



# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

|                       |                                                                                                                                                                                                                                                                                                                                                                   |             |                                          |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------|
| Certificate No.:      | IECEx BKI 06.0005X                                                                                                                                                                                                                                                                                                                                                | Issue No: 2 | Certificate history:                     |
| Status:               | Current                                                                                                                                                                                                                                                                                                                                                           | Page 1 of 4 | <a href="#">Issue No. 2 (2011-09-19)</a> |
| Date of Issue:        | 2011-09-19                                                                                                                                                                                                                                                                                                                                                        |             | <a href="#">Issue No. 1 (2010-04-06)</a> |
|                       |                                                                                                                                                                                                                                                                                                                                                                   |             | <a href="#">Issue No. 0 (2006-06-28)</a> |
| Applicant:            | <b>Cooper Crouse-Hinds GmbH</b><br>previously CEAG Sicherheitstechnik GmbH<br>Neuer Weg Nord 49<br>D-69412 Eberbach, Germany<br><b>Germany</b>                                                                                                                                                                                                                    |             |                                          |
| Electrical Apparatus: | <b>Plug-in connector ( eXLink )</b>                                                                                                                                                                                                                                                                                                                               |             |                                          |
| Optional accessory:   | Type GHG 57. ....R....                                                                                                                                                                                                                                                                                                                                            |             |                                          |
| Type of Protection:   | <b>General requirements, Flameproof enclosure, Increased safety, Dust explosion protection</b>                                                                                                                                                                                                                                                                    |             |                                          |
| Marking:              | Ex de IIC T6<br>-25 °C ? Tamb ? +40 °C ( plastic version )<br>-55 °C ? Tamb ? +40 °C ( plastic version, schockproof )<br>-55 °C ? Tamb ? +40 °C ( metal version )<br>-55 °C ? Tamb ? +75 °C ( metal version, lth max. 2A, schockproof )<br>-55 °C ? Tamb ? +75 °C ( plastic version, lth max. 2A, schockproof )<br>Ex tD A21 IP66 T52°C<br>-55 °C ? Tamb ? +40 °C |             |                                          |

Approved for issue on behalf of the IECEx  
Certification Body:

Janos FEJES

Position:

Director

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](http://www.iecex.com).

Certificate issued by:

**Testing Station for Explosion Proof Equipment**  
**H 1037 BUDAPEST**  
**MIKOVINY S.u. 2-4**  
**Hungary**





# IECEx Certificate of Conformity

Certificate No: IECEx BKI 06.0005X Issue No: 2

Date of Issue: 2011-09-19 Page 2 of 4

Manufacturer: **Cooper Crouse-Hinds GmbH**  
previously CEAG Sicherheitstechnik GmbH  
Neuer Weg Nord 49  
D-69412 Eberbach, Germany  
**Germany**

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:

|                                          |                                                                                                          |
|------------------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>IEC 60079-0 : 2004</b><br>Edition:4.0 | Electrical apparatus for explosive gas atmospheres - Part 0: General requirements                        |
| <b>IEC 60079-1 : 2003</b><br>Edition: 5  | Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosure 'd'                    |
| <b>IEC 60079-7 : 2001</b><br>Edition:3   | Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety 'e'                        |
| <b>IEC 61241-0 : 2004</b><br>Edition:1   | Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements          |
| <b>IEC 61241-1 : 2004</b><br>Edition:1   | Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures "tD" |

*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:

[HU/BKI/ExTR06.0009/00](#) [HU/BKI/ExTR06.0009/01](#)

### Quality Assessment Report:

[DE/BVS/QAR11.0009/00](#) [HU/BKI/QAR06.0005/00](#) [HU/BKI/QAR06.0005/10](#)



# IECEx Certificate of Conformity

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Certificate No: IECEx BKI 06.0005X

Issue No: 2

Date of Issue: 2011-09-19

Page 3 of 4

## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

See details in Addendum to IECEx BKI 06.0005 X

### CONDITIONS OF CERTIFICATION: YES as shown below:

See details in Addendum to IECEx BKI 06.0005 X



# IECEX Certificate of Conformity

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Certificate No: IECEx BKI 06.0005X

Issue No: 2

Date of Issue: 2011-09-19

Page 4 of 4

**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):**

new QAR

**Annex:**

[Addendum to IECEx BKI 06.0005X a.1..pdf](#)

[Addendum to IECEx BKI 06.0005 X.pdf](#)



## 1. Description

The plug-in connector, type GHG 572 ....R..., with plug connector, appliance connector, coupling, flange-mounting socket outlet and angle unit is to provide for cable connection in potentially explosive areas. It comes as a metal version for Flameproof Enclosure and Increased Safety type of connection, and as a plastic version for Increased Safety type of protection.

