

USER MANUALS



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User manual steel cable wire rope sling and -assembly :

Steel cable wire rope slings and –assembly's are removable connecting means for lifting and attaching loads corresponding the technical data and conditions of use.

It is of essential interest that the mass of the load is known.

The point of connection must have a diameter of minimal 2x the rated cable diameter.

Where necessary (sharp edges, etc...) you must apply protection.

The concerning valid certificate of the steel cable wire rope sling or –assembly always needs to be immediately available.

Excessive damaged, corroded or worn steel cable wire rope sling or –assembly's may not be used and need to be inspected by an expert body.

Steel cable wire rope slings and –assembly's needs to be visually inspected every year by an expert body and all attached hooks, rings etc. needs to be visually inspected every year and every four years to be tested.

To be able to lift the loads without turning or tilting , the following conditions needs to be fulfilled:

- The point of connection must lay vertical above the center of gravity,
- By assembly's with two, three or four parts the points of connection needs to be on both sides of the load and above the center of gravity,

The hook on which the assembly is being hanged needs to be right above the center of gravity .

Shortening or tensioning of steel cable wire rope sling is forbidden.

The load must grip well below in the rounding of the hook, never on the point of the hook or be clamped in an opening.

The hook must be able to turn freely in any direction.

The connection link must be able to turn freely in any direction on the hook on which it has been placed.

Pressure clamps of steel cable wire rope slings or –assembly's may never be loaded on tears. The diverge hook in the loop, as from the clamp, must be smaller than 60°.

When cable wire rope slings are being wounded more than once around a load, the wounds needs to be close to each other and they are not allowed to cross each other.

Steel cable wire rope slings are not allowed to be knitted.

During use of the steel cable wire rope sling or –assembly never cause a knit in the cable. Hereby the strands construction can be disturbed.

The steel cable or end connection may never get stuck.

An artificial line is recommended by putting down the load to avoid dangerous swinging of the load and to keep in position.

Never leave a loaded steel cable wire rope sling or –assembly unattended.

Pull- or shock loads must be avoided.

It is not allowed to lift the loads with steel cable wire ropes or –assembly's above or in instand distance of people.

Keep hands and other body parts on distance of the cable to avoid injury when the slack cable is being pulled tight.

Always choose a composition with a workload equal or bigger than the load to be lifted.

The on de steel cable wire rope sling or –assembly indicated WLL must never be exceeded.

When you put down the load you must be sure that the ground is suitable. It must be avoided that the assembly get stuck under the load.

By pulling, with force, the slings with rigid aluminium tubes from under the load the tubes can be damaged.



By use the steel cable wire rope slings can form bends or kinks and therefor you must work with extreme care by pulling the wire rope slings from under the load to avoid this from happening.

Steel wire rope slings can have yarns which stick out and for this reason you must always wear safety gloves.

Please note that the end connection itself is not deflected by lifting on the sides of the load or the hook.

After all work you must store the equipment on a safe place.

Steel cable wire rope slings or –assembly’s are usable with temperatures from -40°C untill +100°C without any form of reduction. Temperatures outside of this range needs to be consulted.

Do not use an assembly when the identification plate is not available or is unreadable.

By use of multi-slings it is important that the outer hook of each part is equal to the vertical.

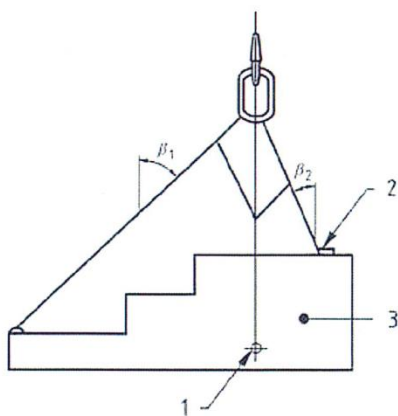
Inclination angles $>60^\circ$ and $<15^\circ$ are not allowed.

By choked use the workload is 80% of the marked WLL.

When a workload is given, a balanced load is assumed. When the load is not balanced an expert must determine a safe workload. For the factor of use see picture below.

Workloads, t, for

	$0^\circ < \beta \leq 45^\circ$	$45^\circ < \beta \leq 60^\circ$	$0^\circ < \beta \leq 45^\circ$	$45^\circ < \beta \leq 60^\circ$
	factor 1,4	factor 1,0	factor 2,1	factor 1,5
	factor 1,6			



Not symmetrical load (standard factor of use is invalid!!)



User manual steel cable:

A steel cable is being used for lifting of loads corresponding the technical data and conditions of use.

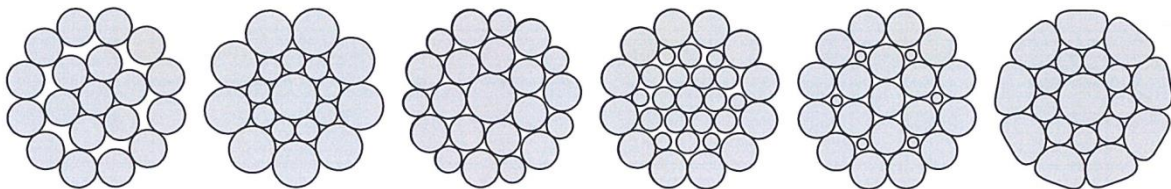
The chosen steel cable needs to have the right breaking strength. The cable also needs to be suitable for the intended application. Different cable constructions have very diverged characteristics.

Steel cables can be used by temperatures of -40°C until +100°C without any form of reduction. Temperatures outside this range needs to be consulted.

Steel cables are build out of spiral shaped stranded or braided strands round a steel core. The strands are build out of - round a strand core stranded – steel wires. The most important characteristics of a cable construction are determined by number, form and dimensions of the separate steel wires as well as the construction of the cable core.

The cable core forms the heart of the cable and states in high extent the cable characteristics. Steel cores and with plastic casted cores generally improve the stability of the cable construction. By choosing the suitable cable core it is possible to avoid damages as a result of high radial forces , for example by multi-layer coiled cables.

Cable strands consist of one or more thread layers which are stranded spiral shaped round a core. That core can consist of one or more steel wires (=steel core), but also out of fibers (=rope core). The strand structure determine in high extent the technical qualities of the cable structure.



Standard construction

Seale-construction

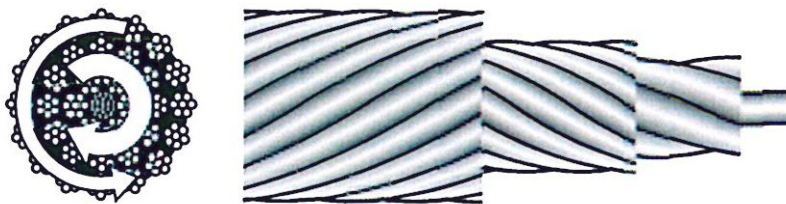
Warrington-construction

Warrington/Seale-construction

Fill wire construction

Compressed

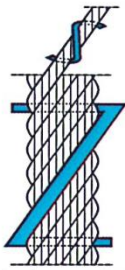
The cable core and the strands are constructed to form the finished cable. A distinction is made between one- or multi layers steel cables. One layer steel cables are usually 6- or 8-strands cable constructions.



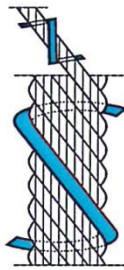
Multilayer strand cables are usually poor or free turning constructions, for example 19x7, 35x7.

The construction with multi strand layers makes it possible to manufacture cables which have a very low turning moment on a certain load range because the torque of the different strand layers act against each other.

The suitable type of lay and lay direction depend on the way the cable drive is constructed. Mostly on one and the same installation, right and left layered cables are being used to remove the torsion between one layer cable constructions. In a cable drive exclusively cables with the same type of lay and lay direction may be combined. Here are the conventional type of layers and lay directions:



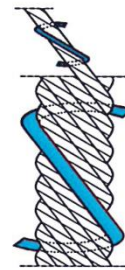
Right hand ordinary lay (sZ)



Left hand ordinary lay (zS)



Right hand lang slay (zZ)



Left hand lang slay (sS)

Small letters are the lay direction of the wire in the strand.

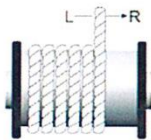
Big letters are the lay direction of the strand.



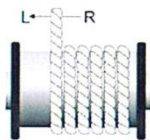
Choice of the right lay direction

Cable runs over the upper side of the cable winch

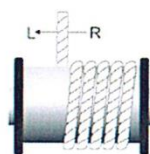
Cable runs over the underside of the cable winch



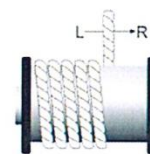
Top-running and fixed point
left = right hand cable lay



Top-running and fixed point
right = left hand cable lay



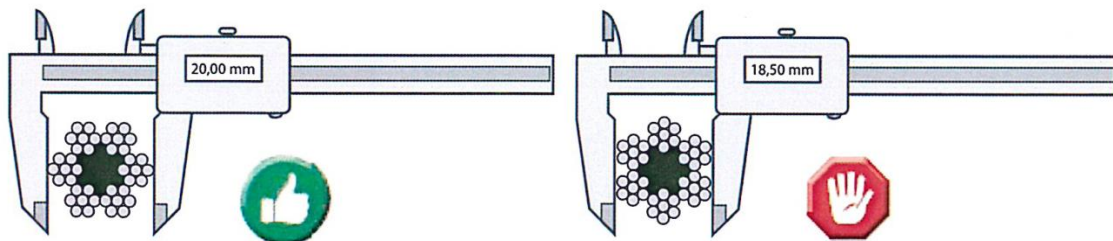
Running under and fixed point
left = right hand cable lay



Running under and fixed point
right = left hand cable lay

Cables must be stored in a neat, well ventilated, dry and protected space. Steel cables must be stored by room temperature. By prolonged storage cables must be checked regular on corrosion and if necessary been protected by lubrication. Mark the steel cables to prevent exchange.

Check before use the cable diameter as indicated on the figure below and consider if the end connections are free of visible defects. Check all technical data on the basis of the markings and the corresponding certificates.



Protect the steel cable against turn outs before cutting it. Multi lay steel cable constructions or parallel stranded cables must at least been tied at two places on both sides of the cutting point.

Avoid damaged and twists during unwinding.

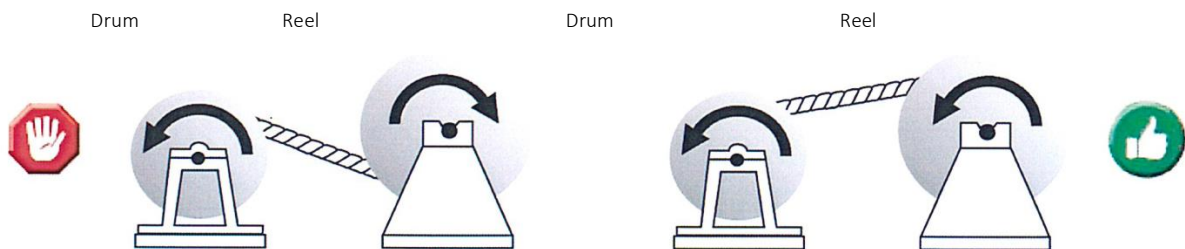


We advice to use cable pull stockings with flexible connection to avoid the torsion forces of the old cable been transported on to the new steel cable. Take care for a safe and steady connection!.

Avoid counter bending when you unreel the steel cable from the reel. By up wind of the cable drum the cables must be sufficiently pre-stressed to guarantee a good winding and safe operation of the cable driving.

Steel cables must be connected exclusively by qualified persons. Check if the steel cables are connected correctly and if they are in good conditions before using them again.

Let new steel cables run in under small partial load.

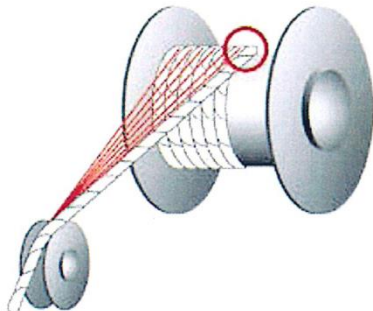


By steel cables the strap hook can have increased wear or load as consequence. By wrapping the cable around a smooth drum the strap hook must be between 0.5° and 2.5° . By a grooved drum the strap hook may lay between 0.5° and 4° . If the cable is damaged by the next laying cable on the reel, operational life can be extended by using compressed cable constructions, lang slay cables.

On cable pulley's the strap hook may never be more than 2.5° . By twist free or parallel stranded cable constructions the strap hook may not be more than 1.5° .

Make sure that the running steel cable cannot slip off the sheave - or flange drum.

By steel cables in use you must especially check the strap hook on which the cable comes into the installation.



The design and the situation of the grooves in cable sheaves or -drums are of the utmost importance for the lifetime of the cable. The sheave grooves must support the cable over $1/3$ of the circumference.



The running steel cables must be regularly inspected and greased during use.

Steel cables must be visually inspected once a year.

Excessive damaged, corroded or worn steel wires may not be used.

There should be no kinks, etc. in the steel cable.



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Hands and other body parts must be hold on a distance of the cable to prevent injury when the slack cable is being pulled tight.

The on the cable indicated WLL must never be exceeded.

You must always wear safety gloves because steel cables can have yarns which stick out.

User manual sockets:

Sockets are used to attach steel wire rope to a fixed point to which the socket is to be connected. This can be as an anchoring system for tubes or pipes, anchor wires of dredging material, anchor cables of oil platforms, towing cables or for fastening cables in construction purposes such as bridges, roof construction etc.

Sockets are the strongest steel wire rope end fitting and if they are assembled in the proper way they can meet at least the breaking strength of the steel wire rope. In the past melted zinc was poured into the socket to attach the steel wire rope; nowadays suitable resins have been developed for this purpose.

Sockets needs to be visually inspected every year and tested every 4 years by an expert body.

Before using a socket you must inspect the socket, the wedge (by an open wedge socket) and the pin (by all open types) on any damages or wear.

Always be sure that the socket and the wedge (by an open wedge socket) have the correct size for the wire rope diameter.

It must be avoided that the moulding material comes into contact with strong alkaline solutions. It is a known fact that hydrolysis based on such solutions will degrade polyester very quickly. The cured moulded material also has a low resistance level against aliphatic ketones such as acetone and methyl ethyl. Furthermore it is recommended to not continuously expose the resistance casted in sockets to temperatures higher than 115 degrees Celsius.

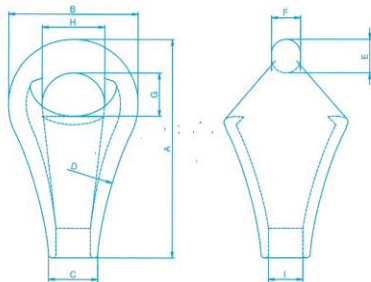
Never shock load a socket.

There is a wide range of sockets, i.e.:

Pear sockets

A pear socket is only to be used in grabbing activities.

The wire rope is poured into the socket.



Open and closed swaged sockets

The swaged socket is to be pressed around the wire rope.



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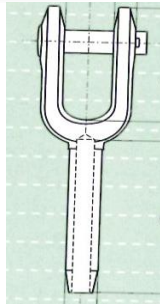
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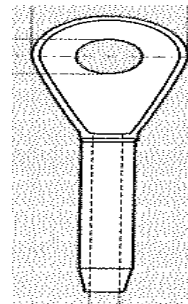
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Open type

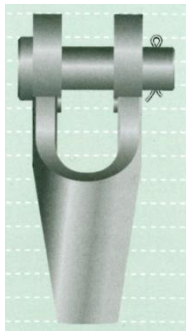


Closed type

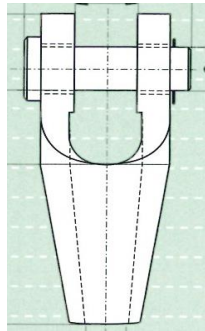


Open and closed spelter sockets

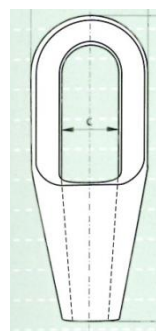
The wire rope is to be poured into the socket.



Open type

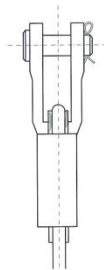


Closed type



Open wedge sockets

The wedge and body act as a vice which grips the wire rope and locks it in place. The socket may be used within the range of wire rope diameters.



By an open wedge socket you must be sure that:

- the loaded part of the steel wire rope should be mounted in the center line of the pin,
- use only with standard 6-8 strand wire rope,
- when installing the wire rope, always pre-load the wedge with the wire rope in place,
- never weld the tail on standard wire rope; the tail should have a length of at least 6 times the wire rope diameter with a minimum of 150 mm, secure the dead end of the rope with a wire rope clip as shown in figure below,
- before applying the first load always use a hammer to seat the wedge and rope as deep



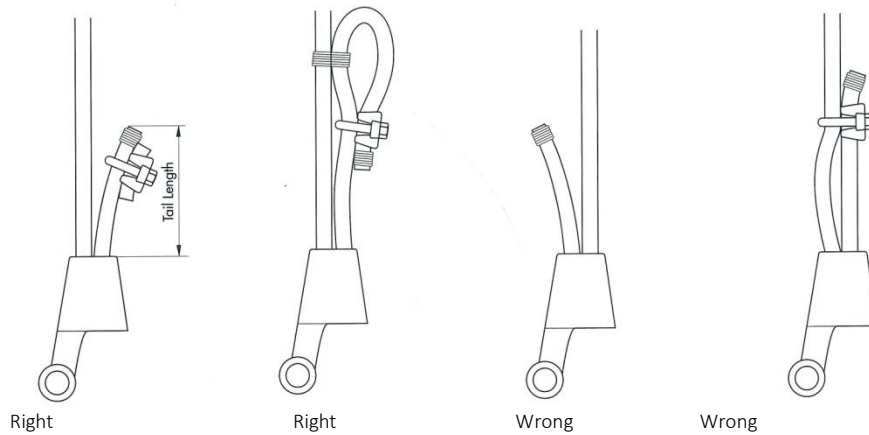
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- as possible into the socket,
- check the assembly regularly to re-tighten or re-position if necessary,
- never side load the wedge socket as it has not been designed for that purpose,
- load may slip if the connection is not properly installed,
- the efficiency of a wire rope – wedge socket connection is 80% of the minimum breaking load of the wire but limited to the minimum breaking load of the socket,
- only use the original wedge supplied by the manufacturer of the socket and be sure it is suitable for the diameter of the rope used,
- never use a wedge from any other supplier than the original socket supplier as the dimensions will not match.





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User manual steel cable grommet:



A steel cable grommet is a removable connecting means for lifting and attaching loads corresponding to the technical data and conditions of use.

A steel cable grommet must be visually inspected for any damages before use.

A steel cable grommet can have yarns which stick out and for this reason you must always wear safety gloves.

The steel cables of a grommet may not be broken or damaged.

