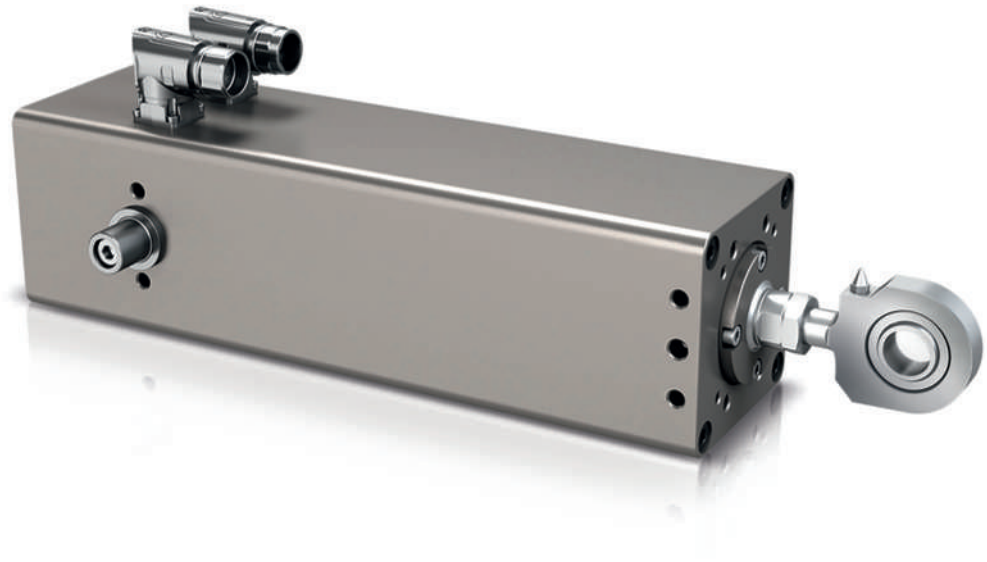


EWELLIX

Electromechanical EWELLIX Linear Actuator

CEMC

Product Data Sheet

We pioneer motion

SCHAEFFLER

Contents

1 CEMC

1 Electromechanical linear actuator CEMC

Features

- very compact, fully integrated design
- planetary roller screw drive
- lightweight material
- highly efficient
- high-resolution position feedback system
- high speed and acceleration
- low maintenance requirements
- high-quality components

Benefits

- space-saving
- excellent load characteristics compared to linear actuators with similar dimensions
- enables higher acceleration and higher speed of the robot arm
- reduces energy consumption by 90 % compared to pneumatic solutions
- higher quality through improved process control
- faster production cycles
- low noise level

Product description

The EWELLIX CEMC linear actuators feature a hollow shaft motor arranged directly around the planetary roller screw drive, enabling a highly compact yet powerful solution. In addition to minimizing dimensions, this design also minimizes inertia, thus enabling excellent controllability, responsive performance, significantly reduced cycle times, and high productivity. This product range provides high power density in a small housing that is approximately 50 % shorter than a typical electromechanical linear actuator. They are the ideal solution where compactness and power density are required to replace fluid power cylinders. Another advantage is the lower weight, an important feature for robot arm installations.

1.1 Automotive industry

The automotive industry uses a large quantity of industrial robots, with an average of 300 welding robots per production line. CEMC linear actuators are the best solution for meeting the corresponding quality standards, performance requirements, and energy savings.

With 20 years of experience in the automotive industry, the latest CEMC generation anticipates future market requirements by offering multiple configurations that can be adapted to customer needs while delivering maximum performance in operation. Future options such as integrated anti-rotation protection and embedded IoT-enabled sensors will further improve equipment performance and productivity.

Key factors for new welding assembly line

Greater productivity

High-performance roller screw drives ensure continuous use and increase service life while requiring minimal maintenance (achieving 10 million spots without relubrication).

Compressed air-free systems

Mechatronic systems are environmentally friendly and provide higher efficiency for energy savings.

Flexibility and programmability

The compact and modular design enables easy integration into automation equipment and compatibility with various robot brands.

Maximum power density

Compact and robust technology where high force and reliability are essential, enabling more than 20 million spot welds.

1.2 Spot welding solutions

X welding gun frame

2 X welding gun frame

Function

Electromechanical linear actuators actuate both gun arms in a scissor mechanism while maintaining the welding force.

Requirements

- linear actuator force up to 25 kN
- max. stroke requirement of 180 mm

C welding gun frame

3 C welding gun frame

001D540A

Function

Electromechanical linear actuators actuate one gun arm, while the second gun arm remains static. The welding force is maintained during operation.

Requirements

- linear actuator force up to 15 kN
- higher speed compared to X-gun kinematics
- max. stroke requirement of 300 mm

1 Key benefits in spot welding

Benefits	Value	Comparison with previous generation
Highest number of welding spots	> 20 million spots	+100 %
Lightweight construction to reduce the required power and size of the welding robot	~12 kg	−10 %
High reliability to minimize downtime	10 million spots without relubrication [1)]	+500 %
Modularity with various feedback options	> 600 possible configurations	Limited options

1) in relation to force level and working conditions

1.3 Motor

The CEMC series integrates hollow shaft servo motor technology, either with passive cooling or water cooling.

The brushless servo-motor is the best solution for high, dynamic performance, while offering high power density and maximum controllability.

The ideal motor technology combined with premium linear technology to meet automation requirements.

2 Technical data, motors with passive cooling

Description	Symbol	Unit	A3N	B3N	A5N	B5N
Electrical data						
Motor type	–	–	Servo	Servo	Servo	Servo
Drive voltage supply (nominal)	U	V AC	400	230	400	230
DC bus voltage supply (min.)	U	V DC	540	325	540	325
Nominal speed	n_{nom}	min^{-1}	3600	3430	3485	3600
max. speed	n_{max}	min^{-1}	3600	3600	3600	3600
Nominal torque @ slow speed--- FEHLENDER LINK ---	T_{c0}	Nm	7.8	7.7	11.8	11.8
Nominal current @ slow speed--- FEHLENDER LINK ------ FEHLENDER LINK ---	I_0	RMS A	5.1	8	7.3	12.5
Peak torque @ slow speed--- FEHLENDER LINK ------ FEHLENDER LINK ---	T_{p0}	Nm	15.9	15.6	28.4	28.4
Peak current @ slow speed--- FEHLENDER LINK ------ FEHLENDER LINK ---	I_{peak}	RMS A	11	17	19	32
Rated power	P	kW	2.7	2.6	3.9	4.0
Torque constant at +25 °C--- FEHLENDER LINK ---	K_t	RMS Nm/A	1.67	1.06	1.76	1.02
Back EMF constant 1000 min^{-1}, at +25 °C--- FEHLENDER LINK ---	K_e	RMS V	101.0	64.0	106.6	61.7
Winding resistance at +20 °C--- FEHLENDER LINK ---	R	Ω	4.33	1.74	2.41	0.81
Winding inductance at +20 °C--- FEHLENDER LINK ---	L	mH	14.97	6	10.01	3.35
Pole number	–	–	8	8	8	8
Insulation class	–	–	H	H	H	H
Thermoswitch	–	–	optional	optional	optional	optional
Temperature sensor	–	–	PT1000	PT1000	PT1000	PT1000

