

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Pneumatic Actuator**with type designation(s)
PT, AT and S-AT

Issued to

Air Torque S.p.A.
Costa di Mezzate BG, Italy

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018**Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.****Dsgn. press./Torque 8 bar / 9, 6 - 13342 Nm (dep. size and type, see cert.)**Issued at **Høvik** on **2018-12-20**This Certificate is valid until **2023-12-19**.for **DNV GL**DNV GL local station: **Milan**Approval Engineer: **Adel Samiei**

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Marianne Spæren Marveng
Head of Section

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.



Product description

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

Actuator body: Stainless steel no. 1.4401 acc. EN 10088-2
 Stainless steel F316 acc. ASTM A182
 Aluminium ENAW-6063-T5 acc. EN 573-3 and EN 755-2

Maximum actuator rotation angle is depending on type.

Type AT: Rotation angle up to 180°

Type S-AT: Rotation angle up to 90°

Type PT: Rotation angle up to 90°

Configuration and maximum output torque at 8 bar:

Designation				Torque		
Aluminium				Stainl. Steel	Single acting Spring Torque	Double acting Torque
PT045	AT045	PT045B	AT045U	-	9, 6 Nm	19, 1 Nm
PT050	AT051	PT050B	AT051U	S AT054	11, 7 Nm	26, 6 Nm
PT100	AT101	PT100B	AT101U	S AT104	20, 2 Nm	46, 9 Nm
PT200	AT201	PT200B	AT201U	S AT204	41, 5 Nm	93, 1 Nm
PT250	AT251	PT250B	AT251U	S AT254	69, 3 Nm	146 Nm
PT300	AT301	PT300B	AT301U	S AT304	94, 5 Nm	213 Nm
PT350	AT351	PT350B	AT351U	-	157 Nm	344 Nm
PT400	AT401	PT400B	AT401U	S AT404	198 Nm	443 Nm
PT450	AT451	PT450B	AT451U	S AT454	309 Nm	696 Nm
PT500	AT501	PT500B	AT501U	-	399 Nm	908 Nm
PT550	AT551	PT550B	AT551U	S AT554	568 Nm	1225 Nm
PT600	AT601	PT600B	AT601U	-	756 Nm	1702 Nm
PT650	AT651	PT650B	AT651U	S AT654	1251 Nm	2859 Nm
PT700	AT701	PT700B	AT701U	-	1922 Nm	4150 Nm
-	-	PT750B	AT751U	-	2620 Nm	5744Nm
PT800	AT801	PT800B	AT801U	-	2971 Nm	7207 Nm
PT1000	AT1004	PT1000B	AT1001U	-	5939 Nm	13342 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.

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.

Type Approval documentation

Tests carried out

Burst pressure test (safety factor 5), corrosion tests

Production testing

Each actuator is to be tested at 1.5 x the maximum allowable pressure before delivery.

Certification

No product certificate is required.

Marking of product

For traceability to this type approval the actuators are to be marked with:

- Manufacturer's name or trade mark
- Pressure rating and maximum torque
- Type designation



Job Id: **262.1-001878-4**
Certificate No: **TAP00001M4**

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.