Continental Disc® Corporation

Performance Under Pressure®

Impervious Graphite Rupture Discs

2-2204-2

Continental's Impervious Graphite Rupture Discs are simple, reliable overpressure relief devices designed to protect processing systems, truck tanks, storage tanks, and closed processing vessels from potential damage caused by an overpressure condition.

Manufactured from a monolithic slab of graphite, these discs are impregnated with a phenolic resin to form an impervious surface. These dependable rupture disc designs are ideally suited for highly corrosive media applications and for remote installations that require a rupture disc with an extended service life.

Continental's Graphite Rupture Discs are available in nominal sizes from 1/2"- 24" (13 to 600 mm), pressures from 0.25 to 720 psig (0,017 to 49,7 barg), and temperatures from 40°F to 700°F (4.4°C to 371°C).

Every Continental Rupture Disc is subjected to careful quality control. Each lot of Grafsert, Sealsert or Dualsert Rupture Discs is documented from raw material to shipment and two or more tests to destruction are performed.

Each Graphite Rupture Disc Design also features an attached stainless steel nameplate that extends beyond the flange bolts for maximum visibility and indication of proper installation relative to flow direction.

Continental's Graphite Rupture Discs offer several advantages, like:

- Flexible Operating Conditions
- Good for Gas or Liquid Service
- Withstands Operating to Burst Ratio up to 90% in Static Service
- Corrosion Resistant
- Low Pressure Ratings Available in Smaller Sizes
- Extended Service Life
- Easy Installation Between Companion Flanges
- Separate Holder Not Required
- Vacuum Support Required Only When Rating is 25 psig or Lower
- Compatible with Continental's B.D.I.® (Burst Disc Indicator) Alarm System

Grafsert® Rupture Disc
for single direction overpressure relief and corrosion resistance to most commercially available chemicals.

Sealsert® Rupture Disc
for single direction overpressure relief and extended corrosion protection provided by the addition of a Teflon®* barrier applied to the process side of the rupture disc.

Dualsert® Rupture Disc
for dual direction overpressure relief to protect against two different pressures in opposite directions.

*Teflon is a registered trademark of the DuPont Corporation.

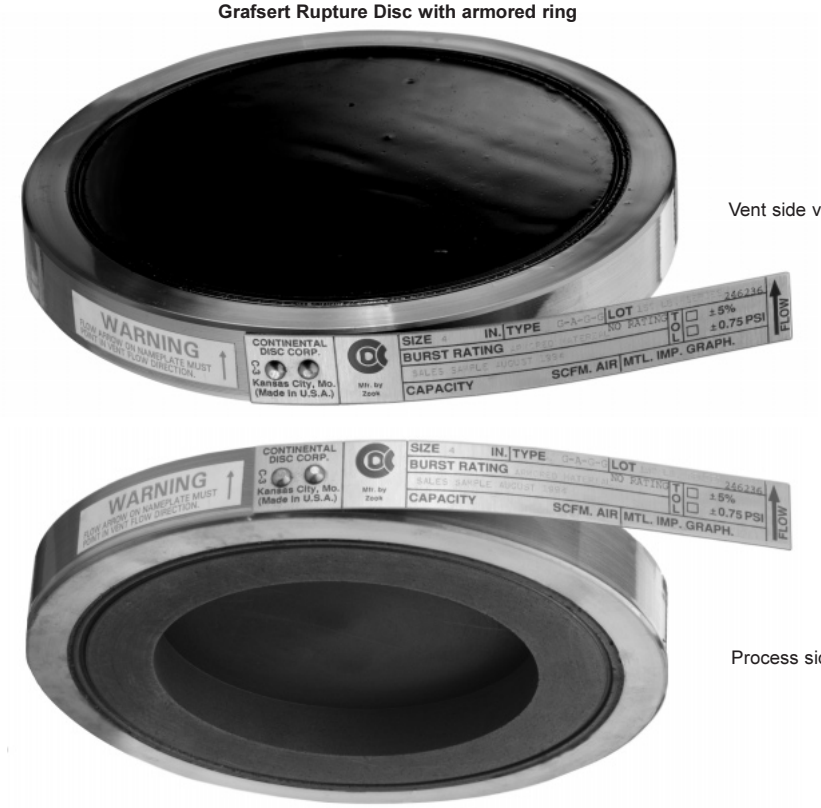
GRAFSERT RUPTURE DISCS

Continental's Grafsert Rupture Disc is an impervious graphite rupture disc designed to provide instantaneous overpressure relief in a single direction. Grafsert rupture discs install directly between standard flat or raised face 150# or 300# ANSI flanges and are available in nominal sizes from 1/2" through 24" (13 - 600 mm) in diameter and for burst pressures from 0.25 to 720 psig (0,017 to 49,7 barg). See Table I for size and pressure information. Grafsert rupture discs are available for DIN, JIS and other flange classes. Contact factory for details.

Inverted Style Grafsert

The Grafsert Rupture Disc can be manufactured in an inverted design. The benefits of this design are higher burst pressures and a wider variety of applications. See Table I for Inverted Grafsert Rupture Disc applications.

Grafsert Rupture Disc with armored ring



Vent side view

Process side view

Table I - Grafsert and Inverted Grafsert Rupture Disc Specifications for 150# and 300# ANSI flanges @ 70°F (21°C)

