TECHNICAL MANUAL

TLP Lifting Key for Threaded JENKA Lifting System

For safe and efficient lifting and handling of all types of precast concrete elements.

Version PEIKKO GROUP 12/2020

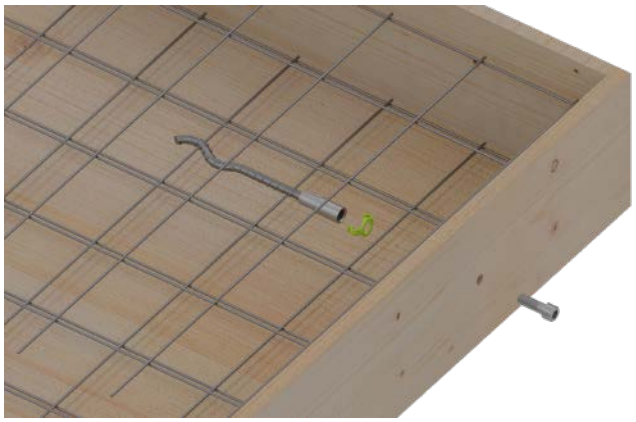
peikko®

TLP Lifting Key for Threaded JENKA Lifting System

For safe and efficient lifting and handling of all types of precast concrete elements.

The TLP Lifting Key is a full rotational lifting key to be used with the lifting inserts in Peikko's JENKA Lifting System. TLP Lifting Key enables all kinds of lifting operations, lifting, turning, rotating and tilt up.

- Range from M16 to M36
- Capacity up to 6.3t
- Can be used in wide range of applications
- Inserts are assembled flush to concrete surface with the help of metric hexagon cap screw



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CONTENTS

1. TLP Lifting Key

1.1 Information

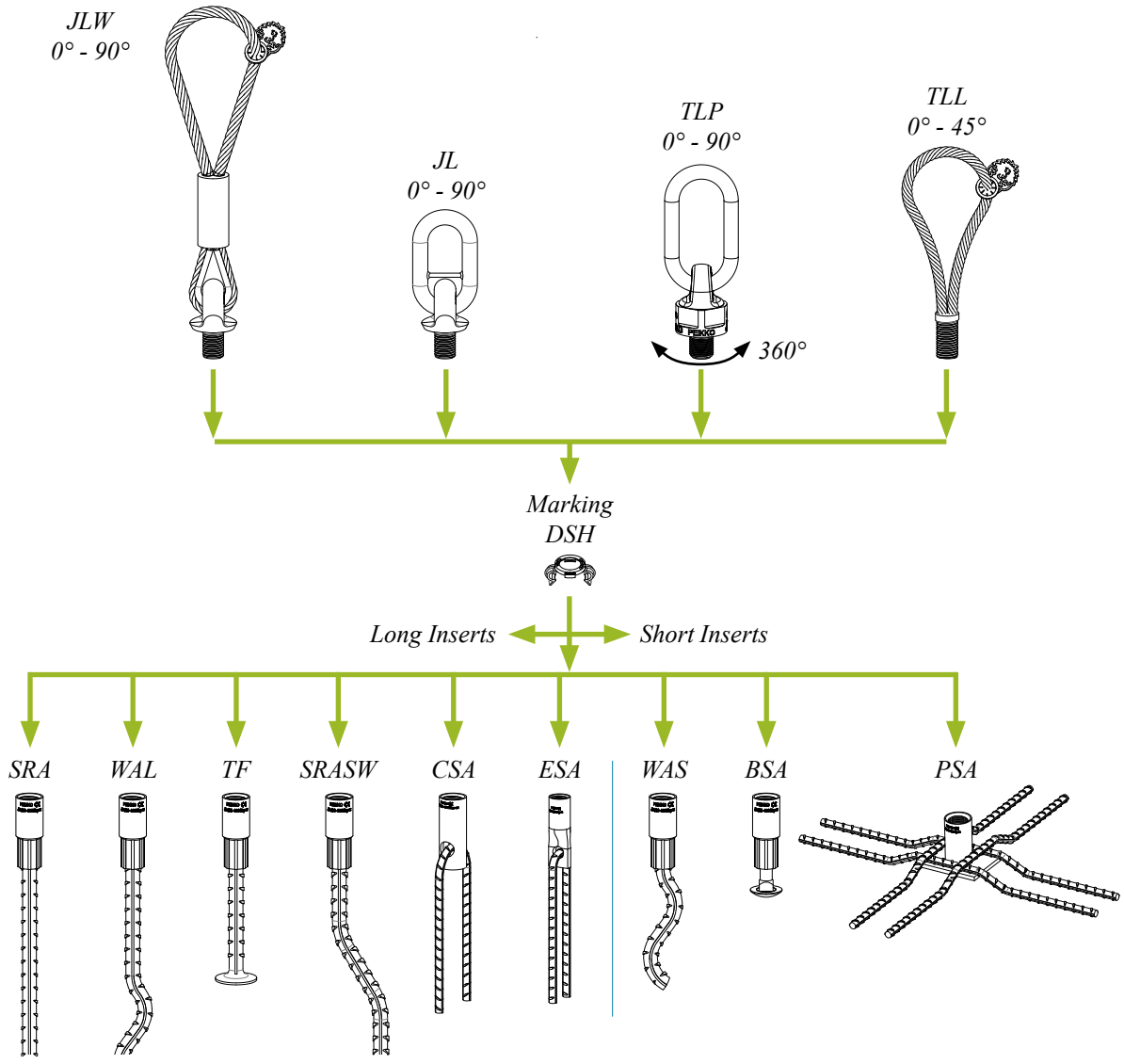
The TLP Lifting Key is a lifting key for the JENKA Lifting System. It is used to connect JENKA Lifting Inserts which are cast into concrete with lifting hardware such as a crane hook, a lifting sling or chain. The TLP Lifting Key is fully compatible with the JENKA Lifting System and can be used with all JENKA Lifting Inserts.

