Washer inside Ø 8.4 x outside Ø 16 x 1.6 mm
7.7	2	Hexagon nut M8
7.8	2	Spring cotter pin 3 x 62
7.9	2	Split pin 3.5 x 50 mm

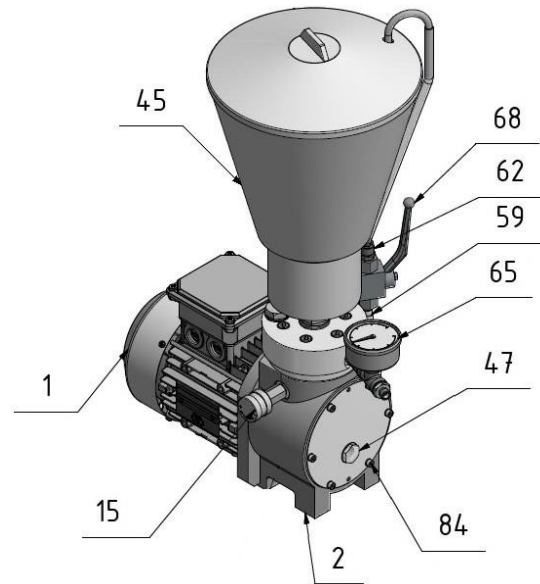


## Pumping unit (complete)

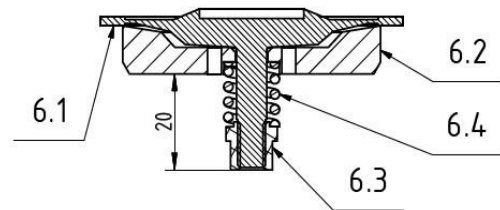


# Operating Instructions

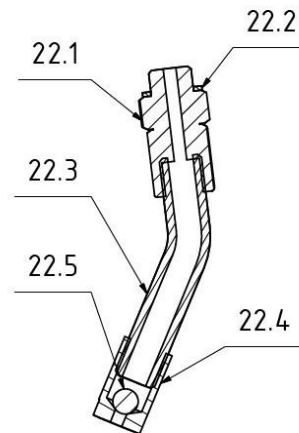
Position	Item	Designation
1	1	Motor 0,37 kW complete
1	1	Motor 0.37 kW - 110 Volt
2	1	Housing complete
3	1	Valve block
3 (E)	1	Valve block (stainless steel)
5	1	Piston Ø 16 mm
6	1	Membrane complete
6.1	1	Membrane (element)
6.2	1	Membrane disc
6.3	1	Membrane nut M6
6.4	1	Pressure spring (membrane)
7	1	Sealing disc
8	1	Cover
9	1	Clamping bushing
11	1	Spring washer
12	1	Seal disc
13	1	Piston bush
14	1	Eccentric bush
15	1	Pressure regulating valve complete
17	1	Piston ring
18	1	Return hose complete
18.1	1	Pipe bend
18.3	1	
22	1	Oil suction tube complete
22.1	1	Steel turning knuckle M10x1
22.2	1	Sealing ring inside Ø 10 mm
22.3	1	Pipe M10x1
22.4	1	Valve housing (oil)
22.5	1	Ball Ø 6 mm (stainless steel)
45	1	6 l material container
47	1	Oil sight glass G1/2"
59	1	Elbow connector 90° , G1/4"
59 (E)	1	Elbow connector 90° , G1/4" (stainless steel)
62	1	Straight screw connection G 1/4"-10 x 8mm
65	1	Manometer combination
65 (E)	1	Manometer combination (stainless steel)
68	1	HP ball valve G1/4"
68 (E)	1	HP ball valve - stainless steel 1/4"
84	6	Cylinder screw M5 x 16 mm

