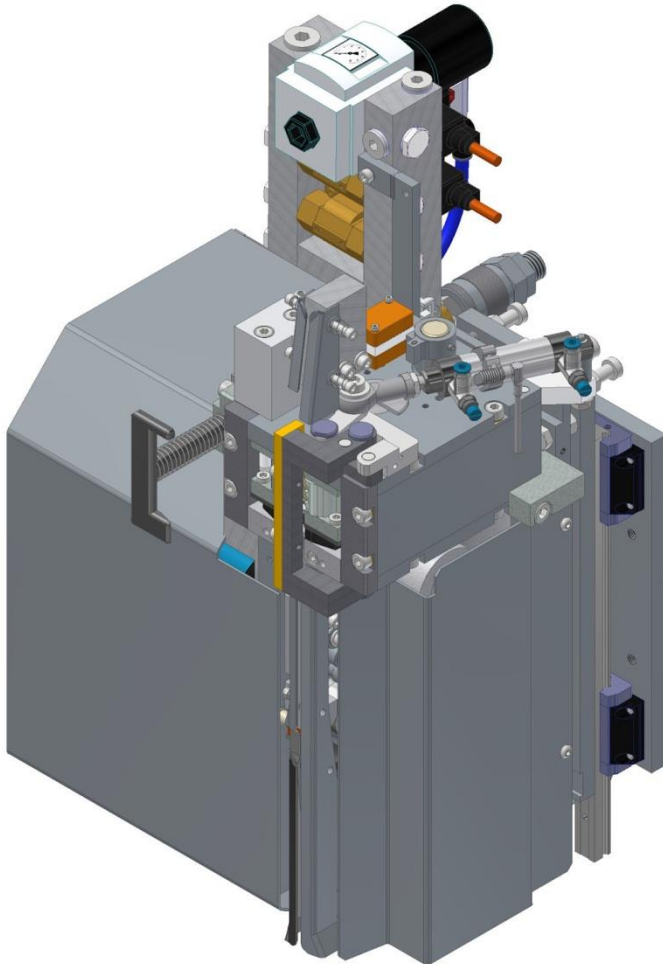


Operating Instructions

-Translation of the original instructions-



VS 11-L

01 0003

**Pneumatic strapping
head
for steel strap**

Important!

The customer agrees to make these operating instructions understandable to all operating and service personnel.
Do not throw these operating instructions away.

TITAN 
Wir halten zusammen

Table of contents

	Page
1. Manufacturer details.....	3
2. General	4
3. Safety regulations.....	7
4. Life phases of the unit.....	9
5. Technical data.....	11
5.1. Dimensions and assembly dimensions VS 11-L.....	12
5.2. Pneumatic equipment (head control).....	13
5.3. Strap	14
5.4. Smallest supporting surface with different packing items.....	15
5.5. Calculating time (just functions of the head).....	16
5.6. Air consumption VS 11-L.....	17
6. Designations	18
6.1. Actuating magnets	18
6.2. Limit switches.....	18
6.3. Motors.....	18
6.4. Cylinder.....	19
6.5. Pressure reducer	19
6.6. Adjustments	19
6.7. Functions of switches.....	20
6.8. Position of the switches, valves, pressure controllers and motors	21
7. Functional description	22
7.1. Inserting the strap	22
7.2. Strap feed – fast speed	22
7.3. Strap feed – precision speed.....	23
7.4. Closing strap clamp 1.....	23
7.5. Return movement of strap.....	23
7.6. Lowering tensioning slide, tensioning the strap	23
7.7. Formation of a seal, cutting the end of strap, releasing the seal, aligning.....	24
7.8. Head backward, closing of strap guiding flap	24
7.9. 0–Position	25
7.10. Strap stop edge.....	26
7.11. Sealing.....	26
7.12. Functional diagram.....	27
8. Settings	28
8.1. Setting the switches B 1 to B 8.....	28
8.2. Setting the zero position.....	28
8.3. Setting the strap stop edge	29
8.4. Setting the aligning rolls	30
8.5. Setting air pressure	31
9. Maintenance.....	33
9.1. General	33
9.2. Maintenance intervals	34
9.3. Lubrication points.....	34
9.4. Maintenance transport unit.....	36
9.5. Maintenance of the aligning device.	37
9.6. Maintenance cutter package	38
9.7. Dismounting and mounting the sealing unit.....	40
10. Search for faults – troubleshooting.....	41
11. Declaration of incorporation.....	42

1. Manufacturer details

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Pneumatic strapping head for steel strap "No-Seal-Joint"

2. General

Thank you very much for your confidence in the technology of TITAN Umreifungstechnik.

These operating and maintenance instructions are meant to facilitate how to become acquainted with the strapping machine and apply it as intended. The operating instructions comprise important information on how the strapping machine can be used safely, as intended und economically.

The operating instructions must permanently be available at the place the strapping head is used. They must be read and applied by all staff members working with the strapping head. Such works especially include operation, troubleshooting and maintenance. Adjustment and maintenance works may only be performed by trained technical staff.

Explanatory notes on the warning and instruction symbols:



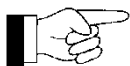
Caution!

Used where there is danger to life and health.



Warning!

Used for danger which cause material damage.



Note!

Used for general information and information which if not followed can cause faults in the operating sequences.

The item numbers (...) and designations used in these operating instructions refer to the spare parts list or documentation on the electrical system.

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- ❖ **Intended use**
This strapping head is intended for installation in different strapping machines. The strapping head is meant for the strapping of slit coils, sheet packages, bricks, structural timber, bundles of sections etc.

- ❖ **Unintended use!**
Strapping material must not be used for the hoisting of loads; this strapping head may only be used as intended and specified above.

- ❖ The strapping head **VS 11-L** meets the German and European safety requirements and complies with the provisions in the following **EU directives**:

See declaration of incorporation.

- ❖ The **VS 11-L** connects modern drive and control technology with the state of the art in proven sealing technique without sleeves.

- ❖ Three pneumatic motors and three compressed air cylinders perform all strapping head functions.

- ❖ All functions are triggered by solenoid valves. The valves are equipped with actuating magnets 24 V DC (DC voltage).

- ❖ The mains voltage for the **VS11-L** must be 400 V 50 Hz.

- ❖ The seal of the **VS 11-L** has three punching's.

- ❖ The seal stability of the seal without sleeves is up to 85 % of the load at rupture of the strap (depending on strap quality and dimension).

- ❖ The gentle transport of strap is affected by means of large strap transporting rolls. The surface of the strap remains undamaged. Mangle rolls installed provide for a trouble-free strap circulation.

- ❖ Adjustable strap tensions ranging from 1500 N to 10 000 N permit good adaptation of the strapping to the packing items.

- ❖ The strapping head is provided with an adjustable floating movement (movement forward of the head against the tensioning direction) permitting the strapping of the packing item without damage to the edges even at high strap tension.

- ⊘ A slight tilting movement within the floating movement permits a good adaptation to the packing item without a loss of tension (the strapping head is drawn nearer to the packing item by means of the final tension).

- ⊘ The mechanical connection of the strapping head with the machine is implemented on the locating surface of the floating movement by means of four M10 screws. Electricity and compressed air are provided with a detachable quick-acting coupling.
- ⊘ After loosening the four screws and the disconnection of the electricity, gas and compressed air ports the head can be replaced quickly and without problems.

- ⊘ The **VS 11-L** unit processes steel strap for packing items of the widths:

13, 16, und 19 mm.
- ⊘ Strap thickness can range from: **0.5 to 0.63 mm**

- ⊘ The compressed air used must be dewatered, filtered and oiled. The air pressure (flow pressure with transport motor being switched on) should be **5 bar**.

- ⊘ Maximum air flow rate 18 l / s.

- ⊘ Air consumption per strapping operation approx. 0.1 to 0.2 m³ (depending on channel size).
Air consumption per motor 1.1 m³ / minute.

- ⊘ The cross section of the feed line port should not be below **G3/4"**.

**Attention!**

It is not possible to use plastic strap with those heads!

3. Safety regulations

 The area in which strapping is carried out with steel strap is a danger zone and must be secured in accordance with **DIN EN ISO 13857!**



The user manual must be read prior to operations of the strapping head.
Read all instructions carefully.



Operations of the strapping head (machine) by unauthorized personnel are forbidden.



It is urgently required that all safety and warning notes are followed, we especially refer to the **EU Machine Directive**.



Testing in accordance with **EN 60204-1** must be performed on the strapping head “as installed”.



The operating staff must be instructed precisely and made familiar with the handling of the strapping head before operating the strapping head for the first time.



The strapping head may only be positioned and put in operation in closed and dry rooms.



Operating the strapping head is appropriate in the temperature range 0°C to +40°C.



Do not deposit containers with liquids on the strapping head. No liquid must be allowed to penetrate the strapping head.



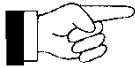
No persons or objects must stay in the area of operation of the strapping head before the latter is put in operation.



Protective installations, covers and linings of the strapping head must be checked before activation. They must neither be loose nor have been removed.



Do not let your hands get into the channel area and below the packing items during the strapping operation. **Attention! Risk of squeezing!**



Before the beginning of leaning works and/or troubleshooting the strapping head must be put out of operation.
Main switch at position OFF.



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



Wear eye and face and hand protection when eliminating fault strapping.



When cutting the strap hold the upper parts firmly (see figure). **Attention!** The lower part of the strap jumps upward.



Consider the strong development of noise during longer operations. Therefore, protect your health.



Exclusively **use original TITAN spare parts only!** The use of spare parts not made by TITAN excludes guarantee adjustments and liability.



In automatic mode attention has to be paid that no squeezing points may occur between the feeding installations (e.g. roller conveyors) and the movable strapping unit.



We do not accept liability for alterations to the strapping machine! Further, warranty/guarantee and these operating instructions become inapplicable.

4. Life phases of the unit

Transport:



The transport of the strapping head has to be realized with an hoisting device.

Attention! Do not stay beneath the load during lifting and depositing. Order individuals which stands in the hazardous area to leave it. Minimum carrying capacities see technical data on p. 10.

Putting the unit in operation:



The strapping head may be put in operation by trained technical staff only.

Setting, programming:



Setting and programming works related to the strapping head may only be performed by trained technical staff.

Operation, modes:

Manual mode:

Manual mode permits the implementation of individual works performed for testing and troubleshooting. Further, manual mode is applied to take the strapping head to home position.



Attention!

During the touch control of the cam gear there is a risk of squeezing at the counter plate.

Automatic mode:

Automatic processing of all movements.



Attention!

In automatic mode attention must be paid that no points with the risk of squeezing may occur between the feed installations (e.g. roller conveyors) and the movable strapping head.

Cleaning, maintenance, repairs:

Just trained technical staff is allowed to perform maintenance and repair works on the strapping unit.



