//ONE BRAND //ONE SOURCE //ONE SYSTEM

Assembly instructions

REMACLEAN HM-U10

CONVEYOR BELT CLEANING SYSTEMS

with a carbide segments for use in the lower run

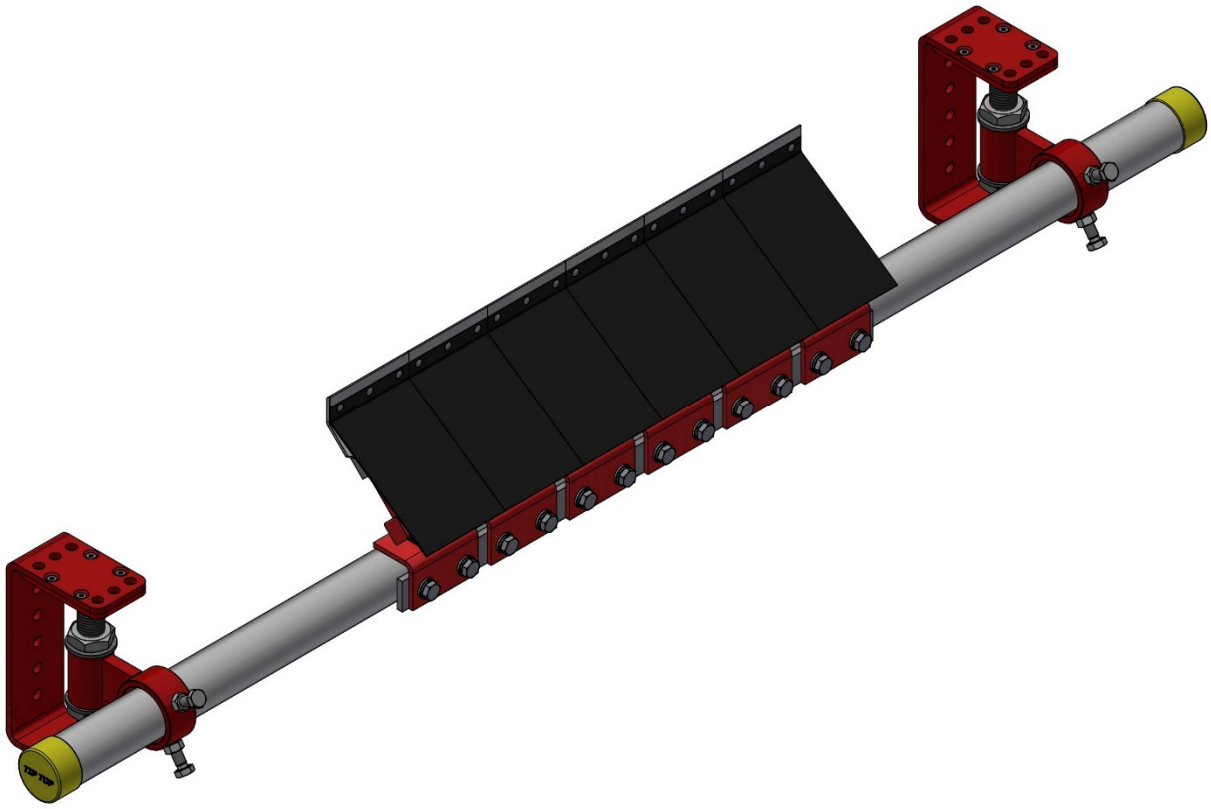

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Table of contents

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1. General safety information

- The instructions in these operating instructions must be followed without restriction. In the event of non-compliance, the manufacturer accepts no liability whatsoever for any resulting damage to people or machinery. As conveyor belt scrapers are generally installed in conveyor belt systems, the manufacturers of these systems or the operator who installs the scrapers must comply with the provisions of the machine construction guidelines.

- REMA Tip Top GmbH conveyor belt scrapers may only be used in accordance with the intended use for cleaning conveyor belts at points intended for this purpose.

- It must always be clarified with the operator under which conditions the scraper is to work (e.g. underground, in a quarry, etc.)

- In all branches of industry where no special requirements are made, the scrapers can be used as needed in the temperature range **from -40° to + 60° C.** The max. conveying speed of **6.5 m/s** for the **HM-U10** version must not be exceeded.

- Installation and commissioning should be carried out by the manufacturer's qualified personnel in order to maintain the warranty, as these persons, due to their training, experience and instruction, are able to carry out the respective required activities, recognising and avoiding any hazards.

- During all installation work, the Accident Prevention Regulation (UVV) and the relevant regulations of the local authorities and local legislation must be observed.

2. Basic safety information

- These safety instructions do not claim to be exhaustive. If you have any questions or problems, please contact the manufacturer.

