



AMT SERIES

RACK & PINION PNEUMATIC ACTUATOR

Performance. Reliability. Control.



ATEX

2014/34/EU

SIL 3

IEC 61508

CE

Product marking

ISO 5211

Valve mounting

NAMUR

VDI/VDE 3845

PRODUCT OVERVIEW

A purpose-built quarter-turn actuator platform for industrial valve automation.

The AMT Series combines a compact rack & pinion mechanism with standardized mounting interfaces and flexible Double Acting or Spring Return configurations.

Designed for ball, butterfly and plug valves, AMT actuators provide a practical automation platform for OEM assemblies, plant maintenance and project applications.



for performance in
demanding industrial
applications.



BALL VALVES



BUTTERFLY VALVES



PLUG VALVES

AMT SERIES AT A GLANCE

A clear platform architecture built around common industrial interfaces.

1

Rack & Pinion

Precision quarter-turn torque transmission.

2

Double Acting

Air pressure drives both opening and closing strokes.

3

Spring Return

Fail-safe configuration using preloaded spring packs.

4

ISO 5211

Standard valve mounting interface.

5

NAMUR

Standard pneumatic control and accessory interface.

6

Adjustable Travel

External stop adjustment at end positions.

7

Corrosion Protection

Coated aluminum body and stainless external fasteners.

8

Visual Indicator

High-visibility open/closed position indication.

TECHNICAL FEATURES

PRECISION RACK & PINION

CNC-machined piston teeth support smooth motion and repeatable torque transmission.

PRELOADED SPRINGS

Coated spring modules provide fail-safe energy on Spring Return versions.

TRAVEL ADJUSTMENT

External end-stop adjustment for accurate open and close positions.

STANDARD INTERFACES

ISO 5211 valve mounting and NAMUR accessory / solenoid interfaces.

CORROSION PROTECTION

Coated aluminum construction with stainless external fasteners.

VISUAL INDICATION

High-visibility black/yellow position indicator.



