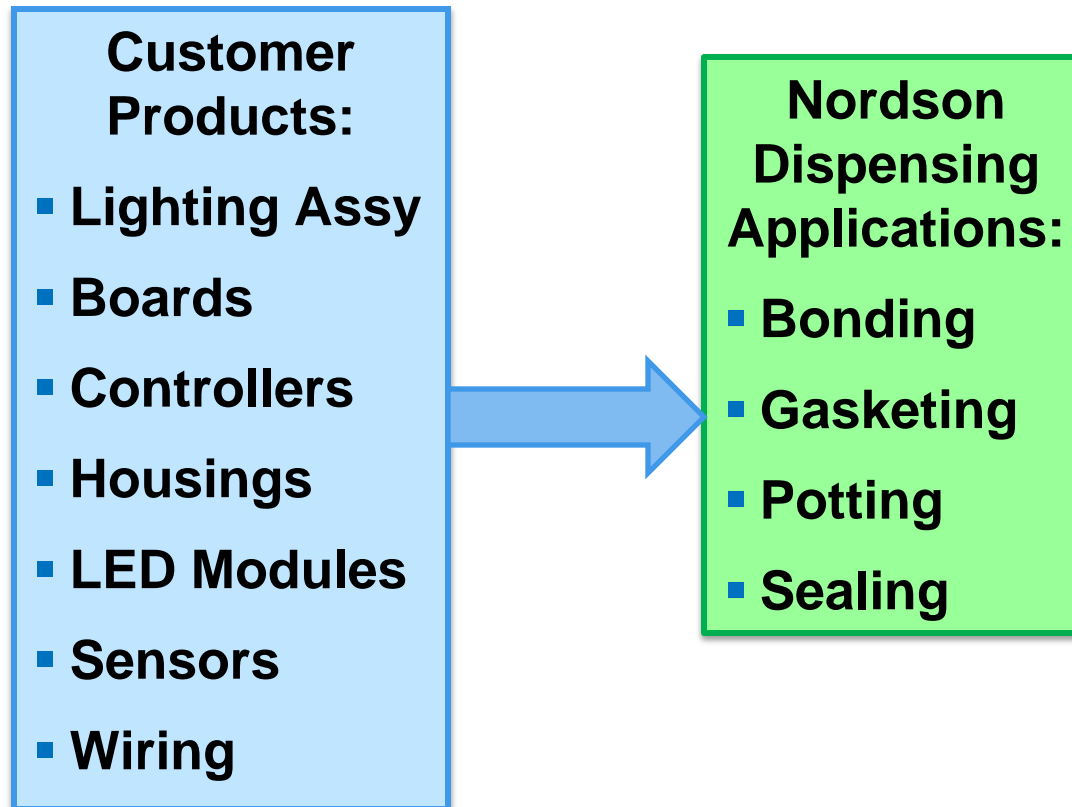


# Lighting and LED

## Application Examples

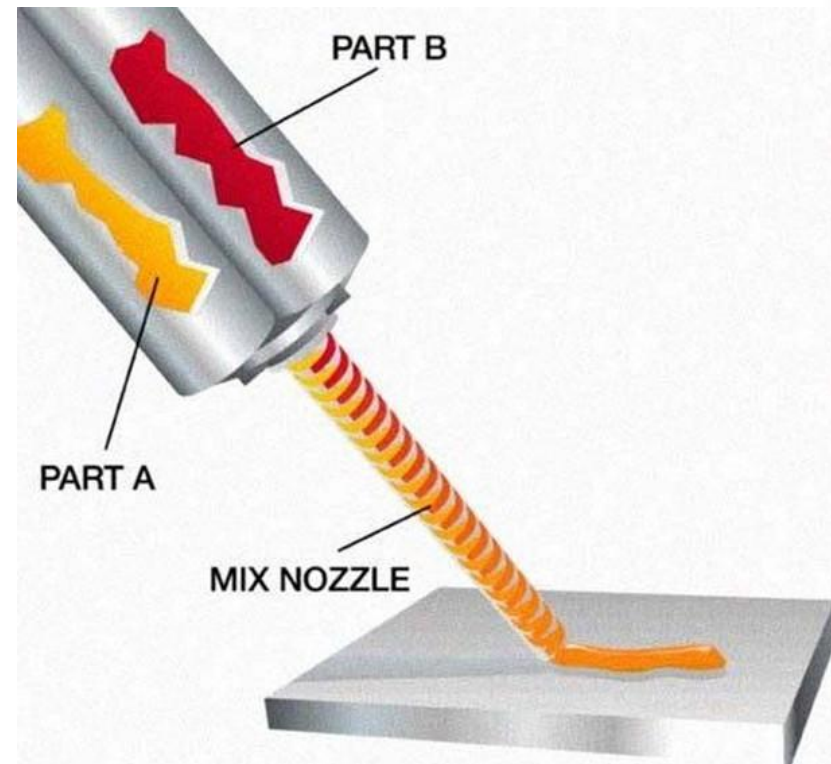
# Lighting and LED Products and Applications



