HURST JAWS OF LIFE®

Operating instructions for rescue equipment

Spreaders

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(Original operating instructions)

Content Page

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

JAWS OF LIFE 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 JAWS OF LIFE 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 the operating instructions carefully 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!

	Please ensure that no body parts or clothing get stuck between the visibly moving parts (e.g. spreader arms).	It is prohibited to work under load if this load is lifted exclusively by hydraulic equipment. If this work is absolutely imperative, additional mechanical supports must be used.	
	Wear protective clothing, safety helmet with visor, protective gloves	Inspect the equipment before and after use for visible defects or damage	
	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!	Inspect all cables, hoses and screwed connections for leaks and externally visible damage! If necessary, repair immediately! Squirting oil can result in injuries and fires.	

	In the event of malfunctions, immediately deactivate the equipment and secure it. The malfunction is to be repaired immediately.	Do not carry out any changes (additions or conversions) to the equipment without obtaining the prior approval of HURST.	
	Observe all safety and danger notes on the equipment and in the operating instructions.	All safety and danger notes on the equipment are to be kept complete in a legible condition.	
	Any mode of operation which impairs safety and/or stability of the equipment is forbidden!	Comply with all specified dates or dates specified in the operating instructions pertaining to regular controls / inspections on the equipment.	
	Safety devices may never be deactivated!	The maximum permitted operating pressure noted on the equipment must not be exceeded.	
	Before the equipment is switched on/started up, and during its operation, it must be ensured that nobody will be endangered by the operation of the equipment.	Only original HURST accessories and spare parts may be used for repairs.	
		Please ensure that, when working with this equipment or during transportation of such, you don’t get caught in the looped hoses and trip.	
	When working close to live components and cables, suitable measures must be taken to avoid current transfers or high-voltage transfers to the equipment.	Please note that, when spreading, tearing or breaking can cause falling material, or sudden removal of such can cause it to suddenly catapult off: necessary precautions need to be taken.	
	The build-up of static charge with the potential consequence of spark formation is to be avoided when handling the equipment.	Only touch any broken-off parts wearing protective gloves, since the torn edges can be very sharp.	

	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 liquids can also have a negative effect on biological systems.	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.	
	Ensure adequate lighting when you are working.	Before transporting the equipment, always ensure that the accessories are positioned such that they cannot cause an accident.	
	Always keep these operating instructions within reach where the equipment is used.	Ensure the proper disposal of all removed parts, left-over oil, left-over hydraulic fluid and packaging materials!	

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 "Intended Use")**. Any other or further use is **not considered intended use**. The manufacturer / supplier is not liable for any damages resulting from unintended 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 intended use.

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

WARNING / CAUTION!
HURST BLUE hydraulic fluid is a custom blended fluid. In case of skin contact, wash off with soap and water. In case of eye contact, flush with generous amounts of running water for at least 15 minutes. If discomfort persists following flushing, see physician for symptomatic treatment.

3. Intended use

JAWS OF LIFE spreaders are designed especially for rescue services. They are used to release persons trapped as a result of a road accident e.g. by forcing open the car doors (see below fig. 1) or by squashing other parts of the vehicle. In other catastrophic situations they are used to lift (by spreading) or to displace objects in order to rescue buried or trapped persons, e.g. by concrete components in collapsed houses (see below fig. 2), and to squash constructional components, e.g. pipes.

In principle, objects can be pulled, spread, squashed or compressed in length.

All objects to be worked on are to be secured using stable supports or substructures.

When lifting loads, additional risks to the operator and/or persons not involved may be posed if the load moves in an uncontrolled manner or if the spreader slips or tips over. When applying the tool and lifting, make sure that there is no danger, if necessary by using additional supports or safety devices.

fig. 1

fig. 2

HURST spreaders can also be used under water at a depth of up to 40m (131 ft).

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

CAUTION!
All objects which are to be worked on are to be secured using stable supports or substructures.

WARNING / CAUTION!

The following may not be squeezed:

- **live cables**
- **hardened** parts such as springs, spring steels, steering columns and rollers
- explosive bodies such as SRS systems

NEVER operate the rescue equipment at a higher operating pressure than that stated in the chapter “Technical data”. A higher setting can result in material damage and/or injuries.

JAWS OF LIFE rescue spreaders may NOT be used where there is a risk of explosions!

The rescue equipment should not come into contact with acids or alkalis. If this is unavoidable, clean the equipment immediately afterwards with a suitable cleaning agent.

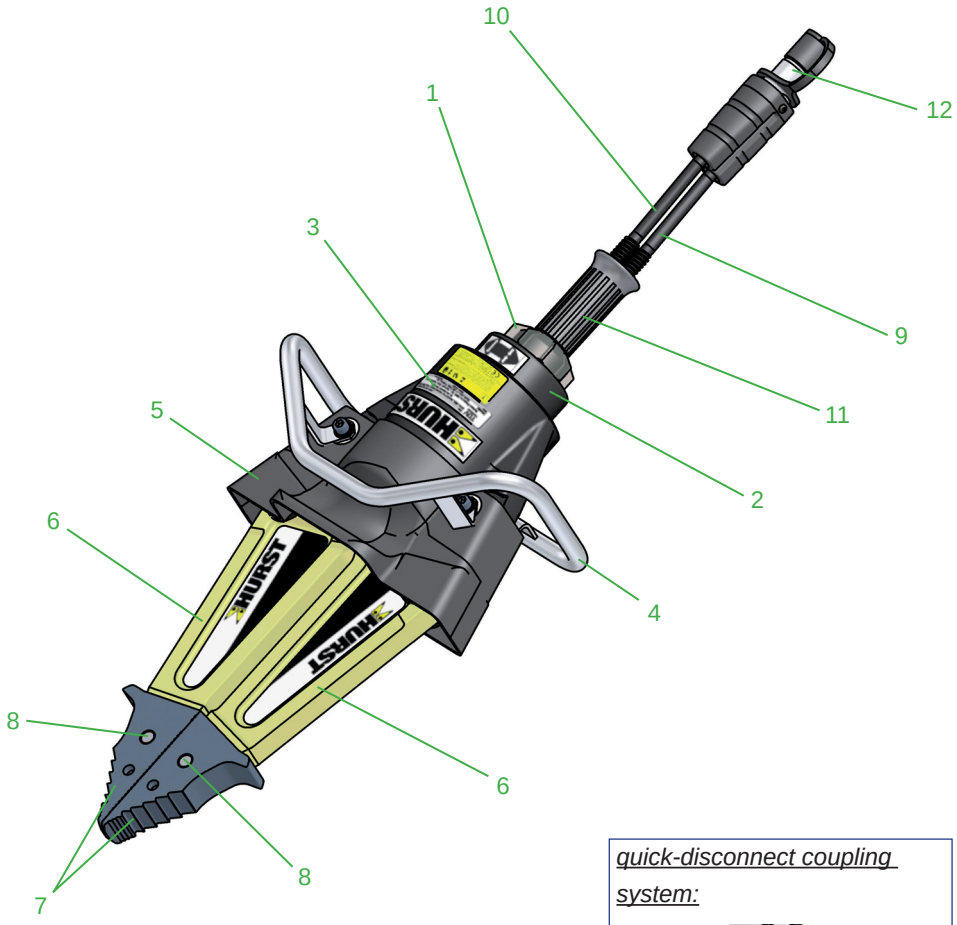
Spare parts and accessories for the rescue tool can be ordered from your authorized HURST-dealer!