MOUNTING & INTERFACES

Standard



Limit switch box



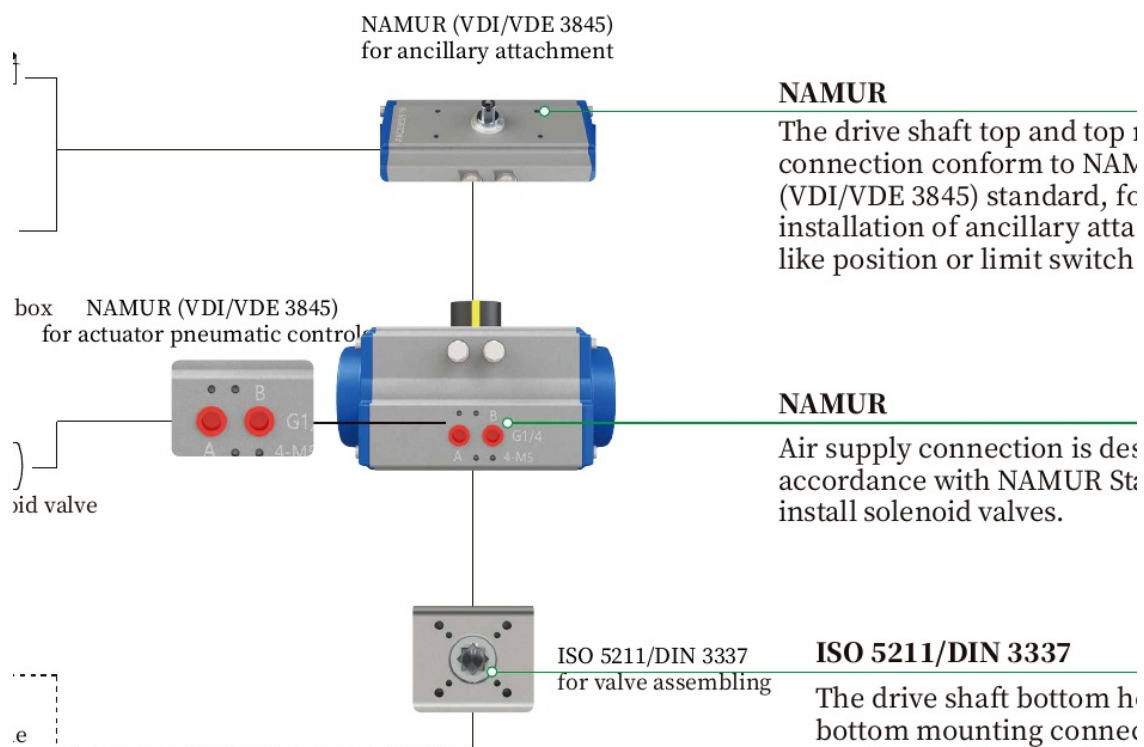
Positioner



Smart Positioner



Solenoid valve



1

ISO 5211 / DIN 3337

Bottom mounting interface for direct valve assembly.

2

NAMUR accessory interface

Top shaft and mounting pattern for positioners and limit switches.

3

NAMUR air interface

Pneumatic port pattern for direct-mount solenoid valves.

4

Optional mounting kits

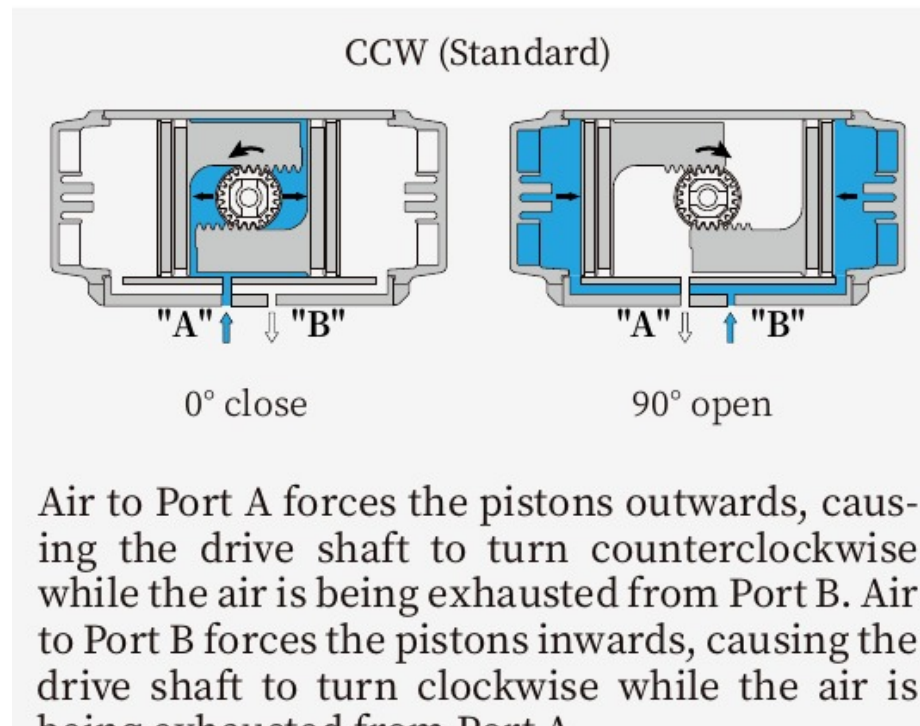
Brackets, couplings and declutchable gearboxes can be integrated where required.

OPERATING PRINCIPLE - DOUBLE ACTING

Air pressure alternately drives the two piston chambers for bidirectional motion.

3. Operating Principle

Double Acting Actuators



1

STANDARD CCW OPENING

Air to Port A moves the pistons outward and rotates the drive shaft counterclockwise while Port B exhausts. Air to Port B reverses the motion.

2

CW CONFIGURATION

The actuator can also be assembled for clockwise opening where the application requires reversed rotation.

