TWIN FLEX "TFEP" EXPANSION JOINTS

TWIN FLEX SERIES "TFEP" Expansion Joints are the perfect solution to absorb thermal expansion. TWIN FLEX Series "TFEP" Expansion Joints can be utilized in piping for domestic hot water, chilled water, heating water, steam and steam condensate as well as for other equipment as indicated within the specifications, drawings and equipment schedules to compensate for thermal pipeline growth. TWIN FLEX Series "TFEP" Expansion Joints are designed with external pressure to the bellows along with an internal guide ring which eliminates bellows squirm; they have an internal liner as part of their integral design to eliminate flow induced vibrations along with an internal limit stop to eliminate over-extension of the bellows. They are compact when compared to a pipe loop, which saves valuable space. Simplicity of this proven design eliminates packing, requires no maintenance, will demonstrate long-life, dependability and is easy to insulate.

CONSTRUCTION: Constructed with a three-ply T-304 stainless steel bellows and seamless carbon steel shroud that encases the bellows; this will ensure a high level of safety and long service life. The joints have an Internal Liner, Guide Ring and Limit Stop. TWIN FLEX Series "TFEP" Expansion Joints may be provided with Weld Ends, Grooved Ends, Threaded Ends or 150# and 300# Forged flanges. Floating flanges are also available as required for easy flange hole alignment, or whatever fitting configuration you may need. We can custom fabricate to your specifications. TWIN FLEX Series "TFEP" Expansion Joints are the most economical way to take up large axial motions.

- TWIN FLEX Series "TFEPW" for welded piping ends.
- TWIN FLEX Series "TFEPM" for threaded piping ends.
- TWIN FLEX Series "TFEPF" for flanged piping ends.
- TWIN FLEX Series "TFEPG" for grooved piping ends.

DESIGN INFORMATION: Joints are rated for 300 PSIG working pressure up to 650º F. Axial movements of 4" compression and 3/4" extension (short) or 8" compression and 1-1/2" extension (long).

INSTALLATION INFORMATION: Carefully align joint and make proper allowance for temperature of pipe at time of installation. Pipe guides should be placed as per EJMA standards (refer to table 2, page 4).

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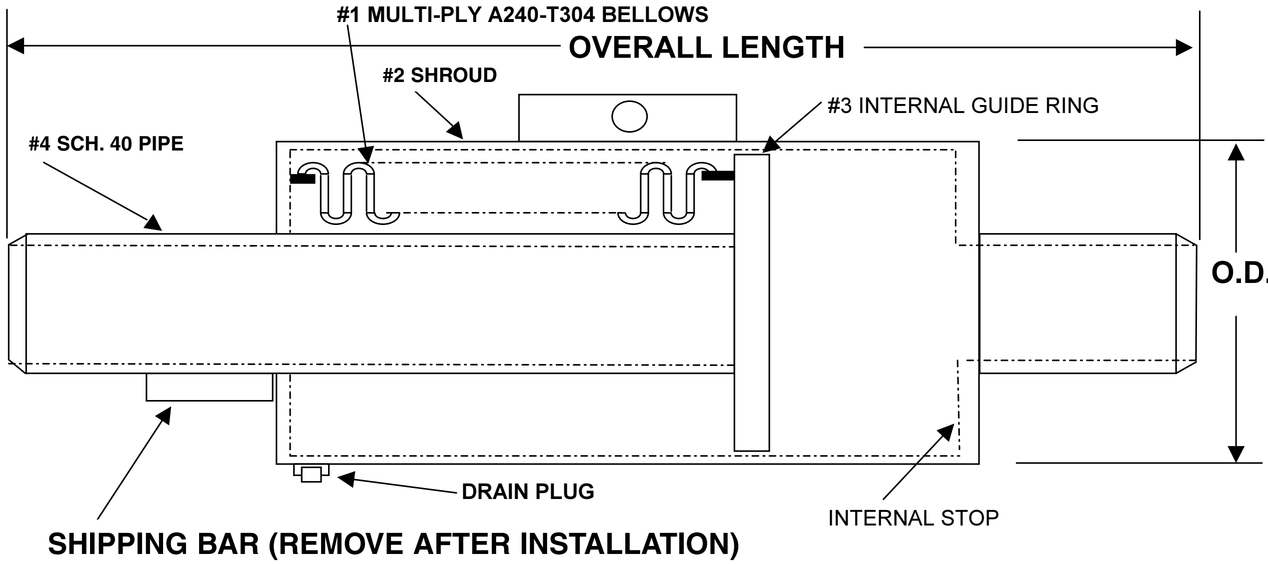

Optional Fittings:

Note: Substitute letter "G" or "M" for "W" in the model number below for appropriate fitting.

