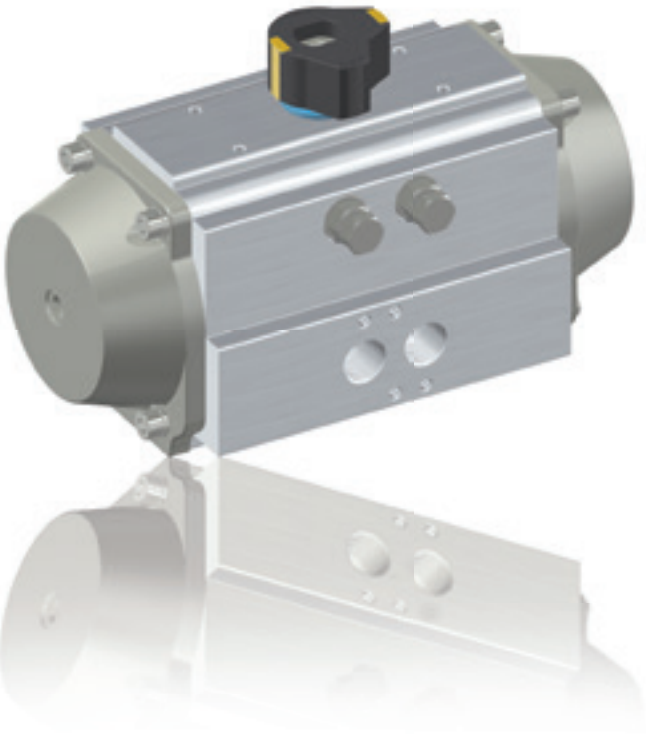
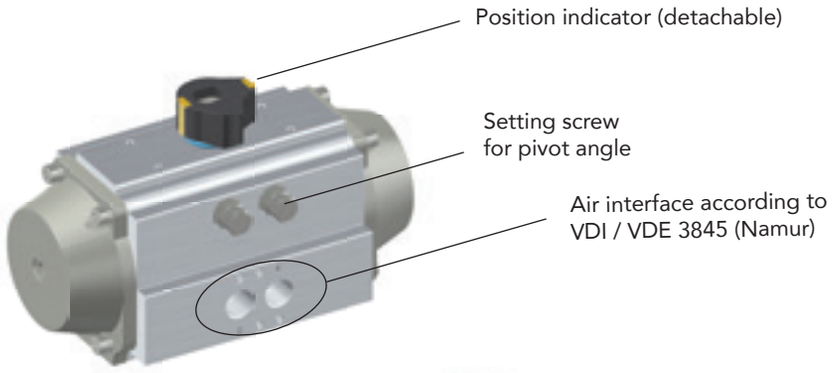
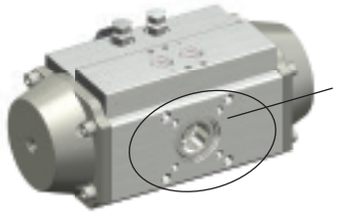


