

Servo actuator SEMC



Compactness



Lightweight



High power density



Roller screw technology



Servo actuator SEMC



Features

- High performance roller screw for high speed (up to 600 mm/s) and acceleration (up to 9,5 m/s²) requests
- High dynamic servomotor for high speed and acceleration requests
- Optional anti-rotation device
- Adjustable external proximity switches
- Optional lubricant for food grease compatibility
- Optional fail safe brake, absolute encoder on servomotor
- Recirculation roller screw with low lead (up to 1 mm) available on demand

Benefits

- Long lifetime, thanks to roller screw technology
- Aluminium body to save kg and limit total weight of the actuator
- Customized motor adapter for highest flexibility (max motor section 90 mm)
- Compact solution with high power density

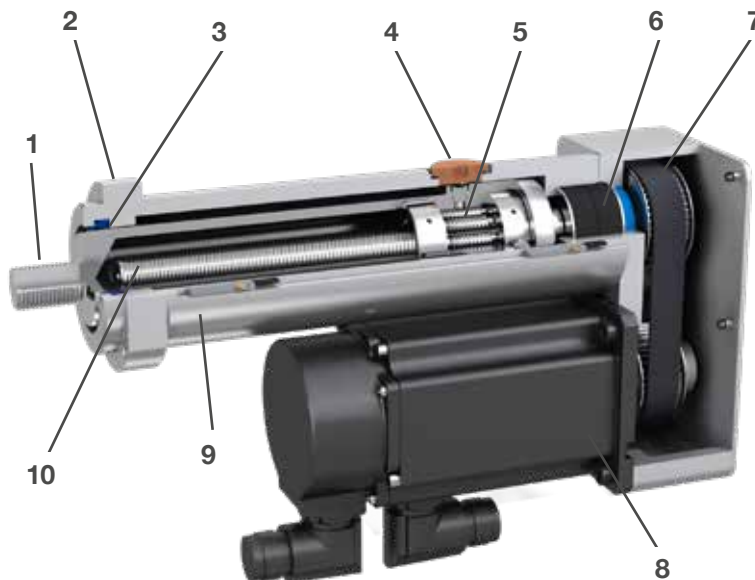
Product description

In addition to standard electrical cylinder product range, Ewellix offers an extensive customization program that is able to fulfill specific application needs. This is important for Ewellix recognition as a knowledge engineering company and solution provider.

The SEMC actuator is one of the customized solutions designed by Ewellix. The application requirements consisted of

a dimensionally compact and lightweight actuator with a long lifetime, high speed and high acceleration.

The Ewellix solution is based on a BRC15 × 5 or 8 roller screw, with a full aluminium body, resulting in a very compact solution weighing less than 7 kg including the motor, but robust thanks to the roller screw technology used inside.



1. Male thread on push rod (customization upon request)
2. Front mount
3. Scraper on the front to keep out contaminants
4. Plug for direct grease access on roller screw nut body
5. High quality Ewellix planetary roller screw with backlash elimination
6. High quality SKF bearings
7. Pulleys/belt transmission (ratio 1:1)
8. Servomotor
9. Aluminium body
10. Steel push rod