3 Technical data, motors with water cooling

Description	Symbol	Unit	A3W	B3W	A5W	B5W
Electrical data						
Motor type	–	–	Servo	Servo	Servo	Servo
Drive voltage supply (nominal)	U	V AC	400	230	400	230
DC bus voltage supply (min.)	U	V DC	540	325	540	325
Nominal speed	n_{nom}	min^{-1}	3275	3110	3090	3230
max. speed	n_{max}	min^{-1}	3600	3600	3600	3600
Nominal torque @ slow speed--- FEHLENDER LINK ---	T_{c0}	Nm	11.7	11.7	20.7	20.9
Nominal current @ slow speed--- FEHLENDER LINK ------ FEHLENDER LINK ---	I_0	RMS A	7.8	12.3	13.2	23.1
Peak torque @ slow speed--- FEHLENDER LINK ------ FEHLENDER LINK ---	T_{p0}	Nm	22.8	22.8	28.4	28.4
Peak current @ slow speed--- FEHLENDER LINK ------ FEHLENDER LINK ---	I_{peak}	RMS A	18	28	19	32
Rated power	P	kW	4.0	3.8	6.6	7.0
Torque constant, at +25 °C--- FEHLENDER LINK ---	K_t	RMS Nm/A	1.67	1.06	1.76	1.02
Back EMF constant 1000 min^{-1}, at +25 °C--- FEHLENDER LINK ---	K_e	RMS V	101.0	64.0	106.6	61.7

Description	Symbol	Unit	A3W	B3W	A5W	B5W
Winding resistance at +20 °C--- FEHLENDER LINK ---	R	Ω	4.33	1.74	2.41	0.81
Winding inductance at +20 °C--- FEHLENDER LINK ---	L	mH	14.97	6	10.01	3.35
Water flow, max. pressure 5 bar	–	l/min	2	2	2	2
Water temperature	–	°C	20 to 30	20 to 30	20 to 30	20 to 30
Pole number	–	–	8	8	8	8
Insulation class	–	–	H	H	H	H
Thermoswitch	–	–	optional	optional	optional	optional
Temperature sensor	–	–	PT1000	PT1000	PT1000	PT1000

CEMC feedback

The latest CEMC series is available with various types of position feedback sensors to ensure compatibility with the leading robot and drive manufacturers.

CEMC feedback range

4 Drive compatibility

Robot or drive manufacturer	Resolver Tamagawa (R1)	Resolver LTN (R2)	Sick-Stegmann (S1) absolute encoder	Heidenhain (H1) absolute encoder	Fanuc (F1) absolute encoder	Yaskawa (Y1) absolute encoder
Lenze (L1)	L1R1	L1R2	L1S1	L1H1	–	–
Siemens (S1)	S1R1	S1R2	–	S1H1	–	–
Kuka (K1)	K1R1	–	–	–	–	–
Comau (C1)	C1R1	–	–	–	–	–
ABB (A1)	–	A1R2	–	–	–	–
Fanuc (F1)	–	–	–	–	F1F1	–
Yaskawa (Y1)	–	–	–	–	–	Y1Y1
Parker (P1)	P1R1	P1R2	P1S1	P1H1	–	–

The table above shows hardware drive compatibility with CEMC linear actuators.

For other drive manufacturers not listed above, contact Schaeffler.

5 Feedback list and references

R1	Standard resolver from Tamagawa – size 15, 2-pole resolver
R2	Standard resolver from LTN – size 15, 2-pole resolver
S1	Absolute multi-turn encoder from Sick Stegmann – SKM36 reference, 128 sine/cosine periods per revolution, with Hiperface® protocol interface
H1	Absolute multi-turn encoder from Heidenhain – EQN1325 reference, 2048 pulses per turn, with EnDat2.2/01 protocol interface
F1	Multi-turn encoder from Fanuc – Alpha iAR128 reference
Y1	Multi-turn encoder from Yaskawa

For further information, refer to the data sheet of the feedback device manufacturer.

6 Brake option, technical specification

Designation	Unit	Value
Permanent magnet brake technology	–	–
Rated power (at +20 °C)	W	18
Standard power supply	V DC	24 (–10 % / +6 %)
Optional power supply	V DC	90 (–10 % / +6 %)

Designation	Unit	Value
Holding torque (at +20 °C)	Nm	9
Holding torque (at +100 °C)	Nm	8
Brake opening/closing time (typical) [1]	ms	7 / 40

[1] The stated switching times are achieved with nominal air gap. These are average values, the dispersion of which depends on the power supply and coil temperature.

Definition of CEMC connectors

7 Standard power connector, valid for all resolver types and S1-H1 encoders

Intercontec BEDC106 NN 00 00 1216 000	Standard feedback M23 connector, 6-pin	R1-R2-S1-H1 Data, signal
	1	U
	2	V
	3	PE
	4 [2]	Brake + [2]
	5 [2]	Brake – [2]
	6	W
	Housing	Shield

[2] Optional

NOTE: For more information, visit https://www.te.com/en/products/brands/intercontec.html

8 Standard feedback connector, valid for resolvers, S1 and H1 encoders

Intercontec AEDC138 NN 00 00 1215 000, inserted with 20° offset	Standard feedback M23 connector, 12-pin	R1 Data, signal
	1	Sin (S2)
	2	Sin (S4)
	3	–
	4	–
	5	–
	6	–
	7	Err + (R1)
	8	PT1000
	9	PT1000
	10	Err – (R2)
	11	Cos (S1)
	12	Cos (S3)
	Housing	Shield

1

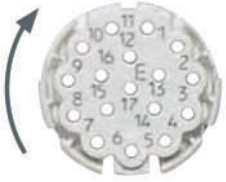
9 Standard feedback connector, valid for resolvers, S1 and H1 encoders

Intercontec AEDC138 NN 00 00 1215 000, inserted with 20° offset	Feedback option M23 connector, 12-pin	R2 Data, signal
	1	Sin (S2)
	2	Sin (S4)
	3	–
	4	–
	5	–
	6	–
	7	Err + (R1)
	8	PT1000
	9	PT1000
	10	Err – (R2)
	11	Cos (S3)
	12	Cos (S1)
	Housing	Shield

10 Standard feedback connector, valid for resolvers, S1 and H1 encoders

Intercontec AEDC138 NN 00 00 1215 000, inserted with 20° offset	Feedback option M23 connector, 12-pin	S1 Data, signal
	1	Sin +
	2	Sin –
	3	V_{CC} (+8 V)
	4	GND (V_{CC})
	5	–
	6	–
	7	Datafbk +
	8	PT1000
	9	PT1000
	10	Datafbk –
	11	Cos +
	12	Cos –
	Housing	Shield

11 Standard feedback connector, valid for resolvers, S1 and H1 encoders

Intercontec AEDC139 NN 00 00 1215 000, inserted with 20° offset	Feedback option M23 connector, 17-pin	H1 Data, signal
	1	A +
	2	A –
	3	Data
	4	–
	5	Clock
	6	–
	7	0V
	8	PT1000
	9	PT1000
	10	Up
	11	B +
	12	B –
	13	Data
	14	Clock
	15	Sensor 0V
	16	Sensor up
	17	–
	Housing	Shield

NOTE:

For F1 (Fanuc encoder) and Y1 (Yaskawa), contact Schaeffler for further information.

