Solutions for the Automotive Component Industry

Dependable Fluid Handling Equipment
### Operations

- Molding
- Stamping
- Blanking
- Forming
- Machining
- Cleaning
  - Automatic
  - Manual
- Chemical Dosing
- Buffing and Polishing
- Bonding
  - Metal to Rubber
  - Spray Adhesive
  - Hot Melt
  - Plural Component
  - Single Component
- Single Component Sealing
- Protective Coatings
- Boothside Spray Systems
- Circulating Systems
- Low Pressure Spray Application
- Electrostatic Waterborne Spray Application
- Electronic Plural Component Mixing

### Equipment

- Diaphragm Pumps
- Small Spray Packages
  - Air Spray
  - HVLP
  - Electrostatic (E/S)
- Feed Systems
  (small circ. packages)
- Diaphragm Pumps
- Cleaning Packages
- Airless Guns
- Medium Pressure Pumps
- Airless Pump Packages
- Spray Adhesives
- Boothside Spray Packages
- Low, Medium, and High Volume Circulating Modules
- Boothside and Satellite Safety Mix Tank Systems
- Sealant and Adhesive Dispense and Extrusion
  - 1K, Low Viscosity, Manual and Auto
  - 2K, Low Viscosity, Manual and Auto
- Hot Melt Bonding
  - Feed Equipment
  - Dispensers
- Fluid Supply Systems
- Complete Airless Packages
- Manual Spray Packages
- Automatic Spray Packages
- Low, Medium, and High Volume Circulating Modules
- Boothside and Satellite Safety Mix Tank Systems
- Automatic & Manual Spray Guns
- Voltage Blocks
- Waterborne Coating Spray Guns

### Fluids

- Mold Release
- Lubricants
- In-mold Coatings
- Coolants
- Chemicals
- Buffing Compounds
- Adhesives
- Sealants
- Hot Melts
- Primers
- Base Coats
- Top Coats
- Protective Coatings
THE RIGHT FLUID HANDLING EQUIPMENT FOR THE JOB

Whether you’re applying sealants and adhesives, spraying primers, basecoats or topcoats or dispensing lubricants, Graco provides fluid handling equipment solutions for all phases of automotive component manufacturing, from pre-engineered packaged solutions to custom designed systems. We work closely with leading materials manufacturers and pre-test our equipment to ensure compatibility and performance with the fluids you use, including mold release and die lubricants, polyurethane and epoxy coatings, acrylic and silicone adhesives. Since materials are always changing, Graco tests and evaluates its equipment solutions to ensure top performance as well as anticipate new product development requirements.

From pump to gun, drum to applicator, circulating systems to electronic plural component proportioners, you can depend on Graco fluid handling equipment to improve production quality and reduce process costs. Long-lasting, reliable performance means consistent, high quality results and reduced maintenance. For replacement parts or service, a network of knowledgeable distributors is dedicated to keeping your plant up and running.

So no matter what you manufacture—interior or exterior trim, engines and powertrain components, electrical and electronic parts or metal body panels—Graco has the right equipment for your fluid handling application.

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## GRACO FLUID HANDLING EQUIPMENT IS HARD AT WORK IN THE MANUFACTURING OF:

