



EX-TRAFIRE®

**FHT-EX® 105TTH PLASMA ARC HAND CUTTING TORCH
and**

FHT-EX® 105TTM PLASMA ARC MACHINE CUTTING TORCH

Operating Manual - CE/ CSA/ RCM

Revision Date: January, 2026

Revision Number: 2

Language: EN

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1 IDENTIFICATION

The FHT-EX® cutting torches have been designed for mechanized and manual plasma cutting, gouging, and optional marking. Use compressed air or nitrogen for cutting Mild Steel, Stainless Steel, Aluminium and other electrically conductive metals. The FHT-EX®105TT have to be operated only with original Thermacut® consumables and maintenance parts.

They are connected to the cutting power supply using the Torch Connection System (TCS).

This documentation describes the FHT-EX®105TT cutting torches only.

When used in this documentation, the term "device" always refers to the EX-TRAFIRE®105, 85, 65HD cutting power supply with torch.

For enquiries, please have on hand the order and serial number of the torch units as seen on pages EN-37, 41, 42.

1.1 Signs and symbols used

In the operating instructions, the following signs and symbols are used:

- General instructions.
- 1** Steps to be carried out in succession.
- Lists.
- » Cross reference symbol refers to detailed, supplementary or further information.
- A** Caption, item description.

1.2 Classification of the warnings

The warnings are divided into four different categories and are indicated prior to potentially dangerous work steps. The following signal words are used depending on the type of hazard:

⚠ DANGER

Describes an imminent threatening danger. If not avoided, this will result in fatal or extremely critical injuries.

⚠ WARNING

Describes a potentially dangerous situation. If not avoided, this may result in serious injuries.

⚠ CAUTION

Describes a potentially harmful situation. If not avoided, this may result in slight or minor injuries.

NOTICE

Describes the risk of impairing work results or potential material damage to the equipment.

2 SAFETY

This chapter warns of hazards that should be kept in mind to operate the product safely. Non-observance of the safety instructions may result in risks to the life and health of personnel, environmental damage or material damage.

- Observe the document entitled "Safety Instructions".

2.1 Designated use

The device described in this documentation may be used only for the purpose and in the manner described. Any other use is considered improper. Unauthorized modifications or changes to enhance the performance are not permitted.

- Do not exceed the maximum load data as defined by the documentation supplied. Overloads lead to destruction.
- Do not make any modifications or changes to this product.
- Do not use the device to thaw pipes.
- Do not use or store the device outdoors where it is wet.

2.2 Obligations of the operator

- Ensure that only qualified personnel are permitted to perform work on the device or system.

Authorized personnel are:

- those who are familiar with the basic regulations on occupational safety and accident prevention;
 - those who have been instructed on how to handle the device;
 - those who have read and understood these operating instructions;
 - those who have been trained accordingly;
 - those who are able to recognize possible risks because of their special training, knowledge, and experience.
- Keep untrained persons out of the work area.
 - Keep the routine inspection of torches - see page EN-29.

The device can produce electromagnetic fields that could impact the proper function of cardiac pacemakers and implanted defibrillators.

- Do not use the device if you have a pacemaker or an implanted defibrillator.
This Class A cutting device is not intended for use in residential areas with a public low-voltage power supply system. It can potentially be difficult to guarantee electromagnetic compatibility in these areas due to both conducted and emitted interference.
- The device may be used only in industrial zones according to DIN EN 61000-6-3.

2.3 Warning and notice signs

The following warning, notice and mandatory signs can be found on the top of the power supply:



These markings must always be legible. They may not be covered, obscured, painted over, or removed.

2.4 Product-specific safety instructionsuse

- Do not use or store the device in wet conditions or environments.
- Do not operate the device if the housing is open.

2.5 Safety instructions for the torch

- Ensure that the torch lead is not damaged, for example, by being driven over, crushed or torn.
- Check the torch lead for damage and wear at regular intervals.
- Only a certified electrician or trained personnel should carry out work on the torch lead.

2.6 Safety instructions for plasma cutting

- Plasma cutting may cause damage to the eyes, skin, and hearing. Note that other potential hazards may arise when the device is used with other cutting components. Therefore, always wear the prescribed personal protective equipment as defined by local regulations and laws.
- All metal vapors, especially lead, cadmium, copper, and beryllium, are harmful. Ensure sufficient ventilation or extraction. Do not exceed the current occupational exposure limits (OELs).
- To prevent the formation of phosgene gas, rinse workpieces that have been degreased with chlorinated solvents using clean water. Do not place degreasing baths containing chlorine in the vicinity of the cutting area.
- Adhere to the general fire protection regulations and remove flammable materials from the vicinity of the cutting work area prior to starting work. Provide appropriate fire extinguishing equipment in the workplace.

2.7 Personal protective equipment

- Wear your personal protective equipment (PPE).
- Ensure that others in close proximity are also wearing personal protective equipment.

Personal protective equipment consists of protective clothing, safety goggles, face protection, ear protectors, protective gloves, and safety shoes.

Table 1 Lens shade selector for plasme cutting per ISO 4850:1979

Cutting current	Minimum shade
Up to 150 A	ISO (DIN) 11
150 A to 250 A	ISO (DIN) 12
250 A to 400 A	ISO (DIN) 13
Over 400 A	ISO (DIN) 14

2.8 Emergency information

- In the event of an emergency, immediately disconnect the following supplies:
 - Electrical power supply
 - Gas supply

3 DELIVERY

The order data and ID numbers for the equipment parts and consumables can be found in this manual.

- For more information about points of contact, consultation, and orders, visit www.thermacut.com.

Although the items delivered are carefully checked and packaged, it is not possible to fully rule out the risk of transport damage.

Goods-in inspection

- Check for order completeness by checking the delivery note.
- Check the delivered goods for damage (visual inspection).

Claim process

- If goods are damaged, notify the final carrier immediately.
- Keep the packaging for possible inspection by the carrier.

Returns

- Use original packaging and packing material for returns.
- If you have questions concerning the packaging or how to secure the device, contact your supplier, carrier, or transport company.

4 PRODUCT DESCRIPTION

4.1 Technical data

Torch construction: torch body, handle or mounting tube, leadset and consumables.

Table 2 Technical data for FHT-EX® 105TT cutting torches

	FHT-EX® 105TTH / FHT-EX® 105TTM		
Power supplies	65HD	85HD	105HD
Recommended cutting capacity *	18 mm* (23/32 in)	20 mm* (3/4 in)	20 mm* (3/4 in)
Max. cutting capacity *	25 mm* (1 in)	30 mm* (1-1/8 in)	40 mm* (1-1/2 in)
Separating cut capacity	30 mm (1-1/8 in)	40 mm (1-1/2 in)	50 mm (2 in)
Recommended piercing capacity **	18 mm** (23/32 in)	20 mm** (3/4 in)	20 mm** (3/4 in)
Permissible ambient temperature during operation	-10°C (14 °F) to +40°C (104 °F)		
Permissible ambient temperature during transport and storage	-25°C (-13 °F) to +55°C (131 °F)		
Relative humidity	< 90% at +20°C (68 °F)		
Sub-menu item	65HD - Plasma cutting, gouging, marking		
	85HD, 105HD - Plasma cutting, gouging, optional marking		
Application type	Manual and mechanized		
Rated current and duty cycle	105 A/100%		
Permissible gas	Compressed air/nitrogen/argon***		
Flow rate	105 A approx. 156 l/min. (5.5 CFM) at 4.8 bar (70 psi)		
	85 A approx. 101 l/min. (3.5 CFM) at 5.2 bar (75 psi)		
	65 A approx. 87 l/min. (3.0 CFM) at 5.2 bar (75 psi)		
	45 A approx. 82 l/min. (2.9 CFM) at 5.2 bar (75 psi)		
Flow rate for gouging	105 A approx. 205 l/min. (7.2 CFM) at 5.2 bar (75 psi)		
	65 - 85 A approx. 195 l/min. (6.8 CFM) at 5.2 bar (75 psi)		
Flow rate for marking	10, 11, 12, 15, 16 A approx. 39 l/min. (1.4 CFM) at 2.4 bar (35 psi)		
Maximum inlet pressure	10 bar (145 psi)		
(Dynamic) operating pressure	5.2 bar (75 psi)		
Connection type	TCS (torch connection system) - 13 pin		
Gas post-flow period delay	approx. 30 seconds		

Table 2 Technical data for FHT-EX® 105TT cutting torches

Type of protection	IP23S (EN 60529)
Type of voltage	DC

* For setup details see cut charts.

** Recommended max. piercing capacity allowing optimal consumable lifetime.

*** Nitrogen may be used for cutting stainless steel and aluminum; argon may be used only in connection with the optional marking kit.

Table 3 FHT-EX® 105TT cutting torch weights and cable lengths

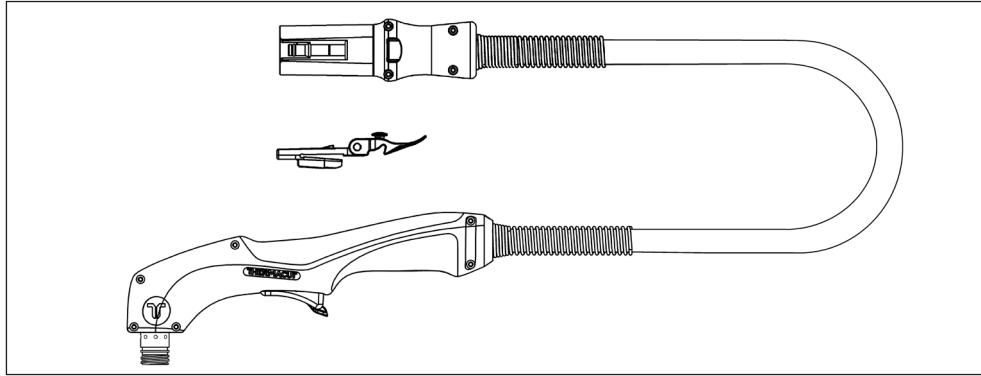
Cutting torch	Weight and cable lengths
FHT-EX® 105TTH Standard hand cutting torch	5 m (16.5 ft) / 2.5 kg (5.5 lb) 8 m (26 ft) / 3.3 kg (7.3 lb) 15 m (50 ft) / 5.0 kg (11 lb) 23 m (75 ft) / 7.9 kg (17.4 lb)
FHT-EX® 105TTM Standard machine cutting torch	5 m (16.5 ft) / 2.1 kg (4.7 lb) 8 m (26 ft) / 3.4 kg (7.5 lb) 15 m (50 ft) / 5.7 kg (12.6 lb) 23 m (75 ft) / 8.0 kg (17.6 lb)
FHT-EX® 105TTSM Short machine cutting torch	5 m (16.5 ft) / 2 kg (4.5 lb) 8 m (26 ft) / 3.4 kg (7.5 lb) 15 m (50 ft) / 5.7 kg (12.6 lb) 23 m (75 ft) / 8.0 kg (17.6 lb)

With 23m (75 ft) long cable lead is a pressure drop of 1.2 bar (17.4 psi) - it is necessary to increase the input pressure about this value when using 23m (75 ft) long cable lead.

It is recommended to unfold the cable, because of bigger heat generation if it's longer than 8m (26 ft).

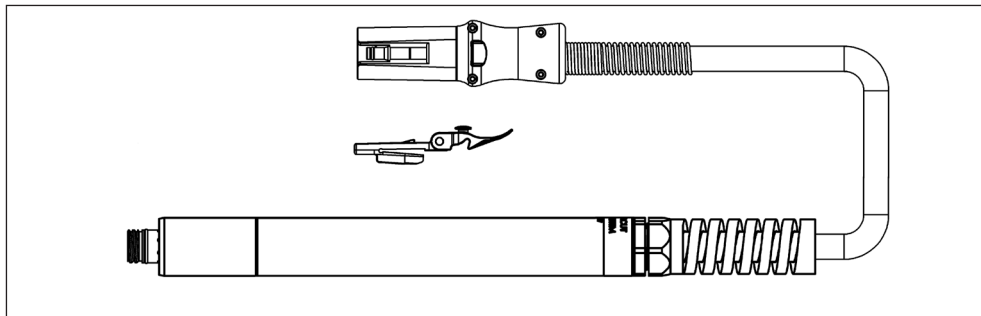
4.1.1 Cutting torch FHT-EX® 105TTH

Fig. 3 Cutting torch FHT-EX®105TTH

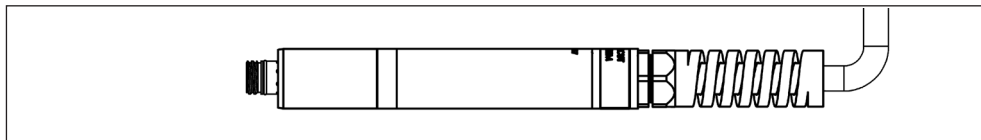


4.1.2 Cutting torch FHT-EX® 105TTH

Fig. 4 Standard cutting torch FHT-EX®105TTM

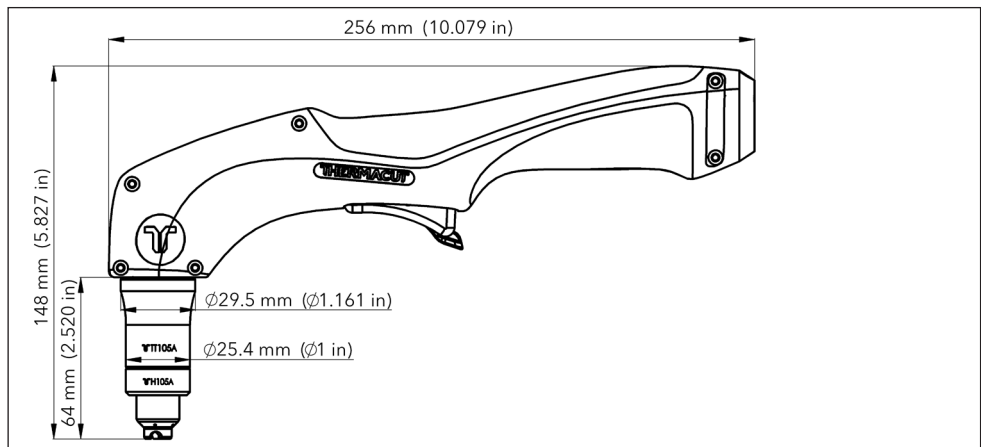


Short cutting torch FHT-EX®105TTSM



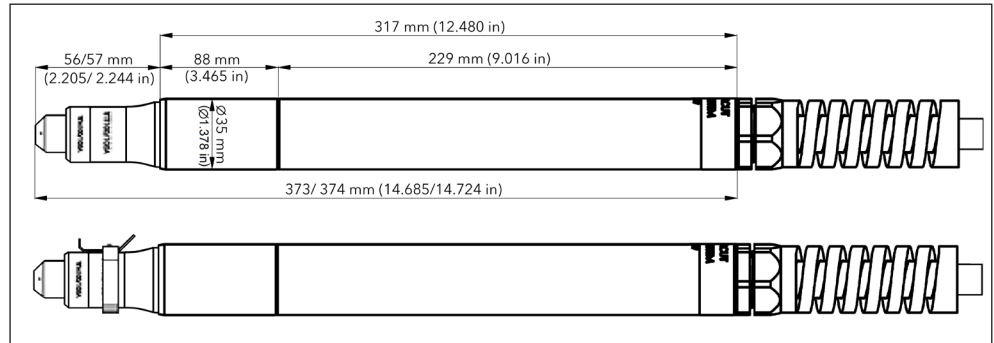
4.1.3 Torch dimensions of the FHT-EX®105TTH

Fig. 5 FHT-EX®105TTH torch dimensions



4.1.4 Torch dimensions of the FHT-EX®105TTM

Fig. 6 FHT-EX®105TTM torch dimensions



4.1.5 Torch dimensions of the FHT-EX®105TTSM

Fig. 7 FHT-EX®105TTSM torch dimensions



5 TRANSPORT AND POSITIONING

⚠ WARNING

Risk of injury due to improper transport and installation.

Improper transport and installation can cause serious injury.

- Wear your personal protective equipment.
- Ensure that all supply lines and cables do not encroach into the area in which employees are working.

NOTICE

Risk of material damage due to improper transport and installation

Improper transport or installation can result in material damage and irreparable damage to the device.

- Protect the device against weather conditions, such as rain and direct sunlight.
- Use the device only in dry, clean, and well-ventilated rooms.

6 TORCH INSTALLATION

6.1 Connecting the cutting torch

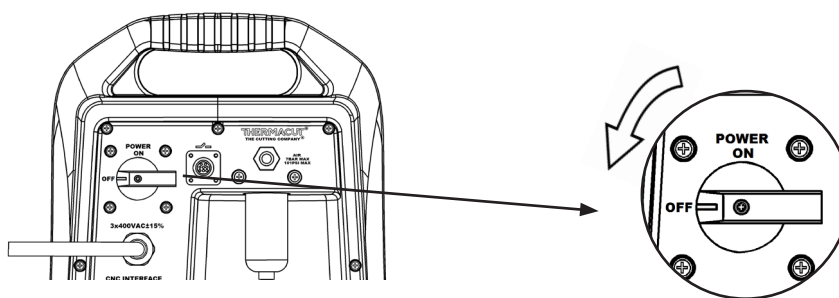
NOTICE

Risk of material damage if used without TCS Latch with Key Assembly

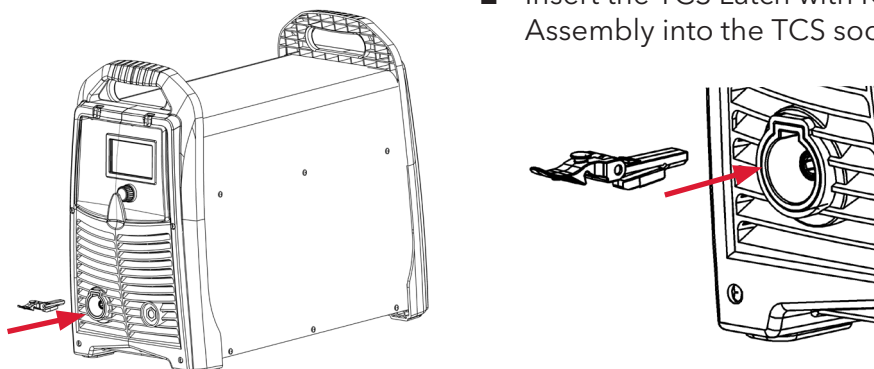
The TCS Latch with Key Assembly is important for the proper working of the device. If used without, the device will be damaged.

