



GRINNELL Products

Figure 7550 Grooved Expansion Joints for Black, Galvanized, and Stainless Steel Pipe

General Description

GRINNELL Grooved Expansion Joints are custom-designed, thermal movement solutions that utilize the proven design characteristics of GRINNELL Flexible Couplings.

Expansion joints are designed to be used in both hot and cold applications. When pipe heats up, the expansion joint contracts to absorb the thermal expansion of the pipe. When pipe cools down, the expansion joint expands to absorb the thermal contraction of the pipe.

Grooved Expansion Joints are factory fabricated and calibrated to the specific thermal movement conditions of the piping runs. The joints are manufactured from precision machined grooved nipples with the following GRINNELL Flexible Couplings:

- Figure 705 Couplings are used for sizes 1-1/4 to 12 inch (DN32 to DN300). Refer to Technical Data Sheet G110.
- Figure 707 Couplings are used for sizes 14 and 16 inch (DN350 and DN400). Refer to Technical Data Sheet G130.
- Figure 405 Couplings are used for optional stainless steel assemblies in sizes 1-1/4 to 8 inch (DN32 to DN200). Refer to Technical Data Sheet G565.

The technical data sheets for these couplings provide pressure ratings, temperature ratings, and materials of construction. These couplings provide dependable, high-pressure performance in a variety of applications.

Figure 7550 Expansion Joint Assemblies can be ordered to accommodate total movement requirements over four different lengths:

- 1.00 inch (25,4 mm)
- 1.25 inch (31,8 mm)
- 1.50 inch (38,1 mm)
- 1.75 inch (44,5 mm)

Nipples are manufactured from standard wall, ASTM A 53 black steel pipe. Galvanized or Stainless Steel construction is available on request.

Anchors and guides direct thermal movement towards the expansion joint. Anchors also prevent expansion joints from expanding to their maximum length due to system pressurization. Guides help to ensure proper axial movement.

Pipe must be guided on both sides of the Figure 7550 Expansion Joints to ensure optimal performance.

Because angular deflection will reduce available axial movement, use of a support cradle under the expansion joint is recommended.

Expansion Joints must be anchored and guided in accordance with standard industry practices. Anchoring must be capable of accommodating the maximum pipe end load. After installation and pipe supports are in place retaining bracket assembly must be removed.

WARNING

Never remove any piping component nor correct or modify any piping deficiencies without first de-pressurizing and draining the system. Failure to do so may result in serious personal injury, property damage, and/or impaired device performance.

The designer is responsible for selecting products suitable for the intended service and to ensure that pressure ratings and performance data are not exceeded. Verify that material and gasket selection are compatible with the specific application. Always read and understand the installation instructions.

The products described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the Approval agency, in addition to the standards of any other authorities having jurisdiction. Failure to do so may result in serious personal injury or impair the performance of these devices.



The owner is responsible for maintaining their mechanical system and devices in proper operating condition. Contact the installing contractor or device manufacturer with any questions.

Technical Data

Sizes

1-1/4 to 16 inch (DN32 to DN400)

Maximum Pressure

Refer to the appropriate technical data sheet for the coupling in use.

- G110 for the Figure 705 Grooved Flexible Coupling
- G130 for the Figure 707 Grooved Flexible Coupling
- G565 for the Figure 405 Grooved Stainless Steel Flexible Coupling

Coupling Housing

- Ductile iron conforming to ASTM A 536, Grade 65-45-12
- Type 316 Stainless Steel conforming to ASTM A 743/A 743M(CF8M) (optional)

Coupling Finishes

- Orange non-lead paint
- Red RAL non-lead paint
- Hot dipped Galvanized conforming to ASTM A 153
- Type 316 Stainless Steel

Coupling Bolts/Nuts

- Carbon Steel
Carbon Steel oval neck track head bolts are heat-treated and conform to the physical properties of ASTM A 183 Grade 2 and SAE J429 Grade 5 with a minimum tensile strength of 110,000 psi.