TLP Lifting Key is a fully rotational lifting key which is designed for all load directions. It has a wide pressure plate distributing the impact pressure to the surrounding concrete element.

When JENKA Lifting Systems components are used together with TLP Lifting Key, this manual and the Technical manual for JENKA Lifting Systems, including the instructions for safe use, must be available at all times. Especially the general lifting information provides essential information for any kind of lifting action.
Before using any of these Peikko products on building sites, the contractor must ensure that the instructions are available and have been read, understood, and followed. Misuse, misapplication, or lack of proper supervision and/or inspection can result in serious accidents.

The safe use of any lifting system requires the JENKA Lifting Key and the insert to fit properly together. Peikko JENKA Lifting System has a color code and a marking (TLP) that defines which JENKA Lifting Key fits which insert. All original JENKA Lifting Keys can be used with all inserts without limitation as illustrated in *Figure 1*. The permitted load directions must be followed.

Figure 1. Combination of inserts with JENKA Lifting Keys.



1.2 Dimensions

JENKA Lifting Keys are used to attach the crane hook, lifting slings, or chains to the JENKA Lifting Insert which is casted into the concrete element. The dimensions of standard TLP Lifting Keys are shown in *Figure 2* and *Table 1*. Peikko TLP Lifting Keys are delivered with metric M-thread. They are fully compatible with standard Peikko JENKA Inserts with either Peikko Rd-thread or metric M-thread.

Peikko threaded Lifting Keys must be screwed into the insert with full length of the thread. No other than Peikko Lifting Keys may be used with Peikko Lifting Inserts. Regarding compatibility, the next page and JENKA Lifting Systems Technical Manual 04/2016 (chapter B4 and *Figure 65*) gives further guidance.

Figure 2. TLP Lifting Key.

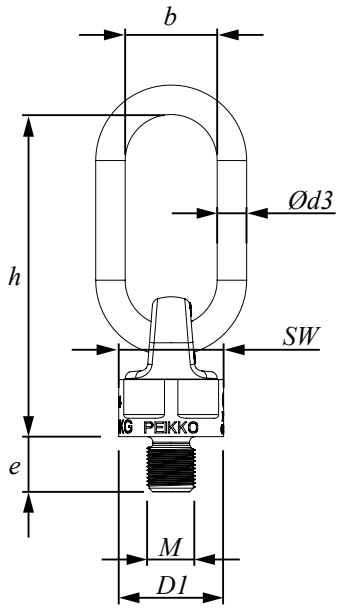


Table 1. Dimensions of TLP Lifting Keys.

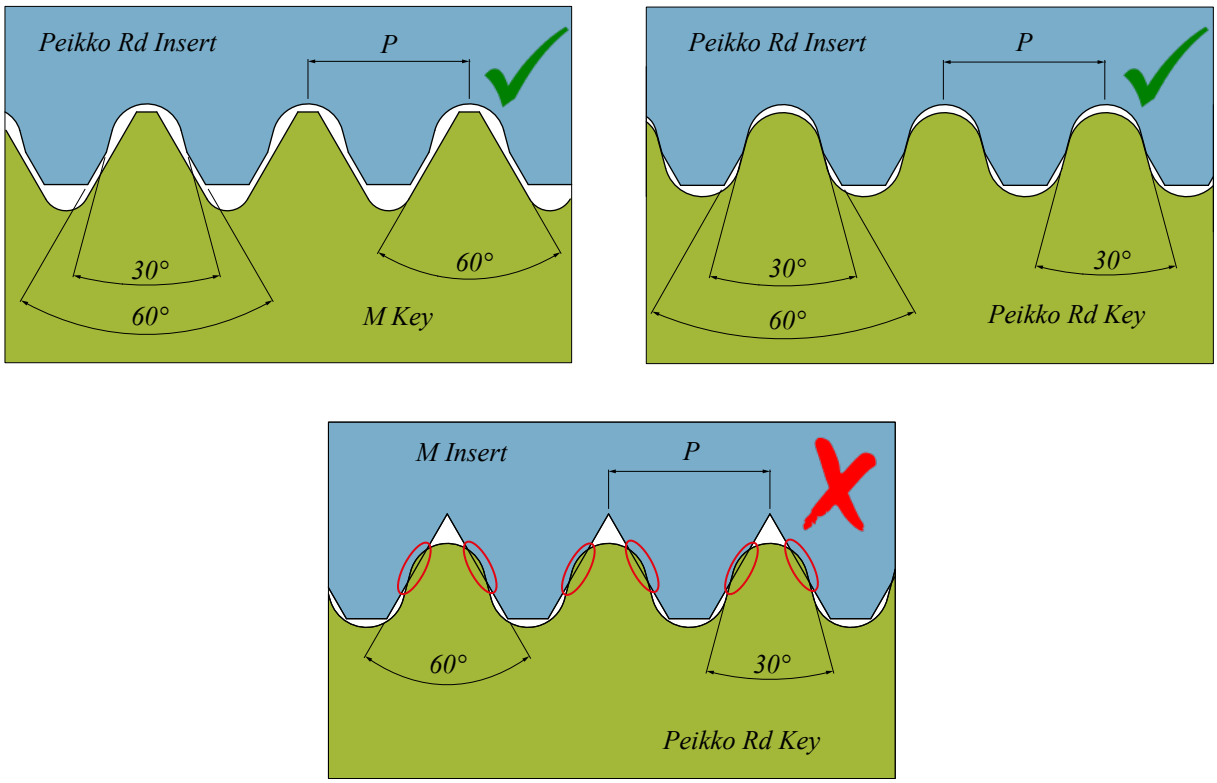
Item No. TLP	M [mm]	SWL [kg]		e [mm]	Ød3 [mm]	b [mm]	h [mm]	SW [mm]	D1 [mm]	Weight [kg]
		0° - 45°	90°							
16	M16	1200	600	20	13	33	101	36	39	0.5
20	M20	2000	1000	25	16	34	121	46	50	0.9
24	M24	2500	1250	30	18	40	148	50	57	1.5
30	M30	4000	2000	40	22	50	171	65	73	2.7
36	M36	6300	3150	63	22	50	179	70	83	3.8

