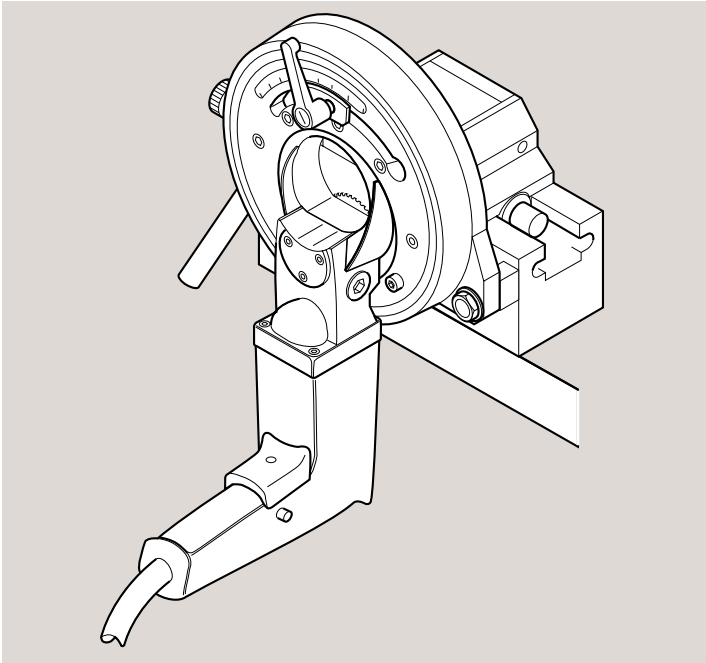


Operating Instructions

Code 790 044 762



RA 21 and RA 21 Special

Pipe Cutting and

Bevelling Machines

GEORG FISCHER +GF+

These operating instructions are part

of machine no.:

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0 About these operating instructions

The symbols used in this manual are explained here to help you quickly understand the operating instructions and use them effectively.

Symbols



Note on safety

This general hazard symbol accompanies passages of text which you should read and understand under all circumstances. By failing to do so you could endanger yourself and others.



Important information

Passages of text which convey important information are accompanied by this symbol. Failing to observe them can cause machine malfunctions or damage.



Action

This arrow indicates an action you must perform.

1 Notes on safety

The RA 21/RA 21 Special Pipe Cutting and Beveling Machine (referred to as a pipe cutter in the following) 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 always comply with these notes on safety.

Proper use

- Only use the materials and types of pipe specified in this manual (see chapter 3). Always consult Georg Fischer after-sales service personnel before using other materials.
- Only use the pipe cutter for cutting and bevelling operations as described in chapter 6.
- Only use original Georg Fischer spare parts and auxiliaries.
- Inspect the pipe cutter every day for visible signs of damage or defects. Any damage or defects must be repaired immediately. Work on the electrical installations may only be performed by a qualified electrician.
- Do not use the pipe cutter unless all safety devices
 - restart inhibitor
 - overload protection
 - saw blade guardare working properly and the fixtures on the vise and baseplate are fitted securely.

Working with safety in mind

"Make your contribution to safety at the workplace."
Report any unusual behaviour on the part of the machine to the person in charge immediately.

Always work with safety in mind.



- Wear safety goggles during cutting and bevelling operations.
- Switch the RA 21 (S) off after completing each stage of work and allow the machine to run a stop.
- Disconnect from the mains before cleaning the pipe cutter.



The cutter and saw blade may cause injury.
Therefore:

- Keep your hands away from the tools during cutting and bevelling operations.



Keep the pipe cutter dry, do not use in the rain.



Do not use the pipe cutter in areas subject to explosion hazards.

Disposal

Please make sure that material chips and used gear oil are disposed of properly.

Further safety rules

Comply with the regulations, standards and guidelines that apply in your country.

2 Description of the pipe cutter

The pipe cutter is a robust, user-friendly, service-friendly and safety-oriented design.

