

# Precision Fluid Controls

 **SMARTMix**

 **SMARTMix+**

Positive Displacement Gear Pump  
Plural Component Paints  
SMARTMix+ Cell Control

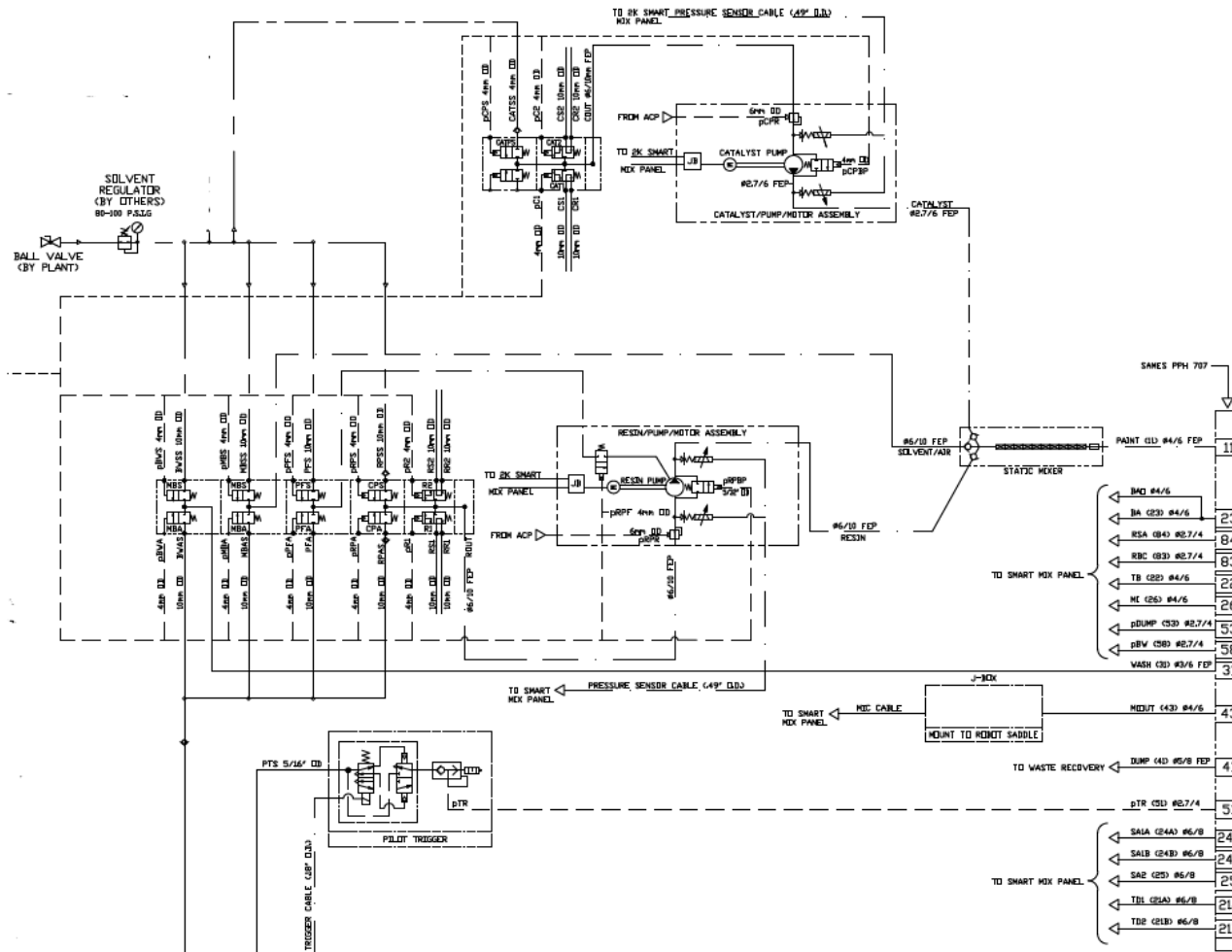
# Positive Displacement Gear Pumps

- +/- 1% Precision on Paint Mixing
  - You get the flow rate you ask for
  - Can change flow rate on the fly (5ms response times)
  - Works with high solids and abrasives (highly durable)
- “Set It and Forget It”**
- Self calibrating
  - Monitoring + Regulating pressures in and out of the pumps
  - Low maintenance



