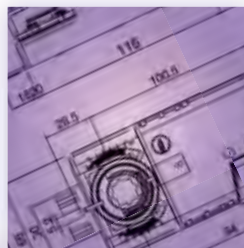


# Damper Actuators



*Technical Databook*

Version 6.2



<b>Damper Actuators</b>		<b>Fast Running Damper Actuator, 4Nm</b>	
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**Note:**
**Using Belimo Damper Actuators:**

- The actuators listed in this catalogue are intended for the operation of air dampers in HVAC systems.
- The damper actuator is not allowed to be used outside the specified field of application, especially in aircraft.
- The enclosure of the actuator equipment may only be opened by the manufacturer. It contains no components which the user can replace or repair.
- The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

**Torque requirements:**

- When calculating the torque required to operate dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, mounting and air flow condition.

General Damper Actuators					
Series	Old Code	New Code	Series	Old Code	New Code
CM..	CMU24	CM24-L / CM24-R	NM..	NMU24-S	NM24A-S
	CMU24-SR-R	CM24-SR-R		NMU24-SR	NM24A-SR
	CMU24-T	CM24-T-L / CM24-T-R		NMU24-T	NM24A-TP
	CMU230	CM230-L / CM230-R		NMU230	NM230A
LM..	LMU24	LM24A	SM..	NMU230-S	NM230A-S
	LMU24-F	LM24A-F		NMU230SR	NM230ASR
	LMU24-S	LM24A-S		NMU230-T	NM230A-TP
	LMU24-SR	LM24A-SR		SMU24	SM24A
	LMU24-T	LM24A-TP	SMU24-S	SM24A-S	
	LMU230	LM230A	SMU24-SR	SM24A-SR	
	LMU230-F	LM230A-F	SMU230	SM230A	
	LMU230-S	LM230A-S	SMU230-S	SM230A-S	
	LMU230SR	LM230ASR	SMU230SR	SM230ASR	
	LMU230-T	LM230A-TP	GM..	GMU24	GM24A
	LMU72	LM72A		GMU24-SR	GM24A-SR
	NM..	NMU24		NM24A	GMU230

Fast Running Damper Actuators					
Series	Old Code	New Code	Series	Old Code	New Code
LMQ..	LMQU24	LMQ24A	SMQ..	SMQU24	SMQ24A
	LMQU24-SR	LMQ24A-SR		SMQU24-SR	SMQ24A-SR
NMQ..	NMQU24	NMQ24A	SMD..	SMDU230	SMD230A
	NMQU24-SR	NMQ24A-SR			

Mechanical Fail-Safe Damper Actuators					
Series	Old Code	New Code	Series	Old Code	New Code
NFA..	NFU	NFA	EF..	EFU24-S2	EF24A-S2
	NFU-S2	NFA-S2		EFU24-SR	EF24A-SR
	NFU24-SR	NF24A-SR		EFU230-S2	EF230A-S2
SFA..	SFU	SFA			
	SFU-S2	SFA-S2			
	SFU24-SR	SF24A-SR			

Electronic Fail-Safe Damper Actuators					
Series	Old Code	New Code	Series	Old Code	New Code
GK..	GKU24	GK24A-1	GK..	GKU24-MF	GK24A-MF

Product naming							
	e.g.	L	M	Q	24	A	-SR
<b>Torque</b>							
<u>General Damper Actuator</u>							
40Nm	G						
20Nm	S						
10Nm	N						
5Nm	L						
2Nm	C						
<u>Mechanical Fail-Safe Damper Actuator</u>							
30Nm	E						
20Nm	S						
10Nm	N						
4Nm	L						
2.5Nm	T						
<u>Electronic Fail-Safe Damper Actuator</u>							
40Nm	G						
<u>General Damper Actuator</u>							
<u>Mechanical Fail-Safe Damper Actuator</u>							
<u>Electronic Fail-Safe Damper Actuator</u>							
<b>Running speed</b>							
Normal speed	Blank						
Fast AC/DC 24V	Q						
Fast AC 230V	D						
<b>Power supply</b>							
AC/DC 24V	24						
AC 100...240V (AC 230V for Mechanical Fail-Safe Damper Actuator)	230						
<u>Globe Harmonisation Damper Actuator for Asia Pacific</u>							
<b>Function</b>							
<u>General Damper Actuator</u>							
Open/Close, 3-point	Blank						
Modulating DC (0)2...10V	-SR						
Auxiliary switch	-S						
Form fit	-F						
Terminal connection	-T, -TP						
<u>Mechanical Fail-Safe Damper Actuator</u>							
Open/Close	Blank						
Modulating DC (0)2...10V	-SR						
3-point	-3						
Auxiliary switch	-S,-S2						
<u>Electronic Fail-Safe Damper Actuator</u>							
3-point	-MF						

For customising types of damper actuators, please contact your nearest Belimo sales representative.

	2Nm	5Nm	10Nm	20Nm	40Nm
General Damper Actuator	CM..	LM..	NM..	SM..	GM..
Open/Close, 3-point AC/DC 24V 50/60Hz	CM24-.. CM24-T..	LM24A (-F / -TP)	NM24A (-TP)	SM24A	GM24A*
Auxiliary switch built-in 1 SPDT		LM24A-S	NM24A-S	SM24A-S	
AC 100...240V 50/60Hz	CM230-..	LM230A (-F / -TP)	NM230A	SM230A	GM230A*
Auxiliary switch built-in 1 SPDT			NM230A-S	SM230A-S	
Modulating Control signal DC (0)2...10V, feedback DC 2...10V					
AC/DC 24V 50/60Hz	CM24-SR-R**	LM24A-SR	NM24A-SR	SM24A-SR	GM24A-SR
AC 100...240V 50/60Hz		LM230ASR	NM230ASR	SM230ASR	
Running time	75s	150s			
Shaft diameter	6...12.7mm	6...20mm	8...26.7mm	10...20mm	12...25.2mm
Sound power level	Max. 35dB(A)			Max. 45dB(A)	
Manual override	Gear disengaging by magnet	Gear disengaging by push button			
Electrical connection	Cable 1m (-T: Terminal)				
Direction of rotation	Selected by switch				
Angle of rotation	Max. 95°, can be limited at both ends with mechanical adjustable end stops				
Position indicator	Mechanical, plug-on				
Degree of protection	IP54 (-T: IP20)				
EMC	CE according to 2004/108/EC				
LVD***	CE according to 2006/95/EC				
Ambient temperature	-30...+50°C				
Non-operation temperature	-40...+80°C				
Humidity	5...95% RH, non-condensing				


\* Only Open/Close, no 3-point.

\*\* CM24-SR-R: Control signal (0)2V at the right side, and the left side is available on request.

\*\*\* For 230V models.

	4Nm	8Nm	16Nm		
Fast Running Damper Actuator	LMQ..	NMQ..	NMD..	SMQ..	SMD..
Open/Close AC 24V 50/60Hz, DC 24V	LMQ24A	NMQ24A		SMQ24A	
AC 100...240V 50/60Hz			NMD230A		SMD230A
Modulating Control signal DC (0)2...10V, feedback DC 2...10V					
AC 24V 50/60Hz, DC 24V	LMQ24A-SR	NMQ24A-SR		SMQ24A-SR	
Running time	2.5s	4s	20s	7s	20s
Shaft diameter	8...26.7mm			12...25.2mm	10...20mm
Sound power level	Max. 52dB(A)		Max. 55dB(A)	Max. 63dB(A)	Max. 55dB(A)
Manual override	Disengaging the gearing latch by means of a push button, self-resetting				
Electrical connection	Cable 1m				
Direction of rotation	Selected by switch				
Angle of rotation	Max. 95°, can be limited at both ends with mechanical adjustable end stops				
Position indicator	Mechanical, plug-on				
Degree of protection	IP54				
EMC	CE according to 2004/108/EC				
LVD*	CE according to 2006/95/EC				
Ambient temperature	-30...+40°C (without restrictions); +40...+50°C (with restrictions)				
Non-operation temperature	-40...+80°C				
Humidity	5...95% RH, non-condensing				

\* For 230V models.

	2.5Nm	4Nm
<b>Mechanical Fail-Safe Damper Actuator</b>	<b>TF..</b>	<b>LF..</b>
Open/Close AC/DC 24V 50/60Hz	TF24	LF24
Auxiliary switch built-in 1 SPDT AC 230V 50/60Hz	TF24-S TF230**	LF24-S LF230
Auxiliary switch built-in 1 SPDT	TF230-S	LF230-S
3-point AC/DC 24V 50/60Hz	TF24-3**	LF24-3
Modulating Control signal DC (0)2...10V, feedback DC 2...10V AC/DC 24V 50/60Hz	TF24-SR	LF24-SR
Running time -Motor -Spring return	<75s* <25s @-20...+50°C / max. 60s @-30°C	40-75s* <20s @-20...+50°C / max. 60s @-30°C
Shaft diameter 	6...12mm	8...16mm
Sound power level -Motor  -Spring	Open/Close max. 50dB(A) Modulating and 3-point max. 35dB(A)	Open/Close max. 50dB(A) Modulating and 3-point max. 30dB(A)
	62dB(A)	
Electrical connection	Cable 1m	
Direction of rotation	Selected by mounting L/R	
Angle of rotation	Max. 95°	
Mechanical end stops	Yes	
Position indicator	Yes	
Degree of protection	IP42	IP54
EMC	CE according to 2004/108/EC	
LVD***	CE according to 2006/95/EC	
Ambient temperature	-30...+50°C	
Non-operation temperature	-40...+80°C	
Humidity	5...95% RH, non-condensing	

\* LF24-3 and all -SR types are 150s.

\*\* TF24-3 nominal voltage is AC 24V, TF230 nominal voltage is AC 100...240V.

\*\*\* For 230V models.

	10Nm	20Nm	30Nm
<b>Mechanical Fail-Safe Damper Actuator</b>	<b>NFA..</b>	<b>SFA..</b>	<b>EF..</b>
Open/Close AC 24...240V / DC 24...125V	NFA	SFA	-
Auxiliary switch built-in 2 SPDT AC/DC 24V 50/60Hz	NFA-S2	SFA-S2	-
Auxiliary switch built-in 2 SPDT AC 230V 50/60Hz	-	-	EF24A-S2
Auxiliary switch built-in 2 SPDT	-	-	EF230A-S2
Modulating Control signal DC (0)2...10V, feedback DC 2...10V AC/DC 24V 50/60Hz	NF24A-SR	SF24A-SR	EF24A-SR
Running time -Motor -Spring return	Open/Close 75s; modulating 150s 20s @ -20 ...+50°C / max. 60s @ -30°C		Open/Close 60s; modulating 150s 20s @ -20 ...+50°C / max. 60s @ -30°C
Shaft diameter	10...25.4mm / 14...25.4mm		12...26.7mm / 12...25.2mm
Sound power level -Motor  -Spring return	Open/Close max. 45dB(A) Modulating max. 40dB(A) max. 62dB(A)		Open/Close max. 55dB(A) Modulating max. 45dB(A) max. 71dB(A)
Electrical connection	Cable 1m		
Direction of rotation	Selected by mounting L/R		
Angle of rotation	Max. 95°		
Mechanical end stops	Yes		
Position indicator	Yes		
Degree of protection	IP54		
EMC	CE according to 2004/108/EC		
LVD*	CE according to 2006/95/EC		
Ambient temperature	-30...+50°C		
Non-operation temperature	-40...+80°C		
Humidity	5...95% RH, non-condensing		

\* For 230V only.

	40Nm
<b>Electronic Fail-Safe Damper Actuator</b>	<b>GK..</b>
Open/Close AC/DC 24V 50/60Hz	GK24A-1
Modulating / 3-point Control signal DC (0)2...10V, feedback DC 2...10V AC/DC 24V 50/60Hz	-  GK24A-MF
Running time -Standard -Power off position	150s 35s @ 0...50°C
Shaft diameter	12...26.7mm / 12...25.2mm
Sound power level -Standard -Power off position	Max. 53dB(A) Max. 61dB(A)
Electrical connection	Cable 1m
Direction of rotation	Selected by mounting L/R
Angle of rotation	Max. 95°
Mechanical end stops	Yes
Position indicator	Yes
Degree of protection	IP54
EMC	CE according to 2004/108/EC
Ambient temperature	-30...+50°C
Non-operation temperature	-40...+80°C
Humidity	5...95% RH, non-condensing

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 2Nm
- Nominal voltage AC/DC 24V
- Control: Open-close or 3-point



### Type overview

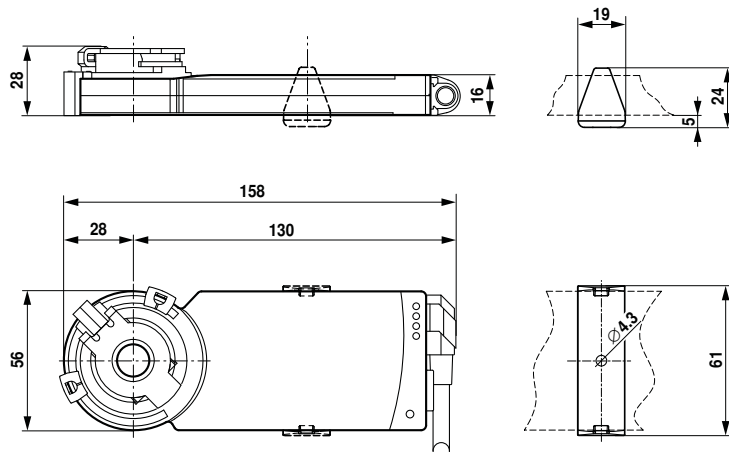
Type	Direction of rotation
CM24-L	counter-clockwise (ccw)
CM24-R	clockwise (cw)

### Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V
	Nominal voltage range	AC/DC 19.2 ... 28.8V
	Power consumption	In operation 0.5W @ nominal torque At rest 0.2W For wire sizing 1VA
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 2Nm @ nominal voltage
	Direction of rotation	See «Type overview»
	Manual override	Gear disengagement with magnet
	Angle of rotation	Without limit Endless With limit Fixed 315°↙ or 0...287.5°↙ with mechanical end stops, can be adjusted in 2.5°↙ increments
	Running time	75s / 90°↙
	Sound power level	Max. 35dB(A)
	Position indicator	Mechanical, pluggable (with integrated magnet for gear disengagement)
	<b>Safety</b>	Protection class
Degree of protection		IP54 in any mounting position NEMA2, UL Enclosure Type 2
EMC		CE according to 2004/108/EC
Certification		cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
Mode of operation		Type 1 (EN 60730-1)
Rated impulse voltage		0.8kV (EN 60730-1)
Control pollution degree		3 (EN 60730-1)
Ambient temperature		-30...+50°C
Non-operating temperature		-40...+80°C
Ambient humidity		95% r.H., non-condensating (EN 60730-1)
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.28kg

### Dimensions [mm]

#### Dimensional drawings



Damper spindle	Length	
	≥32	6...12.7

**Modulating damper actuator for adjusting dampers in technical building installations**

- Nominal torque 2Nm
- Nominal voltage AC/DC 24V
- Modulating control DC 0...10V
- Position feedback DC 2...10V
- Adaption



**Technical data**

<b>Electrical data</b>	Nominal voltage	AC/DC 24V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8V / DC 19.2...28.8V
Power consumption	In operation	1W
	At rest	0.5W
	For wire sizing	1.5VA
Connection supply / control		Cable 1m, 4 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque motor	Min. 2Nm
	Positioning signal Y	DC 0...10V
	Positioning signal Y note	Typical input impedance 100kΩ
	Operating range Y	DC 2...10V
	Position feedback U	DC 2...10V
	Position feedback U note	Max. 1mA
	Direction of rotation motor	Y = 0V, right end stop, position 0
	Manual override	Gear disengagement with magnet
	Angle of rotation	Max. 287.5°, can be limited at both ends with adjustable mechanical end stops Max. 360°, limited by means of mechanical end stops on the application
	Running time motor	75s / 90°
	Angle of rotation adaptation	Manual triggering of the adaption by the use of the magnet at the position intended for this purpose.
	Sound power level motor max.	35dB(A)
	Spindle driver	Universal spindle clamp 6...12.7mm
Position indication	Mechanical, plug-in (with integrated magnet for gear disengagement)	
<b>Safety</b>	Protection class IEC/EN	III Safety extra-low voltage
	Protection class UL	UL Class 2 Supply
	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108/EC
	Certification	cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Principle of operation	Type 1
Rated impulse voltage supply / control	0.8kV	
Control pollution degree	3	
Ambient temperature	-30...50°C	
Non-operating temperature	-40...80°C	
Ambient humidity	95% r.h., non-condensing	
Maintenance	Maintenance-free	
<b>Weight</b>	Weight	Approx. 0.28kg

**Dimensions [mm]**

**Dimensional drawings**

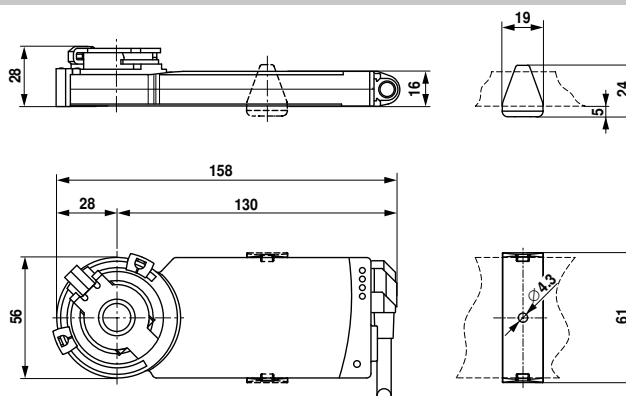
**Spindle length**

	Min. 32
	-

6...12.7

6, 8, 10

6...12.7



Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

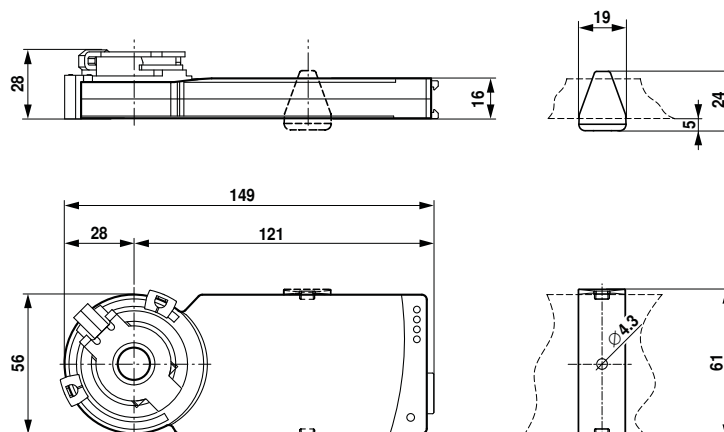
- Torque 2Nm
- Nominal voltage AC/DC 24V
- Control: Open-close or 3-point V
- Connecting terminals


**Type overview**

Type	Direction of rotation
CM24-T-L	counter-clockwise (ccw)
CM24-T-R	clockwise (cw)

**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V	
	Nominal voltage range	AC/DC 19.2...28.8V	
	Power consumption	In operation 0.5W @ nominal torque At rest 0.2W For wire sizing 1VA	
	Connection	Terminals for 3 x 1.5mm <sup>2</sup> CU wire or 3 x 1.0mm <sup>2</sup> CU litz wires	
<b>Functional data</b>	Torque (nominal torque)	Min. 2Nm @ nominal voltage	
	Direction of rotation	See «Type overview»	
	Manual override	Gear disengagement with magnet	
	Angle of rotation	Without limit Endless With limit Fixed 315°↔ or 0...287.5°↔ with mechanical end stops, can be adjusted in 2.5°↔ increments	
	Running time	75s / 90°↔	
	Sound power level	Max. 35dB(A)	
	Position indicator	Mechanical, pluggable (with integrated magnet for gear disengagement)	
	<b>Safety</b>	Protection class	III Safety extra-low voltage / UL Class 2 Supply
		Degree of protection	IP20 in any mounting position NEMA1, UL Enclosure Type 1
		EMC	CE according to 2004/108/EC
Certification		cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14	
	Mode of operation	Type 1 (EN 60730-1)	
	Rated impulse voltage	0.8kV (EN 60730-1)	
	Control pollution degree	2 (EN 60730-1)	
	Ambient temperature	-30...+50°C	
	Non-operating temperature	-40...+80°C	
	Ambient humidity	95% r.H., non-condensating (EN 60730-1)	
	Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 0.21kg	

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length	
	≥32	6...12.7

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 2Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point



Type overview

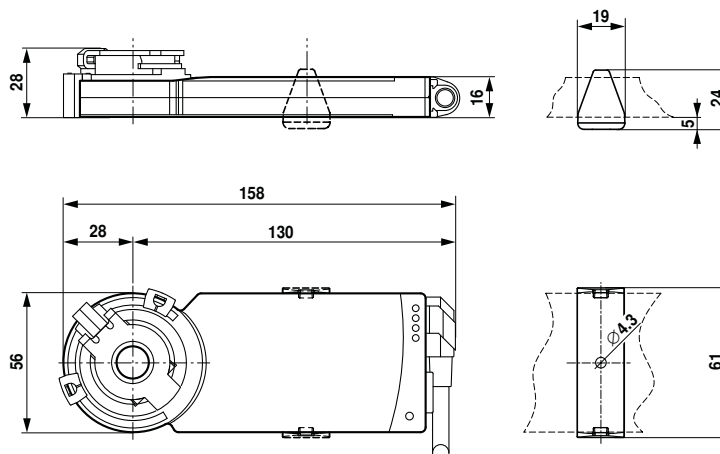
Type	Direction of rotation
CM230-L	counter-clockwise (ccw)
CM230-R	clockwise (cw)

Technical data

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz	
	Nominal voltage range	AC 85...265V	
	Power consumption	In operation 1.5W @ nominal torque At rest 1W For wire sizing 3VA	
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque (nominal torque)	Min. 2Nm @ nominal voltage	
	Direction of rotation	See «Type overview»	
	Manual override	Gear disengagement with magnet	
	Angle of rotation	Without limit Endless With limit Fixed 315°↔ or 0...287.5°↔ with mechanical end stops, can be adjusted in 2.5°↔ increments	
	Running time	75s / 90°↔	
	Sound power level	Max. 35dB(A)	
	Position indicator	Mechanical, pluggable (with integrated magnet for gear disengagement)	
	<b>Safety</b>	Protection class	II totally insulated □
		Degree of protection	IP54 in any mounting position NEMA2, UL Enclosure Type 2
		EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC	
	Certification	cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14	
	Mode of operation	Type 1 (EN 60730-1)	
	Rated impulse voltage	2.5kV (EN 60730-1)	
	Control pollution degree	3 (EN 60730-1)	
	Ambient temperature	-30...+50°C	
	Non-operating temperature	-40...+80°C	
	Ambient humidity	95% r.H., non-condensating (EN 60730-1)	
	Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 0.28kg	

Dimensions [mm]

Dimensional drawings



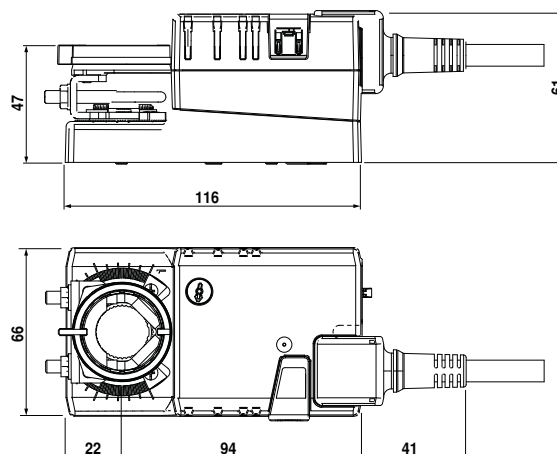
Damper spindle	Length	
	≥32	6...12.7

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 5Nm
- Nominal voltage AC/DC 24V
- Control: Open-close or 3-point


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption	In operation 1W @ nominal torque At rest 0.2W For wire sizing 1.5VA
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 5Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s
	Sound power level	Max. 35dB(A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	III Safety extra-low voltage
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.48kg

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length	
	min. 37	6...20

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 5Nm
- Nominal voltage AC/DC 24V
- Control: Open-close or 3-point
- Damper rotation: Form-fit 8mm

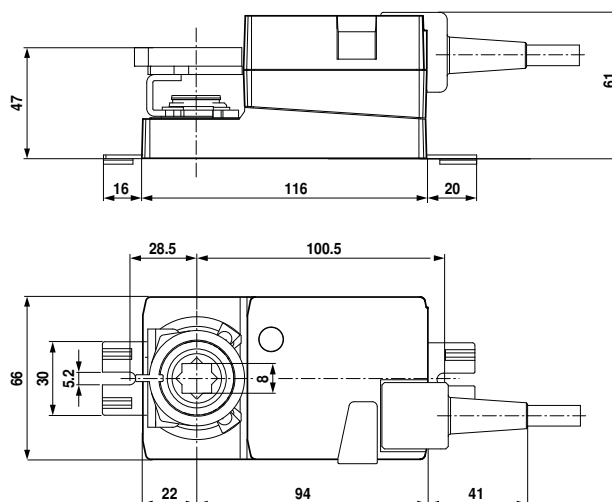


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption	In operation 1W @ nominal torque At rest 0.2W For wire sizing 1.5VA
<b>Functional data</b>	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
	Torque (nominal torque)	Min. 5Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops
	Running time	150s / 90°↔
	Sound power level	Max. 35dB(A)
	Damper rotation	Form-fit 8mm
	Position indication	Mechanical, pluggable
	<b>Safety</b>	Protection class
Degree of protection		IP54 in any mounting position NEMA 2, UL Enclosure Type 2
<b>EMC</b>	Certification	CE according to 2004/108/EC cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1
<b>Dimensions / Weight</b>	Rated impulse voltage	0.8kV
	Control pollution degree	3 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating
	Maintenance	Maintenance-free
	Dimensions	See «Dimensions»
	Weight	Approx. 0.47kg

**Dimensions [mm]**

**Dimensional drawings**



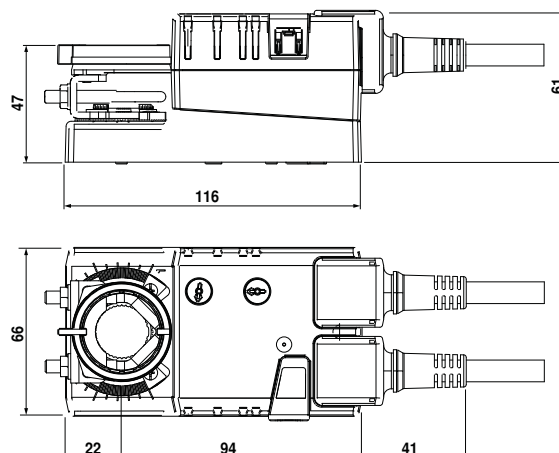
Damper spindle	Length	□ I
	≥20	8

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 5Nm
- Nominal voltage AC/DC 24V
- Control: Open-close or 3-point
- Integrated auxiliary switch


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption	In operation 1W @ nominal torque At rest 0.2W For wire sizing 1.5VA
	Auxiliary switch	1 x SPDT, 1mA...3 (0.5) A, AC 250V <input type="checkbox"/> (0...100% adjustable)
	Connection	Motor Cable 1m, 3 x 0.75mm <sup>2</sup> Auxiliary switch Cable 1m, 3 x 0.75mm <sup>2</sup>
	<b>Functional data</b>	Torque (nominal torque)
Direction of rotation		Reversible with switch 0 ↺ or 1 ↻
Manual override		Gearing latch disengaged with pushbutton, self-resetting
Angle of rotation		Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
Running time		150s
Sound power level		Max. 35dB(A)
Position indication		Mechanical, pluggable
<b>Safety</b>	Protection class	III Safety extra-low voltage
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.58kg

**Dimensions [mm]**
**Dimensional drawings**


<b>Damper spindle</b>	<b>Length</b>	
	min. 37	6...20

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 5Nm
- Nominal voltage AC/DC 24V
- Control: modulating DC (0)2...10V, position feedback DC 2...10V

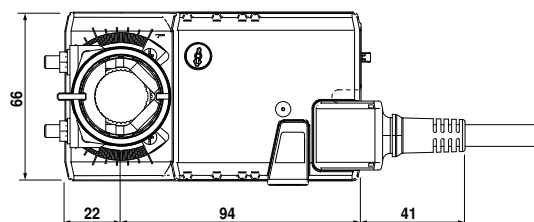
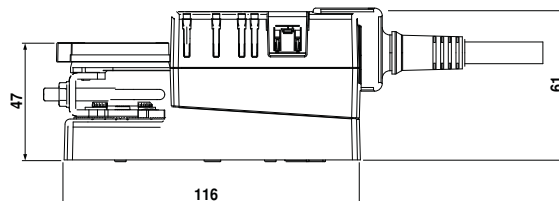



### Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption	In operation 1W @ nominal torque At rest 0.4W For wire sizing 2VA
	Connection	Cable 1m, 4 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 5Nm @ nominal voltage
	Control	Control signal Y DC (0)2...10V, typical input impedance 100kΩ Working range DC 2...10V
	Position feedback (Measuring voltage)	DC 2...10V, max. 1mA
	Position accuracy	±5%
	Direction of rotation	Reversible with switch 0 / 1
	Direction of rotation at Y = 0V	at switch position 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s
	Sound power level	Max. 35dB(A)
<b>Safety</b>	Position indication	Mechanical, pluggable
	Protection class	III Safety extra-low voltage
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
	Maintenance	Maintenance-free
	<b>Dimensions / Weight</b>	Dimensions
Weight		Approx. 0.51kg

### Dimensions [mm]

#### Dimensional drawings



Damper spindle	Length	
	min. 37	6...20

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 5Nm
- Nominal voltage AC/DC 24V
- Control: Open-close or 3-point

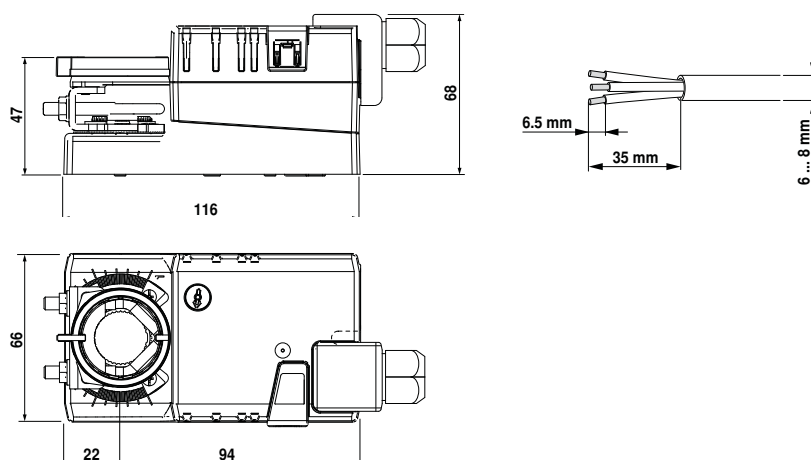


### Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption	In operation 1W @ nominal torque At rest 0.2W For wire sizing 1.5VA
	Connection	Terminals 4mm <sup>2</sup> (Cable Ø 6...8mm, three-core)
<b>Functional data</b>	Torque (nominal torque)	Min. 5Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, detentable
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s / 90°↔
	Sound power level	Max. 35dB(A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	III Safety extra-low voltage
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Rated impulse voltage	0.8kV (to EN 60730-1)
	Control Pollution Degree	3 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (to EN 60730-1)
	Maintenance	Maintenance-free
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.46kg

### Dimensions [mm]

#### Dimensional drawings



Damper spindle	Length	● I	■ I	◆ I
	>37	6...20	>6	<20

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 5Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point

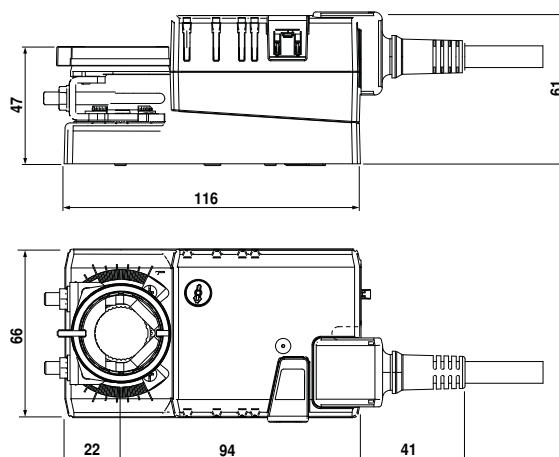


### Technical data

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 1.5W @ nominal torque At rest 0.4W For wire sizing 3.5VA
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 5Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s
	Sound power level	Max. 35dB(A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	II Totally insulated <input type="checkbox"/>
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
<b>Dimensions / Weight</b>	Maintenance	Maintenance-free
	Dimensions	See «Dimensions»
	Weight	Approx. 0.5kg

### Dimensions [mm]

#### Dimensional drawings



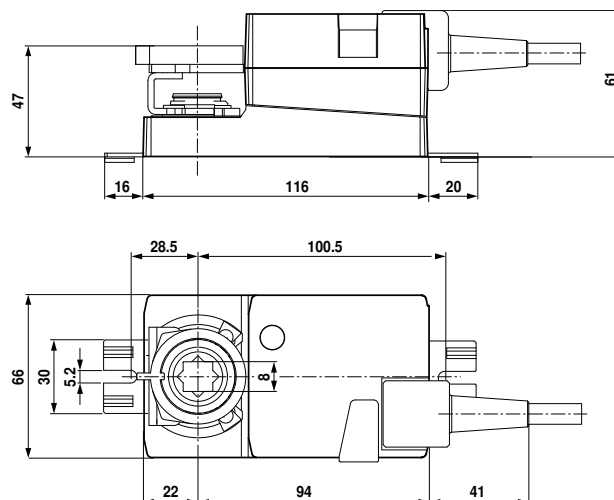
Damper spindle	Length	⊙I◇
	min. 37	6...20

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 5Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point
- Damper rotation: Form-fit 8mm


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 1.5W @ nominal torque At rest 0.4W For wire sizing 3.5VA
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 5Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops
	Running time	150s / 90°↔
	Sound power level	Max. 35dB(A)
	Damper rotation	Form-fit 8mm
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	II Totally insulated <input type="checkbox"/>
	Degree of protection	IP54 in any mounting position NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108 EC
	Low voltage directive	CE according to 2006/95/EC
	Certification	cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1
	Rated impulse voltage	2.5kV
	Control pollution degree	3 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
Ambient humidity range	95% r.H., non-condensating	
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.48kg

**Dimensions [mm]**
**Dimensional drawings**


<b>Damper spindle</b>	<b>Length</b>	<input type="checkbox"/> I
	≥20	8

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 5Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point
- Integrated auxiliary switch

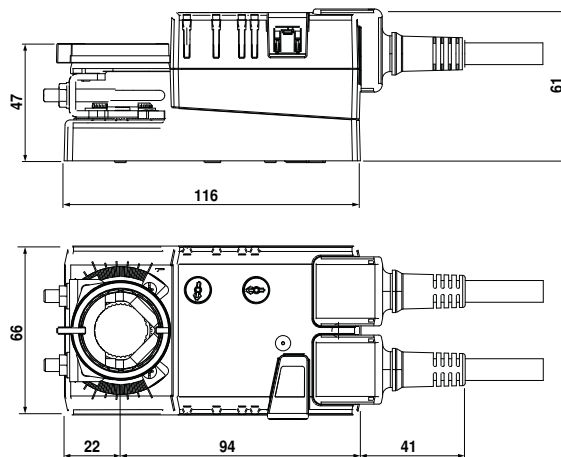



### Technical data

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 1.5W @ nominal torque At rest 0.4W For wire sizing 3.5VA
	Auxiliary switch	1 x SPDT, 1mA...3 (0.5) A, AC 250V <input type="checkbox"/> (0...100% adjustable)
<b>Functional data</b>	Connection Motor	Cable 1m, 3 x 0.75mm <sup>2</sup>
	Auxiliary switch	Cable 1m, 3 x 0.75mm <sup>2</sup>
	Torque (nominal torque)	Min. 5Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°<math>\sphericalangle</math>, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s
	Sound power level	Max. 35dB(A)
	Position indication	Mechanical, pluggable
	<b>Safety</b>	Protection class
Degree of protection		IP54 in any mounting position
EMC		CE according to 2004/108/EC
Low voltage directive		CE according to 2006/95/EC
Mode of operation		Type 1 (to EN 60730-1)
Ambient temperature range		-30...+50°C
Non-operating temperature		-40...+80°C
Ambient humidity range		95% r.H., non-condensating (EN 60730-1)
<b>Dimensions / Weight</b>	Maintenance	Maintenance-free
	Dimensions	See «Dimensions»
	Weight	Approx. 0.58kg

