



# THERM-O-FLOW<sup>®</sup>

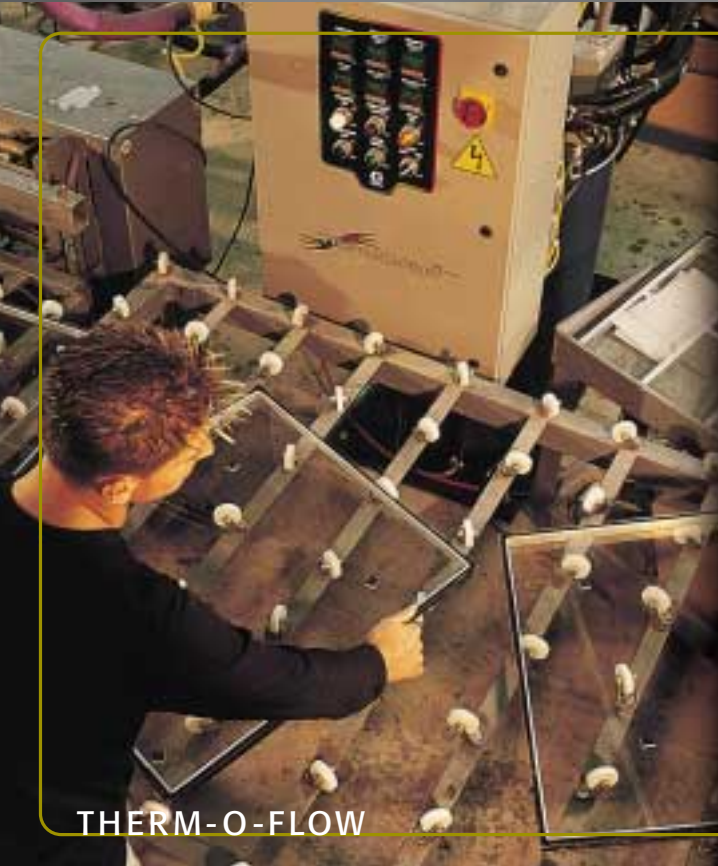
Durable hot melt bulk unloaders



SEALANTS AND ADHESIVES

PROVEN QUALITY. LEADING TECHNOLOGY.

# The Solution for all of your Hot Melt Applications



## Handles any material, anytime!

Designed to handle hot melts of all viscosities and abrasiveness, the Therm-O-Flow® hot melt systems from Graco® outperform the competition time after time. They easily integrate into any system, require little maintenance, and are one of the most durable bulk hot melt unloaders on the market.

## Benefits:

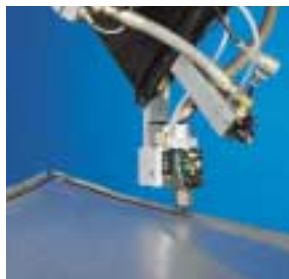
- High-output per cycle reduces pump wear for longer life and low maintenance costs
- Easy-to-change packing seals reduce downtime
- Fluid pump section is Severe Duty® construction for extended life in abrasive materials
- Extra-long life pump-rod packings prevent leaks
- Exceptional performance with a wide range of materials at almost any viscosity
- Quick and easy programming of temperature controls

## Key Applications

- |                      |                                 |
|----------------------|---------------------------------|
| Insulated Glass      | Furniture Assembly              |
| Automotive Interiors | Doors Lamination                |
| RV Lamination        | Bookbinding                     |
| Window Manufacturing | Tape and Label Manufacturing    |
| Cable Manufacturing  | Transferring Hot Melt Adhesives |

## Key Materials

- Butyl Rubber
- Ethylene Vinyl Acetate (EVA)
- Polyimide
- Polyurethane Reactive (PUR)
- Pressure Sensitive Adhesives (PSA)
- Polysobutylene (PIB)
- Warm Melt Sealers



## Selection Guide

Use this chart to determine which Therm-O-Flow unit is right for you. All units are available with Severe Duty pump lower construction for the most abrasive materials.