Vise and saw

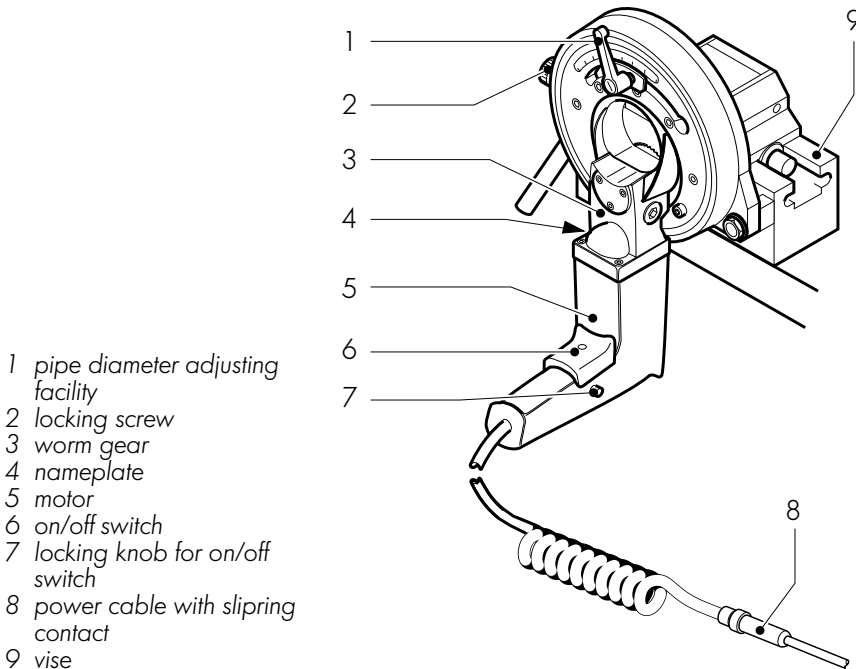
All mechanically stressed parts are metal. The rounded, smooth edges help to avoid accidents.

The saw blade and jaws are close together which reduces vibrations during cutting.

Motor and power cable

The motor can be easily removed. The motor housing and switches are made from lightweight, impact-resistant plastic.

Integrated into the power cable is a slipping contact which prevents the cable from twisting during cutting.



3 Features and scope of application of the pipe cutter

The pipe cutter

- is a fully configured working machine suitable for workshop and building site operation;
- is part of the combined KM 2 and GTM 2 pipe cutting and threading machines;
- works using the safety-enhancing principle: stationary pipe, rotating tool.

The pipe cutter is suitable for

- cutting and
 - bevelling
- pipes.

The cut pipes are free from burr, so no deburring (in- or outside) is required. This reduces the risk of corrosion.

Scope of application	RA 21	RA 21 Special
<ul style="list-style-type: none"> ● pipe Ø 1/4" to 2" or 10 mm to 63 mm ● up to 5.5 mm wall thickness 	X	X
Chrome and stainless steel pipes up to 1.5 mm wall thickness		X
Solid material Ø 6 mm to 16 mm		X

The following materials can be used:

- steel, black or galvanised
- chrome and stainless steel (up to 2.5 mm wall thickness)
- aluminium
- non-ferrous metals (e.g. copper, brass)
- plastics (PE, PP, PVDE, PVC)

Other materials on request.

□ Do not use cast pipes with glass-hard surfaces (GG).

4 Technical specifications

Manufacturer Georg Fischer
Rohrverbindungstechnik GmbH
D-78224 Singen

Dimensions 300 x 450 x 300 mm

Weight
(incl. vise) 34 kg

Power 550 W

Protection class Totally insulated in accordance
with Class II DIN VDE 0740

Speed 180 rpm

Versions 1-phase AC
110 ... 120 V, 50/60 Hz
230 ... 240 V, 50/60 Hz

Sound pressure
level at the
workplace at idle: approx. 82 dB (A)
under load: approx. 84 dB (A)

As the noise level may also exceed 84 dB (A)
under unfavourable operating conditions, we
recommend the use of suitable ear protection
when the machine is used for extended periods.

