# UK Type Examination Certificate CML 21UKEX2976U Issue 0

**United Kingdom Conformity Assessment**

1 Component Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

2 Component **Empty enclosures type GUB***/GUBX****

3 Manufacturer **Pepperl+Fuchs SE**

4 Address **Lilienthalstrasse 200 68307 Mannheim Germany**

5 The component is specified in the description of this certificate and the documents to which it refers.

6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Section 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this component has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 The 'U' suffix after the certificate number indicates that the component is subject to limitations (affecting correct installation or safe use). These are specified in Section 14.

8 This UK Type Examination certificate relates only to the design and construction of the specified component. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-31:2014

10 The equipment shall be marked with the following:

Ex II 2 G D

Ex db IIA or IIB or IIB+H2 or IIC Gb

and/or

Ex tb IIIC Db IP66 or IP66/67

Ex I M2

Ex db I Mb

L. A. Brisk
Certification Officer

## 11 Description

The metallic enclosures made in aluminum alloy (GUB) or in stainless steel (GUBX) have different sizes and configurations according with description document and schedule drawings. This range is suitable for explosive gas explosive atmospheres of group I (in stainless steel only), IIA, IIB and IIB+H2 or IIC and for dust explosive atmospheres group IIIC.

These enclosures can have a blind cover or provided with glass windows and an extension.

These Ex components get the degrees of protection IP66 without O-ring and IP66/67 with O-ring in accordance with IEC 60529.

**Parameters**

**TABLE 1 *(FIRST PART):***

**Maximum dissipated power for GUB/GUBX (with or without windows) without IS element**

**(W)**

| **Temperature class :** | **T6/T85°C** | | | | **T5/T100°C** | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Ambient temperature** | **+40°C** | **+50°C** | **+60°C** | **+70°C** | **+40°C** | **+50°C** | **+60°C** | **+70°C** | **+80°C** |
| **Windows :** | **WITH OR WITHOUT** | | | | **WITH OR WITHOUT** | | | | |
| **GUB 00** | 20 | 14 | 8 | 3 | 28 | 23 | 17 | 11 | 6 |
| **GUB 0** | 32 | 23 | 14 | 4 | 46 | 37 | 27 | 18 | 9 |
| **GUB 0H** | 37 | 27 | 16 | 5 | 54 | 43 | 32 | 21 | 11 |
| **GUB 1** | 50 | 36 | 21 | 7 | 72 | 57 | 43 | 28 | 14 |
| **GUB 1H** | 59 | 42 | 25 | 8 | 84 | 67 | 50 | 33 | 16 |
| **GUB 1PF** | 39 | 28 | 16 | 5 | 56 | 44 | 33 | 22 | 11 |
| **GUB 2** | 74 | 53 | 31 | 10 | 106 | 85 | 64 | 42 | 21 |
| **GUB 3** | 91 | 65 | 39 | 12 | 130 | 104 | 78 | 52 | 26 |
| **GUB 3L** | 124 | 90 | 56 | 22 | 174 | 141 | 107 | 73 | 39 |
| **GUB 4A** | 169 | 123 | 76 | 30 | 238 | 192 | 146 | 99 | 53 |
| **GUB4** | 197 | 143 | 89 | 35 | 277 | 224 | 170 | 116 | 62 |
| **GUB 5** | 316 | 217 | 143 | 56 | 446 | 359 | 273 | 186 | 100 |
| | | | | | | | | | |
| **GUB-E 0** | 46 | 32 | 19 | 6 | 65 | 52 | 39 | 26 | 13 |
| **GUB-E 0H** | 51 | 36 | 22 | 7 | 73 | 58 | 44 | 29 | 14 |
| **GUB-E 1** | 76 | 54 | 32 | 10 | 109 | 87 | 65 | 43 | 21 |
| **GUB-E 1H** | 84 | 60 | 36 | 12 | 121 | 96 | 72 | 48 | 24 |
| **GUB-E 2** | 116 | 83 | 49 | 16 | 166 | 133 | 99 | 66 | 33 |
| **GUB-E 3** | 133 | 94 | 56 | 18 | 190 | 152 | 114 | 75 | 37 |
| **GUB-E B3L** | 171 | 124 | 77 | 30 | 241 | 194 | 148 | 101 | 54 |
| **GUB-E 3L** | 193 | 140 | 87 | 34 | 273 | 220 | 167 | 114 | 61 |
| **GUB-E 4A** | 257 | 187 | 116 | 46 | 363 | 292 | 222 | 151 | 81 |
| **GUB-E 4** | 285 | 229 | 129 | 51 | 402 | 324 | 246 | 168 | 90 |
| **TCABLE** | N/A | | | | N/A | | 90°C | | |