### Dimensions [mm]

#### Dimensional drawings



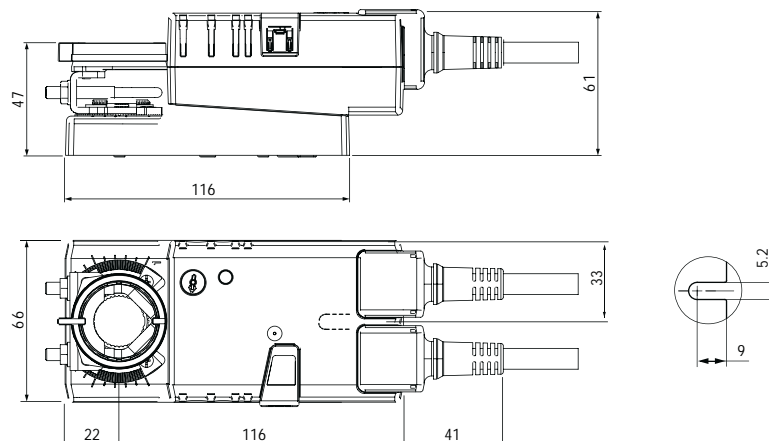
Damper spindle	Length	
	min. 37	6...20

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 5Nm
- Nominal voltage AC 100...240V
- Control: modulating DC 0...10V, position feedback DC 2...10V


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 2W @ nominal torque At rest 1W For wire sizing 4VA
	Connection	Power supply Cable 1m, 2 x 0.75mm <sup>2</sup> Signals Cable 1m, 4 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 5Nm @ nominal voltage
	Control	Control signal Y DC 0...10V, typical input impedance 100kΩ Working range DC 2...10V
	Position feedback (Measuring voltage)	DC 2...10V, max. 1mA
	Position accuracy	±5%
	Direction of rotation	Reversible with switch 0 / 1
	Direction of rotation at Y = 0V	at switch position 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s
	Sound power level	Max. 35dB(A)
<b>Safety</b>	Position indication	Mechanical, pluggable
	Protection class	II Totally insulated <input type="checkbox"/>
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
	Maintenance	Maintenance-free
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.62kg

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length	
	min. 37	6...20

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 5Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point

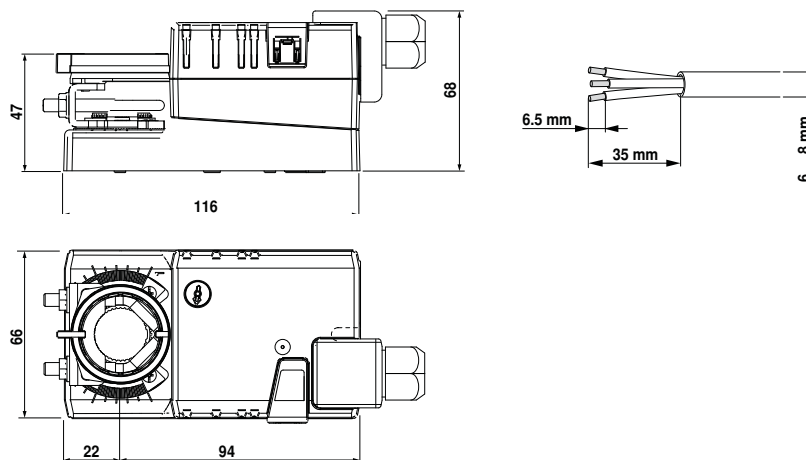


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 1.5W @ nominal torque At rest 0.4W For wire sizing 3.5VA
	Connection	Terminals 4mm <sup>2</sup> (Cable Ø 6...8mm, three-core)
<b>Functional data</b>	Torque (nominal torque)	Min. 5Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, detentable
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s / 90°↔
	Sound power level	Max. 35dB(A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	II Totally insulated <input type="checkbox"/>
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Rated impulse voltage	4kV (to EN 60730-1)
	Control Pollution Degree	3 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (to EN 60730-1)
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.47kg

**Dimensions [mm]**

Dimensional drawings



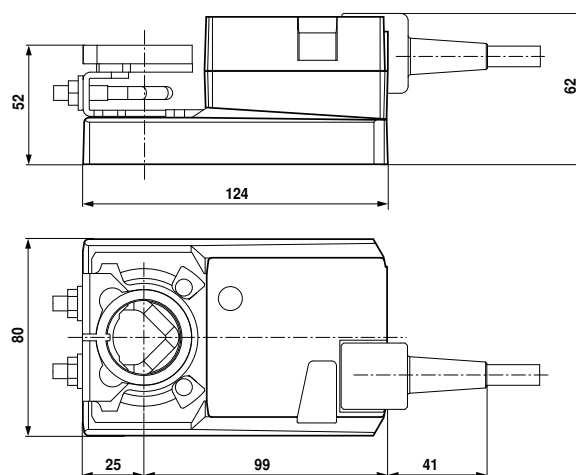
Damper spindle	Length	● I	■ I	◆ I
	>37	6...20	>6	<20

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 10Nm
- Nominal voltage AC/DC 24V
- Control: Open-close or 3-point


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption	In operation 1.5W @ nominal torque
		At rest 0.2W
	For wire sizing	3.5VA
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 10Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s
	Sound power level	Max. 35dB(A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	III Safety extra-low voltage
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.75kg

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length	⊙	■	◇
	≥40	8...26.7	≥8	≤26.7
	≥20	8...20	≥8	≤20

\* Option (Accessory K-NA)

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 10Nm
- Nominal voltage AC/DC 24V
- Control: Open-close or 3-point
- Integrated auxiliary switch

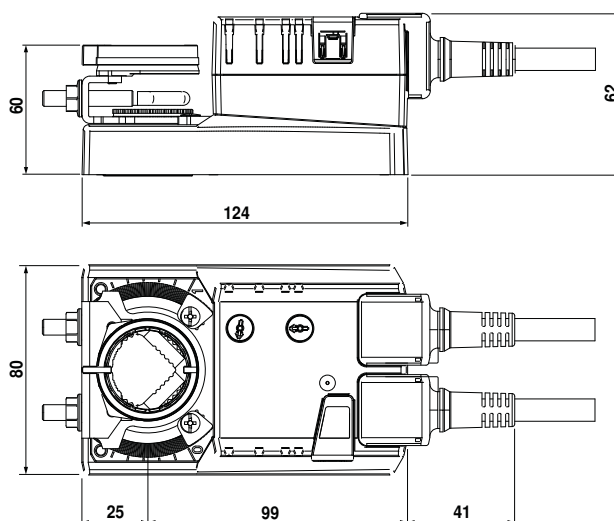


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz DC 24V	
	Nominal voltage range	AC/DC 19.2...28.8V	
	Power consumption	In operation 1.5W @ nominal torque At rest 0.2W For wire sizing 3.5VA	
	Auxiliary switch	1 x SPDT, 1mA...3 (0.5) A, AC 250V <input type="checkbox"/> (0...100% adjustable)	
	Connection	Motor Cable 1m, 3 x 0.75mm <sup>2</sup> Auxiliary switch Cable 1m, 3 x 0.75mm <sup>2</sup>	
	<b>Functional data</b>	Torque (nominal torque)	Min. 10Nm @ nominal voltage
		Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
		Manual override	Gearing latch disengaged with pushbutton, self-resetting
		Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
		Running time	150s
Sound power level		Max. 35dB(A)	
Position indication		Mechanical, pluggable	
<b>Safety</b>	Protection class	III Safety extra-low voltage	
	Degree of protection	IP54 in any mounting position	
	EMC	CE according to 2004/108/EC	
	Mode of operation	Type 1 (to EN 60730-1)	
	Ambient temperature range	-30...+50°C	
	Non-operating temperature	-40...+80°C	
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)	
	Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 0.84kg	

**Dimensions [mm]**

**Dimensional drawings**



Damper spindle	Length	⊙ I ⊠
Clamp on top	min. 40	8...26.7
Clamp on bottom *	min. 20	8...20

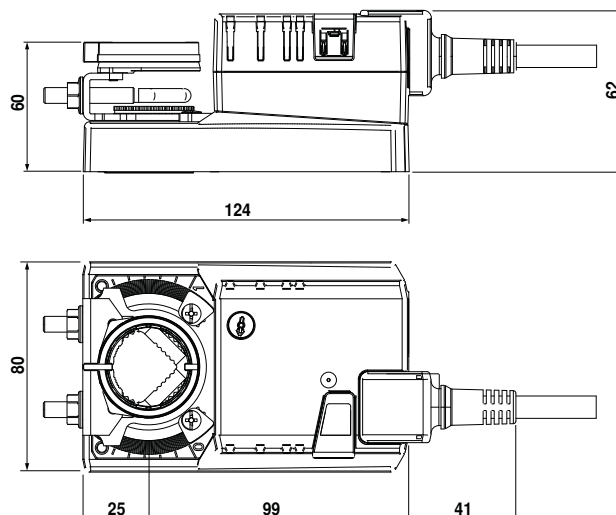
\* Option (Accessory K-NA)

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 10Nm
- Nominal voltage AC/DC 24V
- Control: modulating DC (0)2...10V, position feedback DC 2...10V


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption	In operation 2W @ nominal torque At rest 0.4W For wire sizing 4VA
	Connection	Cable 1m, 4 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 10Nm @ nominal voltage
	Control	Control signal Y DC (0)2...10V, typical input impedance 100kΩ Working range DC 2...10V
	Position feedback (Measuring voltage)	DC 2...10V, max. 1mA
	Position accuracy	±5%
	Direction of rotation	Reversible with switch 0 / 1
	Direction of rotation at Y = 0V	at switch position 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s
	Sound power level	Max. 35dB(A)
<b>Safety</b>	Position indication	Mechanical, pluggable
	Protection class	III Safety extra-low voltage
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
	Maintenance	Maintenance-free
	<b>Dimensions / Weight</b>	Dimensions
Weight		Approx. 0.77kg

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length	⊙ I ◇
Clamp on top	min. 40	8...26.7
Clamp on bottom *	min. 20	8...20

\* Option (Accessory K-NA)

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 10Nm
- Nominal voltage AC/DC 24V
- Control: Open-close or 3-point

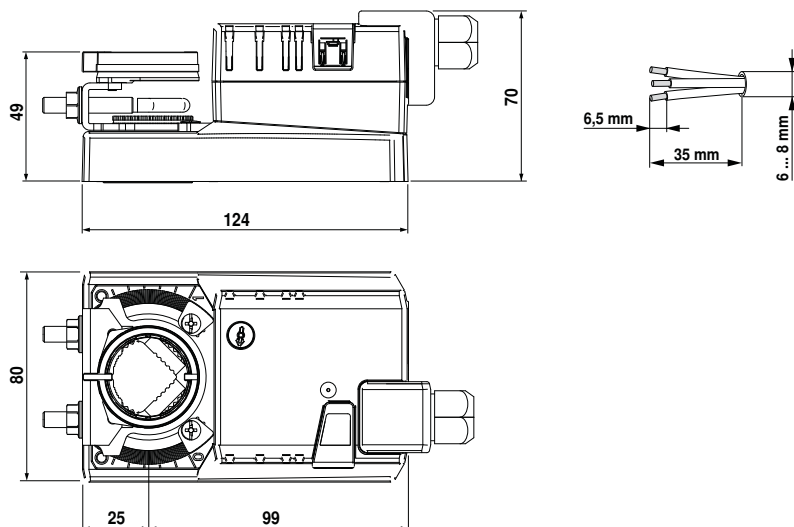


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz DC 24V
	Nominal voltage range	AC/DC 19.2...28.8V
	Power consumption	In operation 1.5W @ nominal torque At rest 0.2W For wire sizing 4VA
	Connection	Terminals 4mm <sup>2</sup> (Cable Ø 6...8mm, three-core)
	<b>Functional data</b>	
	Torque (nominal torque)	Min. 10Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, detentable
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s / 90°↔
	Sound power level	Max. 35dB(A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	III Safety extra-low voltage
	Degree of protection	IP54 in any mounting position
	EMC	CE according 2004/108/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Rated impulse voltage	0.8kV (to EN 60730-1)
	Control Pollution Degree	3 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (to EN 60730-1)
	Maintenance	Maintenance-free
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.75kg

**Dimensions [mm]**

**Dimensional drawings**



Damper spindle	Length	● I	■ I	◆ I
Clamp on top	> 40	8...26.7	> 8	< 26.7
Clamp on bottom *	> 20	8...20	> 8	< 20

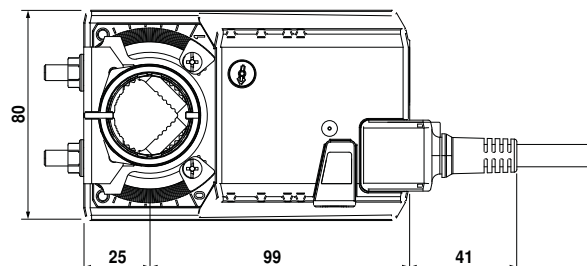
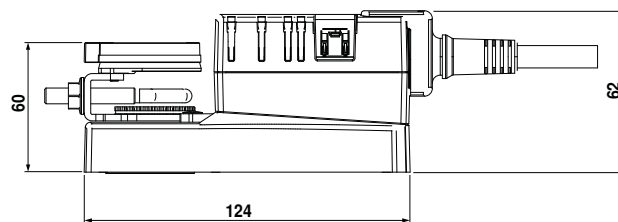
\* Option (Accessory K-NA)

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 10Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 2.5W @ nominal torque At rest 0.6W For wire sizing 5.5VA
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 10Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s
	Sound power level	Max. 35dB(A)
	Position indication	Mechanical, pluggable
	<b>Safety</b>	Protection class
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
	Maintenance	Maintenance-free
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.77kg

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length	⊙ I	■ I	◇ I
	≥40	8...26.7	≥8	≤26.7
	≥20	8...20	≥8	≤20

\* Option (Accessory K-NA)

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 10Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point
- Integrated auxiliary switch

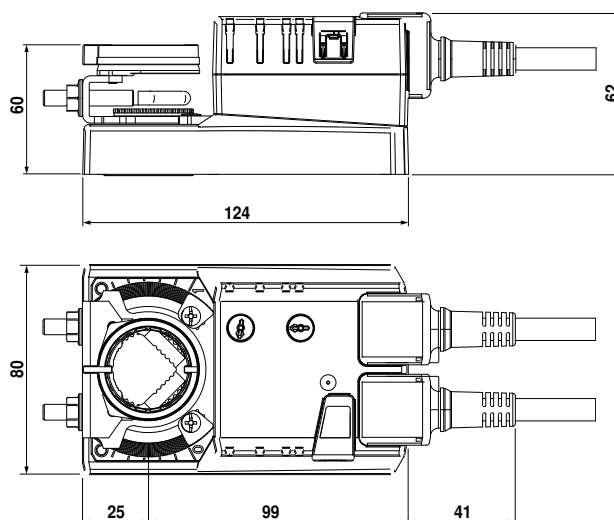


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz	
	Nominal voltage range	AC 85...265V	
	Power consumption	In operation 2.5W @ nominal torque At rest 0.6W For wire sizing 5.5VA	
	Auxiliary switch	1 x SPDT, 1mA...3 (0.5) A, AC 250V <input type="checkbox"/> (0...100% adjustable)	
<b>Functional data</b>	Connection	Motor Cable 1m, 3 x 0.75mm <sup>2</sup> Auxiliary switch Cable 1m, 3 x 0.75mm <sup>2</sup>	
	Torque (nominal torque)	Min. 10Nm @ nominal voltage	
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻	
	Manual override	Gearing latch disengaged with pushbutton, self-resetting	
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops	
	Running time	150s	
	Sound power level	Max. 35dB(A)	
	Position indication	Mechanical, pluggable	
	<b>Safety</b>	Protection class	II Totally insulated <input type="checkbox"/>
		Degree of protection	IP54 in any mounting position
EMC		CE according to 2004/108/EC	
Low voltage directive		CE according to 2006/95/EC	
Mode of operation		Type 1 (to EN 60730-1)	
Ambient temperature range		-30...+50°C	
Non-operating temperature		-40...+80°C	
Ambient humidity range		95% r.H., non-condensating (EN 60730-1)	
<b>Dimensions / Weight</b>	Maintenance	Maintenance-free	
	Dimensions	See «Dimensions»	
	Weight	Approx. 0.85kg	

**Dimensions [mm]**

Dimensional drawings



Damper spindle	Length	⊙ I ⊠
Clamp on top	min. 40	8...26.7
Clamp on bottom *	min. 20	8...20

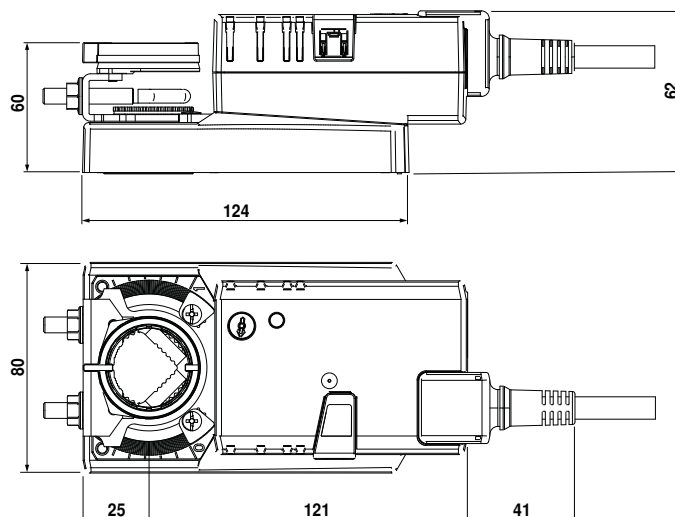
\* Option (Accessory K-NA)

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 10Nm
- Nominal voltage AC 100...240V
- Control: modulating DC (0)2...10V, position feedback DC 2...10V


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 3.5W @ nominal torque At rest 1W For wire sizing 6.5VA
	Connection	Power supply Cable 1m, 2 x 0.75mm <sup>2</sup> Signals Cable 1m, 4 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 10Nm @ nominal voltage
	Control	Control signal Y DC (0)2...10V, typical input impedance 100kΩ Working range DC 2...10V
	Position feedback (Measuring voltage)	DC 2...10V, max. 1mA
	Position accuracy	±5%
	Direction of rotation	Reversible with switch 0 / 1
	Direction of rotation at Y = 0 V	at switch position 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, self-resetting
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s
	Sound power level	Max. 35dB(A)
<b>Safety</b>	Position indication	Mechanical, pluggable
	Protection class	II Totally insulated <input type="checkbox"/>
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
	Maintenance	Maintenance-free
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.9kg

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length	
Clamp on top	min. 40	8 ..26.7
Clamp on bottom *	min. 20	8...20

\* Option (Accessory K-NA)

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 10Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point

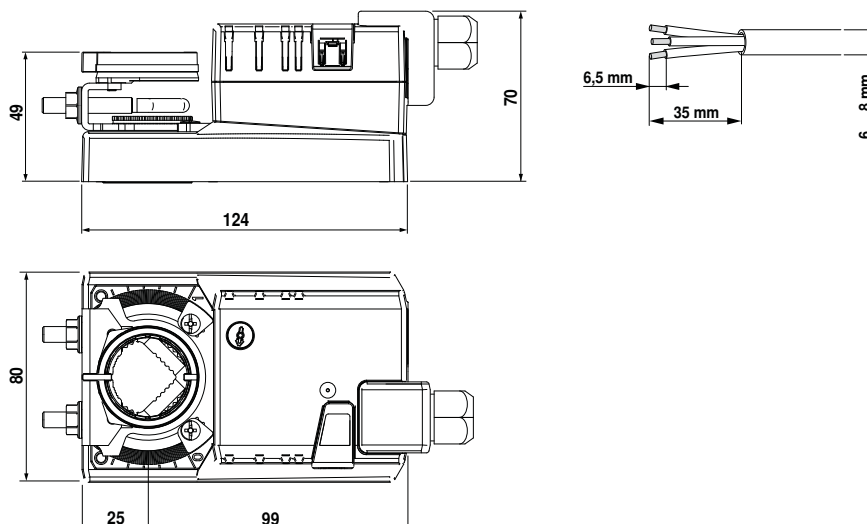


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 2.5W @ nominal torque At rest 0.6W For wire sizing 6VA
	Connection	Terminals 4mm <sup>2</sup> (Cable Ø 6...8mm, three-core)
<b>Functional data</b>	Torque (nominal torque)	Min. 10Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, detentable
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s / 90°↔
	Sound power level	Max. 35dB(A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	II Totally insulated <input type="checkbox"/>
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Mode of operation	Type 1 (to EN 60730-1)
	Rated impulse voltage	4kV (to EN 60730-1)
	Control Pollution Degree	3 (to EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (to EN 60730-1)
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.8kg

**Dimensions [mm]**

Dimensional drawings



Damper spindle	Length	○ I	■ I	◇ I
Clamp on top	< 40	8...26.7	> 8	< 26.7
Clamp on bottom *	< 20	8...20	> 8	< 20

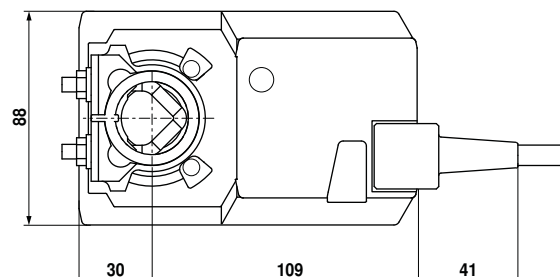
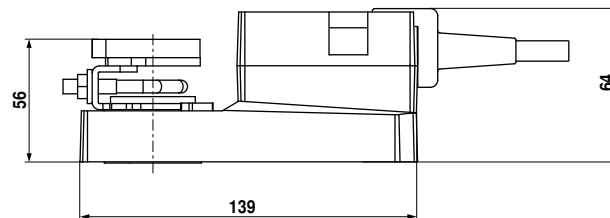
\* Option (Accessory K-NA)

Damper actuator for adjusting air dampers in ventilation and air-conditioning systems for building services installations

- Torque 20Nm
- Nominal voltage AC/DC 24V
- Control: Open-close or 3-point


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption	In operation 2W @ nominal torque At rest 0.2W For wire sizing 4VA
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 20Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops
	Running time	150s / 90°↔
	Sound power level	Max. 45dB(A)
	Position indication	Mechanical, pluggable
	<b>Safety</b>	Protection class
Degree of protection		IP54 in any mounting position NEMA 2, UL Enclosure Type 2
EMC		CE according to 2004/108/EC
Certification		cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
Mode of operation		Type 1
Rated impulse voltage		0.8kV
Control pollution degree		3
Ambient temperature range		-30...+50°C
Non-operating temperature		-40...+80°C
Ambient humidity range		95% r.h., non-condensating
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 1.1kg

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length	●	■	◆
	≥48	10...20 <sup>1)</sup>	≥10	≤20
	≥20	10...20 <sup>1)</sup>	≥10	≤20

<sup>1)</sup> CrNi (INOX) 12...20

Damper actuator for adjusting air dampers in ventilation and air-conditioning systems for building services installations

- Torque 20Nm
- Nominal voltage AC/DC 24V
- Control: Open-close or 3-point
- with integrated auxiliary switch

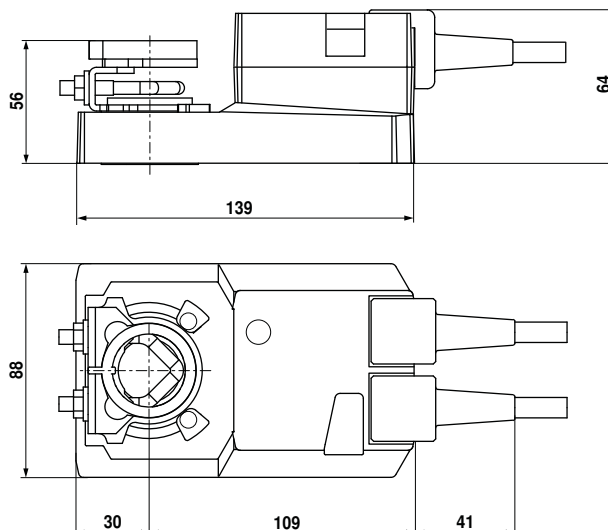


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V	
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	
	Power consumption	In operation 2W @ nominal torque At rest 0.2W For wire sizing 4VA	
	Auxiliary switch	1 x SPDT, 1mA...3 (0.5) A, AC 250V □ (0...100% adjustable)	
<b>Functional data</b>	Connection	Motor Cable 1m, 3 x 0.75mm <sup>2</sup> Auxiliary switch Cable 1m, 3 x 0.75mm <sup>2</sup>	
	Torque (nominal torque)	Min. 20Nm @ nominal voltage	
	Direction of rotation	Reversible with switch 0 ↺ resp. 1 ↻	
	Manual override	Gearing latch disengaged with pushbutton, can be locked	
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops	
	Running time	150s / 90°↔	
	Sound power level	Max. 45dB(A)	
	Position indication	Mechanical, pluggable	
	<b>Safety</b>	Protection class	III Safety extra-low voltage / UL Class 2 Supply
		Degree of protection	IP54 in any mounting position NEMA 2, UL Enclosure Type 2
<b>EMC</b>	Certification	CE according to 2004/108/EC cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14	
	Mode of operation	Type 1	
<b>Dimensions / Weight</b>	Rated impulse voltage	0.8kV	
	Control pollution degree	3	
	Ambient temperature range	-30...+50°C	
	Non-operating temperature	-40...+80°C	
	Ambient humidity range	95% r.h., non-condensating	
	Maintenance	Maintenance-free	
	Dimensions	See «Dimensions»	
	Weight	Approx. 1.2kg	

**Dimensions [mm]**

**Dimensional drawings**



Damper spindle	Length	● I	■ I	◆ I
	≥48	10...20 <sup>1)</sup>	≥10	≤20
	≥20	10...20 <sup>1)</sup>	≥10	≤20

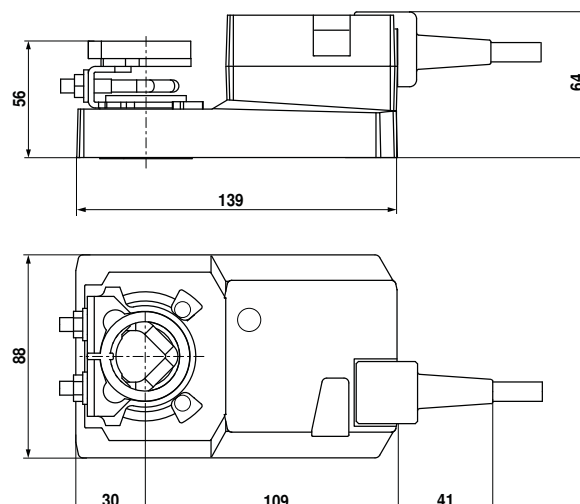
<sup>1)</sup> CrNi (INOX) 12...20

**Modulating damper actuator for adjusting air dampers in ventilation and air-conditioning systems for building services installations**

- Torque 20Nm
- Nominal voltage AC/DC 24V
- Control: Modulating DC (0)2...10V
- Position feedback DC 2...10V


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption	In operation 2W @ nominal torque At rest 0.4W For wire sizing 4VA
	Connection	Cable 1m, 4 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 20Nm @ nominal voltage
	Control	Control signal Y DC (0)2...10V, typical input impedance 100kΩ Operating range DC 2...10V
	Position feedback (Measuring voltage U)	DC 2...10V, max. 1mA
	Position accuracy	±5%
	Direction of rotation	Reversible with switch 0 / 1
	Direction of motion at Y = 0 V	In switch position 0 ↻ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops
	Running time	150s / 90°↔
	Sound power level	Max. 45dB(A)
<b>Safety</b>	Position indication	Mechanical, pluggable
	Protection class	III Safety extra-low voltage / UL Class 2 Supply
	Degree of protection	IP54 in any mounting position NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108/EC
	Certification	cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1
	Rated impulse voltage	0.8kV
	Control pollution degree	3
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
Ambient humidity range	95% r.h., non-condensating	
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 1.1kg

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length	⊙ I	■ I	◇ I
	≥48	10...20 <sup>1)</sup>	≥10	≤20
	≥20	10...20 <sup>1)</sup>	≥10	≤20

<sup>1)</sup> CrNi (INOX) 12...20

Damper actuator for adjusting air dampers in ventilation and air-conditioning systems for building services installations

- Torque 20Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point

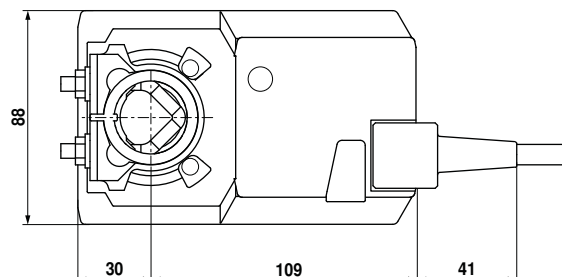
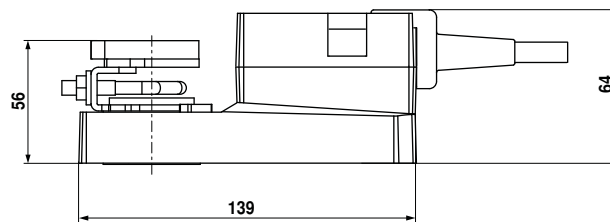


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 2.5W @ nominal torque At rest 0.6W
		For wire sizing 6VA
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 20Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95° ↺, can be limited at both ends with adjustable mechanical end stops
	Running time	150s / 90° ↺
	Sound power level	Max. 45dB(A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	II Totally insulated <input type="checkbox"/>
	Degree of protection	IP54 in any mounting position NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1
	Rated impulse voltage	2.5kV
	Control pollution degree	3
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.h., non-condensating
	Maintenance	Maintenance-free
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 1.1kg

**Dimensions [mm]**

**Dimensional drawings**



Damper spindle	Length	● I	■ I	◆ I
	≥48	10...20 <sup>1)</sup>	≥10	≤20
	≥20	10...20 <sup>1)</sup>	≥10	≤20

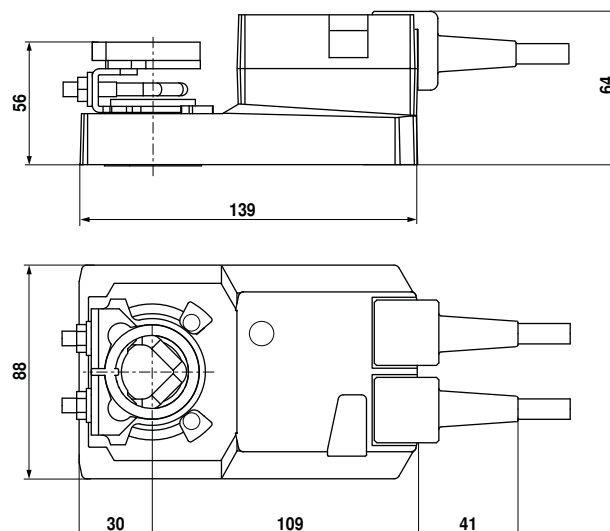
<sup>1)</sup> CrNi (INOX) 12...20

Damper actuator for adjusting air dampers in ventilation and air-conditioning systems for building services installations

- Torque 20Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point
- with integrated auxiliary switch


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz	
	Nominal voltage range	AC 85...265V	
	Power consumption	In operation 2.5W @ nominal torque At rest 0.6W For wire sizing 6VA	
	Auxiliary switch	1 x SPDT, 1mA...3 (0.5) A, AC 250V <input type="checkbox"/> (0...100% adjustable)	
<b>Functional data</b>	Connection	Motor Cable 1m, 3 x 0.75mm <sup>2</sup> Auxiliary switch Cable 1m, 3 x 0.75mm <sup>2</sup>	
	Torque (nominal torque)	Min. 20Nm @ nominal voltage	
	Direction of rotation	Reversible with switch 0 ↺ resp. 1 ↻	
	Manual override	Gearing latch disengaged with pushbutton, can be locked	
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops	
	Running time	150s / 90°↔	
	Sound power level	Max. 45dB(A)	
	Position indication	Mechanical, pluggable	
	<b>Safety</b>	Protection class	II Totally insulated <input type="checkbox"/>
		Degree of protection	IP54 in any mounting position NEMA 2, UL Enclosure Type 2
		EMC	CE according to 2004/108/EC
		Low voltage directive	CE according to 2006/95/EC
		Certification	cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
Mode of operation		Type 1	
Rated impulse voltage		2.5kV	
Control pollution degree		3	
Ambient temperature range		-30...+50°C	
Non-operating temperature		-40...+80°C	
Ambient humidity range	95% r.h., non-condensating		
Maintenance	Maintenance-free		
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 1.2kg	

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length			
	≥48	10...20 <sup>1)</sup>	≥10	≤20
	≥20	10...20 <sup>1)</sup>	≥10	≤20

<sup>1)</sup> CrNi (INOX) 12...20

Modulating damper actuator for adjusting air dampers in ventilation and air-conditioning systems for building services installations

- Torque 20Nm
- Nominal voltage AC 100...240V
- Control: Modulating DC (0)2...10V
- Position feedback DC 2...10V

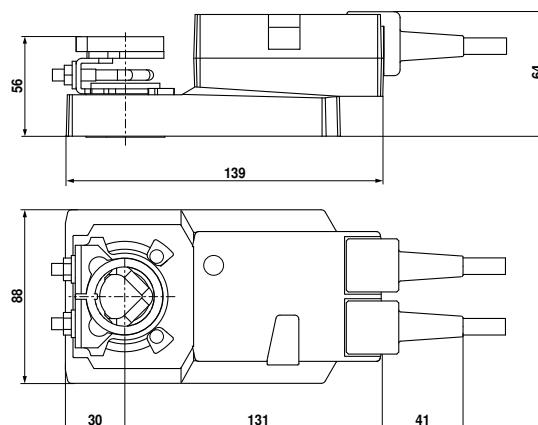


Technical data

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 3.5W @ nominal torque At rest 0.6W For wire sizing 6.5VA
	Connection	Power supply Cable 1m, 2 x 0.75mm <sup>2</sup> Signals Cable 1m, 4 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 20Nm @ nominal voltage
	Control	Control signal Y DC (0)2...10V, typical input impedance 100kΩ Operating range DC 2...10V
	Position feedback (Measuring voltage U)	DC 2...10V, max. 1mA
	Auxiliary supply	DC 24V ±30%, max. 10mA
	Position accuracy	±5%
	Direction of rotation	Reversible with switch 0 / 1
	Direction of motion at Y = 0V	In switch position 0 ↻ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95°↻, can be limited at both ends with adjustable mechanical end stops
	Running time	150s / 90°↻
	Sound power level	Max. 45dB(A)
Position indication	Mechanical, pluggable	
<b>Safety</b>	Protection class	II Totally insulated ☐
	Degree of protection	IP54 in any mounting position NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Certification	cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02 Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1
	Rated impulse voltage	2.5kV
	Control pollution degree	3
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
Ambient humidity range	95% r.h., non-condensating	
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 1.1kg

Dimensions [mm]

Dimensional drawings



Damper spindle	Length	● I	■ I	◆ I
	≥48	10...20 <sup>1)</sup>	≥10	≤20
	≥20	10...20 <sup>1)</sup>	≥10	≤20

1) CrNi (INOX) 12...20

Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

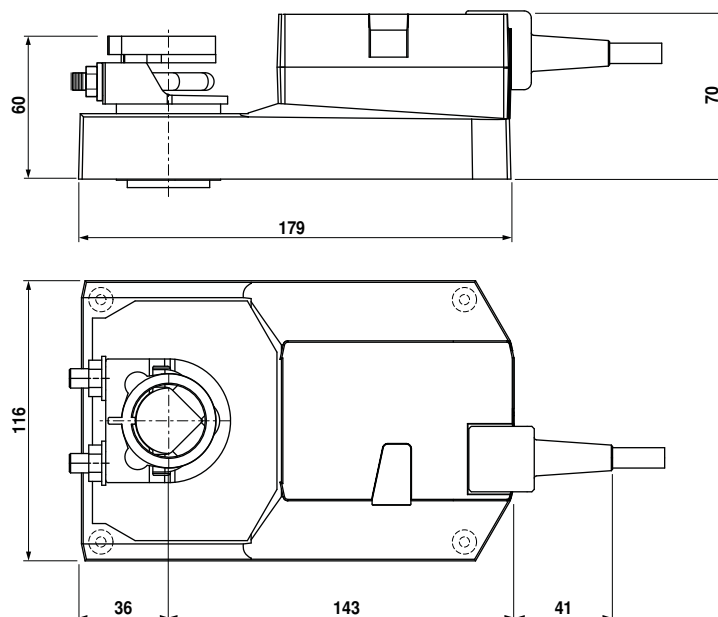
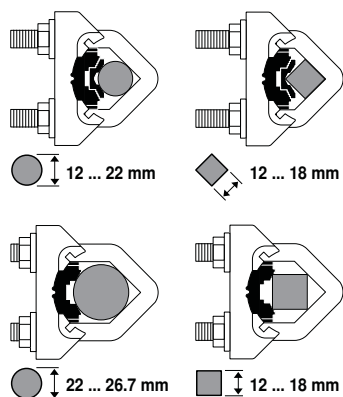
- For air control dampers up to approx. 8m<sup>2</sup>
- Torque 40Nm
- Nominal voltage AC/DC 24V
- Control: Open-close  
(not made for 3-point applications)


