

# LUKAS

Because you never get a second chance

## Instruction manual for rescue equipment

CE



### Hose reels



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(Translation of the original instruction manual)

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# 1. Hazard classes

We distinguish between various categories of safety notes. The table below gives you an overview of the assignment of symbols (pictograms) and key words to the specific hazard and possible consequences.

Pictogram	Damage / injury to	Key word	Definition	Consequences
	human	DANGER!	Immediate danger	Death or major injury
		WARNING!	Potentially dangerous situation	Potential death or major injury
		CAUTION!	Less dangerous situation	Minor or slight injury
	device	CAUTION!	Danger of damage to device / environment	Damage to the equipment, damage to the environment, damage to surrounding materials
	-	REMARK	Advice for application and other important / useful information and advice	No injury / damage to persons / environment / equipment



Wear helmet with face protection



Wear safety gloves



Wear safety shoes



Proper recycling



Observe principles of environmental protection



Read and observe operating instructions

## 2. Product safety

LUKAS products are developed and manufactured in order to guarantee the best performance and quality when used properly.

Operator safety is the most important aspect of the product design.

Moreover, the operating instructions are intended to help the safe use of LUKAS products. The generally applicable, legal and other binding regulations pertaining to the prevention of accidents and protection of the environment apply and are to be implemented in addition to the operating instructions.

The equipment may only be operated by persons with appropriate training in the safety aspects of such equipment – otherwise, there is a danger of injury occurring.

We would like to point out to all users that they should read carefully the operating instructions and the instructions contained therein before they use the equipment, and that they should carefully follow such.

We further recommend that a qualified trainer train you in the use of the product.



### **WARNING / CAUTION!**

The operating instructions for the hoses, the accessories and the connected hydraulic equipment must also be observed!

Even if you have already received instructions on how to use the equipment, you should still read the following safety notes through again.



### **WARNING / CAUTION!**

Ensure that the accessories and connected equipment used are suitable for the max. operating pressure!

	<p>Wear protective clothing, safety helmet with visor, protective gloves</p>	<p>Inspect the equipment before and after use for visible defects or damage.</p>	
 	<p>The responsible department is to be informed immediately of any changes (including to the operating behavior). If necessary, the equipment is to be deactivated immediately and secured!</p>	<p>Inspect all cables, hoses and screwed connections for leaks and externally visible damage. Repair them immediately! Squirting hydraulic liquids can result in injuries and fires.</p>	
 	<p>In the event of malfunctions, immediately deactivate the equipment and secure it. The malfunction is to be repaired immediately.</p>	<p>Do not carry out any changes (additions or conversions) to the equipment without obtaining the prior approval of LUKAS.</p>	

 	<p>Observe all safety and danger notes on the equipment and in the operating instructions.</p>	<p>All safety and danger notes on the device are to be kept complete and in a legible condition.</p>	 
 	<p>Any mode of operation which impairs safety and/or stability of the equipment is forbidden!</p>	<p>Comply with all specified dates or dates specified in the operating instructions pertaining to regular controls / inspections on the equipment.</p>	
 	<p>Safety devices may never be deactivated!</p>	<p>The maximum permitted operating pressure noted on the equipment may not be exceeded.</p>	 
	<p>Only original LUKAS accessories and spare parts may be used for repairs.</p>	<p>Please ensure that, when working with this equipment or during transportation of such, you don't get stuck in the looped hoses and trip.</p>	 
 	<p>When working close to live components and cables, suitable measures must be taken to avoid current transfers or high-voltage transfers to the equipment.</p>	<p>The formation of electrostatic charging with the potential consequence of spark formation associated with handling this equipment is to be avoided.</p>	
	<p>The equipment is filled with a hydraulic fluid. These hydraulic fluids can be dangerous to health if swallowed or their vapors inhaled. Direct contact with the skin is to be avoided for the same reason. Please also note that hydraulic fluids can have a negative effect on biological systems.</p>	<p>When working with or storing the equipment, ensure that the function and the safety of the equipment are not impaired by the effects of stark external temperatures or that the equipment is damaged in any way. Please note that the equipment can also heat up over a long period of use.</p>	
	<p>Ensure adequate lighting when you are working.</p>	<p>Before transporting the equipment, always ensure that the accessories are positioned such that they cannot cause an accident.</p>	
	<p>Always keep these operating instructions within reach where the equipment is used.</p>	<p>Ensure the proper disposal of all removed parts, left-over oil, left-over hydraulic fluid and packaging materials.</p>	 

The generally applicable, legal and other binding national and international regulations pertaining to the prevention of accidents and protection of the environment apply and are to be implemented in addition to the operating instructions.

## **W A R N I N G   /   C A U T I O N !**

The equipment **is to be used exclusively** for the **purpose stated in the operating instructions (see chapter “Proper Use”)**. Any other or further use is **not considered proper use**. The manufacturer / supplier is not liable for any damages resulting from improper use. The user bears sole responsibility for such.

Observance of the operating instructions and compliance with the inspection and maintenance conditions are part of the proper use.



**Never work when you are overtired or intoxicated!**



### 3. Intended use

The LUKAS hose reels are used for mounting extension hose pairs between the hydraulic supply and the working equipment. The extension hose pairs are connected to the hose reel and coiled onto the drum.

The use of a LUKAS hose reel with extension hose pairs enables a greater distance between the hydraulic supply and the equipment. This allows the hydraulic unit to stay on the emergency vehicle, for example.

When working with the units described here, make sure that participating and non-participating persons in the vicinity of the work and during the lifting procedure are not endangered by the connected hoses and equipment.



**CAUTION!**

Because of possible loss of pressure, only extension hose lines having a maximum length of 20 m may be connected on the equipment side and on the device side the length may also be no more than max. 30 m!

The hose reels can also be used under water at a depth of up to 40 m (131 ft).



**CAUTION!**

In this case, you must strictly observe any leaks in order to avoid threats to the environment.

