COMPANY PROFILE

Flue Gas Solutions, Inc. serves an international client base in the design and manufacture of gas flow handling equipment. Our organization offers multiple sources of combined design experience. We have a full range of expansion joints, dampers, duct work, breeching, and related products, to solve customers’ problems. Our product expertise and experience in the industries and utilities that we cater to are reflected in our proven, time-tested designs.

Our highly skilled and product knowledgeable people, working in a modern facility, complement the high quality and reliable products we offer. The Flue Gas Solutions team’s unified goal is to provide the on-time service, trouble-free products, and complete customer satisfaction — features our clients have come to depend on. Flexibility within our company allows us to redirect scheduling in most instances, to expedite products and shipments to meet our customers’ emergency needs. Our uncompromising approach to even the most routine requirement assures that our equipment is supplied as if it were our customer’s most critical application.

SERVING:

Power Generation
Industrial Processes
Waste to Energy Plants
Pulp & Paper Mills
Petrochemical
Cement Plants
Metal Producers
Oil Refineries
Others

Partial Customer List

Abbingtion Group, NH
Abo Industries, TX
A/G Power-Ace Operations, CA
Adso Industries LLC, NY
AES Deepwater Inc., TX
American Tissue Corp., OR
Bayer Corporation, TX
Barber Foods, ME
B & E & K Engineering, KY
Berkshire Power, MA
Big River Zinc Corp, IL
Black & Veatch, MO
Bone Cascade, ID
Braden Manufacturing, OK
Bremerco Inc., NH
Bryan Texas Utility, TX
Calpine Pasadena Cogen, TX
Capri Industrial Products, OH
Castine Energy, ME
Cianbro Corp, ME & NH
Collins & Alkman Tooling & Equip., NH
Commonwealth Dynamics, NH
COV/Sunnyside, UT
Covanta-Bristol, CT
Covanta-Fairfax, VA
Covanta-Alexandria, VA
CPL Systems, LA
Diversified Energy Contractors, VT
Domtar, ME
DuPont Specialty Chemicals, LA
Duratherm Inc., TX
Dynegy Midwest Generation, IL
Dynegy Midstream Services, LA
ECC International, GA
ECO Operations, MA
EDB Constructions, QC Canada
El du Pont de Nemours & Co., TX
Eldridge, L.C., Sales, TX
Eli Lilly and Company, IN
Empire Refractory Services, IN
Engineered Systems Technology
Enviya Products Mfg., St. Louis, MO
Entergy New Orleans, LA
Entergy-Sabine Plant, TX
Environmental Elements Corp., MD
Exxon-Baytown Refinery, TX
Factory Sales & Engineering, LA
Florida Power & Light, VA
Fluor Constructors, LA
FMC Biopolymer, ME
Furnace & Tube Services, VA
GE Power Systems, NY
Geisa, S.A.
Georgia Gulf, TX
Georgia Pacific, FL & ME
GEMMA Power Systems, OH
General Electric, ME Egypt Project
GE/NAPPA, Nigeria Project
GP Gypsum Corp., NH
Great Northern Paper, ME
GT’s Energy, GA
Hamon Research-Cottrell, NJ
Hankin Environmental, NJ
HEC Technologies, Alberta
Hitachi America, NY
Hoosier Energy R.E.C., IN
Huntsman / TCO, TX
IMERSY, ME
INDECK Maine Energy, ME
Industrial Energy Assoc., VT
Infinity Construction, NH
International Bellows, NY
James River Corporation, AL
JEA, FL
Jim Nier Construction, OH
John Zink Company, OK
Katahdin Paper, ME
Kennebec Supply Co., ME
Kidd Combustion Equipment, LA
Kimberly-Clark, TX
Kiapx Forest Products, BC, Canada
Lacasse & Weston, ME
L. C. Eldridge Sales, TX
Lincoln Pulp & Paper, ME
Lovegreen Turbine Services, MN
Lower Colorado River Authority
Marcal Paper, NJ
MFA/Aabcoflex Inc., CA
McGill Airclean Corporation, OH
Metcalf Paper USA, ME
Michigan Ethanol, ME
Millipore Corporation, MA
Mississippi Power, MS
Mitsubishi, Mexico & Dominican Republic
Mobil Oil, TX
Mobil USA, CA
Motion Industries, TX
Motiva Enterprises, TX
National Oilwell, LA
National Starch & Chemical, ME
New Hampshire Waste, NC
Nichols Aluminum Casting, IA
North American Energy Services, TX
Northern States Power, MN
NRG-El Segundo Operations
NRG Texas, TX
Ogden Martin-Haverhill, MA
Ogden Martin-Fairfax, VA
Oklahoma Gas & Electric, OK
PAR Alloy Inc., CO
Peerless Manufacturing, OH
Penobscot Energy Recovery, ME
PG&E Dispersed Gen, MD
Placid Refinery Co., LA
Plant-N-Power, TX
Pme Tree Power, ME
Power Systems Manufacturing, FL
Precipitator Service Group, TN
PREMCOOR, TX
Pro-Sea Service Group, MI
Proctor & Gamble, WI
Public Service of Colorado, CO
PNNH-Newington Station, NH
Quiet Systems International, WI
Raytheon Corporation, MA
Regional Waste Systems, ME
Reliant Energy, CA & TX
Rencor Controls, NY
San Miguel Electric Cooperative, TX
Sappi Fine Paper, ME
SCA Hygiene Products, Germany
Schebler Company, IA
SE Texas Industrial Services, MS
Selas Fluid Processing, PA
Shell Canada Limited
Slattery Skanska, NY
Southern IL Power Cooperative, IL
Southwestern Electric Power Company, OH
Sponsor Minerals, PA
Springs Industries, SC
Structural Group, CT
S W & B Construction, NY
Tate Engineering Systems, VA
Til Construction Services, TX
Texas Genco II, TX
Texas New Mexico Power, TX
Textron Automotive, NH
Textron Automotive, NC
Theilsch Maintenance & Welding, TX
Thermal Engineering International, CA
Texas Utilities, TX
TLT-Babcock, OH
TXU Generating, TX
Troy Sheet Metal Works, CA
Turbo Power & Marine
United Steel Erectors, TX
Valero Refining Co., TX
Valmet Inc., ME & WI
Vogt-NEM, KY
Washington Group International, TX
Wausau Paper, WI
Western Kentucky Energy
Williams Olefins, MA
Wood Group Power, CT
Xcel Energy Services, MN

