

Texolution-Point > TXP <



User Manual

This User Manual/Declaration of Conformity must be kept for the entire time usage time and forwarded with the product.
TRANSLATION OF THE ORIGINAL OPERATING INSTRUCTIONS



RUD Ketten
Rieger & Dietz GmbH u. Co. KG
73428 Aalen
Tel. +49 7361 504-1370
Fax +49 7361 504-1460
sling@rud.com
www.rud.com

RUD: 8505532 - EN - V02 / 07.021

Texolution-Point TXP

EG-Konformitätserklärung

entsprechend der EG-Maschinenrichtlinie 2006/42/EG, Anhang II A und ihren Änderungen

Hersteller: **RUD Ketten
Rieger & Dietz GmbH u. Co. KG**
Friedensinsel
73432 Aalen

Hiermit erklären wir, dass die nachfolgend bezeichnete Maschine aufgrund ihrer Konzipierung und Bauart, sowie in der von uns in Verkehr gebrachten Ausführung, den grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Maschinenrichtlinie 2006/42/EG sowie den unten aufgeführten harmonisierten und nationalen Normen sowie technischen Spezifikationen entspricht.
Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.

Produktbezeichnung: TXP-Texolution-Point
TXP

Folgende harmonisierten Normen wurden angewandt:

<u>DIN EN 1677-1 : 2009-03</u>	<u>DIN EN ISO 12100 : 2011-03</u>
_____	_____
_____	_____
_____	_____

Folgende nationalen Normen und technische Spezifikationen wurden außerdem angewandt:

<u>DGUV-R 109-017 : 2020-12</u>	_____
_____	_____
_____	_____
_____	_____

Für die Zusammenstellung der Konformitätsdokumentation bevollmächtigte Person:
Michael Betzler, RUD Ketten, 73432 Aalen

Aalen, den 10.06.2021 Hermann Kolb, Bereichsleitung MA

Name, Funktion und Unterschrift Verantwortlicher

EC-Declaration of conformity

According to the EC-Machinery Directive 2006/42/EC, annex II A and amendments

Manufacturer: **RUD Ketten
Rieger & Dietz GmbH u. Co. KG**
Friedensinsel
73432 Aalen

We hereby declare that the equipment sold by us because of its design and construction, as mentioned below, corresponds to the appropriate, basic requirements of safety and health of the corresponding EC-Machinery Directive 2006/42/EC as well as to the below mentioned harmonized and national norms as well as technical specifications.
In case of any modification of the equipment, not being agreed upon with us, this declaration becomes invalid.

Product name: TXP-Texolution-Point

The following harmonized norms were applied:

<u>DIN EN 1677-1 : 2009-03</u>	<u>DIN EN ISO 12100 : 2011-03</u>
_____	_____
_____	_____
_____	_____

The following national norms and technical specifications were applied:

<u>DGUV-R 109-017 : 2020-12</u>	_____
_____	_____
_____	_____
_____	_____

Authorized person for the configuration of the declaration documents:
Michael Betzler, RUD Ketten, 73432 Aalen

Aalen, den 10.06.2021 Hermann Kolb, Bereichsleitung MA

Name, function and signature of the responsible person

CONTENT

1	Safety instructions	2
2	Intended use	3
3	TXP-Textolution-Point structure	4
4	Notes on TXP round slings	4
4.1	Important information about TXP round slings	4
4.2	Identification label (blue).....	5
4.3	Information label (white)	5
4.4	Textile properties of the TXP round slings	6
5	Instructions for mounting and use	6
5.1	General information	6
5.2	Notes on assembly	6
5.3	Notes on use	7
5.3.1	Rotating and turning loads	9
6	Inspection / Repair / Disposal	9
6.1	Notes on regular checks	9
6.2	Test criteria for the regular visual inspection by the user	9
6.3	Additional test criteria for the expert / repairer	10
6.4	Storage	10
6.5	Cleaning	10
6.6	Repair	10
6.7	RUD BLUE-ID SYSTEM	10
6.7.1	General information	10
6.7.2	Batch designation	11
6.8	Disposal	11
7	Tables/Overviews	12



This user manual contains information about the correct and safe use of TXP-Textolution-Points (TXP). Read the user manual carefully and in full before using the TXP. Ensure that you have understood all the contents. If you need further information, ask your RUD retailer or RUD application engineer.

TXP lifting points have been designed for commercial use.

Non-observation of the instructions can lead to injuries or damage and will invalidate the guarantee.

1 Safety instructions



CAUTION

Incorrectly mounted, used, overloaded or damaged TXP and improper use can lead to injuries and damage to objects after a fall. Check all TXPs carefully every time before use.

- Withdraw all body parts (fingers, hands, arms etc.) from the danger zone during the lifting process (risk of crushing).
- No persons are allowed in the danger zone.

- The TXP lifting points may only be used by authorised and instructed persons in compliance with the DGUV Regulations chapter 109-017 and in compliance with any valid national regulations if used outside Germany.

- Note that specific safety regulations may apply to certain areas of use / industries, which must be taken into account.

- Note the regional occupational health and safety provisions when using lifting points and textile lifting means, such as the regulations of professional associations in Germany. More information and the references for the regulations are available from your RUD retailer or directly from RUD.



- TXP lifting points must not be overloaded. The WLL stated on the TXP lifting point must not be exceeded. The components can break or be damaged.



- Ensure a stable position of the load during lifting - the load must not swing out of control. Avoid swinging and rotating loads. They can injure people, damage buildings or machines and components may fall.



- Damaged, overloaded or worn TXP lifting points must not be used and must immediately be withdrawn from use. The WLL is no longer guaranteed.



- TXP lifting points may not be allowed to come into contact with aggressive chemicals, acids and their vapours.

