Socket Fusion Pipe Welder

CG Series - Commercial Grade

DESCRIPTION

The HAYES CG Series is our commercial-grade heating iron line. These tools are derived from the best quality materials and parts on the market. The heating plate itself is formed from the highest-grade aluminum alloy which allows the heating plate to give optimal performance for heat preservation.

The inside components are made using the latest technology. The internal board delivers more accurate and sensitive heat transference between the outside heating plate and the digital board.
With special instructions you can switch the temperature mode between Fahrenheit and Celsius. The digital display is very simple and easy to operate. This makes for a very smart piece of equipment.

The HAYES CG is suitable for joining a variety of thermoplastic pipes and fittings for different applications in the industry. This machine can weld HDPE (Polyethylene), PP-R (Polypropylene), PB (Polybutene).

Our heating tool is designed and manufactured according to the American international standard ASTM F2620. Our line of ancillary accessories such as heating adapters, cold ring pliers and chamfer/depth gages are manufactured to ASTM F1056 guidelines, which will assist in completing a quality fusion consistently if the pipe manufacturer's procedures are followed carefully.

We offer a variety of options for all our customer’s needs. Our goal is to deliver world class guaranteed plastic pipe fusion tools with fast shipping for a very competitive price.

Refer to the pipe manufacturer’s recommended procedures for the welding parameters.

PROCEDURE / APPLICATION

Definition according to the ASTM F2620: The socket fusion technique consists of simultaneously heating both the external surface of the pipe end and the internal surface of the socket fitting to a designated temperature, then fuse them together by application of a sufficient force. Thereby resulting in fusion.
Socket fusion tools consist of a heating tool, heating adapter, cold rings pliers and chamfer/depth gages.

TECHNICAL INFORMATION

	CG2	CG4
Heating Tool		
Working range (Inches)	½" – 2" IPS	½" – 4" IPS
Power	800W	1400W
Voltage range	110V	110V
Frequency	50 / 60Hz	50 / 60Hz
Display Temperature	Fahrenheit / Celsius	Fahrenheit / Celsius
Temperature setting range	356°F - 536°F	356°F - 536°F
Factory Setting	500 ± 10°F	500 ± 10°F
Socket temperature range	500 ± 10°F	500 ± 10°F
Warning Temperature	>550°F	>550°F
Environment temperature	-68°F - 140°F	-68°F - 140°F
Relative humidity	45% - 95%	45% - 95%
Insurability Resistance	≥1MΩ	≥1MΩ
Leakage Current	≦5Ma	≦5Ma
Weight	4.2 LB (7" x 2" x 15")	7.2 LB (7" x 2" x 15")

✓ Heating tool features

- Heat resistant aluminum plate
- Digital screen with adjustable temperature control
- Accurate heating temperature
- Automatic adjustable environment temperature
- Ergonomic handle
- Durable and efficient to maximize the pipe fusion
- Voltage protection
- Different working pipe sizes

You can purchase all socket accessories at www.hayesfusion.com

Socket Fusion Pipe Welder

(Before use, please read the manual carefully)

ABOUT THIS MANUAL

This manual is only a manufacturer´s guide. It does not take the place of proper training by qualified instructors and does not exceed the experience of a professional. The information in this manual is operational and cannot cover all the situations that may occur in the field such as environment temperature, pipe material, thickness, selected welding standard, etc.

BEFORE THE WELDING PROCESS

A. Cut and chamfer the pipe.
B. Place the cold ring at the proper depth on the pipe as determined by the depth gauge.
C. Attach the coated heating adapters to the heating tool when the tool is cold.
D. Connect to a 110V grounded power source only and begin operating the welding machine. Permit enough preheating to stabilize the temperature.

MACHINE SET UP

- Once the unit is connected to proper power source it will automatically turn on and begin to heat to the last temperature that was set. If you need to turn on and off the heating tool hold down the On/Off DOWN to activate the On/Off mode.
- Set the desired temperature by holding the Set UP button to activate the Set mode and then using the “up/down” buttons On/Off DOWN Set UP you can choose the proper temperature.
- Allow a few seconds for the heating tool to show the temperature that it is currently at and permit enough time to reach and stabilize the desired temperature.

