# SMG Orbi-Edge 426W Workshop Pipe Cutting and Beveling Machine

## Operation Manual

**Please read this manual carefully before installation and keep it in a safe place for future reference.**

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## PART 1 PREFACE

Thank you for purchasing our stationary pipe cutting and beveling machine. This manual provides a comprehensive guide to the machine's principles, design, features, technical specifications, transportation, installation, operation, and safety guidelines.

Please ensure you read this manual thoroughly before proceeding with installation or operation to ensure safe and effective use.

## PART 2 SAFETY INSTRUCTIONS

User safety is our top priority in our product design.

**READ THE FOLLOWING CONTENT BEFORE WORKING**

To prevent accidents due to unexpected environmental or human factors, please thoroughly read and understand the operating instructions before using or maintaining the device. Familiarize yourself with its functions and intended applications. Keep the instructions clean and stored in an easily accessible location for quick reference when needed.

The manual categorizes safety precautions into two levels: "Danger" and "Attention."

△ Danger: Improper operation could lead to hazardous situations, potentially resulting in severe injury or death.

Attention: Improper operation can lead to hazardous situations, potentially causing mild to moderate injuries or damage to equipment and property.

The issues mentioned in this section could lead to serious consequences in certain situations. It is important to pay close attention to the warning and caution signs mentioned earlier and throughout the text—make sure to follow them carefully.

The equipment should only be operated by a qualified technician with proper training in its use.

The equipment is intended solely for tasks aligned with its designed purpose.

Keep your workspace clean and organized to reduce the risk of accidents caused by clutter.


Consider the working environment when using the equipment. Do not let it get wet or use in a humid environment. Keep the equipment in good working condition ;


Store the equipment in a dry, secure location if it will not be used for an extended period.


Wear properly fitted work attire. Avoid loose clothing or jewelry, as they are not permitted.


Wear safety glasses and ear protection at all times during processing. If the beveling operation generates dust, it is recommended to use a dust mask.


Cables must be handled with care and never abused. Avoid dragging the device by its cable or disconnecting the power supply by pulling on the cord. Keep cables away from heat sources, oil, and sharp objects to prevent damage. Regularly inspect cables for wear and tear, and replace them immediately if damaged or repair them promptly if they become loose.


Regularly maintain the equipment to ensure it works properly. Keep it clean, add lubricating oil, and replace spare parts as outlined in the operating instructions.


Always disconnect the power before performing maintenance on the device or replacing accessories, such as tool bits.


Avoid switching on devices unintentionally. Ensure the device is plugged in only when the switch is off, and avoid placing your hand on the switch unnecessarily.


Use an appropriate extension tow board. When working onsite, be sure to choose an outdoor-specific extended tow board designed for optimal performance.


Stay focused while operating the equipment and remain attentive to the task at hand. Avoid using the equipment if you are feeling unwell or fatigued, as this can compromise safety and performance.


Inspect the equipment for any signs of damage before use. Carefully examine all components to ensure the equipment is fully functional. Check the alignment of moving parts, the rotation of locking pins, the integrity of assembly components, and any other conditions that could impact operation. Damaged parts must be repaired or replaced promptly to maintain safe and effective use.

Note: Stop using the equipment right away if you notice any damage.


We highly recommend using genuine spare parts.


Equipment must be professionally repaired in compliance with all applicable safety standards.


For pneumatic machines, always ensure the handle and safety pedal are properly checked and securely in place.


Ensure proper operation of the equipment.

Δ Do not approach the rotating cutter during operation to avoid the risk of entanglement with moving parts, which could lead to accidents.

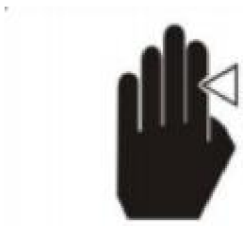
Δ Avoid using electrical switches or buttons with wet hands to prevent the risk of electric shock.

