

**Continental Disc®
Corporation**

Preparation and Installation of the FA, FAV, and FAS Type Rupture Discs in Forward Acting Insert, Full Bolted, and Union Type Holders

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. 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.
2. The score on the convex side of the FAS rupture disc is a factory installed precision score. 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.
3. 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.
4. See rupture disc tag to verify set pressure, operating temperature, and all other operating parameters.

II. Forward Acting Insert Type Holders

A. Preparation of Holders for Installation

New Installation

Clean all foreign material from the rupture disc sealing area of both the holder inlet and outlet.

Replacement Installation

1. Remove the holder from the system and place on a flat surface.
2. Disassemble the holder by removing the pre-assembly cap screws. Lift the holder outlet up and set aside; then remove the burst rupture disc.
3. Clean the rupture disc sealing area of both the holder inlet and outlet. 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.
4. Inspect the rupture disc sealing area for nicks, scratches, or pitting. If any of these conditions are present, consult the factory for repair.
5. Remove any adhered gasket material from previous installation.

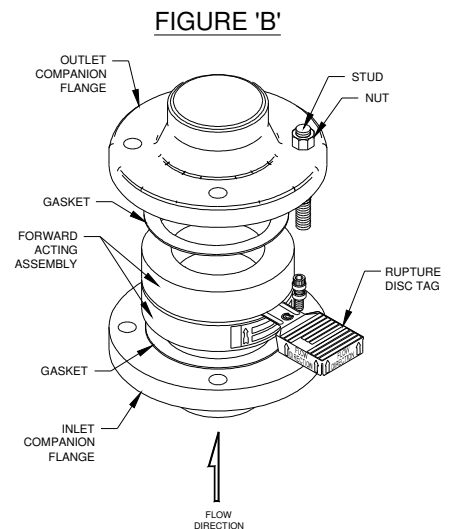
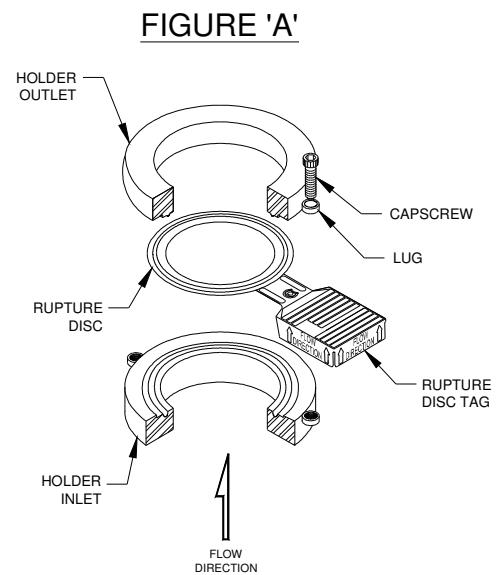
B. Assembly of the Rupture Disc and Holder (See Figure A)

Component parts of the Forward Acting Insert Type Holder assembly are illustrated in the proper installation sequence.

1. Carefully remove and discard any shipping protectors furnished with rupture discs or holder. **DO NOT INSTALL A SHIPPING PROTECTOR IN A HOLDER ASSEMBLY.**
2. Place the holder inlet on a flat surface.
3. Place the rupture disc on the holder inlet opening with the dome side facing up as illustrated.
4. Align and lower the holder outlet carefully onto the holder inlet.
5. Fasten the assembly together by replacing and tightening the pre-assembly cap screws.

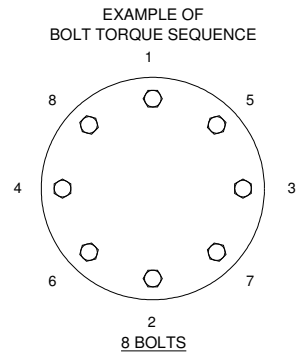
C. Installation of the Forward Acting Insert Type Holder Assembly Into the System (See Figure B)

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 Forward Acting Insert Type Holder assembly and customer furnished gaskets, **WITH ALL FLOW ARROWS POINTING IN THE PROPER FLOW DIRECTION.**
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. These values are 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 25,000 psi. The use of studs and nuts with lower strength may prove unsatisfactory.

Figure 'C'



III. Full Bolted Holder

A. Preparation of Holders for Installation

New Installation

Clean all foreign material from the rupture disc sealing area of both the holder inlet and outlet.

