

# EXHAUST & MANIFOLD

## EXPANSION JOINTS



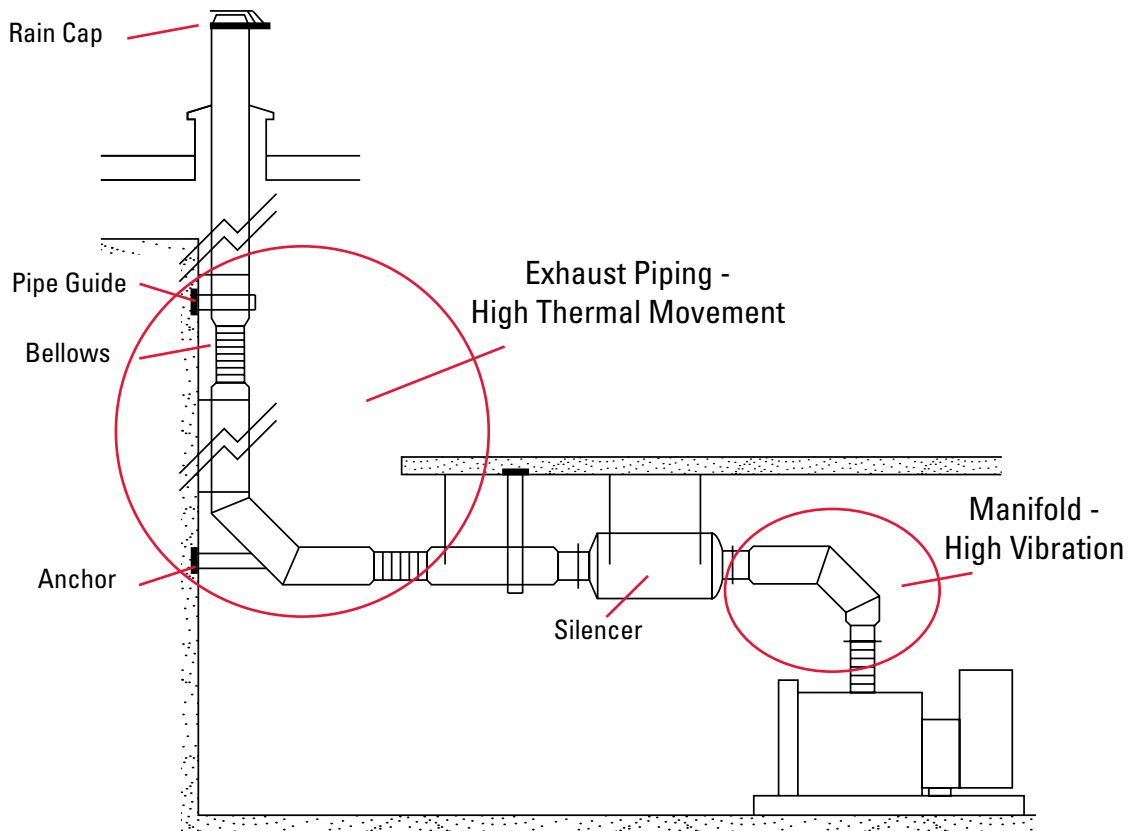
**Metraflex**  
*for pipes in motion*

## Exhaust Piping Expansion Joints vs. Manifold Joints.

Providing expansion compensation and vibration isolation for engine exhaust systems should be thought of as two unique and different segments. One is the connection between the engine manifold and the silencer or muffler. The other is the piping from the silencer to the roof.

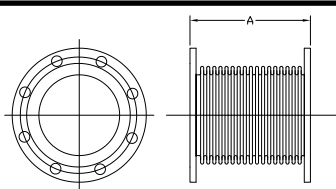
**Exhaust piping:** The exhaust piping is typically long pipe runs from the silencer through to the roof or thru a nearby wall. Here the issue is the large thermal expansion of the long runs due to the high temperatures. Expansion joints designed for axial compression or lateral offset are required.

**Manifold bellows:** This is the section from the engine's exhaust manifold to the silencer. This section experiences high engine vibration and the highest temperatures. Bellows in this section are used primarily to isolate the engine vibration. The run between engine and silencer is so short, there is very little thermal growth. However, because each engine manufacturer has its own unique flange connection to the manifold, the make and model of the engine is needed to specify the correct manifold bellows end connections.

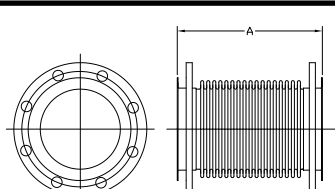


Metraflex provides the expansion joint/ bellows for both applications. The standard products listed on the next page, are for the exhaust piping expansion joints. For the manifold expansion joint/ bellows, please see our website. The combinations for the various engine manufacturers, such as Cat, Detroit Diesel, Cummins, Waukesha, and Navistar, are too many to catalog in print.

