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Seifert Develops State-of-the Art Hydraulic Cylinder Load Cell System

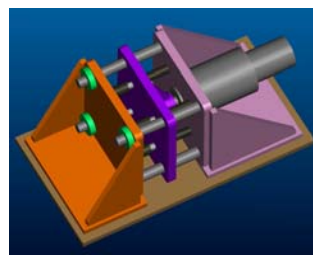
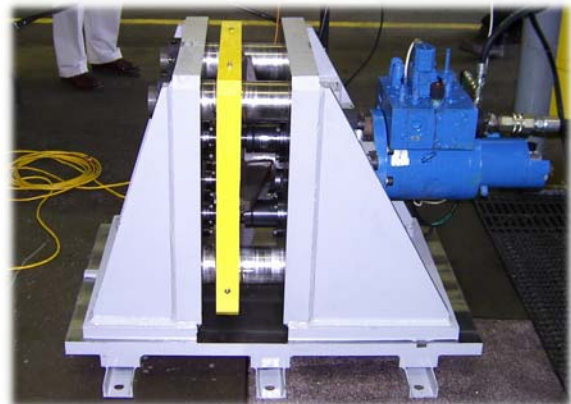
The engineers at Seifert Technologies were recently called on to develop a High Tonnage Oscillating Cylinder Test Stand. The patent pending testing device was developed jointly between a local hydraulic cylinder repair and manufacturing company and Seifert Technologies. An idea was presented to Seifert which required a device that was able to test oscillating hydraulic cylinders under working mill loads. The range of the forces were one hurdle to overcome as well as designing a robust structure to handle up to 40,000 pounds of force. Seifert's ability to apply state of the art CAD, Solid Modeling and FEA technology to this project environment allowed us to complete this task from concept, through design and into fabrication, and final installation.

At the idea stage, basic hand sketches and rudimentary 3D models were created to get a better understanding of the scope of the project. The 3D models were then used to refine the concept and a basic machine started to take shape. Starting the design work in 3D made the transition to the next step straightforward. The design was then analyzed by our Finite Element Analysis program (FEA), to check for high stress, deflections, and improve the reliability of the test stand. At this point we had a robust unit that could handle high forces. Then the question arose, how do we control the test pressure?

The challenge of creating an adjustable force curve was debated many different ways. Die springs were considered, but there was not enough force per movement. Coil springs of large wire diameter had plenty of movement, but not enough preload for short stroke applications. Gas springs were then considered; plenty of stroke, small package, and infinitely adjustable force. A nitrogen gas spring's force is proportionate to its gas charge; by adding a valve and regulator to the system, we are able to control the spring output. This condition allows us to apply the same force to the cylinder as it actually sees in the field.

All challenges addressed, the design was completed, and detail drawings were created. We then manufactured the system and integrated it into the end users plant controls and processes. The test stand is now in operation daily.

This is just one example of how our quality staff and state-of-the art software can help **Bring Your Ideas To Reality!**



The 3D Model simulated field conditions which allowed quantitative analysis and multiple design iterations. The system was improved through virtual prototyping.

Highlights of Projects which have Increased our Customers Competitiveness

Manufacturers are faced with many unique challenges in today's business world. Now more than ever, you must stay in a mode of continuous improvement to ensure future business success.

Lean Process Is a Proven Strategy

The first step in optimizing processes starts with an in depth analysis by our Business Consulting Team. These professionals have proven experience in identifying key performance indicators that are crucial to the success of your business. Once the path to improvement is identified, the implementation strategy can be charted.

Seifert Technologies has implemented several major cost reduction projects through "Lean Manufacturing". Our greatest successes have come from "The Process Flow Analysis". Beginning with the Kaison Team Meetings, manufacturing process changes have resulted in increased output and a significant reduction of both direct and indirect costs. This tool along with a "Kanban Analysis" has also been successful in Warehouse and Service Parts Packing Areas. "Fast Track Set-up" and 5-S programs were implemented in a company's cell processes, which reduced set-up time and tooling replacement costs. Each of these projects has resulted in savings ranging from \$40,000 to over \$500,000 in annual savings for small to mid sized companies.

