



Rebuildable, Rechargeable Pulsation Dampeners

Models 701501
thru 701557

FEATURES

- Poppet reinforced bladder for durability.
- Nitrogen precharged to eliminate moisture and provide smooth bladder compression and pressure release.
- Sealed charging valve for positive pressure lock.
- Optional bladder materials for liquid compatibility.
- 316 stainless steel construction for strength and liquid compatibility.
- Convenient rebuildable style with top access permits replacing bladder without removing the line.
- Absorbs system shocks while minimizing excessive pipe vibration, water hammering and pressure fluctuations.

SPECIFICATIONS

U.S. Measure

Metric Measure

MODEL 701501, 701521, 701541

Maximum Flow	15 GPM	(57 L/M)
Pressure Range	100 - 4300 PSI	(7 - 296 BAR)
Maximum Temperature	160°F	(71°C)
Volume	6 cu. in.	(0.10 L)
Safety Factor	4/1	(4/1)
Bladder Construction (701501)	NBR	(NBR)
Bladder Construction (701521)	EPDM	(EPDM)
Bladder Construction (701541)	FPM	(FPM)
Port Size	1/2" NPTF	(1/2" NPTF)
Diameter	2.6"	(66 mm)
Length	6.57"	(166.9 mm)
Weight	5.34 lbs.	(2.5 kg)

MODEL 701502, 701522, 701542

Maximum Flow	25 GPM	(95 L/M)
Pressure Range	100 - 3800 PSI	(7 - 265 BAR)
Maximum Temperature	160°F	(71°C)
Volume	15 cu. in.	(0.25 L)
Safety Factor	4/1	(4/1)
Bladder Construction (701502)	NBR	(NBR)
Bladder Construction (701522)	EPDM	(EPDM)
Bladder Construction (701542)	FPM	(FPM)
Port Size	1/2" NPTF	(1/2" NPTF)
Diameter	3.0"	(76.2 mm)
Length	7.79"	(197.9 mm)
Weight	8.34 lbs	(3.7 kg)

MODEL 701503, 701523, 701543

Maximum Flow	75 GPM	(284 L/M)
Pressure Range	100 - 3000 PSI	(7 - 210 BAR)
Maximum Temperature	160°F	(71°C)
Volume	30 cu. in.	(0.50 L)
Safety Factor	4/1	(4/1)
Bladder Construction (701503)	NBR	(NBR)
Bladder Construction (701523)	EPDM	(EPDM)
Bladder Construction (701543)	FPM	(FPM)
Port Size	1" NPTF	(1" NPTF)
Diameter	3.7"	(95 mm)
Length	9.69"	(246 mm)
Weight	12.56 lbs.	(5.7 kg)

NOTE: All models must be precharged before operation. When ordering add .800 to model number and specify required precharge.

MATERIAL CODES: EPDM=Ethylene Propylene Diene Monomer
FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N)

"Customer confidence is our greatest asset"

SPECIFICATIONS

U.S. Measure

Metric Measure

MODEL 701506, 701546

Maximum Flow	15 GPM	(57 L/M)
Pressure Range	100 - 8500 PSI	(7 - 590 BAR)
Maximum Temperature.....	160°F	(71°C)
Volume	6 cu. in.	(0.10 L)
Safety Factor	4/1	(4/1)
Bladder Construction (701506).....	NBR	(NBR)
Bladder Construction (701546).....	FPM	(FPM)
Port Size	1/2" NPTF	(1/2" NPTF)
Diameter.....	3.0"	(76 mm)
Length	6.61"	(168 mm)
Weight.....	11.7 lbs.	(5.3 kg)

MODEL 701507, 701527, 701537

Maximum Flow	25 GPM	(95 L/M)
Pressure Range	100 - 7100 PSI	(7 - 490 BAR)
Maximum Temperature.....	160°F	(71°C)
Volume.....	15 cu. in.	(0.25 L)
Safety Factor	4/1	(4/1)
Bladder Construction (701507).....	NBR	(NBR)
Bladder Construction (701527).....	EPDM	(EPDM)
Bladder Construction (701537).....	FPM	(FPM)
Port Size	1/2" NPTF	(1/2" NPTF)
Diameter.....	3.5"	(88.9 mm)
Length	7.83"	(199.0 mm)
Weight.....	17.4 lbs.	(7.9 kg)