- Permanent rotation under load is not allowed. TXP lifting points are rotatable 90° to the bolt-on direction under WLL.

- The ball bearing and/or slide bearing disc, as well as the round slings, must not be dismantled.

- No changes may be made to the TXP lifting points and TXP round slings.



CAUTION

Damaged, incomplete, worn or overloaded TXP round slings must be withdrawn from use immediately (cf. chapter 6 Inspection / Repair / Disposal).



CAUTION

Only use TXP round slings with an attached and legible label.

- Always suspend the TXP round slings directly into the lifting means or crane hook (Fig. 1).

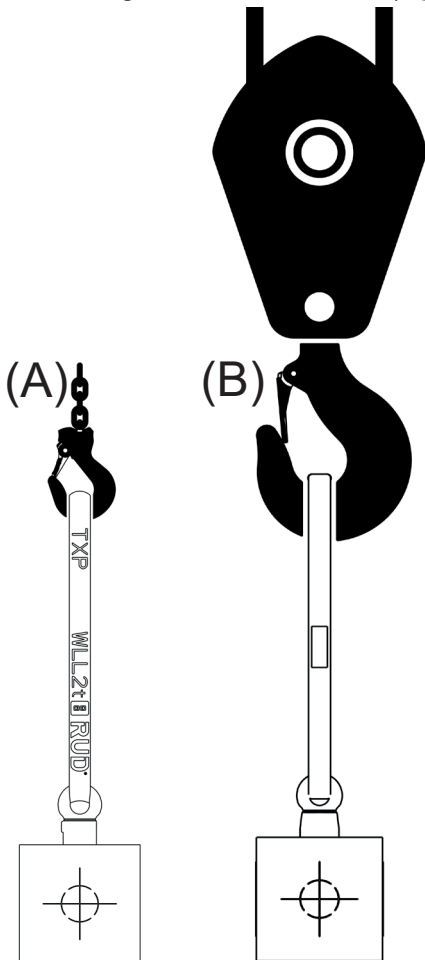









Fig. 1: Sample applications:

(A) Single-strand with lifting chain

(B) Single-strand directly in the crane hook

-  The TXP round slings must not be used for Lifting a load by means of the loops. The TXP round slings can slide together and the load can fall.
-  TXP round slings must not be knotted. Considerably losses in strength can result.
-  TXP round slings must not be twisted on the load. Considerably losses in strength can result.
-  TXP round slings must not be crushed or lie on top of each other (Fig. 9). Prevent any folding of the TXP round slings in the lifting means (such as crane hooks, shackles or fittings). Considerably losses in strength can result.
-  TXP round slings must not be placed on sharp edges, slide over them and/or be pulled across them (Fig. 4). The TXP round slings can be damaged or cut through (cf. section 4).

-  TXP round slings have a considerably lower elongation properties than normal polyester round slings. Sudden lifting (with high dynamic forces) are forbidden because they can lead to overloading and breakage of the TXP round sling.
- Only use dry TXP round slings. Dry damp TXP round slings before any use (in well ventilated rooms).
- Never use frozen and damp TXP round slings. This use leads to damage and loss of strength.
- Remember that UV radiation (e.g. sunlight) can impair the qualities of the TXP round slings.
-  Use in an explosive environment or underground is forbidden, as the TXP round slings charge electrostatically.

2 Intended use

TXP-Textolution-Points may only be used for attachment to the load or to load handling equipment.

They may be used as intended for lifting loads by the rigger (trained person).

They are designed for hanging from lifting means and are rotatable 90° to the bolt-on direction under rated WLL. Permanent rotation under load is not allowed.



NOTE

See the requirements regarding rotating in section 5.3.1.

Lifting means may only be suspended in the TXP round slings and not in the eye of the suspension ring.



NOTE

The TXP round sling must be freely moveable and must not wrap around the basic element or knot.

TXP round slings must not be shortened (e.g. by encircling etc.).

Maximum loads and angles according to Table 2 must not be exceeded when using the TXP-Textolution-Points. For larger loads and angles, the TXP components are overloaded and may break.



TXP-Textolution-Points may only be used for the purposes described here and not for transporting persons and/or animals.

3 TXP-Textolution-Point structure

The TXP-Textolution-Point consists of the following components (Fig. 2):

