

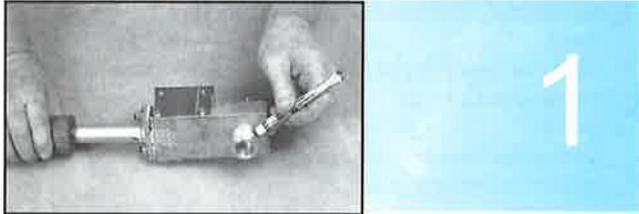
High Purity Assembly

Socket Fusion Assembly

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

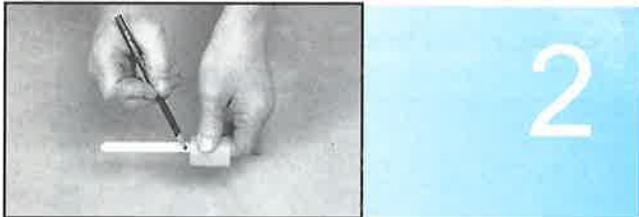
Note:

- 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.



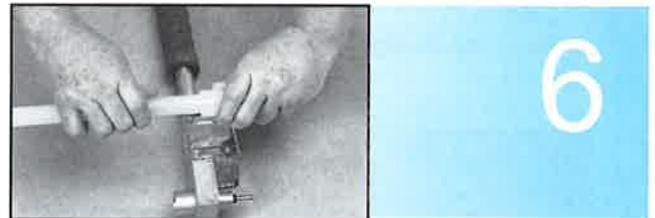
STEP 4

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 pipe and 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

Installation Instructions

Rionfuse CF

Polypropylene and PVDF Chemical Waste Systems

⚠ WARNING



Please read carefully before proceeding with installation. Your failure to follow any attached instructions or operating parameters may lead to the product's failure. Keep this Manual for future reference.



⚠ DANGER



Electricity, electrocution and shock hazards.

STEP 1

Preparing the Pipe

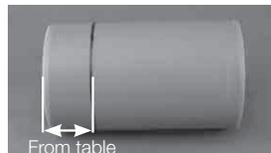
Prepare the ends of the pipe and fitting using the following method; field pipe cuts must be deburred. Following the coupling insertion depth chart, mark the coupling insertion depth from the end of the pipe/fitting to insure that the coupling is properly positioned during the fusion cycle. Then, using 60 grit emery cloth, abrade the marked ends of the pipe and fitting to remove the natural "sheen" of the plastic.

Coupling Insertion Depth Marking

Pipe Diameter <i>in.</i>	Mark Distance from Pipe End <i>in.</i>
1 - 1/2	1
2	1
3	1 3/8
4	1 3/8
6	2
8	2 5/8
10	2 5/8
12	2 5/8



Abrade surface



From table
Mark coupling depth

STEP 2

Joint Assembly

Insert the prepared ends of the pipe/fitting into both hubs of the Rionfuse CF coupling. Double check the markings to verify proper seating of the pipe.



Insert into coupling and verify proper seating



Rionfuse CF

STEP 3

Connecting Lead Cables

The installer must make sure the joint is properly supported during the fusion cycle and afterwards as the joint cools. With the Rionfuser unit connected to a dedicated power source and powered ON, connect the lead cables to the coupling.

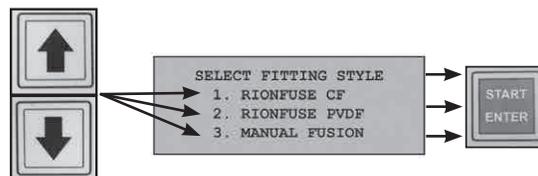


Connect lead cables

STEP 4

Selecting Fitting Style

The unit will now prompt the installer to "SELECT FITTING STYLE". Scroll UP or DOWN to highlight the proper fitting style being fused, then press START to select the fitting style.



Fitting style selection screen

ORION[®]

STEP 5

Selecting Pipe Size

Next the unit will prompt the installer to select the size of the joint being fused. Scroll UP or DOWN to highlight the correct size, then press START to select size.

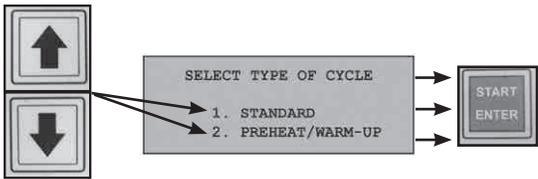


Fitting size selection screen

STEP 6

Selecting Heat Cycle

The unit will ask if a pre-heat cycle is needed for the joint. If the fusion is to be attempted in temperatures below 40°F, please consult Orion Fittings before proceeding; all other fusions should be performed in the STANDARD cycle. Select the STANDARD cycle by pressing the START button.



