

# FLEXIBLE SHAFT COUPLINGS

## FLEXIBLE JAW - SPIDER PERFORMANCE DATA

Four types of elastomer designs and materials are offered to allow for flexibility in addressing specific application requirements.

### Standard Materials:

- SOX (NBR) Rubber (Black) - Nitrile Rubber
  - Considered the standard and most economical for jaw coupling spiders
  - Offers the best combination of temperature and chemical resistance, misalignment, and dampening ability
  - Only material suitable for reciprocating engine applications
  - 80A Shore Hardness except L035=60A
  - Temperature Range - 40° F to 212° F (-40° C to 100° C)
  - Resembles natural rubber in resilience and elasticity
  - Also applies to SXB Cushions
- Urethane (Blue)
  - Greater torque capability than NBR (1.5 times), provides less dampening effect and operates in a smaller temperature range
  - Good resistance to oil and chemicals
  - Not recommended for cyclic or start/stop applications
  - L050 to L110 Shore Hardness 55D, L150 to L225 Shore Hardness 90-95A
  - Temperature Range -30° F to 160° F (-34° C to 71° C)
- Hytrel (Tan)
  - Flexible elastomer designed for high torque and high temperature operations
  - Excellent resistance to oil and chemicals
  - Not recommended for cyclic or start/stop applications
  - 55D Shore Hardness
  - Temperature Range -60° F to 250° F (-51° C to 121° C)
- Bronze
  - Rigid, porous oil-impregnated metal insert exclusively for low speed (max 250 RPM) applications requiring high torque capabilities
  - Not affected by extreme temperatures, water, oil, or dirt
  - Temperature Range -40° F to 450° F (-40° C to 232° C)

### Standard Styles:

- Solid Center
  - Commonly used when shafts of the driver and driven equipment can be kept separate by a standard gap
- Open Center
  - Allows for the shafts of the driver and driven to be positioned within a short distance
  - Offer shaft positioning flexibility but have a lower RPM capacity (1,750 RPM Max for NBR, 3,600 Max for Urethane/Hytrel)
- Snap Wrap Flexible
  - Design allows for easy removal of the spider without moving the hubs
  - Allows for close shaft separation all the way up to the hubs maximum bore
  - Maximum RPM is 1,750 RPM with the retaining ring, but if used with the LC Type (with collar) the normal RPM rating of the coupling applies
  - Style is available in NBR and Urethane only, and in limited sizes
- Cushions
  - Used exclusively for the C Type couplings
  - Load cushions are held in place radially by a steel collar which is attached to one of the hubs



# FLEXIBLE SHAFT COUPLINGS

## FLEXIBLE JAW - SPIDERS & CUSHIONS



Spiders for L Type Hubs													
Type	L035	L050	L070	L075	L090	L095	L099	L100	L110	L150	L190	L225	L276
SOX (NBR) (solid)	10118	10194	10406	10621	11070	11070	11494	11494	11724	12001	12274	12409	
SOX (NBR) (open center)			10393	10620	10968	10968	11492	11492	11711	37880	37881	12406	12612
Urethane (solid)		37786	10395										
Urethane (open center)			10411	10626	11075	11075	11499	11499	11729	12006	12280	12417	
Hytrel (solid)		25307							11717	11993	12265	12401	
Hytrel (open center)			25308	25309	25310	25310	11486	11486	38097	38098	38099	12400	
Bronze (open center)		10498	10409	10624	11073	11073	11497	11497	11727	12004	12277	34517	25767
Snap Wrap w/ring					24669	24669	24670	24670	24671	24672	24673		
Snap Wrap w/o ring					11071	11071	11495	11495	11725	12002	12275		
Snap Wrap Urethane (Solid Ring)							41170	41170	41171		28284	26093	

