



# C-FLEX BEARING CO., INC.

THE LEADER IN FLEXING METAL TECHNOLOGY.



**BEARINGS**



**COUPLINGS**



**BUSHINGS**

**SUPERIOR TECHNOLOGY**

**LOWEST COST**

**ENVIRONMENTALLY FRIENDLY**



<https://c-flex.com>





C-Flex Bearing Co., Inc. is a privately owned small business located in upstate New York, incorporated since 1993. Originally established to produce the C-Flex line of frictionless pivot bearings and in recent years has expanded to include the patented line of flexible couplings and progressive clamp bushings. US patent numbers 7,824,270; 8,944,718; and 9,212,691 which protects those products and designs.

**Current Capacity:** 6200 square feet. 6000 square feet of manufacturing space with expansion property available.

**C-Flex Suppliers:**

We extend every effort to keep key processes in house in order to maintain the tightest control over quality and timeliness. With our increase in sales and in order to maintain stock levels on standard items, we are in constant review of production methods so as to best meet quality, quantity, and scheduling demands of our customers.

**Quality and Testing:**

Quality at C-Flex begins with the receipt of materials. All employees assume in-process responsibility for quality checks and complete traceability from raw material through finished product.



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**C-FLEX realizes the significance of sustainability and our products are produced without materials detrimental to the environment. Pivots and couplings require no lubrication to operate and, with an indefinite cycle life, they are the ideal environmentally friendly product.**

# PIVOT BEARINGS



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. Torsional stiffness ranges from .0003 Lb-In/degree to 7.8023 Lb-In/degree. It can be used simply as an oscillating unit or an extremely sensitive critical element.

The advantages of cross-flexure bearings has been well documented in connection with the replacing of ball bearing pivots in optomechanical applications. One such application in which the C-Flex bearing has outperformed alternatives is the scanning mirror assembly of a mass spectrometer. Here two mirrors are mounted on an assembly and laser beams are scanned across samples to be analyzed. The lubrication free, frictionless movement of the C-Flex bearings is ideal in applications such as this where the outgassing from bearing lubricants could contaminate the optics, and bearing wear due to continuous limited rotation would eventually result in movement errors.

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, and the springs also provide the pivotal action which is inherently self centering and requires no lubrication or maintenance. 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).

Other applications include those requiring accuracy without backlash, friction and wear such as gimbals or within gauge sensors where position must be accurately measured or outside forces sensed. Workhorse applications requiring the support of heavy loads for years of continuous service including mechanisms such as vibrating hoppers. Lever actuators and tensioners can also benefit from the use of these bearings. Optical/magnetic read/write heads also gain from the constant predictable spring rate-immune to the problems of starting vs. moving torque.

Free from backlash, friction and wear, the C-Flex bearing could provide the ultimate in cost effective design, allowing for easy assembly and indefinite life expectancies with undiminished accuracy. Selection of the correct bearing for the application loads expected should result in exceptional long life, even within the most arduous environment.

Custom designs for heavy loads (>1600 lbs.), special materials (e.g. Hast X, Titanium, Inconel) or high volume/low cost plastic can be provided.



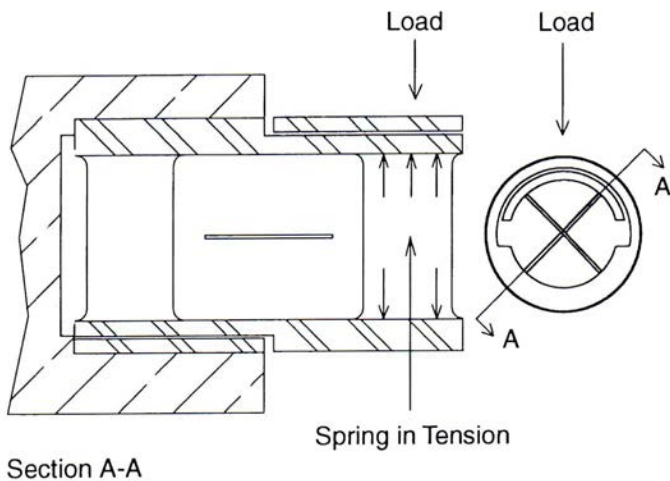
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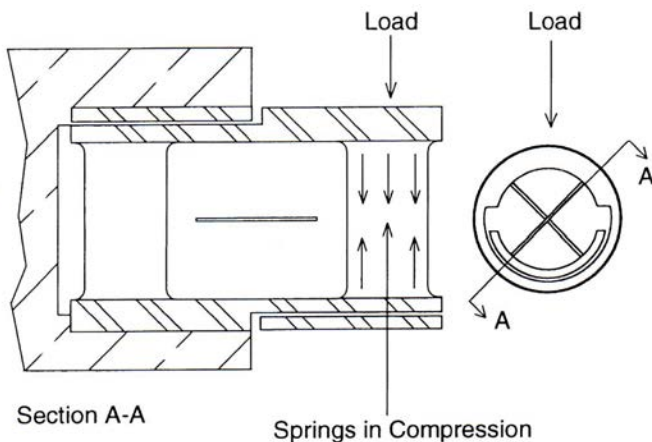


# Loading Diagrams with Related Spring Stresses

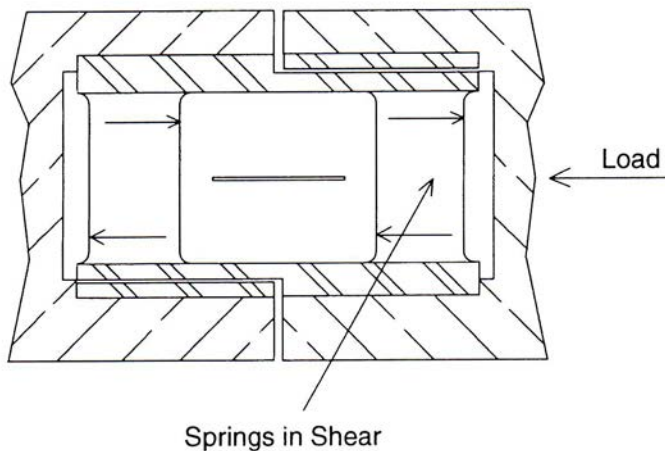
## Radial Loading: Spring in Tension (Lt)



## Radial Loading: Spring in Compression (Lc)



## Axial Loading: Springs in Shear

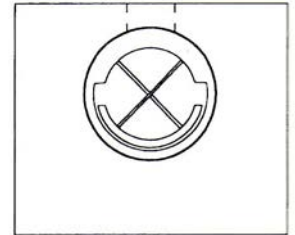


# Suggested Methods for Installing C-Flex Bearings

The following examples are a few of the possible methods for installing standard C-Flex bearings. Other techniques may provide satisfactory results. Special options, such as flanged or drilled and tapped sleeves may be provided upon request. Please contact C-Flex with questions or a review of mounting requirements.

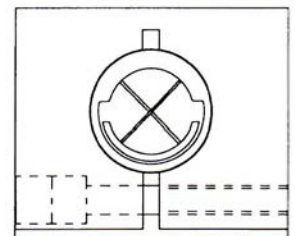
## Set Screw

One or more properly sized cup point set screws may be used to clamp bearing in place. Hole size should be .0005" to .0010" larger than bearing.



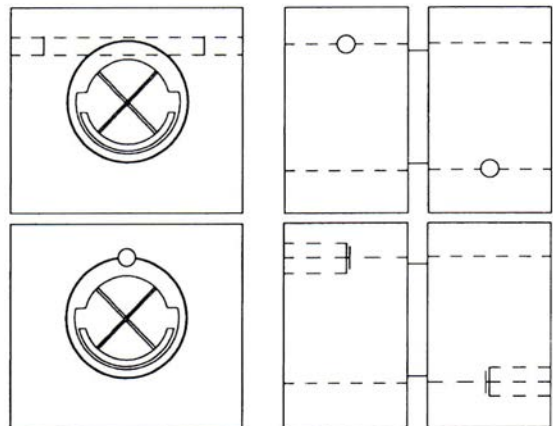
## Clamp Screw

Clamping screw applies suitable pressure to retain bearing in place. Hole size should be .0005" to .0010" larger than bearing.



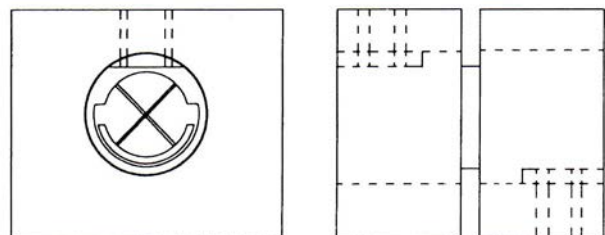
## Radial or Axial Pins

Pins may be pressed into holes drilled through the mounting bracket and the bearing sleeve. Care must be exercised to orient the bearing properly so the springs are not damaged. Hole size should be .0005" to .0010" larger than bearing.

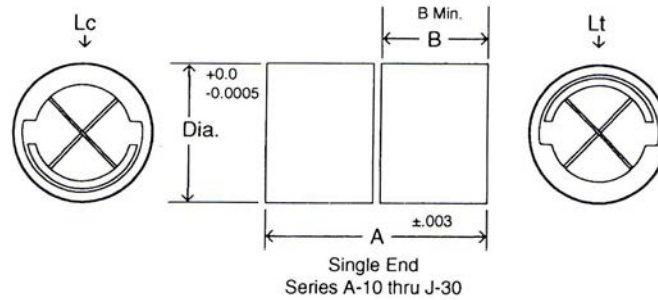


## Locator Flats

Locator flats with cup point set screws may be used to orient and securely clamp bearing in place. Hole size should be .0005" to .0010" larger than bearing.



