



Emerson Innovation Center - Pune
 Plot No. 23,
 Rajiv Gandhi Infotech Park,
 Hinjawadi, Phase - II,
 Pune - 411 057 (India)

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**Safety Integrity Level (SIL)
 Self-certification**
 Authority as per IEC 61508-1 Table-5, 2010

Certificate

437921-C01

EIC-P hereby confirms that

Series 290 & 390 (2/2 & 3/2 Pilot Operated Valve)

ASCO Numatics France

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

Systematic Integrity : SIL 2 Capable

Random Integrity:

For a standalone on-off valve:

Type A device: SIL 2 @ HFT=0

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

For details refer to assessment report. 437921-R01


 Evaluating Assessor
 Vivek Fale


 Certifying Assessor
 Christian Carvin

Revision	Date	Description	Evaluating Assessor	Certifying Assessor	ECN No.
C	19-Nov-2014	Catalog number removed	Vivek Fale	Christian Carvin	250763



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Declaration of conformity

Manufacturer:
ASCO NUMATICS
 53, Rue De Beauce, BP 17
 Luce, France

Above device 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-energised within specific time.
 The functional safety is given according to IEC 61508 with the following data:

Operation Mode	Low Demand Mode (1 to10/ Year)
Type of sub-system	A

290 Series	Failures (FIT)				SFF %	PFDAvg
	λ_{sd}	λ_{su}	λ_{dd}	λ_{du}		
NC, 2/2 DTT	0	984	0	67.8	85.0	2.97E-04
NC, 2/2 ETT	0	874.9	0	164.4	63.7	7.2E-04
NO, 2/2 DTT	0	858	0	68.5	84.8	3.0E-04
NO, 2/2 ETT	0	766.6	0	159.8	64.5	7.0E-04

390 Series	Failures (FIT)				SFF %	PFDAvg
	λ_{sd}	λ_{su}	λ_{dd}	λ_{du}		
NC, 3/2 DTT	0	1062	0	116.5	77.8	5.10E-04
NC, 3/2 ETT	0	945.3	0	194.5	60.9	8.52E-04
NO, 3/2 DTT	0	946	0	113	78.4	4.95E-04
NO, 3/2 ETT	0	839.2	0	194.8	60.8	8.53E-04

- Note:
- 1.Values are generated using EXIDA software FMEDA V 7.1.18 tool
 - 2.PFDAvg calculations is performed for single (1oo1) architecture.
 - 3.Proof test interval (TI) = 1 Year =8760 hrs
 - 4.The valve is an individual component. It is part of a final element system.

Operation Mode	High Demand Mode
Type of sub-system	A

290 Series	λ_{du} Failures (FIT)	PFH (Failure/hour)
NC, 2/2 DTT	67.8	6.8E-08
NC, 2/2 ETT	164.4	1.6E-08
NO, 2/2 DTT	68.5	6.8E-07
NO, 2/2 ETT	159.8	1.6E-07

390 Series	λ_{du} Failures (FIT)	PFH (Failure/hour)
NC, 3/2 DTT	116.5	1.1E-07
NC, 3/2 ETT	194.5	1.9E-07
NO, 3/2 DTT	113	1.1E-07
NO, 3/2 ETT	194.8	1.9E-07

FIT= 1failure/10⁹ hours ETT- Energized to trip, DTT- De-energized to trip

Emerson Innovation Center - Pune (A division of Emerson Electric Co. (India) Pvt. Ltd.)
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