easyE-line

linear in-line actuators

CAD-Files: www.cad.bansbach.de
### Gear Ratio

<table>
<thead>
<tr>
<th>Gear Ratio</th>
<th>C*</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
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</thead>
<tbody>
<tr>
<td>easyE-35</td>
<td>120</td>
<td>400</td>
<td>600</td>
<td>900</td>
<td>1600</td>
<td>2200</td>
</tr>
<tr>
<td>Force 24V (dyn. push and pull) [N]</td>
<td>33</td>
<td>16</td>
<td>12</td>
<td>7.5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Speed at maximum load [mm/s]</td>
<td>-</td>
<td>16</td>
<td>9</td>
<td>7.5</td>
<td>3.5</td>
<td>2.5</td>
</tr>
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</table>

Current at maximum load: 12VDC (max 14 VDC) = 3.6A, 24VDC (max 28 VDC) = 1.8A

### easyE-50

<table>
<thead>
<tr>
<th>Gear Ratio</th>
<th>12/24VDC</th>
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<tbody>
<tr>
<td>Force 24V (dyn. push and pull) [N]</td>
<td>500</td>
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<tr>
<td>Speed at maximum load [mm/s]</td>
<td>70</td>
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</table>

Current at maximum load: 12VDC (max 14 VDC) = 16A (ratio C-F), 14A (G), 9A (H), 24VDC (max 28 VDC) = 8A (C-F), 7A (G), 4.5A (H)

### easyE-60

<table>
<thead>
<tr>
<th>Gear Ratio</th>
<th>24VDC</th>
</tr>
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<tbody>
<tr>
<td>Force 24V (dyn. push and pull) [N]</td>
<td>1900</td>
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<tr>
<td>Speed at maximum load [mm/s]</td>
<td>26</td>
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Current at maximum load: 24VDC (max 28 VDC) = 11.5A

Max. load limited for stroke > 400mm: 1000N (easyE-35), 2000N (easyE-50), 5000N (easyE-60)

### Features:

- **Stroke length:** 50, 100, 150, 200, 250, 300, 350, 400, 500 and 750mm (others on request)
- **Cable:** easyE-35: 1m, 2x0.65mm² (AWG19), Ø = 4.8mm, black, Molex Mini-Fit Jr. 6 pin
  easyE-50: 1m, 2x1.3mm² (AWG16), Ø=6.4mm, black, Molex Mini-Fit Jr. 6 pin
  easyE-60: 1m, 2x1.3mm² (AWG16), Ø=6.4mm, black, Molex Mini-Fit Jr. 6 pin
- **Bending radius:** 6x cable diameter
- **Materials:** Motor and actuator tube are powder coated steel or stainless steel
  Piston rod is aluminum (easyE-35) or stainless steel (easyE-50 and easyE-60)
  Front and rear brackets are PA, Aluminium or stainless steel
- **Protection class:** IP66 (standard), harsh environment (according to IP68 and IP69)
- **Max. static load/ Self locking force:**
  easyE-35: PA brackets: 2000N Alu/AISI: 5400N
  easyE-50: PA brackets: 4700N Alu/AISI: 16800N
  easyE-60: Alu/AISI: 18100N
  Depending on stroke length for push-applications
- **Temperature:**
  Operation: -20°C to +70°C (easyE-35 and easyE-50) -20°C to +50°C (easyE-60)
  Storage: -40°C to +70°C
- **Duty cycle:** Max. 10% or 2 minutes in use followed by 18 minutes rest

### Please Note:

- Never expose the actuator to hammer strike during installation or in other situations
- Retrofit fitted bushings should be pressed into the bracket-borings. No hammering
- Power supply without over-current protection can cause serious damage to the actuator at mechanical end-stop or when actuator is overloaded in another way
- Keep piston tube clean
- Longer cable lengths may cause voltage drop which affects the performance of the actuator
- For medical applications (IEC60601-1, ANSI/AAMI/ES60601-1, CAN/CSA-C22.2 No60601-1):
  Operating temperature +5°C to +48°C, Relative humidity 20% - 70% atmospheric pressure = 1atm.
  Connect to medically approved supply source only and according to guidelines provided with the source.
- Function of the actuator is subject to the settings of the control box. If using your own controller please contact us.
- The dust and water sealing of harsh environment actuators might affect their performance
- All specifications are for 25 °C ambient – low temperature might affect performance
- Depending on load and application, nominal and actual stroke length may differ due to internal disc springs not being fully compressed.
- The combination of gearing and stroke can cause limitations in the use of „End limit FW“ when using the S2-3 controller. See more in the datasheet for S2-3.

Please note the important advices at www.bansbach.de/easyE-line
**easyE-35**

<table>
<thead>
<tr>
<th>Gear ratio: C, D, E, F</th>
<th>stroke+160°</th>
<th>+10</th>
<th>+10</th>
<th>+10</th>
<th>+11</th>
<th>-</th>
<th>Ø35</th>
<th>Ø28</th>
<th>Ø20</th>
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<tbody>
<tr>
<td>Gear ratio: G, H</td>
<td>stroke+170°</td>
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</table>

**easyE-50**

<table>
<thead>
<tr>
<th>Gear ratio: C, D, E, F</th>
<th>stroke+240°**</th>
<th>-</th>
<th>+15</th>
<th>+15</th>
<th>+14</th>
<th>+23 / +6</th>
<th>Ø50</th>
<th>Ø40</th>
<th>Ø30</th>
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<tbody>
<tr>
<td>Gear ratio: G, H</td>
<td>stroke+255°**</td>
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</table>