Spare parts and accessories for the rescue tool can be ordered from your authorized LUKAS-dealer!

## 4. Description

### 4.1 General information

Basically, a reel comprises a carrier, shaft and hose drum.

We distinguish between:

Single hose reel:

- Connection of a extension hose pair
- Delivery with carrier frame
- Parking brake, fix mounted, flap-in crank handle

Double hose reel:

- Connection of two extension hose pairs
- Delivery with carrier frame
- Parking brake

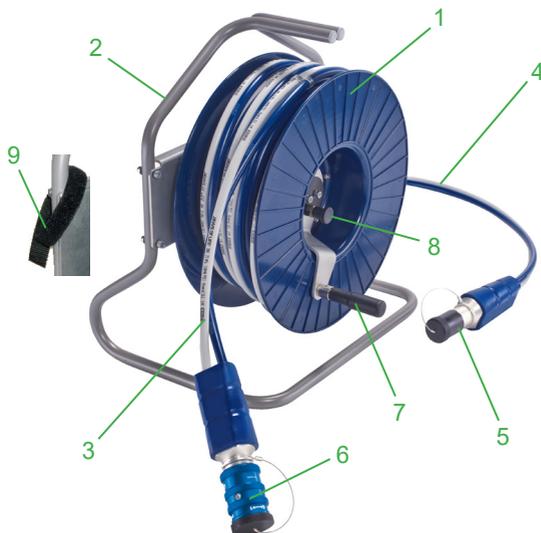
Coiling / unrolling of all models is being carried out by a hand crank, which can either be plugged in or is fix connected with the hose drum.

Connection to the hydraulic pump or control unit is carried out by connecting the connection hose pairs with the pump or control unit using mono-couplings.

### 4.2 Single hose reel

The single hose reel comprises one carrier frame and one shaft with hose drum. One extension hose pair can be connected to the equipment side of the reel.

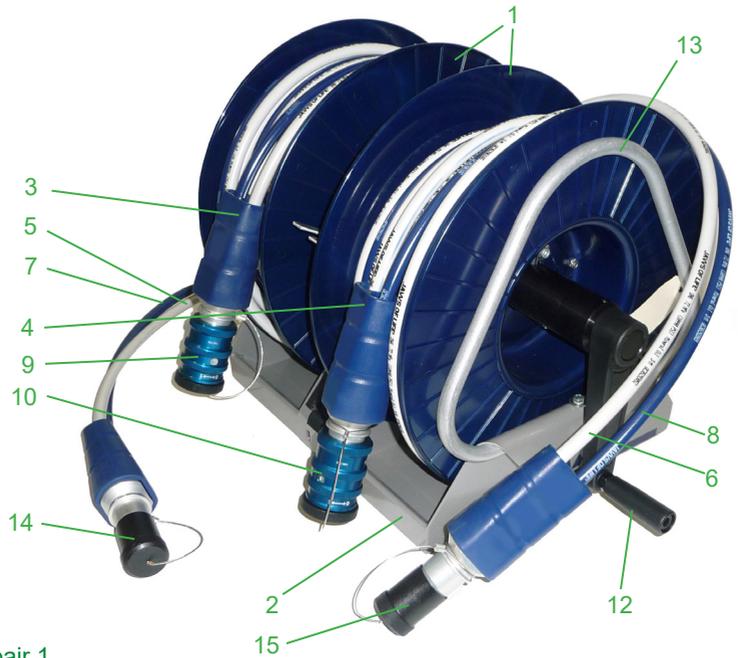
Connection to the hydraulic pump or control unit is made by connecting the “short” supply hose pair to the pump or the control unit via mono-coupling.



- 1 Hose drum
- 2 Carrier
- 3 Extension hose pair
- 4 Supply hose pair
- 5 Mono-coupling (male)
- 6 Mono-coupling (female)
- 7 Crank
- 8 Reel locking
- 9 hose retaining strap

### 4.3 Double hose reel

The double hose reel comprises one carrier frame and one shaft with two hose drums. Two extension hose pairs or extension hoses can be connected to the reel on the device side (one extension hose per drum). Depending on the connector version, connection on the equipment side is made by one or two short return hoses and one short extension hose per extension hose or extension hose pair. These connecting hoses are attached to the hydraulic pump or a control unit by means of couplings. The double hose reel also has a parking brake for simultaneously securing both hose drums in their positions.



- 1 Hose drum
- 2 Carrier
- 3 Extension hose pair 1
- 4 Extension hose pair 2
- 5 Supply hose A
- 6 Supply hose A1
- 7 Return hose T
- 8 Return hose T1
- 9 Mono-coupling (female) 1
- 10 Mono-coupling (female) 2
- 11 Parking brake
- 12 Crank
- 13 Carrying
- 14 Mono-coupling (male) 1
- 15 Mono-coupling (male) 2



## 5. Connecting the equipment



### **REMARK:**

Different couplings than mono-couplings, like quick-disconnect-couplings, are possible when using available adapter kits. Also the direct screw connection into the pump connection block of the power unit is possible. The adapter kits can be ordered via the LUKAS optional equipment.



### **WARNING / CAUTION!**



Before connecting the equipment you have to pay attention that **all used components** are suitable to the **max operation pressure of the pump unit!** In the case of doubt you **have to inquire LUKAS** directly!

