

# INSTRUCTIONS-PARTS LIST



ELECTROSTATIC AIR SPRAY

## Air Caps and Fluid Nozzles

309419D

ENG



### Important Safety Instructions

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

### FAN PATTERN FLUID NOZZLES

<i>PRO™ Xs Gun</i> Fluid Nozzle Part No.	Fluid Nozzle Orifice Size
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.

♦ The 2.0 mm (0.080 in.) nozzles must be used with air cap 24A439.



PROVEN QUALITY. LEADING TECHNOLOGY.

# Air Caps

## FAN PATTERN AIR CAPS (*All Models*)

Air Cap Part No.	Pattern Shape	Pattern Length with Wide Pattern Kit* [without Wide Pattern Kit*]	Recommended Fluids & Production Rates
24A438	Round End	381–432 mm (15–17 in.) [330–381 mm (13–15 in.)]	Light to medium viscosity. Up to 600 cc/min (20 oz/min).
24A279	Round End	356–406 mm (14–16 in.) [330–381 mm (13–15 in.)]	Medium to high viscosity. Up to 600 cc/min (20 oz/min).
24A376†	Tapered End	432–483 mm (17–19 in.) [330–381 mm (13–15 in.)]	Light to medium viscosity. Up to 600 cc/min (20 oz/min).
24A274	Tapered End	305–356 mm (12–14 in.) [330–381 mm (13–15 in.)]	Light to medium viscosity. Up to 600 cc/min (20 oz/min).
24A439	Tapered End	279–330 mm (11–13 in.) [254–305 mm (10–12 in.)]	For use with 2.0 mm nozzles. Medium to high viscosity and high solids. Up to 600 cc/min (20 oz/min).
24A275	Tapered End	356–406 mm (14–16 in.) [297–348 mm (12–14 in.)]	Light to medium viscosity and high solids. Aerospace coatings. Up to 750 cc/min (25 oz/min).

\* Wide Pattern Kit – Part No. 24A431

† Also available in the following colors:

24A276 – blue

24A277 – red

24A278 – green

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

*Distance to Target:* 254 mm (10 in.)

*Inlet Air Pressure:* 3.4 bar (34 kPa, 50 psi)

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

*Fluid Flow Rate:* 300 cc/min. (10 oz./min.)

Pattern shape and length are material-dependent.

## ROUND PATTERN KITS

Light to Medium Viscosity. Light to Medium Production.

<b>PRO™ Xs Gun</b> Kit Part No. (Manual No.)	Pattern Diameter
245217 (309447)	102 to 152 mm (4 to 6 in.)
245219 (309447)	203 to 254 mm (8 to 10 in.)
277851 (313223)	Adjustable

