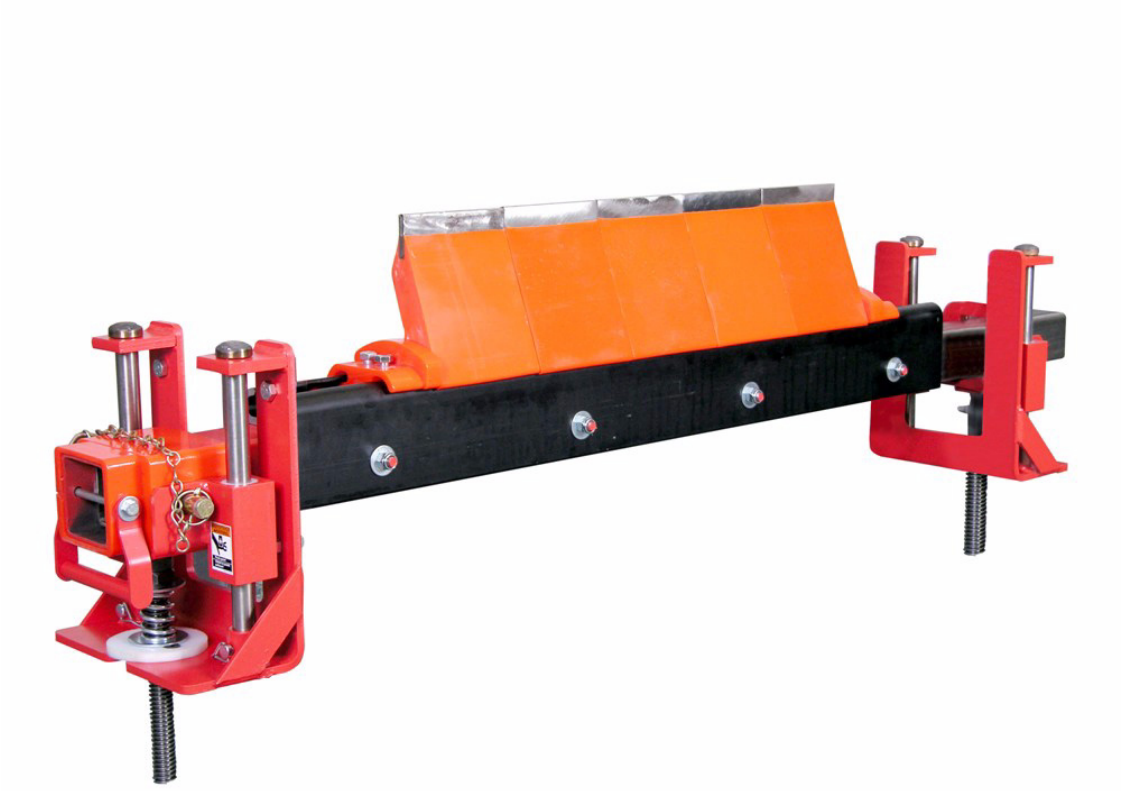
MARTIN® DT2H - Main Scraper



Installation Manual
M3699UK

I Contents

Contents

1 Introduction

1.1 About this Installation Manual

Non-compliance with this installation manual can lead to the loss of any liability claim and/or guarantee.

1.1.1 Scope

This installation manual is exclusively for the product that is described herein, and is aimed at those people, that install the product, take the product into operation, and monitor its use.

1.1.2 Copyright

The technical standard at the time of delivery of the product and technical documentation is decisive, as long as no other information is given. We reserved the right to make technical changes without any announcement. Earlier documents will no longer be valid. Martin Engineering General Conditions of Sale and Delivery apply.

1.1.3 Disclaimer

Martin Engineering guarantees the faultless operation of the product according to the advertising, edited product information, and technical documentation. Martin Engineering does not accept any liability for the efficiency and proper operation, if this product is used for any other purpose, other than as described in the section "Appropriate Use"; or for any damage caused by the use of accessories and/or spare parts, that were not delivered and/or certified by Martin Engineering.

The products from Martin Engineering are designed for a long service life. They correspond to state-of-the-art scientific and technology standards and were thoroughly inspected before delivery. Additionally, Martin Engineering carries out continuous product and market research for the further development of products.

In the event of faults and/or technical problems Martin Engineering offers professional support. Appropriate steps will be taken immediately. Martin Engineering's warranty conditions apply, which can be sent if required.

1.1.4 Reference to additional documentation

The following documents are referred to in this installation manual:

- MARTIN® Inspection door M3127

The following standards and guidelines were applied when composing this installation manual:

- EU Machinery Directive (2006 / 42 / EG)
- ISO/IEC Guide 37 "Installation instructions for end-consumer used products“, edition 1995
- DIN 1421 "Structure and numbering in texts", edition 1983-01
- DIN/EN 12100-1 "Safety of machinery - Basic concepts, general principles of design", edition 2013-08
- 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 machinery - Electrical equipment of machines, Part 1, General requirements", edition 2007-06
- DIN EN 82079-1 Preparation of instructions for use - Structuring, content and presentation - Part 1: General principles and detailed requirements.

1.1.5 Classification of hazards

DANGER!

This indicates an imminent danger that leads to serious physical injuries or death, if not avoided.

WARNING!

This indicates a potentially dangerous situation that could lead to serious physical injuries or death, if not avoided.

CAUTION!

This indicates a potentially dangerous situation that could lead to minor physical injuries and/or damage to property, if not avoided.

NOTE

Contains information to the installation or use of the product and points to situations, that cause neither injuries nor property damage, but is nevertheless important information.

1.2 Appropriate Use

The Martin® DT2H main scraper can be used only for cleaning a conveyor belt in the lower section of a conveyor belt system. In doing so, the scraper must be installed immediately behind a head drum or counter pressure roller.

It can be used in conveyor belts having a maximum belt width of 3,000 mm and maximum conveyor speed of 6.1 m/sec.

Any other use of this product is deemed to be inappropriate. If you would like to use the product described here for any other purpose, please contact customer service at Martin Engineering. We shall be pleased to assist you with the product configuration.

1.2.1 Conveyor belt systems with open transfer systems

This installation manual describes the installation on a conveyor belt system with an encapsulated delivery system. For the installation on open delivery systems different MARTIN® installation consoles can be used.

If installation conditions prove to be difficult, as is the case with impassable static components, or using the head drum as the tension point, Martin Engineering or a representative can help with the positioning or find customized solutions.

1.2.2 Use in EX-protection areas

Under certain circumstances the product described here can also be used in potentially explosive areas. Contact Martin Engineering for more information on use in potentially explosive areas.

The use of the scraper in a device protection category that is higher than that specified or under operating conditions other than those specified by Martin Engineering is not permissible or may be done only if Martin Engineering has granted its approval.

1.2.3 Operating limits of this product

The use of the product mentioned here is allowed only within the specifications given above. Using it in a higher than specified equipment category or under operating conditions other than those named and previously specified by Martin Engineering is considered to be inappropriate use and can only be carried out if approved by Martin Engineering.

If the MARTIN® D2H main scraper needs to be used for a different purpose, then Martin Engineering or one of its representatives can help with the product configuration.

1.3 Safety at work

1.3.1 Safety instructions, safety at work

This installation manual should be read through completely before beginning work on the product or the customer's conveyor belt system.

The operator must ensure that all installation, inspection or maintenance work is carried out only by authorised experts.

Basically, all work on conveyor belt systems and their accessories has to be done when the system is at a standstill. The instructions in the relevant installation manual, which describes how to shut-down the conveyor belt, must be adhered to.

Upon completion of work, all safety equipment and protective guards should be reinstalled and put back into operation.

Before commissioning, the installation should be completed. Before the conveyor belt system can be used again, the flawless execution of all steps should be checked. All notes on installation and commissioning of the product should be observed.

1.3.2 Obligations of the operator

The operator of this product must ensure that only those personnel install, service and use this product who

- know the rules for safety and accident prevention,
- have been instructed in this product’s use, and have read and understood this installation manual.

1.3.3 Authorised personnel

Personnel are considered to be authorised, if they have appropriate education, technical experience as well as knowledge on the relevant standards and guidelines and are also in a position to assess any tasks to identify critical situations at an early stage.

Operating or maintenance and installation personnel

Personnel are considered to be authorised, if they have been instructed in the use of the product and have read the installation manual completely and understood it.

Introduction

2 Description of the product

2.1 Contruction and Function

The MARTIN® DT2H main scraper, with its unique push-in and freely selectable scraper blades offer a large variation of options for use such as reversing operation, mechanical splinters, etc. Replacing the scraper blade is easy thanks to the pull-out type of blade holder.

The MARTIN® DT2H main scraper is best suited for removing impurities or dirt from a conveyor belt based on its positioning behind the head drum or a counter pressure roller. Optimal results are achieved if it is operated together with a pre-head cleaner, but it can also be used as a separate scraper.

Martin Engineering recommends not to use this scraper if the conveyor belt has boreholes, openings or other signs of damage.

When using it in conjunction with mechanical splinters, attention needs to be paid to ensuring that this is in proper condition and has no projecting parts.

NOTE

A poorly or incorrectly installed product can hamper the conveyance process or soil the bulk material to be conveyed.
The operator is responsible for adopting the countermeasures necessary.
When used with impurities or contaminants, Martin Engineering or a representative can help with the positioning or with customised solutions.

2.2 Spring tensioners

The MARTIN® DT2H main scraper and the Martin Engineering spring tensioners specifically developed for it give the best results and conform to the general state-of-the-art technology.

Martin Engineering recommends the following spring tensioners for the MARTIN® DT2H main scraper:

- MARTIN® IN-LINE reversible spring tensioner, part no. 37806
- MARTIN® IN-LINE air tensioner,
  part no. 37806-A

2.3 Type explanation

For the Martin® DT2H main scraper, scraper blades are available in different material designs. The required design can be selected to match the respective material conditions. The choice of different scraper blades is listed in the section on "Part numbers".

3 Installation preparation

3.1 Before installation

3.1.1 Materials and tools required

In addition to the standard tools, the following special instruments may be needed for installation and maintenance.

- Lifting equipment with a capacity greater than the weight of the main scraper (note the weight on the delivery note).