MODEL 701550

Maximum Flow	100 GPM	(378 L/M)
Pressure Range	100 - 3365 PSI	(7 - 232 BAR)
Maximum Temperature.....	160°F	(71°C)
Volume.....	122 cu. in.	(2.00 L)
Safety Factor	4/1	(4/1)
Bladder Construction	NBR	(NBR)
Port Size	1-1/2" NPTF	(1-1/2" NPTF)
Diameter.....	6.2"	(158 mm)
Length	16.54"	(420 mm)
Weight.....	50.7 lbs.	(23.0 kg)

MODEL 701555

Maximum Flow	100 GPM	(378 L/M)
Pressure Range	100 - 6350 PSI	(7 - 438 BAR)
Maximum Temperature.....	160°F	(71°C)
Volume.....	60 cu. in.	(0.98 L)
Safety Factor	4/1	(4/1)
Bladder Construction	NBR	(NBR)
Port Size	1" NPTF	(1" NPTF)
Diameter.....	5.8"	(146 mm)
Length	10.79"	(274 mm)
Weight.....	48.5 lbs.	(22.0 kg)

MODEL 701557

Maximum Flow	320 GPM	(1211 L/M)
Pressure Range	100 - 1275 PSI	(7 - 88 BAR)
Maximum Temperature.....	160°F	(71°C)
Volume.....	214 cu. in.	(3.50 L)
Safety Factor	4/1	(4/1)
Bladder Construction	NBR	(NBR)
Port Size	1-1/2" NPTF	(1-1/2" NPTF)
Diameter.....	5.5"	(141 mm)
Length	16.93"	(430 mm)
Weight.....	41.9 lbs.	(19.0 kg)

NOTE: All models must be precharged before operation.

When ordering add .800 to model number and specify required precharge.

MATERIAL CODES: EPDM=Ethylene Propylene Diene Monomer
FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N)

SELECTION

The Pulsation Dampener should be selected to match the **flow and pressure** requirements of the system and satisfy the liquid compatibility. Although all models will operate down to 100 PSI, it is most economical to select a Pulsation Dampener closest to but higher than your desired system pressure.

INSTALLATION

The Pulsation Dampener should be mounted in a vertical position and teed directly onto the pump discharge manifold for optimum pulsation dampening and to avoid system vibration damage.

When using a By-Pass Hose with liquid returning to the inlet, mount the Pulsation Dampener before the Pressure Reducing Valve. If this is not possible, then mount the Pulsation Dampener after the Pressure Unloading Valve to prevent pressure spikes to the pump inlet.

When using a Inlet Pressure Regulator, mount the Pulsation Dampener downstream from the regulator to assure optimum performance of the regulator.

OPERATION

⚠ WARNING: USE NITROGEN ONLY

Do not use oxygen or air. This could cause an explosion.

The Pulsation Dampener should be precharged with **NITROGEN ONLY** before operation. Be certain the charging valve cap at the top of the accumulator is securely tightened to assure no loss of pressure during operation.

With the system turned on, liquid enters the fluid port of the Pulsation Dampener. The liquid compresses the nitrogen charged bladder, which in turn absorbs the liquid kinetic energy, thus reducing the pressure pulsations.

At standard 70°F (20°C), optimum pulsation dampener performance is obtained with a **precharge of 70% to 80%** of the operating pressure.

Check the precharge every 12 months for normal operation and more frequently for continuous-duty operation.

NOTE: Up to 50 PSI precharge pressure can be lost during the checking of your precharge.

CAUTION

A gas regulator must be mounted between the nitrogen tank and the hose connection from the Filling and Gauging Assembly to enable you to regulate the precharge and to prevent excessive pressure being transmitted directly to the Pulsation Dampener. This over pressurization will void the warranty.

MAINTENANCE

Check the precharge every 12 months for normal operation and more frequently for continuous-duty operation.

If pulsation is noticed, relieve the precharge and inspect the bladder for wear. Replace as needed.