# Materials for Lighting Assembly

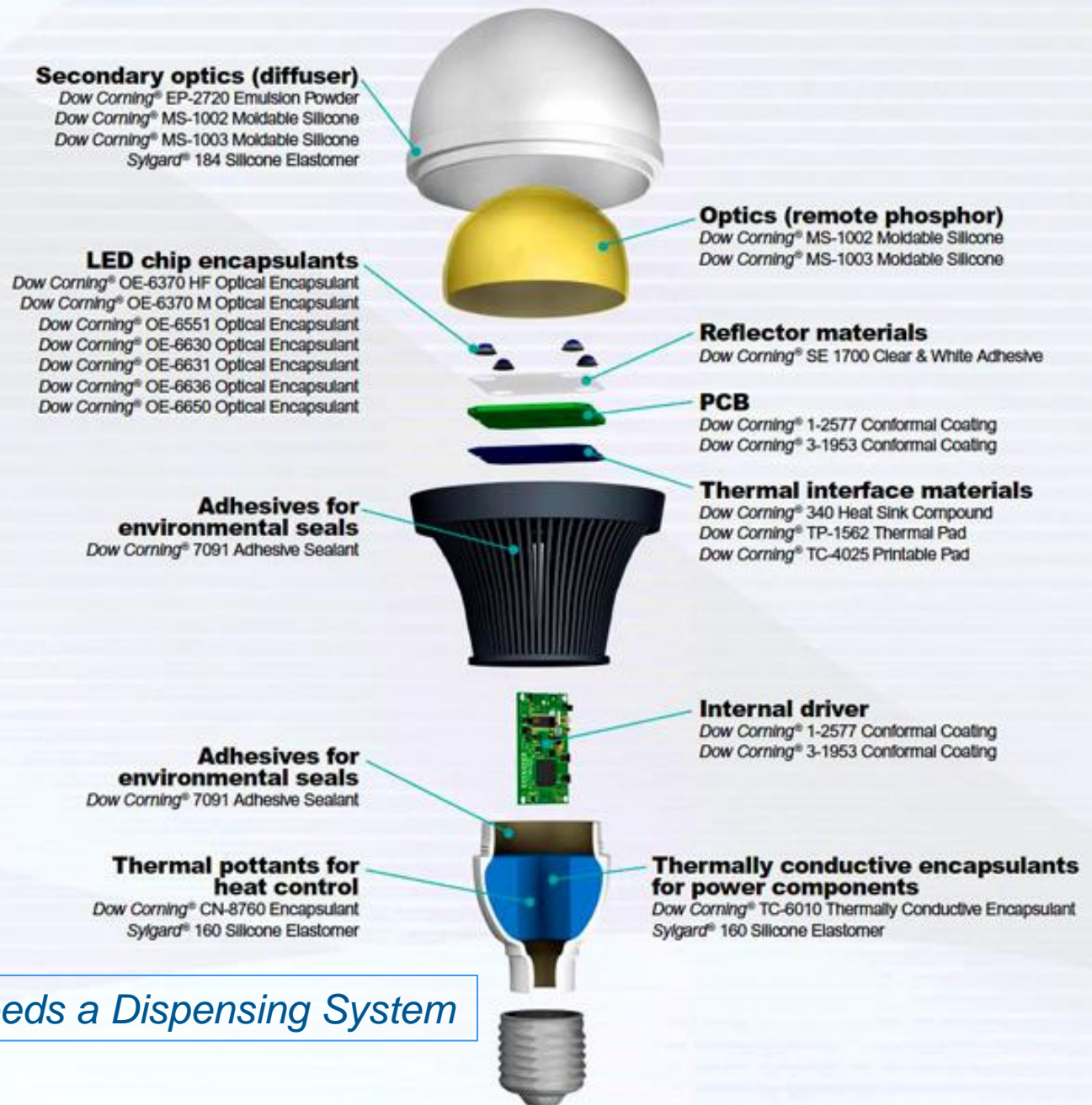
## Materials used in Lighting Assembly Processes:

