

# USP Valve

3A3116A  
EN

**Uniblock Series Progressive Valve for oil and grease lubrication.**

5076 psi (35 MPa, 350 bar) Maximum Working Pressure



### Important Safety Instructions

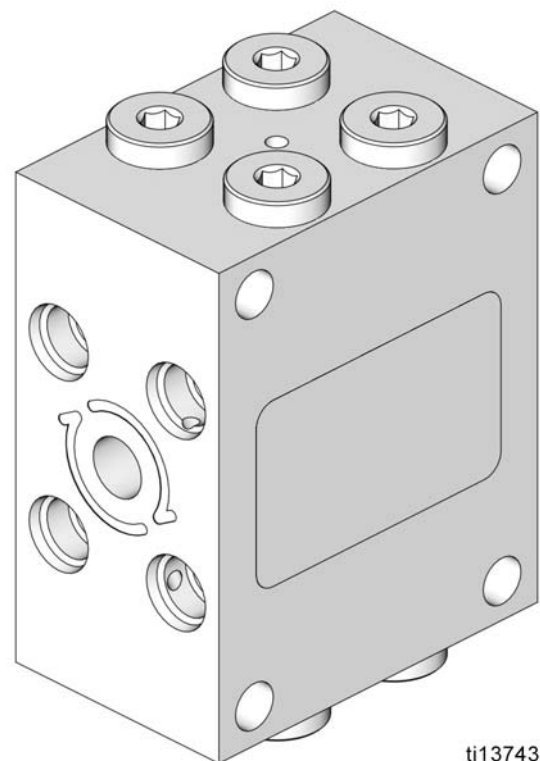
Read all warnings and instructions in this manual and in related Automatic Lubrication System instruction manuals. Save all instructions.

### Models

For all models:

- Discharge per outlet = 0.012 in<sup>3</sup>





Model No.	No. of Outlets	Inlet Thread
24J331	6	1/8 NPT
24J332	8	1/8 NPT
24J333	10	1/8 NPT
24J334	12	1/8 NPT
24J335	14	1/8 NPT
24J336	16	1/8 NPT



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# Warnings

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

 <span style="font-size: 2em; font-weight: bold; vertical-align: middle;">WARNING</span>	
 	<p><b>SKIN INJECTION HAZARD</b></p> <p>High-pressure fluid from the valve, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. <b>Get immediate surgical treatment.</b></p> <ul style="list-style-type: none"> <li>• Do not put your hand over the fluid outlet.</li> <li>• Do not stop or deflect leaks with your hand, body, glove, or rag.</li> <li>• Follow the <b>Pressure Relief Procedure</b> before cleaning, checking, or servicing equipment.</li> <li>• Tighten all fluid connections before operating the equipment.</li> </ul>
	<p><b>PERSONAL PROTECTIVE EQUIPMENT</b></p> <p>Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to:</p> <ul style="list-style-type: none"> <li>• Protective eyewear, and hearing protection.</li> <li>• Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.</li> </ul>

# Installation

The USP Valve should be ready to install in your system. It has been factory-tested and should not require any additional modification.

As long as lubricant is supplied under pressure, the valve will continue to operate. Whenever lubricant flow ceases, the valve pistons stop. When flow resumes, it will start again at the same point in the discharge cycle.

**NOTE:** Graco specifies a cleanliness level of ISO 18/14. Consult with the manufacturers of the equipment the lube system is installed on to confirm the equipment does not require a higher cleanliness level.

## Doubling Plug Accessory

1. Plug outlet using Graco doubling plug accessory part number 24F467 (FIG. 1).

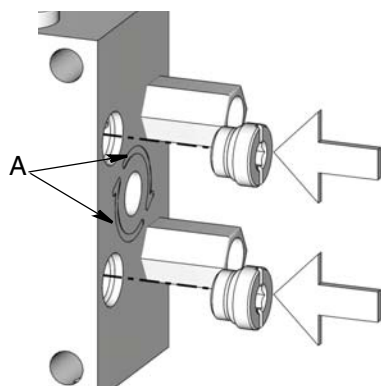


FIG. 1

Lubricant from the plugged outlet/s is redirected to the next outlet on USP divider block flowing in a clockwise order, following direction arrows (A) stamped on block (see FIG. 1).

