PrecisionSwirl™
Electric Orbital Applicator for Sealants and Adhesives

Exclusive Graco® PrecisionSwirl technology provides consistent results

- Applies a uniform, circular loop pattern with clean edges and no mess
- Dispenses open or closed, wide or narrow pattern beads for a variety of applications
- Reduces downtime – virtually no tip plugging with PrecisionSwirl's large tip sizes
- Simplifies robotics programming for directional changes
- An orbiting nozzle allows you to apply material on vertical and horizontal surfaces
- Eliminates manual touch-up, masking and rework
PrecisionSwirl applicator technology delivers material consistently

PrecisionSwirl accurately applies a continuous swirled bead of material exactly where you want it, even in confined spaces. Because it dispenses the exact amount needed, you waste less material and save money. PrecisionSwirl technology reduces warranty cost and minimizes associated rework, repair, or scrap.

Get the full coverage and control you need with PrecisionSwirl.

Key Applications
- PVC Seam Sealing
- Hem Flange Adhesive Bonding
- Structural Adhesive Bonding
- After Hem Sealing
- Liquid Mask Sealing
- Liquid Applied Sound Deadening
- Window Glazing

Key Industries
- Automotive
  - Paint Shops
  - Body Shops
  - Stamping Plants
- Automotive Tiered Suppliers
- Appliance
- Door and Window
- Transportation
  - Truck
  - Bus
  - Recreational Vehicles
  - Farm Equipment

Key Fluids Handled
- PVC Plastisol
- Expandable Sealers
- Heat Cure Epoxy
- Waterborne and Epoxy
- Sound Deadeners
- Liquid Masking
Swirl applicator

PrecisionSwirl lets you adjust rotational speed, standoff distance and flow rate for greater control. Working at pressures up to 240 bar (3500 psi), the applicator dispenses a wide, flat bead onto the seam, creating a more resilient seal or adhesive bond — even in irregularly shaped parts.

**Swivel Union**
Allows optimal valve and orbiter orientation for each installation

**Reverse Braking**
Adjusts speed quickly to accommodate bead profile changes on the fly

**Analog Tachometer Signal**
Provides external speed monitoring for accurate, reliable dispensing

**Aluminum Housing with Tool Mounts**
- Precise repeatable installation
- No expensive robot reprogramming after servicing
- Light-weight for rapid application rates and minimal robot loading

**No Dynamic Seals on Applicator**
- High reliability and minimal downtime
- Maximizes production time

**Orbiting Nozzle**
- Applies an accurate bead of material on vertical and horizontal surfaces
- Three offset options for varied bead widths

**Round Orifice Carbide Tips**
- Reduces tip wear
- No need for alignment after servicing

**Smooth Neat Consistent Beads**

Open Bead  Closed Continuous Bead
Intuitive Advanced Controls for Ease of Use

Flexible configurations

PrecisionSwirl can be configured using a stand-alone module or integrated into the PrecisionFlo™ XL as an automated system.

PrecisionFlo XL with integrated PrecisionSwirl

- Complete dispensing solution in one package
- Simplifies use and application commissioning
- No separate electrical backup required – minimizes installation costs
- Lets you monitor swirl application on a large graphic display

Stand-alone control

- Used with Graco PrecisionFlo LT
- Digital speed control provides consistent application bead profiles
- System matched to Graco PrecisionSwirl application for trouble-free operation
- Simple user interface and connectivity provide easy system start-up
**Compare and Save with PrecisionSwirl**

**Compare PrecisionSwirl to flat stream and competitive air swirl alternatives**

With hundreds of global installations and over five years in the industry, PrecisionSwirl is simply the best choice for increased productivity and improved efficiency.

- Consistent and reliable in high production environments
- Exceptional pattern control, uniform bead profile and consistent coverage
- Cost savings compared to flat stream and air swirl technologies