Attention! Before beginning with any maintenance work the relevant staff must disconnect the strapping head from the power mains.



Attention! Wear protective glasses when cleaning the head / machine with compressed air.

Putting the head out of operation, disassembly:

Attention!
When dismantling the strapping machine there is the risk of squeezing.
















Attention!
Do not stay beneath the load during lifting and depositing. Order individuals which stands in the hazardous area to leave it. Minimum carrying capacities see technical data p. 10.

Waste disposal:

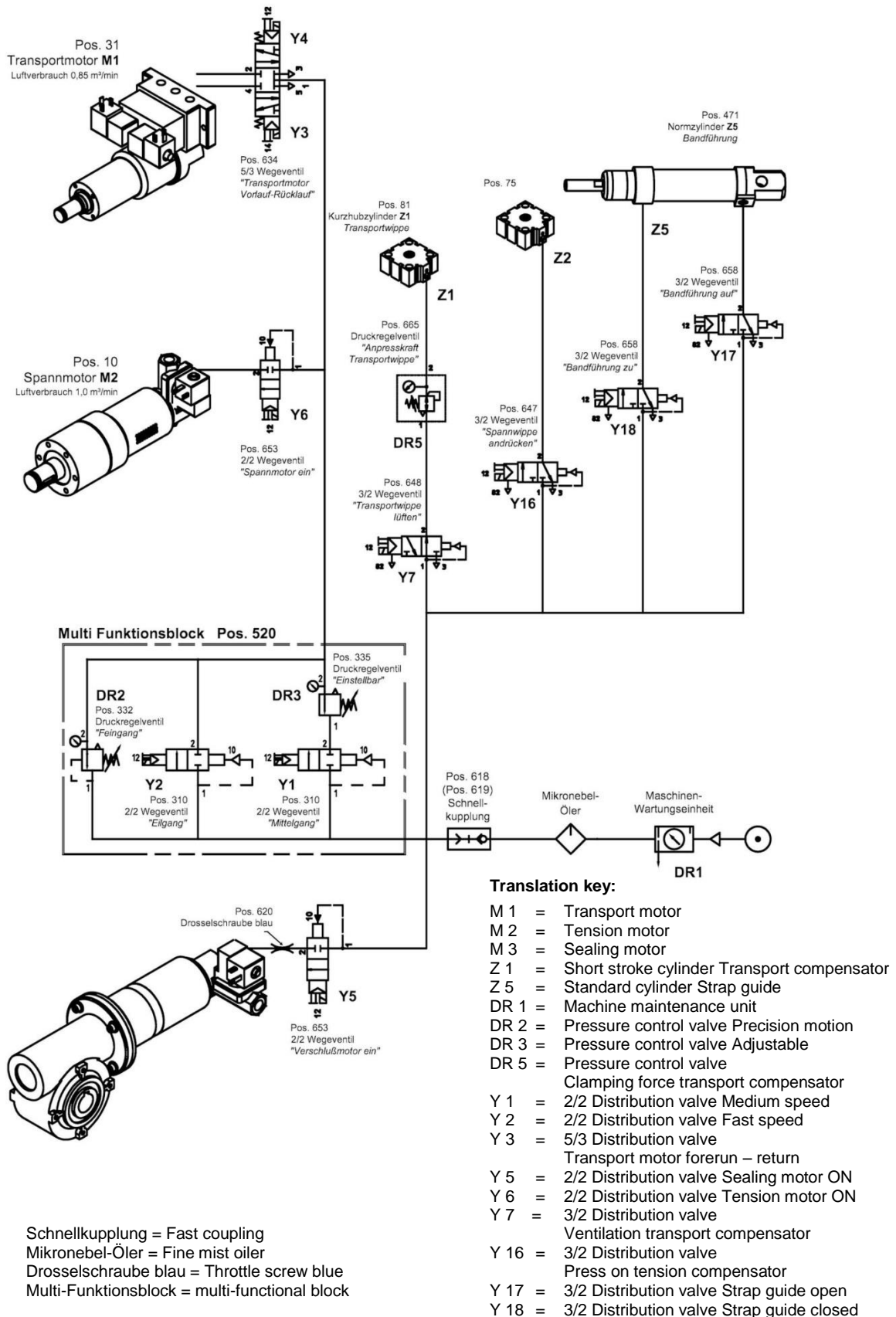
If packing material is to be disposed of, take it to the relevant recycling container or admit it to the Dual System.

Should the strapping machine have to be disposed of at the end of its service life, separate plastic material, steel and aluminium and dispose of such materials separately. In the same way, motors and electric modules like control system, switches and cables must be admitted to separate waste disposal. Take such elements to the appropriate waste management.









5. Technical data

 Typ VS 11-L:	incl. 3 punchings for light straps of 13 x 0.5 to 19 x 0.63 mm Megaband
 Kind of drive:	Electro-pneumatic, 3 motors and 3 cylinders
 Strap transport speed:	approx. 2.2 m/s with strap thickness 0.5 mm approx. 2.0 m/s with strap thickness 0.63 mm
 Strap tensions:	1,500 N to 10,000 N adjustable
 Kind of seal:	without sleeve – triple punching
 Rupture at load of seal:	approx. 75-85% of the rupture at load of strap (depending on strap quality and dimensions)
 Weight:	120 kg
 Noise emission:	The noise intensity level acc. to DIN 45635, part 27 is 85 dB (AS)
 Air pressure:	max. 6 bar flow pressure
 Air flow rate:	17 l / s
 Air consumption:	approx. 0.1 to 0.2 m ³ per strapping operation
 Cross section of port:	G 3/4"
 Dimensions:	700 x 400 x 600 mm (L x W x H)

5.2. Pneumatic equipment (head control)

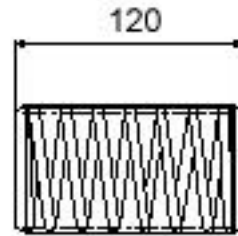


5.3. Strap

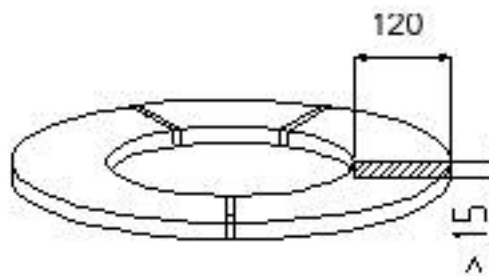
	Dimensions:	3 punchings	
	Width:	13, 16, 19 mm	
	Thickness:	0.5 – 0.63 mm	
	Quality:	N/mm²	sealing strength
	Automaten:	800	≥ 75 %
	Megaflex:	800	≥ 75 %
	Mega:	1100	≥ 75 %
	Niro:	1200	≥ 75 %
	Surface:		
	Unpainted:	bright / blue	slightly coated with wax
	Painted:	galvanized	or painted with zinc powder

5.4. Smallest supporting surface with different packing items

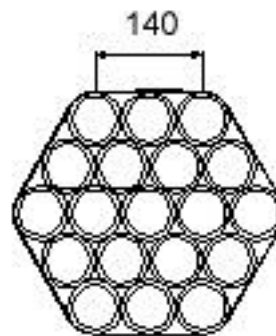
Expansive package
120 mm



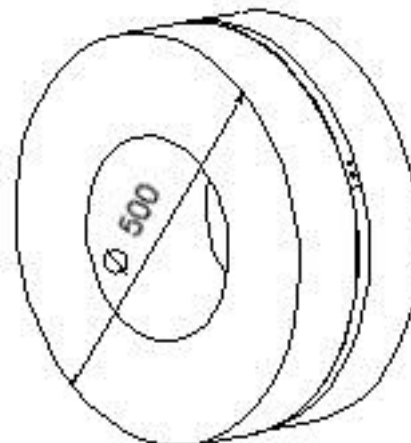
Slit coil
120 mm



Hexagonal pipe bundle
140 mm



Round packing item
Ø 500 mm



5.5. Calculating time (just functions of the head)

Example for **VS 11-L** cross section of strap 19 x 0.63 mm

F1	Strap feed	=	$\frac{\text{Channellength}}{\text{Conveyingspeed}} = \frac{4.5\text{m}}{1.8\text{m/s}} + 1\text{s} =$	3.5 s
F2	Fixed time Clamping strap Strap guiding flap open	=		0.5 s
F3	Strap return	=	$\frac{3.2\text{m}}{1.8\text{m/s}} =$	1.8 s
	Head forward	=	e.g.	2.0 s
F4	Tensioning strap	=	$\frac{50\text{mm}}{200\text{mm/s}} + 0.3\text{s} =$	0.55 s
F5	Fixed time Seal formation Cutting end of strap Releasing seal	=		1.5 s
F6	Head return	=	e.g.	1.0 s
	To head before packing item B7 Swing in strap guide flap Fixed time			0.3 s

Total time: Σ 11.15 s

5.6. Air consumption VS 11-L

All compressed air motors consume the same amount of air.

Consumption of compressed air $1.1 \text{ m}^3/\text{min} = 18 \text{ litres /s}$ at 6 bar.

Cross section of port $R^{3/4}$ "

🌀 **Seal:** Sealing time 2.2 s = Air consumption

40 litres

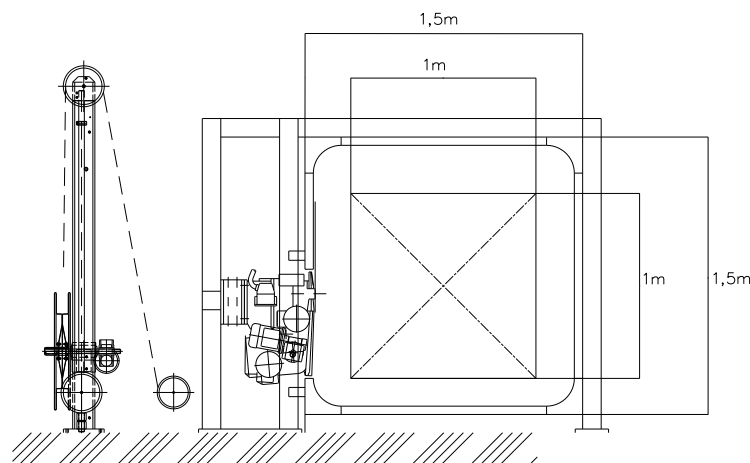
🌀 **Tensioning motor:** Tensioning time approx. 3.0 s = Air consumption

54 litres

🌀 **Transport:** Select transport speed acc. to strap thickness
(2.2 / 2.0 / 1.8 or 1.6 m/s)

Transport feed = $\frac{\text{Channel size in m}}{\text{Strap speed}} \times 18 \text{ l}$

Transport return = $\frac{\text{Channel size in m} - \text{Circumference of packing item}}{\text{Strap speed}} \times 18 \text{ l}$

Example:

