



**MARTIN<sup>®</sup>**  
**DT2S Secondary**  
**Cleaner**



**Installation Instructions**  
**M3687UK**



<b>1</b>	<b>Table of Contents</b>	<b>1</b>
<b>2</b>	<b>Introduction</b>	<b>3</b>
2.1	About these installation instructions	3
2.1.1	Scope	3
2.1.2	Copyright	3
2.1.3	Exclusion of liability	3
2.1.4	Reference to additional documents	4
2.1.5	Classification of the hazards	5
2.2	Intended usage	6
2.2.1	Conveyor systems with open transfer systems	6
2.2.2	Usage in explosion-protected areas	6
2.2.3	Restrictions on the use of the product	7
2.3	Occupational safety	7
2.3.1	Safety information, occupational safety	7
2.3.2	Duties of the owner-operator	8
2.3.3	Authorised personnel	8
<b>3</b>	<b>Description of the product</b>	<b>9</b>
3.1	Design and function	9
3.2	Type designation	10
<b>4</b>	<b>Preparing for the installation</b>	<b>11</b>
4.1	Before the installation	11
4.1.1	Required materials and tools	11
4.1.2	Preparatory measures	11
<b>5</b>	<b>Installation</b>	<b>13</b>
5.1	Safety information	13
5.2	Installation process	14
5.2.1	Determination of the installation position	15
5.2.2	Conversion of the Bottom Mount spring tensioner to Top Mount	18
5.2.3	Replacing springs	23
5.2.4	Installing the tensioner	24
5.2.5	Installing the cleaner	25
5.2.6	Securing the cleaner	26
5.2.7	Centring the secondary cleaner beneath the conveyor belt	27
5.2.8	Aligning the secondary cleaner in parallel to the driving drum axis	28
5.2.9	Aligning the secondary cleaner horizontally to the driving drum axis	29
5.2.10	Tightening the cleaner	30
5.3	Operation with loading	36
5.4	Placement of warning labels and warning tags	38
<b>6</b>	<b>Maintenance</b>	<b>39</b>
6.1	Safety information	39
6.2	Weekly maintenance	39
6.3	Replacing the blades	42

# Table of Contents

<b>7</b>	<b>Troubleshooting .....</b>	<b>49</b>
7.1	Safety information .....	49
7.2	Troubleshooting .....	49
<b>8</b>	<b>Storage, De-installation, Disposal .....</b>	<b>51</b>
8.1	Packing and transportation .....	51
8.2	Storage .....	51
8.3	De-installation .....	51
8.4	Disposal .....	51
<b>9</b>	<b>Part numbers .....</b>	<b>52</b>
9.1	Explanation of part numbers .....	52
9.2	Martin® Inspection Doors.....	54
9.3	Accessories.....	54
9.4	Warning labels / Warning tags .....	54
9.5	MARTIN® DT2S Secondary cleaner.....	55
9.6	MARTIN® DT2SC Secondary cleaner cartridge .....	58
9.7	MARTIN® DT2S Spring tensioner .....	60
9.8	MARTIN® DT2S Air tensioner .....	62
<b>10</b>	<b>Declaration of Incorporation .....</b>	<b>64</b>

## 2 Introduction

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### 2.1 About these installation instructions

Non-compliance with these installation instructions can result in loss of compensation for damage and/or warranty claims.

#### 2.1.1 Scope

These installation instructions apply solely for the product described herein and are intended for those persons who install this product, commission it and monitor its usage.

#### 2.1.2 Copyright

The products described and these installation instructions are protected by copyright. Any reproduction without a licence will be prosecuted. All rights to the present document are reserved, including its reproduction and/or copying in any conceivable manner. Reprints of this document require the written consent of Martin Engineering.

The technical standard at the time of delivery of the product and its technical documentation are decisive as long as no other information is provided. The product and documentation may be subject to technical changes without prior notification. Earlier documents then lose their validity. Martin Engineering's General Terms of Sales and Delivery shall apply.

#### 2.1.3 Exclusion of liability

Martin Engineering guarantees the flawless function of its product in accordance with its advertising, the published product information and its technical documentation. Martin Engineering shall assume no liability for efficiency and flawless function if the product is used for a purpose other than that described in the "Intended Use" section or for damage resulting from the use of accessories and/or spare parts which were not supplied and/or certified by Martin Engineering.

Martin Engineering products are designed for a long service life. They conform to the state of the art in science and technology and were thoroughly inspected before shipment. In addition to this, Martin Engineering constantly performs product and market research for continuous product development.

Martin Engineering offers competent support whenever malfunctions and/or technical problems occur. Suitable actions are taken immediately. The warranty provisions of Martin Engineering apply and can be sent to you as needed.

## 2.1.4

### Reference to additional documents

Reference is made in these installation instructions to the following documents:

- Installation instructions for the MARTIN® Inspection door, Publication no. M3127.

The following standards and directives were complied with in the preparation of these installation instructions:

- EU Machinery Directive (2007/42/EC)
- ISO/IEC Guide 37 "Installation instructions for products used by consumers", 1995 Edition
- DIN 1421 "Arrangement and numbering in texts", Edition 1983-01
- DIN/EN 12100 "Machine safety - basic definitions, general design guidelines", Edition 2010-11
- DIN/ISO 16016 "Technical product documentation - Protection notices for restricting the use of documents and products", Edition 2007-12
- DIN/EN 60204-1 "Safety of machines - Electrical Equipment of Machines, Part 1 General requirements", Edition 2007-07
- DIN EN 82079-1 - Creation of user manuals - Structuring, content and presentation, Part 1 General principles and detailed requirements.

## 2.1.5

## Classification of the hazards

**DANGER**

Represents an immediately threatening danger which leads to serious bodily injuries or death if not avoided.

**WARNING**

Represents a possibly hazardous situation which could lead to serious bodily injuries or death if not avoided.

**CAUTION**

Represents a possibly hazardous situation which could lead to minor bodily injuries and/or property damage if not avoided.

**NOTE**

Contains comments about the installation and/or the product's usage to point out situations which cause neither personal injury nor property damage but include important information.

**2.2****Intended usage**

MARTIN® DT2S secondary cleaners are used to clean materials clinging to conveyor belts. They can be used on conveyors with a belt width of up to 2400 mm and a belt speed of up to 3.6 m/s. The installation position of the cleaner directly downstream of the head pulley ensures that the cleaned off material is fed back to the material flow.

Every other usage of this product is deemed as misuse. Please contact Martin Engineering customer service if you would like to use this product for a different purpose. We will be happy to assist you with the product configuration.

**2.2.1****Conveyor systems with open transfer systems**

These installation instructions describe the installation on conveyor systems with encapsulated transfer systems. Various MARTIN® installation brackets can be used on open transfer systems.

Martin Engineering or one of its representatives can assist with the position or with special solutions in cases where the installation conditions are complicated such as insurmountable static components or a head pulley as the tensioning station.

**2.2.2****Usage in explosion-protected areas**

This product can also be used in potentially explosive areas under certain conditions. Contact Martin Engineering for more information on usage in potentially explosive areas.

The cleaner must not be used in a higher equipment protection category or under other operating conditions than those specified by Martin Engineering unless such usage has been approved by Martin Engineering.



### **2.2.3 Restrictions on the use of the product**

The product specified here may only be used within the scope of the specifications referred to above. Usage in a higher equipment protection category or under other operating conditions than those specified by Martin Engineering shall be deemed misuse and is only permitted if approved by Martin Engineering.

Operation of this product is only permitted if all parts are in a flawless state. In case of damage (cracks, rust, etc...) changes or other mechanical modifications, shut down this product immediately.

Martin Engineering or one of its representatives can assist you with the product configuration if you need to use this product for a different purpose.

## **2.3 Occupational safety**

### **2.3.1 Safety information, occupational safety**

These installation instructions must be read through in their entirety before work may be started on the product or on the conveyor system supplied by the customer.

The owner-operator must ensure that all installation, inspection and maintenance work is performed solely by trained specialists.

Work on conveyor systems and their accessories must always be performed during shut-down. The procedures described in the applicable installation instructions for shutting down the conveyor system must always be complied with.

All of the safety devices and safeguards must be reattached and/or made operational again immediately following completion of the work.

The installation must be completed before the system is started up. The flawless execution of all operating steps must be tested before the conveyor system can be started up again. Please observe all information on the installation and start-up of the product.

## 2.3.2

### **Duties of the owner-operator**

This product's owner-operator must ensure that this product is installed, serviced and used solely by those persons who

- know the rules regarding occupational safety and accident prevention,
- were trained on using this product and have read and understood these installation instructions.

## 2.3.3

### **Authorised personnel**

Personnel are considered authorised when they have suitable training and technical experience, can demonstrate knowledge of the applicable standards and directives, and are able to evaluate tasks in order to recognise critical situations at an early stage.

### **Operating, maintenance and installation personnel**

Personnel are considered authorised when they have been trained on using the product and have read and understood these operating instructions in their entirety.

## 3 Description of the product

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### 3.1 Design and function

The Martin® DT2S secondary cleaner is primarily installed in a cleaner system consisting of pre-cleaners and secondary cleaners, but can also be used as a single cleaner.

The cleaner is installed directly behind a head pulley or tension pulley. Its slide-on blade holder enables quick and easy maintenance.

When the blades are properly selected, it can also be used on reversing conveyor belts or conveyor belts with a high return flow rate - also refer to the type description.

The cleaner can also be used in connection with mechanical joints if they are in good condition and optimally installed.

Although pre-cleaners and secondary cleaners can each be used individually, the installation of a system consisting of pre-cleaners and secondary cleaners is recommended for an optimal cleaning result.



#### NOTE

An unfavourably or improperly installed product can disrupt the conveyor process or contaminate the bulk material to be transported.

The owner-operator is responsible for taking the required countermeasures.

In the case of applications with contaminants, Martin Engineering or one of its representatives can assist with the positioning or with special solutions.

## 3.2

### Type designation

The Martin® DT2S secondary cleaners can be equipped with various blade types:

- Reversing blades with tungsten carbide inserts  
Also available completely of urethane or stainless steel for reversing operation or conveyor belts with a high return flow rate.

The Martin® DT2S secondary cleaners can be equipped with two different types of tensioners:

- Spring tensioner  
Can be used for most applications
- Air tensioner  
For applications in heavily polluted areas or where air is generally available. An additional advantage is that the cleaner can be tensioned and slackened automatically.

## 4 Preparing for the installation

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### 4.1 Before the installation

#### 4.1.1 Required materials and tools

Along with the standard tools, the following special equipment may be needed for the installation and maintenance of your product.

- Lifting device with a capacity greater than the weight of the product (see delivery note for weight data).

#### 4.1.2 Preparatory measures



#### NOTE

Perform the inspections described - carefully and completely. The shipping company is liable for any transport damage! Please contact the shipper with any damage claims.

1. Inspect the delivery for the following conditions:
  - Is the delivery complete? Does the number of pallets/ crates/containers delivered match the number on the delivery note?
  - Do all of the transport packages appear to be undamaged? Does damage to the packaging indicate possible damage to the product contained inside?

2. Always record any incompleteness or transport damage discovered in the delivery and have it confirmed by the shipper. All damaged products must be kept for inspection.
3. The delivery should include the following parts, depending on the scope of the order:
  - MARTIN® DT2S secondary cleaner (mainframe, tensioner, blades).
  - Two Conveyor Products Warning Labels, Part No. 23395
  - Two Crushing Hazard Warning Labels Part No. 30528
4. Report any missing or damaged parts to Martin Engineering or one of its authorised dealers.

## 5 Installation

### 5.1 Safety information



#### WARNING RISK OF INJURY!

Body parts and/or clothing may get caught and pulled in by rotating parts or by the moving conveyor belt.  
*Before any installation or maintenance work is carried out, ensure that all power sources to the conveyor belt system and its accessories are switched off and secured against unauthorised reactivation. Use warning signs!*



#### WARNING DANGER OF EXPLOSION!

Increased risk when using a cutting torch or welding device in closed spaces!  
*Check the gas and dust content of the air before usage.*



#### WARNING RISK OF INJURY!

The secondary cleaner is heavy and can cause serious injuries if it is dropped during lifting or moving.  
*Always use a suitable lifting device or engage the help of several persons when lifting the secondary cleaner. Do not stand under hanging loads.*



#### NOTE

The item numbers in the pictures correspond to the numbering in the parts list in Section 9.



#### NOTE

The chute wall on which the inline reversing tensioner is to be installed is designated as the "operator side". The other chute wall is referred to as the "far side".  
 When dual inline reversing tensioners are installed, the easiest side to access is the "operator side".

5.2

**Installation process**

An overview of the installation steps follows:

No.	Installation step	Instructions
1	Positioning the mainframe of the cleaner	M3687
2	Installing the cleaner	M3687
3	Installing the tensioner	M3687
4	Tightening the cleaner	M3687

Tab. 1: Installation steps

Various on-site conditions requiring different work steps are possible for the installation. These are presented as follows:

Installation on an encapsulated transfer system

- Follow the instructions given in Section 5.2.2.

Installation on an encapsulated transfer system with pre-existing installation openings and air line brackets for belt cleaners.

- Follow the instructions given in Section 5.2.3.

Installation on an open transfer system

Use the equipment provided at the site to comply with the dimensions for correct installation.



5.2.1

Determination of the installation position

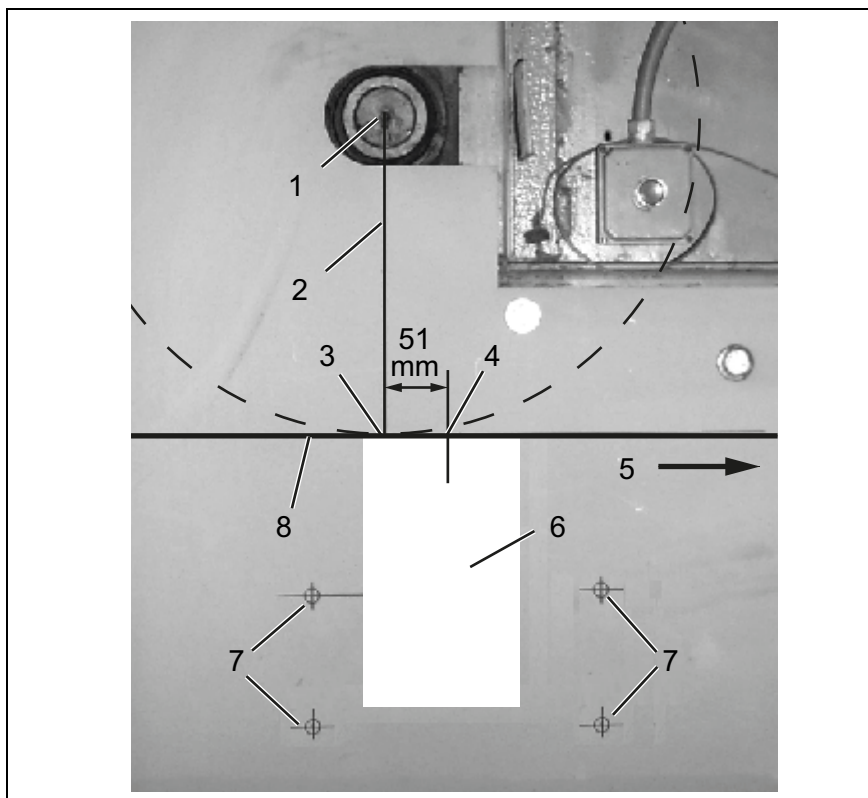


Fig. 1

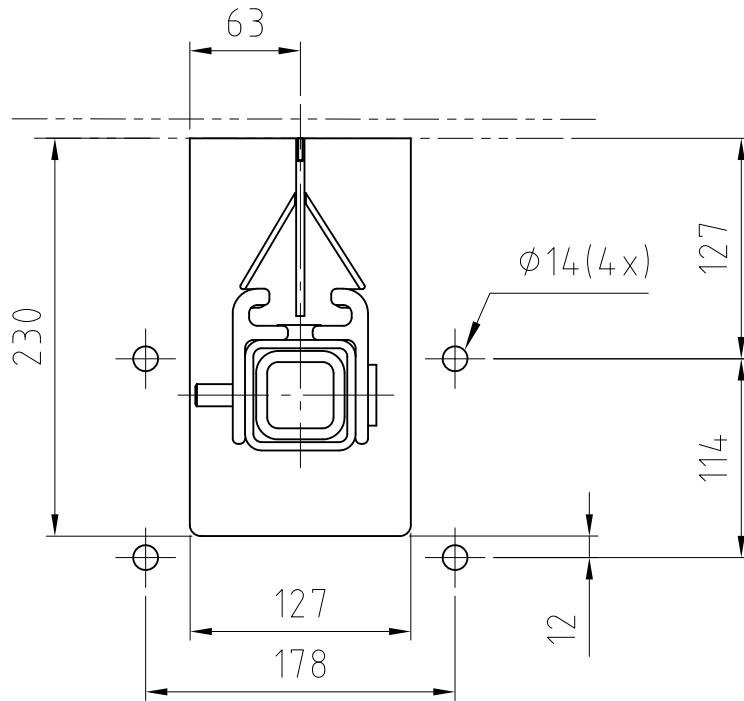


**NOTE**

The installation dimension recommended by Martin Engineering, the cleaner must not be installed further than 51 mm from the head pulley as otherwise a counter-pressure roller is required.

