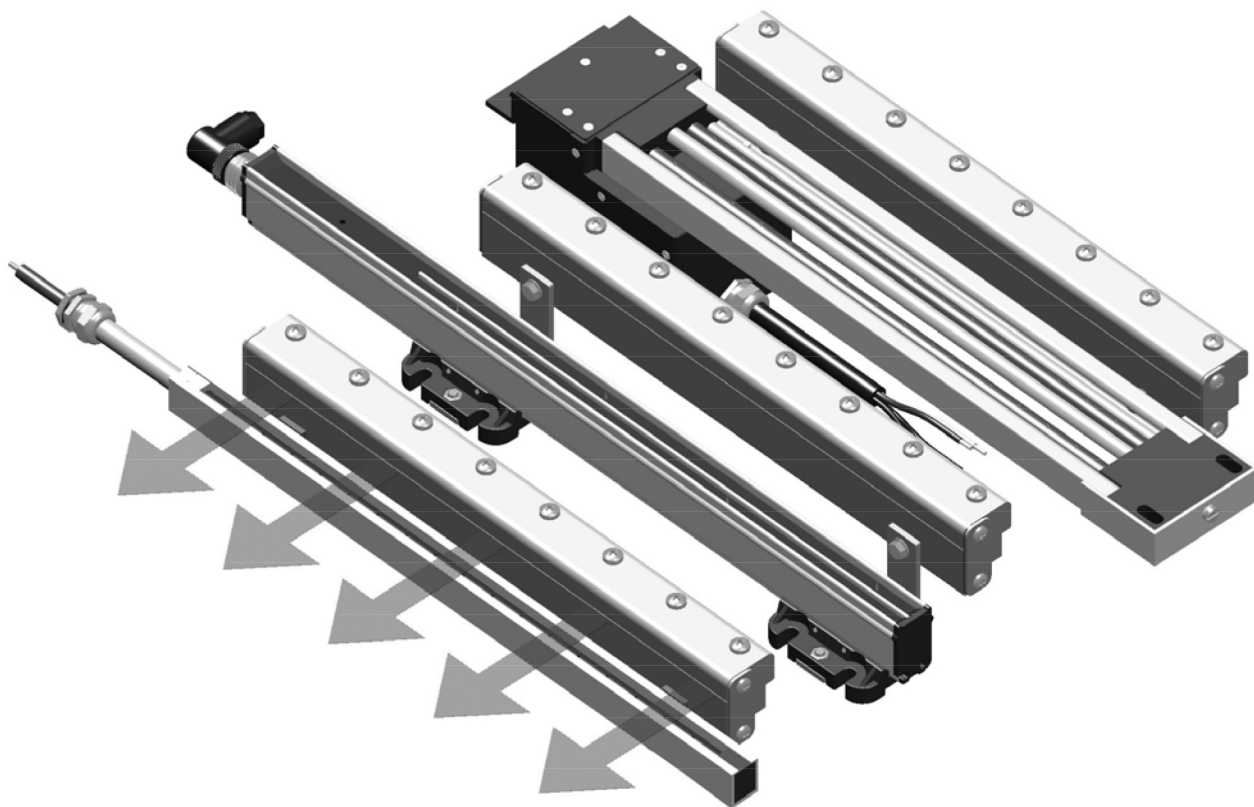




Air knife with anti-static bar

CONTENTS

<u>Preface</u>	24
<u>Explanation of symbols</u>	24
1. Introduction	25
2. Description and operation	25
3. Safety.....	26
4. Technical specifications	26
5. Installation.....	27
5.1. Prior check	27
5.2. Fitting the air knife	27
5.3. Connecting the air knife.....	28
5.4. Connecting the anti-static bar	29
6. Commissioning	30
7. Functional check	30
7.1. Anti-static bar	30
7.2. Air knife	30
8. Maintenance	31
8.1. Air knife	31
8.2. Anti-static bars.....	31
9. Faults	31
9.1. Air knife fault.....	31
9.2. Anti-static bar fault.....	31
10. Repairs.....	32
11. Disposal	32

Preface

This manual describes the installation and usage of air knives in combination with an anti-static bar.

