

# RB Royal Innovations

## Manufacturing Confidence

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## Prototyping for Success: Addressing the 3 F's of Prototyping

**By: Aric Hamburg**

A dictionary will define a prototype as “a first full-scale and usually functional form of a new type or design of a construction”. Humans have a fascination with invention and creativity and have been prototyping design ideas since the beginning of time. They have prototyped those design ideas to satisfy their need for understanding the fit, form and function that the idea will provide in its intended application. These are often times referred to as the “3 F's of Prototyping”.

With the advancements in technology over the past 20 years, rapid prototyping has become a popular buzz-phrase throughout the manufacturing world. There are a number of computer-aided processes that yield quick, tangible fit-up samples of all types of products that

historically would have taken months and large tooling expenditures to tool up and produce. Stereolithography and laser sintering are a few of the more common methods used to create a part shape out of a variety of wax, plastic and resin-based materials. The speed at which complex part shapes can be produced makes these forms or rapid prototyping desirable to designers and engineers with tight product development timelines.

However, these rapid prototyping techniques often times address only the fit and form aspects of the prototyping process and leave the functional requirement unaddressed. Most engineers will agree that if there was a cost effective way to get production representative prototype samples that

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addressed the functional requirement, the benefits would extend throughout the entire product development cycle.

Today there is a growing trend among manufacturers to streamline the prototyping process in order to increase their responsiveness to customers' needs. In the past, manufacturers would have to break into production schedules

and equipment in order to build a functional, production intent prototype for a customer. Manufacturers are looking for creative ways to avoid this expensive and inconvenient prototyping method. They are doing this in a number of ways, including creating dedicated equipment and floor space for the sole purpose of product development and prototyping. Customers and manufacturers both are realizing the benefits of making the effort to build functional, production intent prototypes.

Customers' marketing and styling departments enjoy being able to see exactly how the products look and feel while their technical staff has the ability to begin running the products through its testing and qualification regiment. The manufacturers enjoy the benefit of being

able to manufacture the product in a method similar to the way in which it will be manufactured in production. This allows them to forecast, predict and address any anticipated equipment and/or tooling issues prior to production validation.

It often times exposes the production operators to the new products and processes and helps to facilitate the communication that is needed to determine

the ideal method of manufacture. This method is proving to be another useful tool that can be used to assist in the Design for Manufacturing and Assembly (DFMA) effort.

There are certain types of products and manufacturing processes that are more receptive to this style of prototyping, but there will always be those certain types of products that are not economically feasible to prototype in this manner. Customers are looking to their suppliers to become extensions of their engineering departments so it is becoming increasingly important that the right questions are asked upfront in order to be aware of all prototyping options.

### The 3 F's of Prototyping

Fit

Form

Function



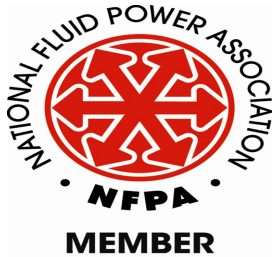
#### Lead Article Biography:

Aric Hamburg is a sales engineer for RB Royal. He has 11 years of engineering and technical experience in the industrial, marine and motorcycle markets, as well as product development knowledge in fluid transfer components, systems and solutions. Aric can be contacted at [ahamburg@rbroyal.com](mailto:ahamburg@rbroyal.com).

## RB Royal Participates in Funding of Fluid Power Research

The National Science Foundation (NSF) recently announced a \$15 million, five-year grant to support the new Engineering Research Center for Compact and Efficient Fluid Power. Industry partners will augment NSF funding with \$3 million, and seven universities involved in the center will contribute an additional \$3 million. The center will be based at the University of Minnesota-Twin Cities campus.

RB Royal Industries is one of 50 industry partners, all from within the NFPA (National Fluid Power Association), that have agreed to provide financial support for the research center.



Researchers at the center will study ways to use fluid power more efficiently in manufacturing, agriculture, construction and mining. Each 10 percent improvement in efficiency of current uses of fluid power in these industries will save about \$7 billion a year in U.S. energy costs.

Core universities involved in the center are the University of Minnesota-Twin Cities, University of Illinois at Urbana-Champaign, Georgia Institute of Technology, Purdue University and Vanderbilt University. Outreach universities include the Milwaukee School of Engineering and North Carolina A&T State University. Outreach institutions include the National Fluid Power Association, Project Lead the Way, and the Science Museum of Minnesota.

### Best of Class

Gardner-Denver Thomas of Sheboygan, WI has recognized RB Royal Industries as “Best of Class” in supplier recognition. This award is a result of receiving a cumulative 98.29 percent score on supplier performance ratings in 2005.

The category performance ratings RB Royal was evaluated on included: price, quality, delivery and service.

### New VP of Sales

RB Royal has hired Jim Maslowski as Vice President of Sales. Maslowski comes to RB Royal from Brookfield, WI based Centare Group, Ltd., where he was Vice President of Business Development for the past three and a half years. At Centare Group, he was responsible for all sales and marketing activities.



Maslowski is a graduate of the University of St. Thomas in St. Paul, Minnesota, and has over 15 years of sales and marketing experience.

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## **Fluid Power Expo**

### **Please Visit Our Booth**

Date: October 3 & 4, 2006

Booth Number: 26

Where: Crown Plaza City Centre, Cleveland, OH

**Come hear RB Royal's Aric Hamburg  
speak at this event:**

Topic: When to Use Tubes and When to Use  
Hose

Date: October 4, 2006

Time: 9am—10 am



## **Innovation Education**

Want to educate yourself and/or your engineering staff on fluid transfer systems?

We have the expertise to help you learn more about hose and tube in your applications. This one hour presentation has had proven success with several customers that have attended.

Contact us to schedule a time to hear the presentation at your facility. Appointments can be made by calling 800-892-1550.