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**Technical Comparison**

<table>
<thead>
<tr>
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<th>PrecisionSwirl</th>
<th>Air swirl</th>
<th>Flat stream</th>
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<tbody>
<tr>
<td><strong>Quality</strong></td>
<td>• Consistent swirl edges for predictable material usage</td>
<td>• Variable swirl edges</td>
<td>• Customized nozzle design for each application &amp; designed bead profile</td>
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<td>• No air turbulence; consistent bead profile</td>
<td>• Air turbulence causes inconsistent edges and pattern bead profile</td>
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<td></td>
<td>• Wide variety of pattern widths, material thickness and patterns</td>
<td>• Small selection of pattern widths</td>
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<td></td>
<td>• Consistent pattern control</td>
<td></td>
<td>• Inconsistent pattern control</td>
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<td></td>
<td>• Electrically operated</td>
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<td><strong>Productivity</strong></td>
<td>• Tip to part stand-off distance: 75 mm - 200 mm</td>
<td>• Tip to part stand-off distance: 75 mm - 200 mm.</td>
<td>• Orientation dependent requires complex robot programming</td>
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<td>• Large filter mesh/lower maintenance</td>
<td><em>May also require 65° angle.</em></td>
<td>• Smaller filter mesh/ higher maintenance</td>
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<td>• Minimal tip wear</td>
<td><em>Robot programming is complex</em></td>
<td>• Frequent tip wear</td>
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<tr>
<td></td>
<td>• Virtually no tip plugging; applicator passages stay clean</td>
<td>• Applicator passages may accumulate material and require maintenance</td>
<td>• Tip plugging</td>
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<td></td>
<td>• Operates in all directions; better operation on irregular shaped parts</td>
<td>• Difficult to use in confined areas</td>
<td>• Directional pattern only</td>
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<td><strong>R.O.I.</strong></td>
<td>• 12-24 month life</td>
<td>• Increased compressed air consumption and associated cost</td>
<td>• High annual replacement &amp; maintenance cost</td>
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<tr>
<td>Return on Investment</td>
<td>• No additional compressed air required</td>
<td>• Nozzles are typically carbon or stainless steel</td>
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*Competitive air swirl* | *PrecisionSwirl*
Technical Specifications

Control Panel
- Input power: 85-264 VAC, 50/60 Hz, 1 phase
- Output power: PWM control of the motor
- Automatic control analog input (speed adjustment): 0-10 Vdc or 0-5 Vdc
- Auto control relay contact rating: 3 amps at 30 VDC
- Weight: 10.7 kg (23.5 lbs)

Swirl Orbital Applicator
- Input power: Proprietary PWM control of the motor
- Minimum motor speed: 6,600 rpm
- Maximum motor speed: 24,000 rpm
- Maximum operating pressure: 241 bar (24.1 MPa, 3500 psi)
- Fluid inlet: 3/4-16 in 37° JIC female swivel
- Wetted parts: Stainless steel, nickel alloy, braze alloy, epoxy, EPDM rubber
- Noise level: Sound pressure level – 67 dBA
- Weight: 0.7 kg (1.6 lbs)

Temperature Conditioned Dispense Valve
- Maximum fluid working pressure: 241 bar (24 MPa, 3500 psi)
- Maximum working dry air pressure: 10 bar (1 MPa, 150 psi)
- Material inlet (to conditioning manifold): 1/2 npt
- Air inlet: 1/8 npt (m)
- Conditioning fluid inlet/outlet: (2 ports) 1/4 npt, (4 ports) 1/8 npt
- Wetted parts: Stainless steel, aluminum, UHMWPE, Fluoroelastomer, black oxide coated CS, Hytrel elastomer
- Maximum temperature rating: 60°C (140°F)
- Weight (approximate): 2 kg (4.4 lbs)
- Instruction manuals:
  - PrecisionSwirl Orbital Dispenser: 309403
  - PrecisionFlo XL Control: 309374
  - PrecisionSwirl Stand-Alone Control: 310554

Standard Version
PrecisionSwirl Orbital Dispenser Dimensions;
Part Numbers 243402 and 243403

Compact Version
PrecisionSwirl Orbital Dispenser Dimensions;
Part Numbers 289261 and 289262
Repair Kits

241479 Swirl Motor Assembly
Order bearing and coupler separately.

241569 Tool Kit
Includes various tools required for servicing the Swirl applicator and tube bearing.

241466 Tube Bearing Wide Pattern Coupler Assembly
Tool kit (241569) required for replacement. (Dispenser part #243403)

243256 Tube Bearing Narrow Pattern Coupler Assembly
Tool kit (241569) required for replacement. (Dispenser part #243402 & 289262)

289531 Tube Bearing Medium Pattern Coupler Assembly
Tool kit (241569) required for replacement. (Dispenser part #289261)

289311 Compact Version Tube Bearing Medium Pattern Coupler Assembly
Tool kit (241569) required for replacement. (Dispenser part #289261)

