

# 2010 LEADERSHIP in ENGINEERING

RAPID PROTOTYPING SOFTWARE  
ADVANCED MATERIALS  
DIGITAL MANUFACTURING  
MOTION CONTROL SWITCHES & SENSORS  
TEST & MEASUREMENT FASTENING & JOINING  
ELECTRICAL & ELECTRONICS  
FLUID POWER MECHANICAL



### *The C-Flex Bearing Solution: Not a new concept but growing in popularity as a preference for motion control*

C-Flex bearings are based upon proven design concepts used for years in a wide variety of applications. The growing popularity of the **C-Flex** bearing is not only due to the quality of the product but it's adaptation in today's GREEN TECHNOLOGY efforts. Our design utilizes crossed springs made to exacting tolerances of high-strength corrosion-resistant steel, capsuled in a cylindrical housing, to provide angular travel up to +/- 30°, without the use of lubricants. These bearings provide unmatched performance characteristics for life, accuracy and resistance to detrimental environmental conditions. Again, they require NO Lubrication, can function at limited angular travel for an indefinite number of cycles, are frictionless, and have extremely low hysteresis. Problems related to common ball and rolled bearings in limited angle oscillating applications such as lubrication migration and brinelling are eliminated. Starting and running torque variations due to thermal and lubrication variations do not exist. Contamination of sensitive electronic or optical systems due to the escape or out-gassing of lubrication through bearing seals is no longer a concern.

#### Design

C-Flex bearings consist of an inner and a two part outer spring which interlock and are crossed at a 90° angle. These springs are fabricated of high quality stainless steel to provide the ultimate in corrosion and fatigue resistance. Each **C-Flex** bearing size can be provided with three torsional spring rates. This is accomplished by utilizing the same spring design and varying only the thickness. Spring rates can be provided to meet specific customer requirements.

#### Performance

The **C-Flex** crossed spring design, capsule in a cylindrical housing results in a radially and axially stiff structure while providing for angular travel at known torsional spring rates. Since there is not rubbing or sliding friction inherent in the bearing movement, this design provides exceptional accuracy and repeatability. Without the limitations of seals or lubrication, temperature ranges which would destroy common bearings are easily tolerated. Unaffected by a vacuum, applications requiring precision movement or positioning under these conditions can easily be provided through the use of **C-Flex** bearings.

#### A Superior Choice

**C-Flex** bearings are free from inaccuracies exhibited by ball and roller bearings due to friction, wear and backlash. They exhibit a constant linear torsional spring rate and are self centering when deflecting forces are removed.

Conventional bearings are designed to operate under continual rotary motion so as to evenly distribute lubrication and wear. When used for oscillating or limited motion applications however, lubrication migration and eventually brinelling will result in inaccurate movement.

Jeweled or ceramic bearings have their own limitations. Although they don't require lubrication, they still suffer frictional inaccuracies, are sensitive to damage, and are difficult to adjust.

## C-FLEX BEARING CO., INC.

**C-Flex Bearing Co., Inc.**'s core business is the manufacture of flex pivots. A precision mechanical component used in a variety of applications from food packaging to aerospace applications. Our strict attention to quality, responsiveness, flexibility has earned us a good reputation throughout our diverse customer base.

C-Flex Bearing not only manufactures the flex pivot as our standard product line, we manufacture a variety of aluminum, stainless steel, and beryllium copper cryogenic transfer lines. We customize metal flexures to suit the client's assembly requirements. From standard 400 series stainless steel to 17-4 PH materials, we offer a custom fit solution.

C-Flex Bearing Co., Inc. is located in Frankfort, New York, the Leatherstocking region and Mohawk Valley of Central New York. Our 6000 sq. ft. of manufacturing space is clean as our employees take pride in their company and their work. Watch for new designs and new products as we move forward through 2009.



104 Industrial Drive  
Frankfort, NY 13340 USA  
TEL: 315-895-7454  
FAX: 315-895-7268  
www.c-flex.com  
email: cflex@c-flex.com

BEARING CO., INC.

VOTE  
ONLINE

[www.designworldonline.com/leadership](http://www.designworldonline.com/leadership)

Nominate engineering leadership for a person or inventor, engineering leadership by a specific department, or an overall company accomplishment.