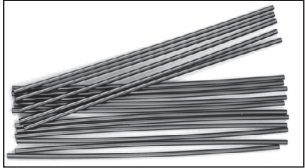


## MASTER PLASTIC WELDING ROD REORDER INFORMATION



**35297**  
**ABS Welding Rod**  
(Pkg. of 16)  
Round, 1/8" Dia. x 9" Long, Natural,  
for welding ABS plastics



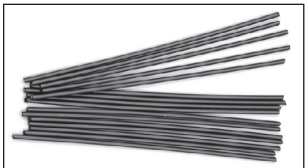
**35298**  
**PP Welding Rod**  
(Pkg. of 16)  
Round, 1/8" Dia. x 9" Long, Natural,  
for welding PP plastics



**35299**  
**PVC Welding Rod**  
(Pkg. of 16)  
Round, 1/8" Dia. x 9" Long, Grey,  
for welding PP plastics



**35300**  
**LDPE Welding Rod**  
(Pkg. of 16)  
Round, 1/8" Dia. x 9" Long, Natural,  
for welding LDPE plastics



**35301**  
**HDPE Welding Rod**  
(Pkg. of 16)  
Round, 1/8" Dia. x 9" Long, Black,  
for welding HDPE plastics

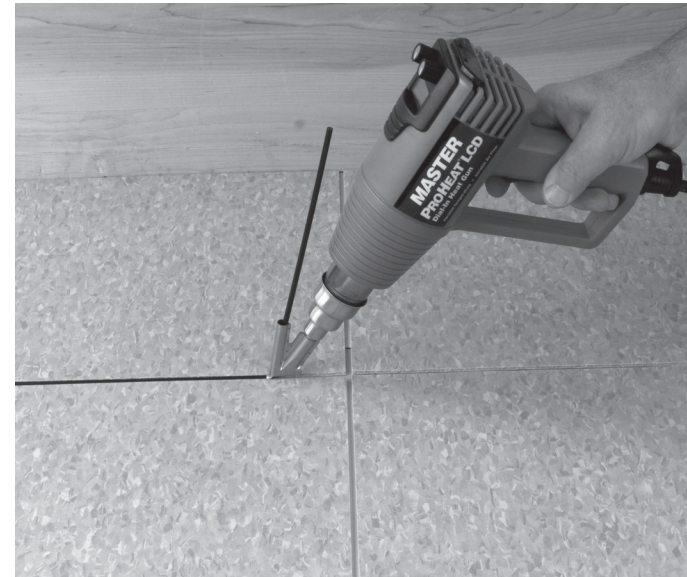
### MSDS Sheets available upon request.

Warning: These products contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.  
Users should independently evaluate the suitability of the product for their application.

### Master Appliance Corp.

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Racine, WI 53403  
USA  
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Tel: 262-633-7791 (all other Countries)  
Fax: 262-633-9745  
Email: sales@masterappliance.com  
www.masterappliance.com

## **MASTER PROHEAT<sup>®</sup>** **Plastic Welding Kit**



**Welding Plastics with the**  
**MASTER PROHEAT<sup>®</sup> Model PH-1400WK**  
**Professional Quality Electronic Heat Gun**  
**Plastic Welding Kit**

## PLASTIC WELDING

### Basic requirements for plastic welding. TIME, TEMPERATURE & PRESSURE

Most plastics used today are thermoplastics, which are generally suitable for repair by welding.

Four basic rules for plastic welding are suggested:

- 1. Weld with like material.** Only like materials can be welded, i.e. PP with PP.
- 2. Correct temperature.** The plastic should be pre-heated. Select the right temperature matched to the material being repaired.
- 3. Even pressure.** When welding with rods, the pressure is applied by pressing on the welding rod. For overlap welding of films and tarpaulins, the necessary pressure is applied with the help of the optional pressure roller.
- 4. Constant welding speed.** To achieve a good weld, an even working speed should be maintained. When welding plastics with the Master Proheat, the following three variables are critical to achieve a good weld.

### TIME, TEMPERATURE & PRESSURE

- **Time.** If you move the heat tool too fast or too slow, the quality of the weld will be compromised. Maintain constant speed during the welding process.
- **Temperature.** Set the welding temperature for the plastic that you are welding. Adjust the temperature and airflow to obtain the best setting combination for the plastic you are working with. Locking-in the setting enables you to maintain the set temperature throughout the welding process. The Master Proheat Model PH-1400 has the ability to tightly control and lock-in the temperature through an on-board electronically controlled temperature and air speed system. See the heat gun instruction manual on how to lock-in settings.
- **Pressure.** Pressure is applied by pushing down on the welding rod while welding or, if butt welding, on the two edges that are being overlap welded together. Master Appliance Corp. manufactures precise welding tips that help the welder apply equal pressure throughout the welding process.