- Do not use the device without the TCS Latch with Key assembly installed and properly secured.

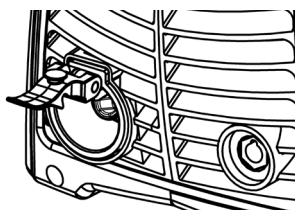
- 1 Switch off the power supply.



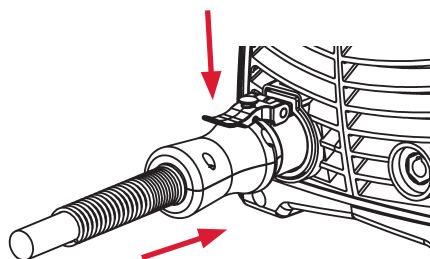
- 2 Insert the TCS Latch with Key Assembly into the TCS socket.



The TCS Latch with Key Assembly must sit firmly in the TCS socket.



- 3 Insert the TCS plug into the connector.



- 4 Push the plug while simultaneously pressing down the Latch into locked position.

6.2 Installing consumables for the hand and machine cutting torches

⚠ WARNING

Risk of injury due to unexpected ignition of the plasma arc

- Turn off the power supply before changing consumables.

⚠ WARNING

Risk of injury due to unexpected ignition of the plasma arc

Hand cutting torch

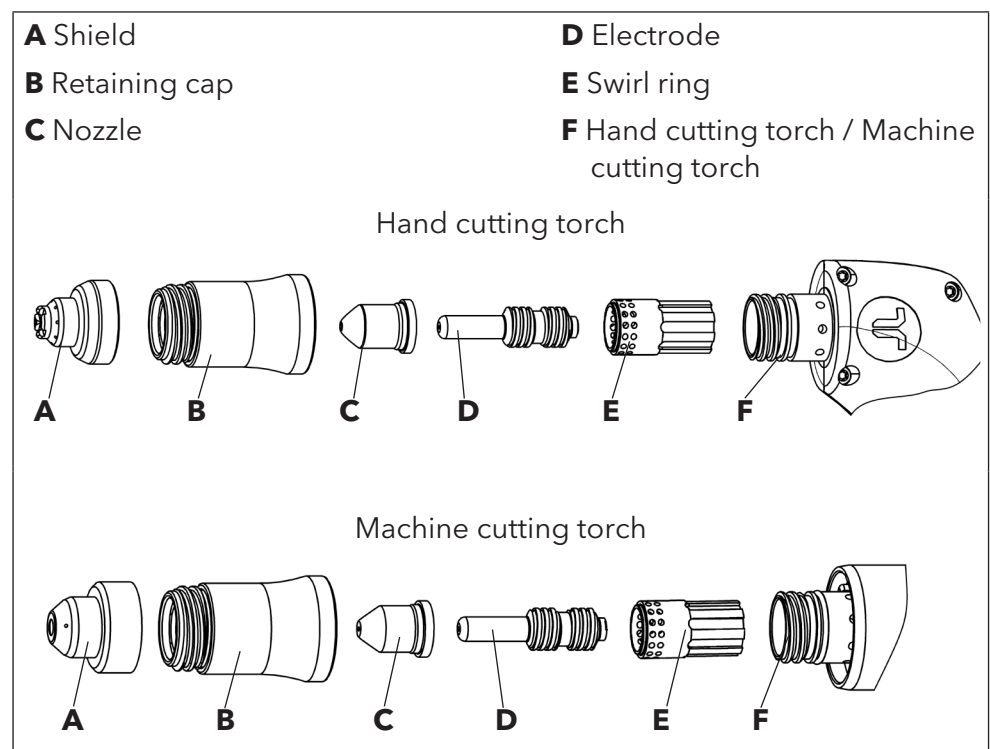
When the input power plug is plugged in, the plasma arc ignites immediately when the torch trigger is pressed. Individuals can be seriously injured if the arc ignites unexpectedly.

Machine cutting torch

When the input power plug is plugged in, the plasma arc ignites immediately when the CNC start signal is ON. Individuals can be seriously injured if the arc ignites unexpectedly.

- Hold the tip of the torch away from you.
- Do not hold the workpiece to be cut tightly and keep your hands away from the cutting surface.
- Do not point the cutting torch at yourself or other individuals.
- Wear your personal protective equipment.

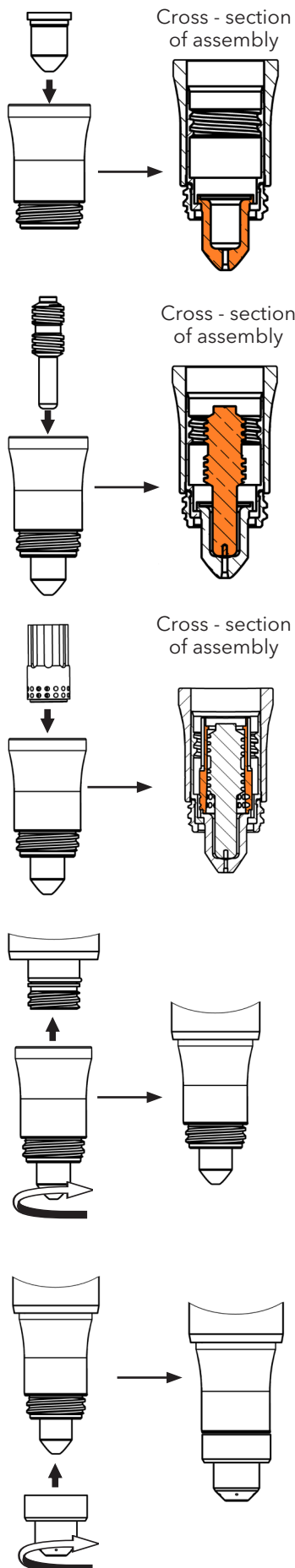
Fig. 8 FHT-EX[®]105TT cutting torch consumables



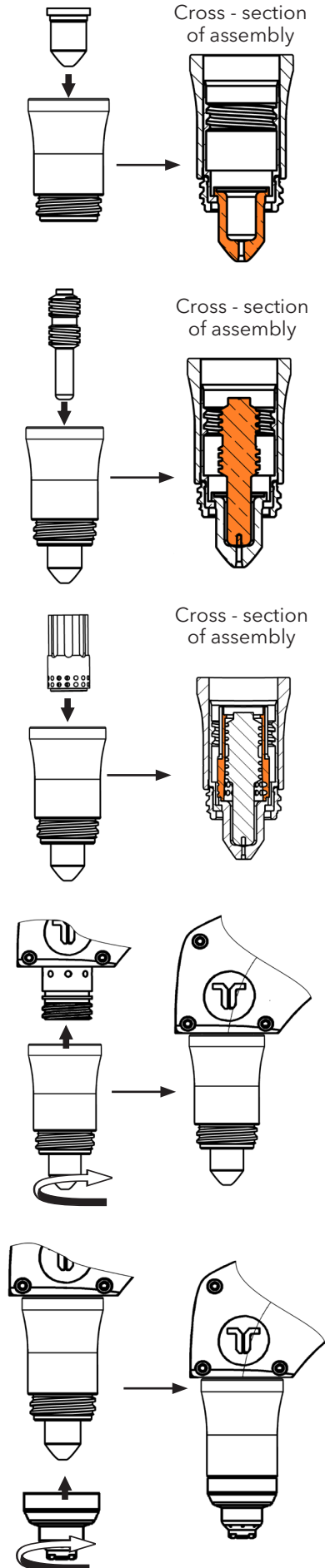
The procedure shown below applies to both the equipment of hand and machine cutting torch.

6.2.1 FHT-EX® 105TT cutting torch consumables installation

machine cutting torch



hand cutting torch



1 Install the nozzle into the retaining cap.

2 Insert the electrode into retaining cap and nozzle assembly.

3 Insert the swirl ring.

4 Screw the entire assembly onto the hand cutting torch.

- Do not overtighten.
- The nozzle must be firmly in place and must not move.

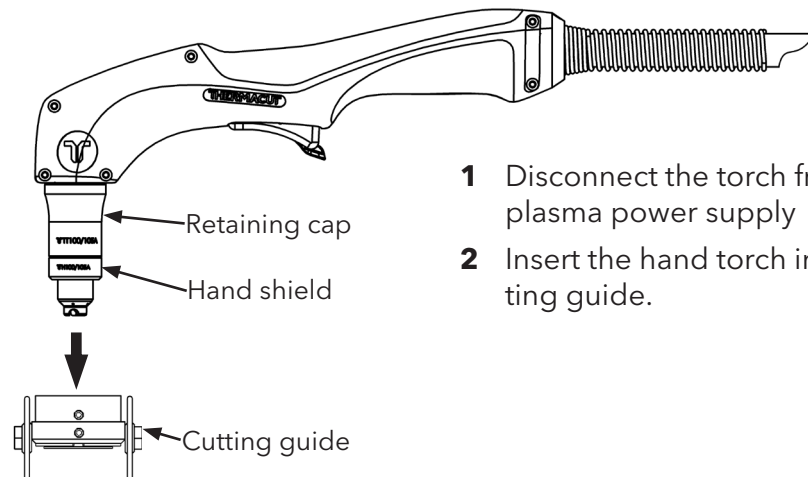
5 Install the shield. Do not overtighten.

6.3 The circle cutting guide installation

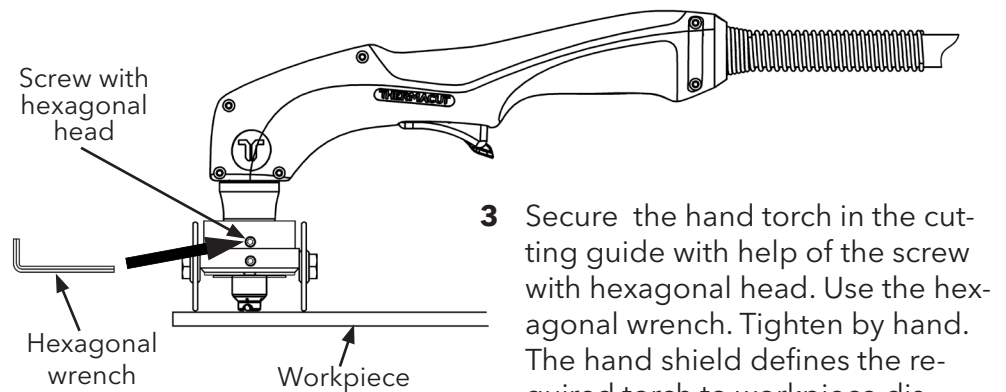


Circle cutting guide

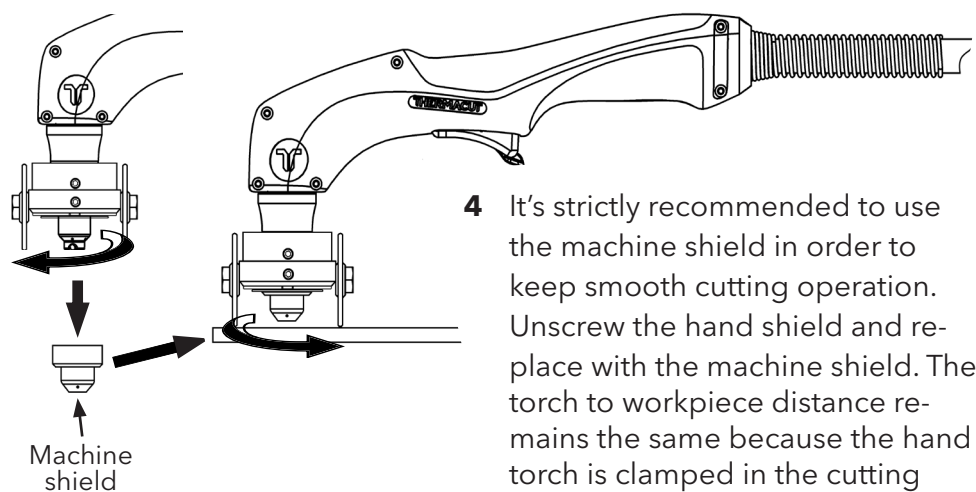
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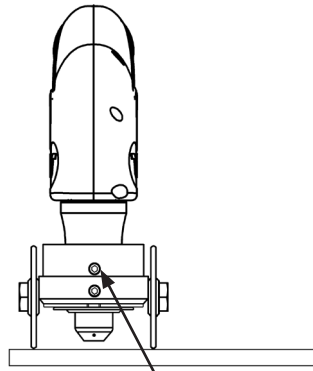
- 1 Disconnect the torch from the plasma power supply
- 2 Insert the hand torch into the cutting guide.



- 3 Secure the hand torch in the cutting guide with help of the screw with hexagonal head. Use the hexagonal wrench. Tighten by hand. The hand shield defines the required torch to workpiece distance.



- 4 It's strictly recommended to use the machine shield in order to keep smooth cutting operation. Unscrew the hand shield and replace with the machine shield. The torch to workpiece distance remains the same because the hand torch is clamped in the cutting guide in the place of the retaining cap.

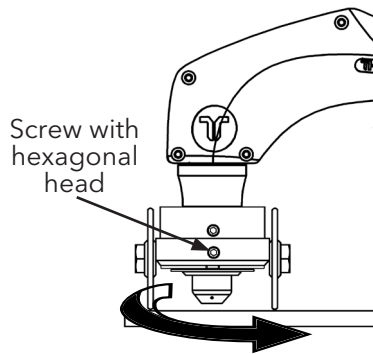


Tighten the screw with hexagonal head with the hexagonal wrench.



- 5** The hand torch clamped in the cutting guide can be used alone or with a radius bar.

If you don't want use the radius bar, lock the cutting guide in a fixed position by using of the screw with hexagonal head so that the wheels of the cutting guide point in the same direction as the torch handle - see picture below. Now the torch with the cutting guide is ready to cut.

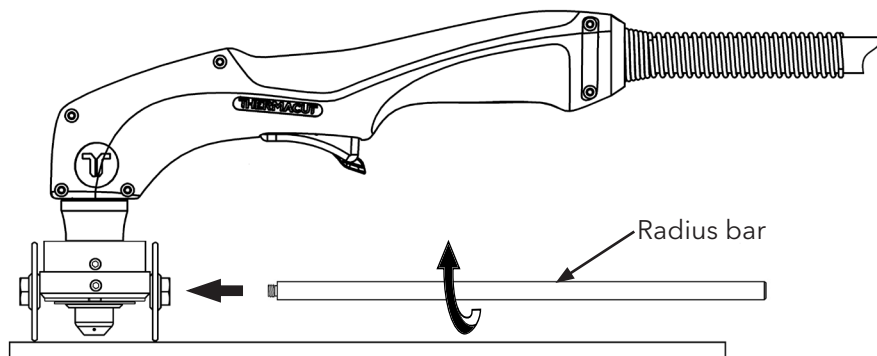


Screw with hexagonal head

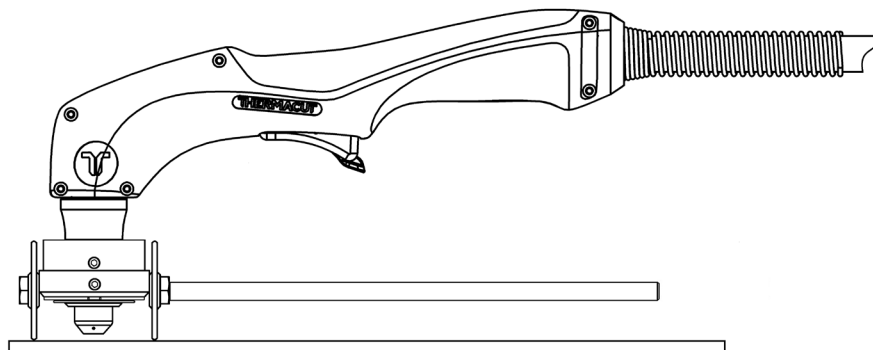
- 6** If you want use the radius bar, make sure the screw with hexagonal head isn't tightened so that the cutting guide can rotate freely.

- 7** Screw in the radius bar* into the threaded hole in the cutting guide.

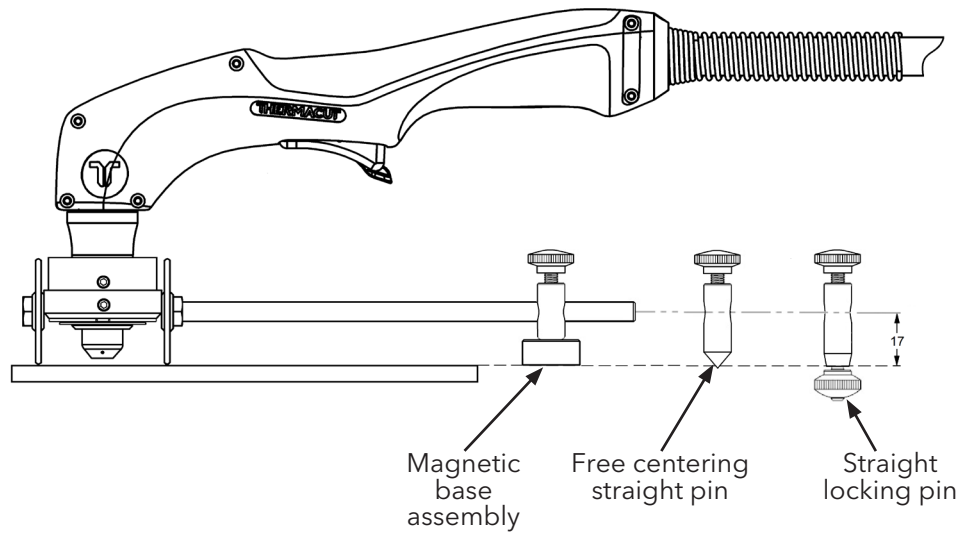
* Lengths of bars are 250 mm (0.82 ft) or 400 mm (1.3 ft).



