



## **Operating Instructions**

Type DAF

Three-Position Pneumatic Actuator with Infinitely Variable Middle Position

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**These instructions are valid only in combination with the SAD/SAF mounting instructions!**

### **Function**

The AMG three-position actuator can move to a further middle position that is always exactly reproducible via the 0° and 90° stationary functions.

This is realised via two spring-supported dosing pistons to which control medium has been admitted.

During the movement towards the middle position, the mechanical stops are pressed against the pistons to which control medium has been admitted in the inner chamber through the dosing piston using spring force. In this way, the stops bring the control shaft (fitting) into the desired position.

## Detailed Description

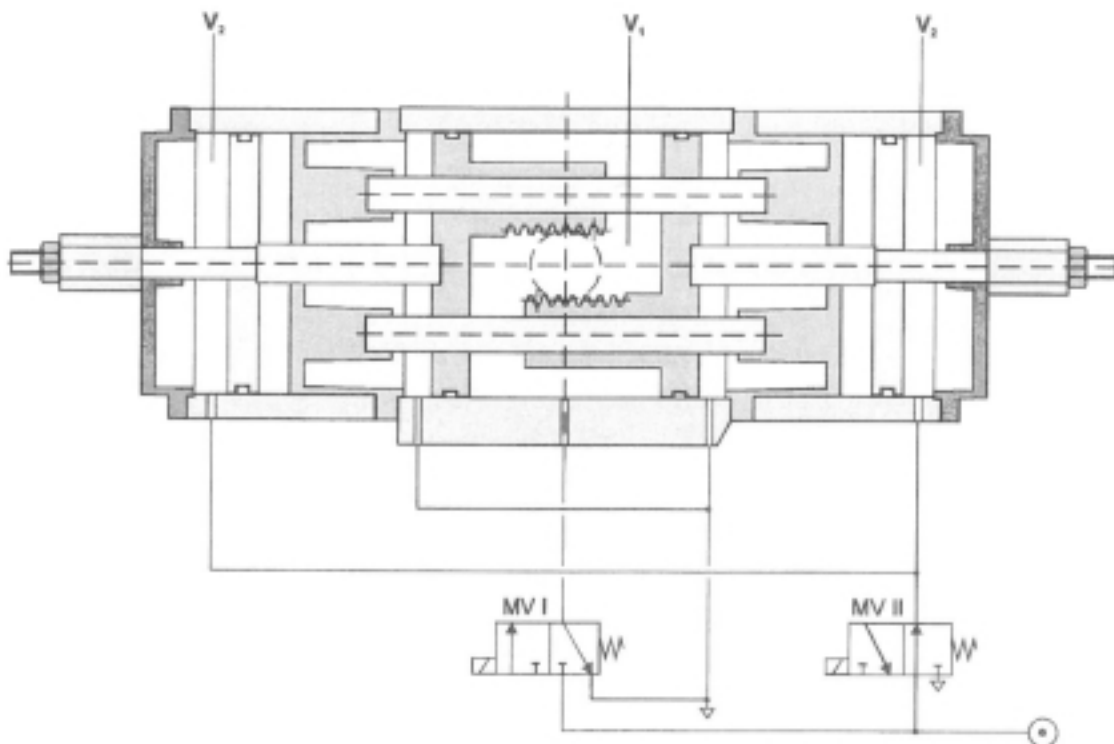
The mechanism is actuated using two 3/2 directional valves.

**Coarse pulse:** MV I switches to Position 1 and aerates  $V_1$ . MV II remains in Position 1 and de-aerates  $V_2$ . The inner piston opens the fitting by 90° in a counter-clockwise direction.

**Fine pulse:** MV II switches to Position 1 and aerates  $V_2$ .  $V_1$  remains aerated. With the support of spring forces, outer pistons move the inner pistons against the aerated  $V_1$  chamber until the completely reproducible, fixed middle position, which is set using the outer adjusting nuts, has been reached. The fitting is closed in a clockwise direction until it reaches the middle position.

**Blocking pulse:** MV I and MV II switch to Position 0.  $V_1$  and  $V_2$  are de-aerated. The released spring forces close the fitting.

**Note:** If  $V_2$  is not de-aerated, it can be moved between the "CLOSED" and "Dosing" positions.



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## Adjusting the Middle Position

The regulations for the prevention of accidents must be observed for all tasks!  
(For items, please see the piece list.)

