

# AccuLiner™

Compound End Lining System

Accurate, repeatable compound dispensing for material savings and reduced downtime in end lining and closure operations.

## Features and Benefits

- **Constant temperature control within the compound by +/- 2°F, resulting in stable and consistent material viscosity.**
- **Consistent, repeatable compound application for reduced material usage and better product quality.**
- **Significant reduction in process variability for better control of operations.**
- **Works with the Acculiner compound gun for optimum performance.**
- **Fully-integrated system and compact size for easy installation and maintenance.**

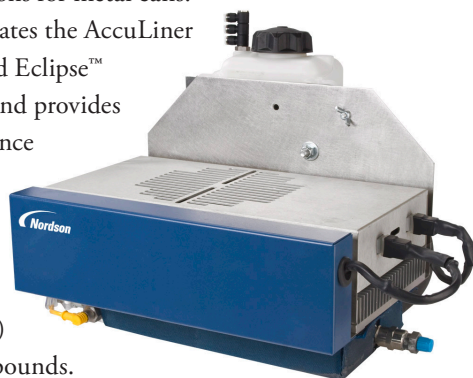


Acculiner Compound Gun with HX Manifold

The Nordson AccuLiner Compound End Lining System provides precision and accuracy in end-lining compound applications for metal cans.

The system incorporates the AccuLiner Compound Gun and Eclipse™ EPC-15 controller, and provides maximum performance especially when used with the AccuLiner Temperature Control Unit (TCU) for waterborne compounds.

As an integrated solution, the AccuLiner system provides:



Acculiner Temperature Control Unit

- **Better shot-to-shot performance with less variation in applied weight** – providing material savings, quality improvement and fast return on investment.
- **Enhanced process control** – consistent output pressure through the gun eliminates pressure drifts or spikes.
- **Longer service life** – resulting from durable, high-performance seals, special needle and stainless steel nozzles.
- **Constant temperature control of the compound by +/-2° F (with the AccuLiner TCU)** – ensures steady material viscosity, taking accuracy and repeatability to a higher level.
- **Single- or dual-gun configuration** – compact size provides easy installation and minimizes space requirements.



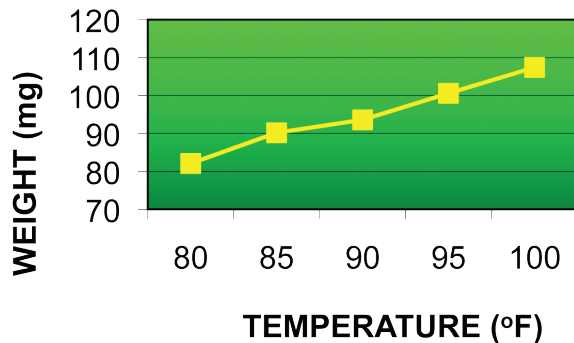
## AccuLiner Temperature Control Unit

Designed for the application of waterborne materials, the AccuLiner TCU is at the heart of the Nordson compound end lining system. The AccuLiner TCU – which can accommodate single- or dual-channel gun configurations – controls the temperature of the end lining compound material by  $\pm 2^{\circ}\text{F}$ . As a result, you can achieve:

- **Significant reduction in weight variances** for improved cPk values
- **Reduced material waste**, lower operating costs and better product quality
- **Easy set-up**, maintenance and operation

## Consistent Temperatures Yield Higher Efficiency

During can end manufacturing, compound material weights can increase as the ambient temperature increases. Tests have shown that a  $1^{\circ}\text{F}$  change in temperature results in a 1.2mg change in weight. Thus, if temperature increases  $10^{\circ}\text{F}$ , the applied compound weight could increase as much as 12mg.

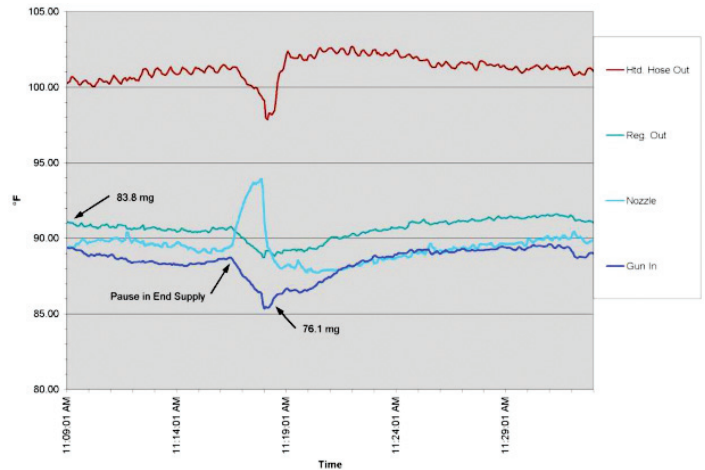


Such weight increases cause material waste and higher operating costs. Also, at the higher material temperatures, the compound has a tendency to sling out into the curl further, resulting in placement issues. Excess weights can also cause blistering during the drying process.

The AccuLiner TCU uses proprietary coaxial hoses to heat or cool the material. These hoses use liquid heat transfer media (glycol) circulating within isolated, internal tubing to closely control the temperature of the compound within the hydraulic system. The TCU's thermo-electric unit includes a small, low pressure pump to deliver the transfer media and provide temperature control where it is most needed – at the point of application. The temperature is controlled based upon feedback from a sensor strategically located within the hydraulic path.

