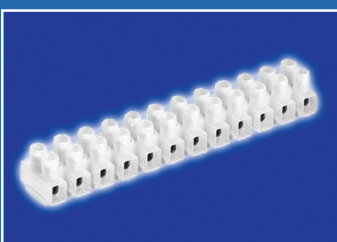
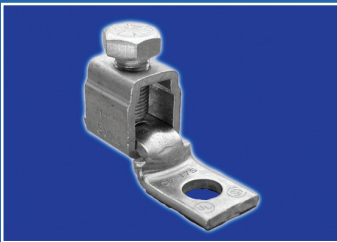
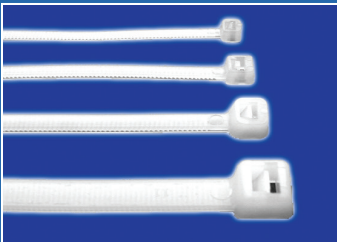
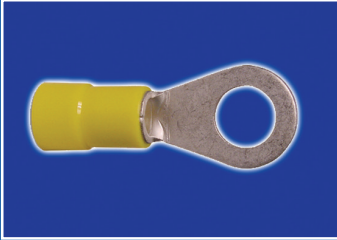


# Electrical Hardware



- Bushings
- Cable Ties
- Fuse Holders
- Lugs & Neutral Bars
- Rough-In Fittings
- Plastic Hardware
- Protective Sleeving
- Terminals
- Terminal Blocks
- Tools
- Wire Accessories
- Wiring Duct

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# ETLIN-DANIELS

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Ontario, Canada, M9M 1A1  
Ph: 416-741-7336 Fax: 416-741-9104

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**TERMINALS AND CONNECTORS**

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**ETLIN DANIELS** reserves the right to discontinue, modify designs and change specifications without incurring obligation. While every effort is made to ensure that descriptions, specifications and other information in this catalogue are correct, no warranty is given in respect thereof and the company shall not be liable for any error herein.  
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## TERMINAL OVERVIEW

A2

Look to **ETLIN DANIELS** Solderless Crimp terminals for Quality Terminal Construction.

We have been supplying the OEM, Distributor, and repair markets with our solderless crimp terminals since 1964.

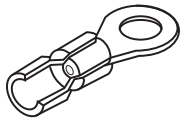
The following are quality features of our terminals and connectors:

- CSA Certified and UL Listed
- Terminals are made from pure 99.9% electrolytic tough pitch thick gauge copper with extremely high conductivity, 600V rated
- Wire size is stamped on tongue
- Uniform lustre tin plating on all terminals for maximum corrosion protection
- We carry high inventory levels and can generally ship your requirements immediately
- We offer a very broad and complete product line and can meet most every need
- We carry a full line of crimping tools from the hand-held pliers, to ratchet, to pneumatic
- We also have available Mylar Tape Mounted terminals for high volume usage
- We carry a full line of twist-on wire nuts, push-in connectors, high temperature porcelain wire nuts and T-Tap connectors
- We have a full line of Nylon Close End connectors from #22 AWG to #8 AWG
- We carry a full line of insulated and non-insulated male and female disconnects, piggybacks, flags and tab connectors
- Quality design and features that provide long term solutions for your requirements

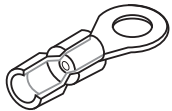
### Basic Barrel Construction



**Superior Brazed Seam:** Non-insulated tin plated copper terminals that will not open during or after crimping. The brazed seam can be crimped anywhere, even on the seam itself, without splitting. It has a chamfered barrel for fast, easy wire insertion. Used where no accidental contact possible leading to short circuit.



**FVL Insulated:** High quality vinyl PVC insulation with funnel entry type which allows easy wire insertion, single crimp. Industry standard colour coding for ease of identification.



**FVD (Vinyl PVC) and FND (Nylon)** High quality insulated terminals and connectors with tin-plated easy entry copper sleeve which acts as the insulation grip, in addition to the bare wire grip, for superior “pull out strength” double crimp. Clear, secure, nylon is used in high vibration heavy industry applications. Industry standard colour coding for ease of identification.



**WS Seam:** non-insulated tin-plated butted seam without solder available for those who want a less expensive alternative terminal. Available for the non-insulated rings and spades only, from #22 AWG to #12 AWG.

WS-HT non-insulated butted HIGH TEMPERATURE terminals 900°F/484 °C rated in stock HS heat shrinkable terminals in stock

## TERMINAL OVERVIEW

A3

Terminals and Connectors



**Heat Shrink Insulated Terminals:** Heat Shrink Insulated Terminals: utilize plastic and glue to seal and insulate the connection. After crimping or soldering the wire to the terminal, a torch or electric heat gun is used to shrink the plastic insulation around the wire-terminal joint and the glue inside the insulation makes a moisture resistant seal. This product is ideal for automotive and other applications where dust and moisture could compromise the connection.

### What Are The Four Main Types of Termination Available:



1) Ring terminals are the most common. The ring on the end of the terminal is attached to a threaded stud and held in place with a nut. There are different size ring holes (or studs) depending on the equipment.



2) Spade terminals look like a two pronged fork. The advantage of a spade terminal is that you can attach them to a stud without completely removing the screw. Just loosen the screw, insert the spade terminal, and re-tighten. Some spades have a locking mechanism or bent flange that holds the spade in place even when the screw is loose.



3) Disconnect terminals slide in and out of each other. Naturally, one is female and one is male. These are used when the connection needs to be disconnected frequently. It is easy to slide the disconnect terminal on or off. Some disconnects are “fully insulated” so that no part of the connection is exposed after pushing the two together.



4) Butt splices are simple tubes that are used to connect two pieces of wire. One piece of wire is inserted into each side of the butt splice and the wire is crimped on each side. This is especially helpful to reconnect a wire that is accidentally cut.

### Wire Ranges

WIRE RANGE	AWG	mm <sup>2</sup>
0.5	26-22	0.5
1	22-16	1.25
2	16-14	2
3	14-12	3.5
5	12-10	5.5
8	8	8
14	6	14
22	4	22
38	2	38
60	1/0	60
70	2/0	70
80	3/0	80
100	4/0	100
150	250/300 MCM	150
180	300/350 MCM	180
200	400/500 MCM	200
325	500/600 MCM	325
400	600/750 MCM	400
500	800/1000 MCM	500
630	1000/1250 MCM	630
800	1500/1750 MCM	800
1000	2000 MCM	1000



**\* CONTINUAL TYPE TERMINALS ON TAPE/CARRIER STRIP AVAILABLE. INQUIRE WITH CUSTOMER SERVICE**





Terminals

TERMINAL STUD SIZE

A4

Stud Sizes

Terminals and Connectors

STUD SIZE	mm	inch
● #2	2.2	.087
● #3	2.7	.106
● #4	3.2	.126
● #6	3.7	.146
● #8	4.3	.169
● #10	5.3	.209
● 1/4	6.4	.252
● 5/16	8.4	.331
● 3/8	10.5	.413
● 7/16	11.5	.453

STUD SIZE	mm	inch
● 1/2	13.0	.512
● 9/16	15.0	.591
● 5/8	17.0	.669
● 11/16	19.0	.748
● 3/4	21.0	.827
● 7/8	23.0	.906
● 15/16	25.0	.984
● 1	28.0	1.102

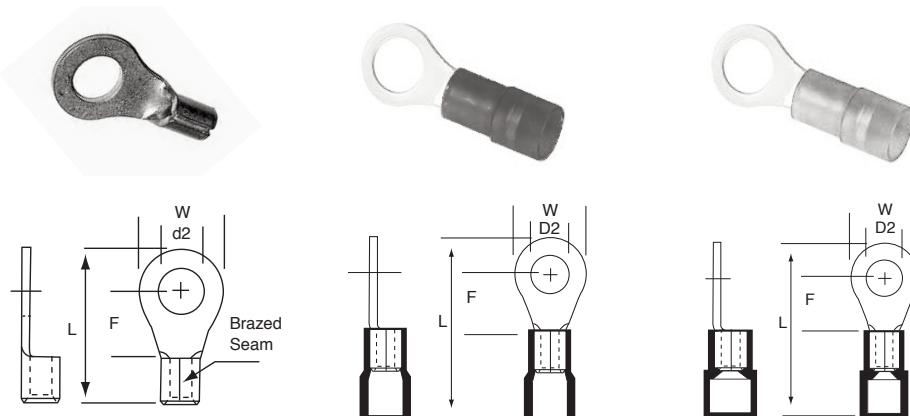


## 22-16 AWG SOLDERLESS TERMINALS

### 22-16 AWG RING TERMINALS (1.25 mm<sup>2</sup>)

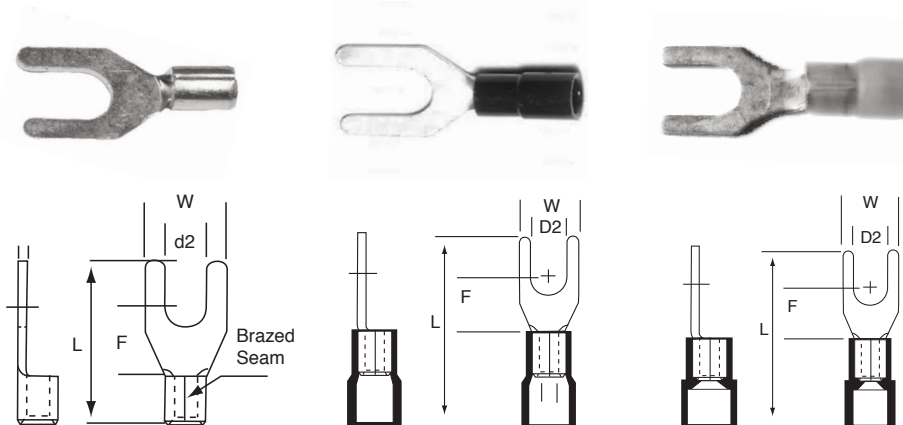
A5

Terminals and Connectors



DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE (d2)	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		FUNNEL ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
#6	0.26	6.6	0.248	6.3	<b>2216-M3</b>	0.567	14.4	<b>FVL2216-M3</b>	0.764	19.4	<b>FND2216-M3</b>	0.756	19.2
#8	0.26	6.6	0.248	6.3	<b>2216-M4</b>	0.567	14.4	<b>FVL2216-M4</b>	0.764	19.4	<b>FND2216-M4</b>	0.756	19.2
#8	0.315	8	0.276	7	<b>2216-4</b>	0.622	15.8	<b>FVL2216-4</b>	0.819	20.8	<b>FND2216-4</b>	0.811	20.6
#10	0.315	8	0.276	7	<b>2216-5</b>	0.622	15.8	<b>FVL2216-5</b>	0.819	20.8	<b>FND2216-5</b>	0.811	20.6
1/4"	0.457	11.6	0.433	11	<b>2216-6</b>	0.858	21.8	<b>FVL2216-6</b>	1.083	27.5	<b>FND2216-6</b>	1.04	26.4
5/16"	0.457	11.6	0.433	11	<b>2216-8</b>	0.858	21.8	<b>FVL2216-8</b>	1.083	27.5	<b>FND2216-8</b>	1.04	26.4
3/8"	0.535	13.6	0.547	13.9	<b>2216-9</b>	1.004	25.5	<b>FVL2216-9</b>	1.244	31.6	<b>FND2216-9</b>	1.19	30.2

### 22-16 AWG SPADE TERMINALS (1.25mm<sup>2</sup>)



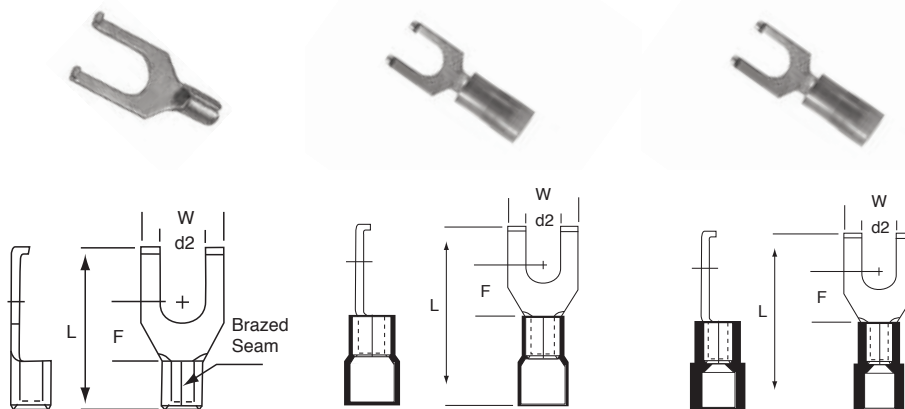
DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE (d2)	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		FUNNEL ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
#6	0.252	6.4	0.255	6.5	<b>2216-YS3A</b>	0.63	16	<b>FVL2216-YS3A</b>	0.835	21.2	<b>FND2216-YS3A</b>	0.795	20.2
#8	0.252	6.4	0.255	6.5	<b>2216-YS4A</b>	0.63	16	<b>FVL2216-YS4A</b>	0.835	21.2	<b>FND2216-YS4A</b>	0.795	20.2
#8	0.285	7.2	0.255	6.5	<b>2216-S4A</b>	0.63	16	<b>FVL2216-S4A</b>	0.835	21.2	<b>FND2216-S4A</b>	0.811	20.6
#10	0.335	8.5	0.255	6.5	<b>2216-5A</b>	0.63	16	<b>FVL2216-5A</b>	0.835	21.2	<b>FND2216-5A</b>	0.811	20.6
1/4"	0.472	12	0.433	11	<b>2216-6A</b>	0.866	22	<b>FVL2216-6A</b>	1.071	27.2	<b>FND2216-6A</b>	1.06	27

# Solderless Terminals

## 22-16 AWG SOLDERLESS TERMINALS

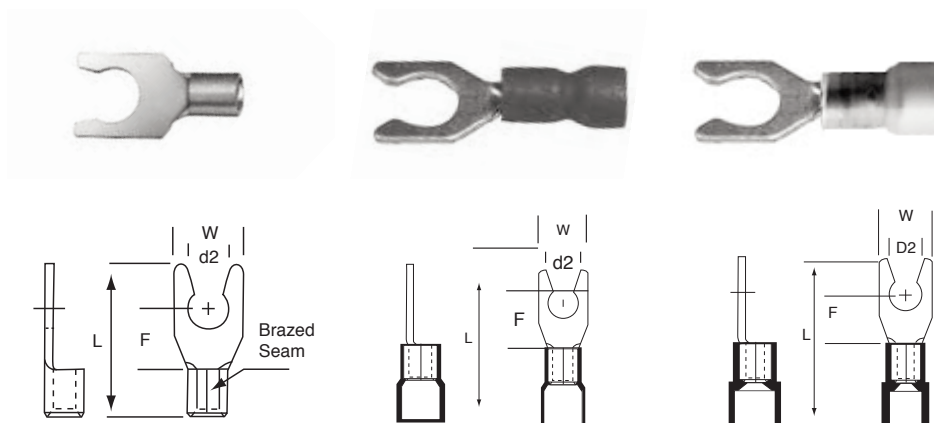
A6

### 22-16 AWG FLANGED SPADE TERMINALS (1.25 mm<sup>2</sup>)



DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		FUNNEL ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
	(d2)	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm	PART NUMBER	in
#6	0.295	7.5	0.201	5.1	<b>2216-S3B</b>	0.551	14	<b>FVL2216-S3B</b>	0.748	19	<b>FND2216-S3B</b>	0.705	17.9
#8	0.295	7.5	0.201	5.1	<b>2216-S4B</b>	0.551	14	<b>FVL2216-S4B</b>	0.748	19	<b>FND2216-S4B</b>	0.705	17.9
#10	0.295	7.5	0.201	5.1	<b>2216-S5B</b>	0.551	14	<b>FVL2216-S5B</b>	0.748	19	<b>FND2216-S5B</b>	0.705	17.9

### 22-16 AWG LOCKING SPADE TERMINALS (1.25 mm<sup>2</sup>)



DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		FUNNEL ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
	(d2)	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm	PART NUMBER	in
#6	0.252	6.4	0.256	6.5	<b>2216-3LS</b>	0.63	16	<b>FVL2216-3LS</b>	0.72	18.3	<b>FND2216-3LS</b>	0.705	17.9
#8	0.319	8.1	0.256	6.5	<b>2216-4LS</b>	0.63	16	<b>FVL2216-4LS</b>	0.72	18.3	<b>FND2216-4LS</b>	0.705	17.9
#10	0.319	8.1	0.256	6.5	<b>2216-5LS</b>	0.63	16	<b>FVL2216-5LS</b>	0.72	18.3	<b>FND2216-5LS</b>	0.705	17.9

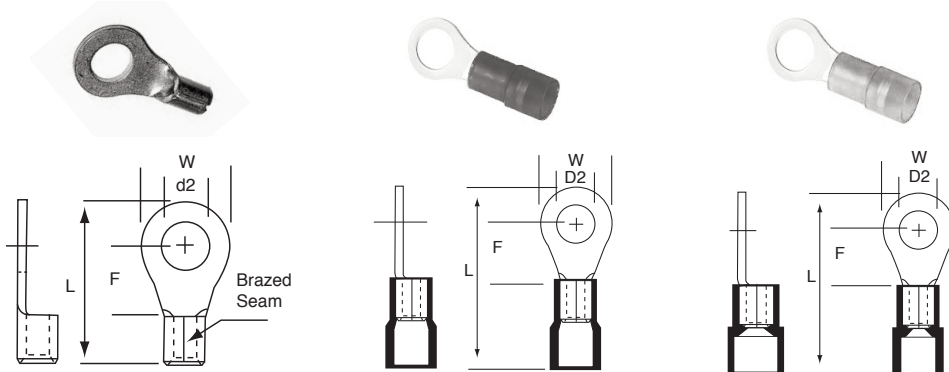


# 16-14 AWG SOLDERLESS TERMINALS

## 16-14 AWG RING TERMINALS (2 mm<sup>2</sup>)

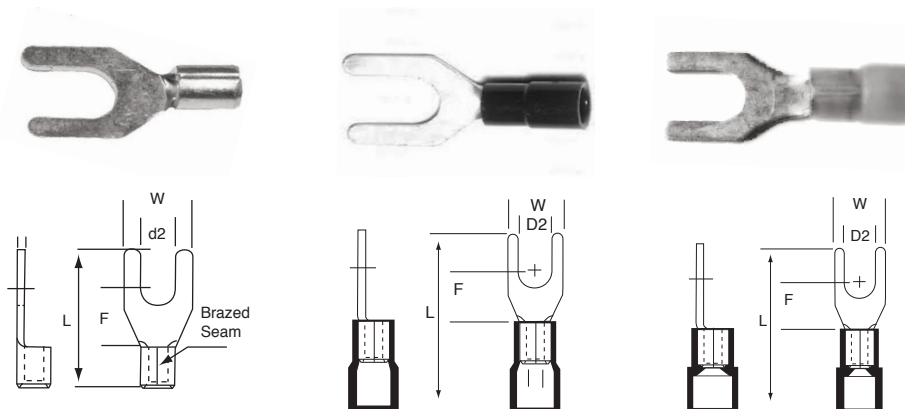
A7

Terminals and Connectors



DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE (d2)	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		FUNNEL ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
#6	0.26	6.6	0.248	6.3	<b>1614-M3</b>	0.567	14.4	<b>FVL1614-M3</b>	0.764	19.4	<b>FND1614-M3</b>	0.803	20.4
#8	0.26	6.6	0.248	6.3	<b>1614-M4</b>	0.567	14.4	<b>FVL1614-M4</b>	0.764	19.4	<b>FND1614-M4</b>	0.803	20.4
#8	0.335	8.5	0.307	7.8	<b>1614-4</b>	0.661	16.8	<b>FVL1614-4</b>	0.858	21.8	<b>FND1614-4</b>	0.898	22.8
#10	0.335	8.5	0.307	7.8	<b>1614-M5</b>	0.661	16.8	<b>FVL1614-M5</b>	0.858	21.8	<b>FND1614-M5</b>	0.898	22.8
#10	0.374	9.5	0.287	7.3	<b>1614-5</b>	0.661	16.8	<b>FVL1614-5</b>	0.858	21.8	<b>FND1614-5</b>	0.898	22.8
1/4"	0.472	12	0.433	11	<b>1614-6</b>	0.858	21.8	<b>FVL1614-6</b>	1.055	26.8	<b>FND1614-6</b>	1.094	27.8
5/16"	0.472	12	0.433	11	<b>1614-8</b>	0.858	21.8	<b>FVL1614-8</b>	1.055	26.8	<b>FND1614-8</b>	1.094	27.8
3/8"	0.535	13.6	0.547	13.9	<b>1614-9</b>	1.004	25.5	<b>FVL1614-9</b>	1.201	30.5	<b>FND1614-9</b>	1.24	31.5
1/2"	0.756	19.2	0.63	16	<b>1614-13</b>	1.197	30.4	<b>FVL1614-13</b>	1.394	35.4	<b>FND1614-13</b>	1.433	36.4