- **1K RTV Silicones**
  - Sealing, Gasketing, Bonding
- **2K Silicones**
  - Potting, Encapsulating, Gasketing
- **2K Epoxies**
  - Potting, Encapsulating
- **2K Polyurethanes**
  - Potting, Encapsulating
- **2K Thermal Gels**
  - Heat Transfer



Supplied in Cartridges, Pails and Drums

# Lighting Adhesives and Sealants Using Dow Corning Silicones



*Each Application Needs a Dispensing System*

# Lighting Products

Potting

Bonding

Bonding

Potting

Potting



Potting and Bonding



# Previous Customers

- Lumini
- Tectronics
- Varroc Lighting
- Grote Industries
- AeroLEDs
- MagLite
- QD Vision
- GVA Lighting
- Cree Inc.
- Truck-Lite
- Edison-Price



# Lighting Case Study – ADB Airfield

- Application: Encapsulate Runway Light Electronics
- Production Rate: 200 to 500 Units per Day
- Type of Dispense: Manual Dispense, Operator Visual Fill
- Volume Required per Dispense: 118 cc up to 600 cc per Part
- Total Dispense Time: 5 sec to 15 sec based on Part Volume
- Total Cycle Time: 10-20 seconds, based on Part Volume
- Metering Principle: Continuous Flow
- Equipment Provided: 40 Liter A/B Tanks with Vacuum Pump, See-Flo 7 (Dual 2-Ball Pumps), 2K No-Drip Manual Valve with Electric Trigger, Basic Control Panel, Mobile Cart, Overhead Boom with Tool Balance.



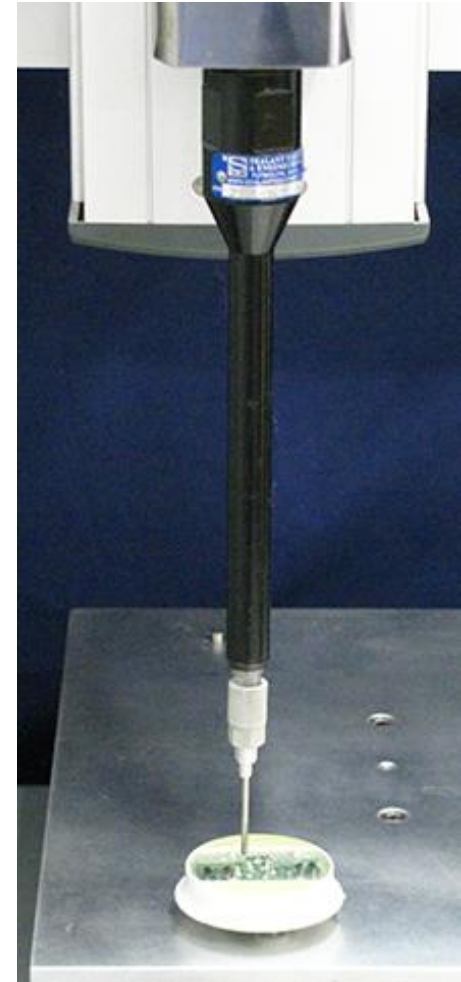
# Dispensing Systems for Lighting



# Sealant Equipment Engineered Systems

## How Are Dispense Systems Engineered?

- Material Selection, Ratio, Viscosity, etc.
- Volume/Flow Rate Dispensed
- Manual or Automation
- Dispense/Cycle Time
- Application Type
  - Bonding, Potting, Gasketing, etc.
- Precision/Tolerance



