




**Continental Disc Corporation**


# CERTIFLOW®



## ASME Compliant Rupture Discs

The ASME Boiler and Pressure Vessel Code, Section VIII, Division 1, specifies that rupture disc devices, like all other pressure relief products, should be tested and certified as to their flow characteristics, and that these certified values should be used in flow and sizing calculations.

Rupture disc products manufactured in accordance with all applicable rules of ASME Code Section VIII, Division 1 must carry the  Code Symbol Stamp (shown at left) on the tag, as well as the certified flow resistance ( $K_R$ ) and minimum net flow area (MNFA) values. The "NB" stamp acknowledges The National Board of Boiler and Pressure Vessel Inspectors as the organization that certified the flow tests.

Continental Disc Corporation is accredited and authorized by the ASME 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 complete line of CERTIFLOW® rupture discs meets all ASME Code requirements, including  $K_R$  and MNFA values. With the extensive line of CERTIFLOW rupture discs, there is one available to meet most applications and operating conditions.

Certified  $K_R$  values represent tested flow resistance values. Relief systems can be designed or evaluated more precisely and safely if certified flow resistance values are used, rather than industry practiced estimates. These estimates may not accurately reflect the flow resistance of the rupture disc. Using the certified flow resistance value, along with proper engineering practices, allows precise, efficient, and safe design of relief systems.

"K" values are pressure loss expressed as the number of velocity heads and they are available for nearly all piping system devices and components, including rupture discs.

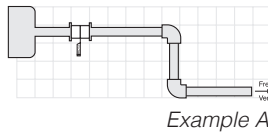
Rupture disc devices should be included in the flow equation in the same manner as all other system components to determine the relieving capacity of the entire relief system. Design engineers are provided with certified  $K_R$  values:

- which enable the designer to meet ASME Code Section VIII, Division 1 for relief system design
- which may permit a reduction in pipe size and associated piping costs when utilized during a relief system design
- for use when evaluating relief systems where two-phase flow may occur
- for use when re-evaluating existing relief systems to comply with design documentation requirements of OSHA CFR 1910.119," Process Safety Management of Highly Hazardous Chemicals."

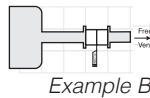
## Two Ways to Use a Certified Flow Resistance Factor

### To confirm relief capacity requirements in a sole relief device system

Combining the certified flow resistance ( $K_R$ ) with the K values of other piping components (shown in example A) allows the design engineer to accurately calculate and evaluate a relief system's flow capacity.

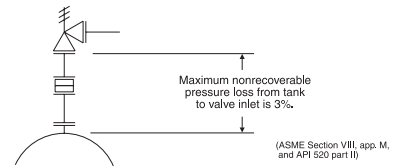


Even for simple relieving systems that can be evaluated with the coefficient of discharge method (8 & 5 rule), utilizing the certified flow resistance ( $K_R$ ) along with the associated K values for the other piping components (shown in example B) will allow for the flow capacity to be more accurately evaluated.



### To confirm a rupture disc/PRV combination follows the "3% Rule"

The system shown might be designed new, or it might be re-evaluated to comply with OSHA CFR 1910.119, which requires that systems be designed with "recognized and generally accepted engineering practices." In the past, an estimated value for the flow resistance of the rupture disc would be used for calculations.




Combining the certified flow resistance value ( $K_R$ ) with the K values of the other piping components, a design engineer can now accurately evaluate this system's nonrecoverable pressure loss.

To specify a rupture disc device to comply with the ASME Code:

- 1) Select the most appropriate rupture disc model for your application. Use the Rupture Disc Selection Guide (Bulletin #1-1100) or contact your local representative for assistance
- 2) Find the type, holder, media, required options, and estimated size in Table I or II
- 3) Find the corresponding MNFA in Table III
- 4) Use the  $K_R$  and MNFA values to confirm the flow characteristics of your relieving system.

For assistance with flow of fluids calculation, consult Crane Technical Paper No. 410. There is also a variety of software titles that will automate your flow of fluid calculations. Be certain that your evaluation uses proper engineering practices such as including all piping system components into your flow calculations and multiplying the calculated relieving capacity by a factor of 0.90 or less as specified in ASME Code Section VIII, Division 1.

A copy of Continental Disc Corporation's Certificate of Authorization to use the  Code Symbol Stamp can be found on our website at [www.contdisc.com](http://www.contdisc.com). There you will also find the most current CERTIFLOW data.

