

# FLEXIBLE SHAFTS



NONMAGNETIC

MINIMUM OPERATING RADIUS – 3-1/2 INCHES

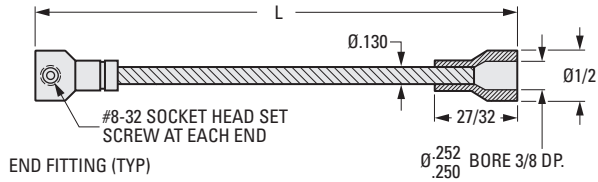
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> **MATERIAL:**

- Flexible Cable** - Phosphor Bronze
- End Fittings** - Brass, Tin Plated
- Screws** - 300 Series Stainless Steel

> **SPECIFICATIONS:**

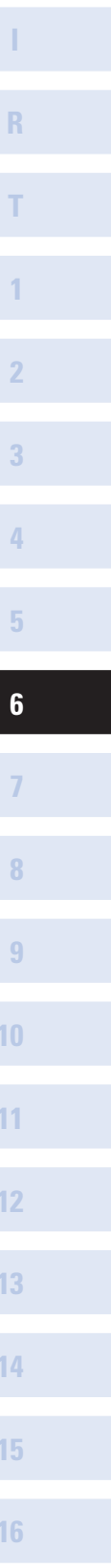
- Maximum Torque:** 3.5 lbf in.
- Minimum Operating Radius:** 3-1/2 inches
- Torsional Deflection:**  
 1.8° per lbf in. per inch of flexible shaft in winding direction  
 2.6° per lbf in. per inch of flexible shaft in unwinding direction



## INCH COMPONENT

Catalog Number *	L Length	Max. Angular Offset	Torsional Deflection @ 1 lbf in. Torque	
			Winding	Unwinding
S55PP7-FS0832	4	37.8°	4.1°	6.0°
S55PP7-FS0840	5	54.2°	5.1°	8.6°
S55PP7-FS0848	6	70.6°	7.8°	11.2°
S55PP7-FS0856	7	86.9°	9.6°	13.8°

\*To be discontinued when present stock is depleted.



WITHOUT CASING

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► MATERIAL:

Flexible Cable - Steel  
End Fittings - Plated Steel



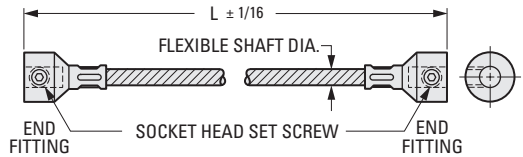
► PERFORMANCE DATA:

Shaft Dia.	Mode of Operation	Operating Torque Capacity, Winding and Unwinding Directions, (lbf in.) Input											Max. Torsional Deflection at Load Indicated (Degrees per Foot of Shaft)		
		Radius of Curvature											lbf in.	Winding	Unwinding
		25"	20"	15"	12"	10"	8"	6"	4"	2.5"	2"	1.5"			
.098	Dynamic	—	—	—	1.9	1.8	1.7	1.4	.9	*	—	—	1	80.0	250.0
.130A $\Delta$	Manual	—	—	—	—	—	—	—	2.0	1.5	1.12	.47	1	40.0	50.0
.130	Manual	—	—	—	7.6	7.1	6.6	5.6	3.6	—	—	—	1	13.0	13.0
.130	Dynamic	—	—	—	3.8	3.6	3.3	2.8	1.8	—	—	—	1	13.0	13.0
.150	Manual	—	20.9	19.5	18.4	17.2	15.3	12.1	6.2	—	—	—	1	6.0	6.0
.150	Dynamic	—	10.5	9.8	9.2	8.6	7.7	6.1	3.1	—	—	—	1	6.0	6.0
.188	Manual	—	33.4	31.4	29.4	27.6	24.8	19.8	10.0	—	—	—	1	3.0	3.3
.188	Dynamic	—	16.7	15.7	14.7	13.8	12.4	9.9	5.0	—	—	—	1	3.0	3.3
.250	Manual	93	89.0	83.0	76.0	70.0	62.0	45.0	—	—	—	—	10	10.0	13.0
.250	Dynamic	47	41.0	41.0	38.0	35.0	31.0	23.0	—	—	—	—	10	10.0	13.0

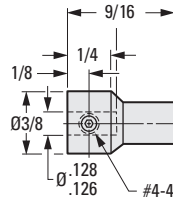
NOTE: .130A diameter shaft has a greater degree of flexibility.

\* Can be operated manually to radius indicated with torsional breaking strength of 6.0 lbf in. clockwise.