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

Vibration level
in accordance
with EN 28662,
Part 1 < 2.5 m/s²

5 Commissioning

5.1 Checking the scope of delivery

Check all parts of the delivery for completeness and transport damage. Please report missing parts or transport damage to the support immediately.

Normal accessories

(subject to change without notice)

- 1 saw blade
- 1 ring spanner, 22 mm
- 1 brush
- 2 hexagon Allen keys
- 1 tube of saw blade lubricant
- 1 quick mounting base plate
- 1 tube of special gear oil

5.2 Transporting and assembling the pipe cutter

Transport

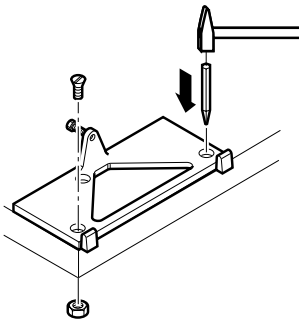


Disconnect from the power supply before transporting, mounting or dismantling and allow the machine to run a stop.

Mounting the quick mounting base plate

The pipe cutter with the vise is mounted either

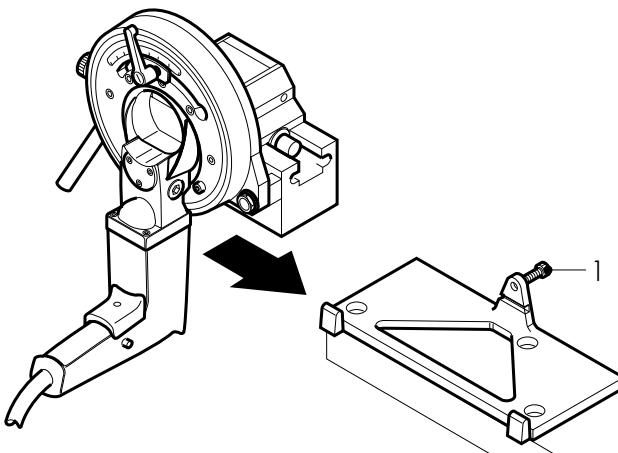
- on the quick mounting base plate, or
- on the quick mounting base plate (special accessory) with clamps.



→ Mark and punch the bolt holes on the work bench. Use the quick-mounting baseplate as a template.

→ Drill 13 mm Ø holes.

→ Bolt down the quick-mounting baseplate.



→ Place the vise with flanged-on pipe cutter on the base plate. Tighten the hexagon nut (1).

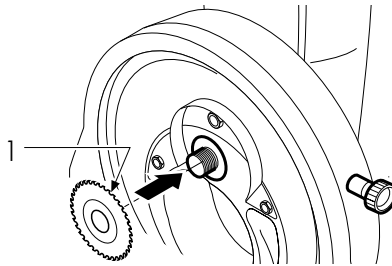
6 Operation

6.1 Fitting the saw blade / additional cutter



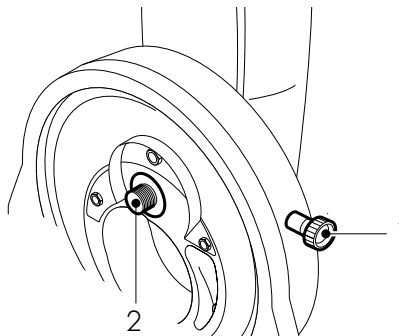
Disconnect the mains plug before fitting or changing the tool.

- The saw blade/additional cutter must be free from chips and dirt.
- Use only original Georg Fischer saw blades and cutters.
- The inscription on the saw blade (1) must always face the pipe cutter. Observe sign for saw blade guard.