NOTE: For more information, visit https://www.te.com/en/products/brands/intercontec.html

Drive options

The performance characteristics listed in the tables on the previous pages are the result of specific Lenze servo-motor combinations with the CEMC linear actuator and the integrated Schaeffler motor.

CEMC linear actuators can be supplied with or without a servo-motor. The servo-motor can be used in the recommended configuration or in another configuration suited to your installation, e.g., with various fieldbus communication systems.

Motor reference	Lenze controller designation
A3N	E94ASHE0074
A5N	E94ASHE0134
A3W	E94ASHE0134
A5W	E94ASHE0174

NOTE: Please refer to Lenze documentation for more information: https://www.lenze.com/en-us/products/inverters

The standard motors used by Schaeffler are supplied with a drive voltage of 3 × AC 400 V. Consequently, standard configurations with Lenze servo-motors are equipped with Axx motor type and Axx winding.

Manuals

Supporting documents are available for download from medias.

medias | Product catalog |
medias.schaeffler.com

3D models

Product configurators for 3D models are available to download from medias.

medias | Product catalog |
medias.schaeffler.com

1

1.4 CEMC2105

1.4.1 CEMC2105, passive cooling

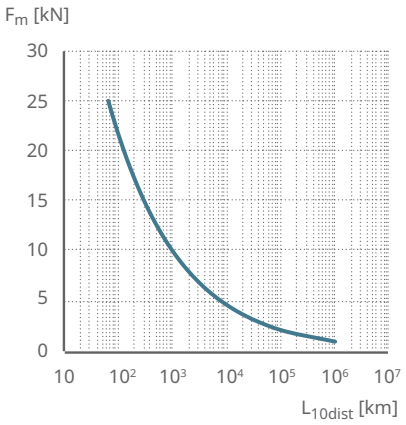
4 Electromechanical linear actuator CEMC2105, passive cooling

12 Technical data CEMC2105 with passive cooling

Description	Symbol	Unit	A3N	B3N	A5N	B5N
Performance data						
Continuous force @ zero speed	F_{c0}	kN	6.9	6.8	10.4	10.4
Peak force @ zero speed	F_{p0}	kN	14.0	13.7	25.0	25.0
Dynamic load capacity	C	kN	59	59	59	59
Holding force (motor brake option)	F_{hold}	kN	15.8	15.8	15.8	15.8
max. linear speed	v_{max}	mm/s	300	300	300	300
max. linear acceleration	a_{max}	m/s^2	7	7	7	7
Duty cycle	D	%	100	100	100	100
Mechanical data						
Screw type	–	–	IRS	IRS	IRS	IRS
Screw diameter	d_{screw}	mm	21	21	21	21
Screw lead	p_{screw}	mm	5	5	5	5
Lead accuracy	–	–	G5	G5	G5	G5
Stroke	S	mm	180	180	180	180
Internal overstroke each side	S_0	mm	1	1	1	1
Backlash	$S_{backlash}$	mm	0.04	0.04	0.04	0.04
Gear ratio	i	–	1	1	1	1
Moment of inertia	J	10^{-4} kg · m^2	8	8	8	8
Moment of inertia of optional brake	J_{brake}	10^{-4} kg · m^2	0.6	0.6	0.6	0.6
Mass	m	kg	11.5	11.5	12.3	12.3
Mass of optional brake	m_{brake}	kg	1.4	1.4	1.4	1.4
Environment and standards						
Ambient temperature	T_{amb}	°C	0 to +40	0 to +40	0 to +40	0 to +40
Protection code (IP)	IP	–	IP65S	IP65S	IP65S	IP65S

Life diagram

5 Lifetime diagram CEMC2105



F_m	Equivalent dynamic axial load	L_{10dist}	Service life distance

NOTE:

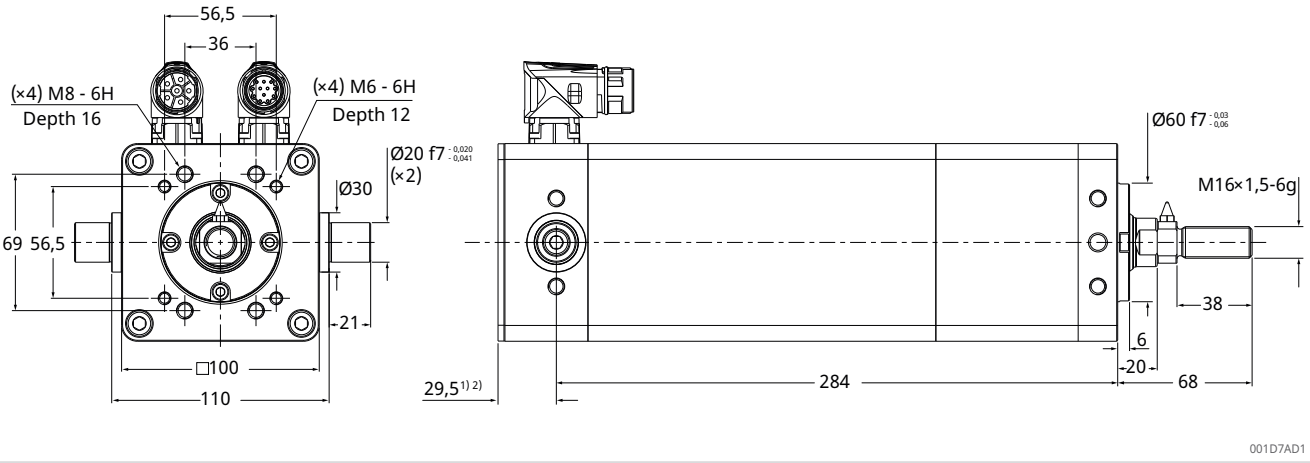
The curve shown is based on the standard L_{10} fatigue life calculation at average load over a double-stroke cycle.

For applications such as spot welding or servo presses, where the peak force is applied over a very short stroke (less than twice the lead of the roller screw drive), the standard L_{10} fatigue life calculation is not representative of the achievable life in operation.

