

ELA

Electromechanical linear actuator

Design features



Tr screw



Ball screw (Ku)

- **4 sizes with max. dynamic axial loads from**
 ELA 10.1: 2.0 kN
 ELA 20.1: 3.5 kN
 ELA 30.1: 6.0 kN
 ELA 40.1: 10.0 kN
- **Standard stroke lengths:**
 ELA 10.1: 100/200/300/400 mm
 ELA 20.1: 200/400/600 mm
 ELA 30.1: 200/400/600/800 mm
 ELA 40.1: 200/400/600/800 mm
- **Three-phase motor AC** (standard) with IEC-flange B14
- **Optional direct-current motor or alternating-current motor**
- **Optional with brake**
- **Self-locking** trapezoidal screws
- **Worm gear** with different reductions
- **Service life lubrication** under normal operating conditions from high-quality grease and encapsulated design
- **Comprehensive accessories range**
- **Possible usage according to directive 2014/34/EU (ATEX)**



ELA

Selection tables

Selection table ELA with trapezoidal screw

Size	Three-phase motor				Single-phase motor				D.C. motor			
	10.1	20.1	30.1	40.1	10.1	20.1	30.1	40.1	10.1	20.1	30.1	40.1
Max. axial force F_{stat} [N]	2500	4500	8000	13000	2500	4500	8000	13000	2500	4500	8000	13000
Screw	12x3	16x4	22x5	22x5	12x3	16x4	22x5	22x5	12x3	16x4	22x5	22x5
Approx. weight [kg]	6	10	15	20	6	10	15	20	6	10	15	20
Ratio H	4:1	4:1	2.78:1	6.75:1	4:1	4:1	2.78:1	6.75:1	4:1	4:1	2.78:1	6.75:1
Max. tensile/compressive force F_{dyn} [N]	550	1250	1500	5000	550	1200	1100	3500	700	1200	1100	3500
Lifting speed v [mm/s]	35	46.6	84	34.5	35	46.6	84	34.5	35	46.6	84	34.5
Motor power P [W]	90	120	250*	550	90	120	250*	550	70	150	300*	500
Ratio V	6.5:1	6.5:1	5:1	10:1	6.5:1	6.5:1	5:1	10:1	6.5:1	6.5:1	5:1	10:1
Max. tensile/compressive force F_{dyn} [N]	900	1650	3500	6500	900	1600	2500	5300	1100	1600	2500	5300
Lifting speed v [mm/s]	22	31	46.6	23.3	22	31	46.6	23.3	22	31	46.6	23.3
Motor power P [W]	90	120	250	550	90	120	250	550	70	150	300	500
Ratio N	15:1	15:1	10:1	20:1	15:1	15:1	10:1	20:1	15:1	15:1	10:1	20:1
Max. tensile/compressive force F_{dyn} [N]	1600	2750	6000	10000	1600	2300	4500	8500	1350	2300	4500	8500
Lifting speed v [mm/s]	9	13	23.3	11.5	9	13	23.3	11.5	10	13	23.3	11.5
Motor power P [W]	90	120	250	550	90	120	250	550	70	150	300	500
Ratio L	25:1	25:1	20:1	25:1	25:1	25:1	20:1	25:1	25:1	25:1	20:1	25:1
Max. tensile/compressive force F_{dyn} [N]	2000	3500	6000	10000	2000	3500	6000	10000	2000	3500	6000	10000
Lifting speed v [mm/s]	5.5	7.5	11.7	9	5.5	7.5	11.7	9	5.5	7.5	11.7	9
Motor power P [W]	90	120	250	550	90	120	250	550	70	150	300	500

Selection table ELA with ball screw (Ku)