## Reduce Sealant Weight Variations up to 15 Percent

Research shows that compound lining operations not using the AccuLiner TCU have applied weights that vary as much as 15 percent. These temperature changes occurred over a 24 hour period, day to night (and day to day). They also occurred when the guns were idle, with the temperature of compound at the nozzle actually increasing approximately  $5^{\circ}\text{F}$ . This fluctuation was due to residual heat within the gun caused by friction from the needle moving through the seals..



In this example (without the AccuLiner TCU), the compound lining machine ran continuously for more than 90 minutes, then paused. Friction from the gun needle moving in the seals drove the nozzle temperature up by nearly  $5^{\circ}\text{F}$ . When the lining operation resumed operation, fresh compound being sent to the gun pulled the nozzle temperature back down, actually overshooting the original temperature (because of ambient cooling upstream), before coming back up and stabilizing.

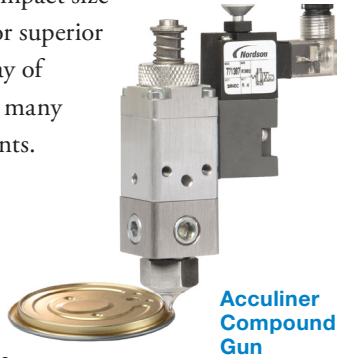
Though the pause was less than 90 seconds in duration, the disturbance lasted nearly 8 minutes. At production rates as low as 250 ends per minute, this is equivalent to 2000 ends being made with the process not in control.



Temperature Control Panel

## AccuLiner Compound Gun

The AccuLiner TCU provides optimum performance when used with the AccuLiner Compound Gun. The electro-pneumatic gun provides precise cut-off and adjustable flow control for accurate material deposition and consistency, shot-to-shot. Its compact size enables efficient heat transfer for superior temperature control. A full array of nozzle sizes is available to meet many different application requirements.



Other features include:

- **Fast air-powered opening and closing** delivers accurate, repeatable application with clean cutoff.
- **Variety of nozzle sizes available**, ranging from 0.4 to 1.5 mm
- **Tapered, concave nozzle design** ensures precise placement of material
- **Integrated needle stroke adjustment** to achieve optimum material deposition
- **Pre-mounted solenoid** provides superior open-close performance
- **Easy-to-install** onto compound lining machines
- **Fast and easy to maintain**
- **Corrosion-resistant parts** compatible with waterborne compounds

## Eclipse™ (EPC-15) Controller

This production-proven timer/driver technology uses time-based pattern placement for precise timing in a selectable range of 1 to 1000 milliseconds. It can be configured to operate single- or dual-gun configurations and is easily integrated with the AccuLiner TCU.

Other features include:

- Simple, easy-to-use operator interface
- Compact size, easy to mount/install
- CE approved

## Technical Specifications

AccuLiner TCU	
<b>Voltage</b>	100-240VAC
<b>Current</b>	5A – 2.5A
<b>Frequency</b>	50-60Hz
<b>Thermal Capacity</b>	600 BTUH @ 77°F (25°C)
<b>Control Temperature Range</b>	65°F - 120°F (18°C - 49°C)
<b>Ambient Temperature Range</b>	50°F – 105°F (10°C - 40°C)
<b>Thermal Fluid</b>	Propylene Glycol
<b>TE Module</b>	16" (40cm) L x 14.5" (37cm) W x 12.5" (32cm) H / 31 lbs (14Kg)
<b>Panel</b>	16" (40cm) W x 16" (51cm) H x 10" (25cm) D / 45 lbs (20Kg)

AccuLiner Gun	
<b>Working Hydraulic Pressure</b>	0 – 35 bar (0 to 500 psi)
<b>Maximum Hydraulic Pressure</b>	35 bar (500 psi)
<b>Operating Air Pressure</b>	4 – 6 bar (57 - 88 psi)
<b>Minimum Cycle Time*</b>	13.3 ms
<b>Nozzle Diameter Range</b>	0.6, 0.7, 0.8, and 1.0 mm (0.024, 0.024, 0.031, and 0.039 in.)
<b>Connection Fitting</b>	½-20 UNF
<b>Electrical Service 24 VDC</b>	Weight 0.4 kg (0.88 kg)

\* Cycle time based on a material viscosity of 900 centipoise. Actual cycle time will vary depending on material viscosity and characteristics.

## Eclipse™ EPC-15 Controller

Standard Specifications for EPC-15	
Pattern Control System	EPC-15
Pattern Accuracy (max. line speed)	±1msec
Program Memory	up to 25
Independent Gun Outputs	4
Independent Trigger Inputs	3
Enclosure Rating	IP54
Input/Output	3 programmable inputs

Main Control Unit	
Input Voltage Requirement	12-30 VDC
Voltage/Amperage per Output <sup>3</sup>	24 VDC/1.10 A

Trigger	
Required Supply Voltage/Current	18-30 VDC/150 mA max.
Type	Retro-reflective or diffuse reflective
Output Type	NPN transistor
Output Load Current	20 mA
Enclosure Rating	IP54

External Power Supply	
Input Voltage	100-240 VAC (universal)
Input AC Frequency	47-63 Hz
Output Voltage	24 VDC
Max. Output Current	2.5 amps

\* Cycle time based on a material viscosity of 900 centipoise. Actual cycle time will vary depending on material viscosity and characteristics.

For more information, speak with your Nordson representative or contact your Nordson regional office.

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