4. Description of the functions

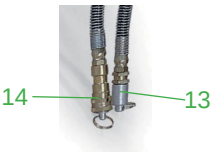
4.1 Description

The equipment is designed such that, via a hydraulically activated piston, two equal, opposite spreader arms are symmetrically opened by mechanical joints, thereby spreading objects.
Closing the spreader arms is also carried out hydraulically and mechanically by reverse order of the piston.
All spreaders ensure full load-holding function when disconnected from the hydraulic supply (e. g. when being accidentally decoupled; defective hose, etc.).

4.2 Unit in detail



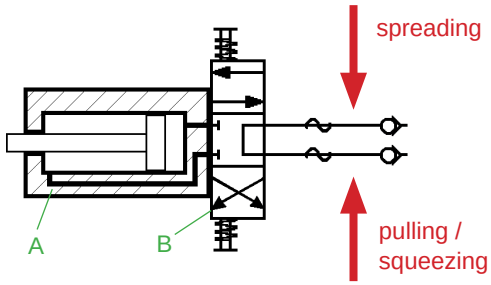
quick-disconnect coupling system:



1 Star grip
2 Control valve
3 Spreader body
4 Handle
5 Hand guard
6 Spreading arm
7 Tip with borehole for chain set
8 Interlock bolt
9 Pressure hose
10 Return hose
11 Handhold
12 Mono-coupling male
13 Quick-disconnect coupling (male)
14 Quick-disconnect coupling (female)

4.3 Circuit diagram

To enable comprehension of the function, a simplified hydraulic cylinder of the rescue equipment (A) + hand valve (B) are depicted here.



4.4 Control of the operating movements

The spreading arms movement is controlled via the star grip on the mounted valve.

4.5 Hydraulic supply

A HURST motor pump or hand pump only may be used to drive the equipment.
If the pump unit is a different make, you must make sure that it complies with HURST specifications, otherwise potential dangers may occur which are not the responsibility of HURST.
Ensure in particular that the authorized operating pressure for HURST equipment is not exceeded.

REMARK:
Before you use pumps from a different manufacturer, you must contact HURST or an authorized dealer.

4.6 Hoses

The pump unit and the rescue tool are connected by hoses.

5. Connecting the equipment

5.1 General information

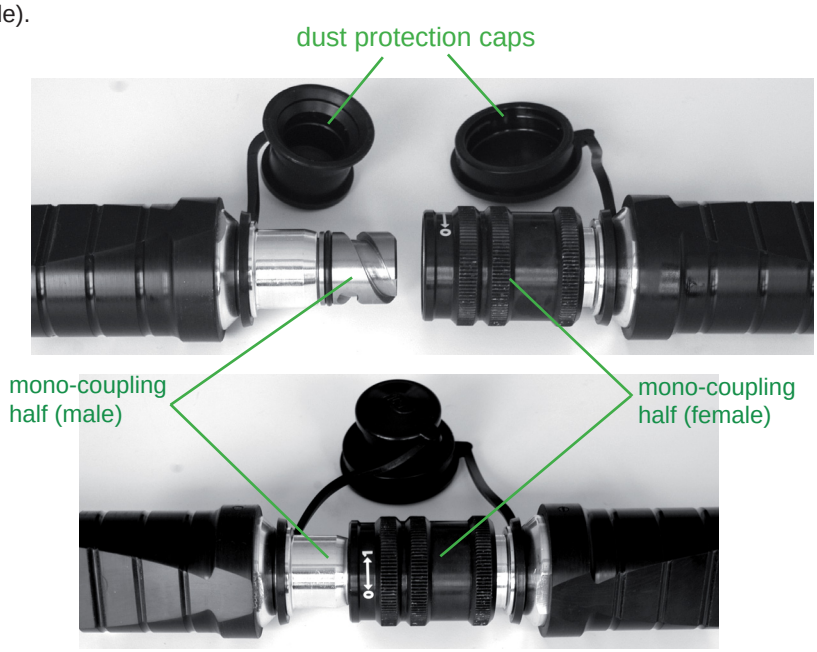
There are two short hoses on the side of the equipment: they are connected to the pump unit via two hoses. All hoses have couplings to enable unmistakable connection.

REMARK:
The devices can be equipped with different coupling systems.
They differ only by the article number and not by the designation.
Of course the coupling systems can also be reequipped at a later time.

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** HURST directly!

5.2 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.

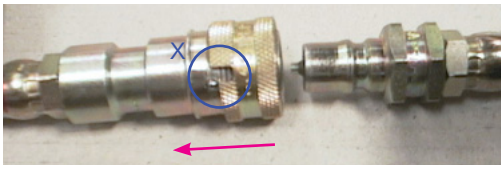
REMARK:
We **recommend** coupling the coupling halves in a **pressureless** state, when working in areas with low ambient temperature and the usage of extension hose assemblies / hose reels, otherwise coupling may require a very high expenditure of force.

