

Gun Flush Box Module

309227M

EΝ

Automated flushing system for manual spray guns. For use with Graco proportioning systems. For professional use only.

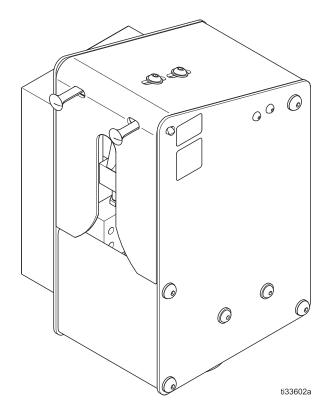
Part No. 244105

100 psi (0.7 MPa, 7 bar) Maximum Air Inlet Pressure



Important Safety Instructions

Read all warnings and instructions in this manual before using this equipment. Save these instructions.





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Related Manuals

Manual	Description
312784	Gun Flush Box Kit for 2KS, 2KE, and PD2K Proportioner systems

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

⚠ WARNING

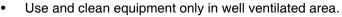


FIRE AND EXPLOSION HAZARD

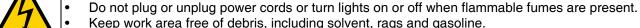
Flammable fumes, such as solvent and paint fumes, in work area can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire, explosion, and electric shock:



- Ground all equipment in the work area. See **Grounding** instructions.
- Only use grounded Graco conductive air supply hoses.
- Do not use pail liners unless they are conductive and grounded.
- Stop operation immediately if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.



- Control flush pressures to less than 300 psi (2 MPa, 21 bar) to reduce material flow velocity and reduce the static buildup that can occur with certain material chemistries.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking).



• Keep a working fire extinguisher in the work area.



Electrostatic Gun Precautions

- Electrostatic equipment must be used only by trained, qualified personnel who understand the requirements of this manual.
- Check gun resistance, hose resistance, and electrical grounding daily.
- Always turn the electrostatics off when flushing, cleaning or servicing equipment.
- Do not flush the system with the gun electrostatics turned on.
- Interlock the gun turbine air supply to prevent operation of the power supply during flushing.
- Do not turn on the gun electrostatics until all solvent is purged from the system.
- Use cleaning solvents with highest possible flash point when flushing or cleaning equipment.
- Never spray or flush solvent at high pressure.
- To clean the exterior of the equipment, cleaning solvents must have a flash point at least 15°C above ambient temperature. Non-ignitable fluids are preferred.

WARNING



PRESSURIZED EQUIPMENT HAZARD

Fluid from the equipment, leaks, or ruptured components can splash in the eyes or on skin and cause serious injury.

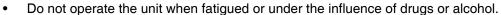
- Follow the Pressure Relief Procedure in your system manual when you stop spraying/dispensing and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses, tubes, and couplings daily. Replace worn or damaged parts immediately.
- Do not stop or deflect fluid leaks with your hand, body, glove, or rag.

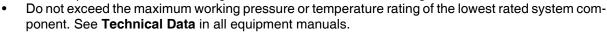




EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.







- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheet (SDS) from distributor or retailer.
- Do not leave the work area while equipment is energized or under pressure.
- Turn off all equipment and follow the Pressure Relief Procedure when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.



TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read Safety Data Sheet (SDS) to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

WARNING



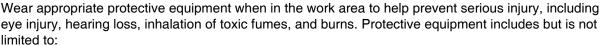
MOVING PARTS HAZARD

Moving parts can pinch, cut or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the Pressure Relief Procedure in your system manual and disconnect all power sources.



PERSONAL PROTECTIVE EQUIPMENT



- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Introduction

How the Gun Flush Box Works

When used with a Graco proportioner system, the Gun Flush Box (GBB) operates with a controller to automatically flush manual guns into an enclosed waste container.

The Gun Flush Box controller flushes the exact amount of solvent required to clean the system. It also reduces VOCs by preventing solvent from being atomized during the flush cycle.

The Gun Flush Box prevents accidental gun triggering with safety interlocks.

The interlocks will only allow atomizing air to the gun when the gun is out of the Gun Flush Box and the lid of the box is closed. If a switch fails or if system air is shut off, atomizing air to the gun will be shut off.

When using an electrostatic gun, the Gun Flush Box interlocks turn off atomizing air to the gun and ensures the gun electrostatic turbine will be off when the operator starts flushing.