- Theconveyor belt scraper **REMACLEAN HM-U10** corresponds to the latest technological standards at the time of delivery. They may only be installed and operated in perfect condition.

- Retrofitting, modifications or conversions are generally prohibited and require consultation with the manufacturer in individual cases.

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2.1 REMACLEAN SYSTEMS in ATEX design

Scraper elements lie on the belt surface and, similar to a scraper, remove residual material from the belt as it passes by.

The scraper construction is made of steel. The scraper elements can be made of polyurethane, rubber, ceramic or carbide.

The polyurethane and rubber elements can be made of electrostatically dissipative material with a surface resistance of less than 10^9 Ω.

The conveyor belt cleaning systems correspond to equipment group I category M2 and equipment group II category 2D according to Directive 2014/34/EU.

Equipment group I category M2 comprises equipment designed to be capable of operating in conformity with the characteristics specified by the manufacturer and ensuring a high level of safety. Equipment in this category is intended for use in underground mines and their surface installations endangered by firedamp and/or combustible dust. If an explosive atmosphere occurs, it must be possible to switch off the equipment. The apparative explosion protection measures within this category ensure the required level of safety during normal operation, even under severe operating conditions and especially during rough handling and changing environmental influences.

Equipment group II category 2D category 2 comprises equipment designed to be capable of operating in conformity with the manufacturer's declared characteristics and ensuring a high level of safety. Equipment in this category is intended for use in areas in which an explosive atmosphere consisting of gases, vapours, mists and/or dust/air mixtures is likely to occur occasionally. The apparative explosion protection measures of this category ensure the required level of safety even in the case of frequent equipment malfunctions or fault conditions that are usually to be expected.

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2.1.1 Conditions for safe use

The maximum temperature of all surfaces of the conveyor belt cleaning systems is exclusively dependent on their uses, especially on the speed of the conveyor belts. Relative speeds greater than 6.5 $m \cdot s^{-1}$ are not permitted in conjunction with conveyor belt cleaning systems used in conveyor belt systems. A surface temperature of 150°C must not be exceeded.

All conductive parts of the conveyor belt cleaning systems must be earthed with a dissipative resistance to earth of less than 10^6 Ω.

The group II category 2D conveyor belt cleaning systems may only be used in conjunction with dusts whose minimum ignition energy is greater than 10 mJ and whose minimum ignition temperature (dust cloud) is greater than 300°C and whose minimum ignition temperature (deposited dust) does not exceed 225°C.
Only components made of electrostatically dissipative plastics approved for underground coal mining may be used for the conveyor belt cleaning systems of group I category M2.

Group I category M2 conveyor belt cleaning systems may only be used on conveyors which can be switched off in the event of an explosive atmosphere occurring.

2.1.2 Labelling

The labelling (clearly visible, legible and permanent) shall include at least the following information:

- Name and address of the manufacturer
- CE marking
- Machine number
- Year of manufacture


