



**BR 31a · Quarter-turn actuator Edition 2010**

Version SRP · Quarter-Turn Actuator BR 31a with Fail Safety Position



**Applications**

Single-acting piston 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 180°**
- **Temperatures -20°C to +80°C**



## General Information:

The 180° spring return actuators with 90° fail safety position are used for 0°-90°-180° operations where in case of air failure the actuator has to return to the 90° position.

At both ends of the actuator a spring set is mounted and the springs can be compressed in two directions: toward end caps or inward. Pressure supplied at port 4 forces the pistons toward actuator end caps and rotate the actuator drive shaft from 0° or 180° compressing the springs, while pressure supplied at port 2 forces the pistons inward and rotate the actuator drive shaft from 90° to 0°.

From fully close position (0°) or fully open position (180°) the fail safe operation is achieved in case of air or electrical failure by extension of the compressed springs. They push the pistons to rotate the actuator drive shaft from 0° or 180° position to 90° position.

## Specification

Max. supply pressure: 10 bar

Operating pressure: 2,5 - 8 bar

Other dimensions: see standard data sheet

Material: see data sheet Fail-Mid

## Output torque

With the same operating pressure and/or the same number of springs, the torque is equivalent to the standard actuator. See data sheet of standard actuator.

## Operating media

Refer to manual instruction.

## Operation (For Standard Assembly ST)

A system of solenoid valves that control the sequence of air supplies is required in order to operate correctly the 180° spring return actuator with 90° Fail Safety position.

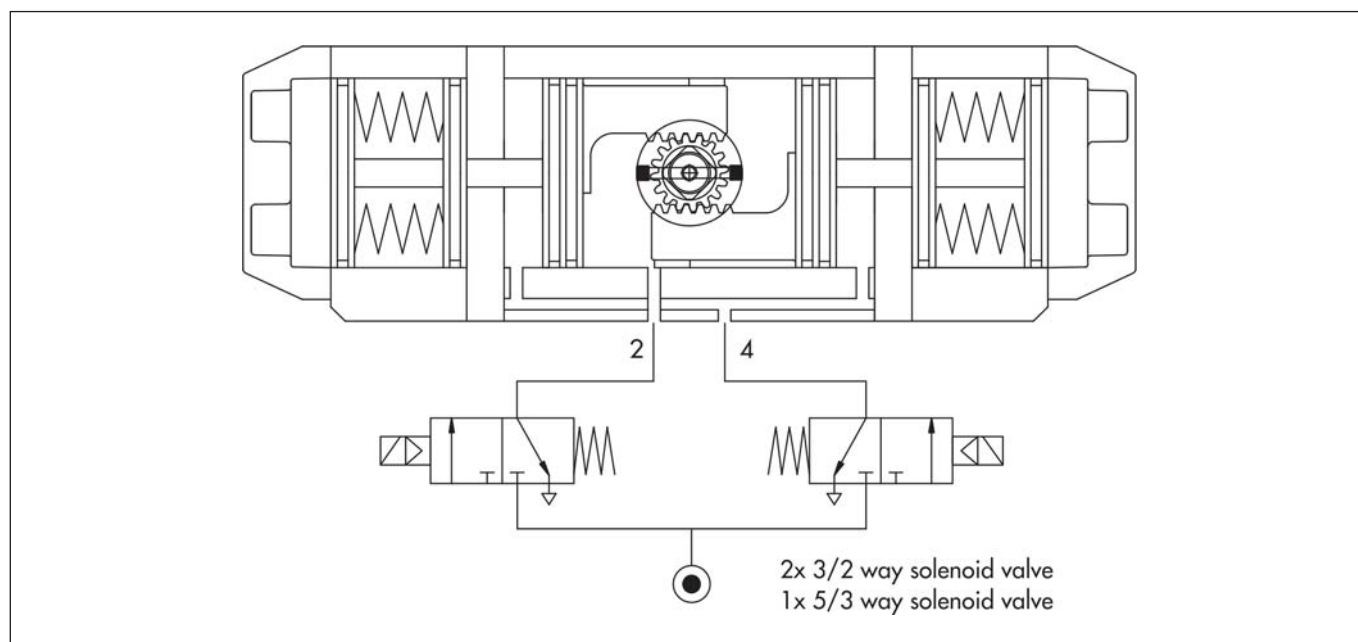


Fig 1: Function for standard assembly

## ■ From 90° to 180°

When compressed air is supplied at the port 2, air forces the pistons toward actuator end caps and compresses the springs from the center to the outside ends. A counterclockwise rotation is obtained.

