

TF16, TF24, TF48

Tube Facing Tools



This manual contains important information for the safe and effective operation of the Swagelok® TF16 series, TF24 series, and TF48 series tube facing tools. Users should read and understand its contents before operating the tube facing tool.

Contents

Safety

Safety Summary 4
Environmental Protection/Disposal 5

Product Information

TF16 Series 6
TF24 Series 7
TF48 Series 8
Accessories 9

Specifications

Application range 10
Tube materials 10
Technical data 10

Setup

Description 11
Unpacking the Tube Facing Tool 11
Installation of the Bench Mount Bracket 11
Installation of the Cutting Insert and the
Tool Holder 12
Installing the Collet Set 13
Removing the Collet Set 13
Fitting the TF Cutting Bit (MS-TF-BIT)
and the Tool Holder 14
Inserting and Replacing the
Clamping Shells TF48 15
Clamping the Tube for TF48 15

Operation

Clamping the tube 16
Removing the Tube 16
Tool Speed Range 17
Adjusting the Speed: Cordless Model 18
Shutting Down 18
Setting the Cutting Speed 18
Switching the Machine On 18
Processing the Tube 19
Switching the Machine Off 19
Facing the Tube 20

Maintenance 22

Troubleshooting 23

Safety

Safety Information



Read the entire safety information section and Tube Facing Tool User's Manual before using this product. Failure to do so can result in serious injury or death.

Signal Words and Safety Alert Symbols Used in this Manual

WARNING Statements that indicate a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION Statements that indicate a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE Statements that indicate a hazardous situation which, if not avoided, could result in damage to the equipment or other property.



Safety alert symbol indicating a potential personal injury hazard.



Safety alert symbol indicating a potential for personal injury from electrical shock.



WARNING

Danger of death by electric shock

- If the power cord is damaged, electrically live parts may cause death if touched directly.
- Do not allow the tool to run unattended.
- The tool should be connected to a ground fault current interrupt (GFCI) protected outlet.
- Read through the operating instructions and safety information completely before using the rechargeable battery and charger of the TF16 series, TF24 series, or TF48 series cordless models.
- Work on electrical equipment must be done by a qualified electrician.
- Switch off the tool, allow it to run until it stops rotating and remove the plug from the power outlet or take out the rechargeable battery before changing tooling, maintaining, or transporting the tool.



WARNING

Danger of eyes being injured by hot and sharp-edged metal chips.

Eye protection must be worn while operating or working near the equipment.



WARNING

Keep dry. Equipment and components are not waterproof.

Do not use electric tools and rechargeable batteries in a damp or wet environment.



WARNING

Fire or Explosion

Do not use in close proximity to flammable liquids or gases.



WARNING

Danger of being injured by rotating parts.

Keep hands, loose clothing, and long hair away from rotating and moving parts.



WARNING

Danger of being injured by sharp cutting edges

- Do not touch the cutting insert while the tool is operating.
- Wear safety gloves.
- Do not remove chips or tubing from the work area when the tube facing tool is still running and the tool is not yet at rest.
- Wear safety gloves to remove chips. Remove long and bent chips with needle-nose pliers.



WARNING

Observe the following safety measures in order to protect against risk of injury.

- Inspect the tube facing tool daily for visible signs of damage or defects. Have any damage or defects repaired immediately.
- Always ensure that the machine is in good working order and comply with these notes on safety.
- Use only the tube ODs, wall thicknesses and materials specified in these instructions. Other materials should be used only after consulting your authorized Swagelok representative.
- Check that the work piece is correctly clamped.
- Do not carry the tube facing tool by the power cord and do not use the cord to pull out the plug. Protect the cord from heat, oil and sharp edges (chips).
- Ensure that the viewing window is closed (TF24 series) or the guard is in place (TF16 series) before and during the facing of tubing.
- Always work with sharp cutting tools to reduce vibrations.
- Turn the tool off and let it run until it stops rotating when work is complete.

Environmental Protection/Disposal

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

Electric tools and accessories contain a large share of valuable raw and synthetic materials, which can be recycled. Therefore:

- Electrical (electronic) devices that are marked with the symbol in Fig. 1, may not be disposed of with household waste in accordance with European Union (EU) regulations.
- By using local return and collection systems, you contribute to the reuse, recycling and utilization of electrical (electronic) devices.
- Electrical (electronic) used devices contain parts, which must be handled selectively according to EU regulations. Separate collection and selective treatment is the basis for environment-friendly disposal and the protection of human health.
- Batteries that are marked with the symbol in Fig. 2 may not be disposed of with household garbage according to EU directive 2006/66/EC.
- In batteries containing harmful substances, the chemical sign for the heavy metal contained is indicated below the garbage can: Cd = Cadmium



