










**Reliable and
space-saving
application.**

Linear actuators for ventilation applications

Edition 2022

Non fail-safe actuators, special actuators, configuration options



Actuator type		Actuating force	Stroke range	Control	Damper size up to approx. ¹⁾	Page
Linear actuators with connector plug						5
UH..		50 N	0...60 mm		■ 0.2 m ²	
Linear actuators with connecting cable or connecting terminals						6
CH..		125 N	0...100 mm		■ 0.8 m ²	
LH..A..		150 N	0...300 mm		■ 1 m ²	
SH..A..		450 N	0...300 mm		■ 3 m ²	
Very fast running linear actuators, non fail-safe						7
LHQ..A..		100 N	0...100 mm		■ 0.7 m ²	
SHQ..A..		200 N	0...100 mm		■ 1.3 m ²	
Parametrisable linear actuators with connecting terminals						8
LH..A..		150 N	0...300 mm	modulating 2...10 V ²⁾	■ 1 m ²	
Configuration options						10-11

Use of damper actuators from BELIMO: the actuators listed in this documentation are designed for adjusting dampers in technical building installations.

¹⁾ When calculating the torque or actuating force required to operate air dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, place of installation and air flow conditions. The recommended damper sizes are guidelines.

²⁾ Control, operating range, feedback, running time and other functions with MP types adjustable with PC-Tool or Service Tool ZTH EU.

Bus solutions from Belimo, save costs and energy!



Bus systems can be used to exchange any volume of data from various bus participants over the same physical lines. The user has unrestricted access to control, feedback and parameters on the individual devices. Cabling expenditures are reduced by up to 90% compared with actuators with conventional wiring.

Thanks to time and material savings (cables, connecting terminals, connectors, etc.), installation work is simpler and cheaper. Further positive selling points for bus solutions include their lower fire load and the fact that they take up less space in cable trays and switch cabinets. Depending on the application and requirements, different bus systems are used.

One or two sensors can also be connected to most communicative actuators. This may be a passive resistance sensor (Pt1000, Ni1000, NTC etc.), an active sensor (e.g. with a 0...10 V output) or a switching contact. Its signals are digitised in the Belimo actuator and transferred to the higher-level bus system.



The Belimo MP-Bus was specially developed as a master-slave system for HVAC actuators and sensors. It allows up to eight different HVAC performance devices to be grouped together and connected to any higher-level system. It is very resistant to external interferences and does not need bus terminals.



Modbus is a communication protocol, which has become the de-facto standard. It is used commonly all around the globe and in a huge range of applications. Its simple implementation makes Modbus very popular with many manufacturers.



BACnet is a proven, widely used communication protocol for building automation. The standard is open, requires no licence and is used by a large number of international providers, universities and associations. Implementing the BACnet Standard Device Profiles and the associated BACnet Interoperability Building Blocks guarantees genuine compatibility between various BACnet devices.


















KNX is a well-engineered building automation system used around the world to control systems spanning several maintenance groups, for example heaters, blinds and security technology in buildings. The KNX-certified actuators enable direct connection to the KNX network. Communication takes place via the integrated KNX interface (TP, S-Mode).





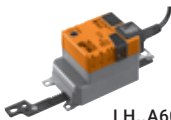
IoT actuators with Ethernet interface can exchange operating and setting data with Belimo Cloud. It is controlled locally via an analogue signal or BACnet/Modbus. Thanks to the open client API of the Belimo Cloud, a connection to a specific cloud solution can be implemented.

Actuators and special actuators

		Linear actuators non fail-safe				Very fast running linear actuators	
		UH..	CH..	LH..A..	SH..A..	LHQ..A..	SHQ..A..
							
Mechanical accessories							
End stop kit, rotary support, Coupling piece			Z-AS2 Z-DS1 Z-KS2	Z-AS2 Z-DS1 Z-KS2	Z-AS1 Z-DS1 Z-KS1	Z-AS2 Z-DS1 Z-KS2	Z-AS1 Z-DS1 Z-KS1
End stop clips			Z-ESCM				
End stop		Z-ESUH					
Gear disengage- ment magnet			Z-MA				
Protective covering		Z-PCUM					
Electrical accessories							
Room temperature controller for mod- ulating actuators		CR24..	CR24..	CR24..	CR24..	CR24..	CR24..
Signal converter Voltage/current For modulating actuators		Z-UIC	Z-UIC	Z-UIC	Z-UIC	Z-UIC	Z-UIC
Positioner/ Range controller For modulating actuators		CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24
Tools							
Service Tool				ZTH EU ¹⁾	ZTH EU ¹⁾		

¹⁾ For all ..MP../..MA../..PC../..R9 actuators in the contracting and retrofit business.

