



Rotary Actuator E3

The Expert for Mobile Applications

The rotary actuator E3 is specially constructed for the mobile application. This actuator utilizes the helical spline and gear principle which provides for a compact design utilizing a small amount of space. The Eckart E3 can be utilized in many applications: automotive engineering, building, civil engineering, tool machines, and so on.

Advantages at a Glance

- Ultra compact, robust construction
- Exact, almost free from backlash, positioning
- No leakage inside, with double shaft and piston-sealing (lip seal)
- Hydraulic seals utilizing the latest technology
- Any intermediate angle possible
- High bearing charge
- One or both way attachment of load possible
- The torque is the same in both directions
- All parts are high strength steels
- Continuous shaft hole
- Flange thread in metric or inch possible
- Non-standard options on request

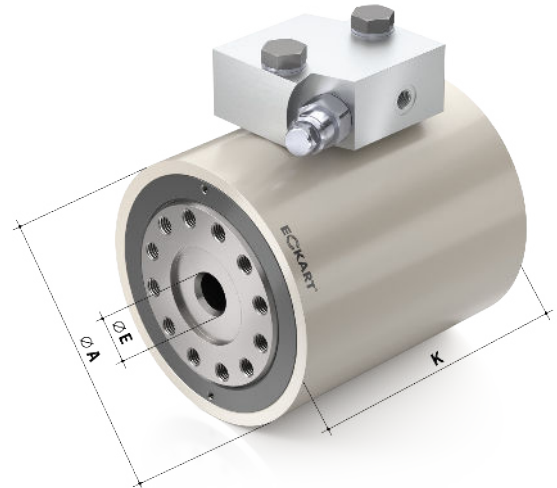
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For example in work platforms: The rotary actuator can be the mounting and rotation solution for the platform since the complete load is accommodated and the rotating mechanism is integrated. Therefore, the working platform must not be mounted separately. Furthermore, the rotary actuator incorporates a through-hole in the shaft, where tubes or cables can put through. In case of safety requirements, a bolt can be put through the shaft hold to provide additional security. Even if the rotary actuator is damaged, for example in axial direction, the working platform will not become detached.

Eckart's unique design assures a steady and wiggle-free working platform: first the threads are nearly free from backlash, second the ball bearing is free from backlash due to its built-in design, and thirdly no bi-directional compact seals are used. Furthermore, Eckart offers a counterbalance valve block, which can be mounted directly to the actuator's oil connection ports.

The optional counterbalance valve adds the following functions:

- Loading hold function: Working platform wants to lower in case of diagonal position
- Clamp function: Working platform does not shake by any holding position
- Overpressure function: From overpressure, in case of the hydraulic system, external force, or from outside temperature changes



Technical Data

| Size (Piston-Ø, in mm) | | 70 | 95 | 125 | 150 | 170 | |
|-------------------------------------|-----------|----------------------------------|-------------|-------------|-------------|-------------|---------|
| Max. Torque at 250 bar (3,045 psi) | [Nm] | 400 | 720 | 1,250 | 2,500 | 3,600 | |
| | [lbf-in] | 3540 | 6372 | 11,063 | 22,126 | 31,862 | |
| Spec. Torque | [Nm/bar] | 1.90 | 3.43 | 5.95 | 11.90 | 17.14 | |
| | [lbf-in] | 1.16 | 2.09 | 3.63 | 7.26 | 10.46 | |
| Angle of Rotation (+4° tolerance) | | 180° / 360° | 180° / 360° | 180° / 360° | 180° / 360° | 180° / 270° | |
| Required Minimum Operating Pressure | | 10 to 15 bar (145 to 217 psi) | | | | | |
| Max. Allowable Operating Pressure | | 210 bar (3,045 psi) | | | | | |
| Temperature Range | | -25°C to +70°C (-13°F to +158°F) | | | | | |
| Absorption Volume / Displacement | | [cm³/1°] | 0.518 | 0.932 | 1.962 | 3.371 | 5.012 |
| | | [in³/1°] | 0.032 | 0.057 | 0.120 | 0.206 | 0.306 |
| Weight ca. | Angle | 180° [kg] | 9.6 | 14.4 | 27.1 | 42.7 | 65.0 |
| | | [lbs] | 21.2 | 31.7 | 59.7 | 94.1 | 143.3 |
| | 360° [kg] | 125 | 19.2 | 37.0 | 57.7 | 76.6 (270°) | |
| | [lbs] | 27.6 | 42.3 | 81.6 | 127.2 | 168.9 | |
| Max. Radial Load FR | | [kN] | 8.00 | 18.00 | 36.00 | 44.00 | 58.00 |
| | | [lbf] | 1,798 | 4,046 | 8,093 | 9,891 | 13,038 |
| Max. Axial Load Fax1 | | [kN] | 8.00 | 18.00 | 36.00 | 46.00 | 58.00 |
| | | [lbf] | 1,798 | 4,046 | 8,093 | 10,341 | 13,038 |
| Max. Axial Load Fax2 | | [kN] | 0.80 | 1.90 | 3.70 | 4.30 | 5.90 |
| | | [lbf] | 179.9 | 427.1 | 831.8 | 966.7 | 1326.4 |
| Max. Moment Capacity M | | [Nm] | 1,000 | 2,500 | 5,700 | 8,500 | 12,000 |
| | | [lbf-in] | 8,850 | 22,126 | 50,449 | 75,231 | 106,209 |
| Outer Diameter (Ø A) | | [mm] | 105 | 135 | 170 | 197 | 230 |
| | | [in] | 4.13 | 5.31 | 6.69 | 7.76 | 9.06 |
| Shaft Through Hole (Ø E) | | [mm] | 13 | 19 | 35 | 46 | 63.5 |
| | | [in] | 0.51 | 0.75 | 1.38 | 1.81 | 2.50 |
| Length (K at 180°) | | [mm] | 168.4 | 155 | 189 | 224 | 255 |
| | | [in] | 6.63 | 6.10 | 7.44 | 8.82 | 10.04 |
| Length (K at 360°) | | [mm] | 227.8 | 213 | 268 | 316 | 307.4 |
| | | [in] | 9.87 | 8.39 | 10.55 | 12.44 | (270°) |

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