ANSI Class	Nominal Size		Disc Burst Min-Max Rating				Rupture Disc Height				Rupture Disc Diameter			
			Grafsert		Inverted Grafsert		Rupture Disc**		Rupture Disc w/ High-Temp. Ass'y.**		Inside Diameter		Outside Diameter	
	inch	mm	psig	barg	psig	barg	inch	mm	inch	mm	inch	mm	inch	mm
150#	1/2	13	25 - 150	1,72 - 10,3	25 - 275*	1,72 - 19,0*	0.625	15,88	1.75	44,5	0.50	12,7	1.75	44,5
"	3/4	19	25 - 150	1,72 - 10,3	25 - 275*	1,72 - 19,0*	0.625	15,88	1.75	44,5	0.75	19,1	2.125	53,98
"	1	25	10 - 150	0,689 - 10,3	10 - 275*	0,689 - 19,0*	0.875	22,23	2.25	57,2	1.00	25,4	2.50	63,5
"	1 1/2	40	7.0 - 150	0,483 - 10,3	7.0 - 275*	0,483 - 19,0*	0.875	22,23	2.25	57,2	1.50	38,1	3.25	82,6
"	2	50	3.0 - 150	0,207 - 10,3	3.0 - 275*	0,207 - 19,0*	0.875	22,23	2.25	57,2	2.00	50,8	4.00	101,6
"	3	80	2.0 - 150	0,138 - 10,3	2.5 - 275*	0,172 - 19,0*	0.875	22,23	2.25	57,2	3.00	76,2	5.25	133,4
"	4	100	1.5 - 150	0,103 - 10,3	2.0 - 250	0,138 - 17,3	0.875	22,23	2.25	57,2	4.00	101,6	6.75	171,5
"	6	150	1.5 - 150	0,103 - 10,3	1.5 - 170	0,103 - 11,7	0.875	22,23	2.25	57,2	6.00	152,4	8.625	219,08
"	8	200	1.5 - 150	0,103 - 10,3	1.5 - 170	0,103 - 11,7	1.125	28,58	2.75	69,9	8.00	203,2	10.875	276,23
"	10	250	1.5 - 125	0,103 - 8,62	1.5 - 150	0,103 - 10,4	1.50	38,1	3.375	85,73	10.00	254,0	13.25	336,6
"	12	300	1.5 - 125	0,103 - 8,62	1.5 - 150	0,103 - 10,4	2.00	50,8	4.375	111,13	12.00	304,8	16.00	406,4
"	14	350	0.25 - 100	0,017 - 6,89	0.25 - 150	0,017 - 10,4	2.25	57,2	4.875	123,83	13.25	336,6	17.625	447,68
"	16	400	0.25 - 100	0,017 - 6,89	0.25 - 150	0,017 - 10,4	2.50	63,5	5.375	136,53	15.25	387,4	20.125	511,18
"	18	450	0.25 - <100	0,017 - <6,89	0.25 - <150	0,017 - <10,4	2.75	69,9	5.875	149,23	17.25	438,2	21.50	546,1
"	20	500	0.25 - <50	0,017 - <3,45	0.25 - <150	0,017 - <10,4	3.00	76,2	6.375	161,93	19.25	489,0	23.75	603,3
"	24	600	0.25 - <50	0,017 - <3,45	0.25 - <150	0,017 - <10,4	3.00	76,2	6.375	161,93	23.25	590,6	28.125	714,38
300#	1/2	13	-	-	25 - 720*	1,72 - 49,6*	0.625	15,88	1.75	44,5	0.50	12,7	2.00	50,8
"	3/4	19	-	-	25 - 720*	1,72 - 49,6*	0.625	15,88	1.75	44,5	0.75	19,1	2.50	63,5
"	1	25	-	-	10 - 720*	0,689 - 49,6*	1.00	25,4	2.50	63,5	1.00	25,4	2.75	69,9
"	1 1/2	40	-	-	7.0 - 720*	0,483 - 49,6*	1.00	25,4	2.50	63,5	1.50	38,1	3.625	92,08
"	2	50	-	-	3.0 - 500	0,207 - 34,5	1.00	25,4	2.50	63,5	2.00	50,8	4.25	108,0
"	3	80	-	-	2.0 - 500	0,138 - 34,5	1.25	31,8	3.00	76,2	3.00	76,2	5.75	146,1
"	4	100	-	-	1.5 - 500	0,103 - 34,5	1.25	31,8	3.00	76,2	4.00	101,6	7.00	177,8
"	6	150	-	-	1.0 - 450	0,069 - 31,0	1.75	44,5	4.00	101,6	6.00	152,4	9.75	247,7
"	8	200	-	-	0.5 - 450	0,034 - 31,0	2.25	57,2	5.00	127,0	8.00	203,2	12.00	304,8

* Consult factory for higher ratings.

** Rupture disc thickness when supplied with high temperature assembly includes all gaskets. Rupture disc is furnished complete and ready for installation. Non-insulated rupture disc thickness does not include gasket.

Vacuum Support

Grafsert Rupture Discs are self-supporting under vacuum conditions for burst pressure ratings above 25 psig (1,72 barg).

For rupture discs with burst pressures 25 psig (1,72 barg) and below, a vacuum support is required only when vacuum conditions are expected. The vacuum support is an integral part of the rupture disc and cannot be installed in the field. Vacuum support designs will vary depending upon rupture disc size and burst rating. Consult the factory regarding applicable support configuration and flow capacity.

Armoring

An armored Grafsert Rupture Disc consists of the disc with a metallic or armor ring bonded to the rupture disc's circumference. This ring, available in carbon steel or stainless steel, improves the overall reliability of the rupture disc by preventing unequal piping stresses from affecting the rupture disc's pressure membrane. It also assists in increasing safety in toxic and flammable services by maintaining the rupture disc's outer diameter within the flanges after the rupture disc bursts.

All Continental impervious graphite rupture discs are available with an armor ring, although, dependent on size, pressure and temperature rating, some graphite rupture discs feature armor as a standard (See Table II, below). All discs for ANSI 300# are armored. The dimensions of an armored rupture disc remain the same as that of a non-armored rupture disc.

Table II - Grafsert Armor Ring as Standard

Size	When Rating is Greater Than:
1/2" - 3"	150 psig (10,3 barg)
4"	100 psig (6,89 barg)
6" - 10"	75 psig (5,17 barg)
12" - 24"	50 psig (3,45 barg)
1/2" - 24"	Any burst rating at 338°F (170°C) or above

Teflon Coating

The Grafsert is available with an optional Teflon coating on the process side of the rupture disc to assist in resisting product buildup. This coating, however, cannot make the Grafsert totally impermeable and is not recommended for extended corrosion resistant service.

Gaskets

Gaskets for Grafsert Rupture Discs are designed to match the sealing requirements of the rupture disc. Neoprene, non-asbestos or Teflon gaskets can be supplied separately or attached to the rupture disc (Refer to Table VI, page 6 for gasket selection information). If gaskets are not supplied by Continental Disc, each must be trimmed to match the stated dimensions described in Table I.

Burst Tolerance

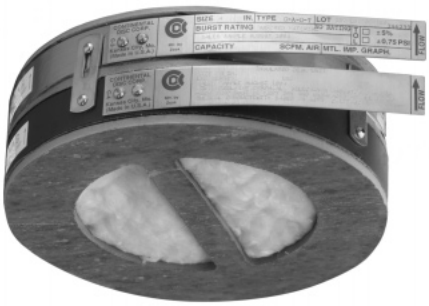
For Grafsert Rupture Discs rated 15 psig (1,03 barg) and above, a burst tolerance of ± 5% applies to the burst rating stamped on the tag. For pressures rated below 15 psig (1,03 barg), the burst tolerance is ±0.75 psig (0,052 barg), and for pressures rated below 1 psig (0,069 barg), the burst tolerance is + 0.75 psig (0,052 barg) /-0 of the stamped burst rating.