Linear actuators with connector plug, connecting cable, connecting terminals

Actuating force		50 N	125 N	150 N	
Damper size up to approx.		0.2 m²	0.8 m²	1 m²	
Stroke (gear rod)	Nominal voltage				
		UH..	CH..L100	LH..A60	
Open-close, 3-point					
60 mm	AC/DC 24 V	UH24Y-L.1	CH24-L60.2	LH24A60	
100 mm			CH24-L100.2	LH24A100	
200 mm				LH24A200	
300 mm				LH24A300	
60 mm	230 V	UH230Y-L.1	CH230-L60.2	LH230A60	
100 mm			CH230-L100.2	LH230A100	
200 mm				LH230A200	
300 mm				LH230A300	
Modulating (2...10 V) ¹⁾			Direction of stroke 0 ²⁾	Direction of stroke 1 ²⁾	
60 mm	AC/DC 24 V	UH24Y-SR-L.1	CH24-SR-L60.2	CH24-SR-R60.2	
100 mm			CH24-SR-L100.2	CH24-SR-R100.2	
200 mm				LH24A-SR100	
100 mm				LH24A-SR200	
200 mm	230 V			LH230ASR100	
				LH230ASR200	
Modulating (2...10 V) with adaption ¹⁾			Direction of stroke 0 ²⁾	Direction of stroke 1 ²⁾	
40 mm	AC/DC 24 V		CH24-SX-L40.2	CH24-SX-R40.2	
100 mm			CH24-SX-L100.2	CH24-SX-R100.2	
Communicative ³⁾ , parametrisable ⁴⁾					
60 mm	AC/DC 24 V			LH24A-MP60	LH24A-MP60-TP
100 mm				LH24A-MP100	LH24A-MP100-TP
200 mm				LH24A-MP200	LH24A-MP200-TP
300 mm				LH24A-MOD200 ⁵⁾	
			LH24A-MP300	LH24A-MP300-TP	
Technical data					
Running time motor 100 mm		125 s	380 s	150 s	
Sound power level		≤35 dB(A) @ 125 s	≤35 dB(A) @ 380 s	≤45 dB(A) @ 150 s	
Manual override		Manual override by dismounting actuator	Gear disengagement with magnet	Gear disengagement with push button, can be locked	
Connection		Molex Mini-Fit Jr. connector plug	Connecting cable 1 m	Connecting cable 1 m / Connecting terminals	
Direction of stroke		Selectable via contacting	Selectable via contacting	Selectable with switch	
Height of stroke		Adjustable in 1 mm increments from 0...60 mm	Adjustable in 20 mm increments from 20...100 mm	Adjustable in 20 mm increments from 20...100 mm	
Degree of protection		IP20	IP54	IP54	
Ambient temperature		-30...50°C			
Storage temperature		-40...80°C			
Ambient humidity		95% RH, non-condensing			
EMC		CE according to 2014/30/EU			

¹⁾ Modulating actuators: Positioning signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.

²⁾ Direction of stroke 0: when Y = 0 V, gear rod is retracted / Direction of stroke 1: when Y = 0 V, gear rod is extended.

³⁾ You can find suitable system diagrams at www.belimo.com.

⁴⁾ Control, operating range, feedback, running time and other functions adjustable with PC-Tool or Service Tool ZTH EU.

⁵⁾ All MOD versions work with Modbus and BACnet.

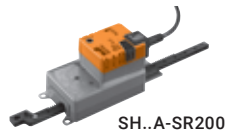
Other versions on request.

Linear actuators with connecting cable


Actuating force

450 N

Damper size up to approx.

3 m²

SH..A-SR200

Stroke (gear rod)	Nominal voltage	
		 SH..A-SR200
Open-close, 3-point		
100 mm	AC/DC 24 V	SH24A100
200 mm		SH24A200
300 mm		SH24A300
100 mm	230 V	SH230A100
200 mm		SH230A200
300 mm		SH230A300
Modulating (2...10 V) ¹⁾		
100 mm	AC/DC 24 V	SH24A-SR100
200 mm		SH24A-SR200
100 mm	230 V	SH230ASR100
200 mm		SH230ASR200
Communicative ²⁾ , parametrisable ³⁾		
100 mm	AC/DC 24 V	SH24A-MP100
200 mm		SH24A-MP200
		SH24A-MOD200 ⁴⁾
300 mm		SH24A-MP300