Fig. 1 2012/19/EU



Fig. 2 Cd Symbol

Product Information

TF16 Series

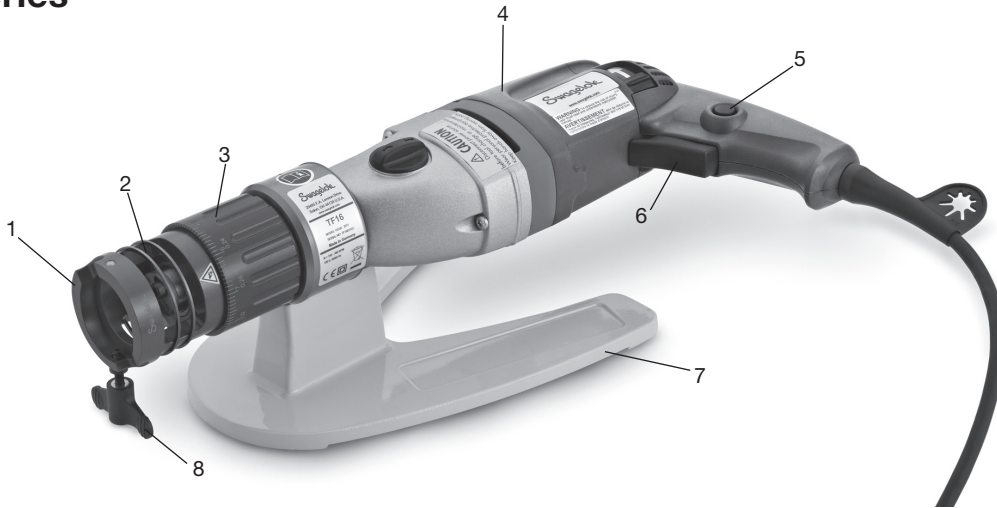


Fig. 3 TF16 Series Corded Model

- | | |
|----------------------------------|----------------------------------|
| 1 Collet housing | 5 ON-OFF lock |
| 2 Viewing window | 6 ON-OFF switch |
| 3 Feed dial with scale divisions | 7 Bench mount bracket (optional) |
| 4 Motor | 8 Tube clamp |

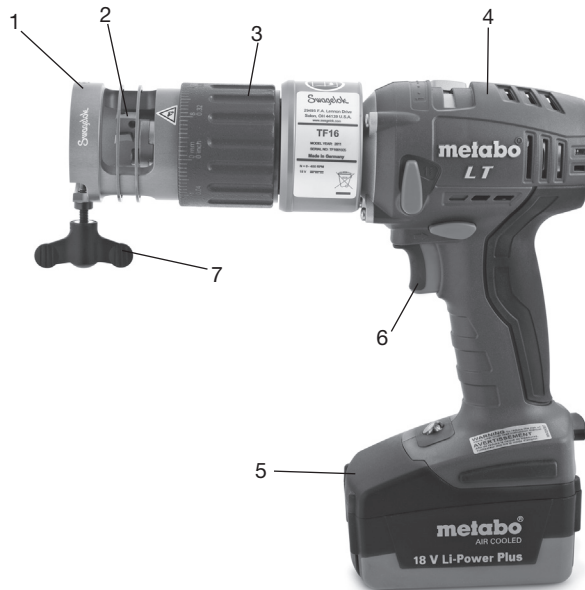


Fig. 4 TF16 Series Cordless Model

- | | |
|----------------------------------|-------------------------------|
| 1 Collet housing | 5 Rechargeable battery |
| 2 Viewing window | 6 ON-OFF switch/speed control |
| 3 Feed dial with scale divisions | 7 Tube clamp |
| 4 Motor | |

TF24 Series

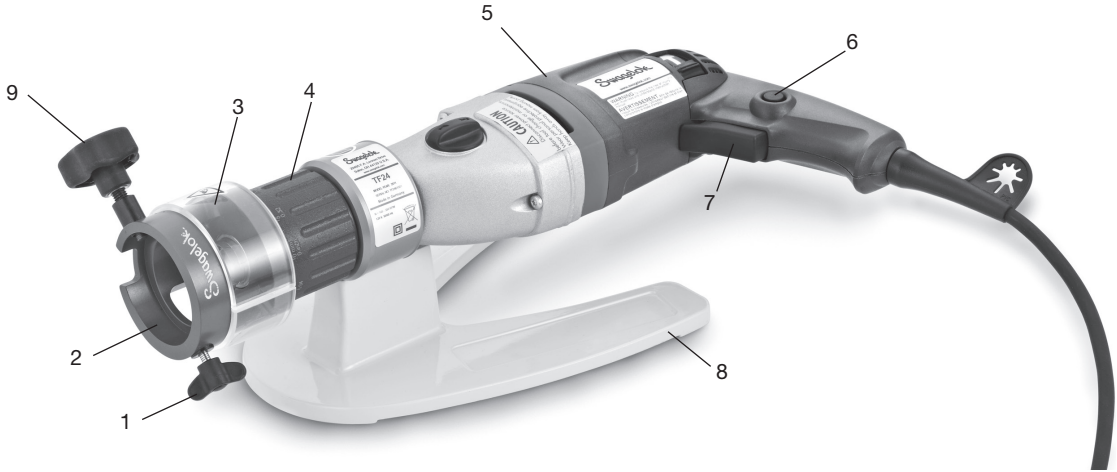


Fig. 5 TF24 Series Corded Model

- 1 Collet lock
- 2 Collet housing
- 3 Viewing window
- 4 Feed dial with scale divisions
- 5 Motor
- 6 ON-OFF lock
- 7 ON-OFF switch
- 8 Bench mount bracket (optional)
- 9 Tube clamp