**easyE-60**

| Gear ratio: all ratios | stroke+358°*** | -    | +15  | -    | +25  | +31 / +10 | Ø60 | Ø50 | Ø35 |

*If stroke >400mm: EL+7mm, if stroke >700mm: EL+42mm
**If stroke >750mm: EL+100mm (on request)
***If stroke >400mm: EL+25mm (not Harsh-Environment-version)

### Recommended mounting methods:

- Do not clamp actuators on tubing
- Always keep both brackets mounted in the same orientation and ensure to flush mount actuator
- Brackets must always be able to rotate on axis in mountings
- Avoid radial forces at all times

![Diagram of easyE-50 actuator with EL and stroke dimensions](image)
Choose your actuator:

1. Model:
   - easyE-35
   - easyE-50
   - easyE-60

2. Stroke length:
   - 50, 100, 150, 200, 250, 300, 350, 400, 500 and 750mm (others on request)

3. Gear ratio:
   - C, D, E, F, G, H (speed and load see table)

4. Voltage:
   - 12V DC (only easyE-35 and easyE-50)
   - 24V DC

6. Cable length:
   - 1m - 9m (others on request)

7. Connector:
   - no connector
   - Molex minifit

8. Material:
   - Standard steel
   - AISI 316

9. Protection class:
   - IP66 (standard)
   - harsh environment (according to IP68 and IP69)

10. Certification:
    - For medical applications:
      - IEC60601-1, ANSI/AAMI/ES60601-1, CAN/CSA-22.2 No60601-1 (only 24 V DC)
      - Operation temperature: +5°C to +48°C

11. Hall sensor:
    - no (standard)
    - yes (cable will change)

12. Low noise:
    - no (standard)
    - yes (not available in stainless steel)

13. Color:
    - Black (standard)
      - Available in all RAL colors

14. Connecting parts
### Connecting parts “motor side“:

<table>
<thead>
<tr>
<th>Code</th>
<th>Ø</th>
<th>L5</th>
<th>SW</th>
<th>A</th>
<th>Material</th>
<th>Max static load</th>
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<tbody>
<tr>
<td>easyE-35</td>
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</tr>
<tr>
<td>A1M</td>
<td>10</td>
<td>17,5</td>
<td>28</td>
<td>6</td>
<td>Alu</td>
<td>5400 N</td>
</tr>
<tr>
<td>B1M</td>
<td>10</td>
<td>17,5</td>
<td>28</td>
<td>-</td>
<td>Polymid (PA)</td>
<td>2000 N</td>
</tr>
<tr>
<td>C1M</td>
<td>10</td>
<td>17,5</td>
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<td>6</td>
<td>stainless steel (316)</td>
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### with spherical bearings

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<tr>
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### Connecting parts “piston rod side“:

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### TECHNICAL DETAILS:

- **Hall sensors necessary**
- Easy setting with serial interface
- Adjustable start- and stop ramp
- Settable drive speed
- **FEATURES:**
  - “Position reached” - signal
  - DIN-rail base fittable
  - Settable current limit
  - Precise position control from
- **TECHNICAL DETAILS:**
  - Control inputs: 0-1V=OFF; 4-30V=ON
  - Pulse input freq. max.: 1kHz
  - Current limit: 1-20A
  - Motor current: 2x10A cont. 2x20A, 25% duty
  - Quiescent current: 15mA

### PPA-connecting parts are not available for gear ratio G and H
Controllers:

**EEL-S1**
For 1-3 actuators

**FEATURES:**
- Plug and play solution
- Handset or external switches
- for easyE-35 and easyE-50

**TECHNICAL DETAILS:**
- Supply: 230V
- Output voltage: 24V

**EEL-S2-1**
For 1 actuator

**FEATURES:**
- Adjustable start and stop ramp
- Adjustable current limit
- Continuous-mode, impulse-mode
- Easy interfacing to PLC etc.
- DIN-rail fittable
- Hall sensors not supported

**TECHNICAL DETAILS:**
- Supply: 10 to 35VDC
- Output voltage = supply voltage
- Over voltage protection: 40 V
- Idle current: Approx. 15 mA
- Driving current: 10 A continuous, 16 A with duty cycle 50%, Max 16 A on duty 2 min

**EEL-S2-2**
For 1 actuator

**FEATURES:**
- Precise position control from analog voltage input
- Adjustable start and stop ramp
- Settable current limit
- High momentary load capacity
- DIN-rail base fittable
- “Position reached” - signal
- Hall sensors necessary

**TECHNICAL DETAILS:**
- Supply: 10 to 35VDC
- Output voltage = supply voltage
- Actuator current continuous max: 15A
- Current limit adj.: 0.1-20A
- Overheat limit: 100°C
- Hall input freq.: Max 1kHz
- Input control logic (pos.): High=4-30V, Low=0-1V or open

**EEL-S2-3**
For 2 actuators

**FEATURES:**
- Synchronized operation of 2 actuators
- Current and temperature protection
- Settable drive speed
- Adjustable start- and stop ramp
- Easy setting with serial interface
- Autobalance feature
- Hall sensors necessary

**EEL-S3**
For 1 actuator

**EEL-S4**
For 1-4 actuators

**FEATURES:**
- Battery powered for mobile use
- 24VDC NiMH or Li-Ion battery
- Customized colors and foil design
- Wired handset

**TECHNICAL DETAILS:**
- Supply: 24VDC NiMH or Li-Ion battery
- Output voltage: 24V
- Idle current: < 5mA
- Current limit: 8A/ch max. total 12A
- Ramps 0-3 sec
- Connector type Molex Mini-Fit 6 pin

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