

## OIL BUFFERS

### RANGE OF USE

Table 1:

Order number	Rated speed (m/s)	
	Full Stroke	Reduced Stroke
655001G.	1.6...3.50	≤6.18
655002G.	4.00...5.65	≥9.82

### INCLUDED IN DELIVERY

- Buffer ..... See delivery condition, Section 4.2
- Safety switch..... Optional
- Safety switch cable ..... Optional
- Specification label..... Canadian optional
- Plastic protective dust cover ..... Optional

### ORDER INFORMATION

#### Tables

Table 2:

Order option	Order code	Order code	
		Included	Not included
Safety switch*	ZA=	1	0
Specific. label (Canada)	BV=		
Plastic protect. dust cover	DA=		
Order option	Order code	Comment	
Oil	LN=1	Supplied either inside buffer or separately in cans.	
	LN=0	No oil included in order	
Cable for switch	655901G01	Cable and plug-in 8 m	
	655901G02	Cable and plug-in 12 m	
Certification	ANSI	According to ANSI Code	
	EN 81-1	According to 2014/33/UE Directive	
	EN 81-20		
	EN 81-50		

Table 3:

Order number	Type	Max. impact speed (m/s)	CB (mm)	CL (mm)	Volume of oil LN (litres)	Weight (kg)
655001 G01	OB 16	1.84	175	625	1.7	29
G02	OB 18	2.08	230	765	2.1	32
G03	OB20	2.34	290	915	2.6	36
G04	OB 23	2.60	350	1080	3.1	40
G05	OB 25	2.88	435	1300	3.7	45
G06	OB 29	3.25	550	1595	4.6	52
G07	OB 31	3.62	680	1920	5.6	60
G08	OB 35	4.09	860	2365	7.1	71
655002 G01	OB 40	4.60	1112	3000	11.7	115
G02	OB 45	5.20	1390	3692	14.6	140
G03	OB 50	5.75	1740	4540	17.7	166
G04	OB 56	6.50	2170	5615	22.8	208

Table 4:

Order number	Type	EN 81-1; EN 81-20; EN 81-50			Impact mass (kg)		Certification			
		Max. nom. speed (m/s)					EN 81.1 EN81.20 EN 81.50	KTL	EAC CASTOMS UNION	CHINA GB 7588
		Buffer stroke			min.	max.				
		100%	50%	33%						
655001 G01	OB 16	1.60	-	-	700	5300	X		X	X
G02	OB 18	1.80	-	-	700	5300	X	X	X	X
G03	OB20	2.00	-	-	700	5300	X		X	X
G04	OB 23	2.28	-	-	700	5300	X		X	X
G05	OB 25	2.50	3.59	4.40	700	5300	X	X	X	X
G06	OB 29	2.86	4.03	4.94	700	5300	X	X	X	X
G07	OB 31	3.15	4.49	5.50	700	5300	X	X	X	X
G08	OB 35	3.50	5.05	6.18	1300	5300	X	X	X	X
655002 G01	OB 40	4.00	5.74	7.03	1300	6600	X	X (max 5300 kg)	X	X
G02	OB 45	4.52	6.42	7.86	1300	5300				
G03	OB 50	5.00	7.18	8.80	1300	5300				
G04	OB 56	5.65	8.02	9.82	1300	5300				

- not to be used.



Table 5:

Order number	Type	TSSA, ANSI				
		Max. nom. speed m/s [fpm]			Impact mass	
		Buffer stroke				
		100%	50%	33%	kg [lbs]	
					min.	max.
655001 G02	OB 18	1.8 [354]	-	-	1170 [2580]	5300
G03	OB 20	2.00 [400]	-	-	1300	[11700]
G05	OB 25	2.50 [500]	3.57 [705]	-		
G08	OB 35	3.50 [700]	4.95 [985]	6.06 [1210]	[2870]	

all types into the table 5 are TSSA/ANSI tested.

**DELIVERY CONDITION OF BUFFER**

- Buffers 655001 G01 to G05 are delivered standing vertically, all others are delivered horizontally packed.
- Horizontally packed buffers are delivered with oil contained separately in cans.

**TO BE STATED ON ORDER**

- Buffer order number .....(tables 3,4,5) = \_\_\_\_\_
- Certification according to **EN** or **ANSI** ..... (Table 2) = \_\_\_\_\_
- Delivered with/without: oil ..... (table 2) LN = \_\_\_\_\_
- safety switch ..... (table 2) ZA = \_\_\_\_\_
- specification label ..... (table 2) BV = \_\_\_\_\_
- plastic protective cover ..... (table 2) DA = \_\_\_\_\_
- 8 m length cable for switch ..... (table 2) = 655901G01
- or:
- 12 m length cable for switch ..... (table 2) = 655901G02