In these cases, contact Schaeffler to request a special service life calculation.

Dimensional drawings

6 Dimensional drawing, electromechanical linear actuator CEMC2105



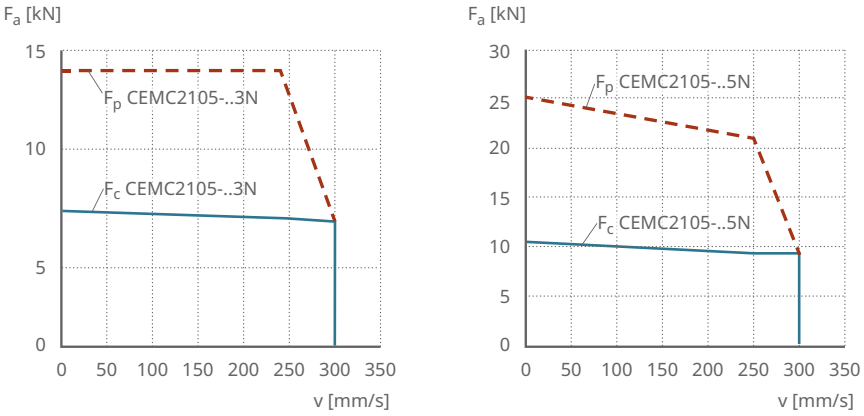
[1] For the brake option, add 44 mm.

[2] The additional length varies depending on the type of feedback device: for R1 and R2, the length is 29.5 mm as shown, for S1, add 20 mm, and for H1, add 39 mm.

For additional feedback options, contact Schaeffler.

Performance diagrams

7 Performance diagrams CEMC2105



F_a	Axial force	v	Speed
F_p	Peak force	F_c	Continuous force

1.4.2 Technical data CEMC2105, water cooling

8 Electromechanical linear actuator CEMC2105, water cooling

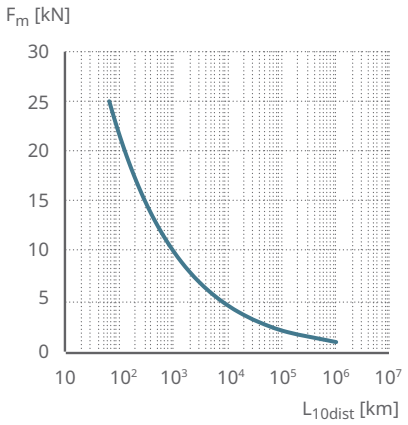
13 Technical data CEMC2105 with water cooling

Description	Symbol	Unit	A3W	B3W	A5W	B5W
Performance data						
Continuous force @ zero speed	F_{c0}	kN	10.3	10.3	18.2	18.4
Peak force @ zero speed	F_{p0}	kN	20.1	20.1	25.0	25.0
Dynamic load capacity	C	kN	59	59	59	59
Holding force (motor brake option)	F_{hold}	kN	15.8	15.8	15.8	15.8
max. linear speed	v_{max}	mm/s	300	300	300	300
max. linear acceleration	a_{max}	m/s²	7	7	7	7
Duty cycle	D	%	100	100	100	100
Mechanical data						
Screw type	–	–	IRS	IRS	IRS	IRS
Screw diameter	d_{screw}	mm	21	21	21	21
Screw lead	p_{screw}	mm	5	5	5	5
Lead accuracy	–	–	G5	G5	G5	G5
Stroke	S	mm	180	180	180	180

Description	Symbol	Unit	A3W	B3W	A5W	B5W
Internal overstroke each side	S_0	mm	1	1	1	1
Backlash	$S_{backlash}$	mm	0.04	0.04	0.04	0.04
Gear ratio	i	–	1	1	1	1
Moment of inertia	J	10^{-4} kg · m²	8	8	8	8
Moment of inertia of optional brake	J_{brake}	10^{-4} kg · m²	0.6	0.6	0.6	0.6
Mass	m	kg	13.1	13.1	13.9	13.9
Mass of optional brake	m_{brake}	kg	1.4	1.4	1.4	1.4
Environment and standards						
Ambient temperature	T_{amb}	°C	0 to +40	0 to +40	0 to +40	0 to +40
Protection code (IP)	IP	–	IP65S	IP65S	IP65S	IP65S

Life diagram

9 Lifetime diagram CEMC2105



F_m	Equivalent dynamic axial load	L_{10dist}	Service life distance

NOTE:

The curve shown is based on the standard L_{10} fatigue life calculation at average load over a double-stroke cycle.

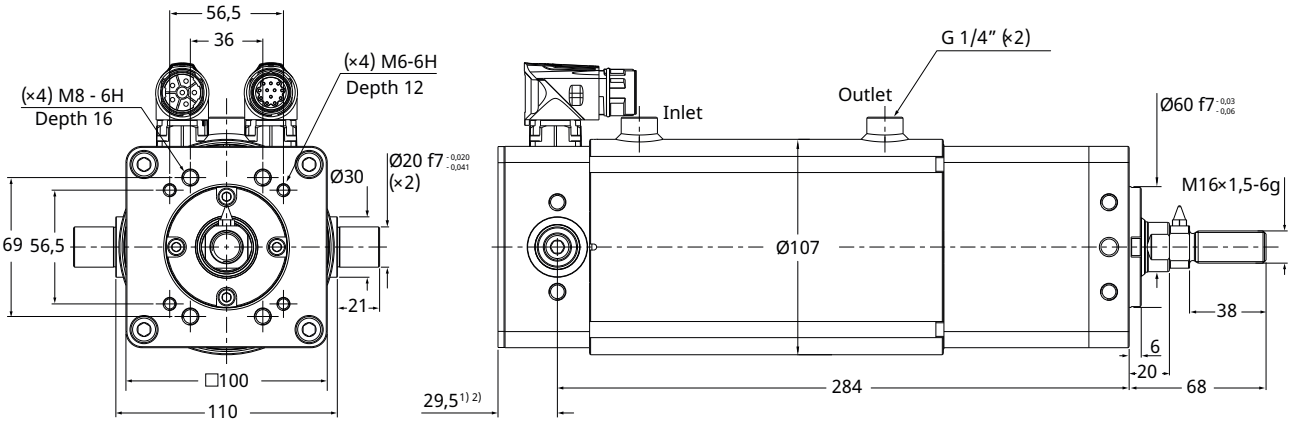
For applications such as spot welding or servo presses, where the peak force is applied over a very short stroke (less than twice the lead of the roller screw drive), the standard L_{10} fatigue life calculation is not representative of the achievable life in operation.

In these cases, contact Schaeffler to request a special service life calculation.