Δ Avoid contact with live electrical components to safeguard yourself from the risk of electric shock injuries.

Δ Make sure the input voltage matches the specifications on the nameplate before using an electric motor.

Δ Avoid modifying key parts of the device to prevent risks or reduced performance.

**Warning marks used in machinery parts**

| | |
|---|---|
|  | **Danger**<br>Always maintain a safe distance from the cutter head during operation. Ensure that your arm stays at least 10 cm away from the rotating components unless the equipment is completely stopped. |
|  | **Danger**<br>Wear protective glasses when working near the machine. |
|  | **Attention**<br>Wear ear protection or soundproofing equipment when working near the machine. |
|  | **Attention**<br>Gloves are not required for protection, but handle cutting chips carefully during operation to avoid hand injuries. |

## PART 3 EQUIPMENT INTRODUCTION

**3.1 Model and specification**:

SMG Orbi-Edge 426W,suitable for cutting and beveling of steel pipe for diameter φ34-920mm

**3.2 Application of equipment**:

The cutting and beveling machine uses a mechanical ratchet feeding system, making it simple and easy to operate. It is suitable for standard beveling on the end of a pipeline or for cutting and beveling at any point along the pipeline.

**3.3 Equipment principle:**

When the pipe is securely clamped, the cutter head rotates using a mechanical ratchet feeding system. During the process, the pipe is held in place with self-centering clamps at multiple points around its circumference. The cutter head moves along the outer diameter of the pipe, feeding layer by layer until the process is complete. Once finished, the pipe remains largely free of deformation, with a smooth cutting or beveling surface and a highly vertical end face, making it ready for direct welding.

**3.4 Working capacity**:

It processes a variety of materials, including carbon steel, alloy steel, stainless steel, low-temperature steel, heat-resistant steel, and other types of steel. Processing options include:

