



# TECHNICAL NOTE

## SIDEWALL FUSION PROCEDURE UPDATE CONVENTIONAL SERVICE and HIGH VOLUME TAPPING TEE PE2406 & PE3408

FAMILY:	SADDLE
PRODUCT:	TAP TEE
TYPE:	TECHNICAL NOTE
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### SCOPE:

The following fusion procedure changes are intended to replace portions of the existing saddle fusion procedure in regard to heating and fusion forces applied.

### SIZES:

Main Sizes: 1 1/4" IPS through 12" DIPS  
 Outlet Sizes: 1/2" CTS through 1" CTS  
 1/2" IPS through 2" IPS

### REFERENCE DOCUMENTS:

PPI TR-41 Generic Saddle Fusion Joining Procedure for Polyethylene Gas Piping

### BACKGROUND:

These changes were adopted by Central Plastics due to an industry-wide progression toward a uniform and simplified method of establishing and qualifying a saddle fusion procedure. The Plastics Pipe Institute established a task group comprised of pipe and fitting manufacturers to investigate and verify the principles used to arrive at saddle fusion bead-up, heat soak, and fusion pressures as part of PPI TR-41.

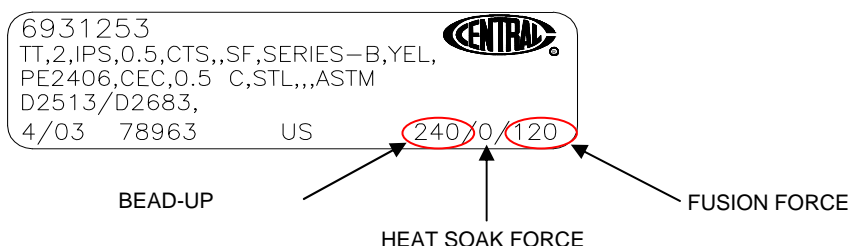
The principles are based on a bead-up (or pre-heat) interfacial pressure of 60 psi, a soak pressure of 0 psi, and a fusion interfacial pressure of 30 psi. Fusion force pressures were then determined using these interfacial pressures in conjunction with the saddle base surface area.

### FUSION PRESSURES:

In accordance with this guideline, Central Plastics is now printing fusion force information for saddle fittings on the product part label in an industry accepted and adopted format. The product label fusion information area (located in the lower right hand corner of the product label) consists of three cells with fusion force information represented as: Bead-Up / Heat Soak / Fusion

As an example: For a 2" x 1/2" CTS PE2406 Socket Outlet Rectangular Base Tap Tee, the product information label appears as follows:

### SAMPLE PRODUCT LABEL



### **CAUTIONS/WARNINGS:**

The fusion force information provided with the product description is intended for use with the generic sidewall (saddle) fusion procedure. Heating times used with this procedure should include the bead-up time required to establish a melt pattern.

Caution should be used when performing saddle fusions to live-main systems to prevent possible hazards from blowout.

The fitting should always be joined immediately to the pipe, regardless of melt conditions, in order to prevent pressurized main rupture due to heating. Fittings with unsatisfactory melt appearance should be cut off above the base to prevent future use.

All persons who make fusion joints should qualify their fusions to the requirements of 49 CFR, Part 192.285.

### **REQUIRED EQUIPMENT:**

1. Application Tool w/Guage
2. Heating Tool
3. Saddle Fusion Heater Adapter
4. 50-60 Grit Utility Cloth

### **FUSION PROCEDURE:**

1. Determine the desired fitting location and install the application tool per manufacturer's instructions. The tool should have a properly sized fitting holder to grip the 2.50 inch O.D. cap.
2. Clean the pipe surface with a clean dry cloth to remove dirt, debris, and other foreign materials. The pipe surface should be free of nicks, gouges, cuts, or imbedded materials.
3. Abrade the pipe and fitting joining surfaces with 50-60 grit utility cloth to remove the surface layer of material. It is necessary to remove the shiny surface texture of the pipe. Remove the residue with a clean dry cloth; do not touch cleaned and prepared fusion surfaces with hands.
4. Install fitting loosely into application tool and lower to pipe surface for alignment. While under moderate pressure (150 – 200 lbs), tighten fitting holder.
5. Verify that heating tool fusion surfaces are the proper size and are clean and free of foreign material. Verify that heater temperature is maintained at 500°F +/- 15°F.
6. Position heating tool on pipe and quickly bring fitting against heater face; apply proper pressure to establish a melt bead on pipe and fitting and then reduce pressure to zero. Begin heat soak period. Refer to Page 3 for recommended bead-up and fusion pressures.