Item	Description
1	Centre point of the driving drum
2	Perpendicular on the lower conveyor belt level
3	Exit point of the conveyor belt from the driving drum
4	Position of the belt cleaner's blade tip
5	Running direction of the conveyor belt
6	Installation opening
7	Installation holes in the tensioner
8	Lower conveyor belt level

Tab. 2: Determination and creation of the installation position



Spring tensioner  
Bottom Mount

Fig. 2



**NOTE**

Martin Engineering recommends installing a MARTIN® inspection door for the purpose of better accessibility for maintenance and repairs.

1. Sketch the lower conveyor belt level (8, Fig. 1) on the operator side of the chute wall.
2. Determine the centre point (1, Fig.1) of the driving drum.
3. Drop a perpendicular (2, Fig. 1) from the centre point to the lower conveyor belt level.
4. Mark a point (4, Fig. 1) at a distance of 51 mm from the exit point (3, Fig. 1) in the running direction of the conveyor belt (5, Fig. 1). This point is the later position of the blade tip.
5. Starting from the point marked in step 4, sketch the cut-out for the installation opening (6, Fig. 1) on the chute wall using the dimensions from Fig. 2.



#### NOTE

The dimensions differ, depending on the tensioner or tensioner variant used (Fig. 2).

The tensioner equipment bracket can be used as a template.

6. Use the dimensions from Fig. 2 to mark the installation holes (7, Fig. 1) on the chute wall.
7. Create the cut-out for the installation opening at the points marked in Step 5.
8. Drill the holes for the installation ( $\varnothing 14$  mm).
9. Repeat steps 1 to 8 on the far side.

5.2.2

Conversion of the Bottom Mount spring tensioner to Top Mount



**NOTE**

The spring tensioner is delivered in the Bottom Mount variant as standard.  
 Proceed as follows if spatial restrictions require a conversion from Bottom Mount to Top Mount:

5.2.2.1

Operator side and far side

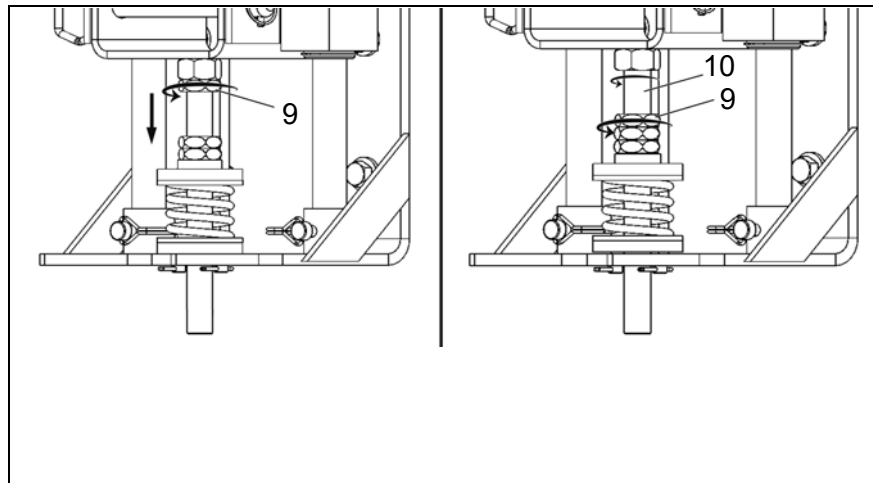


Fig. 3

1. Loosen the locknut SW32 (9, Fig. 3 left) clockwise and screw it up to the hex nuts.
2. Unscrew the threaded rod (10, Fig. 3 right) with the locknut (9, Fig. 3 right) clockwise.

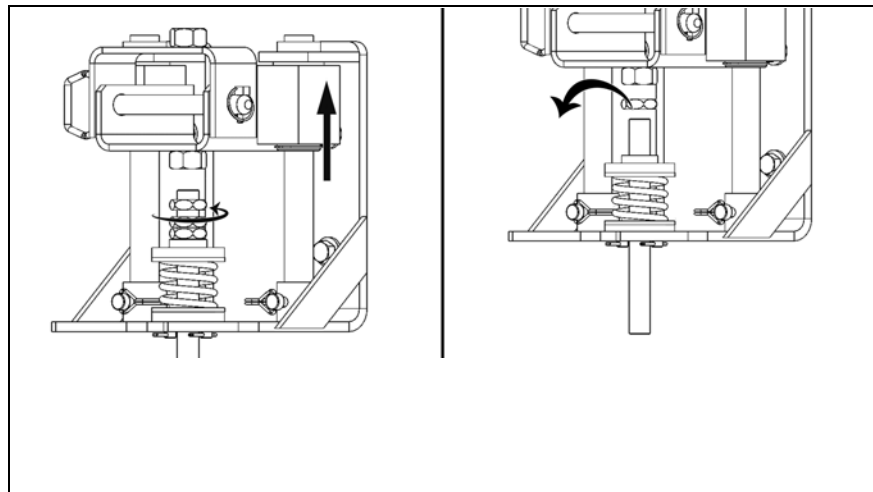


Fig. 4

3. Slide the bracket all the way to the top.
4. Turn all of the locknuts and the adjusting nut counter-clockwise and remove them from the threaded rod.

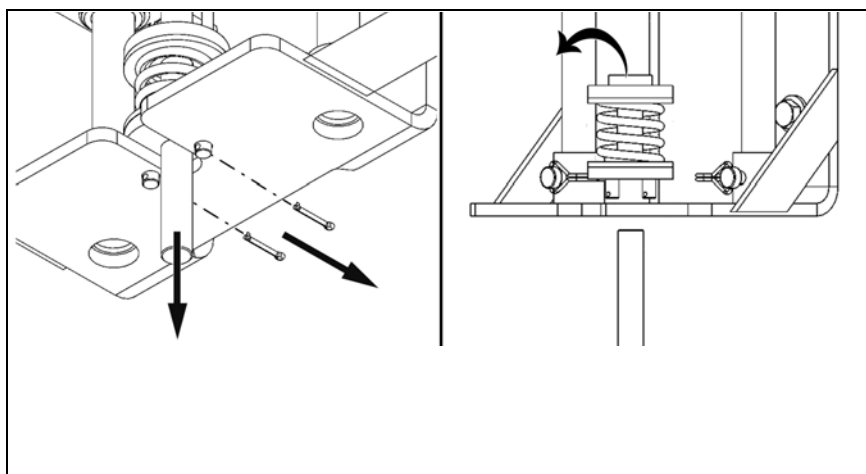


Fig. 5

5. Pull the threaded bolt (Fig. 5 left) downwards and remove it.
6. Remove the hammerlock cotter pins from the bolts (Fig. 5 left).
7. Remove the force spring with its washers and bolts (Fig. 5, right).



#### NOTE

Please note during conversion that the threaded rod can only be screwed in from one side.  
The thread of the threaded rod is blocked on one side.

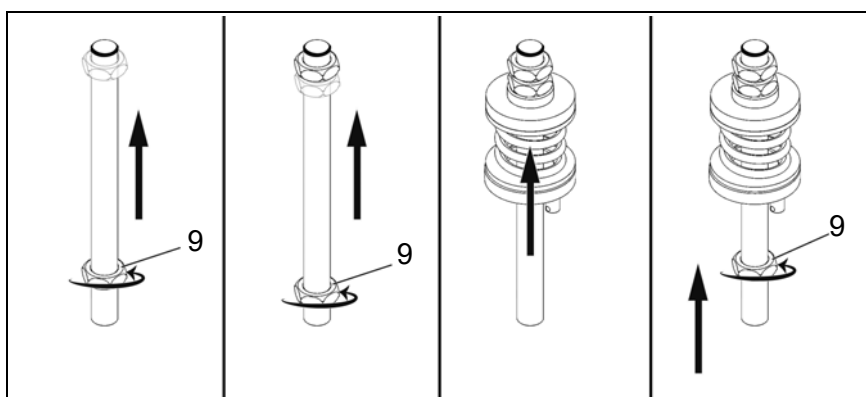


Fig. 6

8. Screw the hex nut (9) (Fig. 6 left) counter-clockwise onto the threaded rod.
9. Screw the second hex nut (9) (Fig. 6 centre left) counter-clockwise up to the first hex nut on the threaded rod.
10. Slide the tension spring with its washers and bolts (Fig. 6 centre right) up to the hex nuts on the threaded rod.
11. Screw the counter hex nut (9) (Fig. 6 right) counter-clockwise, as in the picture, onto the threaded rod.

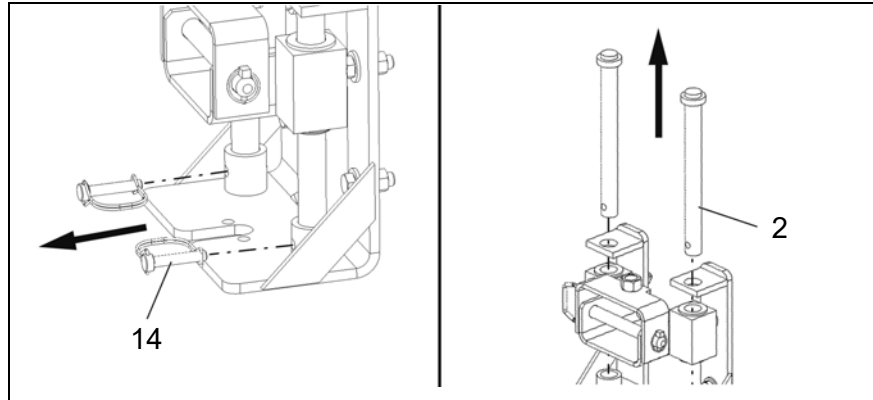


Fig. 7

12. Remove locking bolts (14, Fig. 7). (omitted for the far side)
13. Remove the guide rods (2, Fig. 7). (omitted for the far side)

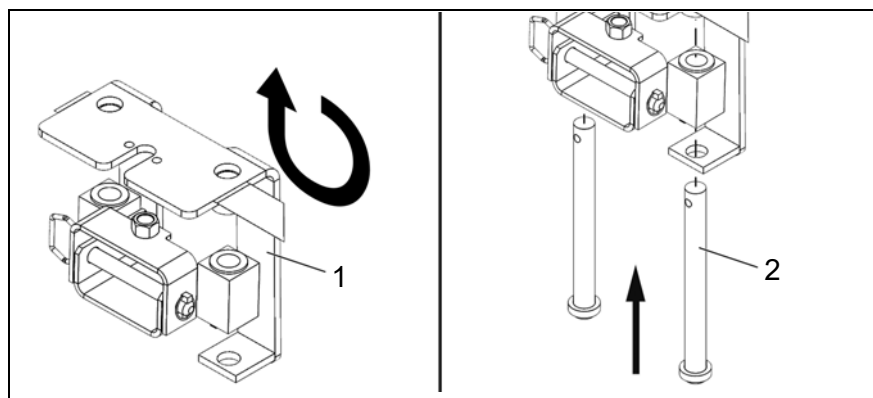


Fig. 8

14. Rotate the installation bracket (1, Fig. 8) by 180°. (omitted for the far side)



## NOTE

The spring tensioner on the far side is a mirrored version that on the operator side.

15. Insert the guide rods (2, Fig. 8). (omitted for the far side)

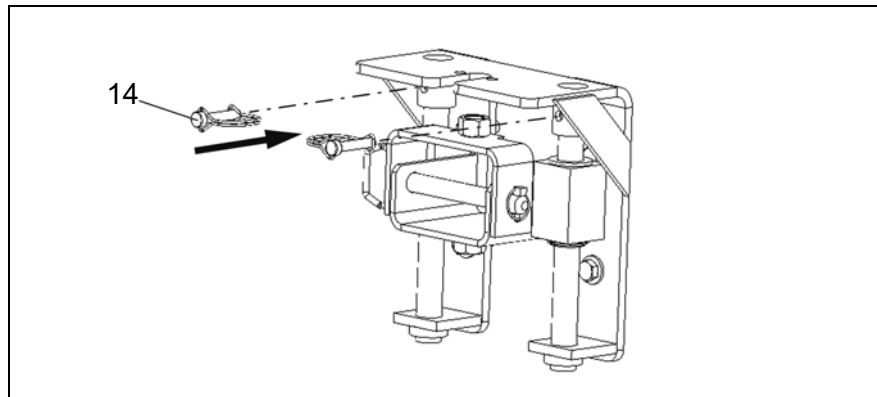


Fig. 9

16. Insert the locking bolts (14, Fig. 8). (omitted for the far side)

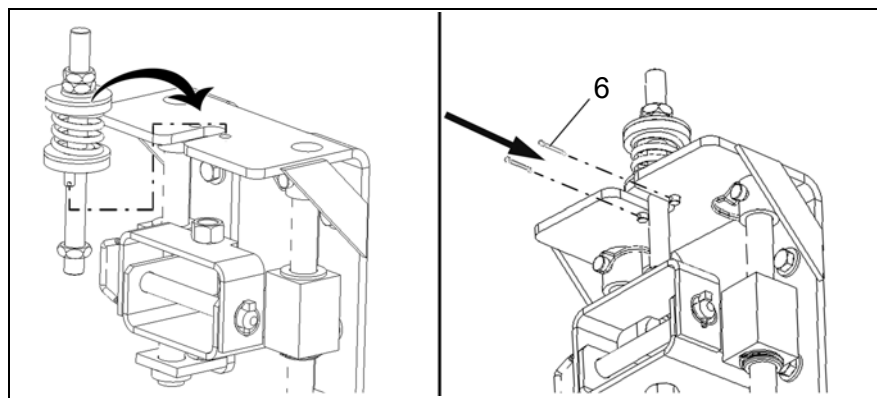


Fig. 10

17. Insert the tension spring with threaded rod.

18. Use hammerlock cotter pins (6, Fig. 10) to secure the tension spring bolt.

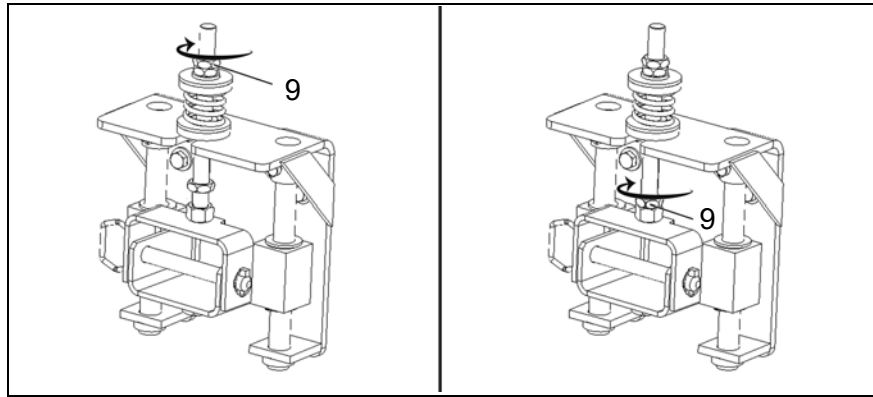


Fig. 11

19. Use the locknut (9, Fig. 11 left) to screw in the threaded rod.
20. Tighten the locknut (9, Fig. 11 right) and so secure the threaded rod.