289312 Compact Version Tube Bearing Narrow Pattern Coupler Assembly
Tool kit (241569) required for replacement. (Dispenser part #289262)

158619 Bellows Seal
Qty: 1 – Fluoroelastomer

246290 Bellows Seal Kit
Qty: 12 – Fluoroelastomer

ORDERING INFORMATION

BUILD YOUR SYSTEM

SWIRL DISPENSERS

- STANDARD VERSION -
  243402 PrecisionSwirl Orbital Dispenser
  0.012 (0.3 mm) coupler offset for smaller bead widths. Typical for hem flange, after hem, etc. -OR-  
  243403 PrecisionSwirl Orbital Dispenser
  0.028 (0.7 mm) coupler offset for larger bead widths. Typical for seam sealing applications.

- COMPACT VERSION -
  289262 PrecisionSwirl Orbital Dispenser
  0.012 (0.3 mm) coupler offset for smaller bead widths. Typical for hem flange, after hem, etc. -OR-
  289261 PrecisionSwirl Orbital Dispenser
  0.018 (0.5 mm) coupler offset for larger bead widths. Typical for seam sealing applications.

SWIRL DISPENSE TIPS

918610 - 0.012”
918601 - 0.015”
918602 - 0.017”
918603 - 0.019”
918604 - 0.021”
918605 - 0.023”
918606 - 0.025”
918607 - 0.027”
918608 - 0.030”
918609 - 0.033”
918611 - 0.035”
918612 - 0.039”
918613 - 0.043”
918614 - 0.047”
241813 - 0.051”
241814 - 0.055”
241816 - 0.070”

DISPENSE VALVES

243462 1K Ultra-Lite
Dispense Valve with 45 degree connection -OR-
243666 1K Ultra-Lite
Dispense Valve straight connection -OR-
For EnDure straight connection, order:
244910 - EnDure Valve
197504 - Straight Flange Adapter, Endure -OR-
For EnDure 45 degree connection, order:
244910 - EnDure Valve
197842 - 45 degree Nosepiece
198323 - Alternative Orbiter Nut
198324 - Nosepiece to Orbiter Fitting

SMALL DISPENSER ACCESSORIES

196039 Small Profile Retainer
Replaces standard nozzle guard. Allows easier access in confined spaces.

196160 Teach Adapter
Replaces nozzle guard during robot path teaching.

MOTOR EXTENSION CABLES

233125 6ft (1.8 m) Extension Cable
-OR-
233124 9ft (2.7 m) Extension Cable
-OR-
233123 15ft (4.6 m) Extension Cable
Connects PrecisionSwirl orbital applicator to motor cable.

MOTOR CABLES

617870 Motor Cable
55ft (16.8 m)
Can be used alone or in conjunction with Cable Extension.
Connects PrecisionSwirl control panel to extension cable or directly to PrecisionSwirl applicator.

198730 Motor Cable
110ft (33.6 m)
Can be used alone or in conjunction with Cable Extension.
Connects PrecisionSwirl control panel to extension cable or directly to PrecisionSwirl applicator.

START ORDER

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SPECIAL ULTRA-LIGHT VALVE KIT

243666 Ultra-Lite Valve

9

1K ULTRA-LITE VALVE KIT

243462 1K Ultra-Lite Valve

FINISH ORDER

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ROBOT INTERFACE CABLE

617829 Robot Interface Cable Assembly
40 ft (12.2 m)
Connects PrecisionSwirl control panel to robot control panel.
Accepts a 0-10 volt signal to adjust RPM.

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CONTROLLER

918616 PrecisionSwirl Control Assembly
Must order appropriate cables separately to connect to dispenser.
ABOUT GRACO

Founded in 1926, Graco is a world leader in fluid handling systems and components. Graco products move, measure, control, dispense and apply a wide range of fluids and viscous materials used in vehicle lubrication, commercial and industrial settings.

The company’s success is based on its unwavering commitment to technical excellence, world-class manufacturing and unparalleled customer service. Working closely with qualified distributors, Graco offers systems, products and technology that set the quality standard in a wide range of fluid handling solutions. Graco provides equipment for spray finishing, protective coating, paint circulation, lubrication, and dispensing sealants and adhesives, along with power application equipment for the contractor industry. Graco’s ongoing investment in fluid management and control will continue to provide innovative solutions to a diverse global market.