

Sdc trailers

Business



Company: cadcoevolutionCustomer: SDC TrailersSubmitted by: Promote
PRDate: January 2002As one of Europe's leading trailer manufacturers, SDC Trailers understands only too well the importance of customer satisfaction.

Investing in a trailer is an extremely costly business, and SDC's primary aim is to ensure that their trailers deliver a rapid return, as well as contributing to the profitability of their customer's business. SDC's production plants at Toombridge, Co Antrim and in Mansfield, near Nottingham, are amongst the most cutting-edge vehicle manufacturing facilities in Europe. From these modern and efficient production sites, SDC manufactures a comprehensive range of high quality trailers for a whole array of applications, from curtainsiders to box vans, and from tippers and skeletal, to double deckers and machinery carriers. The entire design, engineering and manufacturing process is under SDC's own control. This enables the company to offer a bespoke service to its customers, tailoring its designs to perfectly match the customer's application.

Because of the tailored designs of its trailers, SDC relies heavily on its engineering department. Continually researching ideas for reducing trailer weight and maximising load space, this department has been using five AutoCAD seats to produce its core designs for some time. Robert Patton, IT Manager at SDC, said: " We spend a great deal of time examining ways of improving our trailer designs whilst still being able to meet customer needs, and the most important aspects to the design are the weight, strength and cost of the trailer." Earlier this year, the engineering design team, using AutoCAD, devised a new concept for a trailer that required less metal in the construction, without compromising on structural strength. The stress testing

<https://assignbuster.com/sdc-trailers/>

of the new design, however, was still reliant on traditional manual calculations, always a time consuming task, and in this particular case, taking anything up to four days. Robert Patton continued: “ Although a trailer can cost anything from £10, 000 to £30, 000, the profit margins are extremely slim.

Spending almost a week on the stress testing was clearly expensive in terms of man-hours, and we wanted to find an effective way to reduce the time it took without compromising on the result.” SDC turned for advice to Belfast-based cadcoevolution, a company which specialises in providing CAD solutions for engineers, designers and architects, and which had helped SDC in the past. Chris McVicker, the Senior Mechanical CAD consultant at cadcoevolution evaluated SDC’s requirements. He said: “ Stress analysis needs to be taken very seriously. We have worked with a number of companies who have been sued because their products were not tested properly.

Mistakes can lead to serious injuries, and in some cases, death. The traditional method of testing is through prototype building, but the emergence of Finite Element Analysis (FEA) software has been a huge help to companies like SDC.” cadcoevolution recommended installing an additional system in the engineering department, totally dedicated to 3D modelling and design analysis. The latest version of Inventor combined with Cosmos/DesignSTAR was selected.” Up until the last few years most companies contracted their testing out to specialised analysts,” said Chris McVicker. “ Although this was expensive, it was more economical than

buying the software for internal use, and a lot more straightforward, since the software was so complicated to use.

But there are now so many FEA and 3D CAD packages available, and our recommendation is the Cosmos/DesignSTAR and Inventor combination. The main reason is its ease of use, but it also makes good sense. Most engineering companies will have designed their products in 2D, the majority using AutoCAD. Inventor is a sister product to AutoCAD, so these 2D drawings can be used and read directly with Inventor. Moving from a 2D to a 3D environment is a huge step, and Inventor makes the transition far simpler. Similarly Cosmos/DesignSTAR has been constructed to work closely with Inventor, so the operation of the two packages is almost seamless.

“ Once installed, the SDC engineers used Inventor to create a 3D solid model of the new trailer. The programme then gave them the option to generate 2D drafting views of the design as it progressed and update the size and shape of the model automatically whenever they had to alter a value or dimension.” Using Inventor was so easy,” said Robert Patton. “ It has a very intuitive interface and allowed us to create the 3D model extremely quickly.” With the model complete, the engineers then applied the calculations into Cosmos/DesignSTAR. The advantage of this product is that it carries out Finite Element Analysis (FEA) tests very quickly, automatically creating the 3D ‘ mesh’ required to evaluate the entire 3D model.

Cosmos/DesignSTAR was specifically devised, not only to automate the construction of the mesh, but also to carry out the FEA tests in minutes, rather than hours, or even days. When the FEA was carried out on SDC’s new

trailer project, the analysis time was reduced from four days to just four hours. The engineers immediately found that the Inventor and Cosmos/DesignSTAR system had many benefits, not least the saving in time and money. The design work can be quickly modelled, and because the calculations are so precise the engineers can tell immediately if all elements of the design are accurate. The designers also have greater control because of the intuitive nature of the new system.

For example, if they are faced with a decision, such as which material to use on part of the construction, they can be given an accurate answer within minutes. The time taken to set up the FEA tests is drastically reduced, which is partly because there is no need to 'over-engineer' the design to ensure it passes the tests, and partly because they can be confident that the design will work in practice. For SDC, one of the key benefits of the system, is that as well as reducing man-hours required for carrying out the tests and managing the project, it can also reduce the need for prototypes on a project by up to 75%. Considering that a trailer can measure up to 30ft in length, a prototype, even built in part, can cost several thousand pounds in materials alone. The new system has brought development time down and the materials needed to build the prototype are vastly reduced.

This massive saving has already had a very positive effect on the overall cost of manufacturing at SDC, and the system is now being used on all of the ongoing design projects. Stephen Wilson, Design Engineer at SDC, said: "The new system enables us to carry out calculations on complex geometric structures and assemblies with confident results early in the concept stage. This greatly reduces the need for physical testing and accelerates the whole

<https://assignbuster.com/sdc-trailers/>

design process. It is also an excellent tool for analysing modes of failure on our trailers and helps us quickly generate solutions. Just one seat of AutoDesk Inventor and Cosmos/DesignSTAR has made a significant difference to the design process here.”