I M2


II 2 D T150 °C

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3. Components

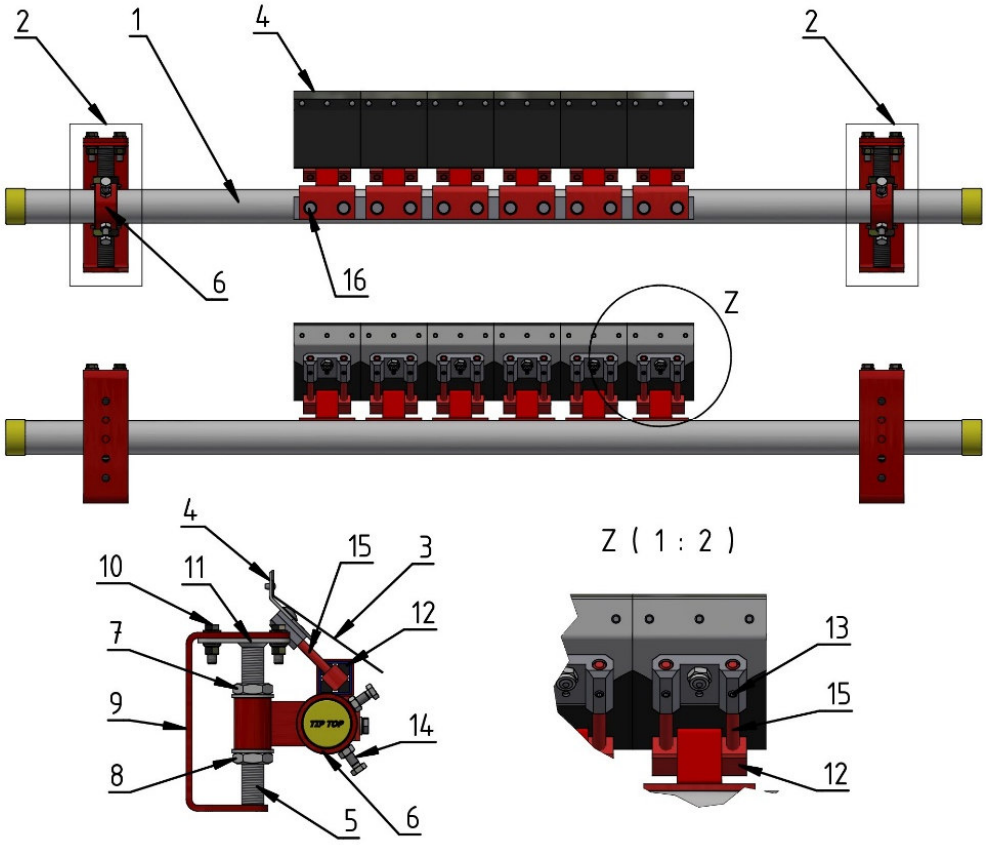

Image 1

- Pos. 1: System support tube
- Pos. 2: Spindle clamping device
- Pos. 3: PE skirt of the carbide segment
- Pos. 4: Carbide segment (HM-U9/U10)
- Pos. 5: Threaded spindle
- Pos. 6: Mounting system support tube pos. 1
- Pos. 7: Lock nut with washer
- Pos. 8: Clamping nut with washer
- Pos. 9: Mounting bracket
- Pos. 10: Mounting screws
- Pos. 11: Mounting plate
- Pos. 12: Torsion element (HM-U9/U10)
- Pos. 13: Fixing screws of the carbide scraper
- Pos. 14: Fixing screws of the system support tube
- Pos. 15: Arms of the carbide segment
- Pos. 16: Fastening screws of the segments with torsion clamps

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4. Conditions of use, purpose and task

- The conveyor belt scraper **REMACLEAN HM-U10** is a device intended for cleaning the soiled surface of the carrying side of a conveyor belt. This system uses a carbide strip consisting of individual segments. Each segment is elastically supported in a torsion element. This allows each segment to work individually and adapt to the surface of the conveyor belt. In case of overload, each segment can give way individually or move elastically backwards.

- The scraper type is installeddirectly behind the ejector drum according to the installation instructions.

- An optimal cleaning effect can only be achieved with a good conveyor belt surface and good condition of the joints.

- **This type of scraper must not be used with mechanical connections!**

- **This type of scraper must not be used if the conveyor belt surface is badly damaged!**

- Ensure that the conveyor belt runs smoothly on the drum and that there is no damage or material caking on the drum cover. If the conveyor belt coming from the drum still troughs strongly or forms waves in the transverse direction, it is essential to install a counter-pressure roller in the immediate vicinity of the scraper.

- Max. conveyor belt speed **6.5 m/s**. Higher operating speeds are possible in consultation with the manufacturer.

- **This type of scraper must not be used in reversing operation.**

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5. Assembly preparation

- Before starting any work on the conveyor belt scraper, the power supply to the belt system must be switched off by the operator's personnel and secured against unauthorised switching on.
- The proper electrical disconnection of the conveyor belt system must be checked (and possibly additionally secured) by the fitter who installs the belt cleaning system.
- The fitter must ensure that tools and aids are used in perfect condition.
- When using a welding torch or other welding equipment, it must be checked whether the official regulations (explosion protection, firedamp protection, fire protection, etc.) are complied with.
- During welding and cutting work, heat-sensitive components e.g. conveyor belt must be covered.
- During all installation work, the Accident Prevention Regulation (UVV) and the relevant regulations of the local authorities and local legislation must be observed.
- A high cleaning effect can only be achieved if the belt cover is in good condition (no washout or poor bonding).

It is essential to ensure that the conveyor belt runs smoothly in the installation area. If necessary, the belt tension must be adjusted or an additional idler/pressure roller must be used.

The **REMACLEAN HM-U10** scraper systems are conveyor belt cleaners that are used in the free lower run. The best function is achieved when installed directly behind the ejector drum. At this point, the conveyor belts still run relatively smoothly and give the carbide strip sufficient resistance to pre-tension with the necessary contact pressure.

It should be taken into account that in the immediate vicinity of the ejector drum, the side walls of the transfer can very often be in the way. In such cases, appropriate cut-outs must then be prepared for the carrier of the carbide strip. This change to the construction must be agreed in advance with the system operator. After mounting, the prepared cut-outs should be covered dust-tight with a rubber plate.

