

CSP Valve

3A3995C

EN

For the progressive delivery of mineral oil and grease for lubrication. For Professional Use Only.



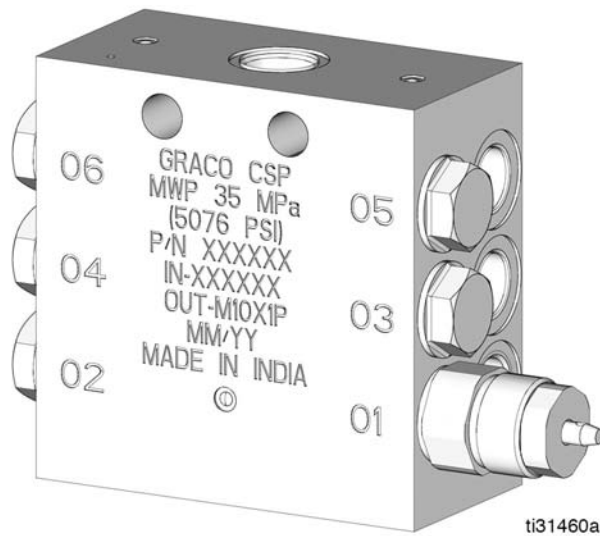
Important Safety Instructions

Read all warnings and instructions in this manual. Keep these instructions.

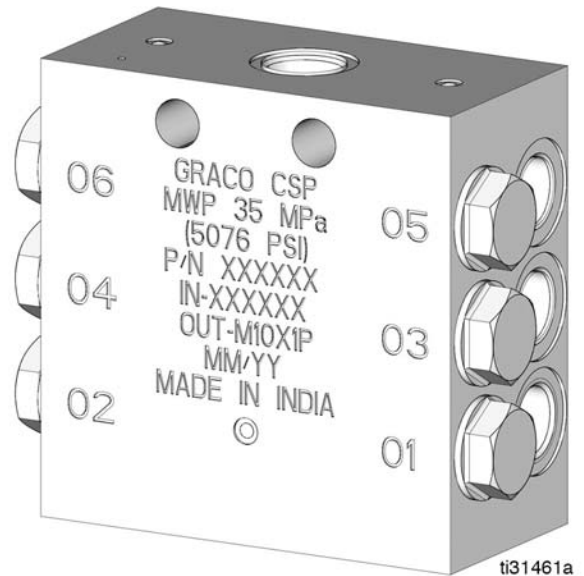
Models: See page 2

Maximum Operating Pressure - 5076 psi (350 bar, 35 MPa)

With Indicator Pin



Without Indicator Pin



Models*

Models*


*Lubricant output for these models: 0.2 cc per outlet and per stroke

| Model | Inlet | No. of Outlets | Indicator Included |
|--------|--------------|----------------|--------------------|
| 24Z477 | 1/8 in. BSPP | 6 | |
| 24Z478 | 1/8 in. BSPP | 8 | |
| 24Z479 | 1/8 in. BSPP | 10 | |
| 24Z480 | 1/8 in. BSPP | 12 | |
| 24Z481 | 1/8 in. BSPP | 14 | |
| 24Z482 | 1/8 in. BSPP | 16 | |
| 24Z483 | 1/8 in. BSPP | 18 | |
| 24Z484 | 1/8 in. BSPP | 20 | |
| 24Z485 | 1/8 in. BSPP | 22 | |
| 24Z486 | 1/8 in. NPT | 6 | |
| 24Z487 | 1/8 in. NPT | 8 | |
| 24Z488 | 1/8 in. NPT | 10 | |
| 24Z489 | 1/8 in. NPT | 12 | |
| 24Z490 | 1/8 in. NPT | 14 | |
| 24Z491 | 1/8 in. NPT | 16 | |
| 24Z492 | 1/8 in. NPT | 18 | |
| 24Z493 | 1/8 in. NPT | 20 | |
| 24Z494 | 1/8 in. NPT | 22 | |
| 24Z495 | 1/8 in. BSPP | 6 | ✓ |
| 24Z496 | 1/8 in. BSPP | 8 | ✓ |
| 24Z497 | 1/8 in. BSPP | 10 | ✓ |
| 24Z498 | 1/8 in. BSPP | 12 | ✓ |
| 24Z499 | 1/8 in. BSPP | 14 | ✓ |
| 24Z500 | 1/8 in. BSPP | 16 | ✓ |
| 24Z501 | 1/8 in. BSPP | 18 | ✓ |
| 24Z502 | 1/8 in. BSPP | 20 | ✓ |