Technical data

Running time motor 100 mm	150 s
Sound power level	≤52 dB(A) @ 150 s
Manual override	Gear disengagement with push button, can be locked
Connection	Connecting cable 1 m
Direction of stroke	Selectable with switch
Height of stroke	Adjustable in 20 mm increments from 20...100 mm
Degree of protection	IP54
Ambient temperature	-30...50°C
Storage temperature	-40...80°C
Ambient humidity	95% RH, non-condensing
EMC	CE according to 2014/30/EU

¹⁾ Modulating actuators: Positioning signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 1 mA.

²⁾ You can find suitable system diagrams at www.belimo.com.

³⁾ Control, operating range, feedback, running time and other functions adjustable with PC-Tool or Service Tool ZTH EU.

⁴⁾ All MOD versions work with Modbus and BACnet.

Other versions on request.

Electrical installation

Electrical and mechanical accessories **Page 4**

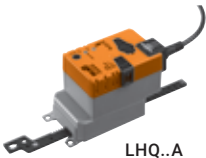
Open/close	3-point	Modulating	Parametrisable	Modulating
..H24A.., ..H230A..	..H24A.., ..H230A..	CH24-S.., ..H24A-SR..	..H24A-MP..	..H230ASR..
Priority on 3		Y = 0...10 V U = 2...10 V	Y = positioning signal U = feedback position	Y = 0...10 V U = 2...10 V

Very fast running linear actuators, non fail-safe

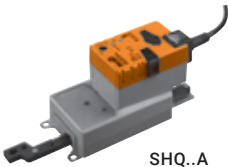
Actuating force **100 N**
Damper size up to approx. 0.7 m²

200 N
1.3 m²

Nominal voltage



LHQ..A



SHQ..A

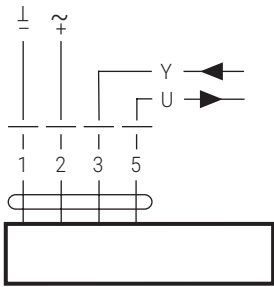
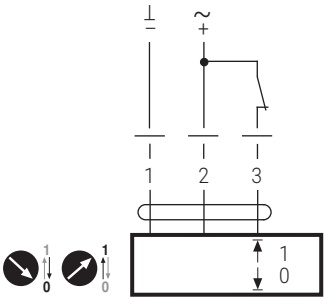
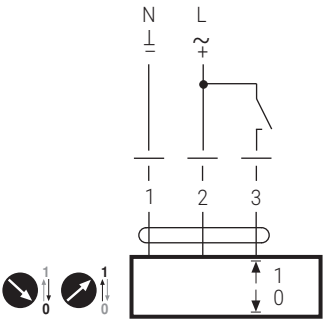
Open/close		
AC/DC 24 V	LHQ24A100	SHQ24A100
Modulating (2...10 V) ¹⁾		
AC/DC 24 V	LHQ24A-SR100	SHQ24A-SR100
Technical data		
Stroke range	0...100 mm	0...100 mm
Sound power level	≤56 dB(A) @ 3.5 s	≤56 dB(A) @ 7 s
Running time motor 100 mm	3.5 s	7 s
Manual override	Gear disengagement with push button, can be locked	
Connection	Connecting cable 1 m	
Direction of stroke	Selectable with switch	
Height of stroke	Adjustable in 20 mm increments from 40...100 mm	
Degree of protection	IP54	
Ambient temperature	-30...40°C (40...50°C limited) ²⁾	
Storage temperature	-40...80°C	
Ambient humidity	95% RH, non-condensing	
EMC	CE according to 2014/30/EU	

¹⁾ Modulating actuators: Positioning signal Y = 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = 2...10 V, max. 0.5 mA.
²⁾ Please get in touch with your local Belimo contact person.
Other versions on request.

