

# CERTIFICATE OF CONFORMITY

## CERTIFICATO DI CONFORMITA'

### FUNCTIONAL SAFETY

### SICUREZZA FUNZIONALE

Certificate Number  
Certificato numero : 350379900.01

Issued to  
Rilasciato a : **Air Torque S.p.a.**

Manufacturer  
Costruttore : **Air Torque S.p.a.**  
**Via dei Livelli di Sopra, 8/11,**  
**I-24060 Costa di Mezzate Bergamo, Italy**

Product Type  
Tipo prodotto : **Scotch Yoke Actuators**

Model reference  
Riferimento Modello : **AT-HD Series**

Technical report No.  
Rapporto Tecnico Nr. : **350379900.50**  
**Revision 0 of August , 05<sup>th</sup> , 2014**

Requirements  
Requisiti : **IEC 61508 ed. 2.0; Functional safety of electrical/electronic/programmable electronic safety-related systems**

Safety Function  
Funzione di sicurezza : **The actuator will move to the designed safe position when de-energized/energized within the specified safety time.**

## **SIL3 capable - HFT=0 - Type A Subsystem**

The undersigned declares that the above described product meets the above mentioned technical specification. This attestation of conformity is issued based on the results of the assessment as laid down in the referred Technical Report.

*Il sottoscritto dichiara che il prodotto di cui sopra è conforme ai requisiti tecnici menzionati. Questo attestato di conformità è rilasciato sulla base dei risultati delle valutazioni riferite nel rapporto sopra menzionato.*

If a DEKRA Authorization to apply the DEKRA VERIFIED Seal has been issued by DEKRA on the subject product, this attestation of conformity authorizes the manufacturer to make reference to the "Requirements" object of this attestation, inside the DEKRA VERIFIED seal .

*Se il prodotto in oggetto è licenziatario di un' autorizzazione DEKRA all'uso del Sigillo DEKRA VERIFIED, il presente attestato di conformità autorizza il costruttore a fare riferimento ai "Requisiti " in questo attestato, all'interno del Sigillo DEKRA VERIFIED.*

Date of issue  
Emesso in data : 07/10/2014

Expires on  
Scade il : 06/10/2017

Franco Vasta  
Certification manager



This certificate consists of this page and 1 page Attachment

Attachment to/Allegato al

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The certification includes the following test segments successfully completed:

- Functional safety management (FSM) und safety lifecycle
- Hardwarefault behaviour
- Safety-related clauses of the user manual
- Quality assurance in production and product care / maintenance

Failure rates for AT-HD ACTUATORS SERIES per IEC 61508 ed.2.0 - year 2010 (FIT=1failure/10<sup>9</sup> hours):

Application	$\lambda_{SD}$	$\lambda_{SU}$	$\lambda_{DD}$	$\lambda_{DU}$
AT-HD Series HYDRAULIC DOUBLE ACTING	257	0	123	122
AT-HD Series HYDRAULIC SPRING RETURN	0	257	0	245
AT-HD Series PNEUMATIC DOUBLE ACTING	237	0	123	122
AT-HD Series PNEUMATIC SPRING RETURN	0	237	0	225

Double acting components must be checked with Partial Valve Stroke Test.

Low Demand mode of operation		High Demand mode of operation (**)	
Number of operation /year	(*)	MTBFd (h)	Hydraulic 4.081.633 Pneumatic 4.444.444
PFD <sub>avg</sub>	10 <sup>-3</sup> / 10 <sup>-4</sup>	PFH <sub>avg</sub>	10 <sup>-7</sup> / 10 <sup>-8</sup>
SFF	> 90%	SFF	> 90%
SIL	3	SIL/PL	3 / 'c'

(\*) Low demand mode, as defined in 3.5.16 of IEC 61508-4, is where the frequency of demands for operation made on a safety-related system is no greater than one per year.

(\*\*) High demand or continuous mode, as defined in 3.5.16 of IEC 61508-4, is where the frequency of demands for operation made on a safety-related system is greater than one per year. Continuous is regarded as very high demand.