



NON-METALLIC EXPANSION JOINTS

RAPCO
INDUSTRIES, INC.

About PAPCO

...the Non-Metallic Expansion Joint Specialists

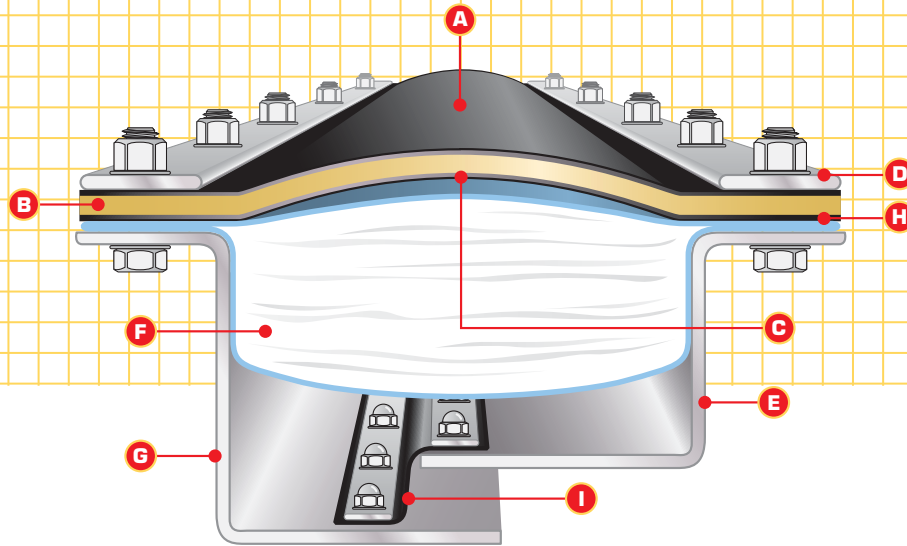
With decades of experience in design and fabrication, PAPCO Industries, Inc. has installed thousands of non-metallic expansion joints in a wide range of applications throughout the US and around the world. Designed for a variety of systems, PAPCO expansion joints are compatible with all types of gases and temperatures up to 2000°F. Since the development of our benchmark fabric, TEXFLEX® in 1985, PAPCO Industries has been at the forefront of expansion joint technology. When PAPCO's mechanical engineers designed and built the machinery to mass-produce TEXFLEX, they set the standard for high temperature expansion joint materials. In order to continually maintain this leadership position, PAPCO's management constantly investigates new technologies and processes that can be used to design the most robust non-metallic expansion joints in the world. As a member of the Fluid Sealing Association (FSA), PAPCO has access to and influence on the latest technical data and material specifications.

All PAPCO expansion joints are manufactured at our facility with painstaking care by our expert technicians. Each assembly is quality inspected throughout the manufacturing cycle to ensure that there are no material defects and that there will be a proper fit once installed. At PAPCO, we take special pride in our work and our customers' satisfaction. We have been and always will be available to assist the design engineer in the planning of the system. With our experience, we can suggest the right materials for the expansion joint; its proper placement; and the most cost-effective method of achieving the desired result – a safe, durable expansion joint that requires little maintenance and provides trouble-free service.

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Anatomy of a Fabric Expansion Joint



A. Structural Gas Ply

The structural gas ply is the outermost layer of the expansion joint belt (Flexible Element). It is 100% nonporous, features a high tensile strength, and allows movement in all directions. The structural gas ply is designed to withstand the system temperature and be resistant to chemical attack from inside and out. Based on system temperatures, the Structural Gas Ply may stand alone or be combined with additional thermal barriers to form a composite belt. PAPCO offers Structural Gas Plies of various combinations of EPDM, Fluoroelastomer (FKM), and PTFE. Expansion joint belts are available as Flat Belt or U-Shaped "Integrally Flanged" varieties.

B. Thermal Barrier/Insulation Matting

The Thermal Barrier Layer ensures that the temperature of the inside surface of the Structural Gas Ply does not exceed its maximum operating temperature. This layer (in combination with a secondary gas/vapor ply) also reduces the chance of hot flue gas condensing on the inside of an uninsulated Structural Gas Ply. Unless otherwise specified PAPCO uses only the highest quality 11# Density Mechanically Bonded Fiberglass or Ceramic Needle Mat insulation.

C. Retaining Ply

The Retaining Ply is designed to join the Structural Gas Ply and thermal barrier. It protects the thermal barrier from mechanical damage and provides additional thermal protection. The retaining ply is selected based on the operating temperature and chemical compatibility. PAPCO frequently uses high strength tightly woven fiberglass cloth, silica cloth, vermiculite coated cloths, aluminized fabrics and/or alloy wire mesh in various combinations.

D. Backing Bars

Backing bars are used to seal the flexible element against the frame. PAPCO designs the backing bars in accordance with FSA (Fluid Sealing Association) standards but always ensures that the thickness, width, fastener size, and spacing are sufficient for the system pressure to meet FSA standards. PAPCO's standard specification calls for a 2" x 3/8" backing bar with rounded edges to protect the flexible element. The bars feature slotted holes for easy fit up and adjustment. PAPCO includes 1/2" hardware spaced 4" on center as a minimum or as specified by the customer.

E. Baffle Liner

The baffle liner will redirect airflow over the expansion joint cavity and protect the expansion joint's flexible element and insulation/accumulation pillow from fly ash accumulation, flutter, and abrasion. It will also serve to deflect heat. Baffle liners should cover the full perimeter and width of the expansion joint so that the cavity is covered at all times. The material type and thickness of the baffle liner should be

reviewed by the buyer's engineer for suitability. Baffles are either an integral part of the expansion joint frame or they can be shipped loose. The many styles of baffle liner which offer different benefits should be discussed when designing an expansion joint.

