

# Instructions



## ACETAL MATERIAL, WATERBASE COMPATIBLE Fluid Pressure Regulators

308325E

### For Use In Low-Pressure Systems Only

*Fluid Flow up to 0.5 gpm (1.9 lpm)*



Read warnings and instructions.

### Spring-Operated Regulators

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

*3 to 30 psi (.02 to 0.2 MPa, 0.2 to 2.1 bar)*

*Regulated Pressure Range*

#### **Model 236081, Series A**

with no pressure gauge

#### **Model 236449, Series A**

with stainless steel pressure gauge

30 psi (0.2 MPa, 2.1 bar) gauge

#### **Model 241976, Series A**

with stainless steel pressure gauge

60 psi (0.4 MPa, 4.1 bar) gauge

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

*20 to 100 psi (.14 to 0.7 MPa, 1.4 to 7 bar)*

*Regulated Pressure Range*

#### **Model 236216, Series A**

with no pressure gauge

#### **Model 236450, Series A**

with stainless steel gauge

100 psi (0.7 MPa, 7 bar) gauge

### Air-Operated Regulators

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

*3 to 100 psi (.02 to 0.7 MPa, 0.2 to 7 bar)*

*Regulated Pressure Range*

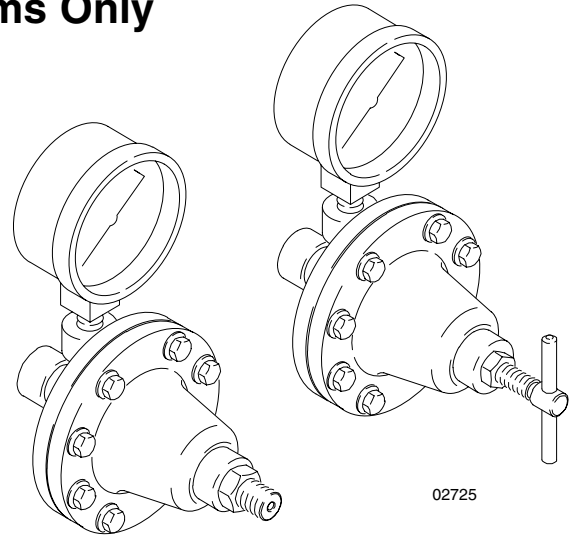
#### **Model 238159, Series A**

with no pressure gauge

#### **Model 236281, Series A**

with stainless steel gauge

100 psi (0.7 MPa, 7 bar) gauge



### CAUTION

The fluid supply system main line pressures often exceed the pressure range of the gauge supplied with regulator 236449. Exposing this gauge to excessive pressure can damage the gauge, causing inaccurate readings, and the needle will not return to zero. Such damage is not covered by the Graco warranty.

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 or malfunction and result in serious injury.

- This equipment is for professional use only.
- Read all instruction manuals, tags, and labels before operating the equipment.
- Use the equipment only for its intended purpose. If you are not sure, call your Graco distributor.
- Do not alter or modify this equipment. Use only genuine Graco parts and accessories.
- Check equipment daily. Repair or replace worn or damaged parts immediately.
- Do not exceed the maximum working pressure of the lowest rated component in your system. Do not exceed 100 psi (0.7 MPa, 7 bar) maximum fluid inlet pressure of the regulator or the maximum working pressure of the lowest-rated component in your system.
- Use fluids and solvents which are compatible with the equipment wetted parts. Refer to the **Technical Data** section of all equipment manuals. Read the fluid and solvent manufacturer's warnings.
- Always wear protective eyewear, gloves, clothing, and respirator as recommended by the fluid and solvent manufacturer.
- Comply with all applicable local, state, and national fire, electrical, and safety regulations.

# ⚠ WARNING



## INJECTION HAZARD

Spray from the gun, leaks, or ruptured components can inject fluid into your body and cause extremely serious injury, including the need for amputation. Fluid splashed 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 at anyone or at any part of the body.
- Do not put your hand or fingers over the spray gun tip or extruder gun tip.
- Do not stop or deflect leaks with your hand, body, glove or rag.
- Always have the tip guard and the trigger guard on the gun when spraying.
- Check the gun diffuser operation weekly. Refer to the gun manual.
- Be sure the gun trigger safety operates before spraying.
- Lock the gun trigger safety when you stop dispensing.
- Follow the **Pressure Relief Procedure** on page 4 if the spray tip 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 or damaged 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.



## TOXIC FLUID HAZARD

Graco does not manufacture or supply the reactive chemical components that may be used in this equipment and is not responsible for injury or property loss, damage, expense or claims (direct or consequential) that arise from the use of such chemical components.

United States Government safety standards have been adopted under the Occupational Safety and Health Act. You should consult these standards—particularly the General Standards, Part 1910 and the Construction Standards, Part 1926.

# Installation

## Introduction

Fluid pressure regulators are used for accurate, positive control of the fluid pressure to spray guns, dispensing valves or atomizing heads.

Regulators installed at circulating line take-offs or pumps are used to reduce main line pressure and maintain the desired fluid pressure to the spray gun or atomizing head.

## Before Installing the Fluid Regulator

1. Determine where to locate the regulator.
2. Install a ball valve for the regulator inlet and outlet.
3. Install temporary plumbing between the ball valves.
4. Thoroughly flush the system to remove metal chips and other contaminants and to check for leaks.

## Installing the Fluid Regulator

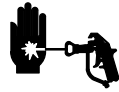
1. See Figs. 1 and 2 on page 5. Install one regulator for each spray gun. Mount the regulator in a vertical position for the best flow and minimum pigment settling. The gauge, if used, must be mounted vertically. If the regulator is mounted horizontally, an elbow must be used so the gauge will be vertical.
2. Put sealer on threaded connections, except on swivel unions as it interferes with the swivel action.
3. Flush and test the entire system. Be sure to follow the flushing procedure on page 6.

## CAUTION

Avoid overtightening threaded connections into the regulator's plastic inlet and outlet threads. Check to be sure the threaded connections are tight and leak-free, but **do not overtighten!**

## 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 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 spraying
- Check or service any of the system equipment
- Install or clean the spray tips

1. Shut off the pump.
2. Close the fluid regulator's inlet ball valve (B). Refer to Fig.1, page 5.
3. Relieve fluid pressure in the fluid regulator by triggering the spray gun.
4. In spring-operated regulators, turn the adjustment handle (1) counterclockwise until the spring force is relieved.