ASME Testing

On request Continental Disc will supply Grafsert Rupture Discs to comply with ASME Code Section VIII. For discs ordered to ASME specifications, a normal Manufacturing Design Range of ± 5% of requested rating is utilized unless a special MDR is agreed upon. These rupture discs are rated at the average burst rating resulting from burst tests of two or more rupture discs at the specified temperature.

For rupture discs not requiring ASME Code testing, the rupture discs will be rated at the specified burst pressure. For rupture discs with specified temperatures above 100°F (38°C), and not requiring ASME Code testing, the rupture disc will be tested at ambient temperature and stamped with the estimated or "Temperature Compensated" burst pressure.

Grafsert Rupture Disc with High-Temperature Assembly



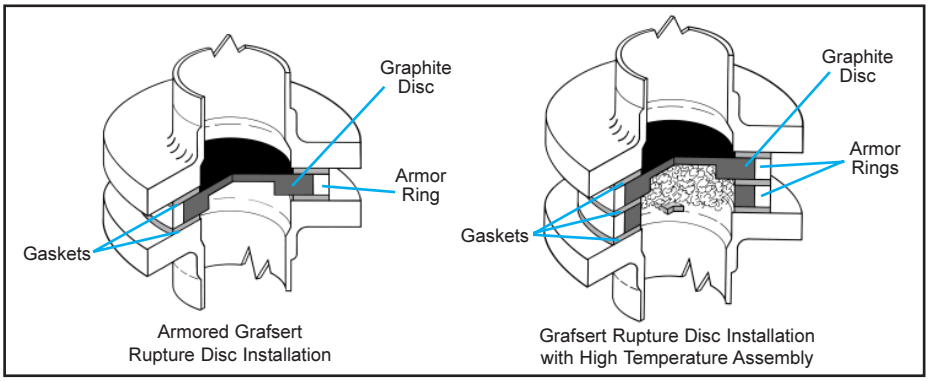
Process side view

High Temperature Assembly

For temperatures that exceed 430°F (221°C), the Grafsert Rupture Disc Assembly must include a High Temperature Assembly.

The High Temperature Assembly is a separate unit, attached to the Grafsert Rupture Disc, designed to insulate the rupture disc from higher temperatures, between 430°F and 700°F (221°C and 371°C). This insulation assembly utililizes fibrous silica and alumina for heat absorption and is not designed for use in liquid systems or in systems with hydrofluoric acid, phosphoric acid, or concentrated alkali medias. Gaskets are included with all Continental graphite rupture discs which include a High Temperature Assembly. Availability of the High Temperature Assembly is dependent on size, pressure rating and vacuum support design.

Figure 1 - Typical Graphite Rupture Disc Installation



RELIEVING CAPACITIES

Table III - Grafsert Relieving Capacities

Measured in standard cubic feet per minute x 1000 at standard conditions (60°F, 14.7 psia, air weight 0.766 lbs/ft³). Values shown are for Grafsert Rupture Discs at a coefficient of discharge (K) of 0.888 based on sonic tests per ASME Code Sec. VIII, UG 131. Adjustment factors are shown at bottom for vacuum supports and insulated discs. Type of vacuum support is determined by diameter and rating, and is shown in the boxed areas of the chart. The plate-type vacuum support cannot be used with an INSULATED disc. These capacities are not applicable to any other rupture disc, even if similar in appearance. Where vacuum supports or other restrictions are used with Grafsert Rupture Discs, these values do not apply. Armor ring is standard on discs for applications shown in blue.

Burst Rating psig	Rupture Disc Diameter (inch)															
	1/2	3/4	1	1.5	2	3	4	6	8	10	12	14	16	18	20	24
1	—	—	—	—	—	—	—	7.25	12.9	20.1	29.0	35.4	46.8	60.0	74.7	109
2	—	—	—	—	—	1.94	3.45	7.76	13.8	21.5	31.0	37.8	50.1	64.1	79.8	116
3	—	—	—	—	.918	2.07	3.67	8.26	14.7	12.0	33.0	40.3	53.4	68.3	85.0	124
4	—	—	—	—	.974	2.19	3.90	8.77	15.6	24.4	35.0	42.8	56.6	72.5	90.2	132
5	—	—	—	—	1.03	2.32	4.12	9.18	16.5	25.8	37.1	45.2	59.9	76.6	95.4	139
6	—	—	—	—	1.09	2.44	4.35	9.78	17.4	27.2	39.1	47.7	63.2	80.8	101	147
7	—	—	—	.643	1.14	2.57	4.57	10.3	18.3	28.6	41.1	50.1	66.4	85.0	106	154
8	—	—	—	.674	1.20	2.70	4.80	10.8	19.2	30.0	43.1	52.6	69.7	89.2	111	162
9	—	—	—	.706	1.25	2.82	5.02	11.3	20.1	31.4	45.2	55.1	72.9	93.3	116	170
10	—	—	.328	.738	1.31	2.95	5.24	11.8	21.0	32.8	47.2	57.5	76.2	97.5	121	177
15	—	—	.398	.897	1.59	3.58	6.37	14.3	25.5	39.8	57.3	69.8	92.5	119	147	215
20	—	—	.468	1.05	1.87	4.21	7.49	16.8	30.0	46.8	67.4	82.1	109	139	173	253
25	.134	.303	.538	1.21	2.15	4.84	8.61	19.4	34.4	53.8	77.5	94.5	125	160	199	291
30	.152	.342	.608	1.37	2.43	5.47	9.73	21.9	38.9	60.8	87.6	107	141	181	225	329
40	.187	.421	.748	1.69	2.99	6.74	12.0	26.9	47.9	74.8	108	131	174	223	277	405
50	.222	.500	.888	2.00	3.55	8.00	14.2	32.0	56.9	88.9	128	156	207	264	329	480
75	.310	.697	1.24	2.79	4.95	11.2	19.8	44.6	79.3	124	178	218	288	369	—	—
100	.397	.894	1.59	3.58	6.36	14.3	25.4	57.2	102	159	229	279	370	473	—	—
125	.485	1.09	1.94	4.37	7.76	17.5	31.1	69.8	124	194	279	—	—	—	—	—
150	.583	1.31	2.33	5.26	9.33	21.0	37.3	84.0	149	—	—	—	—	—	—	—