Fig. 6 TF24 Series Cordless Model

- 1 Collet lock
- 2 Collet housing
- 3 Viewing window
- 4 Feed dial with scale divisions
- 5 Motor
- 6 Rechargeable battery
- 7 ON-OFF switch/speed control
- 8 Tube clamp

TF48 Series

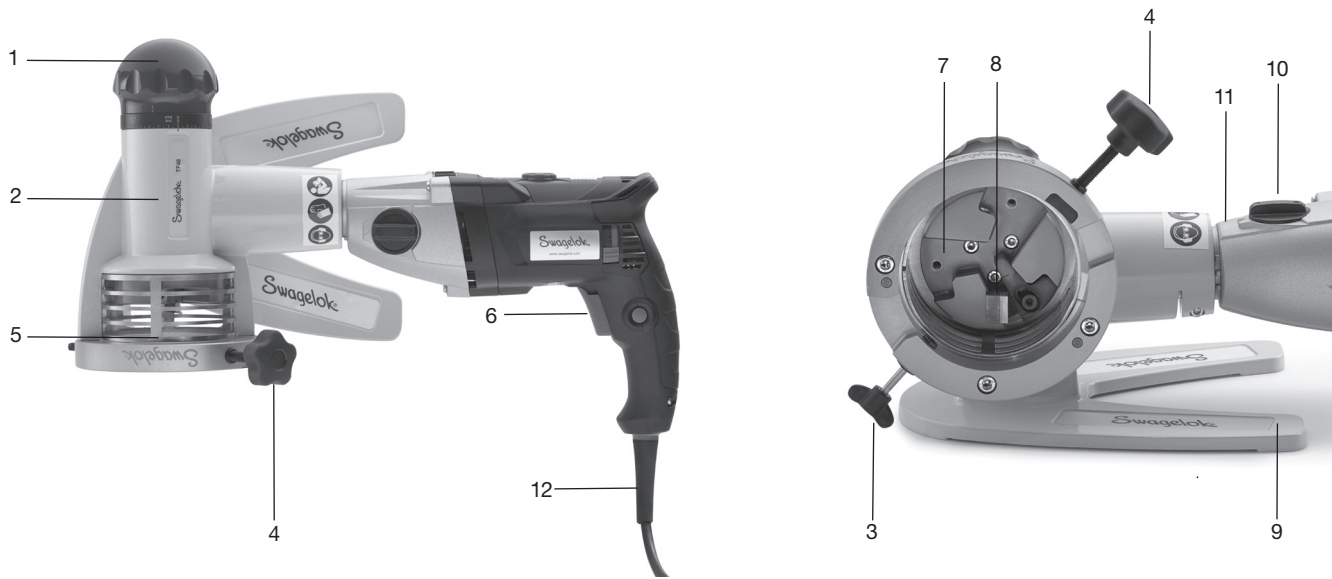


Fig. 7 TF48 Series Corded Model

- | | |
|------------------------------------|----------------------------------------------|
| 1 Feed handle with adjustable dial | 7 Tool support |
| 2 Housing | 8 Tool holder with multifunctional tool |
| 3 Clamping screw | 9 Base plate |
| 4 Tensioning screw | 10 Adjusting wheel for pre-setting the speed |
| 5 Protection | 11 Driving motor |
| 6 ON/OFF switch | 12 Cable with power plug |



Fig. 8 TF48 Series Cordless Model

- | | |
|------------------------------------|----------------------------------|
| 1 Tensioning screw | 5 ON/OFF switch/speed controller |
| 2 Protection | 6 Housing |
| 3 Feed handle with adjustable dial | 7 Base plate |
| 4 Exchangeable battery | |

Accessories

TF Series Cutting Insert

The cutting insert is supplied and can be used with all TF series tool holders.

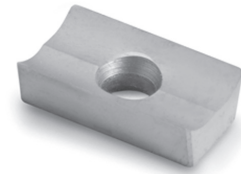


Fig. 9 Cutting Insert

Cutting Tool Holder for Beveling and Squaring

An adjustable tool holder is included with a Torx screw for use with tubing within the standard application range. Additional tool holders for use with additional sizes of tubing and with different bevel angles are available. Refer to the Application Range table on page 10 for size definitions.



