

# INSTRUCTIONS-PARTS LIST



# 309419

Rev. B



## Important Safety Instructions

Read all warnings and instructions in this manual.  
Save these instructions.

First choice when  
quality counts.™

## ELECTROSTATIC AIR SPRAY

# Air Caps and Fluid Nozzles



### FAN PATTERN FLUID NOZZLES

<b>PRO™ Xs Gun Fluid Nozzle Part No.</b>	<b>Fluid Nozzle Orifice Size</b>
197263	0.75 mm (0.030 in.)
197264	1.0 mm (0.042 in.)
197265	1.2 mm (0.047 in.)
197266	1.5 mm (0.055 in.)
197267	1.8 mm (0.070 in.)
197268	2.0 mm (0.080 in.)
249920*	0.75 mm (0.030 in.)
249921*	1.0 mm (0.042 in.)
249922*	1.2 mm (0.047 in.)
249923*	1.5 mm (0.055 in.)
249924*	1.8 mm (0.070 in.)
249925*	2.0 mm (0.080 in.)

\* Glass reinforced acetal construction.

### FAN PATTERN AIR CAPS (All Models)

<b>Air Cap Part No.</b>	<b>Pattern Shape and Length</b>	<b>Recommended Fluids &amp; Production Rates</b>
197477	Round End 381 to 432 mm (15 to 17 in.)	Light to medium viscosity. Medium to high production.
197478	Round End 381 to 432 mm (15 to 17 in.)	Light to medium viscosity. Low to medium production.
197479	Tapered End 330 to 381 mm (13 to 15 in.)	Light to medium viscosity. Medium to high production.
197480	Round End 406 to 457 mm (16 to 18 in.)	Medium to high viscosity and high solids. Low to medium production.
197481	Tapered End 432 to 483 mm (17 to 19 in.)	Medium to high viscosity and high solids. Medium to high production. For use with 2.0 mm nozzle.

### ROUND PATTERN KITS

*Light to Medium Viscosity. Light to Medium Production*

<b>PRO™ Xs Gun Kit Part No. (Manual No.)</b>	<b>Pattern Diameter</b>
245217 (309447)	102 to 152 mm (4 to 6 in.)
245219 (309447)	203 to 254 mm (8 to 10 in.)

**NOTE:** All the air cap pattern shapes and lengths were measured under the following conditions.

*Distance to Target:* 305 mm (12 in.).

*Atomization Air:* 1.4 bar (14 kPa, 20 psi).

*Fan air:* adjusted for maximum width with manual gun.

*Fluid Flow Rate:* 300 cc/min. (10 oz./min.) for 197477,  
197478, 197479, and 197480.  
400 cc/min. (13.3 oz./min.) for 197481.

GRACO INC. P.O. BOX 1441 MINNEAPOLIS, MN 55440-1441

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## WARNING

Always turn off the power, air, and fluid supply to the gun, and trigger the gun to relieve system pressure before installing or removing the air cap/fluid nozzle assembly. This will help reduce the risk of serious injury, including splashing in the eyes or on the skin, or electric shock.

**NOTE:** Refer to your air spray gun instruction manual to install the air cap and fluid nozzle. If you do not have a copy of the manual, copies are available at no charge from Graco Inc.

## Terms

### **Viscosity**

**Light:** 20 centipoise at 21°C (70°F)

**Medium:** 70 centipoise at 21°C (70°F)

**Heavy:** 160, 260 centipoise at 21°C (70°F)

**High Solids:** Over 360 centipoise at 21°C (70°F)

Centipoise = centistokes x fluid specific gravity.

**NOTE:** Refer to the **Viscosity Conversion Chart** on the back cover to convert to other units of measurement.

### **Fan Pattern Production Rate**

**Light Production:** Fluid flow of up to 200 cc/min.  
(7 oz./min.)

**Medium Production:** Fluid flow of up to 400 cc/min.  
(14 oz./min.)

**High Production:** Fluid flow of up to 600 cc/min.  
(20 oz./min.)

### **Round Pattern Production Rate**

**Light Production:** Fluid flow of up to 150 cc/min.  
(5 oz./min.)

**Medium Production:** Fluid flow of up to 200 cc/min.  
(7 oz./min.)

## How to Use the Fluid Nozzle Graphs

### KEY

260 Centipoise Fluid	_____
160 Centipoise Fluid	— — — — —
70 Centipoise Fluid	— - — - —
20 Centipoise Fluid	- - - - -

Use the procedure below to select the proper fluid nozzle for your application.