# C-Flex Bearings Size and Performance Properties

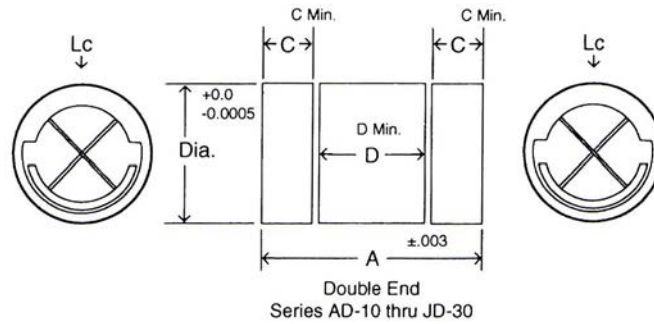


Part No. For Single End A-10 thru J-30	Diameter	Torsional Spring Rate (1)	Load Capacity (2)		+0 -0.0005 Diameter	±.003	
			Lc	Lt		A	B
A-10	1/8	.0003	.95	3.80	.1250	.200	.088
A-20		.0018	8.90	12.70			
A-30		.0148	25.30	25.30			
B-10	5/32	.0004	1.40	5.60	.1562	.250	.114
B-20		.0037	13.70	19.60			
B-30		.0296	39.30	39.30			
C-10	3/16	.0007	2.00	7.80	.1875	.300	.136
C-20		.0060	19.50	27.90			
C-30		.0482	55.80	55.80			
D-10	1/4	.0018	3.60	14.20	.250	.400	.184
D-20		.0148	35.00	50.00			
D-30		.1185	100.00	100.00			
E-10	5/16	.0037	5.70	22.80	.3125	.500	.232
E-20		.0296	55.00	78.60			
E-30		.2367	157.10	157.10			
F-10	3/8	.0065	8.40	33.60	.3750	.600	.279
F-20		.0482	79.10	113.00			
F-30		.4002	226.00	226.00			
G-10	1/2	.0148	14.40	57.40	.5000	.800	.374
G-20		.1185	140.00	200.00			
G-30		.9486	400.00	400.00			
H-10	5/8	.0296	23.00	92.00	.6250	1.000	.469
H-20		.2367	221.10	315.80			
H-30		1.8940	631.50	631.50			
I-10	3/4	.0482	32.40	129.40	.7500	1.200	.564
I-20		.4002	317.20	453.10			
I-30		3.2610	906.10	906.10			
J-10	1	.1185	59.20	236.60	1.000	1.600	.764
J-20		.9486	566.30	809.00			
J-30		7.8023	1616.00	1616.00			

(1) **Torsional Spring rates: Lb-In/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.

(2) **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. See life expectancy curves or contact C-Flex for assistance. Lc is pure radial load creating compressive stresses in the spring, while Lt is a pure radial load creating tensile stresses.

# C-Flex Bearings Double End Bearing



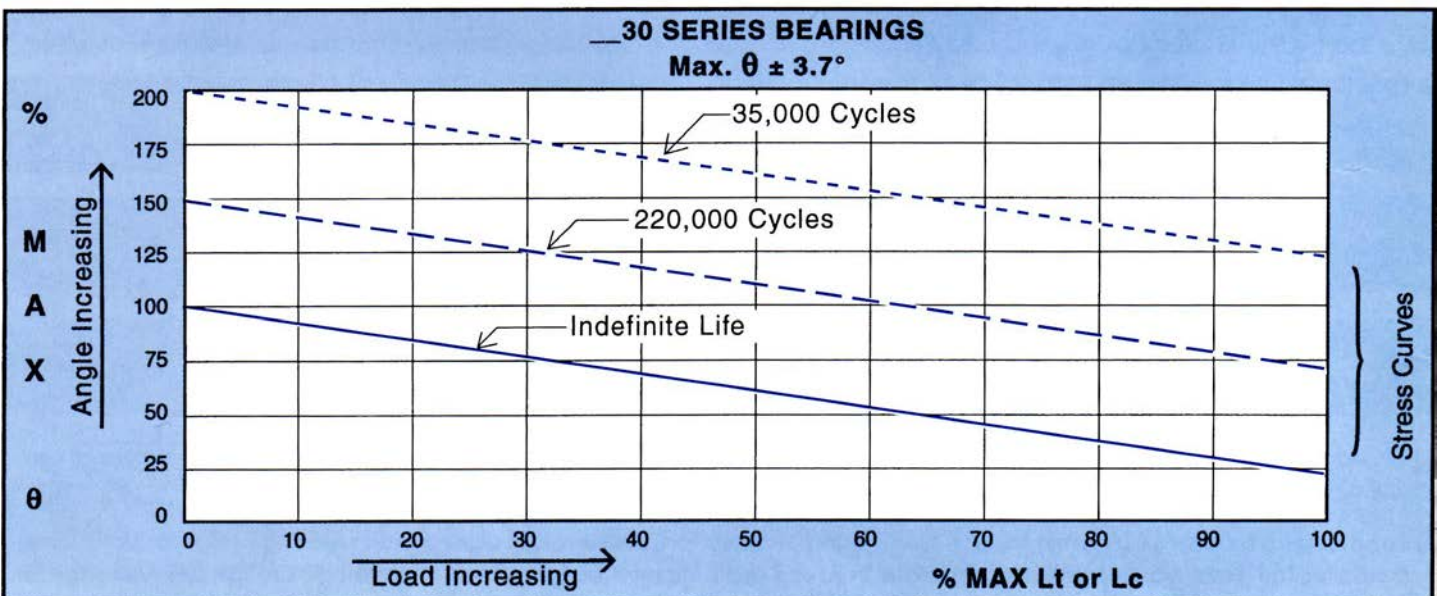
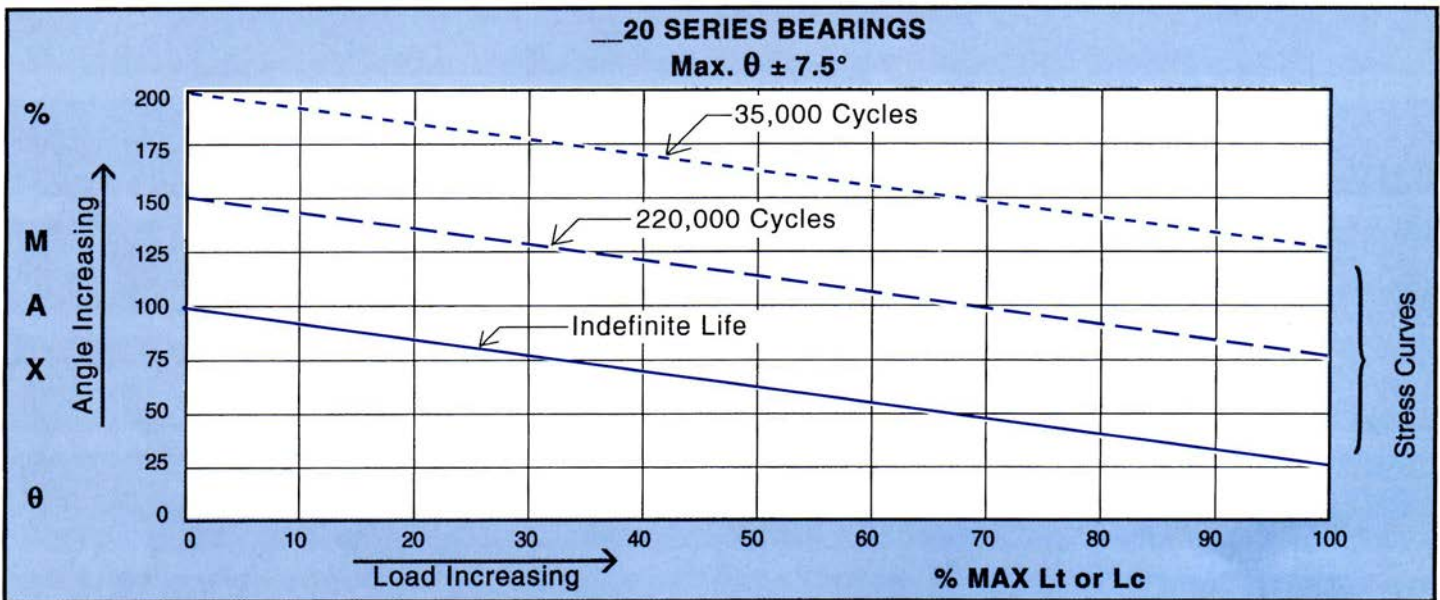
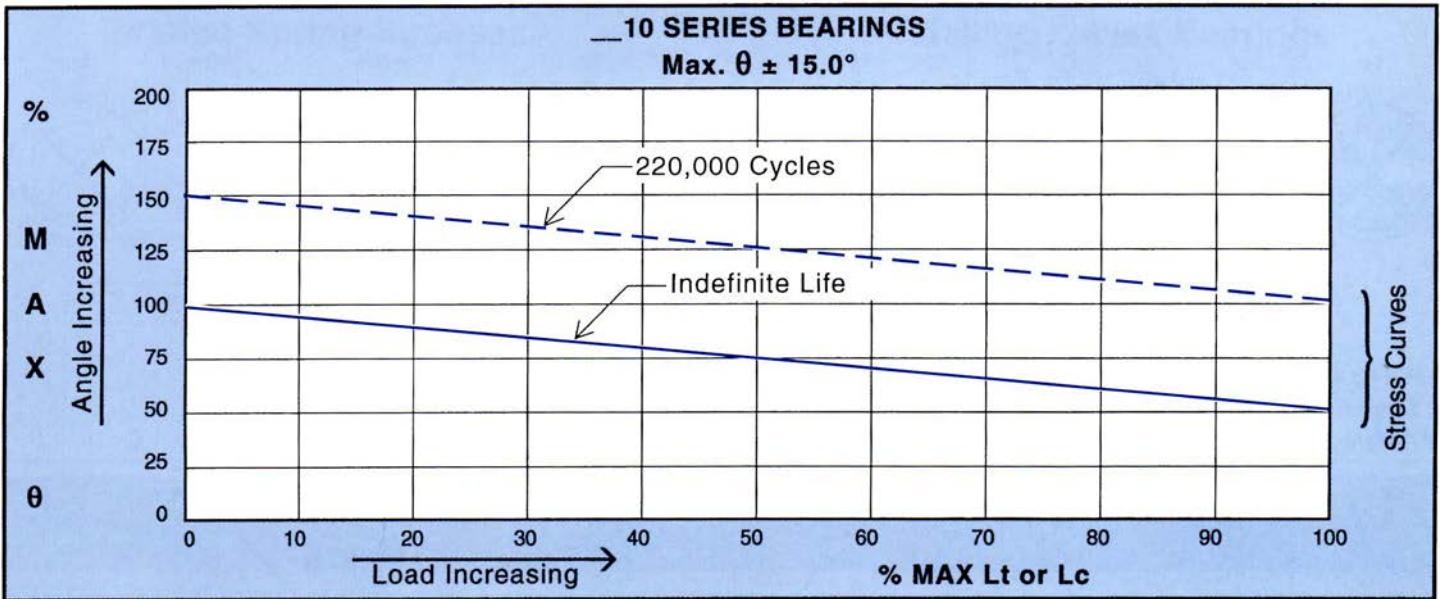
Part No. For Double End AD-10 thru JD-30	Diameter	Torsional Spring Rate (1)	Load Capacity (2)		+0 -.0005 Diameter	±.003 A	C min	D min
			Lc	Lt				
AD-10		.0003	2.30	4.60				
AD-20	1/8	.0018	17.50	25.00	.1250	.200	.038	.070
AD-30		.0148	28.00	28.00				
BD-10		.0004	3.50	7.00				
BD-20	5/32	.0037	28.00	40.00	.1562	.250	.050	.100
BD-30		.0296	45.00	45.00				
CD-10		.0007	5.00	10.00				
CD-20	3/16	.0060	40.00	60.00	.1875	.300	.060	.120
CD-30		.0482	63.00	63.00				
DD-10		.0018	9.00	18.00				
DD-20	1/4	.0148	70.00	100.00	.250	.400	.083	.165
DD-30		.1185	115.00	115.00				
ED-10		.0037	14.00	28.00				
ED-20	5/16	.0296	110.00	150.00	.3125	.500	.105	.210
ED-30		.2367	175.00	175.00				
FD-10		.0065	20.00	40.00				
FD-20	3/8	.0482	160.00	220.00	.3750	.600	.128	.255
FD-30		.4002	250.00	250.00				
GD-10		.0148	35.00	70.00				
GD-20	1/2	.1185	280.00	380.00	.5000	.800	.173	.345
GD-30		.9486	450.00	450.00				
HD-10		.0296	55.00	110.00				
HD-20	5/8	.2367	450.00	620.00	.6250	1.000	.210	.430
HD-30		1.8940	700.00	700.00				
ID-10		.0482	80.00	160.00				
ID-20	3/4	.4002	630.00	900.00	.7500	1.200	.263	.520
ID-30		3.2610	1000.00	1000.00				
JD-10		.1185	140.00	280.00				
JD-20	1	.9486	1100.00	1500.00	1.000	1.600	.363	.720
JD-30		7.8023	1800.00	1800.00				