| Model | Inlet | No. of Outlets | Indicator Included |
|--------|--------------|----------------|--------------------|
| 24Z503 | 1/8 in. BSPP | 22 | ✓ |
| 24Z504 | 1/8 in. NPT | 6 | ✓ |
| 24Z505 | 1/8 in. NPT | 8 | ✓ |
| 24Z506 | 1/8 in. NPT | 10 | ✓ |
| 24Z507 | 1/8 in. NPT | 12 | ✓ |
| 24Z508 | 1/8 in. NPT | 14 | ✓ |
| 24Z509 | 1/8 in. NPT | 16 | ✓ |
| 24Z510 | 1/8 in. NPT | 18 | ✓ |
| 24Z511 | 1/8 in. NPT | 20 | ✓ |
| 24Z512 | 1/8 in. NPT | 22 | ✓ |

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.

|  <h1 style="margin: 0;">WARNING</h1> | |
|---|--|
| | <p>SKIN INJECTION HAZARD</p> <p>High-pressure fluid from dispensing device, 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. Get immediate surgical treatment.</p> <ul style="list-style-type: none"> • Do not point dispensing device at anyone or at any part of the body. • Do not put your hand over the fluid outlet. • Do not stop or deflect leaks with your hand, body, glove, or rag. • Follow the Pressure Relief Procedure when you stop dispensing and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses and couplings daily. Replace worn or damaged parts immediately. |
| | <p>EQUIPMENT MISUSE HAZARD</p> <p>Misuse can cause death or serious injury.</p> <ul style="list-style-type: none"> • Do not operate the unit when fatigued or under the influence of drugs or alcohol. • Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Data in all equipment manuals. • Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheet (SDS) from distributor or retailer. • Turn off all equipment and follow the Pressure Relief Procedure when equipment is not in use. • Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only. • Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards. • Make sure all equipment is rated and approved for the environment in which you are using it. • Use equipment only for its intended purpose. Call your distributor for information. • Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces. • Do not kink or over bend hoses or use hoses to pull equipment. • Keep children and animals away from work area. • Comply with all applicable safety regulations. |

WARNING



PERSONAL PROTECTIVE EQUIPMENT

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. Protective equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

CALIFORNIA PROPOSITION 65

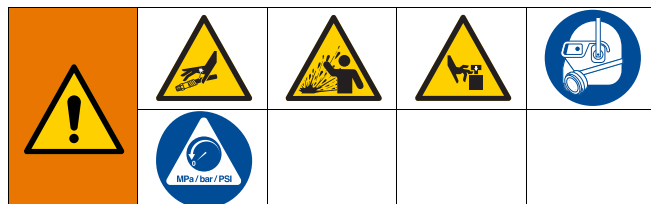
This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling.

Installation

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 when you stop dispensing and before cleaning, checking, or servicing the equipment.

Loosen inlet connection (a) to allow lubricant to bleed from fitting and relieve pressure in block.

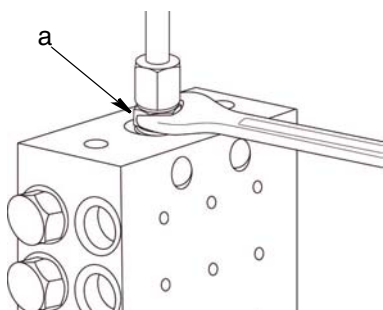


FIG. 1

Setup

The CSP valve is shipped ready to install in your system. It has been factory-tested and should not require any additional modification.

To install the CSP valve in your system:

Determine an appropriate mounting location for the CSP valve and mounting bracket (if required).

When mounting the CSP valve:

- the outlets must be in an easily accessible location. This will aid in troubleshooting in case the system is blocked.
- the indicator pins must be visible.

Output Combination

The output of a CSP valve outlet can be increased by plugging an adjacent outlet. When one or more outlets are plugged the output is a multiple of the standard output.

NOTE: Do not close or plug outlets numbered 1 and 2.

System Monitoring

In a series progressive system the primary and secondary CSP valves can be connected with high pressure hoses so that every outlet is linked together.

If even one plunger in one of the CSP valves is not working, lubricant will no longer be supplied to any of the outlets.

If one of the secondary CSP valves is blocked, then the primary CSP valve will also be blocked and the entire system installed downstream from the pump stops working.

A cycle indicator makes it possible to monitor the operation of the entire system.

Cycle Indicator

A CSP valve can be equipped with a Cycle Indicator Pin. The indicator is connected to the plunger and moves back and forth during plunger movement and as lubricant is distributed.

