MODEL-411, 412, 413, 414.

**Standard Gauge**

**APPLICATIONS**

Standard Gauges are suitable for general purpose applications for gas and liquid media which do not corrode brass & having an environment which is not harsh to Mild Steel Case. Commonly used on equipments like pumps, compressors, boilers, pneumatic and hydraulic machines etc.

**STANDARD SPECIFICATION**

Gauge with Blow-out Protection (Weatherproof Construction to IP54)

**Sizes**
63, 100, 150, 200, 250 and 300 mm

**Case**
(a) Mild Steel. Stove enamelled finish. 100 & 150mm
(b) Aluminium. Stove enamelled finish. 63, 200, 250 & 300mm

**Bezel**
Brass lacquered finish. (Stove enamelled finish on 413 & 414 models)

**Socket + Element**
Low Pressure - Brass / (Ph.Br or Be.Cu element, range dependant)
High Pressure - AISI 316 st.st / (316 st.st or Ni-Span-C element, range dependant)

**Movement**
Brass or Stainless Steel

**Blowout Protection**
Blowout device (EN837-1 S1)

**Dial**
White Anodised Aluminium (Black Printing)

**Pointer**
Black Aluminium

**Window**
Sheet Glass

**Traceability**
All instruments are individually calibrated and have an unique Serial Number.

**Certification available on request**
- Certificate of Conformity Traceable to National Standards
- Group Certification (Pressure Test Calibration Statement)
- Point to Point Test Certificate
- BS EN 10204 3.1 Material Certification

**Safety**
All units are manufactured to comply with EN 837-1, S1 Blowout device.

**Installation instructions**
Refer to EN 837-2 and our Guidance On Use of Equipment data sheet.

**Accuracy class**

<table>
<thead>
<tr>
<th>ACCURACY CLASS EN837-1 (Optional)</th>
<th>Higher Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 600 bar</td>
<td>&gt;600 - 1600 bar</td>
</tr>
<tr>
<td>1.0</td>
<td>1.6 x FSD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OVER-PRESSURE</th>
<th>1.0</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>63mm</td>
<td>1.0 x FSD</td>
<td>1.6 x FSD</td>
</tr>
<tr>
<td>100 to 300 mm</td>
<td>(0.6)</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**Scale Range**
Vacuum / Compound to -1 to 0 to -1 to 24 bar
63mm gauge 0 to 1400 bar
100 to 300 mm gauges 0 to 2500 bar
Or other equivalent units of pressure or vacuum
PDES 2014/68/EU limits, GAS Group.1 <1000 bar, GAS Group.2 <3000 bar

**Pressure Connection Thread**

<table>
<thead>
<tr>
<th>THREAD EN837</th>
<th>NPT Brass (316ss/Monel)</th>
<th>BSP Brass (316ss/Monel)</th>
<th>BSP Brass (316ss/Monel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>¼&quot; NPT</td>
<td>400 bar</td>
<td>400 bar</td>
<td>400 bar</td>
</tr>
<tr>
<td>½&quot;</td>
<td>600 (1000) bar</td>
<td>600 (1000) bar</td>
<td>600 (1000) bar</td>
</tr>
<tr>
<td>¾&quot;</td>
<td>600 (1000) bar</td>
<td>600 (1000) bar</td>
<td>600 (1000) bar</td>
</tr>
<tr>
<td>1¼&quot;</td>
<td>600 (1000) bar</td>
<td>700 (1600) bar</td>
<td>600 (1000) bar</td>
</tr>
</tbody>
</table>

**High Pressure Options Available (316ss / Monel Only)**

<table>
<thead>
<tr>
<th>GAUGE</th>
<th>TUBE HP (Up to 36 ksi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>¼&quot;</td>
<td>M</td>
</tr>
<tr>
<td>½&quot;</td>
<td>M</td>
</tr>
<tr>
<td>¾&quot;</td>
<td>M</td>
</tr>
</tbody>
</table>

**Operating Temperature Range EN837**
-20°C to 60°C (-4°F to 140°F)
Options for lower/Higher operating ranges (Contact Sales)

