



# MARTIN® TWIST™ Tensioner



Installation instructions  
M3837UK



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## 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 license 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 for as long as no other information is provided. The product and documentation are 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.

The 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:

- MARTIN® Inspection door  
Part No. M3891
- MARTIN® QB™#1 Heavy-Duty Pre-Cleaner  
Part No. M3143
- MARTIN® DURT TRACKER® Pre-Cleaner  
Part No. M3168
- MARTIN® QC™ #1 Heavy-Duty Pre-Cleaner  
Part No. M3618
- MARTIN® PIT VIPER™ XHD Pre-Cleaner  
Part No. M3735
- MARTIN® CHEVRON Secondary Cleaner  
Part No. M3266
- MARTIN® PM Secondary Cleaner  
Part No. M3389

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

- EU Machinery Directive (2006/42/EC)
- ISO/IEC Guide 37 "Installation instructions for products used by final consumers", 1995 Edition
- DIN 1421 "Organisation and numbering in texts", Edition 1983-01
- DIN/EN 12100 "Machine safety - basic definitions, general design guidelines", 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 machines - Electrical Equipment of Machines, Part 1 General requirements", Edition 2007-06
- 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

You can only use the MARTIN® TWIST™ Tensioner™ in conjunction with the Martin Engineering belt cleaners mentioned in Chapter 3.2:

It is installed on the mainframe of one of these belt cleaners and tensions it at a defined contact pressure against the conveyor belt that is to be cleaned. The tensioner can be used on belt widths of up to 3000 mm and a belt speed of up to 5 m/s. From a belt width of 1200 mm or 1400 mm onwards, you must use a dual tensioner.

Every other usage of this product is deemed 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® Inline mount plates 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.

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 carried out to completion 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 guidelines, 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® TWIST™ Tensioner is a robust and uncomplicated device that ensures that blades contact the conveyor at a constant pressure and ensure maximum cleaning performance at all times regardless of the amount of wear of the blades.

With MARTIN® TWIST™ Tensioners, the force is stored in a torsion-tensioned rubber buffer that is released automatically when it is needed. This maintains the cleaning performance without you needing to reset.



#### 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

### Belt cleaner

MARTIN® TWIST™ Tensioners can only be used with the belt cleaners listed below:

- MARTIN® QB™#1 Heavy-Duty Pre-Cleaner
- MARTIN® DURT TRACKER® Pre-Cleaner
- MARTIN® QC™ #1 HD Pre-Cleaner
- MARTIN® PIT VIPER™ Pre-Cleaner
- MARTIN® CHEVRON Secondary Cleaner
- MARTIN® PM Secondary Cleaner



#### NOTE

For information about the function and installation of belt cleaners, refer to the respective installation instructions that are listed in Chapter 9, Part numbers.

## 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 belt cleaner (see delivery note for weight data).

#### 4.1.2 Preparatory measures



##### NOTE

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

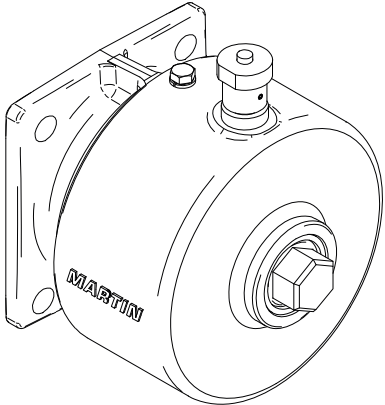
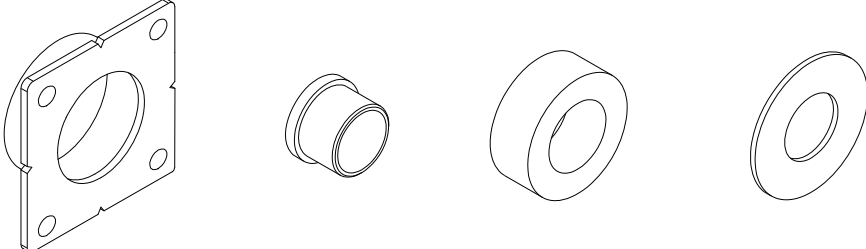
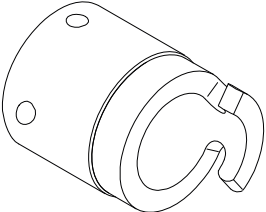
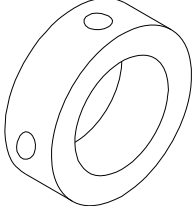





##### NOTE

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, please seek the advice of Martin Engineering or one of its representatives.

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 exist which indicates 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:
  - See Table 1 MARTIN® TWIST™ scope of supply.
  - Two Risk of Entrapment Warning Labels Part No. 30528
4. Report any missing or damaged parts to Martin Engineering or one of its authorised dealers.

# Preparing for the installation

MARTIN® Twist™ tensioner Scope of supply	Number single	Number dual
	1	2
	1	-
	1	2
	2	-
	7	6
	8	8
	16	16

Tab. 1: Scope of supply of MARTIN® Twist™ tensioner:



## 5 Installation

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### 5.1 Safety information



#### NOTE

Read this section completely before starting any kind of work!



