MODEL 482

Automatic Metering Valves

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

Refer to page 2 for a summary of the List of Models

**Part No. C02021**
Model 482–B; 7/8–18 nef externally threaded fluid inlet boss and 7/16–20 unf mounting hole

**Part No. C02022**
Model 482–C; 7/16–20 unf mounting hole only

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

**Part No. C02025**
Model 482–E; 7/16–20 unf mounting hole and 1/4 material outlet

**Part No. C02026**
Model 482–HA; Model 482–C with trigger-actuated pistol grip handle

**Part No. C02027**
Model 482–MS; Model 482–B with seal fluid reservoir and 7/16–20 mounting bolt for moisture sensitive fluid

**Part No. C02078**
Model 482–DA with double acting air cylinder and 1/4 npt(f) outlet
List of Models

The following table provides a summary of the automatic metering valves (AMV) that are described in this manual.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C02021</td>
<td>482-B</td>
<td>Same as C02022 with the addition of a 7/8–18 UNS-2A threaded boss for mounting.</td>
</tr>
<tr>
<td>C02022</td>
<td>482-C</td>
<td>This is the basic AMV.</td>
</tr>
<tr>
<td>C02025</td>
<td>482-E</td>
<td>Same as C02022 but with a 1/4&quot; NPT outlet.</td>
</tr>
<tr>
<td>C02026</td>
<td>482-HA</td>
<td>Same as C02022 with the addition of a handle.</td>
</tr>
<tr>
<td>C02027</td>
<td>482-MS</td>
<td>Same as C02021 with the addition of a seal fluid cartridge and a screw to plug the normal 7/16–20 mounting hole. The 7/8–18 UNS-2A threaded boss must be used for mounting. (The 7/8–18 UNS-2A thread is an uncommonly used external thread).</td>
</tr>
</tbody>
</table>

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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**

**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.
- Never exceed the recommended working pressure or the maximum air inlet pressure stated on your pump or in the Technical Data on page 21.
- Be sure that all spray/dispensing equipment and accessories are rated to withstand the maximum working pressure of the pump. Do not exceed the maximum working pressure of any component or accessory used in the system.
- 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).
- Do not use the hoses to pull the equipment.
- 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 pump.
- Always wear protective eyewear, gloves, clothing, and respirator as recommended by the fluid and solvent manufacturers.
- Wear hearing protection when operating this equipment.
- Comply with all applicable local, state and national fire, electrical and other safety regulations.
**WARNING**

**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 medical attention.**
- Do not point the gun/valve at anyone or at any part of the body.
- Do not put your hand or fingers over the spray tip/nozzle.
- Do not stop or deflect fluid leaks with your hand, body, glove, or rag.
- Always have the trigger guard on the gun when dispensing.
- Check the gun diffuser operation weekly. Refer to the gun manual.
- Be sure the gun/valve trigger safety operates before dispensing.
- Lock the gun/valve trigger safety when you stop dispensing.
- Follow the **Pressure Relief Procedure** on page 7 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.
## WARNING

### 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 6.
- 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.

### 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.
Setup

Ground the System

**WARNING**

**FIRE AND EXPLOSION HAZARD**

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 5 and follow the grounding instructions below.

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. **Air compressor**: ground the equipment according to the manufacturer’s recommendations.
4. **Air hoses**: use only electrically conductive air hoses.
5. **Fluid hoses**: use only electrically conductive fluid hoses.
6. **Fluid supply container**: ground according to the local code.
7. **Object being sprayed**: ground according to the local code.
8. **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 (18). 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 in the air cap (12). Cycle the valve. Observe the action of the needle valve (7) and the spring (6) through the vent hole in the valve body (18).
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 1/4 npt(f) fluid inlet (C02022) or to the external threads of the boss (C02021).

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.

3. Relieve the pressure.

4. Install a suitable nozzle in the 1/8 npt(f) fluid outlet of the retainer (19). See page 20 for available nozzle sizes.

5. Turn the nut (11) counterclockwise to unlock. Turn the retainer (19) counterclockwise until it engages the stop screw (9) but does not hinder the free sliding action of the needle valve (7).

