Biral’s RWS-30 the perfect solution for road tunnel applications

Meteorological equipment specialist Biral has just launched its new RWS-30 Road Tunnel Weather Sensor. The sensor is easily integrated with systems in road and tunnel applications and monitors obstruction to vision caused by fog, smoke and exhaust fumes.

The RWS-30 is designed for use in road and tunnel applications where accurate and reliable visibility measurements are required. The forward scatter measurement principle provides a compact design with measurements that are both accurate and reliable in all weather conditions. The RWS-30 outputs have been chosen to match those recommended for use in tunnel systems.

As road networks become more congested, the management of traffic flow and road user safety is frequently using Road Weather Information Systems (RWIS) to collect the meteorological data needed to keep the traffic moving.

Road tunnels pose a particular set of problems to highways engineers and management personnel as they are affected by the weather at either end and can have their own internal microclimates. Add this to the risk of pollution from stationary vehicles or fire after a crash and the need for a sensitive and accurate sensor to measure visibility becomes very apparent.

The RWS-30 has been developed to meet the specific needs created by the tunnel environment and complies with current international guidelines as defined by the PIARC Technical Committee. The sensor is quick and easy to install and reduces lane closure requirements, and design features such as window contamination monitoring with automatic measurement adjustment allows maintenance to only be undertaken when needed.

The safe operation of road tunnels is challenging as whilst fog and rain are unlikely the air quality can quickly deteriorate if the air flow through the tunnel reduces due to the weather. Visibility sensors, especially those with an extended visibility range, can act as sensitive pollution monitors allowing the ventilation systems to be activated before pollution increases to dangerous levels. The RWS-30 has a measurement range of 200m to 99.99km (with a resolution of 1m), making it very sensitive for both air quality and fire detection. To ease integration, the sensor has the ability to report EXCO or MOR as a 4-20mA current output as favoured in tunnel systems. Alternatively, either the serial data output or optional relays can be used.

The measurement of visibility by forward scatter as used by the RWS-30 is now widely accepted and is seen as having significant advantages over more traditional techniques such as the use of backscatter sensors or transmissometers. Backscatter sensors share the RWS-30’s advantage of being compact; however, the backscatter signal is strongly dependent on the type of obstruction to vision. This results in poor accuracy and limited upper range. More importantly, due to the problem of reflections, backscatter sensors require a large open area in front of the sensor to operate correctly.

All Biral visibility and present weather sensors have the capability to temporarily output specific data via a test mode. In this mode the user can define visibility, window contamination and fault conditions for a pre-determined time period. This functionality is useful during Factory or Site Acceptance Testing (FAT or SAT), or system integration to test downstream processing of the output data.

For more information on the RWS-30 visit https://www.biral.com/product/rws-30-road-tunnel-weather-sensor/

Further information is available from Biral on +44 1275 847787, email: enquiries@biral.com or by visiting the company’s website at www.biral.com
Standardisation could be key to solving pothole crisis, says Aggregate Industries’ Contracting Division

With local authorities continuing to come under fire for the number of potholes on local roads, Aggregate Industries’ Contracting Division has revealed that standardisation of asphalt specification could help to improve the durability and performance of local roads.

It comes as latest figures suggest that motorists are facing the worst pothole crisis in almost a decade, with a record 10,000 reported in the last four months. According to the Asphalt Industry Alliance, around a fifth of UK roads are considered ‘structurally poor’ - meaning that they only have five years of life remaining. For cash-strapped local authorities facing a £9.31bn road repair backlog, the result has been mounting pressure from the public to improve the condition of local roads – and standardisation of asphalt specification has a huge role to play, says Aggregate Industries.

Paddy Murphy, Managing Director of Contracting Services at Aggregate Industries, commented: “There’s no mistaking that repairing potholes on local roads is an expensive business and, credit to many cash-strapped local authorities, over the past decade they’ve collectively spent more than £1bn fixing 17.9 million potholes across the UK.