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz DC 24V	
	Nominal voltage range	AC/DC 19.2...28.8V	
Power consumption	In operation	4W @ nominal torque	
	At rest	2W	
	For wire sizing	6VA	
Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>		
<b>Functional data</b>	Torque (nominal torque)	Min. 40Nm @ nominal voltage	
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻	
	Manual override	Gearing latch disengaged with pushbutton, detentable	
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops	
	Running time	150s / 90°↔	
	Sound power level	Max. 45dB(A)	
	Position indication	Mechanical, pluggable	
	<b>Safety</b>	Protection class	III Safety extra-low voltage
		Degree of protection	IP54 in any mounting position
		EMC	CE according to 2004/108/EC
Mode of operation		Type 1 (EN 60730-1)	
Rated impulse voltage		0.8kV (EN 60730-1)	
Control pollution degree		3 (EN 60730-1)	
Ambient temperature range		-30...+50°C	
Non-operating temperature		-40...+80°C	
Ambient humidity range		95% r.H., non-condensating (EN 60730-1)	
Maintenance		Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 1.7kg	

**Dimensions [mm]**
**Dimensional drawings**

Damper spindle	Length	○ I	■ I	◇ I
	> 52	12...26.7	>12	<25.2
	> 20	12...26.7	>12	<25.2



Modulating damper actuator for adjusting dampers in technical building installations

- Nominal torque 40Nm
- Nominal voltage AC/DC 24V
- Control modulating DC (0)2...10V
- Position feedback DC 2...10V

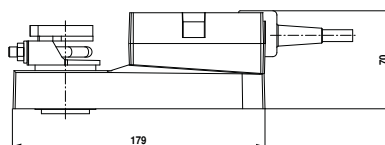
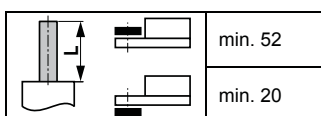


## Technical data





<b>Electrical data</b>	Nominal voltage	AC/DC 24V	
	Nominal voltage frequency	50/60Hz	
	Nominal voltage range	AC 19.2...28.8V / DC 19.2...28.8V	
	Power consumption in operation	4.5W	
	Power consumption at rest	2W	
	Power consumption for wire sizing	6.5VA	
	Sensor element	Cable 1m, 4 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque motor	min. 40Nm	
	Control positioning signal Y	DC (0)2...10V	
	Control positioning signal Y note	Typical input impedance 100kΩ	
	Control operating range	DC 2...10V	
	Position feedback (measuring voltage U)	DC 2...10V	
	Position feedback measuring voltage U note	Max. 1mA	
	Position accuracy	±5%	
	Direction of rotation motor	Can be selected with switch 0/1	
	Running direction	Y = 0V: At switch position 0 (counter-clockwise rotation) / 1 (clockwise rotation)	
	Manual override	Gear disengagement with push-button, can be locked	
	Angle of rotation	max. 95°	
	Running time motor	150s / 90°	
	Sound power level motor max.	45dB(A)	
	Spindle driver	Universal spindle clamp reversible 12...26mm	
	Position indication	Mechanical, pluggable	
	<b>Safety</b>	Protection class IEC/EN	III Safety extra-low voltage
		Protection class UL	UL Class 2 Supply
Degree of protection IEC/EN		IP54 in all mounting positions	
Degree of protection NEMA/UL		NEMA 2, UL Enclosure Type 2	
EMC		CE according to 2004/108/EC	
Certification IEC/EN		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14	
Certification UL		cULus according to UL 60730-1A, UL 60730-2-14 and CAN/CSA E60730-1:02	
Mode of operation		Type 1	
Rated current voltage motor		0.8kV	
Control pollution degree		3	
Ambient temperature		-30...50°C	
Non-operating temperature	-40...80°C		
Ambient humidity	95% r.h., non-condensing		
Maintenance	Maintenance-free		
<b>Weight</b>	Weight	Approx. 1.8kg	

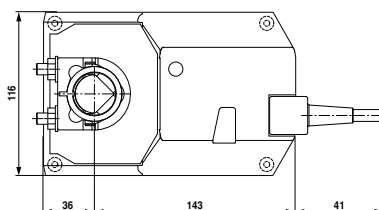
## Dimensions [mm]

### Dimensional drawings



### Clamping ranges

	
12...22	12...18
	
22...26.7	12...18



Damper actuator for operating air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 40Nm
- Nominal voltage AC 100...240V
- Control: Open-close  
(not made for 3-point applications)



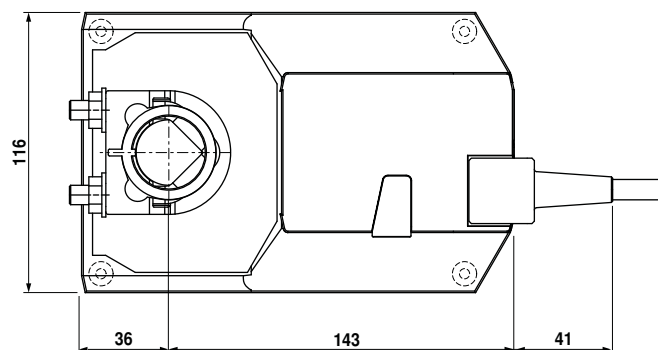
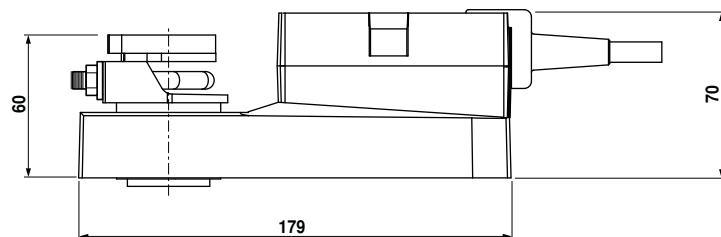
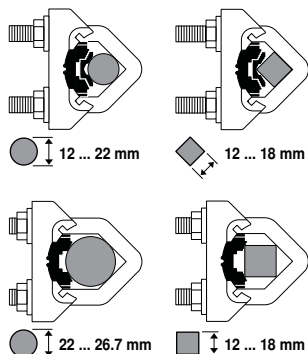
### Technical data

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 5W @ nominal torque At rest 2W For wire sizing 9VA
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 40Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, detentable
	Angle of rotation	Max. 95°↔, limited on both sides by means of adjustable, mechanical end stops
	Running time	150s / 90°↔
	Sound power level	Max. 45dB(A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	II Totally insulated <input type="checkbox"/>
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 2004/108/EC CE according to 2006/95/EC
	Low voltage directive	CE according to 2006/95/EC
	Mode of operation	Type 1 (EN 60730-1)
	Rated impulse voltage	2.5kV (EN 60730-1)
	Control pollution degree	3 (EN 60730-1)
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 1.8kg

### Dimensions [mm]

#### Dimensional drawings

Damper spindle	Length	● I	■ I	◆ I
	> 52	12...26.7	>12	< 25.2
	> 20	12...26.7	>12	< 25.2



Damper actuator for adjusting air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 4Nm
- Nominal voltage AC/DC 24V
- Control: Open-close (not made for 3-point applications)
- Running time 2.5s



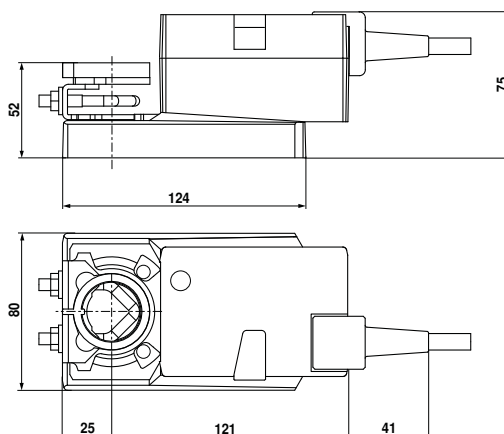
**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption	In operation 13W @ nominal torque At rest 2W For wire sizing 23VA (I max. 20A @ 5ms)
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 4Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops
	Angle of rotation limiting	min. 30°↔
	Running time	2.5s / 90°↔
	Automatic adjustment of operating range to match the mechanical angle of rotation	Manual triggering of the adaption by pressing the «Adaption» button
	Sound power level	52dB(A)
	Position indication	Mechanical, pluggable
	Negative torque	⚠ ≤50% from nominal torque (with restrictions)*
	<b>Safety</b>	Protection class
Degree of protection		IP54 in any mounting position NEMA 2, UL Enclosure Type 2
EMC		CE according to 2004/108/EC
Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02
Mode of operation		Type 1
Rated impulse voltage		0.8kV
Control pollution degree		3
Ambient temperature		−30...+40°C (no restrictions) ⚠ +40...+50°C (with restrictions)*
Non-operating temperature		−40...+80°C
Ambient humidity		95% r.H., non-condensating
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.97kg

\* Under these operating conditions, the lift cycle of actuator will be reduced. Please contact your Belimo representative for details

**Dimensions [mm]**

**Dimensional drawings**



Damper spindle	Length	⊙	⊠	◇
	≥40	8...26.7	≥8	≤26.7
	≥20	8...20	≥8	≤20

\* Option (accessory K-NA)  
When using an auxiliary switch or feedback potentiometer.

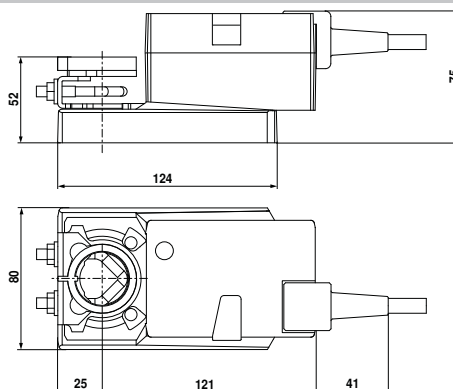
**Modulating damper actuator for adjusting air control dampers in ventilation and air-conditioning systems for building services installations**

- Torque 4Nm
- Nominal voltage AC/DC 24V
- Control: modulating DC (0)2...10V
- Position feedback DC 2...10V
- Running time 2.5s


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V	
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	
	Power consumption	In operation 13W @ nominal torque At rest 2W For wire sizing 23VA (I max. 20 A @ 5 ms)	
	Connection	Cable 1m, 4 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque (nominal torque)	Min. 4Nm @ nominal voltage	
	Control	Control signal Y DC (0)2...10V, input impedance 100kΩ Operating range DC 2...10V	
	Position feedback (Measuring voltage)	DC 2...10V, max. 0.5mA	
	Position accuracy	±5%	
	Direction of rotation	Reversible with switch 0 / 1	
	Direction of motion at Y = 0 V	At switch position 0 ↻ resp. 1 ↻	
	Manual override	Gearing latch disengaged with pushbutton, can be locked	
	Angle of rotation	Max. 95°↻, can be limited at both ends with adjustable mechanical end stops	
	Angle of rotation limiting	min. 30°↻	
	Running time	2.5s / 90°↻	
	Automatic adjustment of operating range and measuring signal U to match the mechanical angle of rotation	Manual triggering of the adaption by pressing the «Adaption» button	
	Sound power level	52dB(A)	
	Position indication	Mechanical, pluggable	
	Negative torque	⚠ ≤50% from nominal torque (with restrictions)*	
	<b>Safety</b>	Protection class	III Safety extra-low voltage, UL Class 2 Supply
		Degree of protection	IP54 in any mounting position NEMA 2, UL Enclosure Type 2
EMC		CE according to 2004/108/EC	
Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02	
Mode of operation		Type 1	
Rated impulse voltage		0.8kV	
Control pollution degree		3	
Ambient temperature		-30...+40°C (no restrictions) ⚠ +50°C (with restrictions)*	
Non-operating temperature		-40...+80°C	
Ambient humidity		95% r.H., non-condensating	
Maintenance	Maintenance-free		
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 0.98kg	

\* Under these operating conditions, the lift cycle of actuator will be reduced. Please contact your Belimo representative for details

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length	⊙ I	■ I	◇ I
	≥40	8...26.7	≥8	≤26.7
	≥20	8...20	≥8	≤20

\* Option (accessory K-NA)  
When using an auxiliary switch or feedback potentiometer.

Damper actuator for adjusting air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 8Nm
- Nominal voltage AC/DC 24V
- Control: Open-close (not made for 3-point applications)
- Running time 4s



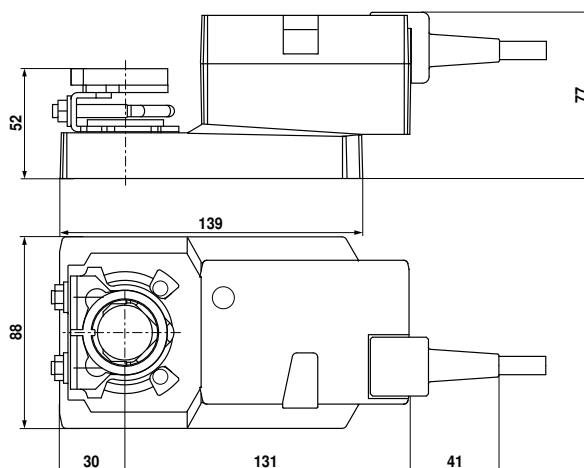
**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption	In operation 13W @ nominal torque At rest 2W For wire sizing 23VA (I max. 20A @ 5ms)
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 8Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops
	Angle of rotation limiting	min. 30°↔
	Running time	4s / 90°↔
	Automatic adjustment of operating range to match the mechanical angle of rotation	Manual triggering of the adaption by pressing the «Adaption» button
	Sound power level	52dB(A)
	Position indication	Mechanical, pluggable
	Negative torque	⚠ ≤50% from nominal torque (with restrictions)*
<b>Safety</b>	Protection class	III Safety extra-low voltage, UL Class 2 Supply
	Degree of protection	IP54 in any mounting position, NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108/EC
	Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02
	Mode of operation	Type 1
	Rated impulse voltage	0.8kV
	Control pollution degree	3
	Ambient temperature	-30...+40°C (no restrictions) ⚠ +40...+50°C (with restrictions)*
	Non-operating temperature	-40...+80°C
	Ambient humidity	95% r.H., non-condensating
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 1.1kg

\* Under these operating conditions, the lift cycle of actuator will be reduced. Please contact your Belimo representative for details

**Dimensions [mm]**

**Dimensional drawings**





Damper spindle	Length	⊙ I	□ I	◇ I
	≥42	8...26.7	≥8	≤26.7
*	≥20	8...20	≥8	≤20

\* Option (accessory K-SA)  
When using an auxiliary switch or feedback potentiometer.

**Modulating damper actuator for adjusting air control dampers in ventilation and air-conditioning systems for building services installations**

- Torque 8Nm
- Nominal voltage AC/DC 24V
- Control: modulating DC (0)2...10V
- Position feedback DC 2...10V
- Running time 4s

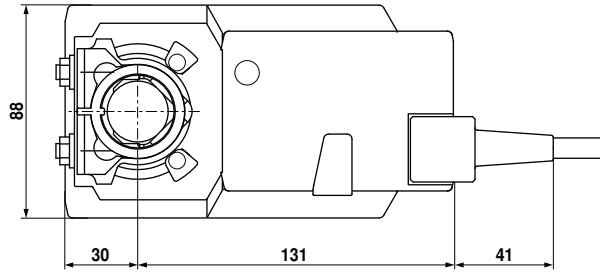
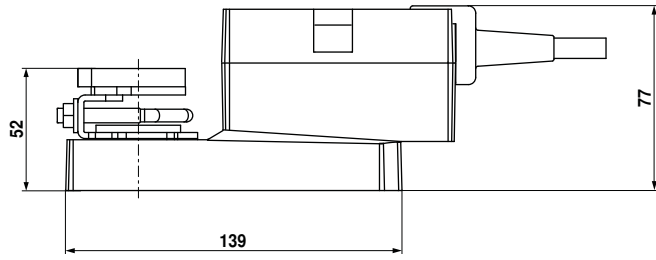


Technical data		
<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption	In operation 13W @ nominal torque At rest 2W For wire sizing 23VA (I max. 20A @ 5ms)
	Connection	Cable 1m, 4 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 8Nm @ nominal voltage
	Control	Control signal Y DC (0)2...10V, input impedance 100kΩ Operating range DC 2...10V
	Position feedback (Measuring voltage)	DC 2...10V, max. 0.5mA
	Position accuracy	±5%
	Direction of rotation	Reversible with switch 0 / 1
	Direction of motion at Y = 0 V	At switch position 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops
	Angle of rotation limiting	min. 30°↔
	Running time	4s / 90°↔
	Automatic adjustment of operating range and measuring signal U to match the mechanical angle of rotation	Manual triggering of the adaption by pressing the «Adaption» button
	Sound power level	52dB(A)
	Position indication	Mechanical, pluggable
	Negative torque	 ≤50% from nominal torque (with restrictions)*
<b>Safety</b>	Protection class	III Safety extra-low voltage UL Class 2 Supply
	Degree of protection	IP54 in any mounting position NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108/EC
	Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02
	Mode of operation	Type 1
	Rated impulse voltage	0.8kV
	Control pollution degree	3
	Ambient temperature	-30...+40°C (no restrictions)  +50°C (with restrictions)*
	Non-operating temperature	-40...+80°C
	Ambient humidity	95% r.H., non-condensating
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 1.2kg

\* Under these operating conditions, the lift cycle of actuator will be reduced. Please contact your Belimo representative for details

Dimensions [mm]

Dimensional drawings

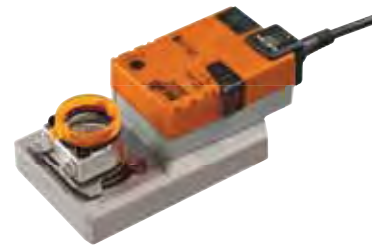


Damper spindle	Length			
	≥42	8...26.7	≥8	≤26.7
	≥20	8...20	≥8	≤20

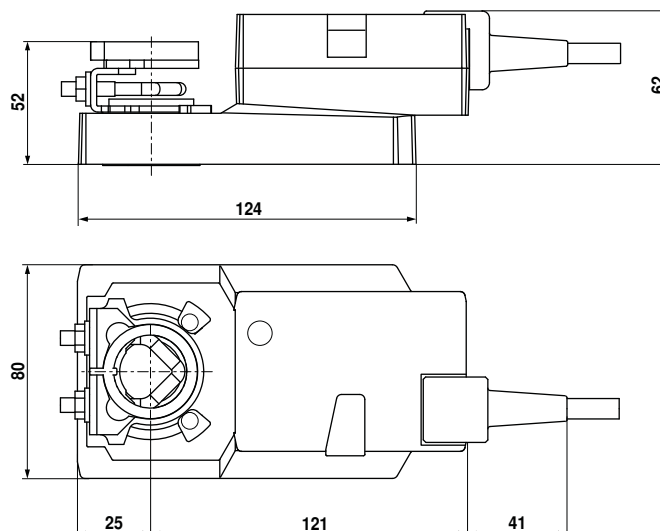
\* Option (accessory K-SA)  
When using an auxiliary switch or feedback potentiometer.

Damper actuator for adjusting air dampers in ventilation and air-conditioning systems for building services installations

- Torque 8Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point
- Running time 20s


**Technical data**

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 3W @ nominal torque At rest 1W For wire sizing 5.5VA
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 8Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ or 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, detentable
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops
	Running time	20s / 90°↔
	Sound power level	Max. 55dB(A)
	Position indication	Mechanical, pluggable
	<b>Safety</b>	Protection class
Degree of protection		IP54 NEMA 2, UL Enclosure Type 2
EMC		CE according to 2004/108/EC
Low voltage directive		CE according to 2006/95/EC
Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02
Mode of operation		Type 1
Rated impulse voltage		4kV
Control pollution degree		3
Ambient temperature range		-30...+50°C
Non-operating temperature		-40...+80°C
Ambient humidity range	95% r.h., non-condensating	
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.85kg

**Dimensions [mm]**
**Dimensional drawings**


Damper spindle	Length			
	≥40	8...26.7 <sup>1)</sup>	≥8	≤26.7
	≥20	8...20 <sup>1)</sup>	≥8	≤20

<sup>1)</sup> CrNi (INOX) 12...20

Damper actuator for adjusting air control dampers in ventilation and air-conditioning systems for building services installations

- Torque 16Nm
- Nominal voltage AC/DC 24V
- Control: Open-close (not made for 3-point applications)
- Running time 7s



Technical data

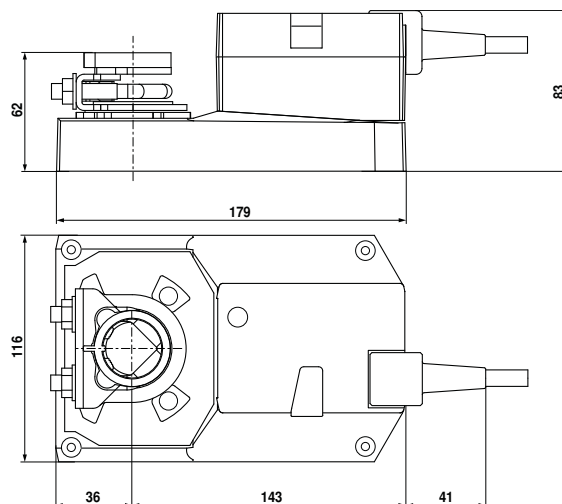
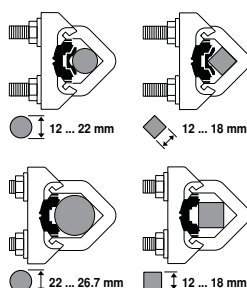
<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V	
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	
	Power consumption	In operation 15W @ nominal torque At rest 2W For wire sizing 26VA (I max. 20 A @ 5 ms)	
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque (nominal torque)	Min. 16Nm @ nominal voltage	
	Direction of rotation	Reversible with switch 0 ↻ resp. 1 ↻	
	Manual override	Gearing latch disengaged with pushbutton, can be locked	
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops	
	Angle of rotation limiting	min. 30°↔	
	Running time	7s / 90°↔	
	Automatic adjustment of operating range to match the mechanical angle of rotation	Manual triggering of the adaption by pressing the «Adaption» button	
	Sound power level	63dB(A)	
	Position indication	Mechanical, pluggable	
	Negative torque	⚠ ≤50% from nominal torque (with restrictions)*	
	<b>Safety</b>	Protection class	III Safety extra-low voltage, UL Class 2 Supply
		Degree of protection	IP54 in any mounting position, NEMA 2, UL Enclosure Type 2
EMC		CE according to 2004/108/EC	
Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02		
Mode of operation	Type 1		
Rated impulse voltage	0.8kV		
Control pollution degree	3		
Ambient temperature	-30...+40°C (no restrictions) ⚠ +40...+50°C (with restrictions)*		
Non-operating temperature	-40...+80°C		
Ambient humidity	95% r.H., non-condensating		
Maintenance	Maintenance-free		
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 1.9kg	

\* Under these operating conditions, the lift cycle of actuator will be reduced. Please contact your Belimo representative for details

Dimensions [mm]

Dimensional drawings

Damper spindle	Length	⊙	■	◇
	≥52	12...26.7	≥12	≤25.5
*	≥20	12...26.7	≥12	≤25.5



\* When using an auxiliary switch or feedback potentiometer.

**Modulating damper actuator for adjusting air control dampers in ventilation and air-conditioning systems for building services installations**

- Torque 16Nm
- Nominal voltage AC/DC 24V
- Control: modulating DC (0)2...10V
- Position feedback DC 2...10V
- Running time 7s


**Technical data**

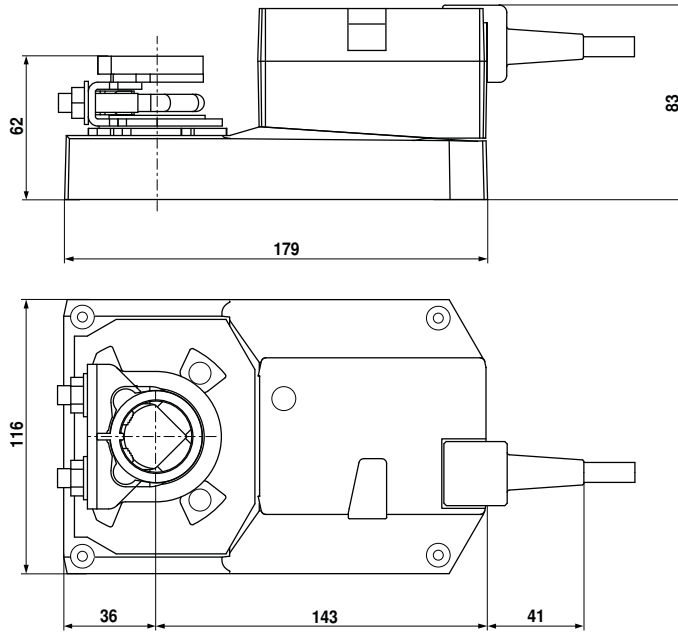
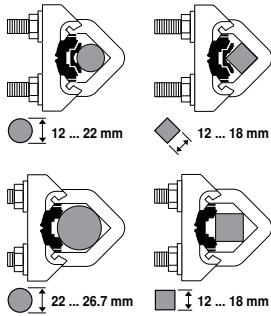
<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V	
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	
	Power consumption	In operation 15W @ nominal torque At rest 2W For wire sizing 26VA (I max. 20A @ 5ms)	
	Connection	Cable 1m, 4 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque (nominal torque)	Min. 16Nm @ nominal voltage	
	Control	Control signal Y DC (0)2...10V, input impedance 100kΩ Operating range DC 2...10V	
	Position feedback (Measuring voltage)	DC 2...10V, max. 0.5mA	
	Position accuracy	±5%	
	Direction of rotation	Reversible with switch 0 / 1	
	Direction of motion at Y = 0V	At switch position 0 ↻ resp. 1 ↻	
	Manual override	Gearing latch disengaged with pushbutton, can be locked	
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops	
	Angle of rotation limiting	min. 30°↔	
	Running time	7s / 90°↔	
	Automatic adjustment of operating range and measuring signal U to match the mechanical angle of rotation	Manual triggering of the adaption by pressing the «Adaption» button	
	Sound power level	63dB(A)	
	Position indication	Mechanical, pluggable	
	Negative torque	⚠ ≤50% from nominal torque (with restrictions)*	
	<b>Safety</b>	Protection class	III Safety extra-low voltage UL Class 2 Supply
		Degree of protection	IP54 in any mounting position, NEMA 2, UL Enclosure Type 2
EMC		CE according to 2004/108/EC	
Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02	
Mode of operation		Type 1	
Rated impulse voltage		0.8kV	
Control pollution degree		3	
Ambient temperature		-30...+40°C (no restrictions) +50°C (with restrictions)*	
Non-operating temperature		⚠ -40...+80°C	
Ambient humidity		95% r.H., non-condensating	
Maintenance	Maintenance-free		
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 1.9kg	

\* Under these operating conditions, the lift cycle of actuator will be reduced. Please contact your Belimo representative for details

Dimensions [mm]

Dimensional drawings

Damper spindle	Length			
	≥52	12...26.7	≥12	≤25.5
	≥20	12...26.7	≥12	≤25.5



\* When using an auxiliary switch or feedback potentiometer.

Damper actuator for adjusting air dampers in ventilation and air-conditioning systems for building services installations

- Torque 16Nm
- Nominal voltage AC 100...240V
- Control: Open-close or 3-point
- Running time 20s

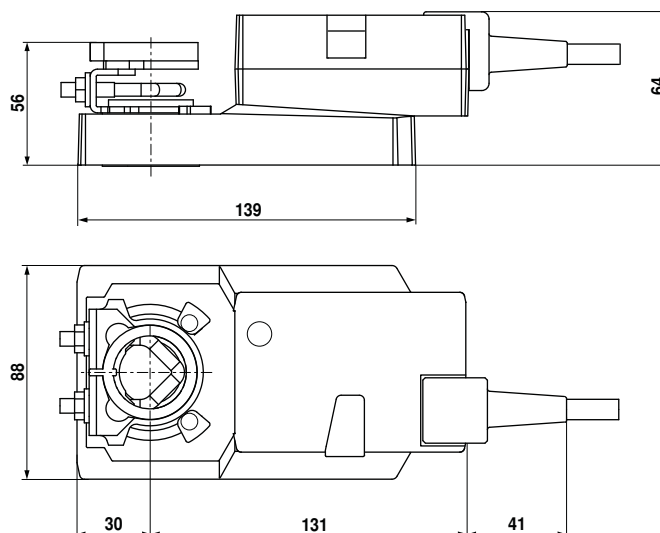


### Technical data

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz
	Nominal voltage range	AC 85...265V
	Power consumption	In operation 4.5W @ nominal torque At rest 1W
		For wire sizing 8VA
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque (nominal torque)	Min. 16Nm @ nominal voltage
	Direction of rotation	Reversible with switch 0 ↺ resp. 1 ↻
	Manual override	Gearing latch disengaged with pushbutton, can be locked
	Angle of rotation	Max. 95°↔, can be limited at both ends with adjustable mechanical end stops
	Running time	20s / 90°↔
	Sound power level	Max. 55dB(A)
	Position indication	Mechanical, pluggable
<b>Safety</b>	Protection class	II Totally insulated <input type="checkbox"/>
	Degree of protection	IP54 NEMA 2, UL Enclosure Type 2
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02
	Mode of operation	Type 1
	Rated impulse voltage	4kV
	Control pollution degree	3
	Ambient temperature range	-30...+50°C
	Non-operating temperature	-40...+80°C
Ambient humidity range	95% r.h., non-condensating	
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 1.1kg

### Dimensions [mm]

Dimensional drawings



Damper spindle	Length	● I	■ I	◆ I
	≥48	10...20 1)	≥10	≤20
	≥20	10...20 1)	≥10	≤20

1) CrNi (INOX) 12...20

Spring return actuator for the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.) for building services installations

- Torque 2.5Nm
- Nominal voltage AC/DC 24V
- Control: Open-close

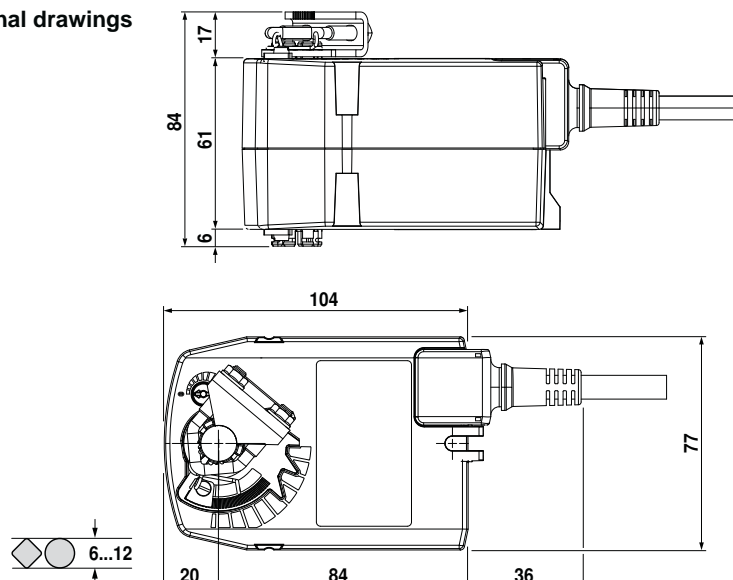


## Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz DC 24V
	Nominal voltage range	AC 19.2...28.8V DC 21.6...28.8V
	Power consumption	In operation 2.5W @ nominal torque At rest 1.5W For wire sizing 5VA
	Connection	Cable 1m, 2 x 0.75mm <sup>2</sup>
<b>Functional data</b>	Torque	Motor Min. 2.5Nm @ nominal voltage Spring return Min. 2.5Nm
	Direction of rotation	Selected by mounting L / R
	Angle of rotation	Max. 95° ↯ (adjustable 37...100% ↯ with built-in mechanical stop)
	Running time	Motor < 75s (0...2Nm) Spring return < 25s @ -20...50°C / max. 60s @ -30°C
	Sound power level	Motor Max. 50dB(A) Spring return Approx. 62dB(A)
	Service life	Min. 60,000 operations
	Position indication	Mechanical
	<b>Safety</b>	Protection class
Degree of protection		IP42 in any mounting position
EMC		CE according to 2004/108/EC
Mode of operation		Type 1.AA (to EN 60730-1)
Overvoltage category		III
Control pollution degree		3
Ambient temperature range		-30...+50°C
Non-operating temperature		-40...+80°C
Ambient humidity range		95% r.H., non-condensating (EN 60730-1)
Maintenance		Maintenance-free
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 0.68kg

## Dimensions [mm]

### Dimensional drawings



Spring return actuator for the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.) for building services installations

- Torque 2.5Nm
- Nominal voltage AC/DC 24V
- Control: Open-close
- Integrated auxiliary switch

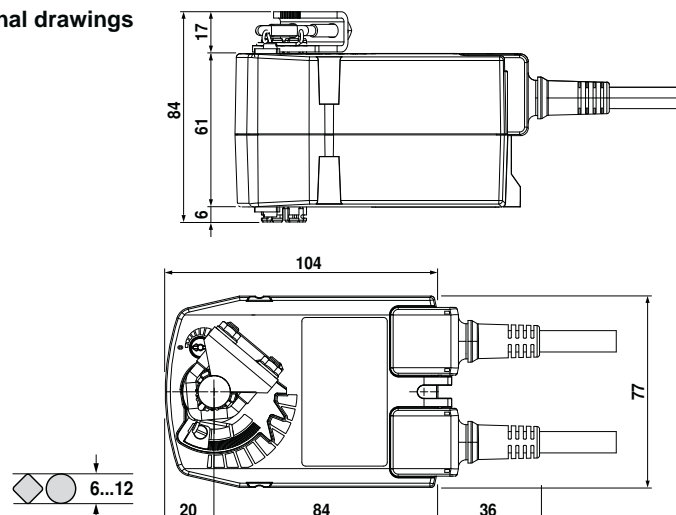


## Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz DC 24V
	Nominal voltage range	AC 19.2...28.8V DC 21.6...28.8V
	Power consumption	In operation 2.5W @ nominal torque At rest 1.5W For wire sizing 5VA
	Auxiliary switch	1 x SPDT 3 (0.5) A, AC 250V <input type="checkbox"/> (Switching point adjustable 0...100% $\triangleleft$ )
<b>Functional data</b>	Connection	Motor Cable 1m, 2 x 0.75mm <sup>2</sup> Auxiliary switch Cable 1m, 3 x 0.75mm <sup>2</sup>
	Torque Motor	Min. 2.5Nm @ nominal voltage
	Spring return	Min. 2.5Nm
	Direction of rotation	Selected by mounting L / R
	Angle of rotation	Max. 95° $\triangleleft$ (adjustable 37...100% $\triangleleft$ with built-in mechanical stop)
	Running time	Motor < 75s (0...2Nm) Spring return < 25s @ -20...50°C / max. 60s @ -30°C
	Sound power level	Motor Max. 50dB(A) Spring return Approx. 62dB(A)
	Service life	Min. 60,000 operations
	Position indication	Mechanical
	<b>Safety</b>	Protection class
Degree of protection		IP42 in any mounting position
EMC		CE according to 2004/108/EC
Low voltage directive		CE according to 2006/95/EC
Mode of operation		Type 1.AA.B (to EN 60730-1)
Overvoltage category		III
Control pollution degree		3
Ambient temperature range		-30...+50°C
Non-operating temperature		-40...+80°C
Ambient humidity range		95% r.H., non-condensating (EN 60730-1)
<b>Dimensions / Weight</b>	Maintenance	Maintenance-free
	Dimensions	See «Dimensions»
	Weight	Approx. 0.78kg

## Dimensions [mm]

### Dimensional drawings



# Mechanical Fail-Safe Damper Actuator TF24-3



Spring return actuator for the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.) for building services installations

