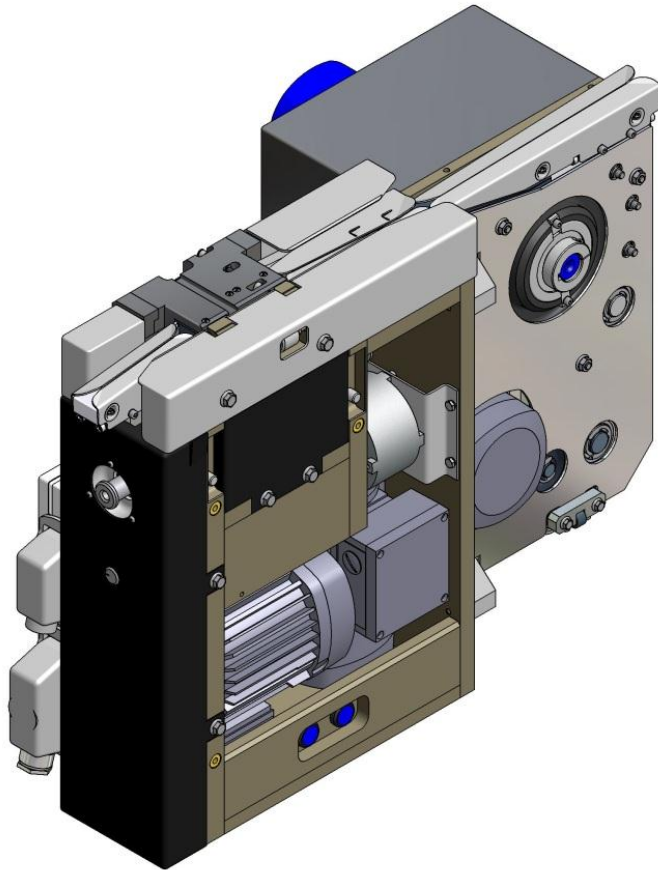


Operating Instructions



T400/2

009002

**Strapping head for
plastic strap**

Important! Please do not throw away these instructions! The customer undertakes to make these operating instructions available and comprehensible to all operating and service personnel.

TITAN [®]
Wir halten zusammen

Table of contents

	Page
1. Manufacturer's data	3
2. General	4
3. Safety instructions	6
4. Phases of life cycle of the strapping unit	8
5. Technical data	12
5.1. Measurements and fitting dimensions T400	13
5.2. Circuit diagram.....	14
6. Components	15
6.1. Tensioning and transport system	16
6.2. Tensioning and transport system	17
6.3. Sealing unit	18
6.4. Sealing unit.....	19
7. Operation / settings	20
7.1. Description of components.....	20
7.2. The push-buttons	21
7.3. Strap insertion.....	22
7.4. Strap width adjustment.....	23
7.5. Feed adjustment	25
7.6. Setting of strap tension	25
8. Maintenance	26
8.1. Cleaning the transport system.....	28
8.2. Checking counter rollers K and replacement, if required	29
8.3. Checking strap guides L and replacement.....	29
8.4. Checking and cleaning tensioning wheel M.....	30
8.5. Checking the setting of tensioning wheel M / rocker / S4	31
8.6. Checking the channel flaps at the strap intake for smooth running and proper function	32
8.7. Checking of strap width adjustment.....	33
8.8. Checking the channel flaps at the strap exit for smooth running and proper function	35
8.9. Checking of the strap width centering piece N and replacement.....	35
8.10. Demounting and cleaning of counter plate O.	36
8.11. Cleaning of corrugated plates on dies Q and weld pad R.....	37
8.12. Demounting and cleaning of die S / checking of idlers T and knife U, replacement if required.....	38
8.13. Checking, cleaning and greasing of guide shafts P, replacement, if required	41
8.14. Checking of weld pad V and replacement.....	41
8.15. Checking of needle bearing W and bolt X and replacement.....	42
8.16. Checking of eccentric shaft Y and ball bearings Z, replacement, if required	42
8.17. Checking the belt of the welding motor and replacement.....	43
9. Trouble shooting and remedy	44

1. Manufacturer's data

TITAN Umreifungstechnik GmbH & Co. KG

Berliner Straße 51 – 55
58332 Schwelm
Deutschland

Tel.: +49 (2336) 808-0
Fax: +49 (2336) 808-208
E-Mail: info@titan-schwelm.de
Web: www.titan-schwelm.de

2. General

**Many thanks for your confidence in the technology of
TITAN Umreifungstechnik GmbH & Co. KG.**

Purchasing the strapping head **T400** means that you acquired an economic and solid product. The operating manual will help you to get familiar with the intended use of the strapping head. The operating instructions comprise important information on how to use the **T400** safely, competently and economically.

Observing the instructions helps to avert danger, to reduce repairs and downtimes and improves the reliability and durability of the strapping head. The operating instructions must be available at the operating site of the strapping head **T400**. All persons working with the strapping head **T400** must read the instructions carefully and observe them at any time.

In particular this work includes operation, trouble-shooting and maintenance.

Explanatory notes on the warning and instruction symbols:



Caution !

Symbol is used in case of hazard to life and health.



Caution !

Symbol is used in case of hazard of material damage.



Caution !

Symbol is used for general instructions and instructions for proper use, which, if ignored, may result operational disorder.

The item numbers and designations mentioned in these operating instructions are relating to the enclosed spare parts list and our electrical documentation.

Copyright © TITAN Umreifungstechnik GmbH & Co.KG 2011 all rights reserved.
The contents of this document must not be duplicated, handed to third parties, published or saved in any form,
neither fully nor partly, without prior written permission by TITAN Umreifungstechnik GmbH & Co.KG.



is a registered trademark of TITAN Umreifungstechnik GmbH & Co.KG.

- ❖ **Intended use**
The strapping head **T400** is designed for installation into different strapping machines. The intended use of the **T400** is the bundling, stacking and securing of packages with plastic strap.

- ❖ The strapping head must be operated in closed, dry rooms only. The admissible ambient temperature for operation of the strapping head is +5°C to +40°C.

- ❖ Any other use beyond this is not considered intended. TITAN Umreifungstechnik GmbH & CO. KG cannot be held liable for risks and damages originating from that.

- ❖ **Unintended use!**
Do not use strapping material for hoisting of loads! The strapping head must only be used as described above under "Intended use".

- ❖ The strapping head **T400** fulfils the German and European safety requirements and conforms to the EC-directives (please refer to the Declaration of Incorporation).

3. Safety instructions



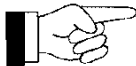
Read the operating instructions before using the strapping head.
Read the instructions carefully.



Unauthorized persons are not allowed to use the strapping head.



All safety instructions and warnings must be strictly observed. In particular we refer to the **EC machine directives**.



Prior to first use of the strapping head the operators must be instructed carefully and made familiar with the handling of the unit.



The strapping head must be operated in closed and dry rooms only.



The admissible ambient temperature for operation of the strapping head is +5°C to +40°C.



Do not place any containers with liquids on top of the strapping head. No liquid must ingress the strapping head.



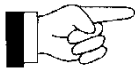
Before starting the operation neither persons nor objects must be in the operating area of the strapping head.



Check protective equipment, covers and sheathing of the strapping head before start. They must neither be loose nor removed.



Do not reach into the strap channel area or under the package during the strapping operation. **Caution: Danger of squeezing.**



Prior to any cleaning and / or trouble shooting the strapping head must be put out of operation and disconnected from the power supply.



Caution!

Strap may tear! Do not stand in alignment to the strap.



Consider the strong noise development during longer operations. Protect your health.



Only use **original TITAN spare parts!** The use of spare parts other than TITAN excludes guarantee adjustments and liability.



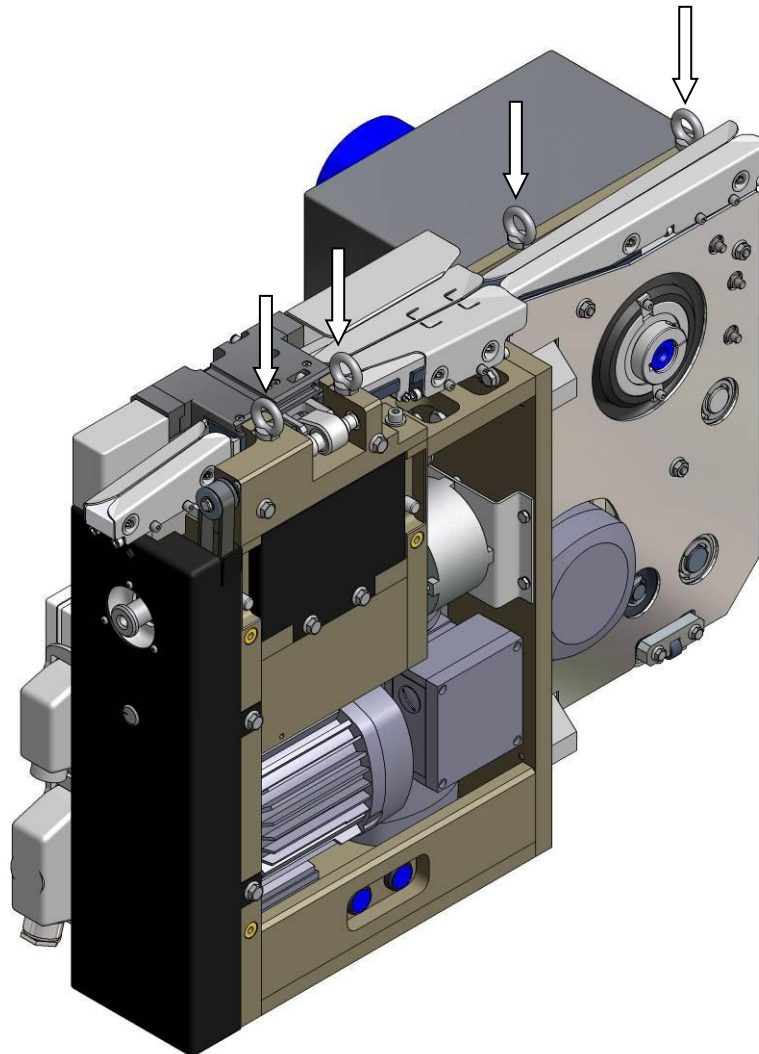
No squeezing points must occur between the infeed equipment (e.g. roller conveyors) and the movable strapping head.



We do not accept any liability for modifications of the strapping head by the customer. Furthermore, our warranty/guarantee and these operating instructions become void.

4. Phases of life cycle of the strapping unit

Transport:

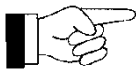


- The strapping head is transported by means of a hoisting gear.
- For carrying the strapping head is provided with threaded holes (see picture). Eye bolts M8 for load pick-up can be screwed into these holes.



Attention!

Do not stand underneath the load during lifting and deposit. Advise persons standing in the danger zone to leave it.
Minimum carrying capacity: 150 kg.

Assembly:

Assembly of the strapping head must be carried out by qualified technical personnel only.

Anchoring / Fixing:

- ❏ For assembly of the strapping head the measurements and fitting dimensions T400 (page 13) are mandatory. All measurements required for assembly of the unit are provided there.
- ❏ The strapping head must be fixed at the provided anchoring points.
- ❏ The way of assembly depends on the type of the strapping head.
- ❏ Before final fixing of the strapping head all transitions at the strap channels must be aligned.

Assembly of the machine:

- ❏ Electrical wiring of the strapping head must be carried out by qualified technical personal. (please refer to the circuit diagram).
- ❏ Laying and connection of supply lines in the control console/cabinet must be carried out by the customer.
- ❏ Cabling and cable connection (strapping head – control console/cabinet) in accordance with the circuit diagram.

**Caution!**

Danger of squeezing when assembling the strapping head.

**Attention!**

After complete assembly the strapping head must be checked for proper fixing. All fastening screws must be checked for tightness and re-tightened if required.

Start-up:

The strapping head must be put into service by qualified technical personnel only.

Settings, programming:

Settings and programming of the strapping head must be carried out by qualified technical personnel only.

Operation, modes of operation**Manual mode:**

In manual mode individual actions for testing and trouble-shooting can be performed. Furthermore, the manual mode serves to move the strapping head into its home position.

**Caution!**

Danger of squeezing at the counter plate during touch-control of the cam gear.

Automatic mode:

Automatic processing of all movements.



In automatic mode it must be observed that no squeezing points occur between the indeed equipment (e.g. roller conveyor) and the movable strapping head.

Cleaning, maintenance, repairs:

Maintenance must be carried out by qualified technical personnel only.

**Attention!**

Prior to any maintenance work the strapping head must be disconnected from the power supply.

**Attention!**

Wear protective glasses when cleaning the strapping head with compressed air.

Putting out of service, dismantling:**Caution!**

Danger of squeezing when dismantling and depositing the strapping head.

**Attention!**

Do not stand underneath the load during lifting and deposit. Advise persons standing in the danger zone to leave it.
Minimum carrying capacity: 150 kg.