#### 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 inadvertent reactivation. Use warning signs!*



#### WARNING! RISK OF EXPLOSION!

Increased risk when using a cutting torch or welding device in closed rooms!

*Check the gas and dust content of the air before usage.*



#### NOTE

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

5.2

**Installation process**

5.2.1

**Determination of the installation position**

You must determine the position of the MARTIN® TWIST™ Tensioner on both sides of the chute wall. When doing this, you determine the positions at which the MARTIN® TWIST™ Tensioner is installed on the chute wall.

The MARTIN tensioner is supplied in conjunction with a cleaner. The cleaner and the tensioner are delivered uninstalled from the factory and you must install them in-parallel at installation.

The installation process for the MARTIN® TWIST™ Tensioner is described in these installation instructions. The other steps are described in the installation instructions of the respective cleaner.

An overview of the installation steps follows:

No.	Installation step	Instructions
1	Determining the installation position of the belt cleaner	cleaner
2	Installing the flange brackets	M3837
3	Cutting the mainframe to size	M3837
4	Installing the tensioner	M3837
5	Installing the cleaner	cleaner
6	Tightening the cleaner	M3837

Tab. 2: 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.

### 5.2.2 Determining the installation position of the belt cleaner

Follow the instructions for installing your cleaner that are stated in its accompanying installation manual. (See sections 2.1.4).

### 5.2.3 Determining the installation position

Pay attention to the installation instructions of the belt cleaner that you are installing in each case.

### 5.2.4 Installing the flange brackets



#### NOTE

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



#### NOTE

You can weld or bolt the flange brackets to the chute wall. For better maintenance and to improve accessibility, we recommend bolting the flange brackets to the wall.



#### NOTE

If the tensioner is to be bolted to the enclosure, do not uninstall it and proceed with Step 3.

1. If the tensioner is to be welded to the chute, you must first take the tensioning housing (17) off the coupling housing (16). To do this, remove the hexagon bolts (20). Take the adjusting ring (15) and the nylon bushing (14) out of the coupling housing (16).
2. With dual tensioners, you must also do this for the opposite side; otherwise, take the shock absorber (4) and the nylon bushing (5) off the flange bracket (3).

3. Mark the drilled holes to fasten the coupling housing (16) or the flange bracket (3) on the chute according to the instructions in the respective installation guide of the belt cleaner that is used. You can use the flange bracket (3) as a template for doing this.



## NOTE

If possible, always position the flange brackets parallel to the horizontal centre line of the head pulley.

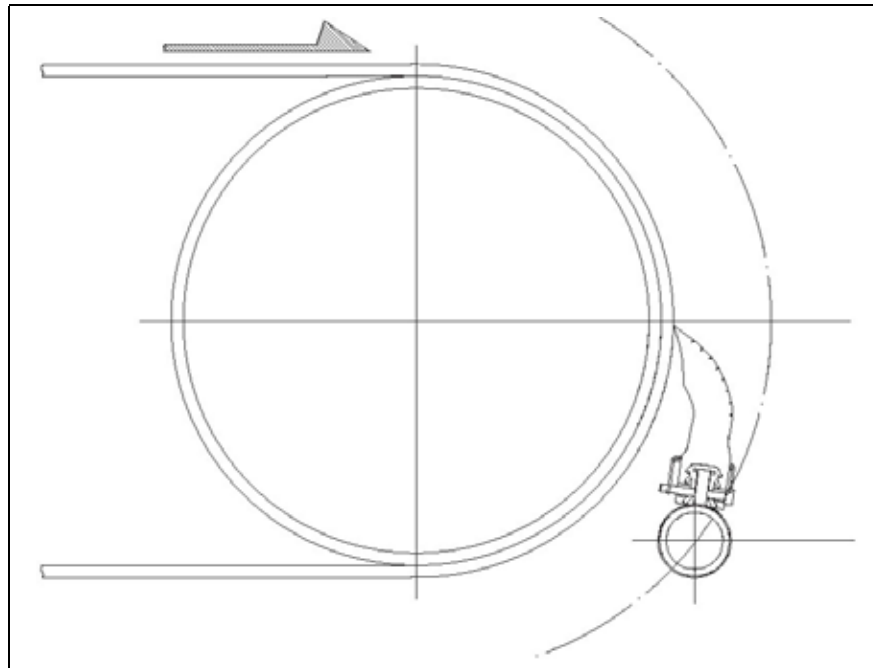


Fig. 1: Positioning the flange bracket

4. Bolt or weld the coupling housing (16) or the flange bracket (3) to the chute walls.
  - For bolting, drill a  $\text{Ø}100$  mm hole and four  $\text{Ø}14$  mm ones for the bolts on both sides of the enclosure (see Fig. 2). Bolt the coupling housing (16) or the flange bracket (3) to both sides of the enclosure.
  - For welding, drill a  $\text{Ø}100$  mm hole for the mainframe on both sides+ of the enclosure. Position the coupling housing (16) or the flange bracket (3) above the hole you drilled before and weld it on.

