Narviflex®
BELTING

TECHNICAL INFORMATIONS

EVERYTHING AT A GLANCE

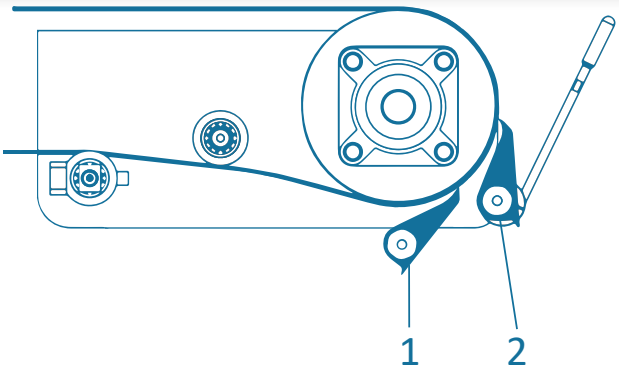
1 - SCRAPERS FOR CONVEYING BELTS AND ROLLER SCRAPERS

Various products and production processes require different scrapers!

No matter which type of scraper is to be used, the mode of operation of our belt scrapers is ingeniously simple:
A specially developed polyurethane body, cast around a stainless steel supporting tube or shaft, fits closely against the conveyor or roll surface and responds to product flow with great flexibility.
All installation positions allow uncomplicated and quick mounting with the appropriate mounting kits.

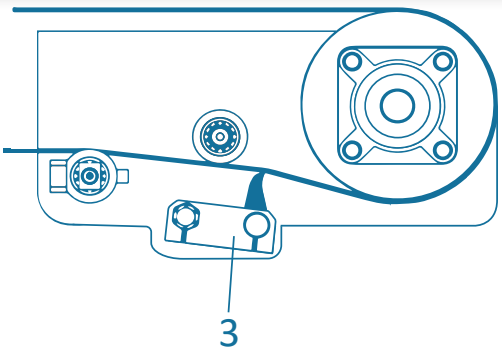
The standard scraper is the simplest solution for separating product residues from the conveyor belt or roller or for conveying them further. The predominant installation position is on the roller at the following two positions:

For sticky products, position 1 is the best choice, as the product separates due to the product flow and the scraper only has to scrape off residues. This keeps the scraped/drifted product flowing.
However, if there is little installation space below the deflection roller and for better maintenance and care, position 2 is more suitable.



If the stripped product is to be separated from the main stream, a universal scraper is recommended to be selected.
The universal scraper is mounted in combination with a universal mounting kit in the rear run below the conveyor belt (position 3).
This way of positioning ensures both optimum contact with the surface of the conveyor and constant belt tensioning.

The universal scraper is geometrically "stronger" in the back area. In the case of a product that is very difficult to strip, the large torsion element allows the scraper to be pressed against the conveyor with a lot of force, even with a small scraper height.



2 - DESIGN FEATURES OF THE SCRAPER

The right combination leads to SUCCESS!

For an optimum scraping result, each scraper can be individually adapted to the requirements and the installation situation. Here we explain which scrapers, geometries and materials are available.

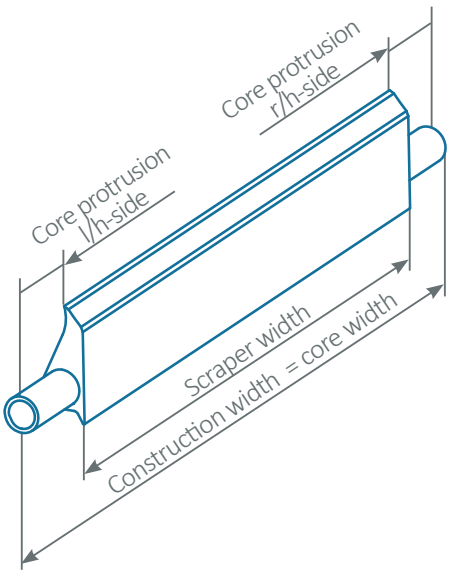
Standard scraper (S)

The pointed scraper lip of the standard scraper results in less resistance for the product to be scraped.
Thanks to the narrower tip, the scraper fits better to the cover of the conveyor and can compensate very well for the finest unevenness thanks to the flexible lip.
Thanks to its slim design, it has only small space requirements.
The drip lip enables controlled controlled product allocation.

Universal scraper (U)

The universal scraper is characterized by its universal field of application and installation position. Due to its blunt scraper lip, it can also be installed in the lower run in the opposite direction. This specific feature prevents the scraper tip from buckling.

The width



The construction width is calculated by the scraper width plus the core protrusion on both sides.
The core protrusion does not have to be identical on both sides, but is adapted to the installation conditions and customer requirements.
The possible scraper widths depend on the overall height and the used core. The range is from 150 mm to 2500 mm.
Simply put, the greater the scraper height and the larger the diameter of the core, the wider the scrapers can be designed.

The scraper width should be about 10 to 20 mm narrower than the conveyor belt for a standard scraper in combination with a "standard" mounting kit.
In the case of a universal scraper in combination with a mounting kit "universal", the width should be greater (10-20 mm) than the conveyor belt.

The height

The scrapers are offered with a height of 70 mm, 100 mm and 125 mm.
The scraper- and core widths can be selected depending on the height.

70

Scraper width
150 mm- 1100 mm

Core width:
230 mm- 1200 mm

Operational situations:
- small drum diameters
- Lack of space due to technical conditions
- easy-to-scrape products

100

Scraper width:
250 mm- 1700 mm

Core width:
400 mm- 2000 mm

Operational situations:
- crowned and/or uneven drums
- Modularly combined webs

125

Scraper width:
300 mm- 2500 mm

Core width:
400 mm- 2700 mm

Operational situations:
- large drum diameters (>160 mm)
- Products that are difficult to strip
- for high torsional forces

The core

The core is made of stainless steel.
Depending on the scraper height and mounting system, different diameters and walls are selected.
Shafts or tubes are used as the core. The core diameter and wall thickness of the tubes vary.

For the large scraper heights and from a core diameter of 40 mm, the article names of the scrapers change: from **N**ormal it changes to **V**ery strong/reinforced.

