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

			Three-phase motor				Single-phase motor				D.C. motor			
Size			**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)

			Three-phase motor				Single-phase motor				D.C. motor			
Size			**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*

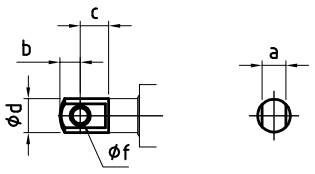
*Brake motor



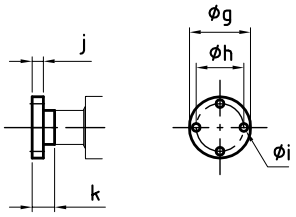

ELA 10.1, 20.1, 30.1, 40.1
Technical drawings

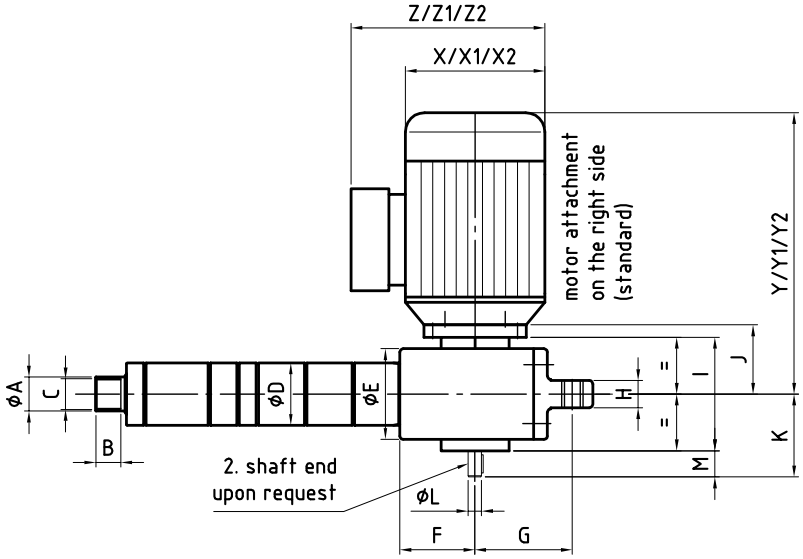
Technical drawings

head 1 – clevis

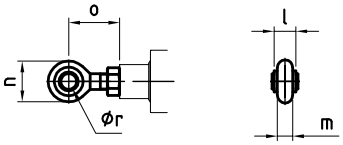


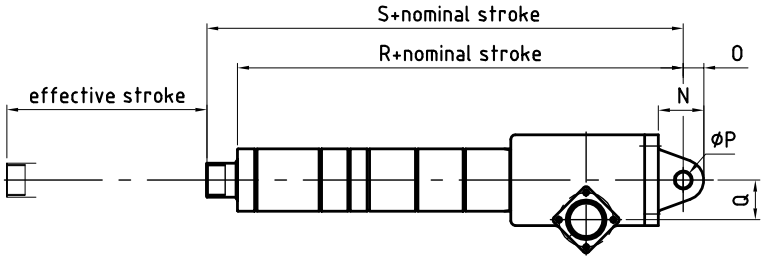
head 2 – load plate



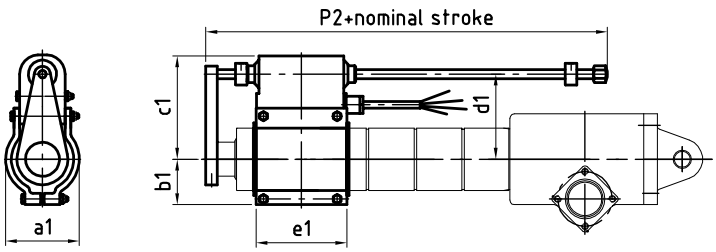


head 3 – rod end

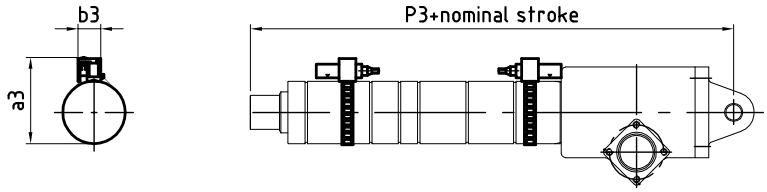




el.-mech. limit switch



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	
Dimensions [mm]	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	188	206	204	211	226	240	285	
a3 / b3	57 / 20		76 / 20		76 / 20		81 / 20	



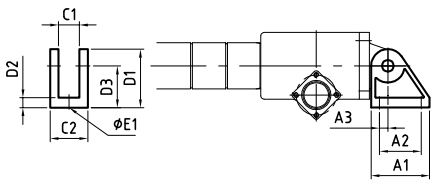

* Ball screw only available with brake motor
** ELA 10.1 – Rod end not in connection with mechanical stroke limitation available, ELA 20.1/30.1/40.1 – Rod end only available with anti-turn device
*** ELA 40.1 – Ball screw in combination with anti-turn device and magnetic limit switches (reed contacts) not available.

