

# DATA SHEET

## PRESSURE REGULATOR



**Stainless Steel  
Models:**

**7375, 7376**



(Model 7375 shown)

### FEATURES

- Flow-through design facilitates easy installation.
- Unique high velocity design ensures consistent pressure for multiple pump, gun or nozzle installations.
- Stainless steel internal parts enhance durability and compatibility.
- All elastomers are FPM for increased compatibility. Optional elastomers are available.
- Adjusting nut allows for easily calibrated pressure adjustment.
- Multiple regulators can be installed in parallel to handle larger volumes.
- No external moving parts or springs.

### SPECIFICATIONS

	U.S.	Metric
<b>MODEL 7375</b>		
Flow Range	10–75 GPM	38–284 lpm
Pressure Range	100–1000 PSI	6.9–69 bar
Maximum Temperatures	180° F	82° C
Inlet/Outlet Ports	1¼" NPT(F)	1¼" NPT(F)
Bypass Port	1½" NPT(F)	1½" NPT(F)
Weight	12.85 lbs	5.8 kg
Dimensions	3.5 x 11.0"	88.9 x 279.4 mm
<b>MODEL 7376</b>		
Flow Range	10–75 gpm	38–284 lpm
Pressure Range	500–2000 PSI	35–138 BAR
Maximum Temperatures	180° F	82° C
Inlet/Outlet Ports	1¼" NPT(F)	1¼" NPT(F)
Bypass Port	1½" NPT(F)	1½" NPT(F)
Weight	13.23 lbs	6.0 kg
Dimensions	3.5 x 11.0"	88.9 x 279.4 mm

## Read all CAUTIONS and WARNINGS before commencing service or operation of any high-pressure system

### SELECTION

These pressure regulators are designed for systems with single or multiple pumps, solenoid (gate) valves, nozzles, shut-off or weep guns.

**Note:** For multiple-pump systems, it is best to use a pressure regulator, not a pressure-sensitive regulating unloader.

These regulators should meet both the desired system flow (combined nozzle flow rate) and the desired system pressure.

**NOTICE:** Operating below the minimum rated flow of the regulator will cause the regulator to cycle. Operating above the maximum rated flow of the regulator will cause premature regulator wear, regulator cycling and wear, preventing the desired system pressure.

### INSTALLATION

These regulators will operate when mounted in any direction. However, keeping the plumbing to a minimum and the adjusting nut easily accessible is preferred. The preferred mounting location is directly to the pump's discharge manifold.

Since this is a flow through design regulator, the inlet and discharge connections are interchangeable and are 1/4" NPT(F) ports. An arrow on the label indicates liquid flow in either direction. Plumb into one side for inlet flow from pump and plumb opposite side to the discharge line with spray guns, solenoid (gate) valves or nozzles.

The bypass connection is a 1/2" NPT(F) port. An arrow on the label indicates the direction of flow. Bypass liquid is directed out this port and can be routed to a reservoir (preferred method), drain or to the pump inlet.

### OPERATION

These pressure regulators maintain system pressure in the discharge line and at the pump head when the trigger gun or the solenoid (gate) valve is closed, or the nozzles are clogged, thus bypassing all unrequired flow. Squeezing the trigger gun or opening the solenoid valve allows for a quick return to established system pressure.

### PRESSURE ADJUSTMENT

**Note:** Pressure is not set at the factory.

1. Setting and adjusting the regulator pressure must be done while system is running.
2. Start the system with the regulator backed off to the lowest pressure setting by turning the adjustment nut counter clockwise until it stops.
3. Increase the regulator pressure setting by turning the adjusting nut clockwise.
4. Squeeze the trigger and read the pressure on the gauge at the pump.

**Note:** Do not read the pressure at the gun or nozzle.

5. If more pressure is desired, release the trigger, turn the adjusting nut one-quarter turn in a clockwise direction.
6. Squeeze the trigger and reread the pressure.
7. Repeat this process until desired system pressure is attained.

**NOTICE:** A minimum of 5% of the flow through the regulator should bypass for proper regulator performance. If the entire regulator flow pumps through the nozzle (zero bypass), the valve can easily be set for pressure higher than the desired pressure, causing a malfunction or premature wear.