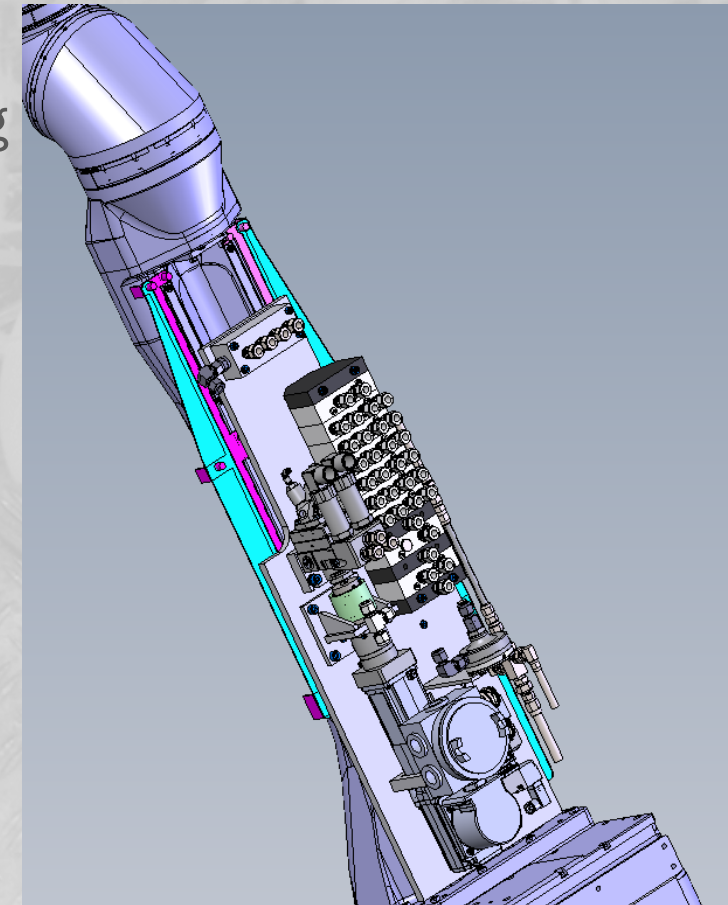
# Mechanical Design

## Custom Fluid/Pneumatic Schematic Design

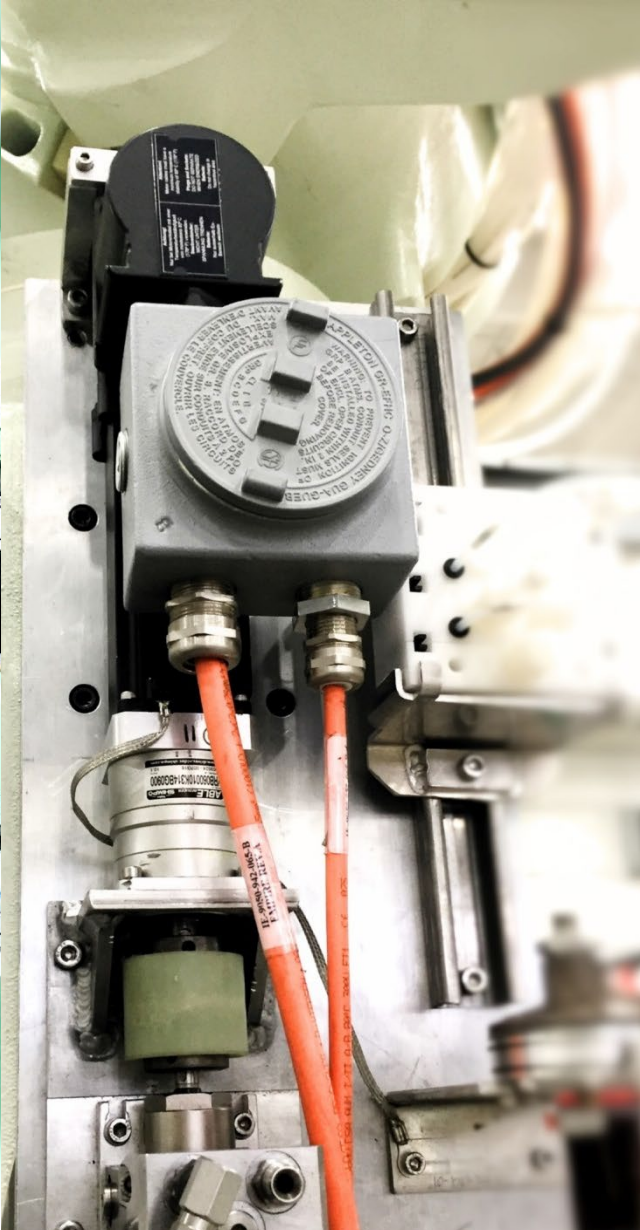
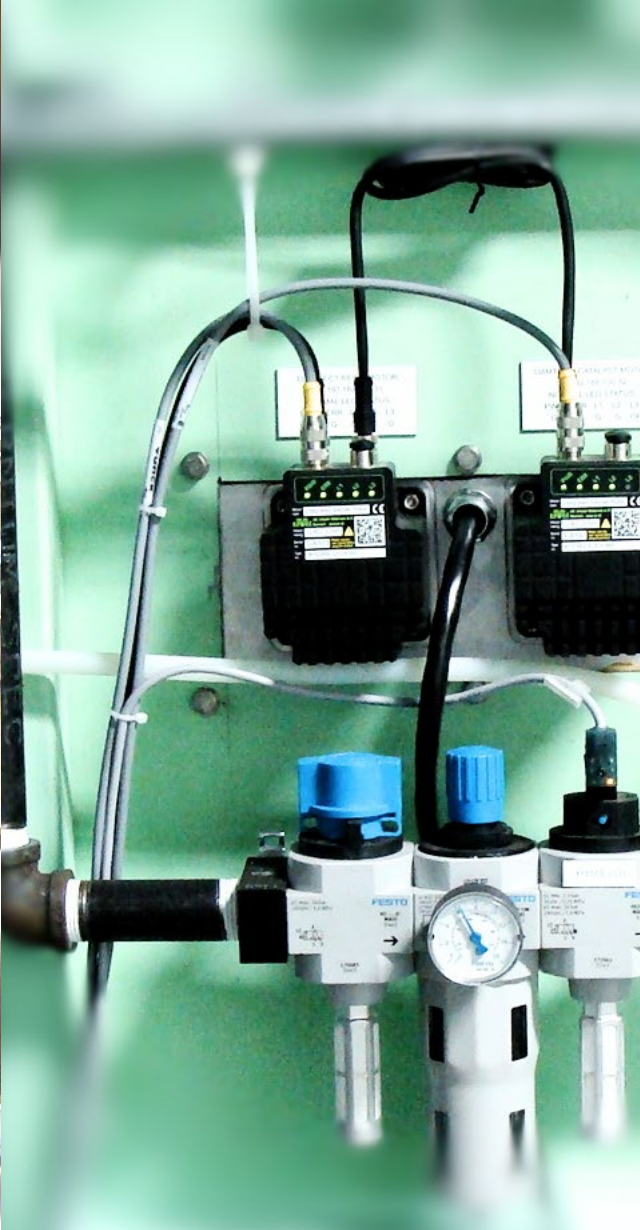
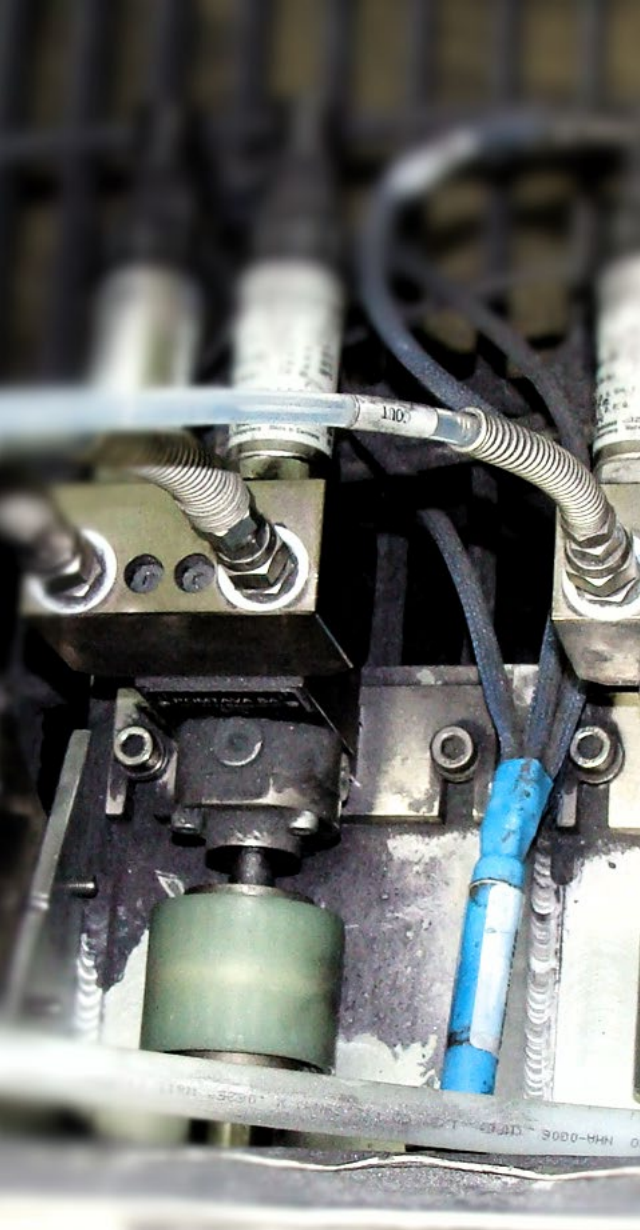


