COLUMBUS McKINNON

CMLA

The electromechanical line actuator-

minimum size,maximum performance!

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PFAFF silberblau

ALLTEC antriebstechnik

Columbus McKinnon Engineered Products GmbH

The brands Pfaff-silberblau and ALLTEC Antriebstechnik are positioned under the strong umbrella of COLUMBUS McKINNON Corporation as COLUMBUS McKINNON Engineered Products GmbH. This unique constellation enables us to combine outstanding technologies, components and solutions depending on specific customer requests.

Pfaff-silberblau and ALLTEC Antriebstechnik's portfolios with both brands' wide range of products complement each other to form a comprehensive range of high-end, electromechanical components for linear motion technology.

Choose the ideal technology and engineering for your application from our range. You benefit from innovative complete solutions from a world leader that is also somewhere near you.

CMLA overview table

Size		P50	P70	P90	P125
Max. axial force	**Trapezoidal screw**	5000 N	7000 N	9000 N	12500 N
	Ball screw	5500 N	7500 N	9500 N	13000 N
Max. lifting speed (depending on load)	**Trapezoidal screw**	87 mm/s (800 N)	87 mm/s (1800 N)	84 mm/s (2800 N)	84 mm/s (3800 N)
	Ball screw	109 mm/s (1300 N)	109 mm/s (2300 N)	169 mm/s (3300 N)	169 mm/s (4300 N)
Temperature range		-10 °C to + 60 °C			

CMLA - More powerful than ever. More compact than ever before. Reliable as always.

• 4 different sizes
For load ranges from 500 kg to 1300 kg.

• High lifting speeds
Thanks to optional ball screw and low gear ratio.

• Low maintenance
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.

• Fast delivery capacity
Thanks to modular system and warehouse stockpiling of the individual components.

• Protection class IP 65
Motors, brakes, drive mechanism designed in accordance with DIN EN 60034-5, protection class IP 65 for outdoor use.

• Temperature range
From -10 °C to + 60 °C.

High-quality workmanship
Outer tube made of anodised aluminium, housing made of aluminium, hard chrome-plated translating tube and rod heads made of stainless steel.

Integrated brake
Protected against soiling in unfavourable operational conditions.

Drive motor
Special motor. Maximum power at small size in comparison to standard motors.
Three-phase motor AC 3Ph 400 V (50 Hz) as standard.
Optionally direct-current motor DC 24 V for P50 and P70.

Lift limitation
Mechanical limit switches - not adjustable
Optional magnetic switch - on the outside and adjustable

Self-locking trapezoidal screw
Optionally with ball screw.

Anti-turn device
As standard.

Integrated control unit (option)
No external control elements necessary.

Cabling
All electrical components are fully wired and fitted with a 2 m connecting lead.

High efficiency
Thanks to two-stage straight-toothed spur gear and to optional ball screw.
All rotating parts are supported by high-quality ball bearings.

CMLA P50 - Up to 5.000 N max. axial force

Technical features:

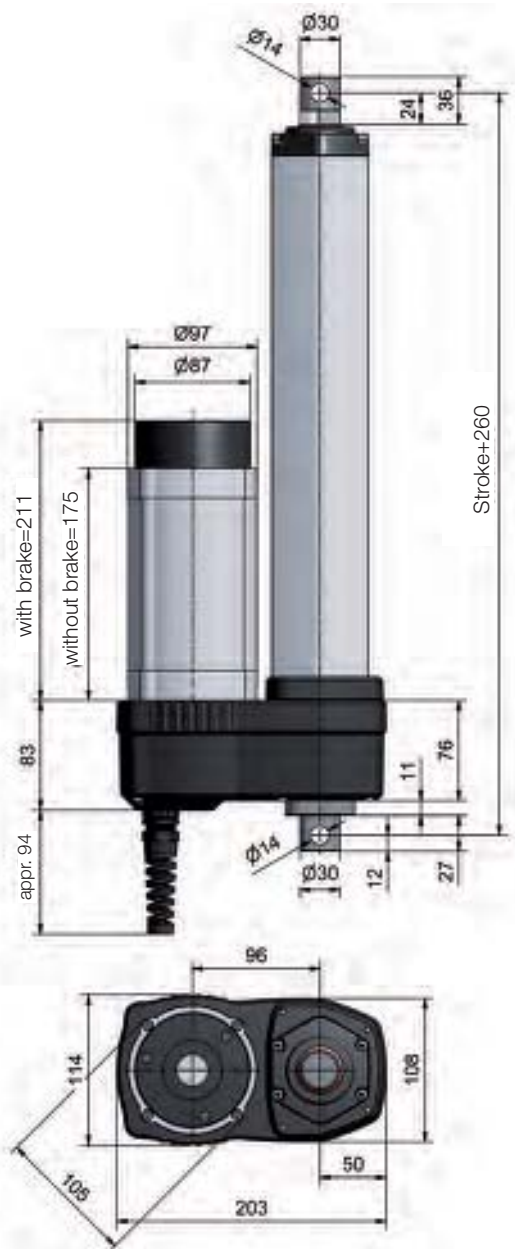
- Tensile and compressive loads up to 500 kg with trapezoidal screw
- Lifting speeds up to 109 mm/s
- Standard stroke lengths 150 / 300 / 450 and 600 mm