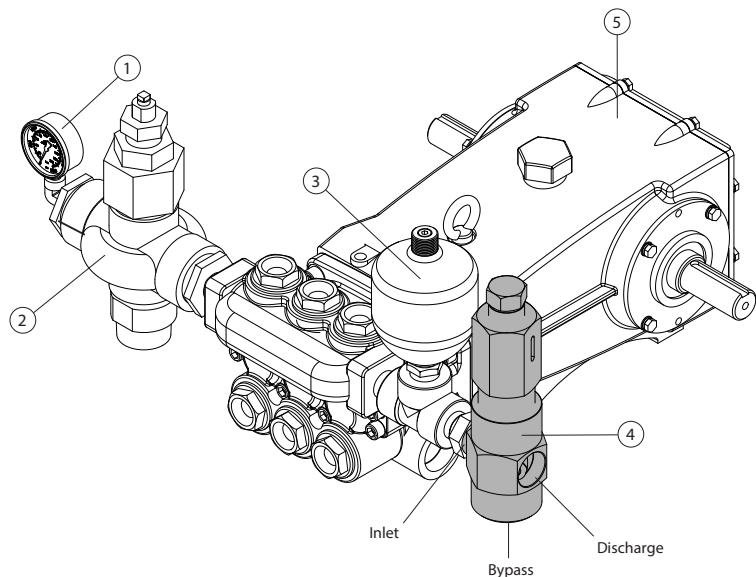
8. If desired system pressure cannot be reached, review TROUBLESHOOTING chart.

**Note:** Do not adjust regulator pressure setting to compensate for a worn nozzle. Check the nozzle as part of the regular maintenance and replace if worn.

**Note:** A secondary pressure safety relief device (e.g., pop-off valve or safety valve) should be used along with this pressure regulator. Final adjustment of the relief valve should relieve at 200 psi above the system operating pressure.

### TYPICAL REGULATOR INSTALLATION

1. Pressure Gauge
2. Relief Valve  
(Secondary Pressure Relief Device)
3. Pulsation Dampener
4. **Pressure Regulator  
(Primary Pressure Regulating Device)**
5. Triplex Plunger Pump



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### SERVICING

**CAUTION:** Before commencing with service, shut off drive (electric motor, gas or diesel engine) and turn off water supply to pump. Relieve all discharge line pressure by triggering gun or opening valve in discharge line.

#### Disassembly

1. Disconnect bypass, discharge and inlet plumbing from regulator.
2. Remove regulator from pump.
3. Secure lower body of regulator in a vise with adjusting nut facing up.
4. Remove upper body by unthreading from lower body.
5. Grasp top of piston stem and separate from conical piston.
6. Remove piston stem with stack of spring washers, flat washers and anti-rotating washer and place on flat surface.
7. Remove conical piston with reverse pliers by making contact on the inside diameter of conical piston.

**NOTICE:** Exercise extreme caution to avoid contact and damage to outside diameter and sharp tip of conical piston.

8. Remove piston retainer from lower body of regulator.

**NOTICE:** Exercise extreme caution to avoid contact and damage to the inside diameter of the piston retainer.

9. Remove conical seat from lower body of regulator.

**NOTICE:** Exercise extreme caution to avoid contact and damage to outside diameter and the tapered surface of the seat.

**Note:** With the regulator completely disassembled, inspect lower body sealing areas where the conical seat and piston retainer makes contact for grooves, pitting and wear. If damage is found, replace with new lower body or complete new regulator. If not, proceed with reassembly.

#### Reassembly

**Note:** Spring washers and flat washers should be changed as a spring set.

1. Place lower regulator body with bypass port facing down into a vise.
2. Lubricate and install O-ring onto outside diameter of conical seat. Press conical seat down into lower regulator body with small hole facing up.
3. Lubricate and install O-ring onto piston retainer. Press piston retainer with raised surface facing up.
4. Lubricate and install backup ring, then O-ring onto outside diameter of conical piston. Press conical piston with sharp point down into piston retainer.
5. Replace piston stem with stack of spring washers and flat washers into hole of conical piston.
6. Place anti-rotating washer in upper body. Align tabs on washer with slots.

**Note:** Place one flat washer between the spring stack and the retaining ring. Place the remaining flat washers between the anti-rotation washer and the spring stack.

7. Thread upper body into lower body, ensure anti-rotating washer aligns onto spring stem.
8. Re-install regulator onto pump.
9. Reconnect bypass, discharge and inlet plumbing to regulator.
10. Proceed to PRESSURE ADJUSTMENT.