Radius bar



- 8 Use the following fasteners to anchor the radius bar to the center of the circle:



7 OPERATION

The FHT-EX®105TT machine or hand cutting torch operates with various plasma arc cutting power supplies. It is necessary to install appropriate torch parts to match the required type of operation and the required amperage.

⚠ CAUTION

Use of the cutting torch

FHT-EX®105TT, TTM torches are for use with EX-TRAFIRE®65, 85, 105HD power supplies only.

⚠ WARNING

Risk of injury due to unexpected ignition of the plasma arc

Hand cutting torch

When the input power plug is plugged in, the plasma arc ignites immediately when the torch trigger is pressed. Individuals can be seriously injured if the arc ignites unexpectedly.

Machine cutting torch

When the input power plug is plugged in, the plasma arc ignites immediately when the CNC start signal is ON. Individuals can be seriously injured if the arc ignites unexpectedly.

- Hold the tip of the torch away from you.
- Do not hold the workpiece to be cut tightly and keep your hands away from the cutting surface.
- Do not point the cutting torch at yourself or other individuals.
- Wear your personal protective equipment.

⚠ WARNING

Risk of injury when cutting

Plasma cutting can cause serious injury.

- Do not hold the workpiece in your hands.
- Keep your hands away from the cutting surface.
- Wear your personal protective equipment.

⚠ CAUTION

Risk of burns due to flying sparks when angling the cutting torch

When the cutting torch is angled during cutting or piercing, molten metal (sparks) will escape in the direction in which the cutting torch is pointed. This may result in burns.

- Do not point the cutting torch at yourself or other persons when angling it.
- Wear your personal protective equipment.

NOTICE**Material damage due to exceeding the maximum duty cycle**

If the unit is operated for longer than the maximum duty cycle, it may be overloaded and irreparably damaged.

- Only operate the unit up to the maximum permissible duty cycle.
- Observe the maximum duty cycle for cutting components.

NOTICE**Material damage caused by unplugging the mains plug during operation**

If the input power plug is unplugged during operation, the power supply may be irreparably damaged.

- Do not unplug the input power plug during operation and ensure a constant power supply.

NOTICE**Operation of the power supply equipped with 23m long hand torch**

- Increase dynamic gas pressure of 1.2 bar (17.4 psi). To refire the arc during post-flow it's necessary to press the trigger button once to stop the flow of the air or wait until the post-flow stops automatically.
- Wait approx. 2s until the air escapes from the torch. Afterwards the pilot arc can be initiated by pressing the trigger button again.

7.1 Cutting process

7.1.1 Connecting the work lead

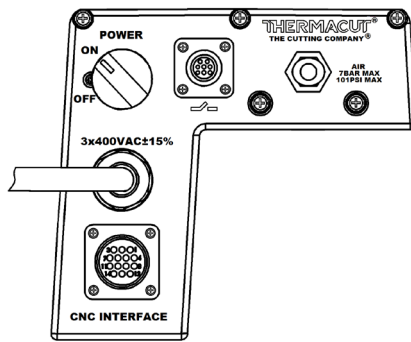
- 1 Remove contamination from the workpiece.
- 2 Connect the work lead clamp to the workpiece in order to allow maximum electrical conduction.
- 3 Do not connect the work lead clamp to the material to be cut off.
- 4 Connect the work lead clamp as close as possible to the cutting area in order to minimize electromagnetic fields.

7.1.2 Connecting the cutting torch

- » 6.1 Connecting the cutting torch on page EN-14.

7.1.3 Powering on the power supply

Powering of the EX-TRAFIRE[®] 65, 85HD power supply

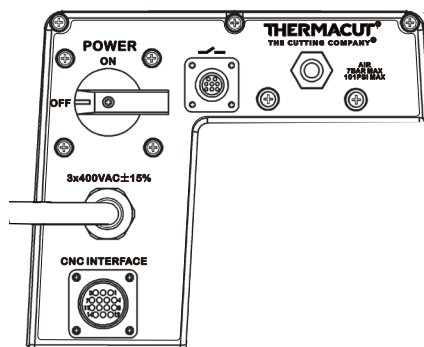


- Set the POWER switch to ON.



- The following is displayed immediately after switching on:
 - Type of power supply (65 or 85HD)
 - Length of torch cable
5 m, 8 m, 15 m, 23 m
(16.5 ft, 26 ft, 50 ft, 75 ft)
 - Type of cutting torch (hand or machine)
 - Current firmware

Powering of the EX-TRAFIRE[®] 105HD power supply



- Set the POWER switch to ON.



- The following is displayed immediately after switching on:
 - Type of power supply (105HD)
 - Length of torch cable
5 m, 8 m, 15 m, 23 m
(16.5 ft, 26 ft, 50 ft, 75 ft)
 - Type of cutting torch (hand or machine)
 - Current firmware

7.2 Manual cutting process

- 1 Switch on the device.
- 2 Automatic gas test (five seconds)
- 3 Automatic system test (five seconds)
- 4 Press torch trigger.
- 5 Generate a pilot arc.
- 6 Once the workpiece is detected, the pilot arc switches to a cutting arc.
- 7 The cutting process starts.
- 8 Extinguish the arc by releasing the torch trigger.

Gas post-flow period is approx. 25 seconds depending on the output current and is not adjustable.

7.3 Manual grid cutting and gouging process

- 1 Switch on the device.
- 2 Automatic gas test (five seconds)
- 3 Automatic system test (five seconds)
- 4 Select either grid cutting or gouging mode.
- 5 Press torch trigger.
- 6 Generate a pilot arc.

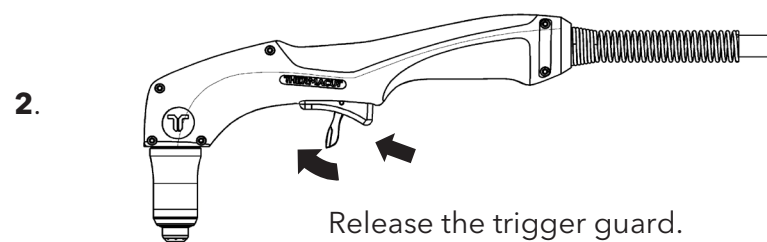
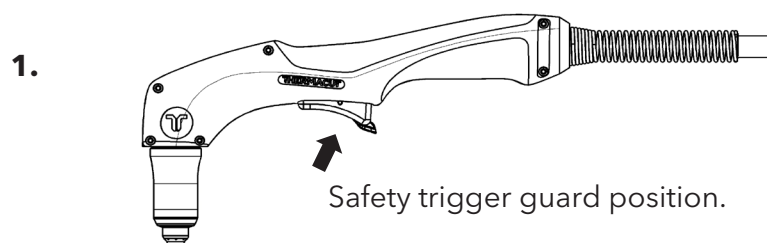
Once the workpiece is detected, the pilot arc switches to a cutting arc.

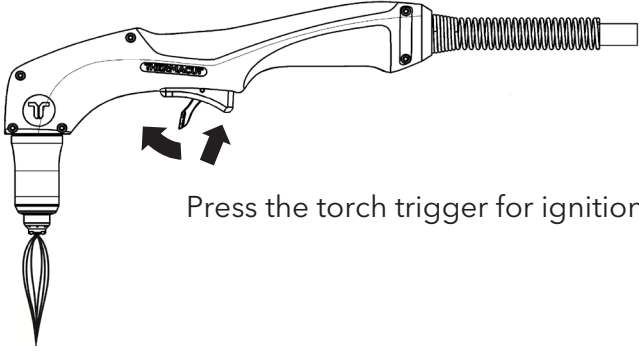
- 7 Grid cutting or gouging starts depending on the selected process.
- 8 Extinguish the arc by releasing the torch trigger.

Gas post-flow period is approx. 25 seconds depending on the output current and is not adjustable.

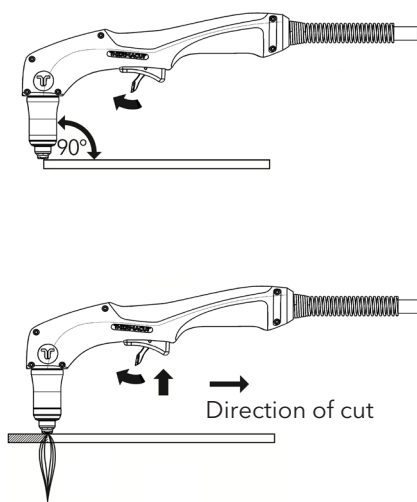
7.4 Operating the hand cutting torch

7.4.1 Operating the torch safety trigger

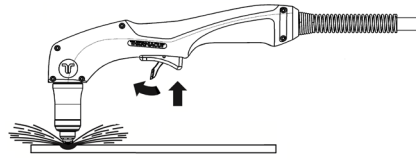


3.  Press the torch trigger for ignition of the arc.
4. Release the torch trigger to stop cutting.

7.4.2 Cutting - Edge start



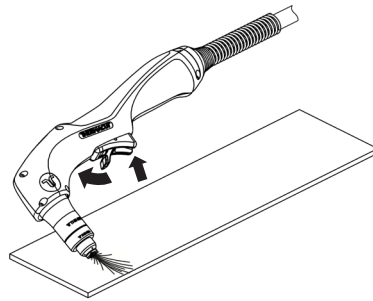
- 1 Start the cutting process at the edge of the workpiece.
 - 2 Do not move the cutting torch until the material has been cut through completely.
 - 3 Place the cutting torch upright on the edge of the workpiece.
 - 4 Pull the cutting torch in the cutting direction. Sparks must emerge from the underside of the workpiece.
 - 5 Pay attention to the following when cutting:
 - Hold the cutting torch vertically and observe the arc while cutting.
 - Make light contact between the shield and the workpiece and pull the cutting torch in the cutting direction at a constant speed.
 - For cutting thin workpieces, reduce output current strength to a minimum to achieve the highest cutting quality.
 - For cutting straight lines/bevels, use a straight edge as a guide.
 - For cutting circles, use a template or **circle cutting device**.
- » **6.3 The circle cutting guide installation** on page EN-17



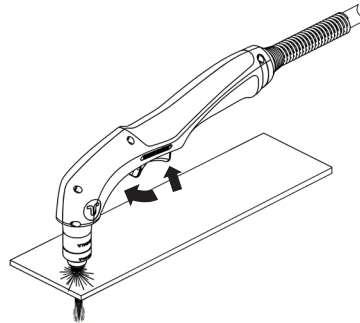
If sparks escape upwards during cutting, the material has not yet been completely separated. Proceed as follows:

- Reduce the speed at which the cutting torch is pulled.
- Check the setting for the output current.
- Check the compressed air settings.
- Check consumables for wear/damage.

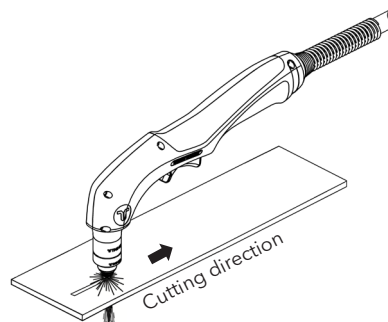
7.4.3 Piercing



- 1** Hold the cutting torch at an angle to the workpiece with a max. distance of 3 mm (0.1 in) from the nozzle to the workpiece.
- 2** Press the torch trigger to ignite the arc.



- 3** Turn the cutting torch slowly in a vertical direction.
- 4** Hold the cutting torch until the arc emerge from the underside of the workpiece. This indicates the material is completely pierced through.

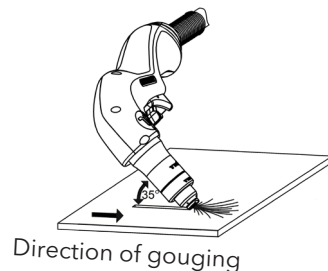
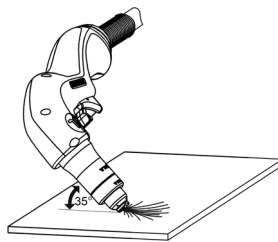


- 5** Pull the cutting torch in the cutting direction. Sparks must emerge from the underside of the workpiece.

7.4.4 Gouging

Gouging can remove welding seams and achieve a controlled gouge profile. The gouge profile can be influenced by the actions in the following table:

Gouge profile	Actions
Narrower and flatter	<ul style="list-style-type: none"> Reduce current or increase speed.
Narrower and deeper	<ul style="list-style-type: none"> Reduce the standoff between the torch and workpiece or hold the cutting torch at larger angle to workpiece.
Wider and deeper	<ul style="list-style-type: none"> Increase current or reduce the speed.
Wider and shallower	<ul style="list-style-type: none"> Increase the standoff between the cutting torch and workpiece or hold the cutting torch at flatter angle to the workpiece.



- 1 Use gouging consumables suitable to the cutting torch being used.
- 2 Hold the cutting torch at an angle of 35° to 45° inclined to the workpiece.
- 3 Hold the nozzle close enough to the workpiece that it touches the workpiece.
- 4 Press the torch trigger to ignite the arc.
- 5 Continue to hold the cutting torch at an angle of 35° to 45° to the workpiece and move it in the direction of the material to be removed.

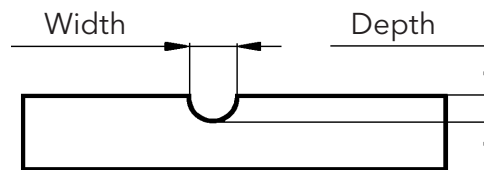
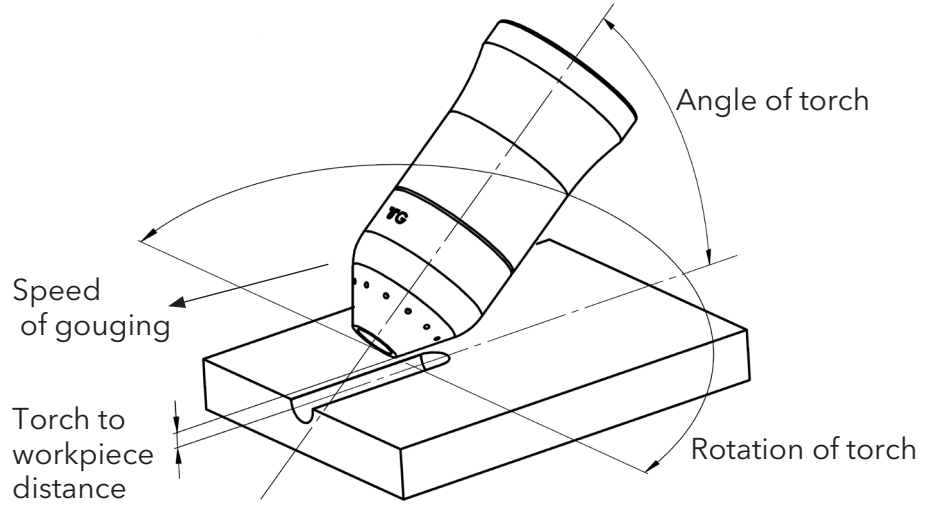
7.4.4.1 Table for FHT-EX® 105TT material removal

Table 4 Table for FHT-EX® 105TT material removal

Gouging parameters			
(Dynamic) air pressure	5 bar (75 psi)		
Distance between cutting torch and workpiece	As close as possible		
Angle of cutting torch to workpiece	35-45 °		
Speed	0.6 m/min (23.6 in/min)		
Current	65 A	85 A	105 A
Removal rate for mild steels	Approx. 4.8 kg/hr (11 lb/hr)	Approx. 7.7 kg/hr (17 lb/hr)	Approx. 9.0 kg/hr (20 lb/hr)
Width of gouge	Approx. 5.5 mm (0.21 in)	Approx. 5.7 mm (0.22 in)	Approx. 6.2 mm (0.24 in)
Depth of gouge	Approx. 4.5 mm (0.21 in)	Approx. 4.8 mm (0.18 in)	Approx. 4.1 mm (0.16 in)

7.4.4.2 Gouge profile

The gouge profile can be modified by changing the speed of moving of the torch over the workpiece, changing the angle of the torch to the workpiece, changing the torch to workpiece distance or changing the gouging amperage (the output power) of the power supply.



7.4.4.3 Modification of the gouge profile

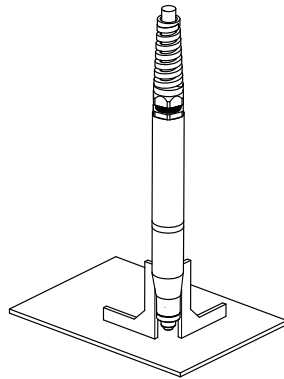
Table 5 Table of the modification of the gouge profile

The gouge profile		The actions which affected the gouge profile			
Width	Depth	Gouging amperage of the power supply	Gouging speed of the torch	Torch to workpiece distance	Torch to workpiece angle
decreasing ↓	decreasing ↓	decreasing ↓			
decreasing ↓	decreasing ↓		increasing ↑		
decreasing ↓	increasing ↑			decreasing ↓	
decreasing ↓	increasing ↑				increasing ↑
increasing ↑	increasing ↑	increasing ↑			
increasing ↑	increasing ↑		decreasing ↓		
increasing ↑	decreasing ↓			increasing ↑	
increasing ↑	decreasing ↓				decreasing ↓

7.5 Operating the machine cutting torch

» 6.2.1 105TT Cutting torch consumables installation on page EN-16.

