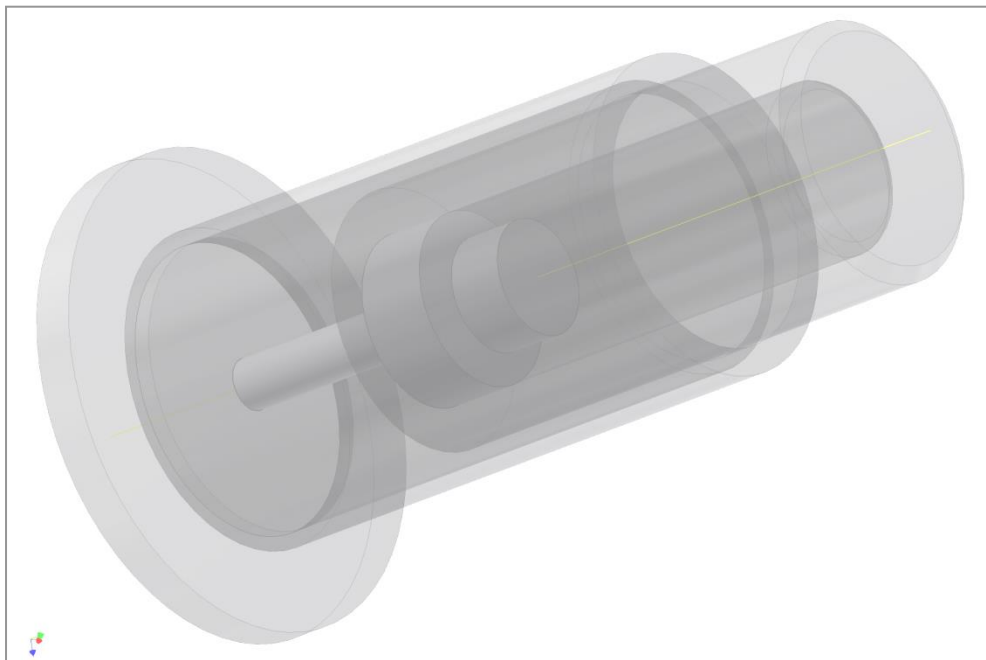
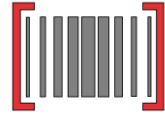


# Operating instructions and warning notes



## HYDROSTAT **Buffers and springs**



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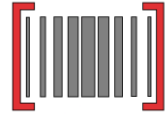
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## 0 – Warning note

**Caution:** The filling material of the buffer is under high pressure. The preload is about 650 bar and even more according to the type and design of the buffer. Therefore it is strictly forbidden to carry out repairs on the main subassemblies on your own behalf.



**Repairs carried out by the user of the buffer are strictly forbidden due to danger of accident. Opening and repair of the buffer can only be carried out in the manufacturer's workshops.**

### Safety precautions:

The following instructions and notes ensure your personal safety and help to avoid damages of the described product and attached appliances.

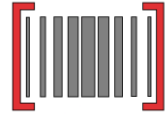
The safety instructions and warning notes for the avoidance of danger to life and health of the users or the maintenance and repair personnel and/or the avoidance of material damages are expressed in this description by means of the following warning signs and pictographs which have the following meanings:



This symbol can be found in all working safety instructions and places where danger to life and health of the users and the maintenance and repair personnel exists. These instructions should be strictly observed and special caution should be exercised in case of such symbol.

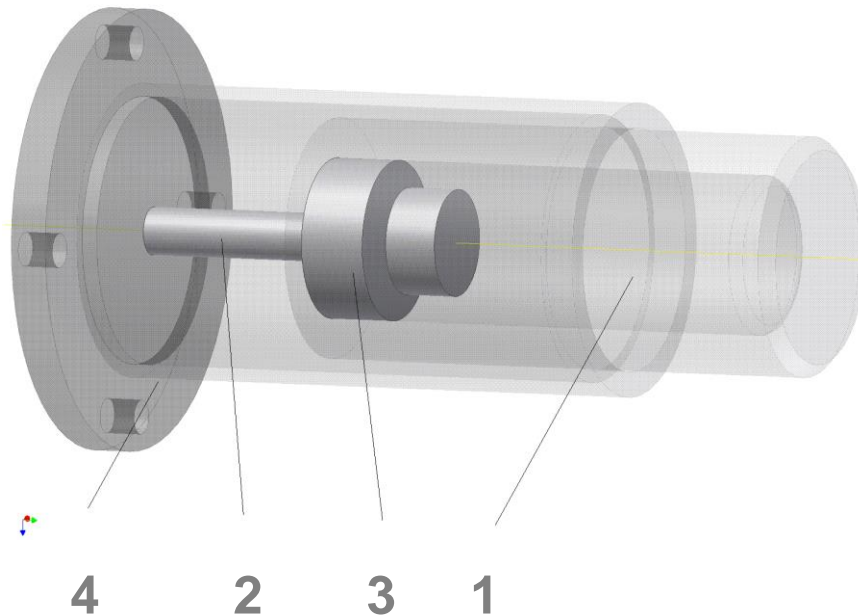


This symbol is used in all passages of the description which require special attention for the strict observance of the directives, rules, instructions and notes for the correct execution of the works and for the avoidance of damages and destruction of the product.



