

CERTIFICAT

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認証証書

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CERTIFICATE

**EC Type - Examination (Module B)
Acc. To Directive 97/23/EC
Pressure Equipment Directive**

Certificate-No.: USA-10-12-003-002 Rev 1

for

**Continental Disc Corporation
3160 West Heartland Drive
Liberty, MO 64068, USA**

We hereby certify, that the type described below meets the provisions of
Directive 97/23/EC

Description of the type:
Reverse Acting Bursting Disc Safety Devices
drawing: PEDRACTING Rev B
Design Examination Report#: **P- USA-10-10-003-002 Rev 1**

The validity of this certificate expires on December 28, 2020

It may be extended upon request.

A module combination as described in Annex II of Directive 97/23/EC is required for conformity assessment and CE marking

Austin

October 23, 2012



Test Laboratory for Pressure Equipment

N. Mueller
Norbert Mueller

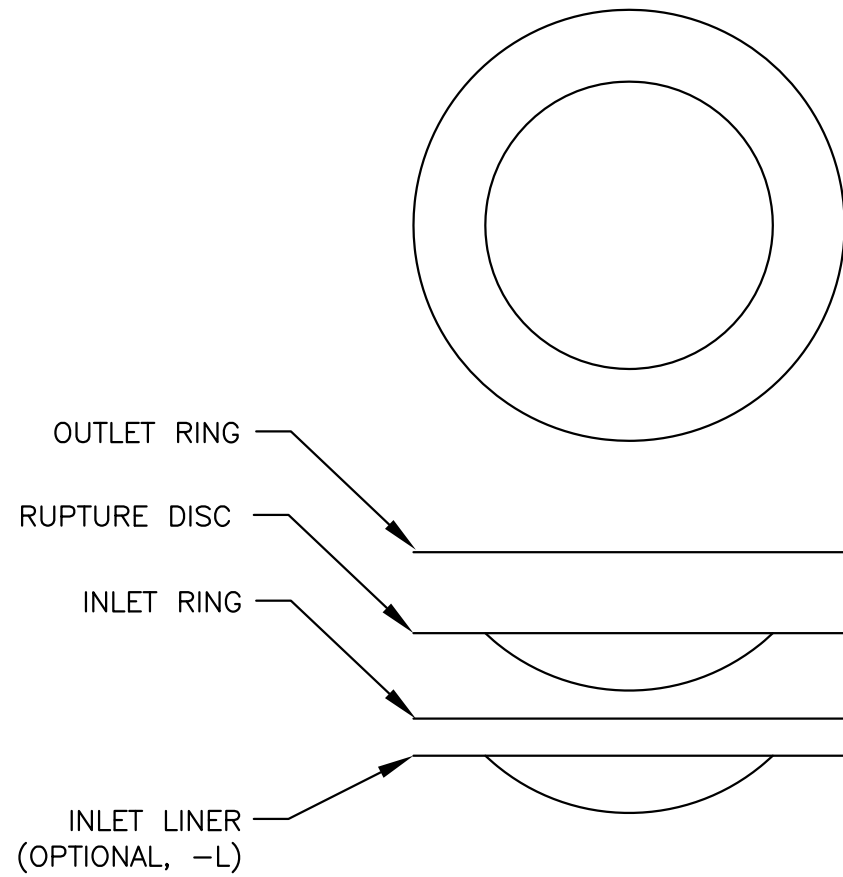
TÜV SÜD
Industrie Service GmbH
Westendstrasse 199
D-80686 München

Contact:
TUV SUD America
Industry Service
5 Cherry Hill Drive
Danvers, MA 01923

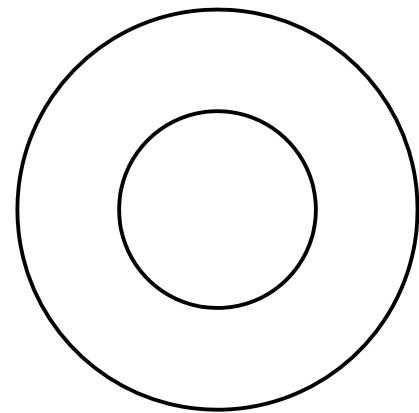
Member of
CONFÉDERATION EUROPÉEN



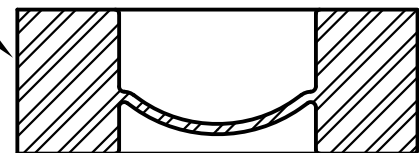
D'ORGANISMES DE CONTROLE



NAME
KBA AND ZAP



RUPTURE DISC



NAME
MRA



| NAME | SIZE | PRESSURE | HOLDER |
|------|-----------------------|-------------------------------------|---------------|
| ZAP | 1"-8" (25-200 mm) | 15-1,000 PSIG (1.03-68.9 BARG) | ZAP |
| KBA | 1"-32" (25-800 mm) | 10-1,000 PSIG (0.689-68.9 BARG) | KBA |
| MRA | 3/8" (9.5 mm) | 4275-25,000 PSIG (295-1724 BARG) | NONE REQUIRED |