Fig. 10 Tool Holder

Stainless Steel Collet Set

These are used for deformation-free clamping of tubing. They ensure precise mounting of tubing or Micro-Fit® fittings and a quick change of collet sets without tools. For use on all tubing materials with an OD from 0.125 to 3.000 in. or 3 mm to 76.2 mm.

Refer to [Tube Facing Tools catalog, MS-02-426](#), for additional information.



Fig. 11 Stainless Steel Collet Set

Specifications

Application Range

Series	TF16	TF24	TF48
Standard: Tube OD min. to max. range	0.236 to 1.00 in. (6.0 to 25.4 mm)	0.236 to 1.50 in. (6.0 to 38.1 mm)	0.245 ^① to 3.00 in. (6.0 ^① to 76 mm)
Accessory (MS-TF-16-24-40-HOLDER-S): Tube OD min. to max. range	0.118 to 0.236 in. (3.0 to 6.0 mm)	0.118 to 0.236 in. (3.0 to 6.0 mm)	—
Wall thickness max.	0.118 in. (3.0 mm)	0.118 (3.0 mm)	0.118 in. (3.0 mm)

① Requires optional collet set adapter.

Tube Materials

- Stainless steel
- Nickel alloys — Alloy 600, Alloy 625, Alloy 825
- Aluminum

Contact your authorized Swagelok representative for information on additional materials.

Technical Data

Series	TF16	TF16 Cordless	TF24	TF24 Cordless	TF48	TF48 Cordless
Dimensions, in. (mm)	15.4 W, 7.87 H, 2.76 D (390 W, 200 H, 70 D)	10.3 W, 10.0 H, 3.15 D (261 W, 255 H, 80 D)	15.8 W, 13.8 H, 6.30 D (400 W, 350 H, 160 D)	10.8 W, 10.0 H, 3.54 D (275 W, 255 H, 90 D)	18.1 W, 9.6 H, 7.3 D (460 W, 245 H, 185 D)	12.8 W, 9.6 H, 7.3 D (325 W, 245 H, 185 D)
Weight Without Accessories, lb (kg)	9.13 (4.14)	6.35 (2.88)	10.4 (4.7)	7.58 (3.44)	17.2 (7.8)	15.7 (7.1)
Input voltage	Single-phase alternating current, protection class II 110 V 50/60 Hz 230 V 50/60 Hz					
Power, W	1100	—	1100	—	1100	—
Voltage Rechargeable Battery, V	—	18	—	18	—	18
Speed r/min	145 to 380	0 to 400	145 to 380	0 to 400	8 to 52	0 to 30
Sound Level (EN 23741), dB	Approximately 78					
Vibration Level (EN 50144), m/s²	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
Service Current Requirement A	10 minimum	—	10 minimum	—	10 minimum	—

Setup

Description

The tube facing tools are designed for facing and preparing tube ends or Micro-Fit fittings for welding in conformance with industry standards. They have the following features:

- A cutting tool with multiple cutting edges. Only one cutting tool is necessary for different tube wall thicknesses (up to 0.118 in./3 mm) and different tube materials (exclusively ferrous materials).
- A cordless model with:
 - A robust, removable battery that
 - is lithium-ion for extended operation time
 - has a charge level indicator
 - High performance and small size
 - No memory effect for the battery
 - Single-cell monitoring in the battery pack
 - Electronic overload protection with an integrated temperature monitor
 - Air-cooled technology for short charging times and a long service life
- A corded model with:
 - A speed-controlled electric motor with speed stabilization
 - Restart protection to prevent the machine from starting in an uncontrolled way after it has been reconnected to the electrical power or after a power failure
- A quick change system for collet sets
- A feed dial with scale divisions:
 - Total travel: 0.394 in. (10 mm)
 - Travel per rotation: 0.354 in. (9 mm)
 - Per graduation mark: 0.004 in. (0.1 mm)
- A viewing window that provides protection.

Unpacking the Tube Facing Tool Shipping Case Contents

- 1 Tube facing tool
- 2 Rechargeable batteries, 1 battery charger (for cordless versions *only*)
- 1 Replacement breakaway nut (TF48 series *only*)
- 1 Tube clamp (TF16 and TF24 series *only*)
- 1 Tensioning screw (TF48 series *only*)
- 1 Bench mount bracket (TF48 series *only*)
- 1 Tool holder with 1 cutting insert
- 1 Tool set (4 mm T-handle hex key, 3 mm hex key, TF16 and TF24 series only, T15 Torx driver)
- 1 Set of keys (2) for shipping case (TF16 and TF24 series only)
- 1 User manual

Report any missing or damaged parts to your authorized Swagelok sales and service representative immediately.

Installation of the Bench Mount Bracket

If needed, attach the bench mount bracket to the tube facing tool by tightening the screw with the provided 4.0 mm hex key.

Installation of the Cutting Insert and the Tool Holder

CAUTION

Do not touch the sharp cutting edges while mounting the multifunctional tool. Wear protective gloves.