Offset pin assignment (30 degree offset with reference to the thicker ground terminal) ensures that only plugs and socket outlets of the same identification code can be used together.

Connection is by means of integrated terminals connected to cage clamps or by means of crimp termination or prefabricated connection wiring (unconnected cable end, single conductors).

For adequate connection of the cable and proper installation, due regard shall be given to the instructions for operation.

## 2. Type assortment

GHG 572 ....R....

Legend of the signs from left to right

|                  |                                                               |
|------------------|---------------------------------------------------------------|
| 1._, 2._, 3._    | Code for manufacturer                                         |
| 4._, 5._         | Type of apparatus: connector                                  |
| 6._              | Number of poles                                               |
|                  | 2 = 6+1                                                       |
| 7._              | 1 = elbow                                                     |
|                  | 2 = free                                                      |
|                  | 3 = coupler                                                   |
|                  | 4 = free                                                      |
|                  | 5 = free                                                      |
|                  | 6 = inlet, metal > 2000 cm <sup>3</sup> (Ex de IIC)           |
|                  | 7 = plug                                                      |
|                  | 8 = flange socket                                             |
|                  | 9 = inlet, plastic + metal < 2000 cm <sup>3</sup> (Ex de IIC) |
| 8._              | Type of connection                                            |
|                  | 1 = up to 1,5 mm <sup>2</sup> crimp                           |
|                  | 2 = up to 2,5 mm <sup>2</sup> crimp                           |
|                  | 3 = free                                                      |
|                  | 4 = free                                                      |
|                  | 5 = free                                                      |
|                  | 6 = cage-clamp terminal                                       |
|                  | 7 = free                                                      |
|                  | 8 = free                                                      |
|                  | 9 = free                                                      |
|                  | 0 = no connection                                             |
| 9._, 10._        | Time setting                                                  |
|                  | 00.. to 12 in single stages                                   |
| 12._             | Connector version                                             |
|                  | 0 = moulded plastic                                           |
|                  | 1 = stainless steel                                           |
|                  | 2 = stainless steel with gland for armoured cable             |
|                  | 3 = brass                                                     |
|                  | 4 = brass with gland for armoured cable                       |
|                  | 5 = stainless steel with NPT-thread                           |
|                  | 6 = brass with NPT-thread                                     |
|                  | 7 = free                                                      |
|                  | 8 = free                                                      |
|                  | 9 = free                                                      |
| 13._, 14._, 15._ | No influence on the explosion protection                      |

### 3. General parameters

#### Electrical data

Crimp termination Cage clamp Connecting cable

Rated voltage up to 400 V

Rated current<sup>\*)</sup> max. 16 A 1.0 A

Utilization category AC-1 AC 1/DC 1

<sup>\*)</sup> depending on conductor size and contact (3 × 16 A, 2 × 1 A or 6 × 1 A)

Provided the making and breaking capacities defined in the relevant regulations are met, rated values other than those specified above are acceptable and will be defined by the manufacturer on the basis of the operating mode, utilisation category, etc.