- Torque 2.5Nm
- Nominal voltage AC 24V
- Control: 3-point

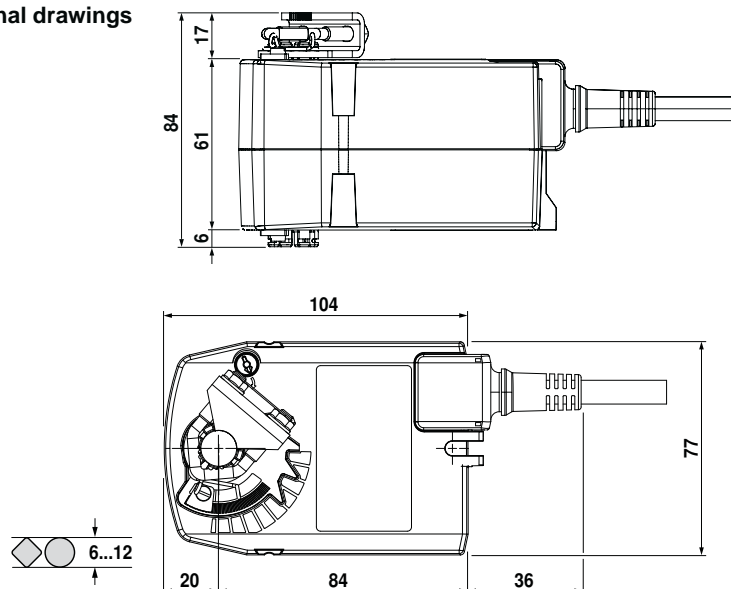


## Technical data

<b>Electrical data</b>	Nominal voltage		AC 24V, 50/60Hz
	Nominal voltage range		AC 19.2...28.8V
	Power consumption	In operation	2.5W @ nominal torque
		At rest	1W
For wire sizing		4VA	
Connection		Cable 1m, 4 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque	Motor	Min. 2.5Nm @ nominal voltage
		Spring return	Min. 2.5Nm
	Direction of rotation	Motor	Selectet with switch ↺ bzw. ↻
		Spring return	Selected by mounting L / R
	Angle of rotation		Max. 95° ↯ (adjustable 37...100% ↯ with built-in mechanical stop)
	Running time	Motor	< 150s (0...2Nm)
		Spring return	< 25s @ -20...50°C / max. 60s @ -30°C
	Sound power level	Motor	Max. 35dB(A)
		Spring return	Approx. 62dB(A)
	Service life		Min. 60,000 operations
Position indication		Mechanical	
<b>Safety</b>	Protection class		III Safety extra-low voltage
	Degree of protection		IP42 in any mounting position
	EMC		CE according to 2004/108/EC
	Mode of operation		Type 1.AA (to EN 60730-1)
	Overvoltage category		III
	Control pollution degree		3
	Ambient temperature range		-30...+50°C
	Non-operating temperature		-40...+80°C
	Ambient humidity range		95% r.H., non-condensating (EN 60730-1)
	Maintenance		Maintenance-free
<b>Dimensions / Weight</b>	Dimensions		See «Dimensions»
	Weight		Approx. 0.64kg

## Dimensions [mm]

Dimensional drawings

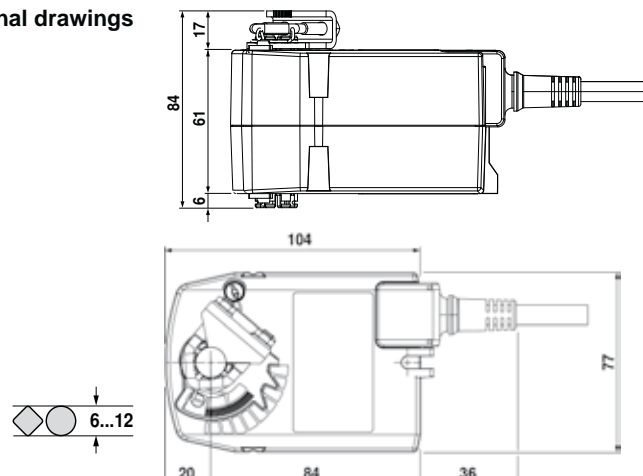


Spring return actuator for the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.) for building services installations

- Torque 2.5Nm
- Nominal voltage AC/DC 24V
- Control: modulating DC (0)2...10V, position feedback DC 2...10V


**Technical data**

<b>Electrical data</b>	Nominal voltage		AC 24V, 50/60Hz DC 24V
	Nominal voltage range		AC 19.2...28.8V DC 21.6...28.8V
	Power consumption	In operation	2.5W @ nominal torque
		At rest For wire sizing	1W 4VA
Connection		Cable 1m, 4 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque	Motor	Min. 2.5Nm @ nominal voltage
		Spring return	Min. 2.5Nm
	Control	Control signal Y	DC (0)2...10V, typical input impedance 100kΩ
		Working range	DC 2...10V
	Position feedback (Measuring voltage)		DC 2...10V, max. 0.5mA
	Direction of rotation	Motor	Selectet with switch ↻ bzw. ↻
		Spring return	Selected by mounting L / R
	Angle of rotation		Max. 95° ↻ (adjustable 37...100% ↻ with built-in mechanical stop)
	Running time	Motor	150s (0...2Nm)
		Spring return	< 25s @ -20...50°C / max. 60s @ -30°C
Sound power level	Motor	Max. 35dB(A)	
	Spring return	Approx. 62dB(A)	
Service life		Min. 60,000 operations	
Position indication		Mechanical	
<b>Safety</b>	Protection class		<b>III</b> Safety extra-low voltage
	Degree of protection		IP42 in any mounting position
	EMC		CE according to 2004/108/EC
	Mode of operation		Type 1.AA (to EN 60730-1)
	Overvoltage category		<b>III</b>
	Control pollution degree		3
	Ambient temperature range		-30...+50°C
	Non-operating temperature		-40...+80°C
	Ambient humidity range		95% r.H., non-condensating (EN 60730-1)
	Maintenance		Maintenance-free
<b>Dimensions / Weight</b>	Dimensions		See «Dimensions»
	Weight		Approx. 0.69kg

**Dimensions [mm]**
**Dimensional drawings**


# Mechanical Fail-Safe Damper Actuator TF230



Spring return actuator for the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.) for building services installations

- Torque 2.5Nm
- Nominal voltage AC 100...240V
- Control: Open-close

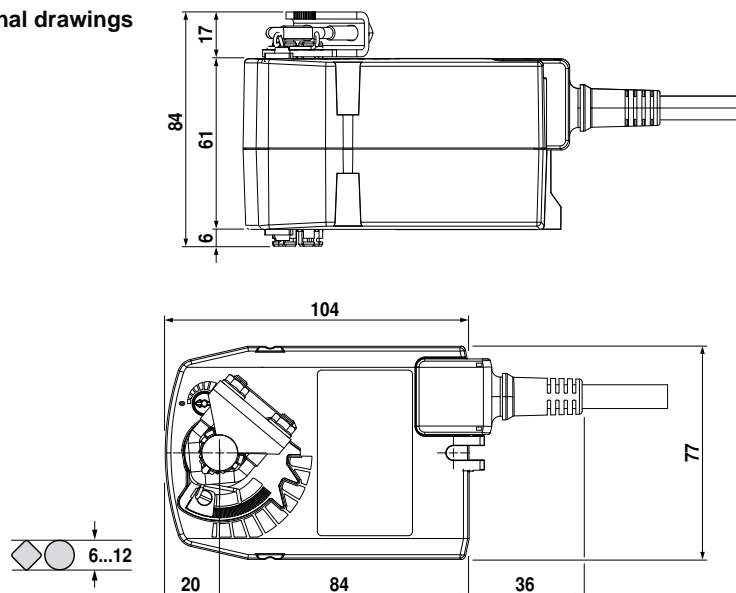


## Technical data

<b>Electrical data</b>	Nominal voltage		AC 100...240V, 50/60Hz
	Nominal voltage range		AC 85...265V
	Power consumption	In operation	2.5W @ nominal torque
		At rest	1.5W
Connection		For wire sizing	5VA
Connection		Cable 1m, 2 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque	Motor	Min. 2.5Nm @ nominal voltage
		Spring return	Min. 2.5Nm
	Direction of rotation		Selected by mounting L / R
	Angle of rotation		Max. 95° <math>\nabla</math> (adjustable 37...100% <math>\nabla</math> with built-in mechanical stop)
	Running time	Motor	< 75s (0...2Nm)
		Spring return	< 25s @ -20...50°C / max. 60s @ -30°C
	Sound power level	Motor	Max. 50dB(A)
		Spring return	Approx. 62dB(A)
	Service life		Min. 60,000 operations
	Position indication		Mechanical
<b>Safety</b>	Protection class		II Totally insulated <input type="checkbox"/>
	Degree of protection		IP42 in any mounting position
	EMC		CE according to 2004/108/EC
	Low voltage directive		CE according to 2006/95/EC
	Mode of operation		Type 1.AA (to EN 60730-1)
	Overvoltage category		III
	Control pollution degree		3
	Ambient temperature range		-30...+50°C
	Non-operating temperature		-40...+80°C
	Ambient humidity range		95% r.H., non-condensating (EN 60730-1)
Maintenance		Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions		See «Dimensions»
	Weight		Approx. 0.68kg

## Dimensions [mm]

Dimensional drawings



Spring return actuator for the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.) for building services installations

- Torque 2.5Nm
- Nominal voltage AC 100...240V
- Control: Open-close
- Integrated auxiliary switch

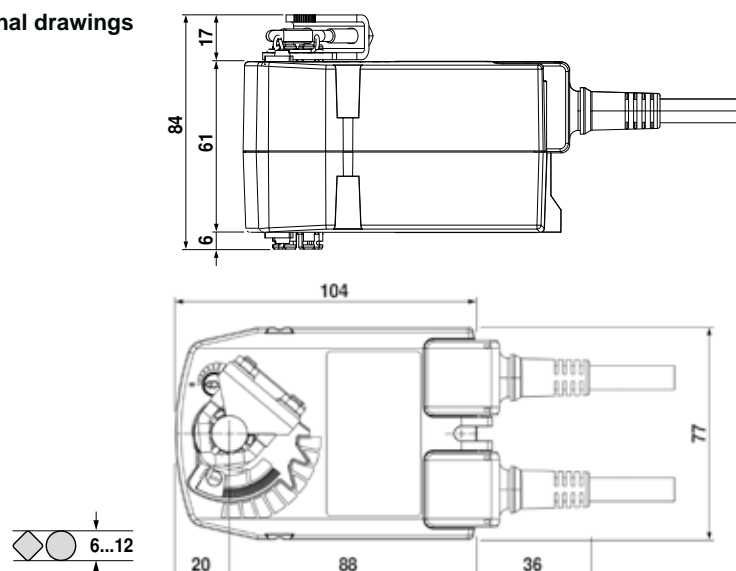


## Technical data

<b>Electrical data</b>	Nominal voltage	AC 100...240V, 50/60Hz		
	Nominal voltage range	AC 85...265V		
	Power consumption	In operation	2.5W @ nominal torque	
		At rest	1.5W	
		For wire sizing	5VA	
Auxiliary switch	1 x SPDT 3 (0.5) A, AC 250V <input type="checkbox"/> (Switching point adjustable 0...100% <math>\sphericalangle</math>)			
Connection	Motor	Cable 1m, 2 x 0.75mm <sup>2</sup>		
	Auxiliary switch	Cable 1m, 3 x 0.75mm <sup>2</sup>		
<b>Functional data</b>	Torque	Motor	Min. 2.5Nm @ nominal voltage	
		Spring return	Min. 2.5Nm	
	Direction of rotation	Selected by mounting L / R		
	Angle of rotation	Max. 95° <math>\sphericalangle</math> (adjustable 37...100% <math>\sphericalangle</math> with built-in mechanical stop)		
	Running time	Motor	< 75s (0...2Nm)	
		Spring return	< 25s @ -20...50°C / max. 60s @ -30°C	
	Sound power level	Motor	Max. 50dB(A)	
		Spring return	Approx. 62dB(A)	
	Service life	Min. 60,000 operations		
	Position indication	Mechanical		
<b>Safety</b>	Protection class	II Totally insulated <input type="checkbox"/>		
	Degree of protection	IP42 in any mounting position		
	EMC	CE according to 2004/108/EC		
	Low voltage directive	CE according to 2006/95/EC		
	Mode of operation	Type 1.AA.B (to EN 60730-1)		
	Overvoltage category	III		
	Control pollution degree	3		
	Ambient temperature range	-30...+50°C		
	Non-operating temperature	-40...+80°C		
	Ambient humidity range	95% r.H., non-condensating (EN 60730-1)		
	Maintenance	Maintenance-free		
	<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
		Weight	Approx. 0.79kg	

## Dimensions [mm]

### Dimensional drawings



# Mechanical Fail-Safe Damper Actuator LF24(-S)

For operation of air control dampers that perform safety function

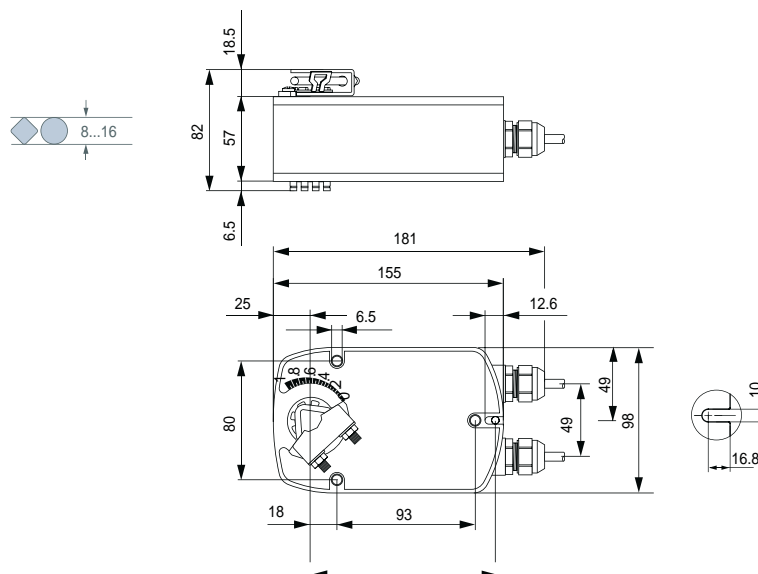
- Torque: 4Nm
- Nominal voltage: AC/DC 24V
- Control: Open/Close
- Integrated auxiliary switch (LF24-S)



## Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V 50/60Hz, DC 24V
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption	5W @ nominal torque / 2.5W @ holding
	For transformer sizing	7VA
	Auxiliary switch (-S)	1 SPDT, 1mA...3(0.5)A, AC 250V, adjustable
<b>Functional data</b>	Connection - motor	Cable 1m, 2x0.75mm <sup>2</sup>
	- auxiliary switch (-S)	Cable 1m, 3x0.75mm <sup>2</sup>
	Torque	4Nm @ nominal voltage
	Direction of rotation	Selectable by mounting L/R
	Angle of rotation	Max. 95°, 37...100% adjustable by mechanical stops
	Running time - motor	40...75s
	- spring return	20s @ -20...+50°C / max. 60s @ -30°C
<b>Safety</b>	Sound power level - motor	Max. 50dB(A)
	- spring return	Max. 62dB(A)
<b>Dimensions / weight</b>	Position indicator	Mechanical
	Protection class	III (safety extra-low voltage)
	Degree of protection	IP54
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Ambient temp.	-30...+50°C
	Non-operation temp.	-40...+80°C
	Humidity	5...95% RH, non-condensing
	Maintenance	Maintenance-free
	Dimensions (LxWxH)	See «Dimensions»
Shaft length	Clamp up	Min. 84mm
	Clamp down	Min. 20mm
Shaft		⌀ 8...16mm
Weight		Approx. 1.6kg

## Dimensions [mm]



For operation of air control dampers that perform safety function

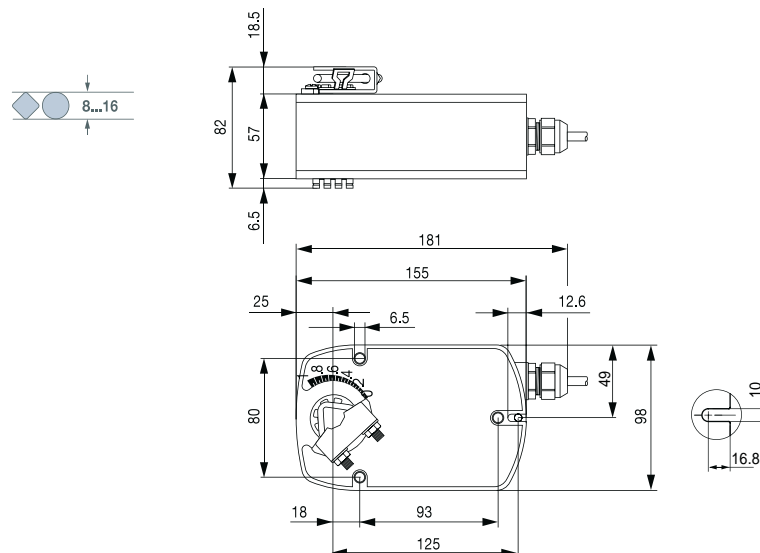
- Torque: 4Nm
- Nominal voltage: AC/DC 24V
- Control: 3-point



## Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V 50/60Hz, DC 24V	
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	
	Power consumption	2.5W @ nominal torque / 1W @ holding	
	For transformer sizing	5VA	
	Connection	Cable 1m, 4x0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque	4Nm @ nominal voltage	
	Direction of rotation	Selectable by mounting L/R	
	Angle of rotation	Max. 95°, 37...100% adjustable by mechanical stops	
	Running time	- motor	150s
		- spring return	20s @ -20...+50°C / max. 60s @ -30°C
	Sound power level	- motor	Max. 30dB(A)
		- spring return	Max. 62dB(A)
Position indicator	Mechanical		
<b>Safety</b>	Protection class	III (safety extra-low voltage)	
	Degree of protection	IP54	
	EMC	CE according to 2004/108/EC	
	Low voltage directive	CE according to 2006/95/EC	
	Ambient temp.	-30...+50°C	
	Non-operation temp.	-40...+80°C	
	Humidity	5...95% RH, non-condensing	
Maintenance	Maintenance-free		
<b>Dimensions / weight</b>	Dimensions (LxWxH)	See «Dimensions»	
	Shaft length	Clamp up	Min. 84mm
		Clamp down	Min. 20mm
	Shaft	⌀ 8...16mm	
	Weight	Approx. 1.4kg	

## Dimensions [mm]



# Mechanical Fail-Safe Damper Actuator LF24-SR



For operation of air control dampers that perform safety function

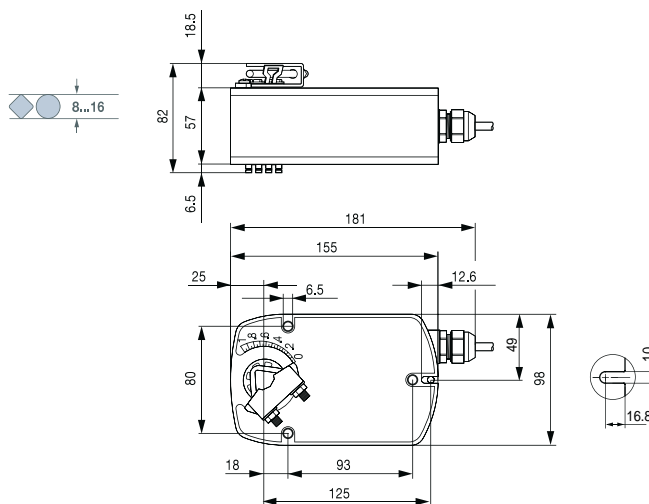
- Torque: 4Nm
- Nominal voltage: AC/DC 24V
- Control signal: DC (0)2...10V
- Position feedback: DC 2...10V



## Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V 50/60Hz, DC 24V	
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	
	Power consumption	2.5W @ nominal torque / 1W @ holding	
	For transformer sizing	5VA	
<b>Functional data</b>	Connection	Cable 1m, 4x0.75mm <sup>2</sup>	
	Torque	4Nm @ nominal voltage	
	Control signal Y	DC (0)2...10V @ input impedance 100kΩ	
	Position feedback signal U	DC 2...10V @ max. 0.7mA	
	Direction of rotation	Selectable by L/R switch Selectable by L/R mounting	
	Angle of rotation	Max. 95°, 37...100% adjustable by mechanical stops	
	Running time	- motor 150s - spring return 20s @ -20...+50°C / max. 60s @ -30°C	
	Sound power level	- motor Max. 30dB(A) - spring return Max. 62dB(A)	
	Position indicator	Mechanical	
	<b>Safety</b>	Protection class	III (safety extra-low voltage)
Degree of protection		IP54	
EMC		CE according to 2004/108/EC	
Mode of operation		Type 1.AA (EN 60730-1)	
Ambient temp.		-30...+50°C	
Non-operation temp.		-40...+80°C	
Humidity		5...95% RH, non-condensing	
Maintenance		Maintenance-free	
<b>Dimensions / weight</b>		Dimensions (LxWxH)	See «Dimensions»
		Shaft length	Clamp up Min. 84mm Clamp down Min. 20mm
	Shaft	⌀ 8...16mm	
	Weight	Approx. 1.6kg	

## Dimensions [mm]



For operation of air control dampers that perform safety function

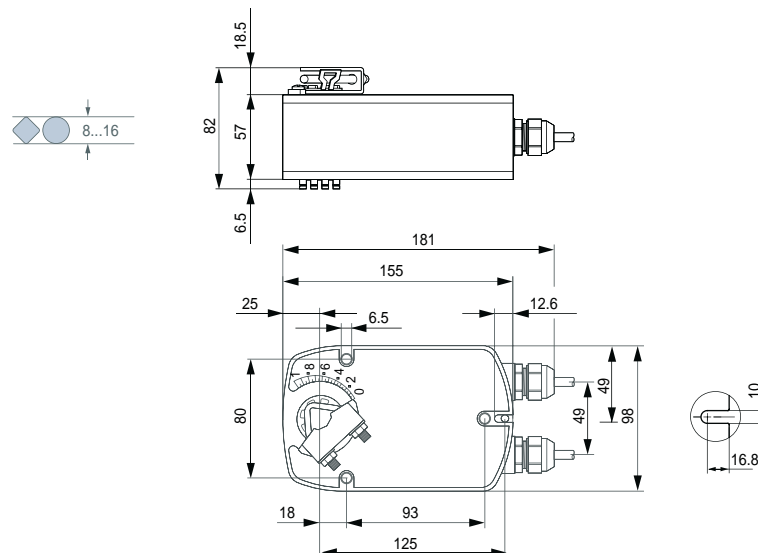
- Torque: 4Nm
- Nominal voltage: AC 230V
- Control: Open/Close
- Integrated auxiliary switch (LF230-S)



## Technical data

<b>Electrical data</b>	Nominal voltage	AC 230V 50/60Hz
	Nominal voltage range	AC 198...264V
	Power consumption	5W @ nominal torque / 3W @ holding
	For transformer sizing	7VA
	Auxiliary switch (-S)	1 SPDT, 1mA...3(0.5)A, AC 250V, adjustable
	Connecting cable	-motor Cable 1m, 2x0.75mm <sup>2</sup> -auxiliary switch (-S) Cable 1m, 3x0.75mm <sup>2</sup>
	<b>Functional data</b>	Torque
Direction of rotation		Selectable by mounting L/R
Angle of rotation		Max. 95°, 37...100% adjustable by mechanical stops
Running time		- motor 40...75s - spring return 20s @ -20...+50°C / max. 60s @ -30°C
Sound power level		- motor Max. 50dB(A) - spring return Max. 62dB(A)
Position indicator		Mechanical
<b>Safety</b>		Protection class
	Degree of protection	IP54
	EMC	CE according to 2004/108/EC
	Low voltage directive	CE according to 2006/95/EC
	Ambient temp.	-30...+50°C
	Non-operation temp.	-40...+80°C
	Humidity	5...95% RH, non-condensing
<b>Maintenance / weight</b>	Maintenance	Maintenance-free
	Dimensions (LxWxH)	See «Dimensions»
	Shaft length	Clamp up Min. 84mm Clamp down Min. 20mm
	Shaft	⌀ 8...16mm
	Weight	Approx. 1.8kg

## Dimensions [mm]



# Mechanical Fail-Safe Damper Actuator NFA



Spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- Torque 10Nm
- Nominal voltage AC 24...240V / DC 24...125V
- Control: Open-close



## Technical data

<b>Electrical data</b>	Nominal voltage	AC 24...240V, 50/60Hz / DC 24...125V	
	Nominal voltage range	AC 19.2...264V / DC 21.6...137.5V	
	Power consumption	In operation 6W @ nominal torque At rest 2.5W For wire sizing 9.5VA	
	Connection	Cable 1m, 2 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque	Motor Min. 10Nm @ nominal voltage Spring return Min. 10Nm	
	Direction of rotation	Can be selected by mounting L / R	
	Manual override	With hand crank and interlocking switch	
	Angle of rotation	Max. 95°↔, can be limited with adjustable mechanical end stop	
	Running time	Motor ≤75s (0...10Nm) Spring return 20s @ -20...50°C / max. 60s @ -30°C	
	Sound power level	Motor ≤45dB(A) Spring return ≤62dB(A)	
	Service life	Min. 60,000 emergency positions	
	Position indication	Mechanical	
	<b>Safety</b>	Protection class	II Totally insulated ☐
		Degree of protection	IP54 NEMA2, UL Enclosure Type 2
		EMC	CE according to 2004/108/EC CE according to 2006/95/EC
Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02		
Mode of operation	Type 1.AA		
Rated impulse voltage	4kV		
Control pollution degree	3		
Ambient temperature	-30...+50°C		
Non-operating temperature	-40...+80°C		
Ambient humidity	95% r.h., non-condensating		
Maintenance	Maintenance-free		
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 2.1kg	

## Dimensions [mm]

### Dimensional drawings

Variant 1a:  
3/4"-spindle clamp (with insertion part) EU Standard

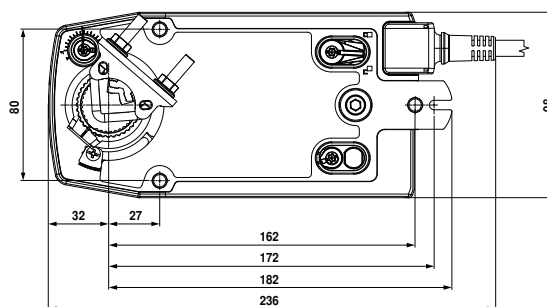
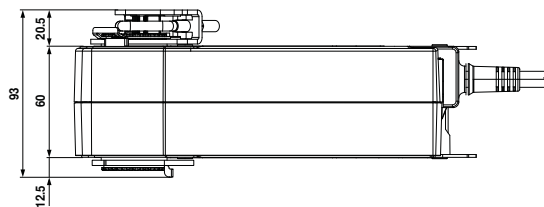
Damper spindle	Length	● I	■ I	◆ I
	≥85	10...22	10	14...25.4
	≥15			

Variant 1b:  
1"-spindle clamp (without insertion part) EU Standard

Damper spindle	Length	● I	■ I
	≥85	19...25.4 (26.7)	12...18
	≥15		

Variant 2:  
1/2"-spindle clamp (optional via configuration)

Damper spindle	Length	● I	◆ I
	≥85	10...19	14...20
	≥15		



Spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- Torque 10Nm
- Nominal voltage AC 24...240V / DC 24...125V
- Control: Open-close
- Two integrated auxiliary switches



## Technical data

<b>Electrical data</b>	Nominal voltage	AC 24...240V, 50/60Hz / DC 24...125V		
	Nominal voltage range	AC 19.2...264V / DC 21.6...137.5V		
	Power consumption	In operation	6W @ nominal torque	
		At rest	2.5W	
		For wire sizing	9.5VA	
	Auxiliary switch	2 x SPDT, 1 x 10% / 1 x 11...90%		
	Connection	Motor	Cable 1m, 2 x 0.75mm <sup>2</sup>	
		Auxiliary switch	Cable 1m, 6 x 0.75mm <sup>2</sup>	
	<b>Functional data</b>	Torque	Motor	Min. 10Nm @ nominal voltage
			Spring return	Min. 10Nm
Direction of rotation		Can be selected by mounting L / R		
Manual override		With hand crank and interlocking switch		
Angle of rotation		Max. 95°<math>\leftarrow</math>, can be limited with adjustable mechanical end stop		
Running time		Motor	≤75s (0...10Nm)	
		Spring return	20s @ -20...50°C / max. 60s @ -30°C	
Sound power level		Motor	≤45dB(A)	
		Spring return	≤62dB(A)	
Service life		Min. 60,000 emergency positions		
Position indication	Mechanical			
<b>Safety</b>	Protection class	II Totally insulated <input checked="" type="checkbox"/>		
	Degree of protection	IP54		
		NEMA2, UL Enclosure Type 2		
	EMC	CE according to 2004/108/EC		
	Low-voltage directive	CE according to 2006/95/EC		
	Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02		
	Mode of operation	Type 1.AA.B		
	Rated impulse voltage	Actuator	4kV	
		Auxiliary switch	2.5kV	
	Control pollution degree	3		
Ambient temperature	-30...+50°C			
Non-operating temperature	-40...+80°C			
Ambient humidity	95% r.h., non-condensating			
Maintenance	Maintenance-free			
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»		
	Weight	Approx. 2.3kg		

## Dimensions [mm]

### Dimensional drawings

Variant 1a:

3/4"-spindle clamp (with insertion part) EU Standard

Damper spindle	Length			
	≥85	10 ... 22	10	14 ... 25.4
	≥15			

Variant 1b:

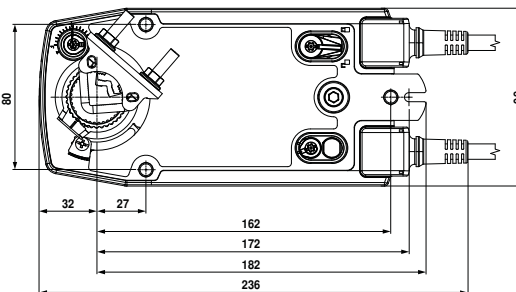
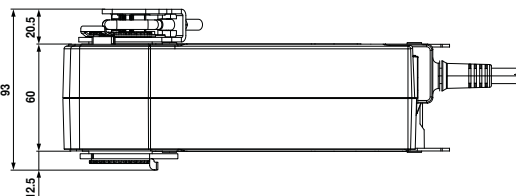
1"-spindle clamp (without insertion part) EU Standard

Damper spindle	Length		
	≥85	19 ... 25.4 (26.7)	12 ... 18
	≥15		

Variant 2:

1/2"-spindle clamp (optional via configuration)

Damper spindle	Length		
	≥85	10 ... 19	14 ... 20
	≥15		



Modulating spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- Torque 10Nm
- Nominal voltage AC/DC 24V
- Control: modulating DC 0...10V
- Position feedback DC 2...10V



## Type overview

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V	
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	
	Power consumption	In operation 3.5W @ nominal torque At rest 2.5W For wire sizing 5.5VA	
	Connection	Cable 1m, 4 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque	Motor Min. 10Nm @ nominal voltage Spring return Min. 10Nm	
	Control	Control signal Y DC 0...10V, input impedance 100kΩ Operating range DC 2...10V	
	Position feedback (measuring voltage U)	DC 2...10V, max. 0.5mA	
	Position accuracy	±5%	
	Direction of rotation	Motor Reversible with switch ↻ / ↻ Spring return Can be selected by mounting L / R	
	Manual override	With hand crank and interlocking switch	
	Angle of rotation	Max. 95°↔, can be limited with adjustable mechanical end stop	
	Running time	Motor ≤150s (0...10Nm) Spring return ≤20s @ -20...50°C / max. 60s @ -30°C	
	Sound power level	Motor ≤40dB(A) @ 150s running time Spring return ≤62dB(A)	
	Service life	Min. 60,000 emergency positions	
	Position indication	Mechanical	
	<b>Safety</b>	Protection class	III Extra low voltage UL Class 2 Supply
		Degree of protection	IP54 NEMA2, UL Enclosure Type 2
		EMC	CE according to 2004/108/EC
		Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02
Mode of operation		Type 1.AA	
Rated impulse voltage		0.8kV	
Control pollution degree		3	
Ambient temperature		-30...+50°C	
Non-operating temperature		-40...+80°C	
Ambient humidity		95% r.h., non-condensating	
Maintenance	Maintenance-free		
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 2.1kg	

## Dimensions [mm]

### Dimensional drawings

Variant 1a:  
¾"-spindle clamp (with insertion part) EU Standard

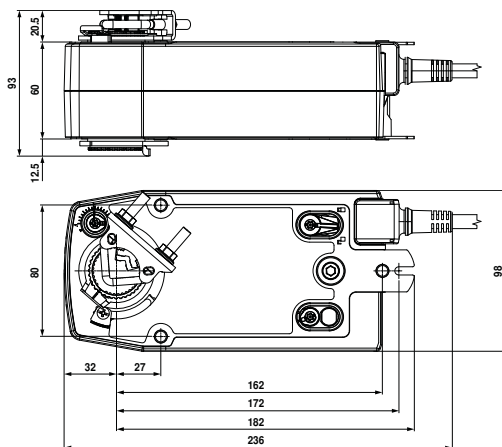
Damper spindle	Length	⊙ I	⊠ I	◇ I
	≥85	10...22	10	14...25.4
	≥15			

Variant 1b:  
1"-spindle clamp (without insertion part) EU Standard

Damper spindle	Length	⊙ I	⊠ I
	≥85	19...25.4 (26.7)	12...18
	≥15		

Variant 2:  
¾"-spindle clamp (optional via configuration)

Damper spindle	Length	⊙ I	◇ I
	≥85	10...19	14...20
	≥15		



Spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- Torque 20Nm
- Nominal voltage AC 24...240V / DC 24...125V
- Control: Open-close



## Type overview

<b>Electrical data</b>	Nominal voltage	AC 24...240V, 50/60Hz / DC 24...125V	
	Nominal voltage range	AC 19.2...264V / DC 21.6...137.5V	
	Power consumption	In operation 7W @ nominal torque At rest 3.5W For wire sizing 18VA	
	Connection	Cable 1m, 2 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque	Motor Min. 20Nm @ nominal voltage Spring return Min. 20Nm	
	Direction of rotation	Can be selected by mounting L / R	
	Manual override	With hand crank and interlocking switch	
	Angle of rotation	Max. 95°↔, can be limited with adjustable mechanical end stop	
	Running time	Motor ≤75s (0...10Nm) Spring return 20s @ -20...50°C / max. 60s @ -30°C	
	Sound power level	Motor ≤45dB(A) Spring return ≤62dB(A)	
	Service life	Min. 60,000 emergency positions	
	Position indication	Mechanical	
	<b>Safety</b>	Protection class	II Totally insulated <input type="checkbox"/>
		Degree of protection	IP54 NEMA2, UL Enclosure Type 2
EMC		CE according to 2004/108/EC	
Low-voltage directive		CE according to 2006/95/EC	
Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02	
Mode of operation		Type 1.AA	
Rated impulse voltage		4kV	
Control pollution degree		3	
Ambient temperature		-30...+50°C	
Non-operating temperature		-40...+80°C	
Ambient humidity	95% r.h., non-condensating		
Maintenance	Maintenance-free		
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 2.3kg	

## Dimensions [mm]

### Dimensional drawings

Variant 1a:

¾"-spindle clamp (with insertion part) EU Standard

Damper spindle	Length			
	≥85	10...22	10	14...25.4
	≥15			

Variant 1b:

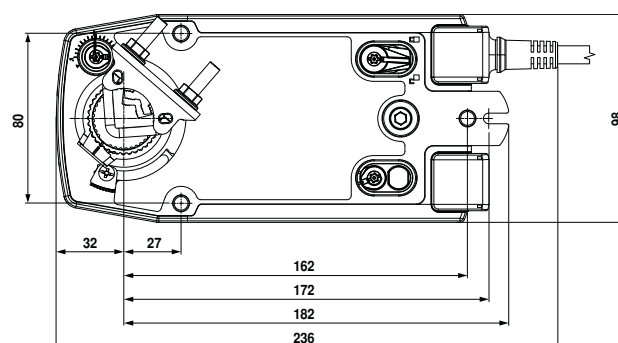
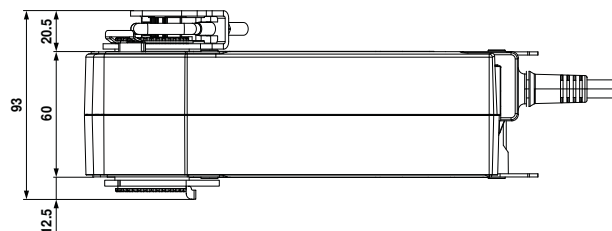
1"-spindle clamp (without insertion part) EU Standard

Damper spindle	Length		
	≥85	19...25.4	12...18
	≥15	(26.7)	

Variant 2:

¾"-spindle clamp (optional via configuration)

Damper spindle	Length		
	≥85	10...19	14...20
	≥15		



# Mechanical Fail-Safe Damper Actuator SFA-S2



Spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- Torque 20Nm
- Nominal voltage AC 24...240V / DC 24...125V
- Control: Open-close
- Two integrated auxiliary switches