Size	Three-phase motor				Single-phase motor				D.C. motor			
	10.1	20.1	30.1	40.1	10.1	20.1	30.1	40.1	10.1	20.1	30.1	40.1
Max. axial force F_{stat} [N]	2500	4500	8000	13000	2500	4500	8000	13000	2500	4500	8000	13000
Screw	12x5	16x5	20x5	25x6	12x5	16x5	20x5	25x6	12x5	16x5	20x5	25x6
Approx. weight [kg]	6	10	15	20	6	10	15	20	6	10	15	20
Ratio H	4:1	4:1	2.78:1	6.75:1	4:1	4:1	2.78:1	6.75:1	4:1	4:1	2.78:1	6.75:1
Max. tensile/compressive force F_{dyn} [N]	600	1350	3000	6550	700	1250	2200	5500	750	1250	2200	5500
Lifting speed v [mm/s]	59	58	84	42	59	58	84	42	59	58	84	42
Motor power P [W]	90*	120*	250*	550*	90*	120*	250*	550*	70*	150*	300*	500*
Ratio V	6.5:1	6.5:1	5:1	10:1	6.5:1	6.5:1	5:1	10:1	6.5:1	6.5:1	5:1	10:1
Max. tensile/compressive force F_{dyn} [N]	950	2150	5800	8500	1000	2000	4200	7500	1150	2000	4200	7500
Lifting speed v [mm/s]	36	37	47	28	36	37	47	28	38	37	47	28
Motor power P [W]	90*	120*	250*	550*	90*	120*	250*	550*	70*	150*	300*	500*
Ratio N	15:1	15:1	10:1	20:1	15:1	15:1	10:1	20:1	15:1	15:1	10:1	20:1
Max. tensile/compressive force F_{dyn} [N]	1900	3500	6000	13000	2000	3500	4500	13000	1500	3500	4500	13000
Lifting speed v [mm/s]	16	15.6	23.3	14	16	15.6	23.3	14	15	15.6	23.3	14
Motor power P [W]	90*	120*	250*	550*	90*	120*	250*	550*	70*	150*	300*	500*
Ratio L	25:1	25:1	20:1	25:1	25:1	25:1	20:1	25:1	25:1	25:1	20:1	25:1
Max. tensile/compressive force F_{dyn} [N]	2500	3500	6000	13000	2500	3500	6000	13000	2500	3500	6000	13000
Lifting speed v [mm/s]	9	9	11.7	11	9	9	11.7	11	9	9	11.7	11
Motor power P [W]	90*	120*	250*	550*	90*	120*	250*	550*	70*	150*	300*	500*

*Brake motor

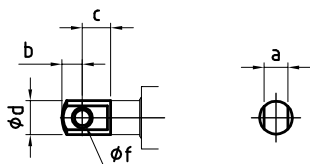


ELA 10.1, 20.1, 30.1, 40.1

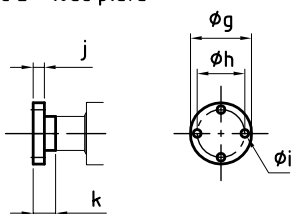
Technical drawings

Technical drawings

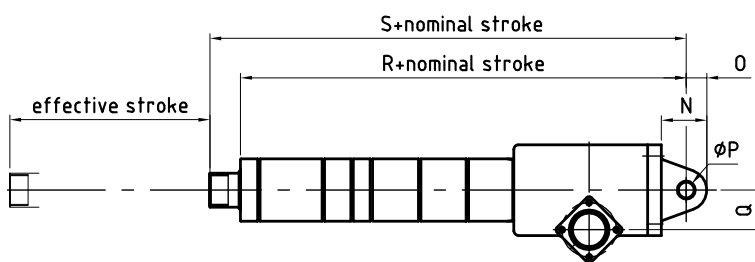
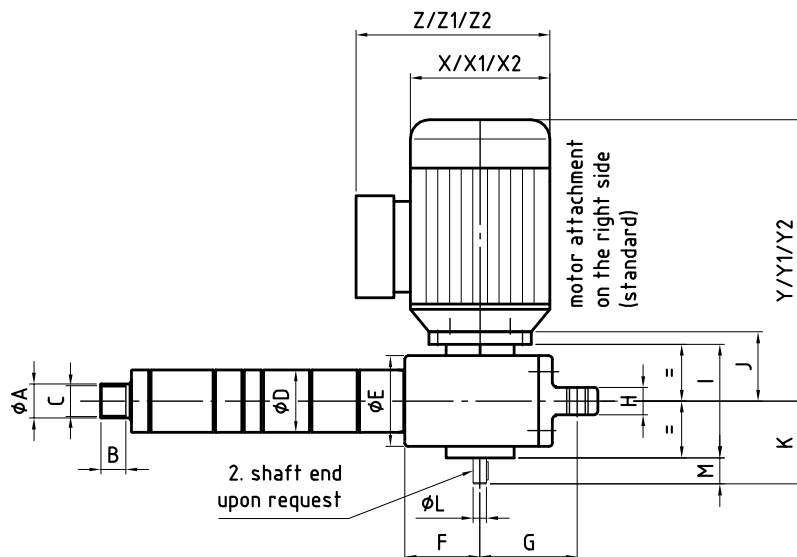
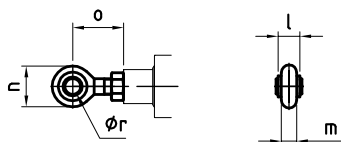
head 1 - clevis