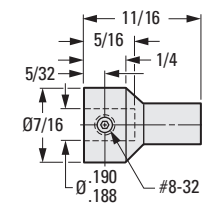
$\Delta$  Can be used in dynamic mode if shaft length is shortened (approximately 2" long).



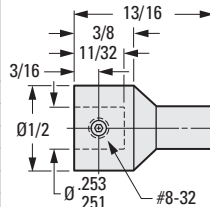
SPECIAL ORDERS for Many Combinations of Fittings and Lengths Accepted.



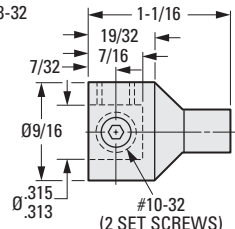
End Fitting No. 1



End Fitting No. 2



End Fitting No. 3



End Fitting No. 4

**INCH COMPONENT**

Catalog Number	Flexible Shaft Diameter	L Length in.	End Fitting Number
A 7C12-03311	.098	3	1
A 7C12-05322	.098	5	2
A 7C12-08333	.098	8	3
A 7C12-03411A	.130A	3	1
A 7C12-05422A	.130A	5	2
A 7C12-08433A	.130A	8	3
A 7C12-03422	.130	3	2
A 7C12-05433	.130	5	3
A 7C12-08433	.130	8	3
A 7C12-04522	.150	4	2
A 7C12-06533	.150	6	3
A 7C12-08533	.150	8	3
A 7C12-12533	.150	12	3
A 7C12-10633	.187	10	3
A 7C12-12633	.187	12	3
A 7C12-12833	.250	12	3
A 7C12-14844	.250	14	4

PANEL MOUNTING  
WITHOUT CASING

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> MATERIAL:

- Flexible Cable - Steel
- End Fittings - Plated Steel



> PERFORMANCE DATA:

Shaft Dia.	Mode of Operation	Operating Torque Capacity, Winding and Unwinding Directions, (lbf in.) Input									Max. Torsional Deflection at Load Indicated (Degrees per Foot of Shaft)			
		Radius of Curvature									lbf in.	Winding	Unwinding	
		25"	15"	12"	10"	8"	6"	4"	2.5"	2"				1.5"
.130A	Manual	—	—	—	—	—	—	2.0	1.5	1.12	.47	1	40.0	50.0
.130	Manual	—	—	7.6	7.1	6.6	5.6	3.6	—	—	—	1	13.0	13.0
.150	Manual	20.9	19.5	18.4	17.2	15.3	12.1	6.2	—	—	—	1	6.0	6.0
.188	Manual	33.4	31.4	29.4	27.6	24.8	19.8	10.0	—	—	—	1	3.0	3.3

NOTE: .130A diameter shaft has a greater degree of flexibility.

SPECIAL ORDERS for Many Combinations of Fittings and Lengths Accepted.

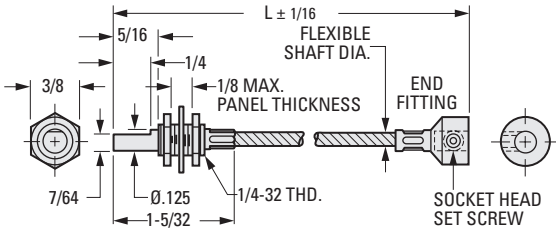
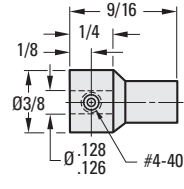


Fig. 1



End Fitting No. 1

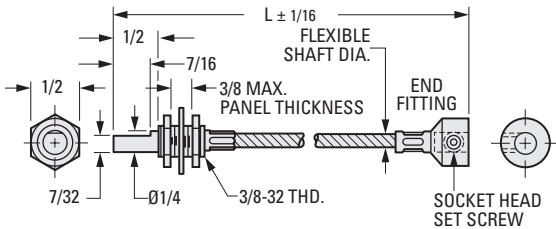
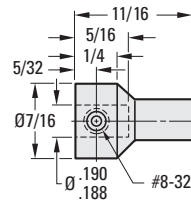


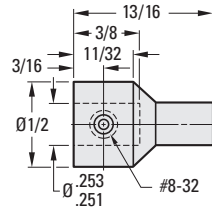
Fig. 2



End Fitting No. 2

**INCH COMPONENT**

Catalog Number	Flexible Shaft Diameter	L Length in.	End Fitting Number
<b>Fig. 1</b>			
A 7C13-03411A	.130A	3	1
A 7C13-04422A	.130A	4	2
<b>Fig. 2</b>			
A 7C13-03411	.130	3	1
A 7C13-04422	.130	4	2
A 7C13-05522	.150	5	2
A 7C13-08533	.150	8	3
A 7C13-09622	.187	9	2
A 7C13-08633	.187	8	3
A 7C13-14633	.187	14	3



End Fitting No. 3

WITH CASING

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**MATERIAL:**

- Flexible Cable - Steel
- Flexible Casing - Vinyl Covered Steel
- End Fittings - Plated Steel



SPECIAL ORDERS for Many Combinations of Fittings and Lengths Accepted.