# Nordson Sealant Equipment: See-Flo 690

- Air-Over-Oil Drive
  - a consistent flow rate
  - manually adjustable flow rate
- Positive Rod Metering Principle
  - precise fixed ratio control of materials
  - fewest moving parts
  - longer life performance
  - easy and lowest cost service
- Mounting options:
  - Bench
  - Floor
  - Cart
- Applications
  - Potting
  - Sealing
  - Bonding
  - Gasketing



See-Flo 690 Meter has Fixed Ratio Dispense Volumes from 1 cc up to 154 cc (at 1:1 Ratio)

# Nordson Sealant Equipment Servo-Flo 801

- Servo motor provides
  - precision flow rate control
  - adjustable bead profile and volume
  - 250 programmable dispense styles
- Positive Rod Metering Principle
  - precise fixed ratio control of materials
  - fewest moving parts
  - longer life performance
  - easy and lowest cost service
- Mounting options:
  - Bench
  - Floor
  - Cart
  - Robot
- Applications
  - Microbeads
  - Mirco fills



(3) Servo-Flo 801 Meters have Fixed Ratio Dispense Volumes from 0.2 cc up to 25 cc (at 1:1 Ratio)

# Nordson Sealant Equipment See-Flo 387

- All pneumatic operation
  - simple on-board controls
  - low cost production
- Air-Over-Oil Drive
  - consistent flow rate
  - easily adjustable dispense rate
- Piston Cup Metering Principle
  - fixed ratio control of materials
  - larger volume in limited movement
- Gravity fed or pressure fed
- Mounting
  - Bench
  - Stand
- Applications
  - Potting
  - Batch Dispensing

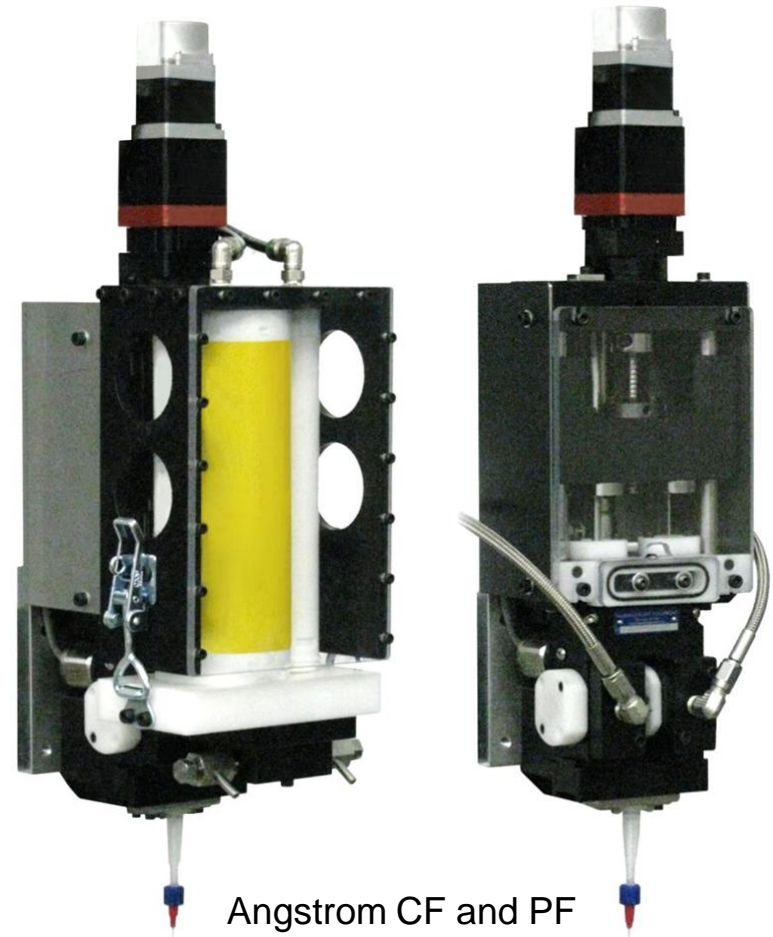


See-Flo 387 Meter has Dispense Volumes from 1 cc up to 32 cc (at 1:1 Ratio)

