# Product specification/ Spare Parts List

## Wire Cutter

### for TC96

**502 309-502**
**1998-10-01**

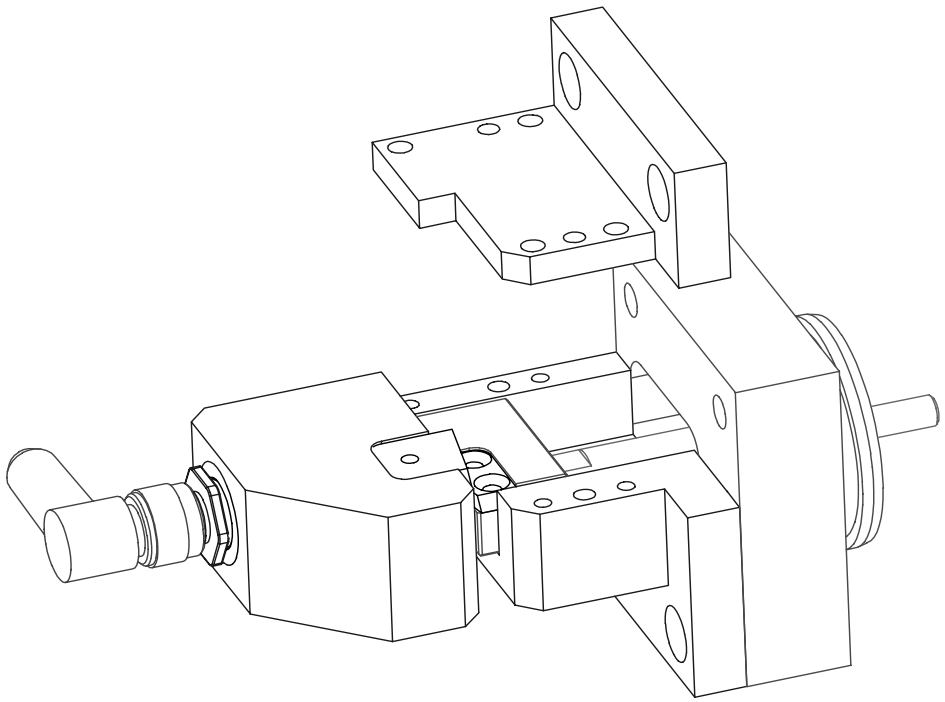

**ABB Flexible Automation AB**
**Welding Systems**

Article number: 502 309-502

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# 1 General comments

Dear customer,

This wire cutter is an add-on module for the TC 96 torch cleaner, which it also controls. These operating instructions are a supplement to the *TC 96 torch cleaner product specifications*. These operating instructions are intended to familiarise the owner or user with the safety aspects, design, functions as well as servicing and maintenance of the wire cutter.

The reader should also have access to the *'TC 96 torch cleaner product specifications'*.

The description is directed at the owner or user of this equipment and is written for trained personnel who have experience with mechanical and electrical installations.

**The safety instructions contained in these operating instructions must be observed by all persons who work on this machine. It is essential that these operating instructions are available to the operating personnel at all times and that they are kept at the place of operation so that they are easily accessible.**

The necessary safety information in this document is indicated by the pictogram 

## 1.1 Designated use

The wire cutter is intended only for:

- fitting onto the TC 96 torch cleaner
- automatic cutting of the welding wire.

Any other use or additional use (e.g. performance of machining operations) is deemed as ***not*** being in accordance with the designated use.

No modifications must be made to the wire cutter which permit misuse of any kind where the designated use is concerned.

Usage in accordance with the designated use also includes:

- observance of all instructions in the operating manual
- carrying out the inspection and maintenance work

# 2 Technical data

- Air pressure: 5-10 bar
- Clamping cylinder: Dia. 45 x 36 mm stroke
  F = 790 N at 5 bar
- Maximum welding wire diameter that can be cut: d = 1.0 mm, steel at min. 5 bar air pressure
  d = 1.2 mm, steel at min. **6 bar** air pressure
  d = 1.2 mm, aluminium at min. 5 bar air pressure
- Weight: 1.3 kg

# 3 Installation and start-up

## 3.1 Description

The wire cutter is an add-on module for the TC 96 torch cleaner. The tool tip is connected mechanically to the clamping cylinder of the torch cleaner and does not need any additional control elements.

You can also retrofit the wire cutter to your torch cleaner.

With this add-on device you can cut the welding wire electrode to the length you require.

You can improve the ignition behaviour and the serviceability of your welding unit by :

- cutting off bent or an excessively long wire
- cutting off the wire end each time before torch cleaning and prior to every TCP measurement
- cutting off the slag formation on the end of the wire.