**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 7.

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

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metering valve fails to dispense when actuator is tripped.</td>
<td>Check nozzle for cured or foreign fluid.</td>
<td>Clean or clear nozzle.</td>
</tr>
<tr>
<td></td>
<td>Observe the action of the needle valve (7) and the spring (6) through the vent hole in the valve body (18), while cycling the valve.</td>
<td>Adjust the piston stroke. Disassemble and clean the valve, if necessary.</td>
</tr>
<tr>
<td></td>
<td>Fluid or air hose is kinked or blocked.</td>
<td>Clear or straighten hose.</td>
</tr>
<tr>
<td></td>
<td>Interrupted fluid supply.</td>
<td>Clear supply line. Check supply and refill if necessary. Turn on supply pump.</td>
</tr>
<tr>
<td></td>
<td>Insufficient operating air pressure.</td>
<td>Increase air pressure to 80 psi (0.55 MPa, 5.5 bar). Clear air line if blocked.</td>
</tr>
<tr>
<td></td>
<td>Worn or damaged parts.</td>
<td>Disassemble and rebuild the valve. Lubricate o-rings on installation.</td>
</tr>
</tbody>
</table>
AMV Disassembly (C02021, C02022, and C02025)

This procedure describes how to disassemble the automatic metering valve. Refer to Parts information on page 15 while performing the procedure to disassemble the AMV.

The AMV disassembly procedure is the same for C02021, C02022, and C02025.

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

To disassemble the AMV, perform the following procedure:

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 (19). Clean and inspect the nozzle.
4. Remove the stop screw (9).
5. Turn the nut (11) counterclockwise to unlock and remove the retainer (19) and disassemble the retainer as follows:
   a. Remove the snap ring (16*) with a snap ring compression tool.
   b. Place the retainer (19) on a flat surface with the threaded end up and press the seal with a 1/4 in. (6 mm) dowel to remove the support washer (17), o-ring (10*), and seal from the cavity.
6. Install the needle chuck onto needle valve (7) through the retainer end of the body (18).
7. Remove the air cap (12) from the valve body (18).
8. Remove the o–rings (3*) from the groove in the air cap (12).
9. Holding the needle chuck, remove the nylon nut (1), washer (2), and packing (5*).
10. Remove the air piston (13) from the body and carefully remove the quad ring (4*) by stretching it from the groove in the piston.
11. Remove the needle valve (7) from the valve body (18).
12. Stand the body (18) on the retainer end and press the fluid piston from the body using a dowel. Remove the o–rings (8*, 15*, and 20*) and the back–up ring (14*) from the piston.
AMV Reassembly (C02021, C02022, and C02025)

This procedure describes how to reassemble the automatic metering valve. Refer to Parts information on page 15 while performing the procedure to reassemble the AMV.

The AMV reassembly procedure is the same for C02021, C02022, and C02025.

NOTES:
- The numbers in parentheses in the text refer to reference numbers in the parts drawings and parts lists.
- The numbers in parentheses in the text refer to reference numbers in the parts drawings and parts lists.
- Repair Kit C02023 is available. For the best results, use all the new parts in the kit when repairing the AMV. Parts included in the kit are marked with one asterisk, for example (3*).
- 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 (8*, 15*, and 20*) and the backup ring (14*) on the base of the needle valve (7). Stand the body (18) on the retainer end. Press the fluid piston in the body using a dowel.

2. Reassemble the needle valve (7) and air piston (13) as follows:
   a. Attach the needle chuck to the needle valve (7) and insert the needle valve through the fluid piston, threaded end first.
   b. Install the quad ring (4*) on the air piston (13) by carefully stretching the quad ring (4*) into the groove in the piston (13).

3. Install the spring (6) and then air piston (13) into the body (18).

4. Press the piston firmly into the body so the threads appear. Install the o-ring (5*), washer (2), and nut (1).

5. Install the o-ring (3*) into the groove inside the air cap (12), and reinstall the cap onto the body (18). Remove the needle chuck.

6. Install o-ring (8*) and reassemble the retainer (19) as follows:
   a. Place the retainer (19) on a flat surface with the threaded end down. Press the seal into the cavity using a 1/4 in (6 mm) dowel. Install the o-ring (10*) and support washer (17).
   b. Install the snap ring (16*) with a snap ring compression tool.