Dimensional drawings

1

10 Dimensional drawing, electromechanical linear actuator CEMC2105



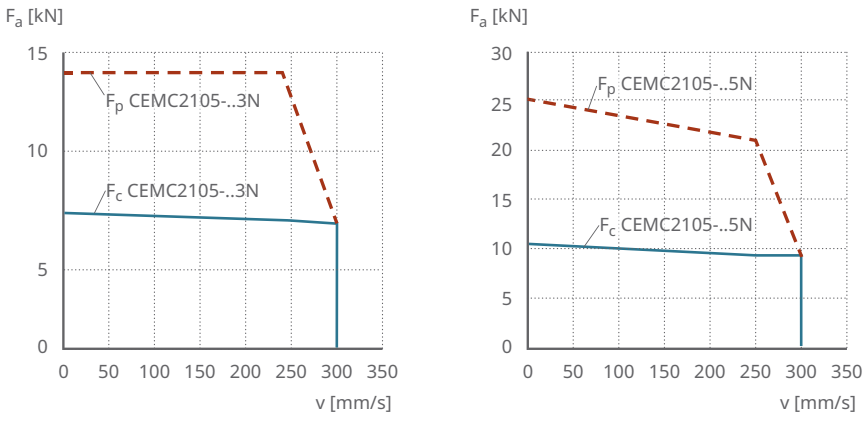
1) For the brake option, add 44 mm.

2) The additional length varies depending on the type of feedback device: for R1 and R2, the length is 29.5 mm as shown, for S1, add 20 mm, and for H1, add 39 mm.

For additional feedback options, contact Schaeffler.

Performance diagrams

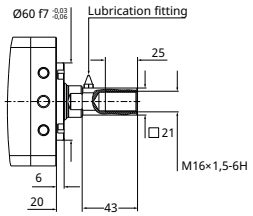
11 Performance diagrams CEMC2105



F_a	Axial force	v	Speed
F_p	Peak force	F_c	Continuous force

1.4.3 Optional front and rear attachment

12 Internal thread



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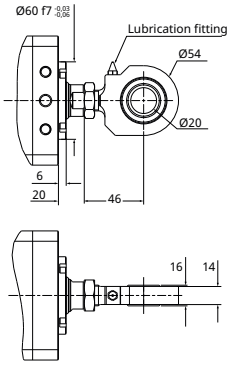
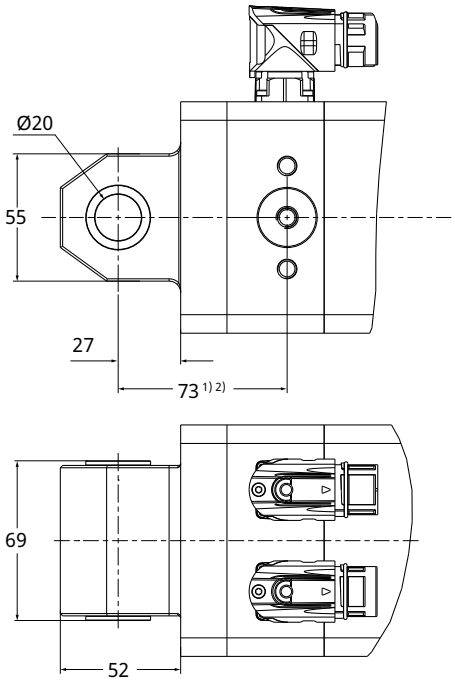
13 Rod spherical plain bearing



001D7A91

14 Rear plain bushing



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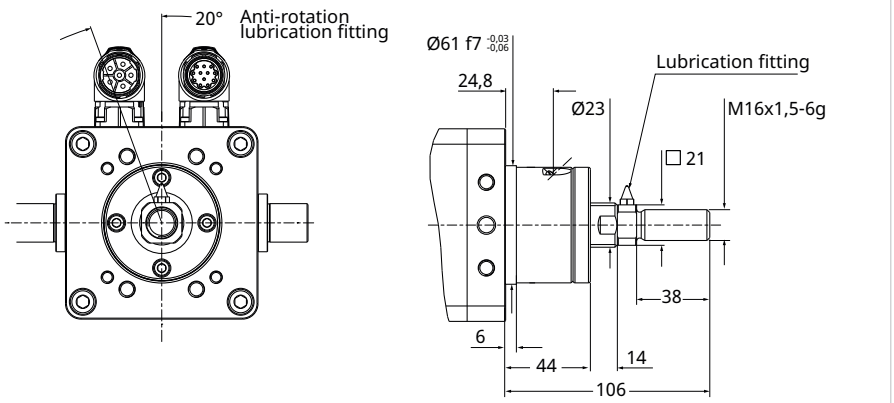
[1] For brake option, add 44 mm

[2] The additional length varies depending on the type of feedback device: for R1, R2, and S1, it is 73 mm as shown; for H1 add 30 mm.

For additional feedback options, contact Schaeffler.

15 Dimensions, optional anti-rotation system



NOTE: For the anti-rotation system option, an additional mass of 0.7 kg must be taken into account for the linear actuator.

1.5 CEMC1808

1.5.1 CEMC1808, passive cooling

16 Electromechanical linear actuator CEMC1808, passive cooling

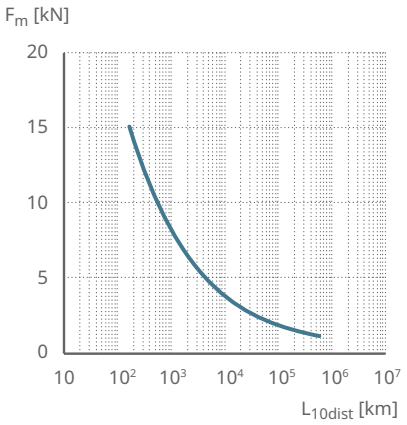
14 Technical data CEMC1808 with passive cooling

Description	Symbol	Unit	A3N	B3N	A5N	B5N
Performance data						
Continuous force @ zero speed	F_{c0}	kN	4.8	4.7	7.2	7.2
Peak force @ zero speed	F_{p0}	kN	9.7	9.6	15.0	15.0
Dynamic load capacity	C	kN	38	38	38	38
Holding force (motor brake option)	F_{hold}	kN	9.9	9.9	9.9	9.9
max. linear speed	v_{max}	mm/s	480	480	480	480
max. linear acceleration	a_{max}	m/s²	11	11	11	11
Duty cycle	D	%	100	100	100	100
Mechanical data						
Screw type	–	–	SRS	SRS	SRS	SRS
Screw diameter	d_{screw}	mm	18	18	18	18
Screw lead	p_{screw}	mm	8	8	8	8
Lead accuracy	–	–	G5	G5	G5	G5
Stroke	S	mm	150 or 300	150 or 300	150 or 300	150 or 300

