

Instructions – Parts List



MODEL 482

310543 rev.C

Automatic Metering Valves

Used to provide precise dispense of medium to high viscosity sealants and adhesives in a non-hazardous location

3200 psi (22.0 MPa, 220 bar) Maximum Fluid Working Pressure

Part No. C02021, Series B

Model 482-B

7/8-18 uns externally threaded fluid inlet boss and 7/16-20 unf mounting hole

1/4 npt(f) material inlet, 1/8 npt(f) material outlet

Part No. C02022, Series C

Model 482-C

7/16-20 unf mounting hole

1/4 npt(f) material inlet, 1/8 npt(f) material outlet

Part No. C02025, Series B

Model 482-E

7/16-20 unf mounting hole

1/4 npt(f) material inlet, 1/4 npt(f) material outlet

Part No. C02078, Series B

Model 482-DA, with double acting air cylinder

7/16-20 unf mounting hole

1/4 npt(f) material inlet, 1/4 npt(f) material outlet

Part No. C02026

Model 482-HA; same as Part No. C02022, with trigger-actuated pistol grip handle

Part No. C02027

Model 482-MS, for moisture sensitive materials;

same as Part No. C02021, with seal fluid reservoir and plugged 7/16-20 mounting hole



Important Safety Instructions.

Read all warnings and instructions in this manual.

Save these instructions.

U.S. Patent Nos. 3,160,331 and 3,132,775

PROVEN QUALITY. LEADING TECHNOLOGY.

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Symbols

Warning Symbol



This symbol alerts you to the possibility of serious injury or death if you do not follow the instructions.

Caution Symbol



This symbol alerts you to the possibility of damage to or destruction of equipment if you do not follow the instructions.

WARNING



INSTRUCTIONS



EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, warnings, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are uncertain about usage, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check the equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated system component. These metering valves have a **3200 psi (22.0 MPa, 220 bar) Maximum Working Pressure**.
- Route the hoses away from the traffic areas, sharp edges, moving parts, and hot surfaces. Do not expose Graco hoses to temperatures above 82° C (180° F) or below -40° C (-40° F).
- Use fluids and solvents that are chemically compatible with the equipment wetted parts. See the **Technical Data** sections of all the equipment manuals. Always read the material manufacturer's literature before using fluid or solvent in this equipment.
- Wear hearing protection when operating this equipment.
- Comply with all applicable local, state and national fire, electrical and other safety regulations.



TOXIC FLUID HAZARD

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

- Know the specific hazards of the fluid you are using. Read the fluid manufacturer's warnings.
- Store hazardous fluid in an approved container. Dispose of the hazardous fluid according to all local, state, and national guidelines.
- Wear appropriate protective clothing, gloves, eyewear, and respirator.

WARNING



SKIN INJECTION HAZARD

Spray from the metering valve, hose leaks, or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Splashing fluid in the eyes or on the skin can also cause serious injury.

- Fluid injected into the skin might look like just a cut, but it is a serious injury. **Get immediate surgical treatment.**
- Do not point the metering valve at anyone or at any part of the body.
- Do not put your hand or fingers over the nozzle.
- Do not stop or deflect fluid leaks with your hand, body, glove, or rag.
- Do not “blow back” fluid; this is not an air spray system.
- Follow the **Pressure Relief Procedure** on page 6 if the nozzle clogs, and before cleaning, checking or servicing the equipment.
- Tighten all fluid connections before operating the equipment.
- Check the hoses, tubes, and couplings daily. Replace worn, damaged, or loose parts immediately. Do not repair high pressure couplings; you must replace the entire hose.
- Fluid hoses must have spring guards on both ends, to help protect them from rupture caused by kinks or bends near the couplings.





FIRE AND EXPLOSION HAZARD

Improper grounding, poor air ventilation, open flames, or sparks can cause a hazardous condition and result in a fire or explosion and serious injury.

- Ground the equipment and the object being sprayed. See **Ground the System** on page 5.
- Provide fresh air ventilation to avoid the buildup of flammable fumes from solvent or the fluid being dispensed.
- Extinguish all the open flames or pilot lights in the dispense area.
- Electrically disconnect all the equipment in the dispense area.
- Keep the dispense area free of debris, including solvent, rags, and gasoline.
- Do not turn on or off any light switch in the dispense area while operating or if fumes are present.
- Do not smoke in the dispense area.
- Do not operate a gasoline engine in the dispense area.
- If there is any static sparking while using the equipment, **stop dispensing immediately**. Identify and correct the problem.

Setup

Ground the System

 WARNING	
	<p>FIRE AND EXPLOSION HAZARD</p> <p>To reduce the risk of a fire, explosion, and serious injury, proper electrical grounding of every part of your system is essential. Read the warning section, FIRE AND EXPLOSION HAZARD, on page 4 and follow the grounding instructions below.</p>

The following grounding instructions are minimum requirements for a basic dispensing system. Your system may include other equipment or objects which must be grounded. Check your local electrical code for detailed grounding instructions for your area and type of equipment. Your system must be connected to a true earth ground.

1. *Pump*: ground the pump by connecting a ground wire and clamp as described in your separate pump instruction manual.
2. *Automatic metering valve*: ground the metering valve by connecting it to a properly grounded fluid hose and pump.
3. *Fluid hoses*: use only electrically conductive fluid hoses.
4. *Fluid supply container*: ground according to the local code.
5. *All solvent pails used when flushing*: ground according to local code. Use only metal pails, which are conductive, placed on a grounded surface. Do not place the pail on a non-conductive surface, such as paper or cardboard, which interrupts the grounding continuity.

