



## PRODUCT SPECIFICATION

### BUTT FUSION FITTINGS (IPS) PE3408 / PE4710 HDPE BLACK

FAMILY: BUTT FUSION  
PRODUCT: PE FITTING  
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#### **SCOPE:**

This document describes the standard specifications and features related to Georg Fischer Central Plastics' injection molded PE4710 (formerly PE3408) Butt Fusion Fittings for pressure piping systems.

#### **SIZES:**

1/2" CTS through 2" CTS. TEE, 90 DEGREE ELBOW, REDUCER, CAP,  
1/2" IPS through 12" IPS. TEE, 90 DEGREE ELBOW, 45 DEGREE ELBOW, REDUCER, CAP, PURGE FITTING,

#### **REQUIREMENTS:**

ASTM D2513 Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings  
ASTM D3350 Specification for Polyethylene Plastic Pipes and Fittings Materials  
ASTM D3261 Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastics Pipe and Tubing

#### **REFERENCE DOCUMENTS:**

PPI TR-19 Thermoplastics Piping for the Transport of Chemicals  
PPI TR-31 Underground Installation of Polyolefin Pipe  
PPI TR-33 Generic Butt Fusion Procedure for Polyethylene Gas Pipe  
ASTM D2657 Standard Practice for Heat Fusion Joining of Polyolefin Pipe and Fittings

#### **CERTIFICATIONS/LISTINGS:**

FM 1613 Approval Standard: Plastic Pipe and Fittings for Underground Fire Protection Service  
AWWA C906 Standard for Polyethylene Pressure Pipe and Fittings, 4 in. Through 63 in., for Water Distribution  
FM 1613 Approval Standard: Plastic Pipe and Fittings for Underground Fire Protection Service  
ANSI/NSF 14 Plastic Piping System Components and Related Materials

#### **MATERIALS:**

PE Resin: Pre-blended black high density virgin resin. Recognized by the Plastic Pipe Institute as having a PE3408 / PE4710 / PE100 rating and a Hydrostatic Design Basis of 1600 psi @ 73°F. This resin has a cell classification of 445574C\* in accordance with ASTM D3350.

Note\* Previous editions of ASTM D3350 resulted in cell classifications of 345464C and 345564C.

#### **TEST METHODS:**

ASTM D1598 Time-to-Failure of Plastic Pipe Under Constant Internal Pressure.  
Must exceed 170 hours in 80°C bath @ 670psi Hoop Stress, or  
Must exceed 1000 hours in 80°C bath @ 580psi Hoop Stress, or  
Must exceed 1000 hours in 23°C bath @ 1600psi Hoop Stress.  
*(All methods are considered equivalent)*

ASTM D1599 Short-Term Hydraulic Pressure Failure of Plastics Pipe, Tubing, and Fittings.  
Uniform pressurization until failure between 60 and 70 seconds from start of test. Most result in ductile failure at a pressure great enough to create a 2520psi Hoop Stress.

ASTM D2122 Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings  
Determination of diameter, wall thickness, and length dimensions including procedures for dimensioning molded thermoplastic pipe fittings.

#### **FEATURES:**

Made in USA from pre-blended virgin materials. These fittings are available in various configurations and DR and are primarily intended for use in pressure piping applications. These fittings are compatible for heat fusion to any PE material

made from a like or similar resin. Select sizes can be supplied with AWWA or FM marking. Designed for use on pipe conforming to ASTM F714, D2513, and D3035.

**PRESSURE RATING:**

PE4710 Butt Fusion Fittings are pressure rated in accordance with industry and regulatory guidelines for natural gas or water @73°F. Pressure ratings are subject to change depending on ambient temperatures. Pressure ratings vary according to wall thickness and the design factor for the intended application, see below for ratings:

Fitting SDR	Pressure Rating (PSI) @ 73° F (23° C)			
	Water (.63 DSF)	Water (.5 DSF)	Natural Gas (.32 DSF) US	Natural Gas (.4 DSF) Canada
7	335	265	170*	215*
9	250	200	125*	160*
11	200	160	100	125
13.5	160	125	80	100
17	125	100	65	80
21	100	80	50	65
26	80	65	40	50
32.5	65	50	30	40

\* Subject to maximum operating pressure limits of regulatory requirements.

Minimum wall thickness for plastic piping gas distribution systems is limited to .062".

Above listed pressure ratings based on 73°F ambient temperature. Pressure ratings subject to derating depending on temperature.

**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 PE4710 Butt Fusion 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:**

Black high density polyethylene resin contains a minimum of 2% of a finely dispersed concentration of carbon black which provides protection from UV effects. Even so, it is recommended that fittings which are stored for extended periods (two years or greater) be stored indoors in their original packaging. Fittings stored indoors in their original packaging have a virtually unlimited shelf-life.

**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:**

These fittings are compatible for heat fusion by butt, socket, or electrofusion joining products. They can be heat fusion joined to pipe or fittings manufactured from like or similar resin. Qualified mechanical joining products can be used to join these fittings, consult the manufacturer for recommendations. Fusion jointing should only be attempted by persons who have been trained and have qualified joints through destructive testing.

*Note: This Specification supercedes all previous Product Specifications and is subject to change without notice.*

Approved By:



Jeff Wright  
 Director of Product Management