

MENTO

Your link to improved performance

Composite Type Rupture Disc



COMPOSITE* TYPE RUPTURE DISC

What is a Composite Type Rupture Disc?

A Composite Type Rupture Disc is a differential pressure relief device used to protect pressurized systems, equipment, and vessels from a potentially damaging overpressure condition. Continental's Composite Rupture Discs are designed to provide instantaneous, full-opening pressure relief.

Continental Disc offers two Composite Type rupture disc design styles, a preformed style, like the CDC or PLV Rupture Disc; and a flat style, like C.D.C.'s ENVIRO-SEAL Rupture Disc.

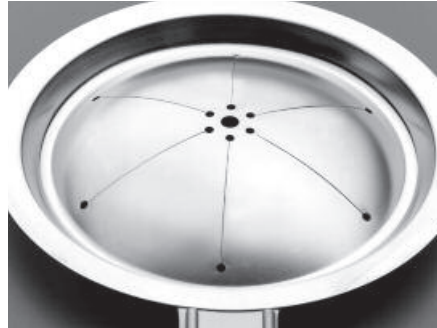
Preformed Composite Rupture Disc

A Preformed Composite Rupture Disc consists of two or more components of metallic or non-metallic materials. These components generally include a metallic top section, a metallic or nonmetallic seal member, and an optional vacuum support.

Preformed Composite Rupture Disc Features:

- Excellent performance in low pressure applications
- Operation to 80% of the rupture disc's rated (marked) burst pressure
- For use in gaseous or liquid service
- Made from a variety of corrosion resistant materials
- Non-fragmenting design when used with a non-metallic seal
- Ideal for use under a safety relief valve to isolate the valve from process media
- Provided with Continental's unique Three-Dimensional Flow Direction Tag as a standard

Unique Seven-Hole Design



Continental's Preformed Composite Rupture Discs also feature our seven-hole pattern, positioned at the apex of the rupture disc's top section. This unique configuration, in combination with the pre-cut sections along the dome, provide non-fragmenting characteristics when used with a non-metallic or fluoropolymer seal. By using this seven-hole design, thicker, more durable materials can be used to manufacture the rupture disc while still achieving the high 80% operating-to-burst-pressure ratio.

Various seal material options, such as fluoropolymers and exotic metals, help insure excellent corrosion resistance. Continental's non-metallic seals are essential to minimize fragmentation. When ordering, please specify if your application requires a non-fragmenting rupture disc.

Recommended Operating Conditions

Continental's Preformed Composite Rupture Discs can be used in a variety of applications, including equipment operating at up to 80% of the rupture disc's rated (stamped) burst pressure and systems having either liquid or gas processes.

Under ideal operating conditions, such as static pressure and a temperature well below the maximum recommended for the rupture disc material used, Preformed Composite Rupture Discs may be subjected to operating pressures exceeding 80% of the rated (stamped) burst pressure. Contact the factory for additional information about the use of a Composite Rupture Disc above this 80% operating ratio.

Sizes and Materials

Sizes ranging from 1" through 30" (25mm to 750mm) are available with burst pressures from 1.5 psig to 1440 psig (0,10 barg to 100 barg). Because of the availability of a variety of seal materials, these rupture discs can be used in service temperatures of up to 1000°F (542°C) and can resist most corrosive and atmospheric conditions. The metallic top section can be manufactured from various materials to meet the needs of each individual application.





WEIGHTS AND DIMENSIONS

Table VI - 30° Insert Holder Weights and Dimensions

Nominal Size	ANSI		DIN		JIS		Height (in / mm)	Weight (lbs / kg)
	Class	Outside Dia. in / mm	Class	Outside Dia. mm	Class	Outside Dia. mm		
1" 25mm	150	2.50 / 63,5					1.67 / 42	1.9 / 0,90
	300 / 600	2.75 / 69,9	10 / 40	69,9	10 / 20	69,9	1.67 / 42	2.5 / 1,1
			64 / 160	82,0	30 / 40	76,0	1.67 / 42	2.9 / 1,3
			250	82,0			2.38 / 60	4.9 / 2,2
	900 / 1500	3.00 / 76,2					2.38 / 60	4.9 / 2,2
	2500	3.25 / 82,6					2.38 / 60	4.1 / 1,9
						2.59 / 66	5.4 / 2,4	
1 1/2" 40mm	150	3.25 / 82,6					1.67 / 42	3.0 / 1,4
					10 / 20	86,0	1.67 / 42	3.4 / 1,5
	300 / 600	3.63 / 92,2	10 / 40	92,2			1.67 / 42	4.0 / 1,8
	900 / 1500	3.75 / 95,3					2.66 / 68	6.9 / 2,7
					30 / 40	97,0	1.67 / 42	4.5 / 2,0
			64 / 160	102,0			2.66 / 68	8.1 / 3,7
		250	108,0			2.66 / 68	10 / 4,5	
						3.63 / 92	14 / 6,5	
2" 50mm	150	4.00 / 101,6					1.67 / 42	3.6 / 1,6
					10	101,6	1.67 / 42	3.6 / 1,6
	300 / 600	4.25 / 108,0	10 / 40	108,0	16 / 20	101,6	1.67 / 42	4.3 / 2,0
			64	111,0	30 / 40	111,0	1.67 / 42	4.8 / 2,2
			100 / 160	118,0			3.15 / 80	11 / 5,0
			250	123,0			3.15 / 80	13 / 5,9
						3.15 / 80	17 / 7,8	
						3.71 / 94	22 / 10	
3" 80mm	150	5.25 / 133,4					1.67 / 42	5.2 / 2,4
					10	131,0	1.67 / 42	5.5 / 2,5
					16 / 20	137,0	1.67 / 42	6.1 / 2,8
	300 / 600	5.75 / 146,1	10	142,0			2.13 / 54	8.9 / 4,0
			16 / 40	142,0			2.13 / 54	8.9 / 4,0
			64	146,1	30 / 40	146,1	2.13 / 54	10 / 4,5
		100 / 160	153,0			3.21 / 82	19 / 8,6	
						3.21 / 82	23 / 10	
						3.71 / 94	29 / 13	
						3.71 / 94	29 / 13	
						4.15 / 105	44 / 20	
4" 100mm							1.67 / 42	6.0 / 2,7
			10 / 16	162,0	16 / 20	156,0	1.67 / 42	7.4 / 3,4
			25 / 40	168,0	30	168,0	2.15 / 55	12 / 5,4
	150	6.75 / 171,5	64	173,0			1.67 / 42	9.1 / 4,1
	300	7.00 / 177,8					3.13 / 79	18 / 8,3
							2.15 / 55	13 / 5,9
				40	180,0	2.15 / 55	14 / 6,4	
						3.63 / 92	26 / 12	
						3.13 / 79	25 / 11	
						4.35 / 111	45 / 20	
						3.63 / 92	37 / 17	
						4.35 / 111	47 / 22	
						6.15 / 156	91 / 41	
6" 150mm	150	8.63 / 219,2	10 / 16	217,0	10	217,0	2.06 / 52	16 / 7,2
			25 / 40	223,0			2.06 / 52	17 / 7,7
					16 / 20	235,0	2.93 / 74	26 / 12
			64	247,0			2.06 / 52	22 / 9,7
	300	9.75 / 247,7			30	247,7	3.96 / 101	55 / 25
			100 / 160	257,0			2.93 / 74	37 / 17
				40	262,0	4.53 / 115	71 / 32	
						2.93 / 74	44 / 20	
						3.96 / 101	66 / 30	
						4.53 / 115	95 / 43	
						6.13 / 155	168 / 76	
8" 200mm	150	10.88 / 276,4	10 / 16	272,0	10	267,0	2.31 / 58	25 / 11
							2.31 / 58	27 / 12
					16 / 20	280,0	2.31 / 58	29 / 13
			25	283,0			2.31 / 58	31 / 14
			40	290,0			3.30 / 84	44 / 20
					30	293,0	3.30 / 84	48 / 22
						3.30 / 84	50 / 23	
						3.30 / 84	58 / 26	
						4.50 / 114	83 / 38	
						3.30 / 84	63 / 29	
						4.50 / 114	91 / 41	