Number of plug-in contacts 6+1

Rated cross section

Crimp termination 0.75 mm<sup>2</sup> to 2.5 mm<sup>2</sup>

Cage clamp 0.5 mm<sup>2</sup> to 1.5 mm<sup>2</sup>

Connecting cable 1.0 mm<sup>2</sup> to 2.5 mm<sup>2</sup>

### 4. Ambient temperature

Ambient temperature max. for temperature class T6

Plastic version -20 °C to 40 °C

Metal version (stainless steel) -55 °C to 40 °C

Metal version, I<sub>th</sub> max. 1 A (stainless steel) -55 °C to 75 °C

Plastic version, I<sub>th</sub> max. 1 A -20 °C to 75 °C

### 5. Ingress protection

IP55 to IEC 60529

### 6. Special conditions for safe use:

- 6.1 The elements of the plug-in connector are prefabricated with single cores cable or they are provided with crimp termination or cage clamp for connection at site. For adequate connection of the cable and proper installation, due regard shall be given to the instructions for operation.
- 6.2 The single cores of the plug-in connector shall be installed to provide for permanent wiring and adequate protection against mechanical damage. The quality of the connecting cable shall be such that it complies with the local thermal and mechanical requirements.
- 6.3 Should the single cores be connected in the potentially explosive area, a terminal compartment shall be used which meets the requirements of an approved type of protection in accordance with IEC 60079-0, section 1.
- 6.4 The metal versions of the flange-mounting socket outlet, appliance connector, and angle unit may be installed in the walls of enclosures designed to Flameproof Enclosure “d” or Increased Safety “e” type of protection. For selection criteria and installation conditions, reference is made to the notes furnished with the operating instructions.
- 6.5 The tapped holes of flameproof enclosures receiving the flange-mounting socket outlet, the appliance connector, or the angle unit with their screw thread shall meet the minimum requirements as set forth in IEC 60079-1, section 5.3 (table 3).
- 6.6 If the reference pressure exceeds 20 bar, the Ex-d flange-mounting socket outlet, Ex-d appliance connector, and metal angle unit have to be included in the type test of IEC 60079-1, section 15.1.3 (overpressure test) of the corresponding operator/apparatus.
- 6.7 The flange-mounting socket outlet and the appliance connector have to be fixed in the electrical apparatus in such a way that rotation and accidental loosening will be prevented.
- 6.8 The plastic versions of the flange-mounting socket outlet, appliance connector, and angle unit have to be installed in the walls of enclosures designed to Increased Safety “e” type of protection.

- 6.9 When using terminal compartments designed to Increased Safety “e” type of protection in compliance with IEC 60079-7, the clearance and creepage distances specified in section 4.4, section 4.5 and table 1 must be maintained.
- 6.10 Equipotential bonding and earthing shall be safeguarded by the way the metal versions of the flange-mounting socket outlet, appliance connector and/or angle unit are connected with the complete system.
- 6.11 In the non-plugged condition, the connector and appliance connector must not be alive.
- 6.12 The plug-in connector is made up of two or more parts requiring proper installation. The operating instructions account for this fact in a special way. The instructions for assembly have to be carefully followed to ensure safe operation.  
The operator/user shall be informed of the Special Conditions in a suitable form.

### **Drawings**

|             |                                                                                              |            |                          |             |
|-------------|----------------------------------------------------------------------------------------------|------------|--------------------------|-------------|
| Description | No. 4301                                                                                     | 13 sheets  |                          | 2006.07.13. |
| Drawing No. | GHG 57-3-4416                                                                                | 1 sheet    |                          | 2006.02.21. |
|             | GHG 57-3-4417                                                                                | 1 sheet    |                          | 2006.02.21. |
|             | GHG 57-3-4418                                                                                | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4419                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4420                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4421                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4422                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4423                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4424                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4425                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4426                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4427                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4428                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4429                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4471                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4472                                                                                    | 1 sheet    |                          | 2006.02.21. |
|             | 57-3-4473                                                                                    | 1 sheet    |                          | 2006.02.21. |
| Part list   |                                                                                              |            |                          |             |
|             | GHG 57-3-4416 to GHG 57-3-4429                                                               | 14×1 sheet |                          | 2006.02.21. |
|             | GHG 57-3-4471 to GHG 57-3-4473                                                               | 3×1 sheet  |                          | 2006.02.21. |
|             | Gape table                                                                                   | 4 sheets   |                          | 2006.02.21. |
|             | Test protocol / High temperature, Low temperature, impact test, Fall test, Degree protection | 7 sheets   | No. 1.8-MI4-B1-081122005 | 2006.03.28. |
|             | Test protocol (Electric strength)                                                            | 2 sheets   | No. 01-MI4-B1-09042003   | 2006.08.17. |
|             | Test protocol (Light resistance)                                                             | 1 sheet    | No. 01-MI4-B1-31072003   | 2006.08.17. |
|             | Test protocol (Heating test 6+1 pole)                                                        | 7 sheets   | No. 1.1-MI4-1-14112005   | 2006.01.31. |
|             | Test protocol (Pressure test)                                                                | 4 sheets   | No. 2.4-MI4-B1-08122005  | 2006.04.07. |
|             | Test protocol (Crimp termination)                                                            | 2 sheets   | No. 01-MI4-B1-09042003   | 2006.08.17. |
|             | Test protocol (Pressure test)                                                                | 4 sheets   | No. 2.2-MI4-B1-08122005  | 2006.04.07. |
|             | Test protocol (Climatic test, impact test, fall test, degree protection)                     | 5 sheets   | No. 1.9-MI4-B1-08122005  | 2006.03.29. |
|             | Test protocol (Climatic test, impact test, fall test, degree protection)                     | 7 sheets   | No. 1.8-MI4-B1-08122005  | 2006.03.28. |
|             | Test protocol (Voltage drop at cage clamp)                                                   | 2 sheets   | No. 02-MI4-1-07082006    | 2006.08.15. |
|             | BKI Test sheet about pressure test nr 06002s1                                                | 4 sheets   |                          | 2006.06.07  |
|             | BKI Test sheet about pressure test nr 06002s2                                                | 4 sheets   |                          | 2006.06.07  |
|             | BKI Test sheet about pressure test nr 06002s3                                                | 4 sheets   |                          | 2006.06.07  |
|             | BKI Test sheet about pressure test nr 06002s4                                                | 4 sheets   |                          | 2006.06.07  |
|             | Operating instructions GHG 570 7005 P0001 D/E/F (-)48 sheets                                 |            |                          | 2006.06.15. |



