

# Technical information

The following information aims to give advice and explain the most common questions in order to ensure safe and proper use of lifting points. Always refer to the user instructions of the specific model of lifting point before use. It is of the most importance that this information is known to the user and in accordance with the Machinery Directive 2006/42/EC this information must be delivered to the customer.

## General advice

Reference should be made to relevant standards and other statutory regulations. Inspections must be carried out only by people who possess sufficient knowledge.

Before installation and before every use, visually inspect the lifting points, paying particular attention to any evidence of corrosion, wear, weld cracks or deformations. Please ensure compatibility of bolt thread and tapped hole.

The material construction, to which the lifting point will be attached, should be of adequate strength to withstand forces during lifting without deformation.

Ensure minimum thread depth, see table (d refers to bolt diameter).

## RLP, RELP, BLP, DLP

Thread depth	Yield limit of base material
1 x d	For steel, yield limit >200 MPa
1,25 x d	For cast iron, yield limit >200MPa
2,5 x d	Aluminum
	For other metal alloys or base materials consult your Gunnebo Industries distributor.

- If the bolt length needs to be adjusted the bolt should be cut in al cold saw or lathe and temperature kept as low as possible during cutting. After cutting check the shape of the threads nearest the cut with an appropriately sized die (there must not be any burrs).
- The surface facing around the thread hole shall be flat (plane), clear of dirt and smooth to ensure perfect contact with the shoulder surface of the Lifting Point.

## Nut and washer

The nut and washer must be the original equipment supplied from Gunnebo Industries to ensure the correct mechanical properties. No warranty, insurance or liability will be accepted if bolts not supplied by Gunnebo Industries have been used.

## Extreme environments

The in-service temperature affects the WLL as follows:

### RLP

Temperature (°C)	Reduction of WLL
-40 to +200 °C	0 %
+200 to +300 °C	10 %
+300 to +400 °C	25 %
Temperatures below -40°C or above 400 °C are not allowed.	

### RELP

Temperature (°C)	Reduction of WLL
-40 to +100 °C	0 %
+100 to +200 °C	15 %
+200 to +250 °C	20 %
+250 to +350 °C	25 %
Temperatures above 350 °C are not allowed.	

### BLP / DLP

Temperature (°C)	Reduction of WLL
-40 to +200 °C	0 %
Temperatures below -40° C or above 200° C are not allowed.	

## Severe environments

Lifting points must not be used in alkaline (> pH10) or in acidic condition (< pH6). Comprehensive and regular examination must be carried out when used in severe or corrosive environments. In uncertain situations consult your Gunnebo Industries distributor.

## Surface treatment

- Hot dip galvanizing or plating is not allowed outside the control of the manufacturer.
- Acid or Alkaline cleaning is not allowed.

## Protect yourself and others

- Before each use the Lifting Point should be checked for obvious damage or deterioration.
- Know the weight of the load and its center of gravity.
- Ensure the load is ready to move and that no obstacles will obstruct the lifting.
- Check the conformity of the load with the Working Load Limit.
- Prepare the landing site.
- Never overload and avoid shock loading.
- Never use an improper configuration.
- Never use a worn or damaged Lifting Point.
- Do not ever ride on the load.
- Do not ever walk or stand under a suspended load.
- Take into consideration that the load may swing or rotate.
- Watch your feet and fingers while loading/unloading.

## Inspection

Periodic thorough examination must be carried out at least every 12 months or more frequently according to local statutory regulations, type of use and past experience.

- Ensure correct bolt and nut size, quality and length.
- Ensure compatibility of bolt thread and tapped hole – control of the torque.
- The lifting point should be complete.
- The working load limit and manufacturers stamp should be clearly visible.
- Check for deformation of the component parts such as body, load ring and bolt.
- Check for mechanical damage, such as notches, particularly in high stress areas.
- Wear should be no more than 10 % of cross sectional diameter.
- Evidence of corrosion.
- Evidence of cracks.
- Damage to the bolt, nut and/or thread.
- The body of the lifting point must be free to rotate.

## Symmetric loading conditions

- For three and four leg lifts, the lifting points should be arranged symmetrically around the center of gravity and in the same plane if possible.
- The WLL for Gunnebo Industries lifting points is based on symmetrical loading.
- The lifting point must be positioned on the load in such way that movement is avoided during lifting.
- For single leg lifts, the lifting point should be vertically above the center of gravity of the load.
- For two leg lifts, the lifting points must be equidistant to or above the center of gravity of the load.

