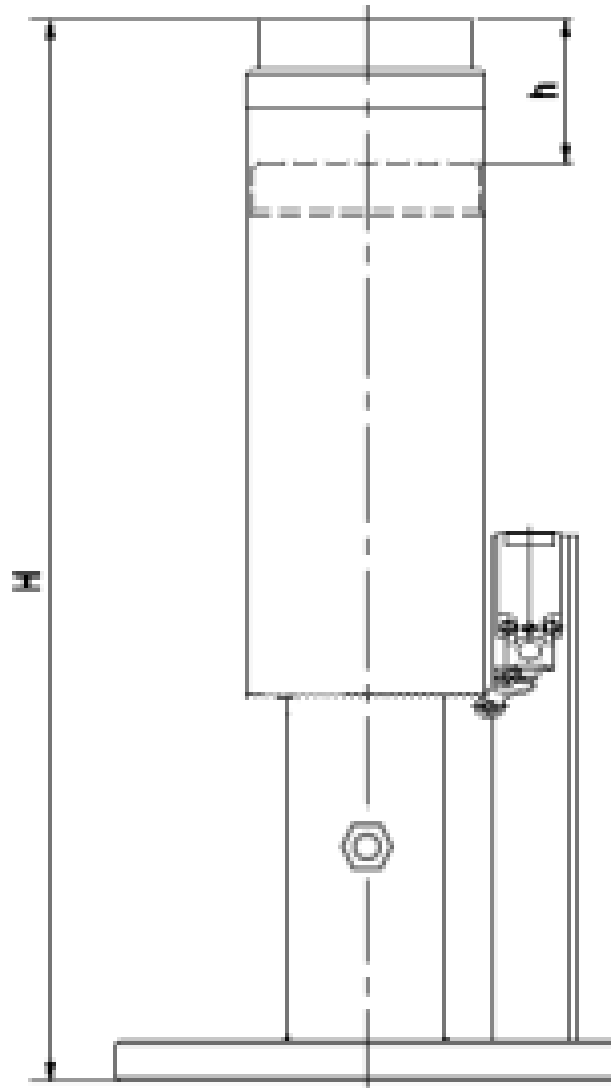


# HYDRAULIC BUFFER INSTALATION AND USAGE MANUAL



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## i. Safety

### Explanation of Symbols Used



#### → **Danger:**

This symbol shows that health and lives of related persons are under a risk because of electricity. Ignoring it causes vital dangers.



#### → **Warning:**

With this symbol warning is made before direct risks occur. Ignoring it may be cause for injuries and serious product damages. Always pay attention to warning.



#### → **Information:**

This symbol is used when some important data and operating instructions are given. When ignored various kinds of damages, risky situations or disturbing circumstances can be faced.



#### → **Control:**

With this symbol control steps are given. Stated control steps must be executed exactly. This way possible person harms and product losses are forestalled.

### Safety Warnings



#### → **Particular points which must be considered carefully in this manual**

Priority is to have knowledge for security instruction in order to use the buffers in an appropriate usage without breakdown.

This manual covers most important steps and subjects to use the buffers safely.

Security warnings in this manual are highly important especially for persons who work with buffers, attention is needed.

However all other instructions and warnings in working area must be followed strictly.



#### → **Management Responsibilities**

A manager must let only the person who carry the following features to work with buffers:

- Authorized persons who know the instructions for job security and accident averting instructions.
- Who already read the instructions and information in this manual.



→ **Warning:** Regularly check the responsible person whether is he working with awareness of security warnings or not.

#### **Responsibilities of Staff,**

Persons who work with this buffer are obliged to gain following features before

start working:

- To pay attention to the instructions about job security and averting accidents.
- To read the warnings in this manual.

### **Education of Staff,**

Only educated staff and experts must be allowed to work in this construction. Responsibility of staff must be determined clearly for installing, operating maintenance and repair.

### **Organizational Measures,**

A manager must supply all necessary equipment for personal security. Also all available security equipment must be controlled according to regular checking list.

### **Other Warnings Regarding Precaution Measures;**

- User manual must be kept close to the device.
- Addition to User Manual, local accident averting and environmental protection instructions must be kept ready and shouldn't be ignored.
- Lawful security warnings should be kept where the users can easily see them.
- All security warnings related to a device must be readable and on the device.

## **ii. Authentic Usage**

Hydraulic buffers are produced according to the current techniques and they are developed in accordance with technical security instructions. Hydraulic Buffer must be installed and used according to the User Manual and Security Warnings only.



→ The usage of Hydraulic Buffer; to make the cabin and counterweight, which comes with nominal speed, stopped by braking when the system passes the last point.

It is not suitable to use the buffer for other applications HKS HAS ASANSOR A.Ş. will not hold any responsibility for possible damages arising from using the buffer for other applications. Proper usage is carried out by strictly considering all the warnings from the manual and construction and maintenance instruction.

