











		Nominal torque ¹⁾	Actuating force	Stroke range	Shaft diameter	For damper size up to approximately ¹⁾
Rotary actuators with connecting cable						
CM..		2 Nm			6...12.7 mm	■ 0.4 m ²
LM..A..		5 Nm			6...20 mm	■ 1 m ²
NM..A..		10 Nm			8...26.7 mm	■ 2 m ²
SM..A..		20 Nm			10...20 mm	■ 4 m ²
GM..A..		40 Nm			12...26.7 mm	■ 8 m ²
Rotary actuators with connecting terminals						
CM..		2 Nm			6...12.7 mm	■ 0.4 m ²
LM..A..		5 Nm			6...20 mm	■ 1 m ²
NM..A..		10 Nm			8...26.7 mm	■ 2 m ²
SM..A..		20 Nm			10...20 mm	■ 4 m ²
GM..A..		40 Nm			12...26.7 mm	■ 8 m ²
Linear actuators with connecting cable						
CH..			125 N	0...100 mm		■ 0.8 m ²
LH..A..			150 N	0...300 mm		■ 1 m ²
SH..A..			450 N	0...300 mm		■ 3 m ²

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

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

		Nominal torque ¹⁾	Actuating force	Stroke range	Shaft diameter	For damper size up to approximately ¹⁾
Rotary actuators with fail-safe Page 16						
TF..		2.5 Nm			6...12 mm	0.5 m ²
LF..		4 Nm			8...16 mm	0.8 m ²
NF..A..		10 Nm			10...25.4 mm	2 m ²
SF..A..		20 Nm			10...25.4 mm	4 m ²
EF..A..		30 Nm			12...26.7 mm	6 m ²
GK..A..		40 Nm			12...26.7 mm	8 m ²
SKM230.. + CM24K..		2 Nm			6...12.7 mm	0.4 m ²
Very fast running rotary actuators with fail-safe Page 18						
NKQ..A..		6 Nm			8...26.7 mm	1.2 m ²
Linear actuators with fail-safe Page 19						
LHK..A..			150 N	0...100 mm		1 m ²
SHK..A..			450 N	0...100 mm		3 m ²

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

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

		Fail-safe	Nominal torque ¹⁾	Actuating force	Stroke range	Shaft diameter	For damper size up to approximately ¹⁾
Fast running rotary actuators without fail-safe							
Page 20							
TMC..A..			2 Nm			6...20 mm	0.4 m ²
LMC..A..			5 Nm			6...20 mm	1 m ²
NMC..A..			10 Nm			8...26.7 mm	2 m ²
SMC..A..			20 Nm			10...20 mm	4 m ²
Very fast running rotary actuators without fail-safe							
Page 21							
LMQ..A..			4 Nm			8...26.7 mm	0.8 m ²
NMQ..A..			8 Nm			8...26.7 mm	1.5 m ²
NMD..A..			8 Nm			10...20 mm	1.5 m ²
SMQ..A..			16 Nm			12...26.7 mm	3.2 m ²
SMD..A..			16 Nm			10...20 mm	3.2 m ²
Very fast running linear actuators without fail-safe							
Page 15							
LHQ..A..				100 N	0...100 mm		0.7 m ²
SHQ..A..				200 N	0...100 mm		1.3 m ²
RobustLine rotary actuators for extreme conditions, without / with fail-safe							
Page 22							
NM..P..			10 Nm			10...20 mm	2 m ²
SM..P..			20 Nm			14...20 mm	4 m ²
NKQ..P..		●	6 Nm			10...20 mm	1.2 m ²
IP66/67 NEMA 4X – rotary actuators for outdoor applications, without / with fail-safe							
Page 23							
SMQ..G..			16 Nm			12...26.7 mm	3.2 m ²
GM..G..			40 Nm			14...26.7 mm	8 m ²
NF..G..		●	10 Nm			12...26.7 mm	2 m ²
SF..G..		●	20 Nm			12...26.7 mm	4 m ²
GK..G..		●	40 Nm			14...26.7 mm	8 m ²