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6. Installation position

First of all, it should be determined where the carbide segments **pos. 4** can be installed. It must be taken into account that the scraped material is to fall onto the next belt conveyor, in a bunker or onto a steep chute. It is essential that the conveyor belt is still very well tensioned and running smoothly at the installation point of the carbide scrapers.

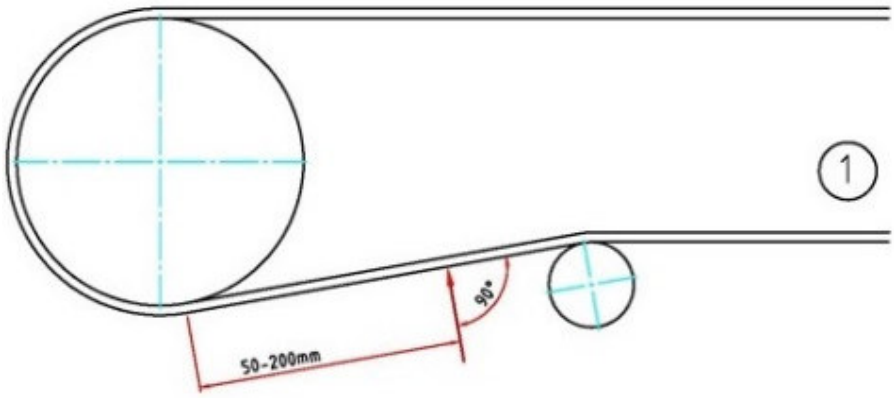

Image 2

If it should happen that the harmetal scraper is used further than **200 mm** from the axis of the ejector drum, then a counter-pressure roller should be installed in the immediate vicinity of the scraper scraper **pos. 4**, see **Image 3**.

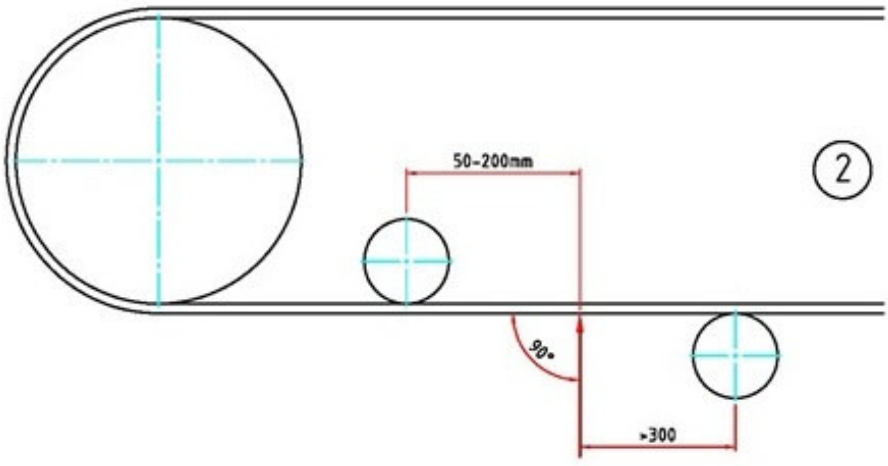

Image 3

According to the mounting location of the carbide segments **pos. 4**, the mounting location of the spindle clamping devices **pos. 2** is to be determined. Both spindles **pos. 2** must be mountedat **90° to the conveyor belt** .

The mounting plate **pos. 11** of the spindle clamping devices **pos. 2** must be mounted at a distance **X = 100 mm** from the carrying side of the conveyor belt (see **Image 4**).

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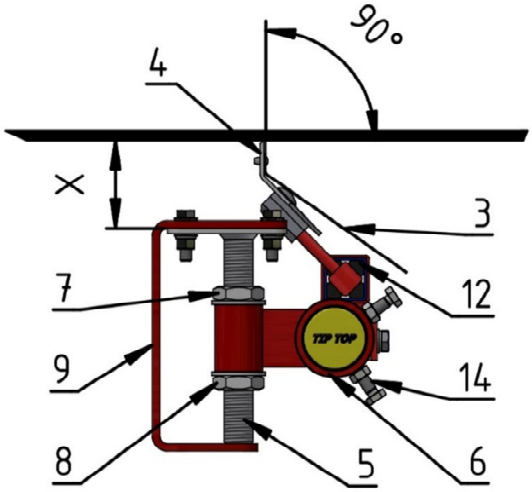