## 1 DIMENSIONS

### ACCORDING TO EN CODES

### ACCORDING TO ANSI CODE

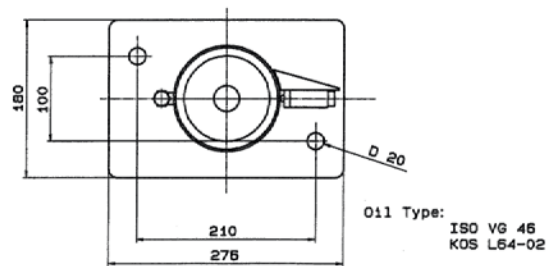
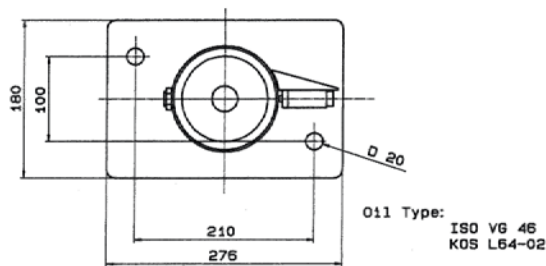
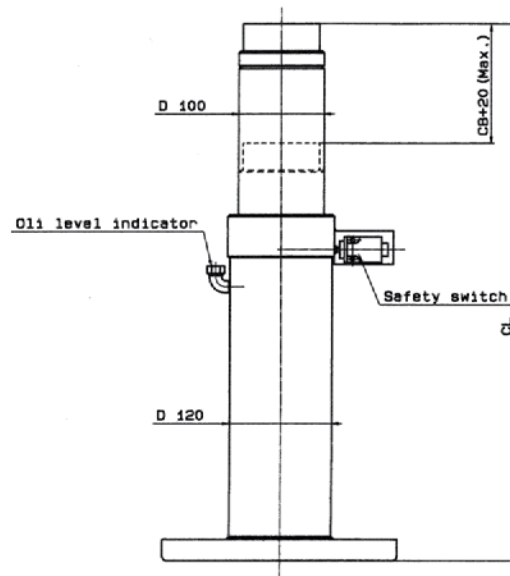
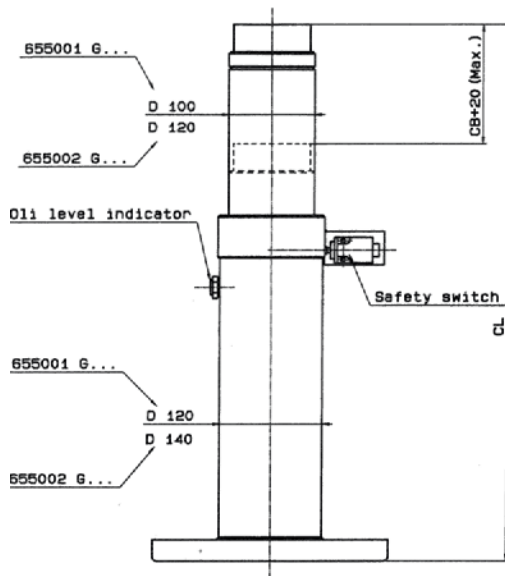


Figure 1.

## 2 SYMBOLS USED

- BB = height of uncompressed buffer and extension.
- BV = order variable for the delivery of a Specification Label for Canadian deliveries.
- CB = buffer stroke.
- CL = height of uncompressed buffer.
- DA = order variable for the delivery of a Plastic Protective Dust Cover.
- LN = order variable for the delivery of Hydraulic Oil.
- ZA = order variable for the delivery of Safety Switch.

## **OIL BUFFER INSTALLATION**

This paragraph shows some useful informations for the installation of Hydronic Lift oil buffers,



**NOTE:** Remove the plastic film or the plastic bag that protect the ram during the shipment before installing the buffer.

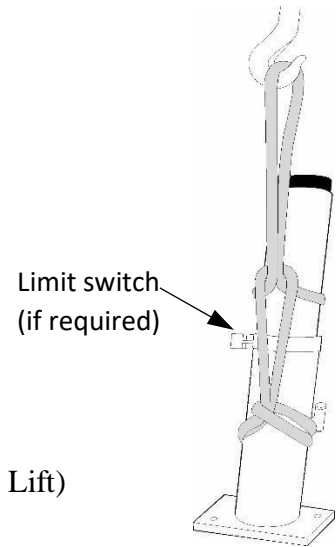
During the compression of the buffer the actuator pin and the safety switch must be always installed to prevent oil leakage.

### **1. BUFFER LIFTING**

Use a textile rope for lifting so that the piston surface does not get damaged.

Place the textile rope so that the limit switch (bracket or switch) does not get broken during the lifting..

**NOTE:** Some oil buffers are shipped in vertical position and filled with oil; during the transport and handling, the oil buffer must keep in vertical position to avoid oil leakage.



### **2. WORKING CONDITION**

Temperature: -5/45°C; (For different Temperature range ask to Hydronic Lift)

Humidity: less than 95%

Medium has no explosion risk, no risk of corroding metal and destroying insulation

Pit is clean and no ponding.

