



**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									
Port Type	8	641	A	P	B	-0-	1	0	A00
Product Series									M
641	up to 101.7 SCFM (2880 LPM)								Drain
642	up to 204.8 SCFM (5800 LPM)								M
643	up to 370.8 SCFM (10500 LPM)								O
Revision									B
A	Initial Release								A
Product Type									C
P	Filter Regulator Particulate								D
K	Quick Relief ⁽¹⁾								Auto Drain Brass NC, Male M12 Barb Connection ⁽²⁾
Filter Elements									Auto Drain Brass NC, Female G1/8" Connection ⁽²⁾
A	40 Micron, Plastic Internals, PE Filter								Auto Drain Brass NC, Female 1/8" NPT Connection ⁽²⁾
B	105 Micron, Plastic Internals, PE Filter								Auto Drain Brass NC, Male G1/8" Connection ⁽²⁾
J	25 Micron, Plastic Internals, PE Filter								
G	40 Micron, Plastic Internals, Bronze Filter ⁽³⁾								
H	105 Micron, Plastic Internals, Bronze Filter ⁽³⁾								
K	25 Micron, Plastic Internals, Bronze Filter ⁽³⁾								
P	40 Micron, Metal Internals, SS Filter ⁽⁴⁾								
Q	105 Micron, Metal Internals, SS Filter ⁽⁴⁾								
R	25 Micron, Metal Internals, SS Filter ⁽⁴⁾								
Port Size									Gauge
1	1/4" (641 or 642)								O
2	3/8" (641)								Q
3	1/2" (641 or 642)								R
4	5/8" (643)								S
5	1" (643)								T

NOT USED

Drain

M Manual Drain brass
O Manual Drain SS
B Auto Drain Brass NC,
Male M12 Barb Connection^{(2),A,D}
A Auto Drain Brass NC,
Female G1/8" Connection^{(2),B}
C Auto Drain Brass NC,
Female 1/8" NPT Connection^{(2),C}
D Auto Drain Brass NC,
Male G1/8" Connection^{(2),D}

Regulating Pressure Range

H 7.3-152.1 PSIG (0.5 to 10.5 bar)

Options⁽⁵⁾

A00 No Options
106 Low Temp (-52°C/-61°F to 60°C/140°F)⁽²⁾
109 FKM Seals (-20°C/-4°F to 80°C/176°F)⁽²⁾
101 Bracket
A01 T-Handle⁽¹⁾
A02 Body, Bonnet & Bowl (Low Copper)⁽²⁾
103 Tamper Proof
121 Non Relieving
122 Right to Left
117 ATEX X-21
AAN CRN
AAL FAC
AAT UKCA
207 101+109
214 101+117
351 101+109+117

Gauge

O No Gauge
Q Non SS Gauge 1/8" NPT
R Non SS Gauge 1/4" NPT
S SS Gauge 1/8" NPT
T SS Gauge 1/4" NPT

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= 1failure/10⁹ hours Note: Above values are generated using EXIDA software FMEDAx 2021 tool

- 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.
- PVST DU and DD numbers are used to generate the proof test coverage (PTC) as a conservative approach.
- The Filter Regulator is an individual component. It is part of a final element system.
- For SIL 2 applications, the PFD AVG value needs to be $\geq 10^{-3}$ and $< 10^{-2}$.
- It is the responsibility of the Safety Instrumented Function designer to do calculation for entire SIF.
- MTBF calculations=((1/total FIT) / 8760) hrs per year