Any mention of an air knife elsewhere in this manual refers to the air knife/anti-static bar combination.

This manual must be available at all times to staff operating the equipment.

Read through the entire manual before installing and commissioning the product.

Follow the instructions set out in this manual to ensure proper operation of the product and to retain your entitlement under the guarantee. The terms of the guarantee are set out in the SIMCO (Nederland) B.V. General Terms and Conditions of Sale.

Explanation of symbols



Warning

Indicates special information to prevent injury or significant damage to the product or the environment.



Attention

Important information for making the most efficient use of the product and/or for preventing damage to the product or the environment.

1. Introduction

The air knife is designed to neutralise and clean flat and curved surfaces and can be supplied with an MEB, a Performax Easy or a P-SH-N-EX.

The MEB is powered by a separate high-voltage power unit that is ideal for this purpose. A Performax Easy can run on a 24-VDC power supply and a P-SH-N-EX is connected directly to the mains voltage.

The P-SH-N-Ex is suitable for use in explosion-hazardous areas.

The air knife performs at its best at a distance of between 50 mm and 300 mm.

2. Description and operation

The air knife is equipped with one or more air connections, to which an air line can be connected. If there is overpressure at this connection, a narrow flow of air will be emitted from the air slot. The anti-static bar produces positive and negative ions, which are picked up by the air flow. The electrons are then exchanged on the surface to be cleaned; the surface is neutralised and any impurities are blown away.

The emitter points of the anti-static bars are safe to touch.

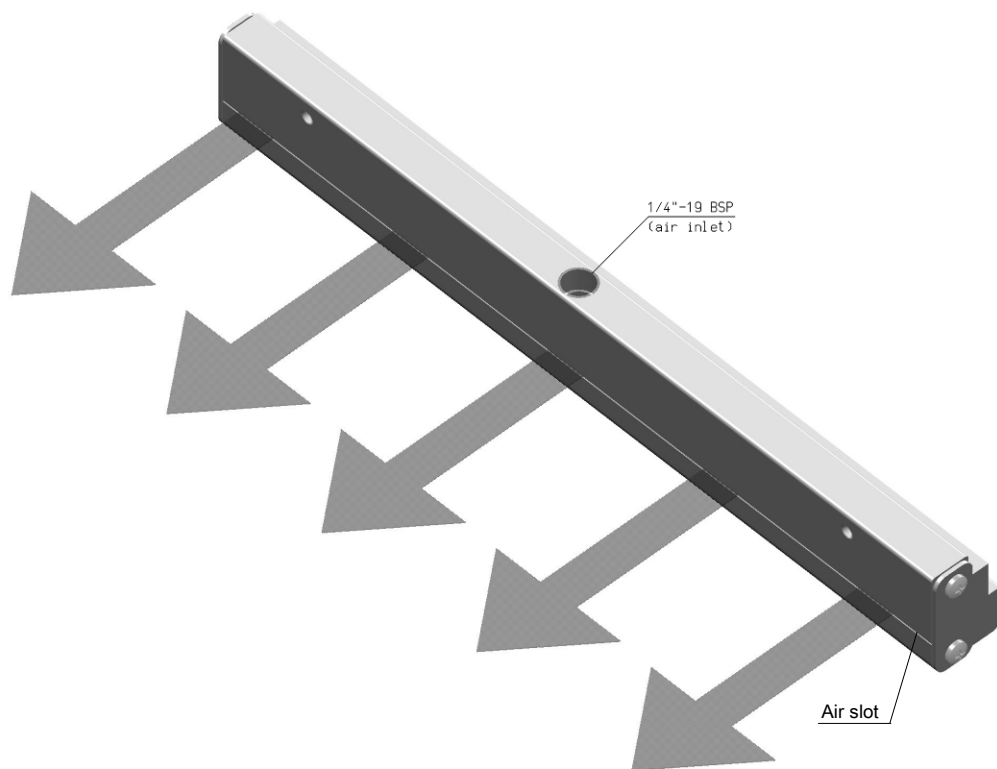


Figure 1: air knife

3. Safety

The following safety guidelines must be observed in order to prevent physical injury and damage to objects or to the anti-static bar itself.