PLATE, CROSS, BAR, RING, CONSULT FACTORY FOR VACUUM SUPPORT

Guide to Capacity Adjustments for Grafsert Discs Only

RING	.47	—	—	—	—	—	—	—	—	—	—	—	—	—
CROSS	—	—	.39	.56	.61	.56	.58	.60	.56	.55	—— CONSULT FACTORY ——			
PLATE	—	—	.36	.37	.38	.36	.35	.35	.35	.37	—— CONSULT FACTORY ——			
BAR	—	.63	.63	.74	.77	.68	.75	.76	.75	.73	—— CONSULT FACTORY ——			
INSULATED DISCS	**1.0**	**.80**	**.79**	**.63**	**.71**	**.68**	**.71**	**.76**	**.76**	**.75**	**—— CONSULT FACTORY ——**			

Example: A 4" Grafsert Rupture Disc rated 20 psig and expected to experience vacuum in service will use a bar type vacuum support, adjusting its original capacity of 7.49 x 1000 scfm air by a factor of .77, resulting in adjusted capacity of 5.77 x 1000 scfm air. If insulated for use above 430°F (221°C), the capacity would be adjusted further by a factor of .71, to 4.09 x 1000 scfm air.

VACUUM SUPPORT CONFIGURATIONS

RING

CROSS

PLATE

BAR

Table IV - Inverted Grafsert Relieving Capacities

Measured in standard cubic feet per minute x 1000 at standard conditions (60°F, 14.7 psia, air weight 0.766 lbs/ft^3). Values shown are for Inverted Grafsert Design Rupture Discs at a coefficient of discharge (K) of 0.779 based on sonic tests per ASME Code Sec. VIII, UG 131. Adjustment factors are shown at bottom for insulated discs. These capacities are not applicable to any other rupture disc, even if similar in appearance. Armor ring is standard on discs for applications shown in blue.

Burst Rating psig	Rupture Disc Diameter (inch)															
	1/2	3/4	1	1.5	2	3	4	6	8	10	12	14	16	18	20	24
1	—	—	—	—	—	—	—	6.36	11.3	17.6	25.4	31.1	41.0	52.6	65.5	95.6
2	—	—	—	—	—	1.70	3.02	6.80	12.1	18.8	27.1	33.2	44.0	56.2	70.0	102
3	—	—	—	—	.805	1.81	3.22	7.24	12.8	20.1	28.9	35.4	46.8	60.0	74.6	109
4	—	—	—	—	.854	1.92	3.42	7.69	13.6	21.4	30.7	37.5	49.7	63.6	79.1	116
5	—	—	—	—	.904	2.03	3.61	8.13	14.4	22.6	32.5	39.7	52.5	67.2	83.7	122
6	—	—	—	—	.956	2.14	3.81	8.58	15.2	23.3	34.3	41.8	55.4	70.9	88.6	129
7	—	—	—	.565	1.00	2.25	4.00	9.03	16.0	25.0	36.0	44.0	58.2	74.6	93.0	135
8	—	—	—	.592	1.05	2.36	4.21	9.47	16.8	26.3	37.8	46.1	61.1	78.3	97.4	142
9	—	—	—	.620	1.09	2.47	4.40	9.91	17.6	27.4	39.6	48.3	64.0	81.8	102	149
10	—	—	.228	.648	1.14	2.58	4.59	10.3	18.4	28.7	41.4	50.4	66.8	85.5	106	155
15	—	—	.349	.787	1.39	3.14	5.58	12.5	22.3	34.9	50.2	61.2	81.1	104	129	189
20	—	—	.411	.921	1.64	3.69	6.57	14.7	26.3	41.0	59.1	72.0	95.6	122	152	222
25	.118	.266	.476	1.06	1.88	4.24	7.55	17.0	30.1	47.1	67.8	82.9	110	140	175	255
30	.133	.300	.527	1.20	2.13	4.79	8.53	19.2	34.1	53.3	76.8	93.9	124	159	197	289
40	.164	.369	.656	1.48	2.62	5.91	10.5	23.5	42.0	65.6	94.7	115	153	196	243	355
50	.195	.439	.779	1.75	3.11	7.01	12.4	28.0	49.9	77.9	112	137	182	232	289	421
75	.272	.611	1.08	2.44	4.34	9.82	17.3	39.1	69.5	108	156	191	253	324	403	588
100	.348	.784	1.39	3.14	5.57	12.5	22.2	50.1	89.4	139	200	245	325	415	517	754
125	.425	.956	1.70	3.83	6.80	15.3	27.2	61.2	108	170	244	299	396	506	631	920
150	.511	1.14	2.04	4.61	8.18	18.4	32.7	73.6	130	204	294	360	476	609	759	1106
175	.580	1.30	2.31	5.22	9.29	20.8	37.1	83.4	148	—	—	—	—	—	—	—
200	.656	1.47	2.62	5.91	10.5	23.5	42.0	94.7	168	—	—	—	—	—	—	—
225	.733	1.64	2.93	6.60	11.7	26.4	46.9	105	187	—	—	—	—	—	—	—
250	.810	1.82	3.23	7.29	12.9	29.2	51.8	116	207	—	—	—	—	—	—	—
275	.886	1.99	3.54	7.99	14.2	31.9	56.7	128	227	—	—	—	—	—	—	—
300	.965	2.16	3.85	8.68	15.4	34.7	61.6	138	246	—	—	—	—	—	—	—
350	1.11	2.51	4.46	10.0	17.8	40.2	71.5	160	285	—	—	—	—	—	—	—
400	1.27	2.86	5.07	11.4	20.3	45.7	81.4	183	325	—	—	—	—	—	—	—
450	1.42	3.21	5.70	12.8	22.8	51.3	91.2	205	365	—	—	—	—	—	—	—
500	1.58	3.55	6.31	14.2	25.3	56.9	101	—	—	—	—	—	—	—	—	—
1000	3.12	7.01	12.5	28.1	—	—	—	—	—	—	—	—	—	—	—	—
Guide to Capacity Adjustments for Inverted Grafsert Discs Only																
INSULATED DISCS			**1.0**	**.80**	**.79**	**.63**	**.71**	**.68**	**.71**	**.76**	**.76**	**.75**	**—— CONSULT FACTORY ——**			

Example: A 4" Inverted Grafsert Rupture Disc rated 20 psig would relieve 6.57 x 1000 scfm air. If the same disc were insulated for use above 430°F (221°C) it would be adjusted by a factor of .71, to 4.66 x 1000 scfm air.