Operating Instructions

Pneumatic drives

Pneumatic drives

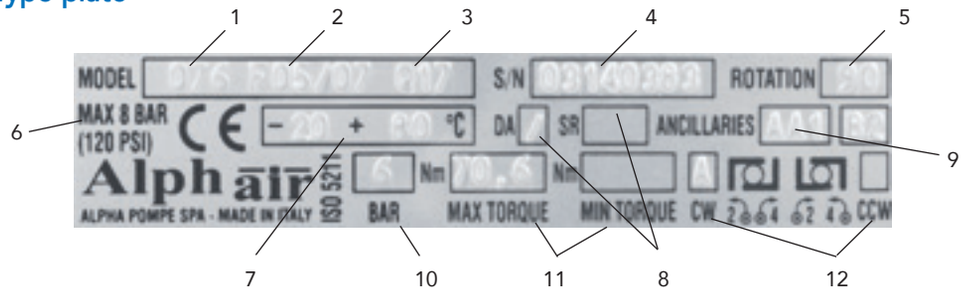




Advantages of the pneumatic drives

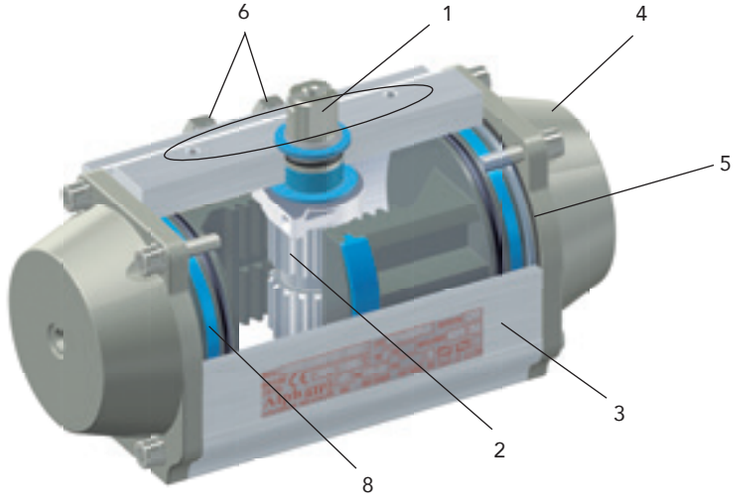
- Simple design
- Easy to handle
- High switching speed
- High repetition frequency
- Extremely high switching rate

Type plate



1. Model description
2. Flange pattern according to ISO 5211
3. Square socket
4. Serial number
5. Pivot angle
6. Maximum compressed air supply
7. Temperature range
8. Functional principle label
   DA = double acting
   (air/air), see Page 4
   SR = spring return
   single acting (air/spring), see Page 5
9. Design of the interfaces and air connections
10. Compressed air in bar
11. Maximum torque (Nm)
    Minimum torque (Nm)
12. Rotational direction label
    CW = clockwise
    CCW = counter clockwise

Equipment characteristics



1. Device interface
For limit switches and positioners according to the NAMUR VDI/VDE 3845 Standard

2. Drive shaft
Manufactured using carbon steel (20 µ nickel-plated or, optionally, stainless steel AISI 316 / A4)

3. Housing
Manufactured using extruded aluminium ASTM 6063, precision-machined inner surfaces (50 µ hard-anodised)

4. End caps
Manufactured using aluminium injection-moulded alloy EN AB 46100 (60-80 µ polyester powder-coated)

5. Piston
Manufactured using aluminium injection-moulded alloy EN AB 46100 (15 µ hard-anodised)

6. Setting screws
Manufactured using (AISI 316 / A4), outer end position adjustment ±5°

7. Springs
Spring steel 25-30 µ polyester coating, (not visible in the figure)

8. Sliding elements
Manufactured using acetal resin with good sliding capability, easy to replace in the event of a maintenance issue, manufactured using PA66 (polyamide) in the high/low temperature design

9. O-rings
NBR O-rings guarantee flawless function at standard temperatures. Viton O-rings are recommended for use at high temperatures and silicone O-rings are recommended for use at low temperatures.

ATEX
according to ATEX-94/3-CE
II 2GD c Tmax = 95 °C.

SIL3 – Safety Integrity 3.

Requirements

Air supply
Dry or lubricated,
filtered compressed air

Temperature ranges
Standard: -20 +80 °C (-4 +175 °F)
Special designs::
Low temp.: -40 +80 °C (-40 +175 °F)
High temp.: -20 +150 °C (-4 +300 °F)

Permissible application pressure
8 bar/120 psi continuous pressure

Surface finishing
Surface finishing is available for the industry, chemical, pharmaceutical, foodstuff and offshore segments

Functional principle double-acting (air/air)

(stated as „DA" on the type plate)