Warning:

- The air knife with anti-static bar is designed solely for cleaning and simultaneously neutralising electrostatically charged surfaces
- Always read the accompanying manual before connecting the anti-static bar
- Electrical installation and repairs must be carried out by a skilled electrical engineer in accordance with the applicable national and local regulations.
- The equipment must be properly earthed. Earthing is required to ensure safe and proper operation and to prevent electrical shocks upon contact
- Disconnect the power supply before carrying out work on the unit
- The emitters are sharp and can cause physical injury
- A small amount of ozone is produced during the ionisation process. The ozone concentration around the electrodes depends on a large number of factors, such as the amount of space around the anti-static bar and the air circulation. This means that no general value can be specified for the ozone concentration
- Making changes, adjustments etc. without prior written consent or carrying out repairs using non-original parts will invalidate the equipment's guarantee.

4. Technical specifications

Air supply

Air connection(s)	1/4"–19 BSP
Air pressure	Max. 10 bar
Compressed air consumption	See graph 1

Environment

Usage	Industrial, internal use
Degree of protection	See the manual provided with the anti-static bar
Temperature	0–55°C
Operating distance for neutralisation	50–3000 mm
Operating distance for neutralisation and cleaning	50–300 mm

Mechanical

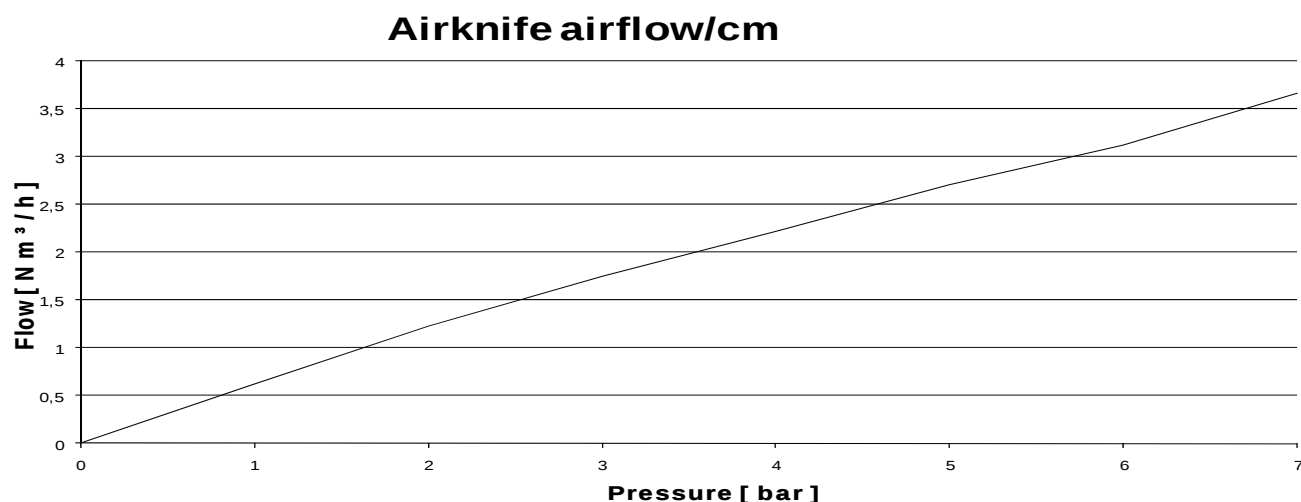
Effective length	12"–72" (Performax Easy) 3"–72" (MEB/P-SH-N-Ex)
Weight	4 kg/m (Performax Easy) 3 kg/m (MEB) 1.9 kg + 1.4 kg/m (P-SH-N-Ex)

Please see the manual that accompanies the anti-static bar for details of its technical specifications.



Important:

- A five-micron autodrain filter/separator must be fitted in the air supply circuit.



