

ULTRX[®] Rupture Disc



**Continental Disc[®]
Corporation**

Performance Under Pressure[®]


ULTRX* RUPTURE DISCS

What is an ULTRX Rupture Disc?

An ULTRX Rupture Disc is a scored reverse acting rupture disc. It is a differential pressure relief device that provides an instantaneous full-open, non-reclosing design for protecting equipment, vessels and systems from an overpressure condition.

The ULTRX Rupture Disc is available in nominal sizes ranging from 1" through 12". Larger sizes available. Consult the factory or your Continental Disc Corporation representative for more information.

Proven features include:

- Good for gas or liquid service
- Zero manufacturing range as standard
- Operation to 90% of burst rating
- Safety ratio of 1.5 or less
- Standard materials of Hastelloy® C-276,** Inconel®,*** Stainless Steel, Monel®*** and Nickel
- Encapsulating rings to provide perfect alignment and eliminate seal load sensitivity
- Three-dimensional flow tag to provide immediate visual verification of proper installation
- Conformance to national or international codes including ASME Section III or VIII (ASME Code Symbol Stamp  available upon request), DIN, EN, BSI, JIS or other codes
- Unique holder for proper rupture disc assembly
- Non-fragmenting design
- Excellent for isolating pressure relief valves

NOTE: 10"/12" requires spool piece between the rupture disc assembly and pressure relief valve

| Spool Piece Minimum Height | |
|----------------------------|----|
| 10" | 5" |
| 12" | 6" |

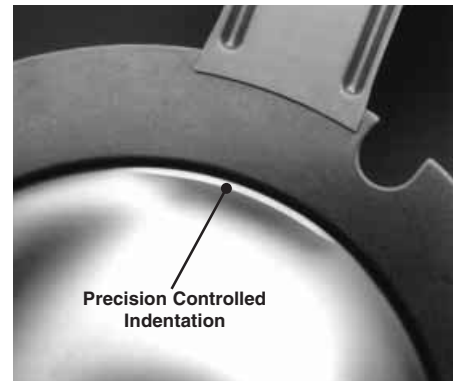
The ULTRX Rupture Disc responds in milliseconds to overpressure situations, allowing it to be used in a variety of applications. Continental's ULTRX Rupture Disc provides PERFORMANCE UNDER PRESSURE and is the guardian of the system.

Gaseous and Liquid Service! Absolutely!

The ULTRX Rupture Disc is a unique reverse acting rupture disc. It excels in gaseous, partial gas / liquid or all liquid systems. A patented precision controlled indentation on the rupture disc surface initiates the reversal action. Full opening occurs in liquid or gaseous systems, including those systems which have an extremely low rate of pressure rise or an exceptionally small volume.

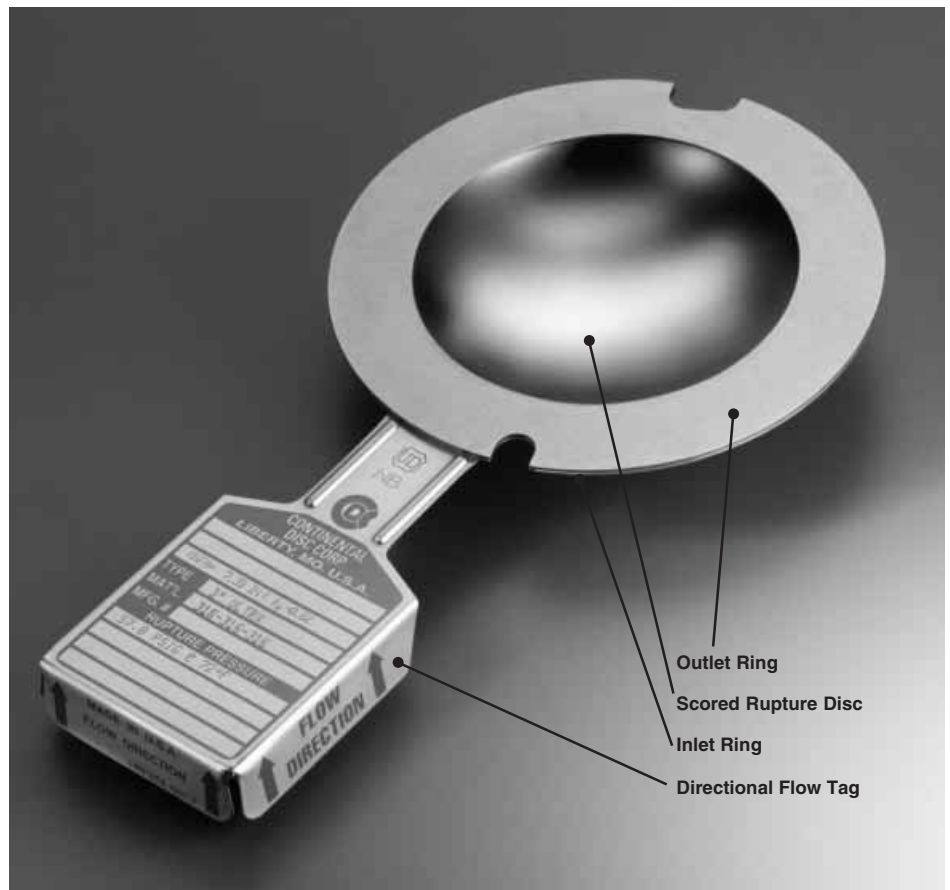
The ULTRX Rupture Disc eliminates:

- The concern of applying the wrong type of disc in a plant. An ULTRX Rupture Disc can be used in any system, whether gaseous or liquid.
- The need for a gas pocket between the rupture disc and liquid media.



Safety Ratio

Should your ULTRX Rupture Disc be damaged during installation or handling, it has been designed to provide pressure relief at or less than 1.5 times the rated burst pressure of the rupture disc.



* ULTRX Rupture Disc incorporates United States patent no. 4,597,505; 4,512,171; 4,072,160; 4,669,626 and 4,759,460; Australia patent no. 579833; Canada patent no. 1244315; Chile patent no. 35096; Germany patent no. P 3473633.6; France, Netherlands and United Kingdom patent no. EP 0 137 903; India patent no. 160204; Ireland patent no. 55493; Mexico patent no. 161587; Spain patent no. 289581; and Venezuela patent no. 46.640.

** Hastelloy is a registered trademark of Haynes International.

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

Zero Manufacturing Range/90% Operating Pressure

As a standard, the ULTRX Rupture Disc is designed with a zero manufacturing range. This enables system operation up to 90% for rated (stamped) burst pressures of 40 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.)

Seal Load Sensitivity

Over-torquing will not affect the burst accuracy of the ULTRX Rupture Disc.

Continental's encapsulating rings, proven to eliminate seal load (bolt torque) sensitivity, are components of the ULTRX Rupture Disc.

Encapsulating rings:

- Hold the rupture disc in the proper location
- Prevent rupture disc slippage when insufficient bolt load is applied to the companion flanges
- Provide a base to accept reasonable over-torquing of the companion flange bolts while protecting the rupture disc from being damaged
- Provide a superior metal-to-metal seal surface

Vacuum Conditions

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

Optimum Flow

The ULTRX Rupture Disc uses a semicircular score to provide a clean, consistent opening pattern. At burst, the score pattern allows the disc to fully open, folding back against the holder, resulting in an optimum flow condition.

Corrosive Protection

The ULTRX Rupture Disc is superior for use in a corrosive media or environment. Versatile material selection and use of thicker rupture disc materials contribute

to the superior corrosive resistance. A Teflon®* liner may be used on the process side of the ULTRX Rupture Disc for additional corrosion protection.

* Teflon is a registered trademark of E.I. du Pont de Nemours and Company used under license.



SPECIFICATIONS

Manufacturing Range

As a standard, the ULTRX 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 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.

Burst Tolerance

The ULTRX 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 burst pressure appearing on the tag will be the customer's specified burst pressure. The burst tolerance of $\pm 5\%$ applies to the rated burst pressure.
- For rupture discs with -5%, -10%,

-2.5 psig or -5 psig manufacturing ranges, the rated 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.

Table I - ULTRX Minimum/Maximum Pressures at 72°F (22°C)