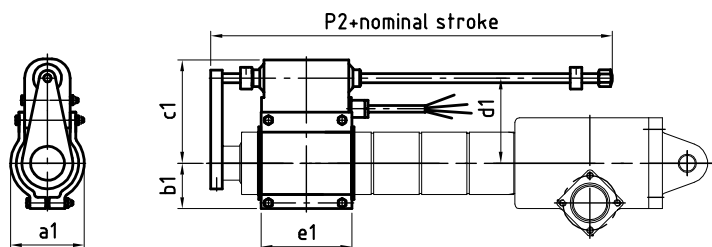
head 2 - load plate



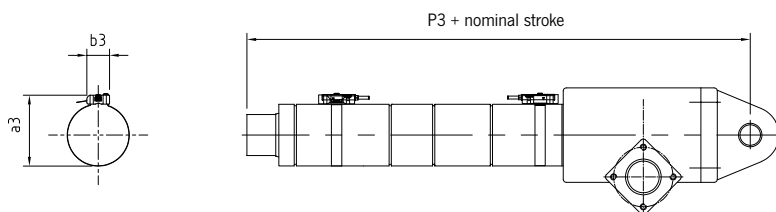
head 3 - rod end



el.-mech. limit switch



magnet. limit switch



CAD & go



ELA 10.1, 20.1, 30.1, 40.1

Dimensions

Dimensions ELA									
Size	ELA 10.1		ELA 20.1		ELA 30.1		ELA 40.1		
	Tr 12x3	Ku 12x5*	Tr 16x4	Ku 16x5*	Tr 22x5	Ku 20x5*	Tr 22x5	Ku 25x6*	
Without head (with female thread)									
Ø A	25		30		30		40		
B	12		22		22		27		
C	M 22x1.5		M 27x1.5		M 27x1.5		M 35x1.5		
Ø D / Ø E	36 / 54		55 / 65		55 / 80		60 / 92		
F	55.5		61		66		78		
G	54.5		69		86		104		
H	15		17		24		25		
I	62		90		100		114		
J	-		57		61		72		
K	-		67.5		73		89.5		
Ø L	-		9 k6		12 g6		14 k6		
M	-		18.5		23		30		
N	30.5		37		40		60		
O	12.5		17		18		28		
Ø P H7	10		12		14		20		
Q	25		25		35		40		
R	146		171		193		244		
S	169	184	190	211	220	230	275	285	
Three-phase motor 400 VAC AC 3Ph, IP 55*									
X	110		110		126		145		
Y	195	-	225	-	255	-	295	-	
Y (brake)	220		285		315		350		
Z	165		165		172		191		
Single-phase motor 230 V AC 2Ph, IP 54*									
X1	110		115		126		140		
Y1	195	-	220	-	242	-	315	-	
Y1 (brake)	220		260		301		350		
Z1	165		165		172		191		
D.C. motor 24 VDC, IP 54*									
X2	60		85		85		85		
Y2	165	-	225	-	290	-	395	-	
Y2 (brake)	210		270		331		435		
Z2	80		121		121		121		
Head type 1 – Clevis									
a / b / c	15 / 15 / 34		17 / 18 / 25		24 / 18 / 25		25 / 25 / 30		
Ø d / Ø f H7	25 / 10		30 / 12		30 / 14		40 / 20		
Head type 2 – Load plate									
Ø g / Ø h / Ø i	55 / 40 / 5.5		54 / 42 / 7		54 / 42 / 7		80 / 60 / 9		
j / k	8 / 27		10 / 20		10 / 20		12 / 22		
Head type 3 – Rod end**									
l / m / n / o	14 / 10.5 / 28 / 31		16 / 12 / 32 / 40		19 / 13.5 / 36 / 45		25 / 18 / 50 / 53		
Ø r H7	10		12		14		20		
Stroke limitation									
Stroke limitation mechanical limit switch									
P2	154		154		154		154		
a1 / b 1 / c1 / d1 / e1	50 / 30 / 78 / 62 / 75		65 / 40 / 91 / 75 / 80		65 / 40 / 91 / 75 / 80		70 / 45 / 91 / 75 / 75		
Stroke limitation magnetic limit switch***									
P3	193	211	209	216	231	245	295	290	
a3 / b3	45 / 22		64 / 22		64 / 22		82 / 22		

* Ball screw only available with brake motor

** ELA 10.1 – Rod end not in connection with mechanical stroke limitation available, ELA 20.1/30.1/40.1 – Rod end only available with anti-turn device

*** ELA 40.1 – Ball screw in combination with anti-turn device and magnetic limit switches (reed contacts) not available.