### **5.1 On the side of the hydraulic unit**

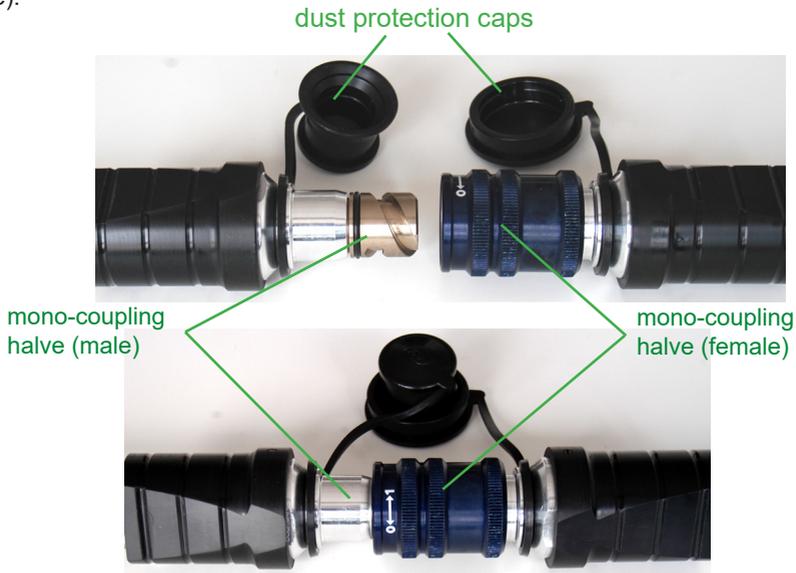
There are “short” hoses on the side of the unit: they are connected to the pump unit.

### **5.2 On the side of the equipment**

The extension hose pairs are on the side of the equipment: they are connected with the equipment by means of couplings. The combination female and male coupling ensures an unmistakable connection.

### 5.3 Coupling the mono-couplings

The equipment is connected to the hydraulic pump via mono-coupling halves (male and female).



Before coupling, remove dust protection caps, then connect male and female, and turn the locking sleeve of the female to direction „1“ until the locking sleeve locks into place. The connection is now in place and secure. Decoupling is by turning the locking sleeve to direction „0“.

The equipment can also be coupled under pressure provided the connected equipment is not activated.



**REMARK:**

We **recommend** coupling the coupling halves in a **pressureless** state, when working in areas with low ambient temperature otherwise decoupling could need very high expenditure of force.

To protect them from dust, the accompanying dust protection caps must be put back on.



**WARNING / CAUTION!**

The mono-couplings **may not** be **screwed off** the hose assemblies and / or the hose assemblies be **confused!**



## 6. Operation

### 6.1 Safety notes

World-wide, safety guidelines pertaining to the specific country are to be observed and complied with. In the Federal Republic of Germany, regular safety inspections according to the regulations of the Gesetzlichen Unfallversicherung (GUV; connoted 'Legal accident insurance') are mandatory.

The following are to be worn when working with the hose reel:

- protective clothing,
- safety helmet with visor or protective goggles,
- protective gloves
- and, if necessary, ear protection



#### **WARNING / CAUTION!**

When working with the hose reel, those not involved must maintain an appropriate, **suitable safe distance**, so that they are not endangered in the event of failure of the hose.

## 6.2 Start-up

Before start-up and following repairs, the hose assemblies of the hose reel must be deaerated:

- Connect the hose reel to the hydraulic pump (see chapter "Connecting the equipment").
- Switch on the hydraulic unit and pressurize the supply hoses for some time.



### **CAUTION!**

The working equipment has to be disconnected!

- Switch the hydraulic unit to depressurized circulation or switch it. If necessary, you have to top-up hydraulic fluid.

After the deaeration the working equipment can be reconnected to the hose reel.



### **REMARK when using mono-couplings:**

We **recommend** coupling the coupling halves in a **pressureless** state, when working in areas with low ambient temperature otherwise decoupling could need very high expenditure of force.

## 6.3 Parking brake

### 6.3.1 Parking break DHR

The parking brake prevents the extension hose pairs from unrolling during transport!

In order to release the parking brake, turn the knob A anti-clockwise until there is a distance of approx. 5 mm / 0.2 in. between the brake shaft B and the hose drums C.

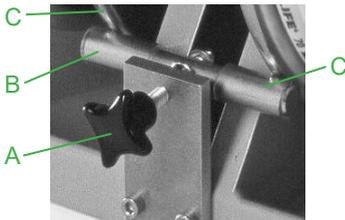
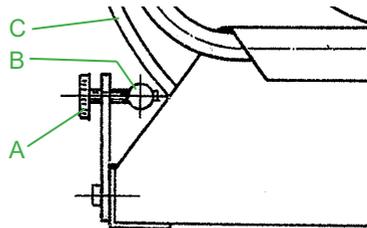


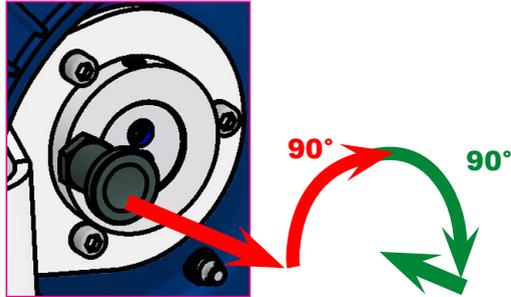
fig. 9



In order to activate the parking brake, turn the knob A clockwise until brake shaft B is finger-tight with the hose drums C.

### 6.3.2 Parking break SHR

The parking break shall prevent that the extension hose pairs unroll during transport! To unlock or release the break pull at the knob and turn it about 90°. To activate the break turn the knob again about approx. 90° until it engages automatically.



### 6.3.3 Crank SHR

The crank is supposed to make coiling easier! To make the curl ready for use, pull at the crank handle, turn it about 90° outwards until it engages. To put the crank into storing position, pull at the crank handle and turn it approx. about 90° inwards until it engages again.



## 6.4 Unrolling

To unroll, pull at the extension hoses until the required length has been unrolled from the hose reel.



### **CAUTION!**

For unrolling the hose from the hose reels, the parking brake must first of all be released. This prevents damage to the reel and the hoses.

## 6.5 Coiling



### **REMARK:**

We recommend the use of the hand crank for coiling the hose!

