

**Wire Rope Assembly & Fittings**

**Positive Grip Fittings/Swaged Fittings**

**TURNBUCKLES:**

**Forged Series: Open Body Double Clevis & Socket Turnbuckle**

Rope Size (in)	Catalog Numbers		Dimensions (in)		Take-up* (in)
	Self-Colored Steel	Galv. Steel	C Min.	D	
1/4	XD-5425-AN	XD-5425-AX	14-9/16	1	6
1/4	XD-5425-BN	XD-5425-BX	17-9/16	1	9
1/4	XD-5425-CN	XD-5425-CX	20-9/16	1	12
5/16	XD-5431-AN	XD-5431-AX	15-3/8	1	6
5/16	XD-5431-BN	XD-5431-BX	18-3/8	1	9
5/16	XD-5431-CN	XD-5431-CX	21-3/8	1	12
3/8	XD-5437-AN	XD-5437-AX	19-3/4	1-1/8	6
3/8	XD-5437-BN	XD-5437-BX	19-3/4	1-1/8	9
3/8	XD-5437-CN	XD-5437-CX	22-3/4	1-1/8	12
7/16	XD-5443-AN	XD-5443-AX	17-3/4	1-1/2	6
7/16	XD-5443-BN	XD-5443-BX	20-3/4	1-1/2	9
7/16	XD-5443-CN	XD-5443-CX	23-3/4	1-1/2	12
1/2	XD-5450-AN	XD-5450-AX	19-1/4	1-1/2	6
1/2	XD-5450-BN	XD-5450-BX	22-1/4	1-1/2	9
1/2	XD-5450-CN	XD-5450-CX	25-1/4	1-1/2	12
9/16	XD-5456-AN	XD-5456-AX	27-7/8	1-13/16	12
9/16	XD-5456-BN	XD-5456-BX	33-7/8	1-13/16	18
5/8	XD-5462-AN	XD-5462-AX	27-7/8	1-13/16	12
5/8	XD-5462-BN	XD-5462-BX	33-7/8	1-13/16	18
3/4	XD-5475-AN	XD-5475-AX	33-3/8	2-5/8	12
3/4	XD-5475-BN	XD-5475-BX	39-3/8	2-5/8	18
3/4	XD-5475-CN	XD-5475-CX	45-3/8	2-5/8	24
7/8	XD-5487-AN	XD-5487-AX	33-7/8	2-5/8	12
7/8	XD-5487-BN	XD-5487-BX	39-7/8	2-5/8	18
7/8	XD-5487-CN	XD-5487-CX	45-3/8	2-5/8	24
1	XD-5499-AN	XD-5499-AX	37-1/2	3	12
1	XD-5499-BN	XD-5499-BX	43-1/2	3	18
1	XD-5499-CN	XD-5499-CX	49-1/2	3	24
1-1/8	XD-54112-DN	XD-54112-DX	51-7/8	3-11/16	18
1-1/8	XD-54112-EN	XD-54112-EX	57-7/8	3-11/16	24
1-1/4	XD-54125-DN	XD-54125-DX	51-7/8	3-11/16	18
1-1/4	XD-54125-EN	XD-54125-EX	57-7/8	3-11/16	24
1-3/8	XD-54137-EN	XD-54137-EX	66-5/8	4-11/32	24
1-1/2	XD-54150-EN	XD-54150-EX	66-5/8	4-11/32	24

NOTE: \*Please contact a representative for more information regarding longer takeup on 1-1/8" thru 1-1/2" sizes.

**SWAGED FITTINGS**



**Copper Oval Sleeves**

Cable Size (in)	Nicopress Oval Sleeve Stock No.		Nicopress Hand Tool Stock No.	Approx. Wt. Per 1000 Sleeves (lbs)	Sleeve Length Before Compressed Approx. (in)	Sleeve Length Before Compressed Approx. (in)
	Plain Copper	Zinc-Plated Copper				
1/32	17-1-B	27-1-B	*17-BA	0.6	1/4	5/16
3/64	18-11-B4	28-11-B4	51-B4-887	2	3/8	7/16
1/16	18-1-C	28-1-C	51-C-887	3	3/8	7/16
3/32	18-2-G	28-2-G	51-G-887	5	3/8	7/16
1/8	18-3-M	28-3-M	51-M-850	17	9/16	3/4
5/32	18-4-P	28-4-P	51-P-850	23	5/8	7/8
3/16	18-6-X	28-6-X	51-X-850	49	15/16	1-3/16
7/32	18-8-F2	28-8-F2	51-F2-850	56	7/8	1-1/16
1/4	18-10-F6	28-10-F6	3-F6-950	80	1-1/8	1-1/2
5/16	18-13-G9	28-13-G9	3-G9-950	114	1-1/16	1-3/8
No. 635 Hydraulic Tool Dies						
3/8	18-23-H5	28-23-H5	Oval H5	153	1-1/4	1-5/8
7/16	18-24-J8	28-24-J8	Oval J8	302	1-3/4	2-5/16
1/2	18-25-K8	28-25-K8	Oval K8	410	1-7/8	2-1/2
9/16	18-27-M1	28-27-M1	Oval M1	551	2	2-5/8
5/8	18-28-N5	28-28-N5	Oval N5	802	2-3/8	3-1/8

**Copper Stop Sleeves**

Cable Size (in)	Nicopress Stop Sleeve Stock No.	Nicopress Hand Tool Stock No.	Outside Dia. of Sleeves (in)	Approx. Wt. Per 1000 Sleeves (lbs)	Sleeve Length Before Compressed Approx. (in)	**Typical Holding Strength of Stop Sleeve (lbs)
1/32	871-32-B	*17-BA	1/8	3/4	1/4	120
3/64	871-12-B4	51-B4-887	11/64	1-1/2	7/32	240
1/16	871-1-C	51-C-887	13/64	2	7/32	430
1/16	***871-1-Q	51-Q-929	1/4	2	5/32	425
3/32	871-17-J (Yellow)	51-MJ	21/64	8	5/16	600
3/32	***871-3-Q	51-Q-929	1/4	2	5/32	550
1/8	871-18-J (Red)	51-MJ	21/64	8	5/16	900
5/32	871-19-M	51-MJ	27/64	13	5/16	1,200
3/16	871-20-M (Black)	51-MJ	27/64	12	5/16	1,600
7/32	871-22-M	51-MJ	7/16	20	5/8	2,500
1/4	871-23-F6	3-F6-950	21/32	60	11/16	3,500
5/16	871-26-F6	3-F6-950	21/32	60	11/16	4,000

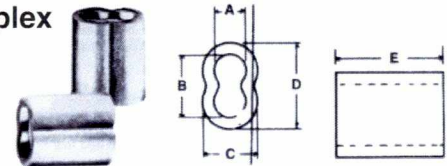
\*Formerly 17-1 Tool. \*\*Holding strengths shown are based on use galvanized aircraft cable. \*\*\*Electro Galvanized Steel Sleeves.

