



**Continental Disc®
Corporation**

Preparation and Installation of the RSD and RSDW Rupture Disc Assembly

WARNING

USER SHOULD READ AND THOROUGHLY UNDERSTAND THESE INSTRUCTIONS BEFORE INSTALLING RUPTURE DISC. THESE INSTRUCTIONS DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY FACTORS ASSOCIATED WITH THE RUPTURE DISC'S USE IN SERVICE. IT IS THE RESPONSIBILITY OF THE USER TO ESTABLISH APPROPRIATE SAFETY, HEALTH, AND TRAINING MEASURES FOR THEIR PERSONNEL INSTALLING, SERVICING, OR WORKING IN AN AREA WHERE RUPTURE DISC ASSEMBLIES ARE IN USE. SERVICE AND/OR MAINTENANCE ON OR AROUND THE RUPTURE DISC DEVICE MUST NOT BE PERFORMED WHILE THE DEVICE IS SUBJECTED TO OPERATING PRESSURES AND/OR TEMPERATURES.

IT IS THE USER'S SOLE RESPONSIBILITY FOR DESIGN AND PLACEMENT OF RUPTURE DISCS WITHIN THEIR FACILITY AND UPON THE EQUIPMENT UPON WHICH THE RUPTURE DISC OF USER'S SELECTION IS TO BE LOCATED. IT IS USER'S SOLE RESPONSIBILITY FOR THE DESIGN OF ADEQUATE VENTING AND INSTALLATION OF ADEQUATE VENT PIPING OR DIRECTIONAL FLOW AFTER RUPTURE OCCURS WITH THE RUPTURE DISC AS INTENDED. WHEN SIZE IS SPECIFIED, CONTINENTAL DISC CORPORATION ASSUMES THAT ADEQUATE PROVISIONS HAVE BEEN MADE BY PURCHASER FOR PROPER VENTING OF A SYSTEM TO RELIEVE THE SPECIFIC PRESSURE. LOCATE RUPTURE DISC WHERE PEOPLE OR PROPERTY WILL NOT BE EXPOSED TO THE SYSTEM DISCHARGE IN CASE OF RUPTURE. VENT TOXIC OR FLAMMABLE FUMES OR LIQUIDS TO A SAFE LOCATION TO PREVENT PERSONAL INJURY OR PROPERTY DAMAGE.

IT IS THE USER'S SOLE RESPONSIBILITY TO SPECIFY THE BURST PRESSURE RATING OF A RUPTURE DISC AT A COINCIDENT TEMPERATURE AT WHICH THE RUPTURE DISC IS TO BE USED. A RUPTURE DISC IS A TEMPERATURE SENSITIVE DEVICE. THE BURST PRESSURE OF THE RUPTURE DISC IS DIRECTLY AFFECTED BY ITS EXPOSURE TO THE COINCIDENT TEMPERATURE. GENERALLY, AS THE TEMPERATURE AT THE RUPTURE DISC INCREASES, THE BURST PRESSURE DECREASES; INVERSELY, AS THE TEMPERATURE AT THE RUPTURE DISC DECREASES, THE BURST PRESSURE MAY INCREASE. FAILURE TO PROPERLY UTILIZE A RUPTURE DISC AT THE SPECIFIED COINCIDENT TEMPERATURE COULD CAUSE PREMATURE FAILURE OR OVERPRESSURIZATION OF A SYSTEM.

THE INSTANTANEOUS RELEASE OF PRESSURE FROM THE RUPTURE DISC CAN CREATE VIOLENT NOISES DUE TO THE DISCHARGE AT SONIC VELOCITY. IT IS THE USER'S SOLE RESPONSIBILITY TO PROTECT AGAINST HEARING DAMAGE TO ANY BYSTANDERS.

RUPTURE DISCS AND TAGS ARE MADE OF METAL FOILS OF VARYING THICKNESS. THE METAL EDGES MAY BE SHARP. PERSONNEL INSTALLING OR EXAMINING THE RUPTURE DISCS SHOULD PROTECT AGAINST CUTS OR INJURY WHEN HANDLING THE RUPTURE DISC. DO NOT LIFT A RUPTURE DISC BY ITS ATTACHED TAG.