| Nominal Size | Disc Materials | | | | | |
|--------------------|----------------|------------|-------------------------|------------|-----------------|------------|
| | Nickel - Monel | | 316 Stainless - Inconel | | Hastelloy C-276 | |
| | psig | barg | psig | barg | psig | barg |
| 1 inch 25mm | 100-1000 | 6,89-68,97 | 125-1000 | 8,62-68,97 | 140-1000 | 9,66-68,97 |
| 1 1/2 inch 40mm | 85-900 | 5,86-62,07 | 100-1000 | 6,89-68,97 | 110-1000 | 7,95-68,97 |
| 2 inch 50mm | 65-850 | 4,48-58,62 | 85-900 | 5,86-65,52 | 95-1000 | 6,55-68,97 |
| 3 inch 80mm | 50-750 | 3,44-51,72 | 70-900 | 4,82-62,07 | 80-1000 | 5,52-68,97 |
| 4 inch 100mm | 50-650 | 3,44-44,83 | 60-800 | 4,13-55,17 | 70-900 | 4,83-62,07 |
| 6 inch 150mm | 40-400 | 2,75-27,59 | 50-450 | 3,44-31,03 | 60-500 | 4,74-34,48 |
| 8 inch 200mm | 40-250 | 2,75-17,24 | 50-300 | 3,44-20,69 | 60-350 | 4,14-24,14 |
| 10 inch 250mm | 15-225 | 1,03-15,5 | 20-275 | 1,38-19,0 | 30-325 | 2,07-22,4 |
| 12 inch 300mm | 15-190 | 1,03-13,1 | 20-225 | 1,38-15,5 | 30-270 | 2,07-18,6 |

Notes for Table I

1. Stainless Steel inlet and outlet rings are standard. For optional ring materials, consult your Continental Disc representative or the factory.
2. Teflon liners are available as an option on all discs.
3. Other pressures and materials are available. Consult your Continental Disc representative or the factory.
4. Larger sizes are available. Consult your Continental Disc representative or the factory.

Table II - ULTRX Temperature Limits

| Disc Material | Recommended Temperature | |
|---|-------------------------|---------|
| | Fahrenheit | Celsius |
| Teflon Liners | 500° | 260° |
| Nickel / Monel | 800° | 427° |
| 316 Stainless Steel, Hastelloy C-276 | 900° | 482° |
| Inconel | 1000° | 538° |

ULTRX Holder

The ULTRX Holder is an insert type. It has been designed for simplicity, superior sealing capability and safety. Alignment of the ULTRX Rupture Disc and flow direction orientation are provided by round and rectangular pins located in the inlet holder and matching notches in the rupture disc rings.

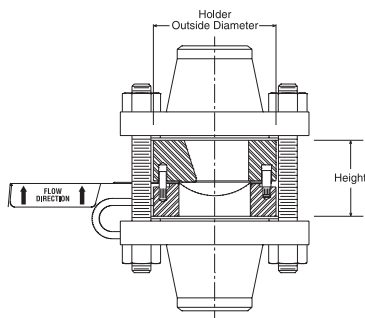
A tapered, raised seat on the inlet holder provides uniform load on the ULTRX Rupture Disc, insuring a metal-to-metal leak-tight seal between the rupture disc and holder.

The ULTRX Rupture Disc and holder parts are preassembled using side clips. As a standard, a J-Hook is provided for easy alignment and proper installation between companion flanges.

The ULTRX Rupture Disc Holder can also be manufactured in a pretorque design, at customer request. This design allows the holder and rupture disc to be "bolted up" prior to insertion in the system piping.