Channel size $1.5 \times 1.5 \text{ m} = 6 \text{ m}$

Size of packing item $1.0 \times 1.0 \text{ m} = 4 \text{ m}$

Strap thickness $0.63 \text{ mm} = 1.8 \text{ m /s}$ strap speed

$\frac{6 \text{ m} \times 18 \text{ l/s}}{1.8 \text{ m/s}} = 60 \text{ l}$ for channel feed

$\frac{6 \text{ m} - 4 \text{ m} \times 18 \text{ l/s}}{1.8 \text{ m/s}} = 20 \text{ l}$ for transport return

Tensioning 54 L

Sealing 40 L

Transport 80 L

174 l consumed standard air per strapping operation

6. Designations

6.1. Actuating magnets

Air valve throttled	Y 1	
Air valve unrestricted	Y 2	
Transport motor forward	Y 3	
Transport motor backward	Y 4	
Sealing motor	Y 5	
Tensioning motor	Y 6	
Transport slide	Y 7	
Head forward	Y 13	at the machine
Head backward	Y 14	at the machine
Tensioning slide pressed	Y 16	
Strap guiding flap open	Y 17	
Strap guiding flap closed	Y 18	

6.2. Limit switches

Strap Stop switch	B 1	
Counter switch	B 2	
0 position	B 3	
Position switch k	B 4	
Safety switch	B 6	
Head before packing item	B 7	
Head on packing item	B 8	
Service – switch insertion of strap	B 9	
Service – switch seal	B 10	
Floating package front	B 12	option
Floating package back	B 13	option
Start precision movement	B 14	(in the channel)
Head rear	B 15	
Head front	B 16	
Accumulator full	B 17	
Accumulator empty	B 18	
End of strap	B 19	

6.3. Motors

Transport motor	M 1	
Tensioning motor	M 2	can be attenuated
Sealing motor	M 3	

6.4. Cylinder

Transport slide	Z	1
Tensioning slide	Z	2
Strap guiding flap	Z	5






6.5. Pressure reducer

Main maintenance unit	Fast movement	Strap tension max.	DR 1
Multi-valve block	Precision movement	Strap tension min.	DR 2
Multi-valve block	Strap transport	Strap tension	DR 3
Valve bank	Strap transport	Transport slide	DR 5

6.6. Adjustments

Adjustments:

Definition of term:

	Strap tension adjustable	$Y_1 - Y_2$
	Pulses for aligning of strap (B2)	Pulses aligning of strap
	t1 tensioning strap OFF	Tensioning OFF
	t7 if B 14 not available	Starting precision movement
	t9 control time strap stop	End strap feed

Monitoring operating time:

Feed / Return / Tensioning

6.7. Functions of switches

B1 Strap into head

Initiates the precise movement of the beginning of strap into the sealing unit for strap overlap.

B2 Counter switch

Monitors the contact between conveyor roll and strapping material and thus prevents any slipping of the conveyor roll.
Switches from return transport to tensioning.

B3 0-Position

Defines the 0-Position of the cam gear.

B4 Position switch K

Stops the cam gear at clamping position.

B6 Strap guide opened

Monitors the mechanically opened position of the strap guide flap.

B7 Head in front of packing item

Signals „head in front of packing item“
Switches the movement „Head in front of“ of the machine to precise motion and following the release of the seal it activates the cam gear for movement to the 0-position.

B8 Head on packing item

Signals „Head on packing item“, triggers the fast return transport of strap or strap tensioning.

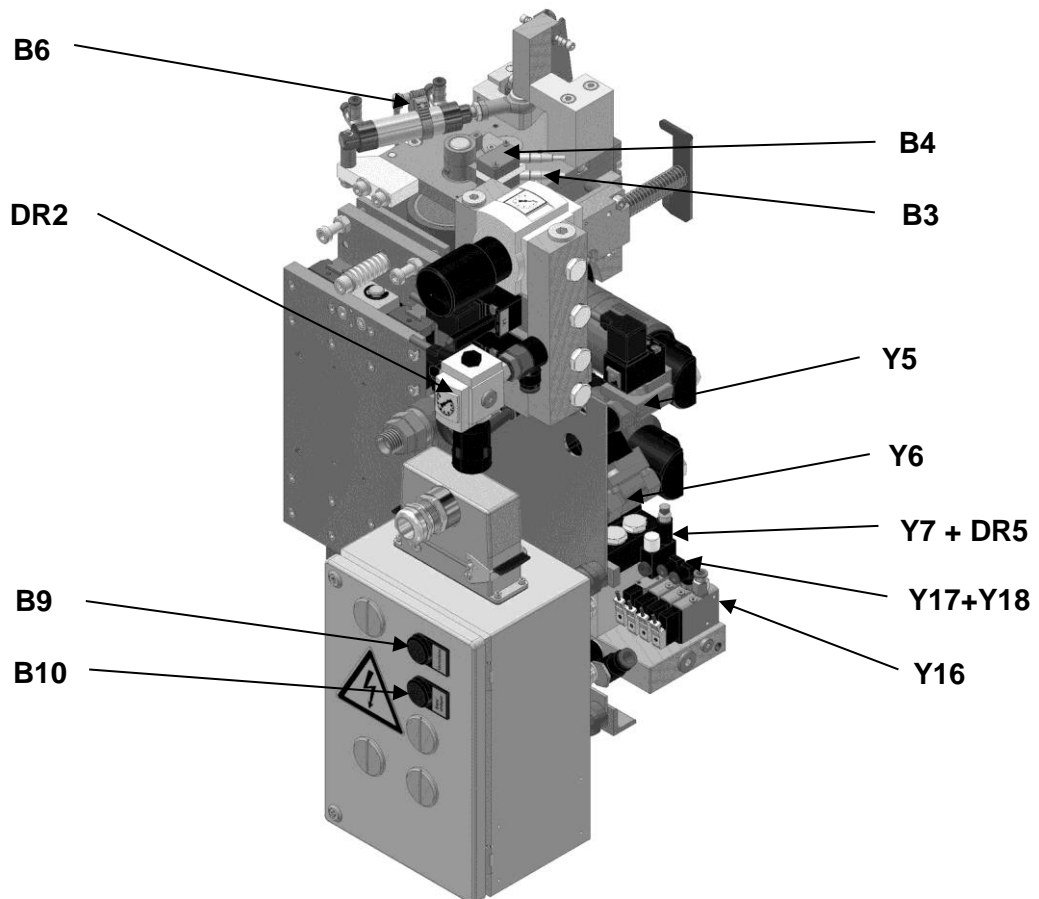
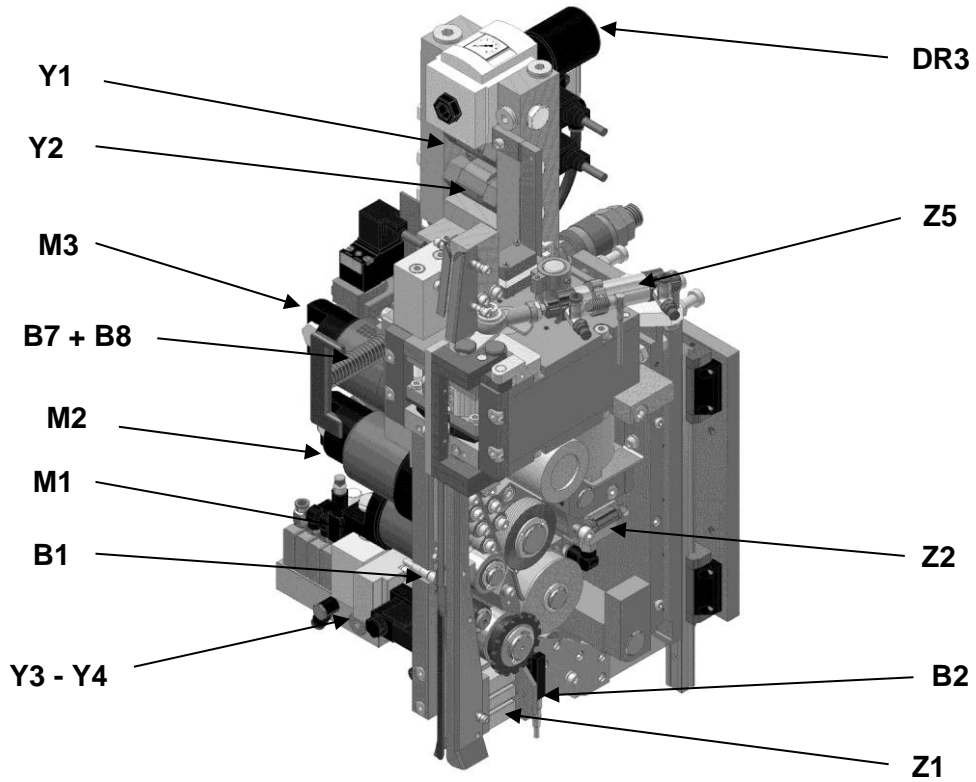
B9 Strap forward motion

Permits the strap forward motion in manual mode to insert the strapping material.

B10 Seal

Permits the information of a seal in manual mode.

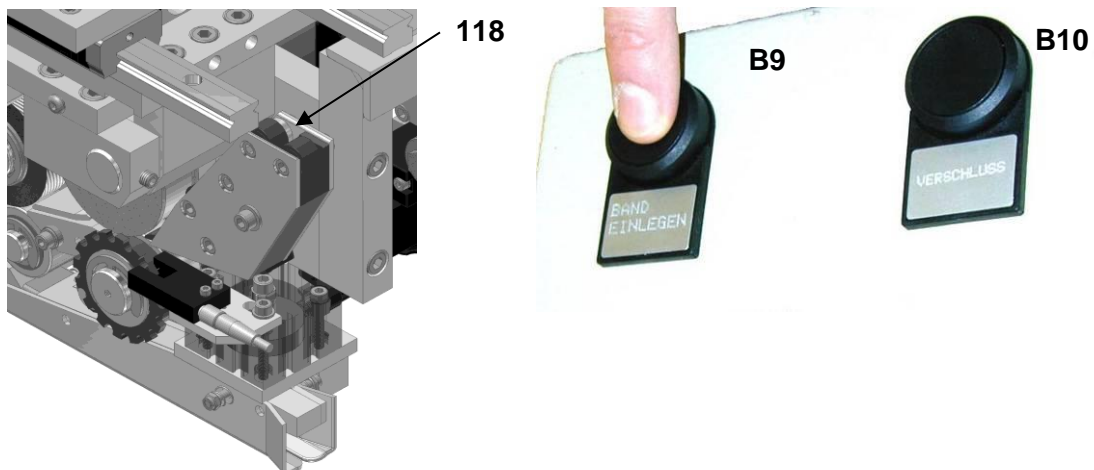
6.8. Position of the switches, valves, pressure controllers and motors



7. Functional description

7.1. Inserting the strap

Before the strap is inserted into the **TITAN strapping head VS 11-L** it must be assured that the end of the strap is with a clean, straight cut. Press switch **B9** and slip the beginning of the strap into insertion opening **118**.