Carbon Steel heavy hex nuts conform to the physical properties of ASTM A 183 Grade 2 and SAE J995 Grade 5. Bolts and nuts are zinc-electroplated conforming to ASTM B 633.

Carbon Steel heavy hex nuts conform to the physical properties of ASTM A 563 M Class 9. Bolts and nuts are zinc-electroplated conforming to ASTM B 633.

- Stainless Steel (optional)
Stainless Steel bolts are conforming to ASTM A-193M Class 2, Type 316, Grade B8M.

Class 2. Stainless Steel nuts are hex nuts conforming to ASTM A-194M Type 316, Grade 8M.

Pipe

- Standard wall black steel pipe per ASTM A53
- Galvanized or Stainless Steel pipe (optional)

Gasket

- Grade "E" EPDM, Green color code, -30°F to 230°F (-34°C to 110°C)
- Grade "L" Silicone, Red gasket -30°F to 350°F (-34°C to 177°C)
- Grade "O" Fluoroelastomer, Blue color code, 20°F to 300°F (-7°C to 149°C)
- Grade "T" Nitrile, Orange color code, -20°F to 180°F (-29°C to 82°C)

For proper gasket selection, refer to Technical Data Sheet G610.

Nominal Pipe Size		Y Coupling Length Inches mm	W Overall Width Inches mm	Coupling Movement Capability Inches mm
ANSI Inches DN	O.D. Inches mm			
1-1/4 32	1.660 42,4	4.190 106,42	9.750 247,65	0.125 3,18
1-1/2 40	1.900 48,3	4.440 112,77	9.625 244,48	0.125 3,18
2 50	2.375 60,3	4.880 123,95	10.875 276,23	0.125 3,18
2-1/2 65	2.875 73,0	5.500 139,70	10.750 273,05	0.125 3,18
- 65	2.996 76,1	5.750 146,05	11.750 298,45	0.125 3,18
3 80	3.500 88,9	6.500 165,10	11.750 298,45	0.125 3,18
4 100	4.500 114,3	7.750 196,85	12.937 328,60	0.250 6,35
- 125	5.500 139,7	9.750 247,65	14.250 361,95	0.250 6,35
5 125	5.562 141,3	9.750 247,65	14.250 361,95	0.250 6,35
- 150	6.500 165,1	10.690 271,53	15.500 393,70	0.250 6,35
6 150	6.625 168,3	10.690 271,53	15.500 393,70	0.250 6,35
8 200	8.625 219,1	13.560 344,42	18.250 463,55	0.250 6,35
10 250	10.750 273,0	16.380 416,05	20.125 511,18	0.250 6,35
12 300	12.750 323,9	18.880 479,55	22.375 568,33	0.250 6,35
14 350	14.000 355,6	20.380 517,88	24.125 612,78	0.250 6,35
16 400	16.000 406,4	22.640 575,05	27.870 707,89	0.250 6,35

