

Operating instructions

Pipe Cutting and Beveling
Machines

**RA 6, RA 8, RA 12 (H)
AVM/MVM**



Code 790 043 762

Machine-no:

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Table of contents

	Page
0 About these instructions	1
0.1 Warning messages	1
0.2 Further symbols and displays	2
0.3 Abbreviations	2
1 Notes on safety	3
1.1 Proper use	3
1.2 Safety regulations	3
1.3 Working with safety in mind	4
1.4 Waste disposal / environmental protection	5
1.5 Further safety regulations	5
2 Design of the product	6
2.1 Pipe cutter RA	6
2.2 Automatic Feed Module AVM	7
2.2.1 Description of the AVM buttons	7
2.3 Manual Feed Module MVM	8
3 Features and scope of application	9
3.1 Features	9
3.2 Scope of application	10
3.2.1 Working range	10
4 Technical specifications	11
4.1 Rating	11
5 Commissioning	12
5.1 Scope of delivery	12
6 Transport and assembly	13
6.1 Fitting the quick-mounting plate	13
6.2 Transporting and fitting the pipe cutter	14
6.2.1 Transporting and fitting the RA 6 and RA 8	14
6.2.2 Transporting and fitting the RA 12	15
7 Operation	16
7.1 Inserting the saw blade/bevel cutter	17
7.2 Inserting additional cutters	17
7.3 Adjusting the pipe diameter	18
7.3.1 Saw blade without additional cutter	19
7.3.2 Saw blade with additional cutter	20
7.4 Adjusting the bevel cutter	21
7.5 Adjusting the length gauge (cut-off stop)	22
7.6 Selecting the motor speed	23
7.7 Processing the pipe with RA AVM	24
7.7.1 Commissioning	24
7.7.2 Cutting the pipe with RA AVM	25
7.7.3 Beveling the pipe with RA AVM	26
7.7.4 Cutting the pipe and beveling it simultaneously with RA AVM	27

7.8	Processing the pipe with RA MVM	28
7.8.1	Cutting the pipe with RA MVM	28
7.8.2	Beveling the pipe with RA MVM	29
7.8.3	Cutting the pipe and beveling it simultaneously with RA MVM	30
7.9	Processing the pipe manually	31
7.9.1	Cutting the pipe manually	31
7.9.2	Beveling the pipe manually	32
7.9.3	Cutting the pipe manually and beveling it simultaneously	33
8	Maintenance	34
8.1	Checking the oil level of the gear and topping up	35
8.2	Cleaning the slide guide	36
9	What to do if ...?	37
9.1	General trouble-shooting	37
9.2	Error messages/trouble-shooting AVM	38
9.3	Servicing/after-sales service	39

0 About these instructions

To allow quick understanding of these instructions and safe handling of the machine, all the warning messages, notes and symbols used in these instructions are presented here along with their meaning.

0.1 Warning messages

In these instructions, warning messages are used to warn you against the dangers of injury or material damage. Always read and observe these warning messages!




This is a warning symbol. It should warn you against dangers of injury.

Follow all instructions which are identified with this safety symbol in order to avoid injuries or death.

Warning symbol	Meaning
 DANGER	Direct danger! Non-observance could result in death or critical injury. ⊙ Restrictions (if applicable). ► Measures to prevent danger.
 WARNING	Possible danger! Non-observance could result in serious injury. ⊙ Restrictions (if applicable). ► Measures to prevent danger.
 ATTENTION	Dangerous situation! Non-observance could result in minor injuries.
ATTENTION	Dangerous situation! Non-observance could result in material damage.

0.2 Further symbols and displays

Symbol	Meaning
Important Note	Notes: Contain particularly important information for comprehension.
	Instruction: You must take notice of this symbol.
1.	Request for action in a sequence of actions: You have to do something here.
▶	Single request for action: You have to do something here.
▷	Conditional request for action: You have to do something here if the specified condition is met.

0.3 Abbreviations

Abbr.	Meaning
RA 6, RA 8, RA 12	Pipe Cutting and Beveling Machine up to 6, 8 or 12 inch pipe outer diameter
(H)	Intermediate gear
AVM	Automatic Feed Module
MVM	Manual Feed Module

1 Notes on safety

The Pipe Cutting and Beveling Machine with Automatic or Manual Feed Module (here further referred to as RA AVM / MVM) is a state-of-the-art machine. Using it for purposes other than those described in this manual may cause injury to the user or to others. It may also damage the machine or other equipment.

Therefore:

- Always ensure that the machine is in good working order and comply with these notes on safety.
- Keep complete documents close by the machine.
- Generally valid regulations for the prevention of accidents must be observed.

1.1 Proper use

- Use the pipe cutter RA AVM / MVM only for cutting and beveling pipes.
- The AVM / MVM may only be operated in conjunction with the Orbitalum Tools pipe cutter RA 6, RA 8 or RA 12.
- The user will be the only person liable for damages caused by improper use.
- RA AVM: the mains cable of the pipe cutter may only be connected to the socket of the AVM.

1.2 Safety regulations

- Only use the dimensions and materials specified in these instructions. Other materials should be used only after consulting the Orbitalum Tools after-sales service.
- Only use original Orbitalum Tools spare parts and resources.
- Inspect the pipe cutter RA AVM / MVM daily for visible signs of damage or defects. Have any damages or defects repaired immediately.
- Work on the electrical equipment must only be carried out by a qualified electrician.
- Only operate the pipe cutter RA if the electrical restart inhibitor is working correctly.
- Pull the mains plug before carrying out a tool change or maintenance and repair work and allow the machine to run a stop.
- Flex rotating cable: for installation 2 wire motor only.
- RA AVM: do not connect any other devices to the socket of the AVM.

1.3 Working with safety in mind

"Make your contribution to safety in the workplace."



- Report any unusual response from the machine to the person responsible immediately.
- Be aware of safety aspects at all times during work.
- When working with the RA AVM / MVM, wear protective goggles, safety gloves and ear protection.
- Before cleaning or performing any maintenance and repair work on the RA, pull the mains plug and allow the machine to run to a stop.
- Keep hands away from the tools during processing.
- A FI protection in the mains supply line, provided by the customer, is recommended.
- When working with AVM: in case of danger, immediately press the EMERGENCY OFF button.
- When working with the AVM, the AVM will stop automatically after each cutting process. If you are working manually, switch off the machine after each working cycle (ON/OFF switch of the pipe cutter) and allow the machine to run a stop.



DANGER

Danger of death by electric shock

If the mains cable is damaged, live parts may cause death when being touched directly.

- ⊙ Keep the mains cable of the pipe cutter motor away from the saw blade or bevel cutter.
- ▶ Secure the falling pipe piece.
- ⊙ Do **not** let the cut-off pipe piece drop in an uncontrolled way.
- ⊙ Do **not** run the machine unattended.
- ▶ While processing the pipe, always keep an eye on the position of the mains cable.



WARNING

Danger of being injured by sharp cutting edges

- ⊙ Keep hands away from the tools during cutting or beveling.
 - ▶ Wear safety gloves.
-



WARNING

Danger of being injured by the rotating slide housing

- ⊙ When working with AVM, do **not** stay within the swiveling range of the machine during an automatic revolution of the slide housing.
- ▶ Make sure that the slide housing starts from its home position.
- ▶ Clamp the pipe to be processed into the vice.
- ▶ Pull off the vice handle from the spindle before the slide housing starts rotating.

1.4 Waste disposal / environmental protection

- Dispose of chips and used gear lubricant oil according to the regulations.

Discarded electric tools and accessories contain a large share of valuable raw and synthetic materials which can be recycled.

Therefore:

- Electrical (electronic) devices which are marked with the symbol to the left, may not be disposed of with household waste in accordance to the EU directive 2002/96/EC.
- By actively using the offered return and collection systems, you actively contribute to the reuse, recycling and utilization of electrical (electronic) devices.
- Electrical (electronic) used devices contain parts which must be handled selectively according to the EU directive. Separate collection and selective treatment is the basis for environment-friendly disposal and the protection of human health.
- Our products that were sold to you after August 13th, 2005 are taken back and treated according to legal standards. These products have to be send free of charge.
- The return of used devices which pose a health or safety risk for human beings due to soiling during use may be refused.
- The legally compliant disposal of electrical (electronic) devices that were placed on the market before August 13th, 2005 are in the responsibility of the end-user.