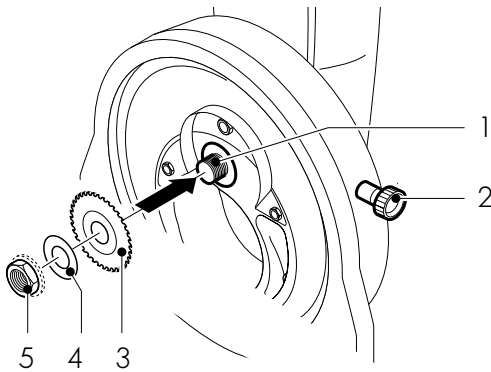


Preparatory work

- ➔ Loosen the locking screw (1).
- ➔ Turn the pipe cutter upwards 180° clockwise.
- ➔ Tighten the locking screw (1).
- ➔ Clean the saw blade shaft (2) and vicinity.

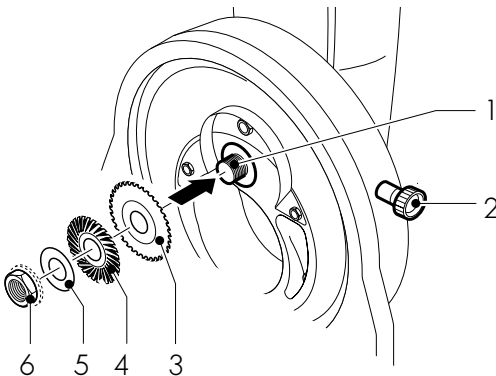


Fitting the saw blade



- ➔ Mount the following on the shaft (1):
 - saw blade (3)
 - clamping disk (4)
code RA 21:
790 041 188
code RA 21 S:
790 044 192
- ➔ Tighten the nut (5) by turning counter-clockwise. Left-hand thread.
- ➔ Loosen the locking screw (2).
- ➔ Turn the pipe cutter clockwise back down into its home position.

Fitting the saw blade and additional cutter

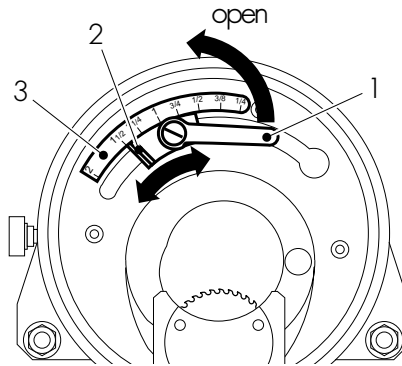


- ➔ Mount the following on the shaft (1):
 - RA 21:
 - saw blade (3)
 - additional cutter (4)
 - RA 21 S:
 - saw blade (3)
 - additional cutter (4)
- ➔ Tighten the nut (6) by turning counter-clockwise. Left-hand thread.
- ➔ Loosen the locking screw (2).
- ➔ Turn the pipe cutter clockwise back into its home position.

6.2 Adjusting the pipe diameter

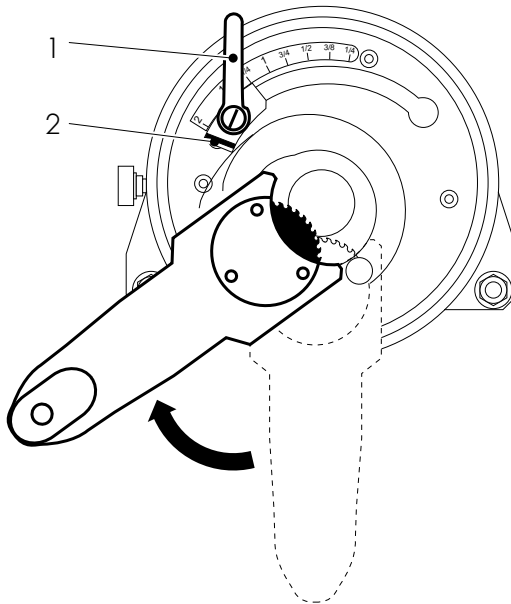
Threaded pipes to DIN 2440

- ➔ Release the lever (1).
- ➔ Select pipe diameter on the scale (3).
- ➔ Set the red mark on the left side of the stop (2) to the corresponding number.
- ➔ Tighten the lever (1).