## 16-14 AWG SPADE TERMINALS (2 mm<sup>2</sup>)



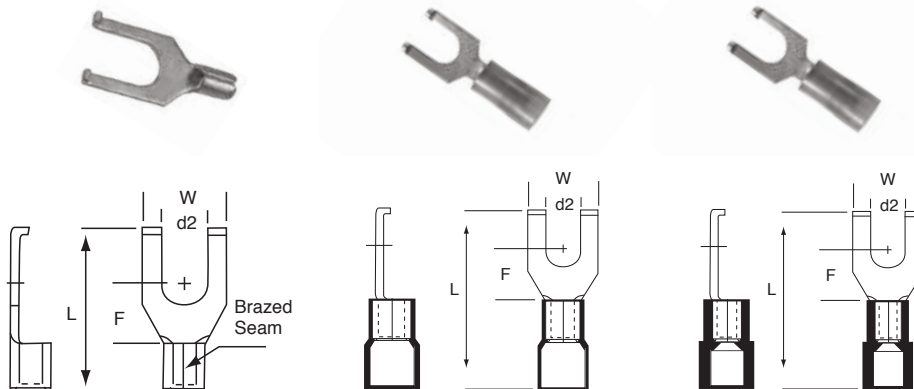
DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE (d2)	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		FUNNEL ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
#6	0.236	6	0.256	6.5	<b>1614-YS3A</b>	0.63	16	<b>FVL1614-YS3A</b>	0.827	21	<b>FND1614-YS3A</b>	0.866	22
#6	0.283	7.2	0.256	6.5	<b>1614-S3A</b>	0.63	16	<b>FVL1614-S3A</b>	0.827	21	<b>FND1614-S3A</b>	0.866	22
#8	0.252	6.4	0.256	6.5	<b>1614-YS4A</b>	0.63	16	<b>FVL1614-YS4A</b>	0.827	21	<b>FND1614-YS4A</b>	0.866	22
#8	0.283	7.2	0.256	6.5	<b>1614-S4A</b>	0.63	16	<b>FVL1614-S4A</b>	0.827	21	<b>FND1614-S4A</b>	0.866	22
#10	0.319	8.1	0.256	6.5	<b>1614-5A</b>	0.63	16	<b>FVL1614-5A</b>	0.827	21	<b>FND1614-5A</b>	0.866	22
1/4"	0.472	12	0.433	11	<b>1614-6A</b>	0.866	22	<b>FVL1614-6A</b>	1.063	27	<b>FND1614-6A</b>	1.102	28

# Solderless Terminals

## 16-14 AWG SOLDERLESS TERMINALS

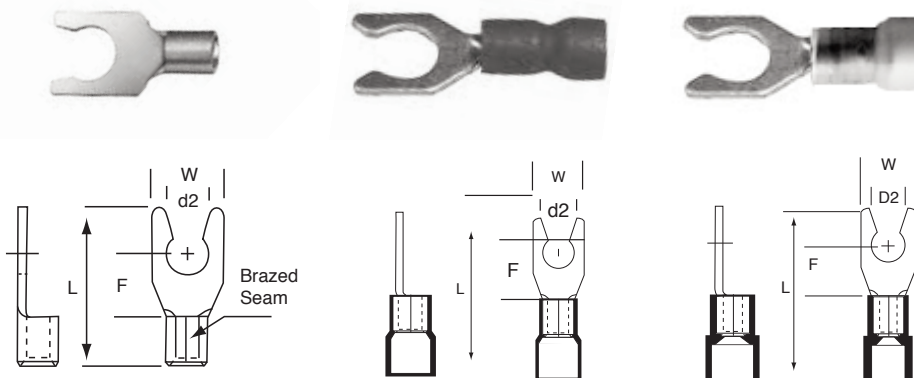
A8

### 16-14 AWG FLANGED SPADE TERMINALS (2 mm<sup>2</sup>)



DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		FUNNEL ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
	(d2)	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm	PART NUMBER	in
#6	0.295	7.50	0.283	7.2	<b>1614-S3B</b>	0.709	18	<b>FVL1614-S3B</b>	0.768	19.5	<b>FND1614-S3B</b>	0.945	24
#8	0.295	7.50	0.283	7.2	<b>1614-S4B</b>	0.709	18	<b>FVL1614-S4B</b>	0.768	19.5	<b>FND1614-S4B</b>	0.851	24
#10	0.295	7.50	0.283	7.2	<b>1614-S5B</b>	0.571	14.5	<b>FVL1614-S5B</b>	0.768	19.5	<b>FND1614-S5B</b>	0.807	20.5

### 16-14 AWG LOCKING SPADE TERMINALS (2 mm<sup>2</sup>)



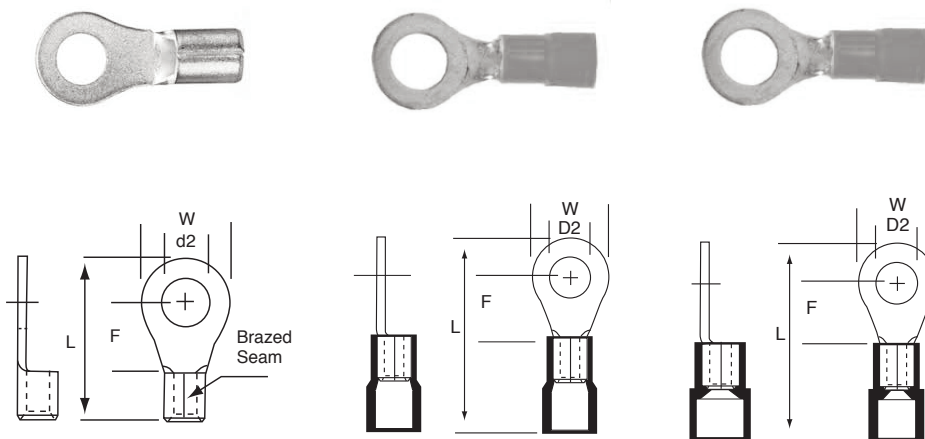
DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		FUNNEL ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
	(d2)	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm	PART NUMBER	in
#6	0.252	6.4	0.256	6.5	<b>1614-3LS</b>	0.63	16	<b>FVL1614-3LS</b>	0.827	21	<b>FND1614-3LS</b>	0.866	22
#8	0.283	7.2	0.256	6.5	<b>1614-4LS</b>	0.63	16	<b>FVL1614-4LS</b>	0.827	21	<b>FND1614-4LS</b>	0.866	22
#10	0.319	8.1	0.256	6.5	<b>1614-5LS</b>	0.63	16	<b>FVL1614-5LS</b>	0.827	21	<b>FND1614-5LS</b>	0.866	22

14-12, 12-10 AWG  
SOLDERLESS TERMINALS

12-10 AWG RING TERMINALS (5.5 mm<sup>2</sup>)

A9

Terminals and Connectors



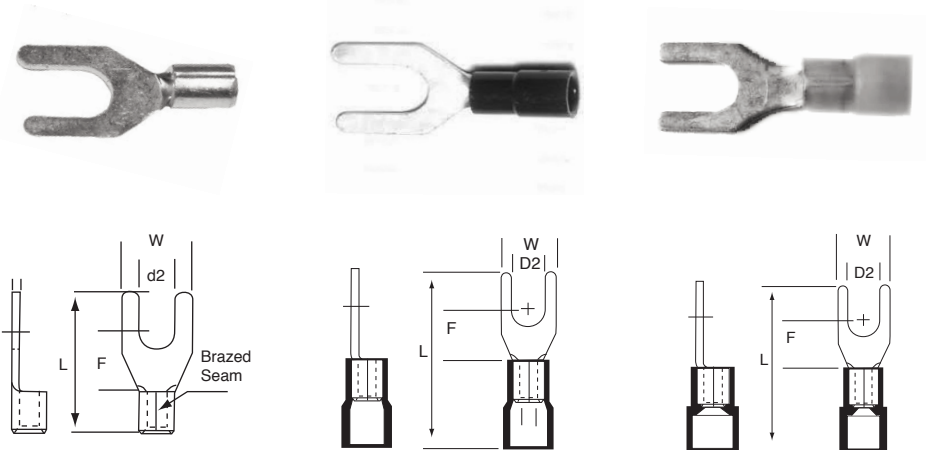
DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE (d2)	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM PART NUMBER	LENGTH (L)		FUNNEL ENTRY PART NUMBER	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE PART NUMBER	LENGTH (L)	
	in	mm	in	mm		in	mm		in	mm		in	mm
#6	0.283	7.2	0.24	6.1	<b>1210-S3</b>	0.618	15.7	<b>FVL1210-S3</b>	0.894	22.7	<b>FND1210-S3</b>	0.894	22.7
#8	0.283	7.2	0.24	6.1	<b>1210-S4</b>	0.618	15.7	<b>FVL1210-S4</b>	0.894	22.7	<b>FND1210-S4</b>	0.894	22.7
#8	0.374	9.5	0.358	9.1	<b>1210-4</b>	0.772	19.6	<b>FVL1210-4</b>	1.047	26.6	<b>FND1210-4</b>	1.047	26.6
#10	0.374	9.5	0.358	9.1	<b>1210-5</b>	0.772	19.6	<b>FVL1210-5</b>	1.047	26.6	<b>FND1210-5</b>	1.047	26.6
1/4"	0.472	12	0.413	10.5	<b>1210-6</b>	0.886	22.5	<b>FVL1210-6</b>	1.167	29.5	<b>FND1210-6</b>	1.616	29.5
5/16"	0.591	15	0.531	13.5	<b>1210-8</b>	1.063	27	<b>FVL1210-8</b>	1.339	34	<b>FND1210-8</b>	1.339	34
3/8"	0.591	15	0.531	13.5	<b>1210-9</b>	1.063	27	<b>FVL1210-9</b>	1.339	34	<b>FND1210-9</b>	1.339	34
1/2"	0.756	19.2	0.63	16	<b>1210-13</b>	1.244	31.6	<b>FVL1210-13</b>	1.52	38.6	<b>FND1210-13</b>	1.52	38.6
5/8"	1.26	32	1.26	32	<b>1210-16</b>	1.858	47.2	<b>FVL1210-16</b>	2.134	54.2	<b>FND1210-16</b>	2.134	54.2

# Solderless Terminals

## 12-10 AWG SOLDERLESS TERMINALS

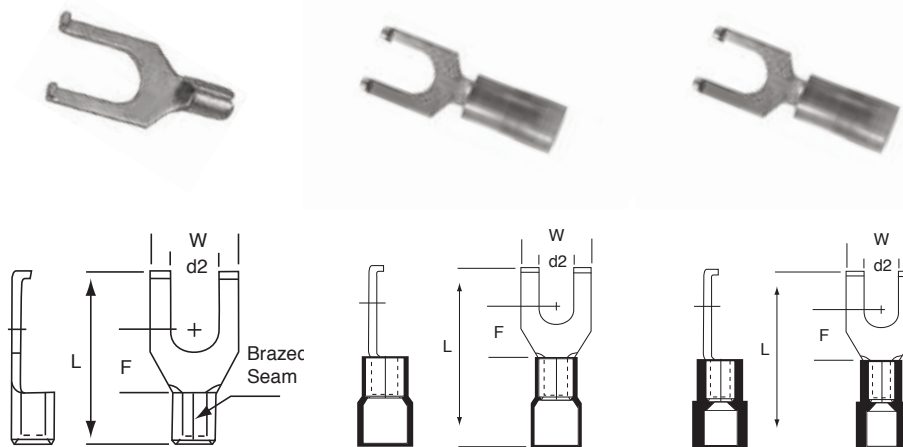
A10

### 12-10 AWG SPADE TERMINALS (5.5 mm<sup>2</sup>)



DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE (d2)	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		FUNNEL ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
#6	0.283	7.2	0.295	7.5	<b>1210-S3A</b>	0.685	17.4	<b>FVL1210-S3A</b>	0.961	24.4	<b>FND1210-S3A</b>	0.961	24.4
#8	0.327	8.3	0.276	7	<b>1210-S4A</b>	0.728	18.5	<b>FVL1210-S4A</b>	1.004	25.5	<b>FND1210-S4A</b>	1.004	25.5
#10	0.354	9	0.276	7	<b>1210-5A</b>	0.728	18.5	<b>FVL1210-5A</b>	1.004	25.5	<b>FND1210-5A</b>	1.004	25.5
1/4"	0.472	12	0.472	12	<b>1210-6A</b>	0.965	24.5	<b>FVL1210-6A</b>	1.004	25.5	<b>FND1210-6A</b>	1.004	25.5

### 12-10 AWG FLANGED SPADE TERMINALS (5.5 mm<sup>2</sup>)



DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE (d2)	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		FUNNEL ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
#6	0.299	7.6	0.244	6.2	<b>1210-S3B</b>	0.728	18.5	<b>FVL1210-S3B</b>	1.004	25.5	<b>FND1210-S3B</b>	1.004	25.5
#8	0.299	7.6	0.244	6.2	<b>1210-S4B</b>	0.728	18.5	<b>FVL1210-S4B</b>	1.004	25.5	<b>FND1210-S4B</b>	1.004	25.5
#10	0.299	7.6	0.244	6.2	<b>1210-S5B</b>	0.728	18.5	<b>FVL1210-S5B</b>	1.004	25.5	<b>FND1210-S5B</b>	1.004	25.5



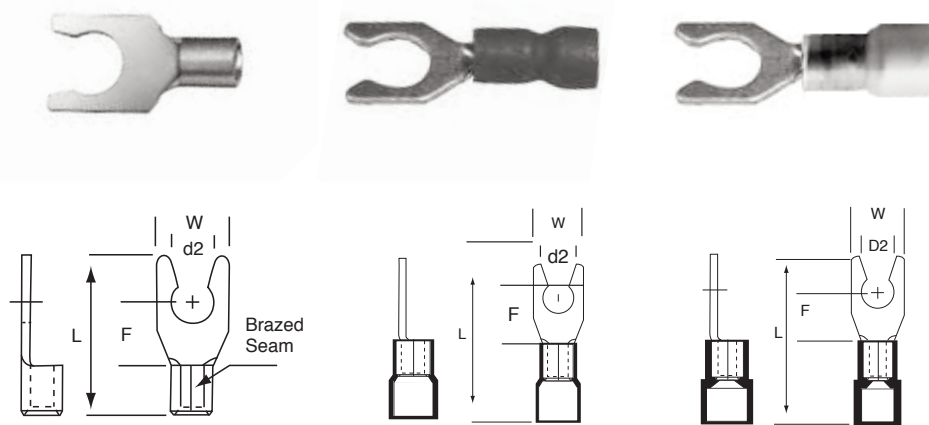
# Solderless Terminals

## 12-10, 8, 6 AWG SOLDERLESS TERMINALS

### 12-10 AWG LOCKING SPADE TERMINALS (5.5 mm<sup>2</sup>)

A11

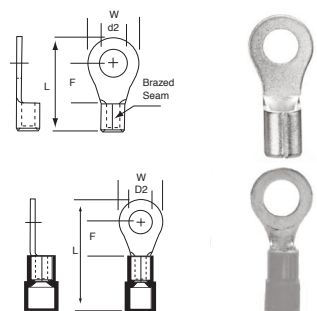
Terminals and Connectors



DIMENSIONS					NON-INSULATED			VINYL INSULATED			NYLON INSULATED		
STUD SIZE	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		FUNNEL ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
(d2)	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
#6	0.327	8.3	0.276	7	<b>1210-3LS</b>	0.717	18.2	<b>FVL1210-3LS</b>	0.992	25.2	<b>FND1210-3LS</b>	0.992	25.2
#8	0.327	8.3	0.276	7	<b>1210-4LS</b>	0.717	18.2	<b>FVL1210-4LS</b>	0.992	25.2	<b>FND1210-4LS</b>	0.992	25.2
#10	0.354	9	0.276	7	<b>1210-5LS</b>	0.717	18.2	<b>FVL1210-5LS</b>	0.992	25.2	<b>FND1210-5LS</b>	0.992	25.2
1/4"	0.472	12	0.472	12	<b>1210-6LS</b>	0.965	24.5	<b>FVL1210-6LS</b>	1.24	31.5	<b>FND1210-6LS</b>	1.24	31.5

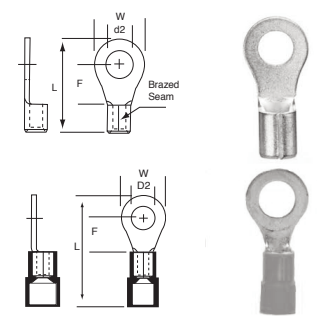
### 8 AWG RING TERMINALS (8 mm<sup>2</sup>)

DIMENSIONS					NON-INSULATED			NYLON INSULATED		
STUD SIZE	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
(d2)	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
#8	0.35	8.6	0.22	5.4	<b>8-NK4</b>	0.65	15.9	<b>FN8-NK4</b>	1.15	28.2
#8	0.47	11.5	0.36	8.8	<b>8-S4</b>	0.93	22.8	<b>FN8-S4</b>	1.35	33.1
#10	0.35	8.6	0.22	5.4	<b>8-NK5</b>	0.65	15.9	<b>FN8-NK5</b>	1.15	28.2
#10	0.47	11.5	0.36	8.8	<b>8-S5</b>	0.93	22.8	<b>FN8-S5</b>	1.35	33.1
1/4"	0.47	11.5	0.36	8.8	<b>8-S6</b>	0.93	22.8	<b>FN8-S6</b>	1.58	38.7
5/16"	0.59	14.5	0.54	13.2	<b>8-8</b>	1.17	28.7	<b>FN8-8</b>	1.58	38.7
3/8"	0.59	14.5	0.54	13.2	<b>8-9</b>	1.17	28.7	<b>FN8-9</b>	1.58	38.7
1/2"	0.78	19.1	0.59	14.5	<b>8-13</b>	1.32	38.5	<b>FN8-13</b>	1.73	42.4



### 6 AWG RING TERMINALS (14 mm<sup>2</sup>)

DIMENSIONS					NON-INSULATED			NYLON INSULATED		
STUD SIZE	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
(d2)	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
#10	0.48	12.2	0.3	7.6	<b>6-NK5</b>	0.9	22.8	<b>FN6-NK5</b>	1.33	40.8
#10	0.472	12	0.524	13.3	<b>6-5</b>	1.17	29.7	<b>FN6-5</b>	1.54	39.1
1/4"	0.472	12	0.524	13.3	<b>6-6</b>	1.17	29.7	<b>FN6-6</b>	1.54	39.1
5/16"	0.63	16	0.559	14.2	<b>6-8</b>	1.29	32.8	<b>FN6-8</b>	1.66	42.2
3/8"	0.63	16	0.559	14.2	<b>6-9</b>	1.29	32.8	<b>FN6-9</b>	1.66	42.2
1/2"	0.866	22	0.78	19.8	<b>6-13</b>	1.61	41.9	<b>FN6-13</b>	1.98	50.3

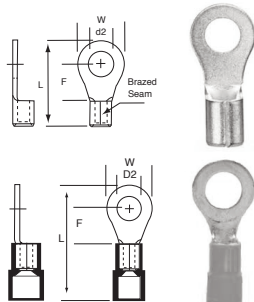


# Solderless Terminals

## 4, 2, 1/0 AWG SOLDERLESS TERMINALS

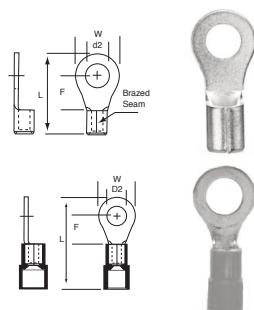
A12

### 4 AWG RING TERMINALS (22 mm<sup>2</sup>)



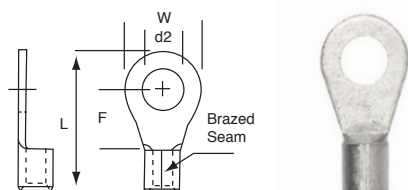
STUD SIZE	DIMENSIONS				NON-INSULATED			NYLON INSULATED		
	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM PART NUMBER	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE PART NUMBER	LENGTH (L)	
	in	mm	in	mm		in	mm		in	mm
#10	0.47	11.9	0.47	11.9	<b>4-S5</b>	1.26	32	<b>FN4-S5</b>	1.69	42.9
1/4"	0.47	11.9	0.47	11.9	<b>4-S6</b>	1.26	32	<b>FN4-S6</b>	1.69	42.9
1/4"	0.65	16.5	0.53	13.5	<b>4-6</b>	1.32	33.5	<b>FN4-6</b>	1.76	44.7
5/16"	0.65	16.5	0.53	13.5	<b>4-S8</b>	1.32	33.5	<b>FN4-S8</b>	1.76	44.7
3/8"	0.65	16.5	0.53	13.5	<b>4-S9</b>	1.32	33.5	<b>FN4-S9</b>	1.76	44.7
3/8"	0.69	17.5	0.62	15.7	<b>4-9</b>	1.44	36.6	<b>FN4-9</b>	1.87	47.5
1/2"	0.86	21.8	0.76	19.3	<b>4-13</b>	1.67	42.4	<b>FN4-13</b>	1.90	53.1

