
# EX-TRAFIRE 45HD

## Plasma Cutting System

**Operating Instructions – EX-2-902-002/N21603 – CE**

**Revision 4, 26th July, 2024**

THERMACUT®
THE CUTTING COMPANY®

## Table of contents

# 1 Identification

The EX-TRAFIRE® 45HD is a portable plasma arc cutting power supply for mechanized and manual plasma cutting, gouging, and optional marking. It uses compressed air or nitrogen to cut almost all electrically conductive metals. The EX-TRAFIRE® 45HD has to be operated only with original Thermacut® consumables and maintenance parts.

This documentation describes the EX-TRAFIRE® 45HD cutting power supply only.

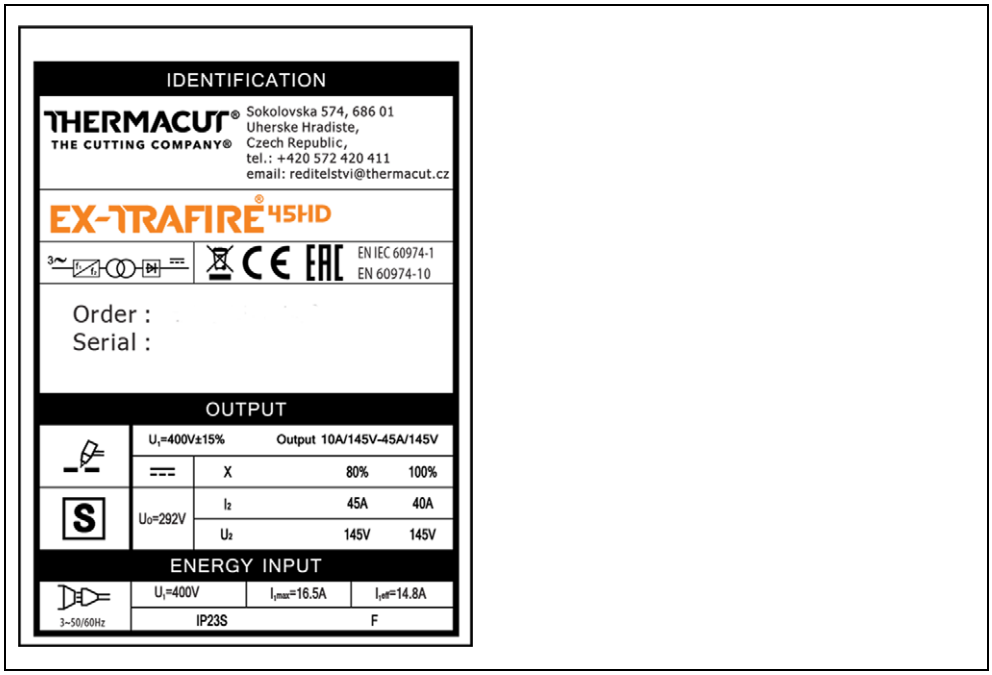
When used in this documentation, the term “device” always refers to the EX-TRAFIRE® 45HD cutting power supply.

## 1.1 Labeling

This product fulfills the requirements that apply to the market to which it has been introduced. A corresponding marking has been affixed to the product, if required.

## 1.2 Identification plate

**Fig. 1** EX-TRAFIRE® 45HD identification plate




The device is labeled by means of an identification plate on the housing located on the side and bottom of the machine.

➢ For inquiries, please have on hand the order and serial number of the device as seen on the identification plate.

## 1.3 Signs and symbols used

The following signs and symbols are used:

➢ General instructions.

1 Action(s) to be carried out in succession.

– Lists.

⇨ Cross-reference symbol refers to detailed, supplementary or further information.

A Caption, item description.

## 1.4 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, it may cause severe injury or death.

**⚠ WARNING**

Describes a potentially dangerous situation. If not avoided, this may result in serious injury or death

**⚠ CAUTION**

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

***NOTICE***

Describes the risk of impairing work results or material damage and indicates irreparable damage to the device or equipment.

# 2 Safety

This chapter warns of potential 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.

## 2.1 Designated use

The device described in this document may be used only for the purpose and manner described. The device is used only for the generation and control of the output current required for plasma cutting, gouging, and marking. Any other use is considered improper. Unauthorized modifications or changes to enhance the performance are not permitted.

- Do not exceed the maximum electrical load specifications as defined by the document supplied. Overloads could 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 in wet conditions or environments.

## 2.2 Obligations of the operator

- Ensure that only qualified and trained personnel are permitted to 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.
- Each time the device's cover plates are opened, have Thermacut® or another authorized specialist perform a safety inspection in accordance with IEC 60974 Part 4: "Periodic inspection and testing".

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 EN 61000-6-3.

## 2.3 Warning and notice signs

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

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

## 2.4 Product-specific safety instructions

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

## 2.5 Safety instructions for the electrical power supply

- Ensure that the input power cable is not damaged, for example, by being driven over, crushed, or torn.
- Check the input power cable for damage and wear at regular intervals.
- If it is necessary to replace the input power cable, only cables specified in Table 9 Recommended cable extensions on page EN-19 must be used.
- Only a certified electrician or trained personnel should carry out work on the input power cable and the input power plug.
- Water protection and mechanical stability must be ensured when replacing the input power plug of the input power cable.

## 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.
- Ensure that others in close proximity are also wearing personal protective equipment.

Personal protective equipment consists of protective clothing, safety welding glasses or goggles (see table below), face protection, ear protectors, protective gloves, and safety shoes.

**Table 1** Lens shade selector for plasma 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× EX-TRAFIRE®45HD cutting power supply
– 1× FHT-EX®45TTH or FHT-EX®45TTM cutting torch
– 1× work lead incl. work lead 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 Assembly and use

The control elements are located on the control panel. The connections are on the front and rear of the device.

**Fig. 2** Control elements and connections, rear panel

**A** POWER switch
**B** Optional CNC interface
**C** G 1/4" gas connection, plug
**D** Optional BUS interface
**E** Input power cable

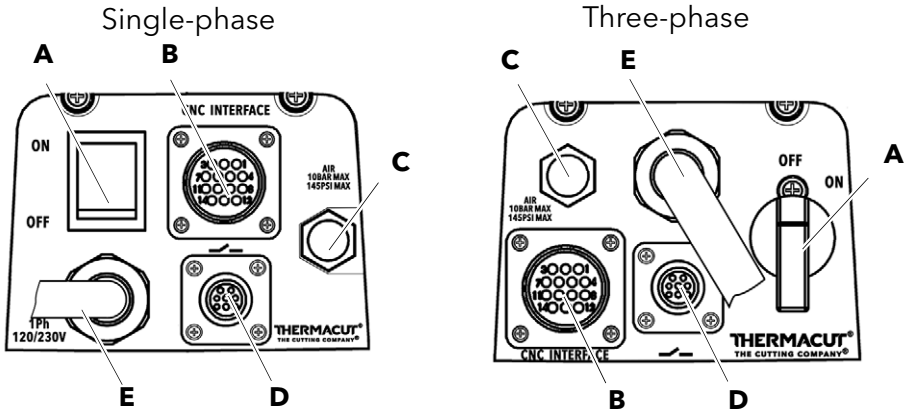
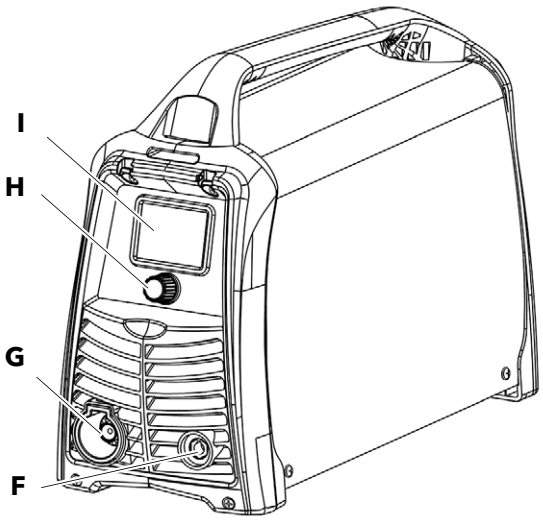



**Fig. 3** Control elements and connections, front panel

**F** Work lead connection
**G** Torch connection system (TCS)
**H** Multi-function button
**I** LCD display



| | |
|---|---|
| **POWER switch (A)** | Used to switch the device on and off. |
| **Optional CNC interface connection (B)** | This optional interface is used to connect the device to an optional CNC cutting table or robot. |
| **Gas connection (C)** | This interface is used to connect a compressed air supply. |
| **Optional BUS interface (D)** | For the connection of the optional CAN BUS or RS485/422 BUS. |
| **Work lead connecting socket (F)** | For the connection of the work lead. |
| **TCS socket (G)** | For the connection of the TCS latch with key assembly. |
| **Multi-function button (H)** | For toggling between two menus and setting the cutting parameters. |
| **LCD display (I)** | Displays the status of the device. A fault code is displayed if an error occurs. |

## 4.2 Technical data

### 4.2.1 EX-TRAFIRE® 45HD, Single-phase

**Table 2** Power supply specifications, single-phase

| | CE | |
|---|---|---|
| **Rated open circuit voltage ($U_0$)** | 292 V DC | |
| **Characteristic curve*** <br>* The curve is defined as output voltage versus output current | Drooping | |
| **Input voltage ($U_1$)** | 240 V AC ± 15% | |
| **Output arc current ($I_2$)** | 10 – 45 A | |
| **Nominal output arc voltage ($U_2$)** | 145 V DC | |
| **Maximum power input** | 7.5 k VA | |
| **Duty cycle X is the percentage of 10 minutes that the system can cut (Arc-On time) at nominal load ($I_2$ and $U_2$) without overheating at rated input voltage.*** | | |
| **Duty cycle (X*) at 40 °C (104 °F) at nominal conditions ($U_1$, $U_2$, $I_2$)** | 40 % | |
| **Ambient temperature** | -10 °C to +40 °C | |
| **Rated input current ($I_{1rms}$) and effective input current ($I_{1eff}$) at rated output power** <br>eff= effective <br>rms= root mean square | $I_{1rms}$ | $I_{1eff}$ |
| | 16.5 A | 14.8 A |
| | Complies with standards IEC 60974-1, IEC 60974-10 | |
| **Protection type** | IP23S | |
| **Operating tilt angle** | Up to15° | |
| **Dimensions (L × H × W) [mm]** | 469.9 x 228.6 x 177.0 | |
| **Weight [kg]** | 12.7 | |

*

$$X = \frac{\text{Arc-On time (minutes)} * 100}{10\ \text{(minutes)}} = \text{Duty cycle [\%]}$$

When the duty cycle is exceeded, the system may overheat which would cause the power supply to shut down. Wait for the device to cool down before returning to normal operating conditions.

### 4.2.2 EX-TRAFIRE®45HD, Three-phase

**Table 3** Power supply specifications, Three-phase

| | CE | |
|---|---|---|
| **Rated open circuit voltage ($U_0$)** | 308 V DC | |
| **Characteristic curve*** <br>* The curve is defined as output voltage versus output current | Drooping | |
| **Input voltage ($U_1$)** | 400 V AC ± 15%<br>3 PH/50 – 60 Hz | |
| **Output arc current ($I_2$)** | 10 – 45 A | |
| **Nominal output arc voltage ($U_2$)** | 145 V DC | |
| **Maximum power input** | 11.4 k VA | |
| **Duty cycle X is the percentage of 10 minutes that the system can cut (Arc-On time) at nominal load ($I_2$ and $U_2$) without overheating at rated input voltage.*** | | |
| **Duty cycle (X*) at 40 °C (104 °F) at nominal conditions ($U_1$, $U_2$, $I_2$)** | 80 % | |
| **Ambient temperature** | -10 °C to +40 °C | |
| **Rated input current ($I_{1rms}$) and effective input current ($I_{1eff}$) at rated output power**<br>eff= effective<br>rms= root mean square | $I_{1rms}$ | $I_{1eff}$ |
| | 16.2 A | 14.4 A |
| | Complies with standards IEC 60974-1, IEC 60974-10 | |
| **Protection type** | IP23S | |
| **Operating tilt angle** | Up to15° | |
| **Dimensions (L × H × W) [mm]** | 469.9 x 228.6 x 177.0 | |
| **Weight [kg]** | 12.7 | |

*

$$X = \frac{\text{Arc-On time (minutes)} * 100}{10\ \text{(minutes)}} = \text{Duty cycle [\%]}$$

When the duty cycle is exceeded, the system may overheat which would cause the power supply to shut down. Wait for the device to cool down before returning to normal operating conditions.

**Table 4** Ambient conditions for transport and storage

| | |
|---|---|
| **Ambient temperature** | -20 °C to +55 °C |
| **Relative humidity** | < 50 % at +40 C°<br>< 90 % at +20 °C |

**Table 5** Ambient conditions for operation

| | |
|---|---|
| **Ambient temperature** | -10 °C to +40 °C |
| **Relative humidity** | < 50 % at +40 °C<br>< 90 % at +20 °C |
| **Installation above sea level** | max. 2000 m |

**Table 6** Gas data

| | |
|---|---|
| **Permissible gas** | Compressed air/nitrogen/argon* |
| **Gas inlet pressure, cutting** | 6.2 to 10 bar |
| **Recommended compressed air quality**<br><br>**Recommended nitrogen/argon quality** | ISO 8573-1 Class 1.2.2.<br>clean, and free from moisture and oil<br><br>Purity: ≥ 99,99% |
| **Needed flow rate** | 120 l/min at 10 bar |

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

## 4.3 Technical data for cutting torches FHT-EX® 45TTH and FHT-EX® 45TTM

FHT-EX® cutting torches are used for manual and mechanized cutting, gouging, and marking. They use compressed air or nitrogen to cut mild steels, stainless steels, aluminum, and other electrically conductive metals. They are connected to the cutting power supply using the Torch Connection System (TCS).

The values below refer to the torches!