Options:

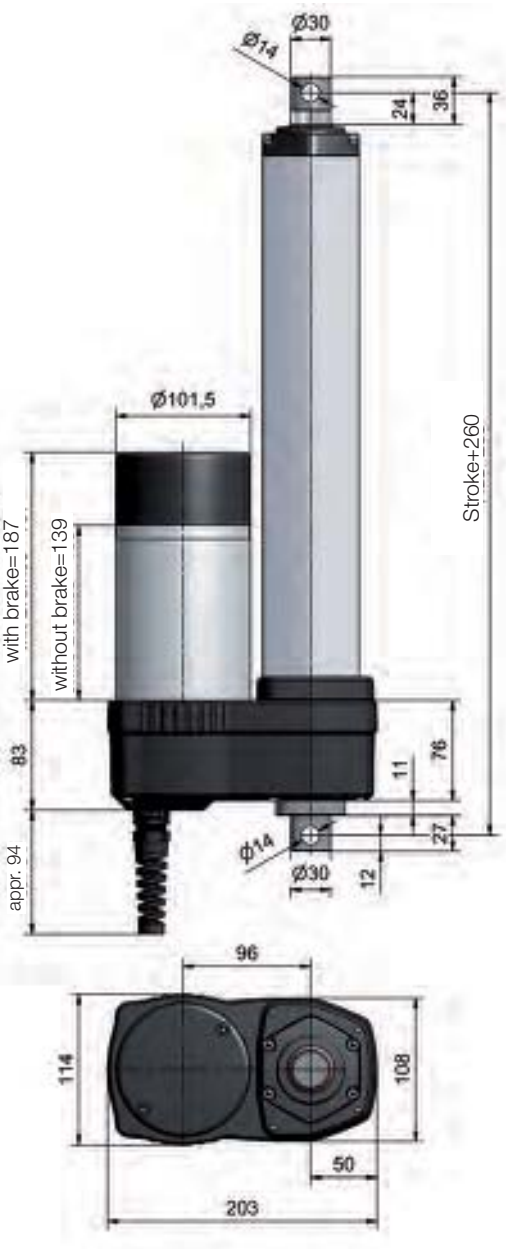
- Direct-current motor DC 24 V
- Ball screw, tensile and compressive loads up to 550 kg
- Adjustable magnetic limit switches
- Integrated control V3

Dimensions:

CMLA P50 with 3Ph AC motor



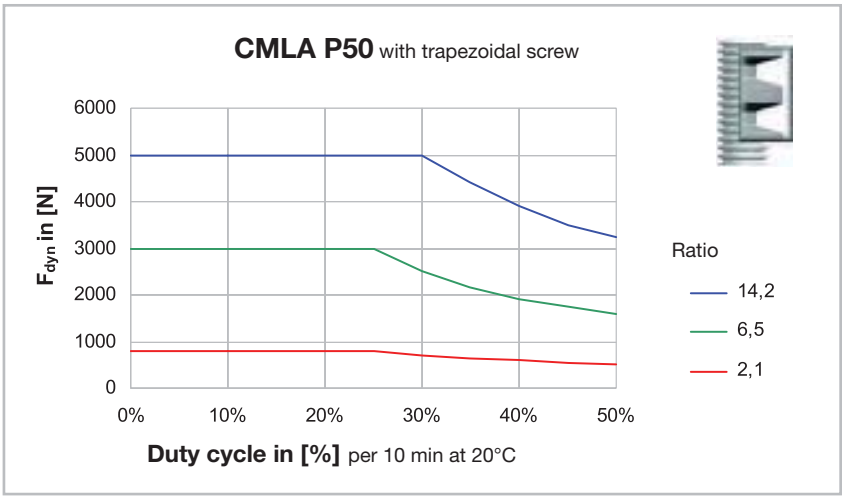
CMLA P50 with DC 24V motor

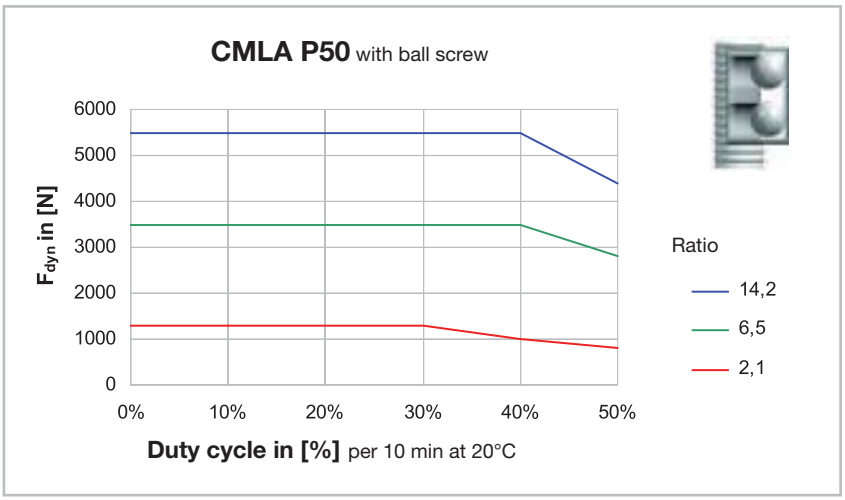


Only the latest dimensions are binding

CMLA P50 selection table						
Motor types			**AC 3Ph**	**DC**	**AC 3Ph**	**DC**
Max. axial force	F_{stat}	[N]	5000		5500	
Screw			Trapezoidal screw		Ball screw	
Gear ratio			**2,1 : 1**		**2,1 : 1**	
Max. tensile/compressive force	F_{dyn}	[N]	800		1300	
Lifting speed	v	[mm/s]	87	81	109	101
Motor power	P	[W]	180	200	180	200
Voltage	U	[V]	400 (50 Hz)	24	400 (50 Hz)	24
Gear ratio			**6,5 : 1**		**6,5 : 1**	
Max. tensile/compressive force	F_{dyn}	[N]	3000		3500	
Lifting speed	v	[mm/s]	28	26	35	32
Motor power	P	[W]	180	200	180	200
Voltage	U	[V]	400 (50 Hz)	24	400 (50 Hz)	24
Gear ratio			**14,2 : 1**		**14,2 : 1**	
Max. tensile/compressive force	F_{dyn}	[N]	5000		5500	
Lifting speed	v	[mm/s]	13	12	16	15
Motor power	P	[W]	180	200	180	200
Voltage	U	[V]	400 (50 Hz)	24	400 (50 Hz)	24

Duty cycle diagrams:





CMLA P70 - Up to 7.000 N max. axial force

Technical features:

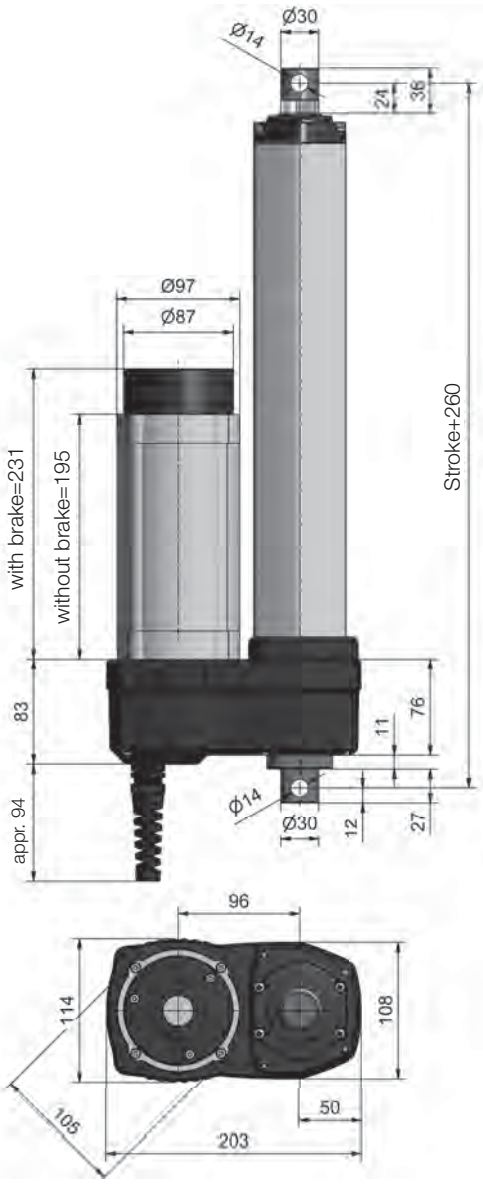
- Tensile and compressive loads up to 700 kg with trapezoidal screw
- Lifting speeds up to 109 mm/s
- Standard stroke lengths 150 / 300 / 450 and 600 mm

Options:

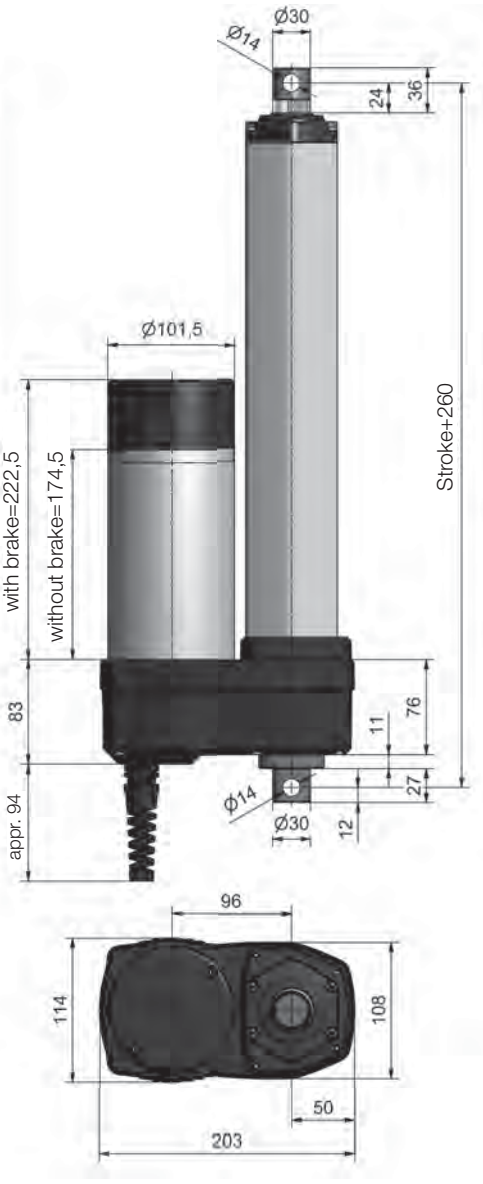
- Direct-current motor DC 24 V
- Ball screw, tensile and compressive loads up to 750 kg
- Adjustable magnetic limit switches
- Integrated control V3