3.1.2 Preparatory measures

NOTE

Pay attention to the following checks and carry them out completely.
The freight forwarder is responsible for any transport damage!
For any damage claims, please contact the freight forwarder.

1. At the time of delivery, check the following points:
   - Is the delivery complete? Is the number of pallets / cases / containers the same as the number on the delivery note?
   - Does all the transport packaging appear to be undamaged? Is there damage which may indicate that the contained products may be damaged?
2. If the delivery is incomplete or if there is transit damage, make sure to record this and have it confirmed by the freight forwarder. All damaged products should be saved for inspection.
3. Depending on the scope of the order, the delivery should contain the following parts:
   - MARTIN® DT2H main scraper with tensioner (spring or air tensioner).
   - Installation manual.
   - Two warning labels for conveyor belt products, part no. 23395G
   - Two warning labels for crushing hazard, part no.: 30528G
   - Two warning labels for reversible tensioner, Part no. 37827
4. Missing or damaged parts should be reported to Martin Engineering or the authorized dealer.

Installation preparation

4 Installation

4.1 Safety instructions

NOTE

Read this section completely before beginning any work!

WARNING! DANGER 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 inadvertent reactivation. Use warning signs!

WARNING! EXPLOSION HAZARD!

In enclosed areas there is an increased risk of explosion when using a cutting torch or welding equipment!
Before use, check the level of gas and dust in the air.

NOTE

Install the spring tensioner on the side that is most easily accessible. The side that is most easily accessible is called the "operator side" in this manual, while the other side is called the "opposite side".

4.2 Installation of the MARTIN® D2H main scraper

4.2.1 Determining the installation position

The position of the middle axis of the conveyor belt scraper must be determined on both sides of the chute wall. In the process, the positions are determined where the shaft of the conveyor belt scraper passes through the chute wall or where the spring tensioner is installed on the chute wall.

The conveyor belt scraper is supplied along with a spring tensioner. This is disassembled at the factory prior to delivery and is reassembled during installation along with the conveyor belt scraper.

The installation of the conveyor belt scraper and the spring tensioner is described in this installation manual.

Following is an overview of the installation steps:

No.	Installation step	Instruction
1	Determining the installation position	M3699
2	Installation of the spring tensioner	M3699
3	Installation of the conveyor belt scraper	M3699
4	Tensioning the conveyor belt scraper	M3699

Tab. 1: Installation steps

It is possible to have different local conditions at the time of installation that require different working steps, which are illustrated below:

Installation on an encapsulated delivery system

- Carry out the instructions according to 4.2.2.

Installation on an encapsulated delivery system where installation openings and supports for the conveyor belt scraper are already present.

- Carry out the instructions in 4.2.3.

Installation on an open delivery system

Use the local resources to ensure that the dimensions for the installation are correctly maintained.

1. Prior to commencing installation of the conveyor belt system, switch off and de-energise the conveyor belt and all accessories and secure them against being switched on inadvertently. The conveyor belt scraper should ideally be installed near a head drum or counter pressure roller. The distance should not be more than 100 mm.
2. Determine the midpoint position of the scraper axis as described below for the conveyor belt scraper.

NOTE

For installation behind a thrust roller in the direction of conveyance, draw one line vertically to the conveyor belt level at a distance of 51 mm from the midpoint of the roller.

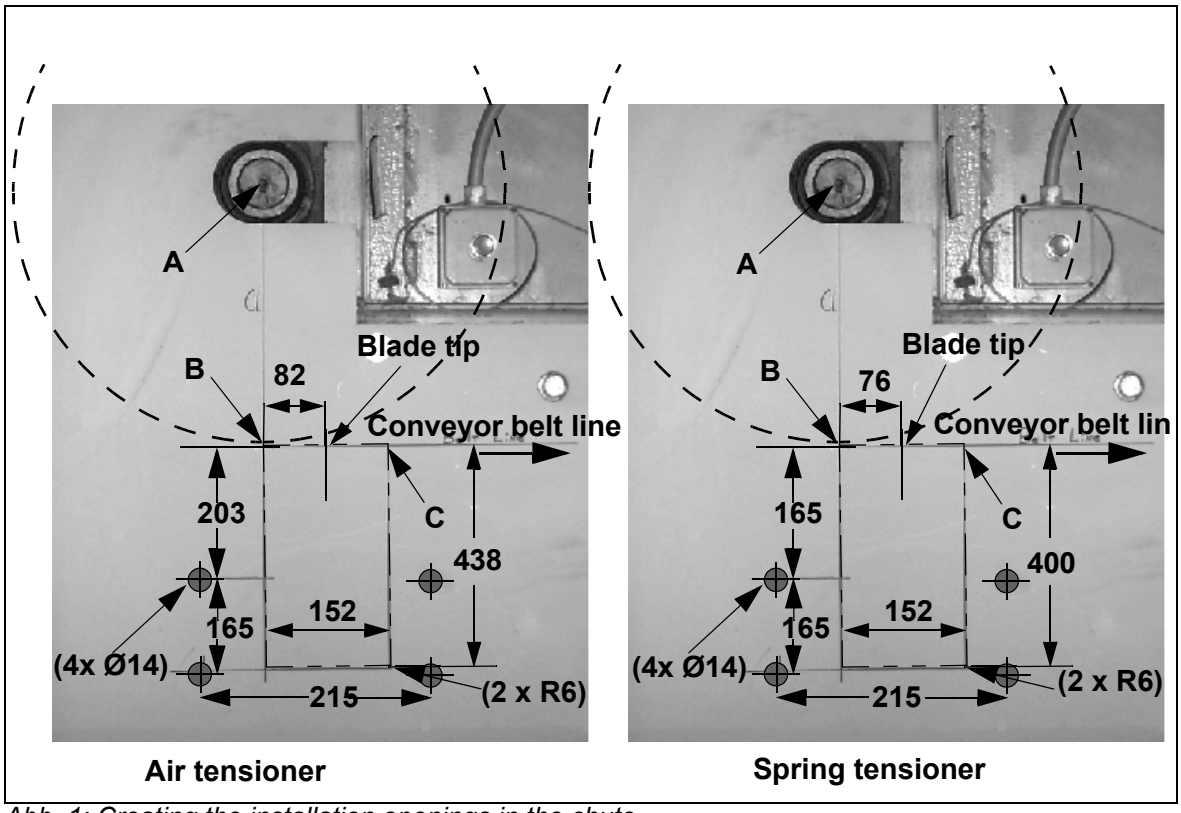


Abb. 1: Creating the installation openings in the chute

NOTE

Martin Engineering recommends for improved maintenance and repair access the installation of a MARTIN® inspection door.

3. Mark the vertical and horizontal centre line of the driving drum on the operator side of the chute wall to determine the midpoint (A) of the driving drum. The vertical line must run at right angles to the conveyor line.
4. Mark one position at a distance of 51 to 102 mm in the direction of conveyance starting from the point at which the conveyor belt leaves the head drum (B).
5. At this position (C) mark one vertical line at a right angle to the conveyor belt.
6. Take the dimension from Fig. 1 and mark the installation holes in the spring tensioner.

4.2.2 Installation of the spring tensioner

.

NOTE

The dimensions of the installation openings for the spring and air tensioners are different. Ensure that the correct dimensions are used. Check the position of the conveyor belt scraper before continuing.

1. Prepare the installation openings for the scraper axis and prepare installation openings for the tensioner according to Fig. 1. Deburr all openings and boreholes.

Abb. 2: Installing the installation console with safety bolts

2. Place the installation console with the safety bolts (Fig. 2) on the operator side of the chute wall and fix it to the chute with screws.
3. Repeat the steps 3 and 4 for installing the installation console on the opposite side. Use the installation console with the shaft-arresting mechanism (Fig. 4 on page 16)

4.2.3 Installing the scraper

Abb. 3: Sliding in the scraper axis

NOTE

The side of the shaft with the openings must be installed on the installation console on the operator side. The shaft must be installed in such a manner that the opening right at the end of the shaft points to the installation console.

4. Insert the cleaner shaft into the installation console. To do this, slide the shaft through the installation console and the opening in the chute wall from the operator side.

Abb. 4: Arresting the scraper shaft (1)

5. Next, push the scraper shaft out through the shaft arresting mechanism of the installation console on the opposite side.

Abb. 5: Arresting the scraper shaft (2)

6. Tighten the 3 adjustment screws on the back side slightly so that the scraper shaft does not slip out while installing the scraper blade holder.
7. Align the end of the scraper with the outer edge of the installation console on the operator side

NOTE

If the scraper shaft is too long, this can be shortened accordingly on the opposite end.