Graph 1

5. Installation



Warning:

- Electrical installation and repairs must be carried out by a skilled electrical engineer in accordance with the applicable national and local regulations.
- Always read the accompanying manual before connecting the anti-static bar
- The equipment must be properly earthed. Earthing is required to ensure safe and proper operation and to prevent electrical shocks upon contact
- Disconnect the power supply before carrying out work on the unit

5.1. Prior check

- Check that the equipment is free from damage
- Check that the data on the packing slip corresponds to the data shown on the product received
- Check that the voltage shown on the rating plate corresponds with the required mains voltage

If you have any problems and/or doubts, please contact SIMCO (Nederland) B.V. or the agent in your region.

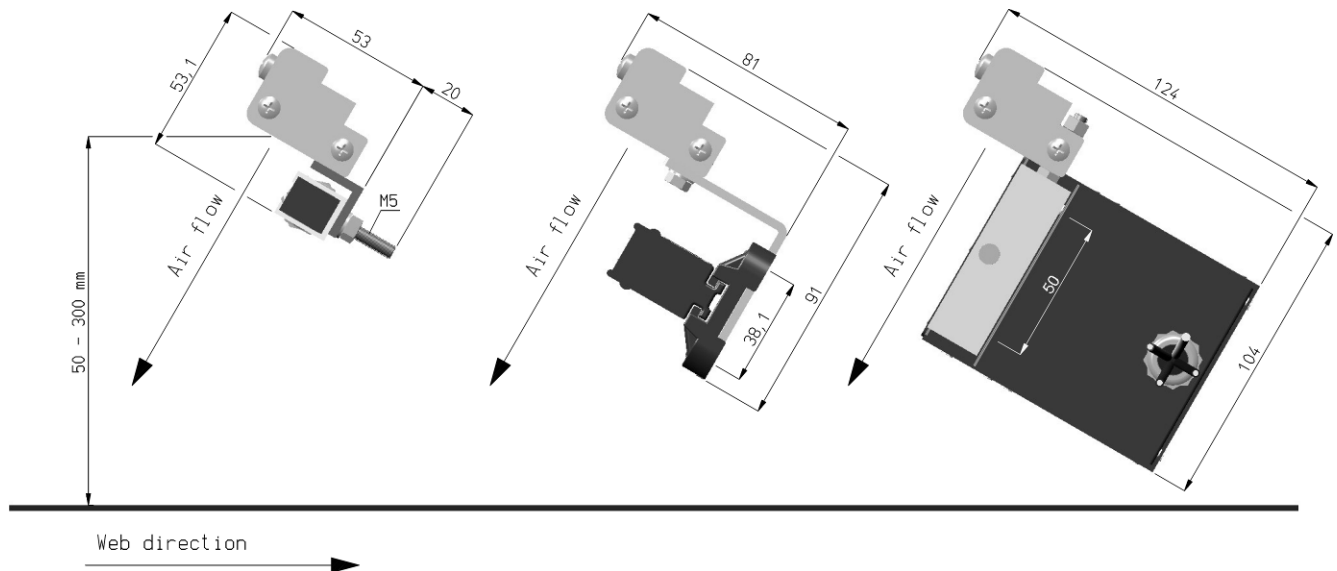
5.2. Fitting the air knife

In places where the material is neutralised, it should have a layer of air. The air knife should be fitted so that it can still be adjusted to achieve optimum results.

Blowing direction: perpendicular or opposite to the material direction.

Blow-off angle: between 90° and approx. 45° in relation to the material (should be established by experimenting).

- Fit the air knife:
 - Directly in front of the area in which static electricity and/or contamination is causing problems
 - At a distance of 50–2000 mm from the material to be neutralised
 - Using the mounting materials provided.



5.3. Connecting the air knife



Important:

- The compressed air to be used must be clean, dry and free of oil.
Use an autodrain filter/separator.

When connecting the air knife it is important to factor in a drop in pressure across the lines used. The table below is intended to facilitate selection of the appropriate line.