Scraper height 70:	Core-Ø 22 mm, designed as solid shaft (2200)
	Core-Ø 22 with 2.5 mm wall thickness (2225)
Scraper height 100:	Core-Ø 27 with 2.5 mm wall thickness (2725)
	Core-Ø 30 with 4.0 mm wall thickness (3040)
Scraper height 125:	Core-Ø 27 with 2.5 mm wall thickness (2725)
	Core-Ø 35 with 2.5 mm wall thickness (3525)
	Core-Ø 40 with 5.0 mm wall thickness (4050)
	Core-Ø 40 with 5.0 mm wall thickness, reinforced (4050)

2 - DESIGN FEATURES OF THE SCRAPER

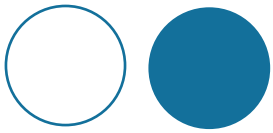
The material

In order to achieve an optimum scraping result and a long service life in the various fields of application, the scrapers are made of different materials with different properties.
In this table the possible materials and parameters are listed and evaluated against each other.

Parameters	Polyurethane based on			Thermoplastic
	E	EK	C/I	PTFE
Hydrolysis resistance	--	++	--	++
Microbiological resistance	--	++	--	+
Flexibility in a cold environ-ment	0	++	0	--
Mechanical properties/ wear resistance	++	+	++	0
Oil and grease resistance	++	-	++	0
antistatic	-	-	++	++
Non-stick properties	+	+	+	++
Heat resistance	0	0	0	++
(++ very good, + good, 0 satisfactory, - conditionally applicable, -- not applicable)				

The colour

The scrapers are available for the materials "E" and "EK" in the colours blue and white.
For the materials "C/I" and "PTFE" the scrapers are only supplied in white.



Overview of the scraper parameters

The individual parameters of the scrapers are shown in the table.
The article description results from the selection of the width and the possible combinations of height, core dimension etc..
This is presented as follows:

SN	-	0875	-	070	-	2225	-	1	-	B	-	15	-	85
Design		Scraper width		Scraper height		Core Ø and wall thickness		Material		Colour		Core protrusion l/h-side		Core protrusion r/h-side

Design	Scraper width [mm]	Scraper height [mm]	Core Ø [mm]	Wall thickness [mm]	Material	Colour	Core protrusion
S = Standard U = Universal + N = Normal V = Very strong					E = 1 EK = 2 C/I = 3 PTFE = 4	blue = B white = W	l/h-side r/h-side
SN UN	150-1100	070	22	00	E EK	blue white	in case of no data depending on Height: 70 = 50 mm 100 = 75 mm 125 = 100 mm
				25			
	100-900			00	PTFE	white	
				25			
	250-1700	100	27	25	E EK	blue white	
			30	40			
	300-1500	125	27	25	E EK	blue white	
	300-2000		35	25	E EK	blue white	
					C/I	white	
	1000-2500	125	40	50	E EK	blue white	
					C/I	white	
SV UV	1500-2500			50 + Reinforce-ment	E EK	blue white	
					C/I	white	

Other dimensions and combinations are possible as special solutions on request.

3 - SAFETY AND NOTES

Symbol and explanatory note

Industrial safety symbol
This symbol can be found at all work safety instructions of this technical information where there is danger to life and limb of persons. The instructions must be followed and special care must be taken in these cases. In addition to the instructions in this technical information, the generally applicable safety and accident prevention regulations must be observed.

Caution note
This symbol can be found at the places in this technical information which must be particularly observed in order to comply with the guidelines, regulations, instructions and the correct sequence of work as well as to prevent damage to the scraper or other system parts.

Example
This symbol can be found with information or examples that are intended to clarify instructions and procedures.

Hygiene requirements and cleaning

The scrapers and their materials meet the hygiene requirements according to the guidelines:

- Regulation 1935/2004 (EC)
- Regulation (ECU) No 10/2011
- Food and Feed Code (LFGB) of 3 June 2013 (German federal gazette [BGBI] I, p. 1246)
- Consumer Goods Ordinance 23 December 1997 (German federal gazette [BGBI] 1998 I, p. 5)

Only slightly basic cleaning agents may be used for cleaning the scrapers.

Cleaning intervals must be set up and maintained by the operator must be established and adhered to in accordance with the requirements of the product to be processed.

In food processing, it is imperative that no food residues can be deposited in open gaps, otherwise pathogens, bacteria, etc. can form.

Note on the application

New findings and experience may lead to changes at short notice without prior notice.

Since Narviflex has no direct influence on the conditions of use and operation, no liability can be accepted with regard to the suitability of our products. This also applies to possible defects, damages, consequential damages and further effects.

All data and information are of a recommendatory nature. These are believed to be reliable, but no representations or warranties or obligations are made as to their accuracy or suitability for particular types of applications. The information given here, is based on empirical values under conditions which do not correspond to the production conditions of all industrial applications.

Work safety Instructions

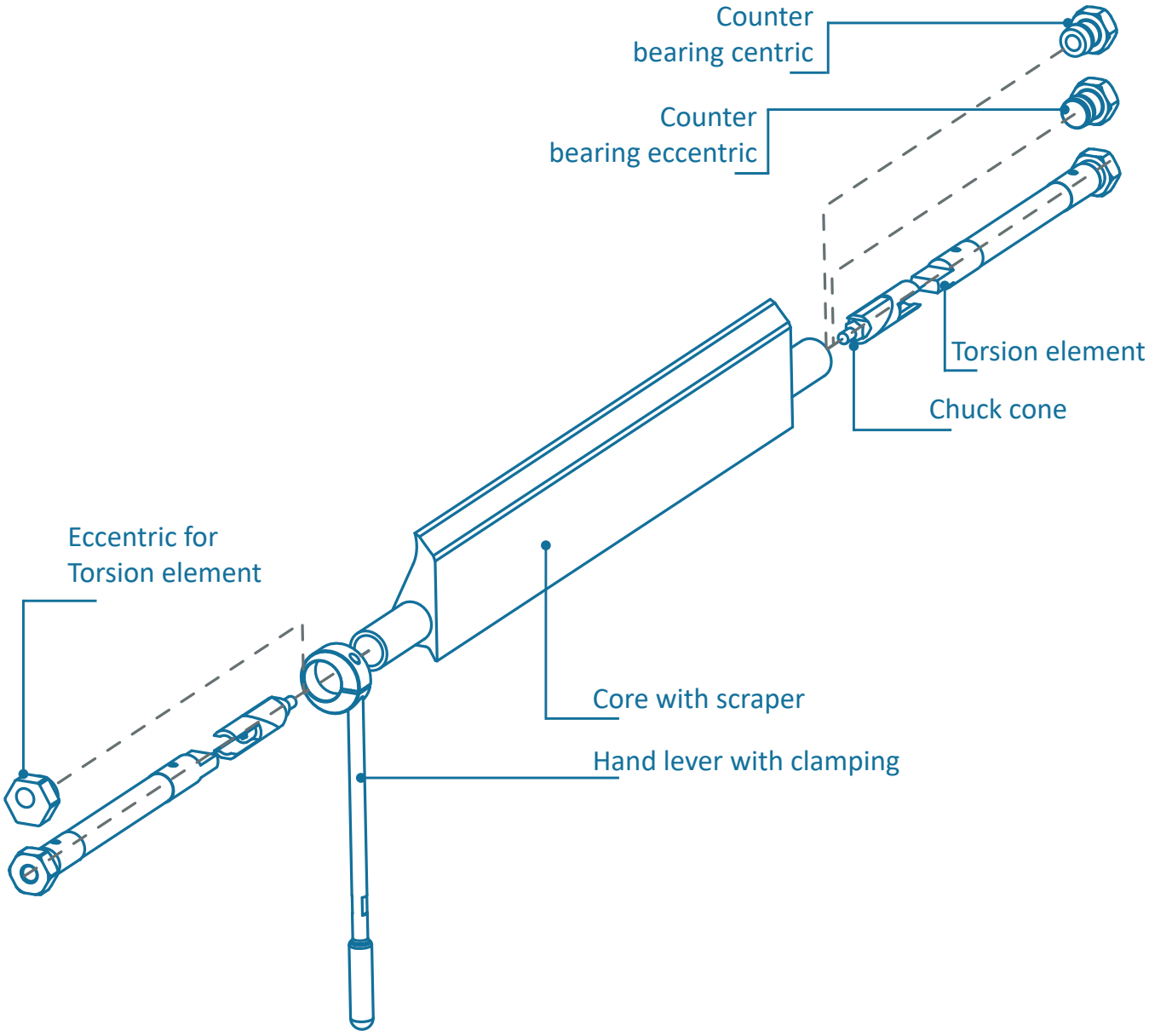
The following notes on occupational safety must be observed in particular:

- All persons involved in the installation, commissioning, cleaning and maintenance (inspection, maintenance, repair) of the scraper in the user's company must have read and understood the complete technical information and especially the safety instructions (chapter 3).
- The scraper is designed to be used exclusively for cleaning or separating residues from smooth conveyor belts or rollers. Any use beyond this is considered improper / not intended use and must be agreed with the manufacturer in advance.
- Intended use also includes compliance with the installation, commissioning, operating and maintenance instructions specified by the manufacturer.
- The manufacturer is not liable for damage resulting from non-standard use; the user bears the sole risk.
- All work on the scraper (assembly, inspection, maintenance, servicing) must be carried out when the conveyor system is at a standstill. The system must be secured against unintentional switch-on.

4 - MOUNTING KIT "STANDARD" (MS)

Overview of components (MS)

In many cases the MS is used in combination with the standard scraper.
Installation can be carried out quickly and easily, as only two additional holes are required in the conveyor belt frame.



The mounting kit "Standard" (MS) consists of the following components:

- Torsion element(s) with chuck cone
- Counter bearing
- Hand lever with clamping ring
- Mounting kit (T-shaped hex wrench with mounting tube and grease)

Mounting kit "Standard" (MS)

The mounting kit "MS" is available as version "MS standard" and "MS reinforced".

Mounting kit "Standard" (MS) (i.e. MS-2225-**1**-**2**-0)
- 1 Torsion element with chuck cone
- 1 counter bearing (centric or eccentric)
- 1 hand lever with clamping ring
- Mounting kit (T-shaped hex wrench with mounting tube and grease)

MS Reinforced (e.g. MS-2225-**2**-**0**-0)
- 2 torsion elements with chuck cone
- 1 hand lever with clamping ring
- With a scraper height of 125 mm, the threads of the torsion element are selected with clockwise and anti-clockwise rotation.
- Mounting kit (T-shaped hex wrench with mounting tube and grease)

The article description results from the selection of the core dimension, the chuck cone, the counter bearing and the thread.
This is presented as follows:

MS	-	2225	-	1	-	1	-	0
Mounting kit Standard		Core Ø and Wall thickness		Torsion element with chuck cone		Counter bearing		Thread Torsion element

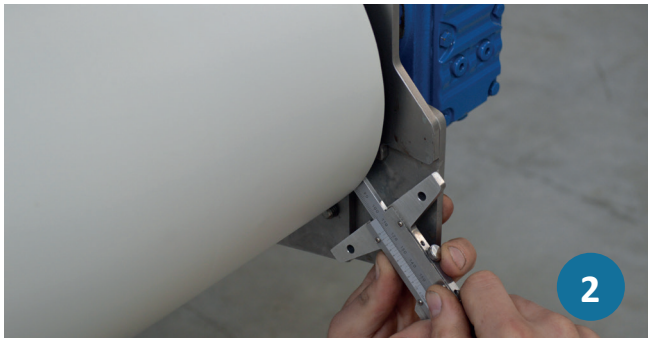
Mounting kit	Core Ø [mm]	Wall thickness [mm]	Torsion element with chuck cone	Counter bearing	Thread Torsion element
MS	22	25	1 = Quantity 1 2 = Quantity 2	0 = without 1 = centric 2 = eccentric	0 = r/h thread RL = 1 x r/h and l/h thread each
	27	25			
	30	40			
	35	25			
	40	50			

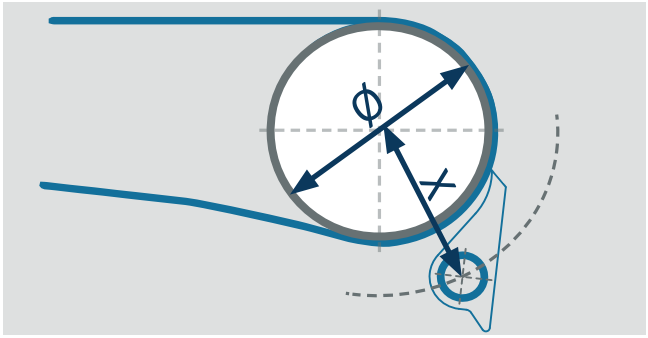
5 - INSTALLATION INSTRUCTIONS MS

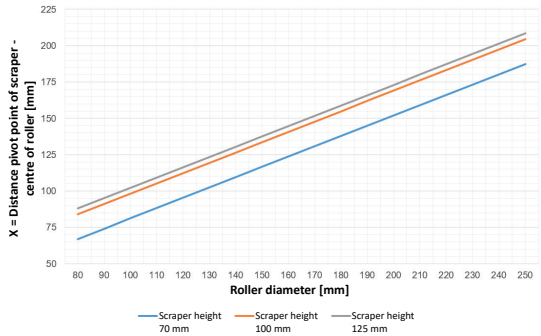
The procedure of the scraper assembly

1 The mounting position must be determined and it must be checked whether scrapers can be mounted without additional attachments. If this is not possible, fastening possibilities, e.g. mounting brackets, must be provided for the scraper.
The positioning of the scraper depends on the conveyed goods and the further use of the stripped product (see chapter 1).