5. On the operator side, push the adjusting ring (15) and the nylon bushing (14) into the coupling housing (16).
6. Push the tensioning housing (17) over the coupling housing (16) and bolt it.
7. With dual tensioners, you must repeat steps 5 and 6 on the opposite side; otherwise, push the shock absorber (4) and the nylon bushing (5) into the flange bracket (3).

### 5.2.5

### Shortening the mainframe



#### NOTE

Shortening the mainframe applies to all belt cleaners except for MARTIN® DURT TRACKER® belt cleaners, which are fitted with telescopic tubes that obviate the need for shortening the mainframe.

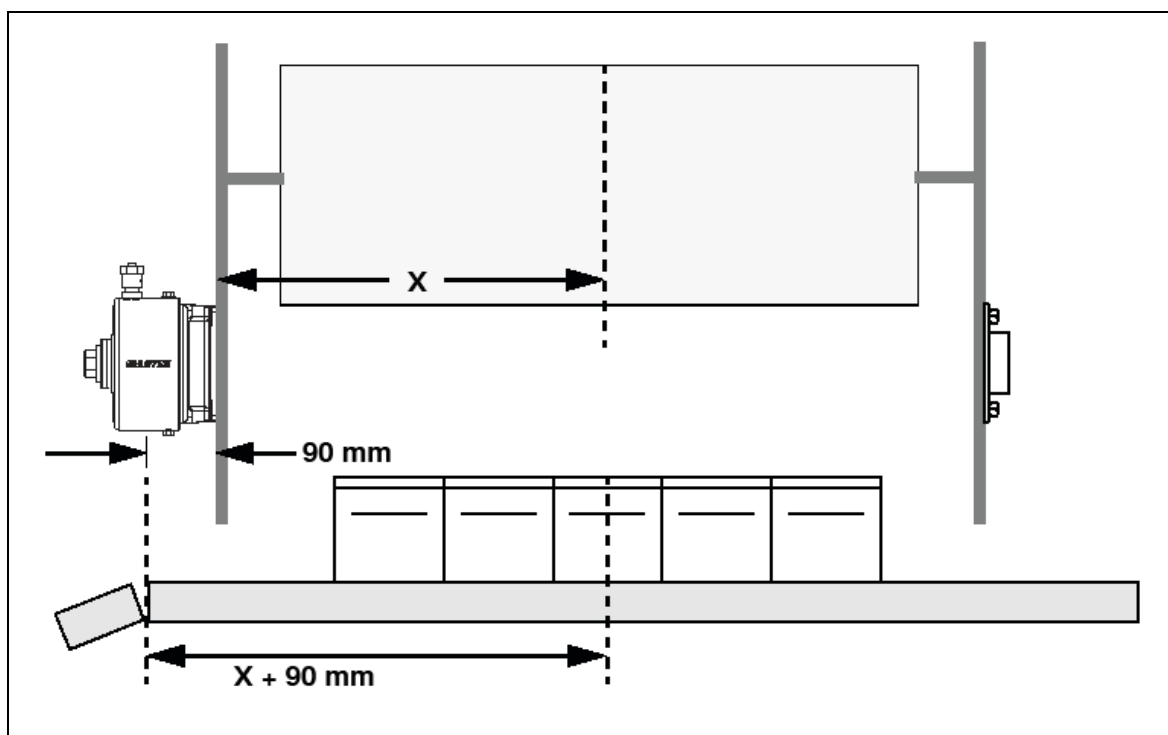


Fig. 2: Shortening the mainframe

\* For MARTIN® TWIST™ Tensioner with flange bracket: 180 mm

1. Measure the distance from the centre point of the conveyor belt to the chute on the operator-side (dimension X).
2. Add 90 mm to dimension "X" that you determined in step 1 (or add 180 mm in the case of installation with flange bracket Part No. 30537).
3. Measure from the centre point of the mainframe the dimension X that you determined in step 2 + 90 mm to the operator side of the mainframe (In the case of installation of the MARTIN® TWIST™ Tensioner with flange bracket: dimension X + 180 mm).



## WARNING! RISK OF EXPLOSION!

Remove the plastic caps on the mainframe before shortening it using a cutting torch. If you shorten the mainframe with the plastic caps inserted, the paint vapours in the mainframe could catch fire.

4. Shorten the mainframe appropriately.
5. In the case of dual tensioners, you must do this on the opposite side too.

5.2.6

Installing the tensioner.