Attention!
Wear gloves when inserting the strap!

7.2. Strap feed – fast speed

A **start signal** switches on the transport motor **M 1**, which drives the feed roll **42** feeding the strap at a speed of about 2.0 m/s through the strap channel until it reaches strap stop lever **B1**. A timer is started simultaneously (strap feed control) which interrupts strap transport if the maximum strap transport time is exceeded (strap breakage or obstructions in channel).

Strap feed can also be reduced under certain conditions (small channel etc.) by means of an early deactivation (with timer or switch) before the strap stop switch **B1** has been contacted in order to achieve constant, accurately repeatable strap feed.

Straps which are excessively bent can be pre-shaped with the integrated aligning device which provides for faultless strap feed.

For adjustments to the aligning device see section 4, "Adjustments".

7.3. Strap feed – precision speed

After the strap stop switch **B1** has been contacted, a control time is started and the counter switch **B2** is activated. The transport motor **M 1** feeds the strap at reduced speed from the stop edge of the strap. Here, the counter disk **56** has the function of a **speed monitor**; when the latter comes to a standstill, no ON – OFF function takes place at **B2** and the transport motor **M 1** is disabled. If the strap swings I the channel after the stop of strap, the control time **t9** finishes the transport of strap. The beginning of the strap is now located in the sealing unit.

7.4. Closing strap clamp 1

After the standstill of the strap the sealing motor **M 3** runs from **0-position** to the **pos. K** and closes the clamps **415/416**

(0-position = eccentric at top position, key groove on top).

After 90° switch finger **879** occupies switch **B 4** = clamp closed.

Then, the beginning of strap is secured against retraction.

In most strapping operations that position is chosen as **stand-by position**. From that position the strapping head can be guided to the packing item. A tappet with two switches signals: "Head forward" precision movement **B 7** and "Head before packing item" **B 8**.

7.5. Return movement of strap

When the clamp is closed and switch **B4** has been activated, the transport motor **M 1** runs backwards and closes the strapping loop. At the same time the counter disk signals standstill of strap transport. A timer is started simultaneously (broken strap control), which interrupts the return movement of the strap after the maximum strap feed time has expired.

7.6. Lowering tensioning slide, tensioning the strap

After the standstill of transport motor **M 1** has been reached the tensioning motor **M 2** starts operations, lowers tensioning slide **20** with the running tensioning wheel **24** down onto the strap and tightens the strap around the packing item until the nominal value of the pressure reducing valve in the multiblock has been reached, minimum strap tension 1500 N, maximum strap tension 10,000 N.

7.7. Formation of a seal, cutting the end of strap, releasing the seal, aligning

After the strap tension required has been reached, the sealing motor **M 3** moves to **0-position**. The seal without sleeve is formed, the end of the strap is cut and the seal is released. Switch finger 879 activates switch **B3**.

With 0-position being reached the tensioning motor **M 2** starts operations and aligns the end of the strap by means of the aligning device being switched on (aligning length prespecified by pulses of the counter disk).

7.8. Head backward, closing of strap guiding flap

When the seal applies to the packing item, the strapping head can be returned to its initial position. After switch **B7** (head before packing item) has been activated, the strap guiding flap can be closed.

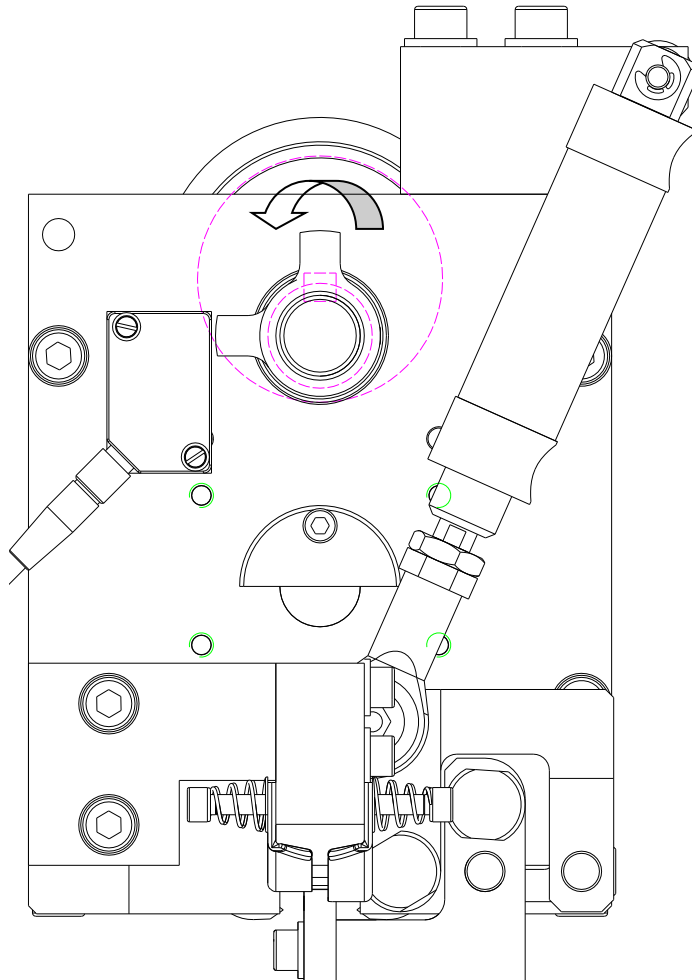
Switch **B 6** monitors the closing operation and does not permit a further working cycle when the sealing unit is still **opened**.

A new working cycle can begin.

7.9. 0-Position**Pos. K**

Clamp closed
Beginning of strap secured
against retraction.
Strap guiding flap opened,
Return transport of strap,
tensioning the strap.

0 – position
Strap guiding
flap closed
Cutter and
clamps lifted
Strap feed



7.10.Strap stop edge

The strapping head VS 11-L is provided with a strap stop edge.

On small packages (packages with a very short supporting surface) the strap overlap (sealed overlap) has to be as short as possible such that the entering part of the strap does not project over the edge of the package during the floating movement. Thus, a strap stop edge can be made available to always position the entering part of the strap at the same point.







The strap stop edge is set such that a strap thickness fits between strap guidance **374** and cover plate right **355**. Then the lower strap will be braked at the strap stop edge.

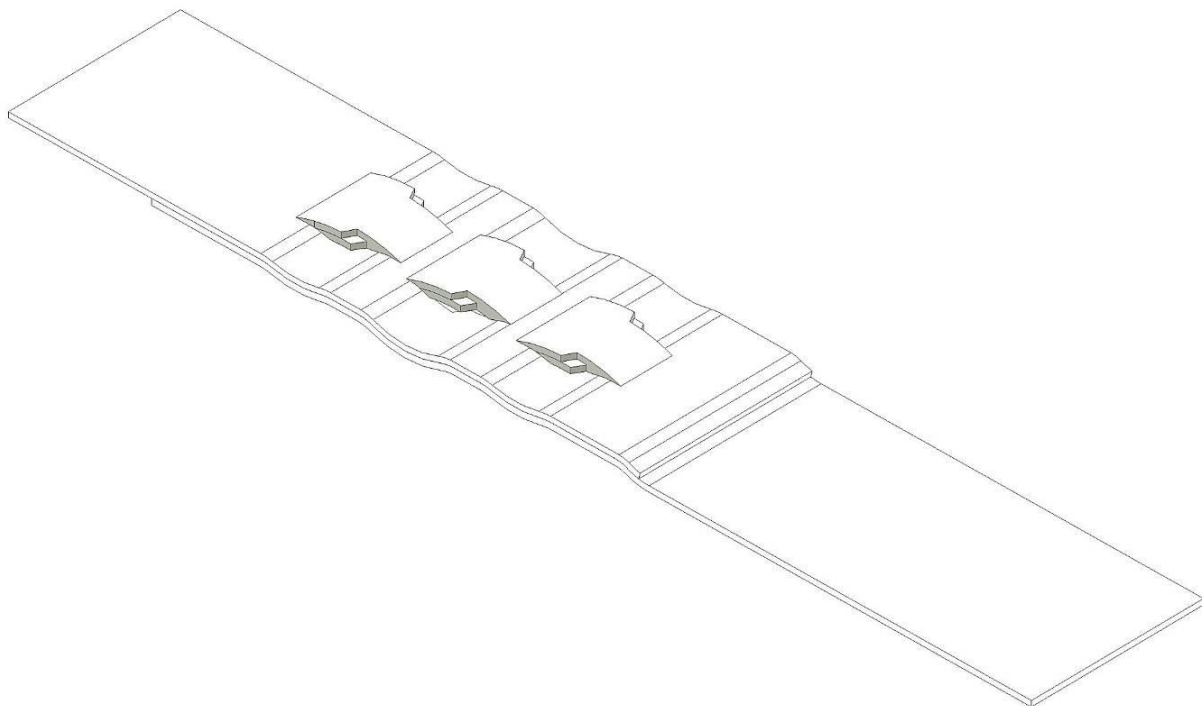
See settings.

