



**Safety Integrity Level (SIL)  
Self-certification**

Authority as per IEC 61508-1 Table-5

**Certificate**

551493-C01

EIC-P hereby confirms that  
**ALUMINIUM Filter Regulator Series (with/without drain)**

*ASCO Numatics India Co., Ltd.*

Assessed according to IEC 61508:2010 Part 1-7 and Meets requirements providing

*Systematic Integrity : SIL 2 Capable*

*Random Integrity : SIL2 @ HFT=0*

*Type A device, on-off valve with PVST*

*For a valve used in a final element assembly:  
SIL must be verified for the specific application*

*For details refer to FMEDA report. 551493-R01*

EICP, 14Dec2021

Evaluating Assessor  
Rajesh Salikeri

Certifying Assessor  
Ashokkumar Senthil

Revision	Issue Date	Evaluating Assessor	Certifying Assessor	ECN No.
-	24-May-2021	Rajesh Salikeri	Ashokkumar Senthil	320206



## Declaration of conformity

**Manufacturer:** ASCO Numatics India, No.57, Kundrathur Main Rd,  
Moorthy Nagar, Gerugambakkam, Tamil Nadu 600128, India  
**Versions (Catalog Numbers):** Series 641/642/643

NOT USED	
8	641 A P B -D- 1 0 A00 H M
<b>Port Type</b>	<b>Drain</b>
B NPT	M Manual Drain brass
G ISO 228/1-G	O Manual Drain SS
	B Auto Drain Brass NTC, Male M12 Barb Connection <sup>(1),(4)</sup>
	A Auto Drain Brass NTC, Female G1/8 Connection <sup>(1),(4)</sup>
	C Auto Drain Brass NTC, Female 1/8" NPT Connectors <sup>(1),(4)</sup>
	D Auto Drain Brass NTC, Male G1/8 Connection <sup>(1),(4)</sup>
<b>Product Series</b>	<b>Regulating Pressure Range</b>
641 up to 101.7 SCFM (2880 LPM)	H 7.3-152.1 PSIG (0.5 to 10.5 bar)
642 up to 204.8 SCFM (5800 LPM)	
643 up to 370.8 SCFM (10500 LPM)	
<b>Revision</b>	<b>Options<sup>(1)</sup></b>
A Initial Release	A00 No Options
	106 Low Temp (-52°C/-61°F to 60°C/140°F) <sup>(1),(4)</sup>
	109 PSM Seals (26°C/-4°F to 80°C/176°F) <sup>(1)</sup>
	101 Bracket
	A01 T-Handle <sup>(1)</sup>
	A02 Body, Bonnet & Blow (Low Copper) <sup>(1)</sup>
	103 Tamper Proof
	121 Non Relieving
	123 Right to Left
	117 ATEX 1-21
	AAN CRN
	AAE EAC
	AAI UKCA
	207 101+109
	214 101+117
	351 101+109+117
<b>Filter Elements<sup>(1)</sup></b>	<b>Gauge</b>
A 40 Micron, Plastic Internals, PE Filter	O No Gauge
B 105 Micron, Plastic Internals, PE Filter	Q Non SS Gauge 1/8" NPT
I 25 Micron, Plastic Internals, PE Filter	R Non SS Gauge 1/4" NPT
G 40 Micron, Plastic Internals, Bronze Filter <sup>(1)</sup>	S SS Gauge 1/8" NPT
H 105 Micron, Plastic Internals, Bronze Filter <sup>(1)</sup>	T SS Gauge 1/4" NPT
K 25 Micron, Plastic Internals, Bronze Filter <sup>(1)</sup>	
P 40 Micron, Metal Internals, SS Filter <sup>(1)</sup>	
Q 105 Micron, Metal Internals, SS Filter <sup>(1)</sup>	
R 25 Micron, Metal Internals, SS Filter <sup>(1)</sup>	
<b>Port Size</b>	
1 1/4" (641 or 642)	
2 3/8" (641)	
3 1/2" (641 or 642)	
4 3/4" (643)	
5 1" (643)	

**Notes:**  
(1) Quick relief & low temp combination not available.  
Auto drain & low temp combination not available.  
FKM seals & low temp combination not available.  
T-Handle & tamper proof combination not available.  
(2) Filter (Default PE, option available with bronze or SS for 641 only).  
(3) Available only for 641.  
(4) Available only for 642 & 643.  
(5) Available only for 641 & 642.

Note: Above valve is suitable for the use in a safety-related application under the condition of the intended usage and the consideration of the enclosed safety instructions manual.  
Safety function: Valve will move to the designed safe position when de-energized within specified safety time.

Operation Mode	Low Demand Mode
Type of sub-system	A

Failure rates according to IEC 61508 for Aluminium Filter Regulator Series 641/642/643	FIT				PFDavg
	λsd	λsu	λdd	λdu	
Aluminium Filter Regulator Series – Without drain With Diagnosis.	15	2	120	49	7.68E-04
Aluminium Filter Regulator Series – With drain With Diagnosis.	18	2	149	53	7.40E-03
Aluminium Filter Regulator Series – Without drain Without Diagnosis	-	17	-	169	7.75E-04
Aluminium Filter Regulator Series – With drain Without Diagnosis	-	21	-	202	8.85E-03

FIT= 1 failure/10<sup>9</sup> hours Note: Above values are generated using EXIDA software FMEDAx 2021 tool

1. PFDavg calculation is performed for single (1oo1) architecture, with mission time of 10 years, Proof test interval of 1 year and MTTR (mean time to repair) of 24 hours.
2. PVST DU and DD numbers are used to generate the proof test coverage (PTC) as a conservative approach.
3. The Filter Regulator is an individual component. It is part of a final element system.
4. For SIL 2 applications, the PFD AVG value needs to be  $\geq 10^{-3}$  and  $< 10^{-2}$ .
5. It is the responsibility of the Safety Instrumented Function designer to do calculation for entire SIF.
6. MTBF calculations = ((1/total FIT) / 8760) hrs per year