The quality of the scraping behaviour does not depend on the installation position. The contact point of scraper and roller is preferably in the range between "3 and 5 o'clock", also with regard to accessibility for cleaning and maintenance work.







2 The position of the scraper is carefully measured, marked and indicated with a centre punch. For assistance, refer to the neighboring diagram, from which the distance of the core to the drum or roller can be determined.

3 During work, the corresponding accident preventions and safety regulations must be observed!

The mounting holes must be carefully drilled and countersunk on both sides, taking into account the screw diameters.

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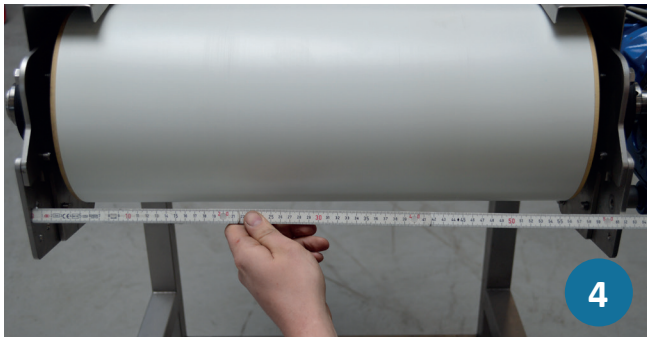


4 Determine the inner dimension and the position of the scraper on the conveyor frame, by measuring the core protrusion. Next, shorten the scraper core to the appropriate size. If the scraper has been ordered with a suitable overall width, you can continue with step 6.

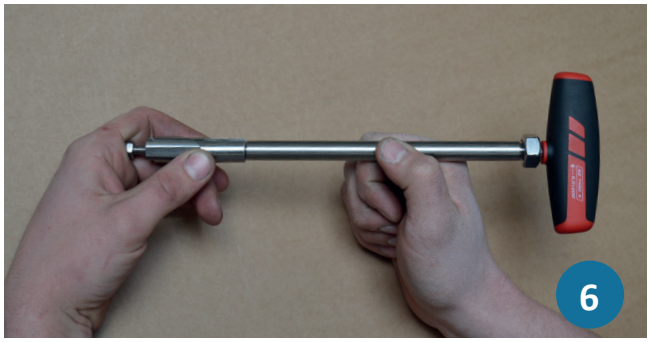
5 An additional 11 mm must be deducted from the inner dimension on both sides (irrespective of the size) for the counter bearing/torsion element.

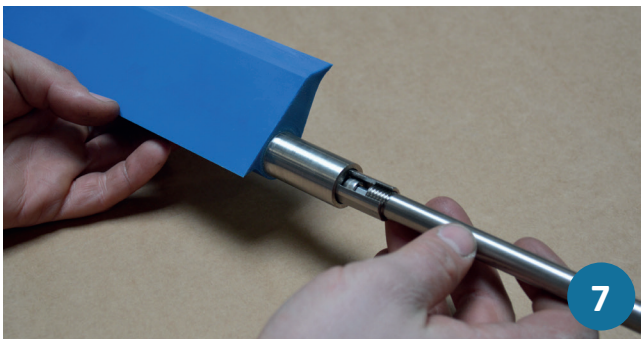
During work, the corresponding accident preventions and safety regulations must be observed!

The scraper core must be shortened by the appropriate amount and the cut surfaces must then be deburred.

Example
Frame inside dimension: 750 mm
Space requirement for mounting parts: 2 x 11 mm
Core width: 750 mm - (2x11 mm) = 728 mm

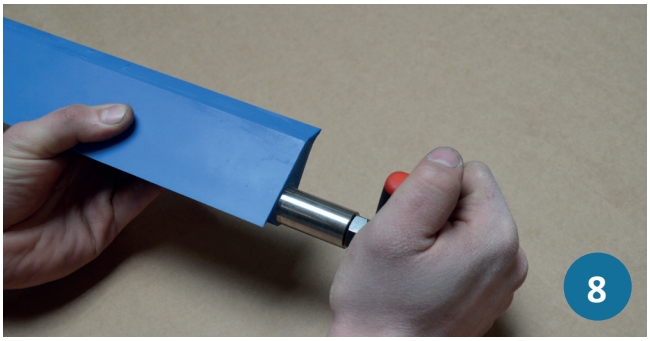
The inner frame dimension corresponds to the overall width of the scraper including the mounting parts.
If the scraper is to be positioned centrally to the conveyor, the support tube must be shortened by the same amount on both sides, or by a different amount if the scraper is positioned off-centre.

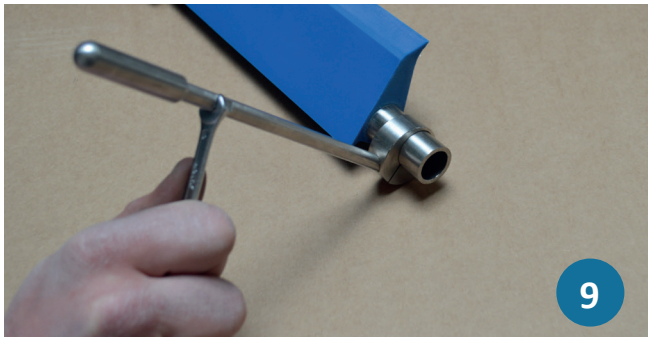


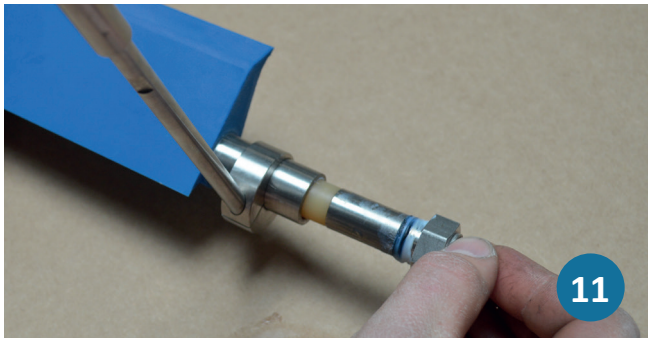


6 The mounting tube is screwed into the chuck cone (l/h thread).
7 The mounting tube is connected to the chuck cone on the right into the scraper core.

