Clamp plate

AKZ 460

Operating instruction

Typ / Type	AKZ 460	Serial-No.	
Gewicht / Weight / Poids:		14 kg	
Max Zugkraft / Max tension load / Force de traction maximale:			134 kN

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EG-Konformitätserklärung / *Déclaration de conformité CE* / EC declaration of conformity

Wir / *Nous* / We

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erklären hiermit, dass die Maschine /
déclarons par la présente que la machine
hereby declare that the device

CE

Klemmplatte / *mordache* / clamp plate AKZ 460

in seiner Konzipierung und Bauart sowie in den von uns in Verkehr gebrachten Ausführungen den grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinie Maschinen entsprechen. Bei nicht bestimmungsgemässer Verwendung, sowie bei nicht von uns freigegebenen Umbauten oder Änderungen, verliert diese Erklärung ihre Gültigkeit. Zudem verliert diese Konformitätserklärung ihre Gültigkeit, wenn die Bestimmungen der Betriebs- und Instandhaltungsanleitung nicht befolgt oder missachtet werden.

satisfait aux exigences fondamentales de la directive machines CE en matière de sécurité et de santé, tant du point de vue de sa conception et de sa construction que pour toutes les versions que nous avons mises sur le marché. En cas d'utilisation non conforme ou de modification ou transformation non approuvées par nous, cette déclaration perd sa validité. Cette déclaration perd également sa validité en cas de non-respect des instructions d'utilisation et de maintenance.

conforms to the health and safety requirements of the EC Machinery Directives in its conception and design, as well as in the version placed on the market by us. In the event of improper use, as well as modifications or changes which are unauthorised by us, this statement loses its validity. This declaration of conformity also loses its validity if the relevant user guide and maintenance manual are not followed or are violated.

Zutreffende EG-Richtlinie:	Maschinen 2006/42/EG, Anhang II A
Directive CE concernée:	*Machine 2006/42/CE, Annexe II, chapitre A*
Applicable EC directives:	Machinery 2006/42/EC, Annex II., sub. A

Geschäftsleitung / *direction* / management

R Zurbrügg

Reto Zurbrügg

1. General

1.1. Scope of application of the clamp plate

The clamp plate is to be used for temporary rope tensioning, not for permanent installations.

The clamp plate is designed for pulling ropes. It is designed for use on steel cables with cable diameters according table (see table Pt 4) and for associated tension forces (see table Pt 4). The clamp plate was specifically developed for use in ropeways and cable rigging work. Preferably, the clamp plate is to be used for tension (attached rollers for this purpose). However, a use with share loads is also possible under certain conditions. The company *Zurbrügg Seilbahnen und Montagen GmbH* is at your disposal if you have questions about specific applications.

1.2. Scope of this guide

These operating instructions are limited exclusively to the parts supplied by *Zurbrügg Seilbahnen und Montagen GmbH*. These instructions were issued at the time of delivery of the clamp. Subsequent modifications that require changes in terms of operation and maintenance will be supplemented and adapted if implemented by *Zurbrügg Seilbahnen und Montagen GmbH*. For modifications by third parties, these operating instructions may no longer apply and the company *Zurbrügg Seilbahnen und Montagen GmbH* declines responsibility in such a case. Possible later findings by further development of the technology, experiences from other similar applications or by other application than originally intended are not taken into account and are not automatically supplemented in this manual.

These operating instructions were established according to the latest state of the art and knowledge of the technology at the time of commissioning the product. New regulations and instructions from supervisory authorities, new safety regulations and site-specific work regulations may supplement or contradict these instructions. In this case, the official requirements have priority. In case of doubt, please contact *Zurbrügg Seilbahnen und Montagen GmbH*.

1.3. Caution and prohibition note

In order to avoid dangers and damage when using the clamp plate, the following prohibitions or restrictions apply. Caution signs for special attention:

Caution : possible danger to man and machine

Prohibition: sure danger for man and machine

1.4. Risk

The operation of the clamp plate and the stay around the clamp plate and the equipment around it, especially in the vicinity of the moving mechanical components and the ropes, carry a residual risk. Although, all safety-relevant and possible precautions have been taken according to the machine guidelines to minimize the risk of handling the clamp plate, there are still possibilities to be injured or killed. It is therefore essential to observe these operating instructions and to comply with the necessary occupational safety precautions. If you have any questions, please contact *Zurbrügg Seilbahnen und Montagen GmbH*.