MENTO

Nominal Size	ANSI		DIN		JIS		Height	Weight	
	Class	Outside Dia. in / mm	Class	Outside Dia. mm	Class	Outside Dia. mm	(in / mm)	(lbs / kg)	
10" 250mm	150	13.25 / 336,6	10 / 16	327,0	10	330,0	2.55 / 65	34 / 15	
			25	340,0			2.55 / 65	36 / 16	
			40	352,0			4.18 / 106	40 / 18	
			16 / 20	353,0			4.18 / 106	69 / 31	
							30	357,0	4.18 / 106
	300	14.13 / 358,9	64	364,0	40	377,0	2.55 / 65	49 / 22	
							4.18 / 106	86 / 39	
							4.18 / 106	88 / 40	
							5.00 / 127	128 / 58	
							4.18 / 106	107 / 49	
600	15.63 / 397,0	100	391,0			5.00 / 127	163 / 74		
						5.00 / 127	171 / 78		
12" 300mm	150	16.00 / 406,4	10	377,0	16 / 20	403,0	2.55 / 65	36 / 16	
			16	383,0			2.55 / 65	41 / 19	
			25	400,0			2.55 / 65	42 / 19	
			40	417,0			4.13 / 105	46 / 21	
							30	417,0	4.13 / 105
	300	16.50 / 419,1	64	424,0	40	431,0	2.55 / 65	60 / 27	
							4.13 / 105	62 / 28	
							4.13 / 105	114 / 52	
							5.43 / 138	116 / 53	
							4.13 / 105	161 / 73	
600	17.88 / 454,2					4.13 / 105	130 / 59		
						5.43 / 138	211 / 96		
14" 350mm	150	17.63 / 447,8	10	437,0	16 / 20	447,8	2.75 / 70	39 / 18	
			16	443,0			2.75 / 70	46 / 21	
			25	457,0			2.75 / 70	60 / 27	
			40	474,0			2.75 / 70	65 / 29	
							30	462,0	2.75 / 70
	300	19.00 / 482,6			40	474,0	4.37 / 111	123 / 56	
							4.37 / 111	130 / 59	
							4.37 / 111	146 / 66	
							4.37 / 111	149 / 68	
							4.37 / 111	159 / 77	
150	20.13 / 511,3					2.94 / 75	95 / 43		
300	21.13 / 536,7	40	546,0			4.56 / 116	191 / 87		
						4.56 / 116	207 / 94		
18" 450mm	150	21.50 / 546,1			16 / 20	572,0	3.13 / 79	94 / 43	
	300	23.38 / 593,9					3.13 / 79	125 / 57	
	600	24.00 / 609,6					4.87 / 124	239 / 108	
	150	23.75 / 603,3	16	617,0					6.12 / 155
20" 500mm	150	23.75 / 603,3	16	617,0	16 / 20	627,0	3.46 / 90	123 / 56	
							3.46 / 90	143 / 65	
	300	25.63 / 651,0						3.46 / 90	158 / 72
								5.06 / 129	287 / 130
24" 600mm	150	28.13 / 714,5	16	734,0	16 / 20	731,0	3.87 / 98	183 / 83	
							3.87 / 98	215 / 97	
	300	30.38 / 771,7						3.87 / 98	220 / 100
								5.56 / 141	426 / 193
30" 750mm	150	34.63 / 879,6					4.43 / 113	292 / 132	
							4.43 / 113	328 / 149	
							4.43 / 113	385 / 175	
					16	893,0			
					20	914,0			

NOTE: Consult factory for availability of flange classes or sizes not listed.

COMPOSITE TYPE RUPTURE DISC

Each application has its own unique operating characteristics. Many variables such as pulsations, cycling, and operating-to-burst-pressure ratio must be considered in order to achieve maximum service life from the rupture disc.

Versatile operating characteristics, along with numerous customizable options like protective liners, protective rings, vacuum or backpressure support, gaskets, and Continental's exclusive B.D.I.® (Burst Disc Indicator) Alarm System provide a comprehensive selection to match Preformed Composite Rupture Discs with a wide range of system protection applications.