### **3. LIFE TIME**

The life of the unit is assessed only on "condition monitoring" practice.

As an example, the replacement of the units will be made if:

- during planned checks, if presence of corroded metal parts are noted
- Following occasional events that may have compromised the integrity and functionality of some components of the hydraulic damper, such as flooding of the pit or a fire..

### **4. ALIGNEMENT OF THE BUFFER**

Check that the buffer is plumb. The deviation of the piston from the plumb line can be maximum 1 mm /1 m stroke (0.33 Inch / 39 Inch stroke).



Before putting on service the oil buffer, check the oil level in the following way:

- minimum level through the minimum visual oil level
- maximum level by opening the max. oil level plug discharging the excess oil.

During oil buffer functional test, at nominal impact speed, a small oil leakage is admitted from the air venting ports.

Always check buffer's oil level, after performance at nominal impact speed test.

Oil buffers are safety components to prevent damages during impacts at elevator nominal working conditions.

If during lift installation or maintenance oil buffers are compressed, please allow a suitable time (10/15 minutes) elapse between two following strokes.

## 5. OIL FILLING

Use mineral oil ISO VG GRADE 46, VI 104 min.

### 5.1. OB serie

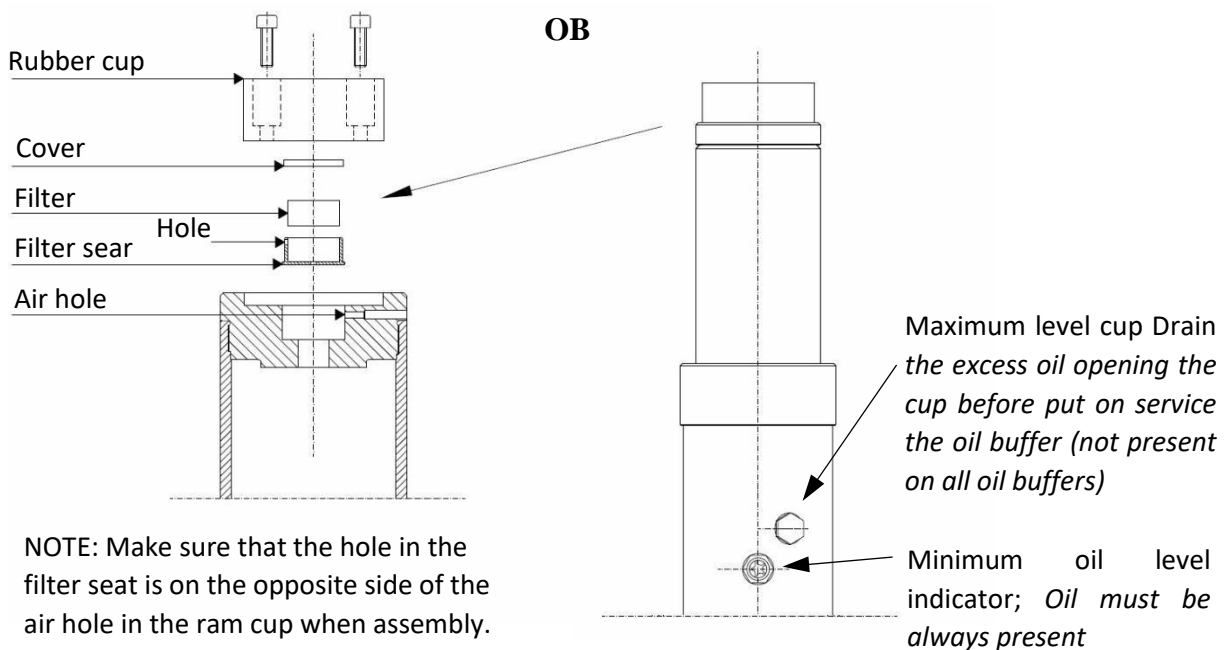
(\*) The buffer up to 655001G05 are filled with oil. In any case, oil filling could be necessary for maintenance operations.

The buffers 655001G06 and above are delivered empty and they must be filled with oil before operating.

#### Oil filling of the OB type buffers made according to EN Code:

1. Disassemble the piston top..
2. Fill in oil to the buffer from the piston top according to the quantity given in the chart,when filling is almost complete, last 0.5 liters, pour slowly while keep on checking the oil level through the glass indicator on the cylinder. **DO NOT OVERFILL!**
3. Install the piston top parts and let the buffer rest. In the meantime, if possible, compress the piston (piston compressed 40...50 mm) then release slowly.
4. Check the oil level looking through the oil level on cylinder after 10 minutes..
5. for the unit with maximum oil level cup, remove the cup and the extra oil will go out from the maximum level hole on the side of the buffer..