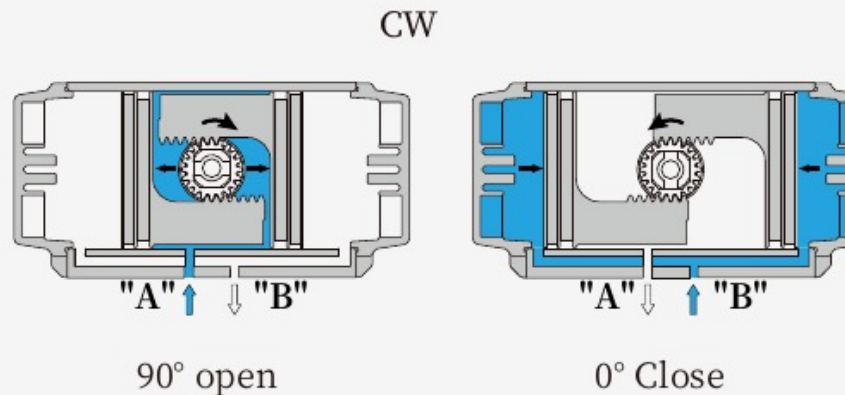
3

QUARTER-TURN CONTROL

Double Acting versions provide powered movement in both directions and essentially constant torque through the stroke.

OPERATING PRINCIPLE - SPRING RETURN

Stored spring energy provides a defined fail-safe position on loss of air supply.



Air to Port A forces the pistons outwards, causing the drive shaft to turn clockwise while the air is being exhausted from Port B. Air to Port B forces the pistons inwards, causing the drive shaft to turn counterclockwise while the air is being exhausted from Port A.

1

FAIL CLOSE - STANDARD

Air pressure drives the pistons outward and compresses the spring packs. Loss of air allows the springs to return the actuator to the closed position.

2

FAIL OPEN

Reverse assembly provides fail-open operation where the process requires the valve to move open on air failure.

3

SPRING SELECTION

Spring quantity is selected according to available air pressure and the valve torque profile at opening, running and closing.

OPERATING CONDITIONS

Core product conditions verified from the AMT product label and manufacturer technical source.

OPERATING MEDIUM	Dry / lubricated air or non-corrosive gas
MAXIMUM WORKING PRESSURE	8 bar
STANDARD OPERATING TEMPERATURE	-20°C to +80°C
ROTATION	90° standard
TRAVEL ADJUSTMENT	External end-position adjustment
LUBRICATION	Factory lubricated for normal service
INSTALLATION	Indoor or outdoor

ACTION	Double Acting / Spring Return
--------	-------------------------------

1

AMT-63DA LABEL EXAMPLE

Model: AMT-63DA Working temp.: -20°C to +80°C
Max. pressure: 8 bar CE / ATEX marking

