passively safe columns and signposts
According to the IAM Motoring Trust, nearly a fifth of all those killed on the UK roads each year are involved in a collision with a roadside feature. With the use of TMP passively safe, crash friendly lighting columns and signposts we hope to aid the reduction of these fatalities considerably.
Lighting Columns

Constructed from composite material using the latest manufacturing techniques, TMP Spectralyte Passively Safe Lighting Columns provide optimum crash safety benefits. All TMP Lighting Columns have been tested to EN-40 & BS EN 12767:2007 and carry a 30 year guarantee. Available in 4m to 18m heights each column can be used with either a single or double luminaire.

Key Benefits
- Passively Safe
- 3 x stronger than Steel
- Lightweight
- Corrosion Resistant
- Low Maintenance
- Tested to BS EN 12767:2007

Signposts

Available from 114mm to 273mm diameters all TMP Spectralyte Passively Safe Signposts have been tested to BS EN 12767:2007. A full design service is available to meet the requirements of the current regulations.

Key Benefits
- Passively Safe
- 3 x stronger than Steel
- Lightweight
- Corrosion Resistant
- Low Maintenance
- Tested to BS EN 12767:2007

LED Poles

Internally illuminated by LED, these transparent poles provide the ability to introduce colour to an otherwise dull environment. The use of LED technology has a positive impact on the environment by increasing life expectancy and by providing considerable energy savings compared to similar products. The TMP Spectralyte LED pole not only adds new dimension to street lighting but is also passively safe and meets the requirements of BS EN 12767:2007.

Key Benefits
- Internally illuminated by LED
- 3 x stronger than steel
- Passively Safe
- Various LED colour options
Quite rightly, more and more emphasis is being placed on the provision of passively safe structures on the UK highways. The specification of these columns and posts will help reduce casualties on our roads.

Manufactured from composite material the complete range of TMP Spectralyte passively safe, fibre composite, signposts, lighting columns and LED illuminated posts are fully compliant with BS EN 12767 and EN 40-7. Each post or column has been crash and strength tested for every type and dimension in the range, offering many benefits in terms of performance and safety. In comparison with steel and aluminium, they weigh far less, have a greater tensile strength, are less susceptible to corrosion, have no scrap value, can be supplied in a wide range of colours and are maintenance free.

Whilst the standard product is manufactured to look like steel, colour pigments can be added to create any required finish. Installation is simple as the TMP Spectralyte columns and posts are compatible with all major types of sockets and bases and they can be used for any type of sign and luminaire, using a standard fixing.

Testing

Full testing of the complete range of TMP Spectralyte signposts and lighting columns has been carried out at the TNO Crash Testing Facility in The Netherlands. Copies of the full certification are available on request.

In accordance with BS EN 12767 passive safety support structures are tested and classified to the following criteria:

1. **Speed** – Support structures must be crash tested at one of the 3 speeds 50, 70 and 100kph. An associated low speed test at 35kph, for each Speed Class, is also required. Speed Class 100kph is recommended for use on roads where the imposed speed limit or design speed equals or exceeds 50mph (80kph).

2. **Energy Absorption** – It is necessary to specify an energy level (related to how much the specified crash vehicle is to be slowed by the impact) from one of the following categories:
• **High energy absorbing (HE)** – HE posts/columns slow down and stop vehicles with a short yet gradual retardation.

• **Low energy absorbing (LE)** – LE signposts, lighting columns and traffic signal posts will have some of the qualities of both HE and NE equipment. The errant vehicle speed will be reduced and damage to the vehicle will be less than if it had hit an HE support structure. The signposts, lighting columns and traffic signal post will be less likely to separate from the base and be thrown into the air on impact than NE equipment. LE posts (when developed) and lighting columns are thus likely to be suitable for areas with regular NMUs.

• **Non energy absorbing (NE)** – NE signposts, light columns and traffic signal posts break away and/or deform relatively easily on being hit so that the errant vehicle will continue at roughly the same speed with only relatively light damage to the vehicle. The signposts, column or traffic signal post will typically buckle on impact before shearing at the base with limited structural damage to the vehicle. The sheared signpost and sign fascia, lighting column or traffic signal post are typically displaced over the top of the vehicle and fall in the vicinity of the foundation. NE signposts are likely to be the most appropriate product for signposts, lighting columns and traffic signal posts for roads in rural areas without regular NMUs.

**Occupant safety levels** – The occupant safety levels are specified in BS EN 12767. They are determined by the occupant risk requirements ASI and THIV which are categorised by the standard from 1 to 4, with increasing levels of safety reflected by higher numbers, as stated in Table 3 of BS EN 12767.

• **Acceleration Severity Index (ASI)** – Is a non-dimensional value calculated from triaxial accelerations in accordance with BS EN 1317-1. The maximum ASI value is considered to be an assessment of the accident severity for the occupants of the impacting vehicle.