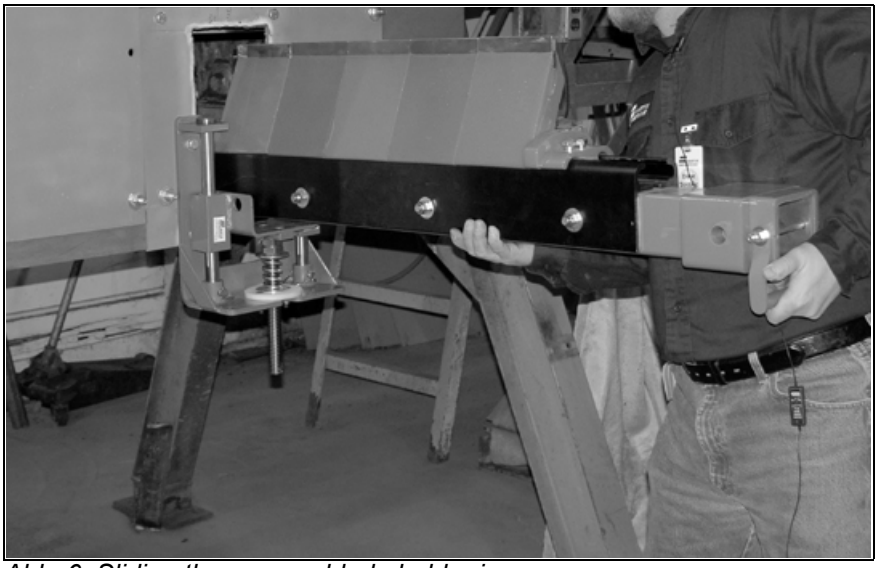


Abb. 6: Sliding the scraper blade holder in

8. Push the scraper blade holder on the scraper shaft at the operator end.

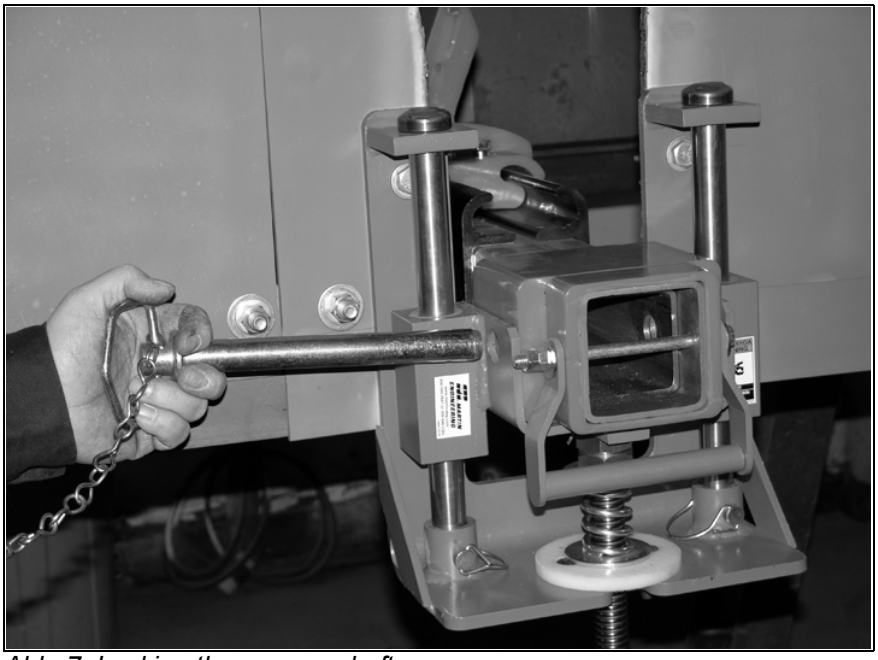


Abb. 7: Locking the scraper shaft

CAUTION! DANGER OF DAMAGE!

Damage to the conveyor belt edge and / or the cleaner blades is possible by misalignment of the conveyor belt. *Alignment of the main scraper in accordance with the following instructions.*

NOTE

The following drawings are illustrative and may vary from the main scraper actually used.

4.2.4 Centre the scraper shaft below the conveyor belt

Measure the distances (A) and (B) between the edge of the cleaner blades and the conveyor belt edge on both sides.

Abb. 8: Centring the conveyor belt scraper shaft (example)

Slide the scraper shaft until distance A is equal to distance B. The conveyor belt should protrude about 50 to 100 mm on both the left and the right sides. The cleaner blades must be positioned in the middle under the conveyor belt.

4.2.5 Adjust the blade shaft parallel to the conveyor belt

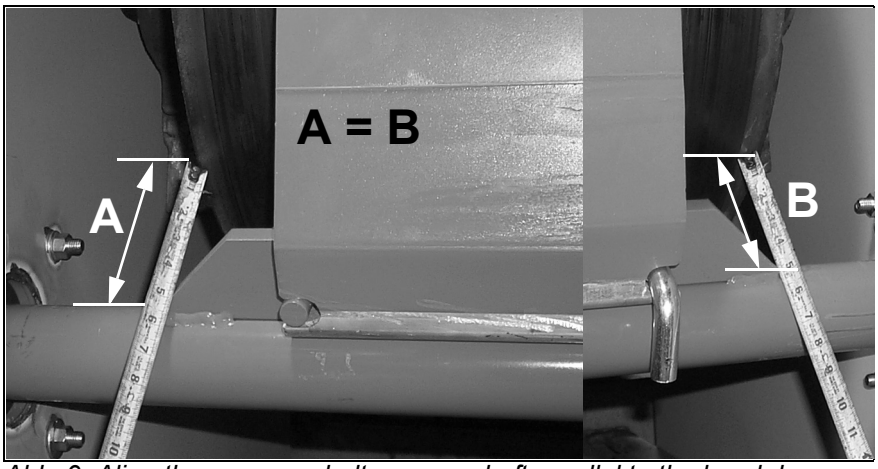


Abb. 9: Align the conveyor belt scraper shaft parallel to the head drum (example)

Measure the distance on both sides between the scraper shaft and the head drum or the counter pressure roller. The measurements on both sides must be equal.

4.2.6 Levelling the blade shaft

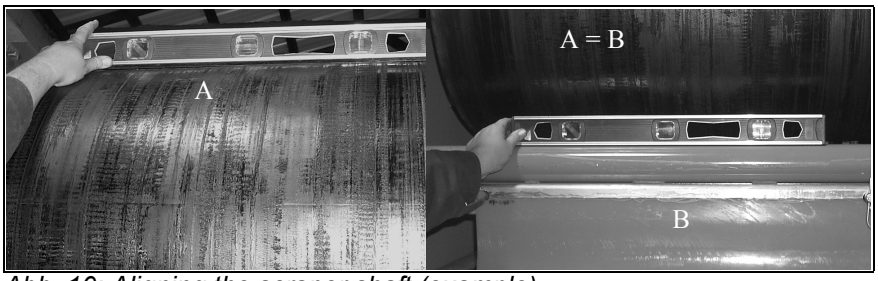


Abb. 10: Aligning the scraper shaft (example)

Align the main scraper shaft horizontally to the head drum or check that the cleaner blades are placed evenly against the conveyor belt. Tighten the arresting screws of the tensioners.

Once all the measurements are correct and the main scraper is adjusted it can then be fixed in position; and if not, it should be reinstalled or re-positioned.

NOTE

The following steps are necessary only if an air tensioner is being used.

1. Connect the compressed air line with the interfaces that are located at the bottom of the installation console at the back side of the chute.
2. First route the compressed air line through the shaft and then through the holder on the operator side. Ensure that the line is guided under the grip. Connect the compressed air line with an interface of the T-piece of the compressed air bellows on the operator side. If needed, shorten the compressed air line to the required length.
3. Connect the other interface of the T-piece with the input of the compressed air system or, if required, with the output of the pressure control device. Connect the compressed air supply or a compressed air system to the input of the pressure control device.

4.2.7 Tensioning the blade

Adjusting the spring tensioner

CAUTION! DANGER OF DAMAGE!

Damage can occur if the tension of conveyor belt scraper on the conveyor belt is too high or uneven.
Only tension the conveyor belt scraper according to the guidelines and with dual spring tensioners, ensure even tension.

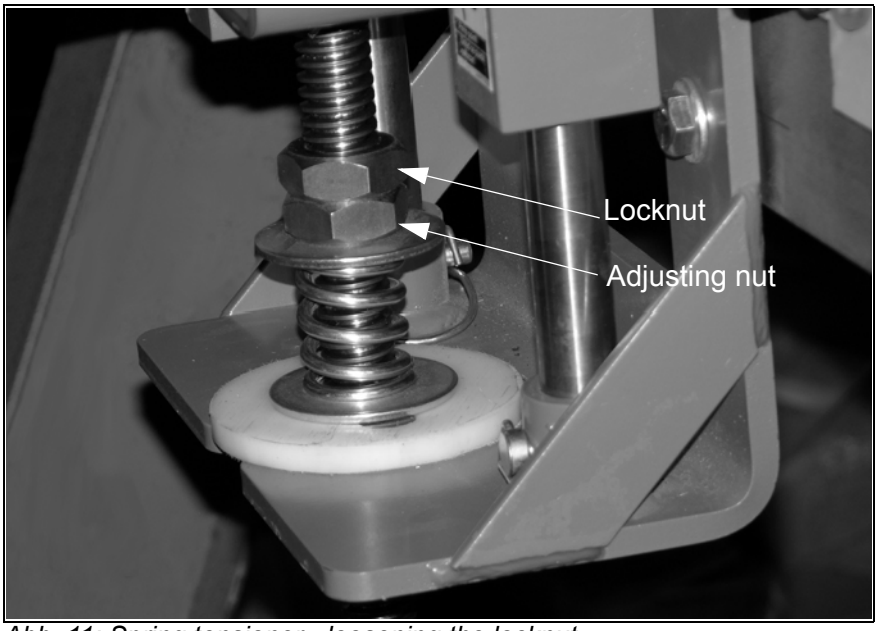


Abb. 11: Spring tensioner - loosening the locknut

1. Loosen the locknut over the spring on both sides.
2. Turn the adjusting nut (best on both sides simultaneously) until the scraper blades touch the conveyor belt only slightly.
3. Check whether the scraper blades have the same distance to the conveyor belt.

Abb. 12: Spring tensioner - adjusting the spring dimension

4. Tighten the adjusting nuts on both sides simultaneously as far as possible until the length of the spring matches the value given in Table 2.

.

Conveyor belt width (mm)	Spring length (mm)	Number of complete turns
400-500	57	1
500-650	54	2
650-800	54	2
800-1000	51	3
1000-1200	51	3
1200-1400	48	4
1400-1600	*57	*1
1600-1800	*54	*2
1800-2000	*54	*2
2000-2200	*54	*2
2200-2400	*51	*3
2400-2600	*51	*3
2600-2800	*51	*3
2800-3000	*48	*4

Tab. 2: Recommended spring tension

* Starting from a belt width beyond 1,400 mm, another spring is used.

5. Lock the adjusting nut with the locknut.

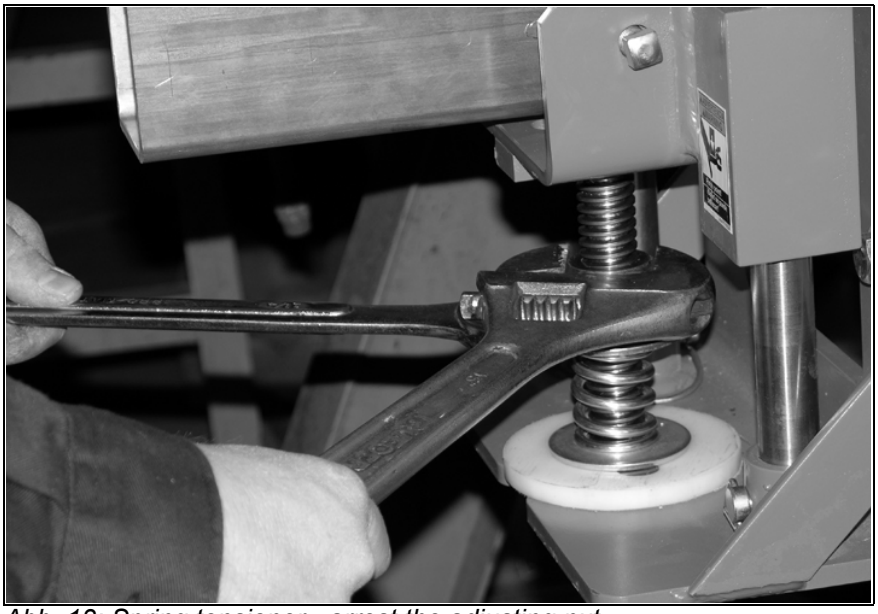


Abb. 13: Spring tensioner - arrest the adjusting nut

6. Switch on the conveyor belt system and observe the cleaning effect of the scraper blades. Take care to ensure that the scraper blades touch the conveyor belt gently and in a vibration-free manner.