SEALSERT RUPTURE DISC

Continental's Sealsert Rupture Disc is an impervious graphite rupture disc designed to provide instantaneous overpressure relief in a single direction and to extend the corrosion resistant capabilities of the Grafsert Rupture Disc.

The Sealsert Rupture Disc features a Teflon lining applied to the process side of the rupture disc. This lining acts as a barrier between the impervious graphite surface and the media, providing additional protection against virtually all commercial chemicals, with the exception of free Fluorine.

Sealsert Rupture Discs fit directly between standard flat or raised face 150# or 300# ANSI flanges and are available in nominal sizes from 1/2" through 24" (13 to 600 mm) in diameter and for burst pressures from 0.25 to 720 psig (0,017 to 49,7 barg). See Table VII for size and pressure limitations.

An optional flat Teflon film may be added to the vent side of the rupture disc to protect against condensation or dirt accumulation.

High Temperature Assembly

For temperatures that exceed 430°F (221°C), the Sealsert Rupture Disc Assembly must include a High Temperature Assembly. The High Temperature Assembly is a separate unit attached to the Sealsert Rupture Disc that is designed to insulate the rupture disc from higher temperatures, between 430°F and 700°F (221°C and 371°C). This insulation assembly utilizes fibrous silica and alumina for heat absorption and is not designed for use in liquid systems or in systems with hydrofluoric acid, phosphoric acid, and concentrated alkali medias.

Armoring

An armored Sealsert Rupture Disc consists of the disc with a metallic or armor ring bonded to the rupture disc's circumference. This ring, available in carbon steel or stainless steel, improves the overall reliability of the rupture disc by preventing unequal piping stresses from affecting the rupture disc's pressure membrane. It also assists in increasing safety in toxic and flammable services by maintaining the rupture disc's outer diameter within the flanges after the rupture disc bursts.

Sealsert Rupture Discs are available with an armor ring, although, dependent on size and pressure rating, some feature armor as a standard (See Table V).

Sealsert Rupture Disc with armored ring

Vent side view

Process side view

All discs for ANSI 300# are armored. The dimensions of an armored rupture disc remain the same as that of non-armored rupture discs.

Table V - Sealsert Armor Ring as Standard

Size	When Rating is Greater Than:
1/2" - 3"	150 psig (10,3 barg)
4"	100 psig (6,89 barg)
6" - 10"	75 psig (5,17 barg)
12" - 24"	50 psig (3,45 barg)
1/2" - 24"	Any burst rating at 338°F (170°C) or above

Gaskets

Gaskets for Sealsert Rupture Discs are designed to match the sealing requirements of the rupture disc. Neoprene, non-asbestos or Teflon gaskets can be supplied separately or attached to the rupture disc (Refer to Table VI for gasket selection information). If gaskets are not supplied by Continental Disc, each must be trimmed to match the stated dimensions described in Table VII.

Table VI - Gasket Selection

Gasket Material	Thickness	Temp. Max
Neoprene	1/8"	250°F (121°C)
Non-asbestos	1/8"	700°F (371°C)
PTFE Teflon (solid)	1/8"	500°F (260°C)
Envelope (Teflon) Non-asbestos filler Neoprene filler	 3/16" 3/16"	 500°F (260°C) 250°F (121°C)

Burst Tolerance

For Sealsert Rupture Discs rated 15 psig (1,03 barg) and above, a burst tolerance of ± 5% applies to the burst rating stamped on the tag. For pressures rated below 15 psig (1,03 barg), the burst tolerance is ± 0.75 psig (0,05 barg), and for pressures rated below 1 psig (0,069 barg), the burst tolerance is + 0.75 psig (0,052 barg) /-0 of the stamped burst rating.

ASME Testing

On request Continental Disc will supply Sealsert Rupture Discs to comply with ASME Section VIII. For discs ordered to ASME specifications, a normal Manufacturing Design Range of ± 5% of requested rating is utilized unless a special MDR is agreed upon. These rupture discs are rated at the average burst rating resulting from burst tests of two or more rupture discs at the specified temperature.

For rupture discs not requiring ASME Code testing, the rupture discs will be rated at the specified burst pressure. For rupture discs with specified temperatures above 100°F (38°C) and not requiring ASME testing, the rupture disc will be tested at ambient temperature and stamped with the estimated or "Temperature Compensated" burst pressure.

Vacuum Support

Sealsert Rupture Discs are self supporting under vacuum conditions for burst pressure ratings above 25 psig (1,72 barg).

Table VII - Sealsert Rupture Disc Specifications for 150# and 300# ANSI flanges @ 70°F (21°C)

