

Because of its torque, angle of rotation, pressure range, positioning accuracy, stability of position, type of attachment and dimensions, the Eckart E1 rotary actuator can be used in a wide range of applications.

The selection and the size depends above all on the demands and the operating conditions under which the rotary actuator is operating. For the planning of special items, it is also important for us to be aware of all technical details.

[When planning the rotary actuator, we recommend the following]

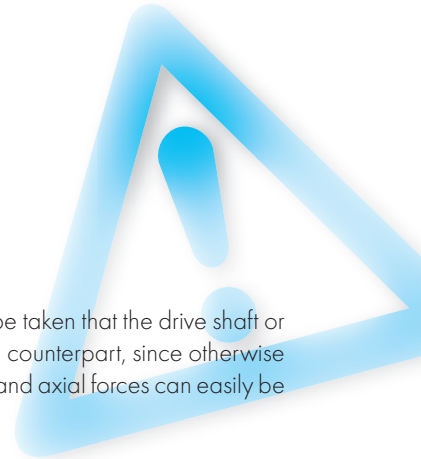
- The mechanical stops within the rotary actuator are designed to withstand the force created by the maximum allowable operating pressure relating to the maximum permissible torque output. If they are used to stop the load, the forces acting on them, including forces of inertia, must not exceed the force created by the maximum operating pressure.

If higher forces can be expected, we recommend installation of external stops or other methods of control such as end cushioning, as described below, or control valves.

- On hermetic locking of the rotary actuator (e.g. hydraulically controlled double release valves) and the impact of resetting force on the axle a holding pressure is generated. If the holding pressure reaches the level of the operating pressure there is a torque increase on the axle of 38 %. If resetting forces are expected this should be reflected in selecting the size of the rotary actuator. This also has to be taken into consideration in those cases of operation in which the optional end cushioning Z1 is used.
- In order to guarantee a fresh supply of pressure fluid or medium, the pressure connection lines should be kept as short as possible, and/or the directional control valve should be mounted directly onto the rotary actuator. If this is not possible, we recommend a hydraulically controlled double release valve with additional tank line.
- On hermetic locking of the rotary actuator (e.g. hydraulically controlled blocking valves) and the impact of heat from external sources it should be considered that the hydraulic pressure in the rotary actuator increases by about 6-8 bar per 1°C increase of the temperature. In case of substantial temperature increase the rotary actuator could be destroyed. If operating conditions with substantial temperature increases are expected, appropriate protective measures (e.g. safety valves, cycles of operation) should be provided.

In order to provide this we have prepared a catalogue of questions on page 15 which you can fax us if any lack of clarity emerge. Our staff will be glad to work out and submit a proposal to you.

We accept no guarantee claims for disturbances in functioning or complaints which are attributable to lack of information by the customer.



- During installation, care should be taken that the drive shaft or hub is perfectly aligned with the counterpart, since otherwise the maximum permissible radial and axial forces can easily be exceeded.
- In case of externally adjustable end stop Z2 on actuators with the end cushioning option Z1, the cushioning effect on the bottom side should also be changed.
- By the combination of both options long-range externally adjustable end stop Z4 and end cushioning Z1 is the building of the bottom end cushioning not possible.
- Ensure that air bleeding S1/S2 is accessible (important in the case of end cushioning Z1)
- The rotary actuator needs to be dismantled when changing replacement parts. It is therefore necessary to allow enough clearance for this to be carried out easily.
- In case of rotary actuators with the end cushioning option Z1, the flowing back of the pressure medium is progressively throttled down which causes the hydraulic pressure to rise on the cushioned side of the piston. In this context it must be ensured that the anticipated cushioning pressure does not exceed the operating pressure maximally admissible. As not all factors can be exactly pre-determined, not all requirement profiles can be implemented in configurations which use the end cushioning Z1. For this reason the details of the execution for the end cushioning Z1 must be established under all circumstances during the commissioning of the initial delivery of rotary actuators (we will be glad to assist you concerning this).

FAX to +49 (0)6661 9628-50

<p>ECKART GmbH construction/sales department Am Knöschen 2 36381 Schlüchtern</p> <p>Tel. +49 (0)6661 9628-0 Fax +49 (0)6661 9628-50 E-Mail ek@eckart-gmbh.de</p>	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-bottom: 1px solid black;">company name</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;">department</td><td style="border-bottom: 1px solid black;">name/ref.</td></tr> <tr><td style="border-bottom: 1px solid black;">street</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;">country/postcode/place</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;">phone</td><td style="border-bottom: 1px solid black;">fax</td></tr> <tr><td style="border-bottom: 1px solid black;">e-mail</td><td style="border-bottom: 1px solid black;"></td></tr> </table>	company name		department	name/ref.	street		country/postcode/place		phone	fax	e-mail	
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date	project	no.
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We calculate for you!				9	torque output	M_D	Nm
				10	mass moment of inertia	I	kgm ²
				11	lever	r	mm
				12	centre of mass	R	mm
				13	mass	m	kg
				14	reset power, holding power	M_r	Nm
fitting position of rotary actuators 1				15	radial load	F_R	N
				16	axial load	F_{AA}	N
				17	axial load	F_{AE}	N
				18	required working pressure	P_A	bar
options 2		Z1 Z2 Z4 Z5 Z6 FL HW SM1 SZ ZN ZW		19	maximum operating pressure	P_B	bar
				20	pressure peaks	P_S	bar
3	angle of rotation, max.			21	medium		
4	angle of rotation, in operate			22	temperature of medium		°C
5	rotation time, total		t_g	23	temperature of environment		°C
6	cushioning time		t_d	24	volume flow	Q	l/min.
7	cycle frequency		T	25	stops	<input type="checkbox"/> internal <input type="checkbox"/> external	
8	duration of operation per day			26	Z4 range of adjustment		
sketch/special features/ field of application/circuit diagram							