NOTE: A micro limit switch/proximity switch/sensor can be installed to the cycle indicator to monitor the system electronically.

Electric System Monitoring

A system can be set up to use an electronic controller or to use a pump with a built in controller. A micro-limit/proximity switch/sensor can be installed to the cycle indicator on the CSP block and connected to the electronic controller. Together they can control the pump operating time by counting cycles until the preset number of cycles has occurred.

The system can be set up to indicate a fault if the preset run time has expired before the preset number of cycles were counted.

Operation

- Lubricant supply can either be continuous or intermittent.
- Every movement of the plunger delivers a fixed quantity of lubricant.
- The cycle repeats as long as lubricant is supplied to the inlet port.
- If the lubricant supply is interrupted, when restarted the cycle continues from the point it was previously stopped.
- Each plunger must complete its full movement before the next plunger can be moved.
- The failure of any one of the units causes the complete system to shut down.

Operation Sequence

Sequence 1

1. Lubricant enters through the inlet provided at the top of the block.
2. Lubricant fills the left side of plunger number 3 pushing the plunger to the right.
3. Plunger number 3 opens delivering lubricant to outlet number 5.

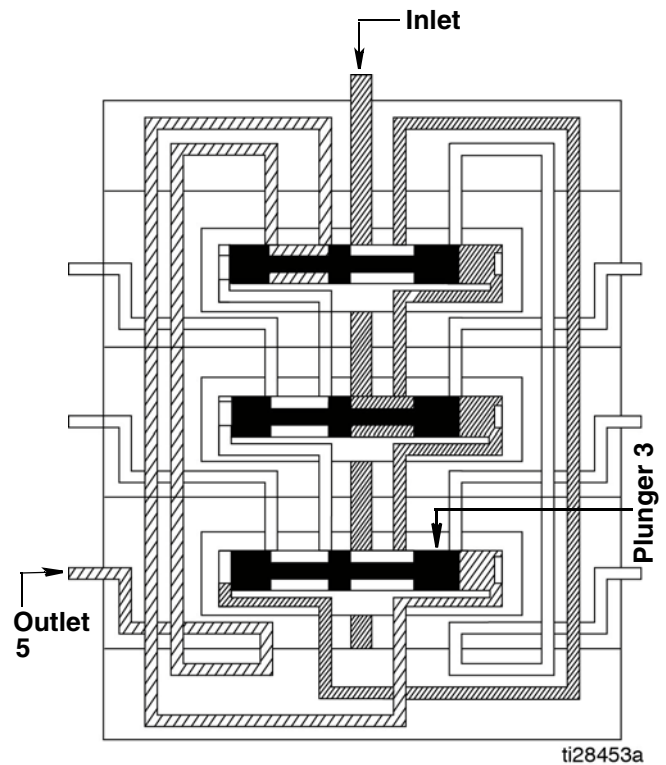


FIG. 2

Sequence 2

1. Lubricant fills the left side of plunger number 2 pushing the plunger to the right.
2. Plunger number 2 opens delivering lubricant to outlet number 4.

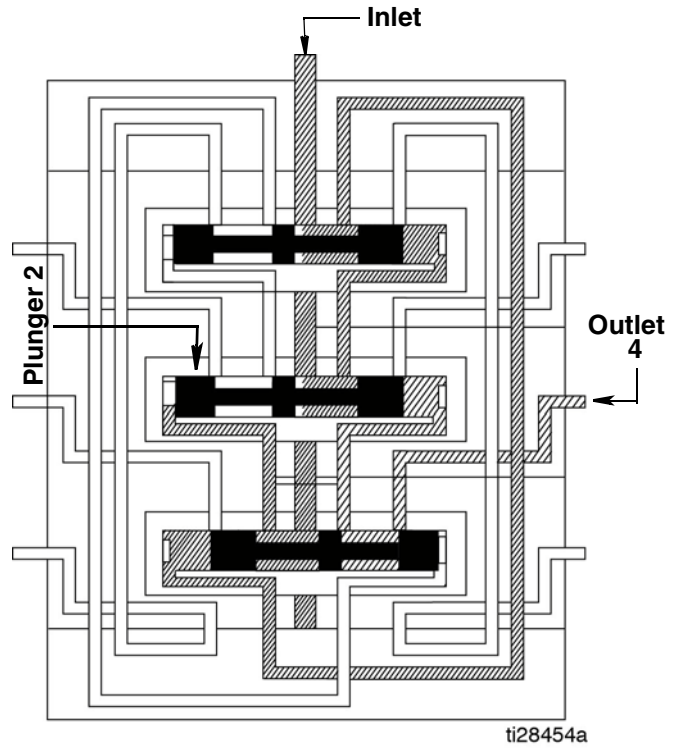


FIG. 3

Sequence 3

1. Lubricant fills the left side of plunger number 1 pushing the plunger to the right.
2. Plunger number 1 opens delivering lubricant to outlet number 2.