SEMC

Linear unit

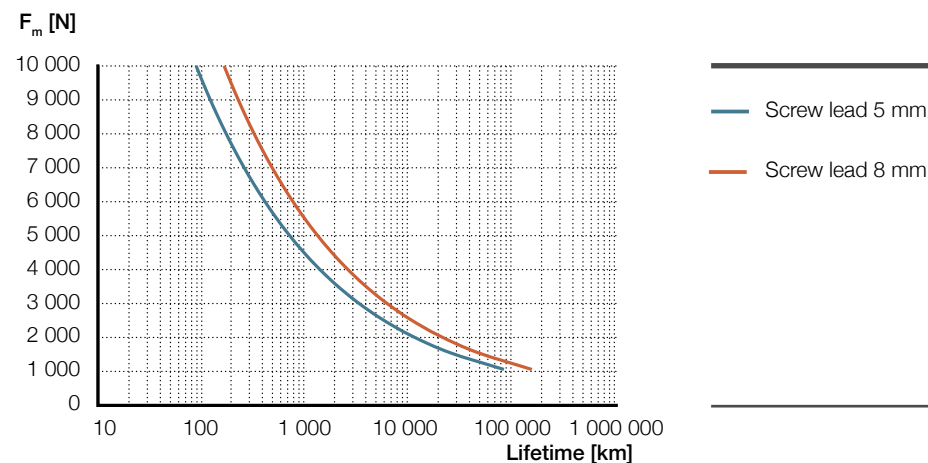


Technical data

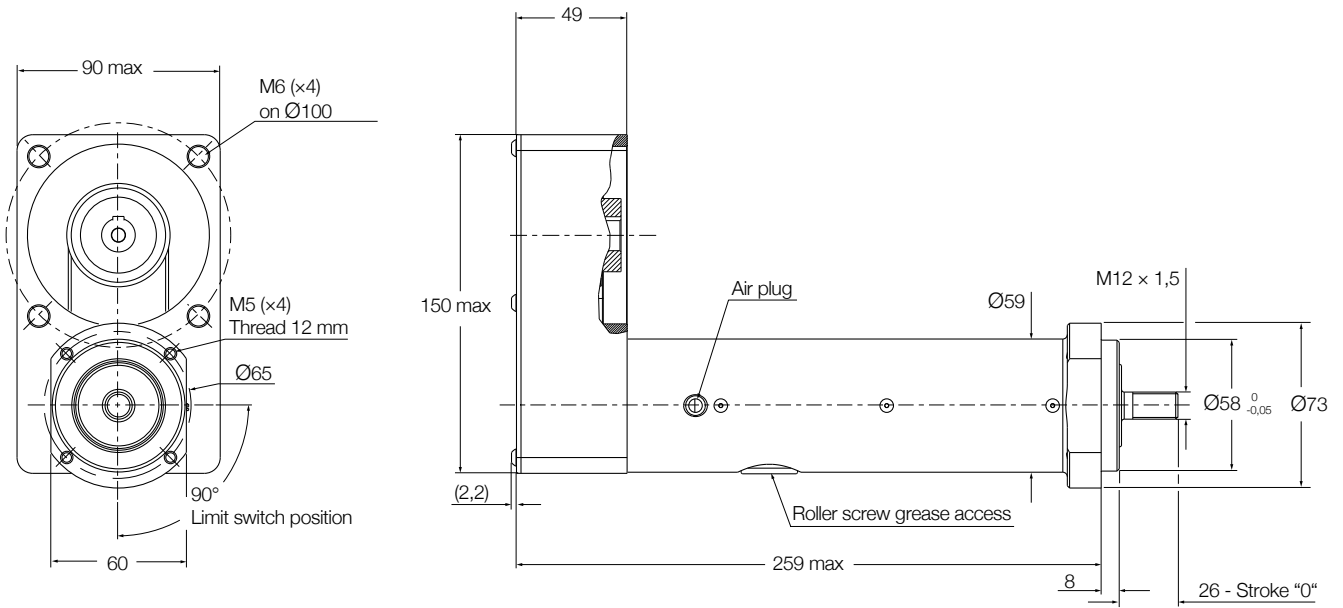
| Designation | Symbol | Unit | SEMC1505 w/o motor | | SEMC1508 w/o motor | |
|--|----------------|------------------|--------------------|---------------|--------------------|---------------|
| | | | P10 interface | L10 interface | P10 interface | L10 interface |
| Performance data | | | | | | |
| Max. dynamic axial force | F_{max} | kN | 7,4 | 10 | 4,5 | 6,2 |
| Max. dynamic axial force L10 ¹⁾ | F_{L10} | kN | 7,4 | 9 | 4,5 | 6,2 |
| Max. static axial force | F_{0max} | kN | 7,4 | 10 | 4,5 | 6,2 |
| Dynamic load capacity | C | kN | 26 | 26 | 27,4 | 27,4 |
| Maximum torque to reach F_{max} | M_{max} | Nm | 7,5 | 10 | 7,5 | 10 |
| Max. linear speed | V_{max} | mm/s | 375 | 375 | 600 | 600 |
| Max. rotational speed | n_{max} | 1/min | 4 500 | 4 500 | 4 500 | 4 500 |
| Max. acceleration | a_{max} | m/s ² | 6 | 6 | 9,5 | 9,5 |
| Duty cycle | D_{unit} | % | 100 | 100 | 100 | 100 |
| Mechanical Data | | | | | | |
| Screw type | – | – | Roller screw | Roller screw | Roller screw | Roller screw |
| Screw diameter | d_{screw} | mm | 15 | 15 | 15 | 15 |
| Screw lead | p_{screw} | mm | 5 | 5 | 8 | 8 |
| Lead accuracy | – | – | G5 | G5 | G5 | G5 |
| Stroke | s | mm | up to 125 | up to 125 | up to 125 | up to 125 |
| Internal overstroke each side | s_0 | mm | 2 | 2 | 2 | 2 |
| Backlash | $s_{backlash}$ | mm | 0 | 0 | 0 | 0 |
| Efficiency | η_{lu} | % | 78 | 80 | 77 | 79 |
| Gear reduction | l | – | 1 | 1 | 1 | 1 |
| Weight @ 0 mm stroke | m_{lu} | kg | 3,7 | 3,7 | 3,7 | 3,7 |
| Δ Weight per 50 mm stroke | Δm | kg | 0,4 | 0,4 | 0,4 | 0,4 |
| Environment | | | | | | |
| Ambient temperature | $T_{ambient}$ | °C | 0...+40 | 0...+40 | 0...+40 | 0...+40 |
| Degree of protection | IP | – | 54S | 54S | 54S | 54S |