Excessively damaged, corroded or worn grommets are not allowed to be used and need to be inspected by an expert body.

Do not use a grommet when the following total of ruptures occur;

- 10 ruptures over a length of 3x diameter steel cable
- 15 ruptures over a length of 6x diameter steel cable
- 40 ruptures over a length of 30x diameter steel cable

A grommet needs to be visually inspected every year by an expert body.

The concerning valid certificate of the steel cable grommet always needs to be immediately available.

Never use a grommet with another cable direction (cable lay left or right) than the other steel cable , -wire rope sling and/or grommet which already been used by a combination.

It is of essential interest that the mass of the load is known.

The point of connection must have a diameter of minimal 2x the rated cable diameter.

If the radius is smaller than 2x the diameter of the grommet then you should take the reduction of the WLL into account.

Where necessary (sharp edges, etc...) protection must be applied.

Kinks, etc. are not allowed in a grommet.

It is not allowed to weld on a grommet.

Never hook the grommet on the red marked part of the grommet.

Only use a grommet in a direct line, as a sling or a busked.

To lift the load without twists or tilting the point of connection needs to be vertical above the center of gravity.

Shortening or tensioning of grommets by so-called "clamping" is forbidden.

Grommets are not allowed to be knitted.

During use of a grommet you may never cause a knit in the cable. Hereby the strands construction can be disturbed.

An artificial line is recommended by putting down the load to avoid dangerous swinging of the load and to keep in position.

Never leave a loaded grommet unattended.



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Pull- or shock loads must be avoided.

It is not allowed to lift the loads with grommets above or in instant distance of people.

Keep hands and other body parts on distance of the cable to avoid injury when the slack cable is being pullet tight.

Always choose a grommet with a workload equal or bigger than the load to be lifted.

The on the grommet indicated WLL must never be exceeded.

When you put down the load you must be sure that the ground is suitable. It must be avoided that the grommet get stuck under the load.

Grommets are usable with temperatures from -40°C until +100°C without any form of reduction. Temperatures outside of this range needs to be consulted.

Do not use a grommet when the identification plate is not available or is unreadable.

By transport or the use of a grommet you must take great care that the outer wires are not being damaged.

After all work you must store the equipment on a safe place.

User manual chain slings:

General cautions and warnings

The working load limit (WLL) should be applied in a straight pull and overloads should not be applied. Side loads should be avoided, as the products are not designed for this purpose and the application of a side load may significantly decrease the product life. The working load limit for the product corresponds to static use. In case of dynamic use (breaking, accelerations, shocks), the effective stress on the product increases significantly which can lead to product failure.

It is required that the products are regularly inspected for obvious damage or deterioration. This is required because the products in use may be affected by wear, misuse, overloading etc. with a consequence of deformation and alteration of the material structure. If faults are found during this inspection, the sling should be withdrawn from service and referred to a competent person for thorough examination.

If the tag identifying the chain sling and its working load limit becomes detached and the necessary information is not marked on the sling, the chain sling should be withdrawn from service.

Chain slings must be visually inspected every year and be tested every four years by an expert body.

Verification before use

Before use of the chain sling it should be ensured that:

- the chain sling is precisely as requested and ordered
- the valid certificates are at hand
- the identification and the WLL mentioned on the sling correspond to the information given on the certificate
- the users of the sling have received appropriate instruction and training

Chain slings should be thoroughly cleaned to remove any oil, dirt, rust prior to inspection.

Methods for cleaning to avoid are those using acids, overheating, removal of metal or movement of metal which may cover cracks or surface defects.

With chain slings, if any chain link within the leg of a chain sling is required to be replaced then the whole of the chain within that leg should be renewed. Components showing any defect should be discarded and replaced.

Handling of the load

It is important to check the chain sling before lifting and also to check the load itself too. Before starting the lift, it should be ensured that the load is free to move and is not bolted down or nothing could fall from the load. The path between the previous location and the new one must be free.

The weight of the load must be known in order to select a sling with the correct working load limit. The position of the centre of gravity of the load should be established in relation to the possible points of attachment of the chain sling. To prevent any tilting or toppling, the following conditions should be met:

- for single leg and endless chain slings the attachment points should be directly above



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- the centre of gravity.
- for two leg chain slings the attachment points should be on either side of , and above the centre of gravity.
- for three and four leg chain slings the attachment points should be distributed in a plane around the centre of gravity.

It is preferable that the weight distribution should be equal and that the attachment points are above the centre of gravity.

When using two-, three- and four-leg chain slings the attachment points and chain sling configuration should be selected to achieve angles between the chain sling legs and the vertical within the range marked on the chain sling. In any case the angle β , which is the angle between the chain sling leg and the vertical, should not exceed 60°. More details concerning load reductions at certain angles can be found in the relevant tables corresponding to the grade.

Ensure that the load to be moved is able to resist both the vertical and horizontal force without being damaged. The hook connected to the chain should be directly above the centre of gravity.

A suspended load should not be left unattended.

If a multi leg chain sling is not used for the purpose for which it has been designed, for example a lift with less legs than the number of legs of the chain sling, the WLL should be reduced from that marked on the chain sling by applying the relevant factor given hereunder:

Types of chain sling	Number of legs used	Factor to apply to marked WLL
Two-leg	1	1/2
Three- and four-leg	2	2/3
Three- and four-leg	1	1/3

In any case, the chain sling should have a WLL equal to or greater than the weight to be lifted.

Riggers should be aware of the risks and dangers of shock loading which may break the chain. The load should always be lifted and lowered slowly.

Method of connection

A chain sling is usually attached to the load with end fittings such as hooks and/or links. The components should be used for straight in line loading only, this in order to avoid bending. The lifting points fixed on the load should be seated well down in a hook (never on the point or wedged in the opening).

Symmetry of loading

The loading can be assumed to be symmetric if all of the following conditions are met:

- the load is less than 80% of marked WLL and
- chain sling leg angles to the vertical are all more than 15° and
- chain sling leg angles to the vertical are all within 15° to each other and
- in the case of three- and four- leg chain slings, the plane angles are within 15° of each other.

If one of above parameters is not met than the loading should be considered as asymmetric and the lift should be referred to a competent engineer to establish the safe rating for the chain sling. Alternatively, in the case of asymmetric loading, the chain sling should be rated at half the marked WLL.

If the load tends to tilt, should be lowered and the attachments changed (by repositioning the attachment points or by using compatible shortening devices).

Despite the safety factor of 4, never exceed the given working load limit (WLL).

Safety of lift

Hands and other body parts should be kept away from the chain to prevent injury. The load should be lifted slowly until the chain is taut. As soon as the load is slightly raised, a check should be made that it is secure and has the position intended.

Never move the load during the lift over people.



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Lowering the load

The point of destination of the load should be prepared and should be adapted to the weight and the load shape. The access to this site must be clear of any unnecessary obstacles and people. The load should be lowered carefully. Avoid trapping the chain sling beneath the load as this may damage it. Before allowing the chain to become slack, the load should be checked to ensure that it is properly supported and stable. Then the chain sling should be removed by hand and not with the lifting device. The load should not be rolled off the chain sling as this may damage the chain sling.

Storage of chain slings

When not in use chain slings should be kept on a properly designed rack. They should not be left lying on the ground where they may be damaged. If the chain slings are to be left suspended from a crane hook, the chain sling hooks should be engaged in an upper link to reduce risk of chain sling legs swinging freely or snagging. If the chain slings are out of use for some time they should be cleaned, dried and protected from corrosion, e.g. lightly oiled.

Limitations in use

Never modify by welding or heat treating or grinding or any other process the components or the chains. It could alter their mechanical and/or chemical characteristics.

Consult the manufacturer of the components and the chains if the chain sling is to be exposed to highly concentrated chemicals.

The rating of lifting accessories in European Standards assumes the absence of exceptionally hazardous conditions. This concerns offshore activities, lifting of persons and lifting of potentially dangerous loads. In such cases the degree of hazard should be assessed by a competent engineer and the WLL adjusted accordingly.

If extreme temperature situations are applicable, the following load reduction must be taken into account:

Temperature °Celsius	Reduction for elevated temperatures New Working Load Limit
-40 °C up to 200 °C	100 % of original WLL
200 – 300 °C	90 % of original WLL
300 – 400 °C	75 % of original WLL
> 400 °C	not allowed

The use of chain slings within the permissible temperature range in the above table does not require any permanent reduction in WLL after the chain sling is back to normal temperatures. In the case of accidental exposure to excessive temperatures, the chain sling should be withdrawn from service.



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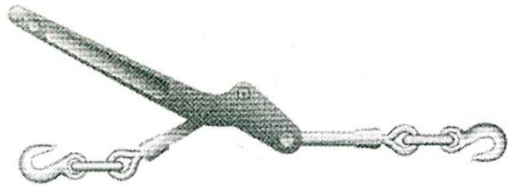
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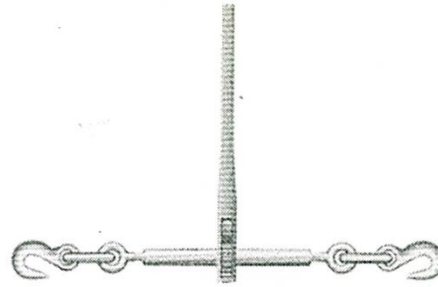
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User manual loadbinder:

Loadbinders are used for easy and efficient tightening of chain used for lashing purposes. The loadbinders are designed in such a way that they can be operated using one hand.



Lever type



Ratched type

There are two types of loadbinders. You have the ratchet type and the lever type.

Loadbinders should be inspected before use to ensure that:

- all markings are legible;
- loadbinders are free from nicks, gouges and cracks;

Safety instructions:

- loadbinders should never be used for lifting or hoisting applications;
- a loadbinder with the correct Lashing Capacity (LC) needs to be selected with respect to chain size and load to be lashed;
- the loadbinder should never be side loaded, because loadbinders are suitable for in-line pull only;
- the loadbinder must be hooked to the chain in such a way that you can operate the loadbinder while standing on the ground;
- never use a loadbinder while standing on the load;
- always keep yourself out of the path of the moving handle;
- if the handle of the lever type loadbinder cannot reach the correct locked position, never use a cheater pipe. In that case a ratchet type loadbinder must be used;
- in the locked position of a lever type loadbinder the bottom side of the loadbinder should touch the chain link. In this position secure the handle to the chain using the loose end of the chain or a piece of rope or soft wire;
- loadbinders may not be heat treated as this may affect their Lashing Capacity;
- never modify, repair or reshape a loadbinder by machining, welding, heating or bending as this may affect the Lashing Capacity;
- if the handle of a lever type loadbinder is released by hand, make sure you use an open hand under the handle and push upward. Do not close your hand around the handle. Move the handle with caution since it may whip as it comes free. Keep your body away from the moving handle.

It is required that the products are regularly inspected. This is required because the product in use may be affected by wear, misuse, overloading etc. with a consequence of deformation and alteration of the material structure. Regularly lubricate moving parts of a loadbinder to extend product life and reduce wear.

Loadbinders needs to be visually inspected once a year by an authorized body.



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User manual shackles:

Shackles are used in lifting operations and static systems as removable links to connect (steel) wire rope, chain and other fittings.

Screw pin shackles are used mainly for non-permanent applications. Safety bolt shackles are used for long-term or permanent applications or where the load may slide on the pin causing rotation of the pin.

Chain- or dee shackles are mainly used on one-leg systems whereas anchor- or bow shackles are mainly used on Multi-leg systems.

Select the correct type of shackle and WLL for the particular application. If extreme circumstances or shock loading may occur, this must be well taken into account when selecting the correct shackle. Please note that commercial shackles are not to be used for lifting applications.

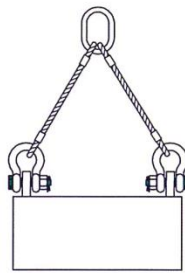
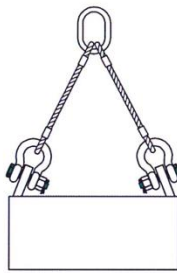
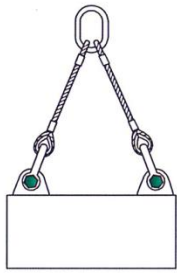
Before use shackles must be checked on the following aspects:

- all markings are legible;
- the body and pin are both of the same brand and type;
- the body and pin are both of the correct size;
- the threads of the pin and the body are undamaged;
- the body and the pin are not distorted or unduly worn;
- never use a safety bolt type shackle without using a securing pin;
- the pin, nut, cotter pin, or any other locking system cannot vibrate out of position;
- never modify, repair or reshape a shackle by machining, welding, heating or bending as this will affect the WLL;
- the bolt must be twisted completely in the bow, or the nut completely in the bolt;
- be aware that the correct shackle is being used for the correct load;
- the not correct load on the bolt or the body may lead to connection whereby the shackle can not be disconnected anymore;
- when shackles are being used with Multi-leg slings the capacity of the shackle must be in accordance with the WLL of the steel wire ropes or chain parts;
- shackles must be inspected every year and be tested every 4 years by an expert body.

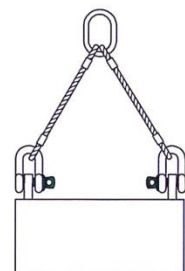
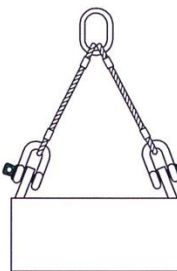
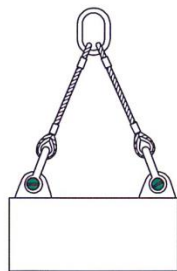
Use:

Ensure that the pin is correctly screwed into the shackle eye: tighten it hand-tight, then secure it using a wrench or other suitable tool so that the collar of the pin is fully seated against the shackle eye. Ensure that the pin is of the correct length so that it penetrates the full depth of the threaded eye and the collar of the pin seats against the surface of the shackle eye.

Make sure that the shackle is supporting the load correctly, i.e. along the axis of the shackle body centerline. Avoid bending loads, unstable loads and overloads.



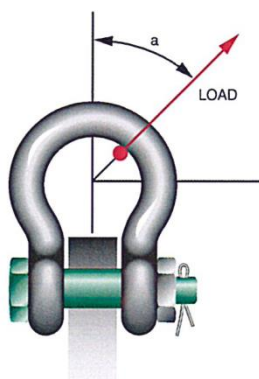
ONLY WITH REDUCED WLL



ONLY WITH REDUCED WLL

Side loads should be avoided, as the products are not designed for this purpose. If side loads can not be avoided the WLL of the shackle must be reduced.

In-line lifting is considered to be a load perpendicular to the pin and in the plane of the bow. The load angles in the graph represent the deviating angles from in-line loading.



When connecting shackles to Multi-leg slings, consider the effect of the angle between the legs of the sling. As the angle increases, so does the load in the sling leg and consequently in any shackle attached to that leg.

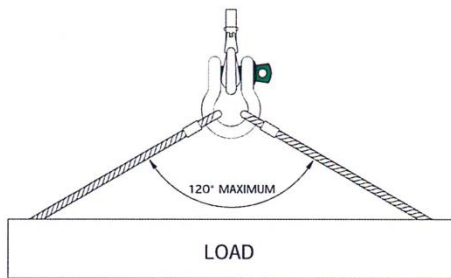


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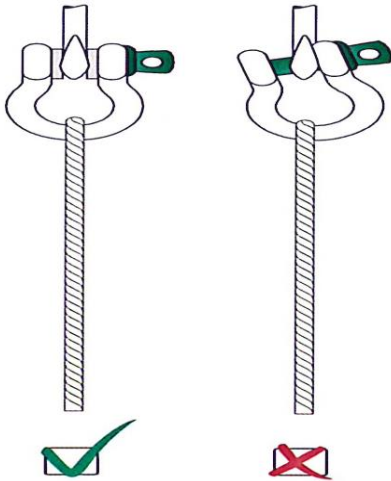
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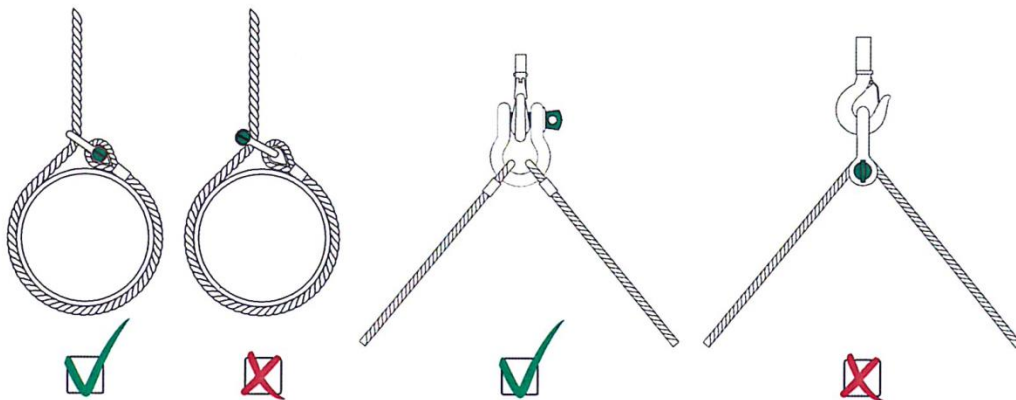
When a shackle is used to connect two slings to the hook of a lifting device, a bow type shackle must be used. The slings must be connected to the shackle body, and the shackle pin must be placed in the hook. The angle between the slings should not exceed 120°. If symmetrically loaded the shackle may be used to the full WLL.



To avoid eccentric loading of the shackle a loose spacer may be used on either end of the shackle pin. Do not reduce the width between the shackle jaws by welding washers or spacers to the inside of the shackle eyes or by narrowing the jaws, as this will affect the WLL of the shackle.

When a shackle is attached to the top Block of a set of wire rope blocks the load on this shackle is increased by the value of the hoisting effect.

Avoid applications where the load moves over the shackle pin; the pin may rotate and possibly be unscrewed. If moving of the load can not be avoided, or when the shackle is to be left in place for a prolonged period or where maximum pin security is required, use a shackle with a safety bolt, nut and cotter pin.

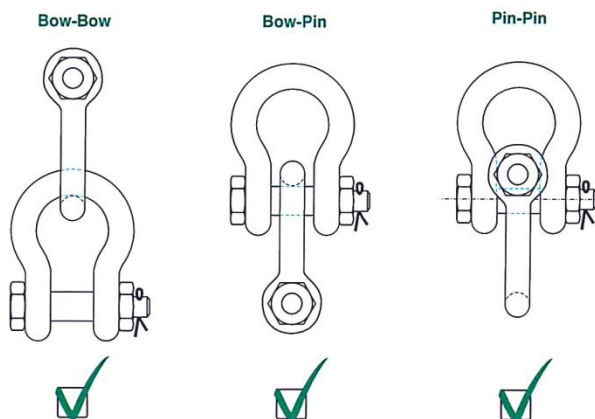


Shackles should not be immersed in acidic solutions or exposed to acidic fumes or other chemicals that are potentially harmful for the shackle.