# ! 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.

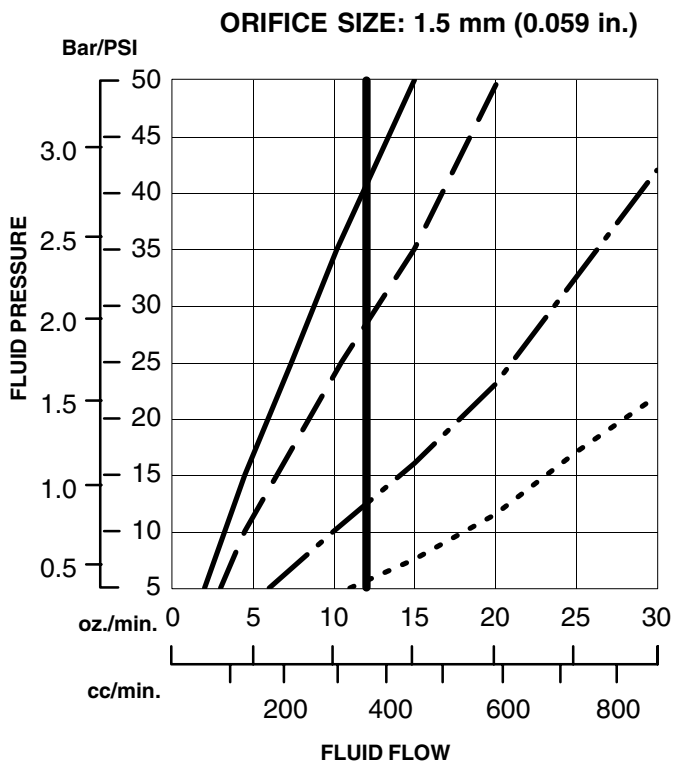
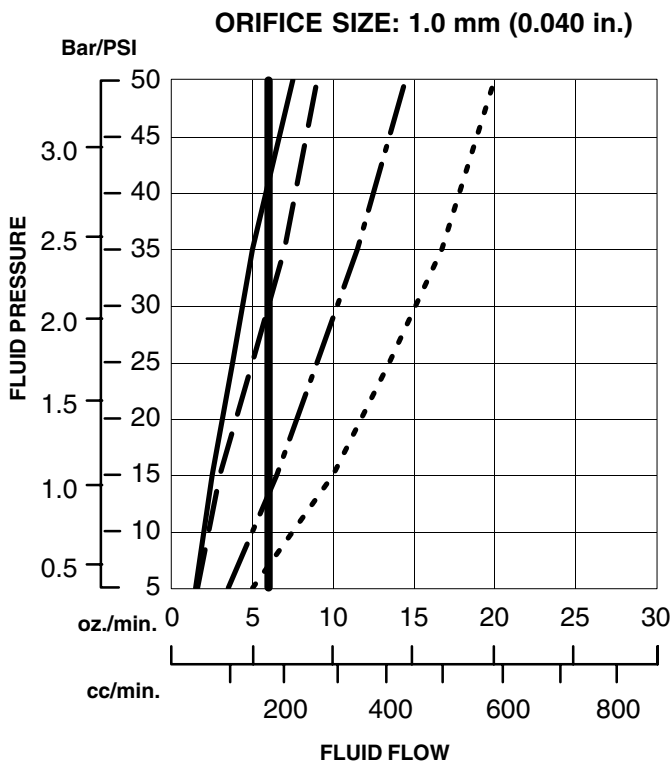
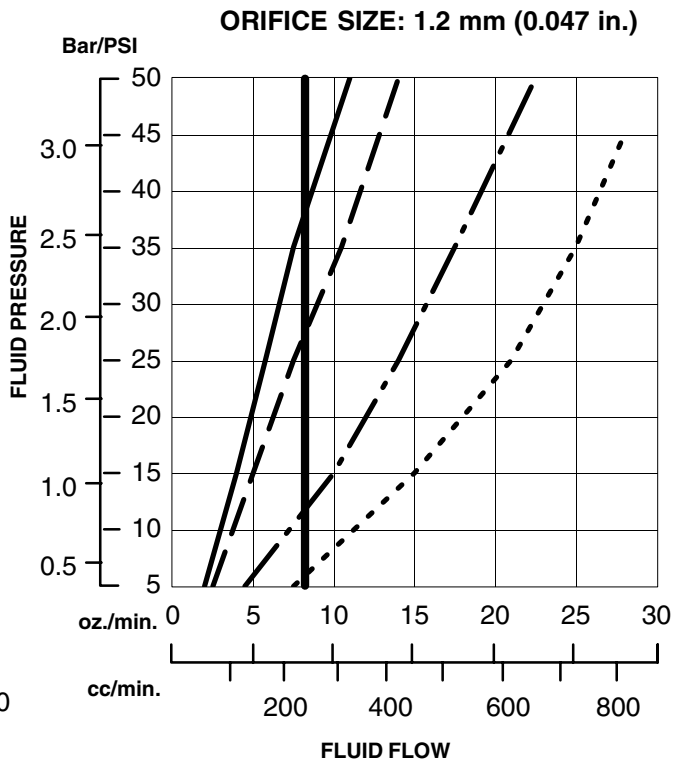