ANSI Class	Nominal Size		Disc Burst Rating Min - Max		Rupture Disc Height				Rupture Disc Diameter			
					Rupture Disc**		Rupture Disc w/ High-Temp. Assy.**		Inside Diameter		Outside Diameter	
	inch	mm	psig	barg	inch	mm	inch	mm	inch	mm	inch	mm
150#	1/2	13	25 - 275*	1,72 - 19,0*	0.625	15,88	1.75	44,5	0.50	12,7	1.75	44,5
"	3/4	19	25 - 275*	1,72 - 19,0*	0.625	15,88	1.75	44,5	0.75	19,1	2.125	53,98
"	1	25	10.0 - 275*	0,689 - 19,0*	0.875	22,23	2.25	57,2	1.00	25,4	2.50	63,5
"	1 1/2	40	7.0 - 275*	0,483 - 19,0*	0.875	22,23	2.25	57,2	1.50	38,1	3.25	82,6
"	2	50	3.0 - 275*	0,207 - 19,0*	0.875	22,23	2.25	57,2	2.00	50,8	4.00	101,6
"	3	80	2.5 - 275*	0,172 - 19,0*	0.875	22,23	2.25	57,2	3.00	76,2	5.25	133,4
"	4	100	2.0 - 250	0,138 - 17,3	0.875	22,23	2.25	57,2	4.00	101,6	6.75	171,5
"	6	150	1.5 - 170	0,103 - 11,7	0.875	22,23	2.25	57,2	6.00	152,4	8.625	219,08
"	8	200	1.5 - 170	0,103 - 11,7	1.125	28,58	2.75	69,9	8.00	203,2	10.875	276,23
"	10	250	1.5 - 150	0,103 - 10,4	1.50	38,1	3.375	85,73	10.00	254,0	13.25	336,6
"	12	300	1.5 - 150	0,103 - 10,4	2.00	50,8	4.375	111,13	12.00	304,8	16.00	406,4
"	14	350	0.25 - 150	0,017 - 10,4	2.25	57,2	4.875	123,83	13.25	336,6	17.625	447,68
"	16	400	0.25 - 150	0,017 - 10,4	2.50	63,5	5.375	136,53	15.25	387,4	20.125	511,18
"	18	450	0.25 - <150	0,017 - <10,4	2.75	69,9	5.875	149,23	17.25	438,2	21.50	546,1
"	20	500	0.25 - <150	0,017 - <10,4	3.00	76,2	6.375	161,93	19.25	489,0	23.75	603,3
"	24	600	0.25 - <150	0,017 - <10,4	3.00	76,2	6.375	161,93	23.25	590,6	28.125	714,38
300#	1/2	13	25 - 720*	1,72 - 49,6*	0.625	15,88	1.75	44,5	0.50	12,7	2.00	50,8
"	3/4	19	25 - 720*	1,72 - 49,6*	0.625	15,88	1.75	44,5	0.75	19,1	2.50	63,5
"	1	25	10.0 - 720*	0,689 - 49,6*	1.00	25,4	2.50	63,5	1.00	25,4	2.75	69,9
"	1 1/2	40	7.0 - 720*	0,483 - 49,6*	1.00	25,4	2.50	63,5	1.50	38,1	3.625	92,08
"	2	50	3.0 - 500	0,207 - 34,5	1.00	25,4	2.50	63,5	2.00	50,8	4.25	108,0
"	3	80	2.0 - 500	0,138 - 34,5	1.25	31,8	3.00	76,2	3.00	76,2	5.75	146,1
"	4	100	1.5 - 500	0,103 - 34,5	1.25	31,8	3.00	76,2	4.00	101,6	7.00	177,8
"	6	150	1.0 - 450	0,069 - 31,0	1.75	44,5	4.00	101,6	6.00	152,4	9.75	247,7
"	8	200	0.5 - 450	0,034 - 31,0	2.25	57,2	5.00	127,0	8.00	203,2	12.00	304,8

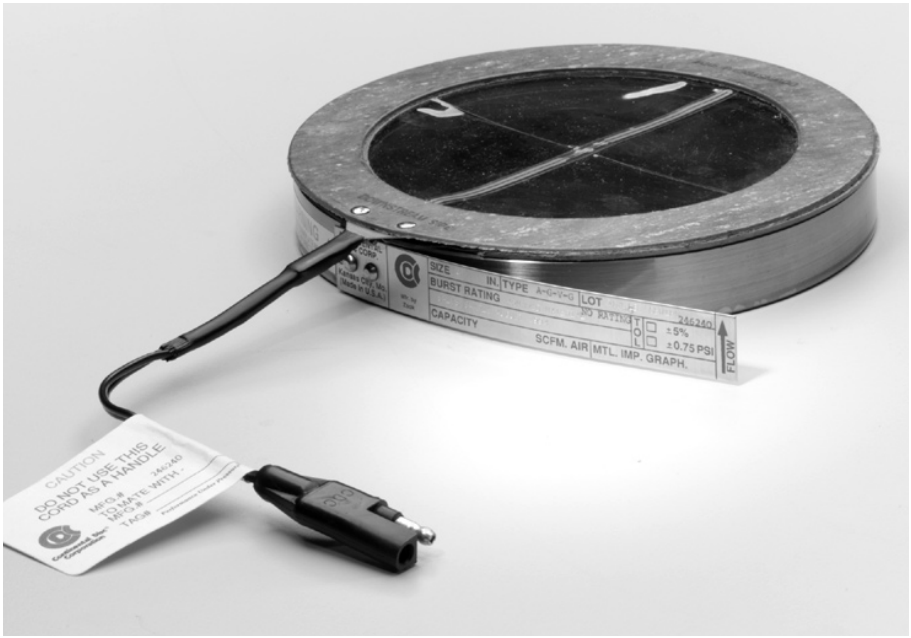
* Consult factory for higher ratings.

** Rupture disc thickness when supplied with high temperature assembly includes all gaskets. Rupture disc is furnished complete and ready for installation. Non-insulated rupture disc thickness does not include gasket.

Graphite Rupture Disc with B.D.I. (Burst Disc Indicator) Alarm System

This system provides immediate warning of disc rupture. The B.D.I. Alarm Strip, which installs on the vent or outlet side of the rupture disc, is severed upon disc rupture, creating an open circuit. Connected to an appropriate monitoring device, this signal can initiate audio/visual alarms and relay switches for actuating connected valves, pumps or other equipment.

The B.D.I. Alarm System is ideal when warning of rupture disc overpressure relief is essential for plant safety or for indicating a process malfunction, monitoring a remote installation, or protecting from product loss or contamination. For more information refer to Continental's B.D.I. Alarm System Bulletin #5-7701-5.



SEALSERT RELIEVING CAPACITIES

Table VIII - Sealsert Relieving Capacities

Measured in standard cubic feet per minute x 1000 at standard conditions (60°F, 14.7 psia, air weight 0.766 lbs/ft^3). Values shown are for Sealsert Design Rupture Discs at a coefficient of discharge (K) of 0.779 based on sonic tests per ASME Code Sec. VIII, UG 131. Adjustment factors are shown at bottom for insulated discs. These capacities are not applicable to any other rupture disc, even if similar in appearance. Armor ring is standard on discs for applications shown in blue.