¹⁾ Maximum dynamic axial force usable to apply the theoretical lifetime calculation (L_{10})

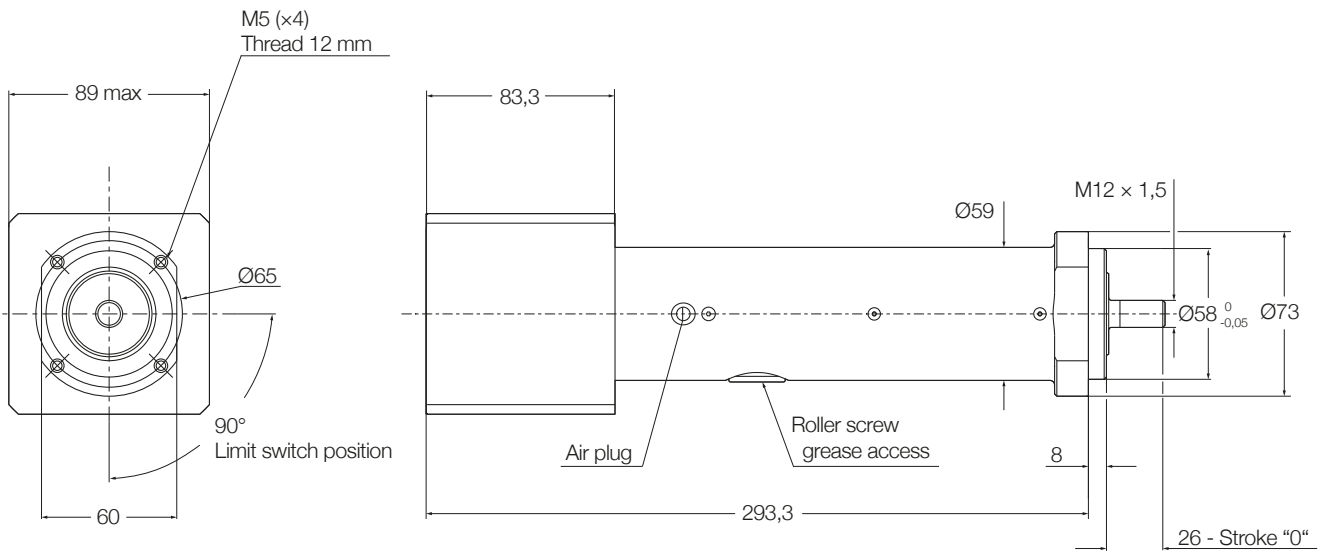
Lifetime diagram



Dimensional drawing parallel configuration



Dimensional drawing inline configuration



Ordering key

See page 10

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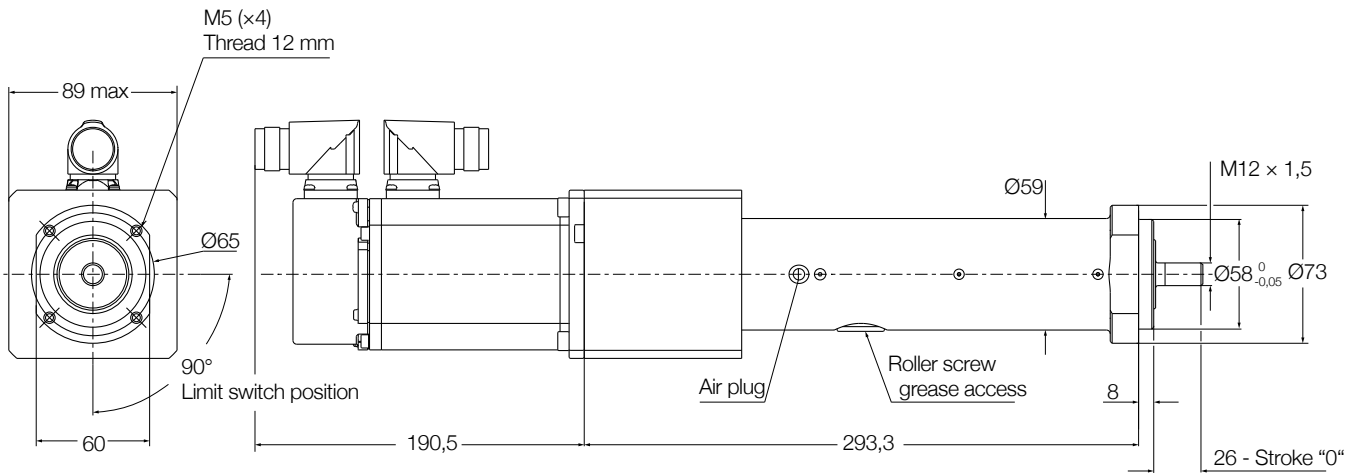
Servomotor,
 inline configuration



Technical data

| Designation | Symbol | Unit | SEMC1505 Lenze MCS L10 interface | SEMC1508 Lenze MCS L10 interface |
|-----------------------------------|----------------|------------------|-------------------------------------|-------------------------------------|
| Performance data | | | | |
| Continuous force @ zero speed | F_{c0} | kN | 3,2 | 2,0 |
| Continuous force @ max speed | F_c | kN | 2,4 | 1,5 |
| Peak force @ zero speed | F_{p0} | kN | 7,9 | 4,8 |
| Peak force @ max speed | F_p | kN | 4,7 | 2,9 |
| Dynamic load capacity | C | kN | 26 | 27,4 |
| Holding force (motorbrake option) | F_{hold} | kN | 10 | 7,1 |