(1) **Torsional Spring rates: Lb-In/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.

(2) **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. See life expectancy curves or contact C-Flex for assistance. Lc is pure radial load creating compressive stresses in the spring, while Lt is a pure radial load creating tensile stresses.

# Life Expectancy for Torsional Spring Rates (10, 20, 30)

\* MAX  $\theta$  = (Angle of Deflection) = The deflection angle from the null position. Positive or Negative.





# TECHNICAL DATA

*Frictionless Bearings • No Lubrication • Low Hysteresis  
• Easy Installation • Custom Design*

## THE BEARING SOLUTION



### CONSIDERATIONS FOR THE ENGINEER

#### Torsional Spring Rate/Load Capacity

The torsional spring rate and load capacity of C-Flex bearings is dependent upon length, width, and thickness of the internal flat spring beams. High angles of rotation require thin springs to reduce bending stress and thereby result in low torsional spring rates and correspondingly small load capacities. Bearings with thin spring beams, such as the C-Flex Series 10 bearings, typically allow for rotation angles of up to +/- 15 degrees for indefinite life with light loads. In comparison, series 20 bearings which have a heavier spring and can accommodate heavier loads, are rated for rotation angles of +/- 7.5 degrees at zero load for indefinite life while the series 30, which are heavier still, are rated for +/- 3.7 degrees.

#### Geometric Centershift

The rotation of the bearing sleeve segments is facilitated by bending of the flat spring beams which support them. This causes a slight radial shift of the sleeve segments relative to each other. For small angles of rotation, such as 2 degrees, the shift of geometric center of the rotated member will be minimal on the order of .02% of the bearing diameter, however increases to approximately 1% of the bearing diameter at a rotation of 15 degrees.

#### Cycle Life

The cycle life of C-Flex bearings is based upon the fatigue limit of the materials utilized for the spring beams. Bending and load stresses are considered in determining performance ratings which will statistically result in an infinite cycle life.

The flexure design is suitable for a variety of materials such as stainless steels of the martensitic or precipitation hardening variety: inconel, hastelloy, and beryllium copper among others.

#### Linearity and Hysteresis

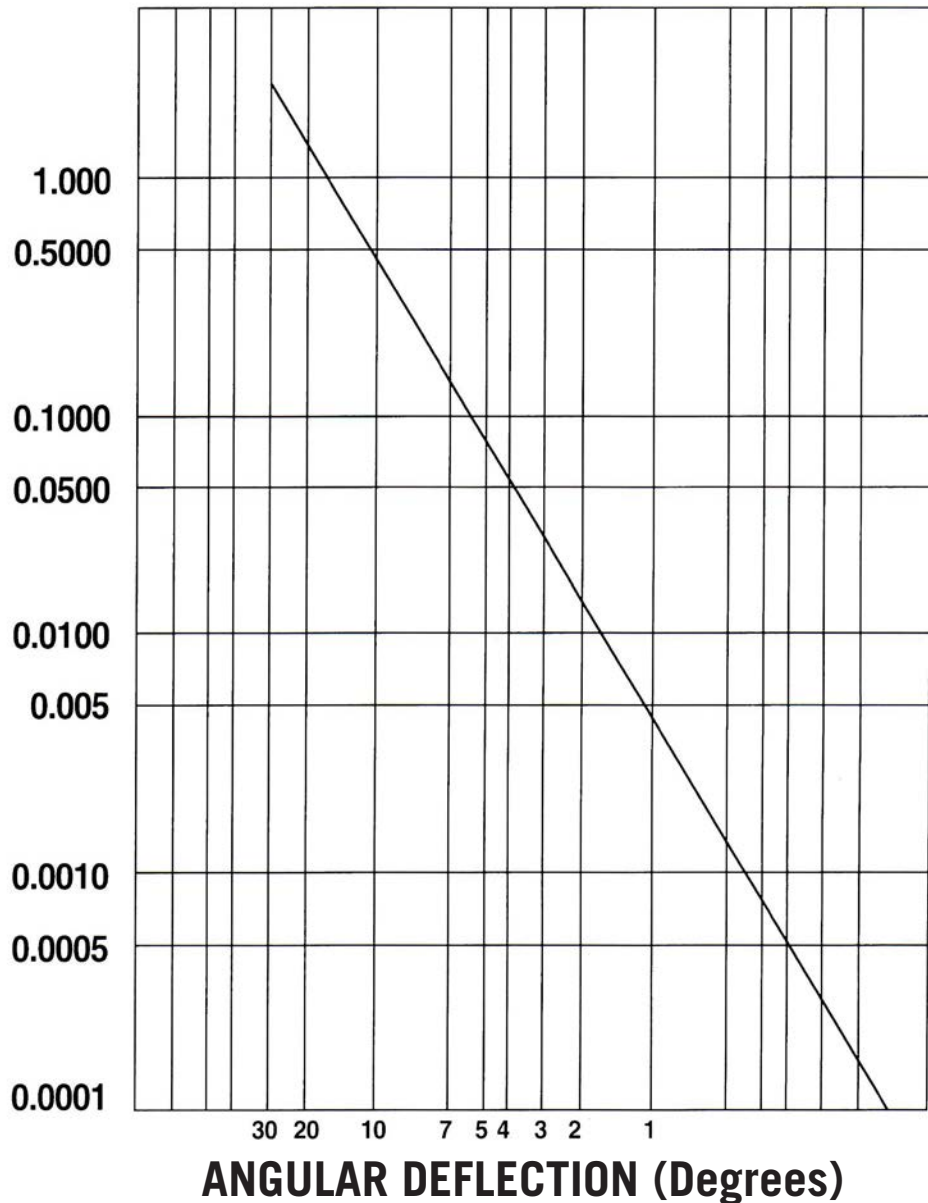
The linearity of the C-Flex bearing, measured as the rotational deflection of the pivot vs. the torque required to induce this deflection, is relatively constant for angles of rotation up to 15 degrees. Hysteresis in the C-Flex bearing is defined as the difference of null positions when the flexure is deflected to a plus angle and then relieved, and then deflected to a negative angle and then relieved. The null position after the plus direction compared with the null position after the minus deflection is the angle of hysteresis.