• **Theoretical Head Impact Value (THIV)** – Is the velocity, expressed in km/h, at which a hypothetical ‘point mass’ occupant impacts the surfaces of a hypothetical occupant compartment and is calculated in accordance with BS EN 1317-1.
In line with the above criteria, the following passive safety performances were achieved for the TMP Lighting Columns and Signposts:

<table>
<thead>
<tr>
<th>Description</th>
<th>Diameter</th>
<th>Passive Safety Performance Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP4 Lighting Column</td>
<td>114mm</td>
<td>100, NE, 3</td>
</tr>
<tr>
<td>CP4-CP10 Lighting Column</td>
<td>&gt;114mm to ≤200mm</td>
<td>100, NE, 2</td>
</tr>
<tr>
<td>CP10-CP12 Lighting Column</td>
<td>&gt;200mm to ≤250mm</td>
<td>100, LE, 3</td>
</tr>
<tr>
<td>CP13-CP18 Lighting Column</td>
<td>&gt;250mm to ≤300mm</td>
<td>100, HE, 3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Diameter</th>
<th>Passive Safety Performance Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signpost</td>
<td>114mm</td>
<td>100, NE, 2</td>
</tr>
<tr>
<td>Signpost</td>
<td>140mm</td>
<td>100, NE, 2</td>
</tr>
<tr>
<td>Signpost</td>
<td>168mm</td>
<td>100, NE, 2</td>
</tr>
<tr>
<td>Signpost</td>
<td>194mm</td>
<td>100, NE, 2</td>
</tr>
<tr>
<td>Signpost</td>
<td>219mm</td>
<td>100, NE, 2</td>
</tr>
<tr>
<td>Signpost</td>
<td>273mm</td>
<td>100, NE, 2</td>
</tr>
</tbody>
</table>

**LED Poles**

Offering a new dimension in street lighting, the TMP Spectralyte LED Pole has been specifically designed to enhance the aesthetics of the urban landscape. Internally illuminated by LED, the transparent poles provide the ability to add colour and variable lighting opportunities to our Towns and Cities and as part of the TMP Spectralyte range, also benefit from the same passive safety characteristics.

By the use of LED technology these poles have a positive impact on the environment by increasing life expectancy and by providing considerable energy savings compared to other methods of illumination. The internal light of the pole can be fixed on/off or set to switch through a range of colours making it an ideal product for edge of highway demarcation, use in urban or gateway schemes for highlighting areas or zones and could also be used as secondary lighting in emergency situations.
Lighting columns

The following table sets out the dimensions for the most commonly used lighting columns. Each column is compatible with all major types of sockets and bases and can be used for any type of sign and luminaire, using a standard fixing.

<table>
<thead>
<tr>
<th></th>
<th>CP4</th>
<th>CP6</th>
<th>CP10</th>
<th>CP12</th>
<th>CP15</th>
<th>CP16</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Diameter plant part</td>
<td>mm</td>
<td>ø140</td>
<td>ø140</td>
<td>ø170</td>
<td>ø200</td>
<td>ø250</td>
</tr>
<tr>
<td>B. Diameter top</td>
<td>mm</td>
<td>ø76</td>
<td>ø76</td>
<td>ø76</td>
<td>ø76</td>
<td>ø76</td>
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<tr>
<td>C. Mass</td>
<td>kg</td>
<td>17</td>
<td>23</td>
<td>42</td>
<td>81</td>
<td>93</td>
</tr>
<tr>
<td>D. Wall thickness</td>
<td>mm</td>
<td>3.8</td>
<td>3.8</td>
<td>4.5</td>
<td>5.3</td>
<td>5.3</td>
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<tr>
<td>E. Length composite</td>
<td>mm</td>
<td>9870</td>
<td>9870</td>
<td>9870</td>
<td>9870</td>
<td>11870</td>
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<tr>
<td>E+L. Nominal height</td>
<td>mm</td>
<td>4000</td>
<td>6000</td>
<td>8000</td>
<td>10000</td>
<td>12000</td>
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<tr>
<td>F. Planting depth</td>
<td>mm</td>
<td>1000</td>
<td>1500</td>
<td>2000</td>
<td>2000</td>
<td>2500</td>
</tr>
<tr>
<td>G. Door opening</td>
<td>mm</td>
<td>600</td>
<td>800</td>
<td>800</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>H. Door opening size</td>
<td>cm</td>
<td>60x11.5</td>
<td>60x11.5</td>
<td>60x11.5</td>
<td>60x11.5</td>
<td>60x11.5</td>
</tr>
<tr>
<td>I. Cable entry slot</td>
<td>mm</td>
<td>150x50</td>
<td>150x50</td>
<td>150x50</td>
<td>150x50</td>
<td>150x50</td>
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<tr>
<td>J. Cable opening depth</td>
<td>mm</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>K. Interior Dimensions</td>
<td>mm</td>
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<td>130x130</td>
<td>130x130</td>
<td>130x130</td>
<td>130x130</td>
</tr>
<tr>
<td>L. Luminaire</td>
<td>mm</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
</tr>
</tbody>
</table>

A full design service is available for TMP signposts ensuring correct compliance with the latest regulations for the use of passively safe signposts and lighting columns.

Despite best efforts to improve road safety through engineering, education and enforcement measures, road crashes, by their random and multi-casual nature, continue to happen at an unacceptable rate. TMP are therefore proud to support ‘the passive revolution’ who provide an improved understanding of the current standards, advice and issues relating to the provision and maintenance of safer roadside features.

Their aim is to encourage design engineers to consider the consequences of placing unforgiving, unprotected items by the side of the road and promote better practices in the design and use of passively safe alternatives.

Find out more at www.thepassiverevolution.co.uk
bollards
Passively safe illuminated and non-illuminated bollards

passively safe signage & delineators
Hazard markers, delineators and the TMP Flexchev chevron system

passively safe columns & signposts
Lightweight fibre composite columns and signposts
All tested to comply with EN-40 and BS EN 12767:2007

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