CONSTRUCTION		
P/N#	DESCRIPTION	MATERIALS
1	BELLOWS	3-PLY-A240-304
2	SHROUD	A-53/106 C.S.
3	GUIDE RING	A285-GR. C.S.
4	SCH. 40 PIPE	A-53/106 C.S.

Pressure Rating: Vacuum to 300 PSIG
Temperature Rating: -20ºF. to 650ºF.
Note: For proper operation all piping must be properly anchored and guided.

MODEL NUMBER	SIZE	OVERALL LENGTH	WRK PSIG	AXIAL COMP.	AXIAL EXT.	OUTSIDE DIAMETER	EFFECTIVE AREA Inch^2	WEIGHT (LBS.)
TFEPW2004	2″	30″	300	4″	3/4″	6-5/8″	16	65
TFEPW2504	2-1/2″	30″	300	4″	3/4″	6-5/8″	16	72
TFEPW3004	3″	30″	300	4″	3/4″	6-5/8″	16	80
TFEPW4004	4″	30″	300	4″	3/4″	8-5/8″	35	134
TFEPW5004	5″	30″	300	4″	3/4″	10-3/4″	35	143
TFEPW6004	6″	30″	300	4″	3/4″	10-3/4″	54	154
TFEPW8004	8″	32″	300	4″	3/4″	12-3/4″	88	285
TFEPW0104	10″	32″	300	4″	3/4″	14-1/2″	118	307
TFEPW0124	12″	32″	300	4″	3/4″	16-3/4″	163	380
TFEPW2508	2-1/2″	50″	300	8″	1-1/2″	6-5/8″	16	92
TFEPW3008	3″	50″	300	8″	1-1/2″	6-5/8″	16	93
TFEPW4008	4″	50″	300	8″	1-1/2″	8-5/8″	35	210
TFEPW5008	5″	50″	300	8″	1-1/2″	10-3/4″	35	230
TFEPW6008	6″	50″	300	8″	1-1/2″	10-3/4″	54	237
TFEPW8008	8″	52″	300	8″	1-1/2″	12-3/4″	88	438
TFEPW0108	10″	52″	300	8″	1-1/2″	14-1/2″	118	472
TFEPW0128	12″	52″	300	8″	1-1/2″	16-3/4″	163	574

Note: Pressure Thrust = Effective Area X the Maximum Working Pressure.