- First of all, put the hand crank onto the shaft of the hose reel.
- Release the parking break.
- Aligning the hose simplifies the coiling of the hose.
- Now, you can turn the hand crank to coil the extension hose pair.  
*Ensure that the extension hose pair is always properly coiled on the hose drum.  
This is usually guaranteed by guiding the extension hose pair with your hand during the coiling process.*
- Finally, you must activate the parking brake of the hose reels again and remove the crank handle.
- In the case of the single hose reel the crank should be flapped in again for safety reasons.

# 7. Dismantling the equipment / deactivation following operation

Basically, all used equipment must be safely stored following deactivation.

## 7.1 Equipment

Once work has been completed, the equipment is to be reset to its basic position.

## 7.2 Hydraulic unit

Upon completion of work, the unit must be deactivated.

## 7.3 Hoses

If the hose reel is to be disconnected from the unit and the equipment, please proceed as follows:

### On the side of the equipment:

Decouple the hoses as described in chapter "Connecting the equipment".  
Ensure that you put the dust protection caps back on to the mono-couplings.

### On the side of the hydraulic unit:

Decouple the hoses as described in chapter "Connecting the equipment".  
Ensure that you put the dust protection caps back on to the mono-couplings.

## 7.4 Hose reel

Coil the extension hose pairs onto the hose reel.

Apply the parking brake on double hose reels.

Apply the parking brake and flap in the crank handle on single hose reels.

## 8. Maintenance and service

A visual inspection is to be carried out after every use: however, at least one visual inspection is to be carried out annually. A function test is also to be carried out every three years or should there be any doubt regarding the safety or reliability of the equipment.

(Please also observe the relevant valid national and international regulations pertaining to service intervals of rescue equipment). In the Federal Republic of Germany, regular safety inspections according to the regulations of the Gesetzlichen Unfallversicherung (GUV; connoted 'Legal accident insurance') are mandatory.



### **CAUTION!**

Clean off any dirt before controlling the equipment!



### **WARNING / CAUTION!**

In order to carry out maintenance and repair works, tools appropriate for the job and personal protecting equipment are essential.



### **Visual inspection**

#### *Hose reel*

- General tightness (leaks),
- Operability of the hose drums,
- All fastening screws are in place and tightened,
- Carrier, frame and drum are undamaged,
- Hand crank in place and undamaged,
- Parking brake in place and in working order,
- Labels completely existent and legibly,

#### *Hoses*

- Visual control for visible damage,
- Control for leaks.
- The hose connection must be tightly attached to the mounted reel, and not leak,
- Couplings must be easy to couple,
- Dust protection caps must be available.

#### **Function test**

- Undisturbed coiling and unrolling of the extension hose pairs.
- no unusual noises.

# 9. Repairs

## 9.1 General information

Servicing may only be carried out by the manufacturer or personnel trained by the manufacturer and by authorised LUKAS dealers.

Only LUKAS spare parts may be used to replace all components (see spare parts list) since special tools, assembly advice, safety aspects, inspections might have to be complied with (see also chapter "Maintenance and Service").

**During assembly, ensure the complete cleanliness of all components, since dirt can damage the rescue equipment!**



### **WARNING / CAUTION!**

Protective clothes must be worn when repairs are being carried out, since parts of the units can also be pressurised in an idle state.



### **REMARK:**

Always register your tool on the LUKAS Hydraulik GmbH internet site. This is the only way to guarantee extended warranty cover.



### **REMARK:**

Before you use couplings from a different company, you must contact LUKAS or an authorised dealer.



### **CAUTION!**

Because LUKAS of rescue equipment are appropriate for highest achievements, only components may be exchanged, which are specified in the spare parts list of the appropriate equipment.

Further components of the equipment may only be exchanged, when:

- you have participated on a appropriate LUKAS service training.
- you have the explicit permission of the LUKAS Service department (After inquiry, examination for the distribution of permission. Examination in each individual case necessarily!)

## 9.2 Preventative service

### 9.2.1 Care regulations

The exterior of the equipment is to be cleaned from time to time in order to protect it from external corrosion. Oil is to be applied to the metallic surfaces.

### 9.2.2 Function and load test

If there is any doubt regarding the safety or reliability of the equipment, a function and load test must also be performed.

### 9.2.3 Changing the hydraulic fluid

- The hydraulic fluid must be changed after after three years at the latest.
- It must always be changed whenever the hydraulic fluid for the accompanying pump (motor / hand pump) is changed. This is to prevent the fresh hydraulic fluid from becoming contaminated by the used fluid from the rescue equipment.

#### **Procedure:**

1. Change the hydraulic fluid of the pump. Please observe the separate operating instructions for the pump being used!
2. Screw off the return hose on the pump:
  - remove the cover from the mono-coupling (male).
  - completely unscrew the connection nut of the blue return hose on the mono-coupling (male).
3. Put the return hose into a separate collecting basin for the hydraulic fluid still in the equipment.
4. Activate the hydraulic pump and pressurize the supply hose. Pressurize the supply hose as long as it needs to scavenge the whole used hydraulic fluid out of the hose reel. The period of pressurization depends on the length of the hose assemblies (Fluid volume in the hose reel) and the flow rate of the pump. You will find the fluid volume of the hose reel in the chapter 'technical data'.
5. Switch the pump off (motor pump) / no longer activate it (e.g. hand pump) and dispose the collected hydraulic fluid properly and according to the legal specifications.
6. Reconnect the return hose to the pump:
  - screw the connection nut of the blue return hose back onto the mono-coupling (male). (Observe the necessary torque of  $M_A = 35 \text{ Nm}/25.8 \text{ lbf}\cdot\text{ft}$ )
  - Pull back the cover on the couplings as far as the limit stop.
7. Check and top up the hydraulic fluid level in the hydraulic pump.