Installation

NOTE: Read this manual thoroughly before installing the automatic metering valve.

The metering valve has a tapped hole for mounting, making it ideal for automatic systems and for use in multiple manifold high production operations. The valve can be supplied by any standard Graco pump.

1. Inspect the metering valve for shipping damage. If damage is found, notify the carrier immediately.
2. Attach the meter to its mounting fixture by means of the 7/16–20 tapped mounting hole in the valve body (1). Keep in mind that the height of the valve must be adjustable so either the part or the valve can retract at the same instant that the valve shuts off.
3. Connect the actuating air supply (minimum 80 psi/0.55 MPa/5.5 bar) from a three-way, normally closed air valve to the 1/8 npt(f) air inlet. Cycle the valve. Observe the action of the needle valve (6) and the spring (23, not present on Part No. C02078 AMV) through the vent hole in the valve body (1).

Operation

Pressure Relief Procedure

WARNING



INJECTION HAZARD

The system pressure must be manually relieved to prevent the system from starting or spraying accidentally. Fluid under high pressure can be injected through the skin and cause a serious injury. To reduce the risk of an injury from injection, splashing fluid, or moving parts, follow the **Pressure Relief Procedure** whenever you:

- are instructed to relieve the pressure,
- stop dispensing,
- check or service any of the system equipment,
- or install or clean the nozzle.

1. Shut off the fluid supply line to the automatic metering valve.
2. Close the bleed-type master air valve (required in your system) to shut off the air to the automatic metering valve.
3. Repeatedly actuate the automatic metering valve until no fluid flows.
4. Open the pump drain valve to help relieve fluid pressure in the pump, hose, and automatic metering valve. Actuating the valve to relieve pressure may not be sufficient. Have a container ready to catch the drainage.
5. Leave the drain valve open until you are ready to dispense again.
6. If you think that the valve nozzle or fluid hose is completely clogged or that pressure has not been fully relieved after following the steps above, very slowly loosen the hose end coupling and relieve pressure gradually, then loosen the coupling completely. Clear the nozzle or hose obstruction.

How the Metering Valve Operates

The metering valve is an automatic, air-operated, single-acting valve for dispensing accurately metered amounts of fluid repeatedly. The valve can dispense from 0.2 cc to 4 cc of fluid, with a viscosity range from 3000 to 1 million centipoise.

An air operated spool valve directs pressurized fluid to either side of a floating piston. Shot size is easily and quickly changed by simply lengthening or shortening the piston stroke (see **Adjusting the Valve**).

At its maximum of 4 cc of moderate viscosity fluid, the valve will dispense up to 15 shots per minute. Lower viscosities or smaller shots permit even faster operation.

A special snuffer action at the end of the dispensing cycle draws fluid back, preventing dripping or stringing.

Adjusting the Valve

1. Connect the fluid supply line to the fluid inlet or to the external threads of the boss (C02021 only).
2. Gradually apply fluid pressure while cycling the valve. Increase pressure until the desired dispensing rate is attained and all air is purged from the fluid supply line.

NOTE: To purge air from the fluid supply line, hold the valve higher than the fluid source with the hose on a gentle incline and cycle the valve repeatedly.

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** at left.

3. Relieve the pressure.
4. Install a suitable nozzle in the fluid outlet of the retainer (2). See page 17 for available nozzle sizes.
5. Turn the nut (8) counterclockwise to unlock. Turn the retainer (2) counterclockwise until it engages the stop screw (7) but does not hinder the free sliding action of the needle valve (6).

NOTE: Adjusting the retainer to the extreme open position may cause the valve to malfunction due to cocking of internal components.

6. Adjust the shot size by turning the retainer clockwise for less fluid, counterclockwise for more fluid.

NOTE: The valve must be cycled and adjusted simultaneously when attempting to reduce shot size.

Troubleshooting

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 6.

1. Relieve the pressure.
2. Check all possible problems and solutions before disassembling pump.

Problem	Cause	Solution
Metering valve fails to dispense when actuator is tripped.	Check nozzle for cured or foreign fluid.	Clean or clear nozzle.
	Observe the action of the needle valve (6) and the spring (23, not present on Part No. C02078 AMV) through the vent hole in the valve body (1), while cycling the valve.	Adjust the piston stroke. Disassemble and clean the needle valve, if necessary.
	Fluid or air hose is kinked or blocked.	Clear or straighten hose.
	Interrupted fluid supply.	Clear supply line. Check supply and refill if necessary. Turn on supply pump.
	Insufficient operating air pressure.	Increase air pressure to 80 psi (0.55 MPa, 5.5 bar). Clear air line if blocked.
	Worn or damaged parts.	Disassemble and rebuild the valve. Lubricate o-rings on installation.

Service

AMV Disassembly

This procedure describes how to disassemble the automatic metering valve. Refer to **Parts** information on pages 13 and 14.

NOTE: The numbers in parentheses in the text refer to reference numbers in the parts drawings and parts lists.

NOTE: Needle Chuck Tool 918482 is available. Order separately. See page 17.

To disassemble the AMV, perform the following procedure:

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 6.

