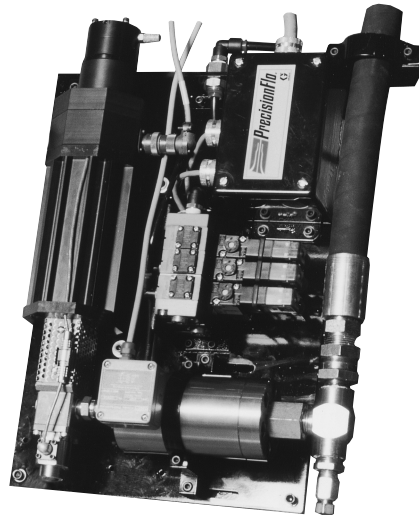# PrecisionFlo™

Sealant & Adhesive Dispensing Systems

■ **Two models: PrecisionFlo Plus with color touch screen controller and the PrecisionFlo with panel-mount controller**

■ **Continuous flow metering for flexible manufacturing processes that require high cycle rates**

■ **Closed loop control provides precision and repeatability of flow rate and material volume**

■ **Linear servo meter design provides fast and accurate response times**

■ **Servo meter and controller are very user-friendly, and easy to set up, operate and maintain**

Intuitive, high performance sealant and adhesive dispensing for a variety of applications

PrecisionFlo linear servo meter

PrecisionFlo Plus control with color touch screen interface

SEALANT ADHESIVE EQUIPMENT

The PrecisionFlo dispensing systems deliver continuous flow of sealant or adhesive materials to meet a wide range of application requirements. PrecisionFlo offers the use of a panel-mount interface to guide you through your process specifications. PrecisionFlo Plus takes you one step further with an easy-to-use touch screen interface, on-screen diagnostics, and manuals.

The PrecisionFlo systems maintain your desired flow rate irrespective of changes in the operating environment, such as sealant viscosity, temperature, and robot speed while maintaining a uniform volume output.

Fast response allows quick change in bead profiles, faster robot speeds, analog tool tip response, faster cycle times, and increased product quality.

Typical Fluids Handled

• PVC sealants
• Expandable weldable sealants
• Structural adhesives

Typical Applications

• Streaming
• Spraying
• Extruding
• Swirling

3-53

PrecisionFlo Plus Controller
More Data for More Performance

System status at a glance

View your system in real time from the screen which verifies system operations input and output immediately. This precise, real time volume compensation lets you know how your system is operating at every moment.

Fast fault correction

If there is a fault condition in your system, the touch screen will display a red fault message. The PrecisionFlo Plus finds the problem and provides you with prioritized step-by-step corrective actions to solve the problem. This enables you to minimize downtime and insures you maximum productivity.

More control over your processes

Large storage capacity makes it possible for you to save process information and transfer it to a database for further analysis. You can retrieve this information from a floppy disk, laptop connection, or the plant network. Data includes the following: time/date, job number, style, set vs. actual volume dispensed, bead size adjustment, parts status, and automatic archival of maintenance fault conditions.

Easy system setup and installation

The PrecisionFlo Plus utilizes menus on the touch screen to offer fast, easy-to-use, and intuitive setup procedures. PrecisionFlo Plus' design facilitates integration into new or existing plants by connecting easily to your plant network. The system is compatible with DeviceNet, ControlNet, EtherNet, Canbus, Profibus, Interbus S and RS 485. Operation, maintenance and diagnostics are simplified with the use of user-friendly controls.

Online service manual

With online service manual information available, you now have immediate access to operation, maintenance, service, system diagrams, troubleshooting, and parts list.

PrecisionFlo Controller
High Performance in Simple Applications

Graco's newest PrecisionFlo Plus uses the finest software/hardware technology to give you continuous flow metering with controls. For less demanding applications, the PrecisionFlo model has an easy-to-use panel-mounted display.

The PrecisionFlo controller includes a user-friendly panel-mounted interface which leads you through the set-up and fault response process. It provides fast and accurate programming of pressure limits and flow rate. In addition, process parameters such as pressure and volume are monitored and displayed for your application. It allows the operator to be mobile or close to the point of dispense, where any programmed change may be instantly viewed.