## 1. Description

The plug-in- connector, type GHG 57. ....R...., consists of the plug, the appliance connector, coupling, flange mounting socket outlet and angle unit. It is used for cable connections in potentially explosive atmospheres and comes as a increased safety type of connection.

Offset pin assignment ( 30 degree offset with reference to the thicker ground terminal ) is to make sure that only plugs and socket outlets of the same identification code can be used together.

Connection is by means of the integrated terminals connected to cage or piercing clamps or crimp termination or by means of prefabricated connecting cables ( open-ended line, single conductors ).

For adequate connection of the cable and proper installation, due regard shall be given to the instructions for operation.

The plug-in connector ( eXLink ), type GHG 57. ....R...., will be manufactured with the following modifications: the metal version of the appliance connectors and the flange-mounting socket outlet with encapsulated connecting wires may also be installed in enclosures > 2.000 cm<sup>3</sup>.

Connectors and coupling provided with a stainless steel or CuZn enclosure with adequately modified cable entries may be connected by means of armoured cables.

In systems with safety extra low voltage, the coding pin ( thicker pin ) may also be used as a current carrying connection.

## 2. Type assortment

GHG 57. ....R....

Legend of the signs from left to right

|                  |                                                      |
|------------------|------------------------------------------------------|
| 1._, 2._, 3._    | Code for Manufacturer                                |
| 4._, 5._         | Apparatus connector                                  |
| 6._              | Number of poles                                      |
|                  | 1 = 4                                                |
|                  | 2 = 6+1                                              |
|                  | 3 = T pieces                                         |
|                  | 4 = 4+1                                              |
| 7._              | Design                                               |
|                  | 1 = elbow, angle piece                               |
|                  | 3 = coupler                                          |
|                  | 4 = none                                             |
|                  | 5 = flange socket, flameproof > 2000 cm <sup>3</sup> |
|                  | 6 = inlet, flameproof > 2000 cm <sup>3</sup>         |
|                  | 7 = plug                                             |
|                  | 8 = flange socket ( standard )                       |
|                  | 9 = inlet ( standard ), appliance plug               |
| 8._              | Type of connection                                   |
|                  | 1 = up to 1.5 mm <sup>2</sup> crimp                  |
|                  | 2 = up to 2.5 mm <sup>2</sup> crimp                  |
|                  | 5 = cutting clamp                                    |
|                  | 6 = cage clamp terminal up.. to...                   |
|                  | 0 = none ( without connection )                      |
| 9._, 10._        | Time setting                                         |
|                  | 00.. to 12 in single                                 |
| 12._             | Connector version                                    |
|                  | 0 = moulded plastic                                  |
|                  | 1 = stainless steel                                  |
|                  | 2 = stainless steel with gland for armoured cable    |
|                  | 3 = brass                                            |
|                  | 4 = brass with gland for armoured cable              |
|                  | 5 = stainless steel with NPT-thread                  |
|                  | 6 = brass with NPT-thread                            |
| 13._, 14._, 15._ | no influence on the explosion protection             |



### 3. General parameters

#### Electrical data

Crimp termination cage clamp connecting cable

Rated Voltage up to 250 V

Rated current\* max. 10 A

Utilization category.....AC-1

\*depending on conductor size

Piercing clamp

Rated Voltage up to 60 V

Rated current\* max. 6 A

Utilization category.....AC-1

\*depending on conductor size

Provided the making and breaking capacities are met, rated values other than those specified above are acceptable and will be defined by the manufacturer on the bases of the operating mode, utilization category etc.