**Tin Plated Copper Oval Sleeves**

The 428 Series oval sleeves are made from special materials and are specifically designed for use with stainless steel aircraft cable. The tin plating gives this Nicopress sleeve a distinctive appearance.

Cable Size (in)	Oval Sleeve Stock No.	Single Groove Hand Tool Stock No.	Multi-Groove Hand Tool Stock No.	No. 635 Hydraulic Tool Die	Wt. (lbs) Per 1000 Sleeves Approx.	Sleeve Length Before Compression Approx. (in)	Sleeve Length Before Compression Approx. (in)
3/64	428-1.5-VB4	51-B4-887	33V-CGB4	Oval B4	2	3/8	7/16
1/16	428-2-VC	51-C-887	33V-CGB4 64-CGMP	Oval C	3	3/8	7/16
3/32	428-3-VG	51-G-887	33V-CGB4 64-CGMP	Oval G	6	3/8	7/16
1/8	428-4-VM	51-M-850	64-CGMP 63-XPM	Oval M	17	9/16	3/4
5/32	428-5-VP	51-P-850	64-CGMP 63-XPM	Oval P	23	5/8	7/8
3/16	428-6-VX	51-X-850	63-XPM	Oval X	49	15/16	1-3/16
7/32	428-7-VF2	51-F2-850		Oval F2	59	7/8	1-1/16
1/4	428-8-VF6	3-F6-950		Oval F6	81	1	1-3/8
5/16	428-10-VG9	3-G9-950		Oval G9	120	1-1/16	1-3/8
3/8	428-12-VH5			Oval H5	155	1-3/16	1-1/2
7/16	428-14-VJ8			Oval J8	310	1-3/4	2-5/16
1/2	428-16-VK8			Oval K8	420	1-7/8	2-9/16
9/16	428-18-VM1			Oval M1	565	2	2-13/16
5/8	428-20-VN5			Oval N5	822	2-3/8	3-1/4

**Copper Duplex Sleeves**



EXTRUDED COPPER DUPLEX SLEEVES, ZINC PLATED COPPER SLEEVES and COPPER BUTTONS have efficient cold forming properties, and are ideal for non-rusting permanent splices. These sleeves and buttons are 99% pure copper, and the mass of copper provides excellent holding strength.

Return eye splice using COPPER DUPLEX SLEEVES will attain 95% of Improved Plow wire rope catalog -strength when properly swaged.

**CAUTION:** Return eye slings using copper duplex sleeves must be properly swaged to attain strength.

Rope Size (in)	Approx. Dimensions (in)					No. Presses	After Swage O. D.	Wt. Per 100
	A	B	C	D	E			
1/32	3/64	3/32	3/32	9/64	1/4	1	.100	.045
3/64	1/16	1/8	9/64	13/64	3/8	2	.154	.2
1/16	3/32	11/64	11/64	1/4	25/64	3	.190	.3
3/32	7/64	1/4	15/64	3/8	29/64	3	.265	.65
1/8	5/32	21/64	21/64	1/2	9/16	3	.353	1.6
5/32	3/16	27/64	3/8	19/32	5/8	3	.390	2.3
3/16	7/32	7/16	7/16	43/64	7/8	4	.475	5.1
7/32	1/4	33/64	15/32	23/32	7/8	4	.510	4.6
1/4	9/32	19/32	13/16	1/2	1-1/8	4	.585	7.5
5/16	3/8	23/32	21/32	1-1/64	1-1/8	4	.730	11.8
3/8	7/16	13/16	23/32	1-1/8	1-1/2	4	.795	17
1/2	9/32	17/64	31/32	1-15/32	1-7/8	4	1.000	38.4

\*After swage O. D. & numbers of presses recommended are approximate. They will vary according to dies & type of swaging tool used.



**Wire Rope Assembly & Fittings**

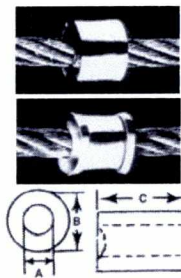
**Swaged Fittings/Cable Assembly**

**Stainless Steel Oval Sleeves**

Cable Size (in)	Oval Sleeves			Tool Selection	
	Sleeve Stock No.	Approx. Wt. (lbs) Per 1000 Sleeves	Approx. Length (in) Before Compression	Hand Tool	No. 635 Hydraulic Tool Die
1/32	168-1-VB	1/2	1/4	31-B	
3/64	168-1.5-VB4	1-1/2	3/8	51-B4-887	Oval B4
1/16	168-2-VB4	1-1/2	3/8	51-B4-887	Oval B4
3/32	168-3-VC	2-1/4	3/8	51-C-887	Oval C
1/8	168-4-VG	3-3/4	3/8	51-G-887	Oval G
5/32	168-5-VM	14	23/32	51-M-850	Oval M
3/16	168-6-VP	17	3/4	51-P-850	Oval P
7/32	168-7-VX	31	7/8		Oval X
1/4	168-8-VF2	44	1-1/8		Oval F2

**Copper Button Stops**

Rope Size (in)	Approx. Dimensions (in)			After Swage O.D.	Wt. Per 100
	A	B	C		
1/32	3/64	1/8	13/64	.115	.07
3/64	1/16	11/64	7/32	.155	.15
1/16	5/64	13/64	7/32	.182	.20
3/32	7/64	21/64	21/64	.261	.80
1/8	5/32	21/64	21/64	.261	.80
5/32	3/16	27/64	21/64	.350	1.3
3/16	7/32	27/64	21/64	.350	1.2
7/32	1/4	27/64	5/8	.350	2.
1/4	9/32	21/32	11/16	600	6.



**Aluminum Oval Sleeves: For Steel Cable**

Size of Cable (in)	Oval Sleeves Stock No.	Hand Tools Stock No.	Approx. Wt. (lbs) Per 1000 Sleeves	Sleeve Length Before Compressed Approx. (in)	Sleeve Length After Compressed (in)
1/16	188-2-VC	51-C-887	1	3/8	7/16
3/32	188-3-VG	51-G-887	2.8	9/16	5/8
1/8	188-4-VM	51-M-850	6.1	5/8	13/16
5/32	188-5-VP	51-P-850	9	3/4	1-1/32
3/16	188-6-VX	51-X-850	15	7/8	1-3/16
1/4	188-8-VF6	3-F6-950	27	1-1/8	1-7/16
No. 635 Hydraulic Tool Dies					
5/16	188-10-VG92	VG 92	48	1-3/8	1-11/16
3/8	188-12-VJ8	Oval J8	104	1-7/8	2-3/8
7/16	188-14-VK8	Oval K8	115	1-7/8	2-3/8
1/2	188-16-VM1	Oval M1	169	2-1/8	2-3/4

**Note:** Mechanical hand tools and bench tools are available for compressing sleeves onto cable 1/32" to 5/16". Larger cable sizes require use of the Nicopress #635 hydraulic tool with pressing dies. Information on power press dies for high speed production will be furnished upon request.