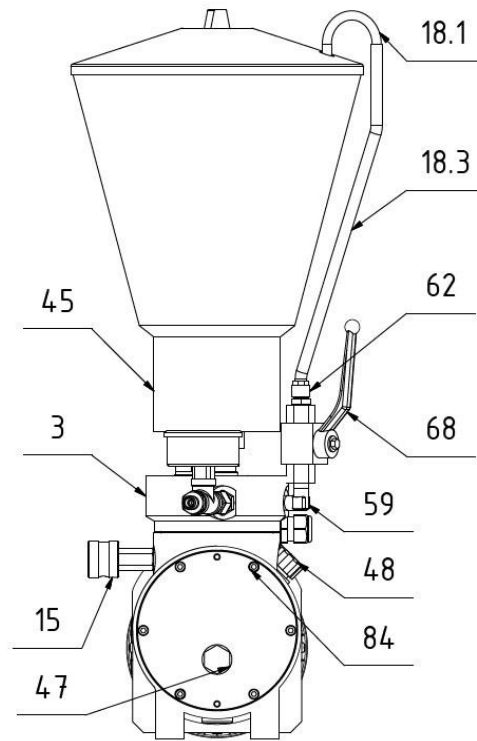
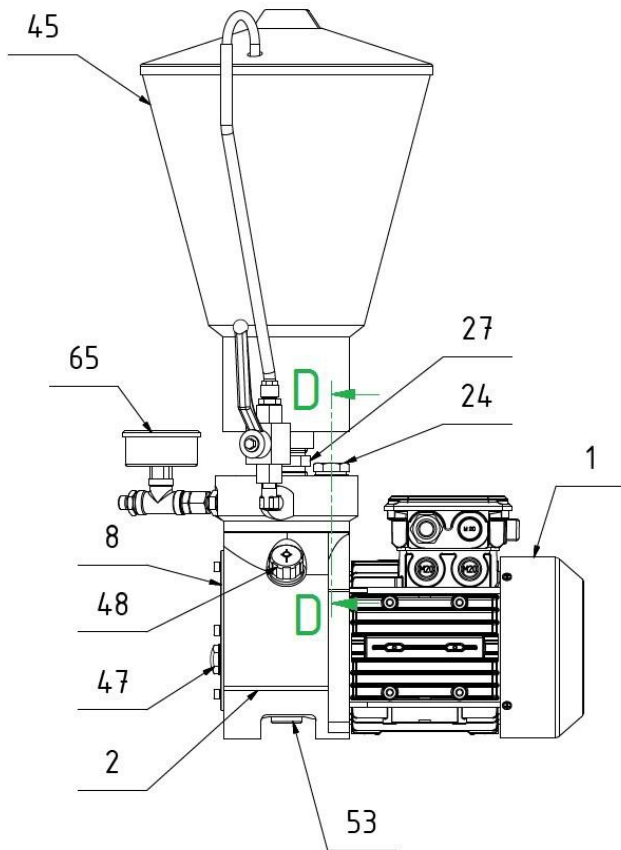


**Detail drawing Membrane  
Pos. 6**



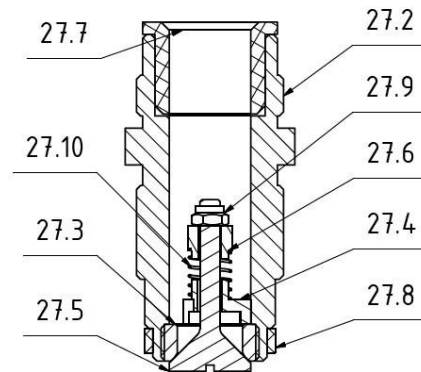
**Detail drawing Oil suction tube  
Pos. 22**



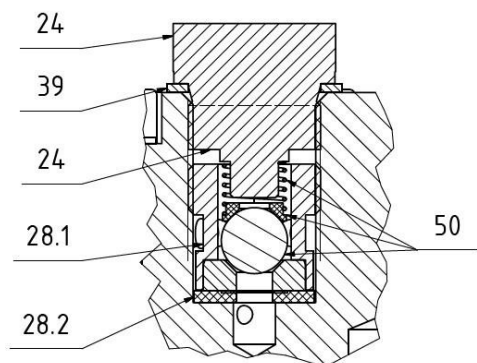


Position	Item	Designation
24	1	Screwing M22 x 1.5 mm
27	1	Suction valve complete
27.2	1	Valve housing
27.3	1	Valve seat M24 x 1.5 mm
27.4	1	Spring holder
27.5	1	Valve tappet M5
27.6	1	Spring holder
27.7	1	Stop bush
27.8	1	Sealing ring
27.9	1	Hexagon nut self-retaining M5
27.10	1	Pressure spring
28	1	Ball seat-set
28.1	1	Ball seat complete
28.2	1	Seal ball seat
30	1	Axial disc AS 2035
31	1	Roller support 35x62x20
32	2	Axial disc AS 3552
33	1	Double row deep groove ball bearing
34	1	Shaft seal ring 28-38-7
36	1	O-ring Ø115.00 x 2.5 mm
37	1	O-ring Ø50.00 x 2.5 mm
39	1	Seal ring inside Ø 22 mm