Cutting Insert

Attach the cutting insert to the tool holder with the curved side of the insert away from the tool holder. Use the included T15 Torx driver to tighten the screw.



Fig. 12 Installing the Cutting Insert

Tool Holder

Select a tool holder based on the tubing size.

Tool Holder Style	Possible Application		Bevel Angle [°]	TF16	TF24	TF48
	Squaring	Beveling		Tube OD, inch (mm)		
Standard	x	–	–	0.236 to 1.00 (6.0 to 25.4)	0.236 to 2.50 (6.0 to 63.5)	0.236 to 3.00 (6.0 to 76)
Optional	x	–	–	0.118 to 0.236 (3.0 to 6.0)	0.118 to 0.236 (3.0 to 6.0)	–
Optional	x	–	–	0.500 to 1.00 (12.7 to 25.4)	0.500 to 2.50 (12.7 to 63.5)	–
Optional	x	–	–	–	0.118 - 0.835 (3.0 to 21.2)	0.250 - 0.835 (6.35 to 21.2)
Optional	–	x	30°	1.00 (25.4) max.	1.378 (35.0) max.	2.374 (59.3) max.
Optional	–	x	35°	1.00 (25.4) max.	1.339 (34.0) max.	2.335 (60.3) max.

Contact your authorized Swagelok sales and service representative for information on optional tool holders.

WARNING

Switch off the tool and remove the plug from the power outlet or take out the removable battery before changing tooling, performing maintenance, or transporting the tool.

Install the tool holder into the tube facing tool lining up the hole on the tool holder with the screw hole in the center of the tube facing tool.



Fig. 13 Installing the Tool Holder, TF16 and TF24 series

Installing the Collet Set

1. Insert the collet set into the body by pressing the collet halves together and setting into the collet housing.

Note: TF24 series, line up the unthreaded set point on the collet set with the red dot on the collet housing. (The collet lock will thread into the threaded hold on the other half of the collet set.)



Fig. 14 Insert the collet set into the body

2. TF16 series: Secure the collet set by turning the tube clamp clockwise until it stops.

TF24 series: Secure the collet set by turning the collet lock(s) clockwise one turn. Turn the tube clamp clockwise until it stops.

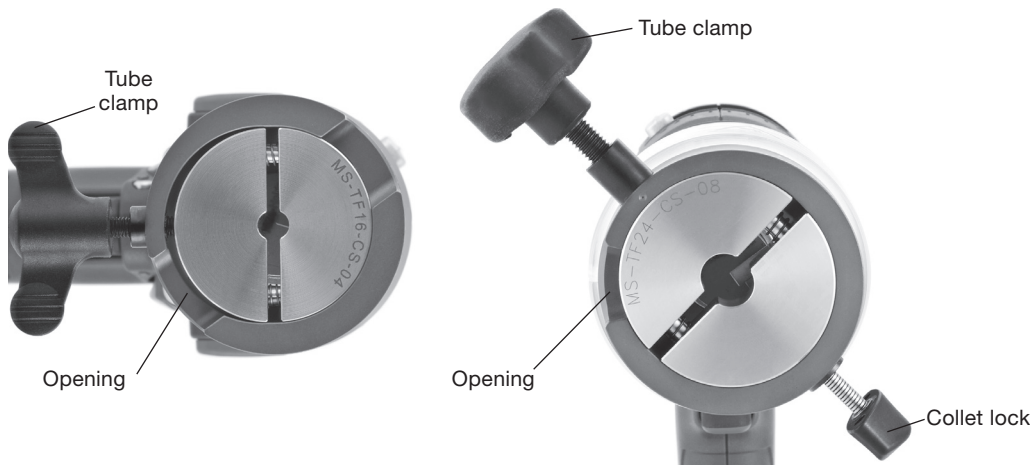


Fig. 15 TF16 Series

Fig. 16 TF24 Series

Removing the Collet Set

To remove a collet set, loosen the collet lock(s) and tube clamp until the collet set can be removed by pressing the collet set halves together through the opening in the collet housing.

Fitting the TF Cutting Bit (MS-TF-BIT) and the Tool Holder



WARNING

Flying hot and sharp-edged chips, tube surfaces, cutting edges and tools.

- Do not reach into the rotating tool during working.
- Never work without an installed cover hood or protection.
- Wear recommended protective clothing.
- Before transportation or changing the workplace, switch off the machine, wait until the machine/tool stops running and pull the main plug. Remove chips with tight fitting safety gloves (in accordance with DIN EN 388 and EN 407) using suitable tools (tongs or screwdrivers).
- Ensure that the cover hood or protection is functional.