7. Thread the retainer (19) into the body.

8. Turn the nut (11) clockwise to install and lock the retainer (19).

9. Reinstall the stop screw (9).

10. Reinstall the nozzle in the retainer (19).

11. Reinstall the AMV back 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.
AMV Disassembly (C02026)

This procedure describes how to disassemble the pistol grip metering valve. Refer to Parts information on page 16 while performing the procedure to disassemble the AMV.

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

WARNING

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the Pressure Relief Procedure on page 7.

Relieve Fluid Pressure

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

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 (4) from the elbow (2).

2. Remove the socket head screw (7) and the second screw (not listed) that secures the meter valve (1) to the mounting block (13). Remove the meter 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 (3) from the gun handle (8).

4. Unscrew the #10-32 x 1/4” fitting (5) to disconnect the tubing (4) from the gun handle (8).

5. Unscrew the valve (6) that controls the air inlet pressure to the gun.

6. Carefully remove the roll pin (12) that holds the trigger (9) in the gun handle (8). Remove the trigger from the handle.

7. Carefully remove the roll pin (11) that controls the tension of the spring (10) out of the gun handle (8).

8. Carefully remove the roll pin (12) that holds the spring (10) in the gun handle (8). Remove the spring from the handle.

Meter Valve Disassembly Procedure

The procedure to disassemble the C02026 metering valve and C02027 metering valve are the same.

To disassemble the C02026 meter valve, refer to the AMV Disassembly (C02027) procedure on page 14.
AMV Reassembly (C02026)

This procedure describes how to reassemble the pistol grip metering valve. Refer to Parts information on page 16 performing the procedure to reassemble the AMV.

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 the best results, use all the new parts in the kit when repairing the AMV. Parts included in the kit are marked with one asterisk, for example (3*).

- 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.

Meter Valve Reassembly Procedure

The procedure to reassemble the C02026 metering valve and C02027 metering valve are the same.

To reassemble the C02026 meter valve, refer to the AMV Reassembly (C02027) procedure on page 14.

Gun Handle Reassembly Procedure

To reassemble the gun handle, perform the following procedure:

1. Install the spring (10) and roll pin (12) in the gun handle (8).

2. Install the roll pin (11) that controls the tension of the spring (10) in the gun handle (8).

3. Install the trigger (9) and roll pin (12) in the gun handle (8).

4. Install the valve (6) that controls the air inlet pressure to the gun.

5. Reconnect the #10-32 x 1/4” fitting (5) that connects the tubing (4) to the gun handle (8).

6. Reinstall the four socket head screws (3) to lock the gun handle (8) components together.

7. Mount and secure the meter valve (1) to the mounting block (13) using the socket head screw (7) and the second screw (not listed).

8. Reconnect the tubing (4) to the elbow (2) on the meter valve (1).

Meter 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.
AMV Disassembly (C02027)

This procedure describes how to disassemble the automatic metering valve. Refer to Parts information on page 17 while performing the procedure to disassemble the AMV.

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

WARNING
To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the Pressure Relief Procedure on page 7.

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

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.

Meter Valve Disassembly Procedure
To disassemble the AMV, perform the following procedure:

3. Remove the metering valve from its mounting.

4. Unscrew the 1/4" hex nipple (5) from the 90° elbow (6) to disconnect the cartridge (2) from the AMV (1). Exercise care to avoid spilling seal fluid (8) from the cartridge.

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

5. Disassemble the C02021 metering valve. Refer to the AMV Disassembly (C02021, C02022, C02025) procedure on page 10.

AMV Reassembly (C02027)

This procedure describes how to reassemble the automatic metering valve. Refer to Parts information on page 17 while performing the procedure to reassemble the AMV.

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

NOTE: Repair Kit C02023 plus C26303 Seal Fluid are available. For the best results, use all the new parts in the kit when repairing the AMV. Parts included in the kit are marked with one asterisk for example (5*).

NOTE: 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.

Meter Valve Reassembly Procedure
To reassemble the AMV, perform the following procedure:

1. Reassemble the C02021 metering valve. Refer to the AMV Disassembly (C02021, C02022, C02025) procedure on page 11.

2. Reinstall the 1/4" hex nipple (5) into the 90° elbow (6) to reconnect the cartridge (2) with the AMV (1). Exercise care to avoid spilling seal fluid (8) from the cartridge.