Strategic Sourcing Broadens Vendor Base

The "Strategic Sourcing" Concept is a Make Vs Buy Analysis and was used to broaden a company's Vendor base, which resulted in major cost reductions. In another company, several Supplier "Make and Hold" Programs were implemented, which saved significant Warehouse space and extra material handling, where some materials are delivered only one day before they are needed. In these examples the material costs have been reduced as much as 35%.

Process Automation Increases Output

An analysis was made of a product being made on seven individual stamping and assembly stations. Through the use of Pick & Place handling systems and PLC controls, a single station was designed and built to replace the individual stations. This resulted in a pay-back of less than one year and 15% increase in output.

2004 Labor Budget

Revenue		Jan-04	Feb-04	Mar-04	Apr-04			
Days in the month		20	19	23	22			
		12.0%	18.6%	17.1%	15.3%			
2003 Sales		\$ 993,079	\$ 1,547,497	\$ 1,418,865	\$ 1,265,542			
2004 Sales	10%	\$ 1,092,387	\$ 1,702,247	\$ 1,560,752	\$ 1,392,096			
Forecast		\$ 860,000	\$ 800,000	\$ 900,000	\$ 850,000			
Direct Labor		30	20	0	0			
Temporari	\$ 7.84	\$ 37,632	\$ 25,088	\$ -	\$ -			
Plastics	3 \$	4,667	3 \$	4,434	1 \$	2,000	1 \$	1,913
General	0 \$	-	0 \$	-	3 \$	7,122	3 \$	6,813
Metal Form	43 \$	62,766	43 \$	59,628	52 \$	86,094	32 \$	50,677
Die Cutters	12 \$	28,189	12 \$	26,779	12 \$	29,865	12 \$	28,567
Assembly	9 \$	17,970	9 \$	17,071	11 \$	25,031	11 \$	23,943
Packers	31 \$	53,614	31 \$	50,934	31 \$	53,022	31 \$	50,717
Total Direct Labor	98 \$	204,838	98 \$	183,934	110 \$	203,135	90 \$	162,630
		23.8%		23.0%		22.6%	-20	19.1%
Indirect Labor								
Lead People	8 \$	26,042	8 \$	24,740	3 \$	7,839	3 \$	7,498
Service & MH	4 \$	8,262	4 \$	7,849	3 \$	6,553	3 \$	6,268
Tool Set-up	7 \$	17,840	7 \$	16,948				
Ship/Receive	5 \$	11,838	5 \$	11,246	2 \$	5,808	2 \$	5,555
Maintenance	4 \$	11,322	4 \$	10,756	5 \$	15,295	4 \$	11,704
Watchman	4 \$	4,862	4 \$	4,619	4 \$	5,520	4 \$	5,280
Custodian	3 \$	5,058	3 \$	4,805	2 \$	3,819	2 \$	3,653
Total Indirect Labor	35 \$	85,224	35 \$	80,963	19 \$	44,833	18 \$	39,958
		9.9%		10.1%		5.0%	-1	4.7%
Total	133 \$	290,062	133 \$	264,897	129 \$	247,968	108 \$	202,588
		33.7%		33.1%		27.6%	-21	23.8%
							-21	



Bob Sebald, Project Manager of Seifert Technologies, is facilitating a Kaizen Event for the feasibility of an automated packing line

Upcoming Tech Session

On 10/28/04 at 12:00 noon, join us for lunch and a Technical Session on the power and functionality of Solid Works software. CAD Venture, Inc. is a software solutions provider to our group and they will be participating in the session. Also, representatives from The Seifert Group will be on hand to discuss the Solid Works advantage in actual design settings. Contact Kevin Pierson at (330) 833-2700 Ext. 102 or pierson@seifert.com if you are interested in attending. Look for additional detailed information to be sent soon.





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