1. Flush the metering valve if possible. Relieve the pressure.
2. Disconnect the air and fluid hoses. Remove the metering valve from its mounting.
3. Remove the nozzle from the retainer (2). Clean and inspect the nozzle.
4. Remove the stop screw (7).
5. Turn the nut (8) counterclockwise to unlock and remove the retainer (2) and disassemble the retainer as follows:
 - a. Remove the retaining ring (12) with a retaining ring compression tool.
 - b. Place the retainer (2) on a flat surface with the threaded end up and press the needle seal (6c) with a 1/4 in. (6 mm) dowel to remove the support washer (9), o-ring (15), and seal from the cavity.
6. Install the needle chuck tool onto the needle (6b) through the retainer end of the body (1).
7. Remove the air cap (3) from the valve body (1).
8. Remove the o-rings (19) from the groove in the air cap (3).
9. Holding the needle chuck, remove the nylon nut (11), washer (10), and packing (13).
10. Remove the air piston (4) from the body and carefully remove the quad ring (20) by stretching it from the groove in the piston. On AMV C02078 only, remove the second quad ring (21) from the piston.
11. Remove the spring (23, not present on AMV C02078) from the body (1).
12. Remove the needle (6b) from the valve body (1).
13. Stand the body (1) on the retainer end and press the fluid piston (6a) from the body using a dowel. Remove the o-rings (17, 16, and 14) and the back-up ring (22) from the piston.

Service

AMV Reassembly

This procedure describes how to reassemble the automatic metering valve. Refer to **Parts** information on pages 13 and 14.

NOTES:

- The numbers in parentheses in the text refer to reference numbers in the parts drawings and parts lists.
- Repair Kit C02023 is available for AMV Part Nos. C02021, C02022, and C02025. For the best results, use all the new parts in the kit when repairing the AMV. Parts included in the kit are marked with an asterisk, for example (11*). See page 13.
- Repair Kit C02080 is available for AMV Part No. C02078. For the best results, use all the new parts in the kit when repairing the AMV. Parts included in the kit are marked with a symbol, for example (11†). See page 14.
- Needle Chuck Tool 918482 is available. Order separately. See page 17.
- Clean all the parts thoroughly before reassembling the AMV. Check them carefully for damage or wear, replacing parts as needed.
- Prior to installation, lubricate all seals and o-rings with PARKER-O-LUBE™ or an equivalent lubricant. Check with the material supplier for a compatible lubricant.

To reassemble the AMV, perform the following procedure:

1. Install the o-rings (17*†, 16*†, and 14*†) and the back-up ring (22*†) on the fluid piston (6a†). Stand the body (1) on the retainer end. Press the fluid piston into the body using a dowel.
2. Reassemble the needle valve (6†) and air piston (4) as follows:
 - a. Attach the needle chuck to the needle (6b) and insert the needle through the fluid piston (6a), threaded end first.
 - b. Install the quad ring (20*†) on the air piston (4) by carefully stretching the quad ring into the groove in the piston. On AMV C02078 only, install the second quad ring (21†) on the piston.
3. Install the spring (23, not present on AMV C02078) and the air piston (4) into the body (1).
4. Press the piston firmly into the body so the threads appear. Install the o-ring (13*†), washer (10), and nut (11*†).
5. Install the o-ring (19*†) into the groove inside the air cap (3), and reinstall the cap onto the body (1). Remove the needle chuck.
6. Install the o-ring (17*†) and reassemble the retainer (2) as follows:
 - a. Place the retainer (2) on a flat surface with the threaded end down. Press the needle seal (6c) into the cavity using a 1/4 in (6 mm) dowel. Install the o-ring (15*†) and support washer (9).
 - b. Install the retaining ring (12*†) with a retaining ring compression tool.
7. Thread the retainer (2) into the body (1).
8. Turn the nut (8) clockwise to install and lock the retainer (2).
9. Reinstall the stop screw (7).
10. Reinstall the nozzle in the retainer (2).
11. Reinstall the AMV on its mounting fixture.
12. Reconnect the air and fluid hoses.
13. Turn on the air pressure and apply power to the fluid supply system.
14. Return the AMV to normal operating condition.

Service

AMV Disassembly (C02026)

This procedure describes how to disassemble the pistol grip metering valve. Refer to **Parts** information on page 15.

NOTE: The numbers in parentheses in the text refer to reference numbers in the parts drawings and parts lists.

Relieve Fluid Pressure

To relieve the fluid pressure to the AMV, perform the following procedure:

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 6.

1. Perform the **Pressure Relief Procedure** to relieve pressure to the metering valve. Flush the metering valve, if possible.
2. Disconnect the air and fluid hoses.

Gun Handle Disassembly Procedure

To remove the metering valve from the gun handle, perform the following procedure:

1. Disconnect the tubing (104) from the elbow (102).
2. Remove the socket-head screw (107) and the second screw (not listed) that secures the metering valve (101) to the mounting block (113). Remove the metering valve.

NOTE: The gun handle assembly should not be disassembled unless there is damage or wear to the original parts.

3. Remove the four socket-head screws (103) from the gun handle (108).
4. Unscrew the 10-32 x 1/4" fitting (105) to disconnect the tubing (104) from the gun handle (108).
5. Unscrew the valve (106) that controls the air inlet pressure to the gun.
6. Carefully remove the roll pin (111) that controls the tension of the spring (110) from the gun handle (108).
7. Carefully remove the roll pin (112) that holds the trigger (109) in the gun handle (108). Remove the trigger from the handle. Remove the spring (110) from the handle.