		Air flow (m ³ /h) through the air supply line					
		Line external diameter					
		6.4 mm 1/4"	9.5 mm 3/8"	12.7 mm 1/2"	19.1 mm 3/4"	25.4 mm 1"	31.8 mm 1-1/4"
Line length	3	49.5	110.1	204.5	431.4	815.4	1661.0
	6	35.0	77.9	144.6	305.0	576.5	1174.6
	9	28.6	63.6	118.0	249.1	470.8	959.0
	12	24.8	55.1	102.2	215.7	407.7	830.5
	15	22.1	49.3	91.4	192.9	364.6	742.9
	18	20.2	44.9	83.5	176.1	332.9	678.1
	21	18.7	41.6	77.3	163.1	308.2	627.8
	24	17.5	38.9	72.3	152.5	288.3	587.3
	27	16.5	36.7	68.2	143.8	271.8	553.7
	30	15.7	34.8	64.7	136.4	257.8	525.2

Table 1: The table is based on a pressure loss across the line of 0.35 bar for the air quantities and line lengths indicated.

- Hook up the air connection(s) to your compressed air installation
- To do so, use the air hose or metal line.

5.4. Connecting the anti-static bar



Warning:

- **Electrical installation must be carried out by a skilled electrical fitter.**

Please refer to the accompanying manual(s) for details of how to connect the anti-static bar and any associated power supply.

6. Commissioning

- The anti-static bar does not work if the emitters are covered
- Remove the protective cap (if fitted) from the anti-static bar
- The purpose of the protective cap is to protect the emitters during transport and installation
- Supply the air knife with the required compressed air
- Switch on the anti-static bar (see the accompanying manual).

7. Functional check

7.1. Anti-static bar



Warning:

- **When working in explosion-hazardous zones, only measuring instruments approved for such zones may be used.**

If a P-SH-N-Ex or an MEB is in use, a Simco-Ion bar checker or a TensION device can be used to verify that there is high voltage at the emitter points. If a Performax Easy is in use, this action can only be carried out using a TensION device.

An electrostatic fieldmeter can be used to measure the efficiency of the anti-static bar. Measure the charge on the material before and after it has passed the air flow. The charge measured should have disappeared after the air flow has passed.

Please also refer to the manual(s) for the anti-static bar/power unit.

7.2. Air knife

The air knife outflow depends directly on the compressed air pressure. The air outflow must be regular over the entire length of the air knife.

8. Maintenance



Warning:

- When carrying out work on the equipment: de-energise the equipment.



Note:

- Do not damage the emitter points.

8.1. Air knife

- Regularly check the air slot for clogging and clean it if necessary.

Cleaning the air knife:

Clean the exterior of the air knife only, using a soft cloth or brush; make sure that no dirt gets into the air slot.

8.2. Anti-static bars



Warning:

The emitters are sharp and can cause physical injury

- Keep the anti-static bar clean.
Please see the accompanying manual for details of anti-static bar maintenance.

9. Faults

9.1. Air knife fault

Problem	Cause	Solution
No air from air knife	No compressed air	Connect compressed air hose
	Filter clogged	Remove blockage
Air knife has irregular and/or insufficient blowing power	Air slot is clogged	Remove blockage (see maintenance section)
	Air filter is clogged	Clean filter
Air slot is clogged	Polluted compressed air	Use a filter

Table 3: air knife faults

9.2. Anti-static bar fault

Please consult the accompanying manual for details of how to handle anti-static bar faults.

10. Repairs



Warning:

- **Disconnect the power supply before carrying out work on the unit**
- **Electrical installation and repairs must be carried out by a skilled electrical engineer in accordance with the applicable national and local regulations.**

The air knife and the anti-static bars do not have any parts which can be repaired by the client.

Please contact SIMCO (Nederland) B.V. or your regional agent in the event of any problems.

Request an RMA

Pack the air knife and/or the anti-static bar properly and clearly state the reason for return.

11. Disposal

Adhere to the applicable local environmental regulations and other regulations when disposing of the equipment.