7.11.Sealing

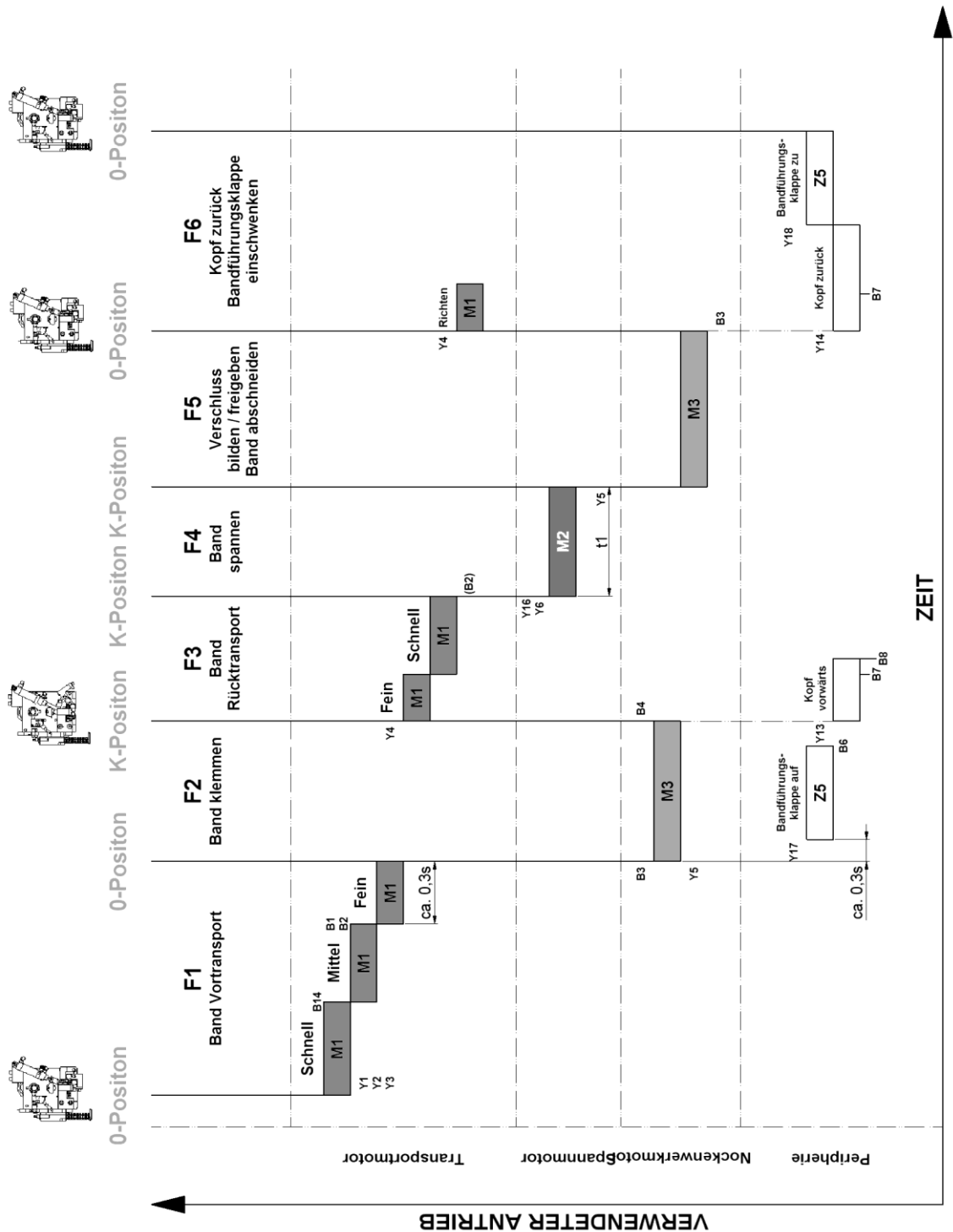
The following picture shows a correctly carved seal.

Check the seals regular:

-  for even carved cuttings,
-  for neat cutting edges,
-  for that the lower run of strap is soaked in the cuttings,
-  for correct adjustment of the cutter,
-  for a sufficient overlap of the lower run of strap and
-  for that the seal is placed in the centre of the strap.



7.12.Functional diagram



Translation key:

F1 Strap feed; **F2** Clamping strap; **F3** Strap return movement; **F4** Tensioning strap;
F5 Formation of seal / release seal, cutting of strap; **F6** Head retracted, swivelling in strap guiding flap.

Verwendeter Antrieb	=	Used drive	Zeit	=	Time
Peripherie	=	Circumference	Schnell	=	Fast
Nockenwerkmotor	=	Cam gear motor	Mittel	=	medium
Spannmotor	=	Tension motor	Fein	=	precision
Transportmotor	=	Transport motor	Richten	=	Align
Bandführungs-klappe auf	=	Strap guiding flap opened	Kopf vorwärts	=	Head forward
Bandführungs-klappe zu	=	Strap guiding flap closed	Kopf zurück	=	Head backward

8. Settings

8.1. Setting the switches B 1 to B 8

All switches have fixed positions. Setting is not necessary.

8.2. Setting the zero position

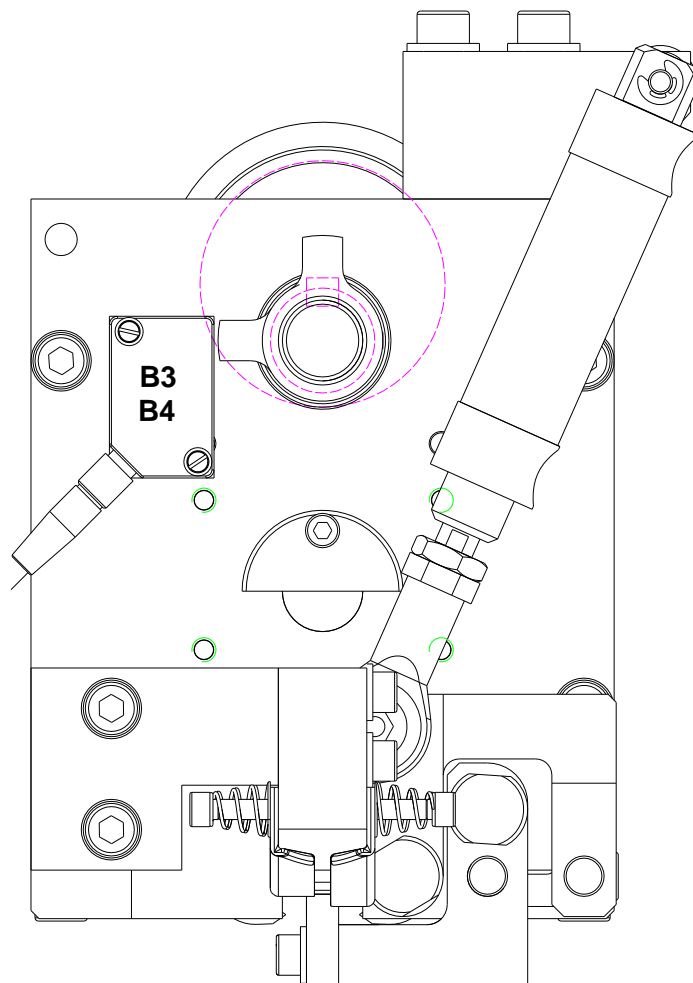
The zero position of the sealing unit is set such that the key groove of shaft **306** is vertical and the eccentric **309** is at its upper dead centre.

The switching surface of the switch finger **879** activates switch **B 3**, the locking screw of the jumper ring is positioned vertically then.

The position of the second switch finger for clamping position is at an offset of 90° to the **0-position**.

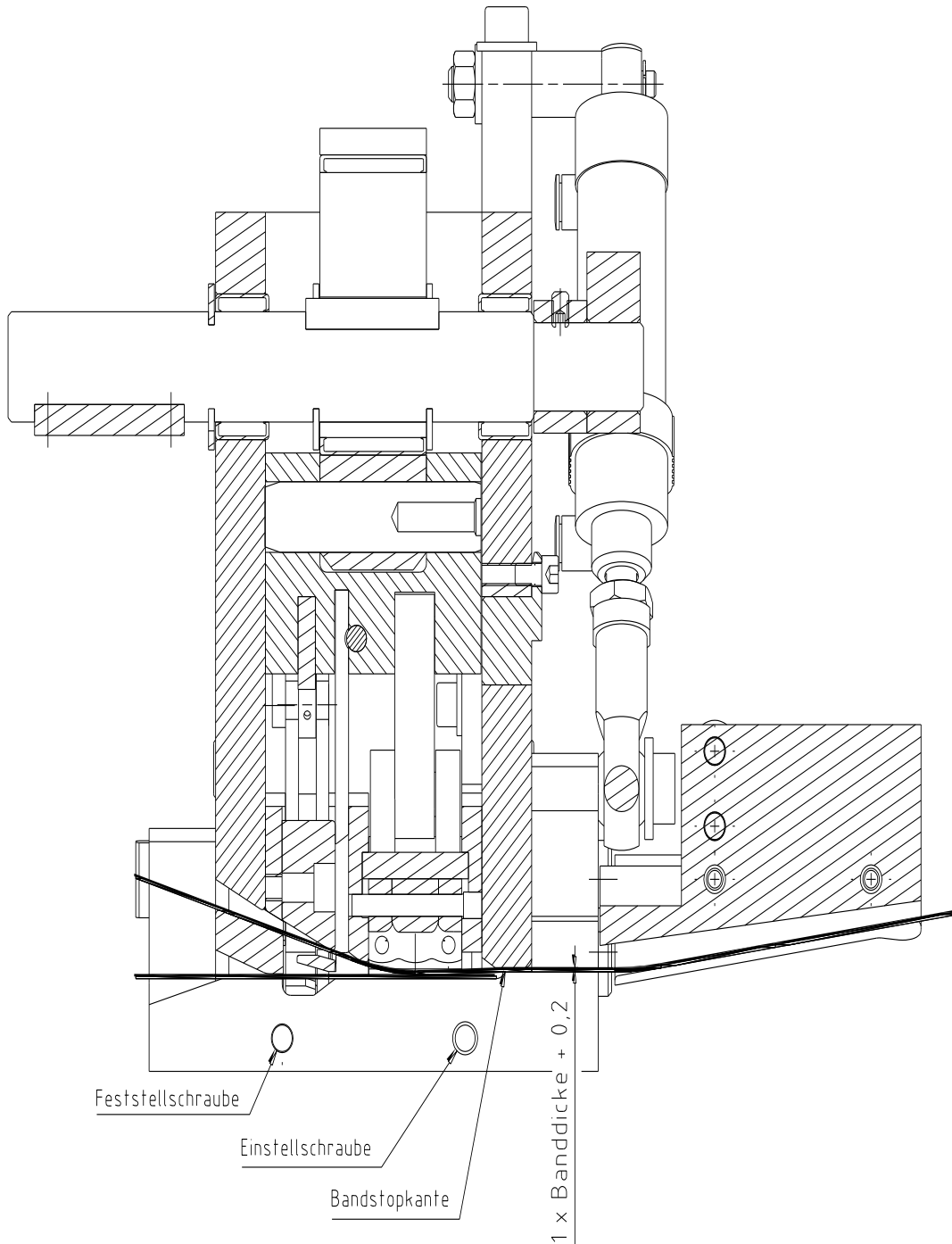
The locking screw is at horizontal position.

At clamping position the switch finger activates switch **B4**.



8.3. Setting the strap stop edge

The strap guidance is set such that the gap between strap guidance **374** and covering plate, right **355** is 1 strap thickness + **0.2 mm**.
 Setting is performed at setting screw **375**; the locking screw is then used for fixation.