Spiders for AL Type Hubs									
Type	AL050	AL070	AL075	AL090	AL095	AL099	AL100	AL110	AL150
SOX (NBR) (solid)	10194	10406	10621	11070	11070	11494	11494	11724	18027
SOX (NBR) (open center)		10393	10620	10968	10968	11492	11492	11711	
Urethane (solid)	37786	10395							
Urethane (open center)		10411	10626	11075	11075	11499	11499	11729	
Hytrel (solid)	25307							11717	
Hytrel (open center)		25308	25309	25310	25310	11486	11486	38097	
Bronze (open center)	10198	10409	10624	11073	11073	11497	11497	11727	
Snap Wrap w/ring				24669	24669	24670	24670	24671	
Snap Wrap w/o ring				11071	11071	11495	11495	11725	



Cushions and Collars for C Type Hubs							
Size	→	C226	C276	C280	C285	C295	C2955
No. of Cushions	→	6	6	6	6	6	10
SXB(NBR) cushion set		14547	14633	14712	14771	14805	14856
HYTREL cushion set		27529	14637	14716	14774	14808	14859
BRONZE cushion set		14545				51914	51915
COLLAR with hardware		40122	40123	40124	40292	40293	40293

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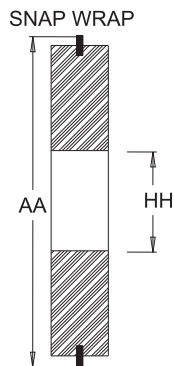
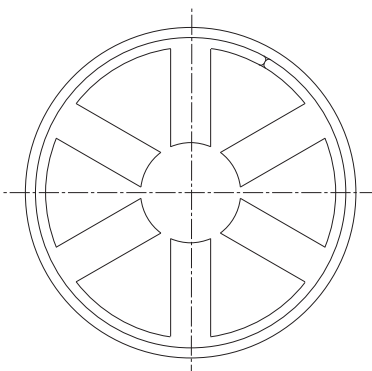
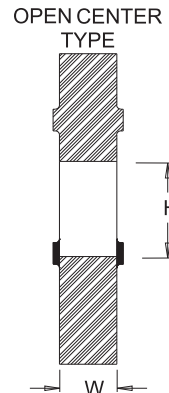
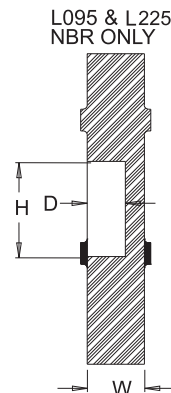
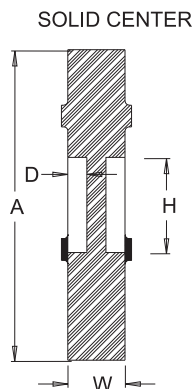
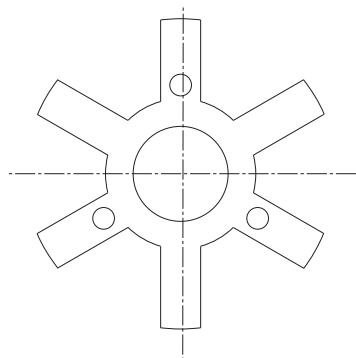
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# FLEXIBLE SHAFT COUPLINGS

## FLEXIBLE JAW - SPIDERS & CUSHIONS DIMENSIONS



Solid Center Spiders						
Size	Material Available				Dimensions	
	SOX NBR	URE	HYT	BRZ	A	D H
L035	10118				.062	
L050	10194	37786	25307		1.06	
L070	10406				1.38	
L075	10621				1.75	
L090	11070				2.12	.18 .87
L095	11070				2.12	.18 .87
L099	11494				2.53	.25 1.03
L100	11494				2.53	.25 1.03
L110	11724		11717		3.31	NBR .25 HYT .18 1.18
L150	12001		11993		3.75	NBR .31 HYT .21 1.25
L190	12274		12265		4.50	NBR .31 HYT .18 1.38
L225	12409		12400		5.00	NBR .38 HYT .18 1.75
L276						

