FLEXI-HINGE

SDP/SI

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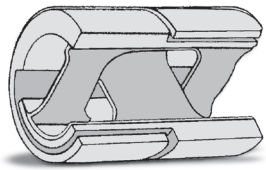
Inch
0 1

MATERIAL:
400 Series Stainless Steel

OPERATING TEMPERATURE:
-65°F to +350°F

APPLICATIONS:
Optical Mounts, Belt Tensioners, Linear Positioners, Lever Actuators and Sensitive Measuring Instruments.

Flexi-Hinge is a compact, versatile, easy-to-install device which requires no maintenance, offers indefinite life and is resistant to detrimental environmental conditions. Highly accurate, even after a lifetime of cycling, **Flexi-Hinges** offer the optimum solution for many of today's engineering problems.
The 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°. They are frictionless, require no lubrication, can function at limited angular travels indefinitely, are self-centering when unloaded, and have extremely low hysteresis. Lubrication migration and brinelling are eliminated.
Flexi-Hinges perform their function without maintenance within a wide temperature range, extreme vibration, dust, abrasive slurry, and even a vacuum.



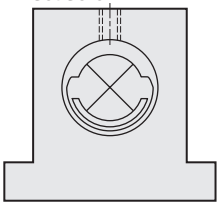
Cutaway view shows how crossed springs are situated within the two-part capsule.

MAXIMUM ANGULAR TRAVEL FOR INDEFINITE LIFE:
Series 10: ± 15°
Series 20: ± 7.5°
Series 30: ± 3.7°

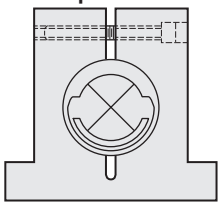
SPECIFICATIONS:
Spring Rate Tolerance:
± 10% at Zero Load
Mounting Hole:
.0005 to .0010 Larger than Flexi-Hinge O.D.

Mounting Methods:

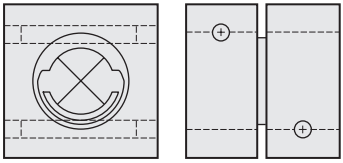
Set Screw



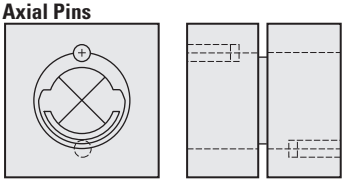
Clamp Screw



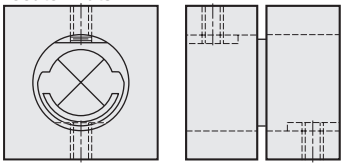
Radial Pins



Axial Pins



Locator Flats



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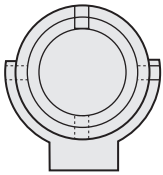
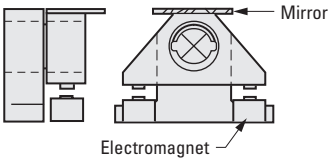
GIMBALS

Free from backlash, friction and wear, Flexi-Hinges give the extreme accuracy needed for positioning precision optics.



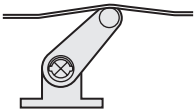


OSCILLATING MIRRORS

Optical scanners using Flexi-Hinges provide for the ultimate in cost-effective design. They allow for easy assembly and, with indefinite life expectancies, perform with undiminished accuracy.

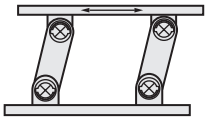
TENSIONERS

Belt or chain tensioning can be easily achieved through the use of Flexi-Hinges. Tolerant of hostile environments and not subject to wear, extreme long life can be expected without maintenance.



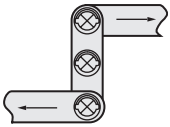
LINEAR POSITIONERS

Free of errors due to backlash, friction or wear, Flexi-Hinges mounted in suitable geometric structures can provide accurate linear movement or adjustment.