Metering Valve Disassembly Procedure

To disassemble the metering valve, refer to the **AMV Disassembly** procedure on page 8.

Service

AMV Reassembly (C02026)

This procedure describes how to reassemble the pistol grip metering valve. Refer to **Parts** information on page 15.

NOTES:

- The numbers in parentheses in the text refer to reference numbers in the parts drawings and parts lists.
- Clean all the parts thoroughly before reassembling the AMV. Check them carefully for damage or wear, replacing parts as needed.

Metering Valve Reassembly Procedure

To reassemble the metering valve, refer to the **AMV Reassembly** procedure on page 9.

Gun Handle Reassembly Procedure

To reassemble the gun handle, perform the following procedure:

1. Install the spring (110), trigger (109), and roll pin (112) in the gun handle (108).
2. Install the roll pin (111) that controls the tension of the spring (110) in the gun handle (108).
3. Install the valve (106) that controls the air inlet pressure to the gun.
4. Reconnect the 10-32 x 1/4" fitting (105) that connects the tubing (104) to the gun handle (108).
5. Reinstall the four socket-head screws (103) to lock the gun handle (108) components together.
6. Mount and secure the metering valve (101) to the mounting block (113) using the socket-head screw (107) and the second screw (not listed).
7. Reconnect the tubing (104) to the elbow (102) on the metering valve (101).

Metering Valve Air and Fluid Connections

To reconnect the AMV to the air and fluid lines, perform the following procedure:

1. Reconnect the air and fluid hoses.
2. Turn on the air pressure and apply power to the fluid supply system.
3. Check the air and fluid hoses on the AMV for leakage.
4. Return the AMV to normal operating condition.

Service

AMV Disassembly (C02027)

This procedure describes how to disassemble the automatic metering valve. Refer to **Parts** information on page 16.

NOTE: The numbers in parentheses in the text refer to reference numbers in the parts drawings and parts lists.

Relieve Fluid Pressure

To relieve the fluid pressure to the AMV, perform the following procedure:

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 6.

1. Perform the **Pressure Relief Procedure** to relieve pressure to the metering valve. Flush the metering valve, if possible.
2. Disconnect the air and fluid hoses.

Metering Valve Disassembly Procedure

To disassemble the AMV, perform the following procedure:

1. Remove the metering valve from its mounting.
2. Unscrew the 1/4 npt hex nipple (205) from the 90° elbow (206) to disconnect the cartridge (202) from the AMV (201). Exercise care to avoid spilling seal fluid (208) from the cartridge.

NOTE: This unit is assembled using a C02021 metering valve.

3. Disassemble the C02021 metering valve. Refer to the **AMV Disassembly** procedure on page 8.

AMV Reassembly (C02027)

This procedure describes how to reassemble the automatic metering valve. Refer to **Parts** information on page 16.

NOTE: The numbers in parentheses in the text refer to reference numbers in the parts drawings and parts lists.

NOTE: Clean all the parts thoroughly before reassembling the AMV. Check them carefully for damage or wear, replacing parts as needed.

Metering Valve Reassembly Procedure

To reassemble the AMV, perform the following procedure:

1. Reassemble the C02021 metering valve. Refer to the **AMV Reassembly** procedure on page 9.
2. Reinstall the 1/4 npt hex nipple (205) into the 90° elbow (206) to reconnect the cartridge (202) with the AMV (201). Exercise care to avoid spilling seal fluid (208) from the cartridge.
3. Reinstall the AMV on its mounting fixture.
4. Reconnect the air and fluid hoses.
5. Fill the cartridge (202) with seal fluid (208). Do not exceed the 2.75 in. (70 mm) level measured from the top of the cartridge. Install the end cap (203).
6. Turn on the air pressure and apply power to the fluid supply system.
7. Check for leakage at the AMV.
8. Return the AMV to normal operating condition.

