VectisDYO™

Design Your Own Counterbalance Hinges

VectisDYO™ Counterbalance Hinges are spring loaded hinges intended to support specific lids or other loads that rotate from a roughly horizontal closed position to a roughly vertical open position. They are currently available in (4) sizes: V0200, V0600, V1200, and V1800. Each individual VectisDYO™ Counterbalance Hinge is custom manufactured to provide specific counterbalancing torque characteristics that are defined using the VectisDYO™ on-line design tool found at http://www.vectiscounterbalance.com/vectis/ .

The VectisDYO™ on-line design process begins by entering 3 important parameters that define the rotating lid or load you wish to counterbalance:

1. **Lid Weight** – the weight of the lid/load that rotates about the hinge axis.
2. **Horizontal Distance** – the horizontal distance between the center of gravity (center of mass) of the rotating lid/load and the hinge pivot axis when the lid/load is in the closed position.
3. **Vertical Distance** – the vertical distance between the center of gravity (center of mass) of the rotating lid/load and the hinge pivot axis when the lid/load is in the closed position. If the C.G of your lid/load is below the hinge axis, Vertical Distance is negative (-).

These first 3 parameters define the gravity induced torque tending to close the lid at any angle as it rotates from its closed (0 degree) to open (90 degree) position. If the C.G. goes over center, the lid torque becomes negative (self opening). The lid torque is represented by the black line on the graph.

Then enter…

4. **Hinge model** – make an initial selection of one of the (4) VectisDYO™ hinge models based on torque required to begin opening your lid from the closed position. Torque ranges listed for each hinge model are only approximations and refer to a single hinge. If two or more hinges will be supporting your lid (load), multiply the listed torque range of each hinge by the number of hinges supporting the lid or load to obtain the approximate load capacity of the hinge system. If an acceptable torque curve match can not be obtained based on your initial selection, try another hinge model or number of hinges.
5. **Hinges Per Lid** – the number of hinges used to counterbalance and support your lid/load (typically 2, but 1 - 20 are possible).
6. **Lid "open stop" Angle** – a mechanical open angle limit can be permanently set anywhere between 45 and 90 degrees when the counterbalance hinge is manufactured. For example: specifying a Lid "open stop" Angle of 60 means that the hinge can open from 0 degrees (closed) to 60 degrees (full open) but can not rotate beyond 60 degrees. The "open stop" parameter can not be altered after the hinge is manufactured.
7. **Variable "A"** – controls proprietary geometry permanently cut into the internal linkage of a VectisDYO™ spring loaded counterbalance hinge when it is manufactured. The effect of adjusting Variable "A" can be seen in real time by viewing the orange spring torque curve on the graph.
8. **Variable "B"** – controls additional proprietary geometry permanently cut into the internal linkage of a VectisDYO™ spring loaded counterbalance hinge when it is manufactured. The effect of adjusting Variable "B" can be seen in real time by viewing the orange spring torque curve on the graph.
9. **Spring setting** – represents the spring adjustment that will be set at the factory. The possible range of spring adjustment shown in the on-line design tool may change as Variable "A" and Variable "B" are tweaked, so it is recommended that "Spring setting" should always be the final

adjustment made when using the design tool. Additional adjustment of the spring setting can be made in the field, but never adjust the spring setting beyond the limits specified by the design tool.