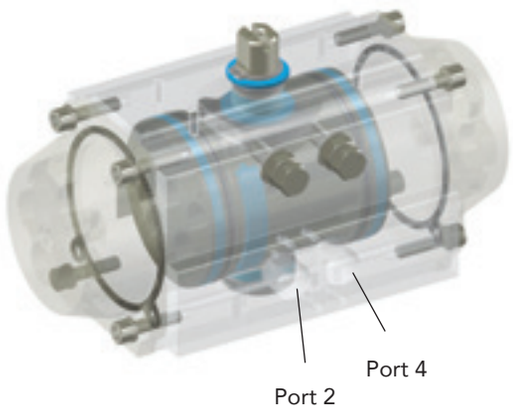
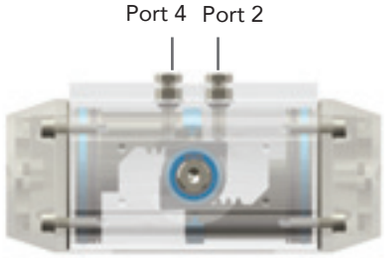


Figure:
Standard design

Compressed air is alternately fed / discharged from two separate air chambers.

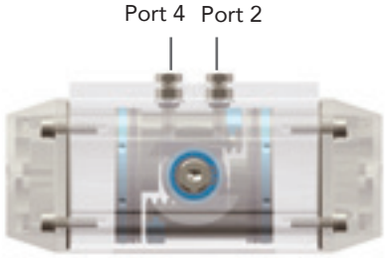
The piston movement generated as a result is forwarded to the shaft via a toothed rack and, consequently, turns the spindle belonging to the fixture.

Drive open



Air gains access to the inner air chamber via Port 2, opens the piston and, consequently, activates the switching movement of the sprocket.

Drive closed



The outer chambers are impinged with pressure via Port 4, closes the pistons and causes the counter movement of the sprocket

Functional principle single-acting (air/spring)

(stated as „SR" on the type plate)

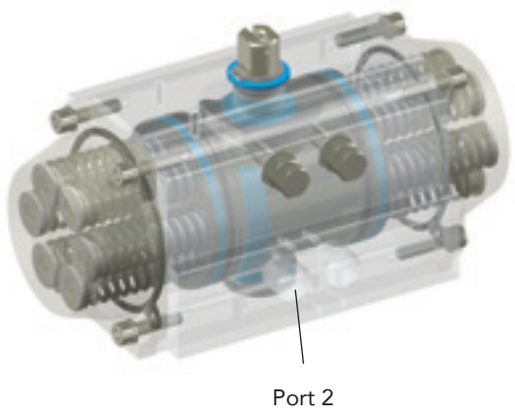


Figure:
Standard design
(normally closed)

Safety travel positioning

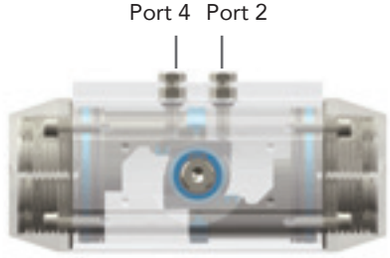
If a failure occurs, e.g. as a result of a power failure or an interruption ot the a ir supply, the safety travel positioning takes place (on drives equipped with springs). This setting can be stated when ordering the drive.

N/C = normally closed (delivery standard)
N/O = normally open

In contrast to the double-acting design, only one chamber is filled with air and, consequently, only one piston movement is generated.

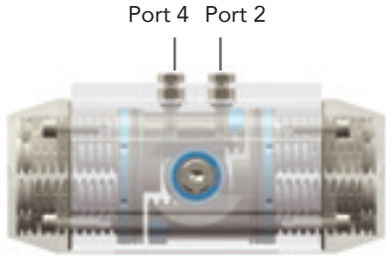
During the bleeding phase, the springs installed in the drive cause a counter movement of the pistons.