Open Center Spiders						
Size	Material Available				Dimensions	
	SOX NBR	URE	HYT	BRZ	A	H
L035						
L050				10498	1.06	.31
L070	10393	10395	25308	10409	1.38	.50
L075	10620	10626	25309	10624	1.75	.75
L090	10968	11075	25310	11073	2.12	.87
L095	10968	11075	25310	11073	2.12	.87
L099	11492	11499	11486	11497	2.53	1.03
L100	11492	11499	11486	11497	2.53	1.03
L110	11711	11729	38097	11727	3.31	1.18
L150	37880	12006	38098	12004	3.75	1.25
L190	37881	12280	38099	12274	4.50	1.38
L225	12406	12417	12401	34517	5.00	1.75
L276	12612		25767		6.18	1.75

Snap Wrap Spiders			
Size	SOX NBR	Dimens.	
		AA	HH
L035	N/A		
L050	N/A		
L070	N/A		
L075	N/A		
L090	24669	2.56	1.06
L095	24669	2.56	1.06
L099	24670	3.08	1.37
L100	24670	3.08	1.37
L110	24671	3.87	1.50
L150	24678	4.56	1.75
L190	24673	5.18	2.25
L225	URE	5.44	2.75
L276	N/A		

All	
Size	W
L035	.27
L050	.40
L070	.42
L075	.44
L090	.44
L095	.44
L099	.63
L100	.63
L110	.75
L150	.88
L190	.88
L225	.92
L276	1.50

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## FLEXIBLE JAW - C TYPE HUBS

The C Type Coupling offers greater torque and larger bore capacity (compared to L type). It is the industry's largest available selection from stock.

### Standard Features:

- Elastomeric cushions are radially removable
- Accommodates for angular and parallel shaft misalignment
- No metal to metal contact
- Resistant to oil, dirt, sand, moisture, and grease
- Max Bore: 4.000 inches (102mm)
- Max Torque: 37,800 in-lbs (4271 Nm)

### Standard Material:

- Cast Iron

**NOTE:** A full C Type Coupling is comprised of two standard C Type hubs, one cushion set, and one collar with hardware.

C Type Metric Hubs Standard Bore and Keyway (mm)							
Bore	Keyway	C226	C276	C280	C285	C295	C2955
30	8 X 3.3	62792					
35	10 X 3.3	60243	47386				
38	10 X 3.3	45348	62160				
40	12 X 3.3	49379	54037				
42	12 X 3.3		45219				
45	14 X 3.8	52550	44723	58265			
48	14 X 3.8	54288		52205			
55	16 X 4.3	58011	58444	49012			
60	18 X 4.4		47265	49378			
65	18 X 4.4		52008				58676
70	20 X 4.9		59032		56794	54355	58677
75	22 X 5.4					47813	58678
80	22 X 5.4				44487	58675	58679
90	25 X 5.4				54363		
95	25 X 5.4						62695

C Type Inch Hubs Standard Bore and Keyway							
Bore	Keyway	C226	C276	C280	C285	C295	C2955
7/8 RSB		40125	40126				
1 1/8	1/4 x 1/8	26036	26050				
1 1/4 RSB				26067	41036		
1 1/4	1/4 x 1/8	26037	26051	48988	47173		
1 3/8	5/16 x 5/32	26038	26052	46278	55546		
1 7/16	3/8 x 3/16	26039					
1 1/2 RSB						41037	
1 1/2	3/8 x 3/16	26040	26053	46277	48366	44824	
1 5/8	3/8 x 3/16	26041	26054	46194	41892	56078	
1 3/4 RSB							41038
1 3/4	3/8 x 3/16	26042	26055	44011	52311	45780	
1 7/8	1/2 x 1/4	26043	26056	44012	51533	47080	49075
2	1/2 x 1/4	26044	26057	48194			
2 1/8	1/2 x 1/4	26045	26058	44370	49809	44711	
2 1/4	1/2 x 1/4	26046	44547				
2 3/8	5/8 x 5/16	26047	26060	44014	47288	44825	52703
2 1/2	5/8 x 5/16	26048	46120	51998	56779	45249	48454
2 5/8	5/8 x 5/16		46755	44013		50145	54549
2 7/8	3/4 x 3/8		26064	51525	49456	52702	48108
3	3/4 x 3/8			48193			
3 3/8	7/8 x 7/16				47171	45402	49077
3 1/2	7/8 x 7/16				46844	52988	44545
3 5/8	7/8 x 7/16						50106
3 3/4	7/8 x 7/16						58378
3 7/8	1 x 1/2				48247		49351
4	1 x 1/2						55016