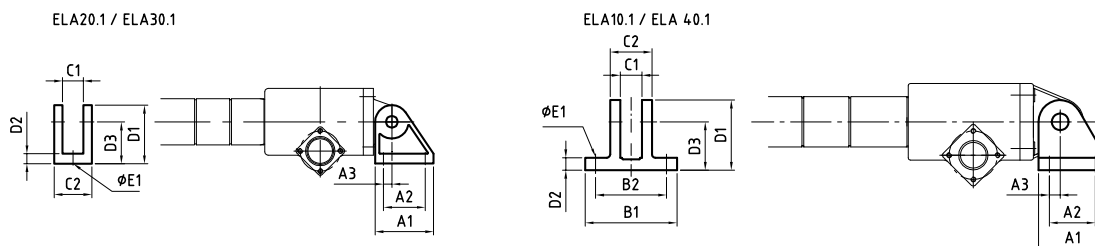


ELA 10.1, 20.1, 30.1, 40.1

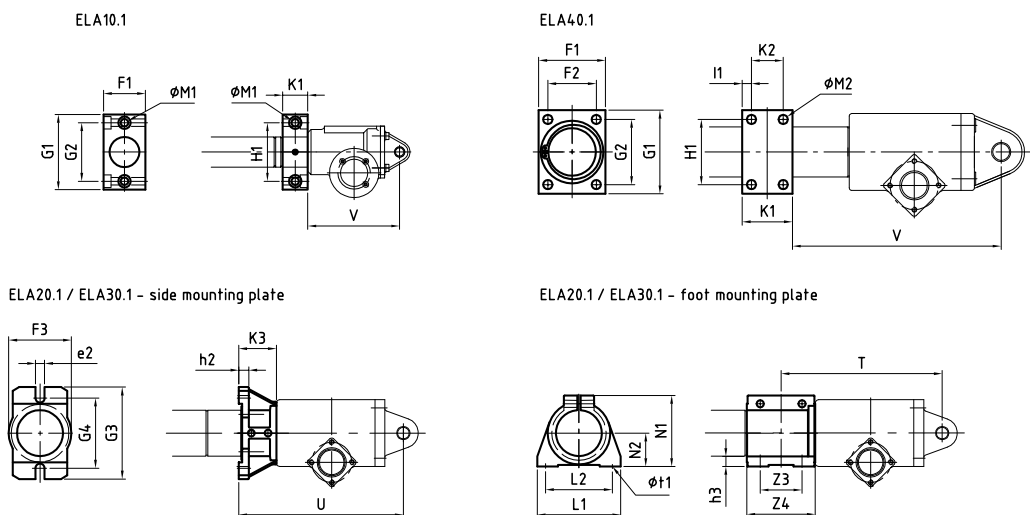
Technical drawings

Technical drawings ELA options

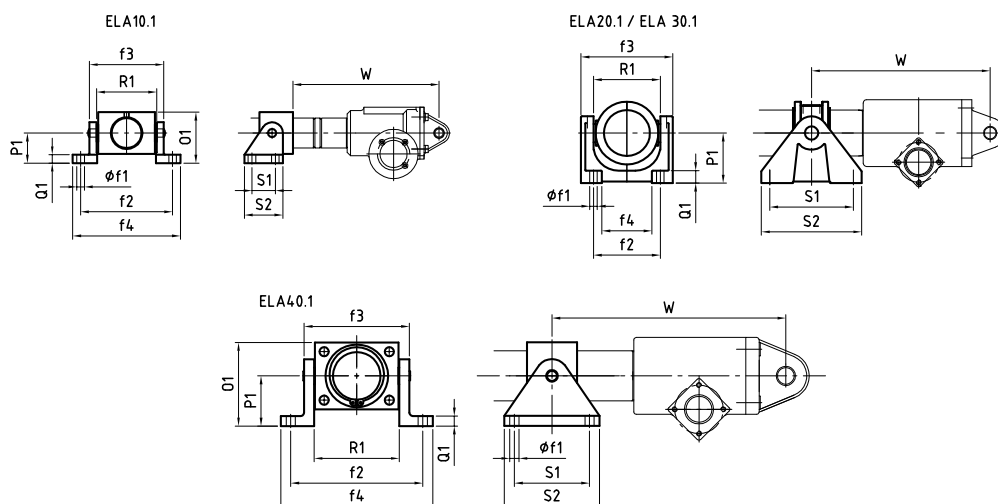
pillow block



side mounting plate / foot mounting plate



swivel device



CAD & go



ELA 10.1, 20.1, 30.1, 40.1

Dimensions

Dimensions ELA options

Size Dimensions [mm]	ELA 10.1		ELA 20.1		ELA 30.1		ELA 40.1	
	without / with mech. limit stop	with magnetic limit switch-off	without / with mech. limit stop	with magnetic limit switch-off	without / with mech. limit stop	with magnetic limit switch-off	without / with mech. limit stop	with magnetic limit switch-off
Pillow block								
A1 / A2 / A3	46 / 28 / 4		70 / 50 / 10		70 / 50 / 10		81 / 55 / 13	
B1 / B2	73 / 54		- / -		- / -		110 / 85	
C1 / C2	16 / 33		25 / 45		25 / 45		26 / 50	
D1 / D2 / D3	49 / 10 / 36		70 / 12 / 50		70 / 12 / 50		84 / 15 / 58	
Ø E1	9		11		11		11	
Side mounting plate / foot mounting plate (combination) ELA 10.1; ELA 40.1* / **								
F1 / F2	50 / -		- / -		- / -		80 / 58	
G1 / G2	90 / 70		- / -		- / -		100 / 78	
H1 / I1	70 / -		- / -		- / -		78 / 11	
K1 / K2	30 / -		- / -		- / -		60 / 38	
Ø M1 for ISO 4762 / Ø M2	9 / -		- / -		- / -		- / 11	
V	110 / -		-		-		250 / -	
Side mounting plate ELA 20.1; ELA 30.1								
e2 / F3	- / -		11 / 75		11 / 75		- / -	