3. Reinstall the AMV back on its mounting fixture.

4. Reconnect the air and fluid hoses.

5. Fill the cartridge (2) with seal fluid (8). Do not exceed the 2/34" level measured from the top of the cartridge. Install the end cap (3).

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 No. C02021, C02022, and C02025

Model 482–C; 7/16–20 unf mounting hole only

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C02032</td>
<td>NUT, LOCK, NYLON #5–40</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>114027</td>
<td>WASHER, FLAT, #6</td>
<td>1</td>
</tr>
<tr>
<td>3*</td>
<td>111095</td>
<td>O-RING, BUNA N. 5192-219-N</td>
<td>1</td>
</tr>
<tr>
<td>4*</td>
<td>C02033</td>
<td>QUAD RING</td>
<td>1</td>
</tr>
<tr>
<td>6*</td>
<td>168518</td>
<td>O-RING</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>C02036</td>
<td>NEEDLE SET, LAPPED</td>
<td>1</td>
</tr>
<tr>
<td>8*</td>
<td>C20317</td>
<td>O-RING, VITON, 5194-117-V</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>C02030</td>
<td>SCREW, STOP</td>
<td>1</td>
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<tr>
<td>10*</td>
<td>106555</td>
<td>O-RING, VITON, 5192-12-V</td>
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<tr>
<td>11</td>
<td>C02042</td>
<td>NUT, LOCK</td>
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<tr>
<td>12</td>
<td>C02041</td>
<td>CAP, CYLINDER</td>
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<tr>
<td>13</td>
<td>C02045</td>
<td>PISTON, AIR</td>
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<tr>
<td>14*</td>
<td>C20846</td>
<td>BACK-UP RING</td>
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<td>15*</td>
<td>C20314</td>
<td>O-RING, VITON, 5194-112-V</td>
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<tr>
<td>16*</td>
<td>C20404</td>
<td>RING, SNAP 5216–50</td>
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</tr>
<tr>
<td>17</td>
<td>C02035</td>
<td>WASHER, BACK-UP</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>C02029</td>
<td>BODY; used on C02022, C02025</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>C02028</td>
<td>BODY; used on C02021</td>
<td>1</td>
</tr>
<tr>
<td>19a</td>
<td>C02043</td>
<td>RETAINER, OUTLET</td>
<td>1</td>
</tr>
<tr>
<td>20*</td>
<td>168110</td>
<td>O-RING, VITON, 5194-8-V</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>918482</td>
<td>NEEDLE CHUCK TOOL</td>
<td>1</td>
</tr>
</tbody>
</table>

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

Use Repair Kit C02023 when repairing C02021 and C02022. Refer to page 19 for information.

---

**C02021, Model 482–B has externally threaded boss (7/8” - 18 nef) and 7/16–20 unf mounting hole.**

![Diagram of C02021](image)

- 1/8” Air Supply Inlet
- 1/8” N.P.T. Material Outlet
- .2 to 4 c.c.
- "Shot"
- Dispensing
- 1/4” N.P.T. Material Inlet

---

**C02021–Exploded View**

![Exploded View of C02021](image)

---

Fig. 1
Parts

Part No. C02026
Model 482–HA; Model 482–C with trigger-actuated pistol grip handle

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C02022</td>
<td>METER VALVE</td>
<td>1</td>
<td>9</td>
<td>C26312</td>
<td>TRIGGER 1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>C20850</td>
<td>ELBOW</td>
<td>1</td>
<td>10</td>
<td>C04083</td>
<td>SPRING 1</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>C19955</td>
<td>SOCKET HEAD SCREW</td>
<td>4</td>
<td>11</td>
<td>C20065</td>
<td>ROLL PIN</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>19233</td>
<td>TUBING 1</td>
<td>1</td>
<td>12</td>
<td>C20064</td>
<td>ROLL PIN</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>C20861</td>
<td>FITTING (#10-32 x 1/8)</td>
<td>1</td>
<td>13</td>
<td>C02040</td>
<td>MOUNTING BLOCK</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>104636</td>
<td>VALVE 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>C20023</td>
<td>SOCKET HEAD SCREW</td>
<td>1</td>
<td></td>
<td></td>
<td>Use Repair Kit C02023. Refer to page 19 for information.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>C02039</td>
<td>HANDLE 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use Repair Kit C02023. Refer to page 19 for information.