### 2 AWG RING TERMINALS (38 mm<sup>2</sup>)



STUD SIZE	DIMENSIONS				NON-INSULATED			NYLON INSULATED		
	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM PART NUMBER	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE PART NUMBER	LENGTH (L)	
	in	mm	in	mm		in	mm		in	mm
#10	0.61	15.5	0.63	16	<b>2-S5</b>	1.5	38.1	<b>FN2-S5</b>	1.92	48.8
1/4"	0.61	15.5	0.63	16	<b>2-S6</b>	1.48	37.6	<b>FN2-S6</b>	1.91	48.5
1/4"	0.86	21.8	0.69	17.5	<b>2-6</b>	1.68	42.7	<b>FN2-6</b>	2.11	53.6
5/16"	0.61	15.5	0.63	16	<b>2-S8</b>	1.48	37.6	<b>FN2-S8</b>	1.91	48.5
5/16"	0.86	21.8	0.69	17.5	<b>2-8</b>	1.68	42.7	<b>FN2-8</b>	1.91	48.5
3/8"	0.61	15.5	0.63	16	<b>2-S9</b>	1.48	37.6	<b>FN2-S9</b>	1.91	48.5
3/8"	0.86	21.8	0.69	17.5	<b>2-9</b>	1.68	42.7	<b>FN2-9</b>	2.11	53.6
7/16"	0.86	21.8	0.69	17.5	<b>2-11</b>	1.68	42.7	<b>FN2-11</b>	2.11	53.6
1/2"	0.86	21.8	0.69	17.5	<b>2-13</b>	1.68	42.7	<b>FN2-13</b>	2.11	53.6

### 1/0 AWG RING TERMINALS (60 mm<sup>2</sup>)



STUD SIZE	DIMENSIONS				NON-INSULATED		
	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM PART NUMBER	LENGTH (L)	
	in	mm	in	mm		in	mm
1/4"	0.86	21.8	0.81	20.6	<b>1/0-6</b>	1.95	49.5
5/16"	0.86	21.8	0.81	20.6	<b>1/0-8</b>	1.95	49.5
3/8"	0.86	21.8	0.81	20.6	<b>1/0-9</b>	1.95	49.5
7/16"	0.86	21.8	0.81	20.6	<b>1/0-11</b>	1.95	49.5
1/2"	0.86	21.8	0.81	20.6	<b>1/0-13</b>	1.95	49.5
5/8"	1.26	32	0.92	23.4	<b>1/0-16</b>	2.26	57.4

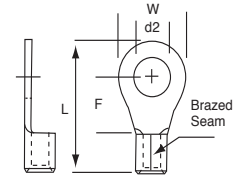
# Solderless Terminals

## 2/0, 3/0, 4/0 AWG SOLDERLESS TERMINALS

### 2/0 AWG RING TERMINALS (70 mm<sup>2</sup>)

A13

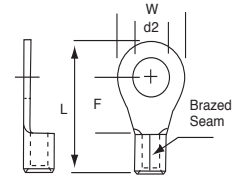
DIMENSIONS					NON-INSULATED		
STUD SIZE (d2)	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM PART NUMBER	LENGTH (L)	
	in	mm	in	mm		in	mm
1/4"	0.94	23.9	0.78	19.8	<b>2/0-6</b>	2	50.8
5/16"	0.94	23.9	0.78	19.8	<b>2/0-8</b>	2	50.8
3/8"	0.94	23.9	0.78	19.8	<b>2/0-9</b>	2	50.8
7/16"	0.94	23.9	0.78	19.8	<b>2/0-11</b>	2	50.8
1/2"	0.94	23.9	0.78	19.8	<b>2/0-13</b>	2	50.8
5/8"	1.26	32	1.02	25.9	<b>2/0-16</b>	2.4	60.9



Terminals and Connectors

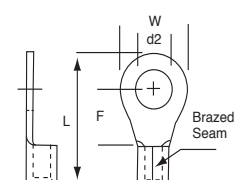
### 3/0 AWG RING TERMINALS (80 mm<sup>2</sup>)

DIMENSIONS					NON-INSULATED		
STUD SIZE (d2)	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM PART NUMBER	LENGTH (L)	
	in	mm	in	mm		in	mm
1/4"	1.06	26.9	0.81	20.6	<b>3/0-6</b>	2.13	54.1
5/16"	1.06	26.9	0.81	20.6	<b>3/0-8</b>	2.13	54.1
3/8"	1.06	26.9	0.81	20.6	<b>3/0-9</b>	2.13	54.1
7/16"	1.06	26.9	0.81	20.6	<b>3/0-11</b>	2.13	54.1
1/2"	1.06	26.9	0.81	20.6	<b>3/0-13</b>	2.13	54.1
5/8"	1.26	32	1.28	32.5	<b>3/0-16</b>	2.67	67.8



### 4/0 AWG RING TERMINALS (100 mm<sup>2</sup>)

DIMENSIONS					NON-INSULATED		
STUD SIZE (d2)	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM PART NUMBER	LENGTH (L)	
	in	mm	in	mm		in	mm
1/4"	1.12	28.4	0.8	20.3	<b>4/0-6</b>	2.18	55.4
5/16"	1.12	28.4	0.8	20.3	<b>4/0-8</b>	2.18	55.4
3/8"	1.12	28.4	0.8	20.3	<b>4/0-9</b>	2.18	55.4
1/2"	1.12	28.4	0.8	20.3	<b>4/0-13</b>	2.18	55.4
3/4"	1.26	32	1.26	32	<b>4/0-19</b>	2.71	68.8

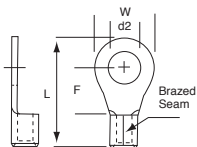


# Solderless Terminals

## 250 - 600 MCM AWG SOLDERLESS TERMINALS

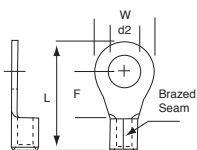
A14

### 250-300 MCM AWG RING TERMINALS (150 mm<sup>2</sup>)



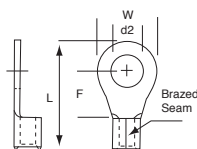
STUD SIZE	DIMENSIONS				NON-INSULATED		
	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)	
	in	mm	in	mm	PART NUMBER	in	mm
5/16"	1.42	36.1	0.9	22.9	<b>150-8</b>	2.6	66
3/8"	1.42	36.1	0.9	22.9	<b>150-9</b>	2.6	66
7/16"	1.42	36.1	0.9	22.9	<b>150-11</b>	2.6	66
1/2"	1.42	36.1	0.9	22.9	<b>150-13</b>	2.6	66

### 300-350 MCM AWG RING TERMINALS (180 mm<sup>2</sup>)



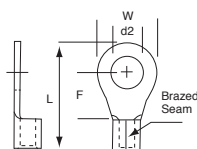
STUD SIZE	DIMENSIONS				NON-INSULATED		
	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)	
	in	mm	in	mm	PART NUMBER	in	mm
3/8"	1.52	38.6	0.96	24.4	<b>200-9</b>	2.71	68.8
7/16"	1.52	38.6	0.96	24.4	<b>200-11</b>	2.71	68.8
1/2"	1.52	38.6	0.96	24.4	<b>200-13</b>	2.71	68.8

### 400-450 MCM AWG RING TERMINALS (200 mm<sup>2</sup>)



STUD SIZE	DIMENSIONS				NON-INSULATED		
	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)	
	in	mm	in	mm	PART NUMBER	in	mm
3/8"	1.73	43.9	0.96	24.4	<b>250-9</b>	2.83	71.9
1/2"	1.73	43.9	0.96	24.4	<b>250-13</b>	2.83	71.9

### 500-600 MCM AWG RING TERMINALS (325 mm<sup>2</sup>)



STUD SIZE	DIMENSIONS				NON-INSULATED		
	TONGUE WIDTH (W)		STUD CLEAR (F)		BRAZED SEAM	LENGTH (L)	
	in	mm	in	mm	PART NUMBER	in	mm
3/8"	1.96	49.8	1.32	33.5	<b>300-9</b>	3.46	87.9
1/2"	1.96	49.8	1.32	33.5	<b>300-13</b>	3.46	87.9





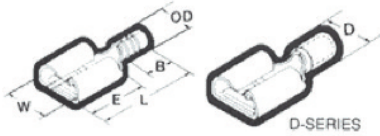
# Disconnects

## FEMALE / MALE DISCONNECTS NON-INSULATED

### FEMALE DISCONNECTS - NON-INSULATED

A15

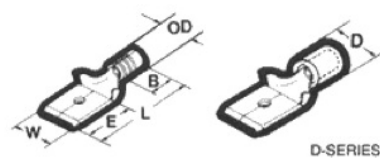
Terminals and Connectors



22-16 AWG =	0.5 - 1.5 mm <sup>2</sup>	0.020 x 0.110 =	0.5 x 2.8 mm
16-14 AWG =	1.5 - 2.5 mm <sup>2</sup>	0.032 x 0.110 =	0.8 x 2.8 mm
12-10 AWG =	4.0 - 6.0 mm <sup>2</sup>	0.020 x 0.187 =	0.5 x 4.75 mm
		0.032 x 0.187 =	0.8 x 4.75 mm
		0.020 x 0.205 =	0.5 x 5.2 mm
		0.032 x 0.250 =	0.8 x 6.35 mm

WIRE RANGE	NEMA TAB (in)	NON-INSULATED							
		DIMENSIONS (in)							
		PART NUMBER	W	L	B	E	OD	D	Material
22-16 AWG	.110 x .032	DF2216T110A8	0.126	0.531	0.177	0.315	0.102	0.134	Brass
22-16 AWG	.187 x .020	DF2216T187A5	0.197	0.551	0.177	0.248	0.102	0.134	Brass
22-16 AWG	.187 x .020	DF2216T187A8	0.197	0.551	0.177	0.248	0.102	0.134	Brass
22-16 AWG	.250 x .032	DF2216T250	0.272	0.610	0.177	0.307	0.102	0.134	Brass
16-14 AWG	.110 x .020	DF1614T110A5	0.126	0.531	0.177	0.315	0.130	0.161	Brass
16-14 AWG	.110 x .032	DF1614T110A8	0.126	0.531	0.177	0.315	0.130	0.161	Brass
16-14 AWG	.187 x .020	DF1614T187A5	0.197	0.551	0.177	0.248	0.130	0.161	Brass
16-14 AWG	.187 x .032	DF1614T187A8	0.197	0.551	0.177	0.248	0.130	0.161	Brass
16-14 AWG	.250 x .032	DF1614T250	0.272	0.610	0.177	0.307	0.130	0.161	Brass
12-10 AWG	.250 x .032	DF1210T250	0.272	0.669	0.236	0.307	0.173	0.217	Brass

### MALE DISCONNECTS - NON-INSULATED



22-16 AWG =	0.5 - 1.5 mm <sup>2</sup>	0.020 x 0.110 =	0.5 x 2.8 mm
16-14 AWG =	1.5 - 2.5 mm <sup>2</sup>	0.032 x 0.110 =	0.8 x 2.8 mm
12-10 AWG =	4.0 - 6.0 mm <sup>2</sup>	0.020 x 0.187 =	0.5 x 4.75 mm
		0.032 x 0.187 =	0.8 x 4.75 mm
		0.020 x 0.205 =	0.5 x 5.2 mm
		0.032 x 0.250 =	0.8 x 6.35 mm

WIRE RANGE	NEMA TAB (in)	NON-INSULATED							
		DIMENSIONS (in)							
		PART NUMBER	W	L	B	E	OD	D	Material
22-16 AWG	.250 x .032	DM2216T250	0.250	0.610	0.177	0.283	0.102	0.134	Brass
16-14 AWG	.187 x .020	DM1614T187A5	0.187	0.551	0.177	0.252	0.130	0.161	Brass
16-14 AWG	.250 x .032	DM1614T250	0.250	0.610	0.177	0.283	0.130	0.161	Brass
12-10 AWG	.250 x .032	DM1210T250	0.250	0.669	0.236	0.283	0.173	0.217	Brass



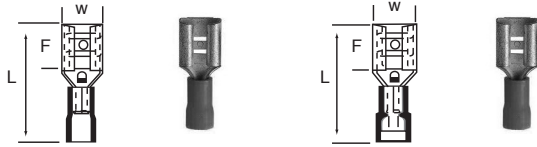


# Disconnects

## FEMALE / MALE DISCONNECTS INSULATED

A16

### FEMALE DISCONNECTS - INSULATED

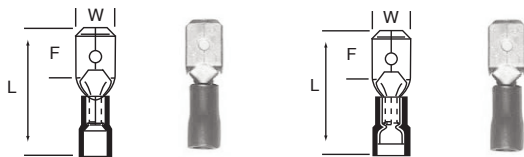


22-16 AWG =	0.5 - 1.5 mm <sup>2</sup>	0.020 x 0.110 =	0.5 x 2.8 mm
16-14 AWG =	1.5 - 2.5 mm <sup>2</sup>	0.032 x 0.110 =	0.8 x 2.8 mm
12-10 AWG =	4.0 - 6.0 mm <sup>2</sup>	0.020 x 0.187 =	0.5 x 4.75 mm
		0.032 x 0.187 =	0.8 x 4.75 mm
		0.020 x 0.205 =	0.5 x 5.2 mm
		0.032 x 0.250 =	0.8 x 6.35 mm

Terminals and Connectors

WIRE RANGE	NEMA TAB (in)	DIMENSIONS						VINYL INSULATED				NYLON INSULATED			
		THICKNESS		TONGUE WIDTH (W)		STUD CLEAR (F)		FLARED ENTRY		LENGTH (L)		WITH TIN PLATED COPPER SLEEVE		LENGTH (L)	
		in	mm	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm		
22-16 AWG	.020 X .110	0.012	0.3	0.126	3.2	0.256	6.5	FVDF2216T110A5	0.732	18.6	FNDDF2216T110A5	0.772	19.6		
22-16 AWG	.032 X .110	0.012	0.3	0.126	3.2	0.256	6.5	FVDF2216T110A8	0.732	18.6	FNDDF2216T110A8	0.772	19.6		
22-16 AWG	.020 X .187	0.016	0.4	0.197	5	0.252	6.4	FVDF2216T187A5	0.748	19	FNDDF2216T187A5	0.787	20		
22-16 AWG	.032 X .187	0.016	0.4	0.197	5	0.252	6.4	FVDF2216T187A8	0.748	19	FNDDF2216T187A8	0.787	20		
22-16 AWG	.020 X .205	0.014	0.35	0.224	5.78	0.26	6.6	FVDF2216T205A5	0.728	18.5	FNDDF2216T205A5	0.768	19.5		
22-16 AWG	.032 X .250	0.016	0.4	0.26	6.6	0.287	7.3	FVDF2216T250	0.807	20.5	FNDDF2216T250	0.846	21.5		
16-14 AWG	.020 X .110	0.012	0.3	0.126	3.2	0.256	6.5	FVDF1614T110A5	0.732	18.6	FNDDF1614T110A5	0.772	19.6		
16-14 AWG	.032 X .110	0.012	0.3	0.126	3.2	0.256	6.5	FVDF1614T110A8	0.732	18.6	FNDDF1614T110A5	0.772	19.6		
16-14 AWG	.020 X .187	0.016	0.4	0.194	5	0.252	6.4	FVDF1614T187A5	0.748	19	FNDDF1614T187A5	0.787	20		
16-14 AWG	.032 X .187	0.016	0.4	0.197	5	0.252	6.4	FVDF1614T187A8	0.748	19	FNDDF1614T187A8	0.787	20		
16-14 AWG	.020 X .205	0.014	0.35	0.224	5.7	0.26	6.6	FVDF1614T205A5	0.728	18.5	FNDDF1614T205A5	0.768	19.5		
16-14 AWG	.032 X .250	0.016	0.4	0.26	6.6	0.287	7.3	FVDF1614T250	0.807	20.5	FNDDF1614T250	0.846	21.5		
12-10 AWG	.020 X .110	0.016	0.4	0.126	3.2	0.256	6.5	FVDF1210T110A5	0.866	22	FNDDF1210F110A5	0.866	22		
12-10 AWG	.032 X .110	0.016	0.4	0.126	3.2	0.256	6.5	FVDF1210T110A8	0.866	22	FNDDF1210T110A8	0.866	22		
12-10 AWG	.020 X .187	0.016	0.4	0.197	5	0.256	6.5	FVDF1210T187A5	0.866	22	FNDDF1210T187A5	0.866	22		
12-10 AWG	.032 X .187	0.016	0.4	0.197	5	0.256	6.5	FVDF1210T187A8	0.866	22	FNDDF1210T187A8	0.866	22		
12-10 AWG	.032 X .250	0.016	0.4	0.26	6.6	0.287	7.3	FVDF1210T250	0.925	23.5	FNDDF1210T250	0.925	23.5		

### MALE DISCONNECTS - INSULATED



22-16 AWG =	0.5 - 1.5 mm <sup>2</sup>	0.020 x 0.110 =	0.5 x 2.8 mm
16-14 AWG =	1.5 - 2.5 mm <sup>2</sup>	0.032 x 0.110 =	0.8 x 2.8 mm
12-10 AWG =	4.0 - 6.0 mm <sup>2</sup>	0.020 x 0.187 =	0.5 x 4.75 mm
		0.032 x 0.187 =	0.8 x 4.75 mm
		0.020 x 0.205 =	0.5 x 5.2 mm
		0.032 x 0.250 =	0.8 x 6.35 mm

WIRE RANGE	NEMA TAB (in)	DIMENSIONS						VINYL INSULATED				NYLON INSULATED			
		THICKNESS		TONGUE WIDTH (W)		STUD CLEAR (F)		FLARED ENTRY		LENGTH (L)		WITH TIN PLATED COPPER SLEEVE		LENGTH (L)	
		in	mm	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm		
22-16 AWG	.020 X .187	0.02	0.5	0.189	4.8	0.256	6.5	FVDM2216T187A5	0.748	19	FNDDM2216T187A5	0.787	20		
22-16 AWG	.032 X .187	0.016	0.4	0.189	4.8	0.264	6.7	FVDM2216T187A8	0.748	19	FNDDM2216T187A8	0.787	20		
22-16 AWG	.032 X .250	0.016	0.4	0.25	6.35	0.303	7.7	FVDM2216T250	0.827	21	FNDDM2216T250	0.866	22		
16-14 AWG	.020 X .187	0.02	0.5	0.189	4.8	0.256	6.5	FVDM1614T187A5	0.748	19	FNDDM1614T187A5	0.787	20		
16-14 AWG	.032 X .187	0.016	0.4	0.189	4.8	0.264	6.7	FVDM1614T187A8	0.748	19	FNDDM1614T187A8	0.787	20		
16-14 AWG	.032 X .250	0.016	0.4	0.25	6.35	0.303	7.7	FVDM1614T250	0.827	21	FNDDM1614T250	0.866	22		
12-10 AWG	.032 X .250	0.016	0.4	0.25	6.35	0.303	7.7	FVDM1210T250	0.945	24	FNDDM1210T250	0.945	24		





# Disconnects

## FEMALE / MALE DISCONNECTS

### NYLON FULLY INSULATED FEMALE DOUBLE CRIMP DISCONNECTORS

A17

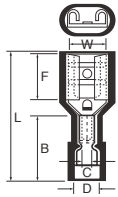


FIGURE 1

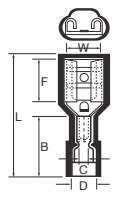


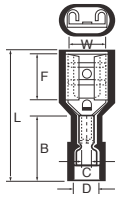
FIGURE 2



22-16 AWG =	0.5 - 1.5 mm <sup>2</sup>	0.020 x 0.187 =	0.5 x 4.75 mm
16-14 AWG =	1.5 - 2.5 mm <sup>2</sup>	0.032 x 0.187 =	0.8 x 4.75 mm
		0.032 x 0.250 =	0.8 x 6.35 mm
12-10 AWG =	4.0 - 6.0 mm <sup>2</sup>		

WIRE RANGE	PART NUMBER	NEMA TAB	DIMENSION (in/mm)						FIG
			W	F	L	B	D	Thickness	
22-16	LNDDF2216T187A5	0.020 X 0.187	0.197 (5.0)	0.256 (6.5)	0.795 (20.2)	0.433 (11.0)	0.157 (4.0)	0.016 (0.4)	2
	LNDDF2216T187A8	0.032 X 0.187	0.197 (5.0)	0.256 (6.5)	0.795 (20.2)	0.433 (11.0)	0.157 (4.0)	0.016 (0.4)	2
	LNDDF2216T250	0.032 X 0.250	0.260 (6.6)	0.303 (7.7)	0.846 (21.5)	0.433 (11.0)	0.157 (4.0)	0.016 (0.4)	1
16-14	LNDDF1614T187A5	0.020 X 0.187	0.197 (5.0)	0.256 (6.5)	0.795 (20.2)	0.433 (11.0)	0.197 (5.0)	0.016 (0.4)	2
	LNDDF1614T187A8	0.032 X 0.187	0.197 (5.0)	0.256 (6.5)	0.795 (20.2)	0.433 (11.0)	0.197 (5.0)	0.016 (0.4)	2
	LNDDF1614T250	0.032 X 0.250	0.260 (6.6)	0.287 (7.3)	0.846 (21.5)	0.433 (11.0)	0.197 (5.0)	0.016 (0.4)	1
12-10	LNDDF1210T250	0.032 X 0.250	0.260 (6.6)	0.287 (7.3)	0.953 (24.2)	0.512 (13.0)	0.256 (6.5)	0.016 (0.4)	2

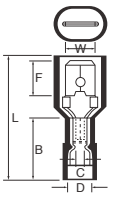
### VINYL FULLY INSULATED FEMALE DOUBLE CRIMP DISCONNECTORS



22-16 AWG =	0.5 - 1.5 mm <sup>2</sup>	0.020 x 0.187 =	0.5 x 4.75 mm
16-14 AWG =	1.5 - 2.5 mm <sup>2</sup>	0.032 x 0.187 =	0.8 x 4.75 mm
		0.032 x 0.250 =	0.8 x 6.35 mm
12-10 AWG =	4.0 - 6.0 mm <sup>2</sup>		