7.5.1 Aligning FHT-EX[®] 105TT machine cutting torch



- 1** Position the cutting torch perpendicular to the workpiece.
- 2** Use an angle gauge to align the machine cutting torch at 0° and 90°.

7.6 Stopping the cutting process

⚠ CAUTION

Risk of injury due to hot parts

Parts may still be hot after the gas post-flow period ends. People are at a risk of burns.

- Wear your personal protective equipment.
- Allow the cutting torch to cool down for 5-10 minutes before touching the parts.

- Release the torch trigger to end the cutting process.

After releasing the torch trigger, the gas continues to flow for up to 25 seconds, depending on the set output current, in order to cool the cutting torch and the consumables.

- To end the gas post-flow period prematurely, briefly press and release the torch trigger.
- Press the torch trigger again to ignite the pilot arc.

8 DECOMMISSIONING

- 1** Set the POWER switch to OFF.
- 2** Disconnect the device from the input power supply.
- 3** Disconnect the device from the gas supply.
- 4** Apply inward pressure to TCS plug when lifting latch for leads removal.

9 MAINTENANCE AND CLEANING

Scheduled maintenance and cleaning are prerequisites for a long service life and trouble-free operation. When operating for more than eight hours a day, the maintenance intervals should be changed as needed. When using plasma arc cutting equipment, always observe the provisions of EN 60974-4 Inspection and testing, as well as any local laws and regulations.

⚠ WARNING

Electric shock due to live parts

Fatal electric shock can occur if components are live during maintenance and cleaning work.

- Set the POWER switch of the power supply to OFF before maintenance and cleaning work.
- Disconnecting the power supply.
- Allow a period (minimum 5 min.) for electrical discharge before handling internal parts.

9.1 Maintenance and cleaning intervals

The specified intervals are standard values and refer to single-shift operation.

Table 6 Maintenance and cleaning intervals

Daily/every 6 hours of cutting	• Check the gas settings.
	• Check the cutting torch's consumables for wear.
	• Ensure that consumables are installed correctly.
	• Check the work clamp for contamination.
Weekly	• Check the cap sensor.
	• Ensure that the LED safety indicator which indicates a loose retaining cap is fully functional.
Every 3 months	• Check the cutting torch for signs of cracks in the torch body and exposed wires.

Table 7 Parts inspection

Consumable	Check for	Action
Shield	Orifice is not round.	• Replace the shield.
	Spatter in the gap between the shield and the nozzle.	• Clean the shield and nozzle surface.
Retaining cap	Heat damage, cracks, breaks, damaged threaded connections, clogged gas holes.	• Replace the retaining cap.
Nozzle	Orifice is not round.	• Replace the nozzle.
Swirl ring	Outer surface is damaged or dirty.	• Clean or replace the swirl ring.
	Electrode restriction due to dirt, debris, or damage on interior surfaces.	
	Clogged or damaged gas holes.	
Electrode	Pit depth in hafnium is deeper than 1.6mm (0.06 in).	• Replace the electrode.
Cutting torch	Fire or arc damage inside.	• Replace the cutting torch.
	Worn or damaged threaded connections.	
	Burned or missing material.	
	Cutting torch is damaged or dirty.	
	Damaged O-ring.	• Replace the O-ring.
	Dry O-ring.	• Apply a thin layer of silicone grease.

10 FAULTS AND TROUBLESHOOTING

- Verify consumables selection according to:
 - » **Tables 13 - 15** FHT-EX®105TTH consumables for hand cutting torch on pages EN-39, 40
 - » **Tables 19 - 22** FHT-EX®105TTM consumables for machine cutting torch on pages EN-44- 47
- Contact your retailer or Thermacut® in the event of questions or problems.

Table 8 Fault messages in the display

Error code	Cause	Troubleshooting
H04 Arc does not ignite when torch trigger is pressed or the CNC start signal is on.	Missing nozzle or electrode.	• Verify that the consumable is installed correctly and, if necessary, re-install it correctly or replace it.
	Dirt or short circuit in the cutting torch.	• Dismantle all consumables, clean the inside of the cutting torch and install correctly.
	Consumables are not Thermacut® original parts.	• Use Thermacut® original consumables.
	Consumable part is loose, incorrectly installed or defective.	• Verify that the consumables are installed correctly and, if necessary, re-install correctly or replace them.

Table 8 Fault messages in the display

Error code	Cause	Troubleshooting
H05	The electrode is not separated from the nozzle during the pilot arc.	<ul style="list-style-type: none"> • Check for free movement of the electrode and clean or replace parts, if necessary.
H06 Excess temperature	Duty cycle has been exceeded.	<ul style="list-style-type: none"> • Allow the device to cool down. • Do not exceed the duty cycle.
H08	The cutting torch is missing or not connected.	<ul style="list-style-type: none"> • Verify the proper cutting torch is connected.
	Consumables are loose, incorrectly installed or missing.	<ul style="list-style-type: none"> • Verify that the consumables are installed correctly and, if necessary, re-install them correctly or replace them.
	Retaining cap is incorrectly installed or has been tightened too tightly.	<ul style="list-style-type: none"> • Verify that the retaining cap is correctly installed, re-install correctly and tighten, if needed.
	Consumables used are not Thermacut® original parts.	<ul style="list-style-type: none"> • Use only Thermacut® original consumables.
H14	Incorrect cutting torch.	<ul style="list-style-type: none"> • Verify the proper cutting torch is connected.
H17 GAS	Gas inlet pressure is below 5 bar (72.5 psi).	<ul style="list-style-type: none"> • Check the inlet gas pressure. • Check the gas pressure and flow. • Verify the gas settings are correct.
	Insufficient plasma gas flow.	
	Defective torch cable.	<ul style="list-style-type: none"> • Replace the torch cable.
	Pressure sensor is defective.	<ul style="list-style-type: none"> • Have the pressure switch checked and, if necessary, replaced by a certified electrician or trained personnel.
H19	Incorrect current setting.	<ul style="list-style-type: none"> • Verify the cutting power settings.
H20	Incorrect cutting mode.	<ul style="list-style-type: none"> • Verify the cutting mode.
H21	Gas pressure fault.	<ul style="list-style-type: none"> • Check the gas supply.
H22 NO BUS_V	The voltage of PFC is incorrect.	<ul style="list-style-type: none"> • Check if the PFC IGBT is damaged.
H23	Torch trigger is pressed before starting or during initialization.	<ul style="list-style-type: none"> • Verify that the trigger is not pressed when the power supply is switched on and during initialization.

Table 9 General faults

Fault	Description	Cause	Troubleshooting
Arc does not ignite there is no fault code when torch trigger is pressed or the CNC start signal is on.	Incorrect cutting torch type is connected.	Cutting torch type is incorrect.	<ul style="list-style-type: none"> Verify the proper cutting torch is connected.
	Incorrect gas pressure.	Consumables are defective or improperly installed.	<ul style="list-style-type: none"> Check consumables and replace, if necessary.
No transfer between pilot arc and workpiece.	Poor contact between work lead clamp and workpiece.	No contact between work lead clamp and workpiece.	<ul style="list-style-type: none"> Remove contamination and/or oxidation from the workpiece and the work lead clamp. Attach the work lead clamp to the workpiece in order to allow maximum electrical conduction.
		Standoff between cutting torch and workpiece is too great.	<ul style="list-style-type: none"> Decrease the standoff between cutting torch and workpiece.
		Work lead is defective.	<ul style="list-style-type: none"> Replace the work lead.
Output current too low, cannot be controlled	Poor contact between work lead clamp and workpiece.	Connection fault in work lead or cutting torch cable.	<ul style="list-style-type: none"> Ensure that all cable connections are correctly installed.
		No contact between work lead clamp and workpiece.	<ul style="list-style-type: none"> Remove contamination and/or oxidation from the workpiece and the work lead clamp. Attach the work lead clamp to the workpiece in order to allow maximum electrical conduction.
		Standoff between cutting torch and workpiece is too great.	<ul style="list-style-type: none"> Decrease the standoff between cutting torch and workpiece.
	Voltage fault	Faulty input voltage.	<ul style="list-style-type: none"> Verify the correct input voltage according to the identification plate. Check consumables and replace if necessary.
Pilot arc ignites with difficulty and switches off.	Consumables are defective.	Consumables are worn or damaged.	<ul style="list-style-type: none"> Check consumables and replace, if necessary.
	Faulty gas flow.	Gas flow too high. Gas flow too low.	<ul style="list-style-type: none"> Check gas compressor. Check supply lines.

Table 9 General faults

Fault	Description	Cause	Troubleshooting
Insufficient cutting quality.	Incorrect setting for output current.	Output current (amps) too low/material too thick.	<ul style="list-style-type: none"> Remove contamination and/or oxidation from the workpiece and the work lead clamp.
	Consumables are defective.	Consumables are worn.	<ul style="list-style-type: none"> Inspect consumables in the cutting torch and replace, if necessary.
	Poor cutting quality.	Incorrect cutting technology.	<ul style="list-style-type: none"> Adjust the output current strength to the speed at which the cutting torch is pulled and thickness of the workpiece. Verify the standoff between cutting torch and workpiece. » 7.4 Cutting - Edge start on page EN-24
	Poor contact between work lead clamp and workpiece.	Workpiece is dirty.	<ul style="list-style-type: none"> Remove contamination and/or oxidation from the workpiece and the work lead clamp. Attach the work lead clamp to the workpiece in order to allow maximum electrical conduction.

11 DISASSEMBLY

WARNING

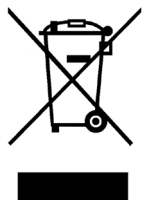
Electric shock due to live parts

Fatal electric shock can occur if components are live during maintenance and cleaning work.

- Set the POWER switch to OFF before maintenance and cleaning work.
- Disconnecting the power supply.

- 1 Disconnect the power supply.
- 2 Disconnect all supply connections.
- 3 Remove the work lead.
- 4 Disassemble the cutting torch cable assembly by applying inward pressure to TCS plug while lifting TCS latch.

12 DISPOSAL



Equipment marked with this symbol is covered by European Directive 2012/19/EU on waste electrical and electronic equipment (WEEE).

- Do not dispose of electrical and electronic equipment with household waste.
- Disassemble electrical equipment prior to proper disposal.
 - » **11 Disassembly** on page EN-33
- Collect electrical components separately and recycle in an environmentally responsible manner.
- Observe local regulations, laws, provisions, standards and guidelines.
- Please consult the responsible local authority for information about collection and return of electrical devices.

12.1 Disposal of materials

This product is mainly made of metallic materials that can be melted in steel and iron works and are thus almost infinitely recyclable. The plastic materials used are labeled in preparation for their sorting and separation for later recycling.

12.2 Disposal of consumables

Oil, greases and cleaning agents must not contaminate the ground or enter the sewage system. These substances must be stored, transported and disposed of in suitable containers. Observe the relevant local regulations and disposal instructions in the safety data sheets specified by the manufacturer of the consumables. Contaminated cleaning tools (brushes, rags, etc.) must also be disposed of in accordance with the information provided by the consumables' manufacturer.

- Observe the relevant local regulations and disposal instructions in the safety data sheets specified by the manufacturer of the consumables.

12.3 Packaging

Thermacut® has reduced the packaging to the necessary minimum. The ability to recycle packaging materials is always considered during their selection.

13 WARRANTY

This warranty statement is an integral part of the Terms and Conditions ("T&C") of THERMACUT® (hereinafter "Seller") and applies to deliveries of goods under the contract concluded between the Seller and the other party to the contract as the recipient of the goods (hereinafter "Buyer"); the terms used herein have the same meaning as attributed to them in the T&C.

- 1** The Seller warrants to the Buyer that during the warranty period specified below, the goods delivered under the contract shall retain the properties specified in the technical data sheet for the goods available on the Seller's websites at the time the binding offer is sent (Section 2.2 of the T&C), otherwise in the quality and design suitable for the purpose resulting from the contract, otherwise for the usual purpose.
- 2** The period begins on the day of delivery of the goods to the buyer (Section 5.1, 5.2 of the T&C).
- 3** For the notification (claim) of warranty defects, the assertion of rights arising from the defective performance and other rights and obligations of the Seller and the Buyer, Section 3.4 ff and the following provisions of the T&C apply.
- 4** The warranty period is:
 - Three (3) years for EX-TRAFIRE® brand power supplies.
 - One (1) year for cutting torches and cable assemblies.
- 5** The warranty does not cover normal wear and tear of the goods or their parts as a result of their use, consumables such as nozzles, electrodes, shields, O-rings, vortex rings, etc.
- 6** The Seller shall not be liable for damage to the goods caused by the Buyer or third parties as a result of incorrect or improper handling of the goods (in particular repair or modification by persons not authorized by the Seller) or their installation, improper use of the goods or insufficient maintenance, in particular use of the goods for a purpose other than the specified purpose or other non-compliance with the operating instructions, use of excessive force or use of unauthorized goods.

14 ACCESSORIES

Tab. 10 Accessories

Accessories	Part number	Description
	EX-5-801-002	Circle cutting guide kit for FHT-EX®105TTH
	EX-5-801-003	Bevel cutting guide kit for FHT-EX®105TTH
	EX-0-806-001	Thermacut® cutting gloves
	EX-6-810-001*	Hand gouging heat shield
	EX-0-805-001	Grease, 25 ml
	Work lead with clamp 300A	
	EX-5-543-037	Work lead 4m (13') with clamp 300A / 16mm ² (5 AWG) / EU-plug 35-70mm ²
	EX-5-543-001	Work lead 8m (26') with clamp 300A / 16mm ² (5 AWG) / EU-plug 35-70mm ²
	EX-5-543-002	Work lead 15m (50') with clamp 300A / 16mm ² (5 AWG) / EU-plug 35-70mm ²
	EX-5-543-003	Work lead 23m (75') with clamp 300A / 16mm ² (5 AWG) / EU-plug 35-70mm ²

*Available on request

For more information about accessories, visit our website:

www.thermacut.com or www.ex-trafire.us.

15 TORCHES AND TORCH PARTS

15.1 FHT-EX® 105TTH hand cutting torch unit

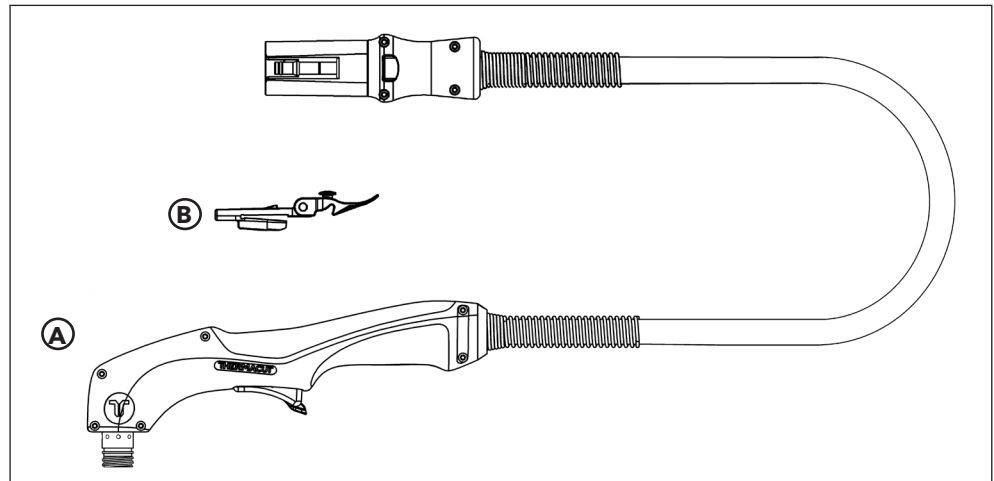


Table 11 FHT-EX® 105TTH hand cutting torch

Item	Part number	Description
A	EX-5-133-002	DEMO FHT-EX®105TTH Hand Torch Assembly/TCS13
	EX-5-139-001	FHT-EX®105TTH Hand Torch Assembly-w/o consumables w/5m (16.5')Lead/TCS13
	EX-5-139-002	FHT-EX®105TTH hand cutting torch without consumables with 8m (26') cable/TCS13
	EX-5-139-003	FHT-EX®105TTH hand cutting torch without consumables with 15m (50') cable/TCS13
	EX-5-139-004	FHT-EX®105TTH hand cutting torch without consumables with 23m (75') cable/TCS13
B	EX-0-321-003	Latch with Key Assembly

