ANIX®



Pneumatic Actuators ANIX VALVE USA

www.anixusa.com

 Products applicable to petroleum, chemicals, natural gas, light industry, electric power, pharmaceuticals, dyes, metallurgy, fiber, leather, textile, food, military, construction, refrigeration, water supply, and other industries



Operating conditions: Operating media 1. Dry or lubricated air, or non-corrosive gases The maximum particle diameter must be less than 30m 2. Air supply pressure The minimum supply pressure is 2 Bar The maximum supply pressure is 8 Bar $+5^{\circ}|-5^{\circ}$ 3. Operating temperature Standard -20°C~+80°C 90 Low temperature: -40°C~+80°C High temperature: -20°C~+160°C 4. Travel adjustment Has an ajustment range of \pm 5° for the rotation at 0° and 90° 5. Application Either indoor or outdoor



Air supply connection is designed in accordance with NAMUR standard for installing solenoid valves.



The NAMUR Standard drive pinion and the NAMUR Standard top mounting connection permit direct installation of accessories such as limit switch box and positioner



Bottom mounting connection is designed in accordance with ISO5211 and DIN 3337 standards for direct mounting with valve gear boxes or mounting brackets.

Spring return

Working Principle:

Double acting



www.anixusa.com

Double Acting Actuator Output Torque (Unit:Nm)

Model	Input Air Supply Pressure (Unit:Bar)											
	2	3	4	5	6	7	8					
AN-032D	3.1	4.7	6.2	7.8	9.4	11	12.5					
AN-052D	8.5	12.7	17	21.2	25.5	29.7	34					
AN-063D	15	22.5	30	37.5	44.9	52.4	59.7					
AN-075D	21	31.8	42.4	53	63.6	74.2	84.8					
AN-083D	32.5	48.7	65	81.2	97.4	113.7	130					
AN-092D	46.5	69.8	93	116.3	140	162.9	186					
AN-105D	69.3	104	138.5	173.2	207.8	242.5	277					
AN-125D	108	162	216	270	324	378	432					
AN-140D	184.7	277	369.5	461.8	554	646.5	739					
AN-160D	281.5	422	563	704	844	985	1126					

Spring Return Actuator Output Torque (Unit:Nm)

Output Torque of Air to Spring															
Air Supply Pressure		3Bar		4Bar		5Bar		6Bar		7Bar		8Bar		Output Torque Spring	
Model	Spring Qty	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
AN-052S	10	/	/	9.1	6.2	13.3	10.4	17.6	14.7	21.8	18.9	26.1	23.2	10.8	7.9
AN-063S	10	/	/	16.4	10.0	23.8	17.5	31.3	25.0	38.8	32.5	46.3	40.0	19.9	13.6
AN-075S	10	/	/	29.2	18.5	41.6	30.9	53.9	43.3	66.3	55.7	78.7	68.0	30.9	20.3
AN-083S	10	/	/	35.2	21.9	51.5	38.1	67.7	54.4	83.9	70.6	100.2	86.8	43.0	29.7
AN-092S	10	/	/	49.5	32.5	72.8	55.8	96.0	79.0	119.3	102.3	142.6	125.6	60.6	43.6
AN-105S	10	/	/	59.9	46.2	94.6	80.8	129.2	115.5	163.9	150.1	198.5	184.7	92.3	78.6
AN-125S	10	/	/	139	86	201	147	262	209	323	270	385	331	160	106
AN-140S	10	/	/	191	103	284	195	376	288	469	380	561	472	267	178
AN-160S	10	/	/	291	162	432	303	573	443	713	584	854	725	401	272

www.anixusa.com

3



The new ANIX pneumatic rack and pinion actuators have been innovatively designed using CAD, Dinema, and Mastercam 3D modeling software. They incorporate the latest technology from both domestic and international sources. The design is sleek, compact, and modern. We use advanced materials and processes to ensure reliability in both quality and performance. With a variety of standard options available, these products are versatile and cost-effective, meeting the latest international technical specifications as well as current and future needs.



9

- The dual-piston rack and pinion with a symmetric structure provides fast, smooth action, high precision, and high output power. Reverse rotation can be achieved simply by changing the pistons' mounting position.
- 2 The cylinder block is made from extruded high-quality aluminum alloy, with a precisely machined inner hole and a hard-anodized outer surface (anodic oxidation under special conditions with a Teflon coating). This extends the lifecycle and reduces friction coefficient.
- 3 A uniform design is used for both double-acting and single-acting actuators, with identical cylinder bodies and end caps. This design allows for easy conversion between operation modes by simply adding or removing springs.
 - Modular preloaded safety spring cartridges allow for easy and safe installation or removal of springs, whether during mounting or in the field.
 - The two independent adjusting screws on the external side precisely control the valve's on/off position when installed with the actuator. For full stroke adjustment, longer adjusting screws can be installed on both ends.

- The multi-positioner and visual indicator comply with standard VID/VIE 3845 and NAMUR, allowing for the installation and output of all accessories, such as limit switches, positioners, and position sensors.
 - The air port complies with NAMUR standards and can directly accommodate a NAMUR standard solenoid valve.
- 8 The compound bearing bush and piston guide ring at the back of the gear rack, along with the bearing on the output shaft, prevent metal-to-metal friction. Additionally, increased lubrication helps reduce friction and extend the lifespan of the components.
 - All fasteners are made from stainless steel, providing long-term corrosion resistance.
- Fully compliant with the latest specifications of ISO 5211, DIN 3337 (F03-F25), and NAMUR, ensuring interchangeable and versatile installation.