◊ Beveling only the pipe end face

◊ Cutting the pipe only

◊ Cutting and beveling simultaneously for pipes of any length

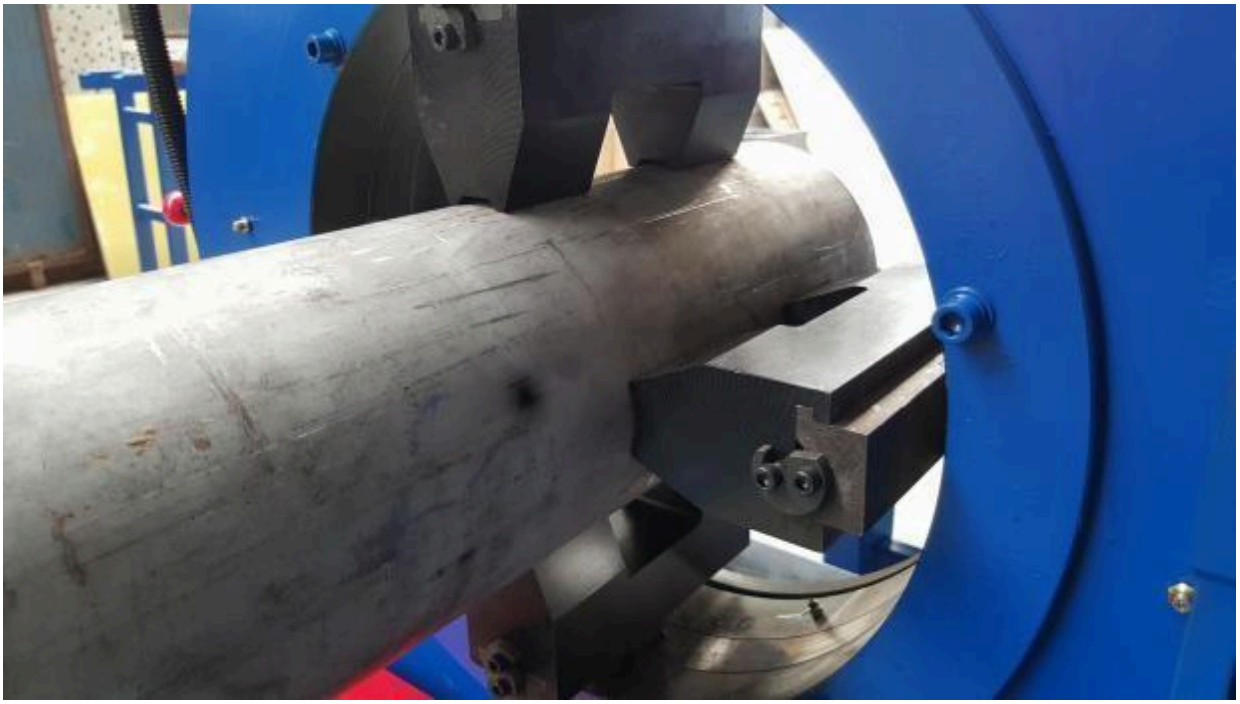
**3.5 Application**

The pipe cutting and beveling machine is designed to handle pipes with an outer diameter ranging from 34mm to 920mm (1" to 36"). Combining versatility with efficiency, it offers unmatched practicality for precise cutting and beveling tasks.

## PART 4 SPECIFICATION

### 4.1 Features

- This machine is designed for standard beveling of pipeline end faces and can also be used for cutting and beveling at any point along the pipeline.
- It uses rotary cold cutting, with the cutting tool moving along the outer edge of the pipe to deliver precise cuts and a perfectly vertical end face.
- It works with most pipe materials, including carbon steel, stainless steel, and alloy steel. The machine's main body can be adjusted to match different pipe diameters, making it simple and easy to operate.
- Its compact, lightweight, and portable design makes it suitable for both workshop and on-site use.
- The multi-jaw self-centering clamp securely holds thin-walled steel pipes without deformation and can reshape pipes with high ovality.



### 4.2 Configuration

1. Pipe cutting and beveling machine head
2. Lifting base
3. Circulating water cooling system
4. Operating box and electrical control cabinet
5. Pipe conveying roller table (optional, available in manual or electric)
6. Fixed-length mechanism (optional, ensures precise length of finished pipes)

