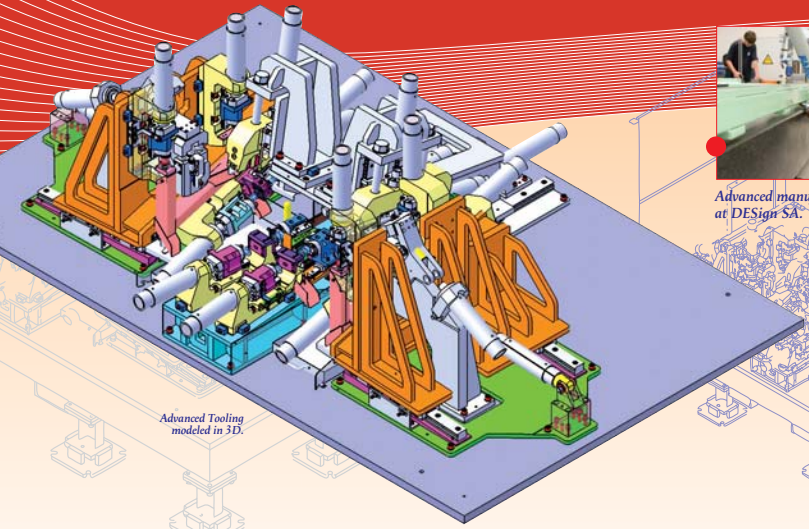


in practice



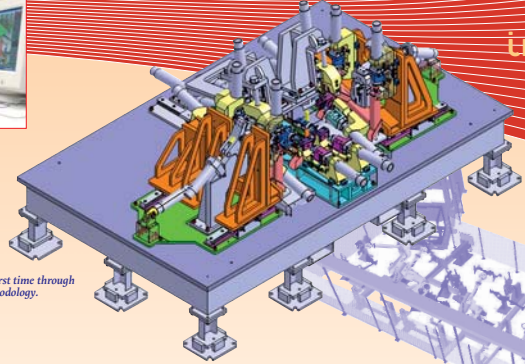
Advanced Tooling modeled in 3D.



Advanced manufacturing at DESign SA.



Engineers at DESign SA.



Right first time through 3D methodology.

By Nick Lerner

Out of Africa

Building a company from zero to an industry leader and a world-beater in just 10 years takes courage, skill, determination and the right technology. DESign SA has done all this and is set for further success.

South Africa's leading automotive and aerospace tooling supplier is part of the DESign SA group which provides engineering services, based on the most advanced technology available today, to customers around the world.

Starting from scratch 10 years ago and now comprising of 200 qualified engineering staff, the company brings Dassault Systèmes CATIA and DELMIA based methodologies and programming to automotive and aerospace OEMs and their supply chains. DESign SA exports around half

its services and has expert staff located in customers' production plants across 4 continents. Managing Director John Mulgrew explained the company's success, "We recognised that there is significant global demand for the services that we offer. From our own experience of manufacturing and installing precision tooling for body in white production, we are able to recognise the specific engineering services that are needed to maximise accuracy in manufacture. These are related to the processes that surround the tooling including man, machine and robot interaction.

"Since DESign SA is South Africa's foremost tier one aerospace and automotive supplier we have naturally adopted for ourselves the same technology that is used by the OEM's that we work with and we operate to the same exacting standards. By using CATIA and DELMIA we manufacture and set up tooling systems that have been proven digitally, using 3D models, so that less time needs to be spent on site."

ROBOT CONTROL

Dave Kupferman, Director of Robotics and Automation takes up the story, "Our Offline Programming (OLP) includes positional data and instructions to factory floor PLCs to control

lines and third party devices including robots, conveyors and carriage systems." He cites an example of the benefits of programming in advance of installation, "In one case the delivery of line-side robots was delayed by six weeks, which would normally result in delays in programming and optimising the equipment on site. However, by using CATIA and DELMIA to simulate the production equipment at its location we were able to programme it in advance of arrival, and then quickly make simple adjustments to compensate for physical conditions at the site, once it was installed."

An additional advantage of using Dassault Systèmes 3D model based technology in this way is that more time is made available to sign off programmes; time that can which can be used develop further cost saving programmes. Tolerance conditions within the production environment, components and tooling mean that adjustments always have to be made on site but the time saved by OLP adequately provides for these eventualities and brings other benefits to the process. One of these is, that welding guns can be selected to be right first time and not changed once it is realised that the wrong heads have been specified. Further, tool movements can be optimised to achieve the greatest efficiency and reduce 'air time', i.e. the time that tools are between functions and therefore unproductive.

SAFE POSITION

Dave added, "The methodology that we develop through using CATIA and DELMIA is transferred to users providing, not only the optimum production environment, but also higher safety levels for workers. This is done by simulating actual human working conditions to ensure that light curtains and other safety equipment is correctly positioned.

"One of the great advantages of using CATIA and DELMIA in this way is that the standards issued by our automotive and aerospace OEM customers can be adhered to with absolute veracity throughout the processes of design manufacture and commissioning. For example, tooling components such as cylinders, risers, L-blocks and shims can be called up to customers' specifications saving time while ensuring that standards are met."

John Mulgrew spoke about the business advantages of that DESign SA has experienced, "We started this company by bringing a great deal of experience gained at Toyota, VW and BMW and have initiated our internal training programmes based on Kaisen. This has led to the company's engineering practices, which aim - for perfection. By gathering the experience gained from working with the world's foremost manufacturers and employing those practices at DESign SA, we have achieved a very high level of internal productivity and accuracy. Our Offline Programming and software skills are utilised to their best advantage

CATIA and DELMIA free up time that can be spent developing more cost efficient programmes.

because we are able to understand the means of production in the context of software programming requirements. This positions us ideally to provide OLP services to industry in the knowledge that their cycle-times and productivity will be improved.

AWAY TEAM

"For this reason we have staff all over the world and have become a great South African success story. For example, we have team of programmers in Germany, Canada, the UK, Australia, and at factories in South Africa.

"By making the choice to use Dassault Systèmes we have not only benefited from the power and rules based methodology that the software offers, but have also been able to partner with a local Dassault Systèmes Value Added Reseller, CDC, which has helped us to maintain our systems to maximum advantage.

John Mulgrew concluded, "We have built a strong engineering and technology company from the ground up and proven that with the right mix of skills and procedures, along with the right technology and partners it is possible to take on the world - and succeed" •)

For more information:
www.des-ign.co.za
www.cdcza.co.za



Production environment optimised using DELMIA.