

C-20 SPECIFICATION SHEET C-FLEX BEARING CO. INC.

Standard Material Properties

Sleeves:

416 stainless steel (AMS 5610L Type II)

Springs and Cores:

410 stainless steel (AMS 5504M)

420 stainless steel (AMS 5506F)

Braze Alloy: AMS 4765

Hardness: 46 - 56 Rc

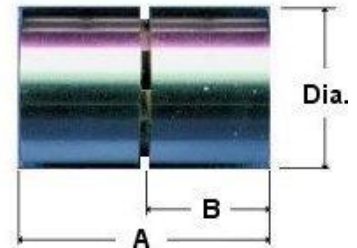
Spring Material Properties:

Fatigue Strength: 75,000 psi

Ultimate Tensile Strength: 294,000 psi

Modulus of Elasticity: 29,000,000 psi

ASTM Grain Size: #6 or finer



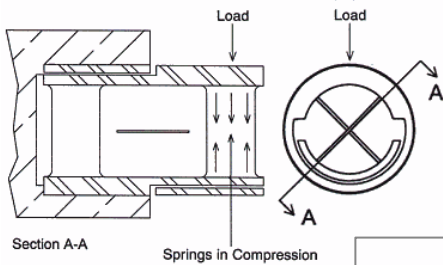
Series A-10 thru J-30

Notes:

1. Stiffness of bearing is rated in inches of deflection per pound of load.
2. This data applies to standard cantilever bearings loaded at the mid-point of the unsupported half, at 0 degrees rotation.
3. The total stiffness of a pair of tandem mounted cantilever bearings connected very stiffly in a mechanical system may be determined by dividing the below values by three.
4. Torsional Spring rates: (in*lb/Degree) rates of standard C-Flex bearings generally fall within +/-10% of these values at zero load. Contact C-Flex if specific spring rates or closer tolerances are required.
5. Load Capacity: Lt or Lc (Pounds load in tension or compression) These values are maximum loading (weight or static force) at zero deflection. Load requirements, angular deflection and cyclic life must be considered when sizing bearings. Lc is pure radial load creating compressive stresses in the spring, while Lt is a pure radial load creating tensile stresses.
6. Temperature Range: Between -100 deg. F to 375 deg. F. The bearing can be held up to 450 deg. however for no more than 8 hours otherwise damage may occur.

| BEARING SERIES | Dia. +.0000 -.0005 | A ± 0.003 | B min | LOAD CAPACITY | | | STIFFNESS | | | |
|----------------|--------------------------|--------------|----------|---------------|-------|-------|-----------|--------|--------|-----------------------|
| | | | | | | | RADIAL | | Axial | Torsional Spring Rate |
| | | | | Lc | Lt | Axial | Lc | Lt | | |
| C-20 | .1875 | .300 | .136 | 19.50 | 27.90 | 27.90 | .00014 | .00017 | .00013 | .0060 |

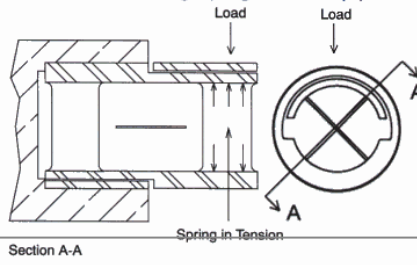
Radial Loading: Spring in Compression (Lc)



Section A-A

Springs in Compression

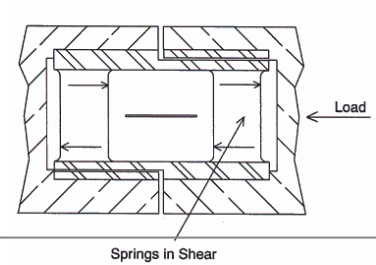
Radial Loading: Spring in Tension (Lt)



Section A-A

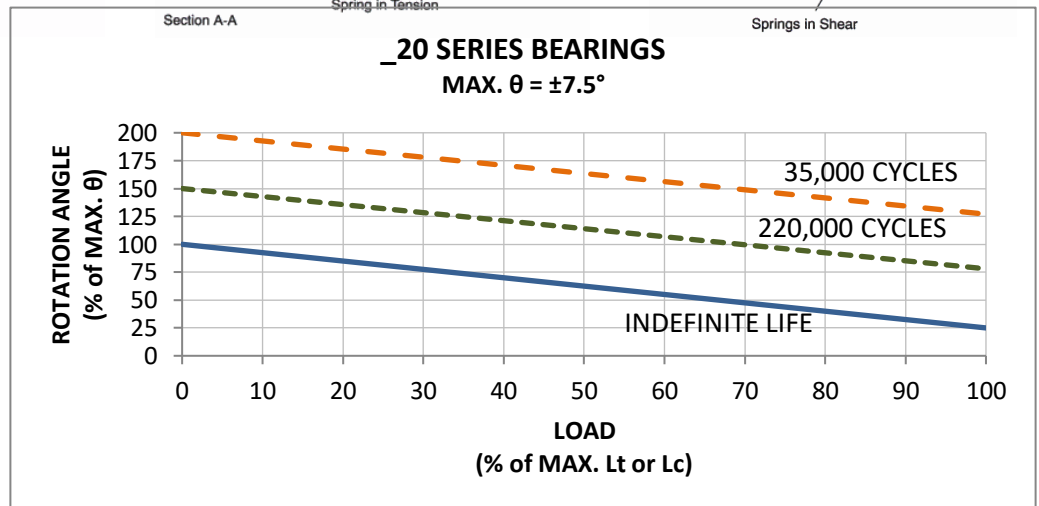
Spring in Tension

Axial Loading: Springs in Shear



Springs in Shear

-20 series bearings have an indefinite life at $\pm 7.5^\circ$ of rotation and zero load. Life expectancy declines with increasing angles above $\pm 7.5^\circ$ and with increasing loads. Pivot bearings should never be rotated more than twice the max θ angle from center.



The C-Flex bearing or "pivot" is a cylindrical, limited rotational bearing, with a high relative radial and axial stiffness which is available in low, medium, or high torsional spring rates. It is typically available for maximum deflection angles of $\pm 30^\circ$, but various configurations are supplied upon request. It can be used simply as an oscillating unit or an extremely sensitive critical element. The bearing itself consists of two stainless steel sleeves held in position by three leaf springs on two planes. There is no contact between the sleeves, eliminating friction. The springs provide the pivotal action which is inherently self centering, requires no lubrication or maintenance and has zero backlash. The bearing is also available with an additional sleeve allowing for central mounting providing two pivotal arms (the double end bearing, sizes AD to JD).