**PERFORMANCE DATA:**

Shaft Dia.	Mode of Operation	Operating Torque Capacity, Winding and Unwinding Directions, (lbf in.) Input								Max. Torsional Deflection at Load Indicated (Degrees per Foot of Shaft)		
		Radius of Curvature								lbf in.	Winding	Unwinding
		25"	20"	15"	12"	10"	8"	6"	4"			
.130	Manual	—	—	—	7.6	7.1	6.6	5.6	3.6	1	13.0	13.0
.130	Dynamic	—	—	—	3.8	3.6	3.3	2.8	1.8	1	13.0	13.0
.150	Manual	—	20.9	19.5	18.4	17.2	15.3	12.1	6.2	1	6.0	6.0
.150	Dynamic	—	10.5	9.8	9.2	8.6	7.7	6.1	3.1	1	6.0	6.0
.187	Manual	—	33.4	31.4	29.4	27.6	24.8	19.8	10.0	1	3.0	3.3
.187	Dynamic	—	16.7	15.7	14.7	13.8	12.4	9.9	5.0	1	3.0	3.3
.250	Manual	93.0	89.0	83.0	76.0	70.0	62.0	45.0	—	10	10.0	13.0
.250	Dynamic	47.0	45.0	41.0	38.0	35.0	31.0	23.0	—	10	10.0	13.0

End Fitting Fig. 1, Fig. 2 & Fig. 4 are available on special order.

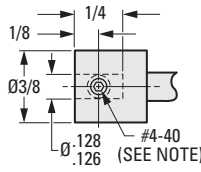
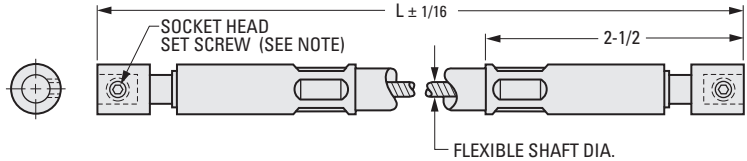


Fig. 1

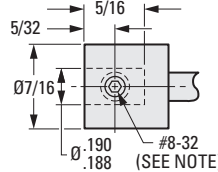


Fig. 2

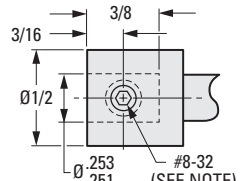


Fig. 3 (Standard)

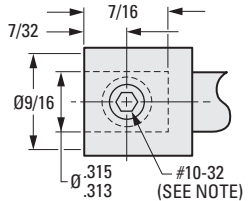


Fig. 4

**INCH COMPONENT**

Catalog Number	Flexible Shaft Diameter	L Length in.	Standard End Fitting Fig.
A 7Z11-24433	.130	24	3
A 7Z11-24533	.150	24	3
A 7Z11-36533	.150	36	3
A 7Z11-30633	.187	30	3
A 7Z11-24833	.250	24	3
A 7Z11-36833	.250	36	3
A 7Z11-48833	.250	48	3

NOTES: Fig. 1 style end fitting for .187 diameter flexible shaft has two set screws. End fittings for .250 diameter flexible shaft have two set screws.

WITH CASING

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**> MATERIAL:**

- Flexible Cable** - Steel
- Flexible Casing** - Vinyl Covered Steel
- Bearings** - Sintered Bronze
- End Fittings** - Plated Steel

SPECIAL ORDERS for Many Combinations of Fittings and Lengths Accepted.

**> PERFORMANCE DATA:**



Shaft Dia.	Minimum Operating Radius in.	Dynamic Torque Capacity, Winding Direction (lbf in.) Input								Torsional* Breaking Load For Straight Shafts, Winding Direction lbf in.
		Radius of Curvature								
		25"	20"	15"	12"	10"	8"	6"	4"	
.130	3.0	—	—	3.8	3.6	3.4	3.1	2.4	1.7	15
.150	4.0	—	—	5.0	4.7	4.4	3.9	3.1	1.4	24
.187	4.0	—	13.5	12.6	11.8	11.0	9.8	7.8	4.0	55
.250	4.0	25.0	24.0	22.0	21.0	19.0	16.0	12.0	—	100

\* Shaft will break or helix under these loads. For routine tests, do not specify more than approximately 50% of these figures. Otherwise, the flexible shaft may be seriously damaged.