“However, at present many local councils take a reactive approach to road maintenance, whereby each local authority uses different methods and materials to carry out roadworks, including pothole repair – meaning the process can sometimes be inefficient and costly. As such, given the escalating deterioration of Britain’s roads, the case for local authorities to adopt a standardised strategy to asphalt specification and road surfacing has never been greater.

“For local governments grappling with ever-tighter budgets, carrying out planned and proactive road maintenance doesn’t have to cost the earth. In fact, with the help of road surfacing experts such as ourselves it can actually go a long way in preventing potholes from occurring in the first place – and in the long-run will prove much more cost-effective in building a road network for the longer term.”

For further information about Aggregate Industries, visit www.aggregate.com

Aggregate Industries

Fugro wins Pre-Construction Site Investigation for HS2’s Chilterns Tunnel and Colne Valley Viaduct

Fugro has been awarded a £5.2M site characterisation package by Align JV as part of design and construction preparation works for HS2 Phase 1 (Area: Central 1).

The international geoscience specialist will be providing detailed ground intelligence to the Align consortium, which is responsible for the section C1 civil engineering package extending from the Colne Valley viaduct to the northern portal of the Chilterns Tunnel.

Work includes a programme of rotary holes to depths up to 100 metres. A further 20 boreholes will be drilled from pontoons to help inform the design of the viaduct piers. Fugro will also undertake in situ and cone penetration testing, along with laboratory testing and factual reporting.

Already underway, the 12-month programme is split over two phases running March to June and July through to February 2019. With considerable expertise of investigating chalk geology, Fugro geoscientists will apply advanced techniques to determine ground strata and engineering properties to help Align optimise tunnel and foundation design.

Fugro has been providing site characterisation data for HS2 since 2016, completing contracts at locations between London and Birmingham as one of the appointed specialists on the preliminary ground investigations framework.

Ian Judge, Fugro’s framework director for HS2, said: “We are delighted to be engaged in the advanced stages of site investigation for HS2 and supporting Align with the delivery of ground data for some of the most challenging tunnel and bridge structures of Phase 1.

“As with our previous HS2 work, Fugro is offering innovative solutions through early involvement with the client to reduce subsurface uncertainty and help the design team manage ground risk”.

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Fugro
Crack Sealing and Joint Repair Systems for Road Surfaces

Background

Over the past few years a number of Crack Sealing and Joint Repair systems for road surfaces have been developed to repair and reinstate the road surface in a safe and serviceable condition, to protect the road surface from premature degradation and hence enhance pavement service life. The RSTA ADEPT Code of Practice represents best industry practice and is available from www.rstask.org/publications.

Crack Sealing & Joint Repair systems are essential to:

- Reduce water ingress into the pavement surface and sub-surface layers
- Reduce pavement damage by hydraulic pumping and freeze / thaw action
- Reduce erosion by tyre interaction with a damaged surface or open joint
- Reinstate the road surface to its original profile
- Maintain skid resistance and texture depth

To obtain the best results it is necessary to give careful consideration to the deterioration method, the traffic density and whether movement is present, before selecting the appropriate product. There are a number of systems available and the HAPAS Guidelines Document for the Assessment and Certification of Crack Sealing Systems for Highways (October 2010) describes four product categories:

(a) – Overband – seal and infill cracks and joints up to 5mm wide, using a surface applied band up to 40mm wide, using a fluid product that penetrates the crack / joint.

(b) – Fill and Overband – infill and seal cracks and open joints up to 40mm wide by infilling the open crack / joint and then applying a surface mounted sealing band up to 200mm wide.

(c) – Inlaid Single Crack – rout or plane out over the crack and reinstate the pavement surface flush with its original profile by infilling the void. A minimum width of 20mm but no maximum width restriction.

(d) – Inlaid Multiple Cracks – rout or plane out over multiple cracks and reinstate the pavement surface flush with its original profile by infilling the void. A minimum width of 20mm but no maximum width restriction.

The Code of Practice identifies the important aspects of crack sealing and joint repair processes, provides guidance on the selection of the most appropriate treatment in each location and refers to other relevant documents to give practical guidance on achieving high quality.

