PATENT #US 9,516,915 B2

No Connectors, No Wires, Fool Proof

Sophisticated Yet Simplified Proofing

The differences between a standard material manifold station like Conair's RSS (Resin Selector Station), and one with the ILP (Invisible Line Proofing) option are not something that can be seen. The difference is in the engineering. Conair's efficient RSS, equipped with the ILP option uses sensors at the base of each manifold, to proof connections and ensure that material conveys only when the correct connections are made. There are no wires, no clunky connectors, no cameras, and no special processes for operators to follow. Connections are made as normal. No further action necessary. ILP automatically assures that connections are correct or material will not flow and an alarm on the control will alert the operator that an incorrect connection was made. Accuracy is at 100%, with no chance of operator error.



The Easiest Resin Proofing System Yet!

We hear it time and time again – material is the primary expense in production. Proofing eliminates operator error which can result in bad parts, plant downtime, and wasted material.

The ILP is the most simple, yet sophisticated method of proofing yet. It's so simple that any existing Conair RSS can be retrofitted to work as an ILP station. The ILP system does not require a separate control or special operator instructions. The ILP system can be used on both fantail manifolds and individual conveying lines. The ILP uses the existing abilities of Conair's FLX-128 Plus conveying control to allow proofing to happen within the conveying system.

► Safeguards material in RSS (Resin Selection Station) tables

Remote sensors are installed as part of the RSS (at the exit end of the manifolds) to ensure vacuum is flowing through the correct connection, indicating the correct connection has been made.

▶ Confirms correct material line connections

If the material line connections are correct, material will be conveyed normally. Hoses attached to the wrong port will prevent conveying and provide a control system alarm.

Uses Conair's FLX-128 Plus conveying control

Material routing is programmed into the FLX-128 Plus, and the ILP assures physical connections match the desired connections selected in the control. FLX-128 Plus icons confirm proper routing with normal conveying, or indicate an improper routing connection with an alarm not allowing material to convey.

Nothing to break, nothing to learn

There are no visible wires on the table, no visible devices, no special fittings, no special orientation of hoses, no problems when replacement connectors are necessary, and the ILP system is not affected by light, temperature, material, or line size. Invisible Line Proofing protects your process against human error and accidents.



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How it Works

Invisible Line Proofing, or ILP, does not use wires nor connectors nor any type of signal exchange between material line couplers to confirm that source to destination material flow connections have been properly made by the user. If vacuum is not properly sensed, the ILP prevents material flow.

An ILP installation includes ILP Sensors in each fantail manifold or individual material line, and an ILP Valve installed in the vacuum line.

ILP Components

- ILP Valve
- ILP Sensor for each material to be proofed

- FLX-128 Plus
- ILP Interface Box







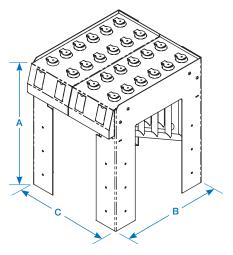
ILP Sensors

FLX-128 Plus Control

Specifications

| Model | ILP | | | | | | |
|-----------------------------------|--|-------------|------------|-------------|------------|------------|------------|
| Performance characteristics | | | | | | | |
| Maximum number materials | 16 per ILP Box. 16 ILP Boxes per FLX-128 Plus | | | | | | |
| Required control | FLX-128 Plus | | | | | | |
| Required FLX-128 expansion box | ILP Expansion Box, or Fill Sensor Cards in FLX-128 main/remote box | | | | | | |
| FLX-128 Plus Voltage requirements | | | | | | | |
| | 120 Volts for FLX-128 Plus* | | | | | | |
| Compressed air requirements | | | | | | | |
| Regulated clean compressed air | 65-90 PSI (ILP Valve) | | | | | | |
| DOC Medele | DCC150 | D00475 | DCCOOO | DCCOOL | DCCOFO | DCC200 | DCC400 |
| RSS Models | RSS150 | RSS175 | RSS200 | RSS225 | RSS250 | RSS300 | RSS400 |
| Performance characteristics | | | | | | | |
| Line Size inches {mm} | 1.5 {38.1} | 1.75 {44.5} | 2.0 {50.8} | 2.25 {57.2} | 2.5 {63.5} | 3.0 {76.2} | 4.0 {101.6 |
| Approximate weight lb {kg} † | | | | | | | |
| Installed | 170 {77} | 170 {77} | 230 {104} | 230 {104} | 230 {104} | 320 {145} | 320 {145 |
| Shipping | 240 {109} | 240 {109} | 300 {136} | 300 {136} | 300 {136} | 390 {177} | 390 {177 |
| | | | | | | | |

| RSS Frame Options | Small Frame | Medium Frame | Large Frame | | | | | |
|---|------------------|------------------|------------------|--|--|--|--|--|
| Maximum number of fantails | | | | | | | | |
| 2, 3, 4, 5, or 6 hole positions per fantail | up to 2 fantails | up to 4 fantails | up to 6 fantails | | | | | |
| Dimensions inches {cm} | | | | | | | | |
| A - Height | 42.12 {107.0} | 42.12 {107.0} | 42.12 {107.0} | | | | | |
| B - Depth | 35.87 {91.1} | 35.87 {91.1} | 35.87 {91.1} | | | | | |
| C - Width | 16.37 {41.58} | 32.37 {82.2} | 48.62 {123.5} | | | | | |



Specification Notes

- * FLX-128 Plus sends 24 VDC to the ILP Sensors.

 The FLX-128 also sends power to the valve on the nump.
- Weights are based on using the maximum number of selector plates and connectors.

These tables define standard configurations only.

Specifications can change without notice. Contact a Conair representative for the most current information.

