

Linear actuator

Ecomag

Benefits

- Compact
- Cost effective
- Silent operation
- Control unit can be mounted to the actuator



Ecomag

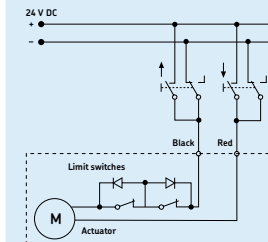
Linear actuators DC versions

Suitable control units and accessories

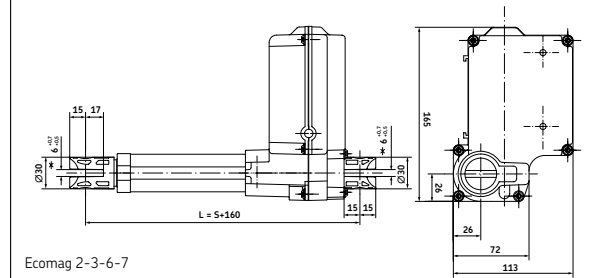
| Control units | SCU 1 | SCU 5 | SCU 9 | VCU 5 | VCU 8 | VCU 9 | BCU 5 | BCU 8 | MCU |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| ECOMAG | • | • | • | • | • | • | • | • | • |
| EHA 1 | • | • | • | • | • | • | • | • | • |
| EHA 3 | • | • | • | • | • | • | • | • | • |
| STJ | • | • | • | • | • | • | • | • | • |
| STA | • | • | • | • | • | • | • | • | • |
| STE | • | • | • | • | • | • | • | • | • |

• Hand switch
• Foot switch
• Desk switch

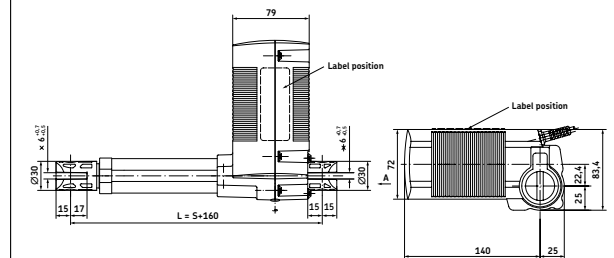
Connecting diagram



Dimensional drawing

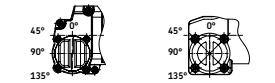


Ecomag 2-3-6-7



Ecomag 4-5-8-9

Rear attachment position

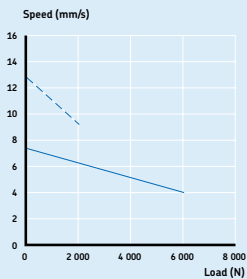


Legend:
 S = stroke
 L = retracted length

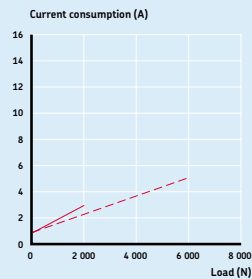
Technical data

| | Unit | ECO 20/40 | ECO 60/80 | ECO 30/50 | ECO 70/90 |
|------------------------------|------|---------------|---------------|---------------|---------------|
| Rated push load | N | 2 000 | 6 000 | 2 000 | 6 000 |
| Rated pull load | N | 0 | 0 | 2 000 | 4 000 |
| Speed (full load to no load) | mm/s | 9 to 13 | 4 to 7 | 9 to 13 | 4 to 7 |
| Stroke | mm | 50 to 300 | 50 to 300 | 50 to 300 | 50 to 300 |
| Retracted length | mm | S+160 | S+160 | S+160 | S+160 |
| Voltage | V DC | 24 | 24 | 24 | 24 |
| Power consumption | W | 70 | 120 | 70 | 120 |
| Current consumption | A | 3 | 5 | 3 | 5 |
| Duty cycle | % | 10 (1/9) | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | +10 to +40 | +10 to +40 | +10 to +40 | +10 to +40 |
| Type of protection | IP | ×45 | ×45 | ×45 | ×45 |
| Weight | kg | 2,1 | 2,1 | 2,5 | 2,5 |
| Color | - | Black or grey | Black or grey | Black or grey | Black or grey |

Performance diagrams

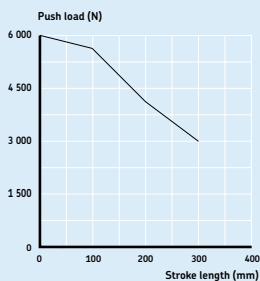


Speed-load diagram



Current-load diagram

Safety factor load conditions



Push load reduction
Safety factor=4



Ordering key

ECO - - - - - 000

Type

Load /Housing:

| Push | Pull | Housing |
|---------|---------|---------|
| 2 000 N | 0 | Large |
| 2 000 N | 2 000 N | Large |
| 2 000 N | 0 | Small |
| 2 000 N | 2 000 N | Small |
| 6 000 N | 0 | Large |
| 6 000 N | 4 000 N | Large |
| 6 000 N | 0 | Small |
| 6 000 N | 4 000 N | Small |

2
3
4
5
6
7
8
9

Encoder:

No encoder, coiled cable, 2-pin Minifit plug or customization
No encoder, coiled cable, DIN8 plug or customization
2-Hall encoder, 8 pulses, straight cable, DIN8 plug (small housing only)

0
9
F

Current cut-off:

No
Yes (not available for ECO4.-/ECO5.-/ECO8.-/ECO9.-)

0
1

Stroke (S):

50 mm
100 mm
150 mm
200 mm
250 mm
300 mm
Other stroke lengths; 50<S<300 mm

05
10
15
20
25
30
00

Front attachment (groove depth 17 mm):

Hole, Ø=12 mm, groove width 10 mm
Customized

M
X

Rear attachment (groove depth 15 mm):

Hole, Ø=12 mm, groove width 10 mm
Customized

M
X

Orientation of rear attachment:

0°
45°
90°
135°

1
3
5
7

Color:

Black
Grey

A
B

Option:

No option
Back-up nut (available only for drives with 6 kN, mandatory for UL 2601) – only for ECO 7/9, L = +23 mm
FOR ECO3.-/ECO5.-ONLY (no back-up nut)

0
A

Quick-release, push load, fork head bore parallel to lever, L = +40 mm, integrated anti-pinching protection.
Quick-release, push load, bore 90° to lever, L = +40 mm, integrated anti-pinching protection.
Quick-release, pull load, fork head bore parallel to lever, L = +40 mm, integrated anti-pinching protection.
Quick-release, pull load, fork head bore 90° to lever, L = +40 mm, integrated anti-pinching protection.
Mechanical anti-pinching protection pull, motor direction push, L = +13 mm.
Mechanical anti-pinching protection push, motor direction pull, L = +13 mm.

B
C
F
G
K
L

Options shown in *italics* are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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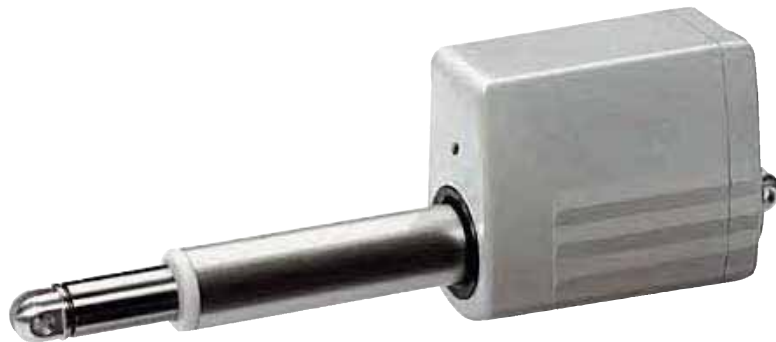


Linear actuator

Runner

Benefits

- High push/pull load
- Compact
- Back-up nut as standard
- High safety factor
- Silent operation



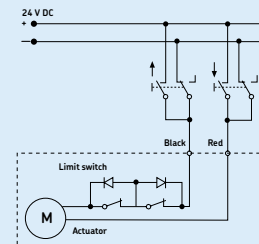
Runner

Suitable control units and accessories

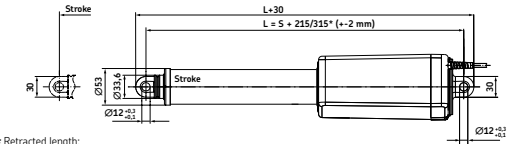
| Control units | | SCU 1 | SCU 5 | SCU 9 | VCU 5 | VCU 8 | VCU 9 | BGU 5 | BGU 8 |
|---------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| • | RU20, RU21, RU22 | • | • | • | • | • | • | • | • |
| • | RU23, RU24, RU25 | • | • | • | • | • | • | • | • |
| • | EHA 3 | • | • | • | • | • | • | • | • |
| • | STJ | • | • | • | • | • | • | • | • |
| • | STE | • | • | • | • | • | • | • | • |

Hand switch
 Foot switch
 Desk switch

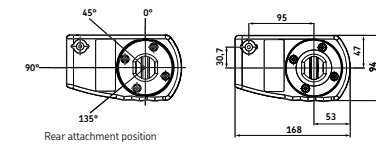
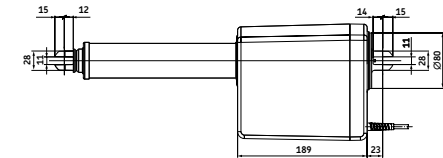
Connecting diagram



Dimensional drawing



* Retracted length:
 up to 500 mm stroke: stroke + 215 mm (plus options)
 from 500 mm stroke: stroke + 315 mm (plus options)



Legend:
 S = stroke
 L = retracted length

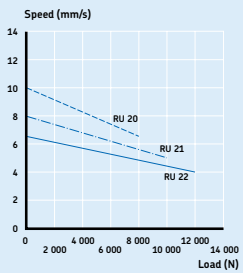
Technical data

| | Unit | RU20 | RU21 | RU 22 | RU23 | RU24 | RU25 |
|------------------------------|------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Rated push load | N | 8 000 | 10 000 | 12 000 ¹⁾ | 8 000 | 10 000 | 12 000 ¹⁾ |
| Rated pull load | N | 8 000 | 8 000 | 8 000 | 8 000 | 8 000 | 8 000 |
| Speed (full load to no load) | mm/s | 7 to 10 | 5 to 8 | 4 to 7 | 8 to 15 | 6 to 12 | 5 to 9 |
| Stroke | mm | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 |
| Retracted length | mm | S+215/315 ²⁾ | S+215/315 ²⁾ | S+215/315 ²⁾ | S+215/315 ²⁾ | S+215/315 ²⁾ | S+215/315 ²⁾ |
| Voltage | V DC | 24 | 24 | 24 | 24 | 24 | 24 |
| Power consumption | W | N/A | N/A | N/A | N/A | N/A | N/A |
| Current consumption | A | 7 | 7 | 7 | 10 | 10 | 10 |
| Duty cycle | % | 10 (1/9) | 10 (1/9) | 10 (1/9) | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | +10 to +40 | +10 to +40 | +10 to +40 | +10 to +40 | +10 to +40 | +10 to +40 |
| Type of protection | IP | ×4/×65 | ×4/×65 | ×4/×65 | ×4/×65 | ×4/×65 | ×4/×65 |
| Weight | kg | 4,7 | 4,7 | 4,7 | 4,7 | 4,7 | 4,7 |
| Color | - | Grey | Grey | Grey | Grey | Grey | Grey |

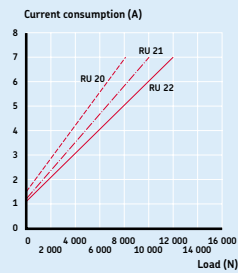
¹⁾ Safety working load for medical application is 10 000 N (EN 60601)

²⁾ S ≤ 500 mm; L = S + 215
 S > 500 mm; L = S + 315

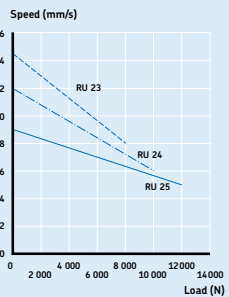
Performance diagrams



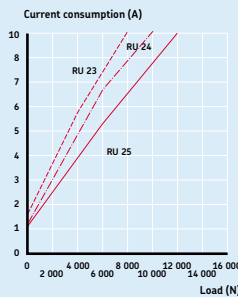
Speed-load diagram



Current-load diagram

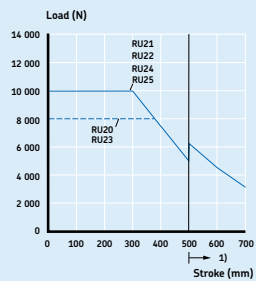


Speed-load diagram

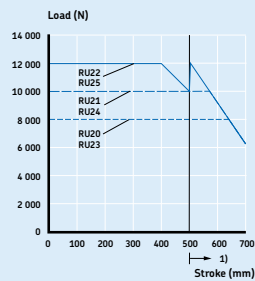


Current-load diagram

Safety factor load conditions



Push load limit, safety factor S=4 (EN 60601) 1) retracted length extension at stroke >500 mm



Push load limit, safety factor S=2 1) retracted length extension at stroke >500 mm



Ordering key

RU 2 - - - - - 0 0

Type

Voltage:
24 V DC

Load / Speed:

- 8 000 N / 7-10 mm/s
- 8 000 N / 8-15 mm/s
- 10 000 N / 5-8 mm/s
- 10 000 N / 6-12 mm/s
- 12 000 N / 4-7 mm/s
- 12 000 N / 5-9 mm/s

- 0
- 3
- 1
- 4
- 2
- 5

Stroke (S) / Retracted length (L):

- 50 mm / 315 mm
- 100 mm / 315 mm
- 150 mm / 365 mm
- 200 mm / 415 mm
- 250 mm / 465 mm
- 300 mm / 515 mm
- 350 mm / 565 mm
- 400 mm / 615 mm
- 450 mm / 665 mm
- 500 mm / 715 mm
- 550 mm / 865 mm
- 600 mm / 915 mm
- 650 mm / 965 mm
- 700 mm / 1 015 mm
- 50<S<500 mm / S+215
- 500<S<700 mm / S+315
- S>700 mm (customized)

- 0 5 0 3 1 5
- 1 0 0 3 1 5
- 1 5 0 3 6 5
- 2 0 0 4 1 5
- 2 5 0 4 6 5
- 3 0 0 5 1 5
- 3 5 0 5 6 5
- 4 0 0 6 1 5
- 4 5 0 6 6 5
- 5 0 0 7 1 5
- 5 5 0 8 6 5
- 6 0 0 9 1 5
- 6 5 0 9 6 5
- 7 0 0 XXX
-
-
- XXXXXX

Type of protection / Color:

- IP×4S, grey
- IP×6S, grey

- A
- B

Cable:

- Straight cable, 1,5 m, DIN8 plug
- Straight cable, 1,5 m, Jack plug 180°

- 15
- 0D

Rear attachment orientation / Hole diameter:

- 0° / Ø=12,0 mm
- 45° / Ø=12,0 mm
- 90° / Ø=12,0 mm
- 135° / Ø=12,0 mm

- 0
- 2
- 4
- 6

Option 1:

- No option
- Electrical anti-pinching (safety switch), pull load, L+20 mm
- Electrical anti-pinching (safety switch), push load, L+20 mm

- 0
- K
- L

Option 2:

- No option
- 2-Hall encoder, 14 pulses, DIN8 plug
- Lifetime monitoring
- 2-Hall encoder, 14 pulses, DIN8 plug, lifetime monitoring

- 0
- A
- M
- N

Option 3:

- No option
- Emergency lowering, L+53 mm (for push load only)

-
- V

Options shown in italics are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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PUB L5321,2540 EN - October 2011



Linear actuator

Matrix 1

Benefits

- Silent operation
- Full system with control unit, operating switch and accessories
- Synchronization possible
- Compact and aesthetic
- Back-up nut as standard



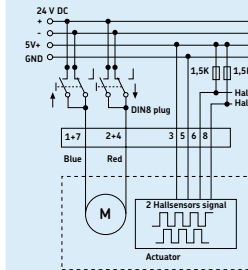
Matrix 1

Suitable control units and accessories

| Control units | SCU 1 | SCU 5 | SCU 9 | VCU 5 | VCU 8 | VCU 9 | BCU 5 | BCU 8 | MCU |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| MAX 1 | • | • | • | • | • | • | • | • | • |
| EHA 1 | | | | | | | | | • |
| EHA 3 | • | • | • | • | • | • | • | • | • |
| STJ | • | • | • | • | • | • | • | • | • |
| STA | • | • | • | • | • | • | • | • | • |
| STE | • | • | • | • | • | • | • | • | • |

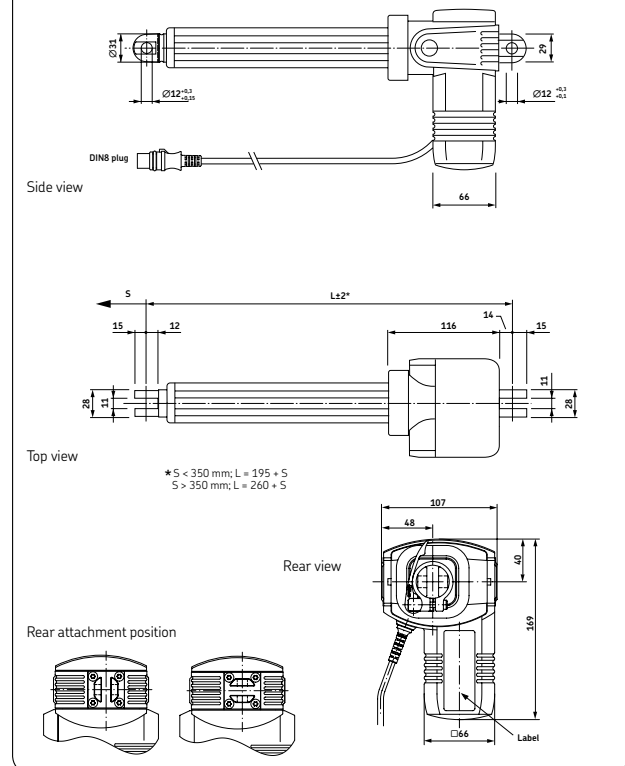
Hand switch
 Foot switch
 Desk switch

Connecting diagram*



* Only valid for MAX 11. MAX 10 must be operated by a BCU, MCU, SCU or VCU control unit.

Dimensional drawing



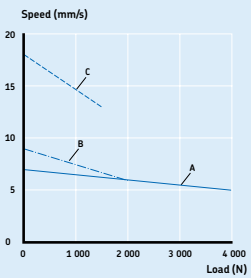
Technical data

| | Unit | MAX 1..A.. | MAX 1..B.. | MAX 1..C.. |
|------------------------------|------|-----------------|-----------------|-----------------|
| Rated push load | N | 4 000 | 2 000 | 1 500 |
| Rated pull load | N | 4 000 | 2 000 | 1 500 |
| Speed (full load to no load) | mm/s | 5 to 7 | 6 to 9 | 12,7 to 18 |
| Stroke | mm | 50 to 700 | 50 to 700 | 50 to 700 |
| Retracted length | mm | $S + 195/260^*$ | $S + 195/260^*$ | $S + 195/260^*$ |
| Voltage | V DC | 24 | 24 | 24 |
| Power consumption | W | 120 | 120 | 120 |
| Current consumption | A | 5 | 5 | 5 |
| Duty cycle | % | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | 0 to +40 | 0 to +40 | 0 to +40 |
| Type of protection | IP | 665 | 665 | 665 |
| Weight (at 200 mm stroke) | kg | 4,0 | 3,7 | 3,6 |
| Color | - | Grey | Grey | Grey |

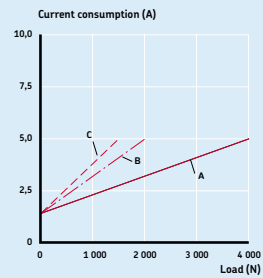
* $S < 350 \text{ mm}$; $L = 195 + S$
 $S > 350 \text{ mm}$; $L = 260 + S$

Linear actuators DC versions

Performance diagrams

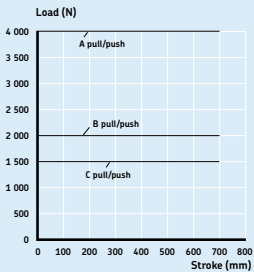


Speed-load diagram

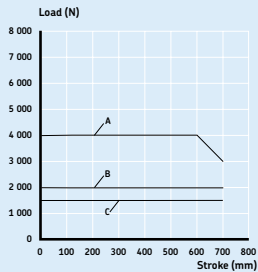


Current-load diagram

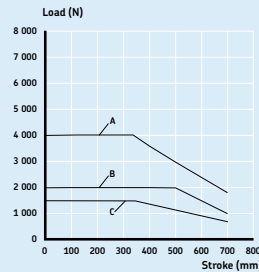
Safety factor load conditions



Push load reduction static
Safety factor S=1



Push load reduction static
Safety factor S=2



Push load reduction static
Safety factor S=4 (EN60601)

Ordering key

M A X 1 [] - [] [] [] [] [] [] [] [] [] [] [] [] **A** [] [] [] [] [] [] [] [] **0 0 0**

Type

Voltage:
24 V DC
24 V DC with integrated current cut-off

0
1

Load:

4 000 N
2 000 N
1 500 N

A
B
C

Stroke (S):

| | |
|-----------------------------------|---------|
| 50 mm | 050 245 |
| 100 mm | 100 295 |
| 150 mm | 150 345 |
| 200 mm | 200 395 |
| 250 mm | 250 445 |
| 300 mm | 300 495 |
| 350 mm | 350 545 |
| 400 mm | 400 660 |
| 450 mm | 450 710 |
| 500 mm | 500 760 |
| 550 mm | 550 810 |
| 600 mm | 600 860 |
| 650 mm | 650 910 |
| 700 mm | 700 960 |
| Other stroke lengths; 50<S<700 mm | --- --- |

Cable / Connecting plug:

Coiled, 0,75 m (not stretched) / DIN8 plug
Straight, 2,5 m / DIN8 plug
Special cable length on request

0B
C5
--

Orientation of rear attachment:

No fork head (customized option)
Standard (as drawing)
Turned 90°

0
1
2

Option 1:

No option, only valid for actuator "A" (push and pull)
Quick-release +EKZm, push, fork head bore parallel to button (for actuator design "C" is L= +115 mm)*
Quick-release +EKZm, push, fork head bore 90° to button (for actuator design "C" is L= +115 mm)*
Mechanical anti-pinching, motor direction pull, no fixing in term. position (for load "A", L= +45 mm; "B" and "C", L= +30 mm)
Mechanical anti-pinching, motor direction push, no fixing in term. position (for load "A", L= +45 mm; "B" and "C", L= +30 mm)
Push load, for actuator version "B" and "C"
Pull load, for actuator version "B" and "C"

O
E
F
I
J
M
N

EKZm: mechanical anti-pinching *min. stroke 150 mm up to 300 mm

Option 2:

No option
2-Hall encoder, DIN8 plug
Lifetime monitoring
Lifetime monitoring, 2-Hall encoder, DIN8 plug

O
F
M
P

Option 3:

No option
Emergency lowering, fork head bore parallel to clamping lever (for actuator design "A", L+30 mm)
Emergency lowering, fork head bore 90° to clamping lever (for actuator design "A", L+30 mm)

-
V
W

Options shown in italics are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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Linear actuator

Matrix 3

Benefits

- Silent operation
- Full system with control unit, operating switch and accessories
- Synchronization possible
- Compact and aesthetic
- Back-up nut as standard



Matrix 3

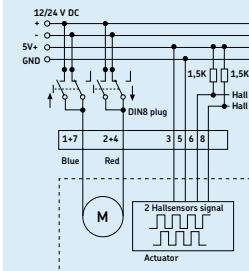
Linear actuators DC versions

Suitable control units and accessories

| | SCU 1 | SCU 5 | SCU 9 | VCU 5 | VCU 8 | VCU 9 | BCU 5 | BCU 8 | MCU |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| MAX 3 | • | • | • | • | • | • | • | • | • |
| EHA1 | | | | | | | | | • |
| EHA3 | • | • | • | • | • | • | • | • | • |
| STJ | • | • | • | • | • | • | • | • | • |
| STA | • | • | • | • | • | • | • | • | • |
| STE | • | • | • | • | • | • | • | • | • |

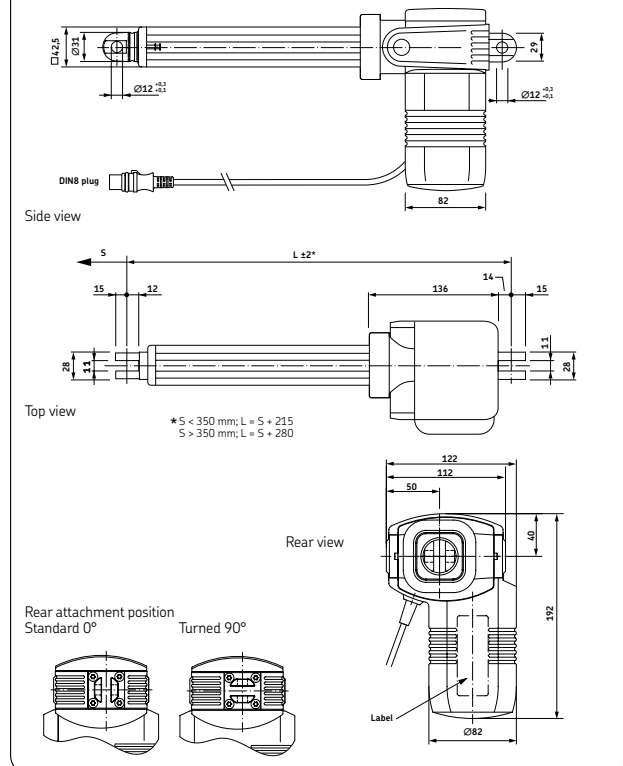
Hand switch
 Foot switch
 Desk switch

Connecting diagram*



* Only valid for MAX 31. MAX 30 must be operated by a BCU, MCU, SCU or VCU control unit.

Dimensional drawing



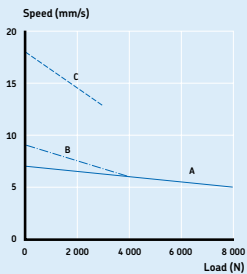
Technical data

| | Unit | MAX 3..A.. | MAX 3..B.. | MAX 3..C.. |
|------------------------------|------|---------------------------|---------------------------|---------------------------|
| Rated push load | N | 8 000 | 4 000 | 3 000 |
| Rated pull load | N | 6 000 ¹⁾ | 4 000 | 3 000 |
| Speed (full load to no load) | mm/s | 5 to 7 | 6 to 9 | 12,7 to 18 |
| Stroke | mm | 50 to 700 | 50 to 700 | 50 to 700 |
| Retracted length | mm | S + 215/280 ²⁾ | S + 215/280 ²⁾ | S + 215/280 ²⁾ |
| Voltage | V DC | 12 or 24 | 12 or 24 | 12 or 24 |
| Power consumption | W | 120 | 120 | 120 |
| Current consumption | A | 5,0 | 5,0 | 5,0 |
| Duty cycle | % | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | 0 to +40 | 0 to +40 | 0 to +40 |
| Type of protection | IP | 665 | 665 | 665 |
| Weight (at 200 mm stroke) | kg | 4,5 | 4,2 | 4,0 |
| Color | - | Grey | Grey | Grey |

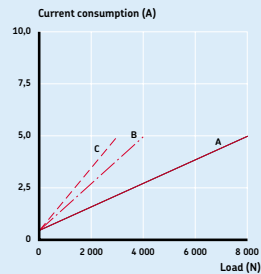
¹⁾ Max load for medical application is 5 000 N

²⁾ S ≤ 350 mm; L = S + 215
S > 350 mm; L = S + 280

Performance diagrams

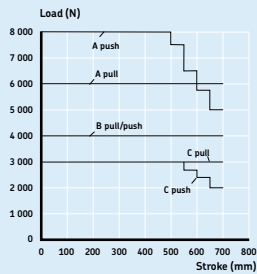


Speed-load diagram

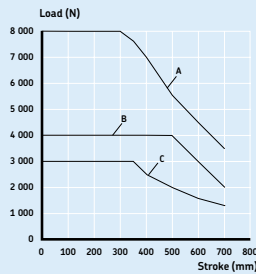


Current-load diagram

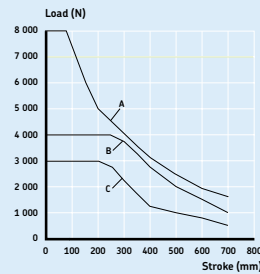
Safety factor load conditions



Push load reduction static
Safety factor S=1



Push load reduction static
Safety factor S=2



Push load reduction static
Safety factor S=4 (EN60601)

Ordering key

MAX3 - - - - - A - - - - - 000

Type

Voltage:
24 V DC
24 V DC with integrated current cut-off
12 V DC

0
1
2

Load:
8 000 N
4 000 N
3 000 N

A
B
C

Stroke (S):

50 mm 050 265
100 mm 100 315
150 mm 150 365
200 mm 200 415
250 mm 250 465
300 mm 300 515
350 mm 350 565
400 mm 400 680
450 mm 450 730
500 mm 500 780
550 mm 550 830
600 mm 600 880
650 mm 650 930
700 mm 700 980
Other stroke lengths; 50<S<700 mm --- ---

Cable / Connecting plug:

Coiled, 0,75 m (not stretched) / DIN8 plug
Straight, 2,5 m / DIN8 plug
Special cable length on request

OB
C5
--

Orientation of rear attachment:

No fork head (customized option)
Standard (as drawing)
Turned 90°

0
1
2

Option 1:

No option, only valid for actuator "A" (push and pull)
Quick-release +EKZm, push, fork head bore parallel to button (for actuator design "C" is L= +115 mm)*
Quick-release +EKZm, push, fork head bore 90° to button (for actuator design "C" is L= +115 mm)*
Electrical anti-pinch protection, motor direction pull
Electrical anti-pinch protection, motor direction push
Push load, for actuator version "B" and "C"
Pull load, for actuator version "B" and "C"
EKZm: mechanical anti-pinch *min. stroke 150 mm up to 300 mm

O
E
F
K
L
M
N

Option 2:

No option
2-Hall encoder, DIN8 plug
Lifetime monitoring
Lifetime monitoring, 2-Hall encoder, DIN8 plug

O
F
M
P

Option 3:

No option
Emergency lowering, fork head bore parallel to clamping lever (for actuator design "A", L+30 mm)
Emergency lowering, fork head bore 90° to clamping lever (for actuator design "A", L+30 mm)

-
V

Options shown in italics are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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PUB L5321,2520 EN · February 2011



Linear actuator

Matrix 6

Benefits

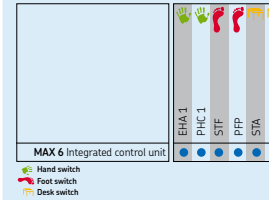
- Silent operation
- Full system with integrated control unit and accessories
- Compact and aesthetic
- Back-up nut as standard