Suitable Applications for Crack Sealing & Joint Repair for Road Surfaces

The presence of a crack or open joint in a road surface may be due to a number of factors which include:

- Thermal movement in the surface course
- Structural movement in the lower layers
- Lack of compaction / cold joints / lack of a vertical seal between adjacent asphalt mats in highway construction
- Lack of compaction / cold joints / lack of a vertical seal in utility reinstatements and highway patch repairs

Left untreated, cracks and open joints in the pavement allow water ingress into the asphalt layers and ultimately into the pavement foundation. Water ingress, hydraulic pumping action and freeze thaw will all create further damage to the pavement and ultimately shorten the effective working life of the road surface.

Timely intervention using crack sealing and joint repair systems can both seal against the ingress of water and reinstate the surface profile, skid resistance and texture depth to acceptable levels to prolong the life of the pavement.

However, in order to select an appropriate system from those available, there are a number of considerations:

What has caused the defect? If the substructure of the road has failed, then treatment of the surface course defect is unlikely to be successful over the long term. However, defects on the surface (thermal cracks and open joints) can be successfully treated and provide a long term successful repair.

Is the crack or joint still moving significantly? If the surface has been damaged by movement below from a predictable source for example reflective cracking through an asphalt surface course laid over transverse joints, then a repair should be undertaken that is capable of withstanding that ongoing movement. If however a joint is open due to erosion and not to movement then a judgement must be made on which system to specify.

Types of Products and Repairs

Products generally fall into two broad categories:

- Cold applied thermoset resins e.g. Methyl Methacrylate (MMA).
- Hot applied thermoplastic resins and/or bituminous materials.

Continued on pg 4
There are three main types of repairs listed below.

**Overband**
Simple overbanding systems for repairing joint or crack widths up to 5mm wide, with a finished bandwidth ≤40mm.

**Fill and Overband**
Fill and Overband systems are tested and approved for joints and cracks up to 40mm wide including; single part products with a single fill and overband application, single part products applied in two operations (fill and overband) and two component products applied in two operations (fill and overband). HAPAS testing and assessment only extends to a maximum bandwidth of 200mm. The system is especially suitable where the road surface immediately adjacent to the crack is worn or fretted.

Cold applied systems require over scattering with 3mm high PSV aggregate, as part of the overband application, to meet requirements for initial Texture Depth and Skid Resistance Values whereas hot applied systems generally do not. Cold applied systems also have aggregates throughout the body of the material for long term retained skid resistance.

Hot applied systems generally utilise softer resins. The skid resistant aggregates are contained within the surface layer of the system only and will also be covered by a thin film of resin, but this is quickly lost from the aggregate surface under traffic, providing appropriate skid resistance. Therefore an over scatter is not generally considered to be necessary.

**Inlaid**
Inlaid systems are approved for single and multiple cracks. They are installed by planing out a required recess depending on the system’s specification. The product is then used to fill the recess flush to the surface and dressed with high PSV aggregate to provide texture depth and skid resistance.

**Grades within Certificate Categories**
All three types of treatment can be described as either Flexible or High Modulus.

Flexible Inlaid systems are categorised as Grade F and the stiffer high modulus systems are categorised as Grade H. Grade F should be used where movement is anticipated and Grade H where no significant movement is expected, but greater rutting resistance is required.

For Overband and Fill and Overband systems the difference is not so well defined so the designer must consult the product’s HAPAS certificate before deciding which system to specify.

**Specification**
The Specification for Highway Works (SHW) Clause 711 requires these systems to be HAPAS certificated and only installed by contractors approved by the certificate holder.

**Installation and Quality Control Procedures**
The installation and quality control procedures for all systems shall be in accordance with the HAPAS Certificate for each system and the agreed method statement.

**Service Life**
Regarding life expectancy HAPAS systems are classified as; >3 years or >5 years, but related traffic density is not specified. The system selected should reflect both the timescale required of the repair and the traffic density present on a particular site.

Where cracks have been caused by structural failure resulting in significant movement under traffic, it is not possible to predict a life expectancy for the repair. In structurally sound pavements where cracks or fretting joints are confined to the surface layer and not subject to further movement, the life declared in the system’s HAPAS Certificate should be achieved.