ELA 10.1, 20.1, 30.1, 40.1
Technical drawings

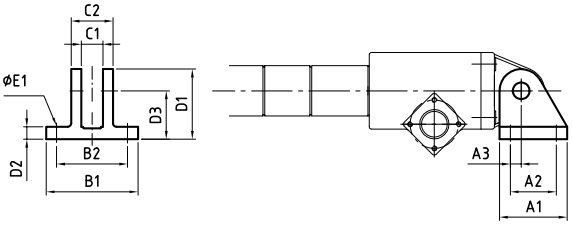
Technical drawings ELA options

pillow block

ELA20.1 / ELA30.1

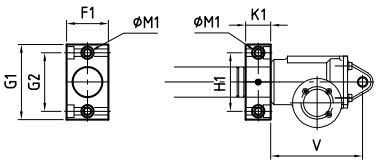


ELA10.1 / ELA 40.1

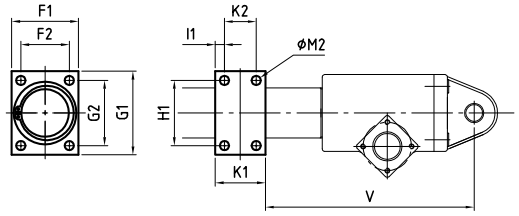


side mounting plate / foot mounting plate

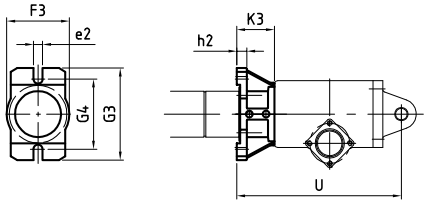
ELA10.1



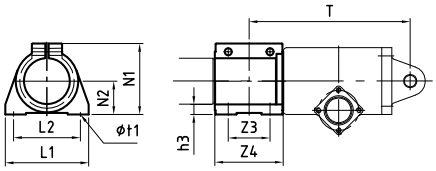
ELA40.1



ELA20.1 / ELA30.1 – side mounting plate

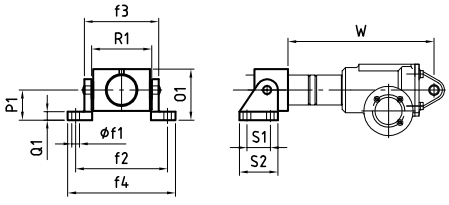


ELA20.1 / ELA30.1 – foot mounting plate

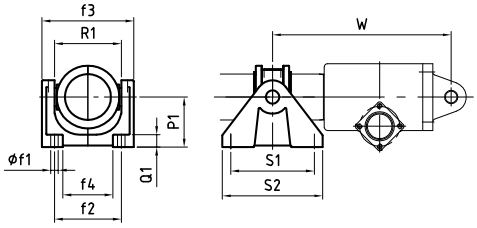


swivel device

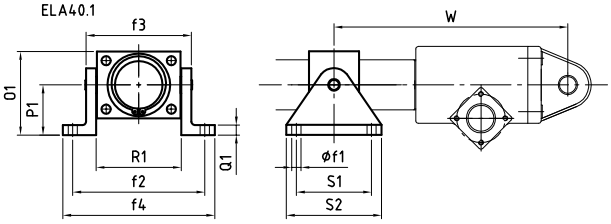
ELA10.1



ELA20.1 / ELA 30.1



ELA40.1



CAD & go

ELA 10.1, 20.1, 30.1, 40.1
Dimensions

Dimensions ELA options

Size	ELA 10.1		ELA 20.1		ELA 30.1		ELA 40.1	
Dimensions [mm]	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