**Note:** RSB (Rough Stock Bore) hub has no keyway or set screw hole, it is not useable as shown and must be machined to proper bore tolerances. Hub includes inside sleeve and is drilled and tapped for collar bolts. Non-standard bores available, consult engineering

# FLEXIBLE SHAFT COUPLINGS

## FLEXIBLE JAW COUPLINGS - PERFORMANCE DATA

Flexible Shaft Couplings - Performance Data									
Size	Elastomeric Member	Number of Jaws	Basic HP Ratings @ Varying RPM		Torque Rating		Bore		Maximum RPM 1000
			100	1800	in-lbs	Nm	inch	Nm	
<b>L and AL TYPE</b>									
L035	SOX (NBR)	2	.006	.10	3.5	.40	.375	9	31.0
L050/AL050	SOX (NBR)	2	.042	.75	26.3	2.97	.625	16	18.0
	Hytrel	2	.080	1.43	50.0	5.65	.625	16	18.0
L070/AL070	SOX (NBR)	2	.070	1.23	43.2	4.88	.750	19	14.0
	Hytrel	2	.180	3.26	114.0	12.88	.750	19	14.0
L075/AL075	SOX (NBR)	3	.140	2.57	90.0	10.17	.875	22	11.0
	Hytrel	3	.360	6.48	227.0	25.65	.875	22	11.0
L090/AL090	SOX (NBR)	3	.230	4.11	144.0	16.27	1.00	25	9.0
	Hytrel	3	.640	11.50	401.0	45.31	1.00	25	9.0
L095/AL095	SOX (NBR)	3	.310	5.50	194.0	21.92	1.12	28	9.0
	Hytrel	3	.890	16.00	561.0	63.38	1.12	28	9.0
L099/AL099	SOX (NBR)	3	.500	9.10	318.0	35.93	1.18	30	7.0
	Hytrel	3	1.260	22.60	792.0	89.48	1.18	30	7.0
L100/AL100	SOX (NBR)	3	.660	11.90	417.0	47.11	1.38	35	7.0
	Hytrel	3	1.800	32.40	1134.0	128.12	1.38	35	7.0
L110/AL110	SOX (NBR)	3	1.260	23.00	792.0	89.48	1.62	42	5.0
	Hytrel	3	3.600	65.00	2268.0	256.25	1.62	42	5.0
L150	SOX (NBR)	3	2.000	35.00	1240.0	140.10	1.88	48	5.0
	Hytrel	3	5.900	106.00	3708.0	418.95	1.88	48	5.0
AL150	SOX (NBR)	4	2.300	41.40	1450.0	163.63	1.88	48	5.0
L190	SOX (NBR)	3	2.700	49.00	1728.0	195.24	2.12	55	5.0
	Hytrel	3	7.400	134.00	4680.0	528.77	2.12	55	5.0
L225	SOX (NBR)	3	3.700	67.00	2340.0	264.38	2.62	65	4.2
	Hytrel	3	9.900	178.00	6228.0	703.67	2.62	65	4.2
L276	SOX (NBR)	3	7.500	135.00	4716.0	532.84	2.88	73	1.8
<b>C TYPE</b>									
C226	SXB (NBR)	3	4.700	85.00	2988.0	337.60	2.50	64	4.8
	Hytrel	3	9.400	170.00	5940.0	671.13	2.50	64	4.8
C276	SXB (NBR)	3	7.500	135.00	4716.0	532.84	2.88	73	4.2
	Hytrel	3	15.000	269.00	9432.0	1065.67	2.88	73	4.2
C280	SXB (NBR)	3	12.000	216.00	7560.0	254.17	3.00	76	3.5
	Hytrel	3	22.000	396.00	13866.0	1566.65	3.00	76	3.5
C285	SXB (NBR)	3	14.600	262.00	9182.0	1037.43	4.00	102	3.2
	Hytrel	3	26.000	476.00	16660.0	1882.33	4.00	102	3.2
C295	SXB (NBR)	3	18.000	324.00	11340.0	1281.25	3.50	89	2.3
	Hytrel	3	36.000	648.00	22680.0	2562.50	3.50	89	2.3
C2955	SXB (NBR)	5	30.000	540.00	18900.0	2135.42	4.00	102	2.3
	Hytrel	5	60.000	1080.00	37800.0	4270.83	4.00	102	2.3