**TABLE 1 (SECOND PART):**

**Maximum dissipated power for GUB/GUBX (with or without windows) without IS element**

**(W)**

| Temperature class : | T4/T135°C | | | | | T3/T200°C | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ambient temperature | +40°C | +50°C | +60°C | +70°C | +80°C | +40°C | | +50°C | | +60°C | | +70°C | | +80°C | |
| Windows : | WITH OR WITHOUT | | | | | WITHOUT | WITH | WITHOUT | WITH | WITHOUT | WITH | WITHOUT | WITH | WITHOUT | WITH |
| GUB 00 | 48 | 43 | 37 | 31 | 25 | 85 | 78 | 80 | 72 | 74 | 67 | 68 | 61 | 63 | 55 |
| GUB 0 | 78 | 69 | 59 | 50 | 41 | 138 | 126 | 128 | 117 | 119 | 108 | 110 | 98 | 101 | 89 |
| GUB 0H | 91 | 81 | 70 | 59 | 48 | 162 | 148 | 151 | 137 | 140 | 126 | 129 | 116 | 118 | 105 |
| GUB 1 | 122 | 108 | 93 | 79 | 64 | 216 | 198 | 201 | 183 | 187 | 169 | 173 | 154 | 158 | 140 |
| GUB 1H | 143 | 126 | 109 | 92 | 75 | 252 | 231 | 236 | 214 | 219 | 197 | 202 | 181 | 185 | 164 |
| GUB 1PF | 95 | 83 | 72 | 61 | 50 | 167 | 153 | 156 | 142 | 145 | 131 | 134 | 120 | 123 | 108 |
| GUB 2 | 181 | 160 | 138 | 117 | 96 | 320 | 293 | 298 | 271 | 277 | 250 | 256 | 229 | 234 | 207 |
| GUB 3 | 222 | 196 | 170 | 143 | 117 | 392 | 359 | 366 | 333 | 340 | 307 | 314 | 280 | 287 | 254 |
| GUB 3L | 293 | 259 | 225 | 191 | 158 | 513 | 408 | 479 | 378 | 445 | 349 | 412 | 319 | 378 | 289 |
| GUB 4A | 400 | 354 | 307 | 261 | 215 | 701 | 557 | 654 | 516 | 608 | 476 | 562 | 435 | 516 | 394 |
| GUB4 | 466 | 412 | 358 | 304 | 250 | 816 | 649 | 762 | 601 | 708 | 554 | 654 | 507 | 601 | 459 |
| GUB 5 | 749 | 662 | 576 | 489 | 403 | 1312 | 1043 | 1225 | 967 | 1139 | 891 | 1052 | 815 | 965 | 738 |
| | | | | | | | | | | | | | | | |
| GUB-E 0 | 111 | 98 | 85 | 72 | 59 | 196 | 180 | 183 | 167 | 170 | 154 | 157 | 140 | 144 | 127 |
| GUB-E 0H | 125 | 110 | 95 | 81 | 66 | 220 | 202 | 206 | 187 | 191 | 172 | 176 | 158 | 161 | 143 |
| GUB-E 1 | 185 | 163 | 141 | 119 | 98 | 327 | 299 | 305 | 278 | 283 | 256 | 261 | 234 | 240 | 212 |
| GUB-E 1H | 206 | 181 | 157 | 133 | 109 | 363 | 333 | 339 | 309 | 315 | 284 | 291 | 260 | 266 | 236 |
| GUB-E 2 | 283 | 249 | 216 | 183 | 149 | 499 | 457 | 466 | 424 | 433 | 391 | 399 | 357 | 366 | 324 |
| GUB-E 3 | 323 | 285 | 247 | 209 | 171 | 572 | 524 | 533 | 485 | 495 | 447 | 457 | 409 | 419 | 371 |
| GUB-E B3L | 405 | 358 | 312 | 265 | 218 | 710 | 564 | 663 | 523 | 616 | 482 | 569 | 441 | 522 | 400 |
| GUB-E 3L | 458 | 405 | 352 | 299 | 246 | 802 | 638 | 749 | 591 | 696 | 545 | 643 | 498 | 590 | 452 |
| GUB-E 4A | 609 | 539 | 468 | 398 | 327 | 1067 | 848 | 996 | 786 | 926 | 724 | 856 | 663 | 785 | 601 |
| GUB-E 4 | 675 | 597 | 519 | 441 | 363 | 1182 | 940 | 1104 | 871 | 1026 | 803 | 948 | 734 | 870 | 666 |
| TCABLE | 110°C | | | | 115°C | 150°C | 140°C | 150°C | 140°C | 150°C | | 160°C | 150°C | 160°C | 150° |