Dimensions:

CMLA P70 with 3Ph AC motor



CMLA P70 with DC 24V motor

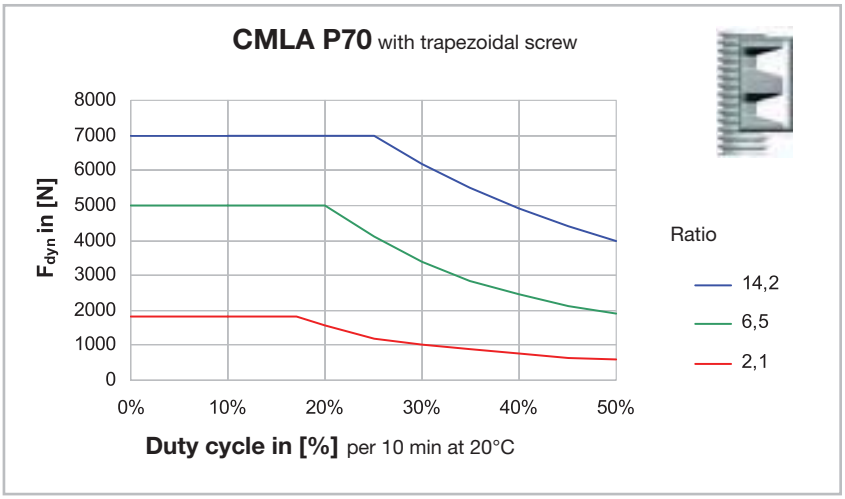


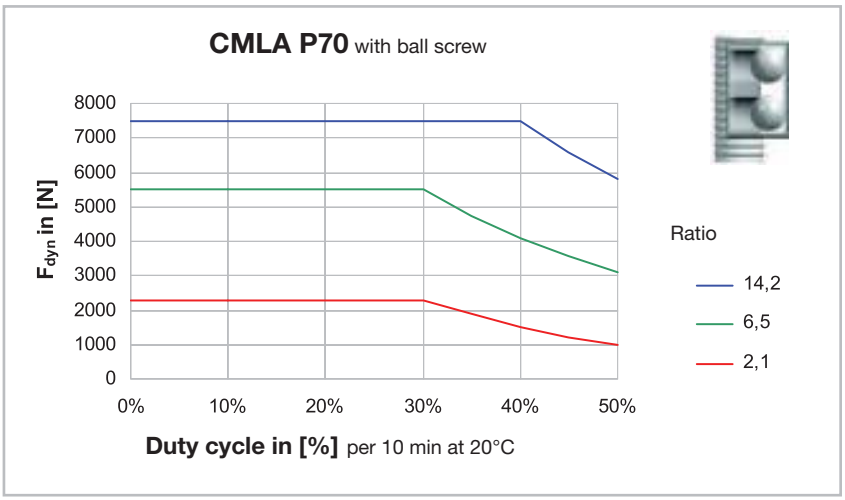
Only the latest dimensions are binding

CMLA P70 selection table						
Motor types			**AC 3Ph**	**DC**	**AC 3Ph**	**DC**
Max. axial force	F_{stat}	[N]	7000		7500	
Screw			Trapezoidal screw		Ball screw	
Gear ratio			**2,1 : 1**		**2,1 : 1**	
Max. tensile/compressive force	F_{dyn}	[N]	1800		2300	
Lifting speed	v	[mm/s]	87	81	109	101
Motor power	P	[W]	370	360	370	360
Voltage	U	[V]	400 (50 Hz)	24	400 (50 Hz)	24
Gear ratio			**6,5 : 1**		**6,5 : 1**	
Max. tensile/compressive force	F_{dyn}	[N]	5000		5500	
Lifting speed	v	[mm/s]	28	26	35	32
Motor power	P	[W]	370	360	370	360
Voltage	U	[V]	400 (50 Hz)	24	400 (50 Hz)	24
Gear ratio			**14,2 : 1**		**14,2 : 1**	
Max. tensile/compressive force	F_{dyn}	[N]	7000*		7500*	
Lifting speed	v	[mm/s]	13	12	16	15
Motor power	P	[W]	370	360	370	360
Voltage	U	[V]	400 (50 Hz)	24	400 (50 Hz)	24