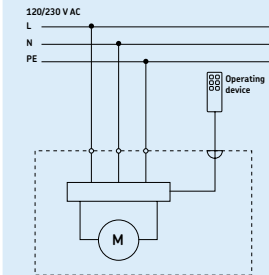
Matrix 6

Linear actuators AC versions

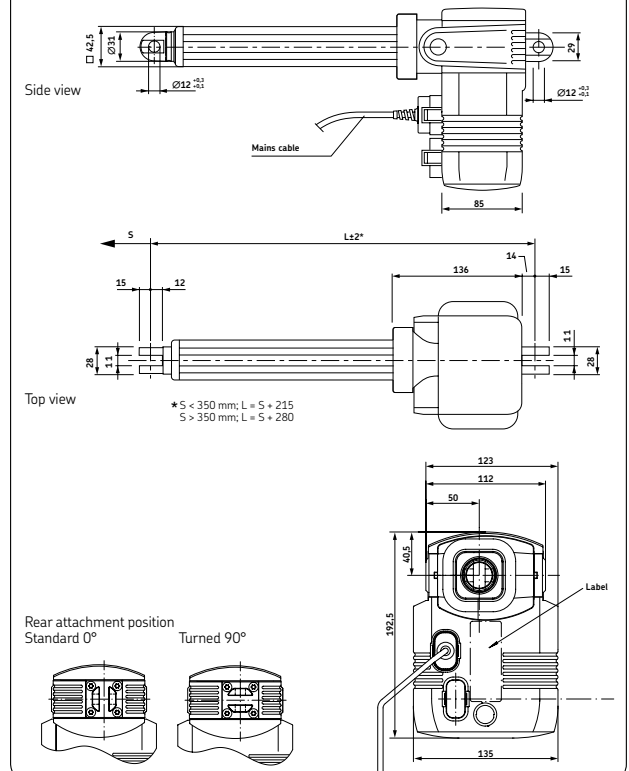
Suitable control units and accessories



Connecting diagram



Dimensional drawing



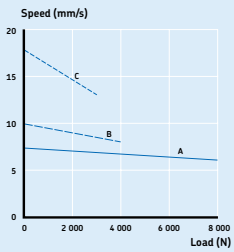
Technical data

| | Unit | MAX 6..A.. | MAX 6..B.. | MAX 6..C.. |
|------------------------------|--------------------|---------------------------|---------------------------|---------------------------|
| Rated push load | N | 8 000 | 4 000 | 3 000 |
| Rated pull load | N | 6 000 ¹⁾ | 4 000 | 3 000 |
| Speed (full load to no load) | mm/s | 6 to 7,5 | 8 to 10 | 13 to 18 |
| Stroke | mm | 50 to 700 | 50 to 700 | 50 to 700 |
| Retracted length | mm | S + 215/280 ²⁾ | S + 215/280 ²⁾ | S + 215/280 ²⁾ |
| Voltage | VAC | 120 or 230 | 120 or 230 | 120 or 230 |
| Power consumption | 120 VAC 230 VAC | W 150 145 | W 150 145 | W 150 145 |
| Current consumption | 120 VAC 230 VAC | A 1,8 0,9 | A 1,8 0,9 | A 1,8 0,9 |
| Duty cycle | % | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | 0 to +40 | 0 to +40 | 0 to +40 |
| Type of protection | IP | 665 | 665 | 665 |
| Weight (at 200 mm stroke) | kg | 4,8 | 4,5 | 4,2 |
| Color | - | Grey | Grey | Grey |

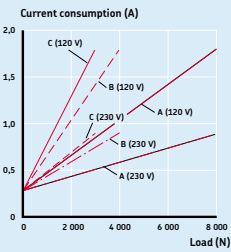
¹⁾ Max load for medical application is 5 000 N

²⁾ S < 350 mm; L = S + 215
S > 350 mm; L = S + 280

Performance diagrams

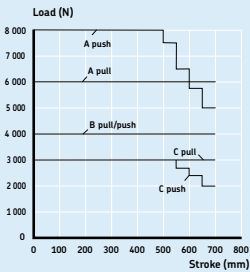


Speed-load diagram

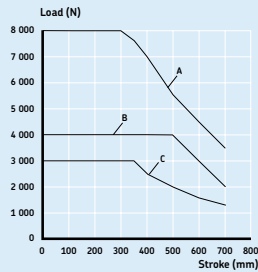


Current-load diagram

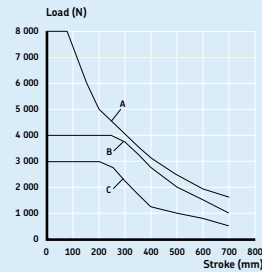
Safety factor load conditions



Push load reduction static
Safety factor S=1



Push load reduction static
Safety factor S=2



Push load reduction static
Safety factor S=4 (EN60601)

Accessories

| Description | Plug | Country | Designation | Order number |
|-----------------------------------|------------------|---------|-----------------|--------------|
| Straight cable 3,5 m | Schuko | DE | ZKA-140306-3500 | M/0121723 |
| Straight cable 3,5 m | SEV | CH | ZKA-140316-3500 | M/0121737 |
| Straight cable 3,5 m | UL | USA | ZKA-140355-3500 | M/0121724 |
| Straight cable 3,5 m | Hospital grade | USA | ZKA-140360-3500 | M/0121732 |
| Straight cable 3,5 m | British standard | UK | ZKA-140350-3500 | M/0121743 |
| Coiled cable 1,2 m / 2,2 m | Schuko | DE | ZKA-140342-1500 | M/0121728 |
| Coiled cable 1,2 m / 2,2 m | SEV | CH | ZKA-140378-1200 | M/0121738 |
| Straight polyurethane cable 3,5 m | SEV | CH | ZKA-140422-3500 | M/0121739 |
| Straight polyurethane cable 3,5 m | Schuko | DE | ZKA-140426-3500 | M/0121740 |
| Strain relief for mains cable | | | ZUB-952253 | M/0102848 |
| Tool for plugs (Jack/D-Sub/Mains) | | | ZWS-140375 | M/0125322 |



Ordering key

MAX 6 - - - - - A - - - - - 0 0 0

Type

- 230 V AC/50 Hz, integrated pneumatic control 0
- 120 V AC/60 Hz, integrated pneumatic control 1
- 230 V AC/50 Hz, integrated low voltage control with additional 24 V output 2
- 120 V AC/60 Hz, control +1 channel with additional 24 V output 3
- 230 V AC/50 Hz, integrated low voltage 4
- 120 V AC/60 Hz, integrated low voltage 5

Load:

- 8 000 N A
- 4 000 N B
- 3 000 N C

Stroke (S):

- 50 mm 050 265
- 100 mm 100 315
- 150 mm 150 365
- 200 mm 200 415
- 250 mm 250 465
- 300 mm 300 515
- 350 mm 350 565
- 400 mm 400 680
- 450 mm 450 730
- 500 mm 500 780
- 550 mm 550 830
- 600 mm 600 880
- 650 mm 650 930
- 700 mm 700 980
- Other stroke lengths; 50<S<700 mm --- ---

Cable/Connecting plug:

No cable 0

Orientation of rear attachment:

- No fork head (customized option) 0
- Standard (as drawing) 1
- Turned 90° 2

Option 1:

- No option, only valid for actuator "A"
- Quick-release +EKZm, push, fork head bore parallel to button (for actuator design "C" is L= +115 mm)*
- Quick-release +EKZm, push, fork head bore 90° to button (for actuator design "C" is L= +115 mm)*
- Electrical anti-pinching protection, motor direction pull
- Electrical anti-pinching protection, motor direction push
- Push load, for actuator version "B" and "C"
- Pull load, for actuator version "B" and "C" EKZm: mechanical anti-pinching *min. stroke 150 mm up to 300 mm

Option 2:

- No option 0
- Lifetime monitoring M

Option 3:

- No option -
- Emergency lowering, fork head bore parallel to clamping lever (for actuator design "A", L+30 mm)
- Emergency lowering, fork head bore 90° to clamping lever (for actuator design "A", L+30 mm) W

Options shown in italics are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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Linear actuator

Magdrive

Benefits




- Slim design
- Aluminium profile
- In-line actuator
- Quiet operation
- High push load



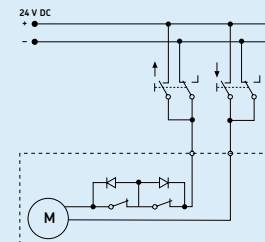
Magdrive

Linear actuators DC versions

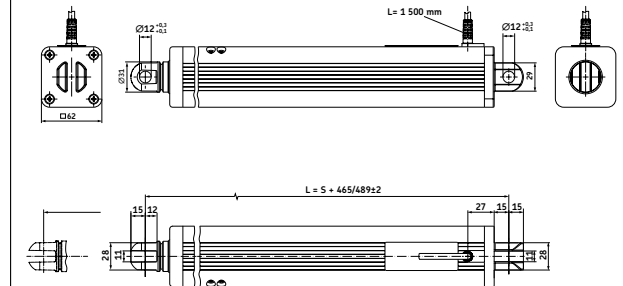
Suitable control units and accessories

| | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| | SCU 1 | SCU 5 | SCU 9 | VCU 5 | VCU 8 | VCU 9 | BCU 5 | BCU 8 |
| MAGDRIVE | • | • | • | • | • | • | • | • |
|  EHA 3 | • | • | • | • | • | • | • | • |
|  STJ | • | • | • | • | • | • | • | • |
|  STE | • | • | • | • | • | • | • | • |

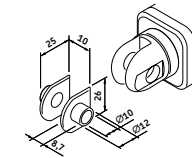
Connecting diagram



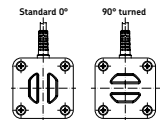
Dimensional drawing



Plastic bushing for forkhead
(hinge delivered separately)



Orientation of rear attachment

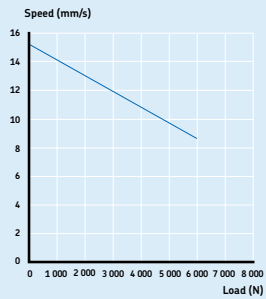


Legend:
S = stroke
L = retracted length

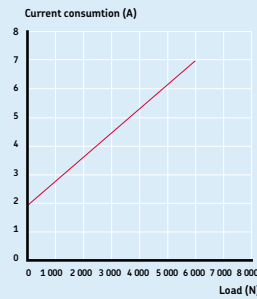
Technical data

| | Unit | MD22/MD24 | MD23/MD25 |
|------------------------------|------|--------------------|--------------------|
| Push load | N | 6 000 | 6 000 |
| Pull load | N | 200* (static only) | 6 000 |
| Speed (full load to no load) | mm/s | 8,5 to 15 | 8,5 to 15 |
| Stroke | mm | 50 to 700 | 50 to 700 |
| Retracted length | mm | S+465 | S+489 |
| Voltage | V DC | 24 | 24 |
| Power consumption | W | N/A | N/A |
| Current consumption | A | 7 | 7 |
| Duty cycle | % | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | +10 to +40 | +10 to +40 |
| Type of protection | IP | ×0/×45 | ×0/×45 |
| Weight | kg | 5,0 | 5,0 |
| Color | - | Colorless anodized | Colorless anodized |

Performance diagrams

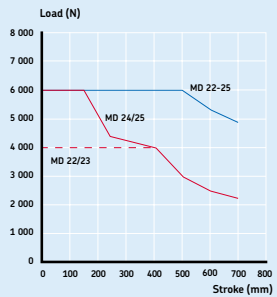


Speed-load diagram

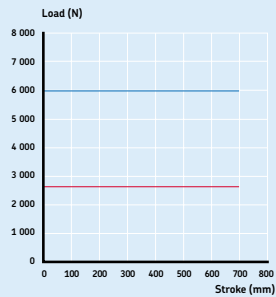


Current-load diagram

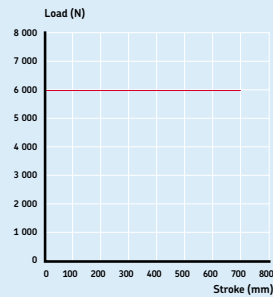
Safety factor load conditions



Push load diagram
 — Safety factor S=2
 — Safety factor according UL60601-1, IEC60601-1
 — Safety factor according UL60601-1, IEC60601-1



Pull load diagram MD23
 — Safety factor S=4
 — Safety factor according UL60601-1, IEC60601-1



Pull load diagram MD25 (6 000 N)
 — Safety factor according UL60601-1, IEC60601-1

Ordering key

M D 2 - [] [] [] [] [] [] [] [] [] **0 0**

Type

Push/pull force:
 6 000 N/200 N 2
 6 000 N/6 000 N 3
 6 000 N/200 N (recommended for medical applications- with alu. rear hinge) 4
 6 000 N/6 000 N (recommended for medical applications- with alu. rear hinge) 5

Stroke:

50 mm 050
 100 mm 100
 150 mm 150
 200 mm 200
 250 mm 250
 300 mm 300
 350 mm 350
 400 mm 400
 450 mm 450
 500 mm 500
 550 mm 550
 600 mm 600
 650 mm 650
 700 mm 700
Other stroke lengths ---

Retracted length:

MD22/24: S+465 mm ---
 MD23/25: S+489 mm ---
 Over 1 000 mm assembly length, use customer specific adaption XXX
 Others ---

Type of protection:

IPX0
 IPX4S

A
 B

Motor cable:

Straight, 1,5 m, DIN8 plug
 Straight, 1,5 m, jack plug 180°

15
 0D

Rear attachment / Hole diameter:

Standard 0° / Ø12 mm
 Rotated 90° / Ø12 mm

0
 4

Option 1:

No option
 Electrical anti-pinching protection, safety switch, motor direction push
 Electrical anti-pinching protection, safety switch, motor direction pull

0
 L
 K

Option 2:

No option
Dual encoder (only available with DIN8 plug) 2,15 impulse per turn/sensor (= 5,375 imp. per 1 mm.)

0
 F

Option 3:

No option
 Emergency lowering fork head bore (add 30 mm to retracted length "L")

—
 V

Options written in italic fonts are only available on demand. Please contact SKF.

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Linear actuator

Magforce WSP

Benefits

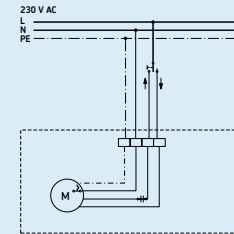
- Modular
- Robust
- Reliable
- High speed and/or high load
- All metal design



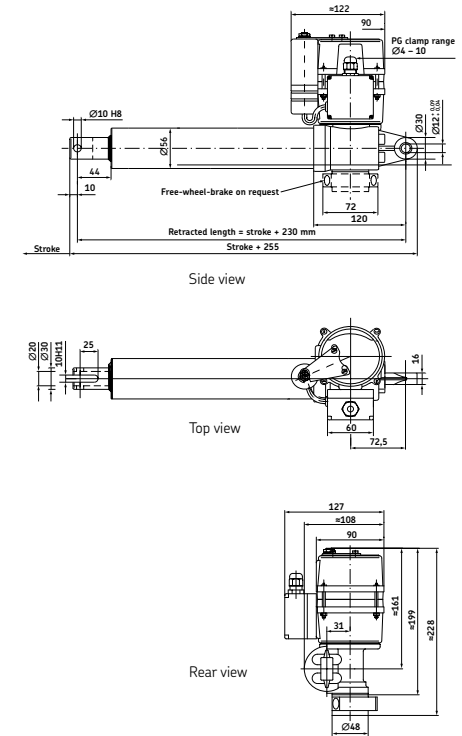
Magforce WSP

Linear actuators AC versions

Connecting diagram



Dimensional drawing



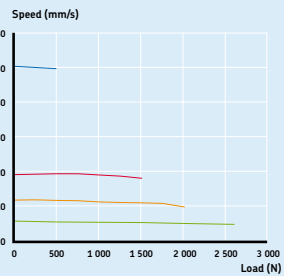
Technical data

| | Unit | WSP 0510 | WSP 1030 | WSP 1550 | WSP 2650 |
|---------------------------|------|--------------|--------------|---------------------|---------------------|
| Push load | N | 500 | 1 000 | 1 500 ¹⁾ | 2 600 ²⁾ |
| Pull load | N | 500 | 1 000 | 1 500 | 2 600 |
| Speed (at full load) | mm/s | 50 | 18 | 10 | 5 |
| Stroke | mm | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 |
| Retracted length | mm | 5+230 | 5+230 | 5+230 | 5+230 |
| Voltage | V AC | 230 | 230 | 230 | 230 |
| Power consumption | W | 230 | 200 | 200 | 230 |
| Current consumption | A | 1,1 | 1 | 1 | 1,1 |
| Duty cycle | % | 25 (2,5/7,5) | 25 (2,5/7,5) | 25 (2,5/7,5) | 25 (2,5/7,5) |
| Ambient temperature | °C | -10 to +40 | -10 to +40 | -10 to +40 | -10 to +40 |
| Type of protection | IP | 54 | 54 | 54 | 54 |
| Weight (at 200 mm stroke) | kg | 5,5 | 5,5 | 5,5 | 5,5 |
| Color | - | Silver | Silver | Silver | Silver |

¹⁾Push load allowed up to 650 mm stroke (if >650 mm, only pull load is allowed)

²⁾Push load allowed up to 500 mm stroke (if >500 mm, only pull load is allowed)

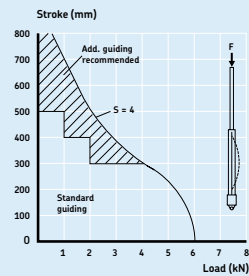
Performance diagram



Speed-load diagram

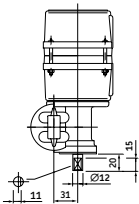
- WSP 0510-200
- WSP 1030-200
- WSP 1550-200
- WSP 2650-200

Safety load factor conditions

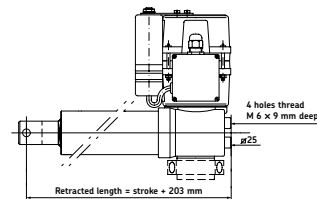


Bending of spindle
S = safety factor Euler 3

Options



Extended motor shaft



Rear screw fixing

Ordering key

Type

Load:
500 N
1 000 N
1 500 N
2 600 N

0510
1030
1550
2650

Stroke (S):

100 mm
200 mm
300 mm
400 mm
500 mm
600 mm
700 mm

100
200
300
400
500
600
700

Option 1:

No option
*Others**

01
XX

Option 2:

No option
Free wheel brake on push load, 1028, 6228
Free wheel brake on pull load, 1028, 0002
Friction brake for pull/push load, 1028, 7851

0
A
B
C

Option 3:

No option
Limit switch

0
1

Options shown in italics are only available on request.

Minimum quantities or additional costs apply for option 1 if shown in italics. For option 2 and 3 please contact your SKF representative.

Example for ordering an actuator without any options: WSP1030-100-01.

Example for ordering an actuator with option limit switch: WSP1030-100-01-01 (01 = with limit switch).

* Example for others XX: Add. guiding bush - L=S+280 mm, protection tube made out of stainless steel, bronze nut, low temp grease -30°, extended motorshaft, rear attachment hole turned 90°, without rear attachment; motor turned 90°.

Spare parts

| Description | Designation | Order N° |
|----------------------------|---------------|-----------|
| Limit switch 100 mm stroke | 1043.0209-100 | M/0126964 |
| Limit switch 200 mm stroke | 1043.0209-200 | M/0126965 |
| Limit switch 300 mm stroke | 1043.0209-300 | M/0126966 |
| Limit switch 400 mm stroke | 1043.0209-400 | M/0126967 |
| Limit switch 500 mm stroke | 1043.0209-500 | M/0126968 |
| Limit switch 600 mm stroke | 1043.0209-600 | M/0126969 |

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PUB L5321,2110 EN · April 2012



Linear actuator

Magforce DSP

Benefits

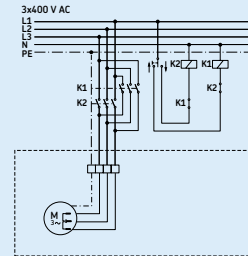
- Modular
- Robust
- Reliable
- High speed and/or high load
- All metal design



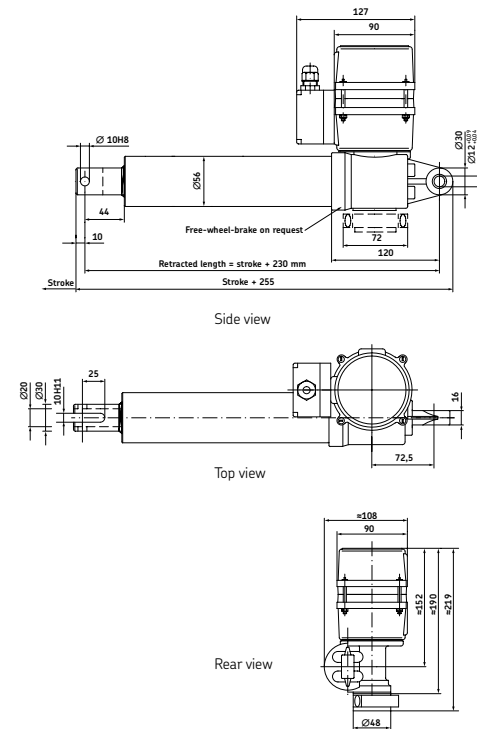
Magforce DSP

Linear actuators AC versions

Connecting diagram



Dimensional drawing



Technical data

| | Unit | DSP 1010 | DSP 2530 | DSP 3250 | DSP 4550 |
|---------------------------|------|------------|---------------------|---------------------|---------------------|
| Push load | N | 1 000 | 2 500 ¹⁾ | 3 200 ²⁾ | 4 500 ³⁾ |
| Pull load | N | 1 000 | 2 500 | 3 200 | 4 500 |
| Speed (at full load) | mm/s | 50 | 15 | 10 | 5 |
| Stroke | mm | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 |
| Retracted length | mm | 5+230 | 5+230 | 5+230 | 5+230 |
| Voltage | V AC | 3×400 | 3×400 | 3×400 | 3×400 |
| Power consumption | W | 210 | 260 | 260 | 280 |
| Current consumption | A | 0,5 | 0,6 | 0,6 | 0,6 |
| Duty cycle | % | 40 (4/6) | 40 (4/6) | 40 (4/6) | 40 (4/6) |
| Ambient temperature | °C | -10 to +40 | -10 to +40 | -10 to +40 | -10 to +40 |
| Type of protection | IP | 54 | 54 | 54 | 54 |
| Weight (at 200 mm stroke) | kg | 5,6 | 5,6 | 5,6 | 5,6 |
| Color | - | Silver | Silver | Silver | Silver |

¹⁾Push load allowed up to 500 mm stroke (if >500 mm, only pull load is allowed)

²⁾Push load allowed up to 450 mm stroke (if >450 mm, only pull load is allowed)

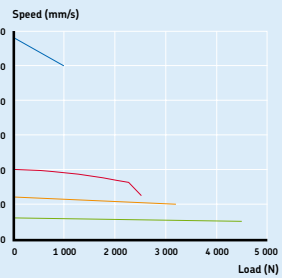
³⁾Push load allowed up to 350 mm stroke (if >350 mm, only pull load is allowed)

Linear actuators AC versions

Magforce DSP

Magforce DSP

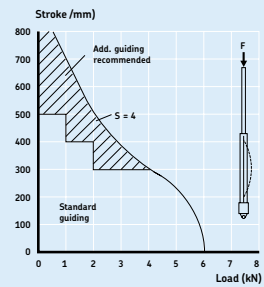
Performance diagram



Speed-load diagram

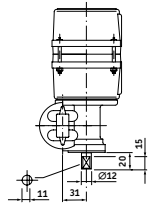
- DSP 1010-200
- DSP 2530-200
- DSP 3250-200
- DSP 4550-200

Safety load factor conditions

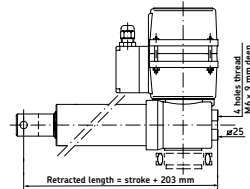


Bending of spindle
S = safety factor Euler 3

Options

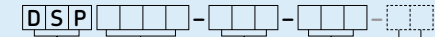


Extended motor shaft



Rear screw fixing

Ordering key



Type

Load:

| | |
|---------|------|
| 1 000 N | 1010 |
| 2 500 N | 2530 |
| 3 200 N | 3250 |
| 4 500 N | 4550 |

Stroke (S):

| | |
|--------|-----|
| 100 mm | 100 |
| 200 mm | 200 |
| 300 mm | 300 |
| 400 mm | 400 |
| 500 mm | 500 |
| 600 mm | 600 |
| 700 mm | 700 |

Option 1:

No option

Others*

01
XX

Option 2:

No option

Free wheel brake on push load, 1028, 6226

Free wheel brake on pull load, 1028, 0002

Friction brake for pull/push load, 1028, 7851

O
A
B
C

Option 3:

No option

Limit switch

0
1

Options shown in italics are only available on request.

Minimum quantities or additional costs apply for option 1 if shown in italics. For option 2 and 3 please contact your SKF representative.

Example for ordering an actuator without any options: DSP1010-100-01.

Example for ordering an actuator with option limit switch: DSP1010-100-01-01 (01= with limit switch).

* Example for others XX: Add. guiding bush - L=S+280 mm, protection tube made out of stainless steel, bronze nut, low temp grease -30°, extended motorshaft, rear attachment hole turned 90°, without rear attachment; motor turned 90°.

Spare parts

| | Designation | Order N° |
|----------------------------|--------------------|-----------|
| Limit switch 100 mm stroke | ZAC-1043.0210-0100 | M/0126970 |
| Limit switch 200 mm stroke | ZAC-1043.0210-0200 | M/0126971 |
| Limit switch 300 mm stroke | ZAC-1043.0210-0300 | M/0126972 |
| Limit switch 400 mm stroke | ZAC-1043.0210-0400 | M/0126973 |
| Limit switch 500 mm stroke | ZAC-1043.0210-0500 | M/0126974 |
| Limit switch 600 mm stroke | ZAC-1043.0210-0600 | M/0126975 |

Linear actuator

Magforce ASM

Benefits

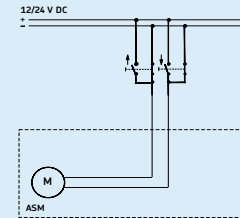
- Modular
- Robust
- Reliable
- High speed and/or high load
- All metal design



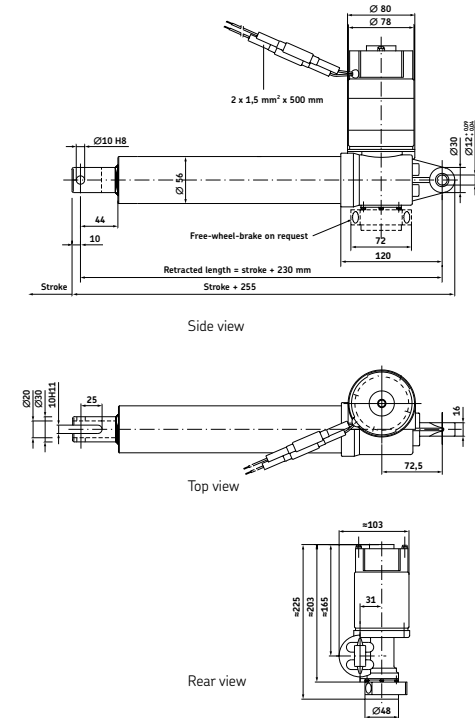
Magforce ASM

Linear actuators DC versions

Connecting diagram



Dimensional drawing



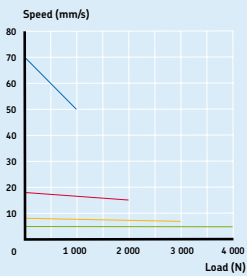
Legend:
S = stroke
L = retracted length

Technical data

| | Unit | ASM 1010 | ASM 2030 | ASM 3030 | ASM 4050 | |
|----------------------|--------------------|--------------|---------------------|---------------------|---------------------|--------|
| Push load | N | 1 000 | 2 000 ¹⁾ | 3 000 ²⁾ | 4 000 ³⁾ | |
| Pull load | N | 1 000 | 2 000 | 3 000 | 4 000 | |
| Speed (at full load) | 12 V DC 24 V DC | mm/s mm/s | 50 45 | 17 18 | 8 8 | 5 5 |
| Stroke | mm | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 | |
| Retracted length | mm | 5+230 | 5+230 | 5+230 | 5+230 | |
| Voltage | V DC | 12 or 24 | 12 or 24 | 12 or 24 | 12 or 24 | |
| Power consumption | 12 V DC 24 V DC | W W | 192 144 | 168 144 | 168 168 | |
| Current consumption | 12 V DC 24 V DC | A A | 16 8 | 14 6 | 14 7 | |
| Duty cycle | % | 10 (1/9) | 10 (1/9) | 10 (1/9) | 10 (1/9) | |
| Ambient temperature | °C | -10 to +40 | -10 to +40 | -10 to +40 | -10 to +40 | |
| Type of protection | IP | 44 | 44 | 44 | 44 | |
| Weight | kg | 5 | 5 | 5 | 5 | |
| Color | - | Silver | Silver | Silver | Silver | |

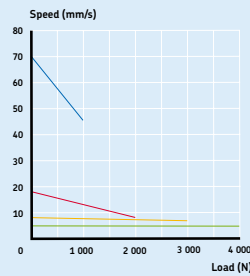
¹⁾Push load allowed up to 600 mm stroke (if 5>600 mm, only pull load is allowed)
²⁾Push load allowed up to 450 mm stroke (if 5>450 mm, only pull load is allowed)
³⁾Push load allowed up to 400 mm stroke (if 5>400 mm, only pull load is allowed)

Performance diagrams



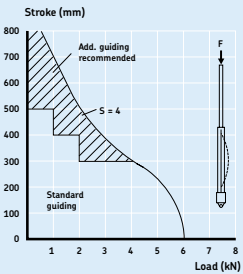
Speed-load diagram at 12 V DC

— ASM 1010
— ASM 2030
— ASM 3030
— ASM 4050



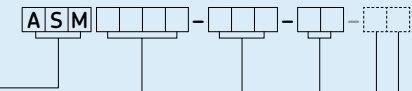
Speed-load diagram at 24 V DC

Safety factor load conditions



Bending of spindle
S = safety factor Euler 3

Ordering key



Type

Load:

1 000 N
2 000 N
3 000 N
4 000 N

1010
2030
3030
4050

Stroke (S):

100 mm
200 mm
300 mm
400 mm
500 mm
600 mm
700 mm

100
200
300
400
500
600
700

Option 1:

12 V DC
24 V DC
*Others**

01
02
XX

Option 2:

No option
Free wheel brake on push load, 1028,6226
Free wheel brake on pull load, 1028,0002
Friction brake for pull/push load, 1028,7851

0
A
B
C

Option 3:

No option
Limit switch

0
1

Options shown in italics are only available on request.

Minimum quantities or additional costs apply for option 1 if shown in italics. For option 2 and 3 please contact your SKF representative.
Example for ordering an actuator without any options: ASM1010-100-01.

Example for ordering an actuator with option limit switch: ASM1010-100-01-01 (01= with limit switch).

* *Example for others XX: Add. guiding bush - L=S+280 mm, protection tube made out of stainless steel, bronze nut, low temp grease -30°, extended motorshaft, rear attachment hole turned 90°, without rear attachment; motor turned 90°.*

Spare parts

| | Designation | Order N° |
|----------------------------|--------------------|-----------|
| Limit switch 100 mm stroke | ZAC-1043,0210-0100 | M/0126970 |
| Limit switch 200 mm stroke | ZAC-1043,0210-0200 | M/0126971 |
| Limit switch 300 mm stroke | ZAC-1043,0210-0300 | M/0126972 |
| Limit switch 400 mm stroke | ZAC-1043,0210-0400 | M/0126973 |
| Limit switch 500 mm stroke | ZAC-1043,0210-0500 | M/0126974 |
| Limit switch 600 mm stroke | ZAC-1043,0210-0600 | M/0126975 |

Linear actuator

Magforce STW

Benefits

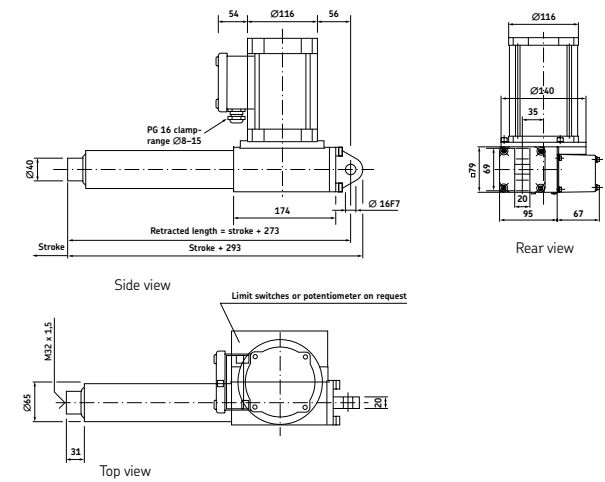
- Modular
- Robust
- Reliable
- High speed and/or high load
- All metal design



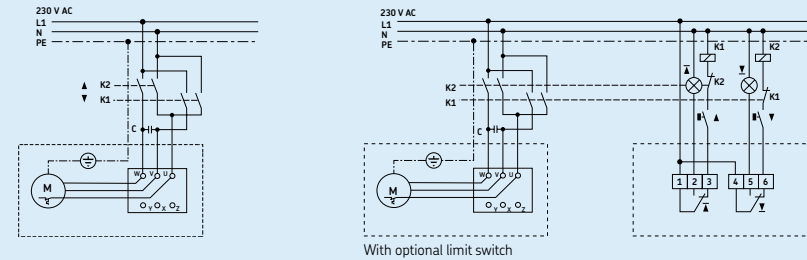
Magforce STW

Linear actuators AC versions

Dimensional drawing



Connecting diagrams



Technical data

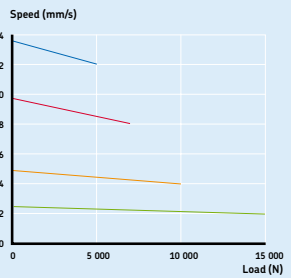
| | Unit | STW 5007 | STW 7010 | STW 10020 | STW 15040 |
|---------------------------|------|--------------|------------|------------|------------|
| Push load | N | 5 000 | 7 000 | 10 000 | 15 000 |
| Pull load | N | 5 000 | 7 000 | 10 000 | 15 000 |
| Speed (at full load) | mm/s | 12 | 8 | 4 | 2 |
| Stroke | mm | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 |
| Retracted length | mm | S+273 | S+273 | S+273 | S+273 |
| Voltage | V AC | 230 | 230 | 230 | 230 |
| Power consumption | W | 700 | 710 | 710 | 750 |
| Current consumption | A | 3,3 | 3,5 | 3,5 | 3,5 |
| Duty cycle | % | 15 (1,5/8,5) | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | -10 to +40 | -10 to +40 | -10 to +40 | -10 to +40 |
| Type of protection | IP | 54 | 54 | 54 | 54 |
| Weight (at 200 mm stroke) | kg | 14,6 | 14,6 | 14,6 | 14,6 |
| Color | - | Silver | Silver | Silver | Silver |

Linear actuators AC versions

Magforce STW

Magforce STW

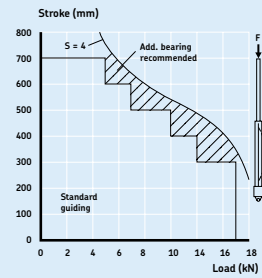
Performance diagram



Speed-load diagram

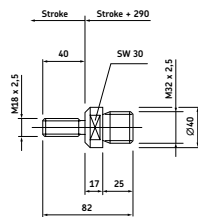
- STW 5007-200
- STW 7010-200
- STW 10020-200
- STW 15040-200

Safety load factor conditions

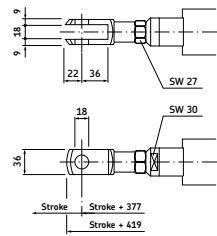


Bending of spindle
S = safety factor Euler 3

Options

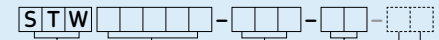


Adapter



Front attachment

Ordering key



Type

- Load:
- 5 000 N
- 7 000 N
- 10 000 N
- 15 000 N

- 05007
- 07010
- 10020
- 15040

Stroke (S):

- 100 mm
- 200 mm
- 300 mm
- 400 mm
- 500 mm
- 600 mm
- 700 mm

- 100
- 200
- 300
- 400
- 500
- 600
- 700

Option 1:

- No option
- Others*

- 01
- XX

Option 2:

- No option
- Adapterbolt M18 1031,0106
- Fork head (including adapterbolt) 1051,9038

- 0
- E
- F

Option 3:

- No option
- Limit switch
- Potentiometer (1 000 Ω)
- Encoder 1063,0020

- 0
- 1
- 2
- 3

Options shown in italics are only available on request.