Component Identification

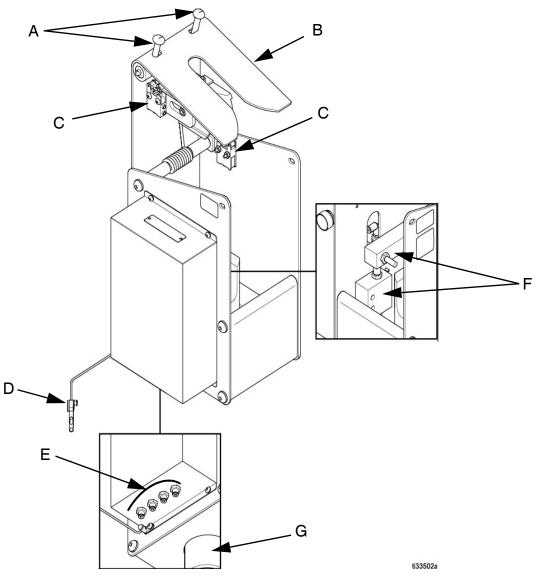


Fig. 1: Component Identification (Gun Flush Box)

Ref.	Description
Α	Latch Knobs: Press the two knobs together to open or close the GFB lid.
В	Lid: Close the spring-loaded lid to secure the gun inside the GFB or to place the system in a spray-ready state. The lid must be closed to send atomizing air to the spray gun.
С	Pneumatic Limit Switches: Position of the two switches indicates to the proportioner whether the lid is open or closed and, if closed, whether a gun is inside the GFB.
D	Grounding Clamp: Use to connect the GFB to a true earth ground.

Ref.	Description
E	Pneumatic Fittings: Four push-in tube fittings connect the GFB to the proportioner system.
F	Trigger Cylinder Block and Arm: When the proportioner begins flushing or filling, two pneumatic cylinders extend to trigger the gun inside the GFB.
G	Gun Holder (not included): Correctly positions the gun inside the GFB. Order the gun holder matching the gun being used.

Installation

Typical Installation

Refer to the typical installation drawing in Fig. 2 page 9, as a guide for installing the Gun Flush Box. Contact your Graco distributor for an actual system design.

Ventilation







TOXIC OR FLAMMABLE FUMES HAZARD

To avoid hazardous concentrations of flammable or toxic fumes:

- Install the Gun Flush Box in a properly ventilated spray booth.
- Electrically interlock the Gun Flush Box air supply with the ventilating fans to prevent the box from operating when ventilating fans are not operating.
- Never operate the Gun Flush Box unless ventilation fans are operating.
- Follow all local codes and regulations regarding air exhaust velocity requirements.

Location

Locate the Gun Flush Box in a properly vented spray booth, in an area easily accessible to the operator and away from the spray or application point, to help avoid getting over-spray on the box.

Typical Installation

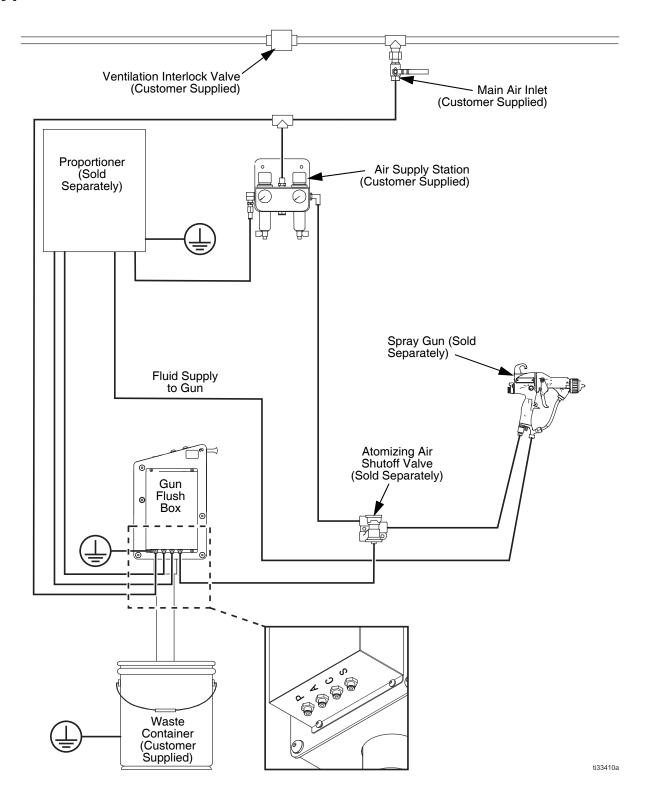


Fig. 2: Typical Installation

Mounting

The Gun Flush Box can be wall, stand, or drum mounted in the spray booth. Install the Gun Flush Box(es) using the mounting holes as a template. See Fig. 3 for dimensions. Make sure the mounting surface will withstand the weight of the Gun Flush Box, hoses, and the stress of operation.