Key for figure below:
 Feststellschraube = locking screw; Einstellschraube = setting screw;
 Bandstopkante = strap stop edge; Banddicke = strap thickness

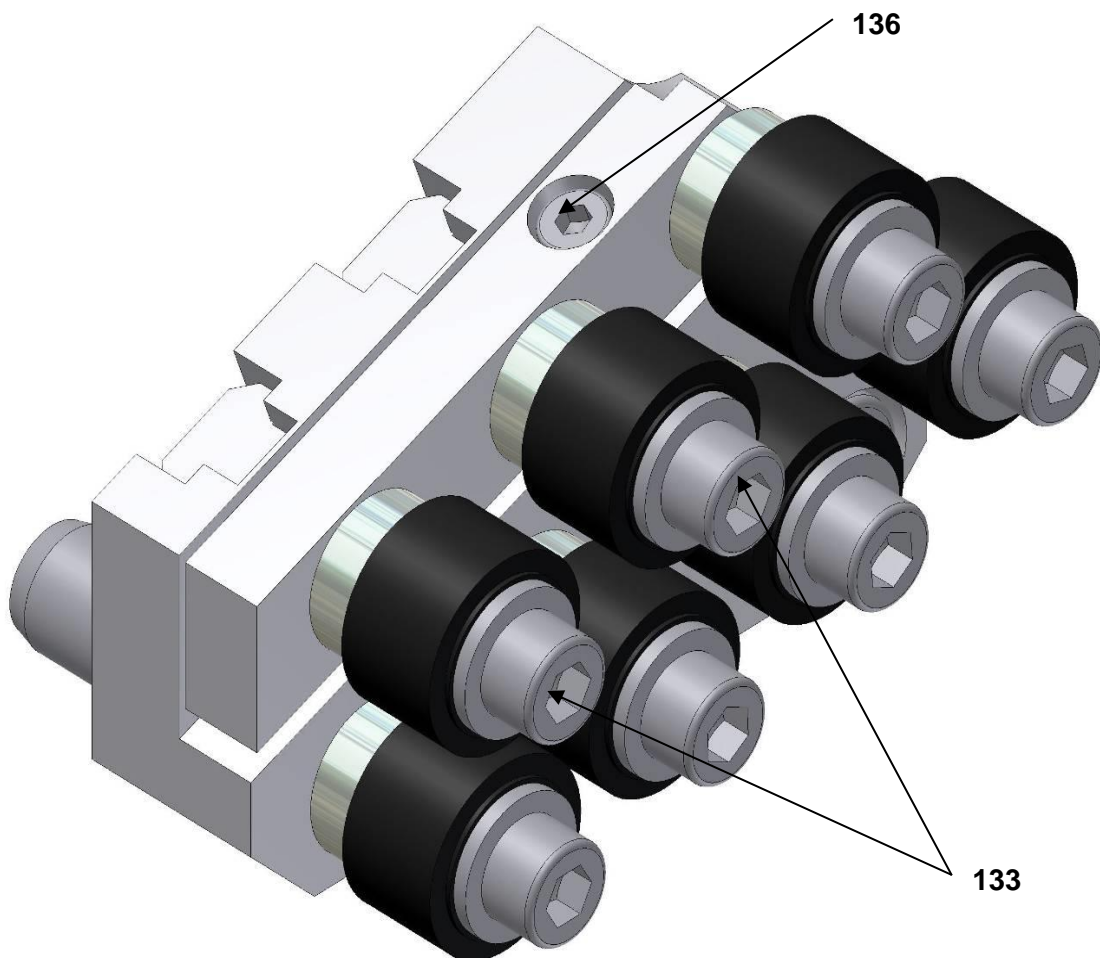
8.4. Setting the aligning rolls

The strapping material is permanently conveyed and directed by the aligning rolls.

Setting is implemented via the adjusting screw **(136)**. For that purpose, the two retaining screws **(133)** are loosened.

Turning the adjusting screw clockwise results in a higher aligning effect, turning it counter clockwise results in a lower aligning effect.

Upon termination of the setting the position of the upper aligning rolls is fixed by retaining screws.



8.5. Setting air pressure

Four pressure settings are required for the best result.

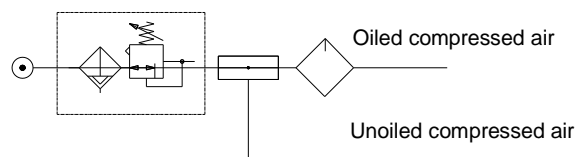
Pressure controller:

- 🔵 **DR 1** Pressure controller on the machine (Main controller) 3/4"
- 🔵 **DR 2** Pressure controller on the multi-block
- 🔵 **DR 3** Pressure controller in the multi-block
- 🔵 **DR 5** Pressure controller for Clamping force transport compensator

1. The pressure controller **DR 1** is found on the maintenance unit of the machine.

The maintenance unit provides for the quality of the compressed air. It filters water, oil aerosols as well as dirt and rust particles out of the air and provides the entire machine with sufficient air pressure. It should be able to discharge oiled and unoiled air.

In case of high level differences between the maintenance unit and the strapping head or a hose length of more than 5 m a separate oiler must be installed near the head.



If the machine is without air supply, the maintenance unit must be installed either directly on the head or as near as possible near the head (depending on the installation position of the head).

- 🔵 **Cross section of port:** **3/4"**
- 🔵 **Air pressure:** **6 bar flow pressure**
- 🔵 **DR 1** is set to **5.5–6.5 bar**.

Effects of that setting on the strapping head:

- 🔵 The pressure set results in **maximum strap tension** and **fastest strap transport speed**

Activation via unrestricted valve **Y2** in the multi-block and corresponding consumer valve **Y3 to Y8** and **Y16, Y17, Y18**.

2. The pressure controller **DR 2** is found at the multi-functional block. It is set to 1.5 to 2 bar, readable on its pressure gauge.

The set pressure leads to the **minimum** strap tension and feed speed.

Selection directly **via** consumer valve, **Y3, Y4, Y6**.

Main functions:

- a) Pulse counting precise movement
- b.) Slow partial strap feed
- c.) Slow strap return during movement of head
„Head on packing item“

3. The pressure controller **DR 3** is found at the multi-functional block. It is used for setting the strap tension between minimum and maximum.

Selected via valve **Y1** in the multi-functional block and the corresponding consumer valve **Y6**.

 **The main function is the setting of the strap tension.**

The pressure is set at the pressure regulation valve, at valve **Y1**, and read at its pressure gauge. The valve can be activated manually or via the control.

4. The pressure controller **DR 5** is needed for the contact pressure force of the counter-roll against the conveying roll.

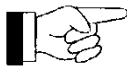
Depending on the kind and quality of strap the contact pressure force between conveying roll and counter-roll is set by the pressure control valve **DR 5**.

It has to be set such that the strapping material neither penetrates the layer of the conveying roll too strongly nor that slipping of the conveying roll results from the setting.

9. Maintenance

9.1. General

- 🌀 The permanent readiness for operation of the strapping head type **VS 11-L** is achieved by regular and careful maintenance.
- 🌀 Always keep the strapping head clean.
- 🌀 Keep polluting particles and foreign substances away from strap guidance and the sealing area.



Attention!

All parts must be checked at regular intervals and replaced if worn. Parts worn out impair sealing stability and affect the transport security of the packing item.



Disregarding this note can result in faults and injuries.



Use **original TITAN spare parts** only!

The use of parts not being TITAN spare parts excludes warranty claims and liability.

Tool inspection!

Perform a **daily** visual inspection of the outside of the unit. The early detection of damaged parts extends the life of the unit. Replace all damaged parts **immediately** with **Original TITAN spare parts**.

9.2. Maintenance intervals

Sealing unit:

- ⓘ Before the beginning of a shift: assessment of the seal without sleeve. All cuts must be fully available and undamaged.
- ⓘ Weekly inspection of the clamps and all cutters.
- ⓘ Every three weeks inspection of the entire assembly including dismounting, cleaning and lubrication.

Transport element:

- ⓘ Weekly inspection of the tensioning idler indentation.
- ⓘ Every three weeks inspection of the entire assembly including dismounting and cleaning.

9.3. Lubrication points

- ⓘ All bearings installed are provided with long-time lubrications which requires renewal just once a year.
- ⓘ All sliding surfaces of the sealing unit must be lubricated.
- ⓘ **The following greases can be used:**

Shell	Retinax AM
Mobilgrease	Special
DEA	Molytex Grease EP 2
Esso	Mehrzweckfett
Aral	Mehrzweckfett F

Important!

This head may only be operated in conjunction with a compressed air maintenance unit comprising: pressure reducer, water separator and oiler. It cleans the compressed air, removes condensation water and permanently supplies the motors with the amounts of oil required. A screwdriver is used to set the oiler on the upper side such that a drop of oil falls downward in the sight glass during each strapping. Turning cw results in less oil, turning ccw in more oil.


Attention!

In no case must the strapping head be operated without oil in the oiler, since the immediate consequence would be the destruction of the compressed air motors!

During the entire operation the compressed air motors must be operated with filtered and oiled compressed air. As to the amount approx. 3 to 5 drops are required per 1 m³ air, this corresponds to 0.12 to 0.2 g/m³. Unalloyed mineral oil is the lubricating oil to be considered in first place. It must be of low viscosity and without resin or acid. Viscosity of 2 to 4°E at 50 °C (12-30 cSt) suited well (for other temperature ranges see viscosity table). Motor temperatures ranging from -30 to +100 °C are admissible. In case of ambient temperatures of less than +5 °C, however, there is the risk of icing. In that case dried air or appropriate ice-inhibiting lubricants (e.g. "Killfrost Anti Eis") are recommended.


Caution!

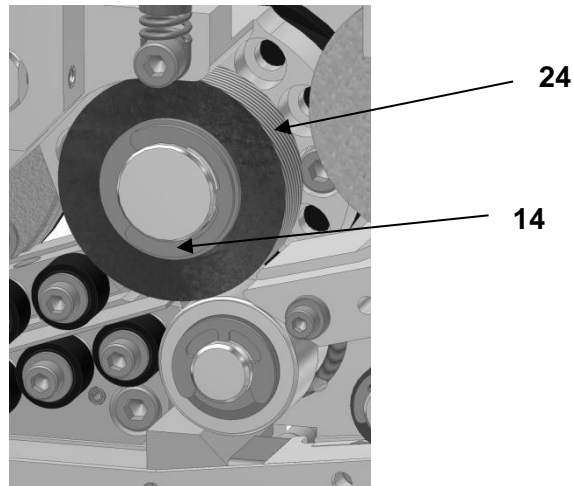
Wear breathing equipment when using antifreeze agents.