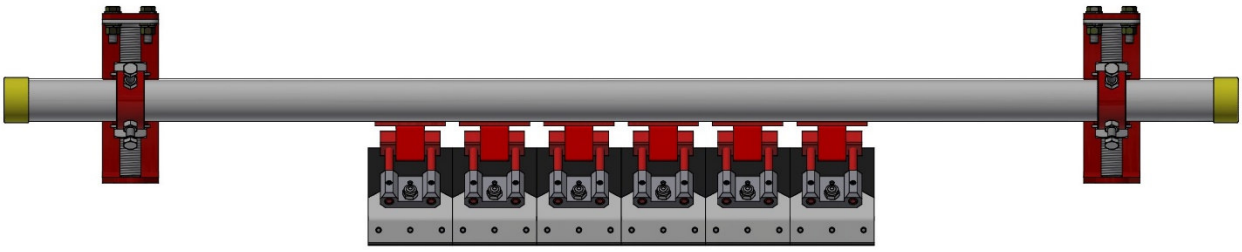
Image 4

7. Assembly steps

1. After determining the mounting location on the conveyor system, the appropriate mounting holes for the M12 screws must be made or the prepared mounting brackets must be screwed or welded on. The specifications for the distance to the carrying side of the conveyor belt **X** must also be taken into account (see **Image 4**). Mounting brackets can be ordered separately from us.

2. If necessary, the openings in the side walls of the conveyor system must also be prepared for installation.

3. First mount the spindle clamping devices **pos. 2** on one side of the belt construction. Push one end of the system support tube **pos**. **1** into the holder **pos**. **6** of the clamping device. Push the second end of the system support tube **pos. 1** into the receptacle pos. **6** of the second, not yet screwed on, clamping device **pos. 2**. Then screw the second clamping device **pos. 2** to the prepared mounting holes. The system support tube **pos. 1** with the carbide segments **pos. 4** can still be moved and the carbide segments pos. **4** hang down.



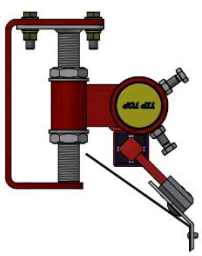


Image 5

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4. Now turn the system support tube **pos. 1** until the segments are at approx. **90°** to the conveyor belt. Move the system support tube so that the carbide segments **pos. 4** are symmetrically aligned to the belt system. Slightly fix the system support tube **pos**. **1** with the fixing screws **pos**. **14**.

   Important:

   Please note that the adjacent carbide segments **pos. 4** must form a line. If small steps occur at any point, the corresponding carbide segment **pos. 4** must be realigned using the existing slotted holes. The correction can be carried out with the fixing screws **pos. 13** of the carbide segments.

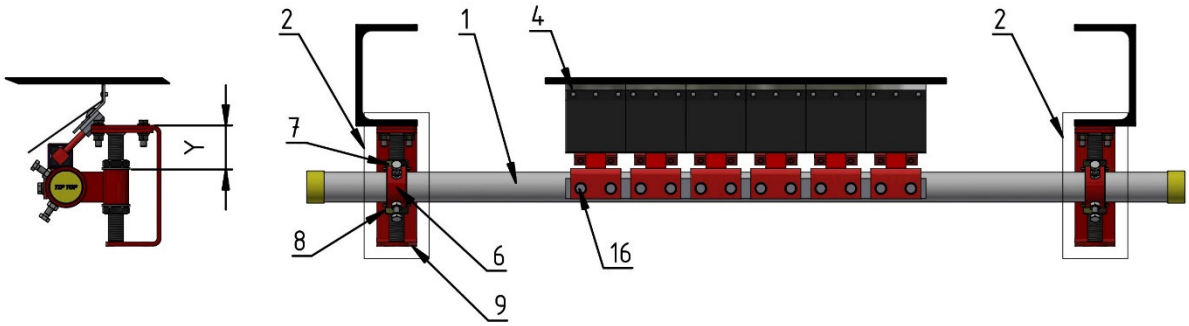

Image 6

5. Now turn up the system with the tensioning nuts **pos. 8** until the carbide segments **pos. 4** touch the conveyor belt. After adjustment, the system support tube must always be parallel to the conveyor belt. The carbides of the carbide segments **pos. 4** now touch the conveyor belt evenly, without tension. The scraper is not yet pre-tensioned in this state!

6. Now adjust the angle of the carbides to the conveyor belt. The harmetals should be slightly tilted forward (approx. 3°-5°) in the condition.

7. Measure the distance **Y** and note it down.

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8. Final assembly, creation of the pre-tensioning

1. Create the contact pressure with the clamping nuts **pos. 8**. The holder of the system support tube **pos. 6** moves in the direction of the conveyor belt and moves away from the previous **position "0"**. The value **Y** thus becomes smaller.
   With the change of the originally measured value **Y**, the pre-tensioning can be determined.

We define pre-tensioning as follows:

Change by 5 mm - **slight** pre-tensioning
Change by 10 mm - **medium** pre-tensioning
Change by 15 mm - **strong** pre-tensioning

Intermediate values are also allowed!