### 5.2.3

### Replacing springs



#### NOTE

The spring must be replaced by a stronger version for belt widths of 1400 mm or greater. This is required for both sides.

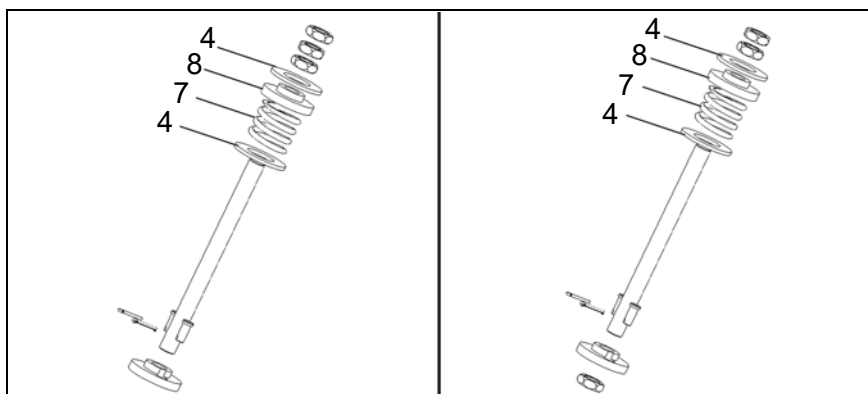


Fig. 12

1. Perform steps 1 to 7 in Section 5.2.2 on both sides for removing the tension spring.
2. Remove the individual parts (4, 7, 8, Fig. 12).
3. Replace these parts with the selected spare parts for the stronger springs. (Also see Section 9.8 for spare parts).
4. Assemble the threaded rod as shown in Fig. 12.



#### NOTE

Figure 12 left – Bottom Mount.  
Figure 12 right – Top Mount.

5. Reinstall the threaded rod.

5.2.4

Installing the tensioner



**NOTE**

The tensioners are pre-assembled by Martin Engineering before shipment.  
 The tensioner is shipped in the Bottom Mount (Sec. 9.8) installation option. The conversion to the Top Mount option must be made before installation on the chute wall (Sec. 5.2.2).

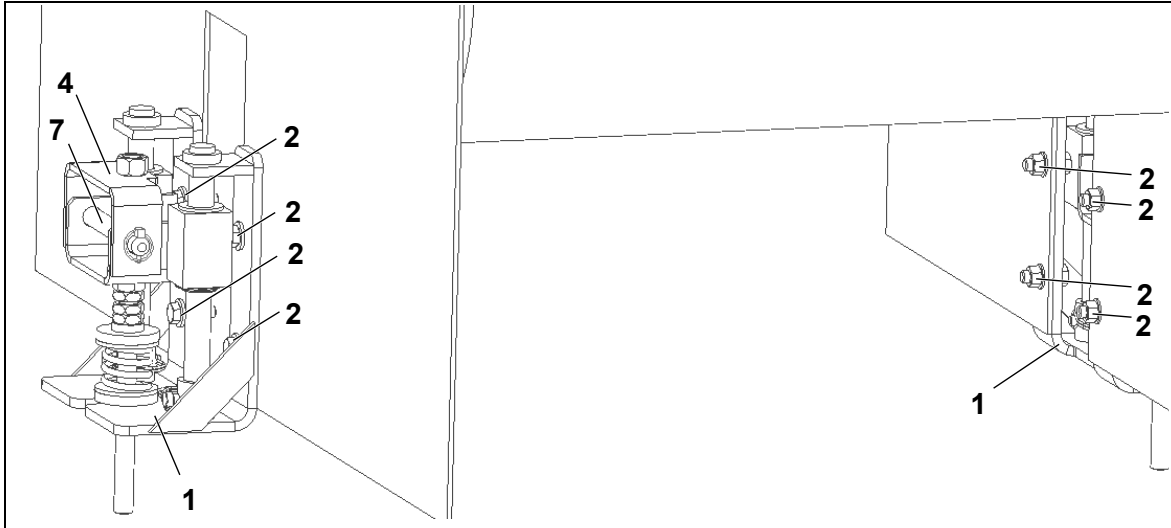


Fig. 13

1. Screw the tensioner (1, Fig. 13) into the installation holes (2, Fig. 13) on both sides of the chute wall.



**NOTE**

The tensioners on the operator side and the far side are not identical. (Fig. 38, Sec. 9.8).

2. Remove the transport bolt (7, Fig. 13) from the mounting bracket (4, Fig. 13).

5.2.5

Installing the cleaner



**NOTE**

The cartridge with the cleaner blades is pre-installed on the mainframe by Martin Engineering before shipment.

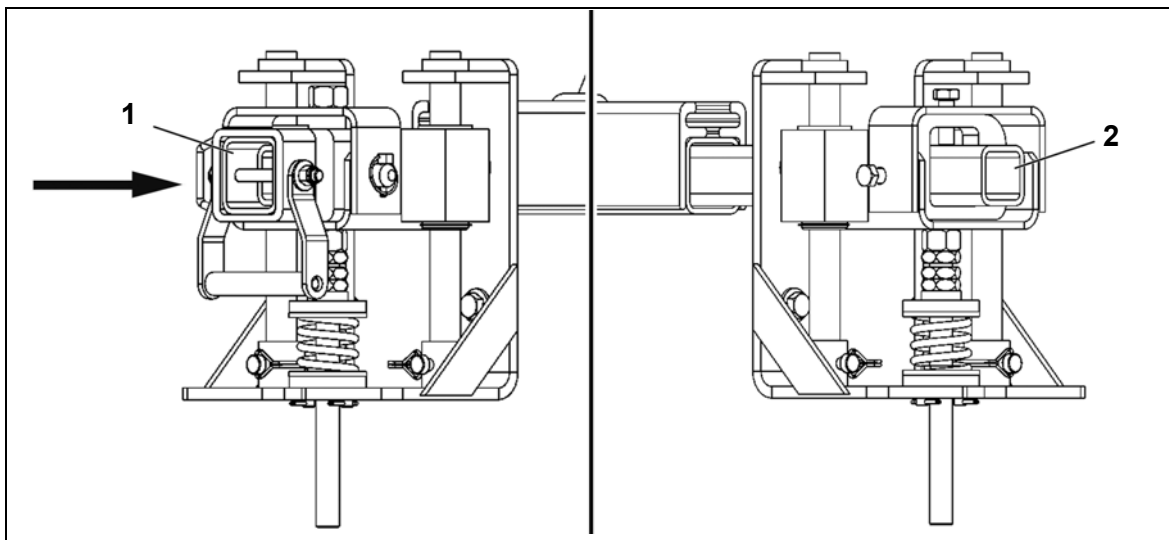


Fig. 14

1. Insert the mainframe with the installed cartridge (1, Fig. 14) into the mounting bracket from the operator side.
2. Slide the mainframe through the installation openings in the mounting bracket on the far side (2, Fig. 14).



**NOTE**

The mainframe can be shortened if it protrudes too much on the far side.

5.2.6

Securing the cleaner

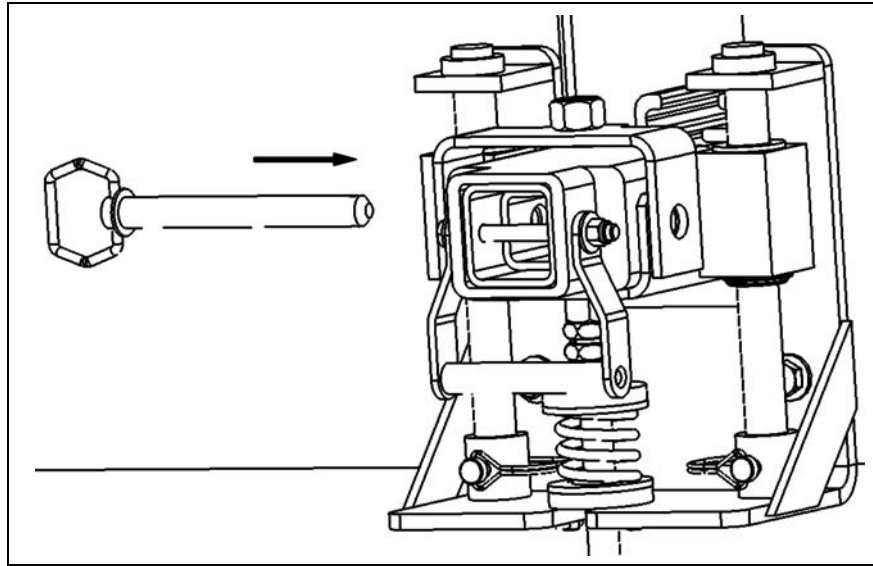


Fig. 15: Operator side

1. Insert the hitch pins.
2. Insert the lock pin into the hitch pin.

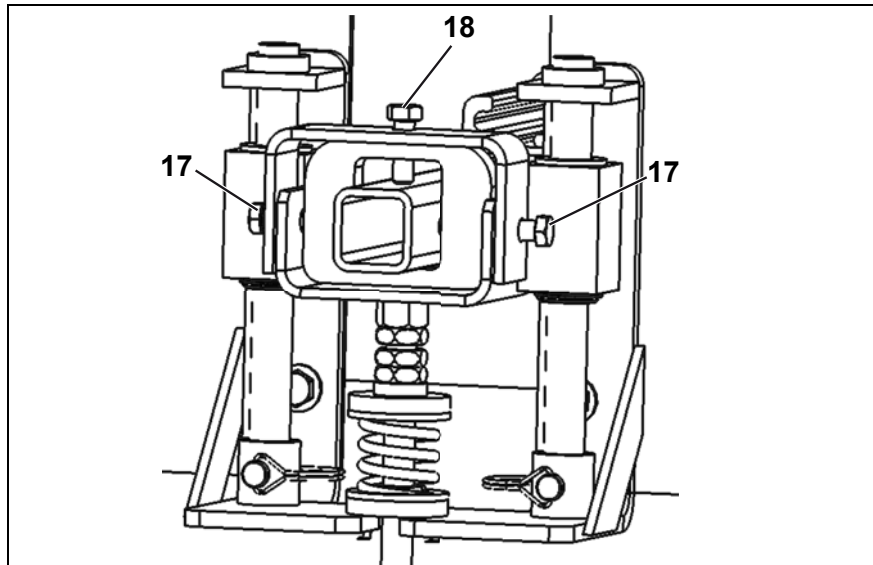


Fig. 16: Far side

3. Use the screws (17, 18, Fig. 16) to secure the mainframe.

5.2.7

Centring the secondary cleaner beneath the conveyor belt

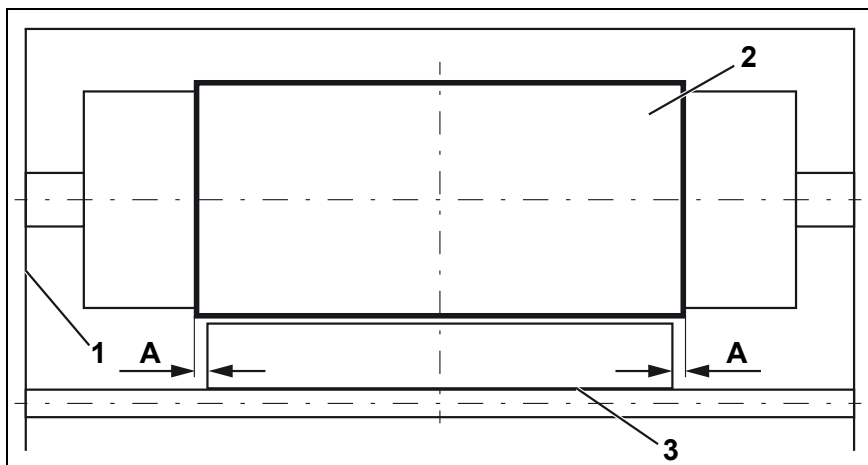


Fig. 17: Front view

Item	Description
1	Chute wall
2	Driving drum
3	Blades

Tab. 3: Centring the secondary cleaner beneath the conveyor belt



**NOTE**

In the case of cleaner variants with an extended mainframe, an initial rough centring is made by selecting the suitable adjustment hole. The blades can then be centred as well.

5.2.8

Aligning the secondary cleaner in parallel to the driving drum axis

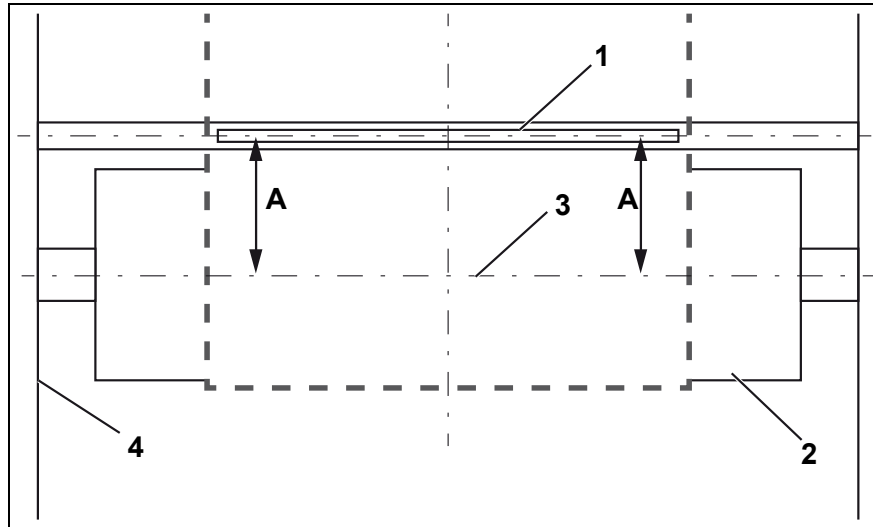


Fig. 18: Top view

Item	Description
1	Top view of the blades
2	Driving drum
3	Driving drum axis
4	Chute wall

Tab. 4: Top view of aligning the secondary cleaner in parallel to the conveyor belt



**NOTE**

The installation must be repeated if the clearances are not identical.