In wheel track zones, particularly those subjected to heavy goods vehicles, the expected minimum life of a repair is unlikely to be exceeded, while those outside the wheel track zone may exceed it. On more heavily trafficked roads the expected service life of the system may not be achieved.

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New MMAXGRIPTM High-Friction Surfacing Safety Solution

As a world leader supplying and manufacturing road safety products, Ennis-Flint, Inc. are proud to announce our newest range of high-friction surfacing products designed for all weather conditions:

MMAXGRIPTM PRMX 45 and MMAXGRIPTM PRMX 65.

MMAXGRIPTM PRMX is a versatile, thin MMA coating that improve car resistance to abrasions and sliding on all road types. Developed to assist road users in important braking areas such as approaching traffic lights, thin or hazardous bends, junctions, bike lanes, pedestrian crossing areas and roundabouts, Ennis-Flint, Inc. newest product range, MMAXGRIPTM PRMX is designed to improve the slow down rate of any vehicle faced with the sudden need to stop, reduce the likelihood of skidding and reduce speed and distance of braking in well trafficked or quiet road areas. MMAXGRIPTM PRMX will assist in improving vehicle steering response and grip on sharp turns or steep hills where vehicle traction is important.

MMAXGRIPTM PRMX comes in a variety of colours and designs for different road types, trafficking and general wear and tear of the roads. These products have a proven track performance and will continue to work to the best of their ability even in the harshest and extreme weather conditions found across the globe.

Ennis Flint

Lighthouse Club’s Summer Ball raises a spectacular £40,000

It was a balmy summer evening as over 400 guests arrived at the City Central Marque at the Honorary Artillery Company in London for the annual Lighthouse Club Charity’s Summer Ball.

Welcomed with a refreshing glass of champagne and cocktails in the stunning orangery, guests soon spilled out on to the garden terrace making the most of the soaring temperatures.

Aaron James was the host for the evening and he entertained everyone with his witty repartee and rallied the audience into bidding over £8000 for a unique piece of London skyline artwork painted by renowned artist Ben Mosley.

The fabulous three course meal was delivered to a backdrop of music by ABBA tribute band, Platinum and people were soon on their feet dancing to classics such as Take a Chance, Waterloo and Dancing Queen.

The sensational fun fair provided plenty of entertainment and guests enjoyed the old time classics including the carousel horses, dodgems and ferris wheel.

The evening ended with a disco that had everyone up on their feet again and made sure that the infamous Summer Ball ended on a glorious high.

An amazing £40,000 was raised during the evening thanks to the sale of raffle tickets, very generous table collections and eager on-line silent auction bidders.

Bill Hill, CEO of the Lighthouse Club Charity said, “We are continually amazed at the generosity of people and as always we would like to thank all of our supporters who attended on the evening, our sponsors and to all of the helpers who make sure that the evening goes with a swing. The money raised from our Summer Ball will go a long way towards helping us continue with our building mental health programme and ensuring that all our construction workers and their families know where to turn to in times of need.

www.lighthouseclub.org

Lighthouse Club
Getting to grips with highways efficiency

There is a growing expectation from politicians and clients that highways programmes should be delivered faster, more efficiently and with greater added value.

As an array of projects across the strategic and local networks are set to come online over the next few years, materials providers have a key role to play in working closely with their customers to develop new products that can help deliver programmes more efficiently.

Recent advances in asphalt technology have meant contractors and suppliers have been able to bring forward fresh thinking and innovation that can significantly contribute to meeting demanding productivity targets and provide benefits for the road user.

By demonstrating the advantages of these new products, it is possible to encourage clients to adopt improved procurement practices and challenge traditional working methods to unlock efficiencies and cost-savings.

Putting the skids on
Skid-resistant asphalt is one of a variety of bespoke product areas that has seen major investment in recent years.

There has been a growing demand for durable solutions where conventional asphalts topped by anti-skids commonly delaminate, particularly at high-risk locations such as approaches to pedestrian crossings, slip roads and exposed rural routes and motorways.