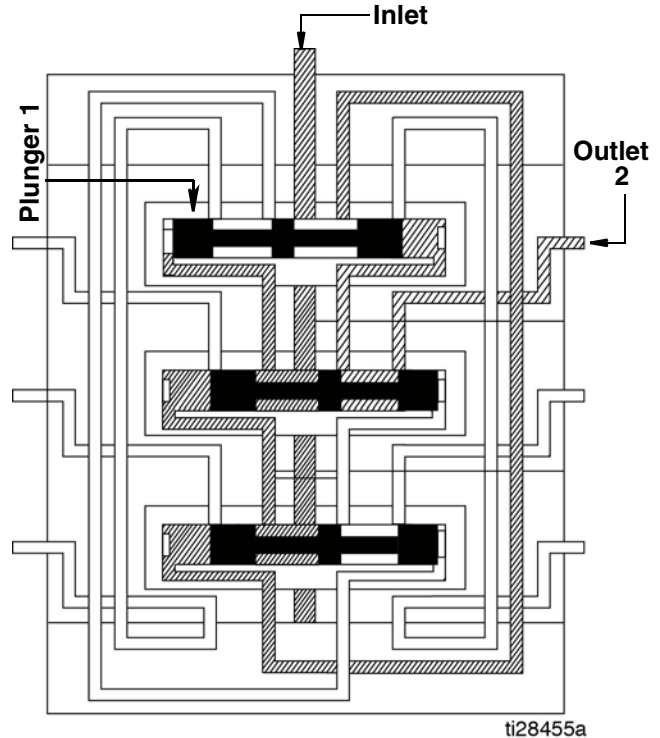


FIG. 4

Sequence 4

1. Lubricant fills the right side of plunger number 3 pushing the plunger to the left.
2. Plunger number 3 opens delivering lubricant to outlet number 6.

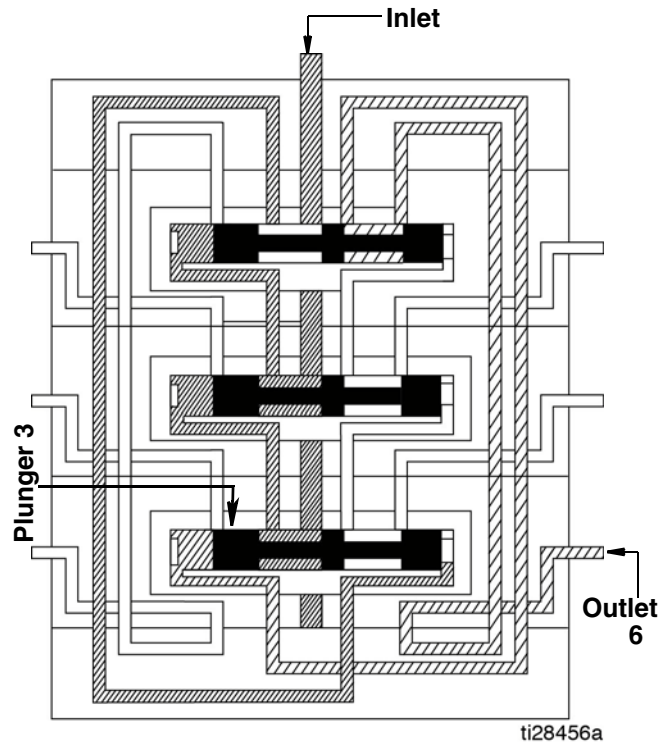


FIG. 5

Sequence 5

1. Lubricant fills the right side of plunger number 2 pushing the plunger to the left.
2. Plunger number 2 opens delivering lubricant to outlet number 3.