Prior to use, check whether the TLP Lifting Key fits the installed JENKA Insert. Always ensure that the correct TLP Lifting Key is used with the correct JENKA Lifting Insert.

1.3 Compatability

Peikko's special Rd thread is a mix of the standard Rd thread and a metric thread according to DIN 13. It has metric screw pitches but a round thread geometry of thread flanks that contain a double angle of 60° and 30°. For that reason it can be used with standard metric thread as well as with Peikko's special Rd thread. It is not possible to use standard Rd thread according to DIN405:1997 or standard metric fine thread according DIN13:1999.
Figure 3 shows the applicable thread combinations.

Figure 3. Thread combinations.



Peikko JENKA Lifting Inserts can be used with other lifting keys. Prior to use, compatibility must be certified and approved by Peikko. Peikko Lifting Inserts are compatible with the following lifting keys:

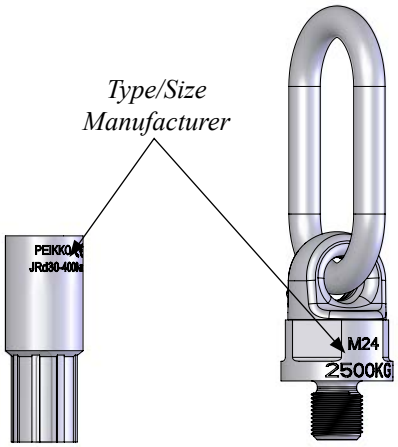
- JENKA Lifting Keys such as JL, JLW, or TLL with special round thread (Rd thread)
- JENKA Lifting Keys such as JL, JLW, TLP, or TLL with metric thread (M thread)
- Other lifting keys with thread that are certified and approved by Peikko prior to use

Lifting keys are subject to exchanging and forwarding actions during multiple lifting processes. Clarify compatibility prior to using any lifting keys in combination with Peikko's Lifting Inserts.

1.4 Marking information on JENKA Lifting Systems and TLP Lifting Key

The safe use of any lifting system requires the JENKA Lifting Key and the insert to fit properly together. Peikko JENKA Lifting System has a color code and a marking (TLP) that defines which JENKA Lifting Key fits which insert (see *Figure 4*).

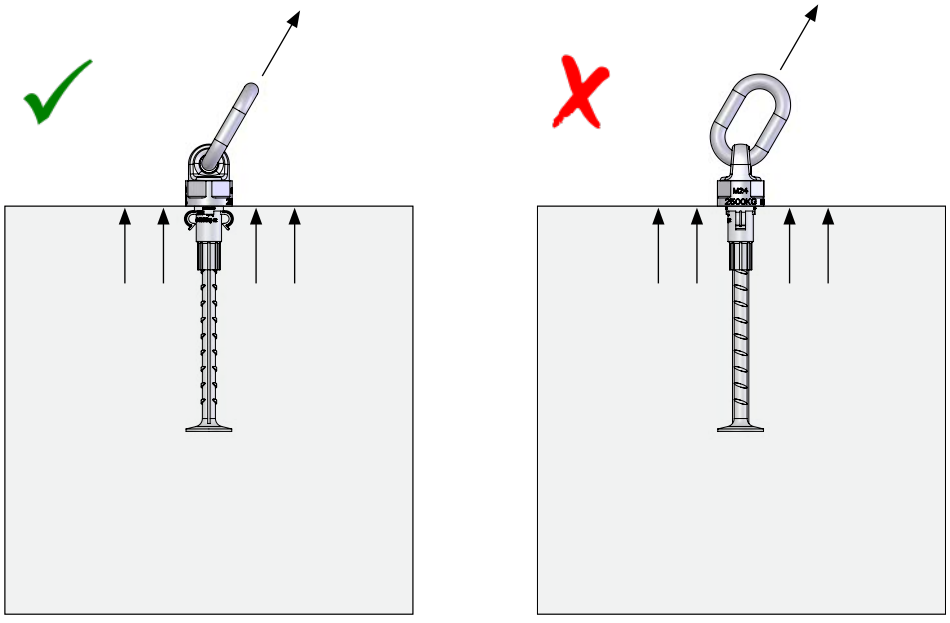
Figure 4. JENKA system marking of TLP Lifting Key.



