Fluid Sealing Association

STANDARD

FSA-DSJ-402-15

FLUOROELASTOMER
BELT RECOMMENDATION

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FLUOROELASTOMER BELT RECOMMENDATION

DEFINITION: Fluoroelastomers (FKM) are specifically compounded terpolymers (vinylidene fluoride/tetrafluoroethylene/hexafluoropropylene) as designated in the specification FSA-DSJ-401-09 (ASTM-D6909-03). This compound is used as the gas seal and chemical barrier of a multi-layer buildup expansion joint flexible element.

Fluoroelastomer belts are recommended for flue duct applications with maximum operating / design temperatures of 400° F at maximum pressures of ±3psig.

Terpolymer fluoroelastomers have been used for Flue Duct expansion joints due to their outstanding resistance to chemicals, oils and heat compared to any other elastomer. Fluoroelastomers are especially effective in Flue Duct applications where condensation and sulfuric acid is a problem such as in coal fired power plants.

STYLES: Fluoroelastomer belts can be provided as a Flat Belt Type or Integrally Flanged "U"-Type expansion joint. These belts work well as a single layer type with reinforcement plies given the excellent abrasion resistance and durability of the fluoroelastomer.

REQUIREMENTS: (Minimum Recommended)

- Fluoroelastomer compound shall be per the FSA-DSJ-401-09 specification and can be supplied by FSA member companies.
- 0.250" Minimum overall finished belt thickness after press cure.
- Two (2) layers of Textile woven cloth reinforcement sandwiched between three (3) layers of fluoroelastomer.
- Recommended reinforcement cloth materials include fiberglass, Nomex® or aramid blends.
- Reinforcement shall be minimum 32oz. per sq. yard weight (34oz. max.) with 240x450 lbs warp x fill minimum breaking strength.
- Minimum adhesion strength between reinforcement layers and compound shall be 11 lbs/linear in (pli).
- Fluoroelastomer layers shall include minimum: 0.070"thk. gas side layer, 0.050"thk. center layer, and 0.050"thk. external cover. Gas side shall be clearly marked for installation.
- Bolt holes shall be slotted on 1"gauge for ½" or 5/8"diameter hex bolt sets on 4" to 6"centers, respectively. Bolt torque for fluoroelastomer belt should not exceed

35 to 55 ft-lbs. Typical backup bars are 3/8”x 2” rounded edge A36 C.S. minimum grade bar stock.

- All metal surfaces in contact with belt shall be smooth with no sharp edges.
- Consult manufacturer when free belt width exceeds 16”.
- Consult manufacturer for applications where ammonia is present.
- Thermal movements per single layer elastomer guidelines given in Table D2 of the *FSA Ducting Systems Technical Handbook*.

TESTING:

- Tensile testing shall be performed per ASTM D-412
- Adhesion testing shall be per ASTM D-413
- Methanol and Toluene Volume Swell Tests per ASTM D-471

QUALITY CONTROL:

- All fluoroelastomer belts shall have material batch certification with full traceability to original compound polymers, grade, and lot number.
- Belt, as received, shall be uniform in quality and condition, smooth, as free from foreign materials as commercially practical, and free from imperfections detrimental to use as intended.

WARRANTY:

Standard manufacturers warranty to apply.