



Emerson Automation Solutions  
ASCO, L.P.  
1561 Columbia Highway  
Aiken, SC 29801  
USA

T 1 (803) 641-9200  
F 1 (803) 641-9290

7-11-2025

Attn: NRC desk

Ref: ASCO NP8321 series valves

**Part 21 notice dated 4-24-25:**

This notice is an update to our part 21 notice dated 4-24-2025 with updated responses to various industry questions and an updated response to interim solutions and recommended replacements.

**Background Notice:**

The ASCO NP8321 valve series and all ASCO NP series valves were qualified to sit in a normally energized position and were not tested for extended periods of de-energization per qualification report AQS-21678 TR & AQR-67368. The U-cup seal user on NP8321 was tested and ASCO determined that this seal experienced low pressure de-energized dormancy performance limitations below 40 PSI where the valve did not shift completely to an energized state.

**4-24-25 Recommendation:**

An alternative valve (NP8300) is recommended by ASCO for this customer application. In the interim, ASCO recommends increasing the inlet pressure to the valve to at least 80 PSI not to exceed the maximum 150 PSI to conservatively ensure proper operation of the NP8321 series valve in a de-energized state.

**Definition of extended periods of De-energization:**

ASCO L.P. has not defined the definition of extended period as the factors are dependent on time, temperature, and pressure, not all variations have been established. Internal lab testing has been able to replicate the issue with 1 week dormancy at 100°C & 40 PSI. Our recommended minimum pressure for operation in applications with extended dormancy in de-energized state is 80psi. This is determined by adding a 2X safety factor based on internal lab testing at increased temperatures and documented field feedback. If you observed this valve working under your specific operating conditions that include your pressure and time frames, there is no reason to suspect it will respond any differently in the future.

## NP8321 U-cup testing clarification:

ASCO performed extensive testing on this valve with a variety of U-cup seals and found all U-cup seals used for the NP8321 series have some low pressure de-energized dormancy performance limitations. For NP8321 valves with a suffix E for EPDM elastomers, in 2018 we switched to an alternative approved U-cup seal supplier used on other NP series valves and we found that this U-cup seal experienced low pressure de-energized dormancy performance limitations up to 40 PSI. Previously used U-cup seals and alternative U-cup seals such as FKM and our Gamma+ U-cup seal performed better in the 20-25 PSI range, but none was able to work down to 15 psi minimum pressure differential.

These U-cups are based on AN6226 dimension standards, and all U-cups are measured to be compliant with these dimensions. The EPDM U-cups used after 2018 meet the dimension specifications and do not measure differently than previous EPDM U-cups.

### ASCO update on interim solutions and applications at or above 80 psi:

For applications where the valve is at 80 PSI or applications where the pressure can be safely raised to this minimum, ASCO concludes this is an acceptable solution within the bounds of AQR-67368 & AQS-21678 TR. For these applications ASCO will be updating our I&M to indicate a minimum pressure rating of 80 PSI must be maintained when switching from the de-energized state to the energized state for normally closed valves. For normally open valves, 80 psi must be maintained when switching from the energized state to the de-energized state. ASCO ensures application at or above 80 psi would meet its equipment qualification requirements. This is based on careful analysis of the testing conditions of AQR-67368 & AQS-21678 TR, and our own understanding and testing of low-pressure dormancy. ASCO NP8321 valves will continue to be available for these applications.

### ASCO update applications below 80 psi:

For applications between 40 and 80 PSI and the utility have not observed any low-pressure dormancy issues on valves that have already experienced your applications longest possible period of de-energization, ASCO advises that the valve remain in service for the rest of its EQ life, during this time ASCO recommends looking for an appropriate alternative valve and solution for this system. ASCO recommends an NP8300 or NP8316 valve as a suitable replacement. Please reference those sections for guidance on which valve may be appropriate for your application. For applications at or below 40 PSI, please consult with ASCO at your earliest opportunity.

Catalog	Pipe	Orifice		Pressure rating		Resilient Seat		Metal seat		Wattage	
		Inlet	outlet	min	max	P-C	C-E	P-C	C-E	AC	DC
NP8321A1E	¼	9/32	11/32	15	150	0.79	1.1	-	-	10.5	17.4
NP8321A2E	3/8	9/32	11/32	15	150	0.79	1.1	-	-	10.5	17.4
NP8300142EF	1/4	1/4		0	150	0.45	0.28	0.48	0.39	20	35.1
NP8300383EF	3/8	5/16		0	100/125	0.59	0.38	0.77	0.66	20	35.1
NP8316A54E	3/8	5/8		10	175	2.2	3.3	-	-	10.5	17.4
NP8316A64E	1/2	5/8		10	175	3.3	3.6	-	-	10.5	17.4

Refer to full catalog sheets for normally open and Explosion proof housing catalog number.



**ASCO NP8300 replacement:**

The NP8300 is a potential replacement for the NP8321 series but it is not a drop-in replacement. The NP8300 series consumes twice the wattage of NP8321. As shown in the chart above the NP8300 has a lower flow rate than the NP8321. The NP8300 is available with Resilient seats (add suffix R) or metal seats but has an allowable internal seat leak of up to 1.5 SCFH. If the lower flow and higher wattage of the NP8300 are acceptable limitations for your application, we would recommend A NP8300 valve.

**ASCO NP8316 replacement:**

If the application requires the same wattage and can manage higher flow, a NP8316 can replace a NP8321 but the higher flow rate may require changes to your system configuration. The NP8316 does have a lower minimum operating pressure differential of just 10 psi instead of 15 psi, but the flow is several times higher than the NP8321.

You would need to make sure your system is tolerant of this higher flow and that the minimum operating pressure differential of 10 PSI (measured between in the inlet port and exhaust port) is maintained with appropriate piping/ regulators and exhaust pipes capable of ensuring that minimum pressure is maintained which could include changing out piping and regulators for larger sized pipes and regulators to match the higher Cv of the NP8316 series.

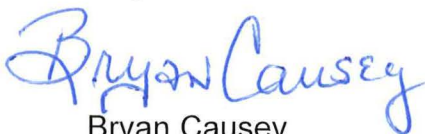
**Conclusion:**

ASCO concludes that for applications at or above 80 psi, the NP8321 series valve meets its full EQ requirements. For applications below 80 ASCO recommend replacing the value based on the above guidelines.

If you have any questions regarding this evaluation, please contact our nuclear technical sales department at [asconuclear@emerson.com](mailto:asconuclear@emerson.com)

If you have any questions regarding this evaluation, please contact me at [Bryan.Causey@Emerson.com](mailto:Bryan.Causey@Emerson.com) or [Nicholas.Ingles@Emerson.com](mailto:Nicholas.Ingles@Emerson.com).

Regards,



Bryan Causey  
Quality Engineer



Nicholas Ingles  
Nuclear Product Engineer