*If you suspect that the spray tip or hose is completely clogged, or that pressure has not been fully relieved after following the steps above, very slowly loosen the tip guard retaining nut or hose end coupling and relieve pressure gradually, then loosen completely, then clear the tip or hose.*

# Installation

## Spring-Operated Regulator Installation

Models 236081, 236216 (without gauge)  
236449, 236450, 241976 (with gauge)

### KEY

- A Fluid supply
- B Inlet ball valve
- C Outlet ball valve
- D Air filter and regulator
- E Back pressure valve
- F Fluid return
- G Air supply
- 1 Regulator adjustment handle

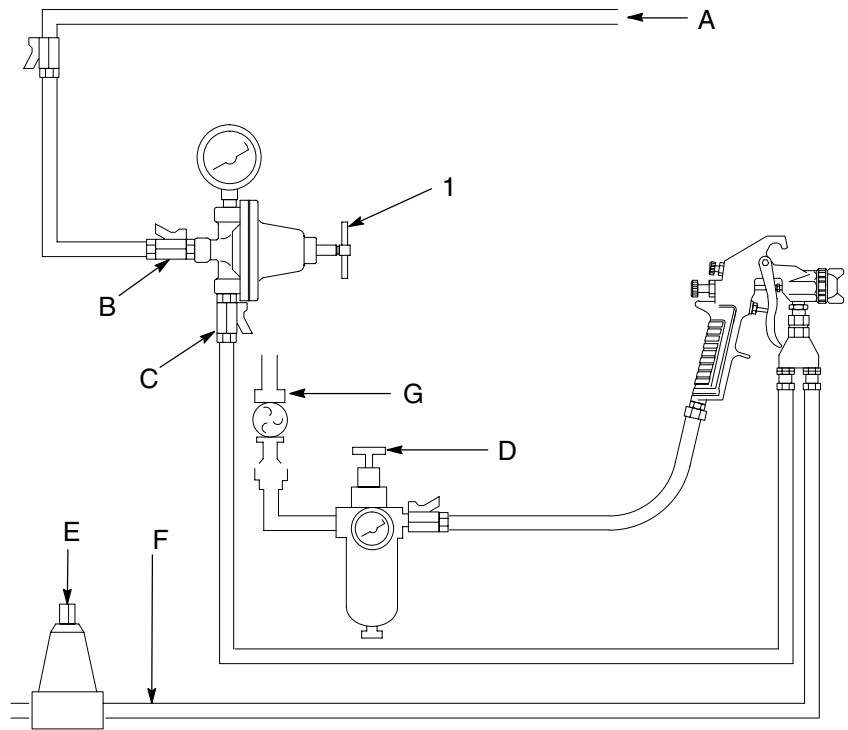


Fig. 1

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## Pilot Regulator Air Supply Line Air-Operated Regulator Installation

Model 238159 (without gauge)  
Model 236281 (with gauge)

### KEY

- A Fluid supply
- B Inlet ball valve
- C Outlet ball valve
- D Air filter, regulator, and moisture separator
- E Air supply

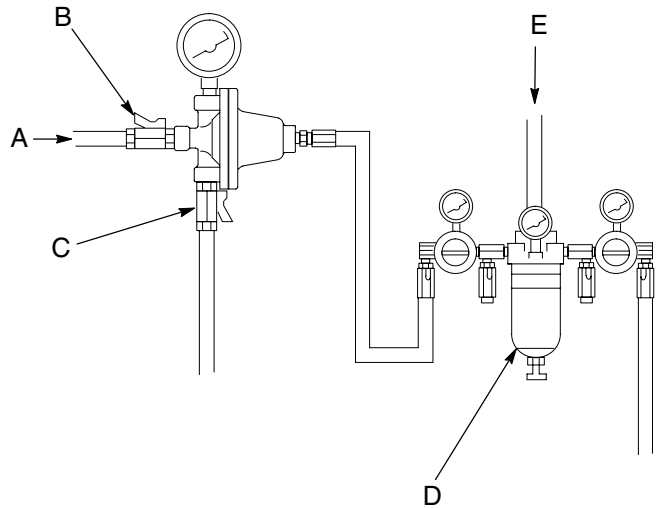


Fig. 2

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# Operation

## ⚠ CAUTION

- The new system **must** be cleaned and tested thoroughly before admitting fluid to the regulator to avoid contaminants clogging or damaging the regulator.
- **Always** use the lowest possible air and fluid pressures for your application. High pressures can cause premature spray tip, regulator, and pump wear.

**NOTE:** Reference numbers and letters in parentheses in the text refer to Figs.1 through 5 and the Parts Drawings.

## Regulating Fluid Pressure

### Spring Operated Regulators

1. Close the regulator: turn the adjustment handle (1) counterclockwise to relieve the spring tension. See Fig. 3.
2. Start the pump and open the fluid regulator's inlet ball valve (B) to admit fluid to the regulator. See Fig. 1.
3. Turn the adjustment handle (1) *clockwise* to increase fluid pressure. See Fig. 3. Adjust for the desired spray pattern. *Before reducing the regulator pressure, partially relieve pressure in the gun hose to ensure the correct gauge reading. Tighten the jam nut (3) to the regulator cap (5) to ensure the proper pressure setting.*

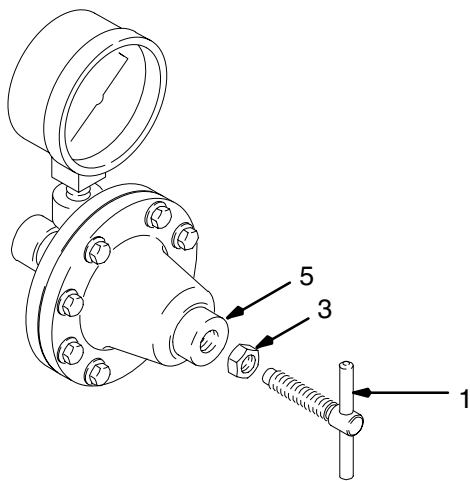


Fig. 3 \_\_\_\_\_ 02729

### Air Operated Regulators

1. Start the pump and open the fluid regulator's inlet ball valve (B) to admit fluid to the regulator. See Fig. 2.
2. Increase the air pressure to obtain the desired fluid pressure. *Before reducing the regulator pressure, partially relieve pressure in the gun hose to ensure the correct gauge reading.*

**NOTE:** Make sure the air bleed hole (J) in the air line fitting (2) is not plugged. Refer to Fig. 4. For the best results, use an air regulator with at least a two inch diameter diaphragm to control this fluid regulator.