MODEL	PUMP STYLE	CONTAINER SIZE	MAXIMUM MELT RATE	VISCOSITY
Therm-O-Flow 20	15:1 President 2-ball	5-gallon (20 l)	0.5 lbs/min.* (0.23 kg/min.)	Low to Medium
Therm-O-Flow 20	Check-Mate Priming Piston	5-gallon (20 l)	0.25 lbs/min.* (0.11 kg/min.)	Medium to Ultra High
Therm-O-Flow 200 with Mega-Flo Plate**	Check-Mate Priming Piston	55-gallon (200 l)	11 lbs/min.* (5 kg/min.)	Low to Ultra High

\* will vary depending on type of material.

\*\* other plates also available

### THERM-O-FLOW 20

- Choice of 15:1 2-ball lower or Check-Mate® priming piston lower
- 15:1 President® pump comes with finned follower plate for improved melt rate with lower viscosity materials
- Check-Mate models come with smooth follower plate for easy cleaning of higher viscosity materials
- Optional Mega-Flo™ high melt-rate platen reduces material loss



### THERM-O-FLOW 200

- 55 gal. (200 Liter) Heated Ram
- Large 6.5 in. (165 mm) ram cylinders increase pump loading and flow rate capability by 40%
- Optional Mega-Flo high melt-rate platen reduces material loss
- CE-Marked
- Choice of 19:1, 31:1 or 65:1 power ratios
- Available as a tandem system for uninterrupted supply to high production applications

