



The RCS Rupture Disc is a reverse acting, cross-scored rupture disc. It is a non-reclosing differential pressure relief device that provides instantaneous full opening for protection of equipment, vessels and systems from overpressure conditions.

This rupture disc from Continental Disc Corporation is available in a wide variety of materials and in newly expanded nominal sizes ranging from 1" through 32" (25 mm - 800 mm). See Tables I and IV.

Along with its companion insert holder, the RCS Rupture Disc provides reliable pressure relief protection, easy installation, and built in features to help assure correct rupture disc orientation. It is designed to retrofit into your pre-existing assembly or piping arrangements (1" - 8" only).

RCS Rupture Disc Features Include:

- Operating ratio up to 90% of stamped burst rating for pressures greater than 40 psig
- Manufacturing range of zero, -5%, or -10% of specified rating
- Non-fragmenting design
- Safety ratio of 1.5 or less of the stamped rating when free vented, if the rupture disc is damaged during installation
- Inversion ratio of 1.5 or less of the stamped rating, if the rupture disc is burst in tension direction (1" - 8" only)
- Withstands full vacuum without the need for an additional vacuum support component
- Conformance to national and international codes including ASME Section III or VIII, DIN, BSI, JIS, ISO, or other codes when specified
- Excellent cycling and/or pulsating service capabilities
- Good for gas service
- Excellent for isolating pressure relief valves because of its non-fragmenting design
- Available with Continental Disc Corporation's patented B.D.I.® (Burst Disc Indicator) Alarm System
- Optional Teflon®* liner and protective cover for additional corrosion barriers
- Built-in features:
 1. Three round pins in holder inlet match holes in rupture disc to help assure correct orientation in the holder during assembly (1" - 8" only)
 2. Flow Direction arrows permanently attached to the holder inlet and outlet indicate correct flow direction
 3. 3-D tag attached to the rupture disc provides visual verification of proper rupture disc orientation in relation to process flow
 4. A J-Hook provides easy alignment and proper orientation relative to flow direction. The J-Hook is a standard feature on RCS Holders up to 12" in size
 5. Factory installed Precision Controlled Indentation to control the reversal action for RCS Rupture Discs 10" or above



Manufacturing Range

As a standard, the RCS Rupture Disc is designed with a zero manufacturing range. This enables the disc to operate up to 90% of the customer's specified rating for pressures greater than 40 psig. For systems not required to operate to 90% of the specified burst pressure, other ranges are available upon request. Available ranges include: -2.5 psig or -5 psig for burst pressure ratings below 50 psig and -5% or -10% for burst pressures 50 psig and above.

For rated burst pressures below 40 psig, the recommended operating pressure is 90% of the value of the rated (stamped) burst pressure minus the burst tolerance. (i.e., [stamped rating minus the 2 psig burst tolerance] x .90.)

Burst Tolerance

The RCS Rupture Disc is designed with a burst tolerance of ± 2 psig for pressures under 40 psig, and $\pm 5\%$ for pressures 40 psig and above. The rated burst pressure, appearing on the rupture disc tag, is established as follows:

- For zero manufacturing range rupture discs, a minimum of two burst tests per lot of rupture discs are conducted to determine conformance with the customer's specified burst pressure. The rated (stamped) burst pressure appearing on the tag will be the customer's specified burst pressure. The burst tolerance of $\pm 5\%$ applies to the rated (stamped) burst pressure.
- For rupture discs with -5%, -10%, -2.5 psig, or -5 psig manufacturing ranges, the rated (stamped) burst pressure is established by bursting a minimum of two discs per lot and averaging the actual burst results. This average burst pressure is the rated (stamped) burst pressure which will appear on the rupture disc tag. The burst tolerance of $\pm 5\%$ applies to the rated (stamped) burst pressure.

Recommended Maximum Temperatures

Generally, the burst pressure of a rupture disc will decrease as operating temperatures increase. Table II states the maximum temperatures for commonly used rupture disc materials and linings.

Vacuum

The RCS Rupture Disc is designed to withstand full vacuum without affecting the burst pressure setting or reliability. No additional components, such as a vacuum support, are required.