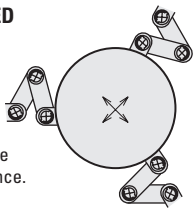
LEVEL ACTUATORS

Accurate motion requirements in areas of contamination, temperature extremes, or in a vacuum, can be easily provided through linkages utilizing Flexi-Hinge.



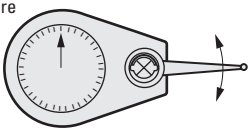
RESTRAINED or DAMPENED OSCILLATING MOTION

Eccentric or circular oscillating mechanisms can utilize Flexi-Hinge to provide centralizing and dampening actions for a lifetime of maintenance-free performance.



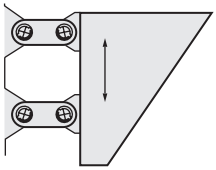
GAGES / SENSORS

Miniature sizes which are free of error from backlash, friction or wear make Flexi-Hinges ideal for applications where positions must be accurately measured or outside forces sensed.



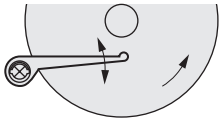
VIBRATING / SORTING MECHANISMS

A workhorse, capable of supporting heavy loads for years of continuous service without wear or deterioration, Flexi-Hinges are ideal for equipment such as vibrating hoppers operating in severe environments.



OPTICAL or MAGNETIC DISC READ / WRITE HEADS

With their constant, predictable spring rate, Flexi-Hinges are immune to the problems of starting vs. moving torque requirements of conventional bearings. Also, since they operate without backlash errors or wear, a lifetime of accurate performance can be expected.



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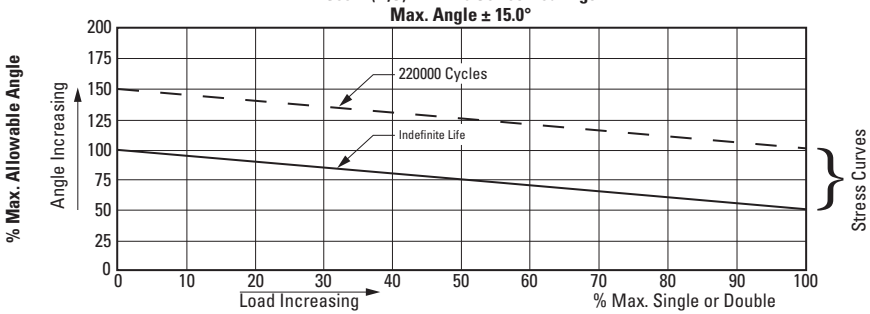
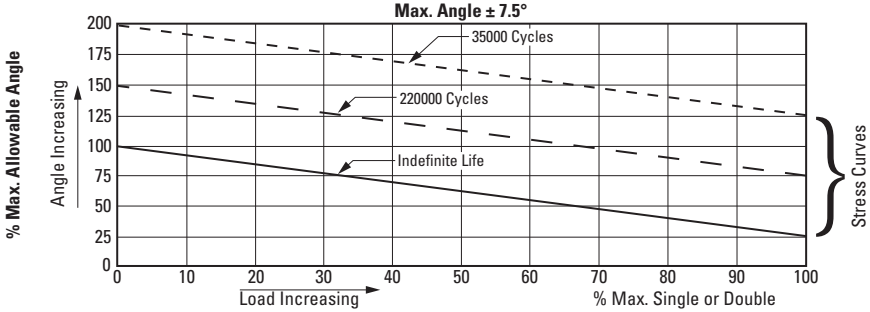
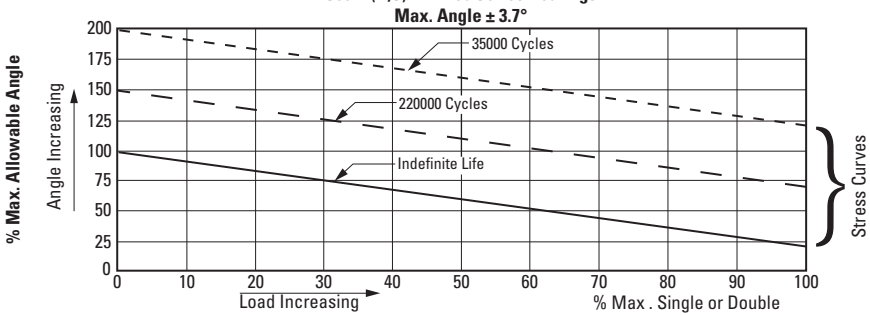
S99FX(D,S)-XXXX10 Series Bearings
Max. Angle ± 15.0°