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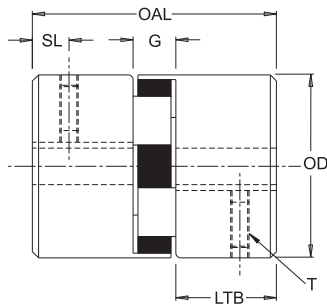


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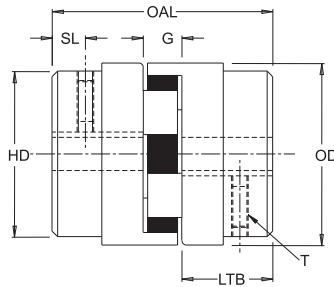
# FLEXIBLE SHAFT COUPLINGS

## FLEXIBLE JAW COUPLINGS - DIMENSIONAL DATA

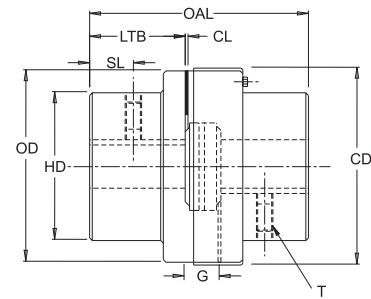
L TYPE STYLE 1



L TYPE STYLE 2



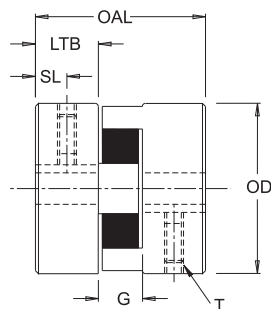
C TYPE STYLE 3



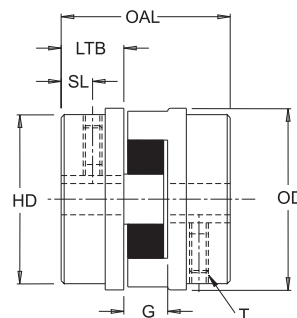
**L Type, C Type and AL Type Flexible Couplings Dimensional Data (inches)**