WIRE RANGE	PART NUMBER	NEMA TAB	DIMENSION (in/mm)					
			W	F	L	B	D	Thickness
22-16	LVDDF2216T187A5	0.020 X 0.187	0.197 (5.0)	0.252 (6.4)	0.807 (20.5)	0.413 (10.5)	0.150 (3.8)	0.016 (0.4)
	LVDDF2216T187A8	0.032 X 0.187	0.197 (5.0)	0.252 (6.4)	0.807 (20.5)	0.413 (10.5)	0.150 (3.8)	0.016 (0.4)
	LVDDF2216T250	0.032 X 0.250	0.260 (6.6)	0.287 (7.3)	0.858 (21.8)	0.413 (10.5)	0.150 (3.8)	0.016 (0.4)
16-14	LVDDF1614T187A5	0.020 X 0.187	0.197 (5.0)	0.252 (6.4)	0.796 (20.2)	0.413 (10.5)	0.185 (4.7)	0.016 (0.4)
	LVDDF1614T187A8	0.032 X 0.187	0.197 (5.0)	0.252 (6.4)	0.796 (20.2)	0.413 (10.5)	0.185 (4.7)	0.016 (0.4)
	LVDDF1614T250	0.032 X 0.250	0.260 (6.6)	0.287 (7.3)	0.874 (22.2)	0.413 (10.5)	0.185 (4.7)	0.016 (0.4)
12-10	LVDDF1210T250	0.032 X 0.250	0.260 (6.6)	0.287 (7.3)	0.953 (24.2)	0.413 (10.5)	0.244 (6.2)	0.016 (0.4)

### NYLON FULLY INSULATED MALE DOUBLE CRIMP DISCONNECTORS



22-16 AWG =	0.5 - 1.5 mm <sup>2</sup>	0.020 x 0.187 =	0.5 x 4.75 mm
		0.032 x 0.187 =	0.8 x 4.75 mm
16-14 AWG =	1.5 - 2.5 mm <sup>2</sup>	0.020 x 0.205 =	0.5 x 5.2 mm
		0.032 x 0.250 =	0.8 x 6.35 mm
12-10 AWG =	4.0 - 6.0 mm <sup>2</sup>		

WIRE RANGE	PART NUMBER	NEMA TAB	DIMENSION (in/mm)				
			W	F	L	B	D
22-16	LNDDM2216T250	0.032 X 0.250	0.250 (6.35)	0.303 (7.7)	0.976 (24.0)	0.433 (11.0)	0.157 (4.0)
16-14	LNDDM1614T250	0.032 X 0.250	0.250 (6.35)	0.303 (7.7)	0.976 (24.0)	0.433 (11.0)	0.157 (4.0)





# Disconnects

## FEMALE / MALE COUPLERS FLAG DISCONNECTS

### NYLON FULLY INSULATED MALE & FEMALE COUPLERS

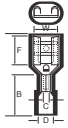


FIGURE 1 - FEMALE



FIGURE 2 - MALE

22-16 AWG =	0.5 - 1.5 mm <sup>2</sup>	0.020 x 0.187 =	0.5 x 4.75 mm
16-14 AWG =	1.5 - 2.5 mm <sup>2</sup>	0.032 x 0.187 =	0.8 x 4.75 mm
12-10 AWG =	4.0 - 6.0 mm <sup>2</sup>	0.020 x 0.205 =	0.5 x 5.2 mm
		0.032 x 0.250 =	0.8 x 6.35 mm

Terminals and Connectors

WIRE RANGE	PART NUMBER	NEMA TAB	DIMENSIONS												FIG
			W		F		L		B		D		Thickness		
			in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	
22-16 AWG	<b>LNDF2216T250C</b>	0.032 X 0.250	0.260	6.6	0.287	7.3	0.866	22.0	0.433	11.0	0.157	4.0	0.016	0.4	1
16-14 AWG	<b>LNDF1614T250C</b>	0.032 X 0.250	0.260	6.6	0.287	7.3	0.866	22.0	0.433	11.0	0.157	4.0	0.016	0.4	1
12-10 AWG	<b>LNDF1210T250C</b>	0.032 X 0.250	0.260	6.6	0.287	7.3	0.866	22.0	0.433	11.0	0.157	4.0	0.016	0.4	--
22-16 AWG	<b>LNDM2216T250C</b>	0.032 X 0.250	0.250	6.35	0.303	7.7	0.906	23.0	0.433	11.0	0.157	4.0	0.016	0.4	2
16-14 AWG	<b>LNDM1614T250C</b>	0.032 X 0.250	0.250	6.35	0.303	7.7	0.945	24.0	0.433	11.0	0.177	4.5	0.016	0.4	2
12-10 AWG	<b>LNDM1210T250C</b>	0.032 X 0.250	0.250	6.35	0.303	7.7	0.984	25.0	0.512	13.0	0.248	6.3	0.016	0.4	--

### NON-INSULATED FEMALE FLAG DISCONNECTS

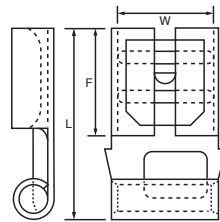


FIGURE 1



WIRE RANGE	PART NUMBER	NEMA TAB	DIMENSION (in/mm)					FIG
			W	F	L	d1	Thickness	
22-18 AWG	<b>DF2218-1ST</b>	0.020 X 0.187	0.197 (5.0)	0.276 (7.0)	0.591 (15.0)	0.063 (1.6)	0.016 (0.4)	1
	<b>DF2218-1T</b>	0.032 X 0.250	0.260 (6.6)	0.299 (7.6)	0.598 (15.2)	0.063 (1.6)	0.016 (0.4)	1
16-14 AWG	<b>DF1614-1ST</b>	0.020 X 0.187	0.197 (5.0)	0.276 (7.0)	0.591 (15.0)	0.063 (1.6)	0.016 (0.4)	1
	<b>DF1614-1T</b>	0.032 X 0.250	0.260 (6.6)	0.299 (7.6)	0.598 (15.2)	0.063 (1.6)	0.016 (0.4)	1

### NYLON INSULATED FEMALE FLAG DISCONNECTS



FIGURE 1



FIGURE 2

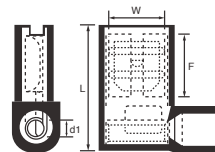
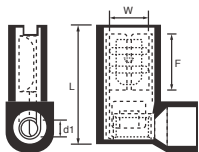


FIGURE 1

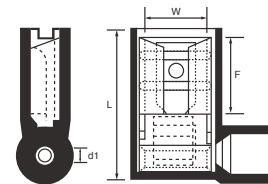


FIGURE 2

WIRE RANGE	PART NUMBER	NEMA TAB	DIMENSION (in/mm)					FIG
			W	F	L	d1	Thickness	
22-16 AWG	<b>LNDF2216-1ST</b>	0.020 X 0.187	0.197 (5.0)	0.276 (7.0)	0.591 (15.0)	0.063 (1.6)	0.016 (0.4)	1
	<b>LNDF2216-1T</b>	0.032 X 0.250	0.260 (6.6)	0.299 (7.6)	0.630 (16.0)	0.067 (1.7)	0.016 (0.4)	2
16-14 AWG	<b>LNDF1614-1ST</b>	0.020 X 0.187	0.197 (5.0)	0.276 (7.0)	0.598 (15.2)	0.083 (2.1)	0.016 (0.4)	1
	<b>LNDF1614-1T</b>	0.032 X 0.250	0.260 (6.6)	0.299 (7.6)	0.630 (16.0)	0.091 (2.3)	0.016 (0.4)	2



Disconnects

DISCONNECT ADAPTERS

DISCONNECT ADAPTERS

A19

Terminals and Connectors



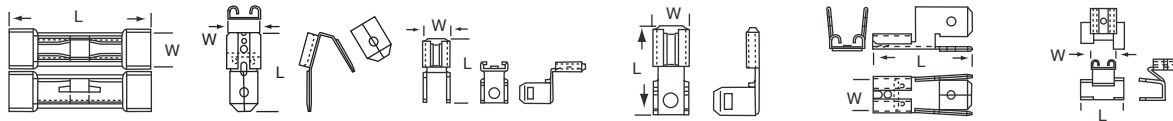
FVC-2DM      2DM-1DF-Y      2DM-1DF-Z      2DM-1DF-H      CWA3MLR

PART NUMBER	TYPE	W mm(inch)	L mm(inch)
FVC-2DM	-	11.5(0.453)	27.8(1.094)
2DM-1DF-Y	Y	14.6(0.575)	20.0(0.787)
2DM-1DF-Z	Z	7.4(0.291)	18.0(0.709)
2DM-1DF-H	H	8.4(0.331)	21.0(0.827)
SF250-FE	-	7.9(0.311)	10.6(0.417)

MULTI-WAY ADAPTERS



FVC-2DSP      250-03MFM      250-03Z      250-03V      SWALR      SWASLR



PART NUMBER	DIMENSIONS				NEMA TAB		DESCRIPTION
	WIDTH (W)		LENGTH (L)		in	mm	
	in	mm	in	mm			
FVC-2DSP	0.307	7.8	1.26	32	0.156	4	2-WAY BULLET RECEPTACLE
250-03MFM	0.291	7.4	0.709	18	0.25	6.35	3-WAY ADAPTER (2 MALE TABS)
250-03Z	0.331	8.4	0.827	21	0.25	6.35	CHAIR ADAPTER (2 MALE TABS)
250-03V	0.335	8.5	0.811	20.6	0.25	6.35	90° CHAIR ADAPTER (2 MALE TABS)
SWALR	0.299	7.6	0.827	21	0.25	6.35	CHAIR ADAPTER (3 MALE TABS)
SWASLR	0.339	8.6	0.571	14.5	0.25	6.35	SIDE ADAPTER (8 AWG)

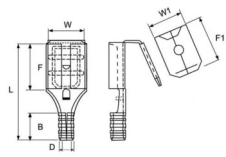


# Disconnects

## PIGGY BACK DISCONNECTS

A20

### PIGGY BACK DISCONNECTS - NON INSULATED



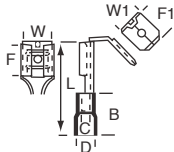
22-16 AWG = 0.5 - 1.5 mm<sup>2</sup>  
 16-14 AWG = 1.5 - 2.5 mm<sup>2</sup>  
 12-10 AWG = 4.0 - 6.0 mm<sup>2</sup>

0.020 x 0.110 = 0.5 x 2.8 mm  
 0.032 x 0.110 = 0.8 x 2.8 mm  
 0.020 x 0.187 = 0.5 x 4.75 mm  
 0.032 x 0.187 = 0.8 x 4.75 mm  
 0.020 x 0.205 = 0.5 x 5.2 mm  
 0.032 x 0.250 = 0.8 x 6.35 mm

Terminals and Connectors

WIRE RANGE	NEMA TAB (in)	DIMENSIONS												VINYL INSULATED			NYLON INSULATED				
		THICKNESS		B		D		W		W1		F		F1		FLARED ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
22-16 AWG	.032 x .250	.016	0.4	0.394	10.0	0.157	4.0	0.26	6.6	0.25	6.35	0.315	8.0	0.323	8.2	<b>FVDFM2216T250</b>	0.866	22.0	<b>FNDDFM2216T250</b>	0.906	23.0
16-14 AWG	.032 x .250	.016	0.4	0.394	10.0	0.177	4.5	0.26	6.6	0.25	6.35	0.315	8.0	0.323	8.2	<b>FVDFM1614T250</b>	0.866	22.0	<b>FNDDFM1614T250</b>	0.906	23.0
12-10 AWG	.032 x .250	.016	0.4	0.512	13.0	0.217	5.5	0.26	6.6	0.25	6.35	0.315	8.0	0.323	8.2	<b>FVDFM1210T250</b>	0.945	24.0	<b>FNDDFM1210T250</b>	0.945	24.0

### PIGGY BACK DISCONNECTS - INSULATED



22-16 AWG = 0.5 - 1.5 mm<sup>2</sup>  
 16-14 AWG = 1.5 - 2.5 mm<sup>2</sup>  
 12-10 AWG = 4.0 - 6.0 mm<sup>2</sup>

0.020 x 0.110 = 0.5 x 2.8 mm  
 0.032 x 0.110 = 0.8 x 2.8 mm  
 0.020 x 0.187 = 0.5 x 4.75 mm  
 0.032 x 0.187 = 0.8 x 4.75 mm  
 0.020 x 0.205 = 0.5 x 5.2 mm  
 0.032 x 0.250 = 0.8 x 6.35 mm

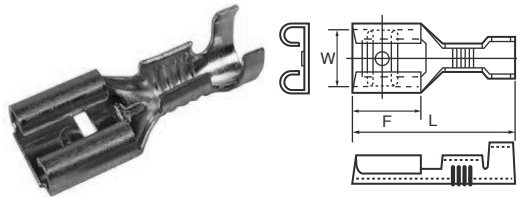
WIRE RANGE	NEMA TAB (in)	DIMENSIONS												VINYL INSULATED			NYLON INSULATED				
		THICKNESS		B		D		W		W1		F		F1		FLARED ENTRY	LENGTH (L)		WITH TIN PLATED COPPER SLEEVE	LENGTH (L)	
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
22-16 AWG	.032 x .250	.016	0.4	0.394	10.0	0.157	4.0	0.26	6.6	0.25	6.35	0.315	8.0	0.323	8.2	<b>FVDFM2216T250</b>	0.866	22.0	<b>FNDDFM2216T250</b>	0.906	23.0
16-14 AWG	.032 x .250	.016	0.4	0.394	10.0	0.177	4.5	0.26	6.6	0.25	6.35	0.315	8.0	0.323	8.2	<b>FVDFM1614T250</b>	0.866	22.0	<b>FNDDFM1614T250</b>	0.906	23.0
12-10 AWG	.032 x .250	.016	0.4	0.512	13.0	0.217	5.5	0.26	6.6	0.25	6.35	0.315	8.0	0.323	8.2	<b>FVDFM1210T250</b>	0.945	24.0	<b>FNDDFM1210T250</b>	0.945	24.0



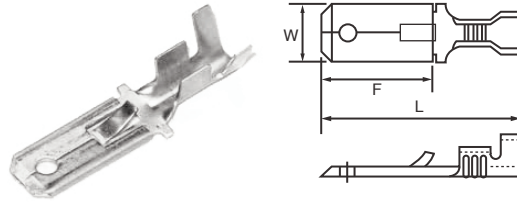
## BARREL TERMINALS, SOCKET HOUSING

### OPEN BARREL TERMINALS (MALE AND FEMALE)

A21



FEMALE



MALE

PART NUMBER	WIRE GAUGE	DIMENSIONS						NEMA TAB (in)
		WIDTH (W)		STUD SIZE (F)		LENGTH (L)		
		in	mm	in	mm	in	mm	
LT101T110(5)	22-18 AWG	0.126	3.2	0.252	6.4	0.63	16	.020 X .110
LT101T110(8)	22-18 AWG	0.126	3.2	0.252	6.4	0.63	16	.032 X .110
LTO41T110(5)	22-18 AWG	0.126	3.2	0.252	6.4	0.63	16	.020 X .110
LTO41T110(8)	22-18 AWG	0.126	3.2	0.252	6.4	0.63	16	.032 X .110
LIM01T110(5)	22-18 AWG	0.11	2.8	0.472	12	0.827	21	.020 X .110
LTO61T187(5)	16-14 AWG	0.197	5	0.256	6.5	0.61	15.5	.020 X .187
LTO61T187(8)	16-14 AWG	0.197	5	0.256	6.5	0.61	15.5	.032 X .187
LTO61T205(5)	16-14 AWG	0.26	6.6	0.295	7.5	0.728	18.5	.020 X .205
LMF61T250	16-14 AWG	0.248	6.3	0.295	7.5	0.787	20	.032 X .250
LTO61T250	16-14 AWG	0.26	6.6	0.295	7.5	0.748	19	.032 X .250
LTO71T250	16-14 AWG	0.268	6.8	0.291	7.4	0.748	19	.032 X .250
LTO81T250	12-10 AWG	0.26	6.5	0.291	7.4	0.748	19	.032 X .250
LTM61T250	16-14 AWG	0.244	6.2	0.551	14	0.967	24.6	.020 X .187

O - FEMALE M - MALE

### SOCKET HOUSINGS

POLE	MALE	FEMALE
2	<p><b>3102Z0181</b></p>	<p><b>3202Z0181</b></p>
4	<p><b>3104Z0181</b></p>	<p><b>3204Z0181</b></p>

HOUSING: (UNIT : mm)  
 MATERIAL: NY66  
 COLOR: BLACK



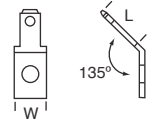
# Solderless Terminals

## MALE TERMINALS

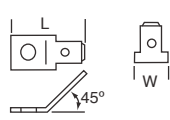
A22

### MALE TERMINALS

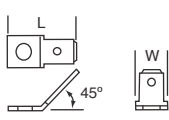
Terminals and Connectors



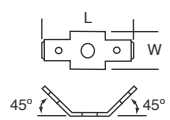
MT110(5)-2-45  
MT110(8)-2-45



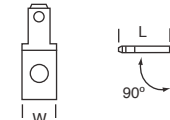
MT187(5)-6-45  
MT187(8)-6-45  
MT187(5)-10-45



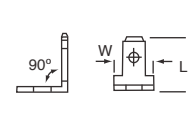
MT250-6-45  
MT250-8-45  
MT250-10-45



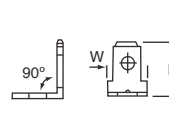
MTD250-6-45  
MTD250-6-45  
MTD250-10-45



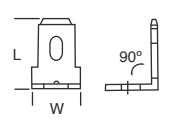
MT110(5)-2-90  
MT110(8)-2-90



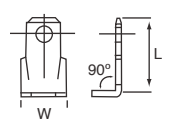
MT187(5)-6-90  
MT187(5)-8-90  
MT187(5)-10-90



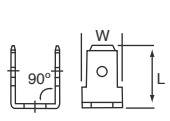
MT250-6-90  
MT250-8-90  
MT250-10-90



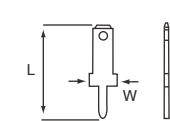
MT250-4-90S



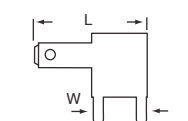
MTW250-90



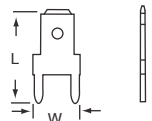
MTD250-6-90  
MTD250-8-90  
MTD250-10-90