F. Insulation/Accumulation Pillow

Insulation and accumulation pillows are used to protect the flexible element from the system's heat and prevent fly ash from filling the expansion joint cavity. The insulation/accumulation pillow is comprised of layers of high density mechanically bonded thermal blankets wrapped in a high strength case designed to meet the system's conditions. The pillow is secured to the frame underneath the belt with tabs; by welded pins with speed washers; or other unique methods. Attaching the pillow to the frame sides ensures that the pillow stays in the proper position after the joint has moved axially or laterally. Without such a feature, the pillow would become compressed and not "spring back" to cover the entire width of the expansion joint cavity allowing hot gas and/or fly ash penetration.

G. Frames

Also called flanges in some instances, they comprise the metallic portion of a non-metallic expansion joint. Frames allow the fabric expansion joint and its components to be easily attached to the duct by either welding or bolting. The frame provides a standoff between the duct and the belt to aid in heat dissipation and passive cooling. It forms a cavity where the pillow can be installed. There are almost endless lists of frame styles which may include integral baffle liners.

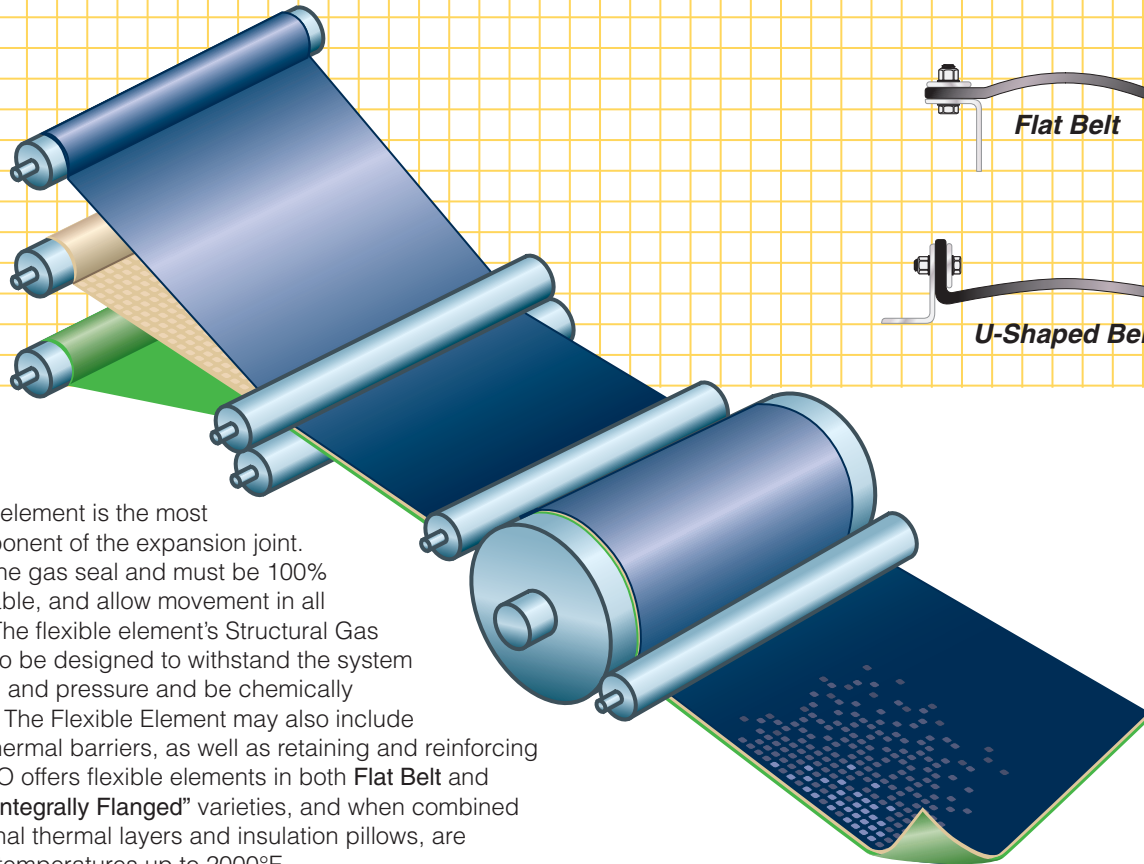
H. Gasket

Single layer flexible elements like PAPCO's 500SL TEXFLEX® and flexible elements for special applications require a sealing gasket where they are bolted to the frame. PAPCO typically uses a chemical resistant PTFE dipped ladder gasket but other elastomers, fluoro-plastic, and fluoroelastomers are available.

I. Fly Ash Seal

For select systems a fully installed and secured fly ash seal may be required. PAPCO's fly ash seals are manufactured from tightly woven cloth and wire mesh fabrics. The fly ash seal is a fabric membrane that spans between the baffle plate (flow liner) and frame. The fly ash seal prevents fine particulate from filling the cavity that is formed between the expansion joint frame halves. PAPCO's fly ash seals are uniquely robust and superior in construction. Instead of the loosely installed membranes that are common to the industry, PAPCO's fly ash seals are attached to the joint's frame by means of 3/8" welded studs on 3" centers. The fly ash seal is then secured using a 1-1/2" wide x 1/4" thick backing bar. It is in effect a joint within a joint.

