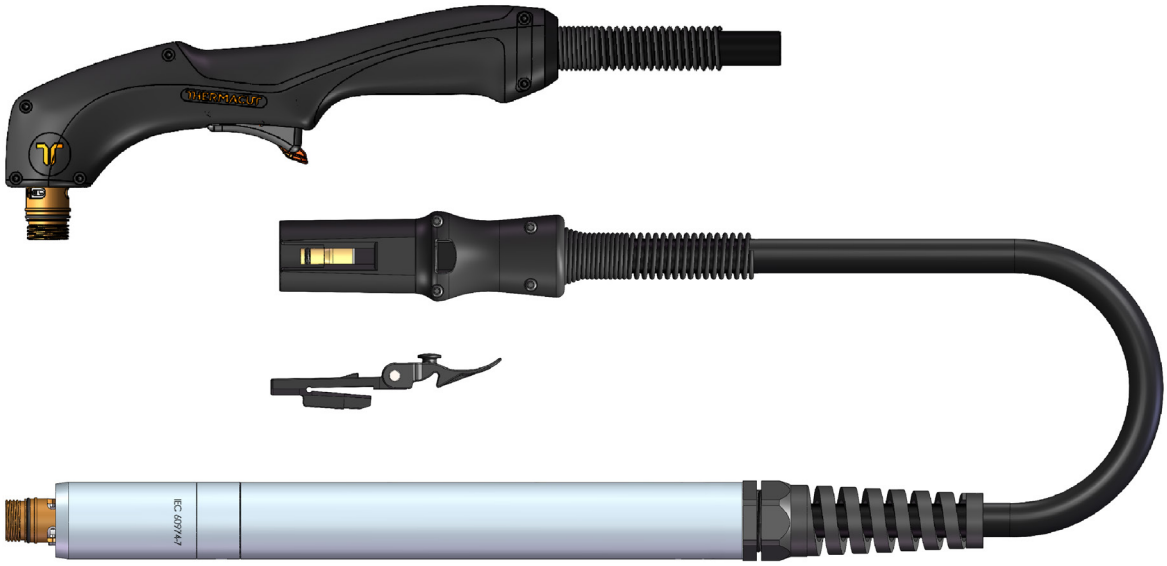


EX-TRAFIRE®

FHT-EX®105TTXH PLASMA ARC HAND CUTTING TORCH
and
FHT-EX®105TTXM PLASMA ARC MACHINE CUTTING TORCH

Operating Manual – CE/ CSA/ RCM

Revision Date: December, 2025

Revision Number: 1

Language: EN

THERMACUT®
THE CUTTING COMPANY®

EX-5-900-006
N-24122

Table of contents

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®105TTX 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®105TTX cutting torches only.

For enquiries, please have on hand the order and serial number of the torch units as seen on pages EN-37, 43.

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.

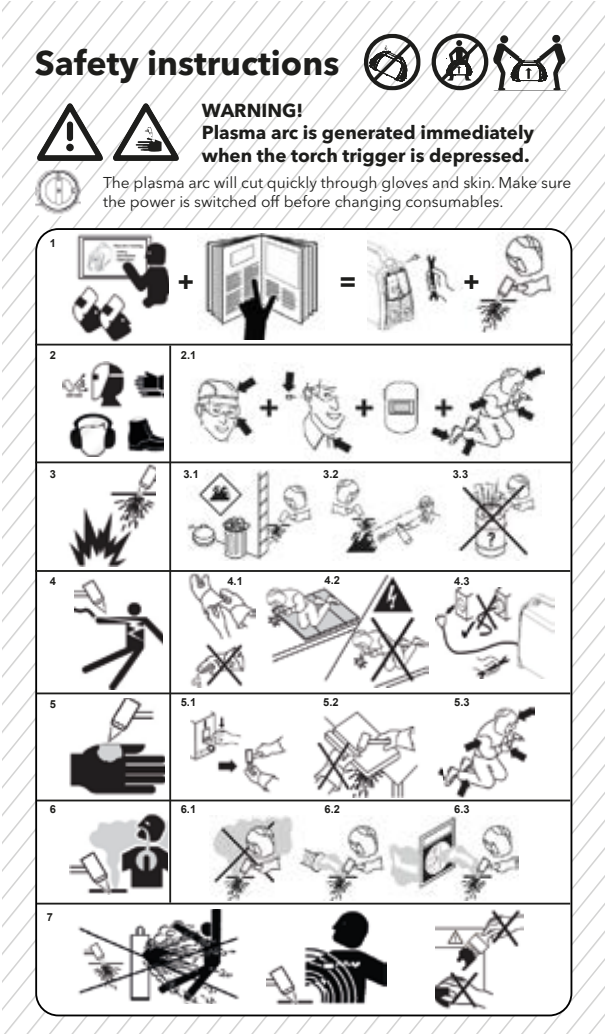
- Keep untrained persons out of the work area.
- Keep the routine inspection of torches - see page EN-29.

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 SCOPE OF DELIVERY

The following components are included in the scope of supply:

- 1× FHT-EX® 105TTXH or FHT-EX® 105TTXM cutting torch
- 1× work lead incl. workpiece clamp
- 1× operating instructions
- 1× starter kit

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®105TTXH and FHT-EX®105TTXM cutting torches

	FHT-EX®105TTXH / FHT-EX®105TTXM
Recommended cutting capacity	35 mm (13/8 in)
Max. cutting capacity	50mm (2 in)
Separating cut capacity	50mm (2 in)
Piercing capacity	20mm (0.787 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	Plasma cutting, gouging
Application type	Manual and mechanized
Rated current and duty cycle	105 A/100%
Permissible gas	Compressed air/nitrogen/argon*
Flow rate	100 A/105 A approx. 135 l/min. (4.8 CFM) at 4.8 bar (70 psi)
	75 A/85 A approx. 110 l/min. (3.9 CFM) at 5.2 bar (75 psi)
	55 A /65 A approx. 98 l/min. (3.5 CFM) at 5.2 bar (75 psi)
	45 A approx. 87 l/min. (3.1 CFM) at 5.2 bar (75 psi)
Flow rate for gouging	100 A/105 A approx. 145 l/min. (5.1 CFM) at 3.2 bar (46 psi)
	45–85 A approx. 122 l/min. (4.3 CFM) at 3.2 bar (46 psi)
Maximum inlet pressure	10 bar (145 psi)
Gas post-flow period delay	approx. 30 seconds
Type of voltage	DC
Type of protection	IP23S (EN 60529)
Connection type	TCS (torch connection system) – 13 pin
Standard lengths (other lengths available upon request)	8 m (26')/15 m (50')

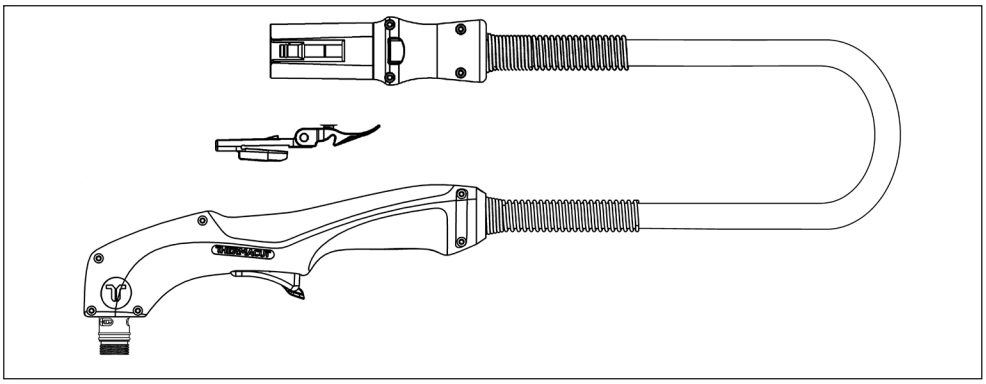
* Nitrogen may be used for cutting stainless steel and aluminum; argon may be used only in connection with the optional marking kit.

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

Cutting torch	Weight and cable lengths
FHT-EX®105TTXH Standard hand cutting torch	8 m (26') / 3.3 kg (7.3 lb) 15 m (50') /5.6 kg (12.3 lb)
FHT-EX®105TTXM Standard machine cutting torch	8 m (26') / 3.4 kg (7.5 lb) 15 m (50') / 5.9 kg (13 lb)

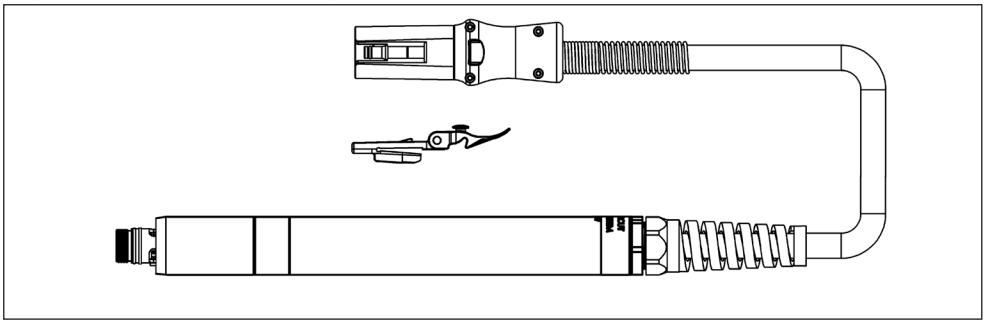
Cutting torch FHT-EX®105TTXH

Fig. 3 Cutting torch FHT-EX®105TTXH



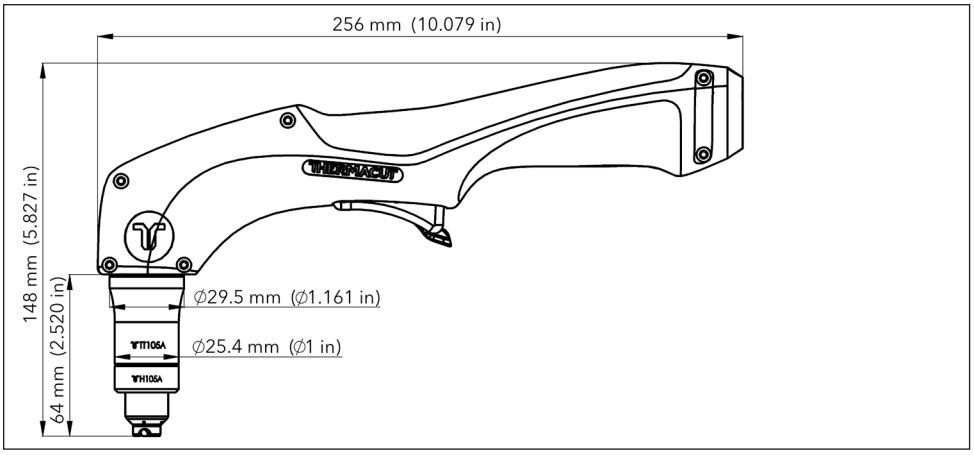
Cutting torch FHT-EX®105TTXM

Fig. 4 Standatd cutting torch FHT-EX®105TTXM



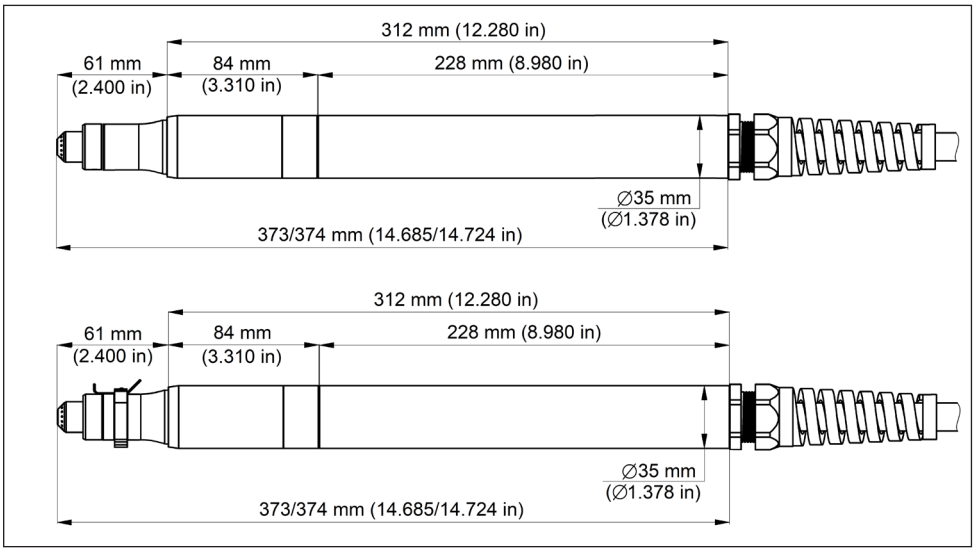
4.1.1 Torch dimensions FHT-EX®105TTXH

Fig. 5 Torch dimensions FHT-EX®105TTXH



4.1.2 Torch dimensions FHT-EX®105TTXM

Fig. 6 Torch dimensions FHT-EX®105TTXM



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

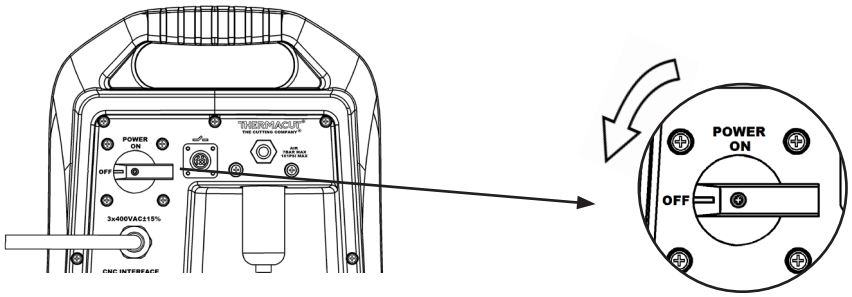
NOTICE

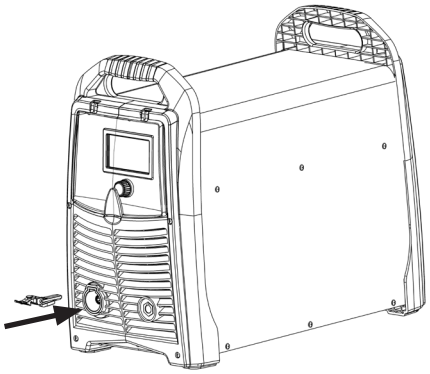
Risk of material damage if used without TCS Latch with Key Assembly

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

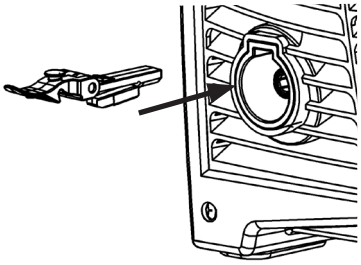
- Do not use the device without the TCS Latch with Key assembly installed and properly secured.

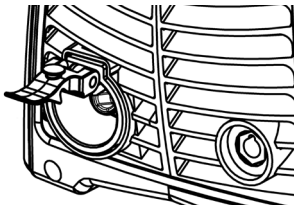
1 Switch off the power supply.



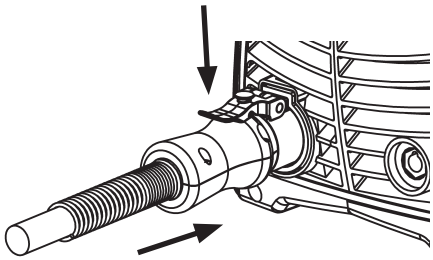


2 Insert the TCS Latch with Key Assembly into the TCS socket.





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.

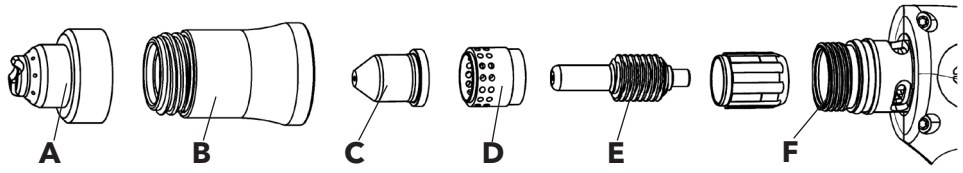
- Hold the tip of the torch away from you.
- Do not hold the workpiece to be cut tightly and keep your hands away from the cutting surface.
- Do not point the cutting torch at yourself or other individuals.
- Wear your personal protective equipment.

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

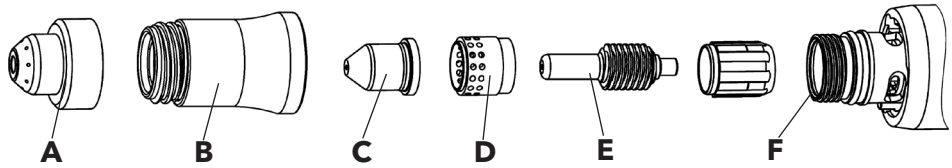
Fig. 7 FHT-EX®105TTX cutting torch consumables

A Shield
B Retaining cap
C Nozzle
D Electrode
E Swirl ring
F Hand cutting torch / Machine cutting torch

Hand cutting torch

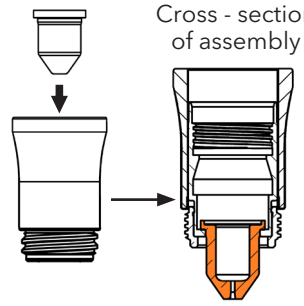


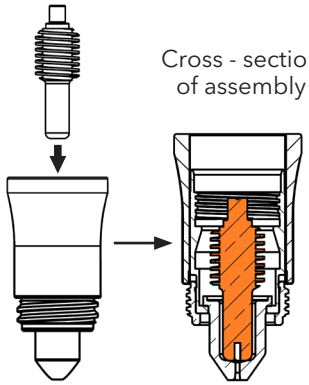
Machine cutting torch

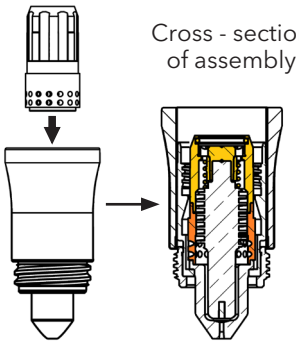


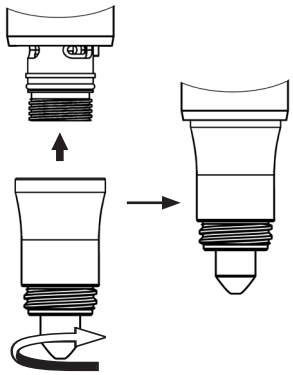
6.2.1 FHT-EX® 105TTX cutting torch consumables installation

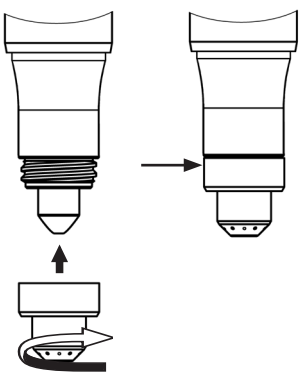
machine cutting torch



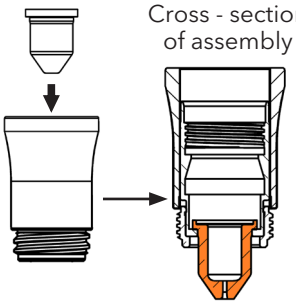


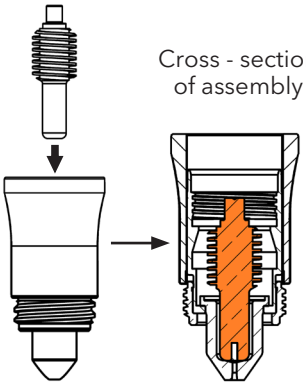


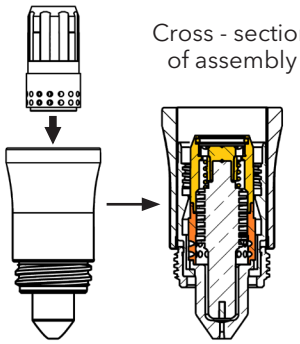


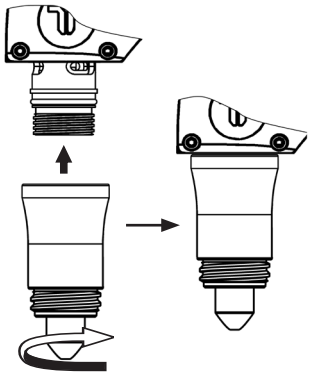


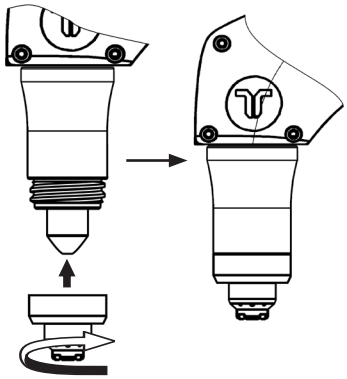
hand cutting torch











1 Install the nozzle into the retaining cap.

2 Insert the electrode into retaining cap and nozzle assembly.

3 Insert the swirl ring assembly.

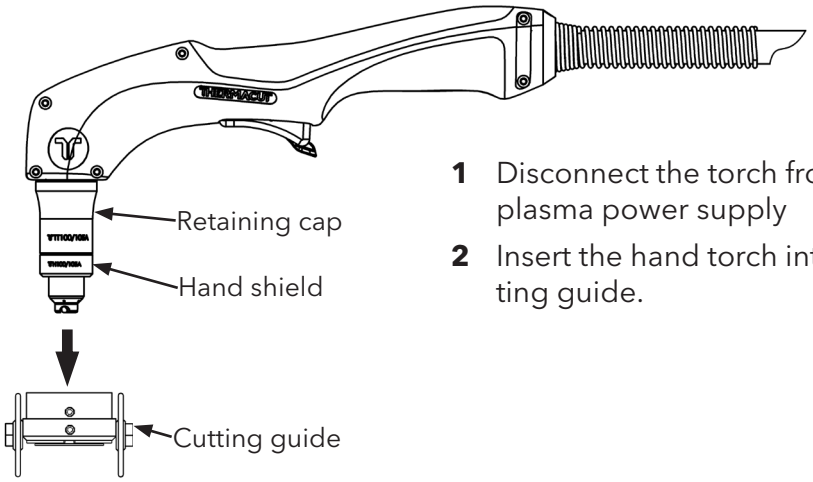
4 Screw the entire assembly onto the hand cutting torch.