Waste disposal

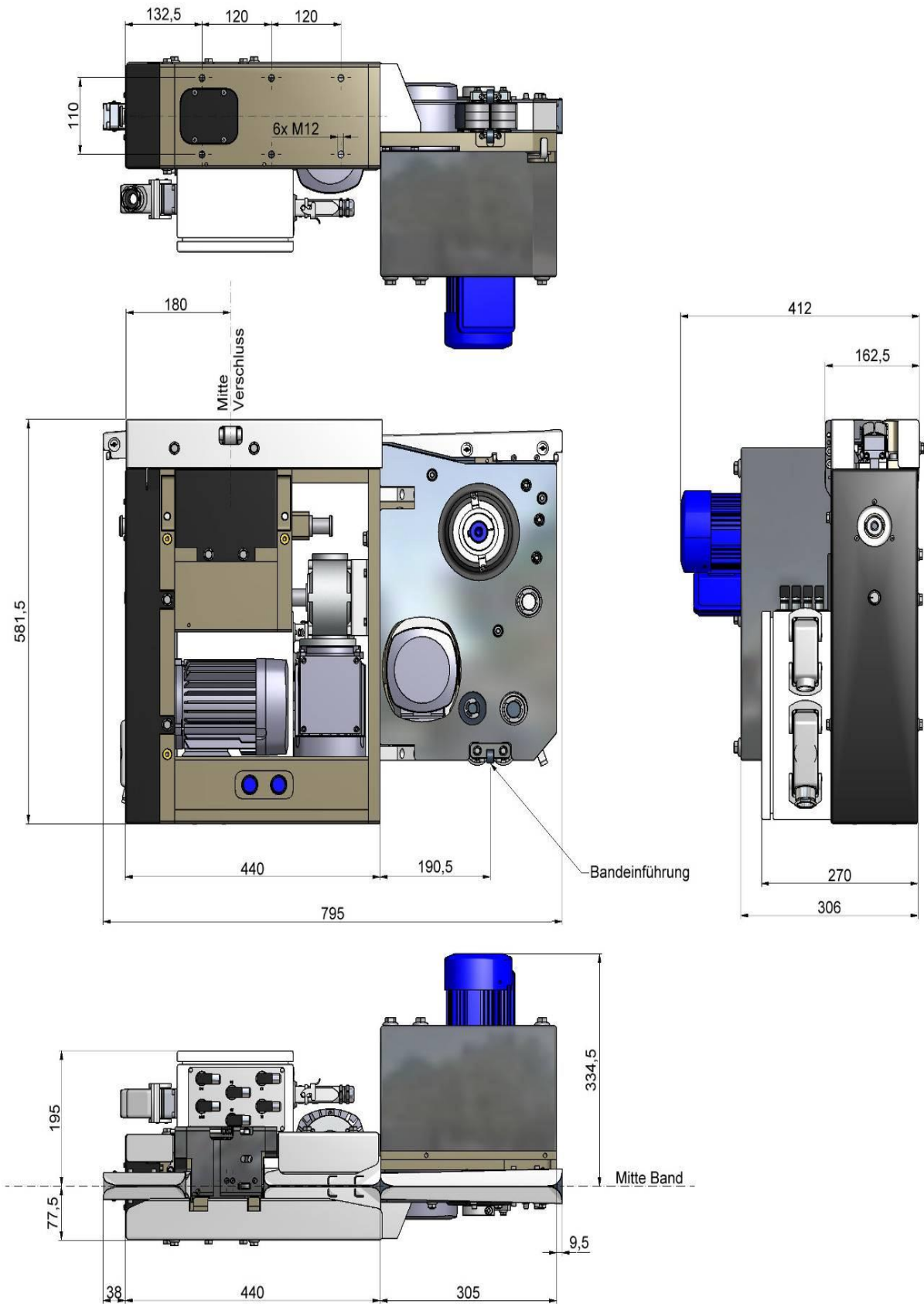
If packaging material must be disposed of, take it to the relevant recycling container.

Should the strapping head have to be disposed of at the end of its service life, separate plastic material, steel and aluminium and dispose of such materials separately. Likewise motors and electrical components such as control unit, switches and cables must be disposed of separately. Take such materials to the appropriate waste disposal.

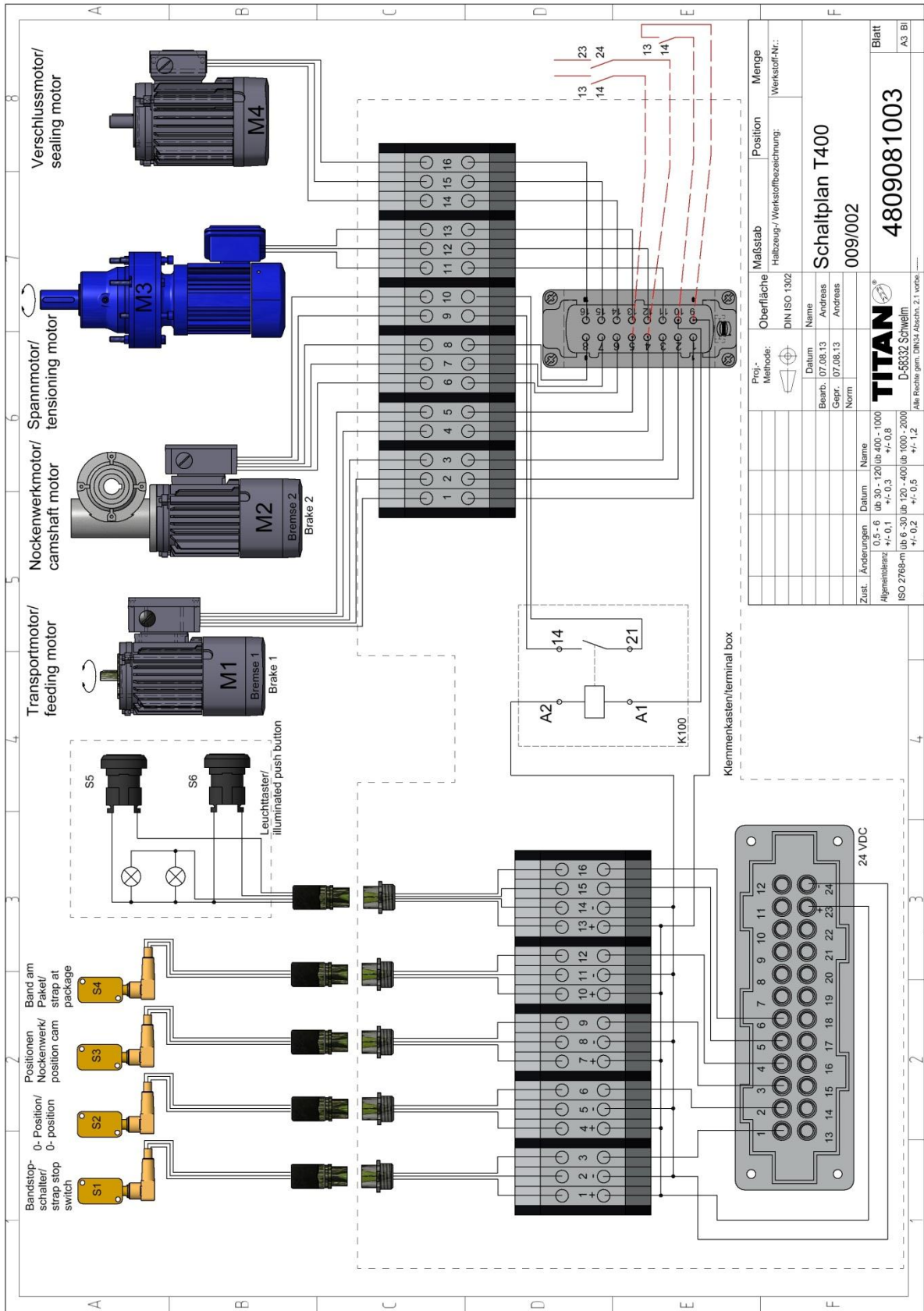
5. Technical data

ⓘ	Strap quality:	PET, quality for automatic units
ⓘ	Strap width:	19, 25 and 32 mm
ⓘ	Strap thickness:	0.9 – 1.4 mm
ⓘ	Strap tensions:	8000 N
ⓘ	Type of joint:	friction weld joint
ⓘ	Weight:	150 kg
ⓘ	Dimensions:	length: approx. 795 mm width: approx. 410 mm height: approx. 585 mm
ⓘ	Type of drive:	4 AC motors
ⓘ	Power supply:	400 V AC, 50 Hz
ⓘ	Control voltage:	24 V DC
ⓘ	Power consumption:	max. 3 A
ⓘ	Control system:	PLC, external
ⓘ	Noise pressure level:	approx. 85 dB(A)

