Rotomoulding "in a Roundabout Way": A Creative Product Conversion from GRP to Polyolefin

Fourth in a Six-part Series on Decorating and Labeling Rotomoulded Products

When you see or hear the term, "roundabout," what first comes to mind? If you were a Rock 'N' Roll music fan back in the early 1970's, it may be the single, "Roundabout," by the progressive British band, Yes. If you're an American Country and Western genre fan, it may be the 1997 hit song, "Round About Way," by George Strait.

In the World of Rotational Moulding, especially in the United Kingdom and its realm, there's a more unique meaning for the term roundabout. This roadway jargon is the topic of my column because the Roundabout's success depends on a colorfully decorated, rotationally-moulded, polyolefin product, the bollard. This column shows how far this product has come from humble beginnings.

The bollard which is manufactured today is a conversion story – a reminder to all of us in rotomoulding to be more creative in our consideration of new product concepts in which a not-so-flexible material can be converted to polyolefins using the rotomoulding process. This is an exciting business case study which highlights the successful product conversion from Glass Reinforced Plastic-Fiberglass (GRP) to polyolefin. It can only result in positive growth in our industry.

Roundabouts' main benefit is they slow traffic down and cost far less than stoplights. They can even replace inefficient stoplights commonly used through the USA and Canada. To be sure, rotomoulded bollards positioned at roundabouts are already making solid inroads here and show no signs of slowing down.

This rotomolded Simmonsigns bollard, in a roundabout in front of London's Big Ben, keeps traffic flowing.

The roundabout defined

A roundabout is a type of road junction, at which traffic enters a one-way stream traveling around a central island. The entering vehicle must yield to any vehicles already in the roundabout, which always have priority over all entering vehicles.

The first roundabout was constructed in Paris, France around the Arc de Triomphe in 1901, closely followed by Columbus Circle in New York City in 1904. Five years later, the first British roundabout appeared in Letchworth Garden City in 1909 - originally intended partly as a traffic island for pedestrians.

The widespread use of roundabouts began when British engineers re-engineered the older style of "traffic circles" in the mid-1960s to overcome their limitations of capacity, as well as for safety. Starting in that decade, research in the UK found that circular intersections tended to be safer than those without them.

History of the traffic bollard

Internally illuminated traffic bollards (hereinafter referred to as traffic bollard)

became common throughout the United Kingdom in the 1930's. Bollards are used to supplement street signs and street lighting to provide a visual cue to approaching drivers that an obstacle exists ahead during hours of darkness and during periods of low visibility (fog, rain, snow, haze, etc.) and that braking may be required.

Components of the traffic bollard

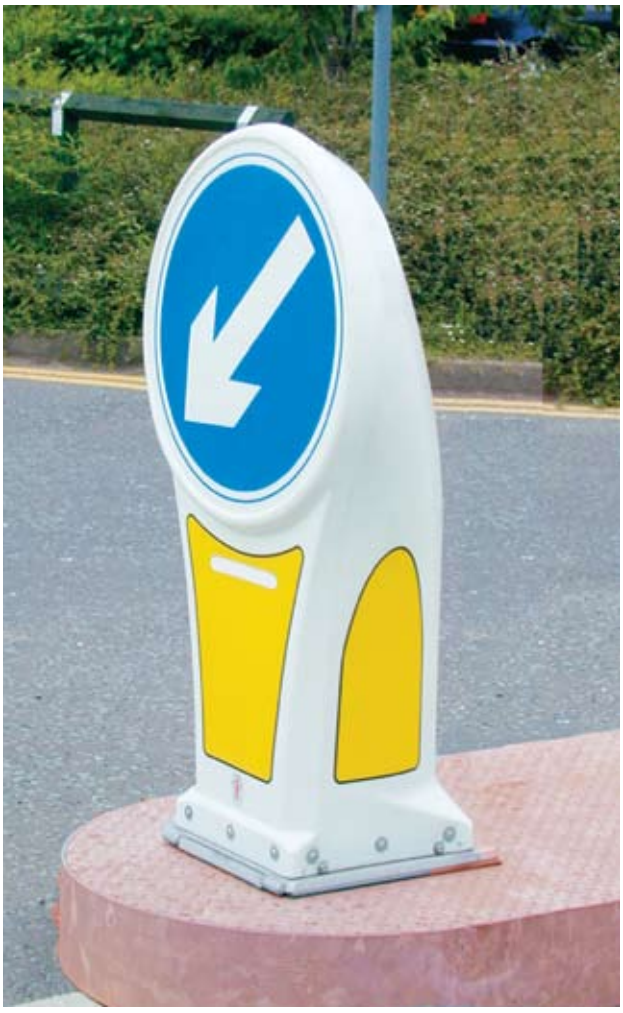
A traffic bollard consists of three parts: (1) a foundation used to house a recessed base light unit, (2) a base unit which houses lamps to illuminate the traffic bollard and (3) a shell which illuminates at all angles during periods of darkness and low visibility. Units one and two are housed below the surface of the improvement (typically a concrete surface). Therefore, if a vehicle strikes the traffic bollard, the units below the surface are not damaged.