1.5 Correct use of Peikko TLP Lifting Key.

The TLP Lifting Key requires the correct loop/ring direction to transfer loads to the insert and concrete. It has a wide pressure plate distributing the impact pressure to the surrounding concrete element.

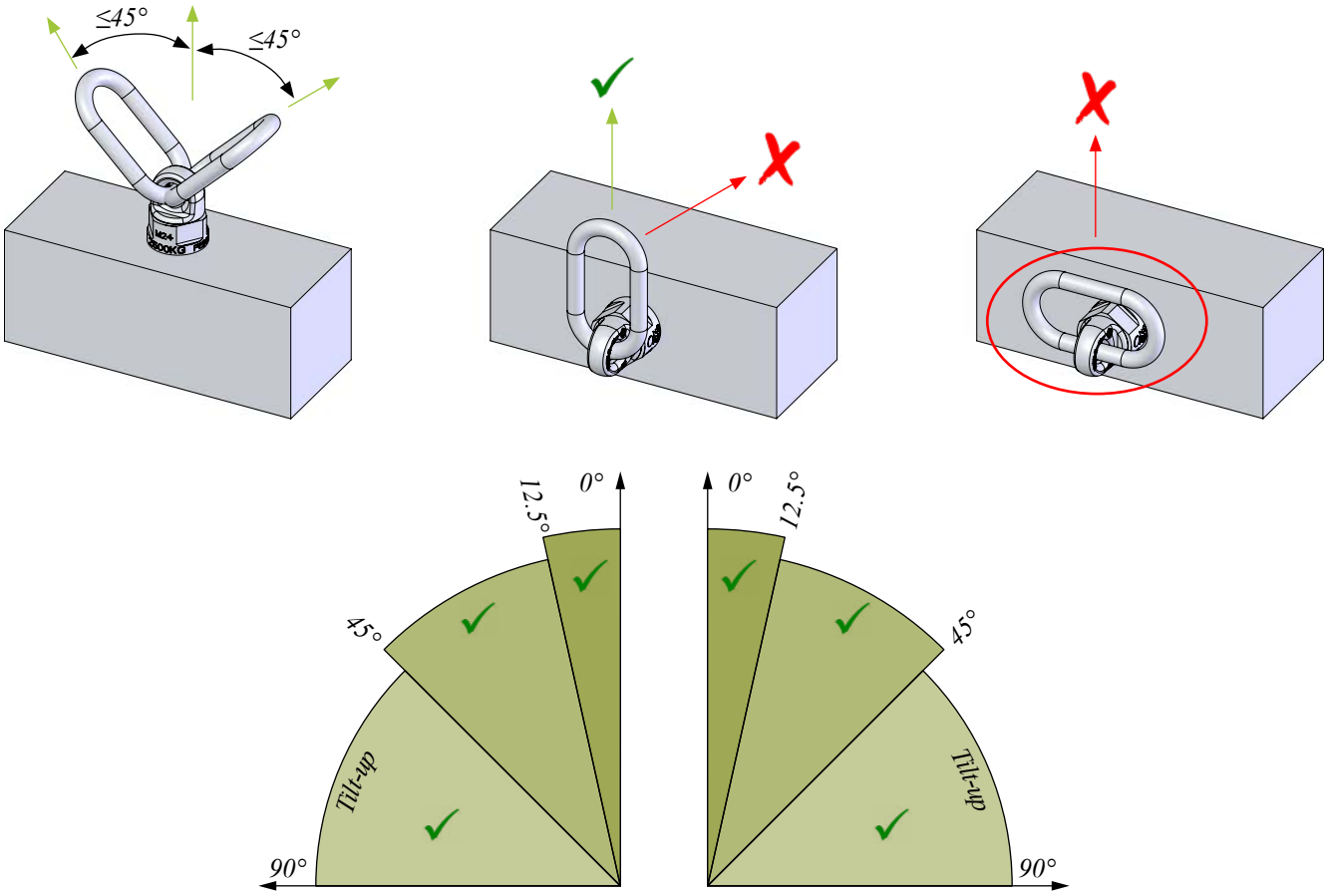
Figure 5. Correct direction of JENKA TLP Lifting Key.



INFORMATION

The correct use of TLP Lifting Keys is shown in *Figure 6* and *Figure 7*. TLP Lifting Keys can be used for each load directions (between 0° to 45° and for 90° tilt-up procedures). All threaded Lifting Keys must be screwed into the insert with full length of the thread.

Figure 6. Correct load directions of JENKA TLP Lifting Key.



The top part of the Lifting Key including attachment ring must always be freely movable. It must not rest on or be supported by other structural parts.

When attaching the components make sure the position of the Lifting Key always enables forces to be exerted in longitudinal direction. Make sure only the top part of the Lifting Key turns into loading direction and not the firmly secured stationary portion. Check the correct positioning of the Lifting Keys each time the load is turned and/or rotated, especially when the load is applied parallel to the screw-on surface.