Flexible Element Components



The flexible element is the most active component of the expansion joint. It contains the gas seal and must be 100% non-permeable, and allow movement in all directions. The flexible element's Structural Gas Ply must also be designed to withstand the system temperature and pressure and be chemically compatible. The Flexible Element may also include additional thermal barriers, as well as retaining and reinforcing plies. PAPCO offers flexible elements in both **Flat Belt** and **U-Shaped "Integrally Flanged"** varieties, and when combined with additional thermal layers and insulation pillows, are suitable for temperatures up to 2000°F.

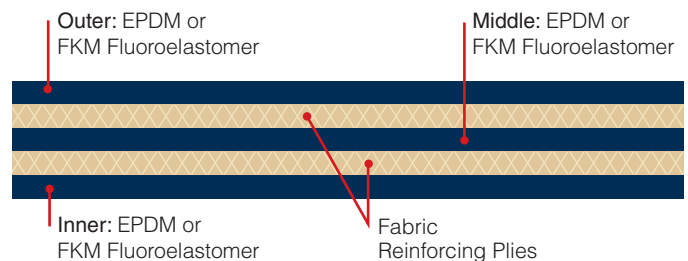
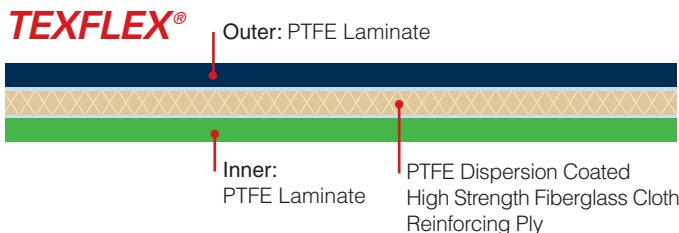
Flexible Element Types

This section will be devoted to explaining the features and benefits of the different belts PAPCO offers.

Single Layer and **Composite** are the two main categories of belts.

Single Layer Belts

Single layer belts are a combination of reinforcing plies and non-permeable laminates. These materials are vulcanized together to form a single rugged unit impervious to flue gases and very resistant to flue gas acids, oils, chemicals, and heat. Different belts will offer various degrees of abrasion resistance. Single layer belts are offered in either **PTFE (Fluoroplastic)**, **Elastomer or Fluoroelastomer** varieties.



Fluoroplastics: (TEXFLEX® Series) Reinforced PTFE Laminates, PAPCO's TEXFLEX Series 1400NP/SJ2200NP

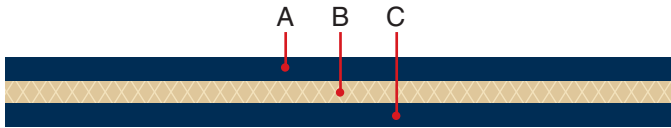
For detailed information on TEXFLEX materials, call 201/767-9051 to request a free copy of the TEXFLEX Brochure or visit www.papcoindustries.com

Elastomer and Fluoroelastomer: Reinforced EPDM, Silicone, and FKM (Fluoroelastomers). PAPCO Series 300SL, 400SL FSA/FKM, and Silflex.

Note: All Fluoroelastomers from PAPCO are guaranteed to meet FSA-DSJ-401-02

SERIES 300SL

PAPCO Series 300SL/EPDM (Ethylene Propylene) elastomer is recommended for service temperatures that do not exceed 300°F. PAPCO 1/8" EPDM consists of two plies of EPDM and one reinforcement ply. PAPCO 1/4" EPDM consists of three plies of EPDM and two reinforcement plies. In both cases, the plies are calendared and vulcanized together to form a single rugged unit impervious to flue gases and very resistant to flue gas acids, oils, chemicals, heat, and fly ash abrasion. Reinforcing plies are available in different materials such as fiberglass, Aramid/Kevlar®, special wire inserted cloths and other unique fabrics as needed to meet your specification and application.



PAPCO Series 1/8 300SL EPDM

Three (3) Ply; 1/8" Overall Thickness, Nominal; Fiberglass Reinforced EPDM Elastomer (other reinforcement plies available upon request)

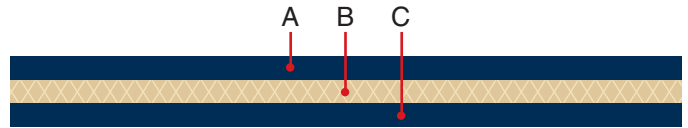
- A. Outer Layer: EPDM Elastomer, 0.50" thick
- B. Reinforcing Ply: 35 oz. Fiberglass Cloth (Standard)*
- C. Inner Layer: EPDM Elastomer, 0.50" thick

Notes: Service to 300°F without a Pillow
Service to 1000°F with suitable pillow/baffle/frame

SERIES 400SL

PAPCO's 400SL Fluoroelastomer (FKM) is recommended for service temperatures that do not exceed 400°F. PAPCO's 400SL Single Layer Flexible Elements consist of multiple plies of FKM with 70% Minimum Fluoroelastomer Content combined with high strength reinforcing plies. The plies are calendared and vulcanized together to form a single rugged unit impervious to flue gases, with excellent resistance to flue gas acids, oils, heat, and fly ash abrasion. This material is also highly flexible, with movement allowable in all directions.

Our standard 1/4" construction is guaranteed to meet FSA-DSJ-401-02 and ASTM D6909-03 and features a 0.070" Fluoroelastomer (FKM) Gas Side layer.