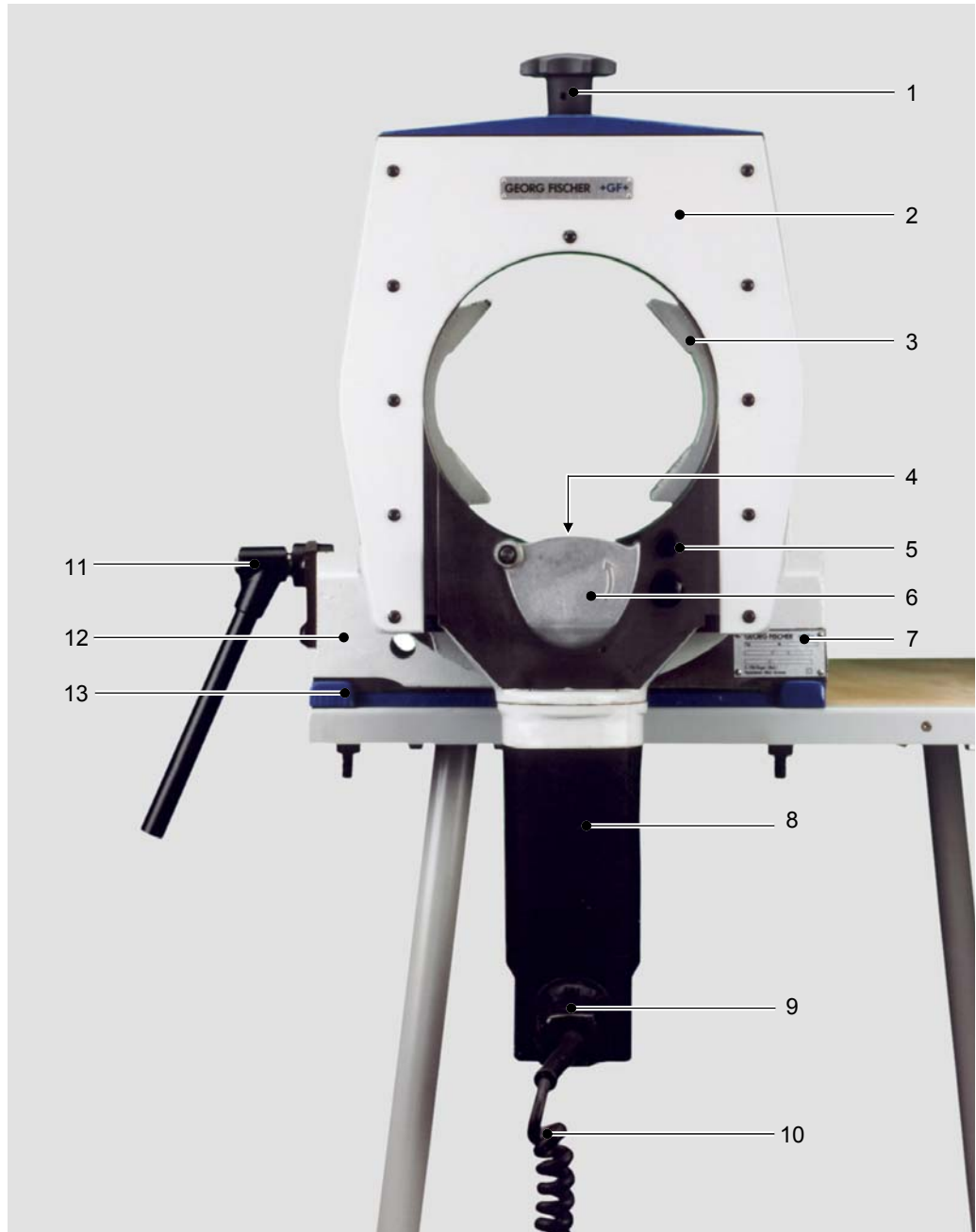
(RL 2002/96/EC)

1.5 Further safety regulations

Observe the regulations, standards and guidelines applicable in your country.

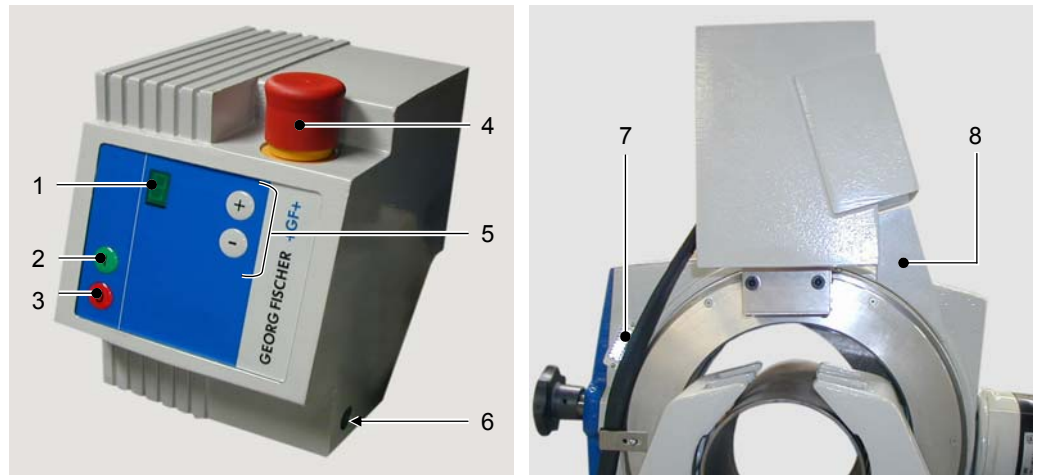
2 Design of the product

2.1 Pipe cutter RA



- | | | | |
|---|-----------------------------------|----|---------------------------|
| 1 | Hand wheel for adjusting diameter | 8 | Motor |
| 2 | Slide housing | 9 | Handle with ON/OFF switch |
| 3 | Clamping jaws | 10 | Flex rotating cable |
| 4 | Saw blade | 11 | Vice handle |
| 5 | Slide | 12 | Vice |
| 6 | Saw blade guard | 13 | Quick mounting plate |
| 7 | Identification plate | | |

2.2 Automatic Feed Module AVM



- | | |
|------------------------|--|
| 1 Display | 5 Buttons for presetting the advance force |
| 2 START button | 6 Light barrier |
| 3 STOP button | 7 Reflector |
| 4 EMERGENCY OFF button | 8 Protective web |

2.2.1 Description of the AVM buttons

Display



If the control system is connected to the mains, the number of the current software version will first appear on the display for approx. 1 second. If the module is ready for work, the currently preset advance force level will be displayed. In case of a malfunction, this display will flash at 1-second intervals showing **F** and a figure from **1** to **6**. For error messages/trouble-shooting, see chapter 9.2, p. 38.

PRESET buttons



By actuating these buttons it is possible to preset the desired advance force in 9 levels. If the device is ready for work, these buttons may be pressed at any time to set the advance force level or to vary it during processing. If one of the buttons remains pressed by the user, the display will run to the respective direction selected by the user.

START button



The machining process is initiated by actuating this button. After start-up, this button has no function any more. It remains also without function during a fault or while the software version is being displayed.

STOP button

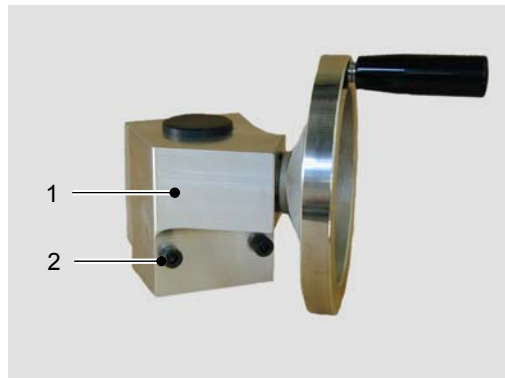


During the machining process, a stop cycle is initiated by actuating this button, and a new start is waited for.

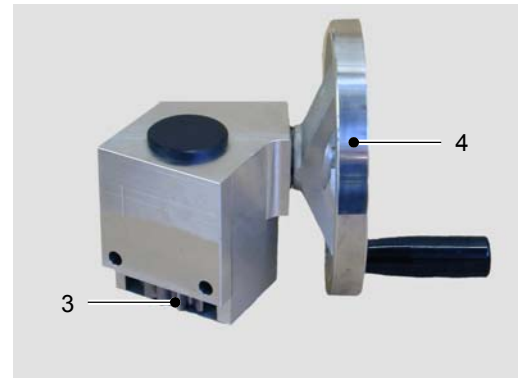
Before and after the machining process, the advance will run backwards as long as the button is pressed – regardless whether the cutter motor is running or not.

During a fault, the button remains without function. For error messages/trouble-shooting, see chapter 9.2, p. 38.

2.3 Manual Feed Module MVM



- 1 Gear
- 2 Fastening screws



- 3 Gear drive with freewheel
- 4 Hand wheel

3 Features and scope of application

3.1 Features

The pipe cutter RA 6, RA 8 or RA 12 (H) with AVM / MVM is distinguished by the following characteristics:

- Enhanced safety due to stationary pipe – rotating tool.
- A restart inhibit function prevents the machine from starting in an uncontrolled way after it has been re-connected to the electric mains or after the voltage supply has been re-established after a power failure.
- Self-centring vice with hardened clamping jaws.
- Low-maintenance gear with oil lubrication.
- Speed-controlled pipe cutter motor.
- Burr-free cutting surface and deformation-free pipe cross-section.
- Cold machining process.
- Quick cutting process.
- Fabrication of standardised welding bevels.
- Quick tool change.
- Working without getting tired when cutting and beveling pipes with larger diameters and thicker walls.

RA AVM:

- The intelligent control system of the AVM monitors the advance force continuously, depending on the torque and the parameter settings.
- The operator position guarantees utmost protection against hot chips flying around.
- Advancing the pipe cutter in a usual way by operating the handle of the pipe cutter motor is always possible (e.g. when cutting thin-walled pipes).

3.2 Scope of application

3.2.1 Working range

Type of machine		RA 6 (H) AVM / MVM	RA 8 (H) AVM / MVM	RA 12 (H) AVM / MVM
Pipe OD	[mm]	44 – 182	124 – 230	180 – 325
	[inch]	1.732 – 7.165	4.882 – 9.055	7.087 – 12.795
Wall thickness (depends on material)*	[mm]	3 – 10	3 – 10	3 – 10
	[inch]	0.118 – 0.394	0.118 – 0.394	0.118 – 0.394
Pipe ID min. (saw blade Ø 63 mm / 2.677 inch)	[mm]	76	137	190
	[inch]	2.992	5.394	7.480
Pipe ID min. (saw blade Ø 68 mm / 2.677 inch)	[mm]	71	132	185
	[inch]	2.795	5.197	7.283
Pipe ID min. (saw blade Ø 80 mm / 3.150 inch)	[mm]	59	120	173
	[inch]	2.329	4.724	6.811
Pipe ID min. (saw blade Ø 100 mm / 3.937 inch)	[mm]	39	–	–
	[inch]	1.535	–	–

* Depending on the wall thickness special clamping shells for thin-walled tubes are required (accessory).