Adjusting the air tensioner

In order to generate the force to press the scraper blades against the conveyor belt, a compressed air bellows is used in air tensioners at every installation console. The setting of the scraper and the pressing force are controlled automatically with the help of the lockable ballcock with automatic bleeding (see Fig. 18, page 30).

1. To adjust the MARTIN® DT2H scraper with an air tensioner, pressure must be applied to the bellows in accordance with Table 3.
2. When using a pressure control device, connect the lockable ballcock outside on the housing with the compressed air supply. Switch on the compressed air supply and open the ballcock. The scraper is raised and the scraper blades touch the conveyor belt.
3. Unlock the pressure-relief valve in the pressure control device and the adjust the pressing force. The pressure-relief valve is fitted with automatic bleeding, as a result of which the pressure stabilises automatically. After every change in the setting, wait for some time so that the pressure peaks may get reduced.
4. If the desired pressing force is adjusted, block the pressure-relief valve and close the housing.

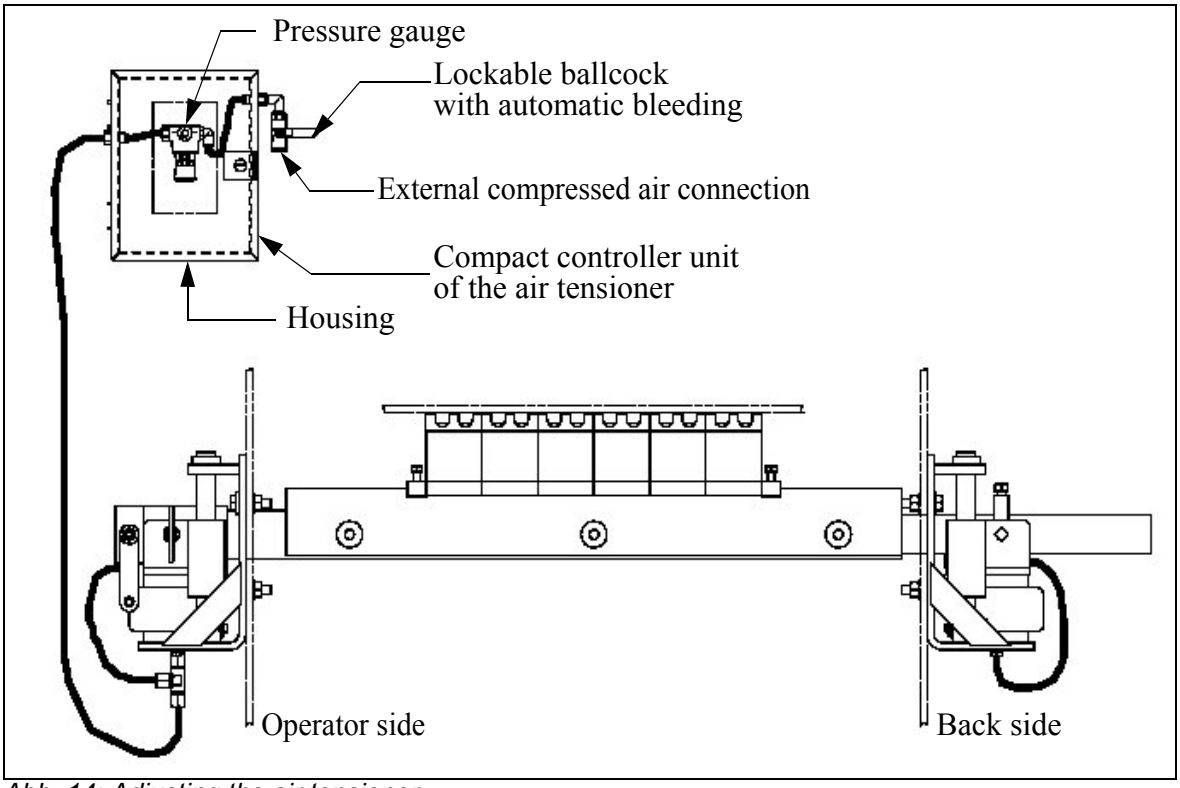


Abb. 14: Adjusting the air tensioner

Conveyor belt width (mm)	Required pressure (bar)
400-500	0.9
500-650	1.1
650-800	1.2
800-1000	1.4
1000-1200	1.6
1200-1400	1.7
1400-1600	1.9
1600-1800	2.0
1800-2000	2.3
2000-2200	2.6
2200-2400	2.9
2400-2600	3.1
2600-2800	3.3
2800-3000	3.5

Tab. 3: Recommended values of compressed air

4.3 Test run

NOTE

Read through this section thoroughly before starting any work on the conveyor belt scraper or the customer's conveyor belt system.

1. If the main scraper raises the conveyor belt, then a pressure roller must be mounted above the contact point between the scraper blade and the conveyor belt at a distance of 50 mm against the direction of conveyance to support the belt.

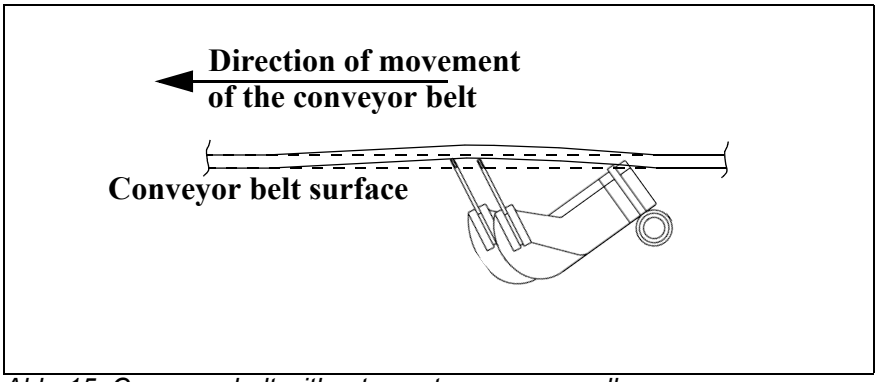


Abb. 15: Conveyor belt without counter pressure roller

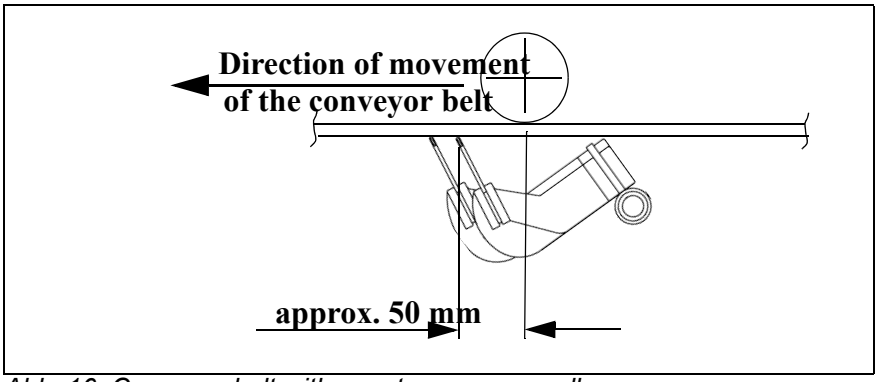


Abb. 16: Conveyor belt with counter pressure roller

2. Carefully wipe the outer chute wall on the operator side above the scraper. Affix the warning labels for the conveyor belt products (Part no. 23395) so that they are visible to the system operator at the chute wall - see also Fig. 17 on page 31 for this purpose.

CAUTION! FLYING PIECES!

Tools or installation parts that are left behind can fall from a moving conveyor belt and cause slight injuries and property damage.
After the installation, first remove tools from the installation area and from the conveyor belt before applying power.

WARNING! DANGER 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 inadvertent reactivation. Use warning signs!

3. Remove all tools and fire protection covers from the installation area and conveyor belt.
4. Carry a one hour test run of the conveyor belt system.

CAUTION! DANGER OF DAMAGE!

Never operate the conveyor belt scraper for more than 14 minutes on the running and unloaded conveyor belt when it is fully tensioned. There is the risk of the conveyor belt scraper getting damaged and/or the conveyor belt getting damaged by overheating.
Operate the conveyor belt scraper with full tension against the conveyor belt only when it is running and fully loaded.

5. After the test run for an hour, shut down the conveyor belt system, switch off the power supply and secure it against being switched on again inadvertently.
6. Make sure that all securing parts are tightened. Tighten loose connections.
7. Check the conveyor belt scraper for the following points:
   - **Wear and tear**: a little wear and tear is normal, as soon as the wiper blades have got adjusted to the contour of the conveyor belt, this stops happening.
   - **Material accumulation**: No material should have accumulated between the cleaner blades and on the return side.

8. If the wear and tear or bulk material accumulation is excessive or other problems occur, refer to the information in section 4.4 “Installation checklist” or chapter 6 “Troubleshooting.

4.4 Installations - Check-list

If the test run of the conveyor belt scraper was not as expected, then the “Installation checklist” table could help to find and solve the problem. If there are still problems, refer to chapter 6 "Troubleshooting".

Installation checklist
The main scraper must be installed on both sides according to the measurements in section 4.2 et seq.
The tip of the main scraper cleaner blade must touch the conveyor belt in the range of 51 and 102 mm after the vertical centre line of the head drum.
The main scraper should not raise the conveyor belt (see Fig. 19).
The scraper blades must be installed in the centre of the conveyor belt and/or head drum.