Most of the times the load bearing component that connects to a shackle is of a rounded shape. Point loading of shackles during lifting operations is allowed but the minimum dimension of the rounded component to be lifted should be equal to or bigger than the size of the shackle being used. The maximum load of the configuration is limited by the component with the lowest WLL.

Increasing the contact area by using bigger diameters and/or pad eyes can be an advantage. Sharp edges should be avoided.

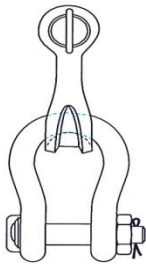
Green pin shackles can also be used in below configurations. The maximum load of the configuration is limited by the component with the lowest WLL.



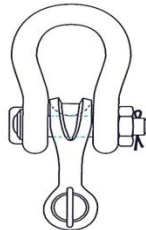
The crown of a green pin shackle is wider than that of a standard shackle, thus creating a bigger bearing surface. This improves the lifetime of the sling. Green pin shackles can also be used in below configurations. The maximum load of the configuration is limited by the component with the lowest WLL.



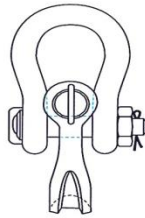
Bow-Bow



Bow-Pin



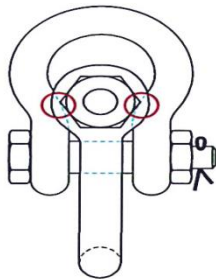
Pin-Pin



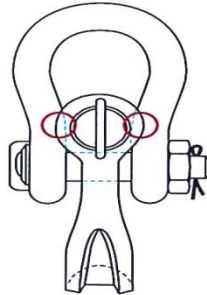
Pin-pin configuration:

When the shackle eyes touch and the pins do not bear properly, the configuration should not be used.

Pin-Pin



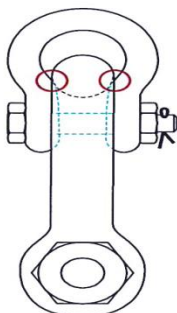
Pin-Pin



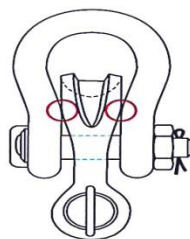
Bow-pin configuration:

When the shackle body of the inner shackle touches the shackle eyes of the outer shackle and body and pin do not bear properly, the configuration should not be used.

Bow-Pin



Bow-Pin



If extreme temperature situations occur, the following load reductions must be taken into account:



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Temperature	Reduction for elevated temperatures New Working Load Limit
up to 200°C	100% of original Working Load Limit
200 - 300°C	90% of original Working Load Limit
300 - 400°C	75% of original Working Load Limit
> 400°C	not allowed

USER MANUAL MECHANICAL JACK

SAFETY INSTRUCTIONS:

- 1 Before use of the mechanical jack, you must be sure that the mechanical jack in unloaded state, works flexible and that there are no parts distorted or missing.
- 2 Any defects must be reported directly to your management and any repairs should be carried out by an authorized person/agency.
- 3 It is not allowed to lift any persons with a mechanical jack.
- 4 The mechanical jack is for manual use only. Mechanical transmission is not allowed.
- 5 The brake discs of the mechanical jack may not come in contact with any grease or moisture. THE BRAKE WORKS DRY.
- 6 Never apply to heavier loads than indicated on the type of plate.
- 7 Never use the mechanical jack when it is in bad shape.
- 8 Never use the mechanical jack without a solid and flat surface.
- 9 Make sure you do not stand under, on or in the immediate vicinity of the suspended load.
REMARK: with mobile loads you must make sure the wheels are blocked.
- 10 Never perform any work to the load which can cause shocks to the mechanical jack.
- 11 Always keep the mechanical jack during lifting in vertical position.
- 12 Never lift a load with clotted dirt.
- 13 Never leave a mechanical jack with load unattended.
- 14 Never lean on or hit and make shocks to a mechanical jack which has a load.
- 15 Only skilled staff may operate a mechanical jack.
- 16 Before use this manual has to be read and understood. When there are any questions left you should contact an expert (for example the supplier or your management).
- 17 Welding and burning on a mechanical jack is not allowed.

USE:

The mechanical jack works with a handle with a folding handgrip. In the handle is located a brake and a safety system. As well as the brake as the safety system will be activated when the handle is being turned. Herewith the loaded mechanical jack will be fastened in every secured position.

By turning the handle clockwise the load will be lifted and the load will drop by turning the handle in the other direction (anticlockwise). When you let go of the handle the load will stay safe in that position because of the brake. It is not necessary to adjust the brake during lifting or lowering the load. With a view to the safety and the relatively large force which is required for lifting, a two-man operation is desired.

INSPECTION- AND TESTING TIME:

Lifting equipment must be visually inspected each year and also every 4 year tested by an expert body.



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USER MANUAL SPREADER BEAM:

Spreader beams are used for lifting and horizontal moving of loads according to the technical data and the operating conditions.

Spreader beams are beams which are usually equipped , on the site of the crane, with a suspension frame in the middle as a point of engagement for a crane hook and on the site of the load with two or more lifting points to hook the load. Spreader beams distribute the forces of the crane hook on the lifting points of the load, avoid bending forces and breaking strains and protect the lifted load. With symmetric loading on two lifting points every point carries 50% of the load. Adjustable lifting points can be placed such a way that the suspension point of the crane hook comes to lie outside the geometrical center and so above an asymmetrical center of gravity suspension. In this case you must keep in mind that the lifting points(and also the thereon applied lifting accessories) which are closest to the crane hook or under heavier load than the points beyond. Asymmetrically loaded spreader beams in the H-form must have a torsion approved design! Only use the presented lifting points. Pulling with a sideways force is forbidden. Never change the distance between the lifting points of an adjustable spreader beam during lifting.

Take into account the maximum permissible load of each lifting point when you have several lifting points. Usually the most outer lifting points of these spreader beams cannot carry the full load.

Spreader beams and lifting frames are mainly loaded on breaking and not on bending and are therefore suitable for static loads. It is forbidden to add additional lifting points on to the spreader beams or lifting frames, or use other than the available lifting points. Make sure that by suspension structures of adjustable spreader beams and lifting frames the maximum permissible outer angle is not to be exceeded, and also not the maximum working length. This is why it is forbidden to add extra holes to adjust the adjustable range, or shorten the slings.

A spreader beam must be visually inspected every year and if the beam has been repaired it must be tested again.

SAFETY INSTRUCTIONS:

- Read the instructions carefully and make sure that the instructions are available at any time.
- Before using the spreader beam you must check the spreader beam for any damages or missing parts. With doubt you should not use the spreader beam and let the beam to be inspected by an authorized expert body.
- Repair of any other changes to the spreader beam is not allowed.
- Never exceed the safe Working Load Limit (WLL) of the spreader beam.
- Never exceed the separate working load of the lifting points.
- Make sure that there are no persons in the danger zone of the load.
- Spreader beams are not intended for transport of persons (except for example work baskets).
- Do not use the spreader beam if the identification plate of the WLL is missing or is unreadable.
- The spreader beam is not to be used when the temperature is below -20° and above $+100^{\circ}$, nor be exposed to chemical influences like acids, leach and vapor.
- Only lift well balanced loads. The center of gravity of the load must be directly under the crane hook. The places where the load is being picked up must be directly under the lifting points of the lifting tool. The load must be equally divided over the several lifting points. The maximum permissible deflection of the horizontal line is 6° .
- Never use spreader beams for pulling.
- Make sure that the lifting points and attachments are calculated on the weight of the load and the towing attachment. Beware of the inclination angle. By lifting in the form of a basket the load can shift and when this is the case you must secure the load.
- The locking device of all support means must be closed. The suspension eye of the hoisting device must have enough clearance in the crane hook to be able to move freely. Never load the hook at the point.
- It is forbidden to use the spreader beam for sideways loading and pulling of stuck or clamped loads. Never lift with shocks. Maximum lifting speed: 10 m/min.
- Special attention is required when the center of gravity of the load is above the point where the load is being hooked on. The stable height of the combination spreader beam – load must be positive.
- Always drive with low speed when you transport the load with a forklift truck.
- Heat treatment and welding on the spreader beam is forbidden.

Operate and transport the spreader beam carefully. Use the handles so you can keep hands away from moving parts. Make sure that there is enough space to transport the load and that there are no persons under the load. Pay attention that the load cannot turn over, shift or roll away when the load is being put down. Never leave the load hanging unguarded or longer than necessary.



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USER MANUAL LIFTING MAGNET

Lifting magnets are manually operated lifting tools based on permanent magnetism. By converting the direction of the handle , the magnetic field will be turned and targeted on the load which need to be lifted.

CONDITIONS FOR LIFTING CAPACITY:

- The product consists of ferromagnetic or ferruginous material.
- The application temperature is +80°C until -40°C.
- There are no strong vibrations and / or shocks.

SAFETY INSTRUCTIONS:

- Before you start using the lifting magnet you must be sure that the lifting magnet in unloaded state is in good condition and that it is not damaged or missing any parts.
- Never take the load above any persons and make sure there is enough space between the surrounding bystanders.
- Lift steady with controlled movements without any shocks.
- Make sure the load is stable and in balance when you start loading.
- Place the magnet stable without any risks on sliding, rolling or turning.
- Make sure you can read the diagram well on the magnet.
- By transport of a lifting magnet falling of high heights must be prevented.
- Storage must be in a clean and dry place.
- Never go above the lifting capacity of the lifting magnet.
- Repair or any other changes to the lifting magnet is not allowed.

OPERATING INSTRUCTIONS:

The composition of the material is of influence on the lifting capacity.

For alloyed steel a reduced lifting capacity apply:

- | | |
|----------------------------------|---------------|
| - Soft steel | workload 100% |
| - Alloyed steel | workload 80% |
| - Steel with high carbon content | workload 70% |
| - Cast iron | workload 45% |

By low plate- or wall thickness the lifting capacity will reduce. You can read this on the diagram of the magnet.

Round objects can also be lifted with a lifting magnet. Hereby the workload is reduced to 1/3 of the maximum lifting forces.

WARNING: a work piece which can band, can lose or reduce the contact with the lifting magnet!

The flatness of the touch surface affects the lifting capacity as follows:

- | | |
|---------------------------|---------------|
| - Cut, flattened surface | workload 100% |
| - Rough, edited manually | workload 100% |
| - Finished steel castings | workload 90% |
| - Rough steel castings | workload 65% |

By roughness of the material an air gap can arise. This air gap must be considered critically because this has a big influence on the lifting force. For the calculation, the user must read, understand and apply the diagram on the magnet.

USE:

- Place the magnet on a carefully cleaned flat surface of the work piece. Choose the place that is directly above the center of gravity. Tilt or turning should one perform with great care on a stable surface, without risc of falling, prior to the lifting movement is initiated.
- Turn the handle in the direction of the locking system. Make sure that the locking system, after passing of the handle, is completely slid back in rest position.
- Lift with steady, even strokes and prevent shocks.

INSPECTION- AND TESTING PERIOD:

Lifting magnets must be inspected and tested every year by an expert body.



USER MANUAL BEAM LIFTING CLAMP:

Safety First! Guarantee your personal safety by carefully reading the following safety instructions First.

Before using the clamp you must inspect the area, where the profile needs to be clamped, on damages and possible defects. Check the frame on damages, rips or deformation. This could point out overload. Check the threaded spindle, the spindle must go in and out easily. If this is not the case the clamp must be taken out of order. Verify whether the working load limit (WLL) and the jaw-opening of the clamp is sufficient for the load created in the lifting situation.

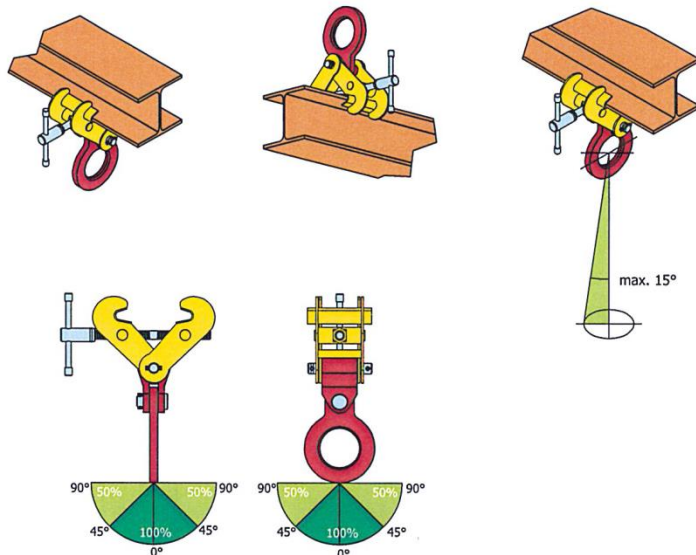
Attach the lifting clamp to the hoisting mechanism :

- directly to a crane hook by means of a safety shackle;
- by means of a coupling link or D-type shackle;
- by means of a sling or chain, if necessary, in conjunction with a coupling link or D-type shackle.

There are different kind of lifting clamps (beam lifting clamp, safety beam lifting clamp and bulb screw clamp).

Beam lifting clamp:

A beam lifting clamp is suitable for lifting and handling steel beams and steel strips (see picture below).



Permissible positions for using the clamps are lifting and handling from a vertical position and lifting work, where the lifting clamp is used as a lifting point. The lifting clamps feature a screw thread mechanism consisting of a threaded spindle and tow spindle nuts. As soon as the spindle has been actuated, this mechanism ensures that a constant clamping force is applied by the jaws. In this way the clamp will not work itself loose from the object. The linked clamping parts ensure that the

clamping force continues, which means that the load continues to be held firmly. As there is no cam and pivot arrangement, the object to be lifted does not become damaged.

Use:

Check that the threaded spindle is free of dirt and if necessary clean it with a wire brush. Remove excess dirt form the beam or strip where the lifting clamp is to be applied. Open the clamp by using the threaded spindle. Position the jaw as far as they will go over the beam or strip, ensuring that the clamp is positioned so as to balance the load when it is being lifted. Close the clamp by reversing the threaded spindle as far as it will go (finer tight). Start the lifting and check whether the clamp is shifting. Make sure that the load is in a stable position, before taking the clamp off the plate.

Safety beam lifting clamp:

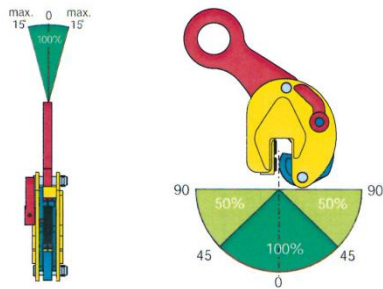


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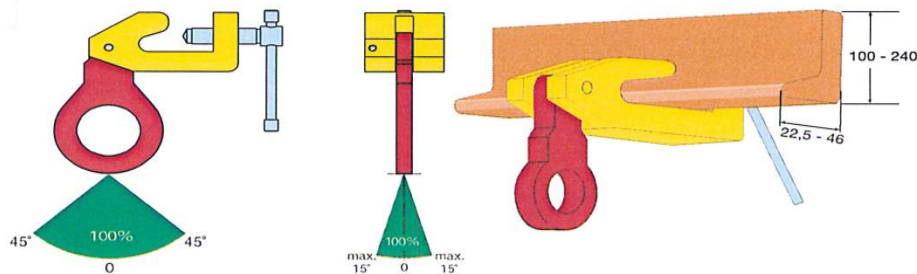


The safety beam lifting clamp has especially been developed for the lifting of steel beams. Permitted positions for using the clamp are the lifting and transporting of beams in horizontal and vertical position. A special lifting shackle is used to place the centre of gravity of the beam to be lifted directly beneath the lifting shackle. This maintains the balance of the beam, once it is lifted. The lifting clamp features a safety mechanism consisting of a locking device, a tension spring and a lever. Once the lever is operated, the safety mechanism provides constant pretensioning of the cam on the steel plate, this ensuring that the clamp does not slip when the lifting force is applied. When a load is being lifted, the clamping force on the cam is increased by the weight of the load. It also ensures that the clamp will not work itself loose from the plate when the lifting force is off the clamp.

Use:

Use the lever to open the clamp. Place the jaws as far as they will go over the beam, making sure that the clamp is positioned so as to balance the load when it is being lifted. Make sure that the lifting shackle is facing towards the centre of the beam or structure. Close the clamp by fully turning the lever back. Lift gently to allow the lifting force to be applied; check whether the clamp is slipping. If the load is slipping, read the above mentioned instructions again. Make sure that the load is in a stable position, before taking the clamp off the plate.

Bulb screw clamp:



The bulb screw clamps (see picture above) have been specifically designed for the provision on a bulb profile of a temporary lifting point. The bulb screw clamp is used individually to create a temporary lifting point on a bulb profile. The lifting shackle may be subjected to a lateral load of up to 45° left or 45° right in relation to the perpendicular and sideways 15°.

Use:

Open the clamp by means of the thread spindle. Position the clamp completely onto the bulb profile, in such a way that the bulb falls into the recess of the clamp and the flat side of the bulb profile faces the spindle side. Close the clamp by fully (i.e. finger tight) closing the thread spindle. Mount the hoisting element onto the lifting shackle and start lifting gently. Make sure that the clamp does not shift. If the clamp shifts or if the load becomes unbalanced, repeat the above. When the load has reached its destination, lower the crane hook until the clamp is fully unloaded. This can be verified by the slackness of the hoisting chain and a fee movement of the lifting shackle of the clamp. Take the hoisting element from the lifting shackle while holding on to the frame. The bulb screw clamp is removed from the construction by loosening the thread spindle.

Safety instructions:

- 1 The clamp must be inspected and tested every year by an expert body.