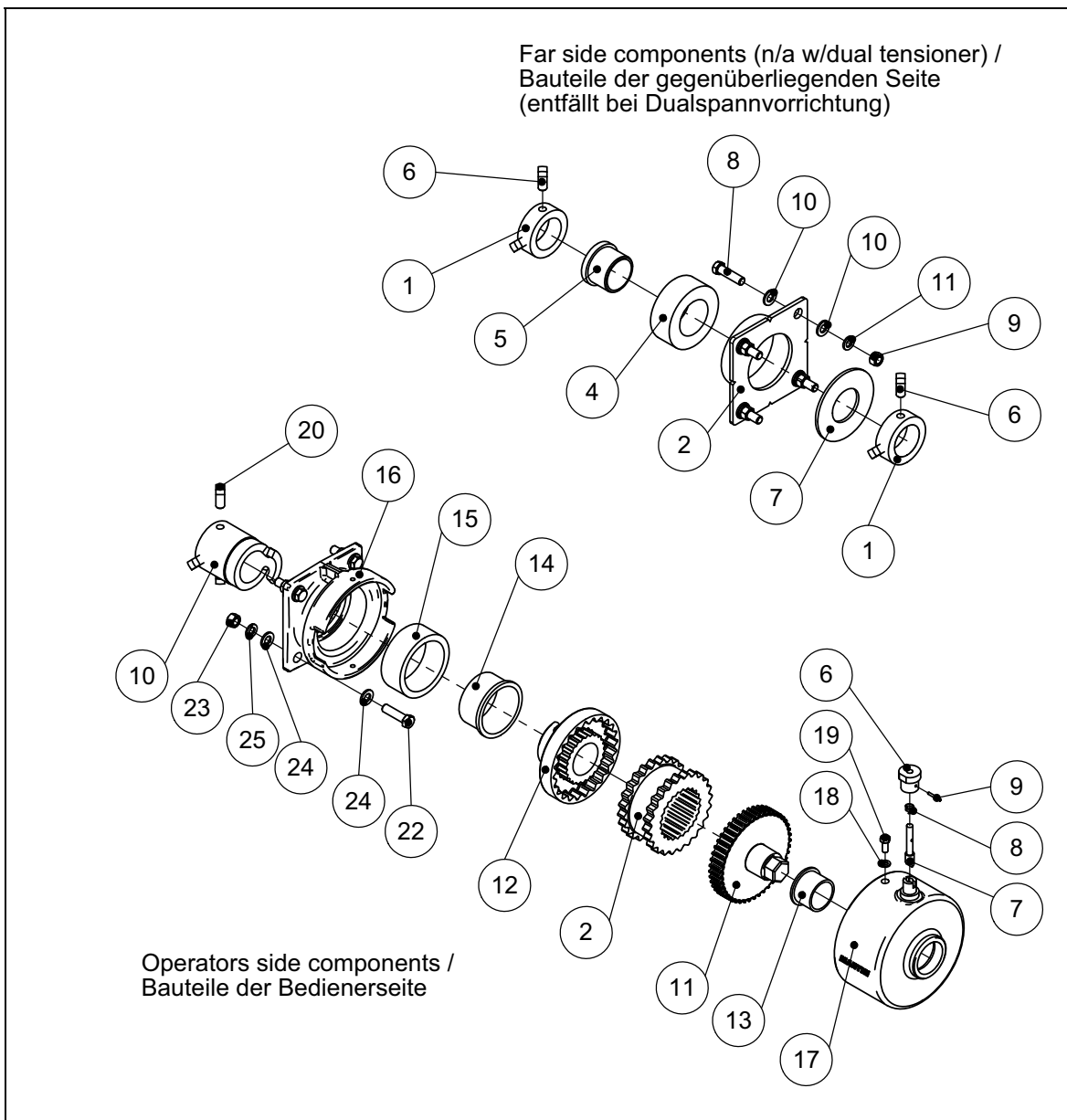


Fig. 3: Installing the MARTIN® TWIST™ Tensioner

Pos.	Description
1	Adjusting ring
2	Tensioning bearing
3	Flange bracket
4	Shock absorber ID 58 mm
5	Nylon bushing ID 44 mm
6	Setting knob
7	Switching pin
8	Compression spring
9	Clamping pin
10	Self-actuating coupling
11	Tensioning gear
12	Coupling
13	Nylon bushing ID 44 mm
14	Nylon bushing ID 76 mm
15	Adjusting ring ID 82 mm
16	Coupling housing
17	Tensioning housing
18	Spring washer 5/16"
19	5/16" x 3/4" hexagon bolt
20	1/2" x 1" hexagon bolt
21	Flat washer 2"
22	M12 x 45 hexagon bolt
23	M12 hexagon nut
24	M12 flat washer
25	M12 spring washer

Tab. 3: Installing the MARTIN® TWIST™ Tensioner



1. On the opposite side, push the flat washer (21) and the adjusting ring (1) onto the mainframe.

**NOTE**

The following step is omitted with dual tensioners and you must carry out steps 3 to 8 on both sides.

2. After this, push the mainframe through the flange bracket (3), the shock absorber (4) and the nylon bushing (5) and finally push the adjusting ring (1) onto the mainframe.

**NOTE**

Note with dual tensioners that on one side of the mainframe you must first push the tensioner all the way onto the mainframe before you can bolt it to the chute.

