



BR 31a · Quarter-turn actuator Edition 2010
Version DAP / SRP · 3-position actuators



Applications

Single-acting or double-acting 3-position actuators for butterfly valves, ball valves and other final control elements with rotary closure members. Particularly suitable for high process requirements in chemical plants:

- **Opening angle at DAP 90 ° and 180 °, at SRP 90**
- **Temperatures -20°C to +80°C**



General Information

Air Torque 3 position pneumatic actuators 90° provide an operation of 0° - 45° - 90° or 0° - 90° - 180° for 180° actuator rotation. The intermediate position is achieved by an external mechanical stop with 2 auxiliary pistons (for spring return actuators it may be only one auxiliary piston).

This intermediate stop position is adjustable, for example 5°, 20°, 30°, 50°, 75° etc. The intermediate position is easily achieved by adjusting the external nuts located outside the two end-caps. Both type, double acting and spring return, are available.

Field of application

For dosing, for exact filling and for any kind of services where on 90° rotation an intermediate stop position is desired.

To control and operate the 3-Position actuators a system of solenoid valves and a sequence of air supply is required:

Operation 3-position actuator Edition 2010, double acting

- Rotation 90° Type: 3PD DAP ... 90°
- Rotation 180° Type: 3PD DAP ... 180°

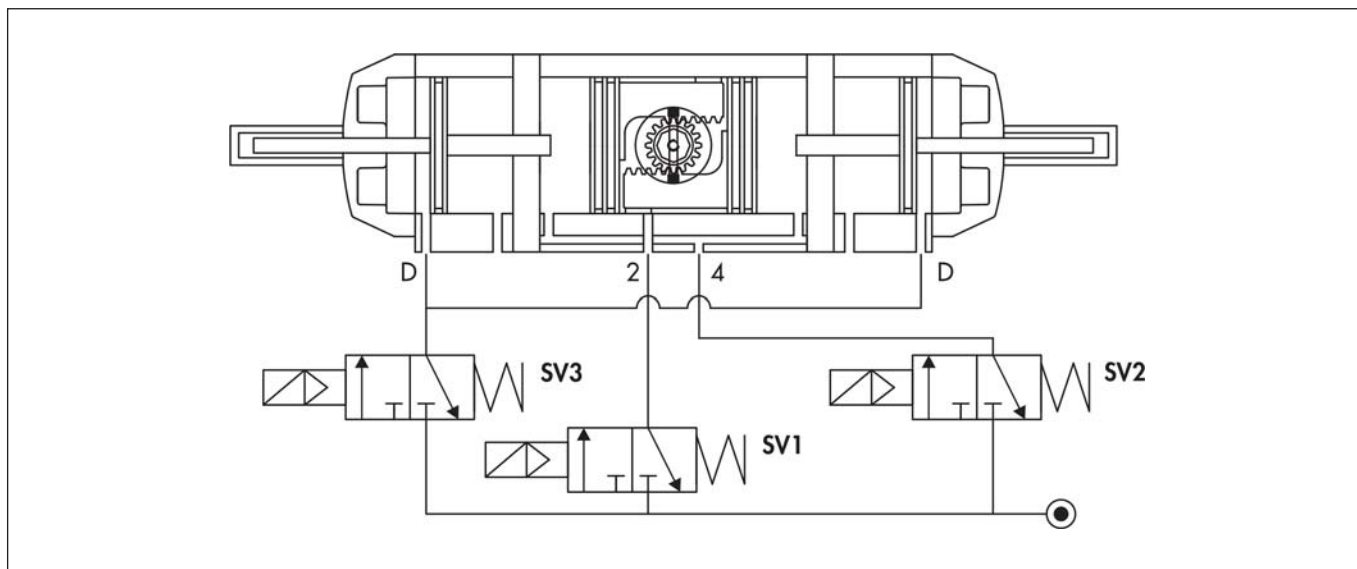


Fig. 1: Circuit diagram

Table 1: Functions

Rotation 90°	Rotation 180°	Solenoid valve energized	Pressurized Port
0° → 90°	0° → 180°	SV1	2
90° → 0°	180° → 0°	SV2	4
0° → X°	0° → Y°	first SV3 + after SV1	D + 2
X° → 90°	Y° → 180°	SV1	2
90° → X°	180° → Y°	SV3	D
X° → 0°	Y° → 0°	SV2	4