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

5 Install the shield. Do not overtighten.

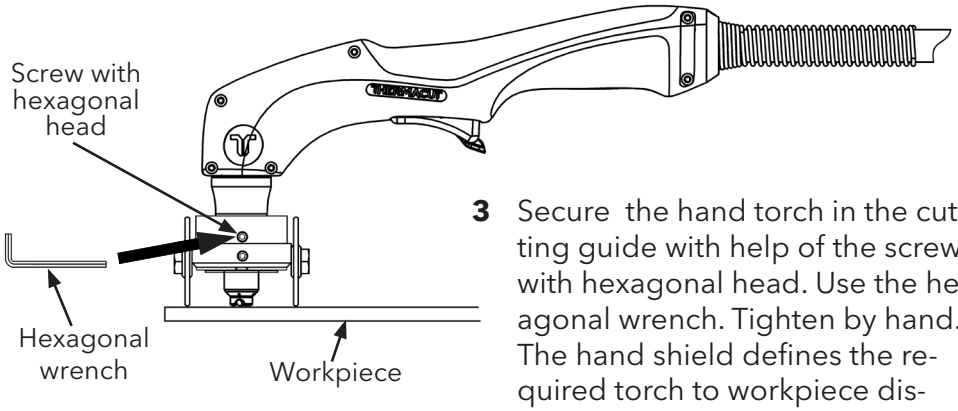
6.3 The circle cutting guide installation

Circle cutting guide
EX-5-801-002

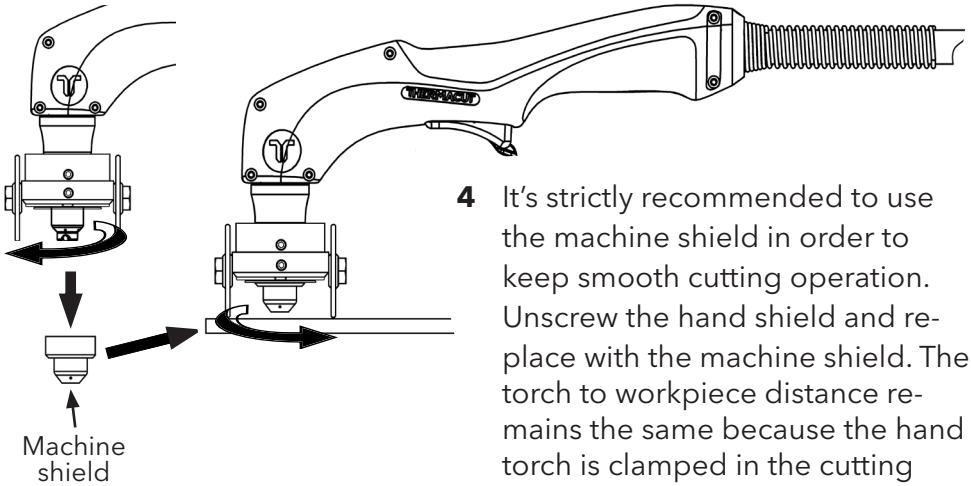


1 Disconnect the torch from the plasma power supply

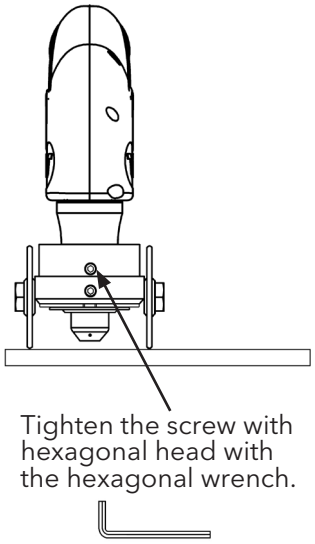
2 Insert the hand torch into the cutting guide.



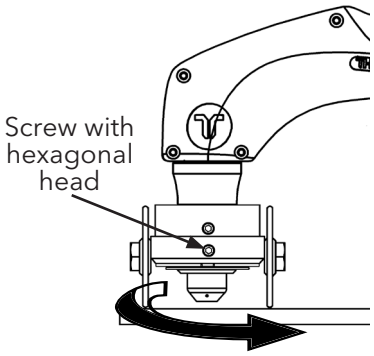
3 Secure the hand torch in the cutting guide with help of the screw with hexagonal head. Use the hexagonal wrench. Tighten by hand. The hand shield defines the required torch to workpiece distance.



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.

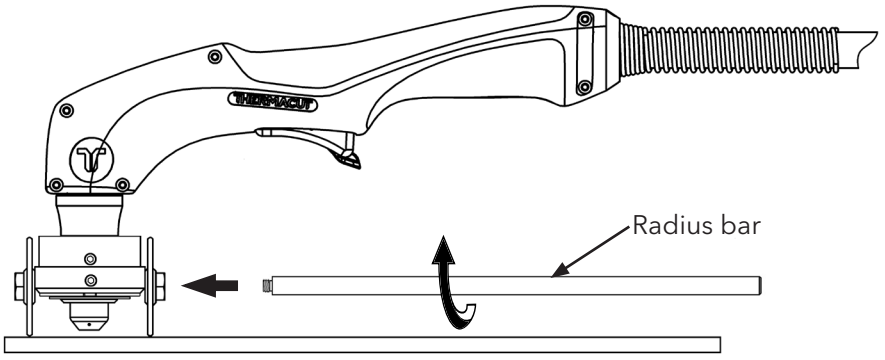


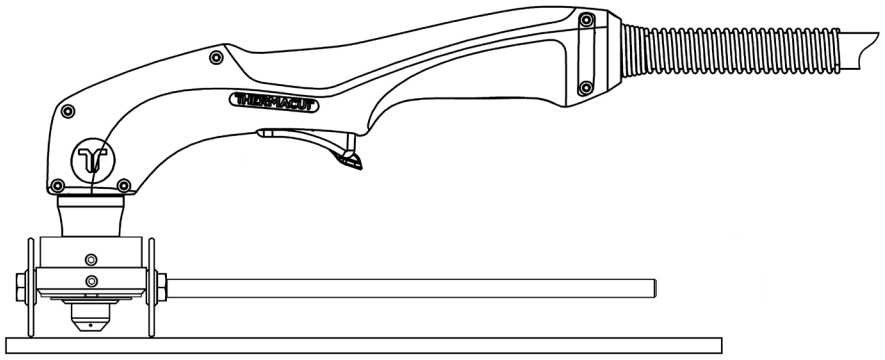
5 The hand torch clamped in the cutting guide can be used alone or with a radius bar.
If you don't want use the radius bar, lock the cutting guide in a fixed position by using of the screw with hexagonal head so that the wheels of the cutting guide point in the same direction as the torch handle - see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



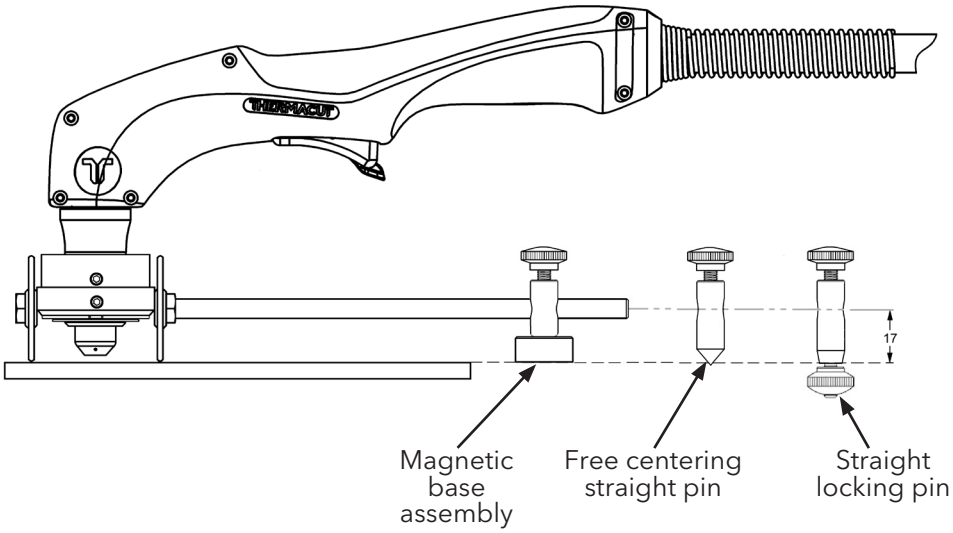
6 If you want use the radius bar, make sure the screw with hexagonal head isn't tightened so that the cutting guide can rotate freely.

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).





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



7 OPERATION

The FHT-EX®105TTX 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 opperation and the required amperage.

⚠ CAUTION

Use of the cutting torch

FHT-EX®105TTXH, TTXM torches are for use with EX-TRAFIRE®45 - 105 A 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.

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.

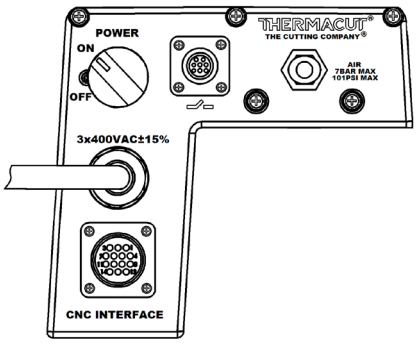
7.1.2 Connecting the cutting torch

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

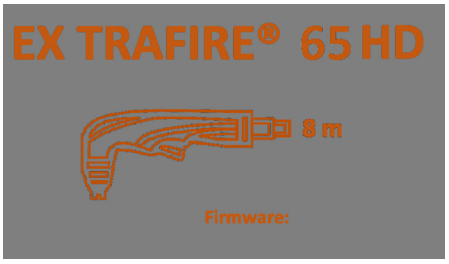
»

7.1.3 Powering on the power supply

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

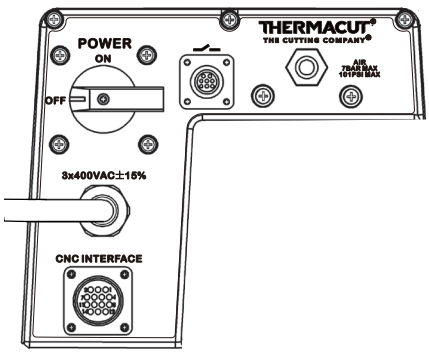


- Set the POWER switch to ON.

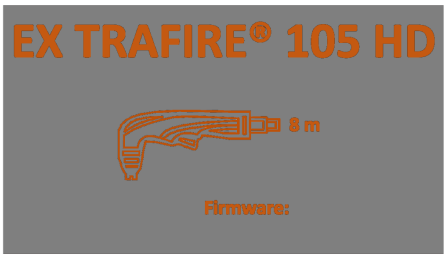


- The following is displayed immediately after switching on:
  - Type of power supply (105HD)
  - Length of torch cable 8, 15 m (26 ft, 50 ft)
  - Type of cutting torch (hand or machine)
  - Current firmware

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 8, 15 m (26 ft, 50 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. 30 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.

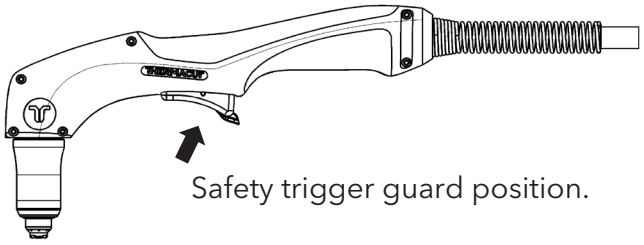
8 Extinguish the arc by releasing the torch trigger.

Gas post-flow period is approx. 30 seconds depending on the output current and is not adjustable.

7.4 Operating the hand cutting torch

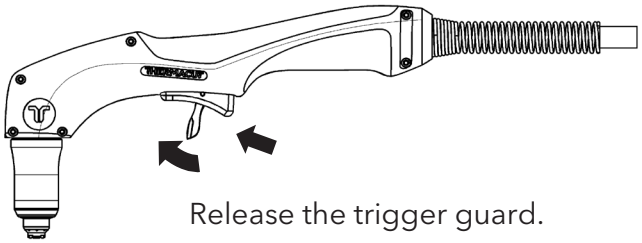
7.4.1 Operating the torch safety trigger

1.



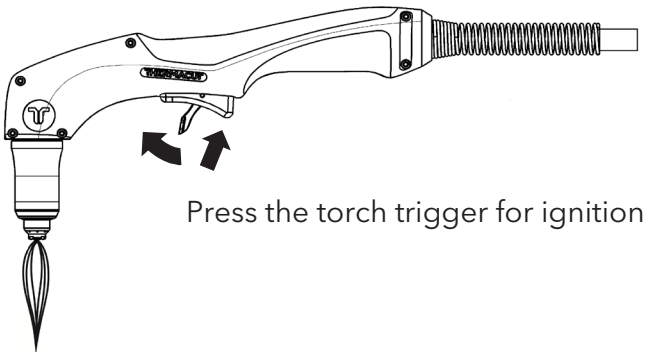
Safety trigger guard position.

2.



Release the trigger guard.

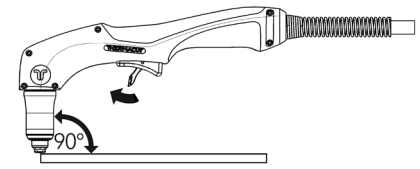
3.

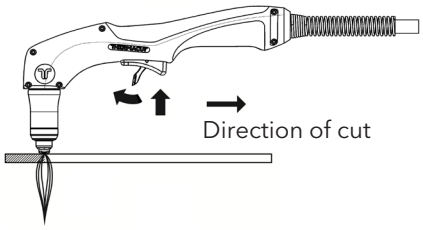


Press the torch trigger for ignition of the arc.

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.

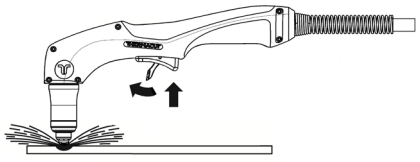
3 Place the cutting torch upright on the edge of the workpiece.

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**.

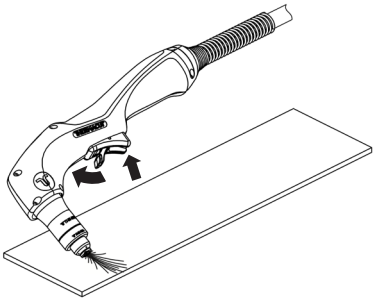
» **6.3 The circle cutting guide installation** on page EN-17



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

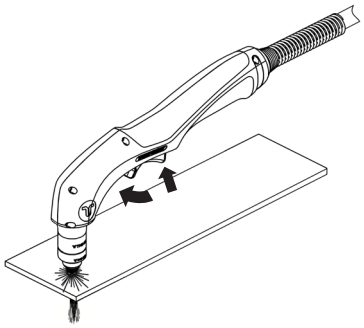
- Reduce the speed at which the cutting torch is pulled.
- Check the setting for the output current.
- Check the compressed air settings.
- Check consumables for wear/ damage.

7.4.3 Piercing



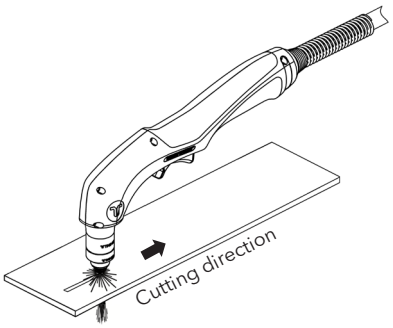
1 Hold the cutting torch at an angle to the workpiece with a max. distance of 3 mm (0.118 in) from the nozzle to the workpiece.

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.

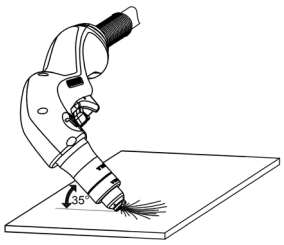


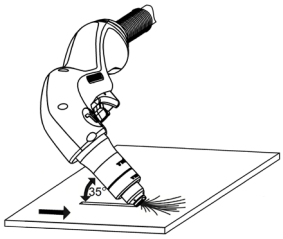
5 Pull the cutting torch in the cutting direction. Sparks must emerge from the underside of the workpiece.

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	• Reduce current or increase speed.
Narrower and deeper	• Reduce the standoff between the torch and workpiece or hold the cutting torch at larger angle to workpiece.
Wider and deeper	• Increase current or reduce the speed.
Wider and shallower	• Increase the standoff between the cutting torch and workpiece or hold the cutting torch at flatter angle to the workpiece.





Direction of gouging

1. Use gouging consumables suitable to the cutting torch being used.
2. Hold the cutting torch at an angle of 35–45° 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 35–45° to the workpiece and move it in the direction of the material to be removed.