## Technical data

<b>Electrical data</b>	Nominal voltage		AC 24...240V, 50/60Hz / DC 24...125V
	Nominal voltage range		AC 19.2...264V / DC 21.6...137.5V
	Power consumption	In operation	7W @ nominal torque
		At rest	3.5W
		For wire sizing	18VA
Auxiliary switch		2 x SPDT, 1 x 10% / 1 x 11...90%	
Connection	Motor	Cable 1m, 2 x 0.75mm <sup>2</sup>	
	Auxiliary switch	Cable 1m, 6 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque	Motor	Min. 20Nm @ nominal voltage
		Spring return	Min. 20Nm
	Direction of rotation		Can be selected by mounting L / R
	Manual override		With hand crank and interlocking switch
	Angle of rotation		Max. 95°↔, can be limited with adjustable mechanical end stop
	Running time	Motor	≤75s (0...20Nm)
		Spring return	20s @ -20...50°C / max. 60s @ -30°C
	Sound power level	Motor	≤45dB(A)
		Spring return	≤62dB(A)
	Service life		Min. 60,000 emergency positions
Position indication		Mechanical	
<b>Safety</b>	Protection class		II Totally insulated <input type="checkbox"/>
	Degree of protection		IP54
			NEMA2, UL Enclosure Type 2
	EMC		CE according to 2004/108/EC
	Low-voltage directive		CE according to 2006/95/EC
	Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02
	Mode of operation		Type 1.AA.B
	Rated impulse voltage	Actuator	4kV
		Auxiliary switch	2.5kV
	Control pollution degree		3
Ambient temperature		-30...+50°C	
Non-operating temperature		-40...+80°C	
Ambient humidity		95% r.h., non-condensating	
Maintenance		Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions		See «Dimensions»
	Weight		Approx. 2.4kg

## Dimensions [mm]

### Dimensional drawings

Variant 1a:  
¼"-spindle clamp (with insertion part) EU Standard

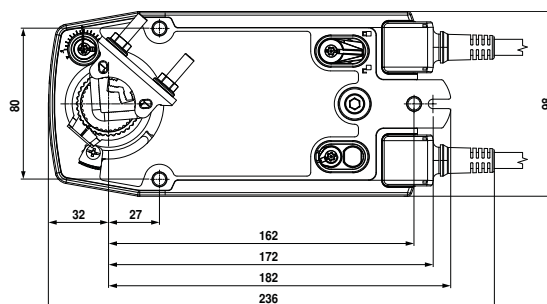
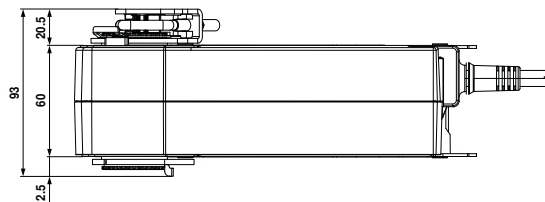
Damper spindle	Length			
	≥85	10...22	10	14...25.4
	≥15			

Variant 1b:  
1"-spindle clamp (without insertion part) EU Standard

Damper spindle	Length		
	≥85	19...25.4 (26.7)	12...18
	≥15		

Variant 2:  
¼"-spindle clamp (optional via configuration)

Damper spindle	Length		
	≥85	10...19	14...20
	≥15		



Modulating spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- Torque 20Nm
- Nominal voltage AC/DC 24V
- Control: modulating DC (0)2...10V
- Position feedback DC 2...10V



## Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V	
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	
	Power consumption	In operation 5W @ nominal torque At rest 3W For wire sizing 7VA	
	Connection	Cable 1m, 4 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque	Motor Min. 20Nm @ nominal voltage Spring return Min. 20Nm	
	Control	Control signal Y DC (0) 2...10V, input impedance 100kΩ Operating range DC 2...10V	
	Position feedback (measuring voltage U)	DC 2...10V, max. 0.5mA	
	Position accuracy	±5%	
	Direction of rotation	Motor Reversible with switch ↻ / ↻ Spring return Can be selected by mounting L / R	
	Manual override	With hand crank and interlocking switch	
	Angle of rotation	Max. 95°↔, can be limited with adjustable mechanical end stop	
	Running time	Motor ≤150s (0...20Nm) Spring return ≤20s @ -20...50°C / max. 60s @ -30°C	
	Sound power level	Motor ≤40dB(A) @ 150s running time Spring return ≤62dB(A)	
	Service life	Min. 60,000 emergency positions	
	Position indication	Mechanical	
	<b>Safety</b>	Protection class	III Extra low voltage UL Class 2 Supply
		Degree of protection	IP54 NEMA2, UL Enclosure Type 2
		EMC	CE according to 2004/108/EC
Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02	
Mode of operation		Type 1.AA	
Rated impulse voltage		0.8kV	
Control pollution degree		3	
Ambient temperature		-30...+50°C	
Non-operating temperature		-40...+80°C	
Ambient humidity		95% r.h., non-condensating	
Maintenance		Maintenance-free	
<b>Dimensions / Weight</b>		Dimensions	See «Dimensions»
		Weight	Approx. 2.3kg

## Dimensions [mm]

### Dimensional drawings

Variant 1a:

¼"-spindle clamp (with insertion part) EU Standard

Damper spindle	Length	⊙ I	■ I	◆ I
	≥85	10...22	10	14...25.4
	≥15			

Variant 1b:

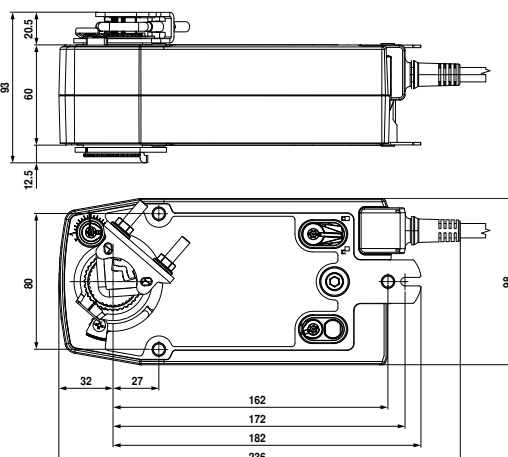
1"-spindle clamp (without insertion part) EU Standard

Damper spindle	Length	⊙ I	■ I
	≥85	19...25.4 (26.7)	12...18
	≥15		

Variant 2:

½"-spindle clamp (optional via configuration)

Damper spindle	Length	⊙ I	◆ I
	≥85	10...19	14...20
	≥15		



# Mechanical Fail-Safe Damper Actuator EF24A-S2



Spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- Torque 30Nm
- Nominal voltage AC/DC 24V
- Control: Open-close
- Two integrated auxiliary switches



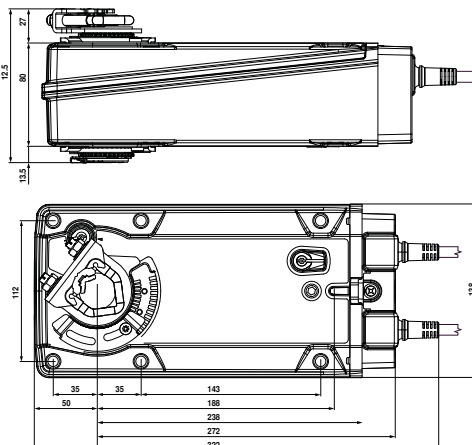
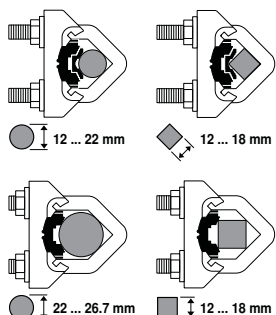
## Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V		
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V		
	Power consumption	In operation	9.5W @ nominal torque	
		At rest	4.5W	
		For wire sizing	16VA	
	Auxiliary switch	2 x SPDT, 1 x 10% / 1 x 11...90%		
Connection	Motor	Cable 1m, 2 x 0.75mm <sup>2</sup>		
	Auxiliary switch	Cable 1m, 6 x 0.75mm <sup>2</sup>		
<b>Functional data</b>	Torque	Motor	Min. 30Nm @ nominal voltage	
		Spring return	Min. 30Nm	
	Direction of rotation	Can be selected by mounting L / R		
	Manual override	With hand crank and interlocking switch		
	Angle of rotation	Max. 95°↔, can be limited with adjustable mechanical end stop		
	Running time	Motor	≤75s (0...30Nm)	
		Spring return	≤20s @ -20...50°C / max. 60s @ -30°C	
	Sound power level	Motor	≤55dB(A)	
		Spring return	≤71dB(A)	
	Service life	Min. 60,000 emergency positions		
	Position indication	Mechanical		
	<b>Safety</b>	Protection class	III Extra low voltage UL Class 2 Supply	
		Degree of protection	IP54	
			NEMA2, UL Enclosure Type 2	
EMC		CE according to 2004/108/EC		
Low-voltage directive		CE according to 2006/95/EC		
Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14		
		cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02		
Mode of operation		Type 1.AA.B		
Rated impulse voltage		Actuator	0.8kV	
		Auxiliary switch	2.5kV	
Control pollution degree		3		
Ambient temperature		-30...+50°C		
Non-operating temperature		-40...+80°C		
Ambient humidity		95% r.h., non-condensating		
Maintenance	Maintenance-free			
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»		
	Weight	Approx. 4.4kg		

## Dimensions [mm]

### Dimensional drawings

Damper spindle	Length	○	■	◇
	≥117	12...26.7	>12	< 25.2
	≥20	12...26.7	>12	< 25.2



Modulating spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- Torque 30Nm
- Nominal voltage AC/DC 24V
- Control: modulating DC (0)2...10V
- Position feedback DC 2...10V



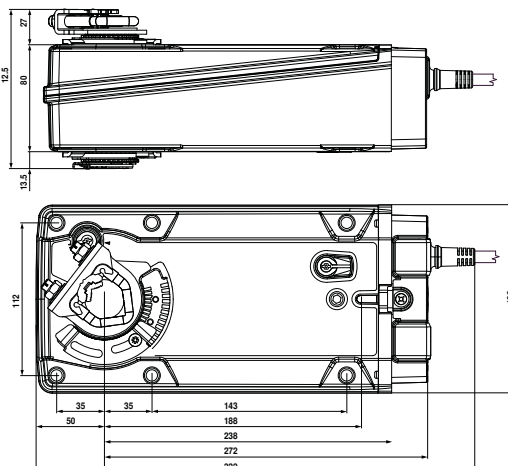
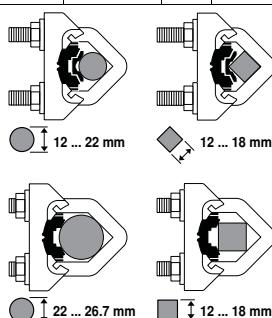
## Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V	
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V	
	Power consumption	In operation 7W @ nominal torque At rest 4.5W For wire sizing 12VA	
	Connection	Cable 1m, 4 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque	Motor Min. 30Nm @ nominal voltage Spring return Min. 30Nm	
	Control	Control signal Y DC (0)2...10V, input impedance 100kΩ Operating range DC 2...10V	
	Position feedback (measuring voltage U)	DC 2...10V, max. 0.5mA	
	Position accuracy	±5%	
	Direction of rotation	Motor Reversible with switch ↻ / ↻ Spring return Can be selected by mounting L / R	
	Manual override	With hand crank and interlocking switch	
	Angle of rotation	Max. 95°↻, can be limited with adjustable mechanical end stop	
	Running time	Motor 150s (0...30Nm) Spring return ≤20s @ -20...50°C / max. 60s @ -30°C	
	Sound power level	Motor ≤45dB(A) @ 150s running time Spring return ≤71dB(A)	
	Service life	Min. 60,000 emergency positions	
	Position indication	Mechanical	
	<b>Safety</b>	Protection class	III Extra low voltage UL Class 2 Supply
		Degree of protection	IP54 NEMA2, UL Enclosure Type 2
EMC		CE according to 2004/108/EC	
Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02	
Mode of operation		Type 1.AA	
Rated impulse voltage		0.8kV	
Control pollution degree		3	
Ambient temperature		-30...+50°C	
Non-operating temperature		-40...+80°C	
Ambient humidity		95% r.h., non-condensating	
Maintenance		Maintenance-free	
<b>Dimensions / Weight</b>		Dimensions	See «Dimensions»
		Weight	Approx. 5.3kg

## Dimensions [mm]

### Dimensional drawings

Damper spindle	Length	⊙ I	■ I	◇ I
	≥117	12...26.7	>12	<25.2
	≥20	12...26.7	>12	<25.2



Spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- Torque 30Nm
- Nominal voltage AC 230V
- Control: Open-close
- Two integrated auxiliary switches



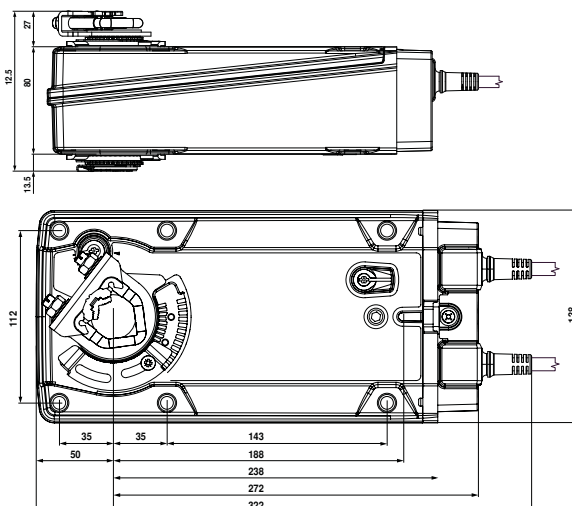
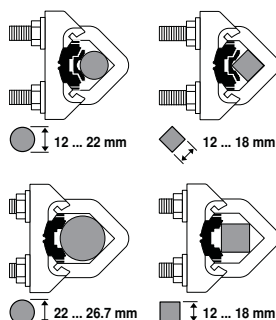
## Technical data

<b>Electrical data</b>	Nominal voltage	AC 230V, 50/60Hz	
	Nominal voltage range	AC 90...264V	
	Power consumption	In operation	9W @ nominal torque
		At rest	4.5W
		For wire sizing	21VA
Auxiliary switch	2 x SPDT, 1 x 10% / 1 x 11...90%		
Connection	Motor	Cable 1m, 2 x 0.75mm <sup>2</sup>	
	Auxiliary switch	Cable 1m, 6 x 0.75mm <sup>2</sup>	
<b>Functional data</b>	Torque	Motor	Min. 30Nm @ nominal voltage
		Spring return	Min. 30Nm
	Direction of rotation	Can be selected by mounting L / R	
	Manual override	With hand crank and interlocking switch	
	Angle of rotation	Max. 95°↔, can be limited with adjustable mechanical end stop	
	Running time	Motor	≤75s (0...30Nm)
		Spring return	≤20s @ -20...50°C / max. 60s @ -30°C
	Sound power level	Motor	≤56dB(A)
		Spring return	≤71dB(A)
	Service life	Min. 60,000 emergency positions	
	Position indication	Mechanical	
	<b>Safety</b>	Protection class	II Totally insulated □
Protection mode		IP54 NEMA2, UL Enclosure Type 2	
EMC	CE according to 2004/108/EC		
Low-voltage directive	CE according to 2006/95/EC		
Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02		
Mode of operation	Type 1.AA.B		
Rated impulse voltage	Actuator	2.5kV	
	Auxiliary switch	2.5kV	
Control pollution degree	3		
Ambient temperature	-30...+50°C		
Non-operating temperature	-40...+80°C		
Ambient humidity	95% r.h., non-condensating		
Maintenance	Maintenance-free		
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»	
	Weight	Approx. 5.4kg	

## Dimensions [mm]

### Dimensional drawings

Damper spindle	Length	○ I	□ I	◇ I
	≥117	12...26.7	>12	<25.2
	≥20	12...26.7	>12	<25.2



SuperCap rotary actuator with emergency setting function and extended functionalities for adjusting air dampers in ventilation and air-conditioning systems for building services installations and in laboratories

- Torque 40Nm
- Nominal voltage AC/DC 24V
- Control: Open-close
- Design life SuperCaps 15 years



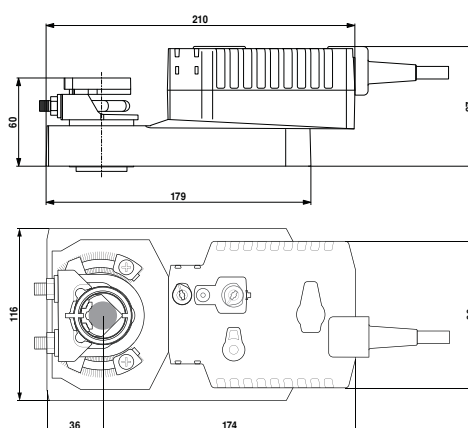
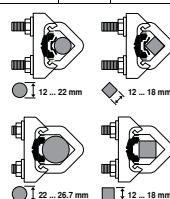
## Technical data

<b>Electrical data</b>	Nominal voltage	AC 24V, 50/60Hz / DC 24V
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
	Power consumption	In operation: 11W @ nominal torque At rest: 3W
		For wire sizing: 21VA (I <sub>max</sub> 20A @ 5ms)
	Connection	Cable 1m, 3 x 0.75mm <sup>2</sup>
	Parallel operation	Yes (note the performance data)
<b>Functional data</b>	Torque	≥40Nm
	Inhibiting torque	≥40Nm
	Setting emergency position (POP)	0...100%, adjustable (POP rotary button) of maximum angle of rotation
	Bridging time with voltage interruption	2s
	Position accuracy	±5%
	Direction of rotation	Reversible with switch ↻ / ↻
	Emergency setting position	Reversible with switch 0 ... 100%
	Direction of rotation	At switch position 1 ↻ and 0 ↻, respectively
	Manual override	Gearing latch disengaged with push button
	Angle of rotation	Max. 95°↻, can be limited at both ends with adjustable mechanical end stops
	Running time Motor	150s / 90°↻
	Emergency setting position	35s @ 0...50°C
	Sound power Motor level	
Emergency setting position		≤52 dB (A) @ 150 s running time ≤61 dB (A)
Position indication	Mechanical, pluggable	
<b>Safety</b>	Protection class	III Safety extra-low voltage UL Class 2 Supply
	Degree of protection	IP54 NEMA 2, UL Enclosure Type 2
EMC	CE according to 2004/108/EC	
Certification	Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14 cULus according to UL 60730-1A and UL 60730-2-14 and CAN/CSA E60730-1:02	
Mode of operation	Type 1.AA	
Rated impulse voltage	0.8kV	
Control pollution degree	3	
Ambient temperature	-30...+50°C	
Non-operating temperature	-40...+80°C	
Ambient humidity	95% r.h., non-condensating	
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions»
	Weight	Approx. 2kg

## Dimensions [mm]

### Dimensional drawings

Damper spindle	Length	⊙	⊞	◇
	≥52	12...26.7	≥12	≤25.5
	≥20	12...26.7	≥12	≤25.5



\* When an auxiliary switch or a feedback potentiometer is used.

Parameterisable SuperCap rotary actuator with emergency setting function and extended functionalities for adjusting air dampers in ventilation and air-conditioning systems for building services installations and in laboratories

- Air damper size up to approx. 8m<sup>2</sup>
- Nominal torque 40Nm
- Nominal voltage AC/DC 24V
- Control Modulating DC (0)2...10V Variable
- Position feedback DC 2...10V Variable
- Design life SuperCaps: 15 years



## Technical data

<b>Electrical data</b>	Nominal voltage	AC/DC 24V
	Nominal voltage frequency	50/60Hz
	Nominal voltage range	AC 19.2...28.8V / DC 21.6...28.8V
Power consumption	In operation	11W
	At rest	3W
	For wire sizing	21VA (I <sub>max</sub> 20A @ 5ms)
Connection		Cable 1m, 3 x 0.75mm <sup>2</sup>
Parallel operation		Yes (note the performance data)
<b>Functional data</b>	Torque	Min. 40Nm
	Positioning signal Y	DC 0...10V
	Positioning signal Y note	Input impedance 100kΩ
	Control signal Y variable	Open-close 3-point (AC only) Modulating (DC 0...32V)
	Position feedback U	DC 2...10V
	Position feedback U note	Max. 0.5mA
	Position feedback Uvariable	Start point DC 0.5...8V End point DC 2.5...10V
	Emergency setting position (POP)	0%, adjustable in increments of 10% (POP rotary knob on 0 corresponds to left end stop)
	Emergency setting position variable	0...100%, adjustable
	Bridging time (PF)	2s
	Bridging time (PF) variable	1...10s
	Position accuracy	±5%
	Direction of motion motor	Selectable with switch 0 / 1
	Direction of motion emergency control function	Selectable with switch 0...100%
	Direction of motion note	Y = 0V: At switch position 0 (ccw rotation) / 1 (cw rotation)
	Direction of motion variable	Electronically reversible
	Manual override	Gear disengagement with push-button
	Angle of rotation	Max. 95°
	Angle of rotation note	Can be limited on both sides with adjustable mechanical end stops
	Running time motor	150s / 90°
	Motor running time variable	90...150s
	Running time emergency control position	35s / 90°
	Adaption setting range	Manual (automatic on first power-up)
	Adaption setting range variable	No action Adaption when switched on Adaption after pushing the gear disengagement button
	Override control	MAX (maximum position) = 100% MIN (minimum position) = 0% ZS (intermediate position, AC only) = 50%
	Override control variable	MAX = (MIN + 32%)...100% MIN = 0%...(MAX - 32%) ZS = MIN...MAX
	Sound power level motor	52dB(A)
Sound power level emergency control position	61dB(A)	
Spindle driver	Universal spindle clamp reversible 12...26.7mm	
Position indication	Mechanical, pluggable	
<b>Safety</b>	Protection class IEC/EN	III Safety extra-low voltage
	Protection class UL	UL Class 2 Supply
	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2, UL Enclosure Type 2

**Technical data**

<b>Safety</b>	EMC	CE according to 2004/108/EC
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	Mode of operation	Type 1.AA
	Rated impulse voltage supply/control	0.8kV
	Control pollution degree	3
	Ambient temperature	-30...+50°C
	Non-operating temperature	-40...+80°C
	Ambient humidity	95% r.h., non-condensating
Maintenance	Maintenance-free	
<b>Weight</b>	Weight	Approx. 2.0kg
<b>Terms</b>	Abbreviations	POP = Power off position / emergency setting position CPO = Controlled power off / controlled emergency control function PF = Power fail delay time / bridging time

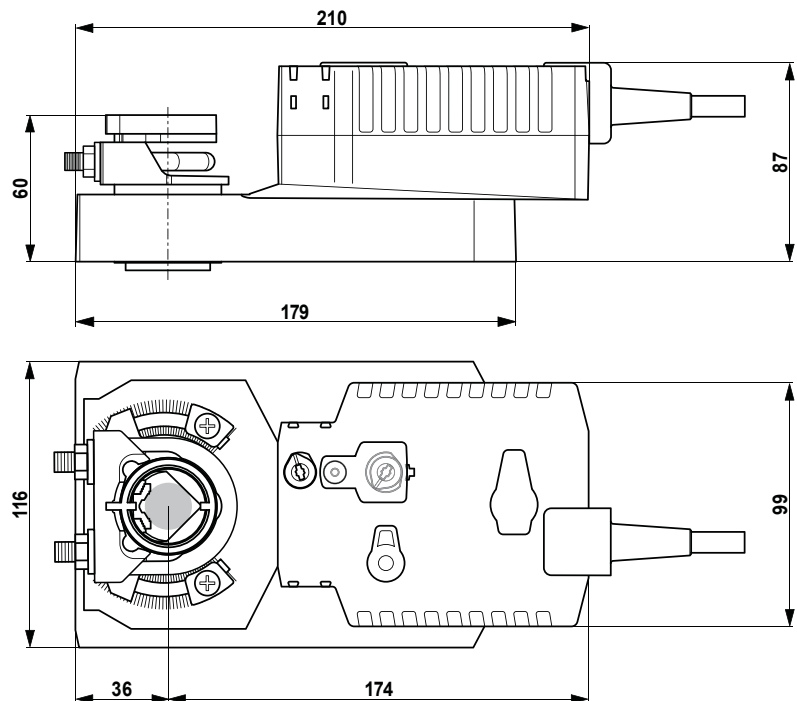
**Dimensions [mm]**
**Dimensional drawings**
**Spindle length**

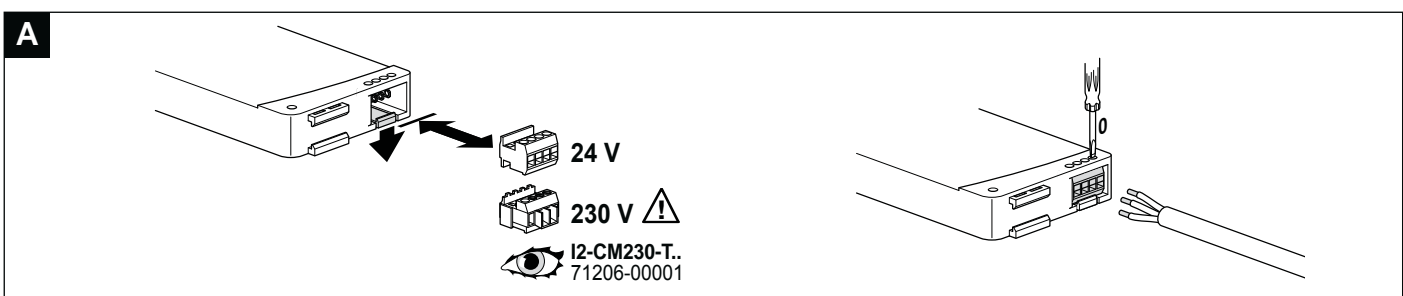
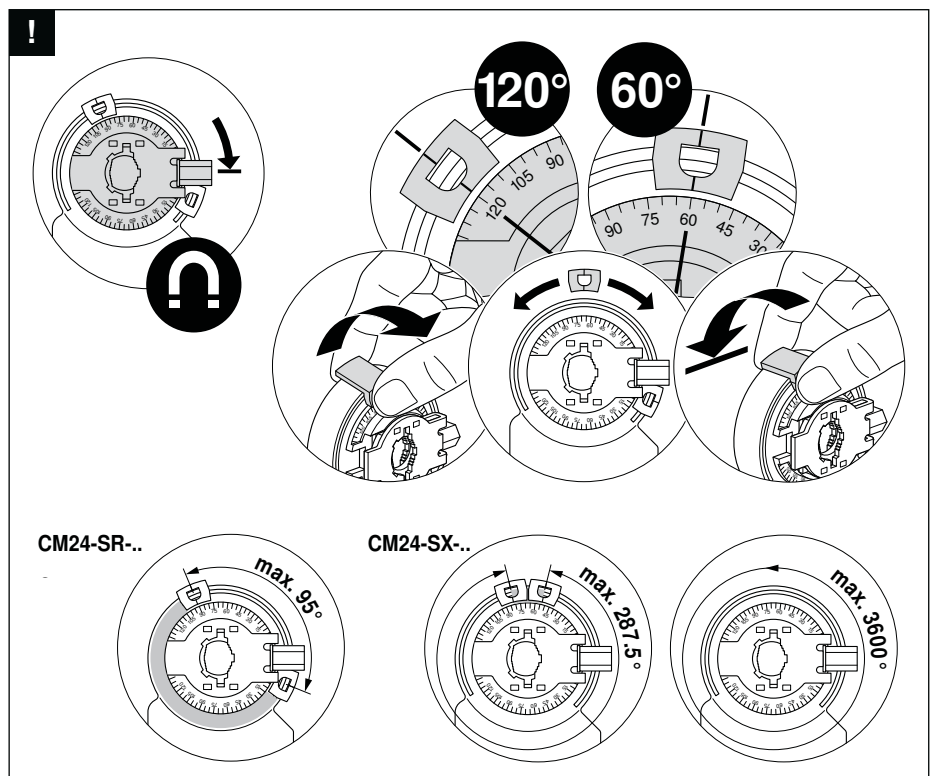
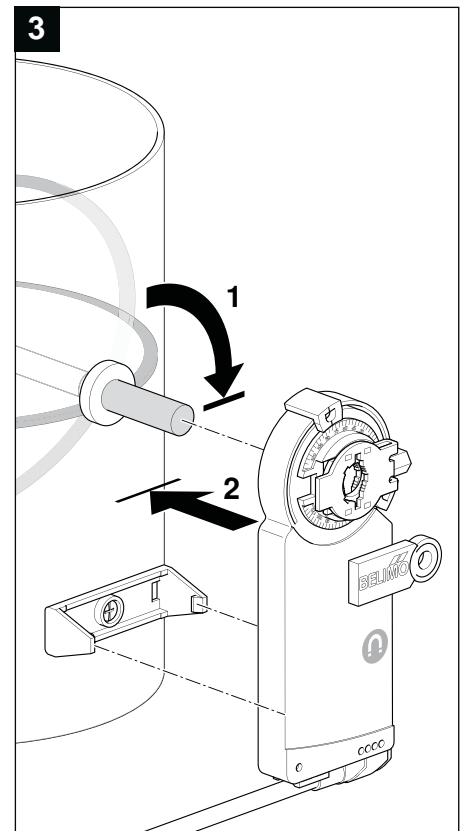
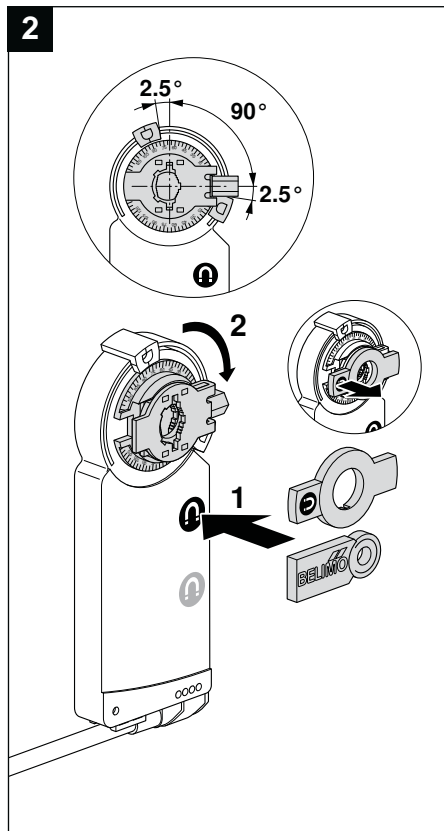
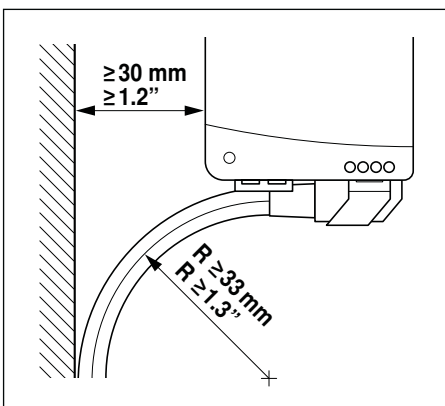
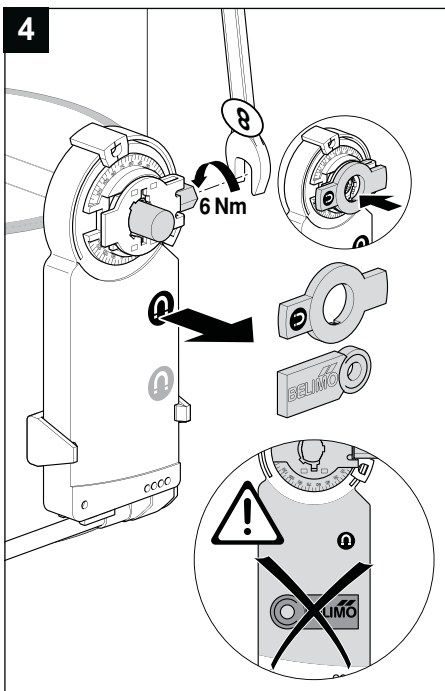
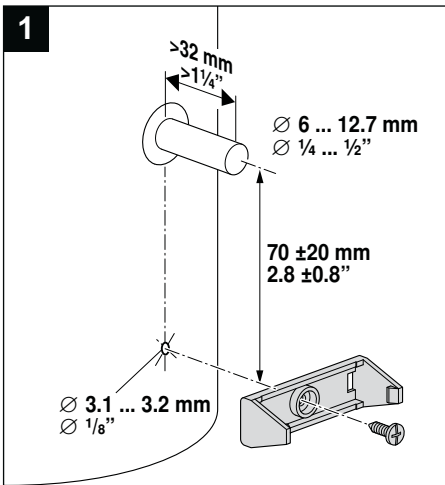
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		Min. 20

