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**PRODUCT SPECIFICATION:****ELECTROFUSION SADDLE FITTINGS  
PE2708 MDPE YELLOW**

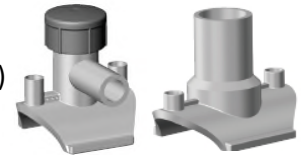
FAMILY:	ELECTROFUSION
PRODUCT:	TAPPING TEE / HVTT / BRANCH
TYPE:	Specification
DOC:	PS-005 - REV 5 - 1/22/2019
PAGES:	3

**SCOPE:**

This document describes the standard specifications and features related to GF Central Plastics' PE2708 Electrofusion saddle fittings for pressure piping systems. This specification covers Tapping Tees, High Volume Tapping Tees, and Branch Saddles with 4 inch or smaller outlets.

**SIZES:**

Tapping Tee: 1 ¼ IPS through 10 IPS (Main Size) x ½ CTS through 1 ¼ IPS (Outlet Size)  
High Volume Tapping Tee: 2 IPS through 12 IPS (Main Size) x 1 ¼ and 2 IPS (Outlet Size)  
Branch Saddle: 4 IPS, 6 IPS, 8 IPS (Main Size) x 4 IPS (Outlet Size)

**REQUIREMENTS:**

ASTM D2513 [Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings](#)  
ASTM D3350 [Specification for Polyethylene Plastic Pipes and Fittings Materials](#)  
ASTM F714 [Specification for Polyethylene \(PE\) Plastic Pipe \(SDR-PR\) Based on Outside Diameter](#)  
ASTM F1055 [Specification for Electrofusion Type Polyethylene Fittings for OD Controlled PE Pipe and Fittings](#)  
CSA B137.4.1 [Polyethylene Piping Systems for Gas Service](#)  
CFR 49 [Part 192.283 – Plastic pipe: Qualifying joining procedures](#)

**REFERENCE DOCUMENTS:**

ASTM D3035 [Standard for Polyethylene \(PE\) Plastic Pipe \(DR-PR\) Based on Controlled Outside Diameter](#)  
ASTM F1290 [Standard Practice for Electrofusion Joining Polyolefin Pipe and Fittings](#)  
AWWA C906 [Standard for Polyethylene Pressure Pipe and Fittings, 4 in. Through 63 in., for Water Distribution](#)  
ANSI/NSF 61 [Standard for Drinking Water System Components and Health Effects](#)  
PPI TR-19 [Thermoplastics Piping for the Transport of Chemicals](#)  
PPI TR-31 [Underground Installation of Polyolefin Pipe](#)  
ASTM F2164 [Standard Practice for Field Leak Testing of Polyethylene \(PE\) Pressure Piping Systems Using Hydrostatic Pressure](#)

**CERTIFICATIONS/LISTINGS:**

CSA B137.4.1 [Polyethylene Piping Systems for Gas Service](#) (≤ 8 IPS main size)

**MATERIALS:**

PE Resin: Pre-blended yellow medium density virgin resin. Recognized by the Plastic Pipe Institute as having a PE2708 rating and a Hydrostatic Design Basis of 1250 psi @ 73°F. PE2708 rating under CSA B137.4. This resin has a cell classification of 234373E\* in accordance with ASTM D3350.

\*Note: Previous editions of ASTM D3350 resulted in a cell classification of 23463E.

Heating Wire: Copper, nickel, or alloy.  
 Terminal Pin: Machined or die swaged 70/30 brass, nickel-plated carbon steel, or aluminum.  
 Resistor: Metal film type. ±1% tolerance.  
 Cutter: Carbon Steel

**TEST METHODS:**

ASTM D1598 Standard Test Method for Time-to-Failure of Plastics Pipe Under Constant Internal Pressure

Must exceed 170 hours in 80°C bath @ 670 psi hoop stress, or  
 Must exceed 1000 hours in 80°C bath @ 580 psi hoop stress, or  
 Must exceed 1000 hours in 23°C bath @ 1600 psi hoop stress.