<i>Buffer code</i>	<i>Litres</i>	<i>Gallons</i>
655001G01 (*)	1.7	0.45
655001G02 (*)	2.1	0.56
655001G03 (*)	2.6	0.69
655001G04 (*)	3.1	0.82
655001G05 (*)	3.7	0.98
655001G06	4.6	1.22
655001G07	5.6	1.48
655001G08	7.1	1.88
655002G01	11.7	3.10



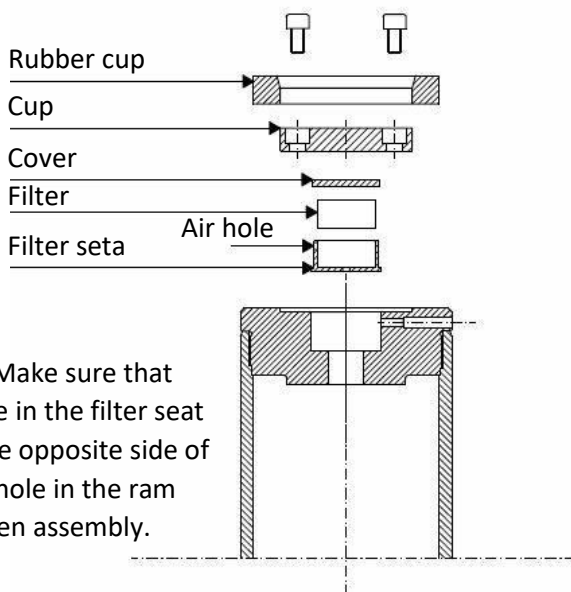
Buffers made according to ANSI: see OBH 32-35

### 5.1. OBH serie

OBH buffers are delivered empty and they must be filled with oil before operating.

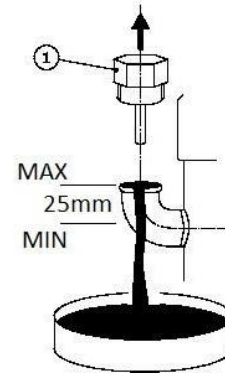
1. Disassemble the piston top.
2. Fill in oil to the buffer from the piston top according to the quantity in the table + approx. 0.2...0.3 litres (0.42.... 0.63 PINTS) extra oil.
3. Install the piston top parts and let the buffer rest. In the meantime, if possible, compress the piston (piston compressed 40...50 mm - 1.5 ....2.0 INCHES) then release slowly.
4. Place a recovery tank under the inspection cup, open the screw cover and let excessive oil flow out.

#### OBH 32-35

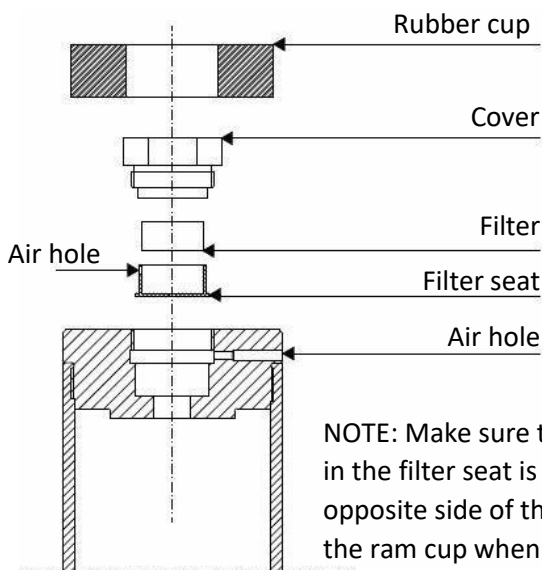


NOTE: Make sure that the hole in the filter seat is on the opposite side of the air hole in the ram cup when assembly.

Buffer code	Litres	Gallons
655004G10	8.6	2.27
655004G11	10.5	2.77

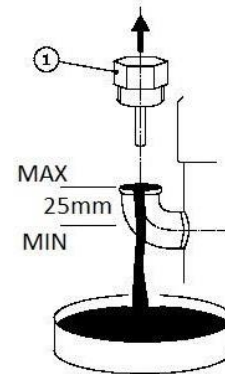


#### OBH 40-56



NOTE: Make sure that the hole in the filter seat is on the opposite side of the air hole in the ram cup when assembly.

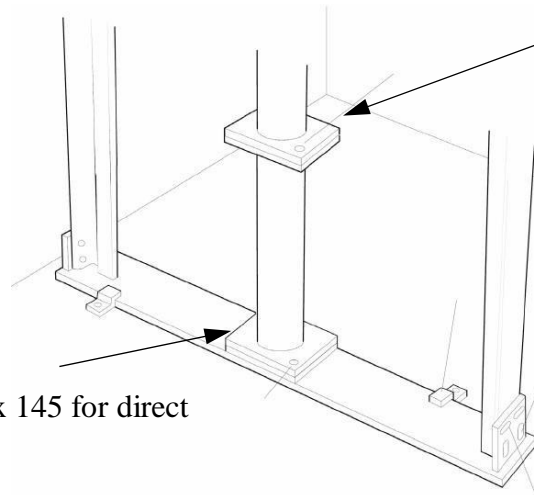
Buffer code	Litres	Gallons
655004G01	11.7	3.10
655004G03	17.7	4.68
655004G04	22.8	6.03
655004G07	18	4.76



