

Linear actuators

Precisely on track for success



Linear actuators

by Columbus McKinnon – Pfaff-silberblau

Precisely positioned: long-lived linear actuators for quality and safety.

High-quality, universal uses and low maintenance effort: these attributes have characterized electromechanical linear drives by Columbus McKinnon for generations. Four actuator models have turned out to be indispensable links for production, goods flow and transport in many different industries. CMLA convinces in industrial plants. ELA is designed for compressive and tensile stress and has as diverse uses as the HLA high-performance linear drive. The electromechanical screw ram (ALS) is used in engineering. The offer is supplemented by the lifting column PHOENIX in a variable construction kit system. Each of these applications permits reliable production systems and production workflows that become better, safer and more efficient.

Our customers value this quality as well as the bandwidth of our linear actuators with the traditional brands Pfaff-silberblau and Alltec Antriebstechnik. We offer the right configuration for any challenge according to customer demands. Use of the drives in multi-screw lifting systems is implemented along with special equipment. The performance of the linear actuators is always convincing: it covers all load ranges from 5 – 137 kN at speeds between 5.5 – 250 mm/s. Linear drives by Columbus McKinnon always work quickly and position with perfect precision and low noise emissions.

No matter which configuration is desired: our customer profits by always-diverse complete solutions that contain maximum product quality, consulting and best service.



Service: We offer professional support on site on request.

Linear actuators

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Linear actuators

Product overview

Product	CMLA		ELA	
Characteristic	All-in-one solution low lifting capacity F, high lifting speed v, replacement for hydraulics		Low lifting capacity F, replacement for hydraulics	
				
Screw design	Tr screw	Ball screw (Ku)	Tr screw	Ball screw (Ku)
Lifting capacity F	0.8 - 13 kN		0.55 - 13 kN	
Lifting speed v	12 - 169 mm/s		5.5 - 84 mm/s	
Stroke	150 - 1000 mm		100 - 800 mm	
Length on request	no		optional	
Integrated motor	yes		yes	
ATEX 	no		optional	
Protection class	IP 65		IP 54	
Options	Integrated control, adjustable magnetic switch		Hand wheel, stroke limitation, encoder etc.	



Linear actuators

Product overview

ALS/R		HLA		PHOENIX		
High lifting speed v, high lifting capacity F		High lifting speed v, high lifting capacity F		Visually appealing, multi-stage possible		
						
Tr screw	Ball screw (Ku)	Tr screw	Ball screw (Ku)	Tr screw	Ball screw (Ku)	AGS screw (AGS)
10 - 100 kN		10 - 100 kN		5 - 25 kN		
up to 233 mm/s		up to 167 mm/s		up to 250 mm/s		
up to 5500 mm		up to 5500 mm		up to 2000 mm		
yes		yes		yes		
optional		optional		optional		
optional		optional		no		
–		–		–		
Hand wheel, stroke limitation, encoder etc.		Hand wheel, stroke limitation, encoder etc.		Hand wheel, stroke limitation, encoder etc.		



CMLA

Electromechanical linear actuator

Design features



Tr screw



Ball screw (Ku)

- **4 different sizes with max. axial loads of**
 - P50: 5.5 kN
 - P70: 7.5 kN
 - P90: 9.0 kN
 - P125: 12.5 kN
- **Low maintenance**
thanks to lifetime lubrication with high-quality lubricants
- **High lifting speeds**
thanks to lifetime lubrication with high-quality lubricants
- **Long lifetime**
thanks to case-hardened gears and bronze driving nut.
No power-transmitting components made of plastic
- **Three-phase motor**
AC 3Ph 400 V, 50 Hz (standard).
Optional for P50 and P70 DC 24 V DC motor
- **Protection class IP 65**
- **Lift limitation**
with mechanical limit switch (not adjustable).
Optional with outside and adjustable magnetic switch
- **Self-locking trapezoidal screw**
optional with ball screw (Ku)



CMLA

Selection tables

Selection table CMLA with trapezoidal screw

Size			Three-phase motor				DC motor	
			P50	P70	P90	P125	P50	P70
Max. axial force	F_{stat}	[N]	5000	7000	9000	12500	5000	7000
Screw			Tr	Tr	Tr	Tr	Tr	Tr
Gear ratio			2.1:1	2.1:1	2.7:1	2.7:1	2.1:1	2.1:1
Max. tensile/compressive force	F_{dyn}	[N]	800	1800	2800	3800	800	1800
Lifting speed	v	[mm/s]	87	87	84	84	81	81
Motor power	P	[W]	180	370	650	900	200	360
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	24	24
Gear ratio			6.5:1	6.5:1	5.4:1	5.4:1	6.5:1	6.5:1
Max. tensile/compressive force	F_{dyn}	[N]	3000	5000	6500	8500	3000	5000
Lifting speed	v	[mm/s]	28	28	41	41	26	26
Motor power	P	[W]	180	370	650	900	200	360
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	24	24
Gear ratio			14.2:1	14.2:1	11.0:1	11.0:1	14.2:1	14.2:1
Max. tensile/compressive force	F_{dyn}	[N]	5000	7000	9000	12500	5000	7000
Lifting speed	v	[mm/s]	13	13	20	20	12	12
Motor power	P	[W]	180	370	650	900	200	360
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	24	24

Selection table CMLA with ball screw (Ku)

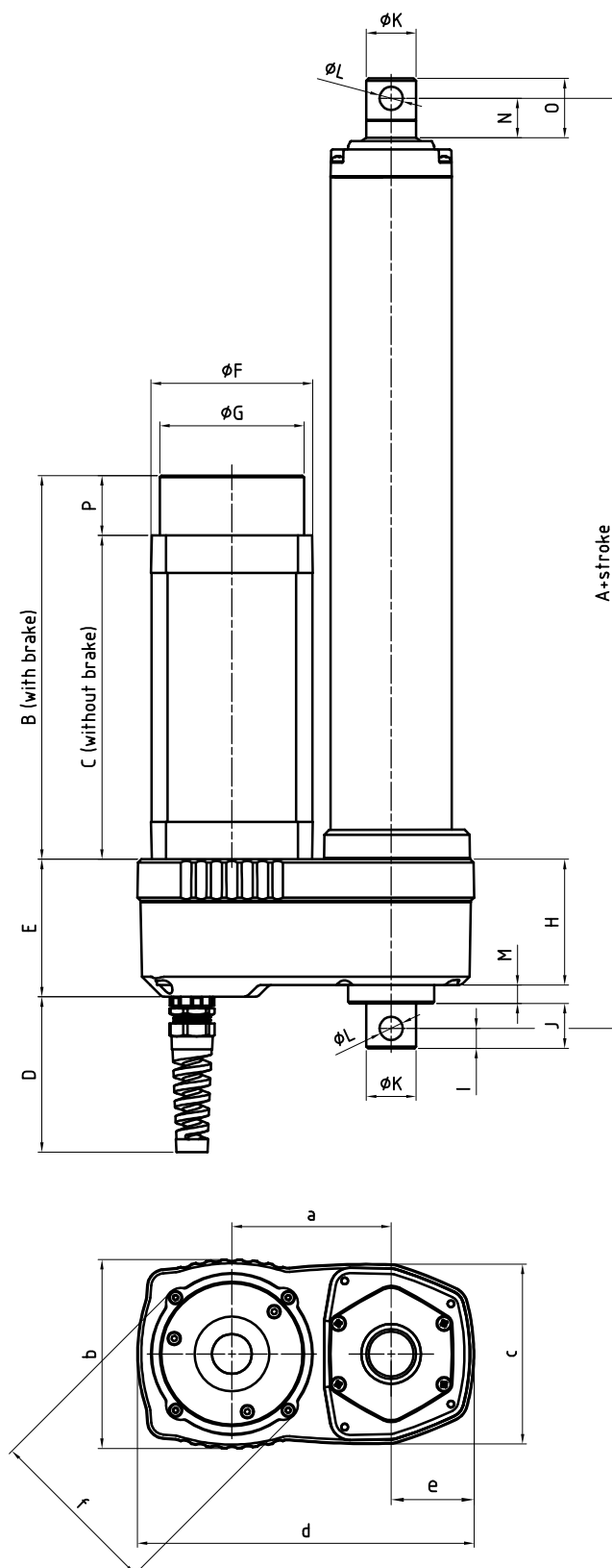
Size			Three-phase motor				DC motor	
			P50	P70	P90	P125	P50	P70
Max. axial force	F_{stat}	[N]	5500	7500	9500	13000	5500	7500
Screw			Ku	Ku	Ku	Ku	Ku	Ku
Gear ratio			2.1:1	2.1:1	2.7:1	2.7:1	2.1:1	2.1:1
Max. tensile/compressive force	F_{dyn}	[N]	1300	2300	3300	4300	1300	2300
Lifting speed	v	[mm/s]	109	109	169	169	101	101
Motor power	P	[W]	180	370	650	900	200	360
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	24	24
Gear ratio			6.5:1	6.5:1	5.4:1	5.4:1	6.5:1	6.5:1
Max. tensile/compressive force	F_{dyn}	[N]	3500	5500	7000	9000	3500	5500
Lifting speed	v	[mm/s]	35	35	83	83	32	32
Motor power	P	[W]	180	370	650	900	200	360
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	24	24
Gear ratio			14.2:1	14.2:1	11.0:1	11.0:1	14.2:1	14.2:1
Max. tensile/compressive force	F_{dyn}	[N]	5500	7500	9500	13000	5500	7500
Lifting speed	v	[mm/s]	16	16	41	41	15	15
Motor power	P	[W]	180	370	650	900	200	360
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	400 (50 Hz)	24	24



CMLA P50, P70, P90, P125

Technical drawing

Technical drawing



CAD & go



CMLA P50, P70, P90, P125

Dimensions

Dimensions CMLA					
Size	CMLA P50		CMLA P70		CMLA P90
Dim. [mm]	AC 3 Ph	DC 24 V	AC 3 Ph	DC 24 V	AC 3 Ph
A	260		260		320
B	211	187	231	222.5	243
C	175	139	195	174.5	-
D	approx. 94		approx. 94		approx. 94
E	83		83		96
Ø F	97	101.5	97	101.5	116
Ø G	87	-	87	-	87
H	76		76		90
I	12		12		16
J	27		27		36
Ø K	30		30		43
Ø L	14		14		16
M	11		11		12
N	24		24		31
O	36		36		47
P	-		-		36
a	96		96		116.5
b	114		114		125
c	108		108		127
d	203		203		242
e	50		50		63
f	105	-	105	-	128.5

Technical features				
Compressive / tensile loads with trapezoidal screw up to	[kg]	CMLA P50	CMLA P70	CMLA P90
Lifting speeds up to	[mm/s]	500	700	900
Standard stroke length	[mm]	109	169	1250
		150/300/450/600	250/500/750/1000	

Options				
Direct-current motor DC 24 V		✓	✓	-
Balls screw, compressive / tensile loads up to	[kg]	550	750	950
Magnetic limit switch adjustable		✓	✓	✓
Integrated control V3		✓	✓	✓

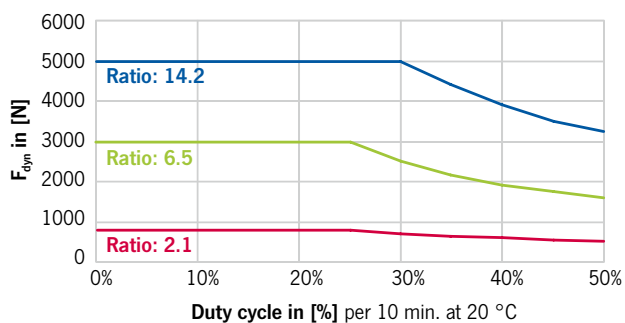


CMLA

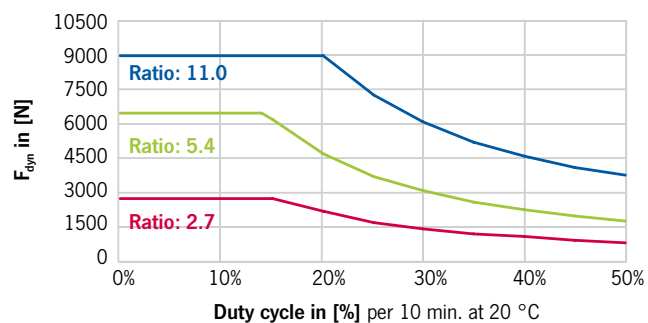
Duty cycle diagrams

Duty cycle diagrams* trapezoidal screw

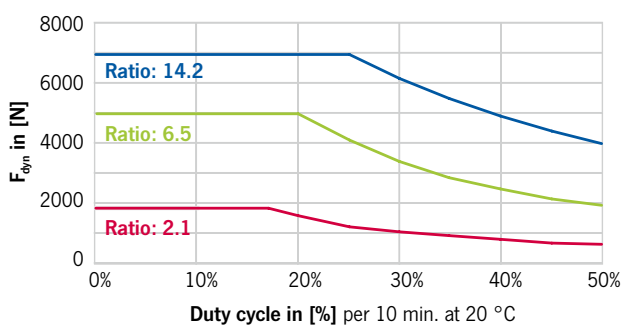
CMLA P50 with trapezoidal screw



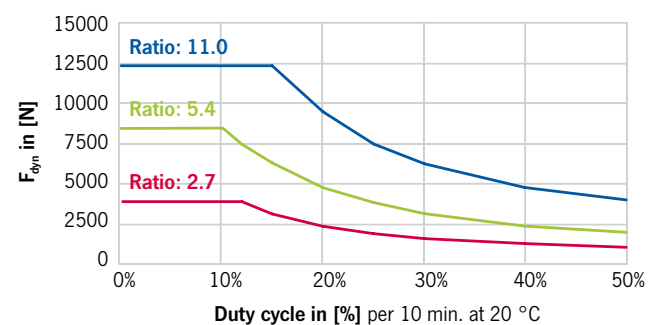
CMLA P90 with trapezoidal screw



CMLA P70 with trapezoidal screw



CMLA P125 with trapezoidal screw

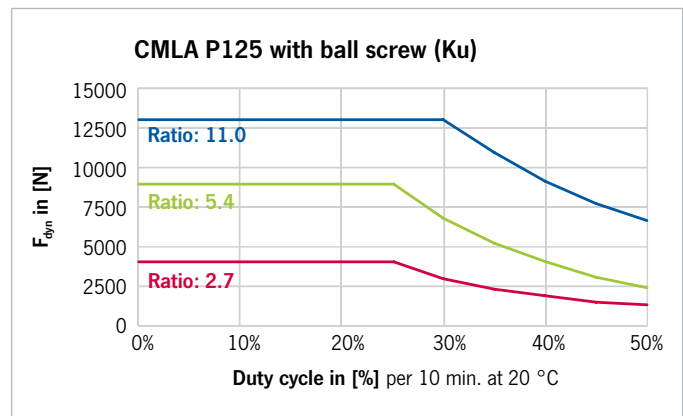
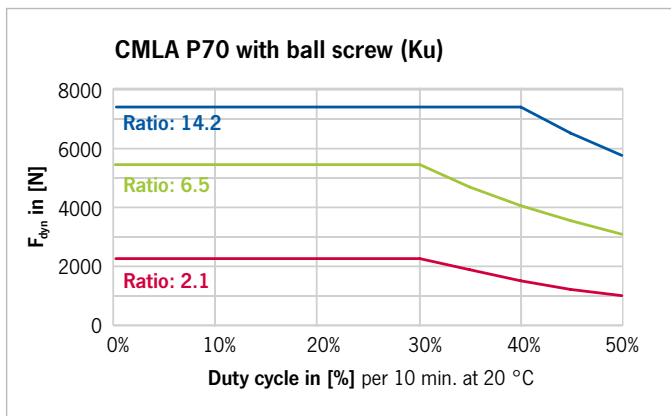
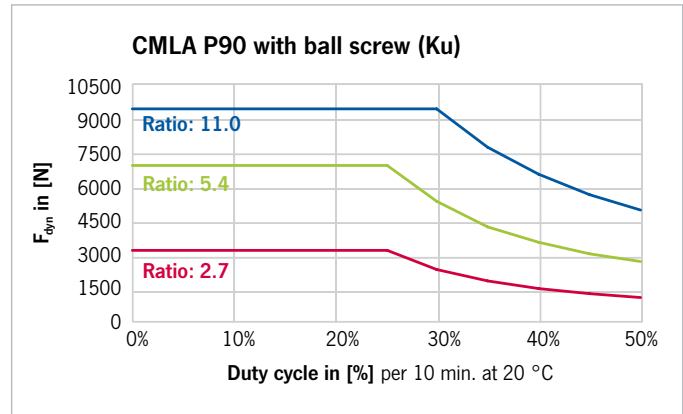
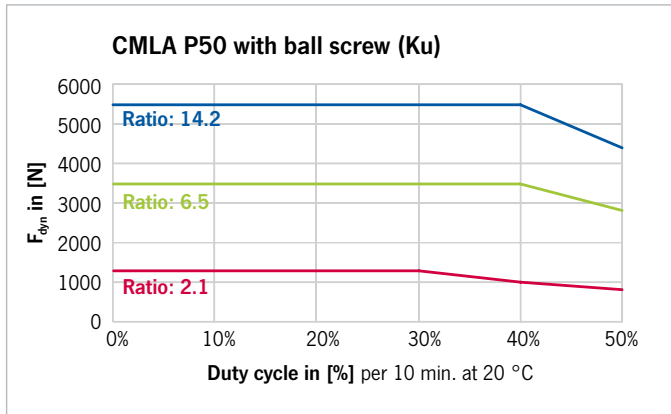


*Higher duty cycle on request

CMLA

Duty cycle diagrams

Duty cycle diagrams* ball screw (Ku)



*Higher duty cycle on request



CMLA Option

Option integrated control V3

- **Brake voltage:**

The voltage required for the brake is provided by the control V3. No additional brake rectifier is necessary.

- **Temperature monitor:**

The control V3 is responsible for monitoring the thermostatic switches on the motor side and switches off the actuator, if necessary.

- **Motor protection relay:**

The motor current is constantly monitored; the actuator switches off in the event of an overcurrent.

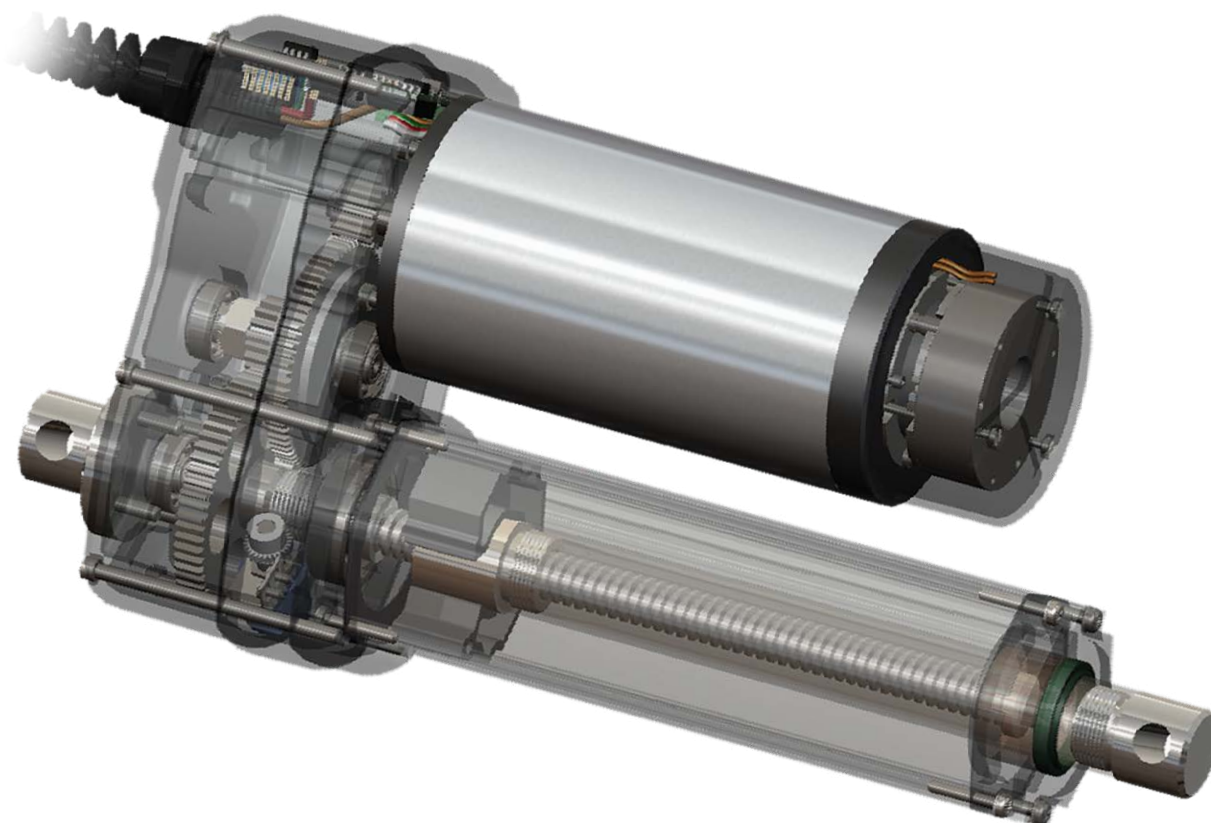
- **Monitoring of the integrated, non-adjustable limit switches:**

The mechanically integrated limit switches (non-adjustable) for the end-position evaluation are monitored. When the actuator reaches the end positions, it is automatically switched off and can subsequently be moved only in the opposite direction.