**Info:**

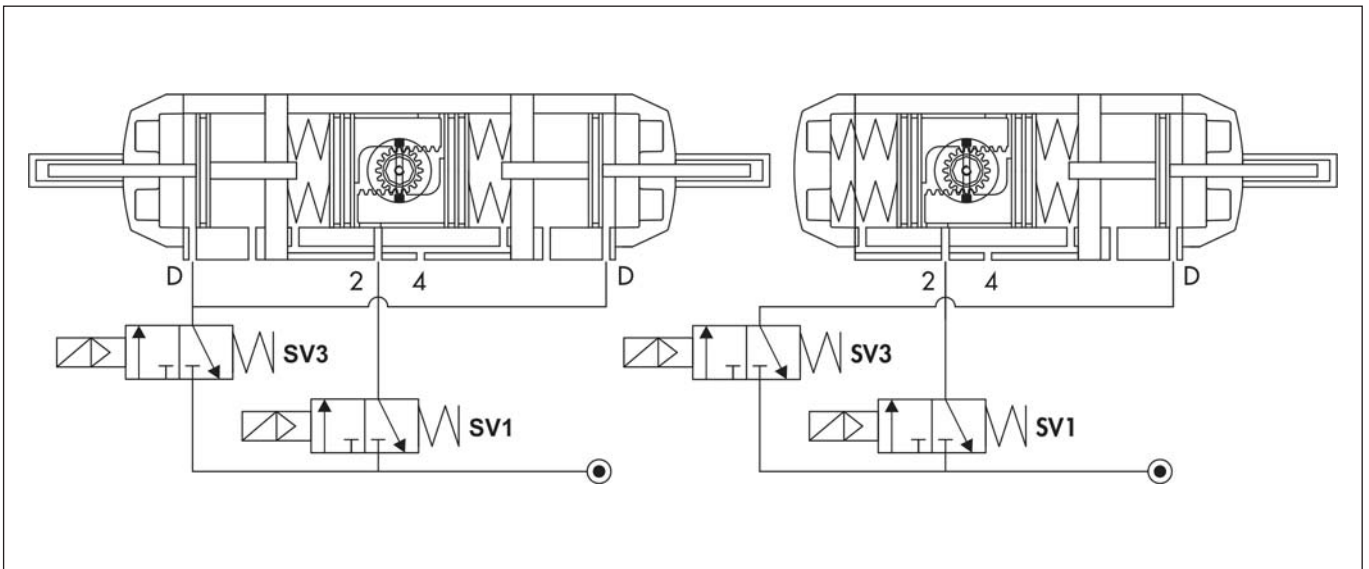
X: Intermediate position, 0° ... 90°
 Y: Intermediate position, 90° ... 180°

**Info:**

1. As an alternative, the solenoid valve SV3 can be replaced by 2 solenoid valves directly applied to NAMUR connections on the 2 auxilliary bodies.
2. As an alternative, the solenoid valves SV1 and SV2 can be replaced by one 5/3 bistable solenoid valve directly applied to NAMUR connections on the central body.

Operation 3-position actuator Edition 2010, single acting

- Rotation 90°: Type: 3PD SRP ...
- Rotation 90°: Type: 3P SRP ...

**Fig 2:** Circuit diagram**Tabelle 2:** Funktionen

Rotation	Solenoid valve energized	Pressurized Port
0° → 90°	SV1	2
90° → 0°	air failure at port 2 - spring acting	
0° → X°	first SV3 + after SV1	D + 2
X° → 90°	SV1	2
*90° → X°	first SV1 + after SV3	2 + D
X° → 0°	ir failure at port 2 - spring acting	

***Info:**

This function is achievable only with 3-Position Spring Return actuators with 2 auxilliary pistons (external mechanical stop).

**Info:**

As an alternative for 3PD, the solenoid valve SV3 can be replaced by 2 solenoid valves directly applied to NAMUR connections on the 2 auxilliary bodies.

