

Actuator for General Air Solutions



> 2007-01

	Non spring-return actuators						Spring-return actuators		
	TMC..A	LMC..A	LM..A	NM..A	SM..A	GM..A	TF..	LF..	AF..
Torque ¹⁾	2 Nm	5 Nm	5 Nm	10 Nm	20 Nm	40 Nm	2 Nm	4 Nm	15 Nm
Universal clamp for damper shaft up to	6-20 mm	6-20 mm	6-20 mm	8-26 mm	10-20 mm	14-25 mm	6-12 mm	8-16 mm	10-20 mm
Air damper size up to approx¹⁾									
0.4 m ²	■	■	■	■	■	■	■	■	■
0.8 m ²		■	■	■	■	■		■	■
1 m ²		■	■	■	■	■			■
2 m ²				■	■	■			■
3 m ²					■	■			■
4 m ²					■	■			
8 m ²						■			

	Linear actuators		Full rotation actuator
	LH..A	SH..A	LU..A
Torque ¹⁾			3 Nm
Actuating force ¹⁾	150 N	450 N	
Stroke range	0..300 mm	0..300 mm	
Spindle driver /Form-fit			8 mm/10 mm*/12 mm
Air damper size up to approx. ¹⁾			
0.4 m ²	■	■	■
0.6 m ²			■
0.8 m ²			
1 m ²	■	■	
2 m ²			
3 m ²		■	

* with form-fit adapter ZF10-LUA

Using Belimo damper actuators

The actuators listed in this catalogue are intended for the operation of air dampers in HVAC systems.

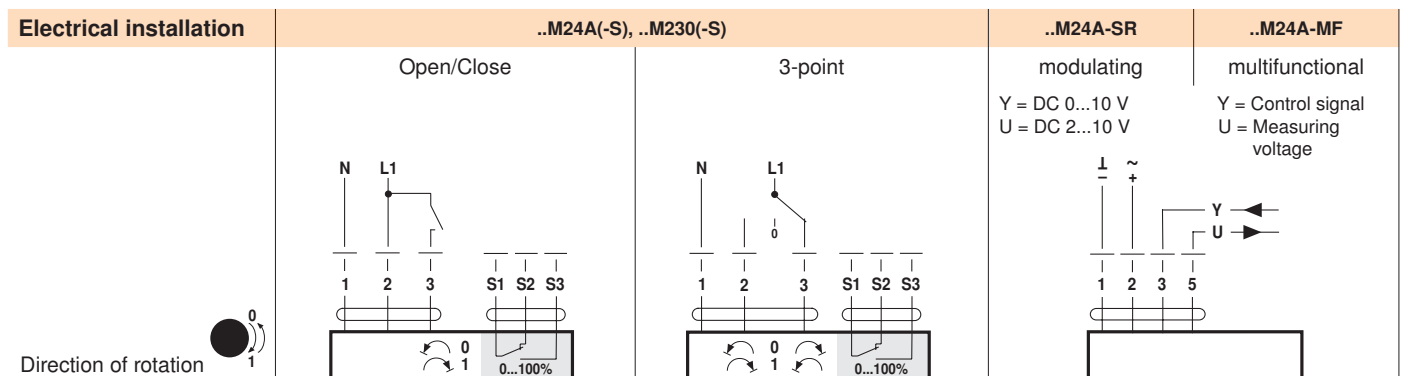
Air damper size ¹⁾

When calculating the torque required or actuating force 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 conditions. The recommended damper sizes are approximate values.