## 9.3 Repairs

### 9.3.1 Changing or tightening connection hoses

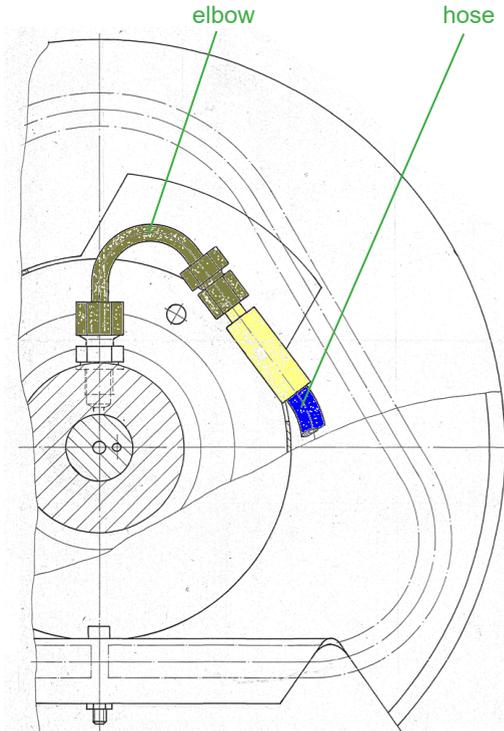
Hose assembly of the supply and/or return hose leaks or hoses are defective. Tighten the hose connections on the shaft.

**(CAUTION! Observe torque of  $M_A = 40 \text{ Nm}/29.5 \text{ lbf-ft!}$ )**

### 9.3.2 Changing or tightening extension hose pairs

Hose assembly of the supply and/or return hose leaks or hose pairs are defective. Pull back the protective cover and tighten the hose connections on the elbows.

**(CAUTION! Observe torque of  $M_A = 40 \text{ Nm}/29.5 \text{ lbf-ft!}$ )**



protective cover



**CAUTION!**

Set of protectiv covers **must** be assembled on the reel!

### 9.3.3 Mono-couplings

The mono-couplings must be replaced in the event of:

- external visible damage,
- the locking device not working,
- hydraulic fluid continually leaking in a coupled/uncoupled state.



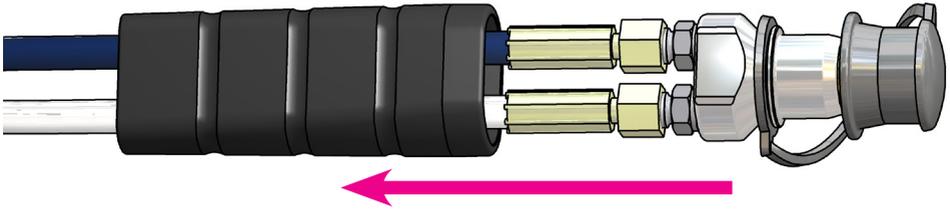
#### **WARNING / CAUTION!**



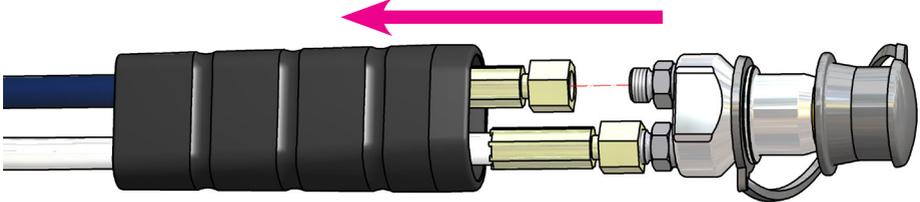
Never repair couplings: they are to be replaced by original LUKAS parts!

#### Procedure:

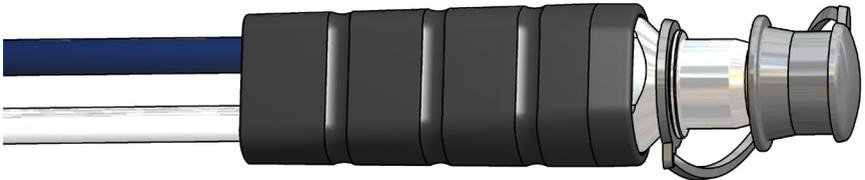
1. Remove the cover from the couplings.



2. Loosen the connection nuts of the hose assembly and remove the coupling.



3. Position the new coupling and tighten the connection nuts of the hose assemblies with a torque of  $M_A = 40 \text{ Nm}/29.5 \text{ lbf-ft}$  and push the cover of the couplings back on.



#### **CAUTION!**

Take care that the port 'T' / 'T1' of the hose reel is always connected to the port 'T' of the mono-coupling.

### 9.3.4 Elbows on the single and double hose reels

The elbows must be replaced in the event of:

- external visible damage,
- hydraulic fluid continually leaking on the elbow pipes.

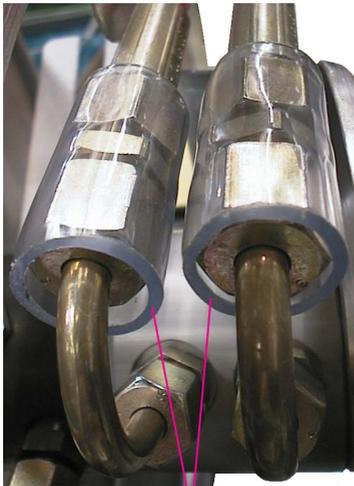
#### Procedure:

1. Remove the extension hose pairs.
2. Loosen the elbow and remove it.
3. Position the new ellbow and tighten it with a torqu of  $M_A = 40 \text{ Nm}/29.5 \text{ lbf-ft}$ .

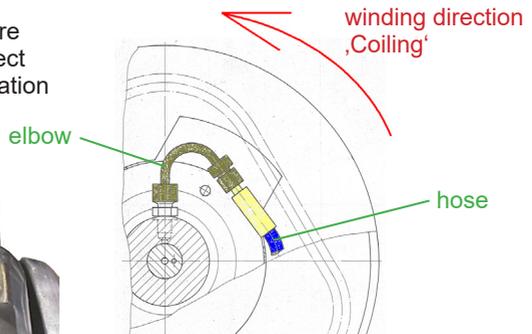


#### **CAUTION!**

Take care that the elbows are always mounted in the correct oriented manner (see illustration on the right).



protective covers



Do not forget to push the protective covers back again over the screwed-connections (siehe illustration on the left).