Pipe materials

- Copper
- Brass
- Annealed cast iron pipe (GGG)
- General structural steel
- Black and galvanised steel pipe
- Aluminum
- High-quality steel (Cr < 12% and Mo < 2.5%; Cr < 20% and Mo = 0%):
 - Case hardened steels
 - High-speed steels
 - Tempering steels
 - Bearing steels
 - Tool steels

4 Technical specifications

4.1 Rating

Type of machine	RA 6 (H)	RA 8 (H)	RA 12 (H)
Weight with AVM*	108 kg (112 kg)	122 kg (126 kg)	144 kg (147 kg)
Weight with MVM*	101 kg (105 kg)	115 kg (118 kg)	137 kg (140 kg)
Power RA	1600 W	1600 W	1600 W
Power AVM	50 W	50 W	50 W
Tool speed*	150 – 270 rpm (40 – 70 rpm)	150 – 270 rpm (40 – 70 rpm)	150 – 270 rpm (40 – 70 rpm)
Speed of the slide housing	0.1 – 2.8 rpm	0.1 – 2.3 rpm	0.1 – 1.8 rpm
Torque of the slide housing	70 – 140 Nm	80 – 160 Nm	100 – 200 Nm
Sound pressure level at the workplace**	approx. 75 dB (A)	approx. 75 dB (A)	approx. 75 dB (A)
Vibration level in accordance with DIN EN 28662, Part 1	< 2.5 m/s ²	< 2.5 m/s ²	< 2.5 m/s ²
Mains fuse by customer	16 A	16 A	16 A

* Values in brackets for RA H (H = with intermediate gear).

** The sound pressure level was measured under normal operating conditions in accordance with EN 23741.

5 Commissioning

Checking the scope of delivery

- ▶ Check all parts of the delivery for completeness and transportation damage.
- ▶ Report any missing parts or transportation damage to your supplier immediately.

5.1 Scope of delivery

- 1 Pipe Cutting and Beveling Machine RA 6 / 8 / 12 (H)
- 1 Automatic or Manual Feed Module AVM or MVM (already mounted on the RA when delivery)
- 1 Transportation case
- 1 Saw blade
- 1 Set of clamping jaws made from cast aluminum (only with RA 6)
- 1 Quick-mounting plate
- 1 Ring spanner (SW 22)
- 1 Brush
- 3 Hexagon socket head wrenches (SW 4/SW 5/SW 6)
- 1 Transport/lifting device (only RA 12)
- 1 Tube of Orbitalum Tools saw blade lubricant
- 1 Tube of special gear oil
- 1 Set of operating instructions and spare parts list

Subject to modifications

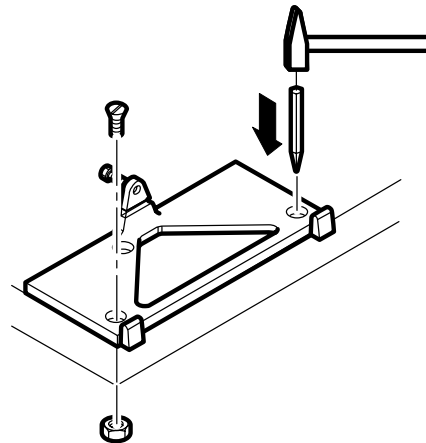
6 Transport and assembly

6.1 Fitting the quick-mounting plate

Fit the pipe cutter together with the vice, either

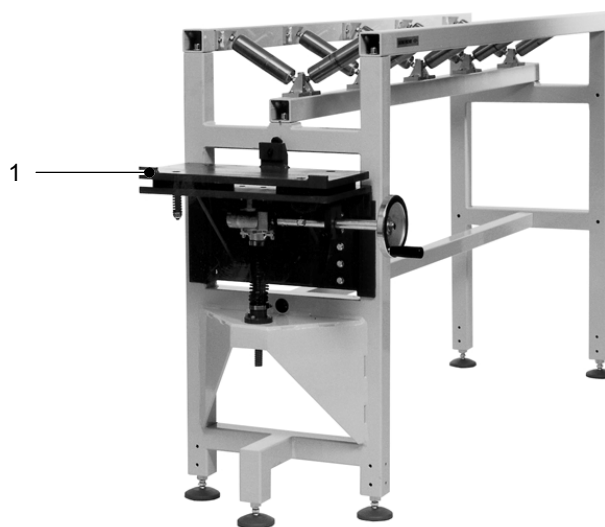
- to the quick-mounting plate, or
- to the quick-mounting plate with screw clamps (special accessory).

1. Mark and punch the bolt holes on the work bench. Use the quick-mounting plate as a template.
2. Drill 13 mm Ø holes.
3. Fasten the quick-mounting plate with screws.



Pipe feeder base unit

When using the Orbitalum Tools pipe feeder, the pipe cutter is directly fitted to the mounting plate (1) of the base unit without special accessories (special accessories, code-no. 790 068 051).



6.2 Transporting and fitting the pipe cutter



DANGER

Danger of death caused by electric shock

- ▶ Disconnect from the mains plug before transporting, mounting or dismantling and allow the machine to run a stop.



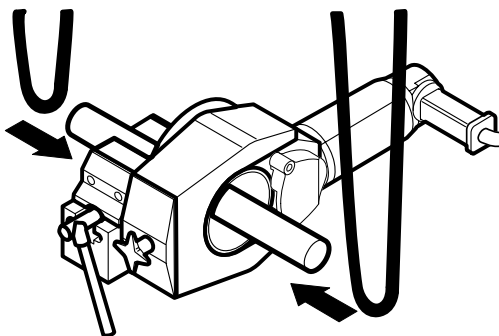
WARNING

Danger of being injured during transportation

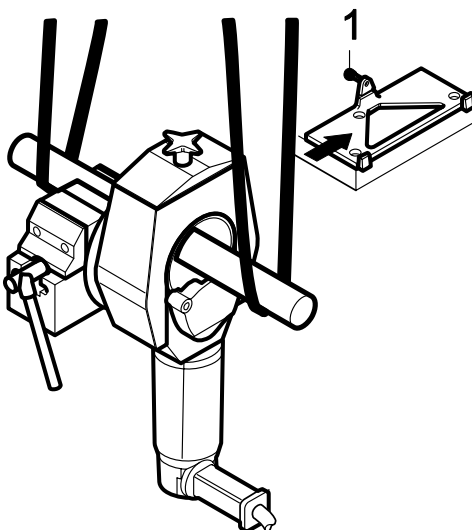
- ⊙ **Never** carry and fit the pipe cutter alone.
- ▶ Transport and fit the pipe cutter with the aid of a crane or a similar lifting device.

6.2.1 Transporting and fitting the RA 6 and RA 8

1. Clamp a suitable pipe of sufficient length centrally in the vice.
2. Position transport belts around the pipe on both sides.

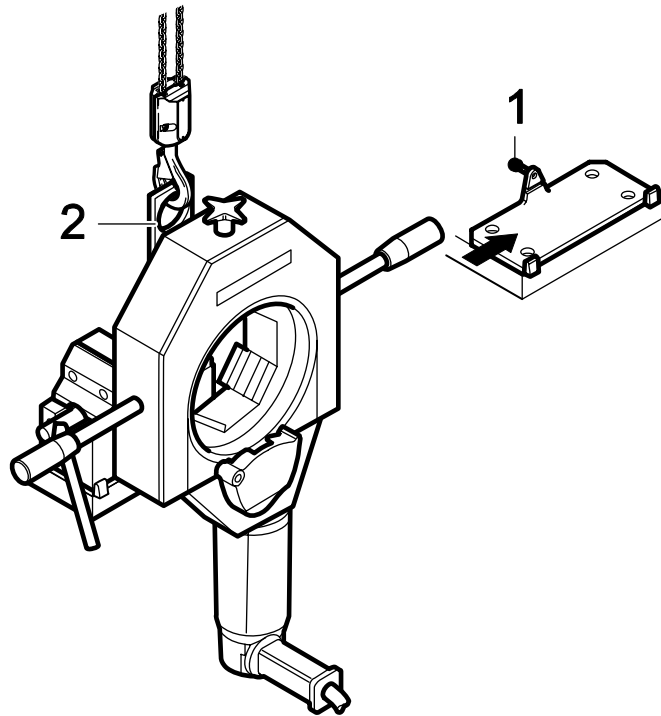


3. Raise the pipe cutter on the belts and guide it sideways onto the fitted quick-assembly plate.
4. Bolt the pipe cutter securely into place with the hexagon bolt (1).



6.2.2 Transporting and fitting the RA 12

1. Guide the book from the crane into the shackle (2) and slide onto the fitted quick-assembly plate from the side.
2. Bolt the pipe cutter securely into place with the hexagon bolt (1).