Example:
If the value **Y=60 mm**, then the value changes accordingly to **45** mm (Y=60 mm - 15 mm = 45 mm).

Important:

After reaching the pre-tensioning, the carbide scrapers must be at **90° to the conveyor belt**. Very slight tilting backwards is allowed.

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2. Depending on the degree of soiling of the conveyor belt, the type of material being conveyed, the conveying speed and the condition of the conveyor belt surface, the correct pre-tensioning must be selected. We recommend that you first select a weaker pre-tensioner of **approx. 8 mm** and then let the belt run. Observe how the carbide strip behaves and what the degree of cleaning is. If the pre-tensioning is not sufficient, it can be further tightened until the desired degree of cleaning is achieved.

Caution

As the pre-tensioning is increased, the carbide segments will tilt backwards. This must be taken into account and the system support tube **pos. 1** may have to be turned slightly to ensure that the carbides are at **90°** to the belt.

In the assembly report, it is essential to enter the pre-tensioning created, **e.g. 8 mm**. This is important for further maintenance work!

After the pre-tensioning has been created, the lock nuts **pos. 7** of the spindle clamping devices **pos. 2** must be tightened and locked on both sides .

You can make a readjustment after a few days, after the carbide strip has partially ground down.

When generating the pre-tensioning, however, the mutual influence between contact pressure and cleaning effect should always be taken into account.

3. At the end of assembly, retighten and lock all screws. Check that all saw cuts are deburred and protected from corrosion again. If necessary, the system support tube can be shortened to fit.

4. We recommend checking every newly installed scraper system after **approx. 1-2 weeks** to make sure that all screw connections are tight and to check whether the degree of cleaning is sufficient.

9. Reverse operation

The **HM-U10** scraper is **not suitable for reversing** suitable.

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10. Maintenance and inspection

Depending on the material to be conveyed and the duration of use, the scraper should be checked and cleaned at regular intervals because deposits on the carbide strip lead to a deterioration of the cleaning effect. We recommend that in case of multi-shift operation, a visual inspection should take place once a day.

After approx. **8 weeks**, we recommend having the scraper checked by a specialist.

We further recommend that the installed scraper systems are checked and serviced by a specialist every **3 months**. A maintenance contract with a service company can help the operator to make optimal use of the scraper systems in use.

If the cleaning result is poor or insufficient, the wear of the carbide segments **pos. 4** should be checked and the worn carbide strip **pos. 4** should be replaced or a correction made to the setting on the clamping device **pos. 2**.

Important:

After the pre-tensioning has been achieved, the carbide scrapers should be at **90°** to the conveyor belt. Very slight tilt to the rear is permitted.
If one of the carbide segments is worn out, all of them must be replaced!

In particular, the wear of the carbide plates on the carbide segments **pos.4** should be inspected more closely, as the carbide plates wear differently depending on the conveyor belt and conveyor belt surface.

The carbides may be worn down to a maximum of **3 mm**. After reaching this limit, it can no longer be guaranteed that the remaining soldering surface will transmit the large frictional forces.