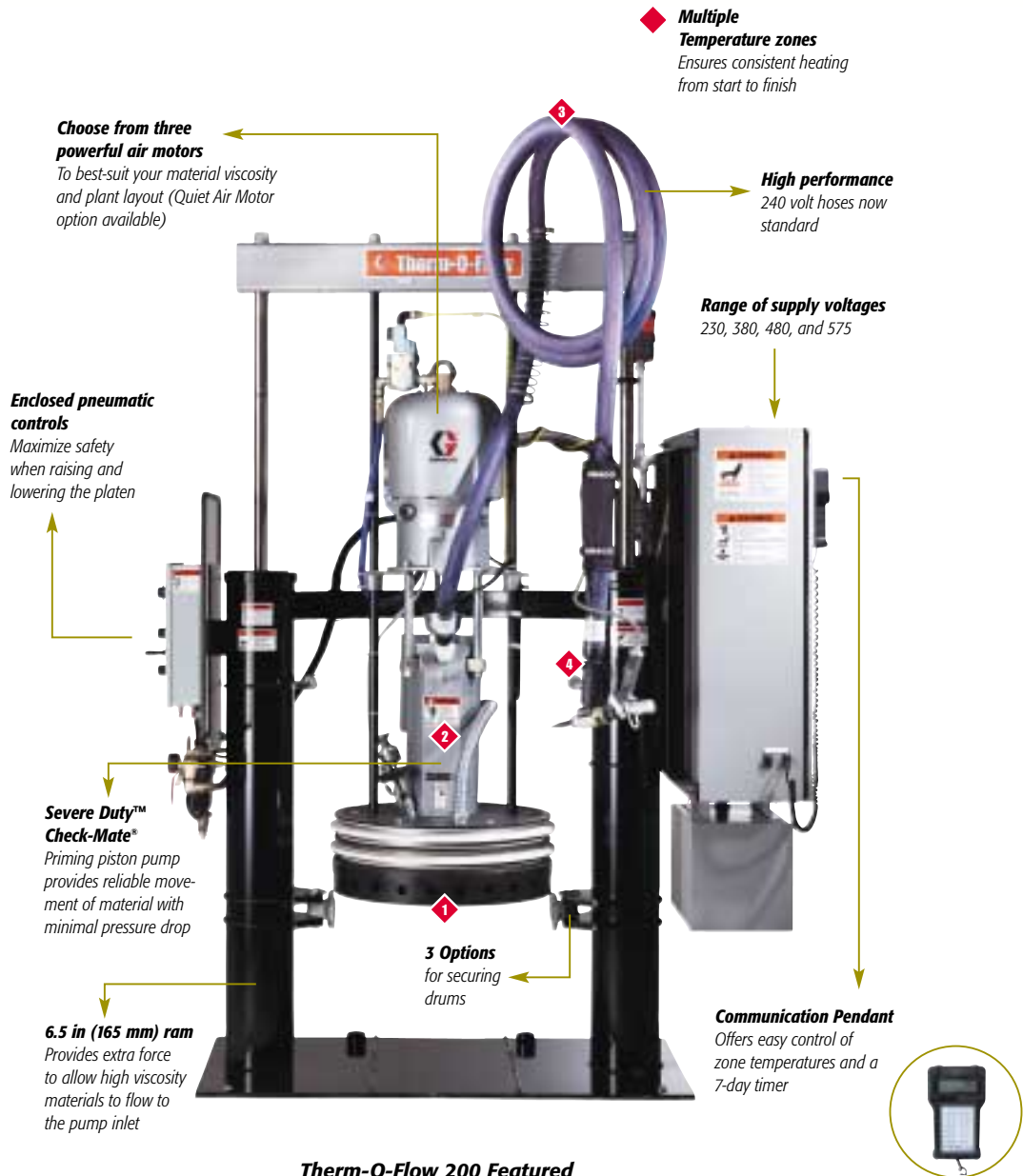


# Therm-O-Flow Technology

## System Components

All Therm-O-Flow Bulk Unloading systems feature a heated PTFE inductor plate, heated pump, heated hoses and dispense valves to insure material conformity at the point of application. The Therm-O-Flow 200 and Therm-O-Flow

20 offer a patented Mega-Flo plate for higher melt rate applications. The Therm-O-Flow 200 also offers an advanced pump heat design, improved blow-off and vent design, and advanced CE marked electronic controls.



## The Mega-Flo Advantage

The patented design of the Mega-Flo plate provides the highest output per-watt of power in the industry and the least amount of material degradation at any flow rate for smooth melting no matter what material you're using.

### FEATURES

- Improved wiper seals protect moisture-sensitive material
- PTFE-coated ram plates for easy maintenance
- Convex design of the plate means less material waste and increased cost savings
- Melts through the thickest material with ease



## Easy-to-use controls

### SIX ZONE ELECTRICAL CONTROL PANEL

The Six Zone Air Control Panel is now the standard for Electrical Controls on all Therm-O-Flow 200 systems. Eight zone panels are also available if you need to heat additional devices. All Therm-O-Flow heat zone controls are simple-to-use and make programming quick and easy.

### PNEUMATIC CONTROL PANEL

This panel directs air to the air motor, ram up, ram down, and plate blow-off ports with four individually-controlled and settable regulators. For additional safety during drum change, the panel is mounted behind a plexiglass shield.



### ADVANCED ELECTRIC PENDANT CONTROL

This optional communication pendant plugs into the main control box and includes a 7-day timer for preheating.

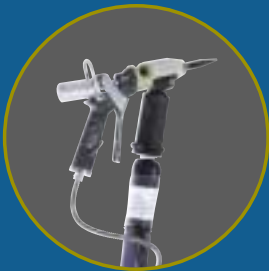
- Timer can be set to turn on (pre-heat) and turn off at specific times for each day of the week.
- Temperature can be set for each heated device; including applicators, hoses and pumps.
- One pendant can control up to 16 heated items.
- Supports tandem systems – providing uninterrupted flow of material for high production operations.



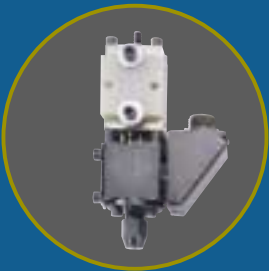
## A variety of Dispense Applicators to fit your needs

Our dispense valves offer high reliability and durability for your high pressure, high flow sealant and adhesive dispensing applications.

Therm-O-Flow dispense applicators are also available with electric switches so they can be used in conjunction with automated equipment.



MANUAL HOT MELT FLOW GUN



AIR-OPERATED AUTOMATIC HOT MELT DISPENSE VALVE

## Smaller systems for smaller applications

Graco also recognizes the need for systems to meet the needs of your non-bulk applications. Therm-O-Flow Tanks are designed to provide years of reliable service, with the ability to handle waxes, adhesives and sealants over a wide range of application temperatures with a high level of consistency.

The tanks are PTFE coated and accept all forms of hot melt materials including bricks and blocks. The heating system is staged, with low temperature pump motor lockout, and the system diagnostics are automatic with built-in safety features, sensors and circuit breakers.



