

Next Generation of Lightweighting

Sunstar's Next Generation Low Density Sealers

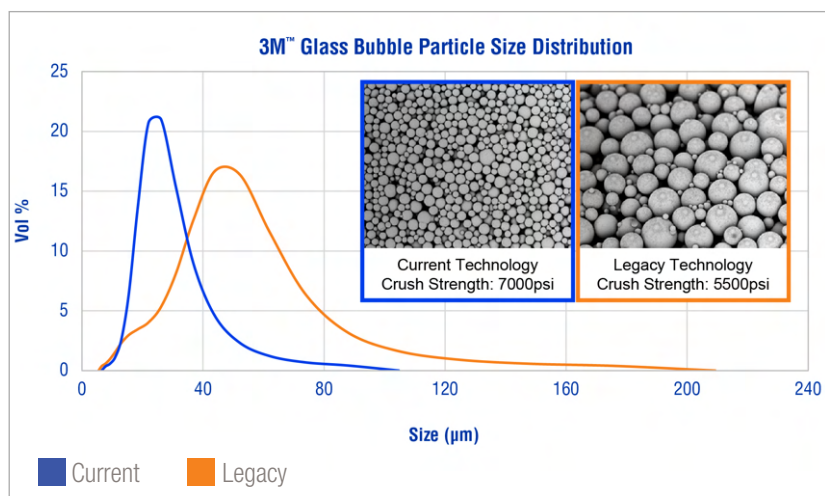
Offer weight savings with superior processability, gap coverage, and Class A paintable appearances for automotive paint-shop applications. Formulated with the 3M™ Glass Bubbles made with current technology, these one component PVC body sealers are designed to retain density and minimize equipment wear under robust processing conditions while also providing high strength, elongation, and adhesion to Electrodeposition coatings on all automotive substrates.

SEALER ATTRIBUTES	STANDARD DENSITY	NEXT GENERATION	LEGACY SEALER	ALTERNATIVE TYPE
LIGHTWEIGHT FILLER	NONE	3M™ GLASS BUBBLES <i>made with current technology</i>	3M™ GLASS BUBBLES <i>made with legacy technology</i>	POLYMERIC SPHERES
DENSITY (g/cc)	1.3-1.6	0.8-1.2		
DENSITY RETAINMENT*	100%	≥ 98%	≥ 95%	< 90%
CLASS A PAINT SURFACE	YES	YES	NO	
EQUIPMENT WEAR*	CONTROL	≤ CONTROL	> CONTROL	≤ CONTROL
WORKABILITY	CONTROL	CAN BE FORMULATED TO MATCH CONTROL		
MULTIPLE SEALING APPLICATIONS	YES	YES		NO

*Density Retainment and Equipment Wear as dependent on certain process parameters and equipment

3M™ Glass Bubbles

3M Glass Bubbles are hollow glass microspheres that are an industry-proven solution that can replace heavier fillers to help reduce the overall weight of automotive sealants.

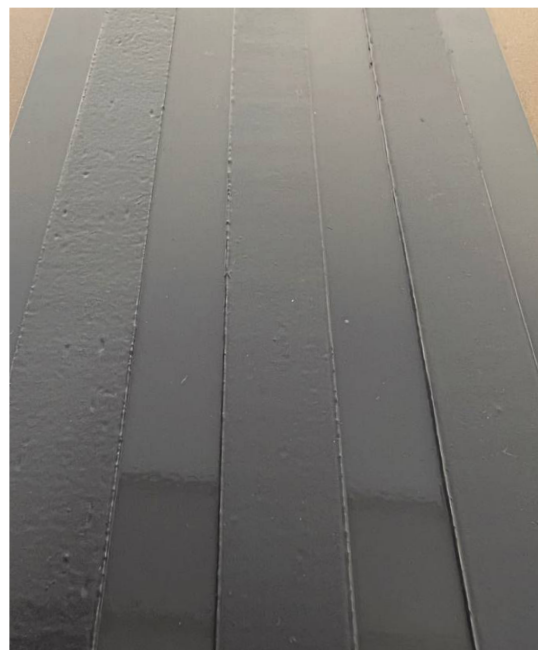


Product Types

Paintable and non-paintable:

- Seam Sealants
- Hem Sealants
- Roof Ditch Sealants
- Underbody Coatings
- Universal

Legacy Sealer Next Generation Standard



Legacy sealer vs Next Generation Lightweight Sealers vs Standard Density Control – Painted with OEM Primer