### iii. Guarantee Conditions Responsibility

This paragraph is about general sales and shipping conditions of HKS HAS ASANSÖR A.Ş.

The guarantee and responsibility for loss will not be covered when the following matters occurs:

- To use the buffer for other applications.
- To install, operate, maintain and protect in way that is inappropriate by the instructions.
- To use broken buffers or without security protection equipment.
- To ignore the transportation, storing, installation, operating, maintenance, protection instructions in this manual.
- To implement some modification without giving any notice to the manufacturer.

Not controlling the corroded parts warily.

Repair applications violating the regulations without knowledge of constructor.

Damages caused by people on purpose. Earthquakes and other disasters.

### iv. Structural Amendments in Hydraulic Buffer



→ Hydraulic Buffer are completely assembled in factory, all the necessary experiments are done and shipped ready to use.

**Attention:** Hydraulic Buffer is a licensed safety part. Any kind of modification is not allowed. Modifications make the Buffer out of guarantee of HKS HAS ASANSÖR A.Ş.

### v. Risk in the Place of Hydraulic Buffer




→ Adequate distance in the pit must be taken while working in the pit.

To use the buffer for other kind of applications may cause to injure the users or third parties or can damage construction.

Risky breakdowns must be repaired immediately.

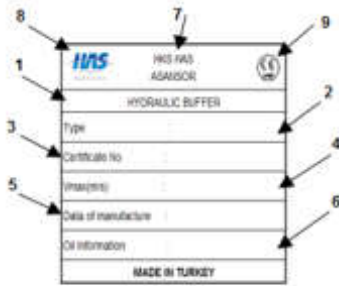
## 1. Definition of the Product

### 1.1 Definition of Hydraulic Buffer

 → Function of Hydraulic Buffer: to make the cabin or counterweight stop when they pass the last stop point with nominal speed.

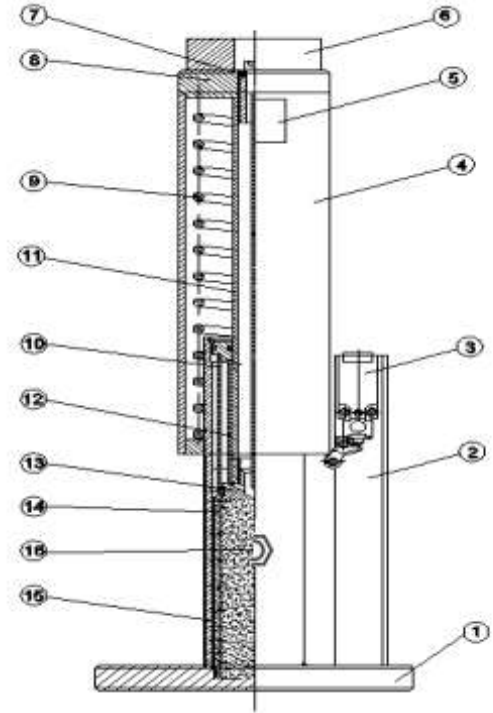
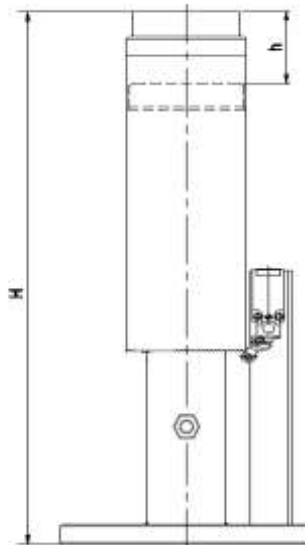
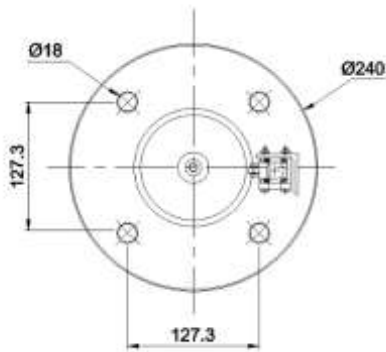
Working Principles: Hydraulic Buffer consists of cylinder filled with oil and piston in this cylinder. It is ready to handle weight of a cabin at its full height with a spring. When cabin or counterweight presses the buffer, it applies pressure to the piston, with this pressure oil flows through the holes to the outer cylinder. The speed of flowing oil from interior cylinder to outer cylinder is related to the speed of piston and this speed arranges the delaying time. The number and diameter of holes and position arrangements are strictly prepared not to over gravity acceleration ( $g=9,81 \text{ m/s}^2$ ). When all values are strictly followed, cabin or counterweight will stop before the death line of piston stroke.

Electrical Observation: Mechanical switch starts working when the power pushes the piston. This switch stops the elevator works. Being free from working weight, switch comes to its starting positions with a support of spring.