Support for all Color Changer Brands

- Graco
- Ransburg
- Sames
- EFC
- Fanuc







**FLEXIBLE MOUNTING CONFIGURATIONS**





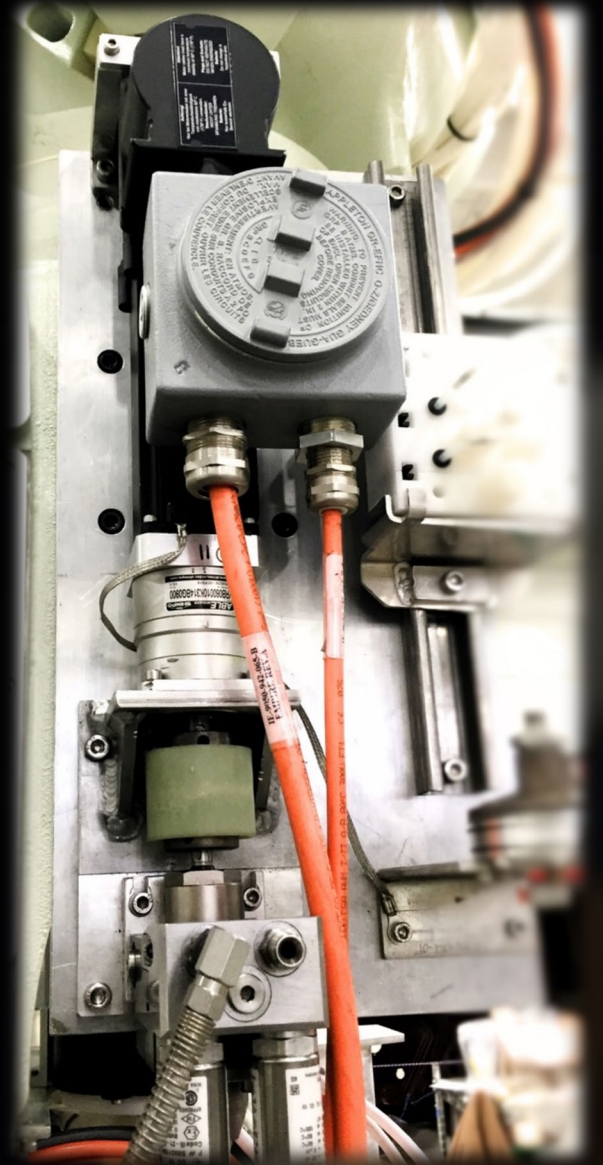
# WALL MOUNT

- One Color
- Batch by color
- Easy to retrofit to existing systems
- Flexible mounting to reduce paint waste