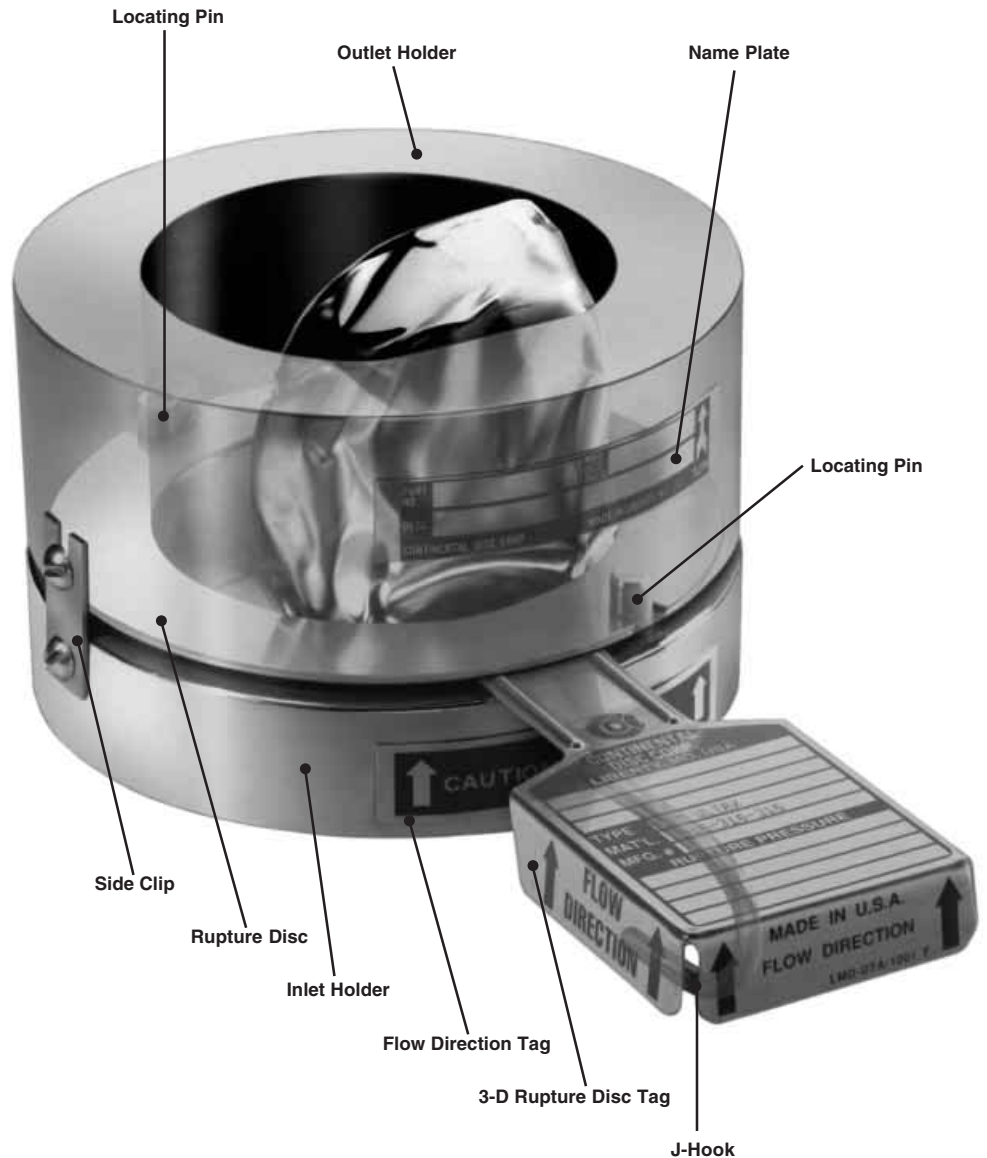
Holder Specifications

Holders are available for ANSI, JIS or DIN class flanges as shown in Table 3. Consult the factory for holders to fit other national or international standards.



MATERIALS: ULTRX holders are machined from investment castings of standard materials including Carbon Steel, 316SS, Monel and Hastelloy-C. Other materials available upon request.

OPTIONS: Holders are available with options including 1/4", 3/8" or 1/2" gauge tap, nipple and tee, excess flow valve, pressure gauge, special facings, Teflon coating. For additional corrosion protection, tantalum lining is available on the inlet portion of the holder. Contact the factory for more information.



Tagging

Both the holder inlet and outlet are tagged. These tags identify the parts as to ratings and flow direction. A three-dimensional flow direction tag is used on the ULTRX Rupture Disc to provide immediate visual verification of proper installation of the rupture disc assembly.



