



HARBORO

AUTOMOTIVE DIVISION

ASSURED | TECHNICAL | QUALITY

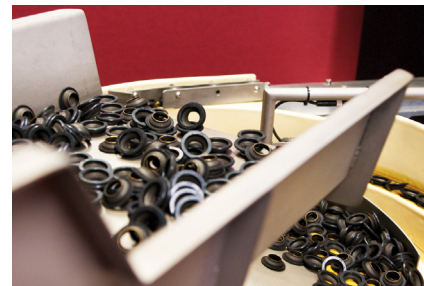
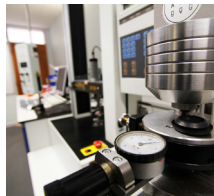
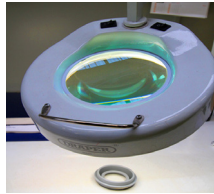
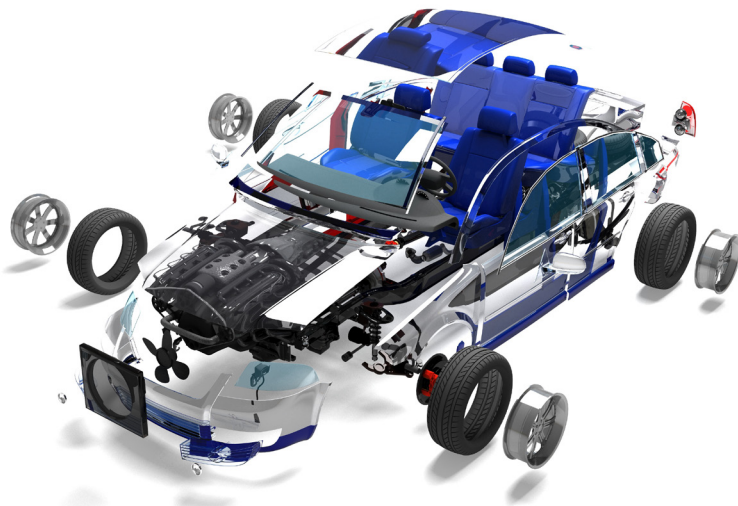


A leading UK manufacturer of rubber mouldings. Specialists in rubber to metal bonded parts and development of elastomeric materials.

At Harboro our aim is to deliver projects on time and on budget without compromising safety, design, function or the environment. Harboro has an established history of successfully implementing projects from concept through to supply, often against tight lead times.

The automotive industry requires absolute precision, fast response times and stringent quality standards. As part of the automotive supply chain, failure to support the customer is not an option. It is therefore crucial to attain a relationship with a supplier you can trust and that is reliable. Harboro's many years of automotive experience and our central UK manufacturing facility make us the perfect partner.

"Honda of the UK Manufacturing Ltd have enjoyed a long and successful trading history with the Harboro Rubber Co."



VALUE OF RUBBER?

When time is money the speed of response and support of a supplier is vital. The design and quality of a component is critical to the effectiveness in application. As such Harboro is trusted by many to ensure a component is capable, reliable and has a proven performance. We are conscious that our selection of the right material, process and design is critical to your success.

Within the overall market of automotive supply there are various demands placed on components manufactured in rubber compounds. These may be fully dynamic load bearing parts, seals with high or low temperature and fluid resistance requirements, through to static cabin based decorative items. Harboro has the technology and equipment to test the material to the required criteria ensuring a component is fit for the application.

Our understanding of rubber starts from the polymer design stage through to design for production and process. By having the full laboratory and personnel in house we can develop materials that meet the challenges placed upon them.



OUR SERVICE

At Harboro we offer a full engineering service. Solving problems with a comprehensive review of the application in order to create long-term advantages for our customers. Harboro invests heavily in the development process with the intention of utilising our extensive resources to ensure the best possible solution is obtained.

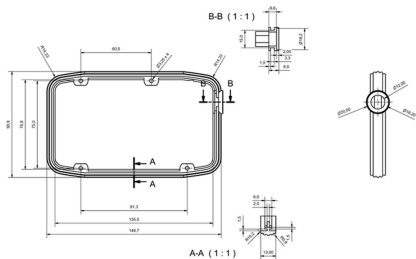
The company's broad engineering service begins with problem identification leading to an in-depth review process consisting of:

- Material capability selection and compound development & enhancement.
- Technical product review.
- Process definition / manufacturing assessment.
- Prototype and testing.

