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Customer Success Story

BPW Axles



"The ease with which we can identify potential design problems on a 3D model helps us sustain the high quality of our designs."

– André Cilliers, managing director, BPW Axles, Johannesburg

The explosive growth of the heavy commercial transport market in Africa, following the democratisation of South Africa in the early 1990s, has had significant business benefits for South African automotive component manufacturers, like BPW Axles. Since 1999 the trailer axle manufacturer's volumes have increased by nearly 250%. With 27% of the market, BPW Axles is now the second largest trailer axle manufacturer in the country. In order to exploit market opportunities, the company has had to capitalise on the research and development capability of its European parent company and then swiftly refine its overseas designs to cope with the harsher conditions under which vehicles operate in Africa. The solution has been to turn to the power and flexibility of **Autodesk Inventor** software.

Innovative Designs

BPW Axles hasn't always enjoyed the high profile it has today. Established in Johannesburg 58 years ago under the name ERN Quality Products, the company was bought in the 1960s by the German axle manufacturer, BPW Bergische Achsen KG. The wholly-owned South African subsidiary only changed its name to BPW Axles in 1990 when it began to exploit its parent company's innovative designs, introducing advanced, hollow, European-style axles to the South African market.

The company's premium priced products are divided into four broad categories with its heavy axle programme generating the bulk of the company's business. The heavy axles have a carrying capacity of nine, 10 or 12 tons and have either mechanical or air suspension systems.

Lowest Cost of Ownership

The company's light axles have a carrying capacity ranging from 900kg to 3000 kg. A second group of products in this category has a carrying capacity of four to six tons. The agricultural axle programme offers slow-speed agricultural axles with a carrying capacity of up to eight tons. All of the axles and the spare parts are manufactured in South Africa. In addition, the company imports and sells related products such as aluminium wheels, trailer couplings, brake boosters and moulded mudguards.

The focus of BPW Axles' product development programme is to help end users contain costs. "Our axles may not be inexpensive for the trailer builder, but when it comes to calculating lifecycle costs, we offer lowest cost of ownership," says BPW Axles managing director, André Cilliers. "Trailers should spend as little time as possible in the workshop, but when they do need replacement work on wear parts, for example, the design of axles should ensure that the work can be done quickly and efficiently."



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BPW Axles

Autodesk Inventor

All BPW Axles' products are developed in Germany. Designs are sent to South Africa where the company determines whether they should be modified to suit local conditions. Suspensions, for example, must accommodate features on local trailers - in Europe trailers are single bodies, while in South Africa they are often two entities, commonly known as interlinks. Suspensions must be modified to accommodate the trailer heights that are common to the South African market and in some cases BPW Axles develops 'hybrid' products. For extreme conditions it might use an overseas designed axle with wearing parts typically used in a much tougher suspension.

BPW Axles replaced its AutoCAD software with model-based Autodesk Inventor mechanical design software in November 2002. For Cilliers, the implementation of the software is in line with the company's quality range of products. "One can't produce premium priced goods by cheap methods. Our choice of superior design technology enables us to support our quality range of axles. It is also integral to our focus on customer service."

The main benefits of the installation have been timesavings, improved design validation, and more efficient assembly of products.

In the past BPW Axles in Johannesburg has had to re-draw all designs received from overseas. Even though the European parent company doesn't use Autodesk Inventor, BPW Axles can now, with the help of the software's IGES translator, access all designs received from its overseas office. The timesavings have been enormous. The first project undertaken on the new software - a 16 ton suspension - was

completed in half the time it would have taken in AutoCAD. "Timesavings mean the drafting office is no longer a major bottleneck in the workflow," says draftsman, John Montgomery.

Design Validation

For BPW Axles one of the biggest benefits of the software is the design validation process facilitated by Autodesk Inventor's clash detection feature. "The ease with which we can identify potential design problems on a 3D model helps us sustain the high quality of our designs. On one of the first projects we did using Autodesk Inventor, we identified a bolt that could have sheared off under extreme conditions. It would have resulted in unnecessary downtime for our clients and could have become an expensive warranty issue for us," says Cilliers. 3D images provided to machine shops, fabricators, and the factory floor are also helping to minimise errors, improving the manufacture and assembly of products. The ease with which isometric drawings can be interpreted helps avoid errors.

BPW Axles' drafting department is beginning to collaborate with trailer builders who have also transitioned to Autodesk Inventor, providing them with electronic designs of its axles. Companies like tanker builder, Tank Clinic, and trailer builder, Afrit, receive electronic designs of axles, which they drop into their designs, providing them with the opportunity to carry out early design validation. They can pick up errors, like incorrect riding heights, which they previously might only have identified when the trailer was being assembled.

Cilliers is confident that the momentum in the growth of the transport industry will continue into the foreseeable future. He sees Autodesk Inventor continuing to play an integral role in the design of BPW Axles products. "In South Africa and the rest of Africa there is an enormous focus on prevention of overloading. End users obviously don't want to reduce their loads, so they will be looking at more efficient, lightweight trailers. It's going to fall to component manufacturers to come up with more lightweight designs. Autodesk Inventor will play a fundamental role in helping us achieve this."

Learn More

More detailed information about Autodesk Inventor software, and the recently released Autodesk Inventor Professional software, is available on the Autodesk website. Visit www.autodesk.co.za or phone Richard Smedley-Williams on (011) 805-1555.



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