**Table 7** Technical data for FHT-EX® 45TTH and FHT-EX® 45TTM cutting torches

| | **FHT-EX® 45TTH / FHT-EX® 45TTM** |
|---|---|
| **Recommended cutting capacity [mm]** | 12 |
| **Max. cutting capacity [mm]** | 25 |
| **Piercing capacity [mm]** | 10 |
| **Permissible ambient temperature during operation** | -10 °C to +40 °C |
| **Permissible ambient temperature during transport and storage** | -25 °C to +55 °C |
| **Relative humidity** | < 90 % at +20 °C |
| **Sub-menu item** | Plasma cutting, gouging, optional marking |
| **Application type** | Manual and mechanized |
| **Rated current and duty cycle** | 45 A/100 % |
| **Permissible gas** | Compressed air/Nitrogen/Argon* |
| **Flow rate** | 90 l/min. at 4.8 bar |
| **Maximum inlet pressure** | 10 bar |
| **Gas post-flow period delay** | ≤ 35 seconds |
| **Type of voltage** | DC |
| **Protection type for EX-TRAFIRE® 45HD** | IP23S (EN 60529) |

**Table 7** Technical data for FHT-EX® 45TTH and FHT-EX® 45TTM cutting torches

| | **FHT-EX® 45TTH / FHT-EX® 45TTM** |
|---|---|
| **Connection type** | TCS (Torch Connection System) - 13 Pin |
| **Standard lengths (other lengths available upon request)** | 5 m / 8 m / 15 m |

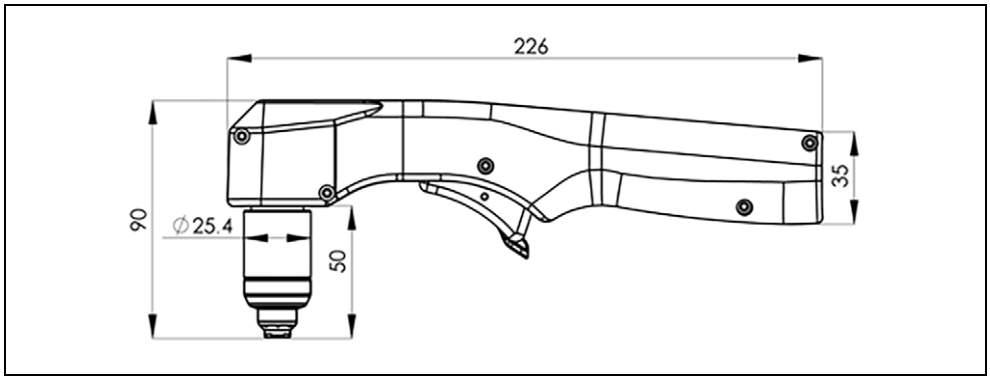
* Nitrogen may be used for cutting stainless steel and aluminum; argon may be used only in connection with the optional marking kit.

**Table 8** Cutting torch weights and cable lengths

| **Cutting torch** | **Weight and cable lengths** |
|---|---|
| **FHT-EX® 45TTH**<br>Standard hand cutting torch | 5 m/1.5 kg<br>8 m/2.2 kg<br>15 m/3.6 kg |
| **FHT-EX® 45TTM**<br>Standard machine cutting torch | 5 m/1.5 kg<br>8 m/2.2 kg<br>15 m/3.6 kg |

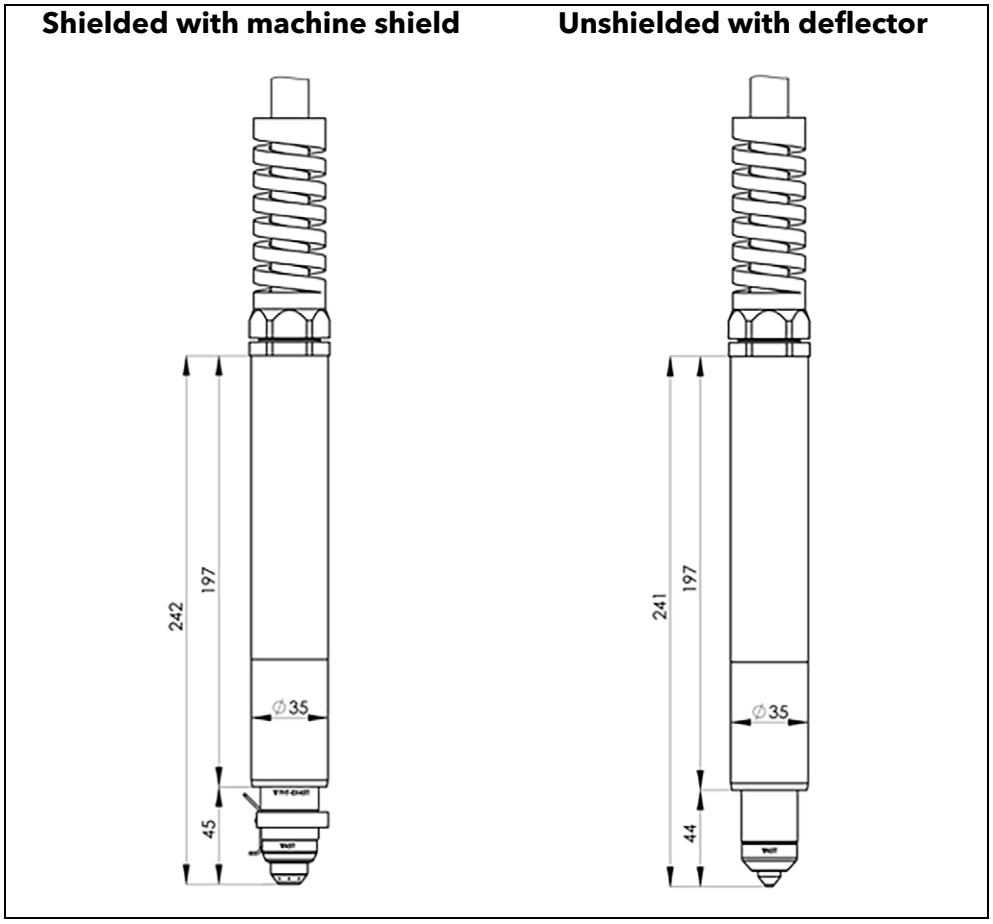
### 4.3.1 Torch dimensions FHT-EX® 45TTH

**Fig. 4** Torch dimensions FHT-EX® 45TTH




### 4.3.2 Torch dimensions FHT-EX® 45TTM

**Fig. 5** Torch dimensions FHT-EX® 45TTM



# 5 Transport and positioning

**⚠ WARNING**

**Risk of injury due to improper transport and installation**

Improper transport and installation can cause the device to tip or fall over. This may result in 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.
- ➢ Place the device on a suitable surface (flat, solid, and dry) on which it will not topple over, taking into account the max. operating tilt angle of 15°.
- ➢ Note the weight of the device when lifting it. Lift with two persons. ⇨ 4.2 Technical data on page EN-12
- ➢ Use an appropriate lifting tool with load handling equipment for transporting and installing the device.
- ➢ Avoid abrupt lifting and setting down.
- ➢ Do not lift the device over individuals or other devices.
- ➢ Use the attachment points provided.

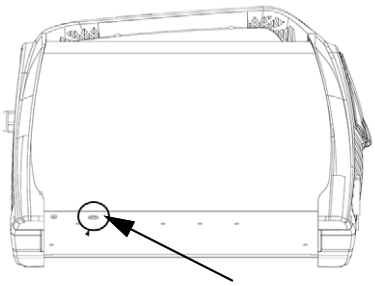
***NOTICE***

**Risk of material damage due to improper transport and installation**

Improper transport or installation can cause the device to tip or fall over. This can result in material damage and irreparable damage.

- ➢ Protect the device against weather conditions, such as rain and direct sunlight.
- ➢ Protect the device from spatter when cutting.
- ➢ Protect the device from direct exposure to sparks when grinding.
- ➢ Use the device only in dry, clean, and well-ventilated rooms.
- ➢ Maintain a minimum distance of 0.5 m from the wall when positioning the device to ensure that it has sufficient ventilation.

**Fig. 6** Drain tube location

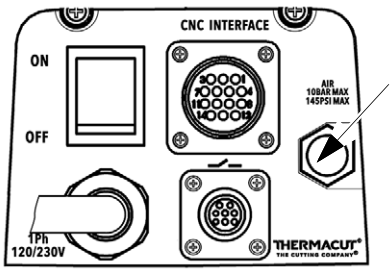


- ➢ When positioning the device, make sure that the water separator's drain opening (see circle) is not covered.

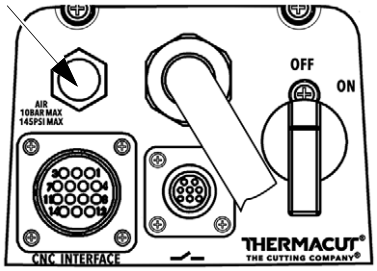
# 6 Setting up the power supply

## 6.1 Connecting to the gas supply

Single-phase

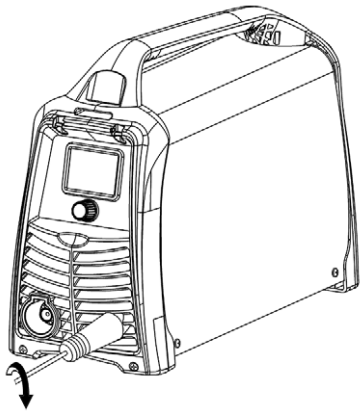



Three-phase




➢ Connect the gas hose with an inside diameter of at least 6 mm to the gas connection of the device.

## 6.2 Connecting the work lead

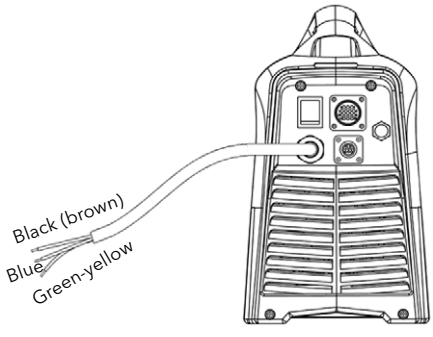


➢ Connect the work lead to the work lead connecting socket and secure it by rotating clockwise.

## 6.3 Connecting the power supply cable

### 6.3.1 Connecting the single-phase machine

Single -phase




The power supply should be connected by a certified electrician or trained personnel.

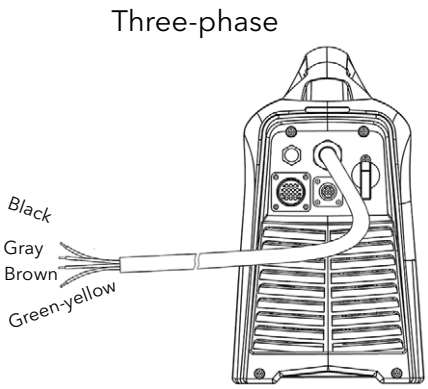
L -> black (brown)

N -> blue

PE grounding -> green-yellow

The green grounding wire is exclusively for the grounding and must always be connected!

### 6.3.2 Connecting the three-phase machine




The power supply should be connected by a certified electrician or trained personnel.

L1 -> black (U)

L2 -> brown (V)

L3 -> gray (W)

PE grounding -> green-yellow

The green grounding wire is exclusively for the grounding and must always be connected!

**Table 9** Recommended cable extensions

| Input voltage | Wire cross-sections | Length |
|---|---|---|
| 200 – 240 V AC/1 Phase | 6 $mm^2$ | Up to15 m |
| | 16 $mm^2$ | 15 – 30 m |
| | 25 $mm^2$ | 30 – 45 m |
| 380 – 480 V AC/3 Phase | 4 $mm^2$ | Up to15 m |
| | 6 $mm^2$ | 15 - 45 m |

Any extension cord must have wire sized for the cord length and system voltage in accordance with local and national codes.

## 6.4 Connecting the input power plug

➢ Note the safety instructions.

⇨ 2.5 Safety instructions for the electrical power supply on page EN-7

**⚠ WARNING**

**Electric shock due to improperly installed electrical power supply**

If the electrical power supply and grounding are improperly installed, fatal electric shock may occur.

➢ If you want to operate the device in a very humid environment or on conductive material, install ground fault circuit breakers (GFCI) in the power supply if according to electric code.

➢ Use slow-blow fuses and/or circuit breakers and GFCI that comply with local regulations and electric codes.

➢ Ground the device according to the applicable regulations and laws.

➢ Do not ground the device together with other devices or machines.

**⚠ WARNING**

**Risk of electric shock due to improperly installed or defective cables**

Damaged or improperly installed cables can lead to fatal electric shock.

➢ Check all live cables and connections for proper installation and damage.

➢ Damaged, deformed, or worn parts should only be replaced by a certified electrician or trained personnel.

**⚠ WARNING**

**Risk of injury due to fire**

Improper use or connection can result in fire. This may result in serious injury.

➢ Ensure that the operating voltage specified on the identification plate is suitable for the input voltage.

For the input voltage and the fuse and/or circuit breaker protection, please refer to:

⇨ 4.2 Technical data on page EN-12

➢ If necessary, have a certified electrician or trained personnel connect the input power cable extension in accordance with local regulations.

➢ Ensure that the power supply is adequately protected by a safety switch.

➢ Insert the input power plug of the input power cable into the corresponding socket.

### 6.4.1 Connection to a generator (optional)

➢ Set the generator to single-phase or three-phase alternating current.

➢ Plug the input power plug into the socket.

➢ Set the motor rating as shown in the following table.

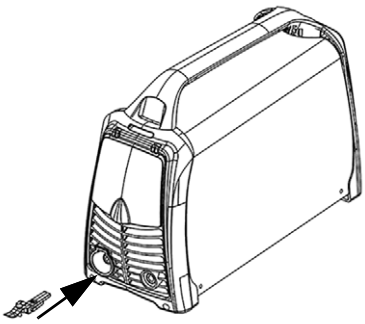
**Table 10** Connection to a generator

| Generator rating | Generator output current ($I_2$) | Generator output voltage |
|---|---|---|
| 6 kW | 25 A | $U_2$ = 200 V C |
| 10 kW | 45 A | |
| 10 kW | 45 A | |

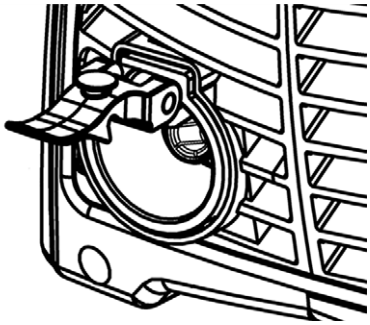
## 6.5 Connecting the cutting torch

**NOTICE**

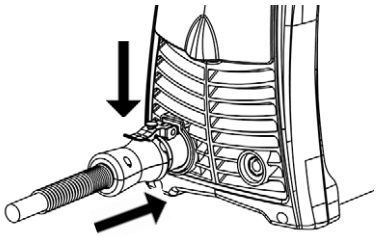
**Risk of material damage if used without TCS latch with key assembly**
The TCS latch with key assembly is important for the proper working of the device. If used without, the device will be damaged.
➢ Only use the device with the TCS latch with key assembly installed and properly secured.