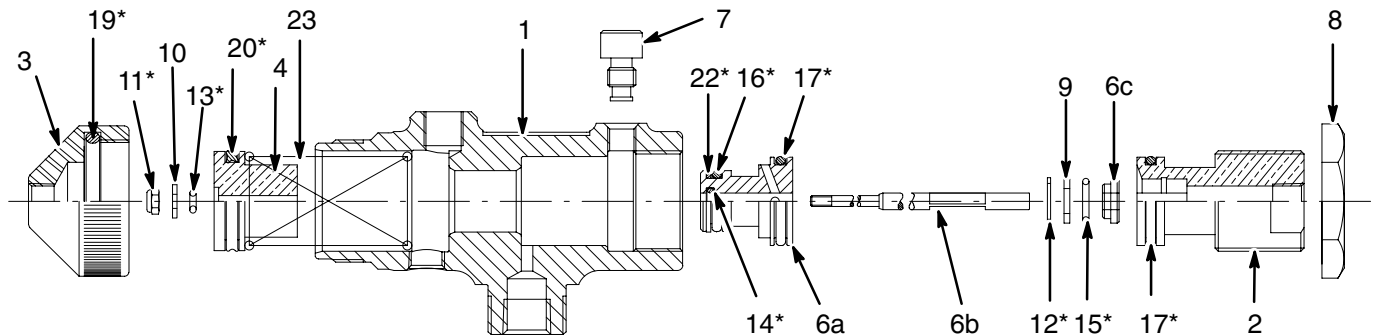
Parts

Part Nos. C02021, C02022, and C02025

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	C02029	BODY; used on C02022, C02025	1	10	114027	WASHER, flat, no. 6	1
	C02028	BODY; used on C02021	1	11*	C02032	NUT, lock, nylon no. 5–40	1
2	C02043	RETAINER, outlet; used on C02021 and C02022	1	12*	111317	RING, retaining	1
	C02044	RETAINER, outlet; used on C02025	1	13*	168518	O-RING, fluoroelastomer	1
3	C02041	CAP, cylinder	1	14*	168110	O-RING, fluoroelastomer	1
4	C02045	PISTON, air	1	15*	106555	O-RING, fluoroelastomer	1
6	C02036	NEEDLE VALVE, lapped; includes items 6a, 6b, and 6c	1	16*	C20314	O-RING, fluoroelastomer	1
6a	n/a	. PISTON, fluid	1	17*	C20317	O-RING, fluoroelastomer	2
6b	n/a	. NEEDLE	1	19*	111095	O-RING, buna-N	1
6c	n/a	. SEAL	1	20*	C02033	QUAD RING	1
7	C02030	SCREW, stop	1	22*	C20846	BACK-UP RING	1
8	C02042	NUT, lock	1	23	C02031	SPRING	1
9	C02035	WASHER, back-up	1				

* These parts are included in Repair Kit C02023, which may be purchased separately.

C02021–Exploded View



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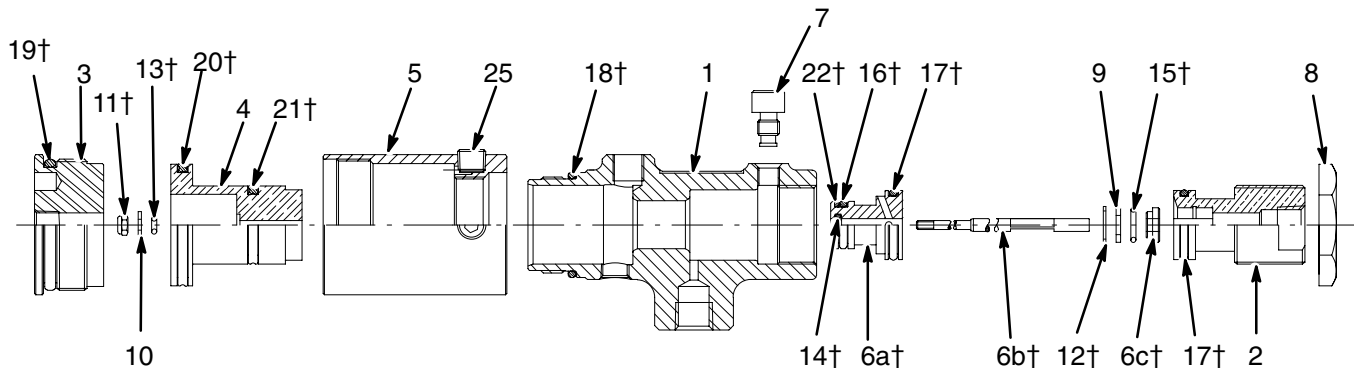
Parts

Part No. C02078

Model 482-DA; with double acting air cylinder and 1/4 npt(f) outlet

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	C02079	BODY, valve, meter	1	12†	111317	RING, retaining	1
2	C02044	RETAINER, outlet	1	13†	168518	O-RING, fluoroelastomer	1
3	C02077	CAP, cylinder	1	14†	168110	O-RING, fluoroelastomer	1
4	C02074	PISTON, air	1	15†	106555	O-RING, fluoroelastomer	1
5	C02076	CYLINDER	1	16†	C20314	O-RING, fluoroelastomer	1
6†	C02036	NEEDLE VALVE, lapped; includes items 6a, 6b, and 6c	1	17†	C20317	O-RING, fluoroelastomer	2
6a†	n/a	. PISTON, fluid	1	18†	C20987	O-RING, buna-N	1
6b†	n/a	. NEEDLE	1	19†	157195	O-RING, buna-N	1
6c†	n/a	. SEAL	1	20†	C02073	QUAD RING	1
7	C02030	SCREW, stop	1	21†	C02033	QUAD RING	1
8	C02042	NUT, lock	1	22†	C20846	RING, back-up	1
9	C02035	WASHER, back-up	1	25	C19252	PLUG, pipe, 1/8 npt	3
10	114027	WASHER, flat no. 6	1	† These parts are included in Repair Kit C02080, which may be purchased separately.			
11†	C02032	NUT, lock nylon no. 5-40	1				

