

TRANSLATION OF THE ORIGINAL VERSION



CE

# Operating Manual

Oscillating Edge Sanding Machines

**WOOD**PECKER KSM9-3000/200 and KSM9-3100/150



*Machine Types:* **KSM9-3000/200 and KSM9-3100/150**

**WOOD**PECKER

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**Space for notes:**



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| <h2>Handover Certificate</h2>  |  |                              |
|--|--|------------------------------|
| <b>Machine type:</b>   |  |                              |
| <b>Machine no.:</b>  |  |                              |
| <b>Construction year:</b>  |  |                              |
| <b>Customer address (location of the machine):</b>   |  |                              |
| <b>Name:</b>   |  |                              |
| <b>Street:</b>   |  |                              |
| <b>Postcode/City:</b>  |  |                              |
| <b>Phone:</b>  | <b>Fax:</b>  |                              |
| <b>E-mail:</b>   |  |                              |
| <b>Warranty:</b><br>On the basis of our Terms and Conditions of Sale, Delivery and Payment of the respective current status, we assume a warranty of <b>12 months</b> , calculated from the day of delivery, for material defects and defects of title in connection with the delivery for the above-mentioned machine.  |  |                              |
| <b>Warranty claims:</b><br><b>Warranty claims on the part of HOKUBEMA Maschinenbau GmbH only exist if we have received the signed handover certificate</b> and the machine has been properly commissioned. We therefore ask for immediate return.<br><b>Important:</b> Please read and follow the instructions in chapter ⇨ 1 " <b>Liability and Warranty</b> ".   |  |                              |
| <b>Confirmation of the buyer:</b><br><input checked="" type="checkbox"/> The machine described above was purchased by me/us.<br><input checked="" type="checkbox"/> Together with this handover certificate, I have received the operating manual valid for the machine (edition: _____).<br><input checked="" type="checkbox"/> The operating instructions have been read and understood by me, as well as by all persons responsible for operating the specified machine. I will ensure that persons working on the machine at a later date are also instructed accordingly. |  |                              |
| _____  | _____  | _____                        |
| Name and position  | Date   | Signature of the customer    |
| Address of the dealer (company stamp):   | The machine, including the operating manual, was handed over to the buyer and installed according to the specifications in the operating manual. |                              |
|  | _____  | _____                        |
|  | Date   | Signature - Customer Service |

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| <b>Name:</b>   |   |                                       |
| <b>Street:</b>   |   |                                       |
| <b>Postcode/City:</b>  |   |                                       |
| <b>Phone:</b>  | <b>Fax:</b>   |                                       |
| <b>E-mail:</b>   |   |                                       |
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| <p>Address of the dealer (company stamp):</p>  | <p>The machine, including the operating manual, was handed over to the buyer and installed according to the specifications in the operating manual.</p> |                                       |
|  | _____<br>Date   | _____<br>Signature - Customer Service |

# Table of Contents

|       |  |    |
|-------|--|----|
| 1     | Liability and Warranty .....   | 10 |
| 2     | Introduction .....   | 11 |
| 2.1   | Legal Notice .....   | 11 |
| 2.2   | Illustrations .....  | 11 |
| 3     | Symbols .....  | 11 |
| 3.1   | General Symbols .....  | 11 |
| 3.2   | Symbols in Safety Instructions .....   | 12 |
| 4     | General .....  | 13 |
| 4.1   | Target Group and Previous Experience .....   | 13 |
| 4.2   | Requirements for the Operators .....   | 13 |
| 4.3   | Accident Prevention .....  | 13 |
| 4.4   | General Safety Regulations .....   | 14 |
| 4.5   | Standard Equipment .....   | 14 |
| 4.6   | Available Options .....  | 14 |
| 5     | Safety .....   | 15 |
| 5.1   | Basic Safety Instructions .....  | 15 |
| 5.1.1 | Application Area and Intended Use .....  | 15 |
| 5.1.2 | Usable Sanding Belts .....   | 15 |
| 5.1.3 | Modifications and Conversions to the Machine .....   | 15 |
| 5.1.4 | Residual Risks .....   | 16 |
| 5.1.5 | Observe the Environmental Protection Regulations .....   | 17 |
| 5.1.6 | Organisational Measures .....  | 17 |
| 5.1.7 | Personnel Selection and Qualification - Basic Duties .....   | 18 |
| 5.1.8 | Training of Personnel .....  | 18 |
| 5.2   | Safety Instructions for Specific Phases of Operation .....   | 19 |
| 5.2.1 | Normal Operation .....   | 19 |
| 5.2.1 | Special work within the Scope of Maintenance Work as well as Troubleshooting in the Workflow ..... | 20 |
| 5.2.2 | Safe Work Practices .....  | 20 |
| 5.3   | Construction-related Safety Devices .....  | 21 |
| 5.4   | Electrical Safety Devices .....  | 21 |
| 5.5   | Hazardous Areas .....  | 22 |
| 6     | Machine Data .....   | 23 |
| 6.1   | Technical Specifications .....   | 23 |
| 6.2   | Correspondence in the Case of Service .....  | 23 |
| 6.3   | Emission Levels .....  | 24 |
| 6.3.1 | Noise Information .....  | 24 |
| 6.3.2 | Noise Emission Values .....  | 24 |
| 6.4   | Workplace Requirements .....   | 24 |
| 6.5   | Dimensions .....   | 25 |
| 6.5.1 | KSM9-3000/200 .....  | 25 |

|           |   |           |
|-----------|---|-----------|
| 6.5.2     | KSM9-3100/150 .....                                       | 25        |
| <b>7</b>  | <b>Installation and Connection .....</b>                  | <b>26</b> |
| 7.1       | Check Delivery Conditions .....                           | 26        |
| 7.2       | Transport .....   | 26        |
| 7.2.1     | Unloading with the Forklift Truck .....                   | 26        |
| 7.2.2     | Setting down with the Forklift Truck .....                | 26        |
| 7.3       | Machine Installation .....                                | 27        |
| 7.4       | Mobile Base (Option) .....                                | 27        |
| 7.5       | Temporary Storage .....                                   | 28        |
| 7.6       | Lashing on a Transport Vehicle .....                      | 28        |
| 7.7       | Connecting the Extraction Unit .....                      | 29        |
| 7.7.1     | Automatic Switching of the Extraction (Option) .....      | 29        |
| 7.8       | Electrical Connections .....                              | 30        |
| 7.8.1     | Supply Cable and External Fuse Protection .....           | 30        |
| <b>8</b>  | <b>Machine Overview .....</b>                             | <b>31</b> |
| <b>9</b>  | <b>Machining Possibilities .....</b>                      | <b>32</b> |
| 9.1       | Workpiece Requirements .....                              | 32        |
| 9.2       | Machining Methods .....                                   | 32        |
| 9.2.1     | Permitted Operations .....                                | 32        |
| 9.2.2     | Improper Operations .....                                 | 32        |
| <b>10</b> | <b>Switching the Machine ON and OFF .....</b>             | <b>33</b> |
| 10.1      | Control Switches .....                                    | 33        |
| 10.2      | Switching ON .....  | 33        |
| 10.3      | Switching OFF .....                                       | 33        |
| 10.4      | Emergency Shutdown .....                                  | 33        |
| <b>11</b> | <b>Setting up and Adjusting the Machine .....</b>         | <b>34</b> |
| 11.1      | Mounting, tensioning and replacing the Sanding Belt ..... | 34        |
| 11.2      | Height Adjustment of the Table Top .....                  | 35        |
| 11.3      | Horizontal Adjustment of the Table Top .....              | 35        |
| 11.4      | Adjusting the Inclination of the Sanding Unit .....       | 35        |
| 11.5      | Veneer Sanding Device with Sanding Pad .....              | 36        |
| 11.5.1    | Mounting the Veneer Sanding Device .....                  | 36        |
| 11.5.2    | Disassembly of the Veneer Sanding Device .....            | 36        |
| 11.5.3    | Calibrating the Veneer Fence (Zeroing) .....              | 37        |
| 11.5.4    | Adjusting the Sanding Depth of the Veneer Fences .....    | 37        |
| 11.6      | Using the Cylindrical Sanding Unit .....                  | 38        |
| 11.6.1    | Preparing the Cylindrical Sanding Unit .....              | 38        |
| 11.6.2    | Adjusting the Revolving Turret Head .....                 | 38        |
| 11.6.3    | Changing the Drum Diameter .....                          | 39        |
| 11.7      | Combined Workpiece and Mitre Fence .....                  | 39        |
| 11.7.1    | Converting the Fence for high and flat Workpieces .....   | 39        |
| <b>12</b> | <b>Working with the Edge Sanding Machine .....</b>        | <b>40</b> |



|        |  |    |
|--------|--|----|
| 12.1   | Machining extra-long Workpieces .....                    | 40 |
| 12.2   | Sanding with the Workpiece Fence.....                    | 40 |
| 12.3   | Angle Machining with inclined Sanding Unit .....         | 41 |
| 12.4   | Sanding on the Cylindrical Sanding Unit .....            | 41 |
| 12.5   | Sanding Angles and Chamfers on the Sanding Pad.....      | 42 |
| 12.5.1 | Sanding Angles on the Sanding Pad .....                  | 42 |
| 12.5.2 | Sanding Chamfers on the Sanding Pad.....                 | 42 |
| 12.5.3 | Sanding off Veneer Protrusions.....                      | 42 |
| 13     | Troubleshooting .....                                    | 43 |
| 14     | Maintenance and Inspection.....                          | 44 |
| 14.1   | Cleaning .....   | 44 |
| 14.2   | Lubrication .....  | 44 |
| 14.3   | Checking the Function of the Emergency Stop Button ..... | 44 |
| 14.4   | Checking the Safety Labels.....                          | 45 |
| 14.5   | Readjusting the Turntable.....                           | 45 |
| 14.6   | Taking the Machine out of Operation / Storage .....      | 45 |
| 14.7   | Average Situations / Emergencies .....                   | 45 |
| 15     | Electrical Circuit Diagram .....                         | 46 |
| 16     | Options and Accessories .....                            | 47 |
| 16.1   | Sanding Belts for KSM9-3000/200 .....                    | 47 |
| 16.2   | Sanding Belts for KSM9-3100/150 .....                    | 47 |
| 16.3   | Further Options.....                                     | 47 |
| 17     | Disassembly and Scrapping .....                          | 48 |
| EU     | - Declaration of Conformity .....                        | 49 |



## List of Figures

|   |    |
|---|----|
| Figure 1: Veneer sanding device with sanding pad .....                  | 11 |
| Figure 2: Name plate .....  | 23 |
| Figure 3: Working areas .....   | 24 |
| Figure 4: Dimensions - KSM9-3000/200 .....                              | 25 |
| Figure 5: Dimensions - KSM9-3100/150 .....                              | 25 |
| Figure 6: Unload with Forklift truck .....                              | 26 |
| Figure 7: Setting down with forklift truck .....                        | 26 |
| Figure 8: Mobile base components .....                                  | 27 |
| Figure 9: Suction nozzle .....  | 29 |
| Figure 10: Main switch housing .....                                    | 30 |
| Figure 11: Direction of rotation of the drive drum (top view) .....     | 30 |
| Figure 12: Machine overview - main components .....                     | 31 |
| Figure 13: Control switches .....                                       | 33 |
| Figure 14: Fence locking springs .....                                  | 34 |
| Figure 15: Lever receptacle (top view) .....                            | 34 |
| Figure 16: Tensioning sanding belt .....                                | 34 |
| Figure 17: Mounting, tensioning and replacing of the sanding belt ..... | 34 |
| Figure 18: Adjusting the table top and the sanding unit .....           | 35 |
| Figure 19: Scale and clamping lever .....                               | 35 |
| Figure 20: Handwheel .....  | 35 |
| Figure 21: Aggregate inclined by 45° .....                              | 35 |
| Figure 22: Insert sanding pad .....                                     | 36 |
| Figure 23: Receptacle on sanding pad .....                              | 36 |
| Figure 24: Centring pin in machine .....                                | 36 |
| Figure 25: Calibrate veneer fences to zero position .....               | 37 |
| Figure 26: Direction of rotation of the drive drum .....                | 37 |
| Figure 27: Sanding cover .....  | 38 |
| Figure 28: Side table height .....                                      | 38 |
| Figure 29: Side turntable height .....                                  | 38 |
| Figure 30: Cylindrical sanding components .....                         | 38 |
| Figure 31: Fold table to 45° .....                                      | 39 |
| Figure 32: Change sanding drum .....                                    | 39 |
| Figure 33: Turret head engaged .....                                    | 39 |
| Figure 34: Convert fence for flat workpieces .....                      | 39 |
| Figure 35: Remove left cover (B) .....                                  | 40 |
| Figure 36: Open right cover (C) .....                                   | 40 |
| Figure 37: Sanding at right angles .....                                | 40 |
| Figure 38: Sanding mitres .....   | 40 |
| Figure 39: Sanding an inner radius .....                                | 41 |
| Figure 40: Sanding an outer radius .....                                | 41 |
| Figure 41: Sanding angles on sanding pad .....                          | 42 |
| Figure 42: Sanding chamfers on sanding pad .....                        | 42 |
| Figure 43: Sanding off veneer protrusions .....                         | 42 |
| Figure 44: Align table top .....  | 45 |
| Figure 45: Turntable locking pin .....                                  | 45 |
| Figure 46: Locking bolt adjusting screw .....                           | 45 |
| Figure 47: Electrical circuit diagram .....                             | 46 |

### Revisions:

| Revision | Editor | Modification               | Date       |
|----------|--------|----------------------------|------------|
| 001      | AG     | Original manual translated | 30.05.2022 |

# 1 Liability and Warranty

When purchasing a machine or additional component (hereinafter referred to as “machine”), the General Terms and Conditions of Sale and Delivery of HOKUBEMA Maschinenbau GmbH generally apply. These are provided to the purchaser or operator at the latest when the contract is concluded.



**IMPORTANT NOTE:** *Liability and warranty claims shall only commence from the point in time at which the signed handover certificate (see ⇒ page 3 resp. 5) from the dealer and/or end customer for the delivered machine has been submitted to HOKUBEMA Maschinenbau GmbH in written form.*

Liability and warranty claims for personal injury and property damage are generally excluded if they are due to one or more of the following causes:

- Commissioning of the machine without prior machine instruction by an authorised and adequately trained specialist who is familiar with the function and dangers of the machine.
- Electrical connection as well as repair and/or maintenance work on electrical components by personnel who do not have the appropriate qualifications.
- Connection and repair and/or maintenance work on hydraulic or pneumatic components by personnel who do not have the appropriate qualifications.
- Non-observance of the instructions in the operating manual, in particular the chapter “Safety”.
- Improper use or operation in an unauthorised area of application.
- Improper assembly, commissioning, operation and maintenance of the machine.
- Unauthorised conversions or modifications to the machine or additional components.
- Operating the machine without using all the protective equipment available for the operation.
- Inadequate monitoring and maintenance of the machine components and protective devices.
- Continuing to operate the machine when faults, damage or defects are present.
- Processing materials that do not correspond to the machine's area of application.
- Carrying out operations that are not permitted for the machine supplied.
- Use of tools that are not permitted for the machine supplied.
- Operating the machine outdoors or in damp, wet or potentially explosive environments.
- Operation of the machine outside permissible ambient temperatures or humidity.
- Grossly negligent behaviour when handling or operating the machine.
- Impact by foreign bodies, e.g. stones, metal parts, etc.
- Improperly carried out repairs.
- Catastrophic events due to force majeure.

## 2 Introduction


The purpose of this document is to acquaint the user with the edge sanding machine and enable him to use it to the full extent of its intended capabilities. Additionally it contains important information to operate the machine safely, properly and economically.

Observance of the manual helps to avoid hazards, reduce repair costs and downtimes and increase the reliability and service life of the machine.

Furthermore, this operating manual serves to supplement instructions based on national regulations for accident prevention and environmental protection.