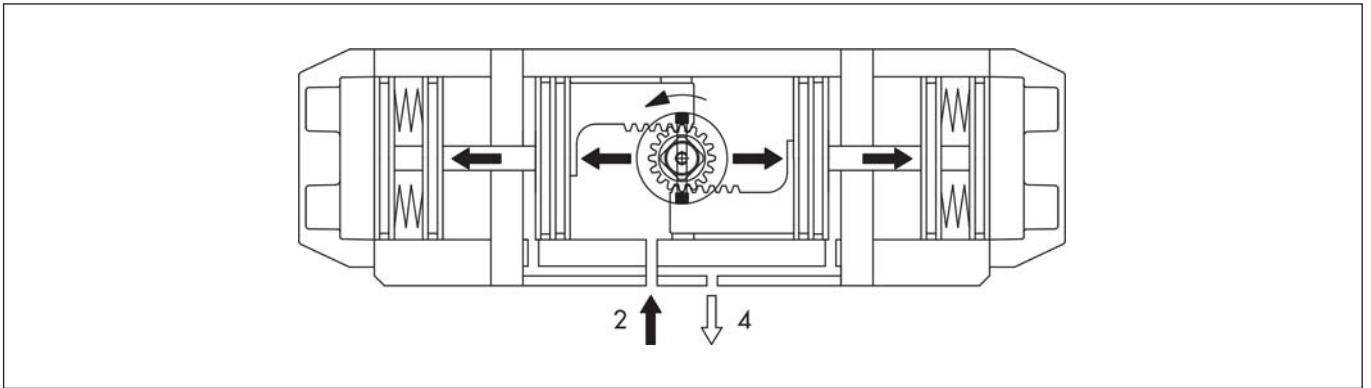


Fig. 2: Function from 90° to 180°

## ■ From 90° to 0°

When compressed air is supplied at the port 4, air forces the pistons inward and compresses the springs from their outside ends to the center. A clockwise rotation is obtained.

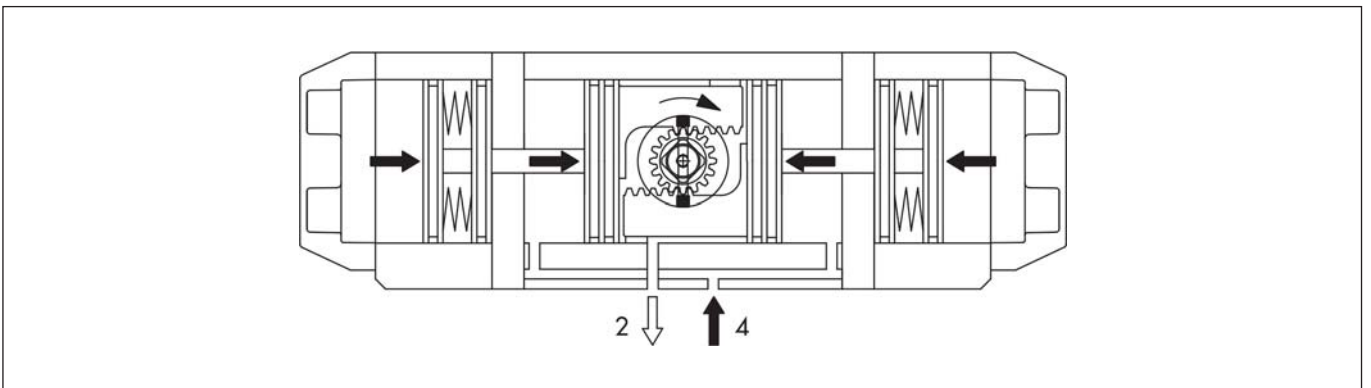


Fig 3: Function from 90° to 0°

## ■ Air fail operation

**From 180° position:** the air pressure loss (air or electric failure) at port 2 allows the springs to force the pistons inward (until 90° position) with the exhaust air exiting at port 2, a clockwise rotation is achieved.

**From 0° position:** the air pressure loss (air or electric failure) at port 4 allows the springs to force the pistons toward the actuator (until 90° position) with the exhaust air exiting at port 4, a counterclockwise rotation is achieved.