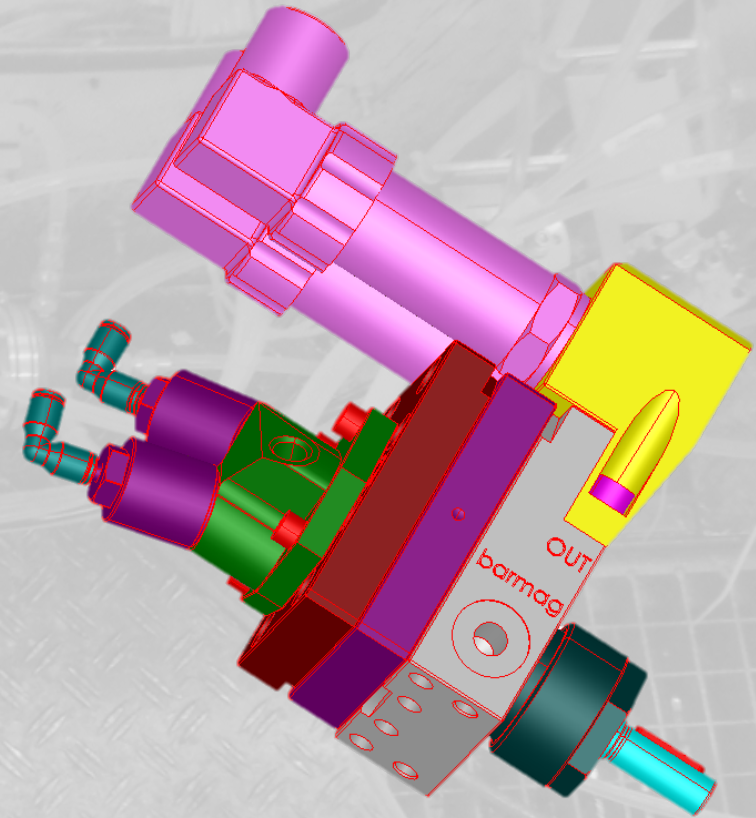
# ROBOT MOUNTED

- Many color changes
- Quick color change time (30sec or less)
- Reduces paint waste
- Fits to any robot



# Positive Displacement Gear Pumps

- Inlet & Outlet Pressure Sensors
  - Allow for balancing pressure across pump
  - Eliminates pump calibration
  - Allows for fluid viscosity and supply pressure fluctuations
- Pump Bypass Valve for Quick Flushing
- Shaft Flushing Valve for Gear Flushing
- Multiple Pump Sizes for Maximizing Flow Range



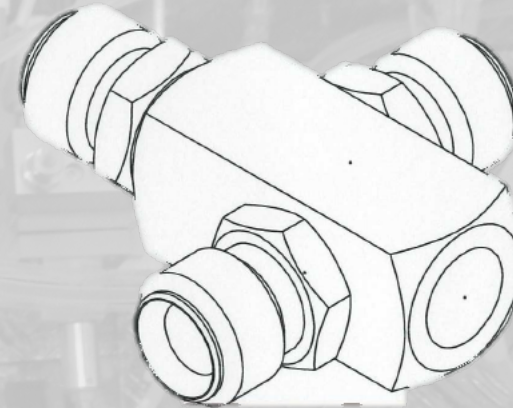
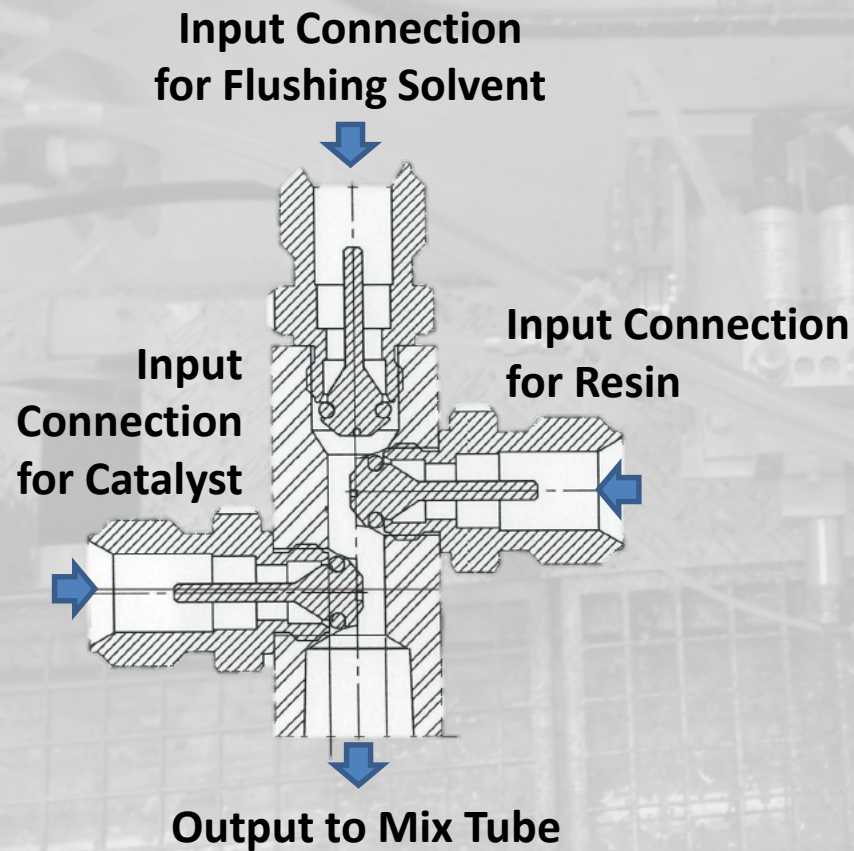


# Mixing Block

Compact Mixing Block Design Allows for Flexible Mounting

Design Provides Consistent Catalyst Injection into the Resin Fluid Stream

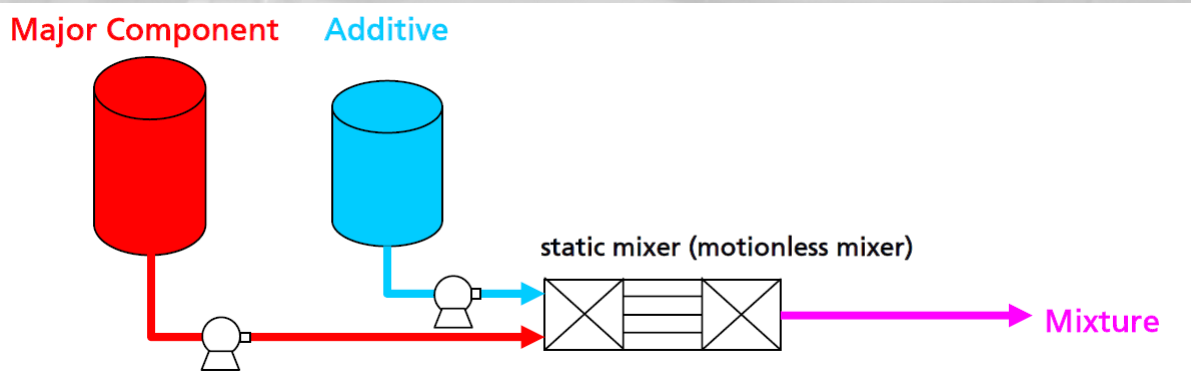
Flushing Input Allows for Quick Flushing of Mixed Material