Seating Configurations

Preformed Composite Rupture Discs are available in a 30° angular "Light Lip" seat for normal operating pressures and in a "Flat Seat" design for superior metal-to-metal sealing. Refer to C.D.C. Bulletin 2-2203-2 for details.

Corrosion Protection

The design of Continental's Preformed Composite Rupture Discs allows the use of highly corrosion resistant seal materials. This is possible because the burst pressure rating of the rupture disc is determined by the slotted

metal top section. Therefore, the seal or liner can be made from thin materials of anything from fluoropolymer to silver or gold and still provide a wide range of burst pressures – economically.

Protective Rings

Protective rings may be used on rupture discs made of thin materials or where delicate seals are used. These rings provide rigidity for easier handling and also help protect the rupture disc from foreign materials in the seating area, where a rupture disc holder may have become pitted or corroded from extended use.

Vacuum Support, Backpressure Support

In some burst pressures and materials, it is necessary to support a rupture disc when system backpressure occurs. Vacuum supports for Preformed Composite Rupture Discs, manufactured for and directly attached to the rupture disc, are available to withstand a full system vacuum to 14.7 psig (1,01 barg). For backpressures in excess of full vacuum, C.D.C. can supply a backpressure support specifically designed for your operating conditions.

When ordering a Preformed Composite Rupture Disc that will be subjected to a vacuum condition, clearly specify the conditions that the rupture disc will encounter. C.D.C. will supply the applicable support.



Three-Dimensional Flow Direction Tag*

Continental's innovative Three-Dimensional Flow Direction Tag provides instant visual verification that the rupture disc has been correctly oriented into the system. The 3-D tag extends beyond the holder to insure clear visibility for easier installation and inspection after the rupture disc has been installed.



* Rupture disc tags are not attached to rupture discs for use in Screw Type or Union Type Holders. Tags can be attached to a rupture disc for use in Union Type Holders when specified. Consult the factory for more information.

COMPOSITE TYPE RUPTURE DISC

Preformed Composite Rupture Disc Types

Continental Disc manufactures several Preformed Composite Rupture Discs to fit numerous applications.

CDC Type



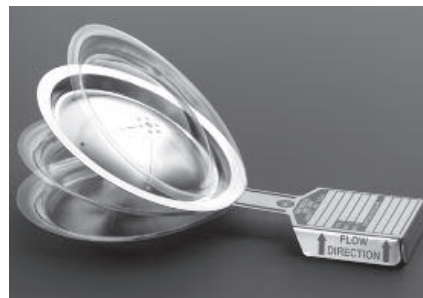
The CDC Type Rupture Disc is the basic Preformed Composite Rupture Disc design consisting of a slotted metallic top section and a fluoropolymer or metallic seal on the top section's process side. This basic design provides corrosion protection and excellent performance in low pressure applications where no backpressure or vacuum is expected.

CDCV Type



The CDCV Type Rupture Disc is the same design as the CDC Type Rupture Disc, with the addition of a vacuum support installed on the process side of the seal. This design provides process side corrosion protection and support for full vacuum conditions.

PL and PLV Type



The PL Type Rupture Disc is similar to the CDC type, with the addition of a corrosion resistant fluoropolymer liner placed on the outlet side of the top section.

The PLV Type Rupture Disc is the same design as the PL Type Rupture Disc, but with the addition of a vacuum support. The vacuum support on this design, however, is located on the outlet side of the top section. The outlet liner is positioned above the vacuum support, protecting the metallic top section and the vacuum support from corrosive elements in the atmosphere.

ALARM SYSTEM

B.D.I.* (Burst Disc Indicator) Alarm System

In situations where immediate notification of pressure relief is critical, Continental's B.D.I. (Burst Disc Indicator) Alarm System should be used to automatically notify system operators that a rupture disc has burst.

The heart of the B.D.I. Alarm System is the B.D.I. Alarm Strip, a closed-path electrical strip adhered to a fluoropolymer membrane, which installs in conjunction with the rupture disc. When the rupture disc bursts, the alarm strip is severed, disrupting the electrical current supplied from a connected monitoring device. This "open-circuit" creates a signal to initiate alarms or equipment controlled by the monitoring device.

The B.D.I. Alarm Strip is computer compatible, resistant to corrosives, and operational over a wide range of temperatures.

Continental Disc also offers a full line of B.D.I. Alarm Monitors providing several beneficial features including visual and/or auditory alarm signals, as well as multi-channel modular designs. Intrinsically safe designs are also available. (Refer to C.D.C. Bulletin no. 5-7701-5)



Manufacturing Range

The manufacturing range is defined as the allowable pressure range within which a rupture disc is rated. It is based upon the customer specified burst pressure. The manufacturing ranges for Continental's Preformed Composite Rupture Discs are outlined in Table I. Special reduced manufacturing ranges are available upon request including 25%, 50%, and 75%. Please consult your C.D.C. representative or the factory for additional information.

Burst Tolerance

In accordance with ASME Code, a tolerance is applied to the rated (marked) burst pressure of a rupture disc. The rated (marked) burst pressure is established after the rupture disc has been manufactured by testing a minimum of two rupture discs and averaging the pressure at which each rupture disc bursts. This average is the rated (marked) burst pressure. A tolerance is then applied to this pressure to determine the maximum expected variation from the rupture disc's rated (marked) burst pressure.

As per ASME Code, the preformed Composite Rupture Disc is designed with a burst tolerance of ± 2 psig (0,138 barg) for pressures up to and including 40 psig (2,76 barg) and $\pm 5\%$ for burst pressures above 40 psig (2,76 barg). Burst tolerances for Composite Rupture Discs rated below 15 psig (1,03 barg) are outlined in Table I. The burst tolerance applies only to the rated (marked) burst pressure on the rupture disc.

Recommended Temperatures

In general, burst pressures will decrease as operating temperatures increase. Table II shows the maximum temperatures for commonly used rupture disc materials, seals, and liners.