The purpose of the traffic bollard shell is to display the MUTCD (Manual of Uniform Traffic Control Devices) "Keep Right" symbol (R4-7). In addition, the traffic bollard has a yellow diamond below the Keep Right symbol instead of a yellow shield. Other messages and directional graphics are dictated by the local city councils and roadway agencies in the respective regions.

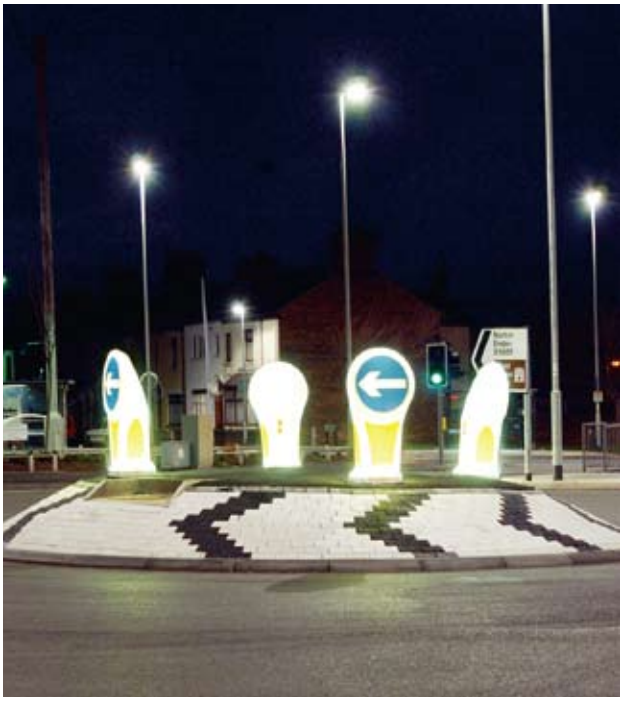
Converting from GRP to polyolefin bollards

When the modern roundabout concept caught on in the UK in the 1960's, the great majority of these pieces of "Road Furniture" shells were constructed of Glass Reinforced Plastic-Fiberglass, or GRP, materials. Many of the older styles of traffic bollards constructed several decades ago can still be found in the U.K.

Today, almost all new modern traffic bollards that are installed along roadways are made of materials that make them completely collapsible.



A rotomolded Contour traffic bollard bounces back and looks great - even after being rolled over by a tank! See the dramatic video gallery footage at www.simmonsigns.co.uk.



This roundabout has four rotationally molded Simmonsigns bollards to help night drivers safely reach their destination.

This concept greatly reduces the repair and replacement cost to the governmental agencies responsible for the maintenance and upkeep, versus the high costs to repair or replace the older styles of GRP bollards if they are damaged or crushed by errant vehicle impact.

Matrix Polymers, a specialist European supplier of materials and services to the rotational molding industry, has played a major part in the conversion of the bollard industry from traditional GRP products to the rotational moulding process. Matrix Polymers supplies flexible, high-impact polyolefin resins which are ideally suited for use in flexible traffic bollards. In particular, they have developed a close working relationship with UK-based bollard manufacturer Simmonsigns and have helped the company develop a high-performance resin suitable for this application.

