



CASE STUDY 20060706R

Increase Tank Pressure for Drawing Success

Automotive Stamper Maintains Fluid Thickness

It is important to do everything correctly behind the scenes to achieve just the right flow rate and fluid thickness for a particular application. By increasing the supply tank pressure, an automotive manufacturer was able to get the coverage needed for an entire progressive die, and still only lubricate once.

Application:	Drawing of 3/8" thickness coil into a rectangular bowl.
Problem:	Maintaining enough fluid on the material for the part to complete the entire die progression.
Previous Solution:	10 gallon open top pan with a nozzle welded to the bottom. Drip / Flow onto a flat bar draped with towels.
Unist Solution:	Initial Setup: uni-Roller – RL 12 with SPR 2000 3 Gallon Stainless Tank. Upgrade: 6 gallon steel tank (To support 80psi)

The Story: Since the part is a deep draw with thick material, a progressive die is used to complete the draw. It is necessary to have fluid on the stock / die during the entire progression. The company uses a water soluble fluid but they used it "neat" in order to achieve maximum die protection and part quality.

Fluid was formerly applied to the part using a flat bar draped with shop towels which slid along the coil and pushed the fluid around. The fluid was dripped onto the material from a ten gallon open top pan with a nozzle welded to the bottom. The operators could adjust the nozzle to control the fluid flow. Frequently the fluid would be allowed to flow past the saturation point of the rags, which caused unnecessary mess in

to the areas around the press. Another problem was that the operators would sometimes forget to turn the nozzle off at breaks, lunch, and other interruptions. Not only did the flow of extra fluid cause a housekeeping and safety issue, but the additional consumption that was required for this kind of oversight was always very costly.

The uni-Roller was an obvious solution to control the distribution of the fluid, since the internally fed roller always provides an even consistent fluid distribution that can be maintained throughout the forming progression. The SPR 2000 Programmable Controller permitted the fluid to be dispensed in the precise amounts required, without the former problems of excess in unwanted places. Since the controller is wired to the press signal, fluid is only dispensed when the material is being formed, so there is no need to manually turn fluid control on and off.

The SPR 2000 is a low pressure fluid delivery system, with a normal maximum air pressure range of about 40psi in the tank. This proved to be too little pressure for moving the viscous neat fluid in the quantities needed for the application. A higher pressure tank (an option available from UNIST in 3 different sizes) was installed to achieve the desired fluid thickness. After testing, the tank pressure was regulated to 80psi which enabled the thick fluid to flow at the necessary flow rate of 300ml per minute.

Following the installation of this tank, the company also experimented with applying slightly more fluid, but diluting the fluid with water at a 1:1 ratio.

The Results:

On this single application:

Fluid Consumption was reduced by 50%.
Annualized Cost Savings: \$68,640.00.

Waste disposal was dramatically reduced.
Housekeeping improved in all aspects.

The customer was able to show the improvements as part of their ISO 14001 obligations.