**Aluminum Oval Sleeves: For Fiber Rope**

Size of Rope (in)	Oval Sleeves Stock No.	Hand Tools Stock No.	Approx. Wt. (lbs) Per 1000 Sleeves	Sleeve Length Before Compressed Approx. (in)
1/16	1700-C	51-C-887	1	3/8
1/8	1700-M	51-M-850	7	11/16
3/16	1582-P	51-P-850	9	1
1/4	1700-X	51-X-850	20	1-1/4
No. 635 Hydraulic Tool Dies				
5/16	1700-G3	1700-G3	30	1-1/8
3/8	1700-H5	1700-H5	63	1-9/16
1/2	1700-J8	1700-J8	110	2

**Note:** Mechanical hand tools and bench tools are available for compressing sleeves onto cable 1/32" to 5/16". Larger cable sizes require use of the Nicopress #635 hydraulic tool with pressing dies. Information on power press dies for high speed production will be furnished upon request.

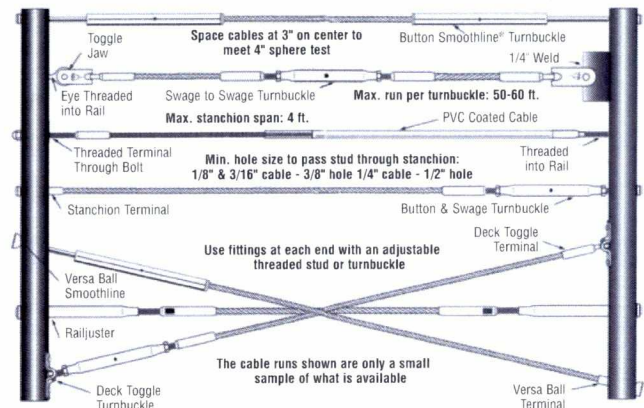
**Warning:** Aluminum sleeves may not develop 100% holding power (swaging efficiency). Testing is recommended prior to use to determine the holding power for any particular application, especially when the possibility of personal injury or property damage exists.

**CABLE ASSEMBLIES**

**Cable Assembly**

A complete cable assembly must have the following elements:

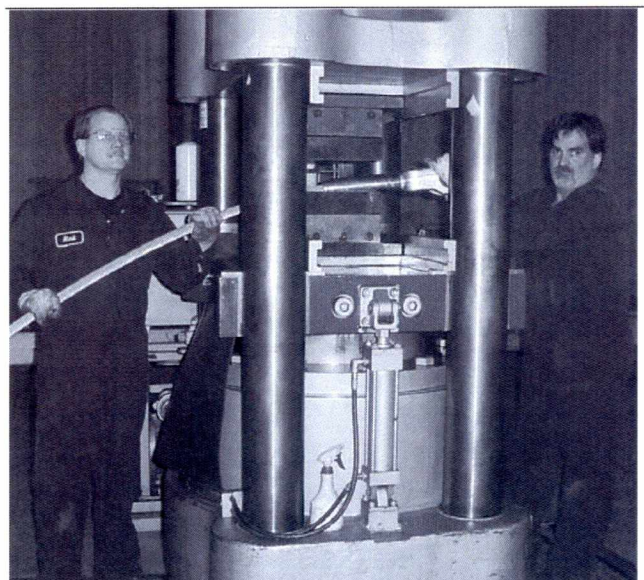
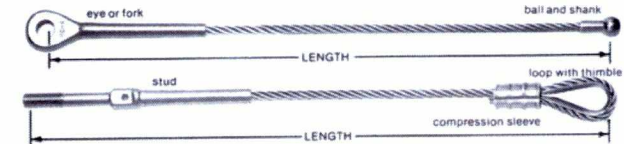
- 1) A turnbuckle or an adjustable threaded stud to tension the cable.
- 2) An attachment point at each end, with an end fitting, that will support the tension of the cable. Unless you have these two elements, you do not have a proper cable assembly. The following cable assemblies are only a small sample of what is available. There are many different ways to make a cable assembly. Aesthetics are very important so we provide many different fittings that do the same thing but look different. You can design your rail and mix & match to come up with just the look you want.



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Wire Rope Assembly and Fittings

**Cable Assembly: How to Measure**

- Measure eye and fork terminals from center of pin holes.
- Measure ball fittings from center of ball.
- Measure stud terminals from end of terminal.
- Measure loop from bearing in loop. When ordering loops without thimbles, specify size of pin the loop is to fit around.





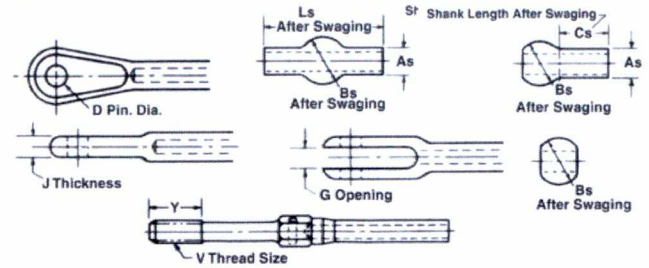
**Wire Rope Assembly & Fittings**

**Cable Assembly/Swaged Cable Fittings**

**Fittings**

Cable assemblies are available made with swaged fittings and compression sleeves. The swaged fittings develop holding power equal to the strength of the cable when properly swaged onto all metal cables. They should not be swaged onto cables having fiber cores. Our swaging is done with rotary swaging machines, which provide uniform cold-working and a smooth finish without lines or areas of overworking. All swaged fittings are proof loaded at 60% of rated cable breaking strength unless otherwise specified.

The compression oval sleeves will also develop holding power equal to the rated strength of the cable when applied to the flexible cables with the proper compression tool. We also supply the swaged fittings and the compression sleeves loose.