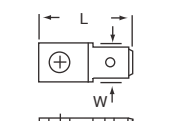
MTPC110(5)  
MTPC110(8)  
For PCB



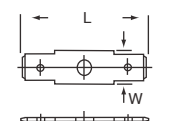
MTPC110(5)RA  
MTPC110(8)RA  
For PCB



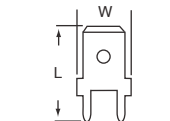
MTPC187(5)  
MTPC187(8)  
For PCB



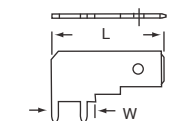
MT250-6  
MT250-8  
MT250-10  
MTD250-4



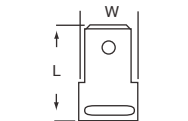
MTD250-6  
MTD250-8  
MTD250-10



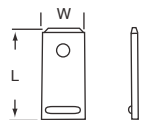
MTPC-250  
For PCB



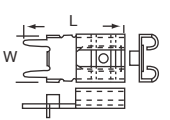
MTPC-250-RA  
For PCB



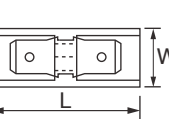
MTW-250  
Weld Tab for  
elements



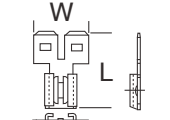
MTW-250-1  
Weld tabs for  
elements



FTFC-250



FVC2DM  
Double male  
connector



2DM-1DF  
"Y" connector

See Dimension Chart on next page





## MALE TERMINALS

## MALE TERMINALS (cont'd)

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Terminals and Connectors

PART NUMBER	DIMENSIONS						NEMA TAB (in)
	WIDTH (W)		STUD SIZE (F)		LENGTH (L)		
	in	mm	in	mm	in	mm	
MT110(5)-2-45	#2	2.4	0.181	4.6	0.28	7.1	.020 X .110
MT110(8)-2-45	#2	2.4	0.181	4.6	0.28	7.1	.032 X .110
MT187(5)-6-45	#6	3.5	0.496	12.6	0.61	15.5	.020 X .187
MT187(8)-6-45	#8	4.3	0.496	12.6	0.61	15.5	.020 X .187
MT187(5)-10-45	#10	5.3	0.496	12.6	0.61	15.5	.020 X .187
MT250-6-45	#6	3.5	0.315	8	0.689	17.5	.032 X .250
MT250-8-45	#8	4.3	0.315	8	0.689	17.5	.032 X .250
MT250-10-45	#10	5.3	0.315	8	0.689	17.5	.032 X .250
MTD250-6-45	#6	3.5	0.413	10.5	1.063	26.5	.032 X .250
MTD250-8-45	#8	4.3	0.413	10.5	1.063	26.5	.032 X .250
MTD250-10-45	#10	5.3	0.413	10.5	1.063	26.5	.032 X .250
MT110(5)-2-90	#2	2.4	0.181	4.6	0.28	7.1	.020 X .110
MT110(8)-2-90	#2	2.4	0.181	4.6	0.28	7.1	.032 X .110
MT187(5)-6-90	#6	3.5	0.26	6.6	0.429	10.9	.020 X .187
MT187(5)-8-90	#8	4.3	0.26	6.6	0.429	10.9	.020 X .187
MT187(5)-10-90	#10	5.3	0.26	6.6	0.429	10.9	.020 X .187
MT250-6-90	#6	3.5	0.319	8.1	0.457	11.6	.032 X .250
MT250-8-90	#8	4.3	0.319	8.1	0.457	11.6	.032 X .250
MT250-10-90	#10	5.3	0.319	8.1	0.457	11.6	.032 X .250
MT250-4-90S	#4	3.2	0.315	8	0.472	12	.032 X .250
MTW250-90	#2	2.6	0.319	8.1	0.551	14	.032 X .250
MTD250-6-90	#6	3.5	0.319	8.1	0.476	12.1	.032 X .250
MTD250-8-90	#8	4.3	0.319	8.1	0.476	12.1	.032 X .250
MTD250-10-90	#10	5.3	0.319	8.1	0.476	12.1	.032 X .250
MTPC110(5)	-	-	0.157	4	0.543	13.8	.020 X .110
MTPC110(8)	-	-	0.157	4	0.543	13.8	.032 X .110
MTPC110(5)RA	-	-	0.248	6.3	0.524	13.3	.020 X .110
MTPC110(8)RA	-	-	0.248	6.3	0.524	13.3	.032 X .110
MTPC187(5)	-	-	0.248	6.3	0.5	12.7	.020 X .187
MTPC187(8)	-	-	0.248	6.3	0.5	12.7	.032 X .110
MT250-6	#6	3.5	0.315	8	0.748	19	.032 X .250
MT250-8	#8	4.3	0.315	8	0.748	19	.032 X .250
MT250-10	#10	5.3	0.315	8	0.748	19	.032 X .250
MTD250-4	#4	3.2	0.315	8	0.748	19	.032 X .250
MTD250-6	#6	3.5	0.413	10.5	1.339	34	.032 X .250
MTD250-8	#8	4.3	0.413	10.5	1.339	34	.032 X .250
MTD250-10	#10	5.3	0.413	10.5	1.339	34	.032 X .250
MTPC-250	-	-	0.311	7.9	0.551	14	.032 X .250
MTPC-250-RA	-	-	0.303	7.7	0.787	20	.032 X .250
MTW-250	-	-	0.311	7.9	0.512	13	.032 X .250
MTW-250-1	-	-	0.295	7.5	0.661	16.8	0.32 X .250
FTPC-250	-	-	0.295	7.5	0.661	16.8	.032 X .250
FVC2DM	-	-	0.453	11.5	1.094	27.8	.250
2DM-1DF	-	-	0.827	21	2.126	54	.250

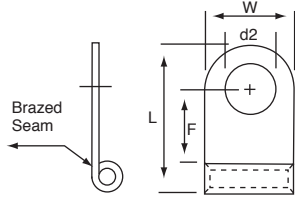


# Terminals

## FLAG TERMINALS

A24

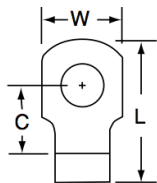
### FLAG TERMINALS



Terminals and Connectors

WIRE RANGE		DIMENSIONS											NON-INSULATED		
		THICKNESS (T)		WIDTH (W)		STUD CLEAR (F)		D		d1		d2	BRAZED SEAM	LENGTH (L)	
AWG	mm <sup>2</sup>	in	mm	in	mm	in	mm	in	mm	in	mm		PART NUMBER	in	mm
22-16	0.5-1.5	0.03	0.75	0.378	9.6	0.314	8	0.139	3.4	0.067	1.7	#10	<b>FG2216-5</b>	0.642	16.3
16-14	1.5-2.5	0.031	0.8	0.378	9.6	0.287	7.3	0.161	4.1	0.091	2.3	#10	<b>FG1614-5</b>	0.642	16.3
16-14	1.5-2.5	0.031	0.8	0.378	9.6	0.287	7.3	0.161	4.1	0.091	2.3	1/4"	<b>FG1614-6</b>	0.642	16.3
12-10	4-6	0.039	1	0.378	9.6	0.291	7.4	0.22	5.6	0.139	3.4	#10	<b>FG1210-5</b>	0.701	17.8
12-10	4-6	0.039	1	0.378	9.6	0.291	7.4	0.22	5.6	0.139	3.4	1/4"	<b>FG1210-6</b>	0.701	17.8
8	8	0.047	1.2	0.5	12.7	0.378	9.6	0.283	7.2	0.177	4.5	#10	<b>FG8-5</b>	0.906	23
8	8	0.047	1.2	0.5	12.7	0.378	9.6	0.283	7.2	0.177	4.5	1/4"	<b>FG8-6</b>	0.906	23
8	8	0.047	1.2	0.61	15.5	0.543	13.8	0.283	7.2	0.177	4.5	5/16"	<b>FG8-8</b>	1.13	28.7
6	14	0.059	1.5	0.5	12.7	0.378	9.6	0.354	9	0.222	5.65	1/4"	<b>FG6-6</b>	0.98	24.9
6	14	0.059	1.5	0.63	16	0.531	13.5	0.354	9	0.222	5.65	5/16"	<b>FG6-8</b>	1.201	30.5
4	22	0.067	1.7	0.551	14	0.382	9.7	0.453	11.5	0.303	7.7	1/4"	<b>FG4-6</b>	1.11	28.2
4	22	0.067	1.7	0.689	17.5	0.543	13.8	0.453	11.5	0.303	7.7	5/16"	<b>FG4-8</b>	1.339	34
2	38	0.071	1.8	0.72	18.3	0.535	13.6	0.524	13.3	0.37	9.4	1/4"	<b>FG2-6</b>	1.421	36.1
2	38	0.071	1.8	0.72	18.3	0.535	13.6	0.524	13.3	0.37	9.4	5/16"	<b>FG2-8</b>	1.421	36.1
2	38	0.071	1.8	0.72	18.3	0.535	17.3	0.524	13.3	0.37	9.4	3/8"	<b>FG2-9</b>	1.421	36.1
1/0	60	0.071	1.8	0.878	22.3	0.681	17.3	0.61	15.5	0.449	11.4	5/16"	<b>FG1/0-8</b>	1.732	44
1/0	60	0.071	1.8	0.878	22.3	0.681	17.3	0.61	15.5	0.449	11.4	3/8"	<b>FG1/0-9</b>	1.732	44
1/0	60	0.071	1.8	0.878	22.3	0.681	17.3	0.61	15.5	0.449	11.4	1/2"	<b>FG1/0-13</b>	1.732	44
2/0	70	0.079	2	0.941	23.9	0.681	17.3	0.689	17.5	0.516	13.1	5/16"	<b>FG2/0-8</b>	1.839	46.7
2/0	70	0.079	2	0.941	23.9	0.681	17.3	0.689	17.5	0.516	13.1	3/8"	<b>FG2/0-9</b>	1.839	46.7
2/0	70	0.079	2	0.941	23.9	0.681	17.3	0.689	17.5	0.516	13.1	1/2"	<b>FG2/0-13</b>	1.839	46.7
3/0	80	0.091	2.3	1.063	27	0.701	17.8	0.768	19.5	0.571	14.5	3/8"	<b>FG3/0-9</b>	2	50.8
3/0	80	0.091	2.3	1.063	27	0.701	17.8	0.768	19.5	0.571	14.5	1/2"	<b>FG3/0-13</b>	2	50.8

### LONG BARREL FLAG TERMINALS



PART NUMBER	Range (AWG)	Stud Size	WIDTH (W)	C	L	Thickness	Barrel Length	Barrell
<b>MU18-6R/FLAG</b>	22-18	6	0.38	0.34	0.66	0.030	0.26	0.70
<b>MU14-10R/FLAG</b>	16-14	10	0.38	0.34	0.69	0.030	0.25	0.090



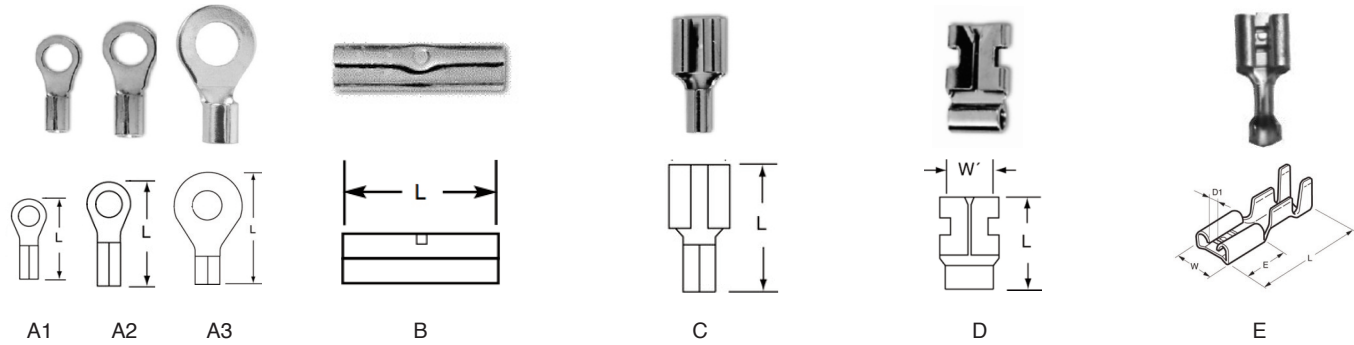
# Terminals

## HIGH TEMPERATURE TERMINALS

### HIGH TEMPERATURE TERMINALS

A25

Terminals and Connectors



PART NUMBER	TYPE	FIGURE	WIRE RANGE	L		STUD SIZE
				(mm)	(inch)	
WS2216-3HT	RING	A1	22-16 AWG	15.24	0.60	#6
WS2216-4HT	RING	A2	22-16 AWG	15.8	0.622	#8
WS2216-5HT	RING	A2	22-16 AWG	17.78	0.70	#10
WS2216-6HT	RING	A3	22-16 AWG	21.8	0.856	1/4"
WSC2216HT	BUTT	B	22-16 AWG	14.24	0.56	-
DF2216T250HT	FEMALE	C	22-16 AWG	16.76	0.66	.250
DF2216-1THT	FLAG	D	22-16 AWG	12.95	0.51	.250
LTO61N250HT*	FEMALE	E	16-14 AWG	--	--	.250
WS1614-3HT	RING	A1	16-14 AWG	15.49	0.61	#6
WS1614-4HT	RING	A2	16-14 AWG	17.78	0.70	#8
WS1614-5HT	RING	A2	16-14 AWG	17.78	0.70	#10
WS1614-6HT	RING	A3	16-14 AWG	23.62	0.93	1/4"
WSC1614HT	BUTT	B	16-14 AWG	14.22	0.56	-
DF1614T250HT	FEMALE	C	16-14 AWG	16.25	0.64	.250
DF1614-1THT	FLAG	D	16-14 AWG	12.95	0.51	.250
WS1210-3HT	RING	A1	12-10 AWG	18.54	0.73	#6
WS1210-5HT	RING	A2	12-10 AWG	18.54	0.73	#10
WS1210-6HT	RING	A3	12-10 AWG	25.15	0.99	1/4"
WSC1210HT	BUTT	B	12-10 AWG	14.22	0.56	-
DF1210T250HT	FEMALE	C	12-10 AWG	16.76	0.66	.250
LTO81N250N*	FEMALE	E	12-10 AWG	--	--	.250

\*Open Barrel Female

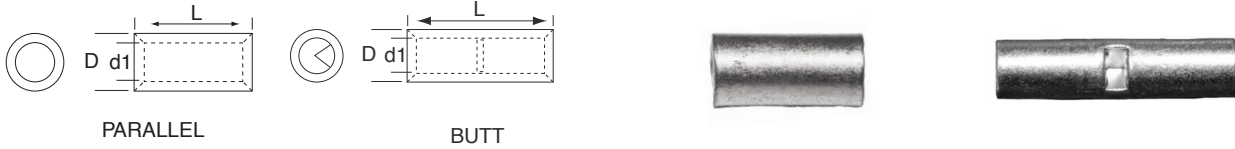
\*\*All high-temperature rings and butts have butted seams  
Steel/nickel plated. Operating Temperature: 900°F/ 482°C

# Terminals

## PARALLEL, BUTT SPLICE CONNECTORS PIN TERMINALS

A26

### NON-INSULATED PARALLEL & BUTT CONNECTORS



WIRE RANGE		DIMENSIONS						PARALLEL				BUTT			
		D		d1		T		PART NUMBER	LENGTH (L)		PART NUMBER	LENGTH (L)			
AWG	mm <sup>2</sup>	in	mm	in	mm	in	mm		in	mm		in	mm	in	mm
22-16	0.5-1.5	0.13	3.3	0.067	1.7	0.031	0.8	<b>P2216</b>	0.315	8	<b>C2216</b>	0.591	15		
16-14	1.5-2.5	0.154	3.9	0.091	2.3	0.031	0.8	<b>P1614</b>	0.315	8	<b>C1614</b>	0.591	15		
12-10	4-6	0.213	5.4	0.134	3.4	0.039	1	<b>P1210</b>	0.335	8.5	<b>C1210</b>	0.591	15		
8	8	0.276	7	0.177	4.6	0.047	1.2	<b>P-8</b>	0.374	9.5	<b>C-8</b>	0.827	21		
6	14	0.35	8.9	0.232	5.9	0.059	1.5	<b>P-6</b>	0.433	11	<b>C-6</b>	1.024	26		
4	22	0.445	11.3	0.307	7.8	0.069	1.75	<b>P-4</b>	0.531	13.5	<b>C-4</b>	1.142	29		
2	38	0.52	13.2	0.374	9.5	0.079	1.85	<b>P-2</b>	0.65	16.5	<b>C-2</b>	1.26	32		
1/0	60	0.602	15.3	0.449	11.4	0.077	1.95	<b>P1/0</b>	0.748	19	<b>C1/0</b>	1.417	36		
2/0	70	0.689	17.5	0.524	13.3	0.083	2.1	<b>P2/0</b>	0.748	19	<b>C2/0</b>	1.457	37		
3/0	80	0.768	19.5	0.571	14.5	0.098	2.5	<b>P3/0</b>	0.768	19.5	<b>C3/0</b>	1.496	38		
4/0	100	0.87	22.1	0.646	16.4	0.112	2.85	<b>P4/0</b>	0.787	20	<b>C4/0</b>	1.496	38		

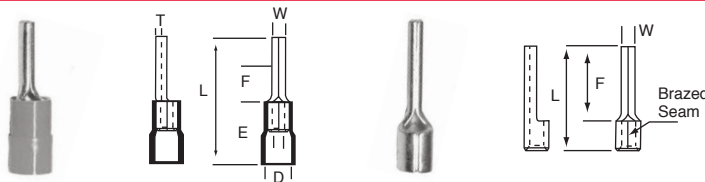
### INSULATED PARALLEL & BUTT SPLICE CONNECTORS



22-16 AWG = 0.5 - 1.5 mm<sup>2</sup>  
 16-14 AWG = 1.5 - 2.5 mm<sup>2</sup>  
 12-10 AWG = 4.0 - 6.0 mm<sup>2</sup>

WIRE RANGE	DIMENSIONS				VINYL INSULATED				NYLON INSULATED			
	D		d1		BUTTED SEAM PART NUMBER	LENGTH (L)		COPPER TUBULAR PART NUMBER	LENGTH (L)			
	in	mm	in	mm		in	mm		in	mm		
<b>PARALLEL</b>												
22-16 AWG	0.157	4	0.067	1.7	<b>FVP2216</b>	0.512	13	<b>FNP2216</b>	0.63	16		
16-14 AWG	0.177	4.5	0.091	2.3	<b>FVP1614</b>	0.512	13	<b>FNP1614</b>	0.63	16		
12-10 AWG	0.248	6.3	0.134	3.4	<b>FVP1210</b>	0.591	15	<b>FNP1210</b>	0.808	20.5		
<b>BUTT SPLICE</b>												
22-16 AWG	0.157	4	0.067	1.7	<b>FVC-2216</b>	0.953	24.2	<b>FNC-2216</b>	0.992	25.2		
16-14 AWG	0.177	4.5	0.091	2.3	<b>FVC-1614</b>	0.953	24.2	<b>FNC-1614</b>	0.992	25.2		
12-10 AWG	0.248	6.3	0.134	3.4	<b>FVC-1210</b>	1.024	26	<b>FNC-1210</b>	1.11	28.2		

### PIN TERMINALS

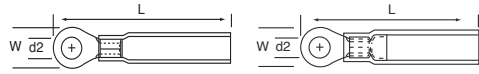


WIRE RANGE	DIMENSIONS								NON INSULATED				VINYL INSULATED					
	F		d1		T		W		BRAZED SEAM PART NUMBER	L		D		FUNNEL ENTRY PART NUMBER	L		D	
	in	mm	in	mm	in	mm	in	mm		in	mm	in	mm		in	mm	in	mm
22-16 AWG	0.472	12	0.067	1.7	0.03	0.75	0.075	1.9	<b>PC2216</b>	0.661	16.8	0.134	3.4	<b>FVLPC2216</b>	0.858	21.8	0.157	4
16-14 AWG	0.472	12	0.09	2.3	0.031	0.8	0.075	1.9	<b>PC1614</b>	0.661	16.8	0.161	4.1	<b>FVLPC1614</b>	0.858	21.8	0.177	4.5
12-10 AWG	0.551	14	0.13	3.4	0.039	1	0.11	2.8	<b>PC1210</b>	0.787	20	0.22	5.6	<b>FVLPC1210</b>	1.063	27	0.248	6.3

# HEAT SHRINKABLE TERMINALS



## HEAT SHRINKABLE RING TERMINALS



Maximum Electrical Rating: 600 Volts  
 Shrink Temperature: 150°C  
 Resistent Temperature: -10°C ~ +105°C

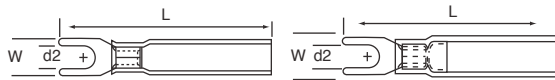
Insulation Material: High Density PE  
 Terminal Material: Copper

A27

Terminals and Connectors

WIRE RANGE		DIMENSIONS			BRAZED SEAM	LENGTH (L)		EXTRA COPPER SLEEVE ON BARREL		
		STUD SIZE	WIDTH (W)					DOUBLE CRIMP	LENGTH (L)	
AWG	mm <sup>2</sup>	d2	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
22-16	0.5-1.5	#6	0.217	5.5	HS2216-M3	0.984	25	HSD2216-M3	1.021	30.5
22-16	0.5-1.5	#8	0.315	8	HS2216-M4	1.122	28.5	HSD2216-M4	1.291	32.8
22-16	0.5-1.5	#10	0.315	8	HS2216-5	1.122	28.5	HSD2216-5	1.291	32.8
22-16	0.5-1.5	1/4"	0.457	11.6	HS2216-6	1.358	34.5	HSD2216-6	1.496	38
22-16	0.5-1.5	5/16"	0.457	11.6	HS2216-8	1.358	34.5	HSD2216-8	1.496	38
22-16	0.5-1.5	3/8"	0.535	13.6	HS2216-9	1.476	37.5	HSD2216-9	1.638	41.6
16-14	1.5-2.5	#6	0.26	6.6	HS1614-M3	1.043	26.5	HSD1614-M3	1.22	31
16-14	1.5-2.5	#8	0.335	8.5	HS1614-M4	1.201	30.5	HSD1614-M4	1.291	32.8
16-14	1.5-2.5	#10	0.374	9.5	HS1614-M5	1.398	35.5	HSD1614-M5	1.252	31.8
16-14	1.5-2.5	1/4"	0.472	12	HS1614-6	1.476	37.5	HSD1614-6	1.476	37.5
16-14	1.5-2.5	5/16"	0.472	12	HS1614-8	1.476	37.5	HSD1614-8	1.417	36
16-14	1.5-2.5	3/8"	0.535	13.6	HS1614-9	1.346	34.2	HSD1614-9	1.583	40.2
12-10	4-6	#6	0.374	9.5	HS1210-4	1.346	34.2	HSD1210-4	1.449	36.8
12-10	4-6	#8	0.374	9.5	HS1210-5	1.339	34	HSD1210-5	1.449	36.8
12-10	4-6	#10	0.472	12	HS1210-6	1.476	37.5	HSD1210-6	1.551	39.4
12-10	4-6	1/4"	0.591	15	HS1210-8	1.654	42	HSD1210-8	1.732	44
12-10	4-6	5/16"	0.591	15	HS1210-9	1.654	42	HSD1210-9	1.732	44
12-10	4-6	3/8"	0.756	19.2	HS1210-13	1.831	46.5	HSD1210-13	1.937	49.2

## HEAT SHRINKABLE SPADE TERMINALS



Maximum Electrical Rating: 600 Volts  
 Shrink Temperature: 150°C  
 Resistent Temperature: -10°C ~ +105°C