3. On the operator side, push the self-actuating coupling (10) onto the mainframe. Then push the mainframe into the nylon bushing (14) of the coupling housing (16).
4. Push the self-actuating coupling (10) against the coupling (12) and rotate until both coupling halves engage.

**NOTE**

Make sure that the blades are positioned in the middle of the conveyor belt and that the mainframe runs parallel to the head pulley. When doing this, also pay attention to the instructions in the respective installation guide of the installed belt cleaner (see Chapter 5.2.7)

5. Bolt or weld the self-actuating coupling (10) on the mainframe.

6. To bolt tight, tighten the square head screws (20) on the mainframe. Continue with step 10
7. For welding, mark the position of the self-actuating coupling (10) on the mainframe.
8. On the operator side, take the mainframe out of the coupling (12). Use three 25 mm fillet welds to weld the self-actuating coupling (10) to the location that you previously marked on the mainframe. Distribute the fillet welds evenly around the edge of the coupling piece.
9. Insert the mainframe back into the coupling (12) and rotate it until both coupling halves engage.
10. With dual tensioners, repeat steps 3 to 8 on the opposite side; otherwise, continue with step 11.
11. Push the adjusting ring (1) onto the mainframe and push it against the nylon bushing (5). Push the adjusting ring (1) against the flat washer (21). Secure the adjusting ring on the mainframe by tightening the square head screws (20).
12. On the operator side, turn the tensioning gear (11) until the blades are against the conveyor belt. If it is not possible to turn the tension wheel, pull out the setting knob (6) and rotate it by 180° to free the tension wheel.

### 5.2.7 Centring the cleaner

Follow the instructions for installing your cleaner that are stated in its accompanying installation manual (see Chapter 2.1.4).

### 5.2.8 Tensioning the tensioner



#### NOTE

In the case of dual tensioners, you must do this evenly or at the same time on both sides.

Turn the tensioning gear (11) clockwise by the number of catches that is stated in Table 3.

Conveyor belt width (mm)	Number of catches**			
	MARTIN® QC™ #1 Heavy-Duty Pre-Cleaner	MARTIN® QB™ #1 Heavy-Duty Pre-Cleaner	MARTIN® PIT VIPER™ Pre-Cleaner	MARTIN® QC™ #1 Metal-Tipped Pre-Cleaner
400-500	2	2	3	1
500-650	3	3	4	1
650-800	3	3	4	1
800-1000	4	4	4	1
1000-1200	5	5	5	1
1200-1400	6	6	5	1
1400-1600	3*	3*	4*	1*
1600-1800	4*	4*	4*	1*
1800-2000	5*	5*	5*	1*
2000-2200	5*	5*	5*	1*
2200-2400	6*	6*	6*	1*

Tab. 4: Recommended tensioning values for the MARTIN® TWIST™ Tensioner

- \* Dual tensioner needed. The values apply per tensioner
- \*\* For the tensioning values of MARTIN® CHEVRON or MARTIN® PM secondary cleaners, please contact Martin Engineering or your representative

## 5.3

## Operation with loading

**NOTE**

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

**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 installation site and conveyor belt upon completion of the installation work before switching on the power supply.*

**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!*

1. Remove all tools and fire protection covers from the installation site and the conveyor belt.
2. Operate the conveyor system for one hour under load.

**CAUTION! RISK OF DAMAGE!**

Never operate the fully tensed 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 tensed belt cleaner on the running and fully loaded conveyor belt.*

3. Shut off the conveyor belt system after the one-hour operation under load, shut off the power supply and secure it against unauthorised reactivation.
4. Check whether all of the fastening points are securely tightened. Tighten any loose connections.
5. Inspect the belt cleaner for the following conditions:
  - Wear: minor break-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 must accumulate between the blades and return side.
6. Note the corresponding information in Section 5.4 "Installation - Check list" and Section 7 "Troubleshooting" in cases of excess wear, bulk material accumulation or other problems.

## 5.4

### Installation check list

If the belt cleaner does not function as expected after operation with loading, please pay attention to the instructions in the respective installation guide of the belt cleaner that is used.

5.5

Placement of the warning labels and warning tags

No. 30528

**WARNING**  
Pinching

**MARTIN® TWIST™ Tensioner**  
Recommended tensioning values

Belt width in. (mm)	Number of catches			
	MARTIN® QC®#1 Heavy-Duty Pre-cleaner	HAWG BONE® Main cleaner	MARTIN® PIT VIPER™ Pre-cleaner	MARTIN® QC®#1 Metal-Tipped Pre-cleaner
18 (400-500)	2	2	3	1
24 (500-650)	3	3	4	1
30 (650-800)	2	2	3	1
36 (800-1000)	2	2	3	1
42 (1000-1200)	2	2	3	1
48 (1200-1400)	2	2	3	1
54 (1400-1600)	2*	2*	3*	1*
60 (1600-1800)	2*	2*	3*	1*
72 (1800-2000)	2*	2*	3*	1*
84 (2000-2200)	2*	2*	3*	1*
96 (2200-2400)	2*	2*	3*	1*

\* Dual tensioners needed  
Values apply per tensioner

Patents granted and pending Part no. 33383G

**martin®** 0049(0)6123-9782-0  
www.martin-eng.de

Fig. 4: Conveyor Products Warning Labels

## 6 Maintenance

### 6.1 Safety information



#### NOTE

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



#### NOTE

Read this section completely before starting any kind of work.