Dimensions of quarter-turn actuator

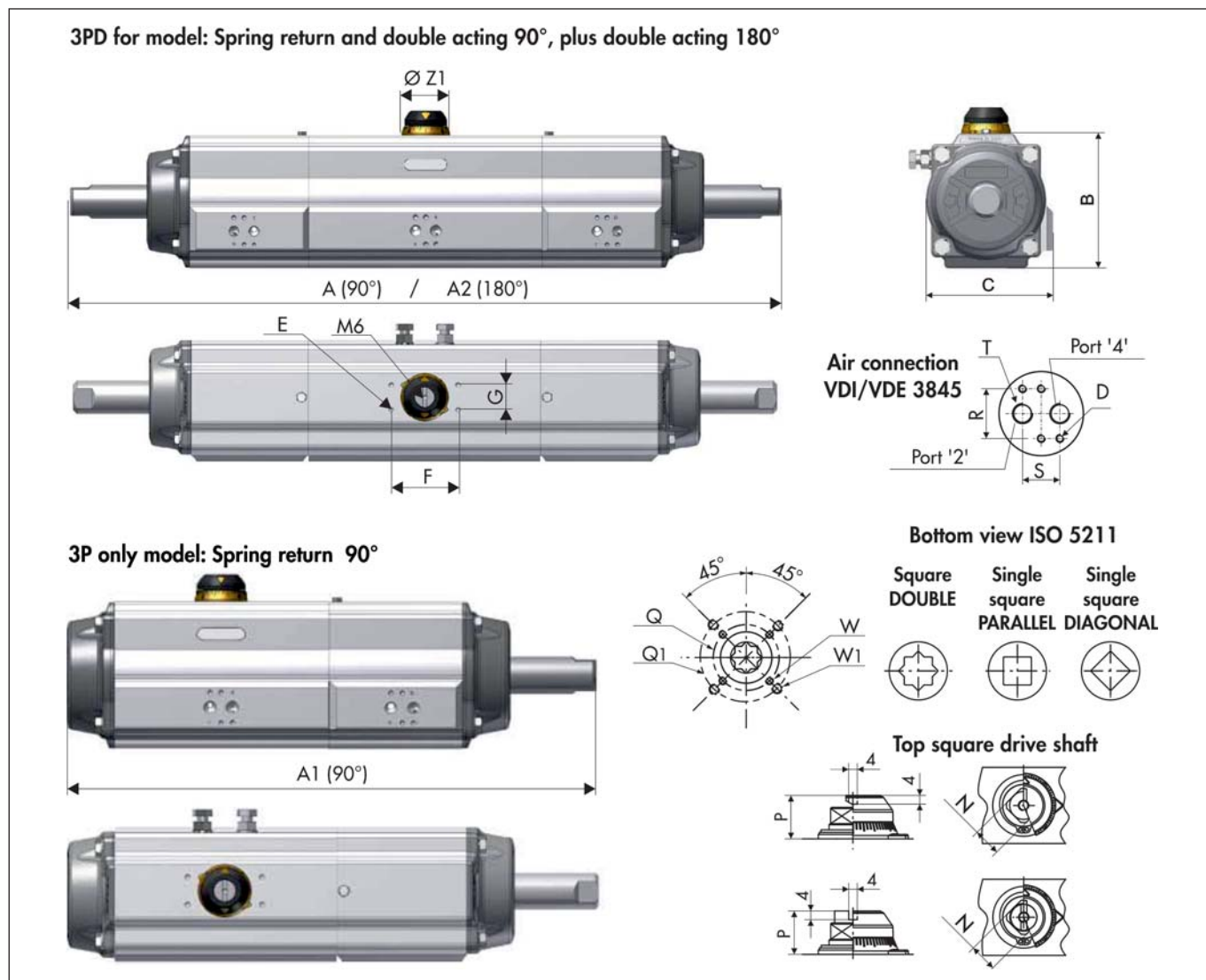


Fig. 3: Dimensional drawing

Table 3: Dimensions in mm and Weights in kg

Actuator ³⁾ DAP / SRP	A 90°	A1 90° ¹⁾	A2 180°	B	C	D	E	F	G	N	P	R	S	Z1	T-ISO 228	ISO- Flange ²⁾	Q	Q1	W	W1
30	392	273	454	85	84.5	M5x8	M5x8	80	30	11	20	32	24	42	1/8"	F05+F07	50	70	M6	M8
60	481	342	568	102	93	M5x8	M5x8	80	30	17	20	32	24	42	1/8"	F05+F07	50	70	M6	M8
100	578	409	672	115	106	M5x8	M5x8	80	30	17	20	32	24	42	1/4"	F05+F07	50	70	M6	M8
150	617	438	730	127	118.5	M5x8	M5x8	80	30	17	20	32	24	42	1/4"	F07+F10	70	102	M8	M10
300	798	565	948	157	146.5	M5x8	M5x8	80	30	27	30	32	24	58	1/4"	F07+F10	70	102	M8	M10
600	989	705	1177	196	181	M5x8	M5x8	80	30	27	30	32	24	67.5	1/4"	F10+F12	102	125	M10	M12
1200	1290	909	1514	245	221.5	M5x8	M5x8	130	30	36	50	32	24	80	1/4"	F14	140	/	M16	/
3000	1725	1218	2030	330	330	M6x10	M5x8	130	30	36	50	45	40	115	1/2"	F16	165	/	M20	/



Info:

Standard bold

¹⁾ Single-sided actuators available on request

²⁾ Other connections available

³⁾ Further models on request