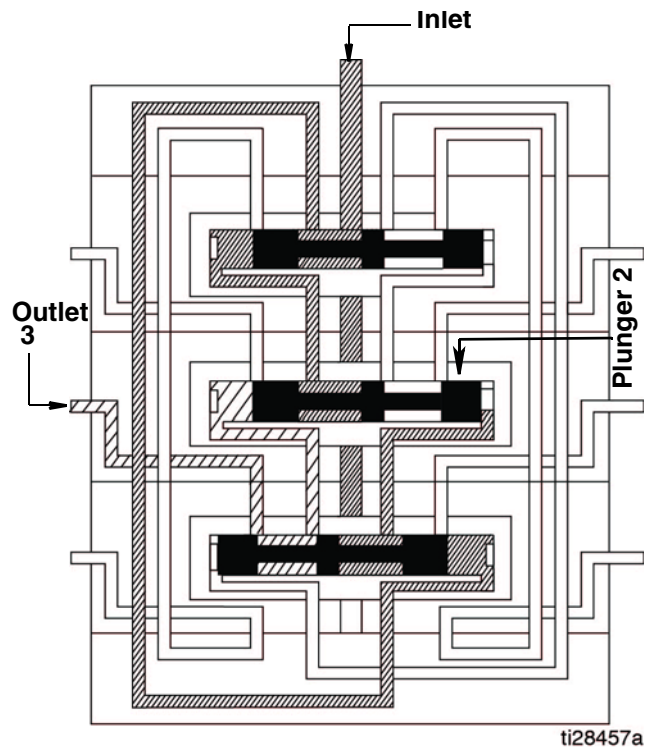


FIG. 6

Sequence 6

1. The final sequence completes the cycle. Lubricant fills the right side of plunger number 1.
2. Plunger number 1 opens, delivering lubricant to outlet number 1.

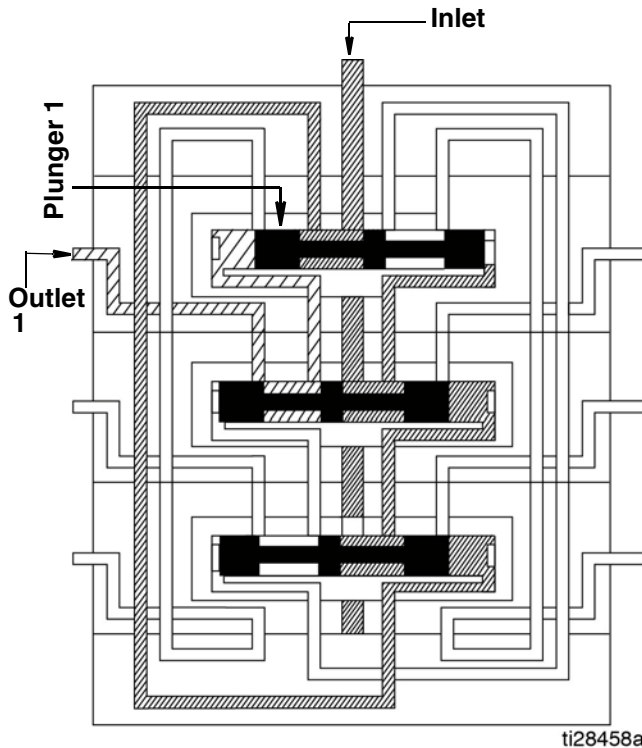


FIG. 7

Blockages

Cleaning a blockage requires a higher than normal pumping pressure. Depending on the application or system design, a 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, incorporated into the system design. Contact your Graco distributor for available parts.

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.

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.

Accessories

CSP Divider Block Inlet Fittings

| Part No. | Description | Qty |
|----------|--|-----|
| 17L442◆ | FITTING, push to connect, 1/4 inch hose stud x 1/8 inch NPT male straight, 2000 psi (13.79 MPa, 137.9 bar) | 1 |
| 17L449◆ | FITTING, push to connect, 6 mm stud x 1/8 BSPT male 90°, 2000 psi (13.79 MPa, 137.9 bar) | 1 |
| 17L545◆ | FITTING, push to connect, 6mm stud x 1/8 BSPT male straight, 2000 psi (13.79 MPa, 137.9 bar) | 1 |
| 17L546 | FITTING, compression, 6 mm x 1/8 BSPT male 90°, 3000 psi (20.68 MPa, 206.8 bar) | 1 |
| 17L548 | FITTING, compression, 6 mm x 1/8 BSPT male straight, 3000 psi (20.68 MPa, 206.8 bar) | 1 |

◆ Always connect fittings to Graco designed stud to ensure your connections.

