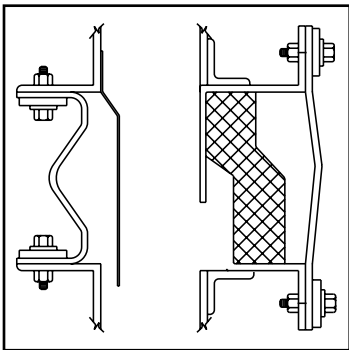




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# Non-Metallic Expansion Joints



ENGINEERING YOUR SUCCESS.

# *In test after test and application after application, Parker's RM DYNEX brand expansion joints outperform metallic and all other non-rigid joints.*

## **Global Leader in Innovation and Design**

Parker Hannifin Corporation is a global leader in design and innovation for motion and control sealing solutions. With the addition of *RM DYNEX* products, Parker is positioned to provide engineering and fabrication expertise for all applications of fabric expansion joints for fossil-fuel fired power generation, gas turbines and various industrial facilities with critical duct sealing requirements.

Parker has an installed base of over 75,000 *RM DYNEX* brand systems in service worldwide – providing time-tested, predictable, environmentally sound products for the most severe applications.

## **Product Offering**

*RM DYNEX* brand fabric expansion joints are offered in a broad range of configurations and multi-layer construction types. Their engineered design and construction mean performance for managing thermal expansion, noise reduction, vibration, wind & seismic loads, movement absorption and system stress relief.

## **Complete Advanced Materials & Testing Capabilities**

Parker is dedicated and focused on innovative development of new products and services to meet the growing needs of its customers.

Expansion joint manufacturing capabilities include non-metallic expansion joints from EPDM, FKM, CR, Silicone, PTFE products and high temperature fabric materials that serve to insulate the primary and secondary sealing materials. In addition, we manufacture complementary sealing devices such as tadpole gaskets from high temperature fabrics and metals for high corrosive environments. Metal frames, baffles and backup bars are constructed of carbon steel and the higher nickel steels available for today's demanding environments.

## **Parker offers three classes of fabric expansion joints:**

### **Economy:**

**Styles: X275-X300, X404-X425, LX801-LX1000**

### **Performance:**

**Styles: E300E, E400V, C500-C1000**

### **Premium:**

**Styles: Mark II, Mark III, Mark V Modified, Mark V, 1200 GTA/GTB**

## **Quality Assurance**

To ensure product integrity, our expansion joint manufacturing operations are certified to ISO 9001 standards. Parker is committed to consistently delivering excellence in quality and service through continuous improvement of our people, products and systems.

Our commitment to quality and service is supported by our investment in technologically advanced test and inspection methods. We're constantly striving to improve customer satisfaction and product quality through the implementation of:

- Six Sigma methodology
- Lean manufacturing
- TQM methodology
- Advanced product quality planning (APQP)
- Feasibility studies

Parker participates in and conforms to standards developed by the following industry associations:

- Fluid Sealing Association
- ASTM
- PVRC
- ASME



Parker provides quick manufacturing and delivery in addition to complete field installation services, retrofitting, engineering redesign and site supervision. Parker's RM DYNEX brand is the performance leader ahead of metal joints and non-rigid joints.

**Superior over metal joints due to:**

Feature	Advantage/Benefit
Flexibility	Fabric expansion joints move in any direction, axially, laterally and rotationally on X, Y and Z axes. Metal moves either laterally or axially (one way only).
Ability to take torsion	Fabric expansion joints absorb twisting movements caused by differential heating of ducting.
Money savings	Usually one fabric expansion joint replaces two metal joints. Also, metal joints are generally too big to be shipped in one piece and must be assembled on the job. Fabric expansion joints get to the job site complete, ready to go to work. Their light weight affords fast, easy installation. No crane is necessary for most installations. Folded into a compact, lightweight package, their shipping costs are a fraction of charges for metal.
Easy replacement	Lightweight fabric expansion joints are easier to handle and install.
Field Repairs	Parker-experienced field service crews respond quickly to problems. Minor damage can be handled by plant maintenance crews.
Noise reduction and vibration isolation	Fabric expansion joints isolate vibration and prevent sound transmission between ducting sections because metal to metal contact is eliminated.
Margin of Safety	Fabric expansion joints accommodate errors in calculated movements and construction misalignments.
Corrosion resistant	Non-metallic fabric expansion joints resist corrosion in critical scrubber applications.
Minimum force for movement	Dimensional changes in the metal duct work during thermal expansion and contraction are accommodated with minimum force exerted on the ducting.