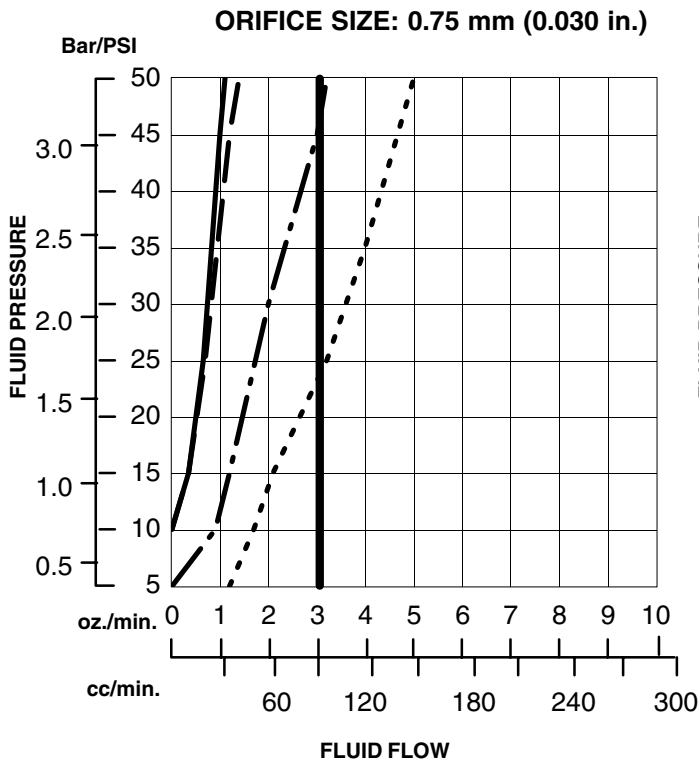
1. For each of the fluid nozzle graphs, find the point on the graph corresponding to your desired fluid flow rate and viscosity. Mark the point on each graph with a pencil.

