

# GLOSSARY OF TERMS

**Abrasion:** External damage caused by its being rubbed on a foreign object.

**Active Length (Live Length):** The portion of the flexible part of the joint that is free to move.

**AIM:** Applegate Industrial Materials, Inc.

**Anchor:** Terminal point or fixed point from which directional movement occurs.

**Angles:** L-shaped steel member used either as a duct flange or as the fastening member of an expansion joint used for bolting or welding the joint to the mating flange surfaces of the ductwork or adjacent equipment.

**Angular Movement:** The movement which occurs when one flange of the expansion joint is moved to an out of parallel position with the other flange. Such movement being measured in degrees.

**Assembled Splice:** A splice that is constructed of multi-layers of materials and connected by mechanical means such as adhesives, stitching, and lacing hooks.

**Axial Compression:** The dimensional shortening of an expansion joint parallel to its longitudinal axis. Such movement is measured in inches or millimeters and usually caused by thermal expansion of the ducting systems.

**Axial Extension:** The dimensional lengthening of an expansion joint parallel to its longitudinal axis. Such movement is measured in inches or millimeters.

**Axial Movement:** Compression or elongation of a hose assembly along its longitudinal axis.

**Back-Up Bars:** Metal bars used for the purpose of clamping the expansion joint to mating ductwork flanges or clamping the fabric portion of a belted joint to the metal adapter flanges.

**Baffle (Liner):** A metal shield that is designed to protect the expansion joint from the abrasive particles in the gas stream to reduce the flutter caused by the air turbulence in the gas stream and in some cases may be a part of the overall thermal protection.

**Bellows:** That portion of an expansion joint which accommodates the movement of the joint. Can be either convoluted or flat.

**Belt-Type Expansion Joint:** An expansion joint in which the flexible bellows portion of the joint is made like a flat belt and is bolted or clamped to metal adapter flanges or frame.

**Bolt Hole Pattern or Drill Pattern:** The systematic location of bolt holes in the duct flanges and expansion joint flanges where joint is to be bolted to ducting flanges.

**Bolt-in Baffle:** A baffle that is designed to be bolted to the breach flange. This design can be either single or double acting and requires the use of a seal gasket.

**Boot or Belt:** The flexible element of an expansion joint usually consisting of elastomer coated fabric.

**Breach Flange or Duct Flange:** The portion of the duct system, usually an angle or a channel that interfaces with the flange of the expansion joint.

**Breach Opening or Duct Face-to-Face Distance:** The distance between the mating duct flanges in which the joint is to be installed.

**Clamp Bars:** Same as back-up bars.

**Composite-Type Expansion Joint:** An expansion joint in which the various plies are different materials that are not integrally bonded together. Normally made up of an inside liner, thermal insulating barrier and an outer cover. Other special plies can be included.

**Concurrent Movements:** Combination of two or more types (axial or lateral) of movements.

**Corners:** Molded, formed, or radiused belt corners of rectangular expansion joint.

**Design Temperature:** The maximum or most severe temperature expected during normal operation, not including periods of abnormal operation caused by equipment failure.

**Design Pressure/Vacuum:** The pressure or vacuum condition that exists during system start-up and/or shutdown operations. During this cyclic phase in the system, both pressure and vacuum conditions may occur.

**Drill Pattern:** The systematic location of bolt holes on the breach flange to which the expansion joint will be attached.

**Duct ID:** The inside dimension of the ductwork measured from the duct walls prior to any form of coating.

**Dust Shield:** A flexible element that is attached between the baffle plates and/or duct wall to restrict the buildup of fly ash between the baffle plate and joint body. This element is not gastight.

**Excursion Temperature:** The temperature the system could reach during an equipment failure, such as an air heater failure. Excursion temperature should be defined by maximum temperatures and time duration of excursion.

**External Arch Corner:** An expansion joint corner with the arch formed outwardly that is designed primarily for pressure service, generally used in conjunction with a molded joint.

**Field Assembly:** A joint that is assembled at a jobsite due to its size (too large to ship) or the location of the breach opening makes it more practical to install in sections.

**Flanges:** That part of an expansion joint used for fastening the joint into the system. Can be either metal or same material as the bellows.

**Flexible Element:** The part of the expansion joint that accepts the movement

**Flow Direction:** Direction of gas movement through the system.

**Flutter:** The action that occurs on the joint body caused by the turbulence of the system gases or vibration set up on ducting system.

**Frame:** The complete angle iron or plate frame to which belt or bellows portion of the expansion joint is attached.

**Gas Seal:** The specific ply in the expansion joint that is designed to stop gas penetration through the expansion joint body; this ply can be the tube, cover, or a special ply, depending on the specific temperature requirements.

**Internal Arch Corner:** An expansion joint corner with the arch formed inwardly that is designed primarily for vacuum service. Generally used in conjunction with a molded joint.

**Inner Ply (Inner Cover):** The gas side of a composite elastomeric type joint.

**Installed Face-to-Face Distance:** The distance between the expansion joint flanges after installation when the system is in the cold position.

