

Automotive Development Services of the Redheads Group

Background

During the past 20 years, investment in R&D by manufacturers and automotive suppliers has helped overcome the many challenges facing the industry: performance, safety, productivity gains, regulations, quality, internationalisation, communication, telematics, decontamination and alternative drives.

Even today, after several tough years, the automotive industry is reinventing itself and introducing innovations in a whole number of fields: networked cars, electric engines, driver assistance, self-diagnostic, etc. Electronics are increasingly present, in both the vehicle and the passenger compartment.

In a sector under a lot of pressure, the strategy of manufacturers varies considerably from one region to the next. Product plans are now taking into account emerging countries, thinking along lines of adapting to local supply and setting up local R&D centres. Experts are predicting an average annual rise in global car sales of 5.6% between now and 2018, of which 83% in emerging markets.

For South African automotive suppliers this changing landscape means an increasing expectation from OEMs for their suppliers to development and design certain parts in South Africa. As this renewed requirement will only be applicable to a limited number of parts for most suppliers, it will not make

economic sense for most suppliers to establish their own design capability in South Africa.

A solution for South African suppliers is to utilise the design capacity of an engineering services provider, where development of various suppliers can be centralised at the engineering services provider's design and development centre.

Redheads has extensive experience in the automotive industry and profound problem solving competence in all engineering disciplines.

What we can do for you:

The Redheads Group's presence in South Africa gives us the platform from which to support the future local programs of suppliers to the auto industry in the design, design validation and tool design.

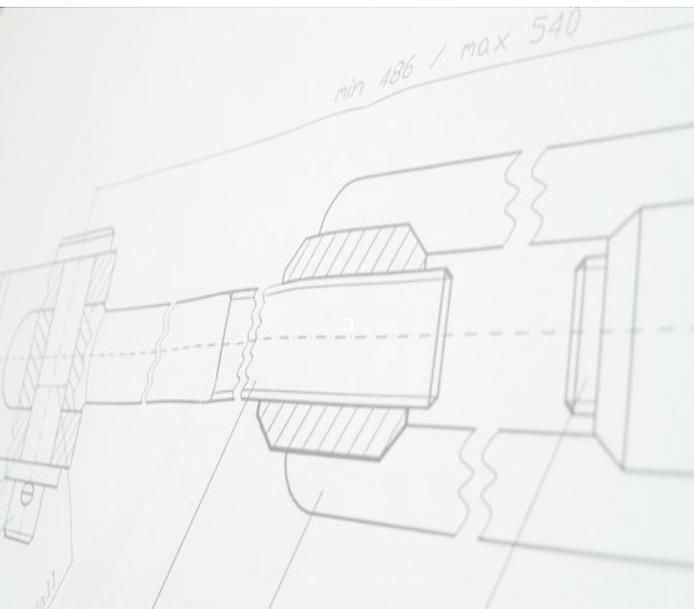
The Redheads Group is able to mobilise specialist resources, engaging these in projects and rapidly adapting the form of delivery as per our clients' requirements. Our staff has decades of experience with various suppliers and leading German OEMs and in the automotive industry. Where required, we can also access highly specialised expertise through our partner network.

The success of automotive suppliers will increasingly depend on their ability to innovate. Autonomous cars, e-mobility and light-weight construction are no longer distant future dreams, but already determine profit and loss today. Redheads understands the automotive industry and enables its clients to master the future.

We develop feasibility studies, manage the quality of your new product features or plan a project tailored to your needs. Our Test Engineers, Software Developers and Production Planners pursue your goals consistently. We adapt to your processes and simultaneously support the optimisation of your processes. Shape the mobility of the future with us!

Product Development Services

With our extensive experience in the automotive industry, we can support you at every stage of the entire product development process: from the concept phase to series production. Whether you are developing a component or a system, we can cover everything from sub-processes to complete developments – constantly focussing on the goal, while maintaining the highest quality.

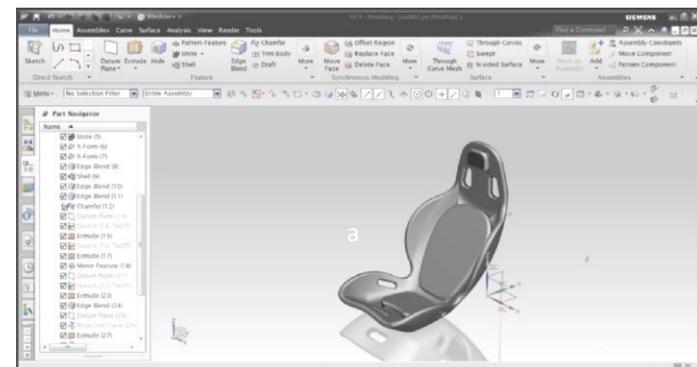


Concept Design and Styling

The starting point for every new development is the concept design. This is where the outlines and basic parameters for the vehicle segments, market, technologies, timelines and costs are determined and defined. From a technical point of view, the design of the component has to be aligned with the safety concept, developing a body-in-white structure concept and defining the production technology. To ensure successful production, technology benchmark comparisons are conducted.

