CASE STUDY 20070918S

LUBE LESS – BEND MORE

Application:	Mandrel Tube Bending
Materials:	Steel, Aluminum, Stainless, Brass, Bronze
Dimensions:	1”to 2” OD 1”to 12”Bend Radii
Machine Type:	Bending Machine, Manual Indexing
Lubrication Process:	Hand lubrication. Buckets and Brushes used to apply a thick lubricant with viscosity similar to grease.
Part Volume:	40,000-60,000 parts per year
Problem:	Too much lubricant staying on the finished parts following the mandrel bending process. Although the bending is followed by a wash process, some parts still required extensive hand cleaning to meet customer requirements. Others were stored in inventory still containing the excess lube. The lube was also contributing to additional problems such as part galling and excess lube on the machine.
UNIST Solution:	Two UNIST 3 drop injector pumps mounted together to fire simultaneously connected to one outlet line. The outlet line is brought down through the mandrel pushrod via a hole drilled in the pushrod, and is threaded onto the end of the mandrel. Orifices are machined into the mandrel uniformly. The pumps are actuated by a solenoid valve connected to the machine signal. Fluid is only applied when the machine is making a bend, but flows throughout the entire bend.

Results:

Only a small amount of lubricant now remains on the finished part. Aluminum and stainless are cleaned completely in the washing process. Only occasional hand cleaning is required on the steel.

70% reduction in quantity of lubricant used.

30% reduction in overall lubrication cost.*

*The company now uses a higher quality lubricant which is more expensive to purchase, but still maintains a reduction in cost due to the significant reductions in quantity.

Additionally, a ball dressing previously necessary to maintain the mandrel is no longer required. Cleanup around the machine has been nearly eliminated and the operators no longer need to always be exposed to lubricant.