

MARTIN® APRON SEALTM skirting system





Installation manual M3248UK

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2 Introduction

2.1 About this Installation Manual

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

2.1.1 Scope

This installation manual applies exclusively to the product described herein and is aimed at those individuals who install this product, put it into operation and monitor its use.

2.1.2 Copyright

The product described and this installation manual are protected by copyright. Copying without a license will be legally prosecuted. All rights to this document are reserved, including the reproduction and/ or distribution in any thinkable way or form. The reprinting of this document is only allowed with written permission from Martin Engineering.

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

2.1.3 Disclaimer

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

The products from Martin Engineering are designed for a long service life. They conform to the respective current state-of-the-art science and technology and they have been thoroughly tested prior to delivery. In addition to continuous advanced development of products, Martin Engineering also conducts constant product and market analyses.

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

2.1.4 Reference to additional documentation

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

- EU Machinery Directive (2006/42/EC)
- ISO/IEC Guide 37 "Installation instructions for endconsumer used products", edition 1995
- DIN 1421 "Structure and numbering in texts", edition 1983-01
- DIN/EN 12100 "Safety of machinery Basic concepts, general principles of design", edition 2013-08
- DIN / ISO 16016 "Technical product documentation -Protection notices for restricting the use of documents and products", edition 2007-12
- DIN/EN 60204-1 "Safety of machinery Electrical equipment of machines, Part 1, General requirements", edition 2007-06
- DIN EN 82079-1 Preparation of instructions for use -Structuring, content and presentation - Part 1: General principles and detailed requirements.

2.1.5

Classification of hazards



DANGER!

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



WARNING!

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



CAUTION!

Indicates a potentially dangerous situation that could lead to minor bodily injury and/or damage to property if not avoided.



NOTE

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

2.2 Appropriate Use

The MARTIN® APRON SEAL™ skirting system is used only at the transfer points of conveyor belts to seal these smoothly up to the conveyor belt in order to prevent the discharge of dust. It is not used to retain or to carry the bulk goods that are being transported.

It may be used on conveyor belts with a maximum troughing angle of 45°, in which there should not be any skewing or any overload on the conveyor belt at the time of starting up. The maximum conveyor belt speed should be maximum 3.8 m/sec.

Any other use of this product is deemed to be inappropriate. If you wish to use the product for any other purpose, please contact Martin Engineering Customer Service. We will be happy to assist you with product configuration.

2.2.1 Conveyor belt systems with open transfer systems

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

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

2.2.2 Use in EX-protection areas

The product mentioned here cannot be used in potentially explosive areas.

2.2.3 Operating limits of this product

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

If the product mentioned here is to be used for a different purpose, then Martin Engineering or a representative can help with the product configuration.

2.3 Safety in the Workplace

2.3.1 Safety instructions, safety in the workplace

This installation manual must be read through in full prior to commencing work on the product or the customer's conveyor belt.

The operator must ensure that all installation, inspections, and maintenance tasks are carried out exclusively by authorised experts.

All work on conveyor belts and their accessories must always be carried out only when the system is at a standstill. It is essential that the procedures described in the relevant installation manual which explain how to shut-down the conveyor system are followed.

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

Prior to commissioning, installation must be completed. Before the conveyor belt can be put back into operation, the flawless execution of all steps should be checked and verified. All notes on installation and commissioning of the product should be observed.

2.3.2 Obligations of the operator

The operator of this product must ensure that the personnel entrusted with the installation, maintenance and use of this product are only those personnel who

- are fully aware of regulations governing safety at work and accident prevention,
- are instructed in the use of the product and have read and understood this installation manual in full.

2.3.3 Authorised personnel

Personnel are considered to be authorised when they have completed the necessary training, hold the technical experience, knowledge of the relevant standards and directives and are also in a position to assess any task in order to recognise a critical situation in a timely fashion and at an early stage.

Operational, Maintenance and Installation Personnel

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

3 Product Description

3.1 Design and Function

The MARTIN® APRON SEAL™ skirting system is a self-adjusting system for conveyor belts with the help of which material spillage is prevented and the maintenance work necessary for effective sealing becomes superfluous.