	Actuators without safety function				Actuators with safety function			Linear actuators		Full rotation actuator
	TMC..A LMC..A	LM..A	NM..A SM..A	GM..A	TF..	LF..	AF..	LH..A	SH..A	LU..A
Electrical accessories										
Feedback potentiometer	P140A P200A P500A P1000A P2800A P5000A P10000A	P140A P200A P500A P1000A P2800A P5000A P10000A	P140A P200A P500A P1000A P2800A P5000A P10000A	P140A P200A P500A P1000A P2800A P5000A P10000A						
Auxiliary switch add-on	S1A S2A	S1A S2A	S1A S2A	S1A S2A						
Positioner	SGA24 SGE24 SGF24	SGA24 SGE24 SGF24	SGA24 SGE24 SGF24	SGA24 SGE24 SGF24	SGA24 SGE24 SGF24	SGA24 SGE24 SGF24	SGA24 SGE24 SGF24	SGA24 SGE24 SGF24	SGA24 SGE24 SGF24	SGA24 SGE24 SGF24
Range controller	SBG24	SBG24	SBG24	SBG24	SBG24	SBG24	SBG24	SBG24	SBG24	SBG24
Digital position indicator	ZAD24	ZAD24	ZAD24	ZAD24	ZAD24	ZAD24	ZAD24	ZAD24	ZAD24	ZAD24
Mechanical accessories										
Shaft extension	AV6-20	AV6-20	AV8-25		AV6-20	AV6-20	AV8-25			
Actuator arm			NM..A: AH-25 SM..A: AH-20	AH-GMA	AH-TF	KH-LF	KH-AF			
Universal crank arm			KH8	KH10	KH8	KH8	KH8			
Ball joint			KG8		KG8	KG8	KG8			
Ball joint			KG10A	KG10A	KG10A	KG10A	KG10A	Z-KS2	Z-KS1	
Spindle clamp			NM..A: K-NA SM..A: K-SA			K6-1				K-LU
Angle of rotation limiter					ZDB-TF	ZDB-LF	ZDB-AF			ZDB-LU
Form-fit adapter						ZF8-LF				ZF10-LUA
Mounting kit for damper linkage			ZG-NMA ZG-SMA	ZG-GMA	ZG-TF1	ZG-LF1 ZG-LF3	ZG-AF			
Extension for ground plate			Z-NMA Z-SMA	Z-GMA						
Stop kit +								Z-AS2	Z-AS1	
Rotary support								Z-DS1	Z-DS1	

		TMC..A	LMC..A	LM..A	NM..A	SM..A	GM..A
		2 Nm	5 Nm	5 Nm	10 Nm	20 Nm	40 Nm
Air damper size up to approx.		0.4 m ²	1 m ²	1 m ²	2 m ²	4 m ²	8 m ²
Open/Close	AC / DC 24 V	TMC24A	LMC24A	LM24A	NM24A	SM24A	GM24A
	Auxiliary switch add-on 1 x SPDT, 1 mA...3 (0.5) A	TMC24A-S	LMC24A-S	LM24A-S	NM24A-S	SM24A-S	
	AC 230 V	TMC230A	LMC230A	LM230A	NM230A	SM230A	GM230A
	Auxiliary switch add-on 1 x SPDT, 1 mA...3 (0.5) A	TMC230A-S	LMC230A-S	LM230A-S	NM230A-S	SM230A-S	
Modulating	AC / DC 24 V	TMC24A-SR	LMC24A-SR	LM24A-SR	NM24A-SR	SM24A-SR	GM24A-SR
	AC 230 V			LM230ASR	NM230ASR	SM230ASR	
	Positioning signal Y: DC 2 ... 10 V, 100 kOhm Position feedback: DC 2 ... 10 V, max. 1 mA						
multi-functional	parameterisable 1)			LM24A-MF	NM24A-MF	SM24A-MF	GM24A-MF
Damper shaft		6 ... 20 mm	6 ... 20 mm	6 ... 20 mm	8 ... 26 mm	10 ... 20mm	14 ... 26mm
Running time		35 s			150 s		
Manual override		Disengaging the gearing latch by means of a pushbutton, self-resetting					
Connection		Cable 1 m, 3 x 0,75 mm ²					
Direction of rotation		Can be selected with switch					
Angle of rotation		max. 95°, can be limited at both ends with mechanical adjustable end stops					
Degree of protection		IP 54 in all mounting positions					
Position indication		Mechanical, plug-on					
Sound power level		max. 35 dB(A)	max. 45 dB(A)	max. 35 dB(A)	max. 45 dB(A)		
EMC		CE according to 89/336/EEC					
Ambient temperature range		-30 ... +50 °C					
Non-operating temperature		-40 ... +80 °C					
Ambient humidity range		95% r.H., non-condensating (to EN 60730-1)					

1) Control, operating range, running time and further functions are parameterisable with PC-Tool or with the parameterising device MFT-H
Further versions ex. fast running or form-fit types on request.