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

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

		Fail-safe	Nominal torque ¹⁾	Form fit	Damper size
Rotary actuators with high torque Page 24					
PMCA..			160 Nm	17x17 mm	Special
PKCA..		●	160 Nm	17x17 mm	Special

		Nominal torque ¹⁾	Damper blade diameter	Pipe diameter in accordance with DIN EN 1506
Actuators with damper blade Page 25				
CM..D		2 Nm	100...160 mm	DN 100...DN 160

		Nominal torque ¹⁾	Actuating force	Stroke range	Shaft diameter	Control	For damper size up to approximately ¹⁾
Parametrisable rotary actuators with connecting terminals Page 26							
LM..A..		5 Nm			6...20 mm	modulating 2...10 V ²⁾	1 m ²
NM..A..		10 Nm			8...26.7 mm	modulating 2...10 V ²⁾	2 m ²
SM..A..		20 Nm			10...20 mm	modulating 2...10 V ²⁾	4 m ²
GM..A..		40 Nm			12...26.7 mm	modulating 2...10 V ²⁾	8 m ²

		Nominal torque ¹⁾	Actuating force	Stroke range	Shaft diameter	Control	For damper size up to approximately ¹⁾
Parametrisable rotary actuators with special control and connecting cable Page 27							
SM24A-MA		20 Nm			10...20 mm	modulating 4...20 mA ³⁾	4 m ²
SM24A-PC		20 Nm			10...20 mm	modulating 0...20 V Phs ³⁾	4 m ²
SM24A-R9		20 Nm			10...20 mm	modulating 0...135 Ω ³⁾	4 m ²

		Nominal torque ¹⁾	Actuating force	Stroke range	Shaft diameter	Control	For damper size up to approximately ¹⁾
Parametrisable linear actuators with connecting terminals Page 28							
LH..A..			150 N	0...300 mm		modulating 2...10 V ²⁾	1 m ²

Configuration options Page 29

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

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

²⁾ Control, operating range, feedback, running time and further functions on MP types adjustable with PC-Tool or the parameterising device ZTH EU.

³⁾ Running time and further functions adjustable with PC-Tool or the parameterising device ZTH EU.

	Rotary actuators					Linear actuators			
	CM..	LM..A..	NM..A..	SM..A..	GM..A..	CH..	LH..A..	SH..A..	
Mechanical accessories									
Shaft extension		AV6-20	AV6-20	AV8-25	AV8-25 AV12-25-I				
End stop kit, rotary support, coupling piece						Z-AS2 Z-DS1 Z-KS2	Z-AS2 Z-DS1 Z-KS2	Z-AS1 Z-DS1 Z-KS1	
Baseplate extension				Z-NMA	Z-SMA	Z-GMA			
Angle of rotation limiter									
End stop clips		Z-ESCM				Z-ESCM			
Form fit inserts ¹⁾			ZF..-LMA ZFRL..-LMA	ZF..-NSA ZF8-NMA	ZF..-NSA				
Gear disengagement magnet		Z-MA				Z-MA			
Crank arm for actuator drive shafts				AH-20 ²⁾ AH-25	AH-20 AH-25 ³⁾	AH-GMA			
Crank arm for damper shafts				KH8	KH8	KH10			
Shaft clamp one-side			K-ELA..	K-ENMA K-ENSA	K-ENSA K-ENSA-I				
Shaft clamp reversible				K-NA	K-SA				
Ball joints				KG8 KG10A	KG8 KG10A	KG10A			
Installation kits for linkage operation				ZG-NMA	ZG-SMA	ZG-GMA			
Position indicator		Z-PICM	Z-PI	Z-PI	Z-PI	Z-PI			
Anti-rotation clip		Z-ARCM							
Electrical accessories									
Auxiliary switch			S1A S2A	S1A S2A	S1A S2A	S1A S2A			
Room temperature controller for modulating actuators		CR24..	CR24..	CR24..	CR24..	CR24..	CR24..	CR24..	CR24..
Feedback potentiometer			P..A ⁴⁾	P..A ⁴⁾	P..A ⁴⁾	P..A ⁴⁾			
Signal converter voltage/current for modulating actuators		Z-UIC	Z-UIC	Z-UIC	Z-UIC	Z-UIC	Z-UIC	Z-UIC	Z-UIC
Positioner / range controller for modulating actuators		CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24
Parameterising devices									
Adjustment and diagnostic device			ZTH EU ⁵⁾	ZTH EU ⁵⁾	ZTH EU ⁵⁾	ZTH EU ⁵⁾		ZTH EU ⁵⁾	ZTH EU ⁵⁾