The dual sealing MARTIN® APRON SEAL™ skirting system is a one-piece dual seal consisting of one primary seal and one secondary seal made of rubber respectively. The primary seal prevents the bulk goods transported from getting spilled between the chute wall and the conveyor belt. The secondary seal adapts itself to the course of the conveyor belt and collects the material that could not be trapped by the primary seal. The one-piece dual seal is also available as a two-sided variant.



NOTE

A product that has not been installed properly or correctly may disrupt the conveyance process and contaminate the bulk material to be transported.

The operator is therefore responsible for implementing the necessary counter measures.

When using with contaminants Martin Engineering or a representative can help with the positioning or customized solutions.

4 Installation Preparation

4.1 Prior to Installation

4.1.1 Materials and tools required

Only standard tools are required for the installation and maintenance of the skirting system.

4.1.2 Preparatory measures



NOTE

Pay attention to the following checks and carry them out completely.

The freight forwarder is responsible for any transport damage! For any damage claims, please contact the freight forwarder.

- 1. Check the delivery with respect to the following:
 - Is the delivery complete? Is the number of pallets/cases/ containers the same as the number on the delivery note?
 - Does all the transport packaging appear to be undamaged?
 Is there damage which may indicate that the contained products may be damaged?
- 2. If the delivery is incomplete or there is any transit damage, make sure that this is documented and have the freight forwarder confirm the same. All damaged products should be saved for inspection.
- 3. Depending on the scope of the order, the delivery should contain the following parts:
 - MARTIN[®] APRON SEAL[™] Skirting System,
 - · any accessories as ordered,
- 4. Missing or damaged parts must be reported to Martin Engineering or the authorised dealer.

Installation

5.1

Safety Instructions



NOTE

Read this chapter thoroughly prior to commencing any work!



WARNING! DANGER OF INJURY!

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

Before any installation or maintenance work is carried out, ensure that all power sources to the conveyor belt system and its accessories are switched off and secured against inadvertent switchingon. Use warning signs!



WARNING! EXPLOSION HAZARD!

In enclosed areas there is an increased risk of explosion when using a cutting torch or welding equipment!

Before use, check the level of gas and dust in the air.



NOTE

The chute wall on which the skirting system shall be mounted is referred to as the "operator side". The other chute wall is called the 'opposite side'.

5.2 Installation procedure

The MARTIN® APRON SEAL™ skirting system is installed directly on the existing chute wall without any other products having to be installed.

The installation of the MARTIN® APRON SEAL™ skirting system is described in this installation manual.

There follows an overview of the installation steps:

No.	Installation step	Instruction
1	Installation of the skirting system	M3248
2	Install the angle clamps	M3248
3	Installing the edge sealing strip made of rubber	M3248

Tab. 1: Installation steps

Before starting with the work of installing the conveyor belt system, switch off all accessories and secure them against being switched on again inadvertently.

5.2.1

Installation of the skirting system



NOTE

It is recommended to use the MARTIN® DURT TAMER™ wear strips (part numbers are listed in the chapter, "Part numbers") for optimal performance of the skirting system. It is important that the chute wall and the wear strips are straight and provided with proper support.

1. The MARTIN® DURT TAMER™ wear strip (A, Fig. 1) should be at the beginning of the transfer point approx. 10 mm (B, Fig. 1) away from the conveyor belt. This clearance should increase to about 20 mm (C, Fig.1) at the end of the transfer point (for details see point C in Fig. 3 and Tab. 2, page 15).

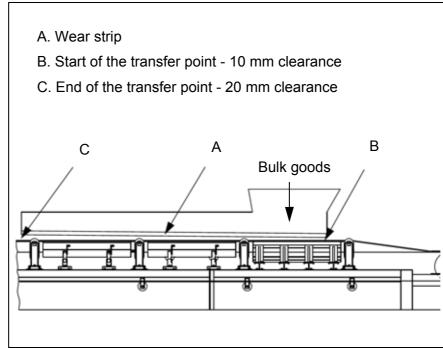


Fig. 1: Position of the chute wall and the wear strip



NOTE

In order to achieve an effective seal, DURT TAMERTM wear strips (straight or inclined) should be installed in order to prevent the bulk goods from touching the APRON SEALTM.