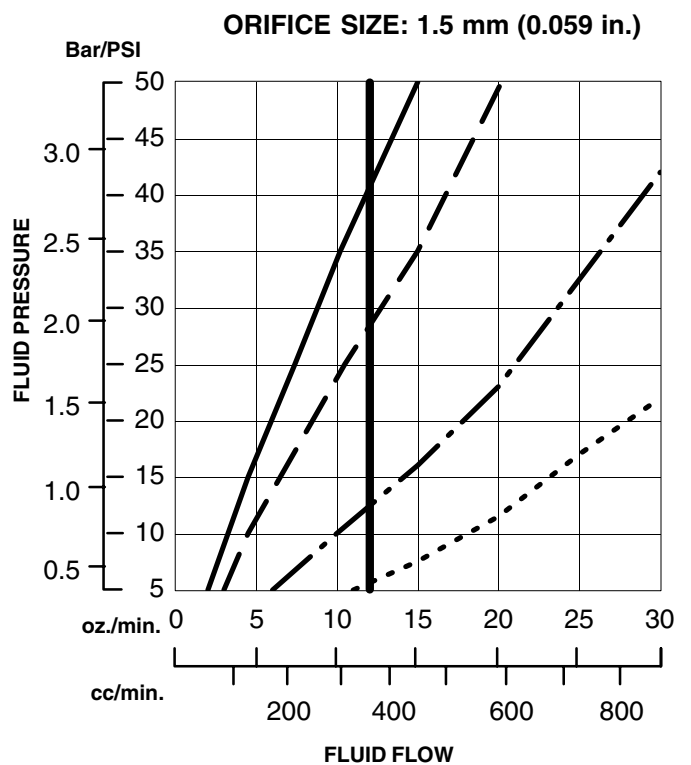
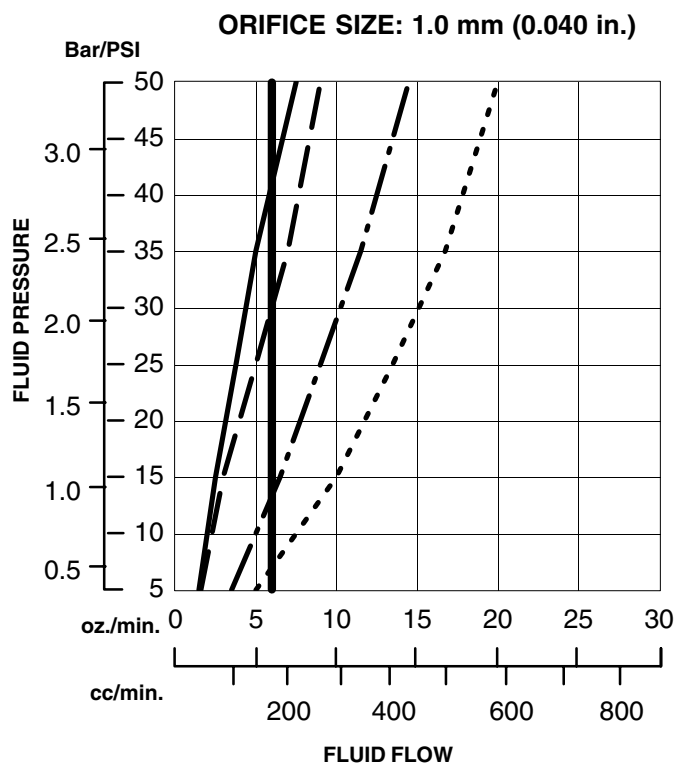
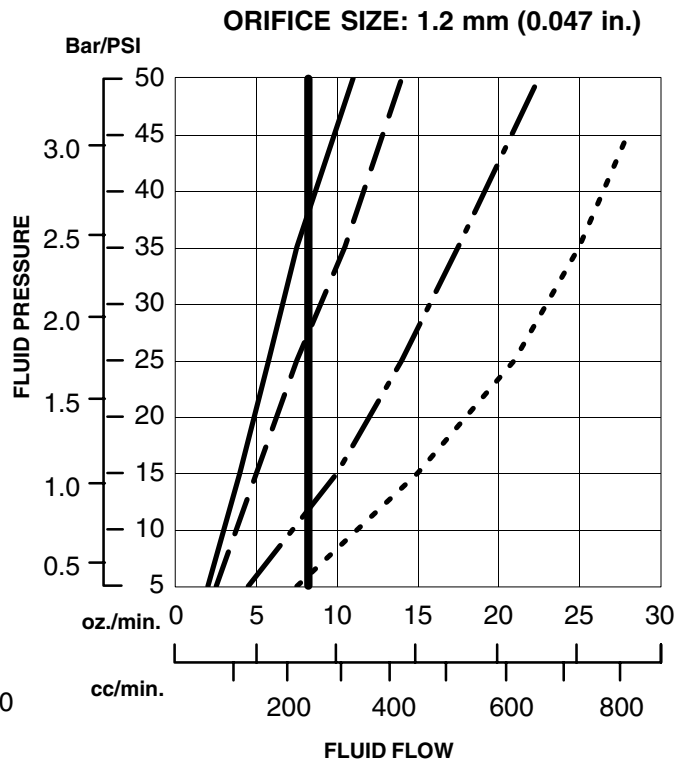
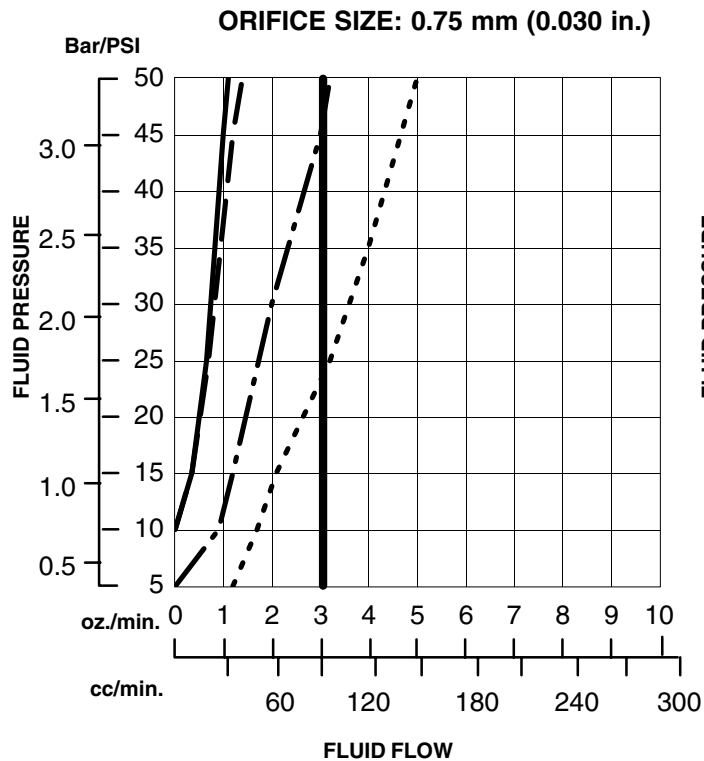
1. For each of the fluid nozzle graphs, find the point on the graph corresponding to your desired fluid flow rate and viscosity. Mark the point on each graph with a pencil.

