

## Procedures for Fusion of Field Installed Header Fittings

This procedure is written for industrial and water piping systems utilizing Poly-Cam, Inc.'s Field Installed Header Fittings (Series 799.)



### Required Tools/Equipment

1. Measuring tape
2. PE marking pen
3. Heating iron with Poly-Cam Series 400 Male and Series 401 Female Heater Faces.
4. Series 402 Header Fitting Installation Hand Tool
5. Electric hand drill
6. Appropriately-sized hole saw for main pipe
7. Lint-free cleaning cloth and abrasive-surface cleaning material

### Installation Notes

- Hand fusion is only to be done by a trained operator with socket fusion experience.
- Proper installation can only be done with Poly-Cam Series 400 and 401 Heater Faces.
- Hand fusion may be used on main pipe sizes 2" to 64".
- Saddle fusion machines may be used on main pipe sizes 2" to 12".

### Hand Fusion Procedures

1. Pre-heat heating iron to a minimum of 425°F.
2. Select hole size from Table 2. Mark the center of the hole on the main pipe and drill a hole through the wall of the pipe. During drilling, ensure that the drill does not damage the internal wall on the opposite side of the pipe.
3. Clean main pipe and field installed header fitting with lint-free cloth and ensure that the surface is free of dirt, grease, and other contaminants. Use abrasive material to rough up main pipe and fitting end. Ensure that abrasion on pipe is larger than fusion area.
4. Thread installation hand tool into field installed header fitting.
5. Preheat field installed header fitting and pipe main by inserting male heater face in main pipe and moving header fitting against female heater face in accordance with pressures and time specified in Table 3 (Initial Heat Force.) Stop heating when 1/16" bead is visible.
6. Reduce pressure to 0 psi and remove male heater plate from main pipe and the field installed header fitting from the female heater socket.
7. Insert the field installed header fitting into the main pipe centering it on the drilled hole. Apply pressure with hand/body in accordance with Table 3. Maintain the pressure on the field installed header fitting until the fusion is cooled to approximately 100°F – 120°F (5-10 minutes depending on main size.) During this period, the field installed header fitting should not be moved in any direction.

8. Remove installation hand tool from field installed header fitting.
9. After cooling to ambient temperature, the fuse can be pressure-tested to 1.5 times the pipe's pressure rating.

**Table 1: Field Installed Header Fitting Dimensions**

Outlet Size	Main Size	Hand Tool #*
1/2" NPT	2"-12"	#1
3/4" NPT	2"-12"	#2
1" NPT	3"-12"	#3
1 1/4" NPT	4"-12"	#4
1 1/2" NPT	4"-12"	#5
2" NPT	6"-12"	#6

\*Please provide outlet size when ordering to ensure receipt of proper hand tool.

**Table 2: Hole Size**

Nominal Size:	Hole Drill Size:
1/2" NPT	7/8"
3/4" NPT	1 1/2"
1" NPT	1 3/4"
1 1/4" NPT	1 7/8"
1 1/2" NPT	2 1/16"
2" NPT	3 1/4"

**Table 3: Fusion pressures and heating times**

Nominal Size (NPT)	Initial Heat Force (lbs.)	Initial Heat Time (seconds)	Fusion Pressure (lbs.)	Fusion Time (minutes)
1/2"	22	3-5	11	5
3/4"	40	3-5	20	5
1"	88	3-5	44	10
1 1/4"	136	3-5	68	10
1 1/2"	136	3-5	68	10
2"	296	3-5	148	10