Drive open



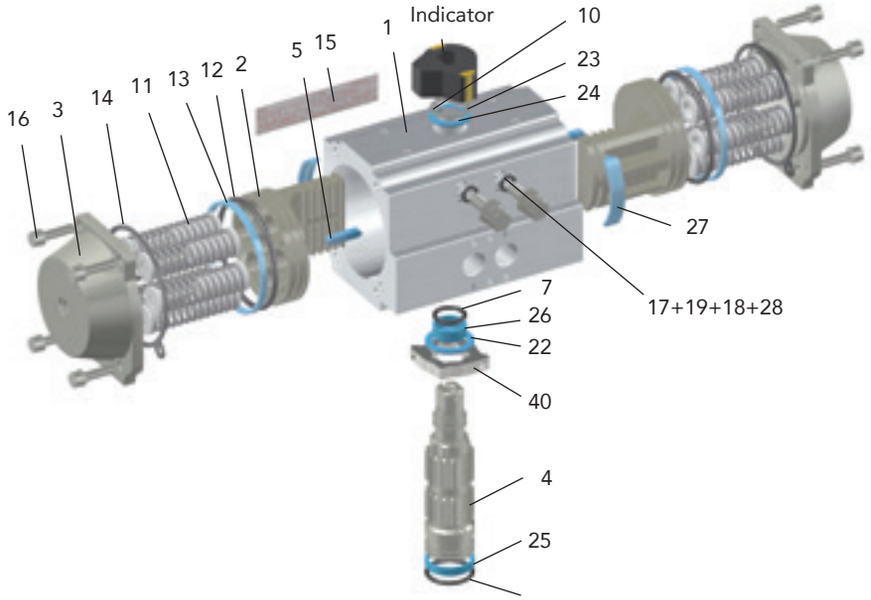
The air chamber is supplied with air via Port 2, opens the piston (against the spring force) and causes the switching movement of the sprocket.

Drive closed



The bleeding, which also takes place via Port 2, closes the piston and causes the counter movement of the sprocket that is generated by the springs.

Parts list – Details



Part no.	Quantity	Description	Material	Specification	Coating
1	1	Body	Extruded aluminium	ASTM 6063 T6	A - N - TF
2	2	Piston	Aluminium alloy	ASTM B179 - DIN1725/5	A
3	2	End caps	Aluminium alloy	ASTM B179 - DIN1725/5	N - V - TF
4	1	Shaft	Steel optional stainless steel	ASTM A105 optional AISI 316 (A4)	N
5	2	Slide spring	Acetal resin, PA66, PA66		
6	1	Lower shaft seal/O-ring	NBR, FPM/FKM, Silicone		
7	1	Upper shaft seal/O-ring	NBR, FPM/FKM, Silicone		
10	1	Safety ring	Steel		N
11	0-12	Spring cartridge	Carbon steel, PA 66, Stainless steel	C-98	V
12	2	Piston ring	NBR, FPM/FKM, Silicone		
13	2	Piston sliding ring	Acetal resin, PA66, PA66		
14	2	Cover seal	NBR, FPM/FKM, Silicone		
15	1	Type plate	Aluminium		
16	4+4	Cover screw	Stainless steel	AISI 304 (A2)	
17	2	Nut	Stainless steel	AISI 304 (A2)	
18	2	Washer	Stainless steel	AISI 304 (A2)	
19	2	O-ring	NBR, FPM/FKM, Silicone		
22	1	Axial sliding ring	Acetal resin, PA66, PA66		
23	1	Shaft lock washer	Stainless steel	AISI 304 (A2)	
24	1	Axial sliding ring	Acetal resin, PA66, PA66		
25	1	Radial sliding ring	Acetal resin, PA66, PA66		
26	1	Radial sliding ring	Acetal resin, PA66, PA66		
27	2	Piston sliding jaw	Acetal resin, PA66, PA66		
28	2	Setting screw	Stainless steel	AISI 304 (A2)	
40	1	Cam	Stainless steel	AISI 316 (A4)	

Material: Standard: -20 + 80 °C I High temperature: -40 + 80 °C I Low temperature: -20 + 150 °C
Coating: **A** = Anodised I **N** = Chemically nickel-plated I **V** = Coated I **TF** = Anodised + PTFE-coated

Please observe the following points prior to assembly in order to ensure that the drive functions flawlessly.