7 Operation



DANGER

Danger of death caused by electric shock

- ▶ Cut off the power supply before carrying out the transportation and allow the machine to run a stop after completing each stage of work.
 - ⊙ **RA AVM:** the cable **must not** contact rotating (moving) parts of the pipe cutter.
 - ▶ The machine must only be operated with the supplied protective web.
 - ▶ Ensure, that the cable of the AVM are fastened in the cable clamps.
-



WARNING

Danger of being injured by sharp cutting edges

- ⊙ Keep hands away from the tools when inserting or changing the tool.
 - ▶ Wear safety gloves.
-

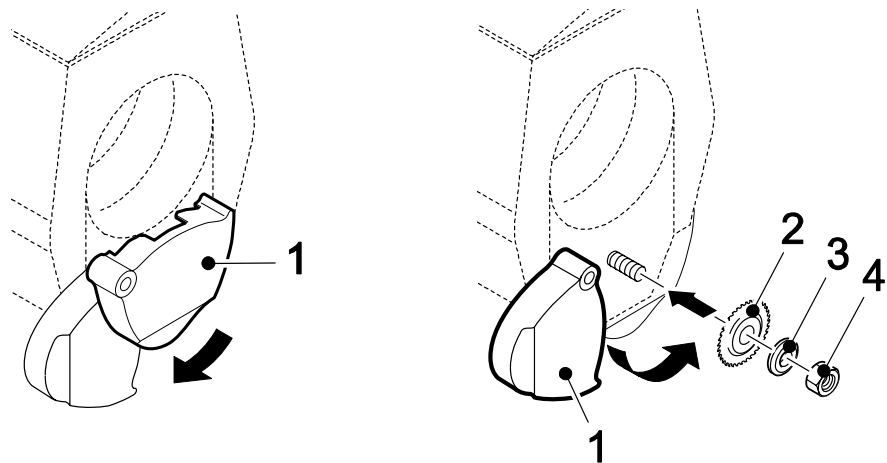
Attention

Damage to material

- ▶ The saw blade or bevel cutter must be free from chips and dirt.
- ▶ Only use Orbitalum Tools saw blades and bevel cutters.
- ▶ When employing an additional cutter, only use the special Orbitalum Tools clamp washer, not the normal clamp washer.
- ▶ Press the saw blade guard down by max. 90°.
- ▶ Mount the saw blade/bevel cutter or additional cutter with the inscription facing to you. The teeth will then be pointing to the correct direction.

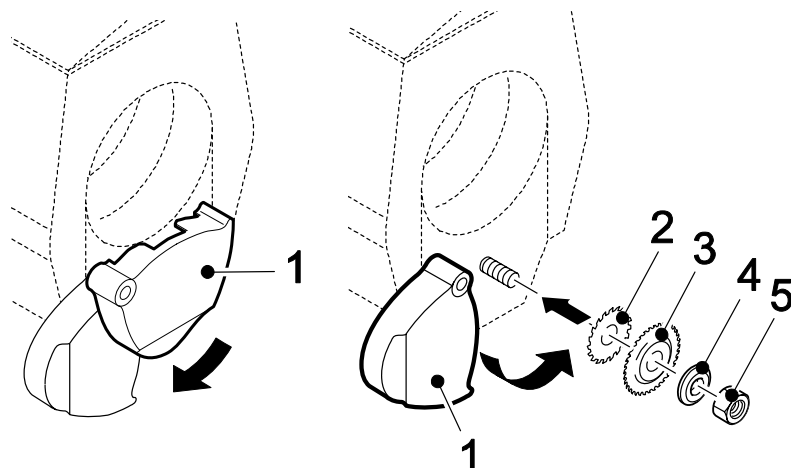
7.1 Inserting the saw blade/bevel cutter

1. Turn the saw blade guard (1) down for approx. 90°.
2. Loosen the hexagon nut (4). Remove the clamping plate (3) and the saw blade (2).
3. Clean the saw blade shaft and vicinity.
4. Fit the saw blade (2) or bevel cutter and the clamping plate (3).
5. Tighten the hexagon nut (4).
6. Move the saw blade guard (1) back to its original position.



7.2 Inserting additional cutters

1. Turn the saw blade guard (1) down for approx. 90°.
2. Loosen the hexagon nut (5). Remove the clamping plate and the saw blade.
3. Clean the saw blade shaft and vicinity.
4. Fit the additional cutter (2), the saw blade (3) and the special clamping plate (4).
5. Tighten the hexagon nut (5).
6. Move the saw blade guard (1) back to its original position.



7.3 Adjusting the pipe diameter

Note The working steps described in chapter 7.3, p. 18 are the same for RA with AVM and RA with MVM.



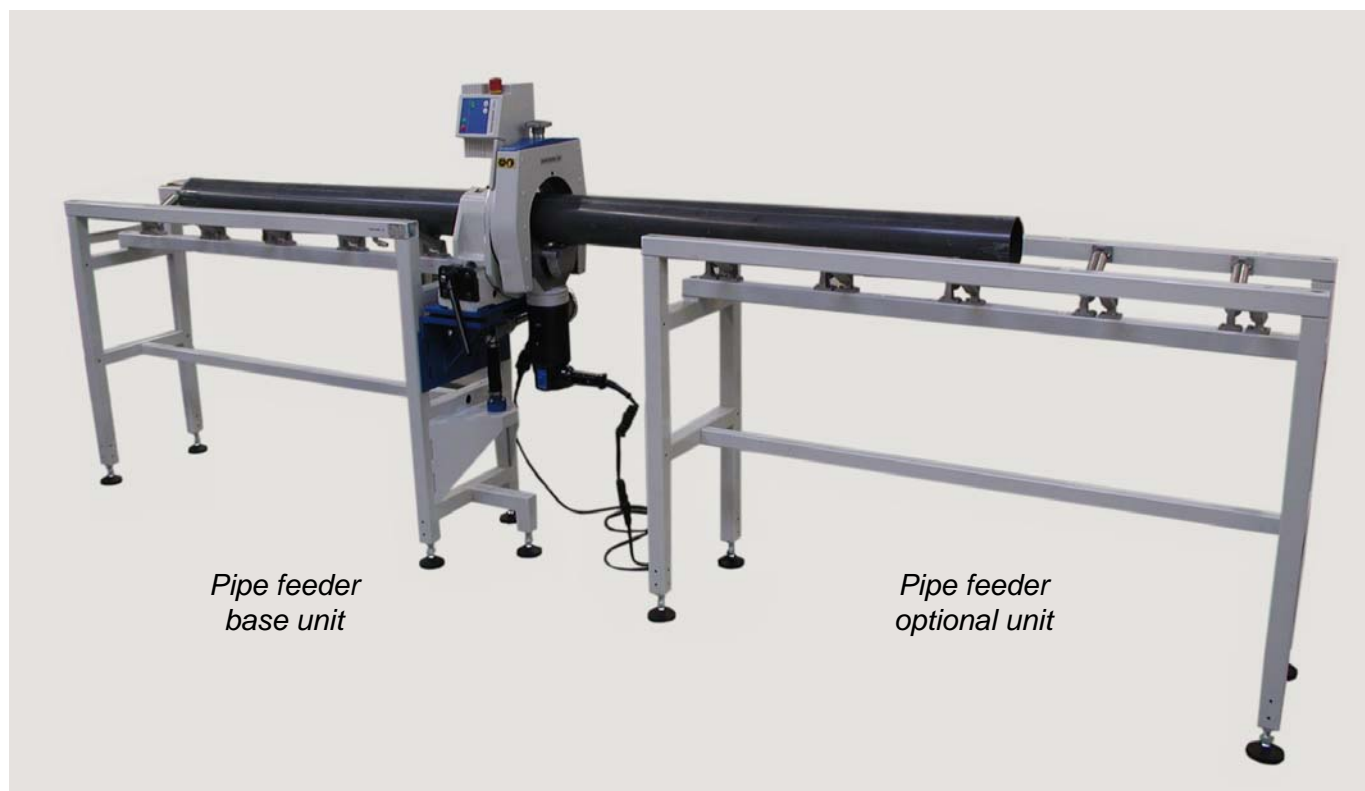
WARNING

Danger of being injured by rotating slide housing

When switching the motor on, the pipe cutter may revolve around the pipe automatically.

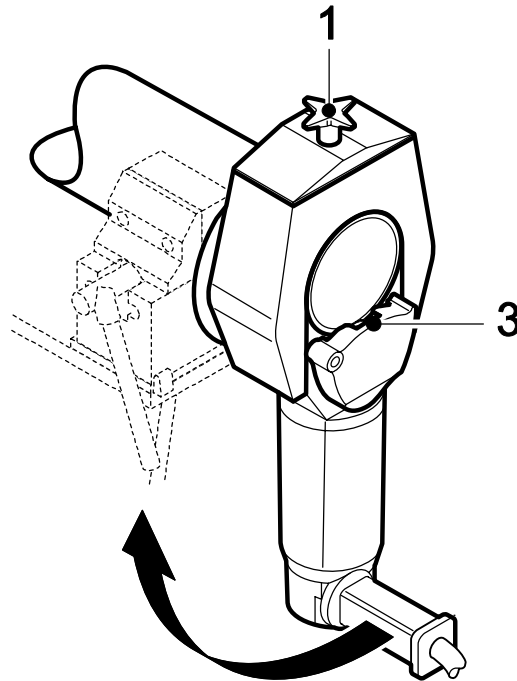
- ⊙ In their home position, the saw blade or bevel cutter must **not** touch the pipe!
 - ▶ Before switching the motor on, make sure that the gap between the saw blade/bevel cutter and the pipe is sufficient.
-

Note It is recommended to support pipes with a length of more than 1 m using a pipe supporting device or an auxiliary place of deposit (code-no. 790 068 061, both special accessories).



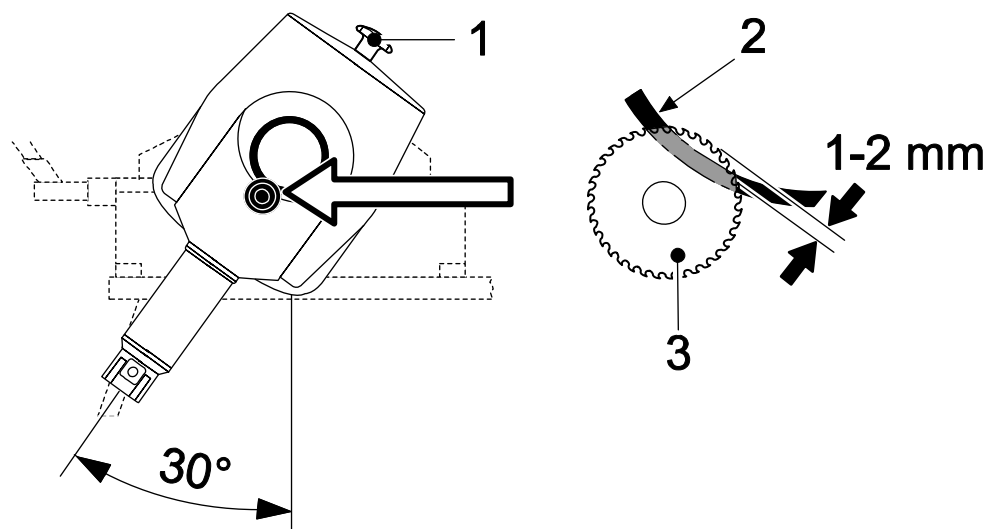
7.3.1 Saw blade without additional cutter

1. Turn the slide with saw blade all the way down using the hand wheel (1).
2. Clamp the pipe in place so that it almost reaches the saw blade (3).
3. Use the pistol grip to turn the motor upwards for about 30° (clockwise) until the saw blade is in cutting position.



