

Electrofusion Redefined—Reliable and Simple

Electro Plus® Fusion Machine



Electro Plus[®] Fusion Machine

Our Electro Plus[®] fusion machine offers

- Intuitive user interface
- Multiple joint capability for speedy installations
- Integral carrying case for ease of transportation
- Network and generator compatible for simple operation
- Self-diagnostic system takes the guesswork out of error detection
- Automatic compensation for ambient temperature
- One-button repeat fusion cycle for same size joints

Electrofusion process

Electrofusion is defined as the joining process where two plastic parts are fused utilizing electrical heat resistance to form a permanent joint.

A plastic coated copper wire is wound into a coil and is then inserted into a fitting socket.

The pipe is then inserted into the fitting socket and an electric current is applied to the coil, producing heat that generates sufficient temperatures to melt the surrounding plastic and create a "melt zone," as shown in Figure 1.

Fusion occurs when the joint cools below the melt temperature of the plastic material, leaving a permanent joint that is proven to be as strong as, if not stronger than, the individual components.

The computer simulation seen in Figure 2 shows the heat distribution around the "melt zone" region.

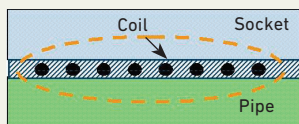


Figure 1

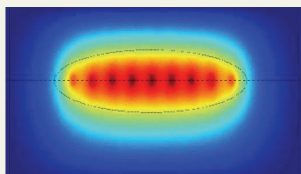


Figure 2

The technical data given in this publication implies no warranty of whatever kind and is subject to change without notice. Please consult our Terms and Conditions of Sale.

Applications

The Electro Plus can be used to join the following piping systems:

- Fuseal[®] PPR and PPNFR (1½"–12")
- Fuseal Squared[®] PPR and PPNFR (1½"×4"–8"×12")
- Fuseal 25/50[™] PVDF (1½"–6")
- PPro-Seal[™] Natural PP (½"–3")



Multiple joint capability

The Electro Plus has the time and labor saving features of multiple joint fusion. Multiple joint capability significantly reduces installation time and contributes directly to your bottom line.

Electro Plus[®] fusion parameters*

Fuseal [®]			Fuseal 25/50 [™]			PPro-Seal [™]		
Size (in)	Time (Sec)	# Joints	Size (in)	Time (Sec)	# Joints	Size (in)	Time (Sec)	# Joints
1½"	80	4	1½"	86	4	½"	80	4
2"	90	4	2"	99	4	¾"	87	4
3"	100	4	3"	112	4	1"	92	4
4"	115	4	4"	130	4	1½"	96	4
6"	190	4	6"	235	4	2"	110	4
8"	240	2				3"	90	4
10"	240	2						
12"	300	2						

*Fusion times in 68°F / 20°C ambient temperature. Times only for fusion process and do not include cooling time.



Electro Plus® specification

Parameter	Requirement
Input Voltage	100-130 VAC, 60 Hz AC RMS or 200-250 VAC, 50 Hz AC RMS
Input Current	15 Amps Max
Output Voltage	0 to 28.5 VAC galvanically separated
Output Current	0 to 50 Amps
Power Consumption	1,200 Watts Max
Generator Output Performance	3,500 Watts Min
Fuse Requirement	(1) 15 amp ceramic slo-blo (2) 7 amp ceramic slo-blo
Operating Temperature	14°F (-10°C) to 113°F (45°C)
Dimensions	Width: 22 in (56 cm) Depth: 14 in (36 cm) Height: 10 in (25 cm)
Weight	45 lbs (20.5 kg)
Power Cable Length	5 ft. (1.5 m)
Fusion Cable Length	18 ft. (5.5 m)
Remote Control Cable Length	20 ft. (6 m)
Extension Cord Requirements	150 ft (46 m) maximum length 10 gauge /3 strand minimum

Calibration requirements

There are two components that require calibration. The Fusion Cable and the Fusion Power Unit require an annual calibration.

This is easy to manage because the unit itself reminds the user that calibration is due.

Errors that can occur before the fusion cycle

Error Message	Cause/Remedy
"TOO COLD TO FUSE"	The ambient temperature is below 14°F (-10°C).
"TOO HOT TO FUSE"	The ambient temperature is above 113°F (45°C).
"TOO MANY FITTINGS"	Disconnect all fittings from fusion cables. Check how many fittings can be connected for the size, then reconnect the right number of fittings and press "FUSE."
"SSR TOO HOT"	Solid State Relay too hot. Allow the machine to cool for 5 minutes and try again.
"XMFR TOO HOT"	Transformer too hot. Allow the machine to cool for 5 minutes and try again.
"FUSION ERROR COIL SHORTED"	Coil in fitting is shorted. Disconnect all fittings from the fusion cables. Replace damaged coils if necessary.

Errors that can occur during the fusion cycle

Error Message	Cause/Remedy
"HI VOLTS EXCURSION"	Output voltage above the range. Verify the input power supply.
"LO VOLTS EXCURSION"	Output voltage below the range. Verify the input power supply.
"CAN'T REGULATE"	Unable to maintain output voltage. Verify the input power supply.
"FUSION TERMINATED COIL SHORTED"	Coil in fitting shorted during the fusion. Disconnect all fittings from the fusion cables. Replace damaged coils if necessary.

Errors that can occur after the fusion cycle

Error Message	Cause/Remedy
"COIL FAILURE"	A fusion cable has been disconnected during the fusion cycle or a fusion coil lost continuity. The cable number (1-4) for the failed coil will blink on the LCD screen.

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