5.2.9

**Aligning the secondary cleaner horizontally to the driving drum axis**

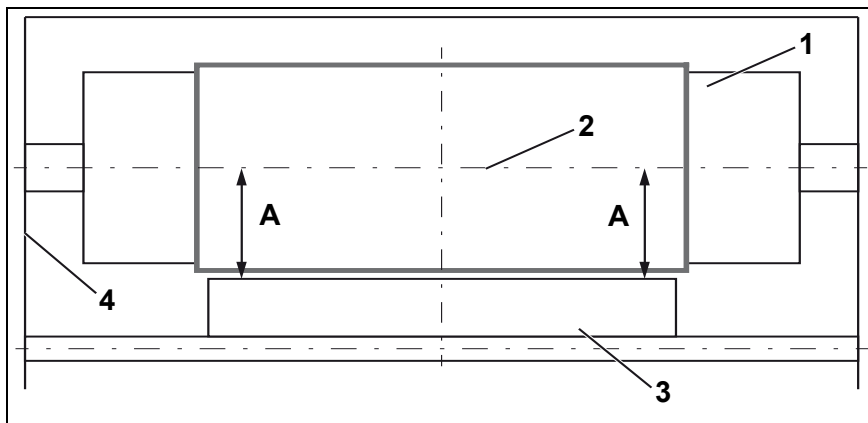


Fig. 19: Front view

Item	Description
1	Driving drum
2	Driving drum axis
3	Blades
4	Chute wall

Tab. 5: Aligning the secondary cleaner horizontally



**NOTE**

The air tensioner must be re-installed if the clearances are not identical.



**NOTE**

In the case of the spring tensioner, one side can be corrected upwards if the clearances are not identical. Loosen the locknuts (1, Fig. 20 left) for this. The adjusting nut (2, Fig. 20 right) can be used to correct the position upwards.

5.2.10

Tightening the cleaner

Adjusting the spring tensioner

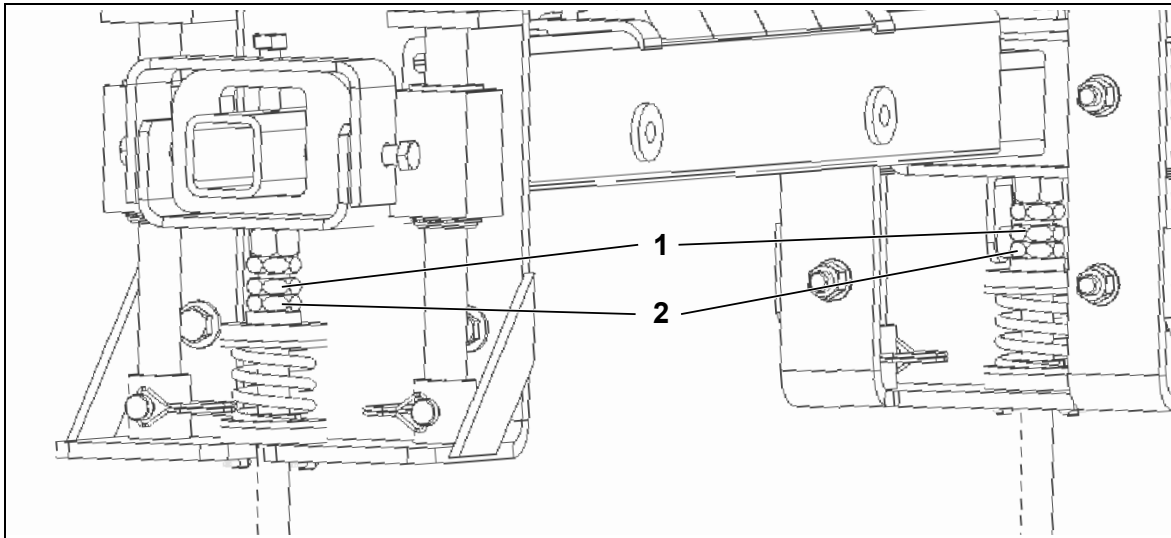


Fig. 20

1. Loosen the locknut (1, Fig. 20) on both sides.
2. Align the adjusting nuts (2, Fig. 20) evenly in a clockwise direction on both sides until the cleaning blades slightly touch the conveyor belt; then commence tensioning according to Step 3 and the values from Table 6 or 7.



**NOTE**

The distance from the conveyor belt in this process must remain identical over the entire length of the blade. Deviations must either be corrected or the process must be started again from the beginning.

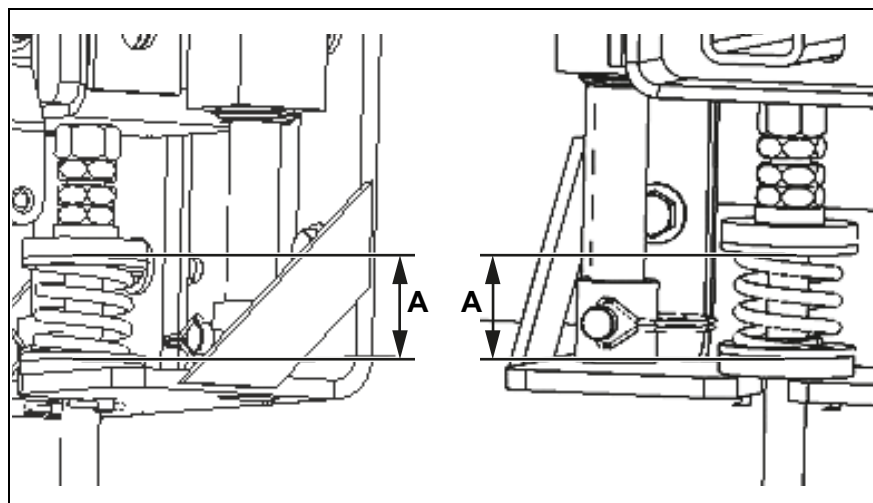


Fig. 21



3. Turn the adjusting nuts equally clockwise on both sides until the spring lengths of the tension springs (A, Fig. 21) are identical.



**NOTE**

The value required for the spring length (A) of the tension spring can be found in Table 6 or 7.

Values for Top Mount design			
Belt width [mm]	Spring length [mm]	Belt width [mm]	Spring length [mm]
400-500	57	1400-1600*	51
500-650	57	1600-1800*	51
650-800	54	1800-2000*	48
800-1000	54	2000-2200*	48
1000-1200	54	2200-2400*	44
1200-1400	51	2600-2800*	44

Tab. 6: Values - Top Mount

\*A stronger spring is used for belt widths of 1400 mm and greater (Sec. 5.2.3).

Values for Bottom Mount design			
Belt width [mm]	Spring length [mm]	Belt width [mm]	Spring length [mm]
400-500	38	1400-1600*	32
500-650	38	1600-1800*	32
650-800	35	1800-2000*	48
800-1000	35	2000-2200*	48
1000-1200	35	2200-2400*	44
1200-1400	32	2600-2800*	41

Tab. 7: Values - Bottom Mount

\*A stronger spring is used for belt widths of 1400 mm and greater (Sec. 5.2.3).



**WARNING RISK OF INJURY!**

Body parts and/or clothing may get caught and pulled in by rotating parts or by the moving conveyor belt.  
*Shut off the power supply to the conveyor system and its accessories and secure it against unauthorised reactivation before performing any installation or maintenance work.  
Use warning signs!*



**CAUTION RISK OF DAMAGE!**

Never operate the fully loaded belt cleaner for longer than 15 minutes on the running, unloaded conveyor belt. A risk of damage due to overheating exists for the belt cleaner and/or the conveyor belt.  
*Only operate the fully loaded belt cleaner on the running and fully loaded conveyor belt.*



**CAUTION FLYING OBJECTS!**

Forgotten tools or installation parts can fall off of the running conveyor belt and cause minor injuries and property damage.  
*Always remove any tools from the work site and conveyor belt upon completion of work before switching on the power supply.*

4. Switch on the conveyor system.
5. Observe the cleaning action of the blades.



**NOTE**

The blades should contact the conveyor belt gently and without vibration.

6. Stop the conveyor belt.
7. Shut off the conveyor system's power supply.
8. Readjust the spring tensioner if required.
9. Tighten the locking nuts against the adjusting nuts on both sides.

### Adjusting the air tensioner

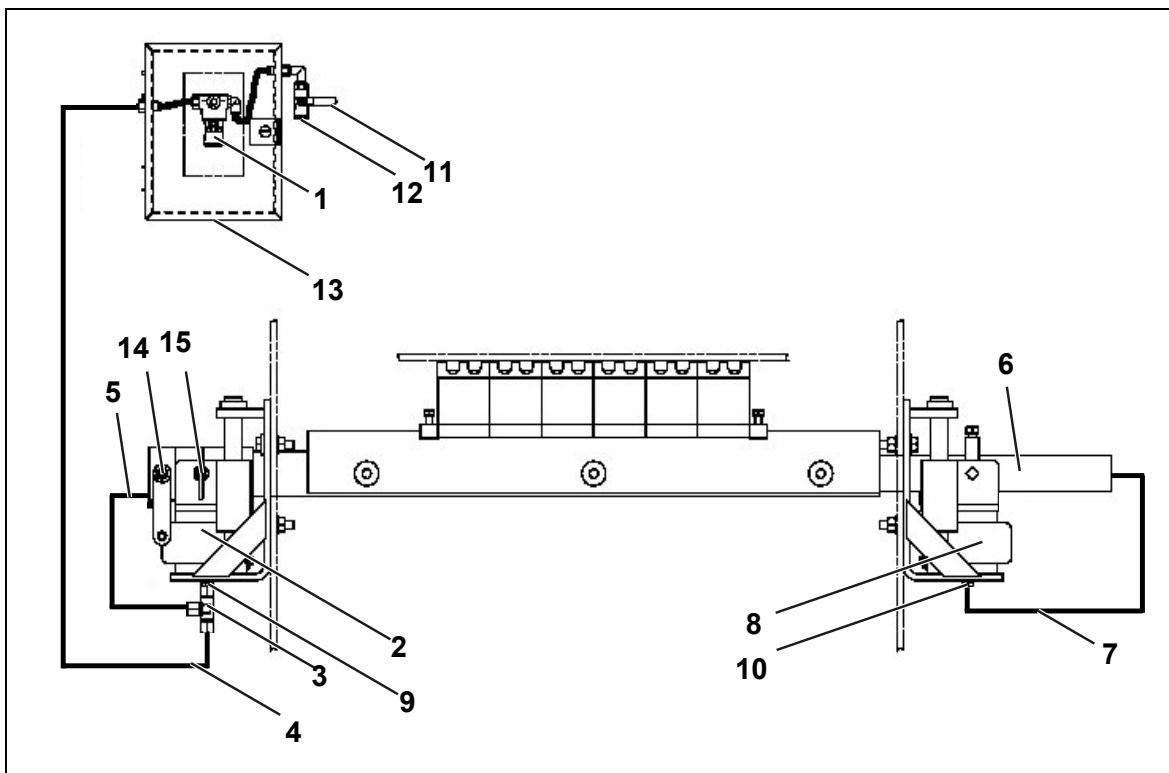


Fig. 22

Item	Description
1	Pressure gauge
2	Air bellows on the operator side
3	T-piece
4	Compressed air connection to the compressed air system
5	Compressed air hose on the operator side
6	Mainframe
7	Compressed air hose on the far side
8	Air bellows on the far side
9	Compressed air connection on the operator side
10	Compressed air connection of the air bellows on the far side
11	Ball valve
12	External compressed air connection
13	Housing
14	Handle
15	Hitch pin

Tab. 8: Compressed air supplies

1. Push the compressed air hose (5, Fig. 22) through the mainframe (6, Fig. 22) onto the operator side.



### NOTE

Route the compressed air hose under the hitch pin and handle when pushing it through the mainframe.

2. Fasten the compressed air hose (7, Fig. 22) to the connection (10, Fig. 22) of the air bellows (8, Fig. 22) on the far side.



### NOTE

The compressed air hose may be longer than the required length. Shorten it to the suitable length if required.

3. Plug the end of the compressed air hose into one connection of the T-piece (3, Fig. 22) on the operator side.
4. Plug the T-piece into the connection (9, Fig. 22) of the air bellows (2, Fig. 22) on the operator side.
5. Connect the third junction of the T-piece (4, Fig. 22) to the compressed air system (1, Fig. 22).
6. A pressure from Table 9 must be applied to both sides of the air bellows.

Belt width [mm]	Required pressure [bar]	Belt width [mm]	Required pressure [bar]
400-500	0.34	1400-1600	0.97
500-650	0.41	1600-1800	1.03
650-800	0.55	1800-2000	1.24
800-1000	0.69	2000-2200	1.45
1000-1200	0.76	2200-2400	1.59
1200-1400	0.90	2600-2800	1.72

Tab. 9: Compressed air values

**NOTE**

Steps 7 - 12 must be performed for an Air Regulator Kit supplied by Martin Engineering.

If an existing Air Regulator Kit is used, then follow its operating instructions to set the appropriate contact pressure (Tab. 8).

7. Connect the ball valve (11, Fig. 22) to the external compressed air supply (12, Fig. 22).
8. Switch on the external compressed air supply.
9. Open the ball valve.

**NOTE**

The cleaner is raised and the blades touch the conveyor belt

10. Open the housing (13, Fig. 22).
11. Unlock the pressure reducer on the Air Regulator Kit.
12. Set the contact pressure specified in Table 9.

**NOTE**

The pressure reducer is equipped with a self relieving diaphragm which automatically stabilises the pressure. A certain waiting period is required every time the setting is changed to relieve any excess pressure.

13. Lock the pressure reducer when the suitable contact pressure is reached.
14. Close the housing.

## 5.3

## Operation with loading

**WARNING RISK OF INJURY!**

Body parts and/or clothing may get caught and pulled in by rotating parts or by the moving conveyor belt.  
*Shut off the power supply to the conveyor system and its accessories and secure it against unauthorised reactivation before performing any installation or maintenance work.*  
*Use warning signs!*

**NOTE**

Figure 23 is an example of a cleaner.

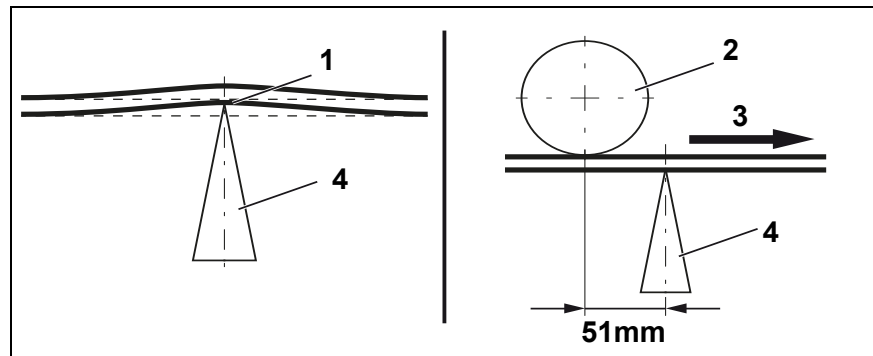


Fig. 23

1. If the secondary cleaner (4, Fig. 23) raises the conveyor belt (1, Fig. 23), then a pressure roller (2, Fig. 23) must be installed above the contact point between the blade and conveyor belt at a clearance of 51 mm against the running direction (3, Fig. 23) to support the conveyor belt.
2. Remove all tools and fire protection covers from the installation site and the conveyor belt.
3. Operate the conveyor system for one hour under load.



### CAUTION RISK OF DAMAGE!

Never operate the fully loaded belt cleaner for longer than 15 minutes on the running, unloaded conveyor belt. A risk of damage due to overheating exists for the belt cleaner and/or the conveyor belt.

*Only operate the fully loaded belt cleaner on the running and fully loaded conveyor belt.*

4. Shut off the conveyor belt system after the one-hour operation under load, shut off the power supply and secure it against unauthorised reactivation.
5. Check whether all of the fastening parts are securely tightened. Tighten any loose connections.
6. Inspect the belt cleaner for the following conditions:
  - Wear: minor phase-in wear is normal. This stops as soon as the blades have adjusted to the shape of the conveyor belt.
  - Bulk material accumulation: No bulk materials may accumulate between the blades and return side.
7. Note the corresponding information in Section 7 "Troubleshooting" in cases of excess wear, bulk material accumulation or other problems.