Figure 1: Veneer sanding device with sanding pad

|   |  |
|---|--|
|  | <p><b><i>This operating manual must always be available at the place of use of the machine. It must be read and followed by every person who is assigned to work on the machine, e.g.</i></b></p> <ul style="list-style-type: none"> <li>• <i>during operation, including set-up, troubleshooting in the work process, removal of production waste and maintenance,</i></li> <li>• <i>during maintenance (servicing, inspection, repair)</i></li> <li>• <i>and/or during transport.</i></li> </ul> |
|---|--|

Apart from the operating manual and the legally binding accident prevention provisions applicable in the country and place of use, the recognized technical regulations for safe and proper work must also be observed.

### 2.1 Legal Notice




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### 2.2 Illustrations















All photos, figures and graphics contained in this document are for illustration and better understanding only and may differ from the current state of the product. Title photos and general views may also include optional components and special accessories.

## 3 Symbols

### 3.1 General Symbols

| <b>Symbol</b>   | <b>Meaning</b>   |
|---|--|
|  | Indicates passages within this operating manual that must be particularly observed in order to prevent malfunctions or damage to the lift table. |
|  | Refers to chapters, sections, or figures within this document.   |
|  | Refers to an external document or a third-party source.  |

### 3.2 Symbols in Safety Instructions

| Symbol  | Safety Instruction  |
|---|---|
|    | General danger symbol, which requires the highest attention!<br><i>Failure to observe may result in damage to the equipment, serious injury or even death.</i>  |
|    | Warning of possible danger from forklift traffic!<br><i>Non-observance may result in life-threatening injuries.</i>   |
|    | Warning indicates a possible hazard under suspended loads!<br><i>Non-observance may result in life-threatening injuries.</i>  |
|    | Warning indicates a possible fall hazard!<br><i>Non-observance of these instructions may result in serious injuries.</i>  |
|    | Warning indicates a possible cutting hazard!<br><i>Risk of personal injury and possibly additional damage to equipment.</i>   |
|    | Reference to the obligation to wear protective gloves!<br><i>Non-observance of these instructions may result in personal injury.</i>  |
|   | Reference to the obligation to wear hearing protection!<br><i>Non-observance of these instructions may result in personal injury.</i>   |
|  | Reference to the obligation to wear protective goggles!<br><i>Non-observance of these instructions may result in personal injury.</i>   |
|  | Reference to the obligation to wear a respiratory protection mask!<br><i>Non-observance of these instructions may cause breathing difficulties and lung damage.</i>   |
|  | Reference to the obligation to wear safety shoes!<br><i>Non-observance of these instructions may result in personal injury.</i>   |
|  | Possible dangerous crushing hazard in the area of stationary objects!<br><i>Risk of personal injury and possibly additional equipment damage.</i>   |
|  | Reference to a possible crushing hazard!<br><i>Non-observance increases the risk of injury to hands and fingers!</i>  |
|  | This symbol warns of the dangers of electric voltage!<br><i>Failure to observe may result in damage to the equipment, serious injury or even death.</i>   |
|  | Fire hazard! Do not smoke and do not ignite open fire.  |
|  | Access for unauthorized persons prohibited!<br><i>Risk of personal injury and possibly additional equipment damage.</i>   |
|  | This safety notice indicates a possible dangerous pull-in hazard!<br>Wearing loose clothing, jewellery as well as long untied hair is prohibited!<br><i>Risk of personal injury and possibly additional damage to property.</i> |

## 4 General

The edge sanding machines KSM9-3000/200 and KSM9-3100/150 are produced according to the current state of the art and placed on the market as a complete machine. All legal and normative regulations were observed. The two models are identical in design and operation, but they differ in the following points:

- Version KSM9-3000/200 with a belt length of 3000 mm and belt width of 200 mm.
- Version KSM9-3100/150 with a belt length of 3100 mm and belt width of 150 mm. In addition, this model has a revolving turret head with three different contact drums ( $\varnothing$  60, 100 and 120 mm) for more flexible working on the cylindrical sanding unit.

### 4.1 Target Group and Previous Experience

This operating manual is intended for the operating and maintenance personnel of the machine. The operating personnel is to be determined by the operator and must further meet the following requirements:

- Basic technical knowledge (e.g. apprenticeship as carpenter, machine fitter, etc. and/or practice in operating woodworking machines)
- Reading and understanding these operating and maintenance instructions

In order to acquire the knowledge required to operate this machine, the operator must ensure the following measures:

- Product training for every operator (also possible external personnel)
- Regular safety instruction

### 4.2 Requirements for the Operators

- The edge sanding machine may only be operated by trained personnel who have also read this manual.
- Inspection, maintenance, cleaning and repair may only be performed by technical specialists with product-specific training and mechanical and/or electrical training.
- Specialists with product-specific training are to be commissioned and held responsible for planning and checking the work.
- The national protective regulations for employees must be observed .
- The operator is responsible for the safe use of the machine.
- The legal minimum age must be observed.

### 4.3 Accident Prevention

To avoid accidents, the following rules must be observed for operation:

- Prevent unauthorized persons from gaining access to the machine.
- Keep unauthorized persons away from the danger areas.
- Repeatedly inform present other persons about existing residual risks (see section  $\Rightarrow$  5.1.3).
- Conduct and record regular training & instruction for persons who must be in the area of the machine.
- New employees must be trained internally to work on an edge sanding machine and this training must be documented.

## 4.4 General Safety Regulations

In general, the following safety regulations and obligations apply when handling the edge sanding machine:

- The edge sanding machine may only be operated in a technically perfect and clean condition.
- It is prohibited to remove, modify or bypass any protective, safety or monitoring equipment.
- It is forbidden to modify or alter the machine without the written approval of the manufacturer / supplier.
- Faults or damage must be reported to the operator immediately, eliminated without delay and repaired if necessary.
- For repairs, only original spare parts may be used.
- All protective, safety and monitoring devices must be regularly checked and maintained by the operator.
- Only instructed, trained or qualified persons may work on this machine.
- Maintenance work must be carried out and documented in accordance with the maintenance instructions.
- After maintenance or repair, the machine may only be started with all protective devices fitted. A responsible person must be defined for this purpose, who checks that the guards have been properly installed.
- For the operation of edge sanding machine, the respective national safety regulations for employees as well as the national safety and accident prevention regulations apply.

## 4.5 Standard Equipment

- Veneer sanding device with grooved infeed ruler for sanding overlapped veneers
- Powerful main motor with 4 kW and additional 0.25 kW motor for belt oscillation
- Cylindrical sanding unit with adjustable end table for concave or convex edges
- Revolving turret head<sup>1</sup> with 3 cylindrical sanding drums (ø 60, 100, 120 mm)
- Extendable table widening with roller support
- Combined workpiece and mitre fence ± 60°
- Inclined sanding unit (maximum 45°)
- Workpiece table with planed surface
- Height adjustable workpiece table
- Rubber-coated sanding drums

## 4.6 Available Options

- Switching contact for automatic switching of the extraction system
- Matching sanding belts with different grits
- Mobile base with separate lifting rod

The article numbers can be found in chapter ⇒ 16 “Options and Accessories”.


---

<sup>1</sup> For constructional reasons, the rotary star turret is only available for model KSM9-3100/150.


## 5 Safety

### 5.1 Basic Safety Instructions


Woodworking machines can be dangerous if used improperly. Therefore, observe the safety instructions listed in this chapter and the accident prevention regulations of your employer's liability insurance association!

|   |  |
|---|--|
|  | <p><b><i>The manufacturer accepts no liability for damage and malfunctions resulting from failure to observe these operating instructions.</i></b></p> |
|---|--|

#### 5.1.1 Application Area and Intended Use

|   |  |
|---|--|
|  | <p><b><i>The edge sanding machines are used exclusively for sanding wood and wood-like materials (e. g.: fibreboard, chipboard, plywood, laminated and non-laminated boards, plastics, etc.).</i></b></p> <p><b><i>This machine is not suitable for sanding metal, mineral materials as well as plastics and waste wood in which nails, screws etc. may be contained.</i></b></p> <p><b><i>The machine may only be operated on a level, firm surface with a minimum load-bearing capacity of 1,000 kg/m<sup>2</sup>.</i></b></p> |
|---|--|

Any processing of other materials requires prior consultation with the manufacturer and his approval.

|  |   |
|--|---|
|  | <p><b><i>Improper use can lead to danger to persons and to a defect or damage to the machine.</i></b></p> |
|--|---|

The machine is not suitable for operation outdoors or in potentially explosive environments.

- Permissible ambient temperature: +1 to +40° C
- Permissible humidity: max. 90 %
- Operating altitude: max. 1000 m above sea level

Intended use also includes connecting the machine to an adequately dimensioned extraction system and observing the operating, maintenance and servicing conditions specified in the operating manual. Any other use is considered improper and is prohibited.


#### 5.1.2 Usable Sanding Belts

The machine is designed for operation with conventional paper sanding belts. To ensure the quality of the sanding belt in the long term during storage and keeping, it should be stored or kept at a temperature of +5 ... +25° C and a humidity of 50 ... 60 %.

- KSM9-3000/200 → belt length = 3000 mm | belt width = 200 mm
- KSM9-3100/150 → belt length = 3100 mm | belt width = 150 mm























You will find suitable sanding belts for your machine in chapter ⇨ 16 “Options and Accessories”.

#### 5.1.3 Modifications and Conversions to the Machine

|   |   |
|---|---|
|  | <p><b><i>Unauthorised conversions and modifications to the machine are strictly prohibited for safety reasons. This will invalidate the CE declaration of conformity! The manufacturer is not liable for any resulting damage. The risk for this is borne exclusively by the operator/user.</i></b></p> |
|---|---|

### 5.1.4 Residual Risks


The machine is built according to the latest state of the art and the recognised safety rules. Nevertheless, the use of the machine may cause danger to life and limb of the user or third parties or damage to the machine and other equipment. Due to the construction of the machine, the following residual risks can occur even when used as intended and despite compliance with all relevant safety regulations:

|   |   |
|---|---|
|    | Reading and applying the operating manual is mandatory for the operating personnel.   |
|    | Be alert to possible crushing hazards:<br>a) when transporting the machine by lift truck / forklift truck → between forks & pallet / machine<br>b) when picking up the machine → between machine / pallet and floor<br>c) when lowering the machine → between machine and fixed equipment |
|    | Be alert to possible crushing hazards when lowering the machine (from the cargo pallet to the floor) with a lift truck / forklift truck.  |
|    | Make sure that no objects fall from the lift truck / forklift truck.<br>Do not leave any objects / tools on the machine.  |
|    | It is strictly prohibited to ride on the machine during a lifting operation (with the lift truck / forklift truck). There is a danger of falling!   |
|    | Unauthorised persons are not allowed to enter the installation area of the machine (responsibility of the operator).  |
|    | Be aware of possible tripping and slipping hazards on the floor. Prevent possible hazards by keeping the floor dry and clean and by using anti-slip floor coverings around the machine.   |
|   | Be aware of the danger from falling objects such as workpieces, tools or similar. Therefore, wear safety shoes, especially when transporting and setting down the machine.  |
|  | Pay attention to the existing danger of cutting and abrasion at the exposed parts of the sanding belt. Never touch or handle the running sanding belt.  |
|  | Be aware of the danger of snow from chips and splinters and never remove them from the danger area by hand. Use suitable aids, e.g. hand brushes.   |
|  | Be aware of a possible danger of being drawn in by moving and rotating machine and tool parts. This can cause pieces of clothing or hair to be caught. Always wear close-fitting clothing and wear hair net if necessary. Generally avoid jewellery, loose clothing and untied long hair. |
|  | Danger from electric shock! There are hazards when working on the electrical system. This work must only be carried out by qualified personnel!   |
|  | Danger from electric shock! It is strictly forbidden to bypass safety devices (e.g. safety switches).   |
|  | Electrical equipment must be maintained and cleaned regularly.  |
|  | Pay attention to the danger of crushing on workpiece guides and moving machine parts.   |
|  | Make sure that no unauthorised persons are in the area of the machine.  |
|  | Be aware of the risk of injury from flying tool parts in the event of tool breakage. Therefore wear protective goggles.   |
|  | Be aware of the risk of injury from flying workpiece parts and chips, splinters and dust coming out of the machine. Therefore wear protective goggles.  |
|  | Be aware of the increased noise emission and wear hearing protection.   |
|  | Be aware of the increased dust generation. Use the extraction system and wear a dust mask if necessary.   |
|  | The emergency stop button switch must always be freely accessible and must not be blocked with objects. Check the function of the emergency stop button daily (before starting work).   |
|  | Fire hazard due to wood dust in connection with flying sparks and/or open fire!<br>Increased ignition hazard with workpieces containing metal inclusions (screws, nails, etc.).   |



### 5.1.5 Observe the Environmental Protection Regulations

During all work with the machine, the environmental protection regulations, obligations and laws for waste avoidance and proper recycling and/or disposal applicable at the place of use must be observed. This applies in particular to installation, repair and maintenance work involving substances that could pollute the groundwater (e.g. hydraulic oils and cleaning agents and liquids containing solvents). In any case, prevent them from seeping into the ground or entering the sewage system.

|   |   |
|---|---|
|  | <p><b><i>Store and transport the above-mentioned hazardous substances only in suitable containers. Avoid leakage of hazardous substances by using suitable collection containers. Ensure that the above-mentioned substances are disposed of by a qualified disposal company.</i></b></p> |
|---|---|

### 5.1.6 Organisational Measures

- ⚠ Always keep this operating manual within easy reach and at the place of use of the machine.
- ⚠ In addition to the operating manual, observe and instruct on generally applicable legal and other binding regulations for accident prevention and environmental protection.
- ⚠ Supplement the operating manual with further instructions, including supervisory and reporting duties, to take account of special operational features (e.g. with regard to work organisation, work processes, personnel employed).
- ⚠ Before starting work on the machine, the person responsible for its operation must have read the operating instructions, especially the chapter "Safety Instructions". This applies in particular to personnel who only occasionally work on the machine.
- ⚠ Check that work is carried out in a safety-conscious and hazard-conscious manner and in compliance with the operating manual.
- ⚠ Operators must not wear open long hair, loose clothing or jewellery (including rings). There is a risk of injury, e.g. by getting caught or drawn in.
- ⚠ Observe the safety instructions and danger warnings on the machine and keep them complete and in legible condition.
- ⚠ In case of safety-relevant changes to the machine or its operating behaviour, shut down the entire system immediately and report the fault to the responsible office/person.
- ⚠ Use personal protective equipment as necessary or required by regulations.
- ⚠ Do not make any modifications, additional attachments or conversions to the machine without the manufacturer's approval! This will compromise safety and invalidate the manufacturer's warranty and any liability claim. The same also applies to the installation and adjustment of safety devices and valves and to welding work on load-bearing part.
- ⚠ Spare parts must meet the technical requirements specified by the manufacturer. The exclusive use of original spare parts ensures this. Therefore, only use original spare parts from the manufacturer.
- ⚠ Observe the fire alarm and firefighting possibilities. Make the location and operation of fire extinguishers (fire class ABC) known. Do not use water!

### 5.1.7 Personnel Selection and Qualification - Basic Duties





- The machine design and operation is intended for right-handers.
- Work on and with the machine may only be carried out by reliable personnel.  
Observe the legal minimum age!
- Only use trained or instructed personnel. Clearly define the responsibilities of the personnel for operating, setting up, maintaining and repairing!
- Ensure that only authorised personnel work on the machine!
- If personnel to be trained or apprenticed have to work on the machine, this may only be done under the constant supervision of an experienced resp. qualified person.
- Work on the electrical equipment of the machine may only be carried out by a qualified electrician or by untrained persons under the direction and supervision of a qualified electrician in accordance with the electrotechnical regulations.

### 5.1.8 Training of Personnel




All machine operators must be adequately trained in the operation and maintenance of the machine. In particular, the training must include the following:

- General rules for the use of the machine, proper operation, correct adjustment of the machine and the use of other accessories.
- Proper handling of workpieces during the machining process. Correct position of the hands to the workpiece and to the sanding belt during and after machining.
- The personnel must be informed about hazards, risks and appropriate protective measures.
- The personnel must be trained in the area of regular checks of the guards and protective devices.
- The personnel must be trained in the use of the guards and protective devices.