**Superior over non-rigid joints due to:**

Longer Life	Fabric expansion joints have tough, heavy multiply walled construction.
No gasket needed	Built-in fabric flanges act as gaskets. They usually require fewer bolts and make possible easier, less expensive installation.
All configurations available	Round, square, rectangular, eccentric and reducing shapes fit all requirements for industry. Usually made in flanged cross-section with maximum radius between body and flange. Flanges can be made in either direction. Also fabric expansion joints are furnished as an open end belt without flanges for field splicing or endless belt for special applications.
Advanced construction	Parker uses advanced-design molded corners on elastomeric joints. This design gives complete integrity between the inner and outer plies of material as well as providing for a built-in flange in the corners.

Styles	Material Construction*	Flue Gas Temperature			
		Continuous		Excursion	
		°F	(°C)	°F	(°C)
Mark II E300E	X275- X300 Elastomeric	300	(150)	350	(175)
				400	(205)
Mark III E400V	Elastomeric	400	(205)	450	(230)
				500	(260)
				550	(290)
				600	(315)
				650	(345)
Mark V Mod. C500- C1000	Composite 1" Insulation	500	(260)	550	(290)
				600	(315)
		600	(315)	650	(345)
				700	(370)
Mark V C800 - C1000	Composite Multiple Layer	1000	(540)		
1200GTA 1200GTB	Composite Multiple Layer	1200	(649)		

\*Call for construction details

## Power Generation Applications

Parker's expansion joints manage air and gas handling systems in conventional power plants (coal, oil and gas-fired) and combined cycle and gas turbine power plants. Styles are well suited to meet the thermal, chemical and environmental demands for a wide variety of power plant systems and applications including:

- Coal Mills
- Flue Gas Desulphurization (FGD)
- Selective Catalytic Reduction (SCR)
- Boilers
- Flue gas ducts
- Inlet
- Bypass
- Exhaust
- FD Fan
- Economizer
- Air heaters
- Precipitators
- Wet Scubbers
- Bag house
- ID fan
- Scrubber
- Absorber
- HRSG
- Chimney stack



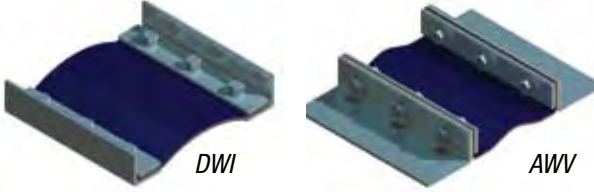
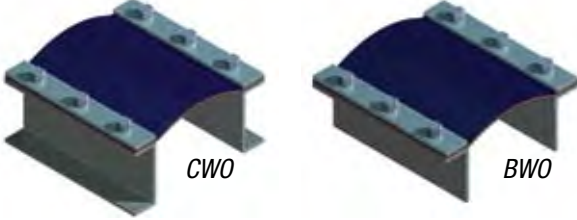
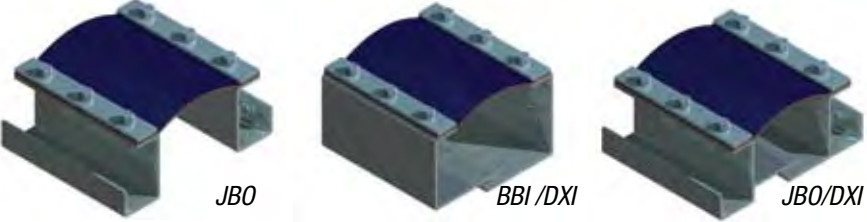
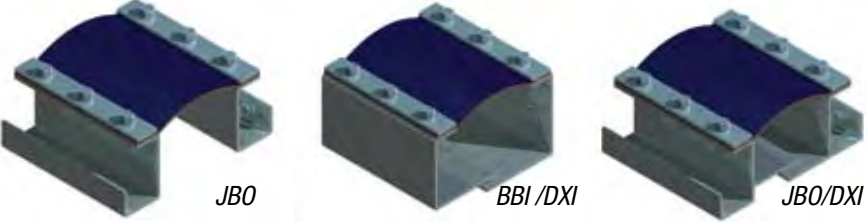
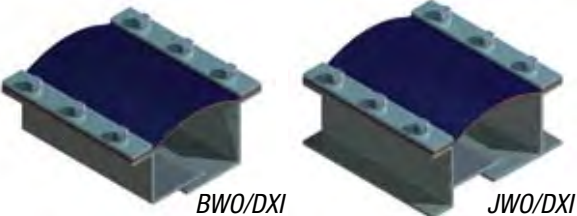
Parker Hannifin Corporation, EPS Division  
phone 800 233 3900

