

# Finding Value

## Leading Car Wash Manufacturer Finds Value in Hose and Tube Design

In the spring of 2000, PDQ Manufacturing, an expert in vehicle wash systems, rolled out the greatest advancement in vehicle wash equipment to date, the LaserWash® G5. The LaserWash G5 was developed in response to changing environmental and business climates which necessitated a focus on energy efficiency, protecting the environment, and reduced operating costs.



**Q** Why was RB Royal the best partner for your project?

**A** PDQ initially began this project by looking for a new company to source existing hoses used on the LaserWash G5. RB Royal's expertise in hose and tube design was well-suited for PDQ. At the onset of the project, RB Royal's team immediately offered ways to improve the overall design.

As the project evolved, the collaborative effort between RB Royal and PDQ engineers led to opportunities to eliminate items in the assembly and combine their function. The end result enhanced the overall product reliability and reduced cost.

**Q** What RB Royal strengths did PDQ utilize for the LaserWash G5 design?

**A** RB Royal's responsiveness, flexibility, and willingness to work through the sometimes lengthy design process set them apart. The team's high level of design expertise and its ability to develop a solution optimizing cost, function, and productivity, added to the already high level of customer service.

RB Royal's Product Development Center allowed them to mock up the design on an actual machine and work out many issues that might not have been addressed until far later in the design process where they are more difficult and costly to correct.

### Q What was the value of the hose and tube redesign process?

A Changes to the LaserWash G5 system resulted in a 47 percent reduction in the number of potential leak points versus the original design. It eliminated hose lines near moving parts that were potential interference and wear problems. The redesigned custom tube assemblies alleviated potential downtime for repair. The machine runs more consistently at peak performance levels.

The design process was very collaborative between PDQ and RB Royal. The expertise of RB Royal, coupled with the application knowledge of PDQ led to an efficient design process with minimal reworks and changes in direction. The efficient design process led to zero redesigns after production implementation.

### Q How did Lean Manufacturing principles affect the project?

A RB Royal developed a parts kitting scheme that supports their component production in an efficient manner, while making PDQ's inventory control and assembly process efficient with minimal waste. PDQ and RB Royal have also established a system of Cell Managed Inventory to further reduce waste. Overall, these Lean methods have allowed PDQ to manage high-dollar inventory items better. RB Royal has been very flexible in this process and has evolved as a partner, creating a synergy between companies.

### Q How did RB Royal innovation transform the LaserWash G5 design?

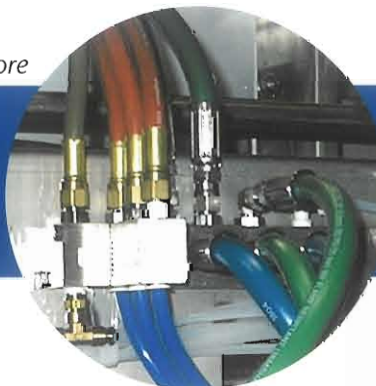
A RB Royal used a very "out-of-the-box" thought process during design brainstorming. The team focused on adding hard tubing in moving part areas, integrating hoses to provide flexibility in fluid lines for easy installation, optimizing the design to reduce the unique parts, and maintaining a high level of corrosion resistance.

RB Royal suggested solutions that were not offered by suppliers of similar products. In cases where techniques were new to RB Royal, they stepped outside their normal lines and were willing to experiment and develop capabilities that allowed them to meet the needs of PDQ.

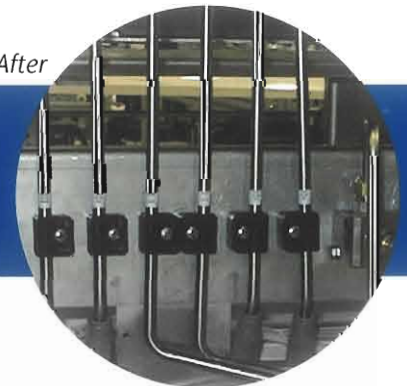
### Q How did a partnership with RB Royal benefit PDQ?

A RB Royal and PDQ established an efficient working relationship during the design and production stages. PDQ experienced the smooth communication stream and the responsiveness RB Royal offers to their customers. Having a partnership where both companies are on the forefront of Lean Manufacturing helps the companies to grow together in this area through idea exchange. RB Royal lowered the material, warranty and labor costs, increased product quality and offered on-time delivery.

Before



After



Experts in Hose and Tube  
Design and Application