PrecisionFlo Features

- Optional remote pendant
- Compact panel size, fence or stand-mounted
- Warning diagnostics and cycle information
- Menu driven for easy operator use
- Self calibration on command
- Linear scaling of analog signal

PrecisionFlo Control Panel with built-in Interface Pendant

PrecisionFlo Servo Metering Module

High Speed Linear Servo Meter

PrecisionFlo servo metering module uses real-time volume compensation. The meter continuously adjusts the needle position during the dispense cycle to maintain flow rate, compensating for fluid flow deviations.
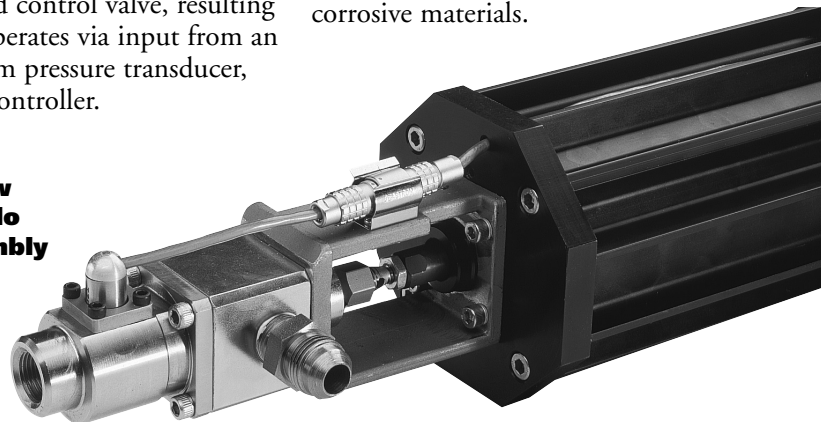
The servo meter unit responds to a robot analog signal by quickly and precisely moving the fluid needle in order to regulate downstream pressure and flow. The unique permanent magnet linear motor provides high-speed shaft movement on demand. The servo meter shaft motion is linear, not rotary, and is directly connected to the fluid control valve, resulting in one moving assembly. It operates via input from an inlet flow meter, a downstream pressure transducer, and a microprocessor-based controller.

Material flow is consistent and assured by closed loop pressure and volume control. The microprocessor controls the PrecisionFlo needle position which meters accurate and consistent output flow based on a pre-programmed value, specific to your application and material.
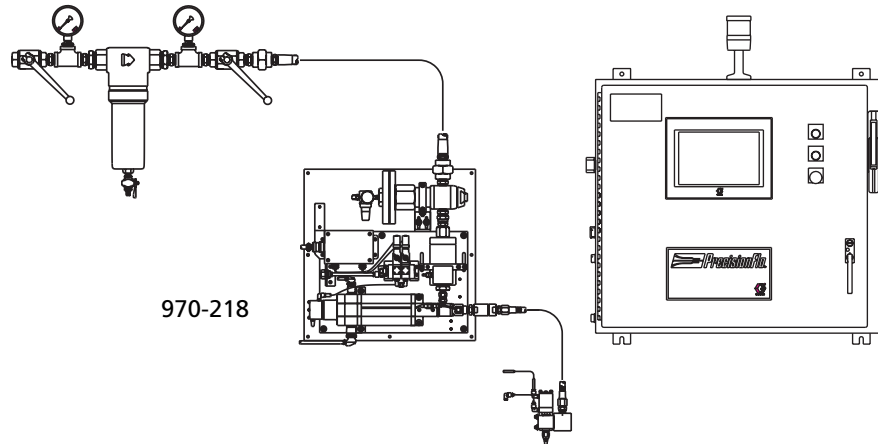
Fluid Control Regulator

Graco uses a solid tungsten carbide needle and seat with Severe-Duty needle shaft for long life. The needle is combined with all stainless steel housing construction to stand up against abrasive and corrosive materials.

Close-up view of PrecisionFlo Metering Assembly

PrecisionFlo Plus Ordering Information
with touch screen controller technology

970-218

Automatic Extrude
For Application: Anti-Flutter (Mastic)

970-217   PrecisionFlo, Temperature Conditioned
Includes: filter, conditioned regulator, PrecisionFlo module, touch-screen controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve with nozzle.

970-218   PrecisionFlo, Ambient, Knife Disconnect
CE **970-267   PrecisionFlo, Ambient, Rotary Disconnect**
Includes: filter, regulator, PrecisionFlo module, touch-screen controller, fluid hoses, and automatic snuff back dispense valve with nozzle.

970-219   PrecisionFlo, Heated
Includes: filter, 4-zone control panel, heated regulator, PrecisionFlo module, touch-screen controller, heated fluid hoses, and heated automatic snuff back dispense valve with nozzle.