Description	Symbol	Unit	A3N	B3N	A5N	B5N
Internal overstroke each side	S_0	mm	1	1	1	1
Backlash	$S_{backlash}$	mm	0.02	0.02	0.02	0.02
Gear ratio	i	–	1	1	1	1
Moment of inertia	J	10^{-4} kg · m²	11.5	11.5	11.5	11.5
Moment of inertia of optional brake	J_{brake}	10^{-4} kg · m²	0.6	0.6	0.6	0.6
Mass	m	kg	13.3	13.3	14.1	14.1
Mass of optional brake	m_{brake}	kg	1.4	1.4	1.4	1.4
Environment and standards						
Ambient temperature	T_{amb}	°C	0 to +40	0 to +40	0 to +40	0 to +40
Protection code (IP)	IP	–	IP65S	IP65S	IP65S	IP65S

Life diagram

17 Lifetime diagram CEMC1808



F_m	Equivalent dynamic axial load	L_{10dist}	Service life distance

NOTE:

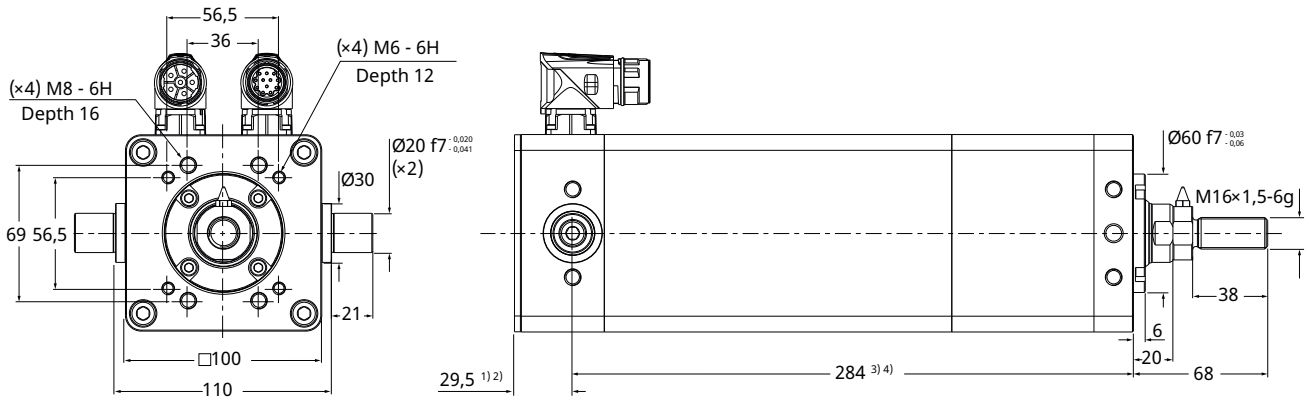
The curve shown is based on the standard L_{10} fatigue life calculation at average load over a double-stroke cycle.

For applications such as spot welding or servo presses, where the peak force is applied over a very short stroke (less than twice the lead of the roller screw drive), the standard L_{10} fatigue life calculation is not representative of the achievable life in operation.

In these cases, contact Schaeffler to request a special service life calculation.

Dimensional drawings

18 Dimensional drawing, electromechanical linear actuator CEMC1808



1) For the brake option, add 44 mm.

2) The additional length varies depending on the type of feedback device: for R1 and R2, the length is 29.5 mm as shown, for S1, add 20 mm, and for H1, add 39 mm.

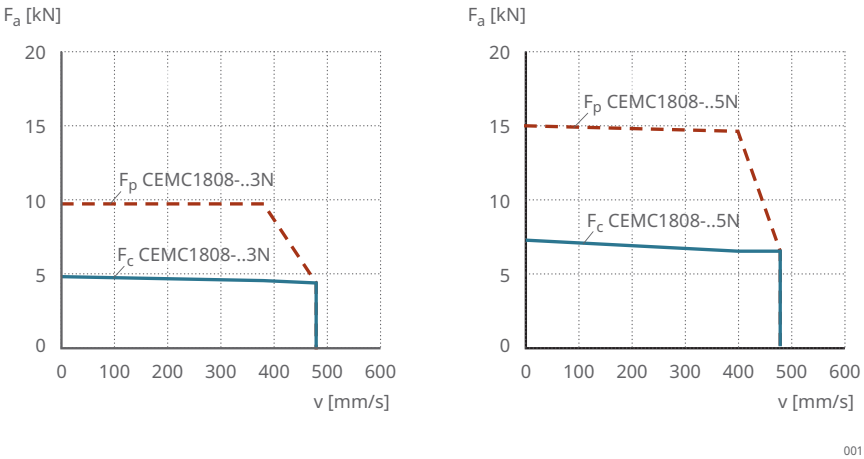
For additional feedback options, contact Schaeffler.

3) Length valid for CEMC1808-150. For CEMC1808-300 (300 mm stroke), add 150 mm to obtain the corresponding linear actuator length.

4) For the anti-rotation system option, add 9 mm.

Performance diagrams

19 Performance diagrams CEMC1808



F_a	Axial force	v	Speed
F_p	Peak force	F_c	Continuous force

1.5.2 CEMC1808, water cooling

20 Electromechanical linear actuator CEMC1808, water cooling

001BEACC

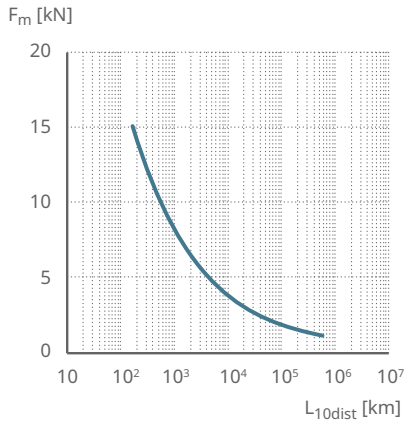
15 Technical data CEMC1808 with water cooling

Description	Symbol	Unit	A3W	B3W	A5W	B5W
Performance data						
Continuous force @ zero speed	F_{c0}	kN	7.2	7.2	12.7	12.8
Peak force @ zero speed	F_{p0}	kN	14.0	14.0	15.0	15.0
Dynamic load capacity	C	kN	38	38	38	38
Holding force (motor brake option)	F_{hold}	kN	9.9	9.9	9.9	9.9
max. linear speed	v_{max}	mm/s	480	480	480	480
max. linear acceleration	a_{max}	m/s^2	11	11	11	11
Duty cycle	D	%	100	100	100	100
Mechanical data						
Screw type	–	–	SRS	SRS	SRS	SRS
Screw diameter	d_{screw}	mm	18	18	18	18
Screw lead	p_{screw}	mm	8	8	8	8
Lead accuracy	–	–	G5	G5	G5	G5
Stroke	S	mm	150 or 300	150 or 300	150 or 300	150 or 300
Internal overstroke each side	S_0	mm	1	1	1	1
Backlash	$S_{backlash}$	mm	0.02	0.02	0.02	0.02
Gear ratio	i	–	1	1	1	1
Moment of inertia	J	10^{-4} kg · m^2	11.5	11.5	11.5	11.5
Moment of inertia of optional brake	J_{brake}	10^{-4} kg · m^2	0.6	0.6	0.6	0.6
Mass	m	kg	14.9	14.9	15.7	15.7
Mass of optional brake	m_{brake}	kg	1.4	1.4	1.4	1.4
Environment and standards						
Ambient temperature	T_{amb}	°C	0 to +40	0 to +40	0 to +40	0 to +40
Protection code (IP)	IP	–	IP65S	IP65S	IP65S	IP65S