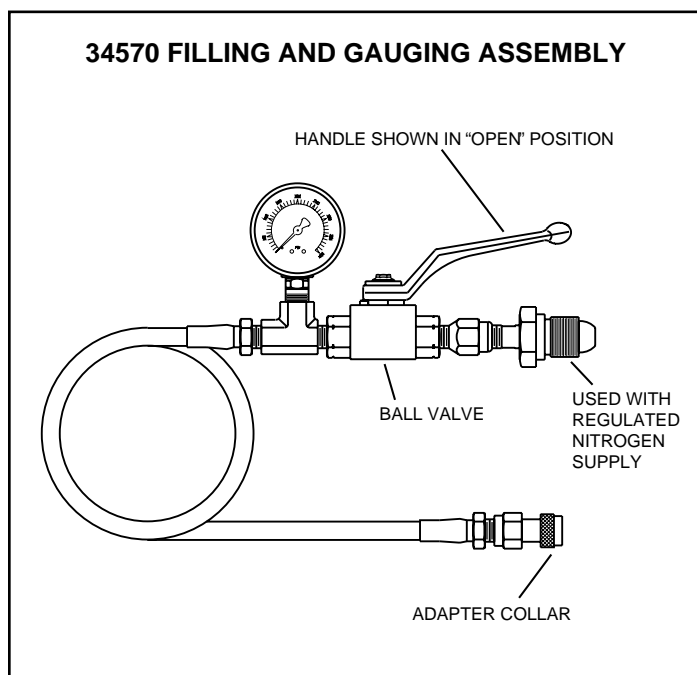
FILLING AND GAUGING INSTRUCTIONS

To Add Precharge

1. Mount Filling and Gauging Assembly preferably onto a regulated nitrogen supply.
2. Open ball valve (handle inline with valve).
3. Thread adapter collar hand tight onto top of Pulsation Dampener.
4. Open main valve on nitrogen supply.
5. Slowly increase pressure from the regulator to Pulsation Dampener.
6. Close ball valve and regulated supply when desired precharge is reached.
7. Remove adapter collar from Pulsation Dampener (a small amount of nitrogen will escape from hose as collar is removed).
8. Replace charging valve cap and tighten securely.
9. Slowly open ball valve to purge all fittings of nitrogen before removing Filling and Gauging Assembly.

To Remove Nitrogen

1. Do not mount Filling and Gauging Assembly to a nitrogen supply.
2. Remove the dust cap.
3. Remove charging valve cap from top of Pulsation Dampener.
4. Close ball valve (handle perpendicular to valve).
5. Secure adapter collar onto top of Pulsation Dampener.
6. Slowly open ball valve and release the nitrogen from the Pulsation Dampener.
7. When desired precharge pressure is reached, close the ball valve.
8. Remove the adapter collar from the Pulsation Dampener (a small amount of nitrogen will escape from the hose).
9. Replace the charging valve cap and tighten securely.



REPLACING THE BLADDER

Disassembly

1. Remove the dust cap at the top of the Pulsation Dampener.
2. Remove the charging valve cap.
3. Release the nitrogen precharge using the Filling and Gauging Assembly as described under TO REMOVE NITROGEN steps 4 through 8.
4. Using a soft mallet, tap threaded gas fitting to drive gas cap below snap ring.
NOTE: If the gas cap will not press down after the precharge has been released, the charging valve may be plugged. Remove the charging valve to ensure all gas has been released. Then replace valve.
5. Using a screw driver, carefully remove the first segment of the three piece snap ring. The other two pieces can be removed by hand.
6. Grasp the gas cap and bladder assembly by the top hex nut with a locking plier and carefully remove from the body. Keep aligned to avoid damage to the bladder.
7. Inspect the bladder for cracks, punctures or deformity.
8. Remove bladder from gas cap, then inner and outer o-rings. Replace if damaged or worn.

Reassembly

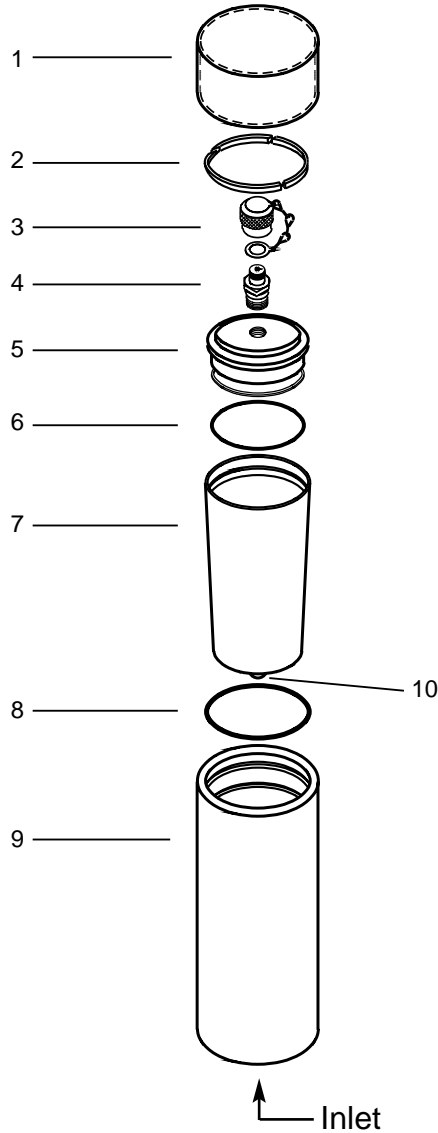
1. Install the new inner o-ring into the groove on the gas cap (back-up ring for models 701506, 701546).
2. Install the new bladder over the o-ring onto the gas cap.
3. Install the new outer o-ring into the groove in the body of the Pulsation Dampener.
4. Lubricate both the outer o-ring and bladder and press the bladder and gas cap assembly into the body.
5. Using a soft mallet tap the gas cap into the body until the snap ring groove is exposed, then insert the three sections of snap ring. Be certain the gas cap is pulled up squarely in position and gas valve is fully exposed.
6. Precharge Pulsation Dampener as described under TO ADD PRECHARGE steps 1 through 9.