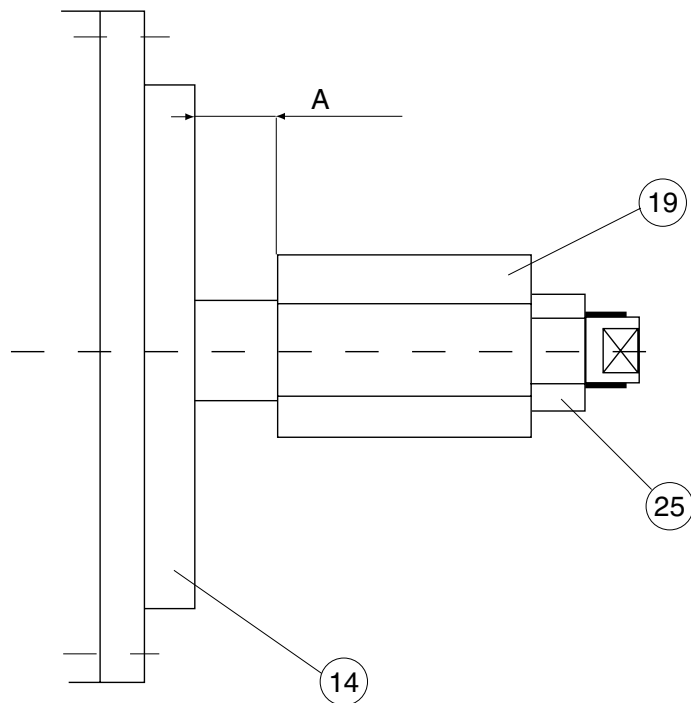
The middle position (dosing position) must be adjusted by the customer on site.

After the cover (26) has been removed, the adjusting nuts (19) and lock nuts (25) of the stops become visible.

The adjustment tasks must be carried out on both sides of the actuator!

Please carry out the following steps:

1. Actuate the coarse flow function by opening the actuator.
2. Loosen the lock nuts (25) and turn them outwards.
3. Adjust the opening angle - dosing position:  
To do so, turn the adjusting nuts (19) towards the spring cover (14) until Dimension A from Table 1 has been set.
4. Fix the adjusting nuts (19) into place using the lock nuts (25).
5. Attach the protective covers.

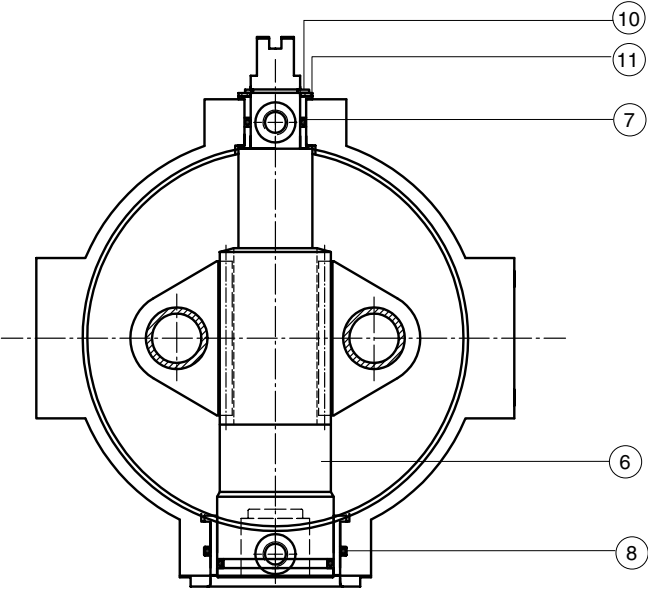
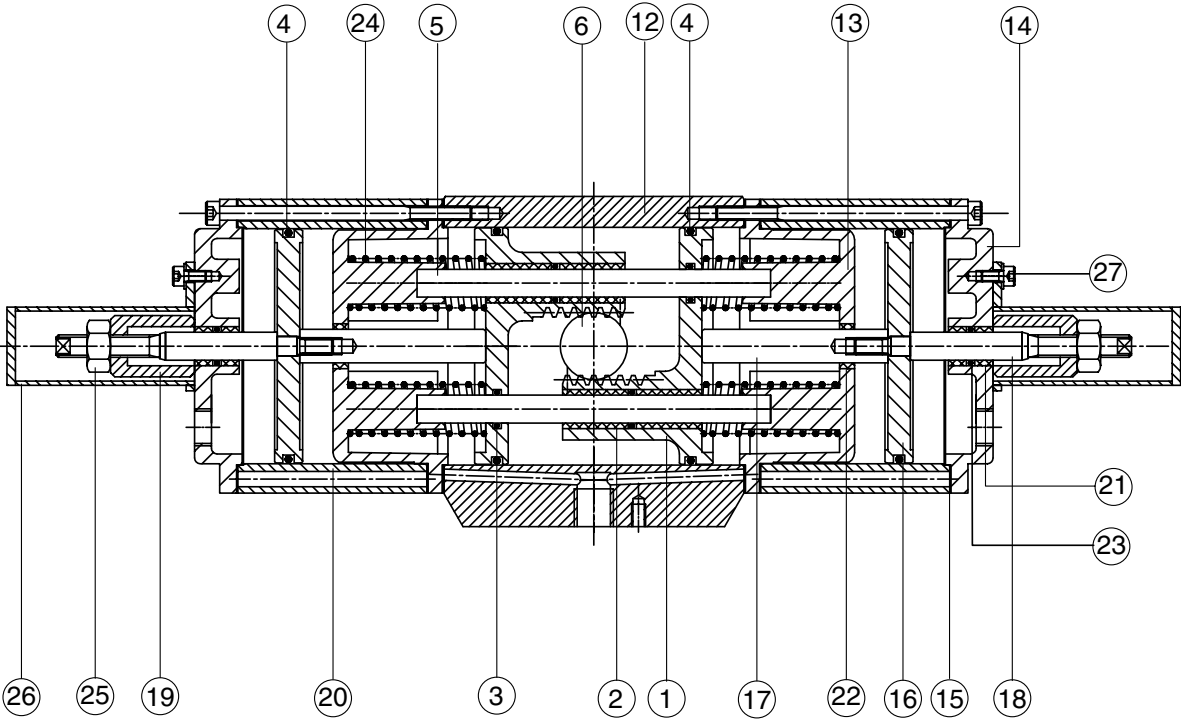