- **The optional outer adjustable reed contacts**

cannot be integrated into the control.

The controller is available in conjunction with the three-phase AC motor for all four sizes.



CMLA

Order code

C	M	L	A	-	P	-					-			-				-			-		
1				2			3			4			5			6			7			8	9

No.	Explanation	
1	Series	CMLA
2	Version	P
3	Size	0050 / 0070 / 0090 / 0125
4	Ratio	P50 / P70: 02 = 2.1 04 = 6.5 06 = 14.2 P90 / P125: 08 = 2.7 10 = 5.4 12 = 11.0
5	Screw	01 = Trapezoidal screw 02 = Ball screw (Ku)
6	Stroke length in mm	P50 / P70: 0150 / 0300 / 0450 / 0600 P90 / P125: 0250 / 0500 / 0750 / 1000
7	Motor	10 = Three-phase motor with brake AC 3 Ph (without brake rectifier) 11 = Three-phase motor (only with ratio 06 with trapezoidal screw) Only P50/P70 20 = Direct-current motor with brake DC 21 = Direct-current motor DC (only with ratio 06 with trapezoidal screw)
8	Limit switches	00 = Mechanical limit switches – standard, not adjustable 01 = Magnetic limit switches – on the outside and adjustable (reed contact)
9	Options	00 = Without 01 = Integrated control V3 (only three-phase motors) 02 = Bridge rectifier for the motor brake (for external use) 03 = Half-wave rectifier for the motor brake (for external use)



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
- **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*

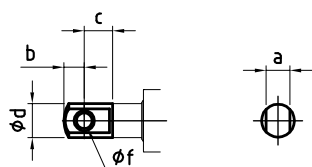
*Brake motor

ELA 10.1, 20.1, 30.1, 40.1

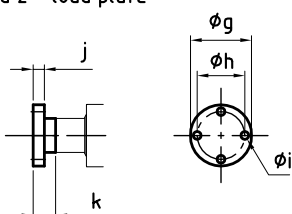
Technical drawings

Technical drawings

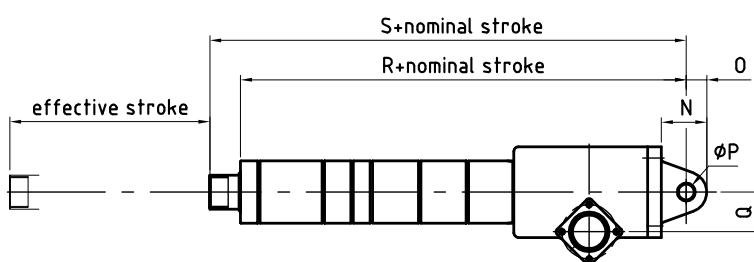
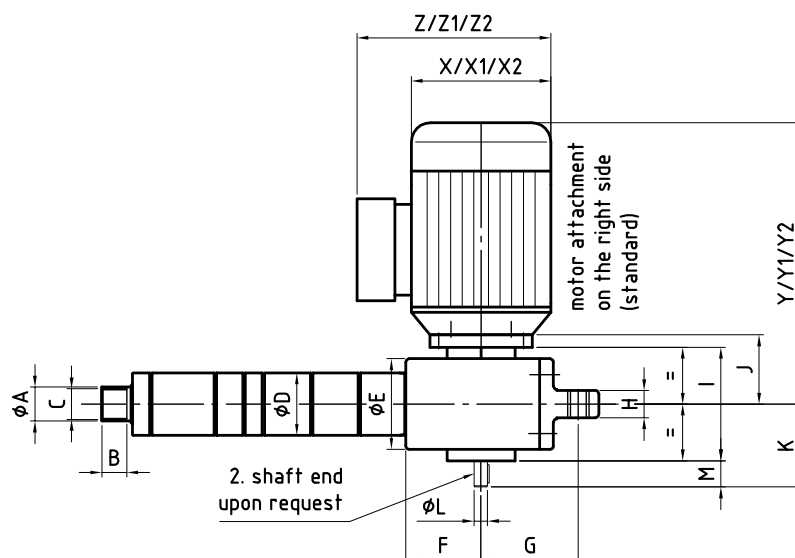
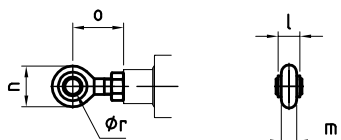
head 1 - clevis



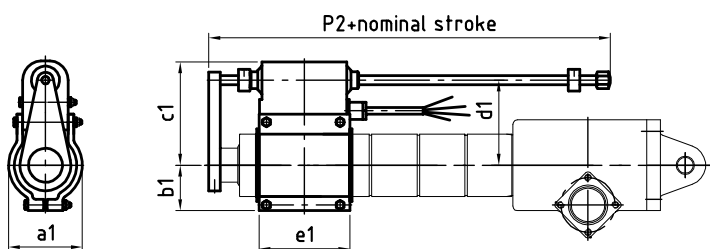
head 2 - load plate



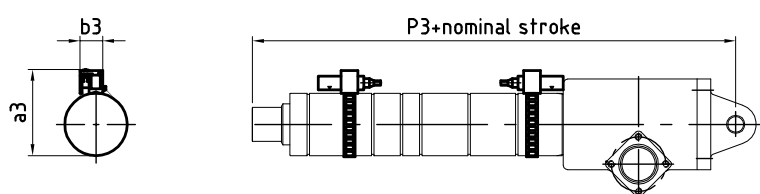
head 3 - rod end



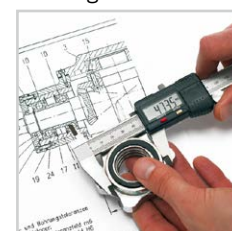
el.-mech. limit switch



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	
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.

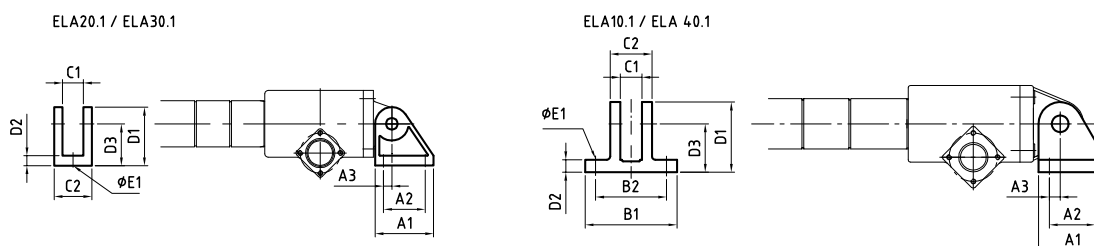


ELA 10.1, 20.1, 30.1, 40.1

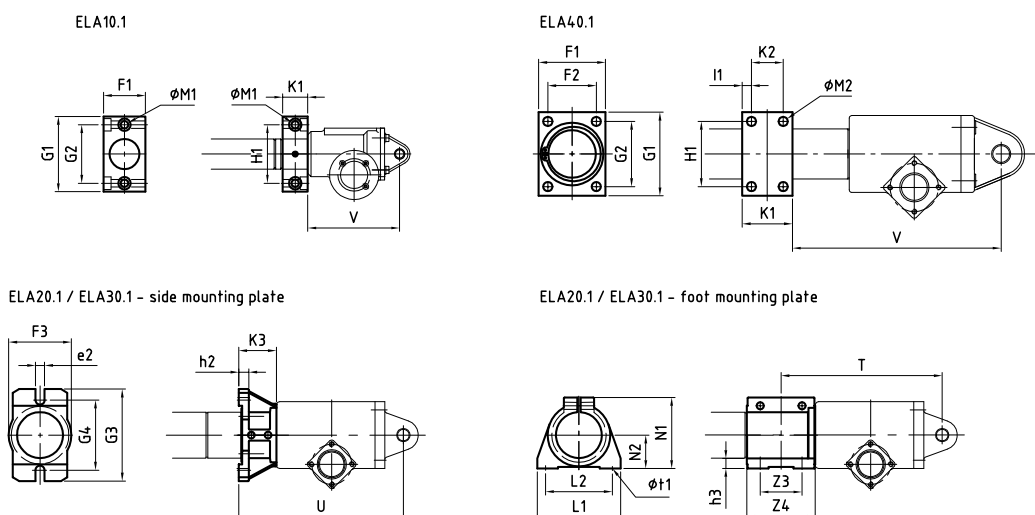
Technical drawings

Technical drawings ELA options

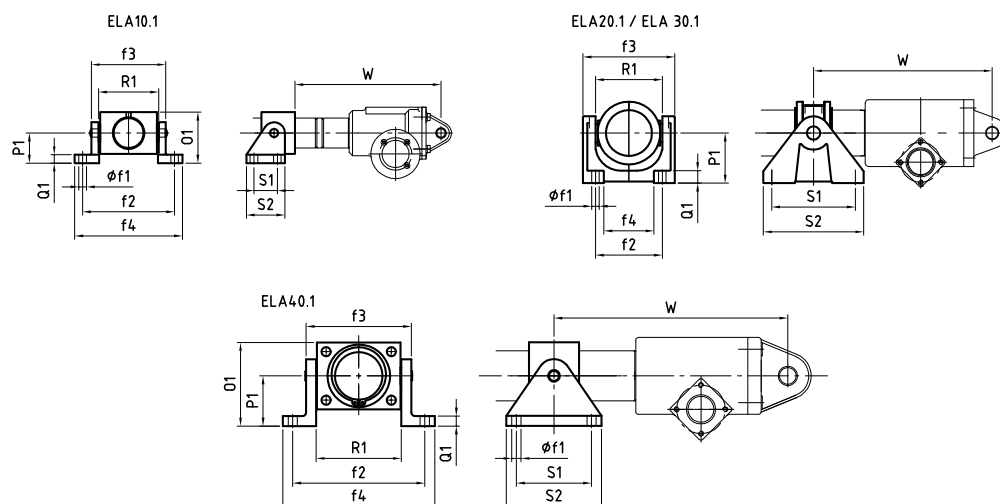
pillow block



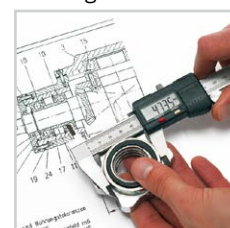
side mounting plate / foot mounting plate



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	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

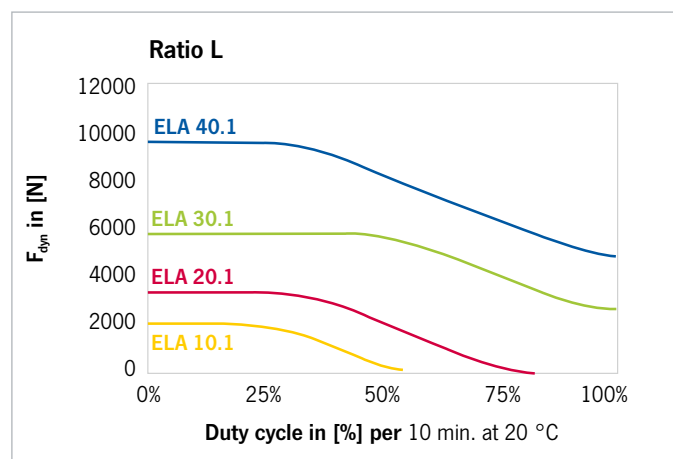
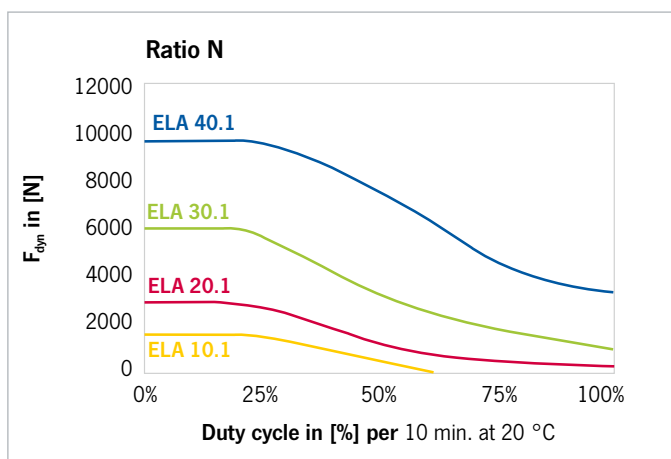
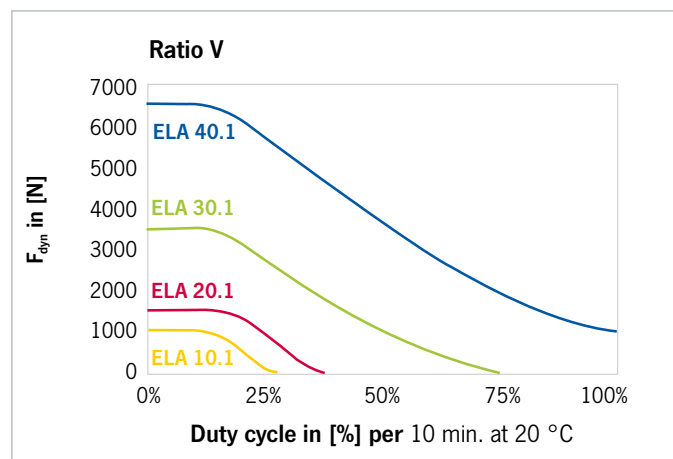
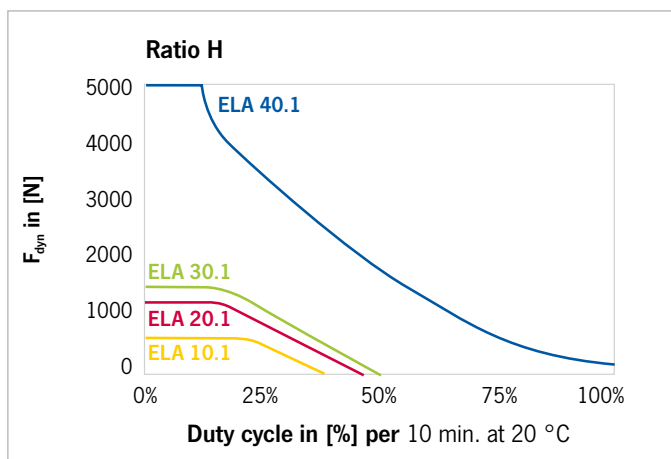
* ELA 10.1 - A combination of reed contact and swivel device only available for stroke 200 and above.

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

ELA

Duty cycle diagrams

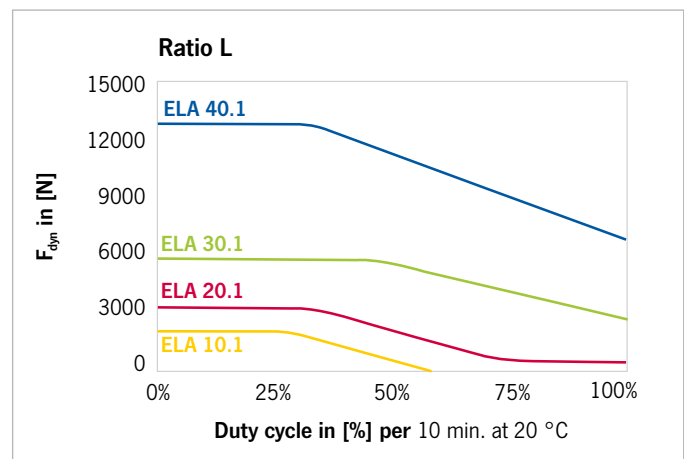
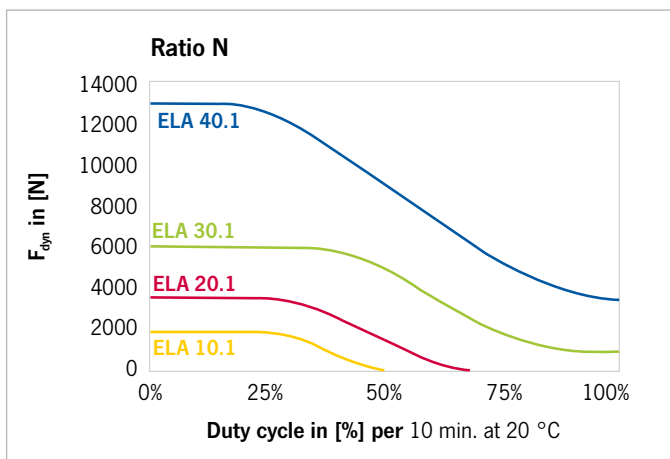
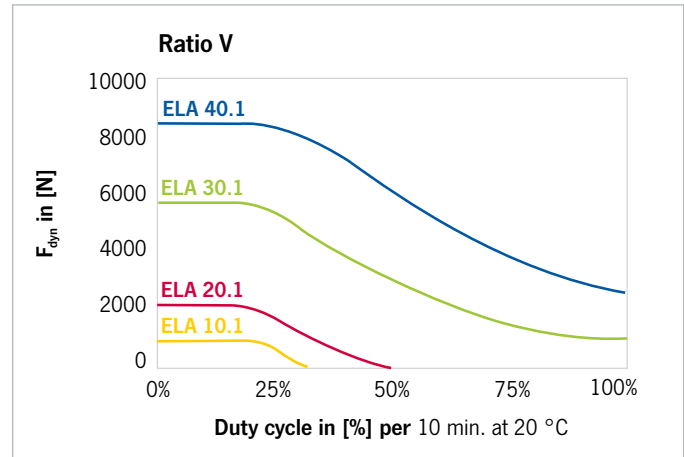
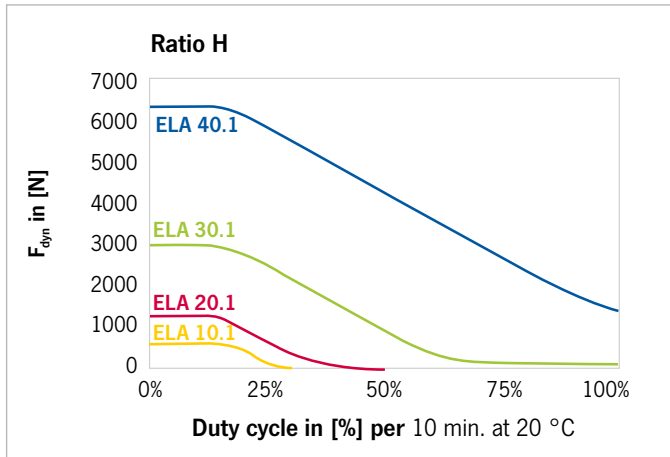
Duty cycle diagrams, ELA with trapezoidal screw and three-phase motor



ELA

Duty cycle diagrams

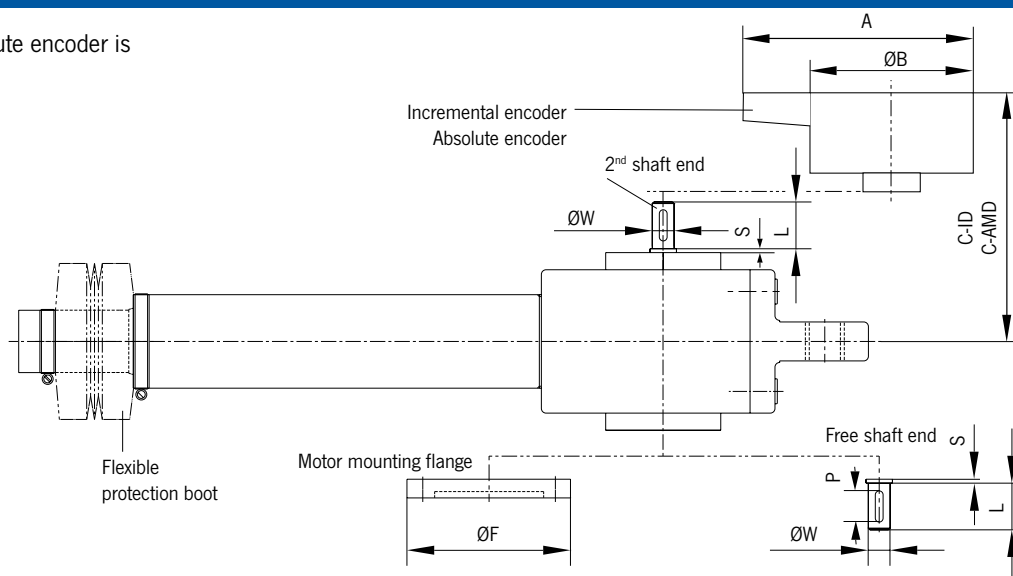
Duty cycle diagrams, ELA with ball screw (Ku) and three-phase motor



ELA Options

Options: incremental encoder / absolute encoder / motor mounting flange / free or 2nd shaft end

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

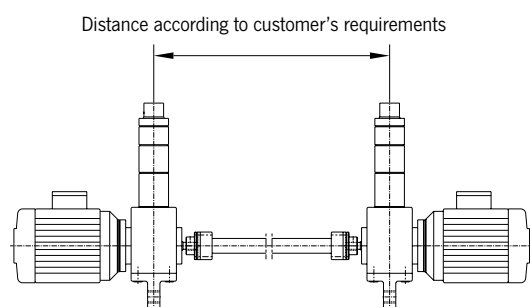
ELA size Dim. [mm]	A	ØB	C-AMD	CID
20.1	approx. 155	approx. 65	approx. 165	approx. 115
30.1	approx. 155	approx. 65	approx. 170	approx. 120
40.1	approx. 155	approx. 65	approx. 175	approx. 125