1K Automatic Extrude or Stream
For Applications:
- *Hem Flange Adhesive Bonding*
- *After Hem Sealing*
- *Structural Adhesive Bonding*

970-220   PrecisionFlo, Temperature Conditioned
Includes: filter, conditioned regulator, PrecisionFlo module, touch-screen controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve with extrusion nozzle and streaming tip.

970-221   PrecisionFlo, Ambient, Knife Disconnect
CE **970-268   PrecisionFlo, Ambient, Rotary Disconnect**
Includes: filter, regulator, PrecisionFlo module, touch-screen controller, fluid hoses, and automatic snuff back dispense valve with extrusion nozzle and streaming tip.

970-222   PrecisionFlo, Heated
Includes: filter, 4-zone control panel, heated regulator, PrecisionFlo module, touch-screen controller, heated fluid hoses, and heated automatic snuff back dispense valve with extrusion nozzle and streaming tip.

1K Automatic Swirl
For Applications:
- *Hem Flange Adhesive Bonding*
- *After Hem Sealing*
- *Structural Adhesive Bonding*

970-223   PrecisionFlo, Temperature Conditioned
Includes: filter, conditioned regulator, PrecisionFlo module, touch-screen controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-224   PrecisionFlo, Ambient
Includes: filter, regulator, PrecisionFlo module, touch-screen controller, fluid hoses, automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-225   PrecisionFlo, Heated
Includes: filter, 4-zone control panel, heated regulator, PrecisionFlo module, touch-screen controller, heated fluid hoses, and heated automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

Automatic Extrude or Stream
For Application: Body Sealing

970-241   PrecisionFlo, Temperature Conditioned
Includes: filter, conditioned regulator, PrecisionFlo module, touch-screen controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve with extrusion nozzle and streaming tip.

970-242   PrecisionFlo, Ambient, Knife Disconnect
CE **970-274   PrecisionFlo, Ambient, Rotary Disconnect**
Includes: filter, regulator, PrecisionFlo module, touch-screen controller, fluid hoses, and automatic snuff back dispense valve with extrusion nozzle and streaming tip.

970-243   PrecisionFlo, Heated
Includes: filter, 4-zone control panel, heated regulator, PrecisionFlo module, touch-screen controller, heated fluid hoses, and heated automatic snuff back dispense valve with extrusion nozzle and streaming tip.

PrecisionFlo Plus Ordering Information
with touch screen controller technology (cont'd)

Automatic Swirl
For Application: Liquid Mask Sealing

970-239 **PrecisionFlo, Temperature Conditioned**
Includes: filter, conditioned regulator, PrecisionFlo module, touch-screen controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-229 **PrecisionFlo, Ambient, Knife Disconnect**
CE **970-273** **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: filter, regulator, PrecisionFlo module, touch-screen controller, fluid hoses, automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-234 **PrecisionFlo, Heated**
Includes: filter, 4-zone control panel, heated regulator, PrecisionFlo module, touch-screen controller, heated fluid hoses, and heated automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-240 **PrecisionFlo, Temperature Conditioned**
Includes: dual filter bank, PrecisionFlo module, touch-screen controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-230 **PrecisionFlo, Ambient, Knife Disconnect**
CE **970-275** **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: dual filter bank, PrecisionFlo module, touch-screen controller, fluid hoses, automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-235 **PrecisionFlo, Heated**
Includes: dual filter bank, 4-zone control panel, PrecisionFlo module, touch-screen controller, heated fluid hoses, and heated automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

Automatic Stream or Shower
For Application:
  • *Underbody, Interior and Exterior Seam Sealing*

970-238 **PrecisionFlo, Temperature Conditioned**
Includes: dual filter bank, PrecisionFlo module, touch-screen controller, temperature conditioner with fluid hoses, and AA3000-S stream dispense valve and streaming tip.

970-228 **PrecisionFlo, Ambient, Knife Disconnect**
CE **970-272** **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: dual filter bank, PrecisionFlo module, touch-screen controller, fluid hoses, and AA3000-S stream dispense valve and streaming tip.

970-233 **PrecisionFlo, Heated**
Includes: dual filter bank, 4-zone control panel, PrecisionFlo module, touch-screen controller, heated fluid hoses, and AA3000-S stream dispense valve and streaming tip.