## 5.2 Safety Instructions for Specific Phases of Operation

|   |   |
|---|---|
|  | <b><i>The machine must not be used if the sanding belt is defective or damaged.</i></b>         |
|  | <b><i>Defects and damage to the machine are to be reported immediately after detection.</i></b> |
|  | <b><i>Sufficient lighting (at least 500 lux) around the machine must be ensured!</i></b>        |
|  | <b><i>Any mode of operation that compromises safety is prohibited!</i></b>                      |

### 5.2.1 Normal Operation

-  **Guards:** Take measures to ensure that the machine can only be operated in a safe and functional condition. Only operate the machine when all guards and safety-related devices such as sanding belt guards, emergency stop system, sound insulation, extraction system and workpiece fence are present and functional.
-  **Adjustments:** Adjustment and set-up work should only be carried out by instructed personnel who are familiar with the operation of the machine.
-  **Workpiece:** Inspect the workpiece for foreign inclusions (especially metal, screws, nails, etc.) as well as knots, twists and other irregularities before machining.  

Since the machining force of the machine acts in the direction of the belt movement, it is essential to prevent the risk of workpiece kickback. Therefore, use the workpiece resp. mitre fence whenever possible (especially with small workpieces).

When sanding, hold the workpiece firmly with both hands and press it against the fence. Only then feed the workpiece to the sanding belt. Only process workpieces that can be held and fed securely with both hands.
-  **Large workpieces:** Very large, long and wide workpieces that protrude beyond the table top must be additionally supported (e.g. table extension, table widening, support rollers, lift table, etc.).
-  **Small workpieces:** For small, short and narrow workpieces, always work with the workpiece fence and, if necessary, with additional feeding aids. Sand small workpieces on the right side in the feed area of the driven sanding drum and secure them with the fence. Do not machine workpieces < 100 x 30 x 15 mm without a feeding aid!
-  **Machine condition:** Check the machine for externally visible damage and defects at least once per shift! Any changes that have occurred (including those in the operating behaviour) must be reported immediately to the responsible office or person! If necessary, stop and secure the machine immediately!
-  **Extraction:** The machine must be connected to an effective extraction system. This requires an extraction rate of at least 1800 m<sup>3</sup>/h at a speed of 25 ... 30 m/s.
-  **Work area:** An obstacle-free work area around the machine is essential for safe operation. The floor should be level, well maintained and free from debris such as chips and cut-off workpieces.
-  **Sanding area during operation:** Always cover the unused areas of the sanding belt with the existing sanding belt guards.
-  **Sanding of angles, chamfers and veneer edges:** Use the veneer sanding device for these operations. This consists of an insertable sanding pad and two foldable veneer fences.
-  **Lighting:** The workplace must be sufficiently bright with general or local lighting.
-  **Cleaning:** After the end of the work shift, the machine must always be cleaned to remove dust and chips. Cleaning with water is not permitted either when the machine is switched on or off.
-  **Work interruptions:** Switch off the machine even during short interruptions! Never leave the machine running unattended!
-  **At the end of work:** Before leaving the machine, switch off the main switch and release the tension on the sanding belt. Never leave the machine unattended in an unsecured state.

### 5.2.1 Special work within the Scope of Maintenance Work as well as Troubleshooting in the Workflow

- ⚠ Observe maintenance and inspection activities prescribed in chapter ⇒ 14!
- ⚠ These activities, as well as all other repair work, may only be carried out by qualified personnel!
- ⚠ For all work concerning operation, production adjustment, conversion or setting of the machine and its safety-related equipment as well as maintenance and repair, observe switch-on and switch-off procedures according to the operating manual and instructions for maintenance work!
- ⚠ Secure the machine against unexpected restarting during maintenance and repair work.  
→ **Lock the main switch with a padlock!**
- ⚠ Always tighten screw connections that have been loosened during maintenance and repair work!
- ⚠ If it is necessary to dismantle safety equipment during set-up, maintenance and repair, the safety equipment must be reassembled and checked immediately after completion of the maintenance and repair work!
- ⚠ Ensure safe and environmentally friendly disposal of operating and auxiliary materials (e.g. oils) and replacement parts (e.g. electronic components). See chapter ⇒ 17 “Disassembly and Scraping”.

### 5.2.2 Safe Work Practices



- ⚠ Wear personal protective equipment (safety goggles, safety shoes, hearing protection, dust mask).
- ⚠ Always work with all protective devices! These must be in the right places and in perfect working order. Defective guards must be replaced immediately.
- ⚠ Do not start sanding until the sanding belt drive has reached full speed.
- ⚠ Before starting work, check that the running direction and oscillation of the sanding belt are set correctly.
- ⚠ Prevent workpieces (especially small ones) from being flung away in the running direction. Whenever possible stop them against the workpiece fence resp. mitre fence - against the running direction of the sanding belt - and/or secure them with additional stop aids.
- ⚠ Only use approved sanding belts suitable for operation on an edge sanding machine.
- ⚠ Before installing a sanding belt, make sure that the sanding drum coatings are clean and free of dust.
- ⚠ Only use intact sanding belts! Replace defective or damaged sanding belts immediately.
- ⚠ Never clean the sanding belt when it is installed. Remove it before cleaning!
- ⚠ Damaged or defective machine parts and/or accessories must be replaced immediately.
- ⚠ Always position the worktable as close as possible to the sanding belt.

### 5.3 Construction-related Safety Devices








The machine construction already includes the following safety precautions:

- Guards on the sanding drums: They prevent contact with the rotating sanding belt and at the same time serve as suction end pieces for the associated extraction unit.
- Extraction system: Collects the dust produced during operation and is connected to the suction nozzles of the left and right sanding drum guards.
- Rear sanding belt cover: Prevents contact of the rotating sanding belt from the rear of the machine.
- Veneer fences left and right: They serve to support and guide the workpiece when sanding edges and surfaces. The infeed fence (right) is grooved so that veneer protrusions can be sanded flat.
- Workpiece and mitre fence: Protects the workpiece from being knocked back by placing it against the sanding belt and ensures that the workpiece is safely fed to the sanding belt.
- Tilting sanding unit by 45°: Enables safe and direct sanding of angles on the table top without the need for additional auxiliary devices and workpiece supports.
- Dynamic balancing of the sanding belt drum: Reduces vibrations during work and ensures a good surface finish during processing.
- Sanding belt oscillation: Ensures optimum and efficient use of the sanding belt.

### 5.4 Electrical Safety Devices

- Emergency stop push-button: In case of danger, the centrally accessible emergency stop button immediately puts the machine out of operation.
- Lockable main switch: The main switch can be locked with a padlock to protect the machine (e.g. during adjustment, repair and maintenance work) against unintentional or unauthorised restarting of the machine.
- Motor standstill in less than 10 seconds: When the grinding drive is switched off via the off switch, main switch or when the emergency stop button is pressed, a standstill of the sanding belt drive in a period of less than 10 seconds is guaranteed.
- Undervoltage protection: In the event of a voltage interruption, the machine is brought to a standstill, where it remains even when the voltage is restored. To put the machine back into operation, it must be switched on again.
- Protection against electric shock: The housing of the machine and the drives are protected against electric shock with a neutral line.
- Dust and water protection: The control cabinet is protected against dust and splash water with protection class IP54. The two motors (main drive and oscillation) are protected against dust and water jets from any angle with IP55 protection.
- Short-circuit protection: The machine has an overload protection for the drive unit (thermal off switch).

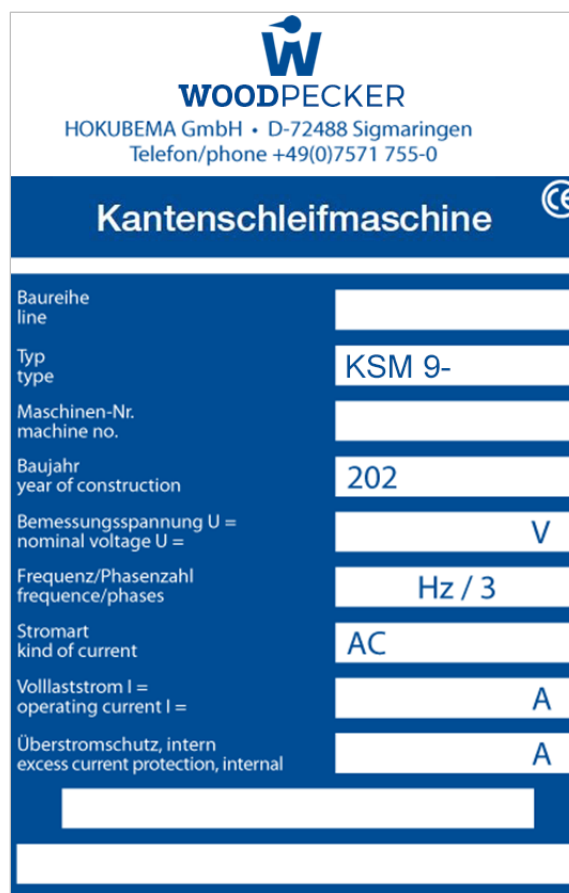
## 5.5 Hazardous Areas

| Hazard  | Area/Action  | Risk   | Avoidance   |
|---|--|--|---|
| <b>Cutting &amp; Abrasion Hazard</b><br> | On all non-covered areas of the sanding belt   | Minor to severe injuries such as cuts and abrasions on hands and fingers.  | <ul style="list-style-type: none"> <li>• Use all sanding covers available for the operation and keep hands out of uncovered areas.</li> <li>• Do not touch or handle the running sanding belt.</li> </ul>   |
| <b>Danger of being drawn in</b><br>      | On the right-hand drive drum in the feed area of the sanding belt.<br><br>When using the insertable sanding pad between the sanding pad and the right-hand infeed ruler. | Increased risk of injury or even death by pulling in hands, fingers, clothing, watches, jewellery and long hair. | <ul style="list-style-type: none"> <li>• Use all sanding covers available for the operation and keep hands out of uncovered areas.</li> <li>• Use the workpiece resp. mitre fence whenever possible.</li> <li>• Position the worktable as close as possible to the sanding belt.</li> <li>• Keep hands out of the dangerous catchment area.</li> <li>• Never wear gloves when the sanding belt is running.</li> <li>• Watches, jewellery, necklaces and long hair are prohibited!</li> <li>• Wear tight-fitting clothes and a hair net if necessary.</li> </ul> |
| <b>Crushing Hazard</b><br>              | On all moving parts, guides, fences and additionally used clamping and tensioning devices.   | Mild to severe injuries, bruises and/or broken bones on hands and fingers.                                       | <ul style="list-style-type: none"> <li>• Keep hands out of danger areas (e.g. between workpiece and workpiece fence).</li> </ul>  |
| <b>Risk of Kickback</b><br>            | On the running sanding belt.   | Increased risk of injury or even death due to workpieces and/or workpiece parts knocking away or kicking back.   | <ul style="list-style-type: none"> <li>• Use the workpiece resp. mitre fence whenever possible.</li> <li>• Sanding small workpieces on the right side at the driven drum.</li> <li>• Use all sanding covers available for the operation.</li> <li>• Only machine parts that can be held and guided safely with both hands.</li> <li>• Wear safety goggles or face protection.</li> </ul>  |
| <b>Tipping Hazard</b><br>              | With large, long, wide, heavy workpieces and when the workpiece support surface is too small.  | Mild to severe injuries such as bruises and/or broken bones all over the body.                                   | <ul style="list-style-type: none"> <li>• Provide additional support for large, long, wide and heavy workpieces (e.g. table extension, support rollers, lift table, etc.).</li> </ul>  |
| <b>Ejection Hazard</b><br>             | On the left-hand sanding drum in the exit area of the running sanding belt.  | Increased risk of injury, especially face and eye injuries due to ejected parts.                                 | <ul style="list-style-type: none"> <li>• Use all sanding covers available for the operation .</li> <li>• Do not look into the exit area of the left sanding drum.</li> <li>• Wear safety goggles or face protection.</li> </ul>   |
| <b>Electric Shock Hazard</b><br>       | On the electrical system and all energised components.   | Electric shocks with increased risk of injury or even death.   | <ul style="list-style-type: none"> <li>• Avoid wetness / humidity</li> <li>• Have defective parts / cables / connections repaired immediately (only by a qualified electrician!)</li> <li>• Do not touch energised parts.</li> <li>• During maintenance and repair work, switch off the main switch and lock it.</li> </ul>   |

## 6 Machine Data

### 6.1 Technical Specifications

|  |  |
|--|--|
| Table size   | L x B = 960 x 350 mm   |
| Table height   | adjustable until 220 mm                                      |
| Sanding belt length  | KSM9-3000/200: 3000 mm<br>KSM9-3100/150: 3100 mm             |
| Sanding belt width   | KSM9-3000/200: 200 mm<br>KSM9-3100/150: 150 mm               |
| Sanding belt back wall   | KSM9-3000/200: 1050 x 240 mm<br>KSM9-3100/150: 1050 x 200 mm |
| Sanding drums  | with rubber coating  |
| Belt speed   | 20 m/s   |
| Rotational speed   | 2840 rpm   |
| Oscillation stroke   | 20 mm  |
| Sanding unit   | inclinable in the range 90 ... 45°                           |
| Workpiece fence range  | ± 60° angle adjustable                                       |
| Main motor   | 4.0 kW / 5.5 HP (400 V)                                      |
| Protection class   | circuits IP54 / motors IP55                                  |
| Oscillation motor  | 0.25 kW  |
| Revolving turret head <sup>2</sup>   | Ø 60, 100 and 120 mm   |
| Suction nozzle   | Ø 140 mm   |
| Dimensions   | refer to section ⇒ 6.5                                       |
| Space requirement  | refer to section ⇒ 6.4                                       |
| Weight   | approx. 400 kg   |
| <p>HOKUBEMA Maschinenbau GmbH<br/>           Graf-Stauffenberg-Kaserne<br/>           Binger Str. 28   Halle 120<br/>           DE-72488 Sigmaringen (Germany)<br/>           Tel.: +49 (0) 7571 / 755-0<br/>           Fax: +49 (0) 7571 / 755-2 22</p> |  |



The name plate is a blue rectangular plate with white text and fields. At the top, it features the WOODPECKER logo and company information: HOKUBEMA GmbH, D-72488 Sigmaringen, and a telephone number. Below this, the machine name 'Kantenschleifmaschine' is printed in large white letters on a blue background, accompanied by a CE mark. The main body of the plate contains technical specifications in a two-column layout. The left column lists the parameter names, and the right column shows the corresponding values or fields. Some fields are pre-filled with values like 'KSM 9-', '202', 'V', 'Hz / 3', 'AC', and 'A'. At the bottom, there are two empty white rectangular boxes for additional information.

|   |        |
|---|--------|
| Baureihe line   |        |
| Typ type  | KSM 9- |
| Maschinen-Nr. machine no.                                   |        |
| Baujahr year of construction                                | 202    |
| Bemessungsspannung U = nominal voltage U =                  | V      |
| Frequenz/Phasenzahl frequency/phases                        | Hz / 3 |
| Stromart kind of current                                    | AC     |
| Volllaststrom I = operating current I =                     | A      |
| Überstromschutz, intern excess current protection, internal | A      |
|   |        |
|   |        |

Figure 2: Name plate

### 6.2 Correspondence in the Case of Service

Please, in case of technical problems, contact your dealer or the manufacturer's service department. In correspondence or during a telephone call regarding the purchased machine, you should have the following data at hand:

- Manufacturer number of the machine
- Voltage and frequency
- Date of manufacture
- Detailed description of the fault
- Detailed description of the type of machining carried out
- General operating time of the machine in working hours
- In case of questions regarding the electrical system, the information on the machine's type plate is also required.

<sup>2</sup> For constructional reasons, the rotary star turret is only available for model KSM9-3100/150.