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11. Installation dimensions

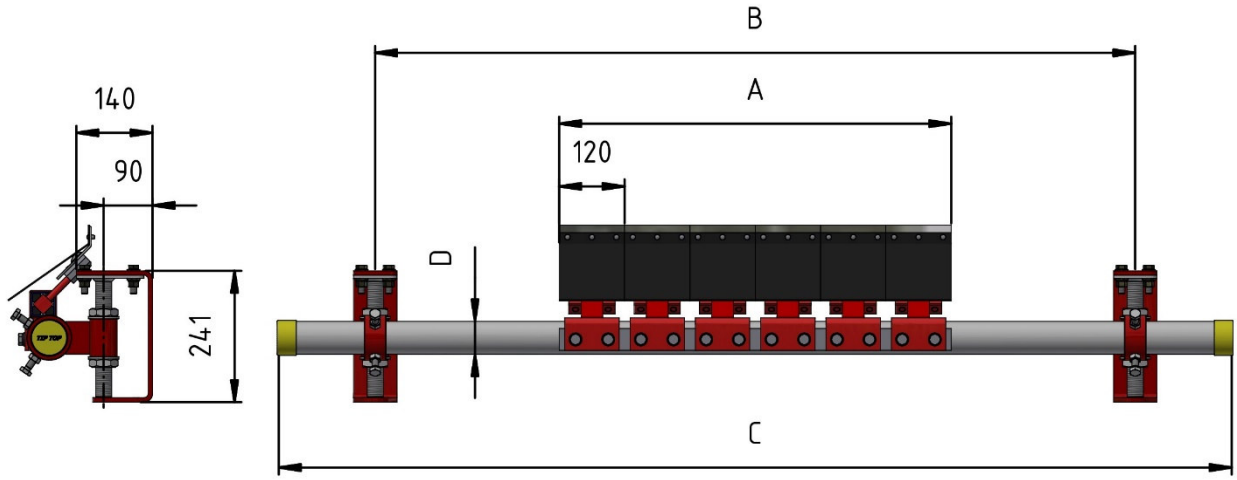

Image 6

Belt width [mm]	A [mm]	B [mm]	C [mm]	ØD [mm]	Quantity – Carbide scraper
400	360	460 - 1250	1400	51	3
500	480	560 - 1350	1500	51	4
650	600	680 - 1500	1650	51	5
800	720	800 - 1600	1750	60.3	6
900	840	920 - 1750	1900	60.3	7
1000	960	1040 - 1850	200	60.3	8
1200	1080	1160 - 2050	2200	76.1	9
1400	1200	1280 - 2250	2400	76.1	10
1600	1440	1520 - 2950	3100	101.6	12
1800	1680	1760 - 3150	3300	101.6	14
2000	1800	1880 - 3350	3500	101.6	15
2200	2040	2020 - 3600	3750	101.6	17

Table 2

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13. Article numbers

REMACLEAN **HM-U10**

Art. No.	Belt width [mm]	Designation
578 1550	400	REMACLEAN HM-U10
578 1551	500	REMACLEAN HM-U10
578 1552	650	REMACLEAN HM-U10
578 1553	800	REMACLEAN HM-U10
578 1555	1000	REMACLEAN HM-U10
578 1556	1200	REMACLEAN HM-U10
578 1560	1400	REMACLEAN HM-U10
578 1570	1600	REMACLEAN HM-U10
578 1580	1800	REMACLEAN HM-U10
578 1851	2000	REMACLEAN HM-U10
578 1582	2200	REMACLEAN HM-U10
578 1583	2400	REMACLEAN HM-U10

Spare and wear parts

Art. No.	Width [mm]	Designation
578 3638	120	Carbide carrier HMT-U1 S, U9, U10, centre
578 1100	120	Carbide carrier HMT-U1 S, U9, U10, right
578 1090	120	Carbide carrier HMT-U1 S, U9, U10, left
578 3610	REMACLEAN TORSION PART FOR HM-U9 / HM-U10	

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14. Risk assessment

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· zertifiziert nach DIN EN ISO 9001
· ermächtigter Sachverständiger BGZ Nr. 1378
· Sicherheitsfachingenieur · autorisierter Händler
· vereidigter Sachverständiger des Handwerks

Fachbetrieb für Krane · Hebezeuge · Fördertechnik

Ing. Kurt Klopsch Fördertechnik GmbH
Friedrich-Engels-Straße 10 · 14770 Brandenburg / Havel

Zertifikat zur Gefährdungsbeurteilung

gemäß Maschinenrichtlinie 2006/42/EG Anhang I und EN ISO 14121-1:2007

Durchführung:	René Neubert Ing. Kurt Klopsch Fördertechnik GmbH Friedrich – Engel – Straße 10 D – 14770 Brandenburg a. d. Havel
Gerätebezeichnung:	Gurtreinigungssystem REMACLEAN / Fördergurtreinigungssystem
Hersteller:	TIP TOP Industrievulkanisation Borna GmbH NL Nauen Siemensring 13 / 14641 Nauen TIP TOP Saar GmbH Am Kreuzgraben 24/26 / 66280 Sulzbach / Brefeld
Geräte – Typ – Daten:	HM-F1 / HM-F2 / HM-F2-VA / HM –U1 / HM-U1 / HM-U1 VA HM-U2 / HM-U1S / HM- U3 / HM-U7 MF / HM U7 MF-V / HM-U7 V / HM-U7 / HM-U8 / HM-U8 MF / HM-U8 MF-V / HM-U8 V / HM-U9 / HM-U10 / SGB / TMB / Innovation RB-IGD / RB-IGP / PUR-F5 / PUR-F300 / PUR-F400 / PUR-F500 / HM-U500 / GRB / Precision

Der Hersteller erklärt, dass das oben genannte Produkt eine unvollständige Maschine im Sinne der Maschinenrichtlinie ist. Das Produkt ist ausschließlich zum Einbau in eine Maschine oder unvollständige Maschine vorgesehen und entspricht daher noch nicht allen Anforderungen der Maschinenrichtlinie.

Die speziellen technischen Unterlagen gemäß Maschinenrichtlinie 2006/42/EG Anhang I und EN ISO 14121-1:2007 wurden erstellt. Die Gefährdungsbeurteilungen sind in der Konstruktionsabteilung der Firma TIP TPO NL Nauen abgelegt und können zur Ansicht angefordert werden.