1

Life diagram

21 Lifetime diagram CEMC1808



F_m	Equivalent dynamic axial load	L_{10dist}	Service life distance

NOTE:

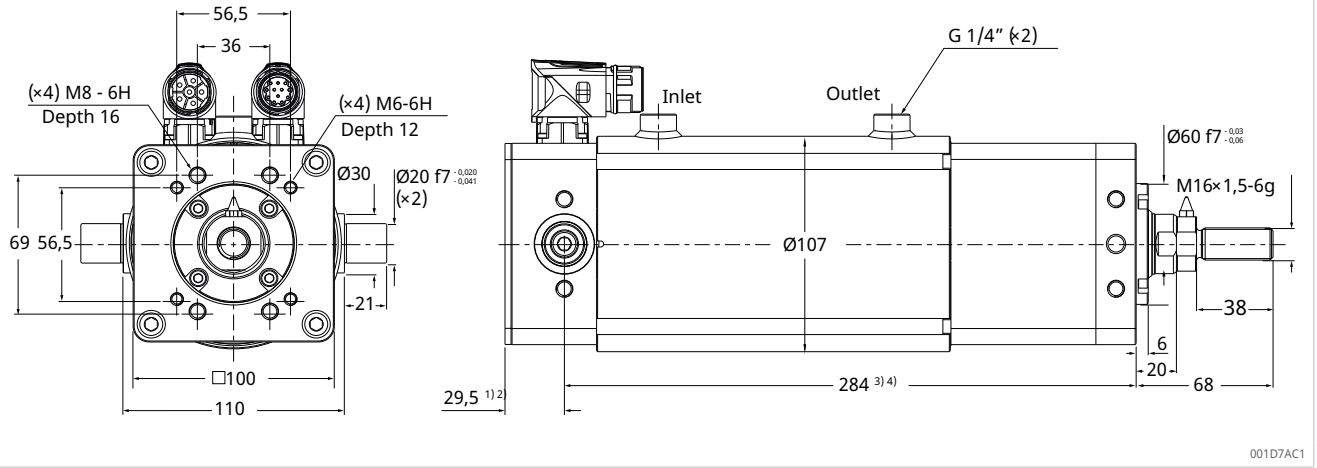
The curve shown is based on the standard L_{10} fatigue life calculation at average load over a double-stroke cycle.

For applications such as spot welding or servo presses, where the peak force is applied over a very short stroke (less than twice the lead of the roller screw drive), the standard L_{10} fatigue life calculation is not representative of the achievable life in operation.

In these cases, contact Schaeffler to request a special service life calculation.

Dimensional drawings

22 Dimensional drawing, electromechanical linear actuator CEMC1808



1) For the brake option, add 44 mm.

2) The additional length varies depending on the type of feedback device: for R1 and R2, the length is 29.5 mm as shown, for S1, add 20 mm, and for H1, add 39 mm.

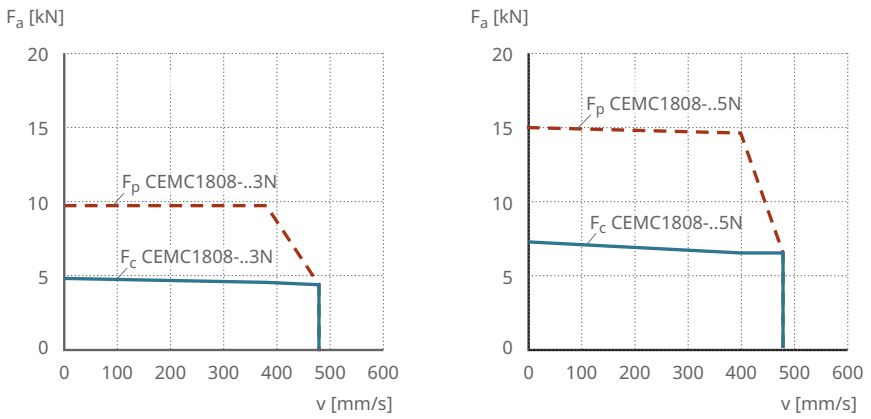
For additional feedback options, contact Schaeffler.

[3] Length valid for CEMC1808-150. For CEMC1808-300 (300 mm stroke), add 150 mm to obtain the corresponding linear actuator length.

[4] For the anti-rotation system option, add 9 mm.

Performance diagrams

23 Performance diagrams CEMC1808

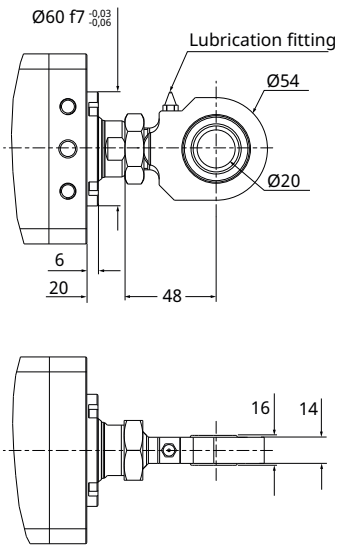


F_a	Axial force	v	Speed
F_p	Peak force	F_c	Continuous force

1.5.3 Optional front and rear attachment

24 Internal thread

25 Rod end



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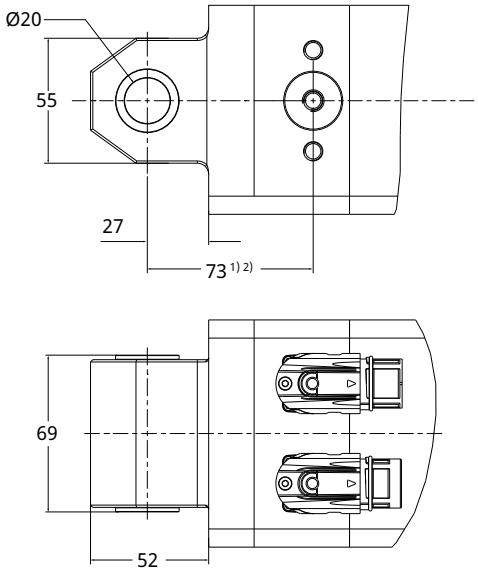
26 Rear plain bushing

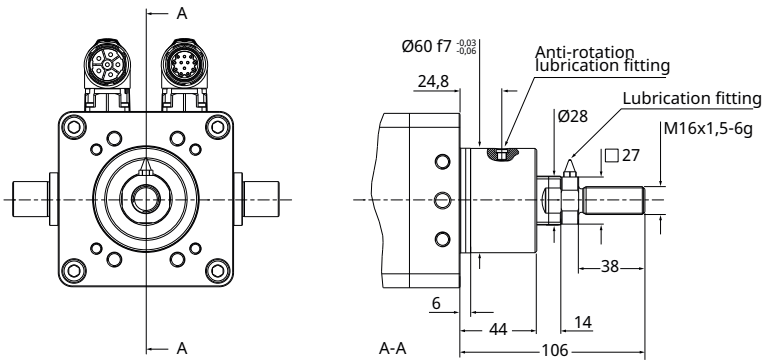


1) For brake option, add 44 mm

2) The additional length varies depending on the type of feedback device: for R1, R2, and S1, it is 73 mm as shown; for H1 add 30 mm.

