

## EXTERNALLY PRESSURIZED EXPANSION JOINT

### Installation Instructions

Externally pressurized expansion joints used in steam lines and for thermal expansion require adequate anchoring and guiding. Main anchors are necessary at the end of each straight pipe run containing an externally pressurized expansion joint. Install guides to prevent the line from bowing, buckling or becoming misaligned because of thermal expansion or internal pressures. Pipe hangers and rollers are not considered to be adequate as guides. Anchors should be located according to Expansion Joint Manufacturers Association ( EJMA ) standards. The main anchors must restrain the ends of the pipe so that all expansion is directed into the externally pressurized expansion joint. The main anchors must also withstand the end thrust force of the internal pressure, plus all the other piping system loads.

Externally pressurized expansion joints should not be subjected to hydrostatic pressure beyond their rated working pressures. If a higher pressure test is required, the factory should be advised. The inside of all piping must be clean before installing and testing externally pressurized expansion joints. Before the pipe lines are hydro-statically tested, all anchors and pipe guides must be secured.

A shipping restraint is tack welded or soldered in place at the factory to ensure the rated measurement of travel. DO NOT remove this device until installation is complete (all anchors, guides and supports are adjusted). Remove the restraint prior to pressure testing and remove the tack weld or solder flash after installation. The restraint is not designed to react to pressure thrust.

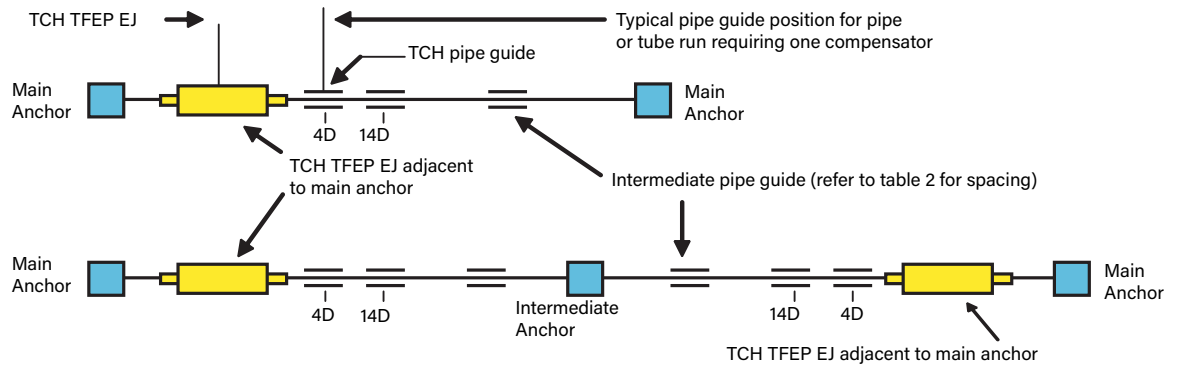
Externally pressurized expansion joints are not designed to absorb torsional movement or stress. Subjecting an externally pressurized expansion joint to torsion of any amount may drastically effect operating life and will void the warranty.

Externally pressurized expansion joints are not flow-directional, however when installing in a vertical orientation, the traveling end should be installed above the fixed end to allow for proper drainage.

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Pipe or tube run requiring one EJ.

Pipe or tube run requiring more than one EJ.



### TCH PIPE GUIDES

Table 1 Thermal Expansion  
Linear thermal expansion of pipe and tube per 100 feet between 70°F and tabulated temperature.

Saturated Steam Pressure	Temperature		Carbon Steel Pipe	
	DEG F	DEG C		
	-350	-198		
	-300	-185		
	-250	-157		
	-200	-129		
	-150	-101		
	-100	-73		
	-50	-46	-0.84	
	0	-18	-0.49	
	25	-4	-0.32	
Vacuum (inches of mercury)	29.7	32	0	-0.27
	29.6	50	10	-0.14
	29.2	70	21	0
	28.0	100	38	0.23
	26.0	125	52	0.42
	22.4	150	66	0.61
	16.3	175	80	0.80
Pressure (PSIG)	6	200	93	0.99
	0	212	100	1.10
	4	225	107	1.21
	5	250	121	1.40
	31	275	135	1.61
	52	300	149	1.82
	82	325	163	2.04
120	350	177	2.26	
150	358	181	2.33	
169	375	191	2.48	
232	400	205	2.70	
300	417	214	2.86	



Table 2 Intermediate Guide Spacing  
(Center to Center, Feet)

Nominal Size	Pressure (PSIG)			
	50	100	150	300
2"	32'	23'	18'	15'
2 1/2"	35'	28'	22'	20'
3"	38'	28'	23'	17'
4"	52'	38'	31'	22'
5"	63'	45'	38'	25'
6"	68'	48'	40'	28'
8"	87'	62'	45'	38'
10"	107'	75'	60'	48'
12"	118'	85'	70'	50'