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.

## 6.6 Installing consumables for the hand and machine cutting torches

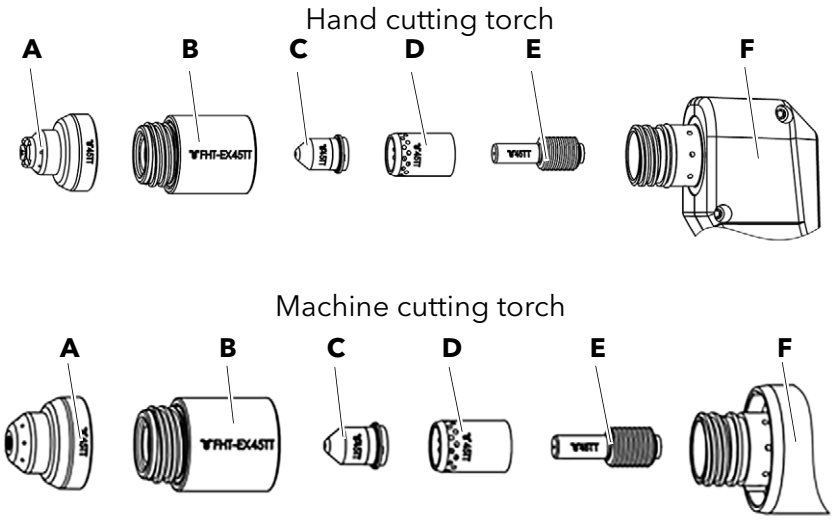
**⚠ WARNING**

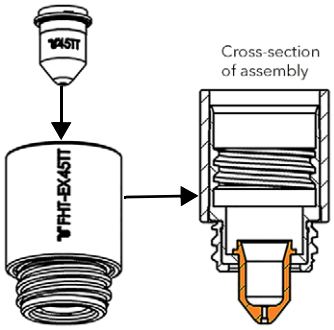
**Risk of injury due to unexpected ignition of the plasma arc**
**Hand cutting torch:**
When the input power plug is plugged in, the plasma arc ignites immediately when the torch trigger is pressed. Individuals can be seriously injured if the arc ignites unexpectedly.
**Machine cutting torch:**
When 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.

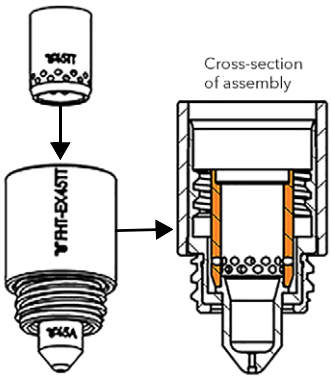
**Fig. 7** Torch consumables

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

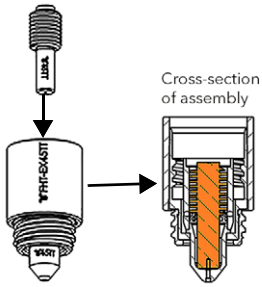




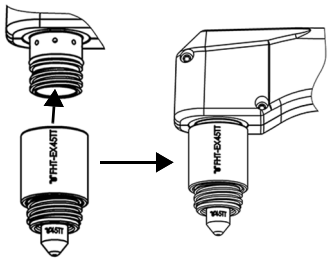

**1** Install nozzle into the retaining cap.




**2** Insert swirl ring into retaining cap and nozzle assembly.



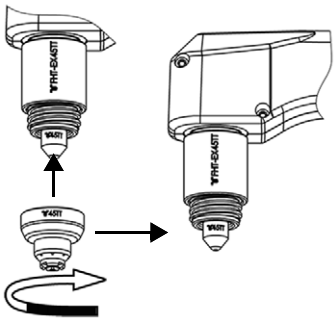

**3** Insert electrode.



**4** Screw the entire assembly onto the hand cutting torch.

Do not overtighten.

The nozzle must be firmly in place and must not move.



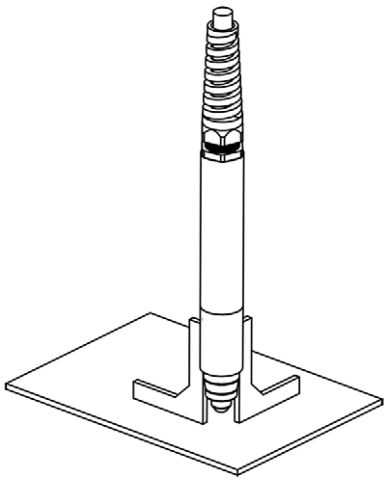
**5** Install shield and tighten it by hand.

Do not overtighten.

## 6.7 Aligning FHT-EX® 45TTM machine cutting torch

For information on the cutting process see

⇨ 6 Setting up the power supply on page EN-18



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 Operation

**⚠ 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 cutting 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 individuals when angling it.
- ➢ Wear your personal protective equipment.

***NOTICE***

**Material damage due to exceeding the maximum duty cycle**
If the device is operated for longer than the maximum duty cycle, it may be overloaded and irreparably damaged.
- ➢ Only operate the device up to the maximum permissible duty cycle. ⇨ 4.2 Technical data on page EN-12
- ➢ Observe the maximum duty cycle for cutting components.

***NOTICE***

**Material damage caused by unplugging the input power plug during operation**
If the input power plug is unplugged during operation, the device may be irreparably damaged.
- ➢ Do not unplug the input power plug during operation and ensure a constant power supply.

**NOTICE**

**Material damage due to switching the output current strength during operation**

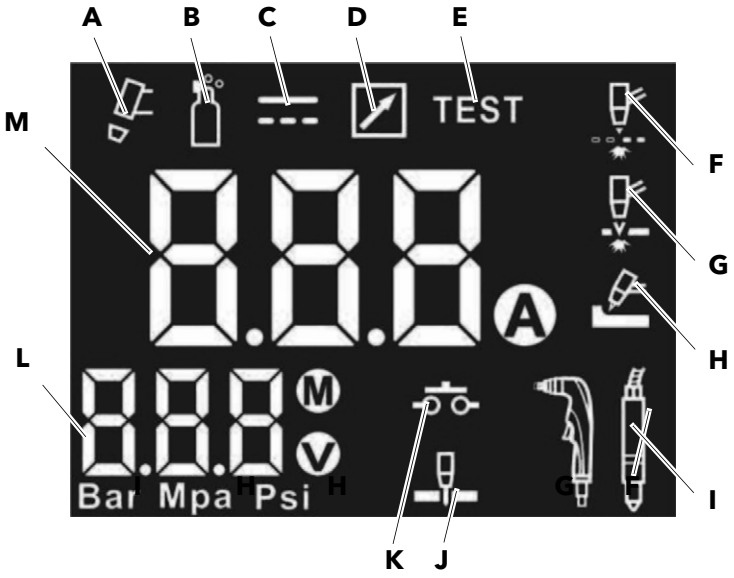
If the output current strength is switched during operation, the device may be damaged.

➢ Set the output current strength before starting operation and do not switch it during the cutting process.

## 7.1 LCD description

**Fig. 8** LCD description

**A** Retaining cap is loose
**B** Compressed air supply
**C** Power supply active
**D** Remote control
**E** Test mode
**F** Grid cutting
**G** Cutting
**H** Gouging/Marking
**I** Cutting torch type
**J** Transfer signal
**K** Indicates activation of the torch button or pins 3, 4 in the CNC connection
**L** Cutting parameters
**M** Output current (Ampère)



### 7.1.1 Setting the parameters

The LCD display contains two menus:

The output current (Amperage) and the cutting modes are set in the first menu. In the second menu, the torch type, torch length, and operating voltage are displayed and the pressure in Bar, Mpa or Psi can be set. To make the basic settings for your personal preference proceed as follows:


**1** Press the multi-function button (H) briefly.

The cutting parameters light up.

**2** Turn the multi-function button to increase or decrease the values.

**3** Press the multi-function knob briefly to set bar.


**4** Press the multi-function knob (H) briefly to set MPa.

**5** Turn the multi-function button to increase or decrease the values.


**6** Press the multi-function knob (H) briefly to set psi.

**7** Turn the multifunction knob to the left or right to set the cutting current.


**8** Press the multifunction knob (H) briefly to display the output voltage.

**9** Turn the multi-function button to increase or decrease the values.


**10** Press the multifunction knob (H) briefly to display the length of the cutting torch assembly.

***NOTICE***

**All individual settings will be restored to the factory settings when the system is switched off.**

## 7.1.2 Selecting the cutting mode


**Grid cutting**

➢ Briefly press the multifunction button to activate the cutting mode.

The current is 20–45 A.
The pressure of the cutting gas is 4.2 to 5.6 bar.

➢ Turn the multi-function button to increase or decrease the values.


**Cutting**

➢ Briefly press the multifunction button to activate the cutting mode.

The current is 20–45 A.
The pressure of the cutting gas is 4.2 to 5.6 bar.

➢ Turn the multi-function button to increase or decrease the values.


**Gouging/Marking**

➢ Briefly press the multifunction button to activate the cutting mode.

**Gouging:**

The current is 20–45 A.
The pressure of the cutting gas is 2.3 to 4.5 bar.

**Optional Marking:**
(uses same icon as gouging)

The current is 10–16 A.
The pressure of the cutting gas is 2.4 bar.

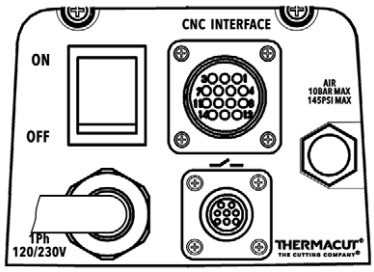
➢ Turn the multi-function button to increase or decrease the values.

## 7.1.3 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 connection.
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.

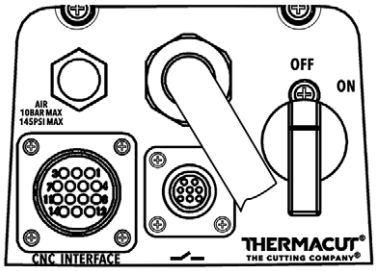
## 7.2 Powering on the machine

Single-phase




➢ Set the POWER switch to ON.

Three-phase




## 7.3 Manual cutting process

**1** Switch on the power supply.

**2** Automatic gas test (five seconds).

**3** Automatic system test (five seconds).

**4** Press torch trigger.

**5** Generate a pilot arc.

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

**6** The cutting process starts.

**7** Extinguish the arc by releasing the cutting torch trigger.

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

## 7.4 Manual grid cutting and gouging process

**1** Switch on the power supply.

**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.

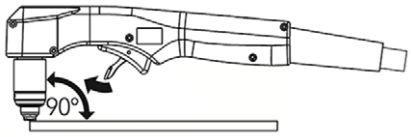
Once the workpiece is detected, the pilot arc switches to a cutting arc.

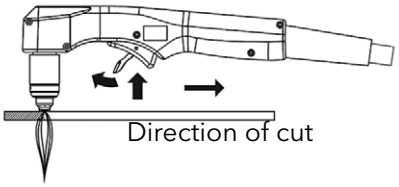
**7** Grid cutting or gouging starts depending on the selected process.

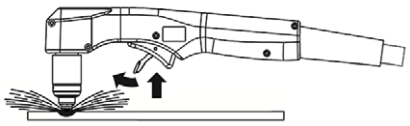
**8** Extinguish the arc by releasing the cutting torch trigger.

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

## 7.5 Cutting – Edge Start



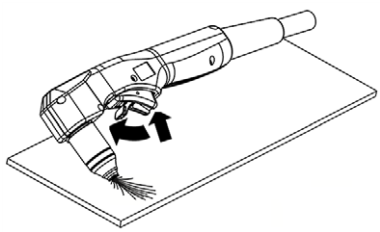
1. Start the cutting process at the edge of the workpiece.
2. Do not move the cutting torch until the material has been cut through completely.
3. Place the cutting torch upright on the edge of the workpiece.
4. Pull the cutting torch in the cutting direction. Sparks must emerge from the underside of 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.

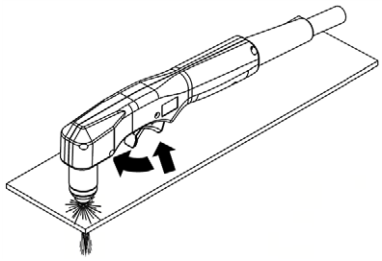
If sparks escape upwards during cutting, the material has not yet been completely severed. Proceed as follows:

- 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.

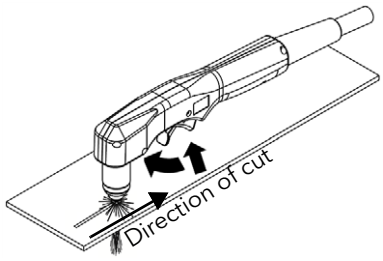
## 7.6 Piercing



1. Hold the cutting torch at an angle to the workpiece with a max. standoff of 3 mm 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 emerges from the underside of the workpiece. Only then is the hole completely pierced through.

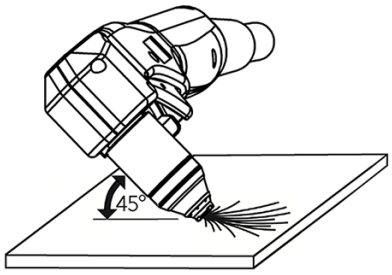


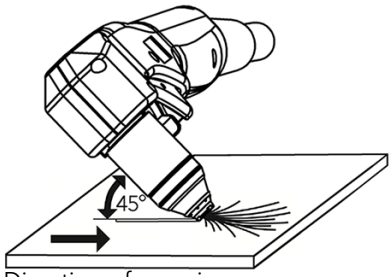

5. Pull the cutting torch in the cutting direction. Sparks must emerge from the underside of the workpiece.

## 7.7 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 distance 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 distance between the cutting torch and workpiece or hold the cutting torch at a 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° to 45° inclined to the workpiece.
3. Hold the nozzle close enough to the workpiece so that it touches the workpiece.
4. Press the torch trigger to ignite the arc.
5. Continue to hold the cutting torch at an angle of 35° to 45° to the workpiece and move it in the direction of the material to be removed.