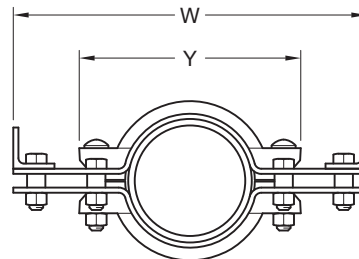


FIGURE 1
FIGURE 7550 EXPANSION JOINTS
NOMINAL DIMENSIONS FOR END ELEVATION VIEW

Nominal Pipe Size		Flexible* Coupling Figure and Quantity	X Coupling Height Inches mm	Z Tie Location Inches mm	L Compressed Length Inches mm	L Expanded Length Inches mm	Total Movement Capability Inches mm	Approx. Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm							
1-1/4 32	1.660 42,4	705 / 8	2.560 65,02	1.250 31,75	26.625 676,28	27.625 701,68	1.000 25,40	26 11,8
1-1/2 40	1.900 48,3	705 / 8	2.750 69,85	1.250 31,75	26.625 676,28	27.625 701,68	1.000 25,40	28 12,7
2 50	2.375 60,3	705 / 8	3.250 82,55	1.250 31,75	26.625 676,28	27.625 701,68	1.000 25,40	31 14,1
2-1/2 65	2.875 73,0	705 / 8	3.690 93,73	1.250 31,75	26.625 676,28	27.625 701,68	1.000 25,40	37 16,8
- 65	2.996 76,1	705 / 8	4.000 101,60	1.250 31,75	26.625 676,28	27.625 701,68	1.000 25,40	46 20,9
3 80	3.500 88,9	705 / 8	4.380 111,25	1.250 31,75	26.625 676,28	27.625 701,68	1.000 25,40	49 22,2
4 100	4.500 114,3	705 / 4	5.690 144,53	1.250 31,75	17.500 444,50	18.500 469,90	1.000 25,40	36 16,3
- 125	5.500 139,7	705 / 4	6.810 172,97	1.250 31,75	17.500 444,50	18.500 469,90	1.000 25,40	54 24,5
5 125	5.562 141,3	705 / 4	6.880 174,75	1.250 31,75	17.500 444,50	18.500 469,90	1.000 25,40	53 24,0
- 150	6.500 165,1	705 / 4	7.750 196,85	1.250 31,75	17.500 444,50	18.500 469,90	1.000 25,40	58 26,3
6 150	6.625 168,3	705 / 4	7.940 201,68	1.250 31,75	17.500 444,50	18.500 469,90	1.000 25,40	59 26,8
8 200	8.625 219,1	705 / 4	10.190 258,83	1.375 34,93	19.125 488,95	20.125 511,17	1.000 25,40	104 47,2
10 250	10.750 273,0	705 / 4	12.690 322,33	1.375 34,93	21.500 546,10	22.500 571,50	1.000 25,40	179 81,2
12 300	12.750 323,9	705 / 4	14.940 379,48	1.375 34,93	21.500 546,10	22.500 571,50	1.000 25,40	235 106,6
14 350	14.000 355,6	707 / 4	16.670 423,42	1.500 38,10	23.125 587,40	24.125 612,77	1.000 25,40	305 138,4
16 400	16.000 406,4	707 / 4	18.830 478,28	1.500 38,10	24.125 612,77	25.125 638,17	1.000 25,40	371 168,2