## Pressure Relief Procedure



Follow the Pressure Relief Procedure whenever you see this symbol.



This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure before cleaning, checking, or servicing the equipment.

Loosen inlet connection (B) to relieve pressure in block.

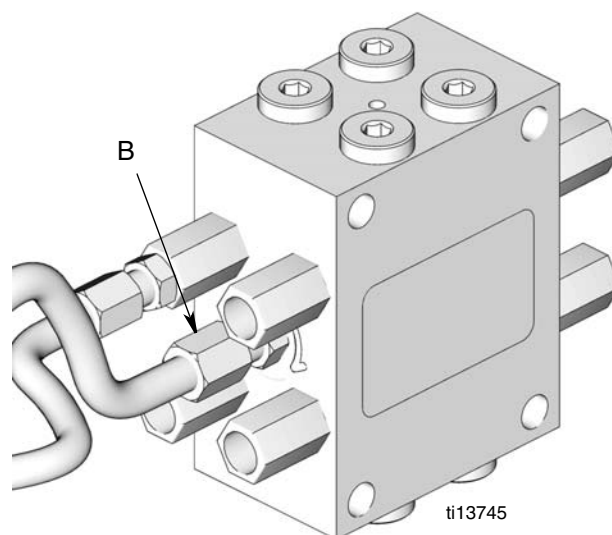


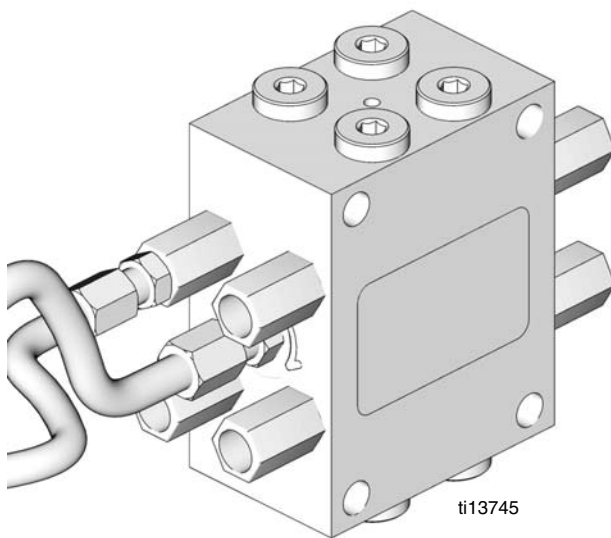
FIG. 2

# Purging Air From System



Before machine operation is resumed and/or following maintenance or repair procedures, manual system air purging is required.

## Purging Air from Pump to USP Valve Lines



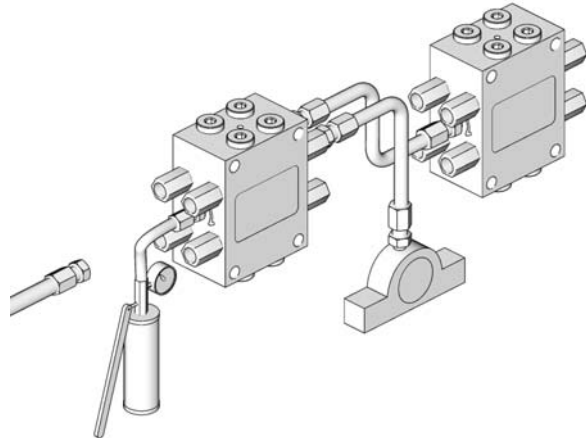
**FIG. 3**

Steps 1- 3, refer to FIG. 3.

1. Install the line from the system pump to the USP valve. **Do not** completely tighten the connection at the valve's lube inlet.
2. Cycle the system pump until air-free lubricant is observed flowing from the line at the valve's lube inlet.
3. Tighten the fitting at the lube inlet port while lubricant is still flowing.