DAF/DAD standard	Opening angle Setting Dimension A in mm				Stroke per angle degree in mm
	10°	20°	30°	90°	
10	12.4	10.85	9.3	13.95	0.155
15	16.8	14.7	12.6	18.9	0.21
20	16.8	14.7	12.6	18.9	0.21
25	22.4	19.6	16.8	25.2	0.28
30	28	24.5	21	31.5	0.35
33	33.6	29.4	25.2	37.8	0.42
35	37.6	32.9	28.2	42.3	0.47
40	37.6	32.9	28.2	42.3	0.47
42	50.4	44.1	37.8	56.7	0.63

Calculation of Distance A to opening angle

Distance Dimension A = Setting Dimension A 90° - (opening angle x stroke per angle degree) mm

**Sectional drawing**



## Piece List

Item	Piece(s)	Designation	Material
1	2	Piston	Special Al alloy
2	4	Guide bushing	Delrin
3	4	O-ring seal	Perbunan
4	4	O-ring seal	Perbunan
5	2	Guide tube	1.4305
6	1	Selector shaft	1.0060 cadmium
7	1	O-ring seal	Perbunan
8	2	O-ring seal	Perbunan
9	1	Spacer ring	Delrin
10	1	Circlip	DIN 471
11	1	Shim ring	DIN 988
12	1	Housing	Special Al alloy
13	2	Intermediate cover	Special Al alloy
14	2	End cover	Special Al alloy
15	6	Cover seal	Klingerite
16	2	Dosing piston	Special Al alloy
17	2	Piston rod	1.4305
18	2	Adjusting bolt	1.4305
19	2	Lock nut	1.4305
20	2	Dosing cylinder	Special Al alloy
21	4	Slide bearing	Delrin
22	2	Slide bearing	Delrin
23	2	O-ring seal	Perbunan
24	8-16	Spring	Spring steel
25	2	Hexagon nut	1.4305
26	2	Protective cover	1.0037
27	4	Hexagon head screw	1.4305



## Technical Data

Pressure range:	Up to 8 bar max.
Control medium:	Air or all non-agressive gaseous media
Temperature range:	-25°C to +80°C
Turning angle:	0° to 90°
Lubrication:	Permanent lubrication (with lubricant according to DIN 51825-K2K-30)
Surface protection:	HART-COAT coating Chemical nickel-plating Plastic coating Silicon-free finish Special finish

## Inspection and Maintenance

The AMG rotary actuator fundamentally requires no maintenance. Due to operating conditions that further wear, the seals should be exchanged and the actuator re-lubricated after a longer period of time.

When ordering replacement parts, please indicate the **type and size of the dosing actuator**.