15.2 FHT-EX® 105TTH hand cutting torch components

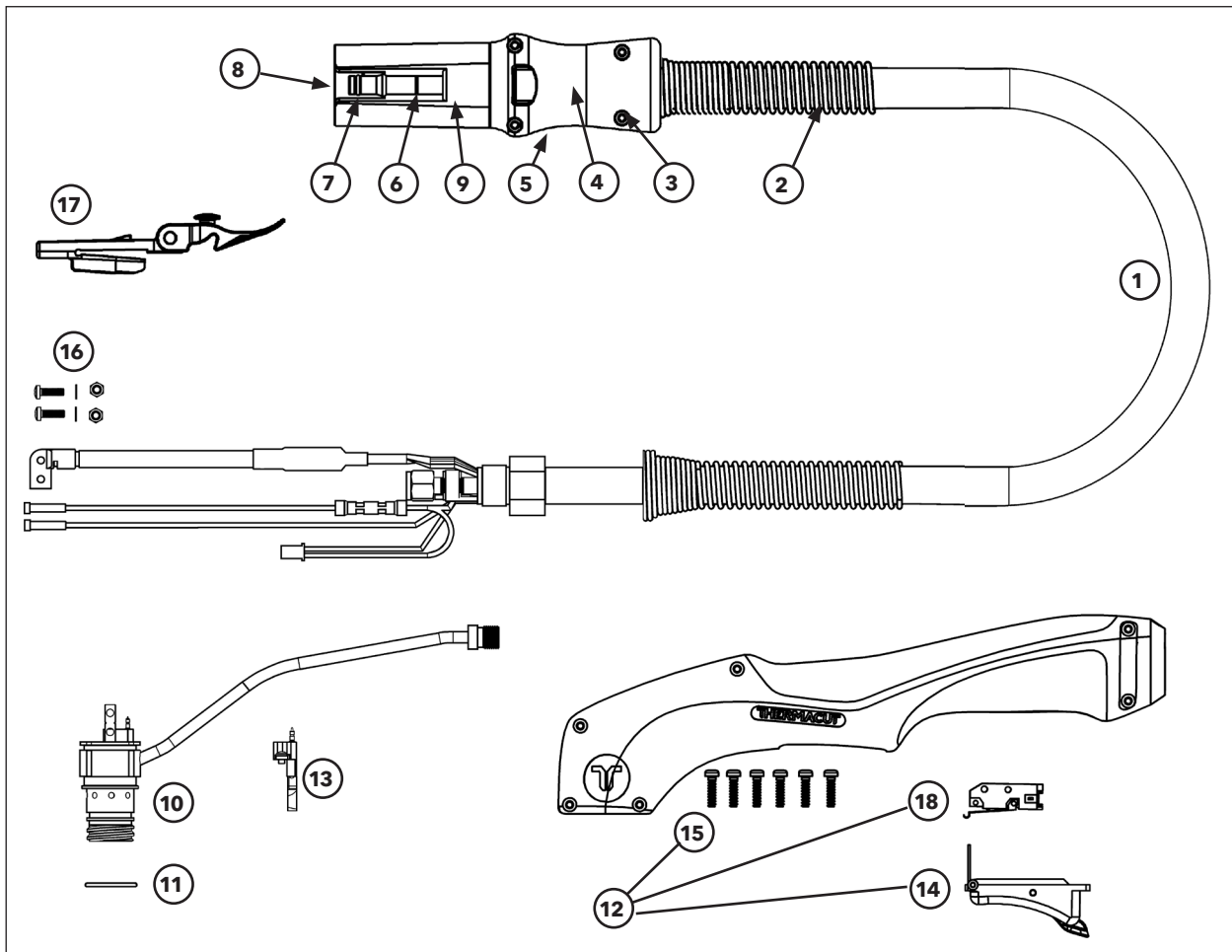


Table 12 FHT-EX® 105TTH hand cutting torch components

Item	Part number	DESCRIPTION
1	EX-5-374-010	FHT-EX®105TTH Hand Torch Lead Replacement 5m (16.5')/TCS13
1	EX-5-374-011	FHT-EX®105TTH Hand Torch Lead Replacement 8m (26')/TCS13
1	EX-5-374-012	FHT-EX®105TTH Hand Torch Lead Replacement 15m (50')/TCS13
1	EX-5-374-013	FHT-EX®105TTH Hand Torch Lead Replacement 23m (75')/TCS13
2	EX-5-318-001	TCS Plug Spring Stain Relief
3	EX-0-325-015	TCS Clam Shell Screw Kit (incl. 4 screws)
4	EX-0-325-002	TCS Clam Shell Upper
5	EX-0-325-001	TCS Clam Shell Lower
6	EX-0-325-010	Retaining Ring (Outer circlip ring)
7	EX-0-325-009	O-Ring (fitted in the TCS plug)
8	EX-0-325-005	Male Crimp Pin for TCS Plug
9	EX-0-323-001	TCS13 Plug Body
10	EX-5-302-001	Hand Torch Body FHT-EX®105TTH
11	EX-5-431-050	O-Ring (fitted on the torch body) - 2pcs package
12	EX-5-314-001	Hand Torch Handle Replacement Kit
13	EX-5-305-002	Cap-sensor Replacement Kit with Screws/ Hand Torch
14	EX-5-313-031	Safety Trigger
15	EX-5-308-001	Hand Torch Handle with Screws
16	EX-5-372-010	Cathode mounting kit
17	EX-0-321-003	Latch w/Key Assembly
18	EX-5-313-030	Safety Trigger Micro-Switch

15.3 FHT-EX® 105TTH consumables for hand cutting torch

15.3.1 FHT-EX® 105TTH consumables for hand cutting torch 45-85 A

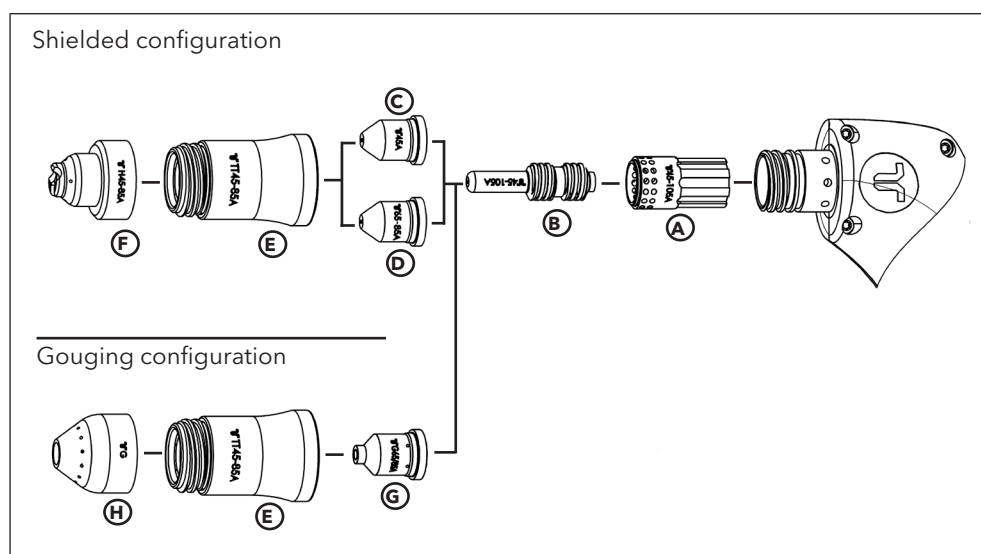


Table 13 Consumables for hand cutting torch 45-85 A

Item	Part number	Description
A	EX-5-404-052	Swirl ring 45-105 A
B	EX-5-401-051	Electrode 45-105 A
C	EX-5-410-051	Nozzle 45 A
D	EX-5-410-053	Nozzle 65/85 A
E	EX-5-415-050	Retaining cap 45-85 A
F	EX-5-422-031	Shield 45-85 A, hand
G	EX-5-440-051	Nozzle, gouging 65-85 A
H	EX-5-440-050	Shield, gouging

15.3.2 FHT-EX® 105TTH consumables for hand cutting torch 105 A

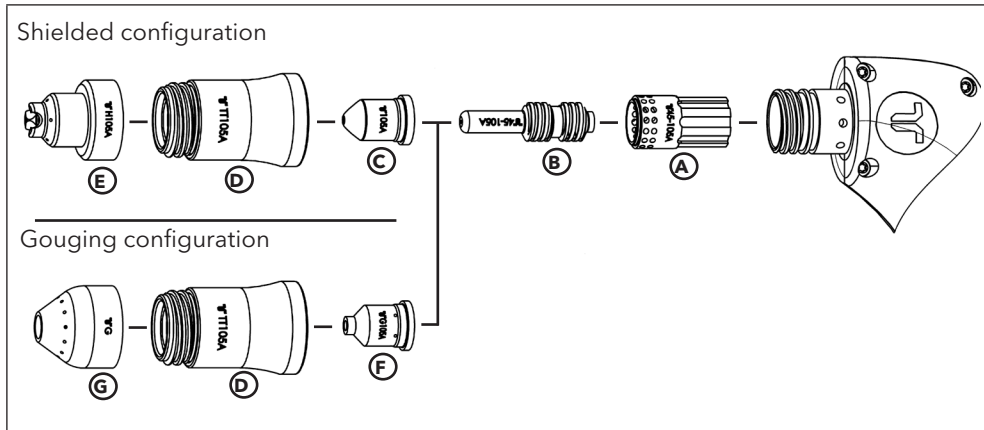


Table 14 Consumables for hand cutting torch 100-105 A

Item	Part number	Description
A	EX-5-404-052	Swirl ring 45-105 A
B	EX-5-401-051	Electrode 45-105 A
C	EX-5-410-056	Nozzle 105 A
D	EX-5-415-051	Retaining cap 105 A
E	EX-5-422-032	Shield 105 A, hand
F	EX-5-440-052	Nozzle, gouging 105 A
G	EX-5-440-050	Shield, gouging

15.3.3 FHT-EX® 105TTH consumables for SmoothLine hand cutting torch

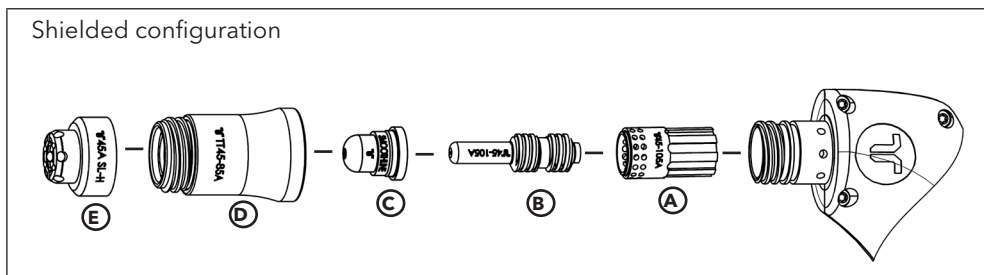


Table 15 Consumables for SmoothLine hand cutting torch

Item	Part number	Description
A	EX-5-404-052	Swirl ring 45-105 A
B	EX-5-401-051	Electrode 45-105 A
C	EX-5-410-050	Nozzle, SmoothLine
D	EX-5-415-050	Retaining cap 45/85 A
E	EX-5-420-050	Shield 40/45 A, hand, SmoothLine

15.4 FHT-EX® 105TTM machine cutting torch unit

15.4.1 FHT-EX® 105TTM standard machine cutting torch

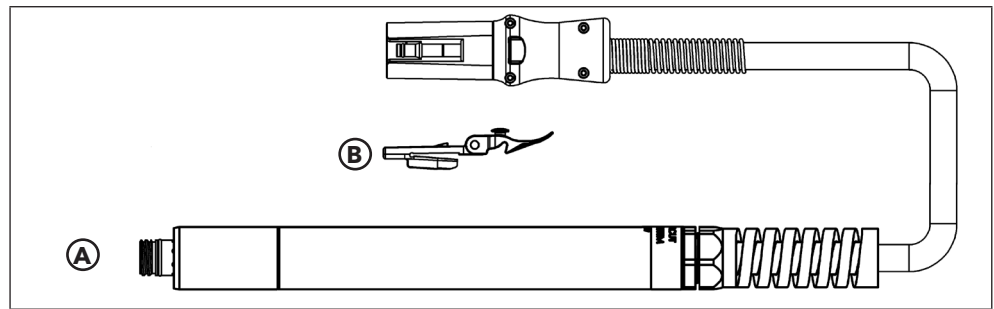
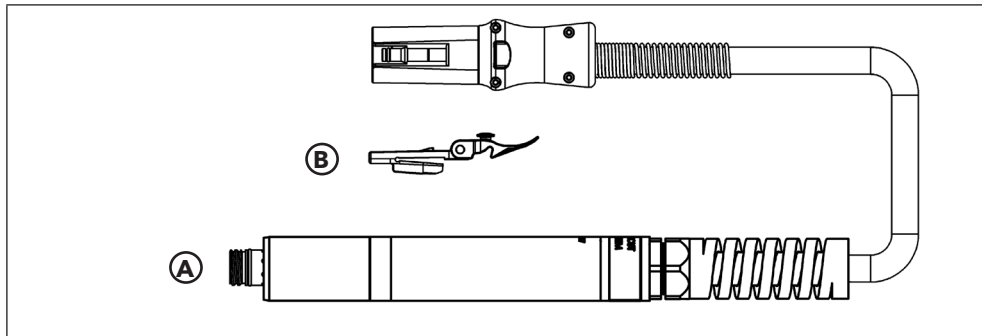


Table 16 FHT-EX® 105TTM machine cutting torch without gear rack

Item	Part number	Description
A	EX-5-202-031	FHT-EX®105TTM machine cutting torch without gear rack, without consumables, with 5m (16.5') cable/ TCS13
	EX-5-204-031	FHT-EX®105TTM machine cutting torch without gear rack, without consumables, with 8m (26') cable/ TCS13
	EX-5-207-032	FHT-EX®105TTM machine cutting torch without gear rack, without consumables, with 15m (50') cable/ TCS13
	EX-5-210-034	FHT-EX®105TTM machine cutting torch without gear rack, without consumables, with 23m (75') cable/ TCS13
B	EX-0-321-003	Latch with Key Assembly

15.4.2 FHT-EX® 105TTM short machine cutting torch

**Table 17** FHT-EX® 105TTM short machine cutting torch

Item	Part number	Description
A	EX-5-242-021	FHT-EX®105TTSM short machine cutting torch without consumables, with 5m (16.5') cable/ TCS13
	EX-5-244-021	FHT-EX®105TTSM short machine cutting torch without consumables, with 8m (26') cable/ TCS13
	EX-5-247-021	FHT-EX®105TTSM short machine cutting torch without consumables, with 15m (50') cable/ TCS13
	EX-5-250-021	FHT-EX®105TTSM short machine cutting torch without consumables, with 23m (75') cable/ TCS13
B	EX-0-321-003	Latch with Key Assembly

15.5 FHT-EX® 105TTM machine cutting torch components

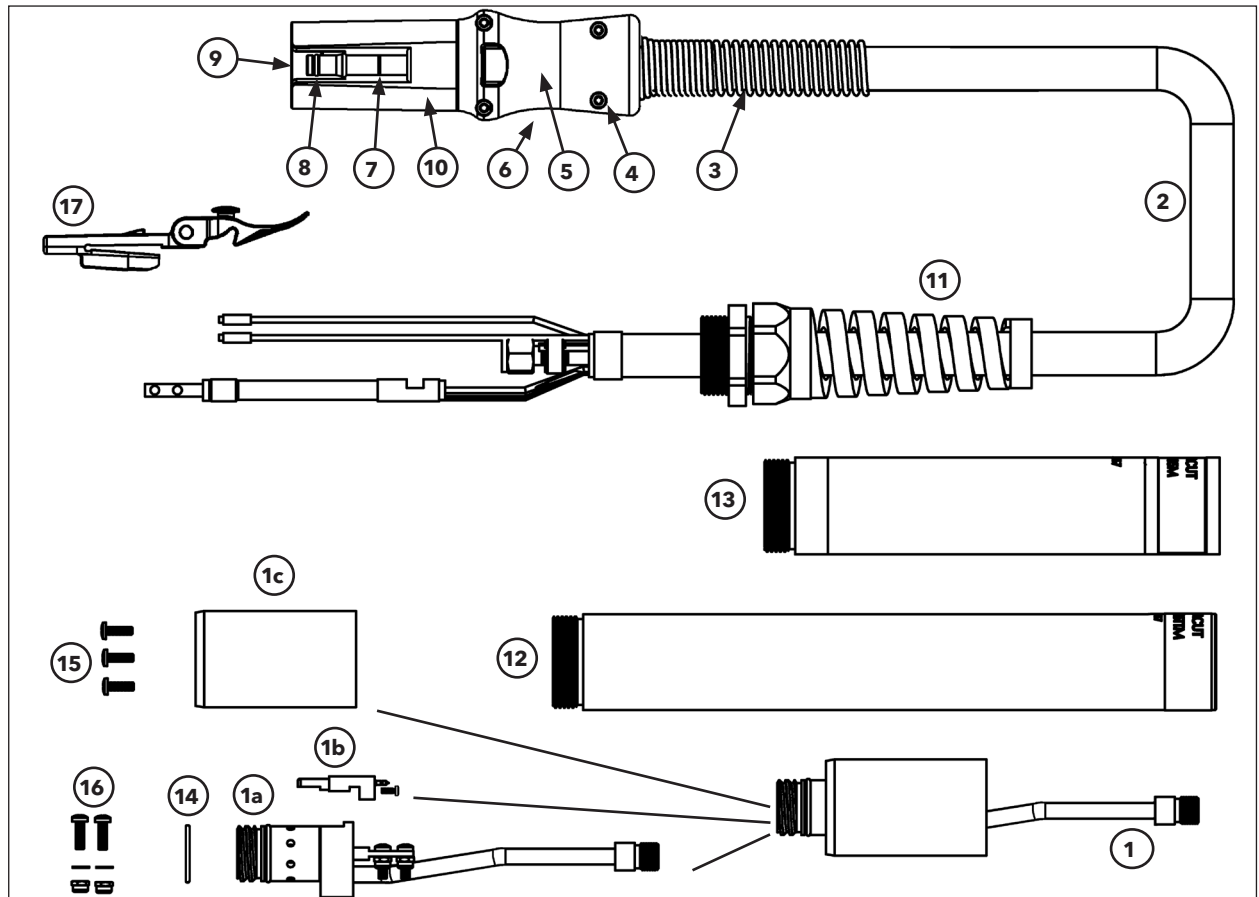
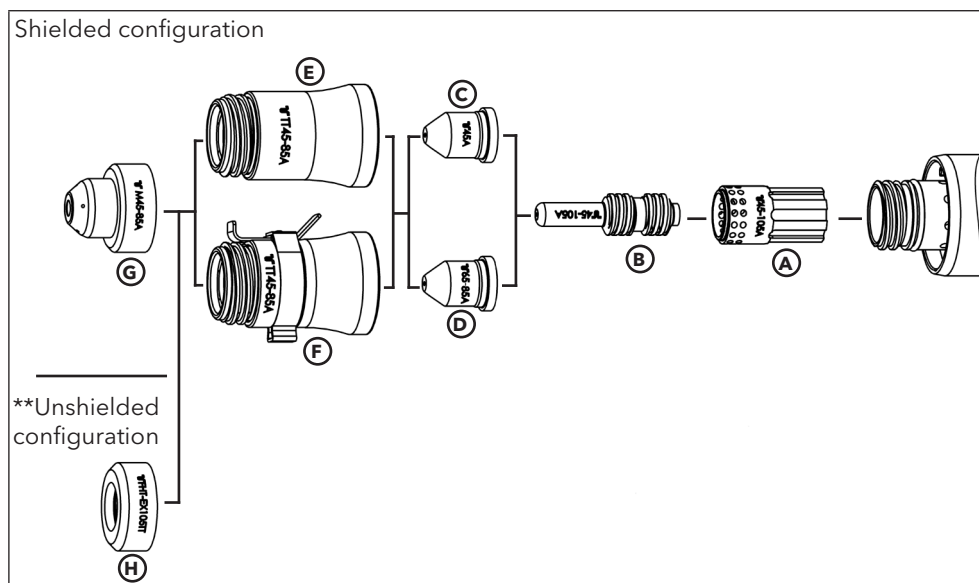