ULTRX HOLDER

Table III - ULTRX Insert Holder, Dimensions and Weights

| 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. 25 mm | 150 | 2.50 / 63,5 | | | | | 1.82 / 46 | 2.0 / 0,9 |
| | 300 / 600 | 2.75 / 69,9 | 10 / 40 | 69,9 | 10 / 20 | 69,9 | " " | 2.5 / 1,1 |
| | | | 64 / 160 | 82,0 | 30 / 40 | 76,0 | " " | 3.0 / 1,4 |
| 1 1/2 in. 40 mm | 150 | 3.25 / 82,6 | | | | | 2.03 / 52 | 4.5 / 2,0 |
| | 300 / 600 | 3.63 / 92,2 | 10 / 40 | 92,2 | | | " " | 4.7 / 2,1 |
| | | | | | 10 / 20 | 86,0 | " " | 4.9 / 2,2 |
| 2 in. 50 mm | 150 | 4.00 / 101,6 | | | | | 2.57 / 65 | 6.4 / 2,9 |
| | 300 / 600 | 4.25 / 108,0 | 10 / 40 | 108,0 | 30 / 40 | 111,0 | " " | 7.5 / 3,4 |
| | | | 64 | 111,0 | | | 3.06 / 78 | 17.0 / 7,7 |
| 3 in. 80 mm | 150 | 5.25 / 133,4 | | | 10 | 101,6 | 2.40 / 61 | 5.9 / 2,8 |
| | | | | | 16 / 20 | 101,6 | " " | " " |
| | 300 / 600 | 5.75 / 146,1 | 10 / 40 | 108,0 | | | " " | 6.5 / 2,9 |
| 4 in. 100 mm | 150 | 6.75 / 171,5 | | | | | " " | 6.7 / 3,0 |
| | | | 64 | 111,0 | 30 / 40 | 111,0 | " " | 7.2 / 3,3 |
| | 300 | 7.00 / 177,8 | 16 / 40 | 142,0 | | | " " | 7.6 / 3,4 |
| 6 in. 150 mm | 150 | 8.63 / 219,2 | 10 / 16 | 162,0 | 10 | 132,0 | 3.24 / 82 | 15.0 / 6,9 |
| | | | 25 / 40 | 168,0 | 16 / 20 | 137,0 | " " | 16.0 / 7,3 |
| | 300 | 9.75 / 247,7 | 64 | 146,1 | 30 / 40 | 146,1 | " " | 19.0 / 8,8 |
| 8 in. 200 mm | 150 | 10.88 / 276,4 | 10 / 16 | 162,0 | 10 | 156,0 | 4.07 / 103 | 17.0 / 7,7 |
| | | | 25 / 40 | 168,0 | 16 / 20 | 162,0 | " " | 20.0 / 9,1 |
| | 300 | 12.00 / 304,8 | 64 | 173,0 | 30 | 168,0 | " " | 23.0 / 10,0 |
| 10 in. 250 mm | 150 | 13.25 / 336,6 | | | | | 4.19 / 106 | 25.0 / 11,0 |
| | | | | | 40 | 180,0 | 4.07 / 103 | 27.0 / 12,0 |
| | 300 | 14.13 / 358,9 | 25 | 217,0 | 16 / 20 | 217,0 | " " | " " |
| 12 in. 300 mm | 150 | 16.00 / 406,4 | 10 / 16 | 217,0 | 10 | 217,0 | 5.81 / 148 | 55.0 / 25,0 |
| | | | 25 / 40 | 223,0 | | | " " | 62.0 / 28,0 |
| | 300 | 16.50 / 419,1 | | | 16 / 20 | 235,0 | " " | 69.0 / 31,0 |
| 14 in. 350 mm | 150 | 18.88 / 478,4 | | | | | " " | 85.0 / 39,0 |
| | | | | | 40 | 262,0 | " " | 99.0 / 45,0 |
| | 300 | 20.00 / 508,0 | 10 | 272,0 | 10 | 267,0 | 7.25 / 186 | 83.0 / 38,0 |
| 16 in. 400 mm | 150 | 21.75 / 553,1 | 16 | 272,0 | | | " " | 95.0 / 43,0 |
| | | | 25 | 283,0 | 16 / 20 | 280,0 | " " | " " |
| | 300 | 23.00 / 584,2 | 40 | 290,0 | | | " " | 100.0 / 45,0 |
| 18 in. 450 mm | 150 | 25.00 / 635,0 | | | | | " " | 104.0 / 47,0 |
| | | | | | | | " " | 108.0 / 49,0 |
| | 300 | 26.50 / 673,1 | 25 | 340,0 | 16 / 20 | 353,0 | " " | 112.0 / 51,0 |
| 20 in. 500 mm | 150 | 30.00 / 762,0 | | | | | " " | 113.0 / 51,0 |
| | | | | | 30 | 357,0 | " " | 120.0 / 54,0 |
| | 300 | 31.50 / 800,1 | 40 | 352,0 | | | " " | 123.0 / 56,0 |
| 24 in. 600 mm | 150 | 37.00 / 940,0 | | | | | " " | 150.0 / 68,0 |
| | | | | | 40 | 377,0 | " " | " " |
| | 300 | 38.50 / 977,7 | 25 | 400,0 | 16 / 20 | 403,0 | 7.12 / 181 | 150.0 / 68,0 |
| 28 in. 700 mm | 150 | 45.00 / 1143,0 | | | | | " " | 154.0 / 70,0 |
| | | | | | | | " " | 160.3 / 73,0 |
| | 300 | 46.50 / 1181,1 | 40 | 417,0 | 30 | 417,0 | " " | 183.0 / 83,0 |
| 30 in. 750 mm | 150 | 51.00 / 1295,4 | | | | | " " | 187.0 / 85,0 |
| | | | | | | | " " | 211.0 / 96,0 |
| | 300 | 52.50 / 1341,3 | 40 | 431,0 | 40 | 431,0 | " " | " " |

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 B.D.I. system is the alarm strip. The alarm strip is attached to a flat Teflon membrane and assembled between non-asbestos gaskets. It is installed above the ULTRX 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 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.