The owner of the clamp plate is responsible for its safe use. He is responsible for the proper maintenance and inspection, as well as compliance with the operation and maintenance described here and compliance with regulations, recommendations and laws on the use of the clamp plate.

The clamp plate should only be used for temporary rigging works, not for permanent installations.

1.5. Security

- **In addition to the operating instructions and the binding regulations for accident prevention applicable in the country and the point of use, the recognized technical rules for safety and professional work must also be observed.**

- **The stay under the rope held with the clamp plate and under tension is expressly prohibited and can be life-threatening.**

- It is absolutely forbidden to operate unattended the traction system connected to the clamp plate.

- Third parties involved are to be inform about the behaviour with the equipment or kept away if necessary.

- It is absolutely forbidden to reach into the ropes or into the clamp plate during the cable pull.

- Maintenance work may only be carried out when the clamp plate is removed from tensioning installation.

- Possible danger areas around the clamp plate must be blocked or signposted for unauthorized persons.

- The clamp plate must be mounted as far as possible in such a way that it does not lie or penetrate in the ground or other roughly soiled places.

1.6. Expertise

The furnishing and use, respectively operation of the clamp plate with associated machines and devices may only be performed by knowledgeable persons. They must be familiar with these operating instructions and the other associated machines and comply with the prescribed safety instructions. They must know how to handle ropes and their load limits and application restrictions. In case of uncertainty and questions, the specialists of *Zurbrügg Seilbahnen und Montagen GmbH* will be glad to assist you.

2. Preparation

2.1. Condition control of the clamp plate

Before using the clamp plate, the following checks must be carried out:

- Cleanliness of the clamp plate, especially the clamping surface must be clean and grease-free
- Check for damage such as dents, cracks or corrosion
- Screws and nuts must be clean and lightly greased, also the contact surface between nut and pressed-in washer

Bolts and nuts with worn or damaged threads must be replaced.

Worn base washers must be replaced.

- Use the diameter information on the clamp plate and the table in this operation instruction to check whether the rope groove matches the effective rope diameter. If not, the clamp plate must not be used.

If the rope groove does not fit exactly, the tensile force information in the table is not guaranteed. There is immediate danger for man and rope!

3. Application

3.1. Prerequisites

The diameter of the cable groove in the clamp plate must be matched to the cable diameter to be clamped.

With a too large or too small rope groove, the safe transmission of the tensile force from the clamp plate to the rope is not guaranteed!

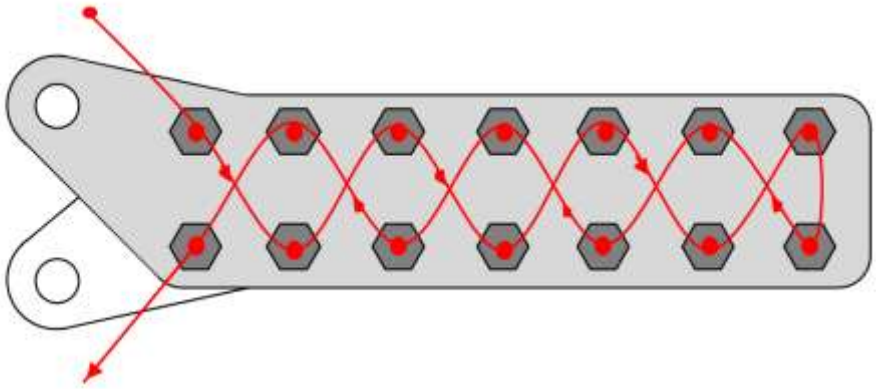
With a too small rope groove there is also the risk of damage to the rope.

The contact surface of the clamp plate with the rope must be clean, grease-free and undamaged.

The rope surface must be clean and absolutely free of grease at the clamping point.

3.2. Mounting the clamp plate

- Disassemble all nuts
- Place the clamp half (screw side) on top of the rope
- Insert clamp plate half (nut side) from below and start tightening nuts lightly
- Tighten nuts according to the following sequence principle to 70 - 80% of the tightening torque according to table Pt 4



- Attach the sling at the shackles

The slings must be dimensioned according to the maximum tensile force!