5.1. Measurements and fitting dimensions T400

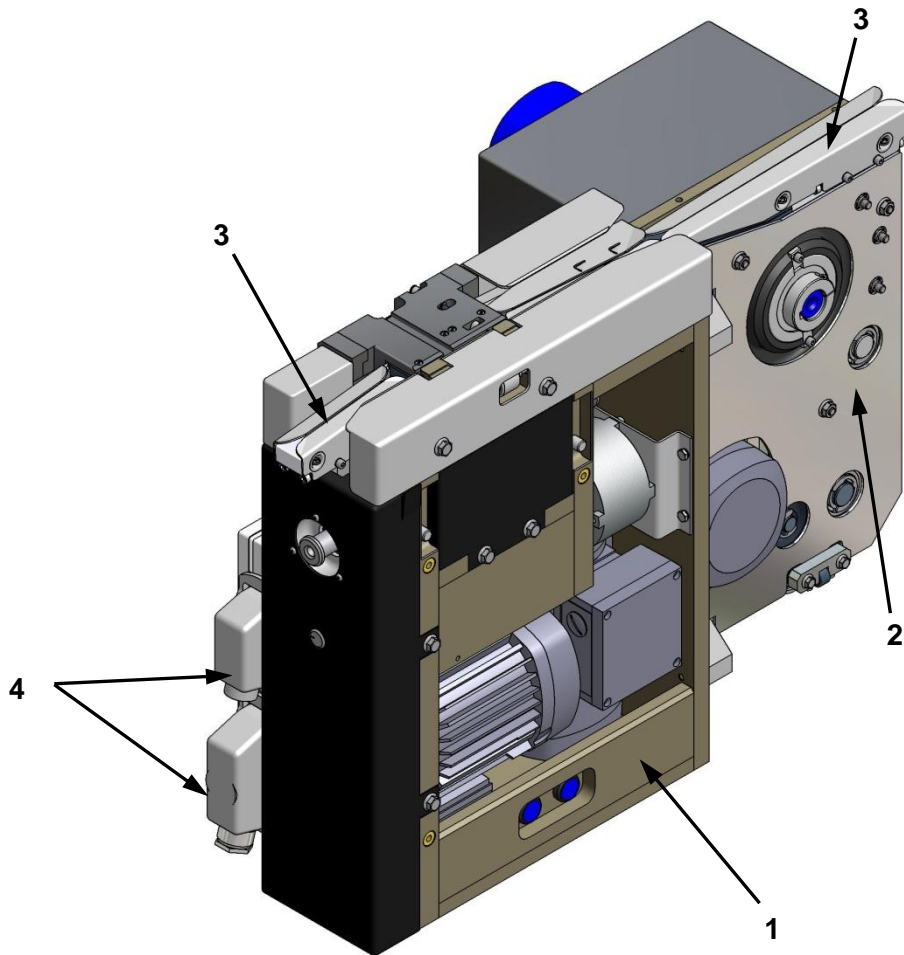


5.2. Circuit diagram



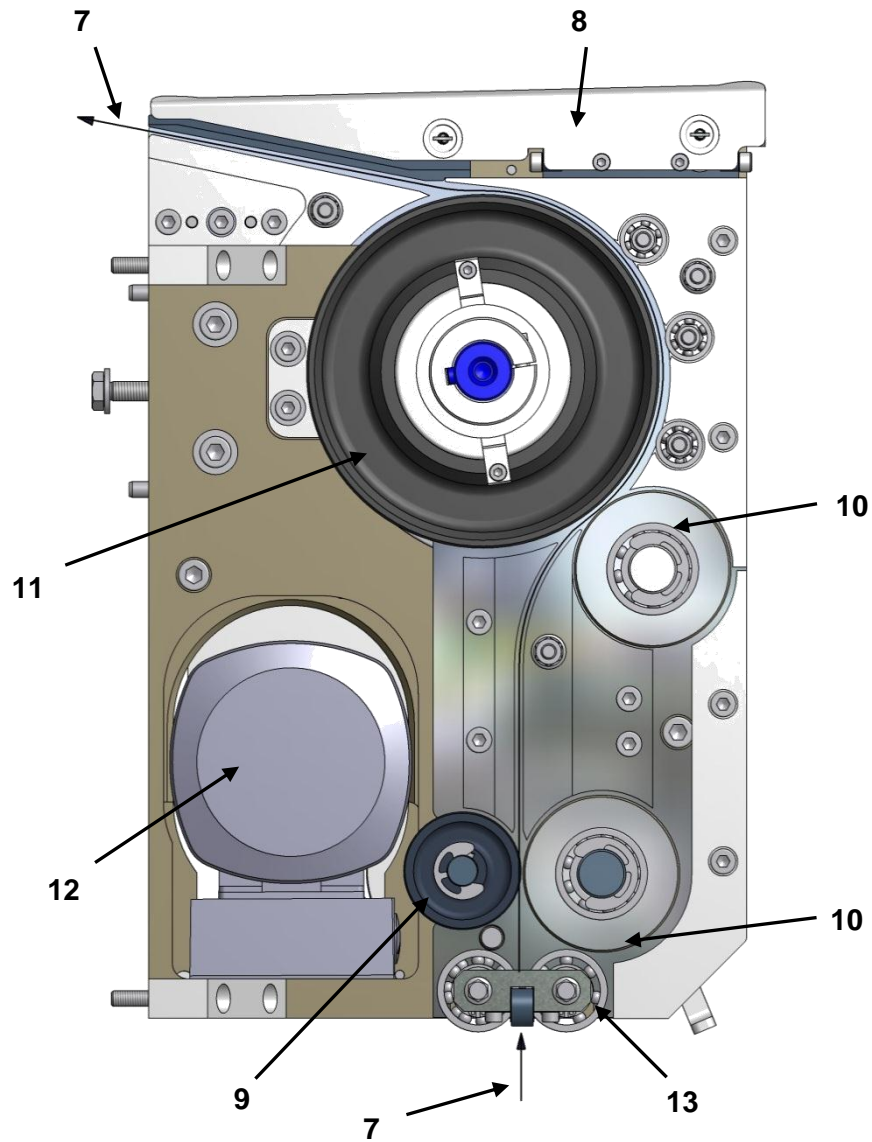
Proj.-Methode:	Oberfläche:	Maßstab:	Position:	Menge:
DIN ISO 1302		Halbzeug-/ Werkstoffbezeichnung:		Werkstoff-Nr.:
		Name:	Schaltplan T400	
Datum:		Adresse:	009/002	
Bearb. 07.08.13		Adresse:		
Gepr. 07.08.13		Norm:		
Zust. Änderungen:	Datum:	Name:	Blatt	
0.5 - 6	ub -30 - 120/ub 400 - 1000		4809081003	
Algemeinblanz:	+/- 0.1	+/- 0.3	A3 BI	
ISO 2768-m	ub 6 - 30 ub 120 - 400/ub 1000 - 2000			
	+/- 0.2	+/- 0.5		
		+/- 1.2		

6. Components



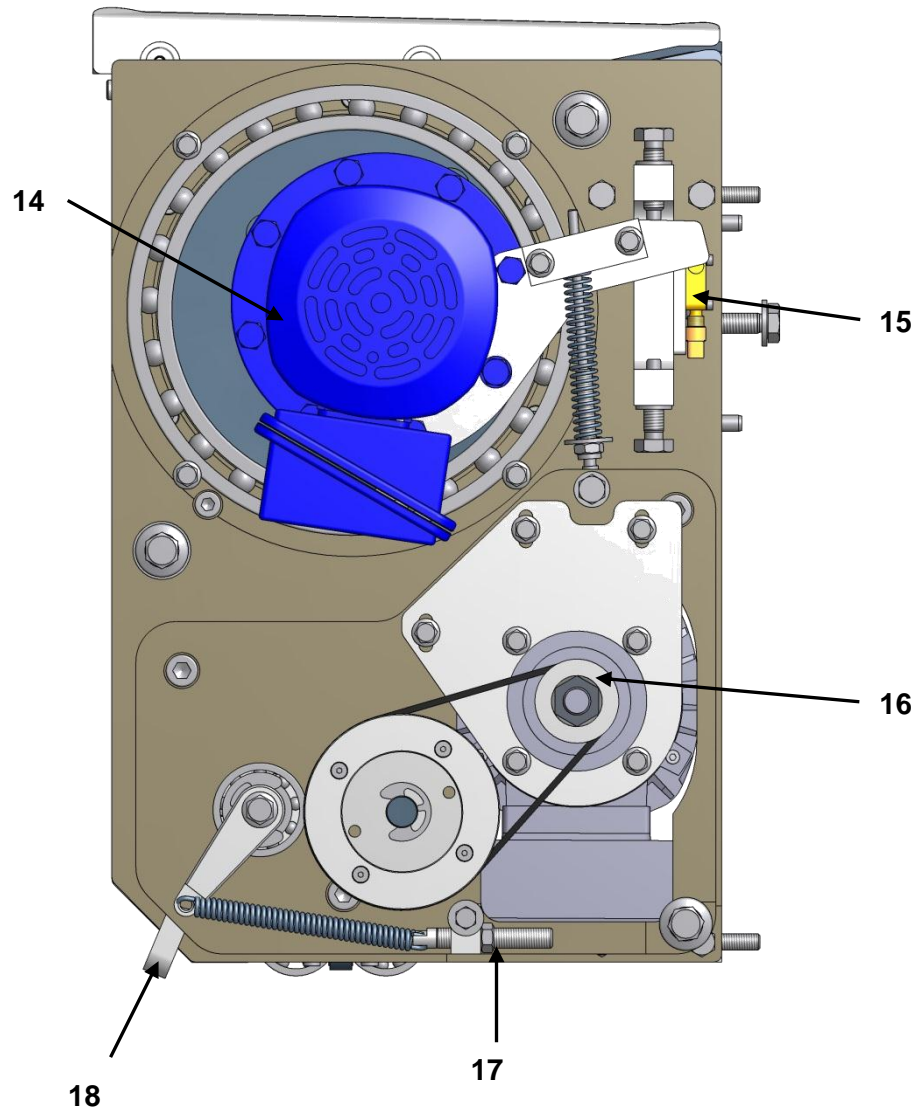
1	Sealing unit
2	Tensioning and transport system
3	Strap guides
4	Plug

6.1. Tensioning and transport system



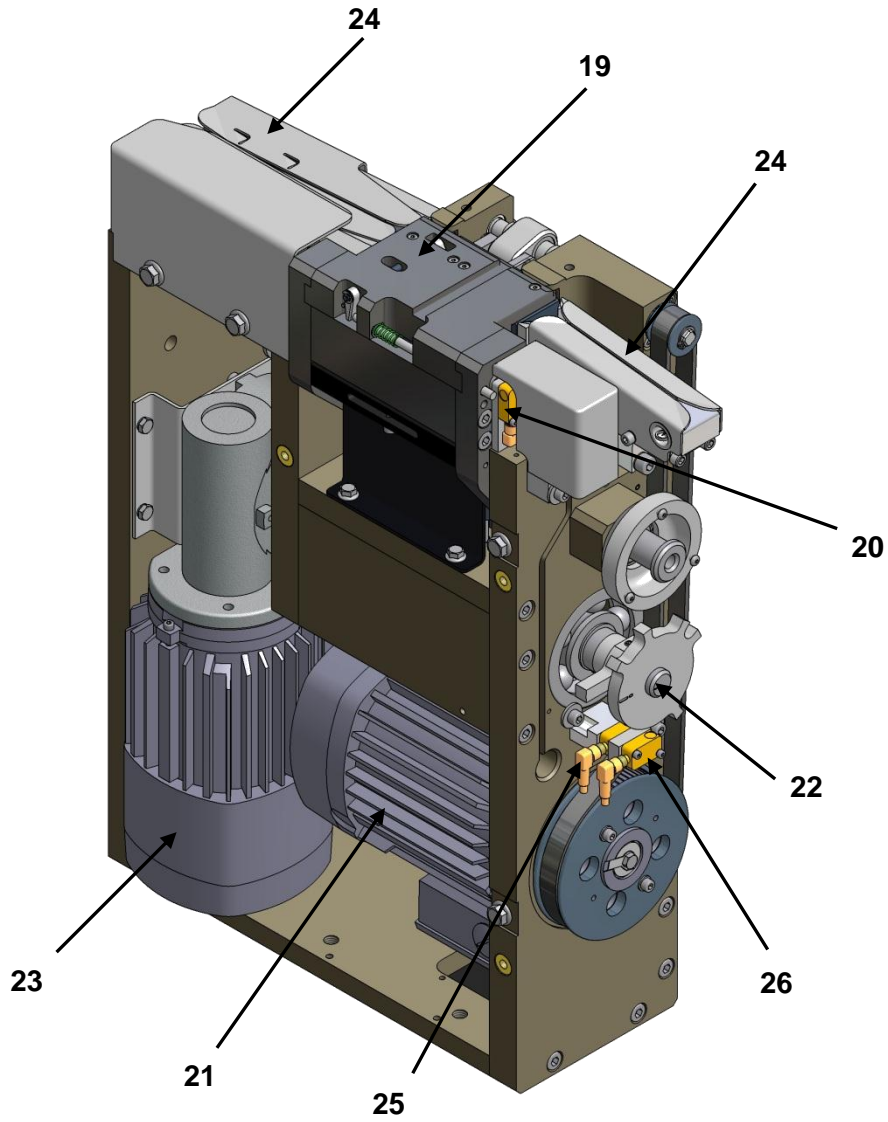
7	Strap feed
8	Strap guide
9	Transport wheel
10	Counter roller
11	Tensioning roller
12	Transport motor
13	Roller guide

6.2. Tensioning and transport system



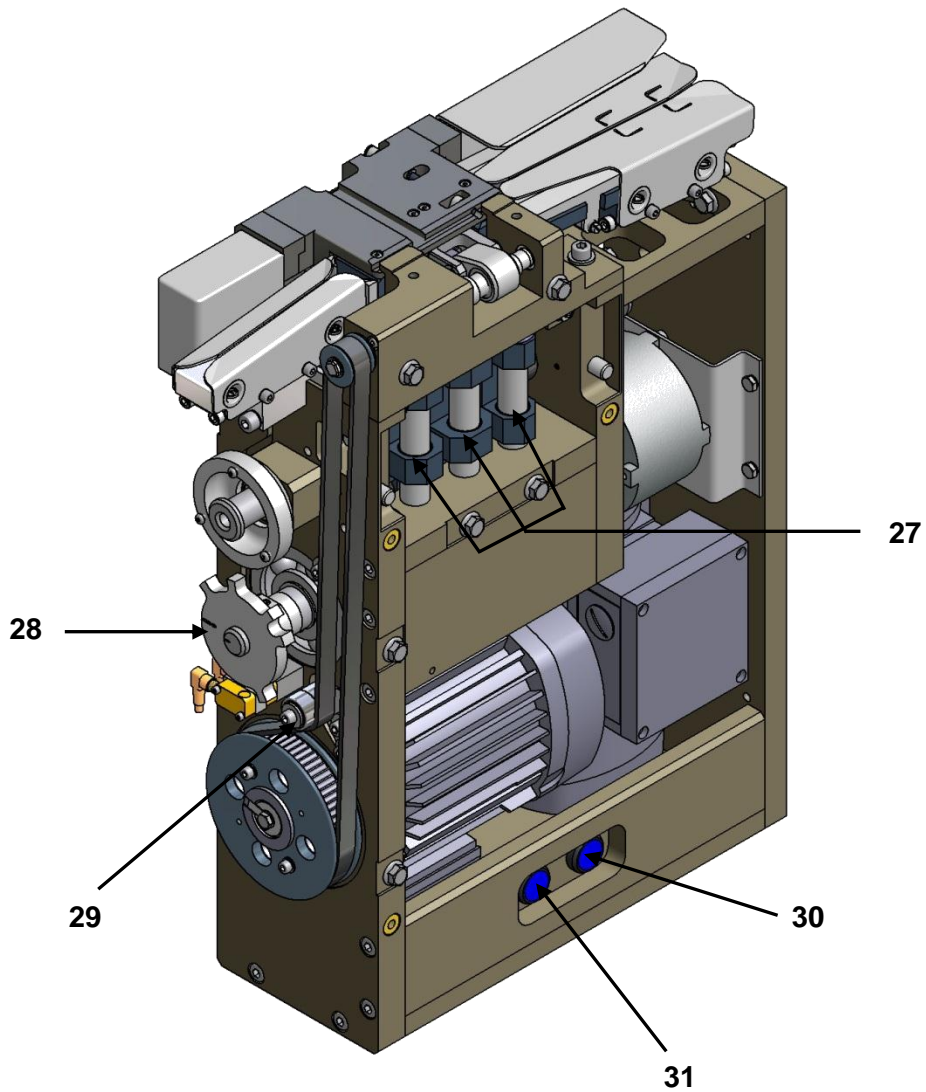
14	Tensioning motor
15	Initiator "strap tensioning"
16	Transport drive
17	Feed adjustment
18	Lifting lever "strap insertion"

6.3. Sealing unit



19	Counter plate
20	Initiator strap stop
21	Sealing motor
22	Cam shaft
23	Cam gear motor
24	Strap guide
25	Initiator "0-position"
26	Initiator position 1 - 5

6.4. Sealing unit



27	Die 1 - 3
28	Positioning disc
29	Belt tensioner
30	Push-button "strap insertion"
31	Push-button "Touch control cam gear"

7. Operation / settings

7.1. Description of components

The T400 consists of the following components:

Tensioning and transport system:

- The tensioning and transport system feeds the strapping material through the strap guide channel around the package and back to the strapping head. There the strap end activates the strap stop switch. During strap retraction the strap is tightened around the package and tensioned in accordance with the preset tension force.