2. The thick vertical line in each graph represents the target flow rate for that nozzle size. Find the graph that has the marked point closest to the thick vertical line. This is the recommended nozzle size for your application. Significantly exceeding the target flow rate may result in lower spray performance due to excessive fluid viscosity.

3. From the marked point, move across to the vertical scale to find the required fluid pressure. If the required pressure is too high, then use the next largest nozzle size. If the fluid pressure is too low (< 0.35 bar, 3.5 kPa, 5 psi), then use the next smallest nozzle size.

# Fluid Nozzle Performance Graphs

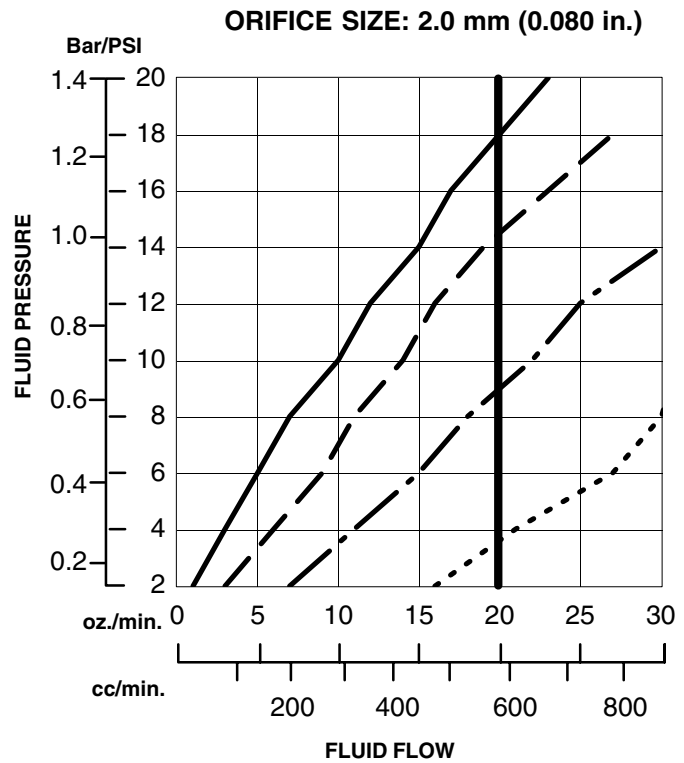
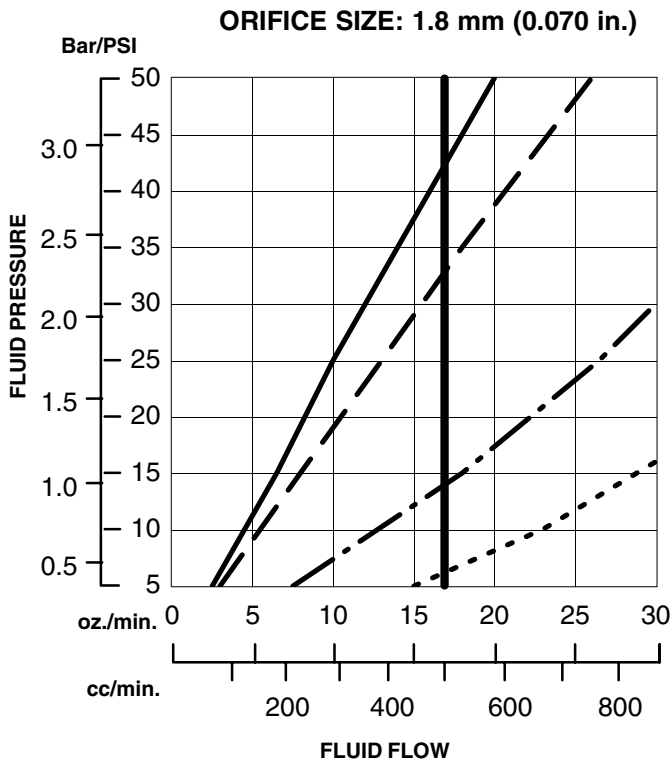
Fluid pressures are measured at the spray gun inlet.



Performance Graphs are continued on page 4.

# Fluid Nozzle Performance Graphs

Fluid pressures are measured at the spray gun inlet.



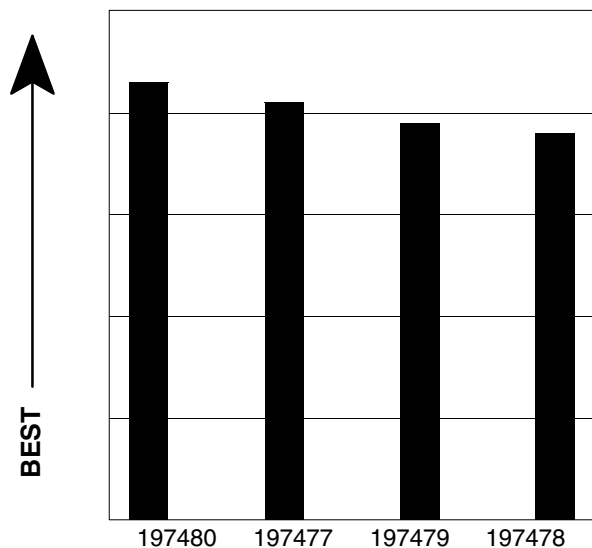
## Viscosity Conversion Chart

Measurement	Light	Medium	Heavy	High Solids
Poise	0.2	0.7	2.6	3.6
Centipoise	20	70	260	360
Du Pont Parlin 7	32			
Du Pont Parlin 10	13	20		
Fisher 1	30			
Fisher 2	15	33		
Ford Cup 3	12	36		
Ford Cup 4	10	28	68	
Krebs Units KU		35	58	62
Saybolt Universal SSU	100	370	1280	1730
Shell 2	40			
Shell 3	15	48		
Shell 4		22		