Figure 7. Correct screwing depth of JENKA TLP Lifting Key.

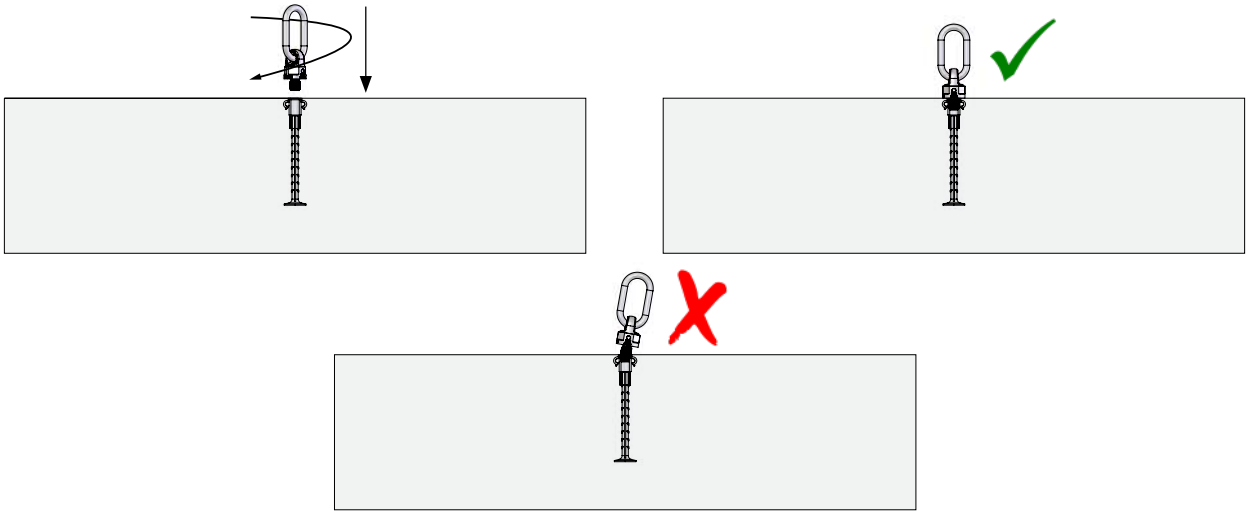


Figure 8. Correct use of TLP Lifting Key.

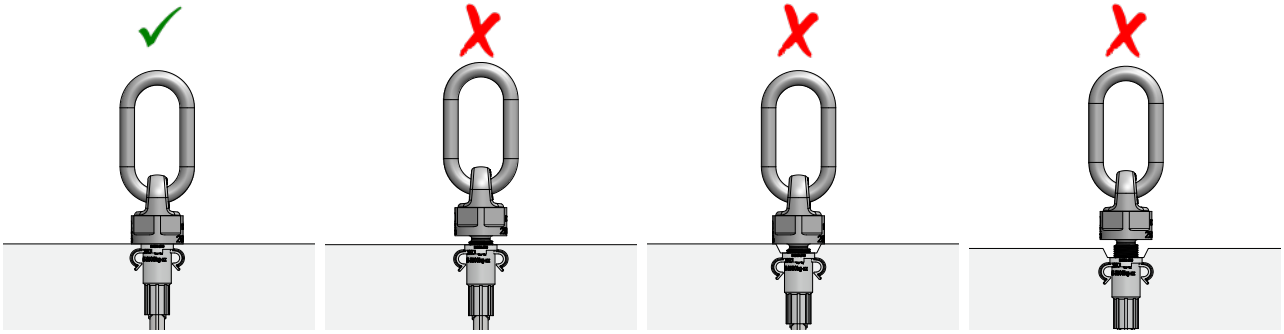
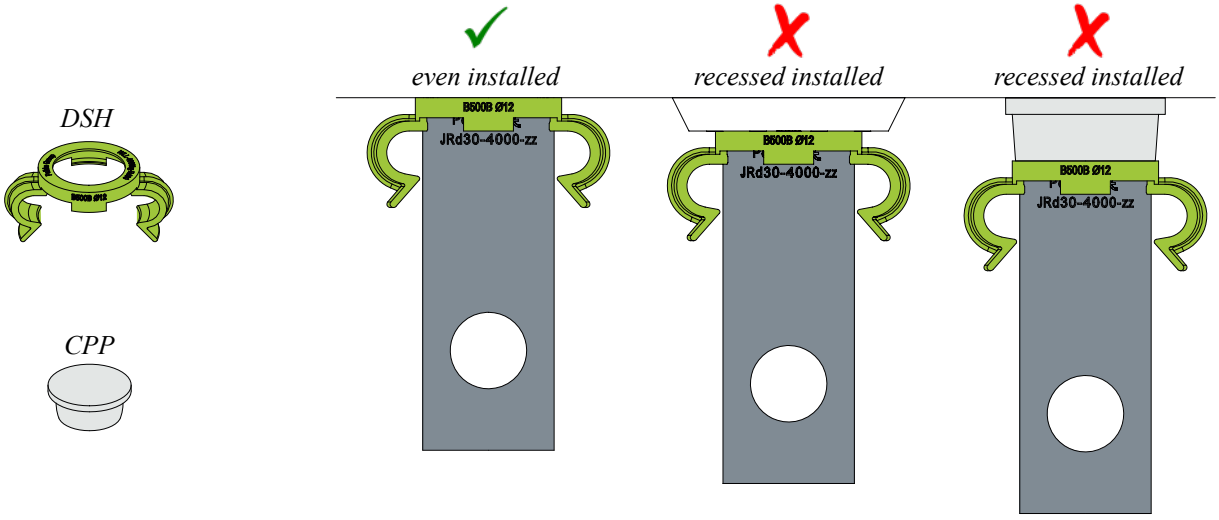


Table 2. Combination of TLP Lifting Key and JENKA Accessories.