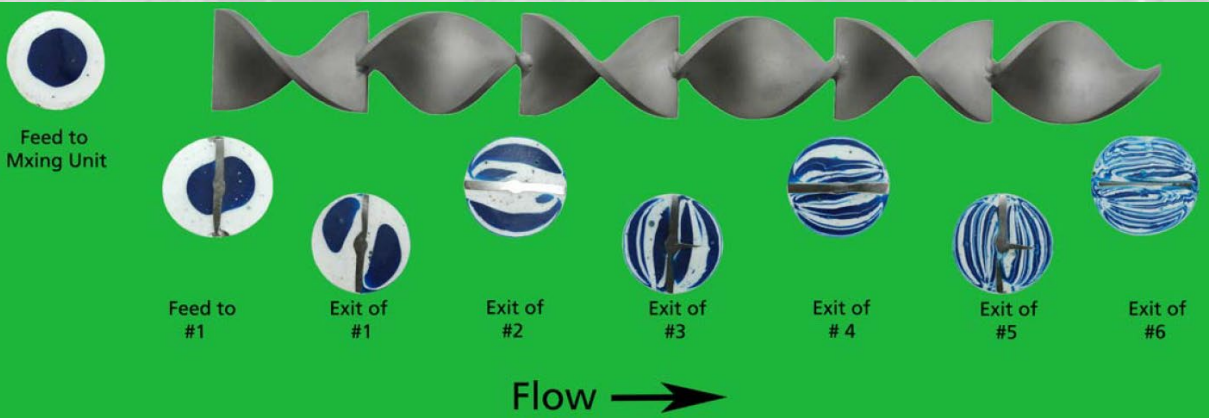


# Mix Tube Options

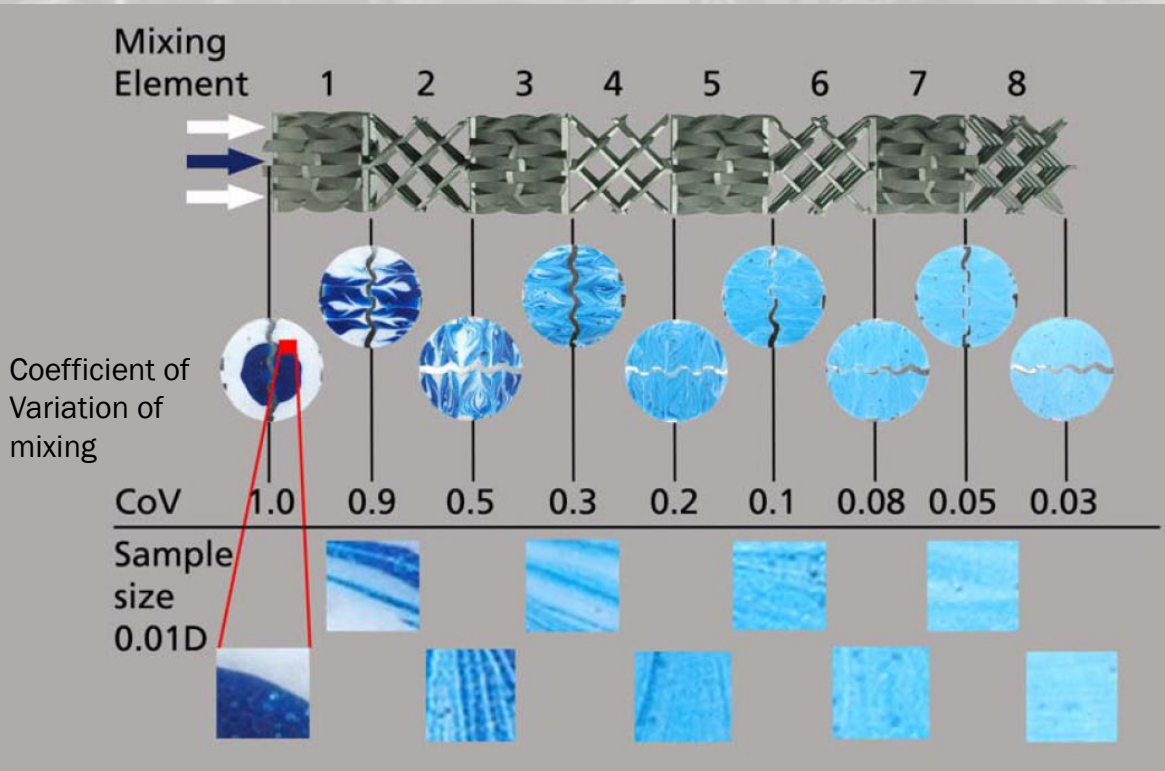
Mixing Options for Different Ratios and Materials