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

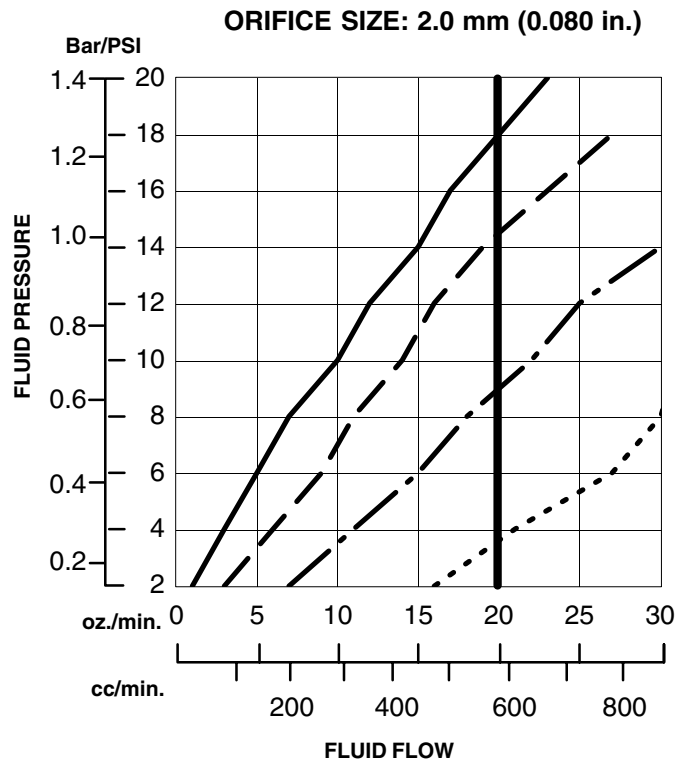
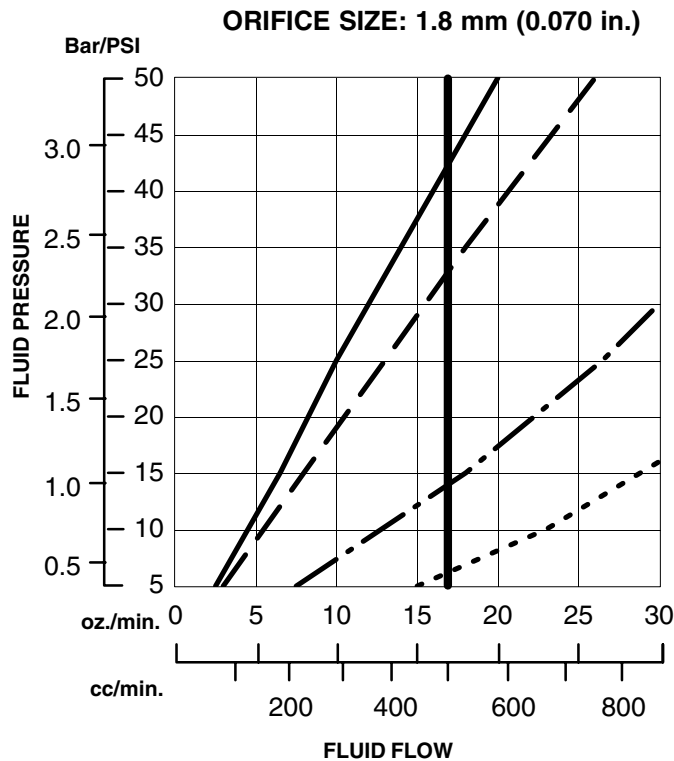
Fluid pressures are measured at the spray gun inlet.



Performance Graphs are continued on page 5.

# 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

Air Cap Part No.	Air Cap Color	Pattern Shape	Transfer Efficiency	Atomization	Cleanliness
24A438	Grey	Round End	Better	Best	Good
24A279	Grey	Round End	Better	Better	Good
24A376*	Grey	Tapered End	Best	Better	Better
24A276*	Blue	Tapered End	Best	Better	Better
24A377*	Red	Tapered End	Best	Better	Better
24A378*	Green	Tapered End	Best	Better	Better
24A274	Grey	Tapered End	Good	Good	Best
24A439	Grey	Tapered End	Good	Best	Better
24A275	Grey	Tapered End	Best	Good	Best

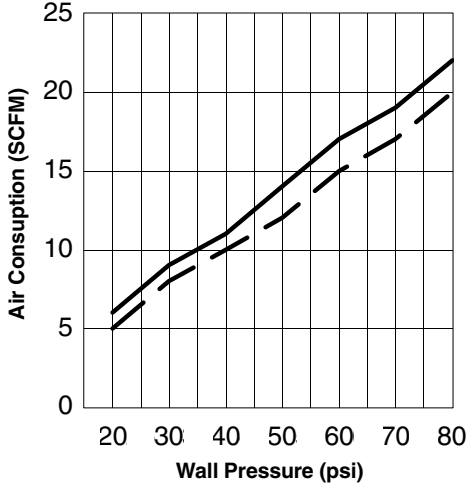
\* Identical except color

## Air Cap Compatibility Chart

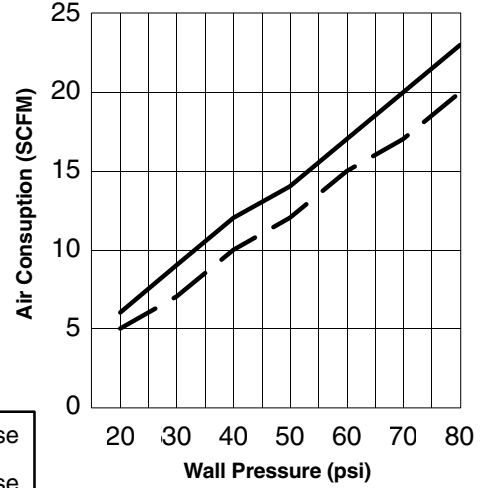
Part No.	Recommended Replacement
197477	24A438
197478	24A376
197479	24A274
197480	24A279
197481	24A439