Material Inlet Port 1/4” N.P.T.
Max. Mat’l Pressure 2,500 PSI

Material Outlet Port 1/8” N.P.T.

Inlet Port 1/8” N.P.T. 80 PSI

Fig. 2
Part No. C02027
This AMV is designed to be used with moisture sensitive materials.

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C02021</td>
<td>AUTOMATIC METERING VALVE</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>C04104</td>
<td>CARTRIDGE; 2.5 oz</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>C26069</td>
<td>END CAP</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>C20477</td>
<td>HEX NIPPLE; 1/8&quot; NPT</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>C20479</td>
<td>HEX NIPPLE; 1/4&quot; NPT</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>C19888</td>
<td>90° REDUCING ELBOW 1/8 x 1/4 NPT;</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>C20023</td>
<td>S.H.C.S. 7/16–20 x 3/4 long</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>C26303</td>
<td>SEAL FLUID</td>
<td>1</td>
</tr>
</tbody>
</table>

Use Repair Kit C02023 when repairing C02027. Refer to page 19 for information.

Fig. 3

Fill cartridge with seal fluid (item 8) to force fluid through cartridge cap bleed holes during valve shift. Fill slowly to allow air to bleed out from piston cavity.
### Parts

#### Part No. C02028

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

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C02079</td>
<td>BODY, VALVE, METER</td>
<td>1</td>
<td>12*</td>
<td>C20404</td>
<td>RING, SNAP, 5216–50</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>C02044</td>
<td>RETAINER OUTLET</td>
<td>1</td>
<td>13*</td>
<td>168518</td>
<td>O–RING, VITON, 5192–6–V</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>C02077</td>
<td>CAP, CYLINDER</td>
<td>1</td>
<td>14*</td>
<td>C20988</td>
<td>O–RING, VITON, 5194–8–V</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>C02074</td>
<td>PISTON, AIR</td>
<td>1</td>
<td>15*</td>
<td>106555</td>
<td>O–RING, VITON, 5192–12–V</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>C02076</td>
<td>CYLINDER</td>
<td>1</td>
<td>16*</td>
<td>C20314</td>
<td>O–RING, VITON, 5194–112–V</td>
<td>1</td>
</tr>
<tr>
<td>6*</td>
<td>C02036</td>
<td>NEEDLE SET, LAPPED</td>
<td>1</td>
<td>17*</td>
<td>C20317</td>
<td>O–RING, VITON, 5194–117–V</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>C02030</td>
<td>SCREW, STOP</td>
<td>1</td>
<td>18*</td>
<td>C20987</td>
<td>O–RING, BUNA N. 5192–125–N</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>C02042</td>
<td>NUT, LOCK</td>
<td>1</td>
<td>19*</td>
<td>157195</td>
<td>O–RING, BUNA N. 5192–223–N</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>C02035</td>
<td>WASHER, BACK–UP</td>
<td>1</td>
<td>20*</td>
<td>C02033</td>
<td>QUAD RING</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>114027</td>
<td>WASHER, FLAT #6</td>
<td>1</td>
<td>21*</td>
<td>C02073</td>
<td>QUAD RING</td>
<td>1</td>
</tr>
<tr>
<td>11*</td>
<td>C02032</td>
<td>NUT, LOCK NYLON #5–40</td>
<td>1</td>
<td>22*</td>
<td>C20846</td>
<td>RING, BACK–UP</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>25</td>
<td>C19252</td>
<td>PLUG, PIPE, 1/8 NPT</td>
<td>3</td>
</tr>
</tbody>
</table>

* These parts are included in Repair Kit C02080, which may be purchased separately.

Use Repair Kit C02080 when repairing C02078. Refer to page 19 for information.

---

**C02021—Exploded View**

- **1/8" Air Supply Inlet**
  - Minimum 80 psi.

- **1/8" N.P.T. Material Outlet**
  - 7/16–20 x 5/8" Mounting Hole

- **1/4" N.P.T. Material Inlet**
  - 1/8" Air Supply Inlet. 4 holes, equally spaced, valve close. Minimum 80 psi.

---

**Fig. 4**
Use Only Genuine Graco Parts and Accessories

Repair Kit C02023
Table 1 lists the parts that are supplied in the repair kit for the pistol grip metering valve.