Burst Rating psig	Disc Diameter (inch)															
	1/2	3/4	1	1.5	2	3	4	6	8	10	12	14	16	18	20	24
1	—	—	—	—	—	—	—	6.36	11.3	17.6	25.4	31.1	41.0	52.6	65.5	95.6
2	—	—	—	—	—	1.70	3.02	6.80	12.1	18.8	27.1	33.2	44.0	56.2	70.0	102
3	—	—	—	—	.805	1.81	3.22	7.24	12.8	20.1	28.9	35.4	46.8	60.0	74.6	109
4	—	—	—	—	.854	1.92	3.42	7.69	13.6	21.4	30.7	37.5	49.7	63.6	79.1	116
5	—	—	—	—	.904	2.03	3.61	8.13	14.4	22.6	32.5	39.7	52.5	67.2	83.7	122
6	—	—	—	—	.956	2.14	3.81	8.58	15.2	23.3	34.3	41.8	55.4	70.9	88.6	129
7	—	—	—	.565	1.00	2.25	4.00	9.03	16.0	25.0	36.0	44.0	58.2	74.6	93.0	135
8	—	—	—	.592	1.05	2.36	4.21	9.47	16.8	26.3	37.8	46.1	61.1	78.3	97.4	142
9	—	—	—	.620	1.09	2.47	4.40	9.91	17.6	27.4	39.6	48.3	64.0	81.8	102	149
10	—	—	.228	.648	1.14	2.58	4.59	10.3	18.4	28.7	41.4	50.4	66.8	85.5	106	155
15	—	—	.349	.787	1.39	3.14	5.58	12.5	22.3	34.9	50.2	61.2	81.1	104	129	189
20	—	—	.411	.921	1.64	3.69	6.57	14.7	26.3	41.0	59.1	72.0	95.6	122	152	222
25	.118	.266	.476	1.06	1.88	4.24	7.55	17.0	30.1	47.1	67.8	82.9	110	140	175	255
30	.133	.300	.527	1.20	2.13	4.79	8.53	19.2	34.1	53.3	76.8	93.9	124	159	197	289
40	.164	.369	.656	1.48	2.62	5.91	10.5	23.5	42.0	65.6	94.7	115	153	196	243	355
50	.195	.439	.779	1.75	3.11	7.01	12.4	28.0	49.9	77.9	112	137	182	232	289	421
75	.272	.611	1.08	2.44	4.34	9.82	17.3	39.1	69.5	108	156	191	253	324	403	588
100	.348	.784	1.39	3.14	5.57	12.5	22.2	50.1	89.4	139	200	245	325	415	517	754
125	.425	.956	1.70	3.83	6.80	15.3	27.2	61.2	108	170	244	299	396	506	631	920
150	.511	1.14	2.04	4.61	8.18	18.4	32.7	73.6	130	204	294	360	476	609	759	1106
175	.580	1.30	2.31	5.22	9.29	20.8	37.1	83.4	148	—	—	—	—	—	—	—
200	.656	1.47	2.62	5.91	10.5	23.5	42.0	94.7	168	—	—	—	—	—	—	—
225	.733	1.64	2.93	6.60	11.7	26.4	46.9	105	187	—	—	—	—	—	—	—
250	.810	1.82	3.23	7.29	12.9	29.2	51.8	116	207	—	—	—	—	—	—	—
275	.886	1.99	3.54	7.99	14.2	31.9	56.7	128	227	—	—	—	—	—	—	—
300	.965	2.16	3.85	8.68	15.4	34.7	61.6	138	246	—	—	—	—	—	—	—
350	1.11	2.51	4.46	10.0	17.8	40.2	71.5	160	285	—	—	—	—	—	—	—
400	1.27	2.86	5.07	11.4	20.3	45.7	81.4	183	325	—	—	—	—	—	—	—
450	1.42	3.21	5.70	12.8	22.8	51.3	91.2	205	365	—	—	—	—	—	—	—
500	1.58	3.55	6.31	14.2	25.3	56.9	101	—	—	—	—	—	—	—	—	—
1000	3.12	7.01	12.5	28.1	—	—	—	—	—	—	—	—	—	—	—	—
Guide to Capacity Adjustments for Sealsert Discs Only																
INSULATED DISCS			**1.0**	**.80**	**.79**	**.63**	**.71**	**.68**	**.71**	**.76**	**.76**	**.75**	**—— CONSULT FACTORY ——**			

Example: A 4" Sealsert Rupture Disc rated 20 psig would relieve 6.57 x 1000 scfm air. If the same disc were insulated for use above 430°F (221°C) it would be adjusted by a factor of .71, to 4.66 x 1000 scfm air.

DUALSERT RUPTURE DISC

Continental's Dualsert Rupture Disc is an impervious graphite rupture disc designed to provide instantaneous overpressure relief in two directions. The Dualsert Rupture Disc provides protection against overpressure from two different pressures in opposite directions.

Dualsert Rupture Discs fit directly between standard flat or raised face 150# ANSI flanges and are available in nominal sizes from 1.5" through 24" (40 - 600 mm) in diameter and for burst pressures from 0.25 to 150 psig (0,017 to 10,4 barg). Generally, a minimum burst pressure differential of 10 psig (0,690 barg) is required. See Table IX for size and pressure limitations.

All Dualsert Rupture Discs feature an attached armor ring. This ring, available in carbon steel or stainless steel, improves the overall reliability of the rupture disc by preventing unequal piping stresses from affecting the rupture disc's pressure membrane. It also assists in increasing safety in toxic and flammable services by maintaining the rupture disc's outer diameter within the flanges after the rupture disc bursts.

Teflon Lining

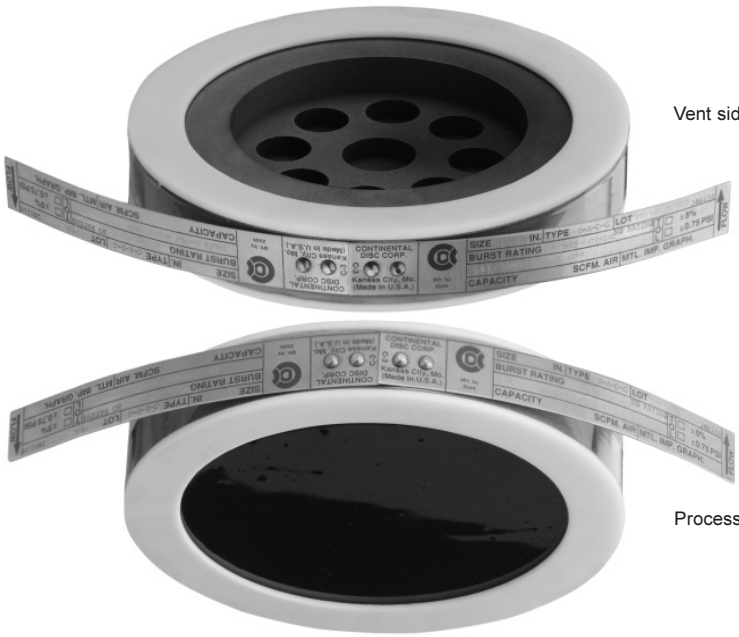
An optional Teflon lining may be added to the flat side of the rupture disc to provide additional corrosion protection. This lining must be applied at the factory to determine proper burst ratings. Teflon-lined Dualsert Rupture Discs are not available with minimum burst ratings as low as those for non-lined rupture discs. Consult the factory for special applications.