### **CAUTION: EXCESSIVE HEATING OF PRESSURIZED PIPE CAN CAUSE RUPTURE!**

7. After heating time ends, **quickly** remove heating tool from pipe and fitting without disturbing the melt pattern. **Quickly** inspect the fusion surfaces for complete and proper melt and then bring the surfaces together\*. **DO NOT SLAM.** Apply and maintain the recommended fusion pressure for the recommended cooling time. Allow an additional 3 minutes before removing the application tool or disturbing the fusion joint in any way.
8. Allow the fusion to cool completely before subjecting to rough handling or pressure testing. Inspect fusion for quality; if the fusion joint is suspect or unacceptable, do not tap. Cut off fitting top to prevent use and apply a new fitting to a new location on the pipe.

*\*The fitting should always be joined immediately to the pipe, regardless of melt conditions in order to prevent main rupture due to heating. Fittings with unsatisfactory melt appearance should be cut off above the base to prevent future use. 2" and smaller diameter or thinwalled pipe under pressure should be fused with care, excessive heating could cause pipe blowout.*

**RECOMMENDED FUSION FORCE:**

**STANDARD RECTANGULAR BASE**

Central Series A/B/C

Base: 2.5" x 1.9"

MAIN SIZE	OUTLET SIZE	BEAD-UP	HEAT	FUSION
1 1/4" - 1 1/2" IPS (Flats)	CTS: 1/2", 3/4", 1" IPS: 1/2", 3/4", 1", 1 1/4"	160 lbf	0 lbf	80 lbf
2"-12" IPS	CTS: 1/2", 3/4", 1" IPS: 1/2", 3/4", 1", 1 1/4"	240 lbf	0 lbf	120 lbf

**LARGE ROUND BASE**

Central Series F&G

Base: 2.69" Diameter

MAIN SIZE	OUTLET SIZE	BEAD-UP	HEAT	FUSION
2" IPS (Flats)	CTS: 1/2", 3/4", 1" IPS: 1/2", 3/4", 1", 1 1/4"	260 lbf	0 lbf	130 lbf
3"-12" IPS	CTS: 1/2", 3/4", 1" IPS: 1/2", 3/4", 1", 1 1/4"	290 lbf	0 lbf	145 lbf

**SMALL ROUND BASE**

Central Series D&E

Base: 2.00" Diameter

MAIN SIZE	OUTLET SIZE	BEAD-UP	HEAT	FUSION
1 1/4" - 1 1/2" IPS (Flats)	CTS: 1/2", 3/4", 1" IPS: 1/2", 3/4", 1", 1 1/4"	120 lbf	0 lbf	60 lbf
2"-12" IPS	CTS: 1/2", 3/4", 1" IPS: 1/2", 3/4", 1", 1 1/4"	140 lbf	0 lbf	70 lbf

### HIGH VOLUME TAPPING TEES

Large Rectangular Base  
with 1.25" an 2" Outlets

#### IPS SIZES

MAIN SIZE (IPS)	BEAD-UP	HEAT	FUSION
2" IPS	440 lbf	0 lbf	220 lbf
3" IPS	530 lbf	0 lbf	265 lbf
4"IPS	560 lbf	0 lbf	280 lbf
6"IPS	600 lbf	0 lbf	300 lbf
8"IPS	640 lbf	0 lbf	320 lbf
10"IPS	660 lbf	0 lbf	330 lbf
12"IPS	740 lbf	0 lbf	370 lbf

### HIGH VOLUME TAPPING TEES

Large Rectangular Base  
with 1.25" an 2" Outlets

#### DIPS SIZES

MAIN SIZE (DIPS)	BEAD-UP	HEAT	FUSION
3" DIPS	600 lbf	0 lbf	300 lbf
4" DIPS	570 lbf	0 lbf	285 lbf
6" DIPS	610 lbf	0 lbf	305 lbf
8" DIPS	640 lbf	0 lbf	320 lbf
10" DIPS	660 lbf	0 lbf	330 lbf
12" DIPS	680 lbf	0 lbf	340 lbf

*Note: This document supercedes all previous Technical Notes  
and is subject to change without notice.*

Approved By:



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