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Safety and Efficiency Through Innovation

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LETTER OF COMPLIANCE

WELD-END ID CONTROLLED POLYETHYLENE-TO- STEEL TRANSITION FITTINGS & FABRICATED BUTT- FUSED HDPE FITTINGS

The following standards are directly or tangentially considered in the design and manufacture of Hawkeye Industries Inc. HDPE Transition and Fabricated Fittings. As not all sections of all listed documents are applicable to the design of these items specifically.

Primary Fitting Codes & Standards

CSA B137.4 – 17
Polyethylene (PE) Piping Systems for Gas Services

Hawkeye Industries Inc. uses HDPE pipe conforming to CSA B137.4 for the manufacture of transition and fabricated fittings. Pipe meeting this specification will meet the requirements of ASTM D2513.

CSA B137.4 – 17 now requires transition piece pullout strength to be equivalent to the force required to deform (neck down) the unsupported pipe rather than meet or exceed a specific tensile load rating as in previous versions of the standard. All transitions manufactured by Hawkeye Industries since 2006 have been designed, tested and manufactured such that the mechanical transition joint exceeds the tensile strength of the HDPE pipe.

Hawkeye Transition and fabricated fittings have been tested to 150% maximum allowable operating pressure (MAOP) as determined from CSA Z662 – 15 13.3.2.2.

CSA Z662 – 15
Oil & Gas Pipeline Systems

Fittings manufactured by Hawkeye Industries Inc. meet the material requirements set out in section 13.3.3 of Z662 – 15.

ASTM F1973 – 13
Standard Specification for Factory Assembled Anodeless Risers and Transition Fittings in Polyethylene (PE), Polyamide 11 (PA11) and Polyamide 12 (PA12) Fuel Gas Distribution Systems.

Secondary / Referenced Codes & Standards

These standards are references in the above primary standards directly, and/or used by vendors in qualification and designation of materials provided to us for the manufacture of transition and fabricated fittings.

AER Directive 077
Pipelines – Requirements and reference tools (supercedes EUB / ERCB Directive 022)

API 15LE – 08 (13)
Specification for Polyethylene Line Pipe

ASME B31.8 – 16
Gas Transmission & Distribution Systems

ASTM D2513 – 14
Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tube and Fittings

ASTM D2837 – 13
Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products.

ASTM D3035 – 15
Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter

ASTM D3350 – 14
Standard Specification for Polyethylene Plastics Pipe and Fitting Materials

ASTM D3261 – 12
Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene Plastic Pipe and Tubing

ASTM F714 – 13
Standard Specification for Polyethyleene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter

ASTM F2206 – 14
Standard Specification for Fabricated Fittings of Butt – Fused Polyethylene (PE)

AWWA C906 – 15
Polyethylene (PE) Pressure Pipe and Fittings, 4 In. Through 65 In. (100 mm Through 1,650 mm), for Waterworks

CSA B137.0 – 17
Definitions, general requirements, and methods for testing for thermoplastic pressure piping.

PPI TR – 3 (2016)
Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Hydrostatic Design Stresses (HDS), Pressure Design Basis (PDB), Strength Design Basis (SDB), Minimum Required Strength (MRS) Ratings, and Categorized Required Strength (CRS) for Thermoplastic Piping Materials or Pipe

PPI TR – 4 (2016)
PPI Listing of Hydrostatic Design Basis (HDB), Hydrostatic Design Stress (HDS), Strength Design Basis (SDB), Pressure Design Basis (PDB) and Minimum Required Strength (MRS) Ratings For Thermoplastic Piping Materials or Pipe

HDPE Material

HDPE used in Transition and Fabricated Fittings is extruded from PPI TR – 4 (2016) Listed Materials, with ASTM D3350 – 14 cell classification of 446574C for HDB service, and 446574C for MRS service. The material conforms to ASTM PE4710 (HDB) and ISO PE100 (MRS).

Dimensions

The finished dimensions of the HDPE portions of transition fittings and fabricated fittings conform to ASTM D3261 – 12. Sizes not included in this standard, (2 - 1/2 NPS and 5 NPS) ODs meet diameters set out in ASME B36.10 with diameter tolerances determined by linear interpolation of adjacent sizes in D3261 – 12. For Dimension ratios offered or requested that are not referenced in ASTM D2513 – 14, ASTM D3261 – 12, or any other standard below specifying a DR or SDR, the wall thickness is calculated via t = OD/(S)DR and tolerances determined via linear regression of adjacent dimension ratios as published.

Technical Information

The following technical bulletins, available on our website, contain more technical information regarding Hawkeye Industries' transition fitting and polyethylene fittings:

TB – 0207
ID – Controlled Polyethylene to Steel Transition Fittings: Material and Design Specifications

TB – 0807
Pressure Rating Polyethylene Fittings using CSA Z662 – 07, PPI TR – 4 & TR – 9, and ERCB Directive 077

TB – 0408
Fabricated Fitting Butt Fusion Procedure

Material Traceability

Standard P.O. / MTR document control tracks steel and other metallic fitting components.

Raw polyethylene used to manufacture the Hawkeye Industries transition fitting is identified immediately upon receipt with the following information:

– Resin type (PE 4710, PE 100, etc)

– Manufacturer of the Raw Material

– Size and SDR of the raw material

– Our purchase order number

Following each manufacturing operation, information is reapplied to the part if, as a result of the handling and machining, the information is removed. At no time is a polyethylene part is staged, assembled or stored without individual identifying information.

Material is traceable from end – user purchase order number, through Hawkeye Industries internal work order number, to raw material supplier to resin manufacturer.

Regards,

Digitally signed by
Jordan Harris
Date: 2017.01.23
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Jordan Harris, P.Eng
Sr. Engineer
Hawkeye Industries Inc.