Hypertherm®

Powermax® machine-side reference guide

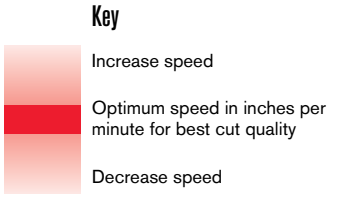
For mechanized applications with Powermax65/85/105 systems

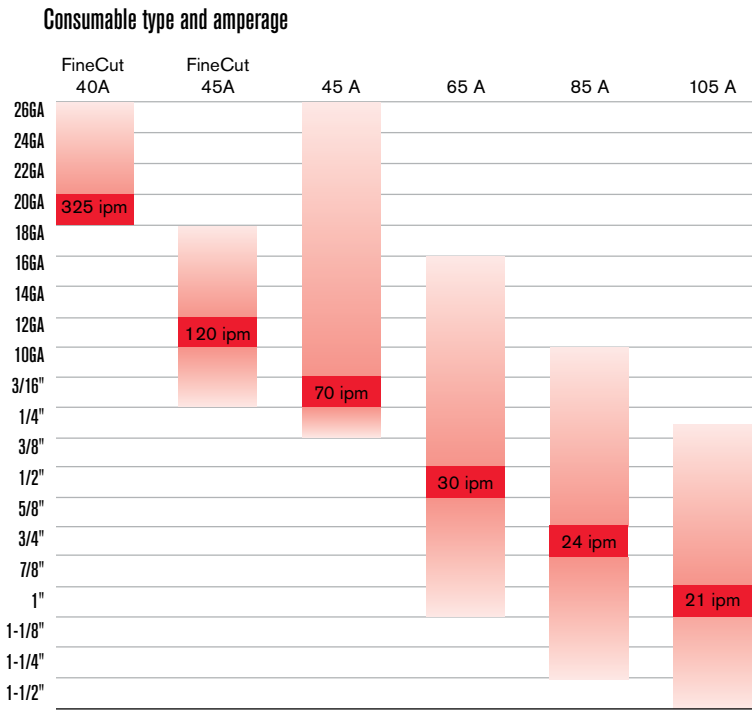
This Powermax machine-side reference guide is a supplement to your Operator Manual and includes examples of edge cut quality and consumable wear. Always refer to your Operator Manual for detailed safety and operating instructions.

Step 1

Select appropriate consumables and amperage

- Once you have determined the thickness of the metal to be cut, use the chart to determine the appropriate consumable type and amperage setting for optimum cutting. The chart provides general thickness ranges for cutting of mild steel. Refer to your Operator Manual for detailed speed and thickness measurements.





Step 2

Install consumables

- Use the chart on the right to install the appropriate consumables. Make sure the power is OFF before installing and changing consumables.

Mechanized consumables – engineered for the most productive mechanized cutting

Gouging consumables – designed for your toughest metal-removal jobs

CopperPlus™ consumables – an optional long-life electrode when cutting metal 1/2-inch thick or less

FineCut® consumables – optimized for high-quality cuts on thin metal – for a clean edge and a narrow kerf

Unshielded consumables – ideal for cutting in hard-to-reach areas and for the best arc visibility

Mechanized torch consumables

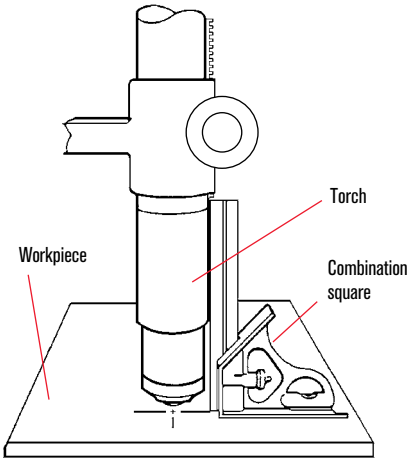
		Shield/ deflector	Retaining cap	Nozzle	Electrode	Swirl ring
Mechanized	105 A	220993	220854	220990	220842 or 220777	220994
	85 A 65 A 45 A	220817		220816 220819 220941		220857
Mechanized, ohmic	105 A ohmic	220993	220953	220990	220842	220994
	85 A ohmic 65 A ohmic 45 A ohmic	220817		220816 220819 220941		220857
Unshielded	105 A 85 A 65 A 45 A	220955	220854	220990 220816 220819 220941	220842	220994 220857
Gouging	105 A 85 A 65 A	220798	220854	220991 220797	220842	220994 220857
FineCut	45 A 45 A ohmic	220955 220948	220854 220953	220930	220842	220947

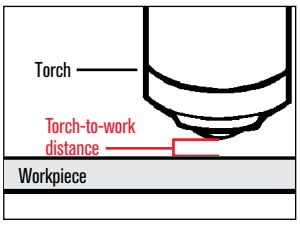
Powermax105 – Use consumables up to 105 A
Powermax85 – Use consumables up to 85 A
Powermax65 – Use consumables up to 65 A

Step 3

Verify that the torch is square and adjust torch-to-work distance

- Set up your torch so that it is perpendicular to the workpiece, in order to achieve a square, vertical cut. Use a combination square to ensure the torch is square from the front and side of the torch.
- Set the proper torch-to-work distance. Use the diagram on the right as a reference.
  - Proper torch-to-work distance is very important for the plasma cutting process. Always refer to your operator manual cut charts to determine the proper cutting and piercing heights.