Dimension A with mating plug or high-strength cable gland

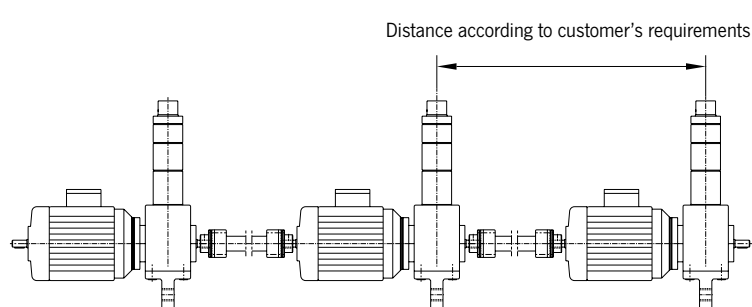
Technical data

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)



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



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

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

ALS/R

Electromechanical screw ram

Design features



Tr screw



Ball screw (Ku)

- 4 different sizes with max. dynamic axial loads from

ALS 10: 12.5 kN

ALS 25: 25 kN

ALS 50: 50 kN

ALS 100: 100 kN

- Self-locking trapezoidal screw
- Attachment options for any flange connection capable gear motor in solid or hollow shaft design
- Long-term lubrication by high-quality grease and encapsulated design
- Special screw diameter and pitches possible
- Comprehensive accessories range
- Possible usage according to directive 2014/34/EU (ATEX) 



ALS/R

Selection table

Selection table ALS/R

Size	Trapezoidal screw						Ball screw (Ku)							
	10	25	50	100			10	25	50	100				
Max. tensile / compressive force [kN]	12.5	25	50	100			12.5	25	50	100				
Screw	Tr24x5*	Tr30x6*	Tr40x7*	Tr50x8	Tr70x12*	Tr80x14	Ku25x5	Ku25x10	Ku32x10	Ku32x20	Ku40x10	Ku40x20	Ku63x10	Ku63x20
Lift per revolution [mm]	5	6	7	8	12	14	5	10	10	20	10	20	10	20
Max. drive power at 20% duty cycle [kW]	0.75	1.1	1.5	2.2	4	5.5	Service life calculation (see performance table)							
Max. drive power at 10% duty cycle [kW]	1.1	1.5	2	3	5.5	7.5								
Overall efficiency [%]	34.9	33.9	31.0	29.2	30.6	31.0	78.0	75.0						
Basic weight [kg]	4.5	10	25	25	35	35	4.5	10	25	35				
Extra weight of ALS per 100 mm stroke [kg]	0.35	0.5	0.8	1.2	2.5	3	0.4	0.5	1	2.5				
Extra weight of ALSR per 100 mm stroke [kg]	1.3	2.2	4	4.5	9	9.5	1.3	2.2	4.2	9				

*Standard screw sizes are as follow: Tr 24x5 / Tr 30x6 / Tr 40x7 / Tr 70x12

Selection guide for electromechanical screw rams ALS

- Preselection of the size in relation to the maximum permissible tensile/compressive forces using the selection
- With a compressive load, check screw size by means of the buckling diagram
- Determining the size based on the performance tables below with consideration of the lifting capacity and the desired lifting speed and duty cycle



ALS/R

Performance data tables ALS 10/25

Performance table ALS 10 – ALS/R 10 with Tr 24x5

Speed n	Lifting speed		12.5 kN		10 kN		8 kN		6 kN		4 kN		2 kN		1 kN	
	Tr24x5		Tr24x5		Tr24x5		Tr24x5		Tr24x5		Tr24x5		Tr24x5		Tr24x5	
			28.5 Nm		22.8 Nm		18.3 Nm		13.7 Nm		9.1 Nm		4.6 Nm		2.3 Nm	
[1/min]	[m/min]		P [kW]													
750	3.75		2.2		1.8		1.4		1.1		0.7		0.4		0.2	
500	2.5		1.5		1.2		1.0		0.7		0.5		0.2		0.1	
250	1.25		0.7		0.6		0.5		0.4		0.2		0.1		0.1	
100	0.5		0.3		0.2		0.2		0.1		0.1		0.1		0.1	
50	0.25		0.1		0.1		0.1		0.1		0.1		0.1		0.1	

Performance table ALS 10 – ALS/R 10 with Ku 25x5 / Ku 25x10

Speed n	Lifting speed		12.5 kN		10 kN		8 kN		6 kN		4 kN		2 kN		1 kN	
	Ku 25x5	Ku 25x10	Ku25x5	Ku25x10	Ku25x5	Ku25x10	Ku25x5	Ku25x10	Ku25x5	Ku25x10	Ku25x5	Ku25x10	Ku25x5	Ku25x10	Ku25x5	Ku25x10
			12.8 Nm	25.5 Nm	10.2 Nm	20.4 Nm	8.2 Nm	16.3 Nm	6.1 Nm	12.2 Nm	4.1 Nm	8.2 Nm	2.0 Nm	4.1 Nm	1.0 Nm	2.0 Nm
[1/min]	[m/min]		P [kW]													
750	3.75	7.5	1.0	2.0	0.8	1.6	0.6	1.3	0.5	1.0	0.3	0.6	0.2	0.3	0.1	0.2
500	2.5	5	0.7	1.3	0.5	1.1	0.4	0.9	0.3	0.6	0.2	0.4	0.1	0.2	0.1	0.1
250	1.25	2.5	0.3	0.7	0.3	0.5	0.2	0.4	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.1
100	0.5	1	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
50	0.25	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Performance table ALS 25 – ALS/R 25 with Tr 30x6

Speed n	Lifting speed		25 kN		20 kN		16 kN		12 kN		8 kN		4 kN		1 kN	
	Tr30x6		Tr30x6		Tr30x6		Tr30x6		Tr30x6		Tr30x6		Tr30x6		Tr30x6	
			70 Nm		56 Nm		45 Nm		34 Nm		23 Nm		11 Nm		3 Nm	
[1/min]	[m/min]		P [kW]													
700	4.2		5.2		4.1		3.3		2.5		1.7		0.8		0.2	
500	3		3.7		2.9		2.4		1.8		1.2		0.6		0.1	
300	1.8		2.2		1.8		1.4		1.1		0.7		0.4		0.1	
100	0.6		0.7		0.6		0.5		0.4		0.2		0.1		0.1	
50	0.3		0.4		0.3		0.2		0.2		0.1		0.1		0.1	

Performance table ALS 25 – ALS/R 25 with Ku 32x10 / Ku 32x20

Speed n	Lifting speed		25 kN		20 kN		16 kN		12 kN		8 kN		4 kN		1 kN	
	Ku32x10	Ku32x20	Ku32x10	Ku32x20	Ku32x10	Ku32x20	Ku32x10	Ku32x20	Ku32x10	Ku32x20	Ku32x10	Ku32x20	Ku32x10	Ku32x20	Ku32x10	Ku32x20
			53 Nm	106 Nm	42 Nm	85 Nm	34 Nm	68 Nm	25 Nm	51 Nm	17 Nm	34 Nm	8 Nm	17 Nm	2 Nm	4 Nm
[1/min]	[m/min]		P [kW]													
700	7	14	3.9	7.8	3.1	6.2	2.5	5.0	1.9	3.7	1.2	2.5	0.6	1.2	0.2	0.3
500	5	10	2.8	5.6	2.2	4.4	1.8	3.6	1.3	2.7	0.9	1.8	0.4	0.9	0.1	0.2
300	3	6	1.7	3.3	1.3	2.7	1.1	2.1	0.8	1.6	0.5	1.1	0.3	0.5	0.1	0.1
100	1	2	0.6	1.1	0.4	0.9	0.4	0.7	0.3	0.5	0.2	0.4	0.1	0.2	0.1	0.1
50	0.5	1	0.3	0.6	0.2	0.4	0.2	0.4	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.1

All performance data refer to the dynamic lifting force and a duty cycle of 20% / h or of 30% / 10 min. at 20 ° C ambient temperature.

ALS – ALS/R with Tr: the screw/nut system is overheated in fields highlighted in grey.
ALS – ALS/R with Ku: the service life falls below 500 hours in the fields highlighted in grey.

ALS – ALS/R with Tr: only static
(dynamic not allowed)

ALS/R

Performance data tables ALS 50/100

Performance table ALS 50 – ALS/R 50 with Tr 40x7 / Tr 50x8

Speed n	Lifting speed		50 kN		40 kN		30 kN		25 kN		20 kN		10 kN		5 kN	
	Tr40x7	Tr50x8	Tr40x7	Tr50x8	Tr40x7	Tr50x8	Tr40x7	Tr50x8	Tr40x7	Tr50x8	Tr40x7	Tr50x8	Tr40x7	Tr50x8	Tr40x7	Tr50x8
			180 Nm	218 Nm	144 Nm	175 Nm	108 Nm	131 Nm	90 Nm	109 Nm	72 Nm	87 Nm	36 Nm	44 Nm	18 Nm	22 Nm
[1/min]	[m/min]		P [kW]													
500	3.5	4	9.4	11.4	7.5	9.1	5.6	6.9	4.7	5.7	3.8	4.6	1.9	2.3	0.9	1.1
400	2.8	3.2	7.5	9.1	6.0	7.3	4.5	5.5	3.8	4.6	3.0	3.7	1.5	1.8	0.8	0.9
300	2.1	2.4	5.6	6.9	4.5	5.5	3.4	4.1	2.8	3.4	2.3	2.7	1.1	1.4	0.6	0.7
100	0.7	0.8	1.9	2.3	1.5	1.8	1.1	1.4	0.9	1.1	0.8	0.9	0.4	0.5	0.2	0.2
50	0.35	0.4	0.9	1.1	0.8	0.9	0.6	0.7	0.5	0.6	0.4	0.5	0.2	0.2	0.1	0.1

Performance table ALS 50 – ALS/R 50 with Ku 40x10 / Ku 40x20

Speed n	Lifting speed		50 kN		40 kN		30 kN		25 kN		20 kN		10 kN		5 kN	
	Ku40x10	Ku40x20	Ku40x10	Ku40x20	Ku40x10	Ku40x20	Ku40x10	Ku40x20	Ku40x10	Ku40x20	Ku40x10	Ku40x20	Ku40x10	Ku40x20	Ku40x10	Ku40x20
			106 Nm	212 Nm	85 Nm	170 Nm	64 Nm	127 Nm	53 Nm	106 Nm	42 Nm	85 Nm	21 Nm	42 Nm	11 Nm	21 Nm
[1/min]	[m/min]		P [kW]													
500	5	10	5.6	11.1	4.4	8.9	3.3	6.7	2.8	5.6	2.2	4.4	1.1	2.2	0.6	1.1
400	4	8	4.4	8.9	3.6	7.1	2.7	5.3	2.2	4.4	1.8	3.6	0.9	1.8	0.4	0.9
300	3	6	3.3	6.7	2.7	5.3	2.0	4.0	1.7	3.3	1.3	2.7	0.7	1.3	0.3	0.7
100	1	2	1.1	2.2	0.9	1.8	0.7	1.3	0.6	1.1	0.4	0.9	0.2	0.4	0.1	0.2
50	0.5	1	0.6	1.1	0.4	0.9	0.3	0.7	0.3	0.6	0.2	0.4	0.1	0.2	0.1	0.1

Performance table ALS 100 – ALS/R 100 with Tr 70x12 / Tr 80x14

Speed n	Lifting speed		100 kN		80 kN		60 kN		50 kN		40 kN		20 kN		10 kN	
	Tr70x12	Tr80x14	Tr70x12	Tr80x14	Tr70x12	Tr80x14	Tr70x12	Tr80x14	Tr70x12	Tr80x14	Tr70x12	Tr80x14	Tr70x12	Tr80x14	Tr70x12	Tr80x14
			624 Nm	718 Nm	499 Nm	574 Nm	375 Nm	431 Nm	312 Nm	359 Nm	250 Nm	287 Nm	125 Nm	144 Nm	62 Nm	72 Nm
[1/min]	[m/min]		P [kW]													
375	4.5	5.25	24.5	28.2	19.6	22.6	14.7	16.9	12.3	14.1	9.8	11.3	4.9	5.6	2.5	2.8
200	2.4	2.8	13.1	15.0	10.5	12.0	7.8	9.0	6.5	7.5	5.2	6.0	2.6	3.0	1.3	1.5
125	1.5	1.75	8.2	9.4	6.5	7.5	4.9	5.6	4.1	4.7	3.3	3.8	1.6	1.9	0.8	0.9
75	0.9	1.05	4.9	5.6	3.9	4.5	2.9	3.4	2.5	2.8	2.0	2.3	1.0	1.1	0.5	0.6
25	0.3	0.35	1.6	1.9	1.3	1.5	1.0	1.1	0.8	0.9	0.7	0.8	0.3	0.4	0.2	0.2

Performance table ALS 100 – ALS/R 100 with Ku 63x10 / Ku 63x20

Speed n	Lifting speed		100 kN		80 kN		60 kN		50 kN		40 kN		20 kN		10 kN	
	Ku63x10	Ku63x20	Ku63x10	Ku63x20	Ku63x10	Ku63x20	Ku63x10	Ku63x20	Ku63x10	Ku63x20	Ku63x10	Ku63x20	Ku63x10	Ku63x20	Ku63x10	Ku63x20
			212 Nm	424 Nm	170 Nm	340 Nm	127 Nm	255 Nm	106 Nm	212 Nm	85 Nm	170 Nm	42 Nm	85 Nm	21 Nm	42 Nm
[1/min]	[m/min]		P [kW]													
375	3.75	7.5	8.3	16.7	6.7	13.3	5.0	10.0	4.2	8.3	3.3	6.7	1.7	3.3	0.8	1.7
200	2	4	4.4	8.9	3.6	7.1	2.7	5.3	2.2	4.4	1.8	3.6	0.9	1.8	0.4	0.9
125	1.25	2.5	2.8	5.6	2.2	4.4	1.7	3.3	1.4	2.8	1.1	2.2	0.6	1.1	0.3	0.6
75	0.75	1.5	1.7	3.3	1.3	2.7	1.0	2.0	0.8	1.7	0.7	1.3	0.3	0.7	0.2	0.3
25	0.25	0.5	0.6	1.1	0.4	0.9	0.3	0.7	0.3	0.6	0.2	0.4	0.1	0.2	0.1	0.1

All performance data refer to the dynamic lifting force and a duty cycle of 20% / h or of 30% / 10 min. at 20 ° C ambient temperature.

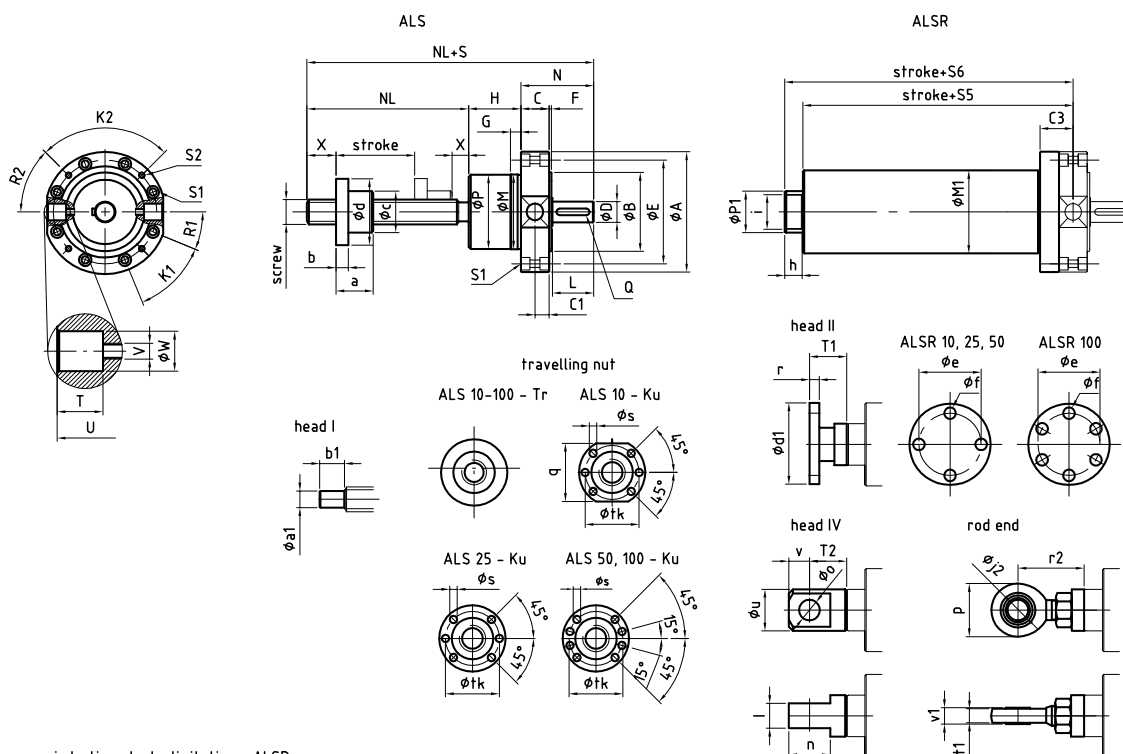
ALS – ALS/R with Tr: the screw/nut system is overheated in fields highlighted in grey.
ALS – ALS/R with Ku: the service life falls below 500 hours in the fields highlighted in grey.

ALS – ALS/R with Tr: only static
(dynamic not allowed)

ALS/R

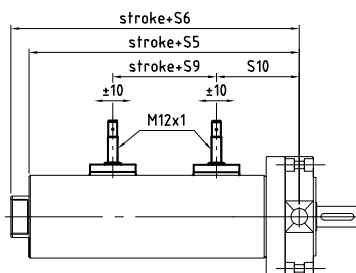
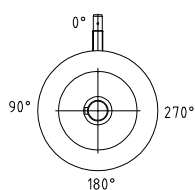
Technical drawings

Technical drawings

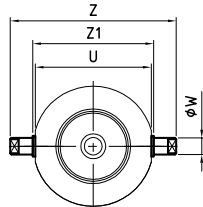


inductive stroke limitation - ALSR

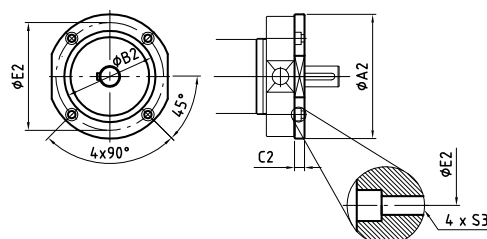
position of the inductive stroke limitation



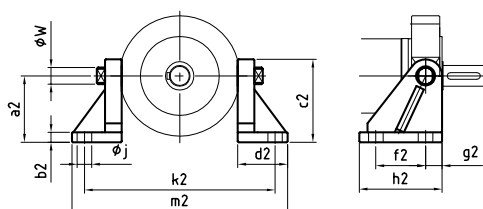
trunnion pins



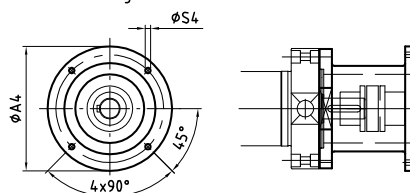
IEC flange



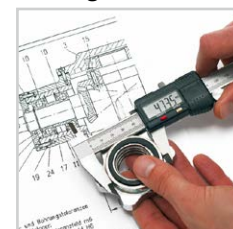
pillow blocks



IEC bell housing



CAD & go



ALS/R

Dimensions

ALS/R Dimensions

Size Dim. [mm]	ALS 10 - ALS/R 10			ALS 25 - ALS/R 25			ALS 50 - ALS/R 50				ALS 100 - ALS/R 100			
	Tr screw		Ball screw (Ku)	Tr screw		Ball screw (Ku)	Tr screw		Ball screw (Ku)		Tr screw		Ball screw (Ku)	
	Tr 24x5*	Ku 25x5	Ku 25x10	Tr 30x6*	Ku 32x10	Ku 32x20	Tr 40x7*	Tr 50x8	Ku 40x10	Ku 40x20	Tr 70x12*	Tr 80x14	Ku 63x10	Ku 63x20
Ø A	100			145			175				250			
Ø B j6	60			95			110				180			
C	24			34			38				52			
C 1	12			17			19				26			
C 3	30			40			47				61			
Ø D j6	16			25			30				40			
Ø E ± 0.2	82			125			155				215			
F	2			3			4				5			
G	16			13			15				26			
H	56			63			85				111			
h	20			40			62				54			
i	M 33x2			M 42x2			M 60x2				M 95x3			
K 1	8 x 45 °			8 x 45 °			6 x 60 °				8 x 45 °			
K 2	4 x 90 °			4 x 90 °			6 x 60 °				4 x 90 °			
L	40			50			60				90			
Ø M f7	60			90			115				150			
Ø M 1	70			100			130				170			
N	68			88			106				150			
NL	Stroke + 85	Stroke + 91	Stroke + 96	Stroke + 85	Stroke + 130	Stroke + 170	Stroke + 120	Stroke + 176	Stroke + 191		Stroke + 205	Stroke + 216	Stroke + 250	
Ø P	59.5			89.5			114				149			
Ø P 1	40			50			70				110			
Q - DIN 6885A	5 x 5 x 20			8 x 7 x 40			8 x 7 x 50				12 x 8 x 80			
R 1	22.5 °			22.5 °			30 °				22.5 °			
R 2	45 °			45 °			15 °				45 °			
S	124			151			191				261			
S 1 for DIN 6912/8.8	8x Ø12x8 / Ø6.6 for M6			8x Ø15x11 / Ø9 for M8			6x Ø15x11 / Ø9 for M8				6x Ø24x16 / Ø13.5 for M12			
S 2	4 x M6			4 x M8			6 x M8				6 x M12			
S 5	225			276			336				486			
S 6	245			298			374				514			
T	10			23			25				42			
U	90-0.3			140-0.3			170-0.3				240-0.4			
V	M6			M8			M10				M12x1			
Ø W H7	16			20			25				35			
X	20			20	40	60	30	50	70		40	50	70	