#### 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!*

### 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 points are securely tightened. Tighten any loose connections.
4. Check the cleaner tension and re-tighten if necessary.
5. Check the blades for wear, damage and missing parts.



## NOTE

Take the corresponding parts 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 a timely manner!*

6. If blades are worn, you must replace them according to the instructions in the respective section relating to the blade that is used.
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 installation site and conveyor belt upon completion of the installation 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

### Routine inspection/checking

1. Inspect the tensioning bearing (2) of the TWIST™ Tensioner for damage, cracks and wear. If the tensioning element is damaged or worn, you must replace it as follows.
2. Detension the belt cleaner by turning the tensioning gear (11) anticlockwise with a wrench. The setting knob (6) is released from the locking mechanism. Hold the wrench tight and pull out the setting knob (6). Rotate the setting knob (6) by 180° and let it go.
3. Keep rotating the tensioning gear (11) such that the blades are no longer against the conveyor.
4. To take off the worn out tensioning bearing (2), remove the hexagon bolts (20) from the tensioning housing (17).
5. You can now remove the tensioning housing (17), the tensioning gear (11) and the tensioning bearing (2).
6. Insert the new tensioning bearing (2) together with the tensioning gear (11) and the tensioning housing (16) in the reverse order.
7. Install the hexagon bolts (19) of the tensioning housing (17) again.
8. Tension the belt cleaner again according to the instructions in the respective section relating to the blade that is used.

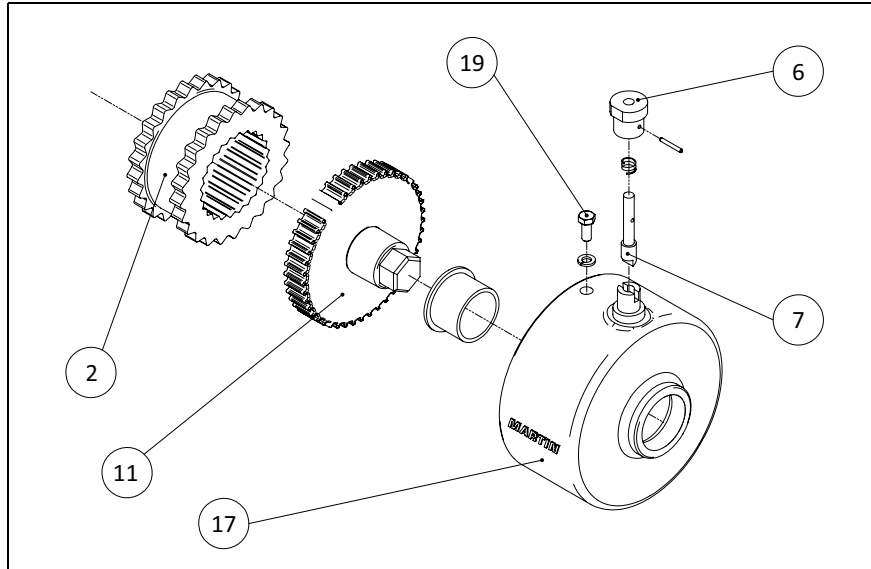


Fig. 5: Replacing the tensioning element

Pos.	Description
2	Tensioning bearing
6	Setting knob
7	Switching pin
11	Tensioning gear
17	Tensioning housing
19	5/16" x 3/4" hexagon bolt

Tab. 5: Replacing the tensioning element

# 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 following installation:

Symptom	Cause	Remedy
High wear on the blades.	The cleaner is too tightly tensed on the conveyor belt.	Reduce the tension. Refer to Table 3 for the tensioning values.
Insufficient cleaning performance and material accumulation.	The cleaner is not tensed enough or is tensed too tightly on the conveyor belt.	Increase or reduce the tension.
	The tensioner has no tension.	The setting knob is not locked correctly.
Noises or vibrations.	Cleaner on the conveyor belt too loose or too tightly tensed.	Correct the tension if necessary.

Tab. 6: 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 of the installation (see Section 5.2.6).

### 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.

Comply with all nationally and internationally applicable disposal regulations when disposing of the product.

## 9 Part numbers

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This section lists the product designations with their associated part numbers for the MARTIN® TWIST™ Tensioner and its accessories.

Please always indicate the part numbers in every order.