Minimum quantities or additional costs apply for option 1 if shown in italics. For option 2 and 3 please contact your SKF representative.

Example for ordering an actuator without any options: STW05007-100-01.

Example for ordering an actuator with option fork head: STW05007-100-01-F0 (F0= with fork head).

* Example for others XX: Back up nut, extended motor shaft, low temperature grease...

Spare parts

| | Designation | Order N° |
|--------------|---------------|-----------|
| Adapter bolt | ZBE-1031,0106 | M/0125265 |
| Fork head | ZBE-1051,9038 | M/0124705 |

Linear actuator

Magforce STD

Benefits

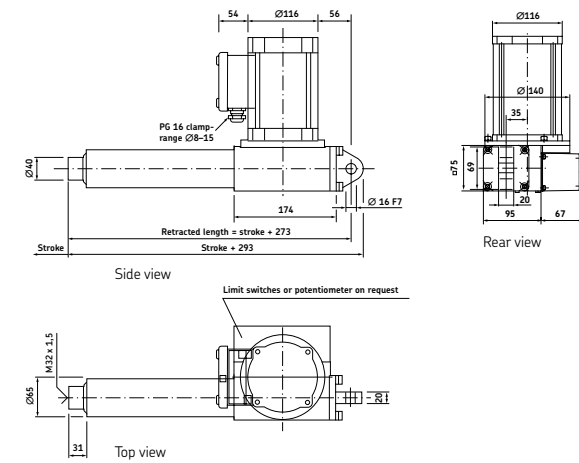
- Modular
- Robust
- Reliable
- High speed and/or high load
- All metal design



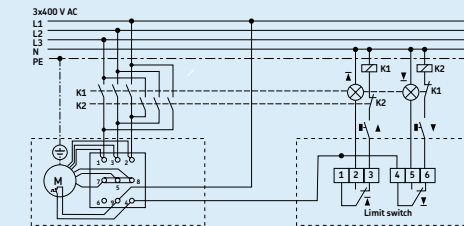
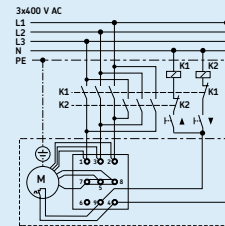
Magforce STD

Linear actuators AC versions

Dimensional drawing



Connecting diagrams



Technical data

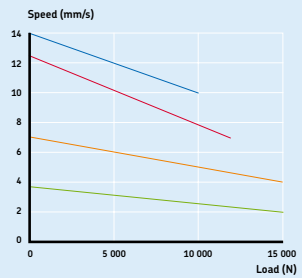
| | Unit | STD 10007 | STD 12010 | STD 15020 | STD 15040 |
|---------------------------|------|--------------|------------|------------|------------|
| Rated push load | N | 10 000 | 12 000 | 15 000 | 15 000 |
| Rated pull load | N | 10 000 | 12 000 | 15 000 | 15 000 |
| Speed (at full load) | mm/s | 10 | 7 | 4 | 2 |
| Stroke | mm | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 |
| Retracted length | mm | 5+273 | 5+273 | 5+273 | 5+273 |
| Voltage | V AC | 3x400 | 3x400 | 3x400 | 3x400 |
| Power consumption | W | 920 | 800 | 700 | 500 |
| Current consumption | A | 1,8 | 1,7 | 1,6 | 1,4 |
| Duty cycle | % | 25 (2,5/7,5) | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | -10 to +40 | -10 to +40 | -10 to +40 | -10 to +40 |
| Type of protection | IP | 54 | 54 | 54 | 54 |
| Weight (at 200 mm stroke) | kg | 14,6 | 14,6 | 14,6 | 14,6 |
| Color | - | Silver | Silver | Silver | Silver |

Linear actuators AC versions

Magforce STD

Magforce STD

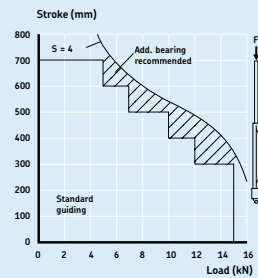
Performance diagram



Speed-load diagram

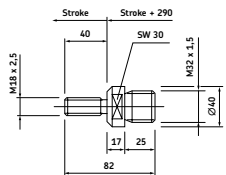
- STD 10007-200
- STD 12010-200
- STD 15020-200
- STD 15040-200

Safety load factor conditions

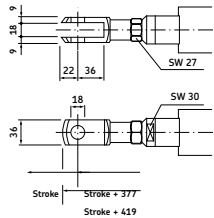


Bending of spindle
S = safety factor Euler 3

Options

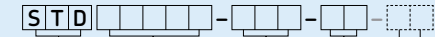


Adapter



Fork head

Ordering key



Type

Load:
10 000 N
12 000 N
15 000 N / 4 mm/s
15 000 N / 2 mm/s

10007
12010
15020
15040

Stroke (S):

100 mm
200 mm
300 mm
400 mm
500 mm
600 mm
700 mm

100
200
300
400
500
600
700

Option 1:

No option
Others*

01
XX

Option 2:

No option
Adapterbolt M18 1031,0106
Fork head (including adapterbolt) 1051,9038

0
1
2
3

Option 3:

No option
Limit switch
Potentiometer (1 000 Ω)
Encoder 1063,0020

Options shown in italics are only available on request.

Minimum quantities or additional costs apply for option 1 if shown in italics. For option 2 and 3 please contact your SKF representative.
Example for ordering an actuator without any options: STD10007-100-01.

Example for ordering an actuator with option fork head: STD10007-100-01-F0 (F0=with fork head).

* Example for others XX: Back up nut, extended motor shaft, low temperature grease, add. guiding bush...

Spare parts

| | Designation | Order N° |
|--------------|---------------|-----------|
| Adapter bolt | ZBE-1031,0106 | M/0125265 |
| Fork head | ZBE-1051,9038 | M/0124705 |

Linear actuator

Magforce STG

Benefits

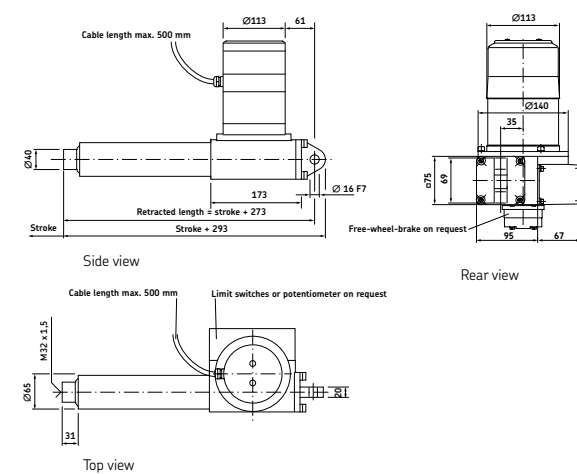
- Modular
- Robust
- Reliable
- High speed and/or high load
- All metal design



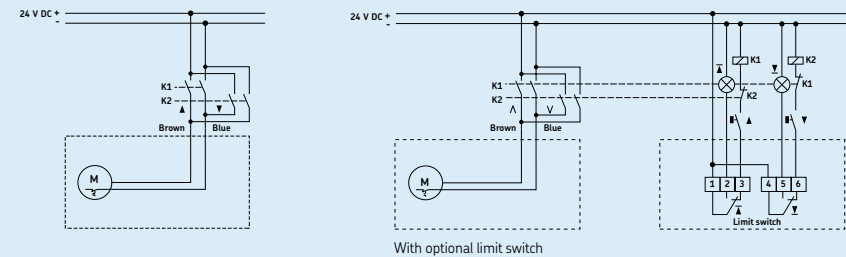
Magforce STG

Linear actuators DC versions

Dimensional drawing



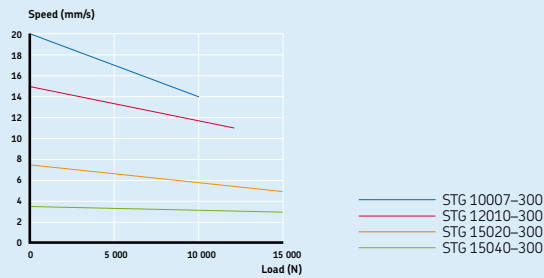
Connecting diagrams



Technical data

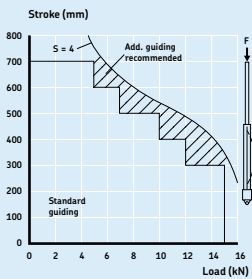
| | Unit | STG 10007 | STG 12010 | STG 15020 | STG 15040 |
|---------------------------|------|------------|------------|------------|------------|
| Rated push load | N | 10 000 | 12 000 | 15 000 | 15 000 |
| Rated pull load | N | 10 000 | 12 000 | 15 000 | 15 000 |
| Speed (at full load) | mm/s | 14 | 11 | 5 | 3 |
| Stroke | mm | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 |
| Retracted length | mm | S+273 | S+273 | S+273 | S+273 |
| Voltage | V DC | 24 | 24 | 24 | 24 |
| Power consumption | W | 840 | 840 | 768 | 528 |
| Current consumption | A | 35 | 35 | 32 | 22 |
| Duty cycle | % | 10 (1/9) | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | -10 to +40 | -10 to +40 | -10 to +40 | -10 to +40 |
| Type of protection | IP | 54 | 54 | 54 | 54 |
| Weight (at 200 mm stroke) | kg | 14,6 | 14,6 | 14,6 | 14,6 |
| Color | - | Silver | Silver | Silver | Silver |

Performance diagram



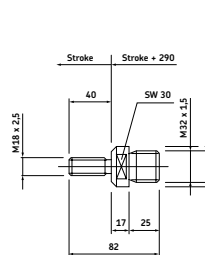
Speed-load diagram

Safety load factor conditions

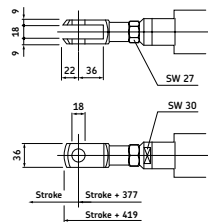


Bending of spindle S = safety factor Euler 3

Options

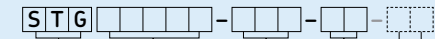


Adapter



Fork head

Ordering key



Type

Load:
 10 000 N
 12 000 N
 15 000 N / 5 mm/s
 15 000 N / 3 mm/s

10007
 12010
 15020
 15040

Stroke (S):

100 mm
 200 mm
 300 mm
 400 mm
 500 mm
 600 mm
 700 mm

100
 200
 300
 400
 500
 600
 700

Option 1:

No option
*Others**

01
 XX

Option 2:

No option
 Adapterbolt M18 1031,0106
 Fork head (including adapterbolt) 1051,9038
 Magnetic brake (1,4 Nm) 1031, 0219

0
 F
 F
 G

Option 3:

No option
 Limit switch
 Potentiometer (1 000 Ω)
 Encoder 1063,0020

0
 1
 2
 3

Options shown in italics are only available on request.

Minimum quantities or additional costs apply for option 1 if shown in italics. For option 2 and 3 please contact your SKF representative.

Example for ordering an actuator without any options: STG10007-100-01.

Example for ordering an actuator with option fork head: STG10007-100-01-F0 (F0= with fork head).

*Example for others XX: Back up nut, extended motor shaft, low temperature grease...

Spare parts

| | Designation | Order N° |
|--------------|---------------|-----------|
| Adapter bolt | ZBE-1031,0106 | M/0125265 |
| Fork head | ZBE-1051,9038 | M/0124705 |

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PUB L5321,2330 EN · April 2012



Linear actuator

Magforce SKD

Benefits

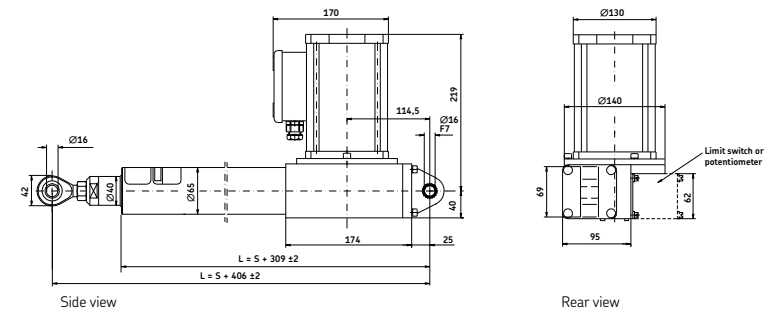
- Modular
- Robust
- Reliable
- High speed and/or high load
- All metal design



Magforce SKD

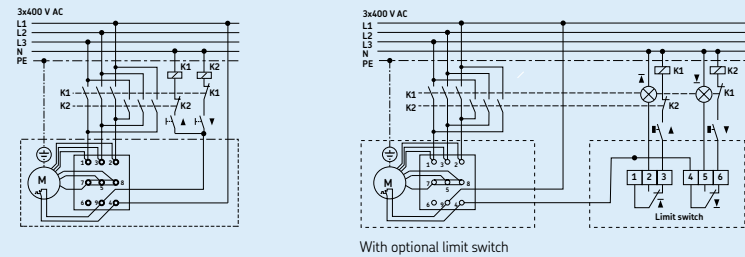
Linear actuators AC versions

Dimensional drawing



Legend:
S = stroke
L = retracted length

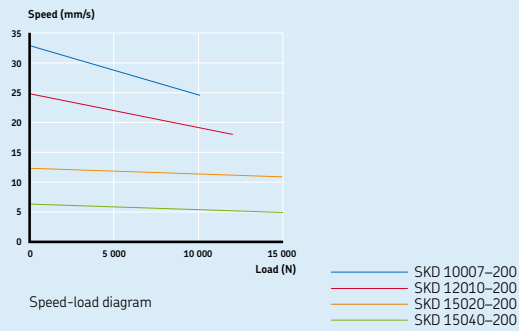
Connecting diagrams



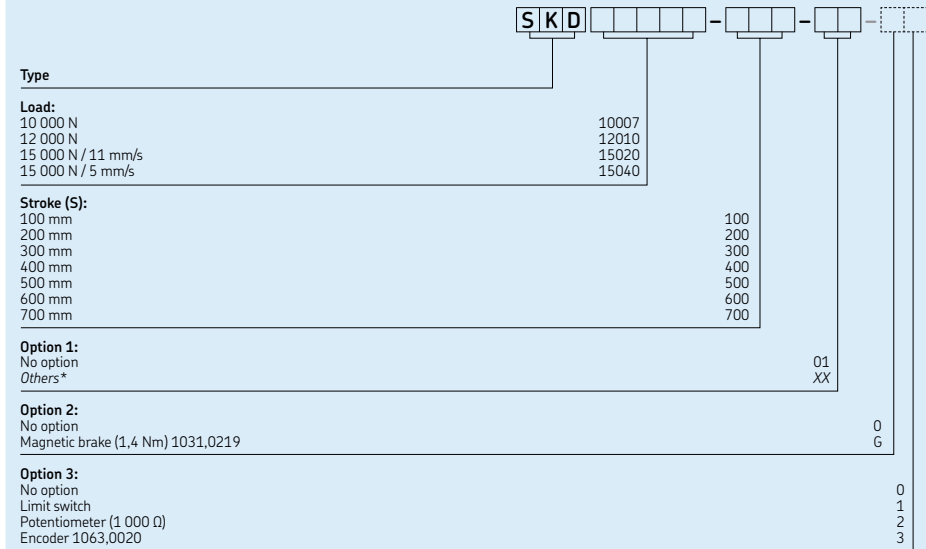
Technical data

| | Unit | SKD 10007 | SKD 12010 | SKD 15020 | SKD 15040 |
|---------------------------|------|---------------|------------|------------|------------|
| Rated push load | N | 10 000 | 12 000 | 15 000 | 15 000 |
| Rated pull load | N | 10 000 | 12 000 | 15 000 | 15 000 |
| Speed (at full load) | mm/s | 25 | 18 | 11 | 5 |
| Stroke | mm | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 |
| Retracted length | mm | S+406 | S+406 | S+406 | S+406 |
| Voltage | V AC | 3×400 | 3×400 | 3×400 | 3×400 |
| Power consumption | W | 920 | 800 | 750 | 600 |
| Current consumption | A | 1,8 | 1,7 | 1,6 | 1,5 |
| Duty cycle | % | 25 (2,5/7,25) | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | -10 to +40 | -10 to +40 | -10 to +40 | -10 to +40 |
| Type of protection | IP | 54 | 54 | 54 | 54 |
| Weight (at 200 mm stroke) | kg | 14,6 | 14,6 | 14,6 | 14,6 |
| Color | - | Silver | Silver | Silver | Silver |

Performance diagram



Ordering key



Options shown in italics are only available on request.

Minimum quantities or additional costs apply for option 1 if shown in italics. For options 2 and 3, please contact your SKF representative.

Example for ordering an actuator without any options: SKD10007-100-01.

Example for ordering an actuator with option limit switch: SKD10007-100-01-01 (01=limit switch).

* Example for others XX: *Extended motor shaft,...*

Linear actuator

Magforce SKG

Benefits

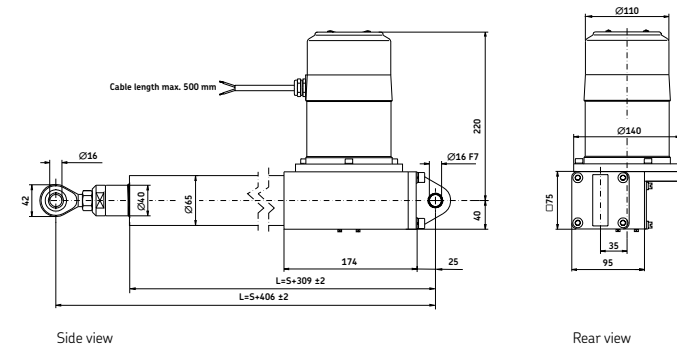
- Modular
- Robust
- Reliable
- High speed and/or high load
- All metal design



Magforce SKG

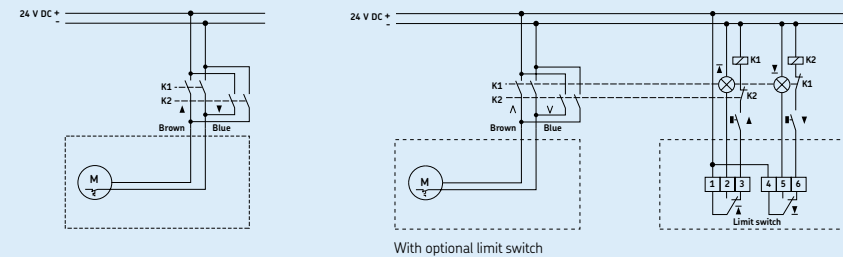
Linear actuators DC versions

Dimensional drawing



Legend:
S = stroke
L = retracted length

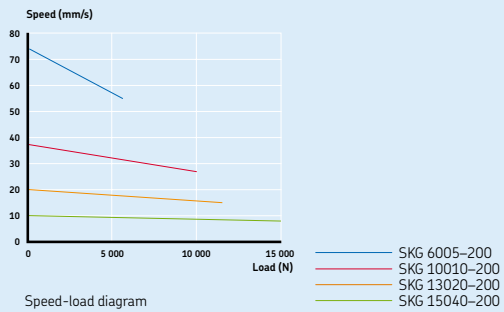
Connecting diagrams



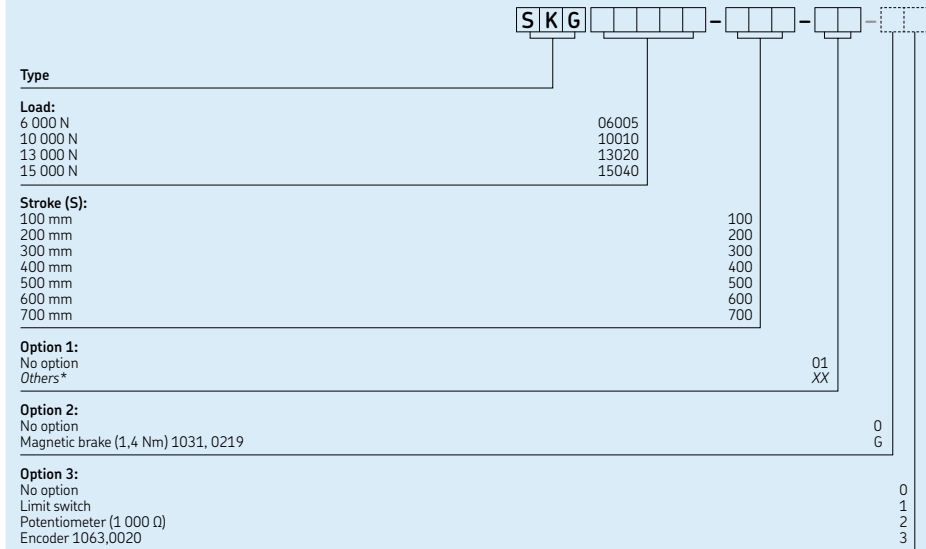
Technical data

| | Unit | SKG 6005 | SKG 10010 | SKG 13020 | SKG 15040 |
|---------------------------|------|------------|------------|------------|------------|
| Rated push load | N | 6 000 | 10 000 | 13 000 | 15 000 |
| Rated pull load | N | 6 000 | 10 000 | 13 000 | 15 000 |
| Speed (at full load) | mm/s | 55 | 27 | 15 | 8 |
| Stroke | mm | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 |
| Retracted length | mm | S+406 | S+406 | S+406 | S+406 |
| Voltage | V DC | 24 | 24 | 24 | 24 |
| Power consumption | W | N/A | 720 | 672 | - |
| Current consumption | A | N/A | 30 | 28 | - |
| Duty cycle | % | 10 (1/9) | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | -10 to +40 | -10 to +40 | -10 to +40 | -10 to +40 |
| Type of protection | IP | 54 | 54 | 54 | 54 |
| Weight (at 200 mm stroke) | kg | 14,6 | 14,6 | 14,6 | 14,6 |
| Color | - | Silver | Silver | Silver | Silver |

Performance diagram



Ordering key



Options shown in italics are only available on request.

Minimum quantities or additional costs apply for option 1 if shown in italics. For option 2 and 3 please contact your SKF representative.
 Example for ordering an actuator without any options: SKG06005-100-01.
 Example for ordering an actuator with option limit switch: SKG06005-100-01-01 (01=limit switch).
 * Example for others XX: Extended motor shaft,...

Linear actuator

Magforce SKS/SKA

Benefits

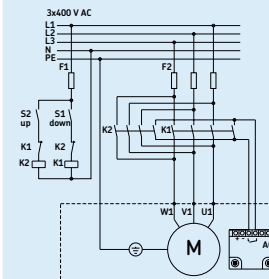
- Modular
- Robust
- Reliable
- High speed and/or high load
- All metal design



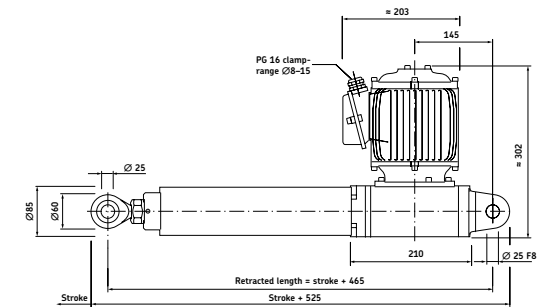
Magforce SKS/SKA

Linear actuators AC versions

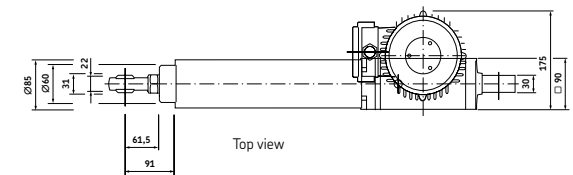
Connecting diagram



Dimensional drawing



Side view

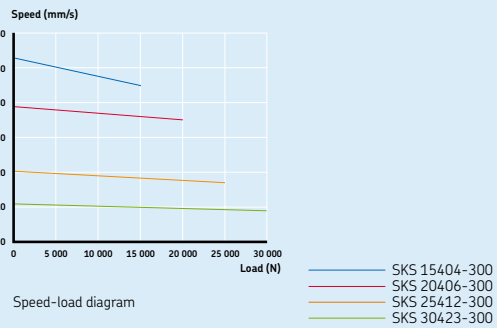


Top view

Technical data

| | Unit | SKS/SKA 15404 | SKS/SKA 20406 | SKS/SKA 25412 | SKS/SKA 30423 |
|---------------------------|------|---------------|---------------|---------------|---------------|
| Rated push load | N | 15 000 | 20 000 | 25 000 | 30 000 |
| Rated pull load | N | 15 000 | 20 000 | 25 000 | 30 000 |
| Speed (at full load) | mm/s | 45 | 35 | 17 | 9 |
| Stroke | mm | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 |
| Retracted length | mm | S+465 | S+465 | S+465 | S+465 |
| Voltage | VAC | 3x400 | 3x400 | 3x400 | 3x400 |
| Power consumption | W | 1 700 | 1 650 | 1 300 | 1 200 |
| Current consumption | A | 3,3 | 3,5 | 2,8 | 3,0 |
| Duty cycle | % | 10 (1/9) | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | -10 to +40 | -10 to +40 | -10 to +40 | -10 to +40 |
| Type of protection | IP | 54 | 54 | 54 | 54 |
| Weight (at 200 mm stroke) | kg | 30 | 30 | 30 | 30 |
| Color | - | Silver | Silver | Silver | Silver |

Performance diagram



Ordering key

Ordering key diagram for SKS:

Type
No option

Option:
No option

Load:
15 000 N
20 000 N
25 000 N
30 000 N

Stroke (S):
100 mm
200 mm
300 mm
400 mm
500 mm
600 mm
700 mm

Customer option:
Standard
Others (extended motor shaft, back-up nut, ...)

Options: 01, XX

Ordering key diagram for SKA:

Type
With limit switches and/or potentiometer

Option:
With limit switches and/or potentiometer

Load:
15 000 N
20 000 N
25 000 N
30 000 N

Stroke (S):
100 mm
200 mm
300 mm
400 mm
500 mm
600 mm
700 mm

Customer option:
Standard with limit switch and potentiometer 1k-ohm
Standard with limit switch
Others (extended motor shaft, back-up nut, ...)

Options: 01, 02, XX

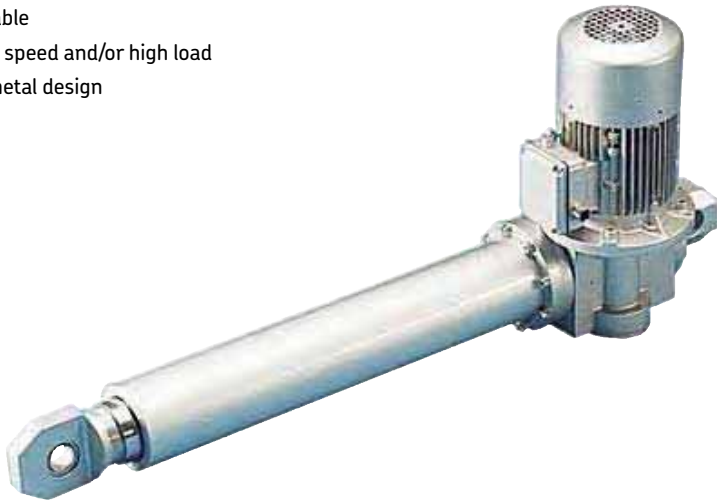


Linear actuator

Magforce SLS

Benefits

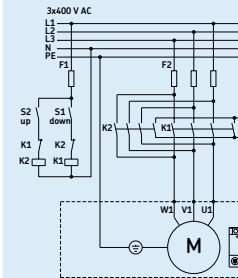
- Modular
- Robust
- Reliable
- High speed and/or high load
- All metal design



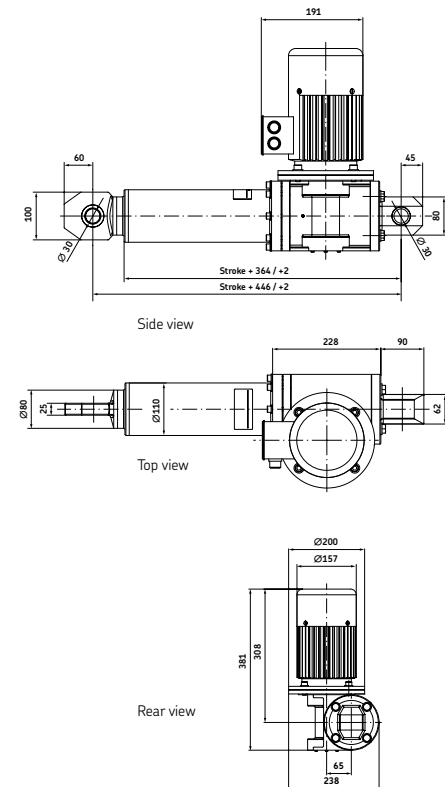
Magforce SLS

Linear actuators AC versions

Connecting diagram



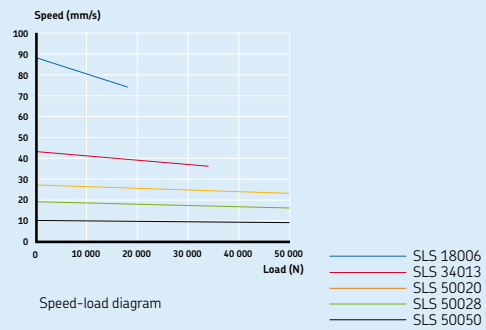
Dimensional drawing



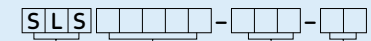
Technical data

| | Unit | SLS 18006 | SLS 34013 | SLS 50020 | SLS 50028 | SLS 50050 |
|----------------------|------|------------|------------|------------|------------|------------|
| Rated push load | N | 18 000 | 34 000 | 50 000 | 50 000 | 50 000 |
| Rated pull load | N | 18 000 | 34 000 | 50 000 | 50 000 | 50 000 |
| Speed (at full load) | mm/s | 74 | 36 | 23 | 16 | 9 |
| Stroke | mm | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 | 100 to 700 |
| Retracted length | mm | 5+446 | 5+446 | 5+446 | 5+446 | 5+446 |
| Voltage | V AC | 3x400 | 3x400 | 3x400 | 3x400 | 3x400 |
| Power consumption | W | 3 000 | 3 000 | 3 000 | 2 200 | 1 900 |
| Current consumption | A | 3,9 | 3,9 | 3,9 | 3,5 | 3,6 |
| Duty cycle | % | 10 (1/9) | 10 (1/9) | 10 (1/9) | 10 (1/9) | 10 (1/9) |
| Ambient temperature | °C | -10 to +40 | -10 to +40 | -10 to +40 | -10 to +40 | -10 to +40 |
| Type of protection | IP | 54 | 54 | 54 | 54 | 54 |
| Weight | kg | 40 | 40 | 40 | 40 | 40 |
| Color | - | Silver | Silver | Silver | Silver | Silver |

Performance diagram



Ordering key



Type

Load:
 18 000 N
 34 000 N
 50 000 N / 23 mm/s
 50 000 N / 16 mm/s
 50 000 N / 9 mm/s

18006
 34013
 50020
 50028
 50050

Stroke (S):

100 mm
 200 mm
 300 mm
 400 mm
 500 mm
 600 mm
 700 mm

100
 200
 300
 400
 500
 600
 700

Customer option:

Standard
Others (extended motor shaft, ...)