Helical Static Mixer: 1:1 – 1:10 Ratios



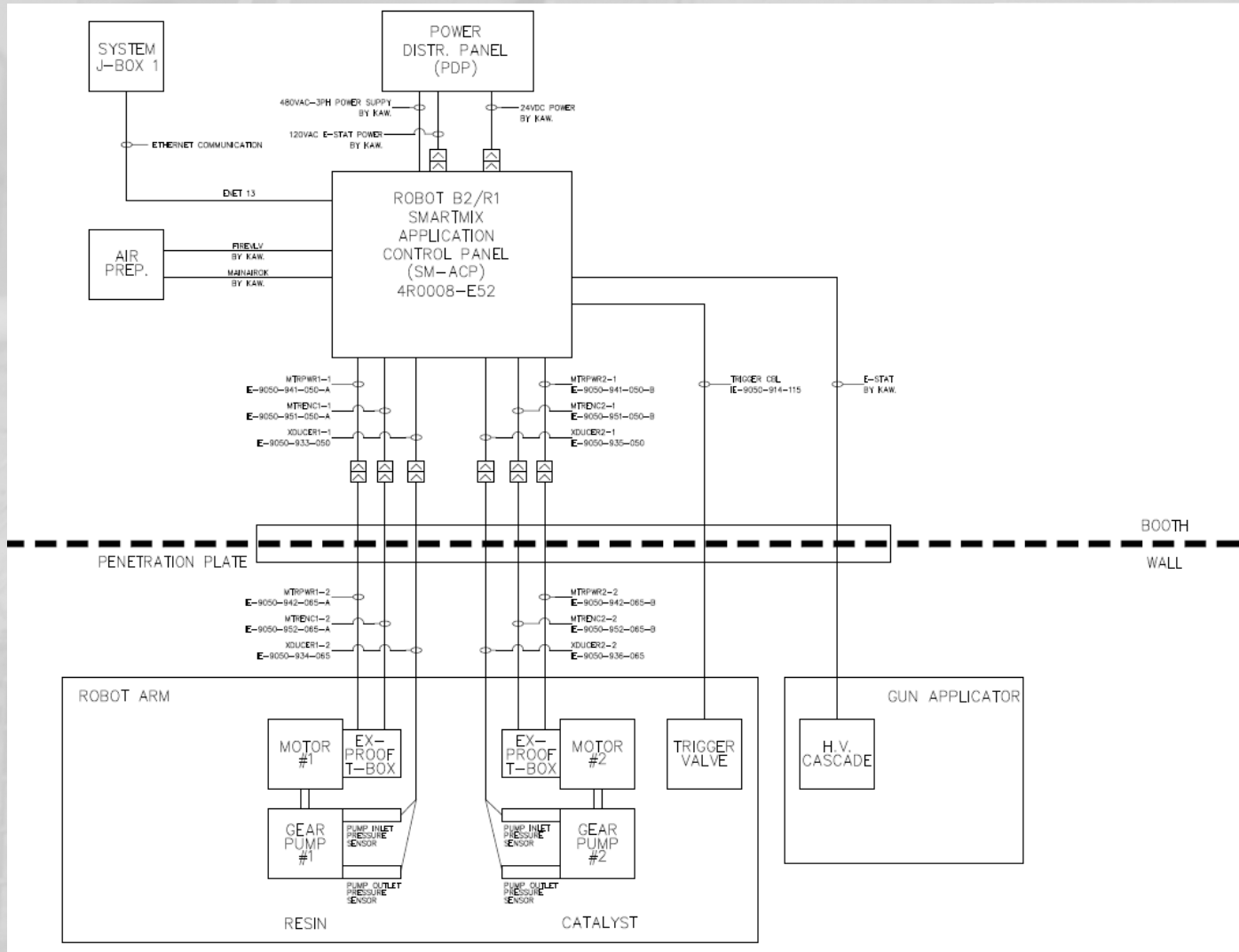
X-Grid Static Mixer: 1:10 – 1:100 Ratios





# Electrical Design

## Custom Panel Configuration



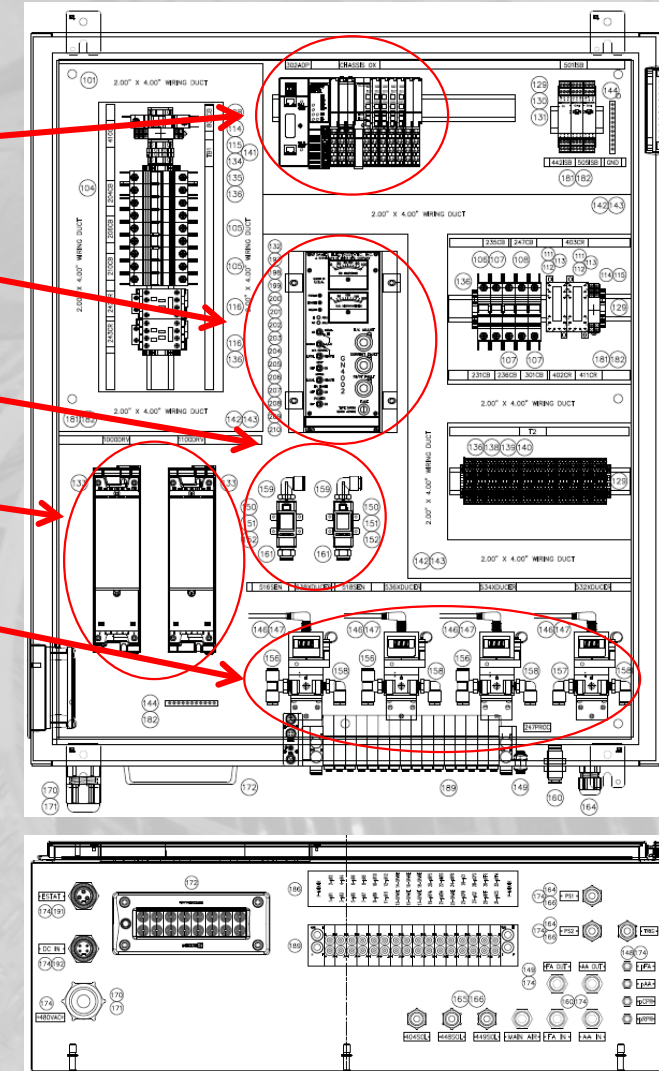
I/O

E-Stat Control

Air Feedback

Drive Control

Air Control







# HMI – Manual Operation

Easy Manual Operation  
Visual Value and Line Status Indication

**Freightliner Cleveland Primer**

Manual Operate

Robot P1 Robot P2 None Selected to Monitor: Robot P1

Enable Parameter

Color: Prime

Mode Monitoring

Gun Maint Mode  
Beaker Mode  
Beaker Resin  
Beaker Catalyst

Run Test

Super Purge Run Wash Cycle  
Res-App CND Fill Run Pre-Spray Cycle

Legend

Special Positions

Move To Home Move To Home2 Move To Bypass Move To Maint Move To Purge Move To Beaker