Table 18 FHT-EX® 105TTM machine cutting torch components

Item	Part No.	DESCRIPTION
1	EX-5-303-011	Machine Torch Body Assembly FHT-EX®105TTM
1a	EX-5-303-010	Machine Torch Body FHT-EX®105TTM
1b	EX-5-304-001	Cap Sensor Replacement Kit with Screws/Machine Torch
1c	EX-5-306-002	Torch Mounting Sleeve (incl. 3 screws)
2	EX-5-375-010	FHT-EX®105TTM Machine Torch Lead Replacement 5m (16.5')/TCS13
2	EX-5-375-011	FHT-EX®105TTM Machine Torch Lead Replacement 8m (26')/TCS13
2	EX-5-375-012	FHT-EX®105TTM Machine Torch Lead Replacement 15m (50')/TCS13
2	EX-5-375-013	FHT-EX®105TTM Machine Torch Lead Replacement 23m (75')/TCS13
3	EX-5-318-001	TCS Plug Spring Strain Relief
4	EX-0-325-015	TCS Clam Shell Screw Kit (incl. 4 screws)
5	EX-0-325-002	TCS Clam Shell Upper
6	EX-0-325-001	TCS Clam Shell Lower
7	EX-0-325-010	Retaining Ring (Outer circlip ring)
8	EX-0-325-009	O-Ring (fitted in the TCS plug)
9	EX-0-325-005	Male Crimp Pin for TCS Plug
10	EX-0-323-001	TCS13 Plug Body
11	EX-5-317-021	Machine Torch Strain Relief
12	EX-5-306-011	Standard Mounting Tube
13	EX-5-306-009	Short Mounting Tube
14	EX-5-431-050	O-Ring (fitted on the torch body)
15	EX-5-372-005	Torch Mounting Screws Kit (incl. 3 screws)
16	EX-5-372-010	Cathode Mounting Kit
17	EX-0-321-003	Latch w/Key Assembly

15.6 FHT-EX® 105TTM consumables for machine cutting torch

15.6.1 FHT-EX® 105TTM consumables for machine cutting torch 45-85 A

**Table 19**

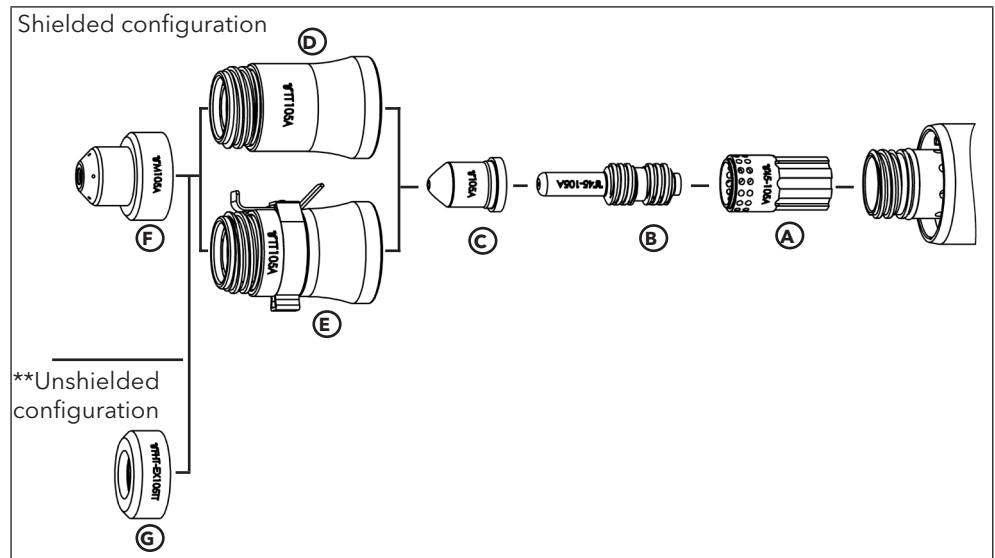
FHT-EX® 105TTM consumables for machine cutting torch 45-85 A

Item	Part number	Description
A	EX-5-404-052	Swirl ring 45-105 A
B	EX-5-401-051	Electrode 45-105 A
C	EX-5-410-051	Nozzle 45 A
D	EX-5-410-053	Nozzle 65-85 A
E	EX-5-415-050	Retaining cap 45-85 A
F	EX-5-415-052	Retaining cap 45-85 A with IHS tab
G	EX-5-422-051	Shield 45-85 A, machine
H	EX-5-423-001	Deflector

- If a torch height controller is used, a retaining cap with IHS (initial height sensing) must be used.

** When used in countries that require CE conformity, the torch must be operated with a shield.

15.6.2 FHT-EX® 105TTM consumables for machine cutting torch 105 A

**Table 20**

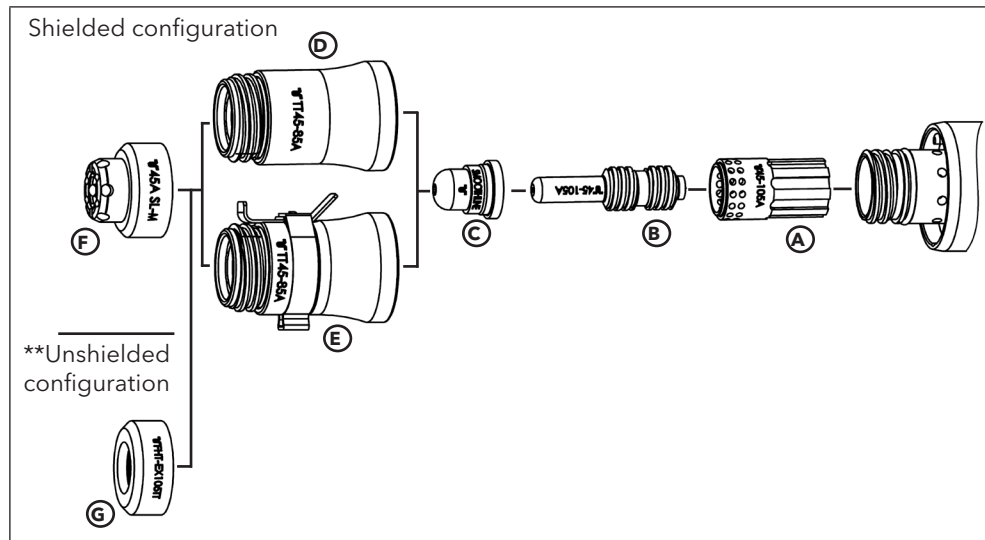
FHT-EX® 105TTM consumables for machine cutting torch 100-105 A

Item	Part number	Description
A	EX-5-404-052	Swirl ring 45-105 A
B	EX-5-401-051	Electrode 45-105 A
C	EX-5-410-056	Nozzle 105 A
D	EX-5-415-051	Retaining cap 105 A
E	EX-5-415-053	Retaining cap 105 A with IHS tab
F	EX-5-422-052	Shield 105 A, machine
G	EX-5-423-001	Deflector

- If a torch height controller is used, a retaining cap with IHS (initial height sensing) should be used.

** When used in countries that require CE conformity, the torch must be operated with a shield.

15.6.3 FHT-EX® 105TTM consumables for SmoothLine machine cutting torch

**Table. 21**

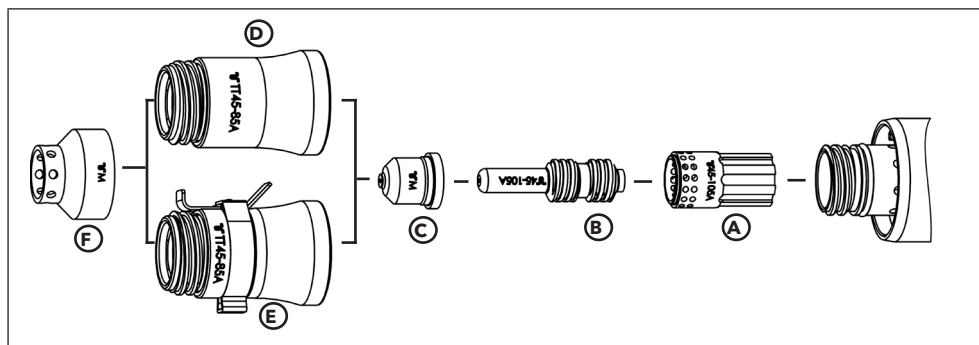
FHT-EX® 105TTM consumables for SmoothLine machine cutting torch

Item	Part number	Description
A	EX-5-404-052	Swirl ring 45-105 A
B	EX-5-401-051	Electrode 45-105 A
C	EX-5-410-050	Nozzle, SmoothLine
D	EX-5-415-050	Retaining cap 45-85 A
E	EX-5-415-052	Retaining cap 45-85 A with IHS tab
F	EX-5-422-050	Shield 40/45 A, machine, SmoothLine
G	EX-5-423-001	Deflector

- If a torch height controller is used, a retaining cap with IHS (initial height sensing) should be used.

** When used in countries that require CE conformity, the torch must be operated with a shield.

15.6.4 FHT-EX® 105TTM consumables for marking machine cutting torch

**Table 22**

FHT-EX® 105TTM consumables for marking machine cutting torch

Item	Part number	Description
A	EX-5-404-052	Swirl ring 45-105 A
B	EX-5-401-051	Electrode 45-105 A
C	EX-5-445-001	Nozzle, marking
D	EX-5-415-050	Retaining cap 45-85 A
E	EX-5-415-052	Retaining cap 45-85 A with IHS tab
F	EX-5-445-002	Shield, marking

- If a torch height controller is used, a retaining cap with IHS (initial height sensing) must be used.

16 ORDERING INFORMATION ON BULK PAKS AND STARTER KITS**Table 23** Bulk packs for EX-TRAFIRE® 105TTH and EX-TRAFIRE® 105TTM

Part number	Description
EX-5-401-061	Bulk pack - Electrode 45-105 A - 25 pcs.
EX-5-410-060	Bulk pack - nozzle, SmoothLine - 25 pcs.
EX-5-410-061	Bulk pack - nozzle 45 A - 25 pcs.
EX-5-410-063	Bulk pack - nozzle 65-85 A - 25 pcs.
EX-5-410-066	Bulk pack - nozzle 105A - 25 pcs.
EX-5-422-041	Bulk pack - shield 45-85 A, hand - 18 pcs.
EX-5-422-042	Bulk pack - shield 105A, hand - 18 pcs
EX-5-422-060	Bulk pack - shield SmoothLine, machine - 18 pcs.
EX-5-422-061	Bulk pack - shield 45-85 A, machine - 18 pcs.
EX-5-422-062	Bulk pack - shield 105A, machine - 18 pcs.

Table 24 Starter kits for EX-TRAFIRE® 105TTH and EX-TRAFIRE® 105TTM

Part number	Description
EX-5-432-051	Starter kit 65-85 A for FHT-EX® 105TTH hand torch
EX-5-432-054	Starter kit 105A for FHT-EX® 105TTH hand torch
EX-5-433-051	Starter kit 65-85 A for FHT-EX® 105TTM machine torch
EX-5-433-054	Starter kit 105A for FHT-EX® 105TTM machine torch

Each starter kit includes:

- 4 × Hand or machine shield
- 4 × Nozzle
- 4 × Electrode
- 1 × Swirl ring
- 1 × O-ring - torch body

17 CUT CHARTS FOR MECHANIZED CUTTING - METRIC UNITS

Cutting tables serve as a guideline for mechanical cutting. Individual systems can be "fine tuned" to achieve optimum cutting quality.

17.1 45 - 105 A cutting, shielded/ unshielded, with compressed air

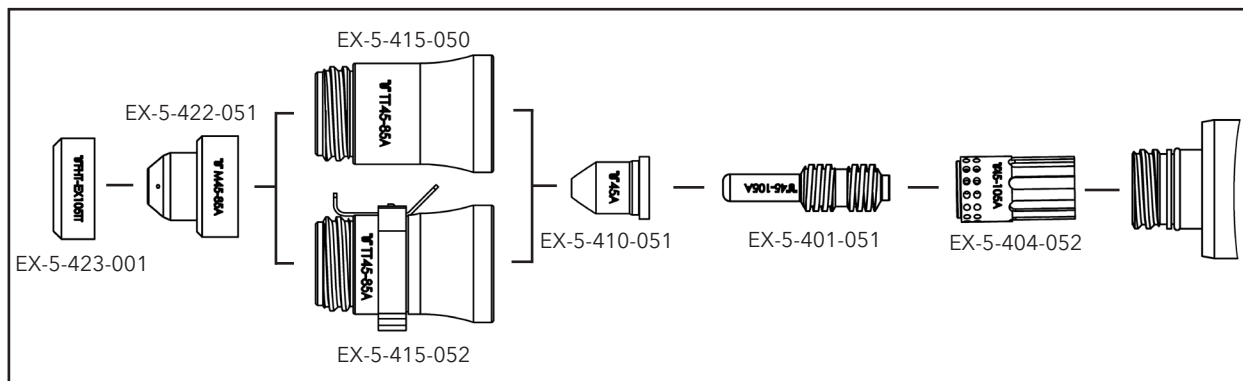
- **Recommended speed:**
Speeds adjusted for cutting capacity do not necessarily represent maximum speeds. They are the speeds that must be achieved for the specified material thickness.
- **Maximum speed:**
The maximum cutting speeds are the result of in-depth laboratory testing. Actual cutting speeds may vary due to different cutting applications.
- **Configuration without shield*:**
If consumables are used without a shield, either the torch must be manually adjusted to the working height, or the arc voltage control (AVC) settings must be selected to achieve the desired cutting quality.

Distance of torch to workpiece for configuration without shield
= distance of nozzle to workpiece.

CONFIGURATION WITHOUT SHIELD	
Cutting	Distance of nozzle to workpiece
45 , 65 A	+3 mm
85 A	+2.75 mm
105 A	+4.55 mm
40 - 45A SmoothLine	+2.15 mm

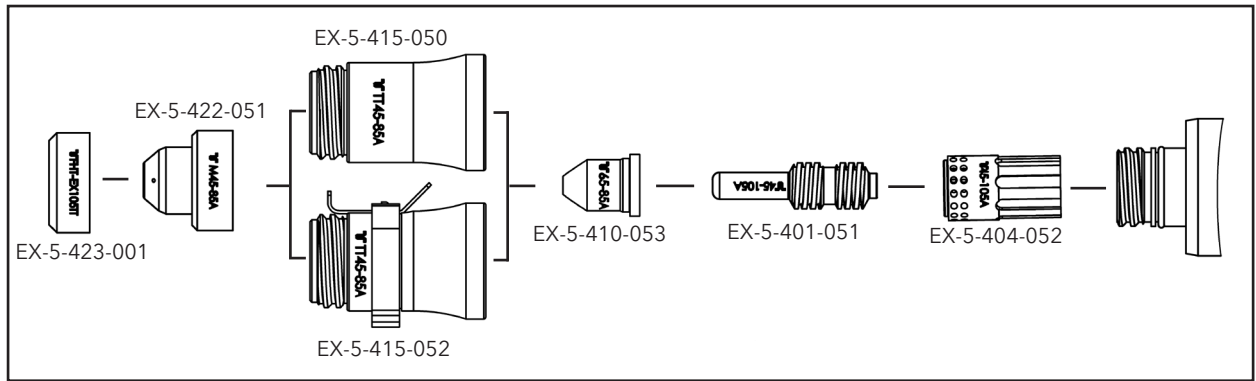
* When used in countries that require CE conformity, the torch must be operated with a shield.