5.4

Placement of warning labels and warning tags

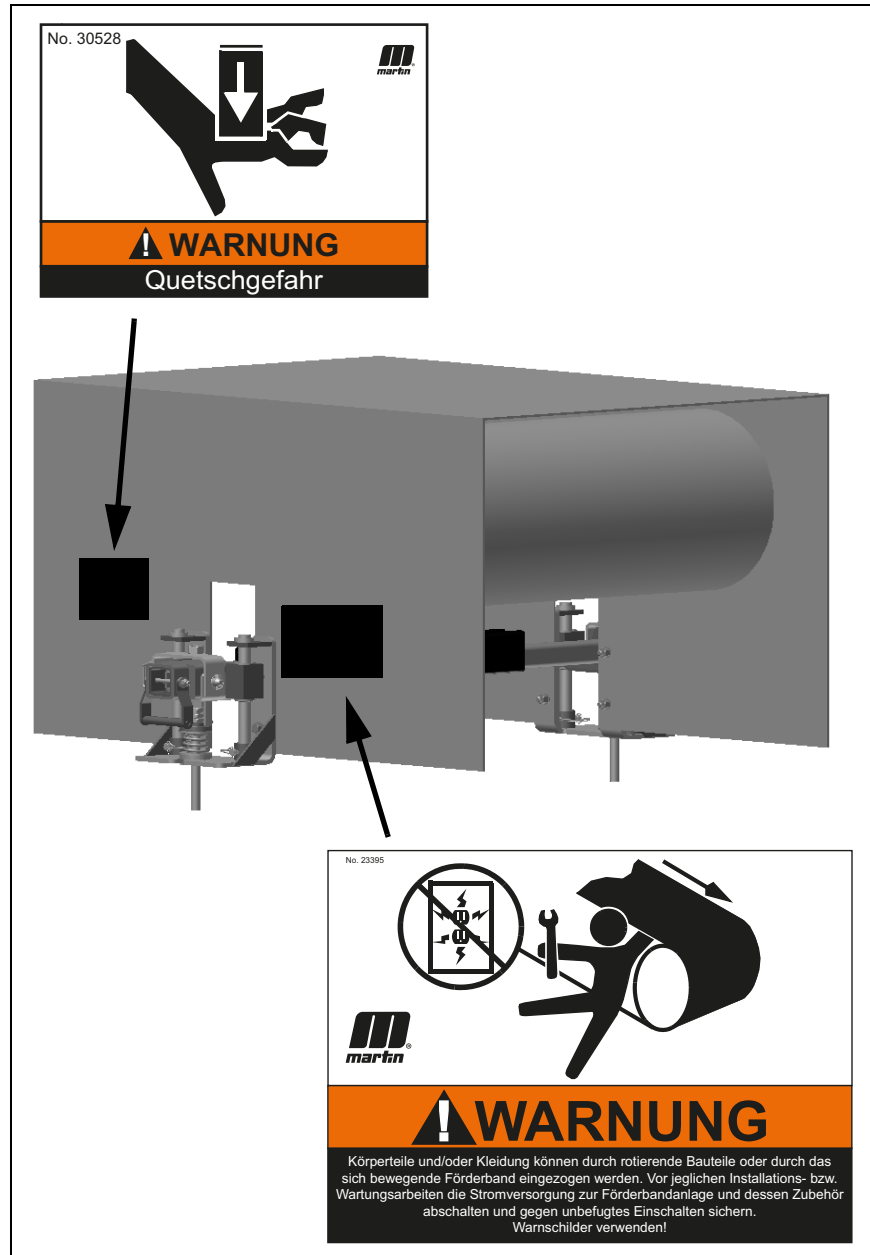


Fig. 24



## 6 Maintenance

### 6.1 Safety information



#### WARNING RISK OF INJURY!

Body parts and/or clothing may get caught and pulled in by rotating parts or by the moving conveyor belt.

*Shut off the power supply to the conveyor system and its accessories and secure it against unauthorised reactivation before performing any maintenance work.*

*Use warning signs!*



#### NOTE

Maintenance inspections must be performed at least once a week. Shorter maintenance intervals may be required depending on the operating conditions.



#### NOTE

The item numbers in the pictures correspond to the numbering in the parts list in Section 9.

### 6.2 Weekly maintenance

1. Shut off the power supplies of the conveyor belt and any additional equipment and secure them against unauthorised reactivation.
2. Remove all material deposits from the blade and the mainframe.
3. Inspect whether all of the fastening parts are securely tightened. Tighten any loose connections.
4. Check the cleaner force and re-tighten if necessary.
5. Check the blades for wear, damage and missing parts.



## NOTE

Take the corresponding parts of the conveyor system out of service if any indications of functional disturbances are noticed. Contact Martin Engineering or one of its representatives for support. Do NOT start up the conveyor system until the cause of the problems has been recognised and eliminated.



## CAUTION RISK OF DAMAGE!

Blades must not be worn out beyond the wear line; this can cause serious material damage.

*Inspect the blades regularly and replace them in good time!*

6. Follow the instructions in Section 6.3 to replace any worn out blades.
7. Clean all the warning labels. Replace illegible warning labels immediately. Warning labels can be purchased from Martin Engineering or a contracted dealer.



## CAUTION FLYING OBJECTS!

Forgotten tools or installation parts can fall off of the running conveyor belt and cause minor injuries and property damage.

*Always remove any tools from the work site and conveyor belt upon completion of work before switching on the power supply.*

8. Remove all tools from the working area.
9. Switch on the conveyor system.

**WARNING RISK OF INJURY!**

Body parts and/or clothing may get caught and pulled in by rotating parts or by the moving conveyor belt.

*Do not touch or reach into the conveyor system or its accessories during operation.*

**CAUTION RISK OF DAMAGE!**

Never operate the belt cleaner for longer than 15 minutes on the running unloaded conveyor belt. A risk of damage due to overheating exists for the belt cleaner and/or the conveyor belt.

*Never operate the belt cleaner unless the conveyor belt is running.*

10. Observe the cleaner and check its cleaning performance.

## 6.3

## Replacing the blades

**WARNING RISK OF INJURY!**

Body parts and/or clothing may get caught and pulled in by rotating parts or by the moving conveyor belt.  
*Before any installation or maintenance work is carried out, ensure that all power sources to the conveyor belt system and its accessories are switched off and secured against unauthorised reactivation. Use warning signs!*

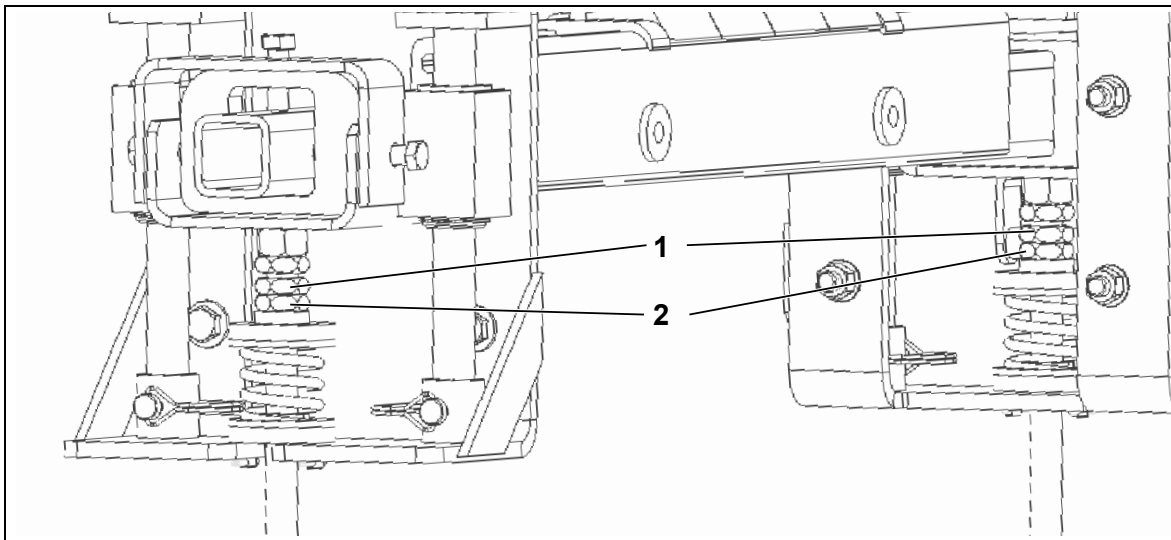


Fig. 25

1. Loosen the tensioner.
  - Spring tensioner: Loosen the locknuts (1, Fig. 25) and adjusting nuts (2, Fig. 25) on both sides.
  - Air tensioner: Shut off the compressed air supply.
2. Completely retract the tensioner.
  - Spring tensioner: Turn the locknuts (1, Fig. 25) fully upwards. Loosen the adjusting nuts (2, Fig. 25) equally on both sides and turn them completely upwards.
  - Air tensioner: Bleed the compressed air line.

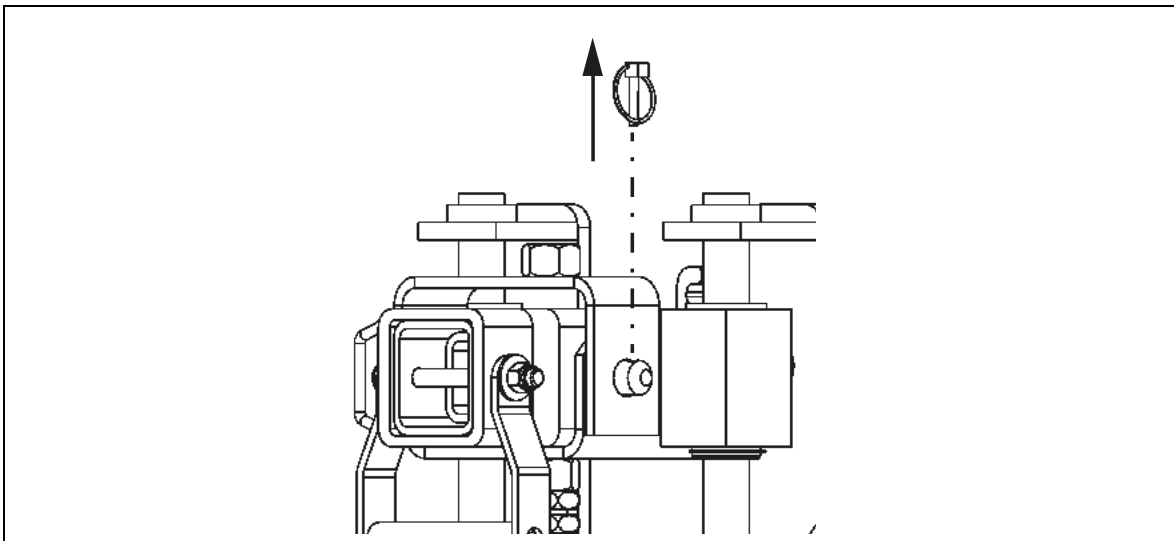


Fig. 26

3. Remove the locking pin.

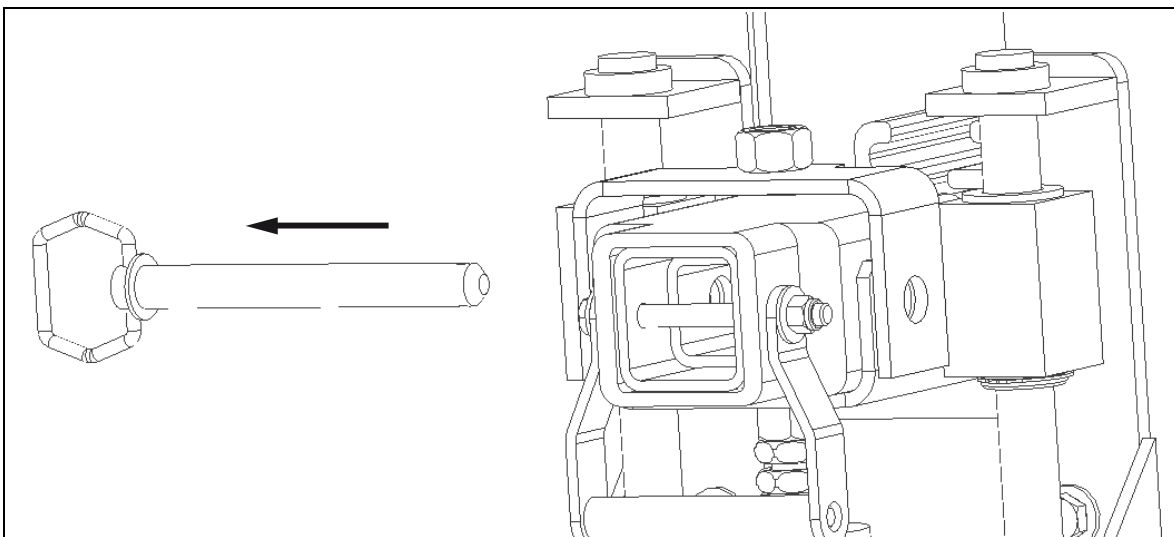


Fig. 27

4. Release and remove the hitch pin's locking pin.
5. Remove the hitch pin.

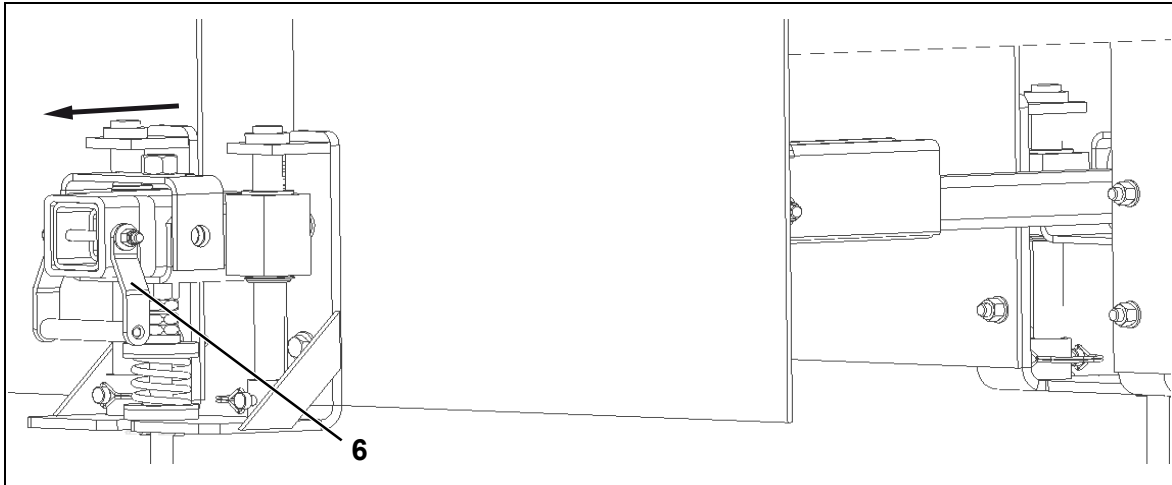


Fig. 28

6. Pull the cleaner cartridge out of the mainframe by its handle (6, Fig. 27).
7. The cartridge must be placed on a stable support (e.g. a table).
8. Clean the blades.
9. Replace worn-out blades as follows

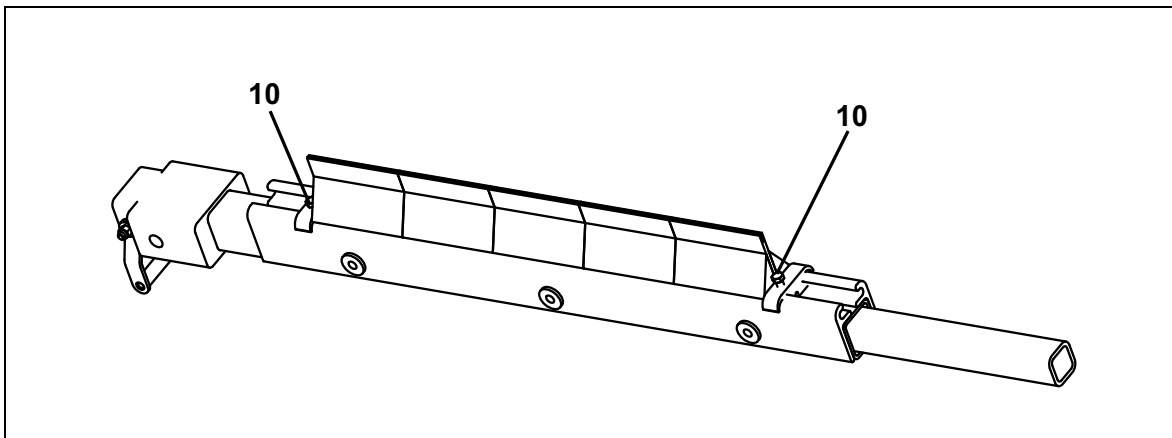


Fig. 29



## NOTE

If both end stops are to be removed, then first mark their position in the cartridge so that the blades can be correctly positioned following the re-assembly. The blades must be realigned on the cartridge if the positions were not marked. (Sec.5.2.5 ff).

a) Remove one or both end stops (10, Fig. 28).

