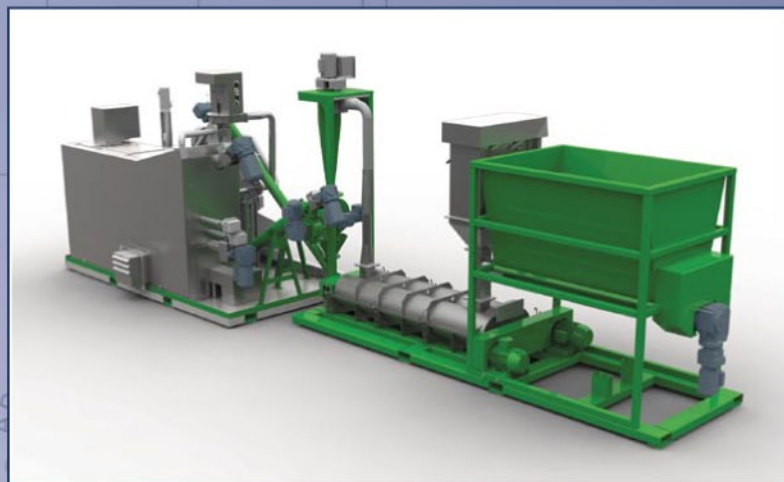




Note:

## 3D Product Design, Development and Project Management



Smarter by Design™



## Background:

Mechanical Design & Development Ltd ("MDDL") provides consultancy, design and project management services to the engineering industry.

MDDL was founded in 2003 by Dean McLean. Dean completed a fitting and turning apprenticeship with CSIRO (Australia) in 1992, during which time he studied computer aided engineering drafting. Dean then worked in the design and maintenance engineering field for 11 years which gave him extensive practical experience in logical problem solving and designing solutions.

MDDL started small with Dean doing all of the CAD work, designing bag making equipment and automation solutions for the meat packaging industry. However over the last few years, word has spread of a CAD company with practical knowledge and a sound understanding of mechanical applications and due to MDDL's commitment to provide outstanding design, project management and customer service, MDDL has grown to a staff of four designers/technicians. Projects range from processing and packaging equipment for various food products such as meat, cheese, chicken, potato chips; to agricultural and bio fuel machinery, located within New Zealand and overseas.

## Design:

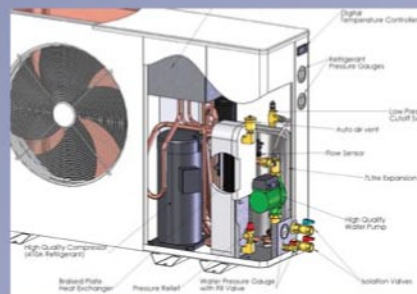
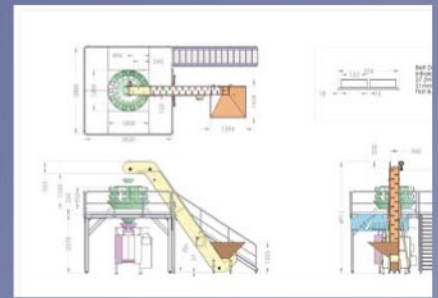
At MDDL we pride ourselves with being able to work with you to make your ideas a reality. We can help you with all aspects of the design process:

- brainstorming and concept sketching
- basic concept block layouts
- 3D visualisation and movable 3D models showing flexible and moving parts
- virtual assembled prototypes including pipe work and fasteners and
- consideration of materials and production methods before finalising a design.

We can also project manage the sourcing of parts and building of prototypes and production models.

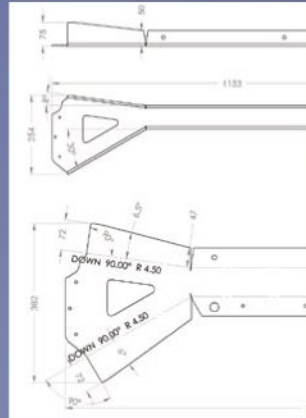
At MDDL we use 3D solid modelling in SolidWorks for our design work. With SolidWorks we can create realistic virtual prototypes, allowing you to visualise your product before you begin physical prototyping and make design changes before parts are made. Another benefit of SolidWorks is we can easily and accurately create all of the production files required for your project. Even complex sheet metal or machined parts can be easily detailed for higher accuracy. We also have a large library of standard parts such as bearings, seals and motors from popular manufacturers and suppliers. This quickens and increases the accuracy of the design process.

In 2010 MDDL acquired SolidWorks Flow Simulation CFD software. This allows MDDL to provide full research, simulation, analysis and build capabilities in relation to fluid flow, heat transfer and efficiency. MDDL is one of the few companies in New Zealand that can offer this service to clients through its trained staff.