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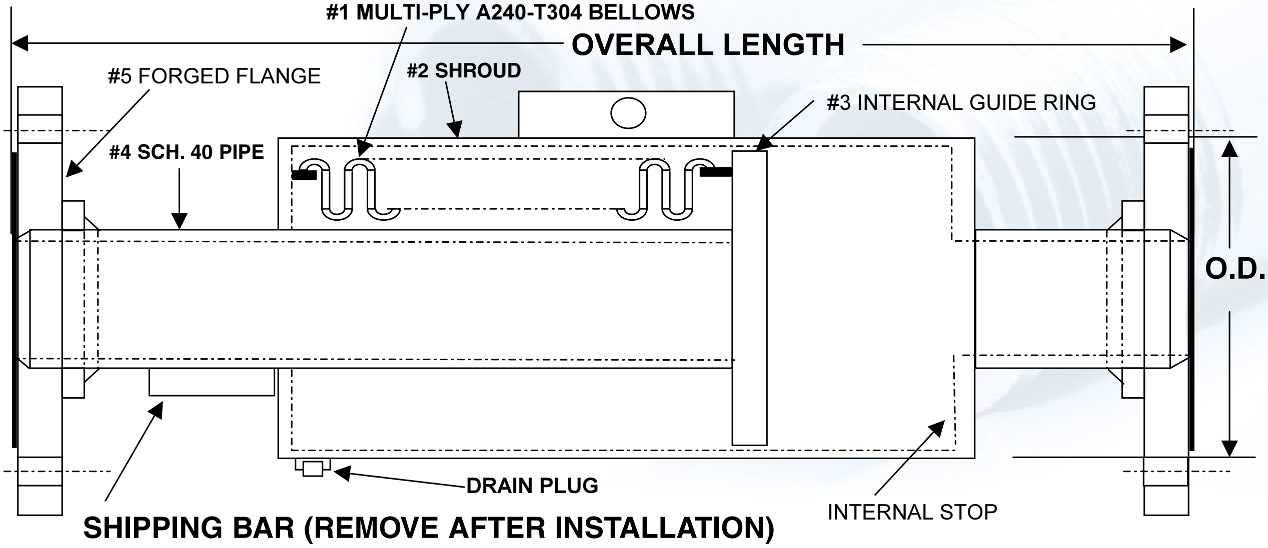
TWIN FLEX "TFEP" EXPANSION JOINTS



Note: Add a 3 in front of "F" in model number when ordering 300 flanges.

CONSTRUCTION		
P/N#	DESCRIPTION	MATERIALS
1	BELLOWS	3-PLY-A240-304
2	SHROUD	A-53/106 C.S.
3	GUIDE RING	A285-GR. C.S.
4	SCH. 40 PIPE	A-53/106 C.S.
5	FLANGE	150# or 300# B16.5 C.S.

Pressure Rating: Vacuum to 300 PSIG
Temperature Rating: -20°F. to 650°F.
Note: For proper operation all piping must be properly anchored and guided.

MODEL NUMBER	SIZE	OVERALL LENGTH	WRK PSIG	AXIAL COMP.	AXIAL EXT.	OUTSIDE DIAMETER	EFFECTIVE AREA Inch^2	APPROX. WEIGHT (LBS.) 150#	300#
TFEPF2004	2″	31″	300	4″	3/4″	6-5/8″	16	82	88
TFEPF2504	2-1/2″	31″	300	4″	3/4″	6-5/8″	16	95	102
TFEPF3004	3″	31″	300	4″	3/4″	6-5/8″	16	109	121
TFEPF4004	4″	31″	300	4″	3/4″	8-5/8″	35	185	210
TFEPF5004	5″	31″	300	4″	3/4″	10-3/4″	35	205	238
TFEPF6004	6″	31″	300	4″	3/4″	10-3/4″	54	230	272
TFEPF8004	8″	33″	300	4″	3/4″	12-3/4″	88	400	462
TFEPF0104	10″	33″	300	4″	3/4″	14-1/2″	118	465	544
TFEPF0124	12″	33″	300	4″	3/4″	16-3/4″	163	610	714
TFEPF2508	2-1/2″	51″	300	8″	1-1/2″	6-5/8″	16	109	116
TFEPF3008	3″	51″	300	8″	1-1/2″	6-5/8″	35	113	125
TFEPF4008	4″	51″	300	8″	1-1/2″	10-3/4″	35	240	265
TFEPF5008	5″	51″	300	8″	1-1/2″	10-3/4″	54	265	298
TFEPF6008	6″	51″	300	8″	1-1/2″	12-3/4″	88	280	322
TFEPF8008	8″	53″	300	8″	1-1/2″	14-1/2″	118	505	567
TFEPF0108	10″	53″	300	8″	1-1/2″	16-3/4″	163	560	639
TFEPF0128	12″	53″	300	8″	1-1/2″	16-3/4″	163	710	814

Note: Pressure Thrust = Effective Area X the Maximum Working Pressure.