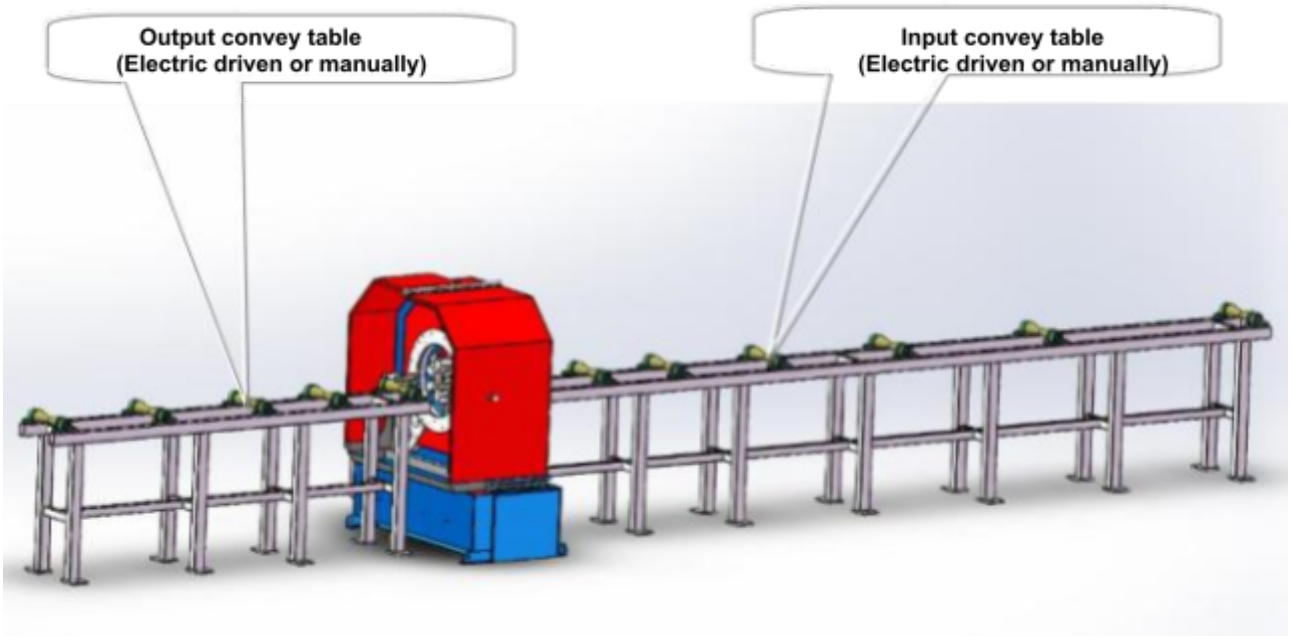
**4.3 Specification**

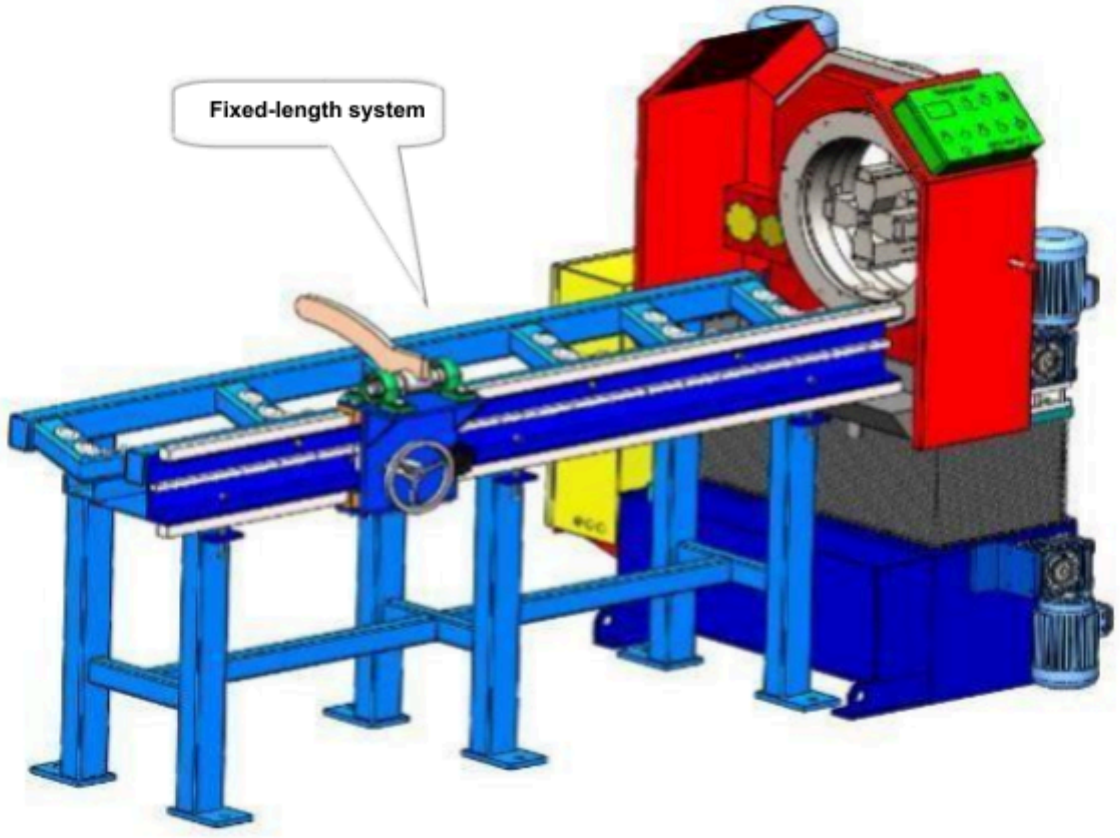
| | |
|---|---|
| Model | SMG Orbi-Edge 426W |
| Parameter Working Range(mm | Φ89-426 |
| Rotation Speed (rpm) | 0-30 Frequency conversion stepless |
| Power of main motor | 5.5KW |
| Center height of equipment | 940-1100mm |
| Dimension(mm) | 1770*990*1530(1690) |
| Machine weight | 1200KG |
| Lifting | Electric |
| Clamping | Multi-claw self-centering electric clamping |
| Wall thickness(mm) | S.S.: 3-25mm. C.S.:3-30mm (Special tool box and tool up to 45mm) |
| Number of Tool | 1 or 2 |
| Cooling system | Circulating water cooling |
| Feed Rate | 0.1-0.2mm/r |
| Beveling type | Comply with ASME B16.25, U, V, X(Standard 30 °V type) |
| Tool feed | Radial feed, automatically |
| Beveling Material | Kinds of Stainless Steel, Alloy steel, Carbon steel |
| Power supply | AC 415V 50Hz |