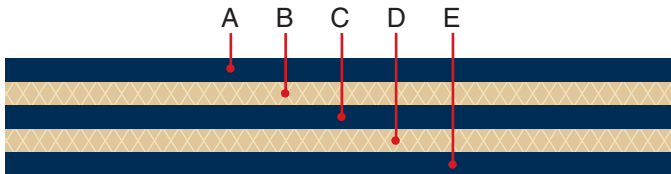


PAPCO Series 1/8 400SL FKM

Three (3) Ply; 1/8" Overall Thickness, Nominal; Fiberglass or Aramid Reinforced (FKM) Fluoroelastomer

- A. Outer Layer: (FKM) Fluoroelastomer, 0.50" thick
- B. Reinforcing Ply: High Strength Fiberglass Cloth (Standard)*
- C. Inner Layer: (FKM) Fluoroelastomer, 0.50" thick

Notes: Service to 400°F without a Pillow
Service to 1000°F with suitable pillow/baffle/frame

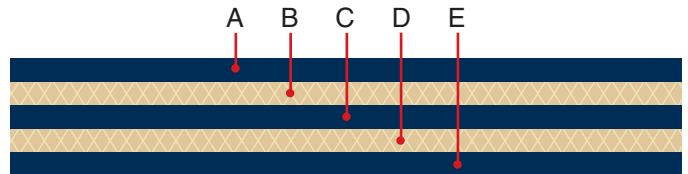


PAPCO Series 1/4 300SL EPDM

Five (5) Ply; 1/4" Overall Thickness, Nominal; Fiberglass Reinforced EPDM Elastomer (other reinforcing plies are available upon request)

- A. Outer Layer: EPDM Elastomer, 0.50" thick
- B. Reinforcing Ply: 35 oz. Fiberglass Cloth (Standard)*
- C. Middle Layer: EPDM Elastomer, 0.50" thick
- D. Reinforcing Ply: 35 oz. Fiberglass Cloth (Standard)*
- E. Inner Layer: EPDM Elastomer, 0.50" thick

Notes: Service to 300°F without a Pillow
Service to 1000°F with suitable pillow/baffle/frame



PAPCO Series 1/4 400SL FSA/FKM

Five (5) Ply; 1/4" Overall Thickness, Nominal; Fiberglass Reinforced Fluoroelastomer (FKM)

- A. Outer Layer: (FKM) Fluoroelastomer, 0.50" thick
- B. Reinforcing Ply: High Strength Fiberglass Cloth (Standard)*
- C. Middle Layer: (FKM) Fluoroelastomer, 0.30" - 0.50" thick
- D. Reinforcing Ply: High Strength Fiberglass Cloth (Standard)*
- E. Inner Layer: FKM Fluoroelastomer, 0.70" thick

Notes: Service to 400°F without a Pillow
Service to 1000°F with suitable pillow/baffle/frame

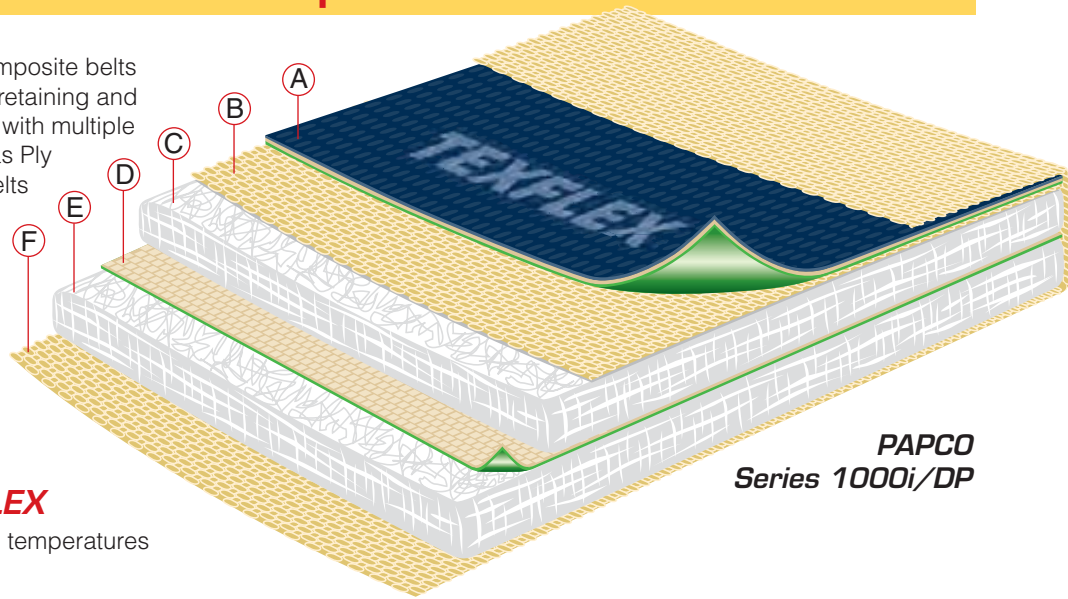
*PAPCO routinely substitutes and modifies the content of the belting to meet customer needs. Any commercially available fabric or blanket may be substituted for the standard lay-up above.

Many different types of reinforcement materials are available



TEXFLEX® Composite Belts

In addition to the structural gas ply, composite belts also include layers of thermal matting, retaining and reinforcing plies. Composites are belts with multiple layers that feature a main Structural Gas Ply and various additional layers. These belts may also include wire mesh and/or coated fabric reinforcing plies; secondary gas/vapor barriers; and various other layers. Composites can be manufactured in either Flat Belts or U-Shaped "Integrally Flanged" varieties.



PAPCO
Series 1000i/DP

PAPCO Series 500i TEXFLEX

For use in expansion joints with system temperatures that do not exceed 750°F.