01
 XX

Options shown in italics are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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PUB MT/P8 10393 EN · May 2010



Linear actuator

CALA 36A

Benefits

- Compact
- Lubricated for service life
- Corrosion resistant
- High operating reliability
- Selection of front attachments
- Limit switches as accessories



CALA 36A

Linear actuators DC versions

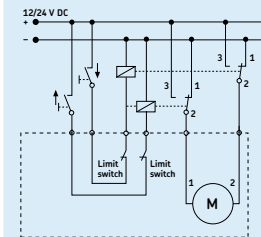
Suitable control units and accessories

| | VCU 5 | VCU 8 | VCU 9 | BCU 5 | BCU 8 | CAED 3-24R | Limit switch |
|--------------|-------|-------|-------|-------|-------|------------|--------------|
| CALA 36A 12V | • | • | • | • | • | • | • |
| CALA 36A 24V | • | • | • | • | • | • | • |
| CAES 31C | • | • | • | • | • | • | • |
| EHA3 | • | • | • | • | • | • | • |
| STJ | • | • | • | • | • | • | • |
| STE | • | • | • | • | • | • | • |

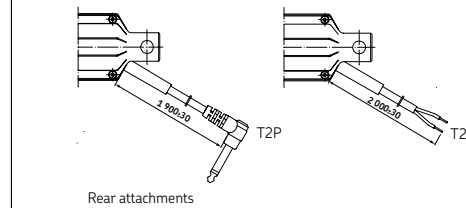
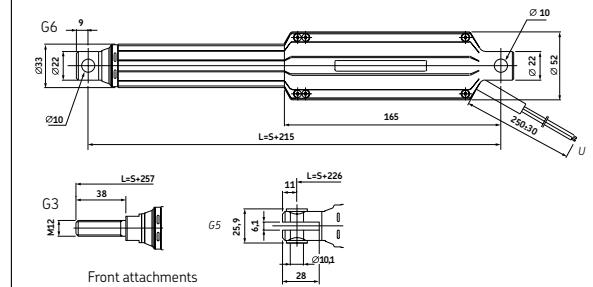
Hand switch
 Foot switch
 Desk switch

* See page 394

Connecting diagram



Dimensional drawing



Legend:
S = stroke
L = retracted length

Technical data

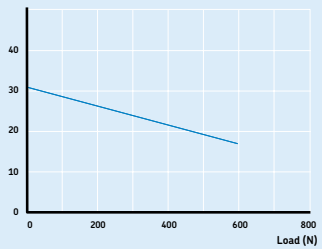
| | Unit | CALA 36A |
|------------------------------|---------|-----------------------------|
| Push load | N | 600 |
| Pull load | N | 600 |
| Speed (full load to no load) | mm/s | 17 to 31 ¹⁾ |
| Stroke | mm | 50 to 200 |
| Retracted length | mm | S+215/226/257 ²⁾ |
| Voltage | V DC | 12 or 24 |
| Power consumption | W | N/A |
| Current consumption | 12 V DC | A |
| | 24 V DC | A |
| Duty cycle | % | 5 |
| Ambient temperature | °C | 0 to +50 |
| Type of protection | IP | 44 |
| Weight | kg | 0,9 to 1,4 |
| Color | - | Black |

¹⁾ Depending on selected motor

²⁾ Dimension depends on selected front attachment

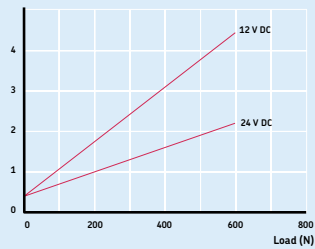
Performance diagrams

Speed (mm/s)



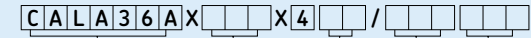
Speed-load diagram

Current consumption (A)



Current-load diagram

Ordering key



Type

Stroke (S):

| | |
|----------------------|-----|
| 50 mm | 050 |
| 100 mm | 100 |
| 150 mm | 150 |
| 200 mm | 200 |
| Other stroke lengths | --- |

Front attachment:

| | |
|---------------------------------|----|
| Male thread, M12 | G3 |
| Fork end, $\varnothing=10.1$ mm | G5 |
| Hole, $\varnothing=10.0$ mm | G6 |

Voltage:

| | |
|---------|-----|
| 12 V DC | D12 |
| 24 V DC | D24 |

Cable:

| | |
|--|-----|
| Straight 0,25 m, no plug | U |
| Straight 1,9 m, no plug | T2 |
| Straight 1,9 m, jack plug | T2P |
| Straight, 2,5 m, DIN8 plug (for BCU/VCU) | C5 |

Options written in italic fonts are only available on demand. Please contact SKF.

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PUB MT/P8 10362 EN · November 2009



Linear actuator

CAR 22

Benefits

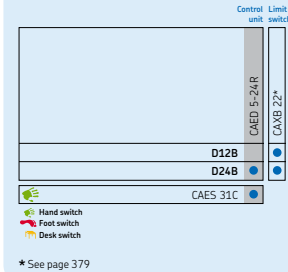
- Industrial reliable and robust actuator
- Right- and left-hand version



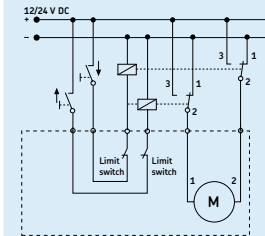
CAR 22

Linear actuators DC versions

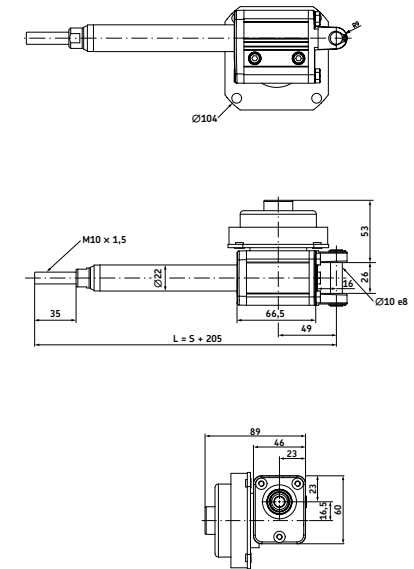
Suitable control units and accessories



Connecting diagram



Dimensional drawing

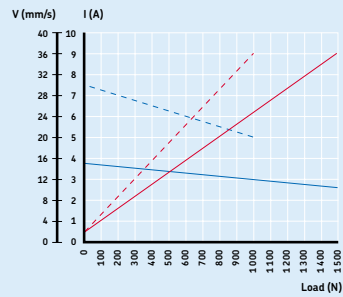


Legend:
S = stroke
L = retracted length

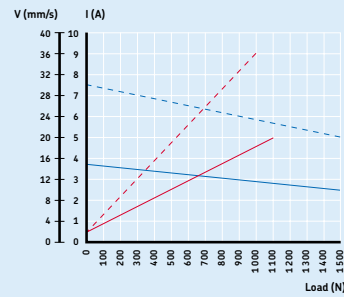
Technical data

| | Unit | CAR 22 |
|------------------------------|--------------------|----------------|
| Rated push load | N | 1 000 to 1 500 |
| Rated pull load | N | 1 000 to 1 500 |
| Speed (full load to no load) | mm/s | 10 to 30 |
| Stroke | mm | 50 to 300 |
| Retracted length | mm | S + 205 |
| Voltage | V DC | 12 or 24 |
| Power consumption | W | N/A |
| Current consumption | 12 V DC 24 V DC | A A |
| | | 9 5 |
| Duty cycle | % | 25 |
| Ambient temperature | °C | -20 to +70 |
| Type of protection | IP | 44 |
| Weight | kg | 1,2 to 1,6 |

Performance diagrams



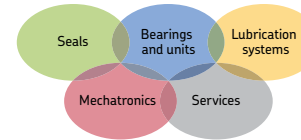
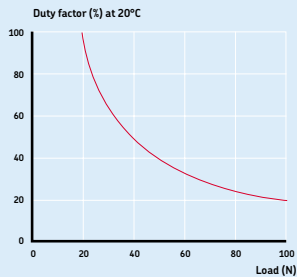
CAR 22.../D12B



CAR 22.../D24B

Gear 1 — V (mm/s)
 — I (A)
 Gear 2 - - - V (mm/s)
 - - - I (A)

Duty cycle

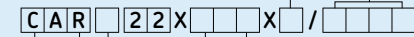


The Power of Knowledge Engineering

Drawing on five areas of competence and application-specific expertise amassed over more than 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry worldwide. These five competence areas include bearings and units, seals, lubrication systems, mechatronics (combining mechanics and electronics into intelligent systems), and a wide range of services, from 3-D computer modelling to advanced condition monitoring and reliability and asset management systems. A global presence provides SKF customers uniform quality standards and worldwide product availability.

Ordering key

| Dynamic load (N) / Speed (mm/s) | | Motor options | |
|---------------------------------|-------------|---------------------------|------|
| 1 500/xx | 1 000/xx | No motor | 0000 |
| 1 500/15-10 | 1 000/30-20 | 12 V DC, flat motor, IP44 | D12B |
| 1 500/15-10 | 1 000/30-20 | 24 V DC, flat motor, IP44 | D24B |
| 1 | 2 | | |



Type

Motor assembly:

Right
 Left

R
 L

Stroke (S):

| | |
|-----------------------------|------------|
| 50 mm | 050 |
| 100 mm | 100 |
| 150 mm | 150 |
| 200 mm | 200 |
| 300 mm | 300 |
| <i>Other stroke lengths</i> | <i>---</i> |

Options shown in italics are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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Linear actuator

CAR 32

Benefits

- Industrial reliable and robust actuator
- Wide range of components
- Right- and left-hand version



CAR 32

Linear actuators

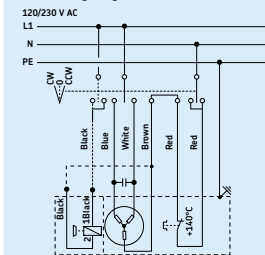
Suitable control units and accessories

| Control unit | Limit switch |
|--------------|--------------|
| CAEV 110/220 | CAXB 32* |
| E110C | |
| E110CB | |
| E220C | |
| E220CB | |
| CAES 31C | |

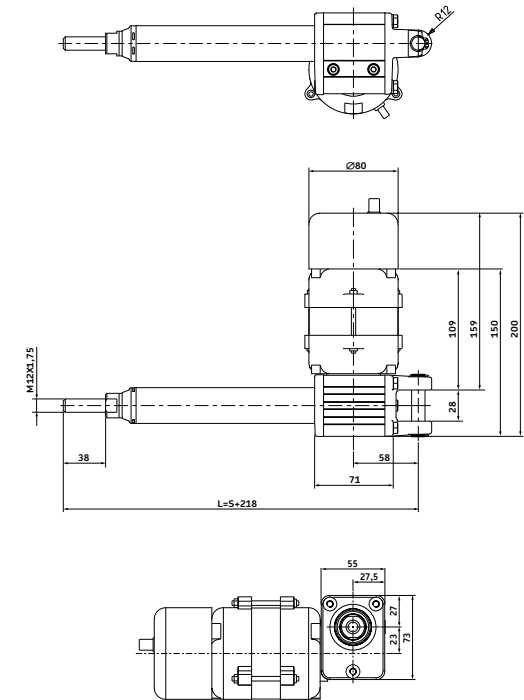
- Hand switch
- Foot switch
- Desk switch

* See page 379

Connecting diagram – AC version



Dimensional drawing – AC version



Legend:
S = stroke
L = retracted length

Technical data

| | Unit | CAR 32 – AC version |
|----------------------|----------------------|---|
| Rated push load | N | 1 500 to 3 500 |
| Rated pull load | N | 1 500 to 3 500 |
| Speed (at full load) | mm/s | 6 to 32* |
| Stroke | mm | 50 to 700 |
| Retracted length | mm | S + 218 |
| Voltage | V AC | 120 or 230 |
| Power consumption | 120 V AC 230 V AC | W 98 (brake 133,2 W) 92 (brake 117,3 W) |
| Current consumption | 120 V AC 230 V AC | A 0,82 (brake +0,29 A) 0,4 (brake + 0,11 A) |
| Duty cycle | % | 30 |
| Ambient temperature | °C | -20 to +70 |
| Type of protection | IP | 20/54 |
| Weight | kg | 2,1 to 3,7 |

* Depending on selected motor

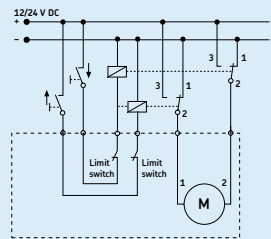
Suitable control units and accessories

| Control units | Limit switch |
|---------------|--------------|
| CAED 5-24R | CAEB 32* |
| CAED 9-24R | |
| D12C | |
| D24C | |
| D24CW | |
| D24CS | |
| D24CB | |
| CAES 31C | |

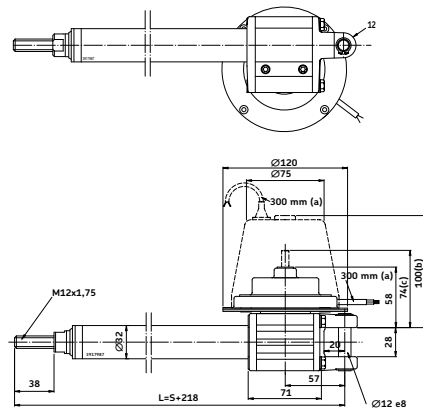
Hand switch
 Foot switch
 Desk switch

* See page 379

Connecting diagram – DC version



Dimensional drawing – DC version

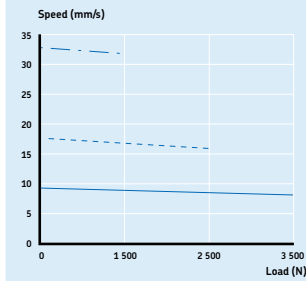


Legend:
 S = stroke
 L = retracted length
 (a) = cable length
 (b) = cover for brake (D24CB)
 (c) = extended shaft (D24CS)

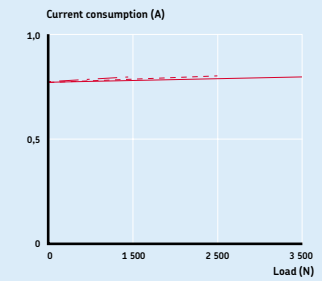
Technical data

| Unit | CAR 32 – DC version |
|------------------------------|-------------------------------|
| Rated push load | N 1 000 to 3 500 |
| Rated pull load | N 1 000 to 3 500 |
| Speed (full load to no load) | mm/s 5 to 60 |
| Stroke | mm 50 to 700 |
| Retracted length | mm S+ 218 |
| Voltage | V DC 12 or 24 |
| Power consumption | W N/A |
| Current consumption | 12 V DC A 13 |
| | 24 V DC A 8 |
| | 24 V DC A 5 (for motor D24CW) |
| Duty cycle | % 25 |
| Ambient temperature | °C -20 to +70 |
| Type of protection | IP 20/44 |
| Weight | kg 2,1 to 3,7 |

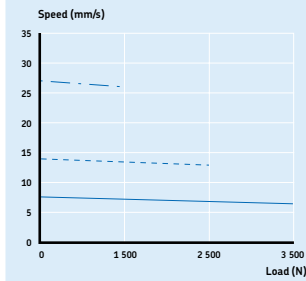
Performance diagrams – AC version



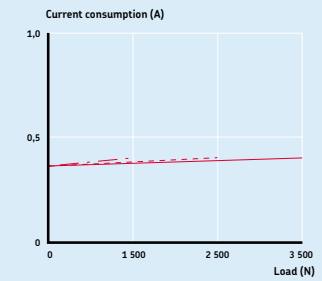
Speed-load diagram CAR 32 ... 120 V AC



Current-load diagram CAR 32 ... 120 V AC



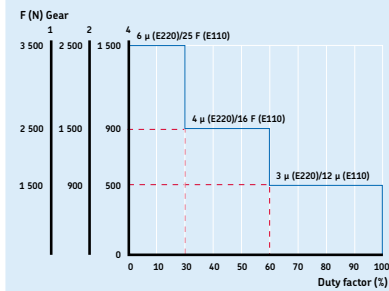
Speed-load diagram CAR 32 ... 230 V AC



Current-load diagram CAR 32 ... 230 V AC

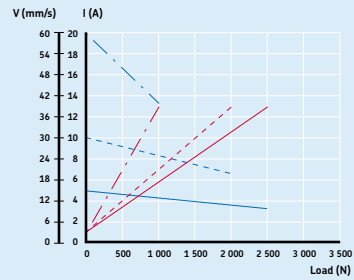
Gear 1 — V (mm/s)
 — I (A)
 Gear 2 — V (mm/s)
 — I (A)
 Gear 4 — V (mm/s)
 — I (A)

Duty cycle

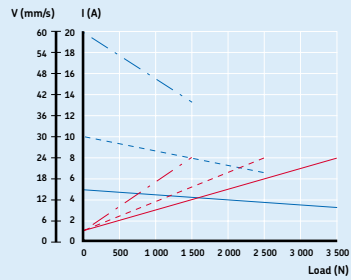


CAR 32 ... 230/120 V AC

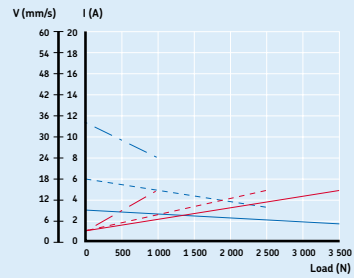
Performance diagrams – DC version



CAR 32.../D12C



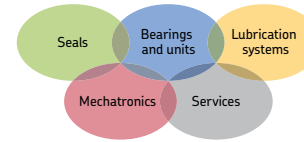
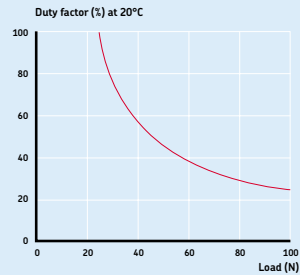
CAR 32.../D24C/D24CS/D24CB



CAR 32.../D24CW

Gear 1 — V (mm/s)
 — I (A)
 Gear 2 - - - V (mm/s)
 - - - I (A)
 Gear 4 ··· V (mm/s)
 ··· I (A)

Duty cycle

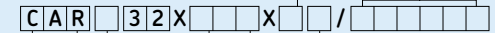


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Ordering key

| Dynamic load (N) / Speed (mm/s) | | | Motor options | |
|---------------------------------|-------------|-------------|---|--------|
| 3 500/xx | 2 500/xx | 1 500/xx | No motor | 0000 |
| 3 500/8 | 2 500/16 | 1 500/32 | 120 V AC/60 Hz, 1-phase, IP54 | E110C |
| 3 500/8 | 2 500/16 | 1 500/32 | 120 V AC/60 Hz, 1-phase, brake, IP20 | E110CB |
| 3 500/6 | 2 500/13 | 1 500/26 | 230 V AC/50 Hz, 1-phase, IP54 | E220C |
| 3 500/6 | 2 500/13 | 1 500/26 | 230 V AC/50 Hz, 1-phase, brake, IP20 | E220CB |
| 3 500/xx | 2 500/xx | 1 500/xx | No motor | 0000 |
| 2 500/15-10 | 2 000/30-20 | 1 000/60-40 | 12 V DC, flat motor, IP44 | D12C |
| 3 500/15-10 | 2 500/30-20 | 1 500/60-40 | 24 V DC, flat motor, IP44 | D24C |
| 3 500/9-5 | 2 500/18-10 | 1 500/34-24 | 24 V DC, flat motor, low speed, IP44 | D24CW |
| 3 500/15-10 | 2 500/30-20 | 1 500/60-40 | 24 V DC, flat motor, extended shaft, IP44 | D24CS |
| 3 500/15-10 | 2 500/30-20 | 1 500/60-40 | 24 V DC, flat motor, brake, IP20 | D24CB |



Type

Motor assembly:

Right
 Left

Stroke (S):

| | |
|----------------------|-----|
| 50 mm | 050 |
| 100 mm | 100 |
| 200 mm | 200 |
| 300 mm | 300 |
| 500 mm | 500 |
| 700 mm | 700 |
| Other stroke lengths | --- |

Option:

Friction clutch
 Back-up nut

Options shown in *italics* are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

Linear actuator

CAR 40

Benefits

- Industrial reliable and robust actuator
- Wide range of components
- Right- and left-hand version



CAR 40

Linear actuators

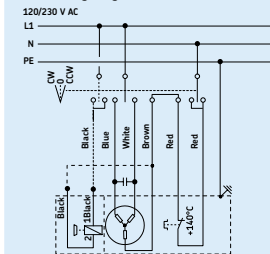
Suitable control units and accessories

| Control unit | Limit switch |
|--------------|--------------|
| CAEV110D/220 | CAEB 40* |
| E110D | • |
| E110DB | • |
| E220D | • |
| E220DB | • |
| CAES 31C | • |

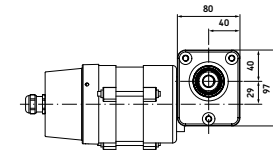
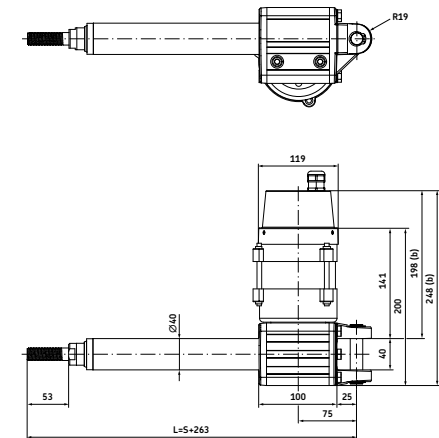
Hand switch
 Foot switch
 Desk switch

* See page 379

Connecting diagram – AC version



Dimensional drawing – AC version



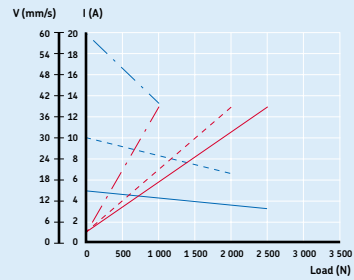
Legend:
 S = stroke
 L = retracted length
 (b) = cover for brake (D24CB)

Technical data

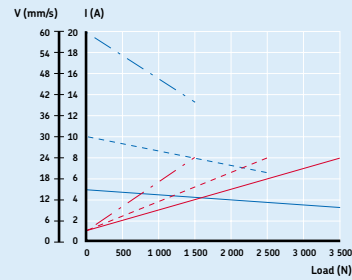
| | Unit | CAR 40 – AC version |
|----------------------|----------|---------------------|
| Rated push load | N | 2 000 to 6 000 |
| Rated pull load | N | 2 000 to 6 000 |
| Speed (at full load) | mm/s | 9 to 40* |
| Stroke | mm | 100 to 700 |
| Retracted length | mm | S+263 |
| Voltage | V AC | 120 or 230 |
| Power consumption | 120 V AC | W |
| | 230 V AC | W |
| Current consumption | 120 V AC | A |
| | 230 V AC | A |
| Duty cycle | % | 40 |
| Ambient temperature | °C | -20 to +70 |
| Type of protection | IP | 20/54 |
| Weight | kg | 5,8 to 8,4 |

* Depending on selected motor

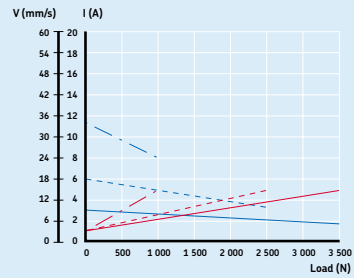
Performance diagrams – DC version



CAR 32.../D12C



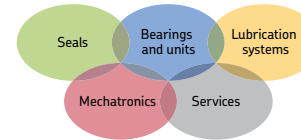
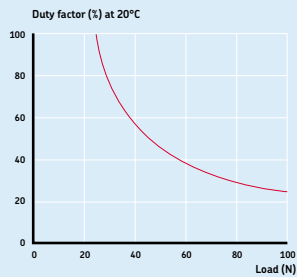
CAR 32.../D24C/D24CS/D24CB



CAR 32.../D24CW

Gear 1 — V (mm/s)
 I (A)
 Gear 2 - - V (mm/s)
 I (A)
 Gear 4 - - V (mm/s)
 I (A)

Duty cycle



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Ordering key

| Dynamic load (N) / Speed (mm/s) | | | Motor options | |
|---------------------------------|-------------|-------------|---|--------|
| 3 500/xx | 2 500/xx | 1 500/xx | No motor | 0000 |
| 3 500/8 | 2 500/16 | 1 500/32 | 120 V AC/60 Hz, 1-phase, IP54 | E110C |
| 3 500/8 | 2 500/16 | 1 500/32 | 120 V AC/60 Hz, 1-phase, brake, IP20 | E110CB |
| 3 500/6 | 2 500/13 | 1 500/26 | 230 V AC/50 Hz, 1-phase, IP54 | E220C |
| 3 500/6 | 2 500/13 | 1 500/26 | 230 V AC/50 Hz, 1-phase, brake, IP20 | E220CB |
| 3 500/xx | 2 500/xx | 1 500/xx | No motor | 0000 |
| 2 500/15-10 | 2 000/30-20 | 1 000/60-40 | 12 V DC, flat motor, IP44 | D12C |
| 3 500/15-10 | 2 500/30-20 | 1 500/60-40 | 24 V DC, flat motor, IP44 | D24C |
| 3 500/9-5 | 2 500/18-10 | 1 500/34-24 | 24 V DC, flat motor, low speed, IP44 | D24CW |
| 3 500/15-10 | 2 500/30-20 | 1 500/60-40 | 24 V DC, flat motor, extended shaft, IP44 | D24CS |
| 3 500/15-10 | 2 500/30-20 | 1 500/60-40 | 24 V DC, flat motor, brake, IP20 | D24CB |

CAR 32 X X /

Type

Motor assembly:

- Right
- Left

Stroke (S):

- 50 mm
 - 100 mm
 - 200 mm
 - 300 mm
 - 500 mm
 - 700 mm
- Other stroke lengths

Option:

- Friction clutch
- Back-up nut

Options shown in *italics* are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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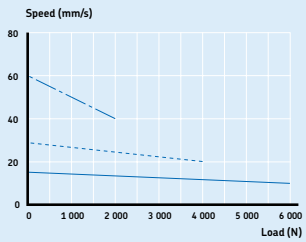
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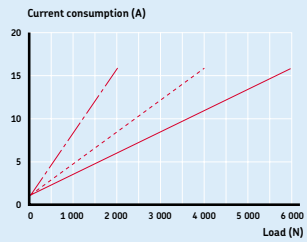
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Performance diagrams – DC version



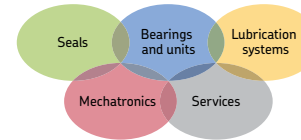
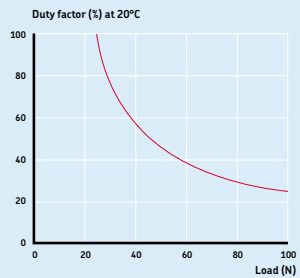
Speed-load diagram CAR 40 ... 24 V DC



Current-load diagram CAR 40 ... 24 V DC

| | | |
|--------|-------|----------|
| Gear 1 | — | V (mm/s) |
| | — | I (A) |
| Gear 2 | - - - | V (mm/s) |
| | - - - | I (A) |
| Gear 4 | — | V (mm/s) |
| | — | I (A) |

Duty cycle

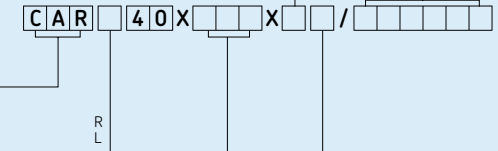


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Ordering key

| Dynamic load (N) / Speed (mm/s) | | | Motor options | |
|---------------------------------|-------------|-------------|---|--------|
| 6 000/xx | 4 000/xx | 2 000/xx | No motor | 0000 |
| 6 000/10 | 4 000/20 | 2 000/40 | 120 V AC/60 Hz, 1-phase, IP54 | E110D |
| 6 000/10 | 4 000/20 | 2 000/40 | 120 V AC/60 Hz, 1-phase, brake, IP20 | E110DB |
| 6 000/9 | 4 000/17 | 2 000/34 | 230 V AC/50 Hz, 1-phase, IP54 | E220D |
| 6 000/9 | 4 000/17 | 2 000/34 | 230 V AC/50 Hz, 1-phase, brake, IP20 | E220DB |
| 6 000/xx | 4 000/xx | 2 000/xx | No motor | 0000 |
| 6 000/15-10 | 4 000/30-20 | 2 000/60-40 | 24 V DC, flat motor, IP44 | D24D |
| 6 000/15-10 | 4 000/30-20 | 2 000/60-40 | 24 V DC, flat motor, extended shaft, IP44 | D24DS |
| 6 000/15-10 | 4 000/30-20 | 2 000/60-40 | 24 V DC, flat motor, brake, IP20 | D24DB |
| 1 | 2 | 4 | | |



Type

Motor assembly:

- Right
- Left

Stroke (S):

- 100 mm
- 300 mm
- 500 mm
- 700 mm
- Other stroke lengths

Option:

- Friction clutch
- Back-up nut

Options shown in italics are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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Linear actuator

CAP 32

Benefits

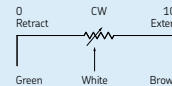
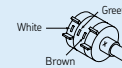
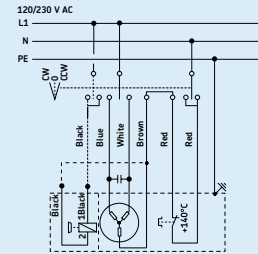
- Easy to install
- Robust and reliable
- Lubricated for service life
- Right- and left-hand version



CAP 32

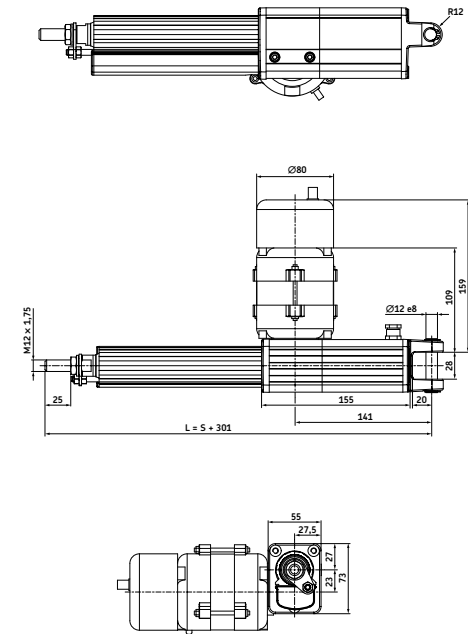
Linear actuators

Connecting diagram – AC version



Connection diagram for rotating potentiometer.