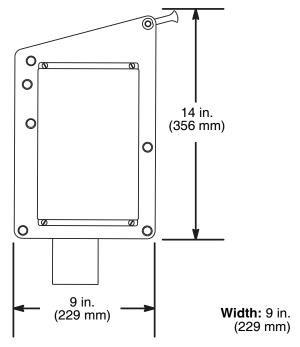


Fig. 3: Mounting Dimensions

Install the Gun Holder

The correct gun holder is necessary to operate the Gun Flush Box. Use the gun holder that matches the spray gun to be used.

- 1. Order the correct gun holder for your gun. See page 20.
- 2. Remove the two screws and washers (41, 8) holding mounting bracket (40) to the right-hand side of the Gun Flush Box. See Fig. 4 or Fig. 5.
- 3. Install the gun holder (GH), aligning its mounting holes with the holes in the mounting bracket (40) and the side of the Gun Flush Box. Attach using the screws and washers (41, 8).

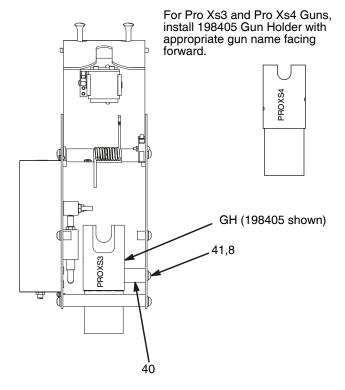


Fig. 4: Gun Holder Installation (Pro Xs3 and Xs4 Guns)

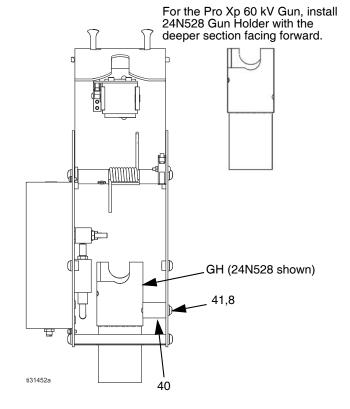


Fig. 5: Gun Holder Installation (Pro Xp 60kV Gun)

Enclosed Waste Container





To reduce the risk of splashing and static generation, a minimum of two feet (0.6 m) of straight plastic or grounded metal pipe must be connected between the Gun Flush Box and an enclosed waste container for the solvent.

Connect the longest possible section of straight plastic or grounded metal pipe (P) between the Gun Flush Box fluid outlet (O) and an enclosed metal waste container (W). See Fig. 6.

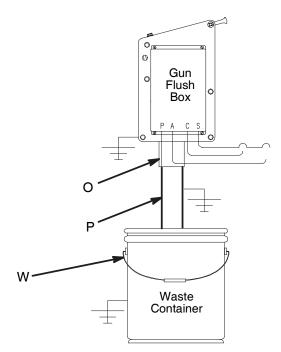


Fig. 6: Enclosed Waste Container Requirements

Grounding









To reduce the risk of fire, explosion, or electric shock, the system must be properly grounded.

- Follow the warnings starting on page 3.
- Ground the Gun Flush Box and waste container as instructed below.
- Ground your system as instructed in the system manual.

Gun Flush Box: Connect a ground wire to the grounding lug on the box. Connect the ground clamp to a true earth ground. Refer to Fig. 7.

Waste Container: Connect a ground wire and clamp between a metal waste container and a true earth ground.

Spray Gun: See your gun instruction manual.

Flammable Liquids in the spray area must be kept in approved, grounded containers.

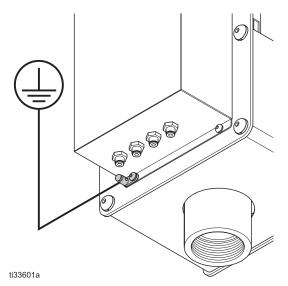


Fig. 7: Grounding Lug

Connect Tubing to the Pneumatic Controls

Fig. 8 shows the bottom of the Gun Flush Box. The four pneumatic fittings are labeled:

P = Supply air in

A = Output air signal: Air signal "on" when the gun is in the box and the lid is closed.