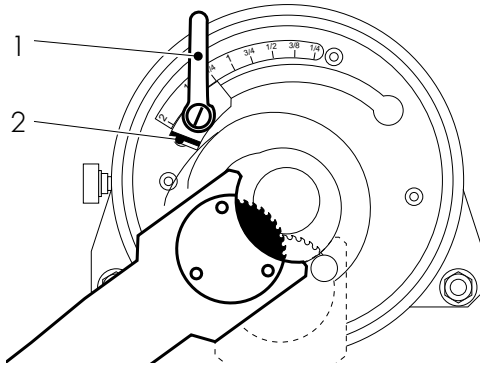
All other types of pipe

- ➔ Insert the pipe in the vise.
- ➔ Move the pipe almost up to the saw blade.
- ➔ Tighten the pipe in the vise.
- ➔ Release the lever (1) and set the stop (2) to position 2". Do not tighten.
- ➔ Raise the motor of the pipe cutter as if to start cutting, until the points of the saw blade teeth project about 1.5 mm into the pipe.
- ➔ Tighten the lever (1).

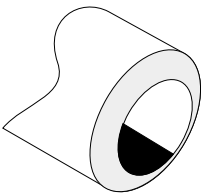


6.3 Adjusting the additional cutter

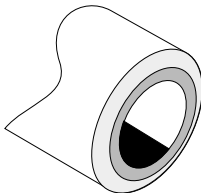
Simultaneous cutting and bevelling of steel pipes up to a wall thickness of 4.5 mm is possible.



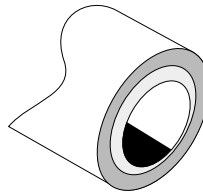
- ➔ Insert the pipe in the vise.
- ➔ Move the pipe almost up to the additional cutter.
- ➔ Clamp the pipe in the vise.
- ➔ Release the lever (1) and set the stop (2) to position 2". Do not tighten.
- ➔ Raise the motor of the pipe cutter as if to start cutting, until the cutter covers the wall of the pipe.
- ➔ Tighten the lever (1).
- ➔ Do a test bevel and check the result (see section 6.6).