Part No.	Style Number	Bore		Outer Dia. OD	Overall Length OAL	Gap G	Length Thru Bore LTB	Hub Dia. HD	Clearance CL	Set Screw Location SL	Collar Dia. CD	Set Screw Size T	Weight (lbs)		Moment of Inert $WR^2$ in-lbs <sup>2</sup> (solid)
		Min	Max										Solid	Max Bore	
L035	1	.12	.38	.62	.81	.27	.27	.62	-	.13	-	#6-32	.10	.10	0.003
L050	1	.25	.62	1.08	1.72	.48	.62	1.08	-	.31	-	1/4-20	.30	.20	0.054
L070	1	.25	.75	1.36	2.00	.50	.75	1.36	-	.38	-	1/4-20	.60	.40	0.115
L075	1	.25	.88	1.75	2.12	.50	.81	1.75	-	.31	-	1/4-20	1.00	.80	0.388
L090	1	.25	1.00	2.11	2.12	.50	.81	2.11	-	.44	-	1/4-20	1.50	1.20	0.772
L095	1	.44	1.12	2.11	2.50	.50	1.00	2.11	-	.44	-	5/16-18	1.80	1.30	0.890
L099	1	.44	1.19	2.54	2.87	.75	1.06	2.54	-	.44	-	5/16-18	2.50	2.00	2.048
L100	1	.44	1.38	2.54	3.50	.75	1.37	2.54	-	.44	-	5/16-18	3.50	2.50	2.783
L110	1	.62	1.62	3.31	4.25	.87	1.69	3.31	-	.75	-	3/8-16	6.60	5.00	8.993
L150	1	.62	1.88	3.75	4.50	1.00	1.75	3.75	-	.75	-	3/8-16	9.10	7.00	11.477
L190	2	.75	2.12	4.50	4.88	1.00	1.94	4.00	-	.88	-	1/2-13	17.00	13.00	39.256
L225	2	.75	2.62	5.00	5.38	1.00	2.19	4.25	-	1.00	-	1/2-13	23.00	18.00	65.000
L276	2	.88	2.88	6.18	7.87	1.63	3.12	5.00	-	1.56	-	1/2-13	47.00	36.00	188.000
C226	3	.88	2.50	5.15	7.00	1.50	2.75	4.12	.12	1.38	5.50	1/2-13	29.00	22.00	74.000
C276	3	.88	2.88	6.18	7.87	1.63	3.12	5.00	.12	1.56	6.53	1/2-13	47.00	36.00	188.000
C280	3	1.25	3.00	7.50	7.87	1.63	3.12	5.50	.12	1.56	7.81	1/2-13	61.00	49.00	362.000
C285	3	1.25	4.00	8.50	9.13	1.63	3.75	6.50	.12	1.75	8.88	5/8-11	87.00	68.00	642.000
C295	3	1.50	3.50	9.12	9.38	1.88	3.75	6.31	.12	1.88	9.62	5/8-11	97.00	78.00	862.000
C2955	3	1.75	4.00	9.12	10.38	1.88	4.25	7.12	.12	2.12	9.62	5/8-11	117.00	90.00	392.000
AL050	4	.25	.62	1.08	1.72	.48	.56	1.08	-	.31	-	1/4-20	.20	.20	0.020
AL070	4	.25	.75	1.36	2.00	.50	.75	1.36	-	.38	-	1/4-20	.30	.20	0.040
AL075	5	.25	.88	1.75	2.12	.50	.81	1.53	-	.31	-	1/4-20	.40	.30	0.121
AL090	5	.50	.88	2.12	2.34	.52	.91	1.53	-	.34	-	1/4-20	.50	.40	0.271
AL095	4	.50	1.12	2.12	2.50	.50	1.00	2.12	-	.44	-	5/16-18	.80	.60	0.336
AL099	5	.50	1.19	2.53	2.81	.75	1.03	2.06	-	.44	-	5/16-18	1.00	.80	0.644
AL100	5	.50	1.38	2.53	3.50	.75	1.37	2.41	-	.44	-	5/16-18	1.50	1.10	1.207
AL110	4	.62	1.62	3.31	4.25	.87	1.69	3.31	-	.75	-	5/16-18	2.70	2.10	3.531
AL150	5	.62	1.88	4.25	4.50	1.00	1.75	3.19	-	.63	-	5/16-18	3.70	2.80	7.002

Hubs are standard with one set screw. AL150 has 2 set screws provided.



AL TYPE STYLE 4



AL TYPE STYLE 5

Dimensions and specifications are subject to change without notice. Not all items are Made-To-Stock, contact us for availability.