G3 / G4	- / -		110 / 84		110 / 84		- / -	
h2 / K3	- / -		12 / 45		12 / 45		- / -	
U	-		175 / 259		197 / 281		-	
Foot mounting plate ELA 20.1; ELA 30.1								
h3	-		12		12		-	
L1 / L2	- / -		100 / 80		100 / 80		- / -	
N1 / N2	- / -		85 / 40		85 / 40		- / -	
Z3 / Z4	- / -		82 / 50		82 / 50		- / -	
Ø t1	-		8.3		8.3		-	
T	-		171 / -		193 / -		-	
Swivel device								
O1 / P1 / Q1 / R1	61 / 36 / 10 / 72		- / 60 / 15 / 80		- / 60 / 15 / 80		100 / 60 / 12 / 102	
S1 / S2	28 / 46		100 / 120		100 / 120		90 / 114	
Ø f1	9		9		9		11	
f2 / f3 / f4	110 / 89 / 129		80 / 110 / 60		80 / 110 / 60		158 / 126 / 182	
W	110 / 175		192 / 277		214 / 299		280 / 280	

Technical features

Size Dimensions [mm]	ELA 10.1		ELA 20.1		ELA 30.1		ELA 40.1	
	Tr 12x3	Ku 12x5	Tr 16x4	Ku 16x5	Tr 22x5	Ku 20x5	Tr 22x5	Ku 25x6
Electromechanical limit switch – effective stroke								
100	100	85	-	-	-	-	-	-
200	200	185	200	185	200	190	200	190
300	300	285	-	-	-	-	-	-
400	400	385	400	385	400	390	400	390
600	-	-	600	585	600	590	600	590
800	-	-	-	-	800	790	800	790
Magnetic limit switch (reed contact) – effective stroke								
100	73	55	-	-	-	-	-	-
200	173	155	185	175	185	165	180	185
300	273	255	-	-	-	-	-	-
400	373	355	385	375	385	365	380	385
600	-	-	585	575	585	565	580	585
800	-	-	-	-	785	765	780	785

* ELA 10.1 - A combination of reed contact and swivel device only available for stroke 200 and above.