S99FX(D,S)-XXXX20 Series Bearings
Max. Angle ± 7.5°



S99FX(D,S)-XXXX30 Series Bearings
Max. Angle ± 3.7°



* Max. Angle of Deflection = The deflection angle from the null position. Positive or Negative.

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LIMITED ANGLE ROTARY APPLICATIONS
ZERO BACKLASH
LUBRICATION-FREE
CONSTANT LINEAR TORSIONAL SPRING RATE
OPERATES IN ALL ENVIRONMENTS
SELF-CENTERING WHEN LOAD IS REMOVED

Inch
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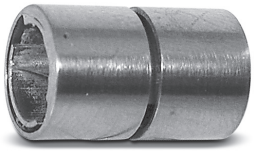
Precision Component



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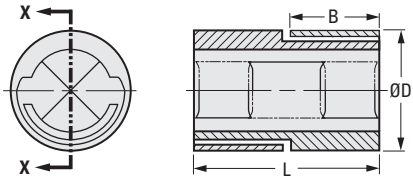
Series 20: ± 7.5°
Series 30: ± 3.7°

The last two digits of the Catalog Number denotes the series.



SECTION X-X

INCH COMPONENT

Catalog Number	D O.D. +.0000 -.0005	L Length ± .003	B End Length min.	Spring Rate lbf in./ degree	Max. Load Capacity at Zero Deflection	
					Compression lbf	Tension lbf
S99FXS-012510	.1250	.200	.088	.0003	.95	3.80
S99FXS-012520	.1250	.200	.088	.0018	8.90	12.70
S99FXS-012530	.1250	.200	.088	.0148	25.30	25.30
S99FXS-015610	.1562	.250	.114	.0004	1.40	5.60
S99FXS-015620	.1562	.250	.114	.0037	13.70	19.60
S99FXS-015630	.1562	.250	.114	.0296	39.30	39.30
S99FXS-018710	.1875	.300	.136	.0007	2.00	7.80
S99FXS-018720	.1875	.300	.136	.0060	19.50	27.90
S99FXS-018730	.1875	.300	.136	.0482	55.80	55.80
S99FXS-025010	.2500	.400	.184	.0018	3.60	14.20
S99FXS-025020	.2500	.400	.184	.0148	35.00	50.00
S99FXS-025030	.2500	.400	.184	.1185	100.00	100.00
S99FXS-031210	.3125	.500	.232	.0037	5.70	22.80
S99FXS-031220	.3125	.500	.232	.0296	55.00	78.60
S99FXS-031230	.3125	.500	.232	.2367	157.10	157.10
S99FXS-037510	.3750	.600	.279	.0065	8.40	33.60
S99FXS-037520	.3750	.600	.279	.0482	79.10	113.00
S99FXS-037530	.3750	.600	.279	.4002	226.00	226.00
S99FXS-050010	.5000	.800	.374	.0148	14.40	57.40
S99FXS-050020	.5000	.800	.374	.1185	140.00	200.00
S99FXS-050030	.5000	.800	.374	.9486	400.00	400.00
S99FXS-062510	.6250	1.000	.469	.0296	23.00	92.00
S99FXS-062520	.6250	1.000	.469	.2367	211.10	315.80
S99FXS-062530	.6250	1.000	.469	1.8940	631.50	631.50
S99FXS-075010	.7500	1.200	.564	.0482	32.40	129.40
S99FXS-075020	.7500	1.200	.564	.4002	317.20	453.10
S99FXS-075030	.7500	1.200	.564	3.2610	906.10	906.10
S99FXS-100010	1.0000	1.600	.764	.1185	59.20	236.60
S99FXS-100020	1.0000	1.600	.764	.9486	566.30	809.00
S99FXS-100030	1.0000	1.600	.764	7.8023	1616.00	1616.00