*Standard



ALS/R

Dimensions

ALS/R Dimensions														
Size Dim. [mm]	ALS 10 - ALS/R 10			ALS 25 - ALS/R 25			ALS 50 - ALS/R 50				ALS 100 - ALS/R 100			
	Tr screw		Ball screw (Ku)	Tr screw		Ball screw (Ku)	Tr screw		Ball screw (Ku)		Tr screw		Ball screw (Ku)	
	Tr 24x5*	Ku 25x5	Ku 25x10	Tr 30x6*	Ku 32x10	Ku 32x20	Tr 40x7*	Tr 50x8	Ku 40x10	Ku 40x20	Tr 70x12*	Tr 80x14	Ku 63x10	Ku 63x20
Travelling nut														
a	45	51	56	45	50		60		76	51	125		116	110
b	10			15	12		18		14		30		20	
Ø c	35 h9	40 g6		50 h9	50 g6		70 h9		63 g6		120 h9		95 g6	
Ø d	50	62		80			87		93		155		135	
q	-	48		-	-		-		-		-		-	
Ø s	-	6.6		-	9		-		9		-		13.5	
Ø tk	-	51		-	65		-		78		-		115	
Head type I														
Ø a1 j6	15			20			30			50				
b1	24			30			50			60				
Head type II														
T 1	37			45			65			55				
Ø d1	72			98			122			182				
Ø e	50			75			85			135				
Ø f	9			14			17			26				
r	10			12			18			25				
Head type IV														
T 2	40			45			65			90				
l-0.2	25			30			40			75				
n	40			50			70			120				
Ø o H7	20			25			35			60				
Ø u	40			50			65			110				
v	20			25			35			60				
Rod end														
p	46			64			82			135				
Ø j2	17 - 0.010			25 - 0.010			35 - 0.012			60 - 0.015				
r2	60			80			125			158				
v1	14			20			25			44				
t1	11			17			21			38				
Inductive stroke limitation														
S 9	25			55			73			170				
S 10	88			100			124			171				
Trunnion pins														
Z	136			200			250			330				
Z1	96			146			176			250				

*Standard

ALS/R

Dimensions

ALS/R Dimensions

Size Dim. [mm]	ALS 10 - ALS/R 10			ALS 25 - ALS/R 25			ALS 50 - ALS/R 50				ALS 100 - ALS/R 100			
	Tr screw		Ball screw (Ku)	Tr screw		Ball screw (Ku)	Tr screw		Ball screw (Ku)		Tr screw		Ball screw (Ku)	
	Tr 24x5*	Ku 25x5	Ku 25x10	Tr 30x6*	Ku 32x10	Ku 32x20	Tr 40x7*	Tr 50x8	Ku 40x10	Ku 40x20	Tr 70x12*	Tr 80x14	Ku 63x10	Ku 63x20

Pillow blocks

a2	60	80	100	140
b2	9	12	20	25
c2	75	100	125	170
d2	45	60	75	100
f2	45	60	95	130
g2	15	20	25	30
h2	75	100	140	200
Ø j	13	17.5	22	26
k2	150	230	270	370
m2	180	260	320	440

IEC flange

Ø A 2	120	150	175	250
Ø B 2	80 H7	110 H7	110 H7	180 H8
C 2	20	12	17	25
Ø E 2 ±0.2	100	130	130	215
S 3 for DIN 6912/8.8	Ø12x6 / Ø6.6 for M6	Ø15x8 / Ø9 for M8	Ø15x11 / Ø9 for M8	Ø24x6 / Ø13.5 for M8

IEC bell housing

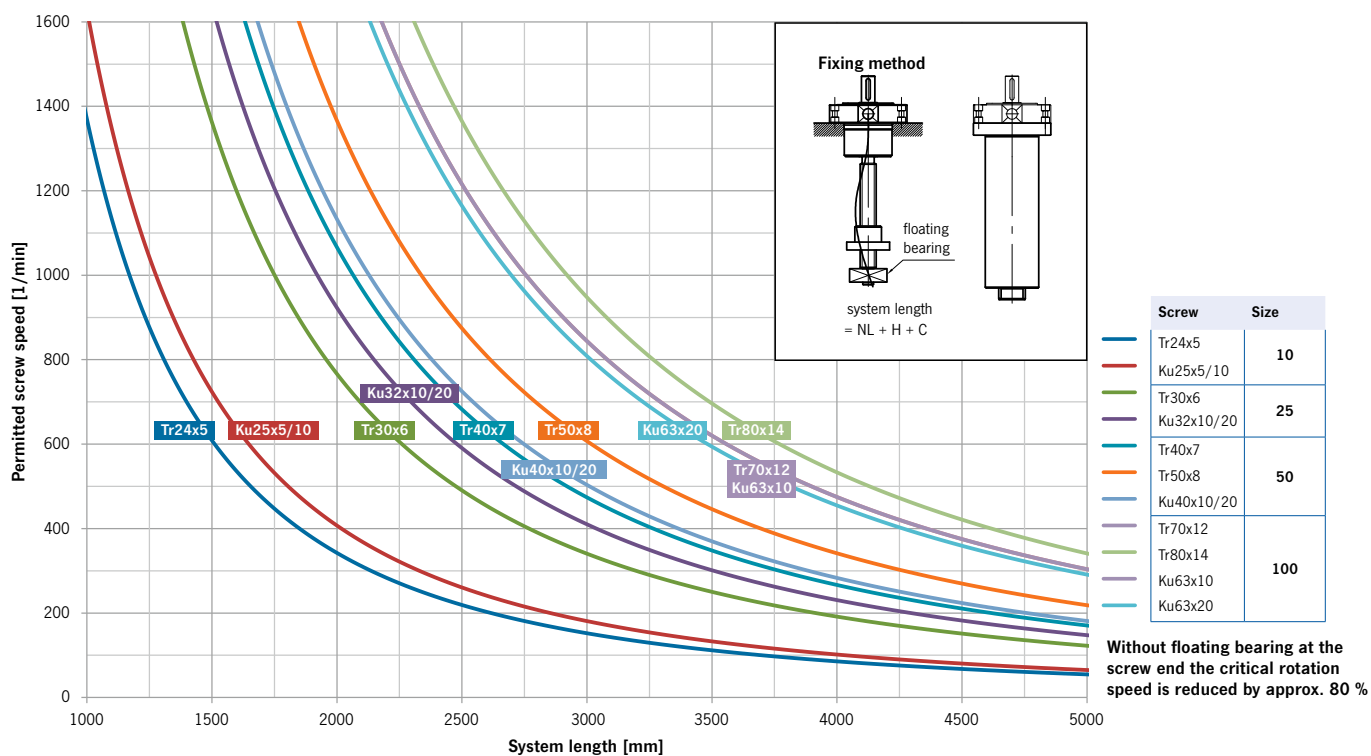
Ø A 4	Dimensions according to offer or customer request
Ø S 4	Dimensions according to offer or customer request

*Standard

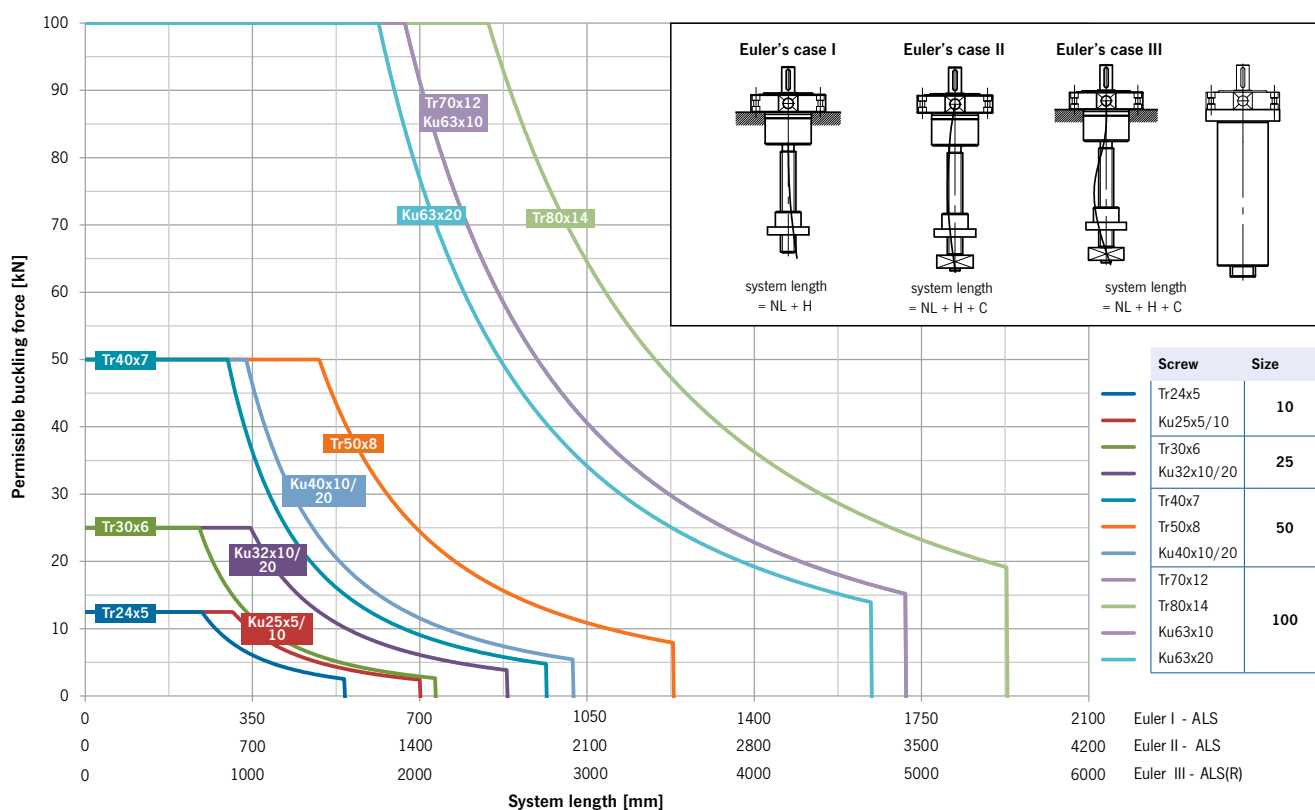


ALS/R Diagrams

Critical screw speed ALS/R



Buckling ALS/R



A L S - - - x - - - - - - - - - - -

1 2 3 4 5 6 7 8 9 10 11

No.	Explanation	
1	Series	ALS
2	Version	R = with cylinder version 0 = Standard (without cylinder construction)
3	Size	10 / 25 / 50 / 100
4	Screw	Tr = Trapezoidal screw Ku = Ball screw (Ku)
5	Screw diameter in mm	
6	Pitch in mm	
7	Stroke in mm	
8	NL in mm	(only ALS)
9	Head	I = Cylindrical rotation (only ALS) II = Head plate III = Metric thread (only ALS) IV = Rod end
10	Input shaft	01 = Standard 02 = Special
11	Accessories	01 = Trunnion pins 02 = Swiveling mounting base 03 = Inductive limit switch [only ALS/R] 04 = Anti-turn device [only ALS/R] 05 = IEC bell housing 06 = IEC flange



HLA

High-performance linear actuator

Design features



Tr screw



Ball screw (Ku)

- **4 sizes with maximum dynamic axial loads from**

HLA 10: 12.5 kN

HLA 25: 25 kN

HLA 50: 50 kN

HLA 100: 100 kN

- Self-locking trapezoidal screw
- Possible use in multi-screw lifting systems
- Several single drives can be synchronized
- Attachment options for any flange connection capable gear motor
- Optional short safety nut possible
- Low-maintenance from high-quality grease and encapsulated design
- Comprehensive accessories range
- Possible usage according to directive 2014/34/EU (ATEX) 



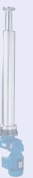
HLA

Selection table

Selection table HLA												
Size	10			25			50			100		
Max. tensile/compressive force [kN]	10			25			50			100		
Screw	Tr 24x5	Ku 25x5	Ku 25x10	Tr 30x6	Ku 32x10	Ku 32x20	Tr 50x8	Ku 40x10	Ku 40x20	Tr 80x14	Ku 63x10	Ku 63x20
Ratio N	5:1			6:1			7:1			8:1		
Lift per revolution for ratio N [mm/U]	1	1	2	1	1.67	3.33	1.14	1.43	2.86	1.75	1.25	2.5
Ratio L	20:1			24:1			28:1			32:1		
Lift per revolution for ratio L [mm/U]	0.25	0.25	0.5	0.25	0.42	0.83	0.29	0.36	0.71	0.44	0.31	0.63
Max. drive capacity at 20 °C ambient temperature and 20 % duty cycle/h [kW]	0.9			1.5			2.3			3.6		
Max. drive capacity at 20 °C ambient temperature and 10 % duty cycle/h [kW]	1.5			2.6			4.0			6.3		
Screw torque at max. lifting power [Nm]	19.4	8.7	16.7	60	42	82	186	86	165	616	179	338
Max. permissible torque on the input shaft [Nm]	29.4			48.7			168			398		
Material gearbox housing	ALSi12			GGG50			GGG50			GGG50		
Basic weight [kg]	on request			25			45			101		
Extra weight per 100 mm stroke [kg]	on request			2.2			4.5			9.6		

Selection guide for high-performance linear actuator HLA

- Preselection of the size in relation to the maximum permissible tensile/compressive forces using the selection
- With a compressive load, check screw size by means of the buckling diagram
- Determining the size based on the performance tables with consideration of the lifting capacity and the desired lifting speed and duty cycle



HLA

Performance tables

Performance table HLA 10													
Tr 24x5													
Speed n		Lifting speed		10 kN		8 kN		6 kN		4 kN		2 kN	
[1/min]		[m/min]		Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (5:1)	3000	3	5.1	1.6	4.1	1.3	3.1	1.0	2.0	0.6	1.0	0.3	
	1500	1.5	5.3	0.8	4.2	0.7	3.2	0.5	2.1	0.3	1.1	0.2	
	1000	1	5.4	0.6	4.3	0.5	3.2	0.3	2.2	0.2	1.1	0.1	
	750	0.75	5.5	0.4	4.4	0.3	3.3	0.3	2.2	0.2	1.1	0.1	
	500	0.5	5.6	0.3	4.5	0.2	3.4	0.2	2.2	0.1	1.1	0.1	
	300	0.3	5.8	0.2	4.6	0.1	3.5	0.1	2.3	0.1	1.2	0.1	
	100	0.1	6.0	0.1	4.8	0.1	3.6	0.1	2.4	0.1	1.2	0.1	
Ratio L (20:1)	3000	0.75	1.7	0.5	1.3	0.4	1.0	0.3	0.7	0.2	0.3	0.1	
	1500	0.38	1.8	0.3	1.4	0.2	1.1	0.2	0.7	0.1	0.4	0.1	
	1000	0.25	1.9	0.2	1.5	0.2	1.1	0.1	0.8	0.1	0.4	0.1	
	750	0.19	2.0	0.2	1.6	0.1	1.2	0.1	0.8	0.1	0.4	0.1	
	500	0.13	2.1	0.1	1.7	0.1	1.3	0.1	0.8	0.1	0.4	0.1	
	300	0.08	2.2	0.1	1.8	0.1	1.3	0.1	0.9	0.1	0.4	0.1	
	100	0.03	2.4	0.1	1.9	0.1	1.4	0.1	1.0	0.1	0.5	0.1	
Ku 25x5													
Speed n		Lifting speed		10 kN		8 kN		6 kN		4 kN		2 kN	
[1/min]		[m/min]		Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (5:1)	3000	3	2.3	0.7	1.8	0.6	1.4	0.4	0.9	0.3	0.5	0.1	
	1500	1.5	2.4	0.4	1.9	0.3	1.4	0.2	0.9	0.1	0.5	0.1	
	1000	1	2.4	0.3	1.9	0.2	1.5	0.2	1.0	0.1	0.5	0.1	
	750	0.75	2.5	0.2	2.0	0.2	1.5	0.1	1.0	0.1	0.5	0.1	
	500	0.5	2.5	0.1	2.0	0.1	1.5	0.1	1.0	0.1	0.5	0.1	
	300	0.3	2.6	0.1	2.1	0.1	1.6	0.1	1.0	0.1	0.5	0.1	
	100	0.1	2.7	0.1	2.1	0.1	1.6	0.1	1.1	0.1	0.5	0.1	
Ratio L (20:1)	3000	0.75	0.8	0.2	0.6	0.2	0.5	0.1	0.3	0.1	0.2	0.1	
	1500	0.38	0.8	0.1	0.6	0.1	0.5	0.1	0.3	0.1	0.2	0.1	
	1000	0.25	0.9	0.1	0.7	0.1	0.5	0.1	0.3	0.1	0.2	0.1	
	750	0.19	0.9	0.1	0.7	0.1	0.5	0.1	0.4	0.1	0.2	0.1	
	500	0.13	0.9	0.1	0.8	0.1	0.6	0.1	0.4	0.1	0.2	0.1	
	300	0.08	1.0	0.1	0.8	0.1	0.6	0.1	0.4	0.1	0.2	0.1	
	100	0.03	1.1	0.1	0.9	0.1	0.6	0.1	0.4	0.1	0.2	0.1	
Ku 25x10													
Speed n		Lifting speed		10 kN		8 kN		6 kN		4 kN		2 kN	
[1/min]		[m/min]		Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (5:1)	3000	6	4.4	1.4	3.5	1.1	2.6	0.8	1.8	0.6	0.9	0.3	
	1500	3	4.5	0.7	3.6	0.6	2.7	0.4	1.8	0.3	0.9	0.1	
	1000	2	4.6	0.5	3.7	0.4	2.8	0.3	1.9	0.2	0.9	0.1	
	750	1.5	4.7	0.4	3.8	0.3	2.8	0.2	1.9	0.1	0.9	0.1	
	500	1	4.8	0.3	3.9	0.2	2.9	0.2	1.9	0.1	1.0	0.1	
	300	0.6	4.9	0.2	4.0	0.1	3.0	0.1	2.0	0.1	1.0	0.1	
	100	0.2	5.1	0.1	4.1	0.1	3.1	0.1	2.1	0.1	1.0	0.1	
Ratio L (20:1)	3000	1.5	1.4	0.5	1.1	0.4	0.9	0.3	0.6	0.2	0.3	0.1	
	1500	0.75	1.5	0.2	1.2	0.2	0.9	0.1	0.6	0.1	0.3	0.1	
	1000	0.5	1.6	0.2	1.3	0.1	1.0	0.1	0.7	0.1	0.3	0.1	
	750	0.38	1.7	0.1	1.4	0.1	1.0	0.1	0.7	0.1	0.3	0.1	
	500	0.25	1.8	0.1	1.4	0.1	1.1	0.1	0.7	0.1	0.4	0.1	
	300	0.15	1.9	0.1	1.5	0.1	1.1	0.1	0.8	0.1	0.4	0.1	
	100	0.05	2.1	0.1	1.6	0.1	1.2	0.1	0.8	0.1	0.4	0.1	