5.2.2

Install the angle clamps

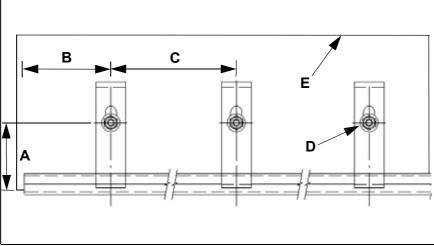


Fig. 2: Side view of the angle clamp positions

- 1. Determine the position against the direction of conveyance, which is about 300 mm in front of the delivery point of the chute.
- 2. Tear a line 162 mm (180 mm for 45° troughing angle) on the chute wall (E, Fig.2) parallel and above the lower edge of the chute wall (A, Fig.2).
- 3. Place a marking along this line, starting 150 mm (B, Fig. 2) from the end of the chute wall every 305 mm (C, Fig. 2).
- 4. Weld the M12 welding bolts vertically at these markings (D, Fig.2).
- 5. Follow the corresponding instructions in chapter 5.2.3 for further preparation of the MARTIN® APRON SEAL™ skirting system.

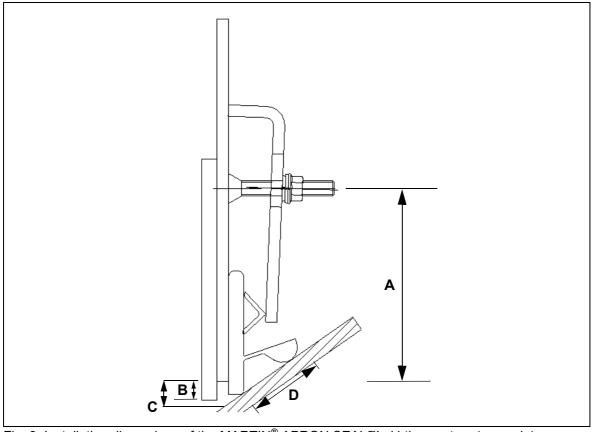


Fig. 3: Installation dimensions of the MARTIN® APRON SEAL™ skirting system (example)

Dimensio	Troughing angle α								
ns	0°		20°		35°		45°		
(mm)	STD	HD	STD	HD	STD	HD	STD	HD	
А	162	162	162	162	162	162	180	180	
В	10-19	10-19	10-19	10-19	10-19	10-19	10-19	10-19	
С	10-19	10-19	10-19	10-19	10-19	10-19	10-19	10-19	
D*	55	76	67	96	72	107	76	112	
D**	81	51	93	57	91	56	82	51	

Tab. 2: Installation dimensions

MARTIN® APRON SEAL™ Skirting System
** Double MARTIN® APRON SEAL™ Skirting System

5.2.3

Installing the edge sealing strip made of rubber



NOTE

When using it in the foodstuffs industry, the use of Permabond as adhesive to join individual sealing strips is not permissible. The joining points here must be arrested with the help of the angle clamps.

Proceed as follows if several sealing strips made of SBR rubber, nitrile or silicone need to be joined:



NOTE

To join multiple sealing strips made of rubber, the MARTIN[®] APRON SEAL[™] rubber bonding set (Part no. 34147) may be used.

- 1. Cut both ends straight and clean them.
- 2. Use the MARTIN® APRON SEAL™ rubber bonding set as given in the instructions enclosed.



NOTE

Even an existing rubber seal may be used together with the secondary sealing strip made of rubber of Martin Engineering make as the primary seal. Install these according to the instructions given in chapter 5.2.1

1. Place the secondary sealing strip made of rubber or the onepiece sealing strip made of rubber (A, Fig. 5) on the chute wall (B, Fig. 5).