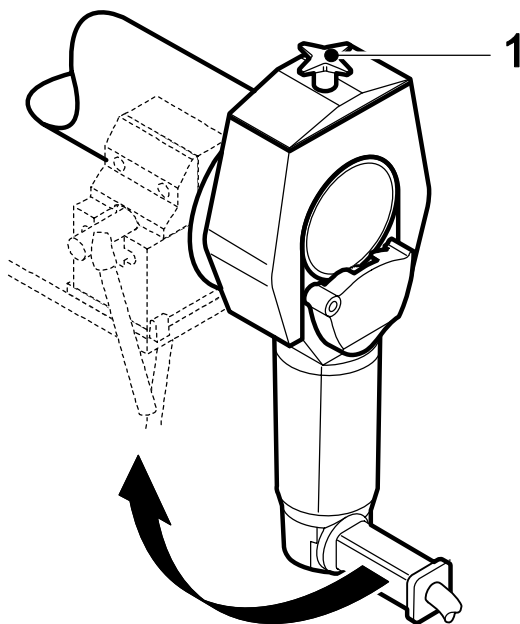
4. Turn the hand wheel (1) until the teeth of the saw blade (3) protrude about 1 to 2 mm inside the pipe (2).

Note Scale of the hand wheel: a readjustment by one graduation mark will result in a radial feed or bevel alteration of 0.1 mm.



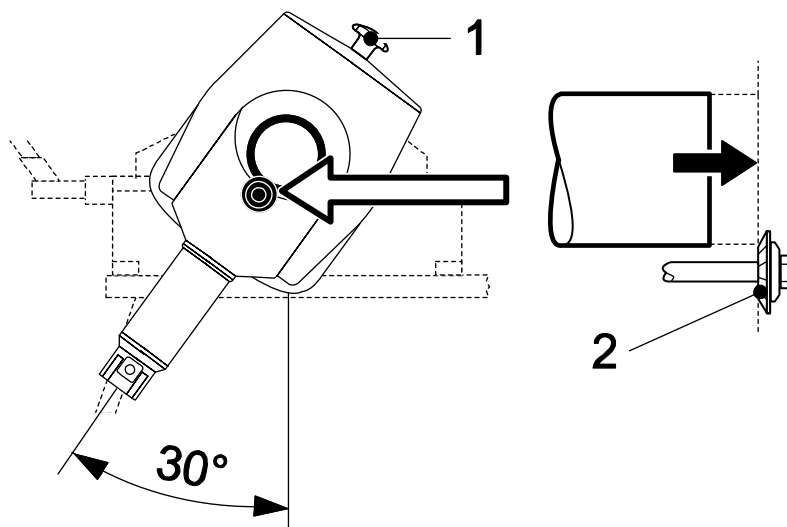
7.3.2 Saw blade with additional cutter

1. Turn the slide with saw blade all the way down using the hand wheel (1) (see chapter 7.3.1, p. 19).
2. Clamp the pipe in place so that it almost reaches the additional cutter (2).
3. Use the pistol grip to turn the motor upwards for about 30° until the saw blade is in cutting position.



4. Turn the hand wheel (1) until the teeth of the additional cutter (2) cover the wall thickness of the pipe.
5. Perform a test cut, check the cut and bevel result and readjust the hand wheel (1), if necessary.

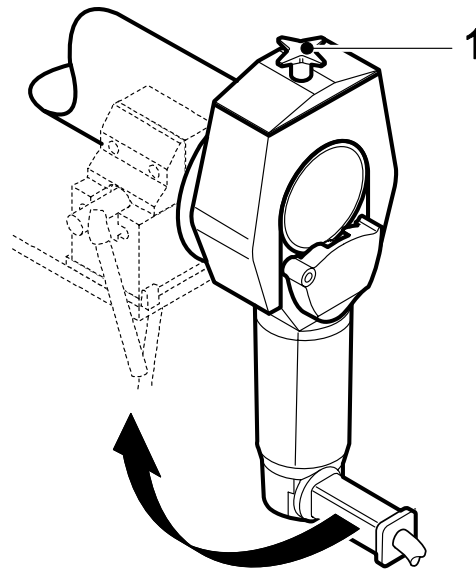
Note Scale of the hand wheel: a readjustment by one graduation mark will result in a radial feed or bevel alteration of 0.1 mm.



7.4 Adjusting the bevel cutter

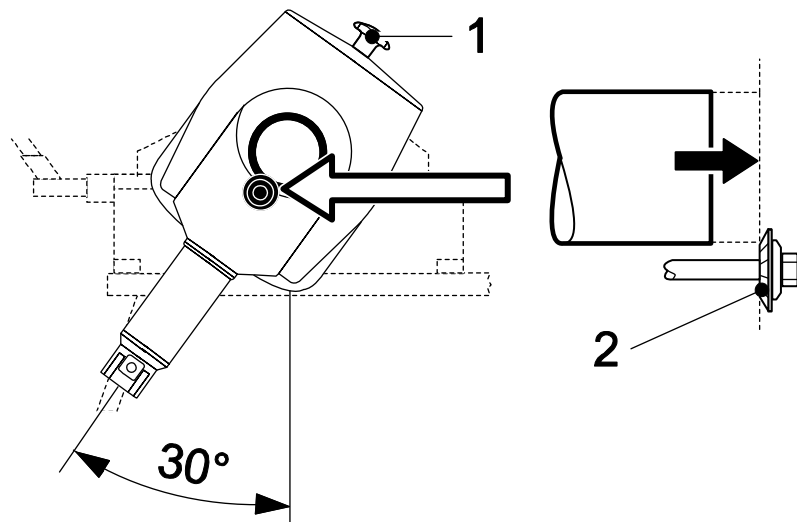
Note The working steps described in chapter 7.4 are the same for RA with AVM and RA with MVM.

1. Turn the slide with saw blade all the way down using the hand wheel (1).
2. Clamp the pipe in place so that it almost reaches the bevel cutter (2). The pipe must not project over the cutter.
3. Use the pistol grip to turn the motor upwards for about 30° until the bevel cutter is in beveling position.



4. Turn the hand wheel (1) until the teeth of the bevel cutter cover the wall thickness of the pipe and the desired beveling position is reached.
5. Perform a test bevel, check the bevel result and readjust the hand wheel (1), if necessary.

Note Scale of the hand wheel: a readjustment by one graduation mark will result in a radial feed or bevel alteration of 0.1 mm.

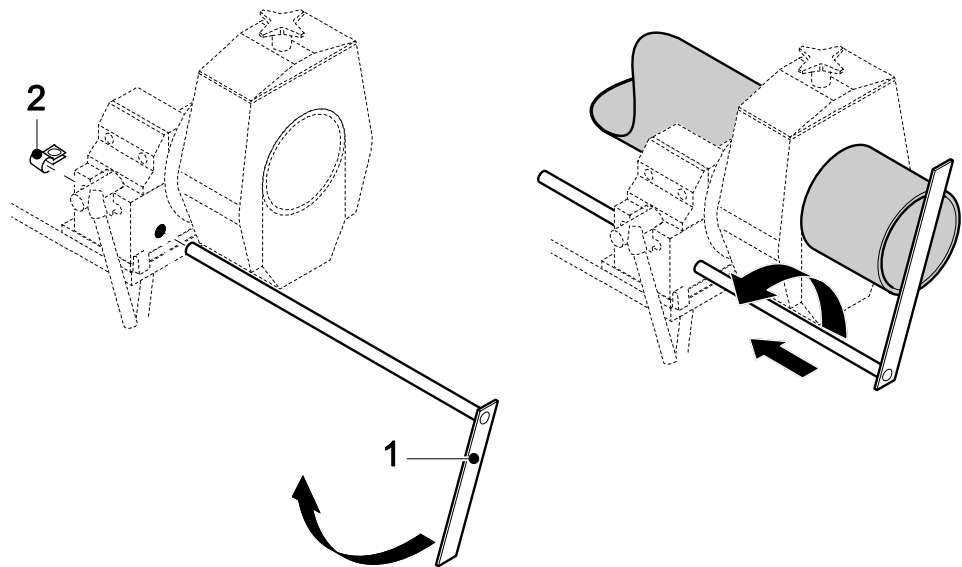


7.5 Adjusting the length gauge (cut-off stop)

Note The working steps described in chapter 7.5, p. 22 are the same for RA with AVM and RA with MVM.

A length gauge (cut-off stop) is available as an optional accessory for fabricating pipe sections of equal length (code no. 790 041 011, for all RA types except RA 12).

1. Mount the cut-off stop (1).
2. Swivel the cut-off stop to the middle of the pipe.
3. Use a meter rule to extend the gauge to the desired length.
4. Move the clamp (2) towards the housing and turn it so that it rests on the work bench.
5. Tighten the clamp (2).
6. Move the pipe forward up to the cut-off stop and clamp it into place.
7. Swivel the cut-off stop outward and push it all the way back.
8. Cut the pipe (see chapter 7.7, p. 24 for RA AVM, chapter 7.8, p. 28 for RA MVM and chapter 7.9, p. 31 for processing the pipe without RA AVM / MVM).
9. For the next cut, extend the cut-off stop and swing it into place clockwise.





