EPC ENTECH PRODUCTS CORP.

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Product Line

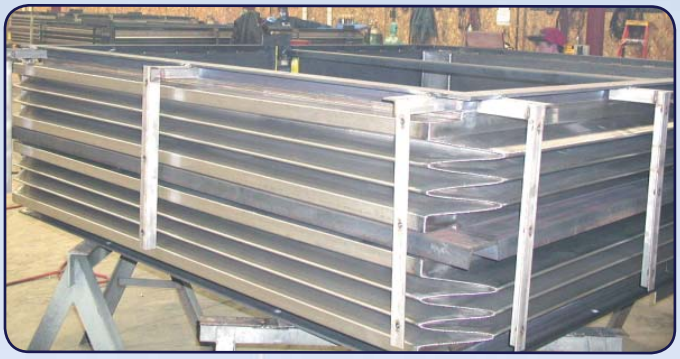
FLUE GAS SOLUTIONS INCORPORATED

Fabric Expansion Joints
Metallic Expansion Joint
For
Flue Gas Duct Work

Rectangular Metallic Bellows Expansion Joints

Flue Gas Solutions metallic bellow expansion joints are designed to accommodate a wide range of movements and service conditions. We offer multiple corner configurations such as radius, single and double mitered, and camera corner types. Our standard bellows are constructed of corrosion resistant stainless steel and can easily upgrade to virtually any alloy type for the conditions required. Our sales engineering department welcomes the opportunity to help guide our customers in the selection of the bellows profile and corner design to provide optimum performance and longevity for each application. The attaching end frame connections can be manufactured to suit most requirements from any workable material. The design and installation of internal flow liners, external covers, and operating hardware - such as control and limit rods, hinges and gimbals - are all available.

GT Exh. Heat Recovery Camera Corner Exp Jts.



Primary Air FD Fan Duct Expansion Joints

Round Metallic Bellow Expansion Joints

Flue Gas Solutions round metallic bellows expansion joints are custom designed and manufactured in accordance with EJMA Standards. Single and multi-ply bellow of virtually unlimited diameters are available in most formable and workable metals to suit application and environmental conditions. Control devices designed for limiting movements and/or restraining pressure can be made part of the supply. We will be pleased to assist you in determining the right expansion joint and features for your particular application.

Boiler Feed Pump Turbine Exhaust Expansion Joint

Universal Exp Joint for Process

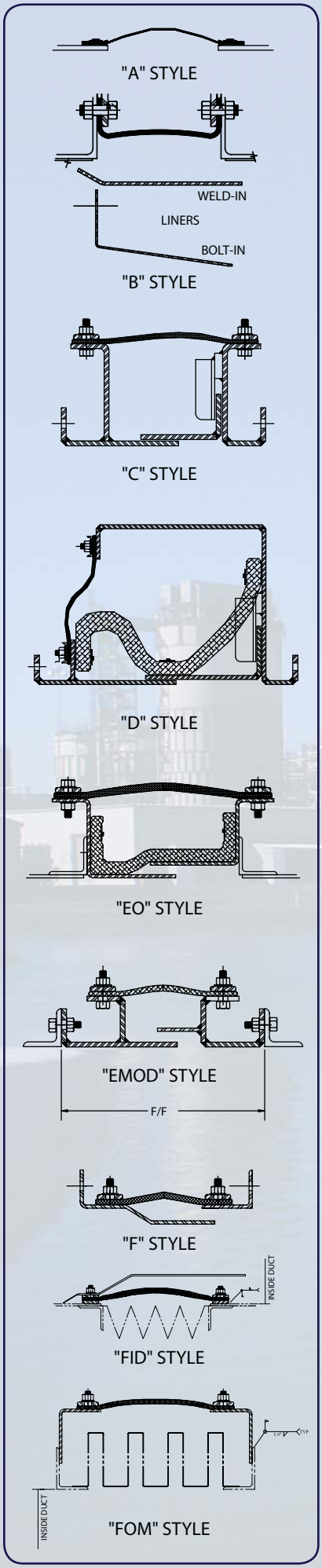
120” Dia. Steam Condenser Neck Exp. Joint

24” dia Refractory Lined Tied Universal for Wood Chip Gasifier

In-Line Pressure Exp. Joint

Steam Turbine Extraction Line Expansion Joints

Steam Turrbine Condenser Neck Expansion Joints



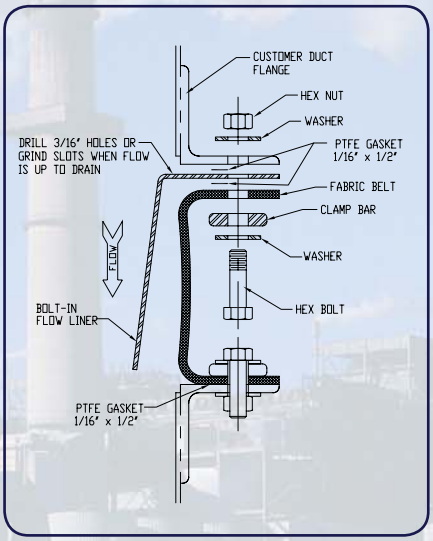
Flue Gas Expansion Joints
Fabric Expansion Joints

B-Style Molded Flange Expansion

Fabric expansion joints are capable of absorbing multi-plane movements simultaneously with very low spring rates. A variety of fabric materials may be selected to accommodate the required thermal movements, vibration, misalignment, corrosion and other specified environments.