CSP Divider Block Outlet Doubling Plug

| Part No. | Description | Qty |
|----------|--|-----|
| 17L651 | PLUG, outlet doubling, 3000 psi (20.68 MPa, 206.8 bar) | 1 |

CSP Divider Block Outlet Fittings

| Part No. | Description | Qty |
|----------|--|-----|
| 17P066 | FITTING, compression with check valve, 1/4 inch tube, 625 psi (4.3 MPa, 43 bar) | 1 |
| 17L440 | FITTING, push to connect, 1/4 inch OD tube x M10 with check valve, 625 psi (4.31 MPa, 43.1 bar) | 1 |
| 17L441◆ | FITTING, push to connect, 1/4 inch hose stud x M10 with check valve, 2000 psi (13.79 MPa, 137.9 bar) | 1 |
| 17L458◆ | FITTING, push to connect, 6 mm hose stud x M10 with check valve, 2000 psi (13.79 MPa, 137.9 bar) | 1 |
| 17L543 | FITTING, push to connect, valve outlet, 6 mm OD tube, 1000 psi (6.9 MPa, 69 bar) | 1 |
| 17L550 | FITTING, compression, valve outlet, 6 mm OD tube, with check valve, 3000 psi (20.68 MPa, 206.8 bar) | 1 |
| 17L654❖ | ADAPTER, M10 x 1/8 NPT female, with check valve, 5076 psi (35 MPa, 350 bar) | 1 |
| 17L439❖ | RING, clamping | 1 |

NOTE:

Always use Graco outlet fittings for your applications.

◆ Always connect fittings to Graco designed stud to ensure your connections.

❖ Use with clamping ring 17L439.

Lubrication Point Fittings (English Threads)

| Part No. | Description | Qty |
|----------|---|-----|
| 17L652‡ | FITTING, push to connect, 1/4 inch OD tube x 1/8 inch NPT male 90°, 625 psi (4.31 MPa, 43.1 bar) | 1 |
| 17L653‡ | FITTING, push to connect, 1/4 inch OD tube x 1/8 inch NPT male straight, 625 psi (4.31 MPa, 43.1 bar) | 1 |
| 17L547◆ | FITTING, push to connect, 1/4 inch stud x 1/4 NPT male straight, 2000 psi (13.79 MPa, 137.9 bar) | 1 |
| 17R567‡ | FITTING, push to connect, 6 mm tube x 1/8 BSPT male straight 1000 psi (6.9 MPa, 69 bar) | 1 |
| 17R569◆ | FITTING, push to connect, 6 mm stud x 1/4 BSPT male, straight, 2000 psi (13.79 MPa, 137.9 bar) | 1 |
| 17R570◆ | FITTING, push to connect, 6mm stud x 1/4 BSPT male 90°, 2000 psi (13.79 MPa, 137.9 bar) | 1 |
| 17R571 | FITTING, compression, 6 mm x 1/4 BSPT male straight, 3000 psi (20.68 MPa, 206.8 bar) | 1 |
| 17R572 | FITTING, compression, 6 mm x 1/4 BSPT male 90°, 3000 psi (20.68 MPa, 206.8 bar) | 1 |

◆ Always connect fittings to Graco designed stud to ensure your connections.

‡ Used ONLY for connection to Nylon tube.

Lubrication Point Fittings (Metric Threads)

| Part No. | Description | Qty |
|----------|---|-----|
| 17L455‡ | FITTING, push to connect, 6 mm tube x M10 tapered male straight, 1000 psi (6.9 MPa, 69 bar) | 1 |
| 17L456‡ | FITTING, push to connect, 6 mm tube x M8 tapered male straight, 1000 psi (6.9 MPa, 69 bar) | 1 |
| 17L457‡ | FITTING, push to connect, 6 mm tube x M6 tapered male straight, 1000 psi (6.9 MPa, 69 bar) | 1 |
| 17L446‡ | FITTING, push to connect, 6 mm tube x M10 tapered male 90°, 1000 psi (6.9 MPa, 69 bar) | 1 |
| 17L447‡ | FITTING, push to connect, 6 mm tube x M8 tapered male 90°, 1000 psi (6.9 MPa, 69 bar) | 1 |
| 17L448‡ | FITTING, push to connect, 6 mm tube x M6 tapered male 90°, 1000 psi (6.9 MPa, 69 bar) | 1 |
| 17R573 | FITTING, compression, 6 mm x M6 tapered male straight, 3000 psi (20.68 MPa, 206.8 bar) | 1 |
| 17R575 | FITTING, compression, 6 mm x M8 tapered male straight, 3000 psi (20.68 MPa, 206.8 bar) | 1 |
| 17R577 | FITTING, compression, 6 mm x M10 tapered male straight, 3000 psi (20.68 MPa, 206.8 bar) | 1 |
| 17R574 | FITTING, compression, 6 mm x M6 tapered male 90°, 3000 psi (20.68 MPa, 206.8 bar) | 1 |
| 17R576 | FITTING, compression, 6 mm x M8 tapered male 90°, 3000 psi (20.68 MPa, 206.8 bar) | 1 |
| 17R578 | FITTING, compression, 6 mm x M10 tapered male 90°, 3000 psi (20.68 MPa, 206.8 bar) | 1 |

‡ Used ONLY for connection to Nylon tube.