- A. Structural Gas Ply: PAPCO 1400NP Texflex
- B. Reinforcing Ply: High Strength Fiberglass Cloth (Standard)*
- C. Thermal Barrier: 1/2" 11# Density Mechanically Bonded Fiberglass Needle Mat Insulation
- F. Retaining Ply: 32 oz. Fiberglass Cloth (Standard)*

PAPCO Series 1000i TEXFLEX

For use in expansion joints with system temperatures that do not exceed 1000°F.

- A. Structural Gas Ply: PAPCO 1400NP TEXFLEX
- B. Reinforcing Ply: High Strength Fiberglass Cloth (Standard)*
- C. Thermal Barrier: 1" 11# Density Mechanically Bonded Fiberglass Needle Mat
- F. Retaining Ply: 32 oz. Fiberglass Cloth (Standard)*

PAPCO Series 1000i/DP Texflex

"Dew-Point" Style for use in expansion joints with system temperatures that do not exceed 1000°F.

- A. Structural Gas Ply: PAPCO 1400NP TEXFLEX
- B. Reinforcing Ply: High Strength Fiberglass Cloth (Standard)*
- C. Thermal Barrier: 1/2" 11# Density Mechanically Bonded Fiberglass Needle Mat
- D. Secondary Gas Ply: Skived PTFE/Fiberglass Reinforced PTFE Laminate
- E. Thermal Barrier: 1/2" 11# Density Mechanically Bonded Fiberglass Needle Mat
- F. Retaining Ply: High Strength Fiberglass Cloth (Standard)*

PAPCO Series 1000i/DP2 TEXFLEX

"Dew-Point" Style for use in extreme services with system temperatures that do not exceed 1000°F.

- A. Structural Gas Ply: PAPCO 1400NP TEXFLEX
- B. Reinforcing Ply: Vermiculite Coated or SST Wire Inserted Fiberglass Cloth (Standard)*
- C. Thermal Barrier: 1/2" 11# Density Mechanically Bonded Fiberglass Needle Mat
- D. Secondary Gas Ply: 20 Mil Fiberglass Reinforced PTFE Laminate
- E. Thermal Barrier: 1/2" 11# Density Mechanically Bonded Fiberglass Needle Mat
- F. Retaining Ply: High Strength Fiberglass Cloth (Standard)*
- Mesh Outer Ply: 304 Stainless Steel Knit Linked Wire Mesh

PAPCO Series 2000i Texflex

For use in expansion joints with system temperatures that do not exceed 2000°F.

- A. Structural Gas Ply: PAPCO 1400NP TEXFLEX
- B. Reinforcing Ply: High Strength Fiberglass Cloth (Standard)*
- C. Thermal Barrier: 1" Ceramic Mechanically Bonded Needle Mat
- F. Retaining Ply: Silica Cloth

Notes: Service to 800°F without a pillow
Service to 1000°F with suitable pillow/baffle/frame

*PAPCO routinely substitutes and modifies the content of the belting to meet customer needs. Any of PAPCO's structural gas plies and commercially available fabric or blanket may be substituted for the standard lay-up above. Also, a knitted stainless steel wire mesh "jacket" can be added to any of these to increase durability.

Many different types of reinforcement materials are available.

Insulation Pillows

Insulation and accumulation pillows are used to protect the flexible element from the system's heat and prevent fly ash from filling the expansion joint cavity. The insulation/accumulation pillow is comprised of multiple layers of high density mechanically bonded thermal blankets wrapped in a high strength cloth and/or alloy cases designed to meet the system's conditions. The pillow is secured to the frame underneath the belt with tabs or by welded pins with speed washers (or other unique methods). Attaching the pillow to the frame sides ensures that the pillow stays in the proper position after the joint has moved axially or laterally. Without such a feature, the pillow would become compressed and not cover the entire width of the expansion joint cavity, allowing hot gas and/or fly ash penetration. Pillows can be used with Flat Belts or U-Shaped varieties.