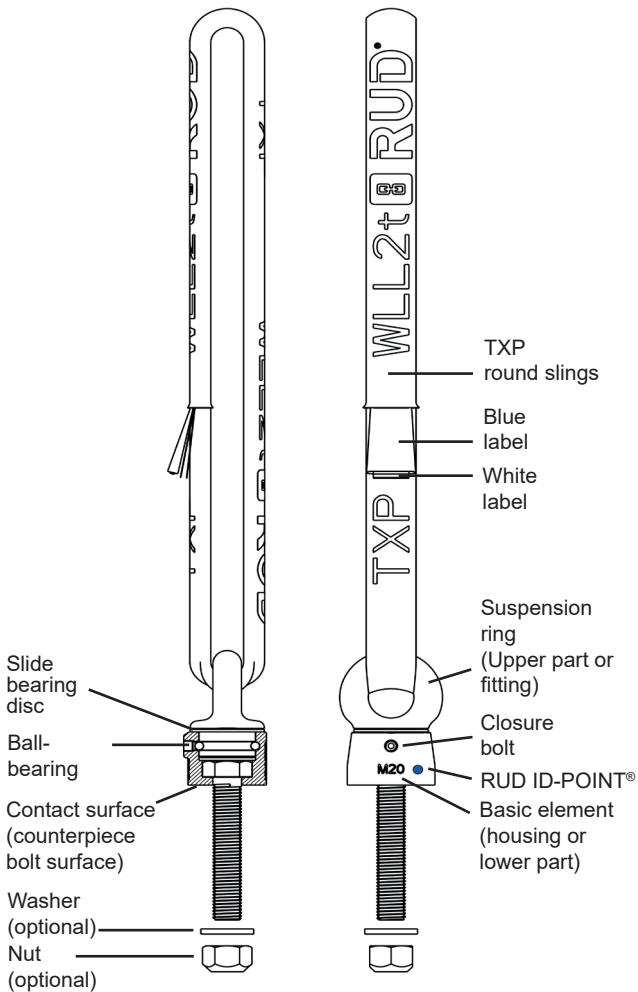


Fig. 2: TXP-Textolution-Point components

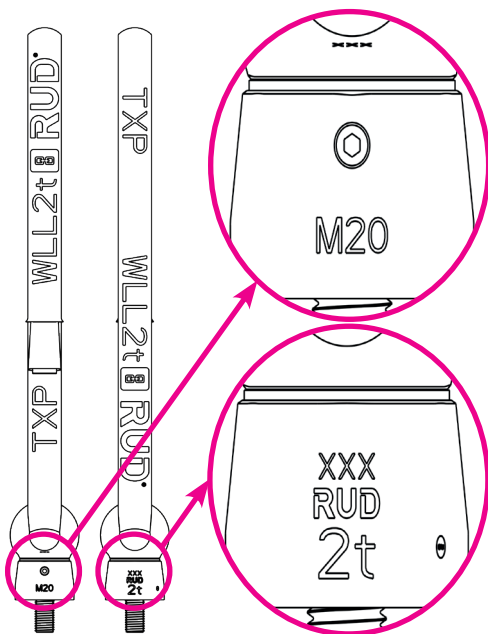


Fig. 3: Basic element labelling

The basic element of the TXP-Textolution-Point contains the following information (Fig. 3):

- Thread type | Thread size
- Batch | Manufacturer: RUD | WLL

4 Notes on TXP round slings

4.1 Important information about TXP round slings

When using the TXP lifting point and, in particular, with the TXP round sling, the safety instructions (1 Safety instructions) and the following aspects must be taken into account:



STRICTLY OBSERVE THE INFORMATION FROM SECTION 1 SAFETY INSTRUCTIONS!



CAUTION

Damaged, incomplete, worn or overloaded TXP round slings must be withdrawn from use immediately (cf. chapter 6 Inspection / Repair / Disposal).



CAUTION

Only use TXP round slings with an attached and legible label.

- TXP round slings must not be placed on sharp edges, slide over them and/or be pulled across them. The TXP round slings can be damaged or cut through. Sharp edges can lead to reductions in the WLL, damage or to the load falling. The lifting means (e.g. crane hook) must not have any sharp edges either.

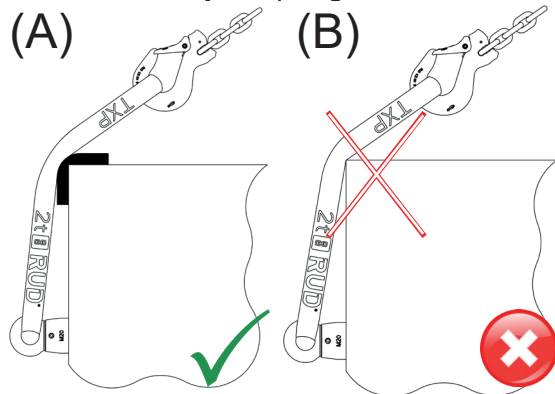



Fig. 4: A: Admissible application with edge protection
B: Prohibited positioning or placing on edges

-  Sharp edge definition: an edge is sharp if the radius "r" of the edge is smaller or the same as the thickness "H" of the TXP round sling (H = support thickness under load, see Table 4).
- When lifting rough or sharp-edged loads, protect the TXP round slings with a suitable edge protection or protective hose.
- If more than one TXP lifting point is used for the lifting process, they must be identical (identical WLL and TXP round sling lengths). Otherwise there is a danger of the load becoming askew.

4.2 Identification label (blue)

A blue identification label is sewed into the TXP round slings. Using the operating manual and this label, the details of the TXP round slings can be clearly identified.



Fig. 5: Blue identification label

For better legibility, the identification label is represented below without the blue background (Fig. 6):

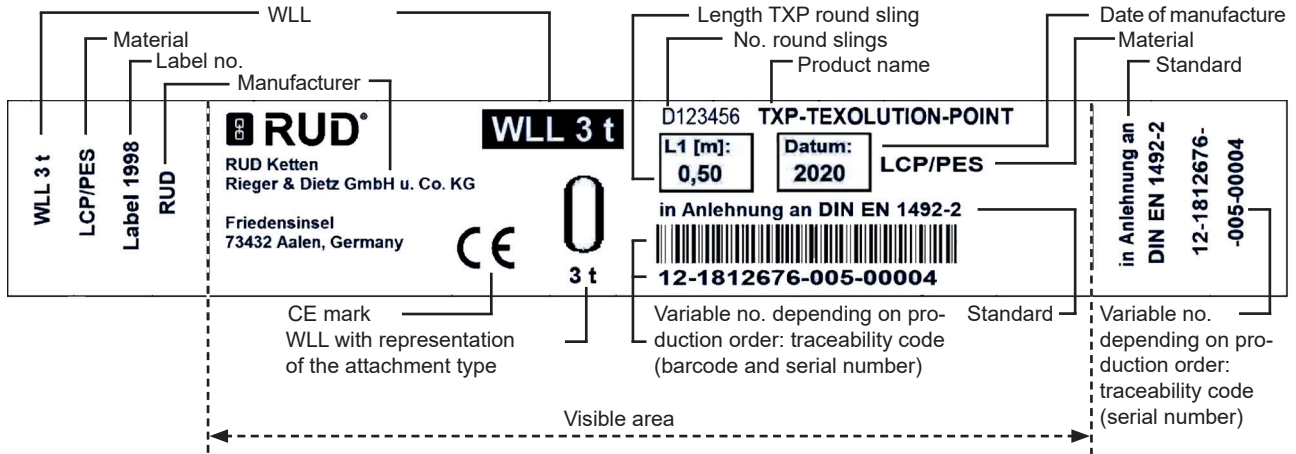


Fig. 6: Blue identification label (including detailed explanation)

4.3 Information label (white)

In addition, a white information label is sewed into the TXP round slings. This states the most important warning information. The white information label also provides an option for the next six inspections.