WELDING PROCESS

Put the pipes and fittings into the heating adapters, remove pipes and the fittings from the heating adapters when they reach the proper heating time. Connect the pipes and fittings together until the bead is formed.

IMPORTANT NOTES

Welding procedure

- ✓ Skill and knowledge are required to obtain a good quality joint.
- ✓ Ensure you select the proper temperature according to the pipe manufacturer's recommendation.
- ✓ It is important to know the technical information before you use your heating tool.

Heating adapters: You can purchase all socket accessories at www.hayesfusion.com

Welding parameters: Pipe and fitting manufacturers have established qualified fusion procedures which should be followed precisely. You should obtain a copy of the pipe manufacturer's procedures or appropriate joining standard for the pipe being fused.

Heating iron temperature: To meet pipe manufacture's temperature specifications, the surface temperature of the ***heating*** **adapters** should be measured with a surface pyrometer prior to initial use and at reasonable time intervals thereafter.
Ensure you test the temperature on the surface of the heating adapters and not on the heating plate itself. The heater's built-in thermometer indicates internal temperature and should only be use for reference.

Show temperature in Celsius: Connect the machine to the proper power source, then press On/Off DOWN for a few seconds until the code **000** is shown and then press On/Off DOWN 6 times until the code **006** is shown and then press Set UP to select Fahrenheit °F or Celsius °C, allow a few seconds for the heating tool to read the selected temperature mode and start to heat to the last temperature that was set. If you need to set a new temperature hold the Set UP button to activate the Set mode and then On/Off DOWN Set UP you can choose the proper temperature. Allow a few seconds for the heating tool to show the temperature that it is currently at and permit enough time to reach and stabilize the desired temperature.

CAUTION

Heating iron

- ✓ The heater is to be used with AC power only. Check heater to confirm correct power requirements and only use a power source with the correct voltage and current capacity.
- ✓ Connect heating tool to power and permit sufficient preheating to stabilize the temperature before the welding process.
- ✓ When welding, if temperature adjustment is needed, please turn off the heating tool first and turn it on again to adjust the new temperature. Adjustment of the temperature when it is already set will damage the temperature control components.
- ✓ It is recommended to use an insulated heater bag to store the heating tool when it is hot.

¡WARNING!

Avoid Injury
This unit must be operated by trained personnel only.

Industrial Safety
RISK MATRIX

Be alert and report anything that you see, feel, smell or hear differently than expected, or that you think is unsafe.

SOURCE: Heating tool and heating adapters

Do not adjust temperature above 575 °F. This can result in damage to the heater components and the non-stick surfaces.

HAZARD	RISK	RISK CONTROL
ELECTRICAL 	**Electrocution**	• Make sure to use a power source with the correct voltage and current capacity. • Connect to a 110V grounded power source only. • Keep the cables away from chemical agents or water.
THERMAL 	**Risk of fire**	• Do not use the machine in atmospheres with explosion risk, due to the presence of gases, flammable vapors, etc • Wear protective gloves. Never touch the surface of the heating tool or heating adapters when they are hot. • Move the heating plate cautiously when it is hot and carefully remove the heating adapters.
	Burn Risk	

SOCKET FUSION TIME CYCLES

American National Standard - ASTM F2620
Polyethylene (PE)