## 6.3 Emission Levels

### 6.3.1 Noise Information

The values given are emission levels and therefore do not necessarily represent safe workplace values. Although there is a correlation between emission and immission levels, it cannot be reliably deduced whether additional precautionary measures are necessary or not.

Factors that may affect the current immission level at the workplace include the duration of exposure, the nature of the workspace, other noise sources, etc., e.g. the number of machines and other activities in the vicinity. The permissible workplace values can also vary from country to country.

However, this information should enable the user to make a better assessment of hazard and risk.

### 6.3.2 Noise Emission Values

| <b>Noise Emission Explanation</b>              |   |
|--|---|
| Weighted level: Noise pressure at idle state   | $L_{pFA} = 83 \text{ dB}$<br>Uncertainty: $K = 2 \text{ dB}$                              |
| Weighted level of noise power at the workplace | $L_{wA} = 101 \text{ dB}$<br>Uncertainty: $K = 2 \text{ dB}$ at error limit interval 95 % |



***The workplace-related noise emission values of the machine exceed 85 dB(A)!  
Therefore, suitable hearing protection must be provided to the personnel!***

## 6.4 Workplace Requirements

The effective space requirement usually depends on the dimensions of the machine and the dimensions of the workpieces to be processed. In general, provide sufficient space around the machine and also calculate the required workplace for the operating, maintenance and auxiliary personnel as well as for the infeed and outfeed of the workpieces.

- Choose a suitable place for the machine and consider the working areas shown in the figure for sanding straight surfaces and edges as well as curves.
- The chosen location must guarantee a suitable connection to the mains supply and to the extraction system.
- Sufficient lighting (min. 500 lux) must be ensured. The lighting must not dazzle and a stroboscopic effect must be avoided.
- Make sure that the floor can support the load of the machine.
- The machine must be levelled with a machine spirit level.
- A clearance of at least 0.8 m must be ensured around the machine.
- Sufficient space must be ensured for the feeding of large and long workpieces.

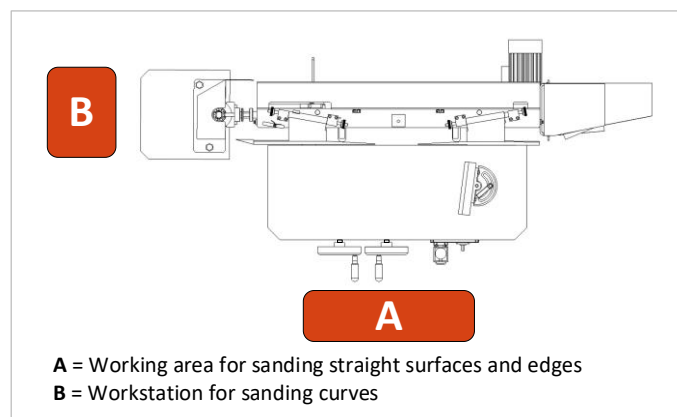


Figure 3: Working areas



## 6.5 Dimensions

### 6.5.1 KSM9-3000/200

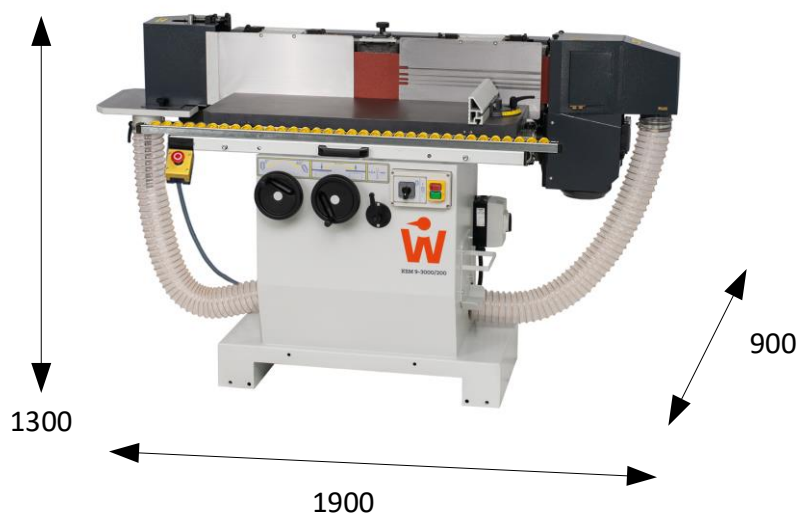


Figure 4: Dimensions - KSM9-3000/200

### 6.5.2 KSM9-3100/150

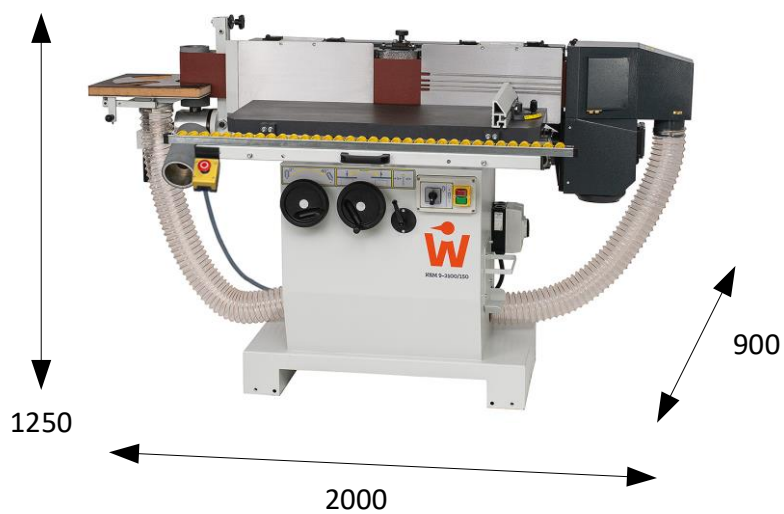


Figure 5: Dimensions - KSM9-3100/150

- All dimensions are given in millimetres
- The dimensions given are rounded approximate dimensions
- We reserve the right to make dimensional and design changes

## 7 Installation and Connection

### 7.1 Check Delivery Conditions

Check the consignment for completeness and possible transport damage. In case of transport damage, please keep the packaging and inform the shipping company and the manufacturer immediately! Later complaints cannot be accepted.

### 7.2 Transport

Lifting and transporting the machine must be carried out by qualified persons who have the required experience and equipment.



**Be very careful when loading and unloading the machine. The necessary measures must be taken to avoid shocks, damage and injury to persons. When transporting, also pay attention to the existing danger of tipping over!**

The machine is delivered on a transport pallet and is bolted to the bottom of the pallet. The centre of gravity of the machine is approximately in the middle of the transport pallet. The machine may only be transported using suitable aids, e.g. a forklift truck or a lift truck with a load capacity sufficient for the weight of the machine (approx. 400 kg net).



**Danger to life under suspended loads when transporting with a forklift truck. It is forbidden to stand under a suspended load! In addition, make sure that no objects fall down during transport by forklift truck. Do not leave loose objects, accessories or tools on the machine.**

#### 7.2.1 Unloading with the Forklift Truck

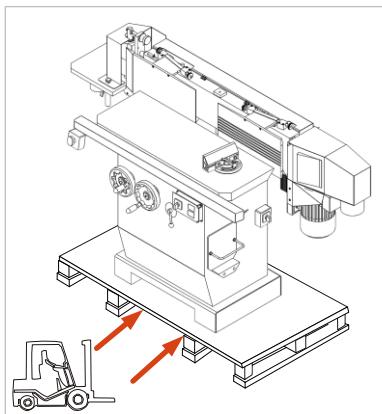


Figure 6: Unload with Forklift truck



**Important! The forks of the forklift truck must be at least 1200 mm long!**

- Drive the forks of the forklift truck centrally between the pallet timbers and feed the forks as shown in ⇒ Figure 6.
- Lift the pallet by a few centimetres and move the machine to the immediate vicinity of the installation site.

#### 7.2.2 Setting down with the Forklift Truck

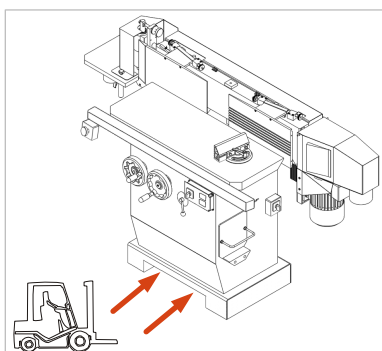


Figure 7: Setting down with forklift truck

- Remove the screw fastenings, transport plates and transport straps on the machine base required for transport on the pallet.
- Lift the machine off the pallet with the forklift. Feed the forks of the forklift truck as shown in ⇒ Figure 7.
- Now drive the machine to the installation site and park it at the final place of use.

### 7.3 Machine Installation

Remove the preservative that was applied at the factory to protect the parts against corrosion without painting. This can be done with commercially available solvents. Please do not use nitro solvents or similar solvents and never use water to remove the preservative!

- Due to the solid machine construction, no special foundation is required to ensure good levelling and vibration-free operation of the machine.
- After all the fastening elements required for transport have been removed, the machine must be parked on a flat, level surface.
- Level out any unevenness of the floor by placing underneath and using a machine spirit level until a stable and level stand is achieved.
- Optionally, a mobile base with separate, under-ride lifting and steering bar can be attached for transporting the machine within the production facility (see next section ⇒ 7.4).

|  |  |
|--|--|
|  | <p><b>Be aware of possible crushing hazards when placing the machine (from the pallet to the floor) using a forklift or lift truck. Pay particular attention to your hands and feet and wear safety shoes and protective gloves as a precaution.</b></p> |
|  | <p><b>Danger to life when using a forklift truck! Keep a sufficient distance from the forklift truck and watch its speed. Vehicles with internal combustion engines also produce toxic exhaust gases. Wear a breathing mask if necessary.</b></p>        |
|  | <p><b>It is essential that the machine is level! Check with spirit level!</b></p>  |
|  | <p><b>Dispose of the packaging material in an environmentally friendly way!</b></p>  |
|  | <p><b>Do not use nitro thinner for cleaning. Painted surfaces of the machine may be damaged.</b></p>   |
|  | <p><b>Fire hazard! Do not smoke and do not light an open fire.</b></p>   |

### 7.4 Mobile Base (Option)

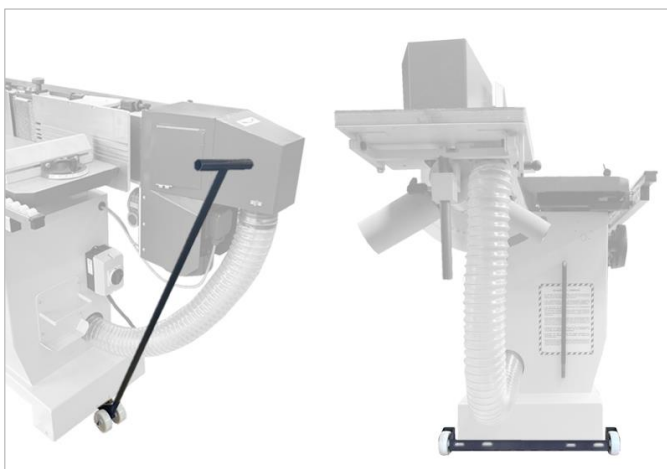


Figure 8: Mobile base components

With the optionally available mobile unit, you can easily and quickly make your stationary edge sanding machine mobile. This allows you to flexibly determine where the machine is to be used and to set it up wherever it is needed.

The undercarriage has two fixed wheels on the side. In order to be able to lift, move and steer the machine, the corresponding lifting rod with double wheel is hooked onto the opposite side.

Order designation: KSM-9-Fahrwerk

## 7.5 Temporary Storage

If the machine is not put into operation immediately after delivery, it must be stored carefully in a protected place. Carefully cover the entire machine so that neither dust nor moisture can penetrate. The bare, non-surface-treated parts (e.g. the cast iron tabletop) are provided with a preservative. This must be checked regularly for effectiveness and renewed if necessary.

## 7.6 Lashing on a Transport Vehicle

For transport in a transport vehicle, the machine must be bolted to a transport pallet (as on delivery), lashed upright on the vehicle loading surface and properly secured.

**The responsibility for safe loading is borne by the respective shipper!**



***At least two lashing straps must be used, each of which must be individually tensioned on the loading area of the transport vehicle! The palletised machine must be additionally secured against slipping and tipping over in the vehicle.***

Please note the following when lashing in the transport vehicle:

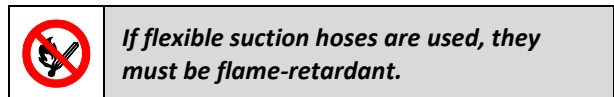
- The loading area of the transport vehicle must always be clean and dry.
- The lashing straps used must be suitable for the total weight of the machine (net weight approx. 400 kg).
- For transport, loose assemblies, accessories or tools must be removed from the machine table or from the machine. These can, for example, be packed individually in cardboard boxes and lashed separately to a free area of the pallet (e.g. with another lashing strap).
- Fastening on the loading area is done by lashing down: This means that the transport pallet is secured by frictional locking. The load is pressed so firmly onto the loading surface that it can no longer slip. The clamping tool should have a high STF value at the frictional connection, e.g. long-lever ratchets.
- In addition, anti-slip mats should be used to provide even more safety.
- The ideal lashing angle ( $\alpha$ ) for tie-down lashing is 83° to and 90°. Therefore, the lashing straps should pull downwards approx. vertically. As the angle decreases, the pretensioning force of the lashing is reduced.
- Observe the permissible total weight of the transport vehicle.
- Ensure that the permissible axle loads of the transport vehicle are observed. The load must be distributed evenly on all axles of the vehicle.

## 7.7 Connecting the Extraction Unit

- The machine must be connected to an effective extraction system on-site.

**Installation only by a qualified electrician!**

- The suction nozzle (S) on the rear of the machine has a diameter of 140 mm.
- All parts of the extraction system, incl. hoses, must be included in the earthing measure.



- Use a 140 mm diameter suction hose to connect the extraction system to the machine's suction nozzle (S).
- The extraction system for chips and dust must have an extraction capacity of at least 1800 m<sup>3</sup>/h at a speed of 25 ... 30 m/s.

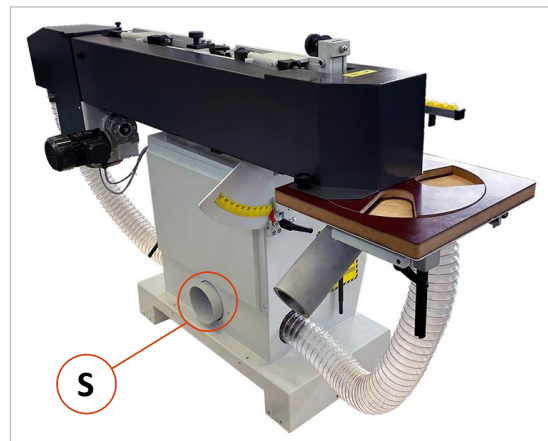
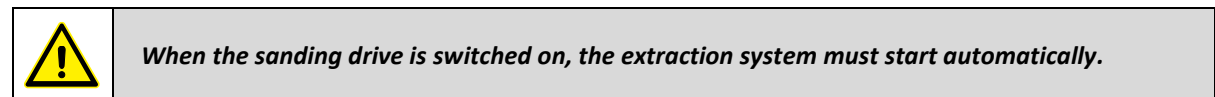
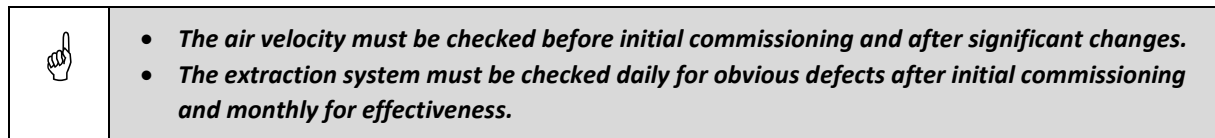


Figure 9: Suction nozzle



### 7.7.1 Automatic Switching of the Extraction (Option)

If this option is present, additional contacts are available to which two signal generator lines can be connected for automatic switching of the extraction system.

