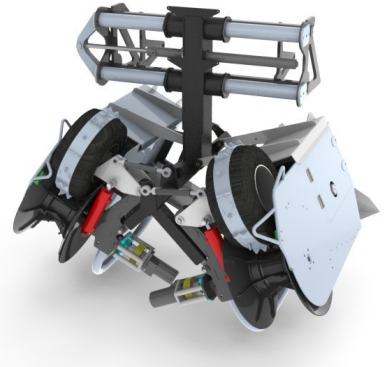


Motovated provides world-class mechanical engineering design and analytical services. Our expert engineers are passionate about engineering your vision, working with you to ensure your needs and deadlines are met. Our communication, professionalism and experience will help you minimise the risks you face, saving you time and money.

MACHINE DESIGN

Whether you have a clever idea to improve your equipment, want to develop a completely new industry, or have machinery problems and need solutions, **Motovated** can save you time and money by helping you do it right first time. We can help you with:

- **production machinery** - Mechanising your production process gives you a competitive edge in speed, quality and cost. **Motovated's** professional design and analysis of your machines will ensure they are robust, efficient, less expensive to build and easy to maintain.
- **consumer machinery** - Leveraging the benefits of professional design and analysis as early as possible, will ensure your product is safe, reliable, attractive and less expensive to develop and manufacture.



Design of a Grape Vine Stripper for Klima Ltd

PRODUCT DEVELOPMENT

Motovated can help you get your product to market sooner. The earlier you get us involved, the more benefit you'll receive from our services! For example:

- **concept design** - Our team of Engineers can help with brainstorming and come up with additional ideas for your product.
- **patent sketches** - Clearly presented sketches will get your patent application approved more quickly.
- **3D design** - Photo-realistic visualisation of your concepts are excellent for marketing material.
- **analysis** - Stress and function analysis will ensure your product is safe and reliable.
- **design for manufacture** - By reducing material costs and designing for easy manufacture we can improve your margins.



Design of ultra light Frame for FX Bikes

ADDED RESOURCE AND EXPERTISE

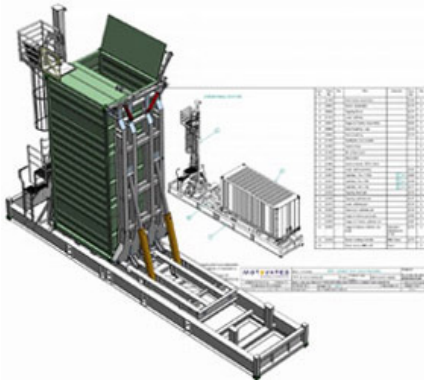
Finding good Engineers when you need them is difficult. **Motovated** can take the stress out of human resourcing, providing you with Engineers exactly when you need them. We can even work in-house. By partnering with Motovated, you'll benefit from:

- **top-quality engineers** - With excellent theoretical and practical backgrounds.
- **easy communication** - Engineers working in-house have the benefit of immediate access to your other staff, facilities and products.
- **total control** - With immediate feedback on project progress, you can steer the project as you see fit.
- **an expert support network** - Our Engineers have the backup of an expert team in the **Motovated** office, from a wide variety of backgrounds;
- **the best of both worlds** - You employ for the troughs but let **Motovated** provide you with the additional capacity for the peaks.



Call us now for a free consultation and learn how **Motovated** can take the stress out of engineering your vision!

Taking the stress out of engineering your vision!



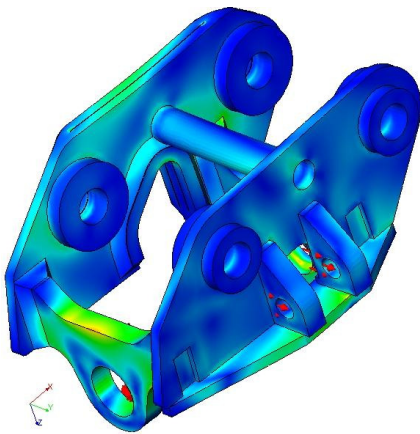
Design of a container bulk loading machine for NZ Express

MACHINE DESIGN – Container Tipper and Bulk Loader

Motovated was approached by NZ Express Transport Christchurch Ltd. to help in the development of an innovative idea for loading grain and bulk products into containers. There were many design considerations to accommodate, including meeting road transport standards so it could be fully portable, incorporating a weigh bridge and self-sufficient operation.

After a thorough concept design process followed by some preliminary design calculations, **Motovated** built a complete 3D CAD model of the machine. Parts of this model were analysed using Finite Element Analysis software to ensure that the components were strong enough, while keeping the machine within allowable weight limits for road transportation.

Motovated then produced full production drawings of the complete machine and all components and sourced local suppliers and fabricators for the manufacture of a prototype. Animated videos of the machine in operation were also created to help NZ Express with their marketing.



Stress plot of tilt hitch, stick side weldment

PRODUCT DEVELOPMENT – Nimrod 6-8T Tilt Hitch

Motovated helped Nimrod Engineering Ltd with the development of a 6-8 tonne tilt hitch. Their initial prototype was scaled from a 12 tonne model, but was experiencing problems with the hydraulic plumbing of the mechanism due to minimal clearances between moving parts.

Motovated developed several concept solutions using advanced 3D solid modelling. A single cylinder design was chosen over a dual cylinder design due to space restrictions, and the direct cost saving of a cylinder.

Extensive mathematical modelling of the load cases was undertaken, and the results used to perform a Finite Element Analysis on the mechanism weldments. This highlighted areas that required strengthening due to the non-symmetric loading of the cylinder and was used to verify the structural integrity of the design.

The final solution met all the design criteria, with significant weight savings and reduced size compared to competitor products.



Fully rendered image of a DesignLine bus

ADDITIONAL RESOURCE – Bus Designs for DesignLine

DesignLine's innovative hybrid bus designs have been successful in Australasia for many years. The recent success here and in the United States has required several new bus designs in very tight time-frames and has resulted in more work than their design team could comfortably manage.

Motovated was able to provide skilled staff and advanced computer aided design tools to give DesignLine the immediate and on-going support they needed. Legacy 2D CAD data was used to generate complete 3D models of entire buses. These 3D models could then be more quickly adapted to create multiple configurations based on the customer's needs.

Motovated also generated photorealistic rendered images of DesignLine buses. These images are used in DesignLine's international sales and marketing efforts, leading to several enquiries from various city authorities across the United States.

Read more case studies at:
www.motovated.co.nz

Taking the stress out of engineering your vision!