Automatic Extrude
For Application:
  • *Underbody, Interior and Exterior Seam Sealing*

970-237 **PrecisionFlo, Temperature Conditioned**
Includes: dual filter bank, PrecisionFlo module, touch-screen controller, temperature conditioner with fluid hoses, automatic dispense valve, and 4 in. (10 cm) compliant nozzle.

970-227 **PrecisionFlo, Ambient, Knife Disconnect**
CE **970-271** **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: dual filter bank, PrecisionFlo module, touch-screen controller, fluid hoses, automatic dispense valve, and 4 in. (10 cm) compliant nozzle.

970-232 **PrecisionFlo, Heated**
Includes: dual filter bank, 4-zone control panel, PrecisionFlo module, touch-screen controller, heated fluid hoses, automatic dispense valve, and 4 in. (10 cm) compliant nozzle.

Automatic Spray
For Applications:
  • *Underbody Deadener Heat Cure*
  • *Rocker Panel Anti-Chip*

970-236 **PrecisionFlo, Temperature Conditioned**
Includes: dual filter bank, PrecisionFlo module, touch-screen controller, temperature conditioner with fluid hoses, automatic airless dispense valve, and fan spray tip.

970-226 **PrecisionFlo, Ambient, Knife Disconnect**
CE **970-270** **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: dual filter bank, PrecisionFlo module, touch-screen controller, fluid hoses, automatic airless dispense valve, and fan spray tip.

970-231 **PrecisionFlo, Heated**
Includes: dual filter bank, 4-zone control panel, PrecisionFlo module, touch-screen controller, heated fluid hoses, automatic airless dispense valve, and fan spray tip.

Required and Optional Accessories
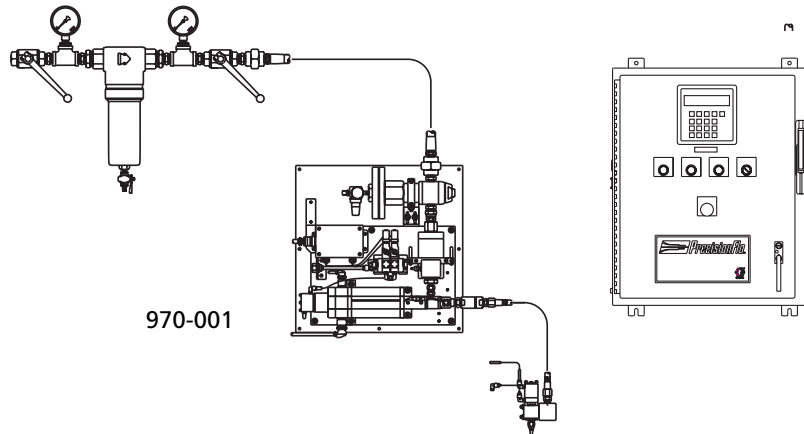***for PrecisionFlo Plus***

Robotic Interface
When ordering a PrecisionFlo metering package, a Robot Interface Kit is required. Select a 24 or 120 v kit.
918-635 24 v Kit
918-634 120 v Kit

Transformer Kits
970-244 Includes a 480/240 VAC to 120 VAC, 3KVA, 50/60 hertz, 1 phase, transformer, wire, fuses, and fittings to power the PrecisionFlo Plus control panel. May be used to power the PrecisionFlo panel.
970-257 Includes a 380 VAC transformer to power the 120 VAC PrecisionFlo Plus control panel.
970-285 Includes a 480/240 VAC to 120 VAC, 5KVA, 50/60 hertz, 1 phase, transformer, wire, fuses, and fittings to power the PrecisionFlo Plus control panel. May be used to power the PrecisionFlo panel and 4-zone temperature control panel.

SEALANT ADHESIVE EQUIPMENT

PrecisionFlo Ordering Information
with panel-mount controller technology

970-001

Automatic Extrude
For Application: Anti-Flutter (Mastic)

970-000 **PrecisionFlo, Temperature Conditioned**
Includes: filter, conditioned regulator, PrecisionFlo module, panel-mount controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve with nozzle.

970-001 **PrecisionFlo, Ambient, Knife Disconnect**
CE 970-276 **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: filter, regulator, PrecisionFlo module, panel-mount controller, fluid hoses, and automatic snuff back dispense valve with nozzle.

970-002 **PrecisionFlo, Heated**
Includes: filter, 4-zone control panel, heated regulator, PrecisionFlo module, panel-mount controller, heated fluid hoses, and heated automatic snuff back dispense valve with nozzle.