- Ordering designation for KSM9-3000/200: [KSM9-3000/200-005](#)
- Ordering designation for KSM9-3100/150: [KSM9-3100/150-005](#)

The circuit diagram for the connection assignment can be found in chapter ⇨ 15 and is enclosed with the machine, if applicable.

## 7.8 Electrical Connections



**The connection must be carried out by an authorised electrician!**

The electrical circuit diagram can be found in chapter ⇒ 15.

**Please observe the specified nominal voltage 400 VAC / 50 Hz (3 phases / N / PE)!**

- The supply cable is inserted through the cable gland at the bottom of the main switch housing.
- The connection to the mains (3 phases) is made at the main switch in the main switch housing. The 3 phases are to be connected to the terminals “L1”, “L2” and “L3”.
- The protective earth wire (yellow/green) must be connected to the terminal marked “PE”.
- Then close the cable gland again so that it is dust-tight.
- **Observe the direction of rotation of the driven sanding drum (A)!**



Figure 10: Main switch housing



**Important: Before commissioning, check the direction of rotation of the motor without the sanding belt inserted! An incorrect direction of rotation with the sanding belt inserted will cause the sanding belt to be destroyed.**

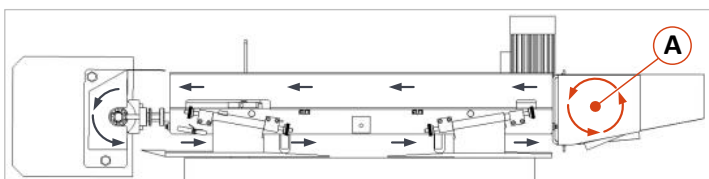


Figure 11: Direction of rotation of the drive drum (top view)

The drive drum (A) must rotate (still without the sanding belt inserted) in the direction of the arrow shown in ⇒ Figure 11. A sanding belt may only be inserted once this requirement has been fulfilled.



**If the direction of rotation of the drive roller (A) is incorrect, the connections of the phases L1 and L2 must be interchanged.**

Only if the connection is carried out by an authorised electrician a guarantee is given for the motor. In the event of a complaint, written confirmation from this specialist is required that he has connected the machine in accordance with the regulations.



**The fault loop impedance and the suitability of the overcurrent protection device must be checked at the installation site of the machine.**

### 7.8.1 Supply Cable and External Fuse Protection

**Use a Cu, 5-core cable. The wire cross section must be determined on site by a qualified electrician!**

The electrical cabling and the connection must be performed by a specialist according to the applicable local EVU, VDE, and EN provisions. We recommend the use of a rubber cable type H07RN (WDE0282), whereby additional measures must be taken to protect against mechanical damage. To determine the required cross-section of the supply cable and the external fuse, use the data from the following table:

| Consumption current (A) | Required wire cross-section | Required external fuse |
|-------------------------|-----------------------------|------------------------|
| up to 10                | 2.5 mm <sup>2</sup>         | 12 A (slow)            |
| from 10 to 14           | 4.0 mm <sup>2</sup>         | 16 A (slow)            |
| from 14 to 18           | 6.0 mm <sup>2</sup>         | 20 A (slow)            |
| from 18 to 22           | 6.0 mm <sup>2</sup>         | 25 A (slow)            |
| from 22 to 28           | 10.0 mm <sup>2</sup>        | 32 A (slow)            |
| from 28 to 36           | 10.0 mm <sup>2</sup>        | 40 A (slow)            |
| from 36 to 46           | 16.0 mm <sup>2</sup>        | 50 A (slow)            |

## 8 Machine Overview

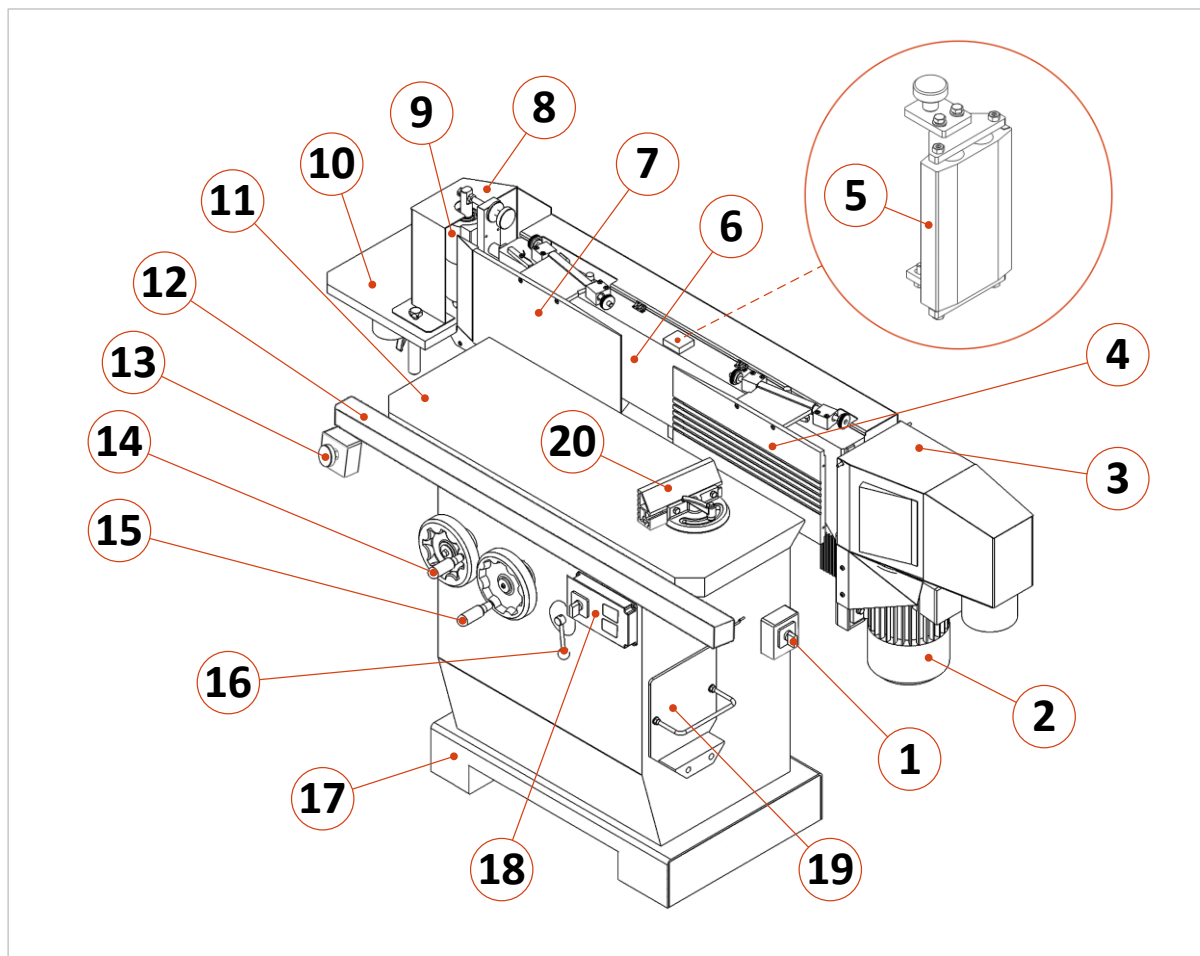


Figure 12: Machine overview - main components

| No. | Description   | No. | Description                                     |
|-----|---|-----|---|
| 1   | Main switch   | 11  | Support table                                   |
| 2   | Main motor  | 12  | Extendable table widening                       |
| 3   | Sanding cover (underneath driven drum + oscillator) | 13  | Emergency stop push button                      |
| 4   | Veneer fence (right) + veneer sanding device        | 14  | Handwheel for sanding unit inclination          |
| 5   | Insertable sanding pad                              | 15  | Handwheel for table height                      |
| 6   | Sanding belt  | 16  | Clamping lever for handwheel (15)               |
| 7   | Veneer fence (left)                                 | 17  | Machine socket                                  |
| 8   | Sanding cover for idler drum                        | 18  | Control switches                                |
| 9   | Idler drum and cylindrical sanding unit             | 19  | Holder for sanding pad                          |
| 10  | Side table for cylindrical sanding unit             | 20  | Combined workpiece & mitre fence $\pm 60^\circ$ |

## 9 Machining Possibilities

### 9.1 Workpiece Requirements



*The user is solely liable for any personal injury or damage to machinery caused by the processing of unauthorised materials (see section ⇒ 5.1.1).*

Maximum dimensions of workpieces that can be machined on the machine:

1050 x 350 x 150 mm

When machining very long or wide workpieces, additional aids must be used to support the workpiece, e.g.

- Extendable table widening (included as standard)
- Table extension, support rollers, lift table etc.

Minimum dimensions of workpieces that can be machined on the machine:

100 x 30 x 15 mm

Workpieces with smaller dimensions can basically only be machined by using additional auxiliary devices, e.g.

- Workpiece fence resp. mitre fence (included as standard)
- Wooden piece clamped on the table as kickback protection for sanding very narrow workpieces

### 9.2 Machining Methods

#### 9.2.1 Permitted Operations

- ✓ Sanding of long sides on the longitudinal sanding side (with non-inclined or inclined sanding unit)
- ✓ Sanding of end faces at the workpiece fence (with non-inclined or inclined sanding unit)
- ✓ Sanding angles on the mitre fence (with non-inclined or inclined sanding unit)
- ✓ Surface sanding of veneer protrusions on the sanding pad and with the veneer sanding device (only with non-inclined sanding unit)
- ✓ Sanding angles on the sanding pad (only with inclined sanding unit)
- ✓ Sanding of chamfers on the sanding pad (only with inclined sanding unit)
- ✓ Sanding on the cylindrical sanding unit (only with non-inclined sanding unit)

All machining methods that deviate from the above-mentioned operations are not permitted and must not be carried out on this machine.

Please also read the chapter 12 “Working with the Edge Sanding Machine”.

#### 9.2.2 Improper Operations

Apart from the deviating machining methods listed in section ⇒ 9.2.1 the following impermissible machining methods must be explicitly mentioned because they must not be carried out on this machine under any circumstances:

- ✗ Sanding of metal materials (e.g. re-sharpening of tools) or materials containing minerals
- ✗ Removing a standard cover or guard while the machine is running
- ✗ Removing a guard covering the unused area of the sanding belt



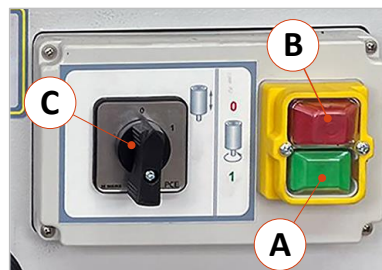
## 10 Switching the Machine ON and OFF

Before commissioning, carefully read and observe the operating manual and the safety instructions ⇒ 5.

|  |  |
|--|--|
|  | <p><b>Before switching on, check that</b></p> <ul style="list-style-type: none"> <li>• there are no loose parts on the table top and all tools have been removed,</li> <li>• the guards and covers are fitted in accordance with the regulations,</li> <li>• the extraction system is connected and functional,</li> <li>• the direction of rotation of the drive drum is correct,</li> <li>• and no persons are in a danger zone of the machine.</li> </ul> |
|--|--|

### 10.1 Control Switches

- The main switch (see left photo) is located on the right side of the machine.
- The control unit (see right photo) is located on the right front of the machine.



- 1 Main switch (lockable)
- A Switch on sanding belt drive
- B Switch off sanding belt drive
- C Rotary switch for oscillator

Figure 13: Control switches

### 10.2 Switching ON

- Before starting the sanding belt drive, turn the main switch (1) to position "I" and, if necessary, make sure that the emergency stop button on the left side of the machine is not locked.
- Start the sanding belt drive with the green push button (A).
- Use the rotary switch (C) to switch on the oscillator (position "1").

|  |  |
|--|--|
|  | <p><b>To prevent the sanding belt from wearing on one side and to obtain an optimum sanding result, the oscillator should always be switched on.</b></p> |
|--|--|

### 10.3 Switching OFF

- Switch off the sanding belt drive with the red push button (B).
- Use the rotary switch (C) to switch off the oscillator (position "0").
- Before leaving the machine or at the end of work, turn the main switch (1) back to the "O" position and secure it with a padlock against unauthorised restarting.

|  |   |
|--|---|
|  | <p><b>In case of interruptions, before leaving the machine as well as at the end of work, always release the sanding belt tension with the lever for the tensioning device.</b></p> |
|--|---|

### 10.4 Emergency Shutdown

- Press the emergency stop button on the left-hand side of the machine  
→ The motor stops immediately (braking time < 10 s).

## 11 Setting up and Adjusting the Machine



**Switch off the machine before setting and adjustment work and secure it against being switched on again unintentionally! Lock main switch with padlock!**

### 11.1 Mounting, tensioning and replacing the Sanding Belt

In order to be able to mount, tension or replace the sanding belt, the tensioning lever (H) is required, which hangs on the left-hand side of the machine (see ⇒ Figure 17).

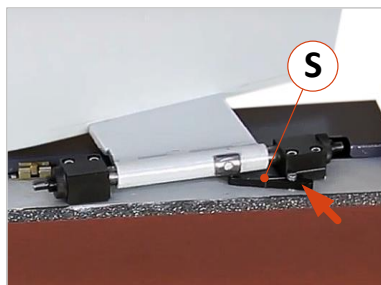


Figure 14: Fence locking springs

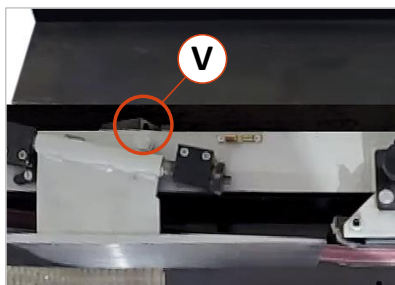


Figure 15: Lever receptacle (top view)

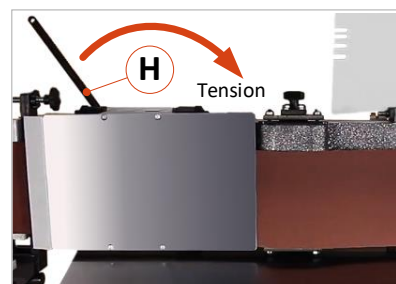


Figure 16: Tensioning sanding belt

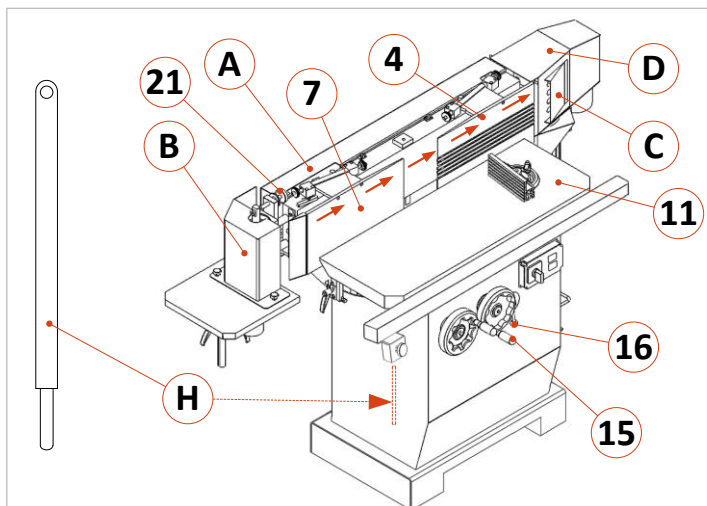


Figure 17: Mounting, tensioning and replacing of the sanding belt

- Remove the sanding belt covers (A), (B), (C) and (D).
- Take the tensioning lever (H) and insert it into the receptacle (V), which is located on the rear (⇒ Figure 15).
- Release the sanding belt tension by swivelling the tensioning lever (H) to the left.
- Loosen clamping lever (16) and move the worktable (11) down via the handwheel (15) until the two veneer fences (7) and (4) can be folded open.