C = Inlet air for gun trigger cylinder (activates the gun trigger inside the GFB)

S = Output air signal to atomizing air shutoff valve: Air signal is "on" when there is no gun in the box and the lid is closed.

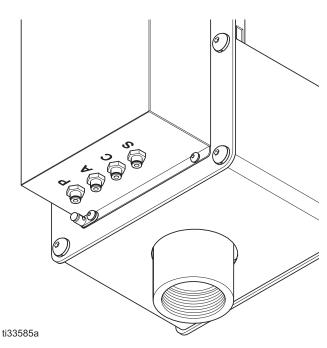


Fig. 8: Gun Flush Box Bottom View and Pneumatic Fittings

- Connect a 5/32" (4 mm) OD tube from the userprovided air supply to the P fitting. Use a clean, dry air supply; filtered to 10 microns.
- 2. Connect a 5/32" (4 mm) OD tube between the **A** fitting and the return air input on the controller.
- 3. Connect a 5/32" (4 mm) OD tube between the **C** fitting and the gun trigger solenoid output on the solenoid box or the Gun Flush Box control box.
- 4. Connect a 5/32" (4 mm) OD tube between the **S** fitting and the atomizing air safety shutoff valve pilot port.

Trigger Height Adjustment

Follow this procedure to ensure the gun triggers properly during use.

1. Insert the gun into the gun holder, inside the Gun Flush Box.

NOTE: If using a Pro Xp[™] Smart Gun model, the gun must be rotated to clear the hinge spring during insertion and removal.

- 2. Remove the four screws (9) that hold cover (5) to the Gun Flush Box. See Fig. 9.
- 3. Force the cylinder triggers on by connecting air to port C. Turn on the air to extend cylinder buttons (31) and (35).
- 4. Loosen both screws (26) on the side of the box that holds the cylinder block (28). See Fig. 10.

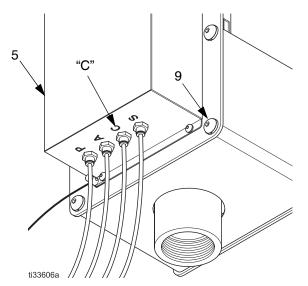


Fig. 9: Gun Flush Box Cover and Air Fittings

- 5. Raise cylinder block (28) until pin (35) opens the trigger fully. See Fig. 10.
- 6. Tighten both screws (26) at the desired location for cylinder block (28).

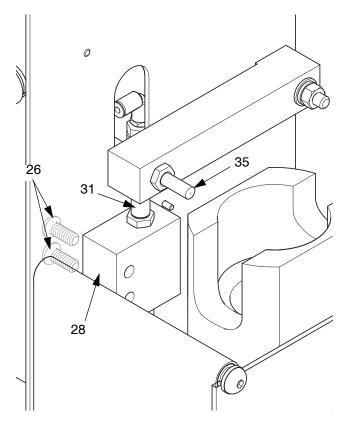


Fig. 10: Setting the Trigger Height

Operation







To reduce the risk of fire, explosion, or electric shock:

- Keep fluid pressure below 300 psi (2 MPa, 21 bar).
- For Electrostatic Guns:
 - Turn off the electrostatics before placing the gun in the Gun Flush Box and whenever you stop spraying.
 - In multiple gun systems, each gun must be used only with its corresponding Gun Flush Box for the interlocks to work. For example: With a two gun system, placing gun #1 into Gun Flush Box #2 will shut off the atomization air for gun #2 and leave the atomization air on for gun #1 during use.

Proportioner Controller Operation

See your system manual for operation instructions.

Operating Checklist

Check the following list daily, before starting to operate the system.

- _____ 1. Operators are trained to operate the system.
- If using electrostatics, operators are trained to turn off the electrostatics (Z) before placing the spray gun in the Gun Flush Box. See Fig. 11.
- 3. The system is grounded, and the operator and all persons entering the spray area are properly grounded. See **Grounding**, page 11.
- ____ 4. Ventilation fans are operating properly.
- 5. All debris, including rags, and non-essential equipment, is removed from the spray area.
- _____ 6. All flammable liquids in the spray booth are in approved, grounded containers.