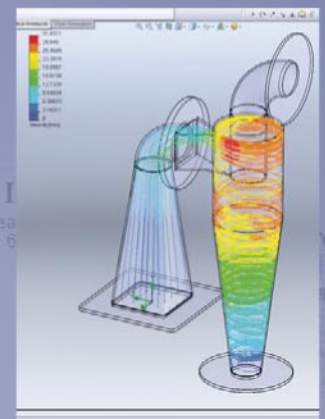
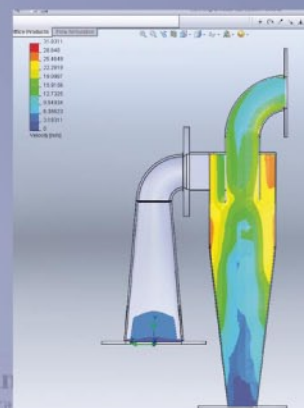
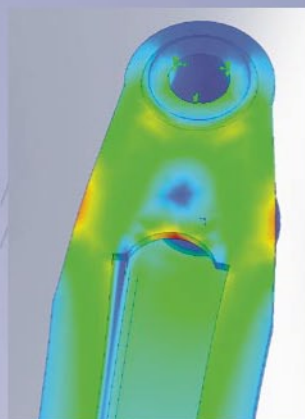
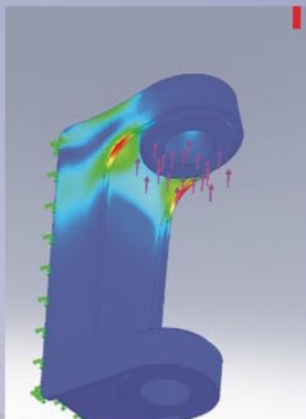
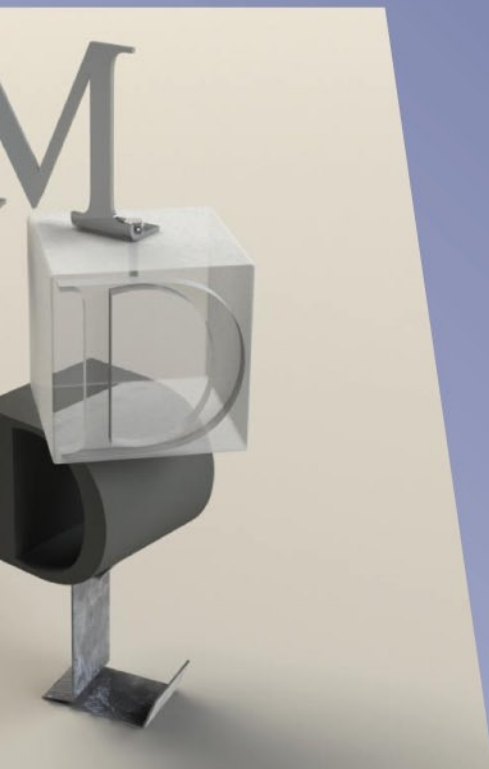
PROJECT:





### Services:

- \* 3D mechanical and machinery design
- \* 3D sheet metal folding, rolling, hemming calculations
- \* 3D industrial plant layouts
- \* Product research, design and development
- \* CFD flow analysis and simulation using SolidWorks Flow Simulation
- \* Whole or partial project management of installations
- \* Rendered 3D views of concept products, with cutaways/explodes etc
- \* 3D model animation movies
- \* Product sourcing
- \* Detailed mechanical drafting (in easily readable .PDF format)
- \* Exploded assembly drawings
- \* 3D virtual models in eDrawings/3D PDF that can be read on a computer without SolidWorks
- \* 2D parts files for profile cutting (.DXF)
- \* 3D parts files for CNC machining (.STEP/.IGES)
- \* Photo manipulation using Photoshop
- \* Assembly/operating instructions with pictures
- \* Integration of design with existing plant machinery
- \* Reverse engineering from existing products
- \* Rapid prototyping (3D printing)
- \* Machine rebuilds



17/  
11/  
DRAWN BY  
MATERIAL:  
STOCK SIZE:  
DRAWING NUMBER:  
MDDL

As Parts

FILE:

Technical  
23 Kit  
Telephone: 09 235 6084 International: +64 9 235 6  
Fax: 09 235 6084 Mobile: 021 0311 597  
Email: dean.mclean@ihug.co.nz  
Web: www.mddl.co.nz  
DEBUR & BREAK  
ALL SHARP EDGES  
NOTES:

SHEET  
2 OF 2

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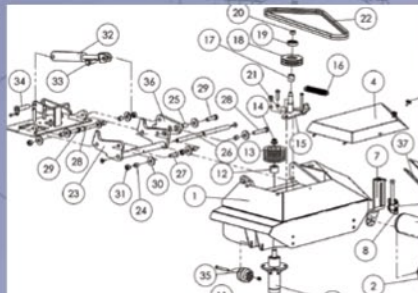
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Mechanical Design & Development Limited 23 Kitchener Rd Waiuku 2123, Auckland, New Zealand Telephone: 09 235 6095 International: +64 9 235 6095 Fax: 09 235 6094 Mobile: 021 0311 597 Email: <a href="mailto:dean.mclean@mddl.co.nz">dean.mclean@mddl.co.nz</a> Web: <a href="http://www.mddl.co.nz">www.mddl.co.nz</a>				Contents are Confidential & All Rights Reserved	
MDDL		Machine Surface 1:6		QUANTITY:	1
81 Added Counterbore For Knife Safety Stop		DATE		FINISH:	1
A1		DRAWN BY		TITLE:	Bottom Roller Mount Drive End
ORIGINAL ISSUE		MATERIAL		SCALE:	1:1.5
REVISION		A: Aetal C (White)		SHEET:	1 OF 1
TOLERANCES (SPECIFIC)		STOCK SIZE:			
DIMENSIONS ARE IN MILLIMETERS		0.00 0.05 0.10 0.20 0.50 1.00			
SURFACE FINISH		ALL SHARP EDGES			
TAP FOR M6x1.0 HELICOIL INSERT = 1.5 * Dia.					
4 x Ø 6.25 ± 0.12					