May 2007

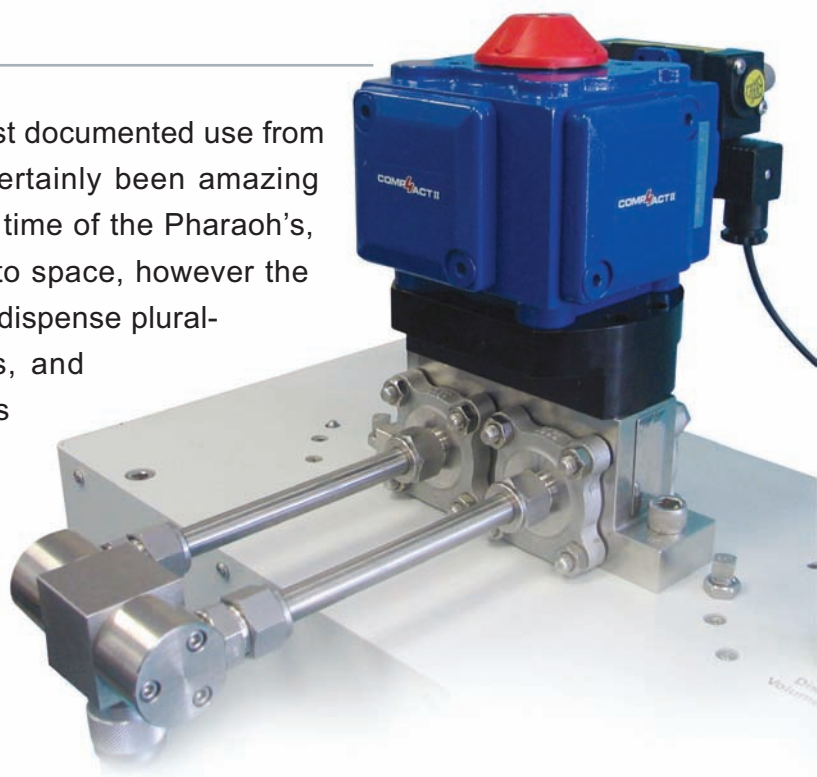
HABONIM Industrial Valves & Actuators

INNOVATIVE SOLUTIONS

Solving Sticky Engineering Problems

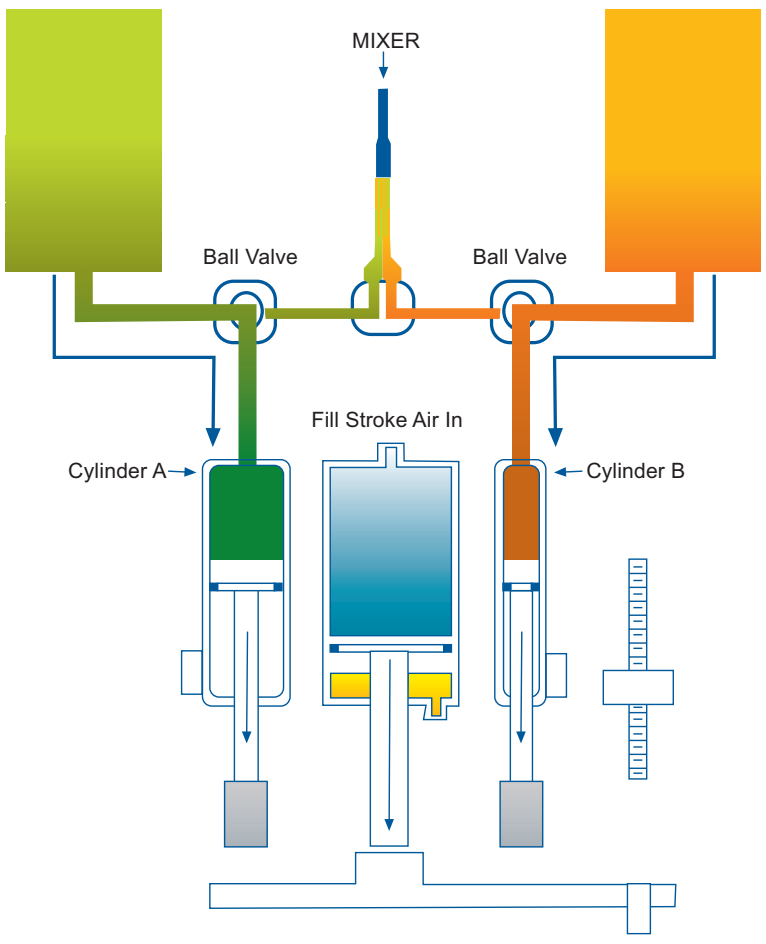
Scope

Glue has been around for a long time; with the first documented use from about 4,000 years ago in Egypt. There have certainly been amazing advancements in adhesive technology since the time of the Pharaoh's, from repairing the human body to blasting-off into space, however the machines designed to accurately meter, mix and dispense plural-component resins such as epoxies, urethanes, and silicones present challenges that even the experts find hard to tackle. Tridak (A Division of Indicon Inc.) leading manufacturers of standard and custom dispensing equipment contracted Habonim to help them solve some sticky engineering problems.



Problem Description

Standard piston-driven metering machines using actuated ball valves to divert material in and out of metering cylinders were not adequate to deal with higher flow rates, and stringent mixing parameters demanded by a top-name manufacturer of super-sealants.