Electrical and mechanical accessories see page 3

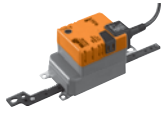
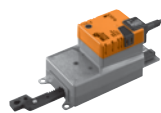
		TF	LF	AF
		2 Nm	4 Nm	15 Nm
Air damper size up to approx.		0.4 m ²	0.8 m ²	3 m ²
Open/Close	AC / DC 24 V	TF24	LF24	AF24
	Auxiliary switch add-on 1 x SPDT (AF24-S : 2 x SPDT)	TF24-S	LF24-S	AF24-S
modulating	AC 230 V	TF230	LF230	AF230
	Auxiliary switch add-on 1 x SPDT (AF230-S : 2 x SPDT)	TF230-S	LF230-S	AF230-S
multi-functional	AC / DC 24 V	TF24-SR	LF24-SR	AF24-SR
	Positioning signal Y: DC 2 ... 10 V, 100 kOhm Position feedback: DC 2 ... 10 V, max. 1 mA			
multi-functional	parameterisable ¹⁾	TF24-MFT	LF24-MFT	AF24-MFT
Damper shaft		6 ... 12mm	8 ... 16 mm	10 ... 20mm
Running time		- Motor <75 s ²⁾	40-75 s ²⁾	~150 s
		- Spring return <25 s	~20 s	~16 s
Manual override				Crank handle
Connection		Cable 1 m		
Direction of rotation		selected by mounting L/R		
Angle of rotation		max. 95°		
Angle of rotation limiting		yes	yes	yes
Position indication		mechanical		
Degree of protection		IP 42	IP 54	
Sound power level			max. 50 db(A) = 62 db(A)	max. 45 db(A) = 62 db(A)
EMC		CE according to 89/336/EEC		
Ambient temperature range		-30 ... +50 °C		
Non-operating temperature		-40 ... +80 °C		
Ambient humidity range		95% r.H., non-condensating (to EN 60730-1)		

²⁾ SR-typ 150 s

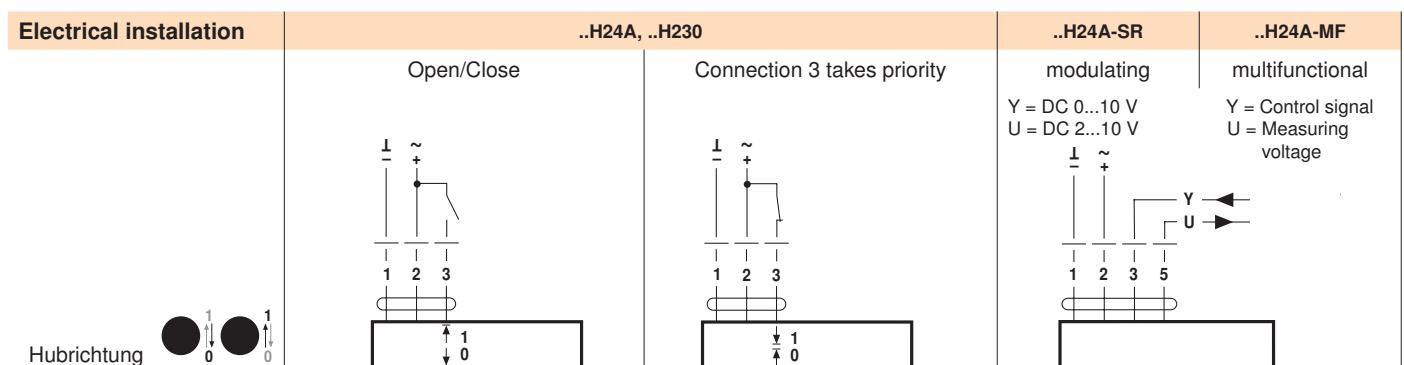
¹⁾ Control, operating range, running time and further functions are parameterisable with PC-Tool or with the parameterising device MFT-H
Further versions ex. fast running or form-fit types on request.

Electrical installation	..F24 ..F230	..F24-SR	..F24-MFT	..F24-SR
	Open/Close	modulating	multifunctional	Mounting direction
		Y = DC 0...10 V U = DC 2...10 V	Y = Control signal U = Measuring voltage	