Bevel OK



Move the stop (2) a little to the right

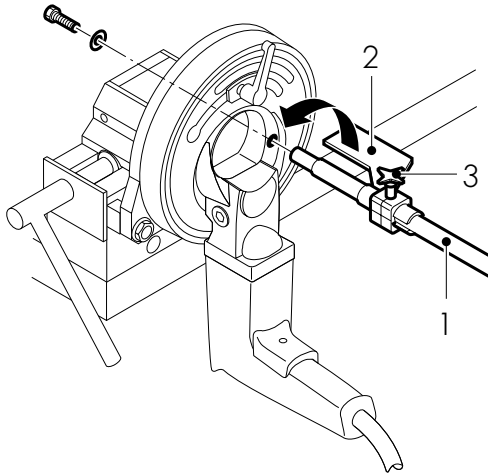


Move the stop (2) a little to the left

6.4 Using stops

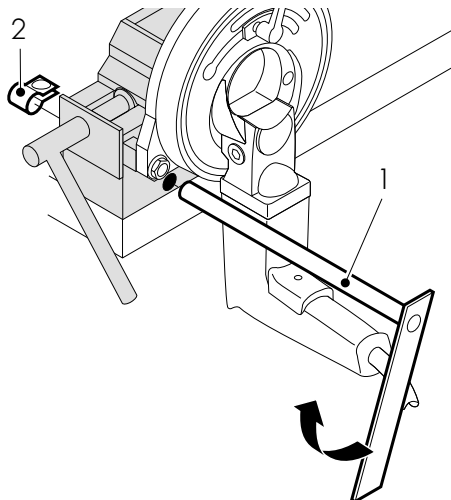
Length gauge up to 250 mm

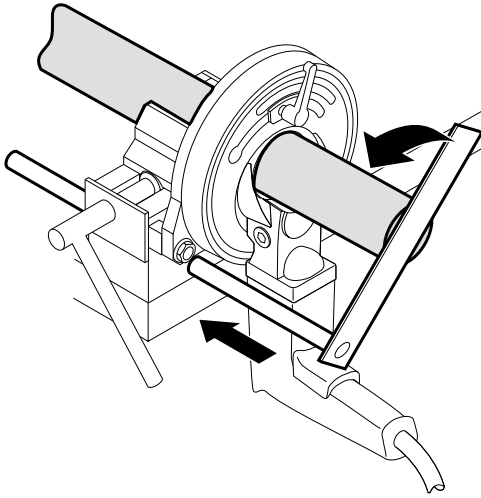
- ➔ Mount the length gauge (1).
- ➔ Swing the stop (2) in to the middle of the pipe and engage.
- ➔ Release the cross knob (3).
- ➔ Set to the desired length. Use the scale.
- ➔ Tighten the cross knob.
- ➔ Push the pipe forwards up to the stop and clamp.
- ➔ Swing the stop clear.
- ➔ Cut the pipe.



Length gauge over 250 mm

- ➔ Mount the length gauge (1).
- ➔ Swing the stop in to the middle of the pipe.
- ➔ Use a yardstick to extend the stop to the desired length.
- ➔ Push the clamp (2) up against the housing and turn it so that it is in contact with the work bench.





- ➔ Tighten the clamp.
- ➔ Push the pipe up against the stop and clamp.
- ➔ Swing the stop out and push all the way back.
- ➔ Cut the pipe.
- ➔ For the next cut, extend the stop and swing into place clockwise.

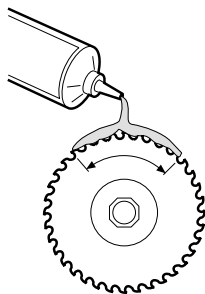
6.5 Cutting the pipe

- Cut thin-walled chrome and stainless steel pipe up to 1.5 mm wall thickness only with RA 21 Special.



Put on safety goggles before cutting.

- Connect the pipe cutter to the mains.
- Apply saw blade lubricant to the saw blade teeth.

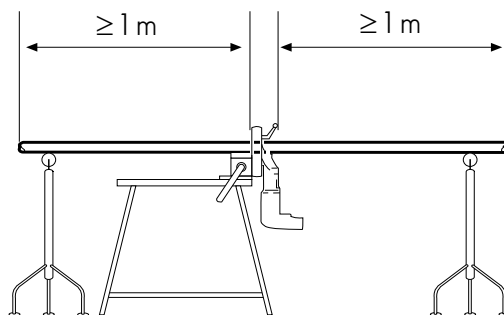


- Repeat the lubrication every three cuts.

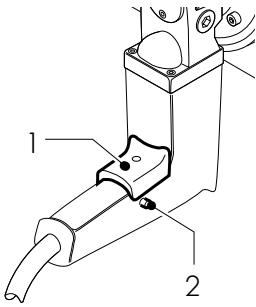


If in contact with drinking water or foodstuffs, use only Georg Fischer lubricating gel.

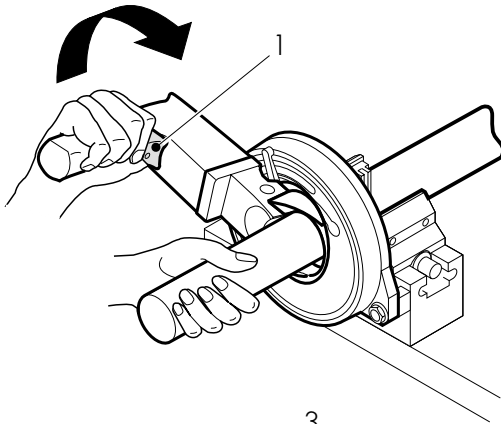
- Mark the cutting location on the pipe.
- Insert the pipe in the vise.
- Push the marked cutting location over the saw blade.
- Clamp the pipe in the vise.