	DSH	NPP	CPP	NNP12-24	NNP30-42	NPM	PNP1224	PNP-S	PNP3042	FS
TLP	✓	✗	✓	✗	✗	✗	✗	✗	✗	✗

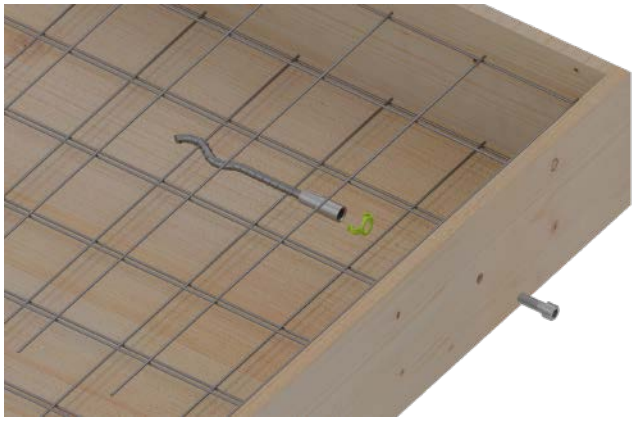
TLP Lifting Keys must be used with inserts attached flush to surface of precast element. Standard plastic nail plates are not suitable.

Figure 9. Accessories and correct insert installation height for use with TLP Lifting Key.



The correct assembly of JENKA Lifting Insert when used together with TLP Lifting Key is by fixing the insert with a normal metric screw with hexagon head (Allen head) or just a regular metric bolt.

Figure 10. Correct assembly of Lifting insert for TLP Lifting Key.

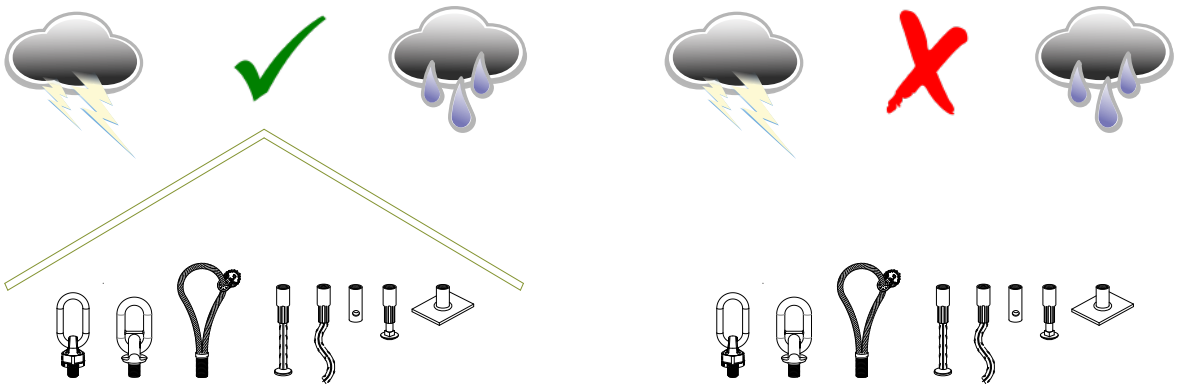


The Peikko JENKA TLP Lifting Keys are designed for occasionally turning or rotating loads. Continuous or long term turning or rotation under load is not allowed.

1.6 How to store

Lifting components must be stored and protected in dry conditions, preferably under a roof. *Figure 11* shows a suitable storage location.

Figure 11. How to store.



WARNING:
Threaded lifting keys are subject to corrosion when they are unprotected and exposed to outdoor weather conditions such as large temperature variations, snow, ice, humidity, acidic atmospheres, or salt and sea water impact. These conditions may cause damage and shorten the standing time, which increases costs.

JENKA Lifting Keys must be used by experienced and trained personnel. This reduces the risk of severe damage and injury. Always execute every lifting process according to the instructions.

All JENKA Lifting Keys provided by Peikko are intended for lifting processes. Never use JENKA Lifting Keys for lashing or for fixing loads onto trucks as this may cause damage to the JENKA Lifting Keys, leading to a reduced service life.

The following are mandatory instructions for safe working. They must be complied with exactly whenever lifting systems are in use.

WARNING:

- Screw all JENKA Lifting Keys completely inside the thread. No protrusion of the thread of the JENKA Lifting Key is permissible at any time. Operate all screws manually. Do not use any tools such as bars or claws.
- Screws should move freely without force. If the screws do not move, check for damage to the thread or the presence of obstructions.
- Visually inspect all items before use.
- Check and clean all threads on the JENKA Lifting Keys and inserts before use. It is highly recommended that the socket interior be lubricated to avoid concrete pollution. Pollution can reduce the screwing depth, which has an immediate impact on the capacity and safety level and may result in danger of death.
- Inspect all JENKA Lifting Keys regularly for safety purposes.
- Use JENKA Lifting Keys only in appropriate environmental conditions.
- Always keep in mind local regulations for safe lifting and hoisting and consider the design assumptions described in the JENKA Lifting System manual.