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TWIN FLEX "TFEP" EXPANSION JOINTS

SPECIFICATION GUIDE FOR ENGINEERS — EXPANSION JOINTS

Expansion Joints shall be utilized on heat transfer piping, tubing, heaters, radiators and other equipment as indicated within the specifications, drawings and equipment schedules to compensate for thermal pipeline growth. Vertical piping for domestic hot water, chilled water, heating water, steam and steam condensate shall be provided with expansion compensators at each floor.
Joints shall be constructed with Series 300 stainless steel 3-ply bellows and carbon steel seamless shroud, internal liner and end fittings. All connections shall have ends to match piping system. Joints for steel piping shall have plain weld ends, male NPT threaded ends, grooved ends or flanged ends.
Joints to have a minimum rating of 300 PSIG working pressure and axial movements of 4" or 8" axial compression as required. Carefully align joint and make proper allowance for temperature of pipe at time of installation. Pipe guides should be placed as per EJMA standards. Expansion Joints shall be Twin Flex Series "TFEP"

- TWIN FLEX Series "TFEPW" for welded piping ends.
- TWIN FLEX Series "TFEPM" for threaded piping ends.
- TWIN FLEX Series "TFEPF" for flanged piping ends.
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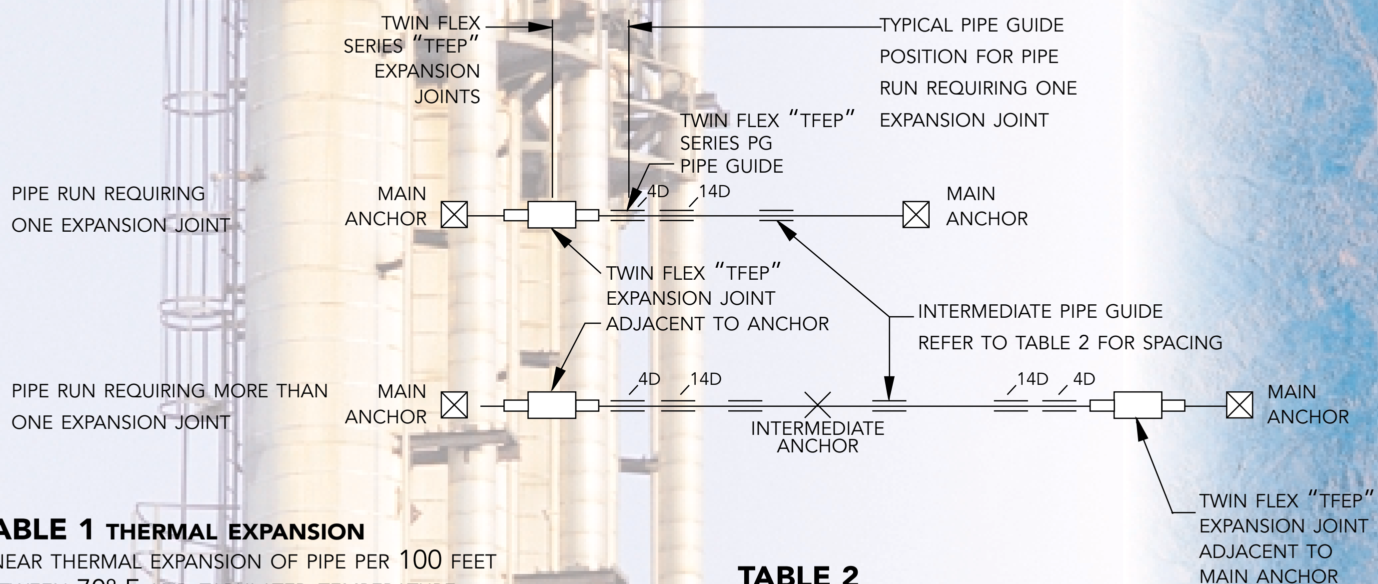

TABLE 1 THERMAL EXPANSION

LINEAR THERMAL EXPANSION OF PIPE PER 100 FEET BETWEEN 70° F AND TABULATED TEMPERATURE.

	SATURATED STEAM PRESSURE	TEMPERATURE DEG F	TEMPERATURE DEG C	CARBON STEEL PIPE
		-325	-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
	6.0	200	93	0.99
	0	212	100	1.10
PRESSURE (PSIG)	4	225	107	121
	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 PSIG	@100 PSIG	@150 PSIG	@300 PSIG
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'

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