Fusion cycle type selection screen

STEP 7

Verifying Welding Parameters

The screen will display "VERIFY WELDING PARAMETERS" and an audible beep will sound to indicate the fusion unit is ready to begin welding. Verify the welding data displayed on the screen matches the joint being fused. If the information is incorrect, press the STOP/BACK button to return to any of the menu options to correct the fusion parameters. Once the parameters have been verified, press START to begin the fusion weld.

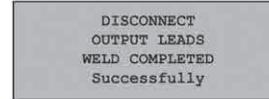


Fusion cycle type selection screen

STEP 8

Successful Weld Completion

After pressing START, the Rionfuser will begin the weld. After the welding cycle has completed, another audible beep will sound to indicate that the fusion weld is complete. If the beeping pattern is an equal, consistent beeping, the joint was successful. If the beeping pattern is irregular, it indicates that an error has occurred during the fusion cycle (if an error code is received during fusion, please contact your local Orion rep for troubleshooting information). Once the joint is completed, the lead cables can be removed and the process repeated for the next joint.



Successful weld completion screen

POLYPROPYLENE RIONFUSE CF COUPLING		
Pipe Size <i>in.</i>	Fusion Time <i>min.</i>	Fusion Current <i>amps</i>
1 - 1/2	2:00	8.25
2	2:00	8.25
3	2:00	14.25
4	3:00	14.25
6	4:30	19.00
8	4:45	19.00
10	7:20	17.00
12	8:00	16:50

PVDF RIONFUSE CF COUPLING		
Pipe Size <i>in.</i>	Fusion Time <i>min.</i>	Fusion Current <i>amps</i>
1 - 1/2	2:00	8.25
2	2:00	8.25
3	3:00	14.25
4	3:00	14.25
6	4:45	18.00

MULTIPLE JOINTING RIONFUSE CF	
Pipe Size <i>in.</i>	Maximum number of couplings <i>num.</i>
1 - 1/2	4
2	3
3	3
4	2
6	1
8	1
10	1
12	1

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
For more information: www.watts.com/prop65

Warranty: Our products are carefully inspected for manufacturing defects. However, it is not always possible to detect hidden defects. Our products are warranted only to the extent that we will replace them without charge if they are proved to have manufacturing defects within one year of the date of delivery to the site where they are to be used, or installed, and provided we have been given an opportunity to inspect any product alleged to be defective and the installation or use thereof.
NO WARRANTY IS INCLUDED AGAINST ANY EXPENSE FOR REMOVAL, REINSTALLATION OR OTHER CONSEQUENTIAL DAMAGES ARISING FROM ANY DEFECT. THE WARRANTIES SET OUT ABOVE ARE THE ONLY WARRANTIES MADE AND ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

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A Watts Water Technologies Company

USA: Tel: (913) 342-1653 • Fax: (913) 342-7218 • OrionFittings.com

Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • OrionFittings.ca

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Acid Waste Assembly

Mechanical Joint Assembly

Grooving pipe in the field

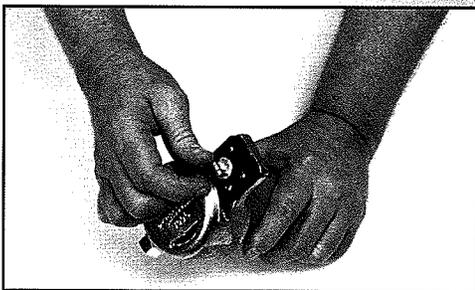
Although Orion's Acid waste pipe is supplied with factory grooves it may be necessary to groove cut pipe sections in the field. When field grooving is necessary, it is accomplished quickly and simply with an Orion grooving tool. A tool kit containing all the tools you will need is available from Orion.



STEP 1

Pipe to be used with the mechanical joint coupling must be cleanly cut with a thin wheel plastic tubing cutter to assure a clean square cut.

STEP 2 Bevel and deburr the pipe with a deburring tool. The pipe must be beveled and deburred prior to grooving pipe.



STEP 3

With handle of grooving tool up, place knob on handle at the top or 12 o'clock position.

Insert tool fully onto pipe. Make sure pipe is touching the stop in the tool.