Performance table HLA 25													
Tr 30x6													
Speed n		Lifting speed		25 kN		20 kN		15 kN		10 kN		5 kN	
[1/min]		[m/min]		Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (6:1)	3000	3	12.8	4.0	10.3	3.2	7.7	2.4	5.1	1.6	2.6	0.8	
	1500	1.5	13.2	2.1	10.5	1.7	7.9	1.2	5.3	0.8	2.6	0.4	
	1000	1	13.4	1.4	10.7	1.1	8.0	0.8	5.4	0.6	2.7	0.3	
	750	0.75	13.7	1.1	10.9	0.9	8.2	0.6	5.5	0.4	2.7	0.2	
	500	0.5	14.0	0.7	11.2	0.6	8.4	0.4	5.6	0.3	2.8	0.1	
	300	0.3	14.5	0.5	11.6	0.4	8.7	0.3	5.8	0.2	2.9	0.1	
	100	0.1	15.3	0.2	12.2	0.1	9.2	0.1	6.1	0.1	3.1	0.1	
Ratio L (24:1)	3000	0.75	4.1	1.3	3.3	1.0	2.4	0.8	1.6	0.5	0.8	0.3	
	1500	0.38	4.4	0.7	3.5	0.5	2.6	0.4	1.7	0.3	0.9	0.1	
	1000	0.25	4.6	0.5	3.7	0.4	2.8	0.3	1.8	0.2	0.9	0.1	
	750	0.19	4.8	0.4	3.9	0.3	2.9	0.2	1.9	0.2	1.0	0.1	
	500	0.13	5.1	0.3	4.1	0.2	3.1	0.2	2.1	0.1	1.0	0.1	
	300	0.08	5.5	0.2	4.4	0.1	3.3	0.1	2.2	0.1	1.1	0.1	
	100	0.03	6.2	0.1	5.0	0.1	3.7	0.1	2.5	0.1	1.2	0.1	
Ku 32x10													
Speed n		Lifting speed		25 kN		20 kN		15 kN		10 kN		5 kN	
[1/min]		[m/min]		Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (6:1)	3000	5	9.1	2.8	7.2	2.3	5.4	1.7	3.6	1.1	1.8	0.6	
	1500	2.5	9.3	1.5	7.4	1.2	5.6	0.9	3.7	0.6	1.9	0.3	
	1000	1.67	9.5	1.0	7.6	0.8	5.7	0.6	3.8	0.4	1.9	0.2	
	750	1.25	9.7	0.8	7.7	0.6	5.8	0.5	3.9	0.3	1.9	0.2	
	500	0.83	9.9	0.5	7.9	0.4	5.9	0.3	4.0	0.2	2.0	0.1	
	300	0.5	10.2	0.3	8.2	0.3	6.1	0.2	4.1	0.1	2.0	0.1	
	100	0.17	10.8	0.1	8.6	0.1	6.5	0.1	4.3	0.1	2.2	0.1	
Ratio L (24:1)	3000	1.25	2.9	0.9	2.3	0.7	1.7	0.5	1.1	0.4	0.6	0.2	
	1500	0.63	3.1	0.5	2.5	0.4	1.8	0.3	1.2	0.2	0.6	0.1	
	1000	0.42	3.3	0.3	2.6	0.3	2.0	0.2	1.3	0.1	0.7	0.1	
	750	0.31	3.4	0.3	2.7	0.2	2.0	0.2	1.4	0.1	0.7	0.1	
	500	0.21	3.6	0.2	2.9	0.2	2.2	0.1	1.5	0.1	0.7	0.1	
	300	0.13	3.9	0.1	3.1	0.1	2.3	0.1	1.6	0.1	0.8	0.1	
	100	0.04	4.4	0.1	3.5	0.1	2.6	0.1	1.8	0.1	0.9	0.1	
Ku 32x20													
Speed n		Lifting speed		25 kN		20 kN		15 kN		10 kN		5 kN	
[1/min]		[m/min]		Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (6:1)	3000	10	17.6	5.5	14.1	4.4	10.6	3.3	7.0	2.2	3.5	1.1	
	1500	5	18.1	2.8	14.4	2.3	10.8	1.7	7.2	1.1	3.6	0.6	
	1000	3.33	18.4	1.9	14.7	1.5	11.0	1.2	7.4	0.8	3.7	0.4	
	750	2.5	18.8	1.5	15.0	1.2	11.3	0.9	7.5	0.6	3.8	0.3	
	500	1.67	19.3	1.0	15.4	0.8	11.6	0.6	7.7	0.4	3.9	0.2	
	300	1	19.9	0.6	15.9	0.5	11.9	0.4	8.0	0.3	4.0	0.1	
	100	0.33	21.0	0.2	16.8	0.2	12.6	0.1	8.4	0.1	4.2	0.1	
Ratio L (24:1)	3000	2.5	5.6	1.8	4.5	1.4	3.3	1.1	2.2	0.7	1.1	0.4	
	1500	1.25	6.0	0.9	4.8	0.8	3.6	0.6	2.4	0.4	1.2	0.2	
	1000	0.83	6.3	0.7	5.1	0.5	3.8	0.4	2.5	0.3	1.3	0.1	
	750	0.63	6.6	0.5	5.3	0.4	4.0	0.3	2.6	0.2	1.3	0.1	
	500	0.42	7.1	0.4	5.7	0.3	4.2	0.2	2.8	0.1	1.4	0.1	
	300	0.25	7.6	0.2	6.1	0.2	4.6	0.1	3.0	0.1	1.5	0.1	
	100	0.08	8.5	0.1	6.8	0.1	5.1	0.1	3.4	0.1	1.7	0.1	

Drive speed, drive torque and permissible lifting speed with ratio N and L.

All performance figures related to the dynamic lifting force and a duty cycle at 20 % / 1 h or at 30 % / 10 min. at 20 °C.

only static (dynamic not allowed)

10 % duty cycle / 1 h and ambient temperature 20 °C

HLA

Performance tables

Performance table HLA 50

Tr 50x8											
Speed n	Lifting speed	50 kN		40 kN		30 kN		20 kN		10 kN	
[1/min]	[m/min]	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (7:1)	3000	33.7	10.6	27.0	8.5	20.2	6.4	13.5	4.2	6.7	2.1
	1500	34.6	5.4	27.7	4.3	20.7	3.3	13.8	2.2	6.9	1.1
	1000	35.4	3.7	28.3	3.0	21.2	2.2	14.1	1.5	7.1	0.7
	750	36.0	2.8	28.8	2.3	21.6	1.7	14.4	1.1	7.2	0.6
	500	37.1	1.9	29.7	1.6	22.3	1.2	14.8	0.8	7.4	0.4
	300	38.7	1.2	30.9	1.0	23.2	0.7	15.5	0.5	7.7	0.2
	100	41.7	0.4	33.3	0.3	25.0	0.3	16.7	0.2	8.3	0.1
Ratio L (28:1)	3000	11.0	3.5	8.8	2.8	6.6	2.1	4.4	1.4	2.2	0.7
	1500	11.6	1.8	9.3	1.5	6.9	1.1	4.6	0.7	2.3	0.4
	1000	12.3	1.3	9.8	1.0	7.4	0.8	4.9	0.5	2.5	0.3
	750	12.9	1.0	10.3	0.8	7.8	0.6	5.2	0.4	2.6	0.2
	500	13.9	0.7	11.1	0.6	8.4	0.4	5.6	0.3	2.8	0.1
	300	15.3	0.5	12.2	0.4	9.2	0.3	6.1	0.2	3.1	0.1
	100	17.8	0.2	14.2	0.1	10.7	0.1	7.1	0.1	3.6	0.1
Ku 40x10											
Speed n	Lifting speed	50 kN		40 kN		30 kN		20 kN		10 kN	
[1/min]	[m/min]	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (7:1)	3000	15.6	4.9	12.5	3.9	9.3	2.9	6.2	2.0	3.1	1.0
	1500	16.0	2.5	12.8	2.0	9.6	1.5	6.4	1.0	3.2	0.5
	1000	16.3	1.7	13.1	1.4	9.8	1.0	6.5	0.7	3.3	0.3
	750	16.6	1.3	13.3	1.0	10.0	0.8	6.6	0.5	3.3	0.3
	500	17.1	0.9	13.7	0.7	10.3	0.5	6.9	0.4	3.4	0.2
	300	17.9	0.6	14.3	0.4	10.7	0.3	7.1	0.2	3.6	0.1
	100	19.3	0.2	15.4	0.2	11.6	0.1	7.7	0.1	3.9	0.1
Ratio L (28:1)	3000	5.1	1.6	4.1	1.3	3.1	1.0	2.0	0.6	1.0	0.3
	1500	5.4	0.8	4.3	0.7	3.2	0.5	2.1	0.3	1.1	0.2
	1000	5.7	0.6	4.5	0.5	3.4	0.4	2.3	0.2	1.1	0.1
	750	6.0	0.5	4.8	0.4	3.6	0.3	2.4	0.2	1.2	0.1
	500	6.4	0.3	5.1	0.3	3.9	0.2	2.6	0.1	1.3	0.1
	300	7.1	0.2	5.6	0.2	4.2	0.1	2.8	0.1	1.4	0.1
	100	8.2	0.1	6.6	0.1	4.9	0.1	3.3	0.1	1.6	0.1
Ku 40x20											
Speed n	Lifting speed	50 kN		40 kN		30 kN		20 kN		10 kN	
[1/min]	[m/min]	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (7:1)	3000	30.0	9.4	24.0	7.6	18.0	5.7	12.0	3.8	6.0	1.9
	1500	30.8	4.8	24.7	3.9	18.5	2.9	12.3	1.9	6.2	1.0
	1000	31.5	3.3	25.2	2.6	18.9	2.0	12.6	1.3	6.3	0.7
	750	32.1	2.5	25.7	2.0	19.2	1.5	12.8	1.0	6.4	0.5
	500	33.1	1.7	26.5	1.4	19.8	1.0	13.2	0.7	6.6	0.3
	300	34.5	1.1	27.6	0.9	20.7	0.6	13.8	0.4	6.9	0.2
	100	37.1	0.4	29.7	0.3	22.3	0.2	14.9	0.2	7.4	0.1
Ratio L (28:1)	3000	9.8	3.1	7.9	2.5	5.9	1.9	3.9	1.2	2.0	0.6
	1500	10.3	1.6	8.3	1.3	6.2	1.0	4.1	0.6	2.1	0.3
	1000	10.9	1.1	8.8	0.9	6.6	0.7	4.4	0.5	2.2	0.2
	750	11.5	0.9	9.2	0.7	6.9	0.5	4.6	0.4	2.3	0.2
	500	12.4	0.6	9.9	0.5	7.4	0.4	5.0	0.3	2.5	0.1
	300	13.6	0.4	10.9	0.3	8.2	0.3	5.4	0.2	2.7	0.1
	100	15.9	0.2	12.7	0.1	9.5	0.1	6.3	0.1	3.2	0.1

Performance table HLA 100

Tr 80x14											
Speed n	Lifting speed	100 kN		80 kN		60 kN		40 kN		20 kN	
[1/min]	[m/min]	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (8:1)	3000	95.9	30.1	76.7	24.1	57.5	18.1	38.4	12.1	19.2	6.0
	1500	97.8	15.4	78.2	12.3	58.7	9.2	39.1	6.1	19.6	3.1
	1000	99.9	10.5	79.9	8.4	59.9	6.3	39.9	4.2	20.0	2.1
	750	101.6	8.0	81.3	6.4	61.0	4.8	40.7	3.2	20.3	1.6
	500	104.8	5.5	83.8	4.4	62.9	3.3	41.9	2.2	21.0	1.1
	300	109.5	3.4	87.6	2.8	65.7	2.1	43.8	1.4	21.9	0.7
	100	120.1	1.3	96.1	1.0	72.0	0.8	48.0	0.5	24.0	0.3
Ratio L (32:1)	3000	30.5	9.6	24.4	7.7	18.3	5.8	12.2	3.8	6.1	1.9
	1500	32.3	5.1	25.8	4.1	19.4	3.0	12.9	2.0	6.5	1.0
	1000	34.1	3.6	27.3	2.9	20.5	2.1	13.7	1.4	6.8	0.7
	750	35.7	2.8	28.5	2.2	21.4	1.7	14.3	1.1	7.1	0.6
	500	38.7	2.0	30.9	1.6	23.2	1.2	15.5	0.8	7.7	0.4
	300	43.0	1.4	34.4	1.1	25.8	0.8	17.2	0.5	8.6	0.3
	100	52.2	0.5	41.8	0.4	31.3	0.3	20.9	0.2	10.4	0.1
Ku 63x10											
Speed n	Lifting speed	100 kN		80 kN		60 kN		40 kN		20 kN	
[1/min]	[m/min]	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (8:1)	3000	28.0	8.8	22.4	7.0	16.8	5.3	11.2	3.5	5.6	1.8
	1500	28.6	4.5	22.9	3.6	17.1	2.7	11.4	1.8	5.7	0.9
	1000	29.2	3.1	23.4	2.4	17.5	1.8	11.7	1.2	5.8	0.6
	750	29.7	2.3	23.8	1.9	17.8	1.4	11.9	0.9	5.9	0.5
	500	30.6	1.6	24.5	1.3	18.4	1.0	12.3	0.6	6.1	0.3
	300	32.0	1.0	25.6	0.8	19.2	0.6	12.8	0.4	6.4	0.2
	100	35.1	0.4	28.1	0.3	21.1	0.2	14.0	0.1	7.0	0.1
Ratio L (32:1)	3000	8.9	2.8	7.1	2.2	5.4	1.7	3.6	1.1	1.8	0.6
	1500	9.4	1.5	7.6	1.2	5.7	0.9	3.8	0.6	1.9	0.3
	1000	10.0	1.0	8.0	0.8	6.0	0.6	4.0	0.4	2.0	0.2
	750	10.4	0.8	8.3	0.7	6.3	0.5	4.2	0.3	2.1	0.2
	500	11.3	0.6	9.0	0.5	6.8	0.4	4.5	0.2	2.3	0.1
	300	12.6	0.4	10.1	0.3	7.5	0.2	5.0	0.2	2.5	0.1
	100	15.3	0.2	12.2	0.1	9.2	0.1	6.1	0.1	3.1	0.1
Ku 63x20											
Speed n	Lifting speed	100 kN		80 kN		60 kN		40 kN		20 kN	
[1/min]	[m/min]	Nm	kW	Nm	kW	Nm	kW	Nm	kW	Nm	kW
Ratio N (8:1)	3000	53.0	16.7	42.4	13.3	31.8	10.0	21.2	6.7	10.6	3.3
	1500	54.1	8.5	43.3	6.8	32.4	5.1	21.6	3.4	10.8	1.7
	1000	55.2	5.8	44.2	4.6	33.1	3.5	22.1	2.3	11.0	1.2
	750	56.2	4.4	45.0	3.5	33.7	2.6	22.5	1.8	11.2	0.9
	500	58.0	3.0	46.4	2.4	34.8	1.8	23.2	1.2	11.6	0.6
	300	60.6	1.9	48.5	1.5	36.3	1.1	24.2	0.8	12.1	0.4
	100	66.4	0.7	53.1	0.6	39.8	0.4	26.6	0.3	13.3	0.1
Ratio L (32:1)	3000	16.9	5.3	13.5	4.2	10.1	3.2	6.8	2.1	3.4	1.1
	1500	17.9	2.8	14.3	2.2	10.7	1.7	7.1	1.1	3.6	0.6
	1000	18.9	2.0	15.1	1.6	11.3	1.2	7.5	0.8	3.8	0.4
	750	19.7	1.5	15.8	1.2	11.8	0.9	7.9	0.6	3.9	0.3
	500	21.4	1.1	17.1	0.9	12.8	0.7	8.6	0.4	4.3	0.2
	300	23.8	0.7	19.0	0.6	14.3	0.4	9.5	0.3	4.8	0.1
	100	28.9	0.3	23.1	0.2	17.3	0.2	11.5	0.1	5.8	0.1

Drive speed, drive torque and permissible lifting speed with ratio N and L.
All performance figures related to the dynamic lifting force and a duty cycle at 20 % / 1 h or at 30 % / 10 min. at 20 °C.

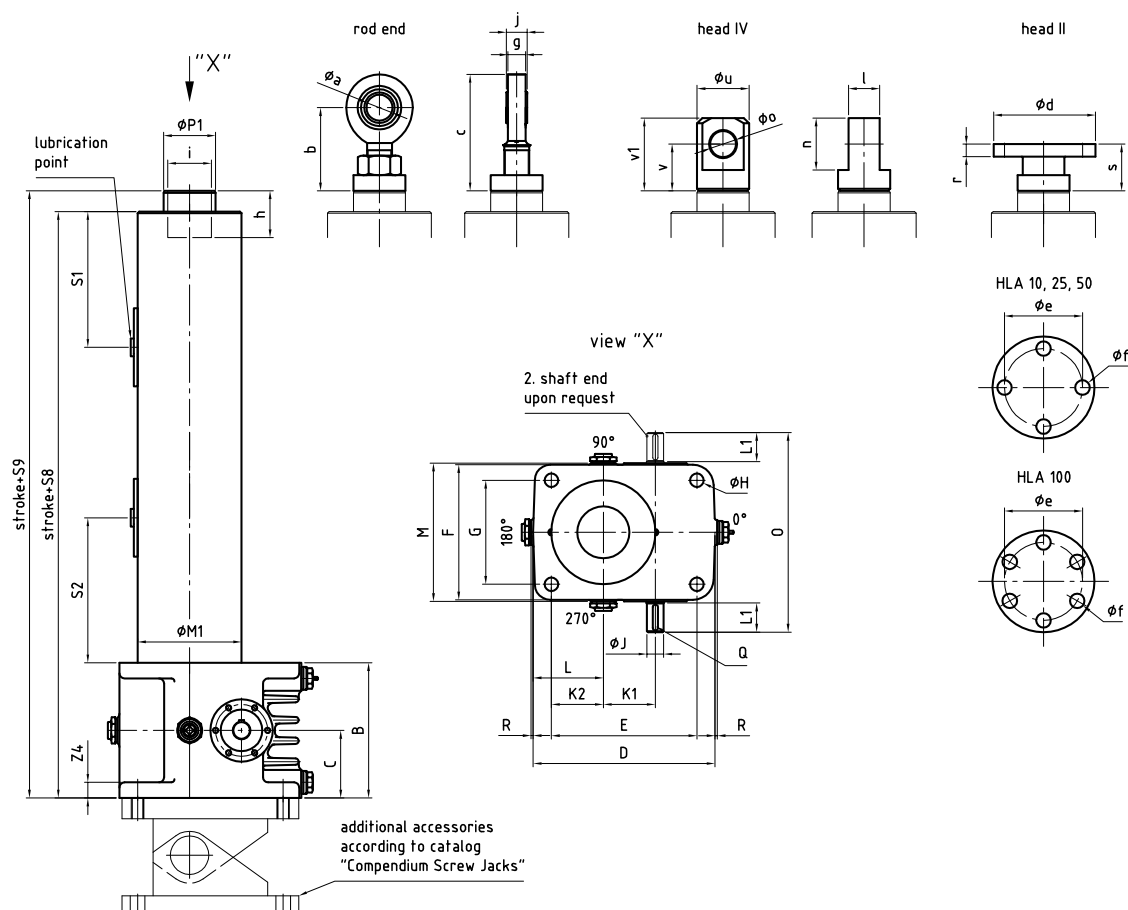
only static (dynamic not allowed)

10 % duty cycle / 1 h and ambient temperature 20 °C

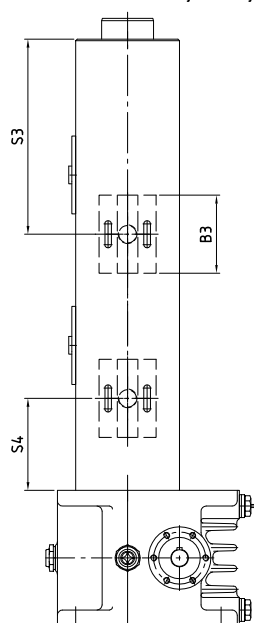
HLA

Technical drawings

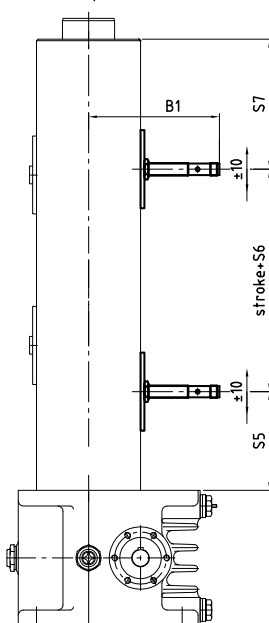
Technical drawings



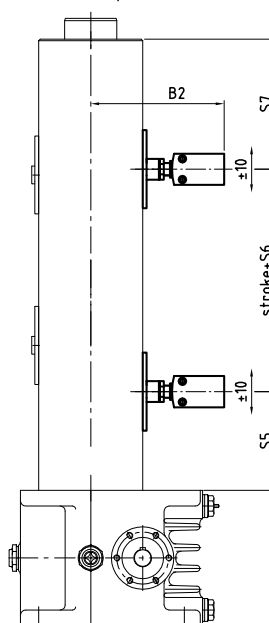
wear control
(in combination with safety nut only)