DOUBLE END FLEXI-HINGE

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Inch
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Precision Component

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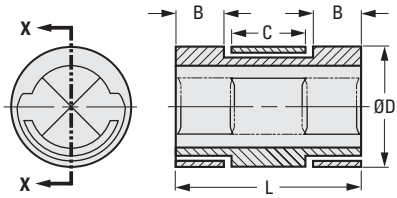

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Catalog Number	D O.D. +.0000 -.0005	L Length ± .003	B End Length min.	C Center Length min.	Spring Rate lbf in./ degree	Max. Load Capacity at Zero Deflection	
						Compression lbf	Tension lbf
S99FXD-012510	.1250	.200	.038	.070	.0003	2.30	4.60
S99FXD-012520	.1250	.200	.038	.070	.0018	17.50	25.00
S99FXD-012530	.1250	.200	.038	.070	.0148	28.00	28.00
S99FXD-015610	.1562	.250	.050	.100	.0004	3.50	7.00
S99FXD-015620	.1562	.250	.050	.100	.0037	28.00	40.00
S99FXD-015630	.1562	.250	.050	.100	.0296	45.00	45.00
S99FXD-018710	.1875	.300	.060	.120	.0007	5.00	10.00
S99FXD-018720	.1875	.300	.060	.120	.0060	40.00	60.00
S99FXD-018730	.1875	.300	.060	.120	.0482	63.00	63.00
S99FXD-025010	.2500	.400	.083	.165	.0018	9.00	18.00
S99FXD-025020	.2500	.400	.083	.165	.0148	70.00	100.00
S99FXD-025030	.2500	.400	.083	.165	.1185	115.00	115.00
S99FXD-031210	.3125	.500	.105	.210	.0037	14.00	28.00
S99FXD-031220	.3125	.500	.105	.210	.0296	110.00	150.00
S99FXD-031230	.3125	.500	.105	.210	.2367	175.00	175.00
S99FXD-037510	.3750	.600	.128	.255	.0065	20.00	40.00
S99FXD-037520	.3750	.600	.128	.255	.0482	160.00	220.00
S99FXD-037530	.3750	.600	.128	.255	.4002	250.00	250.00
S99FXD-050010	.5000	.800	.173	.345	.0148	35.00	70.00
S99FXD-050020	.5000	.800	.173	.345	.1185	280.00	380.00
S99FXD-050030	.5000	.800	.173	.345	.9486	450.00	450.00
S99FXD-062510	.6250	1.000	.210	.430	.0296	55.00	110.00
S99FXD-062520	.6250	1.000	.210	.430	.2367	450.00	620.00
S99FXD-062530	.6250	1.000	.210	.430	1.8940	700.00	700.00
S99FXD-075010	.7500	1.200	.263	.520	.0482	80.00	160.00
S99FXD-075020	.7500	1.200	.263	.520	.4002	630.00	900.00
S99FXD-075030	.7500	1.200	.263	.520	3.2610	1000.00	1000.00
S99FXD-100010	1.0000	1.600	.363	.720	.1185	140.00	280.00
S99FXD-100020	1.0000	1.600	.363	.720	.9486	1100.00	1500.00
S99FXD-100030	1.0000	1.600	.363	.720	7.8023	1800.00	1800.00