### TROUBLESHOOTING

Excessive pressure fluctuations	<ul style="list-style-type: none"> <li>• Too little flow for valve specifications</li> <li>• Air in system, poor connections</li> <li>• Worn low-pressure seals in the pump</li> <li>• Worn O-ring in the gun</li> </ul>
System will not build-up to pressure	<ul style="list-style-type: none"> <li>• Worn nozzle</li> <li>• Improper nozzle size for system specifications</li> <li>• Foreign material trapped in seat</li> </ul>
Pressure drop	<ul style="list-style-type: none"> <li>• Worn nozzle</li> <li>• Worn regulator seat or piston</li> <li>• Air in system, poor connections</li> <li>• Insufficient flow to pump</li> <li>• Filter clogged. Check and clean regularly</li> </ul>
Pressure spikes while in bypass	<ul style="list-style-type: none"> <li>• Minimum bypass of 5% not present</li> <li>• Excessive pressure adjustment made for worn nozzle REPLACE NOZZLE. Reset system pressure</li> </ul>
Leakage from regulator vent hole	<ul style="list-style-type: none"> <li>• Piston retainer scored, or worn O-ring Service with O-ring kit</li> <li>• Fatigued or broken spring washers</li> </ul>

## PARTS LIST

ITEM	MODEL 7375		MODEL 7376		DESCRIPTION	QTY
	P/N	MATL	P/N	MATL		
401	30666	BB R	30666	BB R	Nut, Adjusting	1
405	30719	STL	30719	STL	Washer, Anti-Rotating	1
406	—	STNP	—	STNP	Body, Upper	1
408	<b>76232</b>	STL	—	—	Spring Set	1
	—	—	<b>76233</b>	STL	Spring Set	1
410	30665	SS	30665	SS	Retainer, Piston	1
418	30730	SSB	30730	SSB	Piston, Conical	1
421	30714	STL R	30714	STL R	Ring, Retainer	1
435	30739	STL	30739	STL	Stem, Piston	1
436	30750	SSB	30750	SSB	Seat, Conical	1
440	—	SS	—	SS	Body, Lower	1
	30725	FPM	30725	FPM	Kit, O-Ring	1
468	31306	EPDM	31306	EPDM	Kit, O-Ring	1

**Bold print part numbers are unique to a particular model.**

*Italics are optional items.* R Components comply with RoHS Directive.

Material Codes (Not Part of Part Number): BB=Brass

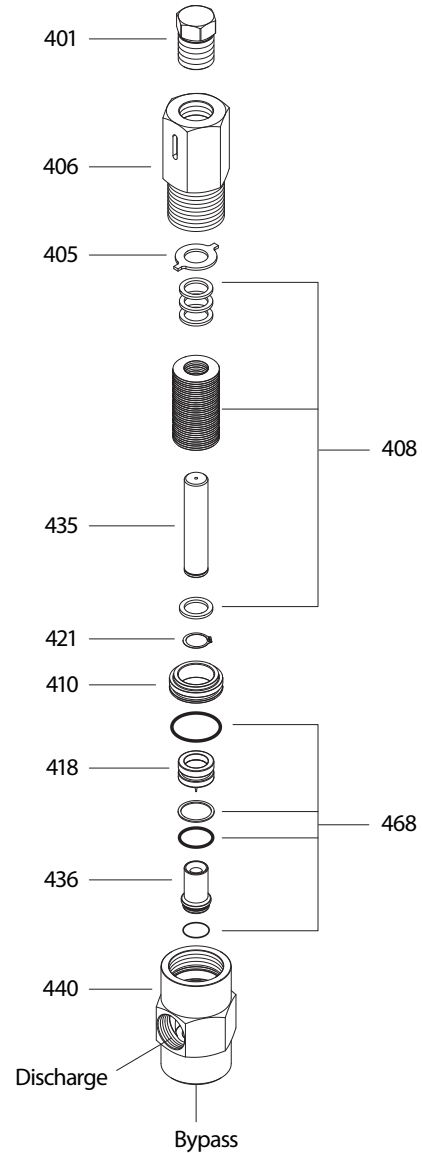
EPDM=Ethylene Propylene Diene Monomer FPM=Fluorocarbon

SS=316SS SSB=316SS Condition B STNP=Steel/Nickel Plated STL=Steel

It is recommended to replace spring washers and flat washers as a set.

Contact Cat Pumps for optional NBR O-Ring Kit.

## EXPLODED VIEW



### ⚠ CAUTIONS AND WARNINGS

All high-pressure systems require a primary pressure regulating device (e.g. regulator, unloader) and a secondary pressure relief device (e.g. pop-off valve, relief valve). Failure to install such relief devices could result in personal injury or damage to pump or property. Cat Pumps does not assume any liability or responsibility for the operation of a customer's high-pressure system.

Read all CAUTIONS and WARNINGS before commencing service or operation of any high-pressure system. The CAUTIONS and WARNINGS are included in each Service Manual and with each Accessory Data sheet. CAUTIONS and WARNINGS can also be viewed online at [www.catpumps.com/dynamic-literature/cautions-and-warnings](http://www.catpumps.com/dynamic-literature/cautions-and-warnings) or can be requested directly from Cat Pumps.

### WARRANTY

View the Limited Warranty online at [www.catpumps.com/literature/cat-pumps-limited-warranty](http://www.catpumps.com/literature/cat-pumps-limited-warranty)