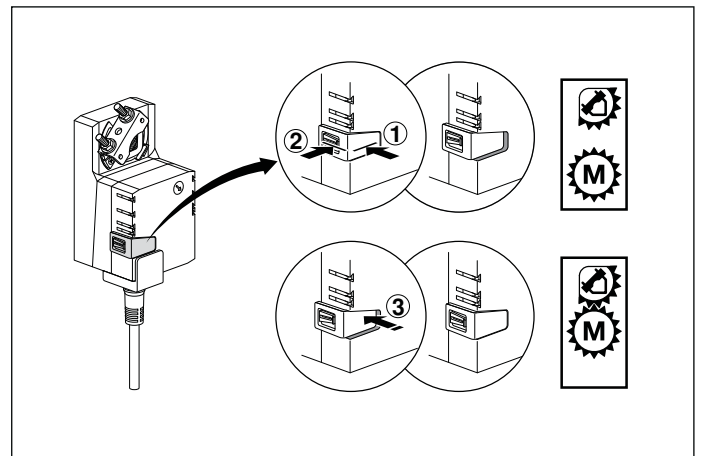
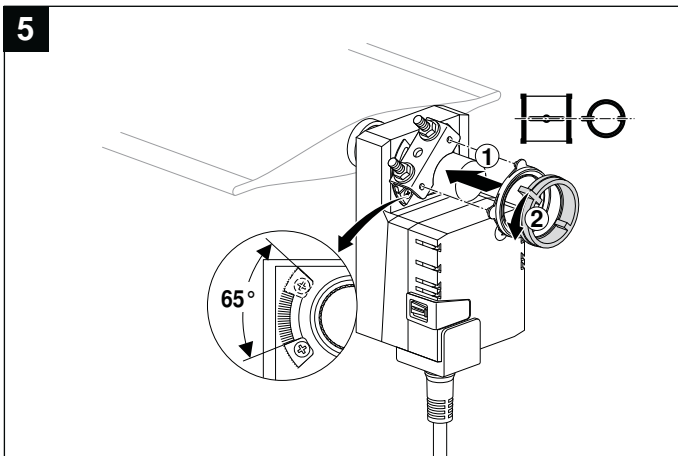
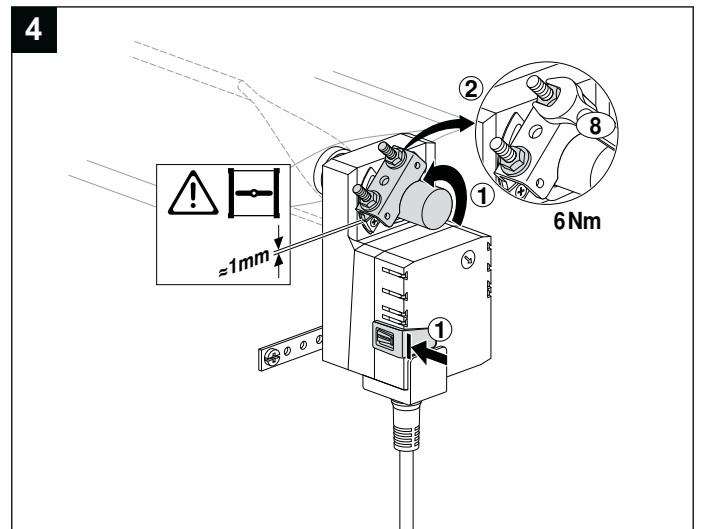
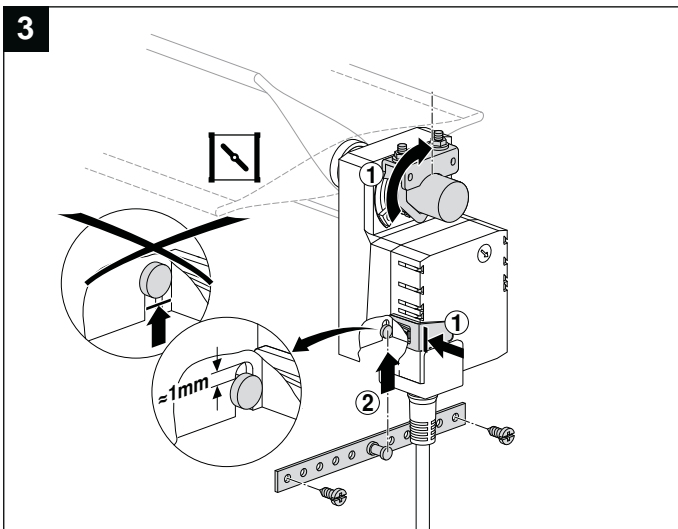
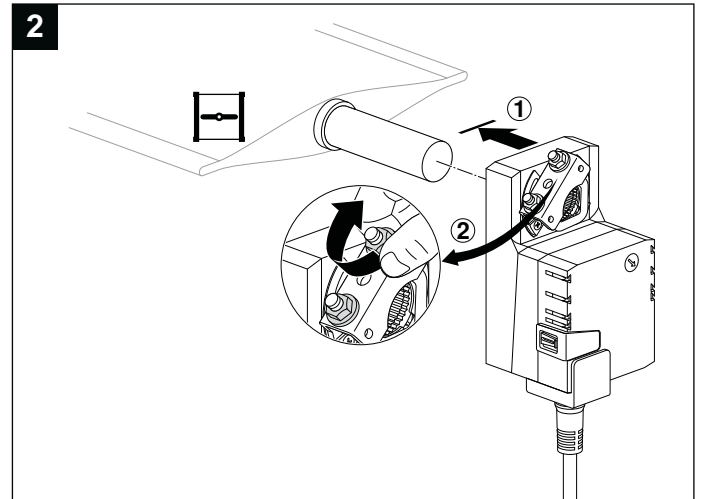
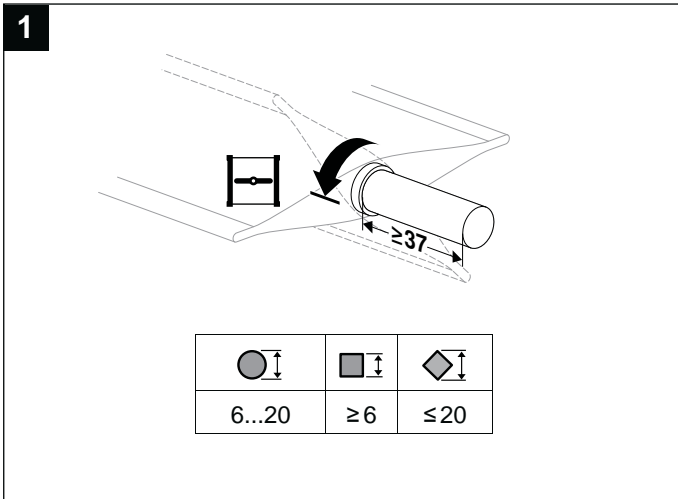
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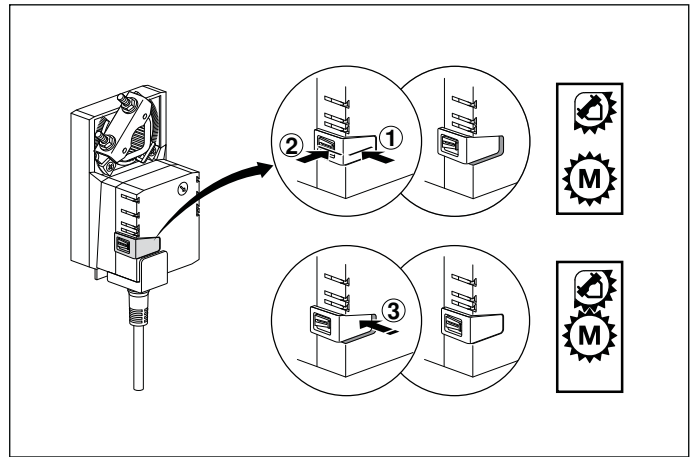
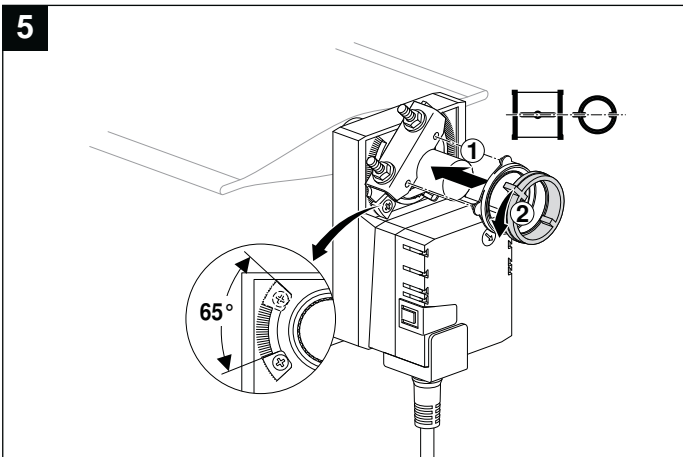
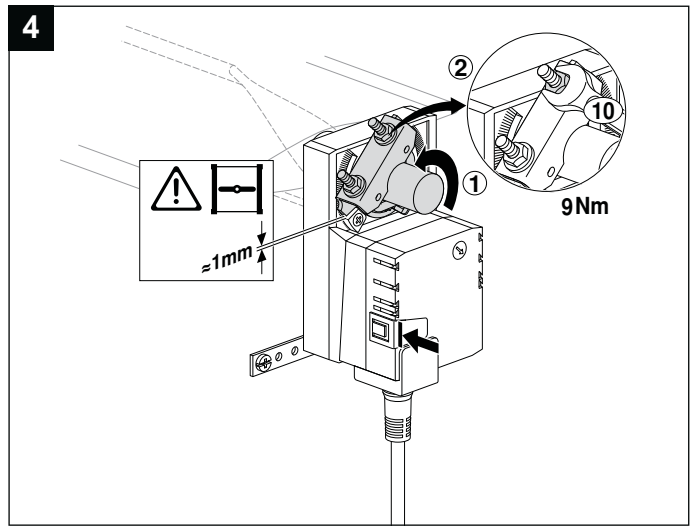
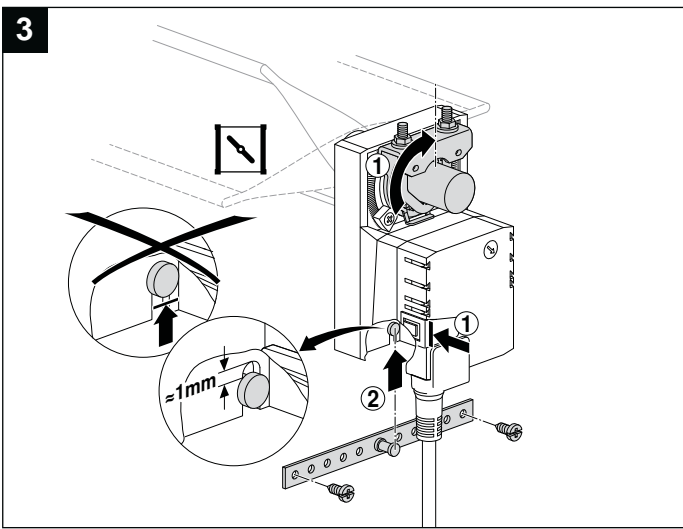
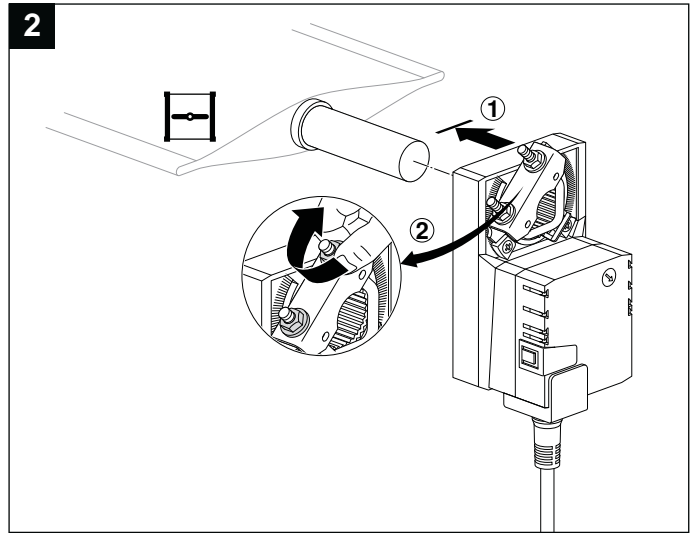
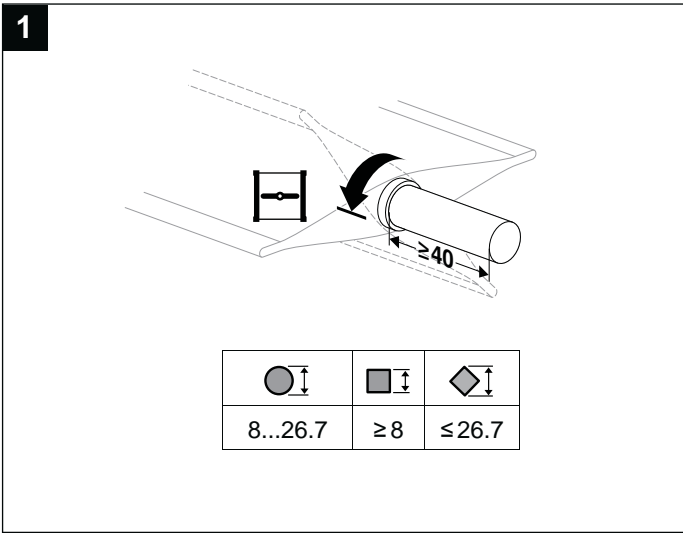
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	22...26.7	12...18

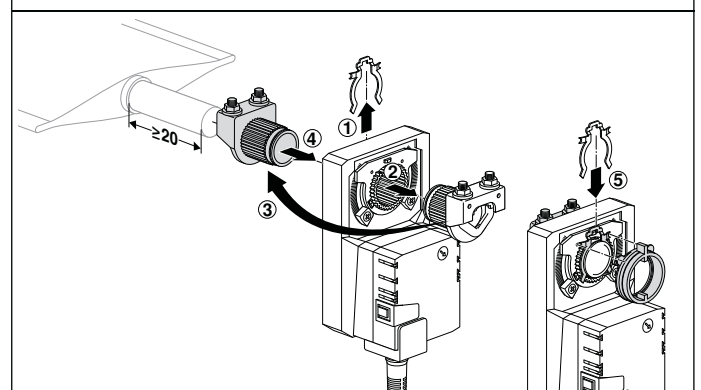
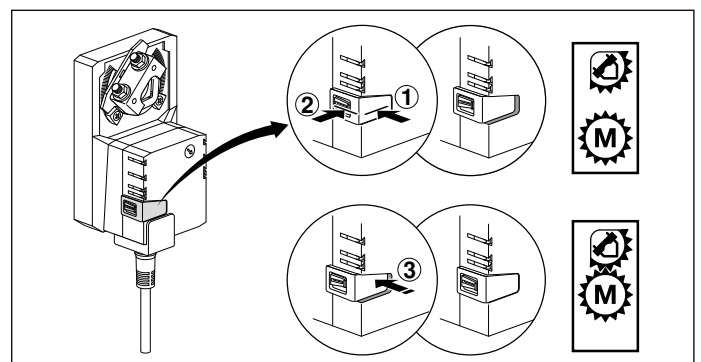
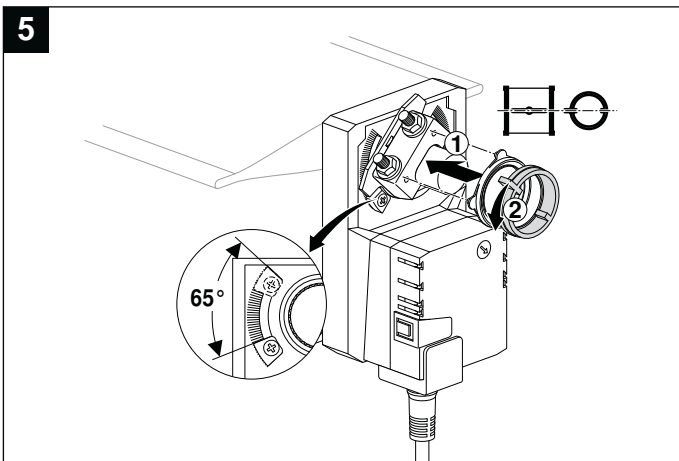
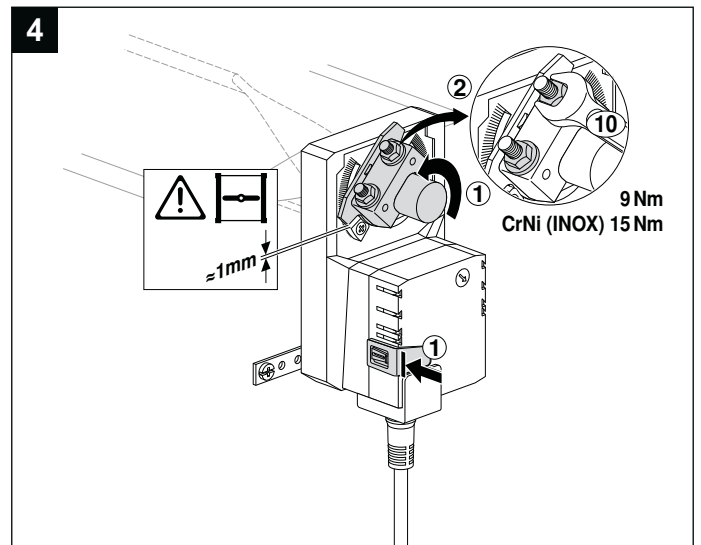
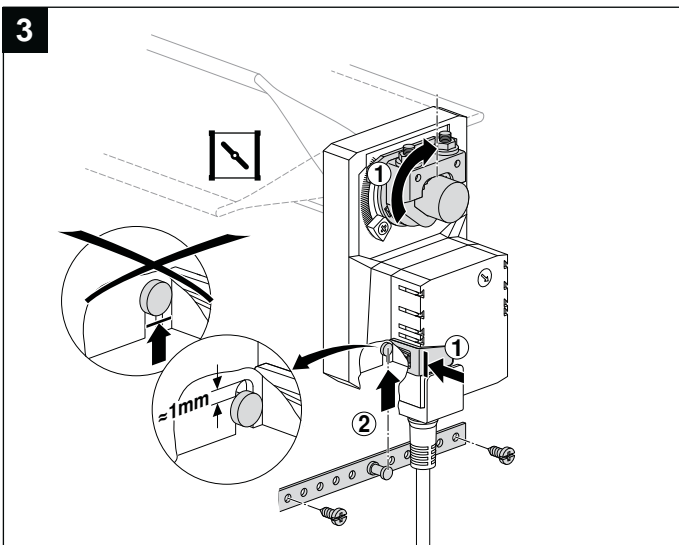
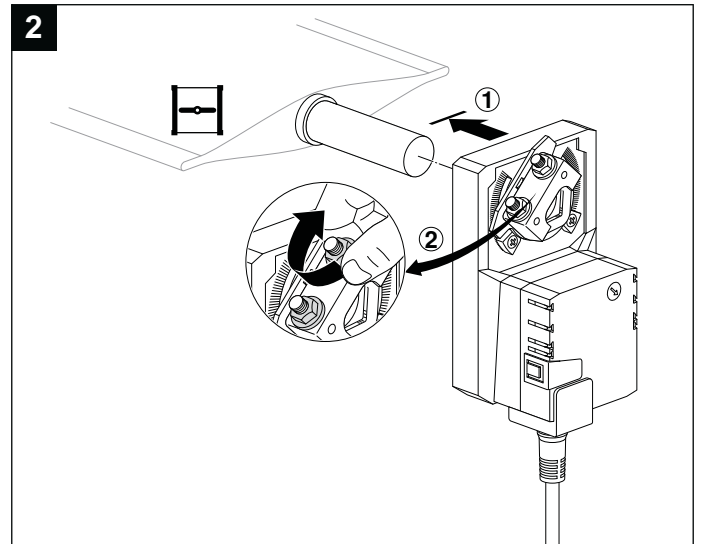
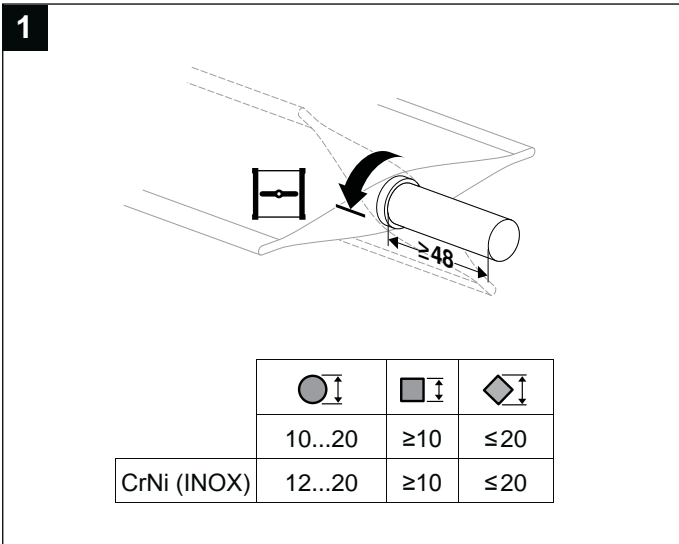
\*Option: Spindle clamp mounted below: When an auxiliary switch or a feedback potentiometer is used the adapter Z-SPA is required.

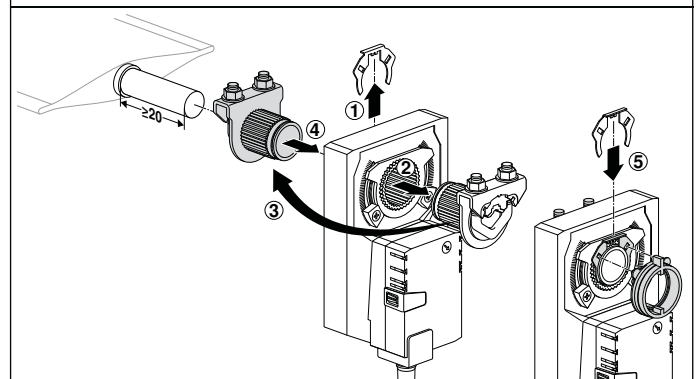
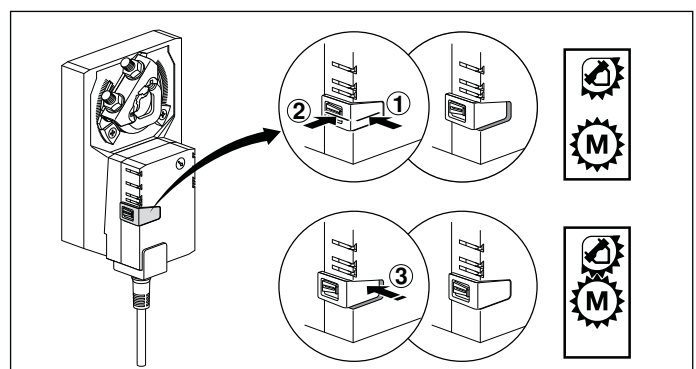
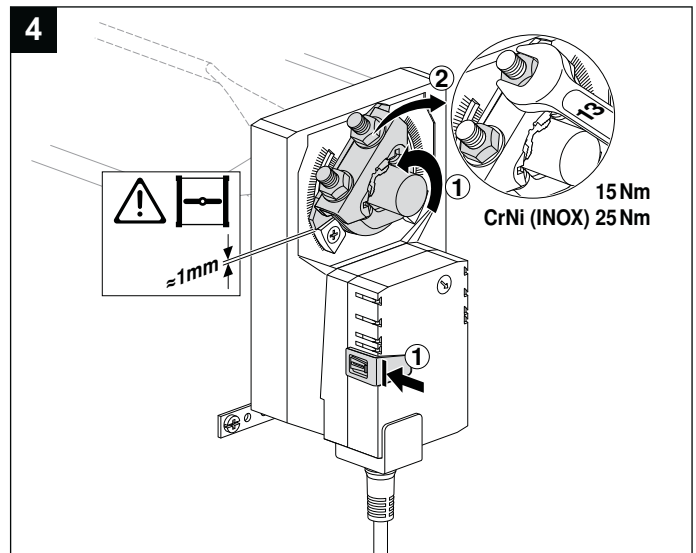
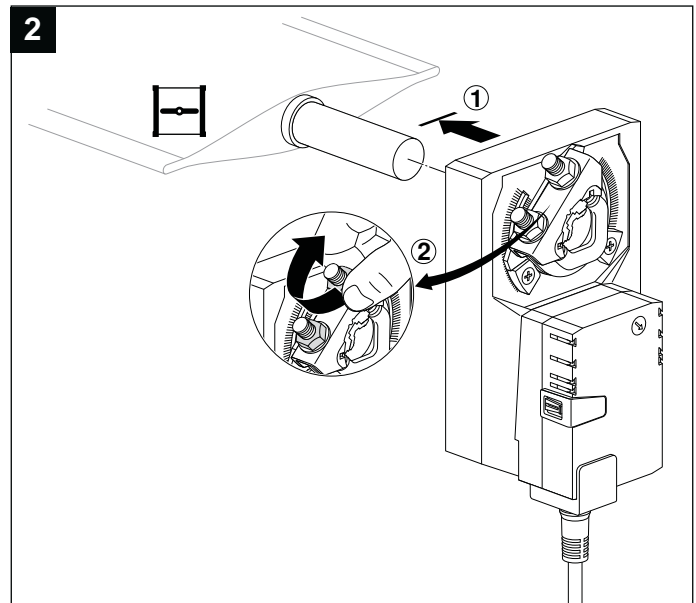
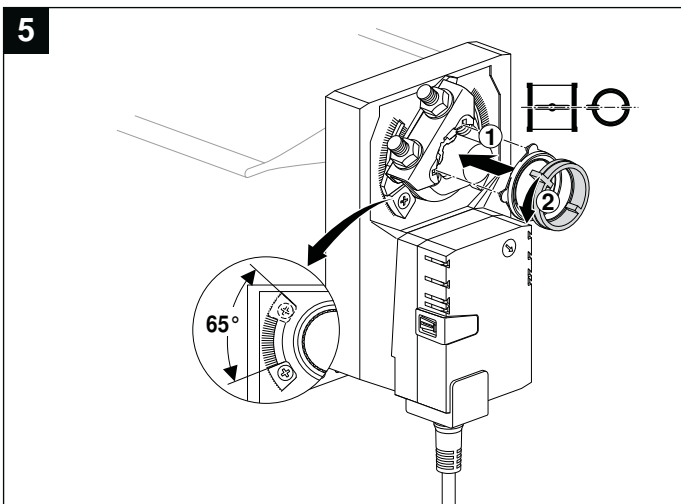
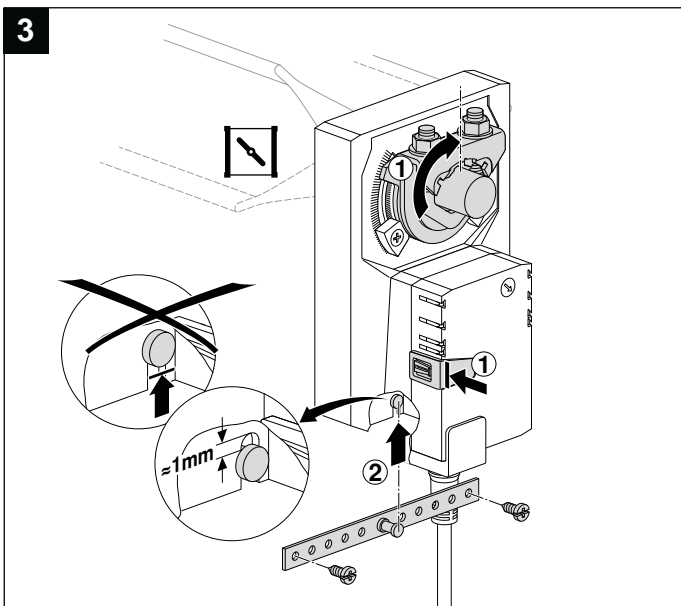
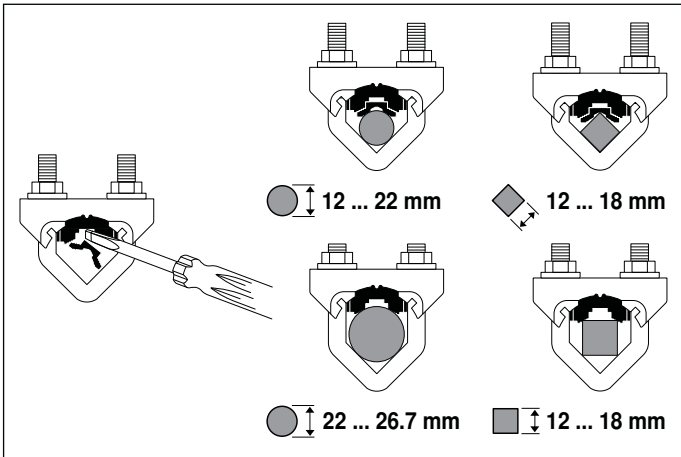
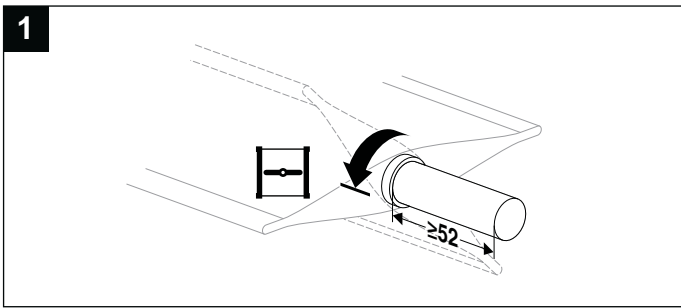












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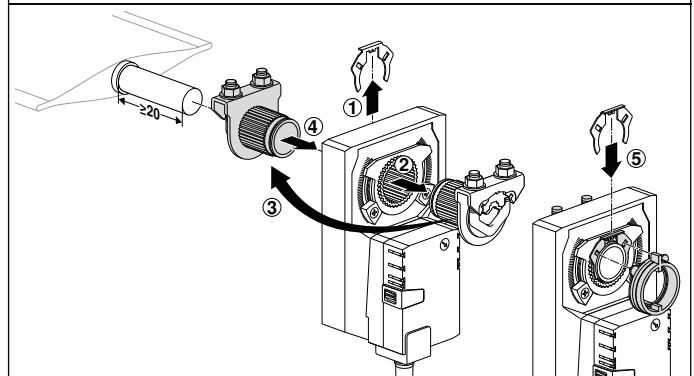
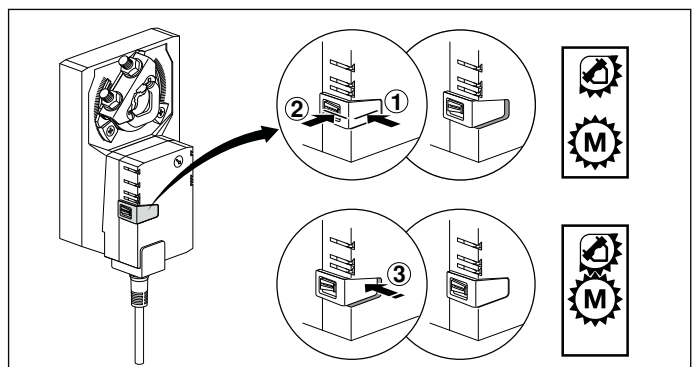
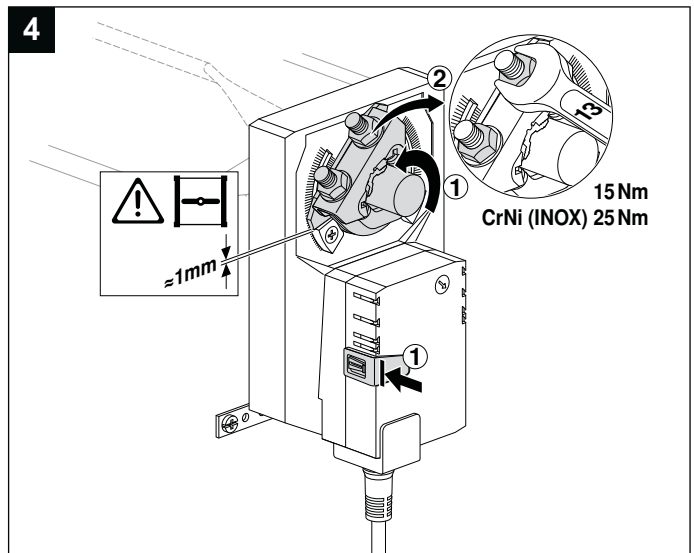
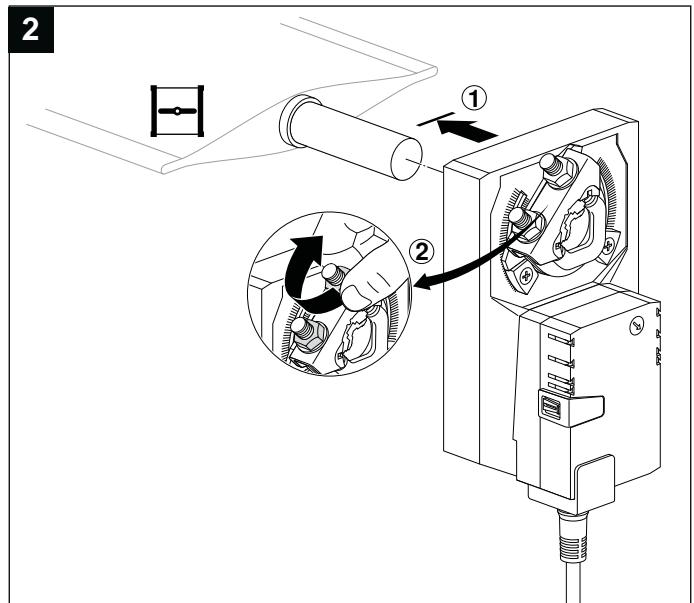
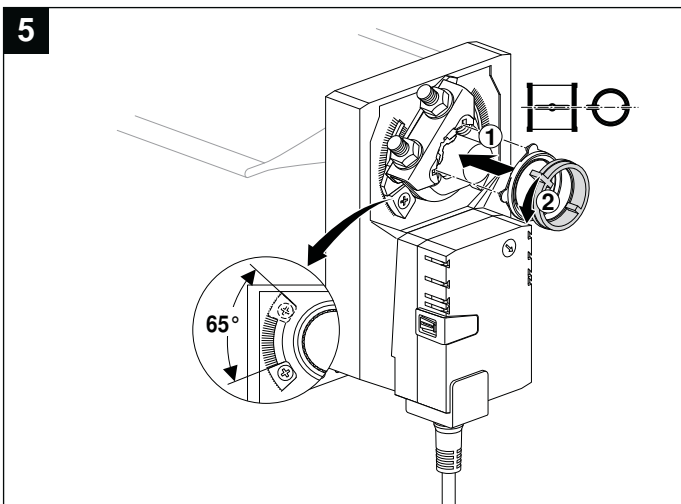
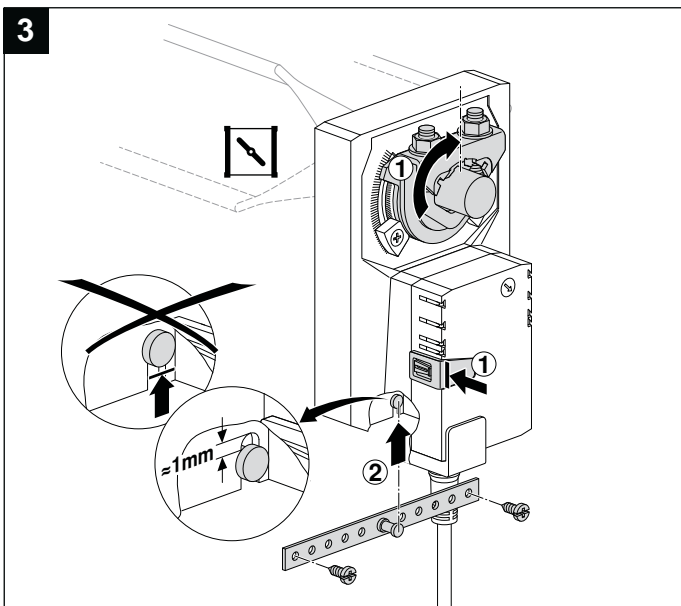
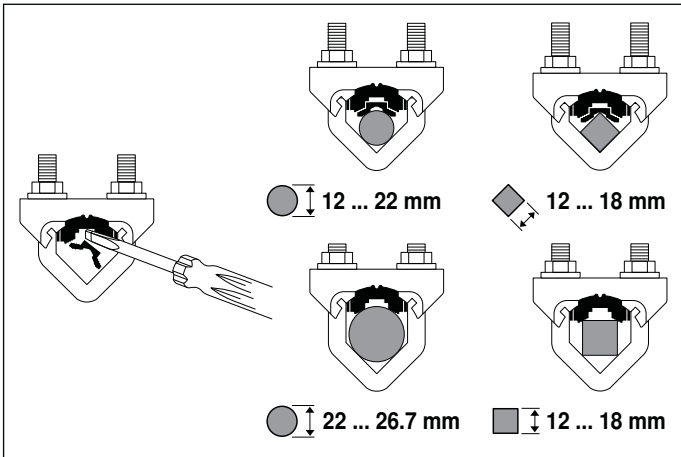
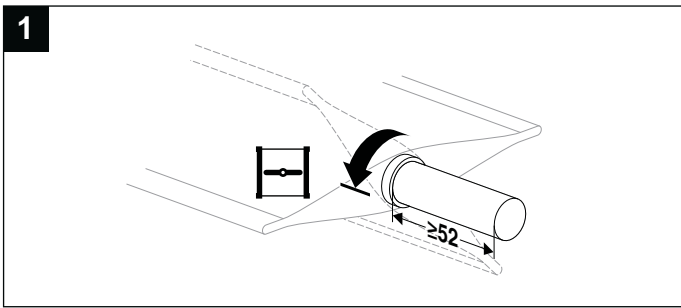
	A			
LMQ24A..	≥40	8...26.7	≥8	≤26.7
NMQ24A..	≥42	8...26.7	≥8	≤26.7