### Therm-O-Flow T5

- 5 liter capacity
- Compact design
- Easy to use analog controls
- All electric, pressure adjustable gear pump
- 3 zone temperature control

### Therm-O-Flow T7

- 7 liter capacity
- Programmable digital control panel
- Standby mode for temperature setback
- 5 zone temperature control supports up to 2 hoses and applicators

### Therm-O-Flow T18

- 18 liter capacity
- High capacity unit
- Programmable digital control panel
- Standby mode for temperature setback
- 9 zone temperature control supports up to 4 hoses and applicators

## Applicators

Therm-O-Flow Tanks can be combined with extrusion, swirl or spray applicators to meet the needs of almost any production plant. Timing devices and other controllers are also available, allowing Therm-O-Flow tanks to work in conjunction with high speed hot melt applications.

## Custom-Configured Solutions

Graco's Therm-O-Flow products are custom-designed to handle all of your Hot Melt applications. You select the specific air motor, platen, heat zone controls, hose/gun kits and accessories you need for your specific application.

The material type and usage rate determine the ideal pump to complete your system. The air motor delivers the required power ratio of fluid pressure out to air pressure in. Depending on the application, choose either a 19:1 Senator<sup>®</sup>, 31:1 Bulldog<sup>®</sup> or 65:1 King<sup>®</sup> air motor.

Choose options on the Therm-O-Flow Configured Order Form to build the system best-suited to meet your individual needs.

Call today for a Hot Melt Configurator form (684052) or consult your Graco Sealant and Adhesive Equipment specialist for more information.

## Whatever the material, whatever the application

Graco's hot melt equipment has set the standard for the transfer, dispensing and metering of warm and hot melt materials. No other bulk unloader on the market combines economy, durability and high output like the Therm-O-Flow products.

With the introduction of Therm-O-Flow Tanks, Graco can now provide a high quality solution for almost any hot melt application.

Find out how Graco's quality hot melt equipment can save you money while improving performance. Contact a Graco Sealant and Adhesive Equipment specialist or distributor near you today!



## Choose Graco

Look beyond the purchase price when you choose a hot melt bulk unloader. Graco Therm-O-Flow unloaders are designed for years of trouble-free performance.

Consider these features exclusive to Graco products when making your selection:

- Heated platens have cast-in heaters which never need to be replaced.
- The only wear components on the Therm-O-Flow are pump throat seals and plate seals. Typical yearly part cost is \$1,500 or less. These parts can be changed in less than one hour.
- Application valves, regulators and compensators are designed for use with abrasive and high viscosity sealants.

Because Therm-O-Flow products are some of the most durable hot melt unloaders on the market, buying Graco not only means years of reliable service, but also offers low overall cost-of-ownership. When you look at the facts, the choice is clearly Graco.

# Technical Specifications and Ordering Information

## Therm-O-Flow 20 President 15:1 Pump Modules

### Technical Specifications

Recommended air operating range	40-120 psi (0.28-0.84 MPa, 2.8-8.4 bar)
Maximum recommended pump speed	70 cpm; 2 U.S. gpm (8 liter) delivery
Air requirements	approx. 3 cfm for each 15 psi (0.1 MPa, 1 bar) needed to pump 1 gallon (3.78 liter) of fluid. (See example below)
Maximum pump discharge pressure	1800 psi (12.6 MPa, 126 bar)
Air inlet size	1/2 npt(m)
Fluid outlet size	1/2 npt(f)
Wetted parts	carbon steel; chrome over SST; PTFE
Weight (ram pump package)	650 lbs. (295 kg)
Instruction manual	
15:1 ram pump packages	310528
5 gallon (20 liter), 3 in. (76 mm) global ram	310525
President 15:1 pump	306936

#### Air Requirements Example:

If air pressure to pump is 75 psi (5 bar) and pump is delivering 0.1 gpm (0.4 lpm), the air volume required is  $5 \times 0.1 \text{ gpm} \times 3 \text{ cfm} = 1\text{-}1/2 \text{ cfm}$ .

## Ordering Information

### President 15:1 Pump Modules Package Ordering Information

All packages include 5 gallon (20 liter) 3 in. (76 mm) dual post ram on casters, 2 regulator air control, TFE coated ram plate with air valve blow off, and 3 zone PID temperature control panel.