Sealing unit:

- The sealing unit is controlled by the cam gear. The unit clamps the strap ends, cuts the strap and forms the friction weld joint.

Friction welding unit:

- The sealing motor generates the movement of the oscillator which provides the required heat for joint forming. During friction movement the straps are pressed together and thus heat-sealed.

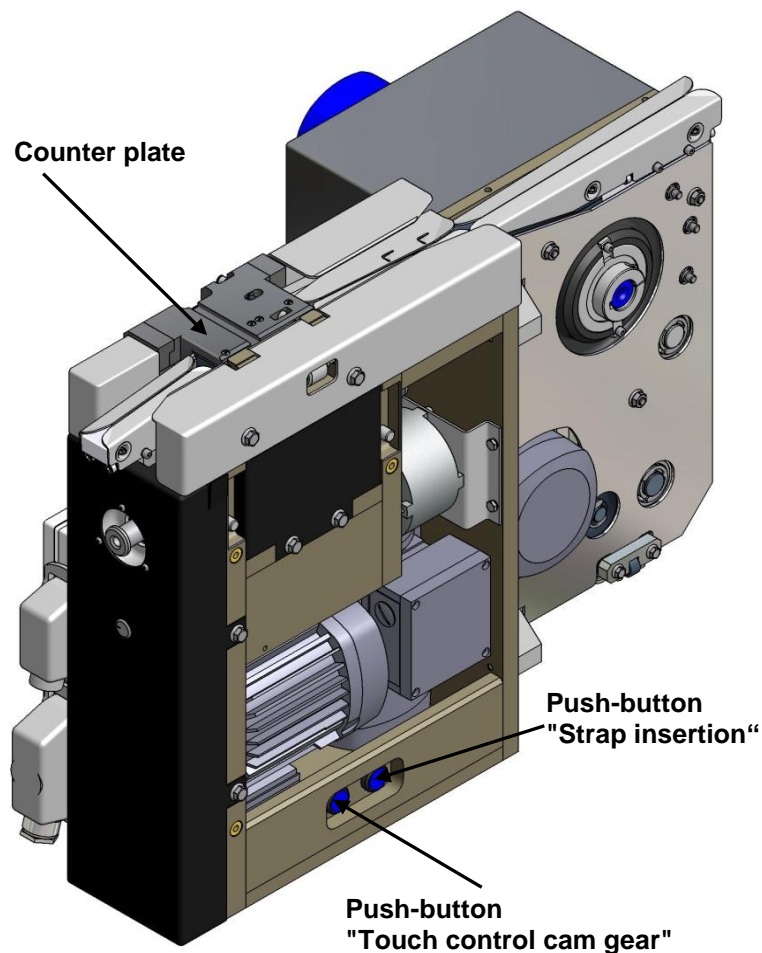
Strap guides:

- The strap guides are the connection between the strapping head and the strap channel which leads the strap around the package.




Prior to any adjustments or settings the strapping head must be put out of operation and disconnected from the power supply.

7.2. The push-buttons



Push-button "Touch control cam gear":

-  The push-button "touch control cam gear" is used for gradual touch control of the cam gear in manual mode. The cam shaft turns to the subsequent position following a touch of the push-button.


Attention! This function depends on the relevant external programming.



Caution!

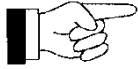
Do not reach into the area of the counter plate during touch control. danger of squeezing.

Push-button "strap insertion":

-  When actuating the push-button "strap insertion" the function relating to the cam gear position is performed. The main function is the manual activation of the strap transport motor for strap insertion.

Attention! This function depends on the relevant external programming.

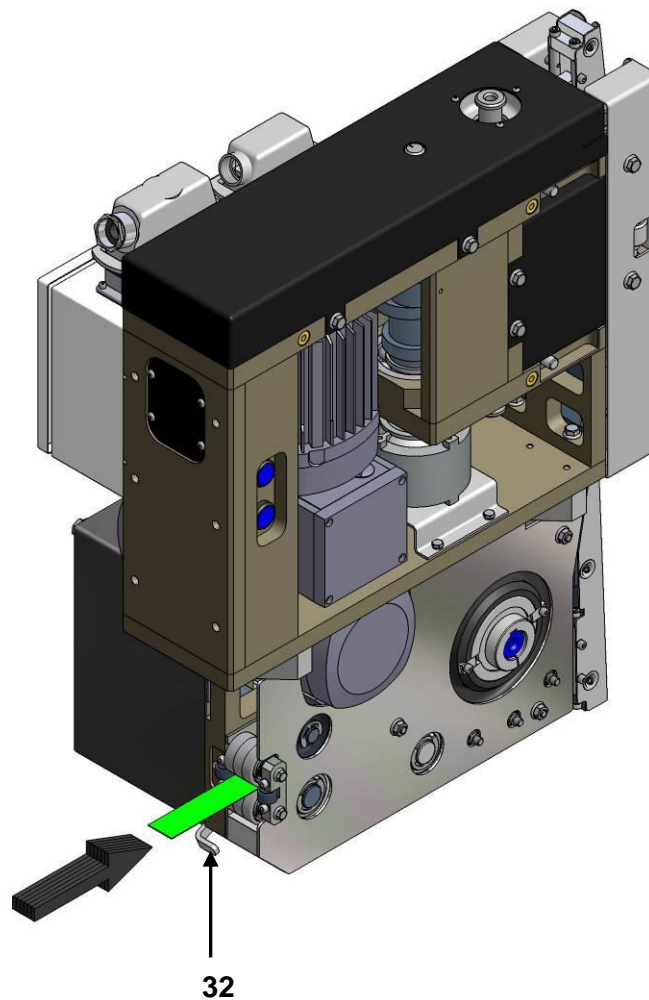
7.3. Strap insertion

**Attention!**

Before insertion of the strap it must be observed that the cam gear is in basic position. This is shown by the fact that the counter plate is closed.

The 3 dies must be in lower position.

- ❑ Actuate lever **32** and simultaneously insert the strap into the strapping head as shown in the picture.
- ❑ The strap is fed in by actuating the push-button "strap insertion".



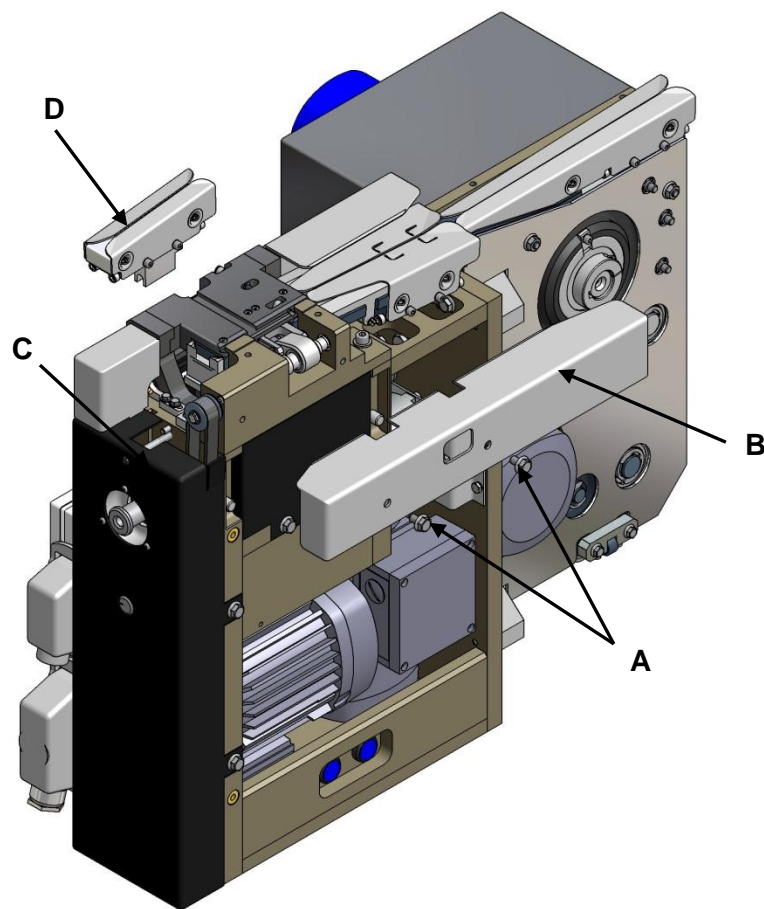
7.4. Strap width adjustment



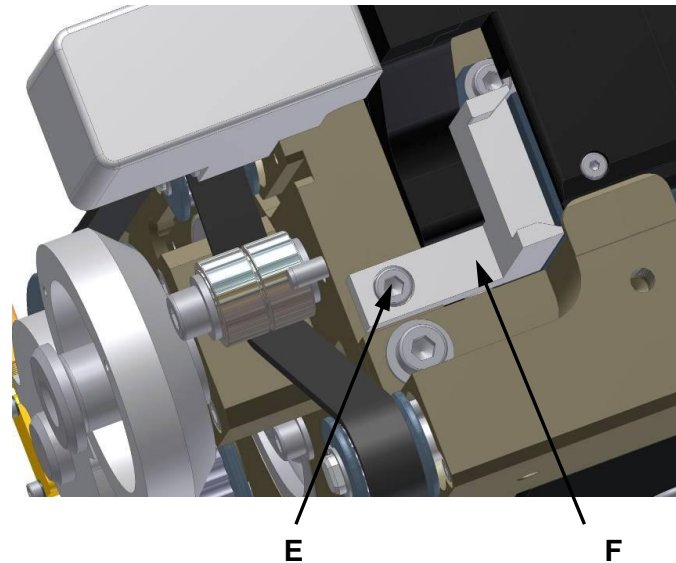
Attention!

Prior to any settings or adjustments the strapping head must be disconnected from the power supply.

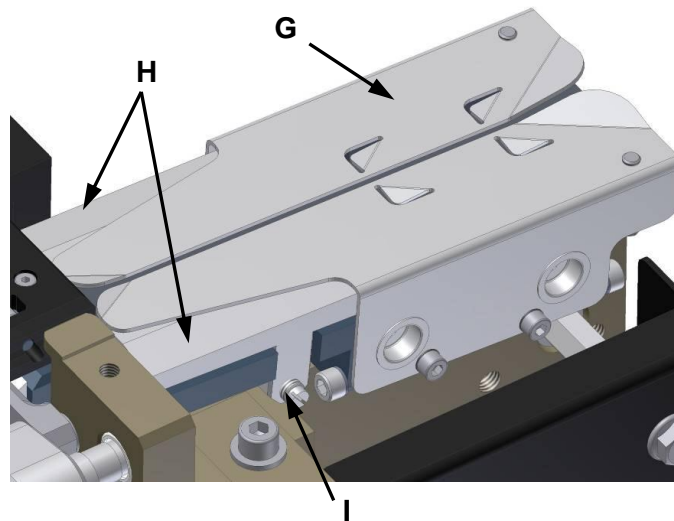
The **T400** strapping head can process strap of 19, 25 and 32 mm width. Therefore it is required to adjust or modify the strapping head according to the respective strap width.



- ⚙️ Unscrew the 2 screws **(A)** and thus remove cover plate **(B)**.
- ⚙️ Unscrew screw **(C)** and remove the exit strap guide **(D)** upward.

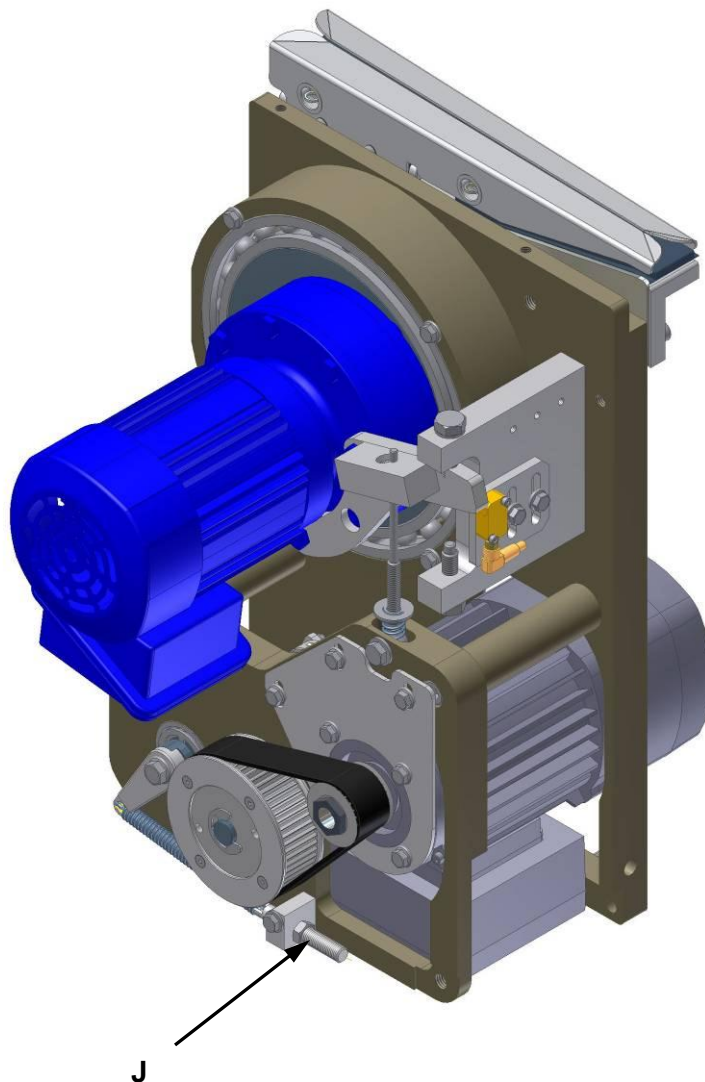


- ⓘ Unscrew screw **(E)** and dismount strap guide **(F)**.
- ⓘ Install the appropriate strap guide for the required width.