Styles	Material Construction	Flue Gas Temperature		Excursion Duration <sup>3</sup>		Service
		Continuous °F (°C)	Excursion °F (°C)	Single Occurrence (Hours)	Maximum Cumulative (Hours)	
Mark II	Elastomeric <sup>1</sup>	300 (150)	350 (175)	2.0	150	Wet / Dry
E300E						
X275-X300		400 (205)	1.0			
Mark III	Elastomeric <sup>1</sup>	400 (205)	450 (230)	4.0	3000	Wet / Dry
E400V			500 (260)	2.0	1000	
X404-X425		550 (290)	1.0	240		
		600 (315)	1.0	48		
		650 (345)	0.5	4		
Mark V Mod.	Composite 1" Insulation <sup>2</sup>	500 (260)	550 (290)	4.0	1000	Dry with options for wet conditions
C500-C1000			600 (315)	3.0	240	
LX801-LX1001		600 (315)	650 (345)	1.0	130	
			700 (370)	0.5	75	
Mark V	Composite Multiple Layer <sup>2</sup>	1000 (540)	For service above 750 °F (400 °C) an internal insulation pillow is required.		Dry	
C800-C1000			For fly ash loading problems an internal insulation pillow is recommended.			
LX801-LX1001						
1200GTA	Composite Multiple Layer <sup>2</sup>	1200 (649)	GTA & GTB utilize a proprietary construction which allows for high temp. and high movement conditions, as commonly found in gas turbine, H.R.S.G. and economizer outlet applications. Design applications up to 2000 °F (1093 °C) continuous. Call Parker for details.		Dry	
1200GTB						

<sup>1</sup>External insulation is allowed over elastomeric type expansion joints. This measure is taken to reduce heat loss through the expansion joint and thereby reduce localized condensation that may attack adjacent duct flanges.

<sup>2</sup>External insulation is not allowed over the composite type expansion joint or over the back up bars.

<sup>3</sup>Excursion durations listed are design standards for a variety of operating conditions. They should not be regarded as operating limitations. For more information, call Parker's design engineers.

<i>Styles</i>	<i>Typical Frame Configurations*</i>
<i>Mark II</i> <i>E300E</i> <i>X275-X300</i>	
<i>Mark III</i> <i>E400V</i> <i>X404-X425</i>	
<i>Mark V Mod.</i> <i>C500-C1000</i> <i>LX801-LX1001</i>	
<i>Mark V</i> <i>C800-C1000</i> <i>LX801-LX1001</i>	
<i>1200GTA</i>  <i>1200GTB</i>	

