

FLARING FC650D PLUS

FLARING FC650D PLUS Plasma Cutter User Manual

Model: FC650D PLUS

1. INTRODUCTION

Thank you for choosing the FLARING FC650D PLUS Plasma Cutter. This advanced 65 AMP plasma cutting machine is designed for efficient and precise cutting of various metals. Featuring dual voltage compatibility (120V/240V), a high-frequency IGBT inverter, and a large digital display, it offers powerful performance and ease of use for both professionals and enthusiasts. This manual provides essential information for safe operation, setup, maintenance, and troubleshooting to ensure optimal performance and longevity of your device.



Figure 1.1: FLARING FC650D PLUS Plasma Cutter and included accessories.

2. SAFETY INFORMATION

Always prioritize safety when operating the plasma cutter. Failure to follow safety guidelines can result in serious injury or damage to equipment.

- **Electric Shock:** Plasma cutting involves high voltage. Ensure proper grounding. Do not operate in wet conditions. Wear dry gloves.
- **Fumes and Gases:** Cutting metals produces fumes and gases that can be hazardous. Work in a well-ventilated area or use local exhaust ventilation.
- **Arc Rays:** The plasma arc produces intense visible and invisible (UV and IR) rays that can burn eyes and skin. Always wear appropriate welding helmet with a suitable shade filter, protective clothing, and gloves.
- **Fire and Explosion:** Sparks and hot metal can cause fires. Keep flammable materials away from the cutting area.

Do not cut containers that have held combustible materials.

- **Noise:** Plasma cutting can be noisy. Wear hearing protection.
- **Hot Parts:** The torch and workpiece will become hot. Allow them to cool before handling or wear heat-resistant gloves.
- **Compressed Air:** Ensure air compressor is properly maintained and regulated to the specified PSI.
- **Personal Protective Equipment (PPE):** Always wear appropriate PPE, including a welding helmet, flame-resistant clothing, heavy-duty gloves, and safety footwear.

3. PACKAGE CONTENTS

Verify that all items listed below are included in your package. If any items are missing or damaged, please contact customer support.

- FLARING FC650D PLUS Plasma Cutter Unit
- PT31 Plasma Cutting Torch (4M)
- Ground Clamp with Cable (3M)
- Air Filter Regulator (Pre-installed)
- Additional Consumables (4 PCS)
- Power Adapter (for 120V connection)
- Instruction Manual

NEW UPGRADED 7GEN FC650D PLUS



Figure 3.1: All components included with the FC650D PLUS Plasma Cutter.

4. PRODUCT OVERVIEW AND SPECIFICATIONS

4.1. Key Features

- **7th Generation 65A Touch Arc Plasma Cutter:** High-frequency touch arc starting for efficient cutting.
- **Dual Voltage (120V/240V):** Automatic voltage adaptation for versatile use.
- **IGBT Inverter Technology:** Provides stable and powerful cutting performance.
- **Large Digital Display:** Real-time display of air pressure, voltage, and current.
- **PA/2T/4T Functions:** Offers control modes for various cutting needs.
- **Portable and Compact:** Lightweight design with a handle for easy transport.

4.2. Technical Specifications

Specification	Value
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Specification	Value
Model	FC650D PLUS
Input Voltage	120V/240V Dual Voltage
Max Current (120V)	35A
Max Current (240V)	65A
Clean Cut Thickness (120V)	1/2" (12mm) at 35A, 50 PSI
Severance Cut Thickness (240V)	5/8" (16mm) at 60A, 60 PSI
Recommended Breaker Size (240V)	40A
Recommended Breaker Size (120V)	55A
Required Air Compressor	90 PSI, 60 L/min or above
Item Weight	14.92 pounds
Package Dimensions	17.5 x 11 x 9.7 inches
Power Source	AC

LIGHTWEIGHT & COMPACT



Figure 4.1: Compact and lightweight design of the FC650D PLUS.

5. SETUP INSTRUCTIONS

5.1. Power Connection

The FC650D PLUS supports dual voltage input (120V/240V).

- For 240V operation, connect the main power cord directly to a compatible 240V outlet. Ensure the circuit breaker is rated for at least 40A.
- For 120V operation, use the provided power adapter to connect the main power cord to a 120V outlet. Ensure the circuit breaker is rated for at least 55A.
- Always ensure the power source is stable and properly grounded.

5.2. Air Compressor Connection

A clean, dry air supply is crucial for optimal plasma cutting performance.