Insulation Material: High Density PE  
 Terminal Material: Copper

WIRE RANGE		DIMENSIONS			BRAZED SEAM	LENGTH (L)		EXTRA COPPER SLEEVE ON BARREL		
		STUD SIZE	WIDTH (W)					DOUBLE CRIMP	LENGTH (L)	
AWG	mm <sup>2</sup>	d2	in	mm	PART NUMBER	in	mm	PART NUMBER	in	mm
22-16	0.5-1.5	#6	0.252	6.4	HS2216-S3A	1.154	29.3	HSD2216-S3A	1.299	33
22-16	0.5-1.5	#8	0.283	7.2	HS2216-S4A	1.165	29.3	HSD2216-S4A	1.299	33
22-16	0.5-1.5	#10	0.374	9.5	HS2216-5A	1.181	30	HSD2216-5A	1.339	34
16-14	1.5-2.5	#6	0.236	6	HS1614-S3A	1.122	28.5	HSD1614-S3A	1.319	33.5
16-14	1.5-2.5	#8	0.283	7.2	HS1614-S4A	1.161	29.5	HSD1614-S4A	1.319	33.5
16-14	1.5-2.5	#10	0.366	9.3	HS1614-5A	1.201	30.5	HSD1614-5A	1.307	33.2
12-10	4-6	#6	0.354	9	HS1210-S3A	1.319	33.5	HSD1210-S3A	1.496	38
12-10	4-6	#8	0.354	9	HS1210-S4A	1.319	33.5	HSD1210-S4A	1.496	38
12-10	4-6	#10	0.472	12	HS1210-5A	1.614	41	HSD1210-5A	1.752	44.5



# Heat Shrink

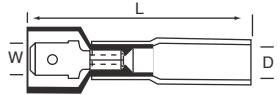
## HEAT SHRINKABLE DISCONNECTS / CONNECTORS

A28

\*All high-temperature rings and butts have butted seams

Terminals and Connectors

### HEAT SHRINKABLE MALE DISCONNECTS

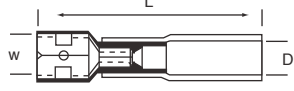


Maximum Electrical Rating: 600 Volts  
 Shrink Temperature: 150°C  
 Resistent Temperature: -10°C ~ +105°C

Insulation Material: Nylon & High Density PE  
 Terminal Material: Brass

WIRE RANGE		NEMA TAB		DIMENSIONS				NYLON INSULATED		
AWG	mm <sup>2</sup>	in	mm	WIDTH (W)		DIAMETER (D)		PART NUMBER	LENGTH (L)	
				in	mm	in	mm		in	mm
22-16	0.5-1.5	.032 x .250	0.8 x 6.35	0.25	6.35	0.256	6.5	<b>HSLNDM2216T250</b>	1.516	38.5
16-14	1.5-2.5	.032 x .250	0.8 x 6.35	0.25	6.35	0.256	6.5	<b>HSLNDM1614T250</b>	1.555	39.5
12-10	4-6	.032 x .250	0.8 x 6.35	0.25	6.35	0.256	7.5	<b>HSLNDM1210T250</b>	1.555	39.5

### HEAT SHRINKABLE FEMALE DISCONNECTS

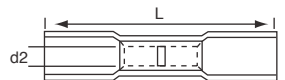


Maximum Electrical Rating: 600 Volts  
 Shrink Temperature: 150°C  
 Resistent Temperature: -10°C ~ +105°C

Insulation Material: Nylon & High Density PE  
 Terminal Material: Brass

WIRE RANGE		NEMA TAB		DIMENSIONS				NYLON INSULATED		
AWG	mm <sup>2</sup>	in	mm	WIDTH (W)		DIAMETER (D)		PART NUMBER	LENGTH (L)	
				in	mm	in	mm		in	mm
22-16	0.5-1.5	.032 x .250	0.8 x 6.35	0.26	6.6	0.256	6.5	<b>HSLNDF2216T250</b>	1.437	36.5
16-14	1.5-2.5	.032 x .250	0.8 x 6.35	0.26	6.6	0.256	6.5	<b>HSLNDF1614T250</b>	1.437	36.5
12-10	4-6	.032 x .250	0.8 x 6.35	0.26	6.6	0.256	7.5	<b>HSLNDF1210T250</b>	1.437	36.5

### WATERPROOF BUTT SPLICE CONNECTORS - HEAT SHRINK WITH TUBE SEALANT



Maximum Electrical Rating: 600 Volts  
 Shrink Temperature: 150°C  
 Resistent Temperature: -10°C ~ +105°C

Insulation Material: High Density PE  
 Terminal Material: Copper Tubular

WIRE RANGE		DIMENSIONS		COPPER TUBE		
AWG	mm <sup>2</sup>	STUD SIZE (d2)		PART NUMBER	LENGTH (L)	
		in	mm		in	mm
22-16	0.5-1.5	0.067	1.7	<b>SB-2216</b>	1.417	36
16-14	1.5-2.5	0.091	2.3	<b>SB-1614</b>	1.417	36
12-10	4-6	0.134	3.4	<b>SB-1210</b>	1.614	41





# Connectors

## FERRULES, VINYL SLEEVES

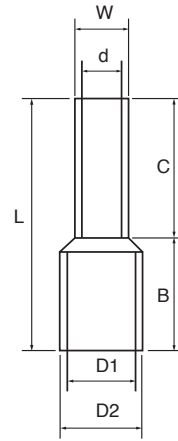
### FERRULES - NYLON INSULATED

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#### Ferrules

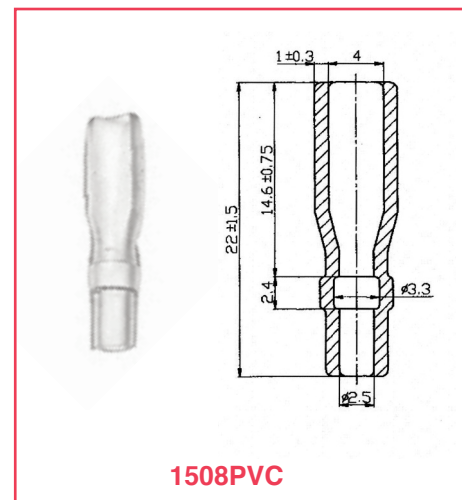
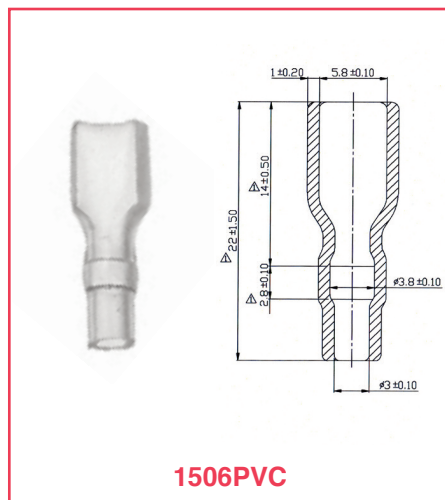
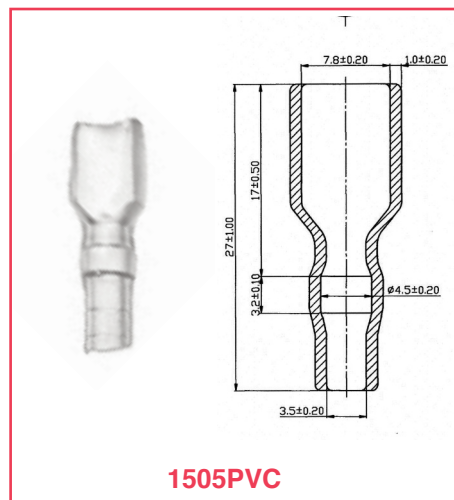
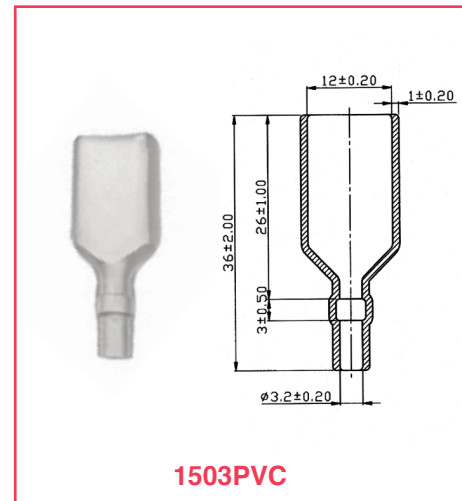
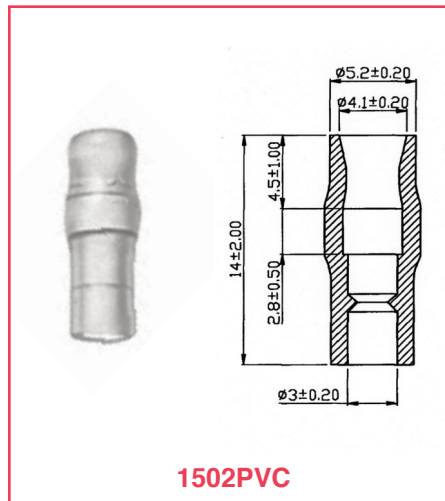
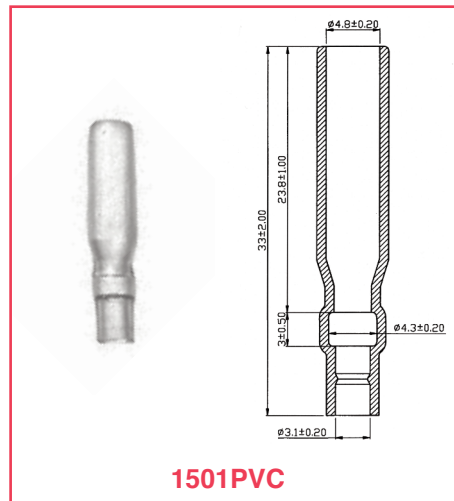
Nylon insulated for wire termination into European rail-type terminal blocks.

WIRE AWG	PART NUMBER	COLOR CODE	DIMENSIONS						
			D1	D2	C	L	B	d	W
20	<b>TE-0.5</b>	White	0.102	0.122	0.287	0.551	0.236	0.039	0.051
18	<b>TE-0.75</b>	Blue	0.110	0.130	0.287	0.551	0.236	0.049	0.061
18	<b>TE-1</b>	Red	0.118	0.138	0.287	0.551	0.236	0.057	0.069
16	<b>TE-1.5</b>	Black	0.138	0.157	0.303	0.551	0.236	0.071	0.083
14	<b>TE-2.5</b>	Gray	0.165	0.185	0.303	0.945	0.236	0.091	0.083
12	<b>TE-4</b>	Orange	0.189	0.213	0.303	0.669	0.303	0.110	0.134
10	<b>TE-6</b>	Green	0.248	0.272	0.472	0.787	0.315	0.138	0.161



Terminals and Connectors

### VINYL SLEEVES





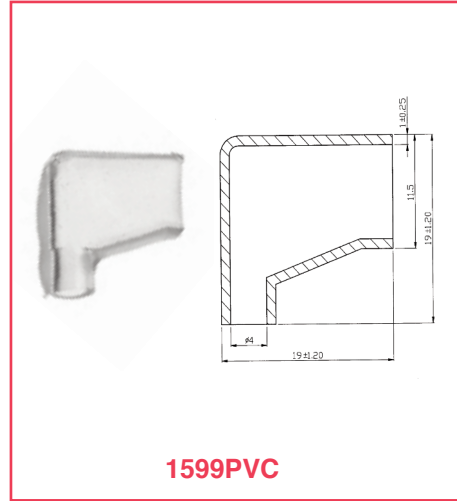
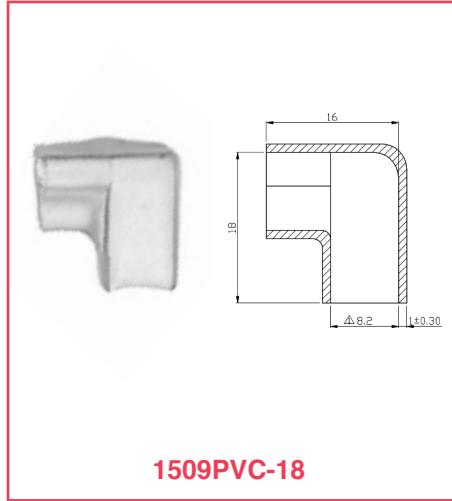
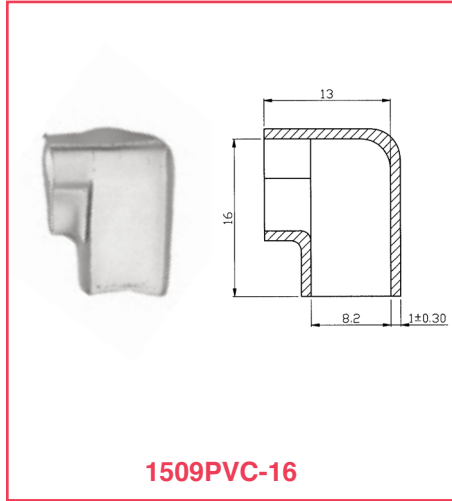
# Connectors

## SLEEVES, CLOSED END CONNECTORS

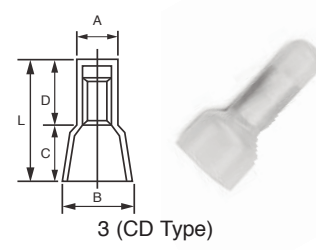
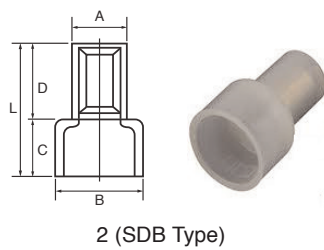
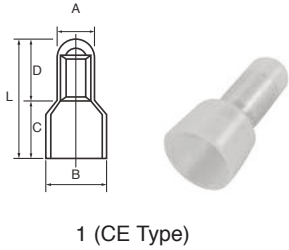
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### VINYL SLEEVES (CONTINUED)

Terminals and Connectors



### CLOSED END CONNECTORS



WIRE RANGE	DIMENSIONS										NYLON INSULATED				FIGURE
	B		A		C		SLEEVE LENGTH		SLEEVE ID		FUNNEL ENTRY	LENGTH (L)			
	in	mm	in	mm	in	mm	in	mm	in	mm	PART NUMBER	in	mm		
22-16 AWG	0.315	8.0	0.224	5.69	0.453	11.5	0.288	7.31	0.118	3.0	<b>CE230J</b>	0.827	21.0	1	
16-14 AWG	0.33	8.38	0.22	5.59	0.52	13.2	0.275	6.98	0.118	3.0	<b>CE233</b>	0.83	21.1	1	
12-10 AWG	0.374	9.5	0.283	7.19	0.588	14.9	0.335	8.51	0.15	3.81	<b>CE551</b>	1.06	26.9	1	
8 AWG	0.472	12.0	0.364	9.25	0.622	15.8	0.374	9.50	0.453	11.5	<b>CE800</b>	1.07	27.3	1	
22-16 AWG	0.244	6.2	0.22	5.60	0.362	9.2	0.275	7.0	0.094	2.4	<b>2218-SDB (CE1)</b>	0.598	15.5	2	
16-14 AWG	0.244	6.2	0.22	5.60	0.362	9.2	0.275	7.0	0.11	3.0	<b>1614-SDB (CE2)</b>	0.598	15.5	2	
12-10 AWG	0.377	9.6	0.291	7.40	0.417	10.6	0.334	8.5	1.54	4.0	<b>1210-SDB (CE5)</b>	0.701	18.3	2	
8 AWG	0.472	12.0	0.366	9.30	0.472	12.0	0.374	9.5	0.297	7.54	<b>8-SDB</b>	0.874	22.2	2	
22-16 AWG	0.256	6.5	0.224	5.60	0.323	8.20	0.244	6.19	0.094	2.4	<b>CE125S</b>	0.551	14.0	3	
16-14 AWG	0.315	8.0	0.226	5.75	0.354	8.99	0.272	6.9	0.122	3.1	<b>CE200S</b>	0.61	15.5	3	
12-10 AWG	0.425	10.8	0.291	7.39	0.374	9.50	0.283	7.19	0.154	3.91	<b>CE550S</b>	0.669	17.0	3	
8 AWG	0.472	12.0	0.364	9.24	0.512	13.0	0.323	8.2	0.224	5.67	<b>CE800N (CE-8)</b>	0.985	25.0	3	

#### Nylon Closed End Connectors

Etlin Closed End Connectors are made of Nylon with a tin plated copper tube to ensure a perfect crimp connection. Just strip the wires and insert securely inside the Closed End Connector, then crimp with a ratchet crimping tool. For use with copper wire only; use stranded or solid wire.

Operating Temperature Limit: 105°C

Crimping and stripping instructions are included in each bag of Closed End Connectors. All connectors are UL and CSA approved. Ratchet and air crimping tools are also available from Etlin.







**CLOSED END CONNECTORS**

**WIRE COMBINATION CHART FOR CLOSED END CONNECTORS**

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Terminals and Connectors

PART NUMBER	WIRE	WIRE	22 AWG	20 AWG	18 AWG	16 AWG	14 AWG	12 AWG	10 AWG
<b>CE230J 2218-SDB CE125S CE1</b>	22 AWG	1	1-3	1-2	1	1	-	-	-
		2	-	1-2	1	-	-	-	-
		3	-	1	1	-	-	-	-
	20 AWG	1	1-3	1-2	1	1	-	-	-
		2	1-2	-	-	-	-	-	-
	18 AWG	1	1-2	1	1	-	-	-	-
16 AWG	1	1	1	-	-	-	-	-	
<b>CE233 1614-SDB CE200S CE2</b>	22 AWG	1	3-7	2-4	1-2	1-2	1	-	-
		2	-	1-3	1-2	1	1	-	-
		3	-	1-3	1-2	1	1	-	-
	20 AWG	1	2-6	1-4	1-2	1-2	1	-	-
		2	1-5	-	1-2	1	1	-	-
		3	1-4	-	1-2	1	-	-	-
	18 AWG	1	1-5	1-3	1-2	1	1	-	-
		2	1-4	1-2	-	1	-	-	-
		3	1-2	1	-	-	-	-	-
	16 AWG	1	1-4	1-2	1-2	1	-	-	-
14 AWG	1	1-2	1	1	-	-	-	-	
<b>1210-SDB CE550S CE5</b>	22 AWG	1	7-9	5-9	3-6	2-3	2	1	1
		2	-	4-8	3-6	2-3	1	1	-
		3	-	4-7	3-5	2	1	1	-
	20 AWG	1	7-8	4-8	3-5	2-3	1-2	1	1
		2	5-7	-	2-4	1-2	1-2	1	-
		3	3-5	-	2-3	1-2	1-2	1	-
	18 AWG	1	6-8	4-7	2-3	2-3	1-2	1	-
		2	4-6	1-5	-	1-2	1-2	1	-
		3	1-5	1-3	-	1-2	1	1	-
	16 AWG	1	5-8	3-4	2-4	1-2	1-2	1	-
		2	1-6	1-3	1-2	-	1	-	-
		3	1-5	1-2	1-2	-	-	-	-
14 AWG	1	2-7	1-6	1-4	1-2	1-2	1	-	
12 AWG	1	1-6	1-4	1-2	1	1	-	-	
<b>CE800N 8-SDB CE800 CE-8</b>	20 AWG	1	-	7-12	5-8	3-4	2-3	1-2	1
		2	-	-	4-7	2-4	2-3	1-2	1
		3	-	-	4-7	2-4	2	1	1
		4	-	-	3-6	1-3	1-2	1	1
		5	-	-	2-5	1-3	1-2	1	1
		6	-	-	2-4	1-2	1	1	1
	18 AWG	1	-	7-11	5-8	3-4	2-3	1-2	1
		2	-	5-10	-	2-4	2	1-2	1
		3	-	4-9	-	2-3	1-2	1	1
		4	-	2-8	-	1-2	1-2	1	1
	16 AWG	1	-	1-6	-	1-2	1	1	-
		2	-	7-11	4-8	3-4	2	1	1
		3	-	5-10	2-6	-	1-2	1	-
		4	-	1-7	1-4	-	1-2	1	-
	14 AWG	1	-	1-6	1-3	-	1-2	1	-
		2	-	7-10	3-7	2-4	1-2	1	1
		3	-	1-8	1-4	1-2	-	1	-
	12 AWG	1	-	1-5	1-2	1-2	-	-	-
		2	-	1-8	1-5	1-2	1	1	1
	10 AWG	1	-	1-2	1-2	1	1	-	-
2		-	1-2	1-2	1	1	-	-	
10 AWG	1	-	1-5	1-4	1-3	1	1	-	





# Wire Connectors

## TWIST-ON CONNECTORS

A32

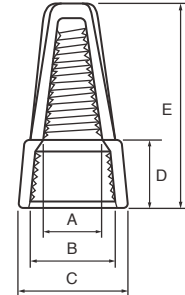
### WIRE CONNECTORS - TWIST-ON TYPE

UL 486C Listed and CSA 22.2 #188 Certified  
 Tough thermoplastic, UL 94V-2 flame-retardant shell  
 Rated to 600 V\* Max. for building wiring and 1,000\* V Max. in lighting fixtures/luminaries/signs  
 Positive grip wire spring, easy installation, reusable  
 Color-coded to industry standard



\* voltage and temperature rating specific to connector type

PART NUMBER	DIMENSIONS									
	A		B		C		D		E	
	in	mm	in	mm	in	mm	in	mm	in	mm
E-1	0.15	3.8	0.264	6.7	0.339	8.6	0.228	5.8	0.598	15.2
E-2	0.161	4.1	0.276	7	0.386	9.8	0.232	5.9	0.693	17.6
E-3	0.197	5	0.39	9.9	0.48	12.2	0.307	7.8	0.866	22
E-4	0.236	6	0.441	11.2	0.55	14	0.311	7.9	0.945	24
E-5	0.276	7	0.504	12.8	0.63	16	0.35	8.9	1.047	26.6



PART NUMBER	COLOUR	UL	CSA	WIRE RANGE		VOLTAGE
				MIN	MAX	
E-1	GREY			3#22	2#16	300V
E-2	BLUE			1#18 + 1#22	3#16	300V
E-3	ORANGE			1#18 + 1#20	3#16 + 1#18	600V
E-4	YELLOW			3#18	3#12	600V
E-5	RED			2#14	2#10	600V

### PVC Wire Nut Connectors with Springs

Etlin Wire Nut Connectors are the industry standard with durability and high quality. They come with square wire spring threads which make tightening easy and fast. These connectors are removable for re-use and are colour coded.  
 Connectors are moulded from extruded PVC fire resistant material. They resist cracking and are excellent against environmental extremities. The high dielectric shell has a deep skirt design which prevents exposure of bare wire. The versatile selection of sizes covers building wires from #22 to #10 AWG.  
 Suffix "CB" means packed in 100 Pack cardboard box and suffix "-25" means packed in 25 Pack poly bag with head card.