7.6 Selecting the motor speed

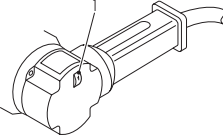

Important notes When working with RA AVM:

When first starting to process the pipe, a low advance force level is recommended which may be raised later. Higher levels result in a higher chip production and possibly also in a higher wear of tools. The intelligent control system of the AVM monitors the advance force continuously, depending on the torque and the parameter settings.

When cutting thin-walled pipes (wall thickness 3 - 5 mm), always start with level 1 and select a higher level afterwards.

- ▶ Select the advance force level (1 – 9) on the AVM display via the  /  buttons (for standard values, see the table below).

Standard values for spindle speed and advance force level (AVM)

Type	Pipe material	Controller setting (1) 	Spindle speed (rpm)	Advance force level AVM* 
RA 6 RA 8 RA 12	High-quality stainless steel (material no. 1.40... to 1.45..) and higher-alloy high-quality steels	1 – 2	150	5 and <
	Non-alloy and low-alloy high-quality steels	2 – 4	175 – 200	5
	General structural steel, black and galvanised steel pipe	4 – 6	220 – 270	5 and >
RA H	High-quality steel, high-quality stainless steel and high-alloy steels	1 – 6	40 – 70	5 and >
	High-performance materials (nickel-chromium-molybdenum alloys)	1 – 3	40 – 55	5 and >

- * The advance force level may be varied depending on the thickness and diameter of the pipe wall.

7.7 Processing the pipe with RA AVM

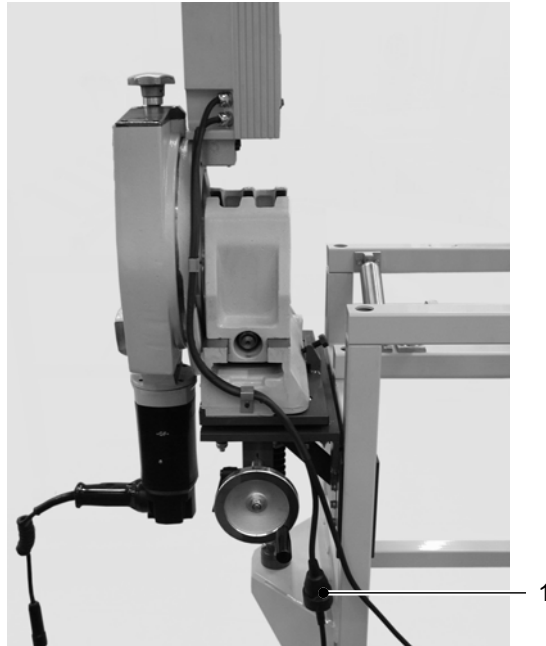
Important The AVM may only be operated in conjunction with the Orbitalum Tools pipe cutter RA 6/8/12.

- ⊘ Do **not** connect any other devices to the socket of the AVM.

7.7.1 Commissioning

1. Connect the pipe cutter to the socket (1) of the AVM.
2. Connect the main cable of the AVM to the main power supply.

After unlocking the EMERGENCY OFF button the number of the current software version will appear on the display for approx. 1 second. After this second has passed, the control system will supply the cutter motor with power and is thus ready for work (the currently selected advance force level is indicated).



7.7.2 Cutting the pipe with RA AVM



Danger of being injured by chips flying around

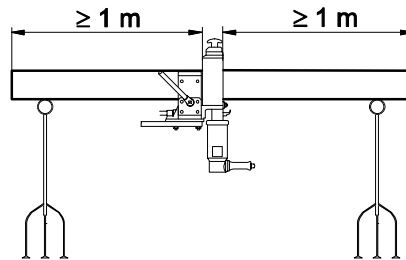
- ⊙ **Never** work without the saw blade guard mounted.
- ▶ Wear protective goggles.

Important If the pipe cutter was out of operation for a longer time:

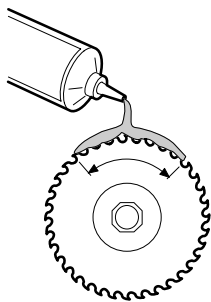
- Turn the cutter motor by 180°.
- Switch on the AVM and the pipe cutter (see chapter 7.7.1, p. 24), let the cutter motor run for about 10 seconds.

This will lubricate all gear components.

1. Set the pipe diameter (see chapter 7.3, p. 18).
2. Adjust the length gauge (see chapter 7.5, p. 22).
3. Adjust the saw blade (see chapter 7.3.1, p. 19).
4. Tighten the hexagon nut of the saw blade fixture, if necessary (see chapter 7.1, p. 17).
5. Set the spindle speed and the advance force level (for standard values, see chapter 7.6, p. 23).
6. Push the pipe through the vice up to the desired length and clamp it. Support pipes with a length of more than 1 m using a pipe supporting device or an auxiliary place of deposit (see chapter 7.3, p. 18).



Important Pull off the vice handle from the spindle before the slide housing starts rotating.



7. Apply saw blade lubricant to the saw blade:
 - up to 2": every 3 cuts,
 - over 2" and with chrome and high-quality steel pipes: after every cut.

Important: If the pipe will get in contact with drinking water or foodstuffs, only use Orbitalum Tools lubricating gel for saw blades.

8. Switch the pipe cutter on.
9. Press the START button

Processing will now be started and will be stopped automatically after a correct cutting process.

7.7.3 Beveling the pipe with RA AVM



Danger of being injured by chips flying around

- ⊘ **Never** work without the saw blade guard mounted.
- ▶ Wear protective goggles.

Important

If the pipe cutter was out of operation for a longer time:

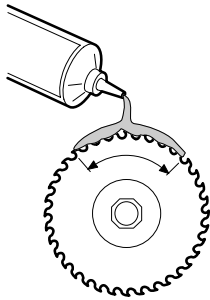
- Turn the cutter motor by 180°.
- Switch on the AVM and the pipe cutter (see chapter 7.3, p. 18), let the cutter motor run for about 10 seconds.

This will lubricate all gear components.

1. Set the pipe diameter (see chapter 7.3, p. 18).
2. Adjust the bevel cutter (see chapter 7.4, p. 21).
3. Tighten the hexagon nut of the bevel cutter fixture, if necessary (see chapter 7.1, p. 17).
4. Set the spindle speed and the advance force level (for standard values see chapter 7.6, p. 23).
5. Push the pipe through the vice up to the bevel cutter and clamp it.

Important

Pull off the vice handle from the spindle before the slide housing starts rotating.



6. Apply saw blade lubricant to the bevel cutter:
 - up to 2": every 3 cuts,
 - over 2" and with chrome and high-quality steel pipes: after every cut.

Important: If the pipe will get in contact with drinking water or foodstuffs, only use Orbitalum Tools lubricating gel for saw blades.

Note

For non-stop operation: after beveling, loosen the hexagon nut on the bevel cutter to avoid damage caused by tension.

7. Switch the pipe cutter on.
8. Press the START button

Processing will now be started and will be stopped automatically after a correct beveling process.

7.7.4 Cutting the pipe and beveling it simultaneously with RA AVM

Pipes with a wall thickness of up to 4.5 mm can be simultaneously cut and beveled.

If using an additional cutter, the cutter motor has to be turned around the pipe more slowly than during normal cutting, as two tools are being used at the same time. The working procedure is the same as described in chapter 7.7.2, p. 25.

Note If necessary, lubricate the saw blade and the additional cutter again during work. For non-stop operation: after cutting, loosen the hexagon nut on the saw blade to avoid damage caused by tension.

7.8 Processing the pipe with RA MVM

7.8.1 Cutting the pipe with RA MVM



WARNING

Danger of being injured by chips flying around

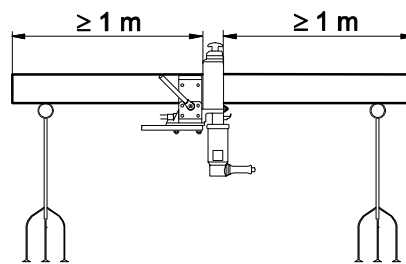
- ⊘ **Never** work without the saw blade guard mounted.
- ▶ Wear protective goggles.

Important

If the pipe cutter was out of operation for a longer time:

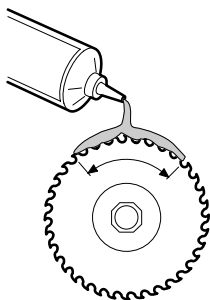
- Turn the cutter motor by 180°.
 - Switch the pipe cutter on and let it run for about 10 seconds.
- This will lubricate all gear components.

1. Set the pipe diameter (see chapter 7.3, p. 18).
2. Adjust the length gauge (see chapter 7.5, p. 22).
3. Adjust the saw blade (see chapter 7.3.1, p. 19).
4. Tighten the hexagon nut of the saw blade fixture, if necessary (see chapter 7.1, p. 17).
5. Set the spindle speed (see chapter 7.6, p. 23).
6. Push the pipe through the vice up to the desired length and clamp it. Support pipes with a length of more than 1 m using a pipe supporting device or an auxiliary place of deposit (see chapter 7.3, p. 18).



Important

Pull off the vice handle from the spindle before the slide housing starts rotating.