- Pre-tension the clamp plate with about 50% of the required tensile force
- Tighten nuts to the prescribed torque (according to table Pt 4), (same order as before on pre-tension)

Do not overtighten nuts, risk of damage to clamp plate and rope!

<u>Do not</u> tighten with impact wrench.

3.3. Disassembling the clamp plate

When disassembling, there must be no tensile load on the clamp plate!

Loosen nuts gradually evenly, same sequence principle as when tightening

Individual screws may be overstretched and the clamp plate may be damaged if the nuts are not loosened evenly!

4. Technical tables

4.1. Table for strand ropes (Safety Factor 2 against slipping)

Clamp plate type	Rope groove Ø Nominal [mm]	Rope Ø min [mm]	Rope Ø max [mm]	Surface pressure on rope [N/mm²]	Maximum tensile force [kN]	Tightening torque [Nm]
	17	16.4	17.3	85	**88**	**131**
AKZ 460 (14xM20) *max 134kN* Standard range Ø18-26	**18**	18.4	19.3	85	**93**	**138**
	19	18.4	19.3	85	**98**	**146**
	20	19.4	20.3	85	**103**	**154**
	21	20.4	21.3	85	**109**	**162**
	22	21.4	22.3	85	**114**	**169**
	23	22.4	23.3	85	**119**	**177**
	24	23.4	24.3	85	**124**	**185**
	25	24.4	25.3	85	**129**	**193**
	26	25.4	26.3	85	**134**	**200**

5. Technical Data

Typ	**AKZ 460**

Maximum tensile force in kN	134
Weight in kg	14
Length in mm	460
Width in mm	140
Height in mm	113
Standard diameter range of the rope in mm (smaller rope diameters are possible)	18 - 26
Screw	M20 / 8.8

6. Maintenance

6.1. Maintenance by the user

- The clamp plate must be carefully cleaned after each use and treated with a suitable corrosion protection (preferably oil spray, e.g.WD40)
- The screws and nuts must be checked for damage and wear after each use. They should not lie in the ground or on other areas that are very dirty. If the clamp plate is still dirty, the impurities must be removed

- **Important: It must be ensured that the clamping plate is adequately protected against corrosion at all times (during use, after cleaning and during storage).**

6.2. Maintenance at the manufacturer

The clamp plate must be sent to *Zurbrügg Seilbahnen und Montagen GmbH* for maintenance and control:

- If corrosion is detected on the aluminum parts of the clamp plate
- When the clamp plate has been stressed by impacts and/ or excessive forces
- If the clamp has visible damage (dents, cracks, corrosion)

6.3. Periodic testing

The clamp plate must be checked periodically for cracks. The penetration test according to DIN EN ISO 3452-1 can preferably be carried out at the manufacturer *Zurbrügg Seilbahnen und Montagen GmbH* or be carried out and documented at a local testing centre.

The due date of this test depends on the frequency of use (number of clamping cycles) and the age of the clamping plate:

Number of claming cycles per year	**0-2**	**3-10**	**>10**
1st Periodic testing after:	12 years	10 years	8 years
2 nd Periodic testing after:	18 years	15 years	12 years
3 rd Periodic testing after:	--	18 years	15 years
4th Periodic testing after:	--	--	18 years

7. Lifetime

The calculated service life of a clamp plate is 20 years. The clamp plate must be replaced by a new one at the end of this period.

8. Disposal

The clamp plate must be taken out of service at the end of the calculated service life and disposed of properly. The customary regulations on disponsal must be observed. Remember that protecting the environment and recycling materials benefits us all.

9. Spare and wear parts

Below are the parts of the clamp plate that are mainly affected by wear. These and all other individual parts of the clamping plate can be ordered from the manufacturer *Zurbrügg Seilbahnen und Montagen GmbH*.

Quantity	Designation	Masse / Standard	Item
8	Hex screw M20x95	8.8 / DIN 931	03
			
8	Hex nuts M20	8.8 / ISO 4033	04
			
2	Shackle 3/4"	EN13889-1	06