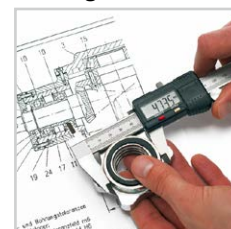
inductive limit switch M12x1
option Vi



mechanical limit switch M12x1
option Vm



CAD & go



HLA

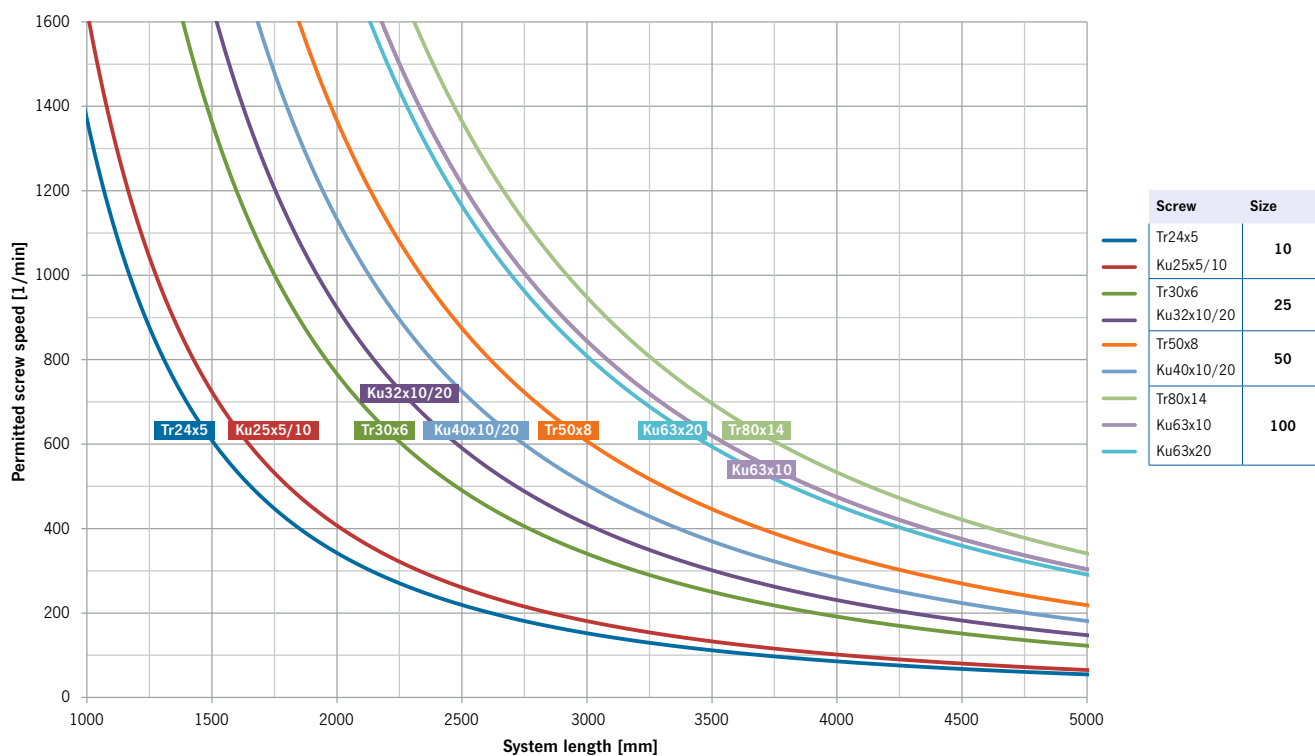
Dimensions

Dimensions HLA				
Size	HLA 10	HLA 25	HLA 50	HLA 100
Dimensions [mm]				
B	105	130	160	200
C	52.5	65	80	100
D	138	175	235	275
E	110	140	190	220
F	105	130	160	200
G	80	100	120	150
Ø H	9	13	17	21
h	20	45	63	54
i	M 33 x 2	M 42 x 2	M 60 x 2	M 95 x 3
Ø J k6	14	16	24	32
K 1	36	50	63	80
K 2	40	50	70	75
L	54	67.5	92.5	102.5
L 1	18	28	36	58
M	100	133	163	204
Ø M 1	70	100	130	170
O	140	192	238	322
Ø P 1	40	50	70	110
Q - DIN 6885 A	5 x 5 x 16	5 x 5 x 25	8 x 7 x 32	10 x 8 x 50
R	2	2	2	2
S 1 (Lubrication)	100	130.5	161.5	206
S 2 (Lubrication)	125	139.5	158.5	274
S 8	330	400	480	680
S 9	350	420	500	700
Z 4	12	15	20	25
Rod end				
Ø a H7	17	25	35	60
b	60	80	125	160
c	83	112	166	227.5
g	10.6	17	21	38
j	14	20	25	44
Head type IV				
I-0.2	25	30	40	75
n	40	50	70	120
Ø o H7	20	25	35	60
Ø u	40	50	65	110
v	40	45	65	90
v 1	60	70	100	150
Head type II				
Ø d / Ø e / Ø f	72 / 50 / 9	98 / 75 / 14	122 / 85 / 17	182 / 135 / 26
r / s	10 / 37	12 / 45	18 / 65	25 / 62
Wear control				
B 3	75	75	75	75
S 3 / S 4	142 / 83	187.5 / 88.5	232.5 / 87	322.5 / 157.5
Limit switch inductive/mechanical				
B 1 ± 1.5	111	126	138.5	156
B 2 ± 1.5	112	128	141	158.5
S 5 / S 6 / S 7	87.5 / 25 / 112.5	95 / 50 / 125	92 / 70 / 158	162.5 / 165 / 152.5

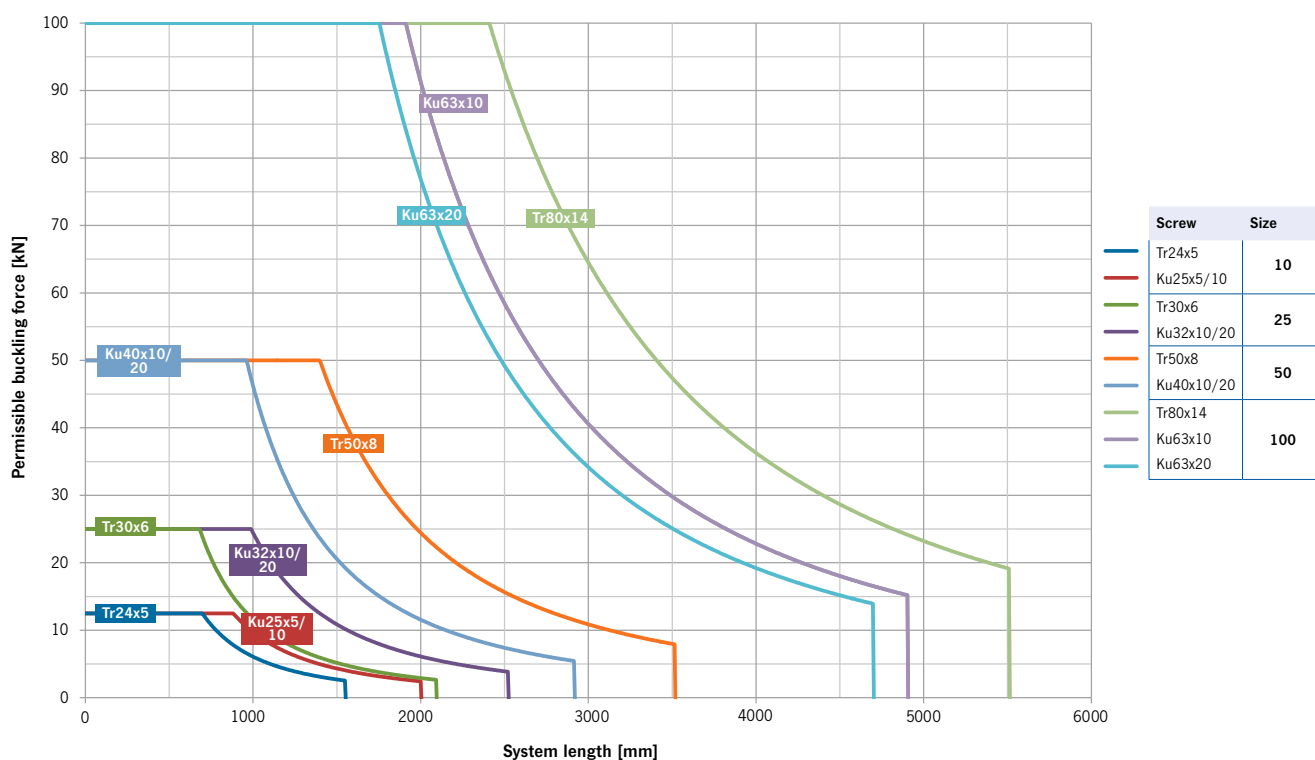


HLA Diagrams

Critical screw speed HLA



Buckling HLA



HLA

Order code

H	L	A	-				-				-				x					-					-					-				
1				2				3				4				5				6				7				8				9		10

No.	Explanation	
1	Series	HLA
2	Size	10 / 25 / 50 / 100
3	Mounting position	M1A / M1B / M2A / M2B / M3B / M4A M4B / M3A / M5A / M5B / M6A / M6B
4	Screw	Tr = Trapezoidal screw Ku = Ball screw (Ku)
5	Screw diameter in mm	
6	Pitch in mm	
7	Stroke length in mm	
8	Head	GK = Rod end II = Head plate IV = Clevis
9	Shaft drive	01 = Both sides 02 = Left side 03 = Right side
10	Accessories	01 = Mechanical limit switch 02 = Swivel plate 03 = Inductive limit switch 04 = Anti-turn device



PHOENIX

Telescopic lifting column

Design features

Functions

- Absorbing high compressive and tensile forces up to 25 kN
- Integrated linear guide
- Closed and low-maintenance design
- Eccentric load application permitted
- Self-locking on standstill (with single-stage trapezoidal thread)*
- Duty cycle of 20%/h or 15%/10 min

Basic equipment

- Short safety nut (for trapezoidal and AGS threads)
- End position limit
 - Inductive limit switches (single-stage lifting columns)
 - Gear limit switches (multi-stage lifting columns)

Options

- Shaft encoder
- Special head or foot plate
- Direct attachment of IEC motors
- Ball screws (single-stage columns)
- Multi-start screws
- Specific models also in special design with a safety nut that can be deactivated electrically
- Special customer wishes

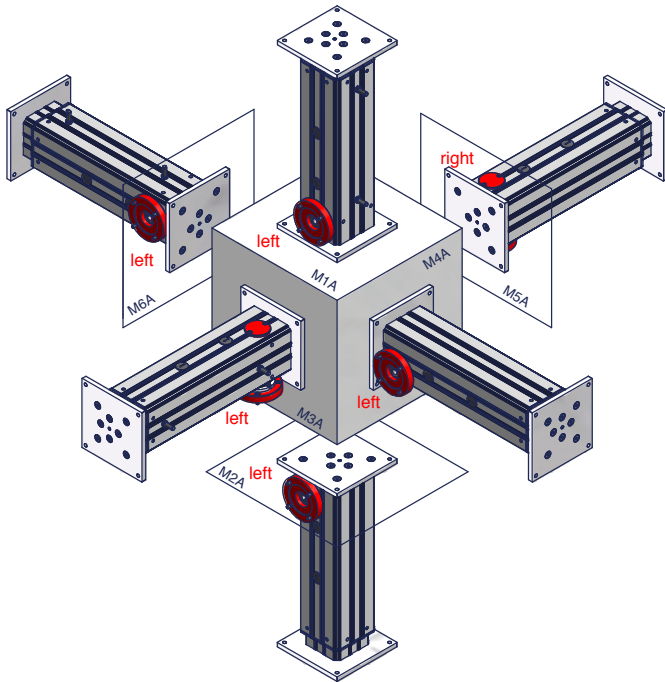


*Vibrations, sliding conditions can influence self-locking.
We also recommend use of a brake motor.

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Mounting positions and schematic diagrams

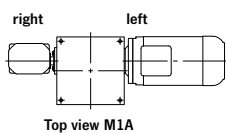
Mounting positions



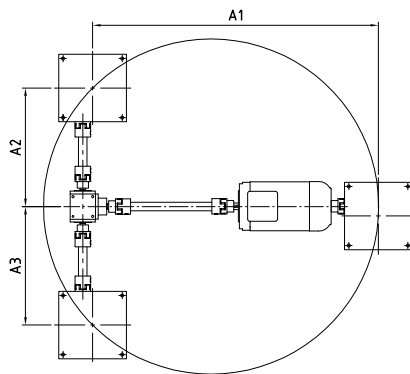
Schematic diagram

Lifting column, mechanically synchronized

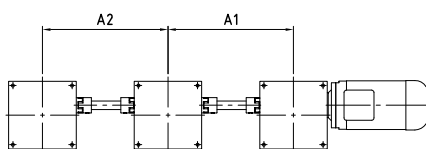
Schematic view 1.1



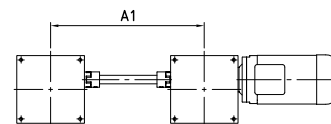
Schematic view 3.1



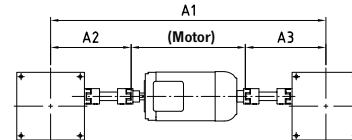
Schematic view 3.2



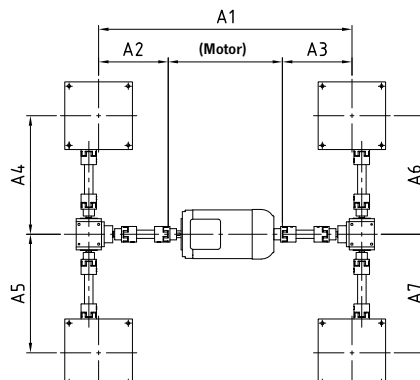
Schematic view 2.1



Schematic view 2.2



Schematic view 4.1



-  Lifting column
-  Connecting shaft
-  Coupling
-  Standard motor
-  Pillow block
-  Bevel gear box
-  IEC flange
-  Gear limit switch

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Selection table

Selection table PHOENIX						
Series	Single-stage				Multi-stage	
	PH34 M1	PH45 M2	PH56 M3	PH56 G15	PH46 M3	PH 36 M3
Gearbox type	M	M	M	G	M	M
Number of levels	single-stage	single-stage	single-stage	single-stage	two-stage	three-stage
F _{dyn} [kN]	5	10	25	15	10	8
F _{stat} [kN]	5	10	25	15	25	25
Standard screw	T24x5	T30x6	T36x6	T30x6	A30x32	A30x32
Ball screw (Ku)	K20x20	K25x25	K40x40	K32x20	-	-
Ratio N	4	4	6	2	6	6
Ratio L	16	16	24	3	24	24
Max. power 20 % at ambient temperature 20 °C [kW]	0.2	0.3	0.5	1	0.5	0.5
Max. power 10 % at ambient temperature 20 °C [kW]	0.42	0.6	1.1	1.3	1.1	1.1
Overall efficiency N	0.29	0.28	0.24	See diagram efficiency, page 51	0.43	0.38
Overall efficiency L	0.22	0.2	0.17		0.3	0.27
Max. torque on the input shaft [Nm]	3.4	7.1	18	50/19*	18	18
Max. speed [1/min]	1500	1500	1500	3000	1500	1500
Weight empty [kg]	14	18	26	30	31	35
Weight per 100 mm stroke [kg]	2.6	3.4	4	3.6	3	2.8

* Ratio N/L

Gearbox

M: Worm gear

High ratio possible

Low noise

High load capacity

Economical

G: Bevel gear

Permanently resilient

Multiple drives can be implemented

Good efficiency

Low wear

Nearly unchanged twist play

Screw types

T: Trapezoidal screw (Tr)

Self-locking*

Economical

K: Ball screw (Ku)

High efficiency

A: AGS screw (AGS)

Special thread for use in multi-stage screw jacks element



Tr screw



Ball screw (Ku)



AGS screw

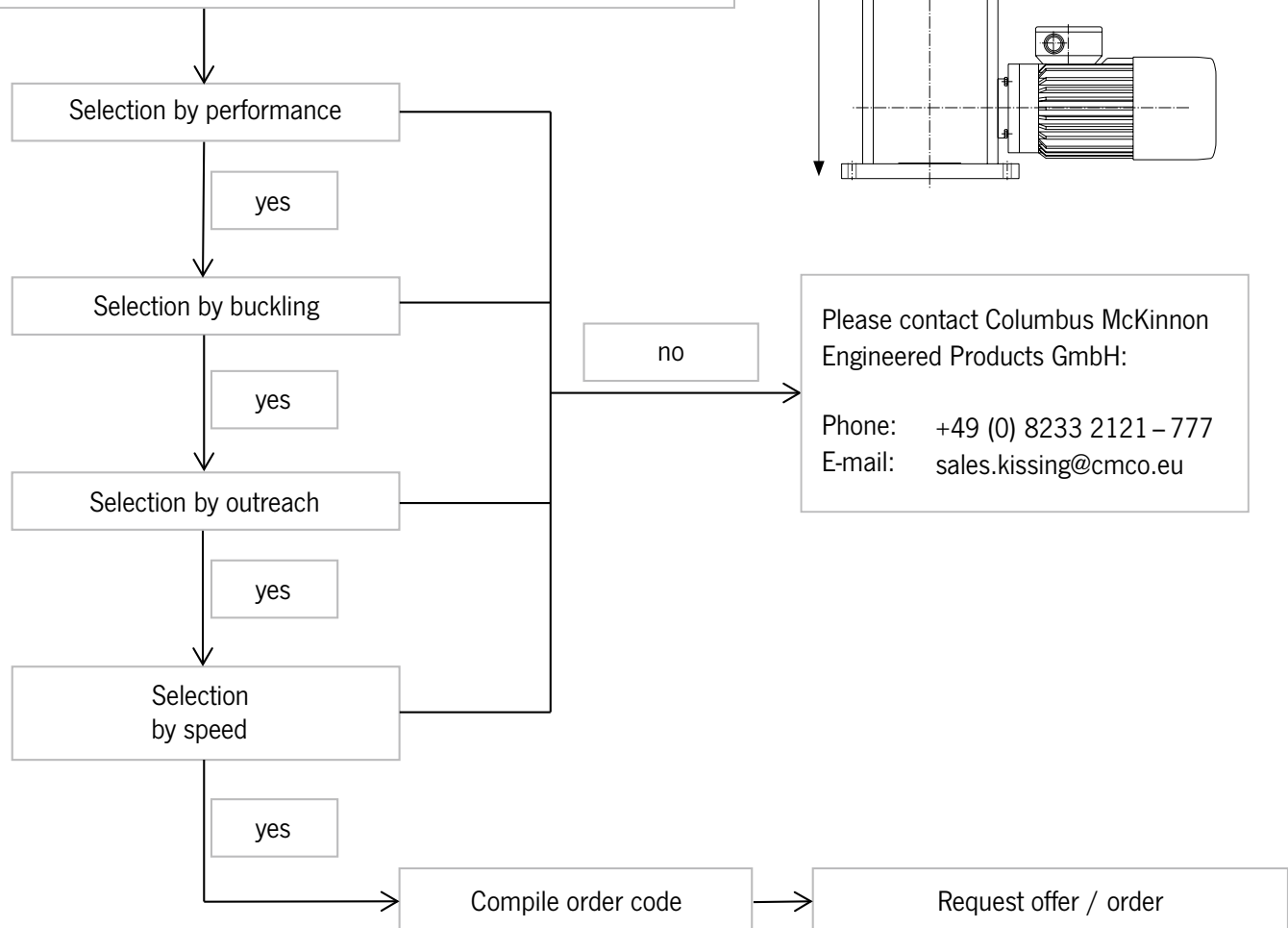
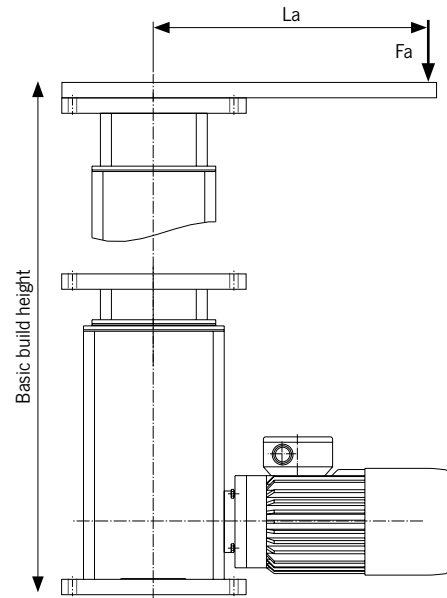
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Flow chart

Flow chart

Specified values:

- F_{dyn} : Lifting load [kN]
- F_{stat} : Static load [kN]
- v : Desired speed [m/min]
- ED: Duty cycle [%]
- GBH: Basic build height [mm]
(height in the retracted condition)
- L_a : Outreach [mm]
(Distance of the load center of gravity from the middle of the column)



PHOENIX

Performance tables SINGLE-STAGE – trapezoidal screw

Performance table PHOENIX PH34 M1, Tr 24x5

Speed n	Lifting speed		5 kN		4 kN		3 kN		2.5 kN		2 kN		1.5 kN		1 kN	
	N	L	N	L	N	L	N	L	N	L	N	L	N	L	N	L
			4 Nm	1 Nm	3 Nm	1 Nm	2 Nm	1 Nm	2 Nm	1 Nm	2 Nm	1 Nm	1 Nm	1 Nm	1 Nm	0 Nm
[1/min]	[m/min]		P [kW]													
1500	1.88	0.47	0.6	0.2	0.5	0.2	0.4	0.1	0.3	0.1	0.3	0.1	0.2	0.1	0.2	0.1
1000	1.25	0.31	0.4	0.1	0.3	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1
750	0.94	0.23	0.3	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
600	0.75	0.19	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
500	0.63	0.16	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
300	0.38	0.09	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100	0.13	0.03	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
50	0.06	0.02	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Performance table PHOENIX PH45 M2, Tr 30x6

Speed n	Lifting speed		10 kN		8 kN		6 kN		4 kN		3 kN		2 kN		1 kN	
	N	L	N	L	N	L	N	L	N	L	N	L	N	L	N	L
			9 Nm	3 Nm	7 Nm	3 Nm	6 Nm	2 Nm	4 Nm	1 Nm	3 Nm	1 Nm	2 Nm	1 Nm	1 Nm	1 Nm
[1/min]	[m/min]		P [kW]													
1500	2.25	0.56	1.4	0.5	1.1	0.4	0.9	0.3	0.6	0.2	0.5	0.2	0.3	0.1	0.2	0.1
1000	1.5	0.38	0.9	0.3	0.8	0.3	0.6	0.2	0.4	0.1	0.3	0.1	0.2	0.1	0.1	0.1
750	1.13	0.28	0.7	0.2	0.6	0.2	0.4	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.1
600	0.9	0.23	0.6	0.2	0.5	0.2	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1
500	0.75	0.19	0.5	0.2	0.4	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1
300	0.45	0.11	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100	0.15	0.04	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
50	0.08	0.02	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Performance table PHOENIX PH56 M3, Tr 36x6