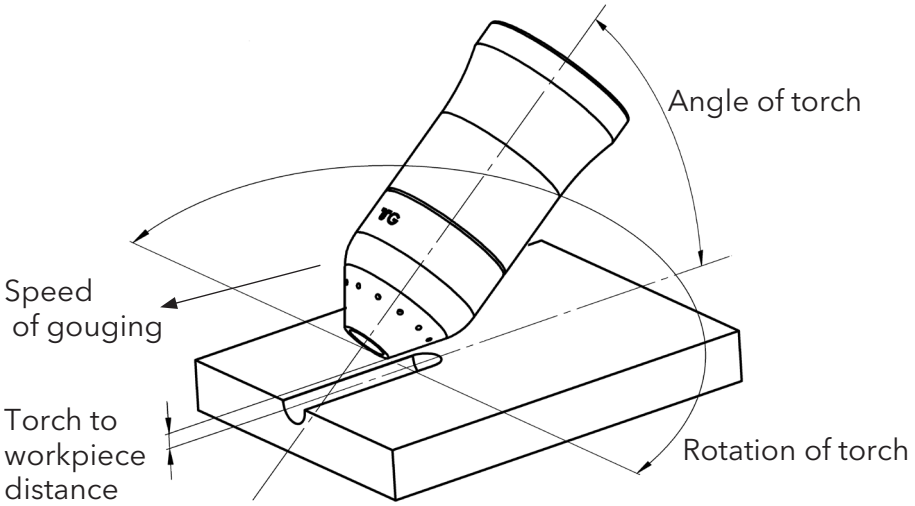
7.4.4.1 Operating parameters for gouging

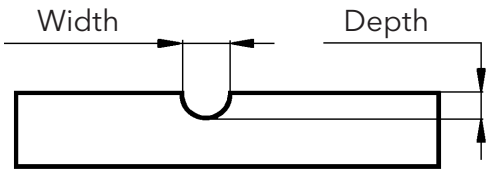
Table 4 Operating parameters for gouging

Operating parameters of gouging	
Operating (dynamic) air pressure	3.5 - 4.1 bar (51 - 59 psi)
Torch to workpiece distance	as close as possible (touch)
Torch to workpiece angle	35° - 45°
Gouging speed	0.6 m/min (23.6 ipm)
Gouging amperage	45 - 105 A
Gouging capability	up to 8 kg/h (17.64 lb/h)

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

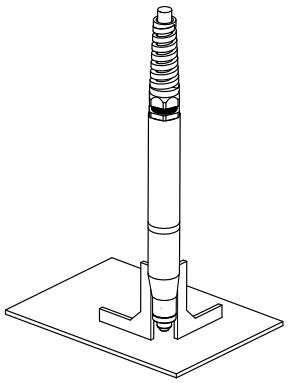
Table 5 Table of the modification of the gouge profile

The gouge profile		The actions whitch 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 105TTX Cutting torch consumables installation** on page EN-17.

7.5.1 Aligning FHT-EX® 105TTXM 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 MAINTENENCE 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 (0.6 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 11 - 14** FHT-EX®105TTXH consumables for hand cutting torch on pages EN-39, 42
  - » **Tables 18 - 20** FHT-EX®105TTXM consumables for machine cutting torch on pages EN-45- 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.	• Check for free movement of the electrode and clean or replace parts, if necessary.
H06 Excess temperature	Duty cycle has been exceeded.	• Allow the device to cool down. • Do not exceed the duty cycle.
H08	The cutting torch is missing or not connected.	• Verify the proper cutting torch is connected.
	Consumables are loose, incorrectly installed or missing.	• 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.	• Verify that the retaining cap is correctly installed, re-install correctly and tighten, if needed.
	Consumables used are not Thermacut® original parts.	• Use only Thermacut® original consumables.
H14	Incorrect cutting torch.	• Verify the proper cutting torch is connected.
H17 GAS	Gas inlet pressure is below 5 bar (72.5 psi).	• Check the inlet gas pressure. • Check the gas pressure and flow. • Verify the gas settings are correct.
	Insufficient plasma gas flow.	
	Defective torch cable.	• Replace the torch cable.
	Pressure sensor is defective.	• Have the pressure switch checked and, if necessary, replaced by a certified electrician or trained personnel.
H19	Incorrect current setting.	• Verify the cutting power settings.
H20	Incorrect cutting mode.	• Verify the cutting mode.
H21	Gas pressure fault.	• Check the gas supply.
H23	Torch trigger is pressed before starting or during initialization.	• 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.	• Verify the proper cutting torch is connected.
	Incorrect gas pressure.	Consumables are defective or improperly installed.	• 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.	• 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.	• Decrease the standoff between cutting torch and workpiece.
		Work lead is defective.	• 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.	• Ensure that all cable connections are correctly instaled.
		No contact between work lead clamp and workpiece.	• 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.	• Decrease the standoff between cutting torch and workpiece.
	Voltage fault	Faulty input voltage.	• 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.	• Check consumables and replace, if necessary.
	Faulty gas flow.	Gas flow too high. Gas flow too low.	• 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.	• Remove contamination and/or oxidation from the workpiece and the work lead clamp.
	Consumables are defective.	Consumables are worn.	• Inspect consumables in the cutting torch and replace, if necessary.
	Poor cutting quality.	Incorrect cutting technology.	• 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. » **7.3 Cutting** - Edge start on page EN-24
	Poor contact between work lead clamp and workpiece.	Workpiece is dirty.	• 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

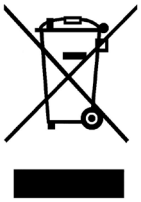
Electric shock due to live parts

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.

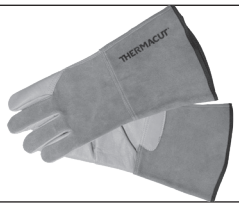
4 The warranty period is:
– Three (3) years for EX-TRAFIRE® brand power supplies.
– One (1) year for cutting torches and cable assemblies.

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
	EX-5-801-003	Bevel cutting guide kit
	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 with clamp 300A / 16mm² / EU-plug 35-70mm²
	EX-5-543-001	Work lead 8m with clamp 300A / 16mm² / EU-plug 35-70mm²
	EX-5-543-002	Work lead 15m with clamp 300A / 16mm² / EU-plug 35-70mm²
	EX-5-543-003	Work lead 23m with clamp 300A / 16mm² / EU-plug 35-70mm²

*Available on request

For more information about accessories, visit our website: www.thermacut.com or www.thermacut.us.

15 TORCHES AND TORCH PARTS

15.1 FHT-EX® 105TTXH hand cutting torch unit

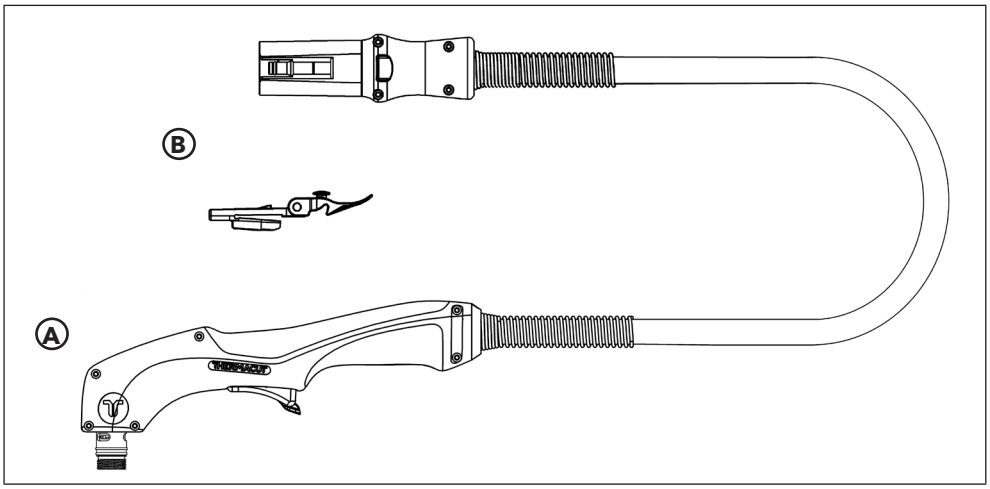


Table 11 FHT-EX® 105TTXH hand cutting torch

Item	Part number	Description
A	EX-5-141-005	FHT-EX®105TTXH hand cutting torch assy without consumables with 8m (26') cable/ TCS13
	EX-5-141-006	FHT-EX®105TTXH hand cutting torch assy without consumables with 15m (50') cable/ TCS13
B	EX-0-321-003	Latch with Key Assembly

15.2 FHT-EX® 105TTXH hand cutting torch components

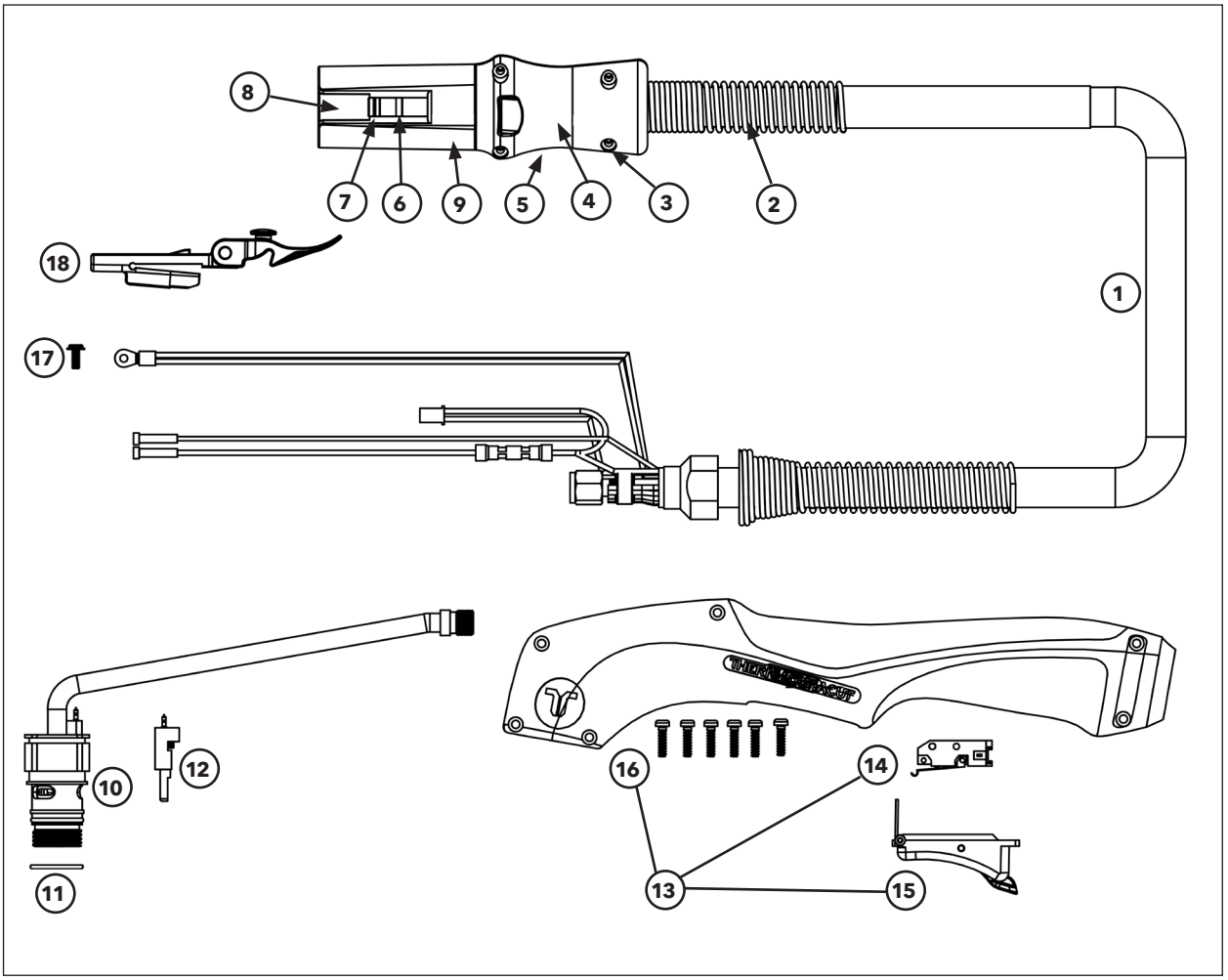


Table 12 FHT-EX® 105TTXH hand cutting torch components

Item	Part number	Description
1	EX-5-374-007	FHT-EX®105TTXH Hand torch lead replacement 8m (26')/TCS13
1	EX-5-374-008	FHT-EX®105TTXH Hand torch lead replacement 15m (50')/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-5-302-002	FHT-EX®105TTXH Hand torch body replacement kit (incl. torch body & cap sensor)
11	EX-5-431-050	O-Ring (fitted on the torch body) - 2pcs package
12	EX-5-305-003	FHT-EX®105TTXH Cap sensor replacement kit/Hand torch
13	EX-5-314-001	FHT-EX®105TTXH Hand torch handle replacement Kit
14	EX-5-313-030	Safety Trigger Micro-Switch
15	EX-5-313-031	Safety Trigger
16	EX-5-308-001	FHT-EX®105TTXH Hand torch handle with screws
17	EX-5-372-030	Pilot Cable Screw
18	EX-0-321-003	Latch w/key assembly

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

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

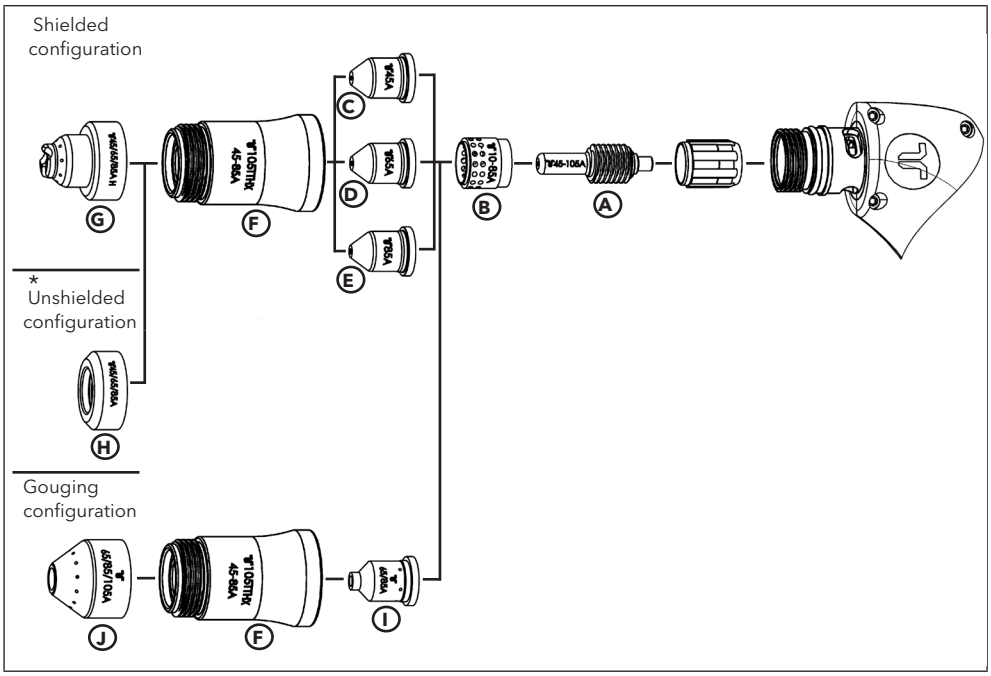


Table 13 Consumables for hand cutting torch 45–85 A

Item	Part number	Description
A	EX-5-402-030	Electrode 45–105 A
B	EX-5-404-031	Swirl ring 10–85 A
C	EX-5-410-036	Nozzle 45 A
D	EX-5-410-037	Nozzle 55/65 A
E	EX-5-410-038	Nozzle 75/85A
F	EX-5-415-040	Retaining cap 45–85 A
G	EX-5-419-030	Shield 45–85 A, Hand
H	EX-5-423-031	Deflector 45-105A
I	EX-5-440-031	Nozzle 45-85A, Gouging
J	EX-5-440-030	Shield 45-105A, Gouging

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

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

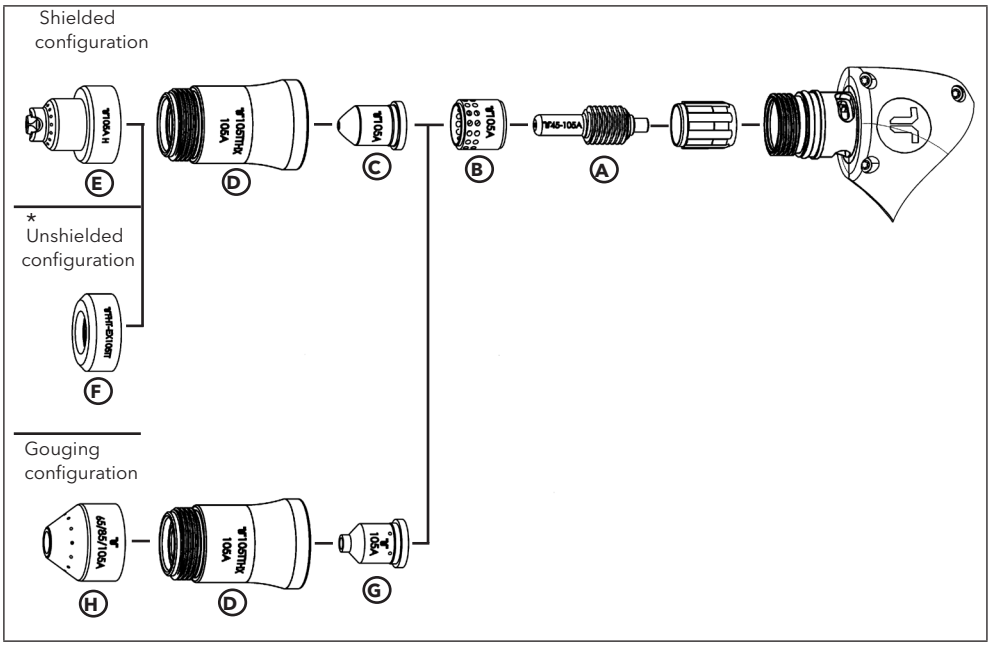


Table 14 Consumables for hand cutting torch 100–105 A

Item	Part number	Description
A	EX-5-402-030	Electrode 45–105 A
B	EX-5-404-032	Swirl ring 85-105 A
C	EX-5-410-039	Nozzle 100/105A
D	EX-5-415-041	Retaining cap 105 A
E	EX-5-420-030	Shield 100/105 A, Hand
F	EX-5-423-031	Deflector 45-105A
G	EX-5-440-032	Nozzle 100/105A, Gouging
H	EX-5-440-030	Shield 45-105A, Gouging

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

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

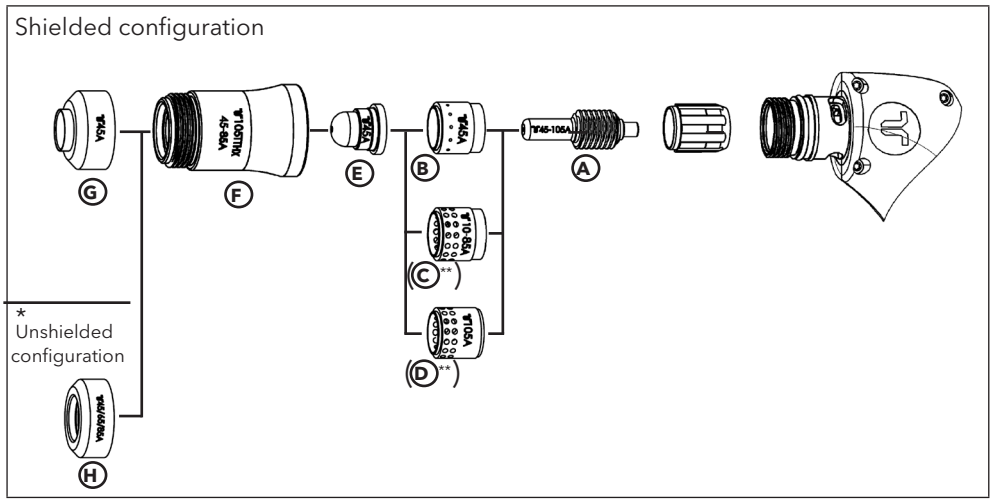


Table 15 Consumables for SmoothLine hand cutting torch

Item	Part number	Description
A	EX-5-402-030	Electrode 45-105A
B	EX-5-404-030	Swirl Ring 45-105/ SmoothLine
C**	EX-5-404-031	Swirl Ring 10-85A
D**	EX-5-404-032	Swirl Ring 85-105A
E	EX-5-410-035	Nozzle 45A/ SmoothLine
F	EX-5-415-040	Retaining Cap 45-85A
G	EX-5-423-030	Deflector 45A/ SmoothLine
H	EX-5-423-031	Deflector 45-105A