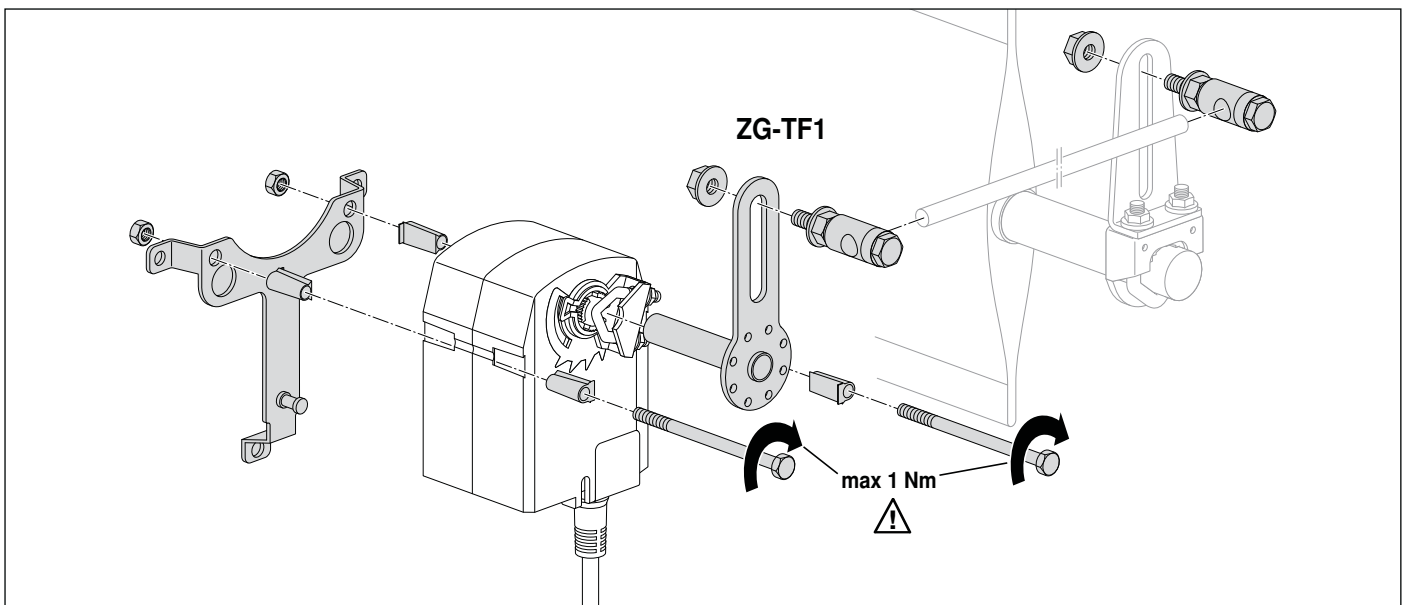
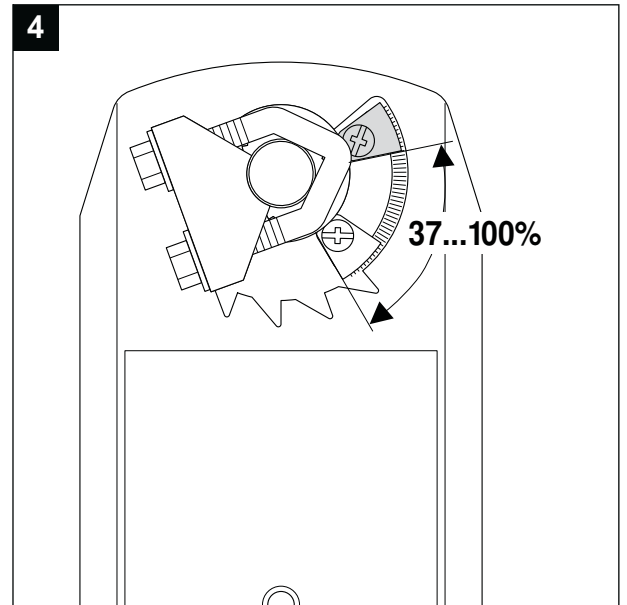
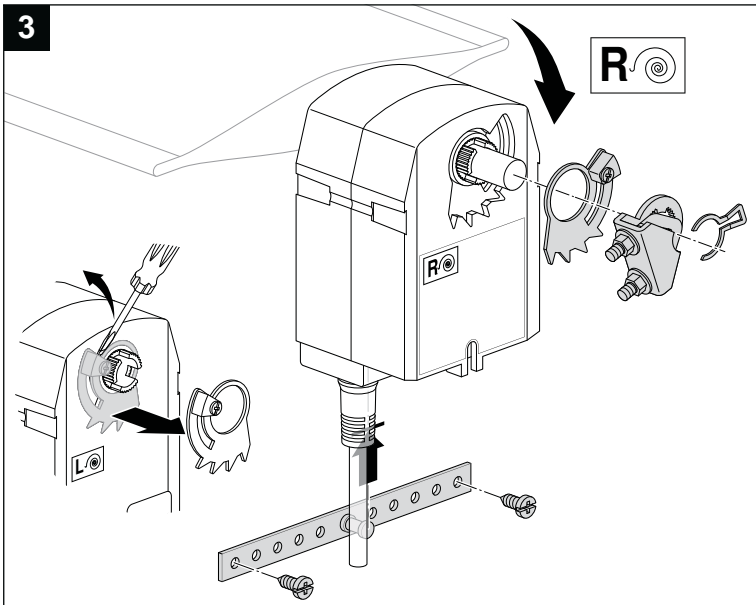
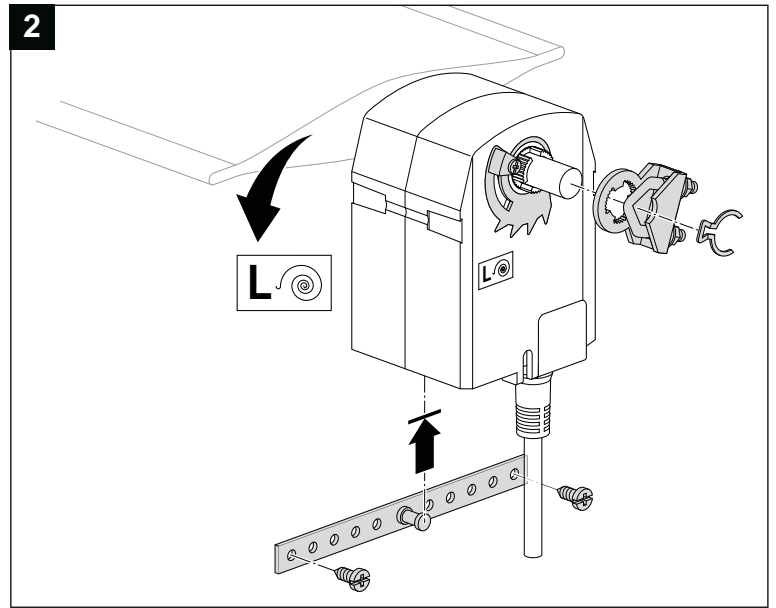
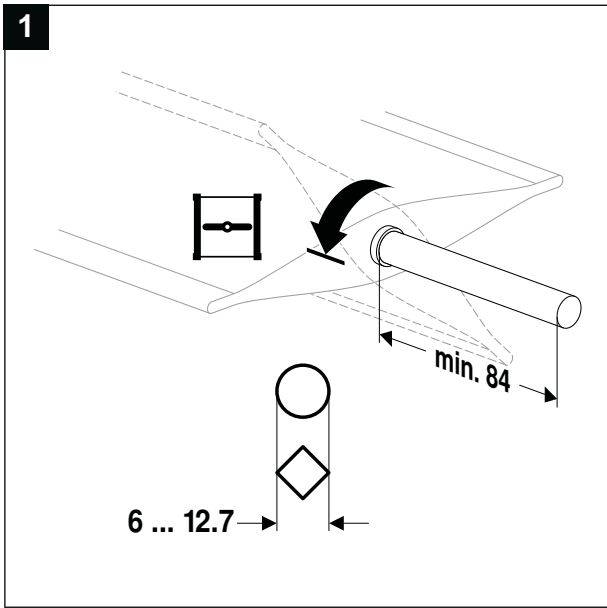
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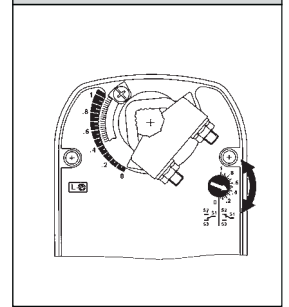
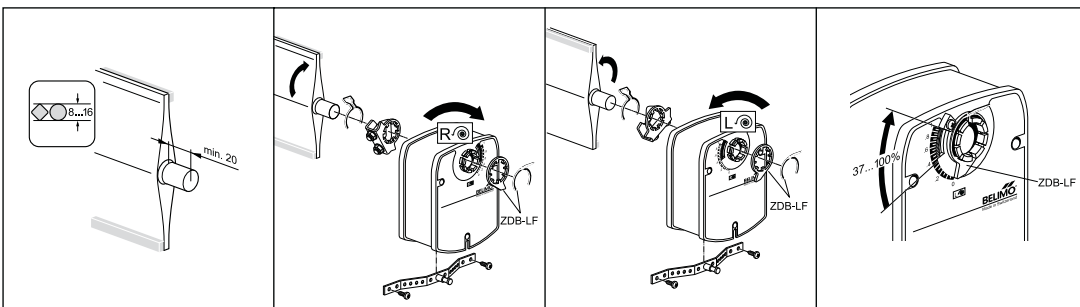
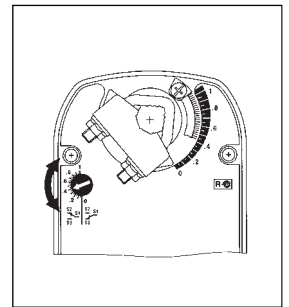
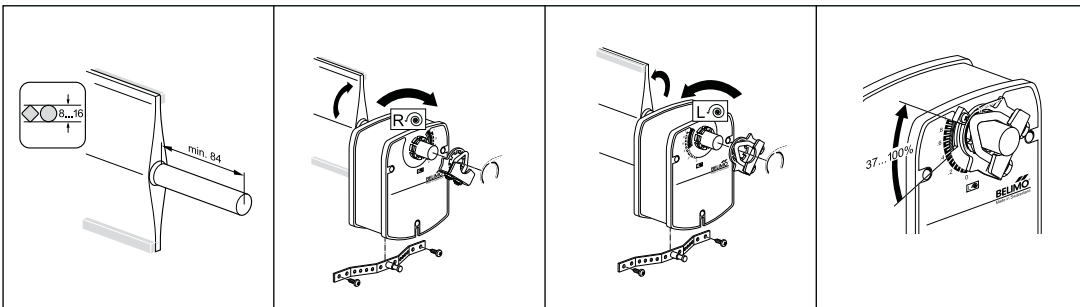
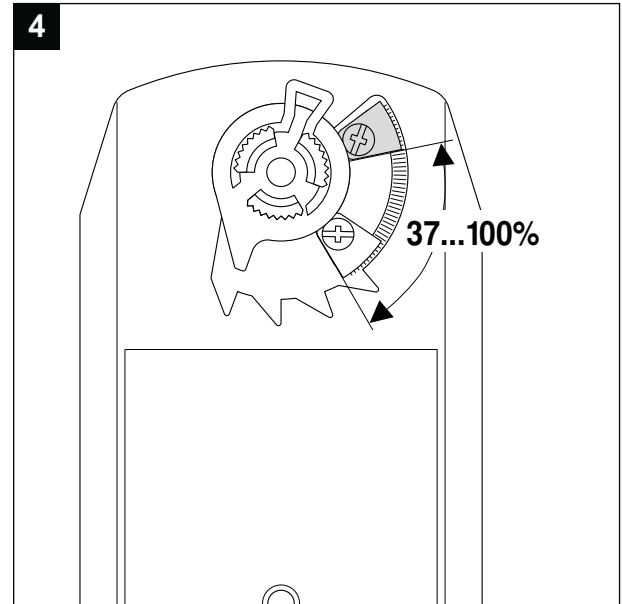
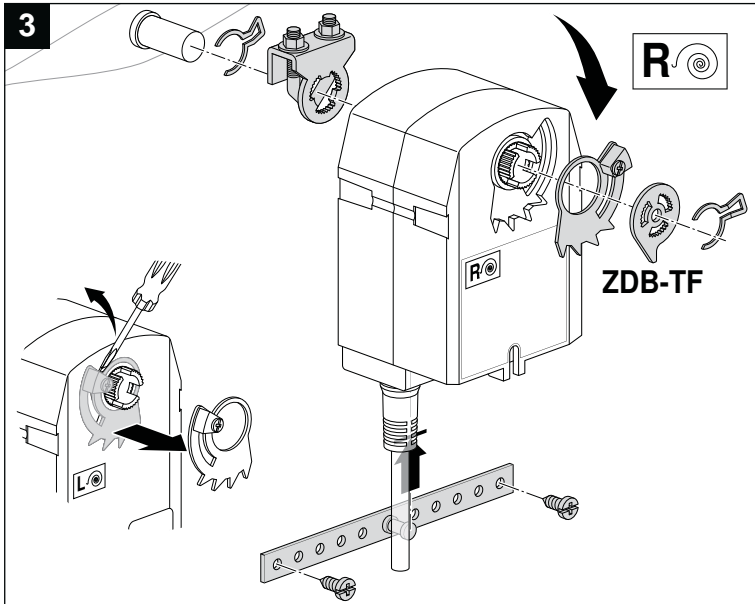
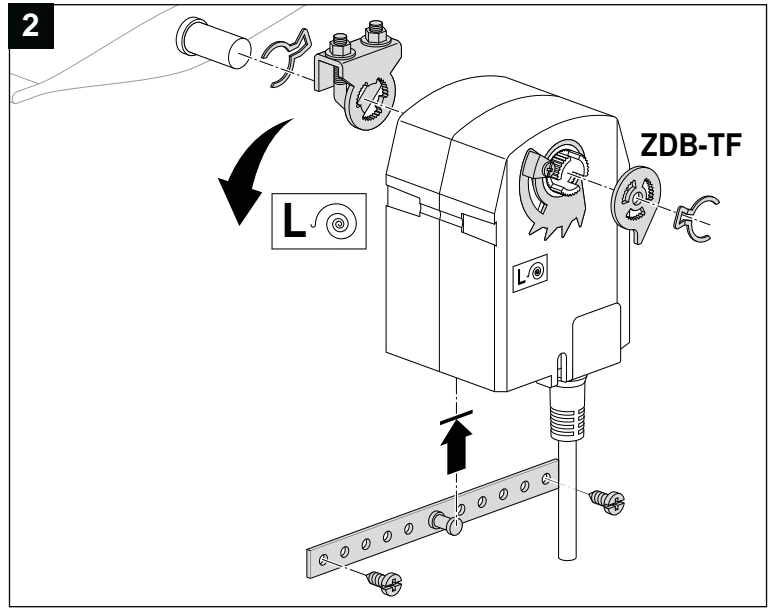
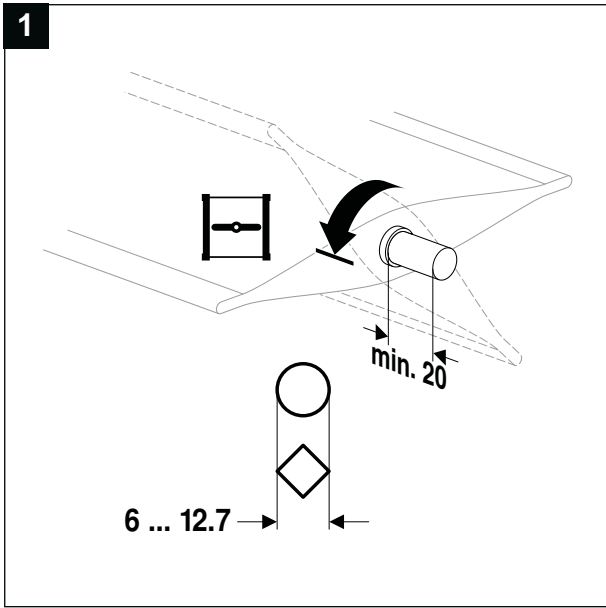
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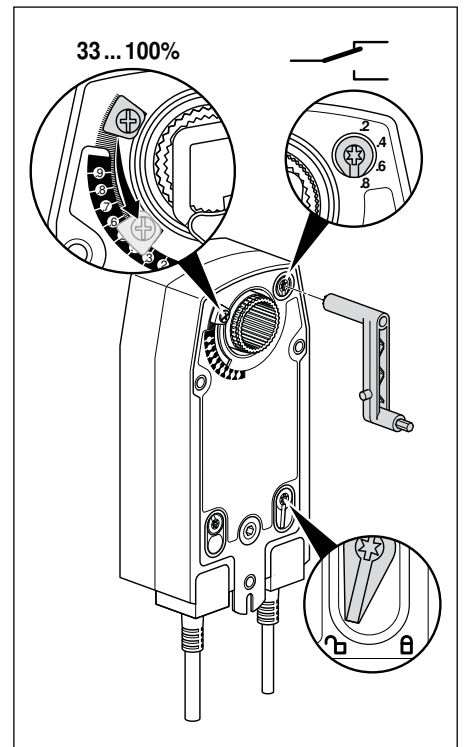
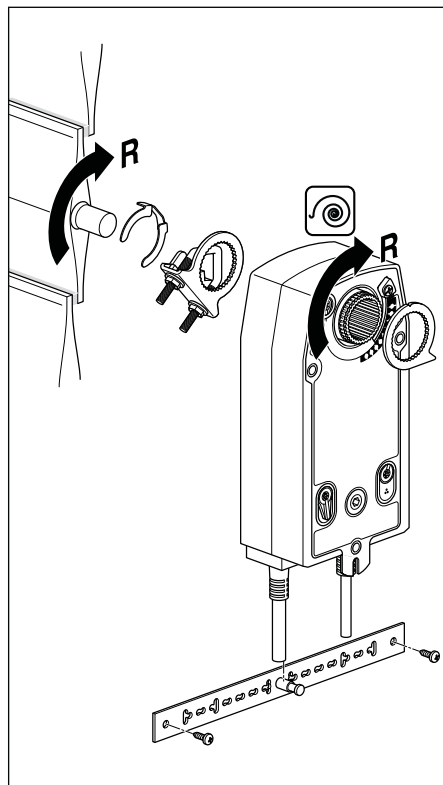
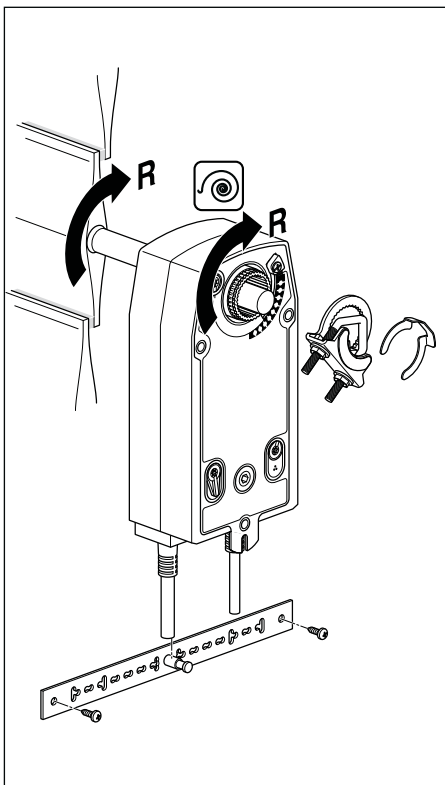
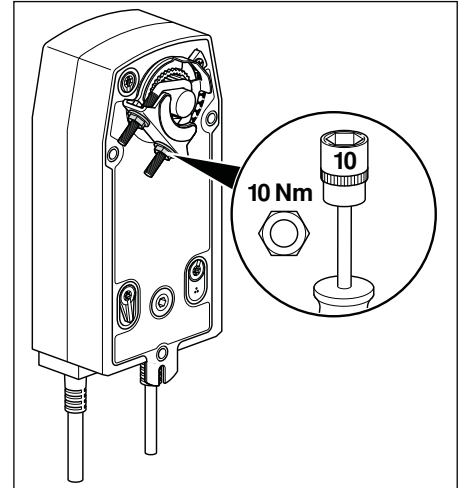
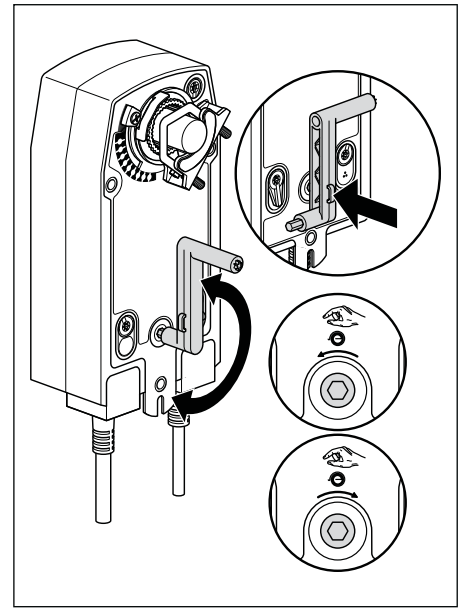
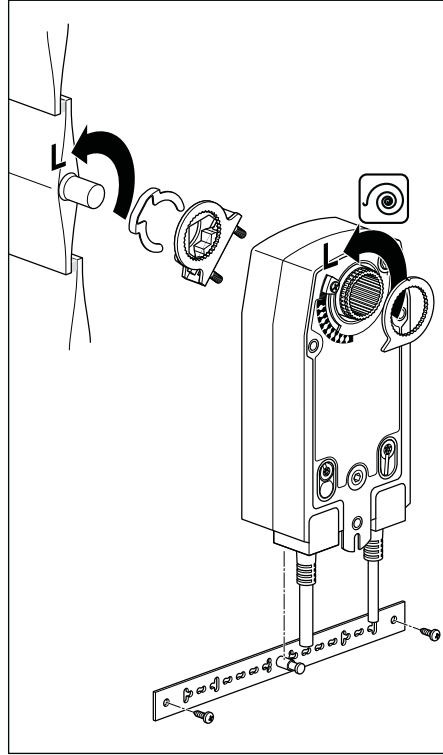
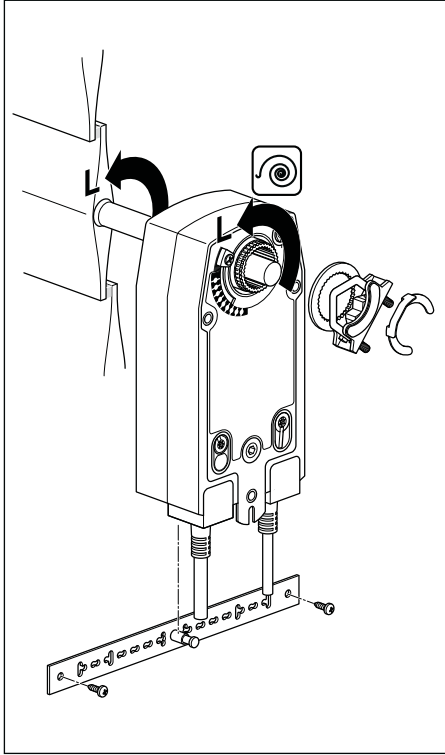
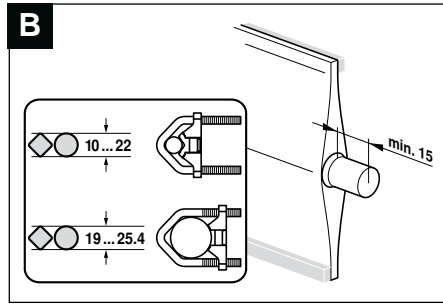
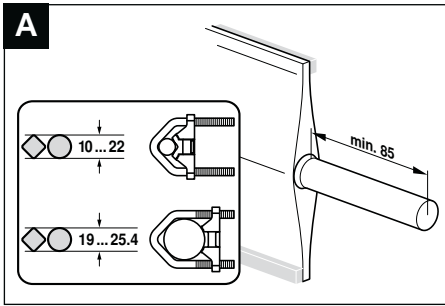
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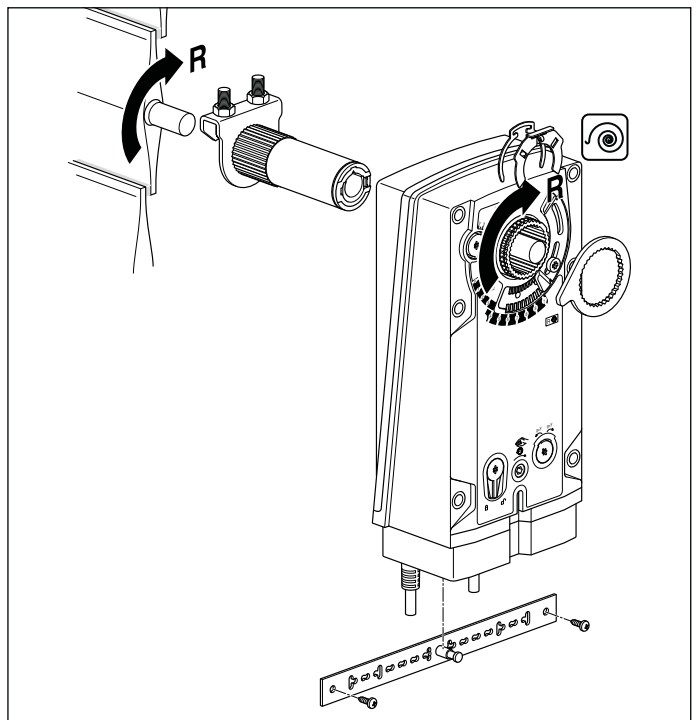
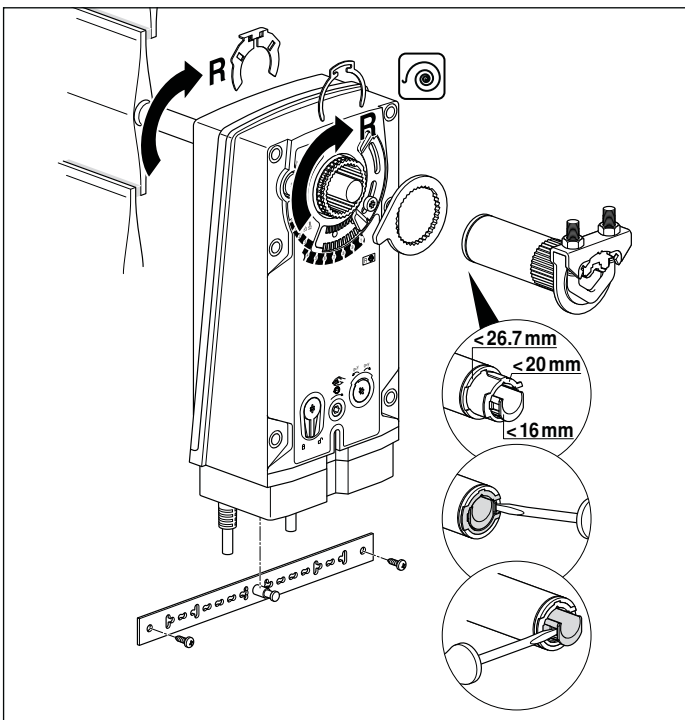
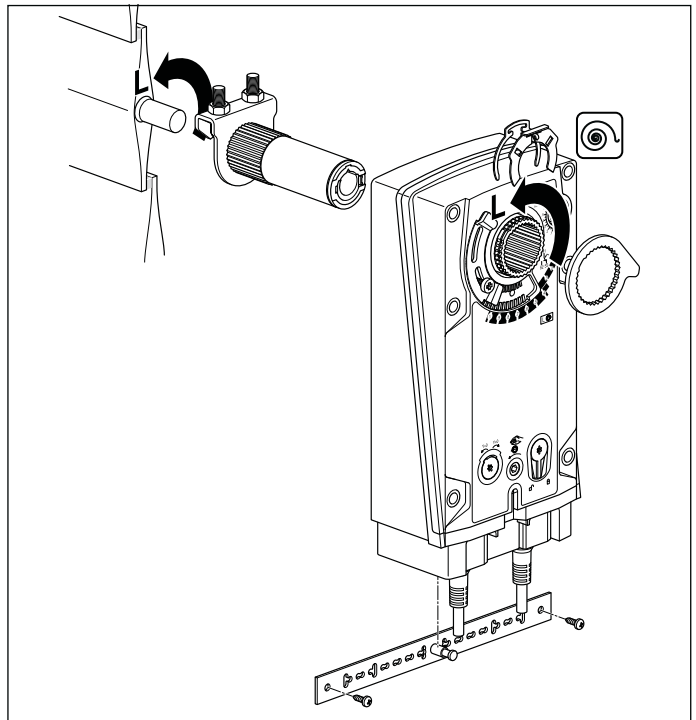
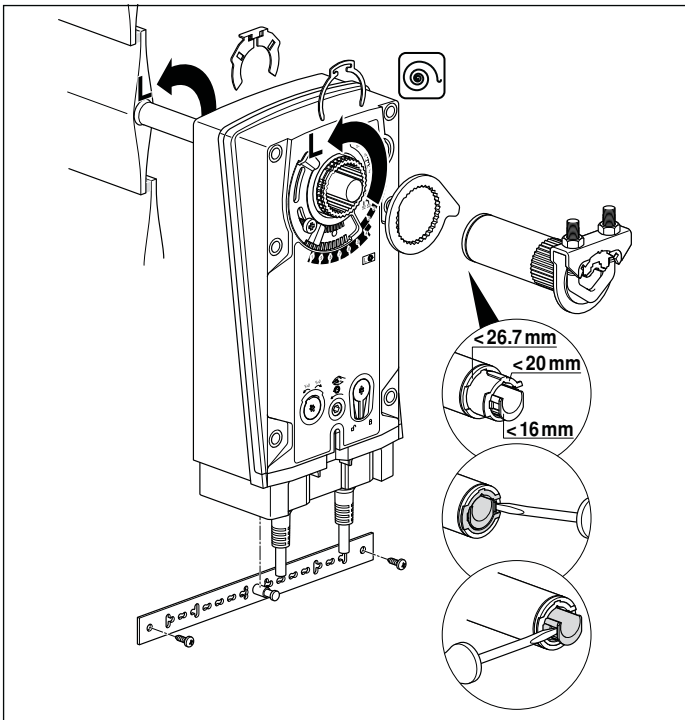
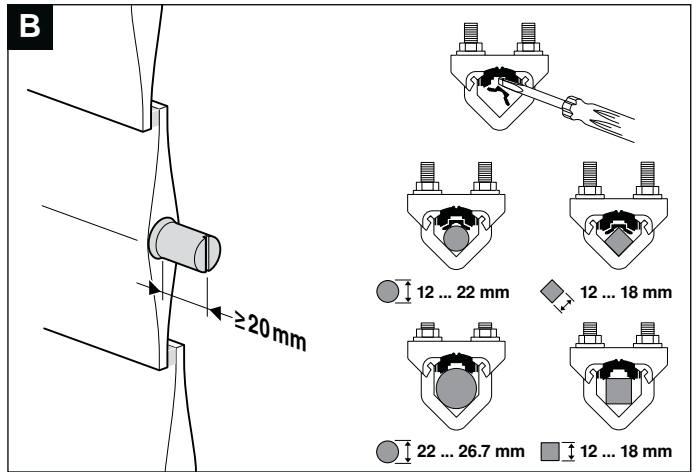
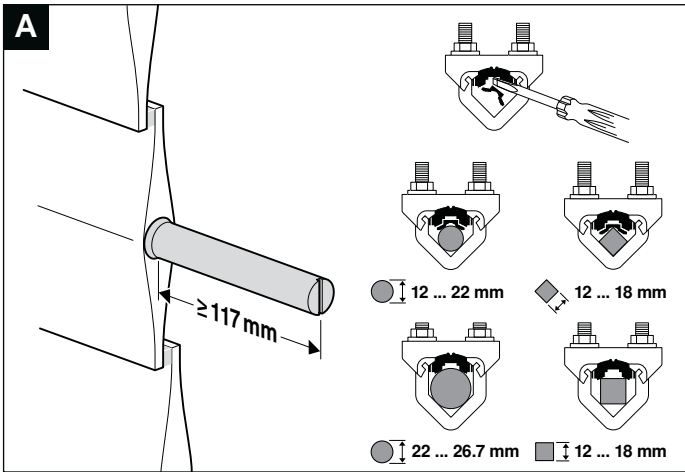
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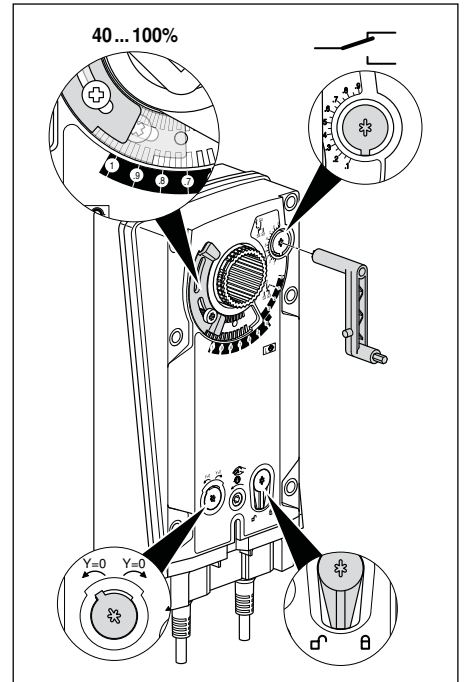
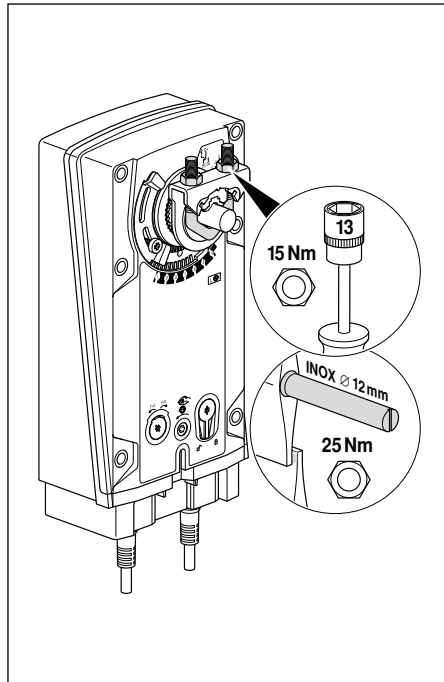
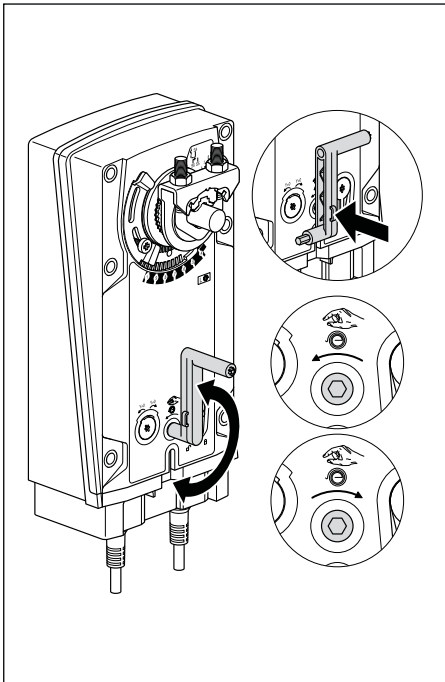


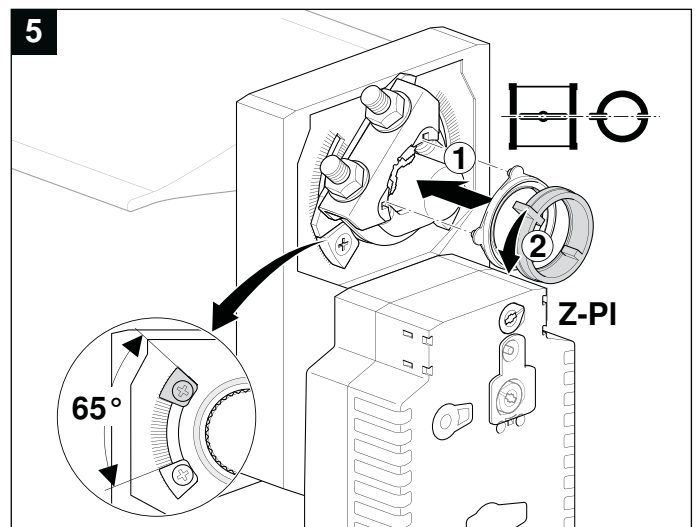
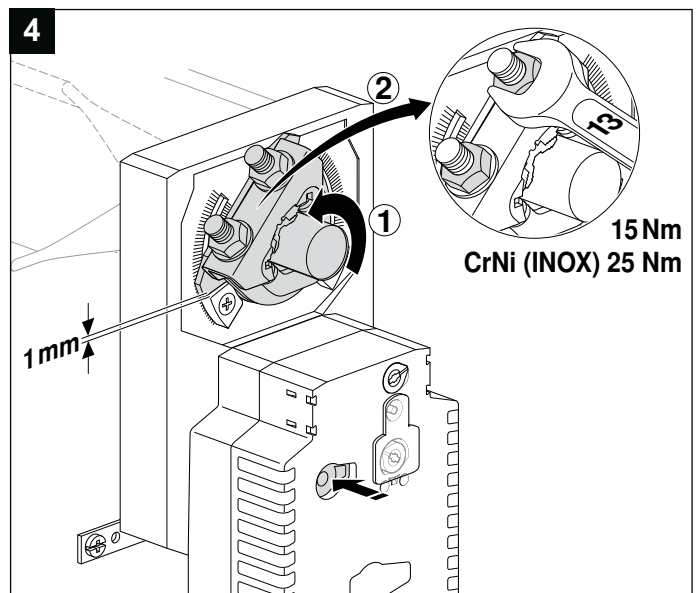
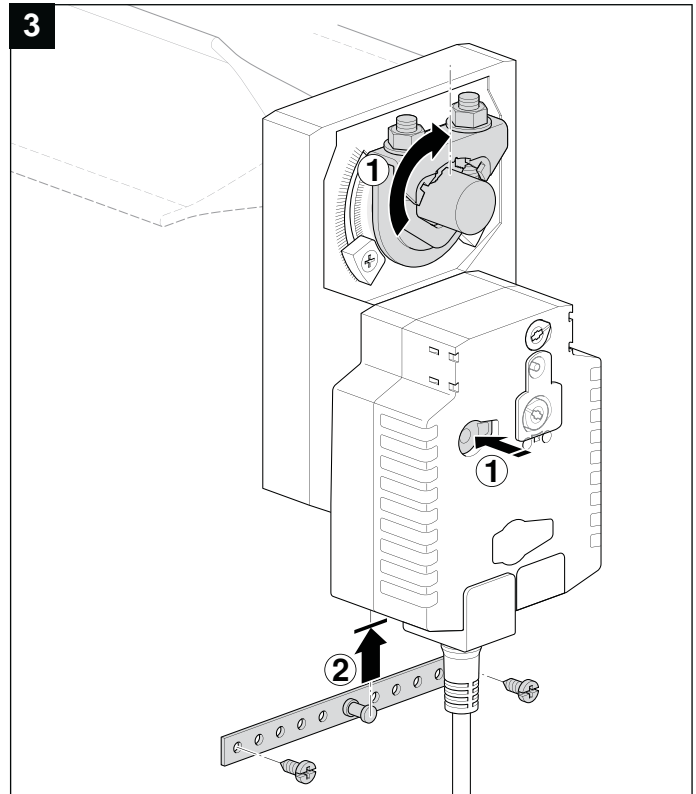
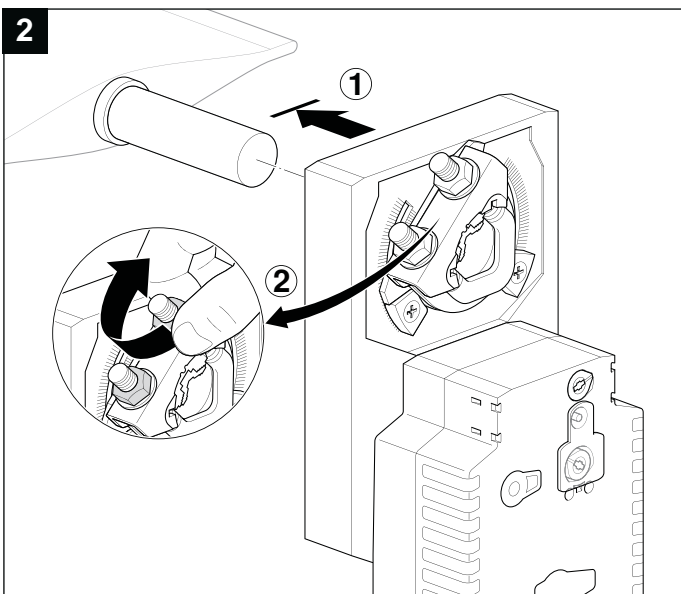
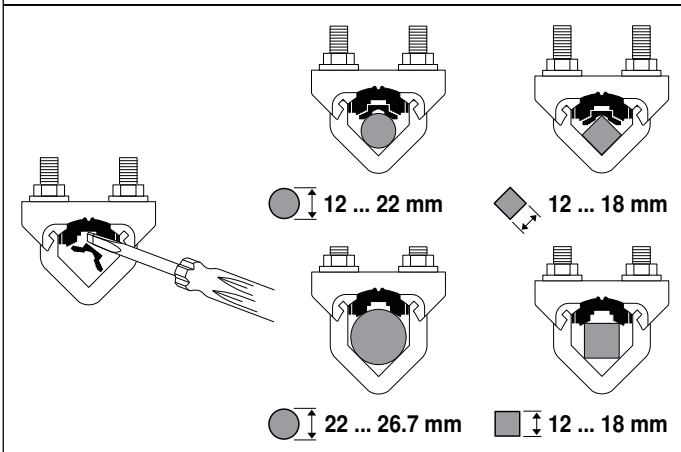
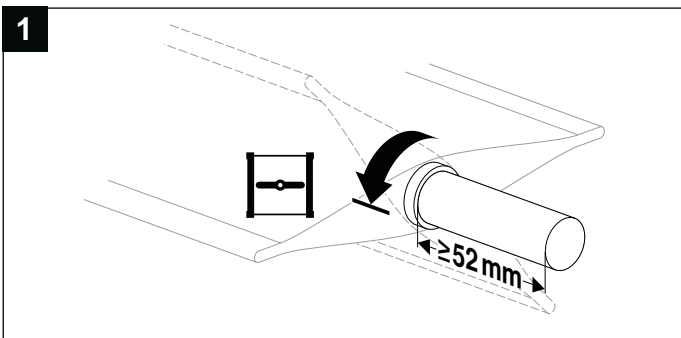
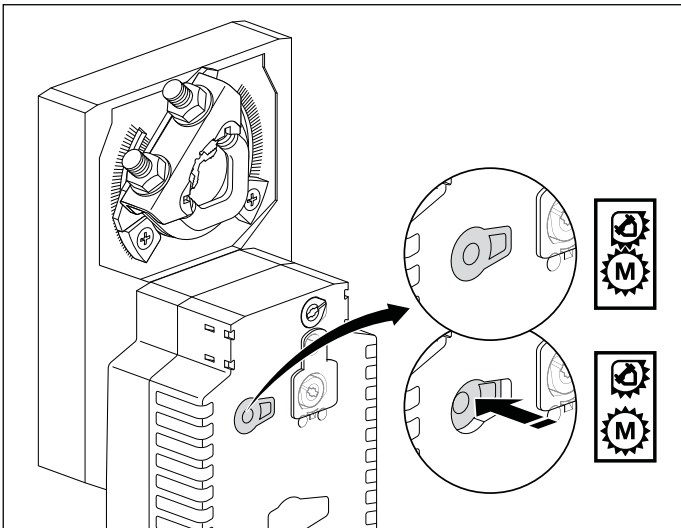