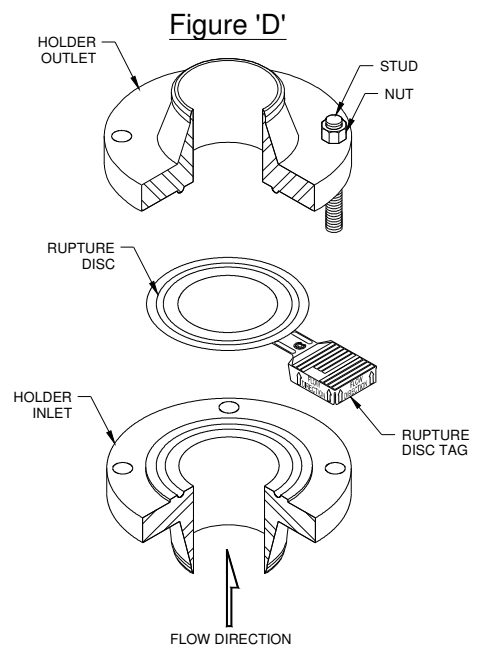
Replacement Installation

1. Remove the studs and nuts that hold the assembly together.
2. Separate the inlet and outlet; then remove the burst rupture disc.
3. Clean the rupture disc sealing area of both the holder inlet and outlet. 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.
4. Inspect the rupture disc sealing area for nicks, scratches, or pitting. If any of these conditions are present, consult the factory for repair.
5. Remove any adhered gasket material from previous installation.

B. Assembly of the Rupture Disc and Holder (See Figure D)

Component parts of the Full Bolted Holder assembly are illustrated in the proper installation sequence.

1. Carefully remove and discard any shipping protectors furnished with rupture discs or holder. **DO NOT INSTALL A SHIPPING PROTECTOR IN A HOLDER ASSEMBLY.**
2. Place the rupture disc on the holder inlet opening with the dome side facing up as illustrated.
3. Align and lower the holder outlet carefully onto the holder inlet.
4. Install lightly oiled, free running studs and nuts to finger tightness. Using a cross torquing pattern (See Figure C, page 2), 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. These values are based on stud and nut material per ASME SA193-B7 and SA194-2H respectively, with a stress of up to 25,000 psi. The use of stud and nut material with lower strength may prove unsatisfactory.



IV. Union Type Holder

A. Preparation of Holders for Installation

New and Replacement Installation

1. Clean the rupture disc sealing area of both the holder inlet and outlet. 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.

- Care should be taken during assembly and installation to ensure that nothing sharp protrudes down through the inlet or outlet cavities. A rupture disc that has been scratched, dented, or damaged in any way, may result in premature failure.

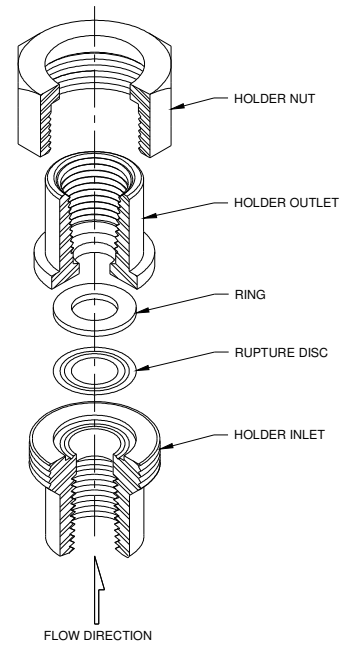
B. Assembly of the Rupture Disc and Holder (See Figure E)

Component parts of the Union Type assembly are illustrated in the proper installation sequence.

- Place the holder inlet on a flat surface.
- Position the rupture disc in the holder inlet with the dome side facing up as shown. Handle with care.
- Carefully lower the holddown ring onto the rupture disc.
- Carefully lower the holder outlet onto the holddown ring.
- Slip the nut over the holder outlet and thread it onto the holder inlet. Place a wrench on the holder inlet to keep it from turning. Using a calibrated torque wrench, torque the nut to the following requirements:

Size	Maximum Rating (Psig)	Torque, ft•lbs Burst Pressure, psig				
		0-500	501-1000	1001-2000	2001-3000	Over 3000
3/8", 1/2", 3/4"	3000	50	50	50	50	---
	6000	50	50	60	80	120
1"	3000	100	100	150	150	---
	6000	120	120	150	175	240
1-1/2"	3000	150	250	300	350	---
2"	3000	300	600	600	---	---

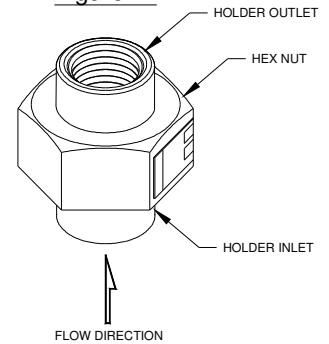
Figure 'E'



C. Installation of the Union Type Assembly into the System (See Figure F)

- Assure that the unit being installed is compatible with current system operating conditions.
- Before installing the Union Type assembly into the system, clean mating threads of all grit, dirt, or foreign material to ensure proper seal.
- When installing the assembly into the system, do not tighten or loosen seal between holder inlet and holder outlet, for this could cause damage to the rupture disc or cause premature failure.

Figure 'F'



V. Preventative Maintenance

- 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.
- 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.**
- 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.

VI. Customer Service

If you wish to discuss your application, installation, or maintenance, please contact the Customer Service Department at one of the addresses shown on the last page of these instructions.