* at stroke 600 mm, maximum compressive force: 5000 N (trapezoidal screw) and 6500 N (ball screw)

Duty cycle diagrams:





CMLA P90 - Up to 9.000 N max. axial force

Technical features:

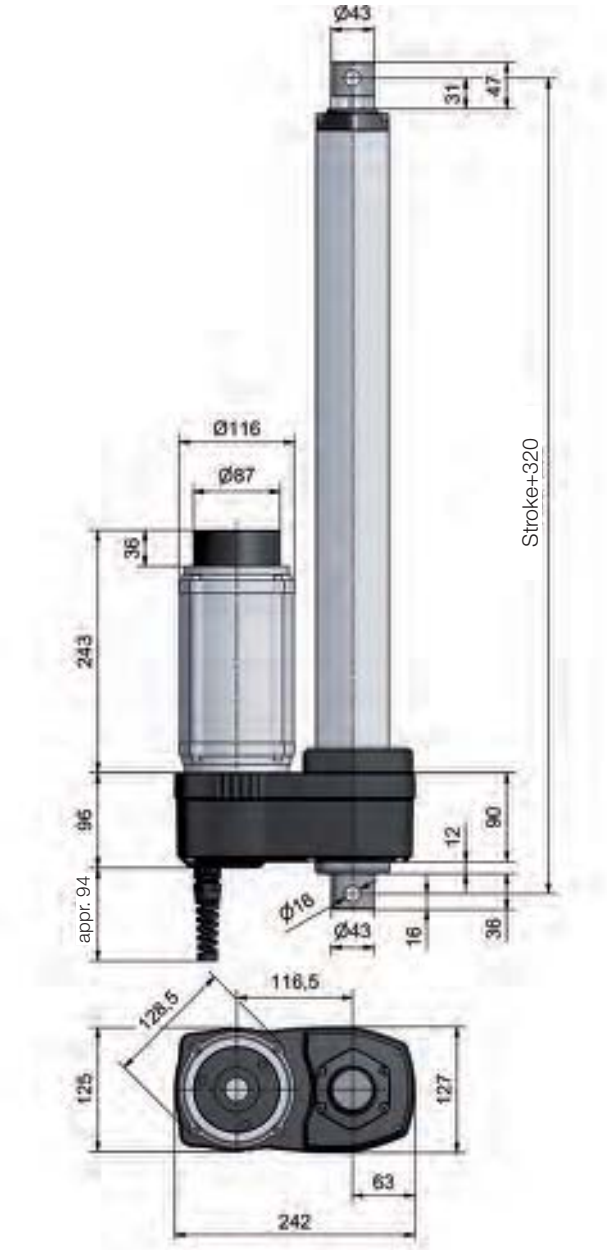
- Tensile and compressive loads up to 900 kg with trapezoidal screw
- Lifting speeds up to 169 mm/s
- Standard stroke lengths 250 / 500 / 750 and 1000 mm

Options:

- Ball screw, tensile and compressive loads up to 950 kg
- Adjustable magnetic limit switches
- Integrated control V3

Dimensions:

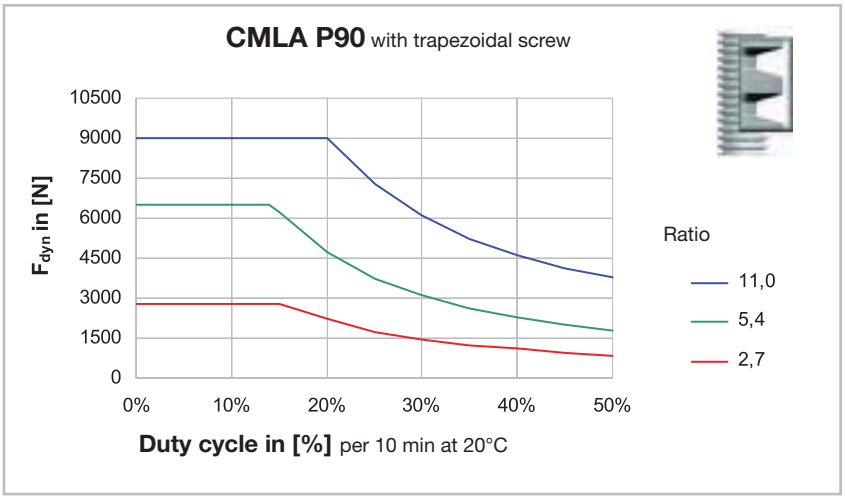
CMLA P90 with 3Ph AC brake motor

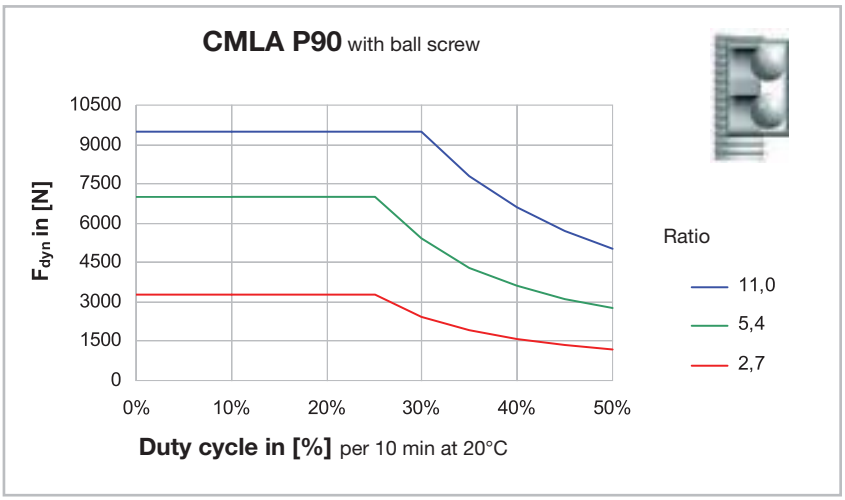


Only the latest dimensions are binding

CMLA P90 selection table				
Motor types			**AC 3Ph**	**AC 3Ph**
Max. axial force	F_{stat}	[N]	9000	9500
Screw			Trapezoidal screw	Ball screw
Gear ratio			**2,7 : 1**	**2,7 : 1**
Max. tensile/compressive force	F_{dyn}	[N]	2800	3300
Lifting speed	v	[mm/s]	84	169
Motor power	P	[W]	650	650
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)
Gear ratio			**5,4 : 1**	**5,4 : 1**
Max. tensile/compressive force	F_{dyn}	[N]	6500	7000
Lifting speed	v	[mm/s]	41	83
Motor power	P	[W]	650	650
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)
Gear ratio			**11,0 : 1**	**11,0 : 1**
Max. tensile/compressive force	F_{dyn}	[N]	9000	9500
Lifting speed	v	[mm/s]	20	41
Motor power	P	[W]	650	650
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)

Duty cycle diagrams:





CMLA P125 - Up to 12.500 N max. axial force

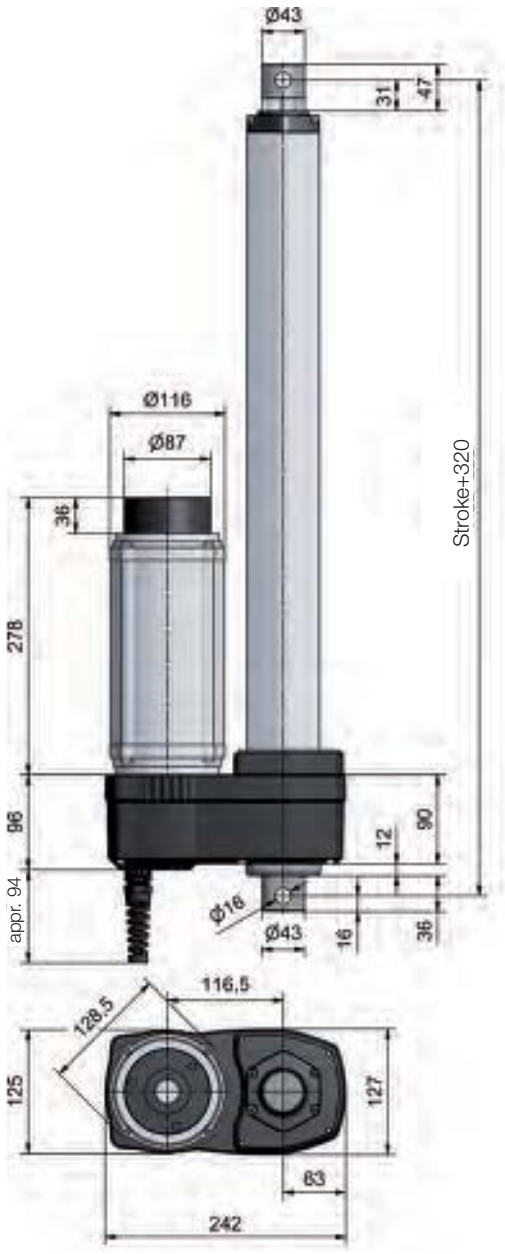
Technical features:

- Tensile and compressive loads up to 1250 kg with trapezoidal screw
- Lifting speeds up to 169 mm/s
- Standard stroke lengths 250 / 500 / 750 and 1000 mm

Options:

- Ball screw, tensile and compressive loads up to 1300 kg
- Adjustable magnetic limit switches
- Integrated control V3