**3**  
Wire Rope Assembly and Fittings



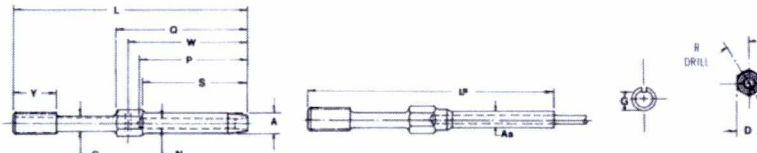
Cable Size (in)	Marine Eye		MS-20668 Eye		MS-20667 Fork		AN-669 V	MS-21259 Y	AN-669 Y	Bs	As	Cs	Ls
	D	J	D	J	D	G	V	Y					
1/16	.263	.218	.19	.088	.19	.093	6-40	1.045	.375	.19	.112	.156	.39
3/32	.263	.218	.19	.103	.19	.108	10-32	1.204	.5	.253	.143	.234	.578
1/8	.263	.218	.19	.19	.19	.195	1/4-28	1.376	.563	.315	.19	.313	.765
5/32	.325	.281	.25	.197	.25	.202	1/4-28	1.376	.625	.379	.222	.391	.953
3/16	.39	.359	.313	.255	.313	.26	5/16-24	1.453	.75	.442	.255	.469	1.14
7/32	.45	.406	.313	.291	.313	.296	3/8-24	1.625	.875	.505	.302	.547	1.328
1/4	.515	.468	.375	.307	.375	.313	3/8-24	1.75	.875	.567	.348	.625	1.515
9/32	.515	.468	.438	.322	.438	.327	7/16-20	1.875	1.	.632	.382	.75	1.719
5/16	.64	.593	.438	.343	.438	.348	1/2-20	2.	1.	.694	.413	.813	1.875
3/8	.64	.593	.5	.375	.5	.38	9/16-18	2.25	1.125	-	-	-	-
7/16	.765	.719	.562	.375	.562	.38	5/8-18	2.5	1.25	-	-	-	-
1/2	.89	.844	.625	.468	.625	.473	5/8-18	2.5	1.25	-	-	-	-
9/16	.89	.884	.75	.562	.75	.567	3/4-16	3.	1.5	-	-	-	-
5/8	1.015	.968	.875	.657	.875	.663	7/8-14	3.5	1.75	-	-	-	-

Fittings for larger cables are available – contact a representative for more information.

**SWAGED FITTINGS**

**Locking Stud MS 21260**

(AN 669)† NAS650  
Corrosion Resistant Steel

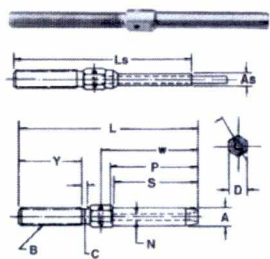


MS Part Nos.		Nom. Cable Dia. (Ref.)	Thread NF-3A UNF-3A	A Dia.	As Dia.	C +.006 -.000 Dia.	D	G		Dash No. (Size)	L ±.063	Ls (Ref.)	N Dia.	P	Q +.031 -.016	R +.005 -.000 Dia.	S +.062 -.000	W	Y ±.047	Lbs. Per Piece
RH Thread	LH Thread							Max.	Min.											
MS21260L2RH*	MS21260L2LH*	1/16	No. 6-40	.160	.138	.092	.188	.1139	.1094	L2*	3.491	3.67	.078	1.042	1.319	.063	.969	1.174	.375	.011
MS21260S2RH*	MS21260S2LH*	1/16	No. 6-40	.160	.138	.092	.188	.1139	.1094	S2*	2.616	2.79	.078	1.042	1.319	.063	.969	1.174	.375	.01
MS21260L3RH*	MS21260L3LH*	3/32	No. 10-32	.218	.190	.133	.250	.1638	.1568	L3*	3.738	3.86	.109	1.261	1.581	.063	1.188	1.411	.500	.024
MS21260S3RH*	MS21260S3LH*	3/32	No. 10-32	.218	.190	.133	.250	.1638	.1568	S3*	2.863	2.98	.109	1.261	1.581	.063	1.188	1.411	.500	.020
MS21260L4RH*	MS21260L4LH*	1/8	1/4-28	.250	.219	.195	.313	.2224	.2152	L4*	4.020	4.28	.141	1.511	1.863	.098	1.438	1.682	.563	.040
MS21260S4RH*	MS21260S4LH*	1/8	1/4-28	.250	.219	.195	.313	.2224	.2152	S4*	3.145	3.40	.141	1.511	1.863	.098	1.438	1.682	.563	.0236
MS21260L5RH*	MS21260L5LH*	5/32	1/4-28	.297	.250	.195	.313	.2224	.2152	L5*	4.314	4.66	.172	1.761	2.157	.098	1.688	1.958	.625	.05
MS21260S5RH*	MS21260S5LH*	5/32	1/4-28	.297	.250	.195	.313	.2224	.2152	S5*	3.439	3.78	.172	1.761	2.157	.098	1.688	1.958	.625	.044
MS21260L6RH*	MS21260L6LH*	3/16	5/16-24	.359	.313	.245	.375	.2830	.2754	L6*	4.612	4.78	.203	2.011	2.455	.098	1.938	2.237	.750	.086
MS21260S6RH*	MS21260S6LH*	3/16	5/16-24	.359	.313	.245	.375	.2830	.2754	S6*	3.737	3.90	.203	2.011	2.455	.098	1.938	2.237	.750	.070
MS21260-7RH*	MS21260-7LH*	7/32	3/8-24	.427	.375	.306	.438	3.454	3.378	-7*	4.914	5.21	.234	2.261	2.757	.098	2.188	2.518	.875	.130
MS21260-8RH*	MS21260-8LH*	1/4	3/8-24	.494	.438	.306	.500	3.454	3.378	-8*	5.218	5.52	.265	2.511	3.061	.098	2.438	2.784	.875	.170
MS21260-9RH*	MS21260-9LH*	9/32	7/16-20	.563	.500	.361	.625	4.052	3.972	-9*	5.542	5.90	.297	2.761	3.385	.098	2.688	3.076	1.000	.22
MS21260-10RH*	MS21260-10LH*	5/16	1/2-20	.635	.563	.406	.688	4.678	4.597	-10*	5.875	6.30	.328	3.011	3.718	.098	2.938	3.326	1.000	.35
MS21260-12RH*	MS21260-12LH*	3/8	9/16-18	.703	.625	.476	.750	5.285	5.201	-12*	6.608	7.01	.390	3.511	4.281	.098	3.438	3.828	1.125	.50
MS21260-14RH	MS21260-14LH	7/16	5/8-18	.781	.688	.538	.812	5.909	5.826	-14	7.468	7.94	.468	4.011	4.812	.098	3.938	4.375	1.250	.75
MS21260-16RH	MS21260-16LH	1/2	5/8-18	.844	.750	.538	.875	5.909	5.826	-16	8.718	9.28	.531	4.698	5.562	.125	4.625	5.093	1.250	1.00

NOTE: Larger sizes and specs available upon request. \* Denotes stock item.  
† AN 669 same as MS 21260 but w/o slotted end