<p>▲ Inbetriebnahme / ● nächste Prüfung</p> <table border="1"> <thead> <tr> <th colspan="3">2023</th> <th colspan="3">2024</th> <th colspan="3">2025</th> </tr> </thead> <tbody> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td> </tr> <tr> <td>6</td><td>7</td><td>8</td><td>9</td> <td>6</td><td>7</td><td>8</td><td>9</td> <td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td>10</td><td>11</td><td>12</td> <td>10</td><td>11</td><td>12</td> <td>10</td><td>11</td><td>12</td> </tr> </tbody> </table>	2023			2024			2025			1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	6	7	8	9	6	7	8	9	6	7	8	9	10	11	12	10	11	12	10	11	12	Jahr: 2020	305/3	
2023			2024			2025																																										
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5																																		
6	7	8	9	6	7	8	9	6	7	8	9																																					
10	11	12	10	11	12	10	11	12																																								
	Jahr: 2020	305/3	<p>▲ Inbetriebnahme / ● nächste Prüfung</p> <table border="1"> <thead> <tr> <th colspan="3">2020</th> <th colspan="3">2021</th> <th colspan="3">2022</th> </tr> </thead> <tbody> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td> </tr> <tr> <td>6</td><td>7</td><td>8</td><td>9</td> <td>6</td><td>7</td><td>8</td><td>9</td> <td>6</td><td>7</td><td>8</td><td>9</td> </tr> <tr> <td>10</td><td>11</td><td>12</td> <td>10</td><td>11</td><td>12</td> <td>10</td><td>11</td><td>12</td> </tr> </tbody> </table>	2020			2021			2022			1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	6	7	8	9	6	7	8	9	6	7	8	9	10	11	12	10	11	12	10	11	12
2020			2021			2022																																										
1	2	3	4	5	1	2	3	4	5	1	2	3	4	5																																		
6	7	8	9	6	7	8	9	6	7	8	9																																					
10	11	12	10	11	12	10	11	12																																								

Fig. 7: White label

4.4 Textile properties of the TXP round slings



NOTE

The VIP pink colour of the TXP round sling is not a colour code for a specific WLL / material! The corresponding information about WLL / material is on the TXP round sling and on the label.

Irrespective of the thread size or WLL, all TXP round slings are the same colour.

- TXP round slings are textile lifting means with a load-carrying core made from the material LCP.
- A braided hose made from PES protects the load-carrying fabric.
- TXP round slings are made from high-tensile chemical fibres. Their manufacture is DIN EN 9001 certified.

5 Instructions for mounting and use

5.1 General information

- Temperature suitability for use:
The use of TXP lifting points is admissible in a temperature range of - 40°C to +100 °C. Temperatures over 100°C are not permissible!
- Before the first use, the user checks whether the existing TXP lifting point corresponds to what was ordered, that the accompanying papers (operating licence) are complete and that information in the papers corresponds to the product designation.
- Carefully plan the lifting, rising and lowering process of the load with great care before starting the actual lifting process. Imprudent lifting can lead to the load and the lifting means being damaged or to a danger to life and limb of employees.
- When selecting and using lifting points, the weight and lifting type must be considered (cf. *Table 2 WLL*). Weight, geometry, surface quality and the constructive properties of the load are the determining criteria for selection of the lifting means.
- When selecting the round sling, consider the lifting type and the inclination angles with which the lifting process will take place. This influences the effectively usable WLL of the TXP lifting point.
- Consider or calculate the position of the load's centre of gravity.
- The WLL of the selected TXP lifting points and the lifting type must be greater than or the same as the mass of the load (cf. *Table 2 WLL*).
- Like PES round slings, TXP round slings are labelled with a blue label.
- Clearly identify the attachment place for the lifting points by means of contrasting colour markings.
- Damaged TXP round slings must be withdrawn from use (cf. chapter 6 *Inspection / Repair / Disposal*).

5.2 Notes on assembly

The following always applies:

- Determine the mounting location by design, that the forces applied are absorbed by the base material without deformation. Ensure that the part of the load, to which the round sling is attached, can support the force applied during lifting. The Employer's Liability Insurance Association recommends as minimum engagement length:
 - 1 x M in steel (minimum quality 235JR [1.0037])
 - 1.25 x M in cast iron (e.g. GG 25)
 - 2 x M in aluminium alloys
 - 2.5 x M in light metals of low strength (M = Thread size, e.g. M20)
- In the case of light metals, non-ferrous metals and grey cast iron, the thread arrangement must be selected so that the thread load-bearing capacity corresponds to the requirements of the respective base material.
- Select the position of the lifting points so that impermissible loads, such as twisting or turning of the load, can be avoided.
 - Select the lifting point for **single-strand attachment** vertically above the centre of gravity of the load.
 - Select the lifting points for **two-strand attachment** on both sides and above the centre of gravity of the load.
 - Select the lifting points for **three and four-strand attachment** evenly on one level around the centre of gravity of the load.
- Symmetry of load:
Determine the required WLL of the individual lifting point for symmetrical and non-symmetrical loads using the following physical equation:

$$W_{LL} = \frac{G}{n \times \cos \beta}$$

W_{LL} = req. WLL of the lifting point / single strand (kg)
G = Load weight (kg)
n = Number of supporting strands
β = Inclination angle of the individual strands