# CERTIFIED VALUES

## Table I — Continental Disc Corporation Certified Rupture Disc Products

Rupture Disc Type	Seat Code	Rupture Disc Holder Type	Media	Options	Size Range		Min. Net Flow Area Table	K <sub>R</sub> Value	National Board Certification Number
					in	mm			
<b>REVERSE ACTING RUPTURE DISCS FOR INSERT TYPE HOLDERS</b>									
HPX®	FS	HPX	Gas	Liners, Coatings	1-8	25-200	A	0.29	75585
HPX	FS	HPX	Liquid	Liners, Coatings	1-8	25-200	A	0.38	75596
ULTRX® & ULTRX HP	FS	ULTRX	Gas	None	1-12	25-300	A	0.36	75248
ULTRX & ULTRX HP	FS	ULTRX	Gas, Liquid	Liners, Coatings	1-12	25-300	A	0.62	75125
ULTRX	DD	ULTRX (DD)*	Gas, Liquid	Liners, Coatings	1-12	25-300	A	0.97	75271
MINTRX®***	FS	MINTRX	Gas, Liquid	None	1-8	25-200	A	0.46	75237
MINTRX***	FS	MINTRX	Gas	Liners, Coatings	1-8	25-200	A	0.45	75552
MINTRX***	FS	MINTRX	Liquid	Liners, Coatings	1-8	25-200	A	0.50	75541
STAR X® & STAR X HP***	FS	STAR X	Gas	Coatings	1-6	25-150	A	0.29	75529
STAR X & STAR X HP***	FS	STAR X	Liquid	Coatings	1-6	25-150	A	0.38	75530
LOTRX®	FS	LOTRX	Gas	Coatings	1-8	25-200	A	0.42	75620
LOTRX	FS	LOTRX	Liquid	Coatings	1-8	25-200	A	0.42	75631
VRD®	FS	VRD	Gas, Liquid	Liners, Coatings	1-8	25-200	A	0.48	75428
RCS	FS	RCS	Gas	None	1-32	25-800	A	0.35	75226
RCS	FS	RCS	Gas	Liners	1-32	25-800	A	0.59	75147
RCS	DD	RCS (DD)*	Gas	Liners	1-32	25-800	A	0.60	75518
KBA***	FS	KBA	Gas	Liners	1-32	25-800	E	3.62	75035
ZAP***	FS	ZAP	Gas	Liners, Coatings	1-8	25-200	F	5.88	75024
<b>REVERSE ACTING RUPTURE DISCS FOR SANITARY SERVICE</b>									
SANITRX HPX®	SF, IS, NA	Standard Sanitary Ferrules	Gas	Coatings, B.D.I.®	1-3	25-80	D	1.13	75608
SANITRX HPX	SF, IS, NA	Standard Sanitary Ferrules	Liquid	Coatings, B.D.I.	1-3	25-80	D	1.60	75619
SANITRX®	SF, IS, NA	Standard Sanitary Ferrules	Gas	Coatings, B.D.I.	1½-4	40-100	D	1.13	75462
SANITRX	SF, IS, NA	Standard Sanitary Ferrules	Liquid	Coatings, B.D.I.	1½-4	40-100	D	1.60	75451
SANITRX MP	SF, IS, NA	Standard Sanitary Ferrules	Gas	Coatings, B.D.I.	1-3	25-80	D	1.13	75574
SANITRX MP	SF, IS, NA	Standard Sanitary Ferrules	Liquid	Coatings, B.D.I.	1-3	25-80	D	1.60	75563
SANITRX LP®	SF, IS, NA	Standard Sanitary Ferrules	Gas	Coatings, B.D.I.	1-3	25-80	D	0.29	75440
SANITRX LP	SF, IS, NA	Standard Sanitary Ferrules	Liquid	Coatings, B.D.I.	1-3	25-80	D	0.32	75439
<b>TENSION TYPE RUPTURE DISCS FOR INSERT, BOLTED OR UNION HOLDERS</b>									
STANDARD	LL, UL	Insert, Full Bolted, & Union	Gas	Liners, Coatings, Gaskets, Rings, B.D.I.	½-30	13-750	B	1.13	75091
STANDARD & STANDARD-V	LL, UL	Insert, Full Bolted, & Union	Gas, Liquid	Liners, Coatings, Gaskets, Rings, B.D.I., Vacuum Support	1-30	25-750	B	1.88	75495
CDC	LL, UL	Insert, Full Bolted, & Union	Gas, Liquid	Coatings, Gaskets, Rings, B.D.I.	1-30	25-750	B	1.81	75057
CDCV	LL, UL	Insert, Full Bolted, & Union	Gas, Liquid	Coatings, Gaskets, Rings, B.D.I.	1-30	25-750	B	2.80	75507
PL & PLV	LL UL	Insert, Full Bolted, & Union	Gas, Liquid	Coatings, Gaskets, Rings, B.D.I., Vacuum Support	1-30	25-750	C	5.00	75170
CDC	FS	RHI, UNISERT®	Gas, Liquid	Coatings, Gaskets, Rings	1-36	25-900	A	0.34	75002
CDCV	FS	RHI, UNISERT	Gas, Liquid	Coatings, Gaskets, Rings	1-36	25-900	A	1.04	75046
CDCV	FS	RHI, UNISERT	Gas, Liquid	None	1-36	25-900	A	0.53	75215
CDC & CDCV	DD	UNISERT (DD)*	Gas, Liquid	Coatings, Gaskets, Rings	1-36	25-900	A	1.81	75642
PL & PLV	FS	RHI, UNISERT	Gas, Liquid	Coatings, Gaskets, Rings, Vacuum Support	1-36	25-900	A	1.60	75169
ENVIRO-SEAL I & II**	N/A	N/A	Gas, Liquid	Coatings, B.D.I.	1-36	25-900	A	2.00	75013
MICRO X®	FS	RHI, UNISERT	Gas, Liquid	Liners, Coatings, Gaskets, Rings	1-36	25-900	A	0.29	75079
MICRO X-V	FS	RHI, UNISERT	Gas	Liners, Coatings, Gaskets, Rings	1-36	25-900	A	0.29	75080
MICRO X-V	FS	RHI, UNISERT	Liquid	Liners, Coatings, Gaskets, Rings	1-36	25-900	A	1.10	75181
MICRO X-V	DD	UNISERT (DD)*	Gas, Liquid	Liners, Coatings, Gaskets, Rings	1-36	25-900	A	5.59	75473
<b>TENSION TYPE RUPTURE DISCS FOR CLEAN-SWEEP HOLDERS</b>									
MICRO X	CF	CLEAN-SWEEP®	Gas, Liquid	Liners, Coatings, Gaskets, Rings	1-6	25-150	A	1.52	75383
MICRO X-V	CF	CLEAN-SWEEP	Gas, Liquid	Liners, Coatings, Gaskets, Rings	1-6	25-150	A	1.74	75394
CDC	CF	CLEAN-SWEEP	Gas, Liquid	Coatings, Gaskets, Rings	1-6	25-150	A	1.57	75361
CDCV	CF	CLEAN-SWEEP	Gas, Liquid	Coatings, Gaskets, Rings	1-6	25-150	A	2.54	75372
PL	CF	CLEAN-SWEEP	Gas, Liquid	Coatings, Gaskets, Rings	1-6	25-150	A	1.57	75349
PLV	CF	CLEAN-SWEEP	Gas, Liquid	Coatings, Gaskets, Rings	1-6	25-150	A	2.64	75350
<b>TENSION TYPE OR REVERSE ACTING RUPTURE DISCS FOR TITE-SEAL OR SCREW TYPE HOLDERS</b>									
CDCV	FS	Tite-Seal, Screw Type	Gas, Liquid	Gaskets	¼-½	6-13	G	5.73	75338
STANDARD	FS	Tite-Seal, Screw Type	Gas, Liquid	Coatings, Gaskets, Rings	¼-1	6-25	G	9.59	75327
STANDARD-V	FS	Tite-Seal, Screw Type	Gas, Liquid	Coatings, Gaskets, Rings	¼-1	6-25	G	10.50	75293
STANDARD	LL	Screw Type	Gas, Liquid	Coatings, Gaskets, Rings	¼-½	6-13	G	6.09	75305
STANDARD-V	LL	Screw Type	Gas, Liquid	Coatings, Gaskets, Rings	¼-½	6-13	G	13.30	75316
SRA	FS	SRA Tite-Seal	Gas, Liquid	Coatings, Gaskets, Rings	¼-1	6-25	H	3.59	75282