| Max. linear speed | v_{max} | mm/s | 300 | 480 |
| Max. acceleration | a_{max} | m/s ² | 6 | 9,5 |
| Duty cycle | D_{unit} | % | 100 | 100 |
| Mechanical Data | | | | |
| Screw type | – | – | Roller screw | Roller screw |
| Screw diameter | d_{screw} | mm | 15 | 15 |
| Screw lead | p_{screw} | mm | 5 | 8 |
| Lead accuracy | – | – | G5 | G5 |
| Stroke | s | mm | up to 125 | up to 125 |
| Internal overstroke each side | s_0 | mm | 2 | 2 |
| Backlash | $s_{backlash}$ | mm | 0 | 0 |
| Gear reduction | i | – | 1 | 1 |
| Weight @ 0 mm stroke | m_{lu} | kg | 8 | 8 |
| Δ Weight per 50 mm stroke | Δ m | kg | 0,4 | 0,4 |
| Environment | | | | |
| Ambient temperature | $T_{ambient}$ | °C | 0...+40 | 0...+40 |
| Degree of protection | IP | – | 54S | 54S |

Dimensional drawing



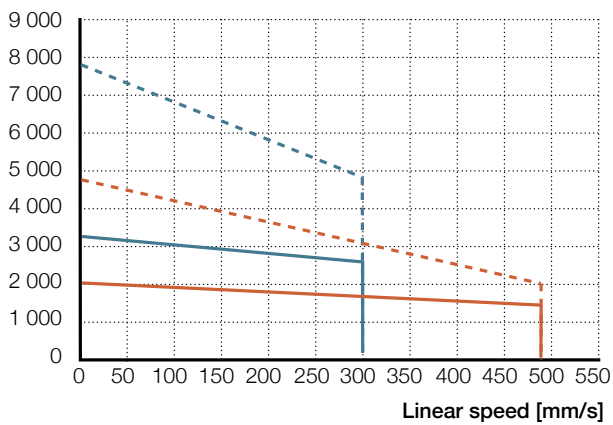
Drawing valid for a stroke of 125 mm (the maximum stroke on SEMC)
 For brake option, add 20 mm on the servomotor length
 For brake option, add 0,8 kg
 For absolute encoder option, add 51 mm on the servomotor length
 Motor plugs/connectors are orientable