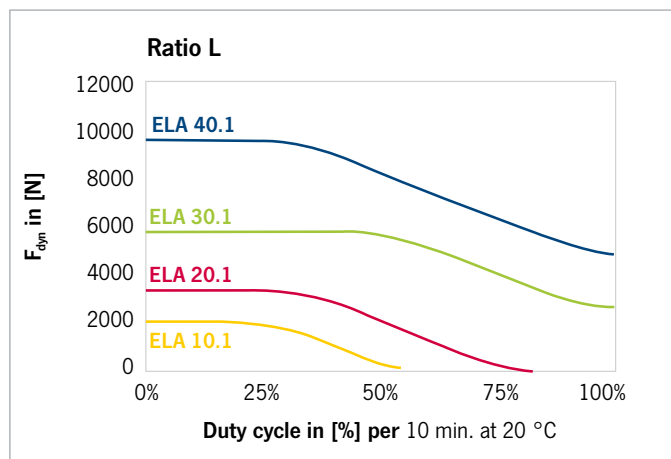
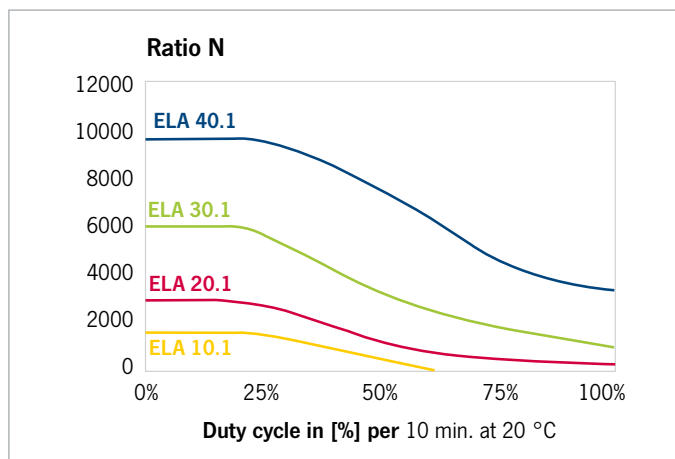
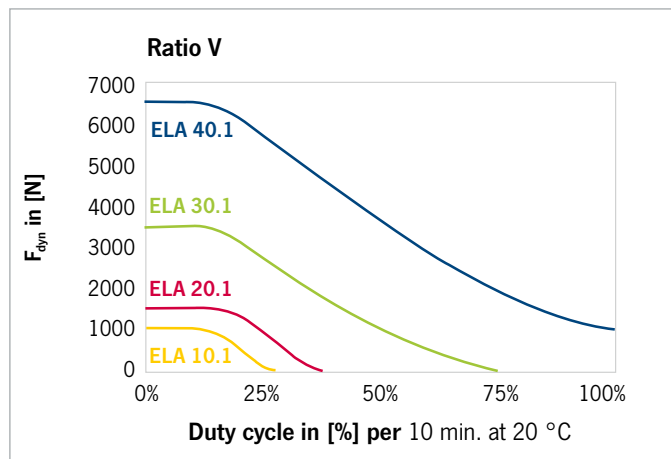
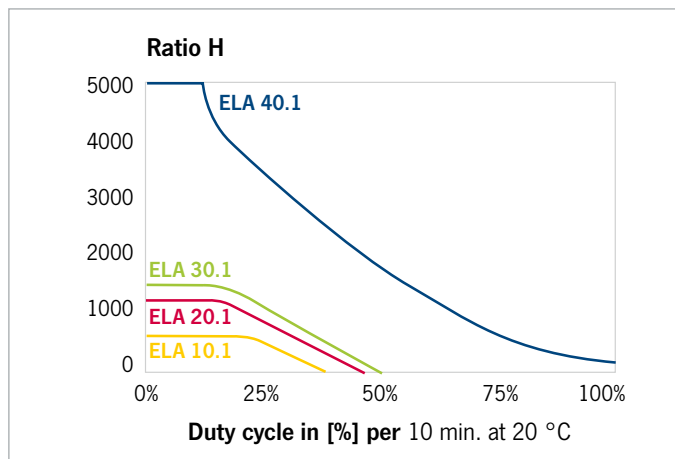
** A combination of reed contacts with foot mounting plate is not possible.