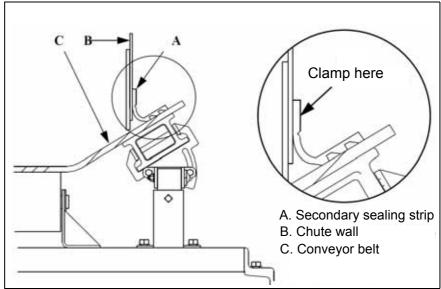


Fig. 4: Installing the secondary sealing strip made of rubber

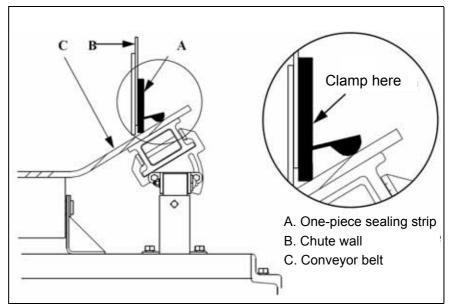


Fig. 5: Installing the one-piece sealing strip made of rubber

- 2. Adjust the sealing strip in such a manner that it lies on the conveyor belt (C, Fig. 5) but it does not press against the conveyor belt. If the secondary sealing strip projects over the conveyor belt, cut this off with the help of a knife so that it is flush with the conveyor belt. Take care to see that at least two ribs of the secondary sealing strip are present and that they lie on the conveyor belt. This is not possible with the one-piece sealing strip.
- 3. Clamp the upper part of the secondary sealing strip with the help of the angle clamp of Martin Engineering make (or equivalent) against the chute wall. In doing so, ensure that the angle of the angle clamp (page 14, Fig. 2) sits in the middle of the edge seal.



NOTE

If the angle clamps of Martin Engineering make are not used, appropriate clamps with a maximum installation clearance of 305 mm must be installed in order to prevent the sealing strip from getting displaced when the conveyor belt is running (loaded or unloaded)

5.3

Operation with load



NOTE

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



CAUTION! FLYING PARTS!

Tools or installation parts which are left behind can fall from a moving conveyor belt and may cause minor injuries and damage to property.

After installation, first remove the tools from the place of installation and from the conveyor belt before switching on the power supply.



WARNING! DANGER OF INJURY!

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

Before any installation or maintenance work is carried out, ensure that all power sources to the conveyor belt system and its accessories are switched off and secured against inadvertent reactivation.

Use warning signs!

- 1. Remove all tools and fire protection covers from the installation area and conveyor belt.
- 2. Operate the conveyor system with a load for one hour.
- 3. After operation with a load for one hour, shut down the conveyor system, switch off the power supply and secure it against being switched on inadvertently.
- 4. Make sure that all securing parts are tightened. Tighten loose connections.

- 5. Check the skirting system for the following points:
 - Wear and tear: a little wear and tear is normal, as soon as the sealing strip has got adjusted to the contour of the conveyor belt, this stops happening.
 - Bulk material accumulation: no bulk material should get accumulated between the sealing strip and the return side.
- If the wear and tear or bulk material accumulation is excessive or other problems occur refer to the relevant instructions in the respective installation manual of the conveyor belt cleaner being used.

Maintenance

6.1

Safety Instructions



NOTE

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



NOTE

Read this chapter thoroughly prior to commencing any work.



WARNING! DANGER OF INJURY!

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

Before maintenance work is carried out, ensure that all power sources to the conveyor belt system and its accessories are switched off and secured against inadvertent switching-on. Use warning signs!

6.2 Weekly maintenance

- Switch off the power supply of the conveyor belt and any other equipment and secure these against being switched on inadvertently.
- 2. Remove all material deposits from the skirting system.
- 3. Check that all securing parts are tightened. Tighten any loose connections as required.
- 4. Check whether the secondary sealing strip or the secondary sealing part of the one-piece seal lies on the conveyor belt and does not move. If this is not the case, the sealing strip must be realigned.
- 5. Check the skirting system for wear and tear. If the ribs can only barely be seen or not seen at all, the sealing strip must be replaced. To do this follow the steps given in chapter 6.3.



NOTE

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

6. Clean all warning labels. Replace any warning labels which are illegible. Warning labels may be purchased from Martin Engineering or an authorised dealer.



CAUTION! FLYING PARTS!

Tools or installation parts which are left behind can fall from a moving conveyor belt and may cause minor injuries and damage to property.

After installation, first remove the tools from the place of installation and from the conveyor belt before switching on the power supply.

- 7. Remove all tools from the working area.
- 8. Switch on the conveyor belt.



WARNING! DANGER OF INJURY!