Number of supporting strands is:

	Symmetry	Asymmetry
Double strand	2	1
Three/four-strand	3	1

Table 1: Supporting strands

- If more than one TXP lifting point is used for the lifting process, they must be identical (identical WLL and TXP round sling lengths). Otherwise there is a danger of the load becoming askew.
- An even bolting surface (minimum diameter ØD) with a right-angled threaded borehole must be guaranteed. The countersink of the thread/through hole fixture must not exceed 1.05xØ.
- Threaded boreholes must be deep enough to allow the contact surface of the lifting point to lie flat. Create the through hole fixtures according to DIN EN 20273-middle.
- Due to the ball bearings and the slide bearing disc, it

is only necessary to use an open-end spanner without an extension according to DIN 895 or DIN 894 to tighten the unit so that the TXP contact surface lies flat on the bolting surface for **one-off lift**.

However, the torque moment (+/- 10 %) according to *Table 4* must not be exceeded. We generally recommend assembly with a suitable torque wrench.

If the TXP lifting point is to remain **permanently** on the load, it must be tightened with the torque moment (+/-10 %) corresponding to *Table 4*.



CAUTION

The user is prohibited from dismantling the ball bearings and the slide bearing disc.

- The TXP may not be exposed to the test load (2.5xWLL). If during the production of load lifting equipment or similar it is necessary to apply a test load once, please contact RUD first.
- The TXP can be assembled and delivered with different thread lengths (cf. Fvario, Tab. 2) and the metric designs with washer and crack-tested nuts. The assembly and insertion of various bolt lengths is only admissible by RUD or by a specialist company authorised by RUD.
- Then check that everything has been mounted correctly (see Section 6 *Inspection / Repair / Disposal*).

5.3 Notes on use



STRICTLY OBSERVE THE INFORMATION FROM SECTION 1 SAFETY INSTRUCTIONS!

- At regular intervals and before each use, check the entire lifting means to ensure that they are still suitable for their purpose, for heavy corrosion, wear occurrence, deformations etc. (see section 6 *Inspection / Repair / Disposal*).



CAUTION

Additionally, check the TXP lifting point before and after each use by manual (e.g. feeling for hard areas) and visual inspection of the entire length of the TXP round slings (e.g. looking for holes, dirt and effects of acids or bases or other chemical materials and substances). The inspection must cover the entire length of the TXP round sling!



CAUTION

Incorrectly mounted, used, overloaded or damaged TXP lifting points and improper use can lead to injuries and damage to objects after a fall. Check all TXP lifting points carefully every time before use.

- If safety defects are identified, damaged TXP round slings can be repaired if necessary (see section 6.6 *Repair*). TXP round slings that cannot be repaired must no longer be used and must immediately be discarded.

- RUD components are designed according to DIN EN 818 and DIN EN 1677 for a dynamic WLL of 20,000 load cycles.

- Please note that during one lifting process there might be several stress cycles.
- Please note that due to the high dynamic load with high numbers of stress cycles there is the risk of damage to the product.
- The BG/DGUV recommends: At high dynamic WLL with high stress cycles (permanent operation), the working load must be reduced according to the engine group 1Bm (M3 according to DIN EN 818-7). Use a lifting point with a higher WLL.

- The load handling equipment (e.g. crane hook) must have a wide enough surface so that it is possible for the round sling to form a flat, wide cross-section under the influence of the load.



CAUTION

Excessive lateral restrictions (squashing) for the sling lead to loss of WLL!

- Changing the contact points increases the service life and safety, as the TXP round sling is loaded consistently. To this end, change the contact point of the TXP round slings in the ring points and lifting means (such as crane hooks, shackles or fittings) after each lifting process.
- To prevent labels becoming damaged, ensure that the label “remains free”, is not covered by the load, the TXP suspension rings or the connection points to the lifting means and is used without touching a component.
- The WLL is stated on the TXP basic element and the TXP round sling (see *Fig. 3*).
- The TXP lifting points are suitable for rotating and turning loads (cf. 5.3.1 *Rotating and turning loads*).
- When turning and rotating, all positions of the TXP round slings can occur.



NOTE

The TXP round sling must be freely moveable and must not wrap around the basic element or knot.

- Rotating under 90° to the bolt-in axis is admissible under WLL (see *Table 3* - images X and Y).
- The TXP round sling may be rotated 230° in the load ring plane and transverse to the load ring plane (*Fig. 8*).

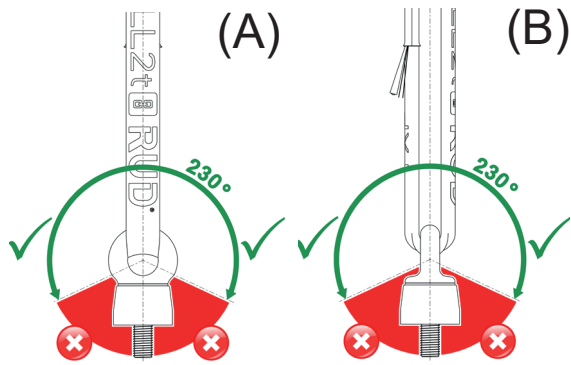


Fig. 8: Admissible pivoting area 230° (green):
 (A) pivoting area in the load ring plane
 (B) pivoting area transverse to the load ring plane

- TXP round slings must not be crushed or lie on top of each other (Fig. 9). Prevent any folding of the TXP round slings in the lifting means (such as crane hooks, shackles or fittings). Considerably losses in strength can result.