918532	240 Volt "Mini-5" Ram Pump
918522	480 Volt "Mini-5" Ram Pump
C58805	Ram Pump Package Includes 240V supply unit, 0.5 in x 10 ft (3 m) heated hose and bottom feed manual gun
C28630	Ram Pump Package Includes 480 volt supply unit, 0.51 in x 0 ft (3 m) heated hose and bottom feed gun

## Accessories

918430	Low Level Pail Kit Lights a red beacon signal when the pail is empty.
C31197	Hose Support Kit Used for second hose exiting the pump.
918433	Pump Proximity Switch Kit Includes proximity switch and pump rod mounting bracket to monitor pump movement for duration timers.
C07462	120 VAC Control Box Adds 2 heated zones to a Therm-O-Flow 20 system
C59555	120 VAC Control Box Adds 4 heated zones to a Therm-O-Flow 20 system

## Repair Kits

918439	Ram Repair Kit Kit contains O-rings, retaining rings, piston and bumper for 5 gallon (20 liter), 3 in. (76 mm) dual post ram.
C31065	Wiper Seal Replacement Kit Contains silicone coated round wiper seal with internal spring for 5 gallon (20 liter) ram plate.
918424	Pump Repair Kit For heated President 15:1 pump

# Technical Specifications and Ordering Information

## Therm-O-Flow 20 Check-Mate Pump Modules

### Technical Specifications

Displacement pump effective area	1.24 in.2 (8 cm2)
Volume per cycle	11.7 in.3 (192 cm3)
Pump cycles per 1 gal. (3.8 liters)	21
Fluid flow at 60 cpm	2.8 gpm (10.6 lpm)
Max. fluid working pressure	
Bulldog 31:1	3100 psi (21.5 MPa, 215 bar)
King 65:1	5850 psi (40.0 MPa, 400 bar)
Max. air input pressure	
Bulldog 31:1	100 psi (0.7 MPa, 7 bar)
King 65:1	90 psi (0.63 MPa, 6.3 bar)
Max. pump operating temperature	400°F (204°C)
Air motor piston effective area	
Bulldog 31:1	38 in.2 (248 cm2)
King 65:1	78.5 in.2 (506 cm2)
Stroke length	4.75 in. (120 mm)
Air inlet size	3/4 npsm(f)
Fluid outlet size	1 npt(f)
Wetted parts	carbon steel; chrome; zinc; and nickel-plating; 304, 316, 440, and 17-4 PH grades of SST; alloy steel; ductile iron; PTFE; glass-filled PTFE
Weight (ram pump package)	750 lbs. (315 kg)
Displacement pump weight	81 lbs. (37 kg)
Instruction manuals	
Heated ram pump packages	310528
Holt Melt displacement pump lower	308570
5 gallon (20 liter), 3 in. (76 mm) global ram	310525

### Ordering Information

#### Check-Mate Pump Modules Package Ordering Information

918344	Bulldog 31:1 Hot Melt Ram Pump 480 VAC, smooth follower plate
918437	Bulldog 31:1 Hot Melt Ram Pump 240 VAC, smooth follower plate
918593	Bulldog 31:1 Hot Melt Ram Pump 480 VAC, finned follower plate
C59538	King 65:1 Hot Melt Ram Pump 480 VAC, smooth follower plate

#### Accessories

918430	Low Level Pail Kit Lights a red beacon signal when the pail is empty.
C31197	Hose Support Kit Mounts to ram tie bar to protect hose from heated surfaces and moving parts

### Repair Kits

918439	Ram Repair Kit Kit contains O-rings, retaining rings, piston and bumper for 5 gallon (20 liter), 3 in. (76 mm) dual post ram.
C31065	Wiper Seal Replacement Kit Contains silicone coated round wiper seal with internal spring for 5 gallon (20 liter) ram plate.
241782	Throat Packing Repair Kit For heated Check-Mate pumps