### HIGH TEMPERATURE TWIST-ON CONNECTORS

PART NUMBER	COLOUR	UL	CSA	WIRE RANGE		VOLTAGE
				MIN	MAX	
E-1B	BLACK			3#22	2#16	300V
E-3B	BLACK			1#18 + 1#20	3#16 + 1#18	600V
E-3B-25	BLACK			1#18 + 1#20	3#16 + 1#18	600V
E-3B-CB	BLACK			1#18 + 1#20	3#16 + 1#18	600V



RATED at 150°C. Made of high heat resistant thermoplastic rated to 600V MAX for building wiring and 1000V MAX in Lighting Fixtures/Signs

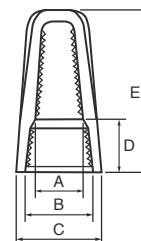


## TWIST-ON CONNECTORS

### ALL PLASTIC PRODUCTION TWIST CONNECTORS

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PART NUMBER	COLOUR	UL	CSA	WIRE RANGE		VOLTAGE
				MIN	MAX	
H-1	YELLOW			2#22	2#16 + 1#22	300V
H-1-CB	YELLOW			2#22	2#16 + 1#22	300V
H-3	IVORY			1#18 + 1#22	3#16	300V
H-3-CB	IVORY			1#18 + 1#22	3#16	300V
H-5	IVORY			1#20 + 4#22	2#14	600V
H-5-CB	IVORY			1#20 + 4#22	2#14	600V



Terminals and Connectors

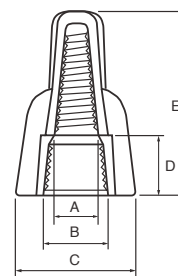
\*FOR DIMENSIONS, SEE CHART ON PREVIOUS PAGE

### All Plastic Wire Nut Connectors

These Etlin All Plastic Connectors are used on OEM assembly applications, especially for production lines, and are easy to install without any power tools. They make a strong, secure connection and have a high dielectric strength. The long skirt length protects the wire insulation. The plastic is tough and shields against environmental extremes. Connectors resist cracking and are immune to chemical action from dilute acid and alkaline solutions. They are self-extinguishing and are heat resistant to 105°C.

### WINGED WIRE CONNECTORS - TWIST-ON TYPE

PART NUMBER	DIMENSIONS									
	A		B		C		D		E	
	in	mm	in	mm	in	mm	in	mm	in	mm
E-11	0.252	6.4	0.386	9.8	0.717	18.2	0.354	9	1.016	25.8
E-12	0.283	7.2	0.457	11.6	0.72	18.3	0.362	9.2	1.142	29
E-13	0.354	9	0.531	13.5	0.906	23	0.378	9.6	1.252	31.8
E-15	0.394	10	0.587	14.9	1.0	25.4	0.394	10	1.311	33.3
E-17	0.472	12	0.74	18.8	1.26	32	0.516	13.1	1.575	40



PART NUMBER	COLOUR	UL	CSA	WIRE RANGE		VOLTAGE
				MIN	MAX	
E-11	YELLOW			2#18	3#12	600
E-11-25	YELLOW			2#18	3#12	600
E-11-CB	YELLOW			2#18	3#12	600
E-12	TAN			3#22	3#16	600
E-12-25	TAN			3#22	3#16	600
E-12-CB	TAN			3#22	3#16	600
E-13	RED			2#14	5#12	600
E-13-25	RED			2#14	5#12	600
E-13-CB	RED			2#14	5#12	600
E-15	GREY			3#14 + 1#18	3#10	600
E-15-25	GREY			3#14 + 1#18	3#10	600
E-15-CB	GREY			3#14 + 1#18	3#10	600
E-17	BLUE			2#10 + 1#12	3#10 + 1#18	600
E-17-25	BLUE			2#10 + 1#12	3#10 + 1#18	600
E-17-CB	BLUE			2#10 + 1#12	3#10 + 1#18	600



# Wire Connectors

## TWIST-ON CONNECTORS

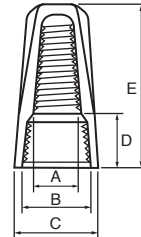
A34

### HIGH TEMPERATURE PORCELAIN TWIST-ON CONNECTORS

#### Porcelain Wire Nut Connectors

Etlin Porcelain Wire Nuts are an excellent connector for high temperature applications rated up to 982°C (1800°F). They are commonly used in electrical, heating, lighting and cooking appliances. The large skirt permits easy wire installation and connection during hand or power drive assembly. They can be used for solid and/or stranded wire.

PART NUMBER	COLOUR	UL	WIRE RANGE		VOLTAGE
			MIN	MAX	
HI-1	WHITE		2#18	1#16 + 1#14	300
HI-5	WHITE		2#18	1#16 + 1#14	300
HI-7	WHITE		2#18	1#16 + 1#14	300



Terminals and Connectors

### LISTED AS PRESSURE TYPE CONNECTORS FOR JOINING THE FOLLOWING COMBINATIONS OF SOLID AND/OR STRANDED WIRE



HI-1	HI-5	Hi-7
300 Volts Maximum	300 Volts Maximum	300 Volts Maximum
2, 3 or 4 No. 18	2, 3 or 4 No. 18	2, 3, 4 or 5 No. 18
2 or 3 No. 16	2 or 3 No. 16	1 No. 18 with 1, 2 or 3 No. 16
1 or 2 No. 18 with 1 or 2 No. 16	1 or 2 No. 18 with 1 No. 16	2 or 3 No. 18 with 1 No. 16
3 No. 18 with 1 No. 16	1 or 2 No. 18 with 1 or 2 No. 16	2, 3 or 4 No. 16
1 No. 18 with 1 No. 14	1 No. 18 with 1 No. 14	1 No. 14 with 1, 2 or 3 No. 18
1 No. 16 with 1 No. 14	2 No. 18 with 1 No. 14	1 No. 14 with 1, 2 or 3 No. 16
	1 No. 16 with 1 No. 14	2 No. 14 with 1, 2 or 3 No. 18
		2 No. 14 with 1, 2 or 3 No. 16
		2 No. 14
		1 No. 12 with 1 or 2 No. 18
		1 No. 12 with 1 No. 16

### WIRE CONNECTOR SOCKET TOOLS

The sockets have a hex shank design which can fit any pneumatic or electric tool having a 1/4" chuck or drive socket. It is used on screw-on wire connectors and winged wire connectors for reducing work fatigue and making a secure connections.

#### For Screw-on Wire Connectors:



Socket No.	Socket Color	Use for Connector Model No.
#3-49	Black	E1 (grey), E2 (blue), E3 (orange) P3H (orange), P4H (yellow)
#4-57	Black	E4 (yellow), E6 (red), E6H (red)

#### For Winged Wire Connectors:



Socket No.	Socket Color	Use for Connector Model No.
#11	White	E11 (yellow), E13 (red)
#12	Black	E12 (tan)
#5-63	Black	E11 (yellow), E12 (tan), E13 (red), E15 (grey)



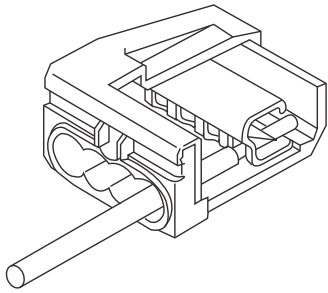


# PUSH-IN CONNECTORS

## WIRE CONNECTORS - PUSH-IN TYPE

A35

Terminals and Connectors



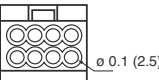
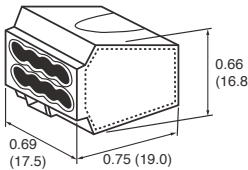
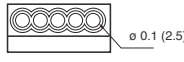
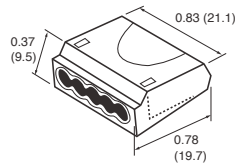
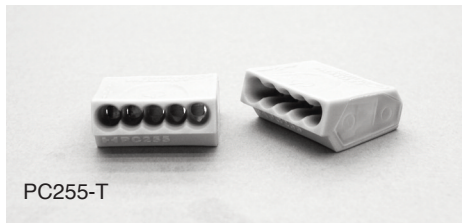
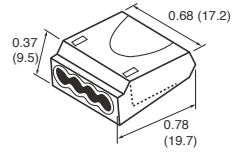
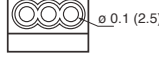
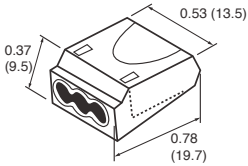
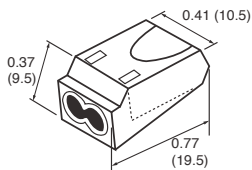
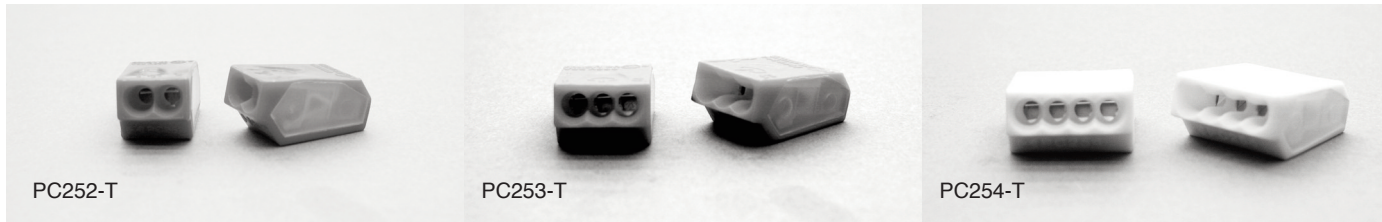
### P-Nut Wire Connectors

#### General:

**Vibration Proof:** The special design of the clamping spring makes the P-Nut vibration proof and eliminates all the problems of loose wires and connections associated with shipping and handling.  
**Installation:** Easy to install – faster! No more twisting or tapping! Just strip and push.  
**Time Saving:** Speed up your production lines and decrease down-time.  
**Convenient Testing:** The front test port allows for testing without disconnecting wires. This makes quality control and trouble shooting more efficient.

#### Applications:

- Junction Boxes
- Security/Alarm Applications
- Ballast Replacement
- Data/Telecom Hook-Up
- Control Panels
- Lighting Retrofit
- Assembly Lines



#### Technical Data:

Housing Material: Thermoplastic, UL 94V-2 flame retardant  
 Current: 24A (VDE)  
 Voltage: UL-600V, VDE-450V  
 Working Temperature: 110°C  
 Wire Range: 12-22 AWG Solid conductor  
 Stripping Length: 0.43" (11.0 mm)  
 Colour: Coded according to different position

Rating: UL/cUL File No. E-113650



PART NUMBER	NO. OF POLES	COLOUR	WIRE RANGE & RATING
PC252-T	2	RED	<b>UL:</b> 600V 105°F 12-22 CU, SOL AWG <b>VDE:</b> 24A, 450V -30°C TO 100°C, 2.5 mm <sup>2</sup> , Sol
PC253-T	3	ORANGE	
PC254-T	4	YELLOW	
PC255-T	5	GREY	
PC258-T	8	BLACK	



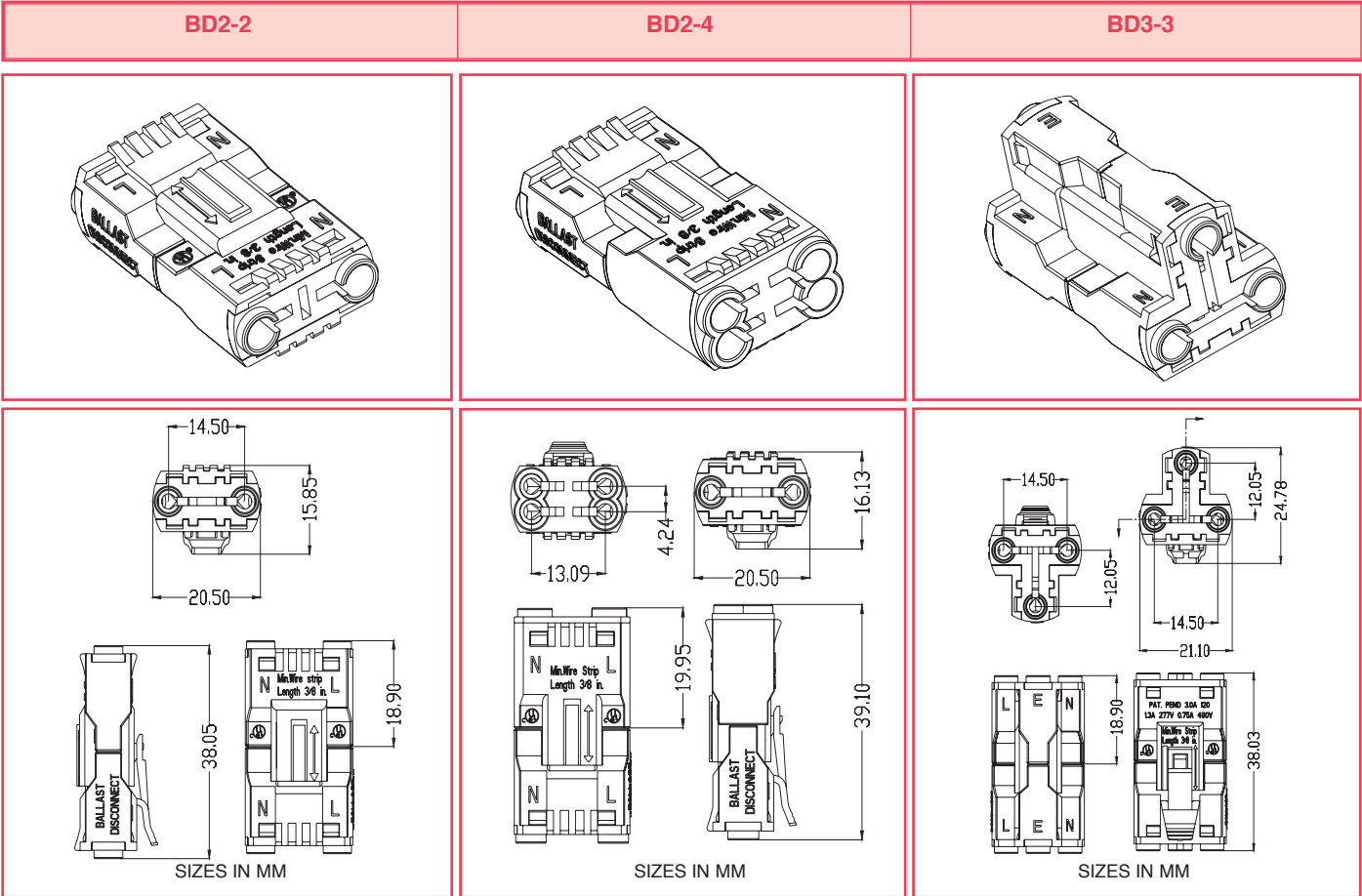
# Connectors

## “POWER-SAFE” BALLAST DISCONNECTS

A36

### Ballast Disconnects

Terminals and Connectors



Model	Electrical Rating	Wire Type	Wire Range - Line Side	Wire Range - Load Side	Quantity and Packed	Cat No.
BD2-2	6 A/600V	Solid	12 AWG - 18 AWG	12 AWG - 18 AWG	1,000 pcs - boxed 100 pcs - poly bagged 20 pcs - blister boxed	BD2-2 BD2-2/CPB BD2-2/BB
		Stranded	12 AWG - 14 AWG	12 AWG - 14 AWG		
BD2-4	6 A/600V	Stranded Tinned	12 AWG =< 19 strand	12 AWG =< 19 strand	1,000 pcs - boxed 100 pcs - poly bagged 20 pcs - blister boxed	BD2-4 BD2-4/CPB B2-4/BB
			14 AWG =< 19 strand	14 AWG =< 19 strand		
BD3-3	6 A/600V		16 AWG =< 26 strand	16 AWG =< 26 strand	1,000 pcs - boxed 100 pcs - poly bagged 20 pcs - blister boxed	BD3-3 BD3-3/CPB BD3-3/BB
			18 AWG =< 16 strand	18 AWG =< 16 strand		

#### Specifications:

**Housing:** Polycarbonate (PC) Rated UL94 V-0

**Contacts:** Copper Alloy

**Temp.Rating:** Working temperature - 105C (221F).

**Electrical Rating:** 6A 600V on line side, 6A on load size

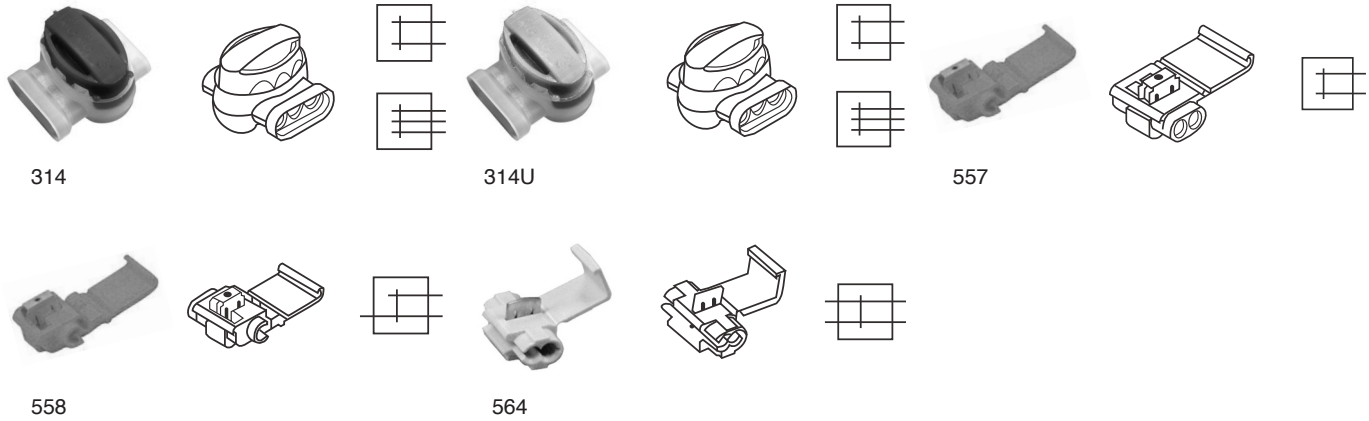
**Strip Length:** 3/8"

# INSULATION DISPLACEMENT CONNECTORS

## INSULATION DISPLACEMENT CONNECTORS (IDCs)

A37

Terminals and Connectors



PART NUMBER	COLOUR	TYPE OF CONNECTION	WIRE RANGE	VOLTAGE	MAXIMUM INS OD
<b>314</b>	BLUE CAP	2/3 PIGTAIL	22-14 AWG	600	0.150"
<b>314U</b>	WHITE CAP	2/3 PIGTAIL	22-14 AWG	600	0.150"
<b>557</b>	RED	2 PIGTAIL	22-14 AWG	600	0.120"
<b>558</b>	RED	1 TAP	22-14 AWG	600	0.150"
<b>564</b>	WHITE	2 PARALLEL	18-14 AWG	32	0.145"

### Insulation Displacement Connectors (IDCs)

Insulation Displacement Connectors offer labour saving convenience because stripping is not required. A wide variety of sizes and styles is offered for applications such as: fluorescent ballast installation and replacement, fixture and appliance wiring, automotive and marine wiring, and control circuit wiring.

UL Listed and CSA Certified IDCs have a voltage rating of 600 V maximum for building wire; 1,000 V maximum for signs, fixtures and luminaries.

### Instructions for Use:

No strip, no twist, just squeeze. Just that simple. The unique "U" contact provides fast dependable electrical connections without wire stripping. A "live spring" joint is made by driving the "U" contact down into the connector. As the "U" contact is pressed into the connector, it grasps conductors by displacing insulation. The "U" contact grips the conductor and holds with a firm, resilient pressure.

### 314, 314U, 557 & 558

Operating Temperature: 105°C  
 UL File No. E23438  
 CSA File No. LR15503

Also meets the intent of UL Standard for Portable Electric Lamps, UL153, Paragraph 14.2, when housed within the body of the lamp.