A-STYLE: The A-Style expansion joint is a belt and clamp supply to be installed over the existing duct or replacement on an existing joint frame. Flue Gas Solutions can deliver emergency replacements for same day shipping anywhere in the world with proper dimensional information. Field service and installation supervision is also available.

B-STYLE: The B-Style expansion joint is a hot molded flange design mounted on an existing duct flange. The joint material is either self sealed against the flange or gasketing is supplied depending on the application. This design provides an economical material and installation, eliminating the need for metal frame.

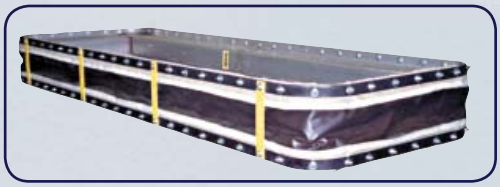


B-Style Molded Flange Installation Drawing

C-STYLE: The C-Style expansion joint is designed to accommodate large lateral movements and has a captive angle to help prevent dust accumulation in the joint cavity. The floating angle is in constant contact with the inlet liner and outlet frame during movements. Metal flexible seals, insulation and purge air may be added to prevent fines accumulation in the joint cavity.

D-STYLE: The D-Style expansion joint is designed to accommodate large axial movements and may also include a captive angle. The belt geometry is a diaphragm type with special geometry at the corners of a rectangular joint for simultaneous axial and lateral movements. A cone shaped geometry is required in the belt for round joint designs.

E-STYLE: The E-Style expansion joint features an overlapping liner for smooth gas flow and to protect the internal insulation and fabric belt from high velocity and/or abrasive particulate. Flue Gas Solutions designs the belt material for the full gas temperature of the system.



E-Style Expansion Joint

EMOD-STYLE: The EMOD-Style expansion joint is similar to the above design, but is used in applications where external fastening of the frame and/or belting is preferred. The additional face-to-face (F/F) dimension may also be necessary to fill in a space where a metallic joint has been replaced.

E-Style Refractory Lined

F-STYLE: The F-Style expansion joint is an industry standard where a belt is mounted to a bent plate and/or angle frame. Many modifications to this basic design are used depending on the specific application.

FID or FOM-STYLE: (fabric inside duct or fabric outside metal) expansion joints are used to economically seal an existing metallic joint that has failed or is leaking due to metal fatigue or corrosion. Installation of the joint inside or outside the duct eliminates removal of the metallic joint and possible associated costly asbestos removal. This design may also be used in areas of difficult installation access.

Go to www.fluegassolutions.com to preview installation instructions for all expansion joint styles.

Gas Turbine Expansion Joints

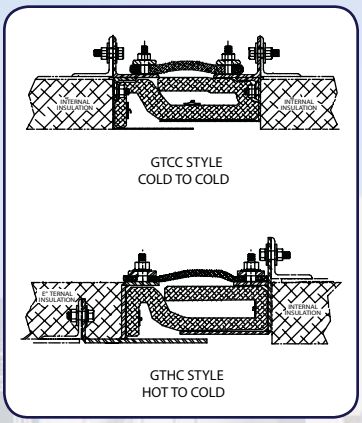
Flue Gas Solutions Turbine Expansion Joints are designed to properly compensate for the thermal growth due to the severe and rapid temperature rise of gas turbines. Our goal is to design and manufacture economical, reliable, and trouble free equipment that will provide a long service life.

The hot side (externally insulated) mating frames are of like materials to the adjoining equipment flanges for equal thermal growth. A low profile (stand-off distance from hot liner and belt mounting flange) is important to prevent weld cracking and frame distortion due to the differential thermal expansion.

The cold side (internally insulated) transition frame is internally insulated to mate to the customer duct or other adjoining equipment. The hot floating alloy liners are independently attached to allow proper thermal growth, preventing adverse effect to the cold side frame. The liners are mounted in short segments with an overlapping tab to allow longitudinal and independent thermal growth.

The flexible fabric belt is designed to withstand the full gas temperature. The materials used in the build-up are individually selected from high quality, state of the art products to provide the longest possible service life. A gas side, non-porous chemical barrier is added to prevent gas leakage. The fabric belt must not be externally insulated.

Special installation geometry acoustic insulation is wrapped in high temperature silica cloth and again encased in alloy wire to prevent erosion of the ceramic insulation. Special weld pin and clip mounting of the insulation envelope allows proper compression and retraction.



Gas Turbine Expansion Joint Section Views

Hot-Cold Rect. GTEJ showing insulation before belt mounting

Hot-Hot Rect. GTEJ

Round Hot-Cold GTEJ

GTEJ installation showing convex belt geometry

GTEJ with Protective Cover