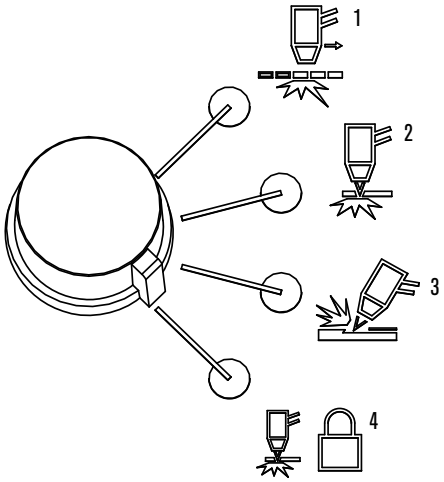


Step 4

Set the mode

Note: For customers using the serial interface, steps 4 through 7 may be done at the CNC (Computer Numerical Control) rather than the power supply.

With CNC controls enabled, some settings, such as gas pressure, may be disabled at the power supply.



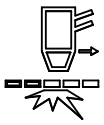
Note: Verify correct torch direction when cutting plate/sheet metal.

Due to the swirling action of the plasma gas, one side of the cut will always have more bevel angle. This is called the “scrap side” of the cut. The “good side” is on the right as the torch is traveling away from you. Refer to the picture on the right.

1. Continuous pilot arc

Expanded/punched metal

Mode switch



2. Non-continuous pilot arc

Plate/sheet metal

Mode switch

3. Gouging

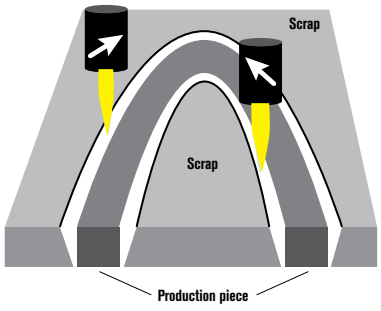
Mode switch

4. Non-continuous pilot arc Torch lock*

Refer to your Operator Manual for instructions

*Not intended for Mechanized cutting applications

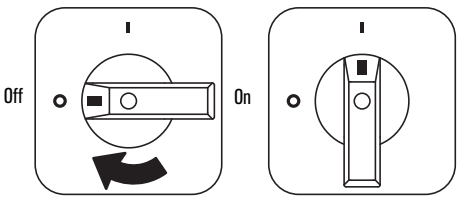
Mode switch



Step 5

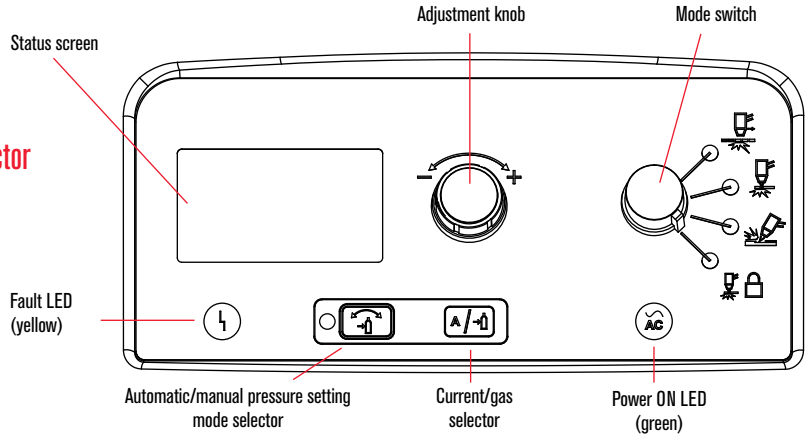
Turn on the power

- Position the power switch to ON as shown.
  Note: The cooling fan is automatic and will only operate when needed.
- The power switch is found on the back of the system.



Step 6

Set your amperage



Automatic/manual pressure setting mode selector

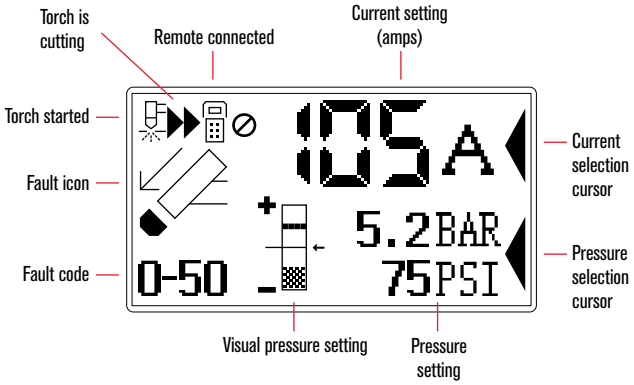
The selector switches between automatic and manual mode. In automatic mode, the power supply automatically sets the gas pressure based upon the torch type and lead length and the adjustment knob sets only the amperage. In manual mode, the adjustment knob sets either the gas pressure or the amperage. This LED is illuminated in manual mode.