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

** Also possible to use with SmoothLine configuration, but for best cut quality results use EX-5-404-030.

15.3.4 FHT-EX® 105TTXH extended consumables for hand cutting torch

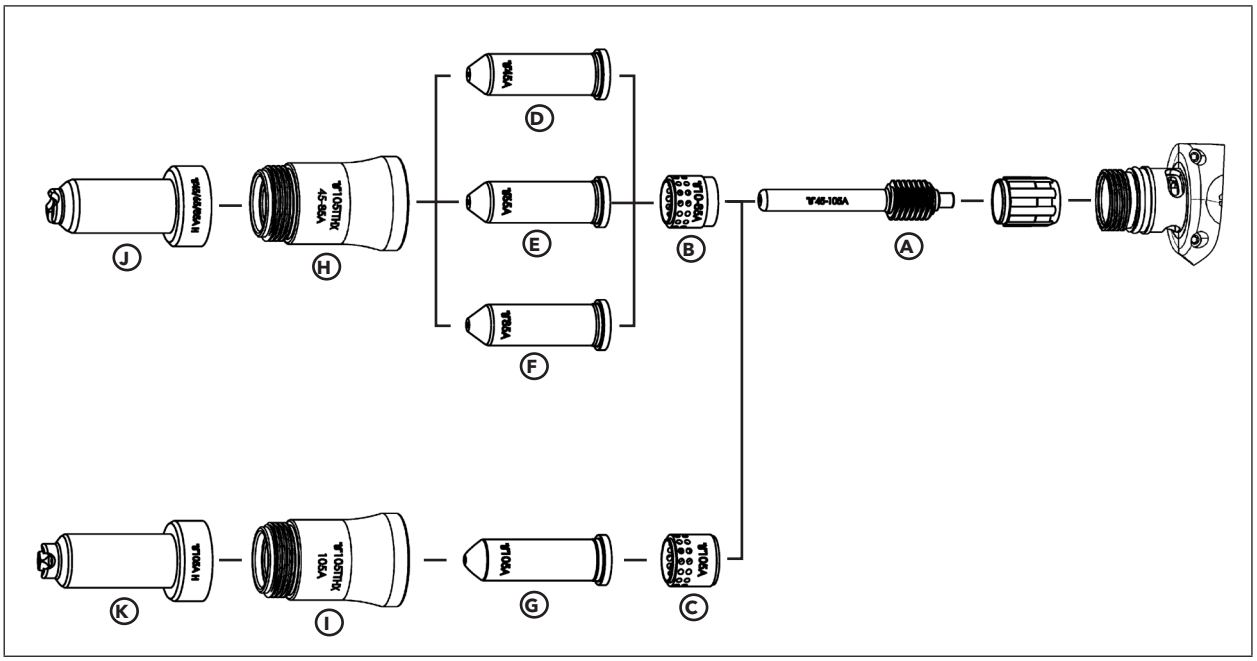


Table 16
Extended consumables for hand cutting torch 45–105 A

Item	Part number	Description
A	EX-5-402-001	Electrode 45-105A, Extended
B	EX-5-404-031	Swirl Ring 10-85A
C	EX-5-404-032	Swirl Ring 100-105A
D	EX-5-406-001	Nozzle 45A, Extended
E	EX-5-406-002	Nozzle 55/65A, Extended
F	EX-5-406-003	Nozzle 75/85A, Extended
G	EX-5-406-004	Nozzle 100/105A, Extended
H	EX-5-415-040	Retaining Cap 45-85A
I	EX-5-415-041	Retaining Cap 100/105A
J	EX-5-420-001	Shield 45-85A, Hand Extended
K	EX-5-420-002	Shield 100/105A, Hand Extended

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

15.4 FHT-EX® 105TTXM machine cutting torch unit

15.4.1 FHT-EX® 105TTXM standard machine cutting torch

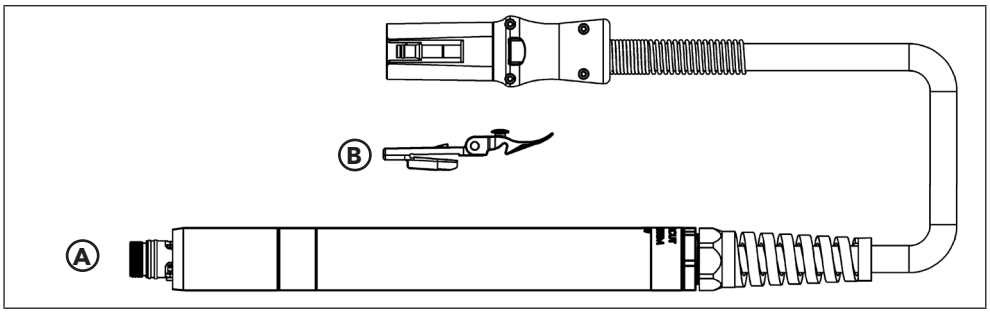


Table 17
FHT-EX® 105TTXM machine cutting torch without gear rack

Item	Part number	Description
A	EX-5-241-001	FHT-EX®105TTXM machine cutting torch assy without gear rack, without consumables, with 8m (26') cable/ TCS13
	EX-5-241-002	FHT-EX®105TTXM machine cutting torch assy without gear rack, without consumables, with15m (50') cable/ TCS13
B	EX-0-321-003	Latch with Key Assembly

15.5 FHT-EX® 105TTXM machine cutting torch components

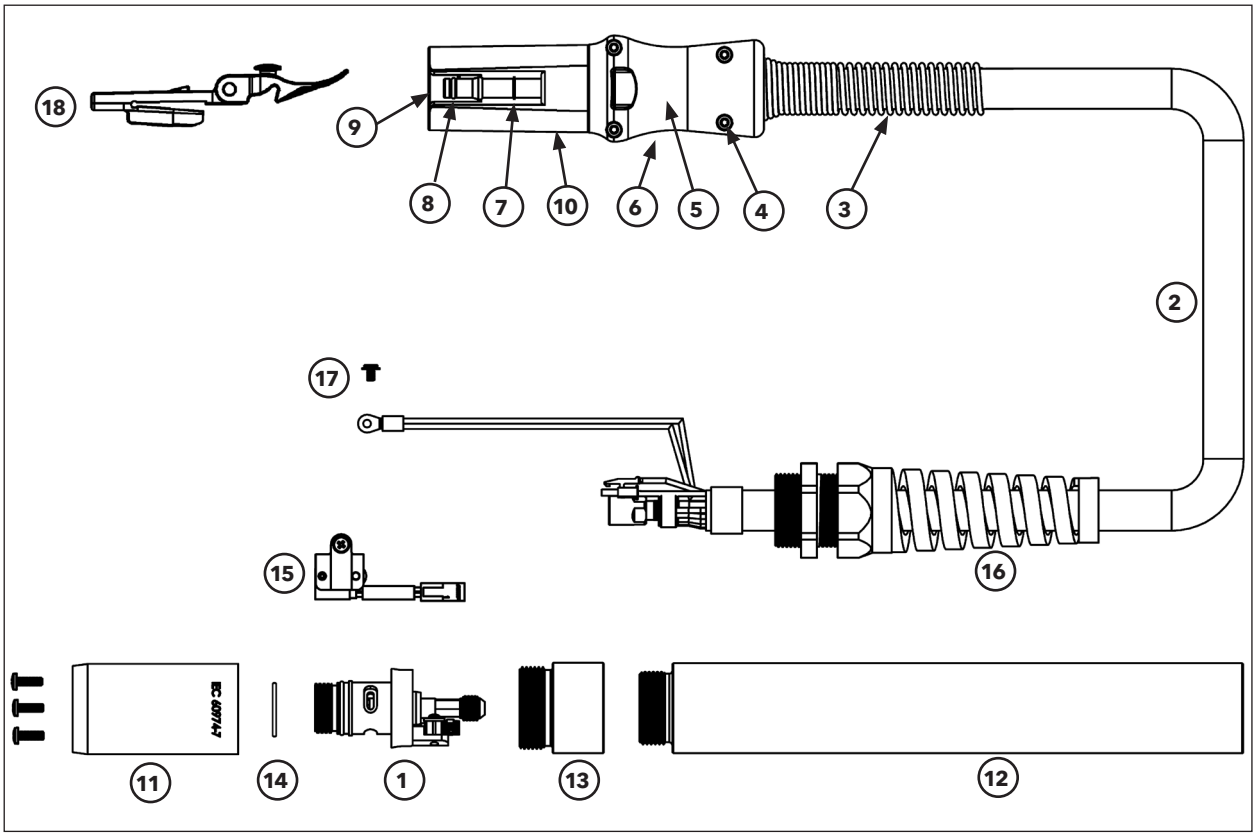


Table 18 FHT-EX® 105TTXM machine cutting torch components

Item	Part Number	Description
1	EX-5-303-030	Machine torch body replacement kit
2	EX-5-375-017	FHT-EX®105TTXM Machine torch lead replacement 8m (26')/TCS13
2	EX-5-375-018	FHT-EX®105TTXM Machine torch lead replacement 15m (50')/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-5-306-030	Torch mounting sleeve (incl. 3 screws)
12	EX-5-306-032	Standard mounting tube w/o rack
13	EX-5-306-031	Standard mounting tube reduction nut
14	EX-5-431-050	Torch body O-ring
15	EX-5-304-030	Cap sensor replacement kit with screws, Machine torch
16	EX-5-317-021	Machine torch strain relief
17	EX-5-372-030	Pilot cable screw
18	EX-0-321-003	Latch w/key assembly

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

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

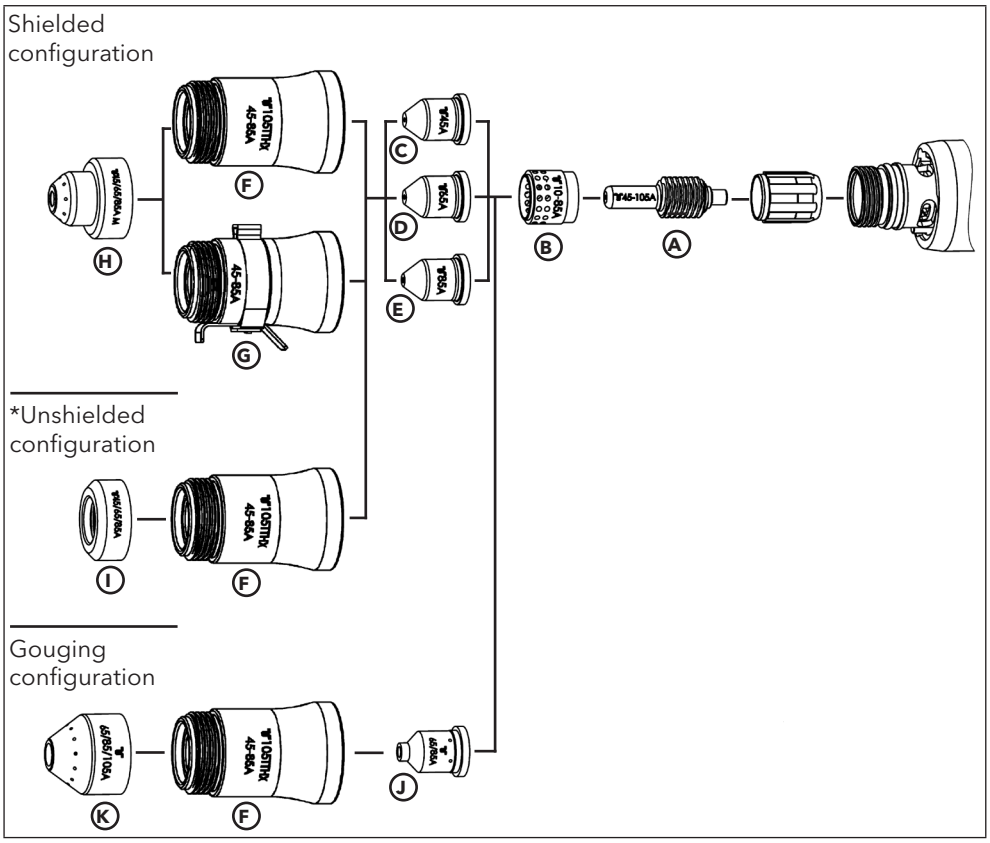


Table 19
FHT-EX® 105TTXM consumables for machine cutting torch 45–85 A

Item	Part number	Description
A	EX-5-402-030	Electrode 45-105A
B	EX-5-404-031	Swirl Ring 10-85A
C	EX-5-410-036	Nozzle 45A
D	EX-5-410-037	Nozzle 55/65A
E	EX-5-410-038	Nozzle 75/85A
F	EX-5-415-040	Retaining Cap 45-85A
G	EX-5-415-042	Retaining Cap 45-85A, IHS Tab
H	EX-5-421-031	Shield 45-85A, Machine
I	EX-5-423-031	Deflector 45-105A
J	EX-5-440-031	Nozzle 45-85A, Gouging
K	EX-5-440-030	Shield 45-105A, Gouging

- 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® 105TTXM consumables for machine cutting torch 105 A

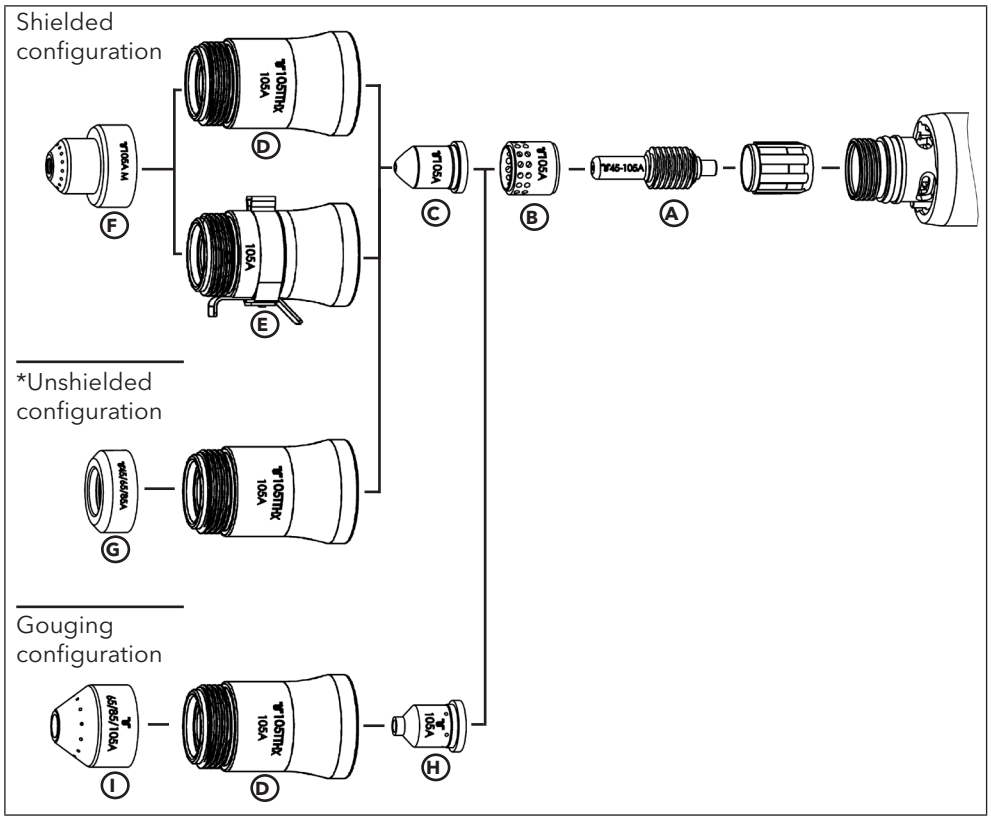


Table 20
FHT-EX® 105TTXM consumables for machine cutting torch 100–105 A

Item	Part number	Description
A	EX-5-404-032	Swirl ring 45–105 A
B	EX-5-402-030	Electrode 45–105 A
C	EX-5-410-039	Nozzle 100/105 A
D	EX-5-415-041	Retaining cap 105 A
E	EX-5-415-043	Retaining cap 105 A with IHS tab
F	EX-5-422-030	Shield 100/105 A, Machine
G	EX-5-423-031	Deflector 45-105 A
H	EX-5-440-032	Nozzle 100/105 A, Gouging
I	EX-5-440-030	Shield 45-105A, Gouging

- 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® 105TTXM consumables for SmoothLine machine cutting torch

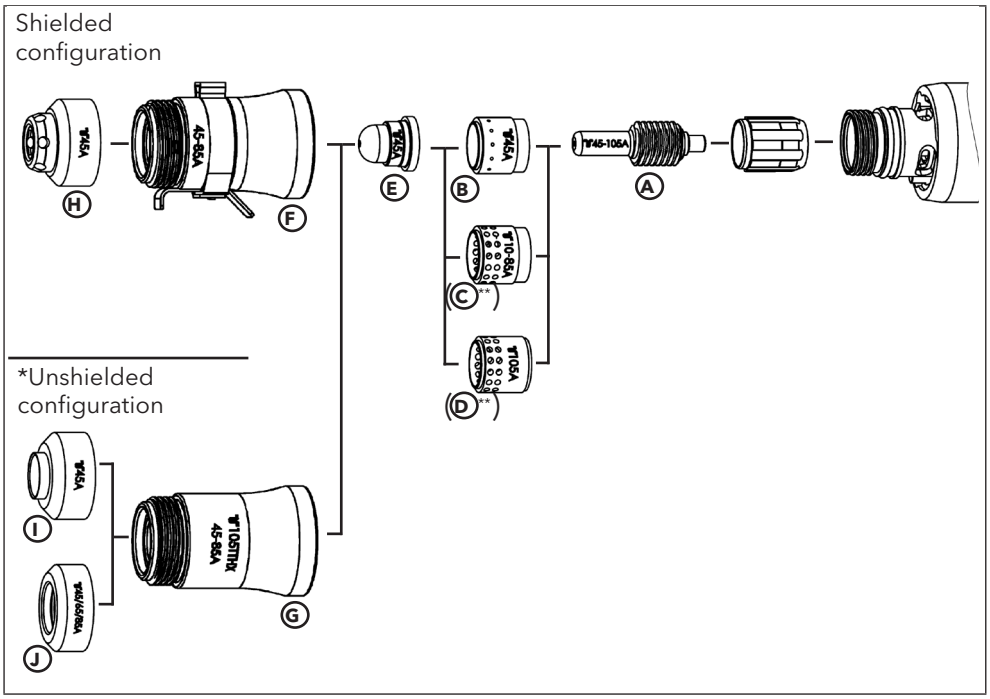


Table. 21
FHT-EX® 105TTXM consumables for SmoothLine machine cutting torch

Item	Part number	Description
A	EX-5-402-030	Electrode 45-105A
B	EX-5-404-030	Swirl Ring 45-105A/ SmoothLine
C**	EX-5-410-050	Swirl Ring 45-85A
D**	EX-5-415-050	Swirl Ring 100/105A
E	EX-5-410-035	Nozzle 45A, SmoothLine
F	EX-5-415-042	Retaining cap 45–85 A with IHS tab
G	EX-5-415-040	Retaining Cap 45-85A
H	EX-5-422-050	Shield 45 A, IHS, SmoothLine
I	EX-5-423-030	Deflector 45A/ SmoothLine
J	EX-5-423-031	Deflector 45-105A

- 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.