### Flushing Procedure

1. Flush the regulator with a compatible solvent whenever the rest of the system is flushed.
2. Remove the gauge if the fluid pressure will exceed the gauge range.
3. *Spring Operated Regulators Only*
  - a. Shut off the pump and relieve fluid pressure in the system by opening the back pressure valve (E) or other bypass valve. See Fig. 1.
  - b. Turn the adjustment handle (1) clockwise to open the regulator valve to the desired flushing outlet pressure and flow. See Fig. 3.
4. *Air Operated Regulator Only*
  - a. Increase the air pressure to obtain desired fluid flushing pressure.
  - b. Make sure the air bleed hole (J) in the air line fitting (2) is not plugged. Refer to Fig. 4.
5. Flush until thoroughly clean. Always use the lowest possible pressure when flushing.
6. *Spring Operated Regulators Only*

After flushing, turn the adjustment handle (1) counterclockwise to the previous pressure setting. Partially relieve pressure in the gun hose to ensure the correct gauge reading.



# Service

## Air Operated Regulator

### Disassembly

1. Shut off the pump. Close the ball valve at the regulator's air inlet. Refer to Fig. 2, page 5.
2. Release all the air and fluid pressure in the regulator and disconnect the air and fluid lines.
3. Remove the regulator from the system. Remove the eight hex head screws (18) and nuts (19) from the regulator cap (5) and the housing (20). See Fig. 4.
4. Remove the o-ring (6\*) from the regulator cap (5). Remove the jam nut (9) and the washer (10) from the diaphragm plate (13).
5. Remove the diaphragm (11\*) and gasket (12\*).
6. Remove the valve seat (14\*) and the o-ring (15\*) from the regulator body.

### CAUTION

Use special care when handling the hard carbide ball (16\*) and seat (14\*) to avoid damage to them.

7. Remove the ball (16\*) and the spring (17\*).
8. Thoroughly clean and inspect all parts. Replace any parts that appear to be worn or damaged.

### Reassembly

1. Place the spring (17\*) into the housing (20), then the ball (16\*) on top of the spring.

### CAUTION

Use special care when tightening the seat (14\*). Tighten the seat by hand several turns before using a wrench. Use care not to strip the plastic threads in the housing (20).

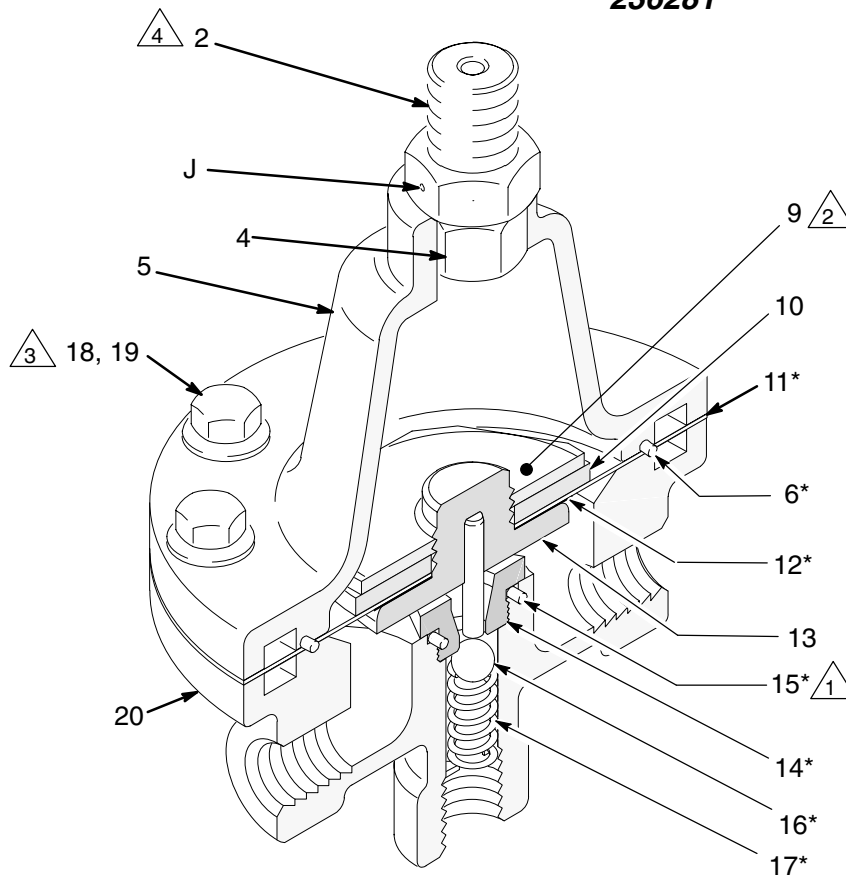
2. Tighten the seat (14\*) and the o-ring (15\*) into the housing. Torque to 37–43 in–lbs (4.1–4.8 N.m).
3. Assemble the following parts onto the diaphragm plate (13). Place the gasket (12\*) and diaphragm (11\*), with the blue PTFE side facing down, toward the diaphragm plate (13). Place the washer (10), with ridges facing the rubber side of the diaphragm, onto the diaphragm plate (13). Secure them with the jam nut (9). Torque the jam nut onto the diaphragm plate to 28–32 ft–lb (38–43 N.m).
4. Install the assembled parts in the housing (20), with the stem on the diaphragm plate (13) oriented towards the seat (14\*).
5. Apply thread sealant and tighten the air line fitting (2) into the nut (4) in the cap (5). Torque to 140–160 in–lb (16–18 N.m).
6. Place the hex head screws (18) into the eight holes in the cap (5) and install onto the housing (20) with the nuts (19) located around the housing holes. Torque the eight hex head screws in the sequence shown on the Top View in Fig. 4.

**NOTE:** Numbers on the diagram indicate the tightening sequence. Torque screws evenly to 60 in–lb (6.8 N.m), three times, consecutively, to compensate for diaphragm relaxation.



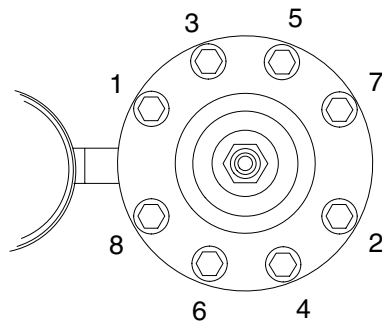
# Service

**Model shown:  
236281**



02730

- 1 Torque to 37–43 in–lbs (4.1–4.8 N.m).
- 2 Torque to 28–32 ft–lbs (38–43 N.m).
- 3 Torque screws evenly to 60 in–lb (6.8 N.m), three times, consecutively, to compensate for diaphragm relaxation. Follow the torque sequence shown below.
- 4 Torque to 140–160 in–lbs (16–18 N.m).