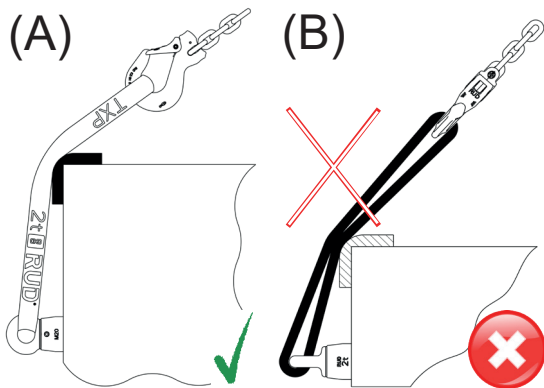


Fig. 9: (A) admissible application
 (B) Forbidden position of the round slings
 (Position above each other and squashed)

- The suspended lifting means must be freely moveable in the TXP round sling and must not support a load edge or be deflected on a sharp edge (Fig. 10).

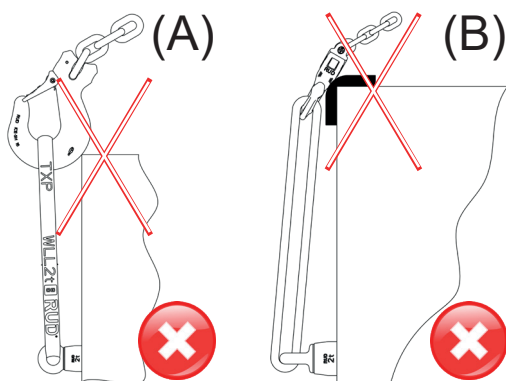


Fig. 10: (A) Forbidden edge load (hooks)
 (B) Forbidden edge load (hooks)

- Lifting point must always be fully engaged (see Fig. 11).

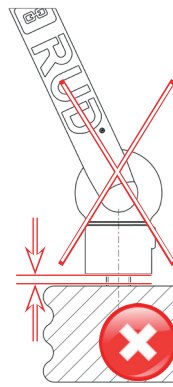


Fig. 11: The lifting point must be fully bolted in.

- Ensure that the contact surface corresponds at least to the diameter D of the TCP lifting point. TXP lifting points must be fully flat (contact surface $\geq D$) (cf. Fig. 12 and Table 4).

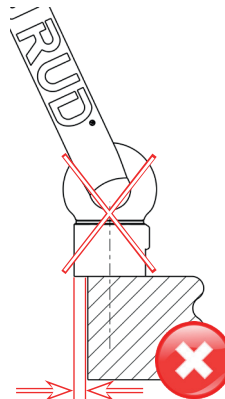


Fig. 12: TXP must be fully flat (contact surface $\geq D$)

- When attaching and detaching the slinging equipment (sling chain), there must not be any crushing, shearing, catching and impact points must not occur. Make sure that there is no damage to the slinging equipment by sharp-edged loads.
- Avoid impacting or jolting WLL.



CAUTION

In case of jolting WLL or vibration, in particular for through bolt connections with nuts, they may be unintended loosening.

- Securing options: use a fluid thread locking agent such as e.g. Loctite (observe manufacturer's information) or a force-fit bolt lock e.g. crown nut with splint, lock nut etc. Always secure all lifting points that remain permanently on the attachment point, e.g. by means of adhesion.
- When lifting rough or sharp-edged loads, protect the TXP round slings with a suitable edge protection or protective hose (see 4 Notes on TXP round slings).
- If possible, leave the immediate danger zone.
- Always supervise your suspended loads.
- Use TXP lifting points in such a way that they can be dismantled safely for the rigger and without causing damage after the lifting operation.
- Observe the operating instructions for RUD sling chains for all the lifting means.

5.3.1 Rotating and turning loads

Note the following additional requirements when rotating and turning loads:



CAUTION

The TXP are suitable for rotating and turning loads. However, permanent rotation under load is not permitted in any loading direction. (Table 3).



CAUTION

Pay special attention during use, that the load type will not be changed.



NOTE

The TXP round sling must be freely moveable and must not wrap around the basic element or knot.



NOTE

To extend the service life, we recommend using a TXP with a higher WLL.

- Rotating under WLL is admissible in all loading directions (see Table 3 - images X, Y and Z).
- The WLL is stated on the TXP basic element and the TXP round sling (see Fig. 3).
- Tightening with an open-end spanner is sufficient for a single rotation or turning process. See chapter 5.2 Notes on assembly.
- If the TXP is to remain **permanently** on a load for regular rotating and turning, in addition to the prescribed torque moment (Table 4) a suitable thread securing means should be used (see chapter 5.2 Notes on assembly).
- Carry out a regular check in the case of repeated rotating and turning with a TXP lifting point:
 - Ensure bolts are secure.
 - The contact surface of the TXP lifting point must be flat and lie completely on the bolting surface.
 - The maximum clearance between the upper and lower part of the TXP lifting point must not be exceeded (cf. Fig. 13).
 - Additional inspections may be necessary, depending on the result of the risk assessment.
 - See also the instructions in chapter 6 Inspection / Repair / Disposal (sections 6.2 and 6.3).

6 Inspection / Repair / Disposal

6.1 Notes on regular checks

The operator must determine and specify the nature and scope of the required tests as well as the periods of repeating tests by means of a risk assessment (see sections 6.2 and 6.3). Document the tests in accordance with the DGUV regulations 109-017.

The continuous suitability of the lifting point must be checked at least 1x year by an expert.

Depending on the application conditions, e.g. when used frequently or if there is a higher level of wear occurrence or corrosion, it may be necessary to carry out inspections at intervals of less than a year. This inspection is also absolutely necessary after damage and special incidents.

The inspection cycles must be specified by the operator.

6.2 Test criteria for the regular visual inspection by the user

TXP round slings must be checked for defects before and after each use. If you find defects, which impair the safety, you must no longer use the TXP lifting point.