**4.4 System Layout**

**4.5 Optional Supply**

If the processing pipe is longer than 1.5 meters, we recommend adding necessary support before processing. This support should stabilize both the front and tail ends of the pipe to prevent equipment or tool damage caused by uneven clamping. The pipe support must be aligned and parallel to the machine's centerline to ensure a vertical incision on the pipe's end face. You can use our specially designed pipe conveying rollers or a simple support made by the customer. Additionally, to ensure precise positioning of the pipe's length during processing, we offer a fixed-length mechanism, as shown below.




**The conveying roller on the roller table offers the following two options:**

V-type conveyor roller (black surface)

V-type conveyor roller (PU surface)

**4.7 Standard supply list**

| No. | Description | Specification | Qty | Remark |
|---|---|---|---|---|
| 1 | Beveling toolbits | 30 ° | 2 pcs | Other beveling angle for option |
| 2 | Cutting toolbits | 0 ° | 2 pcs | |
| 3 | Allen wrench | | 1 set | |
| 4 | Wrench for lifting or clamping | | 1 pc | Supply according to model |
| 5 | Special wrench for tool holder | | 1 pc | |
| 6 | Chute | | 1 pc | |
| 7 | Operation manual | | 1 pc | |

# PART 5 INSTALLATION

**5.1 Handling of Equipment**

Do not apply force to the clamping jaw when moving the equipment, as this may compromise cutting accuracy and verticality.

When lifting the equipment, ensure it remains balanced by aligning with its center of gravity to maintain both stability and personnel safety.

The machine’s weight ranges from 80 kg to 500 kg. Use suitable tools or equipment to move it, and exercise caution during operation.

Warning: Do not lift the machine using the handle, nor rely on any components not designed for lifting. Doing so could result in equipment damage or pose a risk of personal injury due to mechanical failure.

### 5.2 Installation

The main engine is mounted on the lifting base. When working with long pipes, it is essential to use a bracket or roller table for support. Overloading the equipment is strictly prohibited.

**Pipe weight**

| Material | Pipe O.D. | Wallthickness | Unit weight | 6 m weight |
|---|---|---|---|---|
| Steel/Stainless steel | 4"(114.3 mm) | 13 mm | 37 kg | 222 kg |
| Steel/Stainless steel | 6" (168.3 mm) | | 57 kg | 341 kg |
| Steel/Stainless steel | 8" (219.1 mm) | | 75.5 kg | 453 kg |
| Steel/Stainless steel | 12"(323.9 mm) | | 115 kg | 690 kg |
| Steel/Stainless steel | 16"(406.4 mm) | | 145 kg | 870 kg |
| Steel/Stainless steel | 20" (508 mm) | | 183 kg | 1 095 kg |

## PART 6 PROCESSING STEP

### 6.1 Confirmation and instruction before processing start

- Read and follow the "Safety Guide" carefully.
- Make sure there is no other debris in the work area.
- It is recommended to wear protective glasses at all times when working.