Corrosion Protection

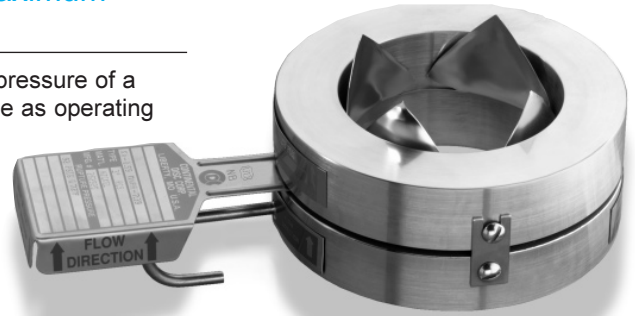
The RCS Rupture Disc is superior for use in a corrosive media environment. Versatile material selection and use of thicker materials contribute to the outstanding corrosive resistance. The cross-scoring pattern is placed on the outlet side of the rupture disc, to prevent process buildup or corrosion along the score lines. A Teflon liner may be used on the process side of the RCS Rupture Disc for additional corrosion protection. A Teflon protective cover is also available to protect the downstream side of the rupture disc.

Optimum Flow


The RCS Rupture Disc's score pattern provides a clean, consistent opening. When an overpressure situation initiates disc reversal, the rupture disc opens in a non-fragmenting, four petal design (see photo above), resulting in an optimum flow condition.

Code Compliance

Continental Disc Corporation will provide rupture discs to national or international code requirements when specified by the customer.



C.D.C. will manufacture, temperature test, and mark rupture discs in compliance with the requested code. Product may be supplied to ASME Section III or VIII, DIN, BSI, JIS, or other codes as required.

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

The RCS 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.

Continental Disc Corporation maintains an ASME accepted flow laboratory to conduct flow testing for rupture discs, relief valves, and rupture disc/valve combinations.

* Viton is a registered trademark of the DuPont® Corporation.

Table I - RCS 1" - 32" Rupture Disc Min/Max Burst Pressures @ 72°F (22°C)

White bar indicates "psig"; grey bar indicates "barg".

Disc Size	Disc Material					
	Nickel		316SS/Hastelloy C ^{®*}		Monel [®] /Inconel ^{®***}	
	Min	Max	Min	Max	Min	Max
1 in.	120	1000	320	1000	150	1000
25mm	8,27	69,0	22,0	69,0	10,3	69,0
1½ in.	85	1000	280	1000	110	1000
40mm	5,86	69,0	19,3	69,0	7,58	69,0
2 in.	70	1000	230	1000	90	1000
50mm	4,82	69,0	15,8	69,0	6,20	69,0
3 in.	65	1000	170	1000	70	1000
80mm	4,48	69,0	11,7	69,0	4,82	69,0
4 in.	55	800	130	800	60	800
100mm	3,79	55,2	8,96	55,2	4,13	55,2
6 in.	40	800	90	800	50	800
150mm	2,76	55,2	6,21	55,2	3,45	55,2
8 in.	35	700	85	700	45	700
200mm	2,41	48,3	5,86	48,3	3,10	48,3
10 in.	30	700	36	700	36	700
250mm	2,07	48,3	2,48	48,3	2,48	48,3
12 in.	27	600	33	600	33	600
300mm	1,86	41,4	2,28	41,4	2,28	41,4
14 in.	23	100	28	180	28	180
350mm	1,59	6,89	1,93	12,4	1,93	12,4
16 in.	22	95	26	160	26	160
400mm	1,52	6,55	1,79	11,0	1,79	11,0
18 in.	21	85	24	145	24	145
450mm	1,45	5,86	1,65	10,0	1,65	10,0
20 in.	20	70	22	120	22	120
500mm	1,38	4,83	1,52	8,27	1,52	8,27
24 in.	20	60	22	115	22	115
600mm	1,38	4,14	1,52	7,93	1,52	7,93
30 in.	20	55	22	100	22	100
760mm	1,38	3,79	1,52	6,89	1,52	6,89
32 in.	20	50	22	95	22	95
800mm	1,38	3,45	1,52	6,55	1,52	6,55

Note:

1. Consult your C.D.C. representative or the factory for burst pressures or materials not listed.
2. Minimum pressures are based upon the minimum of the manufacturing range at 72°F (22°C).