1	Description of the good
2	Type of the good
3	Certifical no
4	V max (m/s)
5	Date of Manufacture
6	Name Of Manufacturer
7	Manufacturer's logo
8	Certificate Logo
9	Oil information

1	Buffer Base	9	Step Spring
2	Angular Switch	10	Tower
3	Switch	11	Cylinder
4	Tube Switch	12	Pistance Tube
5	Label	13	Piston Ring
6	Rubber Spring	14	Grading Tube
7	Oil Measurement Hole	15	Outside Tube
8	Tube Switch's Cover	16	Oil Indicator



Values	1.6 m/s	2 m/s
Height H mm	638	798
Stroke h mm	175	200
Weight kg	23	25
Oil Quantity Lt	400	550

	v(m/s)	F <sub>min</sub> (kg)	F <sub>max</sub> (kg)
HHT 1,6-01	1,6	454	1250
HHT 1,6-02	1,6	635	1720
HHT 1,6-03	1,6	875	2400
HHT 2-01	2	460	1000
HHT 2-02	2	635	1600
HHT 2-03	2	875	2000

## 1.2. Usage Area

Energy absorbing Hydraulic Buffers are used in elevator systems.

Within the usage limitations buffers can be used in all types of elevators concerning cabins and counterweights. Usage must be in accordance with EN 81-20.

## 1.3. Choose the Suitable Hydraulic Buffer



→There are two criterions to choose the suitable Hydraulic Buffer:

- 1) Choosing of type according to the speed: The difference between the speeds of counterweight and cabin are taken into consideration for each of the elevator types.
- 2) Choice by carried mass. This distinction is made according to total weight of the cabins maximum values or by the maximum values of counterweight.

## 1.4. Multi-Application

Hydraulic Buffers are suitable for multiple applications. More than one buffer of the same type can be used in a same place.

Important Notice

Here, only same type of stroke and buffers designed for same load can be used together. The value of permitted total weight can be increase by using additional buffers. Allowed total load can be rated by multiplying the number of buffer used. Maximum speed does not change.

## 1.5. Oil Type

The hydraulic oil (46) is supplied by HKS HAS ASANSÖR A.Ş.

## 2. Transportation and Storing

### 2.1. Packing and Transportation

are carried in wooden cases

Also the meanings of the signs written on the boxes are as follows.





## 2.2. Procedures of Accepting Cargo on Customer Area

Check all equipment's of packings whether it is complete. Controlling damages.

## 2.3. Informing Damages and Documents Caused by Transportation

- Be sure there is no damages by transportation.
- If damages accurse, prepare documents, explaining th matter with drawings and photos.
- Please send these documents to HKS HAS ASANSÖR A.Ş. immediately.

## 2.4. Opening Boxes

- Packing materials can be recycled.
- Special transportation care and insurance are on customer account.

## 2.5. Temporary Storing



→ Keep it away from mixture, getting wet and other precautions.

## 2.6. Environment



→ Working area, if it is not suitable for appropriate conditions (mixture, heat) should prepare it to the normal values.

## 3. Installation

- Must be pay attention to following points.
- Hydraulic Buffer must be fixed to the ceiling with plate.
- To install it on a base, necessary to have appropriate construction in order to make it stable under pressure of power.
- Pay attention to center the buffer against of additional power.
- Construction must be according to the elevator instruction.
- More then one piece of Hydraulic Buffer all must be at the same height.
- Observing switch must start when it is cut of the normal working values.
- The plate which connect the buffer to ground must be smooth and must not change its shape under pressure of power.

## 4. Operating

Before operating the buffer, be sure that all instructions in section 3 are completely obeyed. The oil rate inside must be at marked level. With a load, you may check Hydraulic Buffer whether it is working or not.

## 5. Maintenance

- Check the buffer in a systematic period, at least 2 times a year.
- Rubber buffer must be installed tightly.
- Connection bolt must be fastened tightly.
- Check if there is chap or oil leakage.
- Check the oil level, level may be between the mark and top of the buffer. If it is under marked level. Fill it up with oil 46. (Get in touch with HKS HAS ASANSÖR A.Ş.) 10-15 minutes later check the level once again. Put the oil screw lightly.

**Advice:** When the oil measure screw is tightening, give importance to the unlike material.

- If it is suitable, how to control by hand: When you push it by hand, you must feel opposite power. Cylinder must come to its first position.
- Security switch control.

**Attention:** The buffer must be changed when it faces any crack, broken spring or any other damages affect the working system.

## 6. Protection

The buffer is an certificated components. Ready to use. Never allowed to make any kind of amendments. Any repair, without notice to HKS HAS ASANSÖR A.Ş. ends the guaranty. Must be changed immediately on the condition that it has any faulty or it doesn't work properly.

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