7. All electrically conductive objects in the spray area, including paint containers, Gun Flush Boxes, and wash cans, are grounded and the floor of the spray area is electrically conductive and grounded.

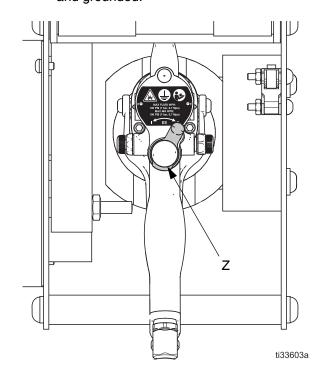


Fig. 11: Turn Electrostatics Off Before Flushing

Operating Instructions







Opening and closing the Gun Flush Box lid could pinch or cut fingers or other body parts. Be careful when pressing or releasing the latch knobs and keep clear of the closing lid.

- 1. If using an electrostatic gun, turn off the electrostatics.
- 2. Insert the gun into the gun holder, inside the Gun Flush Box.
- 3. Press the two spring-loaded latch knobs (11) inward and close the Gun Flush Box lid.

NOTE: GFB interlock switches prevent filling or flushing unless the gun is in the gun holder and the GFB lid is closed.

- 4. Follow the instructions in your proportioner Operation manual or your control box manual to fill the gun with paint or to flush solvent through the gun.
- 5. When the filling or flushing process is complete, open the Gun Flush Box lid and remove the gun.
- 6. Close the Gun Flush Box lid.

See the following chart for a summary of Gun Flush Box functions when using with a Graco proportioner.

GFB Lid	Gun in GFB?	Atomizing Air Status	Port A Pressure?	Port S Pressure?
Open	Yes	Locked out by safety shutoff valve	No	No
Open	No	Locked out by safety shutoff valve	No	No
Closed	Yes	Locked out by safety shutoff valve	Yes	No
Closed	No	Supplied to gun	No	Yes

Maintenance

	Daily	Weekly	Every two weeks, minimum
Gun Flush Box Enclosure	Keep the inside as clean as possible. Clean with a compatible solvent.	Clean the inside and outside of the enclosure with a compatible solvent.	
Lid	Keep hinge holes as clean as possible.		Grease hinges.
Cylinders			Pull the cylinder rod forward and coat with grease or petroleum jelly.
Switches			Clean and lubricate.
Fluid Outlet Pipe		Check for buildup of mixed material and replace if restricted.	