## Asymmetric loading conditions

- For unequally loaded lifts we recommend that the WLL is determined as follows:
- 2-leg slings are calculated as the corresponding 1-leg sling.
- 3 and 4-leg slings are calculated as the as the corresponding 1-leg sling\*

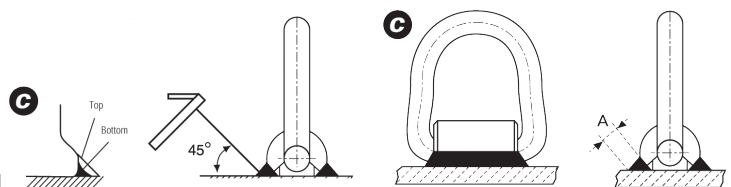
\* (If 2-legs with full certainty are carrying the major part of the load, the WLL can be calculated as for the corresponding 2-leg sling).

## WLP - Welding

Preheat the structure if the temperature is below 0°C; otherwise follow AS 1554 or other suitable national standard.

- Ensure that the WLP cannot move during welding by welding the corners of the welding block.
- Continue the weld around the welding block without interruption in a single operation.
- The nozzle or electrode should be at 45° (see Fig. C), so that the required penetration is obtained. The minimum throat (A) should be maintained.

Product	Min. plate gauge (Rm-1250 N/mm <sup>2</sup> ) t <sub>min</sub> (mm)	Min. throat thickness (mm)
WLP 2.5 T	11	11
WLP 4 T	19	13
WLP 7 T	24	16
WLP 10 T	30	18
WLP 16 T	40	20



- The weld should not contain cracks or pores.
- Do not cool the weld with water. It should be left cool natural

### Working Load Limits\* WLP

1-leg		2-leg		3- and 4-leg	
Typ	WLL tonnes*	$\alpha$ 0-90° $\beta$ 0-45°	$\alpha$ 90-120° $\beta$ 45-60°	$\alpha$ 0-90° $\beta$ 0-45°	$\alpha$ 90-120° $\beta$ 45-60°
WLP-2.5T	2.5	3.5	2.5	5.2	3.7
WLP-4T	4.0	5.6	4.0	8.4	6.0
WLP-7T	7.0	9.8	7.0	14.8	10.5
WLP-10T	10.0	14.1	10.0	21.2	15.0
WLP-16T	16.0	22.5	16.0	33.6	24.0

### Working Load Limits\* SLP

1-leg		2-leg		3- and 4-leg	
Typ	WLL tonnes*	$\alpha$ 0-90° $\beta$ 0-45°	$\alpha$ 90-120° $\beta$ 45-60°	$\alpha$ 0-90° $\beta$ 0-45°	$\alpha$ 90-120° $\beta$ 45-60°
SLP-1T	1.0	1.4	1.0	2.1	1.5
SLP-3T	3.0	4.2	3.0	6.3	4.5
SLP-5T	5.0	7.0	5.0	10.6	7.5

### Working Load Limits\* ELP

1-leg		2-leg		3- and 4-leg	
Typ	WLL tonnes*	$\alpha$ 0-90° $\beta$ 0-45°	$\alpha$ 90-120° $\beta$ 45-60°	$\alpha$ 0-90° $\beta$ 0-45°	$\alpha$ 90-120° $\beta$ 45-60°
ELP-16-8	1.0**	1.4	1.0	2.1	1.5
ELP-20-8	1.5**	2.1	1.5	3.1	2.3
ELP-24-8	2.0**	2.8	2.0	4.2	3.0
ELP-30-8	3.0**	4.2	3.0	6.3	4.5

Note! The above loads apply to normal usage and equally loaded legs. For asymmetric loaded chain slings, the following is recommended:

- A two-legged system is rated as a single-legged system.
- A three- or four-legged system is rated as a two-legged system.

\*\* In case of 1-leg application where loading is limited to straight loading in the direction of thread (no bending force) it is possible to use ELP with four times higher WLL. Note! Threaded depths need to be at least 1xM for steel, 1,25xM for cast iron and 2xM for aluminum alloy.