## EXHAUST PIPING EXPANSION JOINTS - Max Operating, 5 PSI 1000° F

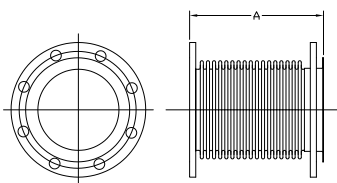


150# FIXED X  
150# FIXED C/S FLANGES  
S/S BELOWS

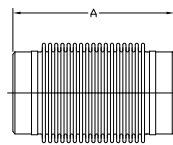


150# FLOATING X  
150# C/S FLOATING FLANGES  
S/S BELOWS

PIPE SIZE	SIZE I.D.	OAL	AXIAL COMP	LATERAL OFFSET	P/N	OAL	AXIAL COMP	LATERAL OFFSET	P/N	AXIAL SPRING RATE LBS./IN.	LATERAL SPRING RATE LBS./IN.
4	4.50"	10.25"	3"	1	EX100400	12.00"	3"	1	EX200400	46	22
5	5.56"	10.25"	3"	1	EX100500	12.00"	3"	1	EX200500	66	47
6	6.63"	10.25"	3"	1	EX100600	12.00"	3"	1	EX200600	82	80
8	8.63"	10.25"	3"	1	EX100800	12.00"	3"	1	EX200800	103	165
10	10.75"	10.25"	3"	1	EX101000	12.00"	3"	1	EX201000	103	248
12	12.75"	10.25"	3"	0.875	EX101200	12.00"	3"	0.875	EX201200	121	405
14	14.00"	10.25"	3"	0.75	EX101400	12.00"	3"	0.75	EX201400	132	530
16	16.00"	10.25"	3"	0.625	EX101600	12.00"	3"	0.625	EX201600	150	777
18	18.00"	10.25"	3"	0.5	EX101800	12.00"	3"	0.5	EX201800	168	1092
20	20.00"	10.25"	3"	0.5	EX102000	12.00"	3"	0.5	EX202000	186	1480
22	22.00"	10.25"	3"	0.5	EX102200	12.00"	3"	0.5	EX202200	204	1952
24	24.00"	10.25"	3"	0.5	EX102400	12.00"	3"	0.5	EX202400	222	2513



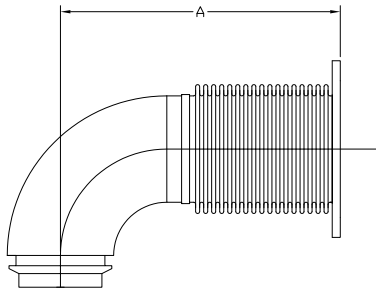
150# FIXED X  
150# C/S FLOATING FLANGES  
S/S BELOWS



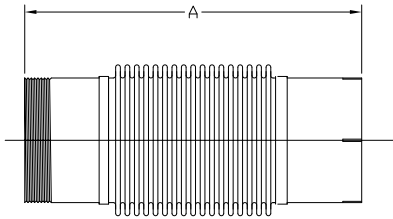
SCHED 40 C/S WELD ENDS  
S/S BELOWS

PIPE SIZE	SIZE I.D.	OAL	AXIAL COMP	LATERAL OFFSET	P/N	OAL	AXIAL COMP	LATERAL OFFSET	P/N	AXIAL SPRING RATE LBS./IN.	LATERAL SPRING RATE LBS./IN.
4	4.50"	12.00"	3"	1	EX300400	12.00"	3"	1	EX400400	46	22
5	5.56"	12.00"	3"	1	EX300500	12.00"	3"	1	EX400500	66	47
6	6.63"	12.00"	3"	1	EX300600	12.00"	3"	1	EX400600	82	80
8	8.63"	12.00"	3"	1	EX300800	12.00"	3"	1	EX400800	103	165
10	10.75"	12.00"	3"	1	EX301000	12.00"	3"	1	EX401000	103	248
12	12.75"	12.00"	3"	0.875	EX301200	12.00"	3"	0.875	EX401200	121	405
14	14.00"	12.00"	3"	0.75	EX301400	12.00"	3"	0.75	EX401400	132	530
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18	18.00"	12.00"	3"	0.5	EX301800	12.00"	3"	0.5	EX401800	168	1092
20	20.00"	12.00"	3"	0.5	EX302000	12.00"	3"	0.5	EX402000	186	1480
22	22.00"	12.00"	3"	0.5	EX302200	12.00"	3"	0.5	EX402200	204	1952
24	24.00"	12.00"	3"	0.5	EX302400	12.00"	3"	0.5	EX402400	222	2513