2

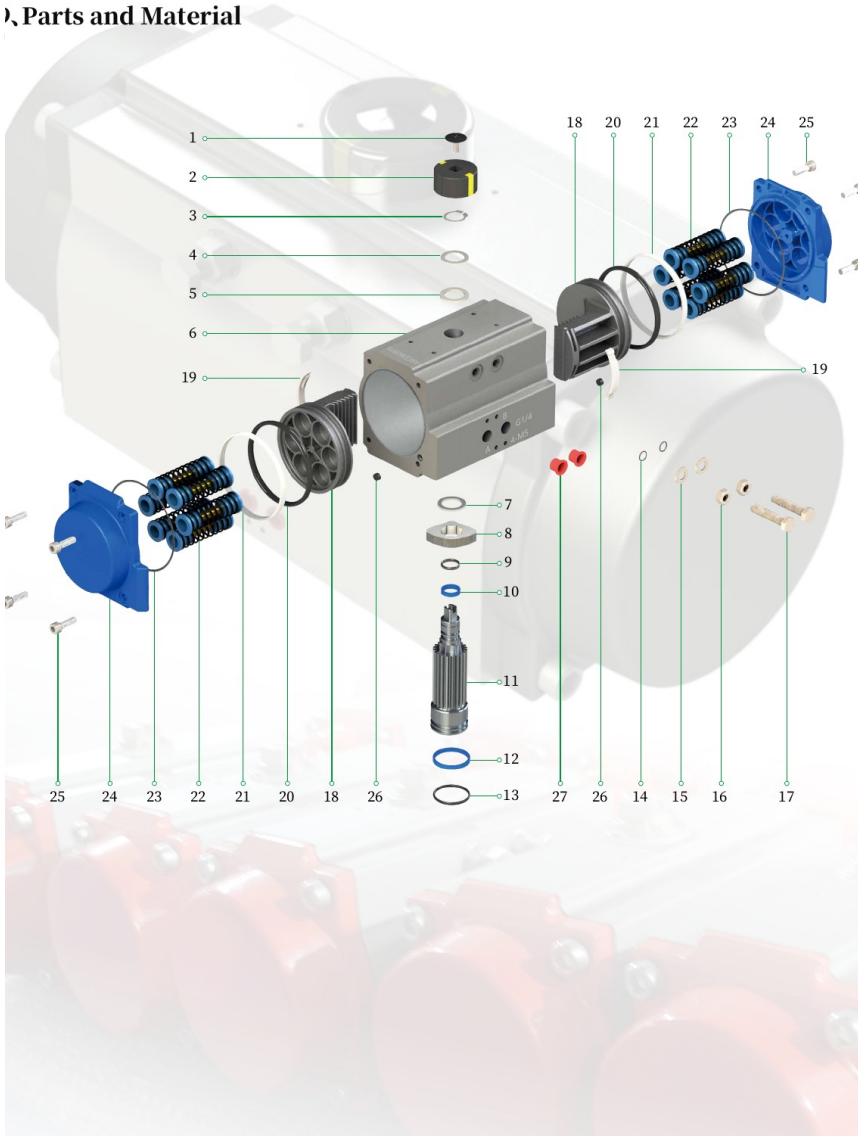
APPLICATION NOTE

For high-temperature, low-temperature or aggressive atmosphere requirements, confirm the required seal and coating option at the time of selection.

PARTS & MATERIALS

Key Parts and Material

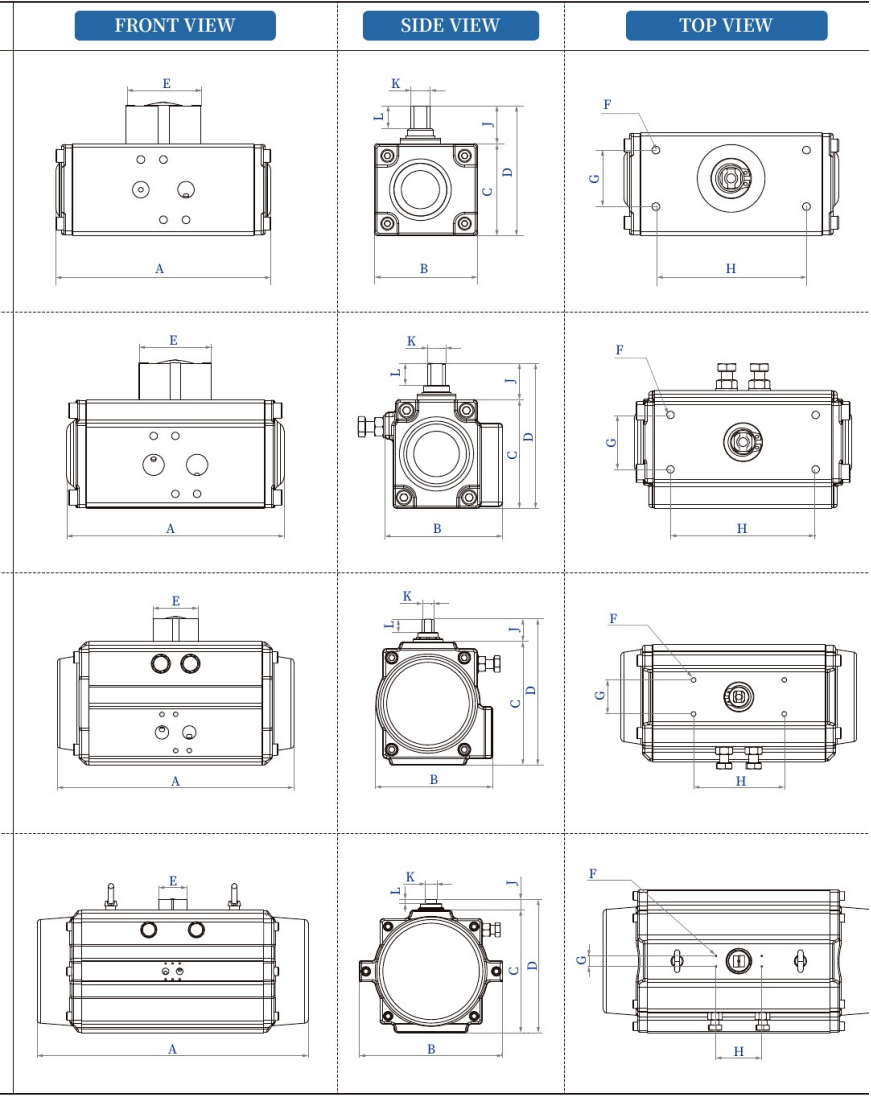
cation.