At Tarmac, we have developed a new product called UltiGrip, which has been specially designed to improve safety and enhance customer experience, while at the same time boosting productivity and unlocking whole-life cost savings for clients.

The unique solution differs from other high-friction surfaces in its composition, as its skid resistant properties are intrinsic to the mix, rather than being added at the end of the surfacing process.

It uses calcined bauxite aggregate as its principle constituent along with a specially formulated binder that offers a durable, textured finish to reduce the dangers of skidding.

Manufactured by heating bauxite ore in a kiln to temperatures of over 1,200°C, calcined bauxite is predominantly used in the refractory industry. However, the material’s abrasive and mechanical properties of make it ideal for use in high-friction surfaces.

A specialist polymer modified binder is then used to maximise strength and resilience, making the product durable, easy to compact, and able to be transported over distance without affecting its performance.

Delivering results
Crucially, in addition to the technology’s durable properties and safety benefits it is also able to deliver whole-life cost reductions.

Whereas most traditional high-friction anti-skids last between two to four years and can be expensive to replace, UltiGrip lasts on average more than three times longer—thereby significantly reducing maintenance requirements over its service lifetime.

Furthermore, it can be laid in a single pass, resulting in operatives needing to spend less time on site, which improves safety and reduces labour costs in both the short and long-term. The harder-wearing surface also negates regular replacement cycles to further minimise disruption for road users.

The product was recently put through its paces on the A64 in Yorkshire, where Highways England needed to deliver a hard-wearing, higher friction asphalt on a busy slip road in need of maintenance improvement works, following an increase in the number of recorded incidents and maintenance interventions.

In collaboration with the scheme’s designer and principal contractor Aone+, the project team was briefed to replace the previous worn high-friction surface with a more durable solution, while at the same time tasked with delivering whole-life cost savings, enhancing safety and minimising unplanned interventions.

Around 250 tonnes of UltiGrip was laid for the surface course following projections which showed it would provide significant cost and time savings across its lifetime, despite the initial investment being greater than a comparable conventional solution.

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Once completed, the final whole-life cost savings were impressive, especially when the reduced levels of future maintenance were factored in. These included a £370,000 reduction in whole-life costs, with 28 days of night closures avoided and 2,800 hours of labour saved over its serviceable life.

All of the initial signs since the project’s successful completion are positive, with the new surface performing above and beyond the expected standards with its superior visibility, strength and safety.

It is clear that by collaborating and engaging early, materials suppliers and contractors can assist clients in adopting new technology to ensure that their benefits ultimately reach end users.

The challenge we face now is for all parties to embrace innovation and increasingly implement smart strategies that allow us to collectively meet our targets and deliver the UK’s ambitious infrastructure goals.

Tarmac

With billions of pounds being spent on the UK’s road network over the next three years, it is vital that barriers to adopting innovation are removed and standards keep pace with technical developments says Jonathan Cook – Senior Product Manager at Tensar International Ltd.

An estimated £600bn of public and private investment will be spent on UK infrastructure over the next ten years, according to the government’s Infrastructure and Projects Authority (Analysis of the National Infrastructure and Construction Pipeline, December 2017). Of this, £111bn is due to be spent on the roads network, and £10.8bn of that by 2021.

Going hand-in-hand with this investment is a drive to deliver safe road infrastructure efficiently, with schemes that offer value for money (in terms of both construction and whole life costs) and have minimal environmental impact.

Meeting these targets essentially boils down to mitigating risk – a large proportion of which lies in the ground. Of course, it is incredibly difficult to predict every possible situation arising during construction but designing to actual ground conditions can deliver more appropriate solutions, mitigate risks and ultimately add more value.

This does not necessarily mean spending more money but requires a change of approach and wider acceptance of ‘alternative’ value engineered designs. Inevitably, design codes and standards lag behind technological advances but in some sectors, they are now many years behind.

Take the use of geosynthetics in road pavement design. For decades, geogrids have been used on thousands of road projects around the world, particularly for construction over weak and saturated ground. However, they are still viewed as alternative solutions in permanent roads because they are not specified in design standards.

