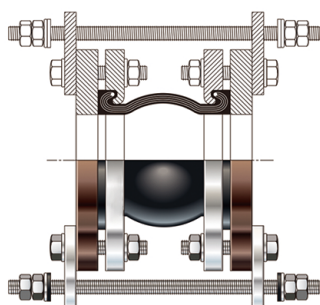
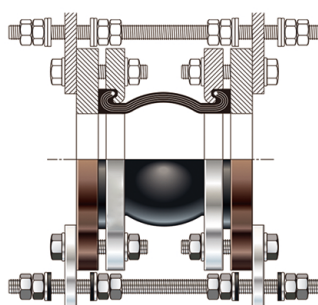


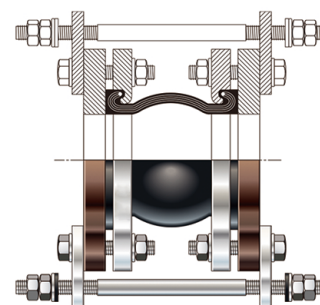
Control Units



STYLE:LR
LIMIT ROD



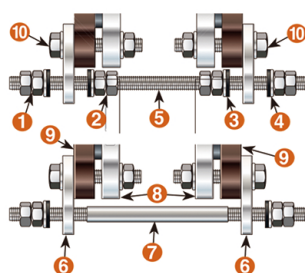
STYLE:CR
CONTROL ROD



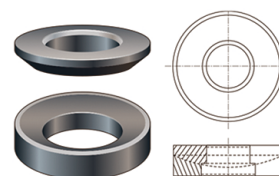
STYLE:CS
COMPRESSION SLEEVE



Typical end view of a 2 rod control unit, the rods should be equally spaced around the joint flange.



Item #	Part
1	Outside Nuts
2	Inside Nuts
3	Rubber Washer
4	Metal Washer
5	Control Rod
6	Control Plate
7	Compression Sleeve
8	EJ Flange
9	Mating Flange
10	Flange Bolt and Nut



As an option spiral washers can be used on the control unit when significant lateral offsets are encountered.

A control unit assembly is a system of two or more control rods placed across an expansion joint from flange to flange to minimize possible damage to the expansion joint caused by excessive motion of the pipeline. The control rod assemblies are set at the maximum allowable expansion and/or contraction of the joint and will absorb the static pressure thrust developed at the expansion joint. When used in this manner, they are an additional safety factor, minimizing possible failure of the expansion joint and possible damage to the equipment. Control units will adequately protect the joints, but the user should be sure that the pipe flange strength is sufficient to withstand total force that will be encountered.

Extension

Control units must be used when it is not feasible in a given structure to provide adequate anchors in the proper location. In such cases, the static pressure thrust on the system will cause the expansion joint to extend to the limit set by the control rods which will then preclude the possibility of further motion that would over-elongate the joint. Despite the limiting action that control rods have on the joint, they must be used when proper anchoring cannot be provided. It cannot be emphasized too strongly that rubber expansion joints, by virtue of their function, are not designed to take end thrusts and, in all cases where such are likely to occur, proper anchoring is essential. If this fact is ignored, premature failure of the expansion joint is a forgone conclusion.

Control Units								
Nominal Pipe Size	Maximum Control Rod Plate O.D.	Maximum Rod Diameter	Maximum Control Plate Thickness	maximum Tester Surge Pressure Of the System (test pressure is 1.5 times of the working pressure)				
				Number Of Control Rods Recommended				
Inches				2	3	4	6	8
1	8.375	1/2	7/16	949				
1 1/4	9.75	1/2	7/16	830				
1 1/2	9.875	1/2	7/16	510				
2	11.25	5/8	7/16	661				
2 1/2	12.25	5/8	7/16	529				
3	13.25	5/8	7/16	441				
3 1/2	12.625	5/8	7/16	365	547	729		
4	13.5	5/5	7/16	311	467	622		
5	14.5	5/5	7/16	235	353	470		
6	15.5	5/8	7/16	186	278	371		
8	19.125	3/4	7/16	163	244	326		
10	21.625	7/8	3/4	163	244	325	488	
12	24.625	1	3/4	160	240	320	481	
14	26.625	1	3/4	112	167	223	335	
16	30.125	1-1/8	3/4	113	170	227	340	453
18	31.625	1-1/8	3/4	94	141	187	181	375
20	34.125	1-1/8	3/4	79	118	158	236	315
22	36.125	1-1/4	1	85	128	171	256	342
24	38.625	1-1/4	1	74	110	147	221	294
26	40.825	1-1/4	1	62	93	124	186	248
28	44.125	1-3/8	1.25	65	98	130	195	261
30	46.375	1-1/2	1.25	70	105	141	211	281
32	49.375	1-1/2	1.25	63	94	125	188	251
34	51.375	1-5/8	1.5	72	107	143	215	286
36	53.625	1-3/4	1.5	69	103	138	207	276

Maximum Pressure For Unanchored Control Units			
Test - Design - Surge - Operating			
Nominal pipe Size	Style	SA, ST, STF, SA, WAF	DA
1-4"		175	130
5-10"		130	130
12-14"		85	85
16-24"		40	40
26-30"		30	30

Recommended rod units in	
1"-8"	2 rods
10"-14"	3 rods
16"-24"	4 rods