The system is now ready for operation.

## Purging Air After Adding or Replacing a USP Valve Module



**FIG. 4**

Steps 1- 7, refer to FIG. 4.

1. Install the new USP valve assembly.
2. Connect the tubing or hoses to the appropriate valve or lubrication point(s)
3. **Do not** completely tighten the connection(s) at the inlet or at lubrication points.
4. Disconnect and remove the line from the pump at the valve inlet.
5. Attach a hand pump filled with clean, filtered lubricant to the inlet port.
6. Operate the hand pump until air-free lubricant is observed flowing from each lube inlet connector and/or each lubrication point's connector.
7. Tighten the inlet fitting or at the lubrication port while lubricant is still flowing.
8. Remove the hand pump and reconnect the system pump to the valve inlet.

# Blockages

Blockages result in a higher than normal pumping pressure. Depending on the application or system design, this blockage will usually result in a complete loss of lubricant flow into the total system and no bearing will be receiving lubrication.

The loss of flow due to a blockage is first indicated with the higher than normal system pressure that is developed by the pump as it attempts to overcome this blockage. Higher pressure is limited, isolated and signaled through the use of various performance indicators (reset and relief) and incorporated into the system design. Contact your Graco distributor for available parts.

## Contamination Blockage

If dirt, foreign material or any other form of contamination is found in a valve, cleaning that valve will only temporarily solve contamination blockage problems. The source of the contamination must be eliminated for satisfactory service.

The system filtering method must be investigated. Filter elements should be inspected and cleaned if necessary.

The reservoir filling method should be reviewed to eliminate any chance of foreign material entering the reservoir during filling.

## Separation Blockage

If a hard wax or soap-like material is found in the Valve Section, grease separation is occurring. This means that the oil is being squeezed from the grease at normal system operating pressure and the grease thickener is being deposited in the divider valve. Cleaning the divider valve will only temporarily solve the problem. Consult your lubricant supplier for recommendations on alternate lubricants and your local Graco distributor to verify compatibility with centralized lubricating systems.



## Cleaning Valves

### NOTICE

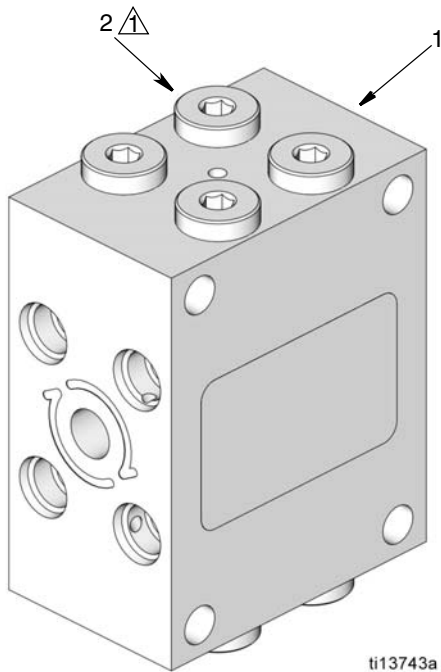
- Dirt and foreign material will damage lubricating equipment. Perform all service and disassembly under the cleanest possible conditions.
- Hard or sharp metal objects such as punches, screwdrivers, and picks can scratch and damage piston bore. When cleaning these surfaces use a brass rod and hand pressure only.

1. Remove end plugs only and try to move each piston back and forth without removing the piston from the valve section.

***If all pistons move freely and there is no indication of a more serious problem:***

2. Replace end plugs.

# Parts



FN	Part No.	Description	Qty
1		VALVE, 4 piston honed, models 24J331, 24J332	1
		VALVE, 6 piston honed, models 24J333, 24J334	1
		VALVE, 8 piston honed, models 24J335, 24J336	1
2	24E757	PLUG, w/o ring, models 24J331, 24J332	8
		PLUG, w/o ring, models 24J333, 24J334	12
		PLUG, w/o ring, models 24J335, 24J336	16
3	557349	PLUG, dry seal 1/8 NPTF (not shown, shipped loose)	1

