

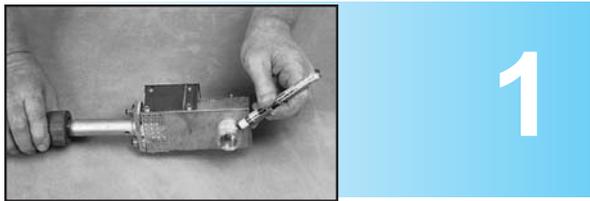
# High Purity Assembly

## Socket Fusion Assembly

A socket fusion tool kit, including heat tool and various sizes of heads is available from Orion.

Note:

- Make all field cuts of pipe square and true using a pipe cutter designed for plastic pipe.
- Make certain heads are installed properly on heat tool. Heads are marked "M" and "F", indicating male and female.
- Bevel the leading edge of each pipe section with a 1/8" 45 degree chamfer. This will minimize the amount of bead on the inside of the fitting when fused.



### STEP 1

Check the heads for proper temperature (482 - 520°F or 250°- 270°C ). If necessary, adjust the thermostat dial so that the 488°F Tempil stick burns, but the 525°F does not. **NOTE: The newest Orion fusion tools may have a temperature dial in degrees celcius which has a maximum temperature of 300°C. If this is the case, see temperature conversion chart below.** Heat tools are factory set, however settings can vary due to factors such as weather, current variances, cord lengths, generators, etc. These variables should be checked on site. To increase tool temperature, turn dial "in" (clockwise). To decrease, turn screw "out" (counterclockwise).



### STEP 2

Measure depth of fitting. Subtract 1/16".



### STEP 3

Transfer measurement to pipe. Mark pipe with measurement obtained in Step 2.



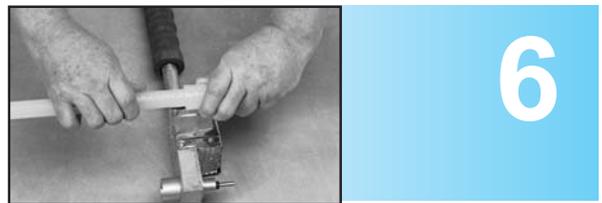
### STEP 4

Insert fitting on the male side of the heat tool. Then insert pipe on the female side. Do not insert past the mark on the pipe.

### STEP 5

Keep pipe and fitting absolutely straight on heat tool.

Use the chart below to determine how long to leave the pipe and fittings on the heater bushings. It should be noted that fittings will normally have a slight interference with the fusion tools. However, if the pipe and/or fittings do not fit tightly on the heater bushing, the heating time should be started when the components have swelled to just contact the surface of the bushing.



### Step 6

Hold joint under pressure for 15 seconds to allow surfaces to fuse. Do not stress joint until fully cooled.

Clean any melted material from heater bushings using a cotton rag. Do not use abrasive materials to clean the heater bushings.

Confirm the heater bushings are the correct temperature before fusing next joint.

The following chart shows the approximate time that the pipe and fitting should be held on the heater bushings. These times are a guideline only. It may be necessary to increase or decrease times to obtain the correct melt conditions.

### Fusion Times

	1/2"	3/4"	1"	1-1/2"	2"
PP	7-10 sec	7-10 sec	10-15sec	10-15 sec	15-20 sec
PVDF	10-15 sec	13-18 sec	14-20 sec	15-20 sec	20-25 sec

### Temperature Conversion Factors

°F = Degrees in Farenheight  
°C = Degrees in Celcius(Centigrade)