## 6. FIXING DETAILS

### Base plate fastening

Nr. 2 screw M 16 or  
Nr. 2 anchor bolt M 16 x 145 for direct  
fastening to the pit



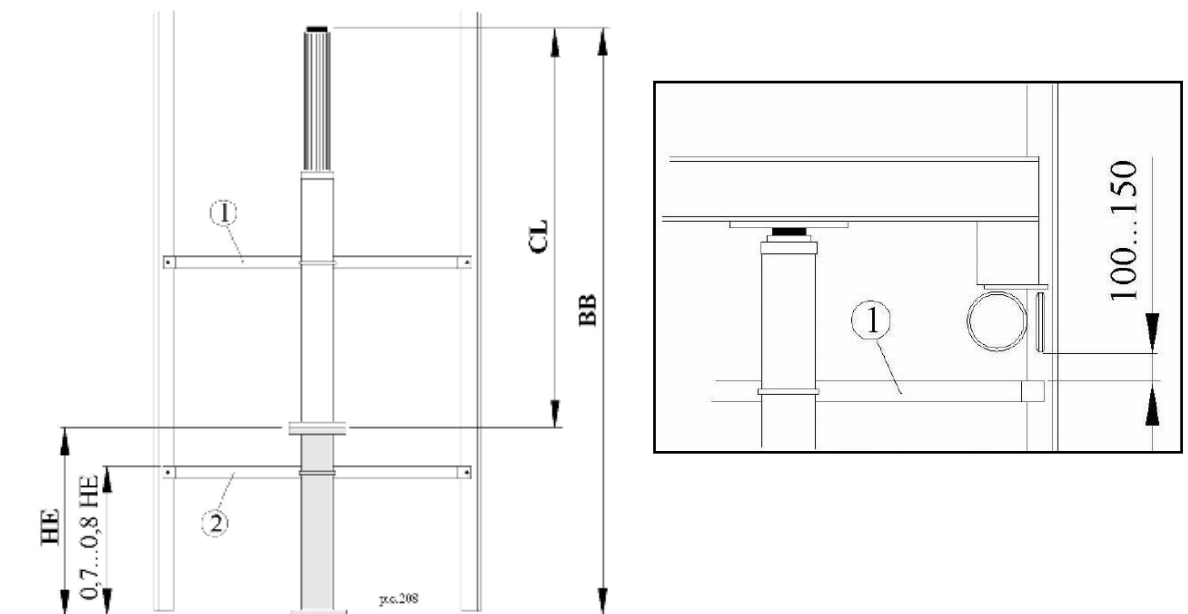
With buffer extension  
Nr. 2 screw M 16

### Supports

The supports are installed according to the table and drawing.

The clearance between the support (1) and the car must be 100...150 mm when the car is standing on the compressed buffer. The buffer and the extension are fastened with steel clamps to the support

CL	HE	BB	support (1)	support (2)
< 2000	-	< 2000	-	-
≥ 2000	-	≥ 2000	X	-
< 2000	< 2000	≥ 2000	X	-
≥ 2000	< 200	< 4000	X	-
< 2000	≥ 2000	< 4000	-	X
≥ 2000	≥ 2000	≥ 4000	X	X
< 2000	≥ 2000	≥ 4000	X	X





## **OIL BUFFER OBL16**

### **CHARACTERISTICS AND RANGE OF USE**

Tab. 1:

<b>Order number</b>	<b>Type</b>	<b>Rated speed (m/s)</b>	<b>Max. impact speed (m/s)</b>	<b>Max. load (kg)</b>	<b>Min. load (kg)</b>	<b>Oil volume(l)</b>	<b>Weight (kg)</b>
655000G01	OBL16	1.6	1.84	2500	400	1.52	16

The oil buffer complies with EN 81-1, EN 81-20 and EN 81-50 codes

### **OIL BUFFER CONFIGURATION**

The oil buffer is supplied:

- filled with oil
- complete with safety switch.

