



# Solar Energy

Equipment Solutions for Solar Energy Applications



## Precision dispensing for consistent results

- Equipment solutions for one-component or two-component silicones
- Precision bead control for superior sealing
- Ratio assurance for a consistent cure – results in proper assembly
- Advanced control technology lets you download process data onto a flash drive to verify material was dispensed accurately and on-ratio

PROVEN QUALITY. LEADING TECHNOLOGY.

# Precision dispensing equipment for solar manufactur



*From rail bonding to potting J-boxes and sealing solar module frames, Graco is your source for durable, reliable fluid handling systems required for manufacturing the highest-quality solar energy components.*

## Graco PCF Metering System

The Graco PCF Metering System dispenses a precise, continuous flow of single component sealants or adhesives in solar panel manufacturing. Advanced technology provides ultimate control, resulting in smooth, consistent beads, dots and spray patterns.

The Graco PCF ensures consistent material flow through closed-loop technology. It takes feedback from the fluid stream, and adjusts for changes in material temperatures, viscosities, dispense rates or robot speeds. Real-time adjustments mean the Graco PCF delivers a highly precise, continuous dispense.



### Intuitive, easy to use user interface

The Graco PR70™, HFR™ Metering System and PCF™ Metering System feature intuitive user controls based on the Graco Control Architecture™.

## Graco HFR Metering System

The Graco HFR Metering System provides repeatable on-ratio results with plural-component materials. Ideal for low- to high-viscosity compounds, this hydraulic, fixed ratio metering system is advanced and reliable, yet affordable.

- Offers continuous flow bead dispensing (manual or automated)
- Flexible shot size range – well suited for larger shot sizes (10 cc's and above)
- Provides a fixed ratio range of 1:1 to 32:1



## Graco PR70 Meter, Mix and Dispense System

The Graco PR70 is a pneumatic system that accurately meters, mixes and dispenses two-component low- to high-viscosity silicones.

- Economical solution for smaller shot sizes (2 to 70 cc's) or bead dispensing
- Offers manual bead dispensing in the operator control mode
- Available in fixed or variable ratio models

## Both the PR70 and Graco HFR offer:

- On-ratio mixing with accuracies of +/- 1%
- Positive displacement piston pumps for shot accuracy
- Heat options to condition high-viscosity materials
- Optional flow meter package for additional ratio detection and data collection
- Multiple feed option variations for tanks and drums, including agitation
- Accurate dispensing — the MD2 valve offers a snuff-back feature for a clean, non-drip shut-off (Hand-held or fixed mount)
- Local service and support through trained distributors



## Less training time

Products using Graco Control Architecture provide similar functionality across your plant – which results in less training time for your operators. In other words, if you learn one system, you are already familiar with the other.

## Features

- Immediate access to error/event history
- Material usage and pump cycle counter
- Simple interface for machine calibration
- Easy configuration of integrated temperature controls
- Programmable shot sizes and sequencing – store up to 50 different shot sizes with the PR70 and 100 for the Graco HFR Metering System



# Technical Specifications

Everything you need to make an informed decision

	PR70	HFR
<b>Materials for filter applications</b>	Polyurethanes, epoxies and silicones	Polyurethanes, epoxies and silicones
<b>Dimensions</b>	PR70 with 7.5 L on-board tanks: 15.5W x 38.2H x 30.6D in (39 x 97 x 78 cm) PR70 with 60 L off-board tanks: 32.1W x 64.9H x 29.3D in (39 x 97 x 78 cm)	48W x 59H x 34D in (122 x 150 x 86 cm)
<b>Weight</b>	120 to 370 lb (168 to 54 kg)	634 to 868 lb (287.6 kg to 393.7 kg)
<b>Ratio range</b>	Fixed: 1:1 to 12:1 Variable: 1:1 to 24:1	Fixed: 1:1 to 32:1
<b>Ratio tolerance range</b>	Up to +/- 1%	Up to +/- 1%
<b>Max flow rate – viscosity dependent</b>	Up to 2100 cc's per min at 1:1	Up to 50 lb per min
<b>Shot size range</b>	2 to 70 cc's with 1:1 material	10 cc's and above, continuous flow
<b>Maximum fluid working pressure</b>	3000 psi (207 bar, 20.7 MPa)	3000 psi (207 bar, 20.7 MPa)
<b>Fluid viscosity range</b>	Up to 1 million centipoise	Up to 1 million centipoise
<b>Compressed air</b>	< 10 SCFM typical (varies with cycle time)	< 1 scfm of air to cycle MD2 Valve
<b>Wetted parts</b>	303/304, 17-4 PH, hard chrome, Chromex™, carbide, chemical resistant O-rings, PTFE, nylon, UHMWPE	Stainless steel with Chromex™ finish, tungsten carbide seats, UHMWPE pistons
<b>Electrical power</b>	100-240V, 50/60 HZ, 1-ph for machine 100-240V, 50/60 HZ, 1-ph for on board agitators 208-240V, 50/60 HZ, 1-ph for heat	230V, 1-ph 230V, 3-ph 400V, 3-ph
<b>Gateway communications options</b>		Discrete I/O, DeviceNet™, EtherNet I/P™, PROFIBUS™, PROFINET™
<b>Options</b>	<ul style="list-style-type: none"> <li>– Heat options for high-viscosity materials</li> <li>– Feed package options available for agitation, heat and degassing applications (See 338863 for complete list of options)</li> <li>– Transducer package for ratio assurance</li> <li>– Flow meter package for ratio assurance</li> </ul>	<ul style="list-style-type: none"> <li>– Heat options for high-viscosity materials</li> <li>– Multiple feed option variations for tanks and drums, including agitation and level sensing</li> <li>– Flow meter package for ratio assurance</li> <li>– Transducer package for ratio assurance is standard</li> </ul>



*Optional flow meter package monitors the flow of "A" and "B" materials, detects out-of-ratio conditions and records data for further analysis. For PR70 or Graco HFR Metering System.*

## Contact us today!

To receive product information or talk with a Graco representative, call 800-746-1334 or visit us online at [www.graco.com](http://www.graco.com).