- Connect your air compressor to the air inlet on the back of the plasma cutter.
- The FC650D PLUS features a pre-installed air filter regulator. This regulator automatically senses and displays the air pressure on the digital screen, eliminating the need for an external gauge.
- Ensure your air compressor can provide a minimum of 90 PSI and 60 L/min airflow.

Pre-Installed Air Regulator, No Gauge Needed



Air pressure is displayed on the screen in real time
No gauge needed



The air regulator with associated accessories is already pre-installed on the machine.
No further installation operations are required



Figure 5.1: The pre-installed air regulator simplifies setup and displays pressure digitally.

5.3. Torch and Ground Clamp Connection

- Connect the PT31 plasma cutting torch cable to the designated port on the front panel of the machine. Ensure it is securely fastened.
- Connect the ground clamp cable to the ground terminal on the front panel.
- Attach the ground clamp firmly to the workpiece or a clean, bare metal surface that is electrically connected to the workpiece. A good ground connection is essential for safe and effective cutting.

6. OPERATING INSTRUCTIONS

6.1. Powering On and Digital Display

Turn on the power switch located on the back of the unit. The large digital display will illuminate, showing real-time parameters.

LARGE LED DISPLAY

PROVIDES ACCURATE DATA DISPLAY, EASIER FOR BEGINNERS



Figure 6.1: The digital display provides real-time operational data.

- The display shows air pressure (PSI), output current (Amps), and voltage.
- Indicators for Post Air, Pilot Arc, Air Pressure, Air Testing, 2T, and 4T functions are also present.
- Adjust the current using the control knob on the front panel to match your cutting requirements.

6.2. Understanding PA/2T/4T Functions

- **PA (Post Air) Time:** This function allows adjustment of the post-flow air time after the arc is extinguished. Proper post-air time helps cool the torch consumables, extending their lifespan.
- **2T (Two-Touch) Control:** This is a semi-automatic cutting control mode. Press and hold the torch trigger to start the arc and cut. Release the trigger to stop. Ideal for short, quick cuts.
- **4T (Four-Touch) Control:** This is an automatic cutting control mode. Press and release the torch trigger to start the arc and cut continuously. Press and release the trigger again to stop. This mode is suitable for long, continuous cuts, reducing operator fatigue and potentially leading to higher cutting quality with lower consumable wear.

6.3. Cutting Performance and Material Compatibility

The FC650D PLUS is capable of cutting various types of metal with precision.



Figure 6.2: Demonstrating clean cut and severance cut capabilities.

- **Clean Cut:** Up to 1/2 inch (12mm) at 35A (120V, 50 PSI). This refers to a cut with minimal dross and a smooth edge.
- **Severance Cut:** Up to 5/8 inch (16mm) at 60A (240V, 60 PSI). This refers to the maximum thickness the machine can cut, though the quality of the cut may be reduced.
- The machine effortlessly cuts through rough, painted, and rusty surfaces while generating minimal slag.

Compatible Materials:

- Metal
- Steels
- Aluminum plate
- Iron
- Stainless steel

- Alloy steel
- Mild steel
- Copper



WIDE APPLICATION

- | | |
|------------------|---------------|
| 1.Metal | 5.stainless |
| 2.Steels | 6.alloy steel |
| 3.Aluminum plate | 7.mild steel |
| 4.iron | 8.copper |

Figure 6.3: The FC650D PLUS is suitable for a wide range of metal cutting applications.

7. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your plasma cutter. Always disconnect the power before performing any maintenance.

- **Consumables Inspection:** Regularly inspect the torch consumables (electrode, nozzle, swirl ring, shield cup) for wear. Replace them when they show signs of degradation to maintain cut quality and prevent damage to the torch.
- **Air Filter Regulator:** Periodically check the water trap on the air filter regulator. Drain any accumulated moisture to ensure a dry air supply. Clean or replace the filter element if it becomes clogged.
- **Cooling System:** Ensure the cooling vents on the machine are clear of dust and debris to prevent overheating. Use

compressed air to blow out dust from inside the machine if necessary (do this in a well-ventilated area).

- **Cables and Connections:** Inspect all cables (power, torch, ground) for damage, cuts, or frayed insulation. Ensure all connections are tight and secure.
- **General Cleaning:** Keep the exterior of the machine clean. Wipe down with a dry cloth. Avoid using solvents that could damage the casing.