Optional:

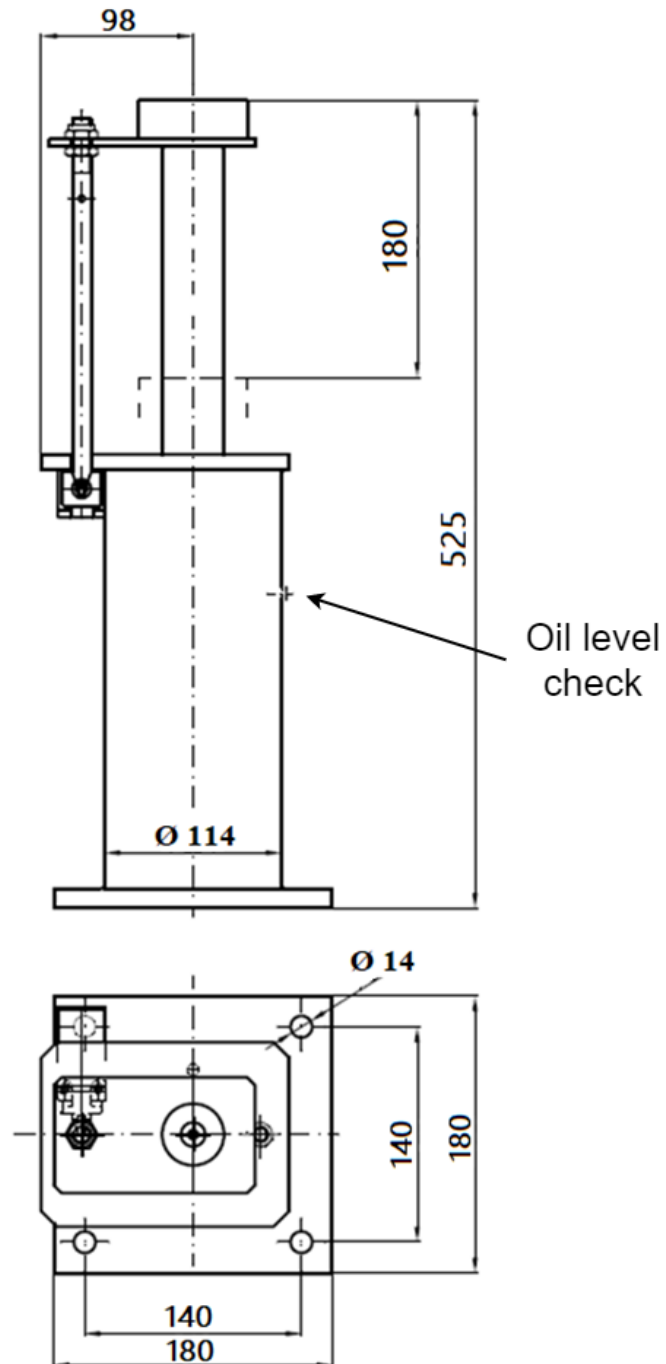
- cable for switch length 8 m.
- cable for switch length 12 m.
- plastic protective cover.

### **DELIVERY CONDITION OF OIL BUFFER**

The oil buffer is delivered standing vertically, filled with oil and in compressed (see installation instructions HL 05.04 for the extension of the oil buffer).

NOTE: during the transport and handling, the oil buffer **MUST** keep vertical position to avoid oil leakage.

DIMENSIONS

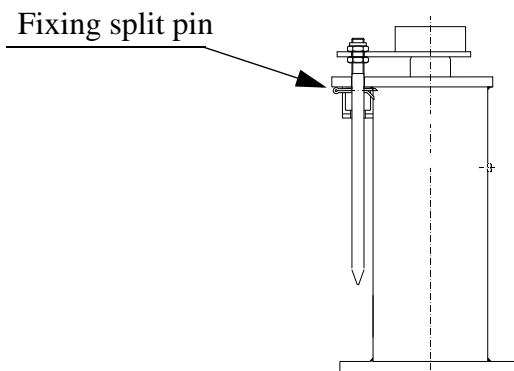


## OIL BUFFER INSTALLATION

This paragraph shows some usefull informations for the installation of Hydronic Lift oil buffers type OBL.

### 1 OIL BUFFER SHIPMENT

The oil buffer OBL are shipped in compressed position.

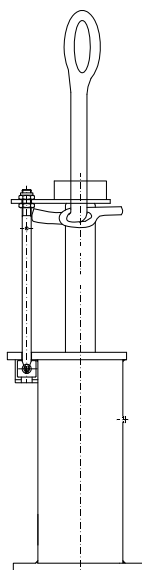


For the extention of the oil buffer remove the split pin, **pay attention to the upper movement of the oil buffer ram.**

NOTE: during the transport and handling, the oil buffer **MUST** keep vertical position to avoid oil leakage.

### 2 OIL BUFFERS LIFTING

Use a textile rope for lifting so the oil buffer surface does not get damaged. Hook up the buffer as showed in the picture.



Pay attention during the handling to avoide damages of safety switch

### 3 FILLING AND CHECKING OF OIL LEVEL

Oil buffers OBL 16 are supplied filled with oil.