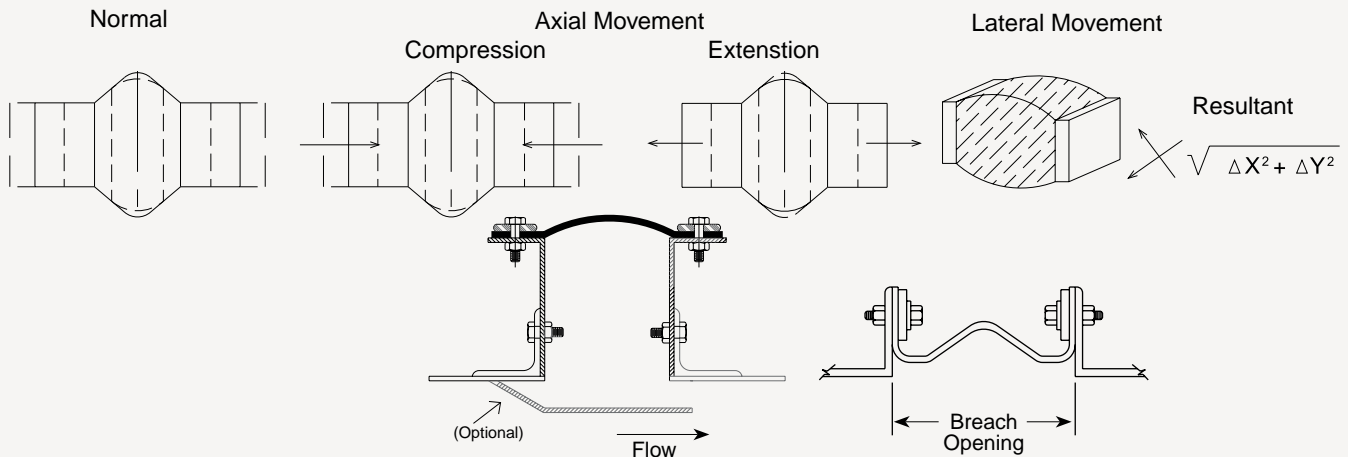
*\*Configurations representative only of typical designs. Frame configuration dependent upon many application variables. More options available. Call Parker's design engineers for recommended configuration based upon application parameters.*



## Movement Table

<i>Breach Opening</i>	6"	8"	10"	12"	14"	16"	18"	20"	22"	24"
	(150mm)	(200mm)	(250mm)	(300mm)	(350mm)	(400mm)	(450mm)	(500mm)	(550mm)	(600mm)
<i>Manufactured F/F</i>	6.5"	8.5"	11"	13"	15"	17"	19"	21"	23"	25"
	(163mm)	(215mm)	(275mm)	(325mm)	(375mm)	(452mm)	(475mm)	(525mm)	(575mm)	(625mm)
<i>Bolt Gauge (Normal)</i>	3"	4"	5"	6"	6.75"	6.75"	6.75"	6.75"	6.75"	6.75"
	(17mm)	(100mm)	(125mm)	(150mm)	(170mm)	(170mm)	(170mm)	(170mm)	(170mm)	(170mm)
<i>Set Back (Minimum)</i>	2.25"	2.5"	3.25"	3.5"	3.625"	3.875"	4"	4.25"	4.375"	4.5"
	(57mm)	(65mm)	(82mm)	(88mm)	(92mm)	(96mm)	(100mm)	(105mm)	(109mm)	(113mm)
<i>Axial Compression (Operating)</i>	1.5"	2.25"	3.25"	4"	4.75"	5.625"	6.25"	7"	7.5"	8.5"
	(40mm)	(60mm)	(80mm)	(100mm)	(120mm)	(140mm)	(155mm)	(175mm)	(190mm)	(210mm)
<i>(Excursion)</i>	3.25"	4.375"	5.5"	6.5"	7.5"	8.5"	9.5"	10.5"	11.5"	12.5"
	(80mm)	(110mm)	(140mm)	(165mm)	(190mm)	(215mm)	(240mm)	(265mm)	(290mm)	(315mm)
<i>Axial Extension (Operating)</i>	0.5"	0.5"	1"	1"	1"	1"	1"	1"	1"	1"
	(15mm)	(15mm)	(25mm)	(25mm)	(25mm)	(25mm)	(25mm)	(25mm)	(25mm)	(25mm)
<i>(Excursion)</i>	5% Stretch allowed for Wire-F; 20% Stretch allowed for Wire									
<i>Resultant Lateral (Operating)</i>	1.5"	2.25"	3.25"	4"	4.75"	5.625"	6.25"	7"	7.5"	8.5"
	(40mm)	(60mm)	(80mm)	(100mm)	(120mm)	(140mm)	(155mm)	(175mm)	(190mm)	(210mm)
<i>(Excursion)</i>	2.375"	3.375"	4.375"	5.375"	6.25"	7"	7.5"	8.5"	9.5"	10.6"
	(60mm)	(85mm)	(110mm)	(135mm)	(155mm)	(175mm)	(190mm)	(215mm)	(240mm)	(265mm)

## Movement Types



## Design Action Request Form

Return completed form to Parker: Fax: 936-552-8866

Customer's Name	Date:	Page of
Mailing Address	Project Name:	Delivery Required Date:
City, State, Zip Code	Specification No.:	Inquiry No:
Name of person submitting data	Phone No.:	Fax No.:
Quantity Per Item		
<input type="checkbox"/> New or <input type="checkbox"/> Replacement (check one) Please forward all drawings of ducting, expansion joints. If replacement please furnish drawings of existing joint.		