Robot P1 Color = 1 Style = 1 Flow Total (cc) = 128 Trigger = 1

Fluid	Fan Air	Atom. Air	Estat
Set (cc/min) 800	Set (PSI) 30	Set (PSI) 30	Set (KV) 93
Actual (cc/min) 0	Expected (l/min) 451	Expected (l/min) 408	Actual (KV) 89
	Actual (l/min) 482	Actual (l/min) 409	Actual (µs) 35

Resin Pump	Catalyst Pump
Set Flow (cc/min) 600	Set Flow (cc/min) 200
Act. Flow (cc/min) 602	Act. Flow (cc/min) 201
Speed (rpm) 120	Speed (rpm) 67
Regulator (psi) 47	Regulator (psi) 59
Inlet (psi) 39	Inlet (psi) 55
Outlet (psi) 39	Outlet (psi) 55

Users: None

**Air Valve**

Off On

AIR AIR

**Solvent Valve**

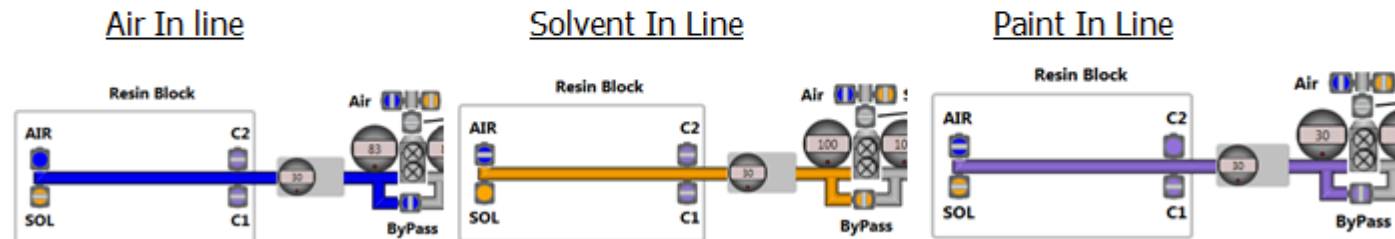
Off On

SOL SOL

**Paint Valve**

Off On

C2 C2



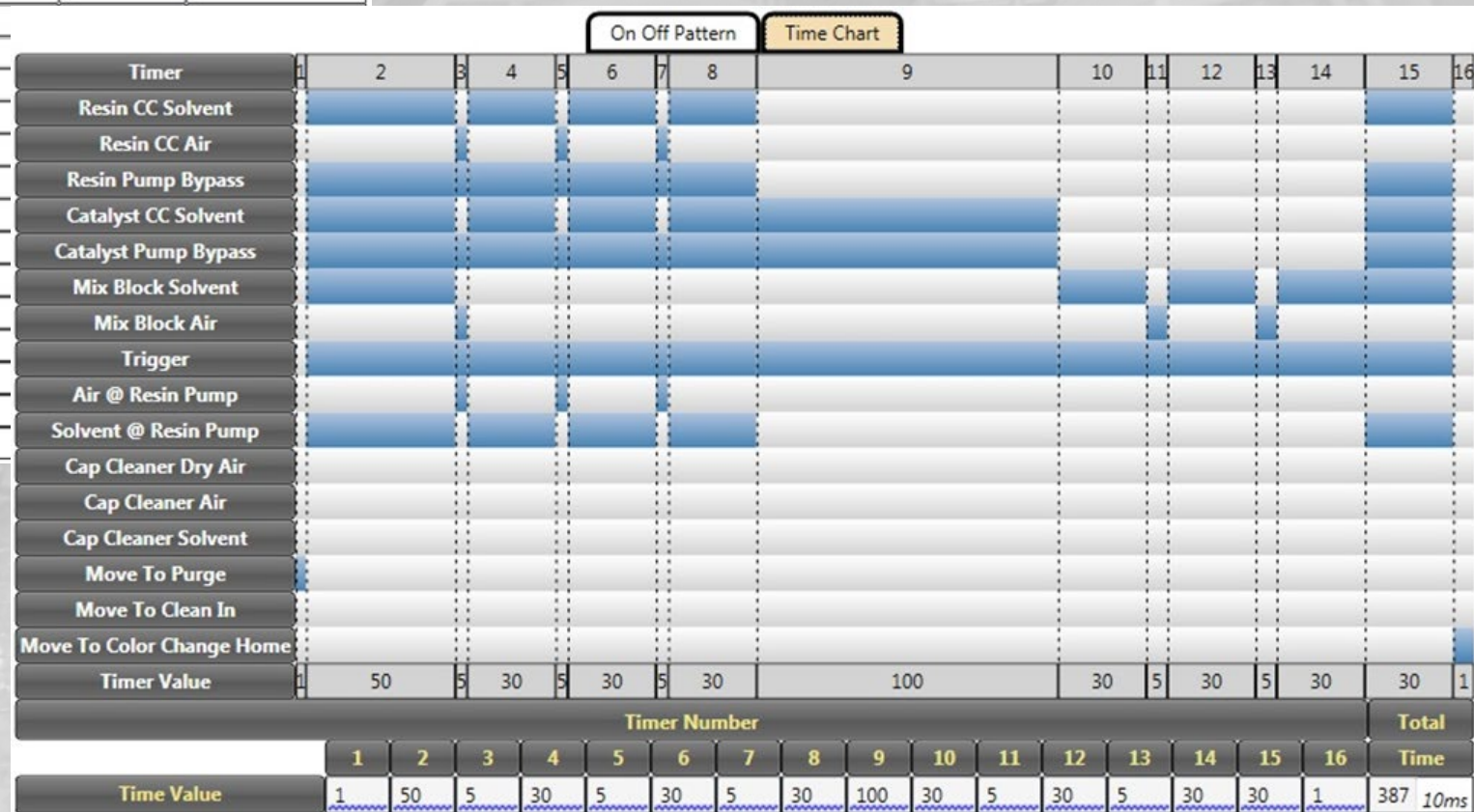


# HMI – Color Change & Presets

Visual Color Change Configuration  
PLC Based Preset Control

	Preset Name	Fluid (cc/min)	Fan Air (PSI)	Atomizing Air (PSI)
1		800	30	30
2		900	30	30
3		0	0	0
4		0	0	0
5		0	0	0
6		0	0	0
7		0	0	0
8		0	0	0
9		0	0	0
10		0	0	0
11		0	0	0
12		0	0	0
13		0	0	0
14		0	0	0
15		0	0	0
16		0	0	0
17		0	0	0
18		0	0	0
19		0	0	0
20		0	0	0