Troubleshooting





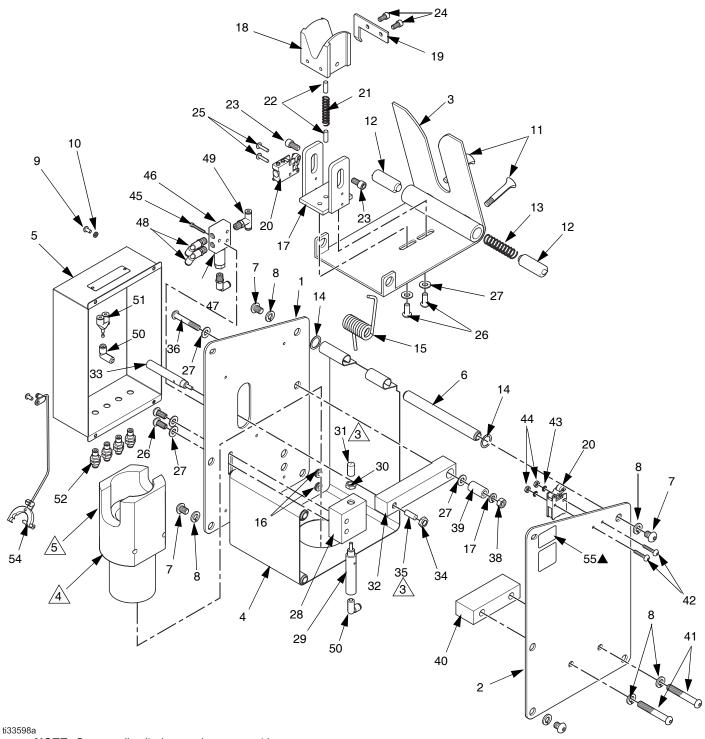






Problem	Cause	Solution	
Gun is in the Gun Flush Box, but the	Air is shut off.	Turn on the air to the system.	
system will not purge or mix.	Gun switch is not activating.	Test the switch. Replace if damaged.	
	Operator switch is not wired properly.	Check the I/O to see if the proper input is activating. Rewire the switch if necessary.	
	Tubing is not installed correctly.	Check tubing against the typical installation drawing on page 9.	
Gun Flush Box fails to purge after the pot life time ends.	Gun is not in Gun Flush Box.	Place the gun in the Gun Flush Box when it is not in use.	
	Gun switch is not activating.	Test the switch. Replace if damaged.	
Gun does not trigger when the Gun Flush Box controller activates it.	Tubing is not installed correctly.	Check tubing against the typical installation drawing on page 9.	
	Cylinder is damaged.	Clean cylinder rod or replace.	
	Gun is not properly set in the gun holder.	Check to make sure the gun holder is not obstructed by buildup.	
	Lower cylinder is out of adjustment.	Adjust the cylinder block as instructed in Trigger Height Adjustment procedure on page 13.	
Gun is out of the Gun Flush Box with the lid closed but the atomizing air is	Lid switch or gun switch failure.	Check the switches and replace if necessary.	
off.	No air flow to the Gun Flush Box.	Check the air supply and tubing.	

Parts



NOTE: Grease all cylinders and sensors with grease.

Clean threads thoroughly before applying. Use a primer to expedite drying. Apply Loctite[®] 2760 or equivalent adhesive to female threads. Be careful not to scratch cylinder. Wipe excess adhesive.

Optional Gun Holder shown; not included with assembly. Selection of correct gun holder required for proper operation.

Install deeper cut portion of adaptor towards the front of the flush box to accommodate trigger, allowing lid to close.

Only applies with 85 kV electrostatic gun.

Ref.	Part	Description	Qty.	Ref.	Part	Description	Qty.
1	196709	PANEL, cabinet, left	1	30	551795	NUT, hex head, 7/16-20	1
2		PANEL, cabinet, right	1	31	626504	BUTTON, cylinder	1
3		LID, cabinet	1	32	196708	ARM, lever	1
4		WRAPPER, cabinet	1	33✓	551793	CYLINDER, air, 0.438 dia.	1
5		COVER, cylinder	1	34	551890	NUT, jam, hex, 3/8-24	1
6		ROD, connecting	4	35√		BUTTON, small cylinder	1
7		SCREW, cap, 3/8 x 1	8	36	551786	SCREW, cap, 5/16 x 2	1
8		WASHER, lock, 3/8	10	37	107542	WASHER, lock, split, no. 8	1
9	551787	SCREW, cap, 10-32 x 0.38 in.	4	38		NUT, hex, 5/16–18	1
10		WASHER, lock, split, #10	4	39		AXLE, support	1
11	626495	KNOB, latch	2	40		BRACKET, mounting	1
12	626496	PIN, latch	2	41	116194	SCREW, cap, button hd, 3/8-16 x	2
13	116174	SPRING, compression, 3.5 in.	1			2.5 in.	
14	551891	WASHER, 21/32 ID x 7/8	2	42	116195	SCREW, cap, button hd,	2
		OD				8–32 x 1 in.	
15	196844	SPRING, torsion	1	43	157021	WASHER, lock, internal tooth, no.	2
16	551849	GROMMET, 5/16 ID x 1/2 OD	3			8	
17	196703	SUPPORT, yoke, upper	1	44	102931	NUT, machine, hex, 8-32	2
18	196700	YOKE, gun, upper	1	45	C19964	SCREW, cap, 6-32 x 1 in.	1
19	196704	SWITCH, flag	1	46	502473	VALVE, air, 4-way, spring return	1
20	116172	SWITCH, limit, pneumatic	2	47	501014	ACTUATOR, air, 1/8 npt(f)	1
21	116173	SPRING, compression, 2.25 in.	1	48		ELBOW, 5/32 tube 1-1/8 npt(m)	3
22	116193	PIN, dowel	2	49	598141	TEE, 5/32 tube x 1/8 npt	1
23	108751	SCREW, cap, socket hd,	2	50	514581	CONNECTOR, 5/32 in. tube x 10-	2
		5/16 x 0.625 in.				32	
24	C19800	SCREW, cap, socket hd, 1/4-20 x	2	51		TEE, 3-way, 5/32 OD (m x f)	1
		0.5 in.		52	113284	FITTING, pneumatic push-in, M10	4
25	112598	SCREW, machine, truss hd, 8-32	2			x 1 x 5/32 in. tube	
		x 0.75 in.		53	551731	TUBE, 5/32 OD, polyethylene,	$\stackrel{\wedge}{\Longrightarrow}$
26	112944	SCREW, cap, button hd,	4			white	
		5/16 x 0.75 in.		54	222011	CLAMP, grounding	1
27	104034	WASHER, plain, 5/16	6	55▲	180233	LABEL, warning, pinch point	2
28		BLOCK, cover	1	57		CLAMP, Ty-Rap	1
29		CYLINDER, air, 0.568 in. dia.	1	58	103473	STRAP, tie; wire	1
		, ,					