Table I - Manufacturing Range / Burst Tolerance

Rupture Disc Types	Specified Burst Pressure		Manufacturing Range		Rated (Marked) Burst Tolerance
	psig	barg	% Under	% Over	
CDC CDCV PL PLV	2 - 5	0,138 - 0,345	-40	+40	$\pm 25\%$
	6 - 8	0,414 - 0,552	-40	+40	$\pm 20\%$
	9 - 12	0,621 - 0,815	-30	+30	$\pm 15\%$
	13 - 14	0,896 - 0,965	-10	+20	$\pm 10\%$
	15 - 19	1,03 - 1,31	-10	+20	± 2 psig ($\pm 0,138$ barg)
	20 - 40	1,38 - 2,76	-4	+14	± 2 psig ($\pm 0,138$ barg)
	41 - 50	2,83 - 3,45	-4	+14	$\pm 5\%$
	51 - 100	3,52 - 6,90	-4	+10	
	101 - 500	6,96 - 34,48	-4	+7	
	501 - UP	34,54 - UP	-3	+6	

Table II - Maximum Temperature for Rupture Disc Materials, Liners, and Coatings

Materials	Temperature Rating	
	°F	°C
Aluminum / Silver	260	127
Nickel / Monel [®] *	800	427
316SS	900	482
Inconel [®] *	1000	538
FEP Seal or Lining	400	204
TFE or PFA Seal or Lining	500	260

* Monel and Inconel are registered trademarks of the Inco family of companies.



SPECIFICATIONS

Table III - Minimum / Maximum Burst Pressures for
Preformed Composite Rupture Discs @ 72° F (22° C)

White bar indicates "psig" • Grey bar indicates "barg"

Rupture Disc Nominal Size	Minimum Pressure for Preformed Composite Rupture Discs with fluoropolymer Seal							
	CDC		CDCV		PL		PLV	
	TFE	FEP, PFA	TFE	FEP, PFA	TFE	FEP, PFA	TFE	FEP, PFA
1 in	25.0	30.0	30.0	35.0	35.0	40.0	60.0	80.0
25mm	1,72	2,07	2,07	2,41	2,41	2,76	4,14	5,52
1-1/2 in	22.0	27.0	25.0	34.0	32.0	38.0	60.0	75.0
40mm	1,52	1,86	1,72	2,34	2,21	2,62	4,14	5,17
2 in	7.00	15.0	10.0	18.0	15.0	20.0	28.0	35.0
50mm	0,483	1,03	0,690	1,24	1,03	1,38	1,93	2,41
3 in	6.00	8.00	8.00	11.0	11.0	16.0	18.0	25.0
80mm	0,414	0,552	0,552	0,759	0,759	1,10	1,24	1,72
4 in	5.00	7.00	7.00	8.00	6.00	9.00	15.0	18.0
100mm	0,345	0,483	0,483	0,552	0,414	0,621	1,03	1,24
6 in	3.00	4.00	5.00	7.00	5.00	7.00	12.0	14.0
150mm	0,207	0,276	0,345	0,483	0,345	0,483	0,828	0,966
8 in	2.00	3.00	5.00	5.00	4.00	5.00	11.0	11.0
200mm	0,138	0,207	0,345	0,345	0,276	0,345	0,759	0,759
10 in	-	3.00	-	5.00	-	5.00	-	8.00
250mm	-	0,207	-	0,345	-	0,345	-	0,552
12 in	-	2.00	-	4.00	-	5.00	-	8.00
300mm	-	0,138	-	0,276	-	0,345	-	0,552
14 in	-	2.00	-	4.00	-	5.00	-	8.00
350mm	-	0,138	-	0,276	-	0,345	-	0,552
16 in	-	2.00	-	4.00	-	5.00	-	8.00
400mm	-	0,138	-	0,276	-	0,345	-	0,552
18 in	-	2.00	-	4.00	-	5.00	-	8.00
450mm	-	0,138	-	0,276	-	0,345	-	0,552
20 in	-	2.00	-	4.00	-	5.00	-	8.00
500mm	-	0,138	-	0,276	-	0,345	-	0,552
24 in	-	2.00	-	4.00	-	5.00	-	8.00
600mm	-	0,138	-	0,276	-	0,345	-	0,552
30 in	-	2.00	-	4.00	-	5.00	-	8.00
750mm	-	0,138	-	0,276	-	0,345	-	0,552

NOTE: 1. Minimum pressures in Table III are based upon the minimum of the manufacturing range @ 72°F (22°C). Preformed Composite Rupture Discs

specified at a minimum rating will have the manufacturing range added above the minimum pressure. For example, a 3" (80mm) CDC with FEP seal requested

to burst at 8 psig (0,55 barg) will have a standard manufacturing range of 8 psig to 14.4 psig (0,55 - 1,0 barg).