### Thermoplastic welding temperatures.

There are different types of plastic so it is important to identify the type you are working on in order to make sure that the proper welding rod is used. Thermoplastics can be formed with heat and retain their shape after cooling and can be easily welded. Thermosets (Duroplastics and Elastomers) cannot be welded. Duroplastics are hardened with heat and their shape cannot be changed with heat. Elastomers (rubber) can be formed with heat but cannot be welded.

## MASTER PROHEAT® Plastic Welding Kit



PH-1400WK



PH-1400

- Dial-in LCD display of temperature and airflow settings
- Dial-in temperatures in 10 increments 130 F to 1,000 F
- Dial-in airflow from 4 to 16 CFM (113 to 453 l/min)
- Control system prevents overheating when using specialty attachments
- Temperature & airflow lock-in feature
- Assembled in USA

### Each Welding Kit Includes:



- One Compact, Lightweight, Easy to Use, Master Proheat® Model PH-1400 Heat Gun
- 5 Starter Welding Rod Assortment
- 6 qty- 1/8" Dia., 9" Long, Round PVC Welding Rod
- 6 qty- 1/8" Dia., 9" Long, Round PP Welding Rod
- 6 qty- 1/8" Dia., 9" Long, Round ABS Welding Rod
- 6 qty- 1/8" Dia., 9" Long, Round HDPE Welding Rod
- 6 qty- 1/8" Dia., 9" Long, Round LDPE Welding Rod
- Speed Welding Tip
- For welding rod up to 6mm dia.
- Slit nozzle
- To melt plastic welding rod



- 3/8" Reducer
- To adapt welding tips to
- 5/8" Reducer
- To provide concentrated airflow
- 1 1/4" Shrink Attachment
- Reflects air around shrink tubing or pipe
- Plastic Welding & Proheat Instruction Manuals
- Informative How to Use Instructions
- Heavy Duty Storage & Carrying Case
- Safely & conveniently stores Kit contents

## MASTER WELDING TIPS



**35016**  
3" (75 mm) Spreader  
Spreads air evenly over wide areas



**35017**  
1 1/4" Shrink attachment  
Reflects air around surface's such as tubing or pipe



**35266**  
1 1/2" 40mm Angle Slit Nozzle  
Lap welds roofing materials



**35267**  
3" (75mm) Teflon Coated Butt Welding Heat Disc  
For butt welding PVC pipes



**35268**  
1 1/2" (40mm) Lap Welding Slit Nozzle  
For lap welding PVC Sheeting



**35271**  
Plastic Welding Rod Slit Nozzle  
Use to melt plastic welding rod, Use w/ 3/8" reducer



**35293**  
5/8" (14 mm) Reducer  
Concentrates air flow



**35294**  
3/8" (9 mm) Reducer  
Concentrates air flow. Also used with weld tips



**35295**  
Speed Welding Tip w/ 7mm intake  
For welding rod up 6mm, Use with 3/8" reducer



**35296**  
3/4" (20 mm) Lap Welding Nozzle  
For lap welding plastic materials, Use with 3/8" reducer



**35291**  
Seam Roller with ball bearings  
For lap welding, edging tape and roofing applications

## Material

## Working Temperature

Polyethylene (PE)	550°F	288°C
Polypropylene (PP)	575°F	302°C
Acrylonitrile Butadiene Styne (ABS)	500°F	260°C
Polyvinyl Chloride (PVC)	525°F	274°C
Polyurethane (TPUR)	575°F	302°C
High Density Polyethylene (HDPE)	575°F	300°C
Low Density Polyethylene (LDPE)	520°F	270°C

**Testing the weld rod:** Temperature setting is correct when the rod becomes soft and tacky. If the rod starts to liquefy the temperature setting is too hot.

**Welding Temperatures:** Heat gun temperature settings are important to welding results. Over heated or under heated welds will result in poor weld joints and should be avoided.

**Practice.** The user should practice on a piece of scrap material prior to starting on the repair project. Heat gun temperatures may vary from the working temperature of the plastic type. Welding plastics takes patience and repetition to become proficient.

## Plastic Welding

Remove the damaged item from cold and windy conditions.

Pre-clean the damaged area with warm soapy water and dry off.

Align parts to be joined by positioning as needed for welding. You may need to clamp parts.