* 1-1/4 - 8 inch Figure 405 Stainless Steel Couplings Available upon Request

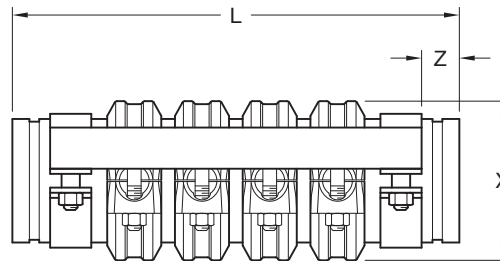


FIGURE 2
FIGURE 7550-1 EXPANSION JOINTS
NOMINAL DIMENSIONS FOR SIDE ELEVATION VIEW

Nominal Pipe Size		Flexible* Coupling Figure and Quantity	X Coupling Height Inches mm	Z Tie Location Inches mm	L Compressed Length Inches mm	L Expanded Length Inches mm	Total Movement Capability Inches mm	Approx. Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm							
1-1/4 32	1.660 42,4	705 / 10	2.560 65,02	1.250 31,75	31.375 796,93	32.625 828,67	1.250 31,75	31 14,1
1-1/2 40	1.900 48,3	705 / 10	2.750 69,85	1.250 31,75	31.375 796,93	32.625 828,67	1.250 31,75	33 15,0
2 50	2.375 60,3	705 / 10	3.250 82,55	1.250 31,75	31.375 796,93	32.625 828,67	1.250 31,75	37 16,8
2-1/2 65	2.875 73,0	705 / 10	3.690 93,73	1.250 31,75	31.375 796,93	32.625 828,67	1.250 31,75	45 20,4
- 65	2.996 76,1	705 / 10	4.000 101,60	1.250 31,75	31.375 796,93	32.625 828,68	1.250 31,75	56 25,4
3 80	3.500 88,9	705 / 10	4.380 111,25	1.250 31,75	31.375 796,93	32.625 828,67	1.250 31,75	59 26,8
4 100	4.500 114,3	705 / 5	5.690 144,53	1.250 31,75	20.000 508,00	21.250 539,75	1.250 31,75	43 19,5
- 125	5.500 139,7	705 / 5	6.810 172,97	1.250 31,75	20.000 508,00	21.250 539,75	1.250 31,75	64 29,0
5 125	5.562 141,3	705 / 5	6.880 174,75	1.250 31,75	20.000 508,00	21.250 539,75	1.250 31,75	64 29,0
- 150	6.500 165,1	705 / 5	7.750 196,85	1.250 31,75	20.000 508,00	21.250 539,75	1.250 31,75	69 31,3
6 150	6.625 168,3	705 / 5	7.940 201,68	1.250 31,75	20.000 508,00	21.250 539,75	1.250 31,75	70 31,8
8 200	8.625 219,1	705 / 5	10.190 258,83	1.375 34,93	22.000 558,80	23.250 590,55	1.250 31,75	125 56,7
10 250	10.750 273,0	705 / 5	12.690 322,33	1.375 34,93	24.500 622,30	25.750 654,05	1.250 31,75	215 97,5
12 300	12.750 323,9	705 / 5	14.940 379,48	1.375 34,93	24.500 622,30	25.750 654,05	1.250 31,75	281 127,5
14 350	14.000 355,6	707 / 5	16.670 423,42	1.500 38,10	26.500 673,10	27.750 704,85	1.250 31,75	365 138,4
16 400	16.000 406,4	707 / 5	18.830 478,28	1.500 38,10	27.500 698,50	28.750 730,25	1.250 31,75	441 168,2

* 1-1/4 - 8 inch Figure 405 Stainless Steel Couplings Available upon Request

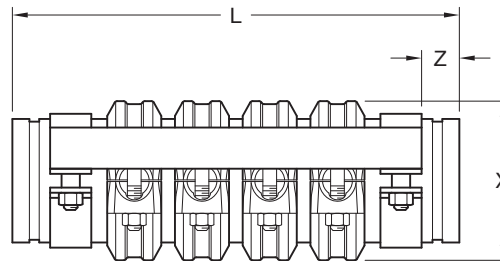


FIGURE 3
FIGURE 7550-13 EXPANSION JOINTS
NOMINAL DIMENSIONS FOR SIDE ELEVATION VIEW

Nominal Pipe Size		Flexible* Coupling Figure and Quantity	X Coupling Height Inches mm	Z Tie Location Inches mm	L Compressed Length Inches mm	L Expanded Length Inches mm	Total Movement Capability Inches mm	Approx. Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm							
1-1/4 32	1.660 42,4	705 / 12	2.560 65,02	1.250 31,75	36.125 917,58	37.625 955,68	1.500 38,10	37 16,8
1-1/2 40	1.900 48,3	705 / 12	2.750 69,85	1.250 31,75	36.125 917,58	37.625 955,68	1.500 38,10	39 17,7
2 50	2.375 60,3	705 / 12	3.250 82,55	1.250 31,75	36.125 917,58	37.625 955,68	1.500 38,10	43 19,5
2-1/2 65	2.875 73,0	705 / 12	3.690 93,73	1.250 31,75	36.125 917,58	37.625 955,68	1.500 38,10	52 23,6
- 65	2.996 76,1	705 / 12	4.000 101,60	1.250 31,75	36.125 917,58	37.625 955,68	1.500 38,10	66 29,9
3 80	3.500 88,9	705 / 12	4.380 111,25	1.250 31,75	36.125 917,58	37.625 955,68	1.500 38,10	69 31,3
4 100	4.500 114,3	705 / 6	5.690 144,53	1.250 31,75	22.500 571,50	24.000 609,60	1.500 38,10	50 22,7
- 125	5.500 139,7	705 / 6	6.810 172,97	1.250 31,75	22.500 571,50	24.000 609,60	1.500 38,10	74 33,6
5 125	5.562 141,3	705 / 6	6.880 174,75	1.250 31,75	22.500 571,50	24.000 609,60	1.500 38,10	74 33,6
- 150	6.500 165,1	705 / 6	7.750 196,85	1.250 31,75	22.500 571,50	24.000 609,60	1.500 38,10	80 36,3
6 150	6.625 168,3	705 / 6	7.940 201,68	1.250 31,75	22.500 571,50	24.000 609,60	1.500 38,10	81 36,7
8 200	8.625 219,1	705 / 6	10.190 258,83	1.375 34,93	24.875 631,82	26.375 669,93	1.500 38,10	145 65,8
10 250	10.750 273,0	705 / 6	12.690 322,33	1.375 34,93	27.500 698,50	29.000 736,60	1.500 38,10	251 113,8
12 300	12.750 323,9	705 / 6	14.940 379,48	1.375 34,93	27.500 698,50	29.000 736,60	1.500 38,10	328 148,8
14 350	14.000 355,6	707 / 6	16.670 423,42	1.500 38,10	29.875 758,82	31.375 796,93	1.500 38,10	425 192,8
16 400	16.000 406,4	707 / 6	18.830 478,28	1.500 38,10	30.875 784,22	32.375 822,32	1.500 38,10	512 232,2