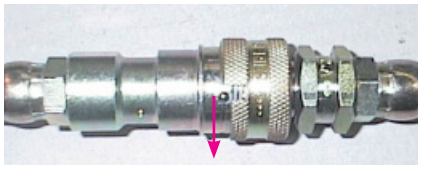
To protect them from dust, the accompanying dust protection caps must be put back on.

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

5.3 Coupling the quick-disconnect-couplings

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





Before coupling unlock the connect socket by turning the sleeve into position X. Retract sleeve and connect plug and socket. Release sleeve and turn it in the direction shown in the right picture above till stop.
Now the connection has been made and locked. Uncoupling is done in the reverse order.

CAUTION!
Always connect the return line first and afterwards the supply line!

REMARK:
Coupling of the devices is only possible, when the hoses are **depressurized**.

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

WARNING/CAUTION!
The quick-disconnect-couplings partly have special functions. Therefore it is not permitted **to screw** them **off** from the hoses or to **exchange** them!

6. Operation

6.1 Preparations

6.1.1 Commissioning

Before commissioning and following repairs, the equipment must be deaerated.

- Connect the equipment to the hydraulic pump (see chapter “Connecting the equipment”).
- Open / close the spreader arms of the equipment without any load at least twice (see chapter “Operation of the star grip”).

REMARK:
We recommend that during deaeration, the attached aggregate for the hydraulic supply should stand on a higher level than the body of the rescue tool.
Recommended procedure for deaeration of the rescue tool:

1.) open and close fully with the spreader arms facing **upwards**.
2.) open and close fully with the spreader arms facing **downwards**.
3.) open and close fully with the spreader arms facing **upwards**.
4.) open and close fully with the spreader arms facing **downwards**.

6.1.2 Inspection of the pump unit

→ See separate operating instructions for the relevant unit (or for the hand pump).

REMARK:
Before each start-up of the hydraulic unit you have to make sure that the actuating valves are set to depressurized circulation.

Before coupling the quick-disconnect couplings, the actuating valves of the hydraulic unit are set to depressurized circulation.
If you use mono-couplings, you can also couple when the hoses are pressurized!

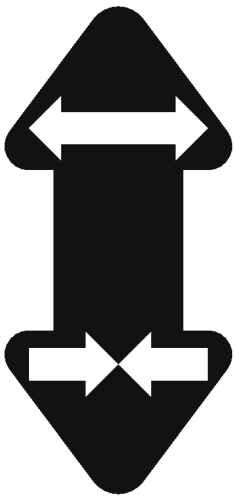
6.2 Operating the star grip

Opening the device ( ):

Turn the star grip in the direction of the relevant symbol and keep in this position.

Closing the device ( ):

Turn the star grip in the direction of the relevant symbol and keep in this position.



“Dead-man’s” function:
Following release, the star grip automatically returns to the central position, guaranteeing full load-holding.

7. Spreading, pulling, peeling and squeezing

7.1 Safety notes

Before rescue work can commence, the position of the obstacle must be stabilized. You must ensure an adequate substructure and / or adequate support of the object. World-wide, safety guidelines pertaining to the specific country are to be observed and complied with.
In the event of a potentially explosive situation, it is not permitted to use motor pumps (danger of the formation of sparks). In such cases, hand pumps are to be used.

The following are to be worn when working with the rescue equipment:
- protective clothing and protective shoes,
- safety helmet with visor or protective goggles,
- protective gloves
- and, if necessary, ear protection

Before activating the rescue equipment, always ensure that there is no danger to persons either involved / uninvolved in the action by the movement of the rescue equipment or by flying fragments. Further avoid unnecessary damage to property belonging to others, objects not involved by the rescue equipment / flying fragments.

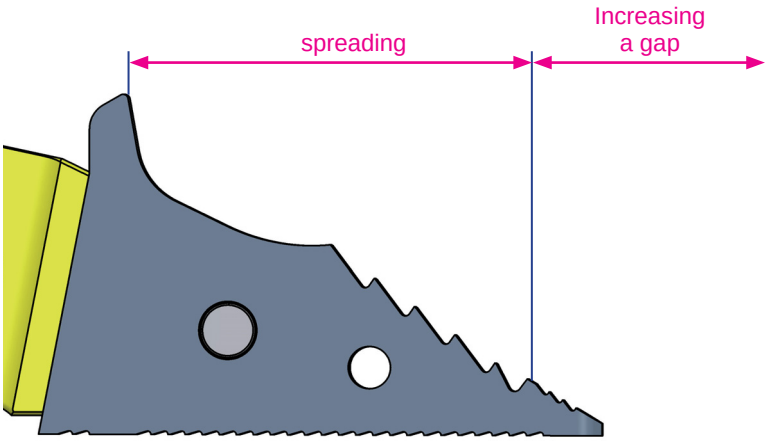
Reaching between the spreader arms is strictly forbidden!

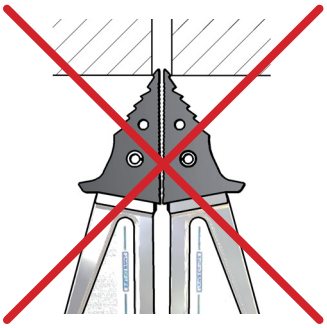
WARNING / CAUTION!
The particular effect of the force of the rescue equipment during operation could cause pieces of the vehicle to break off or fly off, posing a danger to persons. Those not involved in the rescue operation should therefore **keep at a distance appropriate to the situation**.

7.2 Spreading

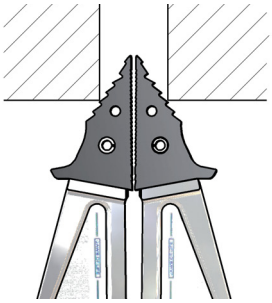
Use the front area of the tips for increasing the gap only. Full spreading capacity can be achieved when approximately half of the grooved area of the tips is used. The greatest force is created in the rear area of the spreading range of the tip.

WARNING / CAUTION!
The arms – made from a light metal alloy – <u>may not be</u> damaged.