PARTICLES MAY BE DISCHARGED WHEN THE RUPTURE DISC RUPTURES. THESE PARTICLES MAY BE PART OF THE RUPTURE DISC ITSELF, OR OTHER ENVIRONMENTAL MATTER IN THE SYSTEM. IT IS THE USER'S SOLE RESPONSIBILITY TO ASSURE THAT THESE PARTICLES ARE DIRECTED TO A SAFE AREA TO PREVENT PERSONAL INJURY OR PROPERTY DAMAGE.

THERE IS NO GUARANTEE OF RUPTURE DISC LIFE. SUCH LIFE SPAN IS AFFECTED BY CORROSION, CREEP AND FATIGUE, AND PHYSICAL DAMAGE. THESE CONDITIONS WILL DERATE THE RUPTURE DISC TO A LOWER SET PRESSURE. THE CUSTOMER AND/OR USER SHOULD BE PREPARED TO HANDLE PREMATURE FAILURE OF THE RUPTURE DISC. THE MEDIA OR OTHER ENVIRONMENTAL CONDITIONS SHOULD NOT ALLOW ANY BUILDUP OR SOLIDIFICATION OF MEDIA TO OCCUR ON A RUPTURE DISC. THIS MAY INCREASE THE PRESSURE SETTING OF THE RUPTURE DISC.

CUSTOMER AND/OR ITS INSTALLER SHALL BE SOLELY RESPONSIBLE FOR THE PROPER INSTALLATION OF SELLER'S HOLDERS AND RUPTURE DISCS INTO A SYSTEM. CUSTOMER AND/OR ITS INSTALLER SHALL BE SOLELY RESPONSIBLE FOR IMPROPER INSTALLATION AND PHYSICAL DAMAGE RESULTING THEREFROM, INCLUDING BUT NOT LIMITED TO, DAMAGE RESULTING FROM LEAKAGE, IMPROPER TORQUING OR SEATING OF A RUPTURE DISC OR FAILURE TO FOLLOW INSTALLATION INSTRUCTIONS WHERE PROVIDED.

RUPTURE DISCS ARE PRECISION SAFETY DEVICES AND MUST BE INSTALLED PROPERLY. RUPTURE DISCS MUST BE INSTALLED BY TRAINED, KNOWLEDGEABLE INSTALLERS AND ONLY WITHIN ENVIRONMENTS SUITABLE AND APPROPRIATE FOR A RUPTURE DISC. CARE MUST BE USED IN A FACILITY'S DESIGN TO PROTECT BOTH THE RUPTURE DISC FROM INADVERTENT DAMAGE WHICH COULD CAUSE ITS PREMATURE RELEASE AND TO PROTECT INDIVIDUALS EXPOSED TO HAZARDS CREATED BY SUCH SUDDEN RELEASE.

PROPER INSTALLATION OF A RUPTURE DISC IS CRITICAL TO PERFORMANCE AND TO SAFETY. FAILURE TO PROVIDE PROPER SEATING OF A RUPTURE DISC MAY AFFECT RUPTURE DISC PERFORMANCE, BURST PRESSURE ACCURACY AND MAY RESULT IN ITS PREMATURE FAILURE.

I. Safety Precautions Before Installation

1. The knifeblades are very sharp. Care must be taken during handling to prevent serious bodily injury. The knifeblades must be free of corrosion, nicks or bent points to ensure proper performance. If any of these conditions exist, the rating of the rupture disc will increase beyond the original rupture pressure rating.
2. The RSD and RSDW rupture discs are precision instruments and must be handled with extreme care. Rupture discs should be installed only by qualified personnel familiar with rupture discs and proper piping practices.
3. The RSD rupture disc is designed for use in RSD and RSDW rupture disc holders only.
4. Do not install rupture disc if there is any damage in the dome area. A damaged rupture disc is any rupture disc with visible nicks or dents in the dome.
5. Continental Disc Corporation does not recommend reinstalling a rupture disc that has been removed from the holder as reinstallation may adversely affect the joint sealing capabilities and/or performance of the rupture disc.
6. See rupture disc tag to verify set pressure, operating temperature, and all other operating parameters.