Electrical installation

Electrical and mechanical accessories **Page 4**

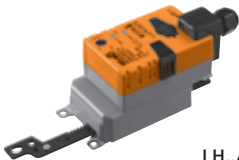
Open/close	Modulating
..HQ24A100	..HQ24A-SR
Priority on 3	Y = 0...10 V/U = 2...10 V



Parametrisable linear actuators with connecting terminals

Actuating force **150 N**
Damper size up to approx. **1 m²**

Stroke (gear rod)	Nominal voltage	
60 mm	AC/DC 24 V	LH24A-MP60-TP
100 mm		LH24A-MP100-TP
200 mm		LH24A-MP200-TP
300 mm		LH24A-MP300-TP



LH..A60

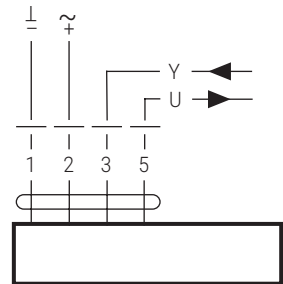
Technical data	
Running time motor 100 mm	150 s
Manual override	Gear disengagement with push button, can be locked
Connection	Connecting terminals
Direction of stroke	Selectable with switch
Height of stroke	Adjustable in 20 mm increments from 20...100 mm
Motor sound power level	≤45 dB(A) @ 150 s
Degree of protection	IP54
Ambient temperature	−30...50°C
Storage temperature	−40...80°C
Ambient humidity	95% RH, non-condensing
EMC	CE according to 2014/30/EU

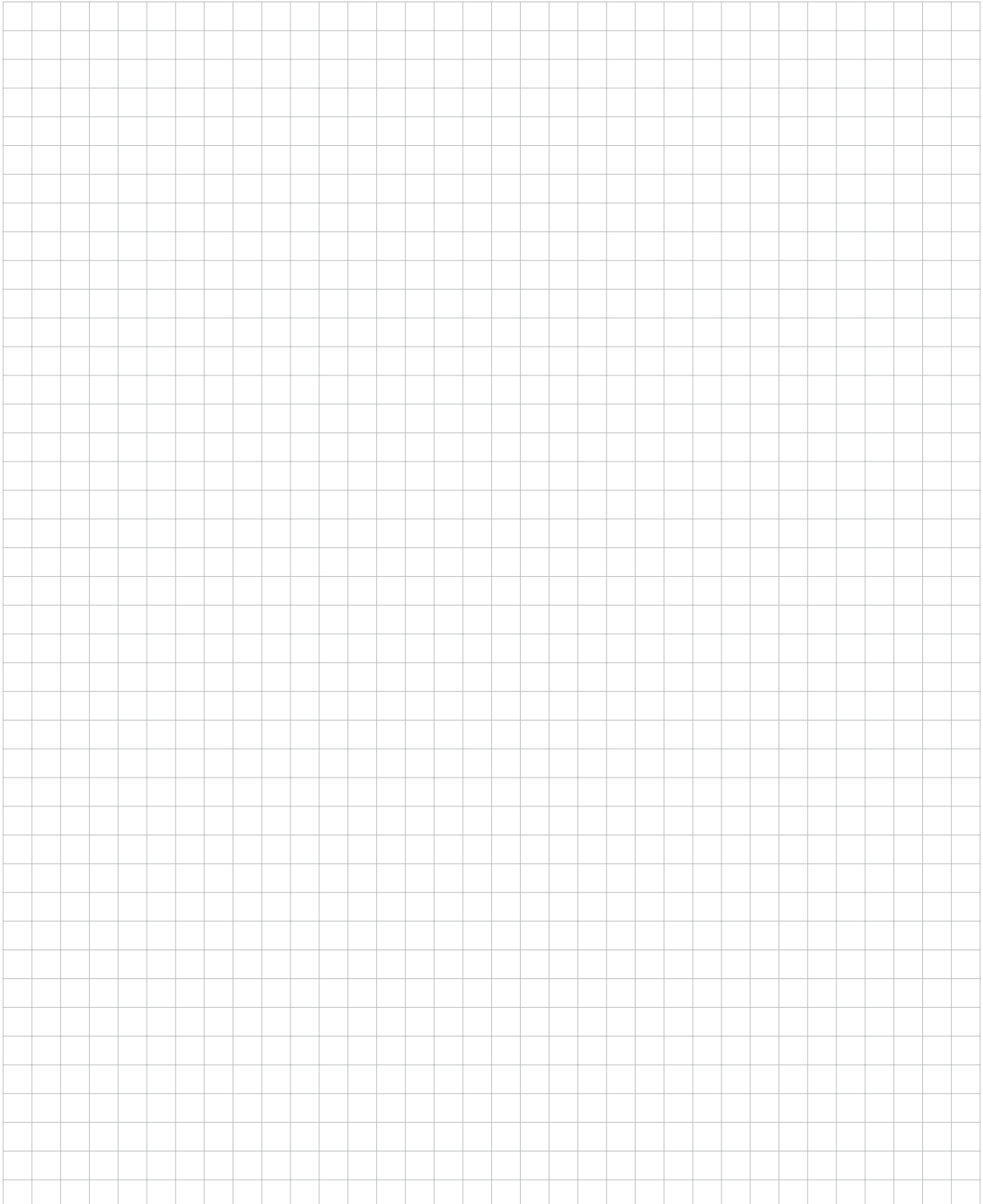
¹⁾ You can find suitable system diagrams at www.belimo.com.
²⁾ Control, operating range, feedback, running time and other functions with MP types adjustable with PC-Tool or Service Tool ZTH EU.