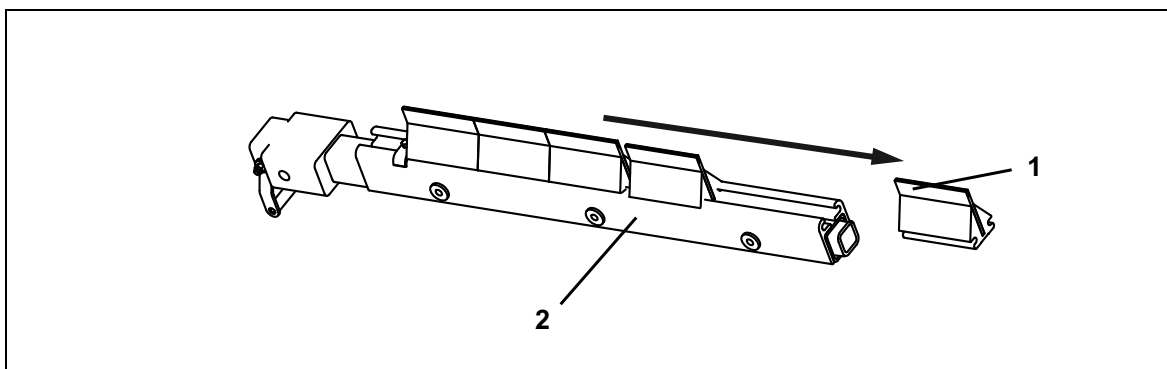


Fig. 30

b) Remove the blades (1, Fig. 29) from the cartridge.



**NOTE**

The screwed-on lateral guidance (2, Fig. 29) can be additionally removed if the blades are stuck. The lateral guidance must be reinstalled before the new blades can be inserted.



**NOTE**

Ensure alignment with the running direction of the conveyor belt when in-line blades are used. Please ensure when reversing blades are used that no gaps form between the blades since these protrude on one side and interlock.

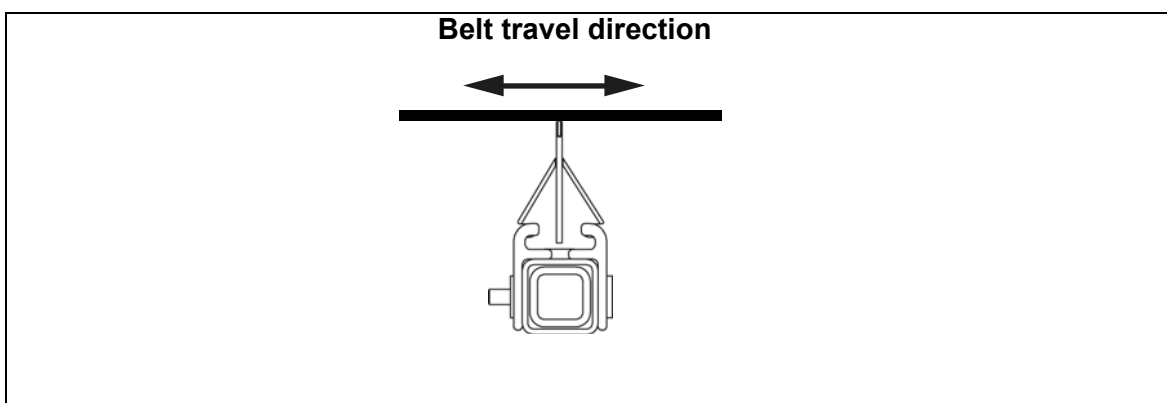


Fig. 31

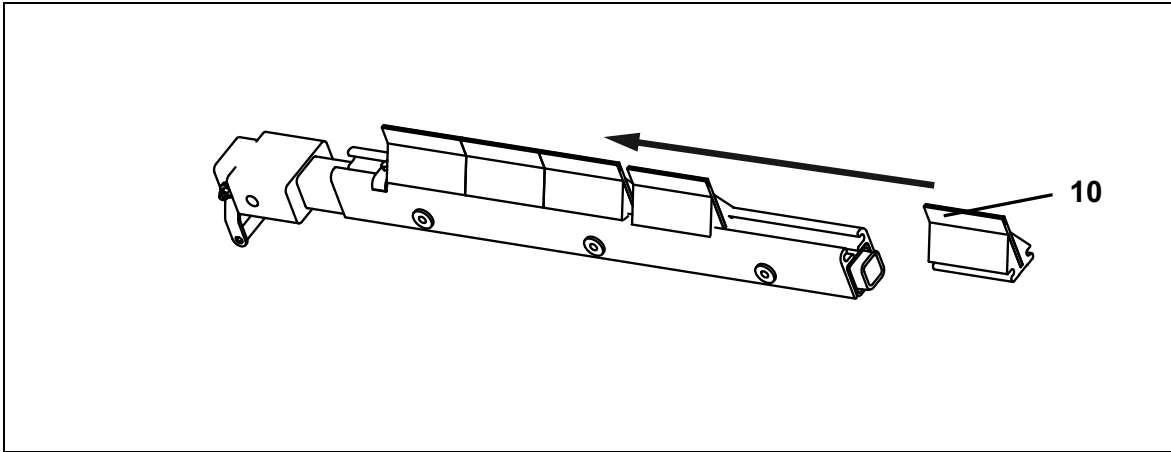


Fig. 32

- c) Insert new blades (1, Fig. 31) into the cartridge.
- d) Slide in the blade up to the stop (Fig. 31).

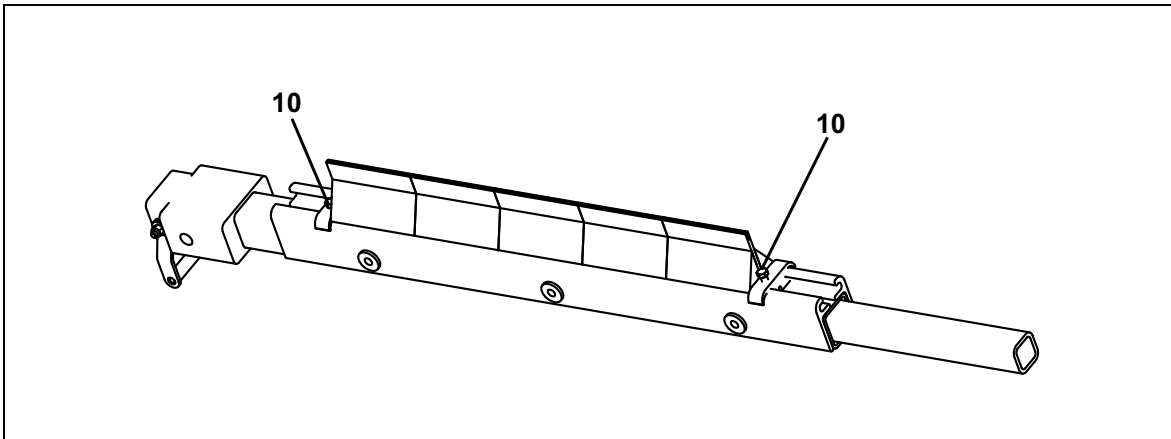


Fig. 33

- e) Insert the end stops (10, Fig. 32).



**NOTE**

Note the markings made previously if both end stops were removed.



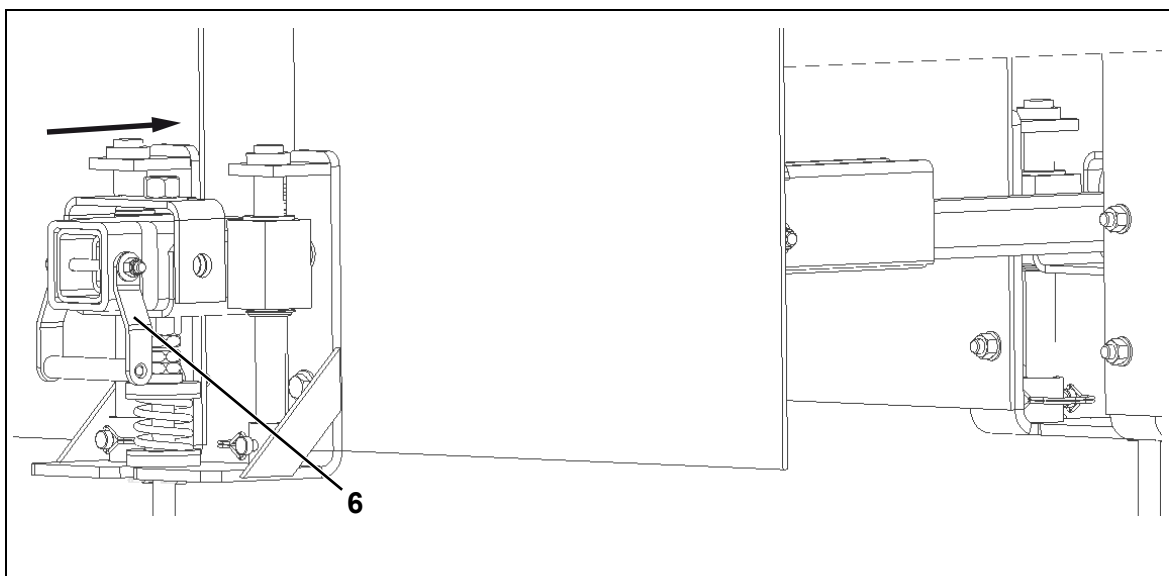


Fig. 34

10. Slide the cartridge by its grip (6, Fig. 33) onto the mainframe (1, Fig. 33).

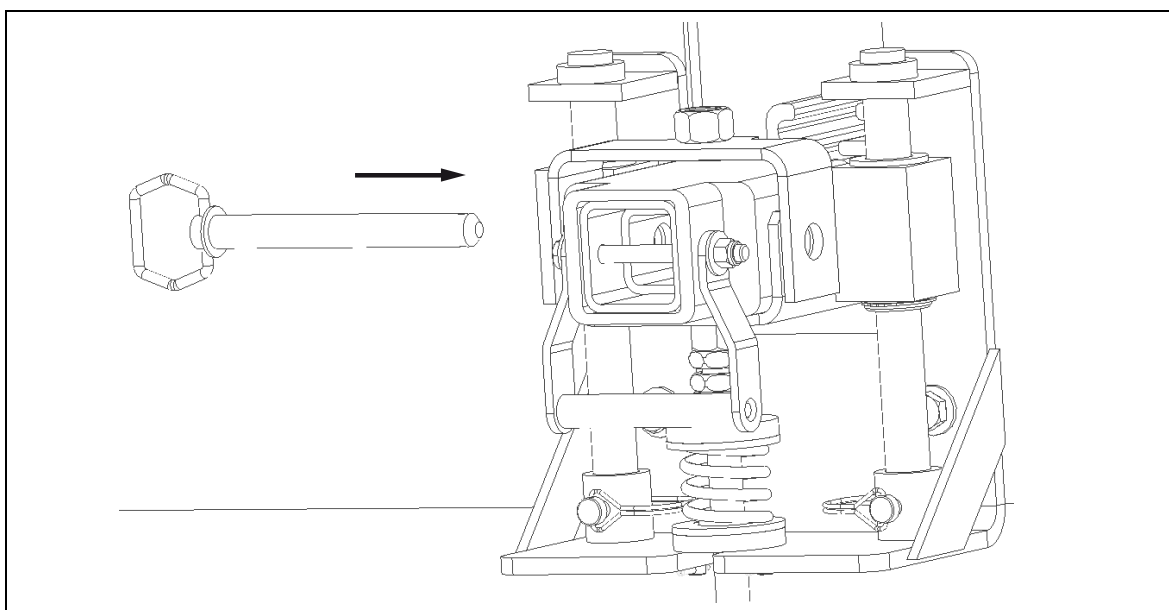


Fig. 35

11. Insert the hitch pin.
12. Insert the locking pin into the hitch pin.

13. Tension the locking screws on the far side.
14. Check the screw connections for tight fit and re-tighten when necessary.
15. Tension the cleaner.



## NOTE

The position of the cleaner and/or tensioner may need to be readjusted (Sec. 5.2.4 et seq.).

# 7 Troubleshooting

## 7.1 Safety information



### NOTE

The product is exposed to highly diverse bulk materials and is often used under extreme operating and environmental conditions. Malfunctions other than those listed below can therefore occur. In this case, either Martin Engineering or one of its representatives can assist with the positioning or with special solutions. Do not start up the conveyor system again until the fault has been recognised and cleared.

## 7.2 Troubleshooting

Check the following items if excessively high wear on the blades and/or unsatisfactory cleaning performance are/is noticed subsequent to installation:

Symptom	Cause	Remedy
High wear on the blades.	The blade is too tightly pressed on the cleaner.	Reduce the force. Values (Sec. 5.2.8 Tab.6 or Tab.8),
Insufficient cleaning performance and bulk material accumulation.	The blade is not pressed sufficiently or is pressed excessively onto the conveyor belt.	Increase or reduce the force.
	The blades are worn.	Inspect the blades and replace if necessary. (See "Weekly maintenance").
Unusual pattern of wear or damage to the blade.	Damaged conveyor belt or connection points.	Inspect the conveyor belt's connection points and repair or replace as needed.
	Different tension values of the inline reversing tensioner.	Check the tension values and possibly re-tighten.
Noises or vibrations.	Cleaner force on the conveyor belt too light or too heavy.	Correct the force if necessary.
	The blade's urethane is possibly not suitable for the application.	Contact Martin Engineering or one of its representatives.
	Blade not correctly aligned with the conveyor belt.	Align the blade (Sec. 5.2.4 ff).

Tab. 10: Troubleshooting

# Troubleshooting

Symptom	Cause	Remedy
Corrosion or chemical decomposition.	The blade's urethane is possibly not suitable for the application.	Contact Martin Engineering or one of its representatives.
Deflection of the mainframe.	Extremely high tension.	Reduce the force on the blades to the highest recommended value specified in the installation instructions (a slight deflection is to be seen as normal. Contact Martin Engineering if very large deflection occurs).
The blades are pushed out of the tracks.	The blade is too heavily loaded.	Reduce air pressure or spring force.

Tab. 10: Troubleshooting

## 8 Storage, De-installation, Disposal

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### 8.1 Packing and transportation

The products described here are packed and shipped by Martin Engineering.

The products may be transported solely in the Martin Engineering packaging.