- Open the two veneer fences (7) and (4) so that they automatically engage in the upper position via the corresponding locking springs (S).
- Then insert the new sanding belt. **Important:** Pay attention to the correct running direction (see arrow direction in ⇒ Figure 17) → The running direction is indicated by arrows on the back of the sanding belt.
- Fold the two veneer fences (7) and (4) back down to their lower positions by unlocking the two locking springs (S) first (see ⇒ Figure 14).



**Important: When folding down, make sure that the sanding belt is not crushed.**

- Slowly tension the belt by swivelling the lever (H) to the right (see ⇒ Figure 16).
- Switch on the sanding belt drive briefly and adjust the height of the belt run correctly with the adjusting wheel (21) → The sanding belt must run in the centre of the free drum.



**Increased risk of cutting/abrasion due to the completely exposed sanding belt during adjustment.**

- Finally, refit the belt covers (A), (B), (C) and (D) and reposition the worktable (11) to the desired height.

## 11.2 Height Adjustment of the Table Top

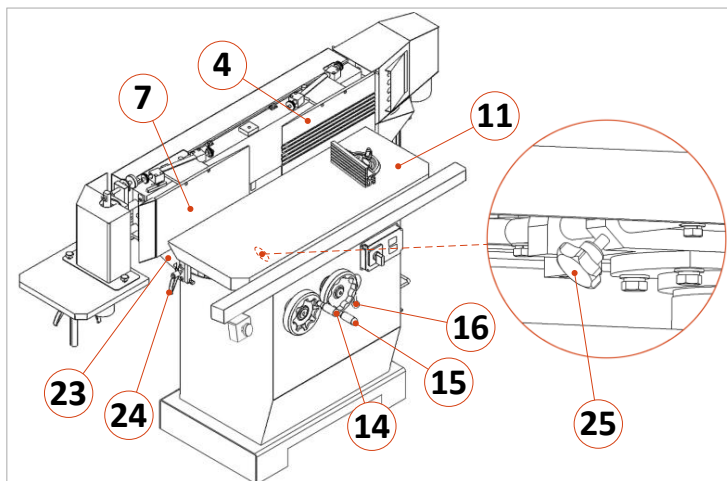


Figure 18: Adjusting the table top and the sanding unit

The table top is height-adjustable within a range of 230 mm:

- Loosen the clamping lever (16) located to the right of the handwheel (15).
- Set the desired table height with the handwheel (15):
  - Turn to the right  $\curvearrowright$  = upwards
  - Turn to the left  $\curvearrowleft$  = downwards
- Then tighten the clamping lever (16) again to fix the table in this position.



**Increased risk of crushing between table and machine body when adjusting downwards!**

## 11.3 Horizontal Adjustment of the Table Top

The table top can be adjusted horizontally forwards and backwards (but not sideways):

- First remove workpieces and tools from the table and check that all clamping levers are tightened.
- Then loosen the handle screw (25) located on the left under the table top (11).
- Push or pull the table top (11) with both hands to the desired position.
- Then tighten the handle screw (25) again to fix the table in this position.



**The potential danger increases with the distance between the table top and the sanding belt! The table must therefore be positioned as close as possible to the sanding belt without touching it.**



**Make sure that the table top does not bump against the two veneer fences (4) and (7).**



**Increased risk of crushing between veneer fences and table edge when moving the table!**

## 11.4 Adjusting the Inclination of the Sanding Unit

From its initial position, the sanding unit can be tilted backwards by up to 45°:

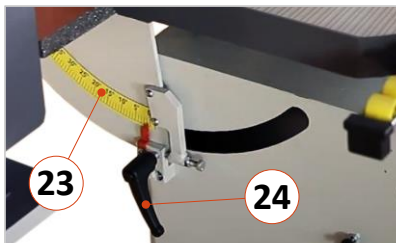


Figure 19: Scale and clamping lever

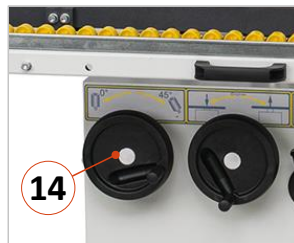


Figure 20: Handwheel

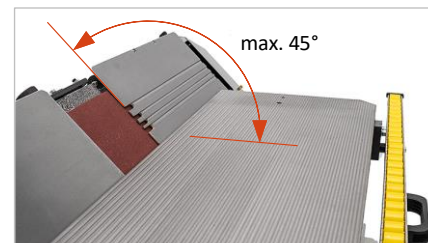


Figure 21: Aggregate inclined by 45°

- First remove workpieces and tools from the table and check that all clamping levers are tightened.
- Loosen the clamping lever (24) on the left side of the machine.
- Adjust the inclination with the hand wheel (14) → The angular position can be read off the scale (23).
- Tighten the clamping lever (24) again to fix the angle position.
- Position the table top as close as possible to the sanding belt so that it can still run freely.

## 11.5 Veneer Sanding Device with Sanding Pad

The sanding pad is used for sanding angles, chamfers and for plane sanding of veneer protrusions. For these types of processing, the veneer fences must also be folded down. The combination of the sanding pad with the two veneer fences (one of which has a grooved infeed ruler) results in the veneer sanding device.

### 11.5.1 Mounting the Veneer Sanding Device

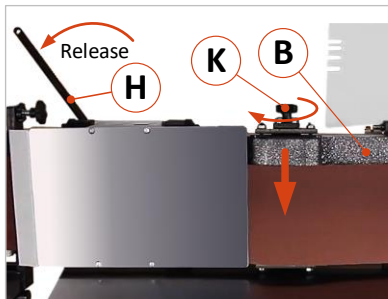


Figure 22: Insert sanding pad

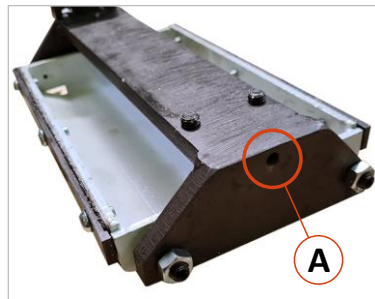


Figure 23: Receptacle on sanding pad

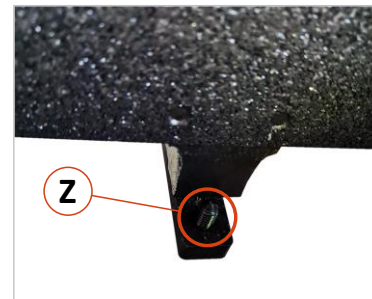


Figure 24: Centring pin in machine

- Switch off the main switch (1) and secure it by locking it.
- Loosen the handle screw (25) and pull the table top (11) backward (away from the sanding belt).
- Release the tension of the sanding belt with the tension lever (H).
- For easier working and a better overview, the two veneer fences (7) and (4) should be in the raised position and secured against falling down by means of locking springs (S). Beforehand, position the table downwards so that the two veneer fences can be opened.
- Then push the sanding pad between the loose sanding belt and the flat sanding belt back (B) from above into the sanding device (see ⇨ Figure 22) → To do this, insert the centring pin (Z) of the machine into the receptacle (A) on the sanding pad.
- After the sanding pad has been correctly inserted, fix it in place with the clamping wheel (K).
- Then fold down the two veneer fences (7) and (4) again by unlocking them first with the locking spring (S) → Make sure that the sanding belt is not crushed during this process.
- Place the table top (11) as close as possible to the sanding belt and fix it with the handle screw (25).
- The sanding pad and the veneer sanding device are now ready for use.

### 11.5.2 Disassembly of the Veneer Sanding Device

To convert the machine back to surface sanding of long sides, end sides or angles, and to use the entire sanding belt length without veneer fences, proceed as follows:

- Loosen the handle screw (25) and pull the table top (11) backward (away from the sanding belt).
- Release the tension of the sanding belt with the tension lever (H).
- Fold up the two veneer fences (7) and (4) so that they automatically engage in the upper position via the locking springs (S) and are secured against falling down.
- Now unscrew the clamping wheel (K) completely and pull out the sanding pad upwards. **Tip:** After removing the sanding pad, screw the clamping wheel (K) back into the free threaded hole so that it cannot get lost. You can store the removed sanding pad in the tray (19) on the machine side (see ⇨ Figure 12).
- Place the table top (11) as close as possible to the sanding belt and fix it with the handle screw (25).
- The machine is now ready for surface sanding on the full belt length.

### 11.5.3 Calibrating the Veneer Fence (Zeroing)

**An already tensioned sanding belt must be installed in the machine for adjustment.**

At regular intervals and as soon as a sanding belt with a different grit or a heavily worn sanding belt is replaced by a new one, the sanding stops must be calibrated respectively set to zero.

In the zero position (= home position), the two veneer fences (on the infeed side on the right and outfeed side on the left) must be set so that they are flush with the sanding belt, which rests on the inside on the sanding pad built into the machine ⇒ 11.5.1). Before starting the adjustment, make sure that

- a) the main switch is switched off and secured by locking,
- b) both veneer fences are folded down resp. closed
- c) and a tensioned sanding belt is installed in the machine.

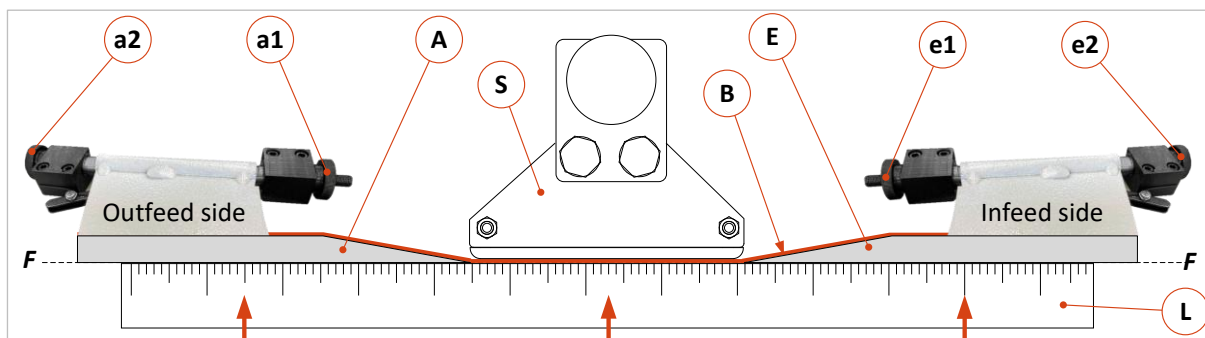


Figure 25: Calibrate veneer fences to zero position

**Adjustment aid:** Use a ruler (L) to orientate the zero position and place it from the front against the sanding belt (B) in front of the sanding pad (S) as shown in ⇒ Figure 25). If no ruler is at hand, move the table upwards and place the table edge horizontally towards the sanding belt (B) until it lightly touches it. To adjust the fence position, the two pairs of knurled nuts (a1) + (a2) and (e1) + (e2) are used. Depending on whether the fence plate has to be adjusted forwards or backwards, one nut serves as an adjusting nut and the other as a locking nut.

- Adjust the left veneer fence (A) of the outfeed side via the knurled nuts (a1) and (a2) so that the fence surface is in alignment (see F) with the sanding belt front face.
- Then adjust the right veneer fence (E) of the infeed side via the knurled nuts (e1) and (e2) so that the fence surface is in alignment (see F) with the front of the sanding belt.

**Important:** As soon as the respective adjustment has been made, e.g. at knurled nut (e1), the opposite knurled nut (e2) must be tightened again, as this then serves as a locking nut.

### 11.5.4 Adjusting the Sanding Depth of the Veneer Fences

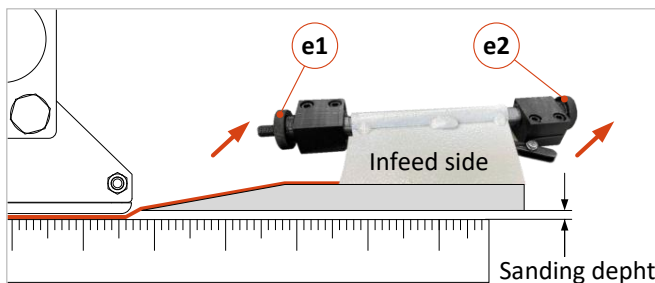


Figure 26: Direction of rotation of the drive drum

If a sanding depth needs to be adjusted (e.g. for chamfer sanding or sanding veneer edges), only the right-hand veneer fence (E) with the grooved infeed ruler is adjusted. The grooves in the fence plate are used to insert the veneer protrusion to be sanded.

The sanding depth increases due to the inclined adjustment of the infeed ruler to the rear-right.

The setting is made according to the previous section ⇒ 11.5.3.

**Please note:** Setting too deep in one pass can cause belt overheating and burn marks on the workpiece. Set a shallow depth and sand in several passes.

## 11.6 Using the Cylindrical Sanding Unit

### 11.6.1 Preparing the Cylindrical Sanding Unit

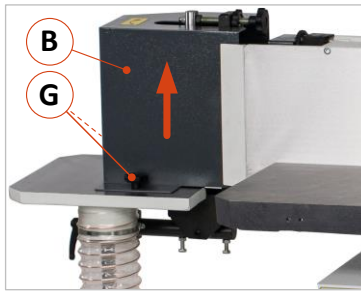


Figure 27: Sanding cover



Figure 28: Side table height

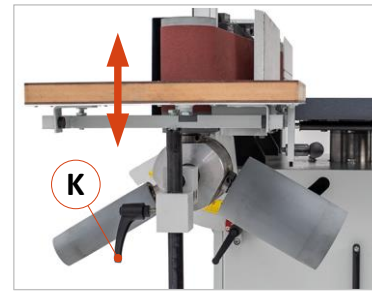


Figure 29: Side turntable height

- Switch off the main switch (1) and secure it by locking it.
- Remove the two handle screws (G) and take off the sanding cover (B) as shown in ⇒ Figure 27.
- Stow the cover and the two handle screws in a suitable place.
- Loosen the clamping lever (K) and adjust the desired working height of the side table:
  - For version KSM9-3000/200 see ⇒ Figure 28
  - For version KSM9-3100/150 see ⇒ Figure 29



**Note the increased risk of cutting/abrasion due to the exposed sanding belt on the drum!**



**After finishing the cylindrical sanding work, refit the sanding cover (B).**

- On version KSM9-3000/200, the cylindrical sanding unit is now ready for use.
- For version KSM9-3100/150, further settings are required on the revolving turret head (see ⇒ 11.6.2).

### 11.6.2 Adjusting the Revolving Turret Head

The cylindrical sanding unit of the KSM-9 3100/150 model is equipped with a revolving turret head<sup>3</sup> with three different sanding drums (60, 100 and 120 mm), curves and other round sanding operations can be carried out even more flexibly.

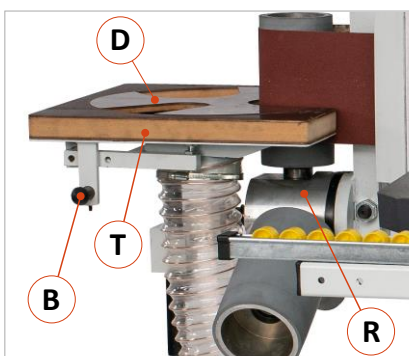


Figure 30: Cylindrical sanding components

The side table, which can be folded up to a 45° position, is equipped with a turntable that can be adapted to the drum diameter.

| Pos. | Description   |
|------|---|
| R    | Turret head with sanding drums Ø 60, 100 und 120 mm |
| T    | Fold-out side table top (self-locking)              |
| D    | Turntable with 3 recesses for drum fix positions    |
| B    | Locking bolt for unlocking the folded-up side table |

Changing the drum diameter see section ⇒ 11.6.3

**Remark:** The side table plate (T) as well as the locking mechanism of the turntable (D) have been correctly adjusted at the factory. If the side table top (T) has become misaligned after prolonged use and is no longer horizontal, it can be readjusted using two screws. If the turntable (D) no longer engages properly, there is also an adjustment screw for this.

Details on this can be found in section ⇒ 14.5 “Maintenance and Inspection”.