	Minimum Pressure for Preformed Composite Rupture Discs with Metallic Seal						Maximum Pressure for Composite Rupture Discs with:		Rupture Disc Nominal Size
	For CDC, CDCV Type Discs						Fluoropolymer Seal	Metallic Seal	
	Alum	Silver	Nickel	Monel	Inconel	316SS			
	38.0	150	190	230	292	442	500	1440	1 in
	2,62	10,3	13,1	15,9	20,1	30,5	34,5	99,3	25mm
	29.0	100	130	150	208	228	500	1440	1-1/2 in
	2,00	6,90	8,97	10,3	14,3	15,7	34,5	99,3	40mm
	17.0	60.0	78.0	90.0	124	208	290	1100	2 in
	1,17	4,14	5,38	6,21	8,55	14,3	20,0	75,9	50mm
	13.0	45.0	59.0	65.0	98.0	130	160	900	3 in
	0,897	3,10	4,07	4,48	6,76	8,97	11,0	62,1	80mm
	9.00	34.0	46.0	52.0	72.0	98.0	160	720	4 in
	0,621	2,34	3,17	3,59	4,97	6,76	11,0	49,7	100mm
	7.00	26.0	33.0	39.0	56.0	65.0	130	640	6 in
	0,483	1,79	2,28	2,69	3,86	4,48	8,97	44,1	150mm
	5.00	20.0	26.0	30.0	39.0	52.0	110	590	8 in
	0,345	1,38	1,79	2,07	2,69	3,59	7,59	40,7	200mm
	5.00	-	21.0	22.0	33.0	46.0	90.0	480	10 in
	0,345	-	1,45	1,52	2,28	3,17	6,21	33,1	250mm
	4.00	-	17.0	20.0	29.0	39.0	80.0	400	12 in
	0,276	-	1,17	1,38	2,00	2,69	5,52	27,6	300mm
	4.00	-	14.0	17.0	27.0	36.0	70.0	275	14 in
	0,276	-	0,966	1,17	1,86	2,48	4,83	19,0	350mm
	4.00	-	13.0	16.0	25.0	34.0	60.0	275	16 in
	0,276	-	0,897	1,10	1,72	2,34	4,14	19,0	400mm
	4.00	-	12.0	14.0	22.0	31.0	50.0	275	18 in
	0,276	-	0,828	0,966	1,52	2,14	3,45	19,0	450mm
	4.00	-	10.0	12.0	21.0	29.0	50.0	275	20 in
	0,276	-	0,690	0,828	1,45	2,00	3,45	19,0	500mm
	4.00	-	-	-	-	-	50.0	150	24 in
	0,276	-	-	-	-	-	3,45	10,3	600mm
	4.00	-	-	-	-	-	50.0	-	30 in
	0,276	-	-	-	-	-	3,45	-	750mm

2. Maximums included in Table III apply to all metals except silver. Consult your C.D.C. representative or the factory for maximum pressures for this material.

3. When ordering, please specify when a 1" (25mm), 1-1/2" (40mm) or 2" (50mm) rupture disc will be used in a Union Type Holder. Consult the factory if you require tags to be attached to rupture discs used in Union Type Holders.

4. For information concerning conditions or rupture disc sizes not shown, please consult your C.D.C. representative or the factory.

ENVIRO-SEAL RUPTURE DISCS

ENVIRO-SEAL Rupture Discs

In addition to the Preformed Composite Rupture Disc, Continental Disc also manufactures a flat composite rupture disc design, the ENVIRO-SEAL Rupture Disc. The ENVIRO-SEAL Rupture Disc is designed to provide economical protection for low pressure atmospheric storage vessels and to isolate the downstream side of pressure relief valves and other equipment from corrosive environments.

ENVIRO-SEAL Rupture Disc Features

- Excellent performance in low pressure applications
- Operation to 50% of the rupture disc's rated (marked) burst pressure
- For use in gaseous or liquid service
- Non-fragmenting design
- Ideal for use in isolating the downstream side of a pressure relief valve from process media
- Provided with a Three-Dimensional Flow Direction Tag as a standard

The ENVIRO-SEAL Rupture Disc is typically used as a corrosion barrier or environmental seal. It is a flat Composite style rupture disc that installs between standard bore ANSI, DIN, or JIS companion flanges.

The components of the ENVIRO-SEAL Rupture Disc typically consist of a metallic top section and a non-metallic seal on the process side, on both the process and the vent side, or between two metallic top sections.

The top section of the ENVIRO-SEAL Rupture Disc is designed for non-fragmentation, utilizing Continental's seven-hole pattern.

As a standard, the ENVIRO-SEAL is manufactured from 316 Stainless Steel, fluoropolymer seals, and a non-asbestos gasket on both sides of the rupture disc. Standard sizes range from 2" (50mm) through 36" (900mm).

ENVIRO-SEAL Rupture Disc Types

Continental Disc manufactures three types of ENVIRO-SEAL Rupture Discs to fit various applications.

ENVIRO-SEAL Type I



The ENVIRO-SEAL Type I Rupture Disc is designed to burst in only one direction. The rupture disc consists of a single metallic top section located on the vent side of the rupture disc with a single non-metallic seal located on the process side of the rupture disc. The ENVIRO-SEAL Type I Rupture Disc provides excellent protection and corrosion resistance for applications requiring single direction overpressure protection.

ENVIRO-SEAL Type II



The ENVIRO-SEAL Type II Rupture Disc is designed to burst in either the positive or vacuum direction, at the same burst pressure. Seal material is located on both the vent and the process sides of a single top section, providing a completely lined rupture disc. This feature provides a durable corrosion barrier from both process media and atmospheric corrosives while maintaining dual direction protection.

ENVIRO-SEAL Type III



The ENVIRO-SEAL Type III Rupture Disc is also designed to burst in either the positive or vacuum direction at the same burst pressure. However, the ENVIRO-SEAL Type III Rupture Disc consists of two metallic top sections, one located on the process side and one on the vent side of the rupture disc. A single seal is located between the two top sections.

The two top section configuration of the ENVIRO-SEAL Type III Rupture Disc design results in a durable low pressure protection design with enhanced performance under non-static pressure conditions.



ENVIRO-SEAL RUPTURE DISCS

ENVIRO-SEAL Rupture Disc Specifications

The ENVIRO-SEAL Rupture Disc is not preformed, therefore, its maximum operating pressure is limited to 50% of the burst rating of the rupture disc.

ENVIRO-SEAL Rupture Discs are stamped with the minimum / maximum burst pressure at a specified temperature. Recommended maximum temperature

for a rupture disc with fluoropolymer seals is 400°F (204°C). The recommended maximum temperature for a rupture disc with Polyethylene seals is 150°F (66°C). Polyethylene seals may be used for lower pressures at the discretion of Continental Disc. Other top section materials are available on request. Refer to Table IV for minimum/maximum burst pressures for ENVIRO-SEAL Rupture Discs.

For applications requiring critical overpressure protection, contact the factory or your Continental Disc Corporation representative for product application information.