### SERVICE

Type of plant/service: (Precipitator, Scrubber, etc.)
Type of fuel and percent sulfur:
Peak load or base load:
Number of startups and shutdowns per year.
Location of expansion joint (I.D. Fan Outlet, Stack, Etc.)

### DIMENSIONS

Duct Size: (Inside Dimensions or Diameter)
Breech Opening:

### FLOW / MEDIUM

Flowing Medium: (air, flue gas, etc.)	
Dust Load: (PSF)	Flow Velocity: (FPS)
Flow Direction: <input type="checkbox"/> UP <input type="checkbox"/> DOWN <input type="checkbox"/> HORIZONTAL <input type="checkbox"/> ANGULAR UP <input type="checkbox"/> ANGULAR DOWN (check one)	

### PRESSURE

Design Pressure: (Inches Hg)	Maximum:	Normal:
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### TEMPERATURE

Gas Temperature:	Normal:	Continuous:
Maximum: (Upset) Temperature:	Duration Per Event:	Cumulative Duration:
Ambient Temperature (°F):	Minimum:	Maximum:

### MOVEMENTS OF EXPANSION JOINT

Axial Compression: (inches)		
Axial Extension: (inches)	One Direction:	Second Direction:
Lateral Deflection: (inches)		
Angulation: (degrees)	Torsion: (degrees)	

### DUCT

Duct Material:	Duct Thickness:
Internal Liner/ Baffle Required? <input type="checkbox"/> Yes <input type="checkbox"/> No	





# The Hope Group Branch Locations

**Your complete source** for quality tube fittings, hose & hose fittings, brass & composite fittings, quick-disconnect couplings, valves and assembly tools, locally available from a worldwide network of authorized distributors.

**Fittings:**

Available in inch and metric sizes covering SAE, BSP, DIN, GAZ, JIS and ISO thread configurations, manufactured from steel, stainless steel, brass, aluminum, nylon and thermoplastic.

**Hose, Tubing and Bundles:**

Available in a wide variety of sizes and materials including rubber, wire-reinforced, thermoplastic, hybrid and custom compounds.

**Worldwide Availability:**

Parker operates Fluid Connectors manufacturing locations and sales offices throughout North America, South America, Europe and Asia-Pacific.

For information, call

**508-393-7660**

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## Massachusetts

### Fitchburg

*Parker Store*  
58 Crawford Street  
Tel: 978-342-6817  
Fax: 978-345-7604

### Northborough

*Corporate Headquarters*  
70 Bearfoot Road  
Tel: 508-393-7660  
Fax: 508-393-8203

### Weymouth

*Parker Store*  
50 Finnell Drive, Unit 12-14  
Tel: 781-803-2572  
Fax: 781-812-2641

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## Rhode Island

### Cranston

*Parker Store*  
215 Niantic Avenue  
Tel: 401-943-1577  
Fax: 401-943-8808

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## Connecticut

### North Haven

*The Hope Group - No. Haven*  
222 Elm Street #4  
Tel: 203-269-1299  
Fax: 203-891-7649

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## Maine

### Bangor

*Parker Store*  
257 Perry Road  
Tel: 207-942-7475  
Fax: 207-941-9875

### Lewiston

*Parker Store*  
14 Enterprise Street  
Tel: 207-783-9108  
Fax: 207-782-8634

### South Portland

*Parker Store*  
5 Wallace Avenue  
Tel: 207-774-6266  
Fax: 207-774-4735

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## New Hampshire

### Manchester

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880 Candia Road  
Tel: 603-622-4998  
Fax: 603-622-4667



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