Component	Standard material / protection
Indicator	ABS plastic / stainless hardware
Body	Extruded aluminum
Drive shaft	Alloy steel, nickel plated
Piston	Cast aluminum
Piston guides / bearings	POM / engineering polymer
O-rings	NBR standard; special seal options available
Springs	Spring steel, coated
End caps	Cast aluminum
Fasteners	Stainless steel

DIMENSIONAL DESIGN

Dimensions
Compact geometry with standardized top, bottom and pne



OVERALL DIMENSIONS

Model	A	B	C	D
AMT-32	116	51	45	65
AMT-40	120	65	60	80
AMT-52	147	71.5	72	92
AMT-63	165	83	88	108
AMT-75	182	95	99.5	119.5
AMT-83	208	103	109	129
AMT-92	262	108.5	116.5	136.5
AMT-105	270	124.5	133	153
AMT-115	298	134	144	164
AMT-125	301	142	155	175
AMT-140	395	152.5	172	192
AMT-160	454	174	197	217
AMT-190	528	206	230	260
AMT-210	536	226	255	285
AMT-240	608	260	289	319
AMT-270	721	294	328	358
AMT-300	769	406	348	378
AMT-350	909	460	408	438
AMT-400	925	516	480	510

CONNECTION DATA

Model	F	G	H	J	K	L	Air port
AMT-32	M5x8	30	80	20	10	12	G1/8"
AMT-40	M5x8	30	80	20	10	12	G1/4"
AMT-52	M5x8	30	80	20	10	12	G1/4"
AMT-63	M5x8	30	80	20	10	12	G1/4"
AMT-75	M5x8	30	80	20	10	12	G1/4"
AMT-83	M5x8	30	80	20	10	12	G1/4"
AMT-92	M5x8	30	80	20	14	12	G1/4"
AMT-105	M5x8	30	80	20	14	12	G1/4"
AMT-115	M5x8	30	80	20	22	10	G1/4"
AMT-125	M5x8	30	80	20	22	10	G1/4"
AMT-140	M5x8	30	80	20	22	10	G1/4"
AMT-160	M5x8	30	80	20	22	10	G1/4"
AMT-190	M5x8	30	130	30	32	12	G1/4"
AMT-210	M5x8	30	130	30	32	12	G1/4"
AMT-240	M5x8	30	130	30	32	12	G1/4"
AMT-270	M5x8	30	130	30	32	12	G1/2"
AMT-300	M5x8	30	130	30	32	12	G1/2"
AMT-350	M5x8	30	130	30	32	12	G1/2"
AMT-400	M5x8	30	130	30	32	12	G1/2"

OUTPUT TORQUE - DOUBLE ACTING

Model	2 bar	2.5 bar	3 bar	3.5 bar	4 bar	4.5 bar	5 bar	5.5 bar	6 bar	7 bar	8 bar
AMT-32DA	3	4	5	6	6	7	8	8	9	11	12
AMT-40DA	5	6	7	8	10	11	12	13	14	17	19
AMT-52DA	8	10	12	14	16	18	20	22	24	28	32
AMT-63DA	15	18	22	25	29	33	36	40	44	51	58
AMT-75DA	20	25	30	35	40	45	50	55	60	70	80
AMT-83DA	31	39	47	55	63	70	78	86	94	110	125
AMT-92DA	45	56	68	79	90	102	113	124	135	158	181
AMT-105DA	66	83	99	116	132	149	165	182	198	231	264
AMT-115DA	86	108	130	151	173	194	216	238	259	302	346
AMT-125DA	100	125	150	176	200	226	251	276	301	351	401
AMT-140DA	171	214	256	299	342	385	427	470	513	598	684
AMT-160DA	266	332	399	466	532	598	665	731	798	931	1064
AMT-190DA	426	532	638	745	851	958	1064	1170	1277	1490	1702
AMT-210DA	532	665	798	931	1064	1197	1330	1463	1596	1862	2128
AMT-240DA	769	962	1154	1347	1539	1731	1924	2116	2308	2693	3078
AMT-270DA	1170	1462	1754	2047	2339	2632	2924	3216	3509	4094	4679
AMT-300DA	1526	1908	2289	2671	3052	3434	3815	4197	4578	5341	6104
AMT-350DA	2285	2856	3427	3998	4570	5141	5712	6283	6854	7997	9139
AMT-400DA	3256	4070	4884	5698	6512	7326	8140	8954	9768	11396	13024

