KEFLEX HVAC Products

7Q Series Expansion Compensators

How to Select and Specify a KEFLEX QUADRA-SIDE Compensator

1. Determine from the piping system specifications:
   a) Pipe sizes involved
   b) Maximum working pressure
   c) Maximum working temperature
2. Calculate axial traverse between anchor points. (Refer to Thermal Expansion Table located in the Application Guide)
3. Select the proper type and quantity of Quadra-Side Compensators or Expansion Joints to provide the amount of movement required within the rated working pressure and temperature. (See Pressure Derating Table for elevated temperatures.)
4. Select the appropriate end fittings and check the physical specifications for the overall length and other dimensional characteristics to assure fit within the piping system.

Features:

- Compact Overall Length And Outside Diameter
- Quadra-Side Shroud For Anti-Torque And Protection
- Multi-Ply-T -300 Stainless Steel Bellows
- Long Cycle Life
- Force To Actuate Usually Less Than 100 lbs.
- 2” Traverse (1-1/2” Compression, 1/2” Extension) For Single Units
- Chilled Water Systems: 1" Extension and 1" Compression
- 4" Traverse (3" Compression, 1" Extension) For Dual Units
- Brass Case Construction
- Variety Of End Fittings
  - -Female threads
  - -Copper sweat ends
  - -Male threads
  - -Steel weld ends

GUIDE SPECIFICATION-EXPANSION COMPENSATORS

SCOPE:

1. ALL HEATING ANDIOR COOLING SYSTEM PIPING SHALL CONTAIN EXPANSION COMPENSATORS TO COMPENSATE FOR EXPANSION AND/OR CONTRACTION RESULTING FROM TEMPERATURE VARIATIONS. THESE LINES SHALL HAVE ADEQUATE GUIDES AND ANCHORS AS DEFINED BY THE EXPANSION JOINT MANUFACTURERS ASSOCIATION (EJMA) STANDARDS.

CONSTRUCTION:

1. BELLOWS CONSTRUCTION SHALL BE MULTI-PLY LAMINATED CORRUGATED BELLOWS OF TYPE 300 STAINLESS STEEL.
2. ALL COMPENSATORS SHALL HAVE A SQUARE TELESCOPING SHROUD TO PREVENT TORSIONAL STRESS AND/OR EXTERNAL DAMAGE.
3. END FITTINGS SHALL BE (MALE PIPE THREAD, FEMALE PIPE THREAD, FEMALE COPPER TUBE, WELD END, 150# FLANGE) SUITABLE FOR MATING PIPING.
4. COMPENSATORS FOR HEATING SYSTEM PIPING SHALL BE DESIGNED FOR 2" TOTAL TRAVEL (1 1/2" COMPRESSION, 1/2" EXTENSION) FOR SINGLE UNITS, 4" TOTAL TRAVEL (3" COMPRESSION, 1" EXTENSION) FOR DUAL UNITS. COMPENSATORS FOR CHILLED WATER SYSTEMS SHALL BE DESIGNED FOR 1 " EXTENSION AND 1" COMPRESSION (SINGLE UNITS) AND 2" EXTENSION AND 2" COMPRESSION (DUAL UNITS) RESPECTIVELY.
5. UNITS SHALL BE "KEFLEX" MODEL "7Q" AS MANUFACTURED BY "FLEX-WELD".

Ratings

The KEFLEX Quadra-Side Expansion Pressure compensator is designed for a maximum of 200 or 300 psi working at ambient (70ºF) temperature depending on model. When operating at elevated temperatures it is necessary to derate the maximum pressure capability of the units. The table indicates the recommended maximum pressures for various temperature levels. Compensators should not be subjected to line tests beyond their rated working pressure. If higher pressure is required, please consult the factory.

The maximum temperature of a Quadra-Side Compensator is limited by the internal construction. The compensator is limited to a maximum of 600°F.

- -150# Drilling flanges
- -300# Drilling flanges (upon application)

Derated Pressure for Elevated Temperatures

Temperature		Maximum Working	
Degrees F	Degrees C	Pressure	
70	21	200	300
150	66	195	290
200	93	190	285
250	121	185	275
300	149	175	260
350	177	170	255
400	204	165	245
450	232	160	240
500	260	155	230
600	316	145	215

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Thrust Force Data

Compensator Nominal Pipe Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Nominal I.D. Bellows Element	1-1/4"	1-1/4"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
Effective Area in Square Inches	1.76	1.76	1.76	2.76	4.55	6.5	9.61	14.50
Pressure PSI	**Thrust Force in Pounds @ Specified Pressure**							
10	18	18	18	28	46	65	96	145
20	35	35	35	55	91	130	192	290
30	53	53	53	83	137	195	288	435
40	70	70	70	110	182	260	384	580
50	88	88	88	138	228	260	384	725
60	106	106	106	166	273	390	577	870
75	132	132	132	207	341	488	721	1088
100	176	176	176	276	455	650	961	1450
125	220	220	220	345	569	813	1201	1813
150	264	264	264	414	683	975	1442	2175
175	308	308	308	483	796	1138	1682	2538
200	352	352	352	552	910	1300	1922	2900