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

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

6.3 Replacing the sealing strips

6.3.1 MARTIN[®] APRON SEAL[™] Skirting System

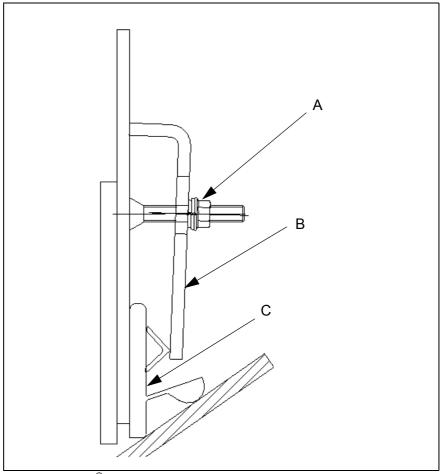


Fig. 6: MARTIN® APRON SEAL™ Skirting System

- 1. Loosen the nuts on all angle clamps (A, Fig. 6).
- 2. Remove the angle clamps (B, Fig. 6).
- 3. Remove the MARTIN® APRON SEAL™ skirting system (C, Fig. 6)
- 4. Insert a new MARTIN® APRON SEAL™ skirting system according to the instructions given in chapter 5.2.



NOTE

The double MARTIN® APRON SEAL $^{\intercal\!M}$ skirting system can be turned over once before it needs to be replaced.

Troubleshooting

7.1

Safety Instructions



NOTE

The product is exposed to highly different types of bulk materials and is often deployed in extreme working and environmental conditions. This is why very different types of faults and reasons for the same may occur.

In case of faults, please contact Martin Engineering or their representative. Only use the conveyor system after the fault has been found and repaired.

8 Storage, deinstallation, disposal

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 +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 Deinstallation

The deinstallation is carried out in the reverse order of the installation (see Section 5.2.2)

8.4 Disposal

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

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

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

9 Part numbers

This section lists the product designations with their associated part numbers for the MARTIN[®] APRON SEAL™ Skirting System and its accessories.

Please always indicate the part numbers in every order.

9.1 Explanation of part numbers

MARTIN[®] APRON SEAL™ Sealing Strip



*erhältlich nur für Teilenummer 100723/100724

MARTIN[®] DURT TAMER™ wear liners:



- 5: AR500 Stahl
- 4: AR400 Stahl
- C: Chromkarbid Wearcon 700 Stahl
- T: Tricon Super C Stahl
- **A:** Edelstahl (1.4301)

9.2 Angle clamp

- Angle clamp (1.8 m) Part No. 32049
- Angle clamp (1.8 m) with mounting kit Part No. 32049-H+E
- Angle clamp (1.8m) low design Part No. 32600
- Angle clamp (1.8 m) low design with mounting kit Part No. 32600-H+E
- Angle clamp (1.8 m) low design with mounting kit and quick-release fastener Part No. 32600-QRH

9.3 Various parts

- MARTIN® DURT TAMER™ Wear Liner (wear-resistant)
 Part No. 32055-AR
- MARTIN® DURT TAMER™ Wear Liner angled (wearresistant) Part No. 32056-AR
- MARTIN® DURT TAMER™ Wear Liner straight (UHMW) with mounting kit Part No. 32054-XX*
 *.XX = troughing angle in degrees
- MARTIN® APRON SEAL™ Urethane Gluing Set Part No. 34146
- MARTIN® APRON SEAL™ Rubber Gluing Set Part No. 34147