Install the appropriate welding tip on your Master Proheat Heat Gun. Preheat the heat gun for approximately 1 minute to desired temperature before starting the welding process. Use extreme caution. Please read and understand the instruction manual before use of this tool.

Weld rod should have a clean end to start welding. Trim cut any weld rod with a used or deformed end. You should also cut the rod to the length of the weld joint to minimize any weak spot in the weld joint.

Once the heat tool is at the proper temperature, place the heated weld tip on the surface of the plastic part you need to weld. When the surface of the plastic part begins to melt, feed your plastic welding rod into the preheated welding attachment and feed your rod in a steady motion moving your applicator tip along the repair joint. Do not pull on the rod. Let the rod melt into the joint as you move steadily along the weld joint.

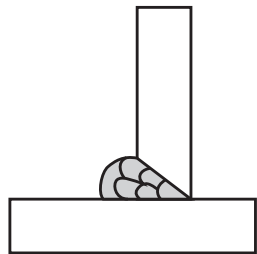
Watch the area where the rod meets the plastic part. You should see a small

puddle of melted plastic flowing in front of the weld rod. This will confirm that you have the proper heat setting and speed. If the surface of the piece being welded starts to burn, pull the heat tool at a faster pace to avoid overheating.

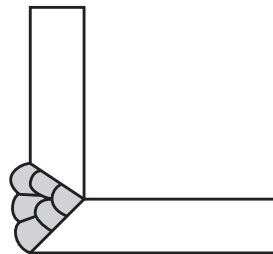
At the end of the weld joint cut the rod off with knife or side cutter. Allow the weld joint to cool to room temperature before testing the strength of weld. Depending on the thickness of the rod and/or the base material, more than one pass may be necessary.

**Weld Types:**

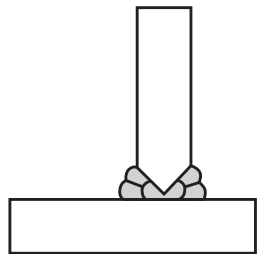
Below are examples of various types of Welds. Many of the welds are similar in nature to metal welds and use some of the same welding techniques. Many times surface materials are grooved to allow easy filling with welding rod.



Inside Corner Welds



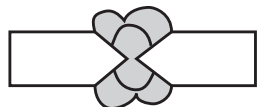
Outside Corner Welds



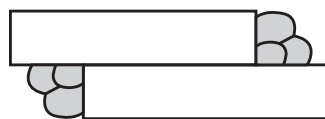
Fillets and Corner Welds



Single "V" Butt Welds

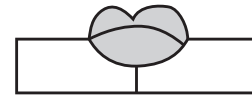


Double "V" Butt Welds



Overlap Fillet Welds

**Types of Welds Continued:**

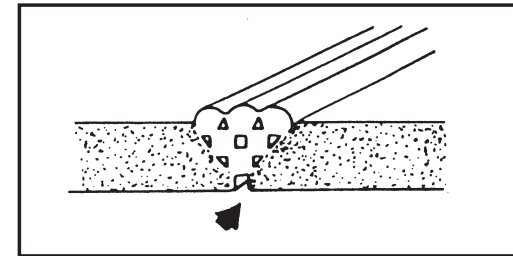


Edge Welds

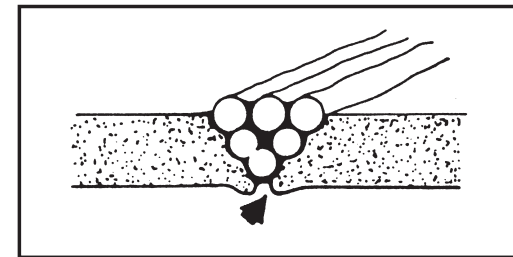


Butt Welds, note V groove preparation

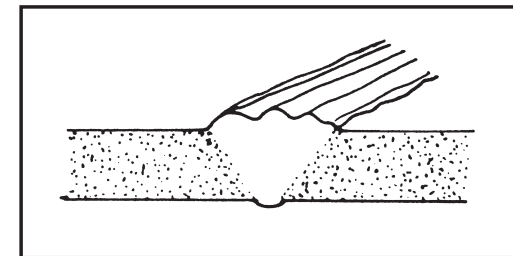
**Proper and Improper Weld Illustrations:**



No bond, rods not completely fused (weld can be pulled apart)



Burned weld and material charred, rods not completely fused (weak weld)



Proper weld (rods fused)

Users should independently evaluate the suitability of the product for their application.