**Top View**

**Fig. 4**

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# Service

## Spring Operated Regulators

### Disassembly

1. Shut off the pump. Close the ball valve at the regulator's fluid inlet. Refer to Fig. 1, page 5.
2. Release all fluid pressure in the regulator and disconnect the fluid line. Remove the regulator from the system.
3. Turn the adjustment handle (1) counterclockwise until the spring force is relieved (Fig. 3).
4. Remove the eight hex head screws (18) and nuts (19) from the regulator cap (5) and the housing (20). See Fig. 5.
5. Remove the spring (8), spring guide (7), and o-ring (6\*) from the regulator cap (5). Remove the jam nut (9) and the washer (10) from the diaphragm plate (13).
6. Remove the diaphragm (11\*) and the gasket (12). Remove the valve seat (14\*) and o-ring (15\*) from the regulator body.

### CAUTION

Use special care when handling the hard carbide ball (16\*) and seat (14\*) to avoid damage to them.

7. Remove the ball (16\*) and spring (17\*).
8. Thoroughly clean and inspect all parts. Replace any parts that appear to be worn or damaged.

### Reassembly

1. Place the spring (17\*) into the housing (20), then the ball (16\*) on top of the spring.

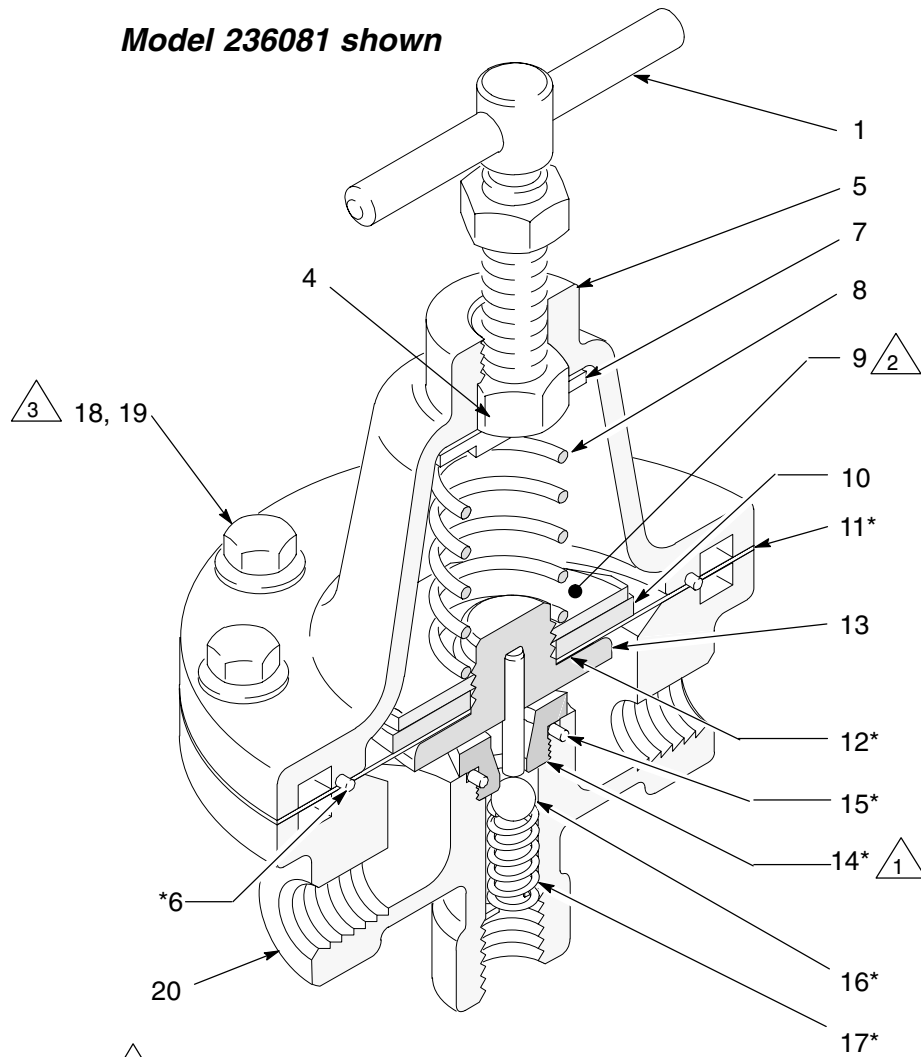
### CAUTION

Use special care when tightening the seat (14). Tighten it by hand several turns before using a wrench. Use care not to strip the plastic threads in the housing (20).

2. Tighten the seat (14\*) and the o-ring (15\*) into the housing. Torque to 37–43 in–lbs (4.1–4.8 N.m).
3. Assemble the following parts onto the diaphragm plate (13). First, place the gasket (12\*) and diaphragm (11\*), with the blue PTFE side facing down, towards the diaphragm plate (13). Then, place the washer (10), with ridges facing the rubber side of the diaphragm, onto the diaphragm plate (13). Secure them with the jam nut (9). Torque the jam nut onto the diaphragm plate to 28–32 ft–lb (38–43 N.m).
4. Install the assembled parts in the housing (20), with the stem on the diaphragm plate (13) oriented towards the seat (14\*).
5. Coat the outer surfaces of the spring (8) with no. 2 lithium base grease to reduce possible friction.
6. Place the spring (8) on top of the jam nut (9) and the spring guide (7) on top of the other end of the spring. Apply no.2 lithium base grease in the drill point of the spring guide for lubrication.
7. Place the hex head screws (18) into the eight holes in the cap (5) and install onto the housing (20) with the nuts (19) located around the housing holes. Torque the eight hex head screws in the sequence shown on the Top View in Fig. 5.
8. Screw the adjustment handle (1) into the nut (4) in the regulator cap (5).

# Service

Model 236081 shown

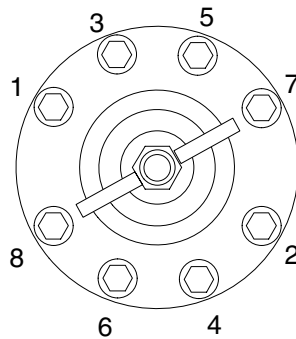


△ 1 Torque to 37–43 in-lbs (4.1–4.8 N.m).

△ 2 Torque to 28–32 ft-lb (38–43 N.m).

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△ 3 Torque screws evenly to 60 in-lb (6.8 N.m), three times, consecutively, to compensate for diaphragm relaxation. Follow the torque sequence shown below.