1.7 Description of the inspections of TLP Lifting Keys

For safety reasons, all JENKA Lifting Keys must be properly used and maintained. Never use damaged or corroded lifting system parts. All reusable JENKA Lifting Keys must be inspected regularly by the user to determine if they may be used at the rated safe working load or must be taken out of use. The frequency of inspections depends upon factors such as (but not limited to) the amount of use, period of service, and environment. Inspections must take place at least annually. It is the responsibility of the user to schedule hardware inspections for wear and to take products out of use when wear is identified. Peikko recommends recording the inspections of all items with serial numbers on record cards as shown in *Figure 12*.

Figure 12. Record card for Lifting systems.

Chain record card DGUV 209-063
(previous BGI 879-2)
Release: September 2015

☐ **Hoist chain**
☐ **Chain sling with welded in master and end links**
For assembled chain sling made from parts a chain record card according DGUV 209-062 must be used

peikko®
Peikko Group Corp.
Voimakatu 3
FI-15101 Lahti
www.peikko.com

Name of the chain

Order No.	Chain No.	Capacity SWL			
		Hoist chain	Chain sling		
			1-strand	-strands/legs	
Grade	Nominal thickness mm	t	t	β ≤ 45° t	β ≤ 60° t
Length m	Weight kg	Manufacturer symbol*)	Inspection certificate No.	Date	Delivery from:
Next inspection date					Taken into use on:
					Taken out of use on:

INFORMATION

The use of TLP Lifting Keys requires the consideration of local safety and accident prevention regulations. When no additional information given in regulation the user must follow the inspection instructions described in here.
The use of TLP Lifting Keys is only permitted when a competent person has inspected them. The inspection is to be executed according to the aforementioned criteria and the inspection interval must be between one year (visual inspection) and three years (crack absence inspection). Before inspection, clean the TLP Lifting Keys thoroughly.

Chains and chain-like non-fixed TLP Lifting Keys:

- Inspection by a competent person
- Visual check at least once per year for external damage such as
  - Bent chain links
  - Twisted chain links
  - Indents
  - Plastic elongation due to overloading
  - Readability of the marking
  - Ratio elongation due to wear out
  - Wear out of diameter (due to permanent use)
- Crack absence inspection at least every third year
- Additional inspection after unexpected incidents
- No visible cracks or deformations
- No necking or material tapering
- No welding in any location
- The tolerances provided by manufacturer must be complied with

TLP Lifting Key head:

- Movement/rotation of the swivel head is free, no jamming, no noise from the ball bearings
- No micro cracks in the thread ground

Figure 13. Inspection areas (lifting ring, swivel and threaded bolt).

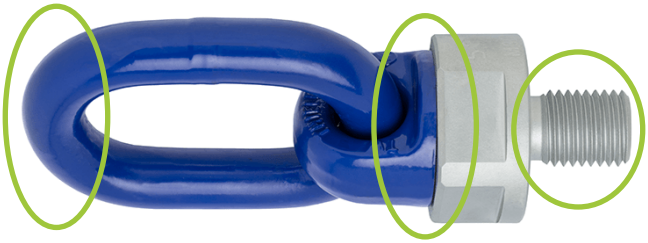


Figure 14. Wear out of lifting ring and swivel.