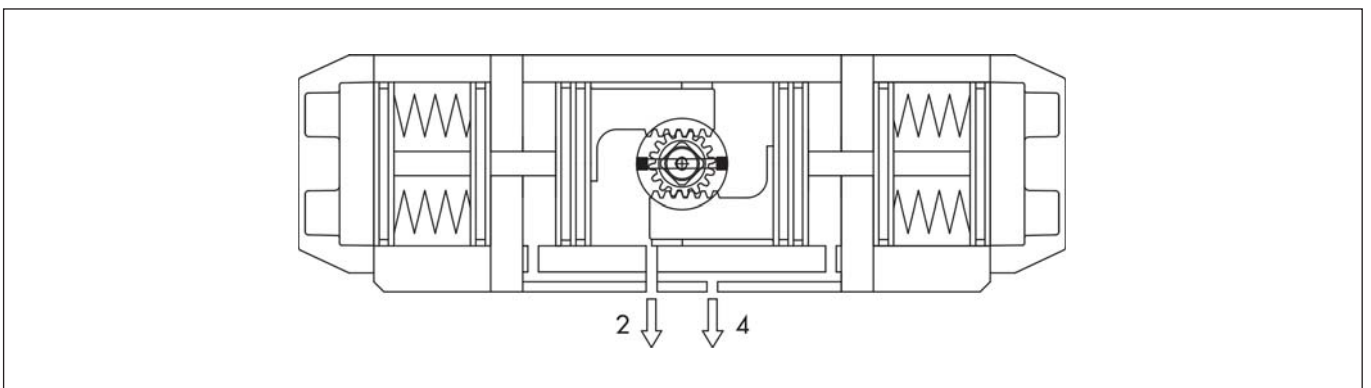


Fig. 4: Function in case of air failure

## Dimensions of quarter-turn actuator

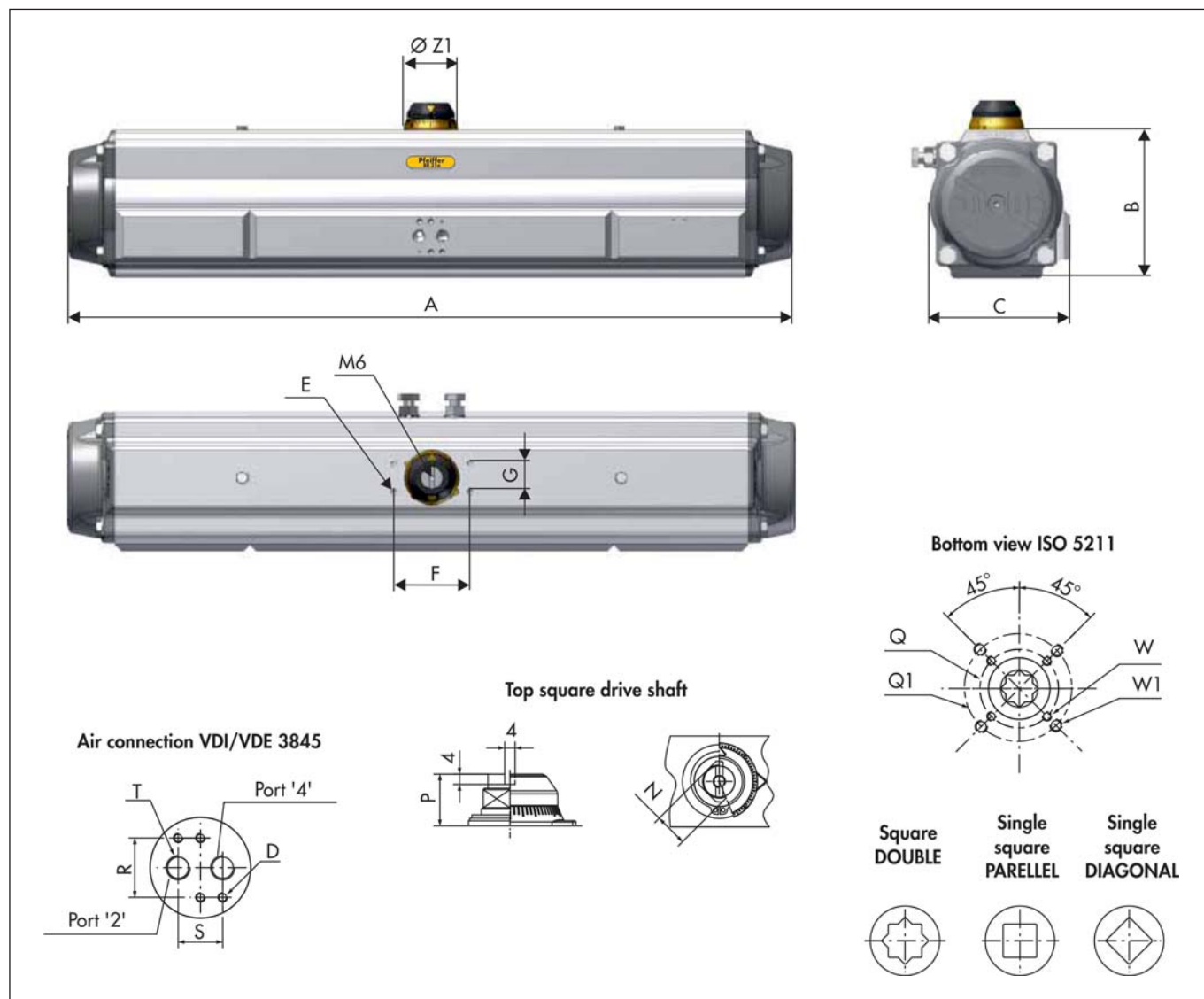


Fig. 5: Dimensional drawings

Table 1: Dimensions in mm

Actuator Type <sup>2)</sup>	A	B	C	D	E	F	G	N	P	R	S	Z1	T- ISO 228	ISO- Flange <sup>1)</sup>	Q	Q1	W	W1
SRP 150	581	127	118.5	M5x8	M5x8	80	30	17	20	32	24	42	1/4"	F07 + F10	70	102	M8	M10
SRP 300	749	157	146.5	M5x8	M5x8	80	30	27	30	32	24	58	1/4"	F07 + F10	70	102	M8	M10
SRP 600	951	196	181	M5x8	M5x8	80	30	27	30	32	24	67.5	1/4"	F10 + F12	102	125	M10	M12
SRP 1200	1180	245	221.5	M5x8	M5x8	130	30	36	50	32	24	80	1/4"	F14	140	/	M16	/



**Info:**

<sup>1)</sup> Other connection on request

<sup>2)</sup> Other models on request