- ⓘ The strap width is set at the intake strap guide **(G)** by adjusting the threaded bolt **(I)**.
- ⓘ The strap guides **(H)** must be adjusted so that the strap runs through the center of the strap guide.
- ⓘ Observe smooth running of the strap between the strap guides. The strap must reach the strap stop switch easily.

7.5. Feed adjustment



- ⓘ The feed adjustment (**J**) must be set so that the strap is guided safely through the strap channel.



Caution! Do not reach into the synchronous belt drive when its cover is removed.

7.6. Setting of strap tension

- ⓘ The strap tension is set by means of the external **SPS**.

8. Maintenance



Attention!

Prior to any maintenance work the strapping head must be disconnected from the power supply.

- Regular and careful maintenance of the strapping head **T400** ensures constant readiness for operation.
- Always keep the strapping head clean.
- Keep strap guides and the sealing area free from contamination and foreign matter.



Attention!

All components must be checked in regular intervals and replaced in case of wear. Worn parts impair the joint efficiency and affect the transport safety of the package.

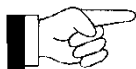


Disregarding these instructions may result in faults and injuries.



Use **original TITAN spare parts only!**

The use of spare parts other than TITAN excludes guarantee adjustments and liability.



Attention!

In order to achieve a high operational availability of the strapping head only use **TITAN strapping material** for automatic units. Only thus optimum package securing and high joint efficiency can be guaranteed.

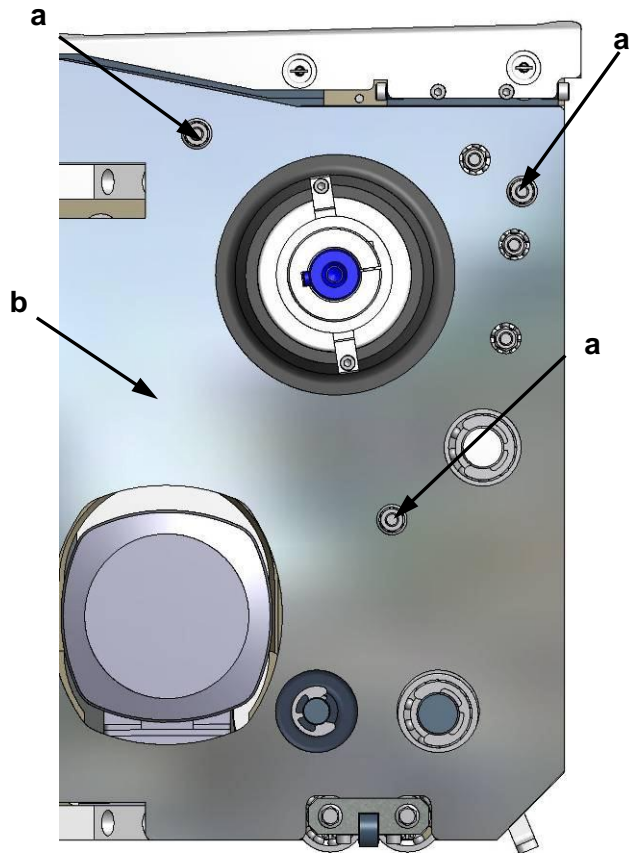


In order to ensure constant readiness for operation we recommend regular maintenance by our service engineers.

Maintenance Schedule T400 head		Maintenance interval		
		50.000 strappings	100.000 strappings	200.000 strappings
8.1	Clean transport system	O		
8.2	Check counter rollers K and replace, if required		O	
8.3	Check strap guides L and replace, if required			O
8.4	Check and clean tensioning wheel M	O		
8.5	Check adjustment of tensioning wheel M / rocker / S4			O
8.6	Check channel flaps at the strap intake for smooth running and proper function	O		
8.7	Check strap width adjustment		O	
8.8	Check channel flap at the strap exit for smooth running and proper function	O		
8.9	Check strap width centering piece N and replace, if required		O	
8.10	Demount and clean counter plate O	O		
8.11	Clean corrugated plates on dies Q and weld pad R	O		
8.12	Demount and clean die S / check idlers T and knife U and replace, if required			O
8.13	Check, clean and grease guide shafts P and replace, if required			O
8.14	Check weld pad V and replace, if required			O
8.15	Check needle bearing W and bolt X and replace, if required			O
8.16	Check eccentric shaft Y and ball bearings Z and replace, if required			O
8.17	Check belt of welding motor and replace, if required		O	

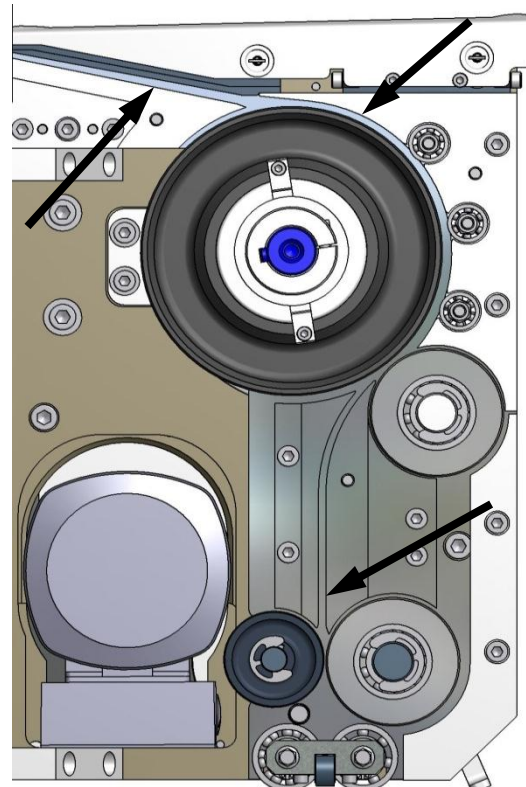
8.1. Cleaning the transport system

Unscrew the 3 fastening screws **(a)** and remove the strap guide plate **(b)** forward.



Remove abraded particles and strap residuals by means of compressed air or vacuum cleaner.

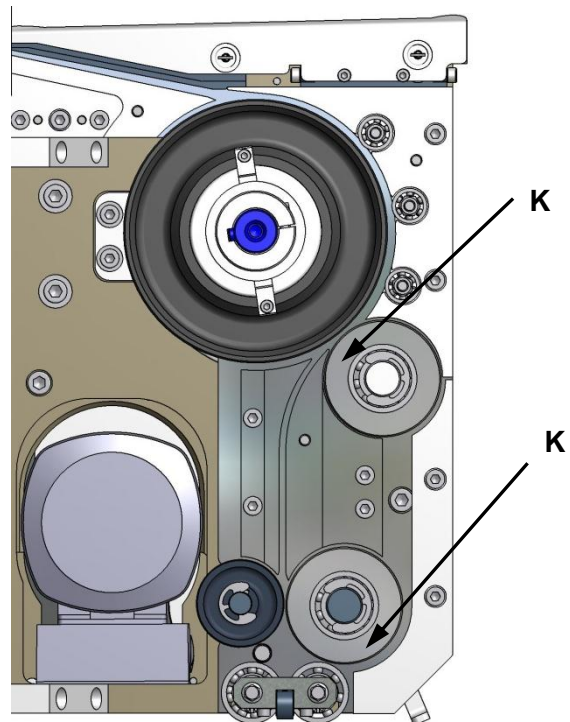
Then remount strap guide plate **(b)**.



8.2. Checking counter rollers **K** and replacement, if required

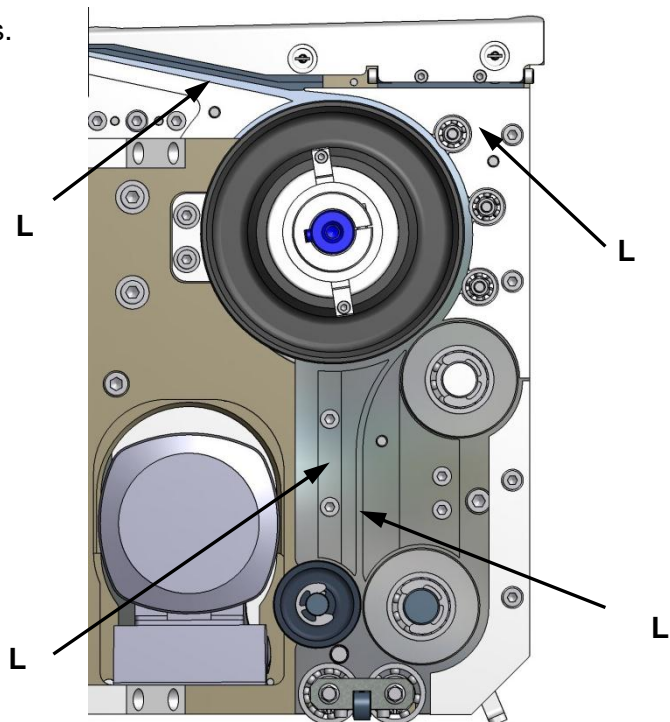
Demount the counter rollers (**K**) by removing the locking rings, clean rollers and check for damages.

Replace, if required.



8.3. Checking strap guides **L** and replacement, if required

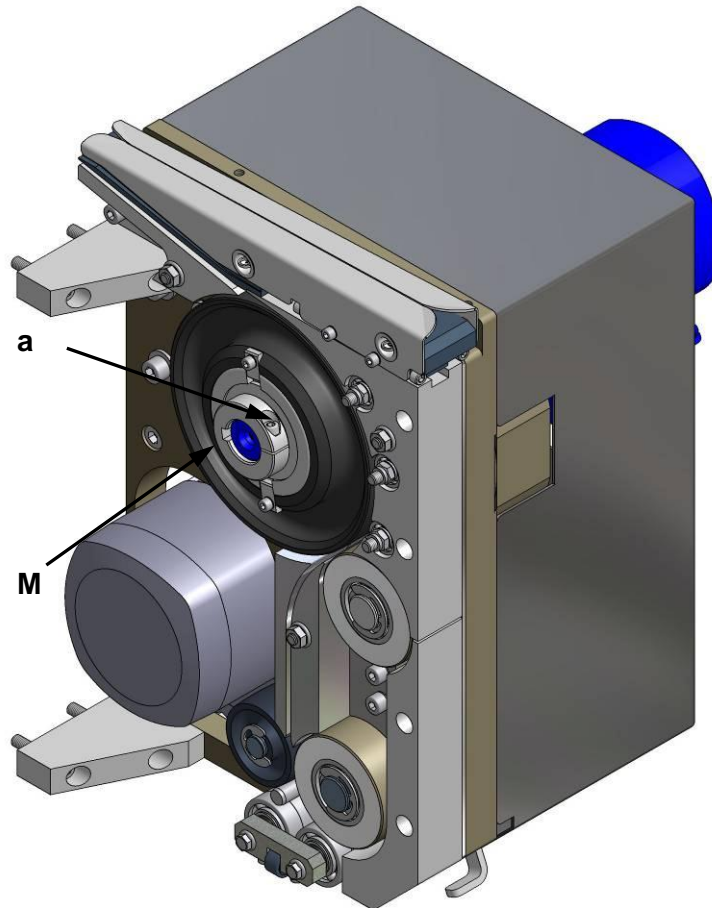
Check strap guides (**L**) for damages.
Replace, if required.



8.4. Checking and cleaning tensioning wheel M

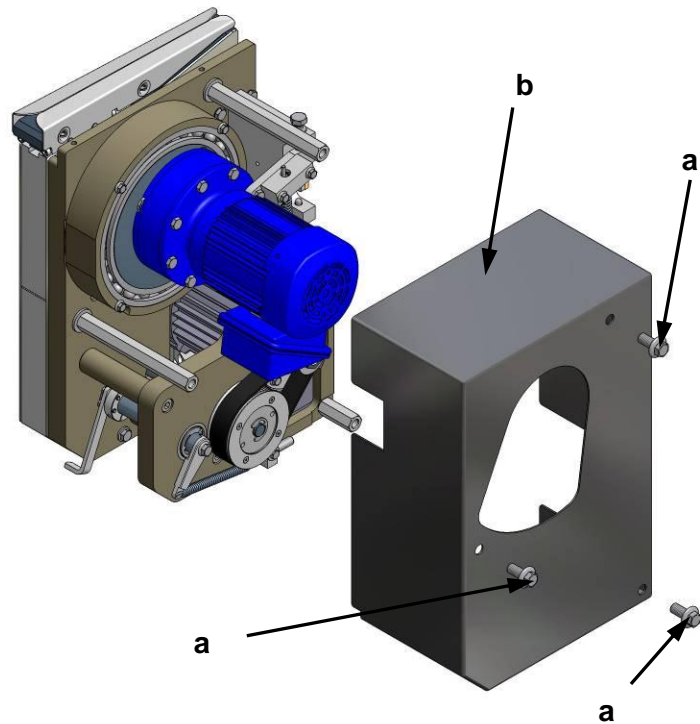
Unscrew screw **(a)** and remove the clamping ring. Then remove the tensioning wheel **(M)** from the tensioning shaft.