WARNING

The MS-TF-BIT multifunctional tool may be damaged by wrong inserting of a tube. **Damage to tool.**

- Before clamping the tube, ensure sufficient distance between the MS-TF-BIT and the tube.
1. Screw the TF cutting bit (MS-TF-BIT) onto the tool holder using a Torx screwdriver, Fig. 17.
 2. Insert the tool holder with fitted MS-TF-BIT laterally into the guiding groove and position it, Fig. 18.
 3. Press the tool holder against the bearing surface of the tool support and, at the same time, tighten the screw using the Allan key (1).
 4. Remove the hexagon key (1) from working area.

NOTICE

To make the setting procedure easier for the TF48 machine, there are 3 visual markings for the 1, 2, and 3 in. pipes,



Fig. 17 Screw MS-TF-BIT onto Tool Holder



Fig. 18 Insert Tool Holder laterally

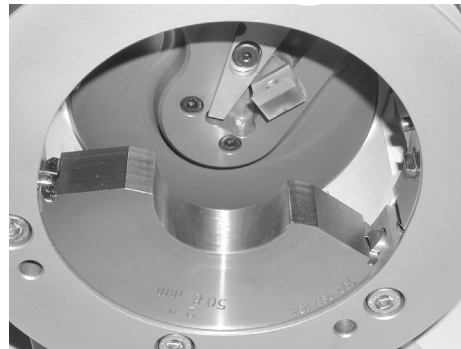


Fig. 19 Markings for 1, 2, and 3 in.

Inserting and Replacing the Clamping Shells TF48

1. Select clamping shells in accordance with the pipe diameter.
2. Unscrew the clamping screw.
3. Compress the clamping shell slightly and insert it into the housing.
4. The Swagelok logo on the clamping shell must correspond with the clamping screw, Fig. 20.
5. Tighten the clamping arrow.
6. Remove the clamping shells takes place in reverse order.

NOTICE

The clamping shell is applied correctly when it has locked in. If the clamping shell does not lock in, you can readjust by rotating the clamping shell slightly.

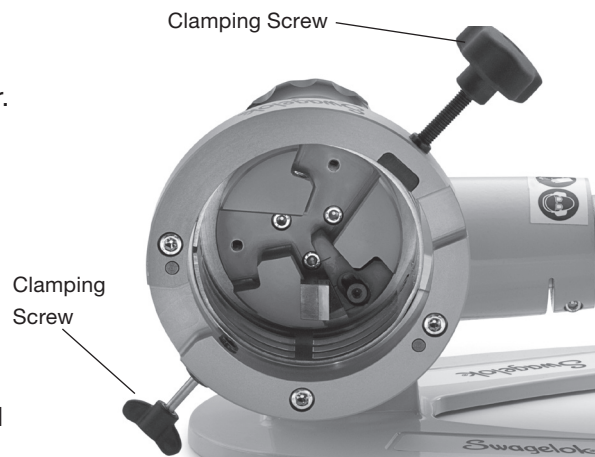


Fig. 20 Inserting and Replacing the Clamping Shells TF48

Clamping the Tube for TF48



WARNING

Flying parts and broken tool can cause injury.

- No damaged or deformed cutting tools (MS-TF-BIT) should be used.
- Firmly clamp the tube to be machined into the clamping unit.
- Immediately replace worn-out tools.
- The inner diameter of the clamping shells must be identical to the outer diameter of the tube to be machined. The inner diameter is specified on the clamping shells. The outer diameter of the tube must be determined.
- Avoid tool breakage by insuring low (measured) infeed (max clamping thickness: 0.2 mm) and correct setting of the speed.
- Check that the tool holder and TF cutting bit (MS-TF-BIT) are seated firmly and tighten if required.
- Keep the clamping surface of the clamping jaws free of chips and dirt.

1. Loosen the clamping screw so that the clamping shell is completely open.
 2. Ensure the cutting bit is as far back in the recess as possible. Place tube approximately a 1/4 to 1/2 inch from the cutting bit.
 3. Clamp the tube by tightening the clamping screw.
 4. Check tube for firm seating.
- To loosen the tube from the machine loosen the clamping screw.



Fig. 21 Clamping the Tube for TF48

Operation

The tool should only be operated using a ground fault current interrupt (GFCI) protected outlet.

Clamping the Tube



CAUTION

Support long pieces of tubing with suitable fixtures. Injury from tilting tool and/or tilting tubing could result.



CAUTION

Verify that the tube facing tool is not rotating before clamping the tube.

NOTICE

The cutting tool can be damaged by incorrect set up. Before clamping the tube, verify there is space between the cutting insert and the tube.

1. Insert the tube in the collet set of the tube facing tool.
2. Secure the tube by turning the tube clamp clockwise until it stops.

Note: Clamp the tube squarely, ensuring that the tube and the face of the collet set are perpendicular to each other. The tube end will not have a right angle cut when not clamped properly.



Fig. 22 Clamping the Tube



Removing the Tube

To remove the tube from the facing tool, rotate the tube clamp counterclockwise until the tube is loose enough to remove.



Tool Speed Range

Selecting the Speed Range

Depending on Drill Model either an image or levels are shown.