# Nordson Sealant Equipment Angstrom

Angstrom Meter has Dispense Volumes from 0.01 cc up to 1.25 cc (at 1:1 Ratio)

- Cartridge Feed (CF) or Pressure Feed (PF)
- Positive Rod Displacement Metering
- Dispense Volumes from 0.01 cc up to 1.25 cc at 1:1 Ratio
- Dispense 2K materials from 1:1 up to 10:1
- Extreme Precision Dispensing and Ratio Control, Long Life Performance, Lowest Life Cost
- Servo Drive Motor can interface with robot
- Static Mixers with Precision Dispense Tips
- +/- 5% accuracy down to 0.02 cc volumes
- Dispense directly from Dual 2K Cartridges or 20 Liter Pails



# Sealant Equipment 2K Dispensing Systems

Model Number	Meter Principle	Volume Range*	Ratio Type	Drive Motor	Mount Style	Supply Types
Angstrom CF or PF	Positive Rod	0.01cc to 1.25cc	Fixed Ratio	Servo	Stand, Bracket, XYZ	Cartridge Pump
Servo-Flo 801	Positive Rod	0.2 cc to 7 cc 0.5 cc to 18 cc 1 cc to 25 cc	Fixed Ratio	Servo	Bench, Stand, Bracket	Tank, Pump
See-Flo 387	Piston Cup	1 cc up to 32 cc	Fixed Ratio	Air Over-Oil	Bench, Stand	Gravity, Tank, Pump
See-Flo 690	Positive Rod	1 cc to 154 cc	Fixed Ratio	Air Over-Oil or Servo	Bench, Stand, Bracket	Tank, Pump

\* Volume Range is based on 1:1 Ratio by Volume. Other systems available up to 1,418 cc at 1:1.

\* Maximum volumes decrease with wider ratios and Minimum volumes increase with wider ratios.



# Sealant Equipment 2K Mix-Dispense Valves



2200-250 and 2200-545  
Snuf-Bak, No-Drip



2200-545-037  
No-Drip, Bayonet Mixer



2600-093  
Mini No-Drip,  
Bayonet Mixer



2200 Series  
Electric or  
Pneumatic Handle

Nordson EFD/TAH  
Valve and Handle

New Systems Have Nordson EFD Static Mixers.  
Sulzer Static Mixers And Valves Also Available.

# Nordson Sealant Equipment Supply Units



**Pressure Tanks**  
1 gal (4 l) to 60 gal (227 l)



**Gravity Feed  
Drum Racks**  
5 gal (20 l) and  
55 gal (200 l)



**Gravity Feed**  
15 gal (56 l) and  
30 gal (113 l)



**Cartridge Feed**  
20 oz and 32 oz



**Pumps for**  
5 gal (20 l) and  
55 gal (200 l)

Each Supply Unit Has Many  
Accessories Available To Meet  
the Customer Requirements

# Electronic and Electrical Industry XYZ and 6-Axis Dispense Systems

**from Nordson SEALANT EQUIPMENT**

David Mandeville, Marketing Manager

# XYZ Robot Dispensing 1K Gasketing-Electronics

- Servo-Flo 401 Meter, Valve Mounted on XYZ Robot Z-Axis



- XYZ Robot Station
- 100 mm x 100 mm x 50 mm
- Electronic Gasketing
- 1K Silicone
- (1) Module per Tray
- Valve Mounted on Z-Axis