** Monel and Inconel are registered trademarks of the Inco family of companies. *** Hastelloy is a registered trademark of Haynes International.

Table II - Maximum Temperature for RCS Rupture Disc Materials and Liners

Material	Temperature Rating	
	Fahrenheit	Celsius
Nickel	800°	427°
Monel		
316SS	900°	482°
Hastelloy C		
Inconel	1000°	538°
Teflon Liner	500°	260°

Table III - O-Ring Temperature Limits

Material	Minimum	Maximum
Viton	-20° F	400° F
	-29° C	204° C
Buna-N	-20° F	225° F
	-29° C	107° C

RCS RUPTURE DISC

RCS Holder (1" - 8" Sizes)

The RCS Holder for sizes 1" - 8" is an *insert* type designed for simplicity and safety of installation with superior sealing capabilities. Alignment of the RCS Rupture Disc and flow direction orientation are achieved with three round pins located in the holder inlet, matching holes in the rupture disc and 3-D tag. Uniform sealing load on the rupture disc is accomplished by using a tapered seat configuration providing a positive metal-to-metal seal between the rupture disc and holder.

This tapered seat is less susceptible to seat damage due to handling or re-installation compared to "bite type" seat designs with pretorque screws. *Pretorque screws, special tools, or sockets are not necessary when using the RCS Holder. The alignment pins provide positive rupture disc orientation utilizing normal pre-assembly side clips and flange bolting.*

As an option, the RCS Holder inlet for sizes 1" - 8" can be supplied with an O-ring of either Viton®* or Buna-N material. See Table III for temperature limits of O-ring materials. Contact the factory for complete details.

Additionally the RCS Holder is designed to retrofit into pre-existing piping arrangements without modification. Holders are available for ANSI, JIS, or DIN class flanges and in standard materials of Carbon Steel, 316SS, Monel, or Hastelloy C. Other flange classes or materials can be furnished upon request.

RCS Holder (10" - 32" Sizes)

The RCS Holder for sizes 10" and above is an *insert* type designed for simplicity and safety of installation with superior sealing capabilities. Uniform sealing load on the rupture disc is accomplished by using a tapered seat configuration, providing a positive metal-to-metal seal between the rupture disc and holder.

This tapered seat is less susceptible to seat damage due to handling or re-installation compared to "bite type" seat designs with pre-torque screws.

Holders are available for ANSI, JIS, or DIN class flanges and in standard materials of Carbon Steel, 316SS, Monel, or Hastelloy C. Other flange classes or materials can be furnished upon request.

Pre-assembly screws, instead of side clips, will be used on RCS Holders 10" or above.



B.D.I.® Alarm System

Where immediate notification of pressure relief is required, Continental's patented B.D.I. (Burst Disc Indicator) Alarm System should be used. Designed for use with Continental's rupture discs, the B.D.I. Alarm automatically notifies the operator, via audio and/or visual warnings, that a rupture disc has burst.

The heart of the system is the B.D.I. Alarm Strip, which is attached to a flat Teflon membrane and assembled between non-asbestos gaskets. It is installed above the RCS Rupture Disc between the outlet side of the holder and the pipe flange.



When the rupture disc bursts, the strip is broken, disrupting the electrical current through the strip and activating the alarm monitor. The B.D.I. Alarm Strip is resistant to most corrosives and can operate at temperatures ranging from -40°F (-40°C)

to 400°F (206°C). It is available with FM approved, intrinsically safe monitors, and is computer compatible. For more information, refer to C.D.C. Bulletin #5-7701-5.

*B.D.I. Alarm System incorporates United States patent no. Re. 34,308 and 4,408,194; Australia patent no. 539415; Canada patent no. 1199990; Germany patent no. 3174227.0; Japan patent no. 2032464; Belgium, France and United Kingdom patent no. EP 0 033 867.