II. Preparation of Holders for Installation

New Installation

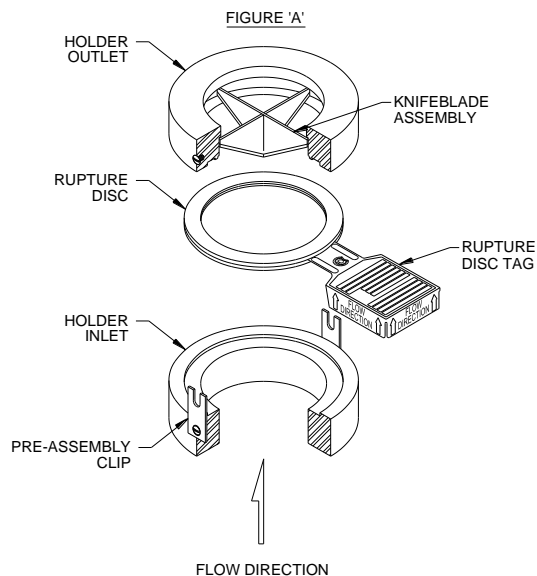
Clean all foreign material from the rupture disc sealing areas.

Replacement Installation

1. If the B.D.I.[®] (Burst Disc Indicator) Alarm System is used, disconnect the alarm strip from the monitor by unplugging the B.D.I. connector from the lead wire connector.
2. Remove the holder from the system and place on a flat surface.
3. Disassemble the holder by loosening the pre-assembly screws on the holder outlet. Lift the holder outlet up and set aside. On RSD holders, remove the knifeblade assembly. Then remove the burst rupture disc.
4. On RSDW holders, clean the rupture disc sealing area of both the holder inlet and outlet. On RSD holders, clean the rupture disc sealing area of both the holder inlet and the knifeblade assembly. These surfaces must be completely clean and free of all rust, corrosion, and foreign material to ensure a proper seal. Use of solvents, steel wool, or fine emery cloth is permissible. Do not re-machine. Do not use scraper or abrasives.
5. Inspect the rupture disc sealing area for nicks, scratches, or pitting. If any of these conditions are present, consult the factory for repair.
6. **EXAMINE THE KNIFEBLADE CONDITION. BLADE EDGES AND POINTS MUST BE SHARP TO ENSURE PROPER RUPTURE DISC FUNCTION. DO NOT INSTALL RUPTURE DISC IF BLADE EDGES OR POINTS ARE DAMAGED OR CORRODED. IF BLADES ARE IN NEED OF SHARPENING OR REPLACEMENT, THIS MUST BE PERFORMED AT THE FACTORY.**
7. Knifeblades are designed for specific rupture disc ratings. **DO NOT INSTALL RUPTURE DISC IF CURRENT PRESSURE CONDITIONS DIFFER FROM THAT OF THE INITIAL INSTALLATION OR IF RUPTURE DISC RATING EXCEEDS MAXIMUM RUPTURE DISC RATING STAMPED ON HOLDER NAMEPLATE.** Consult the factory should these conditions occur.
8. Remove any adhered gasket material from previous installation.

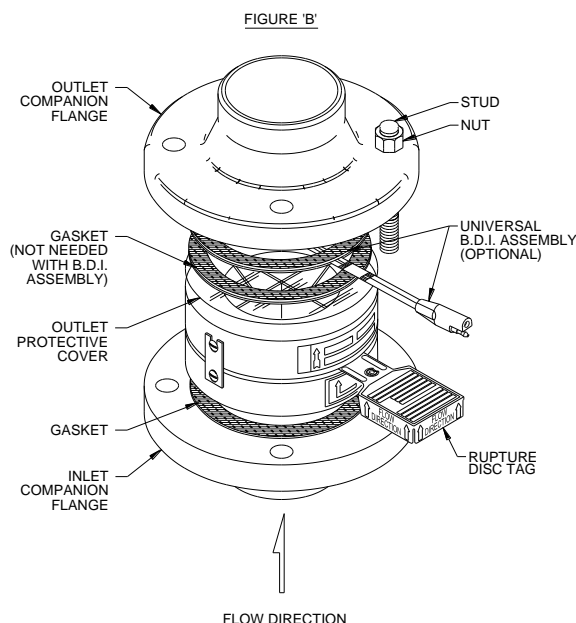
III. Assembly of the Rupture Disc and Holder (See Figure A)