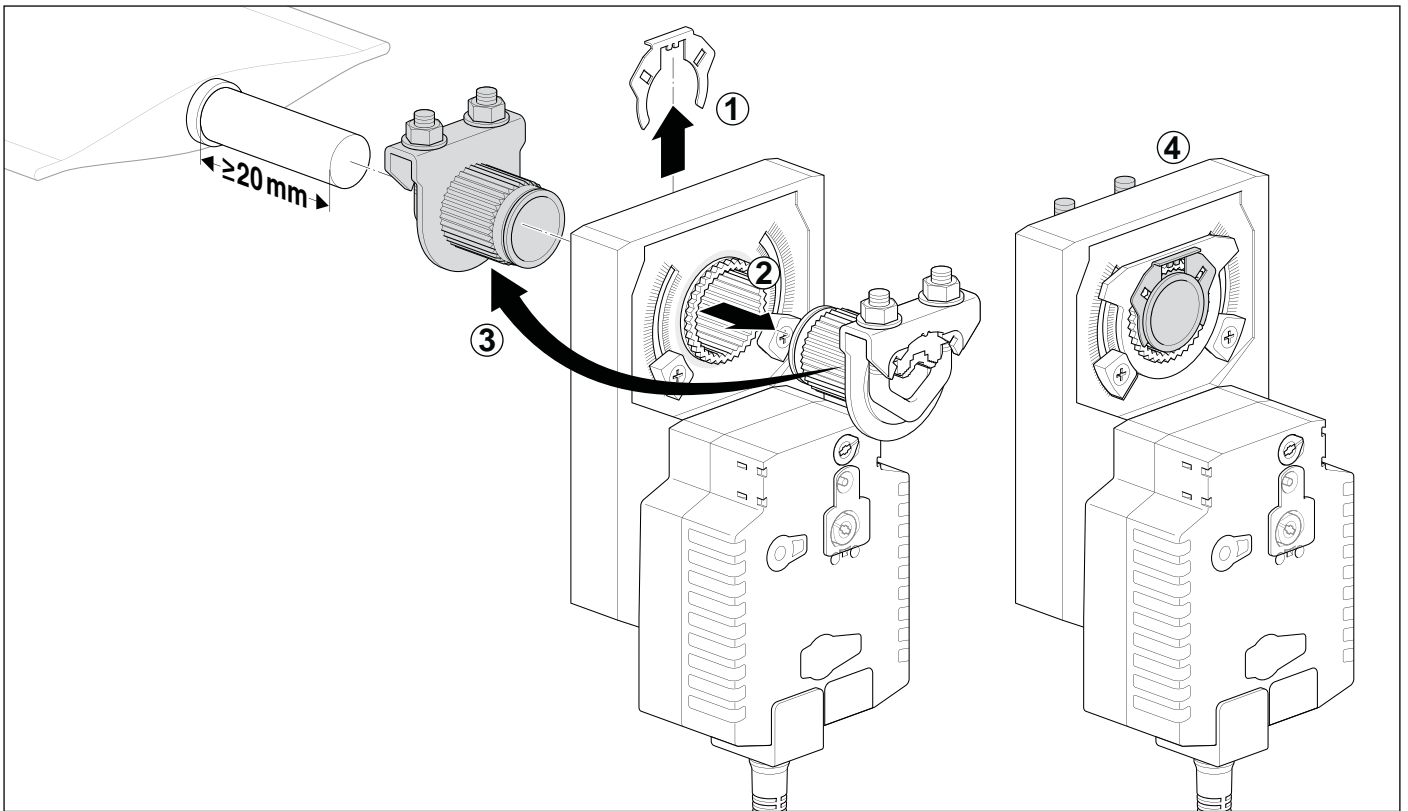










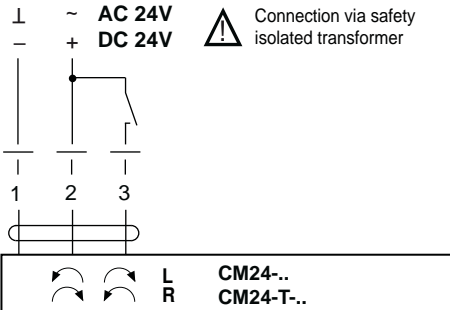


## Wiring diagrams: CM..series actuators

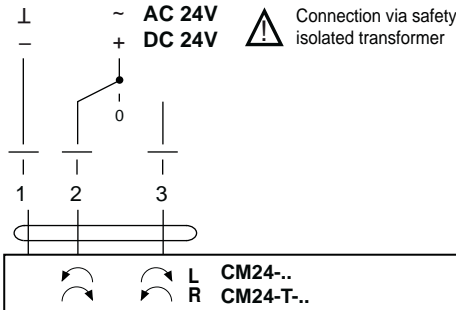
**Notes:**

- Parallel connection of several actuators is possible.
- Power consumption must be observed.

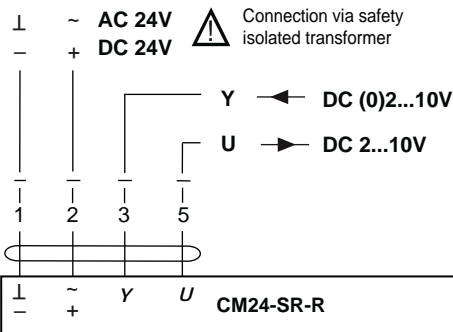
**Open/Close control**



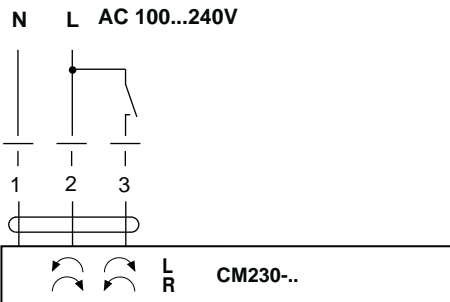
**3-point control**



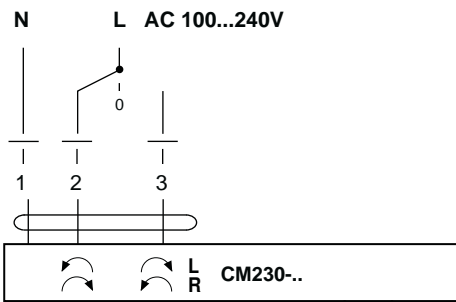
**Modulating control**



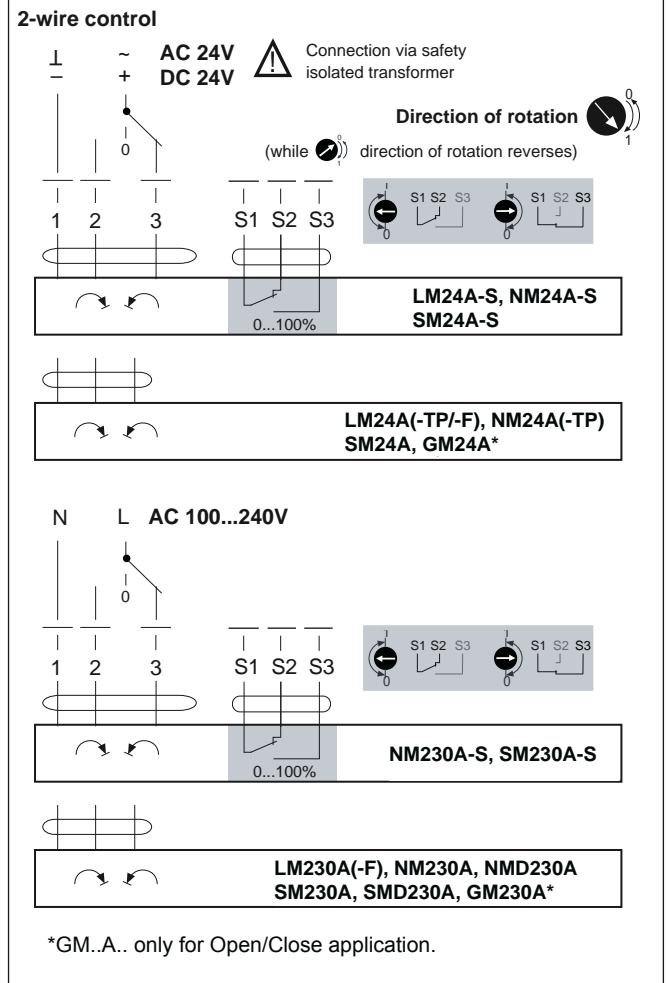
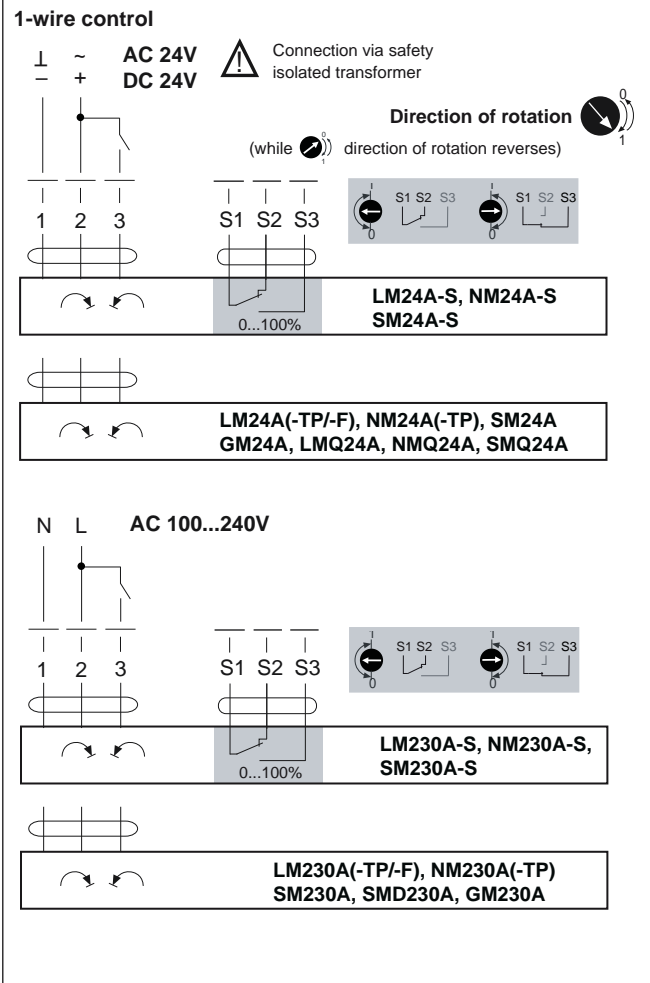
**Open/Close control**



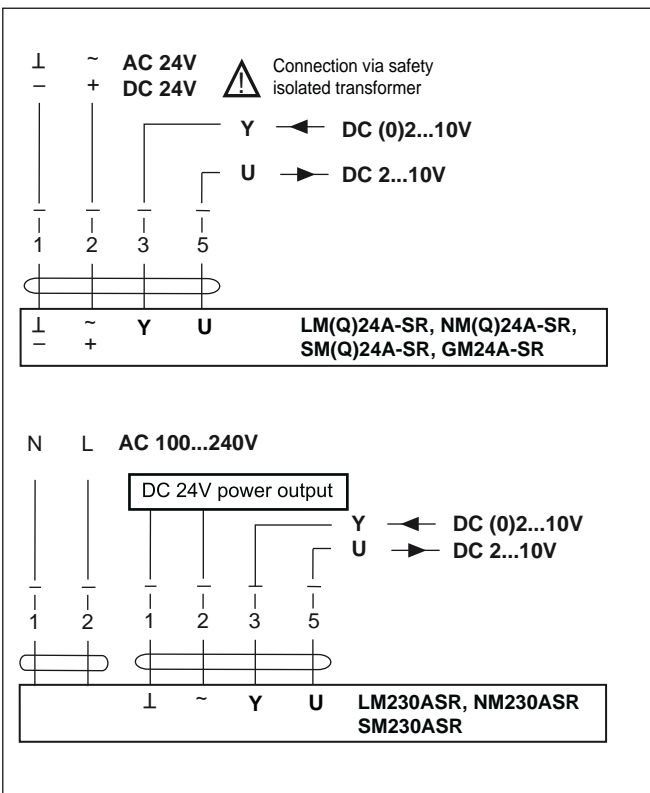
**3-point control**



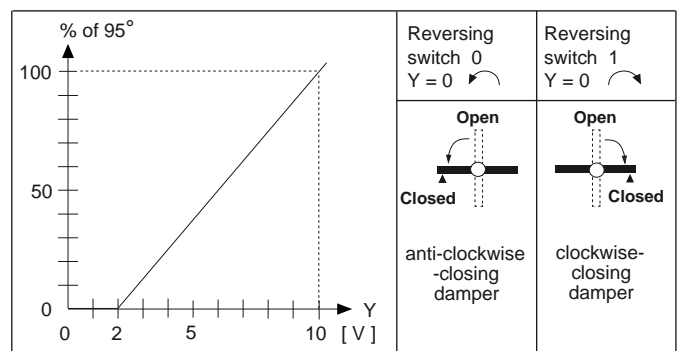
## Wiring diagrams: Open/Close actuators – parallel connection possible, please note the performance data



## Wiring diagrams: Modulating actuators – parallel connection possible, please note the performance data



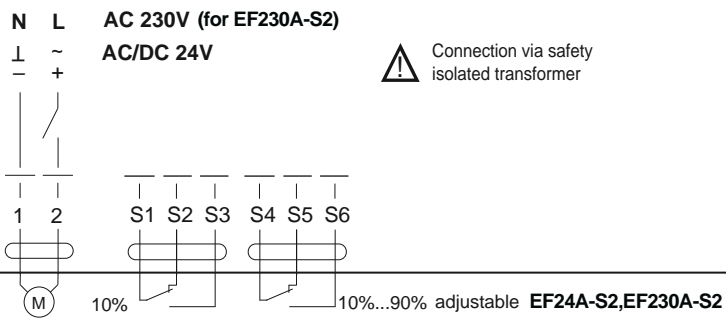
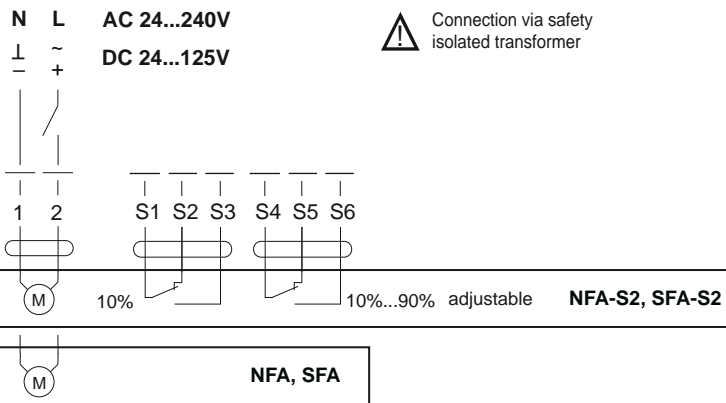
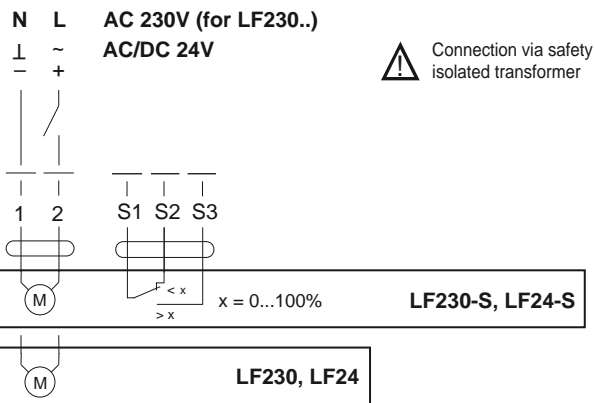
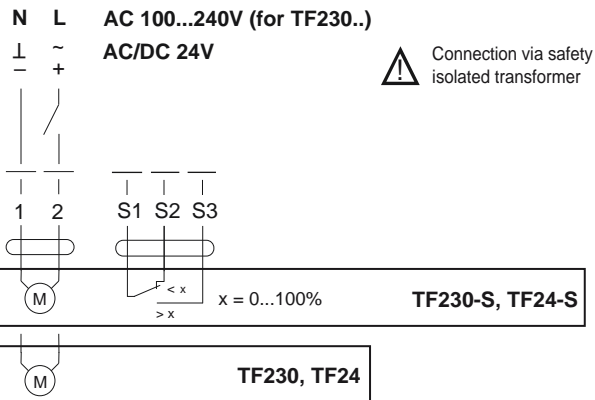
### Position - signal voltage



## Wiring diagrams: Open/Close actuators

**Notes:**

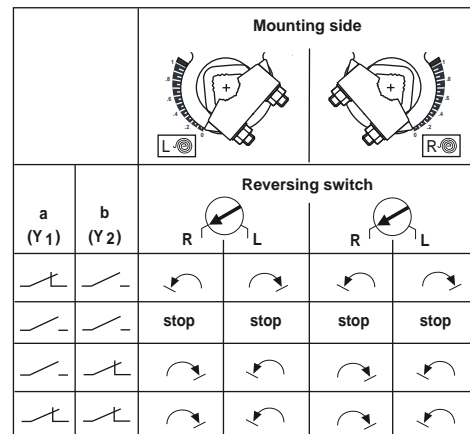
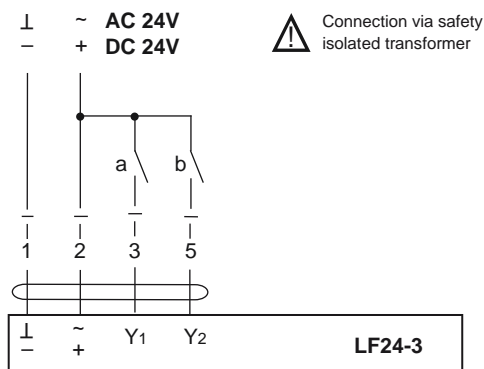
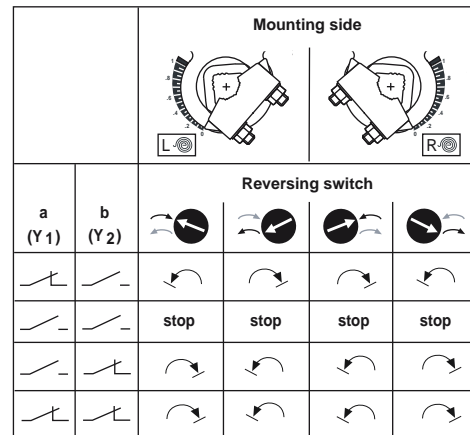
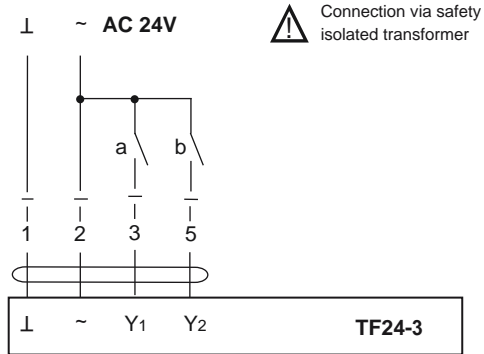
- Parallel connection of several actuators is possible.
- Power consumption must be observed.



**Wiring diagrams: 3-point actuators**

**Notes:**

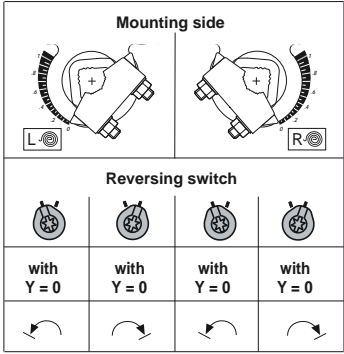
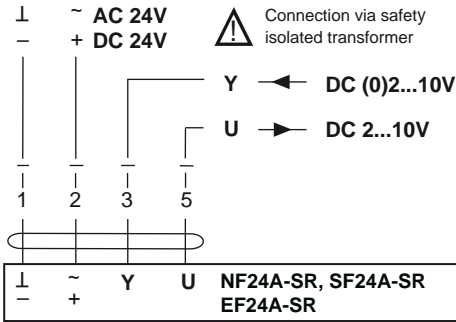
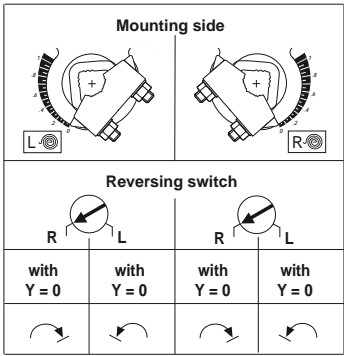
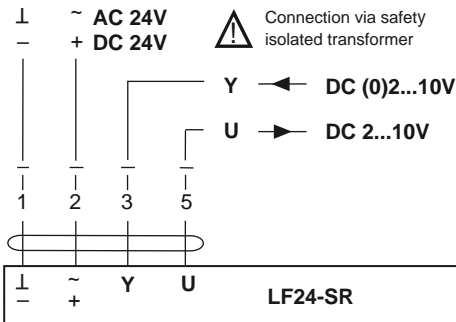
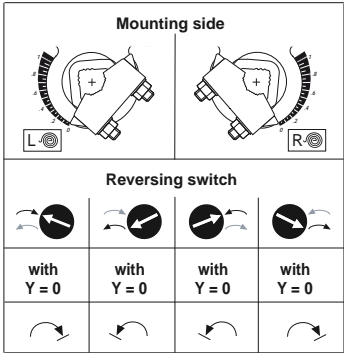
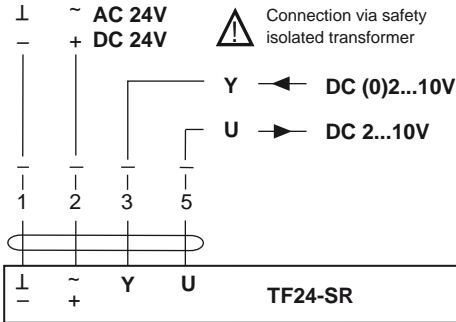
- Connection via safety isolating transformer.
- Parallel connection of several actuators is possible.
- Power consumption must be observed.



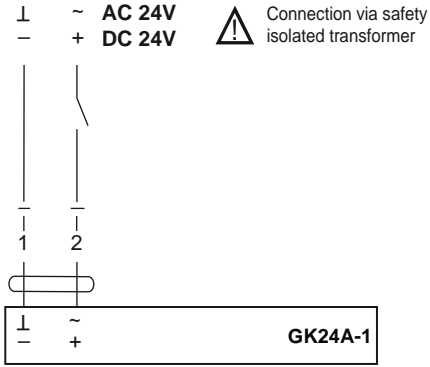
## Wiring diagrams: modulating actuators

**Notes:**

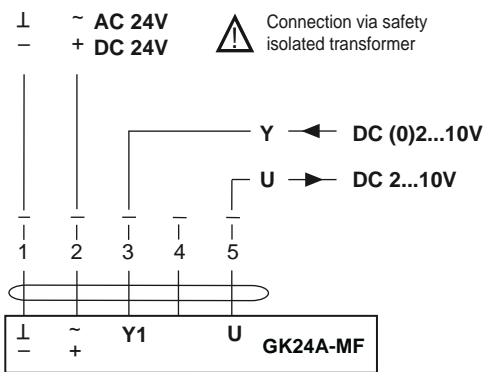
- Connection via safety isolating transformer.
- Parallel connection of several actuators is possible.
- Power consumption must be observed.



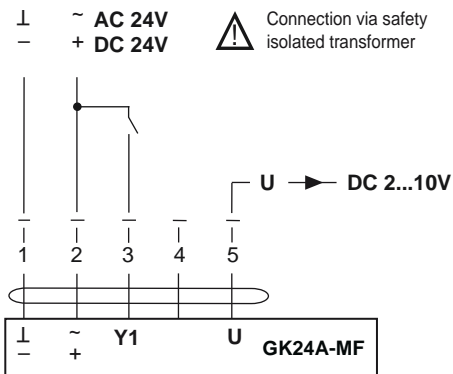
**Wiring diagrams: Open/Close actuators**



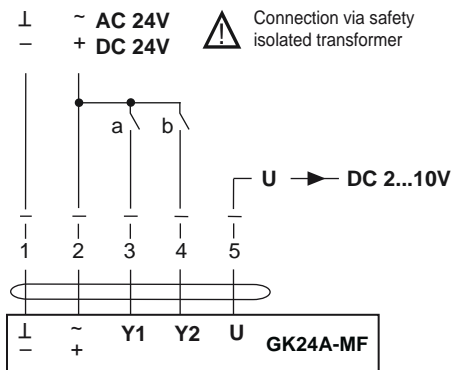
**Wiring diagram: -MF**



**Open/Close control**



**3-point control**

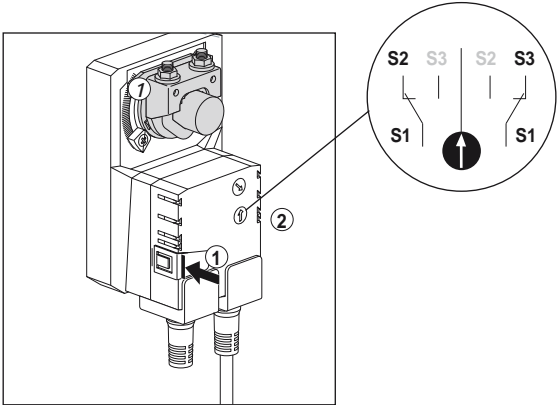


a (Y1)	b (Y2)	Reversing switch	
		stop	stop

## Auxiliary switch adjustment for General Damper Actuators

1. Press the pushbutton, manually operate the universal clamp to desired switch position.
2. Turn switch pointer to the middle line.
3. When actuator moves clockwise (counter clockwise) to switch position, switch indicator passes the middle line counter clockwise (clockwise), the contact between S1 and S3 is disconnected (connected) and the contact between S1 and S2 is connected (disconnected).

Note: The switching point should be about 5° from the mechanical end stops (1 short step on the scale).



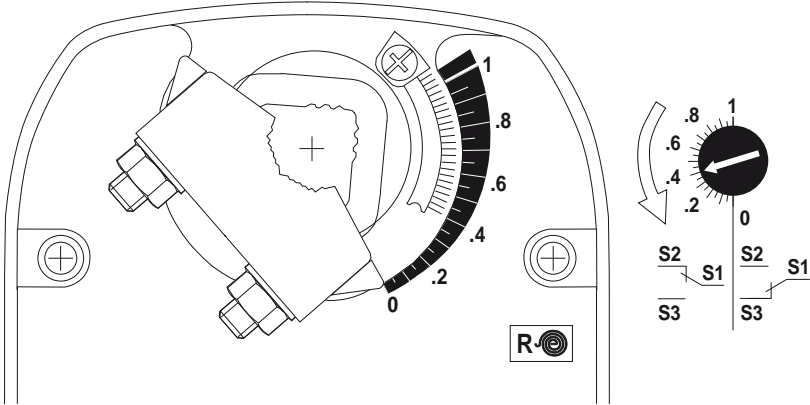
## Auxiliary switch adjustment for Mechanical Fail-Safe Damper Actuators

LF.-S (Mounting side R); NFA-S2, SFA-S2, EF..A-S2 (Mounting side L)

Starting point: Actuator in safe position

**Procedure**  
Turn the knob of the auxiliary switch until the tip of the arrow is pointing to the required switching position (see right). Example: Switching point setting = 4 corresponds to 40% angle of rotation.

When the actuator runs to the operating position (ccw ↺), the switch knob will also rotate counter-clockwise (ccw ↺) and the auxiliary switch will operate as the tip of the arrow passes the scale zero (S1-S3 linked).



## Fast Running Q.. Actuators operating controls and indicators









- 1 Direction of rotation switch**  
Switching over: Direction of rotation changes
- 2 Pushbutton and green LED display**  
Off: No voltage supply or fault  
On: In operation  
Press button: Switches on angle of rotation adaption followed by standard operation
- 3 Pushbutton and yellow LED display**  
Off: Standard operation  
On: Adaption or synchronising process active  
Press button: No function
- 4 Gear disengagement switch**  
Press button: Gear disengaged, motor stops, manual override possible  
Release button: Gear engaged, synchronisation starts, followed by standard operation

**Check voltage supply connection**














- a) ② Off and ③ On } Check the supply connections.
- b) ② Blinking and ③ Blinking } Possibly  $\perp$  and  $\neq$  are swapped over.











- 5 No function**

		Actuators										
		CM	LM	NM	SM	GM	TF	LF	NFA	SFA	EF	GK
<b>S..A..</b> 	Auxiliary switch, add on											
	S1A 1xSPDT 3A(0.5A), AC 250V		•	•	•	•						•
	S2A 2xSPDT 3A(0.5A), AC 250V		•	•	•	•						•
	S2A -F 2xSPDT 3A(0.5A), AC 250V							•	•	•		
<b>P..A..</b> 	Feedback potentiometer, add on											
	P140A.. 140Ω		•	•	•	•						•
	P500A.. 500Ω		•	•	•	•						•
	P1000A.. 1000Ω		•	•	•	•						•
	P2800A.. 2800Ω		•	•	•	•						•
	P5000A.. 5000Ω		•	•	•	•						•
	P10000A.. 10000Ω		•	•	•	•						•
	P200A-F 200Ω							•	•	•		
<b>SGA24</b> 	Positioner for surface mounting	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	2)
	0...100% Reversible operating range DC 0...10V or DC 2...10V											
<b>SGE24</b> 	Positioner for rack mounting	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	2)
	0...100% Reversible operating range DC 0...10V or DC 2...10V											
<b>SGF24</b> 	Positioner for front-panel mounting	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	2)
	0...100% Reversible operating range DC 0...10V or DC 2...10V											
<b>ZDA24</b> 	Digital position indicator for front-panel mounting	1)	1)	1)	1)	1)	1)	1)	1)	1)	1)	2)
	0...99% Front size 72x72mm Operating range DC 2...10V											

1) For ...-SR

2) For ...-MF

		Actuators							
		LM	NM LMQ NMQ	SM SMD	GM SMQ	TF	LF	NFA	SFA
<b>AN-20</b>	Actuator arm 		•	•					
<b>AH-25</b>	Actuator arm 		•	•					
<b>AH-GMA</b>	Actuator arm 				•				
<b>AV6-20</b>	Shaft extension Length approximately 170mm For damper spindles ø6...20mm Extension ø10mm 	•				•	•		
<b>AV8-25</b>	Shaft extension Length approximately 250mm For damper spindles ø8...25mm Extension ø20mm 		•	•					
<b>IND-AFB</b>	NFA/SFA.. position indicator 							•	•
<b>K6-1</b>	Spindle clamp for LF.. For damper spindles ø16...20mm 						•		
<b>K7-2</b>	NFA/SFA.. standard clamp 1/2", 3/4", 1.05" 							•	•
<b>K-ENSA</b>	Spindle clamp For damper spindles ø8...20mm 		•	•					
<b>K-NA</b>	Reversible spindle clamp For damper spindles ø8...20mm 		• (except NMQ)						
<b>K-SA</b>	Reversible spindle clamp For damper spindles ø10...20mm 			• (NMQ)					
<b>KG8</b>	Ball joint Suitable for damper crank arm KH8 For round steel rod with ø8mm Zinc-plated steel 		•	•		•	•	•	•
<b>KG10A</b>	Ball joint Suitable for damper crank arm KH8 For round steel rod with ø10mm Zinc-plated steel 		•	•	•	•	•	•	•

		Actuators							
		LM	NM LMQ NMQ	SM SMD..	GM SMQ	TF	LF	NFA	SFA
<b>ZG-118</b>	NFA/SFA.. mounting bracket 							•	•
<b>ZG-AFB</b>	NFA/SFA.. crank arm adapter kit 							•	•
<b>ZG-AFB118</b>	NFA/SFA.. crank arm adapter kit 							•	•
<b>ZG-GMA</b>	Mounting kit For flat and side mounting 				•				
<b>ZG-LF1</b>	Damper linkage kit For side mounting (with 2 ball joint KG8) 						•		
<b>ZG-LF3</b>	Damper linkage kit For side mounting (with 2 ball joint KG8) 						•		
<b>ZG-NMA</b>	Mounting kit For flat and side mounting 		•						
<b>ZG-SMA</b>	Mounting kit For flat and side mounting 			•					
<b>ZG-TF1</b>	Damper linkage For flat mounting 					•			
<b>Z-SF</b>	Retrofit adapter for NG NFA/SFA.. while replacing old NF/AF/AFR 							•	•
<b>ZF10-NSA-F</b>	10x10 formfit adapter mutipack 20 pieces							•	•
<b>ZF12-NSA-F</b>	12x12 formfit adapter mutipack 20 pieces							•	•
<b>ZF16-NSA-F</b>	16x16 formfit adapter mutipack 20 pieces							•	•

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