

Certificate


No. V 139 2008 C4-3

Manufacturer:	Asco Controls BV Industrielaan 21 P.O. Box 3 NL 3925 Scherpenzeel	ASCO Joucomatic Numatics 53, rue de Beauce 28110 Lucé France
	Asco Joucomatic Sp.ZO.O. Il. Kurczaki 130 93-331 Lodz Poland	Asco India Limited No.57, Kunrathur Main Road Gerugambakkam, Porur Chennai-602102 India
Product:	automatic solenoid valve, normally closed, normally open, universal operation with emergency tripping function by spring force	
Type:	...327...	
Use:	3/2-way solenoid valves with safety function	
Test results:	The above mentioned appliances are suitable for use in safety related systems up to and including SIL 4 according to IEC 61508	
	For detailed results see test report No. V 139 2007 T1 dated 2007-10-17 No. V 139 2008 E3-2 dated 2008-07-14 A short summary of test results is filed up on the backside of this certificate.	
	The suitability for certain fields of application can only be assessed by additional evaluation of the actuator and further components of the subsystem.	

This certificate remains valid until 03/2013

Cologne 2008-07-25

Laboratory
for Energy Appliances
Head of Laboratory
Dipl.-Ing. F. Rick



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type series	...327...
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Appliance-specific values determined:

Probability of Failure on Demand	PFD	4,0 E-07	
Confidence level	1- α	95 %	
Safe failure fraction	SFF	96 %	
Hardware fault tolerance	HFT	0	
Diagnostic coverage	DC	0	
Type of sub system	IEC 61508-2, 7.4.3.1.2	type A	
Derived values:			
Assumed demands per year		10	
Demand/hour	Fnp	1,14 E-03	
Dangerous failure rate	λ D	4,57 E-10 1/h	0,46 FIT
MTBF dangerous failures	MTBF D	2,19 E+09 h	250000 y
Safe failure rate	λ S	1,10 E-08	11,0 FIT
Total failure rate	λ S + λ D	1,14 E-08	11,4 FIT
MTBF total		87600000 h	10000 y
Dangerous undetected	λ DU	4,57E-10	0,46 FIT
Safe undetected	λ SU	1,10E-08	11,0 FIT

In the opinion of the Test Centre the valves are suitable for installation in safety related systems as a single safety related subsystem up to and including SIL 3. With a structure establishing a HFT of 1 the valves are usable in SIL 4.