

# IECEx Certificate of Conformity

| Certificate No.:       IECEX BVS 15.0018       issue No.:       Certificate history:         Status:       Current         Date of Issue:       2015-04-02       Page 1 of 4         Applicant:       Dr. Breit GmbH<br>Carl-Beiss-Straße 26<br>42579 Heiligenhaus<br>Germany       Applicant:       Dr. Breit GmbH<br>Carl-Beiss-Straße 26<br>42579 Heiligenhaus<br>Germany         Electrical Apparatus:       Solenoid type FEB ***/95-* and FEB 020/95-**       Colores -**         Optional accessory:       The solenoid type FEB ***/95-* and FEB 020/95-**         Marking:       Ex ia I Mb<br>Ex ib IM<br>Ex ib IM<br>Ex ib IM<br>Ex ib IM<br>Ex ib IC T8 T5 Gb         Approved for issue on behalf of the IECEX       H-Ch. Simanski         Position:       Head of Certification Body         Signature:       Inde. Marking         (or printed version)       Inde. Marking         Jate:       L.4. TOTS         1. his certificate and schedule may only be reproduced in full.         2. his certificate and schedule may only be reproduced in full.         1. his certificate and schedule may only be reproduced in full.         1. his certificate and schedule may only be reproduced in full.         1. his certificate and schedule may only be reproduced in full.         1. his certificate is aud authenticity of this certificate may be verified by visiting the Official IECEX Website.         Certificate issued by <th></th> <th><b>Certification Scl</b></th> <th>ECTROTECHNICAI<br/>heme for Explosive<br/>of the IECEx Scheme visit www.</th> <th>Atmospheres</th>   |                          | <b>Certification Scl</b>                   | ECTROTECHNICAI<br>heme for Explosive<br>of the IECEx Scheme visit www. | Atmospheres          |
|---|--------------------------|--|--|----------------------|
| Date of Issue:       2015-04-02       Page 1 of 4         Applicant:       Dr. Breit GmbH<br>Carl-Zeiss-Straße 25<br>42579 Heiligenhaus<br>Germany  | Certificate No.:         | IECEx BVS 15.0018                          | issue No.:0  | Certificate history: |
| Applicant:       Dr. Breit GmbH<br>Carl-Zeiss-Straße 25<br>42579 Helingenhaus<br>Germany         Electrical Apparatus:<br>Optional accessory:       Solenoid type FEB ***/95-* and FEB 020/95-**         Type of Protection:       Equipment protection by intrinsic safety "i"         Marking:       Ex ia 1 Mb<br>Ex ib 1 Mb<br>Ex ib 1 Mb<br>Ex ia IIC T6T5 Gb         Approved for issue on behalf of the IECEx<br>(for printed version)       H-Ch. Simanski         Position:       Head of Certification Body         Position:       Head of Certification Body         Signature:<br>(for printed version)       I.M. Marking.         Date:       2.4.4.2015         1 This certificate and schedule may only be reproduced in full.       2.4.2015         1 This certificate and schedule may only be reproduced in full.       Existing body.         2 This certificate is not transferable and remains the property of the issuing body.       The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.         Certificate issued by:       DEKRA EXAM GmbH<br>Dinnendahlstrasse 9<br>44809 Bochum       SpeckERAE  | Status:                  | Current                                    |  |                      |
| Carl-Zeiss-Straße 25         42579 Heiligenhaus         Germany         Electrical Apparatus:       Solenoid type FEB ***/95.* and FEB 020/95.**         Optional accessory:         Type of Protection:       Equipment protection by intrinsic safety "!"         Marking:       Ex ia I Mb         Ex ib I Mb       Ex ia IIC T6T5 Gb         Approved for issue on behalf of the IECEx       HCh. Simanski         Certification Body:       Position:         Position:       Head of Certification Body         Signature:       (for printed version)         Date:       2.4.2015         1. This certificate and schedule may only be reproduced in full.       1. This certificate is not transferable and remains the property of the issuing body.         3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.         Certificate issued by:       DEKRA EXAM GmbH         Dimendahlstrasse 9       44899 Bochum  | Date of Issue:           | 2015-04-02                                 | Page 1 of 4  |                      |