17.1.1 45 A cutting, shielded, with compressed air, dynamic pressure 5.2 bar at approx. 82 l/min gas flow



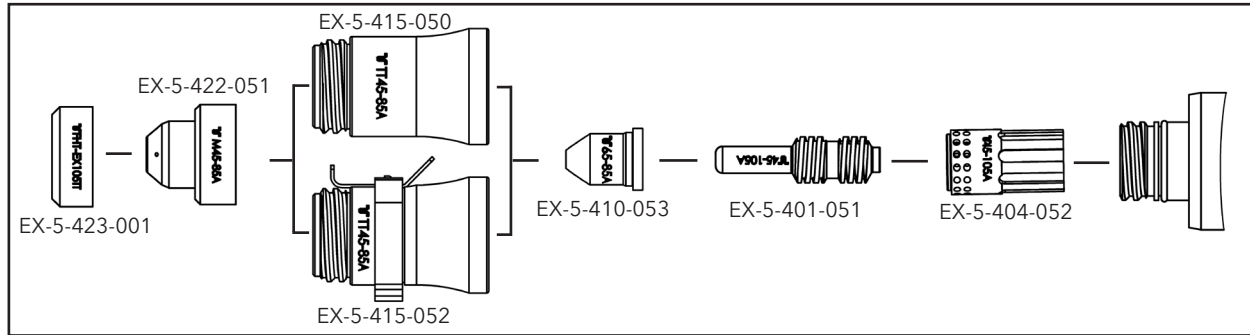
Material thickness [mm]	Cut height (shield to work cut height) [mm]	Pierce height (shield to workpiece height) [mm]	Pierce delay time [Seconds]	Recommended Speed		Maximum Speed		Kerf width [mm]	
				Settings for highest quality		Standard quality settings			
				Cutting Speed [mm/min]	Voltage [Volts]	Cutting Speed [mm/min]	Voltage [Volts]		
Mild steel									
2	1.9	3.5	0.1	5600	114	6630	114	1.4	
3			0.1	3950	122	4850	123	1.4	
4			0.3	2900	126	3400	126	1.4	
6			0.5	1500	128	1790	126	1.6	
8			0.5	1050	135	1200	134	1.7	
10		4	0.6	760	135	850	135	1.8	
12		4.5	1	540	139	610	139	1.8	
16		Edge start			290	145	340	145	2
20		Edge start			170	152	210	152	2.2
25		Edge start			110	155	150	156	2.2
Stainless steel									
2	1.9	3.5	0.1	5300	119	7600	121	1	
3			0.2	3000	128	4400	130	1.3	
4			0.4	1900	129	2900	131	1.4	
6			0.6	1000	134	1600	136	1.6	
8			0.6	720	139	950	141	1.6	
10		4.8	0.8	500	140	750	142	1.6	
12		5.2	1.2	320	142	500	144	1.8	
16		Edge start			230	148	320	150	2
20		Edge start			160	150	200	152	2
Aluminium									
2	1.9	3.5	0.1	7850	128	9500	130	1.1	
3			0.2	3900	135	6000	137	1.5	
4			0.4	3600	131	5600	133	1.5	
6			0.5	2000	135	3050	137	1.5	
8			0.6	1300	136	1800	138	1.6	
10		4	0.7	860	144	1020	146	1.7	
12		Edge start			620	148	745	152	1.7
16		Edge start			340	154	370	156	1.7

17.1.2 65 A cutting, shielded, with compressed air, dynamic pressure 5.2 bar at approx. 87 l/min gas flow



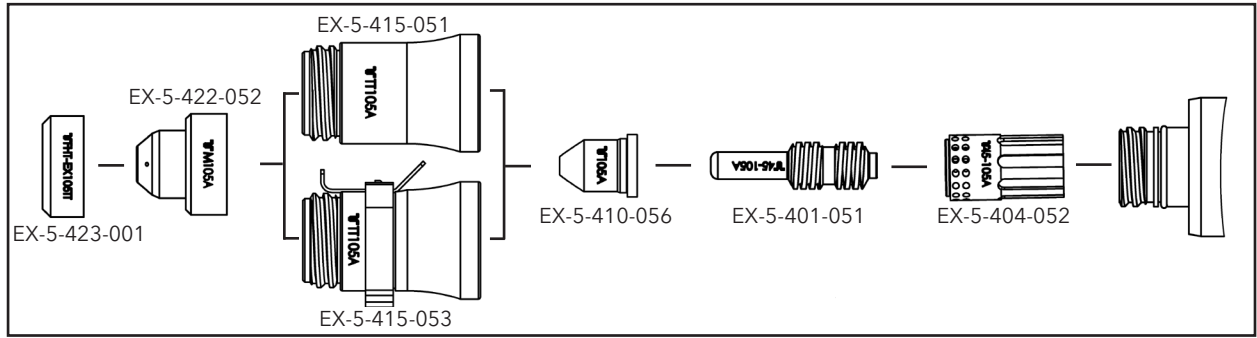
Material thickness [mm]	Cut height (shield to work cut height) [mm]	Pierce height (shield to workpiece height) [mm]	Pierce delay time [Seconds]	Recommended Speed		Maximum Speed		Kerf width [mm]	
				Settings for highest quality		Standard quality settings			
				Cutting Speed [mm/min]	Voltage [Volts]	Cutting Speed [mm/min]	Voltage [Volts]		
Mild steel									
2	1.9	3.5	0.1	6200	117	7500	117	1.6	
3			0.1	5000	117	5700	117	1.6	
4			0.3	4100	122	4590	123	1.6	
6			0.5	2100	125	2890	125	1.7	
8			0.5	1700	127	1950	128	1.7	
10		4	0.8	1050	129	1300	129	1.9	
12			1	870	132	970	132	2	
16		4.5	1.3	600	141	680	140	2.2	
20			Edge start		370	140	440	140	2.2
25			Edge start		210	150	290	150	2.3
Stainless steel									
2	1.9	3.8	0.1	8000	117	10000	119	1.3	
3			0.2	6500	119	8200	121	1.3	
4			0.5	5000	122	6100	124	1.3	
6			0.5	2350	129	2700	131	1.7	
8			0.8	1400	128	1750	130	1.7	
10		5	1	900	131	1200	133	2	
12			7	700	136	870	138	2	
16		Edge start	Edge start		480	136	550	138	2
20			Edge start		270	143	370	145	2
Aluminium									
2	1.9	3.5	0.1	8700	121	10000	123	1.4	
3			0.1	7200	122	8800	124	1.4	
4			0.3	6000	122	7300	124	1.4	
6			0.4	3000	132	4400	134	1.8	
8			0.5	1800	134	2600	136	1.9	
10		4	0.8	1200	141	1650	143	1.9	
12			1	900	146	1300	148	1.9	
16		Edge start	Edge start		650	148	700	150	1.9
20			Edge start		380	152	560	154	1.9

17.1.3 85 A cutting, shielded, with compressed air, dynamic pressure 5.2 bar at approx. 101 l/min gas flow



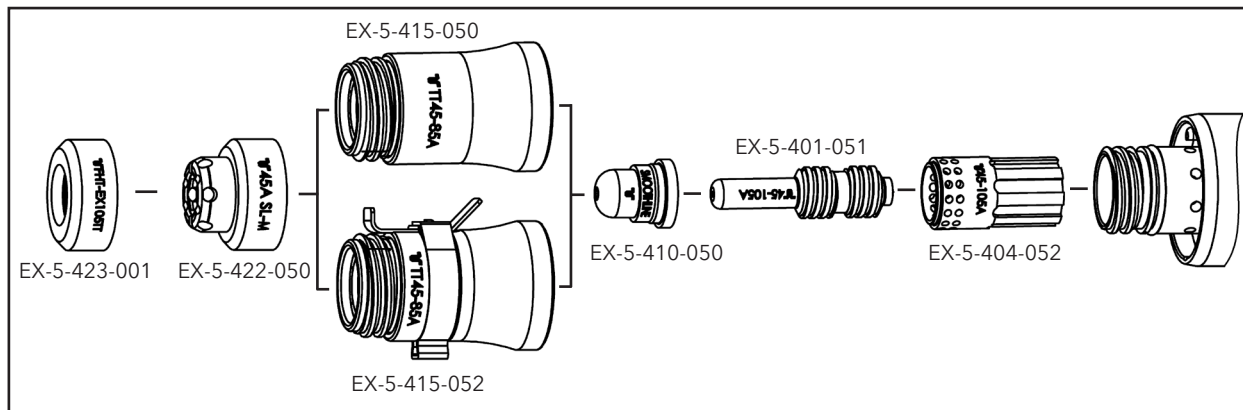
Material thickness [mm]	Cut height (shield to work cut height) [mm]	Pierce height (shield to workpiece height) [mm]	Pierce delay time [Seconds]	Recommended Speed		Maximum Speed		Kerf width [mm]	
				Settings for highest quality					
				Cutting Speed [mm/min]	Voltage [Volts]	Cutting Speed [mm/min]	Voltage [Volts]		
Mild steel									
3	2.1	3.5	0.1	6400	114	7225	115	1.6	
4			0.2	4700	122	3100	122	1.6	
6			0.5	3100	120	3825	122	1.9	
8			0.5	2400	127	2635	126	1.9	
10			0.5	1600	128	1800	128	1.9	
12		4	0.8	1100	128	1360	127	2.1	
16			1	790	132	850	132	2.1	
20		5	1.8	490	138	535	140	2.2	
25		Edge start			320	145	366	145	2.2
30		Edge start			160	151	213	150	2.6
Stainless steel									
3	2.1	3.5	0.2	7400	120	9200	122	1.4	
4			0.5	6100	122	7500	124	1.4	
6			0.5	3600	124	4600	126	1.5	
8			0.5	2300	132	2800	134	1.6	
10		4	0.8	1500	128	1900	130	1.9	
12			5	1.2	1000	132	1300	134	1.8
16		1.4		700	133	760	135	2	
20		Edge start			480	141	570	143	2.1
25		Edge start			300	142	370	144	2.1
Aluminium									
3	2.1	3.5	0.1	8000	128	9400	130	1.6	
4			0.2	6500	124	8000	125	1.6	
6		4	0.5	3800	125	4900	127	1.6	
8			0.5	2600	132	3500	134	1.7	
10		6	0.5	1900	135	2500	137	2	
12			7	0.7	1450	137	1900	139	2.1
16		1		950	141	1200	143	2.1	
20		Edge start			600	151	880	153	2.1
25		Edge start			380	152	540	154	2.1

17.1.4 105 A cutting, shielded, with compressed air, dynamic pressure 4.8 bar at approx. 156 l/min gas flow



Material thickness [mm]	Cut height (shield to work cut height) [mm]	Pierce height (shield to workpiece height) [mm]	Pierce delay time [Seconds]	Recommended Speed		Maximum Speed		Kerf width [mm]	
				Settings for highest quality		Standard quality settings			
				Cutting Speed [mm/min]	Voltage [Volts]	Cutting Speed [mm/min]	Voltage [Volts]		
Mild steel									
6	3.2	6.4	0.3	4100	138	5100	139	1.9	
8			0.4	3200	140	3900	142	2.3	
10			0.5	2260	143	2790	144	2.3	
12			0.5	1690	145	1980	148	2.5	
16			1	1060	148	1310	150	2.6	
20			1	780	153	940	154	2.7	
25		Edge start			550	157	580	158	3
30					350	163	410	165	3
35					290	168	320	170	3
40					190	177	210	178	3
Stainless steel									
6	3.2	6.4	0.3	4800	141	6000	143	1.8	
8			0.4	3000	143	3600	145	2	
10			0.5	2100	144	2500	146	2	
12			0.5	1450	145	1860	147	2	
16			1	920	150	1080	152	2.1	
20		7	2	610	157	800	159	2.4	
25		Edge start			490	157	530	159	2.5
30					310	162	350	164	2.5
32					280	165	310	167	2.5
Aluminium									
6	3.2	6.4	0.3	5980	148	7090	150	2	
8			0.4	4170	150	5020	152	2	
10			0.5	2640	148	3280	150	2.2	
12			0.5	1970	154	2450	156	2.3	
16			0.5	1290	156	1660	158	2.3	
20		7.5	1	1020	158	1190	160	2.3	
25		Edge start			660	165	790	167	2.3
30					430	169	570	171	2.7
32					340	173	490	175	2.7

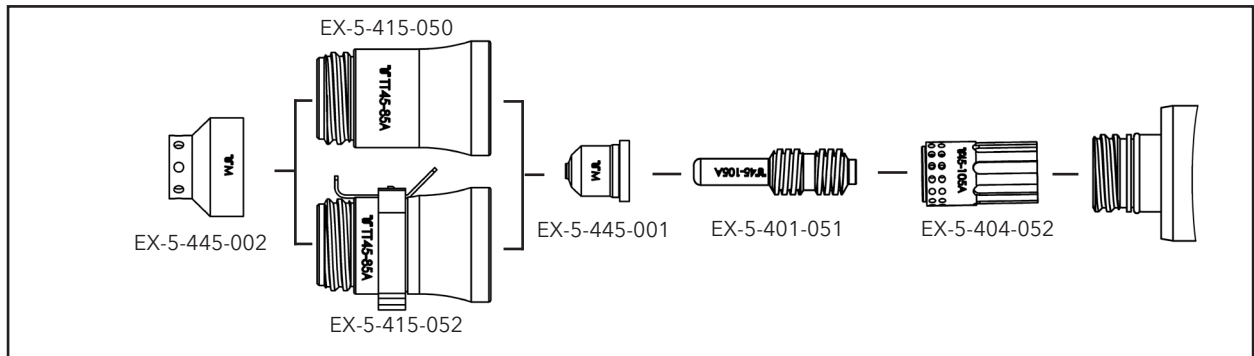
17.1.5 40-45 A cutting, SmoothLine, shielded, with compressed air, dynamic pressure 5.2 bar at approx. 82 l/min gas flow



Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Kerf width	Power supply
				Settings for highest quality			
				Cutting Speed	Voltage		
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm]	[A]
Mild steel							
0.5	2	3	0	8250	80	0.7	40
0.6			0	8250	80	0.7	
0.8			0.1	8250	80	0.7	
1			0.2	8250	80	0.7	45
1.5			0.4	6400	80	0.95	
2			0.4	4800	93	1	
3			0.5	2750	95	1.25	
4			0.6	1900	97	1.35	
Stainless steel							
0.5	2	3	0	8250	74	0.65	40
0.6			0	8250	74	0.65	
0.8			0.1	8250	74	0.65	
1			0.15	8250	74	0.7	45
1.5			0.4	6150	75	0.7	
2			0.4	4320	84	0.9	
3			0.5	2085	94	1.1	
4			0.6	895	96	1.1	

17.2 Tables for marking

17.2.1 Marking, shielded, with compressed air or argon, dynamic pressure 2.4 bar at approx. 39 l/min gas flow



With compressed air

Marking	Power supply	Cut height (shield to work cut height)	Initial marking height	Delay	Marking speed	Arc voltage	Kerf width	Kerf depth
	[Amps]							
Mild steel								
Light	10	6.4	6.4	0	2540	127	1.4	<0.02
Heavy	10	4.6	4.6	0	2540	109	1.62	0.02
Stainless steel								
Light	10	5.1	5.1	0	5080	116	1.96	0.02
Heavy	10	6.4	6.4	0	3175	128	2.29	0.05
Aluminium								
	11	1	1	0	5080	80	0.92	<0.02

With argon

Marking	Power supply	Cut height (shield to work cut height)	Initial marking height	Pierce delay time	Marking speed	Arc voltage	Kerf width	Kerf depth
	[Amps]							
Mild steel								
Light	10	2	2	0	3175	41	1.62	<0.02
Heavy	15	1.5	1.5	0	3175	41	1.2	0.02
Stainless steel								
Light	12	2.5	2.5	0	3175	43	1.40	<0.02
Heavy	15	2.5	2.5	0	2540	43	1.50	<0.02
Aluminium								
	16	0.5	0.5	0	4445	39	0.6	<0.02

18 CUT CHARTS FOR MECHANIZED CUTTING - IMPERIAL UNITS

Cutting tables serve as a guideline for mechanical cutting. Individual systems can be "fine tuned" to achieve optimum cutting quality.

18.1 45 - 105 A cutting, shielded/ unshielded, with compressed air

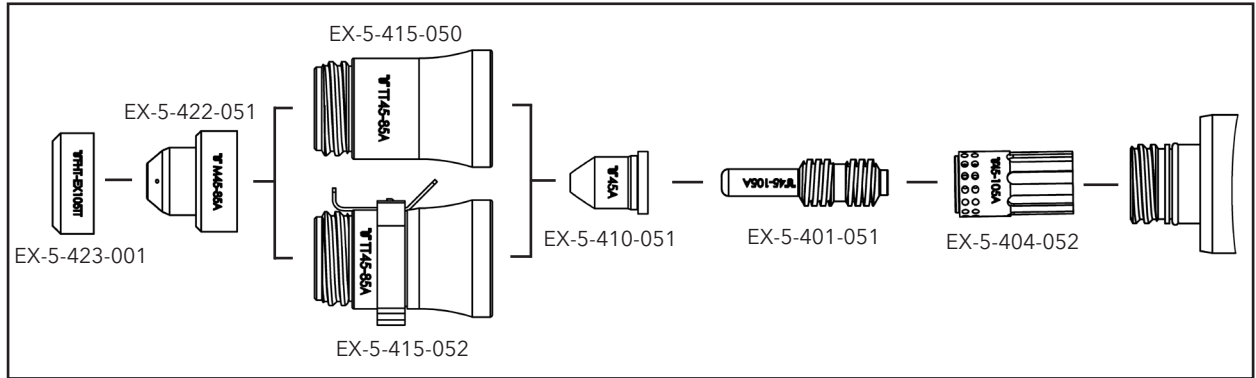
- **Recommended speed:**
Speeds adjusted for cutting capacity do not necessarily represent maximum speeds. They are the speeds that must be achieved for the specified material thickness.
- **Maximum speed:**
The maximum cutting speeds are the result of in-depth laboratory testing. Actual cutting speeds may vary due to different cutting applications.
- **Configuration without shield*:**
If consumables are used without a shield, either the torch must be manually adjusted to the working height, or the arc voltage control (AVC) settings must be selected to achieve the desired cutting quality.

Distance of torch to workpiece for configuration without shield
= distance of nozzle to workpiece.