5 - INSTALLATION INSTRUCTIONS MS





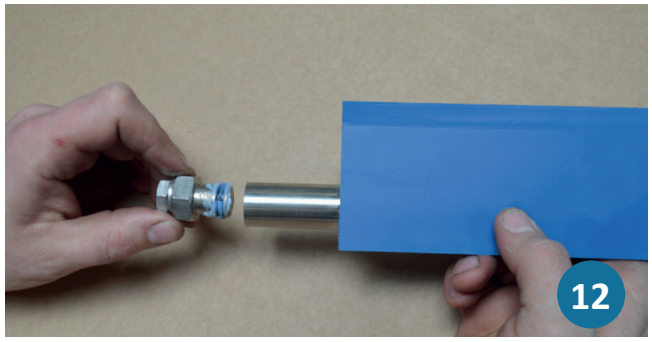


8 Tighten the chuck cone with the T-shaped hex wrench and unscrew the mounting tube clockwise.

9 Mount the hand lever with the clamping ring on the core of the scraper. The position has no influence on the function of the scraper, but should be determined according to accessibility for cleaning and maintenance.

10 Apply the assembly grease to the o-rings of the torsion element.

11 Insert the torsion element into the core on the right.



12 On the other side of the core, insert the counter bearing also with assembly grease.
In the reinforced version, a torsion element with chuck cone is also mounted here (steps 6-8 & 10-11).

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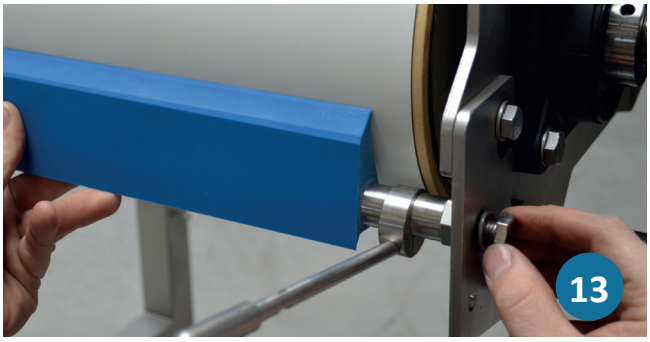
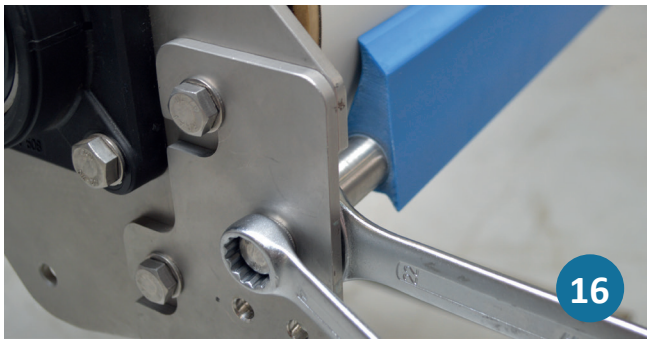


13 14 The scraper is held against the drum and secured with the screws and washers in the previously drilled holes.

It must be ensured that, with the scraper installed, there is always some clearance between the relief of the scraper and the conveyors surface.
If the scraper is incorrectly mounted, product residues can build up and have a negative effect on the scraper behaviour or cause damage to the conveyor.



15 Tension the torsion element and fix it to the frame with the screw.

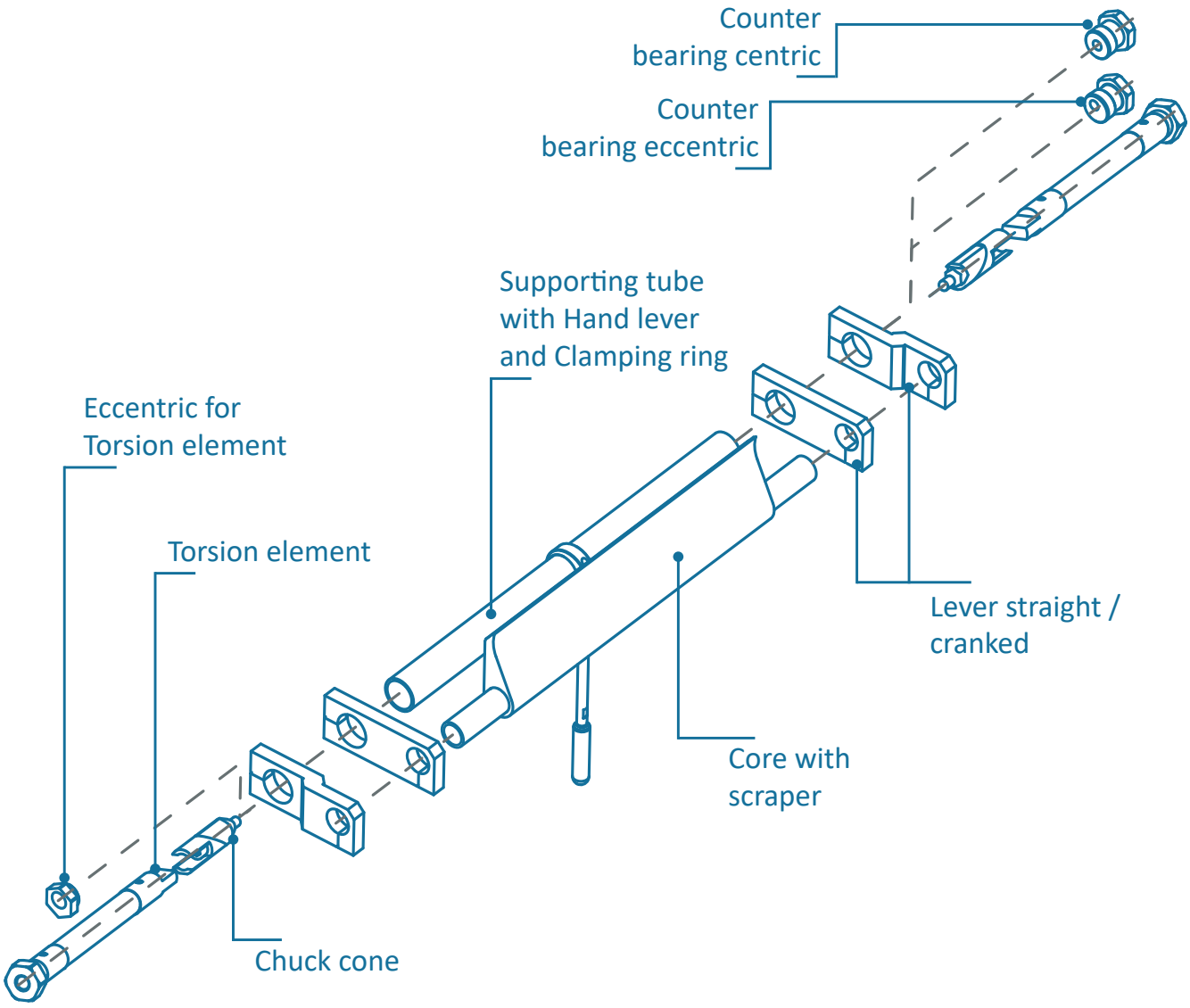
16 On the other side, the scraper can be aligned by the eccentric counter bearing. It must be checked, whether the scraper is completely in contact with the conveyors surface. In the case of a reinforced mounting kit, the torsion element is also tensioned at this point with the same force.

