



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

**CERTIFICATE NO. P-11231**

This Certificate consists of 3 pages

*This is to certify that the*  
**Pneumatic Actuator**  
*with type designation(s)*  
**AT and S-AT**

*Manufactured by*  
**Air Torque S.p.A.**  
Albano S. Alessandro (Bergamo), Italy


*is found to comply with*  
Det Norske Veritas' Rules for Classification of Ships and Mobile Offshore Units

### *Application*

The actuator may be used on valves that have up to 90° rotation. On the condition of appropriate corrosion protection, the actuators may be used in the following areas: On deck, In tanks, Pump room, Duct keel and Engine rooms

Dsgn. press./Torque 8 bar / 11,7 - 7207 Nm (dep. size and type, see cert.)

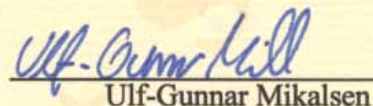
*Place and date*  
Høvik, 2002-06-18  
for DET NORSKE VERITAS AS

  
Kjell Folge  
Head of Section



Local Office  
DNV Milan

*This Certificate is valid until*  
2006-06-30

  
Ulf-Gunnar Mikalsen  
Surveyor

**Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.**

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



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## Product description

Rack and pinion pneumatic actuator. Single action, spring return or double action.

Actuator body of stainless steel WNo. 1.4401 acc. EN 10088-3, F316 acc. ASTM A182 or aluminium ENAW-6063-T5 acc. EN 755-2

Configuration and maximum output torque at 8 bar:

Designation		Torque	
Aluminium Actuators	Stainl. Steel Actuators	Single acting spring torque	Double acting torque
AT050	S AT050	11,7 Nm	26,6 Nm
AT100	S AT100	20,2 Nm	46,9 Nm
AT200	S AT200	41,5 Nm	93,1 Nm
AT250	S AT250	69,3 Nm	146 Nm
AT300	S AT300	94,5 Nm	213 Nm
AT350		157 Nm	344 Nm
AT400		198 Nm	443 Nm
AT450		309 Nm	696 Nm
AT500		399 Nm	908 Nm
AT550		568 Nm	1 225 Nm
AT600		756 Nm	1 702 Nm
AT650		1 251 Nm	2 859 Nm
AT700		1 922 Nm	4 150 Nm
AT800		2 971 Nm	7 207 Nm

## Application/Limitation

The maximum output torque from actuators used on butterfly valves must not exceed the limit at which the valve spindle or disc can be damaged if the disc is restrained in any position.

Bilge valves must at any time be accessible and arranged for manual operation in addition to the remote control. Manual operation by means of a portable hand pump is to be subject for case by case approvals.

Actuators used on remote controlled ship side valves are to have indicators, which will function satisfactory, even if the actuators accidentally should be submerged in water.

Each actuator to be pressure tested to 1,5 times the maximum design pressure.



DNV

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### Type Approval documentation

- Catalogue No. 4thG./99-A
- Datasheets: IN01/00 and Tab. 006 dated 28/09/1999
- Drawing nos: A00042000 rev. 1, A00052000 and A00062000 rev.0
- DNV witnessed burst test report BT4thG-01 dated 16/04/2002
- Corrosion test reports: SAC/890/96, SAC/886/96, SAC/896/96, SAC/897/96 all dated 23/09/96
- Instruction manual IMAT 4thG01/99

### Tests carried out

Burst pressure test, corrosion tests

### Marking of product

For traceability to this type approval, the products are at least to be marked with:

- Manufacturers name or trade mark
- Type designation

### Certificate retention survey

For retention of the Type Approval, a DNV Surveyor shall perform a survey - every second year and before the expiry date of this certificate - to verify that the conditions for the type approval are complied with.

END OF CERTIFICATE