



This manual contains important warnings and information.  
**READ AND KEEP IT FOR REFERENCE.**

INSTRUCTIONS

First choice when quality counts.™

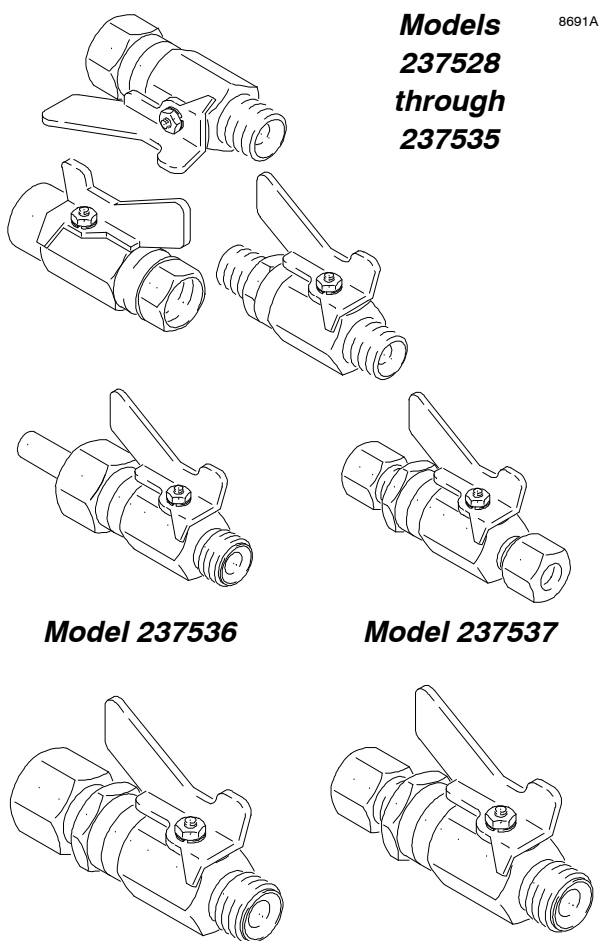


## 316 Series Stainless Steel, Closed Cavity Low-Pressure Ball Valves

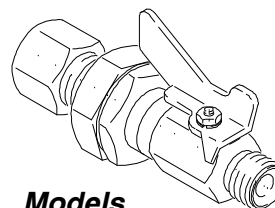
500 psi (35 bar, 3.5 MPa) Maximum Fluid Working Pressure

**NOTE:** npsm threaded ends meet SAE J516 fitting recommendations.

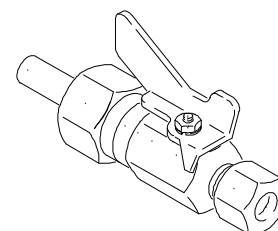
Refer to page 2 for Table of Contents.



**Models  
237528  
through  
237535**



**Models  
237541  
238143**



**Model 237542**

### List of Models

Model	Series	Thread
237528	C	1/4 npt(m) x 1/4 npt(m)
237529	C	1/4 npt(m) x 3/8 npsm(m)
237530	C	3/8 npt(m) x 1/4 npt(m)
237531	C	3/8 npt(m) x 3/8 npt(m)
237532	C	3/8 npt(f) x 3/8 npt(f)
237533	C	3/8 npsm(m) x 3/8 npt(m)
237534	C	3/8 npt(f) x 3/8 npt(m)
237535	C	3/8 npt(f) x 3/8 npsm(m)
237536	C	3/8 O.D. tube end x 3/8 npsm(m)
237537	C	3/8 tube fitting (both ends)
237538	C	3/8 tube fitting x 3/8 npt(m)
237539	C	3/8 tube fitting x 3/8 npsm(m)
237540	C	1/2 tube fitting x 3/8 npsm(m)
237541	C	1/2 tube fitting x 3/8 npsm(m)
237542	C	3/8 O.D. tube end x 3/8 tube fitting
238143	B	3/8 tube fitting x 3/8 npsm(m)

**Models 237538, 237539, and 237540**

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## Warnings

### Warning Symbol



**WARNING**

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

### Caution Symbol



**CAUTION**

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

Spray from the gun, hose leaks, or ruptured components can splash fluid in the eyes or on the skin and cause serious injury.

**To reduce the risk of splashing** follow the pressure relief procedure for your equipment before removing the valve.

Do not stop or deflect fluid leaks with your hand, body, glove, or rag.

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 of the lowest rated system component. This equipment has a maximum fluid working pressure of 35 bar, 3.5 MPa (500 psi).
- Use only fluids and solvents that are compatible with the equipment wetted parts. See the **Technical Data** sections of all the equipment manuals. Read the fluid manufacturer's warnings.
- Always wear protective eyewear, gloves, clothing, and respirator as recommended by the fluid and solvent manufacturers.
- Comply with all applicable local, state and national fire, electrical and other safety regulations.

# General Information

## Ball Valve Applications

**Models 237528 through 237535** have both ends threaded for pipe connections.

**Models 237538, 237539 and 237540** have a compression nut on one end for connecting the valve to tubing. The other end is threaded for pipe connection.

**Models 237541 and 238143** have a compression nut on one end for connecting the valve to tubing. The other end is threaded for pipe connection. These valves also include a jam nut to use if mounting the valve on a panel.

**Model 237537** has compression nuts on both ends, for connecting the valve to tubing.

**Model 237536** has a 1 in. length of tubing on one end, for connecting the valve to a compression fitting. The other end is threaded for pipe connection.

**Model 237542** has a 1 in. length of tubing on one end, for connecting the valve to a compression fitting. The other end has a compression nut for connecting the valve to tubing.

