AVF 124: Valve drive with spring return

How energy efficiency is improved
Electric cut-off to save energy

Areas of application
Actuation of through and three-way valves in the VUN/BUN, VUD/BUD and VUE/BUE, DN 15 to DN 50 series. For controllers with a switching output (3-point control).

Features
- Actuator with spring return action and pushing force of 500 N
- The return spring moves the actuator back to a pre-determined end position in the event of a power failure or the power being switched off or whenever a limiter is activated
- Two versions; NC closes the valve, NO opens the valve if the spring is activated
- Stepping motor with electronic control unit and electronic load-dependent cut-off
- Maintenance-free gearbox and holding magnet
- LED display
- Coding switch for changing over running time (60, 120 s)

Technical description
- 230 V power supply
- Two-part housing made of self-extinguishing plastic, lower section black, cover transparent
- Body of gearbox and mounting bracket for fitting valve made of cast zinc
- Electrical connections (max. 1.5 mm²) with screw terminals
- Cable entry M20 × 1.5
- Installation position: vertical to horizontal, but not upside down

Type	Running time s		Reset function	Pushing force [1]	Power	Weight
	Motor	Spring		N		kg
AVF 124 F130	60/120	18 ±10	closed (NC)	500	230 V~	2.4
AVF 124 F230	60/120	18 ±10	open (NO)	500	230 V~	2.4

Power supply	± 15%, 50/60 Hz		Degree of protection [2]	IP 54 (EN 60529)
Power consumption			Protection class	II (IEC 60730)
F.30	4.4 W	7.6 VA		
			Min. response time	200 ms
Nominal stroke	8 mm		Wiring diagram	A10102
Max. operating temperature	100 °C		Dimension drawing	M07429
Permissible ambient temp.	5...60 °C			
Ambient humidity	< 95% rh without condensation		Fitting instructions	MV 505851
			Declaration on materials	MD 51.367

Accessories
0370880 001 Mechanical stroke indicator; MV 505517
0370881 001* Auxiliary change-over contacts [3], simple; MV 505517
0370882 001* Auxiliary change-over contacts [3], simple, with pot. 2000 Ω, 1 W; 24 V; MV 505517
0370882 006* Auxiliary change-over contacts [3], simple, with pot. 1000 Ω, 1 W; 24 V; MV 505517
0370883 001* Potentiometer 2000 Ω, 1 W; 24 V; MV 505517
0370883 006* Potentiometer 1000 Ω, 1 W; 24 V; MV 505517
0372249 001* Intermediate piece required for media temperature >100 °C for BXN / VXN (recommended for temperature < 10 °C); MV 505932
0372460 001 Cable screw fitting (plastic M20 × 1.5) incl. locking nut and gasket, max. 2 pcs.

*) Dimension drawing or wiring diagram are available under the same number

1) Max. pushing force: 550 N or, with spring return, 1500 N
2) Degree of protection IP 54 only with cable screw fitting
3) Infinitely variable, max. loading 2 (1) A, 12 ...250 V~, min. loading 250 mA, 12 V~