### **9.3.5 Changing the hose drum on the single hose reel**

Damaged hose drums must be immediately replaced. Before you can change the hose drums, however, you must dismantle the extension hose pairs!

#### **Procedure:**

1. Remove the two fixing bolts and lock washers of the parking break.
2. Remove the three fixing bolts and lock washers of the crank.
3. Remove the hose drum and replace it with a new one.
4. Assembly is now carried out in reverse order. Please ensure all screws are once again tightened after the hose drum has been changed.

**Find further details on disassembling and assembling in the spare parts list.**

### **9.3.6 Changing the hose drum on the double hose reel**

Damaged hose drums must be immediately replaced. Before you can change the hose drums, however, you must dismantle the extension hose pairs!

#### **Procedure:**

1. Remove both screws A and washer.
2. Remove the shaft with both hose drums.
3. Remove fixing bolts, lock washers and washers.
4. Remove the hose drum and replace it with a new one.
5. Assembly is now carried out in reverse order. Please ensure all screws are once again tightened after the hose drum has been changed.

**Find further details on disassembling and assembling in the spare parts list.**

### **9.3.7 Parking brake on the double hose reel**

If the parking brake on the double hose reel is damaged / non-functional, it must be replaced

#### Procedure:

1. Remove bolts, washers, lock washers and nuts.
2. Remove the damaged parking brake D and replace it with a new one.
3. Assemble screws, washers and nuts, and tighten.

**Find further details on disassembling and assembling in the spare parts list.**

### **9.3.8 Labels**

All damaged and/or illegible labels (safety notices, type plate, etc.) must be renewed.

#### Procedure:

1. Remove damaged and/or illegible labels.
2. Clean the surfaces using acetone or industrial alcohol.
3. Attach new labels.

Ensure that you attach the labels in the right position. If you are no longer sure about this, then please contact your authorised LUKAS dealer or LUKAS itself.

## 10. Troubleshooting

Trouble	Control	Cause	Solution
Equipment doesn't move when activated	Hose assemblies connected properly?	Hose assemblies not connected	Reaffix hose assemblies or re-couple them
	Does the pump unit work?	Equipment or hydraulic unit defective	See separate operating instructions for hydraulic unit or equipment.
Equipment moves slowly or jerkily when activated	Are the hoses connected correctly?	Air in the hydraulic system	Deaerate hydraulic system
	Does the pump unit work?		
		Pressure too high (e.g. caused by too-high ambient temperature)	Set hydraulic pump to pressureless circulation
		Coupling defective	Coupling needs to be replaced immediately
It is frequently not possible to couple hose assemblies	Control the degree of viscosity and application temperature of the used hydraulic fluid	Hydraulic fluid not adapted to the application situation	Hydraulic fluid must be replaced (see chapter "Recommended Hydraulic fluids")
		Coupling defective	Coupling needs to be replaced immediately
Damages of the surface of the hydraulic hoses		Mechanical damages or contact with aggressive agents	Replace hoses
Leak in the couplings	Is the coupling damaged?	coupling damaged	Coupling must be replaced immediately
Hydraulic fluid leaking from the hoses or connections	Hoses defective?	Leak, possible damage	Replace hoses

<b>Trouble</b>	<b>Control</b>	<b>Cause</b>	<b>Solution</b>
Leakage of hydraulic fluid in the inner area of the hose reel.	Hose extension pairs defective?	Hoses defective	Replace hoses
	Connection of the hoses tighten?	Hoses not tightened properly onto the elbows.	Tighten the screwed connection between hoses and elbow.
	Leakage on the connection between elbow and shaft?	Defective elbow / defective sealing below the elbow	Replace elbow / sealing
		Defective shaft	Repair by an authorised dealer, by personnel specially trained by LUKAS, or by LUKAS itself
Leakage of hydraulic fluid on the connections between connection hoses and reel shaft.	Connection hoses defective?	Hoses defective	Replace hoses
	Connections of the hoses tighten?	Hoses / fittings not tightened properly.	Tighten the screwed connection of the hoses / fittings.
	Leakage between fitting and shaft?	Fittings not tightened properly.	Tighten the screwed connection.
		Sealing between fitting and shaft defective.	Replace sealing
		Fitting defective	Replace fitting.
Leakage on connection between hub and shaft		Sealing between hub and shaft defective.	Repair by an authorised dealer, by personnel specially trained by LUKAS, or by LUKAS itself

If it isn't possible to rectify the malfunctions, inform an authorised LUKAS dealer or the LUKAS customer service department immediately!  
The address for the LUKAS customer service department is:

**LUKAS** Hydraulik GmbH

Weinstraße 39, D-91058 Erlangen

Tel.: 0049 (0) 91 31 / 698 - 348

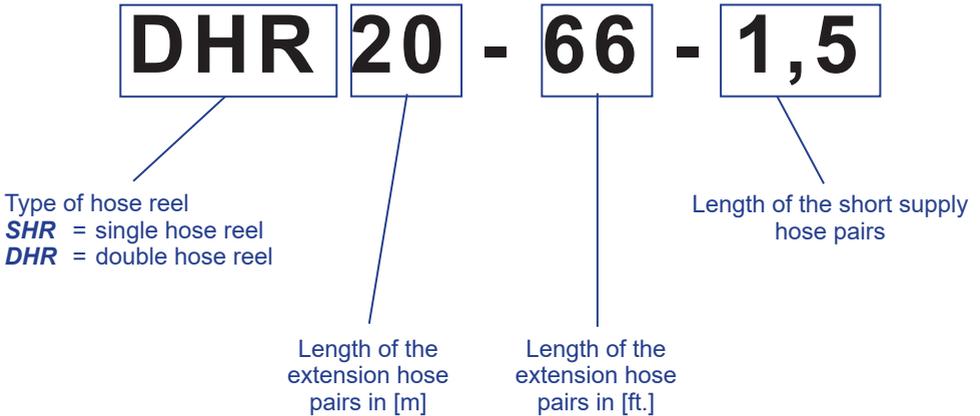
Fax.: 0049 (0) 91 31 / 698 - 353

<http://www.lukas.com>

## 11. Technical Data

Since all values are subject to tolerances, minor differences may occur between the data on your equipment and the data listed here!