<sup>3</sup> For constructional reasons, the rotary star turret is only available for model KSM9-3100/150.

### 11.6.3 Changing the Drum Diameter

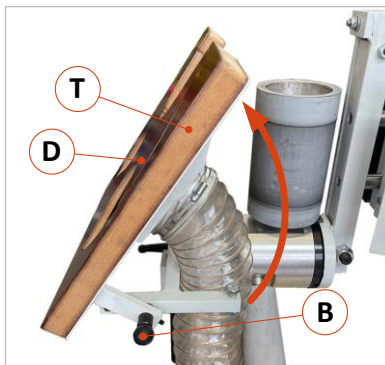


Figure 31: Fold table to 45°

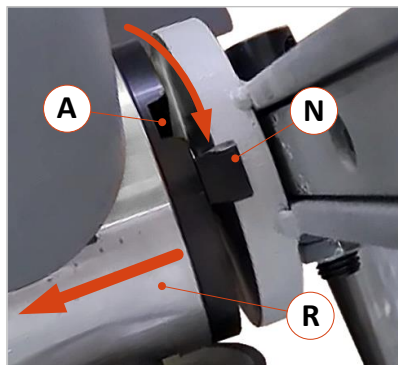


Figure 32: Change sanding drum



Figure 33: Turret head engaged

- Switch off the main switch (1) and secure it by locking it.
- **Important:** Before changing the turret head to another drum diameter, the sanding belt must be released with the tension lever and removed from the deflection drum of the cylindrical sanding unit.
- Fold the side table (T) upwards to the 45° position and engage it via the locking bolt (B) so that the revolving turret head is free and can be rotated (see ⇒ Figure 31).
- Pull the turret unit out of the jig in the direction of the arrow (see ⇒ Figure 32). Continue turning the turret to the desired sanding drum (⇒ Figure 33) until the detent lug (N) engages in the detent receptacle (A).
- The sanding belt can now be reinstalled and tensioned with the tensioning lever.
- Then turn the turntable (D) in the side table to the position that matches the selected drum until it engages there (see ⇒ Figure 31).
- Carefully fold the side table (T) back down into the horizontal position.
- The sanding drum is now ready for use.
- Turn on the main switch again and start working.



**Increased risk of crushing when folding down the side table. Fold down the table carefully and do not let it fall down! Keep your hands out of the danger zone.**



**After finishing the cylindrical sanding work, refit the sanding cover (B).**

## 11.7 Combined Workpiece and Mitre Fence

The adjustable workpiece and mitre fence can be quickly and easily attached to the machine table with the clamping lever (K) and removed if necessary. When mounted on the table top, it can be angularly adjusted in the range of  $\pm 60^\circ$  by loosening the clamping lever (K) and can thus also be used as a mitre fence.

### 11.7.1 Converting the Fence for high and flat Workpieces

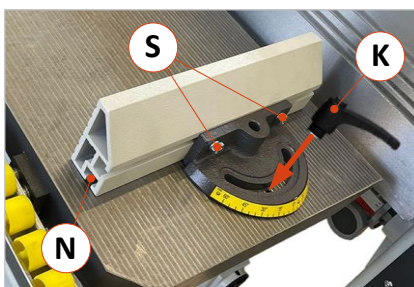


Figure 34: Convert fence for flat workpieces

To convert the workpiece fence for machining flat workpieces, proceed as follows:

- Loosen the two screws (S).
- Pull out the stop profile rail.
- Tilt the rail 90° to the left onto the flat side.
- Now reinsert the rail via the groove (N).
- Then tighten the two screws (S) again.

## 12 Working with the Edge Sanding Machine

### 12.1 Machining extra-long Workpieces

If workpieces are to be machined where the surface to be sanded is longer than the sanding area of the belt, the machining area of the belt must be extended. To do this, proceed as follows:

- Switch off the main switch (1) and secure it by locking it.
- Remove the sanding pad, if fitted (see section ⇒ 11.5.1)
- Fold the two veneer fences (7) and (4) upwards until they engage securely.

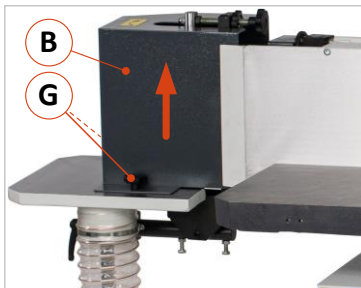


Figure 35: Remove left cover (B)

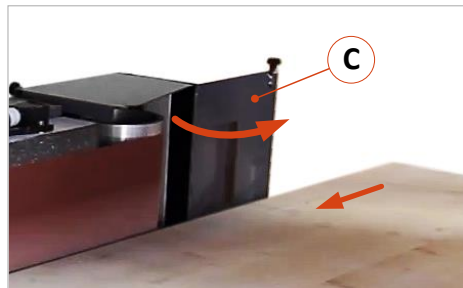


Figure 36: Open right cover (C)

- ⇒ Figure 35: Loosen the two handle screws (G) and remove the left protective cover (B).
- ⇒ Figure 36: Open the protective cover (C) and fasten it in the maximum open position.

- Adjust the desired table height and position the table edge as close as possible to the sanding belt.
- If necessary, set the inclination for the sanding unit to the desired angle (see section ⇒ 11.4).
- Before machining, make sure that all clamping levers for the table and sanding unit are firmly tightened.

#### Sanding workpiece:

- Switch on main switch, sanding drive and oscillator.
- Hold the workpiece against the sanding belt and move it along the sanding belt from right to left until it is sanded cleanly (see direction of arrow in ⇒ Figure 36).

|  |   |
|--|---|
|  | <b>Caution: Increased risk of cutting/abrasion due to the exposed sanding belt on both drums!</b>   |
|  | <b>Increased danger of drawing in on the right-hand drum when the protective cover (C) is open!</b> |
|  | <b>After completion of the operation, refit the two protective covers (B) and (C).</b>              |

### 12.2 Sanding with the Workpiece Fence

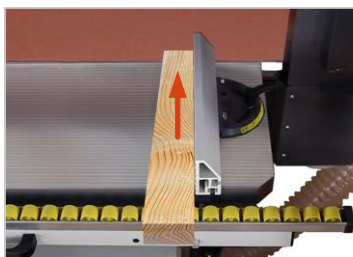


Figure 37: Sanding at right angles

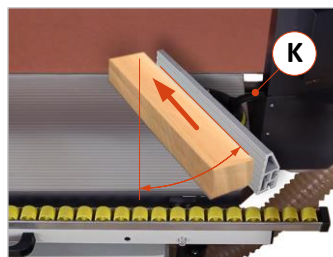


Figure 38: Sanding mitres

The following operations can be carried out on the combined workpiece and mitre fence:

- ✓ Sanding of end faces (90°)
- ✓ Mitre sanding ( $\pm 60^\circ$ )
- ✓ Surface sanding of timbers
- ✓ Sanding unevenness flat

**Please note:** This operation is carried out without a sanding pad and with the veneer fences folded upwards.

- Adjust the desired table height and position the table edge as close as possible to the sanding belt.
- If necessary, loosen the clamping lever (K) and set a mitre angle at the fence (see ⇒ Figure 38).
- Before machining, make sure that the clamping levers for the table and fence are firmly tightened.
- Switch on main switch, sanding drive and oscillator.
- First place the workpiece against the fence and hold it firmly with both hands.
- Feed the workpiece to the sanding belt and sand it (see arrow direction in ⇒ Figure 37 / ⇒ Figure 38).
- Check the surface and repeat the process until the desired sanding result is achieved.



## 12.3 Angle Machining with inclined Sanding Unit

Workpiece surfaces to be machined at an angle that are wider than the sanding belt height cannot be sanded on the mitre fence (see ⇒ Figure 38). With the sanding unit's tilt adjustment of up to 45°, mitres as well as pointed and sharp edges can be sanded without any problems, even on very wide or long workpiece surfaces.

**Please note:** This operation is carried out without a sanding pad and with the veneer fences folded upwards.

- Switch off the main switch (1) and secure it by locking it.
- Remove all tools and other objects lying on the table top.
- Set the workpiece fence to 0° (right-angle machining).
- Now adjust the sanding unit to the desired angle of inclination according to section ⇒ 11.4.
- Adjust the desired table height and position the table edge as close as possible to the sanding belt.
- Make sure that the clamping levers for the table, sanding unit and fence are firmly tightened.
- Switch on main switch, sanding drive and oscillator.
- First place the workpiece against the fence and hold it firmly with both hands.
- Feed the workpiece to the sanding belt and sand it (see arrow direction in ⇒ Figure 37 / ⇒ Figure 38).
- Check the surface and repeat the process until the desired sanding result is achieved.

## 12.4 Sanding on the Cylindrical Sanding Unit

Before using the cylindrical sanding unit, first convert the machine according to section ⇒ 11.6.

If equipped with a revolving turret head, also follow the instructions in sections ⇒ 11.6.2 and ⇒ 11.6.3.



**Caution: Increased risk of cutting/abrasion due to the exposed sanding belt on the left drum!**

- After conversion according to section ⇒ 11.6 and adjustment of the side table or turntable height, switch on the main switch, sanding drive and oscillator.

### Sanding inner radii:

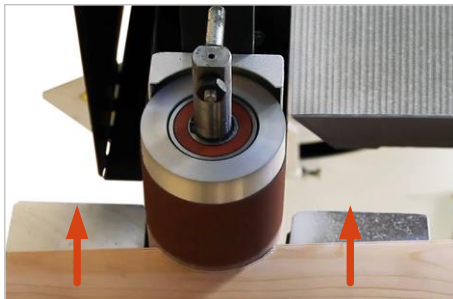


Figure 39: Sanding an inner radius

- Hold the workpiece firmly with both hands, guide it to the sanding drum and sand the radius.
- For this, press the workpiece slowly and centrally against the sanding drum (see arrow in ⇒ Figure 39).



**Do not press the workpiece too hard and do not remove too much material in one pass! Always sand in several passes and repeat the process until the desired depth of the radius is reached.**

### Sanding outer radii and curves:

- Hold the workpiece with both hands and guide it towards the right side of the sanding drum (in the running direction).
- Sand it round by pressing against it and swinging it back and forth until the desired result is achieved (see ⇒ Figure 40).



**Increased risk of kickback when pressing the workpiece against the left side of the drum (against the running direction)! Sanding on the right drum side.**



Figure 40: Sanding an outer radius



**After finishing the cylindrical sanding work, refit the sanding cover (B).**

## 12.5 Sanding Angles and Chamfers on the Sanding Pad

### Preparatory measures:

- First switch off the main switch (1) and secure it by locking it.
- Mount the sanding pad (see section ⇒ 11.5.1) and fold down both veneer fences.
- Remove all tools and other objects lying on the table top.
- Now adjust the sanding unit to the desired angle of inclination according to section ⇒ 11.4.
- Set the desired table height and position the table as close as possible to the sanding belt.
- Make sure that the clamping levers for the table, sanding unit and fence are firmly tightened.
- Switch on main switch, sanding drive and oscillator.

### 12.5.1 Sanding Angles on the Sanding Pad



Figure 41: Sanding angles on sanding pad

- Adjust both veneer fences to zero position (⇒ 11.5.3).
- Hold the workpiece firmly with both hands and feed it in the direction of the arrow (⇒ Figure 41) to the sanding belt and sand the angle.
- Check the surface and repeat the process until the desired sanding result is achieved.



***Do not remove too much material in one pass!  
Sanding in several passes.***

### 12.5.2 Sanding Chamfers on the Sanding Pad

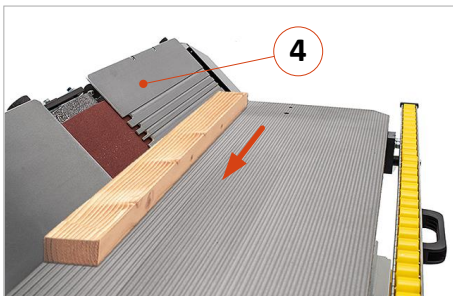


Figure 42: Sanding chamfers on sanding pad

- **Important:** First adjust a sanding depth for the chamfer on the infeed ruler (4) of the veneer fence. The detailed procedure can be found in the section ⇒ 11.5.4.
- Hold the workpiece firmly with both hands. Starting from the side of the infeed ruler, push it forward along the two veneer fences in the direction of the arrow (⇒ Figure 42).
- Check the chamfer, increase the sanding depth if necessary and carry out the process again.

### 12.5.3 Sanding off Veneer Protrusions

In order to be able to sand off veneer protrusions, the sanding unit must first be brought back into the 90° position (see ⇒ 11.4). The grooves on the infeed ruler are used to insert the veneer protrusion to be sanded off.



Figure 43: Sanding off veneer protrusions

- Adjust both veneer fences to zero position (⇒ 11.5.3).
- Adjust the height of the table top using the handwheel (15) so that the veneer protrusion to be sanded can be inserted into one of the grooves (N) of the infeed guide. Fix the table again with clamping lever (16).
- Hold the workpiece firmly with both hands. Starting from the side of the infeed ruler, push it forward along the two veneer fences in the direction of the arrow (see ⇒ Figure 43).
- If the veneer protrusion to be sanded is higher than the depth of the groove, repeat the sanding process until the protrusion is completely sanded flat.

## 13 Troubleshooting

Proceed systematically when searching for the cause of a malfunction. If you are unable to find the fault or to remedy the malfunction, contact our customer service department (phone number: **+49 (0) 7571 / 755-0**).

Before you call us, please follow these steps:

- Make a note of the type, machine number and year of production (see nameplate).
- Keep this operating manual (and any circuit diagrams) to hand.
- Describe the fault to us in detail so that a competent remedy can be found.

| Fault   | Possible Cause   | Remedy  |
|---|--|---|
| Machine or sanding unit does not start        | No voltage   | → Power supply / connections / check phases (electrician!)  |
|   | Main switch (1) defective  | → Replace main switch (electrician!)  |
|   | Push button (A) defective  | → Replace bush button (electrician!)  |
|   | External main fuse defective   | → Replace external fuse   |
|   | Main motor defective   | → Replace motor (customer service)  |
|   | Emergency stop button pressed  | → Pull/unlock E-Stop button   |
| Machine stops during work                     | Machine overheated / overloaded. Thermal motor circuit breaker has been tripped. | → Switch off the machine completely and allow the motor to cool down. Then switch the machine on again. |
| Machine slows down during sanding             | Excessive contact pressure of the workpiece                                      | → Reduce contact pressure   |
| Oscillator does not start                     | Oscillating motor defective  | → Replace motor (customer service)  |
|   | Oscillator rotary switch (C) defective   | → Replace rotary switch (electrician!)  |
| Abrasive belt runs off the sanding drums      | Sanding belt not centrally adjusted  | → Adjust the belt run via screw (21)  |
|   | Sanding belt not tensioned correctly   | → Retension with tension lever  |
|   | Lever clamping force insufficient  | → Contact customer service  |
|   | Sanding belt is crooked  | → Replace sanding belt  |
| The sanding belt makes rattling noises        | Irregularities at bonding point  | → Replace sanding belt  |
|   | Sanding belt is wet or damp  | → Let the belt run empty for a few minutes so that it can dry<br>→ Ensure dry storage                   |
|   | Sanding drums/guides dirty   | → Clean rollers and guides  |
|   | Belt run is not parallel   | → Contact customer service  |
| Sanding belts tear or break                   | Storage was too wet or damp  | → Replace sanding belt<br>→ Ensure dry storage  |
|   | Overload of the sanding belt   | → Select a lower sanding depth<br>→ Use a belt with a higher grit                                       |
|   | Sanding belt inserted incorrectly  | → Observe arrow(s) on the belt rear   |
|   | Belt sides damaged or belt badly glued   | → Replace sanding belt<br>→ Make sure the glue joints are good  |
| Skewed sanding results                        | Parallelism of the belt support adjusted   | → Contact customer service  |
| Longitudinal stripes on the workpiece surface | Defective or damaged sanding belt  | → Replace sanding belt and check workpiece for foreign inclusions                                       |
|   | Sanding belt heavily soiled  | → Replace sanding belt  |
|   | Sanding drums/guides dirty   | → Clean rollers and guides  |
| Cross stripes on the workpiece surface        | Bad glue joint or other irregularities on the sanding belt                       | → Replace sanding belt  |
| Burn marks on the belt and/or workpiece       | Grit too fine for selected sanding depth   | → Use a belt with a higher grit or select a lower sanding depth   |
|   | Excessive contact pressure of the workpiece                                      | → Reduce contact pressure   |
|   | Belt worn or heavily soiled  | → Replace sanding belt  |

## 14 Maintenance and Inspection



***Before carrying out any maintenance and inspection work, chapter ⇨ 5 "Safety" must be read carefully and observed!***

Breakdowns caused by inadequate or improper maintenance can result in very high repair costs and long machine downtimes. Regular maintenance is therefore essential.