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# FLEXIBLE SHAFT COUPLINGS

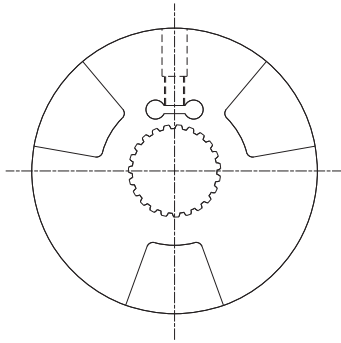
## FLEXIBLE JAW - SPLINED SHAFT INSTALLATION DATA

### Installation Instructions for Fluid Power Applications

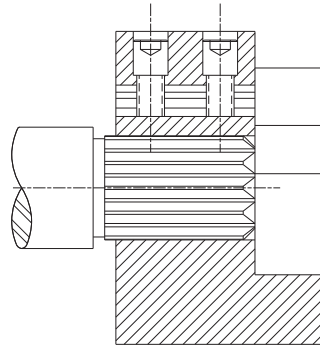
Spline bores furnished by LDI are provided with a special spline locking feature called Centaloc (see Figure 1)

Spline shafts: For optimum spline shaft life, LDI recommends full shaft engagement in the coupling hub (see Figure 2). Caution: If only partial spline shaft engagement is used, tightening of the special Centaloc spline locking feature set screw over the unused section of

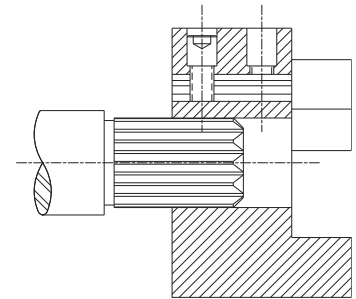
the spline bore will result in damage to the hub. Before tightening the Centaloc set screws, check to see if the spline shaft is engaged under the set screws. Then tighten the Centaloc set screws to the recommended torque shown below. If only one of the two Centaloc set screws is used because of limited shaft engagement, please remove the unused set screw (see Figure 3).



**Figure 1**  
Spline Bore with Centaloc spline locking feature



**Figure 2**  
Recommended for spline engagement with Centaloc locking feature



**Figure 3**  
Remove second Centaloc set screw if not used

### Flexible Couplings with splined shafts for Fluid Power Applications

Minimum Equipment Separation (inches)		
Coupling Size	G	Min-Shaft Separation <sup>†</sup>
L035	9/32	9/32
L050	15/32	1/8
L070	1/2	1/8
L075	1/2	1/8
L090	1/2	1/8
L095	1/2	1/8
L099	3/4	1/8
L100	3/4	1/8
L110	7/8	1/8
L150	1	1/8
L190	1	1/8
L225	1	1/8
L276	1 5/8	1/8
C226	1 1/2	1/8
C276	1 5/8	1/8
C280	1 5/8	1/8
C285	1 5/8	1/8

Spline Bore Centaloc Set Screw Torque		
Coupling Size	Set Screw Size UNC	Torque ft·lb
L090	5/16-18	13
L095	5/16-18	13
L099	5/16-18	13
L100	5/16-18	13
L110	3/8-16	23
L150	3/8-16	23
L190	5/8-11	100
L225	5/8-11	100
L276	*	*
C226	*	*
C280	*	*

\* Consult Engineering. Items shipped are marked with appropriate torque values

Straight Bore & Keyway Set Screw Torque		
Coupling Size	Set Screw Size	Torque ft·lb
L035	6-32	10
L050-L090	1/4-20	80
L095-L100	5/16-18	160
L110-L150	3/8-16	275
L190-L276	1/2-13	600
C225	1/2-13	600
C280	1/2-13	600
C285	5/8-11	1200

Misalignment Data		
Type of Spider	Angular	Parallel
SOX (NBR)	1°	.015
Hytrell	1/2°	.015
Urethane	1°	.015

NOTE: <sup>†</sup> indicates that the min. shaft separation is based on Open Center or Snap Wrap Spiders or Style 3 couplings

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