¹⁾ Form fit inserts: LM..A..: 8x8 mm, 10x10 mm, 12x12 mm; NM..A..: 8x8 mm (ZF8-NMA); NM..A../SM..A..: 10x10 mm, 12x12 mm, 15x15 mm, 16x16 mm.

²⁾ Only in combination with reversible shaft clamp K-NA.

³⁾ Only in combination with one-sided shaft clamp K-ENSA.

⁴⁾ Resistance values 140 Ω, 200 Ω, 500 Ω, 1 kΩ, 2.8 kΩ, 5 kΩ, 10 kΩ available.

⁵⁾ For all ..MP../..MA../..PC../..R9 actuators in the contracting and retrofit business.

		Rotary actuators with fail-safe								Linear actuators with fail-safe	
		TF..	LF..	NF..A..	SF..A..	EF..A..	GK..A..	SKM230.. + CM24K..	NKQ..A..	LHK..A..	SHK..A..
Mechanical accessories											
Shaft extension		AV6-20	AV6-20	AV8-25	AV8-25			AV6-20	AV8-25		
Adapter for auxiliary switch and feedback potentiometer							Z-SPA		Z-SPA		
End stop kit, rotary support, coupling piece										Z-AS2 Z-DS1 Z-KS2	Z-AS1 Z-DS1 Z-KS1
Baseplate extension				Z-SF	Z-SF		Z-GMA				
Angle of rotation limiter		ZDB-TF	ZDB-LF								
End stop clips								Z-ESCM			
Form fit inserts ¹⁾		ZF8-TF	ZF8-LF	ZF..NSA-F	ZF..NSA-F						
Gear disengagement magnet								Z-MA			
Crank arm for actuator drive shafts		AH-TF	KH-LF	KH-AFB	KH-AFB		AH-GMA		AH-25		
Crank arm for damper shafts		KH8	KH8	KH8	KH8	KH10 KH-EFB	KH10		KH8		
Shaft clamp reversible			K6-1	K7-2 K7-3	K7-2 K7-3	K9-2			K-SA		
Ball joints		KG8 KG10A	KG8 KG10A	KG8 KG10A	KG8 KG10A		KG10A		KG8 KG10A		
Installation kits for linkage operation		ZG-TF1	ZG-LF1 ZG-LF3	ZG-AFB	ZG-AFB	ZG-EFB	ZG-GMA		ZG-SMA		
Screw fastening kit		SB-TF									
Position indicator				IND-AFB	IND-AFB	IND-EFB	Z-PI	Z-PICM	Z-PI		
Anti-rotation clip								Z-ARCM			
Electrical accessories											
Auxiliary switch			S2A-F ²⁾	S2A-F ²⁾	S2A-F ²⁾		S1A ⁴⁾ S2A ⁴⁾		S1A ³⁾ S2A ³⁾		
Room temperature controller for modulating actuators		CR24..	CR24..	CR24..	CR24..	CR24..	CR24..		CR24..	CR24..	CR24..
Feedback potentiometer			P200A-F ²⁾ P1000A-F	P200A-F ²⁾ P1000A-F	P200A-F ²⁾ P1000A-F		P..A ^{4) 5)}		P..A ^{3) 5)}		
Signal converter voltage/current for modulating actuators		Z-UIC	Z-UIC	Z-UIC	Z-UIC	Z-UIC	Z-UIC		Z-UIC	Z-UIC	Z-UIC
Positioner / range controller for modulating actuators		CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24		CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24
Parameterising devices											
Adjustment and diagnostic device				ZTH EU ⁶⁾	ZTH EU ⁶⁾	ZTH EU ⁶⁾	ZTH EU ⁶⁾			ZTH EU ⁶⁾	ZTH EU ⁶⁾