Recommended Equipment Configuration

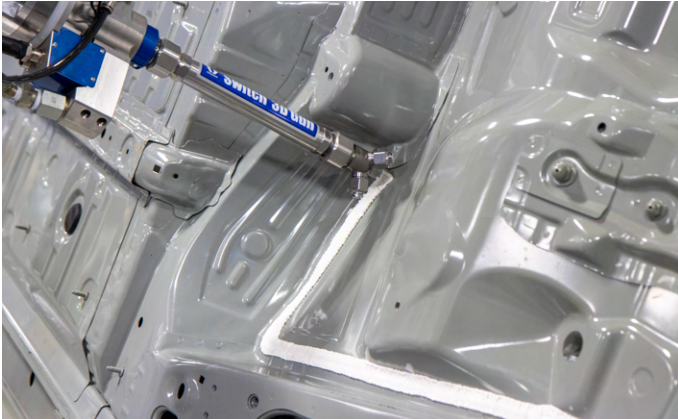
Graco Switch 3D Gun with Slot Tips

Pros:

- Consistent slot stream thickness from edge to edge
- Performed the best in gap coverage tests
- Ability to dispense from 3 different tip configurations gives flexibility in programming robot paths to optimize cycle time
- Tip seal shut off for clean start and stops

Cons:

- Have to be close to the substrate (7 – 10 mm) for best quality



Switch 3D Gun

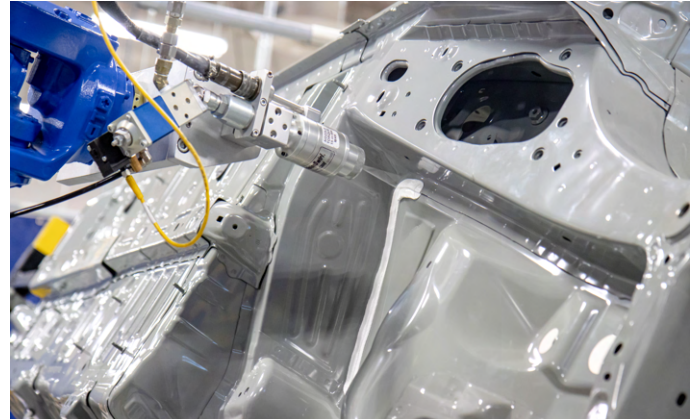
Graco Precision Swirl with iQ Snuff Back Valve

Pros:

- Can be programmed to dispense at a distance from the substrate, allowing for better clearance from objects on car body
- Simple robot programming for most motion paths

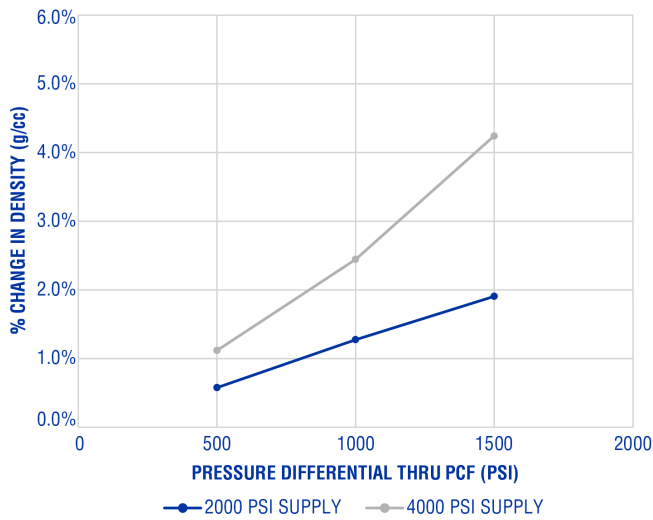
Cons:

- Harder to program robot paths with tighter clearance restraints since an offset is required for pattern width

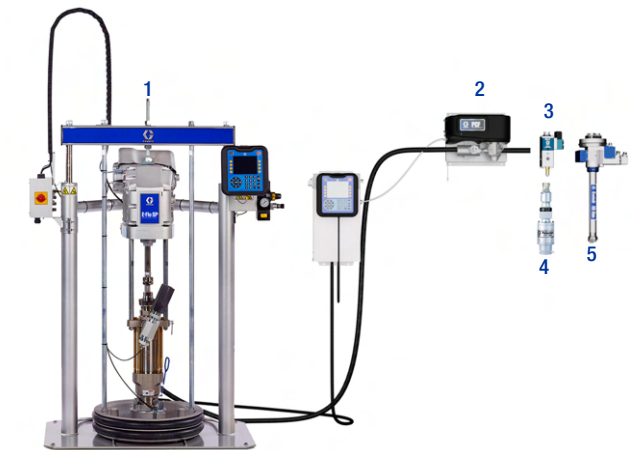


Precision Swirl

SUNSTAR NEXT GENERATION SEALER WITH 3M™ GLASS BUBBLES SURVIVABILITY THRU GRACO PCF/3D SWITCH GUN



*Final density measurement taken at outlet of the applicator



- 1 Electric supply system 5-300 gallons
- 2 Precision Continuous Flow metering & dispensing systems (PCF)
- 3 iQ-S Snuff-Back Valve
- 4 Precision Swirl Orbital Sealant Dispensers
- 5 Switch 3D Gun High-Pressure Rotary Applicator for Automotive Sealing

In collaboration with



SUNSTAR

For warranty and product information, refer to material and equipment supplier information.