Tab. 4: Installation check-list

4.5 Placing the warning label or the warning pendant

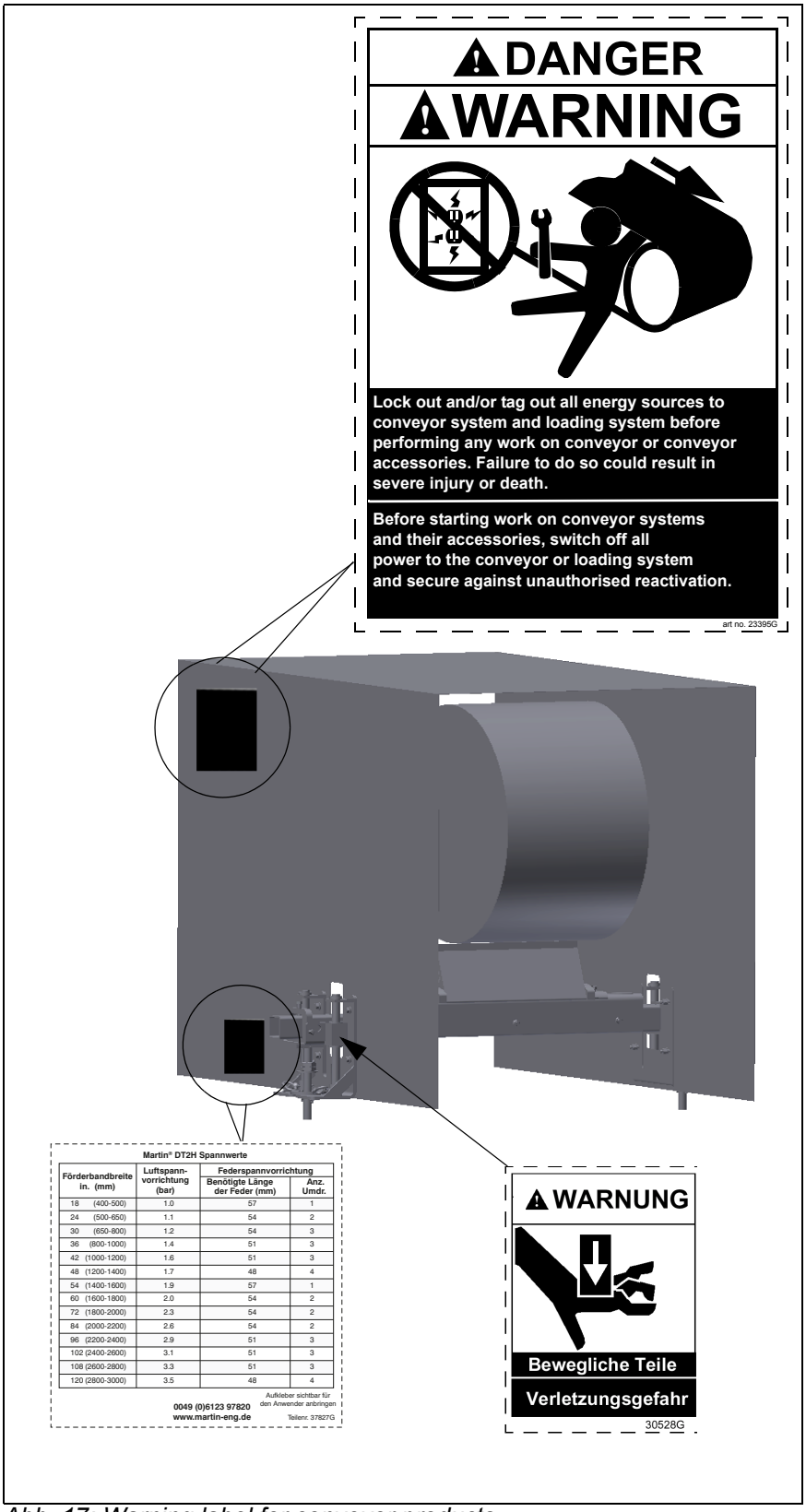


Abb. 17: Warning label for conveyor products

5 Maintenance

5.1 Safety instructions

NOTE

Maintenance inspections should take place at least once a week. Depending on operational conditions, shorter maintenance intervals may be necessary.

NOTE

Read this section thoroughly before beginning any work.

WARNING! DANGER OF INJURY!

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

5.2 Weekly maintenance

1. Switch off the power supply of the conveyor belt and any other equipment and secure them against being switched on inadvertently.
2. Remove all material deposits from the cleaner blade and the main axle.
3. Check that all securing parts are tightened. Tighten loose connections, if any.
4. Check the tension of the scraper and tighten it if necessary.
5. If there are any signs of malfunctions, turn off the relevant parts of the conveyor belt system. To get support, contact Martin Engineering or one of its representatives. DO NOT operate the conveyor belt system until the reason for the problem has been identified and resolved.
6. Check if the scraper blades are worn, damaged and parts missing.
7. If the hard metallic inserts are worn out, replace the blade according to the instructions in section 5.3.

NOTE

Check or adjust the wear at least once a month. The scraper blades must always have adequate contact with the conveyor belt.

NOTE

If there are any signs of degrading operation, turn off the relevant part of the conveyor belt system. To receive support, contact Martin Engineering or a representative. DO NOT operate the conveyor belt until the reason for the problem is known and a solution is found.

.

CAUTION! DANGER OF DAMAGE!

Do not let the scraper blades wear out beyond the wear line, it can cause serious damage to property.
Inspect scraper blades regularly and replace in time!

8. Clean all warning labels. Replace any warning labels that cannot be read. Warning labels may be purchased from Martin Engineering or an authorised dealer.

CAUTION! FLYING PIECES!

Tools or installation parts that are left behind can fall from a moving conveyor belt and cause slight injuries and property damage.
After the installation, first remove tools from the installation area and from the conveyor belt before applying power.

9. Remove all tools from the working area.
10. Switch on the conveyor belt.

WARNING! DANGER 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 belt system and its accessories during its operation.

CAUTION! DANGER OF DAMAGE!

Never operate the main scraper longer than 15 minutes on the moving conveyor belt when it is not loaded. There is a risk of the main scraper getting damaged and/or the conveyor belt getting damaged by overheating.
Only operate the primary cleaner when the conveyor belt is running.

11. Monitor the scraper and test its cleaning performance.

5.3 Replacing the scraper blades

WARNING! DANGER 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 inadvertent reactivation. Use warning signs!

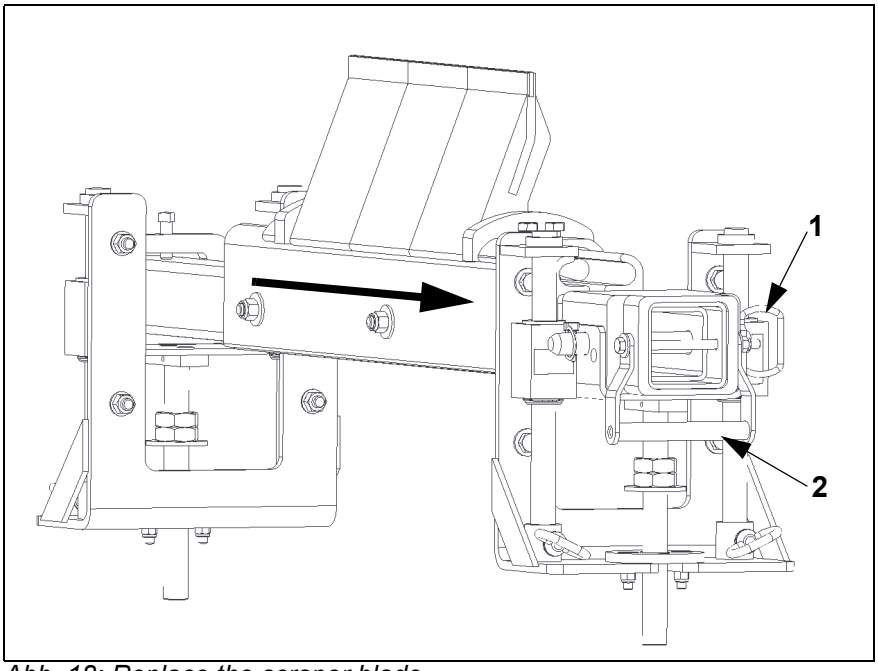


Abb. 18: Replace the scraper blade

1. Move the tensioner in completely. Next, pull out the locking pin (Fig. 20, 1), which locks the scraper blade cartridge at the operator side of the shaft. Pull at the grip (Fig. 20, 2) in order to remove scraper blade cartridge from the shaft and from the installation console. Pull out the scraper blade cartridge completely from the shaft. Place the cartridge on a level and stable surface.

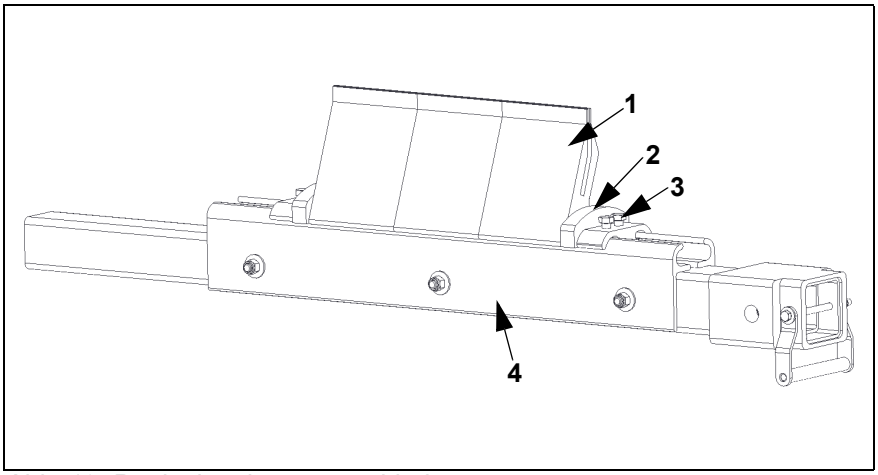


Abb. 19: Replacing the scraper blade

.