### 7.7.1 Table for FHT-EX® 45TT material removal

**Table 11** Table for FHT-EX® 45TT material removal

| Gouging parameters | |
|---|---|
| **(Dynamic) air pressure** | 3.5–4 bar |
| **Standoff between cutting torch and workpiece** | As close as possible |
| **Angle of cutting torch to workpiece** | 35° to 45 ° |
| **Speed** | 0.6 m/min. |
| **Current** | 20–45 A |
| **Removal rate for mild steel** | Approx. 3.2 kg/hr |
| **Width of gouge** | Approx. 6.3 mm |
| **Depth of gouge** | Approx. 3.0 mm |

## 7.8 Stopping the cutting process

**⚠ CAUTION**

**Risk of injury due to hot parts**

Parts may still be hot after the gas post-flow period ends. There is a risk of burns.

➢ Wear your personal protective equipment.

➢ Allow the cutting torch to cool down for 5 to 10 minutes before touching the parts.

➢ Release the torch rigger to end the cutting process.

After release of the torch trigger, the gas continues to flow for up to 45 seconds, depending on the set output current, in order to cool the cutting torch and the consumables.

➢ To end the gas post-flow period prematurely, briefly press and release the torch trigger.

➢ Press the torch trigger again to ignite the pilot arc.

# 8 Decommissioning

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

# 9 Maintenance and cleaning

Scheduled maintenance and cleaning are prerequisites for a long service life and trouble-free operation. The maintenance cycle is determined by the work environment and the device's maintenance intervals. If it is operated 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 missing grounding**

If the cover plates are improperly mounted, the grounding may not be properly established. There is a risk of life-threatening electric shock.

- ➢ The cover plates may be disassembled and assembled only by a certified electrician or trained personnel for maintenance and cleaning work.
- ➢ Verify the grounding has been established correctly.
- ➢ Each time the cover plates are opened, have a safety inspection performed in accordance with IEC 60974 Part 4: "Periodic inspection and testing" by Thermacut® or another authorized specialist.

**⚠ 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.
- ➢ Disconnect the input power supply.
- ➢ After disconnecting the device from the input power supply, wait at least five minutes before carrying out any maintenance and cleaning work, especially opening the device.

**⚠ WARNING**

**Electric shock due to defective cables**

Damaged or improperly installed cables can lead to fatal electric shock.

- ➢ Check all live cables and connections for proper installation and damage.
- ➢ Damaged, deformed or worn parts should only be replaced by a certified electrician or trained personnel.

**⚠ CAUTION**

**Fire hazard due to contamination**

Dust deposits inside the device can lead to a reduction in insulation. This can cause short circuits or fires.

- ➢ Clean the device annually with dried compressed air to remove dust and cutting fume residue.

## 9.1 Maintenance and cleaning intervals

The specified intervals are standard values and refer to single-shift operation. We recommend recording the inspections. The date of the inspection, the detected defects and the name of the inspector should be documented.

**Table 12** Maintenance and cleaning intervals

| | |
|---|---|
| **Daily/every 6 hours of cutting** | ➢ Check the gas settings.<br>➢ Check cables, connector hoses, and connections for tight fit and damage, and replace, if necessary.<br>➢ Check the work lead clamp for contamination.<br>➢ Check the cutting torch's consumables for wear. |
| **Weekly** | ➢ Check the cap sensor.<br>➢ Check the cutting torch for signs of cracks in the torch body and exposed wires. |
| **Every 3 months** | ➢ Check the gas hose, filter elements and connections for leaks.<br>➢ Open the device body and have the inside cleaned with a vacuum cleaner or dry, clean compressed air by Thermacut® or trained personnel. |
| **Annually and after each time the housing is opened** | ➢ Have a safety inspection performed in accordance with IEC 60974 Part 4: “Periodic inspection and testing” by Thermacut® or trained personnel. |

**Table 13** 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 of hafnium is deeper than 1.6 mm. | ➢ 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:

⇨ 16.2 FHT-EX®45TTH consumables for hand cutting torch on page EN-49

⇨ 17.2 FHT-EX®45TTM consumables for standard machine cutting torch on page EN-52

⇨ 17.3 FHT-EX®45TTM consumables for marking machine cutting torch on page EN-53

➢ Contact your retailer or Thermacut® in the event of questions or problems.

**⚠ 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.

➢ Disconnect the input power supply from the wall.

➢ After disconnecting the device from the input power supply, wait at least five minutes before carrying out any maintenance and cleaning work, especially opening the device.

**Table 14** Fault messages in the display

| Error code | Cause | Trouble shooting |
|---|---|---|
| **H03** | System operation failed | ➢ Check everything. |
| **H04** | No pilot arc established possibly due to a loss of current. | ➢ Verify that the consumable is installed correctly and, if necessary, re-install it correctly or replace it. |
| **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** | Fan is defective. | ➢ Ensure that the fan is running freely.<br>➢ Replace the fan or fan motor. |
| | Duty cycle has been exceeded. | ➢ Allow the device to cool down.<br>➢ Do not exceed the duty cycle. |
| | Insufficient ventilation. | ➢ Verify sufficient space around the device. |
| | Components defective. | ➢ Contact service or your retailer. |
| **H07 Excess current** | Inverter overcurrent. | ➢ Have the output diodes, main transformer, and IGBT (Insulated Gate Bipolar Transistor) on the inverter board checked by a certified electrician or trained personnel. |

**Table 14** Fault messages in the display

| Error code | Cause | Trouble shooting |
|---|---|---|
| **H08**<br>**Arc does not ignite when torch trigger is pressed or the CNC start signal is on**<br>**The following icon flashes:**<br>  | 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. |
| | Dirt inside the torch. | ➢ Remove all consumables, clean the inside of the torch, and re-assemble in correct order. |
| **H11** | Missing phase. | ➢ Have the issue checked by Thermacut® or a certified electrician or trained personnel. |
| **H13**<br>**Air pressure alarm**<br>**L = too low**<br>**H = too high** | Gas inlet pressure is below 2.1 bar/30.5 psi. | ➢ Check the inlet gas pressure. |
| | 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. |
| **H14** | Incorrect cutting torch. | ➢ Verify the proper cutting torch is connected. |
| **H15** | No data communication at the BUS. | ➢ Check the cable.<br>➢ Replace the CAN and BUS PCB.<br>➢ Have the control PCB replaced by a certified electrician or trained personnel. |
| **H16** | Data recording failed. | ➢ Check the cable.<br>➢ Replace the CAN and BUS PCB.<br>➢ Have the control PCB replaced by a certified electrician or trained personnel. |
| **H17**<br>**Insufficient plasma gas flow** | Insufficient plasma gas flow. | ➢ Check the gas pressure.<br>➢ Check the flow.<br>➢ Verify the gas settings are correct. |
| **H18** | Watchdog fault. | ➢ Have the control PCB 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. |

**Table 15** General faults

| Error | Description | Cause | Troubleshooting |
|---|---|---|---|
| **Switch is set to ON, LCD does not illuminate.** | No/low input power voltage. | Power supply is insufficient. | ➢ Check the input power voltage. |
| | | Power cable is not connected. | ➢ Plug the input power plug into the socket. |
| | | Switch is defective. | ➢ Switch must be replaced by a certified electrician or trained personnel. |
| **Gas does not flow when the torch trigger is pressed or the CNC start signal is switched on.** | Gas valve defective or gas hose loose. | Hose to gas valve loose or not connected. | ➢ Connect hose to gas valve.<br>➢ Tighten correctly. |
| | | Gas valve is defective. | ➢ Contact your retailer. |
| | | Torch trigger is defective. | ➢ Contact your retailer. |
| **Arc does not ignite and 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.<br>➢ Attach the work lead clamp to the workpiece in order to allow maximum electrical conduction. |
| | | Standoff between cutting torch and workpiece is too large. | ➢ Decrease the standoff between cutting torch and workpiece. |
| | | Work lead is defective. | ➢ Replace the work lead. |

**Table 15** General faults

| Error | Description | Cause | Troubleshooting |
|---|---|---|---|
| **Output current too low, unstable or inadequate.** | Poor contact between work lead clamp and workpiece. | Connection fault in work lead or cutting torch cable. | ➢ Ensure that all cable connections are correctly installed. |
| | | No contact between work lead clamp and workpiece. | ➢ Remove contamination and/ or oxidation from the workpiece and the work lead clamp.<br>➢ Attach the work lead clamp to the workpiece in order to allow maximum electrical conduction. |
| | | Standoff between cutting torch and workpiece is too large. | ➢ Decrease the standoff between cutting torch and workpiece. |
| | Voltage fault. | Faulty input voltage. | ➢ Verify the correct input voltage according to the identification plate.<br>➢ 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.<br>Gas flow too low. | ➢ Check gas compressor.<br>➢ Check supply lines. |
| **Output current cannot be controlled.** | Poor contact between work lead clamp and workpiece. | Connection fault.<br>Faulty cable connections. | ➢ Ensure that all cable connections are correctly secured. |
| | | | ➢ Attach the work lead clamp to the workpiece in order to allow maximum electrical conduction. |

**Table 15** General faults

| Error | Description | Cause | Troubleshooting |
|---|---|---|---|
| **Insufficient cutting quality.** | Incorrect setting for output current. | Output current (amps) too low/material too thick. | ➢ Adjust the output current strength to the thickness of the workpiece. |
| | Consumables are defective. | Consumables are worn. | ➢ Inspect consumables in the cutting torch and replace, if necessary. |
| | Poor cutting quality. | Incorrect cutting parameters. | ➢ Adjust the output current strength to the speed at which the cutting torch is pulled and the thickness of the workpiece.<br>➢ Verify the standoff between cutting torch and workpiece.<br>⇨ 7.5 Cutting – Edge Start on page EN-30 |
| | Poor contact between work lead clamp and workpiece. | Workpiece is dirty. | ➢ Remove contamination and/or oxidation from the workpiece and the work lead clamp.<br>➢ 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.

➢ Disconnect 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-41
- 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:

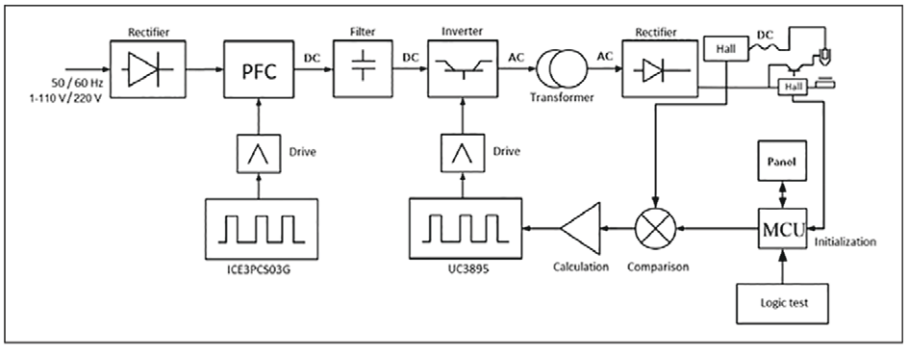
- Three (3) years for EX-TRAFIRE® brand power supplies.
- One (1) year for cutting torches and cable assemblies

**5** The warranty does not cover normal wear and tear of the goods or their parts as a result of their use, such as nozzles, electrodes, shields, O-rings, vortex rings, etc.

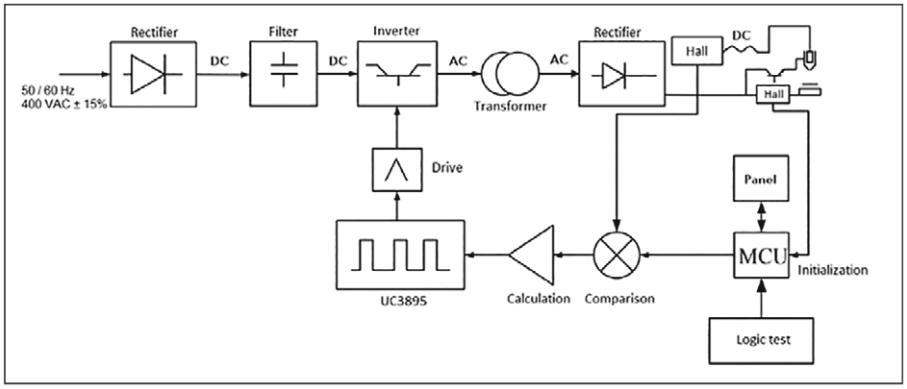
**6** The Seller shall not be liable for damage to the goods caused by the Buyer or third parties as a result of incorrect or improper handling of the goods (in particular repair or modification by persons not authorized by the Seller) or their installation, improper use of the goods or insufficient 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 Block diagrams

## 14.1 Block diagram single-phase




## 14.2 Block diagram three-phase



# 15 Accessories

**Table 16** Accessories

| Accessories | Part number | Description |
|---|---|---|
|  | EX-0-804-001 | Filter-EX compressed air filter (Standard package, 1 piece) |
|  | EX-0-804-002 | Filter-EX air filter cartridge (Standard package, 8 pieces) |
|  | EX-0-802-001 | DN 7.2 ES Quick-connect plug with male thread G 1/4"<br>British standard straight thread |
|  | EX-0-802-002 | DN 7.2 ES Quick-connect socket with male thread G 1/4" |
|  | EX-0-803-001 | CNC interface plug 14-pin kit, incl. 7 pins |
|  | EX-0-803-004 | CNC interface connection cable 6 m |
|  | EX-0-803-007 | CAN bus connection cable 5 m (16.4') |
| | EX-0-803-006* | CAN bus connection cable 10 m (32.8') |
|  | EX-0-803-009 | RS422 bus connection cable 5 m (16.4') |
| | EX-0-803-008* | RS422 bus connection cable 10 m (32.8') |