Standard motor type

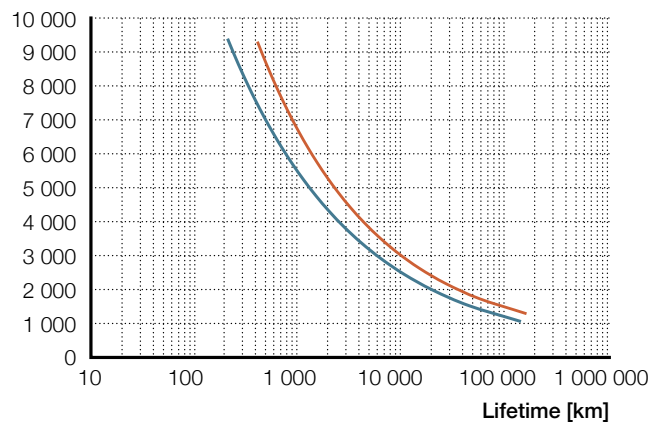
| Motor | Lenze servo motor | Lenze 9400 Highline servoamplifier |
|-------|-------------------|------------------------------------|
| LE6 | MCS09D41 | E94ASHE0034 |

Performance diagrams

Axial force [N]



F_m [N]



— Screw lead 5 mm - - - Screw lead 8 mm

— Screw lead 5 mm - - - Screw lead 8 mm

Ordering key

See page 10

SEMC

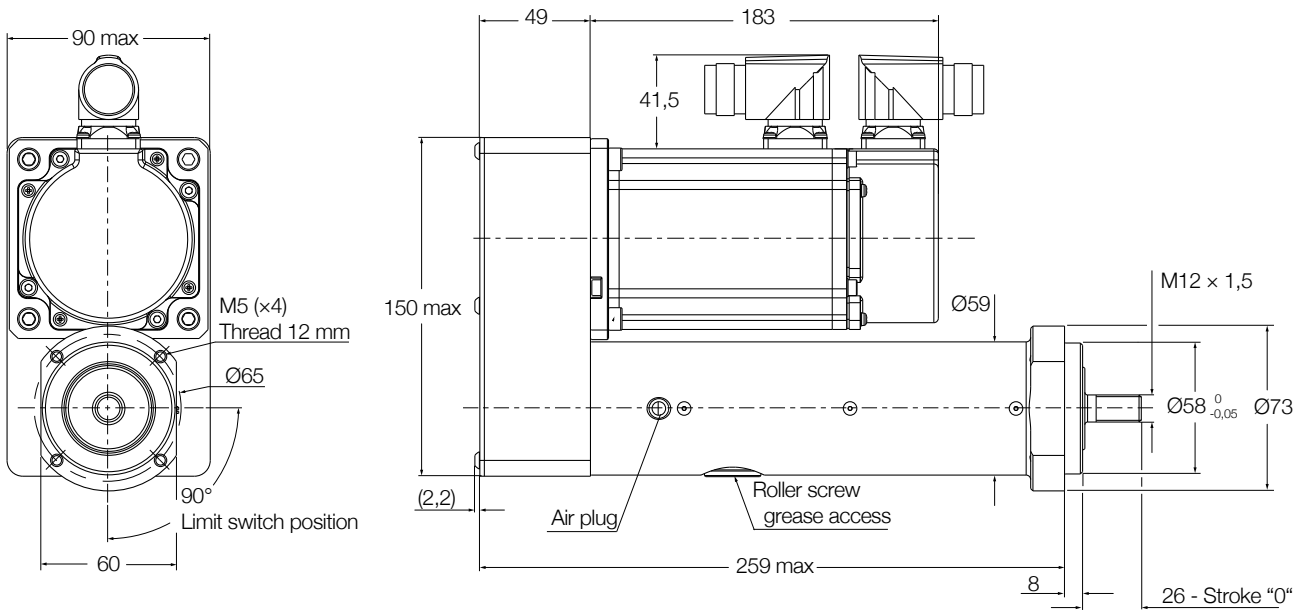
Servomotor,
parallel configuration



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| Peak force @ zero speed | F_{p0} | kN | 7,4 | 4,5 |
| Peak force @ max speed | F_p | kN | 4,6 | 2,8 |
| Dynamic load capacity | C | kN | 26 | 27,4 |
| Holding force (motorbrake option) | F_{hold} | kN | 10 | 6,7 |
| Max. linear speed | v_{max} | mm/s | 300 | 480 |
| Max. acceleration | a_{max} | m/s ² | 6 | 9,5 |
| Duty cycle | D_{unit} | % | 100 | 100 |
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| Screw type | – | – | Roller screw | Roller screw |
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| Backlash | $s_{backlash}$ | mm | 0 | 0 |
| Gear reduction | i | – | 1 | 1 |
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Dimensional drawing



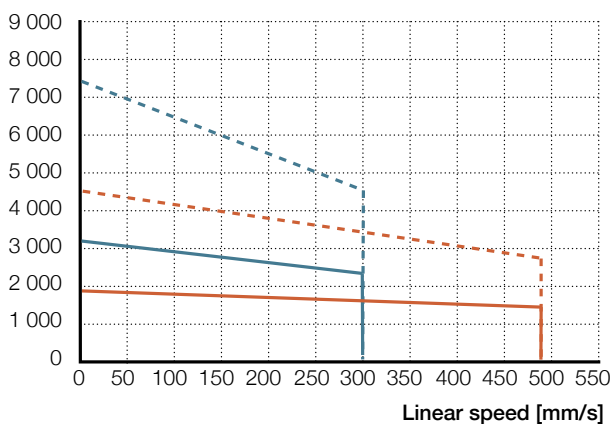
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Standard motor type

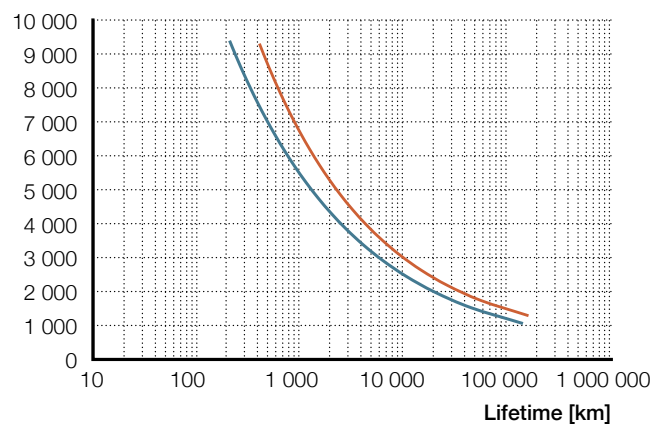
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Performance diagrams