Detailed Design

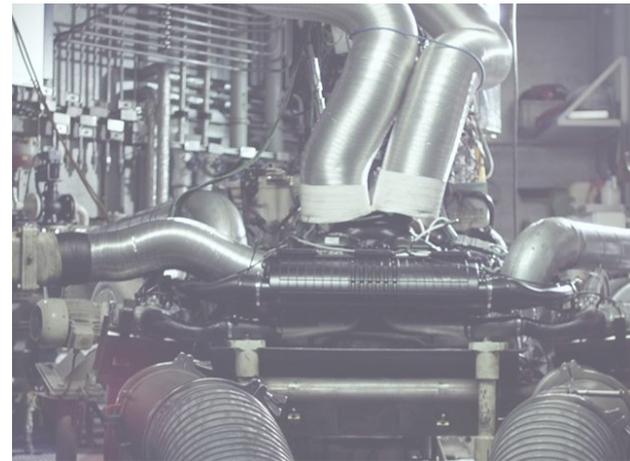
During the detailed design phase of the product development process, our engineers turn concepts into reality. Common CAD systems such as NX CAD, CATIA and Solid Edge are used to create detailed design which are used to create first prototypes and models. Optimising production costs plays a central role during this design phase. Our engineers will optimise the design for as long as required until a solution is reached which is optimal not only from a technical perspective but also from an economical perspective.





Calculation and Simulation

During the calculation and simulation phase, our engineers gain insights into the characteristics of the component before the test phase commences. The components are exposed to a variety of scenarios virtually through FEM and other analyses. This way our calculation and simulation experts can optimise the components early in the development process, generating a cost-optimised and fully functional solution.



Testing

During development of components nothing may be left to chance. Every component's design is validated by testing and optimising under realistic conditions. Each component is tested for durability and has to withstand the toughest conditions. Our engineers are only satisfied when the optimum result has been achieved.



Industrialisation

Our experience in transferring automotive components into series production enables us to ensure the series production capability of each component during development. We support our clients in the areas of assembly and production planning, equipment planning, tool design, production launch support, quality planning and quality assurance, quality methods, virtual installation and removal trials, assembly instructions and technical illustrations.

Redheads continuously assesses the processes involved in new product development to identify optimisation potential. Areas to improve are found everywhere in the cycle, including concept layout, design, analysis, development testing, as well as vehicle integration and calibration.

In a global marketplace, speed to market is a key factor in the success of a new product introduction. Ever-increasing competition makes windows of opportunities for successful product launches smaller than ever. Shortening times to design and develop a market-ready component is a complex process that must be addressed systematically.

Our services offering to the automotive industry is augmented with the following services:

- Project Management
- Research & Innovation Consulting
- Embedded Systems / Software Development
- System Integration
- Process Consulting

Redheads bundles various qualities, to enable our clients to focus on the operative business. Our efficient consultants and one-face-to-the-customer philosophy guarantee your clients easy and fast communication and feedback-loops with us and a direct reaction to your requests.

You can expect the same service from us in all areas of cooperation. The best engineers, designers and project managers work together towards the success of your engineering projects. Your challenges become our goals – according to your requirements and at fully transparent costs.

Secondments

Where our clients have peaks in capacity demand for example due to high order volumes, a capacity constraint, special projects or a need for specialised know-how, our employees can extend your development teams. This means that our clients profit from qualified support while maintaining a maximum of flexibility, without straining the budget permanently.

- Project goals are met even on tight deadlines
- Efficient use of budgets
- Access to project-specific know-how

Solutions

Certain tasks can be specified clearly enough to enable these tasks to be outsourced. Redheads can provide the required organisation and complete such tasks at agreed costs. Via our partner network we have additional access to highly specialised know-how where required.

- Project teams in your office
- Specialists teams in our offices
- Partner network for highly specialised know-how

Redheads is a Level 2 Black-Owned B-BBEE Value Adding Contributor

For further information please visit our website or contact the Director of our South African office, Jürgen Rust

Redheads Engineering Services (Pty) Ltd

2009/022667/07

Switchboard: +27.12.8168700

Email: info@redheads.co.za

Address: Unit C2, Office@Nature
500 Botterklapper Street
The Willows
Pretoria
South Africa

Redheads Ltd.

Switchboard: +49.9131.94086330

Email: info@redheads.de

Address: Henkestraße 91
91052 Erlangen
Germany