⚠ WARNING: USE NITROGEN ONLY

Do not use oxygen or air. This could cause an explosion.

7. Replace dust cap over top of Pulsation Dampener.

EXPLODED VIEW



PARTS LIST

ITEM	PN	MATL	DESCRIPTION	MODEL USED	QTY
1	—	NY	Cap, Dust (15 GPM)	701501, 21, 41	1
	—	NY	Cap, Dust (25 GPM)	701502, 06, 22, 42, 46	1
	—	NY	Cap, Dust (75 GPM)	701503, 23, 43	1
	—	NY	Cap, Dust (25 GPM)	701507, 27, 37	1
	—	NY	Cap, Dust (100 GPM)	701550	1
	—	NY	Cap, Dust (100 GPM)	701555	1
	—	NY	Cap, Dust (260 GPM)	701557	1
2	—	SS	Ring, 3-piece	All	1
3	—	SS	Cap, Charging Valve	All	1
4	—	SS	Valve, Charging	All	1
5	—	SS	Cap, Gas	All	1
6	—	NBR	O-Ring, Inner	All	1
	—	EPDM	O-Ring, Inner	All	1
	—	FPM	O-Ring, Inner	All	1
7	—	NBR	Bladder	All	1
	—	EPDM	Bladder	All	1
	—	FPM	Bladder	All	1
8	—	NBR	O-Ring, Outer	All	1
	—	FPM	O-Ring, Outer	All	1
	—	EPDM	O-Ring, Outer	All	1
9	—	SS	Body	All	1
10	702455	—	Button Bladder	701557	1
—	701510	NBR	Bladder Kit (Incls: 6,7,8)	701506	1
—	701511	NBR	Bladder Kit (Incls: 6,7,8)	701501	1
—	701512	NBR	Bladder Kit (Incls: 6,7,8)	701502	1
—	701513	NBR	Bladder Kit (Incls: 6,7,8)	701503	1
—	701526	NBR	Bladder Kit (Incls: 6,7,8)	701507	1
—	701528	EPDM	Bladder Kit (Incls: 6,7,8)	701527	1
—	701529	FPM	Bladder Kit (Incls: 6,7,8)	701537	1
—	701531	EPDM	Bladder Kit (Incls: 6,7,8)	701521	1
—	701532	EPDM	Bladder Kit (Incls: 6,7,8)	701522	1
—	701533	EPDM	Bladder Kit (Incls: 6,7,8)	701523	1
—	701549	NBR	Bladder Kit (Incls: 6,7,8)	701550	1
—	701551	FPM	Bladder Kit (Incls: 6,7,8)	701541	1
—	701552	FPM	Bladder Kit (Incls: 6,7,8)	701542	1
—	701553	FPM	Bladder Kit (Incls: 6,7,8)	701543	1
—	701556	NBR	Bladder Kit (Incls: 6,7,8)	701555	1
—	701558	NBR	Bladder Kit (Incls: 6,7,8)	701557	1
—	701564	FPM	Bladder Kit (Incls: 6,7,8)	701546	1
—	34570	—	Filling and Gauging Assy	All	1
—	702038	SS	Charging Assy (Incls: 3,4)	All	1

Kit includes bladder and two o-rings, except for Model 701506 and 701546 which includes bladder, one o-ring and one back-up ring.

Italics are optional items.

MATERIAL CODES (Not Part of Part Number):

EPDM=Ethylene Propylene Diene Monomer FPM=Fluorocarbon

NBR=Medium Nitrile (Buna-N) NY=Nylon SS=316SS

WARRANTY

90 Day Warranty

Refer to complete CAT PUMPS Warranty for further information.

Products described hereon are covered by one or more of the following U.S. patents 3558244, 3652188, 3809508, 3920356, 3930756 and 5035580

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