C02078-Exploded View



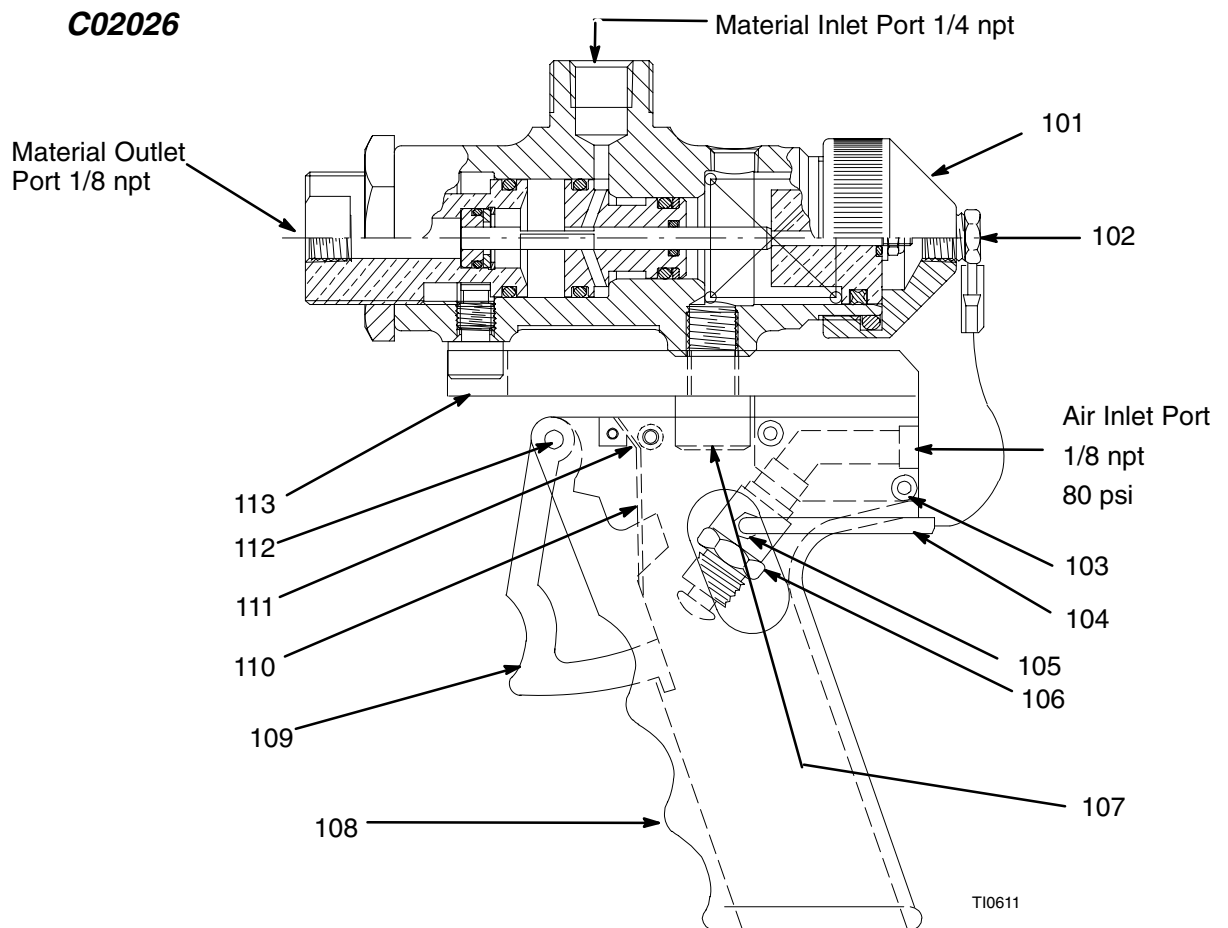
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Parts

Part No. C02026

Model 482-HA; Model 482-C with trigger-actuated pistol grip handle

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
101	C02022	METERING VALVE	1	108	C02039	HANDLE	1
102	C20850	ELBOW	1	109	C26312	TRIGGER	1
103	C19955	SOCKET-HEAD SCREW	4	110	C04083	SPRING	1
104	192331	TUBING	1	111	C20065	ROLL PIN	1
105	C20861	FITTING (10-32 x 1/8 in.)	1	112	C20064	ROLL PIN	1
106	104636	VALVE	1	113	C02040	MOUNTING BLOCK	1
107	C20023	SOCKET-HEAD SCREW	1				

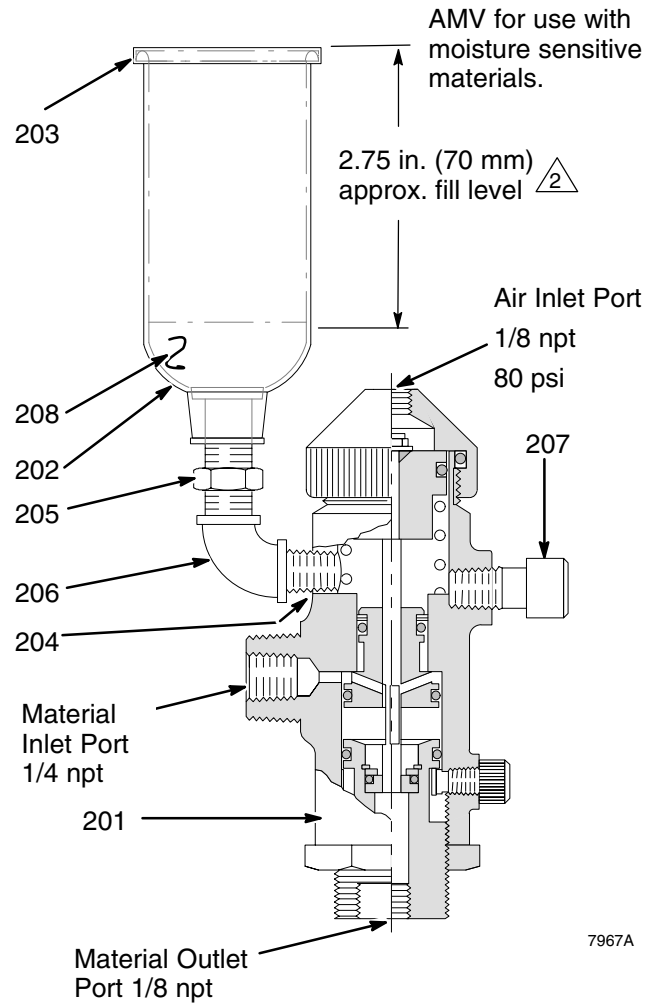



Parts

Part No. C02027

This AMV is designed to be used with moisture sensitive materials.