*Burst Disc Indicator (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.

CODE COMPLIANCE

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, EN, 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 ULTRX Rupture Disc flow performance was certified by The National Board of Boiler and Pressure Vessel Inspectors. These certified flow resistance (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.



ORDERING

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

Specifications:

1. Quantity
2. Size
3. Type
4. Materials
5. Options . . . linings
6. Actual vacuum pressure or backpressure
7. Specified pressure/specified temperature
8. Manufacturing range:
zero, -5%, -10% ; -2.5 psig, -5 psig

Quality Assurance / Documentation:

1. Codes: ASME, EN, DIN, JIS, BSI or others
2. Special cleaning
3. Special packaging
4. Special tagging
5. Temperature testing
6. Material test reports
7. Other

Operating Specifications:

1. Maximum allowable working pressure (vessel M.A.W.P.)
2. Operating pressure
3. Operating temperature
4. Vacuum/backpressure
5. Cycle conditions
6. Flow rate required
7. Media
8. Molecular weight/specific gravity
9. For use under a relief valve
10. Previous manufacturing number (if known)

HOW TO ORDER

Please supply the following when ordering:

RUPTURE DISC: Quantity: _____ Size: _____ Description: **ULTRX Rupture Disc**

Material: _____

Inlet and Outlet Rings: 316 SS⁽¹⁾ Manufacturing Range: Zero⁽²⁾

Rated Burst Pressure: _____ psig or barg @ _____ °F or °C

Burst Tolerance: ±5% for pressures above 40 psig (2,76 barg);
± 2 psig (0,138 barg) for pressures up to and including 40 psig

Manufacturing Number: _____ for previously supplied rupture discs

Options – ASME testing required: _____

Teflon Liner: Inlet _____

Protective Cover: Outlet _____

B.D.I. Alarm System _____

Other requirements: _____

HOLDER: Quantity: _____ Size: _____

Description: **ULTRX Holder** with J-hook, to mate with ⁽³⁾ _____ class flanges

Material: Inlet _____ Outlet _____

Manufacturing Number: _____ for previously supplied holders.

Options — Accessories:⁽⁴⁾ _____

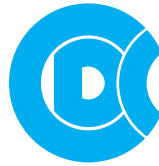
Other requirements: _____

Notes:

1. 316 SS is standard. Specify other material when required.
2. Zero (0) manufacturing range is standard. Other ranges are available; see page 4.
3. Specify class of flange that holder is to mate with, i.e., ANSI 150 or DIN 10/40, etc.
4. Gauge tap, nipple and tee, excess flow valve, pressure gauge, special facing, tantalum lining, Teflon coating.



382 Lancaster Avenue • PO Box 4006 • Malvern, PA 19355
Phone: 610-647-5700
Fax: 610-647-3905
E-mail: corp@tristatetech.com
Web: <http://www.tristatetechnicalsales.com>



**Continental Disc[®]
Corporation**

Performance Under Pressure[®]



Certified Quality System
First Certified In 1992



ASME Code Symbol Stamp
Available When Specified



China Quality License
Available When Specified



Pressure Equipment Directive
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.

CORPORATE HEADQUARTERS

Continental Disc Corporation
3160 W. Heartland Drive
Liberty, Missouri 64068-3385 USA

Phone: (816) 792-1500
FAX: (816) 792-2277 / 5447
E-mail: pressure@contdisc.com
Website: www.contdisc.com

THE NETHERLANDS

Continental Disc Corporation
P.O. Box 172
2394 ZH Hazerswoude-Rijndijk
The Netherlands

Phone: (0) 71-5412221
FAX: (0) 71-5414361
E-mail: cdcnl@contdisc.com

GERMANY

Continental Disc Deutschland GmbH
Postfach 1310
D-41337 Korschenbroich
Germany

Phone: (0) 2161-642021
FAX: (0) 2161-64766
E-mail: cdd@contdisc.com

UNITED KINGDOM

Continental Disc UK Ltd.
Unit C, The Business Centre
Faringdon Avenue, Harold Hill, Romford
Essex RM3 8EN
United Kingdom

Phone: (0) 1708-386444
FAX: (0) 1708-386486
E-mail: cduk@contdisc.com