Tabbed Pillow

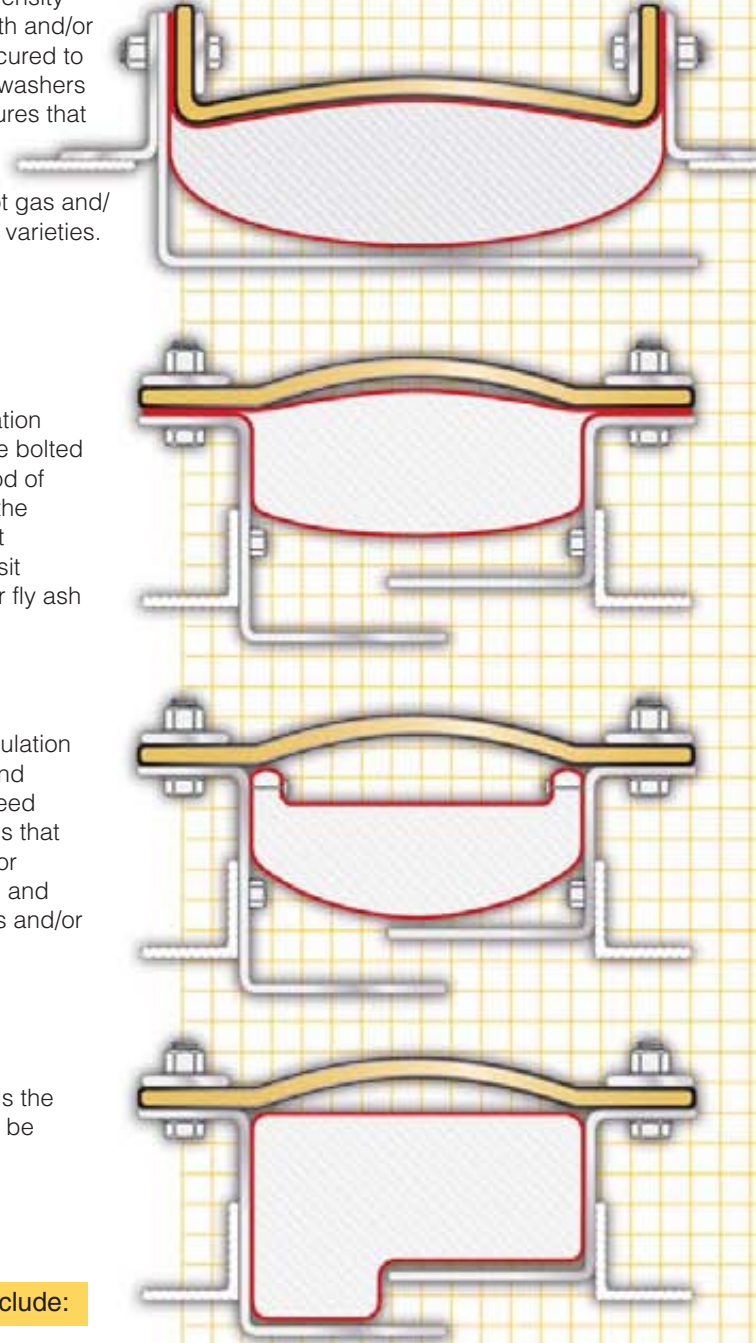
A tabbed insulation pillow is comprised of mechanically bonded insulation blankets wrapped in a cloth/alloy case. The pillow's integral flanges are bolted in place underneath the flexible element and backing bars. This method of attaching the pillow to the frame sides ensures that the pillow stays in the proper position, up against the belt, to provide the belt with the highest degree of thermal protection. Without such a feature, the pillow would sit loosely within the expansion joint cavity and could allow hot gas and/or fly ash to come in contact with the flexible element.

Pinned Pillow

A U-shaped insulation pillow is comprised of mechanically bonded insulation blankets wrapped in a cloth/alloy case. The pillow is formed into a U and secured to the expansion joint frame by means of welded pins and speed washers. This method of attaching the pillow to the frame sides ensures that the pillow stays in the proper position after the joint has moved axially or laterally. Without such a feature, the pillow would become compressed and not cover the entire width of the expansion joint cavity, allowing hot gas and/or fly ash penetration.

Block Pillow

A pillow block insulation pillow is comprised of mechanically bonded insulation blankets wrapped in a cloth/alloy case. This pillow design fills the expansion joint's cavity with a large protective mass. Pillow blocks can be easily installed or replaced during an outage.



Typical materials used in the construction of insulation pillows include:

Internal Matting

- 11# density mechanically bonded type "E" fiberglass needle mat (Temperatures up to 1000°F)
- High density mechanically bonded ceramic needle mat (Temperature >1000°F)

External Case Covers

- 18 oz., 24 oz., and 32 oz. unique tightly woven fiberglass and vermiculite coated cloth
- Aluminum coated (aluminized) or aluminum laminated fiberglass cloth
- Silica cloth (Temperature >1000°F)
- Knitted stainless steel, Inconel® or other alloy – wire mesh can be used with these materials
- Aramid/Kevlar® blended fabrics

Standard Frames

Frames make up the metallic portion of a non-metallic expansion joint. There is a virtually endless list of frame configurations to choose from. Some of the most popular styles are shown below. PAPCO can configure frames to best match your application in either “Bolt-to-Duct” or “Weld-to-Duct” variations.

Angle Frames

Angle Frames are an economical solution to many expansion joint applications. Angle Frames can be of the “In-Line” or “Stand Off” variety. They can be made from standard structural angle or fabricated from plate. Depending on the application, they may be used with or without baffle liners.

Low Profile Angle Frames

Angle Frames are an economical choice and are fabricated from standard Structural Profiles or are custom bent and/or rolled to suit. Low-Profile Angle Frames are also favored since they can be shipped fully assembled which reduces field labor costs. They may be supplied with or without baffles.

Z-Frames

Z-Frames are one of the most popular, robust, and easy to install frame styles. Z-Frames include dual-overlapping baffle liners which are an integral part of the frame. No additional welding is required for installation of the baffle liners. Z-Frames are ideally suited for both high temperature and heavy particulate flow medias. Z-Frames can also be easily fitted with a fully installed fly ash seal for extreme applications. The baffles on Z-Frames will not extend beyond the downstream frame. Z-Frames can be welded to the duct mounting flanges or supplied with seal welded nuts for “bolt-in” installation.

J- Frames

J-Frames include integral outboard flanges which allow them to slide easily in between two mounting flanges without any need to pre-compress the joint or jack open the breech. Additionally, a J-Frame may include either double overlapping or single sided baffle liners. They can be integral to the frame or field welded at the time of installation. J-Frames can also be easily fitted with a PAPCO style “Fully Installed” fly ash seal.

Channel Frames

Channel Frames are fabricated with standard C/MC Structural Channel and may include either integral (factory) installed or loose (field welded) baffle liners. Channel Frames may provide additional support and structural rigidity to the duct opening.