Remark: for Group I application, the maximum dissipated power allowed should be in accordance with the values specified for T4/T135°C.

**TABLE 2:**
**Maximum dissipated power for enclosures GUB/GUBX (with or without windows) with intrinsic safety element (W)**

| Type of enclosure | Ambient temperature of the intrinsic safety element | T6 for ambient (W) | | Type of enclosure | Ambient temperature of the intrinsic safety element | T6 for ambient (W) | |
|---|---|---|---|---|---|---|---|
| | | 40°C | 50°C | | | 40°C | 50°C |
| GUB 00 | 60°C | 5,0 | NC | GUBE 0 | 60° | 10,0 | NC |
| | 70°C | 9,0 | 5,0 | | 70° | 20,0 | 10,0 |
| GUB 0 | 60°C | 7,0 | NC | GUBE 0H | 60° | 12,0 | NC |
| | 70°C | 14,0 | 7,0 | | 70° | 22,0 | 12,0 |
| GUB 0H | 60°C | 9,0 | NC | GUBE 1 | 60° | 17,0 | NC |
| | 70°C | 17,0 | 9,0 | | 70° | 33,0 | 17,0 |
| GUB 1 | 60°C | 11,0 | NC | GUBE 1H | 60° | 19,0 | NC |
| | 70°C | 22,0 | 11,0 | | 70° | 37,0 | 19,0 |
| GUB 1H | 60°C | 13,0 | NC | GUBE 2 | 60° | 26,0 | NC |
| | 70°C | 26,0 | 13,0 | | 70° | 50,0 | 26,0 |
| GUB 1PF | 60°C | 9,0 | NC | GUBE 3 | 60° | 29,0 | NC |
| | 70°C | 17,0 | 9,0 | | 70° | 57,0 | 29,0 |
| GUB 2 | 60°C | 17,0 | NC | GUBE B3L | 60° | 52,0 | NC |
| | 70°C | 32,0 | 17,0 | | 70° | 89,0 | 52,0 |
| GUB 3 | 60°C | 20,0 | NC | GUBE 3L | 60° | 59,0 | NC |
| | 70°C | 40,0 | 20,0 | | 70° | 100,0 | 59,0 |
| GUB 3L | 60°C | 38,0 | NC | GUBE 4A | 60° | 78,0 | NC |
| | 70°C | 64,0 | 38,0 | | 70° | 133,0 | 78,0 |
| GUB 4A | 60°C | 52,0 | NC | GUBE 4 | 60° | 87,0 | NC |
| | 70°C | 88,0 | 52,0 | | 70° | 148,0 | 87,0 |
| GUB 4 | 60°C | 60,0 | NC | | | | |
| | 70°C | 102,0 | 60,0 | | | | |
| GUB 5 | 60°C | 96,0 | NC | | | | |
| | 70°C | 164,0 | 96,0 | | | | |

## 12 Certificate history and evaluation reports

| Issue | Date | Associated report | Notes |
|---|---|---|---|
| 0 | 04 Oct 2021 | R14112BD/00 | Prime Certificate issued. |

Note: Drawings that describe the component are listed or referred to in the Annex.