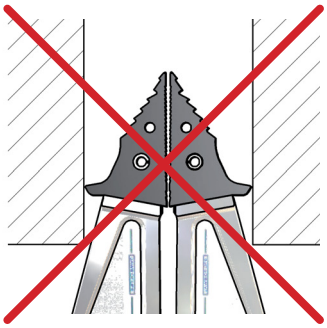




Working surface is too small, tips slip off. Only for increasing the size of a gap (not suitable for spreading)



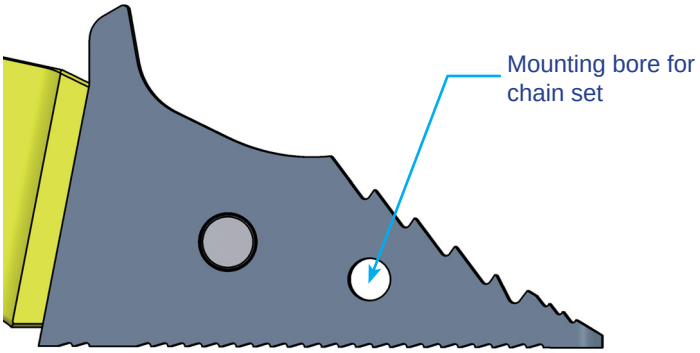
Tips get a safe grip.



Work with the tips only. Do not damage the arms.

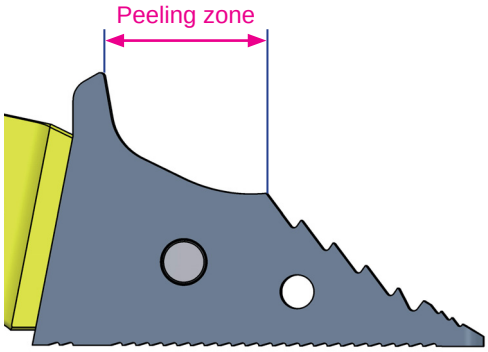
7.3 Pulling

- JAWS OF LIFE chain sets are to be used for pulling purposes.
- Before the pulling process can be performed, ensure that the bolt and hook fit correctly to prevent the chain from slipping.
- Only chain sets in perfect condition may be used.
- The pull chains are to be inspected at least once per year by an expert.
- See separate operating instructions for the relevant chain set!



7.4 Peeling

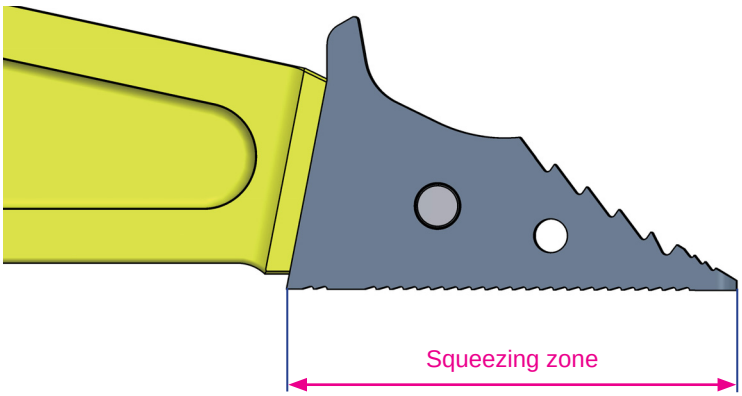
With the integrated peeling zone in the tool tips of the spreader sheet steels can be peeled open (for maximum sheet steel thickness t, see chapter “Technical data”).



WARNING / CAUTION!
Splinters can fly uncontrollably from particularly hard materials.
Keep a safe distance!

7.5 Squeezing

Basically, squeezing may only be carried in the area of the tips.



8. Dismantling the equipment / deactivation following operation

8.1 Spreader

Once work has been completed, the spreader arms are to be closed so that there is a tip distance of just a few mm / *in.*. This relieves the hydraulic and mechanical strain on the equipment.

REMARK:
Never store the spreader with fully closed spreader arms! The complete closure of the spreader arms can cause hydraulic and mechanical stress to build up again.

Free the rescue equipment of any stubborn dirt which may have become attached during use.
If the equipment is to be stored for a longer period of time, the exterior is to be cleaned completely and the mechanically mobile parts are to be lubricated.
Avoid storing the rescue equipment in a damp environment.
Also observe the separate manual for the hydraulic hoses.

8.2 Hydraulic unit

Upon completion of work, the unit must be deactivated.

8.3 Hoses

First of all, decouple the pressure hose then the return hose as described in chapter “Connecting the equipment”. Ensure that you put the dust protection caps back on to the couplings.

9. Maintenance and service

The equipment is subject to very high mechanical stresses. A visual inspection is to be carried out after every use: however, at least one visual inspection is to be carried out annually. These inspections enable the early detection of wear and tear, which means that punctual replacement of the wearing parts prevents breakages from occurring. 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)

CAUTION!
Clean off any dirt before actuating the equipment!

WARNING / CAUTION!
In order to carry out maintenance and repair works, tools appropriate for the job and personal protective equipment are essential.

9.1 Spreader, overall

Inspections to be carried out:

Visual inspection
Spreader
- Opening width of the spreader arms on the tips (see chapter “Technical data”),
- General tightness (leaks),
- Operability of the star grip,
- Existence and stability of handle,
- Labels completely existent and legible,
- Covers in perfect condition,
- Couplings must be easy to couple,
- Dust protection caps must be available.

Spreader arms
- Spreader arms free of cracks and without any chipped spots or deformations on the surfaces,
- Bolts and retaining rings of the spreader arms must be present and in correct working order,
- Grooving of the tips must be clean and squared, and not have any tears
- Tips existent and locked

Hoses (also refer to separate manual for the hydraulic hoses)
- Visual check for visible damage,
- Check for leaks.

Function test

- Opening and closing function flawlessly upon activation of the star grip,
- no suspicious noises.
- no further movement of the spreader arms upon interruption of the valve activation during the process (“dead-man’s” function)

9.2 Protective equipment

- Control of the protective equipment on / around the rescue equipment, especially the hand guard of the moveable parts (they must be free of tears!).

10. Repairs

10.1 General information

Servicing may only be carried out by JAWS OF LIFE manufacturer or personnel trained by the manufacturer and by authorized HURST dealers.
Only HURST spare parts may be used to replace all components (see spare parts list) since special tools, assembly advice, safety aspects, inspections might have to 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 pressurized in an idle state.

REMARK:
Please always return the guarantee registration card to HURST JAWS OF LIFE or register your tool on the HURST website. Only then are you entitled to the extended guarantee.