### 11.1 General reel identification



### 11.2 Maximum operating pressure

The max. operating pressure of all STREAMLINE-hose reels is:

$$70 \text{ [MPa]}^* = 10000 \text{ [psi.]}$$

\* 1 [MPa] = 10 [bar]

### 11.3 Technical data for the hose reels

<b>Device type</b>	SHR xx-xx-1,5			
<b>Reference no.</b>	81-60-10			
<b>Dimensions</b>	L x W x H	434 x 327 x 490	mm	
		17.1 x 12.9 x 19.3	in.	
<b>Operating pressure</b>	max.	70	MPa	
		10000	psi	
<b>Hose length</b>			m ft	Reel without hose
<b>Number of connectable devices</b>	max.	1		Streamline® quick-disconnect
<b>Number of hoses, pump side</b>		1 x 2		Connection hoses, 1.5 m / 4.9 ft long
<b>Number of connections, pump side</b>	max.	1		Streamline® quick-disconnect
<b>Weight</b>		7.5	kg	incl. hydraulic fluid
		16.5	lbs.	

<b>Device type</b>	SHR 15-50-1,5			
<b>Reference no.</b>	81-60-15			
<b>Dimensions</b>	L x W x H	434 x 327 x 490	mm	
		17.1 x 12.9 x 19.3	in.	
<b>Operating pressure</b>	max.	70	MPa	
		10000	psi	
<b>Hose length</b>		15	m	
		50	ft	
<b>Number of connectable devices</b>	max.	1		Streamline® quick-disconnect
<b>Number of hoses, pump side</b>		1 x 2		Connection hoses, 1.5 m / 4.9 ft long
<b>Number of connections, pump side</b>	max.	1		Streamline® quick-disconnect
<b>Weight</b>		15	kg	incl. hydraulic fluid
		33.1	lbs.	

<b>Device type</b>	SHR 20-66-1,5			
<b>Reference no.</b>	81-60-20			
<b>Dimensions</b>	L x W x H	434 x 327 x 490	mm	
		17.1 x 12.9 x 19.3	in.	
<b>Operating pressure</b>	max.	70	MPa	
		10000	psi	
<b>Hose length</b>		20	m	
		66	ft	
<b>Number of connectable devices</b>	max.	1		Streamline® quick-disconnect
<b>Number of hoses, pump side</b>		1 x 2		Connection hoses, 1.5 m / 4.9 ft long
<b>Number of connections, pump side</b>	max.	1		Streamline® quick-disconnect
<b>Weight</b>		18	kg	incl. hydraulic fluid
		38.6	lbs.	

<b>Device type</b>	DHR 20-66-1,5			
<b>Reference no.</b>	81-61-20			
<b>Dimensions</b>	L x W x H	445 x 385 x 400	mm	
		17.5 x 15.2 x 15.8	in.	
<b>Operating pressure</b>	max.	70	MPa	
		10000	psi	
<b>Hose length</b>		20	m	
		66	ft	
<b>Number of connectable devices</b>	max.	2 x 1		Streamline® quick-disconnect
<b>Number of hoses, pump side</b>		2 x 2		Connection hoses, 1.5 m / 4.9 ft long
<b>Number of connections, pump side</b>	max.	2 x 1		Streamline® quick-disconnect
<b>Weight</b>		35,8	kg	incl. hydraulic fluid
		78.9	lbs.	

## 11.4 Hydraulic fluid recommendation

Mineral oil DIN ISO 6743-4 for LUKAS hydraulic equipment and others

	Oil temperature range	Oil code	Viscosity rating	Remarks
A	-24 .... +30°C	HL 5	VG 5	
B	-18 .... +50°C	HM 10	VG 10	
C	-8 .... +75°C	HM 22	VG 22	
D	+5 .... +80°C	HM 32	VG 32	
E	-8 .... +70°C	HF-E15	VG 15	Bio-oil

	Oil temperature range	Oil code	Viscosity rating	Remarks
A	<i>-11.2 .... +86°F</i>	HL 5	VG 5	
B	<i>-0.4 .... +122°F</i>	HM 10	VG 10	
C	<i>+17.6 .... +167°F</i>	HM 22	VG 22	
D	<i>+41.0 .... +176°F</i>	HM 32	VG 32	
E	<i>+17.6 .... +158°F</i>	HF-E15	VG 15	Bio-oil

recommended viscosity range: 10...200 mm<sup>2</sup>/s (*10...200 cSt.*)

Supplied with HM 22 DIN ISO 6743-4.



### **CAUTION!**

Before using hydraulic fluids, which do not correspond to the above-mentioned specifications and/or are not purchased from LUKAS, you have to contact LUKAS itself!



### **NOTE:**

When hose reels with a mono-coupling are used, we recommend an oil in the viscosity class VG 10, as the force required for coupling can otherwise be very high.