### 6.2 Support of Pipe

**Warning:**

- To avoid damaging the machine, use pipe supports for the front and tail ends if the pipe length exceeds 1000 mm.
- Keeping the pipe aligned with the machine's center line is important for achieving a vertical cut at the end.

### 6.3 Clamp the Pipe on Machine

Use the clamp/release knob on the machine's control box to open or close the clamp claw with precision.

### 6.4 Additional Clamping Jaw

To extend the machine's working range, customized clamping claws are available upon request. Please let us know before placing your order.

Warning: Before installing the additional jaw onto the base, clean the contact surface with a brush. Similarly, before removing the additional clamping jaw, clear any cutting chips from the surface.

**6.5 Lubricating Oil**

Lubricating oil helps remove cutting chips from the tool and improves heat dissipation, which extends the tool's lifespan and enhances the cutting surface finish.

Here are the recommended lubricating oils:

Paste lubricating oil: Apply to the pipe surface being cut.

Oily lubricating oil: Apply to the cutting tool.

Warning:Use lubricating oil on the electric motor cutting head carefully and with proper skill.. The motor in this product series is not waterproof, and liquid contact can damage the motor and pose safety risks.

**6.6 Tool Adjustment**

Ensure proper tool movement to prevent equipment damage:

A. The cutting tool bit should extend from the bottom of the tool holder by the pipe wall thickness + 3mm.

B. The beveling tool bit should extend from the bottom of the tool holder by the pipe wall thickness + 2mm.

Important: Setting the tool distances as described ensures the cutting tool fully penetrates the pipe wall before the beveling tool engages. This allows the beveling tool to function more effectively.

Tip: Make sure the beveling tool contacts the correct side of the pipe's "cutting line" and adjust as needed.

**6.7 Adjustment of Feeding**

Make sure the tool holder's star wheel remains in contact with the block while the machine is operating.

**6.8 Processing Completion**

Press the switch to turn off the motor.
Manually retreat the cutting and beveling tool.
Release the clamping jaws and remove the finished pipe

## PART 7 MAINTENANCE AND REPAIR

Maintenance and repairs should always be performed by qualified professionals. It is recommended to use original parts to ensure the device functions correctly and efficiently.

 Note: Before performing equipment maintenance, ensure the power supply is turned off. Keep the original packaging for easy shipment of the equipment and accessories.

To maintain optimal performance, always keep the equipment clean. After each use, clean it with a brush and apply anti-rust oil.

Avoid storing the device in wet or dirty environments.

 Note: Do not place any debris on the rotating shaft.

 Note: Use a brush when cleaning the equipment.

 Caution: Avoid using compressed air to clean the equipment.

Make sure to clean the equipment properly before use to remove any leftover cutting chips. We also recommend having a professional disassemble and lubricate the moving parts once a year.

To keep your pipe cutting and beveling machine in good condition, clean it regularly and inspect the consumables. Before storing it, follow these steps:

1. Check the power cable for any damage.
2. Inspect the tool slide for tightness. If it’s loose, adjust the wedge block bolt to tighten it.
3. Secure the hexagon screws on the wedge block so the tool slide has slight resistance.
4. Turn the star wheel to confirm the tool slide is properly tightened.