*(All methods are considered equivalent)*

ASTM D1599 Standard Test Method for Resistance to Short-Time Hydraulic Pressure of Plastic Pipe, Tubing and Fittings.

Uniform pressurization until failure occurs between 60 and 70 seconds from start of test. Must result in ductile failure of the pipe, independent of the fitting or fusion, at a pressure great enough to create a 2520 psi hoop stress in the pipe.

Five second pressure test 4x's the rated working pressure performed on each production lot.

ASTM F905 Standard Practice for Qualification of Polyethylene Saddle-Fused Joints

Impact the fused fitting 2 inches from the pipe until failure occurs or until 500 ft-lbs or higher impact with no failure occurs. Bending or tearing of the pipe or fitting is acceptable as long as the fused joint remains intact.

Joint Integrity Tests

Saddle Type Joint Crush Test

Crush Test a sectioned assembly until the walls of the pipe meet. Should result in less than 15% separation of the fusion length.

Fusion Evaluation Test (FET)

Bend a sectioned assembly along the bond line 90° in both directions four times each without separation along the bond line. Minor separation at the outer limits of the fusion heat source may be seen.

Evaluation for Voids

Voids in the fusion interface are acceptable only if they are round or elliptical in shape, with no sharp corners. Individual voids cannot exceed 10% of the fusion zone with the combined sizes of multiple voids not exceeding 20% of the fusion zone length.

**FEATURES:**

40 Volt System. Installation temperature range from -10°F to 120°F. Can be supplied with an integral identification resistor which can be recognized by all Central Plastics' Processors to set the proper fusion time. All Central Plastics' Electrofusion Couplings are supplied with an ISO compliant 24 bit barcode to facilitate use with other brands of processors. Can be supplied AWWA or FM listed. Manufactured in the United States.

**PRESSURE RATING:**

PE2708 Electrofusion saddles are pressure rated according to the outlet DR using the appropriate unit stresses and design factor required for regulated natural gas in the US (49 CFR Part 192) and Canada.

<b>Outlet</b>	<b>.4 DSF (Gas)</b>
<b>DR 9</b>	<b>125 psi</b>
<b>DR 11</b>	<b>100 psi</b>

**PRESSURE TESTING:**

Pressure testing can be conducted in accordance with the recommendations of the pipe manufacturer, or as described in ASTM F2164 STANDARD PRACTICE FOR FIELD LEAK TESTING OF POLYETHYLENE (PE) PRESSURE PIPING SYSTEMS USING HYDROSTATIC PRESSURE, typically 1.5 x's the rated working pressure not exceeding 8 hours in duration for a single test.

**MAXIMUM OPERATING TEMPERATURE:**

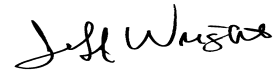
The maximum operating temperature of PE2708 Electrofusion saddle fittings is 140°F. Pressure de-rating factors should be considered when operating systems above the 73°F stated pressure rating, to maintain the 50 year substantiated long-term hydrostatic strength of the polyethylene material.

**STORAGE/SHELF LIFE:** Yellow medium density polyethylene resin contains a stabilization pack which provides some degree of protection from UV effects. Even so, it is recommended that which are stored for extended periods remain in their original packaging bag and box.

**CHEMICAL RESISTANCE:** Polyethylene generally exhibits strong resistance to many chemical compounds. Known chemical resistance characteristics at specified temperatures can be found in PPI Technical Report TR-19.

**INSTALLATION:** Please refer to Georg Fischer Central Plastics' Electrofusion Installation Procedures Manual for proper installation instructions. This installation procedure has been qualified by testing to the requirements of CFR 49 Part 192.283. Other qualified procedures may be suitable. Central Plastics strongly recommends that electrofusion fittings be installed only by persons that have received training from an authorized instructor, and have a strong working knowledge of polyethylene and heat fusion, and have qualified electrofusion joints through destructive testing. Persons responsible for the joining of polyethylene pipes by fusion methods must qualify according to the requirements of Title 49 Code of Federal Regulations, Section 192.285.

Approved by:



Jeff Wright  
Technical Director