Speed n	Lifting speed		25 kN		20 kN		15 kN		10 kN		5 kN		2.5 kN		1 kN	
	N	L	N	L	N	L	N	L	N	L	N	L	N	L	N	L
			17 Nm	6 Nm	13 Nm	5 Nm	10 Nm	4 Nm	7 Nm	3 Nm	4 Nm	1 Nm	2 Nm	1 Nm	1 Nm	0 Nm
[1/min]	[m/min]		P [kW]													
1500	1.5	0.38	2.6	0.9	2.1	0.8	1.6	0.6	1.1	0.4	0.6	0.2	0.3	0.1	0.2	0.1
1000	1	0.25	1.7	0.6	1.4	0.5	1.1	0.4	0.7	0.3	0.4	0.1	0.2	0.1	0.1	0.1
750	0.75	0.19	1.3	0.5	1.1	0.4	0.8	0.3	0.5	0.2	0.3	0.1	0.2	0.1	0.1	0.1
600	0.6	0.15	1	0.4	0.8	0.3	0.6	0.2	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1
500	0.5	0.13	0.9	0.3	0.7	0.3	0.5	0.2	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.1
300	0.3	0.08	0.5	0.2	0.4	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100	0.1	0.03	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
50	0.05	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Performance table PHOENIX PH56 G15, Tr 30x6

Speed n	Lifting speed		15 kN		12.5 kN		10 kN		7.5 kN		5 kN		2.5 kN		1 kN	
	N	L	N	L	N	L	N	L	N	L	N	L	N	L	N	L
			20 Nm	13 Nm	16 Nm	11 Nm	13 Nm	9 Nm	10 Nm	7 Nm	7 Nm	5 Nm	4 Nm	3 Nm	2 Nm	1 Nm
[1/min]	[m/min]		P [kW]													
3000	9	6	6.6	4.6	5.6	3.9	4.6	3.2	3.6	2.6	2.6	1.9	1.7	1.3	1.1	0.9
2250	6.75	4.5	5	3.4	4.2	2.9	3.5	2.4	2.7	1.9	2	1.4	1.2	0.9	0.8	0.7
1500	4.5	3	3.3	2.3	2.8	1.9	2.3	1.6	1.8	1.3	1.3	1	0.8	0.6	0.5	0.4
1000	3	2	2.2	1.5	1.9	1.3	1.5	1.1	1.2	0.9	0.9	0.6	0.6	0.4	0.4	0.3
750	2.25	1.5	1.7	1.1	1.4	1	1.2	0.8	0.9	0.6	0.7	0.5	0.4	0.3	0.3	0.2
500	1.5	1	1.1	0.8	0.9	0.6	0.8	0.5	0.6	0.4	0.4	0.3	0.3	0.2	0.2	0.1
300	0.9	0.6	0.7	0.5	0.6	0.4	0.5	0.3	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1
100	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Max. duty cycle at 20 °C ambient temperature: Operating mode S3 20% – 60 min. Operating mode S3 10% – 60 min. static only (dynamic not allowed)

PHOENIX

Performance tables MULTI-STAGE – AGS screw

Performance table PHOENIX PH46 M3, AGS32

Speed n	Lifting speed		10 kN		8 kN		6 kN		4 kN		3 kN		2 kN		1 kN	
	N	L	N	L	N	L	N	L	N	L	N	L	N	L	N	L
			21 Nm	8 Nm	17 Nm	6 Nm	13 Nm	5 Nm	9 Nm	3 Nm	7 Nm	3 Nm	5 Nm	2 Nm	3 Nm	1 Nm
[1/min]	[m/min]		P [kW]													
1500	8	2	3.3	1.2	2.6	0.9	2	0.7	1.4	0.5	1.1	0.4	0.8	0.3	0.5	0.2
1000	5.33	1.33	2.2	0.8	1.8	0.6	1.3	0.5	0.9	0.3	0.7	0.3	0.5	0.2	0.3	0.1
750	4	1	1.6	0.6	1.3	0.5	1	0.4	0.7	0.3	0.5	0.2	0.4	0.1	0.2	0.1
600	3.2	0.8	1.3	0.5	1.1	0.4	0.8	0.3	0.6	0.2	0.4	0.2	0.3	0.1	0.2	0.1
500	2.67	0.67	1.1	0.4	0.9	0.3	0.7	0.2	0.5	0.2	0.4	0.1	0.3	0.1	0.2	0.1
300	1.6	0.4	0.7	0.2	0.5	0.2	0.4	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.1
100	0.53	0.13	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
50	0.27	0.07	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Performance table PHOENIX PH36 M3, AGS32

Speed n	Lifting speed		8 kN		7 kN		6 kN		5 kN		4 kN		2 kN		1 kN	
	N	L	N	L	N	L	N	L	N	L	N	L	N	L	N	L
			19 Nm	7 Nm	17 Nm	6 Nm	15 Nm	5 Nm	12 Nm	4 Nm	10 Nm	4 Nm	6 Nm	2 Nm	3 Nm	1 Nm
[1/min]	[m/min]		P [kW]													
1500	8	2	3	1.1	2.6	0.9	2.3	0.8	1.9	0.7	1.6	0.6	0.9	0.3	0.5	0.2
1000	5.33	1.33	2	0.7	1.7	0.6	1.5	0.5	1.3	0.5	1	0.4	0.6	0.2	0.3	0.1
750	4	1	1.5	0.5	1.3	0.5	1.1	0.4	1	0.3	0.8	0.3	0.4	0.2	0.3	0.1
600	3.2	0.8	1.2	0.4	1	0.4	0.9	0.3	0.8	0.3	0.6	0.2	0.3	0.1	0.2	0.1
500	2.67	0.67	1	0.4	0.9	0.3	0.8	0.3	0.6	0.2	0.5	0.2	0.3	0.1	0.2	0.1
300	1.6	0.4	0.6	0.2	0.5	0.2	0.5	0.2	0.4	0.1	0.3	0.1	0.2	0.1	0.1	0.1
100	0.53	0.13	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
50	0.27	0.07	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Max. duty cycle at 20 °C ambient temperature: Operating mode S3 20% – 60 min. Operating mode S3 10% – 60 min. static only (dynamic not allowed)

PHOENIX

Performance tables SINGLE-STAGE – ball screw (Ku)

Performance table PHOENIX PH34 M1, Ku20x20

Speed n	Lifting speed		5 kN		4 kN		3 kN		2.5 kN		2 kN		1.5 kN		1 kN	
	N	L	N	L	N	L	N	L	N	L	N	L	N	L	N	L
			7 Nm	2 Nm	6 Nm	2 Nm	5 Nm	2 Nm	4 Nm	1 Nm	3 Nm	1 Nm	3 Nm	1 Nm	2 Nm	1 Nm
[1/min]	[m/min]		P [kW]													
1500	7.5	1.88	1.1	0.4	0.9	0.3	0.7	0.2	0.6	0.2	0.5	0.2	0.4	0.1	0.3	0.1
1000	5	1.25	0.8	0.2	0.6	0.2	0.5	0.2	0.4	0.1	0.3	0.1	0.3	0.1	0.2	0.1
750	3.75	0.94	0.6	0.2	0.5	0.2	0.4	0.1	0.3	0.1	0.3	0.1	0.2	0.1	0.2	0.1
600	3	0.75	0.5	0.1	0.4	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1
500	2.5	0.63	0.4	0.1	0.3	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1
300	1.5	0.38	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100	0.5	0.13	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
50	0.25	0.06	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Performance table PHOENIX PH45 M2, Ku25x25

Speed n	Lifting speed		10 kN		8 kN		6 kN		4 kN		3 kN		2 kN		1 kN	
	N	L	N	L	N	L	N	L	N	L	N	L	N	L	N	L
			18 Nm	6 Nm	14 Nm	5 Nm	11 Nm	4 Nm	8 Nm	3 Nm	6 Nm	2 Nm	4 Nm	2 Nm	3 Nm	1 Nm
[1/min]	[m/min]		P [kW]													
1500	9.38	2.34	2.8	0.9	2.2	0.8	1.7	0.6	1.2	0.4	0.9	0.3	0.7	0.2	0.4	0.1
1000	6.25	1.56	1.8	0.6	1.5	0.5	1.1	0.4	0.8	0.3	0.6	0.2	0.4	0.2	0.3	0.1
750	4.69	1.17	1.4	0.5	1.1	0.4	0.9	0.3	0.6	0.2	0.5	0.2	0.3	0.1	0.2	0.1
600	3.75	0.94	1.1	0.4	0.9	0.3	0.7	0.2	0.5	0.2	0.4	0.1	0.3	0.1	0.2	0.1
500	3.13	0.78	0.9	0.3	0.7	0.3	0.6	0.2	0.4	0.1	0.3	0.1	0.2	0.1	0.1	0.1
300	1.88	0.47	0.6	0.2	0.4	0.2	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1
100	0.63	0.16	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
50	0.31	0.08	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Performance table PHOENIX PH56 M3, Ku40x40

Speed n	Lifting speed		25 kN		20 kN		15 kN		10 kN		5 kN		2.5 kN		1 kN	
	N	L	N	L	N	L	N	L	N	L	N	L	N	L	N	L
			46 Nm	17 Nm	37 Nm	13 Nm	28 Nm	10 Nm	19 Nm	7 Nm	10 Nm	4 Nm	6 Nm	2 Nm	3 Nm	1 Nm
[1/min]	[m/min]		P [kW]													
1500	10	2.5	7.2	2.6	5.8	2.1	4.4	1.6	3	1.1	1.6	0.6	0.9	0.3	0.4	0.2
1000	6.67	1.67	4.8	1.7	3.9	1.4	2.9	1.1	2	0.7	1	0.4	0.6	0.2	0.3	0.1
750	5	1.25	3.6	1.3	2.9	1	2.2	0.8	1.5	0.5	0.8	0.3	0.4	0.2	0.2	0.1
600	4	1	2.9	1	2.3	0.8	1.8	0.6	1.2	0.4	0.6	0.2	0.3	0.1	0.2	0.1
500	3.33	0.83	2.4	0.9	1.9	0.7	1.5	0.5	1	0.4	0.5	0.2	0.3	0.1	0.1	0.1
300	2	0.5	1.4	0.5	1.2	0.4	0.9	0.3	0.6	0.2	0.3	0.1	0.2	0.1	0.1	0.1
100	0.67	0.17	0.5	0.2	0.4	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
50	0.33	0.08	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

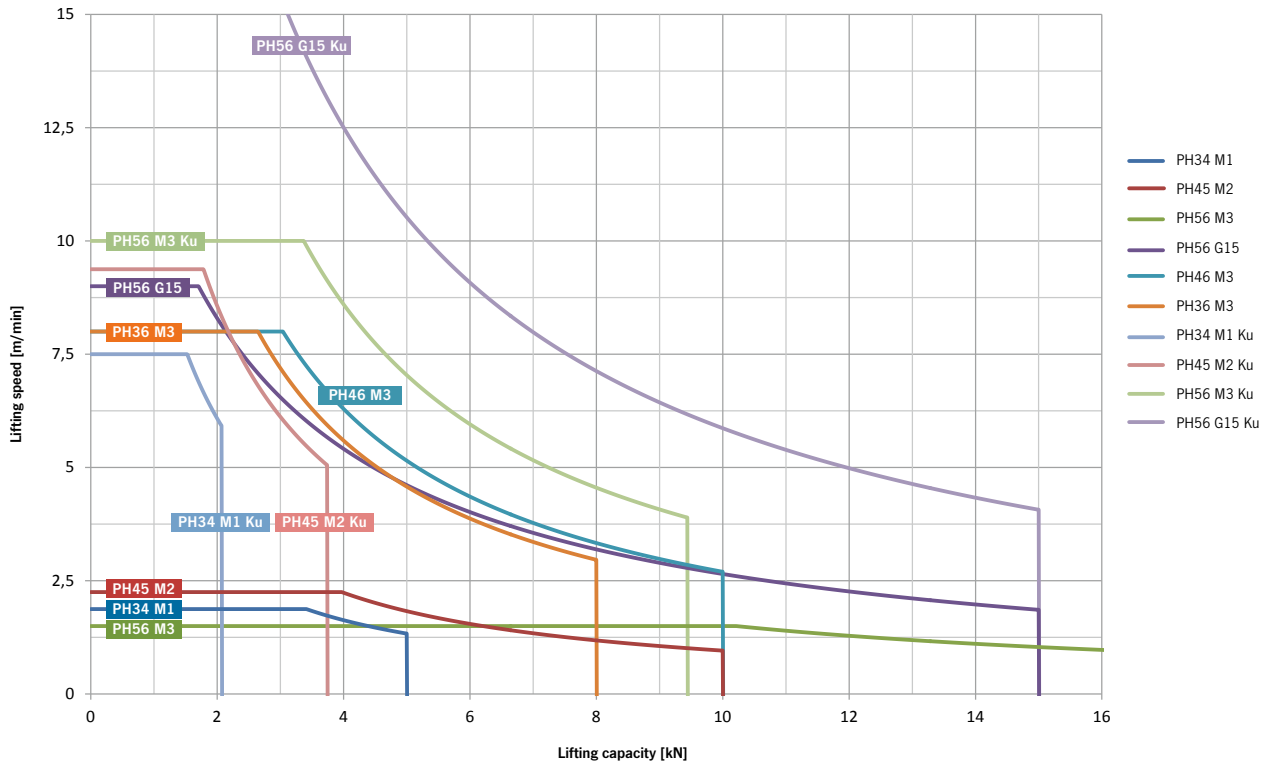
Performance table PHOENIX PH56 G15, Ku32x20

Speed n	Lifting speed		15 kN		12.5 kN		10 kN		7.5 kN		5 kN		2.5 kN		1 kN	
	N	L	N	L	N	L	N	L	N	L	N	L	N	L	N	L
			31 Nm	20 Nm	26 Nm	17 Nm	21 Nm	14 Nm	16 Nm	11 Nm	11 Nm	7 Nm	6 Nm	4 Nm	3 Nm	2 Nm
[1/min]	[m/min]		P [kW]													
2250		15		5.2		4.4		3.6		2.8		2.1		1.3		0.8
1500	15	10	5	3.4	4.3	2.9	3.5	2.4	2.7	1.9	1.9	1.4	1.2	0.9	0.7	0.5
1000	10	6.67	3.4	2.3	2.8	1.9	2.3	1.6	1.8	1.3	1.3	0.9	0.8	0.6	0.5	0.4
750	7.5	5	2.5	1.7	2.1	1.5	1.7	1.2	1.4	0.9	1	0.7	0.6	0.4	0.4	0.3
500	5	3.33	1.7	1.1	1.4	1	1.2	0.8	0.9	0.6	0.6	0.5	0.4	0.3	0.2	0.2
300	3	2	1	0.7	0.9	0.6	0.7	0.5	0.5	0.4	0.4	0.3	0.2	0.2	0.1	0.1
100	1	0.67	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1

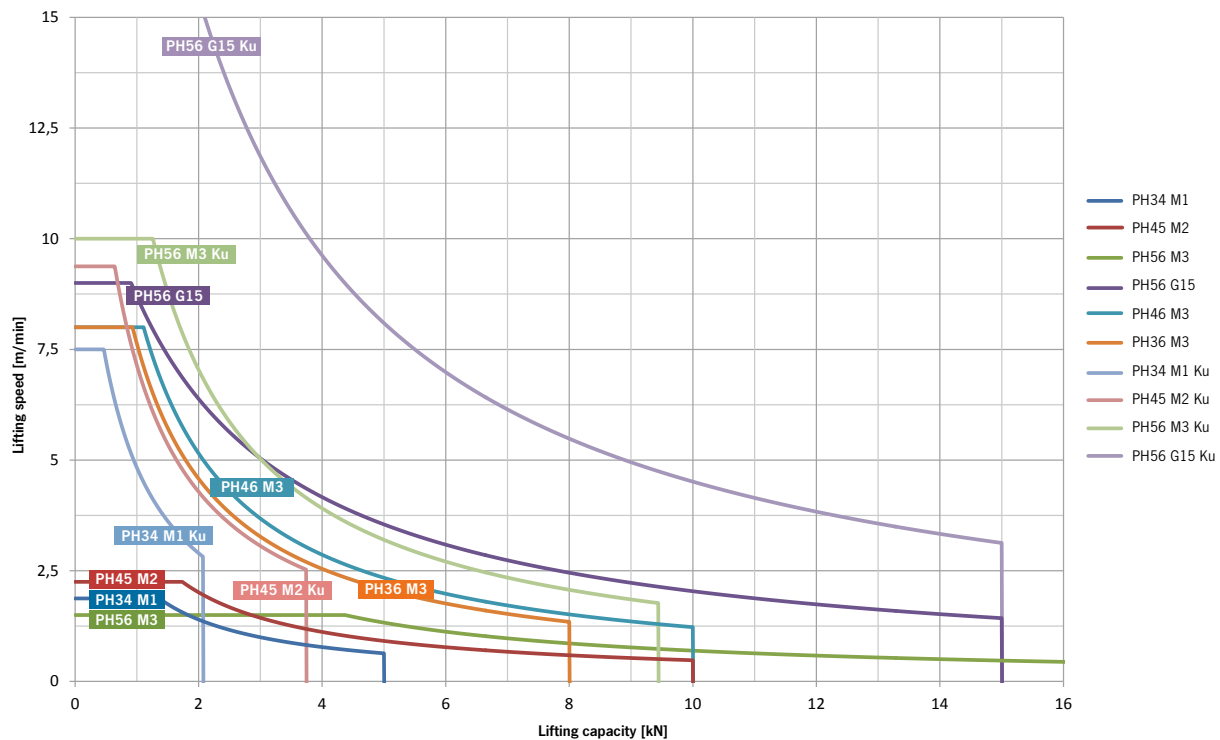
Max. duty cycle at 20 °C ambient temperature: Operating mode S3 20% – 60 min. Operating mode S3 10% – 60 min. static only (dynamic not allowed)