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- 2 Never work with an untested clamp.
- 3 Keep at a distance when lifting and never stand under the load.
- 4 Do not use the clamp if damaged.
- 5 Never lift more than one beam or load at a time.
- 6 Never lift beams that are heavier than the working load limit (WLL) , as indicated on the clamp and the test certificate.
- 7 Do not lift beams or strips smaller or bigger than the jaw opening, as indicated on the clamp and the test certificate.
- 8 Do not attach the bulbclamp to any other parts but bulb profiles.
- 9 When simultaneously operating a number of lifting clamps facing each other, use lifting slings or chains which are of sufficient length to ensure that the permissible lifting angles are respected.
- 10 When simultaneously operating a number of lifting clamps side by side, use a lifting beam (equalizer) and lifting slings of chains of sufficient length to ensure that the lifting shackles on the clamps are never subjected to a lateral load of more than 15° .
- 11 Do not place the clamp on tapered or conical sections of the beam to be lifted.
- 12 Make sure that the clamp(s) is/are positioned so as to balance the load when it is being lifted.
- 13 Remove all grease, oil, dirt and corrosion at the point where the clamp is to be attached.
- 14 The clamp is only suitable for use in normal atmospheric conditions.
- 15 If bulb screw clamps are being used, make sure that the size of the bulb profile matches the range of the bulb screw clamp.
- 16 The operating temperature of both lifting clamps range from +100°C (+212°F) and minus 40° C (-40°F).
- 17 Ensure that the lifting shackle can never be subjected to 15° lateral load.
- 18 A free fall or uncontrolled swaying at the crane hook resulting in objects being struck may cause damage to the clamp. If this occurs, check whether the clamp is in good working order before using it.
- 19 Lifting clamps are not suitable to be used as permanent joints.
- 20 Do not modify the clamp (by welding, grinding, etc.), as this can adversely affect its operation and safety, thereby nullifying any forms of guarantee and product liability.
- 21 Check whether the clamp has any visible damage and operate the spindle to check whether the clamp opens and closes smoothly.
- 22 Ensure that all attachments have been tested and are of the correct tonnage. Make sure that coupling links and shackles are large enough to allow the clamp to move freely in the hook.
- 23 Check whether the teeth of the cam are free from dirt and if necessary thoroughly clean with a wire brush.



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USER MANUAL HORIZONTAL DCP LIFTING SHOE

Horizontal DCP lifting Shoes are being applied for horizontal lifting of beams, piles and steel pipes and consists of a clamp and a shackle.

As with all lifting equipment, the lifting shoe should be inspected before each lift.

Ensure the area of pile that the lifting shoe is in contact with is in good condition, i.e. smooth and with no obstructions.

Establish the weight of the lift involved and ensure a shackle with appropriate Working Load Limit (WLL) is being utilised . The WLL rating of any shackle or shoe is based on a "best condition" . For uneven leg loading on slings, dynamic loading during the lift or any other factor that increases component loading, the WLL of the equipment should be de-rated accordingly.

Do not lift plates that are heavier than the WLL as indicated on the shoe and the certificate.

Do not modify the lifting shoe or any part of the lifting apparatus.

The angle between the two legs of the lifting strap, where applicable should not exceed 90° or less than 45°.

Do not lift any plates which are thicker or thinner than the jaw opening (as indicated on the shoe and the certificate).

At all times you must use the right lifting equipment with the correct working load limit.

Make sure that the load which needs to be loaded, on which the shoe will be set on, is clean and has no damages and/or shows no imperfections.

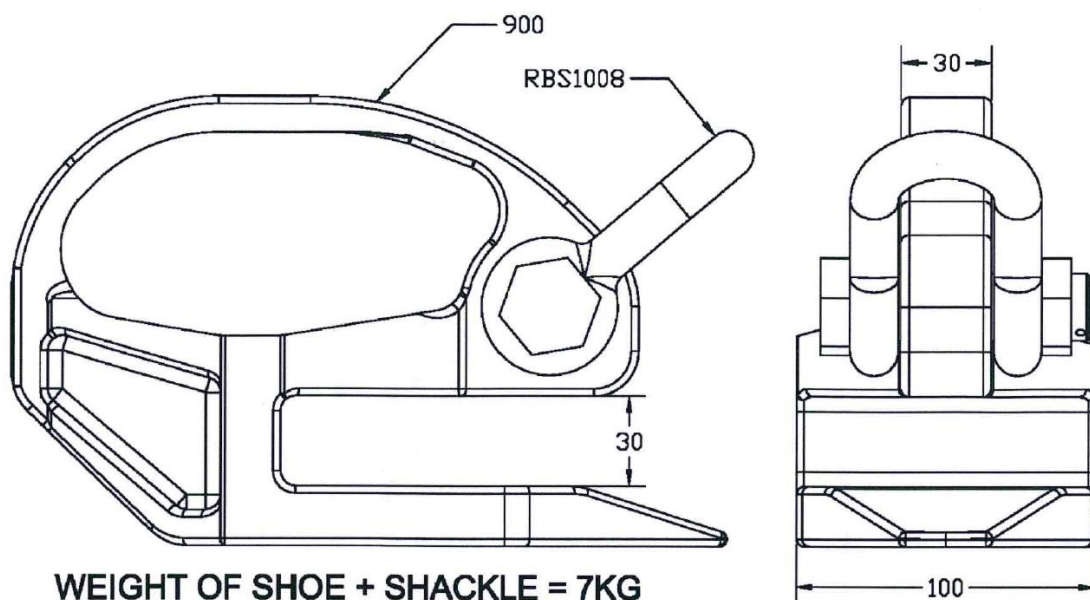
Horizontal lifting shoes should always be used in pairs, or multiples thereof. When pairs or multiples shoes are used, each shoe should carry an equal part of the load.

A horizontal lifting shoe must be inspected and tested every year by an authorised expert body.

Never work with an untested lifting shoe.

Keep your distance when lifting and never stand under the load.

Ensure that the Shoes are positioned so as to balance the load when it is being lifted (see pictures).



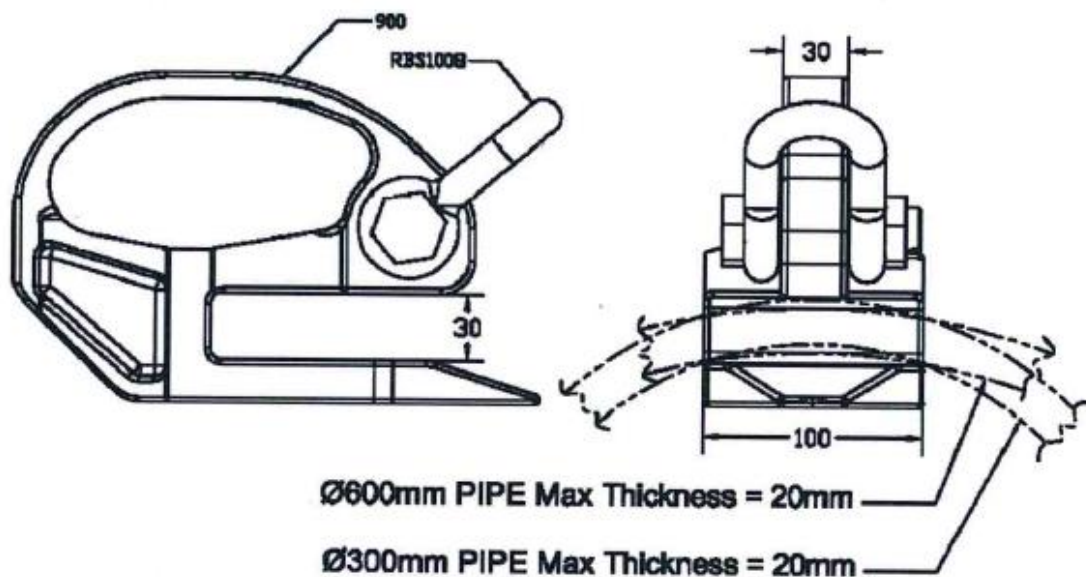
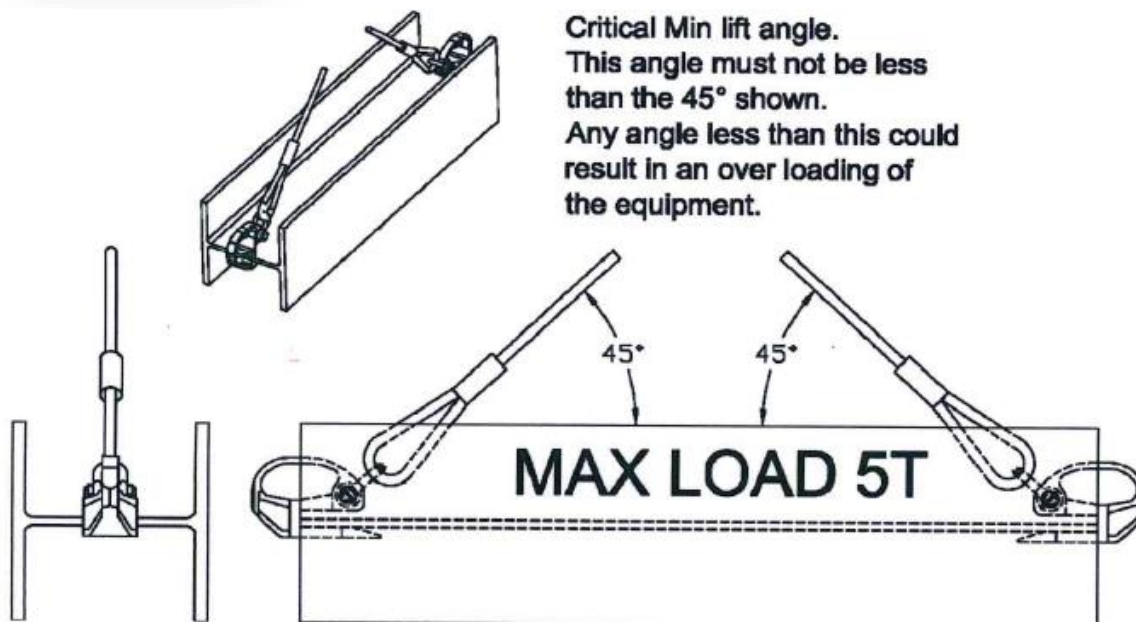


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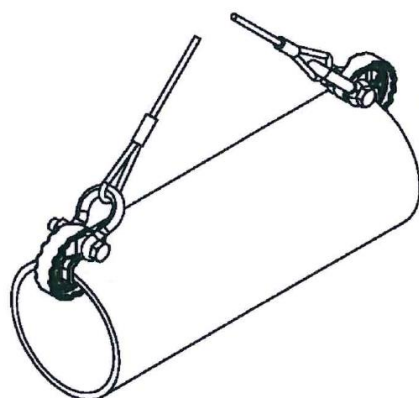
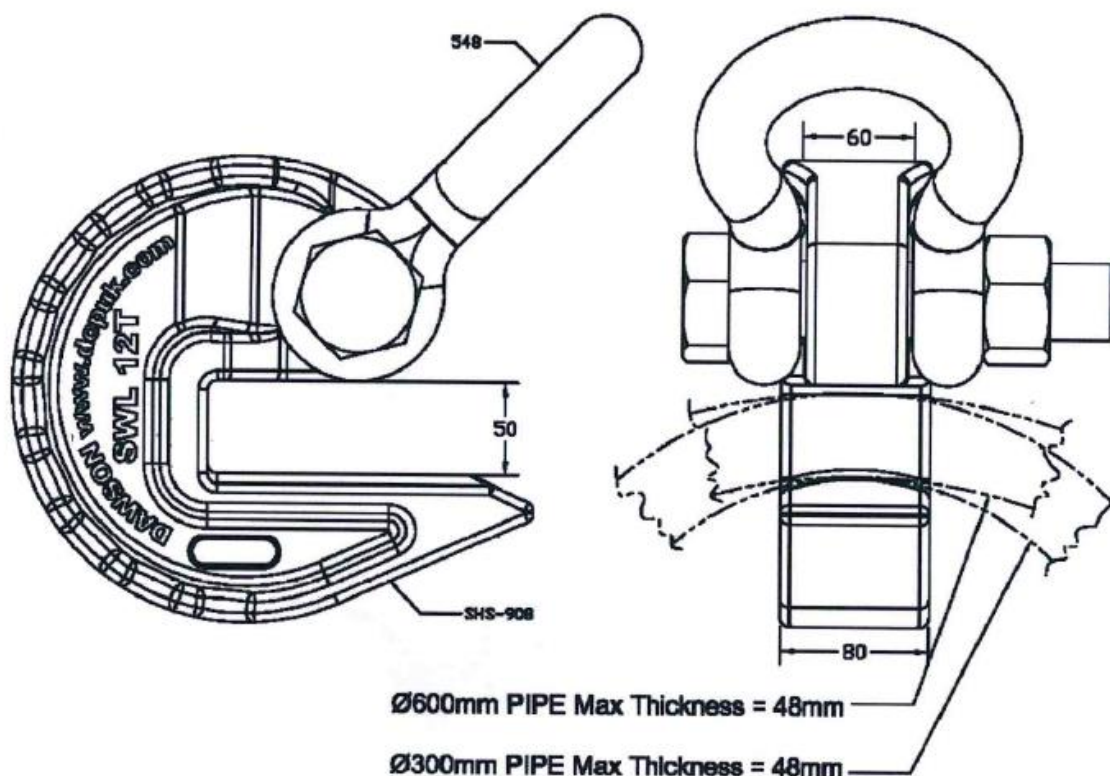


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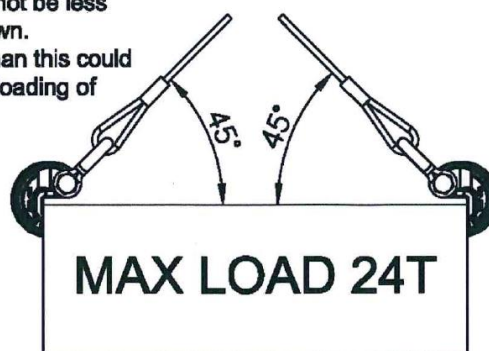
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Critical Min lift angle.
This angle must not be less than the 45° shown.
Any angle less than this could result in an over loading of the equipment.





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USER MANUAL VERTICAL DCP RELEASE SHACKLE:

Use:

With the pin retracted, slide the shackle over the head of the sheet pile until the pile is approximately over the lifting hole. Press the ratchet pawl down with the thumb of one hand and turn the aluminium nut of the shackle with the other hand.

Turning in a clockwise direction will propel the pin through the lifting hole. The indicator bar should finish flush with the aluminium nut which means that the pin is fully entered into the opposite side of the shackle.

Two soft ropes should be attached to the small D-shackles at each end of the toothed belt.

The pile may then be pitched. It is prudent to tie the ends of the shackle release ropes to the bottom of the pile (pile threader when in use) to prevent the ropes becoming snagged or being caught by the wind and become inaccessible.

After pitching the pile the shackle is released by pulling the release ropes first one way then the other five or six times. The ratchet action withdraws the pin. The stroke of the pull is limited by the D-shackles at the end of the toothed belt. (450 mm maximum length).

Safety instructions:

The shackles are suitable for lifting all steel piles up to 28 mm thick and within the safe working load (WLL) of the shackle.

Ensure the lifting hole is at the correct distance relative to the top of the steelwork i.e. 150 mm for a 150 mm throat depth shackle, 250 mm for a 250 mm throat depth shackle.

The lifting hole should be neatly drilled or punched and of a suitable size to suit the lift being carried out.

The safe WLL rating of any shackle is based on a purely tensile (vertical) load. When lifting steelwork from horizontal to vertical or visa versa, remember that the shackle becomes de-rated by 50% i.e. a 10 ton safe WLL ratchet shackle should only be loaded to a 5 ton at the start of a horizontal lift.

As with all lifting equipment, the release shackle should be inspected before each lift.

Do not use the lifting shackles for pulling or extracting.

Ensure that the main pin has gone through both sides of the shackle body.

When lifting sheet piles in pairs or individual piles weighing more than the safe WLL of the shackle it is necessary to use a pair of shackles.

The ring at the top of the sling can be hooked directly onto a standard crane hook block, D-shackle or fork anchor.

Do not modify the release shackle or any part of the lifting apparatus. Keep the burning torch well clear!

Keep the release mechanism well lubricated.

At all times you must use the right lifting equipment with the correct working load limit.

Make sure that the load which needs to be loaded, on which the shackle will be set on, is clean and has no damages and/or shows no imperfections.

Care should be taken to avoid the pull ropes getting snagged.

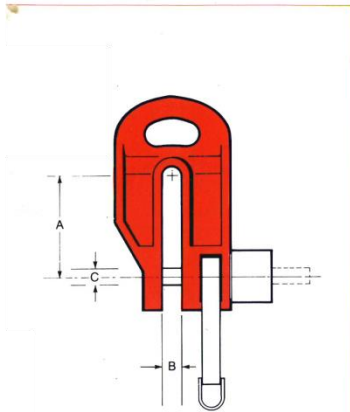
The angle between the two legs of the lifting strap should not exceed 90°.

A vertical release shackle must be inspected and tested every year by an authorized expert body.

Never work with an untested release shackle.

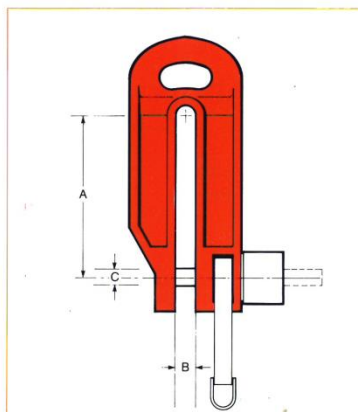
Keep your distance when lifting and never stand under the load.

Ensure that the shackles are positioned so as to balance the load when it is being lifted (see pictures).



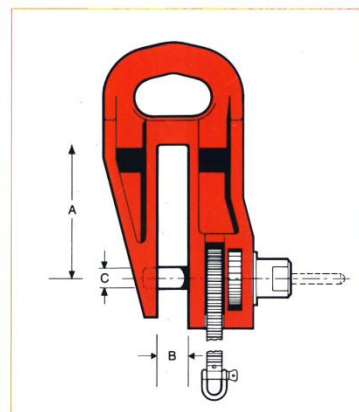
Type 150 / 3.5, 5.0, 7.5, 10 Tonnes

Type	Dimensions			S.W.L. tonnes	Weight k.g.
	A	B	C		
150/3.5T	150	30	20	3.5	14
150/5.0T	150	30	24	5.0	14
150/7.5T	150	30	27	7.5	14
150/10T	150	30	35	10.0	14



Type 250 / 3.5, 5.0, 7.5, 10 Tonnes

Type	Dimensions			S.W.L. tonnes	Weight k.g.
	A	B	C		
250/3.5T	250	30	20	3.5	19
250/5.0T	250	30	24	5.0	19
250/7.5T	250	30	27	7.5	19
250/10T	250	30	35	10.0	19

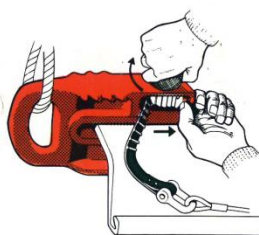


Type 250 / 40 Tonnes

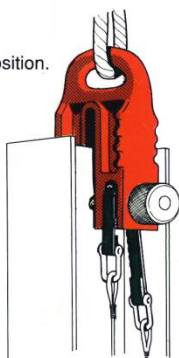
Type	Dimensions			S.W.L. tonnes	Weight k.g.
	A	B	C		
250/40T	250	50	60	40	60

METHOD OF OPERATION

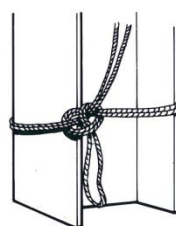
1. Insert pin.



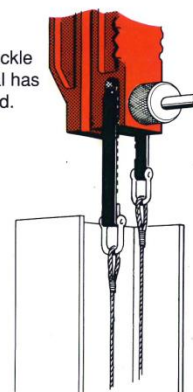
2. Hoist to position.