1/8 inch ID Hose End Fittings (connect to 1/4 inch PTC fittings)

| Part No. | Description | Qty |
|----------|--|-----|
| 17L437 | STUD, 90°, 1/8 inch hose x PTC fitting | 1 |
| 17L438 | STUD, straight, 1/8 inch hose x PTC fitting | 1 |
| 17L647 | SLEEVE, hose, 1/8 inch ID, 3000 psi (20.68 MPa, 206.8 bar) | 1 |

8.6 MM OD Hose End Fittings (connect to 6 MM PTC fittings)

| Part No. | Description | Qty |
|----------|---|-----|
| 17L648 | SLEEVE, hose, 8.6 mm, 3000 psi (20.68 MPa, 206.8 bar) | 1 |
| 17L649 | STUD, straight, 8.6 mm hose x PTC fitting | 1 |
| 17L650 | STUD, 90°, 8.6 mm hose x PTC fitting | 1 |

8.6 MM OD Hose End Fittings (connect to 6 MM compression fittings)

| Part No. | Description | Qty |
|----------|--|-----|
| 17L648 | SLEEVE, hose, 8.6 mm, 3000 psi (20.68 MPa, 206.8 bar) | 1 |
| 17R565 | STUD, straight, 8.6 mm hose x compression fitting, BLK | 1 |
| 17R566 | STUD, straight, 8.6 mm hose x compression fitting, BLK | 1 |

6 MM OD Nylon Tube (burst pressure - 27.6 MPa, 276 bar, 4000 psi)

| Part No. | Description | Qty |
|----------|--------------------|-----|
| 17S556 | TUBE, 6 MM x 25 M | 1 |
| 17S557 | TUBE, 6 MM x 50 M | 1 |
| 17S558 | TUBE, 6 MM x 100 M | 1 |
| 17S559 | TUBE, 6 MM x 200 M | 1 |

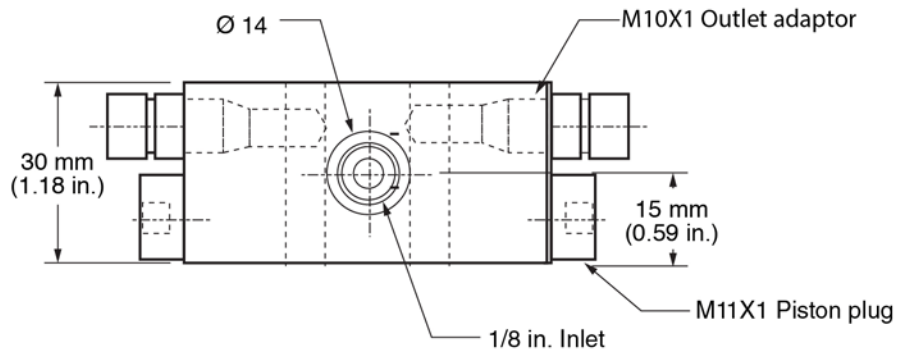
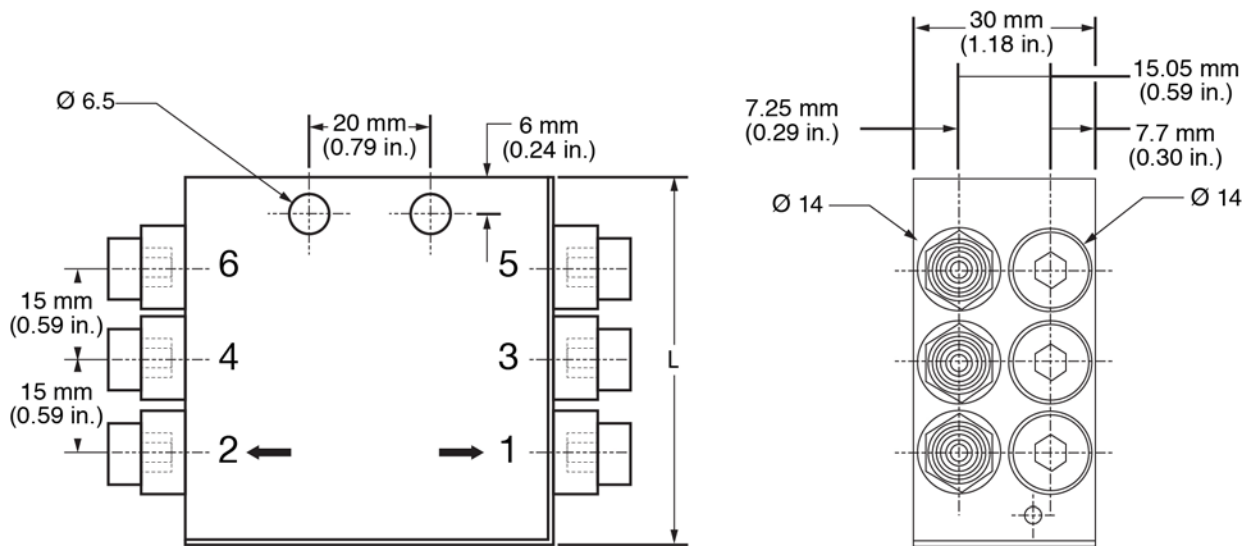
8.6 MM OD High Pressure Hose (burst pressure - 84 MPa, 840 bar, 12,200 psi)