## Tubing Selection

Tubing material, hardness, surface finish, and wall thickness must be considered to ensure the proper installation and operation of the ball valves. These ball valves are recommended for use with either carbon steel or stainless steel tubing. The tubing outer surface should be free of scratches and the tubing ends should always be deburred to prevent leakage or damage to the ferrules during installation.

To ensure a leak-free installation, the tubing must be softer than the ferrules in the ball valve fitting. Therefore, the tubing must meet the following material specifications:

### Tubing Material Specifications

1. **Carbon Steel Tubing:** High quality soft annealed seamless carbon steel hydraulic tubing ASTM A-179 or equivalent; hardness of Rb 72 or less; 0.035 in. (20 ga) minimum recommended wall thickness
2. **Stainless Steel Tubing:** Fully annealed (type 304, 316, etc.) seamless or welded and drawn stainless steel hydraulic tubing ASTM A-269, ASTM A-213 or equivalent; hardness of Rb 80 or less; 0.035 in. (20 ga) minimum recommended wall thickness.

# Installation

## NOTES:

- This procedure applies to ball valves that have compression nuts or compression fittings.
- Letters in parentheses in the text refer to Figs. 1 and 2.
- The valves are shipped fully assembled, with the compression nut finger tight.

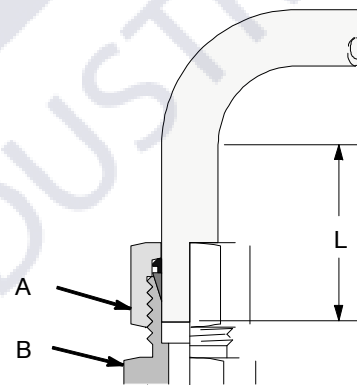
## CAUTION

Do not disassemble the valve before installing it on the tubing as this may allow dirt to get in between the ferrules, resulting in leakage.

When installing the valve near a bend in the tubing, allow a sufficient straight length of tubing to ensure that the tubing end will seat firmly on the shoulder in the adapter or housing. See Fig. 1.

Model	L1	L2
238143	15/16"	3/4"
237537	15/16"	3/4"
237538	15/16"	3/4"
237539	15/16"	3/4"
237540	1-3/16"	31/32"
237541	1-3/16"	31/32"
237542	15/16"	3/4"

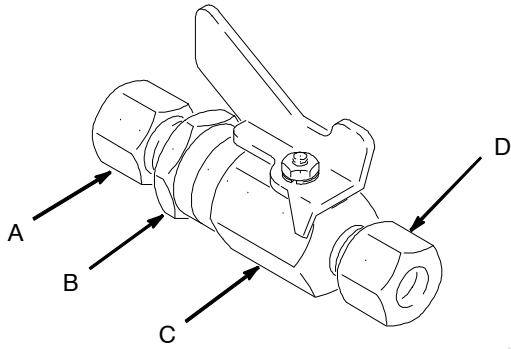
- L1** = Recommended straight length of tubing required  
**L2** = Absolute minimum straight length of tubing required



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Fig. 1

# Installation



**Model 237537 shown**

**Fig. 2**

## Models 237536 through 237542 and 238143 Only

1. Be sure the compression nut (A) is finger tight.
2. Insert the 3/8 in. O.D. tube end of the valve into the compression fitting. Make sure the tubing seats firmly on the shoulder. Tighten the compression nut finger tight.
3. While holding the adapter (B) with a wrench, tighten the compression nut 1–1/4 turns with another wrench.
4. Refer to the note at the end of **All Other Models** on this page for additional tightening and retightening information.

## All Other Models

**NOTE:** This procedure applies only to models with compression nuts or fittings.

1. Be sure the compression nut (A) is finger tight. (Model 237537 has a compression nut on each end.)
2. Insert the tubing into the compression nut (A) and adapter (B).

*On Model 237537 only, insert another length of tubing into the second compression nut (D) and housing (C). See Fig. 2.*

3. Be sure the tubing seats firmly on the shoulder. Tighten the compression nut(s) until finger tight.
4. While holding the adapter (B) with a wrench, tighten the compression nut (A) 1 turn with another wrench.

*On Model 237537 only, tighten the second compression nut (D) the same amount, but hold the housing (C) with a wrench while tightening.*

**NOTE:** When installing the ball valves on tubing with a hardness close to the maximum recommended, more force is required to tighten the nut than the full 1 turn specified above. Be sure that the nut is tightened sufficiently.

## Retightening a Tube Fitting

Tube fittings can be disconnected and retightened. To retighten tube fittings, insert the tubing into the adapter or housing until the ferrule seats on the shoulder. Tighten the nut to finger tight. Then, using a wrench, tighten the nut to its original position, plus 1 flat.

# Technical Data

Category	Data
Maximum fluid working pressure	35 bar, 3.5 MPa (500 psi)
Wetted parts	316 Series Stainless Steel
Canadian Registration Number (CRN): Alberta - 0C4155.2 Ontario - 0C4874.5	<i>Models: 237528, 237529, 237530, 237531, 237532, 237533, 237534, 237535, 237536, 237537, 237538, 237539, 237540, 237541, 237542, and 237543</i>



# 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.

**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 Phone Numbers

**TO PLACE AN ORDER**, contact your Graco distributor, or call one of the following numbers to identify the distributor closest to you:

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

**612-623-6921**

**612-378-3505 Fax**

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**Sales Offices:** Minneapolis, Detroit

**International Offices:** Belgium, Korea, Hong Kong, Japan

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