7. Apply saw blade lubricant to the saw blade:

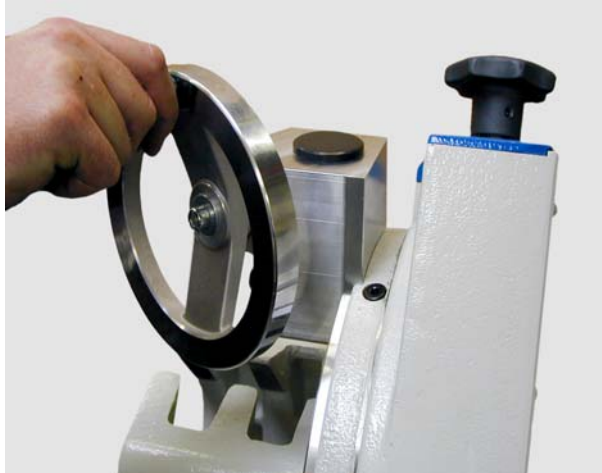
- up to 2": every 3 cuts,
- over 2" and with chrome and high-quality steel pipes: after every cut.

Important: If the pipe will get in contact with drinking water or foodstuffs, only use Orbitalum Tools lubricating gel for saw blades.

Note

For non-stop operation: after cutting, loosen the hexagon nut on the saw blade to avoid damage caused by tension.

8. Switch the motor on.
9. Carefully turn the motor clockwise using the hand wheel of the MVM until the pipe wall has been pierced through.



10. Continue turning rapidly until the pipe has been cut off.
11. Switch the motor off and allow the machine to run a stop.

7.8.2 Beveling the pipe with RA MVM



WARNING

Danger of being injured by chips flying around

- ⊙ **Never** work without the saw blade guard mounted.
- ▶ Wear protective goggles.

Important

If the pipe cutter was out of operation for a longer time:

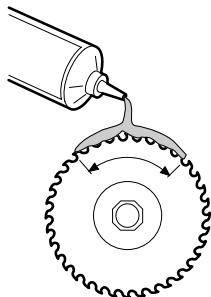
- Turn the cutter motor by 180°.
- Switch the pipe cutter on and let it run for about 10 seconds.

This will lubricate all gear components.

1. Set the pipe diameter (see chapter 7.3, p. 18).
2. Adjust the bevel cutter (see chapter 7.4, p. 21).
3. Tighten the hexagon nut of the bevel cutter fixture, if necessary (see chapter 7.1, p. 17).
4. Set the spindle speed (see chapter 7.6, p. 23).
5. Push the pipe through the vice up to the bevel cutter and clamp it.

Important

Pull off the vice handle from the spindle before the slide housing starts rotating.



6. Apply saw blade lubricant to the bevel cutter:

- up to 2": every 3 cuts,
- over 2" and with chrome and high-quality steel pipes: after every cut.

Important: If the pipe will get in contact with drinking water or foodstuffs, only use Orbitalum Tools lubricating gel for saw blades.

Note For non-stop operation: after beveling, loosen the hexagon nut on the bevel cutter to avoid damage caused by tension.

7. Switch the motor on.
8. Carefully turn the motor clockwise using the hand wheel of the MVM until the bevel cutter engages.
9. Continue turning rapidly until the pipe has been beveled completely.
10. Switch the motor off and allow the machine to run a stop.

7.8.3 Cutting the pipe and beveling it simultaneously with RA MVM

Pipes with a wall thickness of up to 4.5 mm can be simultaneously cut and beveled.

If using an additional cutter, the cutter motor has to be turned around the pipe more slowly than during normal cutting, as two tools are being used at the same time. The working procedure is the same as described in chapter 7.8.1, p. 28.

Note If necessary, lubricate the saw blade and the additional cutter again during work. For non-stop operation: after cutting, loosen the hexagon nut on the saw blade to avoid damage caused by tension.

7.9 Processing the pipe manually

7.9.1 Cutting the pipe manually



Danger of being injured by chips flying around

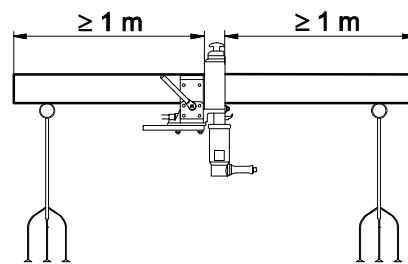
- ⊘ **Never** work without the saw blade guard mounted.
- ▶ Wear protective goggles.

Important

If the pipe cutter was out of operation for a longer time:

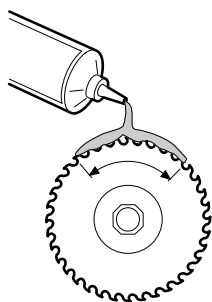
- Turn the cutter motor by 180°.
 - Switch the pipe cutter on and let it run for about 10 seconds.
- This will lubricate all gear components.

1. Set the pipe diameter (see chapter 7.3, p. 18).
2. Adjust the length gauge (see chapter 7.5, p. 22).
3. Adjust the saw blade (see chapter 7.3.1, p. 19).
4. Tighten the hexagon nut of the saw blade fixture, if necessary (see chapter 7.1, p. 17).
5. Set the spindle speed (see chapter 7.6, p. 23).
6. Push the pipe through the vice up to the desired length and clamp it. Support pipes with a length of more than 1 m using a pipe supporting device or an auxiliary place of deposit (see chapter 7.3, p. 18).



Important

Pull off the vice handle from the spindle before the slide housing starts rotating.



7. Apply saw blade lubricant to the saw blade:

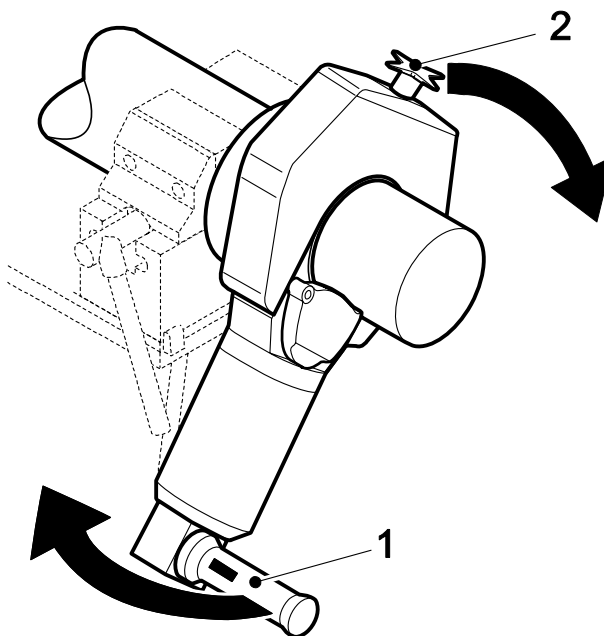
- up to 2": every 3 cuts,
- over 2" and with chrome and high-quality steel pipes: after every cut.

Important: If the pipe will get in contact with drinking water or foodstuffs, only use Orbitalum Tools lubricating gel for saw blades.

Note

For non-stop operation: after cutting, loosen the hexagon nut on the saw blade to avoid damage caused by tension.

8. Switch the motor on.
9. Carefully turn the motor clockwise using the pistol grip (1) and the hand wheel (2) until the pipe wall has been pierced through.



10. Continue turning rapidly until the pipe has been cut off.
11. Switch the motor off and allow the machine to run a stop.

7.9.2 Beveling the pipe manually



WARNING

Danger of being injured by chips flying around

- ⊙ **Never** work without the saw blade guard mounted.
 - ▶ Wear protective goggles.
-

Important

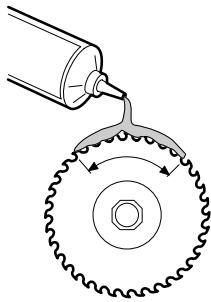
If the pipe cutter was out of operation for a longer time:

- Turn the cutter motor by 180°.
- Switch the pipe cutter on and let it run for about 10 seconds.

This will lubricate all gear components.

1. Set the pipe diameter (see chapter 7.3, p. 18).
2. Adjust the bevel cutter (see chapter 7.4, p. 21).
3. Tighten the hexagon nut of the bevel cutter fixture, if necessary (see chapter 7.1, p. 17).
4. Set the spindle speed (see chapter 7.6, p. 23).
5. Push the pipe through the vice up to the bevel cutter and clamp it.

Important Pull off the vice handle from the spindle before the slide housing starts rotating.

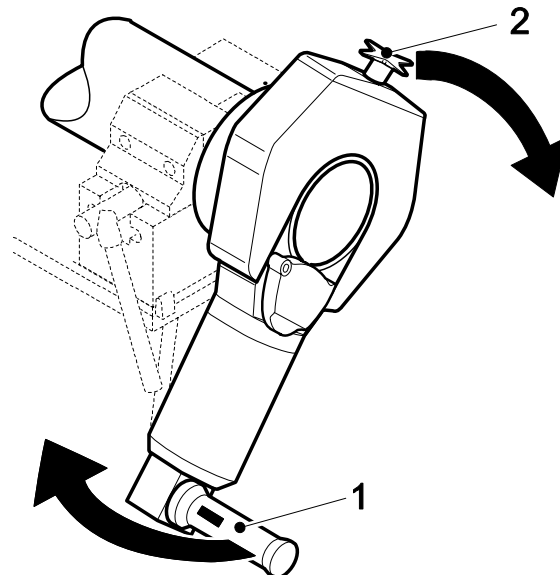


6. Apply saw blade lubricant to the bevel cutter:
 - up to 2": every 3 cuts,
 - over 2" and with chrome and high-quality steel pipes: after every cut.

Important: If the pipe will get in contact with drinking water or foodstuffs, only use Orbitalum Tools lubricating gel for saw blades.

Note For non-stop operation: after beveling, loosen the hexagon nut on the bevel cutter to avoid damage caused by tension.

7. Switch the motor on.
8. Carefully turn the motor clockwise using the pistol grip (1) and hand wheel (2) until the bevel cutter engages.



9. Continue turning rapidly until the pipe has been beveled completely.
10. Switch the motor off and allow the machine to run a stop.

7.9.3 Cutting the pipe manually and beveling it simultaneously

Pipes with a wall thickness of up to 4.5 mm can be simultaneously cut and beveled.