NOTES:

- ILLUSTRATIONS SHOWN ARE REPRESENTATIVE OF THE RUPTURE DISCS GROUPED BY NAME. REQUIRED COMPONENTS MAY VARY BASED ON RUPTURE DISC NAME.
- OPTIONAL COMPONENTS ADDED TO A RUPTURE DISC WILL BE NOTED WITH THE NAME BY ADDING DESCRIPTIVE LETTERS BEFORE OR AFTER THE NAME. DESCRIPTIVE LETTER FOR OPTIONS LISTED NEXT TO OPTION IN ILLUSTRATION. FOR EXAMPLE A ZAP RUPTURE DISC WITH AN INLET LINER WOULD BE MARKED AS ZAP-L.
- NAMED RUPTURE DISC MAY BE DESIGNED FOR INSTALLATION INTO PRESSURE SYSTEMS UTILIZING ONE OF THE FOLLOWING DESIGN MEANS:
 - HOLDERS LISTED FOR NAMED RUPTURE DISC.
 - WITHOUT A HOLDER WHERE THE CONNECTION TO THE SYSTEM ALLOWS.
 - PERMANENTLY ATTACHED COMPONENTS BY WAY OF WELDING, SOLDERING, CRIMPING OR OTHER MEANS.

| | | | | | |
|---|----------|-------|--|--|-----------------|
| <p>Continental Disc Corporation</p> <p>3160 West Heartland Drive Liberty, Missouri 64068</p> <p>LOG NUMBER:</p> | 10-12-12 | DATE | UNLESS OTHERWISE NOTED: DIMENSIONS ARE IN [INCHES / MILLIMETERS] | TITLE REVERSE ACTING BURSTING DISC SAFETY DEVICES | |
| | ZR | APPR. | WE CERTIFY TO THE BEST OF OUR KNOWLEDGE THIS DRAWING MEETS THE SPECIFICATIONS SET FORTH | DRAWING NUMBER PEDRACTING | |
| C | REV. | APPR. | PREP. BY B. HICKS 6-6-01 | P.O. # | SHEET 1 OF 1 |
| | | | CHKD. BY K. ADKINS 6-14-01 | S.O. # | |
| | | | APPR. BY R. DOELLING 6-15-01 | | |



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| | | | | | |
|--|---|---|-------------------------------------|---|-------------------------------------|
| EC Type-Examination Module B <input checked="" type="checkbox"/> | | EC Design-Examination Module B ₁ <input type="checkbox"/> , Module H ₁ <input type="checkbox"/> | | Examination of Design Module G <input type="checkbox"/> | |
| Manufacturer: | | Manufacturing plant: | | For: | |
| Continental Disc Corporation 3160 W. Heartland Drive Liberty, MO 64068, USA | | 3160 W. Heartland Drive Liberty, MO 64068, USA | | | |
| Drawing | PEDRACTING | Rev: | B | Category: | IV |
| Intended use: | Reverse Acting Bursting Disc Safety Devices | | | | |
| Name / model | ZAP | KBA | MRA | | |
| Allowable range of operating pressure PS [bar] | 1-69 | 1-69 | 295-1724 | | |
| Min/Max. allowable Temperature TS [°C] | | | | | |
| Nominal Diameter [DN] | 25 to 200 | 25 to 800 | 9.5 | | |
| Fluid/Fluid Group | Gas | Gas | Gas, liquid / 1 | | |
| SPECIFICATIONS – DIRECTIVE 97/23/EC: | | | | | |
| 1. Regulations/Codes: | AD 2000 | TRD | ASME / ANSI B 31.B | | |
| Applied in full | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Applied in part | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | | |
| Parts applied: | AD 2000 Merkblatt A1 | | | | |
| 2. Standards/other Specifications: | EN ISO 4126-2:2003 | | | | |
| Requirements: Directive 97/23/EC, Annex I, 2.11 | | | | | |
| APPLICATION: | | | | | |
| Written declaration, that the application has not been lodged with any other notified body | <input checked="" type="checkbox"/> | Complete technical documentation (Paragraph 3 of the relevant module) | <input checked="" type="checkbox"/> | Drawing #, and Rev PEDRACTING REV. C | <input checked="" type="checkbox"/> |

Comments:

The stipulations of the test plan (# P-USA-10-05-003-002.) shall be fulfilled

The burst discs are manufactured without permanent joining processes.