NOTE

The end stops may prevent damage to the conveyor belt by supporting the conveyor belt at the edges of the scraper blades. If both end stops need to be removed, first mark their position in the cartridge so that the scraper blades can be positioned properly after assembly.

2. Clean and inspect the scraper blades. Replace worn out scraper blades as described in the following:
   - Loosen the screws (Fig. 21, 3) and remove the end stop (Fig. 21, 2). Next, pull out the scraper blades (Fig. 21, 1) from the cartridge. If the scraper blades cannot be removed, at least one side of the lateral guide rails (Fig. 21. 4) must be loosened or removed.
   - Slide in the new scraper blades and pay attention to the alignment of the scraper blades.
   - Insert the end stop again. (In case of severe wear and tear, it may become necessary to replace the end stop).
   - Place the scraper blade cartridge again on the scraper shaft and insert the locking pin on the operator side. Re-tighten the scraper.

6 Troubleshooting

6.1 Safety instructions

NOTE

Conveyor belt scrapers are subject to many different types of materials and are often used in extreme working and environmental conditions. Therefore faults can occur other than those listed here.
In this case, Martin Engineering or a representative can help with the positioning or with customised solutions. Use the conveyor system only after the fault has been identified and rectified.

6.2 Troubleshooting

If, after the installation, there is an abnormally high wear and tear on the cleaner blade and/or the cleaning efficiency is too low, check the following points:

Symptom	Cause	Corrective action
High wear and tear on the cleaner blade.	The scraper is tensioned excessively on the conveyor belt.	Please refer to Table 2 or 3 for the values of tension.
Scraper blades are pressed out of the rails.	The scraper is tensioned excessively on the conveyor belt.	Please refer to Table 2 or 3 for the values of tension.
Inadequate cleaning efficiency or material accumulation.	The scraper is fixed either too loosely or too tightly on the conveyor belt.	Increase or decrease the tension accordingly.
	The scraper blades are worn.	Check scraper blades and replace where necessary. (See “weekly maintenance”).
Damage or unusual wear pattern on the scraper blade.	Damaged conveyor belt or joints.	Check the conveyor belt joint(s) and repair or replace if necessary.
	Different tension specifications of the spring tensioner.	Check tension specifications and retighten if necessary.

Tab. 5: Troubleshooting

Symptom	Cause	Corrective action
Vibration of the scraper blades	Incorrect angle of installation.	The scraper blades must be positioned vertically with respect to the conveyor belt.
	The conveyor belt is raised considerably.	Install the pressure roller above the scraper.
	Vibrations of the conveyor belt are transferred.	Install the pressure roller above the scraper.
	The scraper is fixed either too loosely or too tightly to the conveyor belt.	Adjust the tension if necessary.

Tab. 5: Troubleshooting

7 Storage, De-installation, Disposal

7.1 Storage

To maintain optimal functionality, Martin Engineering recommends storing the cleaners and the cleaner replacement blades made of urethane or with rubber components at room temperature and protected from direct sunlight.

Depending on the type of urethane and the storage conditions, storage of between 6 and 12 months or longer under unfavourable conditions can degrade the functionality of the cleaner or cleaner blades.

The best conditions for storage are at a temperature of +0°C to +30°C and 60% relative humidity.

7.2 De-installation

De-installation is the reverse of the installation (refer to section 4.2.2., page 18).

7.3 Disposal

Assemblies and / or component parts of the Martin Engineering brush cleaners should be disposed of properly after use.

- Complete assemblies should be de-installed and separated according to material and disposed of.

When disposing of components and materials, all national and international waste disposal regulations have to be observed.

Storage, De-installation, Disposal

8 Part numbers

This chapter lists the product designations with the associated part numbers for the MARTIN® DT2H conveyor belt scraper and accessories.

Always state the part number when ordering.

8.1 MARTIN® DT2H main scraper

- MARTIN® DT2H main scraper:
  Part no. DT2H-XXXXXXXXX
- MARTIN® DT2H main scraper with extended shaft: Part no. DT2H-XXXXXXXEX

8.2 MARTIN® DT2H tensioners

- MARTIN® IN-LINE reversible spring tensioner
  Part no. 37806
- MARTIN® IN-LINE air tensioner
  part no. 37806-A

8.3 MARTIN® DT2H main scraper blade cartridge

The MARTIN® DT2H blade cartridge is a replacement assembly that is used to replace a worn out or defective blade cartridge. The blade cartridge is installed on the already existing shaft.

- MARTIN® DT2H blade cartridge:
  Part no. DT2HC-XXXXXXXXX

8.4 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.

8.5 Installation manual

- MARTIN® Inspection door: Document no. M3127.

8.6 Miscellaneous

- Reversible installation console (Pair):
  Part no. 33288
- Reversible installation console (Single):
  Part no. 33282
- Reversible Z-holder:
  Part no. 31158;
  for use with MARTIN® inspection doors.

8.7 Warning label / Warning tag

- Warning label for conveyor products:
  Part no. 23395
- Values of tension for the DT2H tensioner:
  Part no. 37827
- Warning label for crushing hazard:
  Part no. 30528

8.8 MARTIN® DT2H main scraper

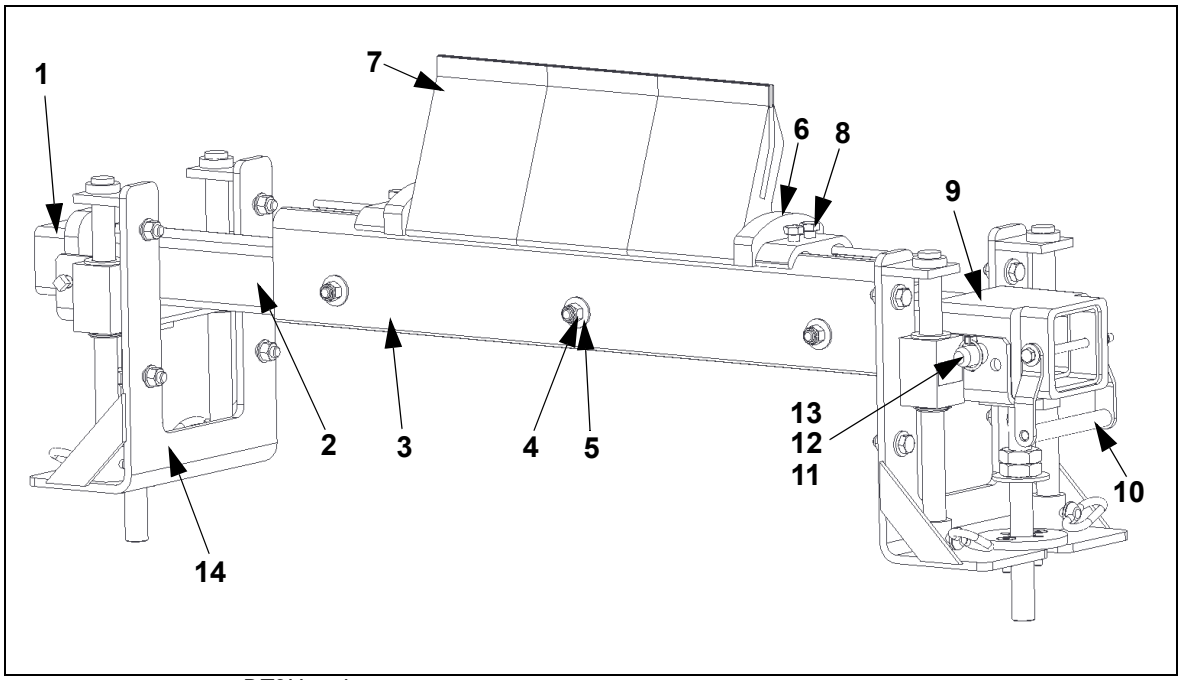


Abb. 20: MARTIN® DT2H main scraper

Item	Description	Part no.	Quantit
1	Main shaft	see T. 7	1
2	Holder shaft	see T. 7	1
3	Two-piece rail	see T. 7	2
4	Width of flat washer ½"	17328	see T. 7
5	Hex. nut ½" 13 NC, self-locking	18577	see T. 7
6	DURT TRACKER® end stop	32174-01	2
7	DURT TRACKER® scraper blades	see T. 11	see T. 7
8	Screw ½" 13 NC x 2" ZP	14196	4
9	End cap	37805	1
10	Extendible grip	37211	1
11	Flat washer 3/8" wide ZP	18007	2
12	Screw, HHC 3/8" - 16 NC X 6" ZP	37834	1
13	Hex. nut 3/8" - 13 NC, self-locking	14201	1
14	IN-LINE reversible spring tensioner	37806	1
14	IN-LINE air tensioner	37806-A	1

Tab. 6: MARTIN® DT2H Main scraper - Parts list

Assembly Part no. DT2H	Part no. Item						Item quantity		
	1		2		3		4.5		7
	S	E	S	E	S	E	S	E	S/E
	37802		37801		37803				
-18X12XXXX	-18	-42	-18	-42	-18	-42	4	8	2
-18X18XXXX	-18	-42	-18	-42	-18	-42	4	8	3
-24X18XXXX	-24	-48	-24	-48	24	48	6	12	3
-24X24XXXX	-24	-48	-24	-48	-24	-48	6	12	4
-30X24XXXX	-30	-54	-30	-54	-30	-54	6	12	4
-30X30XXXX	-30	-54	-30	-54	-30	-54	6	12	5
-36X30XXXX	-36	-60	-36	-60	-36	-60	8	16	5
-36X36XXXX	-36	-60	-36	-60	-36	-60	8	16	6
-42X36XXXX	-42	-66	-42	-66	-42	-66	8	16	6
-42X42XXXX	-42	-66	-42	-66	-42	-66	8	16	7
-48X42XXXX	-48	-72	-48	-72	-48	-72	10	20	7
-48X48XXXX	-48	-72	-48	-72	-48	-72	10	20	8
-54X48XXXX	-54	-78	-54	-78	-54	-78	10	20	8
-54X54XXXX	-54	-78	-54	-78	-54	-78	10	20	9
-60X54XXXX	-60	-84	-60	-84	-60	-84	10	20	9
-60X60XXXX	-60	-84	-60	-84	-60	-84	10	20	10
-66X60XXXX	-66	-90	-66	-90	-66	-90	12	24	10
-66X66XXXX	-66	-90	-66	-90	-66	-90	12	24	11
-72X66XXXX	-72	-96	-72	-96	-72	-96	12	24	11
-84X78XXXX	-84	-108	-84	-108	-84	-108	14	28	13
-96X90XXXX	-96	-120	-96	-120	-96	-120	16	32	15