**Stud MS 21259 (AN 666)**

Corrosion Resistant Steel



MS Part Nos.		Nom. Cable Dia. Ref.	Thread B UN-3A UNF-3A	A Dia.	As Dia.	C Dia.	D	L +.015 -.000	Ls Ref.	N Dia.	P	R +.005 -.000 Dia.	S +.062 -.000	W ±.016	Y +.063 -.000	Lbs. Per Piece
RH Thread	LH Thread															
MS21259-2RH*	MS21259-2LH*	1/16	No. 6-40	.160	.138	.121	.188	2.473	2.65	.078	1.042	.063	.969	1.174	1.045	.01
MS21259-3RH*	MS21259-3LH*	3/32	No. 10-32	.218	.190	.169	.250	2.879	3.00	.109	1.261	.063	1.188	1.411	1.204	.0225
MS21259-4RH*	MS21259-4LH*	1/8	1/4-28	.250	.219	.226	.313	3.333	3.59	.141	1.511	.063	1.438	1.682	1.376	.0375
MS20259-5RH*	MS21259-5LH*	5/32	1/4-28	.297	.250	.226	.313	3.627	3.97	.172	1.761	.063	1.688	1.958	1.376	.0475
MS21259-6RH*	MS21259-6LH*	3/16	5/16-24	.359	.313	.285	.375	4.002	4.17	.203	2.011	.098	1.938	2.237	1.458	.08
MS21259-7RH*	MS21259-7LH*	7/32	3/8-24	.427	.375	.347	.438	4.516	4.81	.234	2.261	.098	2.188	2.518	1.625	.12
MS21259-8RH*	MS21259-8LH*	1/4	3/8-24	.494	.438	.347	.500	4.937	5.24	.265	2.511	.098	2.438	2.784	1.750	.165
MS21259-9RH*	MS21259-9LH*	9/32	7/16-20	.563	.500	.405	.625	5.391	5.75	.297	2.761	.098	2.688	3.076	1.875	.265
MS21259-10RH*	MS21259-10LH*	5/16	1/2-20	.635	.563	.467	.688	5.844	6.27	.323	3.011	.098	2.938	3.026	2.000	.375
MS21259-12RH*	MS21259-12LH*	3/8	9/16-18	.703	.625	.529	.750	6.656	7.06	.390	3.511	.098	3.438	3.828	2.250	.500
MS21259-14RH	MS21259-14LH	7/16	5/8-18	.781	.688	.592	.812	7.437	7.91	.468	4.011	.098	3.938	4.375	2.300	.625
MS21259-16RH	MS21259-16LH	1/2	5/8-18	.844	.750	.592	.875	8.187	8.75	.531	4.698	.125	4.625	5.093	2.500	.75

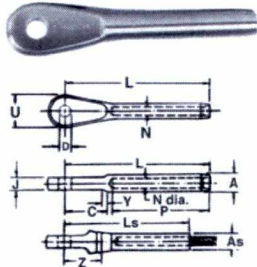
Be sure to specify RH or LH Thread NOTE: Larger sizes and specs available



**Wire Rope Assembly & Fittings**

**Swaged Cable Fittings**

**Eye End MS 20668**



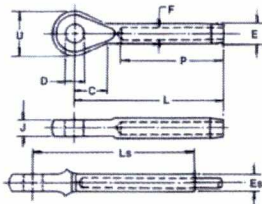
MS Part No.	Nom. Cable Dia. Ref.	A	As Dia.	C ±.020	D Dia.	J	L +.020 - .000	Ls Ref.	N Dia.	P	U +025 - .010 Dia.	Y	Z Min.	Lbs. Per Piece
MS20668-2*	1/16	.160	.138	+.000 - .005	.523	.190	.088	1.631	1.809	.078	1.042	.359	.072	662 .009
MS20668-3*	3/32	.218	.190	+.000 - .005	.707	.190	.103	2.043	2.160	.109	1.261	.438	.092	856 .018
MS20668-4*	1/8	.250	.219	+.000 - .005	.738	.190	.190	2.337	2.593	.141	1.511	.500	.103	900 .035
MS20668-5*	5/32	.297	.250	+.000 - .005	.831	.250	.197	2.684	3.029	.172	1.761	.640	.131	997 .050
MS20668-6*	3/16	.359	.313	+.000 - .007	.903	.313	.255	3.019	3.187	.203	2.011	.781	.155	1,082 .090
MS20668-7*	7/32	.427	.375	+.000 - .007	1.007	.313	.291	3.382	3.678	.234	2.261	.813	.187	1,195 .135
MS20668-8*	1/4	.494	.438	+.000 - .008	1.133	.375	.307	3.763	4.062	.265	2.511	.968	.221	1,326 .200
MS20668-9*	9/32	.563	.500	+.000 - .008	1.257	.438	.322	4.153	4.512	.297	2.761	1.109	.251	1,465 .250
MS20668-10*	5/16	.635	.563	+.000 - .009	1.373	.438	.343	4.546	4.969	.328	3.011	1.218	.281	1,609 .400
MS20668-12*	3/8	.703	.625	+.000 - .009	1.688	.500	.375	5.562	5.968	.390	3.511	1.500	.320	2,124 .575
MS20668-14	7/16	.781	.688	+.000 - .009	1.968	.562	.375	6.398	6.867	.468	4.011	1.750	.350	2,460 .790
MS20668-16	1/2	.844	.750	+.000 - .009	2.115	.625	.468	7.323	7.886	.531	4.698	1.875	.406	2,698 1.050

\* Denotes Stock Item . Larger sizes & specs available upon request.

**3**  
Wire Rope Assembly and Fittings

**Marine Eye EY1**

Corrosion Resistant Steel

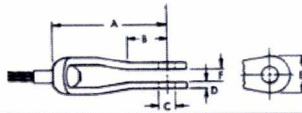


\*Denotes Stock Item

Part No.	Cable Size	C +.46 -.065	D +.010 -.010	E +.000 -.005	F +.006 -.000	J +1/32	L	P	U +.041 -.078	After Swage Es +.000 -.009	After Swage Ls Ref.	Lbs. Per Piece
EY1-2*	1/16	.500	.264	.160	.078	.218	1.500	1.063	.594	.138	1.809	.015
EY1-3*	3/32	.500	.264	.218	.109	.218	1.758	1.188	.594	.190	2.070	.028
EY1-4*	1/8	.500	.264	.250	.141	.218	2.088	1.500	.594	.219	2.401	.033
EY1-5*	5/32	.580	.327	.297	.172	.281	2.355	1.688	.750	.250	2.709	.055
EY1-6*	3/16	.710	.389	.359	.201	.359	2.750	2.000	.875	.313	3.147	.090
EY1-7*	7/32	.800	.452	.427	.228	.406	3.220	2.313	1.000	.378	3.787	.150
EY1-8*	1/4	.900	.514	.494	.265	.468	3.625	2.500	1.125	.438	4.282	.250
EY1-9*	9/32	.990	.514	.563	.295	.468	3.795	2.688	1.125	.500	4.514	.330
EY1-10*	5/16	1.080	.640	.635	.325	.593	4.495	3.250	1.375	.563	5.274	.500
EY1-12*	3/8	1.150	.640	.703	.390	.593	4.930	3.500	1.375	.625	5.659	.670
EY1-14	7/16	1.240	.765	.781	.468	.719	6.375	4.125	1.625	.688	6.750	1.00
EY1-16	1/2	1.290	.890	.844	.531	.844	7.375	4.750	1.875	.750	7.187	1.25

**Strap Forks - Strap, Fork End Mil Spec. NAS 1435-K**

Corrosion Resistant Steel

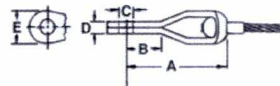


Part Number	NAS No.	Rope Dia.	A	B	C	D	E	F	Lbs. Per Piece
SP 2-2*	NAS 1435K-2	1/16	1-1/16	.454	.188	.042	3/8	.093	.006
SP 2-3*	NAS 1435K-3	3/32	1-1/2	.616	.188	.049	7/16	.108	.013
SP 2-4*	NAS 1435K-4	1/8	1-5/8	.638	.188	.093	1/2	.195	.030
SP 2-5	NAS 1435K-5	5/32	1-31/32	.699	.250	.096	9/16	.202	.042
SP 2-6	NAS 1435K-6	3/16	2-3/16	.750	.313	.125	11/16	.260	.083

\* Denotes stock item.