Electrical and mechanical accessories see page 3

			LH 150 N 	SH 450 N 
Air damper size up to approx.			1 m ²	3 m ²
Open/Close	AC / DC 24 V	Stroke max. 60 mm	LH24A60	---
		Stroke max. 100 mm	LH24A100	SH24A100
		Stroke max. 200 mm	LH24A200	SH24A200
		Stroke max. 300 mm	LH24A300	SH24A300
	AC 230 V	Stroke max. 100 mm	LH230A100	SH230A100
		Stroke max. 200 mm	LH230A200	SH230A200
Stroke max. 300 mm		LH230A300	SH230A300	
modulating	AC / DC 24 V	Stroke max. 100 mm	LH24A-SR100	SH24A-SR100
		Stroke max. 200 mm	LH24A-SR200	SH24A-SR200
Positioning signal Y: DC 2 ... 10 V, 100 kOhm Position feedback: DC 2 ... 10 V, max. 1 mA				
multi-functional	parameterisable 1)		LH24A-MF100	SH24A-MF100
			LH24A-MF200	SH24A-MF200
			LH24A-MF300	SH24A-MF300
Running time LH24A60			90 s / 60 mm	
Running time xH24A100/200/300				150 s / 100 mm
Manual override			Disengaging the gearing latch by means of a pushbutton, self-resetting	
Connection			Cable 1 m	
Direction of stroke			Reversible with switch	
Stroke			adjustable in steps of 20 mm	
Sound power level			max. 35 dB(A)	
EMC			CE gemäss 89/336/EWG	
Degree of protection			IP 54 in any mounting position	
Ambient temperature range			-30 ... +50 °C	
Non-operating temperature			-40 ... +80 °C	
Ambient humidity range			95% r.H., non-condensating (to EN 60730-1)	

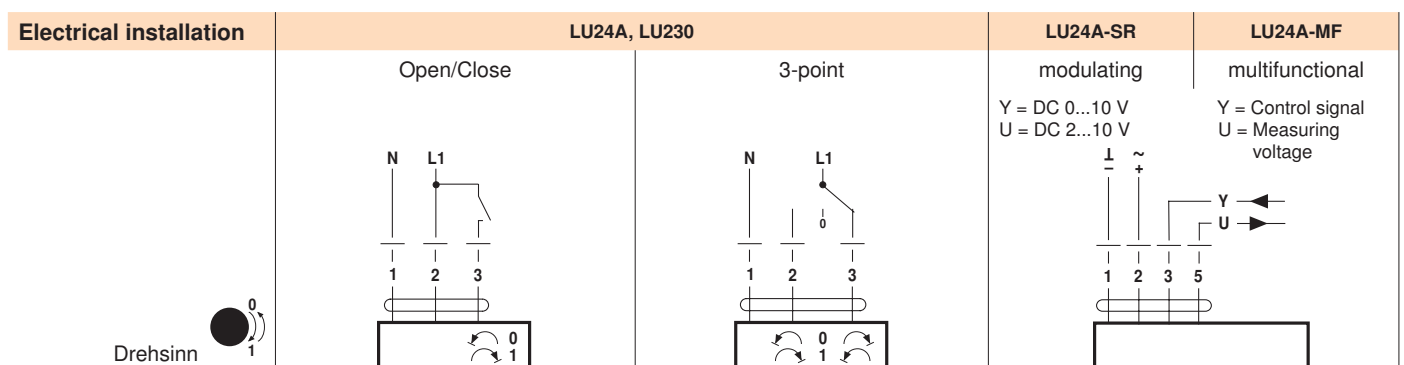
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Further versions ex. fast running or form-fit types on request.



Electrical and mechanical accessories see page 3

		LU
		3 NM 
Air damper size up to approx.		0.6 m ²
Open/Close	AC / DC 24 V	LU24A
	AC 230 V	LU230A
modulating	AC / DC 24 V	LU24A-SR
	Positioning signal Y: DC 2 ... 10 V, 100 kOhm Position feedback: DC 2 ... 10 V, max. 1 mA	(Angle of rotation 330°)
multi-functional	parameterisable 1)	LU24A-MF 1)
Spindle driver		Form-fit 12 mm or 8 mm (with insert)
Running time		150 s / 360°
Manual override		Gearing latch disengaged with pushbutton, self-resetting
Connection		Cable 1 m
Direction of rotation		Reversible with switch
Angle of rotation		Endless (SR-typ 330°)
Sound power level		max. 35 dB(A)
EMC		CE gemäss 89/336/EEC
Degree of protection		IP 54 in any mounting position
Ambient humidity rang		-30 ... +50°C
Non-operation temperature		-40 ... +80°C
Ambient humidity rang		95% r.H., non-condensating (to EN 60730-1)

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Further versions ex. fast running or form-fit types on request.



Electrical and mechanical accessories see page 3

All inclusive



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