**Detail drawing Suction valve Pos.27**

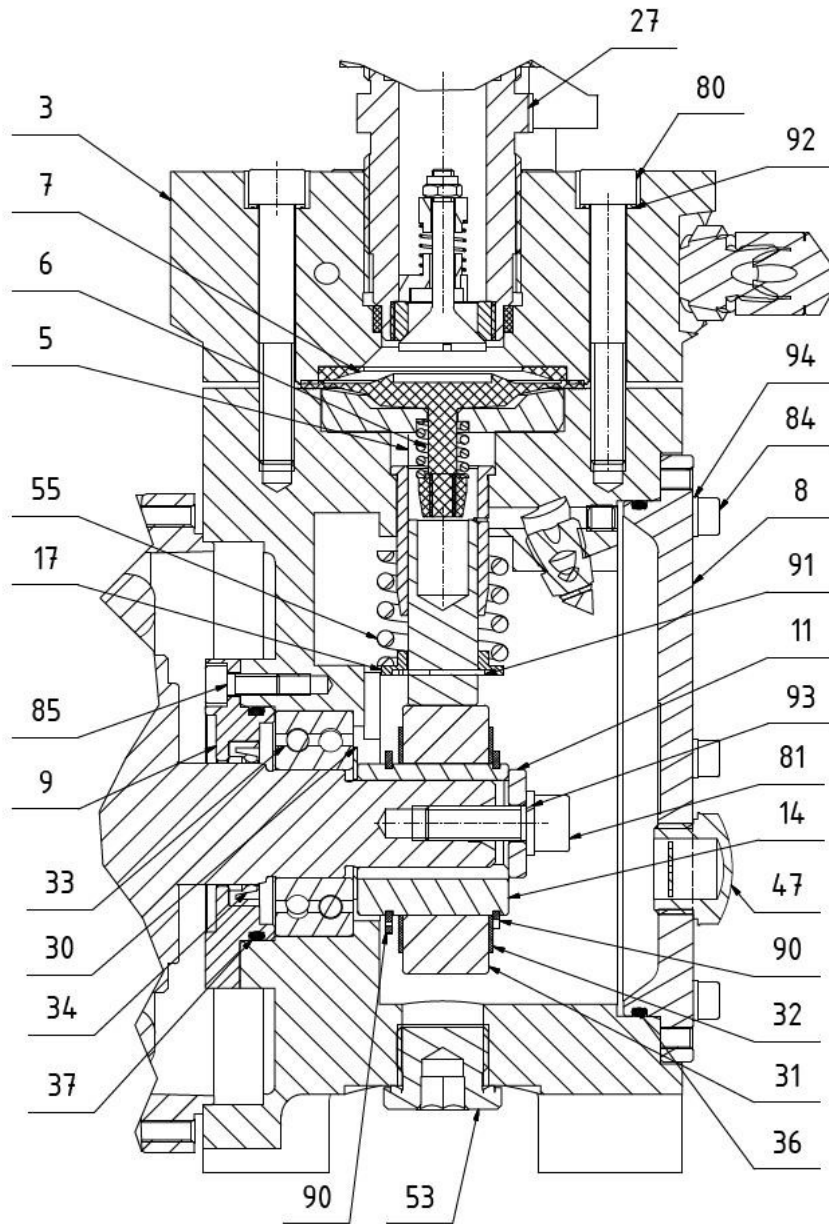


**Detail drawing D-D Outlet valve**





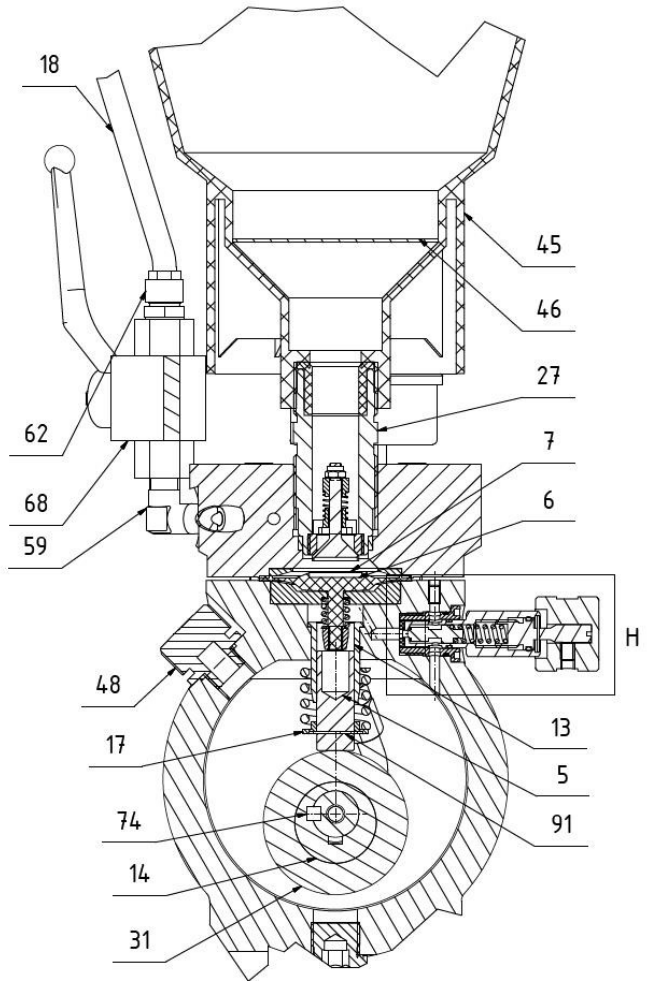
## Operating Instructions



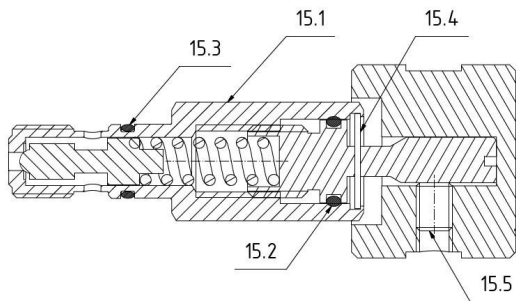
Position	Item	Designation
45	1	6 l material container
46	1	Coarse sieve Ø 88 mm
47	1	Oil sight glass G1/2"
48	1	Venting screw G3/8"
50	1	Spring-ball-set
50.1	1	Spring plate
50.2	1	Ball Ø 11 mm
50.3	1	Pressure spring
53	1	Locking screw G1/2"
55	1	Pressure spring
58	1	Steel double nipple G1/4"
59	1	Elbow connector 90° , G1/4"
59 (E)	1	Elbow connector 90° , G1/4" (stainless steel)
62	1	Straight screw connection G 1/4"-10 x 8mm

# Operating Instructions

Position	Item	Designation
65	1	Manometer combination
65 (E)	1	Manometer combination (stainless steel)
65.1	1	T piece HP 1/4" inside
65.2	1	Union screwing G1/4"
65.2 (E)	1	Union screwing G1/4"
65.3	1	Steel double nipple M12x1.5 to G1/4"