1. If the B.D.I. Alarm System is to be used, see the Universal B.D.I. Assembly installation instruction for additional details.
2. Carefully remove and discard any shipping protectors furnished with rupture discs or holder. **DO NOT INSTALL A SHIPPING PROTECTOR IN A HOLDER ASSEMBLY.**
3. Place the holder inlet on a flat surface.
4. Place the rupture disc, dome side down, on the holder inlet opening as illustrated making certain the O.D. interlocks with the inlet.
5. On RSD holders, place the knifeblade assembly on top of the rupture disc with the cutting edge of the knifeblade facing the concave side of the rupture disc.
6. Align and lower the holder outlet carefully onto the holder inlet.
7. Fasten the assembly together by tightening the pre-assembly screws.



IV. Installation of the Assembly Into the System (See Figure B)

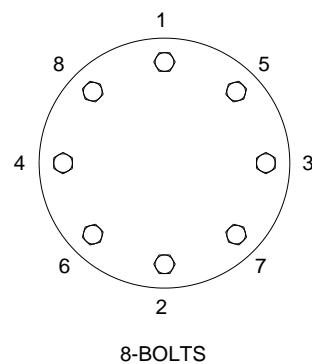
1. Before placing the assembly into the system, ensure that the companion flange gasket surfaces are clean and free of all rust, corrosion, and foreign material.
2. Install the assembly and customer furnished gaskets
3. Install lightly oiled, free running studs and nuts to finger tightness. Using a cross torquing pattern (see **Figure C**), torque each nut with a calibrated torque wrench at 20% increments of recommended torque value (see Table 1). Repeat 20% increments and cross torquing pattern until final torque value is achieved. Recheck all nuts in rotational sequence at final torque value. This value is based on using gasket materials having a gasket factor of 2.75, gasket seating stress of 3,700 psi, and stud and nut material per ASME SA193-B7 and SA194-2H respectively, with a stress of up to 30,000 psi. The use of studs and nuts with lower strength may prove unsatisfactory.



V. Preventative Maintenance

1. Risk assessment and an annual rupture disc replacement are recommended. Rupture disc service life is determined by system operating conditions. The effects of severe pressure/vacuum cycles, corrosion, temperature variations, or other adverse conditions must be evaluated by the user through actual service experience to determine optimal service life.
2. **IF THE RUPTURE DISC IS NOT REPLACED PERIODICALLY WHEN EXPOSED TO THESE CONDITIONS, PREMATURE FAILURE OF THE RUPTURE DISC MAY OCCUR, THEREBY DISCHARGING THE PROCESS MEDIA.**
3. **INSPECT KNIFEBLADE CONDITION AT EACH RUPTURE DISC CHANGEOUT.** See Section II, Items 6 and 7. Consult the factory if knifeblade replacement is required.
4. To avoid extended downtime, maintain three spare rupture discs in stock at all times for each holder in use. The number of spares required ultimately will be determined by service conditions.

FIGURE 'C'
EXAMPLE OF
BOLT TORQUE SEQUENCE



VI. Customer Service

If you wish to discuss your application, installation, or maintenance, please contact the Customer Service Department at our headquarters location.

B.D.I. ALARM SYSTEM OPERATING LIMITS


TEMPERATURE: -40° F to + 400° F
 (-40° C to + 204° C)

MAX CURRENT: 50 Milli Amps
MAX VOLTAGE: 24 VDC

FULFILLS THE REQUIREMENTS OF DIRECTIVE 2014/34/EU (ATEX) FOR: Equipment or protective system intended for use in potentially explosive atmospheres.

Conformity assessment performed by Notified Body no. 0359, Intertek Testing and Certification Limited, Leatherhead, Surrey, UK.