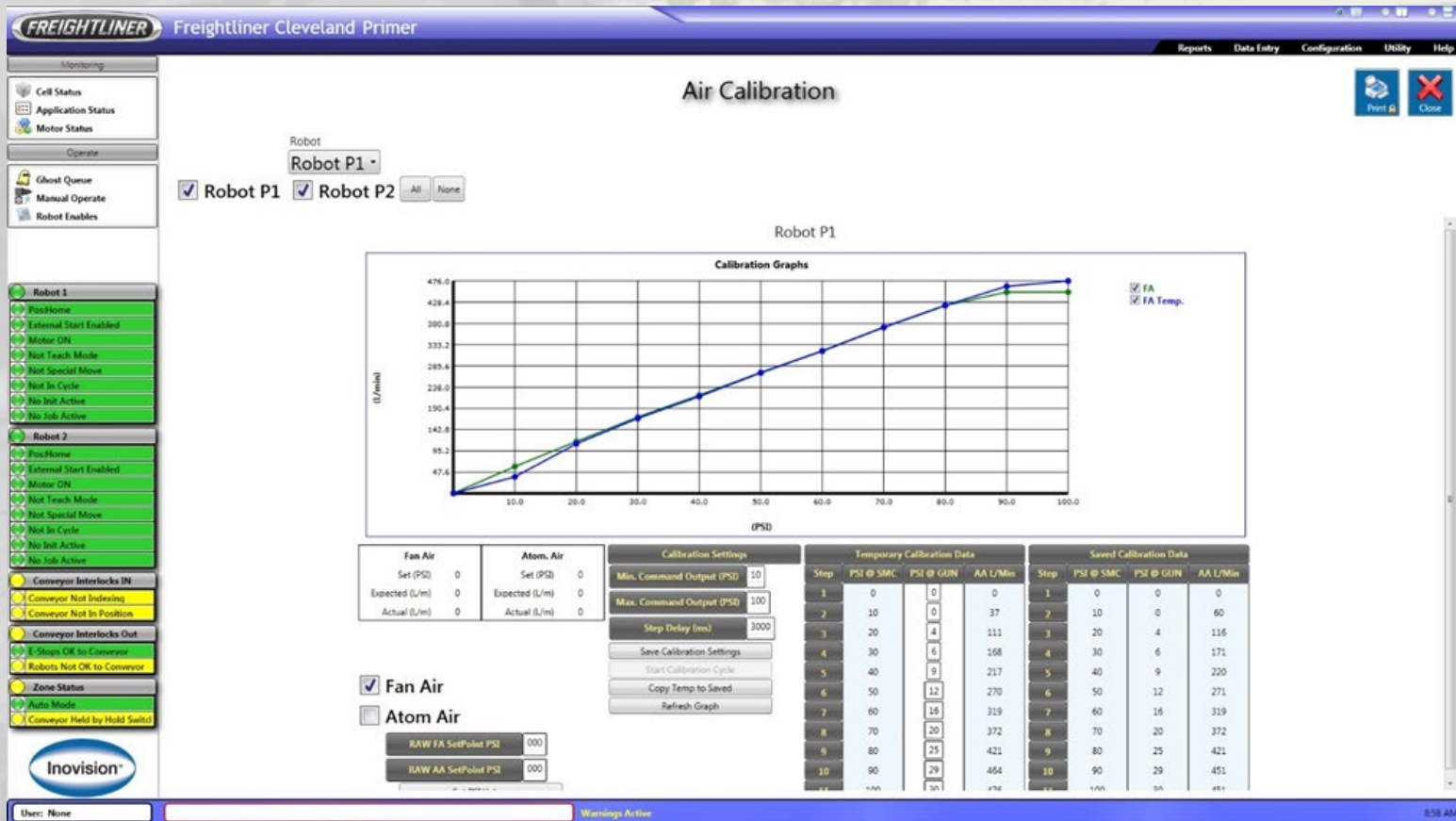
	Preset Name	Fluid (cc/min)	Fan Air (PSI)	Atomizing Air (PSI)
21		0	0	0
22		0	0	0
23		0	0	0
24		0	0	0
25		0	0	0
26		0	0	0
27		0		
28		0		
29		0		
30		0		
31		0		
32		0		
33		0		
34		0		
35		0		
36		0		
37		0		
38		0		
39		0		
40		0		







# HMI – Air Calibration & Monitoring



SMARTMix+ Provides Air Control, Calibration, and Monitoring

# CUSTOMER SERVICE AND PARTS SUPPORT

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- 24-HR Emergency After Hours Service at [\(586\) 598-8750](tel:5865988750)
- Recommended Spare Parts Lists and Critical Spares provided with each system
  - Critical spares on-hand at Inovision
- Project team and manager contact lists provided
  - Project manager, controls engineer, process engineer, and managers
- Additional Down Robot Support
  - FANUC Emergency Down Robot 24-HR Support, please call [\(888\) FANUC-US](tel:888FANUCUS)
  - Kawasaki Emergency Down Robot 24-HR Support, please call [\(248\) 446-4271](tel:2484464271)
  - ABB Emergency Down Robot 24-HR Support, please call [\(800\) HELP-365](tel:800HELP365)
- VPN Remote Access for remote diagnostics and troubleshooting