** Also possible to use with SmoothLine configuration, but for best cut quality results use EX-5-404-030.

16 ORDERING INFORMATION ON BULK PAKS AND STARTER KITS

Table 22
Bulk packs for EX-TRAFIRE® 105TTXH and EX-TRAFIRE® 105TTXM

Part number	Description
EX-5-434-001	Bulk pack – Electrode 45–105 A – 25 pcs (including 5pcs of the swirl ring holder)
EX-5-435-001	Bulk pack – nozzle 55/65 A – 25 pcs
EX-5-435-002	Bulk pack – nozzle 75/85 A – 25 pcs
EX-5-435-003	Bulk pack – nozzle 100/105A – 25 pcs
EX-5-437-001	Bulk pack – shield 45–85 A, Machine – 18 pcs
EX-5-437-002	Bulk pack – shield 100/105A, Machine – 18 pcs

Table 23
Starter kits for EX-TRAFIRE® 105TTXH and EX-TRAFIRE® 105TTXM

Part number	Description
EX-5-432-030	Starter Kit 55/65A for hand torch FHT-EX®105RTXH
EX-5-432-031	Starter Kit 75/85A for hand torch FHT-EX®105RTXH
EX-5-432-032	Starter kit 100/105A for hand torch FHT-EX®105RTXH
EX-5-433-030	Starter kit 65-85 A for machine torch FHT-EX®105RTXM
EX-5-433-031	Starter Kit 75/85A for machine torch FHT-EX®105RTXM
EX-5-433-032	Starter kit 100/105A for machine torch FHT-EX®105RTXM

Each starter kit includes:

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

Table 24
Consumable kits for assembling of EX-TRAFIRE® 105TTXH and EX-TRAFIRE® 105TTXM

Part number	Description
EX-3-439-011	TTXM55/65A Consumable kit for assembling of the FHT-EX®105TTXM machine torch
EX-3-439-001	TTXH55/65A Consumable kit for assembling of the FHT-EX®105TTXH hand torch
EX-4-439-012	TTXM75/85A Consumable kit for assembling of the FHT-EX®105TTXM machine torch
EX-4-439-002	TTXM75/85A Consumable kit for assembling of the FHT-EX®105TTXH hand torch
EX-5-439-013	TTXM100/105A Consumable kit for assembling of the FHT-EX®105TTXM machine torch
EX-5-439-003	TTXM100/105A Consumable kit for assembling of the FHT-EX®105TTXH hand torch

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

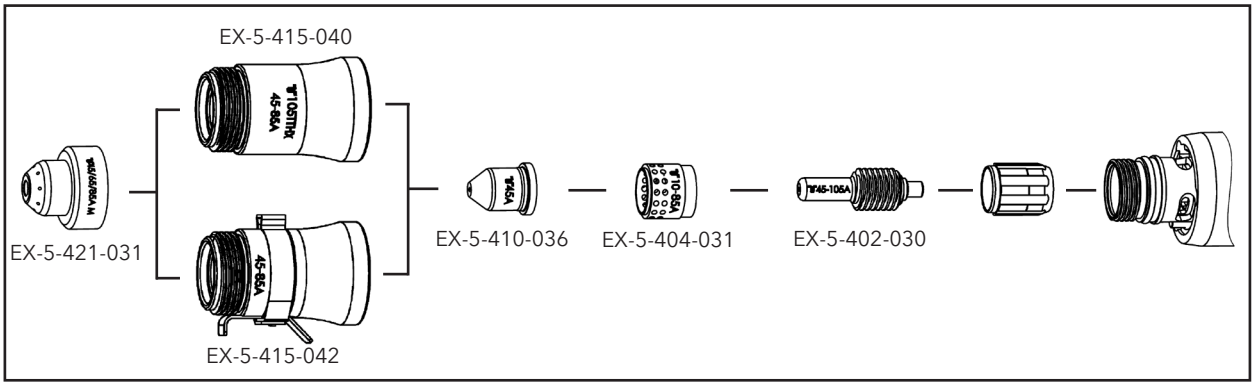
- **Recommended speed:**
  Speeds adjusted for cutting capacity do not necessarily represent maximum speeds. They are the speeds that must be achieved for the specified material thickness.
- **Maximum speed:**
  The maximum cutting speeds are the result of in-depth laboratory testing. Actual cutting 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
75 - 85 A	+2.75 mm.
100 - 105 A	+4.55 mm
40 - 45A SmoothLine	+2.15 mm

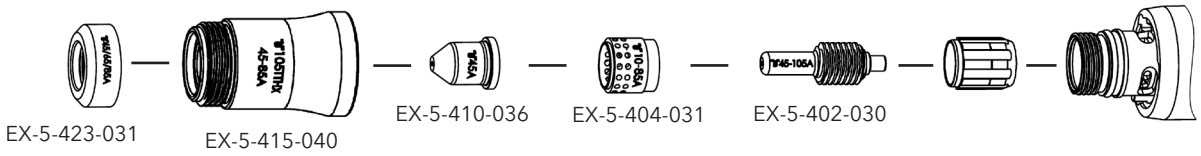
* When used in countries that require CE conformity, the torch must be operated with a shield.

17.1.1 45 A cutting, shielded, with compressed air, dynamic pressure 5.2 bar at approx. 87 l/min gas flow



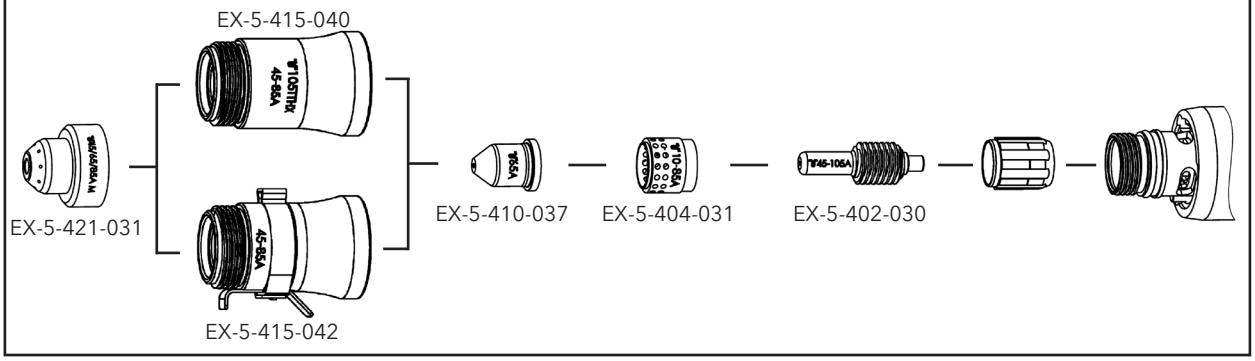
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
0.5	1.5	3.8	0	9000	128	12500	126	1.1
1			0	9000	128	10800	128	1.1
1.5			0.1	9000	130	10200	129	
2			0.3	6600	130	7800	129	1.4
3			0.4	3850	133	4900	131	1.5
4			0.4	2200	134	3560	131	
6			0.5	1350	137	2050	132	1.7
Stainless steel								
0.5	1.5	3.8	0	9000	130	12500	129	0.9
1			0	9000	130	10800	130	1.1
1.5			0.1	9000	130	10200	130	
2			0.3	6000	132	8660	131	1.5
3			0.4	3100	132	4400	132	1.6
4			0.4	2000	134	2600	134	
6			0.5	900	140	1020	139	1.8
Aluminium								
1	1.5	3.8	0	8250	136	11000	130	1.5
2			0.1	6600	136	9200	131	1.5
3			0.2	3100	139	6250	132	1.6
4			0.4	2200	141	4850	134	
6			0.5	1500	142	2800	139	1.5

17.1.2 45 A cutting, unshielded, with compressed air, dynamic pressure 5.2 bar at approx. 87 l/min gas flow



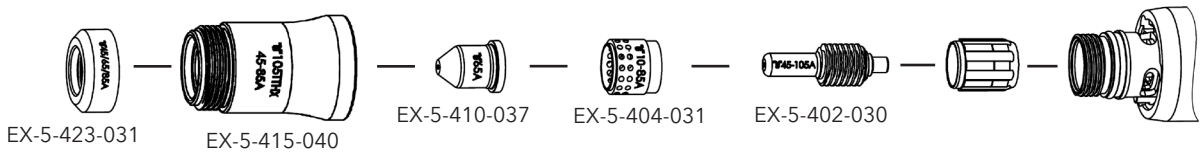
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
0.5	1.5	3.8	0	9000	120	12500	120	0.5
1			0	9000	120	10800	121	0.9
1.5			0.1	7700	120	10200	121	
2			0.3	6150	119	7800	122	1.3
3			0.4	3950	121	4900	123	1.3
4			0.4	2350	123	3560	124	
6			0.5	1400	126	2050	124	
Stainless steel								
0.5	1.5	3.8	0	9000	121	12500	119	0.5
1			0	9000	121	10800	119	1
1.5			0.1	9000	121	10200	120	
2			0.3	6000	122	9600	120	1.3
3			0.4	3250	123	4750	120	1.5
4			0.4	1900	128	3000	122	
6			0.5	700	130	1450	124	1.5
Aluminium								
1	1.5	3.8	0	7400	126	11000	121	1.6
2			0.1	4400	127	9200	122	1.5
3			0.2	2800	129	6250	124	1.4
4			0.4	2100	132	4700	125	
6			0.5	1050	135	2250	127	1.5

17.1.3 55 A cutting, shielded, with compressed air, dynamic pressure 5.2 bar at approx. 98 l/min gas flow



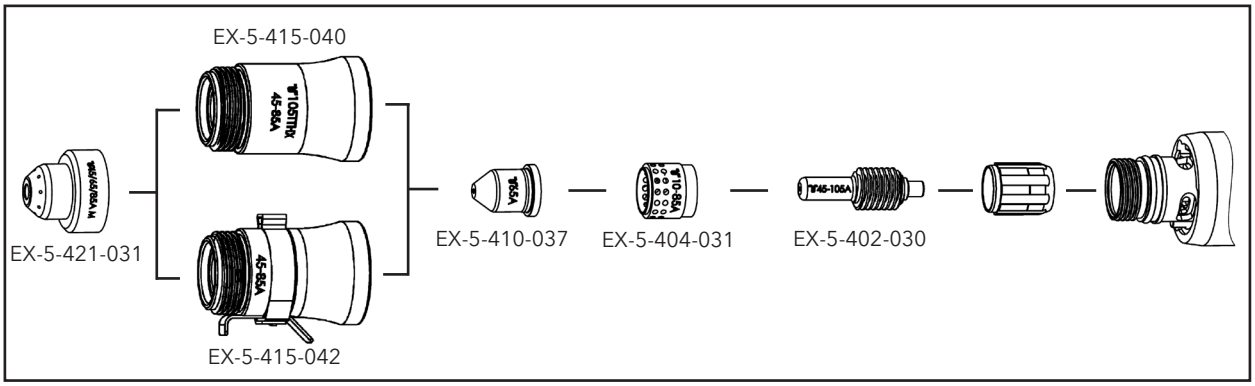
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
2	1.5	3.8	0.1	5324	122	6160	119	1.5
3			0.2	4576	123	5368	121	1.5
4			0.5	3740	123	4488	122	
6			0.5	2244	125	2851	125	1.7
8			0.5	1496	127	1962	126	1.8
10		4.5	0.7	968	129	1320	127	1.9
12		4.5	1.2	748	132	1003	129	2.1
16		6	2	493	136	572	134	2.2
20		Edge start		308	140	396	140	
25				185	143	238	143	
Stainless steel								
2	1.5	3.8	0.1	6966	123	8600	119	1.3
3			0.2	5762	123	7104	121	1.4
4			0.5	4472	123	5289	122	
6			0.5	2107	124	2451	124	1.7
8			0.7	1290	127	1600	127	1.8
10		4.5	0.7	826	130	1075	130	1.9
12		4.5	1.2	645	133	791	132	2.1
16		Edge start		430	137	430	137	2.3
20				258	141	318	141	
Aluminium								
2	1.5	3.8	0.1	7656	119	8961	120	1.8
3			0.2	6438	122	7656	122	1.8
4			0.5	5220	124	6375	123	
6			0.5	2784	128	3828	126	1.8
8			0.7	1697	131	2393	128	1.9
10		4.5	0.7	1044	134	1436	130	2.0
12		4.5	1.2	870	136	1157	134	2.2
16		Edge start		566	141	696	139	2.4
20				331	145	487	143	

17.1.4 55 A cutting, unshielded, with compressed air, dynamic pressure 5.2 bar at approx. 98 l/min gas flow



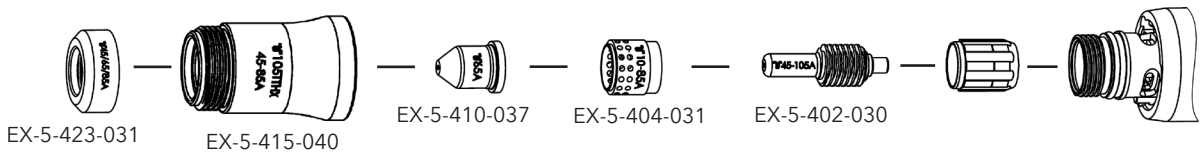
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
2	2	5	0.1	5324	115	6459	115	1.5
3			0.2	4576	116	5570	116	1.5
4			0.5	3740	116	4620	116	
6			0.5	2244	118	3133	118	1.6
8			0.5	1426	121	1962	119	1.7
10		6	0.7	854	125	1320	120	1.8
12		Edge start		669	127	1003	122	1.9
16				425	132	553	127	
20				238	136	340	131	
Stainless steel								
2	2	5	0.1	6996	115	9064	114	1.5
3			0.2	5808	116	7480	115	1.5
4			0.5	4444	117	5720	117	
6			0.5	2024	119	2702	119	1.7
8			0.7	1232	121	1672	120	1.7
10		6	0.7	810	124	1100	121	1.8
12		Edge start		625	128	814	125	1.9
16				378	133	440	131	
Aluminium								
2	2	5	0.1	6045	121	8814	120	1.7
3			0.2	5109	122	7410	121	1.7
4			0.5	4212	123	5959	122	
6			0.5	2340	125	3042	124	1.7
8			0.7	1404	128	1919	125	1.7
10		6	0.7	858	131	1279	127	1.8
12		Edge start		702	133	975	131	1.9
16				546	137	637	134	

17.1.5 65 A cutting, shielded, with compressed air, dynamic pressure 5,2 bar at approx. 98 l/min gas flow



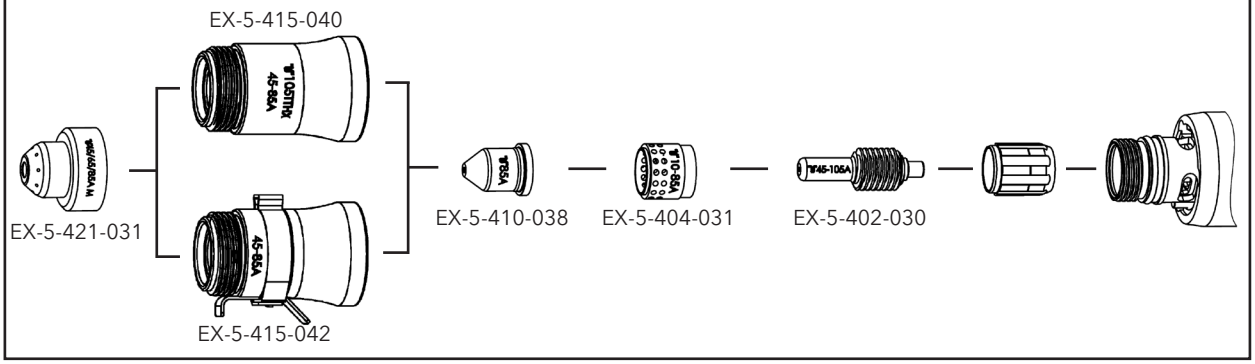
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
2	1.5	3.8	0.1	6050	124	7000	121	1.6
3			0.2	5200	125	6100	123	1.6
4			0.5	4250	125	5100	124	
6			0.5	2550	127	3240	127	1.8
8			0.5	1700	129	2230	128	1.9
10		4.5	0.7	1100	131	1500	129	2
12		4.5	1.2	850	134	1140	131	2.2
16		6	2	560	138	650	136	2.3
20		Edge start		350	142	450	142	
25				210	145	270	145	
Stainless steel								
2	1.5	3.8	0.1	8100	125	10000	121	1.4
3			0.2	6700	125	8260	123	1.5
4			0.5	5200	125	6150	124	
6			0.5	2450	126	2850	126	1.8
8			0.7	1500	129	1860	129	1.9
10		4.5	0.7	960	132	1250	132	2.0
12		4.5	1.2	750	135	920	134	2.2
16		Edge start		500	139	500	139	2.4
20				300	143	370	143	
Aluminium								
2	1.5	3.8	0.1	8800	121	10300	122	1.9
3			0.2	7400	124	8800	124	1.9
4			0.5	6000	126	7350	125	
6			0.5	3200	130	4400	128	1.9
8			0.7	1950	133	2750	130	2.0
10		4.5	0.7	1200	136	1650	132	2.1
12		4.5	1.2	1000	138	1330	136	2.3
16		Edge start		650	143	800	141	2.5
20				380	147	560	145	

17.1.6 65 A cutting, unshielded, with compressed air, dynamic pressure 5.2 bar at approx. 98 l/min gas flow



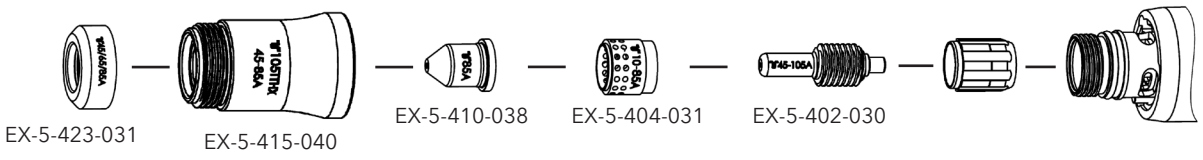
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
2	2	5	0.1	6050	117	7340	117	1.6
3			0.2	5200	118	6330	118	1.6
4			0.5	4250	118	5250	118	
6			0.5	2550	120	3560	120	1.7
8			0.5	1620	123	2230	121	1.8
10		6	0.7	970	127	1500	122	1.9
12		Edge start		760	129	1140	124	2.0
16				500	134	650	129	
20				280	138	400	133	
Stainless steel								
2	2	5	0.1	7950	117	10300	116	1.6
3			0.2	6600	118	8500	117	1.6
4			0.5	5050	119	6500	119	
6			0.5	2300	121	3070	121	1.8
8			0.7	1400	123	1900	122	1.8
10		6	0.7	920	126	1250	123	1.9
12		Edge start		710	130	925	127	2.0
16				430	135	500	133	
Aluminium								
2	2	5	0.1	7750	123	11300	122	1.8
3			0.2	6550	124	9500	123	1.8
4			0.5	5400	125	7640	124	
6			0.5	3000	127	3900	126	1.8
8			0.7	1800	130	2460	127	1.8
10		6	0.7	1100	133	1640	129	1.9
12		Edge start		900	135	1250	133	2.0
16				600	139	700	136	