## 13 Conditions of Manufacture

### i. For using at ambient temperature down to -20°C:

In accordance with clause 16.1 of the IEC 60079-1 standard, each piece of Ex Component has to have successfully passed, before delivery, an overpressure test during at least 10 seconds under the pressure defined in the following table.

| Volume (with or without extension) | Enclosures in light alloy | | Enclosures in stainless steel | |
|---|---|---|---|---|
| | With windows | Without window | With windows | Without window |
| **≤ 4.4 dm³** | 13.7 bar | Exempted (*) | 13.7 bar | 13.7 bar |
| | | | | |
| **4.4 dm³ < V ≤ 7.7 dm³** | 12.4 bar | Exempted (*) | 12.4 bar | 12.4 bar |
| **7.7 dm³ < V≤ 12.3 dm³** | 13.7 bar | Exempted (*) | 13.7 bar | 13.7 bar |
| **12.3 dm³ < V≤ 52.7 dm³** | 13.4 bar | 13.4 bar | 13.4 bar | 13.4 bar |
| **52.7 dm³ < V ≤ 72 dm³** | 14.8 bar | 14.8 bar | 14.8 bar | 14.8 bar |

(*) : In accordance with clause 16.2 of the IEC 60079-1 standard this type of enclosure has to have exempted of routine test in due to the fact that It has undergone a static type test more than 4 times the reference pressure.

### ii. For using at minimum ambient temperature up to -60°C (up to -52.5°C for enclosures with windows)

In accordance with clause 16.1 of the IEC 60079-1 standard each piece of Ex Component defined above has to have successfully passed, before delivery, an overpressure test during at least 10 seconds under the pressure defined in the following table.

| Volume (with or without extension) | Enclosures in light alloy | | Enclosures in stainless steel | |
|---|---|---|---|---|
| | With windows | Without window | With windows | Without window |
| **≤ 7.7dm³** | 17.9 bar | exempted (*) | 17.9 bar | 17.9 bar |
| **7.7 m³< V ≤12.3 dm³** | 19.9 bar | Batch test at 19.9 bar (**) | 19.9 bar | 19.9 bar |
| **12.3 dm³< V ≤ 52 7 dm³** | 18.5 bar | 18.5 bar | 18.5 bar | 18.5 bar |
| **52.7 dm³< V ≤ 72 dm³** | 19.6 bar | 19.6 bar | 19.6 bar | 19.6 bar |

(*): In accordance with clause 16.2 of the IEC 60079-1 standard this type of enclosure has to have exempted of routine test in due to the fact that It has undergone a static type test more than 4 times the reference pressure.

(**) In accordance with clause 16.6 of the IEC 60079-1 standard, for this type of enclosure that has undergone a static type test at 3 times the reference pressure, the routine overpressure test could be replaced by a batch test according the criteria specified in this clause. The samples of the production batch must have successfully passed an overpressure test at 1.5 times the reference pressure, of a period for 10 seconds minimum under a pressure of 19.9 bar.

## 14 Schedule of Limitations

i. The enclosures provided with windows have been assessed and tested to be used in the range of the operating temperatures from -52.5°C to + 180°C .
ii. The enclosures provided without windows have been assessed and tested to be used for a minimum operating/ambient temperature down to -60°C. No maximum operating/ambient temperature defined due to the fact that these enclosures are provided only with threaded flameproof joints.
iii. During the installation, for Group I, the user will take into consideration that the equipment underwent only a shock corresponding to an energy of a low risk.
iv. During use in explosive atmosphere of Group I, the exposure of the enclosures with windows to specific chemical agents as oils, greases and hydraulic liquids must be excluded

**Additional conditions of use when protected by "Ex db" :**

v. Maximum number of apertures, their maximum sizes and their positions are defined in the drawings listed in the certifications file.
vi. The width of the flameproof joints is superior to those specified in tables of IEC 60079-1 standard : contact the original manufacturer for any repairs of the flameproof joints.
vii. The content of the Ex component enclosure equipment may be placed in any arrangement provided that an area of at least 40% (for the Gas Group IIB+H2 or IIC) or 20% (for the Gas Group I, IIA or IIB) of each cross-sectional area remains free.
viii. The markings may be omitted if the enclosure manufacturer is also intended to be the holder of the equipment certificate

# Certificate Annex

| | |
|---|---|
| **Certificate Number** | **CML 21UKEX2976U** |
| **Component** | **Empty enclosures type GUB***/GUBX*** |
| **Manufacturer** | **Pepperl+Fuchs SE** |

The following documents describe the equipment defined in this certificate:

**Issue 0**

For drawings describing the equipment, refer to attached certificate INERIS 16ATEX9005U. In addition to the drawings listed on INERIS 16ATEX9005U, the following drawings include the additional marking required for this UK Type Examination certification:

| Drawing No | Sheets | Rev | Approved date | Title |
|---|---|---|---|---|
| 16-1555CM-10 | 1 to 2 | 0 | 04 Oct 2021 | Additional Marking Requirements for UKCA |