CONFIGURATION WITHOUT SHIELD	
Cutting	Distance of nozzle to workpiece
45 , 65 A	+0.12 in
85 A	+0.10 in.
105 A	+0.18 in
40 - 45A SmoothLine	+0.08 in

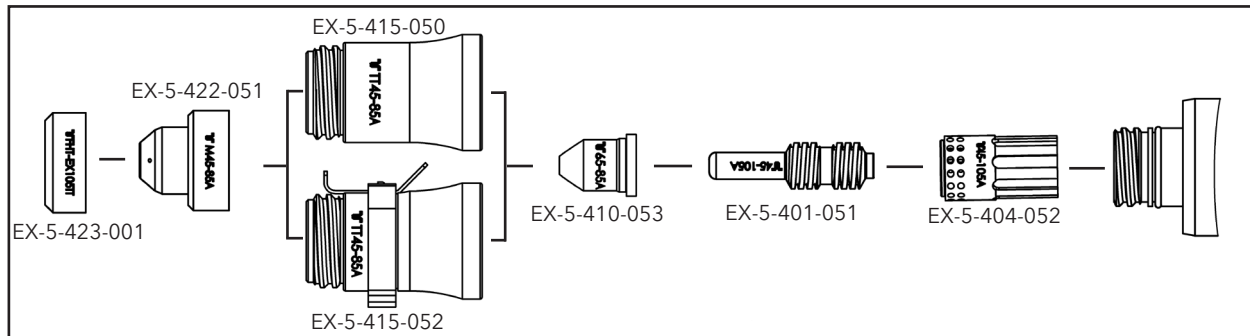
* When used in countries that require CE conformity, the torch must be operated with a shield.

18.1.1 45 A cutting, shielded, with compressed air, dynamic pressure 75 psi at approx. 2.9 CFM gas flow



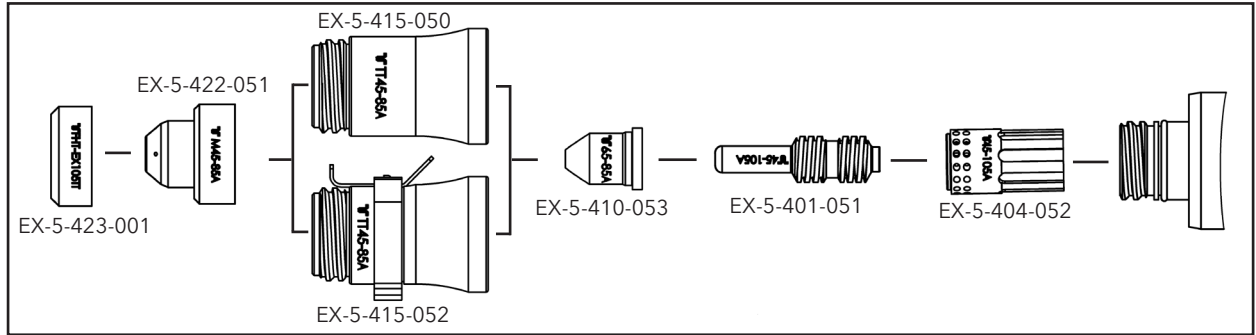
Material thickness [in]	Cut height (shield to work cut height) [in]	Pierce height (shield to workpiece height) [in]	Pierce delay time [Seconds]	Recommended Speed		Maximum Speed		Kerf width [in]	
				Settings for highest quality		Standard quality settings			
				Cutting Speed [ipm]	Voltage [Volts]	Cutting Speed [ipm]	Voltage [Volts]		
Mild steel									
14 GA	0.075	0.138	0.1	220	114	261	114	0.055	
12 GA			0.1	155	122	191	123	0.055	
3/16			0.3	114	126	134	126	0.055	
1/4			0.5	59	128	70	126	0.063	
5/16			0.5	41	135	47	134	0.069	
3/8		0.157	0.6	30	135	33	135	0.071	
1/2		0.177	1	21	139	24	139	0.071	
5/8		Edge start			11	145	13	145	0.079
3/4		Edge start			7	152	8	152	0.087
1		Edge start			4	155	6	156	0.087
Stainless steel									
14 GA	0.075	0.138	0.1	209	119	299	121	0.039	
12 GA			0.2	118	128	173	130	0.051	
3/16			0.4	75	129	114	131	0.055	
1/4			0.6	39	134	63	136	0.063	
5/16		0.157	0.6	28	139	37	141	0.063	
3/8		0.189	0.8	20	140	30	142	0.063	
1/2		0.205	1.2	13	142	20	144	0.071	
5/8		Edge start			9	148	13	150	0.079
3/4		Edge start			6	150	8	152	0.079
Aluminium									
14 GA	0.075	0.138	0.1	309	128	373	130	0.043	
12 GA			0.2	153	135	236	137	0.059	
3/16			0.4	142	131	220	133	0.059	
1/4			0.5	79	135	120	137	0.059	
5/16			0.6	51	136	71	138	0.063	
3/8		0.157	0.7	34	144	40	146	0.069	
1/2		Edge start			24	148	29	152	0.069
5/8		Edge start			13	154	15	156	0.069

18.1.2 65 A cutting, shielded, with compressed air, dynamic pressure 75 psi at approx. 3.0 CFM gas flow



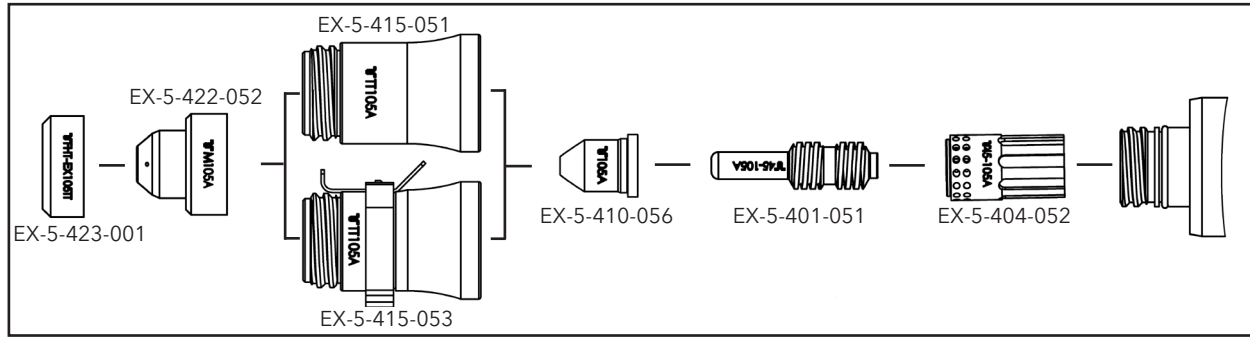
Material thickness [in]]	Cut height (shield to work cut height) [in]]	Pierce height (shield to workpiece height) [in]]	Pierce delay time [Seconds]	Recommended Speed		Maximum Speed		Kerf width [in]]	
				Settings for highest quality		Standard quality settings			
				Cutting Speed [ipm]	Voltage [Volts]	Cutting Speed [ipm]	Voltage [Volts]		
Mild steel									
14 GA	0.075	0.138	0.1	244	117	295	117	0.063	
12 GA			0.1	197	117	224	117	0.063	
3/16			0.3	161	122	181	123	0.063	
1/4			0.5	83	125	114	125	0.069	
5/16			0.5	67	127	77	128	0.069	
3/8		0.157	0.8	41	129	51	129	0.075	
1/2			1	34	132	38	132	0.079	
5/8		0.177	1.3	24	141	27	140	0.087	
3/4		Edge start			15	140	17	140	0.087
1		Edge start			8	150	11	150	0.091
Stainless steel									
14 GA	0.075	0.150	0.1	315	117	393	119	0.051	
12 GA			0.2	256	119	323	121	0.051	
3/16			0.5	197	122	240	124	0.051	
1/4			0.5	92	129	106	131	0.069	
5/16			0.8	55	128	69	130	0.069	
3/8		0.197	1	35	131	47	133	0.079	
1/2		0.276	1.2	28	136	34	138	0.079	
5/8		Edge start			19	136	22	138	0.079
3/4		Edge start			11	143	15	145	0.079
Aluminium									
14 GA	0.075	0.138	0.1	342	121	393	123	0.055	
12 GA			0.1	283	122	346	124	0.055	
3/16			0.3	236	122	287	124	0.055	
1/4			0.4	118	132	173	134	0.071	
5/16			0.5	71	134	102	136	0.075	
3/8		0.157	0.8	47	141	65	143	0.075	
1/2			1	35	146	51	148	0.075	
5/8		Edge start			26	148	28	150	0.075
3/4		Edge start			15	152	22	154	0.075

18.1.3 85 A cutting, shielded, with compressed air, dynamic pressure 75 psi at approx. 3.5 CFM gas flow



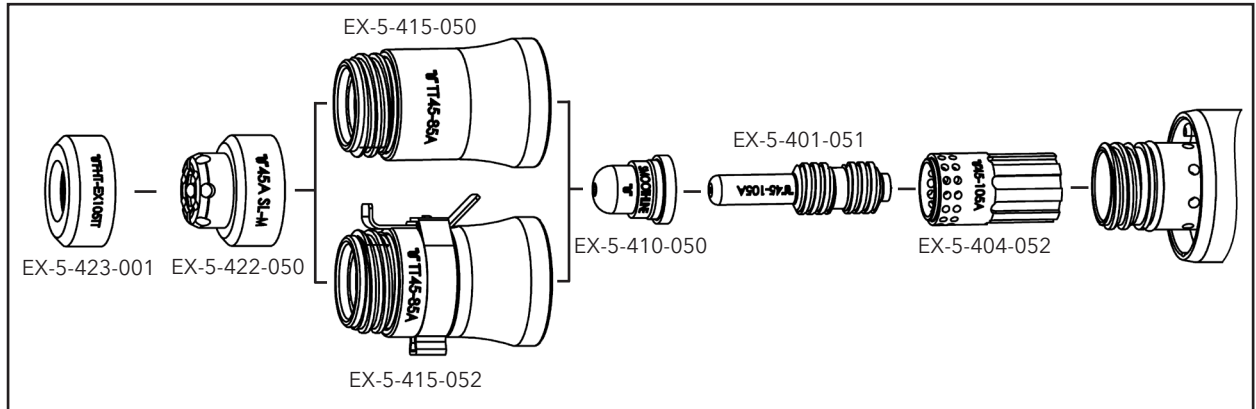
Material thickness [in]	Cut height (shield to work cut height) [in]	Pierce height (shield to workpiece height) [in]	Pierce delay time [Seconds]	Recommended Speed		Maximum Speed		Kerf width [in]	
				Settings for highest quality		Standard quality settings			
				Cutting Speed [ipm]	Voltage [Volts]	Cutting Speed [ipm]	Voltage [Volts]		
Mild steel									
12 GA	0.083	0.138	0.1	252	114	284	115	0.063	
3/16			0.2	185	122	122	122	0.063	
1/4			0.5	122	120	150	122	0.075	
5/16			0.5	94	127	104	126	0.075	
3/8			0.5	63	128	71	128	0.075	
1/2		0.157	0.8	43	128	54	127	0.083	
5/8			1	31	132	33	132	0.083	
3/4		0.197	1.8	19	138	21	140	0.087	
1		Edge start			13	145	14	145	0.087
1-1/8		Edge start			6	151	8	150	0.102
Stainless steel									
12 GA	0.083	0.138	0.2	291	120	362	122	0.055	
3/16			0.5	240	122	295	124	0.055	
1/4			0.5	142	124	181	126	0.059	
5/16			0.5	90	132	110	134	0.063	
3/8		0.157	0.8	59	128	75	130	0.075	
1/2		0.197	1.2	39	132	51	134	0.071	
5/8			1.4	28	133	30	135	0.079	
3/4		Edge start			19	141	22	143	0.083
1		Edge start			12	142	15	144	0.083
Aluminium									
12 GA	0.083	0.138	0.1	315	128	370	130	0.063	
3/16			0.2	256	124	315	125	0.063	
1/4		0.157	0.5	150	125	193	127	0.063	
5/16		0.197	0.5	102	132	138	134	0.069	
3/8		0.236	0.5	75	135	98	137	0.079	
1/2		0.276	0.7	57	137	75	139	0.083	
5/8			1	37	141	47	143	0.083	
3/4		Edge start			24	151	35	153	0.083
1		Edge start			15	152	21	154	0.083

18.1.4 105 A cutting, shielded, with compressed air, dynamic pressure 70 psi at approx. 5.5 CFM gas flow



Material thickness [in]	Cut height (shield to work cut height) [in]	Pierce height (shield to workpiece height) [in]	Pierce delay time [Seconds]	Recommended Speed		Maximum Speed		Kerf width [in]	
				Settings for highest quality		Standard quality settings			
				Cutting Speed [ipm]	Voltage [Volts]	Cutting Speed [ipm]	Voltage [Volts]		
Mild steel									
1/4	0.126	0.252	0.3	161	138	201	139	0.075	
5/16			0.4	126	140	153	142	0.091	
3/8			0.5	89	143	110	144	0.091	
1/2			0.5	66	145	78	148	0.098	
5/8			1	42	148	52	150	0.102	
3/4			1	31	153	37	154	0.106	
1		Edge start			22	157	23	158	0.118
1-1/8					14	163	16	165	0.118
1-1/4					11	168	13	170	0.118
1-1/2					8	177	8	178	0.118
Stainless steel									
1/4	0.126	0.252	0.3	189	141	236	143	0.071	
5/16			0.4	118	143	142	145	0.079	
3/8			0.5	83	144	98	146	0.079	
1/2			0.5	57	145	73	147	0.079	
5/8			1	36	150	42	152	0.083	
3/4		0.276	2	24	157	31	159	0.094	
1		Edge start			19	157	21	159	0.098
1-1/8					12	162	14	164	0.098
1-1/4					11	165	12	167	0.098
Aluminium									
1/4	0.126	0.252	0.3	235	148	279	150	0.079	
5/16			0.4	164	150	198	152	0.079	
3/8			0.5	104	148	129	150	0.087	
1/2			0.5	78	154	96	156	0.091	
5/8			0.5	51	156	65	158	0.091	
3/4		0.295	1	40	158	47	160	0.091	
1		Edge start			26	165	31	167	0.091
1-1/8					17	169	22	171	0.106
1-1/4					13	173	19	175	0.106

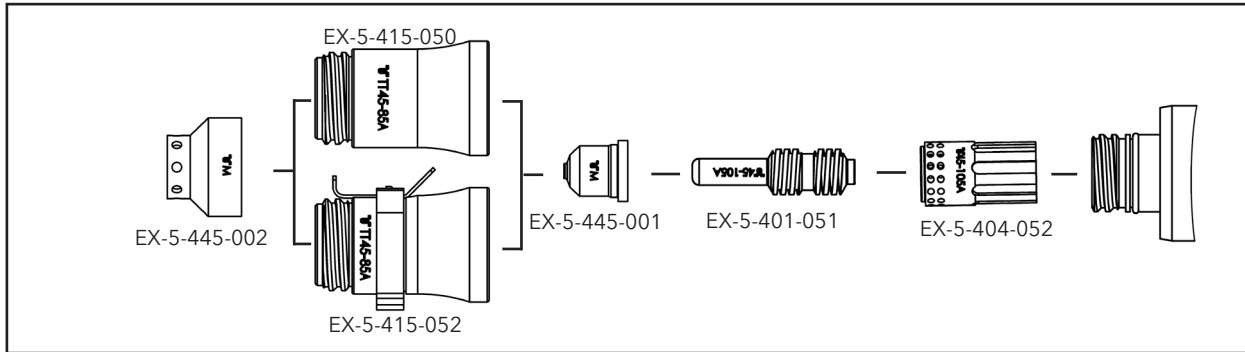
18.1.5 40-45 A cutting, SmoothLine, shielded, with compressed air, dynamic pressure 75 psi at approx. 2.9 CFM gas flow



Material thickness [in]	Cut height (shield to work cut height) [in]	Pierce height (shield to workpiece height) [in]	Pierce delay time [Seconds]	Recommended Speed		Kerf width [in]	Power supply [A]
				Settings for highest quality			
				Cutting Speed [ipm]	Voltage [Volts]		
Mild steel							
26 GA	0.079	0.118	0	325	80	0.028	40
24 GA			0	325	80	0.028	
22 GA			0.1	325	80	0.028	
20 GA			0.2	325	80	0.028	
16 GA			0.4	252	80	0.037	45
14 GA			0.4	189	93	0.039	
12 GA			0.5	108	95	0.049	
3/16			0.6	75	97	0.053	
Stainless steel							
26 GA	0.079	0.118	0	325	74	0.65	40
24 GA			0	325	74	0.65	
22 GA			0.1	325	74	0.65	
20 GA			0.15	325	74	0.028	
16 GA			0.4	242	75	0.028	45
14 GA			0.4	170	84	0.037	
12 GA			0.5	82	94	0.043	
3/16			0.6	35	96	0.043	

18.2 Tables for marking

18.2.1 Marking, shielded, with compressed air or argon, dynamic pressure 35 psi at approx. 1.4 CFM gas flow



With compressed air								
Marking	Power supply	Cut height (shield to work cut height)	Initial marking height	Delay	Marking speed	Arc voltage	Kerf width	Kerf depth
	[Amps]							
Mild steel								
Light	10	0.252	0.252	0	100	127	0.055	<0.001
Heavy	10	0.181	0.181	0	100	109	0.064	0.001
Stainless steel								
Light	10	0.201	0.201	0	200	116	1.96	0.001
Heavy	10	0.252	0.252	0	125	128	2.29	0.002
Aluminium								
	11	0.039	0.039	0	200	80	0.036	<0.001
With argon								
Marking	Power supply	Cut height (shield to work cut height)	Initial marking height	Pierce delay time	Marking speed	Arc voltage	Kerf width	Kerf depth
	[Amps]							
Mild steel								
Light	10	0.079	0.079	0	125	41	0.064	<0.001
Heavy	15	0.059	0.059	0	125	41	0.047	0.001
Stainless steel								
Light	12	0.098	0.098	0	125	43	0.055	<0.001
Heavy	15	0.098	0.098	0	100	43	0.059	<0.001
Aluminium								
	16	0.020	0.020	0	175	39	0.024	<0.001

Contact and support

Scan for more information:



Revision history

You can find the latest version of the operator manual on our website:

www.thermacut.com or www.ex-trafire.us

Revision R1/08_2025

Revision R2/01_2026

– 17, 18 "Cut charts for mechanized cutting" - information about dynamic pressure and gas flow added



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EX-5-900-005 / N24121 / BAL.1332 • 2026-01-30