## 11.5 Operating and storage temperature range

<b>Operating temperature</b>	[°C] / [°F]	-20 ... +55	<i>-4 ... +131</i>
<b>Storage temperature</b> (device not in operation)	[°C] / [°F]	-30 ... +60	<i>-22 ... +140</i>

# 12. EC Declarations of conformity

## LUKAS

LUKAS Hydraulik GmbH  
Weinstrasse 39,  
91058 Erlangen  
Deutschland

## IDEX RESCUE

Dinglee, LUKAS, Hurst, Vetter

IDEX Europe GmbH  
Weinstraße 39  
91 058 Erlangen  
Germany

### EG-Konformitätserklärung / *EC Declaration of Conformity*

Im Sinne der EG-Maschinenrichtlinie 2006/42/EG, Anhang II A  
*In accordance with the EC Machinery Directive 2006/42/EC, Appendix II A*

Hiermit erklären wir, dass die nachfolgend bezeichneten Schlauchhaspeln  
*We hereby declare that the following hose reels*

Artikelnr. / Item no.	Modell / Type
81-60-10	SHR xx-xx-1,5
81-60-15	SHR 15-50-1,5

- in der von uns gelieferten Ausführung den Bestimmungen der Maschinenrichtlinie 2006/42/EG und den sie umsetzenden nationalen Rechtsvorschriften entsprechen.  
Berücksichtigt wurden insbesondere die Normen:
  - DIN EN ISO 12100:2010, Ausgabe: 2011-03 - Sicherheit von Maschinen – Allgemeine Gestaltungsleitsätze – Risikobeurteilung und Risikominderung.
- *in the versions supplied by us conform to the EC Machinery Directive 2006/42/EC and the national statutory provisions that implement them.*  
*The following standards have particularly been taken into consideration:*
  - *DIN EN ISO 12100:2010, publication date: 2011-03 – Safety of machinery - General principles for design - Risk assessment and risk reduction.*

Bei einer nicht mit uns abgestimmten Änderung oder Verwendung der Maschine/Ausrüstung verliert diese Erklärung ihre Gültigkeit.

*This declaration loses its validity in the case of alterations or usage of the machinery/equipment not approved by LUKAS.*

Erlangen, 12.07.2017

i. V.

  
Carsten Sauerbier  
Bevollmächtigter / Authorized Representative  
Director of Technical Innovation and Development  
IDEX Europe GmbH

i. A.

  
Manuela Gumbert  
Konstrukteur / Engineering Designer

## EG-Konformitätserklärung / EC Declaration of Conformity

Im Sinne der EG-Maschinenrichtlinie 2006/42/EG, Anhang II A  
*In accordance with the EC Machinery Directive 2006/42/EC, Appendix II A*

Hiermit erklären wir, dass die nachfolgend bezeichneten Schlauchhaspeln  
*We hereby declare that the following hose reels*

Artikelnr. / Item no.	Modell / Type
81-60-20	SHR 20-66-1,5

- in der von uns gelieferten Ausführung den Bestimmungen der Maschinenrichtlinie 2006/42/EG und den sie umsetzenden nationalen Rechtsvorschriften entsprechen.  
Berücksichtigt wurden insbesondere die Normen:
  - DIN EN ISO 12100:2010, Ausgabe: 2011-03 - Sicherheit von Maschinen – Allgemeine Gestaltungsleitsätze
    - Risikobeurteilung und Risikominderung.
  - DIN EN 13204: 2016-12 – Doppelt wirkende hydraulischen Rettungsgeräte für die Feuerwehr und Rettungsdienste – Sicherheits- und Leistungsanforderungen
  - .
- *in the versions supplied by us conform to the EC Machinery Directive 2006/42/EC and the national statutory provisions that implement them.*  
*The following standards have particularly been taken into consideration:*
  - *DIN EN ISO 12100:2010, publication date: 2011-03 – Safety of machinery - General principles for design - Risk assessment and risk reduction.*
  - *DIN EN 13204: 2016-12 – Double acting hydraulic rescue tools for fire and rescue service use – Safety and performance requirements*

Bei einer nicht mit uns abgestimmten Änderung oder Verwendung der Maschine/Ausrüstung verliert diese Erklärung ihre Gültigkeit.

*This declaration loses its validity in the case of alterations or usage of the machinery/equipment not approved by LUKAS.*

Erlangen, 12.07.2017

i. V.



Carsten Sauerbier  
Bevollmächtigter / Authorized Representative  
Director of Technical Innovation and Development  
IDEX Europe GmbH

i. A.



Manuela Gumbert  
Konstrukteur / Engineering Designer

## EG-Konformitätserklärung / EC Declaration of Conformity

Im Sinne der EG-Maschinenrichtlinie 2006/42/EG, Anhang II A  
In accordance with the EC Machinery Directive 2006/42/EC, Appendix II A

Hiermit erklären wir, dass die nachfolgend bezeichnete Schlauchhaspel  
We hereby declare that the following hose reel

Artikelnr. / Item no.	Modell / Type
81-61-20	DHR 20-66-1,5

- in der von uns gelieferten Ausführung den Bestimmungen der Maschinenrichtlinie 2006/42/EG und den sie umsetzenden nationalen Rechtsvorschriften entsprechen.  
Berücksichtigt wurden insbesondere die Normen:
  - DIN EN ISO 12100:2010, Ausgabe: 2011-03 - Sicherheit von Maschinen – Allgemeine Gestaltungsleitsätze – Risikobeurteilung und Risikominderung.
- in the versions supplied by us conform to the EC Machinery Directive 2006/42/EC and the national statutory provisions that implement them.  
The following standards have particularly been taken into consideration:
  - DIN EN ISO 12100:2010, publication date: 2011-03 – Safety of machinery - General principles for design - Risk assessment and risk reduction.

Bei einer nicht mit uns abgestimmten Änderung oder Verwendung der Maschine/Ausrüstung verliert diese Erklärung ihre Gültigkeit.

*This declaration loses its validity in the case of alterations or usage of the machinery/equipment not approved by LUKAS.*

Erlangen, 07.11.2013

i. V.



Carsten Sauerbier  
Bevollmächtigter / Authorized Representative  
Director of Technical Innovation and Development  
IDEX Europe GmbH

i. A.



Manuela Gumbert  
Konstrukteur / Engineering Designer

## 13. Notes







Please dispose all packaging materials and dismantled parts properly

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**LUKAS** Hydraulik GmbH  
*A Unit of IDEX Corporation*

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