Dimensional drawing – AC version

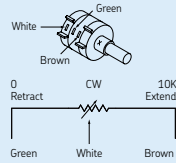
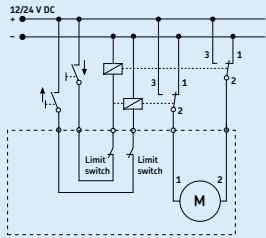


Technical data

| | Unit | CAP 32 – AC version |
|----------------------|----------------------|--|
| Rated push load | N | 1 500 to 3 500 |
| Rated pull load | N | 1 500 to 3 500 |
| Speed (at full load) | mm/s | 6 to 32* |
| Stroke | mm | 50 to 700 |
| Retracted length | mm | S+301 |
| Voltage | V AC | 120 or 230 |
| Power consumption | 120 V AC 230 V AC | W W |
| | | 98 (brake 133,2 W) 92 (brake 117,3 W) |
| Current consumption | 120 V AC 230 V AC | A A |
| | | 0,82 (brake +0,29 A) 0,4 (brake + 0,11 A) |
| Duty cycle | % | 30 |
| Ambient temperature | °C | -20 to +50 |
| Type of protection | IP | 20/54 |
| Weight | kg | 2,9 to 5,0 |

* Depending on selected motor

Connecting diagram – DC version



Connection diagram for rotating potentiometer.

Suitable control units and accessories

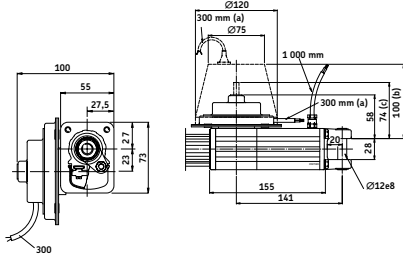
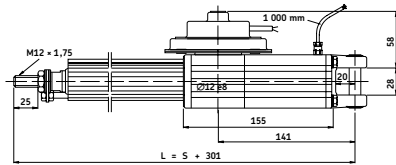
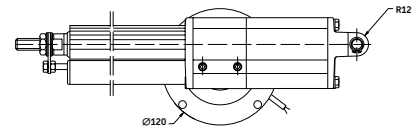
| Control units | |
|------------------|---|
| CAED/ANR 5-24-PO | |
| CAED/ANR 9-24-PO | |
| D12C | |
| D24C | ● |
| D24CW | ● |
| D24CS | ● |
| D24CB | ● |

Technical data

| Unit | CAP 32 – DC version | |
|------------------------------|-------------------------------|--------------------------------|
| Rated push load | N | 1 000 to 3 500 |
| Rated pull load | N | 1 000 to 3 500 |
| Speed (full load to no load) | mm/s | 5 to 60* |
| Stroke | mm | 50 to 700 |
| Retracted length | mm | S+301 |
| Voltage | V DC | 12 or 24 |
| Power consumption | W | N/A |
| Current consumption | 12 V DC 24 V DC 24 V DC | A A A |
| | | 13 8 5 (for motor D24CW) |
| Duty cycle | % | 25 |
| Ambient temperature | °C | -20 to +50 |
| Type of protection | IP | 20/44 |
| Weight | kg | 2,9 to 5,0 |

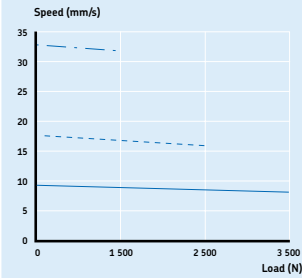
* Depending on selected motor

Dimensional drawing – DC version

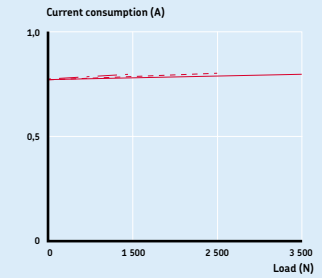


Legend:
 S = stroke
 L = retracted length
 (a) = cable length
 (b) = cover for brake (D24CB)
 (c) = extended shaft (D24CS)

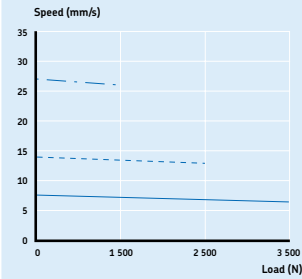
Performance diagrams – AC version



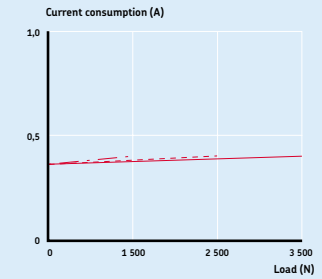
Speed-load diagram CAP 32 ... 120 V AC



Current-load diagram CAP 32 ... 120 V AC



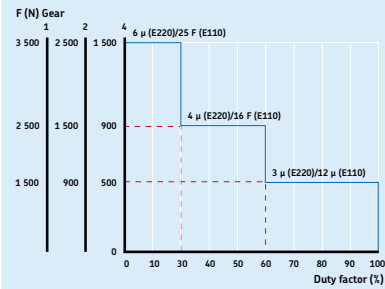
Speed-load diagram CAP 32 ... 230 V AC



Current-load diagram CAP 32 ... 230 V AC

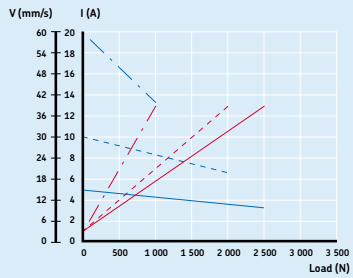
Legend:
 Gear 1: — V (mm/s), — I (A)
 Gear 2: - - - V (mm/s), - - - I (A)
 Gear 3: ····· V (mm/s), ····· I (A)
 Gear 4: ····· V (mm/s), ····· I (A)

Duty cycle

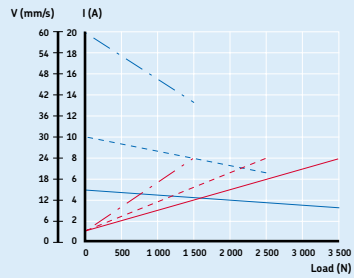


CAP 32 ... 230/120 V AC

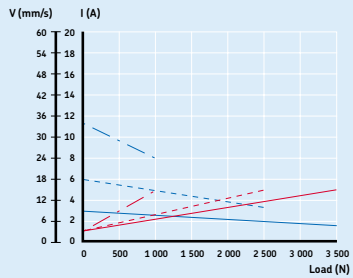
Performance diagrams – DC version



CAP 32.../D12C



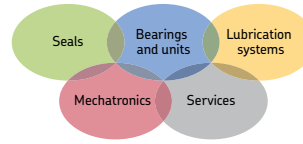
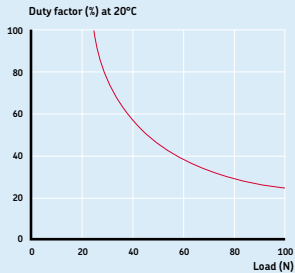
CAP 32.../D24C/D24CS/D24CB



CAP 32.../D24CW



Duty cycle

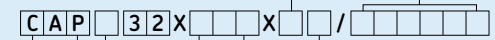


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Ordering key

| Dynamic load (N) / Speed (mm/s) | | | Motor options | |
|---------------------------------|-------------|-------------|---|--------|
| 3 500xx | 2 500/xx | 1 500/xx | No motor | 0000 |
| 3 500/8 | 2 500/16 | 1 500/32 | 120 V AC/60 Hz, 1-phase, IP54 | E110C |
| 3 500/8 | 2 500/16 | 1 500/32 | 120 V AC/60 Hz, 1-phase, brake, IP20 | E110CB |
| 3 500/6 | 2 500/13 | 1 500/26 | 230 V AC/50 Hz, 1-phase, IP54 | E220C |
| 3 500/6 | 2 500/13 | 1 500/26 | 230 V AC/50 Hz, 1-phase, brake, IP20 | E220CB |
| 3 500/xx | 2 500/xx | 1 500/xx | No motor | 0000 |
| 2 500/15-10 | 2 000/30-20 | 1 000/60-40 | 12 V DC, flat motor, IP44 | D12C |
| 3 500/15-10 | 2 500/30-20 | 1 500/60-40 | 24 V DC, flat motor, IP44 | D24C |
| 3 500/9-5 | 2 500/18-10 | 1 500/34-24 | 24 V DC, flat motor, low speed, IP44 | D24CW |
| 3 500/15-10 | 2 500/30-20 | 1 500/60-40 | 24 V DC, flat motor, extended shaft, IP44 | D24CS |
| 3 500/15-10 | 2 500/30-20 | 1 500/60-40 | 24 V DC, flat motor, brake, IP20 | D24CB |



Type

Motor assembly:
 Right
 Left

Stroke (S):

- 50 mm
- 100 mm
- 200 mm
- 300 mm
- 500 mm
- 700 mm
- Other stroke lengths

Option:

Back-up nut

Options shown in *italics* are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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Linear actuator

CAT 21B

Benefits




- Compact design (efficient and cost effective)
- Ball screw technology
- High operating reliability
- Low energy consumption
- Lubricated for service life
- Corrosion resistant
- Silent operation
- Range of front and rear attachments






CAT 21B

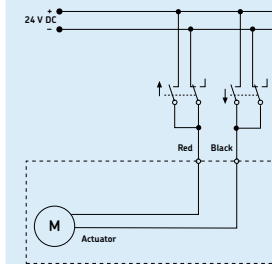
Linear actuators DC versions

Suitable control units and accessories

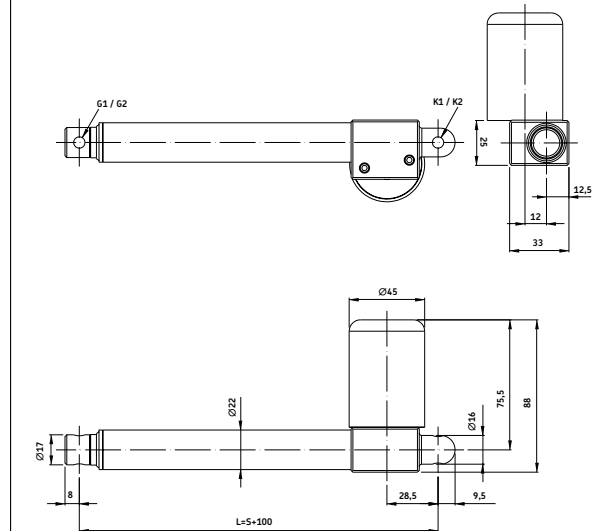
| | | Control units | | | | |
|---|------|---------------|-------|-------|-------|-------|
| | | VCU 5 | VCU 8 | VCU 9 | BCU 5 | BCU 8 |
|  | EHA3 | • | • | • | • | • |
|  | STJ | • | • | • | • | • |
|  | STE | • | • | • | • | • |

 Hand switch
 Foot switch
 Desk switch

Connecting diagram



Dimensional drawing

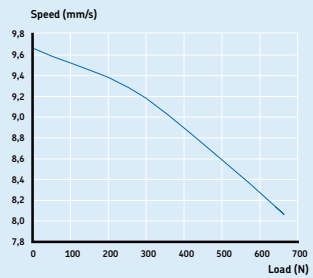


Legend:
 S = stroke
 L = retracted length

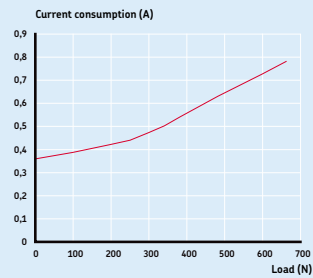
Technical data

| | Unit | CAT 21B |
|------------------------------|------|--------------------------|
| Push load | N | 600 |
| Pull load | N | 600 |
| Speed (full load to no load) | mm/s | 8,1 to 9,7 |
| Stroke | mm | 50 to 300 |
| Retracted length | mm | S+100 |
| Voltage | V DC | 24 |
| Power consumption | W | N/A |
| Current consumption | A | 0,7 |
| Duty cycle | % | see diagram on next page |
| Ambient temperature | °C | N/A |
| Type of protection | IP | ×4 |
| Weight | kg | 0,7 to 1,5 |
| Color | - | Black |

Performance diagrams

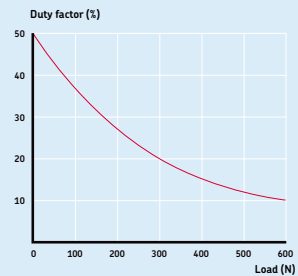


Speed-load diagram



Current-load diagram

Duty factor diagram



Ordering key

CAT 21B X 1 Z /

Type

Motor assembly:

Right
Left

R
L

Stroke (S):

50 mm
100 mm
200 mm
250 mm
300 mm
Other stroke lengths

050
100
200
250
300

Rear attachment:

Single ear, hole diameter 6,35 mm
Single ear, hole diameter 8 mm

K1
K2

Front attachment:

Hole diameter 6,35 mm
Hole diameter 8 mm

G1
G2

Motor option:

24 V DC

G24C

Cable option for motors:

Straight cable 610 mm, without plug
Straight cable 2500 mm, DIN8 plug

O6
C5

Options written in italic fonts are only available on demand. Please contact SKF.

Options

Standard options

Right or left handed motor orientation.
With or without motor cover.

Customer options (available on request)

Encoder and feedback options
Adjustable or fixed position limit switches
Special front and rear attachments
Special colors and gear house engravings
Special wiring and connectors
Special lead screws and nut combinations
12 V DC motor in quantity of 100 pcs. or greater

If in any application there is a risk that the actuator mechanically runs into the end stop, we recommend that you use the limit switch option.

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PUB MT/P8 10432 EN · December 2009



Linear actuator

CAT 33H

Benefits

- Compact
- Robust
- Modular
- Lubricated for service life
- High speed
- Digital encoder feedback



CAT 33H

Linear actuators

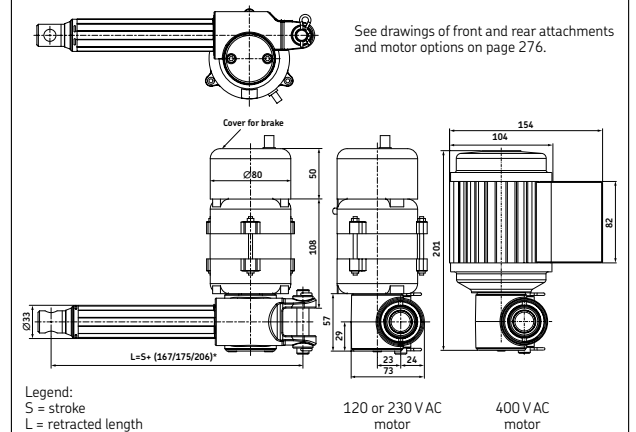
Suitable control units and accessories

| Control unit | Encoder |
|--------------|------------------|
| CAE/110/220 | E2 ¹⁾ |
| E110C | • |
| E110CB | • |
| E220C | • |
| E220CB | • |
| E380C | • |
| CAES 31C | • |

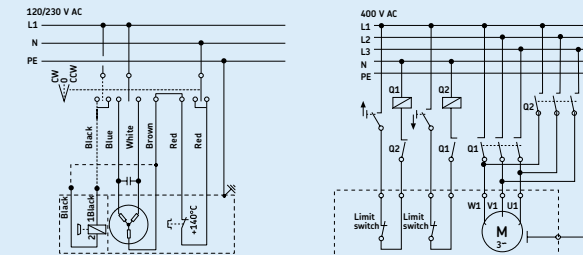
- Hand switch
- Foot switch
- Desk switch

¹⁾ See page 380

Dimensional drawing – AC version



Connecting diagrams – AC version



Technical data

| | Unit | CAT 33H – AC version |
|----------------------|----------------------------------|---|
| Rated push load | N | 500 to 1 200 |
| Rated pull load | N | 500 to 1 200 |
| Speed (at full load) | mm/s | 20 to 90 ¹⁾ |
| Stroke | mm | 100 to 400 |
| Retracted length | mm | S+150/158/189 ²⁾ |
| Voltage | V AC | 120, 230 or 400 |
| Power consumption | 120 V AC 230 V AC 400 V AC | W 98 (brake 133,2W) 92 (brake 117,3W) 80 |
| Current consumption | 120 V AC 230 V AC 400 V AC | A 0,82 (brake +0,29A) 0,4 (brake +0,11A) 0,2 |
| Duty cycle | % | 30 |
| Ambient temperature | °C | -20 to +50 |
| Type of protection | IP | 20/54/55 |
| Weight | kg | 2 to 2,7 |

¹⁾ Depending on selected motor

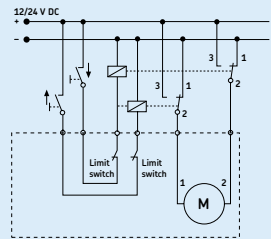
²⁾ Dimension depends on selected front attachment

Suitable control units and accessories

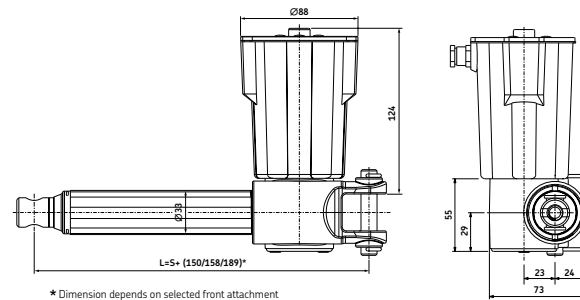
| Control units | Encoder |
|---------------|---------|
| CAED 5-24R | |
| CAED 9-24R | |
| C12C | • |
| D12C | • |
| C24C | • |
| C24CW | • |
| D24C | • |
| D24CB | • |
| D24CS | • |
| D24CW | • |
| CAES 31C | • |

¹⁾ See page 380

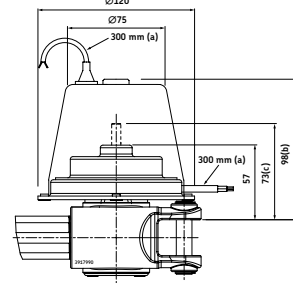
Connecting diagram – DC version



Dimensional drawing – DC version



* Dimension depends on selected front attachment



Legend:
 S = stroke
 L = retracted length
 (a) = cable length
 (b) = cover for brake (D24CB)
 (c) = extended shaft (D24CS)

D12C, D24C, D24CB, D24CS, D24CW

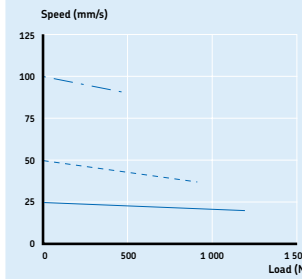
See drawings of front and rear attachments and motor options on page 276.

Technical data

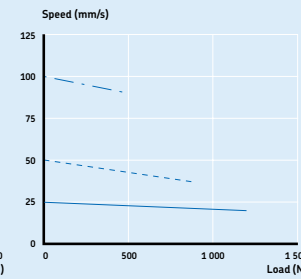
| Unit | CAT 33H – DC version | |
|------------------------------|----------------------|--------------------------------|
| Rated push load | N | 400 to 1 200 |
| Rated pull load | N | 400 to 1 200 |
| Speed (full load to no load) | mm/s | 17 to 193 ¹⁾ |
| Stroke | mm | 100 to 400 |
| Retracted length | mm | S+150/158/189 ²⁾ |
| Voltage | V DC | 12 or 24 |
| Power consumption | W | N/A |
| Current consumption | 12 V DC | A |
| | 24 V DC | A |
| | 24 V DC | A |
| Duty cycle | % | 5 (for motors C24CW and D24CW) |
| Ambient temperature | °C | -20 to +50 |
| Type of protection | IP | 20/44/65 |
| Weight | kg | 2 to 2,7 |

¹⁾ Depending on selected motor
²⁾ Dimension depends on selected front attachment

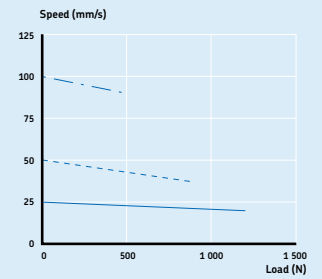
Performance diagrams – AC version



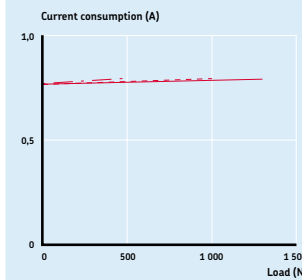
Speed-load diagram CAT 33H ... 120 V AC



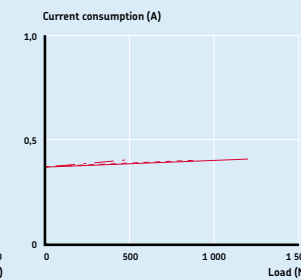
Speed-load diagram CAT 33H ... 230 V AC



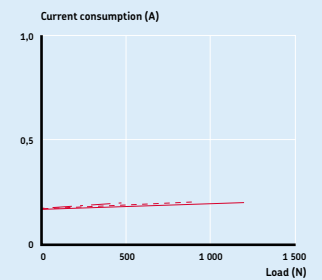
Speed-load diagram CAT 33H ... 400 V AC



Current-load diagram CAT 33H ... 120 V AC



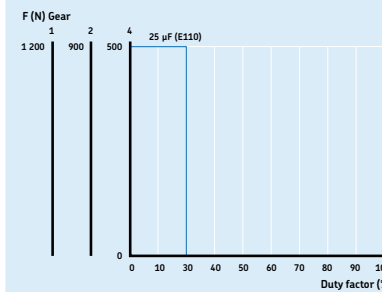
Current-load diagram CAT 33H ... 230 V AC



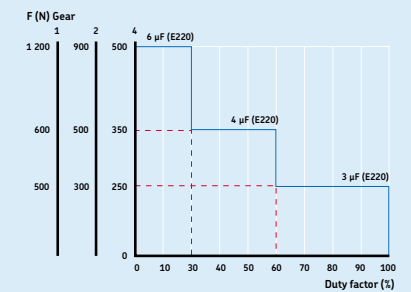
Current-load diagram CAT 33H ... 400 V AC

Gear 1 — V (mm/s)
 I (A)
 Gear 2 — V (mm/s)
 I (A)
 Gear 4 — V (mm/s)
 I (A)

Duty cycle

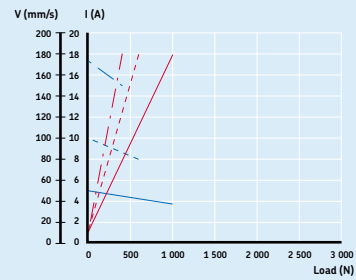


CAT 33H ... 120 V AC

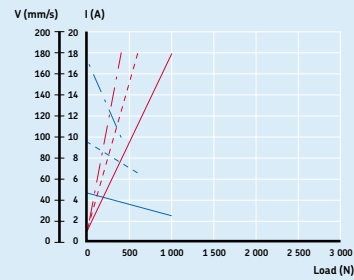


CAT 33H ... 230 V AC

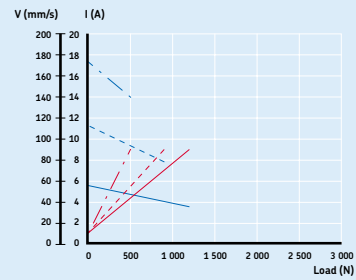
Performance diagrams – DC version



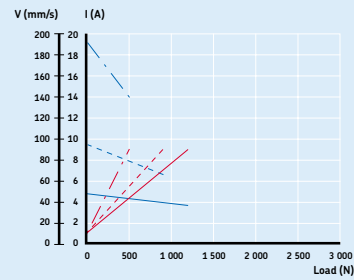
CAT 33H.../C12C



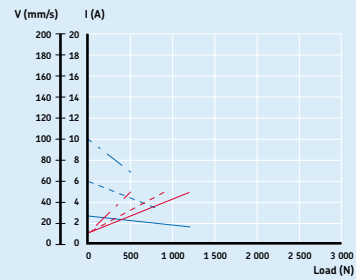
CAT 33H.../D12C



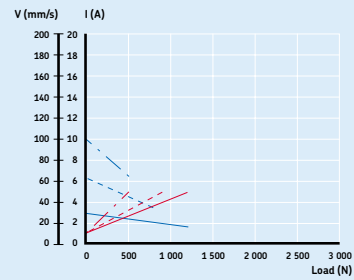
CAT 33H.../C24C



CAT 33H.../D24C/D24CB/D24CS

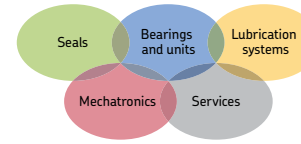


CAT 33H.../C24CW



CAT 33H.../D24CW

Gear 1 — V (mm/s)
 — I (A)
 Gear 2 - - - V (mm/s)
 - - - I (A)
 Gear 4 - - - V (mm/s)
 - - - I (A)



The Power of Knowledge Engineering

Drawing on five areas of competence and application-specific expertise amassed over more than 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry worldwide. These five competence areas include bearings and units, seals, lubrication systems, mechatronics (combining mechanics and electronics into intelligent systems), and a wide range of services, from 3-D computer modelling to advanced condition monitoring and reliability and asset management systems. A global presence provides SKF customers uniform quality standards and worldwide product availability.

Ordering key

| Dynamic load (N) / Speed (mm/s) | | | Motor options | |
|---------------------------------|------------|-------------|---------------------------------------|--------|
| 1 200/xx | 900/xx | 600/xx | No motor | 0000 |
| 1 200/20 | 900/37 | 500/90 | 120 V AC/60 Hz, 1-phase, IP54 | E110C |
| 1 200/20 | 900/37 | 500/90 | 120 V AC/60 Hz, 1-phase, brake, IP20 | E110CB |
| 1 200/20 | 900/37 | 500/90 | 230 V AC/50 Hz, 1-phase, IP54 | E220C |
| 1 200/20 | 900/37 | 500/90 | 230 V AC/50 Hz, 1-phase, brake, IP20 | E220CB |
| 1 200/20 | 900/37 | 500/90 | 400 V AC/50 Hz, 3-phase, IP55 | E380C |
| 1 200/xx | 900/xx | 600/xx | No motor | 0000 |
| 1 000/50-38 | 600/100-80 | 400/174-150 | 12 V DC, IP44 (65) | C12C |
| 1 000/47-25 | 600/95-65 | 400/170-100 | 12 V DC, flat motor, IP44 | D12C |
| 1 200/56-36 | 900/113-79 | 500/174-140 | 24 V DC, IP44 (65) | C24C |
| 1 200/27-17 | 800/60-35 | 500/100-69 | 24 V DC, low speed, IP44 (65) | C24CW |
| 1 200/48-37 | 900/95-66 | 500/193-140 | 24 V DC, flat motor, IP44 | D24C |
| 1 200/48-37 | 900/95-66 | 500/193-140 | 24 V DC, flat motor, brake, IP20 | D24CB |
| 1 200/48-37 | 900/95-66 | 500/193-140 | 24 V DC, flat motor, ext. shaft, IP44 | D24CS |
| 1 200/30-17 | 800/63-35 | 500/100-65 | 24 V DC, flat motor, low speed, IP44 | D24CW |

CAT 33HX /

Type

Motor assembly:

Right
 Left

R
 L

Stroke (S):

100 mm
 200 mm
 300 mm
 400 mm

100
 200
 300
 400

Other stroke lengths

- - -

Rear attachment (see page 276):

Fork ear, Ø=12,0 mm
 Fork ear, Ø=12,7 mm
 Single ear, Ø=12,0 mm
 Single ear, Ø=12,7 mm

A1
 A2
 K1
 K2

Front attachment (see page 276):

Hole, Ø=12,0 mm
 Hole, Ø=12,7 mm
 Male thread, M12
 Female thread, M12
 Fork ear, Ø=10,1 mm

G1
 G2
 G3
 G4
 G5

Feedback:

No encoder (no code)
 Encoder (for all standard motors)

E2

Option:

Friction clutch (not available with option encoder)
 No friction clutch

F
 Z

Options shown in italics are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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PUB MT/P8 10986 EN - August 2010

Printed in Sweden on environmentally friendly paper.



Linear actuator

CAT 33

Benefits

- Small
- Robust
- Highly efficient
- Lubricated for service life
- Digital encoder feedback



CAT 33

Linear actuators

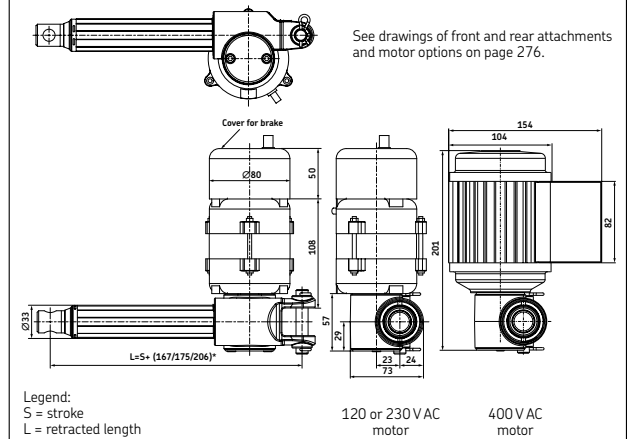
Suitable control units and accessories

| Control unit | Limit switch | Encoder |
|--------------|-----------------------|------------------|
| CAEV 110/220 | CAVC 33 ¹⁾ | E2 ²⁾ |
| E110C | • | • |
| E110CB | • | • |
| E220C | • | • |
| E220CB | • | • |
| E380C | • | • |
| CAES 31C | • | • |

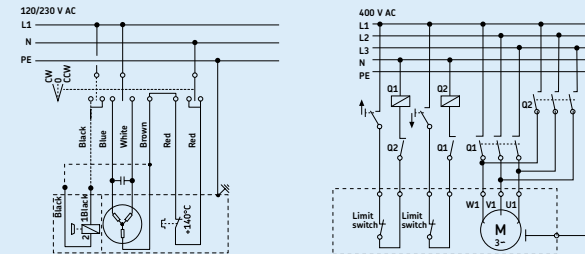
Hand switch
 Foot switch
 Desk switch

¹⁾See page 378
²⁾See page 380

Dimensional drawing – AC version



Connecting diagrams – AC version



Technical data

| | Unit | CAT 33 – AC version |
|----------------------|----------------------------------|--|
| Rated push load | N | 800 to 3 000 |
| Rated pull load | N | 800 to 3 000 |
| Speed (at full load) | mm/s | 5 to 24 ¹⁾ |
| Stroke | mm | 100 to 400 |
| Retracted length | mm | S+150/158/189 ²⁾ |
| Voltage | V AC | 120, 230 or 400 |
| Power consumption | 120 V AC 230 V AC 400 V AC | W 98 (brake 133,2W) 92 (brake 117,3W) |
| Current consumption | 120 V AC 230 V AC 400 V AC | A 0,82 (brake +0,29A) 0,4 (brake + 0,11A) 0,2 |
| Duty cycle | % | 30 |
| Ambient temperature | °C | -20 to +50 |
| Type of protection | IP | 20/54/55 |
| Weight | kg | 2 to 2,7 |

¹⁾ Depending on selected motor

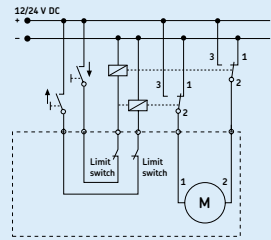
²⁾ Dimension depends on selected front attachment

Suitable control units and accessories

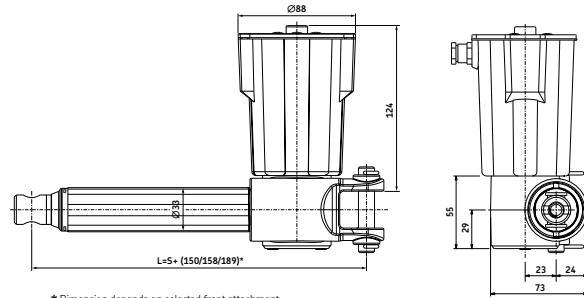
| Control units | Encoder | Limit switch |
|---------------|------------------|--------------------|
| CAED 5-24R | E2 ¹⁾ | CAXC ²⁾ |
| CAED 9-24R | | |
| C12C | | |
| D12C | | |
| C24C | | |
| C24CW | | |
| D24C | | |
| D24CB | | |
| D24CS | | |
| D24CW | | |
| CAES 31C | | |

¹⁾ See page 380
²⁾ See page 378

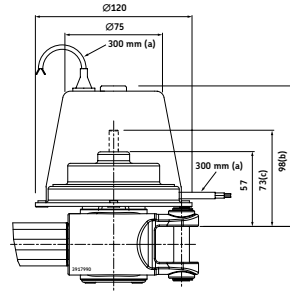
Connecting diagram – DC version



Dimensional drawing – DC version



* Dimension depends on selected front attachment



Legend:
S = stroke
L = retracted length
(a) = cable length
(b) = cover for brake (D24CB)
(c) = extended shaft (D24CS)

D12C, D24C, D24CB, D24CS, D24CW

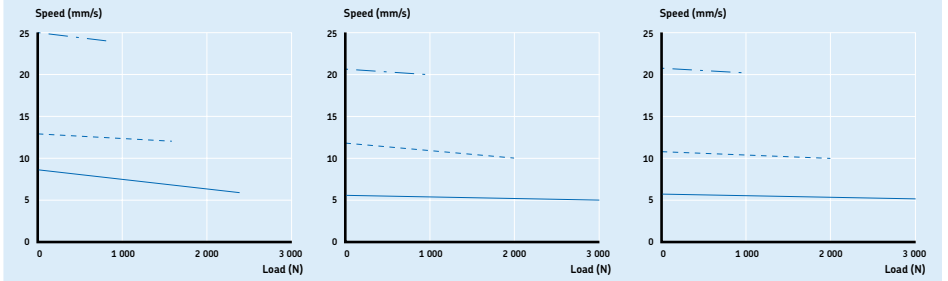
See drawings of front and rear attachments and motor options on page 276.