**Temperature Error**
Additional error when temperature changes from reference Temperature of 20°C (68°F) ±0.4% for every 10°C (18°F) rising or Falling % of span

**Optional Extras**
- Micro adjustable pointer /Black finish
- Optional dial materials & Custom markings
- Monel according to ISO 15156 / NACE MR-01-75 wetted parts
- Other pressure connections (Including high pressure)
- Laminated Safety Glass / Perspex window
- Orifice Restrictor Screw (standard Ø0.9mm, Ø0.4mm on request)
- Customer logo printed on dial
- Vibragauge® (See data sheet)
- Chrome finish bezel
- Gauge over-pressure up to 130% of FSD

Further options on request

Available with a wide range of accessories
Syphons, Snubbers, Overrange gauge protectors, Valves, Manifolds, Diaphragm seals, Swivel adaptors, etc ensures that STEWARTS can provide you with the right product to suit any individual application or requirement.

**Ordering Parameters,** Please state the following: SIZE, MODEL NO, SCALE RANGE, CONNECTION, PRESSURE MEDIUM & OPTIONAL EXTRAS

Specifications and dimensions in this leaflet, are subject to change without prior notice.
MODELS-411, 412, 413, 414.

Standard Gauge

**MODEL 411**
SURFACE MOUNTED

**MODEL 412**
DIRECT MOUNTED (STANDARD)

**MODEL 413**
FLUSH MOUNTED SCREW FIXING

**MODEL 414**
FLUSH MOUNTED CLAMP FIXING

<table>
<thead>
<tr>
<th>Dim</th>
<th>Dial Ø</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>PANEL CUT OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5&quot; (63mm)</td>
<td>37</td>
<td>12</td>
<td>37</td>
<td>43</td>
<td>12</td>
<td>32</td>
<td>20</td>
<td>13</td>
<td>86</td>
<td>76</td>
<td>4</td>
<td>63</td>
<td>89</td>
<td>78.1</td>
<td>4</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>4&quot; (100mm)</td>
<td>48</td>
<td>19</td>
<td>44</td>
<td>70</td>
<td>15</td>
<td>38</td>
<td>32</td>
<td>20</td>
<td>127</td>
<td>116</td>
<td>5.2</td>
<td>103</td>
<td>134</td>
<td>121</td>
<td>5.25</td>
<td>112</td>
<td></td>
</tr>
<tr>
<td>6&quot; (150mm)</td>
<td>49</td>
<td>19</td>
<td>45</td>
<td>90</td>
<td>16</td>
<td>38</td>
<td>32</td>
<td>20</td>
<td>183</td>
<td>168</td>
<td>6</td>
<td>152</td>
<td>185</td>
<td>168</td>
<td>5.8</td>
<td>165</td>
<td></td>
</tr>
<tr>
<td>8&quot; (200mm)</td>
<td>54</td>
<td>18</td>
<td>52.5</td>
<td>122</td>
<td>17</td>
<td>46</td>
<td>52</td>
<td>16</td>
<td>235</td>
<td>221</td>
<td>5.5</td>
<td>204</td>
<td>239</td>
<td>222.25</td>
<td>5.2</td>
<td>215</td>
<td></td>
</tr>
<tr>
<td>10&quot; (250mm)</td>
<td>55</td>
<td>17</td>
<td>55</td>
<td>148</td>
<td>17</td>
<td>49</td>
<td>52</td>
<td>16</td>
<td>290</td>
<td>273</td>
<td>6.5</td>
<td>256</td>
<td>302</td>
<td>285</td>
<td>6.5</td>
<td>270</td>
<td></td>
</tr>
<tr>
<td>12&quot; (300mm)</td>
<td>58</td>
<td>17</td>
<td>56</td>
<td>173</td>
<td>17</td>
<td>51</td>
<td>52</td>
<td>16</td>
<td>346</td>
<td>325</td>
<td>6.5</td>
<td>306</td>
<td>369</td>
<td>345</td>
<td>6.5</td>
<td>330</td>
<td></td>
</tr>
</tbody>
</table>

General Arrangement Dimensions in mm, tol ± 1mm

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