

## Solution for Controlled Opening and Closing Motion

Wixroyd rotary dampers offer controlled opening and closing of lids, drawers, covers and much more, they provide a range of solutions for a variety of applications creating smooth movement and function.

Though unnoticed in many applications, rotary dampers are a vital part of many products bringing quality, safety and durability. Rotary dampers provide quality movement enhancing both touch and feel. Available in unidirectional (single) dampening, or bi-directional (double) version. Also available with or without gears.



### Rotary Dampers

Rotary dampers utilise the principle of fluid resistance to reduce the speed of moving parts. The oil viscosity is utilised to provide the “braking force” of the damper. The torque or “braking force” can be adjusted by changing the viscosity of the oil. The advantages of the rotary type dampers are their small compact size.

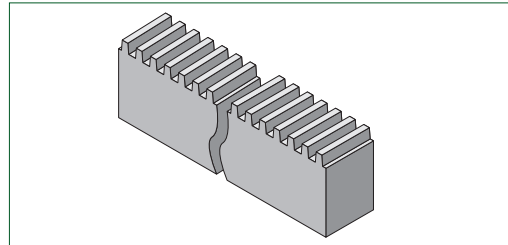
### Applications

- Loading trays for CD, DVD, VCR, MD players.
- Arm rests, ashtrays, center consoles, glove boxes, handles and storage compartments in passenger vehicles.
- Camcorders, cellular phones and small personal devices.

### Operating Principle

Rotary dampers utilise the movement of fluid forced from one chamber to another via a rotor. Dampening speed is dependent upon the viscosity of the fluid and the diameter of the fluid aperture.

Through the use of toothed plastic rack no. Q3150, rotary dampers with gears can be used to dampen on a linear plane rather than the normal dampening directly at the shaft.



### General Specification

<b>Part No.</b>	Q3000 to Q3060
<b>Max. Speed</b>	50rpm
<b>Max. Cycle Rate</b>	10 cycles/min
<b>Nominal Torque Rating</b>	At 20rpm, 23°C (73°F)
<b>Operating Temp.</b>	0 to 50°C (32 - 122°F)
<b>Storage Temperature</b>	-20 to 60°C (-4 to 140°F)

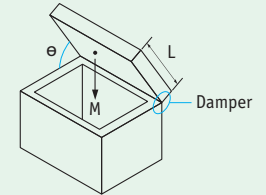
### Torque Calculation

To calculate the torque for your application, the following measurements are necessary.

$$T \text{ (torque) Kgf.cm} = L/2 \times 9,8 \times M \text{ (N.m)} = L/2 \times M \text{ (Kgf.cm)}$$

$L$  = Length from pivot point to end of lid (cm).

$M$  = Weight of the lid (Kg).







Note: once calculation has been made choose a rotary damper from our range which can accommodate the newly calculated torque of the application. Use the damper closing speed graphs opposite to confirm that the rpm given at the corresponding torque value matches the desired lid closing speed. If the desired rpm is beyond the capacity of the selected damper, then select another damper with a higher torque rating and re-test. If the rpm is too slow select another damper with a lower torque rating and re-test.

Note: dampening direction is determined whilst looking directly onto the output shaft.

Important Note: avoid side loading of the rotary damper output shaft in order to maximise effectiveness.

# Rotary Dampers - Torque Closing Speed Graphs

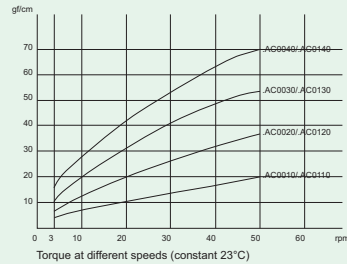
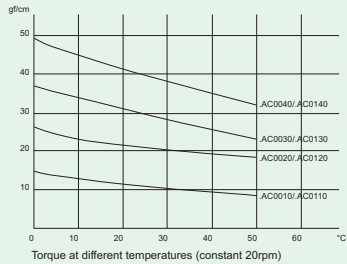
Rotary Dampers																
Part No.	Damping Direction	Torque Kgf/cm	Torque Kgf/cm													
			20	40	60	80	100	200	300	400	500	1000	1500			
 Q3000	Two way	10 - 40	■	■												
 Q3020	Two way	20 - 100		■	■	■	■									
 Q3040	One/two way	200 - 300							■	■						
 Q3060	One/two way	500 - 1500										■	■	■	■	

## Wixroyd Rotary Dampers – Torque Closing Speed Graphs

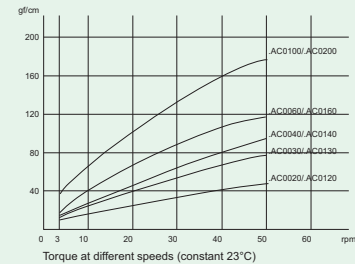
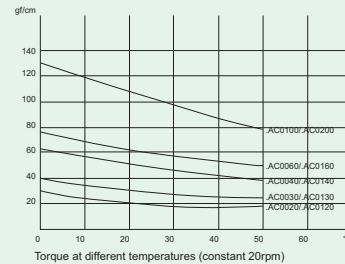
Follow the torque calculation formula opposite and utilise the following torque closing speed graphs to ensure the selected rotary damper best suits your application.

### Torque Graphs for Temperature and Speed

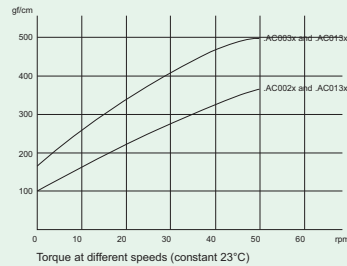
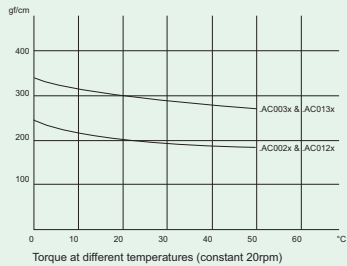
#### Q3000



#### Q3020



#### Q3040



#### Q3060