**Bearing system**

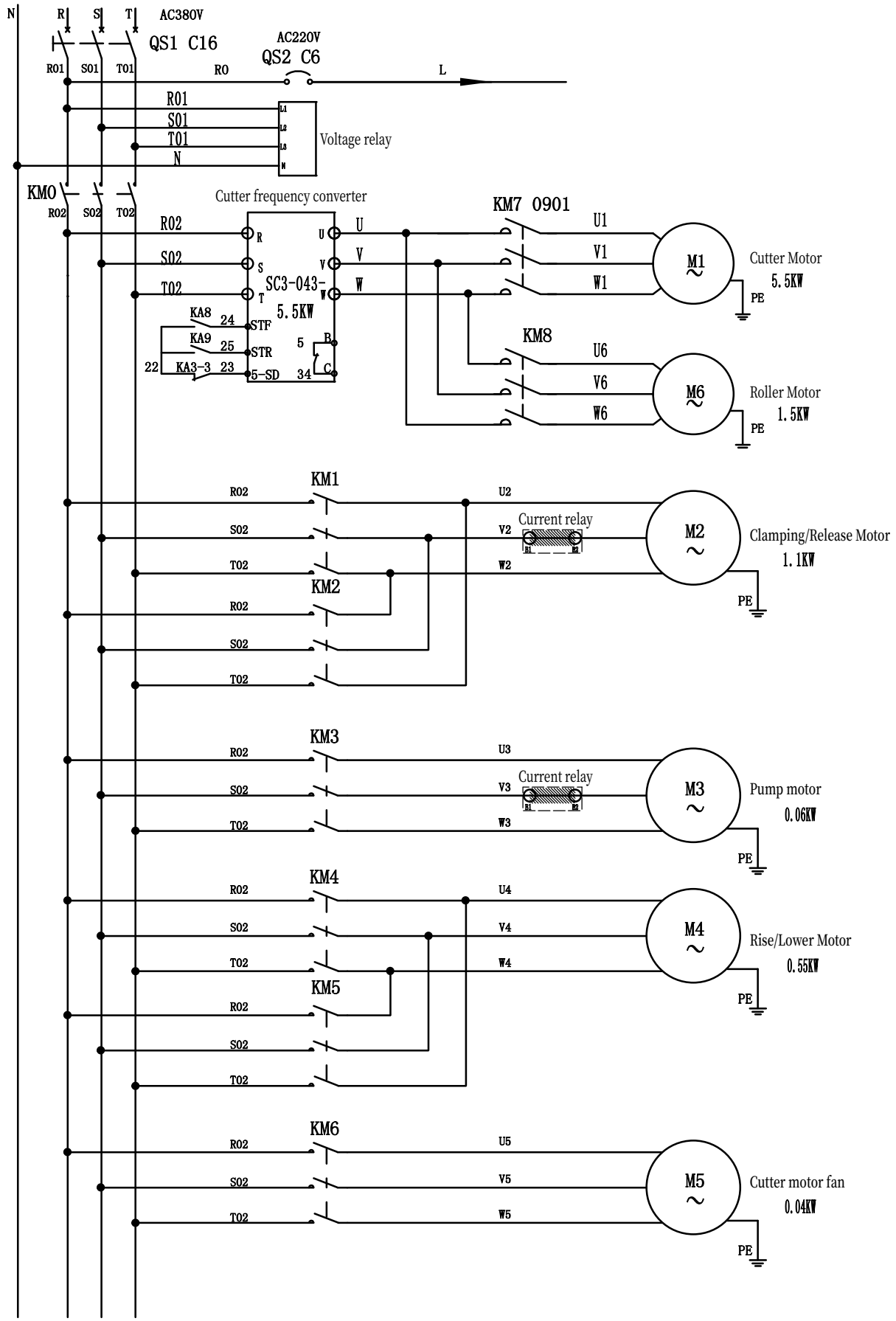
Caution: Do not alter the factory-set position of the bearing, as this may cause damage to the ring. The bearing system is carefully calibrated before delivery. Any adjustments to the bearing system should only be performed by qualified maintenance technicians.