¹⁾ Form fit inserts: TF../LF..: 8x8 mm; NF../SF..: 10x10 mm, 12x12 mm, 15x15 mm, 16x16 mm.

²⁾ For more versions for LF.., NF..A and SF..A actuators please get in touch with your local BELIMO contact person.

³⁾ Auxiliary switch and feedback potentiometer on NKQ..A actuators can only ever be used together with adapter Z-SPA.

⁴⁾ Auxiliary switch and feedback potentiometer on GK..A actuators in combination with a reversible clamp (mounted below for short-axis assembly) can only ever be used together with adapter Z-SPA.

⁵⁾ Resistance values 140 Ω, 200 Ω, 500 Ω, 1 kΩ, 2.8 kΩ, 5 kΩ, 10 kΩ available.

⁶⁾ For all ..-MP.. actuators in the contracting and retrofit business.

	Fast running rotary actuators				Very fast running rotary actuators					Very fast running linear actuators		
	TMC..A..	LMC..A..	NMC..A..	SMC..A..	LMQ..A..	NMQ..A..	NMD..A..	SMQ..A..	SMD..A..	LHQ..A..	SHQ..A..	
Mechanical accessories												
Shaft extension		AV6-20	AV6-20	AV8-25	AV8-25 AV12-25-I	AV8-25	AV8-25	AV8-25 AV12-25-I		AV8-25 AV12-25-I		
Adapter for auxiliary switch and feedback potentiometer						Z-SPA	Z-SPA		Z-SPA			
End stop kit, rotary support, coupling piece											Z-AS2 Z-DS1 Z-KS2	Z-AS1 Z-DS1 Z-KS1
Baseplate extension				Z-NMA	Z-SMA	Z-NMA				Z-SMA		
Form fit inserts ¹⁾		ZF..-LMA ZFRL..-LMA	ZF..-LMA ZFRL..-LMA	ZF..-NSA ZF8-NMA	ZF..-NSA ZF8-NMA	ZF..-NSA ZF8-NMA	ZF..-NSA ZF8-NMA	ZF..-NSA ZF8-NMA		ZF..-NSA ZF8-NMA		
Crank arm for actuator drive shafts				AH-20 ²⁾ AH-25	AH-20 AH-25 ⁴⁾	AH-20 ²⁾ AH-25	AH-20 ³⁾ AH-25	AH-20	AH-GMA	AH-20 AH-25 ⁴⁾		
Crank arm for damper shafts				KH8	KH8	KH8	KH8	KH8	KH10	KH8		
Shaft clamp one-side		K-ELA..	K-ELA..	K-ENMA K-ENSA	K-ENSA K-ENSA-I	K-ENMA K-ENSA	K-ENSA	K-ENSA K-ENSA-I		K-ENSA K-ENSA-I		
Shaft clamp reversible				K-NA	K-SA	K-NA	K-SA			K-SA		
Ball joints				KG8 KG10A	KG8 KG10A	KG8 KG10A	KG8 KG10A	KG8 KG10A	KG10A	KG8 KG10A		
Installation kits for linkage operation				ZG-NMA	ZG-SMA	ZG-NMA	ZG-NMA		ZG-GMA	ZG-SMA		
Position indicator		Z-PI	Z-PI	Z-PI	Z-PI	Z-PI	Z-PI	Z-PI	Z-PI	Z-PI		
Electrical accessories												
Auxiliary switch		S1A S2A	S1A S2A	S1A S2A	S1A S2A	S1A ⁵⁾ S2A ⁵⁾	S1A ⁵⁾ S2A ⁵⁾	S1A S2A	S1A ⁵⁾ S2A ⁵⁾	S1A S2A		
Room temperature controller for modulating actuators		CR24..	CR24..	CR24..	CR24..	CR24..	CR24..		CR24..		CR24..	CR24..
Feedback potentiometer		P..A ⁶⁾	P..A ⁶⁾	P..A ⁶⁾	P..A ⁶⁾	P..A ⁵⁾⁶⁾	P..A ⁵⁾⁶⁾	P..A ⁵⁾⁶⁾	P..A ⁵⁾⁶⁾	P..A ⁶⁾		
Signal converter voltage/current for modulating actuators		Z-UIC	Z-UIC	Z-UIC	Z-UIC	Z-UIC	Z-UIC		Z-UIC		Z-UIC	Z-UIC
Positioner / range controller for modulating actuators		CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24		CRP24-B1 SBG24 SGA24 SGE24 SGF24		CRP24-B1 SBG24 SGA24 SGE24 SGF24	CRP24-B1 SBG24 SGA24 SGE24 SGF24
Parameterising devices												
Adjustment and diagnostic device				ZTH EU ⁷⁾	ZTH EU ⁷⁾							