2a. Tie release ropes



3. Release shackle after material has been secured.



1. With the pin retracted, slide the shackle over the material to be lifted until the pin is approximately over the lifting hole. Press the ratchet pawl down with thumb of one hand and turn the release nut of the shackle with the other hand. Continue turning in a clockwise direction until the pin has gone through the hole in the member to be lifted and into the opposite side of the shackle. The indicator bar should not protrude from the face of the release nut.

2. Two soft ropes should be attached to the 'D' shackles at each end of the toothed belt. The material may then be lifted. It is prudent to tie the ends of the shackle release ropes to the bottom of the member (2a) to prevent the ropes from becoming snagged or being caught in the wind and becoming inaccessible.

3. After lifting the material, the shackle is released by pulling the release ropes first one way and then the other, five or six times. The ratchet action withdraws the pin. The stroke of the pull is limited by the 'D' shackles at each end of the toothed belt (450mm maximum length).

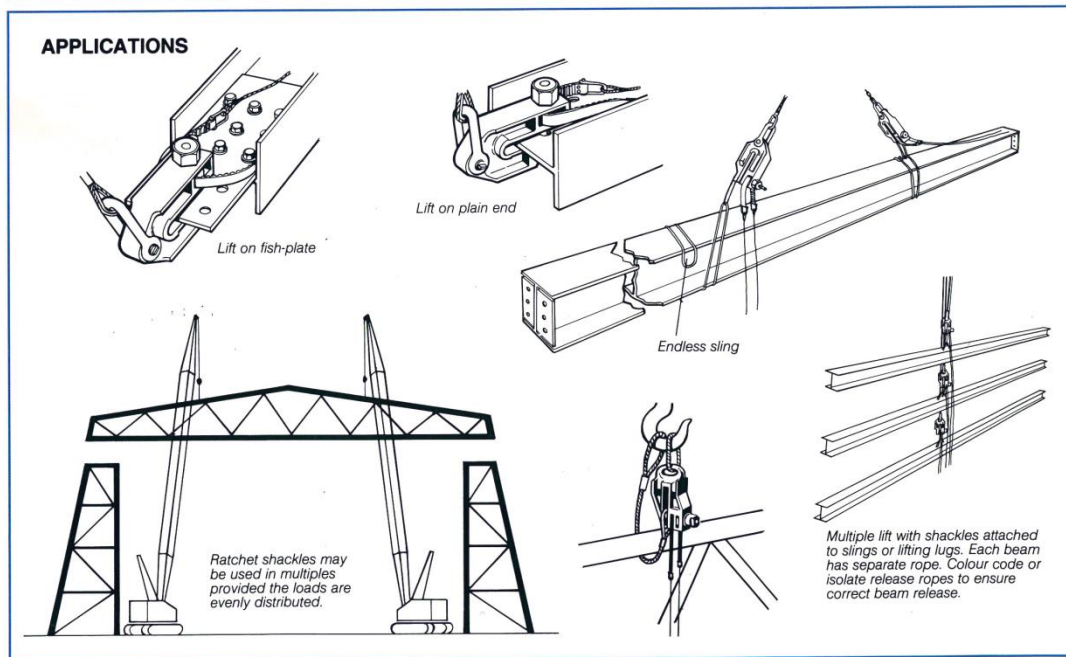
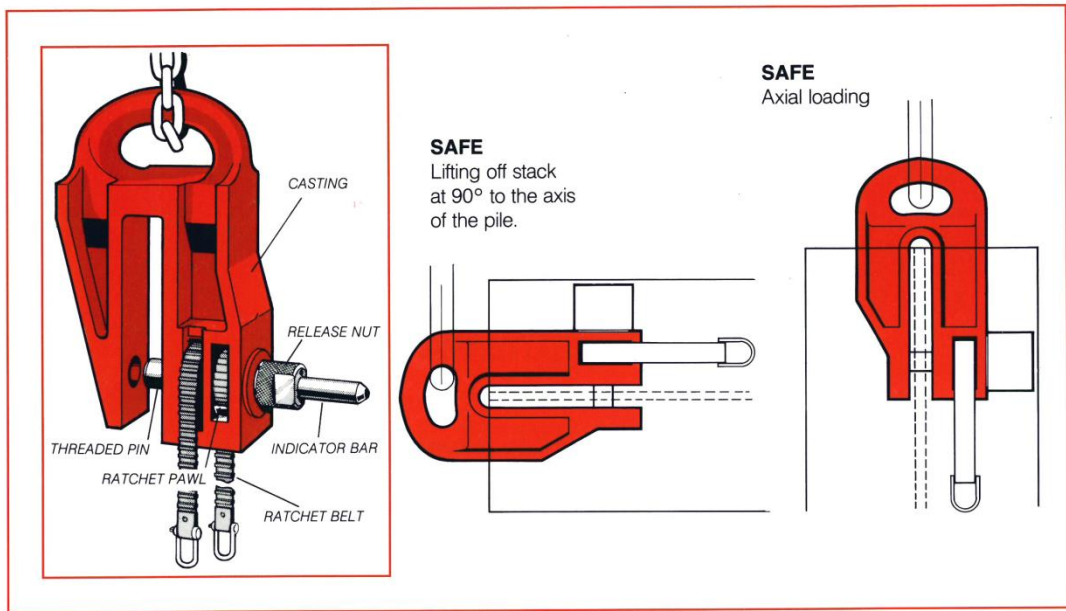


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USER MANUAL HORIZONTAL PLATE LIFTING CLAMP:

Description:

Lifting clamps are applied for lifting and transporting all kinds of steel plates and are made of top quality alloyed steel.

Horizontal plate lifting clamps have specifically been designed for the horizontal lifting and transporting of non-bending steel plates. The clamps consist of a body, cam and cam pin. The cam also functions as a lifting shackle and ensures that the load is held firmly while it is being lifted.

Characteristic for a plate lifting clamp is that they function with a by the load generated clamping force. The friction between the load and the cams determine the safety. This is why the clamping jaws have tooth segments. For smooth surfaces which may not be damaged, like a stainless steel-plate, a plastic coating will be used on the cams.

Horizontal plate lifting clamps should always be used in pairs, or multiples thereof. In the latter case, however, preferably with a load spreader beam. When pairs or multiple clamps are used, each clamp should carry an equal part of the load.

Safety instructions:

Please carefully read the safety instructions of this owner's manual before using the safety lifting clamp. In case of any doubts, please refer to your dealer!

- A horizontal plate lifting clamp must be inspected and tested every year by an authorized expert body.
- Never work with an untested clamp.
- Keep your distance when lifting and never stand under the load.
- Do not use the clamp if (it has been) damaged.
- A damaged clamp must be repaired by a producer notified body or person.
- Never lift more than one plate at a time.
- Never lift plates heavier than the working load limit (WLL) , as indicated on the clamp and in the test certificate.
- Do not lift plates which are thicker or thinner than the jaw opening, as indicated on the clamp and in the test certificate.
- When using a number of lifting clamps at the same time, please provide lifting slings or chains of a sufficient length to ensure that the angle between the slings or chains never exceeds 60°.
- When simultaneously operating a number of lifting clamps time side by side, please use a lifting beam (equalizer) and lifting slings or chains of a sufficient length to ensure that the lifting shackles on the clamps are never subjected to lateral load.
- Do not place the clamp on tapered or conical sections of the plate or structure to be lifted.
- Remove all grease, oil, dirt, corrosion and mill scale from the plate at the point where the clamp is to be attached.
- Ensure that the clamp(s) is (are) positioned so as to balance the load when it is being lifted.
- The surface hardness of the plate must not exceed 37 Hrc (345 Hb, 1166 N/mm²), unless otherwise stated.
- The clamp is only suitable for use in normal atmospheric conditions.

Warnings:

- Ensure that the cam can never be subjected to lateral load.
- A free fall or uncontrolled swaying at the crane hook resulting in objects being struck, may cause impact damage to the clamp. If this happens check whether the clamp is still in good working order before using it.
- Lifting clamps are not suitable for creating permanent joints.
- Do not modify the clamp (by welding, grinding, etc.), as this can adversely affect its operation and safety, thereby nullifying any forms of guarantee and product liability.
- The clamps can be loaded laterally at a maximum angle of 15°, only when they are not loaded more than the maximum WLL and the permitted top angle. The capacity of the clamps has been calculated on basis of a maximum top angle of 60°. In case of situations with larger top angles, then the WLL should be reduced proportionally.

Lifting:

- Check whether the working load limit (WLL) of the clamp is sufficient for the load created in the lifting situation. Note: The WLL is shown on the lifting clamp.
- Attach the lifting clamp to the hoisting mechanism either by means of a:
safety shackle directly to a crane hook.;
coupling link or D-shackle;
sling or chain, if necessary in conjunction with a coupling link or D-shackle.
- Ensure that all attachments have been tested and are of the correct tonnage. Make sure that coupling links and shackles are large enough to allow the clamp to move freely in the hook.
- Check whether the clamp has any visible damage.
- Check whether the cam opens and closes smoothly.



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- Check whether the teeth of the cam are free from dirt, and if necessary clean with a wire brush.
- Remove any grease, dirt and mill scale from the plate at the site of the lifting clamp.
- Open the clamp.
- Place the jaws as far as they will go over the plate, making sure that the clamp is positioned so as to balance the load when it is being lifted.
- Lift gently so that the lifting force can be applied; check whether the clamp is rotating or tilting.
- Ensure that the load is in a stable position.

USER MANUAL VERTICAL PLATE LIFTING CLAMP:

Description:

Lifting clamps are applied for lifting and transporting all kinds of steel plates and are made of top quality alloyed steel.

Vertical plate lifting clamps have specifically been designed for the vertical lifting and transporting of steel plates and constructions. The clamps consists of a locking device, a tension spring and a lever. Once the lever has been operated, the safety mechanism provides constant pre-tensioning of the cam on the steel plate, thereby ensuring that the clamp does not slip when lifting force is applied. When a load is being lifted the clamping force on the cam is increased by the weight of the load. The safety system also ensures that the clamp will not work itself loose from the plate as the load is being lowered.

Characteristic for a plate lifting clamp is that they function with a by the load generated clamping force. The friction between the load and the cams determine the safety. This is why the clamping jaws have tooth segments. For smooth surfaces which may not be damaged, like a stainless steel-plate, a plastic coating will be used on the cams.

Safety instructions:

Please carefully read the safety instructions of this owner's manual before using the safety lifting clamp. In case of any doubts, please refer to your dealer!

- A vertical plate lifting clamp must be inspected and tested every year by an authorized expert body.
- Never work with an untested or disapproved clamp.
- Keep your distance when lifting and never stand under the load.
- Do not use the clamp if (it has been) damaged.
- A damaged clamp must be repaired by a producer notified body or person.
- Never lift more than one plate at a time.
- Never lift plates heavier than the working load limit (WLL) or which have a weight less than 10% of the WLL, as indicated on the clamp and in the test certificate.
- Do not lift plates which are thicker or thinner than the jaw opening, as indicated on the clamp and in the test certificate.
- Take care when lifting from a non-vertical position. The WLL may be considerably reduced in these lifting situations.
- When using a number of lifting clamps at the same time, please provide lifting slings or chains of a sufficient length to ensure that the angle between the slings or chains never exceeds 60°.
- When simultaneously operating a number of lifting clamps time side by side, please use a lifting beam (equalizer) and lifting slings or chains of a sufficient length to ensure that the lifting shackles on the clamps are never subjected to lateral load.
- Do not place the clamp on tapered or conical sections of the plate or structure to be lifted.
- Remove all grease, oil, dirt, corrosion and mill scale from the plate at the point where the clamp is to be attached.
- The surface hardness of the plate must not exceed 37 HRC (345 Hb, 1166 N/mm²), unless otherwise stated.
- The clamp is only suitable for use in normal atmospheric conditions.

Warnings:

- As far as applicable, make sure that the lifting shackle or MP fork is never subjected to lateral load.
- A free fall or uncontrolled swaying at the crane hook resulting in objects being struck, may cause impact damage to the clamp. If this happens check whether the clamp is still in good working order before using it.
- Lifting clamps are not suitable for creating permanent joints.
- Do not modify the clamp (by welding, grinding, etc.), as this can adversely affect its operation and safety, thereby nullifying any forms of guarantee and product liability.

Lifting:

- Check whether the working load limit (WLL) of the clamp is sufficient for the load created in the lifting situation. Note: The WLL is shown on the lifting clamp.
- Attach the lifting clamp to the hoisting mechanism either by means of a safety shackle directly to a crane hook.;



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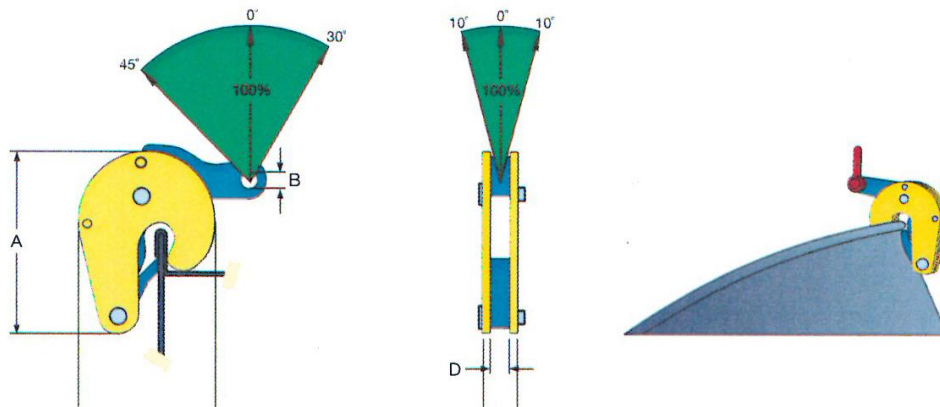
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- coupling link or D-shackle;
sling or chain, if necessary in conjunction with a coupling link or D-shackle.
- Ensure that all attachments have been tested and are of the correct tonnage. Make sure that coupling links and shackles are large enough to allow the clamp to move freely in the hook.
 - Check whether the clamp has any visible damage.
 - Operate the lever to check whether the cam opens and closes smoothly.
 - Check whether the teeth of the cam are free from dirt, and if necessary clean with a steel wire brush.
 - Remove any grease , dirt and mill scale from the plate at the site of the lifting clamp.
 - Use the lever to open the clamp.
 - Place the jaws as far as they will go over the plate, making sure that the clamp is positioned so as to balance the load when it is being lifted.
 - Close the clamp by turning the lever fully back.
 - Lift gently so that the lifting force can be applied; check whether the clamp is slipping.
 - Ensure that the load is in a stable position before loosening the clamp from the plate.

USER MANUAL DRUM CLAMP

A drum clamp is specifically and exclusively designed for vertical lifting of steel drums and consist of a body, cam & cam pins. We have 2 different kind of clamps (see images).



This drum clamp (as image above) may be used individually or with other clamps using a two-way or four-way intersection. If a drum is hoisted using only one clamp, the drum may get damaged. To avoid this, the drum should be hoisted using two lifting clamps at the same time. To guarantee safe hoisting, the clamp has been pretensioned.

Use:

Correctly position the clamp on the rim of the drum, in such a way that the toothed segment grips underneath the drum rim. The clamp should remain on the drum rim in pretensioned position. Lifting force may now be applied. When the load has reached its destination, lower the crane hook until the clamp is fully unloaded. This can be verified by the slackness of the hoisting chain and a free movement of the packing gland of the clamp. Push down the packing gland while holding on to the frame. The clamp will open and the drum can be taken away.

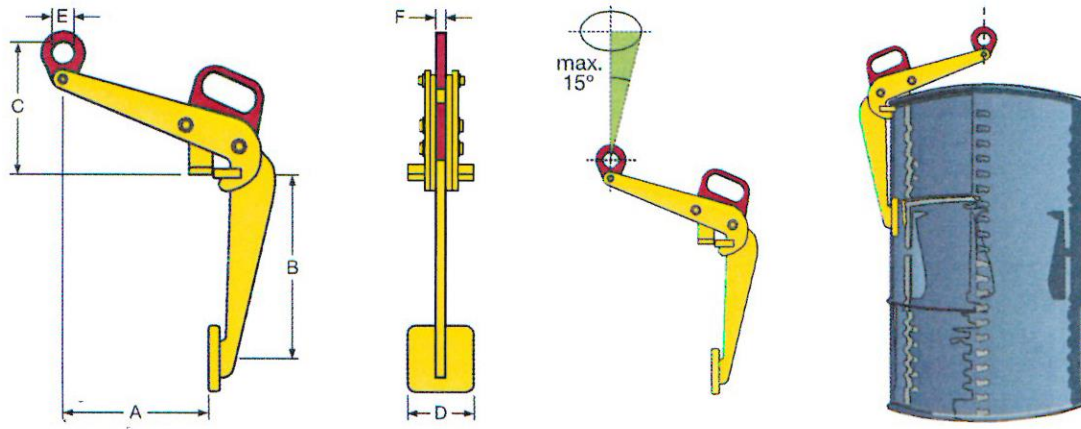


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When lifting with a (hook) drum clamp as image above, the drum must remain in a vertical position.

Use:

Correctly position the clamp on the rim of the drum, in such a way that the packing gland is securely positioned underneath the drum rim. The load may now be hoisted. When the load has reached its destination, lower the crane hook until the clamp is fully unloaded. This can be verified by the slackness of the hoisting chain and a free movement of the packing gland of the clamp. Push down the packing gland while holding on to the frame . The clamp will open and the drum can be taken away.

Safety rules:

- 1 The clamp must be inspected and tested once a year by an expert body.
- 2 Never work with an untested clamp.
- 3 Keep your distance when lifting and never stand under the load.
- 4 Do not use the clamp if (it has been) damaged.
- 5 Never lift loads heavier than the working load limit (WLL), as indicated on the clamp and in the certificate.
- 6 Never lift loads for which the clamps have not been designed.
- 7 When using more than one clamp at the same time, opposite each other, provide lifting slings or chains of a sufficient length to ensure that the angle between the slings or chains does not exceed 60 degrees.
- 8 When simultaneously operating a number of lifting clamps time side by side, please use a lifting beam (equalizer) and lifting slings or chains of a sufficient length to ensure that the lifting shackles on the clamps are never subjected to lateral load.
- 9 Remove all grease, oil, dirt, corrosion and mill scale from the barrel/drum at the point where the clamp is to be attached.
- 10 Ensure the clamp(s) is(are) positioned so as to balance the load when it is being lifted.
- 11 The clamp is only suitable for use in normal atmospheric conditions.
- 12 Do not subject the lifting shackle of the lifting clamp to a lateral load for more than ten degrees.
- 13 A free-fall or uncontrolled swinging movement at the crane hook resulting in objects being struck may cause damage to the clamp. If this occurs, check whether the clamp is in good working order before using it again.
- 14 Lifting clamps are not suitable for creating permanent joints.
- 15 Do not modify the clamp (by welding, grinding, etc.), as this can adversely affect its operation and safety.
- 16 The operating temperature of both lifting clamps ranges from 100°C (212°F) to minus 40°C (-40°F).
- 17 Ensure that all attachments have been tested and are of the correct tonnage. Make sure that coupling links and shackles are large enough to allow the clamp to move freely in the hook.
- 18 Check whether the clamp has any visible damage and if the clamp can open freely.