Technical data

| Unit | CAT 33 – DC version | | |
|------------------------------|---------------------|-----------------------------|--------------------------------|
| Rated push load | N | 800 to 3 000 | |
| Rated pull load | N | 800 to 3 000 | |
| Speed (full load to no load) | mm/s | 5 to 52 ¹⁾ | |
| Stroke | mm | 100 to 400 | |
| Retracted length | mm | 5+150/158/189 ²⁾ | |
| Voltage | V DC | 12 or 24 | |
| Power consumption | W | N/A | |
| Current consumption | 12 V DC | A | 18 |
| | 24 V DC | A | 9 |
| | 24 V DC | A | 5 (for motors C24CW and D24CW) |
| Duty cycle | % | 15 | |
| Ambient temperature | °C | -20 to +50 | |
| Type of protection | IP | 20/44/65 | |
| Weight | kg | 2 to 2,7 | |

¹⁾ Depending on selected motor
²⁾ Dimension depends on selected front attachment

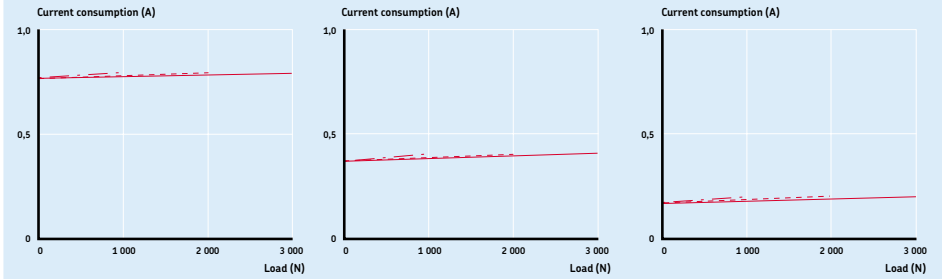
Performance diagrams – AC version



Speed-load diagram CAT 33 ... 120 V AC

Speed-load diagram CAT 33 ... 230 V AC

Speed-load diagram CAT 33 ... 400 V AC



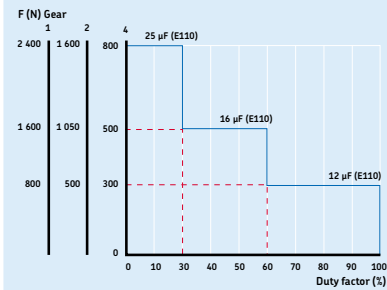
Current-load diagram CAT 33 ... 120 V AC

Current-load diagram CAT 33 ... 230 V AC

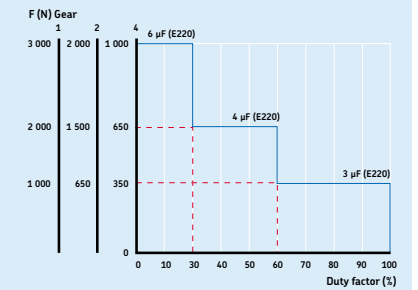
Current-load diagram CAT 33 ... 400 V AC

Gear 1 — V (mm/s)
I (A)
Gear 2 - - - V (mm/s)
I (A)
Gear 4 ··· V (mm/s)
I (A)
Gear 3 - · - V (mm/s)
I (A)

Duty cycle

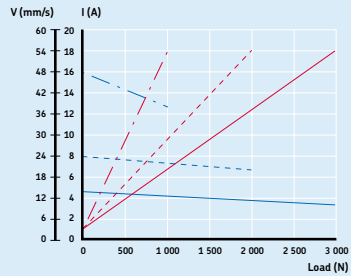


CAT 33 ... 120 V AC

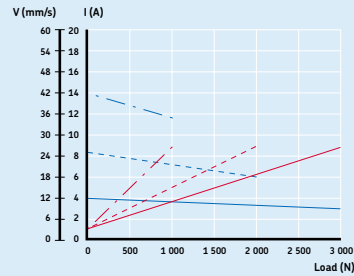


CAT 33 ... 230 V AC

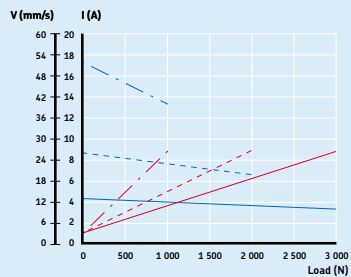
Performance diagrams – DC version



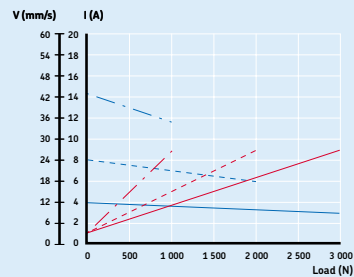
CAT 33.../C12C



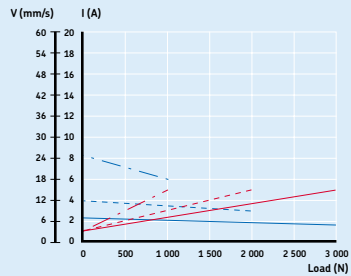
CAT 33.../D12C



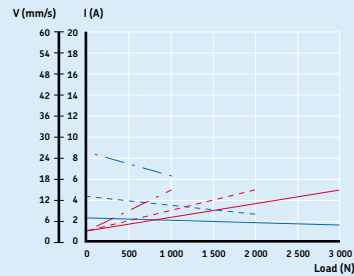
CAT 33.../C24C



CAT 33.../D24C/D24CB/D24CS

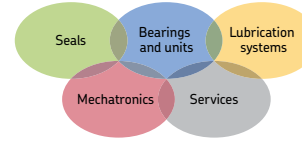


CAT 33.../C24CW



CAT 33.../D24CW

Gear 1 — V (mm/s)
 — I (A)
 Gear 2 - - - V (mm/s)
 - - - I (A)
 Gear 4 - - - V (mm/s)
 - - - I (A)



The Power of Knowledge Engineering

Drawing on five areas of competence and application-specific expertise amassed over more than 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry world-wide. These five competence areas include bearings and units, seals, lubrication systems, mechatronics (combining mechanics and electronics into intelligent systems), and a wide range of services, from 3-D computer modelling to advanced condition monitoring and reliability and asset management systems. A global presence provides SKF customers uniform quality standards and worldwide product availability.

Ordering key

| Dynamic load (N) / Speed (mm/s) | | | Motor options | |
|---------------------------------|-------------|-------------|---------------------------------------|--------|
| 3 000/xx | 2 000/xx | 1 000/xx | No motor | 0000 |
| 2 400/6 | 1 600/12 | 800/24 | 120 V AC/60 Hz, 1-phase, IP54 | E110C |
| 2 400/6 | 1 600/12 | 800/24 | 120 V AC/60 Hz, 1-phase, brake, IP20 | E110CB |
| 3 000/5 | 2 000/10 | 1 000/20 | 230 V AC/50 Hz, 1-phase, IP54 | E220C |
| 3 000/5 | 2 000/10 | 1 000/20 | 230 V AC/50 Hz, 1-phase, brake, IP20 | E220CB |
| 3 000/5 | 2 000/10 | 1 000/20 | 400 V AC/50 Hz, 3-phase, IP55 | E380C |
| 3 000/xx | 2 000/xx | 1 000/xx | No motor | 0000 |
| 3 000/13-10 | 2 000/24-20 | 1 000/48-38 | 12 V DC, IP44 (65) | C12C |
| 2 400/11-7 | 1 600/21-15 | 800/39-21 | 12 V DC, flat motor, IP44 | D12C |
| 3 000/13-10 | 2 000/26-20 | 1 000/52-40 | 24 V DC, IP44 (65) | C24C |
| 3 000/7-5 | 2 000/13-9 | 1 000/25-18 | 24 V DC, low speed, IP44 (65) | C24CW |
| 3 000/12-9 | 2 000/25-18 | 1 000/43-35 | 24 V DC, flat motor, IP44 | D24C |
| 3 000/12-9 | 2 000/25-18 | 1 000/43-35 | 24 V DC, flat motor, brake, IP20 | D24CB |
| 3 000/7-5 | 2 000/13-8 | 1 000/26-19 | 24 V DC, flat motor, IP44, ext. shaft | D24CS |
| | | | 24 V DC, flat motor, low speed, IP44 | D24CW |



Type

Motor assembly:

Right R
 Left L

Stroke (S):

100 mm
 200 mm
 300 mm
 400 mm
 Other stroke lengths - - -

Rear attachment (see page 276):

Fork ear, Ø=12,0 mm
 Fork ear, Ø=12,7 mm
 Single ear, Ø=12,0 mm
 Single ear, Ø=12,7 mm

A1
 A2
 K1
 K2

Front attachment (see page 276):

Hole, Ø=12,0 mm
 Hole, Ø=12,7 mm
 Male thread, M12
 Female thread, M12
 Fork ear, Ø=10,1 mm

G1
 G2
 G3
 G4
 G5

Feedback:

No encoder (no code)
 Encoder (for all standard motors)

E2

Option:

Friction clutch (not available with option encoder)
 No friction clutch

F
 Z

Options shown in italics are only available on demand. Contact SKF for more information on minimum quantities and additional costs.

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Printed in Sweden on environmentally friendly paper.



Linear actuator

CAT 32B

Benefits

- Compact
- Robust
- Modular
- Lubricated for service life
- High efficiency
- Digital encoder feedback



CAT 32B

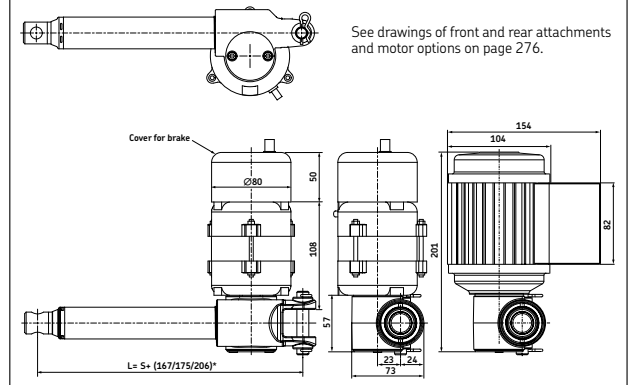
Linear actuators

Suitable control units and accessories

| Control unit | Limit switch | Encoder |
|--------------|------------------------|------------------|
| CAEV 110/220 | CAVB 32B ¹⁾ | E2 ²⁾ |
| E110C | • | • |
| E110CB | • | • |
| E220C | • | • |
| E220CB | • | • |
| E380C | • | • |
| CAES 31C | • | • |

- Hand switch
 - Foot switch
 - Desk switch
- ¹⁾ See page 379
²⁾ See page 380

Dimensional drawing – AC version



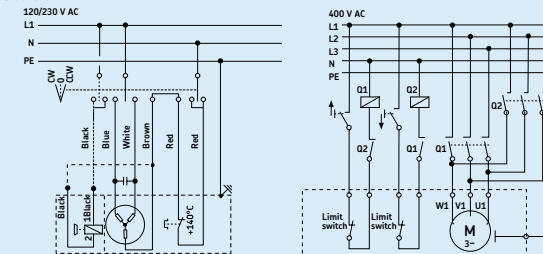
See drawings of front and rear attachments and motor options on page 276.

Legend:
S = stroke
L = retracted length

120 or 230 V AC motor 400 V AC motor

* Dimension depends on selected front attachment

Connecting diagrams – AC version



Technical data

| | Unit | CAT 32B – AC version |
|----------------------|------------|-----------------------------|
| Rated push load | N | 1 500 to 3 500 |
| Rated pull load | N | 1 500 to 3 500 |
| Speed (at full load) | mm/s | 6,5 to 32 ¹⁾ |
| Stroke | mm | 50 to 700 |
| Retracted length | mm | S+167/175/206 ²⁾ |
| Voltage | V AC | 120, 230 or 400 |
| Power consumption | 120 V AC W | 98 (brake 133,2 W) |
| | 230 V AC W | 92 (brake 117,3 W) |
| | 400 V AC W | 80 |
| Current consumption | 120 V AC A | 0,82 (brake +0,29 A) |
| | 230 V AC A | 0,4 (brake +0,11 A) |
| | 400 V AC A | 0,2 |
| Duty cycle | % | 30 |
| Ambient temperature | °C | -20 to +50 |
| Type of protection | IP | 20/54/55 |
| Weight | kg | 2 to 3,5 |

¹⁾ Depending on selected motor
²⁾ Dimension depends on selected front attachment

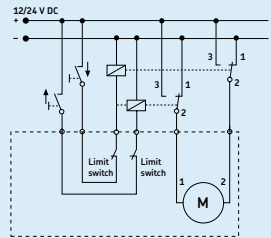
Suitable control units and accessories

| Control units | Limit switch | Encoder |
|------------------------|--------------|---------|
| CAED 5-24R | • | • |
| CAED 9-24R | • | • |
| CAXB 32B ¹⁾ | • | • |
| E2 ²⁾ | • | • |
| C12C | • | • |
| D12C | • | • |
| C24C | • | • |
| C24CW | • | • |
| D24C | • | • |
| D24CB | • | • |
| D24CS | • | • |
| D24CW | • | • |
| CAES 31C | • | • |

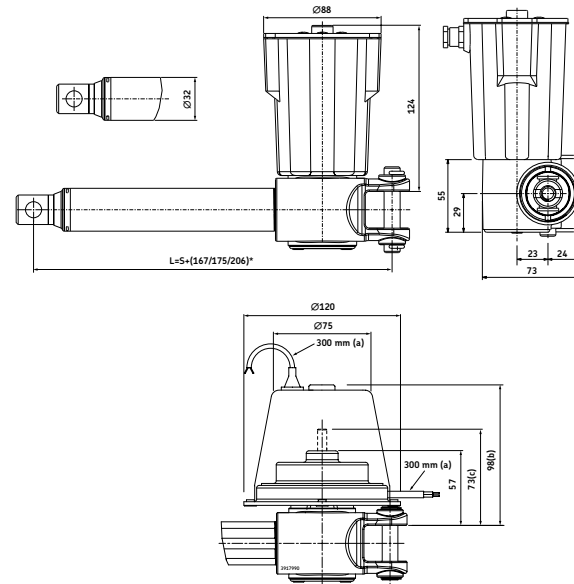
- Hand switch
- Foot switch
- Desk switch

¹⁾ See page 379
²⁾ See page 380

Connecting diagram – DC version



Dimensional drawing – DC version



D12C, D24C, D24CB, D24CS, D24CW

- Legend:
 S = stroke
 L = retracted length
 (a) = cable length
 (b) = cover for brake (D24CB)
 (c) = extended shaft (D24CS)

See drawings of front and rear attachments and motor options on page 276.

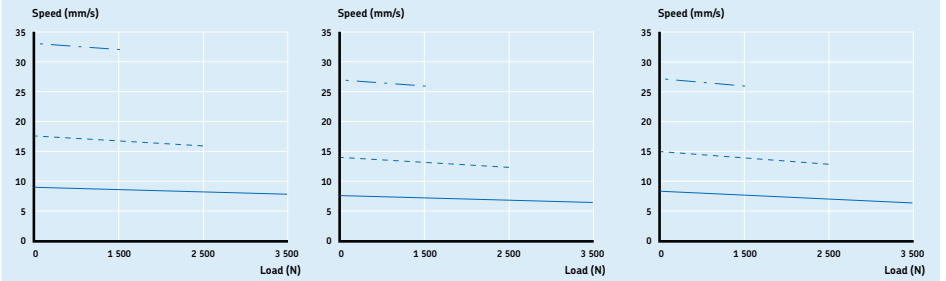
* Dimension depends on selected front attachment

Technical data

| Unit | CAT 32B – DC version | |
|------------------------------|----------------------|--------------------------------|
| Rated push load | N | 1 000 to 4 000 |
| Rated pull load | N | 1 000 to 4 000 |
| Speed (full load to no load) | mm/s | 5 to 52 ¹⁾ |
| Stroke | mm | 50 to 700 |
| Retracted length | mm | S+167/175/206 ²⁾ |
| Voltage | V DC | 12 or 24 |
| Power consumption | W | N/A |
| Current consumption | 12 V DC | A |
| | 24 V DC | A |
| | 24 V DC | A |
| Duty cycle | % | 5 (for motors C24CW and D24CW) |
| Ambient temperature | °C | 20 |
| Type of protection | IP | -20 to +50 |
| Weight | kg | 20/44/65 |
| | | 2 to 3,5 |

¹⁾ Depending on selected motor
²⁾ Dimension depends on selected front attachment

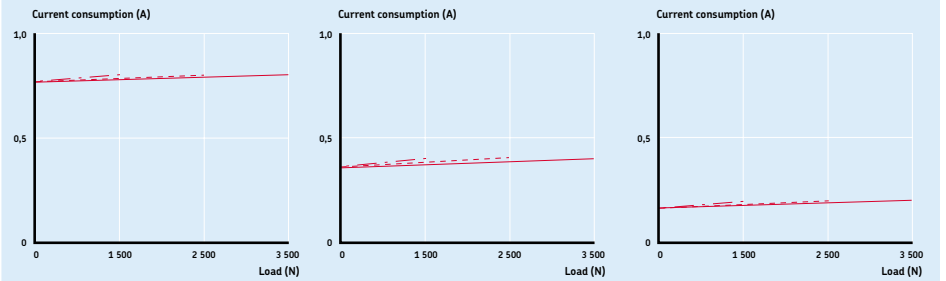
Performance diagrams – AC version



Speed-load diagram CAT 32B ... 120 VAC

Speed-load diagram CAT 32B ... 230 VAC

Speed-load diagram CAT 32B ... 400 VAC



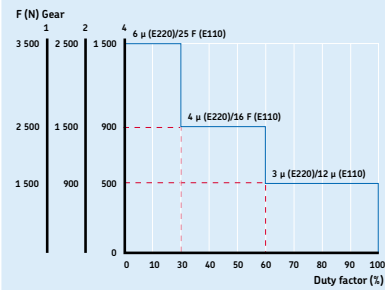
Current-load diagram CAT 32B ... 120 VAC

Current-load diagram CAT 32B ... 230 VAC

Current-load diagram CAT 32B ... 400 VAC

- Gear 1 — V (mm/s)
- I (A)
- Gear 2 — V (mm/s)
- I (A)
- Gear 4 — V (mm/s)
- I (A)

Duty cycle



CAT 32B ... 230/120 VAC

Linear actuator

CAP 43A

Benefits

- Robust and reliable
- Long lifetime
- Wide range of components
- Right- and left-hand version
- Analogical feedback



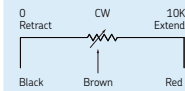
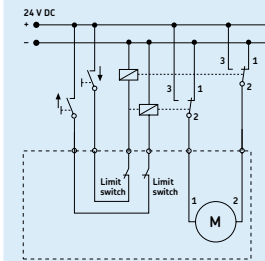
CAP 43A

Linear actuators DC versions

Suitable control units and accessories

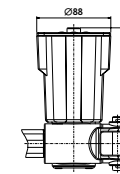
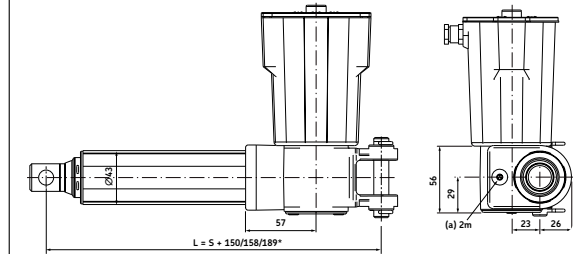
| Control units | |
|-------------------|---|
| CAPED ANR 6-24-FO | |
| CAPED ANR 9-24-FO | |
| C24C | ● |
| C24CW | ● |
| D24C | ● |
| D24CW | ● |

Connecting diagram

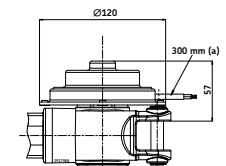


Connection diagram for linear potentiometer.

Dimensional drawing



C24C, C24CW



D24C, D24CW

Legend:
S = stroke
L = retracted length
(a) = cable length

See drawings of front and rear attachments on page 286.

* Dimension depends on selected front attachment

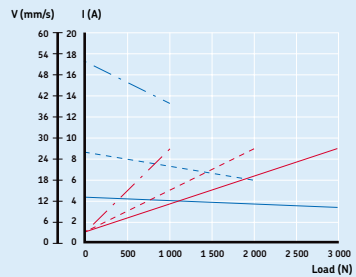
Technical data

| | Unit | CAP 43A |
|------------------------------|------|-----------------------------|
| Push load | N | 1 000 to 3 000 |
| Pull load | N | 1 000 to 3 000 |
| Speed (full load to no load) | mm/s | 5 to 52 ¹⁾ |
| Stroke | mm | 100 to 400 |
| Retracted length | mm | 5+150/158/189 ²⁾ |
| Voltage | V DC | 24 |
| Power consumption | W | N/A |
| Current consumption 24 V DC | A | 9 |
| Current consumption 24 V DCW | A | 5 |
| Duty cycle | % | 15 |
| Ambient temperature | °C | -20 to +50 |
| Type of protection | IP | 44 |
| Weight | kg | 2,0 to 2,7 |

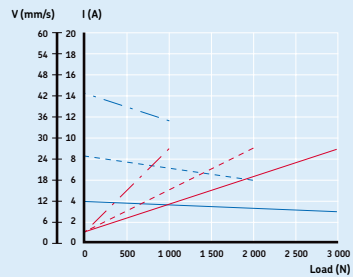
¹⁾ Depending on selected motor

²⁾ Dimension depends on selected front attachment

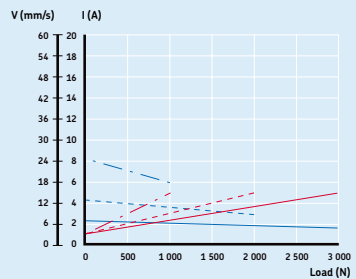
Performance diagrams



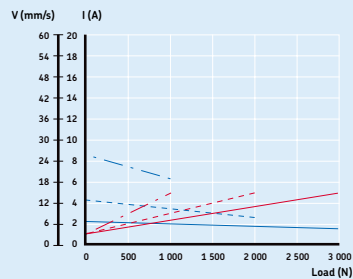
CAP 43A.../C24C



CAP 43A.../D24C



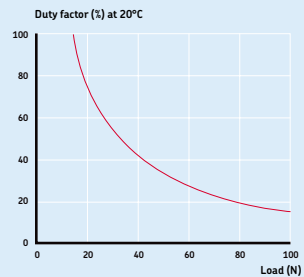
CAP 43A.../C24CW



CAP 43A.../D24CW

Gear 1 ——— V (mm/s)
 - - - - - I (A)
 Gear 2 - - - - - V (mm/s)
 - - - - - I (A)
 Gear 4 ——— V (mm/s)
 - - - - - I (A)

Duty cycle



Ordering key

| Dynamic load (N) / Speed (mm/s) | | | Motor options | | |
|---------------------------------|-------------|-------------|-------------------------------------|--|-------|
| 3 000/xx | 2 000/xx | 1 000/xx | No motor | | 0000 |
| 3 000/13-10 | 2 000/26-20 | 1 000/52-40 | 24 VDC, IP44 | | C24C |
| 3 000/7-5 | 2 000/13-9 | 1 000/25-18 | 24 VDC, IP44 | | C24CW |
| 3 000/12-9 | 2 000/25-18 | 1 000/43-35 | 24 VDC, flat motor, IP44 | | D24C |
| 3 000/7-5 | 2 000/13-8 | 1 000/26-19 | 24 VDC, flat motor, low speed, IP44 | | D24CW |
| 1 | 2 | 4 | | | |

C A P 4 3 A X X X X X / X X X X X X X X X X X X X X X

Type

Motor assembly:
Right (R)
Left (L)

Stroke (S):
100 mm
200 mm
300 mm
400 mm

Rear attachment (see page 286):
Fork ear, Ø=12,0 mm (A1)
Fork ear, Ø=12,7 mm (A2)
Single ear, Ø=12,0 mm (K1)
Single ear, Ø=12,7 mm (K2)

Front attachment (see page 286):
Hole, Ø=12,0 mm (G1)
Hole, Ø=12,7 mm (G2)
Male thread, M12 (G3)
Female thread, M12 (G4)
Fork ear, Ø=10,1 mm (G5)

Option:
Friction clutch (F)

Cable option for C24C(W) motors:
No cable (U)
Straight, 2,0 m (T2)

EMC filter (M)

Motor without cover (N)

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 PUB MT/P8 10447 EN · December 2009



Linear actuator

CAP 43B

Benefits

- Robust and reliable
- Long lifetime
- Wide range of components
- Right- and left- version
- Analogical feedback



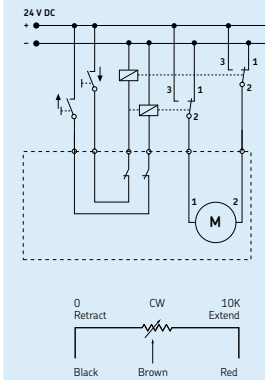
CAP 43B

Linear actuators DC versions

Suitable control units and accessories

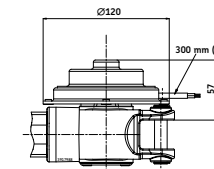
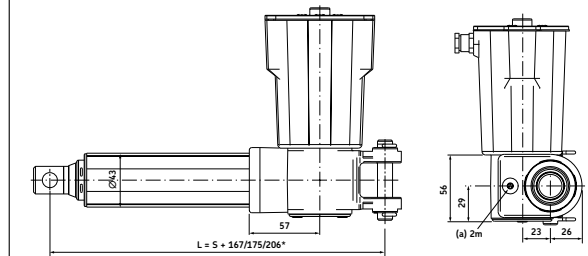
| | | |
|--|------------------|---|
| | CAED.ANR.6-24-PO | |
| | CAED.ANR.7-24-PO | |
| | C24C | ● |
| | C24CW | ● |
| | D24C | ● |
| | D24CW | ● |

Connecting diagram

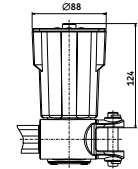


Connection diagram for linear potentiometer.

Dimensional drawing



D24C/D24CW



C24C/C24CW

Legend:
S = stroke
L = retracted length
(a) = cable length
(c) = extended shaft (D24C5)

See drawings of front and rear attachments on page 286.

* Dimension depends on selected front attachment

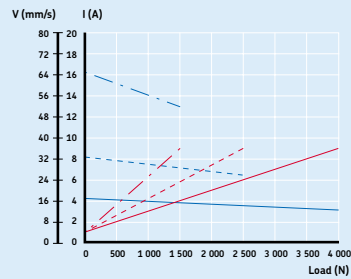
Technical data

| | Unit | CAP 43B |
|------------------------------|------|--------------------------------|
| Push load | N | 1 500 to 4 000 |
| Pull load | N | 1 500 to 4 000 |
| Speed (full load to no load) | mm/s | 5 to 65 ¹⁾ |
| Stroke | mm | 50 to 700 |
| Retracted length | mm | 5+167/175/206 ²⁾ |
| Voltage | V DC | 24 |
| Power consumption | W | N/A |
| Current consumption 24 V DC | A | 9 |
| Current consumption 24 V DC | A | 5 (for motors C24CW and D24CW) |
| Duty cycle | % | 20 |
| Ambient temperature | °C | -20 to +50 |
| Type of protection | IP | 44 |
| Weight | kg | 2,0 to 2,7 |

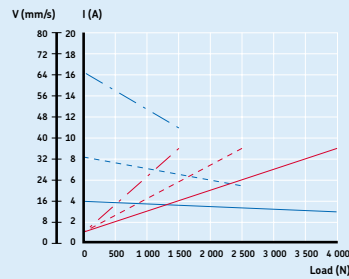
¹⁾ Depending on selected motor

²⁾ Dimension depends on selected front attachment

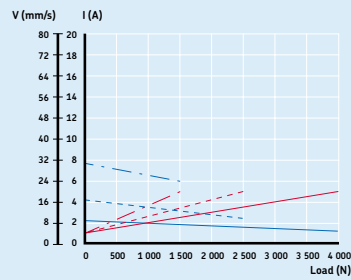
Performance diagrams



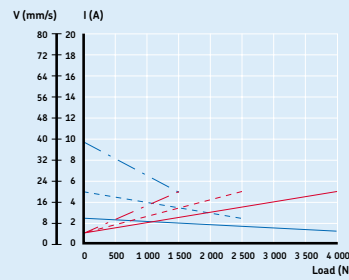
CAP 43B.../C24C



CAP 43B.../D24C



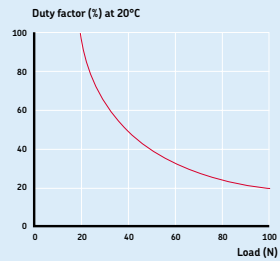
CAP 43B.../C24CW



CAP 43B.../D24CW

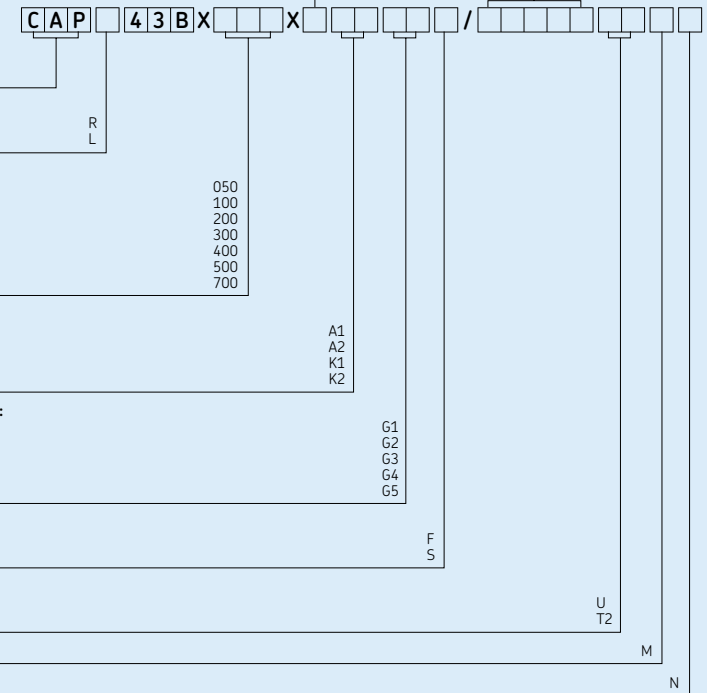
Gear 1 — V (mm/s)
— I (A)
 Gear 2 - - - V (mm/s)
- - - I (A)
 Gear 4 — V (mm/s)
— I (A)

Duty cycle



Ordering key

| Dynamic load (N) / Speed (mm/s) | | | Motor options | |
|---------------------------------|-------------|-------------|--------------------------------------|-------|
| 4 000/xx | 2 500/xx | 1 500/xx | No motor | 0000 |
| 4 000/17-13 | 2 500/33-26 | 1 500/65-52 | 24 V DC, IP44 | C24C |
| 4 000/9-5 | 2 500/17-10 | 1 500/31-24 | 24 V DC, low speed, IP44 | C24CW |
| 4 000/16-12 | 2 500/33-22 | 1 500/65-44 | 24 V DC, flat motor, IP44 | D24C |
| 4 000/10-5 | 2 500/20-10 | 1 500/39-20 | 24 V DC, flat motor, low speed, IP44 | D24CW |