Clean and check the tensioning wheel (in particular the gear teeth).

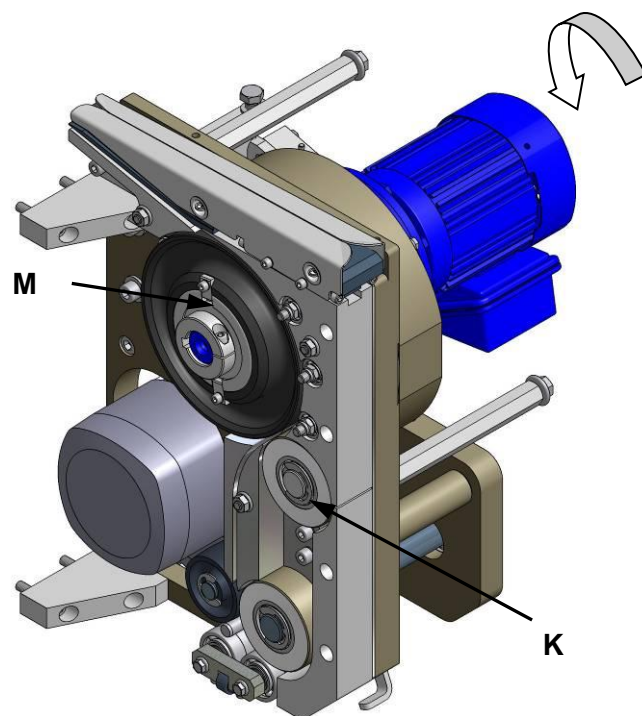


8.5. Checking the setting of tensioning wheel M / rocker / S4

Unscrew screws **(a)** and remove cover **(b)**.

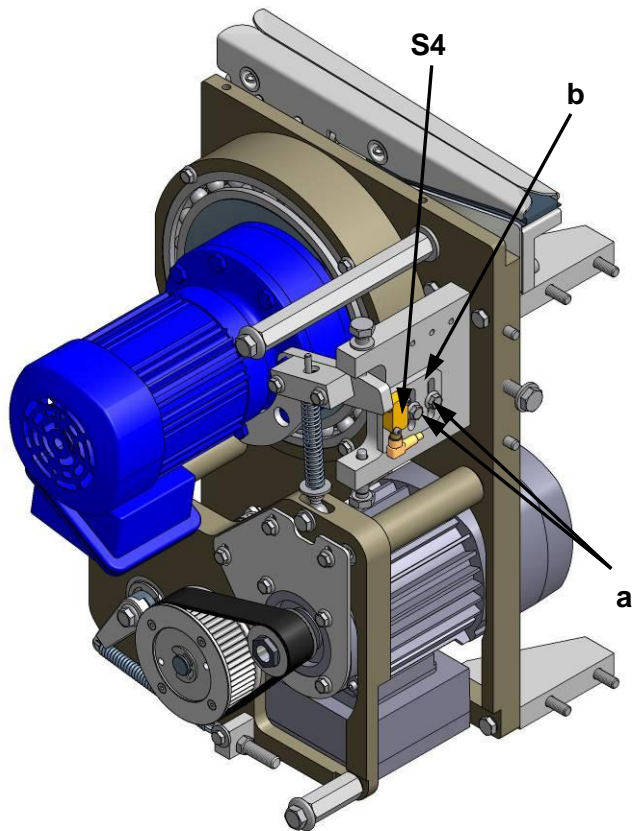


Press tensioning wheel **(M)**, which is supported on the eccentric, manually against the counter roller **(K)** by turning the tensioning motor.



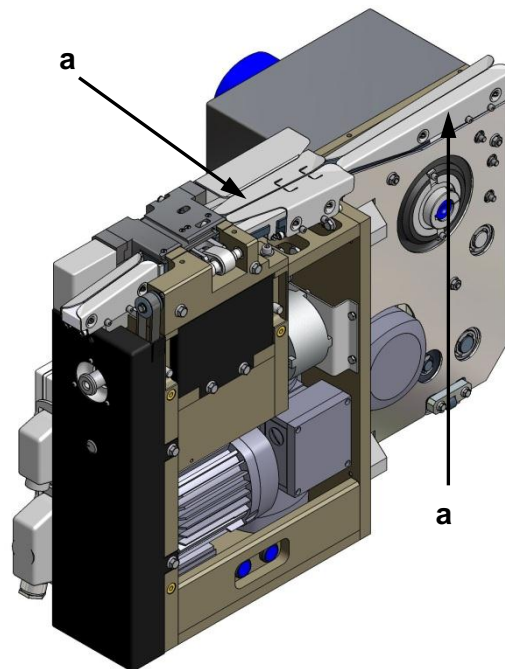
By this movement the switch **(S4)** "strap at package" is actuated (visible at **LED**). If it does not actuate, the switch must be reset accordingly.

Unscrew screws **(a)** and set the switch-point of switch **(S4)** by adjusting the initiator holder **(b)** so that the switch reacts before the final position of the tension wheel is reached.



8.6. Checking the channel flaps at the strap intake for smooth running and proper function

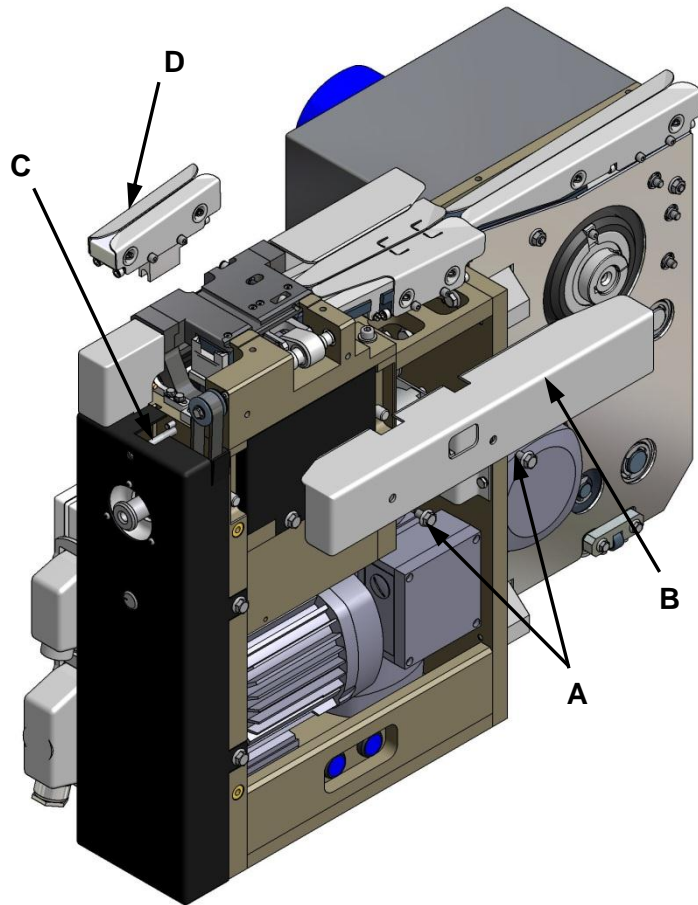
Actuate the channel flaps **(a)** manually and check for smooth running. Clean them by means of compressed air, if required.



8.7. Checking of strap width adjustment

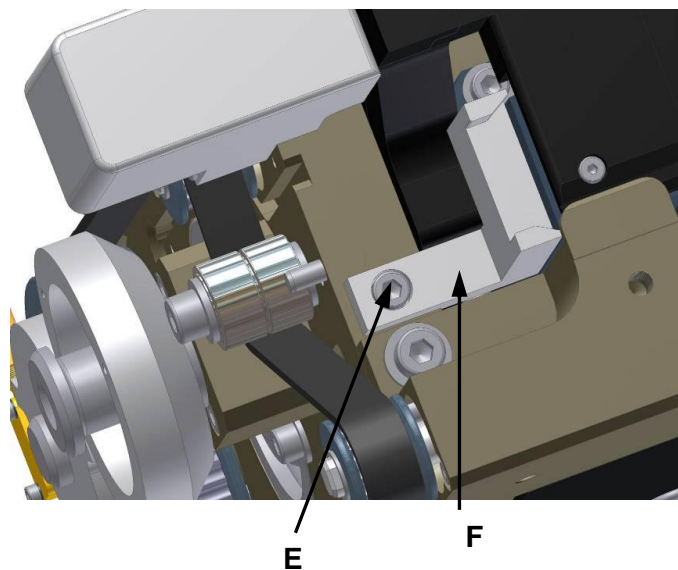
Remove the 2 screws **(A)**
and thus cover plate **(B)**.

Unscrew screw **(C)** and
remove the exit strap guide **(D)**
upward.



Unscrew screw **(E)** and
demount strap guide **(F)**.

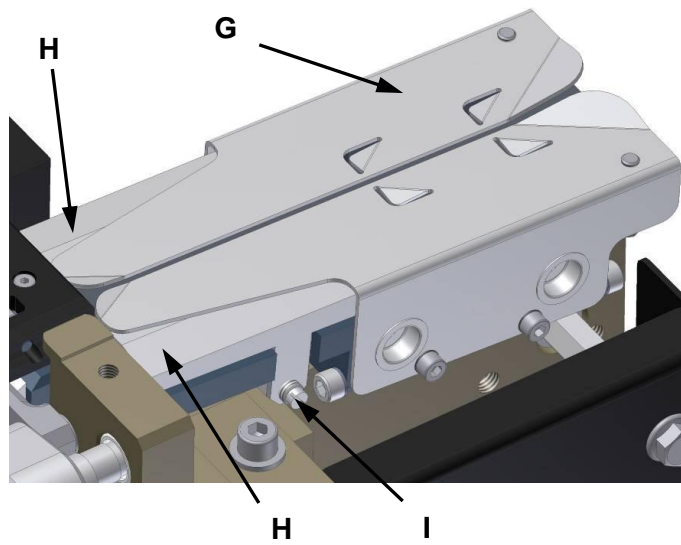
Remount the strap guide
in accordance with
relevant strap width.



At the intake strap guide (**G**) the strap width is set by adjusting the threaded bolt (**I**).

The strap guides (**H**) must be set so, that the strap runs through the center of the strap guide.

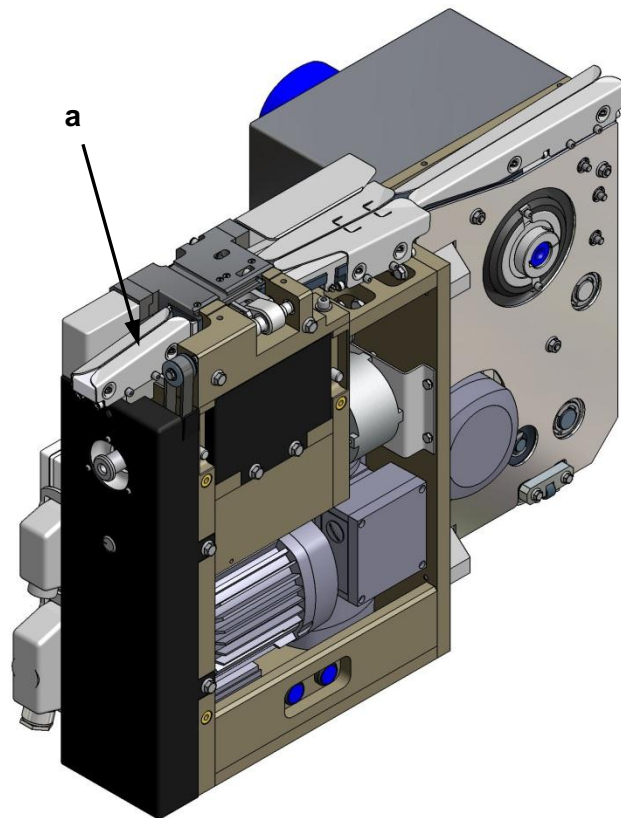
Observe that the strap runs smooth between the strap guides and can easily reach the strap stop switch.