**Table 16** Accessories

| Accessories | Part number | Description |
|---|---|---|
|  | EX-0-803-010 | Universal connection cable 10 m (32.8') |
| | EX-0-803-011* | Universal connection cable 5 m (16.4') |
|  | EX-0-803-005 | Plasma Arc START/STOP Remote Controller |
|  | EX-0-805-001 | Grease, 25 ml |
|  | EX-5-801-002 | Circle cutting guide kit for FHT-X®105RTXH/105TTH/45TTH |

*Available on request

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

# 16 FHT-EX® 45TTH hand cutting torch unit

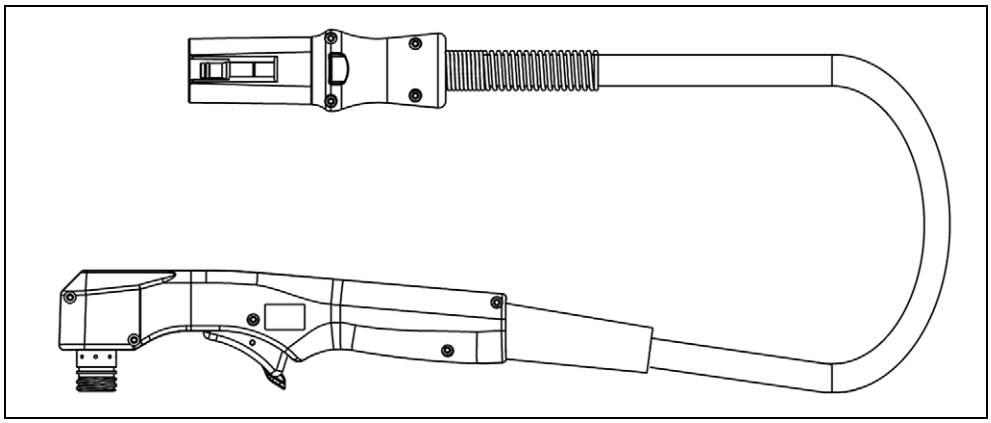


**Table 17** FHT-EX® 45TTH hand cutting torch

| Part number | Description |
|---|---|
| EX-2-101-001 | FHT-EX® 45TTH hand cutting torch without consumables, with 5 m cable (16.5')/TCS13 |
| EX-2-103-001 | FHT-EX® 45TTH hand cutting torch without consumables, with 8 m cable (26')/TCS13 |
| EX-2-106-001 | FHT-EX® 45TTH hand cutting torch without consumables, with 15 m cable (50')/TCS13 |

## 16.1 FHT-EX® 45TTH hand cutting torch unit components

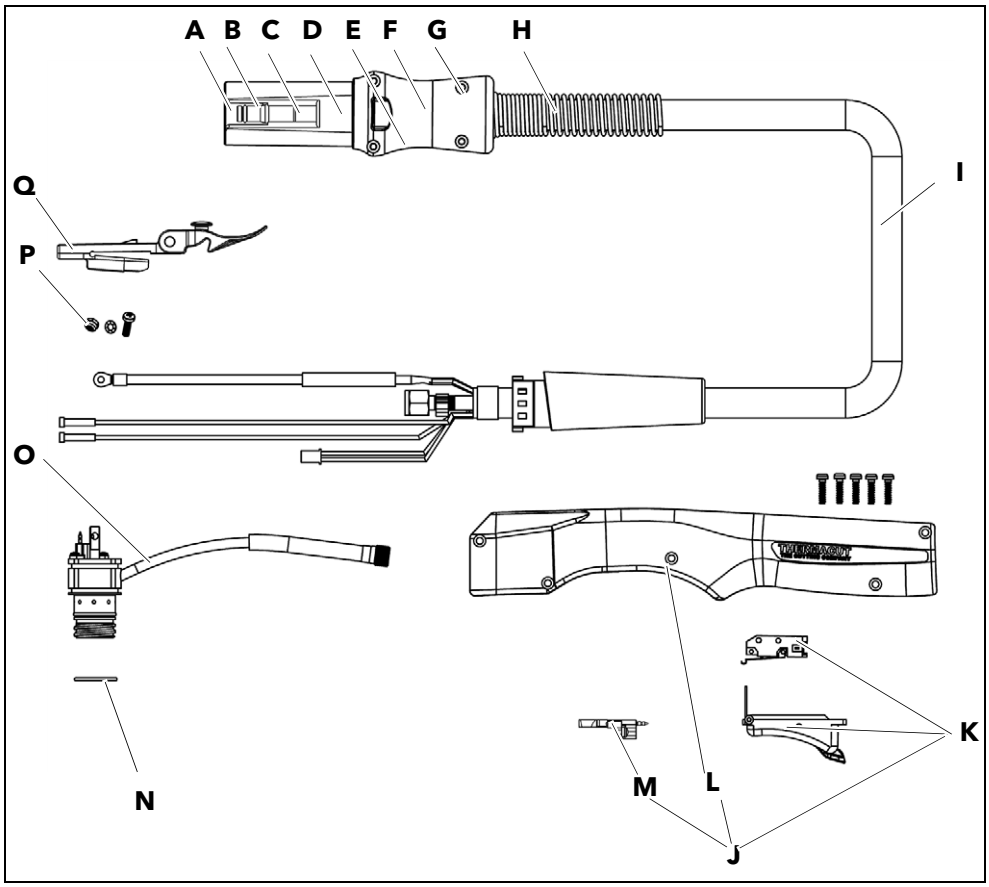


**Table 18** Components for hand cutting torch 45 A and gouging

| Hand cutting torch | | |
|---|---|---|
| **Item** | **Part number** | **Description** |
| **A** | EX-0-325-005 | Male crimp pin for TCS plug |
| **B** | EX-0-325-009 | O-Ring (fitted in the TCS plug) |
| **C** | EX-0-325-010 | Retaining ring (outer circlip ring) |
| **D** | EX-0-323-001 | TCS13 plug body |
| **E** | EX-0-325-001 | TCS clam shell lower |
| **F** | EX-0-325-002 | TCS clam shell upper |
| **G** | EX-0-325-015 | TCS clam shell screw |
| **H** | EX-5-318-001 | TCS plug spring strain relief |
| **I** | EX-2-331-001 | FHT-EX® 45TTH hand torch lead replacement kit 5 m lead/TCS13 |
| | EX-2-333-001 | FHT-EX® 45TTH hand torch lead replacement kit 8 m lead/TCS13 |
| | EX-2-336-001 | FHT-EX® 45TTH hand torch lead replacement kit 15 m lead/TCS13 |
| **J** | EX-2-314-001 | FHT-EX® 45TTH hand torch handle replacement kit consisting of components K, L, M |
| **K** | EX-2-313-001 | Safety trigger with start switch |
| **L** | EX-2-308-001 | Hand torch handle with screws |
| **M** | EX-2-305-001 | Cap sensor replacement kit with screws/ hand torch |
| **N** | EX-5-431-050 | O-ring (fitted on the torch body) |
| **O** | EX-2-302-001 | Hand torch body FHT-EX® 45TTH |
| **P** | EX-5-372-010 | Cathode mounting kit |
| **Q** | EX-0-321-003 | Latch w/Key Assembly |

## 16.2 FHT-EX® 45TTH consumables for hand cutting torch

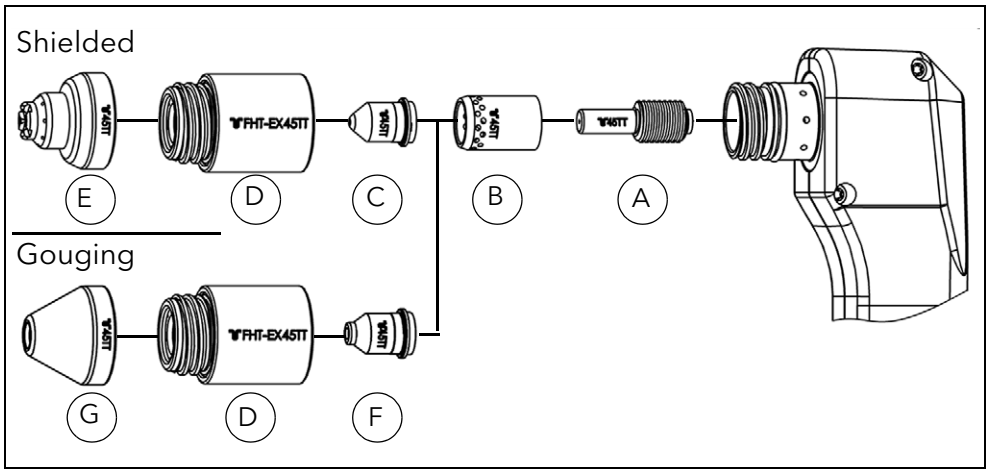



**Table 19** Consumables for hand cutting torch FHT-EX® 45TTH

| Item | Part number | Description |
|---|---|---|
| **A** | EX-2-401-201 | Electrode |
| **B** | EX-2-404-201 | Swirl ring |
| **C** | EX-2-409-201 | Nozzle |
| **D** | EX-2-415-201 | Retaining cap |
| **E** | EX-2-419-201 | Shield, hand |
| **F** | EX-2-409-202 | Nozzle, gouging |
| **G** | EX-2-419-202 | Shield, gouging |

# 17 FHT-EX® 45TTM machine cutting torch unit

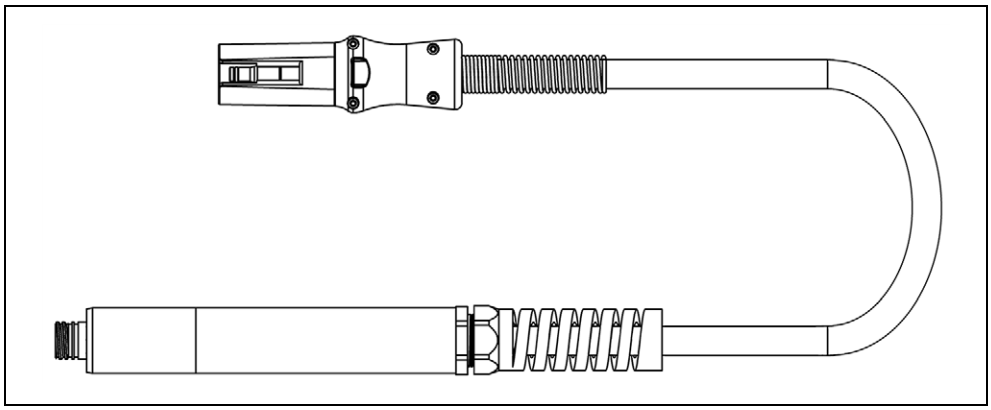


**Table 20** FHT-EX® 45TTM machine cutting torch

| Part number | Description |
|---|---|
| EX-2-233-001 | FHT-EX® 45TTM DEMO machine cutting torch with consumables/TCS13 |
| EX-2-202-001 | FHT-EX® 45TTM machine cutting torch without consumables, with 5 m (16.5') lead/TCS13 |
| EX-2-204-001 | FHT-EX® 45TTM machine cutting torch without consumables, with 8 m (26') lead/TCS13 |
| EX-2-207-001 | FHT-EX® 45TTM machine cutting torch without consumables, with 15 m (50') lead/TCS13 |

## 17.1 FHT-EX® 45TTM machine cutting torch components

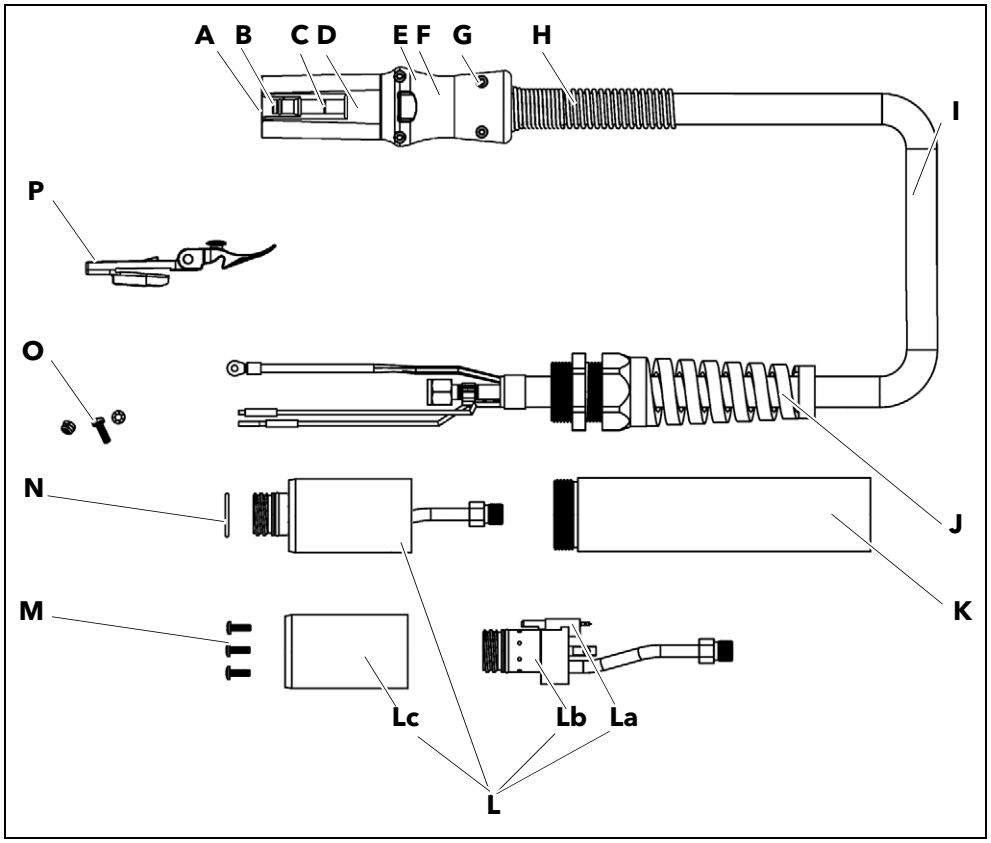


**Table 21** Machine cutting torch components

| Item | Part number | Description |
|---|---|---|
| **A** | EX-0-325-005 | Male crimp pin for TCS plug |
| **B** | EX-0-325-009 | O-ring (fitted in the TCS plug) |
| **C** | EX-0-325-010 | Retaining ring (outer circlip ring) |
| **D** | EX-0-323-001 | TCS13 plug body |
| **E** | EX-0-325-001 | TCS clam shell lower |
| **F** | EX-0-325-002 | TCS clam shell upper |
| **G** | EX-0-325-015 | TCS clam shell screw |
| **H** | EX-5-318-001 | TCS plug spring strain relief |
| **I** | EX-2-352-001 | FHT-EX® 45TTM machine torch lead replacement kit 5 m lead/TCS13 |
| | EX-2-354-001 | FHT-EX® 45TTM machine torch lead replacement kit 8 m lead/TCS13 |
| | EX-2-357-001 | FHT-EX® 45TTM machine torch lead replacement kit 15 m lead/TCS13 |
| **J** | EX-5-317-021 | Machine torch strain relief |
| **K** | EX-2-306-001 | FHT-EX® 45TTM standard mounting tube without rack |
| **L** | EX-2-301-001 | Machine torch body assembly FHT-EX® 45TTM consisting of La, Lb, Lc |
| **La** | EX-2-301-002 | Cap sensor replacement kit with screws/ machine torch |
| **Lb** | EX-5-304-001 | Machine torch body FHT-EX® 45TTM |
| **Lc** | EX-5-306-002 | Torch mounting sleeve (incl. 3 screws) |
| **M** | EX-5-372-005 | Torch mounting screws kit (incl. 3 screws) |
| **N** | EX-5-431-050 | O-ring (fitted on the torch body) - 2pcs per package |
| **O** | EX-5-372-010 | Cathode mounting kit |
| **P** | EX-0-321-003 | TCS latch with key assembly |