CMLA P125 with 3Ph AC brake motor

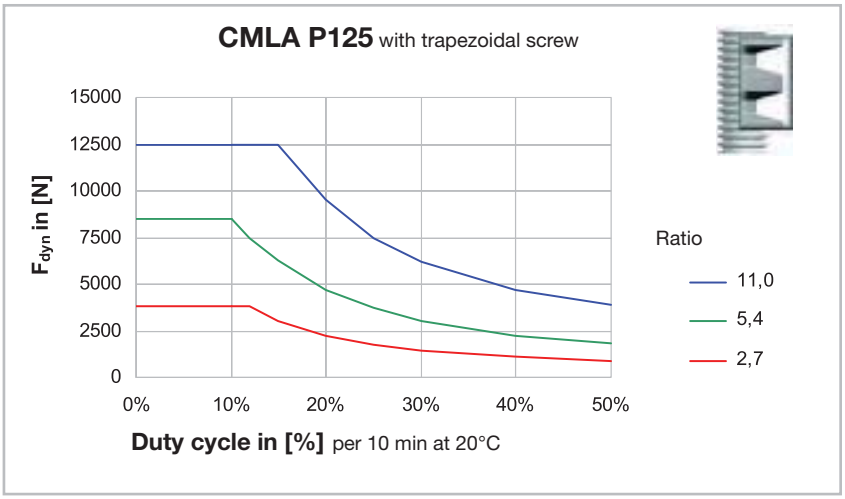


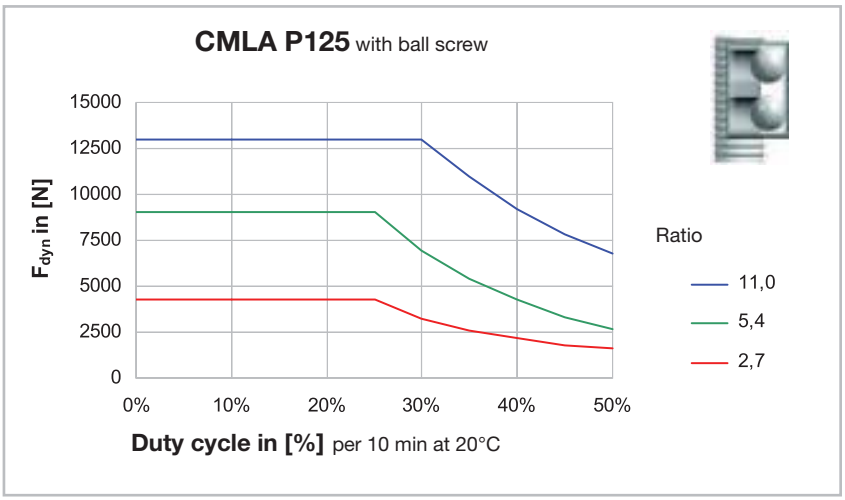
Only the latest dimensions are binding

CMLA P125 selection table				
Motor types			**AC 3Ph**	**AC 3Ph**
Max. axial force	F_{stat}	[N]	12500	13000
Screw			Trapezoidal screw	Ball screw
Gear ratio			**2,7 : 1**	**2,7 : 1**
Max. tensile/compressive force	F_{dyn}	[N]	3800	4300
Lifting speed	v	[mm/s]	84	169
Motor power	P	[W]	900	900
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)
Gear ratio			**5,4 : 1**	**5,4 : 1**
Max. tensile/compressive force	F_{dyn}	[N]	8500	9000
Lifting speed	v	[mm/s]	41	83
Motor power	P	[W]	900	900
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)
Gear ratio			**11,0 : 1**	**11,0 : 1**
Max. tensile/compressive force	F_{dyn}	[N]	12500*	13000
Lifting speed	v	[mm/s]	20	41
Motor power	P	[W]	900	900
Voltage	U	[V]	400 (50 Hz)	400 (50 Hz)

* at stroke 1000 mm, maximum compressive force 11500 N

Duty cycle diagrams:



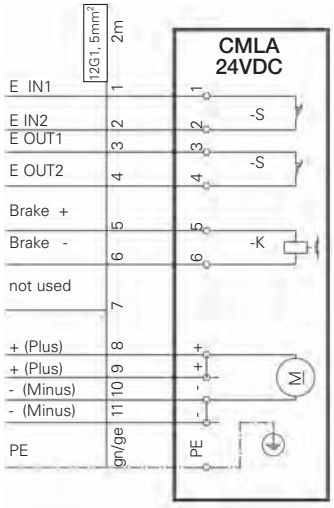


Motors: Three-phase or direct-current motors.

Wiring diagram for:

Direct-current motor

ATTENTION!
WHEN CONNECTING + / - CORRECT THE SPINDLE MOVES IN THE DIRECTION "IN".

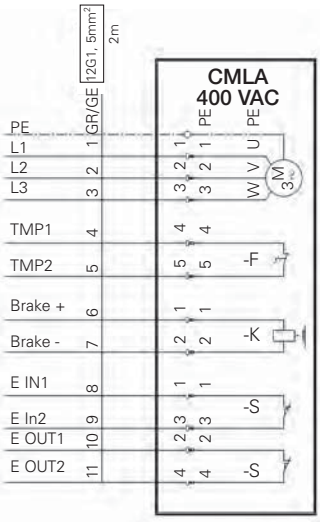


End position "IN"	24VDC, max. 100mA (ohmic load)
End position "OUT"	24VDC, max. 100mA (ohmic load)
Brake (optional)	24VDC 16W
DC Motor	24VDC 200W/360W

Three-phase asynchronous motor

ATTENTION!
IN CONNECTION TO A RIGHT ROTATION-FIELD THE SPINDLE MOVES IN DIRECTION "IN"