17.1.7 75 A cutting, shielded, with compressed air, dynamic pressure 5.2 bar at approx. 110 l/min gas flow



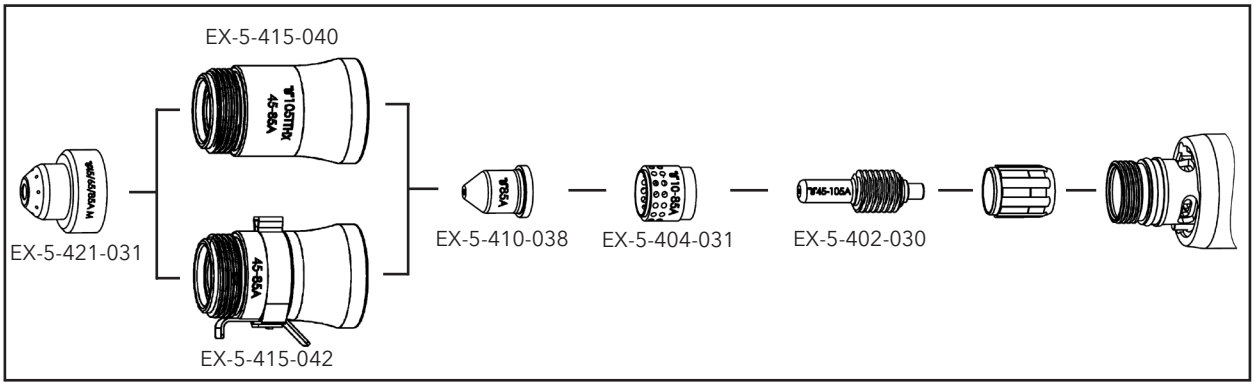
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
3	1.5	3.8	0.1	5984	120	8096	118	1.6
4			0.2	4972	120	6424	120	
6			0.5	3168	121	3872	123	1.7
8			0.5	2200	123	2728	125	1.8
10			0.5	1478	125	1822	126	1.9
12		4.5	0.7	1126	128	1408	128	2.1
16		4.5	1	766	132	818	131	2.3
20		6	1.5	502	135	598	134	2.5
25		Edge start		308	140	396	139	
30				176	144	264	142	
Stainless steel								
3	1.5	3.8	0.1	6450	120	7912	118	1.5
4			0.2	5246	120	6450	118	
6			0.5	3182	120	3956	120	1.7
8			0.5	2107	122	2623	122	1.8
10		4.5	0.5	1333	125	1634	124	2.0
12		4.5	0.7	946	129	1204	128	2.2
16		4.5	1	602	133	654	132	2.3
20		Edge start		413	136	490	135	2.4
25				258	141	318	139	
Aluminium								
3	1.5	3.8	0.1	6960	120	8178	119	1.9
4			0.2	5655	121	6960	121	
6			0.5	3306	124	4263	124	1.8
8			0.5	2306	128	3019	127	1.9
10		4.5	0.5	1670	130	2175	129	2.0
12		4.5	0.7	1262	132	1679	131	2.1
16		4.5	1	846	137	1068	135	2.3
20		Edge start		534	141	783	139	2.5
25				338	144	481	142	

17.1.8 75 A cutting, unshielded, with compressed air, dynamic pressure 5.2 bar at approx. 110 l/min gas flow



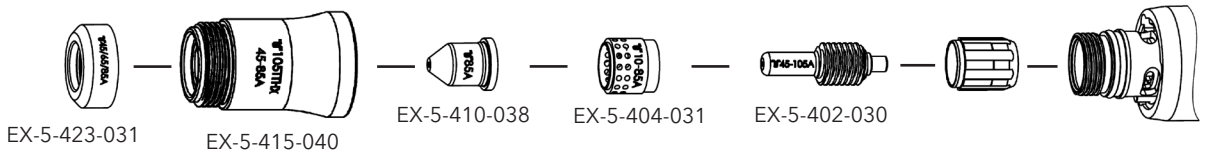
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
3	2	5	0.1	5491	116	7920	115	1.7
4			0.2	4620	116	6336	115	
6			0.5	3036	118	3872	117	1.8
8			0.5	2112	119	2728	119	1.9
10			0.5	1373	121	1822	120	2.0
12		6	0.7	1056	124	1408	122	2.0
16		Edge start		697	130	791	126	2.2
20				459	135	544	130	
25				272	141	340	135	
Stainless steel								
3	2	5	0.1	6160	116	8501	115	1.6
4			0.2	4928	116	6864	116	
6			0.5	2992	118	4022	119	1.7
8			0.5	1980	119	2614	120	1.8
10		6	0.5	1258	121	1619	122	2.0
12		6	0.7	880	127	1179	126	2.1
16		Edge start		572	132	642	131	2.3
20				317	136	502	135	
Aluminium								
3	2	5	0.1	5733	118	7488	117	1.8
4			0.2	5680	120	6318	118	
6			0.5	2574	123	3845	120	1.8
8			0.5	1833	125	2535	122	1.9
10		6	0.5	1404	126	1669	125	1.9
12		6	0.7	1014	131	1342	128	2.0
16		Edge start		764	137	1028	132	2.1
20				428	142	637	136	

17.1.9 85 A cutting, shielded, with compressed air, dynamic pressure 5.2 bar at approx. 110 l/min gas flow



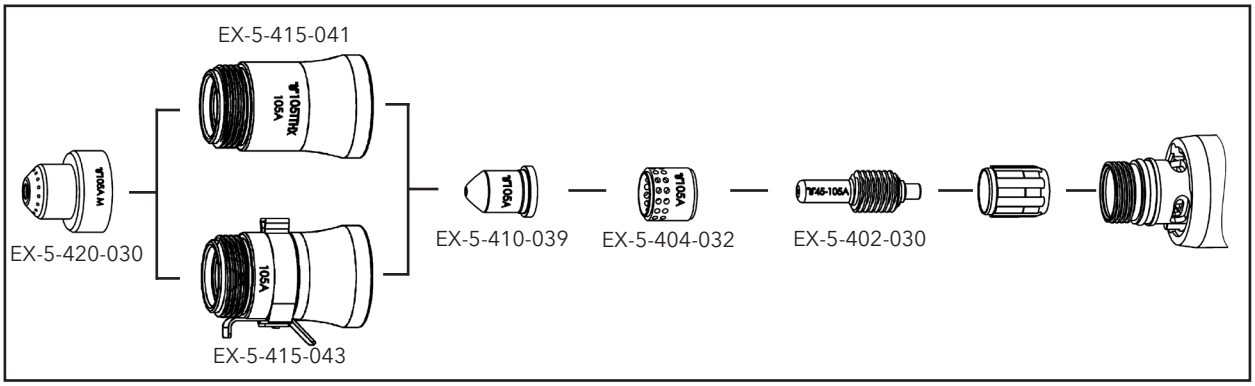
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
3	1.5	3.8	0.1	6800	122	9200	120	1.7
4			0.2	5650	122	7300	122	
6			0.5	3600	123	4400	125	1.8
8			0.5	2500	125	3100	127	1.9
10			0.5	1680	127	2070	128	2.0
12		4.5	0.7	1280	130	1600	130	2.2
16		4.5	1	870	134	930	133	2.4
20		6	1.5	570	137	680	136	2.6
25		Edge start		350	142	450	141	
30				200	146	300	144	
Stainless steel								
3	1.5	3.8	0.1	7500	122	9200	120	1.6
4			0.2	6100	122	7500	120	
6			0.5	3700	122	4600	122	1.8
8			0.5	2450	124	3050	124	1.9
10		4.5	0.5	1550	127	1900	126	2.1
12		4.5	0.7	1100	131	1400	130	2.3
16		4.5	1	700	135	760	134	2.4
20		Edge start		480	138	570	137	2.5
25				300	143	370	141	
Aluminium								
3	1.5	3.8	0.1	8000	122	9400	121	2.0
4			0.2	6500	123	8000	123	
6			0.5	3800	126	4900	126	1.9
8			0.5	2650	130	3470	129	2.0
10		4.5	0.5	1920	132	2500	131	2.1
12		4.5	0.7	1450	134	1930	133	2.2
16		4.5	1	950	139	1200	137	2.4
20		Edge start		600	143	880	141	2.6
25				380	146	540	144	

17.1.10 85 A cutting, unshielded, with compressed air, dynamic pressure 5.2 bar at approx. 110 l/min gas flow



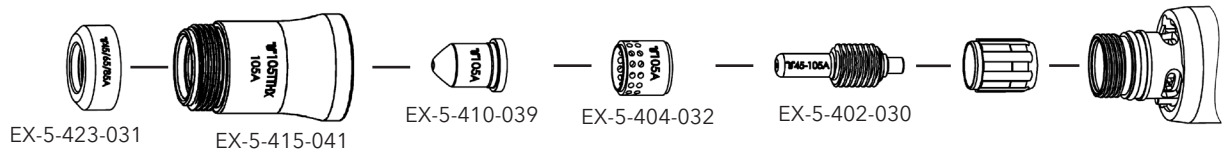
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
2	2	5	0	7150	117	10400	116	1.7
3			0.1	6240	118	9000	117	1.8
4			0.2	5250	118	7200	117	
6			0.5	3450	120	4400	119	1.9
8			0.5	2400	121	3100	121	2.0
10			0.5	1560	123	2070	122	2.1
12		6	0.7	1200	126	1600	124	2.1
16		Edge start		820	132	930	128	2.3
20				540	137	640	132	
25				320	143	400	137	
Stainless steel								
2	2	5	0.1	8550	117	11300	116	1.7
3			0.1	7000	118	9660	117	1.7
4			0.2	5600	118	7800	118	
6			0.5	3400	120	4570	121	1.8
8			0.5	2250	121	2970	122	1.9
10		6	0.5	1430	123	1840	124	2.1
12		6	0.7	1000	129	1340	128	2.2
16		Edge start		650	134	730	133	2.4
20				360	138	570	137	
Aluminium								
2	2	5	0.1	8700	118	11200	118	1.9
3			0.1	7350	120	9600	119	1.9
4			0.2	6000	122	8100	120	
6			0.5	3300	125	4930	122	1.9
8			0.5	2350	127	3250	124	2.0
10		6	0.5	1800	128	2140	127	2.0
12		6	0.7	1300	133	1720	130	2.1
16		Edge start		840	139	1130	134	2.2
20				470	144	700	138	

17.1.11 100 A cutting, shielded, with compressed air, dynamic pressure 4.8 bar at approx. 135 l/min gas flow



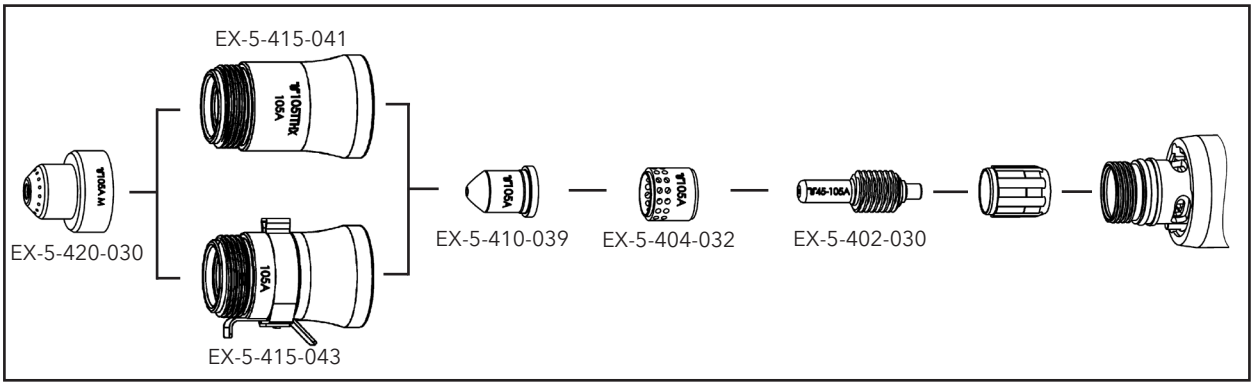
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
6	3.2	6.4	0.5	3892	142	4785	143	2
8			0.75	2952	143	3638	143	2.1
10			0.75	2124	143	2623	143	2.1
12			0.75	1589	143	1936	146	2.1
16			1	996	147	1231	147	2.4
20			1	733	150	884	150	2.6
25		Edge start		517	157	545	156	3.2
30				348	160	385	159	
32				329	164	348	159	
35				273	166	301	163	
40				179	171	197	168	
Stainless steel								
6	3.2	6.4	0.5	4529	137	5580	139	1.8
8			0.5	3218	139	3915	140	2.0
10			0.5	2083	142	2483	140	2.2
12			0.6	1386	146	1730	142	2.2
16			0.75	884	147	1004	147	2.2
20		8	1.25	614	152	753	150	2.5
25		Edge start		409	156	493	154	2.8
30				316	162	335	158	
32				279	164	298	161	
Aluminium								
6	3.2	6.4	0.5	5442	143	6452	142	2.2
8			0.75	3795	147	4568	146	2.2
10			0.75	2402	150	2985	149	2.3
12			1	1738	154	2230	152	2.5
16			1	1174	155	1511	153	2.6
20			1.25	918	161	1071	160	2.9
25		Edge start		594	164	711	163	3.4
30				387	171	513	169	
32				306	173	441	171	

17.1.12 100 A cutting, unshielded, with compressed air, dynamic pressure 4.8 bar at approx. 135 l/min gas flow



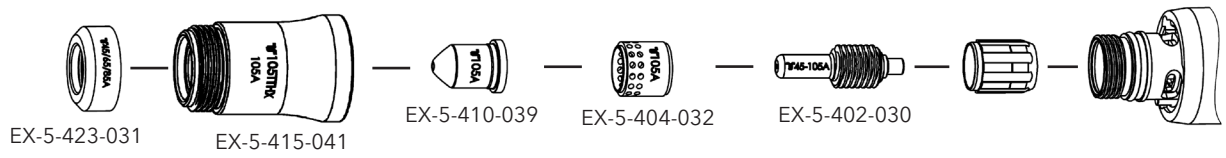
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
6	4.6	9.2	0.5	3798	146	4681	143	2
8			0.5	2970	147	3544	143	2.2
10			0.5	2209	148	2538	143	2.4
12			0.5	1598	151	1955	145	2.3
16			0.6	921	153	1128	150	2.6
20			1	697	153	884	152	2.8
25		Edge start		470	157	545	157	3.1
30				282	159	348	158	
32				244	167	254	165	
35				301	162	329	161	
40				150	174	179	170	
Stainless steel								
6	4.6	9.2	0.5	4572	143	5630	140	1.9
8			0.5	3146	145	3833	142	2.1
10			0.5	1923	147	2364	144	2.3
12			0.6	1297	149	1601	147	2.4
16			0.75	827	151	1015	149	2.6
20			1	620	154	752	153	2.6
25		Edge start		395	157	470	157	3.0
30				310	160	348	159	
32				282	161	301	160	
Aluminium								
6	4.6	9.2	0.5	5198	146	6381	147	2.0
8			0.75	3658	150	4503	149	2.2
10			0.75	2376	152	3186	151	2.4
12			1	1860	153	2181	152	2.3
16			1	1264	158	1577	156	2.6
20		Edge start		931	161	1131	160	2.8
25				627	165	732	165	3.1
30				475	168	561	167	
32				428	169	494	168	

17.1.13 105 A cutting, shielded, with compressed air, dynamic pressure 4.8 bar at approx. 135 l/min gas flow



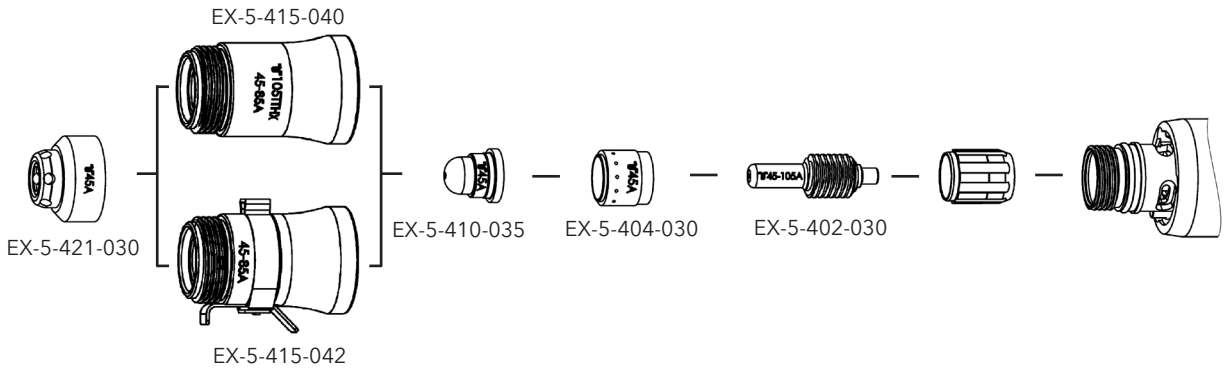
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
6	3.2	6.4	0.5	4140	144	5090	145	2.1
8			0.75	3140	145	3870	145	2.2
10			0.75	2260	145	2790	145	2.2
12			0.75	1690	145	2060	148	2.2
16			1	1060	149	1310	149	2.5
20			1	780	152	940	152	2.7
25		Edge start		550	159	580	158	3.3
30				370	162	410	161	
32				350	166	370	161	
35				290	168	320	165	
40				190	173	210	170	
Stainless steel								
6	3.2	6.4	0.5	4870	139	6000	141	1.9
8			0.5	3460	141	4210	142	2.1
10			0.5	2240	144	2670	142	2.3
12			0.6	1490	148	1860	144	2.3
16			0.75	950	149	1080	149	2.3
20		8	1.25	660	154	810	152	2.6
25		Edge start		440	158	530	156	2.9
30				340	164	360	160	
32				300	166	320	163	
Aluminium								
6	3.2	6.4	0.5	5980	145	7090	144	2.3
8			0.75	4170	149	5020	148	2.3
10			0.75	2640	152	3280	151	2.4
12			1	1910	156	2450	154	2.6
16			1	1290	157	1660	155	2.7
20			1.25	1020	163	1190	162	3.0
25		Edge start		660	166	790	165	3.5
30				430	173	570	171	
32				340	175	490	173	

17.1.14 105 A cutting, unshielded, with compressed air, dynamic pressure 4.8 bar at approx. 135 l/min gas flow



Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[mm]	[mm]	[mm]	[Seconds]	[mm/min]	[Volts]	[mm/min]	[Volts]	[mm]
Mild steel								
6	4.6	9.2	0.5	4040	148	4980	145	2.1
8			0.5	3160	149	3770	145	2.3
10			0.5	2350	150	2700	145	2.5
12			0.5	1700	153	2080	147	2.4
16			0.6	980	155	1200	152	2.7
20			1	742	155	940	154	2.9
25		Edge start		500	159	580	159	3.2
30				300	161	370	160	
32				260	169	270	167	
35				320	164	350	163	
40				160	176	190	172	
Stainless steel								
6	4.6	9.2	0.5	4970	145	6120	142	2.0
8			0.5	3420	147	4210	144	2.2
10			0.5	2090	149	2570	146	2.4
12			0.5	1410	151	1740	149	2.5
16			0.75	880	153	1080	151	2.7
20			1	660	156	800	155	2.7
25		Edge start		420	159	500	159	3.1
30				330	162	370	161	
32				300	163	320	162	
Aluminium								
6	4.6	9.2	0.5	5840	148	7170	149	2.1
8			0.75	4110	152	5060	151	2.3
10			0.75	2670	154	3580	153	2.5
12			1	2090	155	2450	154	2.4
16			1	1330	160	1660	158	2.7
20		Edge start		980	163	1190	162	2.9
25				660	167	770	167	3.2
30				500	170	590	169	
32				450	171	520	170	