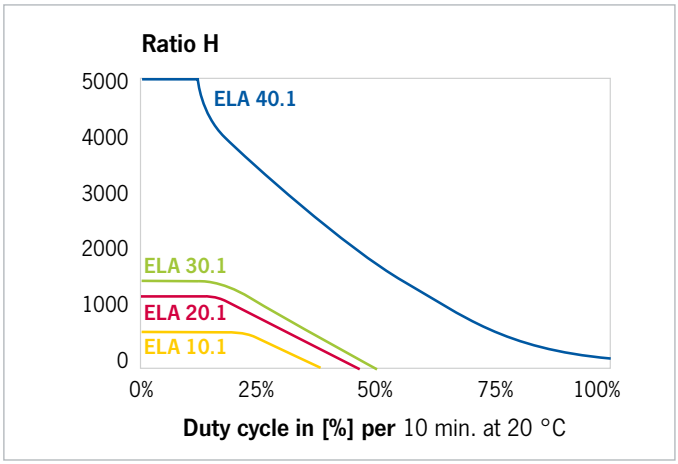
Size	ELA 10.1		ELA 20.1		ELA 30.1		ELA 40.1	
Dimensions [mm]	Tr 12x3	Ku 12x5	Tr 16x4	Ku 16x5	Tr 22x5	Ku 20x5	Tr 22x5	Ku 25x6
Electromechanical limit switch – effective stroke								
100	100	85	-	-	-	-	-	-
200	200	185	200	185	200	190	200	190
300	300	285	-	-	-	-	-	-
400	400	385	400	385	400	390	400	390
600	-	-	600	585	600	590	600	590
800	-	-	-	-	800	790	800	790
Magnetic limit switch (reed contact) – effective stroke								
100	78	60	-	-	-	-	-	-
200	178	160	190	180	190	170	190	190
300	278	260	-	-	-	-	-	-
400	378	360	390	380	390	370	390	390
600	-	-	590	580	590	570	590	590
800	-	-	-	-	790	770	790	790

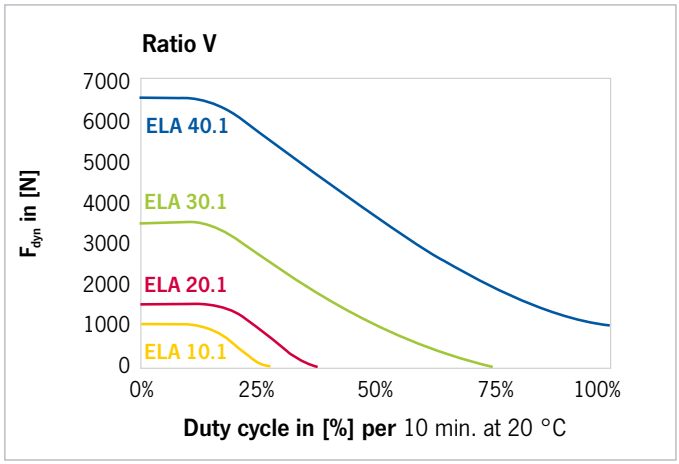
* ELA 10.1 - A combination of reed contact and swivel device only available for stroke 200 and above.
** A combination of reed contacts with foot mounting plate is not possible.