ANIX VALVE USA 10129 Stafford Centre Dr, Stafford, TX 77477 Phone: (713) 581-8188

Multi-Functional NAMUR Interface

The multi-functional indicator in the fourth-generation actuator is a standard product that can be applied to the following occasions, as it is made of composite materials.



1. Location Indication

The position of the valve and actuator is indicated visually by a color insert and a NAMUR standard groove. The indicator is compatible with all output shafts and can be used for actuators with two rotation directions.



2. Output Accessories of Actuator

The NAMUR standard groove of the position indicator can directly engage with the output limit switch and locator.



3. Install Proximity Sensors Directly

Indicator with metal insert can be mounted with numerous different proximity sensors conveniently and practically



Attachment installed without multi-functional indicator

According to the requirement, replace standard indicator by stainless steel cap with NAMUR standard trough in 4th generation actuator to carry out following functions:

1.Attachment installation such as limit switch box and locator. 2.Indicating location of actuator by NUMAR standard trough.

3.Operable under high temperature.

4.Operate the actuator manually under emergency.

Required

Full stroke adjustment on 4th generation actuator

The stroke range is 0° to 90° plus or minus 4°. When a stroke less than 90° is required, such as 1°, 5°, 10°, 25°, 50° or 80°, you can add two special bolts adjustable or limitable at 0° to 90° at two end covers of actuator according to the requirement of customer. Full stroke adjustment is available in all 4th generation actuators.

Locking function in fully open and fully closed position

When it is required to lock at complete on (90°) or complete off (0°), the 4th generation actuator offers practical and affordable method. Special bolt and locking device in the actuator can lock the actuator at each location forever. Using padlock, to avoid any uneccessary operation.







How to select the actuator

The purpose of this reference data is to assist in the correct selection of a pneumatic actuator. Before installing the actuator onto the valve, consider the following factors:

1. Valve running torque plus the safety coefficient recommended by the manufacturer under operating conditions.

2. Actuators air pressure

3. Type of actuator: D (double acting) or S (spring return), along with the output torque at specific air pressure.

4. Rotation of the actuator and its failure mode (fail-safe or fail-off).



When controlling a butterfly valve with a torque of 100NM, air pressure at 4.5 BAR, and using non-lubricated dry gas, a 40% safety coefficient should be added for safety, bringing the required torque to 140NM. Checking the output torque chart for spring return actuators, we find a similar torque of 148NM. Moving left along the same line, the terminal torque for 4.5 BAR air pressure is 158NM. It's important to balance the air pressure torque and spring return torque. Finally, continuing left on the same line, we find the correct model is ACT145S with 9 springs.



No	Qty	Name	Standard material	Corrosinon prevention grade	Optional material
01	1	Octi-Cam(Brake gear)	Stainless Steel		
02	2	Stopper Bolt	Stainless Steel		
03	2	Thrust Washer	Stainless Steel		
04	2	Screw Cap	Stainless Steel		
05	2	Bearing (Piston Back)	Composite Materials		
06	1	Bearing (Gears Top)	Nylon46		
07	1	Bearing (Gears Tooth)	Nylon46		
08	2	Thrust Bearing (Gear)	Composite Materials		
09	2	Plunger	NBR		Viton/Silicone
10	1	Thrust Washer	Stainless Steel		
11	2	O-Ring (Stopper Bolt)	NBR		Viton/Silicone
13	8(C)	Cap Screw	Stainless Steel		
14		O-Ring (End Cap)	NBR		Viton/Silicone
15	2	Bearing (Piston Head)	Composite Materials		
16		O-Ring (Piston)	NBR		Viton/Silicone
17	5~12	Spring	Alloy Spring Steel	Epoxy Resin Coating	
18		Circlip (Gear)	Alloy Spring Steel	Nickel Plated	Stainless Steel
19	1	Position Indicator	Composite Materials		
20		O-Ring (Gears Foot)	NBR		Viton/Silicone
21	1	O-Ring (Gears Top)	NBR		Viton/Silicone
30(D)		Right End Cap	Cast Aluminum Alloy	Alkyd coating	
31(D)	1	Left End Cap	Cast Aluminum Alloy	Alkyd coating	
39		Cap Screw	Stainless Steel		
40	2	Piston	Cast Aluminum Alloy	Anodization	
41		Label of the Actuator	Polyester Aluminum		
50	1	Cylinder Body	Cast Aluminum Alloy	Anode hardening	
60		Output Axis	Alloy Steel	Nickel plated	Stainless steel

Operating principle of double acting



CCW

Air to port 2 forces the piston outwards to the two ends, causing the pinion to turn counterclockwise while the air is being exhausted from port 4



CW

Air to port 4 forces the pistons inward to the middle, causing the pinion to turn clockwise while the air is being exhausted from port 2

Operating principle of single acting



CCW

Air to port 2 forces the pistons outwards to the two ends, causing the springs to compress, The pinion turns counter clockwise while air is being exhausted from port 4



CW

Air to port 2 forces the pistons inward to the middle, causing the pinion to turn clockwise while the air is being exhausted from port 2



ANIX VALVE USA 10129 Stafford Centre Dr, Stafford, TX 77477 Phone: (713) 581-8188