Series	Speed range, rpm	
	Level 1  Turtle	Level 2  Rabbit
TF16	145 to 380	(disabled)
TF16 Cordless	0 to 400	(disabled)
TF24	145 to 380	(disabled)
TF24 Cordless	0 to 400	(disabled)

TF48 Series

Speed Level	Speed, rpm	OR	Speed Level	Speed, rpm
4	0 to 19		Level 1  Turtle	9 to 52
5	0 to 22		Level 2  Rabbit	27 to 153
6	0 to 28			

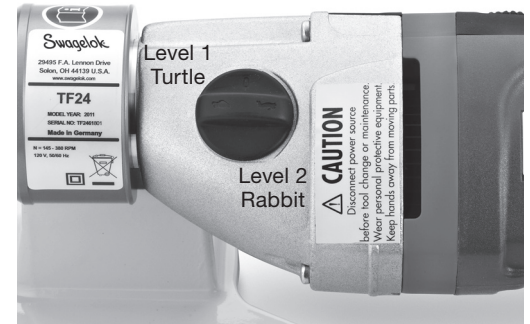


Fig. 23 High/low Motor Setting Dial

Adjusting the Speed: Corded Models

Set the speed by turning the speed dial.

TF16		TF24		TF48	
Level	Tube OD inch (mm)	Level	Tube OD inch (mm)	Level	Tube OD inch (mm)
3	0.125 (3.18)	3	0.125 (3.18)	6	1.00 (25.4)
2	0.250 (6.35)	2	0.250 (6.35)	6	1.500 (38.1)
1	0.500 (12.70)	1	0.500 (12.7)	5	2.000 (50.8)
1	1.000 (25.4)	1	1.500 (38.1)	4	2.500 (63.5)
—	—	—	—	4	3.00 (76.2)



Fig. 24 Speed Adjustment Dial

Adjusting the Speed: Cordless Models

The speed level is factory set in cordless models. See the table on the previous page for speed range information.

The speed range can be adjusted with the ON-OFF switch/speed control.

- Depress the ON-OFF switch/speed control to increase the speed.
- Gradually release the pressure on the ON-OFF switch/speed control to decrease the speed.

Shutting Down (even in an emergency)



WARNING

Emergency stop function not available by unplugging the power plug. Diverse physical injuries and material damage.

- Do not use angled power plugs.
- Do not use click-in socket outlets and click-in power plugs (blue CEE power plugs) for power connection, otherwise the emergency stop does not function. The user must check whether the power plug can be pulled out of the outlet by the cable.
- Only use original Swagelok tool parts.
- Ensure free access to the power plug.

To be able to stop the machine (also in case of emergency), perform the corresponding steps and immediately remove from the danger area, until the machine comes to a stop.

- If the locking button is **not activated** release the ON-OFF switch (also for battery).
- If the locking button is **activated** press and release the ON-OFF switch (not for battery).
- If the ON-OFF switch **does not function** unplug the power plug, or leave the danger zone as quickly as possible and then unplug the power plug.

Setting the cutting speed

- Set adjusting wheel to variable speed selection at desired level (Figure 26 and 27). "1" corresponds to the lowest and "7" to the highest number of revolutions.

Switching the Machine On

- Connect the TF series
- Ensure the tube has a solid footing.
- Press the ON-OFF switch.



WARNING

Do not use the locking button as this hampers shutdown.



WARNING

If the tool vibrates after starting up, the cutting speed is too high and reduce cutting speed.



Fig 25 ON-OFF Switch/Speed Control

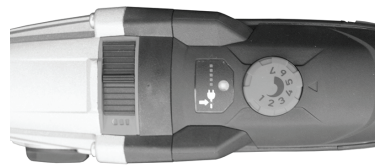


Fig 26 Adjusting wheel (electric)



Fig 27 Adjusting wheel (battery)

Processing the Tube



WARNING

When cutting, do not exceed a chip thickness of 0.002 in. (0.05 mm).

- Move the tool towards the tube by means of the feed handle until the tool touches the tube.
- If the cutting edge of the tool is cutting into the entire circumference of the tube, guide the tool further with the same amount of pressure.



WARNING

The dial can be set to zero in accordance with the marking on the housing. Each division mark corresponds to a feed motion of 0.002 in. (0.05 mm).

Switching the Machine Off

- Release the ON/OFF switch.
- Disconnect the mains plug from power source/
remove the battery from the battery drive.
- Release the tube from the machine.
- Remove the chips from the housing with suitable tools (tongs) after each machining process.
- Close the cover after removing chips.

Facing the Tube

**WARNING**

Allow the machine to run until it stops rotating after cutting tube to avoid injury.

**WARNING**

Do not touch the tool holder or cutting insert while the tool is in operation.

**WARNING**

Only operate the tool with a clamped tube (all series) and a closed viewing window (TF24 series).

**WARNING**

Eye protection must be worn while operating or working near the equipment.