8. TROUBLESHOOTING

This section addresses common issues you might encounter. For problems not listed here, please contact customer support.







Problem	Possible Cause	Solution
Machine does not power on.	No power supply; tripped circuit breaker; faulty power cord.	Check power connection, wall outlet, and circuit breaker. Ensure power cord is undamaged.
No arc or weak arc.	Insufficient air pressure; worn consumables; poor ground connection; incorrect current setting.	Verify air pressure (min 90 PSI); replace worn torch consumables; ensure ground clamp has good contact; adjust current setting.
Poor cut quality (excessive dross, rough cut).	Worn consumables; incorrect cutting speed; incorrect current/air pressure; torch too far from workpiece.	Replace consumables; adjust cutting speed; optimize current and air pressure settings; maintain proper torch standoff distance.
Air flows but no arc.	Torch trigger issue; internal fault; consumables not seated correctly.	Check torch trigger; reseal consumables; if problem persists, contact support.
Overheat indicator on.	Machine has exceeded duty cycle; blocked cooling vents.	Allow machine to cool down; ensure cooling vents are clear. Reduce continuous cutting time.

9. WARRANTY AND SUPPORT

FLARING products are manufactured to high-quality standards. For information regarding warranty coverage, technical support, or to purchase replacement parts and consumables, please refer to the warranty card included with your product or visit the official FLARING website.

You can also visit the [FLARING Store on Amazon](#) for product information and support.



 <p>Instructions</p> <p>LASER Flaring Tool Kit</p> <p>Introduction The Laser Flaring Tool Kit is a comprehensive yet simple to use kit suitable for cutting and flaring copper, brass and pre-welded aluminum tubing. You can use it to cut tube from down to 1/8" diameter up to 3/8" diameter (1/4" to 1/2" for brass and pre-welded aluminum tubing). It produces high quality 45° single or double, cone or bevel, flares on pipe from 1/8" to 3/8" diameter (1/4" to 1/2" for brass and pre-welded aluminum tubing).</p> <p>We cannot consider a warranty claim for tool failure if you have used the kit in any way other than that described in these instructions, or if you have used it for any other purpose than that for which it is intended. No one can be held responsible in any way for personal injury caused while using the kit.</p> <p>IMPORTANT: Always wear eye and hand protection when using the Laser Flaring Tool Kit.</p>	<p>Laser Flaring Tool Kit 2943: Instructions and Usage Guide</p> <p>Comprehensive guide to using the Laser Flaring Tool Kit (Model 2943) for creating single and double flares on copper, brass, and aluminum tubing. Includes kit contents, preparation, and step-by-step instructions.</p>
	<p>PARKSIDE Tube Flaring Tool: Instructions and Warranty</p> <p>A comprehensive guide to using the PARKSIDE tube flaring tool for creating single and double flares. This document provides step-by-step instructions, details on preparation, operation, and warranty information, ensuring proper use and maintenance of the tool.</p>
 <p>ATD-5478 Master Flaring and Tubing Tool Set Owner's Manual</p>	<p>ATD-5478 Master Flaring and Tubing Tool Set - Owner's Manual & Instructions</p> <p>Comprehensive owner's manual and instructions for the ATD-5478 Master Flaring and Tubing Tool Set, detailing features, included components, and procedures for double and ISO bubble flares, tubing bending, and warranty information.</p>
 <p>NAVAC NEF6LM Power Flaring Tool User Manual</p>	<p>NAVAC NEF6LM BreakFree® Power Flaring Tool User Manual</p> <p>User manual for the NAVAC NEF6LM BreakFree® Power Flaring Tool, providing instructions, technical specifications, troubleshooting, and safety guidelines for HVACR and soft copper tubing.</p>
 <p>SEALEY PIPE FLARING KIT AK5063</p>	<p>Sealey AK5063 Pipe Flaring Kit User Manual and Instructions</p> <p>Comprehensive instructions for using the Sealey AK5063 Pipe Flaring Kit, detailing safety precautions, specifications, and operation for creating single and double flares on copper, brass, and aluminum tubing.</p>
 <p>NAVAC NEF6LM Power Flaring Tool User Manual</p>	<p>NAVAC NEF6LM BreakFree Power Flaring Tool User Manual</p> <p>User manual for the NAVAC NEF6LM BreakFree Power Flaring Tool, detailing its structure, technical parameters, operation instructions, troubleshooting, and parts list.</p>