*For additional questions/comments, please do not hesitate to contact us.*

# C-FLEX BEARING CENTERSHIFT

## GEOMETRIC CENTERSHIFT VS. ANGULAR DEFLECTION

**GEOMETRIC  
CENTERSHIFT**  
(AS A % OF BRG. DIA.)



*Frictionless Bearings • No Lubrication • Low Hysteresis  
• Easy Installation • Custom Design*

**THE BEARING SOLUTION**

# C-FLEX BEARINGS

## Radial and Axial Stiffness Properties

Note: Unless indicated, all values under load capacity apply to Cantilever Bearings

Lc = Load in compression

Lt = Load in tension

BEARING SERIES	LOAD CAPACITY			RADIAL STIFFNESS*		
	Lc	Lt	Axial	Lc	Lt	Axial Stiffness
<b>A SERIES</b>						
10	0.95	3.80	6.08	0.00050	0.00100	0.00050
20	8.90	12.70	12.70	0.00025	0.00050	0.00030
30	25.30	25.30	25.30	0.00017	0.00025	0.00030
<b>B SERIES</b>						
10	1.40	5.60	8.96	0.00033	0.00050	0.00030
20	13.70	19.60	19.60	0.00017	0.00025	0.00020
30	39.30	39.30	39.30	0.00013	0.00017	0.00013
<b>C SERIES</b>						
10	2.00	7.80	12.48	0.00025	0.00033	0.00025
20	19.50	27.90	27.90	0.00014	0.00017	0.00013
30	55.80	55.80	55.80	0.00009	0.00011	0.00008
<b>D SERIES</b>						
10	3.60	14.20	22.72	0.00022	0.00020	0.00014
20	35.00	50.00	50.00	0.00010	0.00011	0.00008
30	100.00	100.00	100.00	0.00006	0.00008	0.00005
<b>E SERIES</b>						
10	5.70	22.80	36.48	0.00014	0.00014	0.00010
20	55.00	78.60	78.60	0.00008	0.00008	0.00006
30	157.10	157.10	157.10	0.00005	0.00006	0.00004
<b>F SERIES</b>						
10	8.40	33.60	53.76	0.00013	0.00008	0.00010
20	79.10	113.00	113.00	0.00007	0.00006	0.00006
30	226.00	226.00	226.00	0.00005	0.00003	0.00004
<b>G SERIES</b>						
10	14.40	57.40	91.84	0.00010	0.00006	0.00008
20	140.00	200.00	200.00	0.00005	0.00003	0.00005
30	400.00	400.00	400.00	0.00003	0.00002	0.00003
<b>H SERIES</b>						
10	23.00	92.00	147.20	0.00008	0.00005	0.00006
20	221.10	315.80	315.80	0.00004	0.00002	0.00003
30	631.50	631.50	631.50	0.00003	0.00002	0.00002
<b>I SERIES</b>						
10	32.40	129.40	207.40	0.00006	0.00004	0.00005
20	317.20	453.10	453.10	0.00003	0.00002	0.00003
30	906.10	906.10	906.10	0.00002	0.00001	0.00002
<b>J SERIES</b>						
10	59.20	236.60	378.88	0.00005	0.00003	0.00004
20	566.30	809.00	809.00	0.00002	0.00001	0.00002
30	1616.00	1616.00	1616.00	0.00001	0.00001	0.00001

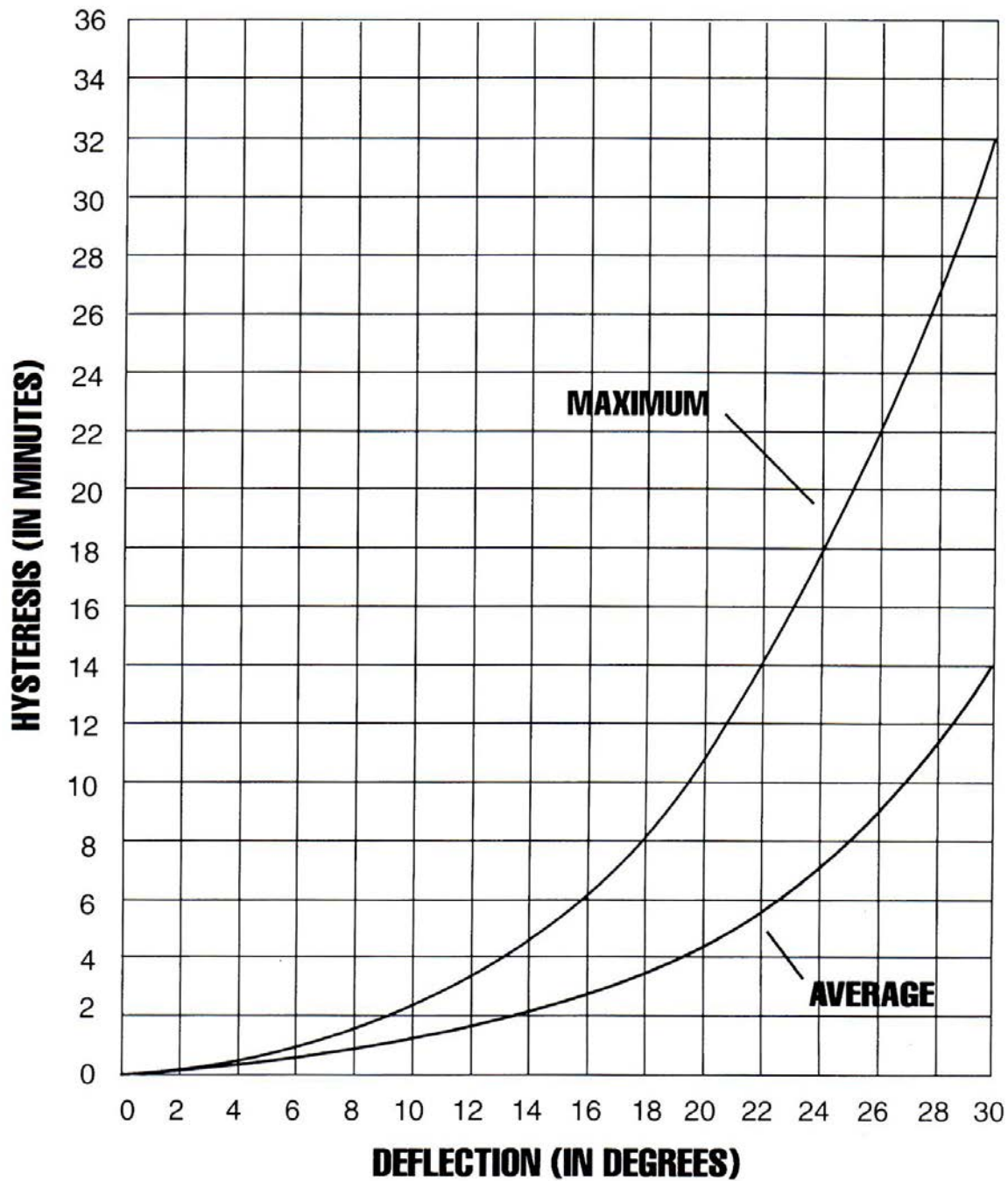
1. Stiffness of bearing is rated in inches of deflection per pound of load.

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 cantilevered bearings connected very stiffly in a mechanical system may be determined by dividing the above values by **three**.

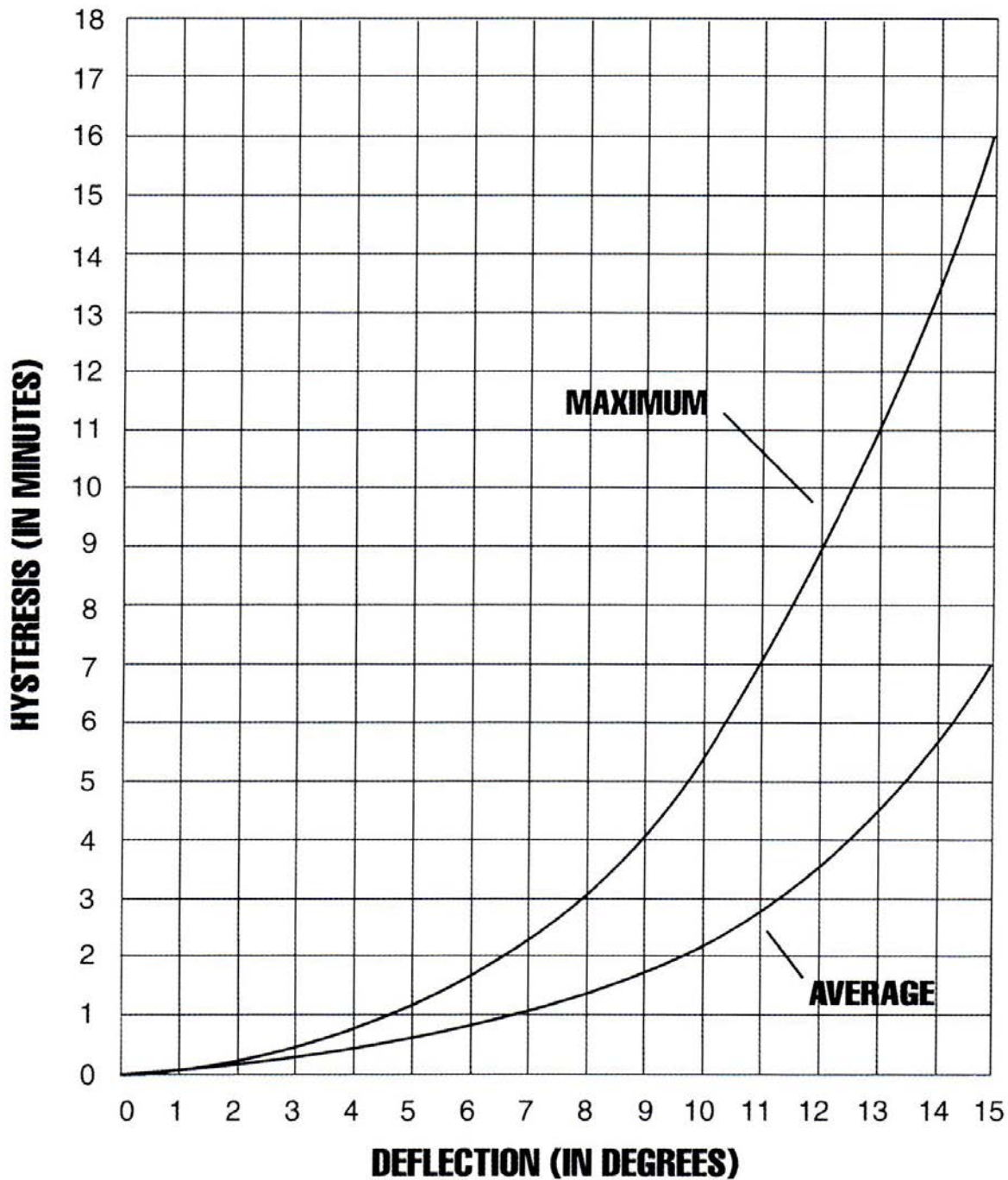
4. \*For double ended bearings of the same sizes and types as above, divide the above radial stiffness values by **two**.