In the case of filling or checking of the oil level, proceed in the following way:

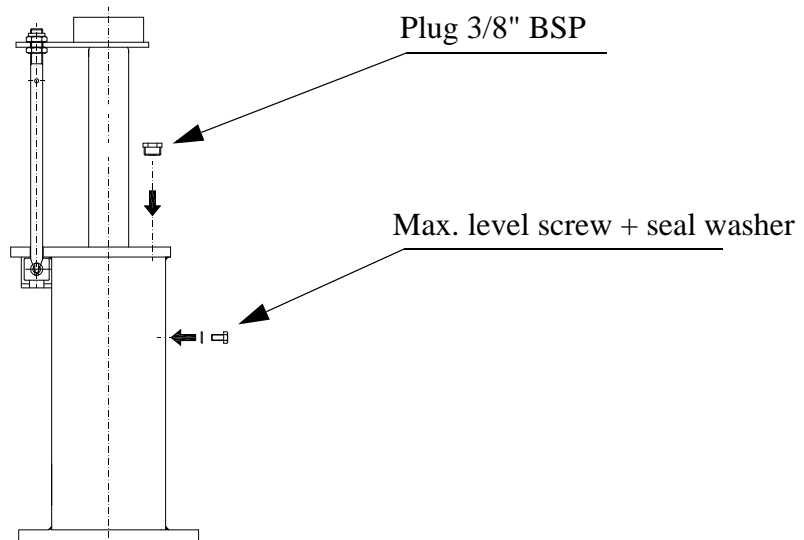
USE OIL ISO VG 46 MINIMUM VISCOSITY INDEX 104

Complete filling of the oil buffer:

- Remove the 3/8" plug from the head of the buffer.
- Provide to dry the oil leakage from the hole of the max. level screw.
- From the 3/8" hole, fill the buffer with 1,52 liters of oil and with one more small quantity of about 0,05 liters.
- Wait some minutes in order to fill all the buffer chambers with oil.
- Remove the max. level screw and the seal washer from the side of the buffer.
- The extra oil will go out from the maximum level hole on the side of the buffer.
- Mount the 3/8" plug and the max. level screw complete with the seal washer.

Filling and checking of oil level

- Remove the 3/8" plug from the head of the buffer.
- Provide to dry the oil leakage from the hole of the max. level screw.
- From the 3/8" hole, add in the buffer a small quantity of oil.
- Remove the max. level screw and the seal washer from the side of the buffer.
- The extra oil will go out from the maximum level hole on the side of the buffer.
- Mount the 3/8" plug and the max. level screw complete with the seal washer.



### 4 ALIGNEMENT OF THE OIL BUFFER

Check that the oil buffer is plumb; the deviation of the buffer from the plumb line can be maximum 1mm.

## 5 WORKING CONDITION

Temperature: -5/45°C; (For different Temperature range ask to Hydronic Lift)

Humidity: less than 95%

Medium has no explosion risk, no risk of corroding metal and destroying insulation

Pit is clean and no ponding.

## 6 LIFE TIME

The life of the unit is assessed only on "condition monitoring" practice.

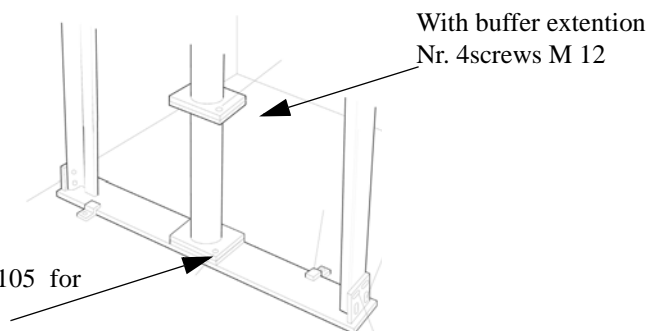
As an example, the replacement of the units will be made if:

- during planned checks, if presence of corroded metal parts are noted
- Following occasional events that may have compromised the integrity and functionality of some components of the hydraulic damper, such as flooding of the pit or a fire.

## 7 FIXING DETAILS

### Base plate fastening

Nr. 4screws M 12 or  
 Nr. 4anchor bolt M 12 x 105 for  
 direct fastening to the pit



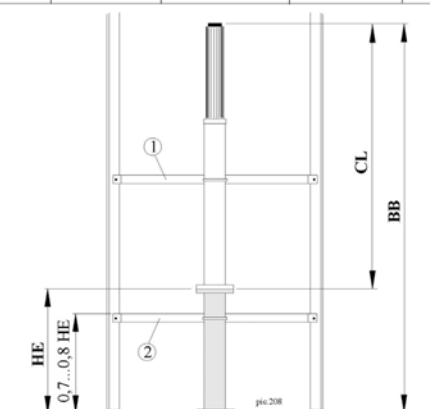
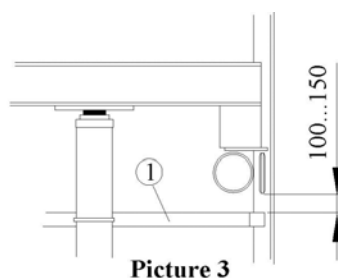
### Supports

The supports are installed according to the table and drawing

The clearance between the support (1) and the car must be 100...150 mm when the car is standing on the compressed buffer (see picture 3)