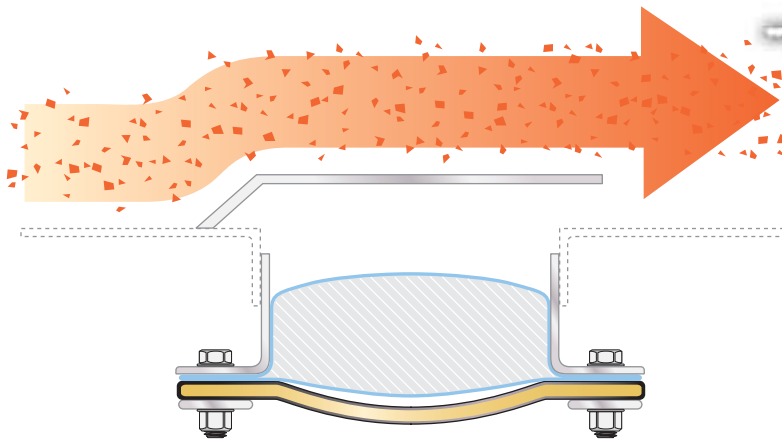
Fabric-Over-Metal Frames

This configuration allows you to retrofit existing, leaking metallic bellows. Frames of this style enable you to wrap a fabric belt over the top of an existing metal bellow without having to remove the old metal joint. Fabric-over-metal type frames can be combined with insulation pillows and/or baffle liners for maximum durability.

Baffle Liners

The baffle liner will redirect airflow over the expansion joint cavity and protect the expansion joint's flexible element and insulation/accumulation pillow from fly ash accumulation, flutter, and abrasion. It will also serve to deflect heat. Baffle liners should enclose the full perimeter and width of the expansion joint so that the cavity is covered at all times. The material type and thickness of the baffle liner should be reviewed by the engineer for suitability. Baffles are either an integral part of the expansion joint frame or they can be shipped loose. The many styles of baffle liner which offer different benefits should be considered when designing an expansion joint.

Fly ash is deflected over expansion cavity by the baffle liner



Single Sided "Weld In"

Single Sided "Weld In"

Single Sided "Bolt In"

Types of Baffles

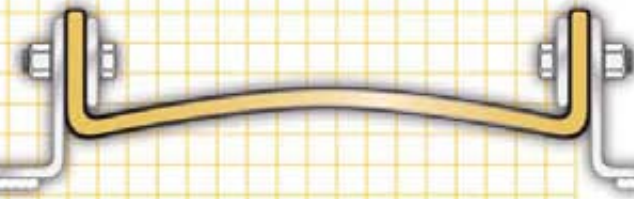
Single Sided Baffles

Single sided baffles are welded or bolted to the upstream side of the expansion joint and extend across the full width of the breach. Single sided baffles are generally field welded to the duct or bolted to the upstream mating flange. Single sided baffles also typically have a single bend and extend into the duct by an amount equal to the lateral movement plus 1".

Double Overlapping Baffles

Double overlapping baffles are factory welded (integral) to the expansion joint frame and over the full width of the breach without extending past the downstream mating flange. Double overlapping baffle liners can also be designed so that they do not protrude into the duct and reduce flow. Integral double overlapping baffles are a standard feature on Z-Frames but also can be included on J-Frames and Channel Frames.

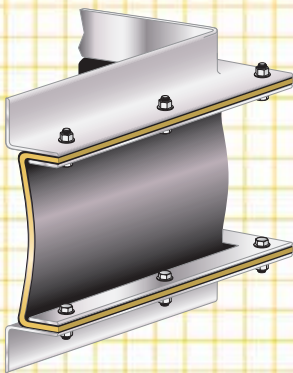
U-Shaped and Specialty Joints



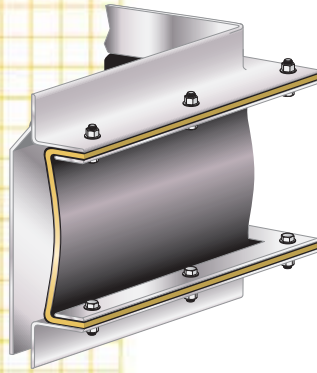
U-Shaped (Integrally Flanged) Joint

U-Shaped Expansion Joints feature integrally molded flanges that allow them to be bolted directly to existing duct mating flanges. In most cases these integrally molded flanges eliminate the need for frames. PAPCO innovated a procedure and the equipment necessary for the molding of continuous-corners in U-shaped expansion joints. PAPCO currently has eight fully automated corner molding machines in operation. The automated machinery, along with a perfected technique, produces the finest integrally molded corners in the industry.

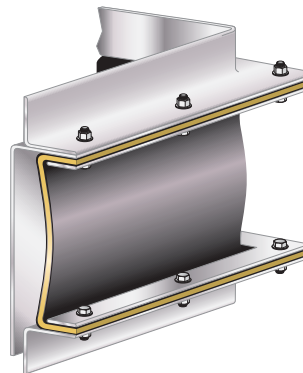
U-Shaped Joint Variations:



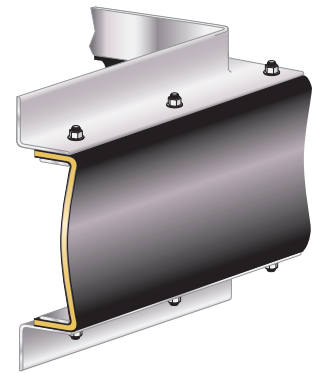
Without Liner



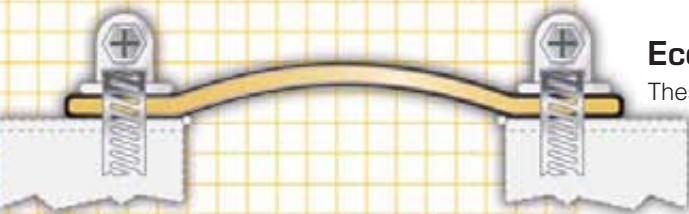
With Weld-in Liner



With Bolt-in Liner



Internally Mounted



Economy Clamp Type Joint

These joints are a simple combination of an endless belt and off-the-shelf clamp, for low pressure applications only. The belt is mounted directly to a duct or pipe and affixed with the clamp provided.