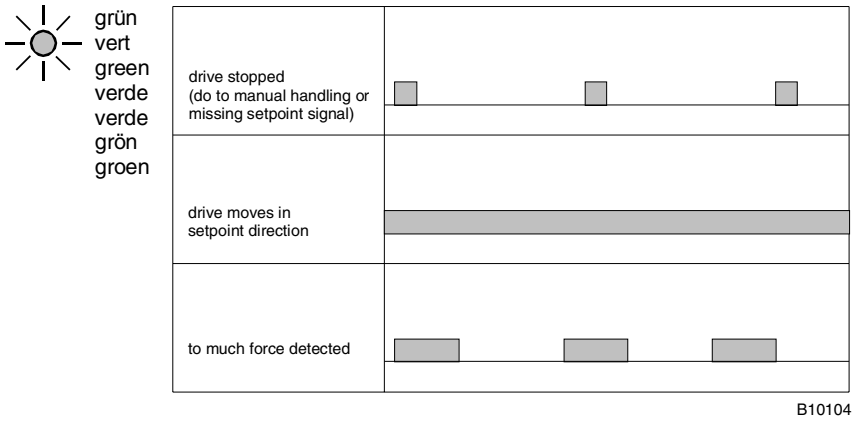
Operation
On starting the unit for the first time (after applying power), or on re-starting the unit after the reset function has been triggered, there is a wait of 45 seconds for the reset function to become operable.
By applying power to terminals 1-2a (or 1-2b), the final control element can be moved to any desired position by means of the coupling rod. This extends (or the valve opens) if power is applied to the drive at terminals 1 and 2a, but retracts if applied to terminals 1 and 2b.
In both end positions (on hitting a stop in the valve or reaching the maximum stroke), or in the event of an overload, the electronic motor cut-off is activated (no end switches).
The stroke direction can be changed by transposing the connections.

In the event of a power failure or if the mains supply is switched off or whenever the monitoring contacts are activated, the retention magnet releases the gears, and the pre-tensioned spring moves the drive (depending on the model) to one of the end positions. The reset function is braked in accordance with the speed, so that no pressure surges can occur in the line.
The green LED lights up whenever a command is at terminal 2a or 2b. When the stops have been reached, the LED flashes at intervals of about 2.5 seconds.
The yellow LED lights up continuously in normal mode, and goes out if the reset function has been triggered (no power at terminal 21). When power has been restored to terminal 21, the yellow LED flashes for approx. 40 seconds, during which time the reset function cannot be de-activated (so that the drive can always reach one of the end positions).

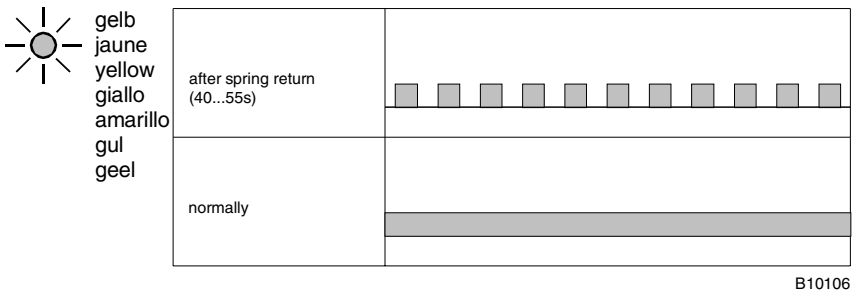
Coding switches

	S1	S2
120 s	OFF	ON
120 s	ON	ON
60 s	ON	OFF
60 s	OFF	OFF
	ON	ON

LED indicator: normal operation



LED indicator: safety function



Engineering and fitting notes
The ingress of condensate, drops of water etc. along the valve spindle and into the drive should be prevented.
The drive and valve are fitted together by hand, then the screws are tightened; no further adjustment is necessary. The drive is delivered ex works in the open or middle position.
On the 'normally closed' version, the distance piece must be removed once the valve has been fitted.
The concept of a stepping motor combined with electronics ensures parallel operation of more than one valve drive.
The maximum number of accessories that can be fitted is a stroke indicator plus one other piece – auxiliary contacts, potentiometer or a combination thereof.
Fitting outdoors. If the devices are fitted outdoors, we recommend that additional measures be taken to protect them against the effects of the weather.

Additional technical information

Transparent cover without lever for manual adjustment. The black housing holds the stepping motor, the electronic control unit and the transformer. Underneath is the maintenance-free gear unit, the spring and the retention magnet. By breaking out a pre-scored circle in the housing, it is possible to create an aperture to fit a second M20 cable screw fitting.