- Manual check of the entire length of the TXP round slings (e.g. feeling for hard areas).
- Visual inspection of the entire length of the TXP round slings (e.g. looking for holes, dirt and effects of acids or bases or other chemical materials and substances).

TXP lifting points must no longer be used if, for example:

- The supporting fabric of the TXP round sling, encased by the pink hose sleeve, is damaged.
- If the pink hose sleeve has holes or cracks.
- If the pink hose sleeve and/or the fabric are damaged by heat (e.g. from welding beads).
- The blue identification label is missing and the manufacturer is not known (Fig. 2).
- If there is mechanical damage such as breaks or large notches, in particular in areas subject to tensile loads.
- Supporting parts such as the basic element, suspension rings and bolt are deformed (Fig. 2).
- The TXP lifting point is no longer complete.
- The lateral closing bolt is missing or the plastic protection against loosening, fitted in the factory, is no longer in place (Fig. 2).
- Easy, shock-free rotation between the upper and lower part of the TXP lifting point is not possible (Fig. 2).

- The maximum clearance S_{max} between the upper and lower part is exceeded (Fig. 13):
 - TXP-1.3 t: S_{max} 1.5 mm
 - TXP-2.0 t: S_{max} 1.5 mm
 - TXP-3.0 t: S_{max} 3.0 mm

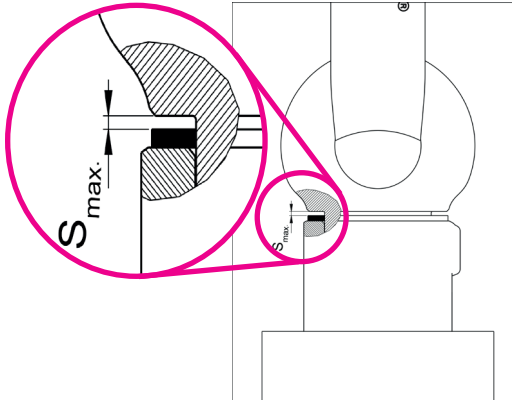


Fig. 13: S_{max} = distance between upper and lower part

Additional test criteria:

- Correct bolt and nut size, and bolt-in length
- bolts sit tightly, check the torque moment
- Complete, legible WLL information and manufacturer symbol
- The contact surface of the TXP must be flat and lie completely on the bolting surface (see Fig. 11 and Fig. 12).

6.3 Additional test criteria for the expert / repairer

- Changes to the cross-section due to wear occurrence > 10 %, or reaching the wear lenses in the main load directions
- Heavy corrosion
- Function and damage of the bolt thread and nuts
- Additional inspections may be necessary, depending on the result of the risk assessment (e.g. check for cracks in load-bearing parts).

6.4 Storage

- Care and correct storage of the TXP lifting point maintains its quality and functionality.
- Therefore, check the TXP lifting points after every use (see section 6 Inspection / Repair / Disposal).
- Keep your TXP lifting points clean, dry and well ventilated and keep out of direct sunlight and away from chemicals.
- TXP lifting points may only be exposed to a temperature range of -40 °C to +100 °C.

6.5 Cleaning

When cleaning dirty TXP lifting points, note the following:

- Only clean the TXP round slings with water, if necessary in combination with a mild cleaning agent.
- Do not use acids or alkalis!
- Dry the TXP round slings before further use and storage in well ventilated rooms, without equipment and not in direct sunlight.
- Do not use sources of heat when drying.
- Do not wash out the grease filling in the TXP ball bearing.

6.6 Repair

Some TXP lifting points can be repaired.

However, for economic reasons it is not possible to repair the TXP round slings. During repair, a new TXP round sling with a new suspension ring has to be fitted.

TXP round slings that cannot be repaired must no longer be used and must immediately be discarded.

Repairs may only be carried out by an expert at RUD or by a specialist company authorised by RUD who have the required skills and expertise.

Use only original RUD replacement parts and enter the repairs carried out in the chain index card (of the complete lifting means) and use the AYE-D.NET system.

6.7 RUD BLUE-ID SYSTEM

6.7.1 General information

The RUD BLUE-ID SYSTEM offers a convenient overall solution for checking operating equipment.

RUD ID-POINT® RFID transponders with a uniquely allocated identification number are press-fitted as standard in defined RUD products. In addition, RUD offers you numerous possibilities to retrofit components safely and permanently with an RUD our transponders. This allows the simple, non-mix-up and legally certain identification of components.

In addition, the cloud-based software solution AYE-D.NET offers the simplest documentation and management of the test data. As a combination of testing, administration and documentation software, AYE-D.NET facilitates numerous possibilities in testing administration and subsequent processes.

6.7.2 Batch designation

The four batch designations are affixed to the following locations of the TXP lifting point (see *Fig. 14*). These four batch designations are stored in AYE-D. NET.

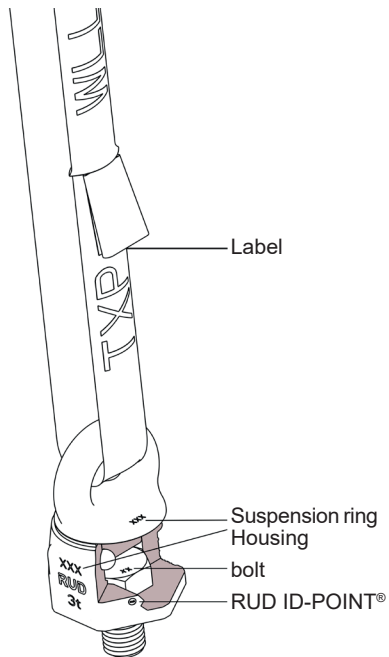


Fig. 14: Batch position

6.8 Disposal

Dispose of the discarded components / accessories or packaging in line with local regulations.