Temperature: 490 - 510 °F / 254 - 266 ℃

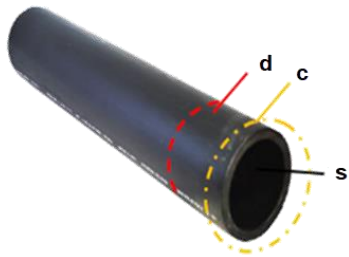
PIPE SIZE		PE80 MDPE Medium Density Polyethylene - PE 2406/PE 2708			PE100 HDPE High Density Polyethylene - PE 3408/PE 3608/PE 4710		
Pipe Size		Heating Time	Fusion Time	Cooling Time	Heating Time	Fusion Time	Cooling Time
Inches	mm	Sec.		Sec.	Sec.		Sec.
1/2"CTS	16	6-7	Immediate	30	6-10	Immediate	30
1/2"IPS	20	6-7	Immediate	30	6-10	Immediate	30
3/4"	25	6-7	Immediate	30	6-10	Immediate	30
1"	32	10-12	Immediate	30	15-17	Immediate	30
1 1/4"	40	12-14	Immediate	45	18-21	Immediate	60
1 1/2"	50	14-17	Immediate	45	20-23	Immediate	60
2"	63	16-19	Immediate	45	24-28	Immediate	60
2 1/2"	75	18-20	Immediate	45	24-28	Immediate	60
3"	90	20-24	Immediate	60	28-32	Immediate	75
4"	110	24-29	Immediate	60	32-37	Immediate	75

* Allow the joint to cool an additional five (5) minutes before exposing the joint to any type of stresses.

NOTE: Some recommend using a 50-60 grit emery or garnet cloth to roughen the outside of the pipe and inside of the fitting as a means of minimizing any possible skin interface when making the fusion. Sandpaper is not recommended for this purpose, as it might disintegrate and contaminate the joint interface.

Pipe chamfer(c) and Insert depth (d)

Pipe Size (s) Inches	mm	Pipe Chamfer (c)	Insert depth (d)
1/2"CTS	16	2 mm	13 mm
1/2"IPS	20		14 mm
3/4"	25		15 mm
1"	32		17 mm
1 1/4"	40		18 mm
1 1/2"	50		20 mm
2"	63	3 mm	26 mm
2 1/2"	75		29 mm
3"	90		32 mm
4"	110		35 mm



HEAT FUSION VISUAL APPEARANCE GUIDELINE

American National Standard - ASTM F2620

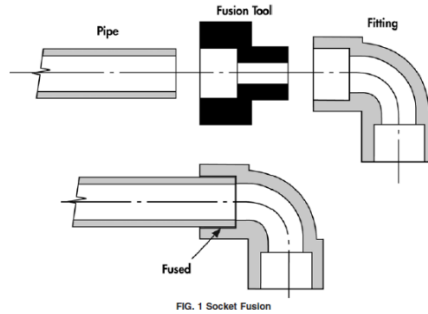


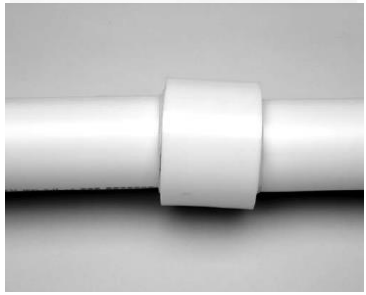
FIG. 1 Socket Fusion

Acceptable Visual Appearance

- ✓ Melt bead flattened by cold ring.
- ✓ No gaps or voids.
- ✓ Good alignment between pipe and fitting.

Unacceptable Visual Appearance

- ✓ Melt bead not flattened against the fitting/cold ring.
- ✓ Improper insertion depth; no cold ring.
- ✓ Excessive heating.



- ✓ Misalignment.

WARRANTY CERTIFICATE

LIMITED WARRANTY

Hayes warrants all products distributed. All products have 12 months warranty against manufacturer's defects from the date of purchase directly from Hayes or Hayes authorized dealers. Furthermore, this warranty only covers factory defects.

RETURN OF GOODS

Buyer must receive written authorization directly from Hayes or Hayes authorized dealer before any returns. The goods must be in the same condition as received. The buyer has 15 days to request a return of goods after the date of the purchase. Buyer is responsible for return freight for any reason other than manufacturer's defects.

IMPROVEMENT

Hayes reserves the right to make any changes in or improvements on its products without incurring any liability or obligation to update or change previously sold machines and/or the accessories.

PROPRIETARY RIGHTS

All proprietary rights pertaining to the design, colors, and branding, are exclusively the property of Hayes.

HEATING TOOL INSPECTION

Heating Tool Model No:_____ **Inspector:** _____

Heater Serial No.: _____ **Date Tested:** _____

Factory Setting: _____