# Hysteresis Curve Type 10 Bearing



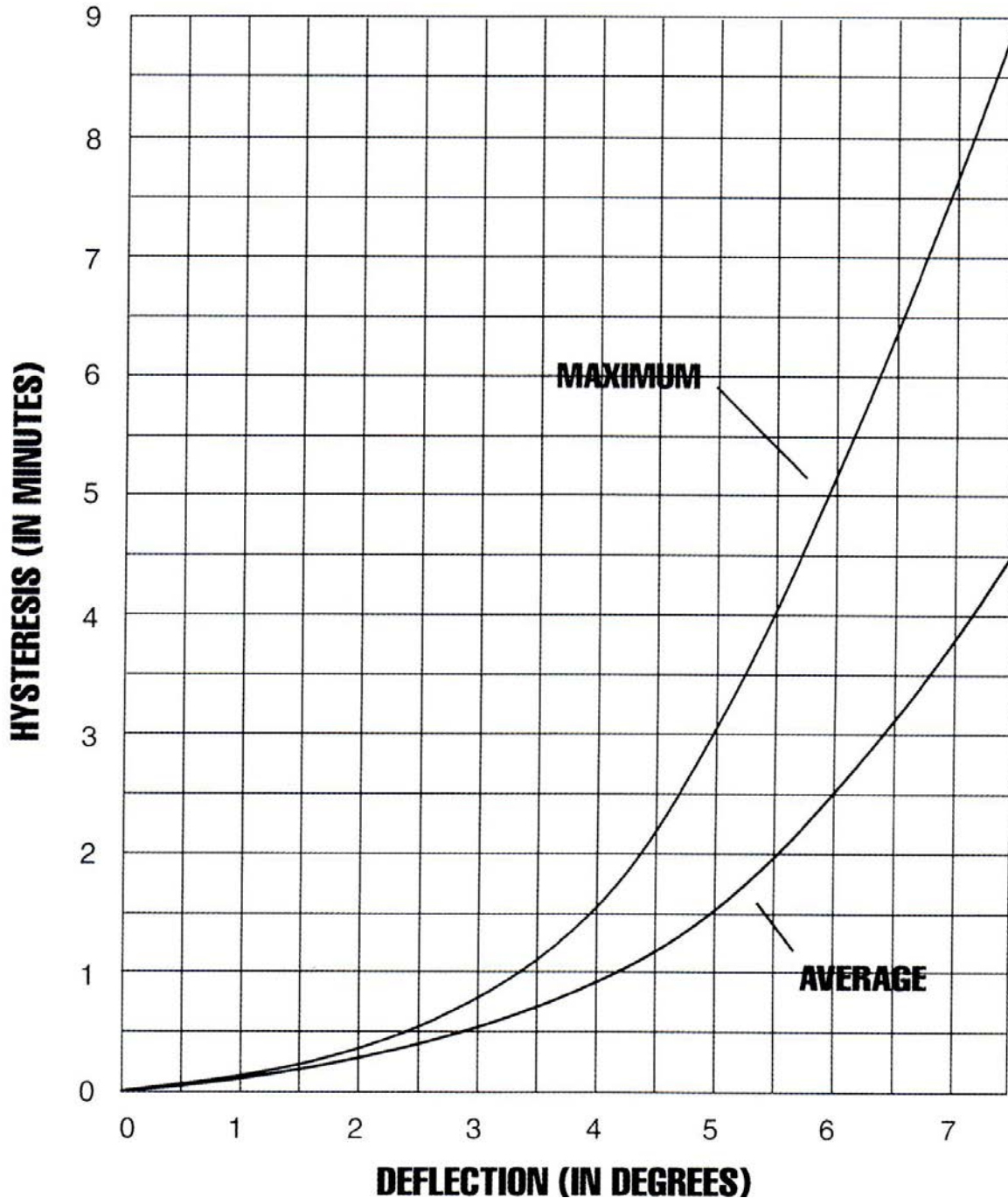
Hysteresis in C-Flex bearings is defined as the difference of null positions when the bearing is deflected to a plus angle and then relieved, and then deflected to an equal minus angle and then relieved. The null position after the plus deflection compared with the null position after the minus deflection is the angle of hysteresis.

# Hysteresis Curve Type 20 Bearing



Hysteresis in C-Flex bearings is defined as the difference of null positions when the bearing is deflected to a plus angle and then relieved, and then deflected to an equal minus angle and then relieved. The null position after the plus deflection compared with the null position after the minus deflection is the angle of hysteresis.

# Hysteresis Curve Type 30 Bearing



Hysteresis in C-Flex bearings is defined as the difference of null positions when the bearing is deflected to a plus angle and then relieved, and then deflected to an equal minus angle and then relieved. The null position after the plus deflection compared with the null position after the minus deflection is the angle of hysteresis.

# COUPLINGS

*Patented design permits large axial, radial and angular misalignments while transmitting high torque loads with zero backlash.*



*C-Flex couplings combine the best qualities of disc, beam and bellows couplings in a unique and economical new design.*

Designed to couple two rotating shafts together, C-Flex couplings can accommodate large misalignments while transmitting high torque loads with zero backlash. Their construction provides for a low moment of inertia and minimal impact upon system dynamics. A large through hole allows for smaller coupling utilization for fitting larger shafts and the fact that they can be disassembled prior to installation, makes them ideal for retrofit applications.

Constructed using high strength hardened stainless steel or glass impregnated polyamide flexures, the couplings require no maintenance, providing years of trouble-free life, even in contaminated environments. Directionally independent, they can provide the same torsional rigidity and offset capability regardless of the rotation direction.

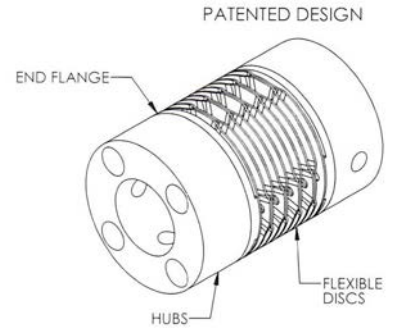
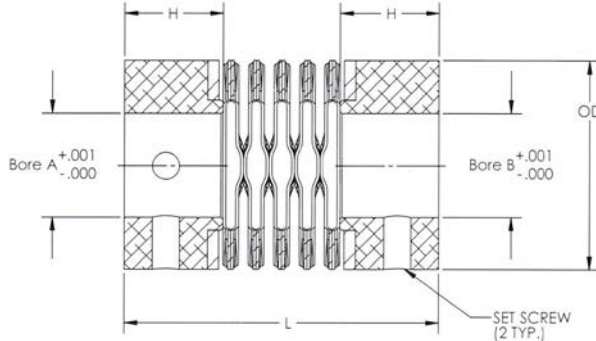
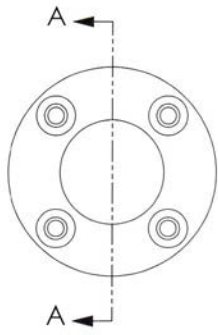
The use of C-Flex couplings in mechanical systems to connect rotating shafts will result in lower energy usage and bearing failure, since less stress is placed upon bearings. Misalignment forces on the bearings of a rotating system generates heat which is wasted energy. The use of C-Flex couplings will minimize these misalignment forces and result in a more energy efficient system.

C-Flex couplings will provide superior technology at the lowest cost. Selection of the correct coupling for your application should result in exceptional long life, even in the most arduous environment.

C-Flex couplings are normally provided with two set screws aligned at 90 degrees to each other for clamping to the shaft, however, they may be provided with C-Flex patent pending progressive clamp bushings, which will allow for secure mark free clamping of the coupling to a shaft. A collet style shaft locking design is presently under development for the lattice servo coupling and will be available soon.

Custom designs for greater torque capability, higher offsets, or special locating features can be provided upon request.

# ENGLISH\* C-FLEX LATTICE COUPLING

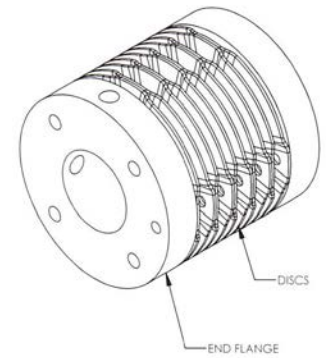
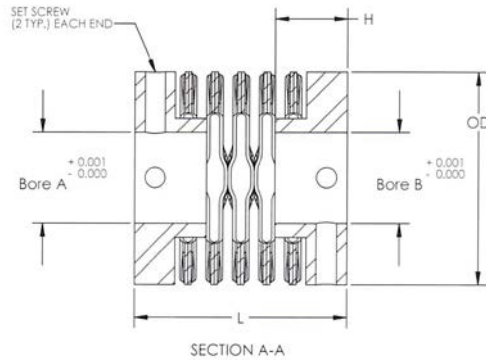
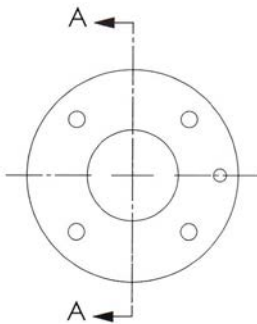


MATERIALS: DISCS 420 SS  
END FLANGE 416 SS  
HUBS 6061 ALUM.