TXP round slings can be disposed of in domestic waste, provided the fabric is not contaminated by oils, fuels, etc. If the fabric is dirty as a result of chemicals, the TXP round slings must be disposed of as special waste.

7 Tables/Overviews

Attachment type										
Number of strands	1	1	2	2	2	2	2	3 / 4*	3 / 4*	3 / 4*
Angle of inclination α	0°-7°	90°	0°-7°	90°	0-45°	>45-60°	Asymm.	0-45°	>45-60°	Asymm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
Safety factor 4:1	For max. total load weight in tonnes, tightly bolted									
TXP-1.3 t M16	1.3	1.3	2.6	2.6	1.82	1.3	1.3	2.73	1.95	1.3
TXP-2.0 t M20	2	2	4	4	2.8	2	2	4.25	3	2
TXP-3.0 t M24	3	3	6	6	4.25	3	3	6.3	4.5	3
If there is one or two parallel lifting strands,					Angles of less than 15° should be avoided if possible (risk of load instability) if using two, three and four-strand lifting means. to be vertical up to maximum $\pm 7^\circ$.					

Table 2: WLL



NOTE

* Note: The values stated for 3-/4-strand only apply if steps have been taken to ensure that the loads is distributed evenly on more than 2 strands. Otherwise the 2-strand values should be used (see DGVV regulations 109-017).



CAUTION

Pay special attention during use, that the load type will not be changed.

Applications 90° to the bolt-in axis (transverse to the load ring plane of the suspension ring)	Applications 90° to the bolt-in axis (in the load ring plane of the suspension ring)	Vertical WLL

Table 3: Loading directions

	WLL [t]			SF **	Ref.-no.	B [mm]	T [mm]	Thread M	F [mm]	X [mm]	(Vario) bolt-in length F [mm]	A [mm]	D [mm]	E [mm]	G [mm]	H [mm]	Material	Torque moment [Nm]	Weight [kg/pcs.]	VPE [pcs.]
	X	Y	Z																	
TXP 1.3 t	1.3	4:1	7911575	500	560	M16	25	0	un-changeable	Approx. 35	48	41	62	8	PES / LCP / Metal	150	0.82	4		
			7911576	1000	1060												1.06	4		
			8600662	500 or 1000	560 or 1060	according to customer request	¹ M16 Vario	16-180	0	according to customer request	*	cor-resp. design								
							M16 x 1.5 Vario	16-70												
					5/8" - 11 UNC Vario	16-29														
						49-180	28													
TXP 2 t	2	4:1	7911569	500	580	M20	34	0	un-changeable	Approx. 35	62	55	84	10	PES / LCP / Metal	240	1.56	4		
			7911570	1000	1080												1.795	4		
			8600663	500 or 1000	580 or 1080	according to customer request	¹ M20 Vario	20-223	0	according to customer request	*	cor-resp. design								
							M20 x 1.5 Vario	20-88												
							¹ M22 Vario	22-94												
							3/4" - 10 UNC Vario	19-29												
					3/4" - 16 UNF Vario	56-222	30													
						19-66	0													
TXP 3 t	3	4:1	7911556	500	600	M24	36	0	un-changeable	Approx. 35	81	70	97	12	PES / LCP / Metal	350	2.6	4		
			7911557	1000	1100												2.9	4		
			8600664	500 or 1000	600 or 1100	according to customer request	¹ M24 Vario	24-257	0	according to customer request	*	cor-resp. design								
							M24 x 1.5 Vario	24-97												
							M24 x 2 Vario	24-42												
							¹ M27 Vario	27-92												
					1" - 8 UNC Vario	25-76	31													
						77-246														

Table 4: Size table

Subject to technical modifications

¹ with nut and washer possible

* Weight depending on design

** SF: Safety factor = Ratio of minimum breaking force to admissible WLL

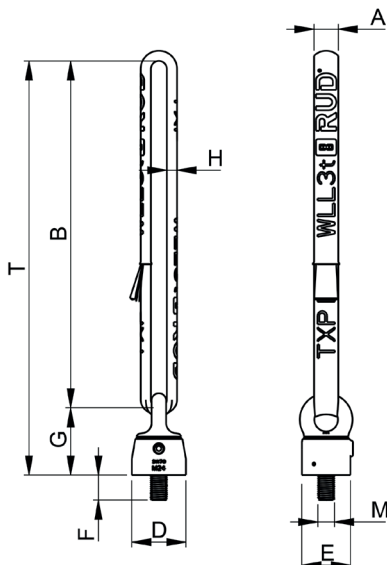


Fig. 15: Dimensional drawing

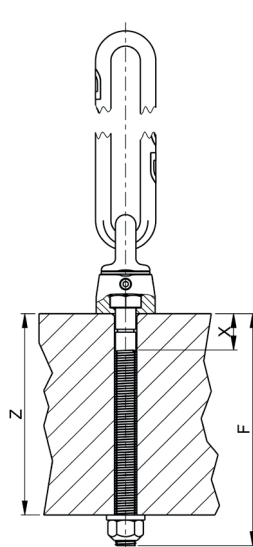


Fig. 16: Thread length Fvario

Z Panel thickness

X without thread

F bolt-in length / Vario

Example of the calculation of the required **thread length Fvario**:

- Panel thickness: Z = 50 mm
- Through hole fixture for M 20 bolt,
- Length/height of the nuts 20 mm,
- Thickness of the washer 3 mm, plus bolt protrusion 5 mm (2 x gradient).
- bolt-in length: F=50+20+3+5=78 mm
- Order details: TXP-2.0t M20 x 78
Item no. 8600663 + information about the desired round sling length B (0.5 m or 1 m)