1K Automatic Extrude or Stream
For Applications:
* *Hem Flange Adhesive Bonding*
* *After Hem Sealing*
* *Structural Adhesive Bonding*

970-033 **PrecisionFlo, Temperature Conditioned**
Includes: filter, conditioned regulator, PrecisionFlo module, panel-mount controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve with extrusion nozzle and streaming tip.

970-034 **PrecisionFlo, Ambient, Knife Disconnect**
CE 970-277 **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: filter, regulator, PrecisionFlo module, panel-mount controller, fluid hoses, and automatic snuff back dispense valve with extrusion nozzle and streaming tip.

970-035 **PrecisionFlo, Heated**
Includes: filter, 4-zone control panel, heated regulator, PrecisionFlo module, panel-mount controller, heated fluid hoses, and heated automatic snuff back dispense valve with extrusion nozzle and streaming tip.

1K Automatic Swirl
For Applications:
* *Hem Flange Adhesive Bonding*
* *After Hem Sealing*
* *Structural Adhesive Bonding*

970-045 **PrecisionFlo, Temperature Conditioned**
Includes: filter, conditioned regulator, PrecisionFlo module, panel-mount controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-046 **PrecisionFlo, Ambient, Knife Disconnect**
CE 970-278 **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: filter, regulator, PrecisionFlo module, panel-mount controller, fluid hoses, automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-047 **PrecisionFlo, Heated**
Includes: filter, 4-zone control panel, heated regulator, PrecisionFlo module, panel-mount controller, heated fluid hoses, and heated automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

Automatic Extrude or Stream
For Application: Body Sealing

970-081 **PrecisionFlo, Temperature Conditioned**
Includes: filter, conditioned regulator, PrecisionFlo module, panel-mount controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve with extrusion nozzle and streaming tip.

970-082 **PrecisionFlo, Ambient, Knife Disconnect**
CE 970-279 **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: filter, regulator, PrecisionFlo module, panel-mount controller, fluid hoses, and automatic snuff back dispense valve with extrusion nozzle and streaming tip.

970-083 **PrecisionFlo, Heated**
Includes: filter, 4-zone control panel, heated regulator, PrecisionFlo module, panel-mount controller, heated fluid hoses, and heated automatic snuff back dispense valve with extrusion nozzle and streaming tip.

PrecisionFlo Ordering Information
with panel-mount controller technology

Automatic Swirl
For Application: Liquid Mask Sealing

970-095   **PrecisionFlo, Temperature Conditioned**
Includes: filter, conditioned regulator, PrecisionFlo module, panel-mount controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-096   **PrecisionFlo, Ambient, Knife Disconnect**
CE **970-280**   **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: filter, regulator, PrecisionFlo module, panel-mount controller, fluid hoses, automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-097   **PrecisionFlo, Heated**
Includes: filter, 4-zone control panel, heated regulator, PrecisionFlo module, panel-mount controller, heated fluid hoses, and heated automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-098   **PrecisionFlo, Temperature Conditioned**
Includes: dual filter bank, PrecisionFlo module, panel-mount controller, temperature conditioner with fluid hoses, temperature conditioned automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-099   **PrecisionFlo, Ambient, Knife Disconnect**
CE **970-281**   **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: dual filter bank, PrecisionFlo module, panel-mount controller, fluid hoses, automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

970-100   **PrecisionFlo, Heated**
Includes: dual filter bank, 4-zone control panel, PrecisionFlo module, heated fluid hoses, and heated automatic snuff back dispense valve, and PrecisionSwirl applicator and tip.

Automatic Stream or Shower
For Application:
• Underbody, Interior and Exterior Seam Sealing

970-101   **PrecisionFlo, Temperature Conditioned**
Includes: dual filter bank, PrecisionFlo module, temperature conditioner with fluid hoses, and AA3000-S stream dispense valve and streaming tip.

970-102   **PrecisionFlo, Ambient, Knife Disconnect**
CE **970-282**   **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: dual filter bank, PrecisionFlo module, fluid hoses, and AA3000-S stream dispense valve and streaming tip.

970-103   **PrecisionFlo, Heated**
Includes: dual filter bank, 4-zone control panel, PrecisionFlo module, heated fluid hoses, and AA3000-S stream dispense valve and streaming tip.

