

# DATA SHEET

## POP-OFF VALVES



The Pumps with Nine Lives

**Standard Models: 30960, 30961, 33960, 33961, 33962**

**High-Temperature Models: 33960S, 33961S, 33962S**



### FEATURES

- Specially-designed valve and seat configuration eliminates weeping on both standard and high-temperature models.
- Standard models are rated to 180° F, while high-temperature “S” models can handle temperatures up to 240° F.
- Lightweight, compact design quickly and conveniently mounts directly into the discharge line.

### 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 control valve. If unavailable, plumb the Pop-Off Valve parallel to the high-pressure line upstream from the primary pressure control valve. The bypass flow from the Pop-Off Valve should be returned to a reservoir as a preferred method or drain to the floor. Do not route the bypass flow back to the inlet of the pump.

### OPERATION

This Pop-Off Valve provides backup protection to the primary regulator valve for complete pressure relief and maximum pump and system protection.

**Note:** The Pop-Off Valve is a secondary safety device. It does not replace a primary pressure control device like a pressure regulator or unloader

### PRESSURE ADJUSTMENT

Setting and adjusting the primary regulating device and Pop-Off Valve must be done while the system is running. Turning the internal adjustment screw clockwise with a 1/4" hex key will increase the pressure setting. Turning the internal adjustment screw counter-clockwise will decrease the pressure setting.

Set the primary pressure regulating device to its minimum setting by turning the adjustment handle counter-clockwise. On the Pop-Off Valve, turn the internal adjustment screw clockwise to the highest pressure setting, then counter-clockwise slightly so the valve is not bottomed out.

SPECIFICATIONS	U.S. Measure	Metric Measure
<b>30960</b>		
System Pressure Range	300–1500 psi	20–103 bar
Maximum Relief Setting	1650 psi	114 bar
Inlet Port	1/4" NPT(M)	1/4" NPT(M)
<b>33960, 33960S</b>		
System Pressure Range	300–1500 psi	20–103 bar
Maximum Relief Setting	1650 psi	114 bar
Inlet Port	3/8" NPT(M)	3/8" NPT(M)
<b>30961</b>		
System Pressure Range	1000–3000 psi	69–207 bar
Maximum Relief Setting	3300 psi	228 bar
Inlet Port	1/4" NPT(M)	1/4" NPT(M)
<b>33961, 33961S</b>		
System Pressure Range	1000–4000 psi	69–275 bar
Maximum Relief Setting	4400 psi	303 bar
Inlet Port	1/4" NPT(M)	1/4" NPT(M)
<b>33962, 33962S</b>		
System Pressure Range	1000–4000 psi	69–275 bar
Maximum Relief Setting	4400 psi	303 bar
Inlet Port	3/8" NPT(M)	3/8" NPT(M)

### COMMON

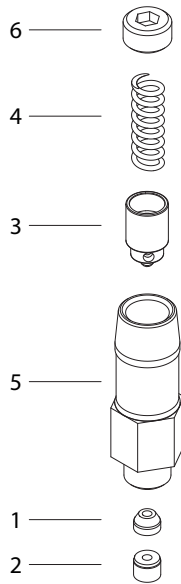
SPECIFICATIONS	U.S.	Metric
Maximum Flow	6.0 gpm	23 lpm
Maximum Operating Temperatures:		
Standard Models	180° F	82° C
High-Temperature Models	240° F	116° C
Barb	3/4"	3/4"
Weight	2.96 oz	0.84 kg
Dimensions	0.75 x 2.375"	19 x 60 mm

With the system on and running, actuate the flow downstream. Adjust the primary pressure control valve clockwise to increase the system operating pressure to the desired set point.

**Note:** If there is visible water coming from the Pop-Off Valve bypass port during this process, continue to increase its setting.

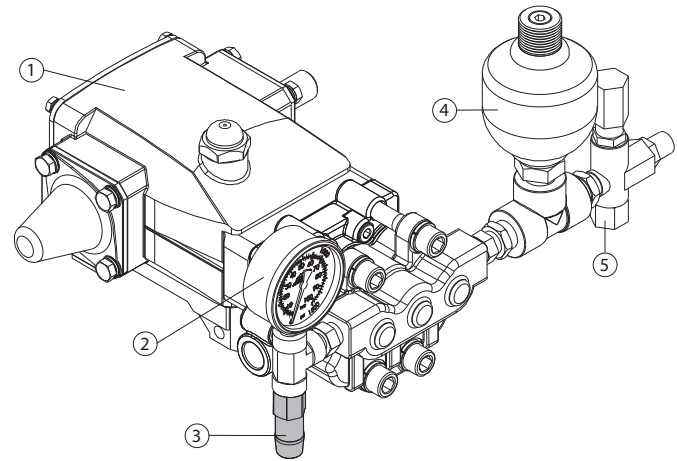
With the system operating at full pressure, slowly turn the Pop-Off Valve's adjusting screw counter-clockwise until a small amount of water is dripping from it. Adjust a half-turn clockwise until dripping stops; no more than three half-turns should be required. Cycle the downstream flow on and off a few times and check for any additional 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. The Pop-Off Valve is now set approximately 200 to 300 psi over the system pressure.

## EXPLODED VIEW



## TYPICAL POP-OFF VALVE INSTALLATION

1. Triplex Plunger Pump
2. Pressure Gauge
3. **Pop-Off Valve (Secondary Relief Valve)**
4. Pulsation Dampener
5. Pressure Sensitive Regulating Unloader



## PARTS LIST

ITEM DESCRIPTION	P/N	MATL	QTY
1 Seat	76934	STB	1
2 Retainer, Seat	76954	S	1
3 Valve, Needle	31128	D	1
Valve, Needle (33960S, 33961S, 33962S)	76974	S	1
4 Spring, Silver (1500 psi)	30956	S	1
Spring, Blue (3000 psi)	30957	S	1
Spring, Red (4000 psi)	33957	S	1
5 Body [1/4" NPT(M)]	—	BB	1
Body [3/8" NPT(M)]	—	BB	1
6 Adjustment Screw	30959	BB	1

Material Codes (Not Part of Part No.):

BB=Brass D=Acetal S=304SS STB=Special Blend PTFE

## TROUBLESHOOTING

Valve cycles	<ul style="list-style-type: none"> <li>• Valve is improperly set. Repeat adjustment procedure.</li> </ul>
Valve continually bypasses	<ul style="list-style-type: none"> <li>• Seat or retainer is worn. Replace as needed.</li> </ul>

### ⚠ CAUTIONS AND WARNINGS

All high-pressure systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. 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)