

NIMROD 20T QUICK HITCH

BACKGROUND:

Nimrod Engineering Ltd supplies quick hitches for use with a variety of excavators, with a range of pin centres and dipper widths. To reduce the modification and fabrication time needed to fit each different size, a new quick hitch design was required for the 20 tonne range. Design changes were also incorporated to reduce the time and cost of fabrication, avoid complex plate bending, and reduce grinding and finishing time.

SOLUTION:

Manufacturing and assembly issues were solved by changing the centre plate from a complex single plate with six bends to three simple separate plates with single bends. This meant that the bent plates no longer had to match the profile plates perfectly, improving accuracy on assembly, and decreasing preparation work. Effective plate tabbing was employed to reduce the need for expensive jigging. The ease of welding was also considered, allowing sufficient space and cutouts for the welder to work effectively.

A stress analysis was carried out to verify the structural integrity of the design, with additional gussets and stiffeners added as a result (Figure 2).

RESULT:

The final solution is a simple, cost-effective design, and may be modified easily to fit a range of excavator brands of a given size. Motovated Design and Analysis provided a complete set of true plate profiles, bending, weldment and machining drawings for manufacture.

The key advantage of the new quick hitch design is that the same plate profiles may be used for each different excavator model, and modified in the welding and machining stages, resulting in significant dollar savings in the overall cost of the machine.

For more information about this product, contact:
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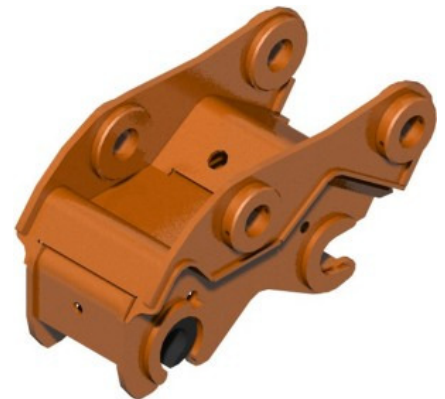


Figure 1: CAD model of the 20T Quick Hitch

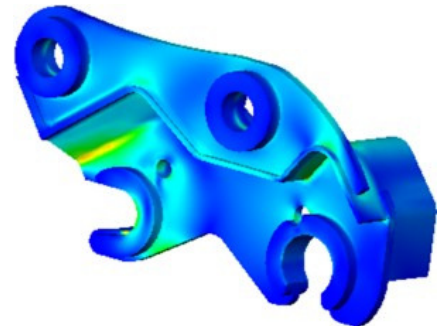


Figure 2: Stress plot of quick hitch, using symmetry

“I was very pleased with the work Motovated carried out for us. They understood what the issues were for a small company like ourselves.”

Mark Harrington
Nimrod Engineering Ltd

Taking the stress out of engineering your vision!