Linear actuator

CAHB-10 series

Benefits

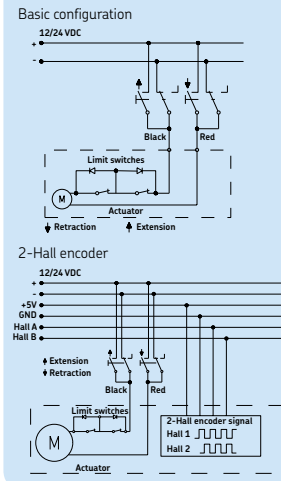
- Compact design
- Designed for harsh environment
- Robust and reliable
- Integrated limit switches
- Quiet operation
- Thermal protection
- Optional potentiometer and 2-Hall encoder available
- Electromagnetic compatibility (EMC) compliant



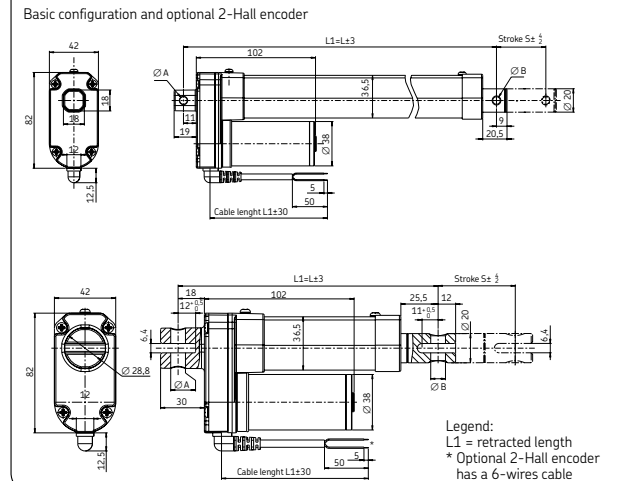
CAHB-10 series

Linear actuators DC versions

Connecting diagram



Dimensional drawing



| Stroke (mm) | 50 | 100 | 150 | 200 | 250 | 300 |
|---------------------------------|-----|-----|-----|-----|-----|-----|
| Retracted length (L1) | 158 | 209 | 260 | 311 | 362 | 413 |
| Retracted length with fork head | 179 | 230 | 281 | 332 | 383 | 434 |

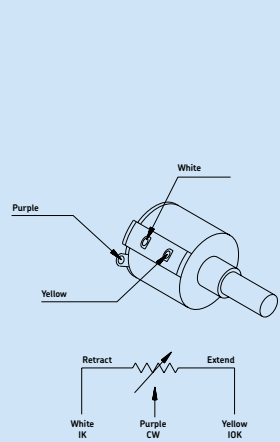
| Encoder resolution | | | | | |
|--------------------|-----|------|-------|------|-------|
| Gear ratio | 5:1 | 10:1 | 20:1 | 30:1 | 40:1 |
| Mm/pulse | 0,3 | 0,15 | 0,075 | 0,05 | 0,038 |

| Technical data | | | | | | |
|------------------------------|---------|--------------|--------------|--------------|--------------|--------------|
| | Unit | CAHB-10... 1 | CAHB-10... 2 | CAHB-10... 3 | CAHB-10... 4 | CAHB-10... 5 |
| Push load | N | 120 | 240 | 500 | 750 | 1 000 |
| Pull load | N | 120 | 240 | 500 | 750 | 1 000 |
| Speed (full load to no load) | mm/s | 45 to 56 | 24 to 30 | 13 to 16 | 8 to 10 | 6 to 8 |
| Stroke | mm | 50 to 300 | 50 to 300 | 50 to 300 | 50 to 300 | 50 to 300 |
| Retracted length | mm | -* | -* | -* | -* | -* |
| Voltage | V DC | 12 or 24 | 12 or 24 | 12 or 24 | 12 or 24 | 12 or 24 |
| Power consumption | W | N/A | N/A | N/A | N/A | N/A |
| Current consumption | 12 V DC | A | 4 | 3,5 | 3,2 | 3 |
| | 24 V DC | A | 2,2 | 2,0 | 1,8 | 1,8 |
| Duty cycle | % | 25 | 25 | 25 | 25 | 25 |
| Ambient temperature | °C | -40 to +85 | -40 to +85 | -40 to +85 | -40 to +85 | -40 to +85 |
| Type of protection | IP | 66s | 66s | 66s | 66s | 66s |
| Weight (at 300 mm stroke) | kg | 1,5 | 1,5 | 1,5 | 1,5 | 1,5 |
| Color | - | Silver | Silver | Silver | Silver | Silver |
| Limit switches | - | Yes | Yes | Yes | Yes | Yes |
| Thermal protection | - | Yes | Yes | Yes | Yes | Yes |

* See above table

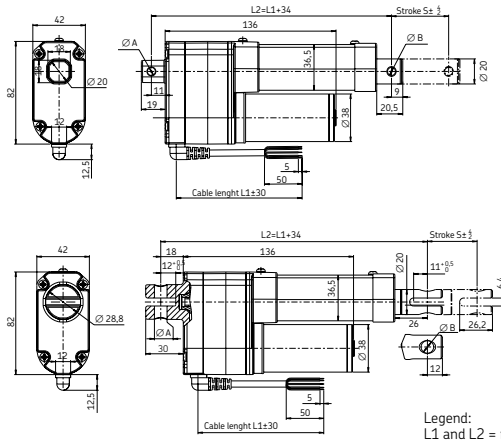


Potentiometer



Dimensional drawing

Optional potentiometer

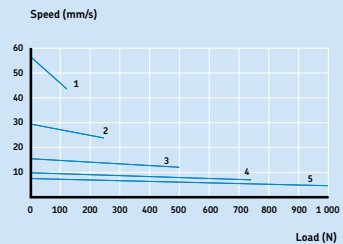


| Stroke (mm) | 50 | 100 | 150 | 200 | 250 | 300 |
|---------------------------------|-----|-----|-----|-----|-----|-----|
| Retracted length (L2) | 192 | 243 | 294 | 345 | 396 | 447 |
| Retracted length with fork head | 213 | 264 | 315 | 366 | 417 | 468 |

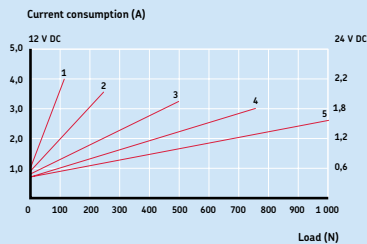
Potentiometer resolution

| Stroke (mm) | 50-80 | 80-160 | 160-300 |
|---|------------|------------|------------|
| Minimum resistance value of potentiometer | 700-1300 Ω | 700-1300 Ω | 700-1300 Ω |
| Potentiometer resolution | 100 Ω/mm | 50 Ω/mm | 16,6 Ω/mm |

Performance diagrams

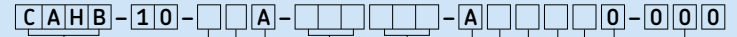


Speed-load diagram



Current-load diagram

Ordering key



Type

Voltage:
12 V DC
24 V DC

Load:

120 N
240 N
500 N
750 N
1 000 N

Screw:
TR12 screw
Customized

Stroke:

50 mm
100 mm
150 mm
200 mm
250 mm
300 mm

Retracted length**

Stroke without potentiometer:**

50 mm
100 mm
150 mm
200 mm
250 mm
300 mm

| A(B)+A(B) | A(B)+C | C+A(B) | C+C |
|-----------|--------|--------|--------|
| 158 mm | 165 mm | 172 mm | 179 mm |
| 209 mm | 216 mm | 223 mm | 230 mm |
| 260 mm | 267 mm | 274 mm | 281 mm |
| 311 mm | 318 mm | 325 mm | 332 mm |
| 362 mm | 369 mm | 376 mm | 383 mm |
| 413 mm | 420 mm | 427 mm | 434 mm |

IP:

Standard (IP 66s)

Front attachment:

Rod with hole Ø 6,4 mm
Rod with hole Ø 8 mm
Fork head with hole Ø 10,1 mm
Customized

Rear attachment:

Rod with hole Ø 6,4 mm
Rod with hole Ø 8 mm
Fork head with hole Ø 10,1 mm
Customized

Hole direction of the attachments:

0°

90°

Option 1:

None
Potentiometer
2-Hall encoder

Cable length:

600 mm without connector
1 000 mm without connector
1 500 mm without connector
2 000 mm without connector
2 500 mm without connector
3 000 mm without connector
Customized

Auxiliary code (Standard products are "00")

* Retracted length will be enlarged 34 mm with Potentiometer option
** Front attachment + Rear attachment; A, B, C mean the attachment types

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PUB MT/P8 10265 EN - May 2013



Linear actuator

CAHB-20 series

Benefits

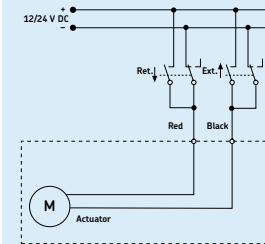
- ACME screw drive
- Extension tube (stainless steel)
- Protection tube (steel)
- Enhanced corrosion resistance
- Mechanical overload protection (clutch)
- Lubricated for service life
- Robust, designed for tough environment
- Self-locking
- Certified (CE: EN 55011)



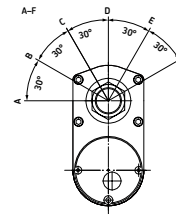
CAHB-20 series

Linear actuators DC versions

Connecting diagram

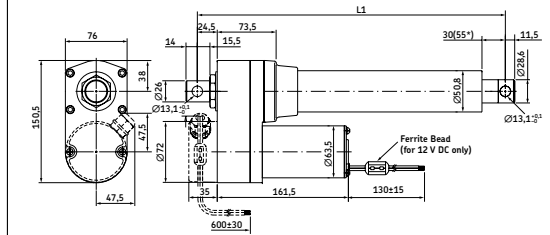


Different rear attachment



Dimensional drawing

Basic configuration (dashed line for optional limit switch)



Without limit switch:
 RED (+) & BLACK (-) = retraction
 RED (-) & BLACK (+) = extension
 With limit switch:
 RED (+) & BLACK (-) = extension
 RED (-) & BLACK (+) = retraction

Legend:
 L1 = retracted length
 *55 = dimension with limit switch

| Stroke (mm) | With limit switch ¹⁾ | | | | | | Without limit switch ²⁾ | | | | | |
|---------------------|---------------------------------|-----|-----|-----|-----|-----|------------------------------------|-----|-----|-----|-----|-----|
| | 102 | 153 | 204 | 305 | 457 | 610 | 102 | 153 | 204 | 305 | 457 | 610 |
| L1 Retracted length | 338 | 389 | 440 | 592 | 744 | 897 | 262 | 313 | 364 | 465 | 668 | 821 |

¹⁾ Tolerance: S and L1 = ± 5.0 mm (if S ≥ 305 mm, S = ± 7.5 mm)

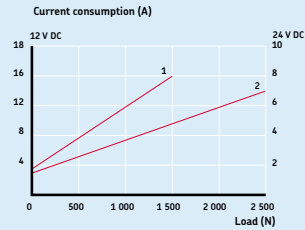
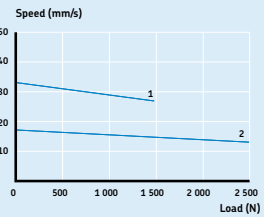
²⁾ Tolerance: S = ± 2.5 mm and L1 = ± 3.8 mm

Technical data

| | Unit | CAHB-20... 1 | CAHB-20... 2 |
|------------------------------|---------|--------------|--------------|
| Push load | N | 1 500 | 2 500 |
| Pull load | N | 1 500 | 2 500 |
| Speed (full load to no load) | mm/s | 27 to 33 | 13 to 17 |
| Stroke | mm | 102 to 610 | 102 to 610 |
| Retracted length | mm | -* | -* |
| Voltage | V DC | 12 or 24 | 12 or 24 |
| Power consumption | W | N/A | N/A |
| Current consumption | 12 V DC | A | 14 |
| | 24 V DC | A | 7 |
| Duty cycle | % | 25 | 25 |
| Ambient temperature | °C | -40 to +85 | -40 to +85 |
| Type of protection | IP | 66 | 66 |
| Weight (at 305 mm stroke) | kg | 5,5 | 5,5 |
| Color | - | Black | Black |

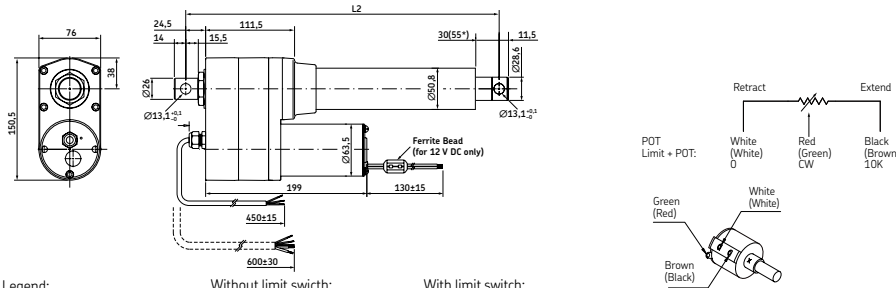
* see above table

Performance diagrams



Dimensional drawing

Optional potentiometer (dashed line for optional limit switch)



Legend:
 L2 = retracted length
 *55 = dimension with limit switch

Without limit switch:
 RED (+) & BLACK (-) = retraction
 RED (-) & BLACK (+) = extension

With limit switch:
 RED (+) & BLACK (-) = extension
 RED (-) & BLACK (+) = retraction

| Stroke (mm) | With limit switch ¹⁾ | | | | | | Without limit switch ²⁾ | | | | | |
|---------------------|---------------------------------|-----|-----|-----|-----|-----|------------------------------------|-----|-----|-----|-----|-----|
| | 102 | 153 | 204 | 305 | 457 | 610 | 102 | 153 | 204 | 305 | 457 | 610 |
| L2 Retracted length | 376 | 427 | 478 | 630 | 782 | 935 | 300 | 351 | 402 | 503 | 706 | 859 |

¹⁾ Tolerance: S and L2 = ± 5,0 mm (if S ≥ 305 mm, S = ± 7,5 mm)

²⁾ Tolerance: S = ± 2,5 mm and L2 = ± 3,8 mm

Potentiometer resolution

| Stroke (mm) | 102 | 153 | 204 | 305 | 457 | 610 |
|-------------|------|------|------|------|------|------|
| Ohm/mm | 59,0 | 59,0 | 29,5 | 29,5 | 9,84 | 9,84 |

Ordering key



Type

Voltage:
 12 V DC
 24 V DC

Load:
 1 500 N
 2 500 N

Screw:
 Acme screw

Stroke:
 102 mm
 153 mm
 204 mm
 305 mm
 457 mm
 610 mm

Retracted length:

| Stroke | w/o POT ²⁾ | with POT ²⁾ |
|-------------------------|-----------------------|------------------------|
| with L.S. ¹⁾ | | |
| 102 mm | 338 mm | 376 mm |
| 153 mm | 389 mm | 427 mm |
| 204 mm | 440 mm | 478 mm |
| 305 mm | 592 mm | 630 mm |
| 457 mm | 744 mm | 782 mm |
| 610 mm | 897 mm | 935 mm |
| w/o L.S. ¹⁾ | | |
| 102 mm | 262 mm | 300 mm |
| 153 mm | 313 mm | 351 mm |
| 204 mm | 364 mm | 402 mm |
| 305 mm | 465 mm | 503 mm |
| 457 mm | 668 mm | 706 mm |
| 610 mm | 821 mm | 859 mm |

IP:
 Standard (IP 66)

Front attachment:
 Standard (hole: Ø 13,1 mm)
 Customized

Rear attachment:
 Standard (0° and hole: Ø 13,1 mm)
 30°
 60°
 90°
 120°
 150°
 Customized

Option 1:
 None
 Limit switch (only for load version 2 500 N)

Option 2:
 None
 Potentiometer

Option 3:
 None
 Thermal protection

¹⁾ L.S. = Limit switch
²⁾ POT = Potentiometer



Linear actuator

CAHB-21 series

Benefits

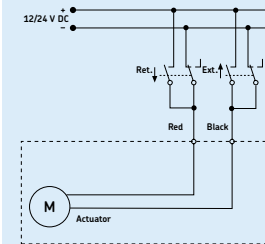
- High efficiency ball screw
- Extension tube (stainless steel)
- Protection tube (steel)
- Enhanced corrosion resistance
- Mechanical overload protection (clutch)
- Lubricated for service life
- Robust, designed for tough environment
- No back driving
- Certified (CE: EN 55011)



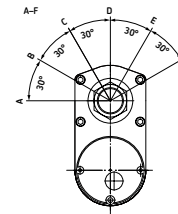
CAHB-21 series

Linear actuators DC versions

Connecting diagram

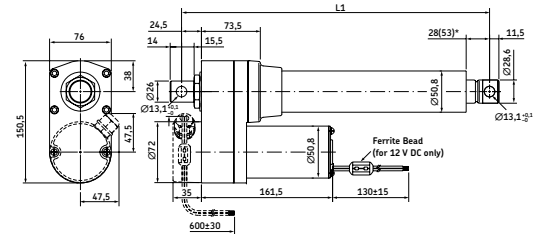


Different rear attachment



Dimensional drawing

Basic configuration (dashed line for optional limit switch)



Without limit switch:
 RED (+) & BLACK (-) = retraction
 RED (-) & BLACK (+) = extension
 With limit switch:
 RED (+) & BLACK (-) = extension
 RED (-) & BLACK (+) = retraction

Legend:
 L1 = retracted length
 * 53 = dimension with limit switch

| Stroke (mm) | With limit switch ¹⁾ | | | | | | Without limit switch ²⁾ | | | | | |
|---------------------|---------------------------------|-----|-----|-----|-----|-----|------------------------------------|-----|-----|-----|-----|-----|
| | 102 | 153 | 204 | 305 | 457 | 610 | 102 | 153 | 204 | 305 | 457 | 610 |
| L1 Retracted length | 393 | 444 | 495 | 659 | 811 | 964 | 317 | 368 | 419 | 521 | 735 | 888 |

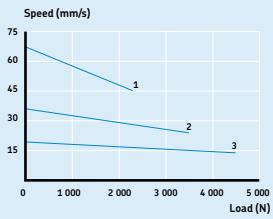
¹⁾ Tolerance: S, L1 and L2 = ± 5,0 mm (If S=305 mm, S = ± 7,5 mm)
²⁾ Tolerance: S = ± 2,5 mm and L1, L2 = ± 3,8 mm

Technical data

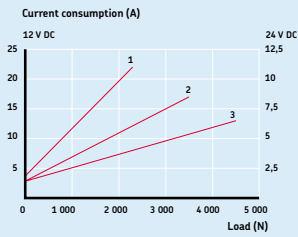
| | Unit | CAHB-21... 1 | CAHB-21... 2 | CAHB-21... 3 |
|------------------------------|---------|--------------|--------------|--------------|
| Push load | N | 2 300 | 3 500 | 4 500 |
| Pull load | N | 2 300 | 3 500 | 4 500 |
| Speed (full load to no load) | mm/s | 45 to 65 | 24 to 36 | 14 to 19 |
| Stroke | mm | 102 to 610 | 102 to 610 | 102 to 610 |
| Retracted length | mm | -* | -* | -* |
| Voltage | V DC | 12 or 24 | 12 or 24 | 12 or 24 |
| Power consumption | W | N/A | N/A | N/A |
| Current consumption | 12 V DC | A | 22 | 17 |
| | 24 V DC | A | 11 | 8,5 |
| Duty cycle | % | 25 | 25 | 25 |
| Ambient temperature | °C | -40 to +85 | -40 to +85 | -40 to +85 |
| Type of protection | IP | 66 | 66 | 66 |
| Weight (at 305 mm stroke) | kg | 6,5 | 6,5 | 6,5 |
| Color | - | Black | Black | Black |

* see above table

Performance diagrams



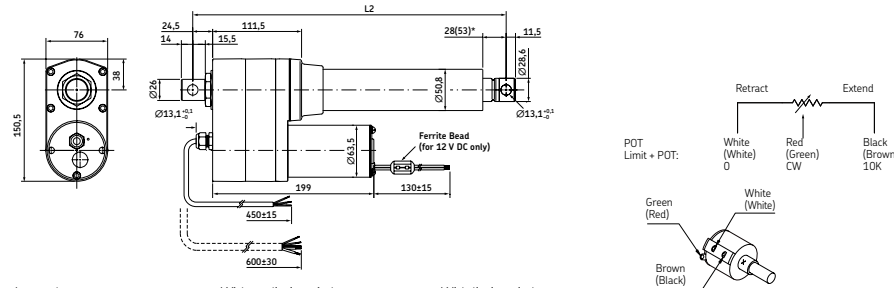
Speed-load diagram



Current-load diagram

Dimensional drawing

Optional potentiometer (dashed line for optional limit switch)



| Stroke (mm) | With limit switch ¹⁾ | | | | | | Without limit switch ²⁾ | | | | | |
|---------------------|---------------------------------|-----|-----|-----|-----|-------|------------------------------------|-----|-----|-----|-----|-----|
| | 102 | 153 | 204 | 305 | 457 | 610 | 102 | 153 | 204 | 305 | 457 | 610 |
| L2 Retracted length | 431 | 482 | 533 | 697 | 849 | 1 002 | 355 | 406 | 457 | 559 | 773 | 926 |

¹⁾ Tolerance: S and L2 = ± 5,0 mm (if S ≥ 305 mm, S = ± 7,5 mm)

²⁾ Tolerance: S = ± 2,5 mm and L2 = ± 3,8 mm

Potentiometer resolution

| Stroke (mm) | 102 | 153 | 204 | 305 | 457 | 610 |
|-------------|------|------|------|------|------|------|
| Ohm/mm | 59,0 | 59,0 | 29,5 | 29,5 | 9,84 | 9,84 |

CAHB-21- [] N- [] [] [] - A [] [] [] [] - 0 0 0

Type

Voltage:
12 V DC
24 V DC

Load:
2 300 N
3 500 N
4 500 N

Screw:
Ball screw

Stroke:
102 mm
153 mm
204 mm
305 mm
457 mm
610 mm

Retracted length:
Stroke
with L.S.¹⁾
102 mm
153 mm
204 mm
305 mm
457 mm
610 mm
w/o POT²⁾
393 mm
444 mm
495 mm
659 mm
811 mm
964 mm
with POT²⁾
431 mm
482 mm
533 mm
697 mm
849 mm
A02 mm (1 002 mm)w/o L.S.¹⁾
102 mm
153 mm
204 mm
305 mm
457 mm
610 mm
317 mm
368 mm
419 mm
521 mm
735 mm
888 mm

IP:
Standard (IP 66)

Front attachment:
Standard (hole: Ø 13,1 mm)
Customized

Rear attachment:
Standard (0° and hole: Ø 13,1 mm)
30°
60°
90°
120°
150°
Customized

Option 1:
None
Limit switch (only for load version 4 500 N)

Option 2:
None
Potentiometer

Option 3:
None
Thermal protection

¹⁾ L.S. = Limit switch
²⁾ POT = Potentiometer

Linear actuator

CAHB-30 series

Benefits

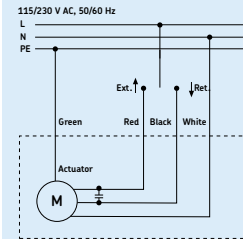
- ACME screw drive
- Extension tube (stainless steel)
- Protection tube (steel)
- Enhanced corrosion resistance
- Mechanical overload protection (clutch)
- Lubricated for service life
- Robust, designed for tough environment
- Self-locking
- Motor with thermal protection



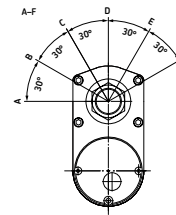
CAHB-30 series

Linear actuators AC versions

Connecting diagram

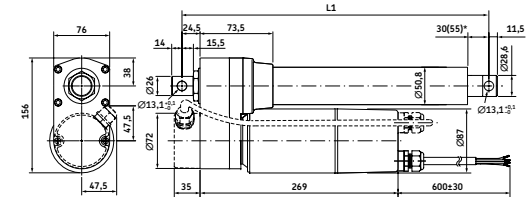


Different rear attachment



Dimensional drawing

Basic configuration (dashed line for optional limit switch)



Legend:
L1 = retracted length
* 55 = dimension with limit switch

| Stroke (mm) | With limit switch ¹⁾ | | | | | | Without limit switch ²⁾ | | | | | |
|---------------------|---------------------------------|-----|-----|-----|-----|-----|------------------------------------|-----|-----|-----|-----|-----|
| | 102 | 153 | 204 | 305 | 457 | 610 | 102 | 153 | 204 | 305 | 457 | 610 |
| L1 Retracted length | 440 | 440 | 440 | 592 | 744 | 897 | 380 | 415 | 415 | 465 | 668 | 821 |

¹⁾ Tolerance: S and L1 = ± 5.0 mm (if S ≥ 305 mm, S = ± 7.5 mm)

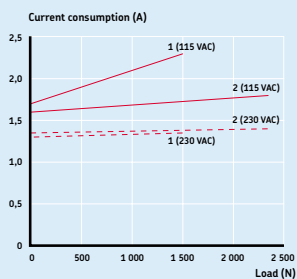
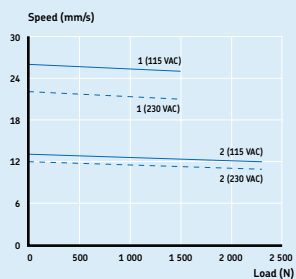
²⁾ Tolerance: S = ± 2.5 mm and L1 = ± 3.8 mm

Technical data

| | Unit | CAHB-30... 1 | CAHB-30... 2 |
|------------------------------|--------------------------------|----------------------|----------------------|
| Push load | N | 1 500 | 2 300 |
| Pull load | N | 1 500 | 2 300 |
| Speed (full load to no load) | 115 VAC/60 Hz 230 VAC/50 Hz | mm/s mm/s | mm/s mm/s |
| Stroke | | 25 to 26 21 to 22 | 12 to 13 11 to 12 |
| Retracted length | | 102 to 610 | 102 to 610 |
| Voltage | mm mm VAC | –* 115 or 230 | –* 115 or 230 |
| Power consumption | W | N/A | N/A |
| Current consumption | 115 VAC/60 Hz 230 VAC/50 Hz | A A | A A |
| Duty cycle | % | 2,3 1,35 | 1,8 1,4 |
| Ambient temperature | °C | 25 | 25 |
| Type of protection | IP | –26 to +65 | –26 to +65 |
| Weight (at 305 mm stroke) | kg | 65 | 65 |
| Color | – | 9 | 9 |
| | | Black | Black |

* See above table
For outdoors application, please contact SKF.

Performance diagrams

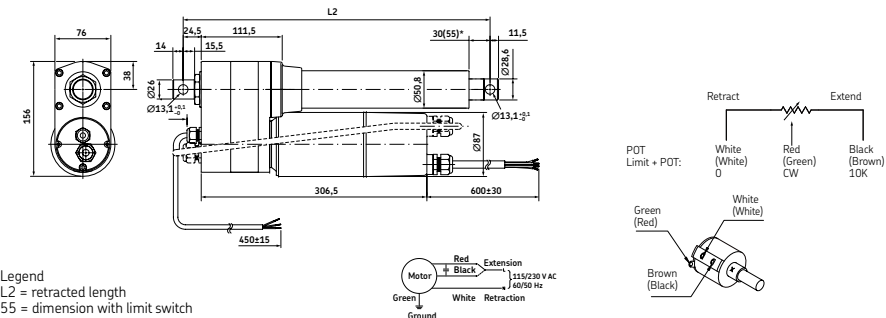


Speed-load diagram

Current-load diagram

Dimensional drawing

Optional potentiometer (dashed line for optional limit switch)



Legend
L2 = retracted length
* 55 = dimension with limit switch

| Stroke (mm) | With limit switch ¹⁾ | | | | | | Without limit switch ²⁾ | | | | | |
|---------------------|---------------------------------|-----|-----|-----|-----|-----|------------------------------------|-----|-----|-----|-----|-----|
| | 102 | 153 | 204 | 305 | 457 | 610 | 102 | 153 | 204 | 305 | 457 | 610 |
| L2 Retracted length | 478 | 478 | 478 | 630 | 782 | 935 | 418 | 453 | 453 | 503 | 706 | 859 |

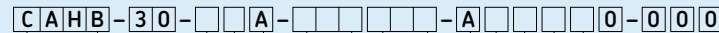
¹⁾ Tolerance: S and L2 = ± 5.0 mm (if S≥305 mm, S = ± 7.5 mm)

²⁾ Tolerance: S = ± 2.5 mm and L2 = ± 3.8 mm

Potentiometer resolution

| Stroke (mm) | 102 | 153 | 204 | 305 | 457 | 610 |
|-------------|------|------|------|------|------|------|
| Ohm/mm | 59,0 | 59,0 | 29,5 | 29,5 | 9,84 | 9,84 |

Ordering key



Type CAHB-30- [] A - [] - [] - A [] - [] - [] 0 - 0 0 0

Voltage:
115 V AC (N)
230 V AC (P)

Load:
1 500 N (1)
2 300 N (2)

Screw:
Acme screw (A)

| | | |
|----------------|--------|-----|
| Stroke: | 102 mm | 102 |
| | 153 mm | 153 |
| | 204 mm | 204 |
| | 305 mm | 305 |
| | 457 mm | 457 |
| | 610 mm | 610 |

Retracted length:

| Stroke | w/o POT ²⁾ | with POT ²⁾ |
|-------------------------------|-----------------------|------------------------|
| with L.S.¹⁾ | | |
| 102 mm | 440 mm | 478 mm |
| 153 mm | 440 mm | 478 mm |
| 204 mm | 440 mm | 478 mm |
| 305 mm | 592 mm | 630 mm |
| 457 mm | 744 mm | 782 mm |
| 610 mm | 897 mm | 935 mm |
| w/o L.S.¹⁾ | | |
| 102 mm | 380 mm | 418 mm |
| 153 mm | 415 mm | 453 mm |
| 204 mm | 415 mm | 453 mm |
| 305 mm | 465 mm | 503 mm |
| 457 mm | 668 mm | 706 mm |
| 610 mm | 821 mm | 859 mm |

IP: Standard (IP 65)

Front attachment: Standard (hole: Ø 13,1 mm) (A, X)
Customized

Rear attachment: Standard (0° and hole: Ø 13,1 mm) (A, B, C, D, E, F, X)
30°
60°
90°
120°
150°
Customized

Option 1: None (O)
Limit switch (only for load version 2 300 N) (L)

Option 2: None (O)
Potentiometer (P)

¹⁾L.S. = Limit switch
²⁾POT = Potentiometer

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PUB M7/P8 10268 EN - February 2011



Linear actuator

CAHB-31 series

Benefits

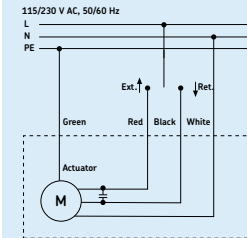
- High efficiency ball screw
- Extension tube (stainless steel)
- Protection tube (steel)
- Enhanced corrosion resistance
- Mechanical overload protection (clutch)
- Lubricated for service life
- Robust, designed for tough environment
- No back driving
- Motor with thermal protection



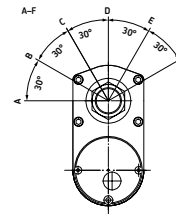
CAHB-31 series

Linear actuators AC versions

Connecting diagram

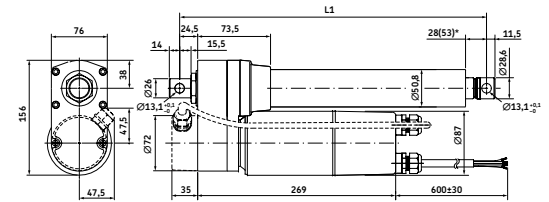


Different rear attachment



Dimensional drawing

Basic Configuration (dashed line for optional limit switch)



Legend:
L1 = retracted length
* 53 = dimension with limit switch

| Stroke (mm) | With limit switch ¹⁾ | | | | | | Without limit switch ²⁾ | | | | | |
|---------------------|---------------------------------|-----|-----|-----|-----|-----|------------------------------------|-----|-----|-----|-----|-----|
| | 102 | 153 | 204 | 305 | 457 | 610 | 102 | 153 | 204 | 305 | 457 | 610 |
| L1 Retracted length | 444 | 444 | 495 | 659 | 811 | 964 | 380 | 419 | 419 | 521 | 735 | 888 |

¹⁾ Tolerance: S and L1 = ± 5.0 mm (if S≥305 mm, S = ± 7.5 mm)

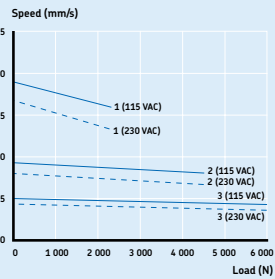
²⁾ Tolerance: S = ± 2.5 mm and L1 = ± 3.8 mm

Technical data

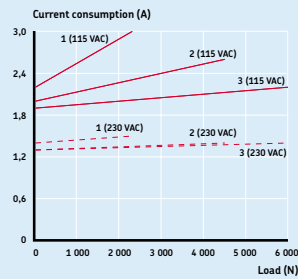
| | Unit | CAHB-31... 1 | CAHB-31... 2 | CAHB-31... 3 |
|------------------------------|--------------------------------|------------------|------------------|------------------|
| Push load | N | 2 300 | 4 500 | 6 000 |
| Pull load | N | 2 300 | 4 500 | 6 000 |
| Speed (full load to no load) | 115 VAC/60 Hz 230 VAC/50 Hz | mm/s 48 to 57 | mm/s 22 to 28 | mm/s 13 to 15 |
| Stroke | | mm/s 40 to 50 | mm/s 20 to 24 | mm/s 11 to 13 |
| Retracted length | mm | 102 to 610 | 102 to 610 | 102 to 610 |
| Voltage | V AC | 115 or 230 | 115 or 230 | 115 or 230 |
| Power consumption | W | N/A | N/A | N/A |
| Current consumption | 115 VAC/60 Hz 230 VAC/50 Hz | A 3 | A 2,6 | A 2,2 |
| Duty cycle | % | 1,5 | 1,4 | 1,4 |
| Ambient temperature | °C | 25 | 25 | 25 |
| Type of protection | IP | -26 to +65 | -26 to +65 | -26 to +65 |
| Weight (at 305 mm stroke) | kg | 65 | 65 | 65 |
| Color | - | 9,5 | 9,5 | 9,5 |
| | | Black | Black | Black |

* See above table
For outdoors application, please contact SKF.