## 17.2 FHT-EX® 45TTM consumables for standard machine cutting torch

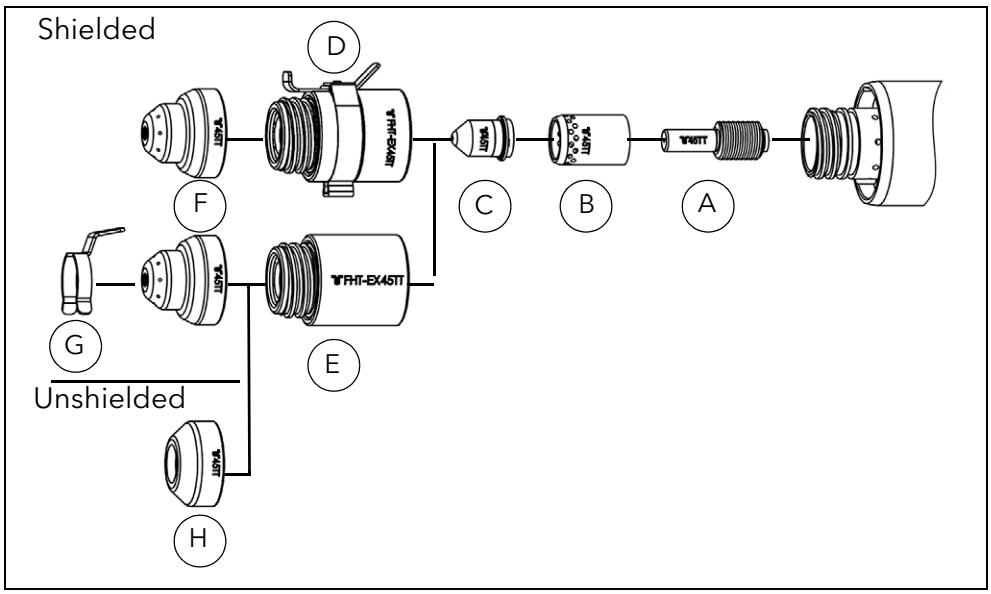



**Table 22** FHT-EX® 45TTM consumables for standard machine cutting torch

| Item | Part number | Description |
|---|---|---|
| **A** | EX-2-401-201 | Electrode |
| **B** | EX-2-404-201 | Swirl ring |
| **C** | EX-2-409-201 | Nozzle |
| **D** | EX-2-415-202 | Retaining cap with IHS Tab |
| **E** | EX-2-415-201 | Retaining cap |
| **F** | EX-2-421-201 | Shield, machine |
| **G** | EX-2-428-011 | IHS ohmic clip |
| **H** | EX-2-423-211 | Deflector |

If a torch height controller is used, a retaining cap with IHS (Initial Height Sensing) must be used.

## 17.3 FHT-EX® 45TTM consumables for marking machine cutting torch

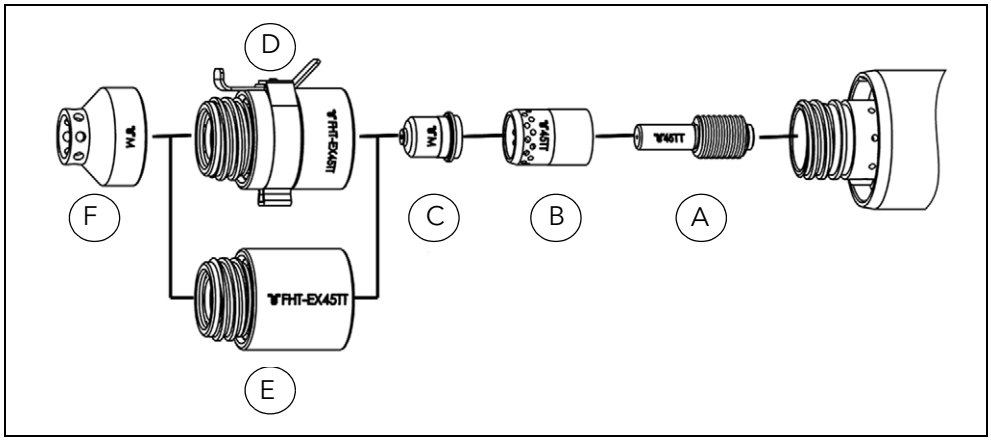



**Table 23** FHT-EX® 45TTM consumables for marking machine cutting torch

| Item | Part number | Description |
|---|---|---|
| **A** | EX-2-401-201 | Electrode |
| **B** | EX-2-404-201 | Swirl ring |
| **C** | EX-2-445-001 | Nozzle, Marking |
| **D** | EX-2-415-202 | Retaining cap with IHS tab |
| **E** | EX-2-415-201 | Retaining cap |
| **F** | EX-2-445-002 | Shield, Marking |

If a torch height controller is used, a retaining cap with IHS (Initial Height Sensing) must be used.

# 18 Ordering information on bulk packs and starter kits

## 18.1 EX-TRAFIRE® 45HD plasma power supply

**Table 24** EX-TRAFIRE® 45HD plasma power supply

| Part number | Description |
|---|---|
| EX-2-001-001 | EX-TRAFIRE® 45HD/CE/1x110/230 V power supply (fully equipped = CNC interface & serial interface (CAN BUS)) |
| EX-2-003-001 | EX-TRAFIRE® 45HD/CE/1x110/230 V power supply (STD-equipped = CNC interface) |
| EX-2-002-001 | EX-TRAFIRE® 45HD/CE/1x110/230 V power supply (CNC ready)* |
| EX-2-001-002 | EX-TRAFIRE® 45HD/CE/3x400 V power supply (fully equipped = CNC interface & serial interface (CAN BUS)) |
| EX-2-003-003 | EX-TRAFIRE® 45HD/CE/3x400 V power supply (STD-equipped = CNC interface) |
| EX-2-002-003 | EX-TRAFIRE® 45HD/CE/3x400 V power supply (CNC ready)* |

* Available on request

## 18.2 EX-TRAFIRE® 45HD manual plasma cutting systems

**Table 25** EX-TRAFIRE® 45HD manual plasma cutting systems (standard equipment)

| Part number | Description | Length |
|---|---|---|
| EX-2-010-041 | EX-TRAFIRE® 45HD/CE/1x110/230 V manual system (STD-equipped = CNC interface)/ FHT-EX® 45TTH 5 m/H Starter Kit | 5 m |
| EX-2-010-042 | EX-TRAFIRE® 45HD/CE/1x110/230 V manual system (STD-equipped = CNC interface)/ FHT-EX® 45TTH 8 m/H Starter Kit | 8 m |
| EX-2-010-043 | EX-TRAFIRE® 45HD/CE/1x110/230 V manual system (STD-equipped = CNC interface)/ FHT-EX® 45TTH 15 m/H Starter Kit | 15 m |
| EX-2-010-031 | EX-TRAFIRE® 45HD/CE/3x400 V manual system (STD-equipped = CNC interface)/ FHT-EX® 45TTH 5 m/H Starter Kit | 5 m |
| EX-2-010-032 | EX-TRAFIRE® 45HD/CE/3x400 V manual system (STD-equipped = CNC interface)/ FHT-EX® 45TTH 8 m/H Starter Kit | 8 m |
| EX-2-010-033 | EX-TRAFIRE® 45HD/CE/3x400 V manual system (STD-equipped = CNC interface)/ FHT-EX® 45TTH 15 m/H Starter Kit | 15 m |

## 18.3 EX-TRAFIRE® 45HD mechanized plasma cutting systems

**Table 26** EX-TRAFIRE® 45HD mechanized plasma cutting systems (fully equipped)

| Part number | Description | Length |
|---|---|---|
| EX-2-011-041 | EX-TRAFIRE® 45HD/CE/1x110/230 V machine system<br>(fully equipped = CNC & CAN BUS interface)/<br>FHT-EX® 45TTM 5 m/M Starter Kit | 5 m |
| EX-2-011-042 | EX-TRAFIRE® 45HD/CE/1x110/230 V machine system<br>(fully equipped = CNC & CAN BUS interface)/<br>FHT-EX® 45TTM 8 m/M Starter Kit | 8 m |
| EX-2-011-043 | EX-TRAFIRE® 45HD/CE/1x110/230 V machine system<br>(fully equipped = CNC & CAN BUS interface)/<br>FHT-EX® 45TTM 15 m/M Starter Kit | 15 m |
| EX-2-011-031 | EX-TRAFIRE® 45HD/CE/3x400 V machine system<br>(fully equipped = CNC & CAN BUS interface)/<br>FHT-EX® 45TTM 5 m/M Starter Kit | 5 m |
| EX-2-011-032 | EX-TRAFIRE® 45HD/CE/3x400 V machine system<br>(fully equipped = CNC & CAN BUS interface)/<br>FHT-EX® 45TTM 8 m/M Starter Kit | 8 m |
| EX-2-011-033 | EX-TRAFIRE® 45HD/CE/3x400 V machine system<br>(fully equipped = CNC & CAN BUS interface)/<br>FHT-EX® 45TTM 15 m/M Starter Kit | 15 m |

**Table 27** EX-TRAFIRE® 45HD mechanized plasma cutting systems (standard equipment)

| Part number | Description | Length |
|---|---|---|
| EX-2-013-001 | EX-TRAFIRE® 45HD/CE/1x110/230V machine system<br>(STD-equipped = CNC & serial interface READY)/<br>FHT-EX® 45TTM 5 m/M Starter Kit | 5 m |
| EX-2-013-002 | EX-TRAFIRE® 45HD/CE/1x110/230V machine system<br>(STD-equipped = CNC & serial interface READY)/<br>FHT-EX® 45TTM 8 m/M Starter Kit | 8 m |
| EX-2-013-003 | EX-TRAFIRE® 45HD/CE/1x110/230V machine system<br>(STD-equipped = CNC & serial interface READY)/<br>/FHT-EX® 45TTM 15 m/M Starter Kit | 15 m |
| EX-2-013-004 | EX-TRAFIRE® 45HD/CE/3x400V machine system<br>(STD-equipped = CNC & serial interface READY)/<br>FHT-EX® 45TTM 5 m/M Starter Kit | 5 m |
| EX-2-013-005 | EX-TRAFIRE® 45HD/CE/3x400V machine system<br>(STD-equipped = CNC & serial interface READY)/<br>FHT-EX® 45TTM 8 m/M Starter Kit | 8 m |
| EX-2-013-006 | EX-TRAFIRE® 45HD/CE/3x400V machine system<br>(STD-equipped = CNC & serial interface READY)/<br>FHT-EX® 45TTM 15 m/M Starter Kit | 15 m |

## 18.4 Bulk packs for FHT-EX® 45TTH and FHT-EX® 45TTM

**Table 28** Bulk packs for FHT-EX® 45TTH and FHT-EX® 45TTM

| Part number | Description | Pck. |
|---|---|---|
| EX-2-434-201 | Bulk pack – Electrode – 25 pcs. | 1 |
| EX-2-435-201 | Bulk pack – Nozzle – 25 pcs. | 1 |
| EX-2-436-201 | Bulk pack – Hand- (contact) shield – 18 pcs. | 1 |
| EX-2-437-201 | Bulk pack – Shield, machine – 18 pcs. | 1 |

Each starter kit includes:

4 × Hand or machine shield

4 × nozzle

4 × electrode

1 × swirl ring

1 × O-ring - torch body

# 19 Cut charts for mechanized cutting

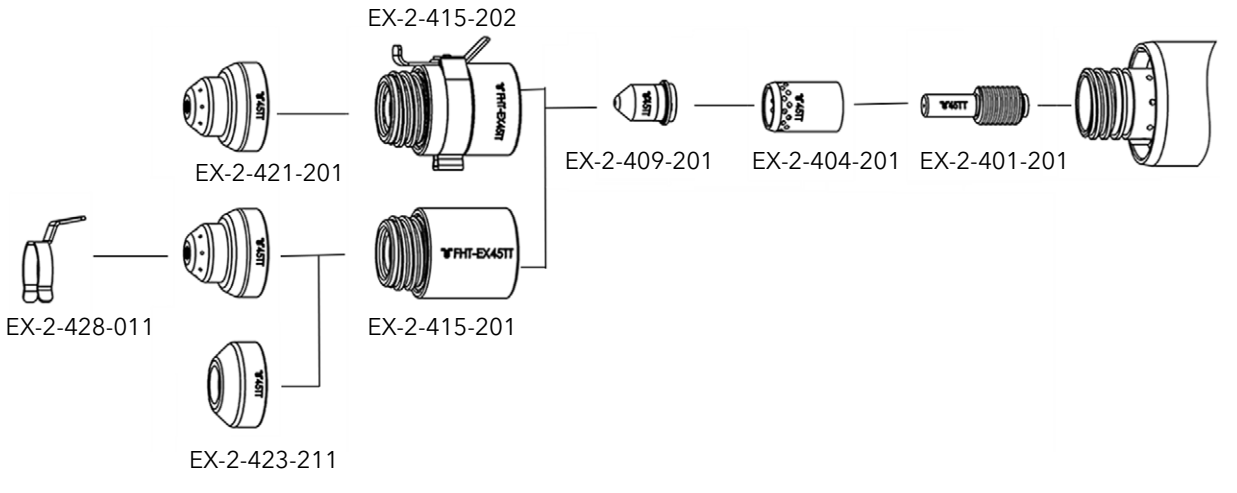
Cut charts serve as a guideline for mechanized cutting. Individual systems can be “fine tuned” to achieve optimum cutting quality.