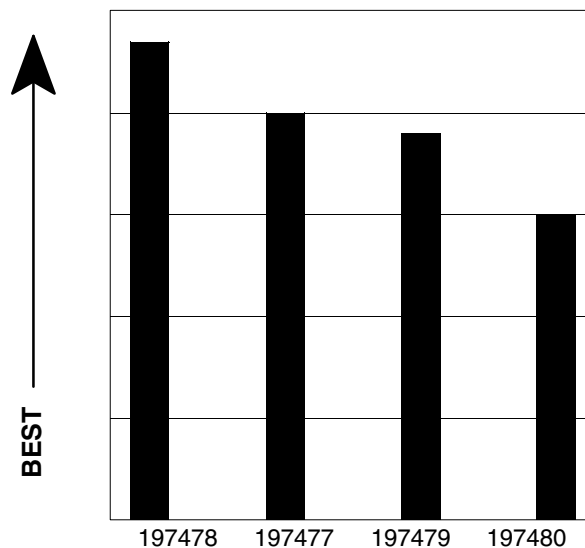
Measurement	Light	Medium	Heavy	High Solids
Zahn 1	37			
Zahn 2	18	30		
Zahn 3			30	41
Zahn 4			21	28
Zahn 5			13	18
Sears Craftsman Cup		23		
Redwood No. 1 Sec.	98	286	1060	1465
Redwood No. 2 Sec.		30.05	105.6	149
Engler Degrees	2.9	9.4	34.65	47.75
Saybolt Furol Sec.		35	124.5	171.5

# Air Cap Comparison

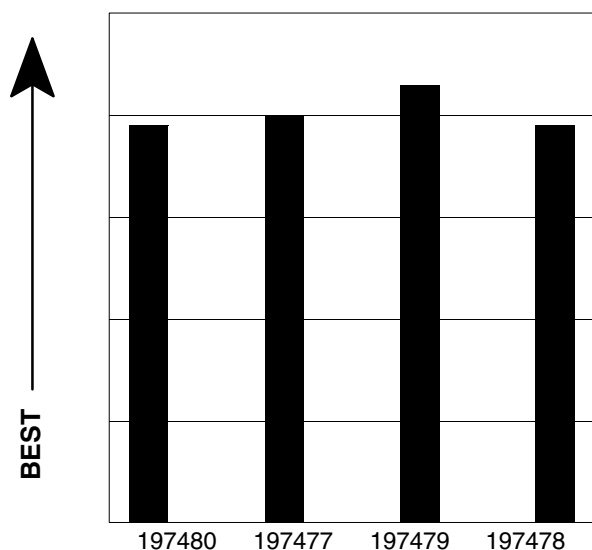
Atomization



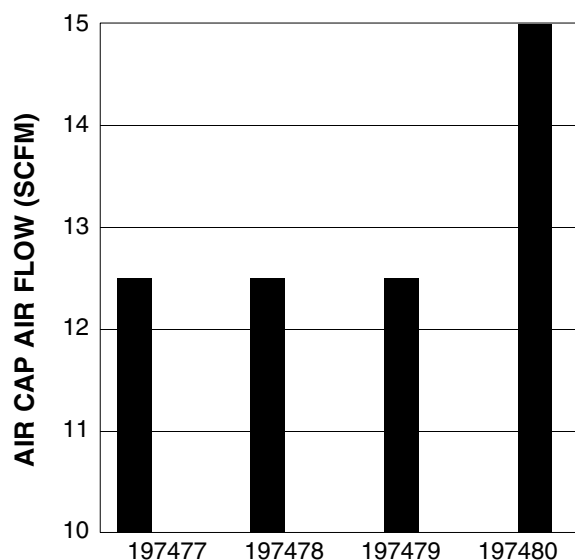
Air Cap and Operator Cleanliness



Transfer Efficiency



Air Cap Air Consumption



## Test Conditions:

- Target Distance: 305 mm (12 in.)
- Fluid Flow Rate: 275 cc/min (10 oz/min.)
- PRO Xs3 Gun with 8 scfm atomizing air.
- Fan Valve adjusted for a 356 mm (14 in.) pattern width.

# Graco Standard Warranty

Graco warrants all equipment manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale by an authorized Graco distributor to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

**THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.**

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

Graco makes no warranty, and disclaims all implied warranties of merchantability and fitness for a particular purpose in connection with accessories, equipment, materials or components sold but not manufactured by Graco. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

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# Graco Phone Number

**TO PLACE AN ORDER**, contact your Graco distributor, or call this number to identify the distributor closest to you:

**1-800-328-0211 Toll Free**

**612-623-6921**

**612-378-3505 Fax**

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