# XYZ Robot Dispensing 2K Sealing-Electronics

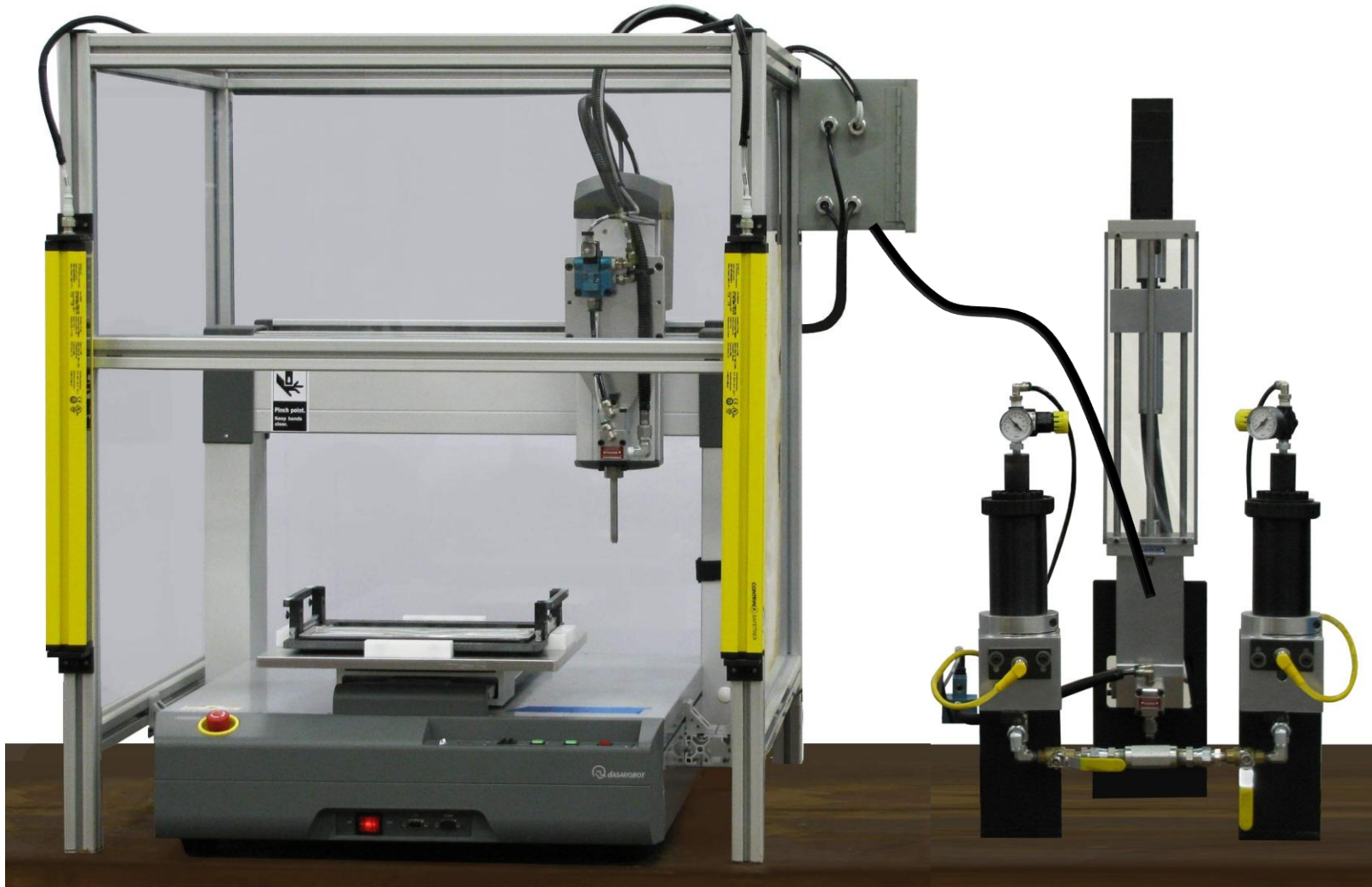
- See-Flo 690 Meter, Valve Mounted on XYZ Robot Z-Axis



- XYZ Robot Station
- 100 mm x 100 mm x 50 mm
- Electronic Sealing
- 1K Silicone
- (3) Modules per Tray
- 2K Valve Mounted on Z-Axis

# XYZ Robot Dispensing 1K Silicone-Electronics

- Servo-Flo 404 Meter, Tip-Seal Valve, Dual Cartridge Supply, Level Sensors, Light Curtain





# Automated Dispensing-Electronics

- Servo-Flo 801, 2K Thermal Gel Dispensing, 6-Axis Fanuc M-10iA Robot



- 6-Axis Robot Station
- Manual Load-Unload
- 2K Electronic Thermal Gel
- (1) Module per Fixture
- Valve Mounted on Wrist



# ***Nordson***

## ***SEALANT EQUIPMENT***

Precision Dispensing Systems  
for Electronic and Electrical  
Dispensing Applications