* 1-1/4 - 8 inch Figure 405 Stainless Steel Couplings Available upon Request

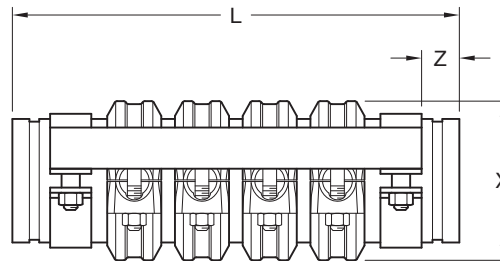


FIGURE 4
FIGURE 7550-15 EXPANSION JOINTS
NOMINAL DIMENSIONS FOR SIDE ELEVATION VIEW

Nominal Pipe Size		Flexible* Coupling Figure and Quantity	X Coupling Height Inches mm	Z Tie Location Inches mm	L Compressed Length Inches mm	L Expanded Length Inches mm	Total Movement Capability Inches mm	Approx. Weight Lbs. kg
ANSI Inches DN	O.D. Inches mm							
1-1/4 32	1.660 42,4	705 / 14	2.560 65,02	1.250 31,75	40.875 1038,23	42.625 1082,68	1.750 44,45	42 19,0
1-1/2 40	1.900 48,3	705 / 14	2.750 69,85	1.250 31,75	40.875 1038,23	42.625 1082,68	1.750 44,45	45 20,4
2 50	2.375 60,3	705 / 14	3.250 82,55	1.250 31,75	40.875 1038,23	42.625 1082,68	1.750 44,45	49 22,2
2-1/2 65	2.875 73,0	705 / 14	3.690 93,73	1.250 31,75	40.875 1038,23	42.625 1082,68	1.750 44,45	60 27,2
- 65	2.996 76,1	705 / 14	4.000 101,60	1.250 31,75	40.875 1038,23	42.625 1082,68	1.750 44,45	76 34,5
3 80	3.500 88,9	705 / 14	4.380 111,25	1.250 31,75	40.875 1038,23	42.625 1082,68	1.750 44,45	79 35,8
4 100	4.500 114,3	705 / 7	5.690 144,53	1.250 31,75	25.000 635,00	26.750 679,45	1.750 44,45	57 25,9
- 125	5.500 139,7	705 / 7	6.810 172,97	1.250 31,75	25.000 635,00	26.750 679,45	1.750 44,45	85 38,6
5 125	5.562 141,3	705 / 7	6.880 174,75	1.250 31,75	25.000 635,00	26.750 679,45	1.750 44,45	84 38,1
- 150	6.500 165,1	705 / 7	7.750 196,85	1.250 31,75	25.000 635,00	26.750 679,45	1.750 44,45	91 41,3
6 150	6.625 168,3	705 / 7	7.940 201,68	1.250 31,75	25.000 635,00	26.750 679,45	1.750 44,45	92 41,7
8 200	8.625 219,1	705 / 7	10.190 258,83	1.375 34,93	27.500 698,50	29.500 749,30	1.750 44,45	166 75,3
10 250	10.750 273,0	705 / 7	12.690 322,33	1.375 34,93	30.500 774,70	32.250 819,15	1.750 44,45	287 130,2
12 300	12.750 323,9	705 / 7	14.940 379,48	1.375 34,93	30.500 774,70	32.250 819,15	1.750 44,45	375 170,1
14 350	14.000 355,6	707 / 7	16.670 423,42	1.500 38,10	33.250 844,55	35.000 889,00	1.750 44,45	486 220,5
16 400	16.000 406,4	707 / 7	18.830 478,28	1.500 38,10	34.250 869,95	36.000 914,40	1.750 44,45	583 264,4