The exact pretension must be determined during production and depends on the product to be scraped-off! However, the less pretension the less wear.
By folding down the scraper, the functionality and the tension of the torsion elements must be checked. The scraper must be free to move over the entire folding range and return to its original position by spring force.

6 - MOUNTING KIT "UNIVERSAL" (MU)

Overview of the components (MU)

In many cases the MU is used in combination with the universal scraper.
Installation can be carried out quickly and easily, as only two additional holes are required in the conveyor belt frame.



The mounting kit "Universal" (MU) consists of the following components:

- additional support tube with hand lever and clamping ring
- Torsion element(s) with chuck cone
- Counter bearing
- Lever (straight/ cranked)
- Mounting kit (T-shaped hex wrench with mounting tube, assembly grease and spanner)

Mounting kit "Universal" (MU)

The MU is available in three different constellations. These differ in the composition of the torsion elements, chuck cones and counter bearings.
The third MU is a solid variant in which a square tube is used as the supporting tube. This is used, among other things, for scraper widths >1500 mm.

Design with known and fixed overall width of the supporting tube including the torsion element and the counter bearing.

- 1 support tube
- 1 Torsion element with chuck cone
- 1 Counter bearing
- 2 levers (straight or cranked depending on installation space)
- 1 Hand lever with clamping ring
- 1 mounting kit (T-shaped hex wrench with mounting tube, assembly grease and spanner)

Design with known and fixed overall width of the supporting tube including the torsion element with chuck cone.

- 1 support tube
- 2 torsion elements (2x right-hand thread or 1x right-hand/left-hand thread each) with chuck cone
- 2 levers (straight or cranked depending on installation space)
- 1 Hand lever with clamping ring
- 1 mounting kit (T-shaped hex wrench with mounting tube, assembly grease and spanner)

Model with reinforced support tube, torsion elements and levers

- 1 support tube (square 50x50)
- 2 Torsion elements for square tube
- 2 Levers (straight)
- 1 Hand lever with clamping ring
- 1 Mounting kit (assembly grease, spanner)

6 - MOUNTING KIT MU

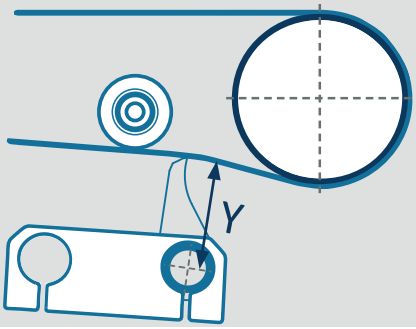
The selection of the core dimension, the torsion element, the counter bearing etc. results in the article description.
This is presented as follows:

MU	-	2225	-	1K	-	2	-	1	-	0	-	0845
Mounting kit Universal		Core Ø and wall thickness		Torsion element		Lever		Counter bearing		Supporting tube		Width of supporting tube

Mounting kit	Core Ø [mm]	Wall thick-ness [mm]	Torsion element	Lever	Counter bearing	Supporting tube	Sup-port tube length [mm]
MU	22	00	1K = with chuck cone; quantity 1 2K = with chuck cone; quantity 2 3K = with chuck cone; quantity 2 (RL, with r/h thread, l/h thread)	1 = straight 2 = cranked	0 = without 1 = centric 2 = eccentric	0 = Ø 35 mm 1 = □ 50 mm	300 350 400 ... 2500
		25					
	27	25					
	35	25					
	40	50					

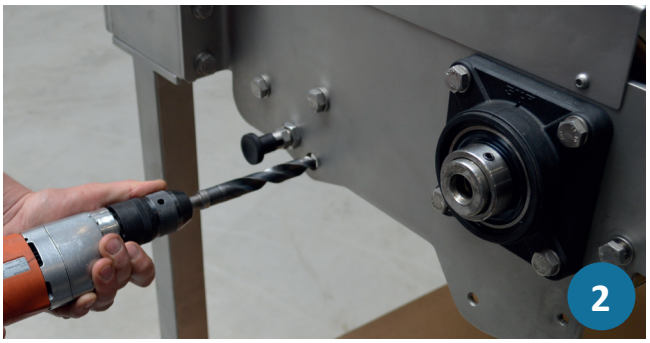
7 - INSTALLATION INSTRUCTIONS MU

The procedure of the scraper assembly



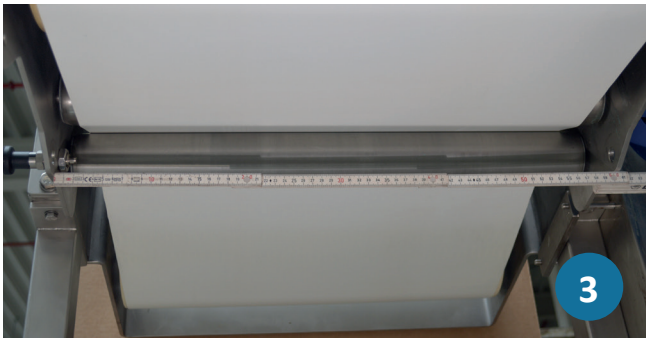
1 The position of the scraper is carefully measured, marked and indicated with a centre punch.
It must be ensured that the scraper is adjusted to both the belt frame and the conveyor belt when marking. The levers should be aligned parallel to the conveyor belt.
The position of the marked holes is to be checked via fixed points on the frame.

The distance (Y) between the pivot point of the core and the conveyor belt cover depends on the scraper height: 70 = 50 mm, 100 = 75 mm, 125 = 85 mm.
If necessary, a counter roller (see diagram) must be installed to prevent the scraper from turning over.