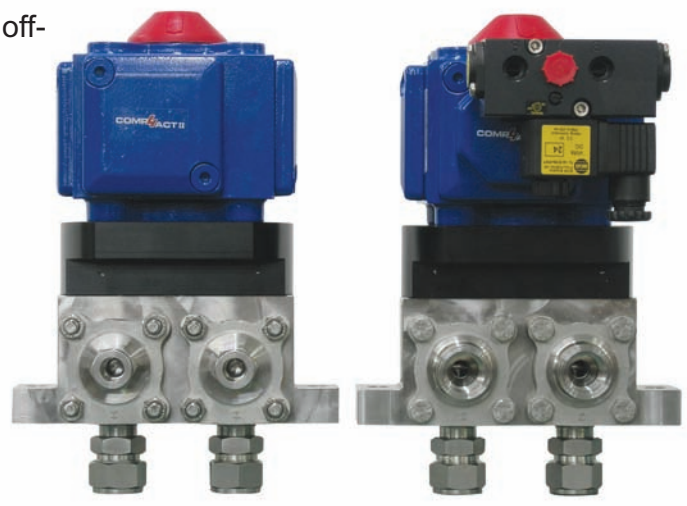


Because of the nature of complex bonding agents, extreme precision in flow consistency, volume and speed of the rationed material is crucial during the mixing and dispensing process. It is imperative to reduce the amount of linear travel (and wear) of materials during manufacturing and improve the actual mixing techniques in order to:

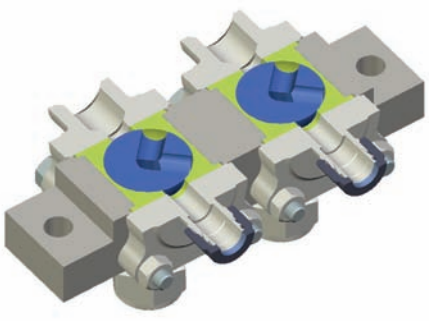
1. Eliminate blockage and air pockets in the piping conveying the material.
2. Eliminate cross-contamination while mixing from residue or backed-up material.
3. Preserve viscosity of the materials.
4. Allow more precise, variable ratio capability and quicker ratio changes.
5. Reduce system maintenance and line stoppage.

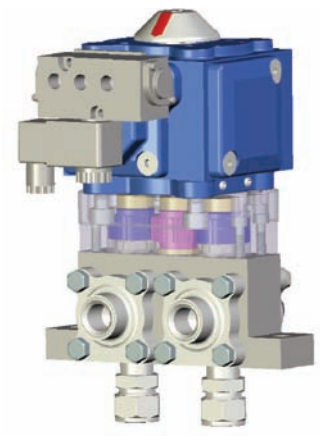
Solution offered

Habonim worked with Tridak, to reengineer one of their off-the-shelf dispensing units with ingenious results. Two valves were integrated into one body, with the internal ball configured to allow connectivity directly into the dispensing cylinders; getting rid of superfluous lengths of piping and fittings.



Habonim created seats to keep dead volume in the valve to an absolute minimum, and using a standard 90° rotation actuator instead of 180°, eliminating the need for larger actuators and longer cycle times. A geared mechanism built for harsh conditions such as high cycle operation was direct mounted to both valve stems and driven by a single actuator to allow more accurate rotation with no backlash.

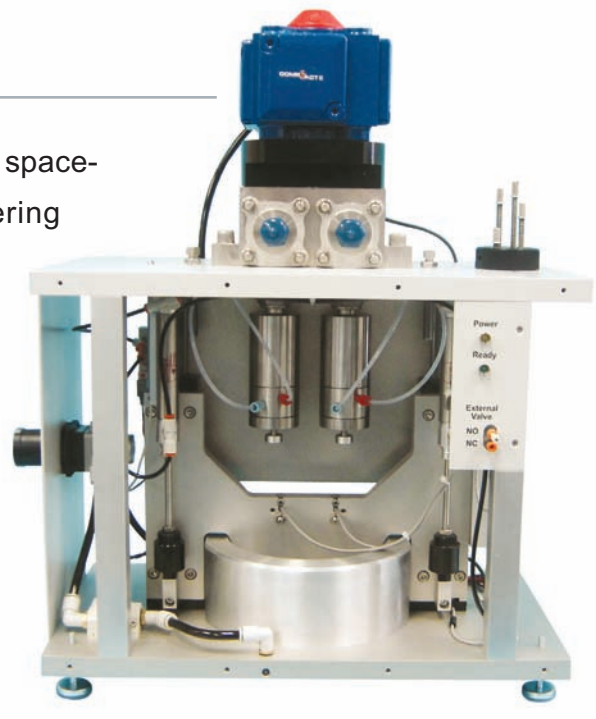




However the most elegant engineering solution by far was Habonim's unique ball configuration; an oversized outside diameter and dramatically smaller port holes to virtually eliminate cross contamination while functioning within a 90° rotation. All parts were precisely machined to fit seamlessly with Tridak's existing equipment.

Outcome

Habonim provided Tridak with a truly innovative cost-efficient, space-saving valve assembly solution that answered all engineering specifications. Although the companies were on different continents, no time was wasted in getting the project up and running smoothly, accomplished entirely through straightforward e-mail communication.



With the help of Habonim's engineering know-how, Tridak easily adapted their existing equipment to respond to their customer's demands, instead of shouldering the burden of designing and building completely new units.