Top View

Fig. 5

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# Troubleshooting

**NOTE:** Check all possible remedies in the Troubleshooting Chart before disassembling the fluid regulator.

## **WARNING**

To reduce the risk of serious injury whenever you are instructed to relieve pressure, always follow the **Pressure Relief Procedure** on page 4.

Problem	Cause	Solution
No pressure regulation.	Damaged or clogged air regulator or line (236281 or 238159).  No flow or pressure to the inlet of the regulator.  Damaged diaphragm (11*).	Clear obstruction in line, service regulator if necessary.  Clear obstruction in the fluid line to the regulator.  Replace diaphragm.
Fluid leaks from between the cap (5) and the housing (20).	Loose cap (5).  Worn gasket (12*).  Worn o-ring (6*).	Tighten screws (18,19) in sequence shown in Service section.  Replace gasket.  Replace o-ring.
Pressure creeps above setting.	Damaged or clogged air regulator or line (236281 or 238159).  Damaged diaphragm (11*).  Contamination between ball (16*) and seat (14*).	Clear obstruction in line, service regulator if necessary.  Replace diaphragm.  Replace ball (16*), seat (14*), and o-ring (15*).
Pressure drops below setting.	Damaged or clogged air regulator or line (236281 or 238159).  Empty/clogged supply line.  Clogged air spray gun or fluid dispensing valve.  Using regulator beyond its rated flow capacity, see Technical Data on page 17.	Clear obstruction in line, service regulator if necessary.  Fill/flush supply line.  Replace, see gun or valve manual for service instructions.  Install additional regulators.

# Parts

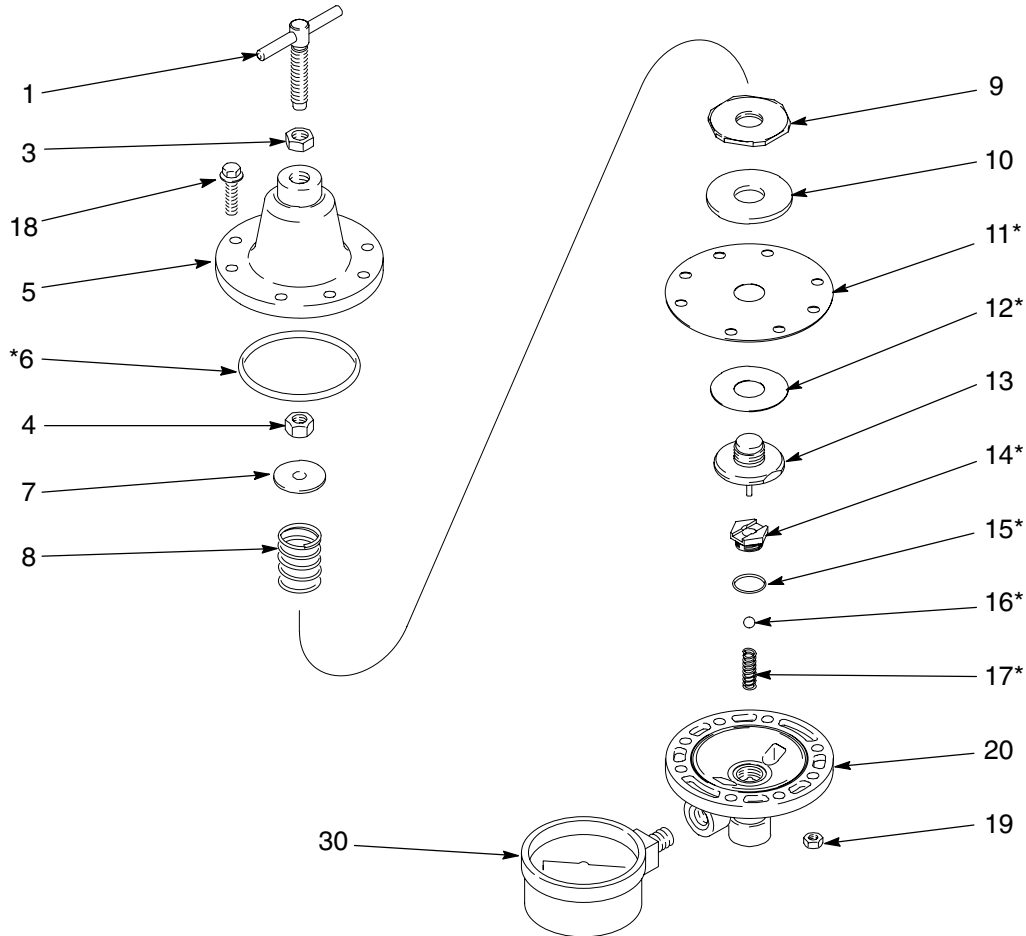
## Spring-Operated Regulators

3 to 30 psi (.02 to 0.2 MPa, 0.2 to 2.1 bar) Regulated Pressure Range

Model 236081, Series A, includes items 1 to 20 (no gauge)

Model 236449, Series A, includes items 1 to 20, and 30 (30 psi gauge)

Model 241976, Series A, includes items 1 to 20, and 28 (60 psi gauge)



02735

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	236590	Adjustment Handle Assembly	1	14*	188944	SEAT, valve; stainless steel	1
3	101448	NUT, jam; 3/8-24 unf-2b	1	15*	109450	O-RING; PTFE	1
4	106292	NUT, hex; 3/8-24 unf-2b	1	16*	102922	BALL, tungsten carbide	1
5	188943	CAP, regulator	1	17*	112204	SPRING, compression, ball	1
6*	112349	O-RING, buna	1	18	112547	SCREW, flanged hex head; 1/4-20 unc-2a x 1"	8
7	188949	GUIDE, spring	1	19	112248	NUT, hex, retaining; 1/4-20 unc-2b	8
8	112203	SPRING, compression, adjusting, yellow	1	20	188942	HOUSING, regulator	1
9	171858	NUT, jam, special; 11/16-16 unc-2b	1	28	195583	GAUGE, pressure, 60 psi (0.4 MPa, 4 bar); stainless steel (model 241976)	1
10	171862	WASHER, diaphragm	1	30	187875	GAUGE, pressure, 30 psi (0.2 MPa, 2 bar); stainless steel (model 236449)	1
11*	112348	DIAPHRAGM; PTFE with nylon fabric/buna-n base	1				
12*	172132	GASKET; cellulose fiber	1				
13	236591	Diaphragm Plate Assembly 11/16-16 unc-2a	1				

\* These parts are included in Repair Kit 236589, which may be purchased separately.