Electrical installation

Electrical and mechanical accessories **Page 4**

Parametrisable
..H24A-MP..
Y = positioning signal U = position feedback



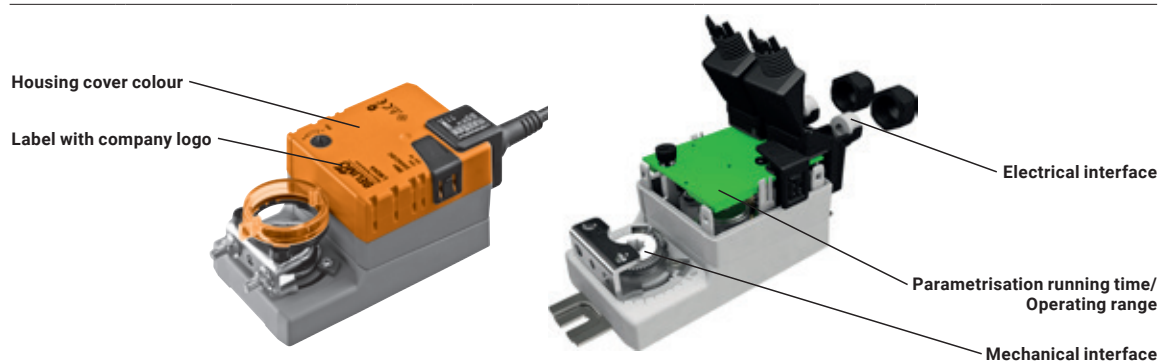


Configuration options

Some actuator product ranges permit adaptation to special customer preferences. These allow - on the basis of existing components - a selection of different cable lengths, mechanical interfaces, running times and operating ranges. Please get in touch with your local Belimo contact person.






Example

LM..A..



Numeration is not exhaustive.

Rotary actuators

	CM..	LM..A..	NM..A..	SM..A..	GM..A..
Configuration					
Housing cover colour	orange grey	orange grey	orange grey	orange grey	orange grey
Label with company logo, colour	Label: transparent Font: black	Label: transparent Font: black white	Label: transparent Font: black white	Label: transparent Font: black white	Label: transparent Font: black white
Mechanical interface	Shaft clamp, one-sided 6...12.7 mm Form fit 6x6 mm Form fit 8x8 mm Form fit 10x10 mm	Shaft clamp, one-sided 6...20 mm Form fit 8x8 mm Form fit 10x10 mm Form fit 12x12 mm	Shaft clamp, one-sided 8...26.7 mm Shaft clamp, reversible 8...20 mm Form fit 8x8 mm Form fit 10x10 mm Form fit 12x12 mm Form fit 16x16 mm	Shaft clamp, one-sided 8...26.7 mm Shaft clamp, reversible 10...20 mm Form fit 10x10 mm Form fit 12x12 mm Form fit 16x16 mm	Shaft clamp, reversible 12...26.7 mm
Electrical interface	Terminal connection IP20 Cable 1 m, PVC Cable 1 m, FRNC Cable 3 m, FRNC Cable 5 m, FRNC	Terminal connection IP20 Terminal connection IP54 Cable 1 m, PVC Cable 1 m, FRNC Cable 3 m, FRNC Cable 5 m, FRNC	Terminal connection IP20 Terminal connection IP54 Cable 1 m, PVC Cable 1 m, FRNC Cable 3 m, FRNC Cable 5 m, FRNC	Terminal connection IP20 Terminal connection IP54 Cable 1 m, PVC Cable 1 m, FRNC Cable 3 m, FRNC Cable 5 m, FRNC	Terminal connection IP20 Terminal connection IP54 Cable 1 m, PVC Cable 1 m, FRNC Cable 3 m, FRNC Cable 5 m, FRNC
Parametrisation running time	35 s 45 s 75 s	35 s 45 s 90 s 150 s	45 s 90 s 150 s	90 s 150 s	90 s 150 s
Parametrisation operating range	2...10 V 0.5...10 V Adaption option	2...10 V 0.5...10 V Adaption option	2...10 V 0.5...10 V Adaption option	2...10 V 0.5...10 V Adaption option	2...10 V 0.5...10 V Adaption option
Packaging	Single pack Multipack 20 pieces	Single pack Multipack 20 pieces	Single pack Multipack 20 pieces	Single pack Multipack 20 pieces	Single pack Multipack 20 pieces
General	Feasibility of the combinations on request Minimum order quantity with coloured label or customer logo: 20 pieces.				