DIMENSIONAL SPECIFICATIONS								PERFORMANCE SPECIFICATIONS					
P/N	OD	L	MIN* BORE A/B	MAX* BORE A/B	H	SET SCREW SIZE	MAX TORQUE (LB*IN)	MAX RPM	MAX ANGULAR OFFSET (DEG)	MAX PARALLEL OFFSET	MAX AXIAL OFFSET	WEIGHT (OZ.)	STATIC TORSIONAL STIFFNESS (LB*IN/DEG)
500750	0.75	1.375	0.125	0.375	0.475	M4 X 0.7	12	10,000	7	0.01	0.02	0.74	11
501000	1	1.5	0.25	0.5	0.474	M4 X 0.7	24	7,500	7	0.015	0.025	1.41	27
501250	1.25	1.65	0.375	0.625	0.46	M5 X 0.8	48	7,500	7	0.015	0.03	2.16	51
501500	1.5	2.25	0.5	0.75	0.704	M6 X 1.0	75	5,000	7	0.02	0.03	4.35	89
501750	1.75	2.6	0.625	0.875	0.755	M6 X 1.0	135	5,000	7	0.02	0.04	6.69	135
502000	2	2.85	0.75	1	0.816	M8 X 1.25	180	3,750	7	0.025	0.05	9.92	205
502500	2.5	3.1	0.875	1.25	0.793	M8 X 1.25	300	3,750	7	0.025	0.05	16.45	395

\*METRIC SIZES AVAILABLE

# ENGLISH\* C-FLEX LATTICE SERVO COUPLING



MATERIALS: DISCS 420 SS  
END FLANGE 416 SS

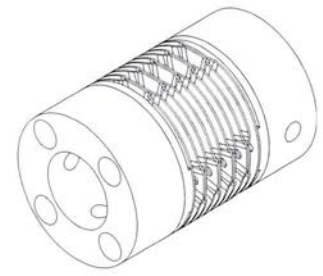
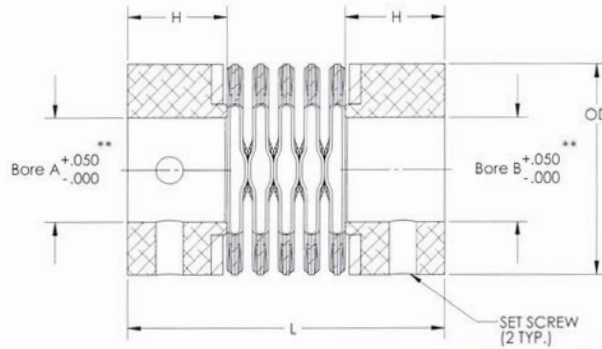
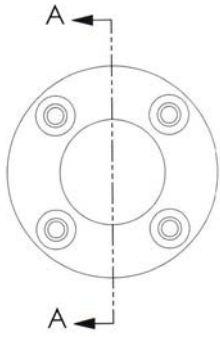
DIMENSIONAL SPECIFICATIONS								PERFORMANCE SPECIFICATIONS					
P/N	OD	L	MIN* BOR A/B	MAX* BORE A/B	H	SET SCREW SIZE	MAX TORQUE (LB*IN)	MAX RPM	MAX ANGULAR OFFSET (DEG)	MAX PARALLEL OFFSET	MAX AXIAL OFFSET	WEIGHT (OZ.)	STATIC TORSIONAL STIFFNESS (LB*IN/DEG)
300750	0.75	0.75	0.125	0.375	0.24	M3 X 0.5	12	10,000	7	0.01	0.02	0.84	11
301000	1	1	0.25	0.5	0.345	M3 X 0.5	24	7,500	7	0.015	0.025	1.6	27
301250	1.25	1.25	0.375	0.625	0.385	M5 X 0.8	48	7,500	7	0.015	0.03	2.45	51
301500	1.5	1.5	0.5	0.75	0.505	M5 X 0.8	75	5,000	7	0.02	0.03	4.94	89
301750	1.75	1.75	0.625	0.875	0.55	M5 X 0.8	135	5,000	7	0.02	0.04	7.59	135
302000	2	2	0.75	1	0.555	M5 X 0.8	180	3,750	7	0.025	0.05	11.26	205
302500	2.5	2.5	0.875	1.25	0.615	M6 X 1.00	300	3,750	7	0.025	0.05	18.67	395

\*METRIC SIZES AVAILABLE



# METRIC\* C-FLEX LATTICE COUPLING

PATENTED DESIGN



MATERIALS: DISCS 420 SS  
END FLANGE 416 SS  
HUBS 6061 ALUM.

DIMENSIONAL SPECIFICATIONS								PERFORMANCE SPECIFICATIONS					
P/N	OD	L	MIN* BORE A/B	MAX* BORE A/B	H	SET SCREW SIZE	MAX TORQUE (N*m)	MAX RPM	MAX ANGULAR OFFSET (DEG)	MAX PARALLEL OFFSET	MAX AXIAL OFFSET	WEIGHT (g)	STATIC TORSIONAL STIFFNESS (N*m/DEG)
600750	19	35	4	10	12	M4 X 0.7	1.4	10,000	7	0.25	0.51	21	1.2
601000	25.4	38	8	13	12	M4 X 0.7	2.8	7,500	7	0.38	0.63	40	3.1
601250	31.7	42	14	16	12	M5 X 0.8	5.6	7,500	7	0.38	0.76	61	5.8
601500	38.1	57	17	19	18	M6 X 1.0	8.5	5,000	7	0.51	0.76	123	10
601750	44.5	66	20	23	19	M6 X 1.0	15.3	5,000	7	0.51	1	190	15
602000	50.8	72	24	26	21	M8 X 1.25	20.5	3,750	7	0.63	1.25	281	23
602500	63.5	79	27	32	20	M8 X 1.25	34	3,750	7	0.63	1.25	466	45

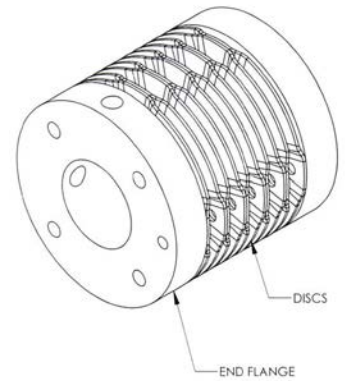
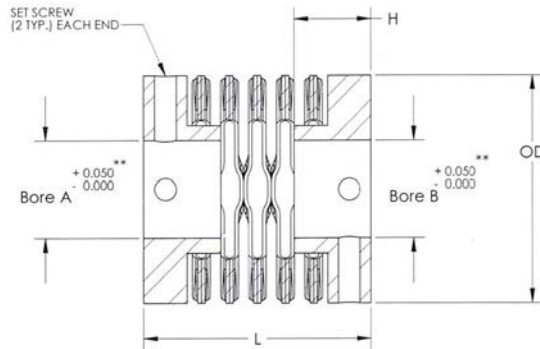
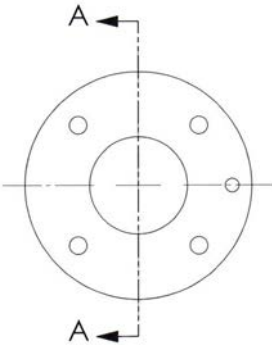
\*ENGLISH SIZES AVAILABLE

\*\*STD. TOLERANCE

ALSO AVAILABLE IN H7 TOLERANCE

# METRIC\* C-FLEX LATTICE SERVO COUPLING

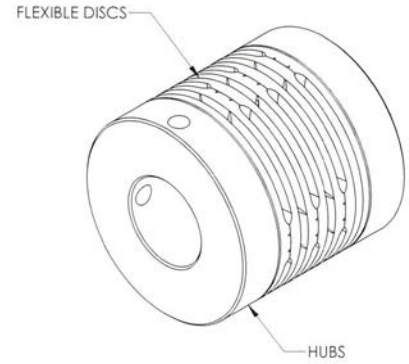
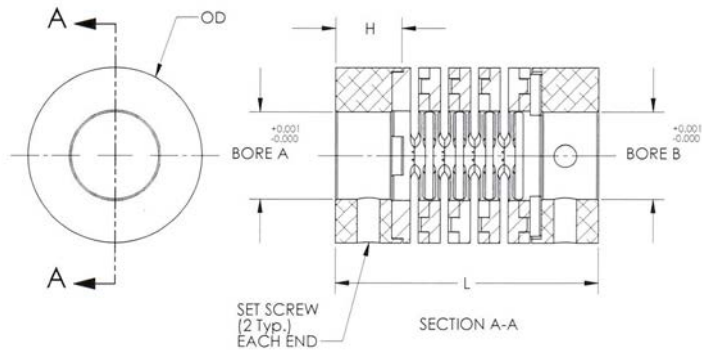
PATENTED DESIGN



DIMENSIONAL SPECIFICATIONS								PERFORMANCE SPECIFICATIONS					
P/N	OD	L	MIN* BOR A/B	MAX* BORE A/B	H	SET SCREW SIZE	MAX TORQUE (N*m)	MAX RPM	MAX ANGULAR OFFSET (DEG)	MAX PARALLEL OFFSET	MAX AXIAL OFFSET	WEIGHT (g)	STATIC TORSIONAL STIFFNESS (N*m/DEG)
400750	19	19	4	10	6	M3 X 0.5	1.4	10,000	7	0.25	0.51	23.8	1.2
401000	25.4	25.4	8	13	8.7	M3 X 0.5	2.8	7,500	7	0.38	0.63	45.4	3.1
401250	31.7	31.7	14	16	9.8	M5 X 0.8	5.6	7,500	7	0.38	0.76	69.2	5.8
401500	38.10	38.10	17	19	12.8	M5 x 0.8	8.5	5,000	7	0.51	0.76	139.6	10
401750	44.5	44.5	20	23	14	M5 x 0.8	15.3	5,000	7	0.51	1	215.6	15
402000	50.8	50.8	24	26	14	M5 x 0.8	20.5	3,750	7	0.63	1.25	319	23
402500	63.5	63.5	27	32	15.6	M6 x 1.00	34	3,750	7	0.63	1.25	529	45