***Switch off the machine during all maintenance and repair work and secure it against being switched on again unexpectedly! Lock the main switch with a padlock!***

Due to the different operating conditions, it is not possible to determine in advance how often a wear check, inspection or maintenance is required. Appropriate inspection intervals should be determined considering your operating conditions.

### 14.1 Cleaning

Regular and thorough cleaning guarantees a long service life of the machine and also contributes to safety.

- At the end of each shift, clean the table and the inside of the machine with compressed air.
- Clean all moving parts weekly with turpentine or other suitable and non-hazardous thinners.
- Clean the guides of the extendable table extension especially carefully with a soft brush and turpentine or other suitable and harmless thinners.

### 14.2 Lubrication

The machine was subjected to a test run at the factory for a longer period of time and was already lubricated ready for operation. Relubrication before commissioning is therefore not necessary.

- Clean the machine and machine parts with compressed air and apply a thin layer of oil or grease to all moving parts of the machine.
- Check all sliding or rolling parts weekly for ease of movement and lubricate with a thin oil if necessary.
- Apply a few drops of oil weekly to the threads of the clamping and adjustment levers.

Lubricate the machine only with special grease, e.g.

- **ARCANOL BN 102**
- **CALIPSOL H442B**
- **Shell Gadus S2 V100 3 (formerly SHELL Alvania 3)**

For oil lubrication we recommend:

- **Motor oil type 20 W 40**

Always use the same grease/oil.

### 14.3 Checking the Function of the Emergency Stop Button

- Check the function of the emergency stop button weekly.  
Press the emergency stop button while the machine is running  
→ The machine must stop immediately (< 10 s).

## 14.4 Checking the Safety Labels

- Check regularly that all safety labels on the machine are present and in good legible condition.
- The safety labels must be completely present and always clearly legible. This applies especially to the table “Safety Instructions”.

## 14.5 Readjusting the Turntable

The model KSM-9 3100/150 is equipped with a rotary table on the left side of the machine. This can be readjusted if it no longer engages neatly:

### Align table top:

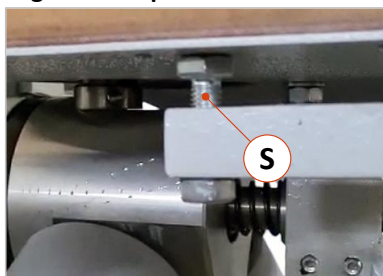


Figure 44: Align table top

If the table is no longer correctly aligned after checking with a spirit level:

- Fold down the table top.
- Put on spirit level.
- Align horizontally with the two screws (S).

### Adjusting the locking pin:



Figure 45: Turntable locking pin

If the turntable no longer engages neatly into the intended positions, the locking mechanism can be readjusted accordingly. The adjustment for the locking pin (R) is made from the back of the plate.

- Fold the table top up to 45° position and let it snap into place.
- Turn the turntable so that the locking bolt (R) is visible.
- Readjust slightly with the adjusting screw (E). Then turn the plate, check the locking mechanism and readjust if necessary.

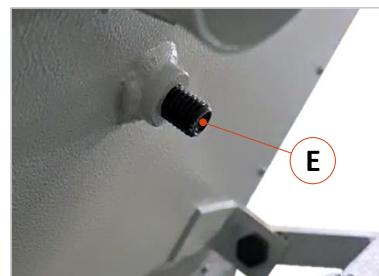


Figure 46: Locking bolt adjusting screw

## 14.6 Taking the Machine out of Operation / Storage

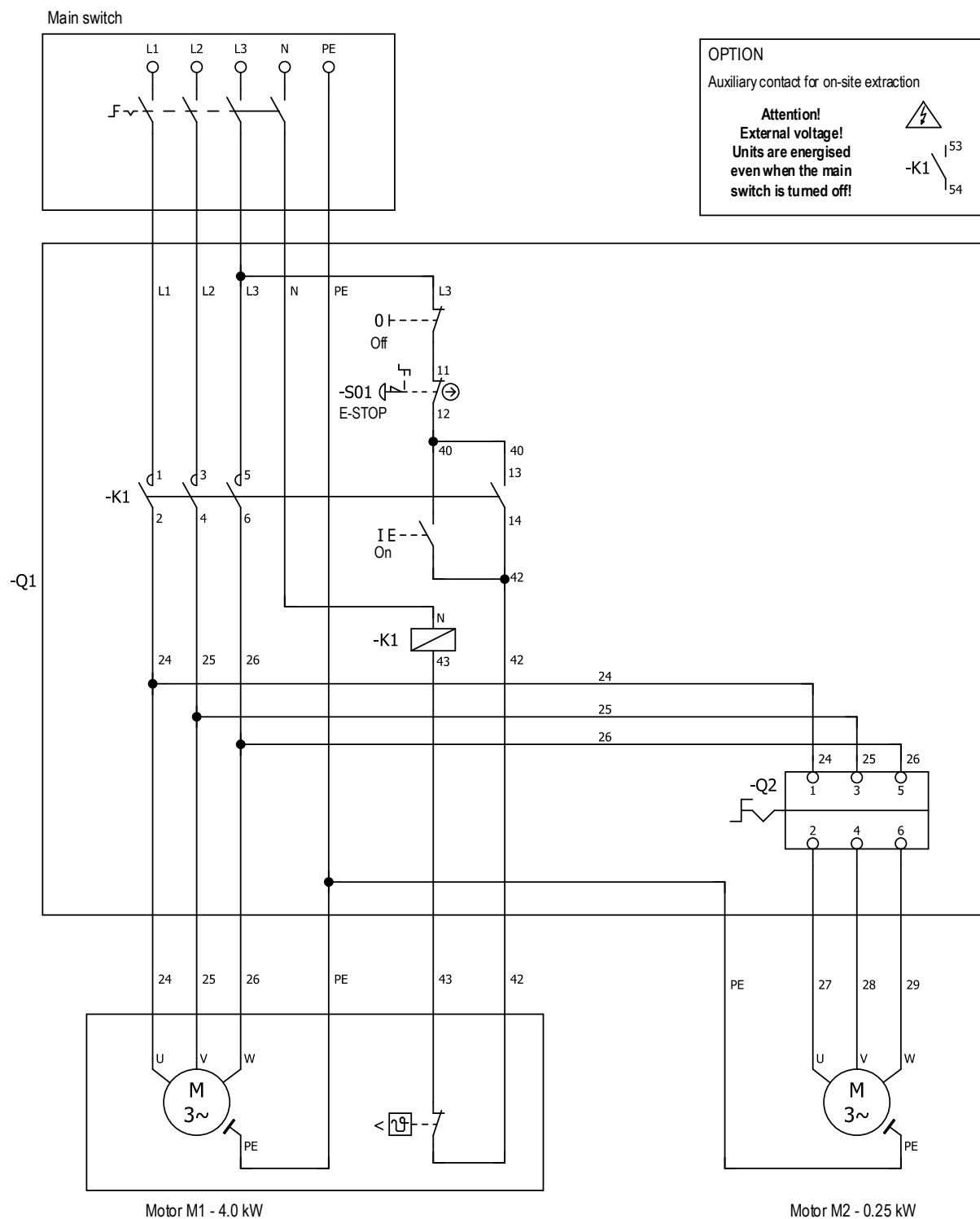
- When putting the machine out of operation, switch off the electrical system.
- If the machine will not be used for a long time, clean the machine carefully after switching off the electrical system and treat the worktable and the other bare parts with an anti-corrosion agent.
- The machine must not be stored in a damp room and must be protected against the effects of the weather.

## 14.7 Average Situations / Emergencies

|  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>• <b><i>In case of flooding of the work area, switch off the power supply immediately!</i></b></li> <li>• <b><i>In case of fire, immediately switch off the power supply and use a class A fire extinguisher. Alternatively, fight the fire with a fire blanket. If the power cannot be switched off, you need a class C powder extinguisher.</i></b></li> <li>• <b><i>Never extinguish burning electrical equipment with water!</i></b></li> </ul> |
|  | <ul style="list-style-type: none"> <li>• <b><i>Before the machine is put back into operation, it must be checked by a trained and approved technician.</i></b></li> <li>• <b><i>The working area around the machine (see section ⇒ 6.4) always be clear.</i></b></li> </ul>  |
|  | <ul style="list-style-type: none"> <li>• <b><i>The machine must not be used in potentially explosive atmospheres!</i></b></li> </ul>   |

# 15 Electrical Circuit Diagram


**Work on the electrical components of the machine may only be carried out by an authorised electrician!**



| BMK  | Indication                    | Type       | Manufacturer | Art. No.   | Quantity |
|------|-------------------------------|------------|--------------|------------|----------|
| -S01 | E-STOP combination            | CEPY1-2001 | ABB          | 4079.0071. | 1        |
| -K1  | Auxiliary switch block 1S, 1Ö | LA1KN11    | Schneider    | 4078.0132  | 1        |

Figure 47: Electrical circuit diagram

## 16 Options and Accessories

|   |  |
|---|--|
|  | <p><b>Only use original accessories and spare parts specified by the manufacturer. The use of other accessories or spare parts can cause injury to persons and damage to the machine. The manufacturer accepts no liability for any damage resulting from the use of non-prescribed accessories and spare parts or additional components from third parties!</b></p> |
|---|--|

### 16.1 Sanding Belts for KSM9-3000/200

| Article               | Dimensions (L x W) | Grit | Art. No.          |
|-----------------------|--------------------|------|-------------------|
| Sanding belts (5 pcs) | 3000 x 200         | K60  | KSM9-3000/200-007 |
| Sanding belts (5 pcs) | 3000 x 200         | K80  | KSM9-3000/200-008 |
| Sanding belts (5 pcs) | 3000 x 200         | K100 | KSM9-3000/200-009 |
| Sanding belts (5 pcs) | 3000 x 200         | K120 | KSM9-3000/200-010 |
| Sanding belts (5 pcs) | 3000 x 200         | K180 | KSM9-3000/200-011 |
| Sanding belts (5 pcs) | 3000 x 200         | K220 | KSM9-3000/200-012 |

### 16.2 Sanding Belts for KSM9-3100/150

| Article               | Dimensions (L x W) | Grit | Art. No.          |
|-----------------------|--------------------|------|-------------------|
| Sanding belts (5 pcs) | 3100 x 150         | K60  | KSM9-3100/150-007 |
| Sanding belts (5 pcs) | 3100 x 150         | K80  | KSM9-3100/150-008 |
| Sanding belts (5 pcs) | 3100 x 150         | K100 | KSM9-3100/150-009 |
| Sanding belts (5 pcs) | 3100 x 150         | K120 | KSM9-3100/150-010 |
| Sanding belts (5 pcs) | 3100 x 150         | K180 | KSM9-3100/150-011 |
| Sanding belts (5 pcs) | 3100 x 150         | K220 | KSM9-3100/150-012 |


### 16.3 Further Options

| Article  | Description   | Art. No.          |
|--|---|-------------------|
| <b>Mobile Base</b>   | With castors and lifting rod for steering and lifting.                    | KSM-9-Fahrwerk    |
| <b>Switching contact for extraction on model KSM9-3000/200</b> | Switch contact for automatic switching of the extraction system (ON/OFF). | KSM9-3000/200-005 |
| <b>Switching contact for extraction on model KSM9-3100/150</b> | Switch contact for automatic switching of the extraction system (ON/OFF). | KSM9-3100/150-005 |


You will find further accessories and spare parts in our online shop <https://www.hokubema.com>.

## 17 Disassembly and Scrapping


When dismantling and scrapping the machine, the current EU regulations or the respective regulations and laws of the country of operation, which are prescribed for proper dismantling and disposal, must be observed. The aim is to dismantle the machine and its various materials and components properly, to recycle all possible parts and to dispose of non-recyclable components in the most environmentally friendly way.

|   |  |
|---|--|
|  | <p><b>Please pay particular attention to</b></p> <ul style="list-style-type: none"> <li>• <i>the dismantling of the machine in the working area</i></li> <li>• <i>proper dismantling of the machine and accessories</i></li> <li>• <i>a safe and proper removal of the machine</i></li> <li>• <i>proper separation of all components and materials.</i></li> </ul> |
|---|--|


When dismantling and disposing the machine, the laws and regulations in force at the place of use concerning health and environmental protection must be observed.


|   |   |
|---|---|
|  | <p><b>Remove all residues of oil, grease and other lubricants and have them disposed of properly by a qualified disposal company.</b></p> |
|---|---|

When separating, disposing of or recycling the machine materials, comply with the environmental protection laws in force at the place of use regarding the disposal of industrial solid waste toxic and hazardous waste.

|  |  |
|--|--|
|  | <ul style="list-style-type: none"> <li>• <i>Hoses and plastic parts as well as other components that are not made of metal must be dismantled and recycled or disposed of separately.</i></li> <li>• <i>Electrical components such as cables, switches, connectors, transformers, etc. must be removed and (if possible) recycled or otherwise disposed of in a qualified manner.</i></li> <li>• <i>Pneumatic and hydraulic parts such as valves, solenoid valves, pressure regulators, etc. must be removed and (if possible) recycled or otherwise disposed of in a qualified manner.</i></li> <li>• <i>Dismantle the base frame and all metal parts of the machine and sort them according to material type. Metals can be melted down and recycled.</i></li> </ul> |
|--|--|

In the event of improper disposal of lubricants, the following residual risks to the environment and health exist:

|   |  |
|---|--|
|  | <p><b>Pollution of the environment by seepage into groundwater or sewage system.</b></p> |
|---|--|

|   |   |
|---|---|
|  | <p><b>Poisoning of the personnel contracted for the disposal.</b></p> |
|---|---|

**Note:** The disposal of lubricants considered toxic and hazardous must be carried out in accordance with the regulations and laws in force at the respective place of use. Only qualified disposal companies that have the appropriate permits for the disposal of used oil and lubricants are to be commissioned with the disposal.



# CE EU - Declaration of Conformity

in accordance with the EU Machinery Directive 2006/42/EC Annex II A

**The manufacturer,**

HOKUBEMA Maschinenbau GmbH

Graf-Stauffenberg-Kaserne

Binger Str. 28 | Halle 120

D- 72488 Sigmaringen (Germany)

Phone: +49 (0) 7571 / 755 - 0

Fax: +49 (0) 7571 / 755 - 222

hereby declares that the manufactured machine

**Edge Sanding Machine WOODPECKER KSM-9 3000/200 and KSM-9 3100/150**

Machine-No.: .....

Year of manufacture: .....

in the version provided complies with the following directives:

- Machinery Directive 2006/42/EC
- EMC Directive 2014/30/EU

Harmonised standards applied, in particular:

- EN 60204-1: 2007-06 Safety of machinery - Electrical equipment of machines  
Part 1: General requirements (IEC 60204-1:2005)
- DIN EN ISO 12100: 2011-03 Safety of machinery - General principles for design -  
Risk assessment and risk reduction

Mr. Andreas Ganter, Graf-Stauffenberg-Kaserne, Binger Str. 28 | Halle 120,  
72488 Sigmaringen (Germany), is authorised to compile the technical documentation.

Sigmaringen, 30.05.2022

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Reinhold Beck  
Business Manager