8.8. Checking the channel flaps at the strap exit for smooth running and proper function

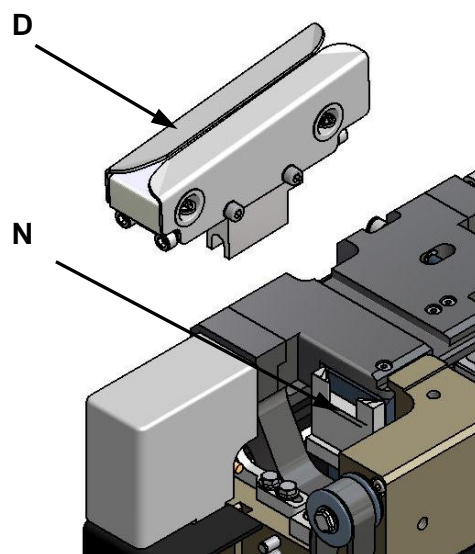
Actuate the exit channel flap **(a)** manually and check for smooth running.

Clean by means of compressed air, if required.



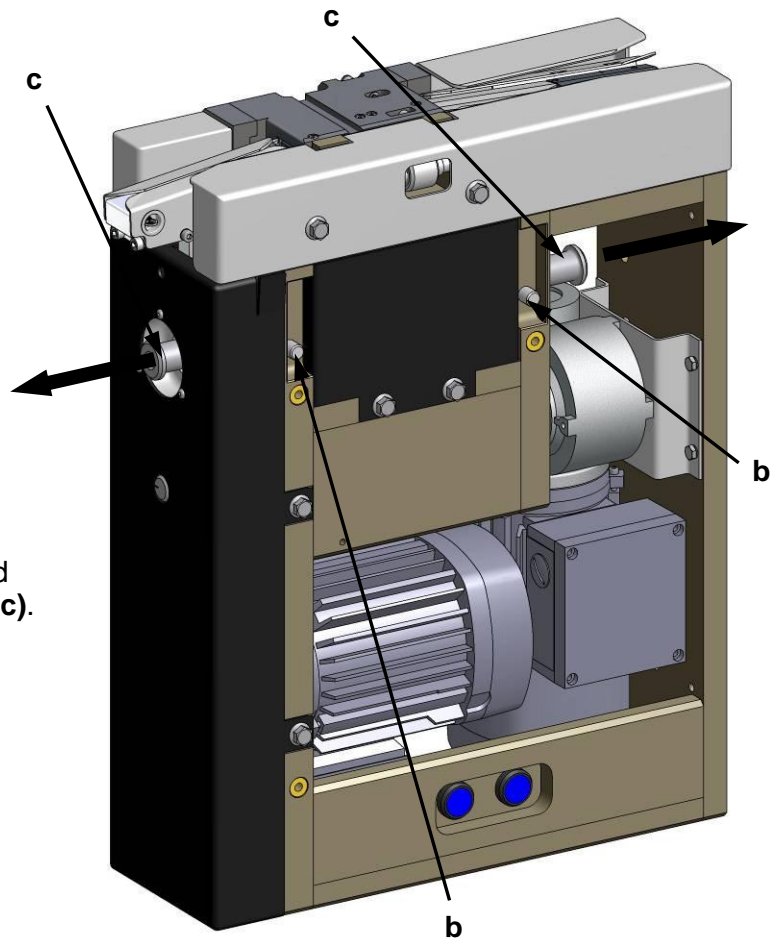
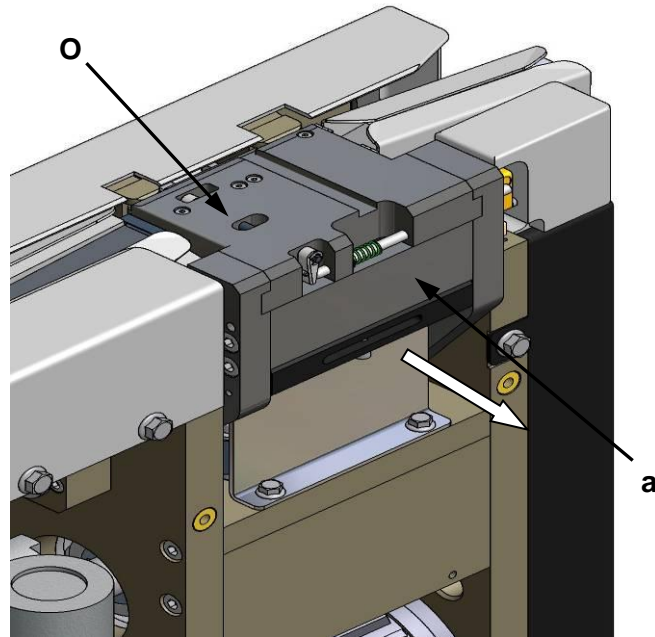
8.9. Checking of the strap width centering piece N and replacement, if required

Demount the strap guide **(D)** as described above. Check centering piece **(N)** and replace in case of damage.



8.10. Demounting and cleaning of counter plate O.

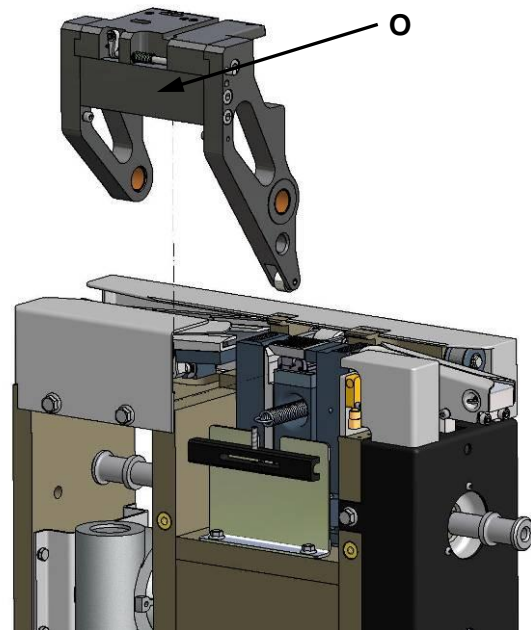
Unhinge spring seat **(a)** at the counter plate **(O)**.



Actuate locking bolt **(b)** and remove counter plate bolt **(c)**.

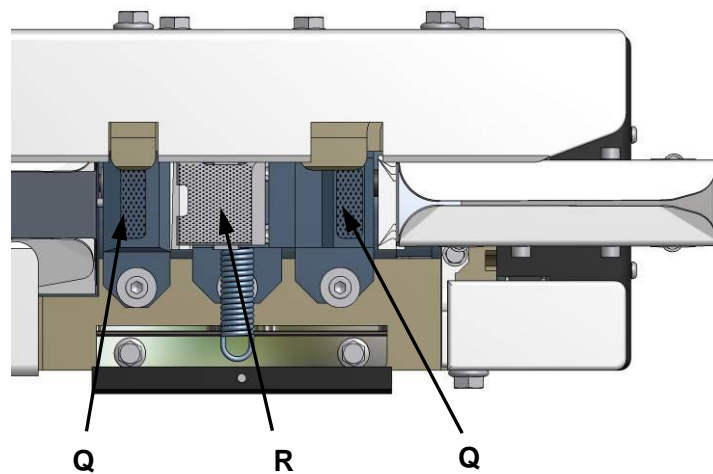
Remove counter plate **(O)** backward.

Clean the counter plate, in particular the corrugated plates.



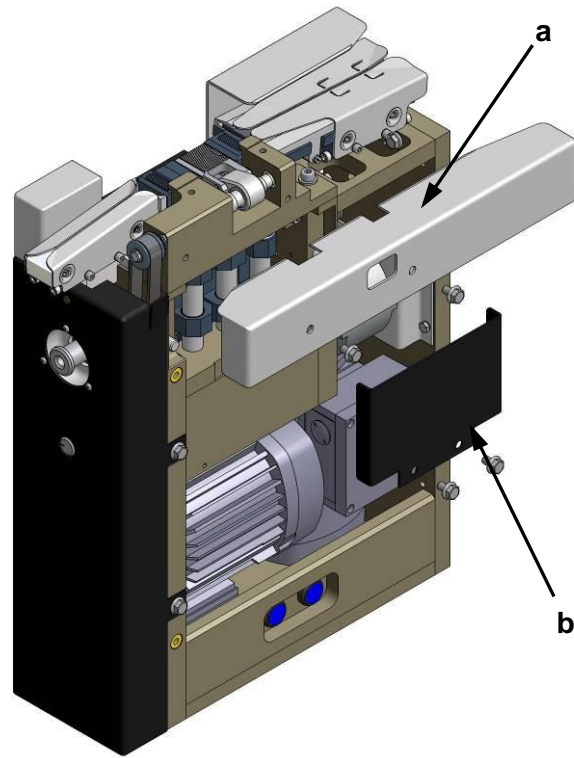
8.11.Cleaning of corrugated plates on dies Q and weld pad R

Clean the corrugated plates on the dies **(Q)** and weld pad **(R)** from abraded particles and strap residuals.

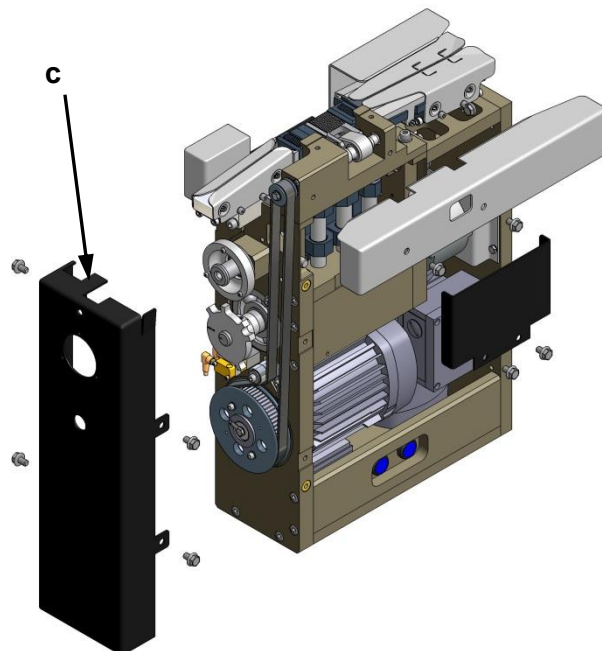


8.12. Demounting and cleaning of die S / checking of idlers T and knife U, replacement if required

Demount counter plate (O) as described under **point 10**. Then demount plates (a) and (b).



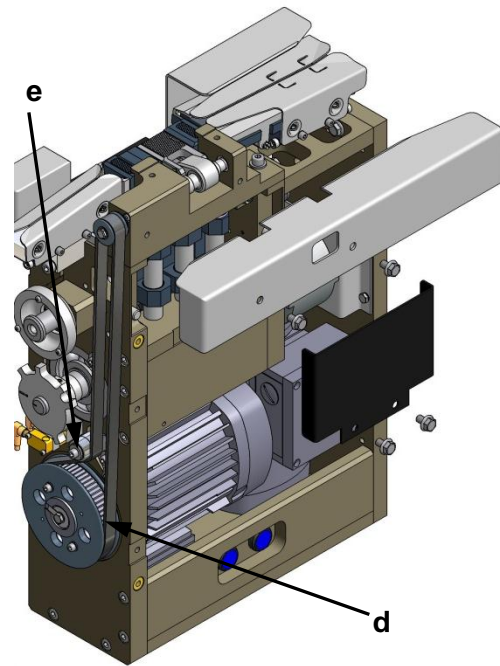
Remove belt cover (c).



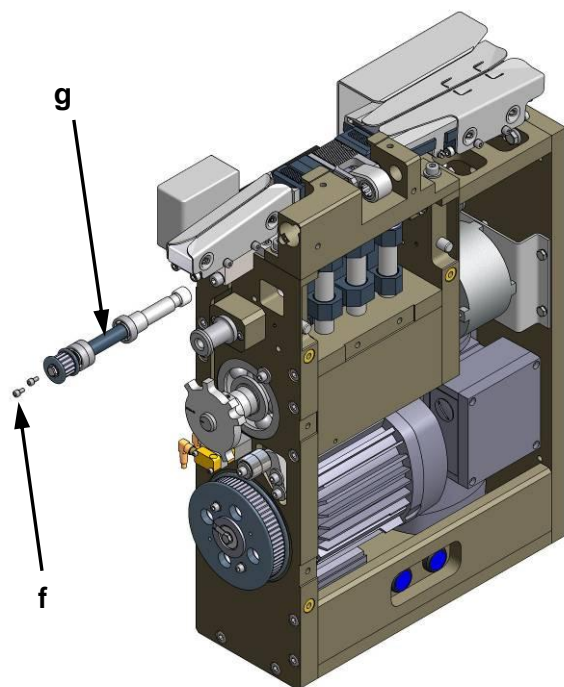
Attention!

Do not reach into the synchronous belt drive when its cover is removed.

Loosen the belt tensioner **(e)** and remove the toothed belt **(d)**.