Performance diagrams



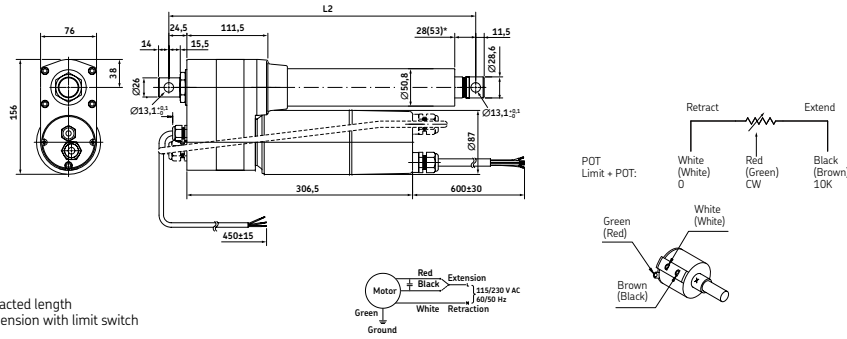
Speed-load diagram



Current-load diagram

Dimensional drawing

Optional potentiometer (dashed line for optional limit switch)



| Stroke (mm) | With limit switch ¹⁾ | | | | | | Without limit switch ²⁾ | | | | | |
|---------------------|---------------------------------|-----|-----|-----|-----|-------|------------------------------------|-----|-----|-----|-----|-----|
| | 102 | 153 | 204 | 305 | 457 | 610 | 102 | 153 | 204 | 305 | 457 | 610 |
| L2 Retracted length | 482 | 482 | 533 | 697 | 849 | 1 002 | 418 | 457 | 457 | 559 | 773 | 926 |

¹⁾ Tolerance: S, L1 and L2 = ± 5,0 mm (if S ≥ 305 mm, S = ± 7,5 mm)

²⁾ Tolerance: S = ± 2,5 mm and L1, L2 = ± 3,8 mm

Potentiometer resolution

| Stroke (mm) | 102 | 153 | 204 | 305 | 457 | 610 |
|-------------|------|------|------|------|------|------|
| Ohm/mm | 59,0 | 59,0 | 29,5 | 29,5 | 9,84 | 9,84 |

Ordering key



Type

Voltage:
 115 V AC
 230 V AC

Load:
 2 300 N
 4 500 N
 6 000 N

Screw:
 Ball screw

Stroke:
 102 mm
 153 mm
 204 mm
 305 mm
 457 mm
 610 mm

Retracted length:

| Stroke | w/o POT ²⁾ | with POT ²⁾ |
|-------------------------|-----------------------|------------------------|
| with L.S. ¹⁾ | | |
| 102 mm | 444 mm | 482 mm |
| 153 mm | 444 mm | 482 mm |
| 204 mm | 495 mm | 533 mm |
| 305 mm | 659 mm | 697 mm |
| 457 mm | 811 mm | 849 mm |
| 610 mm | 964 mm | A02 mm (1 002 mm) |
| w/o L.S. ¹⁾ | | |
| 102 mm | 380 mm | 418 mm |
| 153 mm | 419 mm | 457 mm |
| 204 mm | 419 mm | 457 mm |
| 305 mm | 521 mm | 559 mm |
| 457 mm | 735 mm | 773 mm |
| 610 mm | 888 mm | 926 mm |

IP:

Standard (IP 65)

Front attachment:

Standard (hole: Ø 13,1 mm)
 Customized

Rear attachment:

Standard (0° and hole: Ø 13,1 mm)

30°
 60°
 90°
 120°
 150°
 Customized

Option 1:

None
 Limit switch (only for load version 6 000 N)

Option 2:

None
 Potentiometer

¹⁾ L.S. = Limit switch
²⁾ POT = Potentiometer

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PUB M7/P8 10269 EN - February 2011



Linear actuator

SJ 25, 35, 45 series

Benefits

- Motor with thermal protection ($+120 \pm 5 \text{ }^\circ\text{C}$)
- Acme screw
- Self-locking
- Integrated limit switches
- Potentiometer for feedback
- Gear box (metal)
- UL 1004/UL 60601-1* certification

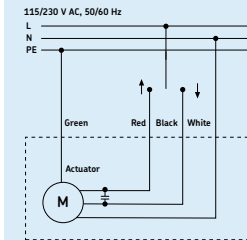


*Only as an option for SJ35 and SJ45

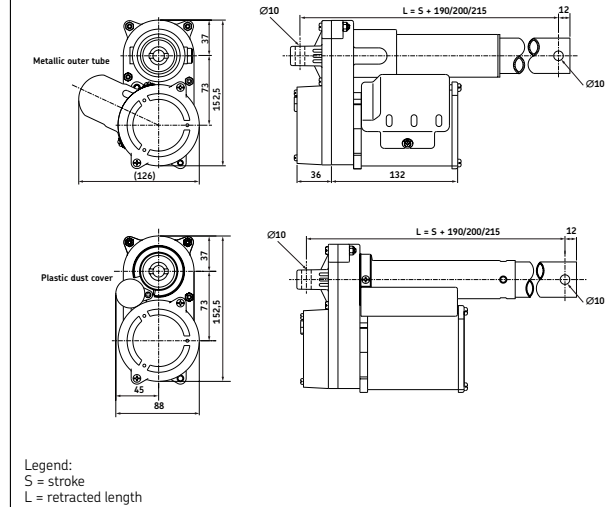
SJ 25, 35, 45 series

Linear actuators AC versions

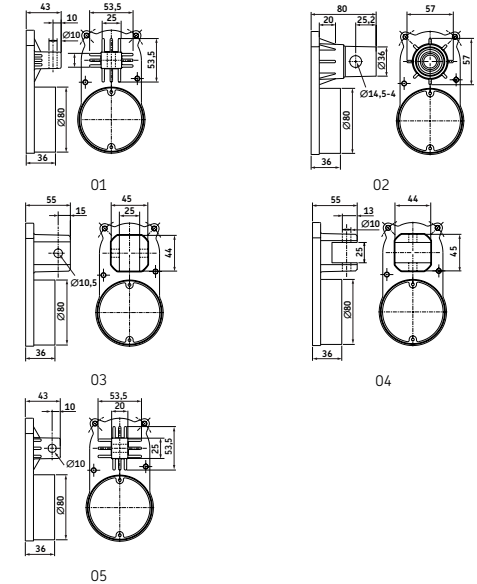
Connecting diagram



Dimensional drawing



Mountings



Technical data

| | Unit | SJ 255 | SJ 256 | SJ 258 | SJ 355 | SJ 356 | SJ 358 |
|--------------------------------|--------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Push load | N | 2 000 | 2 500 | 3 000 | 3 000 | 3 500 | 4 000 |
| Pull load | N | 2 000 | 2 500 | 3 000 | 3 000 | 3 500 | 4 000 |
| Speed (full load to no load) | 115 V AC mm/s 230 V AC mm/s | 6,6 to 7,2 5,4 to 5,9 | 5,5 to 6,0 4,4 to 4,9 | 4,0 to 4,5 3,3 to 3,7 | 6,6 to 7,2 5,4 to 5,9 | 5,5 to 6,0 4,4 to 4,9 | 4,5 to 3,7 3,3 to 3,7 |
| Stroke ¹⁾ | mm | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 | 100 to 600 |
| Retracted length ²⁾ | mm | S+190/200/215 | S+190/200/215 | S+190/200/215 | S+190/200/215 | S+190/200/215 | S+190/200/215 |
| Voltage | V AC | 115 or 230 | 115 or 230 | 115 or 230 | 115 or 230 | 115 or 230 | 115 or 230 |
| Power consumption | W | N/A | N/A | N/A | N/A | N/A | N/A |
| Current consumption | 115 V AC A 230 V AC A | 1,4 0,8 | 1,4 0,8 | 1,4 0,8 | 1,6 1,0 | 1,6 1,0 | 1,6 1,0 |
| Duty cycle | % | 17 | 17 | 17 | 17 | 17 | 17 |
| Ambient temperature | °C | +10 to +40 | +10 to +40 | +10 to +40 | +10 to +40 | +10 to +40 | +10 to +40 |
| Type of protection | IP | 52 | 52 | 52 | 52 | 52 | 52 |
| Weight | kg | 4,0 | 4,0 | 4,0 | 4,5 | 4,5 | 4,5 |
| Color | - | Black | Black | Black | Black | Black | Black |

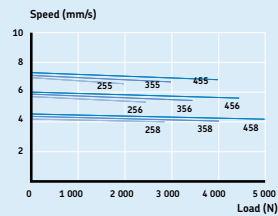
¹⁾ Max. stroke for the tube version "T" is 250 mm.
²⁾ For clevis mounting: "01" and "05" L=5+190 mm, "02" L=5+215 mm, "03" and "04" L=5+200 mm.

Technical data

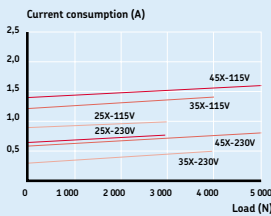
| | Unit | SJ 455 | SJ 456 | SJ 458 |
|--------------------------------|--------------------------------|--------------------------|--------------------------|--------------------------|
| Push load | N | 4 000 | 4 500 | 5 000 |
| Pull load | N | 4 000 | 4 500 | 5 000 |
| Speed (full load to no load) | 115 V AC mm/s 230 V AC mm/s | 6,6 to 7,2 5,4 to 5,9 | 5,5 to 6,0 4,4 to 4,9 | 4,0 to 4,5 3,3 to 3,7 |
| Stroke ¹⁾ | mm | 100 to 600 | 100 to 600 | 100 to 600 |
| Retracted length ²⁾ | mm | S+190/200/215 | S+190/200/215 | S+190/200/215 |
| Voltage | V AC | 115 or 230 | 115 or 230 | 115 or 230 |
| Power consumption | W | N/A | N/A | N/A |
| Current consumption | 115 V AC A 230 V AC A | 1,8 1,0 | 1,8 1,0 | 1,8 1,0 |
| Duty cycle | % | 17 | 17 | 17 |
| Ambient temperature | °C | +10 to +40 | +10 to +40 | +10 to +40 |
| Type of protection | IP | 52 | 52 | 52 |
| Weight | kg | 5,0 | 5,0 | 5,0 |
| Color | - | Black | Black | Black |

¹⁾ Max. stroke for the tube version "T" is 250 mm.
²⁾ For clevis mounting: "01" and "05" L=5+190 mm, "02" L=5+215 mm, "03" and "04" L=5+200 mm.

Performance diagrams



Speed-load diagram



Current-load diagram

Ordering key



Type

Load / Speed:

| | |
|--------------------|-----|
| 2 000 N / 7,2 mm/s | 255 |
| 2 500 N / 6,0 mm/s | 256 |
| 3 000 N / 4,5 mm/s | 258 |
| 3 000 N / 7,2 mm/s | 355 |
| 3 500 N / 6,0 mm/s | 356 |
| 4 000 N / 4,5 mm/s | 358 |
| 4 000 N / 7,2 mm/s | 455 |
| 4 500 N / 6,0 mm/s | 456 |
| 5 000 N / 4,5 mm/s | 458 |

Voltage:

| | |
|----------|-----|
| 115 V AC | 115 |
| 230 V AC | 230 |

Tube type:

With outer and inner tube
Inner tube with plastic dust protection cover
Inner tube only

B
I
Y

Mounting (see illustrations on page 141):

Square mounting
Tube mounting with 4 holes
Clevis mounting
Clevis mounting
Square mounting

01
02
03
04
05

Cable connector:

No connector
1x4C to control box
1x3C to AC plug, 1x3C to pedant
With one motor controller

N
C
P
L

Feedback:

Potentiometer
No sensor

P
N

Stroke:

100 mm
150 mm
200 mm
250 mm (250 mm is also the maximum stroke for tube versions "I" and "Y")
300 mm
350 mm
400 mm
450 mm
500 mm
550 mm
600 mm

100
150
200
250
300
350
400
450
500
550
600

Customized cable length options:

Specify requested cable length in dm

XX

Options written in italic fonts are only available on demand. Please contact SKF

Linear actuator

CASD-60

Benefits

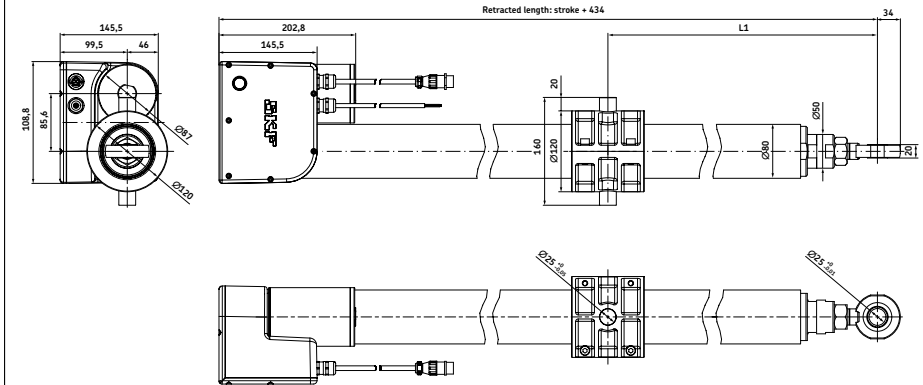
- Specifically designed for solar tracking applications
- Up to 20 years life
- Limited backlash
- High accuracy
- Low current consumption
- Plug and play solution
- Assembled, lubricated, and sealed for life
- Designed to withstand severe outdoor conditions
- Virtually maintenance free



CASD-60

Linear actuators

Dimensional drawing



Stroke (mm) From 50 to 1 500*

Installed dimension L1 Selectable from a minimum of 200 mm to a maximum of stroke + 150 mm

* For stroke > 1 000 mm, static load needs to be verified

Technical data

| | Unit | CASD-60 |
|---------------------------------|-----------|--------------------------------|
| Dynamic load (push/pull) | N | 12 000 |
| Static load (push/pull) | N | 60 000 (up to 1 000 mm stroke) |
| Speed | mm/s | up to 2,5 |
| Stroke | mm | up to 1 500 |
| Voltage | V | 12/24 V DC or 120/230 V AC |
| Integrated limit switches | - | optional |
| Feedback positioning | - | optional (encoder) |
| Feedback positioning resolution | pulses/mm | 49 or 67 |
| Operating temperature | °C | -20 to +60 |
| Type of protection | IP | 65 |

ElectroMechanical Cylinder LEMC

Benefits

- High efficiency
- Long service life from use of SKF Planetary roller screw
- Compact and robust structural design
- Modular concept with multiple combinations and options
- Available for all motor brands
- Smart and freely programmable drive system



Technical data

| | Unit | LEMC2105 | LEMC2110 | LEMC3005 | LEMC3010 |
|--|-----------------------------------|------------|--------------|--------------|--------------|
| Screw type | - | - | Roller screw | Roller screw | Roller screw |
| Screw diameter | d mm | 21 | 21 | 30 | 30 |
| Screw lead | P mm | 5 | 10 | 5 | 10 |
| Max. axial force ¹⁾ | F _{max} kN | 40 | 40 | 80 | 80 |
| Max. input torque for F _{max} | T _{Tmax} Nm | 41,7 | 84,4 | 87,1 | 161,5 |
| Dynamic load carrying capacity | C _a kN | 50,5 | 54,3 | 91,9 | 106,3 |
| Max. linear speed | V _{max} mm/s | 500 | 1 000 | 440 | 880 |
| Max. rotational speed | ω _{max} rpm | 6 000 | 6 000 | 5 280 | 5 280 |
| Max. acceleration | a _{max} m/s ² | 6 | 12 | 6 | 12 |
| Stroke ²⁾ | S mm | 100 to 600 | 100 to 600 | 100 to 800 | 100 to 800 |
| Internal over stroke | S _o mm | 2x5 | 2x5 | 2x5 | 2x5 |
| Inertia for stroke 0 ³⁾ | J _{EMC} kgm ² | 1,45E-04 | 1,45E-04 | 5,00E-04 | 5,00E-04 |
| Backlash | S _{ap} mm | 0,02 | 0,04 | 0,02 | 0,04 |
| Type of protection | - | - | IP54S | IP54S | IP54S |

¹⁾ Buckling limitation for long stroke

²⁾ By 100 mm step

³⁾ For LEMC21: +0,15E-04 kgm² by 100 mm stroke step
For LEMC30: +0,65E-04 kgm² by 100 mm stroke step

Calculations

Cubic mean load

$$F_m = \sqrt[3]{\frac{F_1^3 L_1 + F_2^3 L_2 + F_3^3 L_3 + \dots}{L_1 + L_2 + L_3 + \dots}}$$

$$F_m = \frac{F_{min} + 2F_{max}}{3}$$

Number of cycles

$$Nb \text{ cycles} = \frac{L_{10 \text{ dist}}}{2 \text{ Stroke}}$$

$$L_{10 \text{ dist}} = \left(\frac{\text{Dynamic load carrying capacity}}{F_m} \right)^3 \cdot 10^6 \times \text{Lead}$$

Example

F_m = 8 000 N

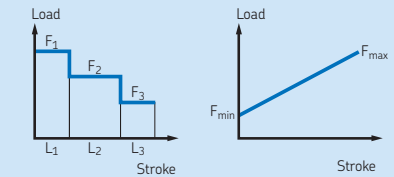
Stroke = 200 mm

LEMC2105 - Nb of cycles = 3,1 millions

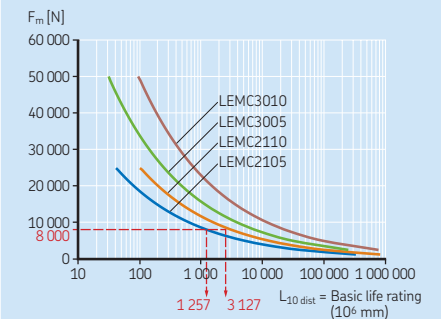
LEMC2110- Nb of cycles = 7,8 millions

Dynamic load carrying capacity: This is used to compute the fatigue life of rolling elements (roller screw and bearings). This is the axial force constant in magnitude and direction under which the nominal life (as defined by ISO) reaches one million revolutions.

Mean load



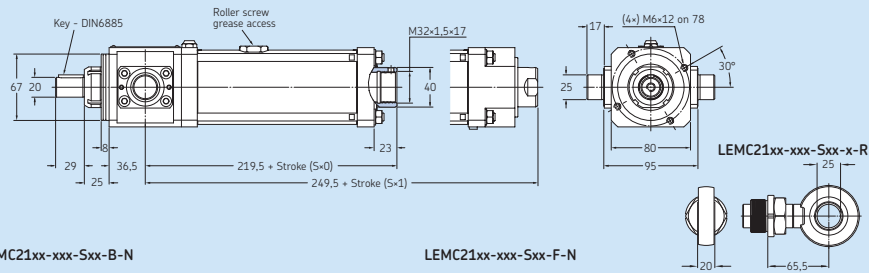
LEMC lifetime curve



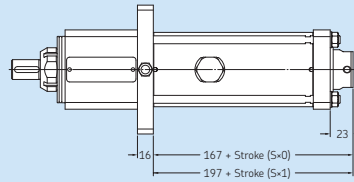
Maximum axial force: This is the maximum force which could be applied on the actuator.

Cubic mean load: This is the hypothetical load, constant in magnitude and direction, that would have the same influence on the actuator life as the actual loading conditions.

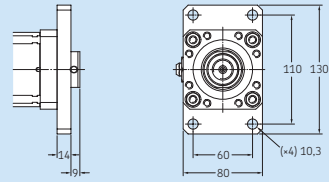
LEMC21xx-xxx-Sxx-T-N



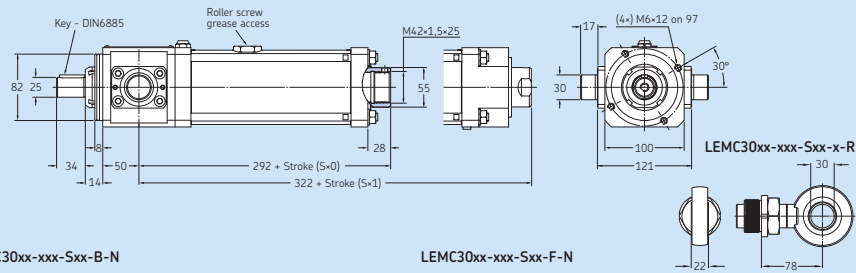
LEMC21xx-xxx-Sxx-B-N



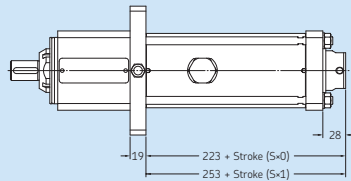
LEMC21xx-xxx-Sxx-F-N



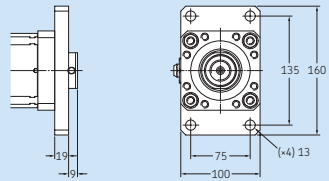
LEMC30xx-xxx-Sxx-T-N



LEMC30xx-xxx-Sxx-B-N



LEMC30xx-xxx-Sxx-F-N



LEMC designation

LEMC 21 05 - 300 - S L 0 - T - R - 1 1 1 - CS12L20 B - 05 - LC007

Cylinder type
LEMC = Planetary Roller Screw

Screw diameter [mm]
21 = Diameter 21
30 = Diameter 30

Screw lead [mm]
05 = Lead 5
10 = Lead 10

Stroke [mm]
100 = Stroke 100
xxx = Stroke xxx
800 = Stroke 800

Cylinder design
5 = Standard design

Motor interface
L = Interface for in line motor
P = Interface for parallel motor
N = No motor interface

Anti-rotation
0 = Without anti-rotation on the force tube
1 = With anti-rotation on the force tube

Fixed attachment (Linked to the frame)
T = Trunnion
F = Front plate
B = Back plate
N = No attachment

Mobile attachment (Linked to the force tube)
R = Rod end
N = No attachment

Limit and home position switches
0 = No limit switch in retracted position
1 = Limit switch in retracted position

0 = No limit switch in extended position
1 = Limit switch in extended position

0 = No home position switch
1 = Home position switch

Motor
Motor designation

Fail safe brake
B = With fail safe brake

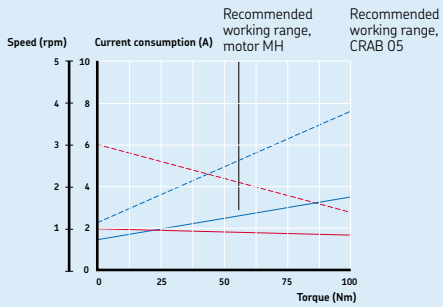
Cable length (motor)
05 = 5 metres (standard)
10 = 10 metres
15 = 15 metres
20 = 20 metres

Servoamplifier type
Servoamplifier designation

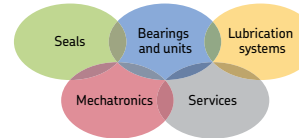
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Performance diagram



Values given at 20 °C and with tolerances of ±20%.



The Power of Knowledge Engineering

Drawing on five areas of competence and application-specific expertise amassed over more than 100 years, SKF brings innovative solutions to OEMs and production facilities in every major industry worldwide. These five competence areas include bearings and units, seals, lubrication systems, mechatronics (combining mechanics and electronics into intelligent systems), and a wide range of services, from 3-D computer modelling to advanced condition monitoring and reliability and asset management systems. A global presence provides SKF customers uniform quality standards and worldwide product availability.

Ordering key



Type

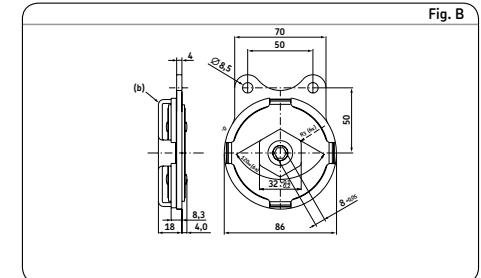
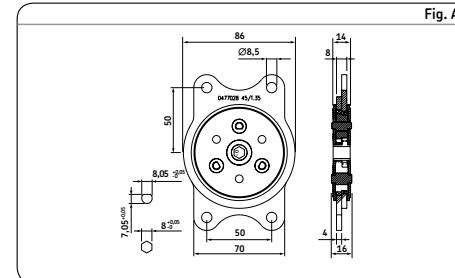
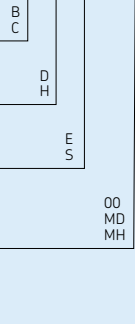
Coating:
Black chromium-plated
Natural chromium-plated

Motor shaft connection:
D-hole
Hexagonal hole

Attachment/connection:
Outer connection ears (see Fig. A)
Centre connection hexagonal 32 mm (see Fig.B only option "C" and "H")

Motors:
No motor
24 V DC for motor shaft connection "D"
24 V DC for motor shaft connection "H"

Connection shaft:
No shaft
D-shaft
Hexagonal shaft



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Rotary actuator

CRAB 17

Benefits

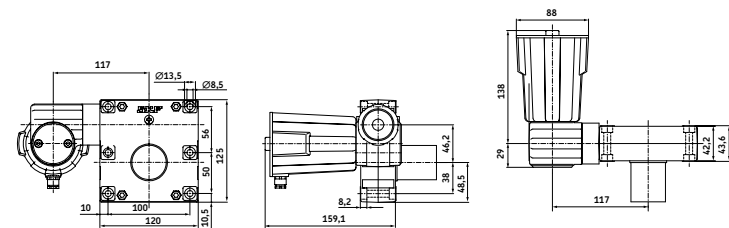
- Multiple output shafts
- Multiple motor options
- Small and compact



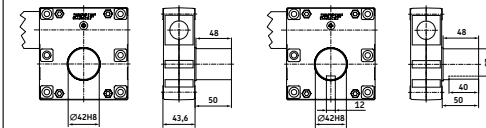
CRAB 17

Rotary actuators

Dimensional drawing

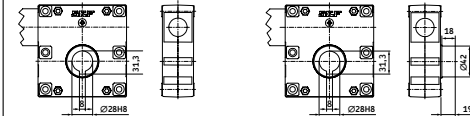


Standard shaft design



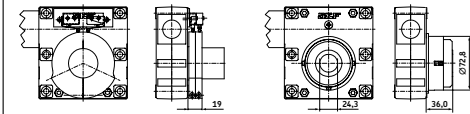
Type code 1: solid

Type code 2: solid/keyway



Type code 3: hollow/keyway

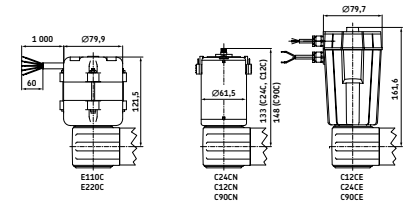
Type code 4: hollow/keyway for limit switch



S - Limit switch unit

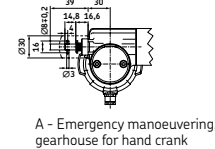
Type code 5: hollow/spines
Emergency manoeuvring, release on shaft (push) hollow shaft with splines

Motor design



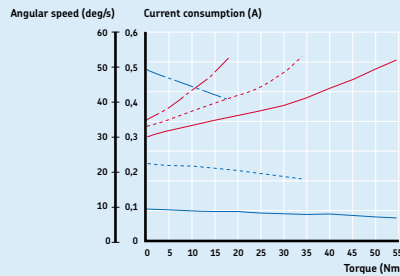
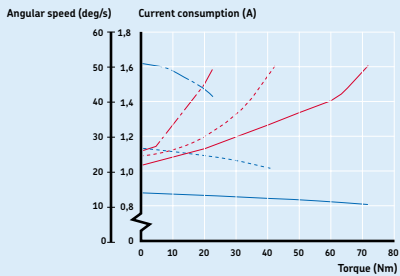
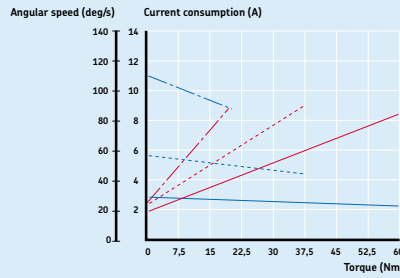
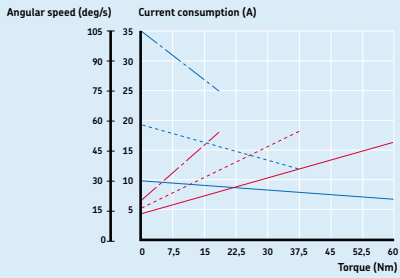
Technical data

| | Unit | CRAB 17 |
|----------------------------------|------|------------|
| Max. angular working range | - | ∞ |
| Max. angular speed (theoretical) | °/s | 180 |
| Efficiency factor | % | 50 |
| Max. axial load | N | 5 000 |
| Max. tilt moment | Nm | 100 |
| Backlash | ° | ±0,25 |
| Start torque | Nm | =0,3 Nm |
| Temperature range | °C | -20 to +60 |
| Weight | kg | 3 |

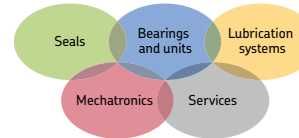


A - Emergency manoeuvring, gearhouse for hand crank

Performance diagrams



Gear 1 — Angular speed (deg/s)
 — Current consumption (A)
 Gear 2 - - - Angular speed (deg/s)
 - - - Current consumption (A)
 Gear 4 - - - Angular speed (deg/s)
 - - - Current consumption (A)



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Ordering key

| Dynamic load (Nm) /Speed (deg/s) | | | Motor options | |
|----------------------------------|-------|--------|----------------|-------|
| 60/30 | 38/58 | 19/110 | 12 V DC | C12C |
| 60/30 | 38/58 | 19/110 | 24 V DC | C24C |
| 105/30 | 53/55 | 38/110 | 90 V DC | C90C |
| 70/13 | 40/27 | 22/52 | 120 V AC/60 Hz | E110C |
| 55/13 | 34/27 | 18/52 | 230 V AC/50 Hz | E220C |

CRAB17X X X X / X X X X X

Type

Emergency manoeuvre:

- None
- Hand crank
- Release on shaft (only with standard shaft N° 5)

Shaft design:

- Solid
- Solid / keyway
- Hollow / keyway
- Hollow / keyway for limit switch
- Hollow / splines
- Customer specification

Limit switch:

- No
- Yes (fits shaft N° 1, 2, 4 and 5)

Motor orientation:

- Rear
- Upwards
- Front
- Downwards

Motor assembly:

- Right
- Left

Option for Cxx motors:

- No cable
- Encoder
- Motor without cover
- EMC filter
- Straight, 2,0 m
- Jack plug, 2,0 m

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