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USER MANUAL CHAIN AND LEVER HOIST

SAFETY INSTRUCTIONS:

- 1 *Before installing and using this unit, in a safe and efficient manner, be sure you have read and fully understood the information and instructions given in this manual. A copy of this manual should be made available to every operator.*
- 2 *Do not use the unit if any of the identification plates mounted on the unit are missing or if any of the information on the plates, in particular the WLL , is missing or illegible.*
- 3 *Lubricate the mechanical parts periodically, especially after intensive use. The components of the brake and friction limiter must never be lubricated and should always be kept clean and dry.*
- 4 *Each time before use, check that the hoist and the accessories used with the hoist are in visibly good condition and that there are no parts missing.*
- 5 *Check, without load, the functions “lifting” and “lowering”.*
- 6 *When using the hoist with a push suspension trolley, without load, check that the trolley moves freely. If using a geared suspension trolley, without load, check the direction of movement by pulling on the trolley hand chain. The movement should be carried out on a strictly horizontal plane.*
- 7 *Check with a chain hoist that the hand chain is in place and is not tangled with the load chain.*
- 8 *Check that the load to be lifted is less than or equal to the WLL of the hoist.*
- 9 *Check that the hoist is properly suspended by its suspension hook and that the hook safety catch is properly closed.*
- 10 *Check that the load chain has not been subjected to any torsion when setting up, in particular for the two-strand version.*
- 11 *The chain must be in good condition to ensure safe, correct operation of the unit. The condition of the chain must be checked each time before use as indicated in the “load chain”. Also check if the correct chain has been used. Any hoist for which the load chain shows any sign of damage must be removed from use and be checked by an authorized body.*
- 12 *Do not expose the load chain to excess temperatures or abrasive or chemical materials. Protect the chain against all possible damage such as from welding arcs.*
- 13 *The install and use of this hoist must be executed by an expert and under the circumstances which guarantees the safety of the installer, in accordance with the in this category applicable regulations.*
- 14 *The unit must be fastened to an anchoring point and to a structure having the necessary strength to support the maximum load (WLL) indicated on the unit. If several units are used, the strength of the structure must be compatible with the number of lifting units used and with the maximum utilization load of the units.*
- 15 *The unit is designed for manual operation and must never be motorized.*
- 16 *When using the hoist, constantly make sure that the load chain is always tensioned by the load, and in particular, that the load has not snagged on any obstacle when lowering as this could result in rupture of the load chain when the load comes free from the obstacle.*
- 17 *When using the hoist, constantly make sure that the hand chain and the load chain do not rub against any obstacle.*
- 18 *Do not use the load chain to turn around the load.*
- 19 *The unit must never be used for lifting people.*
- 20 *The unit must never be used for any operations other than those described in this manual. The unit must never be used to handle any loads exceeding the maximum utilization load indicated on the unit. It must never be used in explosive atmospheres.*
- 21 *Do not use the hoist if the marking is not readable.*
- 22 *Never park or circulate under a load. Mark out and prohibit access to the area located under the load.*
- 23 *When a load is to be lifted by several units, a technical study must first be carried out by a qualified technician before installation of the units. The installation must then be carried out in compliance with the study, in particular to ensure an even distribution of the load under appropriate conditions.*
- 24 *During lifting operations (up or down), the operator must continuously observe the load to prevent any risk of snagging.*
- 25 *The load chain and the lifting hook forms an integral part of the unit and must not be either disassembled, repaired or modified.*
- 26 *It is not allowed to make any changes to the hoist (like welding or burning).*
- 27 *It is not allowed to use the lever hoist with an extension cable on the lever.*
- 28 *Do not use the hoist if the load chain is not correctly fitted.*
- 29 *Do not attempt to lift fixed or blocked loads.*
- 30 *It is forbidden to change the adjustment of the load stop.*
- 31 *Check that the end of the load chain, slack strand side, is secured to the low limit stop of the hoist.*
- 32 *Regularly check the load hook for any damages. When the hook is bended because of a overfreight, the complete hoist can be damaged and then needs to be checked in total. The load hook needs to be provided with a safety valve.*



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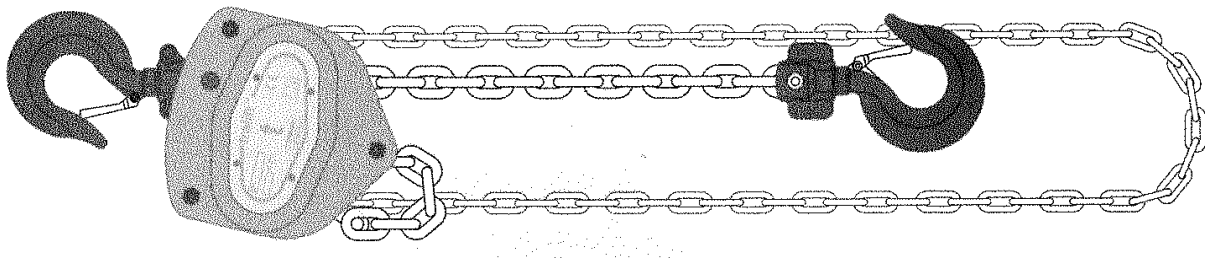
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- 33 *When the load is being placed you must ensure that the anchor accessories of the load can carry the hook completely and does not obstruct the safety latch.*
- 34 *When taking the hoist out of service ensure that there is no load applied and that the load chain is slack enough to enable the bottom hook to be removed from the load.*
- 35 *It is recommended that the hoist be stored hanging so that the load chain does not become tangled. Store the hoist in a dry and weather-protected area. Before storage clean the load chain with a brush and lubricate with machine oil.*
- 36 *Do not use the hoist if the temperature is below -10°C or higher than +50°C.*
- 37 *Do not use the hoist if there is a bad view on the bottom hook or load.*
- 38 *Hoists must be inspected and tested every year by an expert body.*

USER MANUAL:

Chain hoist:

The chain hoist is designed for lifting and lowering a load suspended on a chain (load chain) by manually actuating a second chain (hand chain); it is also used to maintain a load suspended. The hoist is secured to a fixed anchor point or to a moving trolley. The hoist is supplied equipped with a load chain and a hand chain compatible for a standard lifting height of 3 mtr. The load chain is formed by one or several strands equipped with a lifting hook on its load-end side; on the other end (slack strand side), the load chain is secured to a low limit stop itself secured to the hoist. The chain hoist is designed to ensure a minimum mechanical strength of 4 x WLL. The chain hoist is designed and built to withstand dynamic testing at 1.1 x WLL and static testing at 1.5 x WLL.



The operator must pull on the right hand strand of the hand chain to lift the load and to lower the load he must pull on the left hand strand of the hand chain.

The load chain must form a direct line from the load hook to the suspension point before the load can be lifted. The hoist is not to be used for pulling lateral.

Do not operate the chain too quickly as this can result in jolts when lifting or lowering a load. The hand chain should be pulled by a smooth, regular action to avoid any swinging of the load.

Lever hoist:

The lever hoist is a portable manual handle-actuated hoist for lifting, pulling and tensioning, is normally used on a fixed anchoring point or with suspension trolleys. The hoist is supplied with a standard 1.50 mtr length of load chain. The load chain used with the 0.5 ton to 3 ton models is formed by a single strand with a lifting hook at its end. The load chain used with the 6 ton model is formed by two lifting strands and a sheaved lifting hook. The free end of the chain is equipped with a low limit stop. A disengage device allows for fast easy adjustment of the chain using the limit stop. This operation must only be performed with no load on the hoist. The hoist is designed to ensure a minimum mechanical strength of 4x WLL.



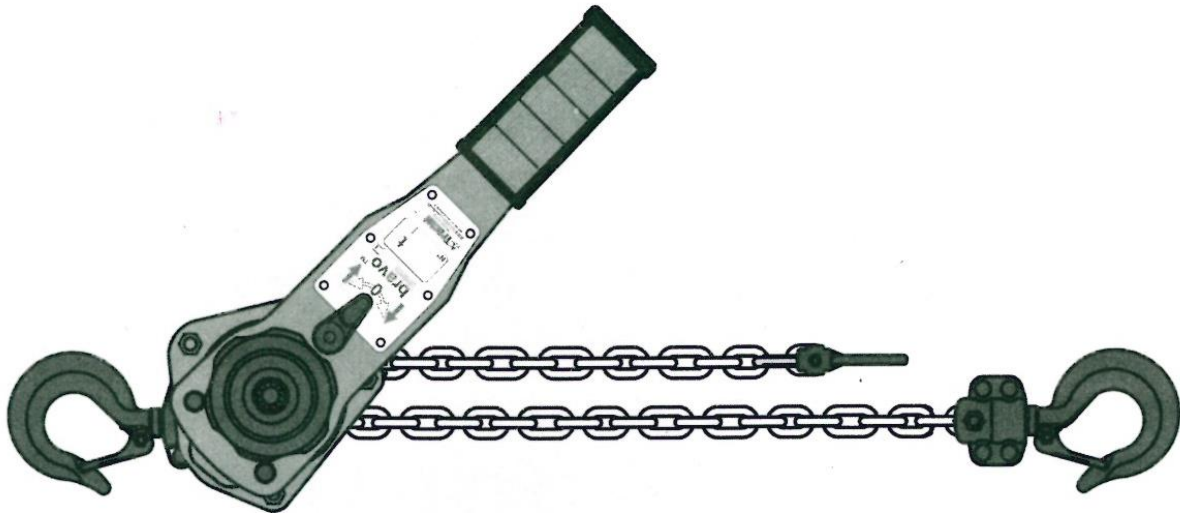
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The hoist is designed and built to withstand dynamic testing at 1.1 x WLL and static testing at 1.5 x WLL.



*The hoist is operated by means of an actuating handle which is moved back and forth by the operator to lift or lower a load, pull a load, or apply tensioning. The central position is the free stand. In this position it is possible to bring (**WITHOUT LOAD**) the chain quickly in to the wright position with the use of the hand wheel.*

ATTENTION !!! It is forbidden to fasten the load to the low limit stop.



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USER MANUAL WIRE ROPE PULLING HOIST

SAFETY INSTRUCTIONS:

- 18 *Before installing and using this unit, in a safe and efficient manner, be sure you have read and fully understood the information and instructions given in this manual. A copy of this manual should be made available to every operator.*
- 19 *Do not use the unit if any of the identification plates mounted on the unit are missing or if any of the information on the plates, in particular the WLL , is missing or illegible.*
- 20 *It is essential for the safe operation of the machine to ensure that, before loading the machine, the anchor points, hooks or pins, are correctly secured.*
- 21 *Each time before use, check that the hoist and the accessories used with the hoist are in visibly good condition and that there are no parts missing.*
- 22 *Wire rope pulling hoists are very easy to use. Place the telescopic operating handle on either the forward or reverse operating lever, lock it into position by twisting, and move the operating handle to-and-fro. The operating arc is variable for ease of operation. When operation stops, both jaws automatically grip the wire rope and hold the load which is spread equally between the jaws. The to-and-fro operation of the forward or reverse lever gives continuous movement of the load.*
- 23 *The user must always ensure before operation that the anchor point(s) for the machine and wire-rope are of sufficient strength to hold the load.*
- 24 *It is forbidden to use the machine's wire rope as a sling, by passing it around the load and hooking it back onto itself.*
- 25 *Never attempt to motorize the models of wire rope pulling hoist machines described in this manual.*
- 26 *Never attempt to operate the rope release mechanism while the machine is under load.*
- 27 *Never obstruct the operating levers or the rope release lever and never operate the forward and reverse operating levers at the same time.*
- 28 *The wire rope must be in good condition to ensure safe, correct operation of the unit. Discard any wire rope which shows any signs of excess wear or damage. The condition of the wire rope should be checked each time before using the unit as detailed in the "wire rope" section.*
- 29 *Never use a handle, other than the telescopic operating handle supplied, to operate the wire rope pulling hoist machine.*
- 30 *The install and use of this hoist must be executed by an expert and under the circumstances which guarantees the safety of the installer, in accordance with the in this category applicable regulations.*
- 31 *The unit must be fastened to an anchoring point and to a structure having the necessary strength to support the maximum load (WLL) indicated on the unit. If several units are used, the strength of the structure must be compatible with the number of lifting units used and with the maximum utilization load of the units.*
- 32 *The unit is designed for manual operation and must never be motorized.*
- 33 *When using the unit, the operator must ensure that the wire rope remains constantly tensioned by the load, and more particularly, the operator must ensure that the load is not temporarily snagged by an obstacle when coming down as this could result in rupture of the wire rope when the load is released from its obstacle.*
- 34 *It is forbidden to replace sheared pins by anything other than genuine shear pins of the same model.*
- 35 *Never anchor the machine other than by its appropriate anchor point.*
- 36 *The unit must never be used for lifting people.*
- 37 *The unit must never be used for any operations other than those described in this manual. The unit must never be used to handle any loads exceeding the maximum utilization load indicated on the unit. It must never be used in explosive atmospheres.*
- 38 *Do not use the hoist if the marking is not readable.*
- 39 *Never park or circulate under a load. Mark out and prohibit access to the area located under the load.*
- 40 *When a load is to be lifted by several units, a technical study must first be carried out by a qualified technician before installation of the units. The installation must then be carried out in compliance with the study, in particular to ensure an even distribution of the load under appropriate conditions.*
- 41 *Never obstruct the machine, which could prevent the machine, the wire rope and the anchor points from operating in a straight line.*
- 42 *Never use the wire rope as a sling.*
- 43 *It is not allowed to make any changes to the hoist (like welding or burning).*
- 44 *Never apply a load to the loose wire rope exiting from the anchor point of the wire rope pulling hoist machine.*
- 45 *Never subject the controls to sharp knocks.*
- 46 *Do not attempt to lift fixed or blocked loads.*
- 47 *It is essential to take the load off the machine before attempting to release the jaws.*
- 48 *Store the machine and wire rope in a dry place, away from the effects of the weather. The wire rope should be completely removed from the machine and rewound onto its reeler.*
- 49 *Never expose the wire rope to temperatures beyond 100 degrees C.*



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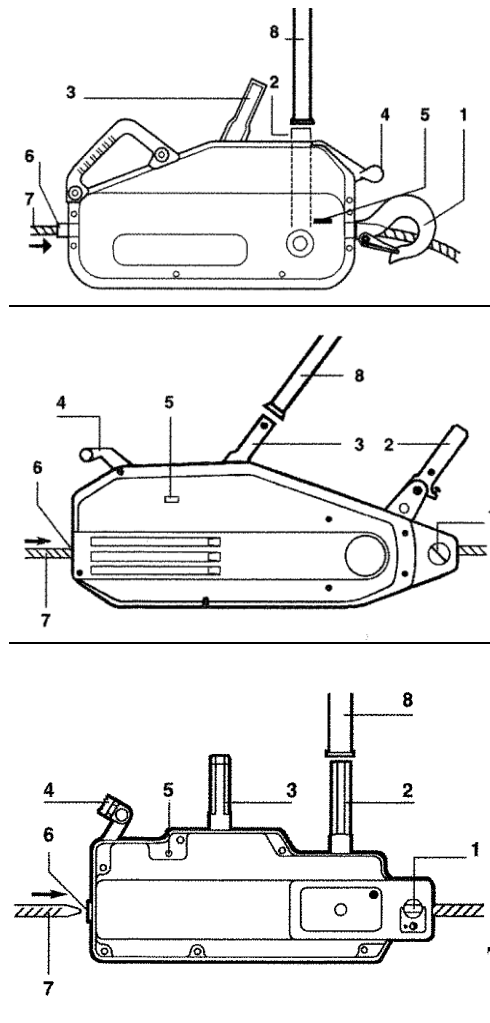
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- 50 *Never use wire rope that has been subject to damage such as fire, corrosive chemicals or atmosphere, or exposed to electric current.*
- 51 *Never attempt to reverse the rope completely through the machine while under load.*
- 52 *Do not operate the wire rope pulling hoist when the rope ferrule gets to within 10 cm of the machine. Otherwise the ferrule is likely to foul the casing and push the rope guide inside the machine.*
- 53 *It is necessary to continuously monitor the state of the wire rope, to clean and oil it with a rag soaked with motor oil or grease. Grease or oil containing graphite additives or molybdenum disulphide must not be used.*
- 54 *Do not use the hoist if there is a bad view on the bottom hook or load.*
- 55 *Hoists must be inspected and tested every year by an expert body.*

USER MANUAL:

Wire rope pulling hoist:



The **wire rope pulling hoist** is a hand-operated lifting and pulling machine. It is versatile, portable and multi-purpose, not only for pulling and lifting but also for lowering, tensioning and guying.



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The originality of the **wire rope pulling hoist** is the principle of operation directly on the wire rope which passes through the mechanism rather than being reeled onto a drum of a hoist or conventional winch. The pull is applied by means of two pairs of self-energised jaws which exert a grip on the wire rope in proportion to the load being lifted or pulled. A telescopic operating lever fitted to either the forward or the reverse lever transmits the effort to the jaw mechanism to give forward or reverse movement of the wire rope. The machine is fitted with a hook or anchor pin, depending on the model, so that it can be secured quickly to any suitable anchor point. Each machine is supplied with a telescopic operating handle, and usually with a 20 mtr standard length of special wire rope fitted with a safety hook and wound onto a metal reeler.

All **wire rope pulling hoist** incorporate a shear pin system. In case of overload, one or more pins (depending on the model), fitted to the forward operating lever, shear and prevent further forward or lifting operations. Reverse operation is still possible to enable the load to be lowered or the wire rope to be slackened.

The machine may be anchored to a fixed point with the wire rope travelling towards the machine, or travel along the wire rope, with the load, the wire rope itself anchored to a fixed point.

Whatever the rigging arrangement, and if the machine is anchored directly to a fixed point, ensure that there are no obstructions around the machine which could prevent the wire rope, the machine and anchor from operating in a straight line. It is therefore recommended to use a sling of an appropriate capacity between the anchor point and the machine. Any rigging arrangement which requires the calculation of the forces applied should be checked by a competent engineer, with special attention to the appropriate strength of fixed point used.

The capacity of the machine may be increase considerably for the same effort by the operator by using multiple sheave blocks. The increase in the capacity shown is reduced depending on the efficiency of the pulleys. The diameter of the pulleys used should be equal to at least 18 times the diameter of the wire rope.

When handling the wire rope it is recommended to protect the hands by using work gloves.