Table IV - Minimum / Maximum Burst Pressures for ENVIRO-SEAL Rupture Discs @ 72°F (22°C)

Nominal Disc Sizes Available		Burst Pressure Min / Max		Maximum Operating Pressure	
in	mm	psig	barg	psig	barg
2 - 18	50 - 450	50 - 59	3,45 - 4,07	25	1,72
2 - 20	50 - 500	42 - 50	2,90 - 3,45	21	1,45
2 - 24	50 - 600	36 - 43	2,48 - 2,96	18	1,24
2 - 30	50 - 750	30 - 36	2,07 - 2,48	15	1,03
2 - 36	50 - 900	24 - 30	1,65 - 2,07	12	0,827
2 - 36	50 - 900	20 - 25	1,38 - 1,72	10	0,689
2 - 36	50 - 900	16 - 21	1,10 - 1,45	8.0	0,552
2 - 36	50 - 900	14 - 18	0,965 - 1,24	7.0	0,483
2 - 36	50 - 900	12 - 15	0,827 - 1,03	6.0	0,414
2 - 36	50 - 900	11 - 14	0,758 - 0,965	5.5	0,379
2 - 36	50 - 900	10 - 13	0,689 - 0,896	5.0	0,345
2 - 36	50 - 900	9.0 - 12	0,621 - 0,827	4.5	0,310
2 - 36	50 - 900	8.0 - 11	0,552 - 0,758	4.0	0,276
2 - 36	50 - 900	7.0 - 10	0,483 - 0,689	3.5	0,241
2 - 36	50 - 900	6.0 - 9.0	0,414 - 0,621	3.0	0,207
3 - 36	80 - 900	5.0 - 8.0	0,345 - 0,552	2.5	0,172
3 - 36	80 - 900	4.0 - 7.0	0,276 - 0,483	2.0	0,138
4 - 36	100 - 900	3.0 - 5.0	0,207 - 0,345	1.5	0,103
6 - 36	150 - 900	2.0 - 4.0	0,138 - 0,276	1.0	0,069
8 - 36	200 - 900	1.6 - 3.6	0,110 - 0,248	0.8	0,055
10 - 36	250 - 900	1.2 - 3.2	0,083 - 0,221	0.6	0,041
12 - 36	300 - 900	1.0 - 3.0	0,069 - 0,207	0.5	0,034

NOTE: The rupture disc's manufacturing range and burst tolerance are included in the burst pressure minimum / maximum.

CONTINENTAL DISC HOLDERS

Continental Disc Corporation's Preformed Composite Rupture Discs are engineered for use in customized holder configurations as well as various standard designs.

Screw Type Holder Assembly*



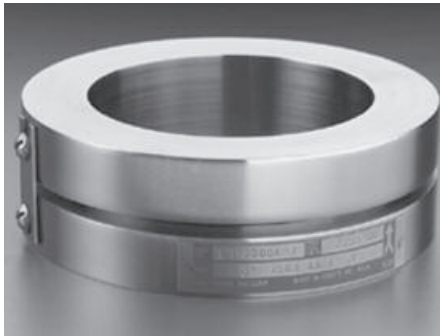
The Screw Type Holder Assembly is designed for use in "mini-systems" with pressures as high as 1000 psig (69,0 barg). The Screw Type Holder is available for a 11/16" Preformed Composite Rupture Disc and is supplied with 1/4" or 1/2" (6mm or 13mm) MPT threaded inlet and traditional MPT, free or muffed style outlets. Available holder materials include Carbon Steel and 300 Series Stainless Steel. Refer to C.D.C. Bulletin 2-2206-2 for details.

Union Type Holders*



C.D.C.'s Union Type Holders are designed for piping connections using 1/2", 1", 1-1/2", and 2" (13mm, 25mm, 40mm and 50mm) size piping. All Union Type Holders are available with threaded or welded inlets in combination with threaded, welded, or muffed outlets. Available materials include Carbon Steel and 300 Series Stainless Steel. Special designs are available upon request.

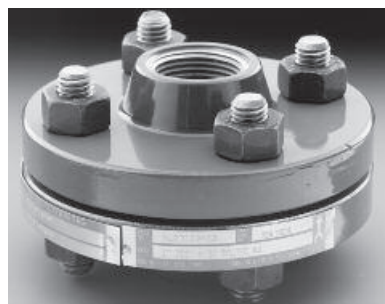
Insert Type Holders



C.D.C.'s Insert Type Holders are designed to install within the bolt circle of ANSI, DIN, or JIS class flanges. Continental's Insert Type Holders are available in three basic designs: a 30° angular "Light-Lip" design for normal operating pressures, a 30° angular "Heavy-Lip" design for higher pressures and a "Flat-Seat" design for superior metal to metal sealing. Available materials include Carbon Steel and 304 or 316 Stainless Steel. Special materials are available upon request. Refer to Table V for recommended pressure maximums for ANSI class flanges.

Preformed Composite Rupture Discs are available in the "Flat-Seat" configuration to mate with Continental's UNISERT® Insert Type Rupture Disc Holder. Refer to C.D.C. Bulletin 2-2203-2 for details.

Full Bolted Style Holders



The Full Bolted Style Holder is available for ANSI, DIN, or JIS class flanges. Full Bolted holders for Preformed Composite Rupture Discs are available in sizes ranging from 1" through 24" (25mm to 600mm) in the 30° angular seating configuration. Standard materials include Carbon Steel and 304 or 316 Stainless Steel. Special materials are available upon request. For additional information on other sizes or flange classes, please consult the factory.

Code Compliance

When specified, Composite Type Rupture Discs will be manufactured in accordance with ASME Code Sections III or VIII, ISO, DIN, EN, BSI, JIS or other codes as required. For these applications, C.D.C. will manufacture, temperature test and mark the rupture discs to comply with specific code requirements.

Continental Disc Corporation has been accredited and is authorized by the ASME Code to utilize the (UD) Code Symbol Stamp for product built in accordance with the requirements of the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.

CE marked Composite Style Rupture Discs in accordance with Pressure Equipment Directive 97/23 EC are available when specified.

The Composite Rupture Disc and the ENVIRO-SEAL Rupture Disc flow performance was certified by The National Board of Boiler and Pressure Vessel Inspectors. These certified flow resistance factors (K_R) and minimum net flow area values are available from Continental Disc Corporation or The National Board of Boiler and Pressure Vessel Inspectors. Refer to C.D.C. Bulletin 1-1112 for details.