¹⁾ Form fit inserts: TMC..A./LMC..A.: 8x8 mm, 10x10 mm, 12x12 mm; NMC..A.: 8x8 mm, 10x10 mm, 12x12 mm, 16x16 mm; SMC..A./SMD..A./NMD..A.: 10x10 mm, 12x12 mm, 15x15 mm, 16x16 mm; LMQ..A.: 8x8 mm, 10x10 mm, 12x12 mm, 15x15 mm, 16x16 mm, 16x16 mm, 16x16 mm; NMQ..A.: 10x10 mm, 12x12 mm, 15x15 mm, 16x16 mm.

²⁾ Only in combination with reversible shaft clamp K-NA.

³⁾ Only in combination with reversible shaft clamp K-SA.

⁴⁾ Only in combination with one-sided shaft clamp K-ENSA.

⁵⁾ Auxiliary switch and feedback potentiometer on LMQ..A., NMQ..A and SMQ..A actuators in combination with a reversible clamp (mounted below for short-axis installation) can only ever be used together with adapter Z-SPA.

⁶⁾ Resistance values 140 Ω, 200 Ω, 500 Ω, 1 kΩ, 2.8 kΩ, 5 kΩ, 10 kΩ available.

⁷⁾ For all ..MP../..MAV../..PC../..R9 actuators in the contracting and retrofit business.

Nominal torque	5 Nm	10 Nm	20 Nm	40 Nm	
	1 m ²	2 m ²	4 m ²	8 m ²	
Damper size up to approx.					
Nominal voltage AC/DC 24 V AC 230 V	Auxiliary switch SPDT				
		LM..A	NM..A	SM..A	GM..A

Open/close, 3-point

					Open/close
24 V	1	LM24A	NM24A	SM24A	GM24A
		LM24A-S	NM24A-S	SM24A-S	
230 V	1	LM230A	NM230A	SM230A	GM230A
		LM230A-S	NM230A-S	SM230A-S	