- 1 Uncoil the wire rope in a straight line to prevent loops or kinks.
- 2 Release the internal mechanism.
- 3 Insert the wire rope through the rope guide at the end apposite to the anchor point (hook or anchor pin).
- 4 Push the wire rope through the machine, and if necessary, helping it by operating the forward operating lever.
- 5 When the wire rope appears through the anchor point, pull the slack wire rope through the machine, to the point required.
- 6 Engage the jaws by operating the rope release mechanism.
- 7 Anchor the **wire rope pulling hoist** or the wire rope to the appropriate fixed point taking care to ensure that the anchor point is correctly fixed.
- 8 Extend the telescopic operating handle until the spring locks into position. If necessary twist the two sections of the handle, one inside other, to align the spring.
- 9 Replace the telescopic operating handle on the chosen operating lever (forward or reverse) and twist the handle to ensure that it is locked in position (about a half turn).

Following these operations, the unit is ready to operate, provided that the load is properly docked to the appliance or steel rope.

Each machine is fitted with a lever for releasing the jaw mechanism which should only be operated when the machine is not under load. There are two positions for the rope release lever: released or engaged.

Releasing:

Completely press the rope release safety catch and lift the rope release lever. Release the safety catch and continue to lift the rope release lever until it locks into position. The internal mechanism is in the released position.

Engaging:

Lift the rope release lever slightly. Press and maintain pressure on the rope release safety catch, allowing the release lever to slowly travel back to its original position.

When not in operation, it is recommended that the rope release lever should be in the engaged position. The machine must therefore be released before attempting to feed in the wire rope.



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User manual Webbing slings & round slings

Inspection:

- Webbing slings and round slings must be inspected at daylight. The complete sling must be inspected on both side. A valid certificate of the product must be present.
- Damage by friction often occurs and needs to be inspected very thoroughly because this can lead to lost in tensile strength.
- Side damage by incision, whereas the length of the thread has been damaged, will lead to a big lost in tensile strength. Webbing slings/round slings with these damages are not allowed to be used.
- Webbing slings/round slings which are affected by chemicals can show softening of the yarns. In extreme cases the yarns can be swiped away as powder. Webbing slings/round slings with these damages are not allowed to be used.
- As a general rule polyester webbing slings/round slings apply to be well protected against acids but can be affected by aliphatic ketones.
- By any doubt of the quality of the webbing sling/round sling you must always contact your supplier.
- Webbing slings/round slings must be visually inspected every year by an authorized expert body and are **never** to be tested.

Use:

- Make sure there are never any persons under the load.
- Webbing slings / round slings are not allowed to be used by a bigger WLL than indicated on the label.
- Never use a damaged webbing sling/round sling.
- The length of the loop of the webbing sling/ round sling must not be smaller than 3.5 times the maximum thickness of the to be used hook and the angle between the loop of the webbing sling/ round sling must not be bigger than 20°. When connected parts are being used, the part on which the loop or sling will be connected must be straight and flat and not be smaller than the loop or sling of the webbing sling/round sling. Is the bearing part of the webbing sling/ round sling smaller than 75 mm, than the curve or radius of the hook wherein the webbing sling/ round sling will be connected must be min. 0.75x the width of the bearing portion of the webbing sling / round sling.
- Make sure you use the webbing sling/round sling in the right position. The sling may not be in contact with sharp hooks and/or scrub on hooks and edges. And the sling must be so positioned that during lifting the stitching of the lap will not be in the hook or around the load.
- When you start lifting with a webbing sling / round sling you must pay attention that the load is divided equally over the full width of the webbing sling / round sling.
- Make sure that the lifting point is above the center of gravity of the load so that the load is in balance. If this is not the case the load can slide out of the webbing sling / round sling.
- If one uses the webbing sling / round sling in combination with connection/lifting means than it must be sure that they are well tuned with one another.
- The chosen webbing sling / round sling must be strong and long enough for the load you want to lift.
- Use webbing slings / round slings only for lifting and not for towing.
- Use only smooth rounded hooks with the correct radius.
- When friction of the webbing sling / round sling is unavoidable than you must use wear sleeves.
- When one starts lifting in the form of basket lifting one must make sure that the load is properly secured. Because in this way of lifting, the load is not clamped in the way as by normal sling lifting. When you use the webbing sling / round sling by pair it is recommended to work with a balance beam. When one starts lifting with one or more webbing slings / round slings, one must use the in the table indicated vertical angles. These values are based on experiences from the past and calculations of occurring forces by asymmetrical lifting.
- When one starts lifting with a webbing sling / round sling, the angle is not allowed to be bigger than β 60°.
- When multiple webbing slings / round slings are being used, these slings so has to be deployed that none of the slings will be overloaded and that the load is stable and in balance.
- Webbing slings / round slings are never to be knotted or twisted.
- Under loaded state there must not appear any twists and turns in the webbing sling / round sling.
- Never let a load rest on the webbing sling / round sling when because of this the sling can be damaged.
- Never shift the load in the webbing sling / round sling and avoid that the sling will be towed on the ground or rough surfaces.
- Make sure that the webbing sling / round sling will not get stuck and never try to pull the load away under the sling.
- Avoid shocks by loading of the webbing sling / round sling.
- When a webbing sling / round sling is not been used, you need to store the sling on room temperature in a dry and well ventilated space out of range of any heat sources.
- Avoid webbing slings / round slings to be in contact with heat sources and gasses like for example lamps and ultraviolet light and flames.
- Make sure that the webbing sling / round sling is not being exposed to temperatures lower than -40° and higher than 100°.



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- Pollution with substances having a sharp grain structure, like sand, cement, etc. can cause serious damage to the fibre. Oil and grease can cause, chemically, a decline in strength.
- Repairs on webbing slings / round slings must be done only by the producer or a by the producer notified body or person.

USER MANUAL CRANE BLOCKS

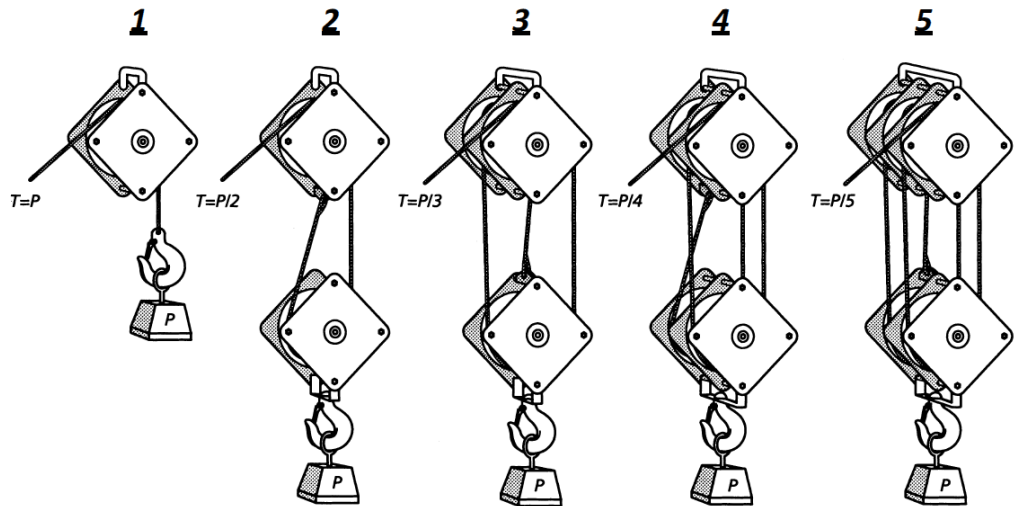
User manual (safety instructions):

- Always verify that the products is in its proper and intended condition suitable for your application.
- Carefully read and understand the information presented and apply this information in practice. If you do not fully understand the information, DO NOT PUT YOUR PRODUCT INTO SERVICE and call your sales representative directly.
- Care shall be taken when installing, working with or repairing lifting or rigging equipment. If installed or used incorrectly or if a repair is executed incorrectly, loss of stability, falling objects, insufficient mechanical strength or failure of parts could occur and inflict injury or even death.
- Never stand under the load.
- When the product is in use do not put hands between sheaves, side plated, guards, wire rope or other moving parts and also do not put hands in the area of becket, hook nut or cross head.
- Workers must be made alert and wear proper safety gear at all times. Take great care to avoid clothing becoming trapped or snagged. Pay attention to sharp edges.
- Repairs shall be carried out by competent and trained personnel only.
- Always understand the weight you are lifting and the SWL of WLL of your system and components. The SWL of WLL shall exceed the weight of the intended load you plan to lift, including its rigging.
- Blocks shall be used in accordance with design specifications and are generally intended for tension and pulling. Blocks shall not be used for towing unless specifically designed and marked for that purpose.
- Avoid shock loads or use a safety factor in combination with material characteristics that allow computed shock loads.
- Every item of loose gear is to be tested and thoroughly examined before being put into use for the first time and after any substantial alteration or repair to any part liable to affect its safety.
- Standard crane blocks consist of 3 ranges, (1) the single sheave block with non swinging, but swiveling "Alloy" hook, (2) the 1,2,3,4,5 and 6 sheaves block with dual action (swinging and swiveling) DIN-hook and (3) the 1,2,3,4,5 and 6 sheave fast reeve block with dual action DIN-hook. Standard blocks are supplied with becket.
- Blocks should be inspected at least once a year by a surveyor for proper functioning and damages.
- Blocks should be taken apart at least every 4 years by a specialist for inspection of wear, hidden damages or beginning cracks and have the blocks tested by an authorized testing body.
- After repair, blocks have to be tested by an authorized testing body.
- Parts should be replaced if wear is 5% or more (e.g. hook, eye and becket).
- If blocks are supplied with grease nipples, preferably grease every 24 hours at continuous use and every fortnight at discontinuous use.
- Different grease frequencies apply in the next circumstances:
 - bronze bearings: every 8 hours at continuous use or at least after 2 weeks;
 - main pin ball bearings: every 24 hours at continuous use or at least after 2 weeks;
 - tapered roller bearings: every 40 hours at continuous use or at least after 4 weeks;
 - cylindrical roller bearings: every month at continuous use or once every year in clean operating circumstances.



Directions for use

- For the use of wire rope blocks, the bearing loads should be taken into account (see diagram below).

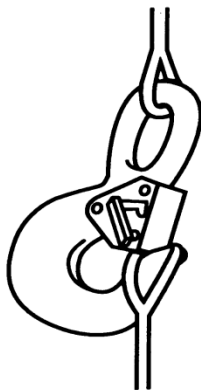


P= Load generated by object to be moved.

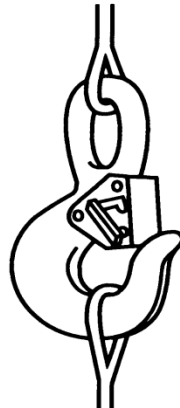
Q= Maximum load allowed on connection during operation.

T= Forces in cable at load Q.

- If the wire rope end termination (dead end) is to be connected to the block, it should be mounted to the becket only.
- For mounting a crane block, the maximum fleet angle is 2° from the center of the sheave.
- For connections, only use components (like sockets or shackles) that are suitable for the indicated working load limit (WLL).
- Never use wire rope with a diameter larger than the groove of the sheave is made for.
- A hook has to be supplied and used including a safety latch.
- The hook must always support the load. The load must never be supported by the latch.



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Correct



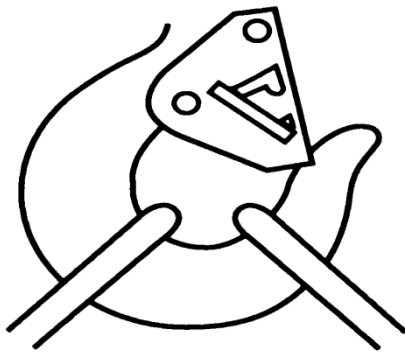
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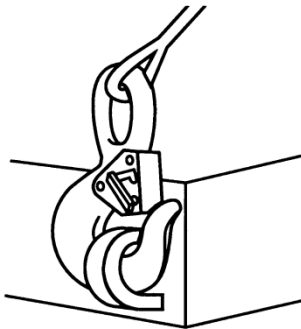
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- Never use a hook whose throat opening has been increased or whose tip has been bent more than 10° out of the plane from the hook body or is in any other way distorted or bent.
- The latch will not work properly on a hook with a bent or worn tip.
- Never repair, alter rework or reshape a hook by welding, heating, burning or bending.
- When placing 2 sling legs in a hook, make sure that the angle between the legs does not exceed 90°.

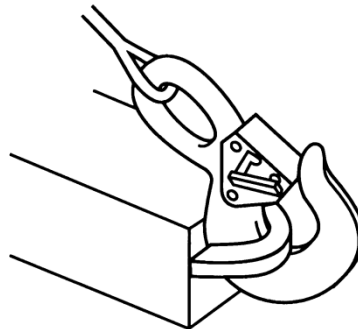


TOTAL MAX 90°

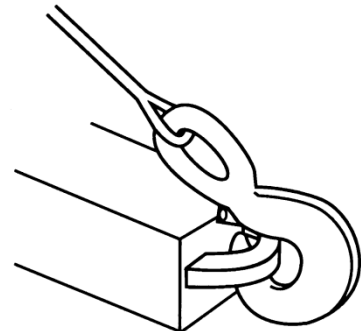
- Never side load, back load or tip load a hook.



Incorrect



Incorrect



Incorrect



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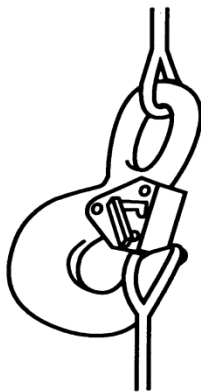
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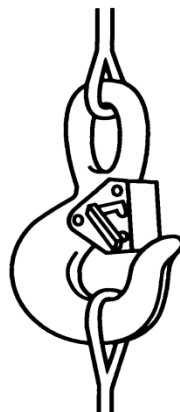
USER MANUAL SNATCH BLOCKS

User manual (safety instructions):

- Always verify that the products is in its proper and intended condition suitable for your application.
- Carefully read and understand the information presented and apply this information in practice. If you do not fully understand the information, DO NOT PUT YOUR PRODUCT INTO SERVICE and call your sales representative directly.
- Care shall be taken when installing, working with or repairing lifting or rigging equipment. If installed or used incorrectly or if a repair is executed incorrectly, loss of stability, falling objects, insufficient mechanical strength or failure of parts could occur and inflict injury or even death.
- Never stand under the load.
- When the product is in use do not put hands between sheaves, side plated, guards, wire rope or other moving parts and also do not put hands in the area of becket, hook nut or cross head.
- Workers must be made alert and wear proper safety gear at all times. Take great care to avoid clothing becoming trapped or snagged. Pay attention to sharp edges.
- Repairs shall be carried out by competent and trained personnel only.
- Always understand the weight you are guiding and the SWL of WLL of your system and components. The SWL of WLL shall exceed the weight of the intended load you plan to guide, including its rigging.
- Snatch blocks shall be used in accordance with design specifications and are generally intended for guiding.
- Avoid shock loads or use a safety factor in combination with material characteristics that allow computed shock loads.
- Every item of loose gear is to be tested and thoroughly examined before being put into use for the first time and after any substantial alteration or repair to any part liable to affect its safety.
- Blocks should be inspected at least once a year by a surveyor for proper functioning and damages.
- Blocks should be taken apart at least every 4 years by a specialist for inspection of wear, hidden damages or beginning cracks and have the blocks tested by an authorized testing body.
- After repair, blocks have to be tested by an authorized testing body.
- Parts should be replaced if wear is 5% or more (e.g. hook, eye and becket).
- If blocks are supplied with grease nipples, preferably grease every 24 hours at continuous use and every fortnight at discontinuous use.
- Different grease frequencies apply in the next circumstances:
 - bronze bearings: every 8 hours at continuous use or at least after 2 weeks;
 - main pin ball bearings: every 24 hours at continuous use or at least after 2 weeks;
 - tapered roller bearings: every 40 hours at continuous use or at least after 4 weeks;
 - cylindrical roller bearings: every month at continuous use or once every year in clean operating circumstances.
- For connections, only use components (like sockets or shackles) that are suitable for the indicated working load limit (WLL).
- Never use wire rope with a diameter larger than the groove of the sheave is made for.
- A hook has to be supplied and used including a safety latch.
- The hook must always support the load. The load must never be supported by the latch.



Incorrect



Correct

- Never use a hook whose throat opening has been increased or whose tip has been bent more than 10° out of the plane from the hook body or is in any other way distorted or bent.
- The latch will not work properly on a hook with a bent or worn tip.
- Never repair, alter rework or reshape a hook by welding, heating, burning or bending.
- When placing 2 sling legs in a hook, make sure that the angle between the legs does not exceed 90°.

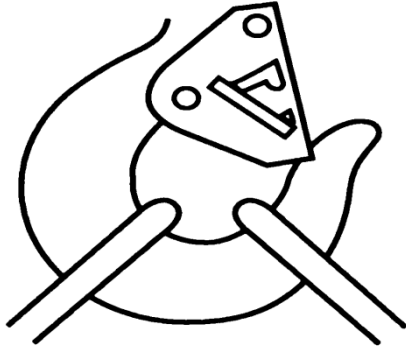


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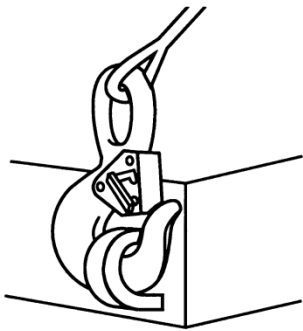
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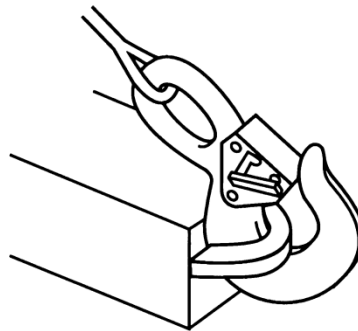


TOTAL MAX 90°

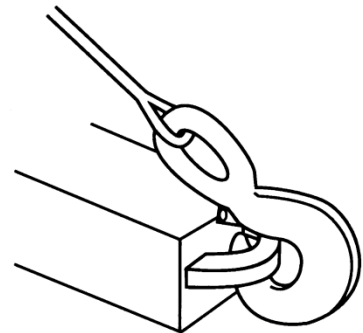
- Never side load, back load or tip load a hook.



Incorrect



Incorrect



Incorrect



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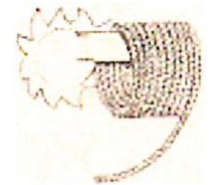
Safety rules Ropes:

Insure yourself that the rope is suitable for the application.