Ref. No.	Part No.	Description	Qty.
201	C02021	AUTOMATIC METERING VALVE	1
202	C04104	CARTRIDGE; 2.5 oz	1
203	C26069	END CAP	1
204	C20477	HEX NIPPLE; 1/8 npt	1
205	C20479	HEX NIPPLE; 1/4 npt	1
206	C19888	90° REDUCING ELBOW 1/8 x 1/4 npt	1
207	C20023	SCREW, cap, socket-head; 7/16-20 x 3/4 in. long	1
208	C26303	SEAL FLUID	1



 Fill cartridge with seal fluid (item 208) to force fluid through cartridge cap bleed holes during valve shift. Fill slowly to allow air to bleed out from piston cavity.

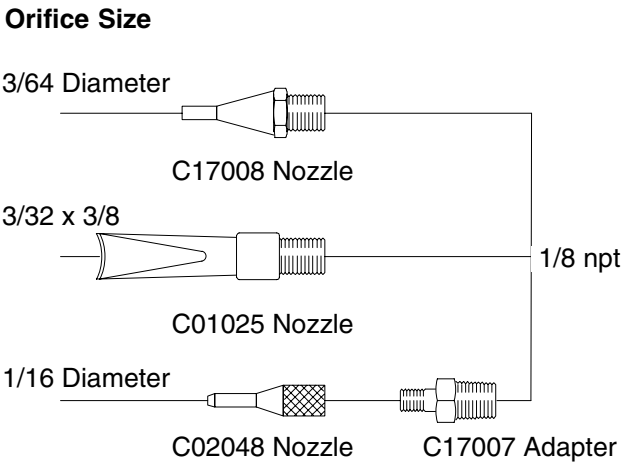
Accessories

Use Only Genuine Graco Parts and Accessories

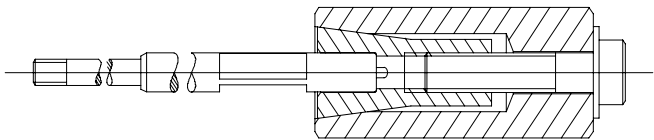
Fluid Nozzles

These nozzles fit all automatic metering valves covered in this manual.

Orifice Size	Nozzle Part No.	Adapter Part No.
3/64 in. (1.2 mm)	C17008; 1/8 npt(m)	not required
3/32 x 3/8 in. (2.4 x 9.5 mm)	C01025; 1/8 npt(m)	not required
1/16 in. (1.6 mm)	C02048	C17007; 1/8 npt(m)



