ROSNER-TDL

Modular Actuator

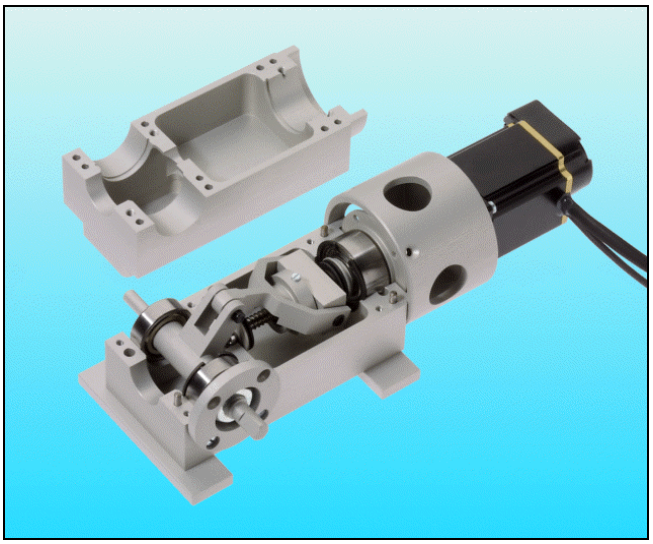
Applications – Realization – Series

Overview:

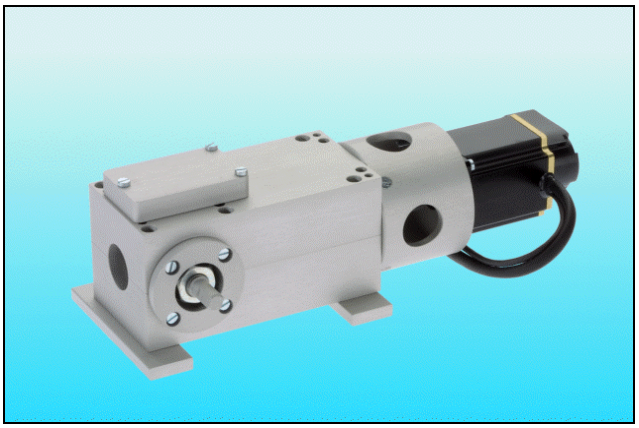
For aerospace applications, with which it particularly depends on compact designs, we developed the following rotary actuator. By the large use of commercial standard components (motor, gear, sensors) a short-term realization could be obtained. The actuator is only one element from a series, which arises as a result of different motors and gears in the identical housing.

Applications

The necessity to compact designs, how it prevails e.g. in aerospace applications, and the obligation to the short-term realization made the use of commercial standard components necessary with the development an actuator. Only the housing, which contains the components and ensures the mounting to the structure, should be user-specific.



Actuator: In the opened display one recognizes the motor with encoder (right), which drives the ball screw, which is hidden here by the lever kinematics.



Actuator: High torque actuator with rotary output (stroke ± 20 degree)

Realization

After detailed investigations of necessary performance data and the available space the following main components were defined: a brushless servo motor drives a ball screw, which produces the output motion by lever kinematics. An incremental encoder provides the position feedback. Hall sensors (and/or likewise the encoder) control the commutation of the motor.

Series

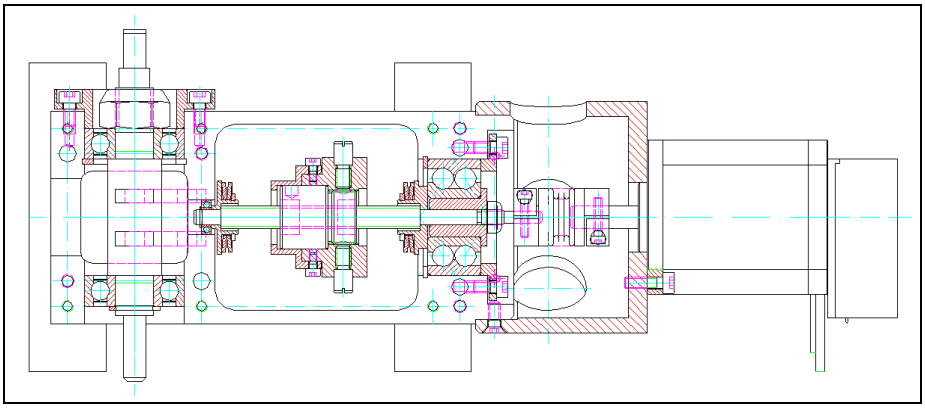
From the use of differently powerful motor with same flange dimensions as well as from ball screws with different load capacities and pitch, a series for the most different require-ments result.

Common data:

size: width	60 mm 2.4 in
size: height	70 mm 2.8 in
stroke	± 20 deg
play	0.1 deg

Some key data of the actuators

	version #1	**version #2**	**version #3**
peak torque	20.3 Nm 180 in-lb	46.2 Nm 409 in-lb	73.3 Nm 649 in-lb
peak acceleration	2620 rad/s² 150 000 deg/s²	3270 rad/s² 188 000 deg/s²	3420 rad/s² 196 000 deg/s²
mechanical time constant	4.1 milli-sec	2.2 milli-sec	1.8 milli-sec
size: length	220 mm 8.66 in	230 mm 9.06 in	240 mm 9.45 in
mass	1050 g 2.3 lb	1150 g 2.5 lb	1250 g 2.8 lb



Drawing: The main components (from the left to the right): output (two sides), lever kinematics with ball screw, motor with encoder

Offer

The modular layout enables an accommodation at small expense also on different strokes, bearing loads or mounting conditions. The actuator presented here and the series represent however only one part of our capabilities. Our strength is the customized solution of actuation problems, both by consultation and by supply.
Describe to us your actuation problem and we will strive to solve it to your satisfaction!

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