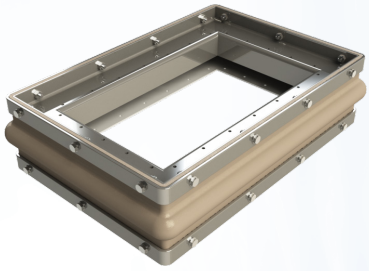
[FABRIC EXPANSION JOINTS]*

ADVANTAGES OF FABRIC EXPANSION JOINTS

- Cost efficient for large ducting applications
  - Lower initial cost
  - Lower installed cost
  - Lower repair/replacement cost
- Can be installed over existing metal joints
- Negligible spring forces
- Large movement capacity



PRODUCTS, MARKETS & APPLICATIONS

Senior Flexonics pioneered the use of fabric expansion joints as an alternative to metal bellows through its FlowFlex division in 1964. We are continually striving to provide reliable cost-effective solutions to reducing or eliminating your thermal/mechanical movement problems.

Senior Flexonics' non-metallic expansion joints are produced in various configurations in order to meet virtually any application requirements and operating conditions. They can be engineered to fit into existing systems without major changes in duct work.

Fabric expansion joints are offered in either integral flange or belt-type geometry. They are designed not only for relieving stress due to thermal conditions but to eliminate transmission of vibration caused by fans and other equipment in ducting systems.

Senior Flexonics can produce round, rectangular and custom shapes for every application. In addition to our standard designs in this catalog, we can produce specially engineered designs to meet your specific requirements.

Our fabric expansion joints are used in, but not limited to, the following industries and applications:

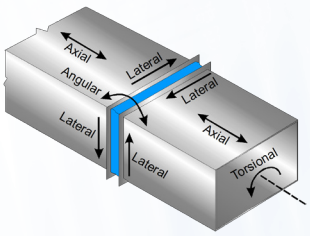
- Power generation
- Refineries
- Pulp and paper
- Metal fabrication
- Food processing
- Incineration
- Chemical processing

CUSTOM ENGINEERED PRODUCTS

In addition to our standard designs in this catalog, we can produce specially engineered designs to meet your specific requirements. Most solutions can be engineered to fit and improve existing systems with minor modifications. Our team of experts would be pleased to assist you with your custom designs.

MOVEMENT CAPABILITIES

The system thermal expansions are the differential expansion/contraction of operating and/or excursion temperatures and the minimum ambient temperature during installation and shutdowns.



The expansion joint engineer uses these movements and temperatures to select the proper material and design for each expansion joint. Fabric expansion joints frequently can handle combined axial, lateral, angular and torsional movements in a single assembly.
The expansion joint locations can often be optimized, reducing the total number required. Consideration should be given to accessibility and belt replacement.

SPLICING AND REPAIRABILITY

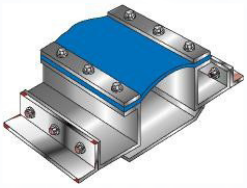
Senior Flexonics' Flexon and Ultrachem materials can be easily spliced in the field during expansion joint installation. These materials are easily repaired in the event of damage after installation. The "Thermowelding" characteristics of these materials provide splicing and repair material strength equal to or greater than the base material strength.

The ability to repair your expansion joint materials with plant personnel gives the plant more independence to solve its own problems. Expansion joint replacement and repairs can now be easily performed.

* Fabric Expansion Joints are not CRN registered.

[FABRIC EXPANSION JOINTS]*

FRAME STYLES



SERIES 2400

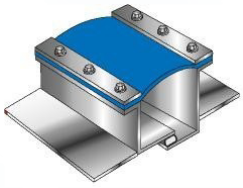
Design applications where the ductwork flanges are present and a complete frame assembly is preferred. This style works well for high temperature applications.

SERIES 2500

Complete drop-in assembly design which works well with low to moderate temperature applications with low levels of particulate accumulation.

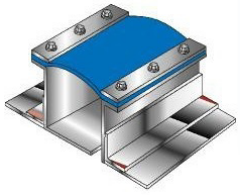
SERIES 2600

Similar to Series 2500, and is used where additional standoff is necessary or preferred. This design works well in low to moderate temperature applications with low levels of particulate accumulation.