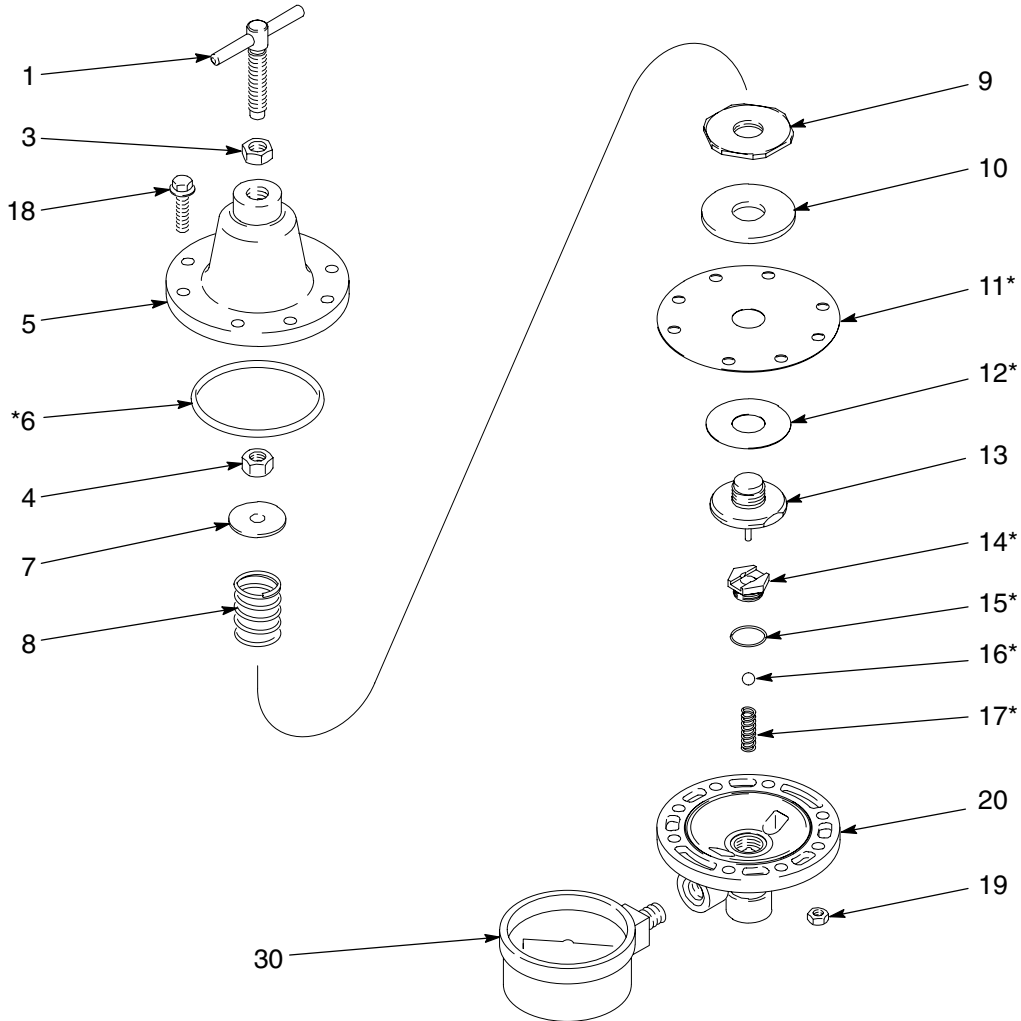
# Parts

## Spring-Operated Regulators

20 to 100 psi (.14 to 0.7 MPa, 1.4 to 7 bar) Regulated Pressure Range

Model 236216, Series A, includes items 1 to 20 (no gauge)

Model 236450, Series A, includes items 1 to 30 (100 psi gauge)



02735

Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
1	236590	Adjustment Handle Assembly	1	13	236591	Diaphragm Plate Assembly	
3	101448	NUT, jam; 3/8-24 unf-2b	1			11/16-16 unc-2a	1
4	106292	NUT, hex; adjustment; 3/8-24 unf-2b	1	14*	188944	SEAT, valve; stainless steel	1
5	188943	CAP, regulator	1	15*	109450	O-RING; PTFE	1
6*	112349	O-RING, buna-n	1	16*	102922	BALL, tungsten carbide	1
7	188949	GUIDE, spring	1	17*	112204	SPRING, compression, ball	1
8	105291	SPRING, compression, adjusting, silver	1	18	112547	SCREW, flanged hex head; 1/4-20 unc-2a x 1"	8
9	171858	NUT, jam, special; 11/16-16 unc-2b	1	19	112248	NUT, hex, retaining; 1/4-20 unc-2b	8
10	171862	WASHER, diaphragm	1	20	188942	HOUSING, regulator	1
11*	112348	DIAPHRAGM; PTFE with nylon fabric/buna-n base	1	30	187874	GAUGE, pressure, 100 psi (0.7 MPa, 7 bar); stainless steel	1
12*	172132	GASKET; cellulose fiber	1				

\* These parts are included in Repair Kit 236589, which may be purchased separately.