## 1. Main subassemblies

The standard design of the HYDROSTAT buffers and springs consists of the following main subassemblies:



- |   |  |   |                                   |
|---|--|---|-----------------------------------|
| 1 | Pressure reservoir with filling material | 3 | Guide bearing with sealing system |
| 2 | Piston rod with piston                   | 4 | Covering plate with casing        |

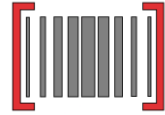
## 2. Safety precautions

### 2.1 General information

*Please read the following instructions carefully and completely and keep them always available for further use.*

The information and instructions given in this description are intended for the specific use of **hydrostatic buffers and springs**.

The knowledge and the perfect technical implementation of the safety instructions and warnings given in this description are a prerequisite for the safe installation and putting into operation and for the operational safety and maintenance of the described product.



Qualified and skilled personnel in accordance with the requirements of para 2.2 below having the required technical knowledge should be employed only with the aim of the correct interpretation and implementation of the safety instructions and warnings given in this description for every concrete case.

*Therefore always ask for a service man of our company in case of doubt who can assist you in matters of maintenance and/or removal of the buffers used in your works. No maintenance and repair works must be carried out except in the manufacturer's workshops. Please refer to the warning note given above.*

**We would like to emphasize that we cannot be made liable for any damage resulting from the non-observance of the instructions and information given in this description.**

## **2.2      *Qualified and skilled personnel***

Heavy bodily injuries or material damages may be caused due to improper execution of works on the product or due to the non-observance of the safety instructions and warnings given in this description. Therefore qualified and skilled personnel must be used for the execution of repair and maintenance works on the products and appliances.

Qualified and skilled personnel in accordance with the safety and warning instructions given in this description are persons

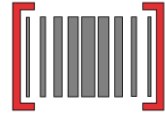
- having been instructed by the manufacturer in the handling of equipment provided with hydrostatic buffers and springs and having knowledge of the operating instructions contained in this description;
- having been trained as commissioning and service personnel in the maintenance and repair of such type of hydraulic and mechanical equipment.

## **3.      Transport**

The HYDROSTAT products are packed in cases in order to avoid transport loss. If no cases are required due to the nature of the product, the products are packed in air cushion packaging film or similar material which protect them against transport loss.

### **4.1      *General information***

**It is not allowed to heat the HYDROSTAT buffer (eg welding torch), to drill holes in it or to machine it with other mechanical means.**



## 4.2 Installation

The fitting position is at choice. If a special fitting position is required for a project, such position will be obligatory. The buffer has to be screwed in place or fixed with screws and should be aligned in such a way that the nameplate is readable.

## 4.3 Removal

The removal should be done in reversed order of mounting.

## 5. Putting into operation

Align the buffer in such a way that the force is transmitted centrally. If several buffers are used parallelly that are connected to each other, they should be aligned in a stressfree manner.

After that the buffers are ready for operation. Before operating the buffer under maximum load it should be tested at small loads in order to check the correct fit of the subassemblies. When using buffers with exposed piston rod it should be protected against damage.

The admissible load characteristic is indicated in the data sheet. The specific load characteristic for specific applications must be observed. All characteristics (loading capacity, impact speed) are indicated in the pertaining drawings.

*If the data sheet has been lost or is not available for other reasons (eg destruction) it should be asked for immediately.*

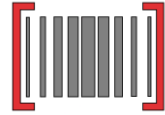
### General operating conditions

- Temperature range: - 20°C up to + 40°C
- Central buffer movement, maximum deviation: 5°

## 7. Maintenance • Inspection • Cleaning

### 7.1 Maintenance

The buffers require little maintenance only. Maintenance is restricted to visual checks. The filling material is non-ageing. No periodical replacement of the filling material is required.



## 7.2 Inspection

The outer surface of the buffer and the protecting tube should regularly checked for damage. If necessary, the surface should be protected by means of paint, zinc coating or means of preservation (eg Autol grease, Molycote or similar). The state of delivery of the buffer should be restored.

Please wear safety goggles when carrying out inspections on the buffer.

## 7.3 Cleaning

The buffer can be cleaned with commercially available detergents.

## 8. Failures • Trouble shooting

### 8.1 Failures

A failure exists in case of incomplete return movement of the buffer or in case of an inclination of parallely arranged buffers.

### 8.2 Trouble shooting

Check whether or not the piston rod loses oil or if oil stains exist on the buffer surface. In such case, the buffer or the spring should be removed and sent to the manufacturer's works for repair.

**You should exercise caution in case of run out filling material. Skid risk.**

**Achtung !**

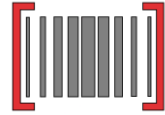
**Attention**

## 9. Repairs • Reconditioning

***Repairs carried out by the user of the buffer are strictly forbidden due to danger of accident. Opening and repair of the buffer can only be carried out in the manufacturer's workshops.***

## 10. Spare parts

Since no self-repair of the buffer is allowed, no spare parts can be supplied for the product.



## 11. Storage

The storage area should be dry and sufficiently ventilated. It is recommended to apply AUTOL Top 2000 grease (or a similar grease) to the surface of the buffer before storage.

## 12. Disposal

The filling material is nonpoisonous. According to the safety data sheet of the manufacturer, the filling material is not detrimental to health or to the environment in case of proper use of the product.

**Achtung !**

**Attention**

***In case of contact with***

**Skin:** remove material with dry cloth and wash skin with water and soap.

**Eyes:** rinse eyes immediately. Wear safety goggles to avoid contact!

Class of hazard: WGK 1

Worn out components can be returned to the manufacturer for disposal.

## 13. Imprint

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