We are a proactive company that continues to expand the boundaries of what is possible through the constant development of materials and engineering methods. With ongoing continual investment in skills and new equipment we continue to expand the Company's capability.

"The products that Harboro Rubber manufacture are used on all our product ranges and therefore the Quality, Cost and Delivery that Harboro Rubber provide are second to none."

B2 Automotive



TECHNICAL

Harboro listen and analyse in detail every aspect of a customer's requirements, to ensure development of the most efficient and cost effective solution. A process from prototype to production is adopted to check that the perceived requirement matches the actual product needs.

Prior to manufacturing, each batch of rubber is checked for hardness, density, rheological properties, dispersion and composition via thermal analysis (Rheology).

All production is carried out utilising calibrated, controlled, fully maintained equipment and documented processes.

The manufacturing process, when finalised, is tuned to suit the type of elastomer. This is appropriate to the environment; conditions of use, friction characteristics, load deflection and durability. In most cases testing can be completed within Harboro's in house laboratory and if required using specific industry test facilities.

EXPERIENCED

The automotive industry has specific demands that require a full support structure to provide. To achieve this companies must work closely with their supply chain to utilise the expertise of the supplier, maximising component function whilst maintaining a cost to performance benefit.

As an established supplier of components within this sector there isn't much Harboro hasn't encountered previously. We work closely with designers and companies large and small to ensure that our experience provides the best opportunity to our customers.

Every product follows a route from design, APQP / PFMEA to sampling trials, PPAP and full production supply, within our regularly audited quality system. From initial production through to release of product; control plans, quality standards and process instructions are utilised to ensure that the parts are correct.

Harboro supply full PPAP Level III submissions for all components with complete dimensional study and capability data provided along with full material results.

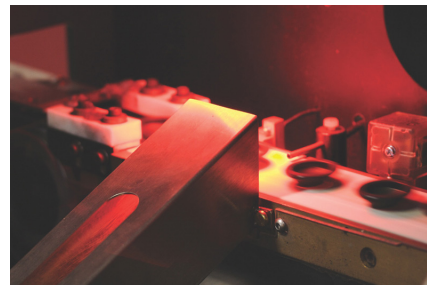
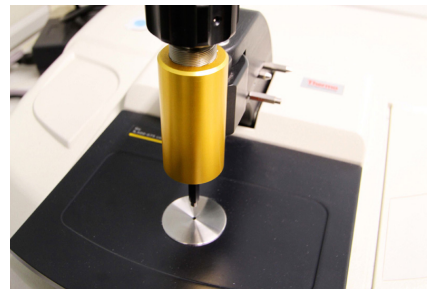
With our in house laboratory Harboro can ensure that the material performance of every component is correct combined with the overall product quality level. This ensures you as a customer are receiving a components that you can rely upon, negating the need for further testing or validation.

Our continued investment in vision camera systems and new technologies has enabled Harboro to maintain a low PPM requirement on safety critical components. We welcome visits to view how we control our production and maintain this low PPM quality figure on a daily basis across so many different components.

Assured

- APQP and PFMEA activities undertaken
- SPC criteria and in line testing carried out *
- Every batch of material is tested
- All process activities are logged
- Materials and parts are tested to agreed requirements
- Critical parts can be 100% camera inspected *
- Full PPAP Level III supplied
- IMDS data provided and logged on your behalf
- All materials are REACH and RoHS compliant
- Packaging in customer specified containers*

*where required



Harboro's technical bias is emphasised by its well-equipped on-site laboratory, staffed with experienced chemists and polymer technologists. We have a team of qualified engineers and chemists working on products plus factory production and maintenance engineering support. In addition there is a quality manager and supporting team.

Harboro offers extensive knowledge of materials and testing. We can provide customers with detailed reports regarding suitability of the polymer type chosen for the application.

Investment in technology such as FTIR spectroscopy and TGA (Thermo-gravimetric analysis) equipment (rarely found in other rubber companies), provides the ability to characterise and de-construct existing materials.

Some of the tests we offer are:

- Hardness to IRHD, Shore A, Shore D
- Quasi-static compression, tensile and shear modulus
- Dynamic and low temperature modulus
- Co-efficient of friction
- Bond testing and analysis
- Tear and abrasion resistance
- Ozone and UV resistance
- Permanent set
- Fluid and chemical resistance (Oils, Fuels, Greases, Gas, Acids, etc.)
- Hysteresis and resilience properties
- Fatigue life
- Rubber compound identification and characterisation



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