2 During work, the corresponding accident preventions and safety regulations must be observed!

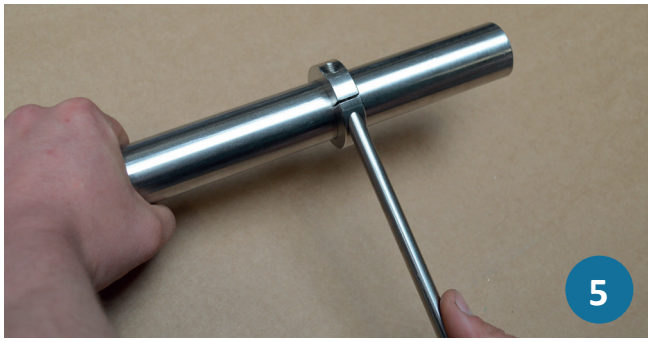
The mounting holes must be carefully drilled and countersunk on both sides, taking into account the screw diameters.



3 Determine the internal dimension on the conveyor frame at the position of the support tube.
If the support tube has been ordered with the appropriate overall width, you can continue with step 5.

The internal frame dimension corresponds to the total construction width of the support tube including the mounting parts.

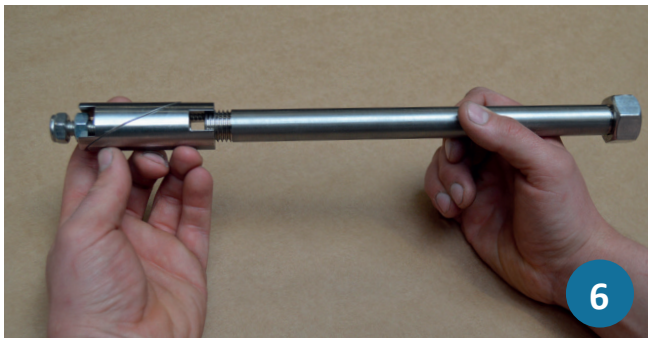
7 - INSTALLATION INSTRUCTIONS MU



4 During work, the corresponding accident preventions and safety regulations must be observed!

The support tube is shortened to the appropriate size and carefully deburred.
An additional 11 mm must be deducted from the internal dimension on both sides for the counter bearing/torsion element.

Example
Frame inside dimension: 750 mm
Space requirement for mounting parts: 2 x 11 mm
Supporting tube width: 750 mm - (2x11 mm) = 728 mm



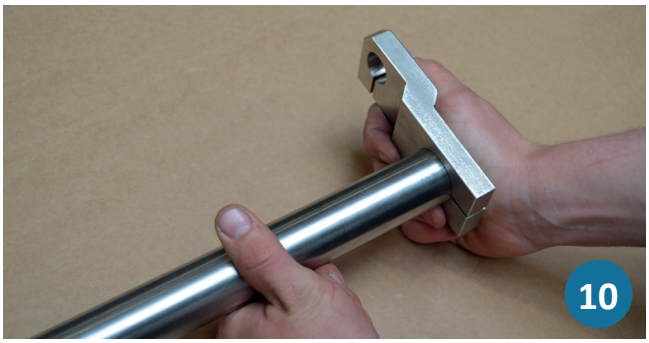
5 The hand lever is mounted on the support tube with the clamping ring. This should not be tightened yet.

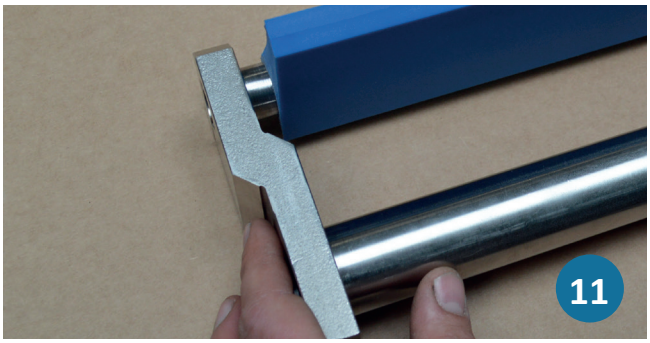
6 Screw the mounting tube into the chuck cone (NOTE: l/h thread).

7 Push the mounting tube with the chuck cone into the support tube.

8 Tighten the chuck cone with the T-shaped hex wrench.

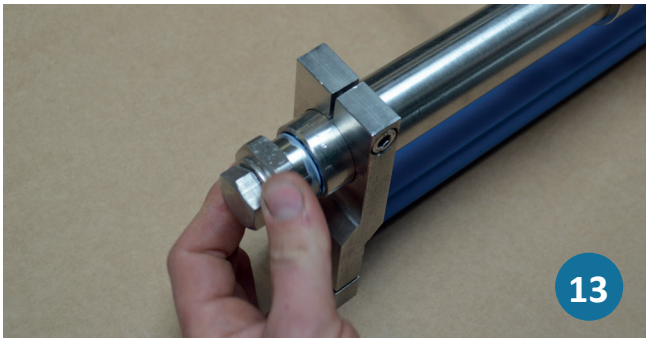
9 Unscrew the mounting tube clockwise.



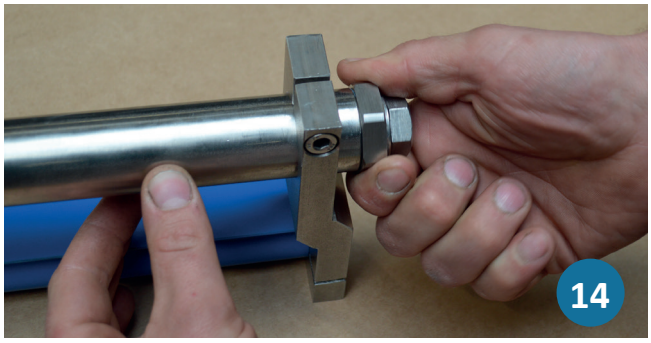


10 11 Push the lever sideways onto the tube.
Bring the scraper together with the levers in the opposite direction so that it is mounted in front of the tube in the direction of product flow.

The support tube side with the chuck cone must be mounted on the left side of the scraper. The levers are to be arranged in such a way that the screws are tightened from below in order to avoid the accumulation of residues here.