End Fitting **Fig. 1**, **Fig. 2** & **Fig. 4** are available on special order. **Fig. 3** is the standard end fitting.

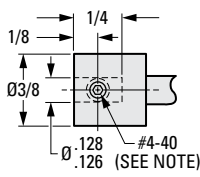
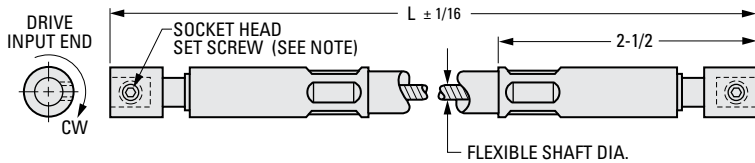


Fig. 1

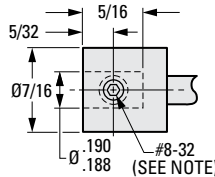


Fig. 2

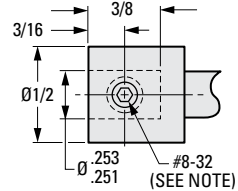


Fig. 3 (Standard)

**INCH COMPONENT**

Catalog Number	Flexible Shaft Diameter	L Length in.	Standard End Fitting Fig.
A 7Z10-N24433	.130	24	3
A 7Z10-N24533	.150	36	
A 7Z10-N36533	.150	30	
A 7Z10-N30633	.187	36	
A 7Z10-N36633	.187	36	
A 7Z10-N24833	.250	24	
A 7Z10-N36833	.250	36	

**NOTES:** Fig. 1 style end fitting for .187 diameter flexible shaft has two set screws. End fittings for .250 diameter flexible shaft have two set screws.

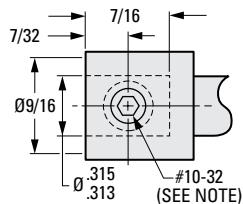


Fig. 4



WITH CASING  
PANEL MOUNTING

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> MATERIAL:

- Flexible Cable - Steel
- Flexible Casing - Vinyl Covered Steel
- End Fittings - Plated Steel



SPECIAL ORDERS for Many Combinations  
of Fittings and Lengths Accepted.

> PERFORMANCE DATA:

Shaft Dia.	Mode of Operation	Operating Torque Capacity, Winding and Unwinding Directions, (lbf in.) Input							Max. Torsional Deflection at Load Indicated (Degrees per Foot of Shaft)		
		Radius of Curvature							lbf in.	Winding	Unwinding
		20"	15"	12"	10"	8"	6"	4"			
.130	Manual	—	—	7.6	7.1	6.6	5.6	3.6	1	13.0	13.0
.150	Manual	20.9	19.5	18.4	17.2	15.3	12.1	6.2	1	6.0	6.0
.187	Manual	33.4	31.4	29.4	27.6	24.8	19.8	10.0	1	3.0	3.0

End Fitting Fig. 1, Fig. 2 & Fig. 4 are available on special order.  
Fig. 3 is the standard end fitting.

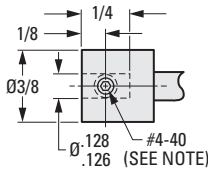
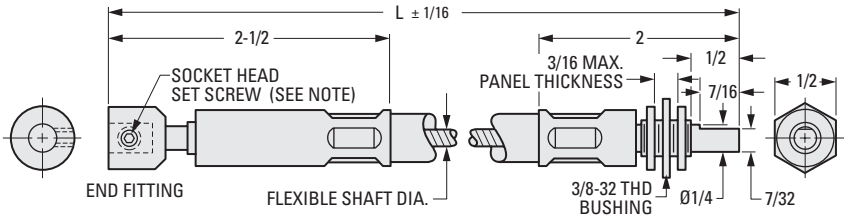


Fig. 1

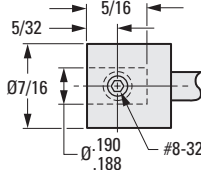


Fig. 2

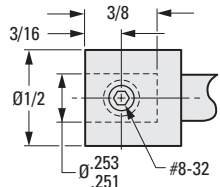


Fig. 3 (Standard)

INCH COMPONENT			
Catalog Number	Flexible Shaft Diameter	L Length in.	Standard End Fitting Fig.
A 7C14-24433	.130	24	3
A 7C14-30533	.150	30	3
A 7C14-36533	.150	36	3
A 7C14-20633	.187	20	3
A 7C14-32633	.187	32	3

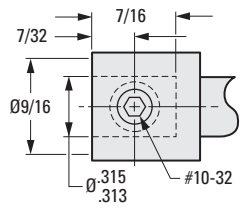


Fig. 4

NOTE: Fig. 1 style end fitting for .187 diameter flexible shaft has two set screws.