* 1-1/4 - 8 inch Figure 405 Stainless Steel Couplings Available upon Request

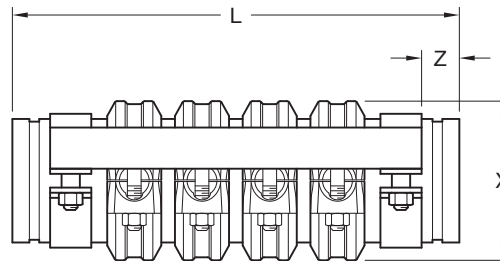


FIGURE 5
FIGURE 7550-75 EXPANSION JOINTS
NOMINAL DIMENSIONS FOR SIDE ELEVATION VIEW

Installation

The GRINNELL Figure 7550 Expansion Joint Assembly must be installed in accordance with this section.

WARNING

Failure to follow these instructions may result in improper product installation, joint failure or leakage, serious personal injury, and/or property damage.

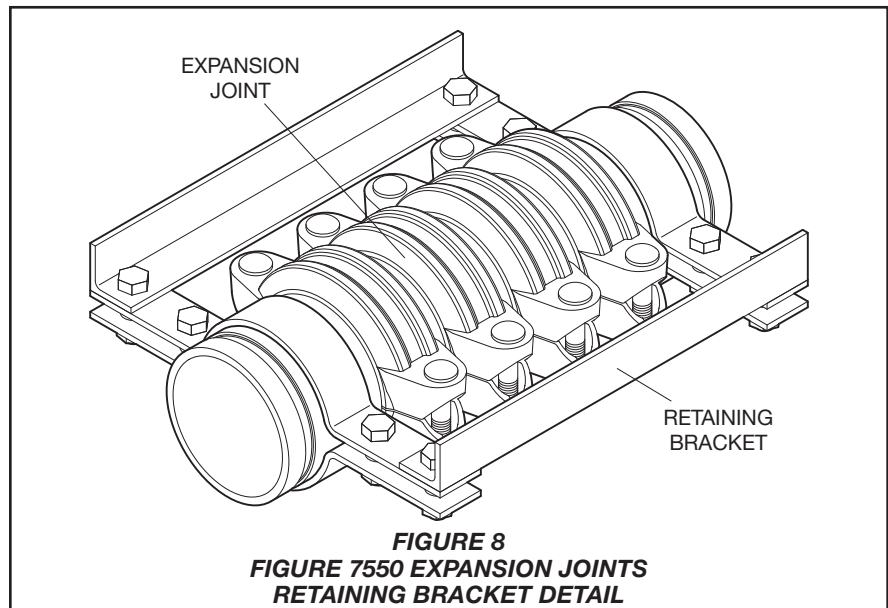
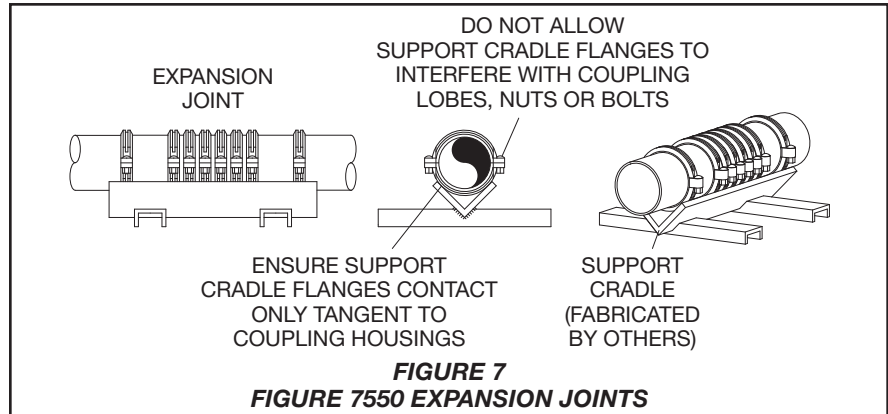
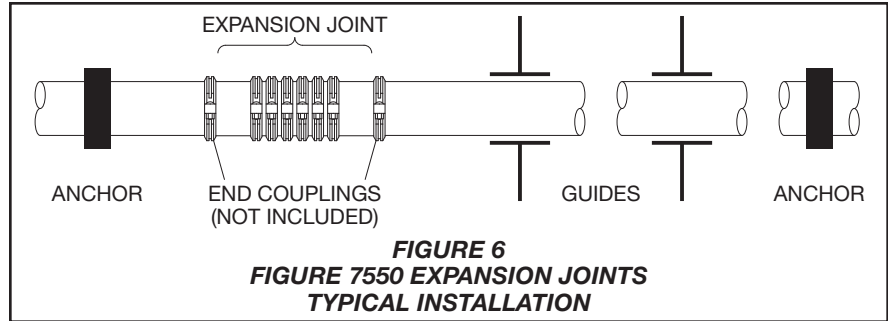
Step 1. Install the Figure 7550 Expansion Joint Assembly on straight pipe runs in the pipe system in accordance with standard coupling installation instructions (Figure 6).