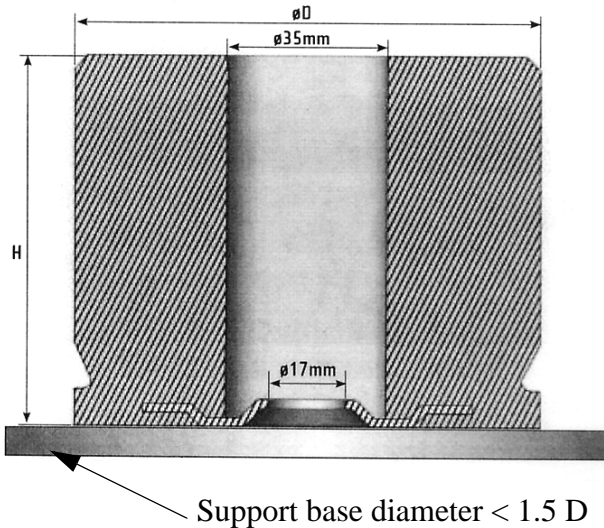
The buffer and the extension are fastened with steel clamps to the support

CL	HE	BB	support (1)	support (2)
< 2000	-	< 2000	-	-
≥ 2000	-	≥ 2000	X	-
< 2000	≥ 2000	≥ 2000	X	-
≥ 2000	≥ 200	≥ 4000	X	-
< 2000	≥ 2000	≥ 4000	-	X
≥ 2000	≥ 2000	≥ 4000	X	X
< 2000	≥ 2000	≥ 4000	X	X

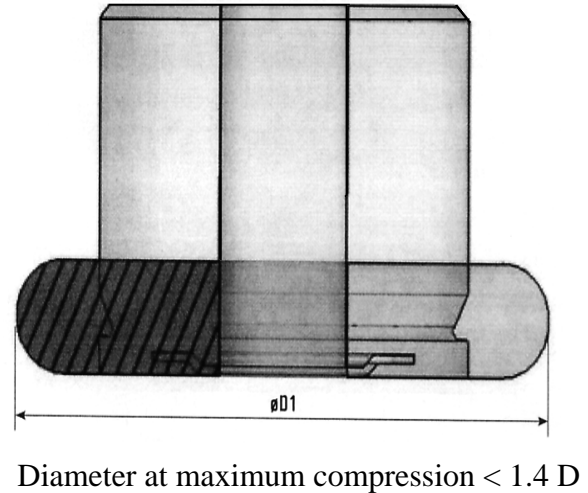


## POLYURETHANE BUFFERS

Buffer dimensions



Raccomanded compression 70-80 %



### Features:

- Materials: Polycell<sup>®</sup> elastic cellular Polyurethane elastomer
- Density:  $500 \pm 20 \text{ kg/m}^3$
- Deformability: up to 90%
- Temperature range: from  $-40^\circ\text{C}$  to  $+80^\circ\text{C}$  ( $-40^\circ\text{F}$  + $176^\circ\text{F}$ )
- Humidity range: up to 70% relative Humidity at room temperature
- Good resistant against oil, grease, petrol & ozone
- Performance: high stability and dynamic load bearing capacity
- Avoid continuous contact with water

### Maintenance:

These buffers are maintenance free, but should be regular having visual checks when inspecting and maintaining safety components.

Buffer should be change if considerable visible deformation, car droop over limit or end of life time.

Color changes from white to brown have no influence on Buffer technical characteristics.

Model	Diameter (mm)	Height (mm)	Compress. 90% (mm)	Load range according to EN-81 1/2			
				Speed 0.7 m/s		speed 1 m/s	
				Max (kg)	Min (kg)	Max (kg)	Min (kg)
E1	100	160	144	1030	235	1030	235
E2	125	100	90	1510	260	1505	435
E3	125	160	144	1505	260	1505	401
E4	125	200	180	1590	401	1590	570
E5	140	100	90	1815	373	1580	542
E6	140	200	180	2120	260	1800	317
E7	165	160	144	3120	401	3040	600
E8	165	220	198	4080	500	3920	770
E9	220	160	198	-	-	-	-
E10	220	220	198	-	-	-	-

Model	Diameter (mm)	Height (mm)	Compress. 90% (mm)	Load range according to EN-81 1/2			
				Speed 0.7 m/s		speed 1 m/s	
				Max (kg)	Min (kg)	Max (kg)	Min (kg)
T1	80	80	72	1315	220	505	277
T2	100	80	72	1140	235	800	235
T3	125	80	72	1505	235	1026	235
T4	165	80	72	-	-	-	-
T5	220	80	62	-	-	-	-

Model	Diameter (mm)	Height (mm)	Compress. 90% (mm)	Load range according to EN-81 1/2	
				Speed 1.4 m/s	
				Max (kg)	Min (kg)
E167	165	160	144	1600	1075
E168	165	220	144	1800	1018