Auxiliary change-over contacts
Switch rating: max. 230 V AC; min. current 20 mA at 20 V
Switch rating: 4...30 V DC; current 1...100 mA

Power consumption

Type	Running time s	Condition	Active power P * W	Apparent power S VA
AVF 124 F…	60	Operating	3.9	7.2
	120	Operating	4.4	7.6
		Standstill	2.4	6.2

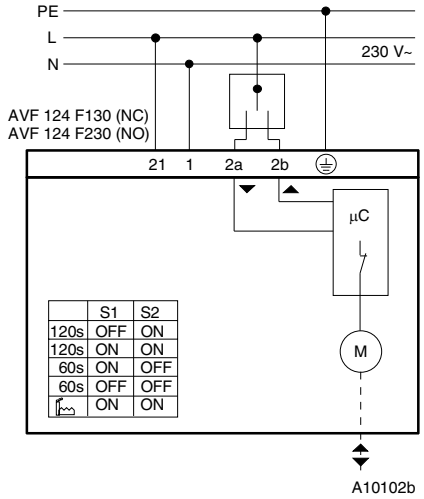
*) On starting 30 VA (max. 1s), only when re-starting or with spring return

CE conformity

EMC Directive 2004/108/EC
EN 61000-6-1
EN 61000-6-2
EN 61000-6-3
EN 61000-6-4

Low-voltage Directive 2006/95/EC
EN 60730-1
EN 60730-2-14
Over-voltage category III
Degree of pollution 3

Wiring diagram



NC = normally closed
NO = normally open

Accessories

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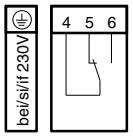

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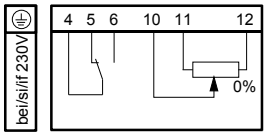

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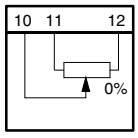
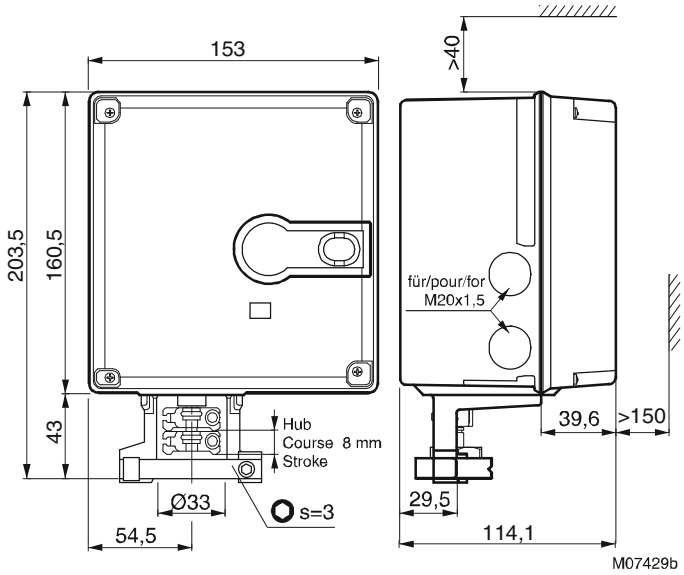
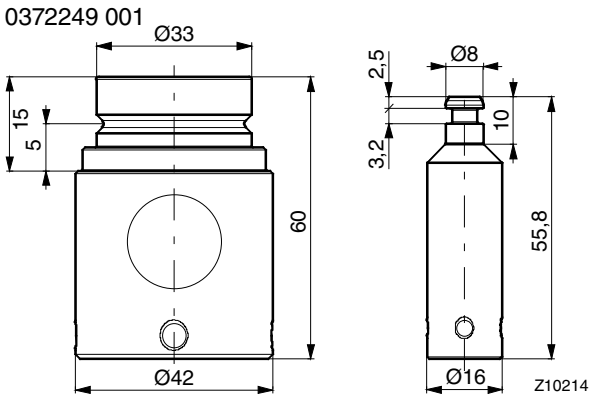


Dimension drawing





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