65.3 (E)	1	Stainless steel double nipple M12x1.5 to G1/4"
65.4	1	Manometer 0 - 250 bar
68	1	HP ball valve G1/4"
68 (E)	1	HP ball valve - stainless steel 1/4"
74	1	Feather key 6 x 6 x 25
80	6	Cylinder screw M8 x 60 mm
81	1	Cylinder screw M8 x 25 mm
84	6	Cylinder screw M5 x 16 mm
85	3	Cylinder screw M5 x 12 mm
90	2	Locking ring 35x1.5 mm
91	1	Locking ring 16x1.0 mm
92	6	Lock washer M8
93	1	Spring ring M8
94	6	Washer inside Ø 5.3 x outside Ø 9 x 1 mm

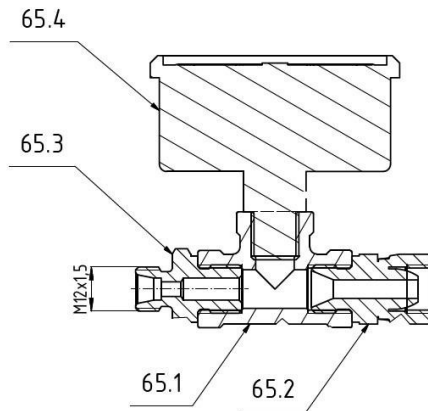


**Detail drawing „H“ Pressure regulating valve  
Pos. 15**



Position	Item	Designation
15	1	Pressure regulating valve complete
15.1	1	Housing complete
15.2	1	O-ring Ø11.00 x 2.0 mm
15.3	1	O-ring Ø10.00 x 1.5 mm
15.4	1	Locking ring 15x1.0 mm
15.5	1	Set screw M6 x 8 mm

**Detail drawing Manometer combination Pos. 65**



**13.5 Notes**

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