

DATA SHEET

POP-OFF VALVES



**Stainless Steel
Models:**

**1"
2"**

890710, 890711, 890712, 890714

890703, 890713, 890715



Model 890710 Shown

FEATURES

- Provides backup protection as a secondary pressure relief valve to ensure complete pressure relief for maximum pump and system protection.
- All stainless steel construction enhances resistance to corrosion from saltwater and a wide range of chemicals.
- The lightweight, compact design quickly and conveniently mounts directly into the discharge line for high-pressure protection.
- Features FPM seals and O-rings on all models for improved chemical compatibility, except model 890714, which utilizes NBR O-rings.

SPECIFICATIONS	U.S. Measure	Metric Measure
890703		
Flow Range	0–135 gpm	0–511 lpm
System Pressure Range	400–1500 psi	28–103 bar
Maximum Relief Setting	1875 psi	129 bar
890713		
Flow Range	0–210 gpm	0–795 lpm
System Pressure Range	800–4000 psi	55–275 bar
Maximum Relief Setting	5000 psi	345 bar
890715		
Flow Range	0–100 gpm	0–378 lpm
System Pressure Range	1000–8000 psi	69–552 bar
Maximum Relief Setting	10000 psi	689 bar

COMMON

SPECIFICATIONS	U.S.	Metric
Inlet Port	2" NPT(M)	
Bypass Port	2" NPT(F)	
Maximum Temperature	300° F	149° C
Weight	20.50 lbs	9.28 kg
Dimensions	11.74 x 3.69"	298 x 94 mm

SPECIFICATIONS	U.S. Measure	Metric Measure
890710		
Flow Range	0–100 gpm	0–378 lpm
System Pressure Range	300–1500 psi	21–103 bar
Maximum Relief Setting	1875 psi	129 bar
890711		
Flow Range	0–50 gpm	0–189 lpm
System Pressure Range	1000–6000 psi	69–414 bar
Maximum Relief Setting	7500 psi	517 bar
890712		
Flow Range	0–115 gpm	0–435 lpm
System Pressure Range	500 – 3000 psi	35–207 bar
Maximum Relief Setting	3750 psi	258 bar
890714		
Flow Range	0–100 gpm	0–378 lpm
System Pressure Range	300–1500 psi	21–103 bar
Maximum Relief Setting	1875 psi	129 bar
Maximum Temperature	180° F	82° C

COMMON

SPECIFICATIONS	U.S.	Metric
Inlet Port	1" NPT(M)	
Bypass Port	1" NPT(F)	
Maximum Temp. (Except 890714)	300° F	149° C
Weight	6.50 lbs	2.94 kg
Dimensions	8.93 x 3.18"	227 x 81 mm

SELECTION

Select a pop-off valve to meet or exceed the flow and pressure requirements of the system.

INSTALLATION

The pop-off valve should mount to the discharge port of the pump manifold, opposite from the primary pressure regulating device. If unavailable, plumb the pop-off valve parallel to the high-pressure line upstream from the primary pressure regulating device. The bypass flow from the pop-off valve should be left open or drained to the floor. If the pop-off valve opens and relieves, the bypassing fluid needs to be visible to the operator so they can address the cause of the relief. Do not route the bypass flow from the pop-off valve back to a reservoir or the pump's inlet.

OPERATION

These pop-off valves provide backup protection to the primary pressure regulating device for complete pressure relief and maximum pump and system protection.

Note: The pop-off valve is a secondary pressure regulating device, it does not replace a pressure regulator or unloader.

PRESSURE ADJUSTMENT

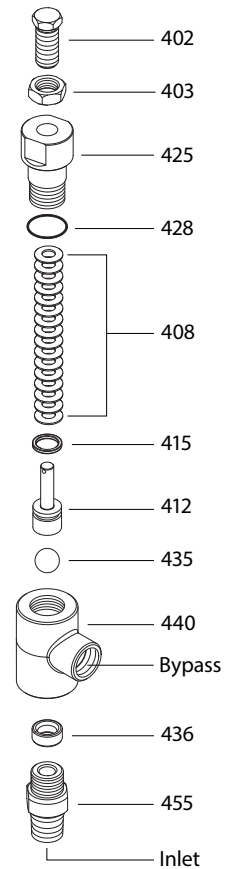
Setting and adjusting the primary pressure regulating device and pop-off valve must be done while the system is running. Set the primary pressure regulating device to its minimum setting by turning the adjustment handle counter-clockwise.

On the pop-off valve, hand-thread the adjusting nut away from the cylinder counter-clockwise. Turn the adjusting screw clockwise to the highest pressure setting, then counter-clockwise slightly so the valve is not bottomed out. With the system on and running, slowly actuate the flow downstream. Adjust the primary pressure regulating device clockwise to increase the system operating pressure to the desired set point.

Note: If visible water starts to drip from the pop-off valve's bypass port during this process, check to ensure the pop-off valve is set to its maximum pressure setting.

While the system is operating at full pressure, slowly turn the pop-off valve's adjusting screw counter-clockwise until a small amount of water is dripping from it. Adjust a half-turn clockwise until the dripping stops; no more than three half-turns should be required. Cycle the downstream flow on and off to check for any leaks. A closing trigger gun or solenoid valve may create a pressure spike and cause the pop-off valve to leak. Re-adjust as necessary. Hand-thread the lock nut clockwise up to the cylinder, then tighten it to lock it in place. The pop-off valve is now set approximately 25% over the system pressure.

EXPLODED VIEW



PARTS LIST

ITEM	MATL	890703	890710	890711	890712	890713	890714	890715	DESCRIPTION	QTY
402	SS	890843	890825	890825	890825	890843	890825	890843	Screw, Adjusting	1
403	SS	890871	890826	890826	890826	890871	890826	890871	Nut, Adjusting	1
408	STL	890836(19)	890813(18)	890813(20)	890813(22)	890836(18)	890813(18)	890836(18)	Washer, Spring	(*)
412	SS	890846	890815	890815	890815	890846	890815	890846	Piston	1
415	FPM	—	—	—	—	—	—	—	Seal, Piston	1
	NBR	NA	NA	NA	NA	NA	890723	NA	Seal, Piston	1
425	SS	890842	890812	890812	890812	890842	890812	890842	Cylinder	1
428	FPM	—	—	—	—	—	NA	—	O-Ring, Cylinder	1
—	NBR	NA	NA	NA	NA	NA	890691	NA	O-Ring, Cylinder	1
435	SS	—	—	—	—	—	—	—	Ball, Check	1
436	SS	—	—	—	—	—	—	—	Seat, Ball	1
440	SS	—	—	—	—	—	—	—	Body	1
455	SS	890833	890819 **	890819 **	890819 **	890833	890819 **	890833	Fitting, Inlet (2" NPT[M])	1
468	FPM	890856	890857	890869	890857	890856	890864 ***	890856	Kit, Repair (Includes: 415, 428, 435, 436)	1

(*) See individual part number and quantity required per valve. It is recommended to replace spring washers as a set.

** Fitting = 1" NPT(M)

***NBR Seal Kit

Material Codes (Not Part of Part Number): FPM = Fluorocarbon NBR=Medium Nitrile (Buna-N) SS = 316SS STL = Steel

TROUBLESHOOTING

Problem	Probable Cause	Solution
Valve cycles	Valve is improperly set	Repeat adjustment procedure
Valve continually bypasses	Seat or retainer is worn	Replace as needed

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 or can be requested directly from Cat Pumps.

WARRANTY

View the Limited Warranty online at www.catpumps.com/literature/cat-pumps-limited-warranty