Torque to 15 - 18 ft.-lbs (20.3 - 24.4 N.m)

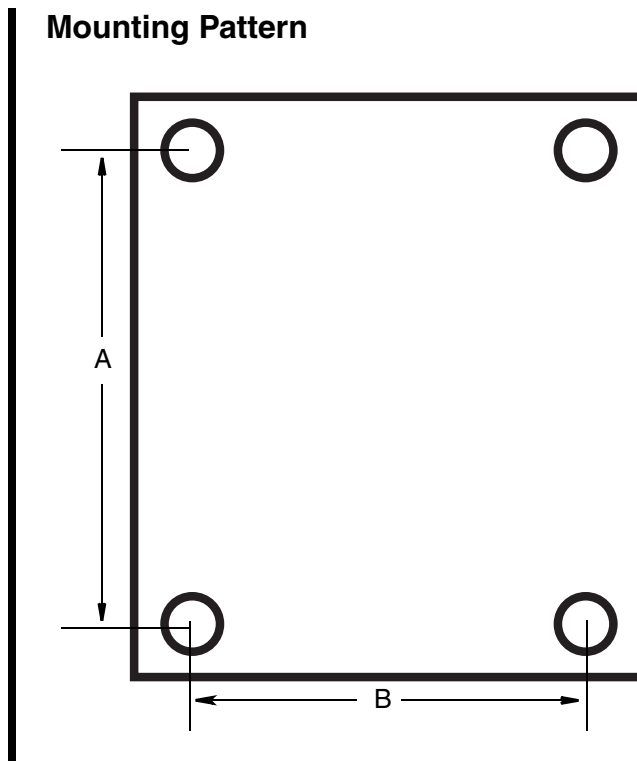
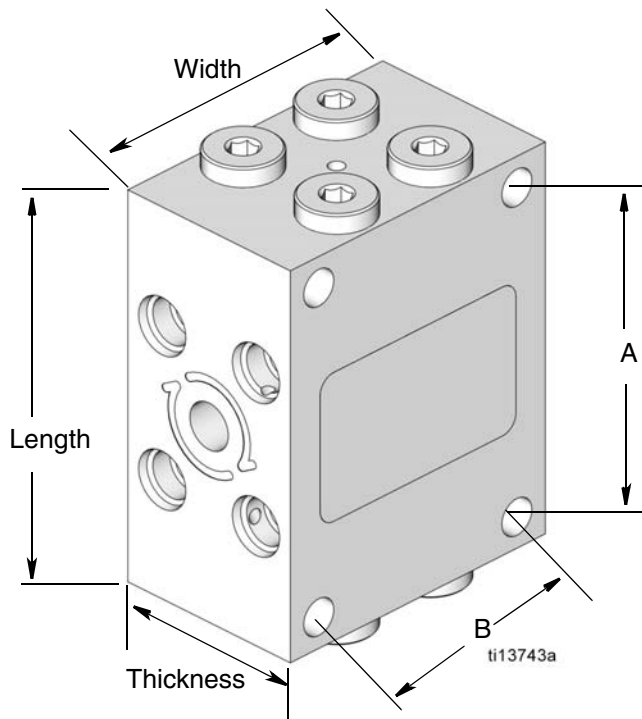
## Accessories

16V778	FITTING, push to connect, USP 1/4 inch, 625 psi (4.3 MPa, 43.09 bar)	1
16V779	FITTING, push to connect, USP, 3/16 inch, 800 psi (5.5 MPa, 55.16 bar)	1
16V780	FITTING, push to connect, USP, 6 mm, 1000 psi (6.9 MPa, 68.95 bar)	1
16V782	FITTING, compression, USP, 1/4 inch, 3500 psi (241.3 MPa, 2413.0 bar)	1
16V784	FITTING, compression, USP, 3/16 inch, 3500 psi (241.3 MPa, 2413.0 bar)	1
16V785	FITTING, compression, USP, 6 mm, 3500 psi (241.3 MPa, 2413.0 bar)	1
24E232	FITTING, USP, with check valve, short, 5076 psi (35 MPa, 350 bar)	1