Break rectifier is optional available



AC Motor 3~	400VAC 50Hz
Motor winding thermostat	250VAC, max. 2,5A (ohmic load)
Brake (optional)	205VAC, 20W
End position "IN"	24VDC, max. 100mA (ohmic load)
End position "OUT"	24VDC, max. 100mA (ohmic load)

Option integrated control V3

Technical features:

The control V3 is integrated in the actuator and is already prewired; only the fused supply voltage of 400V, 50Hz (3 phases + PE) and control unit (switch, control bulb) need to be provided on site by the customer. A status LED, which indicates operating and error messages, can be integrated into the control panel by the customer.
This control is a logic element on the basis of electronic semiconductor devices. In this regard, triacs are responsible for the switching functions Start/Stop and reversing the motor's direction of motion.
A CPU monitors and controls all the central functions of the CMLA. The internal mechanical limit switches of the end-position limiter (non-adjustable) are also monitored and processed by the CPU. The optional outer adjustable reed contacts cannot be integrated into the control.

Function:

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 only be moved in the opposite direction.

Error monitoring:
In the event of an error, the error exit (STAT) is set as described. Any errors occurring are indicated by 3 different states and can be displayed by a single LED in the user interface installed at the customer's:

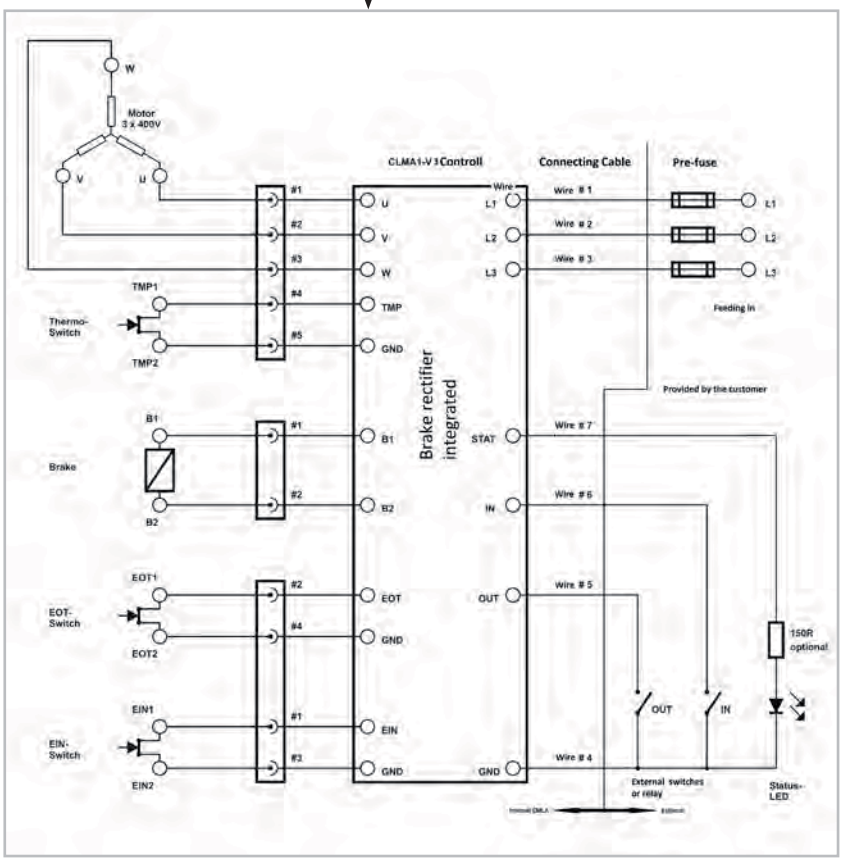
1. No error	LED lights up as power indicator
2. Thermo error	LED flashes slowly (1 sec interval)
3. Limit switch error	LED flashes quickly (0.2 sec interval)
4. Overcurrent error	LED is off

The control is available for all 4 sizes of the CMLA in conjunction with the three-phase motor.

Option integrated control V3

Advantages

- The circuit-breaking component reversing contactor from the conventional control is omitted
- Omission of the external control voltage transformer
- Internal current monitoring for the prevention of an impermissibly high motor current
- External rectification of the brake voltage no longer necessary (already integrated)
- Triggering of the DC-sided trip of the brake
- Integrated monitoring of the motor temperature
- Integrated evaluation of the mechanical limit switches for end-position monitoring
- The semiconductor devices used are faster and integrated virtually wear-free.
- Dimensions of the CMLA remain unchanged
- Cause-specific error output permits faster troubleshooting



Circuit diagram integrated control V3

Bestellschlüssel CMLA

1 2 3 4 5 6 7 8 9

C M L A - P - ■ ■ ■ ■ - ■ ■ - ■ ■ - ■ ■ ■ ■ - ■ ■ - ■ ■ - ■ ■

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

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)

9 Options
00 = without
01 = Integrated control V3 (only 3Ph-motors)
02 = Bridge rectifier for the motor brake (for external use)
03 = Half-wave rectifier for the motor brake (for external use)

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Qualitätsmanagement
ISO 9001:2008
Reg.-Nr. 054396 QM08

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