\* A single rupture disc device that incorporates two rupture discs into one rupture disc holder.

\*\* ENVIRO-SEAL I & II are not offered in 28" size.

\*\*\* These are superseded products and are available for "replacement only." (NOTE: KBA below 12")

NOTES: • Consult the appropriate product literature for the specifications available for each device. • All product types containing "V" denote use of vacuum support.

**Table II — LAMOT® Certified Rupture Disc Products**

Rupture Disc Type	Seat Code	Rupture Disc Holder Type	Media	Options	Size Range		Min. Net Flow Area Table	K <sub>r</sub> Value	National Board Certification Number
					in	mm			
ISOLATION SEAL I & II	N/A	N/A	Gas, Liquid	Coatings	1-12	25-300	A	2.00	75013
STANDARD	LL, UL	Insert, Full Bolted, & Union	Gas	Liners, Coatings, Gaskets, Rings, B.D.I.	½-12	13-300	B	1.13	75091
STANDARD & STANDARD-V	LL, UL	Insert, Full Bolted, & Union	Gas, Liquid	Liners, Coatings, Gaskets, Rings, B.D.I.	1-12	25-300	B	1.88	75495
LD	LL, UL	Insert, Full Bolted, & Union	Gas, Liquid	Coatings, Gaskets, Rings, B.D.I.	1-12	25-300	B	1.81	75057
LDV	LL, UL	Insert, Full Bolted, & Union	Gas, Liquid	Coatings, Gaskets, Rings, B.D.I.	1-12	25-300	B	2.80	75507
LPL & LPLV	LL, UL	Insert, Full Bolted, & Union	Gas, Liquid	Coatings, Gaskets, Rings, B.D.I., Vacuum Support	1-12	25-300	C	5.00	75170
LDV	FS	Throwaway, Screw Type	Gas, Liquid	Gaskets	¼-½	6-13	G	5.73	75338
STANDARD-V	FS	Throwaway, Screw Type	Gas, Liquid	Coatings, Gaskets, Rings	¼-1	6-25	G	10.50	75293