17.1.15 40-45 A cutting, SmoothLine, shielded, with compressed air, dynamic pressure 5.2 bar at approx. 87 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	1.5	2.25	0	8250	78	0.9	40
0.6			0	8250	78		
0.8			0.1	8250	78		
1			0.2	8250	78	0.7	45
1.5			0.4	6400	78		
2			0.4	4800	78	0.5	
3			0.5	2750	78	0.6	
4			0.6	1900	78		
Stainless steel							
0.5	0.5	2	0	8250	68	0.9	40
0.6			0	8250	68		
0.8			0.1	8250	68		
1			0.15	8250	68	0.9	45
1.5			0.4	6400	70		
2			0.4	4800	71	0.9	
3			0.5	2550	80	0.9	
4			0.6	1050	80		

Cut Charts for Shielded Configuration only

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

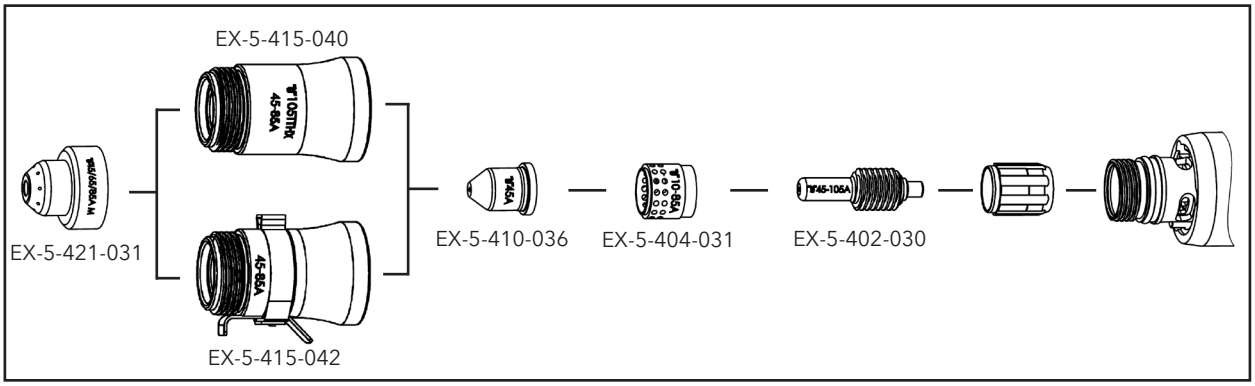
- **Recommended speed:**
  Speeds adjusted for cutting capacity do not necessarily represent maximum speeds. They are the speeds that must be achieved for the specified material thickness.
- **Maximum speed:**
  The maximum cutting speeds are the result of in-depth laboratory testing. Actual cutting 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
75 - 85 A	+0.10 in.
100 - 105 A	+0.18 in
40 - 45A SmoothLine	+0.08 in

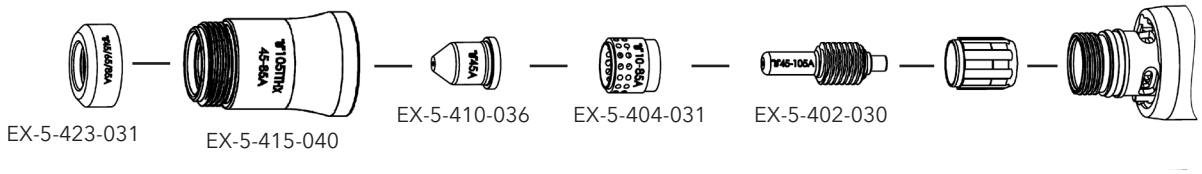
* When used in countries that require CE conformity, the torch must be operated with a shield.

18.1.1 45 A cutting, shielded, with compressed air, dynamic pressure 75 psi at approx. 3.1 CFM gas flow



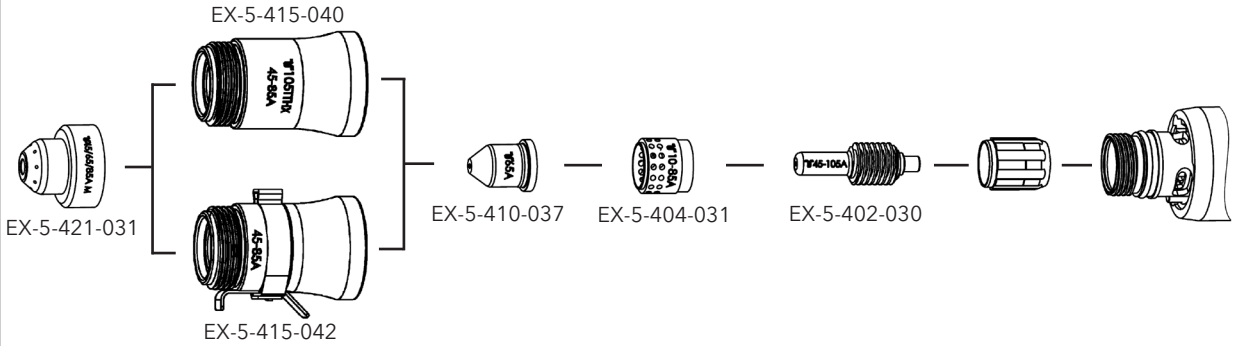
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
26 GA	0.059	0.150	0	354	128	492	126	0.043
20 GA			0	354	128	425	128	0.043
16 GA			0.1	354	130	402	129	
14 GA			0.3	260	130	307	129	0.055
12 GA			0.4	152	133	193	131	0.059
3/16			0.4	87	134	140	131	
1/4			0.5	53	137	81	132	0.067
Stainless steel								
26 GA	0.059	0.150	0	354	130	492	129	0.035
20 GA			0	354	130	425	130	0.043
16 GA			0.1	354	130	402	130	
14 GA			0.3	236	132	340	131	0.059
12 GA			0.4	122	132	173	132	0.063
3/16			0.4	79	134	102	134	
1/4			0.5	35	140	40	139	0.071
Aluminium								
20 GA	0.059	0.150	0	325	136	433	130	0.059
14 GA			0.1	260	136	362	131	0.059
12 GA			0.2	122	139	246	132	0.063
3/16			0.4	87	141	191	134	
1/4			0.5	59	142	110	139	0.059

18.1.2 45 A cutting, unshielded, with compressed air, dynamic pressure 75 psi at approx. 3.1 CFM gas flow



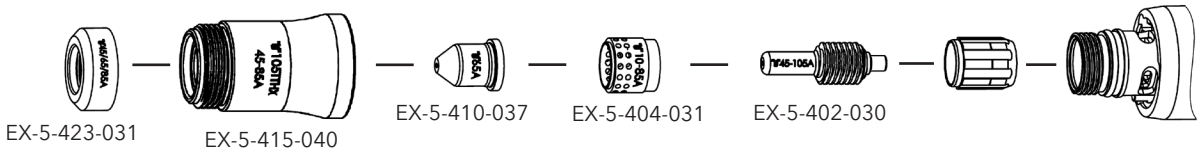
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
26 GA	0.059	0.150	0	354	120	492	120	0.020
20 GA			0	354	120	425	121	0.035
16 GA			0.1	303	120	402	121	
14 GA			0.3	242	119	307	122	0.051
12 GA			0.4	156	121	193	123	0.051
3/16			0.4	93	123	140	124	
1/4			0.5	55	126	81	124	
Stainless steel								
26 GA	0.059	0.150	0	354	121	492	119	0.020
20 GA			0	354	121	425	119	0.039
16 GA			0.1	354	121	402	120	
14 GA			0.3	236	122	378	120	0.051
12 GA			0.4	128	123	187	120	0.059
3/16			0.4	75	128	118	122	
1/4			0.5	28	130	57	124	0.059
Aluminium								
20 GA	0.059	0.150	0	291	126	433	121	0.063
14 GA			0.1	173	127	362	122	0.059
12 GA			0.2	110	129	246	124	0.055
3/16			0.4	83	132	185	125	
1/4			0.5	41	135	89	127	0.059

18.1.3 55 A cutting, shielded, with compressed air, dynamic pressure 75 psi at approx. 3.5 CFM gas flow



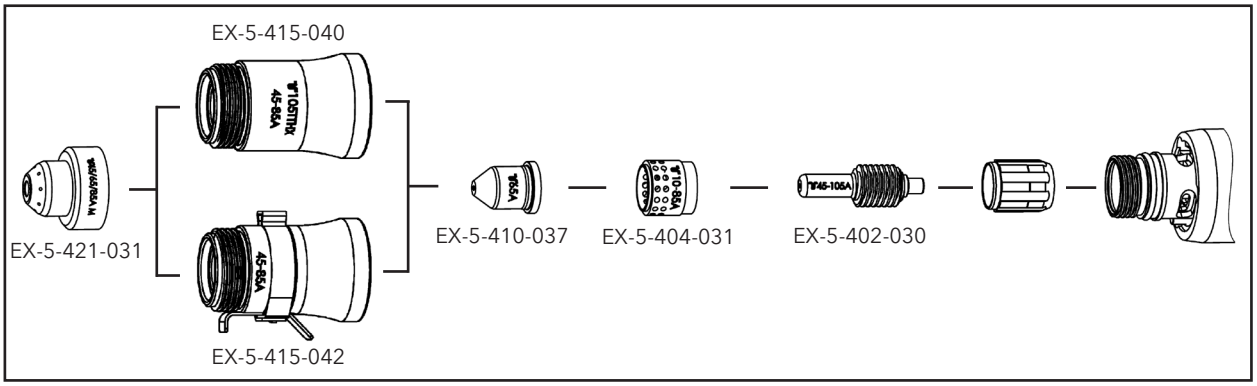
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
14 GA	0.059	0.150	0.1	210	122	243	119	0.059
12 GA			0.2	180	123	211	121	0.059
3/16			0.5	147	123	177	122	
1/4			0.5	88	125	112	125	0.067
5/16			0.5	59	127	77	126	0.071
3/8		0.177	0.7	38	129	52	127	0.075
1/2		0.177	1.2	29	132	39	129	0.083
5/8		0.236	2	19	136	23	134	0.087
3/4		Edge start		12	140	16	140	
1				7	143	9	143	
Stainless steel								
14 GA	0.059	0.150	0.1	274	123	339	119	0.051
12 GA			0.2	227	123	280	121	0.055
3/16			0.5	176	123	208	122	
1/4			0.5	83	124	96	124	0.067
5/16			0.7	51	127	63	127	0.071
3/8		0.177	0.7	33	130	42	130	0.075
1/2		0.177	1.2	25	133	31	132	0.083
5/8		Edge start		17	137	17	137	0.091
3/4				10	141	13	141	
Aluminium								
14 GA	0.059	0.150	0.1	301	119	353	120	0.071
12 GA			0.2	253	122	301	122	0.071
3/16			0.5	205	124	251	123	
1/4			0.5	110	128	151	126	0.071
5/16			0.7	67	131	94	128	0.075
3/8		0.177	0.7	41	134	57	130	0.079
1/2		0.177	1.2	34	136	46	134	0.087
5/8		Edge start		22	141	27	139	0.095
3/4				13	145	19	143	

18.1.4 55 A cutting, unshielded, with compressed air, dynamic pressure 75 psi at approx. 3.5 CFM gas flow



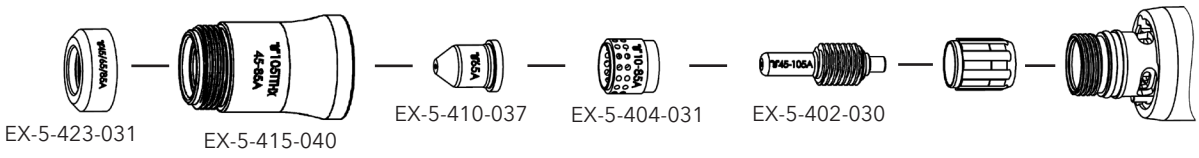
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
14 GA	0.079	0.197	0.1	209	115	254	115	0.059
12 GA			0.2	180	116	219	116	0.059
3/16			0.5	147	116	182	116	
1/4			0.5	88	118	123	118	0.063
5/16			0.5	56	121	77	119	0.067
3/8		0.236	0.7	34	125	52	120	0.071
1/2		Edge start		26	127	39	122	0.075
5/8				17	132	22	127	
3/4				9	136	13	131	
Stainless steel								
14 GA	0.079	0.197	0.1	276	115	357	114	0.059
12 GA			0.2	229	116	295	115	0.059
3/16			0.5	175	117	225	117	
1/4			0.5	80	119	106	119	0.067
5/16			0.7	48	121	66	120	0.067
3/8		0.236	0.7	32	124	43	121	0.071
1/2		Edge start		25	128	32	125	0.075
5/8				15	133	17	131	
Aluminium								
14 GA	0.079	0.197	0.1	238	121	347	120	0.067
12 GA			0.2	201	122	292	121	0.067
3/16			0.5	166	123	235	122	
1/4			0.5	92	125	120	124	0.067
5/16			0.7	55	128	76	125	0.067
3/8		0.236	0.7	34	131	50	127	0.071
1/2		Edge start		28	133	38	131	0.075
5/8				21	137	25	134	

18.1.5 65 A cutting, shielded, with compressed air, dynamic pressure 75 psi at approx. 3.5 CFM gas flow



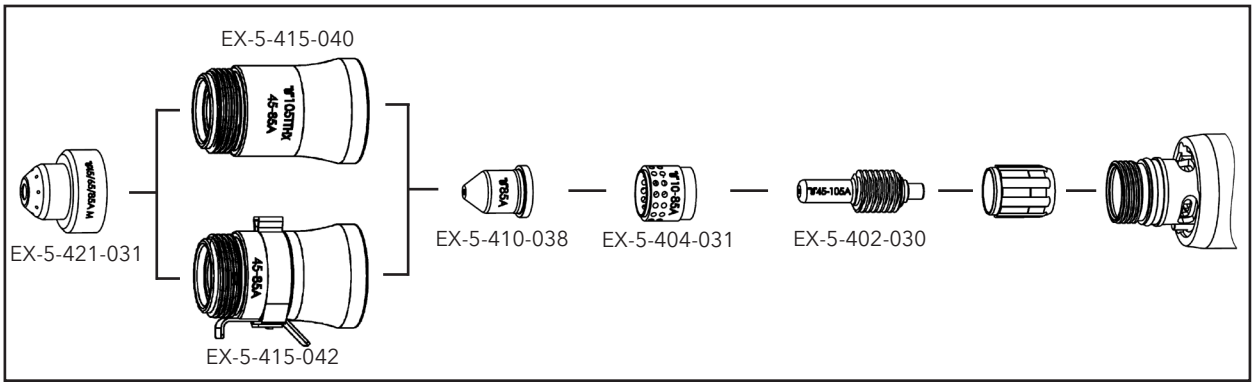
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
14 GA	0.059	0.150	0.1	238	124	276	121	0.063
12 GA			0.2	205	125	240	123	0.063
3/16			0.5	167	125	201	124	
1/4			0.5	100	127	128	127	0.071
5/16			0.5	67	129	88	128	0.075
3/8		0.177	0.7	43	131	59	129	0.079
1/2		0.177	1.2	33	134	45	131	0.087
5/8		0.236	2	22	138	26	136	0.091
3/4		Edge start		14	142	18	142	
1				8	145	11	145	
Stainless steel								
14 GA	0.059	0.150	0.1	319	125	394	121	0.055
12 GA			0.2	264	125	325	123	0.059
3/16			0.5	205	125	242	124	
1/4			0.5	96	126	112	126	0.071
5/16			0.7	59	129	73	129	0.075
3/8		0.177	0.7	38	132	49	132	0.079
1/2		0.177	1.2	30	135	36	134	0.087
5/8		Edge start		20	139	20	139	0.095
3/4				12	143	15	143	
Aluminium								
14 GA	0.059	0.150	0.1	346	121	406	122	0.075
12 GA			0.2	291	124	346	124	0.075
3/16			0.5	236	126	289	125	
1/4			0.5	126	130	173	128	0.075
5/16			0.7	77	133	108	130	0.079
3/8		0.177	0.7	47	136	65	132	0.083
1/2		0.177	1.2	39	138	52	136	0.091
5/8		Edge start		26	143	31	141	0.098
3/4				15	147	22	145	

18.1.6 65 A cutting, unshielded, with compressed air, dynamic pressure 75 psi at approx. 3.5 CFM gas flow



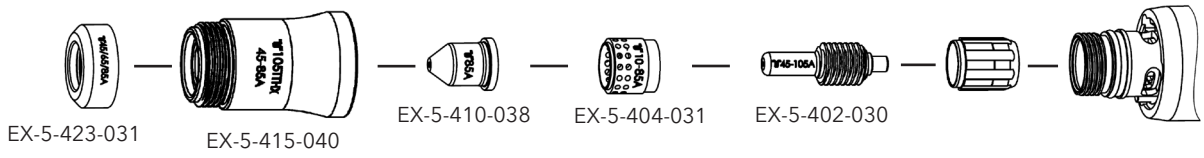
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
14 GA	0.079	0.197	0.1	238	117	289	117	0.063
12 GA			0.2	205	118	249	118	0.063
3/16			0.5	167	118	207	118	
1/4			0.5	100	120	140	120	0.067
5/16			0.5	64	123	88	121	0.071
3/8		0.236	0.7	38	127	59	122	0.075
1/2		Edge start		30	129	45	124	0.079
5/8				20	134	26	129	
3/4				11	138	16	133	
Stainless steel								
14 GA	0.079	0.197	0.1	313	117	406	116	0.063
12 GA			0.2	260	118	335	117	0.063
3/16			0.5	199	119	256	119	
1/4			0.5	91	121	121	121	0.071
5/16			0.7	55	123	75	122	0.071
3/8		0.236	0.7	36	126	49	123	0.075
1/2		Edge start		28	130	36	127	0.079
5/8				17	135	20	133	
Aluminium								
14 GA	0.079	0.197	0.1	305	123	445	122	0.071
12 GA			0.2	258	124	374	123	0.071
3/16			0.5	213	125	301	124	
1/4			0.5	118	127	154	126	0.071
5/16			0.7	71	130	97	127	0.071
3/8		0.236	0.7	43	133	65	129	0.075
1/2		Edge start		35	135	49	133	0.079
5/8				24	139	28	136	

18.1.7 75 A cutting, shielded, with compressed air, dynamic pressure 75 psi at approx. 3.9 CFM gas flow