This is despite a wealth of empirical evidence and independently-verified research that has demonstrated how geogrids mechanically stabilise a road’s granular layers, helping to reduce asphalt rutting and cracking and thereby preventing moisture and contaminants entering and weakening the pavement.

Traffic works into pavements incorporating geogrids can be up to six times greater than traditionally-built pavements, making roads safer, for longer. This improved performance reduces maintenance and repair requirements, reducing disruption to road-users and local residents.

Mechanically-stabilised layers can also reduce the overall thickness of a pavement structure, so fewer materials are used, plus roads can be built over weak ground with a reduction in dig and replace. However, the use of stabilisation geogrids is not limited to weak ground conditions. Substantial benefits to pavement performance or reduction in pavement thickness can be achieved also in pavements constructed on stiff soils.

The result is reduced embodied energy and CO₂ emissions, with fewer vehicle movements during construction and more environmental friendly technology, compared to, for example, chemical stabilisation. Finally, construction is also faster, safer and can deliver better value for money.

Fortunately, clients are beginning to realise that sticking to normal practice is not going to help them meet their ambitious infrastructure plans. Highways England, for example, is actively engaging and collaborating with its supply chain to explore how it can work with specialists to tap into new techniques and approaches. It is worth to mention that even current pavement design standards give the possibility to use alternative design procedures, provided a proper structural analysis will be carried out. Such analysis can be carried out for pavements incorporating stabilisation geogrids, as design methods – based on extensive research, including full-scale accelerated pavement tests are available.

In fact, building better relationships is at the heart of infrastructure’s future success. Encouraging engagement, knowledge sharing and providing forums to allow the supply chain to match its expertise with clients’ needs are all essential for delivering reliable, robust and safe infrastructure for future generations.

Tensar
Motorcycle Friendly Evo-Chev Chevron System to deliver cost savings

The Evo-Chev Chevron System, by TMP Solutions has been installed on Titnore Lane, West Sussex, to improve road safety and reduce maintenance costs on a series of tight double bends.

Originally each bend had traditional black and white chevron signs mounted on steel posts to highlight the hazard but unfortunately, they were being hit repeatedly by errant vehicles. In fact, three sets were wiped out in just a matter of weeks in the winter of 2017/2018. Drivers were simply not seeing, or choosing to ignore these warning signs. Along with the risk of injury, or worse to drivers every time the signs are hit there is a substantial cost to West Sussex County Council to replace them.

The Passive Evo-Chev is the safe solution! If the Evo-Chev is hit, it’s rated as passively safe achieving a “crash friendly” rating of 100:NE:4 in accordance with BS EN 12767:2007. This means that when a vehicle impacts the Evo-Chev each blade folds down at the base to let the vehicle pass through, then returns upright to warn more drivers. All the maintenance crew need to do following an impact is replace the sacrificial fixings that literally take only seconds to refit. Because the blade folds on the specially designed base, this makes EVO-Chev not only passively safe, but also incredibly motorcycle friendly as well.

The Evo-Chev is designed so that it can withstand impacts from any direction and is incredibly easy to install with our pre-spaced mounting plate. Installation is also quicker than traditional methods reducing the risk to the installers and the costs of traffic management. Plus, the Evo-Chev can easily be retrofitted on to other chevron blade system foundations, without the need for expensive excavation and requires no special tools.

“T’m happy to say the chevrons are in place! They look very good! Thank you for your help throughout this. They offer a great alternative to the existing products on the market.” Highways and Transport West Sussex County Council.

“The Evo-Chev looks much better and is more visible to motorists and I expect they will show cost savings as it is much quicker and cheaper to repair in the event of an incident.” Highways and Transport West Sussex County Council.

Cost saving example
Our Evo-Chev is incredibly cost-effective when compared to other rebound chevron systems, and based on an average of two impacts per year the Evo-Chev system is both less expensive and more resilient!

Initial installation:
• 5 x traditional chevron sets including traffic management—circa £4,850
• 5 x TMP Evo-Chev including traffic management—circa £6,500

Replacement following each impact:
• Traditional chevron set including traffic management—circa £1,500
• TMP Evo-Chev is designed to withstand multiple impacts—£0

With an average of two impacts per year, over five years at this site in West Sussex the Evo-Chev system saves £15,000!