**Strap Eyes - Strap, Eye End Mil Spec. NAS 1435-E**

Corrosion Resistant Steel

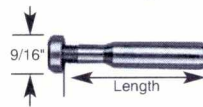


Part Number	NAS No.	Rope Dia.	A	B	C	D	E	Lbs. Per Piece
SP 1-2*	NAS 1435E-2	1/16	1-1/16	.454	.188	.088	3/8	.006
SP 1-3*	NAS 1435E-3	3/32	1-1/2	.616	.188	.103	7/16	.013
SP 1-4*	NAS 1435E-4	1/8	1-5/8	.638	.188	.190	1/2	.030
SP 1-5	NAS 1435E-5	5/32	1-15/16	.699	.250	.197	9/16	.042
SP 1-6	NAS 1435E-6	3/16	2-3/16	.750	.313	.255	11/16	.083

\* Denotes stock item.

**Stanchion Terminal**

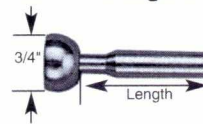
- Machine Swage & Hand Crimp



Cat. No	Wire Size (in)	Length (in)
100-110-1	1/8	2
25-306-5F	3/16	2-1/8
25-308-7-5F	1/4	2-1/2
<b>*Hand Crimp</b>		
26-405-5F	1/8	3-3/16
27-405-5F	3/16	3-13/16

**Versa Ball Terminal**

- Machine Swage & Hand Crimp

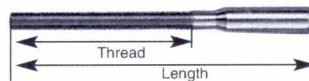


Requires 11/32" Dia. Hole in Stanchion

Cat. No	Wire Size (in)	Length (in)
25-304-5V	1/8	1-11/16
25-306-5V	3/16	2-1/8
25-308-7-5V	1/4	2-1/2
<b>* Hand Crimp</b>		
26-405-5V	1/8	2-3/8
27-405-5V	3/16	2-3/4

**Threaded Terminal**

- Machine Swage & Hand Crimp



Cat. No	Thread (in)	Wire Size (in)	Length (in)
30-603-1	1/4-28 x 2-1/2	1/8	4-1/4
30-608-1	1/4-28 x 2-1/2	3/16	4-1/4
30-615-1	5/16-24 x 2-1/2	1/4	4-3/4
30-613-1	3/8-24 x 3"	1/4	5-1/4
<b>* Hand Crimp</b>			
31-603-1	1/4-28 x 2-1/2	1/8	4-13/16
31-607-1	1/4-28 x 2-1/2	3/16	4-13/16

**Cotter Pin**

Corrosion Resistant Steel

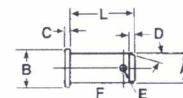


Part No.	A	B	C
PI 5-1*	.062	.75	1/8
PI 5-2*	.093	1.00	3/16

\*Denotes Stock Item

**Clevis Pins PI1**

For MS Fittings  
Corrosion Resistant Steel



\*Denotes Stock Item

Part No.	Fits MS Nos. Indicated	Cable Dia.	A	B	C	D	E	L	F	Lbs Per Piece
PI-1-3*	MS20667-2	1/16	3/16	5/16	1/16	3/64	.081	7/16	5/16	.004
	MS20667-3	3/32	3/16	5/16	1/16	3/64	.081	7/16	5/16	.004
PI 1-4*	MS20667-4	1/8	3/16	5/16	1/16	3/64	.081	17/32	13/32	.005
PI 1-5*	MS20667-5	5/32	1/4	3/8	1/16	3/64	.089	17/32	13/32	.009
PI 1-6*	MS20667-6	3/16	5/16	7/16	1/16	3/64	.098	23/32	9/16	.017
PI 1-7*	MS20667-7	7/32	5/16	7/16	1/16	1/16	.098	27/32	11/16	.020
PI 1-8*	MS20667-8	1/4	3/8	1/2	3/32	1/16	.098	31/32	13/16	.033
PI 1-9	MS20667-9	9/32	7/16	5/8	3/32	1/16	.1405	1-3/32	7/8	.040
PI 1-10*	MS20667-10	5/16	7/16	5/8	3/32	1/16	.1405	1-3/32	7/8	.040
PI 1-12*	MS20667-12	3/8	1/2	11/16	1/8	5/64	.1405	1-7/32	1	.050

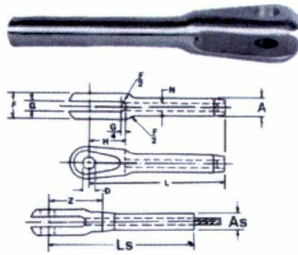


**Wire Rope Assembly & Fittings**

**Swaged Cable Fittings**

**Fork End MS**

20667  
Corrosion Resistant Steel



MS Part Number	Nom. Cable Dia. Ref.	A Dia.	As Dia.	D Dia.	F +.010 - .005	G ±.003	H	L +.020 - .000	Ls Ref.	N Dia.	Z Min.	Lbs. Per Piece
MS20667-2*	1/16	.160	.138	.190	.218	.093	.500	1.572	1.75	.078	.600	.01
MS20667-3*	3/32	.218	.190	.254	.282	.108	.670	1.945	2.06	.109	.757	.02
MS20667-4*	1/8	.250	.219	.290	.328	.195	.735	2.352	2.61	.141	.914	.0325
MS20667-5*	5/32	.297	.250	.320	.358	.202	.800	2.655	3.00	.172	.967	.05
MS20667-6*	3/16	.359	.313	.375	.413	.260	.880	3.071	3.24	.203	1.133	.09
MS20667-7*	7/32	.427	.375	.438	.476	.296	.970	3.440	3.74	.234	1.252	.15
MS20667-8*	1/4	.494	.438	.476	.514	.313	1.070	3.806	4.10	.265	1.368	.20
MS20667-9*	9/32	.563	.500	.438	.476	.348	1.268	4.438	4.86	.328	1.500	.3812
MS20667-10*	5/16	.635	.563	.438	.476	.348	1.268	4.438	4.86	.328	1.500	.3812
MS20667-12*	3/8	.703	.625	.500	.380	1.525	5.333	5.74	3.90	1.895	.575	
MS20667-14*	7/16	.781	.688	.562	.380	1.776	6.402	6.57	4.68	2.164	.775	
MS20667-16	1/2	.844	.750	.625	1.035	.473	1.903	6.938	7.50	.531	2.313	1.625

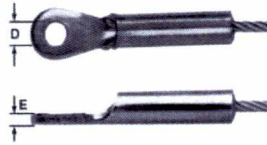
Larger sizes & specs available upon request.  
\* Denotes stock item.