Recommended Torque Values for FA, FAV and FAS
Rupture Discs Sizes 1" Through 24"

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	---	---	10/16/20	44	60
1	25	300/600	---	---	65	88
1	25	---	25/40	---	49	66
1	25	---	---	30/40	66	89
1	25	900/1500	---	---	180	244
1	25	---	100	---	66	89
1	25	---	160	---	130	176
1	25	---	250	---	162	220
1-1/4	25	150	---	---	35	47
1-1/4	25	---	10/16	---	33	45
1-1/4	25	---	---	10/16/20	44	60
1-1/4	25	300/600	---	---	65	88
1-1/4	25	---	25/40	---	49	66
1-1/4	25	---	---	30/40	66	89
1-1/4	25	900/1500	---	---	180	244
1-1/4	25	---	100	---	66	89
1-1/4	25	---	160	---	130	176
1-1/4	25	---	250	---	162	220
1-1/2	40	150	---	---	35	47
1-1/2	40	---	10/16	10/16/20	44	60
1-1/2	40	300/600	---	---	120	163
1-1/2	40	---	25/40	---	101	137
1-1/2	40	---	---	30/40	126	171
1-1/2	40	900/1500	---	---	260	352
1-1/2	40	---	100	---	126	171
1-1/2	40	---	160	---	205	278
1-1/2	40	---	250	---	246	334
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
2	50	900/1500	---	---	180	244
2	50	---	64	---	164	222
2	50	---	100	---	197	267
2	50	---	160	---	389	527
2	50	---	250	---	194	263

Recommended Torque Values for FA, FAV and FAS
Rupture Discs Sizes 1" Through 24"

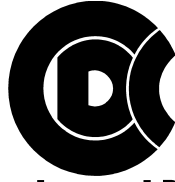
TABLE 1

SIZE		COMPANION FLANGE RATING			RECOMMENDED TORQUE VALUE	
IN.	MM	ANSI	DIN	JIS	FT•LB	N•m
3	80	150	---	---	65	88
3	80	---	10/16	10	33	45
3	80	---	---	16/20	41	56
3	80	300/600	---	---	120	163
3	80	---	25/40	---	101	137
3	80	---	---	30/40	126	171
3	80	900	---	---	180	244
3	80	---	64	---	126	171
3	80	---	100	---	151	205
3	80	---	160	---	194	263
4	100	150	---	---	65	88
4	100	---	10/16	10	66	89
4	100	---	---	16/20	82	111
4	100	300	---	---	120	163
4	100	---	25/40	---	126	171
4	100	---	---	30	139	188
4	100	600	---	---	180	244
4	100	---	---	40	178	241
6	150	150	---	---	120	163
6	150	---	10/16	10	126	171
6	150	---	---	16/20	92	125
6	150	300	---	---	120	163
6	150	---	25/40	---	227	308
6	150	---	---	30	151	205
6	150	600	---	---	275	373
6	150	---	---	40	260	352
8	200	150	10	---	130	176
8	200	---	16	10	91	123
8	200	---	---	16/20	100	136
8	200	300	---	---	180	244
8	200	---	25	30	194	263
8	200	---	40	---	219	297
8	200	600	---	---	375	509
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	---	---	275	373
10	250	---	25	---	390	529
10	250	---	40	30	433	587

Recommended Torque Values for FA, FAV and FAS
Rupture Discs Sizes 1” Through 24”

TABLE 1

SIZE		COMPANION FLANGE RATING			RECOMMENDED TORQUE VALUE	
IN.	MM	ANSI	DIN	JIS	FT•LB	N•m
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
12	300	300	---	---	375	508
12	300	---	25	---	354	480
12	300	---	---	30	394	534
14	350	150	---	---	275	373
14	350	---	10	---	162	220
14	350	---	---	10	179	243
14	350	---	16	---	195	264
14	350	---	---	16/20	244	331
14	350	300	---	---	375	508
14	350	---	25	30	492	667
16	400	150	---	---	275	375
16	400	---	10	10	260	352
16	400	---	16	---	292	396
16	400	---	---	16/20	325	441
16	400	300	---	---	485	658
16	400	---	25	---	630	854
16	400	---	---	30	461	625
18	450	150	---	---	375	508
18	450	---	---	10	315	427
18	450	---	---	16/20	394	534
20	500	150	---	---	375	508
20	500	---	10	10	394	534
20	500	---	16	16/20	492	667
24	600	150	---	---	485	658
24	600	---	10	---	516	700
24	600	---	---	10	573	776
24	600	---	16	---	630	854
24	600	---	---	16/20	687	931



Continental Disc® Corporation

Performance Under Pressure®



First Certified in 1992



If stamped, this product is built in accordance with the requirements of the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1.

China Manufacture License
Products are in full compliance with the provisions of the Peoples Republic of China Import Regulations for Boiler and Pressure Vessel safety devices.



3A Sanitary Standards Stamp
If stamped, this product is in full compliance with the 3A standards, Serial #60-00, of the International Association of Milk, Food, and Environmental Sanitarians, Inc.



European Union CE Mark
If stamped, this product is certified to conform to the essential requirements of the Pressure Equipment Directive.

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



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