ELA

Duty cycle diagrams

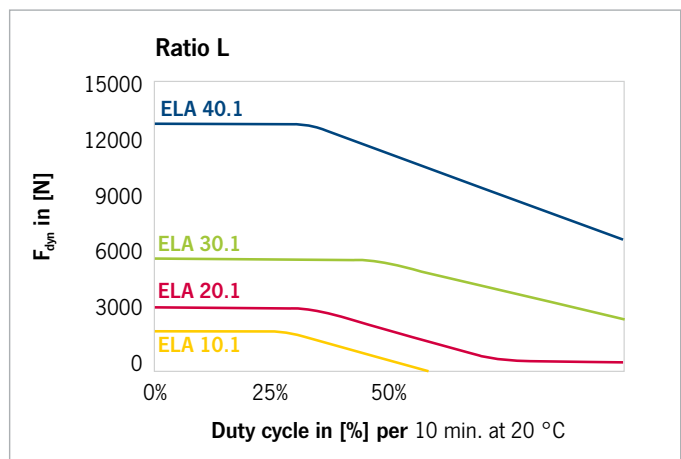
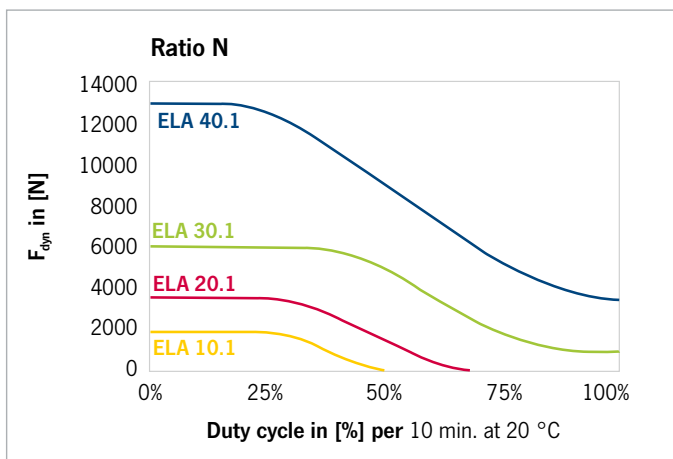
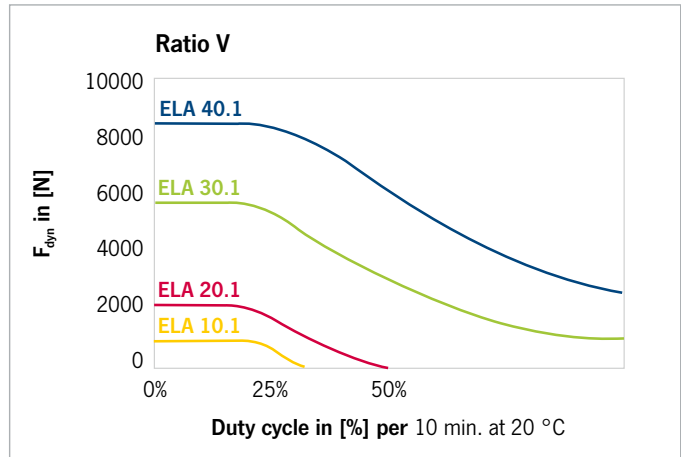
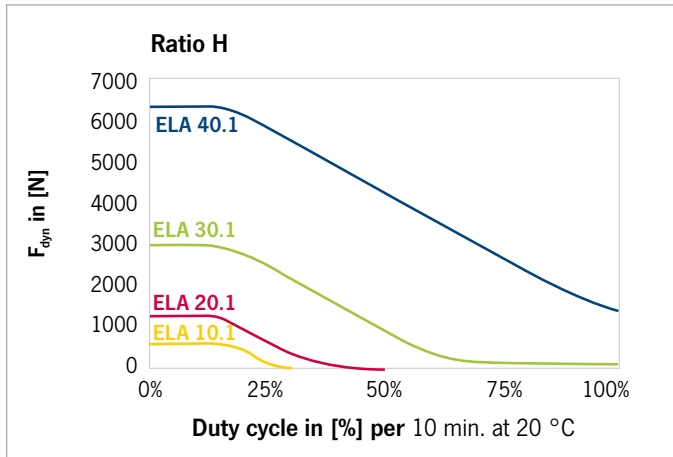
Duty cycle diagrams, ELA with trapezoidal screw and three-phase motor



ELA

Duty cycle diagrams

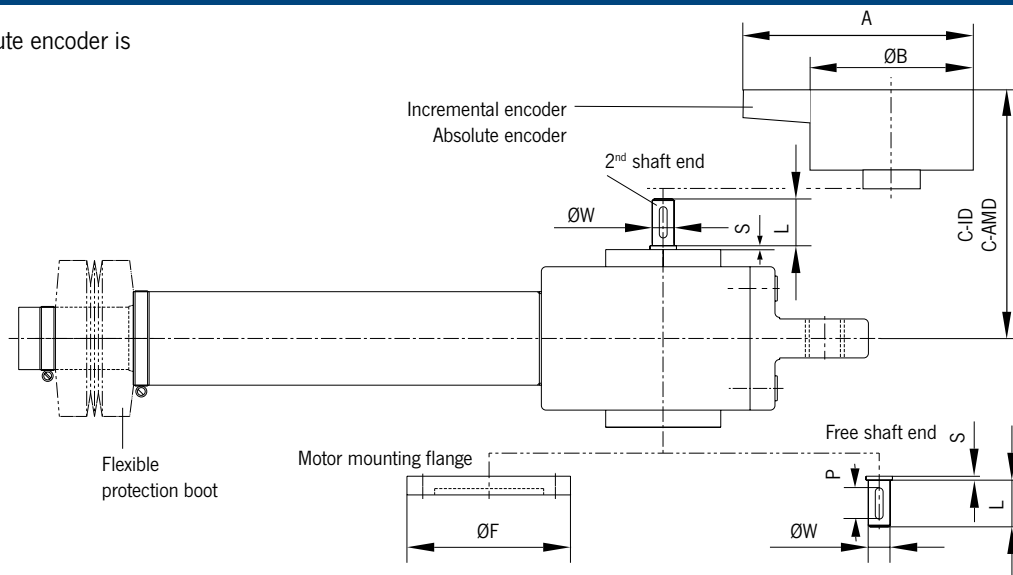
Duty cycle diagrams, ELA with ball screw (Ku) and three-phase motor



ELA Options

Options: incremental encoder / absolute encoder / motor mounting flange / free or 2nd shaft end (not possible for ELA 10.1)

The incremental encoder or absolute encoder is mounted on the 2nd shaft end.