| Part No. | Description | Qty |
|----------|----------------------|-----|
| 17S552 | HOSE, 8.6 MM x 25 M | 1 |
| 17S553 | HOSE, 8.6 MM x 50 M | 1 |
| 17S554 | HOSE, 8.6 MM x 100 M | 1 |
| 17S555 | HOSE, 8.6 MM x 200 M | 1 |

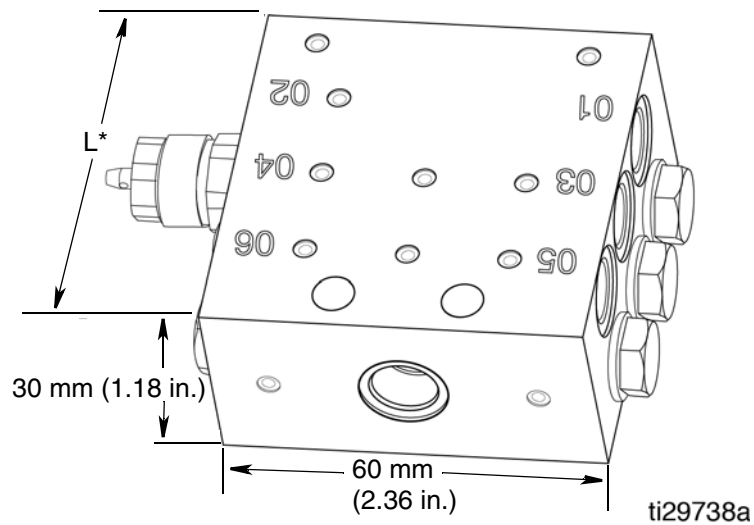
Technical Data

| CSP Valve | | |
|-----------------------------|---|-----------------|
| | US | Metric |
| Type | Divider valve | |
| Model | See Models, page 2 and 3 | |
| Lubricant Output | 0.2 cc per outlet per cycle | |
| Minimum Operating Pressure | 217.5 psi | 15 bar, 1.5 MPa |
| Maximum Operating Pressure | 5076 psi | 350 bar, 35 MPa |
| Inlet Connection Size | 1/8 inch BSPP, 1/8 inch NPT | |
| Outlet Connection Size | M10 x 1 (f) | |
| Maximum Working Temperature | 212°F | 100°C |
| No. of Outlets (L, page 14) | LENGTH | |
| 6 outlets | 2.4 in. | 60 mm |
| 8 outlets | 3.0 in. | 75 mm |
| 10 outlets | 3.5 in. | 90 mm |
| 12 outlets | 4.0 in. | 105 mm |
| 14 outlets | 4.5 in. | 120 mm |
| 16 outlets | 5.25 in. | 135 mm |
| 18 outlets | 6.0 in. | 150 mm |
| 20 outlets | 6.5 in. | 165 mm |
| 22 outlets | 7.0 in. | 180 mm |
| Monitoring | Cycle indicator / Limit switch / Proximity switch | |
| Lubricant | Max up to #2 NLGI grade | |
| Material of Construction | Carbon Alloy Steel | |

Dimensions



ti28461b



ti29738a

*This dimension varies and is determined by the number of outlets. See No. of Outlets, page 13 for this dimension.

Notes

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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For patent information, see 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.3A3995

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