# Technical Specifications and Ordering Information

## Therm-O-Flow

### Technical Specifications

Displacement pump effective area	1.24 in.2 (8 cm <sup>2</sup> )
Volume per cycle	11.7 in.3 (192 cm <sup>3</sup> )
Pump cycles per 1 gal. (3.8 liters)	21
Fluid flow at 60 cpm	2.8 U.S. gpm (10.6 lpm)
Max. fluid working pressure	
Senator 19:1	2280 psi (15.7 MPa, 157 bar)
Bulldog 31:1	3100 psi (21.5 MPa, 215 bar)
King 65:1 (pump only, without accessories)	5850 psi (40.0 MPa, 400 bar)
Max. air input pressure	
Senator 19:1	120 psi (0.84 MPa, 8.4 bar)
Bulldog 31:1	100 psi (0.7 MPa, 7 bar)
King 65:1	90 psi (0.63 MPa, 6.3 bar)
Max. pump operating temperature	400°F (204°C)
Air motor piston effective area	
Senator 19:1	24 in.2 (154 cm <sup>2</sup> )
Bulldog 31:1	38 in.2 (248 cm <sup>2</sup> )
King 65:1	78.5 in.2 (506 cm <sup>2</sup> )
Stroke length	4.75 in. (120 mm)
Air inlet size	1/2 npsm(f)
Pump Fluid outlet size	1 npt(f)
Wetted parts	carbon steel; brass chrome; zinc; and nickel-plating; 304, 316, 440, and 17-4 PH grades of SST; alloy steel; ductile iron; PTFE; glass-filled PTFE
Weight	1200 lbs. (545 kg)
Displacement pump weight	81 lbs. (37 kg)
Instruction manuals	
65:1, 31:1, 19:1 heated ram pump packages	309085
Heated 55 gallon (200 liter) pump lowers	310530
Hot Melt displacement pump lower	308570
6.5 in. (165 mm) global ram module	310523
Power Requirements	
Compressed air (see chart on next page)	25-50 scfm typical
Electricity Voltage (as selected)	220/240 3 phase & 50/60 Hz 380/400 3 phase & 50/60 Hz 470/490 3 phase & 50/60 Hz 575 3 phase & 50/60 Hz
Peak Consumption*	
With standard melt grid	24.5 KVa
With Mega-Flo melt grid	27.5 KVa
With smooth melt grid	24.5 KVa

*Therm-O-Flow Plus machines and complete configured packages carry the CE mark.*

*\* Includes drum melt grid, pump and a 5KVa transformer for the 230 volt hoses and accessories.*

# Technical Specifications and Ordering Information

## Therm-O-Flow 200 Ordering Information

### Accessories

- 233096 Low Level Drum Signal Kit  
Includes switch and bracket and lights a red beacon when drum is empty.
- 918461 Hose Support Kit for 6.5 in. Hydraulic Ram  
Includes hose spring support and bracket to prevent hose kinks. Use for second heated hose.
- C34130 Hose Hanger Kit  
Includes hose spring support and bracket for hanging.
- 243697 Heated Manifold  
Includes (2) 3/4 npt(f) inlet check valves, 1 npt 4-ported manifold, (2) 1 in. npt(f) outlet gate valves, mounting bracket, 400w 230 VAC heaters, RTD sensor and 8 pin connector box.
- 233097 Inactivity Timer Kit  
Set to shut off unit if there is no pump activity within a given time.
- 918397 Drum Clam Shell  
Used to reinforce fiber drums.
- 918395 Heavy Duty Drum Clamp  
Centers, supports, and holds drum during ram removal.
- C32463 Saddle Clamps  
Centers drum on base for raising and lowering of rams.
- 243275 Drip Tray Kit  
Includes drip tray shield and two brackets which mount on the ram cylinders to catch material drips when changing drums.
- 115694 Drip Tray Shield  
Used with 243275, to retain any material drips from heated plates.
- 243279 55 Gallon Heated Ram Plate Wiper Ring Kit  
Tee wiper silicone (65° – 450°F)

### Accessory Controllers and Cables

- 243698 2-Zone (self tuning PID) control box for adding one hose (up to 15 ft.) and one heated accessory.  
230 volt plug, 25 amp, (2) 16 pin connectors. Note: Cable needed to connect to remote devices.
- 243699 4-Zone (self tuning PID) control box for adding two hoses (up to 15 ft.) and two heated accessories.  
230 volt plug, 25 amp, (2) 16 pin connectors. Note: Cable needed to connect to remote devices.
- 196313 15 ft. cable, 16 pin to 16 pin extension cable.  
Runs between controller and heated hose.
- 196314 25 ft. cable, 16 pin to 16 pin extension cable.  
Runs between controller and heated hose.
- 196315 15 ft. cable, 16 pin to 8 pin extension cable.  
Runs between controller and heated accessory.
- 196316 25 ft. cable, 16 pin to 8 pin extension cable.  
Runs between controller and heated accessory.
- 196317 15 ft. cable, 16 pin to (2) 8 pin extension cable.  
Runs between controller and heated devices.
- 196318 25 ft. cable, 16 pin to (2) 8 pin extension cable.  
Runs between controller and heated devices.