If using an additional cutter, the cutter motor has to be turned around the pipe more slowly than during normal cutting, as two tools are being used at the same time. The working procedure is the same as described in chapter 7.9.1, p. 31.

Note If necessary, lubricate the saw blade and the additional cutter again during work. For non-stop operation: after cutting, loosen the hexagon nut on the saw blade to avoid damage caused by tension.

8 Maintenance

The pipe cutter was designed for a long service life and low maintenance.

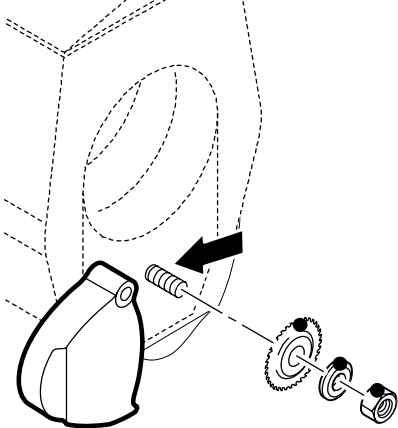
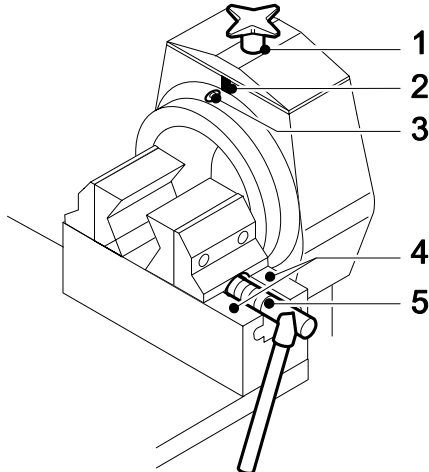
Please follow the maintenance instructions below.



DANGER

Danger of death by electric shock

- ▶ Pull the mains plug before carrying out any maintenance work.

Interval	Activity
Before starting work	<ul style="list-style-type: none"> ▶ Remove chips and dirt from the saw blade. ▶ Keep the vent holes free from chips.
Every time the cutter is cleaned Every time the tool is changed	<ul style="list-style-type: none"> ⊘ Do not use compressed air to clean the area at the end of the shaft marked with an arrow as the rotary shaft seal may otherwise be damaged by chips. ▶ Use a cloth or brush to clean the end of the shaft. 
Every week	<ul style="list-style-type: none"> ▶ Clean and oil: <ul style="list-style-type: none"> • the spindle of the hand wheel (1) • the sliding block (2) • the guide bush (3) (dismount the AVM or MVM before) • the vice tracks (4) • the vice spindle (5) ▶ Check the oil level of the gear and top up, if necessary (see chapter 8.1, p. 35). 

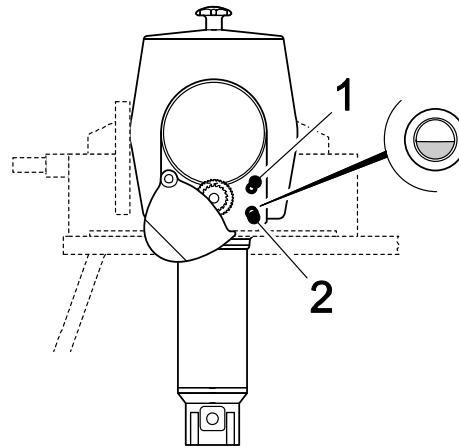
8.1 Checking the oil level of the gear and topping up

The gears of the pipe cutters RA 6 to RA 12 have an oil level inspection glass. The oil level should be visible in the middle of the inspection glass.

1. Check the oil level at the inspection glass (2) and top up, if necessary.

To top up:

2. Unscrew the oil filler screw (1). Fill with special Orbitalum Tools gear oil.



3. Re-insert and tighten the oil filler screw.

Important The oil will have to be topped up if an RA H intermediate gear is fitted.

8.2 Cleaning the slide guide



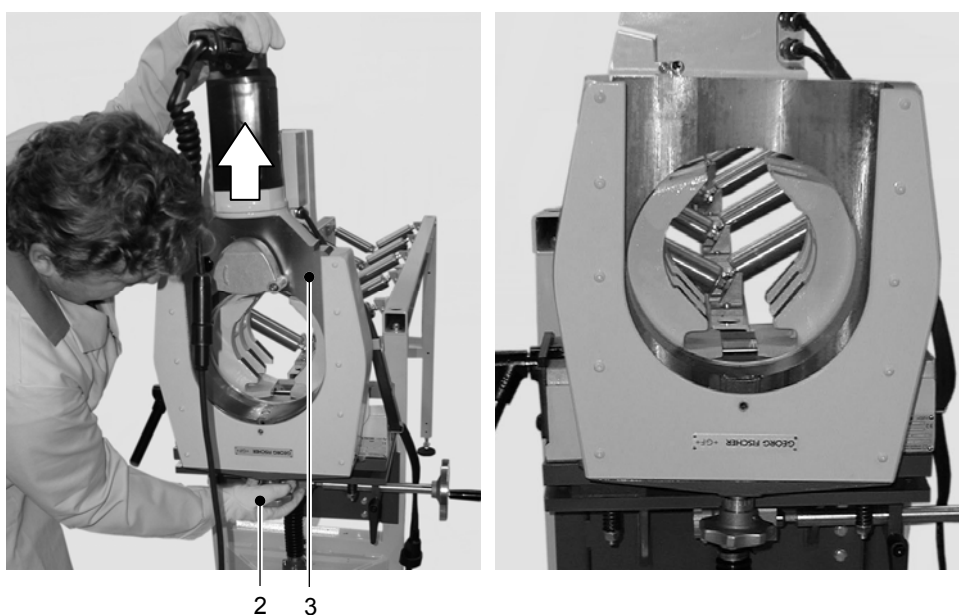
Danger of being injured by a not sufficiently secured slide

- ⊘ **Never** dismount the slide by pulling it downwards.
- ▶ Always tighten the safety screw when assembling the slide.

1. Remove the safety screw (1).
2. Turn the slide housing upwards by 180°.



3. Turn the hand wheel (2) anticlockwise.
4. Pull out the slide (3) upwards.



5. Clean the guides of the slide housing and slide. Lubricate both parts slightly using HD 30 engine oil.
6. Remount the slide. Insert and tighten the safety screw (1).

9 What to do if ...?

9.1 General trouble-shooting

In the following table you will find possible causes of faults and the appropriate remedies.

Problem	Possible cause	Remedy
The motor is not running.	The overload protection relay has tripped.	▶ Set the switch to "0", wait about 15 minutes, and then switch the pipe cutter back on.
	The restart inhibitor has tripped.	▶ Set the switch to "0", then switch the pipe cutter back on.
The pipe cutter will not turn.	Pipe diameter not correctly set.	▶ Set the pipe diameter correctly (see chapter 7.3, p. 18).
The saw blade is not cutting, but is slipping through.	Hexagon nut on the saw blade shaft not tightened.	▶ Tighten the hexagon nut.
The saw blade is not cutting.	The saw blade has been inserted the wrong way round.	▶ Insert the saw blade correctly. The labelling on the saw blade must be visible.
It is no longer possible to set the pipe diameter.	The slide guide is dirty.	▶ Clean the slide guide (see chapter 8.2, p. 36).

9.2 Error messages/trouble-shooting AVM

In case of faults concerning the AVM, the machine will be stopped automatically. The display will flash at 1-second intervals, alternately showing "F" and a figure from 1 to 6. Before restarting the AVM, it has to be disconnected from the mains supply by pressing the EMERGENCY OFF button or by pulling the mains plug.

Error message/fault	Possible cause	Remedy
Display F1: Cutter motor overloaded.	Advance force level too high.	▶ Select a lower advance force level.
Display F2: Advance motor overloaded.	Advance force level too high.	▶ Select a lower advance force level.
	Pipe diameter not correctly set.	▶ Set the pipe diameter correctly (see chapter 7.3, p. 18).
	Chips between slide housing and pipe.	▶ Remove the chips.
	The slide housing is running sluggishly.	▶ Make the slide housing run smoothly.
Display F3: The cutter motor stops during processing.	Obstacle in the swivelling range.	▶ Remove the obstacle.
	Power supply of the cutter motor interrupted.	▶ Check the connecting cable and the plug-connections.
Display F4: Internal control error.	The overload protection relay of the cutter motor has tripped.	▶ Set the switch to "0", wait about 15 minutes, and then switch the pipe cutter back on.
	The processor is defective.	▶ Contact the service department.
Display F5: Excess temperature.	The temperature of the control system is too high.	▶ Self-regulating after cooling down.
Display F6: Internal control error.	Wrong basic setting.	▶ Contact the service department.
No display: The AVM does not start.	The cutter motor is not running or is not running long enough.	▶ The cutter motor must be running for at least 5 seconds before the AVM can be started.
The advance stops at the cut-in area.	Blocking by chips.	▶ Remove the chips.
	Pipe diameter not correctly set.	▶ Correct the adjustment.
The advance does not stop at the stop position. Display: No decimal point at the stop position.	Light barrier or reflector defective.	▶ Replace the defective parts (contact the service department, if necessary).
	Light barrier or reflector dirty.	▶ Clean the dirty parts.

After having remedied the cause of malfunction, the AVM has to be re-connected to the mains supply. After having switched off the cutter motor (to position "0"), it may be restarted.

9.3 Servicing/after-sales service

For ordering spare parts, see the separate spare parts list.

For trouble shooting, please contact your competent branch office directly.
You will find the addresses on the back page of these operating instructions.

Please state the following details:

- Machine type: **RA 6, RA 8 or RA 12 (H) with AVM / MVM**
- Machine number: (see identification plate)

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