PHOENIX Diagrams

Performance diagram – duty cycle 10%



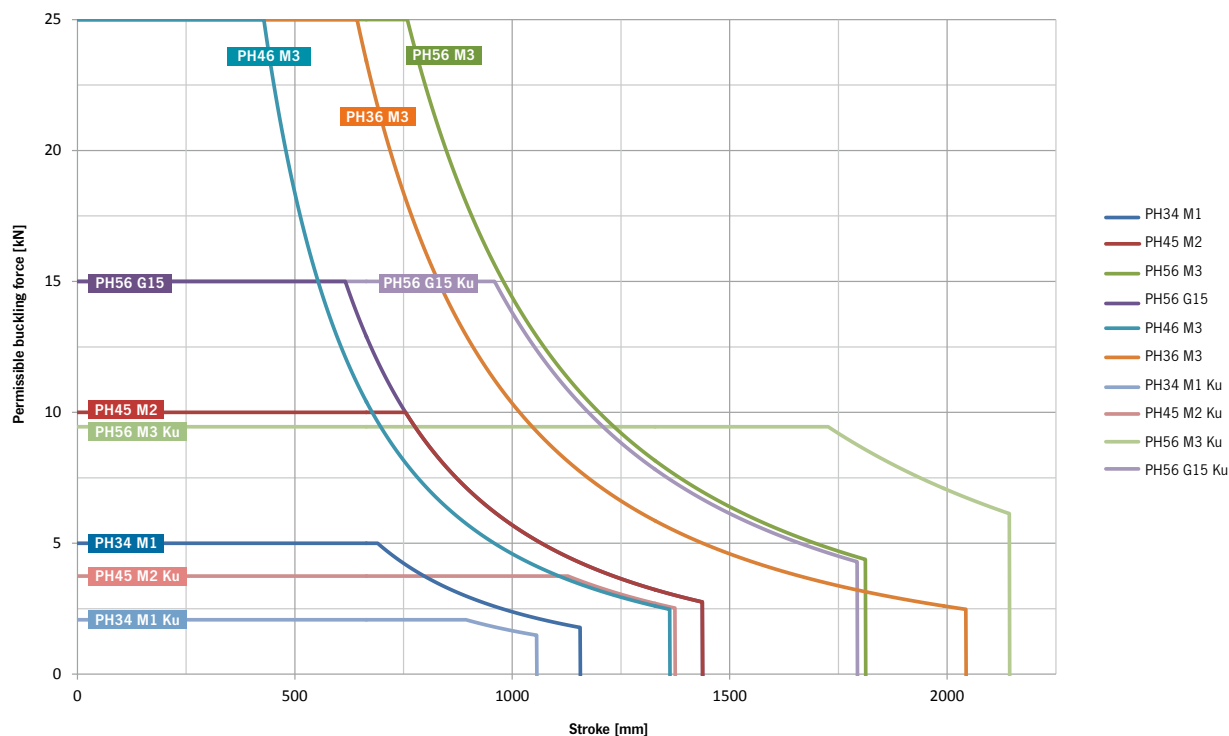
Performance diagram - duty cycle 20%



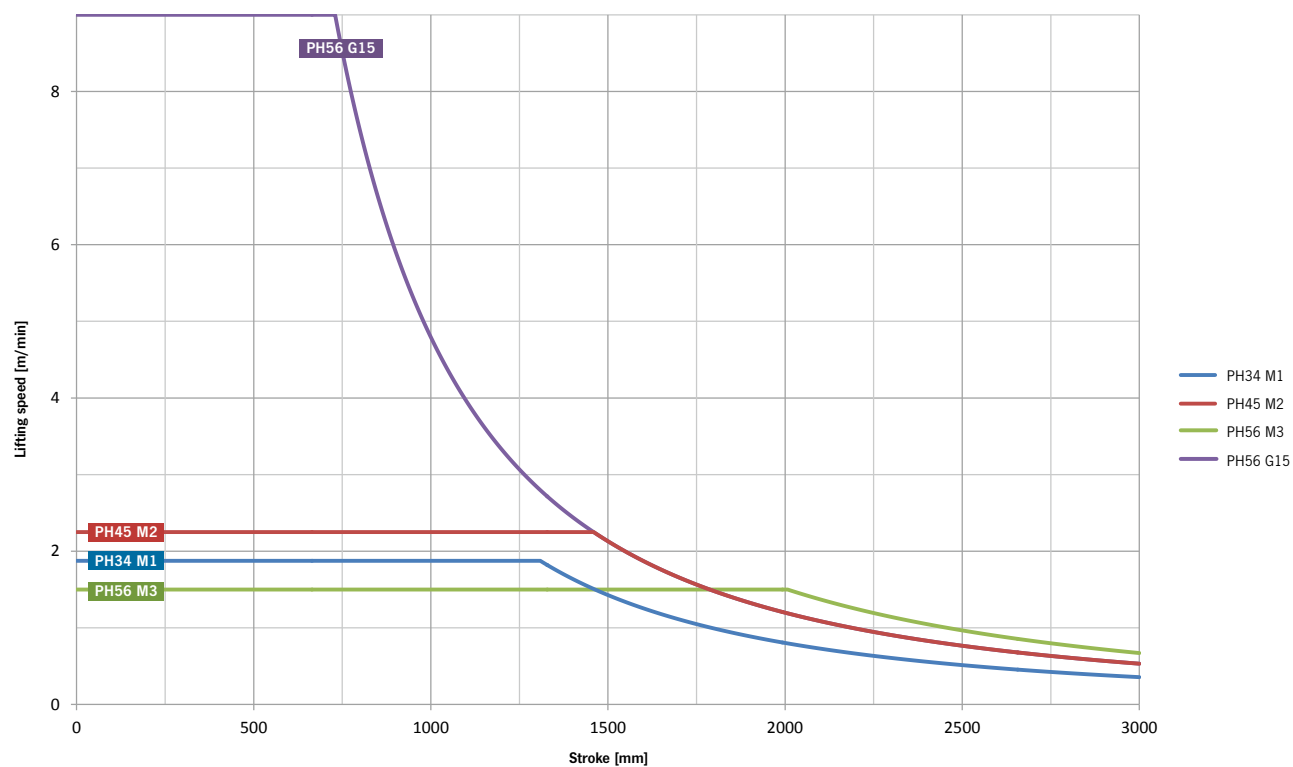
PHOENIX

Diagrams

PHOENIX Buckling

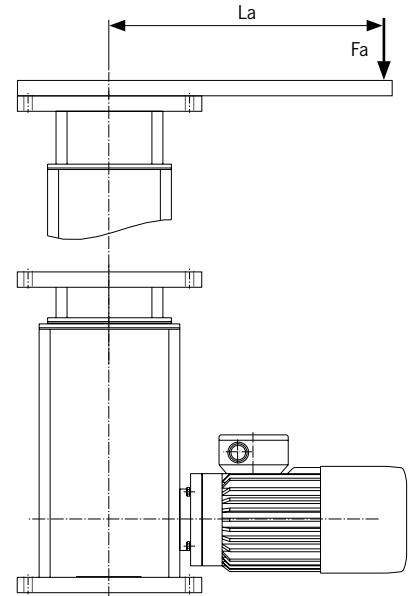
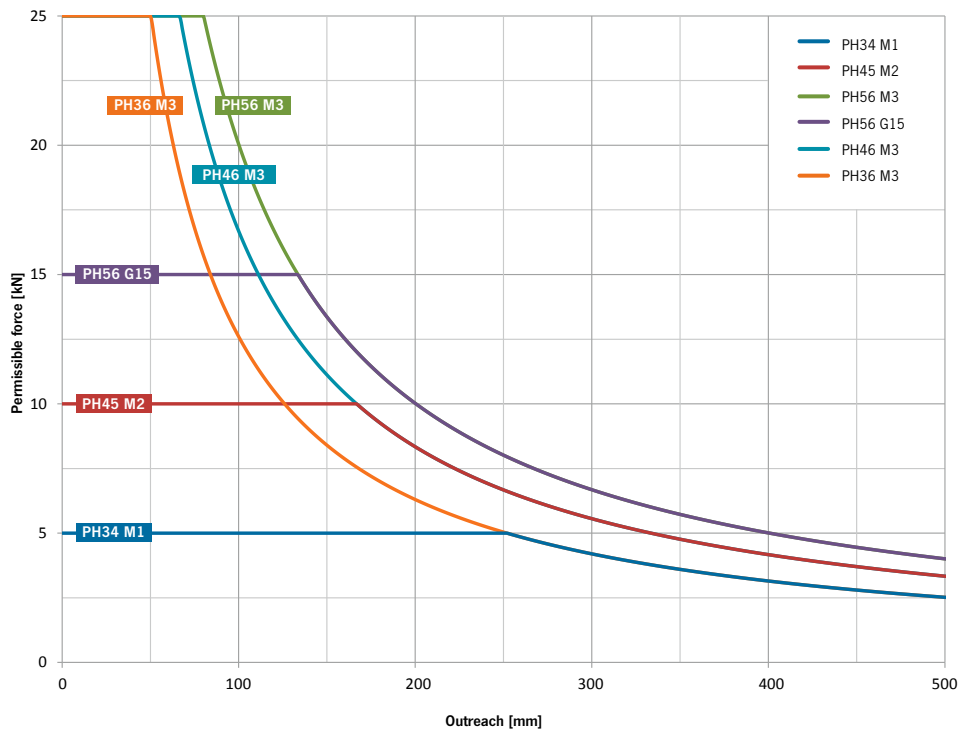


Critical speed (trapezoidal screw)

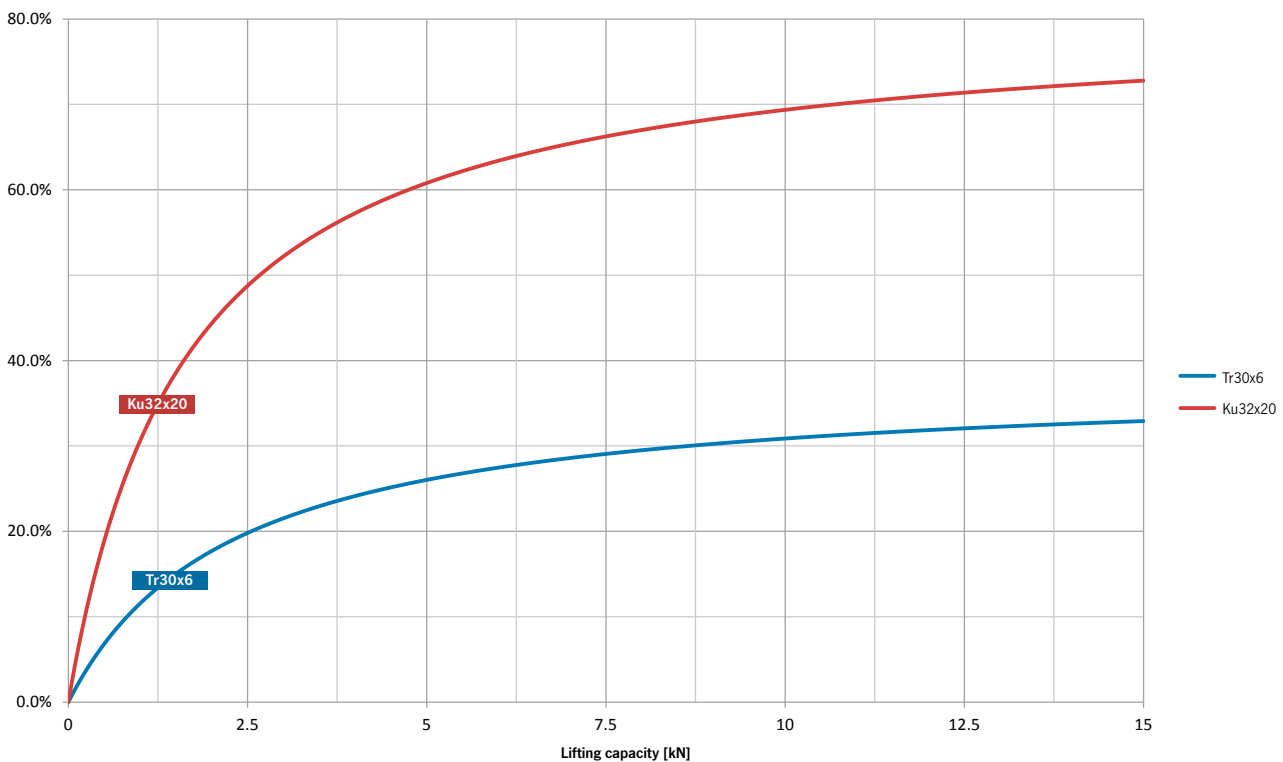


PHOENIX Diagrams

PHOENIX Off-center load



Efficiency G15

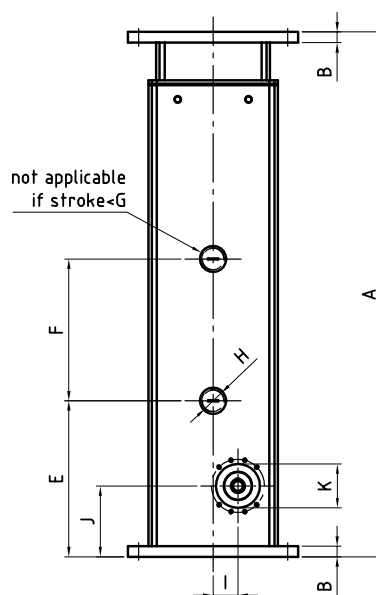
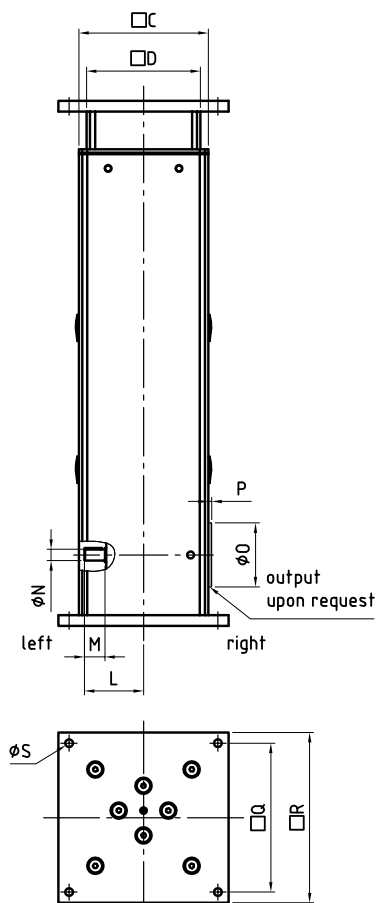


PHOENIX

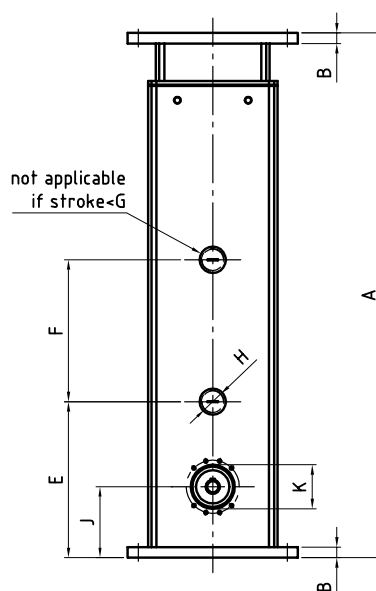
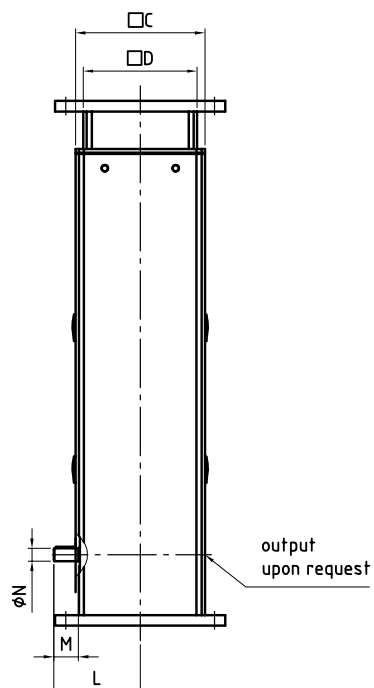
Technical drawings

Technical drawings

with gear type M



with gear type G



CAD & go



PHOENIX

Dimensions

Dimensions PHOENIX						
Size	Single-stage				Multi-stage	
Dimensions [mm]	PH34 M1	PH45 M2	PH56 M3	PH56 G15	PH46 M3	PH 36 M3
A	260 + stroke + VL	300 + stroke + VL	340 + stroke + VL	369 + stroke + VL	375 + 1/2 stroke + VL	360 + 1/3 stroke + VL
□B	15	15	15	15	15	15
□C	138.6	160.6	182.6	182.6	182.6	182.6
D	116.6	138.6	160.6	160.6	138.6	116.6
E	170	195	220	249	220	199
F	1/2 stroke	1/2 stroke	1/2 stroke	1/2 stroke	-	-
G	300	350	400	400	-	-
H	M32x1.5	M32x1.5	M32x1.5	M32x1.5	M32x1.5	M32x1.5
I	15	22	35	-	35	45
J	80	90	100	100	100	90
Ø K H8	52	52	62	68	62	62
L	60	70	83.5	122	83.5	83.5
M	22.5	25.5	29	35	29	29
Ø N	10 k6	14 k6	16 k6	12j6 (i=2)* 18j6 (i=3)*	16 k6	16 k6
Ø O	75	75	90	-	90	90
P	5	5	5	-	5	5
□Q ±0.3	210	210	210	210	210	210
□R	240	240	240	240	240	240
Ø S	11	11	11	11	11	11

* i = Ratio

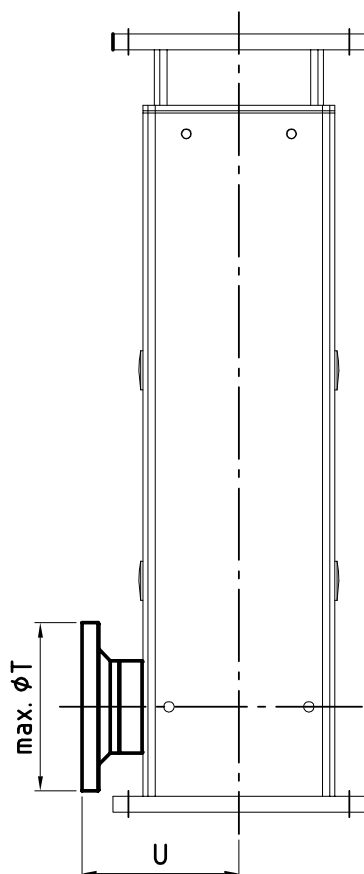


PHOENIX

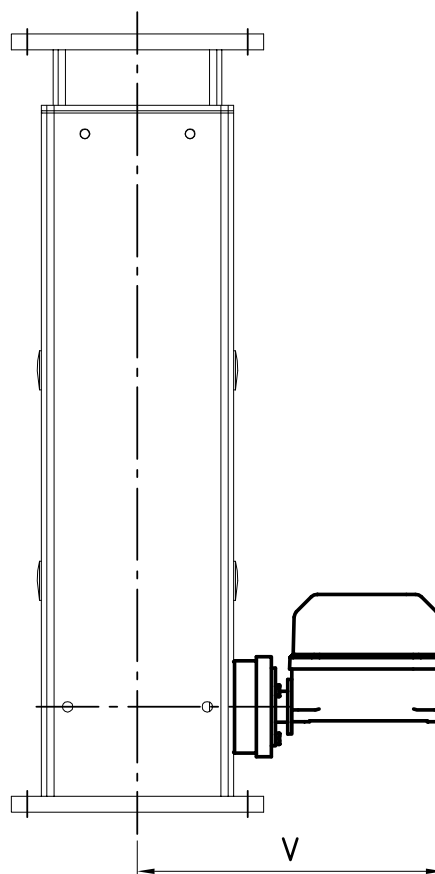
Technical drawings

Technical drawings

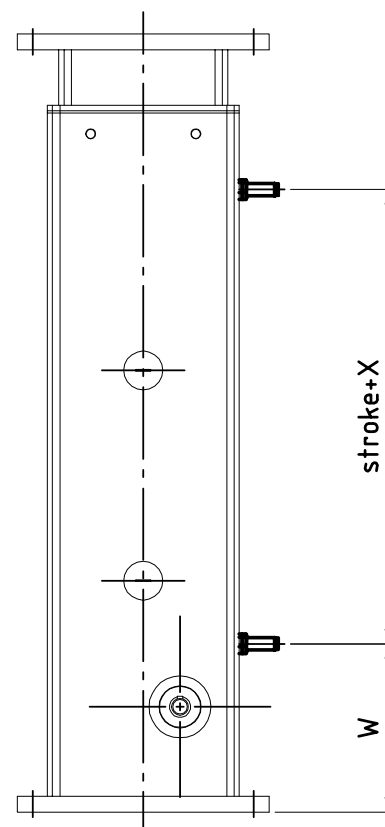
Motor mounting flange



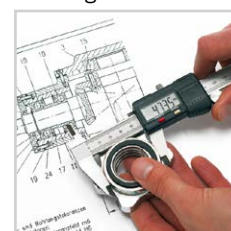
Gear limit switch



Inductive limit switch



CAD & go



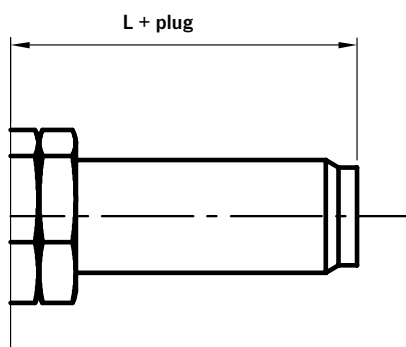
PHOENIX

Dimensions and accessories

Dimensions PHOENIX						
Size	Single-stage				Multi-stage	
Dimensions [mm]	PH34 M1	PH45 M2	PH56 M3	PH56 G15	PH46 M3	PH 36 M3
Accessories						
Motor mounting flange						
Ø T	120	140	160	160	160	140
U	Dimensions according to offer or customer request					
Gear limit switch						
V	269	277	291	329	291	291
Inductive limit switch						
W	125	145	165	194	-	-
X	22	22	22	22	-	-

Accessories	
Inductive limit switch (only single-stage column)	
	Standard
Supply voltage	10-30V DC*
Connection	M12
	4 pins
	Three-core
Attachment	M12x1
Output	NC
Switching current	≤ 200 mA
Length	41 mm

*AC optionally selectable, and with control from Columbus McKinnon Engineered Products GmbH



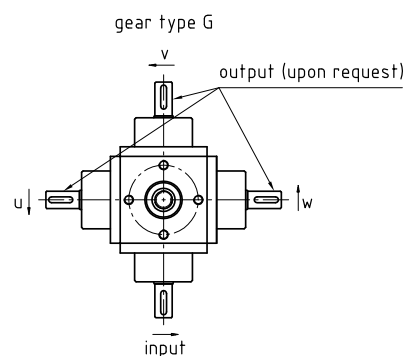
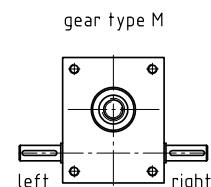
Gear limit switch



- Necessary for multi-stage lifting columns
- Optional for single-stage lifting columns
- Mounting on output shaft end
- Up to 8 switching points

Hand drive





Examples:

PH45-M2-N-2A-0-300-50-0-R-0

1-stage PH45-M3 with ratio N
Small profile below
Standard head and foot plates
300 mm stroke, 50 mm extension
Standard screw
Input right, no output

PH56-G15-L-1A-X-600-0-K32x20-v-0

1-stage PH56-G15 with ratio L
Large profile below
Special head and/or foot plate
600 mm stroke, no extension
Ball screw Ku32x20
Output at shaft end "v" (opposite input)

Columbus McKinnon Catalog overview

Catalog overview

The force is not enough to move loads? Solutions by Columbus McKinnon Engineered Products GmbH come into play. They grip, move, lift and position various goods perfectly reliable, safe and efficient.

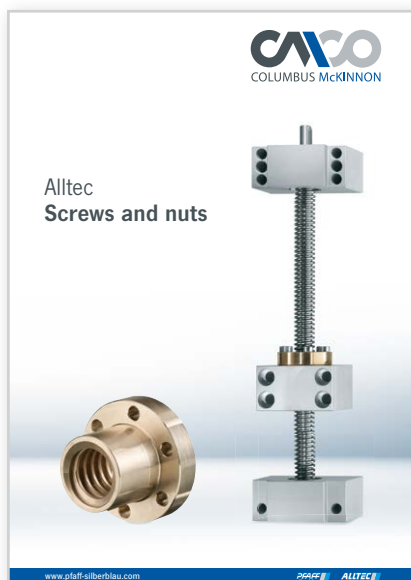
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