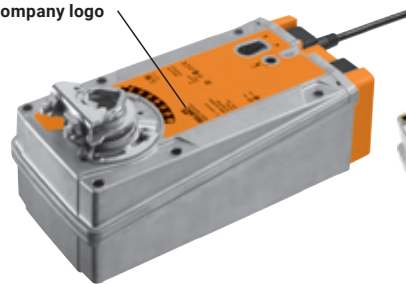
Configuration options

Some actuator product ranges permit adaptation to special customer preferences. These allow - on the basis of existing components - a selection of different cable lengths, mechanical interfaces, running times and operating ranges. Please get in touch with your local Belimo contact person.

Example

EF..A

Label with company logo







Parametrisation running time/
Operating range

Electrical interface

Heating

Mechanical interface

Numeration is not exhaustive.

	Rotary actuators, fail-safe		Very fast running rotary actuators		Linear actuators	
	NF..A../SF..A..	EF..A..	LMQ..A..	LH..A..		
Configuration						
Housing cover colour	orange grey		orange grey	orange grey		
Label with company logo, colour	Label: orange blue grey Font: black white black	Label: orange grey Font: black	Label: transparent blue black Font: black white white	Label: transparent blue black Font: black white white		
Mechanical interface	Shaft clamp, reversible 10...25.4 mm Form fit 10x10 mm Form fit 12x12 mm Form fit 16x16 mm	Shaft clamp, reversible 12...26.7 mm	Shaft clamp, one-sided 8...26.7 mm Shaft clamp, reversible Form fit 8x8 mm Form fit 10x10 mm Form fit 12x12 mm Form fit 16x16 mm	Without stroke limitation With stroke limitation		
Electrical interface	Terminal connection IP20 Terminal connection IP54 Cable 1 m, PVC Cable 1 m, FRNC Cable 3 m, FRNC Cable 5 m, FRNC	Terminal connection IP66 Cable 1 m, FRNC Cable 3 m, FRNC Cable 5 m, FRNC	Cable 1 m, PVC Cable 1 m, FRNC Cable 3 m, FRNC Cable 5 m, FRNC	Terminal connection IP20 Terminal connection IP54 Cable 1 m, PVC Cable 1 m, FRNC Cable 3 m, FRNC Cable 5 m, FRNC		
Parametrisation running time	45 s 75 s 90 s 150 s	75 s 90 s 150 s	2.5 s 4 s 5 s 7 s 10 s	75 s/100 mm 90 s/100 mm 120 s/100 mm 150 s/100 mm		
Parametrisation operating range	2...10 V 0.5...10 V Adaption option	2...10 V 0.5...10 V Adaption option	2...10 V 0.5...10 V Adaption option	2...10 V 0.5...10 V Adaption option		
Packaging	Single pack Multipack 20 pieces	Single pack Multipack 20 pieces	Single pack Multipack 20 pieces	Single pack Multipack 20 pieces		
Special		Heating				
General	Feasibility of the combinations on request Minimum order quantity with coloured label or customer logo: 20 pieces.					

All inclusive.

Belimo as a global market leader develops innovative solutions for the controlling of heating, ventilation and air-conditioning systems. Actuators, valves and sensors represent our core business.

Always focusing on customer added value, we deliver more than only products. We offer you the complete product range for the regulation and control of HVAC systems from a single source. At the same time, we rely on tested Swiss quality with a five-year warranty. Our world-wide representatives in over 80 countries guarantee short delivery times and comprehensive support through the entire product life. Belimo does indeed include everything.

The "small" Belimo devices have a big impact on comfort, energy efficiency, safety, installation and maintenance.

In short: Small devices, big impact.



5-year warranty



On site around the globe



Complete product range



Tested quality



Short delivery times



Comprehensive support



BELIMO Automation AG

Brunnenbachstrasse 1, 8340 Hinwil, Switzerland
+41 43 843 61 11, info@belimo.ch, www.belimo.com