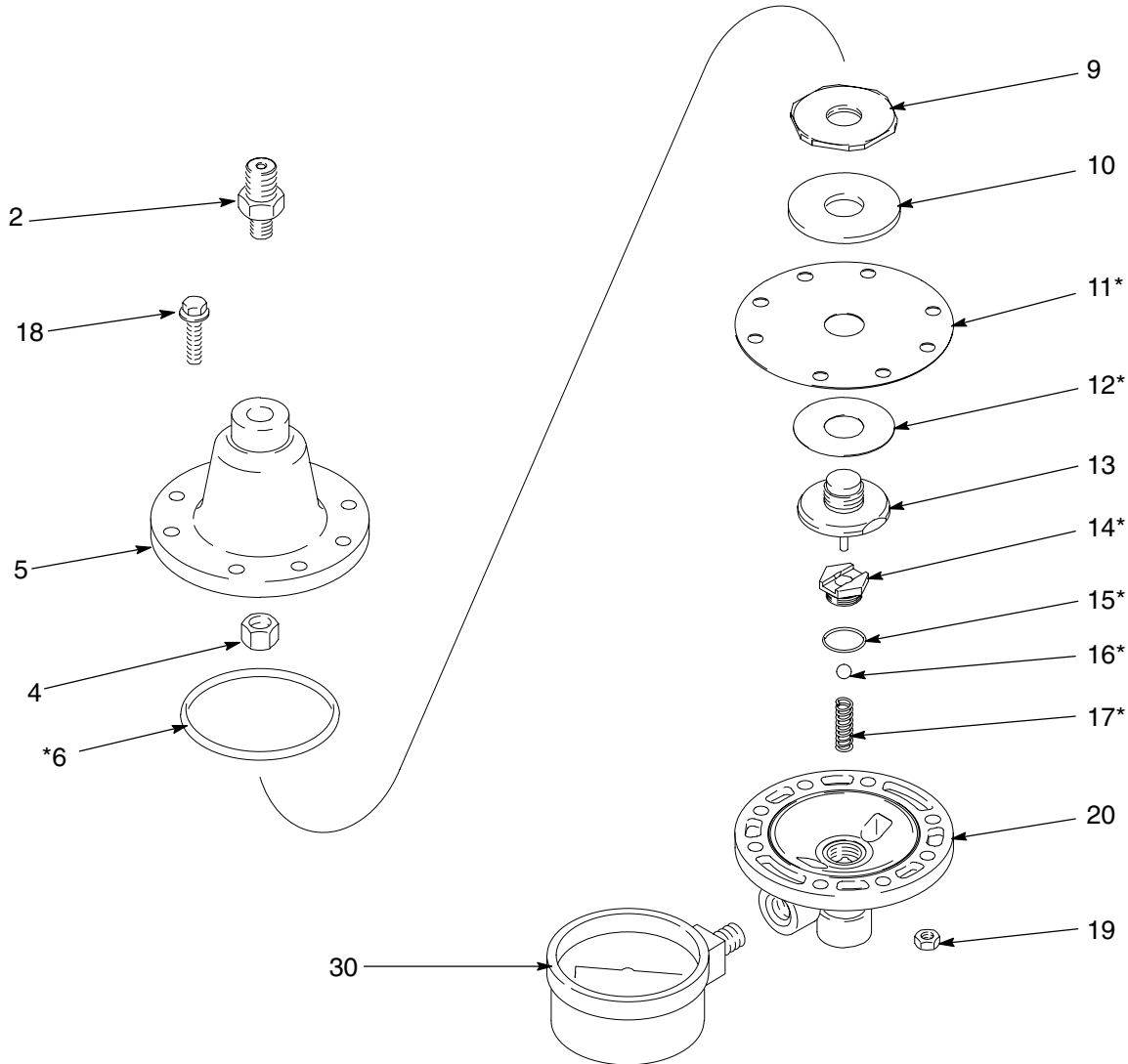
# Parts

## Air-Operated Regulators

3 to 100 psi (.02 to 0.7 MPa, 0.2 to 7 bar) Regulated Pressure Range

Model 238159, Series A, includes items 1 to 20 (no gauge)

Model 236281, Series A, includes items 1 to 20, and 30 (100 psi gauge)



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Ref. No.	Part No.	Description	Qty.	Ref. No.	Part No.	Description	Qty.
2	189539	NIPPLE, hex	1	15*	109450	O-RING; PTFE	1
4	106292	NUT, hex; 3/8-24 unf-2b	1	16*	102922	BALL; tungsten carbide	1
5	188943	CAP, regulator	1	17*	112204	SPRING, compression, ball	1
6*	112349	O-RING; buna-n	1	18	112547	SCREW flanged hex head; 1/4-20 unc-2a x 1"	8
9*	171858	NUT, Jam, special; 11/16-16 unc-2b	1	19	112248	NUT, hex, retaining; 1/4-20 unc-2b	8
10	171862	WASHER, diaphragm	1	20	188942	HOUSING, regulator	1
11*	112348	DIAPHRAGM; PTFE with nylon fabric/buna-n base	1	30	187874	GAUGE, pressure, 100 psi (0.7 MPa, 7 bar); stainless steel	1
12*	172132	GASKET; cellulose fiber	1				
13	236591	Diaphragm Plate Assembly	1				
14*	188944	SEAT, valve; stainless steel	1				

\* These parts are included in Repair Kit 236589, which may be purchased separately.

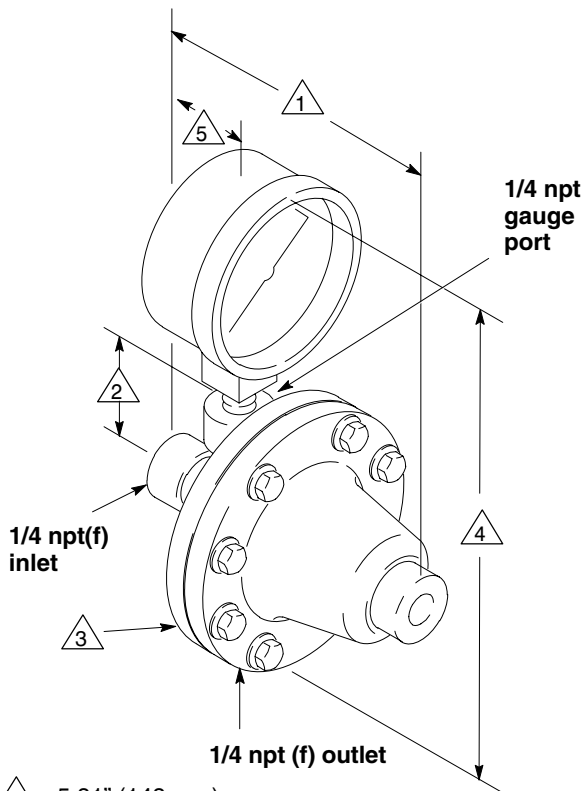
# Repair Kits

## Kit No. 236589

For spring- and air-operated regulators

Part No.	Description	Qty.
112348	DIAPHRAGM; PTFE with nylon fabric/buna-n base	1
172132	GASKET; cellulose fiber	1
188944	SEAT, valve; stainless steel	1
109450	O-RING; PTFE	1
112204	SPRING, compression, ball	1
102922	BALL, tungsten carbide	1
112349	O-RING; buna-n	1

## Dimensions



- 1 5.81" (148 mm)
- 2 1.62" (41 mm)
- 3 3.75" (95 mm) diameter
- 4 6.6" (168 mm)
- 5 2.25" (57 mm)

# Accessories

*Use Only Genuine Graco Parts and Accessories*

## Air Filter, Moisture Separator with Regulators 217075

200 psi (1.4 MPa, 14 bar) Maximum Inlet Pressure

For moisture separation and to separate air regulation to spray gun and fluid regulator. 1/2 npt(f) inlet

With two 0 to 100 psi (0 to 0.7 MPa, 0 to 7 bar) 1/4 npt(m) regulated ports and two 0 to 200 psi (0 to 1.4 MPa, 0 to 14 bar) 3/8 npt(f) unregulated ports

## Air Regulator and Gauge 206199

0 to 125 psi (0 to 0.75 MPa, 0 to 8.5 bar) regulated pressure range; 200 psi (1.4 MPa, 14 bar) steel pressure gauge; 1/2 npt(f) inlet and outlet

## Fitting Kits

For use when installing the fluid pressure regulator to systems requiring the following material and dimensions.

