



CASE STUDY 20060112R

uni-Roller™ Cleans Up Roll Forming Operation - Higher Volumes No Problem

One hurricane storm panel manufacturer was sure that the uni-Roller would help clean up an excess fluid problem in the operation, which was causing customer complaints. But when the last two hurricane seasons, coupled with record construction sales in the southeast, created a new set of production demands, it became necessary to upgrade the original solution.

- Application:** Roll Forming of unpainted and pre-painted aluminum for production of hurricane storm shutters.
- Previous Solution:** OEM Spray system on roll former tooling and material during forming progression – vanishing oil with a paraffin additive.
- Problem:** Using too much fluid. Uneven fluid coverage on material, causing occasional galling. Excess Fluid on the finished material stacked for shipment was causing customer complaints. Excess fluid on floor and material was also causing safety issues for stock handlers as they were filling orders.
- Unist Solution:** Initially - uni-Roller standard systems with cam operated lubricant pumps fit all of the necessary requirements.
- Changing business conditions then caused this facility to modify the UNIST solution they were using after a little more than a year in service. The upgrade consisted of changing to the SPR 2000 Controller with 4 outputs and the air assisted pump for supplying the SPR System from a drum.
- The Story:** Where the roll forming process is concerned, the company is a dedicated “make to order” shop for

hurricane storm panels, a business area begun only a few years ago. Contractors and distributors order direct to specification in terms of length, and number of panels. The 24" aluminum stock is formed and cut to length at an average of 40 fpm. Lead times vary depending on business volumes, but quick turnaround is important as orders are usually picked up and taken directly to the job site. Fluid had been the source of at least two quality related problems for this company, and one safety issue. Fluid cost was not even a principal consideration.

A vanishing fluid with a paraffin additive was sprayed onto the panels and tooling during the forming process. However, because spraying was uneven and difficult to control, there was occasional galling in some areas of the finished panel, while in other areas there was excess fluid. The excess fluid would not completely evaporate by the time the panels were cut to length and stacked at the end of the line. Customer complaints were numerous because of the poor appearance caused to the surface of the panels by the galling, and because panels stuck together and even sometimes leaked out the excess fluid.

The company purchased two uni-Roller RL 23's; each to be used on one of the lines in service. They selected the standard systems with the cam-operated pumps, which were more than adequate for the number of hours per day running and the 40 fpm feed rate for the material. They immediately noticed a drastic reduction in fluid. Prior to installing the uni-Roller, they had been using 1 to 1.5 totes per week, even though they gathered excess fluid in a sump located on each roll former. Now, because of the fluid savings provided by the uni-Roller, the same 1 to 1.5 totes always lasted them two weeks, and depending on their sales volumes, sometimes lasted as long as a month.

The even fluid coverage of the uni-Roller resolved the customer problems as there was no longer excess fluid on the finished panels – i.e. the vanishing fluid actually vanished now, because it was applied evenly and in the correct amounts. The even fluid coverage also eliminated the galling, and the company was able

to form either painted or unpainted material without concern as to finished part quality.

Additional results of the project included elimination of the safety concerns, reduced maintenance, and the end of the fluid recycling process for the manufacturer. It also included a pleasant change in the air quality around the roll former, which received many positive comments from the operators and stock handlers. There had previously been a constant mist in the air from the spray of the fluid, which added to the mess around the machine, and irritated the breathing of those working around the roll forming line. Now the air was free of any mist, the machines rarely have to be cleaned, and there is no excess fluid on the floor at all.

There was one unanticipated factor that had to be dealt with to make the project completely successful. When the two RL 23's were originally purchased, the facility was running two roll formers during one shift, and preparing to install a third line which was eventually retrofitted with another RL 23 with cam-driven pumps. Within a year after installing the third system, (two years after the initial project began), the operation went from one to three shifts, and began to build a fourth roll former to satisfy growing business demands. They increased the average speed to about 60 fpm, but sometimes ran at 80-100 fpm. This new speed and volume proved to be too much for the original uni-roller configurations provided by UNIST. The pumps were beginning to require rebuilding on a monthly basis due to leakage resulting from the high volume of activity.

During the last half of 2005, the company upgraded delivery systems by purchasing two UNIST SPR 2000 programmable controllers to take the place of the cam-operated pumps on the highest volume systems. Since the company had been drawing fluid directly out of the totes for the pumps, they also purchased the ARPUMP – an air assisted system to draw fluid directly from a drum, instead of using a reservoir tank. Soon the SPR 2000 will be added to the third roll former, and when the fourth is completed, it will also utilize the SPR 2000 and the ARPUMP. Now that the

new systems are in place, there have been no reported problems with speeds or volumes, and fluid reduction has actually been greater with the SPR 2000 than with the cam-driven pumps.