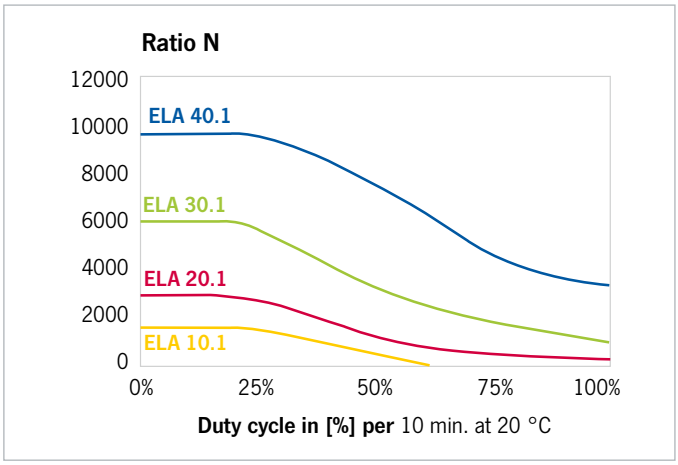


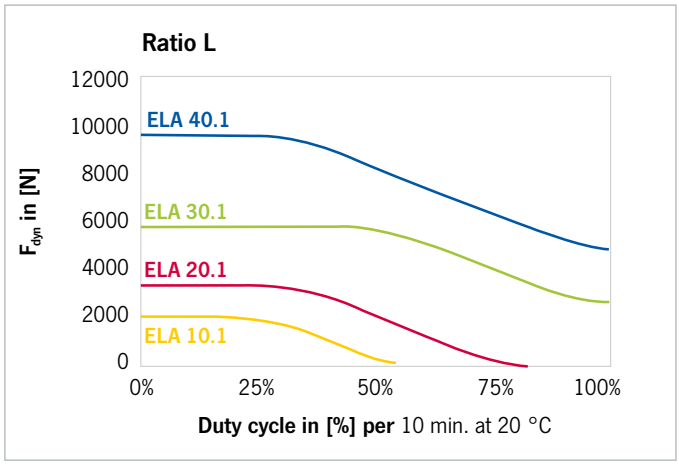

ELA
Duty cycle diagrams

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



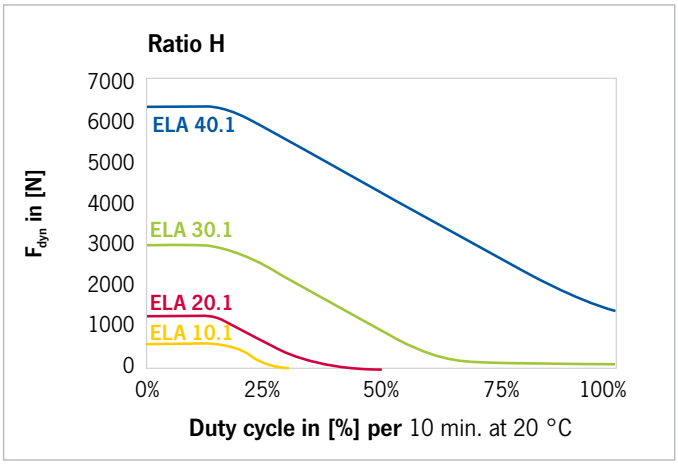


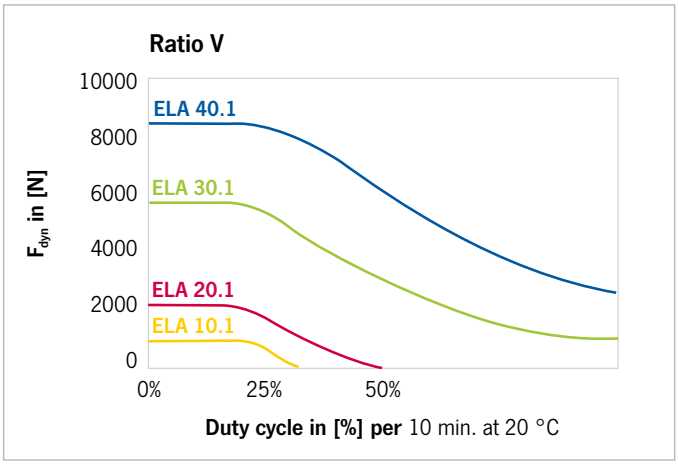


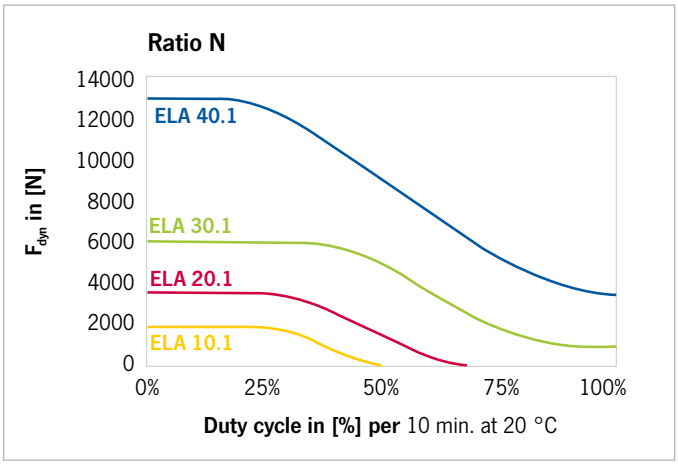


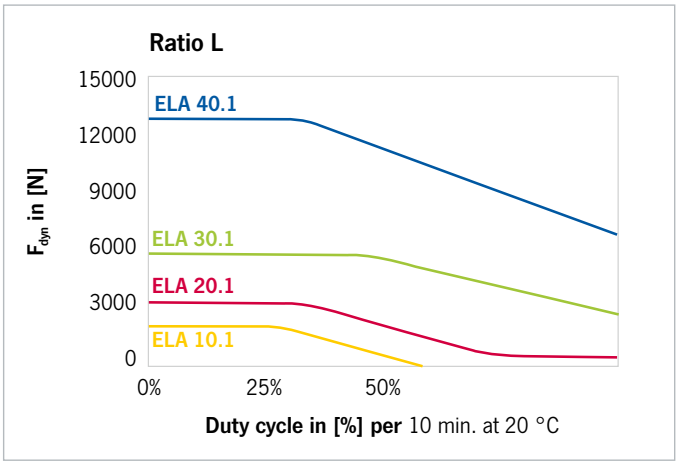
ELA
Duty cycle diagrams

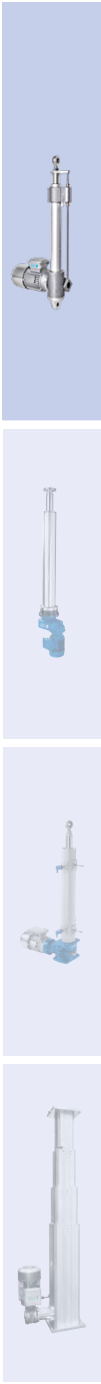
Duty cycle diagrams, ELA with ball screw (Ku) and three-phase motor