| Optional accessory:         Type of Protection:       Equipment protection by intrinsic safety "i"         Marking:       Ex ia 1 Mb<br>Ex ib 1 Mb<br>Ex ib 1 Mb<br>Ex ia IIC T6T5 Gb         Approved for issue on behalf of the IECEx       HCh. Simanski         Certification Body:       Head of Certification Body         Position:       Head of Certification Body         Signature:<br>(for printed version)       Image: Image  | Applicant:               | Carl-Zeiss-Straße 25<br>42579 Heiligenhaus |  |                      |
| Marking:       Ex ia 1 Mb         Ex ib 1 Mb       Ex ib 1 Mb         Ex ia 1IC T6T5 Gb         Approved for issue on behalf of the IECEx       HCh. Simanski         Certification Body:       Head of Certification Body         Position:       Head of Certification Body         Signature:       Image:   |                          | Solenoid type FEB **                       | **/95-* and FEB 020/95-**  |                      |
| Ex ib I Mb         Ex ia IIC T6T5 Gb         Approved for issue on behalf of the IECEx         Position:         Position:         Head of Certification Body         Signature:         (for printed version)         Date:         1. This certificate and schedule may only be reproduced in full.         2. This certificate is not transferable and remains the property of the issuing body.         3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.    Certificate issued by:  | Type of Protection:      | Equipment protection                       | n by intrinsic safety "i"  |                      |
| Certification Body:         Position:       Head of Certification Body         Signature:<br>(for printed version)       Image: | Marking:                 | Ex ib I Mb                                 |  |                      |
| Signature:<br>(for printed version)<br>Date:<br>1. This certificate and schedule may only be reproduced in full.<br>2. This certificate is not transferable and remains the property of the issuing body.<br>3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.<br>Certificate issued by:<br>DEKRA EXAM GmbH<br>Dinnendahlstrasse 9<br>44809 Bochum   |                          | n behalf of the IECEx                      | HCh. Simanski  |                      |
| (for printed version)       I. Uh. Uh. Uh. Uh. Image: 2.4. 2015         Date:       2.4. 2015         1. This certificate and schedule may only be reproduced in full.       2. A. 2015         2. This certificate is not transferable and remains the property of the issuing body.       3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.         Certificate issued by:       DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum  | Position:                |  | Head of Certification Body   |                      |
| <ol> <li>This certificate and schedule may only be reproduced in full.</li> <li>This certificate is not transferable and remains the property of the issuing body.</li> <li>The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.</li> </ol> Certificate issued by:           DEKRA EXAM GmbH         Dinnendahlstrasse 9         44809 Bochum  |                          |  | 1. C. Lino   | -                    |
| <ul> <li>2. This certificate is not transferable and remains the property of the issuing body.</li> <li>3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.</li> </ul> Certificate issued by:           DEKRA EXAM GmbH         Dinnendahlstrasse 9           44809 Bochum         DEKRA   | Date:                    |  | 2.4.2015   |                      |
| DEKRA EXAM GmbH<br>Dinnendahlstrasse 9<br>44809 Bochum  | 2. This certificate is r | not transferable and remains               | the property of the issuing body.                                      |                      |
|   | Certificate issued by:   |  |  |                      |
|   |                          | Dinnendahlstrasse 9                        |  | > DEKRA              |
|   |                          |  |  |                      |
|   |                          |  |  |                      |
|   |                          |  |  |                      |