- Use a pipe support for pipes that are over 1 m long.

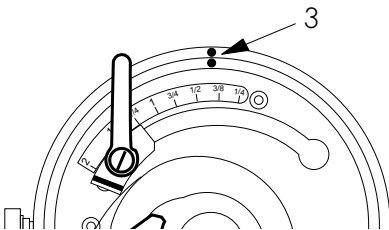


➔ Switch on the saw motor. Press the on/off switch (1) and the locking button (2).



➔ Carefully turn the pipe cutter clockwise until the wall of the pipe has been pierced through.

➔ Continue to turn rapidly until the pipe has been cut off and the marks (3) on the slide housing and vise housing are aligned.



➔ Turn the pipe cutter back into its home position.

➔ Switch off the saw motor. Press the on/off switch (1) again.

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

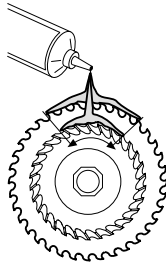
6.6 Cutting and bevelling the pipe

This procedure combines cutting and bevelling of the pipe. When cutting and bevelling simultaneously, turn the pipe cutter more slowly around the pipe than you would for cutting alone, as two tools are used at the same time.



Put on safety goggles before cutting.

- Connect the pipe cutter to the mains.
- Apply saw blade lubricant to the saw blade teeth/cutting surface.

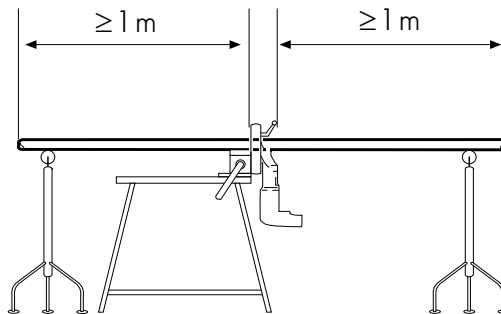


□ Repeat the lubrication every three cuts.

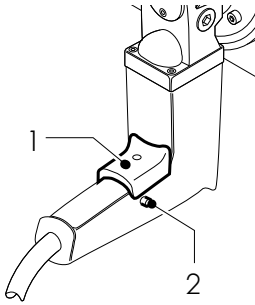


If in contact with drinking water or foodstuffs, use only Georg Fischer lubricating gel.

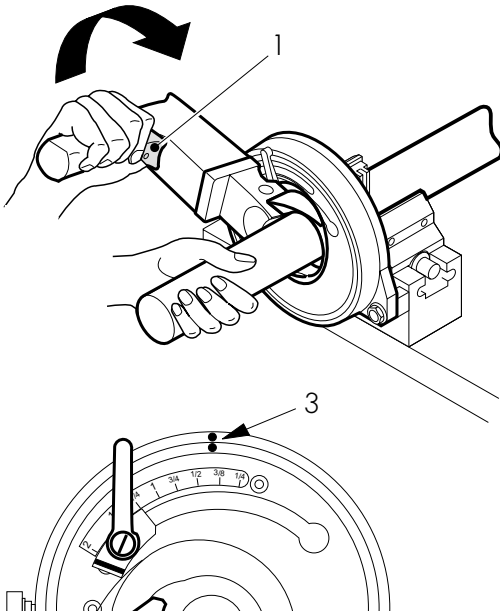
- Mark the cutting location on the pipe.
- Insert the pipe in the vise.
- Push the marked cutting location over the saw blade.
- Clamp the pipe in the vise.



□ Use a pipe support for pipes that are more than 1 m long.



➔ Switch on the saw motor. Press the on/off switch (1) and the locking button (2).



➔ Carefully turn the pipe cutter clockwise until the wall of the pipe has been pierced through.

➔ Continue turning rapidly until the pipe has been cut off and the marks (3) on the slide housing and vise housing are aligned.

➔ Turn the pipe cutter back into its home position.