ACTUATOR SIZING

Use valve torque, operating pressure and a suitable safety margin to select the actuator.

1

DOUBLE ACTING

Manufacturer guidance recommends a 20%-30% safety factor for normal working conditions. Select an actuator whose output torque at available air pressure exceeds the design torque.

2

SPRING RETURN

Sizing must consider both the air stroke and spring stroke. Compare the valve torque profile at break-to-open, running and end-to-close points.

3

APPLICATION FACTORS

Increase the design margin for dirty media, long idle periods, high cycling, temperature extremes or where valve torque data is uncertain.

DOUBLE ACTING SELECTION EXAMPLE

Valve torque	100 Nm
Safety factor	30%
Design torque	130 Nm
Air supply	5 bar
Selection from AMT torque table	AMT-105DA (165 Nm @ 5 bar)

SPRING RETURN CONFIGURATION

Preloaded spring packs allow the fail-safe torque profile to be adapted to the application.



SPRING SET 1 SPRING SET 2 SPRING SET 3 SPRING SET 4 SPRING SET 5 SPRING SET 6

1

CONFIGURATION PRINCIPLE

Spring Return actuators are supplied with matched preloaded springs. Spring quantity can be changed to match available air pressure and required fail-safe torque.

2

SELECTION REQUIREMENT

For precise SR sizing, use the valve torque curve at opening, running and closing together with the operating pressure. ALFA COM can provide model selection for the required spring set.

3

SAFETY

Preloaded spring modules must only be removed according to the manufacturer service procedure and with the actuator fully depressurized.

ACCESSORIES & CONTROL

A complete quarter-turn automation package around the AMT actuator.

1

NAMUR SOLENOID VALVE

Direct-mounted pneumatic switching.

2

LIMIT SWITCH BOX

Open/closed electrical position feedback.

3

POSITIONER

Modulating control for pneumatic valves.

4

AIR FILTER REGULATOR

Clean, regulated instrument air supply.

5

DECLUTCHABLE GEARBOX

Manual override for selected assemblies.

6

MOUNTING KITS

Brackets and couplings for valve adaptation.

SPECIAL STROKES

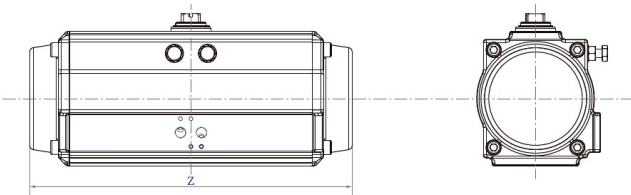
Extended rotation vers 13, 120°, 135°, 180° Pneumatic Actuator (Double Acting only)

In order to meet the special requirements of control valve, we produce special strokes actuators on customer request (e.g. 120°,135°,180°etc.).

Output Torque

Output torque of special strokes actuators, please refer to the torque of 90° actuators (P.11).

Length of 180° pneumatic actuator



Unit:mm

型号 Model	ARC52 -180	ARC63 -180	ARC75 -180	ARC83 -180	ARC92 -180	ARC105 -180	ARC125 -180	ARC140 -180	ARC160 -180	ARC190 -180	ARC210 -180
Z	210	241	258	302	375	396	443	579	668	781	789

Please contact us for more information

14. Three Position Pneumatic Actuator

Three position actuator provide an operation of 0°, 45°, 90° or 0°, 90°, 180°. The midway position is achieved by a mechanical stop of movement on the 2 auxiliary pistons. This midway stop position is adjustable, for example, 90° three position actuator can provide midway position of 20°, 30°, 40°, 50°, 70° or else.