Before you use couplings from a different company, you must contact HURST or an authorized dealer.

CAUTION!
Because HURST 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 in appropriate HURST service training.
- you have the explicit permission of the HURST Service department (After inquiry, an examination for the distribution of permission is being carried out. An examination in each individual case is necessary!)

Spare parts and accessories for the rescue tool can be ordered from your authorized JAWS OF LIFE dealer!

10.2 Preventative service

10.2.1 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.

10.2.2 Function and load test

If there is any doubt regarding the safety or reliability of the equipment, a function and load test must be performed.
HURST offers appropriate test equipment to this end.

10.2.3 Changing the hydraulic fluid

- The hydraulic fluid must be changed after the equipment has been used approx. 200 times / 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. Close spreader arms (until the tips are almost touching).
2. Change the hydraulic fluid of the pump. Please observe the separate operating instructions for the pump being used!
3. Screw off the return hose on the pump:
   - **when the hose connection is via mono-coupling to the pump:**
     remove the cover from the mono-coupling (male).
     completely unscrew the connection nut of the return hose on the mono-coupling (male).
   - **when the hose connection is via quick-connect-coupling to the pump:**
     completely unscrew the connection nut on the quick-disconnect-coupling of the return hose.
4. Put the return hose into a separate collecting basin for the hydraulic fluid still in the equipment.
5. Slowly open the tool (the pump must be working during this time). The old hydraulic fluid from the ring space side runs via the return hose into the separate collecting basin, and is to be disposed of in the same manner as the old hydraulic fluid of the pump.
6. Switch the pump off (motor pump) / no longer activate it (e.g. hand pump).
7. Reconnect the return hose to the pump:
   - **when the hose connection is via mono-coupling to the pump:**
     screw the connection nut of the return hose back onto the mono-coupling (male).
     (Please observe the necessary torque of M_A = 40 Nm / *29.5 ft.lbs.*!)
     Pull back the cover on the couplings as far as the limit stop.
   - **when the hose connection is via quick-connect-coupling to the pump:**
     screw the connection nut back onto the quick-disconnect-coupling of the return hose.
     (Please observe the necessary torque of M_A = 35 Nm / *25.8 ft.lbs.*!)
8. Deaerate the rescue tool as described in the chapter “Preparations”.

10.3 Repairs

10.3.1 Changing the tip

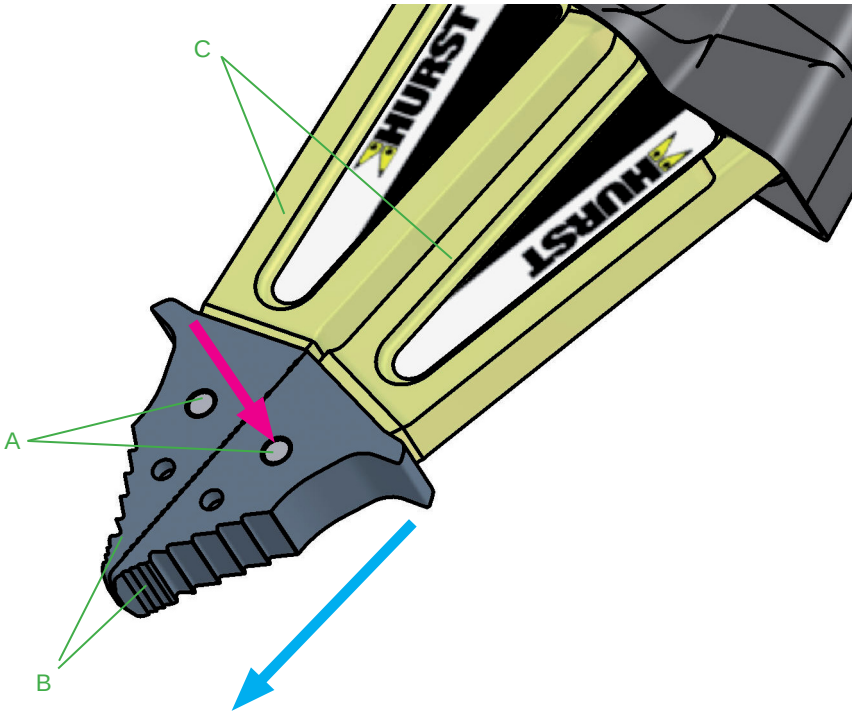
Procedure:

1. Press the interlock bolt ‘A’ out and remove it,
2. Pull the tip ‘B’ from the spreader arm ‘C’ and replace it,

> ***CAUTION!***
> Before assembly, apply HURST special grease to all sliding surfaces after having thoroughly cleaned them.

3. Push the interlock bolt into the designated hole till it locks.

> ***CAUTION!***
> Before assembly, apply HURST special grease to all sliding surfaces after having thoroughly cleaned them.
> Also observe the installation position of the adapter sleeve to ensure optimum force distribution!



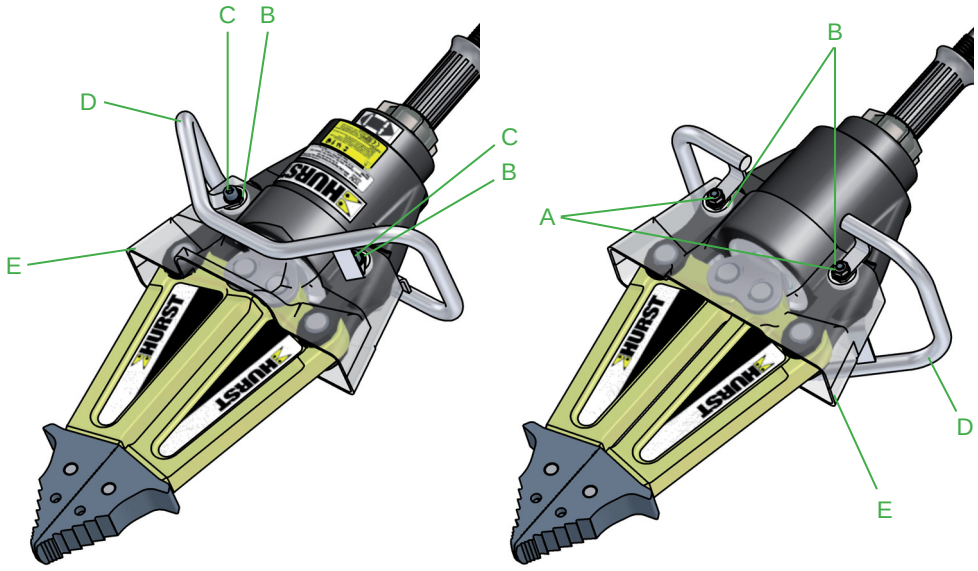
> ***REMARK:***
> Always replace both tips.