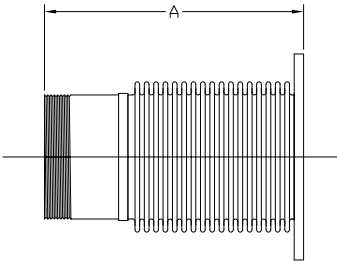
# Manifold Bellow / Flex Joints



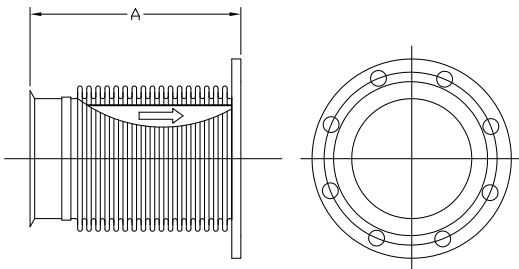
Elbow w/Turbo flanged reducer



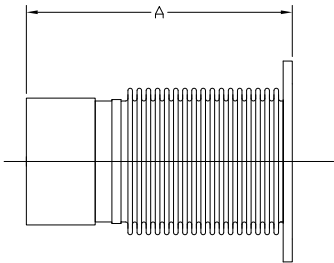
Male NPT x CUFF



Male NPT x Flange



Lip Flange x Flange, w/ Flow Liner

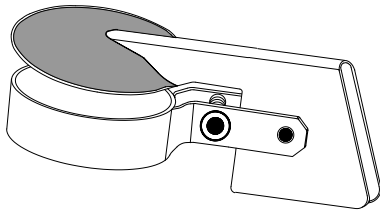


Female NPT x Flange

**Please see website for full listing:  
[www.metroflex.com](http://www.metroflex.com)**

## Accessories

Rain Cap



Gasket & Bolt Kits

Non Asbestos, Graphite or Mica gaskets available for different temperature ranges. Carbon or s/s nuts and bolts.



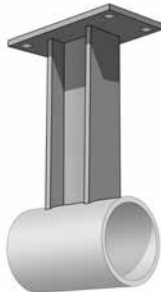
## Pipe Guides and Anchors



Pipe Guide



Insulated Pipe Guide



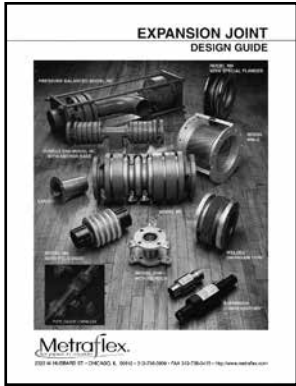
Pipe Anchor

# Exhaust piping, standard bellows

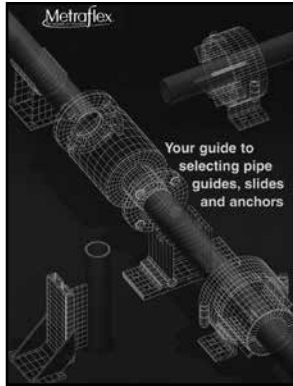
**Pressure: 5 PSI**

**Temperature: 1000° F** w/carbon steel ends  
**1200° F** w/stainless steel ends

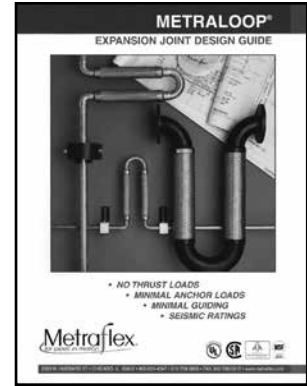
**Movement: 3 inch axial**  
**1 inch lateral**



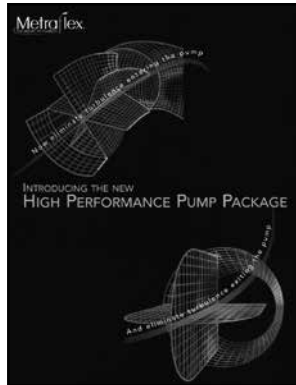
• METAL BELLOWS EXPANSION JOINTS



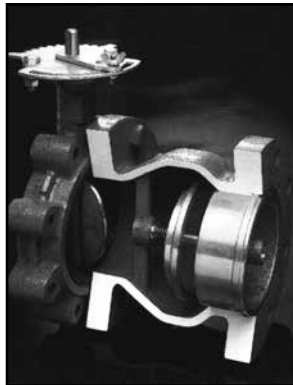
• GUIDES, SLIDES AND ANCHORS



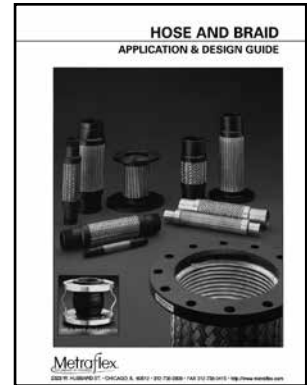
• EXPANSION LOOPS



• HIGH PERFORMANCE



• SILENT CHECK VALVES



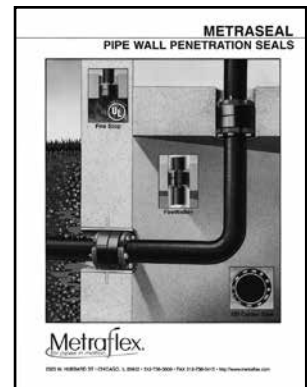
• HOSE & BRAID



• CAST IRON STRAINERS



• RUBBER JOINTS



• METRASEAL



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