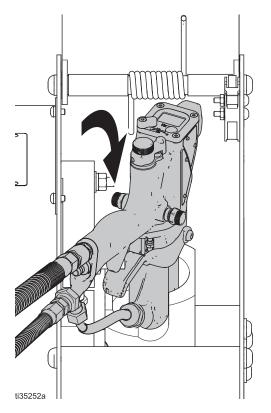
- --- Item not available separately.
- ▲ Replacement Danger and Warning labels, tags, and cards are available at no cost.
- ☆ Order length needed.
- ✓ Keep these spare parts on hand to reduce down time.

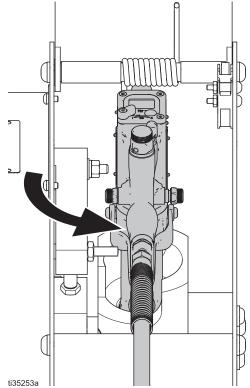
Accessories

Gun Holder

Part No.	Description			
198405	Graco Pro™ Xs3, Pro™ Xs4			
198787	Graco Pro™ Xs2			
196769	Graco Delta Spray™ Gun			
196770	Graco Alpha Gun			
196771	Graco Alpha Plus, Alpha Plus with RAC Tip			
196767	Devilbiss JGA/MSA*			
15T646	Graco AirPro™ Gun			
15G093	Graco G15 AA Gun			
15G346	Graco G40 AA Gun			
24N528 ‡	Graco Pro Xp [™] 60 & 85 kV Gun			
24N529	Graco Pro Xp [™] 40 kV Gun			

- * Brand names or marks are used for identification purposes and are trademarks of their respective owners.
- ‡ Includes yoke. When using part 24N528 for ProXP 60 kV smart guns, rotate the gun clockwise and insert the gun into the holder. After the gun is seated, rotate the gun counter-clockwise so the lid can be closed.





244169 Gun Holder Conversion Kit

Allows mounting of new gun holder in older style Gun Flush Box (Part No. 570046). Requires purchase of appropriate gun holder (see chart above).

244373 Gun Switch/Yoke Conversion Kit

Converts older style Gun Flush Box (Part No. 570046) to new style upper gun switch/yoke assembly.

570123 Wall Mount Kit

For mounting the Gun Flush Box to the spray booth wall. Kit mounts only to the right side of the Gun Flush Box.

Gun Flush Box Retrofit Kits for PrecisionMix II

Part No. 241389 One Gun
Part No. 241394 Two Guns

Accessories

Technical Specifications

Gun Flush Box Module					
	US	Metric			
Maximum Air Inlet Pressure	100 psi	(0.7 MPa, 7 bar)			
Height	14 in.	356 mm			
With lid open	21 in.	533 mm			
Width	7 in.	178 mm			
Length	11in.	279 mm			
Inlet/Outlet Sizes					
Outlet		2 in. npt(f)			
Materials of Construction					
Wetted materials	Stainless steel, nyl ylene	Stainless steel, nylon, ultra high molecular weight polyethylene			
Weight	Weight				
	22 lbs.	9.6 kg			

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is 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.

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.

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In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

FOR GRACO CANADA CUSTOMERS

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Graco Information

For the latest information about Graco products, visit www.graco.com. For patent information, see www.graco.com/patents.

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor. **Phone**: 612-623-6921 **or Toll Free**: 1-800-328-0211 **Fax**: 612-378-3505

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Original instructions. This manual contains English. MM 309327

Graco Headquarters: Minneapolis International Offices: Belgium, China, Japan, Korea

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