## 3.2 Retrofitment of the 'wire cutter'

### 3.2.1 Preparations for alteration


Before you start the alteration :

1. Make sure that the air supply and power supply have been disconnected.
2. Clean the torch cleaner.

### 3.2.2 Removing the cylinder cover

Before you can fit the wire cutter you must remove the cylinder cover :

1. Unscrew the **connection nut** of the right-angle plug (33) to the initiator (miniature sensor) and pull out the right-angle plug.
2. Unscrew the **elbow** (73) of the pneumatic connection.
3. Unscrew the **4 cheese-head bolts** M6x90 (25) in the cylinder cover.

4. The cylinder tube (17) is only retained by the friction of the o-ring seals. For this reason keep a grip on the cylinder tube of the clamping cylinder as you carefully unscrew and pull away the **cylinder cover** (21) together with the o-ring and the initiator from the cylinder tube without separating the cylinder tube from the torch cleaner unit!

5. Remove the **damping washer** (22).

6. Pull out the piston rod (19) together with the piston (18) and the gasket (27).

7. With the piston rod removed you will be able to unscrew the **hexagonal bolt** M6x16 (23) together with the **washer** (24) from the piston rod.

Parts (21), (23), (24) and (25) are not required for fitting the wire cutter.

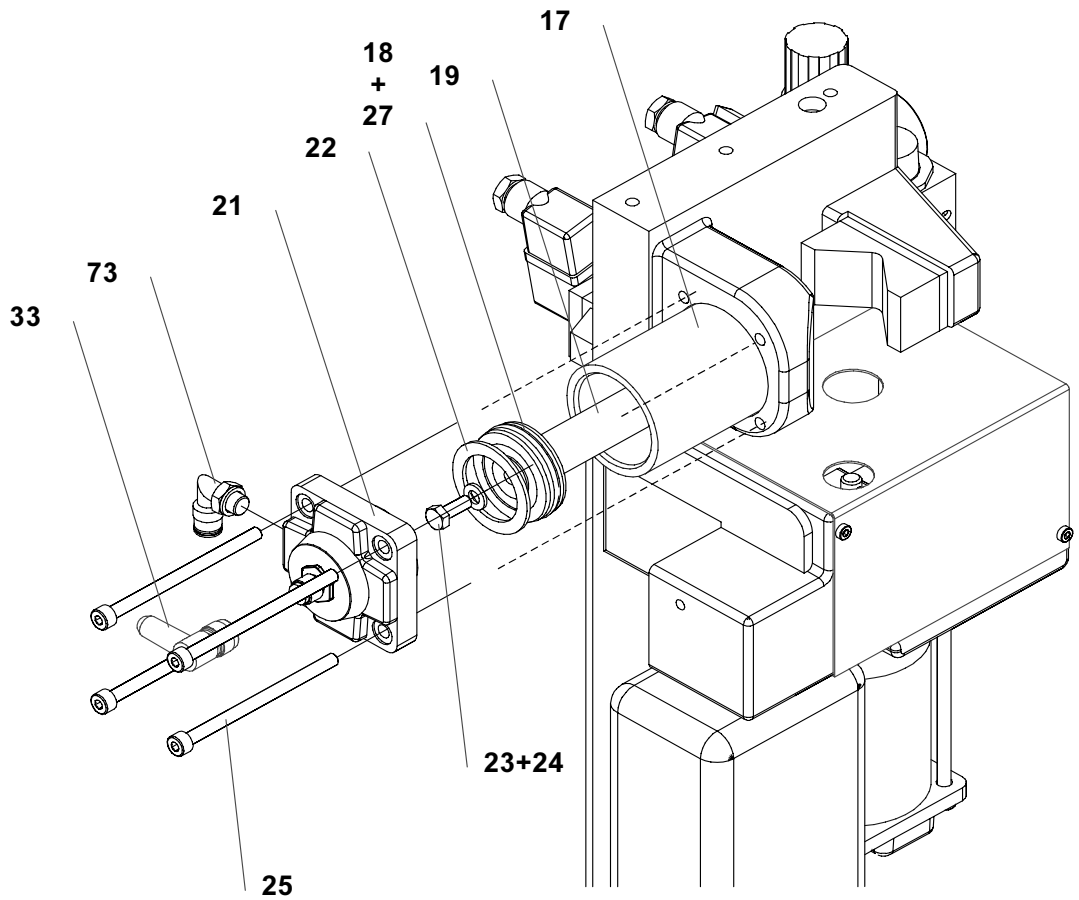



*Figure 1. Removal of the cylinder cover.*

### 3.2.3 Fitting the wire cutter

The 'wire cutter' module is supplied pre-assembled. However, you should still make sure that the delivery is complete and that the gaskets have been fitted. Before assembly apply lubricating grease to the gaskets.
The scope of supply consists of:

- Piston-end tool bit, complete with support and shaft,
- Cylinder cover, complete with 2 seals,
- Housing, complete with tool bit, gaskets and cover,
- Sensor, complete with initiator (miniature sensor) and flanged plug.