### Kit 236609 – stainless steel

Part No.	Description	Qty.
112497	SWIVEL, union, 3/8–18 npsm x 1/4–18 npt	1
112494	NIPPLE, 3/8–18 npsm x 1/4–18 npt	1

### Kit 236610 – metric – stainless steel

Part No.	Description	Qty.
112498	SWIVEL, union, 3/8–19 bspt x 1/4–18 npt	1
112495	NIPPLE, 3/8–19 bspt x 1/4–18 npt	1

### Carbon Steel Adapter Fittings

Part No.	Description	Qty.
157705	SWIVEL, union, 3/8–18 npsm x 1/4–18 npt	1
183461	NIPPLE, 3/8–18 npsm x 1/4–18 npt	1



# Technical Data

Maximum fluid inlet pressure ..... 100 psi  
(0.7 Mpa, 7 bar)  
Maximum fluid operating temperature ..... 150° F  
(66° C)  
Regulated fluid pressure range  
Models 236081, 236449, 241976 ..... 3 to 30 psi  
(.02 to 0.2 MPa, 0.2 to 2.1 bar)  
Models 236216 and 236450 ..... 20 to 100 psi  
(.14 to 0.7 MPa, 1.4 to 7.0 bar)  
Models 236281, 238159 ..... 3 to 100 psi  
(.02 to 0.7 MPa, 0.2 to 7 bar)  
Maximum flow capacity ..... 0.5 gpm (1.9 lpm)  
with 70 cps fluid at 100 psi  
(0.7 MPa, 7 bar) inbound pressure

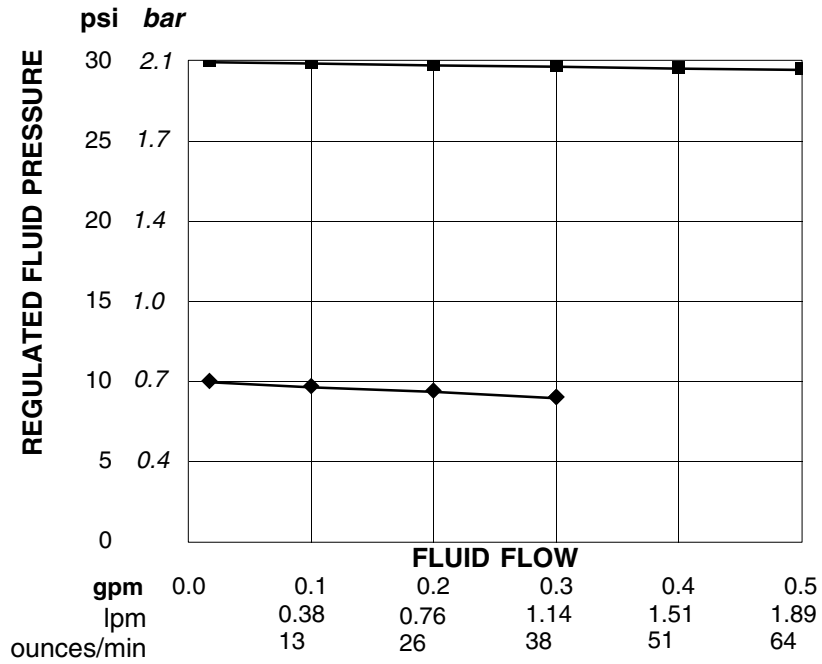
Wetted Parts ..... acetal resins, PTFE,  
tungsten carbide, 304 and 316 series  
stainless steel, 17-4 PH stainless steel

## Weight

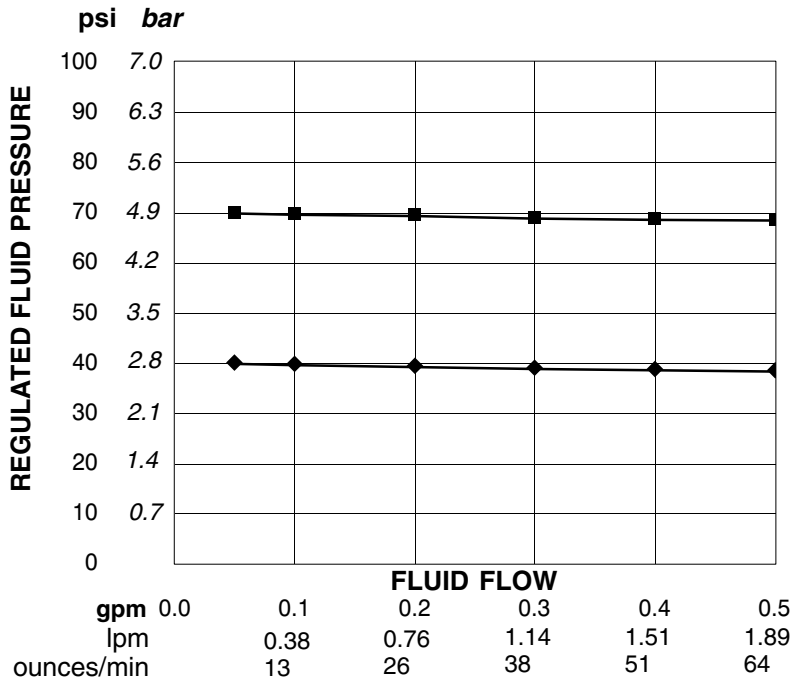
Model 236081 ..... 1.2 lb. (0.54 kg)  
Model 236216 ..... 1.28 lb. (0.58 kg)  
Model 236281 ..... 1.6 lb. (0.73 kg)  
Model 236449 ..... 1.5 lb. (0.68 kg)  
Model 236450 ..... 1.6 lb. (0.73 kg)  
Model 238159 ..... 1.39 lb. (0.63 kg)  
Model 241976 ..... 1.5 lb. (0.68 kg)

# Performance Charts

Model 236081, 235449, 241976



Model 236216, 236450, 236281, and 238159





# Graco Standard Warranty

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

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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 Information

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

**1-800-367-4023 Toll Free**

**612-623-6921**

**612-378-3505 Fax**

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