Guide to Hazardous Locations
Non-Electrical Equipment for Explosive Atmospheres

**EX MARKING**

### Equipment Protection Level (EPL) / CATEGORY

<table>
<thead>
<tr>
<th>Definition</th>
<th>IEC</th>
<th>US/CA</th>
<th>UK</th>
<th>Typical Zone of Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mines, &quot;very high&quot; level of protection</td>
<td>M1</td>
<td>I</td>
<td>E</td>
<td>Zone 0</td>
</tr>
<tr>
<td>Mines, &quot;high&quot; level of protection</td>
<td>M2</td>
<td>II</td>
<td>DG</td>
<td>Zone 20</td>
</tr>
<tr>
<td>Gas atmospheres, &quot;very high&quot; level of protection</td>
<td>II</td>
<td>II</td>
<td>A</td>
<td>Zone 0</td>
</tr>
<tr>
<td>Gas atmospheres, &quot;high&quot; level of protection</td>
<td>II</td>
<td>III</td>
<td>B</td>
<td>Zone 1</td>
</tr>
<tr>
<td>Dust atmospheres, &quot;very high&quot; level of protection</td>
<td>III</td>
<td>III</td>
<td>C</td>
<td>Zone 20</td>
</tr>
<tr>
<td>Dust atmospheres, &quot;high&quot; level of protection</td>
<td>III</td>
<td>III</td>
<td>D</td>
<td>Zone 21</td>
</tr>
<tr>
<td>Dust atmospheres, &quot;enhanced&quot; level of protection</td>
<td>III</td>
<td>III</td>
<td>E</td>
<td>Zone 21</td>
</tr>
</tbody>
</table>

**PROTECTION CONCEPTS**

### Zone Protection

- Ex d IIC T6, T5, T4
- Ex d IIA T4
- Ex d IIB T4
- Ex e IIC T6
- Ex e IIA T5
- Ex e IIB T4

**CONSTRUCTIONAL safety**

- Rated surface temperature: 105°C
- Rated surface temperature: 120°C

**COMMON EQUIPMENT STANDARDS**

<table>
<thead>
<tr>
<th>Type of Protection</th>
<th>UL Marking</th>
<th>Equipment Grouping</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEx 62784</td>
<td>CSA C22.2 No. 62784*</td>
<td>IIIB (III)</td>
<td>CSA/CSA-22.2 No. 62784*</td>
</tr>
<tr>
<td>BEx 62784</td>
<td>CSA C22.2 No. 62784*</td>
<td>IIIA (II)</td>
<td>CSA/CSA-22.2 No. 62784*</td>
</tr>
</tbody>
</table>

**MAXIMUM SURFACE TEMPERATURE / TEMPERATURE CLASS**

Maximum surface temperature

- **Type of Protection**
  - Ex d
  - Ex e

- **Temperature Category**
  - T1
  - T2
  - T3
  - T4

**INGRESS PROTECTION (IP) CODES**

First characteristic numeral | Second characteristic numeral
--- | ---
0 | 0
1 | 1
2 | 2
3 | 3
4 | 4
5 | 5
6 | 6
7 | 7
8 | 8
9 | 9

**ACRONYMS**

- FM Approvals
- IEC
- UL
- CSA
- MSHA
- Ex
- ATEX
- EN
- ISO
- ASTM
- ASME
- FM
- AFS
- NMC

**FM APPROVALS IS YOUR GLOBAL CONFORMITY ASSESSMENT SOLUTION**

<table>
<thead>
<tr>
<th>Market</th>
<th>Recognized product certification marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>UL, FM, CSA, ATEX, EAC, CE, BSI, GOST</td>
</tr>
<tr>
<td>IE (EU)</td>
<td>CE, ATEX, BSI, EAC</td>
</tr>
<tr>
<td>JP (JPN)</td>
<td>CE, ATEX, BSI, EAC</td>
</tr>
</tbody>
</table>

**AREA CLASSIFICATION**

- Zone 0
- Zone 1
- Zone 2
- Zone 20
- Zone 21
- Zone 22

**EQUIPMENT GROUPING**

- IIA
- IIB
- IIC
- IIA
- IIB
- IIC

**FM Approvals**

- FM Approvals Europe Limited
- FM Approvals GmbH
- FM Approvals UK
- FM Approvals Japan
- FM Approvals China