# Technical Data

Wetted Parts	Steel, Fluorocarbon
Maximum Pressure	5076 psi (35 MPa, 350 bar)
Maximum Operating Temperature	Fluorocarbon seals 350°F (177°C)
Lubricant	Oil or grease up to NLGI #2
Output Volume	0.012 in <sup>3</sup>
Inlet Threads	1/8 - 27 NPT
Maximum Cycle Rate with Prox Switch	200 cpm
Mounting Holes Accommodate Bolt Diameter	0.25 in. (6 mm)

## Dimensions

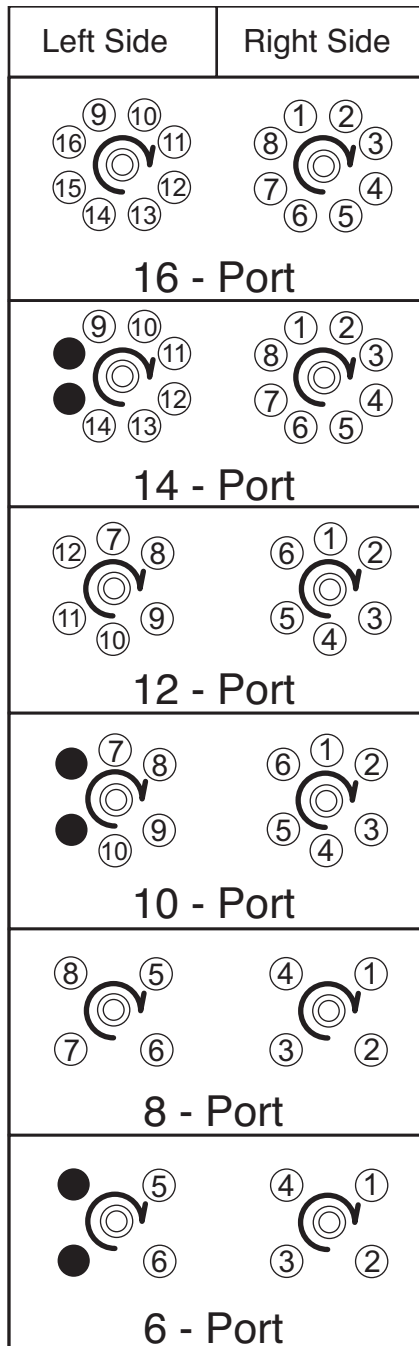


USP Outlets	Length		Width		Thickness		Mounting Holes A		Mounting Holes B	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
6	2.98	75.7	2.37	60.2	1.50	38.1	2.50	63.5	1.84	46.7
8	2.98	75.7	2.37	60.2	1.50	38.1	2.50	63.5	1.84	46.7
10	2.98	75.7	2.48	63.0	1.75	44.5	2.50	63.5	2.08	52.8
12	2.98	75.7	2.48	63.0	1.75	44.5	2.50	63.5	2.08	52.8
14	2.98	75.7	2.88	73.2	2.25	57.2	2.50	63.5	2.40	60.9
16	2.98	75.7	2.88	73.2	2.25	57.2	2.50	63.5	2.40	60.9

## Outlet Pattern Numbering

**NOTE:**

- Port combinations do not continue across factory plugged outlets. Factory plugged ports are included on 6, 10 and 14 outlet USP Valve models. On the following diagrams the factory plugged outlets are represented as blacked ports.
- Do not remove plugs from the factory plugged outlets.



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# Graco Standard Warranty

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

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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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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For the latest information about Graco products, visit [www.graco.com](http://www.graco.com).

For patent information, see [www.graco.com/patents](http://www.graco.com/patents).

**TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.**

**Phone: 612-623-6928 or Toll Free: 1-800-533-9655, Fax: 612-378-3590**

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Original instructions. This manual contains English. MM 3A3116

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