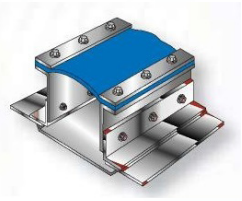
SERIES 2700

Used for low-to-high temperature applications with a cavity pillow, where high levels of particulate are present.



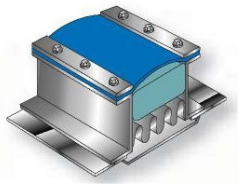
SERIES 2750

Similar to Series 2700, with the exception of a single integral flow liner. This design works well with lower particulate levels or vertical duct applications.



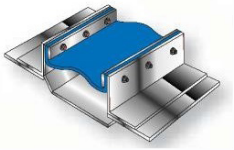
SERIES 2800

This style frame is well suited for installation with field assembly over existing expansion joints, and is utilized for all temperature ratings.



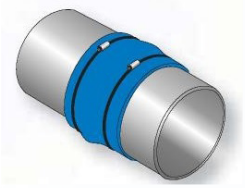
SERIES 2900

Best utilized where flanges are not present and field assembly is required or preferred.



SERIES U1000

The standard integrally flanged U-belt design is used for low to moderate temperature applications where duct flanges are present and particulate loading is minimal.



SLEEVES

Sleeves are primarily used for vibration in HVAC applications with minimal pressures.

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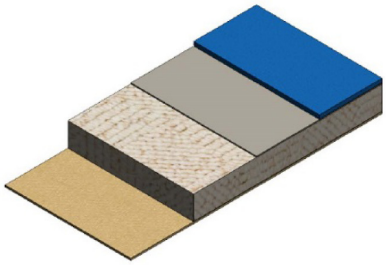
[FABRIC EXPANSION JOINTS]*

BELT MATERIALS

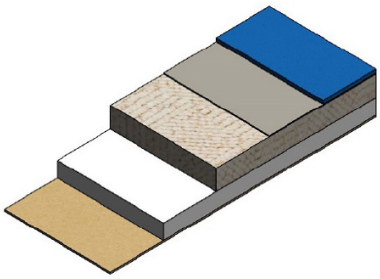
FLEXON-1000

A composite belt approximately 3/4" thick, rated for 1000°F (538°C) and consisting of layers of PTFE coated fiberglass fabric, PTFE film, non-woven fiberglass needle mat insulation, and fiberglass encasement (optional).



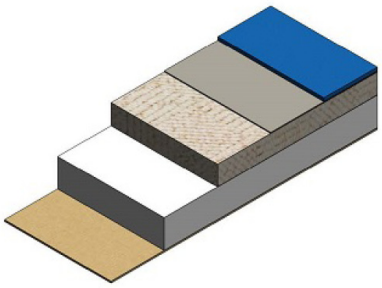
FLEXON-1200

A composite belt approximately 1-1/4" thick, rated for 1200°F (649°C) and consisting of layers of PTFE coated fiberglass fabric, PTFE film, non-woven fiberglass needle mat insulation, ceramic mat insulation, and silica cloth encasement.



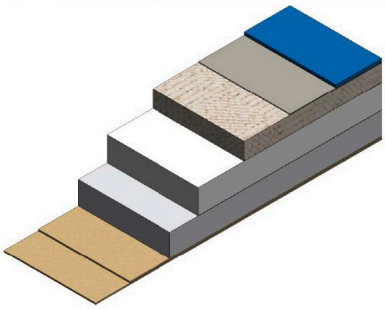
FLEXON-1500

A composite belt approximately 1-3/4" thick, rated for 1500°F (816°C) and consisting of layers of PTFE coated fiberglass fabric, PTFE film, non-woven fiberglass needle mat insulation, ceramic mat insulation, and silica cloth encasement.