Storage and transport

- Do not allow the drive to fall
- Keep the drive clean – ensure that it remains in the packaging until commissioning takes place
- Ensure smooth conveying
- Store between 0°C and +40°C

Please observe the following points prior to commissioning

Safety information

Prior to placing the drive into operation, it must be ensured that the plant in which the drive shall be installed has been taken out of operation and conforms with the standards

Such standards include the EU Standard or a different technical standard that describes or regulates the exact function of the plant.

- Ensure that the valve and the drive are closed.
- Assemble the drive on to the valve.
- Use an adapter piece and a mounting bracket for ball valves/general valves that cannot be mounted directly on to the system.
- Connect the valve and the drive using the provided screws.

Examine the following points in the event of functional restrictions

- The construction of the drive to the valve.
- Whether the control air is sufficient (see type plate; standard design = 6 bar)

Contact in the event of maintenance / faults

Please contact us directly should you experience any functional restrictions or require maintenance

You can reach us between 08:00 and 17:00 from Monday to Friday:

Service tel. +49 (0) 7232 36 55-76

Regulation of the pivot angle

The regulation of the pivot angle is carried out at the factory by the manufacturer.

Proceed as follows for further regulations

Safety information

All installation, regulation and maintenance processes must be carried out under the strictest of safety measures.

No electrical or pneumatic connection may be in place during the work.

- Loosen the locking nut belonging to the set screw
- Keep a small amount of tension applied to the upper protrusion of the sprocket using a wrench and regulate the switching movement via the outer screws
- Tighten the locking nut once the desired position has been reached
- Establish the electrical and pneumatic connection and inspect the function

Switching rate / service life

Drive:

The lubrication of the drive is carried out at the factory. The factory guarantees **1,000,000 switching cycles.** This exclusively applies to standard design models.

The warranty states that no metal components have to be replaced.

Rubber parts and plastic sliding elements:

A service life of **300,000 switching cycles** is guaranteed ex works in terms of the pneumatic tightness of the rubber parts and plastic sliding elements.

They must be replaced in the event of any indication of wear or a loss in pressure.

Springs:

A service life of **100,000 switching cycles** is guaranteed ex works for the springs.

They must be replaced in the event of rust formation or any indication of wear

It is recommended that regular service be carried out and some maintenance sets for frequently used drives be kept in stock.

Check sheet

Type of connection:

☐ Sleeve end ☐ Weld end ☐ Flange end

Design:

☐ 2-part ☐ 3-part ☐ 1-part
☐ 3-part ☐ 2-part
☐ 3-part

☐ 2-way
☐ 3-way ☐ T-drill hole ☐ L-drill hole

Gasket (seat gasket/O-ring):

☐ Standard: PTFE / FKM (TA-air)
☐ optional: PTFE / PTFE

Media:

☐ Lubricating ☐ Abrasive ☐ Crystallising
Temperature: __ °C max.
Operating pressure: __ bar

Actuator:

Control air: ☐ Standard (6 bar)
☐ Deviating __ bar

☐ Double-acting
☐ Single-acting ☐ N/C Normely closed ☐ N/O Normely open

Switching rate:

__ x per hour __ x per day
__ x per week ☐ Occasionally

Solenoid valve:

☐ Yes ☐ No
☐ 24V AC ☐ 24V DC ☐ 230V AC

Standard J+J (others on request)

IndikatorPosition detector:

☐ Yes ☐ No
☐ Plastic (Standard Makrolon / ATEX Latiohm)
☐ Aluminium
☐ Mechanical
☐ Inductive ☐ 2-wire ☐ 2-wire

☐ ATEX

(Ball valve with anti-static-device)

Standard
(II 2GD c Tmax = 95 °C)

☐ Zone 1
☐ Zone 2

The entire unit is also available in accordance with ATEX Directives on request.
Please state the ATEX requirements when ordering.