The logistics company in charge of the shipment shall be responsible for any damage and/or loss.

### 8.2 Storage

To ensure optimal function of the product Martin Engineering recommends storing its components in a dry place at room temperature where they are protected against direct sunlight.

The best storage conditions are at temperatures ranging from +0 °C to +30 °C and 60% relative humidity.

Martin Engineering guarantees that the stored products will remain fully functional for at least 2 years under the storage conditions specified here.

### 8.3 De-installation

The de-installation is carried out in the reverse order to that of the installation (see Section 5.2.2).

### 8.4 Disposal

Assemblies and/or single parts of the Martin Engineering products must be professionally disposed of after usage as follows.

- Complete assemblies must be dismantled, sorted by material type, and separately disposed of.

All nationally and internationally applicable disposal regulations are to be complied with when disposing of the product.

This section lists the product designations with their associated part numbers for the MARTIN® DT2S Secondary Cleaner and its accessories.

Please indicate the part numbers in every order.

### 9.1

#### Explanation of part numbers

##### MARTIN® DT2S secondary cleaner

DT2S-aabccdef+E	
<b>a</b>	<b>Belt width in inches</b>
<b>b</b>	<b>Blade design</b> <b>T:</b> Reversing blade with tungsten carbide <b>S:</b> Reversing blade made from stainless steel <b>U:</b> Reversing blade made from urethane
<b>c</b>	<b>Cleaning width in inches</b>
<b>d</b>	<b>Urethane colour</b> <b>BR:</b> Brown (resistant to chemicals) <b>GR:</b> Green (resistant to temperature) <b>OR:</b> Orange
<b>e</b>	<b>Mainframe options</b> <b>P:</b> Mild steel (1.0037) - painted (RAL 2004) <b>E:</b> Mild steel (1.0037) - extended - painted (RAL 2004) <b>S:</b> Stainless steel (1.4571)
<b>f</b>	<b>Tensioner options</b> <b>S:</b> Spring tensioner <b>A:</b> Air tensioner

**MARTIN® DT2SC secondary cleaner cartridge**

<b>DT2SC-aabccdde</b>	
<b>a</b>	<b>Belt width in inches</b>
<b>b</b>	<b>Blade design</b> Ø: No blades T: Reversing blade with tungsten carbide S: Reversing blade made from stainless steel U: Reversing blade made from urethane
<b>c</b>	<b>Cleaning width in inches</b>
<b>d</b>	<b>Urethane colour</b> ØØ: No blades BR: Brown (resistant to chemicals) GR: Green (resistant to temperature) OR: Orange
<b>e</b>	<b>Parameter description</b> P: Mild steel (1.0037) - painted (RAL 2004) S: Stainless steel (1.4571)

**9.2****Martin® Inspection Doors**

With standard rubber door, up to 177° C:

- 229 x 305 mm: Part no. CYAR-0912.
- 305 x 356 mm: Part no. CYAR-1214.
- 305 x 457 mm: Part no. CYAR-1218.
- 457 x 610 mm: Part no. CYAR-1824.
- 610 x 610 mm: Part no. CYAR-2424.

With steel door (dust-proof):

- 229 x 305 mm: Part no. CYA-0912.
- 305 x 356 mm: Part no. CYA-1214.
- 305 x 457 mm: Part no. CYA-1218.
- 457 x 610 mm: Part no. CYA-1824.
- 610 x 610 mm: Part no. CYA-2424.

**9.3****Accessories**

- Reversing installation brackets (pair)  
Part no. 33288
- Reversing installation brackets (single)  
Part no. 33282
- Reversing "Z" bracket  
Part no. 31158; for use with MARTIN® Inspection doors.

**9.4****Warning labels / Warning tags**

- Conveyor Products Warning Label:  
Part no. 23395
- Crushing Hazard Warning Label:  
Part no. 30528



9.5

MARTIN® DT2S Secondary cleaner

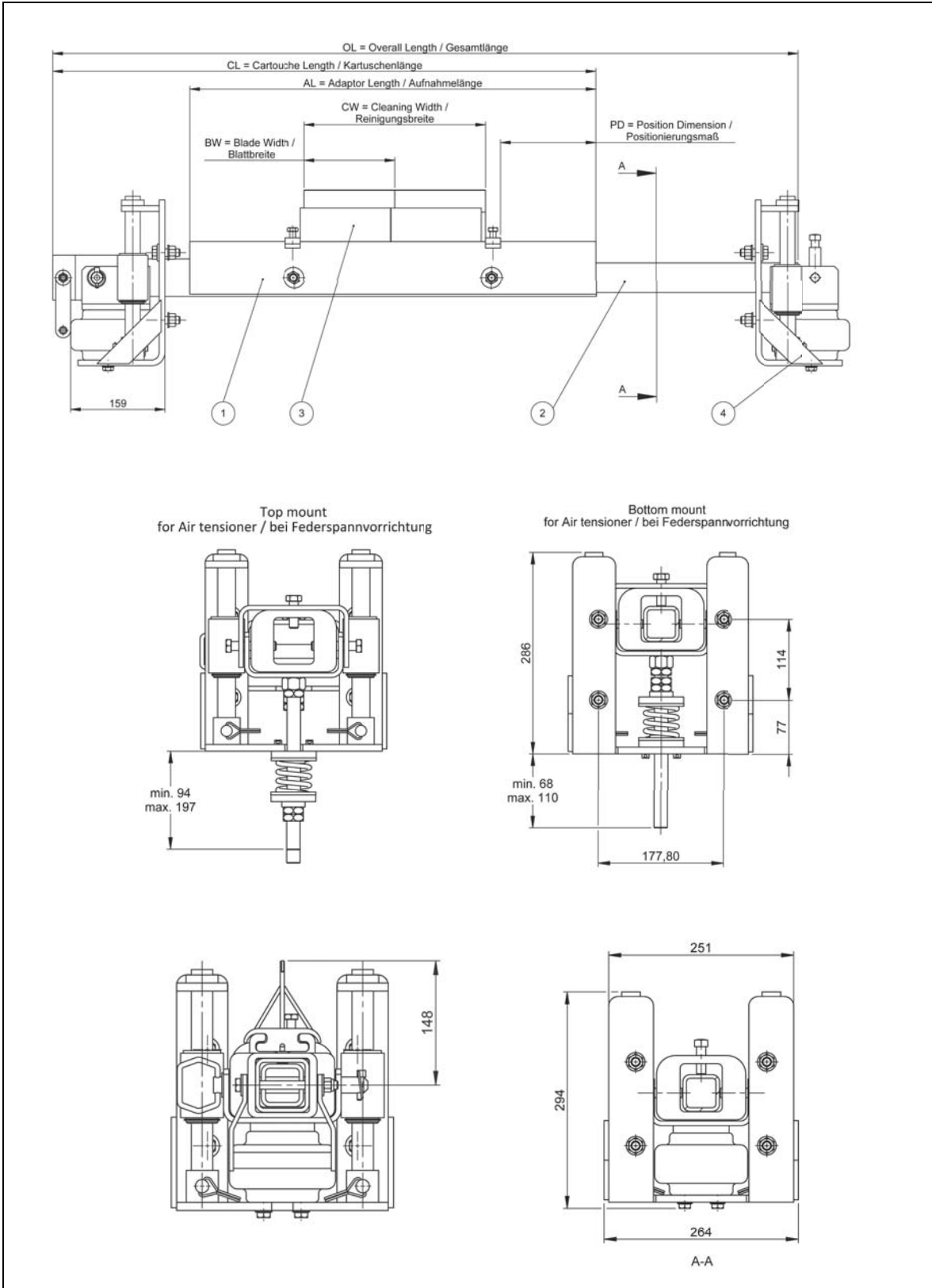


Fig. 36

# Part numbers

Item / Pos.	Qty. / Anz.	Description / Beschreibung	P/N / Teile-Nr.
1	1	DT2S Cartridge w/o blades / DT2S Kartusche ohne Abstreifblätter	s.C. / s.T.
2	1	DT2S mainframe / Hauptachse	s.C. / s.T.
3	s.C. / s.T.	DT2S blade / Abstreiferblatt	s.C. / s.T.
4	1	Inline-Reversing tensioner / Spannvorrichtung	s.C. / s.T.

Part number / Teilenummer	DIM					P/N Item / Teilenr. Pos.		Qty. Item / Anz. Pos.
	CW	CL	AL	OL	PD	1*	2	
DT2S-18X12XXXX+E	305	686	918	1293	162	DT2SC-18XXXXXXXX	37714-18A4+E	2
DT2S-18X18XXXX+E	457				86			3
DT2S-24X18XXXX+E	457	838	1071	1443	162	DT2SC-24XXXXXXXX	37714-24A4+E	4
DT2S-24X24XXXX+E	610				86			4
DT2S-30X24XXXX+E	610	991	1223	1593	162	DT2SC-30XXXXXXXX	37714-30A4+E	5
DT2S-30X30XXXX+E	762				86			5
DT2S-36X30XXXX+E	762	1143	1376	1751	162	DT2SC-36XXXXXXXX	37714-36A4+E	6
DT2S-36X36XXXX+E	914				86			6
DT2S-42X36XXXX+E	914	1295	1528	1903	162	DT2SC-42XXXXXXXX	37714-42A4+E	7
DT2S-42X42XXXX+E	1067				86			7
DT2S-48X42XXXX+E	1067	1448	1680	2055	162	DT2SC-48XXXXXXXX	37714-48A4+E	8
DT2S-48X48XXXX+E	1219				86			8
DT2S-54X48XXXX+E	1219	1600	1833	2208	162	DT2SC-54XXXXXXXX	37714-54A4+E	9
DT2S-54X54XXXX+E	1372				86			9
DT2S-60X54XXXX+E	1372	1753	1985	2360	162	DT2SC-60XXXXXXXX	37714-60A4+E	10
DT2S-60X60XXXX+E	1524				86			10
DT2S-66X60XXXX+E	1524	1905	2138	2513	162	DT2SC-66XXXXXXXX	37714-66A4+E	11
DT2S-66X66XXXX+E	1676				86			11
DT2S-72X66XXXX+E	1676	2057	2290	2665	162	DT2SC-72XXXXXXXX	37714-72A4+E	12
DT2S-72X72XXXX+E	1829				86			12
DT2S-84X78XXXX+E	1981	2362	2595	2970	162	DT2SC-84XXXXXXXX	37714-84A4+E	13
DT2S-96X90XXXX+E	2286	2667	2900	3275	162	DT2SC-96XXXXXXXX	37714-96A4+E	15
DT2S-120X114XXXX+E	2896	3124	3509	3884	162	DT2SC-120XXXXXXXX	37714-120A4+E	19

\*Use option "S" in part number index if stainless steel option "S" is chosen at index "e" /  
Option "S" in Index der Teilenummer verwenden, wenn Edelstahl Option "S" bei Index "e" gewählt ist

Part number / Teilenummer	Blade type / Blatttyp	P/N Item Teilnr. Pos.	DIM
		3	BW
DT2S-XTXXXXXX+E	Reversing TC	31104-TXX	152
DT2S-XXSXXXXXX+E	Reversing SS	31104-SXX	152
DT2S-XXUXXXXXX+E	Reversing Urethane	31104-UXX	152

Part number / Teilenummer	P/N Item / Teilnr. Pos.
	4
DT2S-XXXXXXXXXX+E	-
DT2S-XXXXXXXXXS+E	37707
DT2S-XXXXXXXXXA+E	37707-A

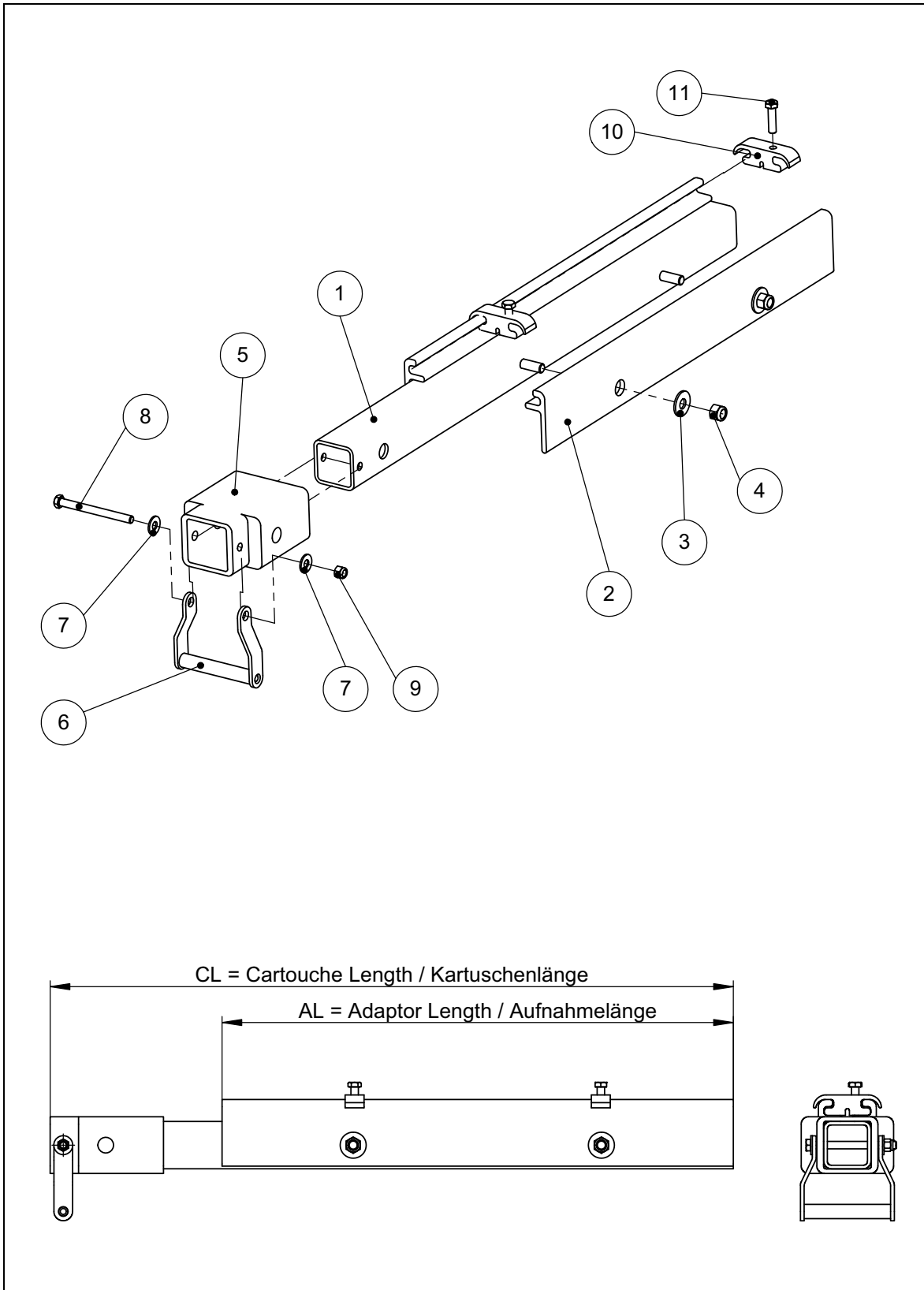


Fig. 37

ND	Item / Pos.	Qty. / Anz.	Description / Beschreibung	P/N / Teile-Nr.
	1	1	DT2S split track mainframe / DT2S Hauptrahmen mit geteilter Blattaufnahme	s.C. / s.T.
	2	1	Durt Tracker Split frame / Seitenführung	s.C. / s.T.
	3	s.C. / s.T.	Washer flat 1/2" wide / Unterlegscheibe breit	s.C. / s.T.
	4	s.C. / s.T.	Nut hex elastic lock 1/2" / Selbstsichernde Sechskantmutter	s.C. / s.T.
	5	1	DT2S end cap / DT2S End Kappe	37705
	6	1	Gripp handle / Griff	s.C. / s.T.
	7	2	Washer flat 3/8" wide / Unterlegscheibe breit	s.C. / s.T.
	8	1	Hexagon head screw 3/8" x 4-1/2" / Sechskantschraube	s.C. / s.T.
	9	1	Nut hex elastic lock 3/8" / Selbstsichernde Sechskantmutter	s.C. / s.T.
	10	2	End stop / Endanschlag	s.C. / s.T.
	11	2	Hexagon head screw 3/8" x 1-1/2" / Sechskantschraube	s.C. / s.T.