**3**  
Wire Rope Assembly and Fittings

**Stamped Eyes SW-730 & 731**

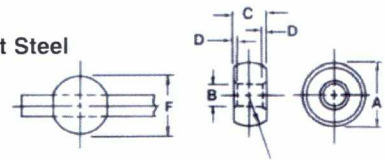
Tuf-Grip Stamped Eyes are convenient, economical fittings designed for several applications such as door restraints, telephone book binders, vehicle glove compartment restraints and many others. Their one-piece, drop-forged construction helps assure long-lasting use. Measure their length from the end of the fitting to the bearing of the eye.

For zinc-plated construction, choose the SW-730 Stamped Eye. For stainless steel, choose the SW-731.



SW-730				SW-731			
Dash No.	To Fit Cable dia.	Pin Hole D	Thickness E	Dash No.	To Fit Cable dia.	Pin Hole D	Thickness E
151	3/64	0.160	0.060	151	3/64	0.160	0.060
152	3/64	0.190	0.060	152	3/64	0.190	0.060
201	1/16	0.129	0.035	201	1/16	0.129	0.035
202	1/16	0.194	0.035	202	1/16	0.194	0.035
203	1/16	0.129	0.060	203	1/16	0.129	0.060
204	1/16	0.190	0.060	204	1/16	0.190	0.060
205	1/16	0.260	0.060	205	1/16	0.260	0.060
206	1/16	0.204	0.060	206	1/16	0.204	0.060
301	3/32	0.205	0.093	301	3/32	0.205	0.093
302	3/32	0.250	0.093	302	3/32	0.250	0.093
303	3/32	0.375	0.093	303	3/32	0.375	0.093
304	3/32	0.500	0.093	304	3/32	0.500	0.093
401	1/8	0.250	0.125	401	1/8	0.250	0.125
402	1/8	0.316	0.125	402	1/8	0.316	0.125
403	1/8	0.375	0.125	403	1/8	0.375	0.125
404	1/8	0.500	0.125	404	1/8	0.500	0.125

**Plain Ball BA3**  
Corrosion Resistant Steel

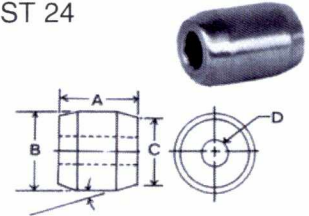


Part No.	Cable Dia. (in)	Dimensions (in)					Sphere Dia. F	Min. Breaking Strength (lbs)	Wt. Per Piece (lbs)
		A	B	C	D	E			
BA3-1*	1/32	.211	.035	.141	.026	.083	.1905	60	.002
BA3-1.5*	3/64	.211	.053	.141	.026	.083	.1905	215	.0019
BA3-2*	1/16	.211	.076	.141	.026	.083	.1905	385	.0017
BA3-3*	3/32	.288	.106	.174	.041	.099	.253	735	.004
BA3-4*	1/8	.355	.143	.190	.041	.142	.317	1,200	.006
BA3-5*	5/32	.429	.175	.227	.041	.170	.380	1,680	.009
BA3-6*	3/16	.498	.207	.264	.041	.197	.442	2,520	.01

\*Denotes Stock Item NOTE: BA3 same as Boeing BAC T14B and NAS 494

**Terminal, Cylindrical ST 24**

Also known as "Stop Buttons", "Sleeves," "Boeing Buttons," (Boeing Part No. BACT 14A), these Stainless Steel Terminals have a multitude of uses. When properly applied they will hold the breaking strength of the wire rope (except for 1 x 7 or 1 x 19 constructions).

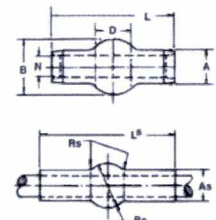


Part No.	Cable Dia.	A	B	C	D	C=As	Die Size	Lbs. Per Piece
ST24-2*	1/16	.224	.221	.190	.076	.190	3/32	.0019
ST24-3*	3/32	.333	.252	.219	.107	.219	1/8	.005
ST24-4*	1/8	.416	.298	.250	.146	.250	5/32	.0075
ST24-5*	5/32	.510	.377	.313	.177	.313	3/16	.01
ST24-6*	3/16	.635	.439	.315	.208	.375	7/32	.114

Minimum breaking strength of ST24 Terminals equals minimum breaking strength of flexible carbon steel wire rope conforming to Specification MIL-W-83420.

For swaging of these terminals, the dies for the next larger size AN/MS Standard Terminals are required.

**Double Shank Ball MS 20663**  
Corrosion Resistant Steel



MS Part No.	Nom. Cable Dia.	Dimensions (in)										Wt. Per Piece (lbs)
		A Dia.	As Dia.	B Dia.	Bs Spherical Dia.	D	L ±.0075	Ls Ref.	N Dia.	Rs Max. Rad		
MS20663C2*	1/16	.127	.112	.207	.190	.114	.362	.390	.073	.014	.0016	
MS20663C3*	3/32	.163	.143	.277	.253	.152	.525	.578	.104	.019	.0032	
MS20663C4*	1/8	.218	.190	.345	.315	.1895	.688	.765	.139	.023	.0094	
MS20663C5*	5/32	.254	.222	.419	.379	.227	.850	.953	.169	.028	.0125	
MS20663C6*	3/16	.293	.255	.487	.442	.264	1.012	1.140	.201	.033	.025	
MS20663C7*	7/32	.347	.302	.555	.505	.3025	1.175	1.328	.233	.038	.032	
MS20663C8*	1/4	.401	.348	.624	.567	.3395	1.337	1.515	.264	.042	.040	
MS20663C9	9/32	.439	.382	.694	.632	.3775	1.497	1.719	.297	.046	.042	
MS20663C10*	5/16	.475	.413	.763	.694	.4145	1.664	1.875	.328	.046	.043	