°F = (°C x 1.8) + 32  
°C = (°F - 32) x .555

°F	°C
122	50
212	100
300	150
392	200
482	250
520	270
572	300

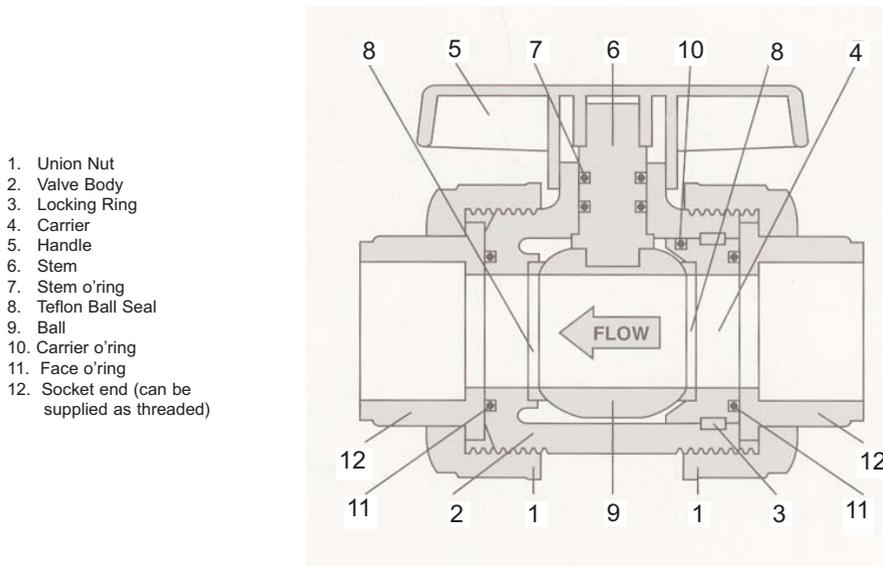
**NOTE: DO NOT TEST ANY ORION PIPING SYSTEM WITH COMPRESSED AIR OR GASSES. TEST HYDROSTATICALLY ONLY**



## Valve Welding Instructions

Ball Valves must be dis-assembled before the welding process. Remove union nuts and socket ends from the body. Slide the union nut over the pipe and weld the socket ends to the pipe. Re-assemble the valve in line. Care must be taken so that the o-rings are properly seated when re-assembling the union nuts. This procedure will eliminate the possibility of heat from the socket fusion tool distorting the ball and seats.

CAUTION: Valve must be in closed position before tightening union nuts.



### INSTALLATION

- A. Turn valve to closed position.
- B. Install assembled valve body (2) in line, being careful not to dis-lodge face o'rings (11).
- C. Hand tighten Union nuts (1).
- D. Tighten an additional 1/2 turn maximum with wrench. **DO NOT OVERTIGHTEN.**

### DISASSEMBLY

#### WARNING! DO NOT DISMANTLE UNDER OPERATING PRESSURE

- A. Loosen union nuts (1) and remove valve body (2) from line.
- B. Support valve body with minimum pressure in clamp or vise. Turn handle (5) to open position.
- C. Using pick or small screwdriver, extract locking strip (3) from recess. Complete removal by gripping end with pliers and pulling in a counter-clockwise motion around valve body.
- D. Turn valve to closed position. Using a wooden dowel, carefully tap ball (9) in direction of locking strip until ball and carrier (4) are removed.
- E. Pull handle (5) from stem (6). **CAUTION: SOME MODELS REQUIRE REMOVAL OF SMALL METAL SCREWS AT BASE OF HANDLE.**
- F. Remove stem by pressing into valve body.

### ASSEMBLY

- A. Inspect body and ball for excessive wear or damage. Replace complete valve if these components are damaged.
- B. Roll stem seal o'rings (7) into grooves on stem and insert in valve body.
- C. Install teflon seal (8) in solid end of valve body. Bevel side of seal must be towards valve ball.
- D. Install valve ball.
- E. Install handle and turn ball to open position.
- F. Roll carrier seal o'ring (10) in groove on carrier.
- G. Install teflon seal in carrier with bevel side towards valve ball.
- H. Install carrier in valve body. Install locking strip with clockwise motion until rectangular end snaps in place in valve body.
- I. Install face o'rings in valve body and carrier grooves.