Tab. 7: MARTIN® DT2H Main scraper - Part numbers and quantities
S = Standard design E= Design with extended shaft

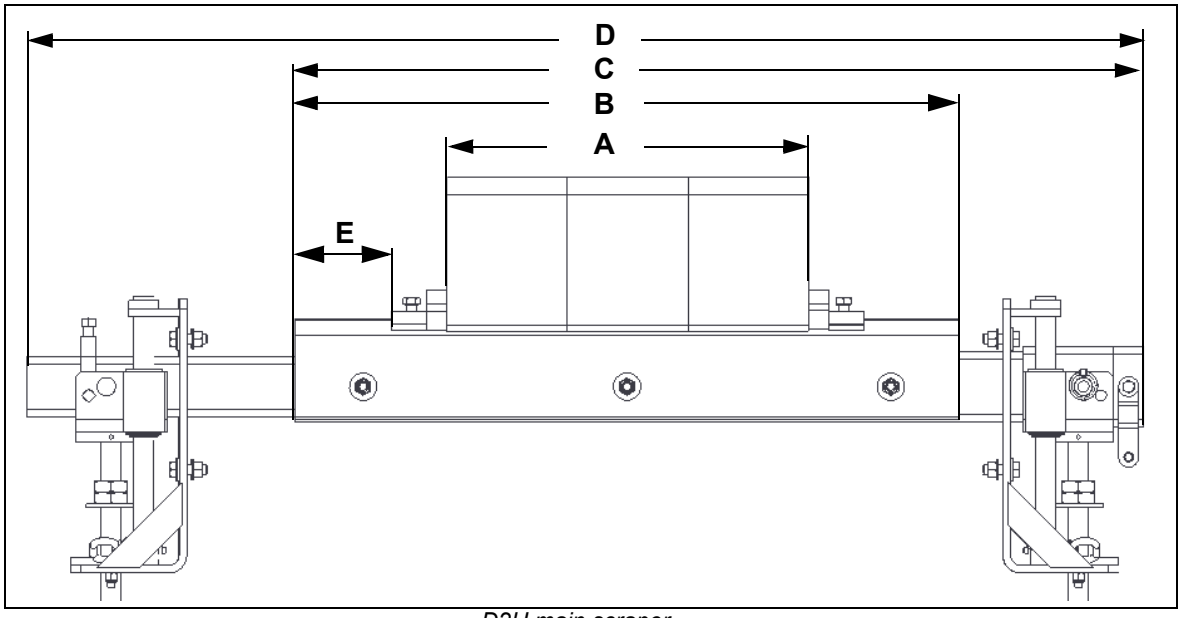


Abb. 21: Dimensions of the MARTIN® D2H main scraper

Assembly Part no. DT2H	A (mm)	B (mm)		C (mm)		D (mm)		E (mm)	
	S/E	S	E	S	E	S	E	S	E
-18X12XXXX	305	686	1295	918	1528	1257	1867	121	425
-18X18XXXX	457	686	1295	918	1528	1257	1867	44	349
-24X18XXXX	457	838	1448	1071	1680	1410	2019	121	425
-24X24XXXX	610	838	1448	1071	1680	1410	2019	44	349
-30X24XXXX	610	991	1600	1223	1833	1562	2172	121	425
-30X30XXXX	762	991	1600	1223	1833	1562	2172	44	349
-36X30XXXX	762	1143	1753	1376	1985	1715	2324	121	425
-36X36XXXX	914	1143	1753	1376	1985	1715	2324	44	349
-42X36XXXX	914	1295	1905	1528	2138	1867	2477	121	425
-42X42XXXX	1067	1295	1905	1528	2138	1867	2477	44	349
-48X42XXXX	1067	1448	2057	1680	2290	2019	2629	121	425
-48X48XXXX	1219	1448	2057	1680	2290	2019	2629	44	349
-54X48XXXX	1219	1600	2210	1833	2442	2172	2781	121	425
-54X54XXXX	1372	1600	2210	1833	2442	2172	2781	44	349
-60X54XXXX	1372	1753	2362	1985	2595	2324	2934	121	425
-60X60XXXX	1524	1753	2362	1985	2595	2324	2934	44	349
-66X60XXXX	1524	1905	2515	2138	2747	2477	3086	121	425
-66X66XXXX	1676	1905	2515	2138	2747	2477	3086	44	349
-72X66XXXX	1676	2057	2667	2290	2900	2629	3239	121	425
-84X78XXXX	1981	2362	2972	2595	3204	2934	3543	121	425
-96X90XXXX	2286	2667	3277	2900	3509	3239	4001	121	425
-114X108XXXX	2743	3124		3357		3696		121	

Tab. 8: MARTIN® DT2H Main scraper - Dimensions
S = Standard design E= Design with extended shaft

8.9 MARTIN® IN-LINE spring tensioner

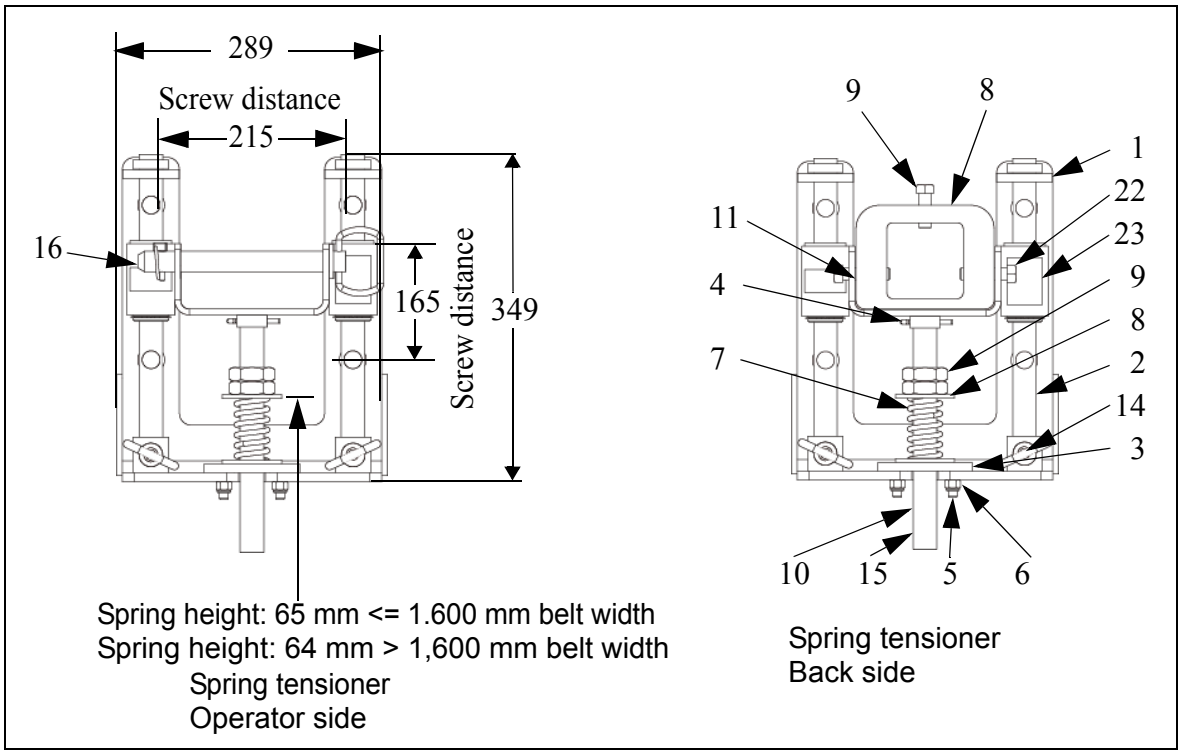


Abb. 22: MARTIN® DT2H main scraper spring tensioner

Item	Description	Part no.	Quantity
1	Mounting plate	37807	2
2	Guide rod	37814	4
3	Locking washer above	37824	2
4	Spring cotter pin 3/16" x 1-3/4" ZP	37880	4
5	Screw 3/8" x 1.5"	34223	4
6	Self-locking nut 3/8"	14201	4
7	Use a spring above belt width 1,600 - 37,833	37832 / 37833	2
8	Locking washer	32315	2
9	Locknut, hex. ¾" - 10 NC - ZP	37873	4
10	Threaded rod	37813	2
11	Slide retainer	37809	2
12	UHMW bush	37704	4
13	Pin retainer 3/8" x 1¾"	37126	4
14	Spring cotter pin Ø1½" X 2¾" - ZP	32327	2
15	Split-pin bolt 7/8" x 7"	37818	1
16	Wide flat washer ½" - SS	19126	8
17	Screw, HHC ½" 13 NC x 1½" - SS	22766	8
18	Spring washer ½" - SS	24310	8
19	Hex. nut ½" -13 NC - SS	17151	8
20	Shaft arresting mechanism	37811	1
21	Screw, SHS ½" 13 NC x 2" - SS	22763-06	2
22	Screw, SHS ½" 13 NC x 1-1/2" - SS	33190	1
23	Warning label for crushing hazard	30528G	2