Modulating (2...10 V)¹⁾

24 V		LM24A-SR	NM24A-SR	SM24A-SR	GM24A-SR
230 V		LM230ASR	NM230ASR	SM230ASR	

Parametrisable²⁾

24 V		LM24A-MP	NM24A-MP	SM24A-MP	GM24A-MP
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Technical data

Shaft diameter	6...20 mm	8...26.7 mm	10...20 mm	12...26.7 mm
Running time motor 90°	150 s	150 s	150 s	150 s
Manual override	Gear disengagement with push button, can be locked	Gear disengagement with push button, can be locked	Gear disengagement with push button, can be locked	Gear disengagement with push button, can be locked
Connection	Connecting cable 1 m	Connecting cable 1 m	Connecting cable 1 m	Connecting cable 1 m
Direction of rotation	selectable with switch	selectable with switch	selectable with switch	selectable with switch
Angle of rotation	max. 95°, can be limited at both ends with adjustable mechanical end stops	max. 95°, can be limited at both ends with adjustable mechanical end stops	max. 95°, can be limited at both ends with adjustable mechanical end stops	max. 95°, can be limited at both ends with adjustable mechanical end stops
Position indication	Mechanical, add-on	Mechanical, add-on	Mechanical, add-on	Mechanical, add-on
Sound power level	≤35 dB(A) @ 150 s	≤35 dB(A) @ 150 s	≤45 dB(A) @ 150 s	≤45 dB(A) @ 150 s
Degree of protection	IP54	IP54	IP54	IP54
EMC	CE according to 2014/30/EU	CE according to 2014/30/EU	CE according to 2014/30/EU	CE according to 2014/30/EU
Ambient temperature	-30...50°C	-30...50°C	-30...50°C	-30...50°C
Storage temperature	-40...80°C	-40...80°C	-40...80°C	-40...80°C
Ambient humidity	95% r.h., non-condensing	95% r.h., non-condensing	95% r.h., non-condensing	95% r.h., non-condensing



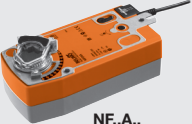


¹⁾ Modulating actuators: positioning signal Y = DC 0...10 V, 100 kΩ; operating range 2...10 V / position feedback U = DC 2...10 V, max. 1 mA.

²⁾ Control, operating range, feedback, running time and further functions on MP types adjustable with PC-Tool or the parameterising device ZTH EU.

Other versions on request.

Electrical installation

Open/close	3-point	Modulating	Parametrisable	Modulating
..M24A, ..M24A-S, ..M230A, ..M230A-S	..M24A, ..M24A-S, ..M230A, ..M230A-S	..M24A-SR	..M24A-MP	..M230ASR
	(for GM..A not permitted) 	Y = DC 0...10 V U = DC 2...10 V 	Y = positioning signal U = position feedback 	Y = DC 0...10 V U = DC 2...10 V

Nominal torque		2.5 Nm	4 Nm	10 Nm	20 Nm	30 Nm					
Damper size up to approx.		0.5 m ²	0.8 m ²	2 m ²	4 m ²	6 m ²					
Nominal voltage AC/DC 24 V AC 230 V	Running time motor 90°										
		TF..	LF..	NF..A..	SF..A..	EF..A..					
Open/close		without auxiliary switch	with 1 auxiliary switch SPDT	without auxiliary switch	with 1 auxiliary switch SPDT	without auxiliary switch	with 2 auxiliary switches SPDT	without auxiliary switch	with 2 auxiliary switches SPDT	without auxiliary switch	with 2 auxiliary switches SPDT
24 V	40...75 s		TF24-S	LF24	LF24-S	NF24A	NF24A-S2	SF24A	SF24A-S2	EF24A	EF24A-S2
	75 s	TF24									
230 V	40...75 s			LF230	LF230-S						
	75 s	TF230	TF230-S							EF230A	EF230A-S2
AC 24...240 V DC 24...125 V	75 s					NFA	NFA-S2	SFA	SFA-S2		
Modulating (2...10 V) ¹⁾		without auxiliary switch	without auxiliary switch	without auxiliary switch	with 2 auxiliary switches SPDT	without auxiliary switch	with 2 auxiliary switches SPDT	without auxiliary switch	with 2 auxiliary switches SPDT	without auxiliary switch	with 2 auxiliary switches SPDT
24 V	150 s	TF24-SR	LF24-SR	NF24A-SR	NF24A-SR-S2	SF24A-SR	SF24A-SR-S2	EF24A-SR	EF24A-SR-S2		
230 V	150 s	TF230-SR									
Parametrisable ²⁾		without auxiliary switch	without auxiliary switch	without auxiliary switch	without auxiliary switch	without auxiliary switch	without auxiliary switch	without auxiliary switch	without auxiliary switch	without auxiliary switch	without auxiliary switch
24 V	40...75 s		LF24-MFT2								
	75 s	TF24-MFT			NF24A-MP		SF24A-MP		EF24A-MP		