NOTE: This repair kit is used for meter valves C02021, C02022, C02025, and C02027.

Table 1. Repair Kit: C02023

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C02032</td>
<td>Nut, lock, nylon #5–40</td>
</tr>
<tr>
<td>1</td>
<td>C20404</td>
<td>Ring, Snap, 5216-50</td>
</tr>
<tr>
<td>1</td>
<td>168518</td>
<td>O-Ring, Viton, 5192-6-V</td>
</tr>
<tr>
<td>1</td>
<td>168110</td>
<td>O-Ring, Viton, 5194-8-V</td>
</tr>
<tr>
<td>1</td>
<td>106555</td>
<td>O-Ring, Viton, 5192-12-V</td>
</tr>
<tr>
<td>1</td>
<td>C20314</td>
<td>O-Ring, Viton, 5194-112-V</td>
</tr>
<tr>
<td>2</td>
<td>C20317</td>
<td>O-Ring, Viton, 5194-117-V</td>
</tr>
<tr>
<td>1</td>
<td>110095</td>
<td>O-Ring, Buna N, 5192-219-N</td>
</tr>
<tr>
<td>1</td>
<td>C02033</td>
<td>Quad Ring</td>
</tr>
<tr>
<td>1</td>
<td>C20846</td>
<td>Ring, Back-up, 5284-112</td>
</tr>
<tr>
<td>1</td>
<td>918482</td>
<td>Needle chuck tool</td>
</tr>
</tbody>
</table>

Repair Kit C02028
Table 2 lists the parts that are supplied in the repair kit for the automatic metering valve.

NOTE: This repair kit is used for meter valves C02078.

Table 2. Repair Kit: C02078

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C02036</td>
<td>Needle Set, Lapped</td>
</tr>
<tr>
<td>1</td>
<td>C02032</td>
<td>Nut, Lock, Nylon, #5–40</td>
</tr>
<tr>
<td>1</td>
<td>C20404</td>
<td>Ring, Snap, 5216–50</td>
</tr>
<tr>
<td>1</td>
<td>168518</td>
<td>O-Ring, Viton, 5192–6-V</td>
</tr>
<tr>
<td>1</td>
<td>168110</td>
<td>O-Ring, Viton, 5194–8-V</td>
</tr>
<tr>
<td>1</td>
<td>106555</td>
<td>O-Ring, Viton, 5192–12-V</td>
</tr>
<tr>
<td>1</td>
<td>C20988</td>
<td>O-Ring, Viton, 5194–8-V</td>
</tr>
<tr>
<td>1</td>
<td>106555</td>
<td>O-Ring, Viton, 5192–12-V</td>
</tr>
<tr>
<td>1</td>
<td>C20314</td>
<td>O-Ring, Viton, 5194–112-V</td>
</tr>
<tr>
<td>2</td>
<td>C20317</td>
<td>O-Ring, Viton, 5194–117-V</td>
</tr>
<tr>
<td>1</td>
<td>C20987</td>
<td>O-Ring, Buna N, 5192–125-N</td>
</tr>
<tr>
<td>1</td>
<td>157195</td>
<td>O-Ring, Buna N, 5192–223-N</td>
</tr>
<tr>
<td>1</td>
<td>C02033</td>
<td>Quad Ring</td>
</tr>
<tr>
<td>1</td>
<td>C02073</td>
<td>Quad Ring</td>
</tr>
<tr>
<td>1</td>
<td>C20846</td>
<td>Ring, Back-up</td>
</tr>
</tbody>
</table>
Fluid Nozzles

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

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

ORIFICE SIZE

3/64 DIAMETER

C17008 NOZZLE

3/32 x 3/8

C01025 NOZZLE

1/8" N.P.T.

1/16 DIAMETER

C02048 NOZZLE

C17007 ADAPTOR

NOZZLES WILL FIT ANY MODEL AMV.