### Miscellaneous Accessories

- C58942 120 volt AC solenoid kit for heated double-acting air-operated valves.  
Includes solenoid, 24 in. high temp. Air tubes, air fittings and muffler.
- C59038 24 volt DC solenoid kit for heated double-acting air-operated valves.  
Includes solenoid, 24 in. high temp. Air tubes, air fittings and muffler.
- 918461 Hose support spring kit.  
Mounts to cross bar on ram.
- C34130 Hose hanger spring kit.  
Mounted by customer to hang hose overhead without kinking.
- 243703 240 volt AC solenoid kit for heated double-acting air-operated valves.  
Includes solenoid, 24 in. high temp. Air tubes, air fittings and muffler.

**See Therm-O-Flow Configurator Form (684052) or SAE Buyer's Guide (303254) for additional ordering information.**

## ABOUT GRACO

### PROVEN QUALITY. LEADING TECHNOLOGY.

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 which 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.

## GRACO HEADQUARTERS

### AMERICAS

MINNESOTA  
Worldwide Headquarters  
Graco Inc.  
88-11th Avenue N.E.  
Minneapolis, MN 55413

MAILING ADDRESS  
P.O. Box 1441  
Minneapolis, MN 55440-1441  
Tel 612 623-6000  
Fax 612 623-6777

MICHIGAN  
Automotive Headquarters  
and Sales Office  
47800 Halyard Drive  
Plymouth, MI 48170  
Tel 734 416-3400  
Fax 734 416-3441

### EUROPE

BELGIUM  
European Headquarters  
Graco N.V.  
Industrieterrein - Oude Bunders  
Slakweidestraat 31  
3630 Maasmechelen, Belgium  
Tel 32 89 770 700  
Fax 32 89 770 777

### ASIA PACIFIC

JAPAN  
Graco K.K.  
1-27-12 Hayabuchi  
Tsuzuki-ku  
Yokohama City, Japan 2240025  
Tel 81 45 593 7300  
Fax 81 45 593 7301

CHINA  
Graco Hong Kong Ltd.  
Representative Office  
Room 118 1st Floor  
No. 2 Xin Yuan Building  
No. 509 Cao Bao Road  
Shanghai, P.R.China 200233  
Tel 86 21 649 50088  
Fax 86 21 649 50077

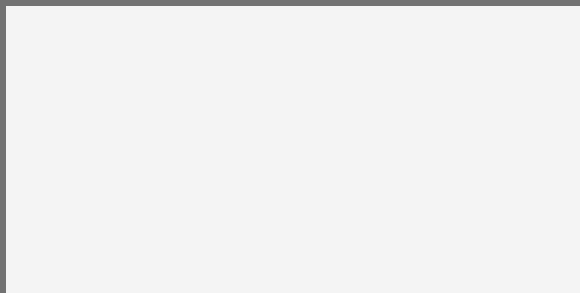
KOREA  
Graco Korea Inc.  
3rd Fl., Doorim Bldg.  
164-21 Poi-Dong,  
Kangnam-Ku  
Seoul, Korea 135-260  
Tel 82 2 575-8901  
Fax 82 2 571-9422

Call today for product information or to request a demonstration.

**1.87784GRACO** (1-877-844-7226) or visit us at [www.graco.com](http://www.graco.com).

All written and visual data contained in this document are based on the latest product information available at the time of publication. Graco reserves the right to make changes at any time without notice.

Graco Inc. is registered to I.S. EN ISO 9001



### Sales/Distribution/Service North America

Industrial Customer Service  
800-328-0211  
FAX 877-340-6427  
Industrial Product Information/Demonstration  
1-877-84GRACO (1-877-844-7226)  
FAX 612-378-3597

GRACO INC.  
P.O. Box 1441  
Minneapolis, MN 55440-1441