|                  | IECEx Certificate<br>of Conformity  |              |  |
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| Certificate No.: | IECEx BVS 15.0018   |              |  |
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| Manufacturer:    | <b>Dr. Breit GmbH</b><br>Carl-Zeiss-Straße 25<br>42579 Heiligenhaus<br><b>Germany</b> |              |  |

Additional Manufacturing location (s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

#### STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

| IEC 60079-0 : 2011<br>Edition: 6.0  | Explosive atmospheres - Part 0: General requirements                          |
|-------------------------------------|---|
| IEC 60079-11 : 2011<br>Edition: 6.0 | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i" |

This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

#### **TEST & ASSESSMENT REPORTS:**

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report: DE/BVS/ExTR15.0016/00

Quality Assessment Report:

DE/BVS/QAR14.0002/01



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Schedule

#### EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

## Subject and Type

See Annex

#### Description

The Solenoid type FEB \*\*\*/95-\* and type FEB 020/95-\*\*; providing electrical operation of valves consists of one (two) solenoid(s) (each one) fitted with safety shunts (three diodes in parallel for level of protection Ex ia I / IIC, two diodes in parallel for level of protection Ex ib I respectively).

Solenoid(s) and safety shunt(s) and - if applicable - an electronic control unit to reduce current consumption are completely embedded in casting compound. For the connection of the external intrinsically safe supply circuit(s) a socket connector is attached to the stainless steel

enclosure of the solenoid.

### CONDITIONS OF CERTIFICATION: NO



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### EQUIPMENT(continued):

## Parameters

1 Supply circuit

|               | Parameters                           |                                      |                                   |   |  |
|---------------|--------------------------------------|--------------------------------------|-----------------------------------|---|--|
| Solenoid type | Max. input<br>voltage U <sub>i</sub> | Max. input current<br>I <sub>i</sub> | Max.input power<br>P <sub>i</sub> | Effective internal<br>capacitance / inductance<br>C <sub>i</sub> / L <sub>i</sub> |  |
| FEB 002/95-*  | DC 28 V                              | 660 mA                               | 2 W                               | negligible  |  |
| FEB 001/95-*  | DC 28 V                              | 660 mA                               | 2 W                               | negligible  |  |
| FEB 004/95-*  | DC 28 V                              | 2 A                                  | 2 W                               | negligible  |  |
| FEB 003/95-*  | DC 28 V                              | 2 A                                  | 2 W                               | negligible  |  |
| FEB 006/95-*  | DC 28 V                              | 2 A                                  | 2 W                               | negligible  |  |
| FEB 005/95-*  | DC 28 V                              | 2 A                                  | 2 W                               | negligible  |  |
| FEB 010/95-*  | DC 28 V                              | 660 mA                               | 2 W                               | negligible  |  |
| FEB 009/95-*  | DC 28 V                              | 660 mA                               | 2W                                | negligible  |  |
| FEB 012/95-*  | DC 28 V                              |                                      | 2 W                               | negligible  |  |
| FEB 011/95-*  | DC 28 V                              |                                      | 2 W                               | negligible  |  |
| FEB 020/95-*a | 2 x DC 28 V                          | 2 x 660 mA                           | 2 x 2 W                           | negligible  |  |
| FEB 020/95-*b | 2 x DC 28 V                          | 2 x 2 A                              | 2 x 2 W                           | negligible  |  |

2 Ambient temperature range:

-20 °C T<sub>a</sub> +70 °C (T5) /+60 °C (T6) -50 °C T<sub>a</sub> +70 °C (T5) /+60 °C (T6)

Annex: BVS\_15\_0018\_DrBreit\_Annex.pdf



**Certificate No.:** 

# IECEx Certificate of Conformity DEKRA

|   | nex<br>ge 1 of 1 |                        |  |
|---|------------------|------------------------|--|
| Subject and Type:   |                  |                        |  |
| Solenoid type FEB ***/95-* and  | type FEB 20/9    | 5-**                   |  |
| Solenoid  |                  | type FEB <u>***</u> /9 | <u>'</u> /95- <u>*</u>   |
| Version Ex ia I Mb / IIC T6T5<br>two solenoids (3-wire circuit)<br>one solenoid | Gb               | = 001<br>= 002         | $\begin{bmatrix} 1: \text{ For } -20 \ ^\circ\text{C} \le \text{T}_a \le +70 \ ^\circ\text{C} \ (\text{T5}) \ / \\ +60 \ ^\circ\text{C} \ (\text{T6}) \\ 2: \text{ For } -50 \ ^\circ\text{C} \le \text{T}_a \le +70 \ ^\circ\text{C} \ (\text{T5}) \ / \\ +60 \ ^\circ\text{C} \ (\text{T6}) \end{bmatrix}$ |
| Version Ex ib I Mb<br>two solenoids (3-wire circuit)<br>one solenoid            |                  | = 003<br>= 004         |  |
| Version Ex ia I Mb<br>two solenoids (3-wire circuit)<br>one solenoid            | *)<br>*)         | = 005<br>= 006         |  |
| Version Ex ia IIC T6T5 Gb<br>two solenoids (3-wire circuit)<br>one solenoid     |                  | = 009<br>= 010         |  |
| Version Ex ia IIC T6T5 Gb<br>two solenoids (3-wire circuit)<br>one solenoid     | *)<br>*)         | = 011<br>= 012         |  |

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\*) equipped with electronic control unit in order to reduce current consumption when in active status.