BURST DISC INDICATOR (B.D.I.[®]): Sizes 25mm through 900mm (1 inch through 36 inches)

Marked:  II 1 G Ex ia IIC Tx Ga
II 1 D Ex ia IIIC Tx Da
I M1 Ex ia I Ma
(Tamb = -40°C ≤ Ta ≤ +204°C)

EC Type Examination Certificate: ITS13ATEX27734X

THE MAXIMUM INTRINSICALLY SAFE INPUT PARAMETERS ARE AS FOLLOWS:

Ui = 24V dc
Ii = 50 mA
Pi = 0.3W

THE EQUIVALENT PARAMETERS ARE:

Ci = 0
Li = 0

SPECIAL CONDITIONS FOR SAFE USE:

1. Temperature Class of the BDI sensor is marked as Tx, since the surface temperature is controlled by the process temperature being monitored. The sensor itself exhibits negligible temperature rise.
2. When located in an area requiring EPL Ga / Category 1G (e.g. Zone 0) hazardous area, the user shall ensure that electrostatic charging of the non-metallic parts cannot occur.
3. When provided with terminations by means of flying leads, these shall be terminated in an appropriately protected terminal box.
4. When installed, the BDI strip shall be provided with an IP rating of IP20 as a minimum.
5. For Group I applications, the BDI strip and terminations shall be protected to IP54 or better.

Recommended Torque Values for RSD & RSDW
Rupture Discs Sizes 1" through 12"
TABLE 1

SIZE		COMPANION FLANGE RATING			RECOMMENDED TORQUE VALUE	
IN	MM	ANSI	DIN	JIS	FT•LB	N•m
1	25	150	----	----	35	47
1	25	----	10/16	----	33	45
1	25	----	----	10/20	44	60
1	25	300/600	----	----	65	88
1	25	----	25/40	----	49	66
1	25	----	----	30/40	66	89
1-1/2	40	150	----	----	35	47
1-1/2	40	----	10/16	10/20	44	60
1-1/2	40	300/600	----	----	110	149
1-1/2	40	----	25/40	----	92	125
1-1/2	40	----	----	30/40	115	156
2	50	150	----	----	65	88
2	50	----	10/16	10	66	89
2	50	----	----	16/20	33	45
2	50	300/600	----	----	65	88
2	50	----	25/40	----	131	178
2	50	----	----	30/40	66	89
3	80	150	----	----	65	88
3	80	----	10/16	10	33	45
3	80	----	----	16/20	41	56
3	80	300/600	----	----	110	149
3	80	----	25/40	----	131	178
3	80	----	----	20/40	66	89
4	100	150	----	----	65	88
4	100	----	10/16	10	66	89
4	100	----	----	16/20	82	111
4	100	300	----	----	110	149
4	100	----	25/40	----	115	156
4	100	----	----	30	127	172
4	100	600	----	----	185	251
4	100	----	----	40	183	248

Recommended Torque Values for RSD and RSDW
Rupture Discs Sizes 1" through 12"

TABLE 1

SIZE		COMPANION FLANGE RATING			RECOMMENDED TORQUE VALUE	
IN	MM	ANSI	DIN	JIS	FT•LB	N•m
6	150	150	----	----	110	149
6	150	----	10/16	10	115	156
6	150	----	----	16/20	85	115
6	150	300	----	----	110	149
6	150	----	25/40	----	208	282
6	150	----	----	30	139	188
6	150	600	----	----	260	352
6	150	----	----	40	246	334
8	200	150	----	----	110	149
8	200	----	10	----	115	156
8	200	----	16	10	77	104
8	200	----	----	16/20	85	115
8	200	300	----	----	185	251
8	200	----	25	30	200	271
8	200	----	40	----	225	305
10	250	150	----	----	185	251
10	250	----	10	----	166	225
10	250	----	----	10	183	248
10	250	----	16	16/20	200	271
10	250	300	----	----	260	352
10	250	----	25	----	369	500
10	250	----	40	30	409	555
12	300	150	----	----	185	251
12	300	----	10	----	166	225
12	300	----	----	10	137	186
12	300	----	16	----	200	271
12	300	----	----	16/20	150	203



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Performance Under Pressure®

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