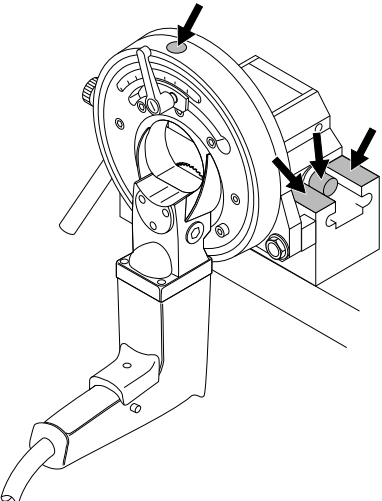
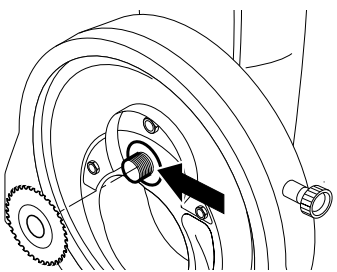
➔ Switch off the saw motor. Press the on/off switch (1) again.

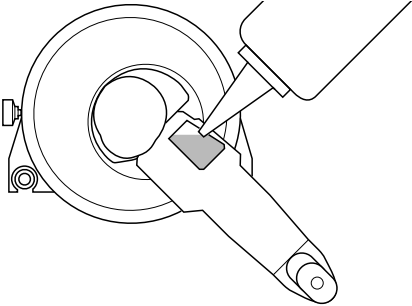
□ For non-stop operation: After cutting, loosen the hexagon nut on the saw blade to avoid damage caused by tension.

7 Maintenance



Disconnect the mains plug before doing maintenance work.

Interval	Activity
every week	<p>Remove the saw blade and brush off chips. Oil the four locations marked by the arrows.</p>  <p>☐ Check the oil level of the gear and top up if necessary.</p>
<ul style="list-style-type: none">● every time the cutter is cleaned● every tool change	<p>☐ 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.</p> <p>Use a cloth or brush to clean the end of the shaft.</p> 

Interval	Activity
<p>after the first 150 hours of operation (or after 3 months, whichever is sooner), then every 1000 hours of operation (or every year)</p>	<p>Fill with gear oil up to the threaded hole.</p>  <p>The diagram shows a cross-section of a gear assembly. A dipstick is inserted into a threaded hole in the housing. The dipstick has a rectangular float at the end, which is partially submerged in the gear oil. The oil level is indicated by the top of the float. The dipstick is labeled with a small '1' at the top and a small '2' at the bottom. The gear assembly is shown in a perspective view, with the dipstick extending from the right side into the housing.</p>

8 What to do if ...?

Problem	Cause	Remedy
Pipe cutter will not turn.	Locking screw tightened. Wrong pipe diameter set.	Loosen locking screw. Set pipe diameter correctly.
Saw blade is not cutting and is slipping.	Nut on saw blade shaft not tight enough.	Tighten nut.
Saw blade is not cutting.	Saw blade wrong way round.	Fit saw blade correctly. Inscription on saw blade must face the pipe cutting machine (see chapter 6).
Pipe is not being cut concentrically.	Pipe cutter not flanged on. Flange surfaces are dirty.	Remove pipe cutter, clean mounting parts and flange surfaces, bolt pipe cutter back on.
Pipe is not being cut.	Pipe diameter wrongly set. Clamping lever not tight.	Adjust pipe diameter (see chapter 6). Tighten clamping lever.
Motor not running.	The restart inhibitor has tripped.	Turn switch to "0", then switch the pipe cutter on.

Service / after-sales service

Spare parts: see separate spare parts list.
Separate service instructions are available for the elimination of faults.
Alternatively, contact your local Georg Fischer agent.
A list of addresses is provided on the back cover of this manual.

Please quote the following data:

- Cutter type: RA 21/RA 21 Special
- Machine number: see nameplate.

**The technical data are not binding.
They are not warranted characteristics and
are subject to change.
Please consult our General Conditions of
Supply.**

GEORG FISCHER +GF+

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