# Air Consumption Charts

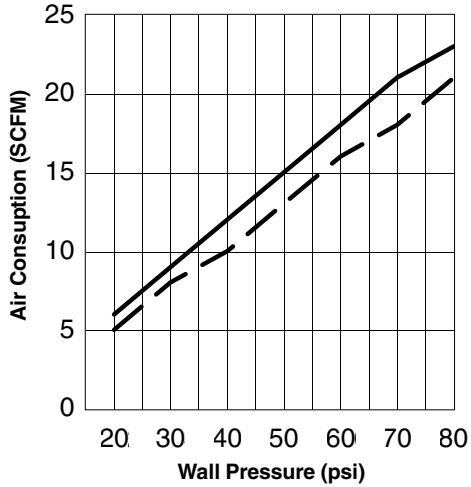
24A438



24A279



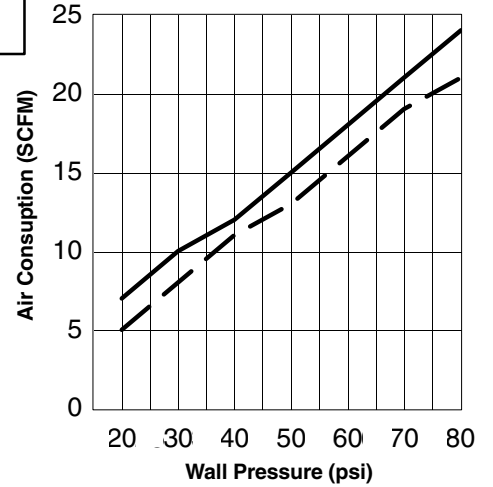
24A376, 24A276,  
24A277, 24A278



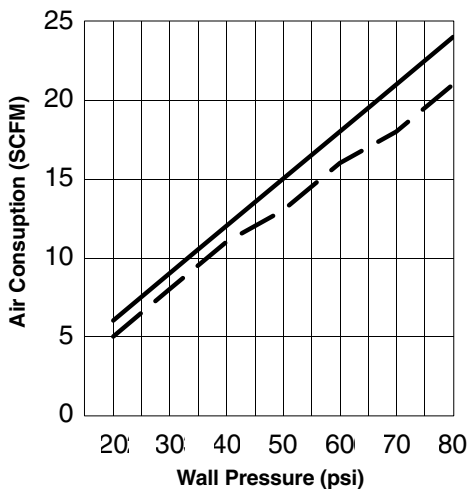
**Test Conditions**

- Fan valve adjusted full open
- PRO Xs4 Gun

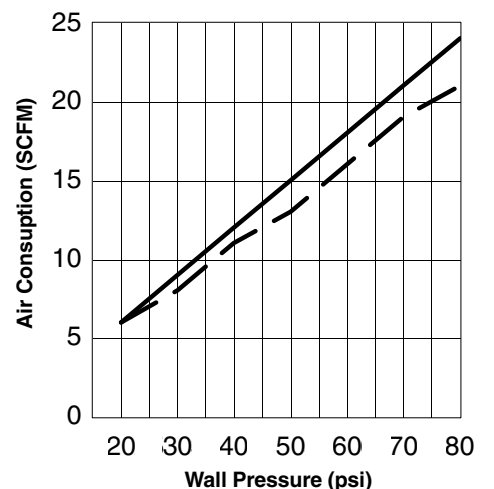
24A274



24A439



24A275



# 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 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.

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