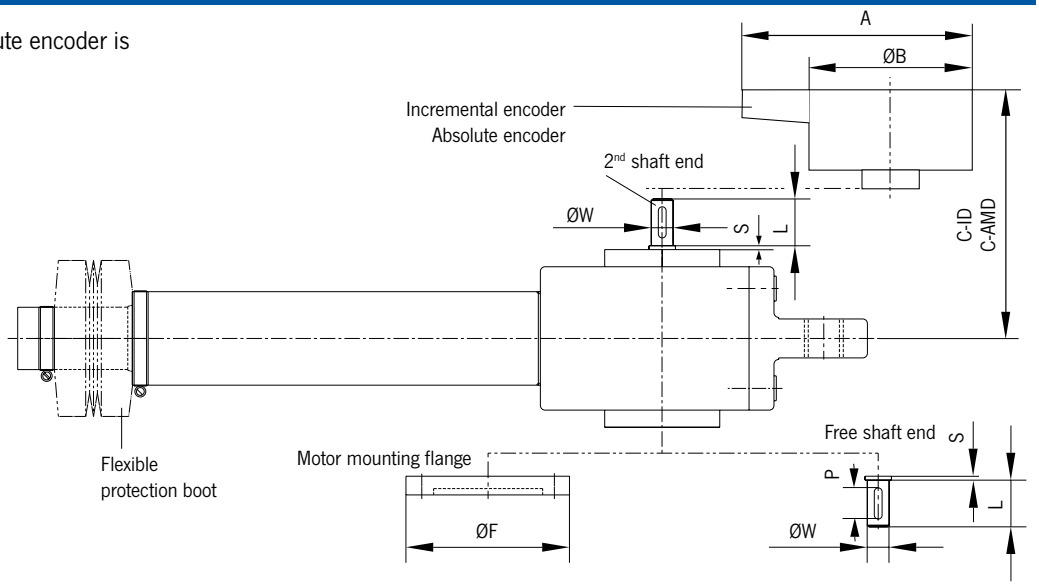




ELA
Options

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	Ø B	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

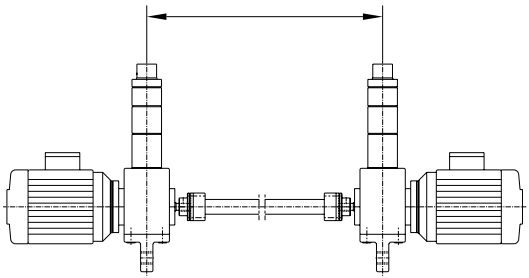
Dimension A with mating plug or high-strength cable gand

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)		

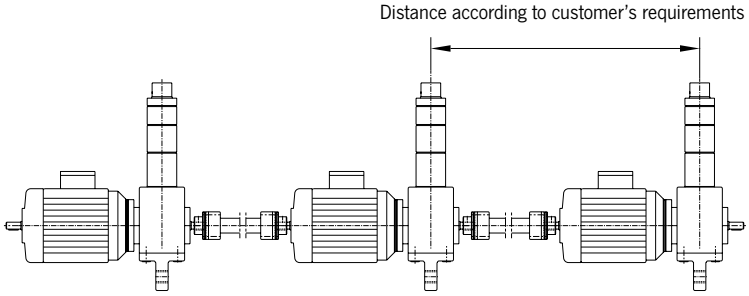
Option: Mechanical synchronization option (not possible for ELA 10.1)

Distance according to customer's requirements



Synchronous due to connecting shaft, motor mounting shaft left or right side
2nd shaft end on ELA

Distance according to customer's requirements



Synchronous due to connecting shaft,
2nd shaft end on motor and ELA

ELA
Order code

E	L	A	–	□	□	. 1 –	□	□	–	□	–	□	□	□	–	□	–	□	–	□	–	□	–	□	–	... Options
				1			2		3		4				5		6		7		8		9		10		

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:**	▪ 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.