Needle Chuck Tool 918482



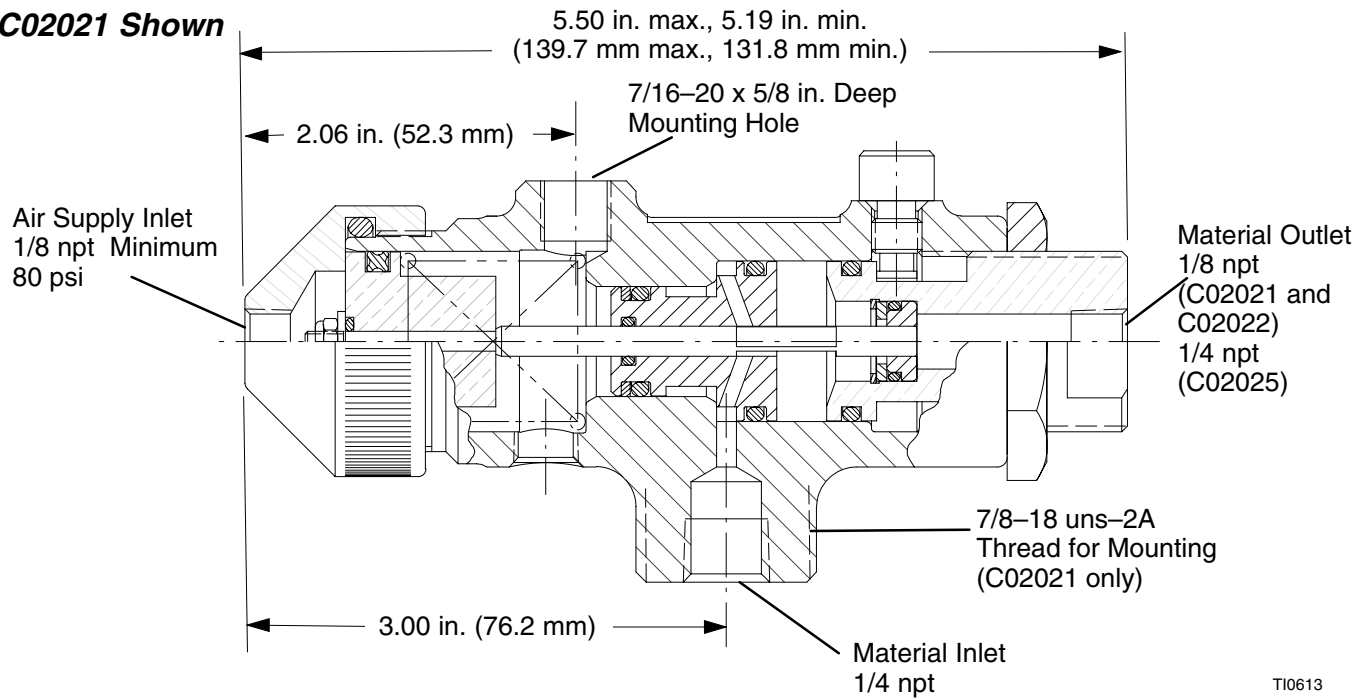
Technical Data

Category	Data
Maximum fluid working pressure	3200 psi (22.0 MPa, 220 bar)
Minimum fluid working pressure	50 psi (0.34 MPa, 3.4 bar)
Minimum air supply pressure	80 psi (0.55 MPa, 5.5 bar)
Viscosity range	3000 to 1 million centipoise
Shot size range	0.2 to 4.0 cc
Shot cycle rate	15 shots per minute, at 4.0 cc shot size with moderate viscosity fluid
Air supply inlet	1/8 npt(f)
Fluid inlet	1/4 npt(f)
Fluid outlet	C02021, C02022, C02026, and C02027: 1/8 npt(f)
	C02025 and C02078: 1/4 npt(f)
Mounting hole	7/16–20 unf–2B
Piston	Air-operated, spring return
Wetted parts	Fluoroelastomer o-rings
Weight	1.43 lb (0.65 kg)

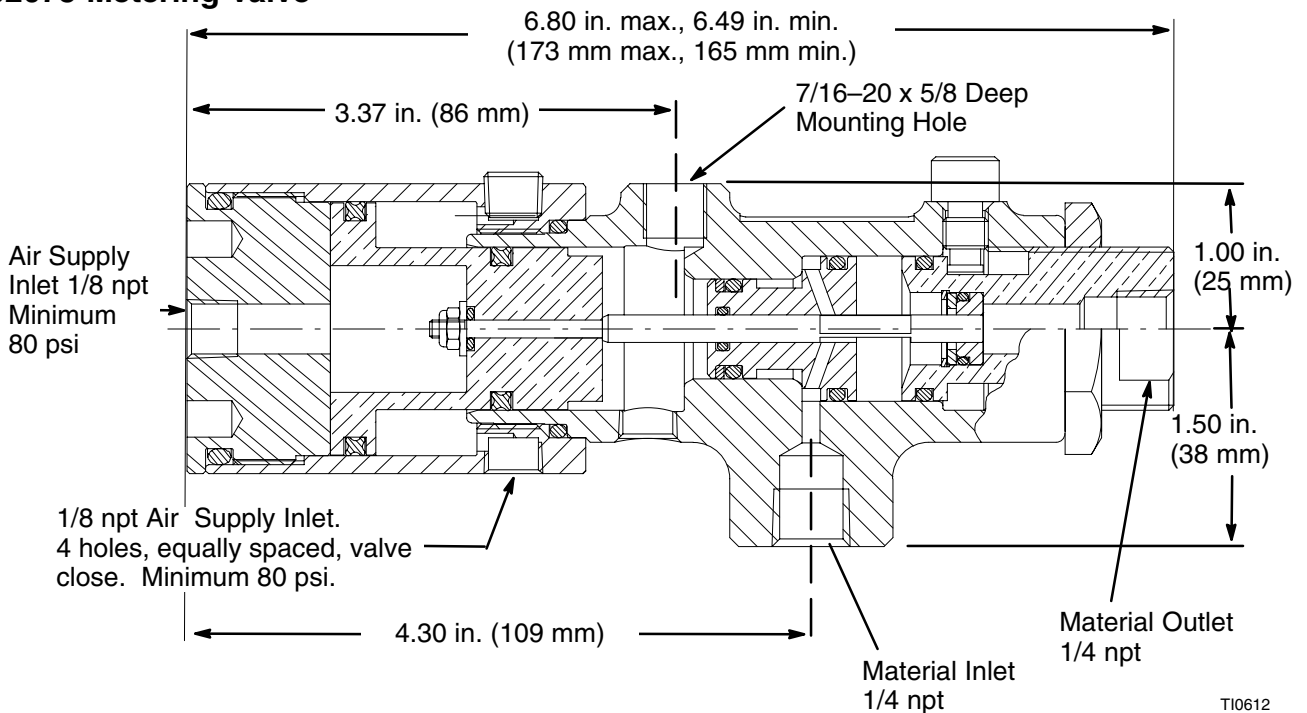
Dimensions

C02021, C02022, and C02025 Metering Valves

C02021 Shown



C02078 Metering Valve



The 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.

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.

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.

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Graco Information

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

Phone: 612-623-6921 or **Toll Free:** 1-800-328-0211, **Fax:** 612-378-3505

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310543 07/2000 Revised 06/2006