MARTIN[®] APRON SEAL™ Skirting system 9.4

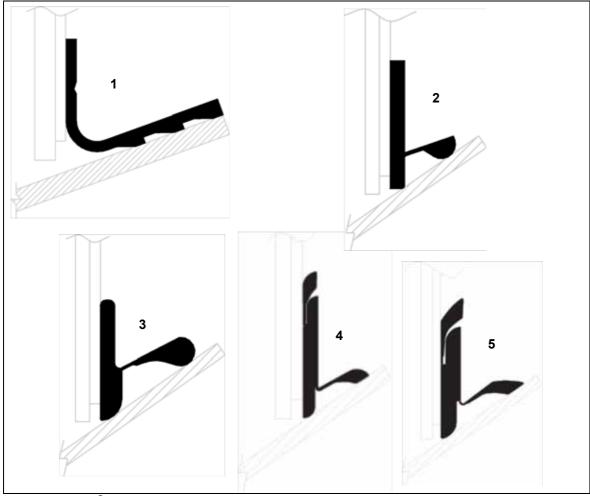


Fig. 7: MARTIN[®] APRON SEAL™ Skirting system

Item	Description	Part No.	Qty.
1	MARTIN [®] APRON SEAL™ Secondary Sealing Strip (rubber) - one-piece	32048-XXR	1
2	MARTIN [®] APRON SEAL™ Secondary Sealing Strip (standard) - one-piece	100724	*
3	MARTIN [®] APRON SEAL [™] Secondary Sealing Strip (heavyduty) - one-piece	100723	*
4	MARTIN [®] Double APRON SEAL™ Secondary Sealing Strip (standard) - one-piece	100873	*
5	MARTIN [®] Double APRON SEAL™ Secondary Sealing Strip (heavy-duty) - one-piece	100861	*

Tab. 3: Parts list - MARTIN[®] APRON SEAL™ Skirting System * is supplied as yard goods

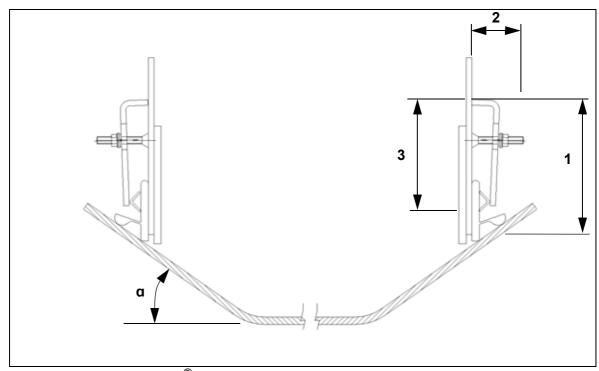


Fig. 8: Dimensions - MARTIN[®] APRON SEAL™ Skirting System (example)

Dimen-				Troughin	g angle a			
sions	0°		20°		35°		45°	
(mm)	STD	HD	STD	HD	STD	HD	STD	HD
1	245	245	325	325	375	375	393	393
2	89	89	89	89	89	89	89	89
3	193	193	193	193	193	193	193	193

Tab. 4: Dimensions - MARTIN[®] APRON SEAL™ Skirting System

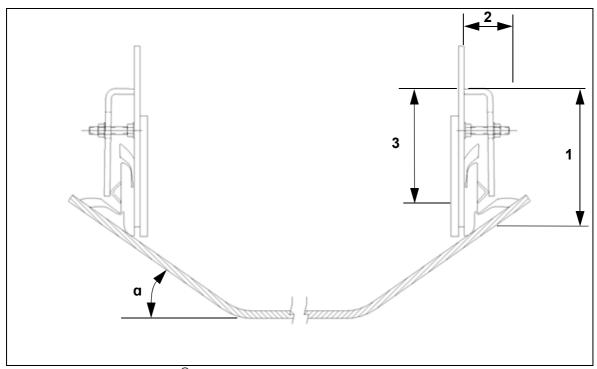


Fig. 9: Dimensions - MARTIN[®] Double APRON SEAL™ Skirting System (example)

Dimen-	Troughing angle α									
sions	0°		20°		35°		45°			
(mm)	STD	HD	STD	HD	STD	HD	STD	HD		
1	225	225	227	227	233	232	250	241		
2	76	76	76	76	76	76	76	76		
3	192	193	192	193	192	193	192	193		

Tab. 5: Dimensions - MARTIN[®] APRON SEAL™ Skirting System

Ratings 9.5 Sealing strip

Туре	Material	Shore hardnes s A	min max. operating temperature
One-piece	EPDM rubber	70	-29°C - +121°C
double seal*	EPDM rubber (heavy-duty)	70	-29°C - +121°C
One-piece double sealing (two-sided)	EPDM rubber	70	-29°C - +121°C

Tab. 6: Ratings - Sealing strips *also available in food compatible material

Declaration of Incorporation

In accordance with the definitions of the Machinery Directive 2006/42/EC - Article 2, the MARTIN® APRON-SEAL™ skirting systems do not meet the criteria of a "Machine", an "incomplete machine" or a "safety component".

This is why it is not possible to prepare a declaration of incorporation in accordance with the CE - directives.



PROBLEM SOLVED™

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