Tab. 9: MARTIN® IN-LINE reversible spring tensioner - Parts list

8.10 MARTIN® IN-LINE air tensioner

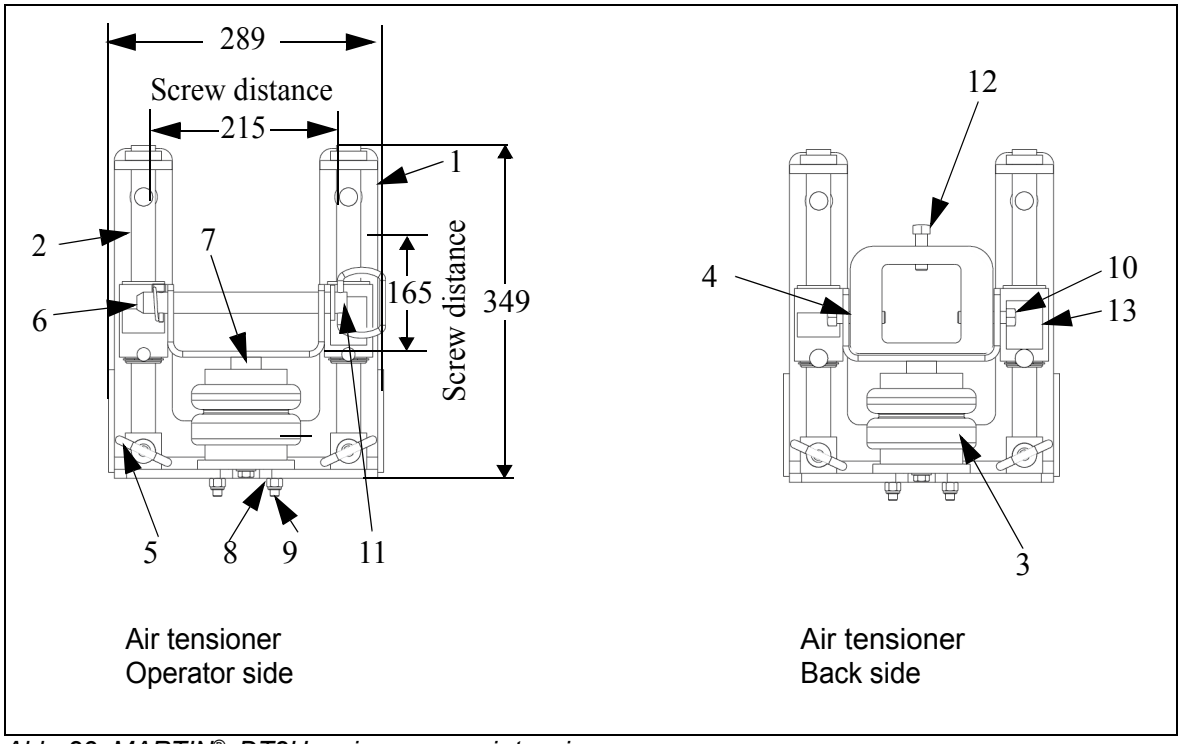


Abb. 23: MARTIN® DT2H main scraper air tensioner

Item	Description	Part no.	Quantity
1	Installation plate	37807	2
2	Guide rod	37814	4
3	Compressed air bellows	32537	2
4	Slide retainer	37809	2
5	Pin retainer 3/8" X 1¾"	37126	4
6	Split-pin bolt 7/8" x 7"	37818	1
7	Screw, SHC 3/8" - 16 NC X ¾" ZP	36510	4
8	Spring washer 3/8"	11747	4
9	Screw, HHC 3/8" - 16 NC X 1" - ZP	11746-02	4
10	Shaft arresting mechanism	37811	1
11	Screw, SHS ½" 13 NC x 2" - SS	22763-06	2
12	Screw, SHS ½" 13 NC x 1½" - SS	33190	1
13	Warning label: Tensioner, crushing hazard	30528G	2

Tab. 10: MARTIN® IN-LINE reversible air tensioner - Parts list

8.11 DURT TRACKER® Scraper blades

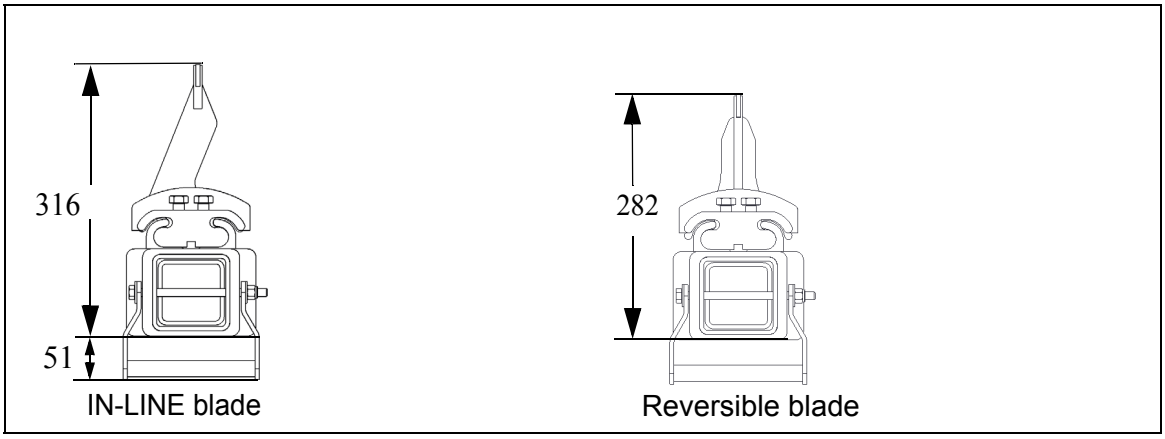


Abb. 24: MARTIN® DURT TRACKER® Scraper blades

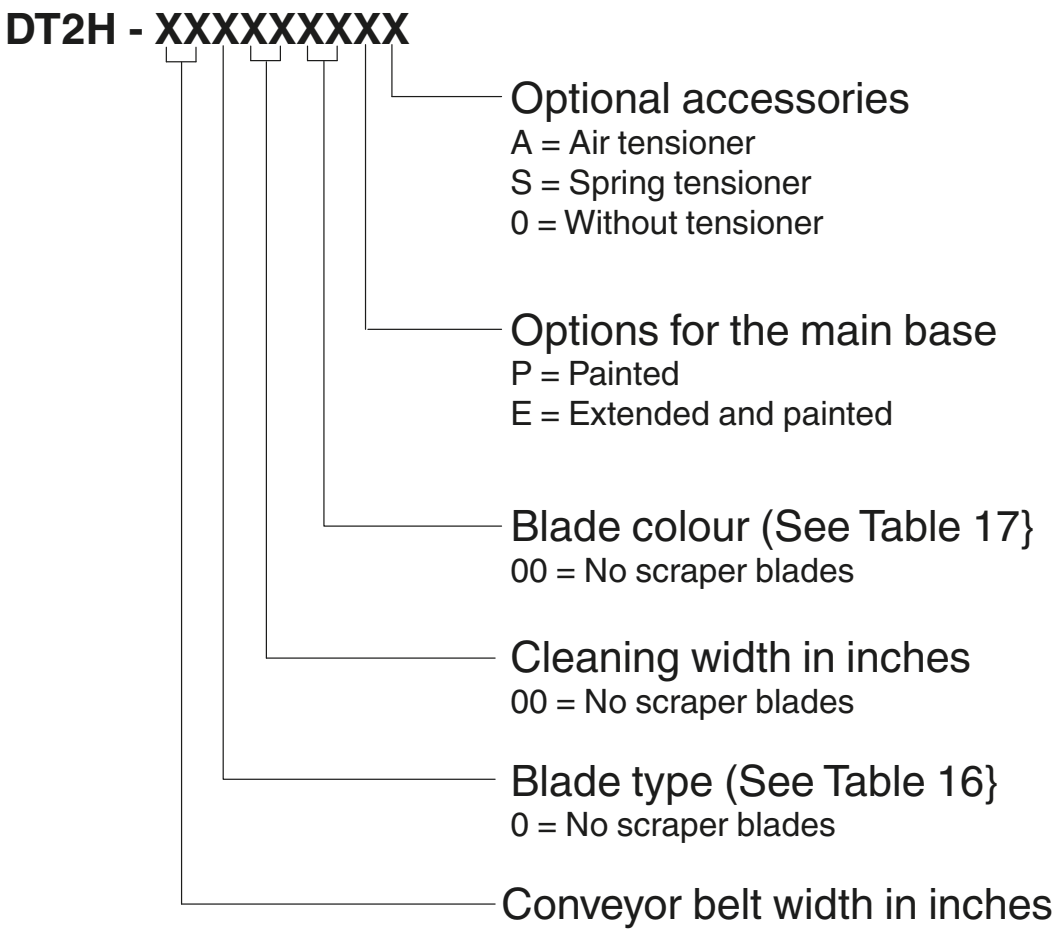
Assembly Part no.	Blade type	Part no. Item 7
DT2H-XXAXXXXXX	In-line with tungsten carbide insert	36937-T
DT2H-XXTXXXXXX	Reversible with tungsten carbide insert	32494-T
DT2H-XXUXXXXXX	Reversible urethane	32494-06U

Tab. 11: DT2H Scraper blades - Part numbers

Scraper blade			Shore hardness	Min. - Max. Temperature	Max. belt speed
Code	Colour	Type			
None or OR	Orange	Standard	90	-29°C – +71°C	6.1 m/sec.
BR	Brown	Chemically resistant	95	-40°C – +71°C	6.1 m/sec.
GR	Green	Temperature resistant	95	-40°C – +121°C (+171°C for a short period)	6.1 m/sec.

Tab. 12: DT2H scraper blades - Technical Specifications

8.12 Part number - description



Part numbers

9 Declaration of Incorporation

The following is the EC Declaration of Incorporation for the incomplete MARTIN® DT2H main scraper.

EC - Declaration of Incorporation according to the Machinery Directive (2006/42/EC)
Annex II B for the installation of an incomplete machine

We hereby declare, the company Martin Engineering
In der Rehbach 14 Tel.: +49 (0)6123-97820
D-65396 Walluf Fax: +49 (0)6123-75533

that the product mentioned below

Product designation:

Conveyor belt scraper

of the make / type:

MARTIN® DT2H main scraper

with the serial number:

not required

complies with the following regulations:

EC Machinery Directive 2006/42/EC

DIN EN 618 - Equipment and systems for bulk goods

In particular, the following harmonised standards have been applied:

DIN EN ISO 12100 Safety of machinery

Notified body:

not required

The information provided in the installation manual and technical documentation are in the original version with the named product.

The operation of this product is prohibited until it has been established that the system in which it is to be installed complies with the provisions of EU Directive 98/37/EC and [illegible] ended form.

Date: 21/01/2010

Manufacturer's signature: Managing Director, Michael Hengl

10 Notice

PROBLEM SOLVED™

MARTIN ENGINEERING GMBH
In der Rehbach 14
65396 Walluf, Deutschland
Phone +49 (0)6123 97820
Fax +49 (0)6123 75533
E-Mail: info@martin-eng.de
www.martin-eng.de

Subject to technical modifications
Quality Management System certified DNV - ISO 9001

Form No. M3699UK-11/13