Continental Disc maintains an in-house ASME accepted flow testing laboratory to conduct flow testing for rupture discs, relief valves, and rupture disc/valve combinations. Refer to C.D.C. Bulletin 1-1106 for details.

Table V - Recommended Maximum Pressure for Stainless Steel and Carbon Steel ANSI Class Flanges

COMPOSITE* TYPE RUPTURE DISC

What is a Composite Type Rupture Disc?

A Composite Type Rupture Disc is a differential pressure relief device used to protect pressurized systems, equipment, and vessels from a potentially damaging overpressure condition. Continental's Composite Rupture Discs are designed to provide instantaneous, full-opening pressure relief.

Continental Disc offers two Composite Type rupture disc design styles, a preformed style, like the CDC or PLV Rupture Disc; and a flat style, like C.D.C.'s ENVIRO-SEAL Rupture Disc.

Preformed Composite Rupture Disc

A Preformed Composite Rupture Disc consists of two or more components of metallic or non-metallic materials. These components generally include a metallic top section, a metallic or nonmetallic seal member, and an optional vacuum support.

Preformed Composite Rupture Disc Features:

- Excellent performance in low pressure applications
- Operation to 80% of the rupture disc's rated (marked) burst pressure
- For use in gaseous or liquid service
- Made from a variety of corrosion resistant materials
- Non-fragmenting design when used with a non-metallic seal
- Ideal for use under a safety relief valve to isolate the valve from process media
- Provided with Continental's unique Three-Dimensional Flow Direction Tag as a standard

Unique Seven-Hole Design



Continental's Preformed Composite Rupture Discs also feature our seven-hole pattern, positioned at the apex of the rupture disc's top section. This unique configuration, in combination with the pre-cut sections along the dome, provide non-fragmenting characteristics when used with a non-metallic or TEFLON[®]** seal. By using this seven-hole design, thicker, more durable materials can be used to manufacture the rupture disc while still achieving the high 80% operating-to-burst-pressure ratio.

Various seal material options, such as TEFLONS and exotic metals, help insure excellent corrosion resistance. Continental's non-metallic seals are essential to minimize fragmentation. When ordering, please specify if your application requires a non-fragmenting rupture disc.

Recommended Operating Conditions

Continental's Preformed Composite Rupture Discs can be used in a variety of applications, including equipment operating at up to 80% of the rupture disc's rated (stamped) burst pressure and systems having either liquid or gas processes.

Under ideal operating conditions, such as static pressure and a temperature well below the maximum recommended for the rupture disc material used, Preformed Composite Rupture Discs may be subjected to operating pressures exceeding 80% of the rated (stamped) burst pressure. Contact the factory for additional information about the use of a Composite Rupture Disc above this 80% operating ratio.

Sizes and Materials

Sizes ranging from 1" through 30" (25mm to 750mm) are available with burst pressures from 1.5 psig to 1440 psig (0,10 barg to 100 barg). Because of the availability of a variety of seal materials, these rupture discs can be used in service temperatures of up to 1000°F (542°C) and can resist most corrosive and atmospheric conditions. The metallic top section can be manufactured from various materials to meet the needs of each individual application.





WEIGHTS AND DIMENSIONS

Table VI - 30° Insert Holder Weights and Dimensions

Nominal Size	ANSI		DIN		JIS		Height (in / mm)	Weight (lbs / kg)
	Class	Outside Dia. in / mm	Class	Outside Dia. mm	Class	Outside Dia. mm		
1" 25mm	150	2.50 / 63,5					1.67 / 42	1.9 / 0,90
	300 / 600	2.75 / 69,9	10 / 40	69,9	10 / 20	69,9	1.67 / 42	2.5 / 1,1
			64 / 160	82,0	30 / 40	76,0	1.67 / 42	2.9 / 1,3
			250	82,0			2.38 / 60	4.9 / 2,2
	900 / 1500	3.00 / 76,2					2.38 / 60	4.9 / 2,2
	2500	3.25 / 82,6					2.38 / 60	4.1 / 1,9
						2.59 / 66	5.4 / 2,4	
1 1/2" 40mm	150	3.25 / 82,6					1.67 / 42	3.0 / 1,4
					10 / 20	86,0	1.67 / 42	3.4 / 1,5
	300 / 600	3.63 / 92,2	10 / 40	92,2			1.67 / 42	4.0 / 1,8
	900 / 1500	3.75 / 95,3					2.66 / 68	6.9 / 2,7
					30 / 40	97,0	1.67 / 42	4.5 / 2,0
			64 / 160	102,0			2.66 / 68	8.1 / 3,7
		250	108,0			2.66 / 68	10 / 4,5	
	2500	4.50 / 114,3					3.63 / 92	14 / 6,5
2" 50mm	150	4.00 / 101,6					1.67 / 42	3.6 / 1,6
					10	101,6	1.67 / 42	3.6 / 1,6
	300 / 600	4.25 / 108,0	10 / 40	108,0	16 / 20	101,6	1.67 / 42	4.3 / 2,0
			64	111,0	30 / 40	111,0	1.67 / 42	4.8 / 2,2
			100 / 160	118,0			3.15 / 80	11 / 5,0
			250	123,0			3.15 / 80	13 / 5,9
	900 / 1500	5.50 / 139,7					3.15 / 80	17 / 7,8
	2500	5.63 / 143,0					3.71 / 94	22 / 10
3" 80mm	150	5.25 / 133,4					1.67 / 42	5.2 / 2,4
					10	131,0	1.67 / 42	5.5 / 2,5
					16 / 20	137,0	1.67 / 42	6.1 / 2,8
			10	142,0			2.13 / 54	8.9 / 4,0
			16 / 40	142,0			2.13 / 54	8.9 / 4,0
	300 / 600	5.75 / 146,1	64	146,1	30 / 40	146,1	2.13 / 54	10 / 4,5
		100 / 160	153,0			3.21 / 82	19 / 8,6	
	900	6.50 / 165,1					3.21 / 82	23 / 10
			250	170,0			3.71 / 94	29 / 13
	1500	6.75 / 171,5					3.71 / 94	29 / 13
	2500	7.63 / 193,8					4.15 / 105	44 / 20
4" 100mm							1.67 / 42	6.0 / 2,7
			10 / 16	162,0	16 / 20	156,0	1.67 / 42	7.4 / 3,4
			25 / 40	168,0	30	168,0	2.15 / 55	12 / 5,4
	150	6.75 / 171,5	64	173,0			1.67 / 42	9.1 / 4,1
	300	7.00 / 177,8					3.13 / 79	18 / 8,3
			100 / 160	180,0	40	180,0	2.15 / 55	13 / 5,9
	600	7.50 / 190,5					2.15 / 55	14 / 6,4
			250	202,0			3.63 / 92	26 / 12
	900	8.00 / 203,2					3.13 / 79	25 / 11
	1500	8.13 / 206,5					4.35 / 111	45 / 20
	2500	9.13 / 231,9					3.63 / 92	37 / 17
							4.35 / 111	47 / 22
							6.15 / 156	91 / 41
6" 150mm	150	8.63 / 219,2	10 / 16	217,0	10	217,0	2.06 / 52	16 / 7,2
			25 / 40	223,0			2.06 / 52	17 / 7,7
					16 / 20	235,0	2.93 / 74	26 / 12
			64	247,0			2.06 / 52	22 / 9,7
	300	9.75 / 247,7			30	247,7	3.96 / 101	55 / 25
			100 / 160	257,0	40	262,0	2.93 / 74	37 / 17
						4.53 / 115	71 / 32	
	600	10.38 / 263,7					2.93 / 74	44 / 20
	900	11.25 / 285,8					3.96 / 101	66 / 30
	2500	12.38 / 314,5					4.53 / 115	95 / 43
							6.13 / 155	168 / 76
8" 200mm							2.31 / 58	25 / 11
			10 / 16	272,0	10	267,0	2.31 / 58	27 / 12
	150	10.88 / 276,4					2.31 / 58	29 / 13
			25	283,0	16 / 20	280,0	2.31 / 58	31 / 14
			40	290,0			3.30 / 84	44 / 20
					30	293,0	3.30 / 84	48 / 22
	300	12.00 / 304,8					3.30 / 84	50 / 23
			64	309,0			3.30 / 84	58 / 26
					40	312,0	4.50 / 114	83 / 38
	600	12.50 / 317,5					3.30 / 84	63 / 29
							4.50 / 114	91 / 41