<table>
<thead>
<tr>
<th>Exterior</th>
<th>Interior</th>
<th>Engine, Powertrain</th>
<th>Electrical, Electronics</th>
<th>Body Panel Metal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fascia</td>
<td>Dash Panels</td>
<td>Engines &amp; Components</td>
<td>Alternators</td>
<td>Doors</td>
</tr>
<tr>
<td>Side Cladding</td>
<td>Door Panels</td>
<td>Cooling Systems</td>
<td>Batteries</td>
<td>Deck Lids</td>
</tr>
<tr>
<td>Mirrors</td>
<td>Headliners</td>
<td>Exhaust Systems</td>
<td>Audio Systems</td>
<td>Fenders</td>
</tr>
<tr>
<td>Spoilers</td>
<td>Instrument Cluster</td>
<td>Transmissions</td>
<td>Alarm Systems</td>
<td>Hoods</td>
</tr>
<tr>
<td>Wheel Covers</td>
<td>Seating</td>
<td>Suspensions</td>
<td>Instrumentation &amp; Gauges</td>
<td>Quarter Panels</td>
</tr>
<tr>
<td>Bumpers</td>
<td>Carpeting</td>
<td>Steering Systems</td>
<td>Wiring Harnesses</td>
<td>Roofs</td>
</tr>
<tr>
<td>Moldings</td>
<td>Arm Rests</td>
<td>Brake Systems</td>
<td>Switches</td>
<td>Side Frames</td>
</tr>
<tr>
<td>Grills</td>
<td>Upholstery</td>
<td>Climate Control</td>
<td>Circuit Boards</td>
<td>Tailgates</td>
</tr>
<tr>
<td>Door Handles</td>
<td>Sun Visors</td>
<td>Fuel Systems</td>
<td>Solenoids</td>
<td>Firewalls</td>
</tr>
<tr>
<td>Tires</td>
<td>Handles</td>
<td>Pulleys</td>
<td>Spark Plugs</td>
<td>Floor Pans</td>
</tr>
<tr>
<td>Head Lamps</td>
<td>Ashtrays/Cupholders</td>
<td>Brackets</td>
<td>Sensors &amp; Controls</td>
<td>Frames</td>
</tr>
<tr>
<td>Tail Lamps</td>
<td>Steering Wheels</td>
<td>Shocks &amp; Struts</td>
<td>Motors</td>
<td>Supports</td>
</tr>
</tbody>
</table>
Various fluids are used when parts are shaped, cut, stamped, machined or molded. For example, lubricants are applied over dies prior to cutting or stamping to reduce tool wear and metal surface defects. In molding, a thin film of mold release is applied to the surface to prevent material from sticking to the mold. Machining applications require coolant supply and circulation to avoid heat build-up in the part. Graco air spray and HVLP spraying systems and air-operated double diaphragm pumps are used in the fabrication process to efficiently pump, fill, spray, circulate, filter and refill tanks with fabrication processing materials.

Machine coolant application using Graco air operated diaphragm pumps.
PREPARATION

In the preparation process, cleaning, rinsing and sealing are done prior to finishing. For automatic parts washing systems, Graco equipment speeds production with its reliable air-operated double diaphragm pumps in fluid transfer and chemical dosing applications. Graco also offers a line of manual air-operated cleaning packages for batch or off-line applications.

Graco air-operated diaphragm pump used to process wastewater.
In the automotive components manufacturing industry, sealants and adhesives are widely used in sealing, bonding, and product assembly applications. Graco provides a full range of innovative single component, plural component and hot melt equipment solutions. Whether you're assembling headlights with hot melt bonding adhesive, or fabricating interior seating using two component spray adhesive, we have the pumping and delivery equipment that's right for your manufacturing process.

**ADDITIONAL APPLICATIONS**

- **Hot Melt Bonding**
  Plastic and metal insert bonding to metal stamping
  Metal to metal stamped part assemblies
  Plastic to plastic assemblies
  Soft interior parts to structural substrates

- **Single and Plural Component Sealant Application Equipment to Apply:**
  Single component epoxies to improve structural integrity of sheet metal assemblies
  Plural component epoxies to manufacture electrical components
  Silicones for sealing and joining a variety of electrical and plastic components
  Urethanes and acrylics for structural bonding operations

1. Manual bead dispense bonding application
2. Gasket forming dispense application
3. Headlight bonding application
FINISHING

From protective coatings to batch finishing operations, circulating systems to low pressure spraying, Graco equipment helps move, measure, control and apply various paints and coatings needed for top quality finishes. Our state-of-the-art paint circulation systems, automatic and manual spray finishing equipment, and plural component proportioners provide consistent ratio-assurance for each part you produce. This means better quality finishes that stand up to the elements. Graco electronic proportioners also provide data reporting capabilities to support environmental regulations, maintain consistently high performance standards, and satisfy ISO 9000 process control requirements.