**Table III — Minimum Net Flow Areas (MNFA) for Certified Rupture Disc Products**

Minimum Net Flow Area for each rupture disc size. Gray box indicates inches squared (in<sup>2</sup>), white box indicates millimeters squared (mm<sup>2</sup>).

A	Disc Size	1"	25mm	1½"	40mm	2"	50mm	3"	80mm	4"	100mm	6"	150mm	8"	200mm	10"	250mm	12"	300mm
	MNFA	0.86	555	2.04	1316	3.36	2168	7.39	4768	12.7	8194	28.8	18581	50.0	32258	78.8	50839	113	72903
	Disc Size	14"	350mm	16"	400mm	18"	450mm	20"	500mm	24"	600mm	28"	700mm	30"	750mm	32"	800mm	36"	900mm
MNFA	137	88387	182	117419	233	150322	291	187742	424	273548	583	376128	671	432902	766	494193	975	629031	

B	Disc Size	½"	13mm	¾"	19 mm	1"	25mm	1½"	40mm	2"	50mm	3"	80mm	4"	100mm	6"	150mm	8"	200mm
	MNFA	0.23	148	0.43	277	0.72	465	1.77	1142	3.36	2168	7.39	4768	12.7	8194	28.8	18581	50.0	32258
	Disc Size	10"	250mm	12"	300mm	14"	350mm	16"	400mm	18"	450mm	20"	500mm	24"	600mm	30"	750mm		
MNFA	78.8	50839	113	72903	137	88387	182	117419	233	150322	291	187742	424	273548	671	432902			

C	Disc Size	1"	25mm	1½"	40mm	2"	50mm	3"	80mm	4"	100mm	6"	150mm	8"	200mm	10"	250mm
	MNFA	0.52	335	1.40	903	3.36	2168	7.39	4768	12.7	8194	28.8	18581	50.0	32258	78.8	50839
	Disc Size	12"	300mm	14"	350mm	16"	400mm	18"	450mm	20"	500mm	24"	600mm	30"	750mm		
MNFA	113	72903	137	88387	182	117419	233	150322	291	187742	424	273548	671	432902			

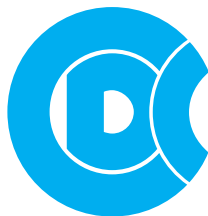
D	Disc Size	1"	25mm	1½"	40mm	2"	50mm	3"	80mm	4"	100mm
	MNFA	0.493	318	1.18	761	2.25	1452	5.49	3542	9.77	6303

E	Disc Size	1"	25mm	1½"	40mm	2"	50mm	3"	80mm	4"	100mm	6"	150mm	8"	200mm	10"	250mm	12"	300mm
	MNFA	0.72	465	1.77	1142	2.95	1903	6.61	4265	11.5	7419	26.0	16774	45.6	29419	71.8	46322	101	65161
	Disc Size	14"	350mm	16"	400mm	18"	450mm	20"	500mm	24"	600mm	28"	700mm	30"	750mm	32"	800mm		
MNFA	122	78710	160	103226	204	131613	252	162580	365	235483	498	321290	572	369032	651	419999			

F	Disc Size	1"	25mm	1½"	40mm	2"	50mm	3"	80mm	4"	100mm	6"	150mm	8"	200mm
	MNFA	0.56	361	1.45	935	2.36	1523	4.85	3129	7.99	5155	17.2	11097	30.1	19419

G	Inlet Connection	¼" MPT	⅜" MPT	½" MPT	¾" MPT	1" MPT				
	MNFA	0.04	25,8	0.10	64,5	0.17	110	0.29	187	0.52

H	Inlet Connection	¼" MPT	⅜" MPT	½" MPT	¾" MPT	1" MPT				
	MNFA	0.07	45,2	0.14	90,3	0.23	148	0.43	277	0.72



# Continental Disc<sup>®</sup> Corporation

*Performance Under Pressure<sup>®</sup>*



ASME Code Symbol Stamp  
Available When Specified

China Manufacture License  
Available When Specified



Pressure Equipment Directive  
Available When Specified



Continental Disc<sup>®</sup>  
Corporation



GROTH<sup>®</sup>  
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