Needle Installation Tool 918482

Fig. 5
## Technical Data

### Models C02021, C02022, C02025, C02026

<table>
<thead>
<tr>
<th>Category</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum fluid working pressure</td>
<td><strong>All other metering valves:</strong> 3200 psi (22.0 MPa, 220 bar)</td>
</tr>
<tr>
<td></td>
<td><strong>C02026:</strong> 2500 psi (17.2 MPa, 172.4 bar)</td>
</tr>
<tr>
<td>Minimum fluid working pressure</td>
<td>50 psi (0.34 MPa, 3.4 bar)</td>
</tr>
<tr>
<td>Minimum air supply pressure</td>
<td>80 psi (0.55 MPa, 5.5 bar)</td>
</tr>
<tr>
<td>Viscosity range</td>
<td>3000 to 1 million centipoise</td>
</tr>
<tr>
<td>Shot size range</td>
<td>0.2 to 4.0 cc</td>
</tr>
<tr>
<td>Shot cycle rate</td>
<td>15 shots per minute, at 4.0 cc shot size with moderate viscosity fluid</td>
</tr>
<tr>
<td>Fluid inlet</td>
<td>1/4 npt(f)</td>
</tr>
<tr>
<td>Air supply inlet</td>
<td>1/8 npt(f)</td>
</tr>
<tr>
<td>Fluid outlet</td>
<td><strong>All other metering valves:</strong> 1/8 npt(f)</td>
</tr>
<tr>
<td></td>
<td><strong>C02025:</strong> 1/4 npt(f)</td>
</tr>
<tr>
<td>Mounting hole</td>
<td>7/16–20 unf–2B</td>
</tr>
<tr>
<td>Piston</td>
<td>Air-operated, spring return</td>
</tr>
<tr>
<td>Wetted parts</td>
<td>Viton® o-rings</td>
</tr>
<tr>
<td>Weight</td>
<td>1.43 lb (.65 kg)</td>
</tr>
</tbody>
</table>

Viton®

---

## Dimensions

![Dimensions Diagram](image)

- **Air Supply Inlet:** 1/8 NPT, Minimum 80 P.S.I.
- **Material Outlet:** 1/8 NPT
- **Material Inlet:** 1/8 NPT
- **Thread for Mounting:** 7/8–18 UNS–2A
- **Mounting Hole:** 7/16–20 x 5/8 Deep
- **Dimensions:**
  - 5.50 Max. 5.19 Min. (139.7 mm Max. 131.8 mm Min.)
  - 2.06 (52.3 mm)
  - 3.00 (76.2 mm)
# Technical Data

## Model, C02078

<table>
<thead>
<tr>
<th>Category</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum fluid working pressure</td>
<td><strong>All other metering valves:</strong> 3200 psi (22.0 MPa, 220 bar)</td>
</tr>
<tr>
<td>Minimum fluid working pressure</td>
<td>50 psi (0.34 MPa, 3.4 bar)</td>
</tr>
<tr>
<td>Minimum air supply pressure</td>
<td>80 psi (0.55 MPa, 5.5 bar)</td>
</tr>
<tr>
<td>Viscosity range</td>
<td>3000 to 1 million centipoise</td>
</tr>
<tr>
<td>Shot size range</td>
<td>0.2 to 4.0 cc</td>
</tr>
<tr>
<td>Shot cycle rate</td>
<td>15 shots per minute, at 4.0 cc shot size with moderate viscosity fluid</td>
</tr>
<tr>
<td>Fluid inlet</td>
<td>1/4 npt(f)</td>
</tr>
<tr>
<td>Air supply inlet</td>
<td>1/8 npt(f)</td>
</tr>
<tr>
<td>Fluid outlet</td>
<td>1/4 npt(f)</td>
</tr>
<tr>
<td>Mounting hole</td>
<td>7/16–20 unf–2B</td>
</tr>
<tr>
<td>Piston</td>
<td>Air-operated, spring return</td>
</tr>
<tr>
<td>Wetted parts</td>
<td>Viton® o-rings</td>
</tr>
<tr>
<td>Weight</td>
<td>1.43 lb (.65 kg)</td>
</tr>
</tbody>
</table>

Viton®
Dimensions

5.50 Max. 5.19 Min.
(139.7 mm Max. 131.8 mm Min.)

7/16–20 x 5/8 Deep
Mounting Hole

Air Supply
Inlet 1/8
NPT
Minimum
80 P.S.I.

7/8–18 UNS–2A
Thread for Mounting

Material Inlet
1/8 NPT

Material Outlet
1/8 NPT
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 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.

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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.

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Graco Phone Number

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