USE GRACO EQUIPMENT IN ALL FINISHING PROCESS STAGES

- Temporary and permanent protective coatings
- Batch finishing operations
- Circulating systems
- Manual or automatic low pressure spray application
- Electrostatic waterborne spray application
- Mechanical or electronic plural component mixing applications
CHOOSE GRACO

Graco is your best choice for durable, reliable fluid handling equipment. Our products have been tested and proven throughout the automotive and automotive component manufacturing industries. They also easily integrate with your plant’s current operation, help reduce material costs, and increase productivity.

Our dedication to superior products and performance is second only to our commitment to your industry and processes. A global network of certified automotive and automotive components distributors and sales representatives provide knowledgeable technical support and service. So call us today for the distributor nearest you.

1-800-367-4023
Exterior rigid plastic fascias, panels, cladding, fenders, wheel covers, spoilers and mirrors are typically TPO (Thermo Plastic Olefin), RIM (Reaction Injection Molded) or SMC (Sheet Molded Compounds) materials that are molded, trimmed, cleaned and then finished. These components are typically produced in specialized manufacturing locations and may be molded and then finished at separate locations. While the finishing quality requirement is similar to that of OEM automobile manufacturers, these components require different coatings and processes specifically developed for flexible plastic substrates.

Bias tires, bias belted tires and radial tires are vulcanized in a high temperature molding process, after which they may receive a protective coating (typically on whitewall tires), and then lubricant/sealant is applied to the inside and outside bead to allow easier mounting of the tire on the rim or wheel.

Steel rims are typically stamped, formed and welded, followed by either painting or chrome plating. Painted rims may be electrocoated in a dip process or sprayed if color keyed. Chrome wheels are plated, then polished or buffed in a multi-step process.

Steel truck bumpers and other exterior metal trim components are stamped and formed from heavy gauge steel, and then either chrome plated or painted. Aluminum parts are typically polished and sealed to protect the finish.

Interior rigid plastic components such as instrument panels, dash panels, side panels, console panels and pillar panels, are typically molded thermoplastics, which are often finished with two component coatings.

Soft interior components such as headliners, visors, door panels, decks and covers are typically manufactured by adhesive bonding of the finish material to pressed hardboard panels.

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Interior soft plastic components such as arm rests, dash panels and steering wheels are typically molded polyurethane foam which are finished with a two component urethane. Some components are coated with a tactile, two component urethane to achieve a soft textured finish. Tactile coating spray application is replacing many vinyl wrap and flocking processes for interior trim finishing.

Seating frames are typically manufactured from stamped and tubular metal parts that are welded and finished. Seating is molded foam. The fabric is then glued to the foam with spray applied adhesive. The seat is then fully assembled and shipped to the OEM automobile manufacturer.

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Suspension components such as engine and transmission mounts, suspension, leaf spring, “A” frame, Mcpherson strut, shock isolator and exhaust hanger bushings, and elastomer ball joints are typically manufactured with a metal to rubber bond. Both solventborne and waterborne adhesive bonding are used. They are usually applied in both primer and topcoat to the heated metal parts prior to the rubber molding process.

Most headlight and taillight assemblies consist of a polypropylene or ABS injection molded housing and polycarbonate injection molded lens. They are assembled and sealed, along with a lamp assembly and wiring connector, into a complete sub-assembly, which is installed in the final trim area of the OEM manufacturing line. Similar processes are used with other lighting fixtures, including fog lights, turn indicators and interior lighting.

Metal body panel stamping begins in the heavy press area where door, hood, deck lid and other panels are stamped and progressive die formed from coil stock. These panels are then trimmed and assembled to form structural sub-assemblies by joining the pieces together by additional die forming, bonding, and welding.

Aluminum wheels are cast, machined, then finished with a clear topcoat. An additional color coat may be applied to unmasked areas of the wheel prior to topcoating.

Under the hood or interior metal components consist of sheet metal brackets, pulleys, idler arms, fans, air cleaner housings, etc. that require corrosion protection. Sealants are often used to provide additional structural strength when parts are mechanically joined by forming or welding.
ABOUT GRACO
First choice when quality counts

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 specialized distributors, Graco offers systems, products and technology which set the quality standards in a wide range of fluid handling applications including spray finishing and paint circulation, lubrication, 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.

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