RCS HOLDER WEIGHTS AND DIMENSIONS

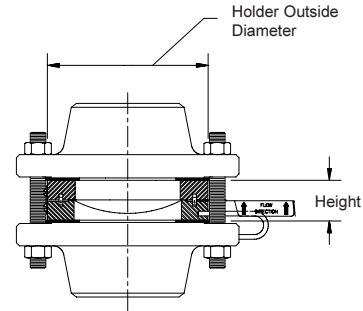


Table V - RCS Holder Weights and Dimensions

Rupture Disc Nominal Size	ANSI		DIN		JIS		HEIGHT (inch / mm)	WEIGHT (lbs. / kg.)
	Class	Outside Diameter (inch / mm)	Class	Outside Diameter (mm)	Class	Outside Diameter (mm)		
1 in. 25mm	150	2.50 / 63,5					1.50 / 38,1	1.5 / 0,7
	300 / 600	2.75 / 69,9	10 / 40	69,9	10 / 20	69,9	1.50 / 38,1	1.8 / 0,8
					30 / 40	76,0	1.50 / 38,1	2.4 / 1,1
1½ in. 40mm	150	3.25 / 82,6					1.63 / 41,4	2.6 / 1,2
	300 / 600	3.63 / 92,2	10 / 40	92,2	10 / 20	86,0	1.63 / 41,4	2.9 / 1,3
					30 / 40		1.63 / 41,4	4.0 / 1,8
2 in. 50mm	150	4.00 / 101,6					1.75 / 44,5	3.9 / 1,8
	300 / 600	4.25 / 108,0	10 / 40	108,0	10 / 20	101,6	1.75 / 44,5	4.7 / 2,1
					30 / 40	111,0	1.75 / 44,5	5.1 / 2,3
3 in. 80mm	150	5.25 / 133,4			10	131,0	2.63 / 66,8	8.6 / 3,9
					16 / 20	137,0	2.13 / 54,1	7.4 / 3,4
			10 / 40	142,0			2.13 / 54,1	8.1 / 3,7
	300 / 600	5.75 / 146,1			30 / 40	146,1	2.13 / 54,1	9.9 / 4,5
4 in. 100mm			10 / 16	162,0	10	156,0	2.75 / 69,9	11 / 5,0
			25/40	168,0	16 / 20	162,0	2.88 / 73,2	13 / 5,9
	150	6.75 / 171,5			30	168,0	2.88 / 73,2	15 / 6,8
	300	7.00 / 177,8			40	180,0	2.88 / 73,2	16 / 7,3
	600	7.50 / 190,5					2.63 / 66,8	21 / 9,5
6 in. 150mm	150	8.63 / 219,2	10 / 16	217,0	10	217,0	3.68 / 93,7	33 / 15
					16 / 20	235,0	3.68 / 93,7	32 / 14
	300	9.75 / 247,7	25 / 40	223,0	30	247,7	3.68 / 93,7	42 / 19
					40	262,0	3.68 / 93,7	50 / 22
	600	10.38 / 263,7	64	247,0			3.68 / 93,7	35 / 16
8 in. 200mm							3.12 / 79,4	51 / 23
	150	10.88 / 276,4	10 / 16	272,0			3.12 / 79,4	42 / 19
					10	267,0	3.81 / 96,8	44 / 20
					16 / 20	280,0	3.81 / 96,8	40 / 18
	300	12.00 / 304,8	25	283,0			3.81 / 96,8	37 / 17
			40	290,0			3.81 / 96,8	46 / 21
					30	293,0	3.81 / 96,8	65 / 29
10 in. 250mm					40	312,0	3.81 / 96,8	49 / 22
			10/16	327,0			3.81 / 96,8	54 / 24
	150	13.25 / 336,6			10	330,0	3.81 / 96,8	56 / 25
			25	340,0			4.31 / 109	63 / 29
			40	352,0	16 / 20	353,0	4.31 / 109	66 / 30
	300	14.13 / 358,9					4.31 / 109	80 / 36
					30	357,0	4.31 / 109	78 / 35
				40	377,0	4.31 / 109	86 / 39	
						4.31 / 109	84 / 38	
						4.31 / 109	105 / 48	

