



# SOLUTIONS

PIECING IT TOGETHER FOR YOU

## THE CUSTOMER

A Global Medical Device Manufacturer  
Specializing in Disposable Syringes

## THE EQUIPMENT

RC200 Radial Coat Valve  
PVA10G Pressure Tank



## THE CHALLENGE



### A Unique Application

A low viscosity medical grade silicone lubricant needed to be applied to the inside walls of a syringe prior to inserting a mechanical plunger. To ensure smooth movement of the piston once it was assembled, even coverage must be applied around the inside diameter.

In addition, the fluid delivery and dispense system must be integrated into a much larger automated assembly machine that will coat 10 syringes, mounted at 3/4" center to center spacing, simultaneously.

### Current Process: Needs Innovation

The conventional method to apply this lubricant was a standard spray valve that utilized atomizing air in order to break up the fluid and transfer it to the inside walls of the syringe barrel. However, this setup had some flaws.

The first problem was the size of the spray valves. Off the shelf spray heads were traditionally much wider than 3/4" making it difficult to mount multiple valve heads within close proximity.

Uniformity of application was another issue. Because the coating was atomized directly into the top of the syringe, the coating was applied thicker at the top, then tapered down in volume, and eventually settled at the bottom.

Finally, when using a standard spray valve, a burst of atomizing air is used to break up the silicone lubricant and spray it into the syringe barrel. During this process the burst causes air to exit the syringe barrel, allowing a small amount of lubricant to mist out of the product during each cycle. Over time this silicone builds up inside the coating process station.

## THE SOLUTION

### RADIAL COAT VALVE FOR EVENLY DISTRIBUTING FLUID INSIDE CYLINDERS

A system was needed that could not only mount multiple coating heads on a 3/4" center, but also apply the coating directly to the sidewalls of the syringe barrel with as little overspray as possible.

For this system, ten RC200 Radial Coat Valves were mounted side by side on 3/4" centers inside the coating process station of the assembly machine. This valve uses an air motor to spin a custom designed nozzle that can be inserted directly into the syringe barrel and rotated at high speeds to apply the lubricant to the side walls. Since the dispense orifice is located on the side of the nozzle at a 90° angle, the lubricant can be applied horizontally, at full volume, directly to the tube wall where the nozzle was positioned. This new process also eliminated coating that could fall to lower areas of the syringe.



With the use of centrifugal force to transfer the silicone lubricant to the inside walls of the syringe, there is no longer a burst of atomizing air into the syringe. This dramatically reduces the amount of silicone mist that gets generated and sent into the air around the coating station to maintain a much cleaner process area.

By using this new valve technology, the customer was able to accurately apply the lubricant to specific areas of the syringe, creating a higher quality product and reducing material waste. They also found they could maintain a much cleaner work environment, and reduce the necessary work area.

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