For additional feedback options, contact Schaeffler.

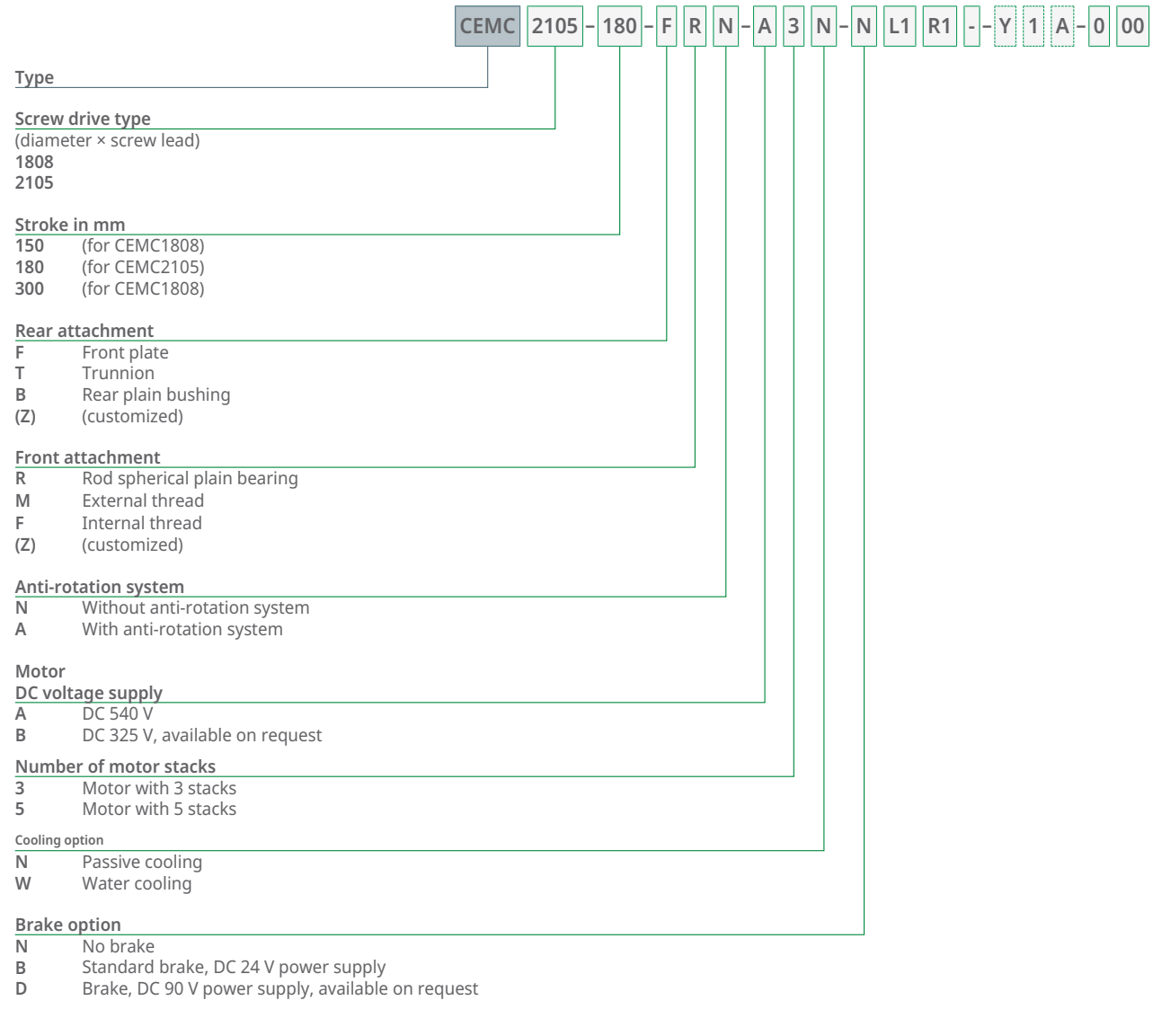
27 Optional anti-rotation device drawing



NOTE: For the anti-rotation system option, an additional mass of 1.1 kg must be taken into account for the linear actuator.

1.6 Ordering designation

28 Structure of the CEMC ordering designation, part 1



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29 Structure of the CEMC ordering designation, part 2

Drive manufacturer and family

L1	Lenze 9400
S1	Siemens Sinamics S120
K1	Kuka
C1	Comau
A1	ABB
F1	Fanuc
Y1	Yaskawa
P1	Parker Compax3

If other drive used, please contact Schaeffler for coding.

Feedback

R1	Standard resolver (Tamagawa)
R2	Resolver (LTN)
S1	Sick absolute encoder
H1	Heidenhain absolute encoder
F1	Fanuc absolute encoder[1)]
Y1	Absolute encoder in accordance with Yaskawa specification[1)]

Free coding (options)

Motor drive (Y can only be selected for drive L1[2)])

Y	Drive included
N	No drive

Power and signal cables (1 to 4 can only be selected for drive L1[2)])

1	5 m
2	10 m
3	15 m
4	20 m
N	No cable

Drive fieldbus (A to H can only be selected for drive L1[2)])

A	CANopen
B	DeviceNet
C	EtherCAT
D	Ethernet
E	Powerlink MN/CN
F	Powerlink CN
G	Profibus
H	Profinet
N	No fieldbus

Lubrication

0	Standard
1	no grease fitting (mandatory for CEMC18 and US market)

Customization code

[1)] Supplied on request. Please contact Schaeffler.
[2)] For a complete system with a Lenze servo drive (valid only with -Axx- motor series), please select the motor drive, power and signal cables and drive fieldbus. If no Lenze servodrive requested, please indicate only -NNN-. See the example below.

001DE21E

Example

Linear unit only (without motor): CEMC2105-180-TRN-A5N-BA1R2x-**NNN**-000

Complete system, with linear actuator + Lenze servo-motor: CEMC2105-180-TRN-A5N-BL1R1x-**Y2G**-000

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