Now fit as follows:

1. Screw the **shaft** (04) firmly to the piston rod (19) with piston (18). Make sure that the gasket (27) is located between piston rod and piston.

2. Slide the pre-assembled **piston rod assembly** into the cylinder tube (17) and into the rear cylinder cover on the torch cleaner. Be careful not to damage any of the gaskets.

3. Insert the **damping washer** (22) into the cylinder tube.

4. Now fit the **cylinder cover** (03) with o-rings (16) and (19) onto the cylinder tube. Be careful not to damage any of the gaskets.

5. Now screw the **support** (05) with the **tool bit** firmly onto the front end of the shaft (04).

6. Fit the pre-assembled assembly, **housing** (01) with **cover** (02) and **tool bit** over the piston-end support of the tool bit onto the cylinder cover. Screw everything down with the four **cheese-head bolts** M6x110 (10).

7. Slide the sensor (08) into the housing and clamp it firmly in place with the side-mounted threaded pin.

8. Reconnect the angle plug (33).

9. Screw on the air connection.

Connect up the air and power and test the wire cutter to make sure it works properly.

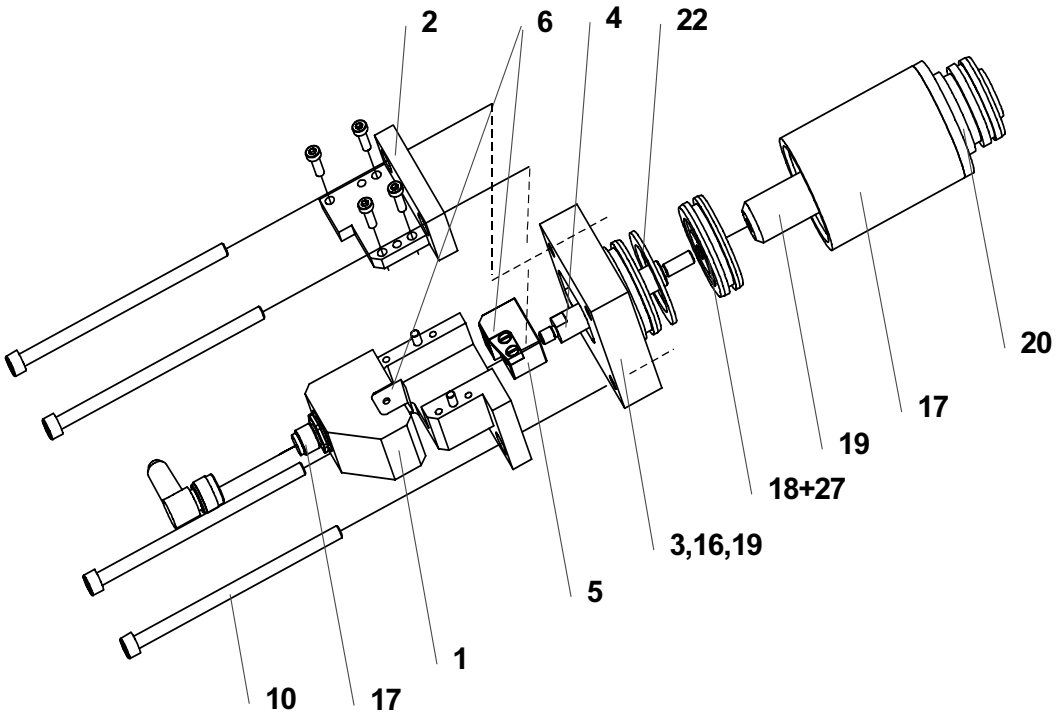


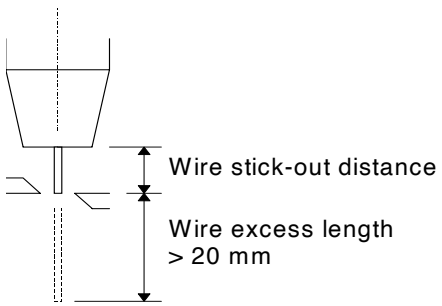

*Figure 2. Fitting the wire cutter.*

# 4 Functional sequence

The robot is in its starting position. As a rule the welding torch is inside the torch cleaner, above the spray head.

Following the start of a wire-cutting program stored in the robot's memory.

- the cutter blade opens (this causes the clamping cylinder to close automatically since the two movements are interlinked).
- The welding torch traverses to the required wire projection distance (e.g. 10 mm) above the blade, to the wire-cutting position of the torch cleaner.
- The wire feed provides an excess welding wire length of **at least 20 mm!** **(**An excess welding wire length of at least 20 mm is necessary to prevent malfunctions from the wire waste.)




- The cutter blade closes and thereby cuts the welding wire to the desired wire projection length. The cutter blade and clamping cylinder then return to their home positions.
- The robot traverses to the home position and signals the end of the program and that it is ready to continue with the remainder of the welding program.