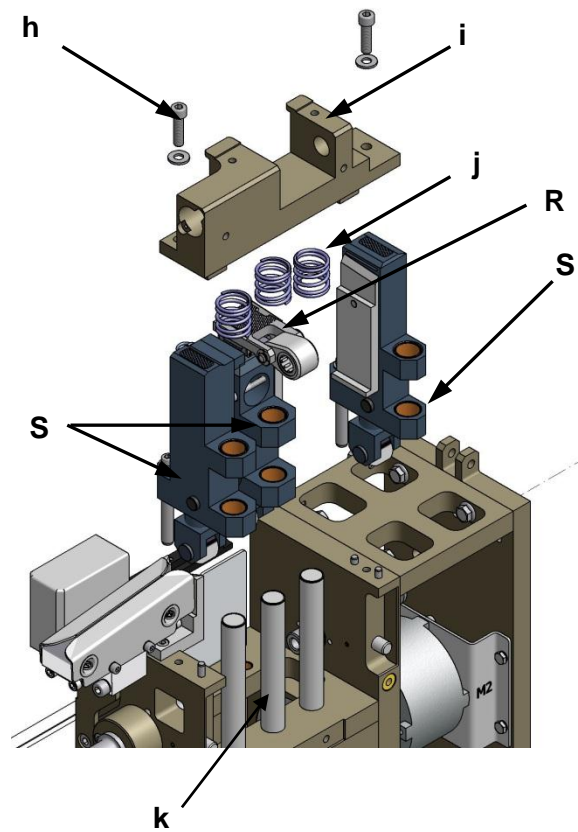


The friction welding unit **(g)** can be removed by unscrewing the screws **(f)**.



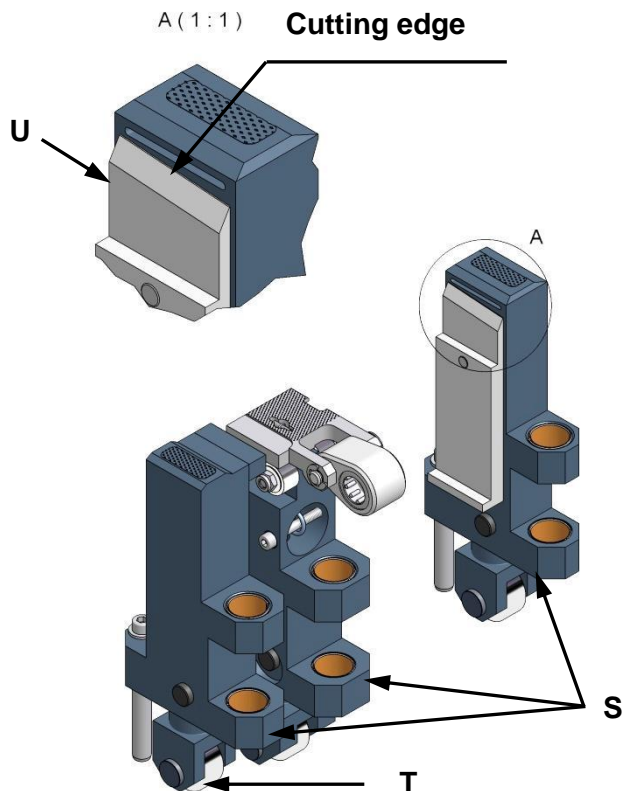
Remove the screws **(h)** and then remove casing plate **(i)** as well as pressure springs **(j)** upward.

Detach dies **(S)** with weld pad **(R)** from the guide shafts **(k)** (upward).



Clean dies **(S)**. Check idlers **(T)** for damage and smooth running. Replace, if required.

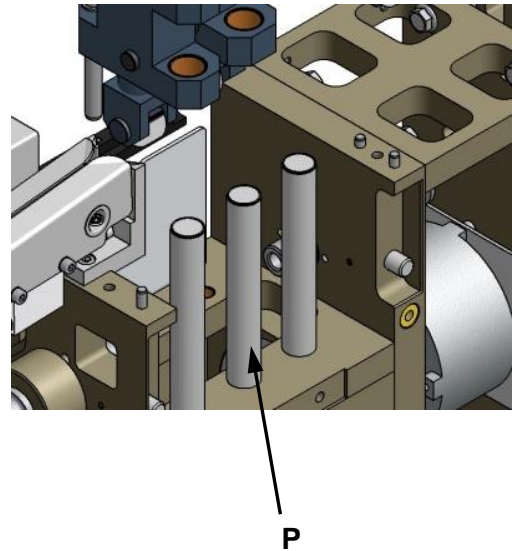
Check the cutting edge of knife **(U)** and replace, if damaged.



8.13. Checking, cleaning and greasing of guide shafts P, replacement, if required

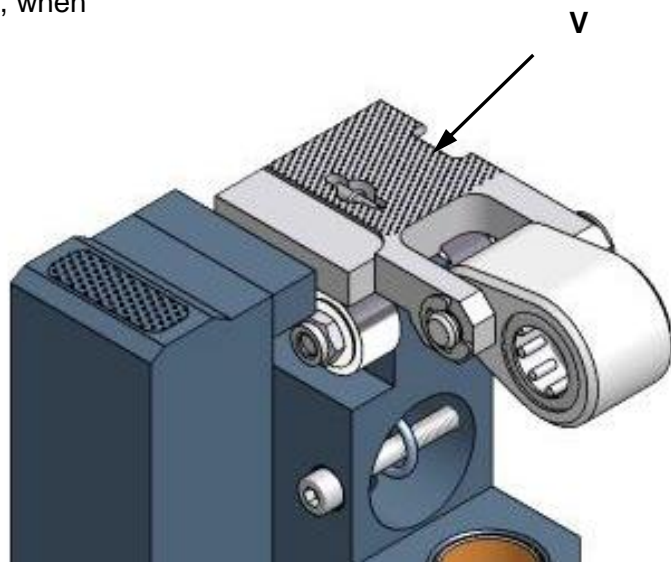
Check the guide shafts (**P**) for wear, clean and re-grease with high-performance grease in the area of the sliding faces.

If required, the guide shafts must be replaced.



8.14. Checking of weld pad V and replacement, if required

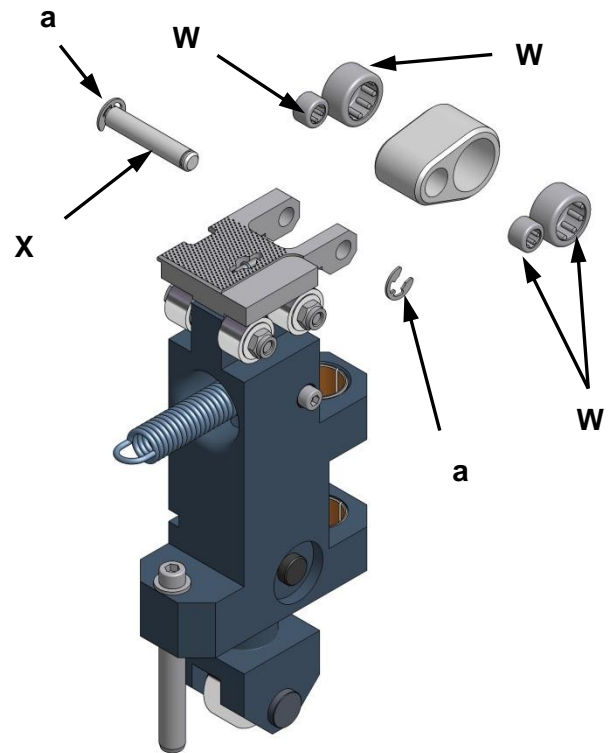
Check weld pad (**V**) and replace, when the gear teeth are worn.



8.15. Checking of needle bearing W and bolt X and replacement, if required

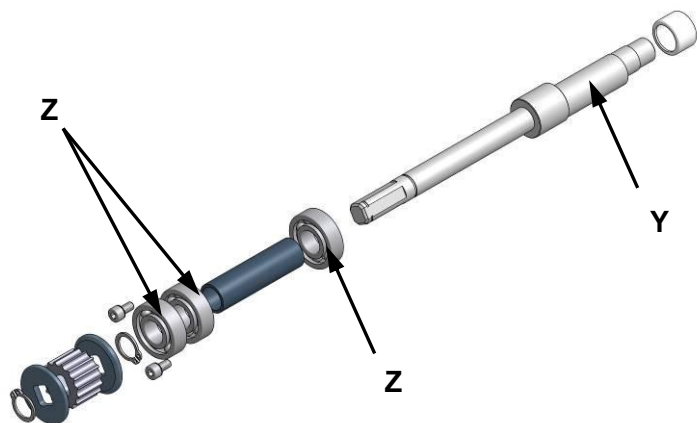
Check needle bearing (W) and bolt (X) for wear and replace, if required.

For re-mounting use new locking rings (a).



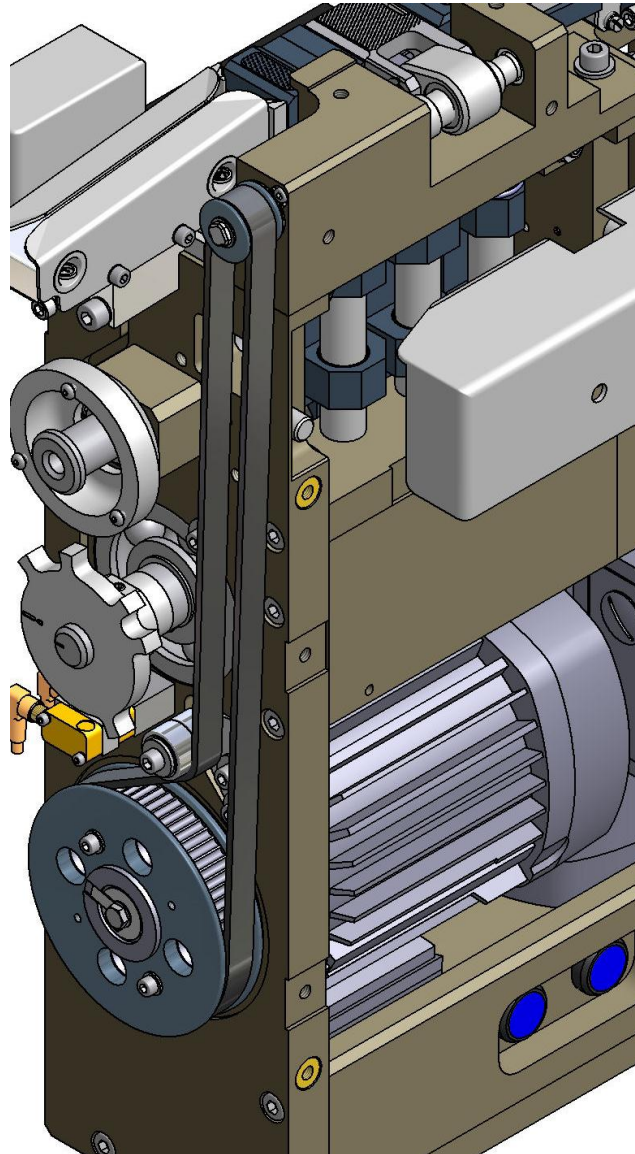
8.16. Checking of eccentric shaft Y and ball bearings Z, replacement, if required

Check the eccentric of eccentric shaft (Y) and the ball bearings (Z) and replace, if required.



8.17. Checking the belt of the welding motor and replacement, if required

Check the toothed belt and replace in case of damage.



9. Trouble shooting and remedy

Fault	Cause	Remedy
The strap is not transported into the channel system and does not reach the strap stop switch.	The strap has broken off the channel.	Perform a complete touch control cycle of the cam gear until the counter plate is closed. Remove strap residuals from the channel and re-start automatic mode.
	The strap is not in the feeding unit.	Re-insert strap.
	The friction welding unit is not at zero position.	Touch control of the cam gear until the counter plate is closed.
	Strap jam in the feeding unit.	Remove cover plate of the feeding unit and eliminate the jam.
	Strap does not meet the requirements (strength, sabre).	Use strap for automatic units
	Mismatch of the channel transitions (joint edges)	Align transitions.
	Transport wheel does not feed the strap.	Increase the feed to the transport wheel.

Das TITAN Gesamtprogramm	The TITAN range of products	La gamme de produits TITAN
Umreifungsgeräte für Stahl- und Kunststoffband	Strapping tools for steel and plastic strap	Appareils de cerclage pour feuillard d'acier et plastique
Umreifungsmaschinen und Aggregate für Stahl- und Kunststoffband	Strapping machines and aggregates for steel and plastic strap	Machines et têtes de cerclage Pour feuillard d'acier et plastique
Ballenumreifungssysteme für Stahl- und Kunststoffband	Baling systems for steel and plastic strap	Systèmes de cerclage de balles Pour feuillard d'acier et plastique
Crimpsysteme	Crimp systems	Systèmes crimp
Stanzverbinder	Strip joining devices	Système d'agrafage de bobines
Verpackungsband aus Stahl- und Kunststoffband	Strapping Steel and plastic strap	Feuillard d'emballage Acier et plastique
Verschlussgehülsen	Seals	Chapes
Zubehör	Accessories	Accessoires
		<p>TITAN Umreifungstechnik GmbH & Co. KG Postfach 440, 58317 Schwelm Berliner Straße 51-55, 58332 Schwelm Telefon: +49 (0) 23 36 / 8 08-0 Telefax: +49 (0) 23 36 / 8 08-208 E-Mail: info@titan-schwelm.de www.titan-schwelm.de</p> <p>Technische Änderungen vorbehalten Subject to technical alterations Sous réserve de modifications techniques</p>