\*ENGLISH SIZES AVAILABLE

# ENGLISH\* C-FLEX SUPERPLASTIC LATTICE COUPLING

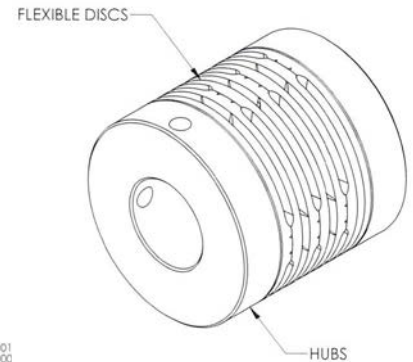
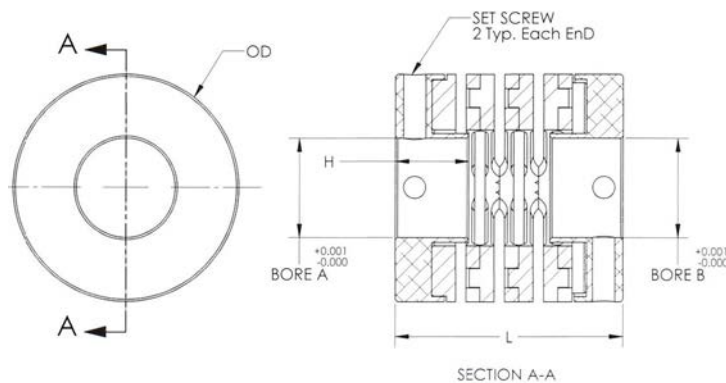


MATERIALS  
DISCS: HIGH PERFORMANCE POLYAMIDE  
RESIN  
HUBS: 6061 ALUM.

DIMENSIONAL SPECIFICATIONS								PERFORMANCE SPECIFICATIONS					
P/N	OD	L	MIN* BORE A/B	MAX* BORE A/B	H	SET SCREW SIZE	MAX TORQUE (LB*IN)	MAX RPM	MAX ANGULAR OFFSET (DEG)	MAX PARALLEL OFFSET	MAX AXIAL OFFSET	WEIGHT (OZ.)	STATIC TORSIONAL STIFFNESS (LB*IN/DEG)
540500	0.5	0.85	0.125	0.25	0.234	M3 X 0.5	5	10,000	7	0.005	0.008	0.55	1.0
541000	1	1.5	0.25	0.5	0.381	M4 X 0.7	20	7,500	7	0.008	0.012	0.93	8.3
541500	1.5	2.2	0.375	0.75	0.548	M5 X 0.8	50	5,000	7	0.01	0.018	3.1	28
542000	2	2.75	0.5	1	0.639	M6 X 1.0	120	3,750	7	0.01	0.02	6.98	67
542500	2.5	3.25	0.625	1.25	0.711	M8 X 1.25	200	3,750	7	0.01	0.02	11.63	129

\*METRIC SIZES AVAILABLE

# ENGLISH\* C-FLEX SUPERPLASTIC LATTICE SERVO COUPLING

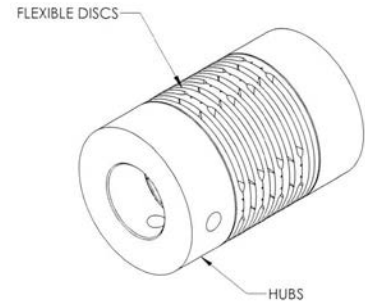
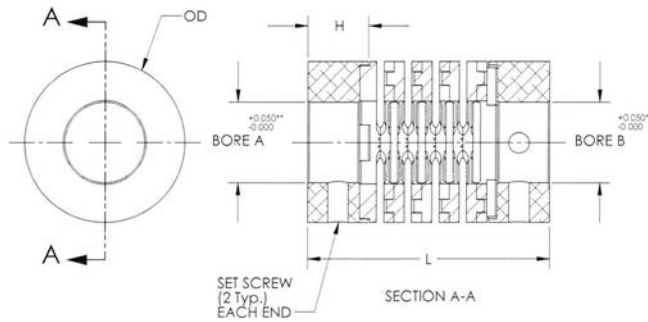


MATERIALS  
DISCS: HIGH PERFORMANCE POLYAMIDE  
RESIN  
HUBS: 6061 ALUM.

DIMENSIONAL SPECIFICATIONS								PERFORMANCE SPECIFICATIONS					
P/N	OD	L	MIN* BORE A/B	MAX* BORE A/B	H	SET SCREW SIZE	MAX TORQUE (LB*IN)	MAX RPM	MAX ANGULAR OFFSET (DEG)	MAX PARALLEL OFFSET	MAX AXIAL OFFSET	WEIGHT (OZ.)	STATIC TORSIONAL STIFFNESS (LB*IN/DEG)
340500	0.5	0.625	0.125	0.187	0.272	M3 X 0.5	5	10,000	5	0.003	0.006	0.3	1.5
341000	1	1	0.25	0.437	0.325	M4 X 0.7	20	7,500	5	0.005	0.008	0.5	12
341500	1.5	1.5	0.375	0.625	0.525	M5 X 0.8	50	5,000	5	0.007	0.013	1.67	40
342000	2	2	0.5	0.75	0.625	M6 X 1.0	120	3,750	5	0.007	0.014	3.75	90
342500	2.5	2.5	0.625	1	0.75	M8 X 1.25	200	3,750	5	0.007	0.014	6.25	175

\*METRIC SIZES AVAILABLE

# METRIC\* C-FLEX SUPERPLASTIC LATTICE COUPLING



MATERIALS  
DISCS: HIGH PERFORMANCE  
POLYAMIDE RESIN  
HUBS: 6061 ALUM.

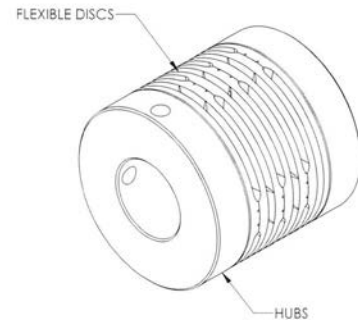
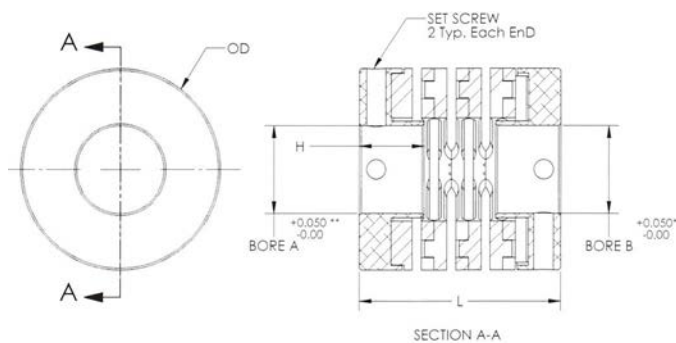
DIMENSIONAL SPECIFICATIONS								PERFORMANCE SPECIFICATIONS					
P/N	OD	L	MIN* BORE A/B	MAX* BORE A/B	H	SET SCREW SIZE	MAX TORQUE (N*m)	MAX RPM	MAX ANGULAR OFFSET (DEG)	MAX PARALLEL OFFSET	MAX AXIAL OFFSET	WEIGHT (g)	STATIC TORSIONAL STIFFNESS (N*m/DEG)
640500	12.7	21.6	4	6	5.9	M3 X 0.5	0.6	10,000	7	0.13	0.2	15.6	0.11
641000	25.4	38.1	6	12	9.7	M4 X 0.7	2.3	7,500	7	0.2	0.3	26.3	2.0
641500	38.1	55.9	10	19	14	M5 X 0.8	5.7	5,000	7	0.25	0.46	87.9	3.2
642000	50.8	69.8	13	25	16.2	M6 X 1.0	13.6	3,750	7	0.25	0.51	198	7.6
642500	63.5	82.6	16	32	18	M8 X 1.25	22.6	3,750	7	0.25	0.51	330	14.6

\*ENGLISH SIZES AVAILABLE

\*\*STD. TOLERANCE

ALSO AVAILABLE IN H7 TOLERANCE

# METRIC\* C-FLEX SUPERPLASTIC LATTICE SERVO COUPLING



MATERIALS  
DISCS: HIGH PERFORMANCE POLYAMIDE  
RESIN  
HUBS: 6061 ALUM.