**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.

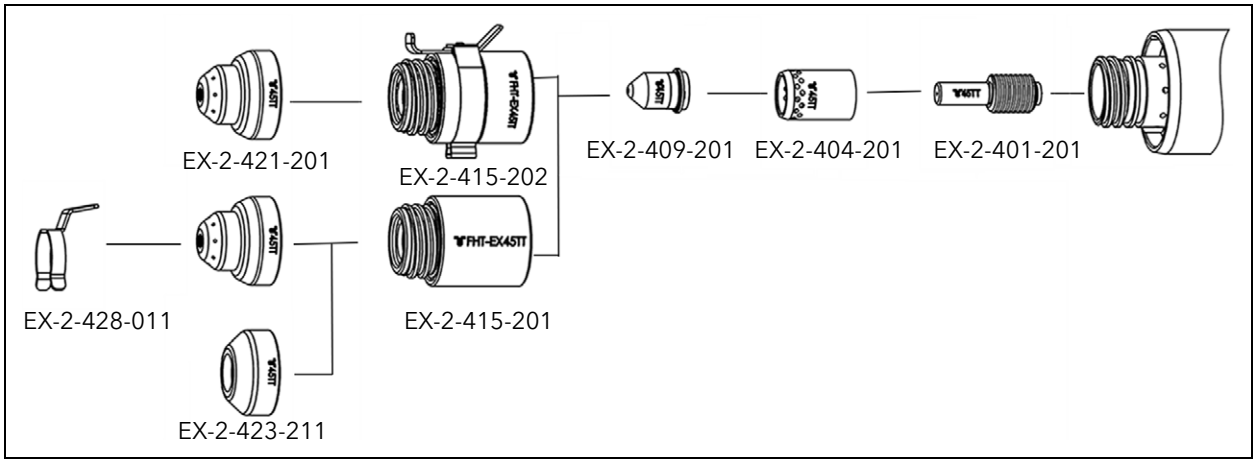
**Configuration without protective cap:**
If consumables are used without a shield, either the torch must be manually adjusted to the working height, or the arc voltage control (AVC) settings must be selected to achieve the desired cutting quality.

## 19.1 30 A cutting, shielded, with compressed air




| 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 | 9150 | 117 | 10160 | 107 | 0.9 |
| 0.8 | | | | 8650 | 116 | 10160 | 109 | 1 |
| 1 | | | | 8100 | 115 | 10160 | 113 | 1 |
| 1.5 | | | 0.2 | 5650 | 111 | 7100 | 115 | 1.1 |
| **Stainless steel** | | | | | | | | |
| 0.5 | 1.5 | 3.8 | 0 | 9150 | 119 | 10160 | 123 | 1 |
| 0.8 | | | | 8650 | 117 | 10160 | 121 | 1 |
| 1 | | | | 8100 | 115 | 10160 | 119 | 1.1 |
| 1.5 | | | 0.2 | 3750 | 113 | 4700 | 118 | 1.3 |
| **Aluminum** | | | | | | | | |
| 1.2 | 1.5 | 3.8 | 0 | 9150 | 117 | 10160 | 120 | 1.2 |
| 1.5 | | | 0.2 | 8650 | 118 | 10160 | 121 | 1.2 |
| 2 | | | | 5450 | 118 | 6860 | 121 | 1.3 |

## 19.2 45 A cutting, shielded, with compressed air

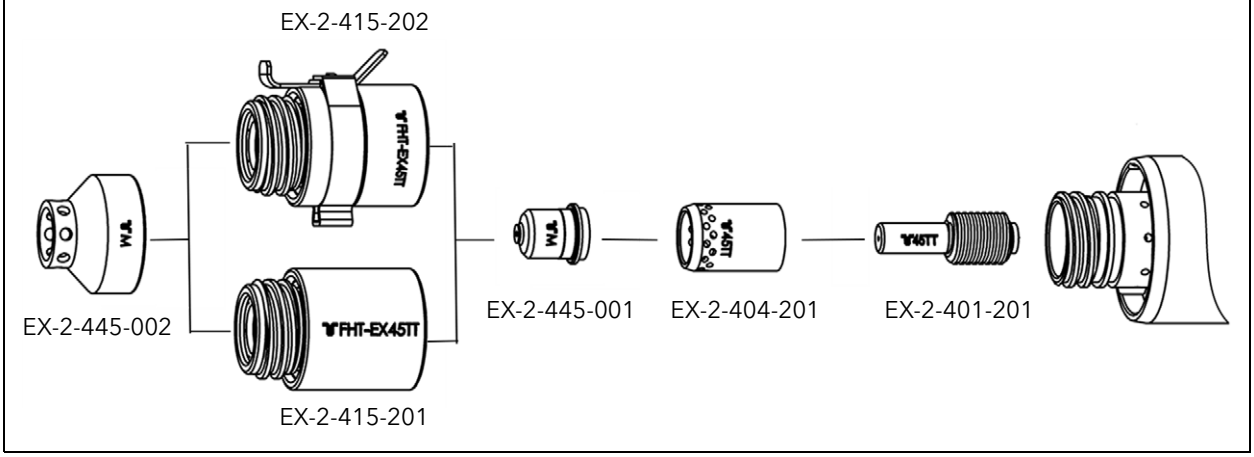



| Material thickness | Cut height (shield to work cut height) | Pierce height (shield to workpiece height) | Pierce delay time | Recommended speed | | Maximum speed | | Kerf width |
|---|---|---|---|---|---|---|---|---|
| | | | | Settings for highest quality | | Standard quality settings | | |
| | | | | Cutting speed | Voltage | Cutting speed | Voltage | |
| [mm] | [mm] | [mm] | [Seconds] | [mm/min] | [Volts] | [mm/min] | [Volts] | [mm] |
| **Mild steel** | | | | | | | | |
| 1 | 1.5 | 3.8 | 0 | 9652 | 115 | 10160 | 112 | 0.9 |
| 1.5 | | | | 8890 | 116 | 10160 | 115 | 0.9 |
| 2 | | | 0.1 | 7100 | 117 | 9144 | 115 | 1.1 |
| 3 | | | 0.4 | 3550 | 117 | 4445 | 115 | 1.1 |
| 5 | | | 0.5 | 2150 | 118 | 2794 | 115 | 1.3 |
| 6 | | | 0.6 | 1500 | 120 | 1905 | 116 | 1.5 |
| 10 | | | 0.9 | 810 | 122 | 1016 | 116 | 1.7 |
| 12 | | Edge start | | 510 | 132 | 635 | 125 | 1,7 |
| 16 | | | | 280 | 138 | 356 | 127 | 1.8 |
| 20 | | | | 200 | 140 | 254 | 131 | 1.9 |
| 25 | | | | 100 | 146 | 127 | 142 | 2 |
| **Stainless steel** | | | | | | | | |
| 1 | 1.5 | 3.8 | 0 | 7600 | 112 | 10160 | 109 | 1.3 |
| 1.5 | | | | 8100 | 112 | 10160 | 125 | 1.4 |
| 2 | | | 0.1 | 7100 | 118 | 9144 | 115 | 1.4 |
| 3 | | | 0.4 | 3050 | 121 | 3810 | 118 | 1.5 |
| 5 | | | 0.5 | 1780 | 122 | 2159 | 118 | 1.6 |
| 6 | | | 0.6 | 1100 | 124 | 1397 | 120 | 1.6 |
| 10 | | | 0.8 | 760 | 126 | 813 | 121 | 1.7 |
| 12 | | Edge start | | 350 | 132 | 457 | 128 | 1.7 |
| 20 | | | | 175 | 136 | 229 | 131 | 2.2 |
| **Aluminum** | | | | | | | | |
| 1.5 | 1.5 | 3.8 | 0 | 9150 | 116 | 10160 | 114 | 1.4 |
| 2 | | | | 8650 | 117 | 10160 | 116 | 1.5 |
| 3 | | | 0.1 | 5600 | 122 | 7112 | 120 | 1.5 |
| 5 | | | 0.2 | 2550 | 123 | 3302 | 120 | 1.6 |
| 6 | | | 0.3 | 2050 | 123 | 2540 | 120 | 1.6 |
| 10 | | | 0.5 | 840 | 130 | 1067 | 125 | 1.7 |
| 12 | | Edge start | | 510 | 134 | 635 | 130 | 1.9 |
| 20 | | | | 200 | 143 | 254 | 138 | 2 |

45 A cut charts and consumables can also be used for SmoothLine cutting up to a material thickness of 4 mm.

## 19.3 Tables for marking

### 19.3.1 Marking, shielded, with compressed air or Argon




| With compressed air | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Marking** | **Power supply** | **Cut height (shield to work cut height)** | **Initial marking height** | **Delay** | **Marking speed** | **Arc voltage** | **Kerf width** | **Kerf depth** |
| | **[Amps]** | **[mm]** | **[mm]** | **[Seconds]** | **[mm/ min.]** | **[Volts** | **[mm]** | **[mm]** |
| **Mild steel** | | | | | | | | |
| **Low** | 10 | 6.4 | 6.4 | 0 | 2540 | 134 | 2.79 | <0.02 |
| **High** | 10 | 4.6 | 4.6 | 0 | 2540 | 111 | 2.79 | 0.09 |
| **Stainless steel** | | | | | | | | |
| **Low** | 10 | 5.1 | 5.1 | 0 | 5080 | 123 | 2.03 | <0.02 |
| **High** | 10 | 6.4 | 6.4 | 0 | 3175 | 133 | 2.54 | 0.08 |
| **Aluminum** | | | | | | | | |
| | 11 | 2.5 | 5.1 | 0 | 5080 | 98 | 0.89 | <0.02 |

| With Argon | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Marking** | **Power supply** | **Cut height (shield to work cut height)** | **Initial marking height** | **Delay** | **Marking speed** | **Arc voltage** | **Kerf width** | **Kerf depth** |
| | **[Amps]** | **[mm]** | **[mm]** | **[Seconds]** | **[mm/ min.]** | **[Volts** | **[mm]** | **[mm]** |
| **Mild steel** | | | | | | | | |
| **Low** | 10 | 2 | 2 | 0 | 3175 | 44 | 1.22 | <0.02 |
| **High** | 15 | 1.5 | 1.5 | 0 | 3175 | 42 | 1.22 | <0.02 |
| **Stainless steel** | | | | | | | | |
| **Low** | 12 | 2.5 | 2.5 | 0 | 3175 | 46 | 1.40 | <0.02 |
| **High** | 15 | 2.5 | 2.5 | 0 | 2540 | 46 | 2.16 | 0.02 |
| **Aluminum** | | | | | | | | |
| | 16 | 0.5 | 0.5 | 0 | 4445 | 42 | 0.63 | <0.02 |

# 20 Appendix

## 20.1 Connecting the CNC interface

The optional CNC interface plug installs onto the rear panel of the device. Control signals can be transmitted via the CNC interface. For signal types see Table 29 Signal and pin assignment for CNC interface on page EN-61. The control elements are located on the control panel. The connections are on the front and rear of the device.

⇨ 4.1 Assembly and use on page EN-10

**⚠ WARNING**

**Electric shock due to live parts**

Live parts are exposed when the housing is open. This can result in fatal electric shock.

➢ Set the POWER switch to OFF and disconnect the input power plug before opening the housing.

**Fig. 9** Signal and pin assignment for CNC interface

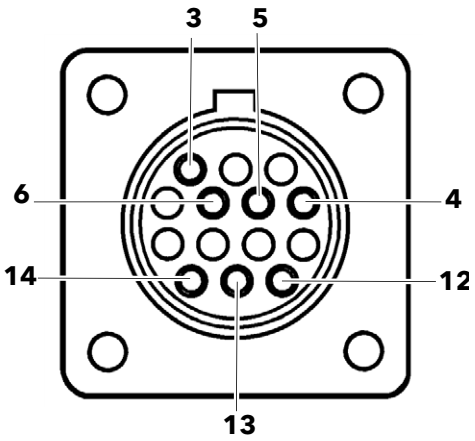



**Table 29** Signal and pin assignment for CNC interface

| **Signal** | **START** Start plasma cutting | **Arc** Start machine motion | **PE** | **Voltage divider** |
|---|---|---|---|---|
| **Type** | Input | Output | PE | Output |
| **Notice** | Open by default. Requires potential-free contact to close. | Open by default. Potential-free with max. capacity of: 120 V AC/1 A | | Reduced arc signal: 20:1 21.1:1 30:1 40:1 50:1 (supplies max. 10 V) |
| **PIN** | 3, 4 | 12, 14 | 13 | 6 (+), 5 (-) |
| **Internal cable color** | Yellow, yellow | White, white | Green/ yellow | 6 (red), 5 (white) |

### 20.1.1 Setting the voltage divider DIP switches

The voltage divider DIP switches are preset to 50:1.

**1** Turn off the device and unplug the power supply prior to opening the housing.

The housing must be opened only by a certified electrician or trained personnel.