Matrix Polymers uses unique, flexible polymer resins considering full compliance to the relevant Standards from the beginning. When these collapsible, rotomoulded bollards are struck by a vehicle at low, or even high speed, the traffic bollard shell easily returns to its original position, with minimal to no damage to the unit. The result is a bollard structure which re-forms, no matter which way vehicular impact is applied and exhibits minimum residual deformation and creasing – even in extremes of temperature.

Equally critical to the success of this product has been the development of a resin that is 100 percent compatible with permanent polyolefin graphics exclusively produced by Mold In Graphic Systems® (www.moldingraphics.com) in the US.

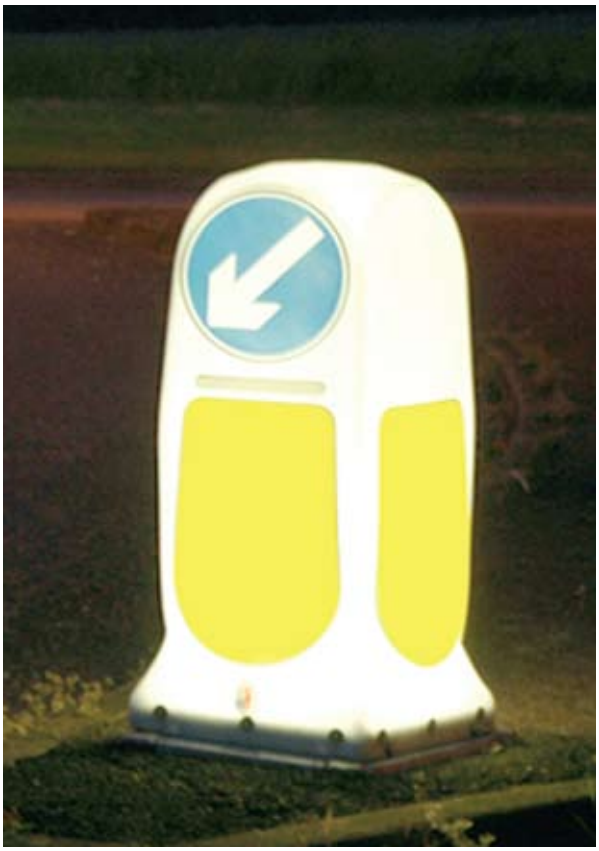
This close cooperation between Simmonsigns, their graphic supplier (MIGS™) and Matrix Polymers has resulted in an extremely successful conversion story which can only prove beneficial to the rotational moulding industry.

Simmonsigns Limited's Export

Sales Manager Eric Woodhouse said MIGS Surface Enhancer™ completes the success story. "We use Surface Enhancer™ in the mould for making the outer poly skin tighter with less pinholes in that mould part. This makes the product easier to clean." This is a unique marketing selling point as a polyolefin product out in traffic all day is continually exposed to dirt and grime.

Please visit the Simmonsigns website at www.simmonsigns.co.uk to view a dramatic video clip in which an armored vehicle is shown running over a Simmonsigns Contour bollard. Amazingly, it immediately returns – without damage – to its original shape.

Another Simmonsigns web link entitled, Bollard in the Distance, depicts how an approaching driver views a traffic bollard at night. The bollard's body shape is designed to utilize all available light and project this effectively onto the sign face diagram for maximum visibility. A combination of crisp, easy-to-read, permanent graphics and lighting of the bollard results in fewer accidents and smoother traffic flow.



A bollard lights the way for drivers, helping to keep the number of traffic accidents down.

For further information on Matrix Polymers and their unique flexible Polymer resins, please visit www.matrixpolymers.com.

The first modern bollard was installed in Prescott, Arizona. Today, more and more of the UK-style of collapsible rotomoulded bollards in roundabouts are being positioned in roadway intersections throughout North America.

This case study is an exciting business story highlighting a successful product conversion from GRP to polyolefin materials – using the rotational moulding process. It's a great time to imagine other new product concepts and conversion opportunities which can contribute to the growth of our industry...."in a roundabout way".