**Integrally Flanged-Type Expansion Joint:** An expansion joint in which the joint flanges are made of the same fabric as the body of the joint, as in "U"-type joints.

**Joint Framing or Picture Framing:** Metallic frame to which belted or integrally flanged joints are attached before installing.

**Lateral Deflection or Lateral Movement:** The related displacement of the two ends or the expansion joint perpendicular to its longitudinal axis. The displacement movement usually caused by the thermal expansion of the ducting system and measured in inches or millimeters.

**Lateral Offset:** The offset distance between two adjacent duct flanges or faces. Can be due to misalignment or, by design, to compensate for excessive displacement in the opposite direction during cycling.

**Lifting Lugs:** A lifting device that is attached to the metal portion of the expansion joint for field handling and installation.

**Liner (Baffle):** [A] A metal shield that is designed to protect the expansion joint from the abrasive particles in the gas stream to reduce the flutter caused by the air turbulence in the gas stream and in some cases may be a part of the overall thermal protection. [B] On round hose or expansion joint, a sleeve used to line the I.D. of an assembly when the velocity of gaseous media is in excess of 150 ft. per second.

**Manufactured F/F of Expansion Joint:** The manufactured width of the joint measured from joint flange face to flange face. The joint may be set into a breach opening that is less than the manufactured F/F of the joint to allow for axial extension.

**Maximum Design Temperature:** The maximum temperature that the system may reach during normal operating conditions. Not to be confused with excursion temperature.

**Misalignment:** The out-of-line condition that exists between the adjacent faces of the breach or duct flanges during ductwork assembly.

**Molded-Type Expansion Joint:** An expansion joint in which the entire wall of the joint is molded into a "U" or a convoluted configuration. The joint is manufactured by a molding process.

**Movements:** The dimensional changes which the expansion joint is required to absorb, such as those resulting from thermal expansion or contraction.

**Non-Metallic Expansion Joint:** Expansion joint which utilizes flexible non-metallic boot or bellows material to accommodate joint movements.

**Operating Pressure/Vacuum:** The pressure or vacuum condition which occurs during normal performance. This should be pressure or vacuum, not both.

**Operating Temperature:** The gas temperature at which the system generally will operate during normal conditions.

**Outer Cover:** The external side of a composite or elastomeric-type joint.

**Pre-Assembled Joint:** The combination of a metal framework and a bellows, factory assembled into a single assembly.

**Pre-Compression:** Compressing the expansion joint (shortening the F/F) so that in a cold position the joint has a given amount of compression set into the joint. The purpose of pre-compression is to allow for unexpected or additional axial extension.

**Pre-Set:** Dimension that joints are deflected to insure that desired

movements will take place. See Lateral Offset and Manufactured F/F.

**Protective Shipping Cover:** Outer cover material used to protect expansion joint during shipment and installation.

**Protective Strip or Rub Tape:** Fabric material or tadpole tape sometimes used between boot and metal member of expansion joint to protect boot from heat transfer or abrasion.

**Resultant Movement:** The net effect of concurrent movements.

**Seal Gasket:** A gasket that is placed between two adjacent metal parts to make a gastight connection.

**Set Back (Stand Off Height):** The distance the expansion joint is set back from gas stream to allow for lateral movements and to prevent the joint from protruding into the gas stream or rubbing on the baffle when operating under negative pressure. Set back also reduces the heat input and prevents abrasion from particles in the gas stream.

**Shipping Straps or Bars:** Braces that are located between the two expansion joint flanges to prevent over compression or distortion during shipment and joint assembly.

**Splices:** Procedure for making endless boot or bellows from open ended materials. Splicing may be accomplished by one or more of the following: cementing, bonding, heat sealing, stitching, vulcanizing or mechanical fasteners.

**Stand Off Height (Set Back):** The distance the expansion joint is set back from gas stream to allow for lateral movements and to prevent the joint from protruding into the gas stream or rubbing on the baffle when operating under negative pressure. Set back also reduces the heat input and prevents abrasion from particles in the gas stream.

**Thermal Barrier:** A layer of insulating material designed to reduce the surface temperature at the gas sealing layer to a level compatible with its resistance capability.

**Thermal Movements:** Movements created within the duct system by thermal expansion. Can be axial, lateral or torsional.

**Torsional Rotation:** The twisting of one end of an expansion joint with respect to the other end about its longitudinal axis. Such movement being measured in degrees same as angular rotation.

**Vulcanized Splice:** A splice that is bonded with heat and pressure.

**Welding Blanket:** A fire-resistant blanket that is placed over the expansion joint to protect it from weld splatter during field welding operations.

**Weld In Baffle:** A baffle that is designed to be welded to the duct wall. This design can be either single or double acting type.



P.O. BOX 428 • Baton Rouge, Louisiana 70821-0428  
(225) 336-4116 • Fax (225) 336-4317 • 1-800 THE FLEX (800-843-3539)  
E-Mail: [info@the-flex.com](mailto:info@the-flex.com)

Expansion Joints • Exhaust Components • Metal Hose • Specialty Fabrication