

Certificate

No. V 139 2009 C4-4

Manufacturer: **Asco Controls BV** other production sites see
Industrielaan 21 backside of this certificate
P.O. Box 3
NL 3925 Scherpenzeel

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 2009-10-29

Laboratory
for Energy Appliances
Head of Laboratory


Dipl.-Ing. F. Rick

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Production Sites:

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. II. Kurczaki 130 93-331 Lodz Poland	Asco India Limited No.57, Kunrathur Main Road Gerugambakkam, Porur Chennai-602102 India
ASCO Valve (Shanghai) No. 8, HuaMin Road, Song Jiang Shanghai 201612 China	

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	$\lambda_S + \lambda_D$	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.

This statement is bound to the proven and verified employment of a safety-related quality management by the manufacturer/production site.