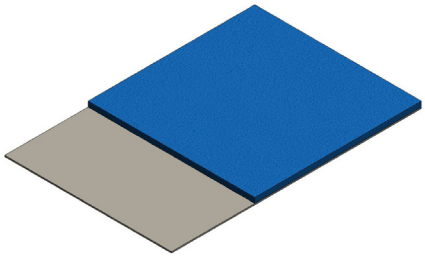
FLEXON-2000

A composite belt approximately 2-1/4" thick, rated for 2000°F (1093°C) and consisting of layers of PTFE coated fiberglass fabric, PTFE film, nonwoven fiberglass needle mat insulation, ceramic mat insulation, and silica cloth encasement.



ULTRACHEM SERIES

Three different belts are available, all rated for 600°F (316°C). Thicknesses range from .047" to .060". All belts have an outside layer of PTFE coated fiberglass fabric and various thicknesses of PTFE film on the gas side.



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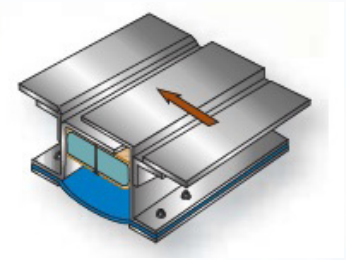
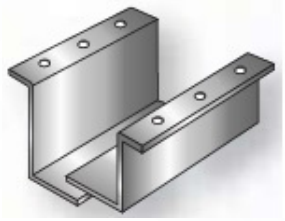
CAVITY PILLOW

Cavity pillows serve three purposes: retarding the intrusion of particulate, providing thermal protection, and resisting pressure pulsation. Our pillows are fabricated from selected insulation materials and wrapped with a high temperature fabric, designed for the operating conditions. Standard pillows are provided with "ears" or tabs that fasten under the belt and backup bars to hold the pillow in place. The ears are designed to provide a memory to the pillow such that it will return to an "as installed" uncompressed state after plant cool down, during outages.



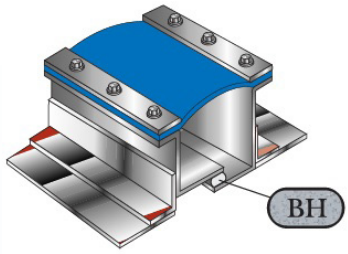
FLOW LINER

Flow liners (baffles) are metal shields designed to provide protection for the fabric element and/or cavity pillow from direct impingement of particulate or particulate accumulation. A liner is also used to reduce flutter of the fabric element caused by turbulence, to help control the accumulation of dust or ash in the expansion joint cavity, and to reduce the temperature of the flexible element. Flow liners can be supplied on a variety of materials and profiles (straight, airfoil, semi-airfoil or telescoping).



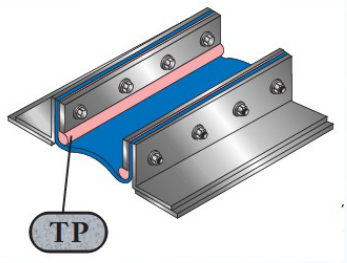
BRAIDED HOSE SEAL (BH)

Flexible stainless steel braided hose with enclosed ceramic insulation is often specified for expansion joints in areas of high particulate loading. The hose is secured between the flow liners to prevent particulate from entering the expansion joint cavity. This accessory along with a cavity pillow works well in cement plants.



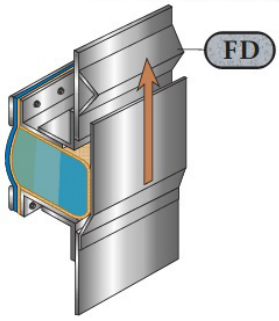
TADPOLE GASKET TAPE (TP)

When using integral flange-type expansion joints in duct systems with positive pressure operating conditions, Senior Flexonics recommends the use of tadpole gasketing between the flexible element flange and backup bars (as illustrated). This prevents the heads of the erection bolts from abrading the outside cover of the flexible element. This option also protects both flat and integrally flanged belts during large lateral or compression movements.



FLOW DEFLECTOR (FD)

In some expansion joint installations, an angle flow deflector is added to the design to increase the service life of the joint. A flow deflector is used to prevent moisture and particulate from sliding down vertical duct walls and being trapped in the expansion joint cavity by the flow liner.



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