Note: Manual mode should be used by experienced users who need to optimize the gas setting (override the automatic gas setting) for a specific cutting application.

See Section 4 in your Operator Manual for adjusting your system in manual mode.

Step 7

Check your status screen to ensure that there are no fault codes to troubleshoot



Warning/Fault codes (refer to operator manual)	
0-12	Low input gas pressure: warning
0-13	AC input unstable: warning
0-19	Power board hardware protection
0-20	Low gas pressure
0-21	Gas flow lost while cutting
0-22	No gas input
0-30	Torch consumables stuck
0-32	End of consumable life
0-40	Over temperature
0-50	Retaining cap off
0-51	Start/trigger signal on at power up
0-52	Torch not connected
0-60	AC input voltage error
0-61	AC input unstable: shutdown
0-98	Internal communication failure
0-99	System hardware fault – service required

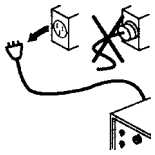
See Section 4 in your Operator Manual for a full list of fault icons and Section 5 for basic troubleshooting.

Step 8

Begin cutting

Maintenance schedule

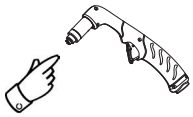
DANGER
ELECTRIC SHOCK
CAN KILL



Disconnect the electrical power before you perform any maintenance. All work that requires removal of the power supply cover must be performed by a qualified technician.

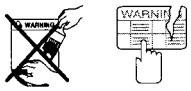
Every use:

Check indicator lights and fault icons. Correct any fault conditions.

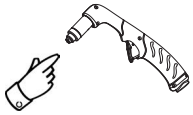


Inspect the consumables for proper installation and wear.

Every 3 months:

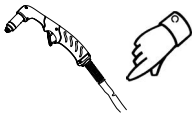


Replace any damaged labels.



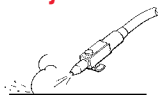
Inspect the trigger for damage. Inspect the torch body for cracks and exposed wires. Replace any damaged parts.

Inspect the power cord and plug. Replace if damaged.

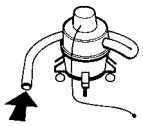


Inspect the torch lead. Replace if damaged.

Every 6 months:



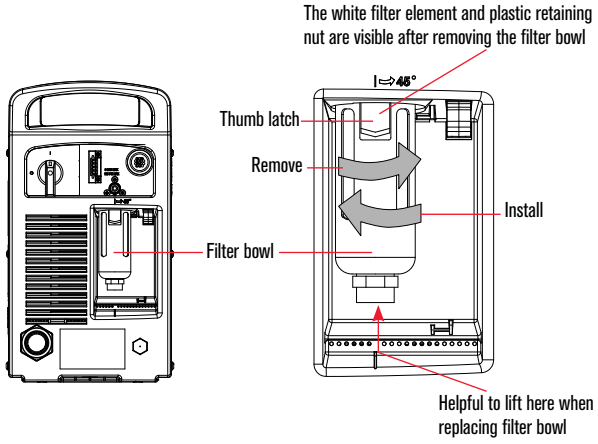
Or



Clean the inside of the power supply with compressed air or a vacuum.

Replace the gas filter element

1. Turn OFF the power, disconnect the power cord, and make sure the gas supply is disconnected.
2. Position the rear of the power supply so the removable gas filter bowl is easily accessible.
3. Grasp the filter bowl with your right hand.
4. Push down the thumb latch and rotate the filter bowl approximately 45 degrees to the right.
5. Pull the filter bowl straight down to remove. You can see the white filter element and retaining nut.
6. Unscrew (counterclockwise) the plastic retaining nut that secures the filter element.
7. Replace the dirty element with a new element (part number 011092. Reinstall (clockwise) the plastic retaining nut to finger-tight only.
8. Insert the filter bowl with the thumb latch positioned approximately 45 degrees to the right of center. This is the same orientation in which the filter bowl was pulled down and removed.
9. Vertically align the filter bowl (with metal guard) and firmly push the filter bowl up to the top of the receptacle to seat the bowl. It is helpful to lift the bowl with your left index finger under the nut on the bottom of the bowl.
10. Once the bowl is seated properly, rotate the bowl 45 degrees to the left until you hear the thumb latch click into place.
11. Reconnect the gas supply hose to the power supply and check for leaks.
12. Reconnect the electrical power and turn ON the power switch.



WARNING

Do not allow gas supply pressure to exceed 135 psi (9.3 bar). The filter bowl may explode if pressure is exceeded. The recommended inlet pressure while gas is flowing is 85–135 psi (5.9–9.3 bar).

Environmental stewardship is one of Hypertherm's core values, and it is critical to our success and our customers' success. We are striving to reduce the environmental impact of everything we do. For more information: www.hypertherm.com/environment.

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