\*Denotes Stock Item

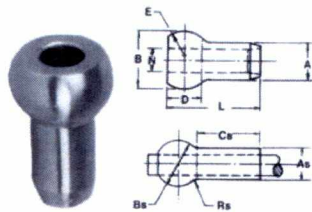


**Wire Rope Assembly & Fittings**

**Swaged Cable Fittings/Swaged Turnbuckle Fittings**

**Single Shank Ball MS**

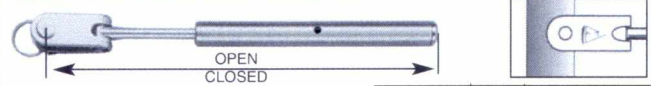
20664  
Corrosion Resistant Steel



MS Part Number	Nom. Cable Dia.	Dimensions (in)											Wt. Per Piece (lbs)
		A Dia.	As Dia.	B Dia.	Bs Spherical Dia.	Cs	D	E Rad Ref	L	N Dia.	Rs Max Rad		
MS20664C2*	1/16	.132	.112	.212	.190	.156	.114	.0825	.2685	.073	.014	.0019	
MS20664C3*	3/32	.168	.143	.282	.253	.234	.152	.110	.384	.104	.019	.005	
MS20664C4*	1/8	.223	.190	.350	.315	.313	.1895	.137	.500	.139	.023	.0075	
MS20664C5*	5/32	.259	.222	.424	.379	.391	.2275	.165	.616	.169	.028	.01	
MS20664C6*	3/16	.298	.255	.492	.442	.469	.2645	.192	.730	.201	.033	.015	
MS20664C7*	7/32	.352	.302	.560	.505	.547	.3025	.220	.846	.233	.038	.025	
MS20664C8*	1/4	.406	.348	.629	.567	.625	.3395	.247	.962	.264	.042	.03	
MS20664C9	9/32	.444	.382	.699	.632	.750	.3775	.275	1.078	.297	.046	.05	
MS20664C10*	5/16	.480	.413	.768	.694	.813	.4145	.302	1.193	.328	.046	.066	

\*Denotes Stock Item

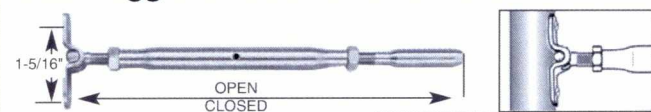
**Jaw Smooth Turnbuckle**



The Smooth Line Turnbuckles are state-of-the-art fittings. The cable is terminated internally so one does not see a swage terminal (or threads) as on a conventional turnbuckle. The Jaw Smooth Line Turnbuckle adapts itself to wide variety of projects. The jaw will easily attach to eyes, tabs or in a channel.

Cat. No.	Wire Size (in)	Open (in)	Closed (in)
60-700	1/8	8	6-5/16
60-702	3/16	8	6-5/16
<b>* Hand Crimp</b>			
26-715	1/8	8	6-5/16
27-715	3/16	8	6-5/16

**Deck Toggle Smooth Line Turnbuckle**



The Deck Toggle Smooth Line Turnbuckle will mount to any flat surface. It can be through bolted by its two tabs and also has the ability to toggle 140°.

Cat. No.	Wire Size (in)	Open (in)	Closed (in)
60-700-1	1/8	8	6-5/16
60-702-1	3/16	8	6-5/16
<b>* Hand Crimp</b>			
26-715-1	1/8	8	6-5/16
27-715-1	3/16	8	6-5/16

**3**  
Wire Rope Assembly and Fittings

**SWAGED TURNBUCKLE FITTINGS**

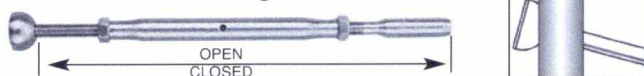
**Button & Swage Turnbuckle**



The Button and Swage Turnbuckle has a clean simple look with no jaw. It must be used on a straight run and attached in a through hole with the button on the back-side of the baluster.

Cat. No.	Wire Size (in)	Open (in)	Closed (in)
19-314-10F	1/8	11-1/2	8-1/4
19-316-10F	3/16	11-1/2	8-1/4
19-308-7F	1/4	11-3/4	8
<b>* Hand Crimp</b>			
26-412-10F	1/8	11-11/16	8-1/8
27-412-10F	3/16	12	8-1/2

**Versa Ball & Swage Turnbuckle**



The Versa Ball and Swage Turnbuckle is made to accept the angles of stairways. The versa-ball allows the turnbuckle to integrate itself to your desired angle. The ball allows this turnbuckle to gimbal in its mount.  
Note: 5/32" cable size available.

Cat. No.	Wire Size (in)	Open (in)	Closed (in)
19-314-10V	1/8	11-1/4	8-1/4
19-316-10V	3/16	11-1/4	8-1/4
19-308-7V	1/4	11-1/2	7-3/4
<b>* Hand Crimp</b>			
26-412-10V	1/8	11-11/16	8-1/8
27-412-10V	3/16	12	8-1/2

**Swage to Swage Turnbuckle**

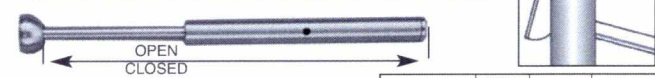


Appearing in the middle of the cable, the Swage to Swage Turnbuckle needs a fitting at each end to make a complete assembly. You need to use three fittings per cable run, but it makes for a distinctive look.

Also available in new "shortie" sizes. 3" long body with 2" of adjustment.

Cat. No.	Wire Size (in)	Open (in)	Closed (in)
19-314-3	1/8	11-3/4	8-3/4
19-316-6	3/16	11-3/4	8-3/4
19-308-27	1/4	13-1/4	9-3/4
19-308-2	1/4	14-7/8	10-5/8
<b>* Hand Crimp</b>			
26-412-3	1/8	12-1/2	9-1/2
27-412-6	3/16	12-1/2	9-1/2

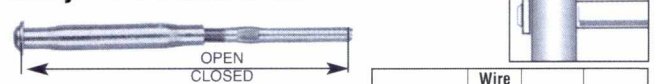
**Versa Ball Smooth Line Turnbuckle**



The Versa Ball Smooth Line Turnbuckle gimbal in its own mount, making it the turnbuckle of choice on stairways or anywhere a cable installation at a divergent angle is needed.

Cat. No.	Wire Size (in)	Open (in)	Closed (in)
60-710-LV	1/8	9-9/16	7-13/16
60-712-LV	3/16	9-9/16	7-13/16
<b>* Hand Crimp</b>			
26-725-LV	1/8	9-9/16	7-13/16
27-725-LV	3/16	9-9/16	7-13/16

**Railjuster Turnbuckle**



The Railjuster Turnbuckle is made for quick assembly with an allen wrench and an adjustable wrench once it is swaged to the wire.

\*Not a true 1/8" fitting (sleeve)

Cat. No.	Wire Size (in)	Open (in)	Closed (in)
70-314*	1/8	6-1/2	5
70-316	3/16	6-1/2	5
<b>* Hand Crimp</b>			
26-714*	1/8	7-1/4	5-3/4
27-716	3/16	7-1/4	5-3/4