- Know the safety working load limit (W.L.L.) of the rope.
- The tensile break that is given on the rope is only for a new, not used rope. The factor for safe working load (S.W.L.) is 1:7. This means that you must divide the tensile break by 7 to come to the S.W.L. by lifting Works. Where the safety is vital, applies 1:15.
- Insure yourself of the right diameter of the rope.
The wear of ropes is excessive in too small blocks or eye's.
- Only use a rope that is in great order. If the rope is more than 25% damaged than you cannot use it any more.

Ropes always needs to be dried before storage.



- Do not save a rope in direct sunlight. Heat often melts synthetic rope types.

Keep the ropes clean.



- Do not drag the rope over the ground or other rough surfaces to prevent damages.

Prevent kinks and sharp bends in the rope.



- A kink in the rope creates a weak spot and by a sharp bend under load the fibers takes on half the force.

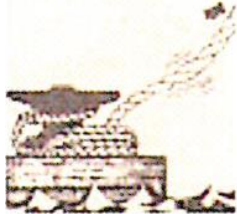
Avoid chemicals.





- Despite that many rope types are resistant against chemicals we advice you to avoid acids, oils, solvents and other chemicals as much as possible. Salt crystals and sand provide increased wear. Flush the rope regular with clean fresh water.

Avoid sudden forces on the rope.



- Shocks can make the rope break, while by normal use the rope is strong enough.

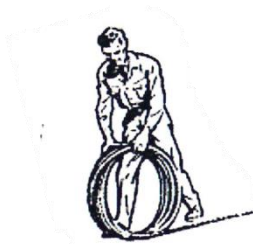
Never stand in the direct line of a rope under tension.



- If rope, in particular synthetic rope, is under heavy tension than a big energy field is created. When the build up energy is released it will give a reflect in the rope. This can be very dangerous!.



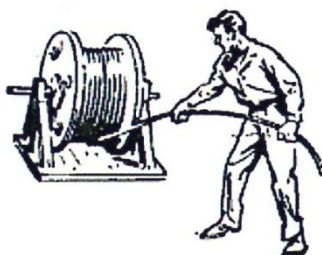
When the rope is being delivered on clusters you must take the rope of the cluster at the right way. Place the cluster flat on the ground. The side where the rope begins – which is attached on the inside of the cluster – and is the closest to the ground, is the lower side of the cluster. Delete the protection sleeve or the rope which holds the cluster together. Unreel the cluster from the inside.



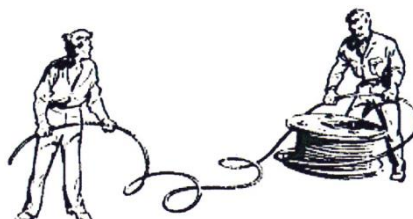
Right



Wrong



Right



Wrong



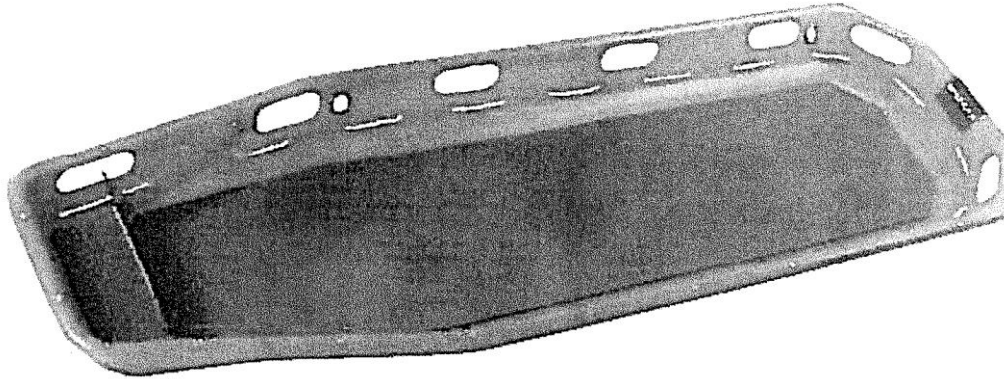
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User manual Brancard:

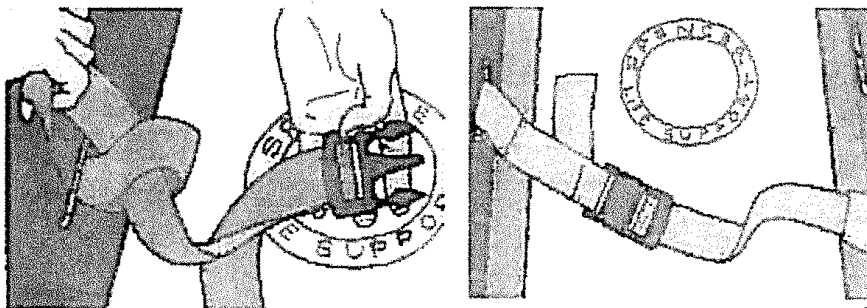


The brancards are tools intended for pick-up and transport of patients. They can be used for aid operations in all those cases in which it is necessary to protect the patient against lateral collisions and when it is not possible to work with normal transport resources. It is not foreseen that the patient will cooperate during transport.

Before transporting the brancard you must be sure that the brancard is packed well and that it will not be damaged during a collision or fall by transport. Do not place any heavy material on the brancard during storage and do not use the brancard as a support surface for any type of material. You need to store the brancard in a dry place without any moisture.

Before use you need to check if everything is correctly fitted.

By first use the safetybelts needs to be assembled to the string as shown below.



Before using the brancard you need to check the following points:

- Is the string tight enough?
- Are the safetybelts installed for immobilization of the patient?
- Is the footrest present?

When everything is ok than the brancard is ready for use.

When this is not the case you need to take the brancard out of use.

How to place the patient in the brancard:

- Place the brancard as close as possible to the patient.
- Raise the traumatized patient in the brancard with the anticipated and if necessary immobilization systems like spinal boards, vacuum mattress or others.



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Placement of the footrest:

- Place the footrest on usable height so that the surface of the footrest comes in contact with the feet of the patient so as to avoid longitudinal movements, by placing the hooks at the end of the belt, in accordance with the handles of the brancard.
- Make sure that the footrest is correctly centered on the belts so that the footrest stands relatively perpendicular to the flat end of the brancard.

Lift the brancard with the patient:

- Secure the patient to the brancard with the 3 belts available.
- Check if the belts are not too tight.
- The rescuers needs to be placed at the ends of the brancard (one at the height of the feet and the other one at the height of the head)
- By using the adapted lifting technics in order to work ergonomically the rescuers needs to hold the handles at the ends of the brancard and then start lifting.

How to load the brancard in the ambulance or another specific vehicle:

- Place the brancard in the therefore provided space.
- Secure the brancard with the therefore present fixation systems.

How to unload the brancard from the ambulance or another specific vehicle:

- Unlock the brancard from the fixation system.
- Lift the brancard out of the vehicle with use of the handles of the brancard.

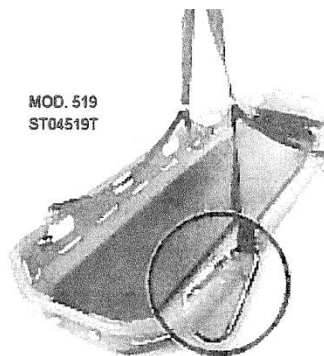
Transport on descending surfaces or hillsides:

- Place the footrest on usable height to avoid the patient to move.
- When the patient has an injury on the lower limbs you must immobilise these limbs first with suitable devices and you must never place the brancard in vertical position.
- The brancard first needs to be insured with a static safety system before lifting or lowering.
- Always stay with the patient during the manoeuvres.

Cleaning:

Clean the brancard with a soaped sponge. You need to use soft soap. Then makes it dry. The matras on the inside of the brancard can be cleaned with water and soap and can be disinfected with a normal desinfectant.

If the brancard is not cleaned, than there is a risc on cross-contamination by the presence of rest material on the surface of the brancard.



Anchorage lifting pin



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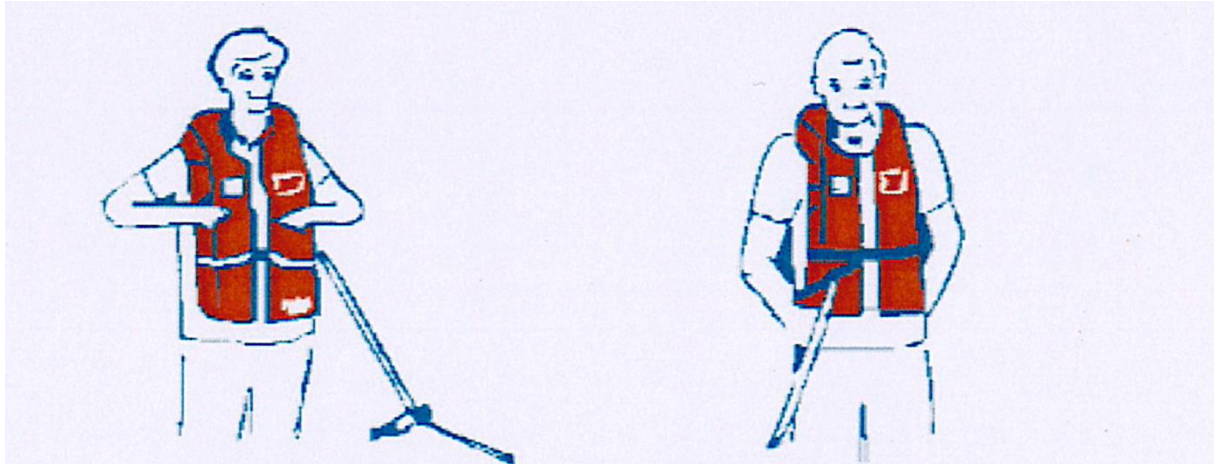
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User manual Lifejacket:

Lifejackets which are suitable for salt water needs to be visually inspected every year by an expert body.

Lifejackets which are suitable for fresh water needs to be visually inspected every two years by an expert body.

Lifejacket donning instructions:



Place lifejacket over head

Bring strap around body and fasten closure



Adjust to a snug fit by pulling free end of strap

Cross arms over chest and enter water feet first

When lifejackets are not being used make sure that they are dry and clean and without any damages before storing them on a suitable place.

A suitable place is a place where people have easy access to the lifejackets in case of emergency (for example by the lifeboats).



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Regulations with regard to the use of a crew basket hanging on a mobile crane

User guide (should be present in crew basket):

- There may only be used a crew basket which is meant to be used and which is specially arranged to transport people hanging in the crew basket in a safe way with a safe place to stand. Enter and exit at higher or lower places is **not** allowed. The crew basket should be in good condition and should be hanging in the mobile crane with the help of solid hoisting equipment. The crew basket should be protected for suddenly lift out from the mobile crane.
- Use is only allowed when it's technical or economical not realizable to use suitable resources for the proceedings, which is at assessment and under responsibility of the employer.
There must be done a risk stock taking and evaluation in advance for the use of a crew basket, hanging on a mobile crane as conveyance. Especially when persons have to be transported to a difficult achievable place to, after arriving, leave the crew basket again. Based on this RST the proceedings can be performed. A report of this RST should be known at work and should be present at work. Furthermore, a checklist matching the crew basket should be completed for every use.
There should be a set-up inspection of the holder crane(s) and the crew basket every time before putting into use.
- It's not allowed for persons younger than 18 to be in a crew basket hanging on a mobile crane, the use is only reserved for authorized and informed persons. In the crew basket may not be more people then what is determined.
- A proof of inspection and testing by an expert for the first putting into use should always be present. The crew basket with fasteners should be inspected once a year by an expert and there should be taken care of a written administration.
- Persons in the crew basket should be wearing a safety belt with shock absorber which should be directly leashed on to a point strong enough to attach the crew basket (for example inside railing crew basket) Furthermore there should be weared a safety helmet.
- There should be direct visual contact possible constantly between crane driver and persons in the crew basket. If not, there should be taken provisions to accomplish the work safely. (for example the use of radiotelephone).
- There should be clear agreements between engineer and persons in the crew basket (for example unambiguous instructions with regard to hand/arm signs etc.). Instructions to the crane driver can only be given by one and the same person in the crew basket.
- When there is a threat of communication disturbance or there is another possibility for danger for the persons in de crew basket, the proceedings should be a work stoppage.
- When there is not enough light for a good interaction in communication there should be organized more light, otherwise work should be forbidden until good interaction is possible again.
- The crew basket may not be used when there is a wind speed higher than 7.0 m/s(wind speed 25 km/hour) and at least not above the wind speed which is maximal acceptable for the crane.
- The crane driver and the persons in the crew basket must be clearly instructed about the dangers and the way of operating to prevent accidents. There for this regulation (or a similar instruction) should be directly available any time.
- The crane driver must always move the crew basket carefully and with little speed. Bumping or damaging the crew basket hereby must be prevented. The crew basket must hang loose from the jib of the crane under all work circumstances.
- Attaching and losing of the crew basket should be done in a safe way. Because of the minimal stability of the free-standing crew basket this cannot be done by climbing the crew basket. (They have to drop the eye of the four leg beside the crew basket so on- and unhook can happen safely).
- Before they get it or out the crew basket it is **necessary** the crew basket is attached to the crane. Therefore it is **not allowed** to enter or leave the crew basket without following the rule above.
- Enter or exit at a higher or a lower level than the level of beginning of the proceedings is not allowed (only with added risk analysis of the employer may be deviated from what is mentioned above).

As long as there hangs a crew basket in the mobile crane the crane driver may not leave the control place of the crane. Simultaneously he may not accomplish other hoisting proceedings with the crane (like for example by a hoisting crane with a 'head- and second lifting device').



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Note: By declutching the 'head holst' can be used a second winch with a crew basket. (For example over the auxiliary mast). The main winch should be completely defecated.

- There may not be driven with a mobile crane when there are persons in a crew basket hanging on this crane, unless it's a crane at rails, than only at the slowest speed possible with a max. of 2,5 km/hour.
- Unwanted move possibilities of the crew basket must be prevented. When there exist a connection between the at height hanging crew basket and the ground or another solid object (building, ship, crane etc.), for example by air-hose or an electricity wire, for in the crew basket used tools, must be taken care of the connection, it must be long enough and hanging loose, so the moving of the crew basket will not be impeded or causes dangerous situations for persons in the crew basket.
- During accomplishing proceedings from the crew basket, it must be, if needed- secured against turning away or dodging. Therefore should be certain stabilizing lines available in the crew basket. These lines should be stored after use in a special intended facility.
Note: Noted is at the danger of not unloading the stabilizing lines on time. Therefore it's important to fasten de lines in such a way the connection will be broken by sudden hoisting or slacking of the crew basket.
- When there will be accomplished proceedings with risk of fire (like welding), there must be an effective fire extinguisher available in the crew basket. It is recommended not to place gas- and oxygen bottles in the crew basket.
- The loading of the crew basket with persons, hand tools and/or material, the workload of the crew basket may not be exceeded for the proceedings which have to be done from the crew basket. The hand tools and/or materials to transfer may not stick out of the crew basket. There must be taken into account at least 100 kg per person including hand tools.
- The load of the crew basket, increased with the maximum workload may not amount more than:
 - 75% of the hoisting strain by a permanent placed or at a permanent crane beam raised hoisting crane
 - 25% of the hoisting strain by other cranes.

Electro technical indications:

Provisions must be made for proceedings nearby unprotected power lines under voltage so these proceedings can be performed safely. The manager and/or owner of these lines must give permission, as far as the proceedings will be performed within following zones:

- 50 meter, with high voltage lines and at masts of steel;
- 25 meter, with low voltage lines at masts of wood;
- 5 meter, with contact lines of rail- and tramways, as well as inter alia subway and hoisting

There must be complied to the prescribed in norm **NEN 3140** 'Low voltage installations-Provisions for safe proceedings, inspection and maintenance'.

The use of replaceable electronic material and replaceable ducts must be avoided as much as possible. If not possible, there should be made use of:

- electrical material with built-in power source;
- electrical material that's part of the VZ-keten, see 41 1.1 of **NEN 1010**, or
- electrical material of category 11 which is part of a S-keten (see **NEN 1010**). There may only be one machine connected to this S-keten.

Valid regulations

The valid regulations with regard to the use of a crew basket determined for the transport of persons, mentioned in the ""The Dutch Arbo"", article 7.23, second lid and the 7.23, appendix 1.

Valid regulations with regard to the use of the mobile crane

- Hanging and moving a crew basket with persons in it may only happen with a mobile crane, which complies with the in Holland valid legal provisions. For cranes in use after 1995, the crane must be provided with CE-marking with associated and matching declaration of agreement.
 - The use of a holder (crane) with the possibility of a free fall (dropping at a friction brake) is forbidden.
 - The hoisting work of a mobile crane used to transfer a crew basket, must have automatic brakes that cannot be turned out.
 - The mobile crane must be controlled by a person who is known with the nature of the proceedings and must have a license to drive the mobile crane.
 - Immediately prior to the use of a mobile crane for the goal the following must be checked:
 - The state of the hoisting cable, the hook and/or the block, chain work, and strops.
 - Fastening and securing of the hoisting cable to the cable gland/hoisting hook (should be controllable)
 - The smooth running of the cable gland in the hoisting block,
 - The mass of the crew basket plus the max. workload may not be more than:
 - 75% of the hoisting load by a permanent hoisting crane
- OR**



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- 25% of the hoisting load in other cranes
- The lifting cable must be checked at least every three months or as often as reasonably necessary to ensure a safe use of the hoisting cable. The control of the hoisting cable should be reported in the crane book.
- The stamps must be placed horizontal and stable so the stability is guaranteed enough.
- Additional requirement of the machine guideline enclosure applicable by permanent use:
 - Loading limiter.
 - Steering gear in the crew basket (release button).
 - Design in a way the crew basket cannot fan or capsize.
 - Identifying mark on the crew basket.

Decay warranty

The due term of the warranty is 1 year.

Installation

Instructions and regulations for setting up, assembling and adjusting

Installing, assembling and adjusting should be done by an expert.

Use

Taking into use

There must be made agreements about the way of communication between the user and the crane driver for the taking into use of the crew basket. The way of communication must be effective and the users must be informed about the way of possible communication resources. Before starting the activities all securings and fastenings should be controlled at defects. The crew basket should be fastened at the crane with the enclosed four leg or another certificated four leg, with the same specifications.

Instructions for steering and personal protective equipment for the user

Fastening the crew basket to the crane should be done by an expert. Driving the crane should be done by an expert crane driver, who owns a hoisting licence. Necessary documents should be available in the crane.

Personal protective equipment which should be used during work in the crew basket are: helmet and fall protection. The user should be competent in using this protective equipment.

Required knowledge and skills of the user

The user should be competent in using communication resources. The user should also be expert or be instructed in the use of the personal protective equipment.

Potential dangers for spectators during use

While using the crew basket people should take into account possible falling items and spectators should be informed about the dangers by warning signs at the ground under the crew basket.

Supplementary information

Enclosures to use, equipment

When using the crew basket the added certificated four leg should be used, of high-quality iron chain. Also should be used verified personal protection equipment, like a helmet and a safety belt.