The Evo-Chev is designed to withstand the hits and lessen the need for traffic management. Also, being a passively safe product the Evo-Chev poses less of a risk of injury to motorists.

The innovative Evo-Chev is made by TMP Solutions in the UK, and for more details and design specifics please visit www.tmpsolutions.com

*The idea behind all passively safe products is better safety for the driver, traffic products are not indestructible and it is impossible to guarantee performance in every impact. However, we have carried out scientific and real-world tests in accordance with BS EN 12767 and achieved the highest safety rating of 100:NE:4.

TMP Solutions

Highway Engineering Academy (HEA)

IHE President Jonathan Pearson announced the official launch of the Highway Engineering Academy (HEA) at the AGM on 22nd June 2018 bringing together all the current training and professional registration services offered by IHE under one umbrella.

The launch, which included the production of a new brochure and Academy area on the IHE website follows two years of work to ensure the best opportunities for members and non-members to achieve professional qualifications and/or registration via the most appropriate route available. Members should have received a copy of the brochure which can also be downloaded here.
Testing Times for New Products

Product testing has advanced a lot since Unipart Dorman first started to manufacture Road Danger Lamps back in 1966. Laying one on the ground and then driving the Managing Director’s car over it was an effective if crude way of proving durability, especially when the same test was carried out on a metal bodied paraffin lamp which ended up flattened. The scientific credibility of such a test is not great though.

But why test at all?

These days it is mainly so that the CE mark can be applied with some confidence that the product will perform in accordance with set parameters, laid down in a standard which has been agreed. But there are also the legal ramifications of an untreated product causing preventable death or injury. There are also commercial considerations to be taken for example the reputational damage and subsequent drop in sales across a company’s portfolio that could be incurred if a company put substandard goods onto the market – look at the dip in sales of some mobile ‘phones when faults in battery technology were discovered.

Testing is not the catchall guarantee of quality one would expect though. As the diesel emissions scandal proved recently, it is still hugely important and that is why reputable manufacturers invest so heavily in the testing phase of New Product Delivery. Most products start life on a computer screen these days, well before any material is cut. This enables most of the testing for development to be done very quickly. Even the most basic CAD programmes will allow a skilled user to stress the new component in ways that a physical prototype couldn’t and then accurately model failure modes that may not occur for many years of use. The design can then be modified to remove them. There does come a time though, when even the most computer savvy engineers need to hold a physical model in their hands and ‘get a feel’ for the new product. This is also a valuable stage in the customer experience, allowing them to buy into and subsequently sign off the concept. 3D printing is the latest in a long line of methods of producing mock ups and prototypes, stretching back all the way to skilled toolmakers spending weeks with balsa wood and modelling clay, for show and tell design and customer reviews.

Unipart Dorman has invested heavily in new digital technologies to speed this process up and one recent example is the use of Augmented Reality software to market test products in the United States. This delivered extremely valuable feedback to the development engineers back in the UK in near realtime, including enabling a conference call to take place during the exhibition with the client to discuss the options available.

Many products have mandatory testing by a Notified Body (NoBo) as part of the product approval process. The use of digital techniques has significantly reduced the cost of these tests by replicating the testing in a pre-compliance process. NoBo services are in high demand and there is often a long waiting list, so this pre-testing can be crucial to getting the product ready for a full examination and address any failure points to ensure re-testing isn’t required which can be expensive not only in terms of time spent waiting for the next slot at the NoBo but also in terms of rework costs.

The new product will be in strict compliance with the standard governing it, but it is right to simply adopt the standard as a baseline and do the bare minimum required to meet the specification?

Standards and specifications can become outdated and become unfit for purpose very quickly. As anyone who has been involved with developing standards knows, revision can be a long tortuous process sometimes taking many years. It is therefore important manufacturers take responsibility for ensuring that the product not only complies with the standard, but is as safe as reasonably practicable.