Der Bevollmächtigte für das Zusammenstellen der technischen Unterlagen verpflichtet sich, die Unterlagen auf begründetes Verlangen an die einzelstaatlichen Stellen zu übermitteln.

Brandenburg, 04.09.2014

Ing. Kurt Klopsch Fördertechnik GmbH
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14770 Brandenburg · Friedrich-Engels-Str. 10
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Von der Berufsgenossenschaft ermächtigter Sachverständiger zur Prüfung von Kranen und Hebezeuge
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René Neubert, Geschäftsführer

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Geschäftsführer: Dipl.-Ing. Kurt Klopsch
Amtsgericht Potsdam HRB 5839

Seite 1

15. EC Declaration of Conformity

//ONE BRAND //ONE SOURCE //ONE SYSTEM

EC- Declaration of Conformity

Declaration of Incorporation for partly completed machinery

DA 9-8
Page 1 of 1

Manufacturer / Authorized representative	TIP TOP Industrievulkanisation Borna GmbH NL Nauen Siemensring 13 D – 14641 Nauen	
	Phone number:	03321 / 455018
	Fax number:	03321 / 455021
	E-Mail:	info.nauen@tiptop-borna.de
Description of the device		
Devices – types – specifications	Conveyor belt cleaning system REMACLEAN HM-F1 / HM-F2 / HM-F2 VA/ HM-F2 HR/ HM-F2 S/ HM-F2 PUR/ PUR-F3 / PUR-F4 / PUR-F5 / PUR-F5 V / PUR-F6 / PUR-F7 / PUR-F8 / PUR-F300 / PUR-F400 / PUR-F500 / HM-U1 / HM-U1 VA / HM-U1 HR / HM-U1 S / HM-U2 / HM-U3 / UNICLEAN HM-U3 / HM-U7 / HM-U7 MF / HM-U7 MF V / HM-U7 V / HM-U8 / HM-U8 MF / HM-U8 MF V / HM-U8 V / HM-U9 / HM-U10/ HM-U10-S / HM-U11R / HM-U500 / HM-U500 TWIN/ RB-IGD / RB-IGD V/ RB-IGD VA / RB-IGD HD / RB-IGP / RB-IGP-S / RB-IGP-S HD / INNOVATION / TMB / SGB / SGB-PUR / SGF / GRB / GBM	
Application field of the device	usage for cleaning the belt conveyor from bulk material	

General provisions

The design and the construction of these belt cleaning systems comply with the recognized rules of technology and prior art. With any unauthorized modification of the construction this declaration loses his validity.

Our systems are corresponding with general provisions such as EN standards, CEN reports and DIN standards.
The conception and construction of the systems are based on the Machinery Directive 2006/42/EC for distributors and manufacturer and the ninth GPSGV-Machine Regulation. If necessary these regulations can be consulted.

The systems for usage in underground mines and in explosion-protected areas are produced according to the requirements of Directive 2014/34/EU. Identification rules of the systems: **CE Ex I M 2** / **CE EX II 2 D T150° C**

Supplied products which are provided to the cleaning belt system as an additional attachment must have a certificate of conformity or a manufacturer's declaration. The assembly must comply with the requirements of the above-mentioned EC-Directive.

TIP TOP Industrievulkanisation Borna GmbH
NL Nauen

Patrick Schmalfuß
.....
name and signature of the authorized person

Nauen, February 27, 2024

16. Certificate according to DIN EN ISO 9001

Management Service

ZERTIFIKAT

Die Zertifizierungsstelle
der TÜV SÜD Management Service GmbH

bescheinigt, dass das Unternehmen

Industrievulkanisation Borna GmbH
//ONE BRAND //ONE SOURCE //ONE SYSTEM

TIP TOP Industrievulkanisation Borna GmbH

OT Zedtlitz, Zedtlitzer Dreieck 10
04552 Borna
Deutschland

einschließlich der Standorte und Geltungsbereiche
gemäß Anlage

ein Qualitätsmanagementsystem
eingeführt hat und anwendet.

Durch ein Audit, Auftrags-Nr. **707050042**,
wurde der Nachweis erbracht, dass die Forderungen der

ISO 9001:2015

erfüllt sind.

Dieses Zertifikat ist gültig vom **21.02.2022** bis **20.02.2025**.

Zertifikat-Registrier-Nr.: **12 100 50665 TMS**.

Leiter der Zertifizierungsstelle
München, 05.01.2022

Seite 1 von 2

MS/01-03/2020

TÜV SÜD Management Service GmbH • Zertifizierungsstelle • Ridlerstrasse 57 • 80339 München • Germany
www.tuvsud.com/de-certificate-validity-check