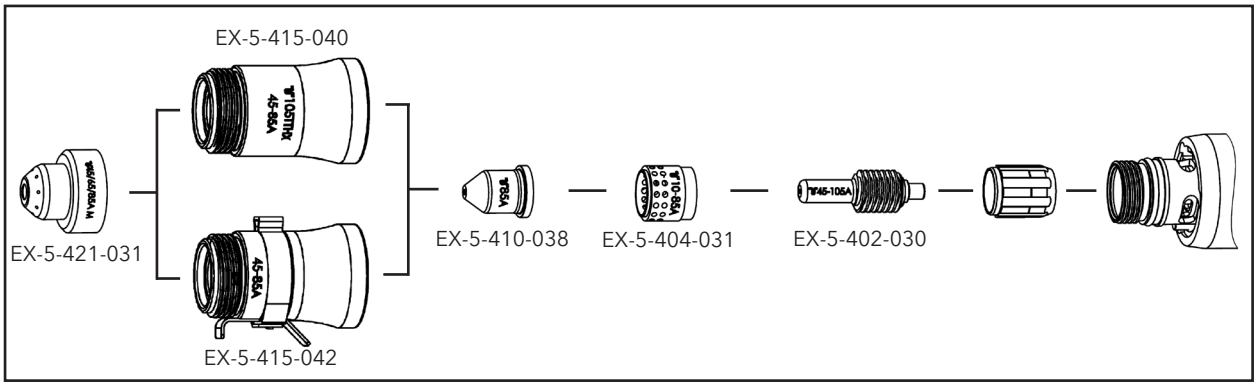
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
12 GA	0.059	0.150	0.1	236	120	319	118	0.063
3/16			0.2	196	120	253	120	
1/4			0.5	125	121	152	123	0.067
5/16			0.5	87	123	107	125	0.071
3/8			0.5	58	125	72	126	0.075
1/2		0.177	0.7	44	128	55	128	0.083
5/8		0.177	1	30	132	32	131	0.091
3/4		0.236	1.5	20	135	24	134	0.098
1		Edge start		12	140	16	139	
30				7	144	10	142	
Stainless steel								
12 GA	0.059	0.150	0.1	254	120	311	118	0.059
3/16			0.2	206	120	254	118	
1/4			0.5	125	120	156	120	0.067
5/16			0.5	83	122	103	122	0.071
3/8		0.177	0.5	52	125	64	124	0.079
1/2		0.177	0.7	37	129	47	128	0.087
5/8		0.177	1	24	133	26	132	0.091
3/4		Edge start		16	136	19	135	0.095
1				10	141	13	139	
Aluminium								
12 GA	0.059	0.150	0.1	274	120	322	119	0.075
3/16			0.2	223	121	274	121	
1/4			0.5	130	124	168	124	0.071
5/16			0.5	91	128	119	127	0.075
3/8		0.177	0.5	66	130	86	129	0.079
1/2		0.177	0.7	50	132	66	131	0.083
5/8		0.177	1	33	137	42	135	0.091
3/4		Edge start		21	141	31	139	0.098
1				13	144	19	142	

18.1.8 75 A cutting, unshielded, with compressed air, dynamic pressure 75 psi at approx. 3.9 CFM gas flow



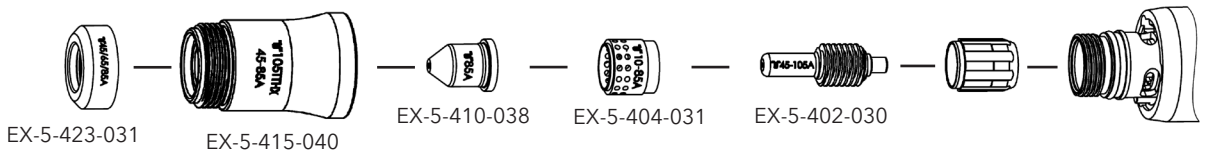
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
12 GA	0.079	0.197	0.1	216	116	312	115	0.067
3/16			0.2	182	116	249	115	
1/4			0.5	119	118	152	117	0.071
5/16			0.5	83	119	107	119	0.075
3/8			0.5	54	121	72	120	0.079
1/2		0.236	0.7	42	124	55	122	0.079
5/8		Edge start		27	130	31	126	0.087
3/4				18	135	21	130	
1				11	141	13	135	
Stainless steel								
12 GA	0.079	0.197	0.1	242	116	334	115	0.063
3/16			0.2	194	116	270	116	
1/4			0.5	118	118	158	119	0.067
5/16			0.5	78	119	103	120	0.071
3/8		0.236	0.5	50	121	64	122	0.079
1/2		0.236	0.7	35	127	46	126	0.083
5/8		Edge start		23	132	25	131	0.091
3/4				12	136	20	135	
Aluminium								
12 GA	0.079	0.197	0.1	226	118	295	117	0.071
3/16			0.2	224	120	249	118	
1/4			0.5	101	123	151	120	0.071
5/16			0.5	72	125	100	122	0.075
3/8		0.236	0.5	55	126	66	125	0.075
1/2		0.236	0.7	40	131	53	128	0.079
5/8		Edge start		30	137	40	132	0.083
3/4				17	142	25	136	

18.1.9 85 A cutting, shielded, with compressed air, dynamic pressure 75 psi at approx. 3.9 CFM gas flow



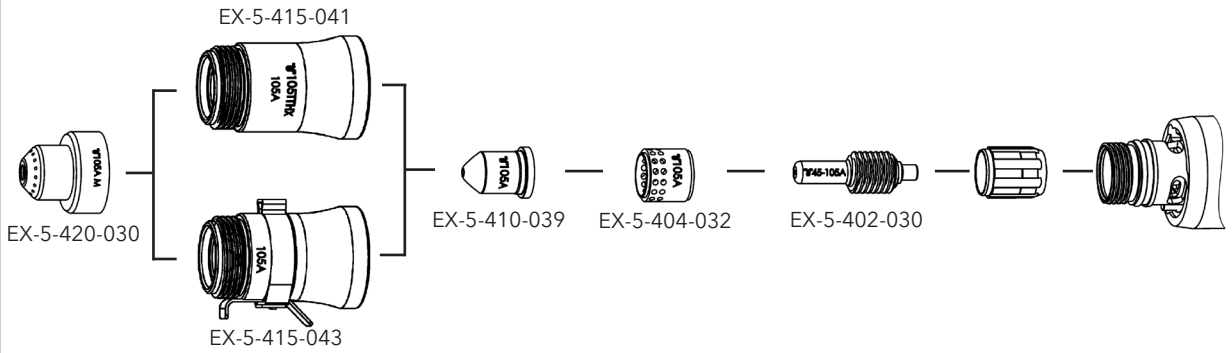
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
12 GA	0.059	0.150	0.1	268	122	362	120	0.067
3/16			0.2	222	122	287	122	
1/4			0.5	142	123	173	125	0.071
5/16			0.5	98	125	122	127	0.075
3/8			0.5	66	127	81	128	0.079
1/2		0.177	0.7	50	130	63	130	0.087
5/8		0.177	1	34	134	37	133	0.095
3/4		0.236	1.5	22	137	27	136	0.102
1		Edge start		14	142	18	141	
1-1/4				8	146	12	144	
Stainless steel								
12 GA	0.059	0.150	0.1	295	122	362	120	0.063
3/16			0.2	240	122	295	120	
1/4			0.5	146	122	181	122	0.071
5/16			0.5	96	124	120	124	0.075
3/8		0.177	0.5	61	127	75	126	0.083
1/2		0.177	0.7	43	131	55	130	0.091
5/8		0.177	1	28	135	30	134	0.095
3/4		Edge start		19	138	22	137	0.098
1				12	143	15	141	
Aluminium								
12 GA	0.059	0.150	0.1	315	122	370	121	0.079
3/16			0.2	256	123	315	123	
1/4			0.5	150	126	193	126	0.075
5/16			0.5	104	130	137	129	0.079
3/8		0.177	0.5	76	132	98	131	0.083
1/2		0.177	0.7	57	134	76	133	0.087
5/8		0.177	1	37	139	47	137	0.095
3/4		Edge start		24	143	35	141	0.102
1				15	146	21	144	

18.1.10 85 A cutting, unshielded, with compressed air, dynamic pressure 75 psi at approx. 3.9 CFM gas flow



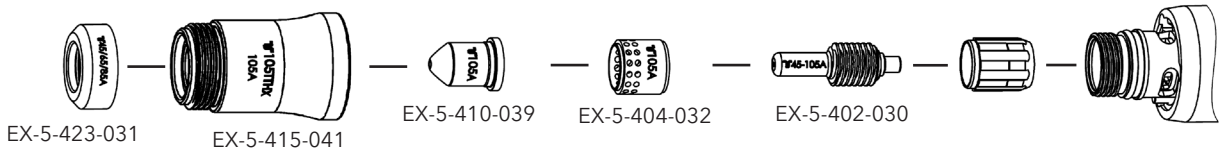
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
14 GA	0.079	0.197	0	281	117	409	116	0.067
12 GA			0.1	246	118	354	117	0.071
3/16			0.2	207	118	283	117	
1/4			0.5	136	120	173	119	0.075
5/16			0.5	94	121	122	121	0.079
3/8			0.5	61	123	81	122	0.083
1/2		0.236	0.7	47	126	63	124	0.083
5/8		Edge start		32	132	37	128	0.091
3/4				21	137	25	132	
1				13	143	16	137	
Stainless steel								
14 GA	0.079	0.197	0.1	337	117	445	116	0.067
12 GA			0.1	276	118	380	117	0.067
3/16			0.2	220	118	307	118	
1/4			0.5	134	120	180	121	0.071
5/16			0.5	89	121	117	122	0.075
3/8		0.236	0.5	56	123	72	124	0.083
1/2			0.7	39	129	53	128	0.087
5/8		Edge start		26	134	29	133	0.095
3/4				14	138	22	137	
Aluminium								
14 GA	0.079	0.197	0.1	343	118	441	118	0.075
12 GA			0.1	289	120	378	119	0.075
3/16			0.2	236	122	319	120	
1/4			0.5	130	125	194	122	0.075
5/16			0.5	93	127	128	124	0.079
3/8		0.236	0.5	71	128	84	127	0.079
1/2			0.7	51	133	68	130	0.083
5/8		Edge start		33	139	44	134	0.087
3/4				19	144	28	138	

18.1.11 100 A cutting, shielded, with compressed air, dynamic pressure 70 psi at approx. 4.8 CFM gas flow



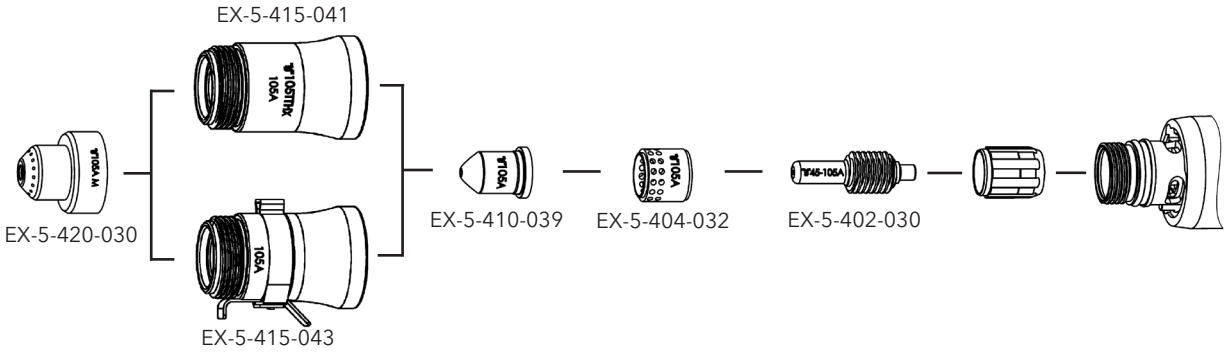
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
1/4	0.126	0.252	0.5	153	142	188	143	0.079
5/16			0.75	116	143	143	143	0.083
3/8			0.75	84	143	103	143	0.083
1/2			0.75	63	143	76	146	0.083
5/8			1	39	147	48	147	0.095
3/4			1	29	150	35	150	0.102
1		Edge start		20	157	21	156	0.126
1-1/8				14	160	15	159	
1-1/4				13	164	14	159	
1-1/2				7	171	8	168	
Stainless steel								
1/4	0.126	0.252	0.5	178	137	220	139	0.071
5/16			0.5	127	139	154	140	0.079
3/8			0.5	82	142	98	140	0.087
1/2			0.6	55	146	68	142	0.087
5/8			0.75	35	147	40	147	0.087
3/4		0.315	1.25	24	152	30	150	0.098
1		Edge start		16	156	19	154	0.110
1-1/8				12	162	13	158	
1-1/4				11	164	12	161	
Aluminium								
1/4	0.126	0.252	0.5	214	143	254	142	0.087
5/16			0.75	149	147	180	146	0.087
3/8			0.75	95	150	117	149	0.091
1/2			1	68	154	88	152	0.098
5/8			1	46	155	59	153	0.102
3/4			1.25	36	161	42	160	0.114
1		Edge start		23	164	28	163	0.134
1-1/8				15	171	20	169	
1-1/4				12	173	17	171	

18.1.12 100 A cutting, unshielded, with compressed air, dynamic pressure 70 psi at approx. 4.8 CFM gas flow



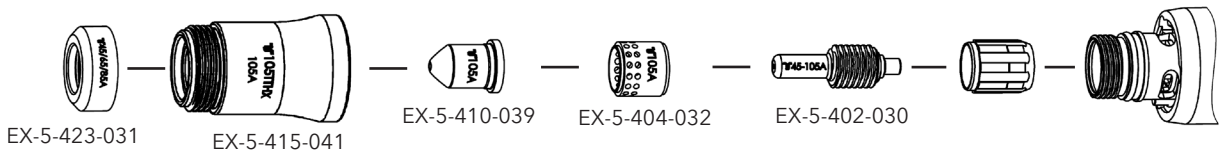
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
1/4	0.181	0.362	0.5	149	146	184	143	0.079
5/16			0.5	117	147	140	143	0.087
3/8			0.5	87	148	100	143	0.095
1/2			0.5	63	151	77	145	0.091
5/8			0.6	36	153	44	150	0.102
3/4			1	27	153	35	152	0.110
1		Edge start		19	157	21	157	0.122
1-1/8				11	159	14	158	
1-1/4				10	167	10	165	
1-1/2				6	174	7	170	
Stainless steel								
1/4	0.181	0.362	0.5	180	143	222	140	0.075
5/16			0.5	124	145	151	142	0.083
3/8			0.5	76	147	93	144	0.091
1/2			0.6	51	149	63	147	0.095
5/8			0.75	33	151	40	149	0.102
3/4			1	24	154	30	153	0.102
1		Edge start		16	157	19	157	0.118
1-1/8				12	160	14	159	
1-1/4				11	161	12	160	
Aluminium								
1/4	0.181	0.362	0.5	204	146	251	147	0.079
5/16			0.75	144	150	177	149	0.087
3/8			0.75	94	152	125	151	0.095
1/2			1	73	153	86	152	0.091
5/8			1	50	158	62	156	0.102
3/4		Edge start		37	161	44	160	0.110
1				25	165	29	165	0.122
1-1/8				19	168	22	167	
1-1/4				17	169	19	168	

18.1.13 105 A cutting, shielded, with compressed air, dynamic pressure 70 psi at approx. 4.8 CFM gas flow



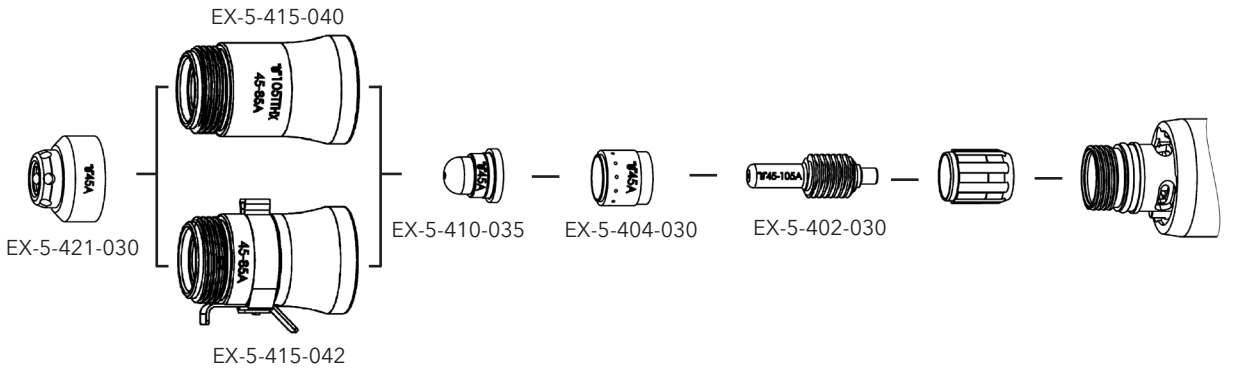
Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
1/4	0.126	0.252	0.5	163	144	200	145	0.083
5/16			0.75	124	145	152	145	0.087
3/8			0.75	89	145	110	145	0.087
1/2			0.75	67	145	81	148	0.087
5/8			1	42	149	52	149	0.098
3/4			1	31	152	37	152	0.106
1		Edge start		22	159	23	158	0.130
1-1/8				15	162	16	161	
1-1/4				14	166	15	161	
1-1/2				7	173	8	170	
Stainless steel								
1/4	0.126	0.252	0.5	192	139	236	141	0.074
5/16			0.5	136	141	166	142	0.083
3/8			0.5	88	144	105	142	0.091
1/2			0.6	59	148	73	144	0.091
5/8			0.75	37	149	43	149	0.091
3/4		0.312	1.25	26	154	32	152	0.102
1		Edge start		17	158	21	156	0.114
1-1/8				13	164	14	160	
1-1/4				12	166	13	163	
Aluminium								
1/4	0.126	0.252	0.5	235	145	279	144	0.091
5/16			0.75	164	149	198	148	0.091
3/8			0.75	104	152	129	151	0.094
1/2			1	75	156	96	154	0.102
5/8			1	51	157	65	155	0.106
3/4			1.25	40	163	47	162	0.118
1		Edge start		26	166	31	165	0.138
1-1/8				17	173	22	171	
1-1/4				13	175	19	173	

18.1.14 105 A cutting, unshielded, with compressed air, dynamic pressure 70 psi at approx. 4.8 CFM gas flow



Material thickness	Cut height (shield to work cut height)	Pierce height (shield to workpiece height)	Pierce delay time	Recommended Speed		Maximum Speed		Kerf width
				Settings for highest quality		Standard quality settings		
				Cutting Speed	Voltage	Cutting Speed	Voltage	
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[ipm]	[Volts]	[in]
Mild steel								
1/4	0.181	0.362	0.5	159	148	196	145	0.083
5/16			0.5	124	149	148	145	0.091
3/8			0.5	93	150	106	145	0.098
1/2			0.5	67	153	82	147	0.095
5/8			0.6	39	155	47	152	0.106
3/4			1	29	155	37	154	0.114
1		Edge start		20	159	23	159	0.126
1-1/8				12	161	15	160	
1-1/4				10	169	11	167	
1-1/2				6	176	7	172	
Stainless steel								
1/4	0.181	0.362	0.5	196	145	241	142	2.0
5/16			0.5	135	147	166	144	0.087
3/8			0.5	82	149	101	146	0.095
1/2			0.5	56	151	68	149	0.098
5/8			0.75	35	153	43	151	0.106
3/4			1	26	156	31	155	0.106
1		Edge start		17	159	20	159	0.122
1-1/8				13	162	15	161	
1-1/4				12	163	13	162	
Aluminium								
1/4	0.181	0.362	0.5	230	148	282	149	0.083
5/16			0.75	162	152	199	151	0.091
3/8			0.75	105	154	141	153	0.098
1/2			1	82	155	96	154	0.095
5/8			1	52	160	65	158	0.106
3/4		Edge start		39	163	47	162	0.114
1				26	167	30	167	0.126
1-1/8				20	170	23	169	
1-1/4				18	171	20	170	

18.1.15 40-45 A cutting, SmoothLine, shielded, with compressed air, dynamic pressure 75 psi at approx. 3.1 CFM 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		
[in]	[in]	[in]	[Seconds]	[ipm]	[Volts]	[in]	[A]
Mild steel							
26 GA	0.059	0.089	0	325	78	0.035	40
24 GA			0	325	78		
22 GA			0.1	325	78		
20 GA			0.2	325	78	0.028	45
16 GA			0.4	252	78		
14 GA			0.4	189	78	0.020	
12 GA			0.5	108	78	0.024	
3/16			0.6	75	78		
Stainless steel							
26 GA	0.020	0.079	0	325	68	0.035	40
24 GA			0	325	68		
22 GA			0.1	325	68		
20 GA			0.15	325	68	0.035	45
16 GA			0.4	252	70		
14 GA			0.4	189	71	0.035	
12 GA			0.5	100	80	0.035	
3/16			0.6	41	80		

Cut Charts for Shielded Configuration only

Contact and support

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Revision history

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

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