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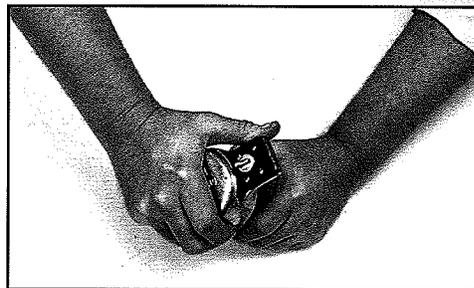


STEP 4

Turn knob $\frac{1}{4}$ turn clockwise, to 3 o'clock position.

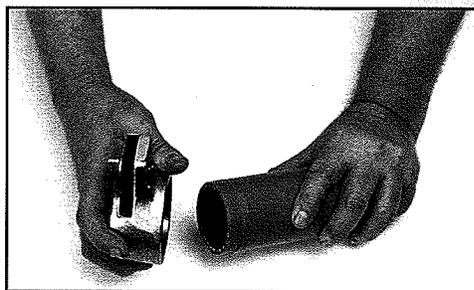
STEP 5

Pushing against pipe, rotate tool clockwise twice around pipe. Maintain constant inward pressure against tool at handle during rotation.



STEP 6

Turn knob another $\frac{1}{4}$ turn to 6 o'clock position. Proceed as in step 5, remembering to maintain constant inward pressure until no more material is removed from groove.



STEP 7

Return knob to 12 o'clock position and remove tool from pipe.

STEP 8

Remove any burrs or material from groove edges. See that all excess material is removed from the grooving tool before grooving the next piece of pipe.

Assembly

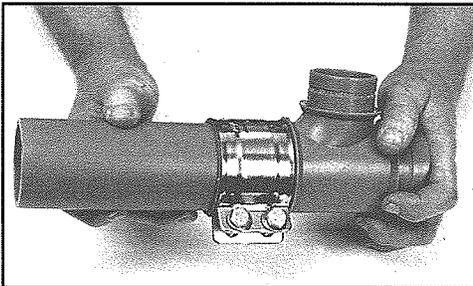
Mechanical Joint Assembly



1

STEP 1

Insert pre-grooved pipe or fitting into coupling until coupling rib snaps. This assures proper fit.



2

STEP 2

Position stainless steel band so equal amounts of inner material show on each side of band.



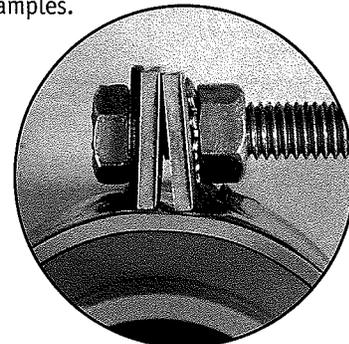
3

STEP 3

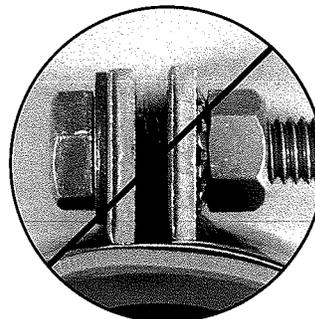
Tighten bolts until coupling bars come together at the top and have a $\frac{1}{16}$ - to $\frac{1}{8}$ -gap at the bottom. Do not over-tighten. A standard 10" length x $\frac{1}{2}$ " drive ratchet wrench with 6-point x $\frac{1}{2}$ " socket is recommended.

General Information:

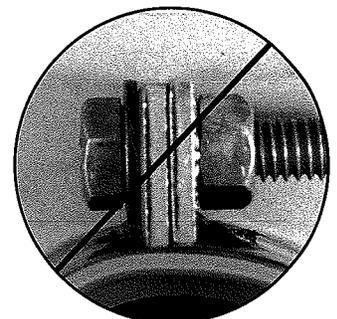
- Satisfactory installation requires careful measurement.
- Cheating on pipe lengths will cause a bind allowing joints to leak even when fully tightened.
- Pipe must be kept clean. Mud, dirt or other foreign matter in joints could cause leaks.
- Hanging specifications must be followed, taking care to see that system is not clamped tightly in hangers. System must be free to move to allow for thermal contraction and expansion. We strongly recommend the use of an Orion installation kit for installing the system. This kit has been developed to furnish everything necessary for proper installation of the system.
- The below pictures demonstrate what is typically the proper tightness for the Mechanical Joint coupling as well as an example of over-tightening and an example of insufficient tightening. Certain environmental conditions and/or manufacturing tolerances may require more or less tightening than is shown in the below examples.



Correctly Tightened



Too Loose



Too Tight

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