Number of plug in-contacts 6+1

Rated cross section

Crimp termination 0.75 mm<sup>2</sup> to 2.5 mm<sup>2</sup>

Cage clamp 0.5 mm<sup>2</sup> to 1.5 mm<sup>2</sup>

Piercing clamp 0.34 mm<sup>2</sup> to 0.75 mm<sup>2</sup>

Connecting cable 1.0 mm<sup>2</sup> to 2.5 mm<sup>2</sup>

### 4. Ambient temperature

Ambient temperature max. for temperature class T6

Plastic version -25 °C to +40 °C

Plastic version, shockproof -55 °C to +40 °C

Metal version -55 °C to +40 °C

Metal version, I<sub>th</sub> max. 2A -55 °C to +75 °C

Plastic version, I<sub>th</sub> max. 2A, shockproof -55 °C to +75 °C

### 5. Ingress protection IP66 according to IEC 60529

#### 6. Conditions of Certifications:

- 6.1 The elements of the plug-in connector are prepared with connecting cable ( open-ended line ) or they are provided with crimp termination, cage clamp or piercing clamp for connection at site.
- 6.2 For adequate connection of the cable and proper installation, due regard shall be given to the instructions for operation.
- 6.3 The connecting cable ( open ended line ) of the plug-in connector shall be installed to provide for permanent wiring and adequate protection against mechanical damage. The quality of the connecting cable shall be such that it complies with the local thermal and mechanical requirements.
- 6.4 Should the connecting cable ( open-ended line ) be connected in an area with potentially explosive atmosphere, a terminal compartment shall be used which meets the requirements of an approved type of protection in accordance with IEC 60079-0: 2004, section 1.2.
- 6.5 If made from metal, the flange-mounting socket outlet, appliance connector and angle unit may be installed in the walls of flameproof enclosure "d" or increased safety "e" type of protection. The flameproof terminal compartment may have a volume of 2.000 cm<sup>3</sup> as a maximum. For the selection criteria and the installation conditions, reference is made to the notes furnished with the operating instructions.
- 6.6 If made from plastics, the flange-mounting socket outlet, appliance connector and angle unit shall be installed in the walls of enclosures designed to increased safety "e" type of protection.
- 6.7 When using terminal compartments designed to increased safety "e" type of protection as specified in IEC 60079-7: 2001, the clearances and creepage distances specified in section 4.3, 4.4 and table 1 shall be duly considered.
- 6.8 Equipotential bonding and earthing shall be safeguarded by the way the metal flange-mounting socket outlet, appliance connector and/or angle unit are connected with the complete system.
- 6.9 At temperatures less than -20°C, the plastic version of the plug-in connector shall be installed in a mechanically protected way.
- 6.10 The plastic angle unit may not be used if temperatures are lower than -20°C.
- 6.11 In the non-plugged condition, the appliance connector must not be alive.

- 6.12 The plug-in connector consists of two more parts which have to be installed in an appropriate way. This has been especially considered by the instructions. For a safe use these assembling instructions are to be followed precisely.
- 6.13 The operator/user shall be informed of the Special conditions in a suitable form.

### 7. Instruction for manufacturing and operation

- 7.1 The tapped holes receiving the metal version of the appliance connector and the flange mounting socket outlet with encapsulated connecting wires with internal thread shall meet the minimum requirements set forth in IEC 60079-1, section 5.3 ( table 3 )
- 7.2 This metal version of the appliance connectors and the flange mounting socket outlet with encapsulated connecting wires is suited for installation in electrical apparatus designed to flameproof enclosure „d” type of protection of groups I, IIA, IIB, IIC.
- 7.3 If the reference pressure exceeds 20 bar, the metal version of the appliance connectors and the flange mounting socket outlet with encapsulated connecting wires shall be included in the type test of IEC 60079-1, section 15.1.3 ( overpressure test ) as required for I, IIA, IIB, IIC classification of the corresponding operator/apparatus.
- 7.4 The cable bushing shall be fixed in the electrical apparatus in such a way that rotation and accidental loosening will be prevented.