1

120° / 135° / 180°

Special-stroke Double Acting actuators are available for control valve and diverter applications requiring rotation beyond 90°.

2

TORQUE REFERENCE

Special-stroke model selection is based on the corresponding 90° actuator torque capability and the specific application geometry.

3

CUSTOM REQUIREMENTS

Contact ALFA COM for non-standard rotation, mounting or control requirements.

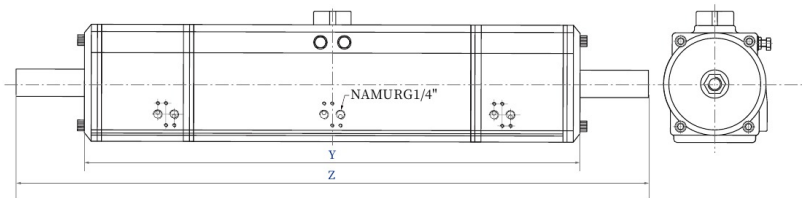
THREE-POSITION ACTUATORS

Mechanical intermedi

Output Torque

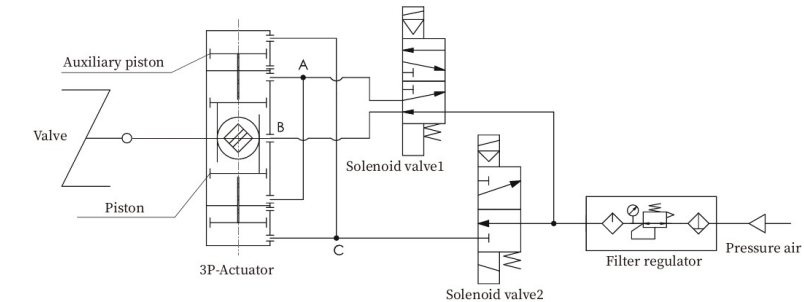
Output torque of three position actuators, please refer to the torque of 90°actuators (P11~P14).

Length of three position pneumatic actuator (90°)



	ARC 52-3P	ARC 63-3P	ARC 75-3P	ARC 83-3P	ARC 92-3P	ARC 105-3P	ARC 125-3P	ARC 140-3P	ARC 160-3P	ARC 190-3P	ARC 210-3P
Y	246	299	326	362	434	446	491	625	718	852	852
Z	364	427	454	523	613	634	689	867	984	1174	1174

Schematic Diagram



	0°	90°	30°	0°
SOLENOID VALVE1	OFF	ON	OFF	OFF
SOLENOID VALVE2	OFF	OFF	ON	OFF

1

ADJUSTABLE MID POSITION

Auxiliary pistons create a mechanically defined intermediate stop. The midpoint can be adjusted for the required process position.

2

CONTROL LOGIC

Two or three solenoid valves are used depending on the actuator configuration and required fail position.

3

APPLICATIONS

Suitable for diverting, dosing, partial opening and other quarter-turn services requiring a repeatable intermediate position.

HOW TO ORDER

Build the AMT actuator code from size, action, fail direction, temperature and connection requirements.

AMT
Series

63
Model size

SR10
Action + spring set

FC-CCW
Fail / rotation

HT
Temperature option

CONN.
Connection option

Code	Description
DA	Double Acting
SR + spring qty.	Spring Return
FC-CCW	Fail close / air to open CCW
FO-CW	Fail open / air to close CW
HT	High-temperature option
LT	Low-temperature option
Blank	Standard configuration

1

ORDERING NOTE
Confirm valve torque, available air pressure, required fail position, mounting interface, stem drive size and accessory requirements before final model selection.



PERFORMANCE. RELIABILITY. CONTROL.

ALFAMATIC AMT Series
Rack & Pinion Pneumatic Actuators

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VALVE AUTOMATION SOLUTIONS

Pneumatic actuators

Ball valve automation

Butterfly valve automation

Control accessories

Technical data subject to revision without prior notice.