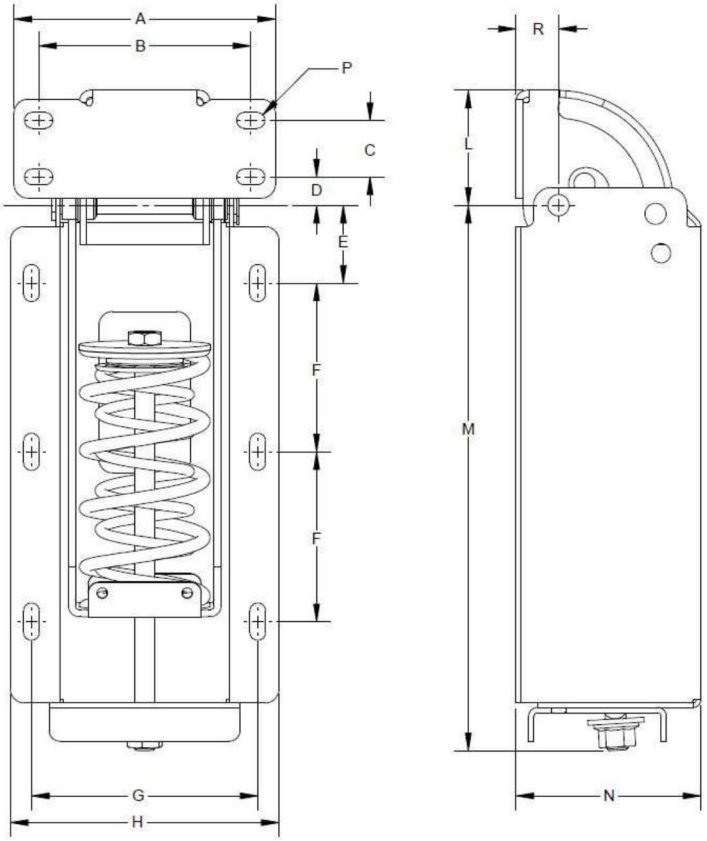
The orange "Spring Torque" curve on the graph represents the spring induced opening torque provided by the VectisDYO™ counterbalance hinge. Spring induced opening torque generally works in opposition to the gravity induced lid torque. At any point the orange spring torque line is above the black lid torque line, the lid/load will tend to self open. Where the black Lid Torque line is above the orange Spring Torque line, the lid/load will tend to self close.

Go back and adjust any parameter in the online design tool as many times as necessary to achieve the best solution. Finding the optimum spring torque curve for your project is usually an iterative process.

The upper and lower light orange lines on the graph represent an approximation of a friction band intentionally designed into the counterbalance hinge to help hold the lid/load in a stationary position. Theoretically, wherever the black Lid Torque line is within the band defined by the light orange lines, the lid/load will remain stationary until outside force is applied to move it

10. When you are satisfied that the orange spring torque curve on the graph represents the counterbalancing action you require, fill out the **Save Project Parameters** area of the online VectisDYO™ form and click the "Save" button to register your design. You will receive a copy of the parameters you have selected for this design via email and your project will be filed securely in the VectisDYO™ database.
11. You may place a VectisDYO™ counterbalance hinge order for your registered design at any time by email (vectis@weberknapp.com), phone (716.484.2111) or FAX (716.484.9142). Prepayment by credit card, bank transfer, etc. is accepted. Open credit for larger or repeat orders may be pre-arranged with credit approval.

Pricing and setup fees are available online at:
http://www.vectiscounterbalance.com/vectis-200-1800/



	V0200	V0600	V1200	V1800
A	4.500	4.625	5.313	5.313
B	3.625	3.750	4.250	4.250
C	0.875	1.000	1.500	1.500
D	0.500	0.500	0.625	0.625
E	1.375	1.375	1.375	1.375
F	3.000	3.000	4.000	4.000
G	4.000	4.000	4.375	4.375
H	4.500	4.750	5.250	5.250
L	1.750	2.030	2.712	3.063
M	6.938	9.652	11.328	12.513
N	3.141	3.267	3.656	4.062
P	Ø 0.210	Ø 0.280	Ø 0.343	Ø 0.343
R	0.750	0.750	0.750	0.750

* ALL DIMENSIONS ARE IN INCHES

Product Specifications

The full line of high-quality Vectis™ springloaded counterbalance hinges are purpose built for a wide range of indoor applications. Made from reliable steel and powder coated with a distinctive black, textured finish, these hinges are built to last more than 100,000 open and close cycles in conditions ranging from freezing (32°F) to 110°F.

All four Vectis™ models – 200, 600, 1200, 1800 – are customizable to have a torque output that meets your specific application. Each can also be ordered with the standard 90° opening angle, or reduced in your order from the factory to stop between 45° and 90°.

For indoor applications

- Steel construction with black textured powder coat finish
- Operating temperature: 32°F – 110°F (0°C – 43°C)
- Cycle life: Min. 100,000
- Torque output is field adjustable
- Operating angle 0° to 90°: The full open angle is customizable (at the factory) anywhere between 45° and 90°
- Shipped in the near-closed position for ease of installation

Weber Knapp warrants all Vectis™ springloaded counterbalance hinges to be free from physical defects in material and workmanship for a period of one (1) year from the date of the original purchase. If you discover a defect covered by this warranty, we will repair or replace the product at our option.