Axial force [N]



F_m [N]



— Screw lead 5 mm - - - Screw lead 8 mm

— Screw lead 5 mm — Screw lead 8 mm

Ordering key

See page 10

Ordering key

Linear units

S E M C - S - 1 5 0 8 - 1 2 5 F M A F - P 1 0 L E 6 1 B Y A 1

Type

Design

- U Linear unit only
- S Servo motor

Screw diameter

Screw lead

- 05 5 mm
- 08 8 mm

Stroke (mm)

Rear attachment

- F Front plate
- Z Custom

Front attachment

- M Male thread
- N No attachment (female thread)
- Z Custom

Anti-rotation

- A Anti-rotation
- N No anti-rotation

Limit switches¹⁾

- F 2 limit switches and 1 home switch
- S 2 limit switches only
- M 1 limit switch and 1 home switch
- L 1 limit switch only
- H Home switch only
- N No switch

¹⁾The limit switches configuration can be limited by the stroke length

S E M C - S - 1 5 0 8 - 1 2 5 F M A F - P 1 0 L E 6 1 B Y A 1

Linear unit interface

- L Inline interface
- P Parallel interface

Interface and gear ratio

- 10 ratio 1:1

Motor code

Feedback

- 1 Resolver
- 2 Absolute encoder Hiperface

EM brake

- B Brake 24 VDC
- N No brake

Motor drive

- Y Drive included
- N No drive

Drive fieldbus

- A CanOpen
- B Devicenet
- C Ethercat
- D Ethernet
- E Powerlink MN/CN
- F Powerlink CN
- G Profibus
- H Profinet
- N No fieldbus

Power and signal cables

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



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