Nominal Size	ANSI		DIN		JIS		Height (in / mm)	Weight (lbs / kg)		
	Class	Outside Dia. in / mm	Class	Outside Dia. mm	Class	Outside Dia. mm				
10" 250mm	150	13.25 / 336,6	10 / 16	327,0	10	330,0	2.55 / 65	34 / 15		
			25	340,0			2.55 / 65	36 / 16		
			40	352,0			4.18 / 106	40 / 18		
							4.18 / 106	69 / 31		
							4.18 / 106	81 / 37		
	300	14.13 / 358,9			16 / 20	353,0	2.55 / 65	49 / 22		
					30	357,0	4.18 / 106	86 / 39		
							4.18 / 106	88 / 40		
					64	364,0			5.00 / 127	128 / 58
					100	391,0	40	377,0	4.18 / 106	107 / 49
600	15.63 / 397,0					5.00 / 127	163 / 74			
						5.00 / 127	171 / 78			
12" 300mm	150	16.00 / 406,4			5	367,0	2.55 / 65	36 / 16		
					10	375,0	2.55 / 65	41 / 19		
					10	377,0			2.55 / 65	42 / 19
					16	383,0			2.55 / 65	46 / 21
					25	400,0			4.13 / 105	94 / 43
	300	16.50 / 419,1					16 / 20	403,0	2.55 / 65	60 / 27
					40	417,0	30	417,0	2.55 / 65	62 / 28
					64	424,0			4.13 / 105	114 / 52
									4.13 / 105	116 / 53
							40	431,0	5.43 / 138	161 / 73
600	17.88 / 454,2					4.13 / 105	130 / 59			
						5.43 / 138	211 / 96			
14" 350mm	150	17.63 / 447,8			5	410,0	2.75 / 70	39 / 18		
					10	420,0	2.75 / 70	46 / 21		
					10	437,0			2.75 / 70	60 / 27
					16	443,0			2.75 / 70	65 / 29
					25	457,0	16 / 20	447,8	2.75 / 70	69 / 31
	300	19.00 / 482,6					30	462,0	4.37 / 111	123 / 56
					40	474,0			4.37 / 111	130 / 59
							40	474,0	4.37 / 111	146 / 66
									4.37 / 111	149 / 68
									4.37 / 111	159 / 77
16" 400mm	150	20.13 / 511,3					2.94 / 75	95 / 43		
	300	21.13 / 536,7					4.56 / 116	191 / 87		
			40	546,0			4.56 / 116	207 / 94		
18" 450mm	150	21.50 / 546,1					3.13 / 79	94 / 43		
	300	23.38 / 593,9			16 / 20	572,0	3.13 / 79	125 / 57		
	600	24.00 / 609,6					4.87 / 124	239 / 108		
	150	23.75 / 603,3					6.12 / 155	341 / 155		
20" 500mm			16	617,0			3.46 / 90	123 / 56		
					16 / 20	627,0	3.46 / 90	143 / 65		
	300	25.63 / 651,0					3.46 / 90	158 / 72		
	150	28.13 / 714,5					5.06 / 129	287 / 130		
24" 600mm					16 / 20	731,0	3.87 / 98	183 / 83		
			16	734,0			3.87 / 98	215 / 97		
	300	30.38 / 771,7					3.87 / 98	220 / 100		
	150	34.63 / 879,6					5.56 / 141	426 / 193		
30" 750mm					16	893,0	4.43 / 113	292 / 132		
					20	914,0	4.43 / 113	328 / 149		
							4.43 / 113	385 / 175		

NOTE: Consult factory for availability of flange classes or sizes not listed.

Contact Mento for more information

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