Part number / Teilenummer	DIM		P/N Item / Teile-Nr. Pos.		Qty. item / Anz. Pos.
	AL	CL	1*	2*	3,4
DT2SC-18XXXXXXXX	686	918	37717-18	34423-30	2
DT2SC-24XXXXXXXX	838	1071	37717-24	34423-36	3
DT2SC-30XXXXXXXX	991	1223	37717-30	34423-42	3
DT2SC-36XXXXXXXX	1143	1376	37717-36	34423-48	4
DT2SC-42XXXXXXXX	1295	1528	37717-42	34423-54	4
DT2SC-48XXXXXXXX	1448	1680	37717-48	34423-60	5
DT2SC-54XXXXXXXX	1600	1833	37717-54	34423-66	5
DT2SC-60XXXXXXXX	1753	1985	37717-60	34423-72	5
DT2SC-66XXXXXXXX	1905	2138	37717-66	34423-78	6
DT2SC-72XXXXXXXX	2057	2290	37717-72	34423-84	6
DT2SC-84XXXXXXXX	2362	2595	37717-84	34423-96	7
DT2SC-96XXXXXXXX	2667	2900	37717-96	34423-108	8

\*If Option "S" is selected add at P/N 1 "-316SS" and at P/N 2 "N"  
 Wenn Option "S" gewählt ist dann an Teilernr. von Pos. 1 ein "-316SS" anhängen und an Teilernr. von Pos. 2 ein "N" anhängen

Part number / Teilenummer	P/N Item / Teile-Nr. Pos.							
	3	4	6	7	8	9	10	11
DT2SC-XXXXXXXXPX	17328	18577	36313	18007	34082	14201	30386	15673
DT2SC-XXXXXXXXSX	35913	SPO3938-02	36313-316SS	37471	37764	SPO3938-12	30386-N	SPO3938-13

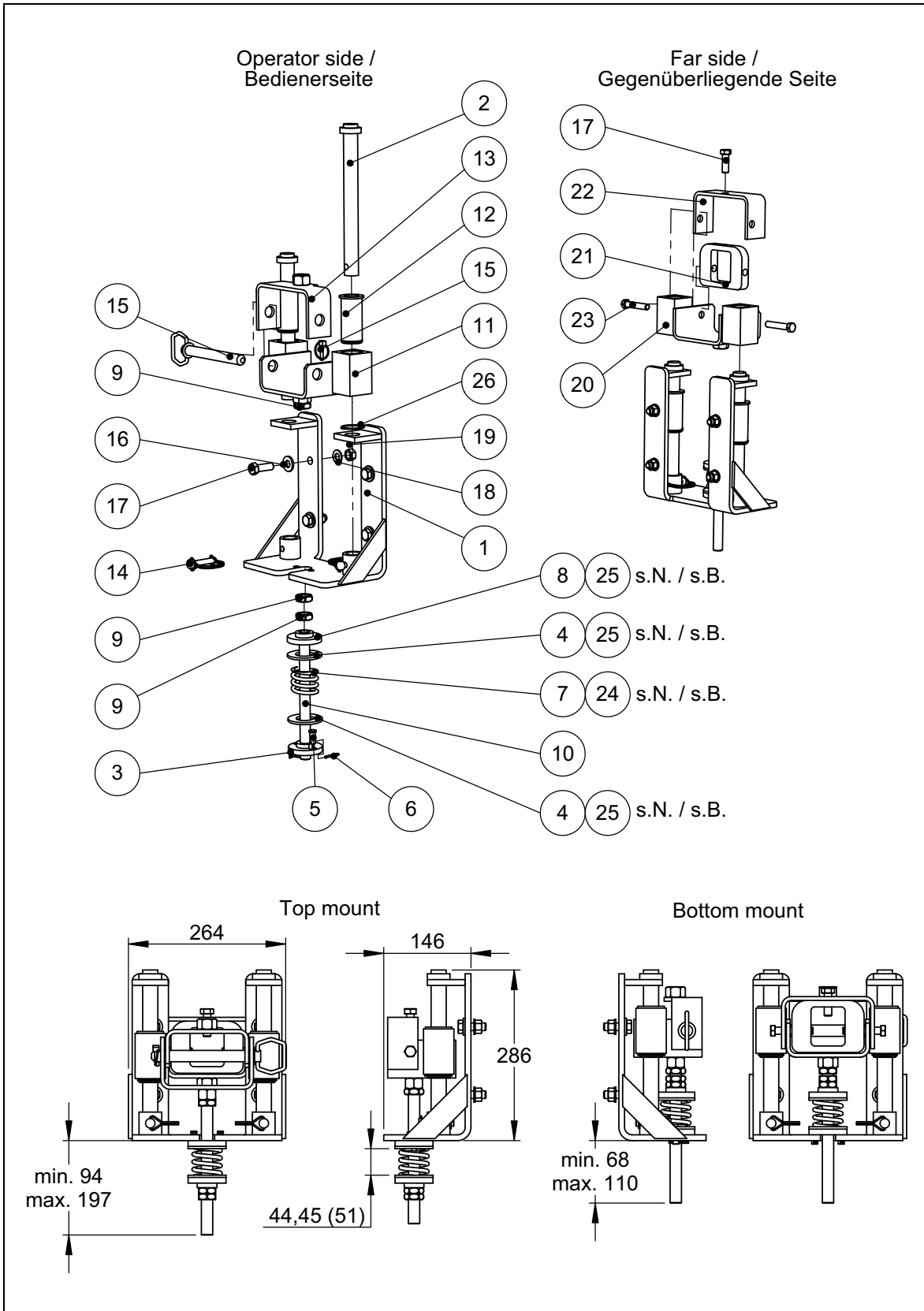


Fig. 38

ND	Item / Pos.	Qty. / Anz.	Description / Beschreibung	P/N / Teile-Nr.
	1	2	Inline mount plate / Installationskonsole	37701
	2	4	Guide rod / Führungsstange	37702
	3	2	Spring retainer / Federaufnahme	33594
	4	4	Washer flat 1-1/4" wide / Unterlegscheibe breit	33951
	5	4	Clevis pin 3/8" x 7/8" / Bolzen	33949
	6	4	Cotter pin 1/8" x 1-3/4" / Splint	16578
	7	2	Spring Ø2" x 1-3/4" / Feder	33602
	8	2	Spring retainer / Federaufnahme	33594-01
	9	6	Hex nut jam low 3/4" / Sechskantmutter niedrig	38219
	10	2	Adjustment rod / Gewindestange	37706
	11	1	Slide Bracket (Operators side) / Aufnahmekonsole (Bedienerseite)	37703-OS
	12	4	UHMW sleeve / Führungshülse	37704
	13	1	Slide bracket (Operator's side) / Führungswinkel (Bedienerseite)	37703-OSTOP
	14	4	Wire lock pin 3/8" x 1-3/4" / Arretierbolzen	37126
	15	1	Hitch pin 3/4" x 1-3/4" w/chain / Steckbolzen mit Kette	38073
	16	8	Washer flat 1/2" thick / Unterlegscheibe dick	19126
	17	9	Hexagon head screw 1/2" x 1-1/2" / Sechskantschraube	22766
	18	8	Washer compression 1/2" / Unterlegscheibe	24310
	19	8	Hex nut 1/2" / Sechskantmutter	17151
	20	1	Slide bracket / Aufnahmekonsole	37703
	21	1	Far side strap / Lasche (Gegenüberliegende Seite)	37715
	22	1	Slide bracket saddle top (far side) / Führungswinkel (Gegenüberliegende Seite)	37713-FSTOP
	23	2	Hexagon head screw 1/2" x 2-1/2" / Sechskantschraube	26139
x	24	2	Spring Ø2" x 2" / Feder	38026
x	25	4	Washer flat 3/4" wide / Unterlegscheibe breit	20164
	26	4	Ext retaining ring f/1,5" shaft / Sprengring für Ø1,5" Schaft	38301
Replace Pos. 7 with Pos. 24 and Pos. 4 and Pos. 8 with Pos. 25 for belt widths above 54 (1400) / Für Förderbandbreiten über 1400 mm Pos. 7 gegen Pos. 24 und Pos. 4 und Pos. 8 gegen Pos. 25 austauschen				
Pos. 16-19 are partial shipped loose / Pos. 16-19 sind teilweise lose beigelegt				

9.8

MARTIN® DT2S Air tensioner

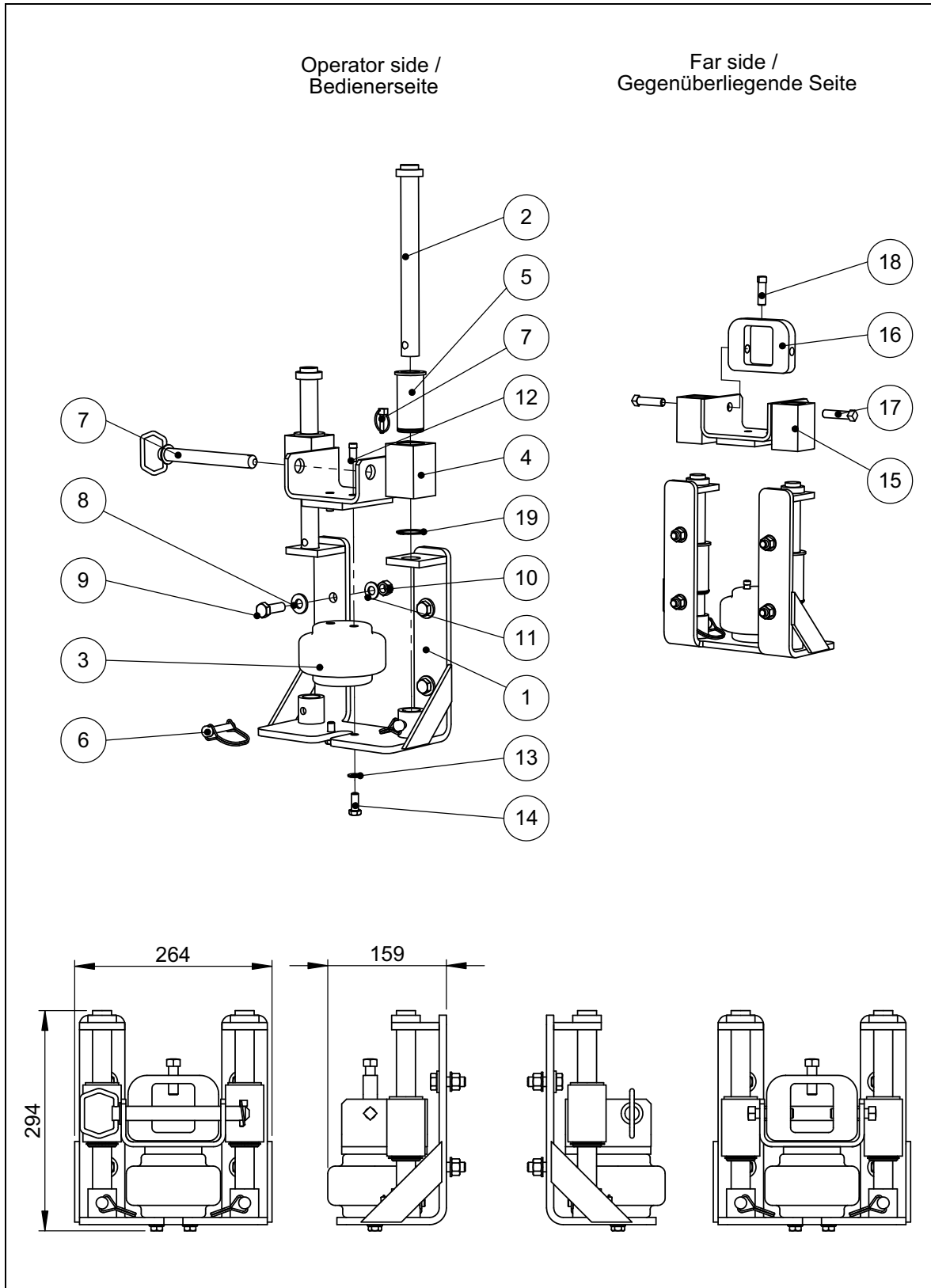


Fig. 39



ND	Item / Pos.	Qty. / Anz.	Description / Beschreibung	P/N / Teile-Nr.
	1	2	Inline mount plate / Installationskonsole	37701
	2	4	Guide rod / Führungsstange	37702
	3	2	Air bag / Luftbalg	30587
	4	1	Slide Bracket (Operators side) / Aufnahmekonsole (Bedienerseite)	37703-OSA
	5	4	UHMW sleeve / Führungshülse	37704
	6	4	Wire lock pin 3/8" x 1-3/4" / Arretierbolzen	37126
	7	1	Hitch pin 3/4" x 1-3/4" w/chain / Steckbolzen mit Kette	38073
	8	8	Washer flat 1/2" thick / Unterlegscheibe dick	19126
	9	8	Hexagon head screw 1/2" x 1-1/2" / Sechskantschraube	22766
	10	8	Washer compression 1/2" / Unterlegscheibe	24310
	11	8	Hex nut 1/2" / Sechskantmutter	17151
	12	4	Socket head screw 3/8" x 3/4" / Zylinderschraube mit Innensechskant	36510
	13	4	Washer compression 3/8" / Unterlegscheibe	11747
	14	4	Hexagon head screw 3/8"-16NC X 1" / Sechskantschraube	11746-02
	15	1	Slide bracket (Far side) / Aufnahmekonsole (Gegenüberliegende Seite)	37703-A
	16	1	Far side strap / Lasche (Gegenüberliegende Seite)	37715
	17	2	Square head screw 1/2"-13NC X 2" / Vierkantschraube	22763-06
	18	1	Square head screw 1/2"-13NC X 1-1/2" / Vierkantschraube	33190
	19	4	Ext retaining ring f/1,5" shaft / Sprengring für Ø1,5" Schaft	38301
Pos. 8-11 are shipped loose / Pos. 8-11 sind lose beigelegt				



**Declaration of incorporation in accordance with  
Machinery Directive (2006/42/EC) Annex II B  
for the installation of an incomplete machine**

We, Martin Engineering,

In der Rehbach 14

Tel.: +49 6123-97820

D-65396 Walluf

Fax: +49 6123-75533

herewith declare that the product named in the following

Product designation:

**Conveyor belt cleaner**

of make / type:

**MARTIN® DT2S secondary cleaner**

with serial number:

**not required**

meets the following requirements:

**Machinery Directive 2006/42/EC**

**DIN EN 618 - Equipment and systems for bulk materials**

The following harmonised standards in particular were applied:

**DIN EN ISO 12100 Safety of Machinery**

Notified body:

**not required**

The installation instructions belonging to the product and the technical documentation are enclosed with the product in their original version.

The commissioning of this product is prohibited until it has been determined that the system in which it is to be installed meets the requirements of versions 98/37/EC and 2006/42/EC of the EC Directive.

Date: 21/01/2010

Manufacturer's signature: Managing director, Michael Hengl



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Subject to technical modifications  
Quality management system certified by DNV - ISO 9001