Step 2. Verify that the installed Expansion Joint Assembly moves in the central direction of the pipe axis.

Step 3. Anchor the pipe system and install Pipe Guides (Figure 6).

Step 4. When using a support cradle, ensure that the support cradle flanges make contact only with the tangent to the coupling housings. Ensure these flanges do not interfere with the coupling lobes, nuts, or bolts (Figure 7).

Step 5. After the pipe system is properly anchored and guided, remove the Retaining Bracket Assembly from the Figure 7550 Expansion Joint Assembly (Figure 8).



Nominal Pipe Size: Inches				
Pipe Finish	<input type="checkbox"/> Black	<input type="checkbox"/> Galvanized	<input type="checkbox"/> Stainless Steel	
Coupling Finish	<input type="checkbox"/> Orange Paint	<input type="checkbox"/> RAL Red	<input type="checkbox"/> Galvanized	<input type="checkbox"/> Stainless Steel
Gasket Material*	<input type="checkbox"/> Grade "E" EPDM	<input type="checkbox"/> Grade "T" Nitrile	<input type="checkbox"/> Grade "O" Fluoroelastomer	<input type="checkbox"/> Grade "L" Silicone
Factory Preset	<input type="checkbox"/> Fully Expanded	<input type="checkbox"/> Fully Compressed	Intermediate**	
			%	
Total Required Movement	<input type="checkbox"/> 1.000	<input type="checkbox"/> 1.250	<input type="checkbox"/> 1.500	<input type="checkbox"/> 1.750
<p>* These products are assembled with a silicone-based lubricant. ** For intermediate factory preset indicate percentage of movement from compressed position</p> <p style="text-align: center;">FIGURE 9 ORDERING WORKSHEET</p>				

Ordering Procedure

GRINNELL Products are available globally through a network of distribution centers. Visit www.grinnell.com for the nearest distributor. When placing an order, indicate the full product name.

Use the worksheet shown in Figure 9 to specify information required for ordering expansion joints.

Specify quantity, nominal pipe size, (ANSI or O.D.), figure number (Figure 7550 Flexible Coupling), and type of gasket:

- Grade "E" EPDM
- Grade "L" Silicone
- Grade "O" Fluoroelastomer
- Grade "T" Nitrile