An optional Teflon coating may be added to either or both sides of the rupture disc to protect against product accumulation.

Gaskets

Gaskets for Dualsert Rupture Discs are supplied, attached directly to the rupture disc. Available gasket materials include Neoprene, non-asbestos or Teflon materials (Refer to Table VI, page 6 for gasket selection information). Applying or replacing Dualsert gaskets in the field is not recommended.

Dualsert Rupture Disc with armored ring



Vent side view

Process side view

Burst Tolerance

For Dualsert Rupture Discs rated 15 psig (1,03 barg) and above, a burst tolerance of ± 5% applies to the burst rating stamped on the tag. For pressures rated below 15 psig (1,03 barg) the burst tolerance is ± 0.75 psig (0,052 barg) of the stamped burst rating. For pressures less than 1 psig, a burst tolerance of + 0.75 psig (0,052 barg), -0 applies. For pressures less than 3 psig, a tighter tolerance is available at an additional cost.

ASME Testing

On request Continental Disc will supply Dualsert Rupture Discs to comply with ASME Code Section VIII. For discs ordered to ASME specifications, a normal Manufacturing Design Range of ± 5% of requested rating is utilized unless a special MDR is agreed upon. These rupture discs are rated at the average burst rating resulting from burst tests of two or more rupture discs at the specified temperature.

For rupture discs not requiring ASME testing, the rupture disc will be rated at the specified burst pressure. For rupture discs with specified temperatures above 100°F (22°C) and not requiring ASME testing, the rupture disc will be tested at ambient temperature and stamped with the estimated or "Temperature Compensated" burst pressure.

Consult Continental Disc for relieving capacities for the Dualsert Rupture Disc.

Table IX - Dualsert Rupture Disc Specifications for 150# ANSI flanges @ 70°F (21°C)

Nominal Size		Minimum Disc Burst Rating		Rupture Disc Height		Rupture Disc Diameter			
						Inside Diameter		Outside Diameter	
inch	mm	psig	barg	inch	mm	inch	mm	inch	mm
1 1/2	40	7.0	0,483	0.875	22,23	1.50	38,1	3.25	82,6
2	50	3.0	0,207	0.875	22,23	2.00	50,8	4.00	101,6
3	80	2.5	0,172	0.875	22,23	3.00	76,2	5.25	133,4
4	100	2.0	0,138	0.875	22,23	4.00	101,6	6.75	171,5
6	150	1.5	0,103	0.875	22,23	6.00	152,4	8.625	219,08
8	200	1.5	0,103	1.125	28,58	8.00	203,2	10.875	276,23
10	250	1.5	0,103	1.50	38,1	10.00	254,0	13.25	336,6
12	300	1.5	0,103	2.00	50,8	12.00	304,8	16.00	406,4
14	350	0.25	0,017	2.25	57,2	13.25	336,6	17.625	447,68
16	400	0.25	0,017	2.50	63,5	15.25	387,4	20.125	511,18
18	450	0.25	0,017	2.75	69,9	17.25	438,2	21.50	546,1
20	500	0.25	0,017	3.00	76,2	19.25	489,0	23.75	603,3
24	600	0.25	0,017	3.00	76,2	23.25	590,6	28.125	714,38

CORROSION GUIDE

The following list provides information on chemicals and concentration amounts acceptable for use with graphite rupture disc designs. Those chemicals not listed typically can be accommodated by the Grafsert Rupture Disc design. When corrosion compatibility is questionable, use the Teflon-lined Sealsert Rupture Disc.

High Temperature Assemblies, designed to protect the rupture discs from temperatures of 430°F to 700°F (221°C to 371°C), are not designed for use with liquids or hydrofluoric and phosphoric acids and concentrated alkalis.

Chemical	Grafsert	Dualsert & Sealsert
Aluminum Hydroxide	No	Yes
Ammonium Hydroxide	No	Yes
Bromine (free)*	No	Yes
Calcium Chlorate	No	Yes
Calcium Hydroxide	No	Yes
Calcium Hypochlorite	No	Yes
Chloral	No	Yes
Chlorine (free)	No	Yes
Chromic Acid (plating)	No	Yes
Fluorine (free)	No	No
Hydrofluoric Acid	to 50%	Yes
Iodine (free)	No	Yes
Molten Metal Alkalis	Yes	Yes
Nitric Acid	to 10% to 85°C to 20% to 60°C	Yes Yes
Oleum	No	Yes
Ozone	No	Yes
Potassium Chlorate	No	Yes
Potassium Hydroxide	No	Yes
Sodium Chlorate	No	Yes
Sodium Hydroxide	No	Yes
Sodium Hypochlorite	No	Yes
Sulfur Trioxide	No	Yes
Sulfuric Acid	to 85%	Yes
Sulfuric with any Nitric Acid	No	Yes

ORDERING

To assure selection of the correct rupture disc and holder for your application, please determine the following:

Quantity: _____ Size: _____ Description: *Grafsert / Sealsert / Dualsert Rupture Disc*

Rated Burst Pressure: _____ psig or barg @_____ °F or °C (_____ in reverse direction for Dualsert)

High Temperature Assembly: ❑ (for Grafsert or Sealsert discs which exceed 430°F, 221°C).

Manufacturing Number: _____ (if replacing current Continental rupture disc installed)

Flange Class: *150# ANSI / 300# ANSI / Other:* _____

Coincident Temperature: _____

- *Room Temperature (40°-100°F, 4,4°-38°C)*
- *Chart Compensated (burst rating estimated from a test curve)*
- *ASME Section VIII (actual temperature test)*

Vacuum Support (required on discs rated below 25 psig where vacuum is expected, available only on Grafsert Rupture Discs)

Armor: *Carbon Steel / 304 Stainless Steel / 316 Stainless Steel*

Gaskets: _____ (see Table VI, page 6)

Other Options

- *Jack Screws*
- *Baffle Plate*
- *Burst Disc Indicator*

Other Requirements: _____

Other Specifications

Operating Specifications:

1. Maximum Allowable Working Pressure (M.A.W.P.)
2. Operating pressure
3. Operating temperature
4. Actual vacuum/backpressure
5. Cycle conditions
6. Required flow rate
7. Media
8. Molecular weight/specific gravity

Quality Assurance/Documentation:

1. Code: ASME, ISO, DIN, JIS, BSI or other
2. Special cleaning
3. Special packaging
4. Special tagging
5. Temperature testing
6. Other

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First Certified in 1992

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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