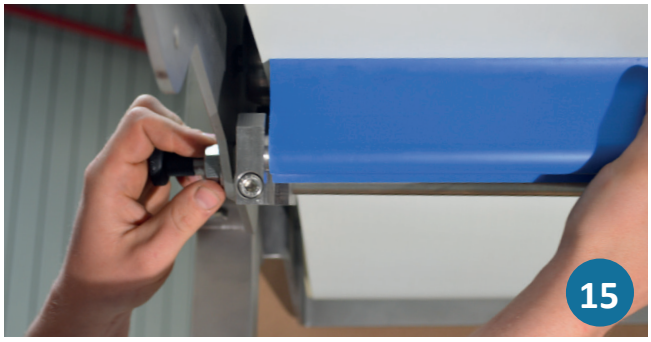


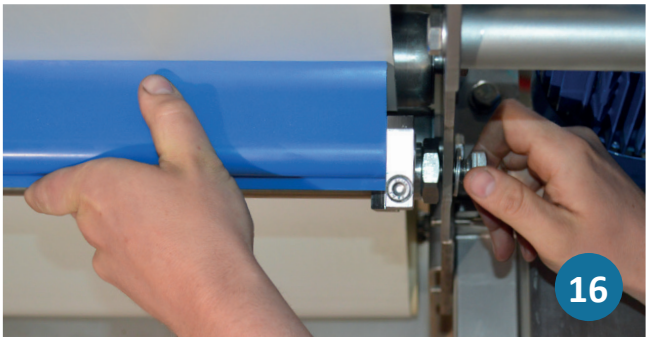
12 13 Apply the assembly grease to the o-rings of the torsion element and push it into the matching side of the support tube.



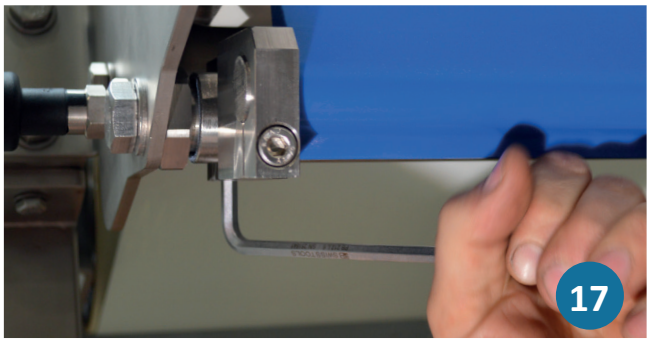
14 Insert the counter bearing or the second torsion element with assembly grease into the opposite side.
In the reinforced version, a torsion element with chuck cone is also mounted here (steps 6-9 & 12-13).

7 - INSTALLATION INSTRUCTIONS MU



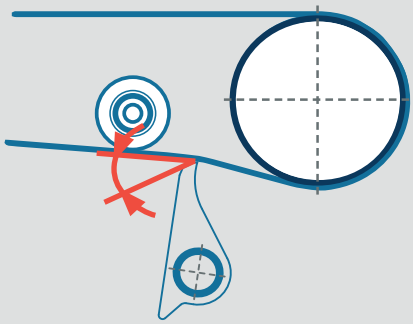


15 16 Mount the scraper on both sides in the conveyor frame at the corresponding holes and screw it down. The fixing screws are easy to tighten.



17 Align the scraper parallel to the conveyor and fasten it with the hexagon socket head cap screw on the support tube on both sides of the lever.

18 Align the angle of the scraper to the conveyor belt and fix it with the hexagon socket head cap screw on both sides.



When adjusting the scraper, it is essential to ensure that the scraper is only in contact with the conveyor surface with its scraper-tip but not with the complete, flat surface. There must be an angle between the scraper tip and the conveyors surface (see figure).

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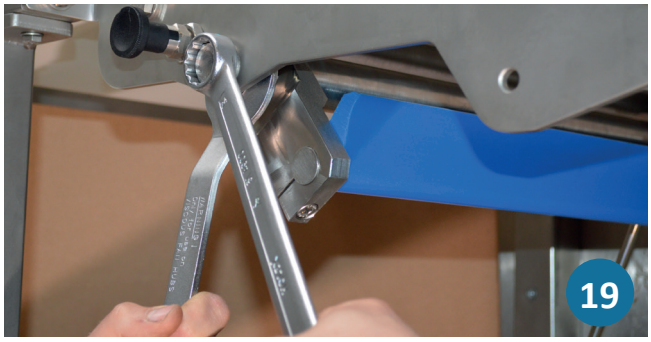

19 Now tighten the screws of the counter bearing. In the case of a reinforced mounting kit, the torsion element is also tensioned and fixed here, as described in step 20.

20 The scraper is to be pretensioned by turning the torsion element by means of the supplied spanner, so that the scraper is in contact with the conveyor belt with slight pressure. Then tighten the fixing screws.

In case of a reinforced mounting kit, make sure that both torsion elements are equally preloaded.
The required contact pressure of the scraper against the conveyor surface - and thus also the pretension of the torsion elements - depends on the product to be scraped-off and can only be determined during production operation. However, the less pretension the less wear.

21 Finally, tighten the hand lever on the clamping ring.
The position has no influence on the function of the scraper, but should be determined according to accessibility for cleaning and maintenance.

By folding down the scraper, the functionality and the tension of the torsion elements must be checked. The scraper must be free to move over the entire folding range and return to its original position by spring force.

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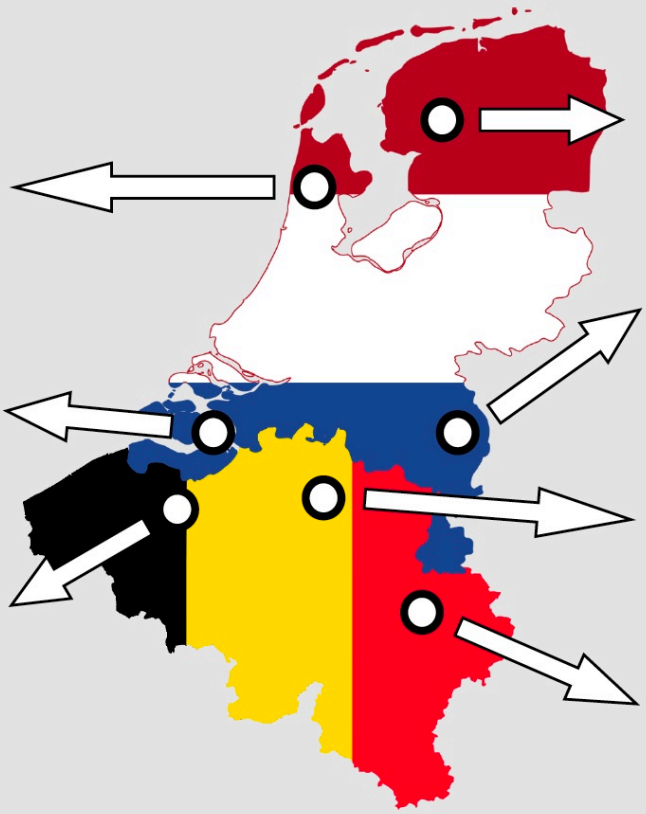

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