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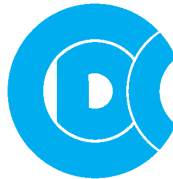
RCS HOLDER WEIGHTS AND DIMENSIONS

Table IV - RCS Holder Weights and Dimensions (continued)

Rupture Disc Nominal Size	ANSI		DIN		JIS		HEIGHT (inch / mm)	WEIGHT (lbs. / kg.)
	Class	Outside Diameter (inch / mm)	Class	Outside Diameter (mm)	Class	Outside Diameter (mm)		
12 in. 300mm			10	377,0	10	375,0	4.56 / 116	64 / 29
			16	383,0			4.56 / 116	62 / 28
					16 / 20	403,0	4.56 / 116	71 / 32
	150	16.00 / 406,4					4.56 / 116	96 / 44
			25	400,0			4.56 / 116	99 / 45
	300	16.50 / 419,1					5.19 / 132	106 / 48
			40	417,0	30	417,0	5.19 / 132	133 / 60
					40	431,0	5.19 / 132	131 / 59
14 in. 350mm			10	437,0	10	420,0	5.19 / 132	90 / 41
			16	443,0			5.19 / 132	115 / 52
	150	17.63 / 447,8			16 / 20	447,8	5.19 / 132	125 / 57
			25	457,0			5.19 / 132	133 / 60
					30	462,0	5.19 / 132	147 / 67
			40	474,0	40	474,0	5.19 / 132	155 / 70
	300	19.00 / 482,6					5.19 / 132	175 / 79
							5.19 / 132	175 / 79
16 in. 400mm			10	488,0	10	483,0	6.37 / 162	163 / 74
			16	495,0			6.37 / 162	178 / 81
	150	20.13 / 511,3			16 / 20	507,0	6.37 / 162	204 / 93
			25	514,0			6.37 / 162	213 / 97
					30	521,0	6.37 / 162	220 / 100
					40	531,0	6.37 / 162	235 / 107
	300	21.13 / 536,7					6.37 / 162	258 / 117
			40	546,0			6.37 / 162	271 / 123
18 in. 450mm	150	21.50 / 546,1			10	538,0	6.37 / 162	293 / 133
					16 / 20	572,0	7.37 / 187	208 / 94
							7.37 / 187	230 / 104
20 in. 500mm	150	23.75 / 603,3	10	593,0	10	593,0	7.37 / 187	303 / 137
			16	617,0			8.44 / 214	278 / 126
					16 / 20	627,0	8.44 / 214	323 / 142
							8.44 / 214	361 / 164
24 in. 600mm			6	678,0			8.44 / 214	398 / 181
			10	695,0			10.25 / 260	321 / 146
	150	28.13 / 714,5			10	697,0	10.25 / 260	402 / 182
							10.25 / 260	412 / 187
					16 / 20	731,0	10.25 / 260	499 / 226
			16	734,0			10.25 / 260	582 / 264
30 in. 750mm	150	34.63 / 879,6			10	867,0	10.25 / 260	598 / 271
					16	893,0	12.79 / 325	766 / 347
					20	914,0	12.79 / 325	863 / 391
							12.79 / 325	967 / 469
32 in. 800mm			6	890,0			12.79 / 325	1131 / 513
			10	917,0	10	917,0	13.64 / 346	635 / 288
			16	911,0			13.64 / 346	861 / 390
	150	36.88 / 936,8					13.64 / 346	811 / 368
					16	942,0	13.64 / 346	1032 / 468
					20	974,0	13.64 / 346	1078 / 489
						13.64 / 346	1364 / 619	



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**Continental Disc[®]
Corporation**

Performance Under Pressure[®]



Certified Quality System
First Certified in 1992



ASME Code Symbol Stamp
Available When Specified



China Quality License
Type Approval Stamp
Available When Specified

Continental Disc Corporation has representatives located throughout the world.
Contact the C.D.C. office nearest you for the authorized representative in your area.

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