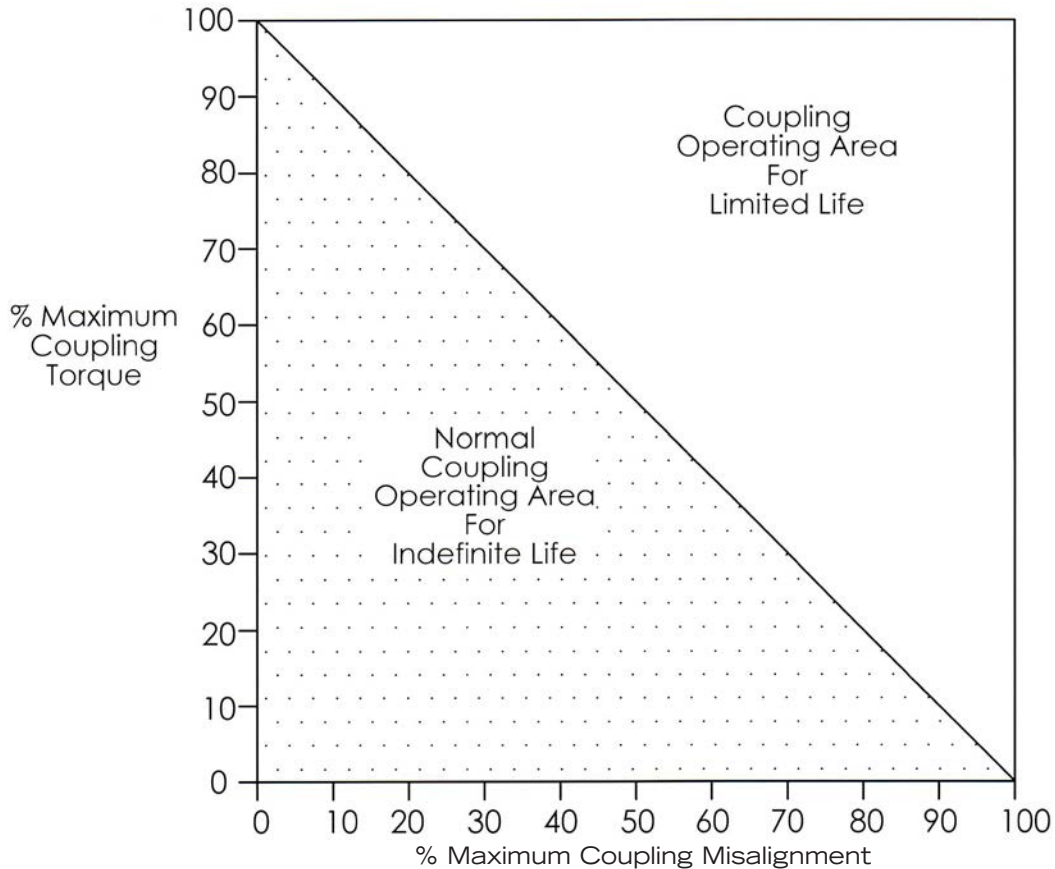
DIMENSIONAL SPECIFICATIONS								PERFORMANCE SPECIFICATIONS					
P/N	OD	L	MIN* BORE A/B	MAX* BORE A/B	H	SET SCREW SIZE	MAX TORQUE (N*m)	MAX RPM	MAX ANGULAR OFFSET (DEG)	MAX PARALLEL OFFSET	MAX AXIAL OFFSET	WEIGHT (g)	STATIC TORSIONAL STIFFNESS (N*m/DEG)
440500	12.7	15.9	4	5	7	M3 X 0.5	0.6	10,000	5	0.08	0.15	8.5	0.17
441000	25.4	25.4	6	11	8.3	M4 X 0.7	2.3	7,500	5	0.13	0.2	14.2	1.4
441500	38.1	38.1	10	16	13.3	M5 X 0.8	5.7	5,000	5	0.18	0.33	47.3	4.5
442000	50.8	50.8	13	19	15.9	M6 X 1.0	13.6	3,750	5	0.18	0.36	106	10.2
442500	63.5	63.5	16	25	19	M8 X 1.25	22.6	3,750	5	0.18	0.36	177	20.0

\*ENGLISH SIZES AVAILABLE

\*\*STD. TOLERANCE

ALSO AVAILABLE IN H7 TOLERANCE

# C-FLEX COUPLING PERFORMANCE GUIDE



1. Calculate % Maximum Parallel Misalignment  
= Max. expected parallel misalignment/ Coupling Max. parallel misalignment capacity
2. Calculate % Maximum Axial Misalignment  
= Max. expected axial misalignment/ Coupling Max. axial misalignment capacity
3. Calculate % Maximum Angular Misalignment  
= Max. expected angular misalignment/ Coupling Max. angular misalignment capacity
4. Determine % Maximum Coupling Misalignment  
= % Max Parallel Misalignment + % Max Axial Misalignment + % Max Angular Misalignment

EXAMPLE: An application for a 2" coupling will have the following possible misalignments:

Parallel: 0.002", axial: 0.005", angular: 2 deg.

Calculating the Total Maximum Coupling Misalignment:

Parallel:  $0.002" / 0.025" = 8\%$

Axial:  $0.005" / 0.050" = 10\%$

Angular:  $2 \text{ deg.} / 7 \text{ deg.} = 29\%$

Total Maximum Coupling Misalignment =  $47\%$

Referring to the Coupling Performance Guide Chart, this gives a maximum continuous torque capacity for indefinite life of 95 lb-in (180 lb-in x 0.53). If this performance rating is not sufficient, pick another size coupling and re-calculate.

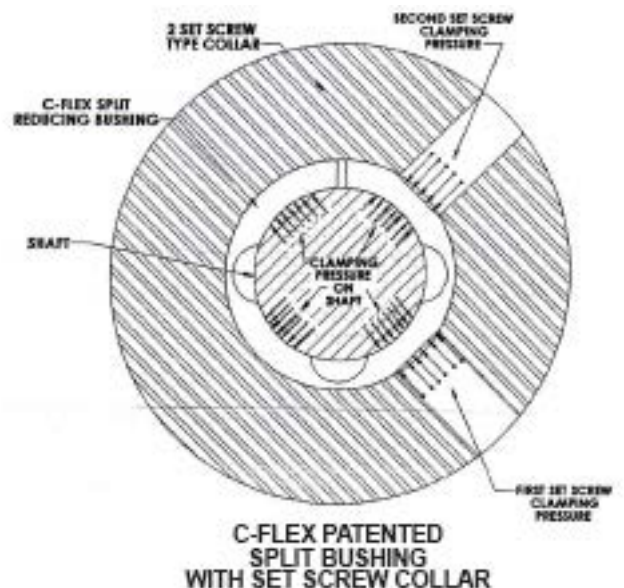
# C-FLEX PROGRESSIVE CLAMP BUSHINGS



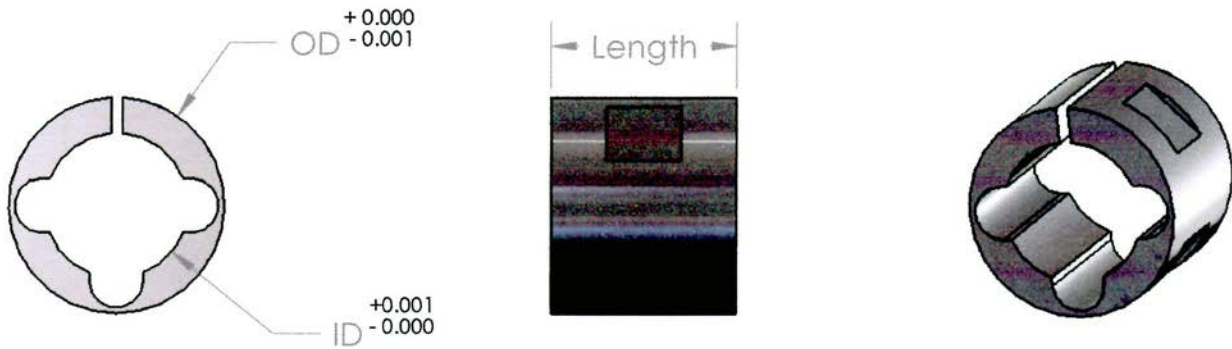
- HARDENED STAINLESS STEEL
- PATENTED DESIGN
- DESIGNED FOR USE WITH STD. TWO SET SCREW COLLAR (90 DEG. OFFSET)
- WILL NOT MARK SHAFT
- AVAILABLE IN METRIC OR ENGLISH
- 25% GREATER HOLDING POWER THAN STD. SPLIT COLLAR

The C-Flex patented progressive clamp bushing, utilizes force multiplying technology to generate large clamping forces with multi-surface contact.

Proper sequential clamping is required to achieve optimum results. (First, fully tighten collar set screw onto first bushing clamping surface, then tighten second collar set screw onto second bushing clamping surface.)



# PROGRESSIVE CLAMP BUSHINGS



## SPECIFICATIONS

P/N	OD	LENGTH	ID
105001	0.250"	0.221"	0.125"
105002	0.250"	0.221"	0.1563"
105003	0.250"	0.221"	0.1875"
105004	0.250"	0.221"	4 mm
105005	0.250"	0.221"	5 mm

110001	0.500"	0.449"	0.250"
110002	0.500"	0.449"	0.3125"
110003	0.500"	0.449"	0.375"
110004	0.500"	0.449"	6 mm
110005	0.500"	0.449"	8 mm
110006	0.500"	0.449"	10 mm

112501	0.625"	0.460"	0.5625"
112502	0.625"	0.460"	0.500"
112503	0.625"	0.460"	0.4375"
112504	0.625"	0.460"	14 mm
112505	0.625"	0.460"	12 mm
112506	0.625"	0.460"	10 mm

115001	0.750"	0.646"	0.500"
115002	0.750"	0.646"	0.625"
115003	0.750"	0.646"	0.6875"
115004	0.750"	0.646"	12 mm
115005	0.750"	0.646"	16 mm
115006	0.750"	0.646"	0.375"

P/N	OD	LENGTH	ID
1175001	0.875"	0.755"	0.750"
1175002	0.875"	0.755"	0.6875"
1175003	0.875"	0.755"	0.6250"
1175004	0.875"	0.755"	18 mm
1175005	0.875"	0.755"	16 mm
1175006	0.875"	0.755"	14 mm

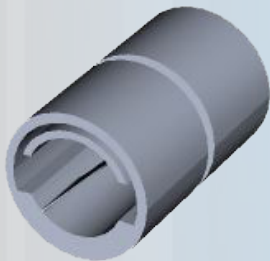
120001	1.000"	0.773"	0.750"
120002	1.000"	0.773"	0.8125"
120003	1.000"	0.773"	0.875"
120004	1.000"	0.773"	18 mm
120005	1.000"	0.773"	20 mm
120006	1.000"	0.773"	0.625"

125001	1.250"	0.793"	1.000"
125002	1.250"	0.793"	1.062"
125003	1.250"	0.793"	1.125"
125004	1.250"	0.793"	24 mm
125005	1.250"	0.793"	25 mm



# SOLID CAD MODELS

Want to see a solid model of a C-Flex bearing or coupling? Find downloadable solid models for all C-Flex products online!



Our catalog of solid models is available on TraceParts. For Engineering CAD files, go to:

[www.tracepartsonline.net/ws/c-flex](http://www.tracepartsonline.net/ws/c-flex).

Click on CATALOGS and enter "C-FLEX" into the search field. Click the C-FLEX logo to open the catalog.

For general catalog information direct from our website, you can download PDF files at <https://c-flex.com/literature/>.



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