Automatic Extrude
For Application:
• Underbody, Interior and Exterior Seam Sealing

970-110   **PrecisionFlo, Temperature Conditioned**
Includes: dual filter bank, PrecisionFlo module, temperature conditioner with fluid hoses, automatic dispense valve, and 4 in. (10 cm) compliant nozzle.

970-111   **PrecisionFlo, Ambient, Knife Disconnect**
CE **970-283**   **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: dual filter bank, PrecisionFlo module, fluid hoses, automatic dispense valve, and 4 in. (10 cm) compliant nozzle.

970-112   **PrecisionFlo, Heated**
Includes: dual filter bank, 4-zone control panel, PrecisionFlo module, heated fluid hoses, automatic dispense valve, and 4 in. (10 cm) compliant nozzle.

Automatic Spray
For Applications:
• Underbody Deadener Heat Cure
• Rocker Panel Anti-Chip

970-127   **PrecisionFlo, Temperature Conditioned**
Includes: dual filter bank, PrecisionFlo module, temperature conditioner with fluid hoses, automatic airless dispense valve, and fan spray tip.

970-128   **PrecisionFlo, Ambient, Knife Disconnect**
CE **970-284**   **PrecisionFlo, Ambient, Rotary Disconnect**
Includes: dual filter bank, PrecisionFlo module, fluid hoses, automatic airless dispense valve, and fan spray tip.

970-129   **PrecisionFlo, Heated**
Includes: dual filter bank, 4-zone control panel, PrecisionFlo module, heated fluid hoses, automatic airless dispense valve, and fan spray tip.

PrecisionFlo Accessories

C58-854   **120 v Robot Interface Kit**
Includes stand alone enclosure for interfacing to a 120 v robot control. Note: PrecisionFlo control includes 24 v robotic interface.

970-216   **Handheld Interface Pendant**
Includes handheld pendant and cable for remote interfacing to PrecisionFlo control panel.

Transformer Kits
970-244   Includes a 480/240 VAC to 120 VAC, 3KVA, 50/60 hertz, 1 phase, transformer, wire, fuses, and fittings to power the PrecisionFlo Plus control panel. May be used to power the PrecisionFlo panel.

970-257   Includes a 380 VAC transformer to power the 120 VAC PrecisionFlo Plus control panel.

970-285   Includes a 480/240 VAC to 120 VAC, 5KVA, 50/60 hertz, 1 phase, transformer, wire, fuses, and fittings to power the PrecisionFlo Plus control panel. May be used to power the PrecisionFlo panel and 4-zone temperature control panel.

SEALANT ADHESIVE EQUIPMENT

Technical Specifications

Material viscosity range . . . . 10,000 to 1,000,000 cps*

Fluid inlet pressure range . . . . 500-3500 psi
(35-240 bar, 3.5-24.0 MPa)

Fluid flow rate range . . . . 0 to 3000 cc per min.*

Fluid inlet port . . . . 3/4 npt(f)

Fluid outlet port . . . . 3/8 npt(f)

Wetted parts . . . . SST (304,303), hard chrome over
17-4 pH SST, polyurethane, Buna-N, tungsten carbide

Max. fluid operating temperature . . . . 176°F (80°C)

Ambient air temperature range . . . . 40°-120°F (5°-50°C)

Response time: close to fully open . . . . . 15 milliseconds

Accuracy: repeatability to set point . . . . ± 5%

Air pressure requirements . . . . 60-120 psi
(4-8.3 bar, 0.4-0.83 MPa)

Air inlet port . . . . 3/8 npt(f)

Meter package dimensions 13 in. W x 19 in. L x 8 in. H**
(33cm W x 48cm L x 20cm H)

Meter package weight . . . . 60 lbs (27 kg)**
(Includes: linear servo meter, flow meter, gun solenoid,
air shaping regulator, baseplate and mounting hardware.
Mounts to robot arm.)

Electric power requirements

120 v . . . . 1 phase, 60 Hz, 13 amps

220 v . . . . 1 phase, 50 Hz, 8 amps

100 v . . . . 1 phase, 50 Hz, 16 amps

Analog control signal from robot . . . . 0 to 10 volt
or 4 to 20 milliamp

Instruction manuals . . PrecisionFlo Metering Package: 310-540
Linear Servo Metering Valve: 308-601
Control Assembly: 310-531

* .Note: Flow rate is dependent upon material viscosity, tip size and supply pressure.

** .Note: Dimensions and weight are without mounting hardware, cables, hoses, etc.

CE Marked Products
CE denotes the package complies with the European directives for products requiring CE marking.