### 9.1 MARTIN® TWIST™ Tensioner

#### Part no. 38850-ab

<b>a</b>	<b>Design</b>
	Ø: single
	2: dual
<b>b</b>	<b>Additional options</b>
	A: with welding bracket
	L: with L bracket

### 9.2 Mounting brackets

- Flange mounting bracket - Part No. 30537  
For installation of the MARTIN® TWIST™ Tensioner on a chute equipped with a MARTIN® inspection door
- Angle bracket - Part No. 38844  
For installation of the MARTIN® TWIST™ Tensioner on a chute equipped with a MARTIN® inspection door
- Adapter plate with bolts (can be welded-on) - Part No. 38843  
For installation of MARTIN® TWIST™ tensioners on a chute on which no additional holes can be drilled
- Hanger mount Part No. 34280-XX  
For the installation of the MARTIN® TWIST™ Tensioner to another structure when no enclosure is provided
- Hanger mount (pair) Part No. 27382  
For the installation of the MARTIN® TWIST™ Tensioner to another structure when no enclosure is provided

**9.3****Installation manuals**

- MARTIN® Inspection door  
Part No. M3891
- MARTIN® QC™ #1 Pre-Cleaner  
Part No. M3618
- MARTIN® QB™#1 Heavy-duty belt cleaner  
Part No. M4022
- MARTIN® PIT VIPER™ Pre-Cleaner  
Part No. M3735
- MARTIN® DURT TRACKER™ Secondary Cleaner  
Part No. M3168
- MARTIN® CHEVRON Secondary Cleaner  
Part No. M3266
- MARTIN® PM Secondary Cleaner  
Part No. M3389

**9.4****Warning label / tension values label**

- Crushing Hazard Warning Label: Part No. 30528
- Tension Values Label: Part No. 33383