The permanent joining procedures and the personnel involved with the manufacturing of the holders shall be approved by a notified body for the PED



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| Drawing No.: PEDRACTING | | Rev.: B | | | |
|-------------------------|--|-------------|----------------|---|--|
| | EXAMINATIONS AND RESULTING EVALUATIONS (CHECKLIST) | Acceptable | Not applicable | Remarks | |
| 1. | Design Code / calculation method | X | | EN ISO 4126-2:2003 | |
| 2. | Design for adequate strength <ul style="list-style-type: none"> Internal/external pressure Min/Max operational temperatures Corrosion, erosion, wear, fatigue | X X X | | Compatibility with process operational conditions is the responsibility of the user | |
| 3. | Suitability of materials for main pressure bearing parts <ul style="list-style-type: none"> Particular material appraisal(s) PMA | | X | Compatibility with process fluids is to be determined in the responsibility of the user | |
| 4. | Testing In compliance with the standard requirements | X | | MP-7006 Rev. M | |
| 5. | Marking and labeling | X | | Conformance with EN ISO 4126-2 MP-7007 Rev. M | |
| 6. | Installation manuals | X | | GEP 6003, 6004, SC40239-II | |

Manufacturing:

Manufacturing shall be performed in such a way, that the discs have uniform chemical and physical properties and shall be free from defects. If corrosion protection is applied, the corrosion protection shall not impair the performance of the bursting disc safety device.
The manufacturing facility and the manufacturing procedures shall be subject to surveillance by TÜV SÜD Industrie service GmbH.

Materials:

The selection of materials used for the bursting discs shall take into account the suitability with regard to manufacture and the compatibility with the process fluid and the operational chemical and physical conditions.

Material of the same specification coming from the same heat number and heat treatment batch with a specified thickness shall be defined as material lot.



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The materials listed in table A1 and B1 of EN ISO 4126-2 and other materials*) can be selected for bursting discs and holders

*) The suitability of a material for a specific application can be ensured by a particular material appraisal (PMA) by the notified body in charge.

Testing:

A quantity of bursting discs from the same type and size manufactured from the same material lot shall be defined as "batch".
 Rupture disc burst testing shall be performed in conformance to CDC Procedure MP-7006, Rev. M.

Tests previously performed:

| DISC MODEL | Disc material | Lot/Batch No. | Ambient breaks [bar] | Breaks at temperature [°C] |
|-------------|---------------|---------------|--|----------------------------|
| 4" ZAP (FS) | 316 ss | 8166136 | 10.34, 10.00 | |
| 6" ZAP (FS) | 316 ss | 8165819 | 14.14, 14.14 | |
| 4" KBA (FS) | 316 ss | 8168196 | 25.86, 25.86 | |
| 6" KBA (FS) | 316 ss | 8165821 | 33.10, 32.76 | |
| 3/8" MRA | Hastelloy C | 8213229 | 351.6, 337.8, 355.1, 351.6, 344.7 | |
| 3/8" MRA | Hastelloy C | 8211844 | 1043.2, 1027.2, 1027.4, 1045.5, 1018.1, 1022.6, 1010.8, 1021.7, 1053.9, 1015.4, 1023.9, 1024.1, 1035.9 | |
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The tested burst discs comply with the drawing in essence.



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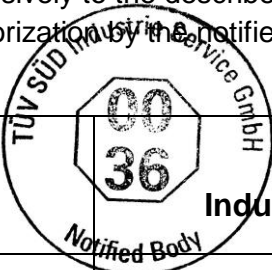
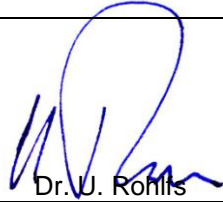
Marking:

The marking shall be performed in conformance to CDC Procedure MP-7007, Rev. M and shall include the following:

- Manufacturers name or trade mark
- Model / type
- Nominal size (DN)
- Material identification
- Specified minimum and maximum burst pressure and temperature
- Performance tolerance
- Flow direction
- Standard if applicable
- Batch identification
- Reference to specified holder
- Year of manufacture



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|--|---|---|------------|
| Result: | | | |
| The above-mentioned examinations were performed in accordance with the provisions of the stated requirements/specifications. The requirements of the Directive 97/23/EC are met. | | | |
| Declaration of Conformity : | CE marked product shall be accompanied by a Declaration of Conformity in conformance to Appendix A of CDC Procedure MP-7007, Rev. M | | |
| Notes: | The examination results relate exclusively to the described drawing(s). Partial copies of this report without a written authorization by the notified body is not permitted. | | |
| Location: | Palo Alto | Date: | 10/22/2012 |
| | |  Inspection Body of TÜV SÜD Industrie Service GmbH Notified Body | |
| | |  Dr. U. Rohlfis | |
| Attachments: | <ul style="list-style-type: none"> • Drawing PEDRACTING REV C • Sample declaration of conformity • GEP-6003 Rev. K, GEP 6004 Rev. K • MP-7006 Rev. M • MP-7007 Rev. M • MP-1063 Rev. G • MP-1064 Rev. D • SC40239-MP Rev. E • SC40239-II Rev. C | | |