The following oils can be used:

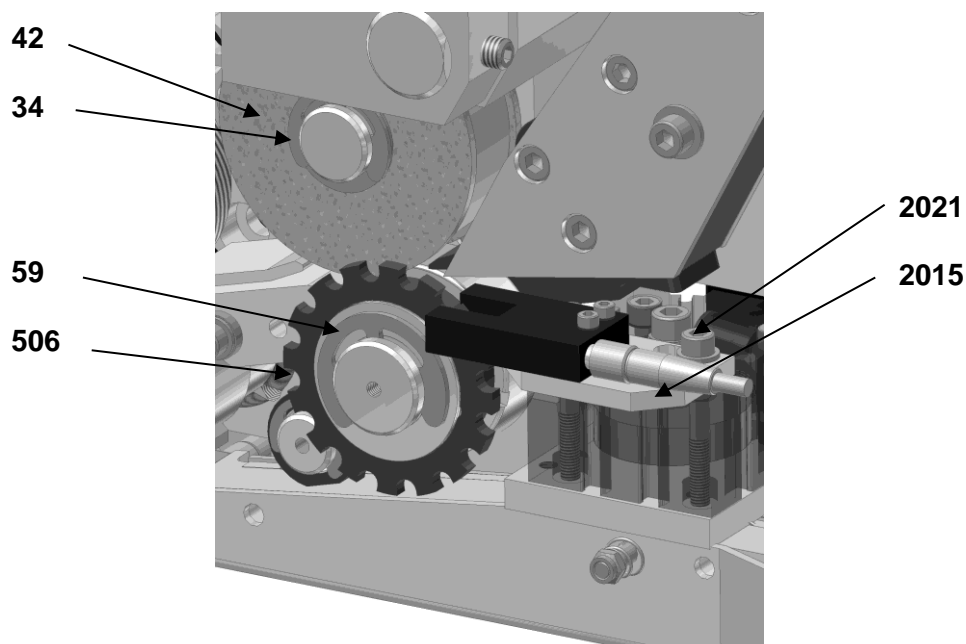
Esso	D 32	-10	bis	+30°C
	D 100	+25	bis	+55°C
	CL 320	+45	bis	+75°C
DEA	Aries 32	-25	bis	+20°C
	Aries 100	0	bis	+50°C
Shell	Tonna Oel R32	-10	bis	+30°C
	Tonna Oel R100	+25	bis	+55°C
Mobil	Almo 525	-20	bis	+20°C
	Almo 527	0	bis	+30°C
	Almo 528		über	+15°C

9.4. Maintenance transport unit

- ⓘ The maintenance of the transport unit should be performed at three-week intervals.
- ⓘ To main idler **24** remove safety disk **14** and pull off the idler including supporting disk to the front. Use a wire brush to clean the idler by removing paint and wax residues. Following that, apply grease to the motor shaft and slip on the idler including supporting disk again. Plug in the safety disk again.



- ⓘ Loosen the fastening screws **2021** and push the light barrier holding device **2015** away from the counting disk. Remove safety disk **59** and pull off counter disk **506** including axial disk to the front. Remove safety disk **34** and pull off transport roll including supporting disk to the front. Clean Vulkollan coat and check it for damage. Apply grease to the motor shaft and slip on the transport roll including supporting disk again. Plug on the safety disk. Push back the light barrier holder and ensure that the counter disc and counter-roll can move freely. Following that tighten the fastening screws.



9.5. Maintenance of the aligning device.

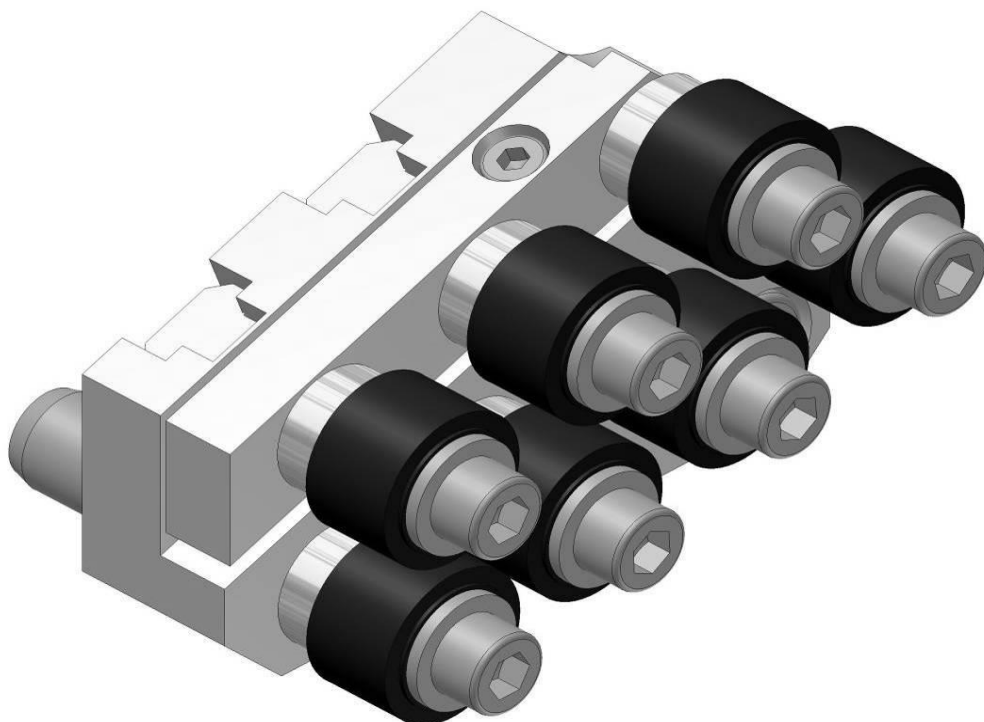
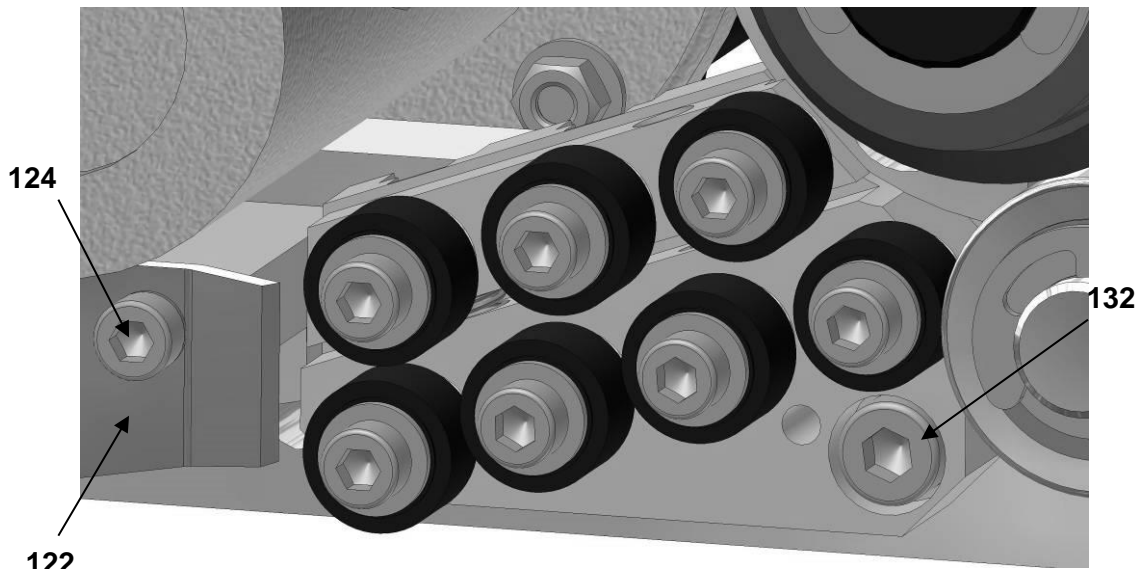
- Loosen cheese-head screws **124** and dismount them together with the lateral guide **122**.
- Loosen cheese-head screw **132** and pull off the complete aligning device forward.
- Use compressed air for the cleaning of the aligning device!






Attention!

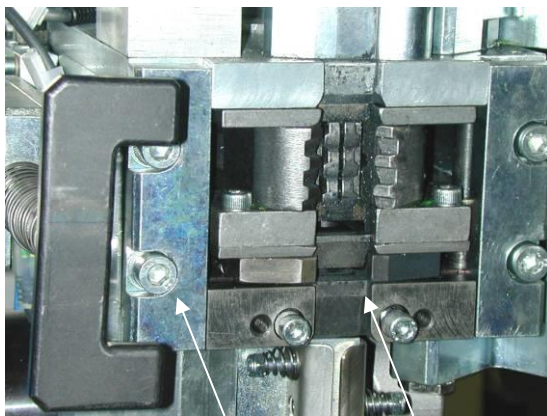
When air-cleaning the unit by means of compressed air the worker must wear protective glasses.

- Put the aligning device back into the strapping head and insert fastening screw.

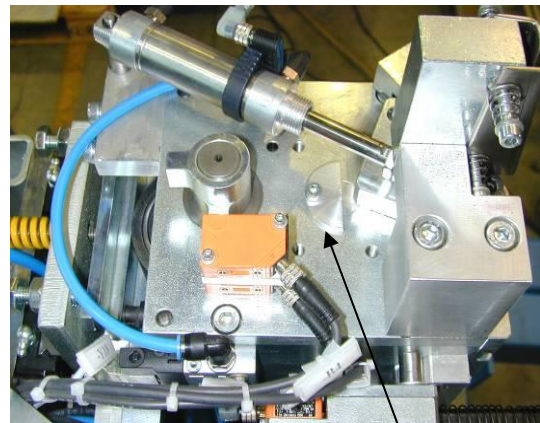


9.6. Maintenance cutter package

-  During the check and maintenance of the cutter package special attention must be paid to the clamping edges of the clamps **415 + 416**, the cutting edge of cutter **413** and the cutting edges of the upper and lower cutters. Worn-out clamping edges cause the slipping-through of the strap during the tensioning operation. The cutting edges should be undamaged and sharp. Blunt and notchy cutting edges cause a strong formation of burr when notching and cutting.
-  **For disassembly proceed as follows:**
 Move the sealing unit to the lower position (tongs closed). Detach the fastening screws of strips **303** and clamping guidance **1041/1042/1043**. Remove strips and clamping guidance. Detach fastening screw of the cover **372** remove cover. Use an M6 bolt to pull the connecting pin **312** through the cover hole. Then the cutter package can be drawn to the front out of the sealing unit.
-  **Assembly is performed in reverse order.**