10.3.2 Spreader arm, spreader tips, protection cover and handle replacement

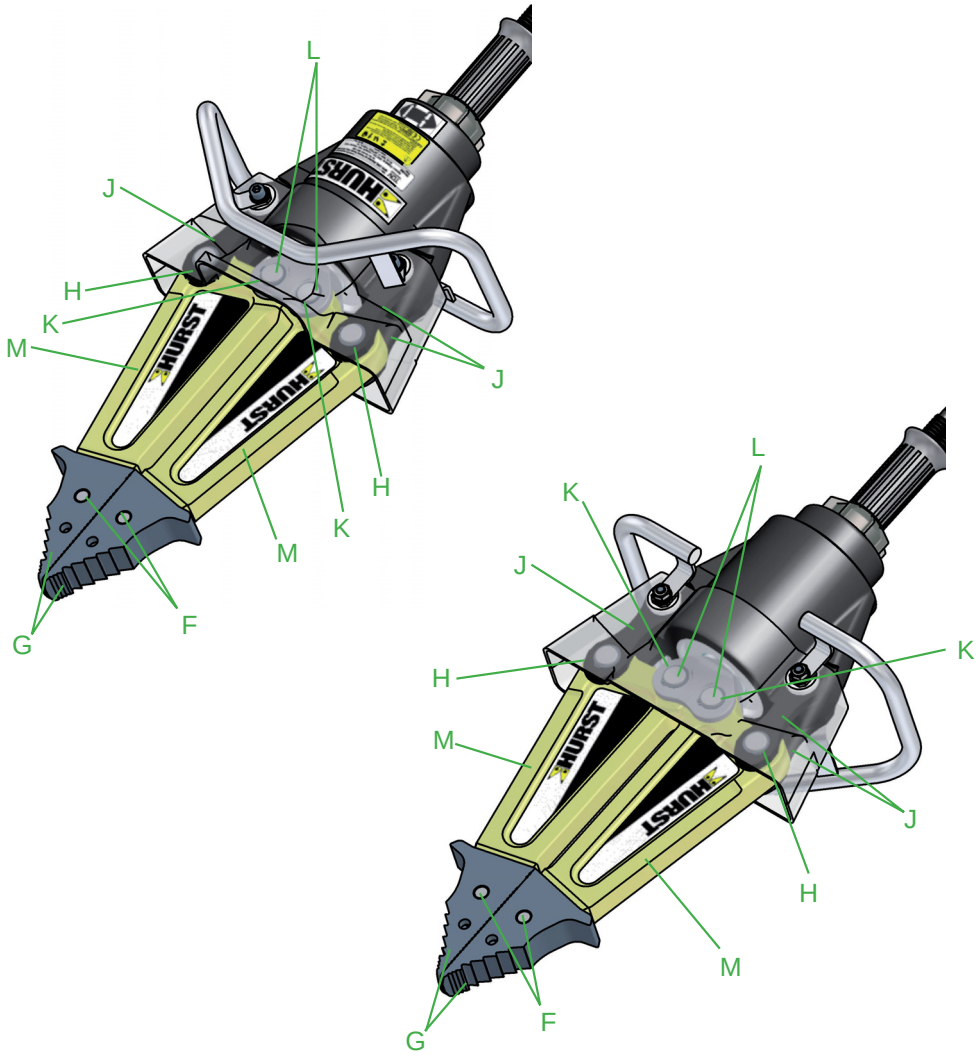
Components to be replaced	*Required work steps*
Handle	1. - 3. and 7.
Protective cover	1. - 4. and 7.
Plug-on tips	1. - 5. and 7.
Lever links	1. - 5. and 7.
Spreader arms	1. - 6. and 7.

Procedure:

1. Close the rescue unit until a gap of only a few mm / *in.* remains between the tips. Disconnect the device from the hydraulic power supply unit and clean thoroughly.



2. Unscrew nuts ‘A’, remove washers ‘B’ and remove fixing bolts ‘C’.
3. Pull the handle ‘D’ backwards over the hose connections.
4. In the same way, pull the protective cover “E” backwards over the hose connections.



5. Remove the interlock bolts ‘F’.
6. Remove the retaining rings ‘H’ and remove the links ‘J’.
7. The pins “L” can be removed after removing the retaining rings ‘K’.
8. Now, you can remove the spreader arms ‘M’ and replace them.
9. The work steps must be carried out in reverse order to fit the new parts.

CAUTION!
Don’t forget to apply HURST special grease to all sliding surfaces.

NOTE:
The torque required can be taken from the spare parts list.

10.3.3 Changing or tightening hoses

Hoses of the pressure and/or return pipe leaks or hoses are defective. Tighten the hoses on the safety valve.
(Please note! Observe torque of M_A = 40 Nm / *29.5 ft.lbs.*!)

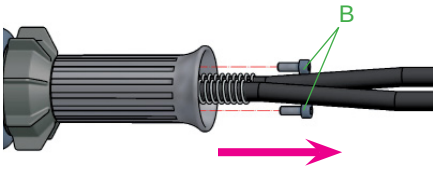
REMARK:
If you want to change the hoses, you have to dismantle the couplings.

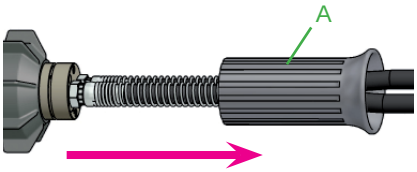
CAUTION!
usage of mono-coupling-system:
Take care that the port 'T' of the rescue tool is always connected to the port 'T' of the mono-coupling.

Quick-disconnect-coupling-system:
The return hose, which is screwed into the port "T" of the rescue tool, must always be equipped with a quick-disconnect-coupling (male).
However the supplying hose line must be equipped with a quick-disconnect-coupling (female).