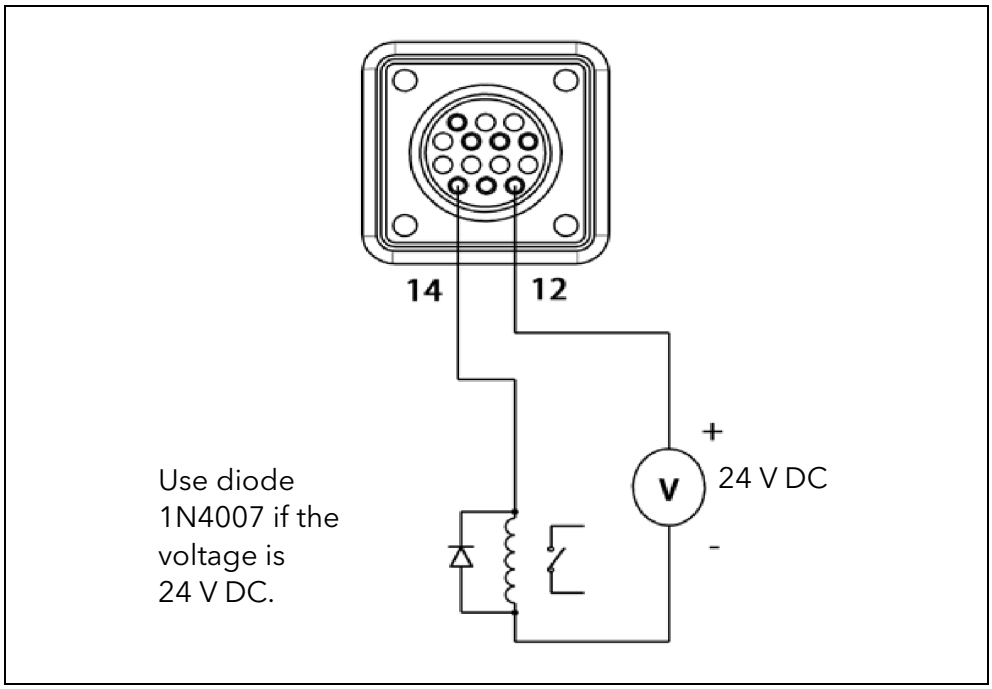
The voltage divider DIP switches must be set only by a certified electrician or trained personnel.

**2** Have a safety inspection performed in accordance with IEC 60974 Part 4: "Periodic inspection and testing" by Thermacut® or another authorized specialist.

**Fig. 10** Voltage divider DIP switch settings

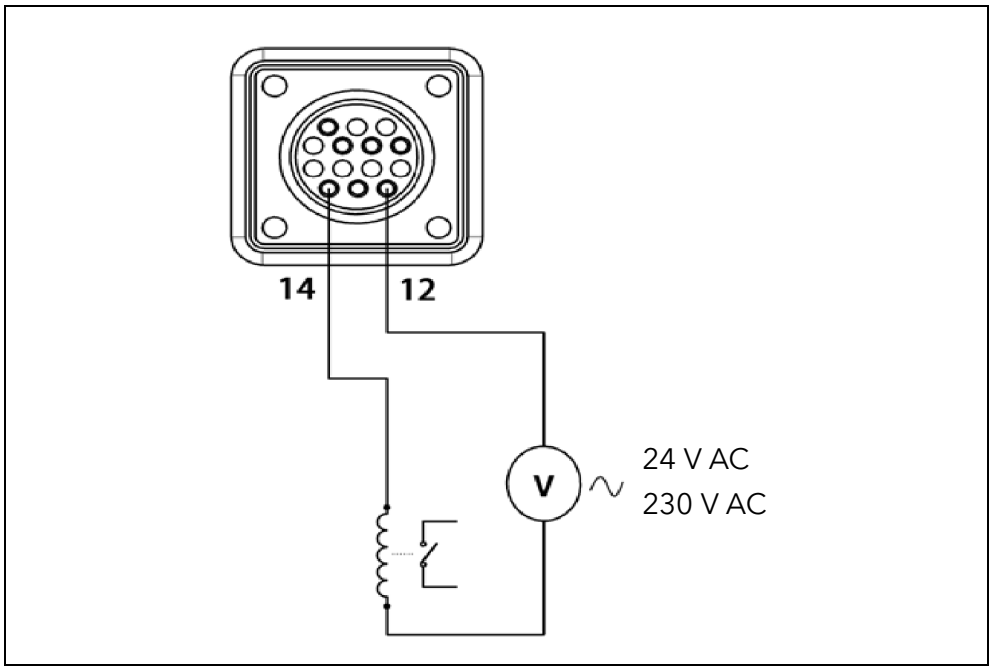

### 20.1.2 Enabling the external DC coil with an external power supply

**Fig. 11** Enable the external DC coil with an external power supply.



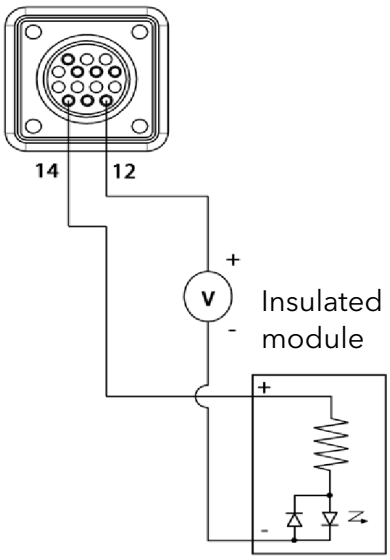
### 20.1.3 Enabling the external AC coil with an external power supply

**Fig. 12** Enable the external AC coil with an external power supply




### 20.1.4 Enabling the industrially insulated module with an external power supply

**Fig. 13** Industrial insulated user module with 24 V DC power supply




1. Switch off the device.
2. Remove the interface cover.
3. Connect the interface cable with the cutting power supply.

# ADDRESSES AND CONTACTS

## EUROPE

### CZECH REPUBLIC

THERMACUT, k.s.
Headquarters and Production
Sokolovská 574, Mařatice
686 01, Uherské Hradiště
Tel.: +420 572 420 411
Fax: +420 572 420 420
IČ: 46963715 / DIČ: CZ46963715
E-mail: info@thermacut.cz
reditelstvi@thermacut.cz
www.thermacut.cz

### CZECH REPUBLIC

THERMACUT, k.s.
Central Sales Department
Dukelská 76A
742 42 Šenov u Nového Jičína
Tel: +420 556 423 418, 440
E-mail: sales@thermacut.cz
obchod@thermacut.cz
www.thermacut.cz

### GERMANY

THERMACUT GmbH
Am Rübgarten 2
D-57299 Burbach
Tel.: +49 (0)2736 29 49 11-0
Fax.: +49 (0)2736 29 49 11-77
E-mail: info@thermacut.de
www.thermacut.de

### CROATIA

THERMACUT CROATIA d.o.o.
Petra Preradovića 21
532 70 Senj
Tel.: +385 53 882 622
E-mail: thermacut@gs.t-com.hr
www.thermacut.hr

### POLAND

THERMACUT-POLAND SP. Z O.O.
ul. Stawowa 20
43-400 Cieszyn
POLAND
Tel.: +48 33 852 13 34
E-mail: thermacut@thermacut.pl
www.thermacut.pl

### FRANCE

THERMACUT FRANCE
6 Rue des Frères Lumière
67201 Eckbolsheim
Tel.:+33 3 88 76 58 75
E-mail: thermacut@thermacut.fr
www.thermacut.net

### ROMANIA

THERMACUT ROMANIA SRL
B-dul 1 Decembrie 1918
nr. 127A
540445 Targu Mures,
Jud. Mures
Tel.:+40 265 263 205
Fax.: +40 265 250 317
E-mail: office@thermacut.ro
www.thermacut.ro

### RUSSIA

ООО "ТЕРМАКАТ"
454048 Г. ЧЕЛЯБИНСК
УЛ. КИРОВОГРАДСКАЯ Д.2
ТЕЛ./Ф АКС: +7 351 211 08 15
**ФИЛИАЛЫ**
129343 Г. МОСКВА
УЛ. УРЖУМСКАЯ Д.4
ТЕЛ.: +7 495 778 42 10
630032 Г. НОВОСИБИРСК
УЛ. СТАНЦИОННАЯ 60/1, ОФ ИС 116
ТЕЛ.: +7 383 375 07 90
E-mail: info@thermacut.ru
www.thermacut.ru

### UKRAINE

ООО "Термакат Украина ГмбХ"
ул. Петропавловская 24
С. ПЕТРОПАВЛОВСКАЯ БОРЩАГОВКА
КИЕВО-СВЯТОШИНСКИЙ Р-Н 08130
Тел./факс: +380 44 403 16 99
+380 50 336 33 91
E-mail: info@thermacut.ua
www.thermacut.ua

### GREAT BRITAIN

Abicor Binzel UK Ltd.
Binzel House,
Mill Lane
Winwick Quay
Warrington,
WA2 8UA, Cheshire
Tel.: +44 1925 653944
Fax.: +44 1925 654861
E-mail: info@abimail.co.uk
www.thermacut.net

### NORWAY

Binzel Norge AS
Industrieveien 6
N-3300 Hokksund
Tel.: 0047-32 25 19 90
E-mail: post@binzel.no
www.thermacut.net

### SWEDEN

Alexander Binzel AB
Ringugnsgatan 4
SE-216 16 Limhamn
Tel.: 0046-40 6 991 750
Fax: 0046-40 6 991 770
E-mail: order@binzel.se
www.thermacut.net

### FINLAND

ABICOR BINZEL Finland Oy
Kartanontie 53
28430 Pori
Tel.:+358 2 634 4600
Fax.: +358 2 634 4650
E-mail: info@binzel.fi
www.thermacut.net

### DENMARK

Abicor Binzel A/S Denmark
Ringugnsgatan 4
SE-216 16 Limhamn
Tel.: 0045-43621633
Fax.: 0045-43622324
E-mail: ac@binzel.se,
ket@binzel.se
www.thermacut.net

### BELARUS

IOOO „ABICOR BINZEL Technics"
ul. Timirjazeva 97-10
BY-220020 Minsk
Tel.: +375 29 5 800 300
E-mail: info@thermacut.by
www.thermacut.by

### SLOVAKIA

THERMACUT SLOVAKIA, s.r.o.
Priemyselná ulica 1239
931 01 Šamorín
Tel.: +421 31 591 0121
+421 903 644 954
E-mail: obchod@thermacut.sk
www.thermacut.sk

## ASIA

### CHINA

TMT (Shanghai) Cutting and Welding Equipment Co., Ltd.
Room 811 8/F, B Block,
Eternal Asia Plaza,
No. 3333 Shenjiang Road, Shanghai
Post: 201206
Tel.: 021-50390667
Fax: 021-50390677
E-mail: thermacut@weldstone.cn
www.thermacut.cn

### TURKIYE

ABICOR BINZEL Kaynak Teknik Ticaret LTD. STI.
Girne Mah. Irmak Sok. Küçükyali iş Merkezi
E Blok No:72-6E PK:34852
Maltepe Istanbul Türkiye
Tel.: +90 (216) 367 90 00
Fax: +90 (216) 367 90 14
E-mail: satisdestek@binzel-abicor.com.tr
www.thermacuttr.com

**INDIA**

ABICOR BINZEL TECHNOWELD PVT LTD
SNo: 297, Indo German Technology park
Village: Urawade
Taluka: Mulshi
District: Pune-412 115
Tel.:020-66743914, 020-39502691
E-mail: commercial@abicor-india.com
www.thermacut.net

**KAZAKHSTAN**

ABICOR BINZEL CENTRAL ASIA
АЛМАТЫ
УЛ. ЕГИЗБАЕВА 52, 050046.
Тел.+ 7 777 826 42 42
+ 7 717 262 57 30
E-mail: info@thermacut.com.kz
www.thermacut.kz

**VIETNAM**

MNT Industries Vietnam Co Ltd
No. 17, Street 34, Binh Tri Dong B Ward,
Binh Tan District; Hochiminh City
Phone: 0084-903 858 001
E-mail: ezio.minh@mnt.com.vn
www.thermacut.net

**SOUTH KOREA**

Abicor Binzel Korea Ltd.
#A-101, 263, Gaejwa-ro
Guemjeong-gu
Busan
Tel.: 0082 (31) 732 6065 / 6066 / 6067
Fax: 0082 (31) 732 6064
E-mail: don.kim@binzel.kr
www.thermacut.net

**JAPAN**

Thermacut Japan Ltd.
3F Shin-Osaka Hankyu Building
1-1-1, Miyahara, Yodogawa-ku, Osaka
532-0003 Japan
Mob.: +81 (0)80 4738 9752
Tel.: +81 (0)6 7662 8857
Fax: +81 (0)6 7635 7498
E-mail: s.miura@thermacut.jp

**UNITED ARAB EMIRATES**

ABIRCOR BINZEL MIDDLE EAST FZE
P.O Box: 86026, WFZ-04/27
RAKIA Freezone, Jazeera al Hamra
Ras al Kaimah, United Arab Emirates
Tel.: +971 (7) 2432355
+971 50 377 1348
Fax: +971 (7) 2432356
E-Mail: info@binzel-abicor.ae
www.thermacut.ae

**JAPAN**

Thermacut Japan Ltd.
3F Shin-Osaka Hankyu Building
1-1-1, Miyahara, Yodogawa-ku, Osaka
532-0003 Japan
Mob.: +81 (0)80 4738 9752
Tel.: +81 (0)6 7662 8857
Fax: +81 (0)6 7635 7498
E-mail: s.miura@thermacut.jp

**UNITED ARAB EMIRATES**

ABICOR BINZEL MIDDLE EAST FZE
P.O Box: 86026, WFZ-04/27
RAKIA Freezone, Jazeera al Hamra
Ras al Kaimah, United Arab Emirates
Tel.: +971 (7) 2432355
+971 50 377 1348
Fax: +971 (7) 2432356
E-mail: info@binzel-abicor.ae
www.thermacut.ae

## Revision history

You can find the latest version of the operator manual on our website: www.thermacut.com.

Revision R1/10_2022
Revision R2/02_2023:
– 4.2 „Technical data“: Maximum input power changed to 7.5 kVA (single-phase) and 11.4 kVA (three-phase)
Revision R3/11_2023
– Revised phrasing
– Changed technical data
– New appendix
Revision R4/07_2024
– Added accessories

THERMACUT®
THE CUTTING COMPANY®



EX-2-902-002/N21603 • 2024-07-26

IBG GROUP