Standing: Tyler & Pete. Sitting: Deb & Bruce.
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.

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.
**Fabric Expansion Joints**

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.

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.

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.

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.
Full Range of Damper Products - for Isolation, Modulation or Both

- Butterfly Dampers
- Single Bank Louver Dampers
- Double Bank Louver Dampers
- Fan Inlet Vane Type Dampers
- Guillotine Dampers
- Slide Gate Dampers
- Flap Type Dampers
- Flow Diverter Dampers

Flue Gas Solutions takes pride in custom designing our damper products to satisfy most all application requirements from simple air handling systems to the most adverse critical service conditions. Our dampers can be designed and manufactured to meet most any duct configuration and service condition, always fully assembled and function tested prior to shipment, and if need be, broken down into shippable sizes for transportation to the site. Sealing efficiencies of our standard low-leak designs can be upgraded to provide tighter shut-off and with the addition of a seal air purging system provide zero-leakage across the closed blade(s). Special design attention is given even to the smallest components within the damper assembly to eliminate problem areas known to exist within the industry. We offer our damper drive systems, supplied to accommodate our customers’ preferred actuation manufacturer and type, ranging from simple gravity counterbalance types, manual lever arms and gearboxes to electric, hydraulic and pneumatic systems with extra options such as remote control station panels, fail safe systems, and integration/connectivity to DCS or fieldbus communication systems.
Fabrications

Flue Gas Solutions will design and fabricate most associated gas flow handling equipment from virtually any workable metals. We also build from customer supplied drawings providing management and quality craftsmanship throughout the manufacturing process.
Ductwork and Breeching

Flue Gas Solutions can design and fabricate your ductwork and breaching requirements in accordance with SMACNA standards. Larger components can be supplied in knocked-down sub-assemblies for ease of shipment and final assembly in the field. Complete ducting systems, including optimizing locations and supply of expansion joints, dampers and supports, can be provided allowing single source project control.

Field Supervision and Engineering Consultations

Technical supervision during the installation of our equipment is available to assist field personnel as well as field splicing of open-ended fabric expansion joints belts, damper drive actuator set-ups, and other areas that the installing contractor may feel uncomfortable handling themselves.