Technical data

	2.5 Nm	4 Nm	10 Nm	20 Nm	30 Nm
Shaft diameter	6...12 mm	8...16 mm	10...25.4 mm	10...25.4 mm	12...26.7 mm
Running time fail-safe position 90°	<25 s	20 s	<20 s	<20 s	<20 s
Manual override	-	-	Hand crank	Hand crank	Hand crank
Connection	Connecting cable 1 m, PVC	Connecting cable 1 m, PVC	Connecting cable 1 m, PVC	Connecting cable 1 m, PVC	Connecting cable 1 m, FRNC
Direction of rotation	Can be selected by left-hand/right-hand installation	Can be selected by left-hand/right-hand installation	Can be selected by left-hand/right-hand installation	Can be selected by left-hand/right-hand installation	Can be selected by left-hand/right-hand installation
Angle of rotation	max. 95°, can be limited at both ends with adjustable mechanical end stops	max. 95°, can be limited at both ends with adjustable mechanical end stops	max. 95°, can be limited at both ends with adjustable mechanical end stops	max. 95°, can be limited at both ends with adjustable mechanical end stops	max. 95°, can be limited at both ends with adjustable mechanical end stops
Position indication	Mechanical, add-on	Mechanical, add-on	Mechanical, add-on	Mechanical, add-on	Mechanical, add-on
Motor sound power level	≤50 dB(A) @ 75 s	≤50 dB(A) @ 75 s	≤45 dB(A) @ 75 s	≤45 dB(A) @ 75 s	≤50 dB(A) @ 75 s
Sound power level fail-safe position	≤62 dB(A) @ 25 s	≤62 dB(A) @ 20 s	≤62 dB(A) @ 20 s	≤62 dB(A) @ 20 s	≤62 dB(A) @ 20 s
Degree of protection	IP42	IP54	IP54	IP54	IP54 / IP66 ³⁾
EMC	CE according to 2014/30/EU	CE according to 2014/30/EU	CE according to 2014/30/EU	CE according to 2014/30/EU	CE according to 2014/30/EU
Ambient temperature	-30...50°C	-30...50°C	-30...50°C	-30...50°C	-30...50°C ⁴⁾
Storage temperature	-40...80°C	-40...80°C	-40...80°C	-40...80°C	-40...80°C
Ambient humidity	95% r.h., non-condensing	95% r.h., non-condensing	95% r.h., non-condensing	95% r.h., non-condensing	95% r.h., non-condensing

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

²⁾ Control, operating range, feedback, running time and further functions on MP types adjustable with PC-Tool or the parameterising device ZTH EU.

³⁾ IP 66 versions on request.

⁴⁾ Heating for ambient temperatures to -40°C on request.

Other versions on request.

Electrical installation

Open/close		3-point	
<p>..F24, ..F24-S, ..F230, ..F230-S</p>		<p>..F24A, ..F24A-S2, ..F230A, ..F230A-S2, ..FA, ..FA-S2</p>	<p>TF24-3, ..F24A-3</p>
Modulating		Parametrisable	
<p>TF24-SR, TF230-SR, ..F24A-SR, ..F24A-SR-S2</p> <p>Y = DC 0...10 V U = DC 2...10 V</p>		<p>..F24-MFT..., ..F24A-MP</p> <p>Y = positioning signal U = position feedback</p>	

Direction of rotation

Modulating		
<p>TF24-SR, TF230-SR</p>	<p>LF24-SR</p>	<p>..F24A-SR, ..F24A-SR-S2</p>