Internal Wrap Expansion Joint

Internal Wrap Expansion Joints are useful for applications where there is limited access or space to install a "traditional" belt-over-frame type expansion joint. However, careful attention must be paid to the material selection since there is no ambient cooling. Internal wrap joints can be installed from inside the duct minimizing scaffolding requirements. These joints can often be installed without removing the old, failed expansion joint.

Internal Wrap Expansion Joints use "stud bars" welded to the inside of the duct wall to mount the belt, and usually include bolt-on baffle liners.

Accessories

Seal Welded Nuts

Seal Welded Nuts may be added to virtually any frame style to allow “Bolt-to-Duct” installation. PAPCO can provide a bolt pattern or work to your drawing/specification. Seal welded nuts can allow easier installation and removal of the expansion joint without the need to weld.

Fly Ash Seal

For select systems a fully installed and secured fly ash seal may be required. PAPCO’s fly ash seals are manufactured from tightly woven cloth and wire mesh fabrics. The fly ash seal is a fabric membrane that spans between the baffle plate (flow liner) and frame. The fly ash seal prevents fine particulate from filling the cavity that is formed between the expansion joint frame halves. PAPCO’s fly ash seals are uniquely robust and superior in construction. Instead of the loosely installed membranes that are common to the industry, PAPCO’s fly ash seals are attached to the joint’s frame by means of 3/8” welded studs on 3” centers. The fly ash seal is then secured using a 1-1/2” wide by 1/4” thick backing bar. It is in effect, a joint within a joint. Fly ash seals can be made from various cloths including but not limited to: vermiculite, aluminized, coated cloths (with or without) a knitted alloy mesh cover.

Flow Deflectors

Flow deflectors are required for vertical flow up and angle up flow applications where fly-ash or other particulate stays present. The flow deflector (shown in red) will prevent particulate from falling back down the duct and filling the expansion joint cavity. Depending on the style of the expansion joint, the flow deflectors may be an integral part of the frame or shipped loose.

Splicing Irons and Consumables

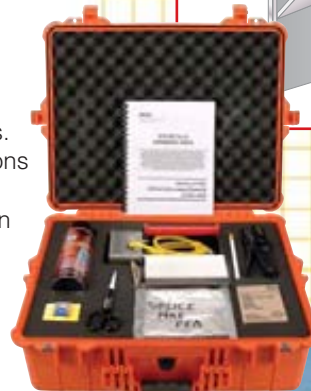
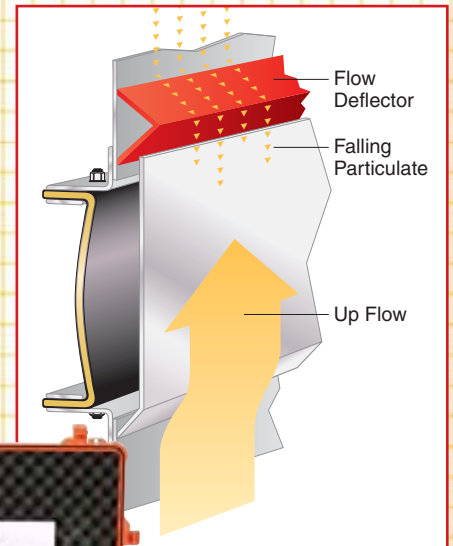
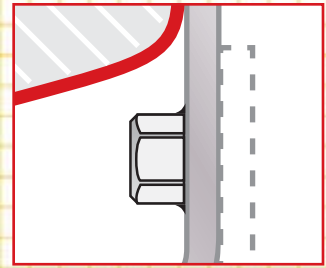
PAPCO offers the special tools required to splice or patch our expansion joints. Our standard splice kits include PFA splicing film only. We offer hot splicing irons (sold individually or as part of a professional splicing kit). We also offer cold splice compounds for elastomer and fluoroelastomers. PAPCO technicians can also be dispatched to perform splicing and patching services.

Lifting Lugs/Retaining Bars

All expansion joints are shipped with a suitable quantity of lifting lugs and/or retaining bars. Retaining bars are fixed across the face of the expansion joint to keep the joint from expanding, compressing, or moving laterally during shipping and handling. Retaining bars must be removed prior to start-up. For larger joints, additional lifting lugs may be required. PAPCO will include the needed quantity of lifting lugs to be used at the most logical points or as specified by the customer.

Drain Kit

PAPCO can supply drain fittings for expansion joints located in wet areas such as the absorber outlets and stack inlets of flue gas desulphurization systems. These drains are typically located at the bottom center and are connected to flexible drain hoses to allow the expansion joint to cycle through its full range of movements. These drains can be supplied in PTFE, steel, stainless steel, Hastelloy®, and various other materials.



Customer Support

PAPCO's experienced and highly trained customer support team provides a variety of services that make installation and maintenance as easy on the customer as possible. Support starts with a joint effort

with the customer to develop specifications so that the right expansion joint is produced for the application. Once produced, the joints are shipped in the most economical way. For example, oversized expansion joints can often be shipped in assembled halves to reduce field labor time.

PAPCO support continues after the installation is complete. Dedicated technicians provide a rapid response to problems reported from the field.

In addition to doing splices and repairs, these technicians can be called upon to do complete

inspections and evaluations of your current expansion joints. These periodic inspections can often identify a problem and allow you to take corrective action before major damage can occur. Our field service technicians also provide training for your personnel and can schedule on-site training courses as needed.



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