## PART 8 TROUBLE SHOOTING

| Trouble | Possible reason | Remedy |
|---|---|---|
| **Machine not working** | The power cable may be improperly connected, or the motor could be damaged. | Check the power cable and electric motor |
| **The workpiece becomes loose during processing.** | Clamping jaw with inadequate clamping force | Inspect the clamping transmission mechanism located at the back of the machine to ensure it is not stuck. If required, remove the clamping motor and manually rotate the clamping mechanism using a wrench to verify whether it operates smoothly. |
| **Poor machining quality** | The toolbits blunt or damaged | Change the toolbit or sharpen it |
| **Tool slide not feeding** | The cutter head damaged or not in working position | Replace the cutter head or adjust it to the correct working position. |
| **Tool blocked after gapping** | The star wheel on the tool slide was not properly adjusted. | Readjust the star wheel |

If the issue cannot be resolved or if a problem arises that is not listed here, please stop operations and contact us. We will respond promptly and provide assistance to resolve the problem as quickly as possible.

# SMG Orbi-Edge 426W Workshop Pipe Cutting and Beveling Machine Electrical Diagram



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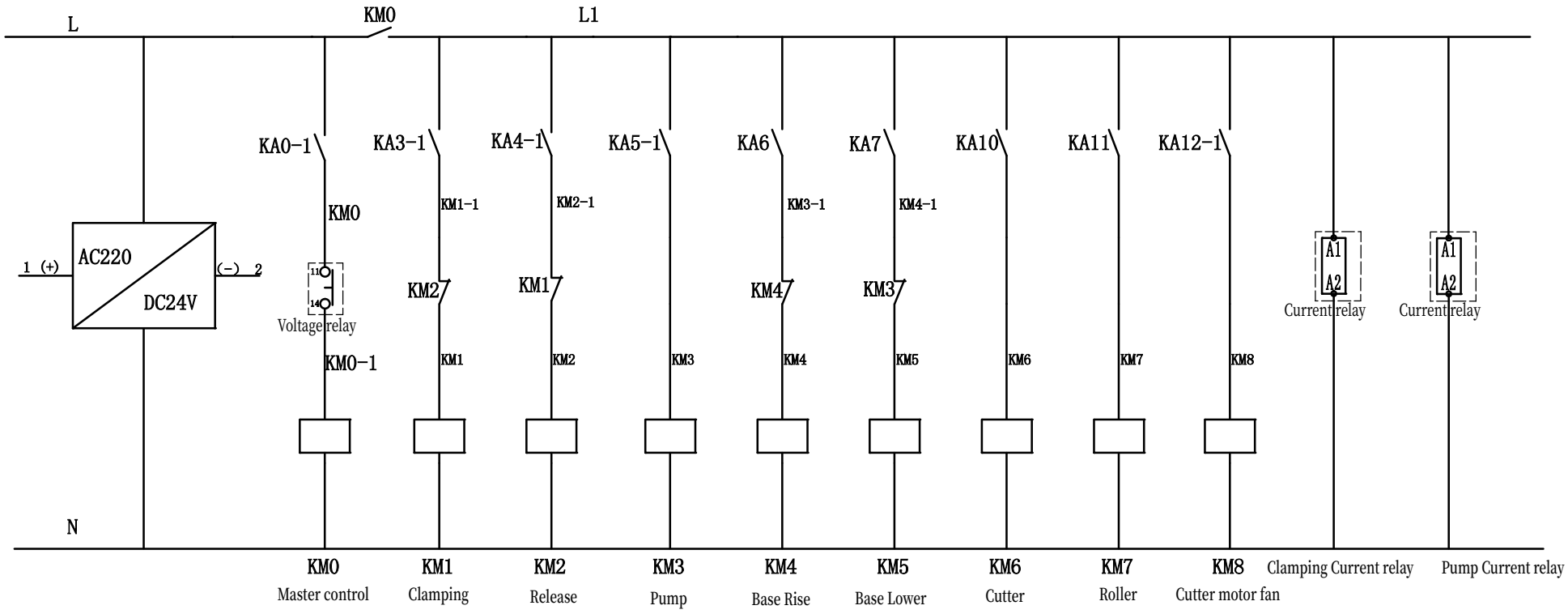

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