Procedure:

1. Loosen the 2 screws 'B' in the handle sleeve (hexagon socket)

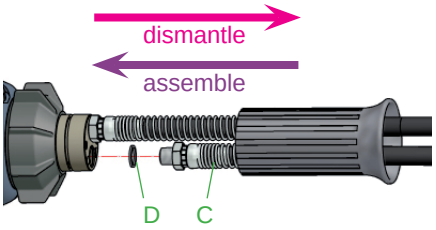




2. Remove handle sleeve 'A'.

3. Dismantle hose 'C' and sealing ring 'D'. (There is no need to carry out this point if the hoses are just being tightened).

4. Screw the hose with sealing ring back on.



5. Tighten the hose connection on the valve.
(Please note! Observe the necessary torque of M_A = 40 Nm / *29.5 ft.lbs.*!)

6. Then replace handle sleeve and screws, tighten (Torque: 5Nm / *3.7 ft.lbs.*) and secure it with threadlocking fluid (e. g. LOCTITE 243).

10.3.4 Mono-couplings

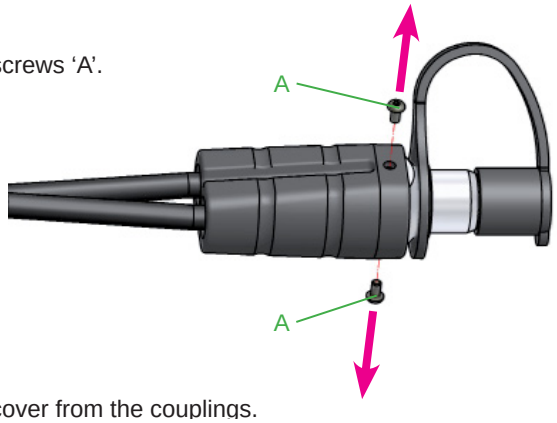
The mono-couplings must be replaced in the event of:
- external visible damage,
- the locking device not working,
- hydraulic fluid continually leaking in a coupled/uncoupled state.

WARNING / CAUTION!
Never repair couplings: they are to be replaced by new original HURST parts!

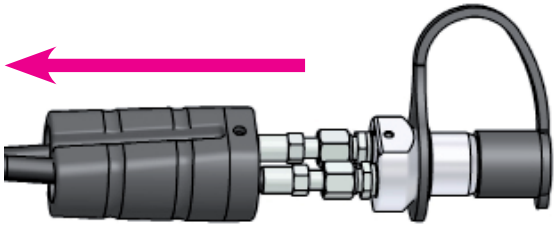
During assembly, tighten the connection nut of the hose assembly with a torque of M_A = 40 Nm / *29.5 ft.lbs.*.

Procedure:

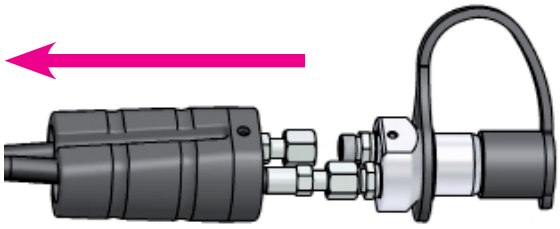
1. Remove the screws 'A'.



2. Remove the cover from the couplings.



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



4. Position the new coupling and tighten the connection nuts of the hose assemblies with a torque of M_A = 40 Nm / *29.5 ft.lbs.*. After that, push the cover of the couplings back on and replace screws “A”.

CAUTION!
Take care that the port ‘T’ of the rescue tool is always connected to the port ‘T’ of the mono-coupling.

10.3.5 Quick-disconnect-couplings

The quick-disconnect-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 new original HURST parts!

During assembly, tighten the connection nut of the hose assembly with a torque of M_A = 35 Nm / *25.8 ft.lbs.*.

Procedure:

1. Loosen the connection nut of the hose assembly and remove the coupling.

2. Position the new coupling and tighten the connection nut of the hose assemblies with a torque of M_A = 35 Nm / *25.8 ft.lbs.*.

CAUTION!
The return hose, which is screwed into the port “T” of the rescue tool, must always be equipped with a quick-disconnect-coupling (male).
However the supplying hose line must be equipped with a quick-disconnect-coupling (female).

10.3.6 Control valve

Should the safety valve be deformed so severely that the star grip no longer functions correctly (e. g. loss of the deadman-function, etc.), the valve must be replaced in its entirety. Have repairs carried out by an authorized dealer, by personnel specially trained by HURST, or by HURST customer service only.

10.3.7 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 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 authorized HURST dealer or HURST itself.

11. Troubleshooting

Trouble	Control	Cause	Solution
Spreader arms move slowly or jerkily when activated	Are the hoses connected properly?	Air in the hydraulic system	Deaerate pump system
	Does the pump unit work?		
Device doesn't perform at its given power	Check the hydraulic fluid level in the supplying pump	Insufficient hydraulic fluid in the pump	Top off hydraulic fluid, deaerate
Following release, the star grip doesn't return to the central position	Cover damaged or star grip hard to move?	Damage to the torsion spring for reset	Repair by an authorized dealer, by personnel specially trained by HURST, or by HURST itself
		Soiled valve or star grip	
		Defective valve	
		Other mechanical damage (e. g. star grip)	
Hoses cannot be coupled	Is a mono-coupling mounted?	Pressure too high (e.g. caused by too-high ambient temperature)	Set hydraulic pump to pressureless circulation
		Pressurized	Relieve pump
		Coupling defective	Coupling needs to be replaced immediately
only by use of mono-coupling-system: 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
Hydraulic fluid leak on the hoses or the fixing-ins	Are the hoses defective?	Leak, possible damage	Replace hoses
Damages on the surface of the hydraulic hoses		Mechanical damages or contact with aggressive agents	Replace hoses
Hydraulic fluid leaks on the piston rod		Defective rod seal	Repair by an authorized dealer, by personnel specially trained by HURST, or by HURST itself
		Damage to the piston	