So for example, the standard governing roadlamps has a very simple test detailed to examine how robust the lamp is in an impact. It involves dropping the lamp from 1.2 metres onto a concrete floor, swinging the lamp on a test rig to impact the ground and then swinging a 1Kg steel ball pendulum to hit the lamp. But that doesn’t really relate to what the lamp will do in a 70 Mph vehicle impact in a roadworks zone. As part of this increased diligence Unipart Dorman commissioned a set of vehicle crash tests using various speeds, vehicle sizes and a number of high speed cameras to see what would happen to the bestselling ConELITE. This enabled the company to have a very high degree of confidence in how the lamp behaves in a collision. Digital technology will provide many of the answers and delivers significant savings in new product development. However, sometimes a physical test to destruction is the only way to have true confidence (and it is great fun for the engineers involved too, although it is unlikely the MD will allow them to run stuff over in his car anymore).
Lane Rental - Invest to Save

The Department for Transport Road works impact assessment on the future of lane rental was published at the end of January this year. It stated that there are around 2.5 million road works carried out in England each year causing significant disruption and delay to road users with delay caused by works estimated to cost more than £4 billion a year.

In addition, it said, increased delays increase the likelihood of an accident and lead to greater carbon emissions and pollution. The impact of roads works on road users and wider society is considerably higher for works carried out on the busiest roads at the busiest times.

In response to identifying this growing problem, consultation was carried out and four options put forward, including that now chosen - lane rental. This is designed to encourage reduction of the time taken to carry out work and to improve planning and working methods used.

Lane rental is a step change; it involves charging those who carry out road works for the time their works occupy the road.

To trial the effectiveness of lane rental on reducing the disruption caused by works and to help identify a solution, two pilot lane rental schemes had been put into operation in 2012 on parts of Transport for London’s (TfL) road network and from 2013 on parts of the network in Kent.

The pilot schemes allowed Kent and TfL to charge up to £2,500 for each day their roads are occupied by the works. The charge was set at a level that reflected the costs of congestion caused.

The Government consultation in autumn 2017 examined whether other local authorities should be allowed to introduce lane rental schemes.

At the end of February, the Government published its response. It decided to adopt Option 2: “Roll-out lane rental to other local authority areas. This would allow other local authorities to operate lane rental schemes but on condition that certain other criteria were met, for example, a permit scheme was in operation.

“This could be on a limited basis or it could be deployed more widely. It would be for authorities to ask for approval from the Government for schemes.”

A sunset clause, which stated the trial scheme could end in March 2019, was also removed following the consultation and the London and Kent schemes will now continue until a longer-term solution to lane rental is identified.

As far as we are aware, no other local authorities have yet introduced lane rental; the Government is still working to develop guidance on how to introduce it. However, there is no doubt that the practice will spread.

Authorities invest heavily in maintaining our highway network, yet over recent years we have seen an increase in the failure of both manhole covers and the variety of bedding and packing systems used.

As already stated, these failures cost money and it as a result of this that Wrekin is getting an increasing number of enquiries about its most durable UnitetM covers. We expect lane rental to eventually impact further.

When investing many millions of pounds in surfacing the highway network and taking account of potential lane rental charges, it would be short-sighted not to seek out and use the best products to prolong the life of the highway and reduce maintenance required. Robust solutions are needed.

Using the very latest tools and software, Unite has been engineered for extremely long life, which means it delivers very low whole life costs.

Key to this longevity is minimising wear between covers and frames. By successfully challenging manufacturing conventions, Unite™ has the stiffest cover in its class.

Unite is the UK’s longest-life ductile double-triangular cover available; it lasts at least twice as long as the nearest competitor. Its performance has been proved by the fact it has been in successful service for more than 15 years on the roads of central London.

Sunderland City Council also took the decision to use Unite after countless complaints from residents about noise caused by failing manhole cover installation. On the advice of their ironwork supplier, Unite covers have been used for the past 18 months without incident.

This proven durability reduces the need for replacement which incurs the cost of new product, of installation and of disruption, and, when it comes, of the need for lane rental.

It increasingly makes sense for specifiers and procurers to invest in a sustainable choice, the initial investment will deliver rewards.

Barry Turner, Technical Manager, Wrekin Products