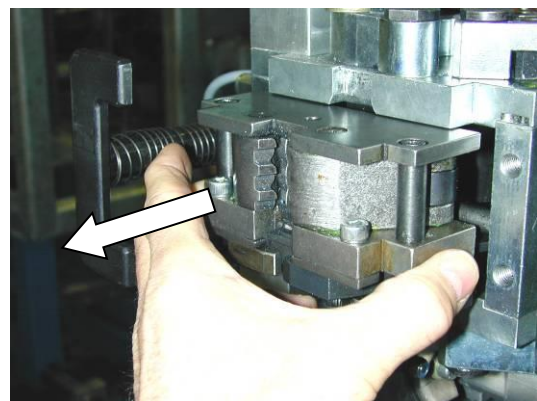
303 1041/1042/1043



372

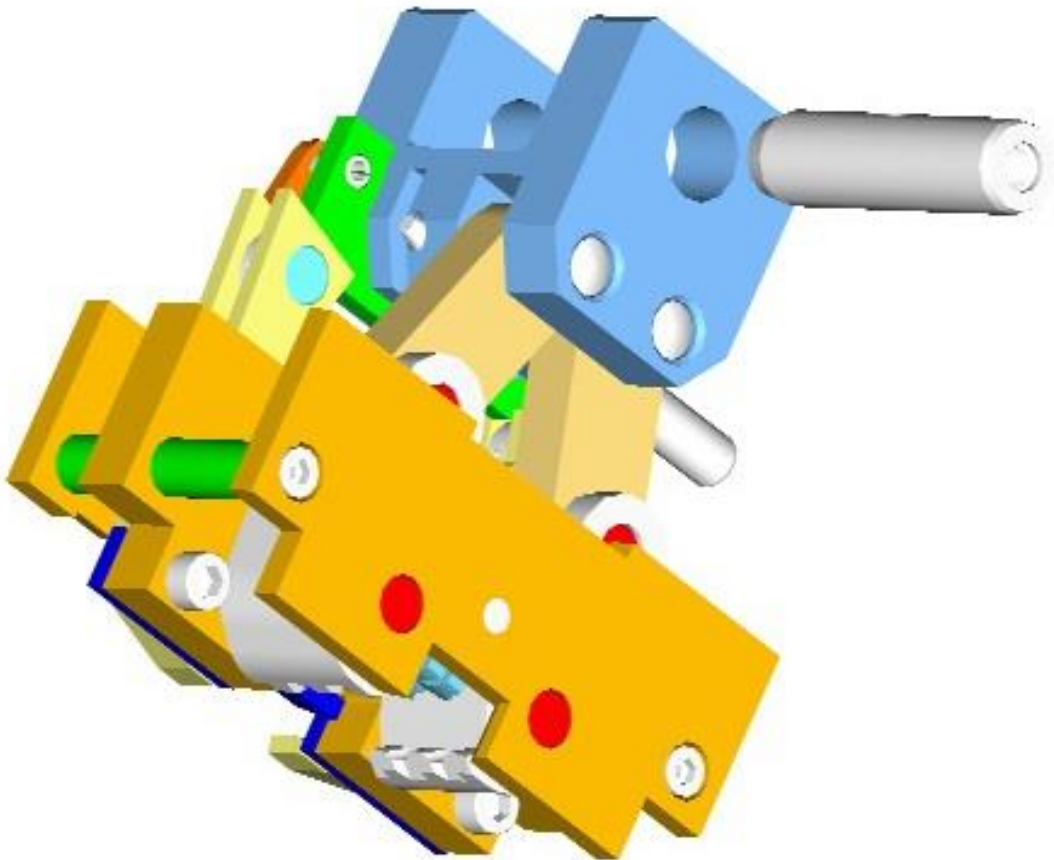


312



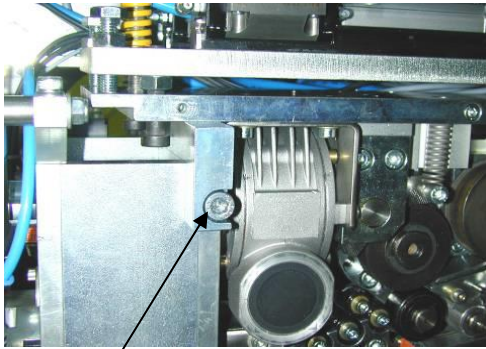
Cutter package unit:

- ④ The cutter package unit is mounted and screwed completely.
- ④ It comprises the cut groups: notching, cutting and clamping.
- ④ To keep times for change-overs and repairs short it is therefore recommended to order a spare cutter package.
- ④ To achieve constant quality and life of the cutter packages it is recommended to send worn packages to Titan for repair or replacement.

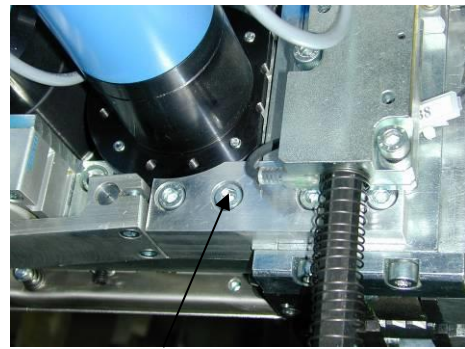


9.7. Dismounting and mounting the sealing unit

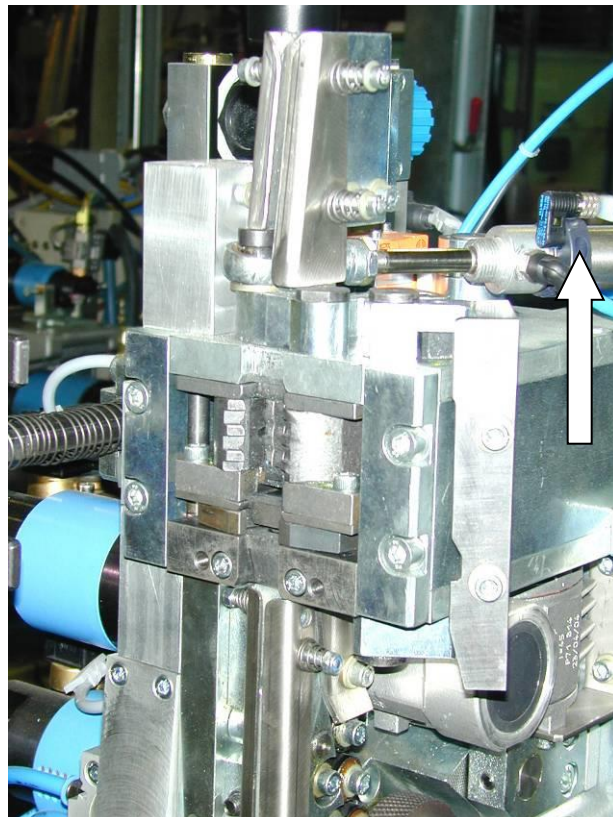
- ❗ To dismount the sealing unit it is required that all plug contacts of the switches **B3**, **B4**, **B6** and the head disable **513** are unscrewed.
- ❗ Loosen the 2 fastenings crews of link **347** and the fastening screw of link **9**. The sealing unit can then be remove upwards from worm unit 2 and replaced with a replacing sealing unit or repaired.



9



347



10. Search for faults – troubleshooting

Fault	Cause	Remedy
Strap not fed into strap channel system.	There is no strap between rollers 42 and 62 .	Re-insert strap.
	Sealing unit not at zero position.	Reset to zero position.
	The strap guiding flap is open. The safety switch B6 is activated.	Restore zero position or eliminate the jam.
The strap does not reach the strap stop switch B1 .	Offset at the channel transition points (bordering)	Align transitory points.
The strap does not reach the sealing section.	0-position is not correct. The tongs are already closed.	Re-adjust 0-position.
Strap overlap too long / too short.	Not enough count pulses.	Increase number of pulses.
	Too many count pulses.	Reduce number of pulses.
	Counter switch defective	Check counter switch.
Change-over pulse from feed to tensioning does not come.	Counter switch	Check counter switch.
Strap tension too low.	Idler 24 slips.	Replace idler.
Strap breaks during tensioning at clamping edge.	Strap tension chosen too high.	Reduce tension via pressure controller DR 3 .
Strap not cut off.	Cutting blade is blunt, the counter cutter is defective.	Cut off strap manually. Provide for 0-position. Replace cutter or counter cutter.
The head is not released from the packing item.	Cutter is broken.	Manually cut off strap. Move head to initial position. Repair of the cutter.

11. Declaration of incorporation

Declaration of incorporation of partly completed machinery

in terms of the directive 2006/42/EC on machinery, Annex II B

The manufacturer

TITAN Umreifungstechnik GmbH & Co.KG
Berliner Straße 51-55

58332 Schwelm

herewith declares that the pneumatic strapping head for steel strap described below

Type designation: VS 11-L
Serial number: 01 0003

corresponds to the essential requirements of the following directives (the requirements of which have been fulfilled, see annex), as far as is possible within the scope of this delivery:

Directive 2006/42/EC on machinery
Directive 2004/108/EC relating to EMC

Used harmonised standards, published in the official journal of the EU:

<i>EN ISO 12100-1: 2004,</i>	Safety of machinery – Basic concepts, general principles for design – Part 1: Basic terminology, methodology
<i>EN ISO 12100-2: 2004,</i>	Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles and specifications
<i>EN 1010-1:2005</i>	Safety of machinery – Safety requirements for the design and construction of printing and paper processing machines – Part 1: General requirements (Final concept 02/2003)
<i>EN 1010-3:2002,</i>	Safety of machinery - Safety requirements for the design and construction of printing and paper processing machines – Part 3: Cutting machines
<i>EN 60204-1:2007,</i>	Safety of machinery – Electrical equipment of machines – Part 1: General requirements

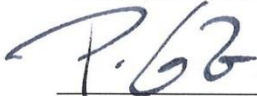
Furthermore the manufacturer declares, that the technical documentation for this partly completed machinery is compiled in accordance with part B of Annex VII and undertakes to transmit, in response to a reasoned request by the national authorities, the relevant information of the partly completed machinery in digital form.

This partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this directive and for which an EC declaration of conformity of the machinery in accordance with part A Annex II has been published.

Authorized representative for the compilation of the technical documentation:

TITAN Umreifungstechnik GmbH & Co. KG
Berliner Strasse 51-55
58332 Schwelm

Schwelm, the 16.07.2010



Peter Wilhelm Lenzen jr.
President

Annex

Requirements of Annex I from the directive 2006/42/EC which are fulfilled. The numbers relate to the parts of Annex I:

1.1.2., 1.1.3., 1.1.5., 1.2.2., 1.2.3., 1.2.6., 1.3.1., 1.3.2., 1.3.4., 1.3.7., 1.3.8.2., 1.4.1. (partly), 1.4.2.1. (partly), 1.5.1., 1.5.2., 1.5.8., 1.5.10., 1.6.1., 1.6.2., 1.6.3., 1.6.4., 1.6.5., 1.7.1., 1.7.2., 1.7.3., 1.7.4.1., 1.7.4.2., 1.7.4.3.

TITAN Umreifungstechnik GmbH & Co.KG
Sitz der Gesellschaft: Schwelm
HR A 4724, Amtsgericht Hagen
USt-Ident-Nr. DE 187983242

Persönlich haftende Gesellschafterin:
TITAN Umreifungstechnik
Verwaltungsgesellschaft mbH
Sitz der Gesellschaft: Schwelm
HR B 6416, Amtsgericht Hagen
Geschäftsführer: Peter Wilhelm Lenzen jr.

Commerzbank AG, Iserlohn
Volksbank Hohenlimburg eG
National-Bank, Essen
Fortis Bank, Köln

BLZ 445 400 22
BLZ 450 615 24
BLZ 360 200 30
BLZ 370 106 00

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Kto. 4046373900
Kto. 8506361
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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>