Dimensions 1

ELA size Dim. [mm]	IEC motor flange / ØF	ØW	S	L	P
20.1	56 B14 / Ø80	9	4	18.5	14
30.1	63 B14 / Ø90	12	-	23	16
40.1	71 B14 / Ø105	14	2.5	30	20

Feather key groove in accordance with DIN 6885/1

Dimensions 2

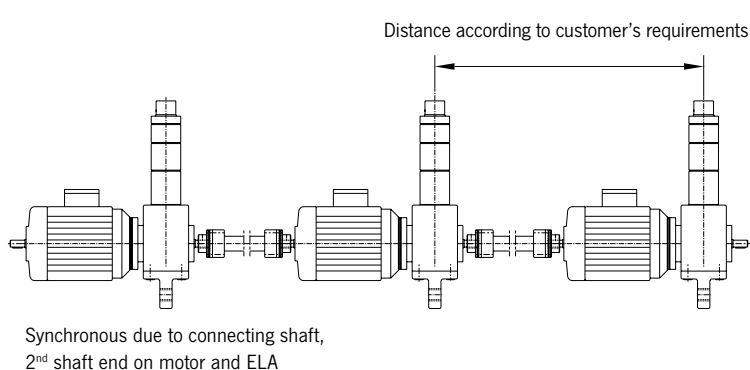
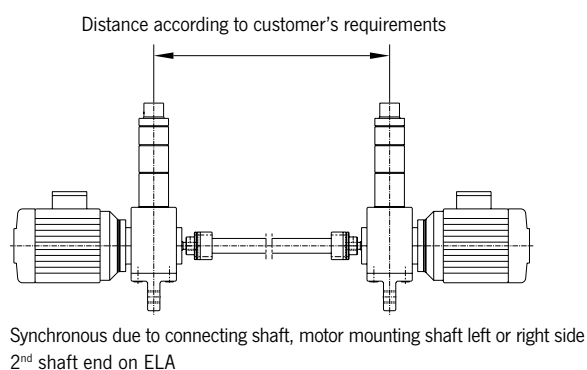
ELA size Dim. [mm]	A	ØB	C-AMD	CID
20.1	approx. 155	approx. 65	approx. 165	approx. 115
30.1	approx. 155	approx. 65	approx. 170	approx. 120
40.1	approx. 155	approx. 65	approx. 175	approx. 125

Dimension A with mating plug or high-strength cable gland

Technical data

Incremental encoder		Absolute multi-turn encoder (preprogrammed)	
Type	ID	Type	AMD
Pulses per rotation	10 or 20	Total resolution (encoder capacity)	max. 25 Bit
Supply voltage	11...27 VDC	Number of steps/revolutions	256 (max. 13 Bit)
Power rating (without load)	< 4 Watt	Number of revolutions	4096 (max. 12 Bit)
Output	5 V or 11-27 V	Supply voltage	11...27 VDC
Incremental signal	A/B/0	Power rating (without load)	< 3 Watt
Operating temperature	0 °C to 60 °C	Operating temperature	0 °C to 60 °C
Protection rating	IP 65	Protection rating	IP 65
Type of connection	Radial plug (12-pole, crimpable, included in delivery, recommendation CY PUR 3x2x0.14 + 2x0.5)		

Option: Mechanical synchronization option (not possible for ELA 10.1)



ELA

Order code

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 ... Options

No.	Explanation	
1	ELA Type	10 / 20 / 30 / 40
2	Screw	Tr = (Standard) / Ku (ball screw)
3	Ratio	H / V / N / L
4	Nominal stroke	Stroke (mm)
5	Motor	1 = DS-400VAC 2 = DS-400VAC+Brake 3 = WS-230VAC 4 = WS-230VAC+Brake 5 = GS-24VDC 6 = GS-24VDC+Brake 0 = none (except of ELA 10.1)
6	Motor attachment side	0 = Right side (standard) 1 = Left side
7	Head	1 = Clevis 2 = Load plate 3 = Rod end 0 = none
8	Anti-turn device	0 = yes 1 = no
9	Accessories 1	0 = none 1 = Electromech. limit switch 2 = Magnetic limit switch (reed contact)
10	Accessories 2	0 = none 1 = 1 Pillow block 2 = 2 Pillow blocks 3 = Side mounting plate 4 = Foot mounting plate 5 = Swivel device
	Other options (as specified): = X For example:	<ul style="list-style-type: none"> ▪ 2nd shaft end on ELA ▪ Free shaft end (without motor) ▪ Flexible protection boot ▪ Shaft encoder ▪ Special motor..... ▪ Control unit H1TM or H1WTM

Standard duty cycle [ED] 20% at 10 min.