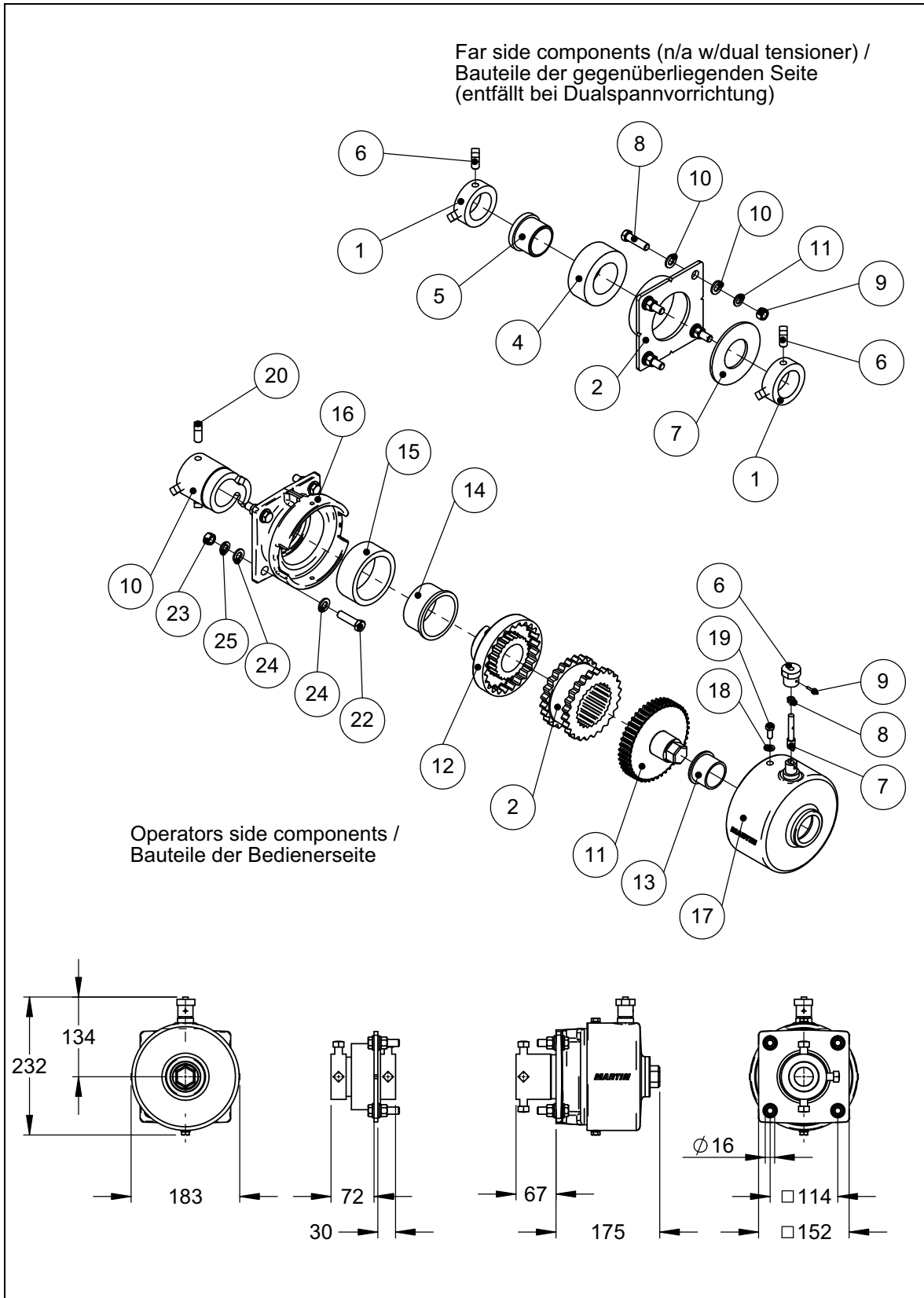


Fig. 6: MARTIN® TWIST™ Tensioner

# Part numbers

Item / Pos.	Qty / Anz.		Description / Beschreibung	P/N / Teile-Nr.
	Single	Dual		
1	2	-	Adjustment ring dia 76 x 25 mm / Stellring	16845
2	1	2	Clamp bearing / Spannlager	31398
3	1	-	Flange plate / Flanschplatte	32496
4	1	-	Shock absorber 58 mm - ID / Stoßdämpfer	32501
5	1	-	Nylon sleeve 44 mm - ID / Nylonbuchse	33335
6	1	2	Ratchet adjusting knob / Einstellknopf	33570-TT
7	1	2	Indexing pin / Schaltstift	33572
8	1	2	Compressions spring 1" / Druckfeder	33573
9	1	2	Spring pin / Spannstift	33574
10	1	2	Self revieling coupling / Selbstauslösende Kupplung	33671
11	1	2	Tensioning drive/ Spannetriebe	33672
12	1	2	Coupling / Kupplung	33673
13	1	2	Nylon bushing dia 44 mm - ID / Nylonbuchse	33674
14	1	2	Nylon bushing dia 76 mm - ID / Nylonbuchse	33675
15	1	2	Adjustment ring 82 mm - ID / Stellring	33681
16	1	2	Coupling housing / Kupplungsgehäuse	38711
17	1	2	Spring housing / Spanngehäuse	38712
18	2	4	Compression washer 5/16 / Federscheibe	11452
19	2	4	Screw HHC 5/16 x 3/4 / Sechskantkopfschraube	12250
20	7	6	Square head screw 1/2 x 1 / Vierkantschraube	22763-03
21	1	-	Washer flat 2" / Unterlegscheibe	34802
22	8	8	HHC screw M12 x 45 - DIN 933, (1.0032) galv. / Sechskantschraube	41081-12045BZP88
23	8	8	Hex nut M12 - DIN 934, (1.0032) galv. / Sechskantmutter	41086-12BZP
24	16	16	Washer flat M12 - DIN 125 A, (1.0032) galv. / Unterlegscheibe	41088-12AZP
25	8	8	Washer spring M12 - DIN 127 / Federring	41090-12AZP





**Declaration of incorporation in accordance with Machinery  
Directive (2006/42/EG)  
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:

**Tensioner for Belt Cleaners**

of make / type:

**MARTIN® TWIST™ Tensioner**

with serial number:

**not required**

meets the following requirements:

**EC - Machinery Directive 2006/42/EC**

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

The following harmonised standards were particularly applied:

**DIN EN ISO 12100 Safety of Machinery**

Notified authority:

**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



# PROBLEM SOLVED™

## USA (Headquarters)

### Martin Engineering

One Martin Place, 61345 Neponset (Illinois), USA  
Tel. +1 (800) 544-2947 | Fax +1 (800) 814-1553  
info@martin-eng.com | www.martin-eng.com

## European subsidiaries

### Great Britain

#### Martin Engineering Ltd.

8, Experian Way, NG2 Business Park,  
Nottingham NG2 1EP, Nottinghamshire, Great Britain  
Tel +44 115 946 4746 | Fax +44 115 946 5550  
info@martin-eng.co.uk | www.martin-eng.co.uk

### France

#### Martin Engineering SARL

50 Avenue d'Alsace, 68025 Colmar Cedex, France  
Tel +33 389 20 63204 | Fax +33 389 20 4379  
info@martin-eng.fr | www.martin-eng.fr

### Russia

#### OOO Martin Engineering

Ul. Bolshaya Dmitrovka, 23/1  
125009 Moscow, Russia  
Tel +7 495 181 33 43 | Fax +7 499 720 62 12  
info@martin-eng.ru | www.martin-eng.ru

## Germany (Main European branch)

### Martin Engineering GmbH

In der Rehbach 14, 65396 Walluf, Germany  
Tel. +49 6123 97820 | Fax 49 6123 75533  
info@martin-eng.de | www.martin-eng.de

## Turkey

### Martin Engineering Makina Sanayi ve Ticaret Ltd.Sti

Yukari Dudullu Imes Sanayi Sitesi, B Blok 205 Sokak No.6  
34775 Ümraniye Istanbul, Turkey  
Tel +90 216 4993 491 | Fax +90 216 4993 490  
info@martin-eng.com.tr | www.martin-eng.com.tr

## Italy

### Martin Engineering Italy Srl

Via Buonarroti, 43/A, 20064 Gorgonzola (MI), Italy  
Tel +39 295 3838 51 | Fax +39 295 3838 15  
info@martin-eng.it | www.martin-eng.it

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