Trouble	Control	Cause	Solution
Leak on the handhold	Increase load?	Load increase (e.g. something has fallen onto the part to be lifted, thereby suddenly increasing the load)	Secure the loads and move them by using other tools
			Move the load somewhere else, where the moving load is lighter
			Use supporting equipment to move the load.
	Does the pressure set on the pump comply with the maximum permissible pressure on the rescue equipment?	Pressure release in the Rescue tool.	Following the reduction in pressure, no further leak is present.
			Should, however, there be a further leak on the handhold, immediately deactivate the rescue equipment, and contact an authorized dealer or HURST itself.
	Hoses in handhold loose?	Hoses in handhold not tightened	Tighten hoses.
	Check the connections of the mono-coupling (female)	Supply and return connection of the mono-coupling (female) inverted	Reconnect the hoses of the mono-coupling (female) in the right way
Leak on the handhold	Is the return hose connected correctly?	Return hose is not coupled correctly or not connected.	Re-connect the return hose and secure it.
	check the connections of the hoses	hose connection to the couplings interchanged	reconnect the hoses to the coupling in the right way
		Return line disabled	disconnect the return line from the coupling, clean it and reconnect it.
Leak in the couplings	Is the coupling damaged?	coupling damaged	Coupling must be replaced immediately

If it is not possible to eliminate the malfunctions please inform an authorized HURST dealer or the HURST customer service department immediately!
The address for the HURST customer service department is:

HURST JAWS OF LIFE
HALE PRODUCTS, INC.
A Unit of IDEX Corporation

711 N. Post Road
Shelby, NC 28150 USA
Phone: (704) 487-6961
Fax: (704) 487-7271
e-mail: contacthurst@idexcorp.com

12. Technical data

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

NOTE:
The following tables contain only the technical data required for standard acceptance.
Additional data concerning your unit can be obtained from HURST on request.

* 1 MPa = 10 bar
** Necessary volume of hydraulic fluid in the hydraulic unit to operate the unit (differential volume on piston / rod side)

TYPE		KL-32		ML-28	
ref. no.		362R526	362R522	362R397	362R471
max. spreading force	[kN]	116		196	
	[lbf.]	*26077*		*44,063*	
max. spreading force (25mm / 0.98in. from the tips)	[kN]	39		46	
	[lbf.]	*8,767*		*10,341*	
spreading force HSF (according to NFPA)	[kN]	36		43	
	[lbf.]	*8,093*		*9,666*	
spreading force LSF (according to NFPA)	[kN]	31		37	
	[lbf.]	*6,969*		*8,313*	
max. spreading distance	[mm]	822		720	
	[in.]	*32.4*		*28.3*	
min. pulling force (on mounting borehole for chain set)	[kN]	26		32	
	[lbf.]	*5,845*		*7,194*	
max. pulling force (on mounting borehole for chain set)	[kN]	32		40	
	[lbf.]	*7,194*		*8,992*	
pulling distance (with chain set KSV11)	[mm]	675		570	
	[in.]	*26.6*		*22.4*	
pulling distance (with chain set KSS20)	[mm]	705		604	
	[in.]	*27.8*		*23.8*	
pulling force HPF (according to NFPA)	[kN]	27,5		31	
	[lbf.]	*6,182*		*6,969*	
pulling force LPF (according to NFPA)	[kN]	22		26	
	[lbf.]	*4946*		*5,845*	
dimensions l x w x h	[mm]	827 x 402 x 212		775 x 400 x 215	
	[in.]	*32.56 x 15.83 x 8.35*		*30.50 x 15.75 x 8.47*	
weight incl. hydraulic fluid	[kg]	22,8		21,9	
	[lbs.]	*50.3*		*48.2*	
max. operating pressure	[Mpa] *	35		35	
	[psi.]	*5,076*		*5,076*	
min. needed volume of hydraulic fluid	[l] **	0,24		0,23	
	[gal.-US]	*0.07*		*0.06*	
coupling system		quick-disconnect-coupling	mono-coupling	quick-disconnect-coupling	mono-coupling
classification acc. to DIN EN 13204		AS 33/822-23		AS 33/822-23	

12.1 Peeling

		KL-32	ML-28
max. sheet steel thickness “t”	[mm] *[in.]*	4 *0.16*	5 *0.20*
max. possible peeling length	[mm] *[in..]*	640 *25.20*	540 *21.26*

12.2 Recommended hydraulic fluid

CAUTION!
Use only the hydraulic fluid ‘HURST BLUE’! Other fluids could cause damages to the rescue tool.

	Fluid temperature range	Chemical name	CAS number	Remarks
A	-20 .... +55°C *-4.0 .... +131°F*	Polyether Polyol	9003-13-8	

12.3 Operating and storage temperature Ranges

Operating temperature	[°C] / *[°F]*	-20 … +55	*-4 … +131*
Ambient temperature (device in operation)	[°C] / *[°F]*	-25 … +45	*-13 … +113*
Storage temperature (device not in operation)	[°C] / *[°F]*	-30 … +60	*-22 … +140*

12.6 Conversions

1 MPa = *145.04 psi*

1 Nm = *0.7376 ft.lbf*

1 mm = *0.0394 in.*

1 l = *0.2641 gal. (US)*

1 kg = *2.2045 lbs.*

13. CE - Declaration of Conformity

DECLARATION OF CONFORMITY

We, Hurst Jaws of Life, A unit of IDEX Corporation; 711 N. Post Road; Shelby, NC, USA 28150; (704) 487-6961; FAX (704) 487-7271, declare under our sole responsibility that the following product:

Name: KL-32 Spreader Tool

Part Number: 362R522 (Streamline Version), 362R526 (QD version)

to which this declaration relates is in conformity with the following standard(s) or other normative document(s):

EC Machinery Safety Directive (06/42/EG)
DIN EN ISO 12100, publication date:2004-04 – Safety of machinery, Parts 1 & 2
DIN EN 1050, publication date: 1997-01 – Safety of machinery - Principles of Risk Assessment

following the provisions of (Machinery, Electromagnetic Compatibility, etc.) Directive(s)

The Technical Construction File is maintained at: Hurst Jaws of Life, A unit of IDEX Corporation; 711 N. Post Road; Shelby, NC, USA 28150

The authorized representative located within the community is:

Lukas Hydraulik GmbH
Weinstrabe 39
91058 Erlangen, Germany

August 5, 2011
Shelby, NC

Kevin Sullivan
Engineering Manager

14. Notes

Please dispose all packaging materials and dismantled parts properly

HURST JAWS OF LIFE
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MADE IN USA

subject to revision