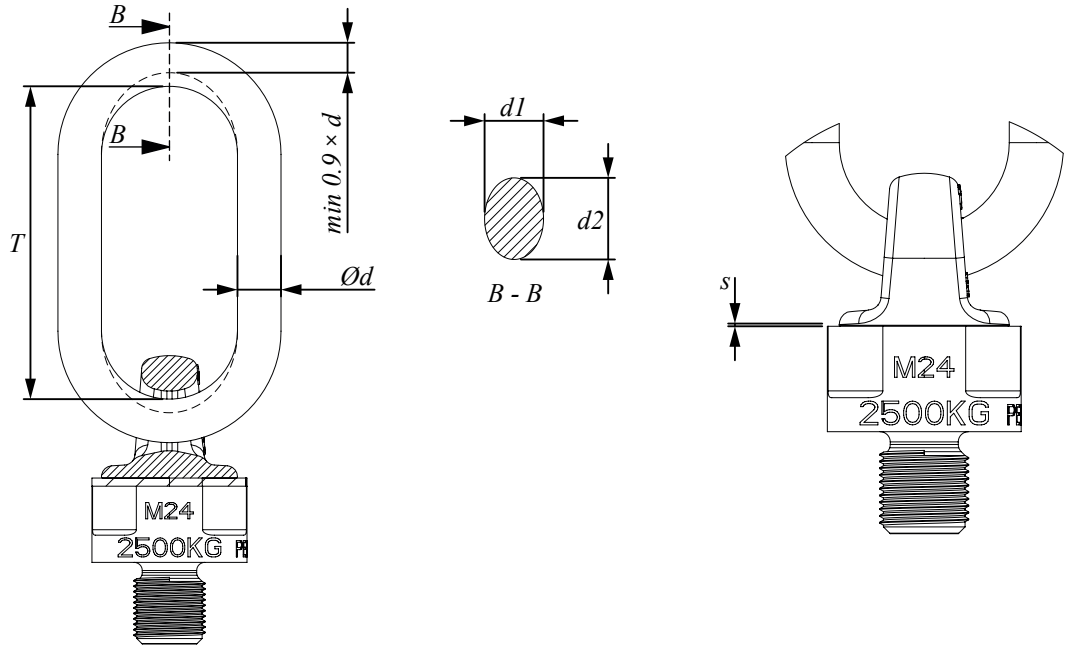
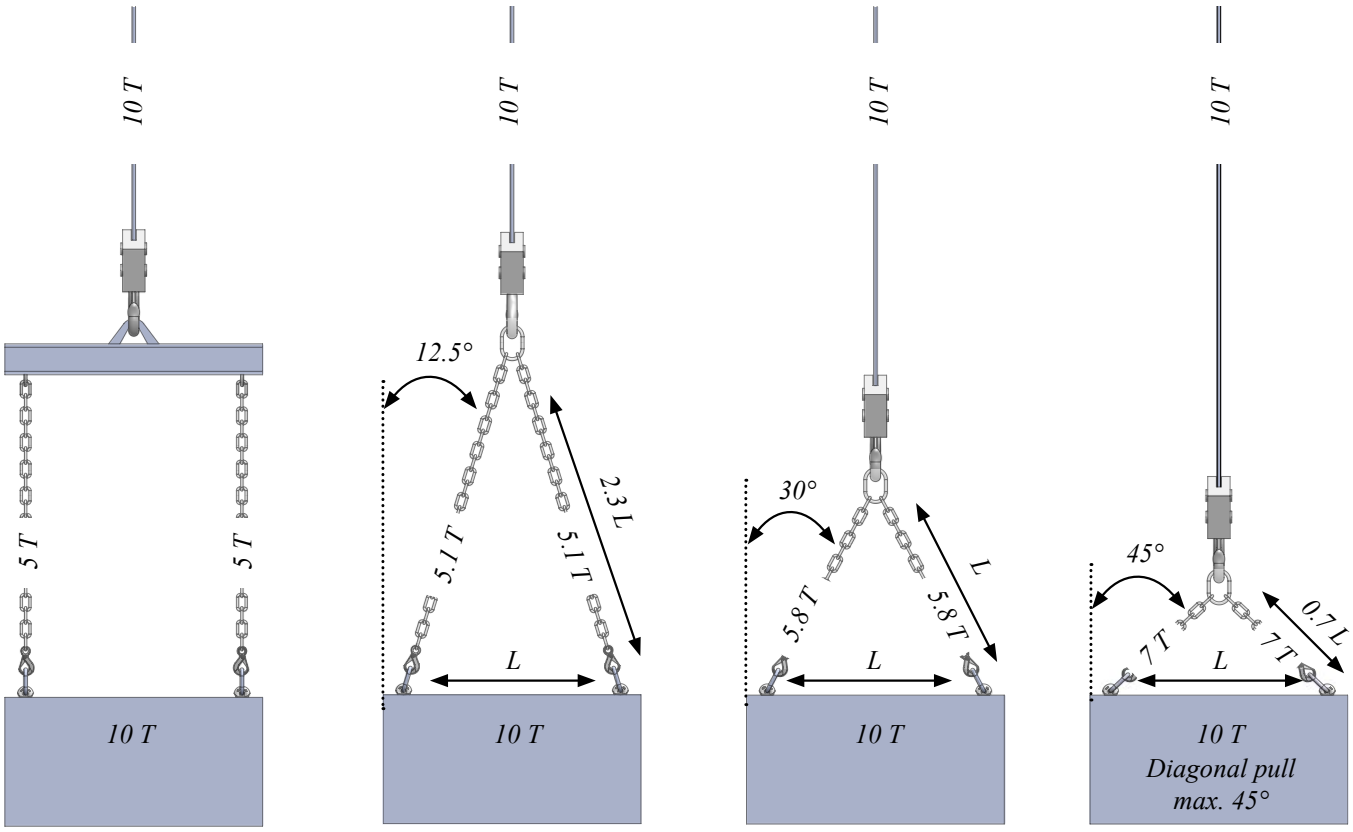


Table 3. Wear out tolerances of JENKA TLP Lifting Keys.

Item No. TLP	*M* [mm]	*T* [mm]	T_{max} = 1.05 × *T* [mm]	*Ød* [mm]	$Ød_{min}$ = 0.9 × *Ød* [mm]	Max Gap *s*
16	M16	55	57.8	13	11.7	1.5
20	M20	70	73.5	16	14.4	1.5
24	M24	85	89.2	18	16.2	2.0
30	M30	100	105	22	19.8	2.5
36	M36	100	105	22	19.8	3.0

LIFTING ANGLE INFLUENCE



Revisions

Version: PEIKKO GROUP 12/2020. Revision: 001

- First publication. To be used together with Peikko JENKA Lifting System Technical Manual

Resources

DESIGN TOOLS

Use our powerful software every day to make your work faster, easier and more reliable. Peikko design tools include design software, 3D components for modeling programs, installation instructions, technical manuals and product approvals of Peikko's products.

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Environmental Product Declarations and management system certificates can be found at the quality section of our websites.

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