**WARNING**

Keep hands, loose clothing, and long hair away from rotating and moving parts.

**WARNING**

Wear safety gloves to remove chips. Remove long and bent chips with needle-nose pliers or a similar tool.

NOTICE

Excessive feed of the cutting insert into the tube can damage the cutting tool or cause the tool to overheat.

NOTICE

Verify there is space between the cutting tool and the tube before clamping the tube to prevent damage to the cutting tool. The cutting tool can be damaged by a tube not cut at a right angle.

NOTICE

If speed is reduced too quickly, the tool may “dig” into the tube, causing damage to the tube face and the tool, and may cause the tool to stop. Reduce the feed rate of the cutting insert and the tool speed gradually.

NOTICE

Verify the motor is in drill mode if the motor is equipped with a hammer mode. Operating the tool in hammer mode will cause damage to the tool and the tube.

Turning “On” Corded Models

1. TF24: Check that the viewing window is closed, close if necessary.
2. Set the desired speed via the speed adjustment dial.
3. Activate the ON-OFF switch.

Note: If the tool vibrates after starting, the cutting speed is too high. Reduce the speed according to **Adjusting the Speed**.



Fig 28 Speed Adjustment Dial

Turning “On” Cordless Models

1. TF24 series: Check that the viewing window is closed, close if necessary.
2. Attach the rechargeable battery.
3. Activate the ON-OFF switch/speed regulator.

Note: If the tool vibrates after starting, the cutting speed is too high. Reduce the speed according to **Adjusting the Speed**.



Fig 29 Attaching the Battery

Facing the Tube

- Each division on the feed dial with scale adjustments equals an advancement of 0.004 in. (0.1 mm).
 - It is recommended not to exceed a clamp thickness of 0.002 in. (0.05 mm) with chip removal. Excessive feed levels will reduce the speed or stop the machine.
1. Slowly advance the cutting insert until it is in contact with the tube.
 2. Continue advancing the cutting insert until the desired result is achieved.

Note: To achieve the optimum squareness and finish, the tool should be allowed to rotate for 2 to 3 revolutions without further advancement of the cutting insert.

3. Release the ON-OFF switch.
4. Remove the tube by turning the tube clamp counter clockwise until it stops.

Maintenance



WARNING

Switch off the tool and remove the plug from the power outlet or take out the removable battery before changing tooling, performing maintenance, or transporting the tool.

When cleaning the tube facing tool, clear the collet set and tool body of debris and dirt.

When changing the cutting insert, clean the tool holder and inspect it for damage.

Breakaway Nut Replacement

Note: The ordering number for a replacement TF48 breakaway nut is MS-TF48-NUT-SQ.

1. Verify the tool is unplugged or remove the battery.
2. Loosen the M5 × 16 set screw using the provided 4 mm hex key.
3. Remove the collet housing half of the tool.
4. Remove the breakaway nut using a 15 mm wrench.
5. Install the new breakaway nut. Securely tighten the breakaway nut to the motor shaft.
6. Replace the collet housing half and tighten the M5 × 16 set screw.
7. For cordless models, replace the battery.



Fig 30 Loosening the Set Screw



Fig 31 Removing the Collet Housing Half of Tool



Fig 32 Removing the Breakaway Nut



Fig 33 Breakaway Nut Removed from Tool

Troubleshooting

Problem	Cause	Remedy
Cutting insert is causing a "step" during facing.	The tube has been fed too far into the tool or the battery is almost completely discharged.	Take tube out of the tool and disassemble the tool holder.
		Remove chips using pliers. File down the step.
	Slowly advance the cutting insert towards the tube during new cutting.	
	Cutting insert or tool holder is loose.	Tighten the cutting insert or the tool holder.
Cutting insert does not rotate.	Battery completely discharged.	Charge battery (refer to attached operating instructions of the charger). Use spare battery.
	Battery not inserted properly	Completely remove the battery and then reinsert.
	Breakaway nut has broken.	Replace the breakaway nut. See Maintenance .
The motor is not running but the signal indicator lights up.	Quick flashing light - The restart inhibitor has activated.	Switch the tool off and back on. For safety reasons, the tool will not restart automatically after a power failure.
	Slow flashing light - The carbon brushes are worn out.	Have the carbon brushes replaced by your authorized Swagelok sales and service representative.
	Constant light - The motor has overheated.	Unplug the tool and allow it to cool.
Tool has excessive vibration.	Speed is too high.	Reduce the speed.
	Axial or radial play in the components.	Check that the collet set is properly secured.
	Cutting insert is loose.	Tighten the cutting insert.
The finished tube face is not smooth or has a large burr.	Cutting insert is worn.	Replace the cutting insert.

Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

WARNING

Do not mix/interchange Swagelok products or components not governed by industrial design standards, including Swagelok tube fitting end connections, with those of other manufacturers.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit swagelok.com or contact your authorized Swagelok representative.