### Drawings

|                          |          |              |            |
|--------------------------|----------|--------------|------------|
| Description              | No. 4263 | ( 6 sheets ) | 2002.07.26 |
| Annex to the Description | No. 4263 | ( 6 sheets ) | 2002.07.26 |
| Drawings:                |          |              |            |
| GHG57-2-4378             |          |              | 2003.04.20 |
| GHG57-2-4379             |          |              | 2003.04.20 |
| GHG57-3-4380             |          |              | 2003.07.03 |
| GHG57-3-4381             |          |              | 2003.07.03 |
| GHG57-3-4383             |          |              | 2003.04.20 |

1<sup>st</sup> Supplement to description No. 4263 ( 3 sheets ) 2003.11.20

|           |              |  |            |
|-----------|--------------|--|------------|
| Drawings: |              |  |            |
|           | GHG57-3-4413 |  | 2003.11.18 |
|           | GHG57-3-4414 |  | 2003.11.18 |
|           | GHG57-3-4415 |  | 2003.11.18 |
|           | GHG57-3-4435 |  | 2004.02.09 |
|           | GHG57-3-4436 |  | 2004.02.09 |
|           | GHG57-3-4437 |  | 2004.02.09 |
|           | GHG57-3-4438 |  | 2004.02.09 |
|           | GHG57-3-4439 |  | 2004.02.09 |
|           | GHG57-3-4440 |  | 2004.02.09 |

|           |               |              |            |
|-----------|---------------|--------------|------------|
| Part list |               |              |            |
|           | GHG 57-3-4413 | ( 2 sheets ) | 2003.11.19 |
|           | GHG 57-3-4414 | ( 2 sheets ) | 2003.11.18 |
|           | GHG 57-3-4415 | ( 1 sheet )  | 2004.11.18 |

|                                                    |                        |               |            |
|----------------------------------------------------|------------------------|---------------|------------|
| Test Report – Electric strength                    | Nr. 01-MI4-B1-09042003 | ( 4 sheets )  | 2003.04.09 |
| Test Report – Cable tension test                   | Nr. 01-MI4-B1-17012003 | ( 3 sheets )  | 2003.01.17 |
| Test Report – Protection class IP66, climatic test | Nr. 01-MI4-B1-16042003 | ( 2 sheets )  | 2003.04.16 |
| Test Report – Heating and impact test              | Nr. 02-MI4-B1-16042003 | ( 1 sheets )  | 2003.04.16 |
| Test Report – Heating and impact test              | Nr. 03-MI4-B1-16042003 | ( 1 sheets )  | 2003.04.16 |
| Test Report – Tensile strength                     | Nr. 01-MI4-B1-19092003 | ( 2 sheets )  | 2003.09.19 |
| Test Report – Light resistance                     | Nr. 01-MI4-B1-31072003 | ( 1 sheets )  | 2003.07.31 |
| Test Report – Climatic, fall and impact test       | Nr. 02-MI4-B1-01082003 | ( 2 sheets )  | 2003.08.01 |
| Test Report – Heating and pressure test            | Nr. 01-MI4-B1-070203   | ( 4 sheets )  | 2003.07.02 |
| Test Report – Heating and fall test                | Nr. 02-MI4-B1-070203   | ( 2 sheets )  | 2003.02.07 |
| Test Report – Heating and bumping test             | Nr. 03-MI4-B1-070203   | ( 3 sheets )  | 2003.02.03 |
| Test Report – Heating and fall test                | Nr. 04-MI4-B1-070203   | ( 2 sheets )  | 2003.02.07 |
| Test Report – Heating and bumping test             | Nr. 05-MI4-B1-070203   | ( 2 sheets )  | 2003.02.07 |
| Test Report – Heating and protecting system test   | Nr. 06-MI4-B1-070203   | ( 2 sheets )  | 2003.02.07 |
| Test Report – Power loss test                      | Nr. 01—MI4-E1-10072003 | ( 10 sheets ) | 2003.07.10 |
| Test Report – Power loss test                      | Nr. 01—MI4-E1-02062003 | ( 4 sheets )  | 2003.06.02 |
| Test Report – Power loss test                      | Nr. 01—MI4-B1-31032003 | ( 5 sheets )  | 2003.03.31 |



**ADDENDUM TO IECEx CERTIFICATE OF CONFORMITY**  
**IECEx BKI 06.0005 X**

**Page 4 of 4**

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| Test Report – Heating and pressure test              | Nr. 01—MI4-B1-20012002  | ( 1 sheets ) | 2002.01.20 |
| Test Report – Climatic, fall impact and bumping test | Nr. 03—MI4-B1-040603    | ( 2 sheets ) | 2003.06.04 |
| Test Report – Heating and pressure test              | Nr. 01—MI4-B1-25022003  | ( 2 sheets ) | 2003.02.25 |
| Test Report                                          | Nr. 2002/00344.1.0/1742 | ( 3 sheets ) | 2003.04.29 |
| Test Report                                          | Nr. 02-MI4-B1-27052004  | ( 2 sheets ) | 2004.05.27 |