## B-WIRE CONNECTORS



### CONNECTOR MATERIAL: BRASS

A.W.G	ITEM NO.	W mm(inches)	L mm(inches)	GREASE	COLOR
28-22	BW1	3.7(0.146)	25.0(0.984)	NO	WHITE
	BW1-G			YES	BLUE
20-16	BW2	4.0(0.157)	26.0(1.024)	NO	WHITE
	BW2-G			YES	BLUE

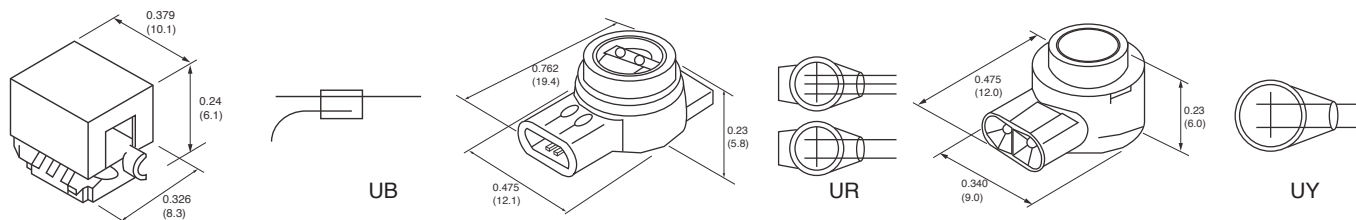
# Connectors

## INSULATION DISPLACEMENT CONNECTORS

A38

### INSULATION DISPLACEMENT CONNECTORS (IDC) FOR COMMUNICATION

Terminals and Connectors



PART NUMBER	COLOUR	TYPE OF CONNECTION	WIRE RANGE
UB	BLUE	TAP	SOLID 22-26
UG	GREEN	TAP	SOLID 19-26
UR	RED	2-3 WIRE BUTT	SOLID 19-26
UY	YELLOW	2 WIRE BUTT	SOLID 22-26

#### Insulation Displacement Connectors (IDC) for Communication

Communications connectors may be used on standard polyethylene wire insulation, the polypropylene insulation of filled cable, and on pulp. Use of a connector is limited only to wire range and port size. Wire sizes may be intermixed within a connector.

#### Instructions for Use:

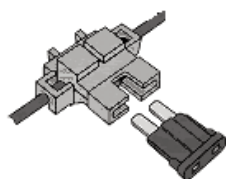
1. Trim and straighten conductors.
2. Separate and fully insert conductors.
3. Crimp with cap side down. Allows quick, visual check before and after crimp.


#### Communication Connector Tool (E Series)

Stepped jaws tool is used for crimping communications connectors. Use caution to make sure wire and insulation is pushed completely into the connector before crimping.

It is recommended that when splicing 19 AWG using the tool that no more than two conductors be crimped.

### FEMALE DISCONNECTS - FUSE HOLDERS



A.W.G	ITEM NO.	W mm(inches)	L mm(inches)	GREASE	COLOR
18-14	972	FATC SERIES	35.0(1.376)	34.0(1.339)	

### IGNITION TERMINALS



FIG-1

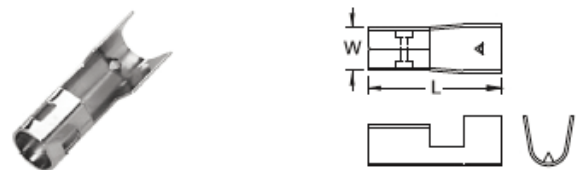


FIG-2

TERMINAL MATERIAL: IT1 BRASS; IT2, IT3: STEEL

PART NUMBER	FIG	W mm(inch)	L mm(inch)
IT 1	1	7.0(.276)	10.0(.394)
IT 2	2	7.0(.276)	23.5(.925)
IT 3	3	7.0(.276)	20.5(0.807)

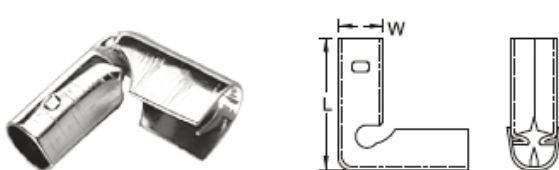


FIG-3

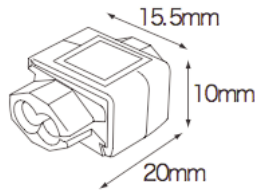


# QUICK SPLICE CONNECTORS

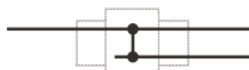
## QUICK SPLICE CONNECTORS

A39

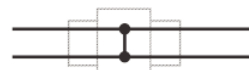
Terminals and Connectors



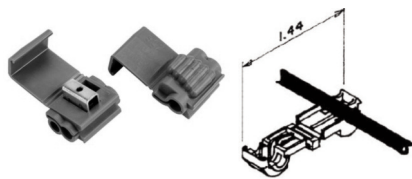
All PT Series



**PTV = TAP**

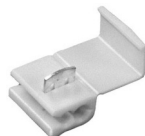


**PTW = 4 WAY TAP**



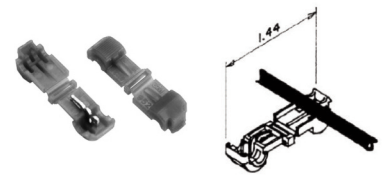
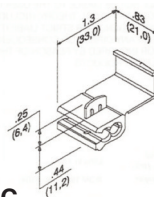
**902-IDC**

Operating Temperature: 105°C  
UL File No. E23438  
CSA File No. LR15503



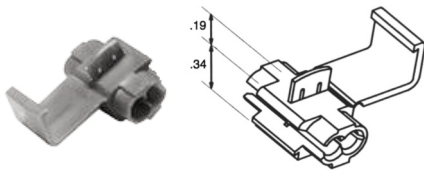
**903-IDC**

Operating Temperature: 105°C  
UL File No. E23438  
CSA File No. LR15503



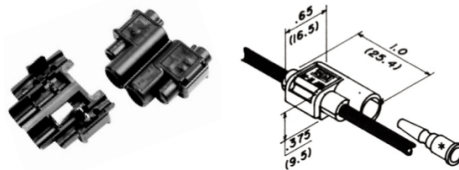
**952-IDC**

Operating Temperature: 105°C  
UL File No. E23438  
CSA File No. LR15503



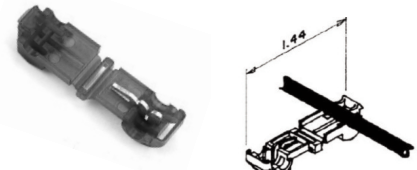
**801/905**

Operating Temperature: 90°C  
UL File No. E23438



**901**

Operating Temperature: 90°C  
UL File No. E23438



**951/952/953**

Operating Temperature: 105°C  
UL File No. E70512  
CSA File No. LR32411

PART NUMBER	COLOUR	TYPE OF CONNECTION	WIRE RANGE	VOLTAGE	MAXIMUM INS OD
<b>PTV-09 (905)</b>	RED	T-TAP	22-16 AWG	600	.120
<b>PTW-09</b>	RED	4-WAY TAP	22-16 AWG	600	.120
<b>PTV-20 (801)</b>	BLUE	T-TAP	16-14 AWG	600	.120
<b>PTW-20</b>	BLUE	4-WAY TAP	16-14 AWG	600	.120
<b>903 IDC</b>	YELLOW	4-WAY TAP / T-TAP	12-10 AWG	600	.190"
<b>902 IDC</b>	BROWN	MAIN / 18-14 TAP	12-10 AWG	600	.145" / .190"
<b>952 IDC</b>	BLUE	TAP / .250" MALE	16-14 AWG	600	.15
<b>801</b>	BLUE	TAP / PARALLEL	18-14 AWG	600	.145"
<b>901</b>	BLACK	TAP / .156" MALE BULLET	18-14 AWG	600	.145"
<b>905</b>	RED	PIGTAIL / 22-18 TAP	18-14 AWG	600	.110" / .145"
<b>951</b>	RED	TAP / .250" MALE	22-18 AWG	600	.150"
<b>952</b>	BLUE	TAP / .250" MALE	14 AWG	600	.150"
<b>953</b>	YELLOW	TAP / .250" MALE	12 AWG	600	.150"

# Specialty Connectors

## BATTERY MODULE CONNECTORS

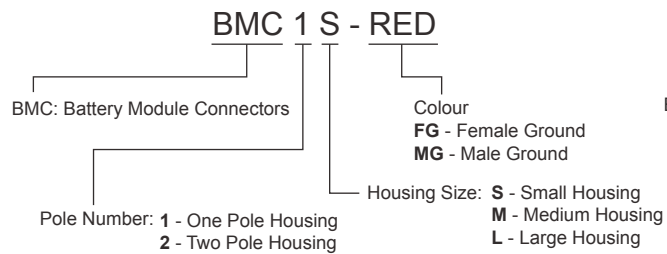
A40

Developed to provide a quick, safe, and reliable way to connect boosting and charging systems. Available in 1, 2, 4, and 6 pole configurations. Housing made from durable polycarbonate and is impact resistant to reduce breakage and provide extended use. Contacts are made from copper with either silver or tin plating for long service life.

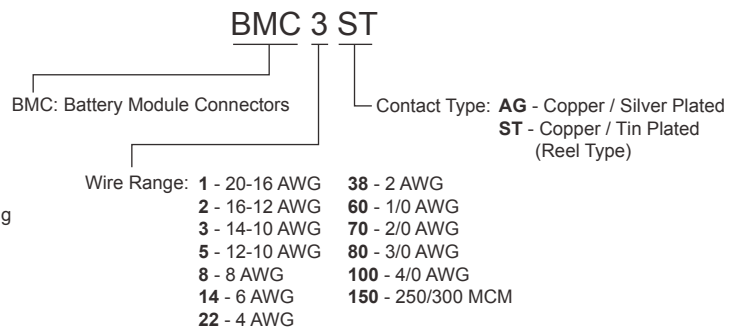
Flammability rating of all housing material: UL94V-0

Terminals and Connectors

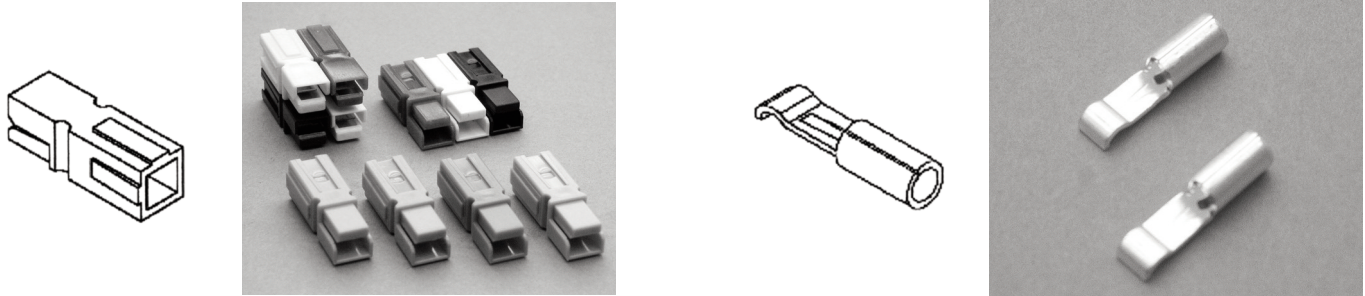
### HOUSING EXAMPLE:



### CONTACTS EXAMPLE:



### 10-45 Amp Series



HOUSINGS	CONTACTS	SIZE (AWG)	CURRENT	VOLTAGE	MAX. WIRE INSULATION DIAMETER (mm)	CONTACT RETENTION FORCE (LBS)	AVG CONNECT/DISCONNECT (LBS)	OPERATING TEMP. (°C)
BMC1S-YELLOW BMC1S-ORANGE BMC1S-RED BMC1S-GREY BMC1S-BLUE BMC1S-GREEN	BMC1AG	20-16	15A	600V	4.4	25	3	-20°C TO 125°C
BMC1S-BLACK BMC1S-BROWN BMC1S-PURPLE BMC1S-PINK BMC1S-WHITE	BMC2AG	16-12	30A	600V	4.4	25	3	-20°C TO 125°C
	BMC3ST	14-10	45A	600V	4.4	25	3	-20°C TO 125°C

## BATTERY MODULE CONNECTORS

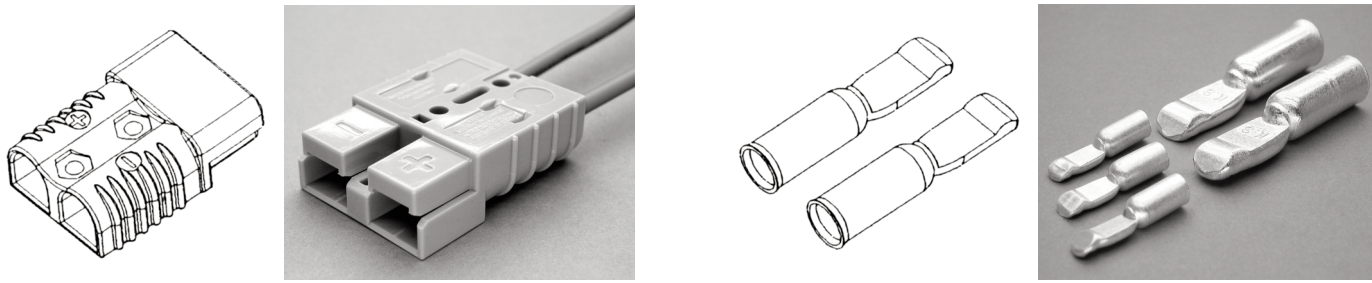
## 75 Amp Series

HOUSINGS	CONTACTS	SIZE (AWG)	CURRENT	VOLTAGE	MAX. WIRE INSULATION DIAMETER (mm)	CONTACT RETENTION FORCE (LBS)	AVG CONNECT/DISCONNECT (LBS)	OPERATING TEMP. (°C)
BMC1M-RED BMC1M-BLUE	BMC5AG	12-10	50A	600V	11	50	7	-20°C TO 125°C
BMC1M-WHITE BMC1M-GREEN	BMC8AG	8	60A	600V	11	50	7	-20°C TO 125°C
BMC1M-BLACK	BMC14AG	6	75A	600V	11	50	7	-20°C TO 125°C

A41

Terminals and Connectors

## 50-350 Amp Series



AMP SERIES	HOUSINGS	CONTACTS	SIZE (AWG)	CURRENT	VOLTAGE	MAX. WIRE INSULATION DIAMETER (mm)	CONTACT RETENTION FORCE (LBS)	AVG CONNECT/DISCONNECT (LBS)	OPERATING TEMP. (°C)
50 AMP	BMC2S-RED	BMC5AG	12-10	35A	600V	11	50	15	-20°C TO 125°C
	BMC2S-BLACK	BMC8AG	8	45A	600V	11	50	15	-20°C TO 125°C
	BMC2S-BLUE	BMC14AG	6	50A	600V	11	50	15	-20°C TO 125°C
	BMC2S-GREY								

175 AMP	BMC2M-RED	BMC22AG	4	125A	600V	19	300	25	-20°C TO 125°C
	BMC2M-BLUE	BMC38AG	2	150A	600V	19	300	25	-20°C TO 125°C
	BMC2M-YELLOW								
	BMC2M-GREY								
BMC2M-ORANGE	BMC60AG	1/0	175A	600V	19	300	25	-20°C TO 125°C	

350 AMP	BMC2L-RED	BMC70AG	2/0	250A	600V	28	500	30	-20°C TO 125°C
	BMC2L-BLUE	BMC80AG	3/0	275A	600V	28	500	30	-20°C TO 125°C
	BMC2L-YELLOW	BMC100AG	4/0	300A	600V	28	500	30	-20°C TO 125°C
	BMC2L-GREY	BMC150AG	250/300 MCM	350A	600V	28	500	30	-20°C TO 125°C
	BMC2L-ORANGE								

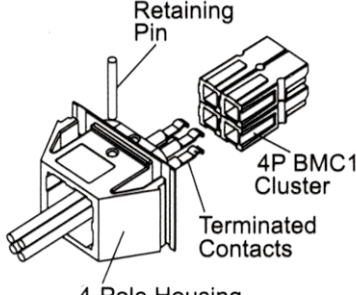
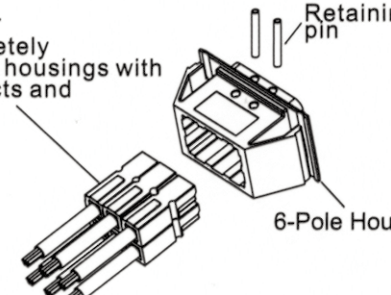
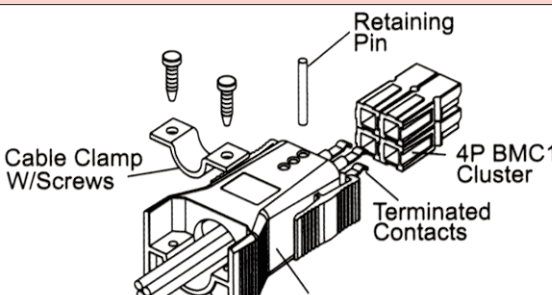
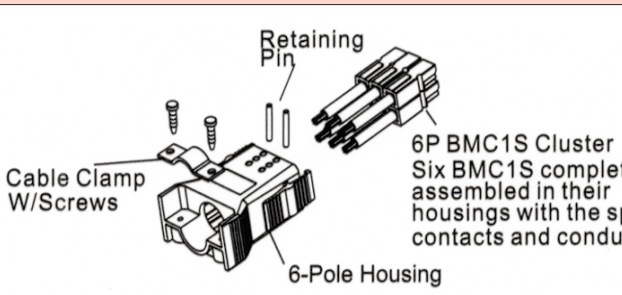
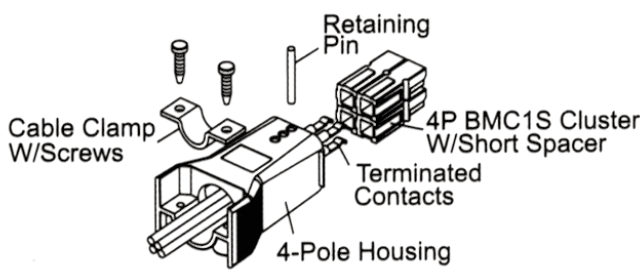
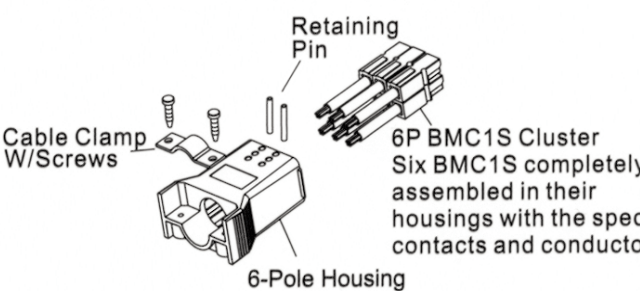
Specialty Connectors

BATTERY MODULE CONNECTORS

A42

Powerpole Pak - Multiple Pole Housing Sets

Terminals and Connectors

<p><b>4BMCS-SET-L</b></p>  <p>Retaining Pin 4P BMC1S Cluster Terminated Contacts 4-Pole Housing</p>	<p><b>6BMCS-SET-L</b></p>  <p>6P BMC1S Cluster Six BMC1S completely assembled in their housings with the specific contacts and conductor. Retaining pin 6-Pole Housing</p>
<p><b>4BMCS-SET-R</b></p>  <p>Retaining Pin 4P BMC1S Cluster Terminated Contacts 4-Pole Housing Cable Clamp W/Screws</p>	<p><b>6BMCS-SET-R</b></p>  <p>Retaining Pin 6P BMC1S Cluster Six BMC1S completely assembled in their housings with the specific contacts and conductor. 6-Pole Housing Cable Clamp W/Screws</p>
<p><b>4BMCS-SET-RW</b></p>  <p>Retaining Pin 4P BMC1S Cluster W/Short Spacer Terminated Contacts 4-Pole Housing Cable Clamp W/Screws</p>	<p><b>6BMCS-SET-RW</b></p>  <p>Retaining Pin 6P BMC1S Cluster Six BMC1S completely assembled in their housings with the specific contacts and conductor. 6-Pole Housing Cable Clamp W/Screws</p>

2X2 4-POLE HOUSING		
PART NUMBER	TYPE	AMPS
4BMCS-SET-L	Snap-In Receptacle	10-45A
4BMCS-SET-R	Plug w/ Latch	10-45A
4BMCS-SET-RW	Plug w/o Latch	10-45A
2X3 6-POLE HOUSING		
PART NUMBER	TYPE	AMPS
6BMCS-SET-L	Snap-In Receptacle	10-45A
6BMCS-SET-R	Plug w/ Latch	10-45A
6BMCS-SET-RW	Plug w/o Latch	10-45A





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**SECTION B  
ELECTRICAL/MECHANICAL  
LUGS & NEUTRAL BARS**

B1

ELECTRICAL AND MECHANICAL LUGS



**Electrical and Mechanical Lugs**

Lug Overview and Numbering System	B2-B3
Stud Size and Conversion Charts	B4
<b>Crimp or Solder Electrical Lugs</b>	
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2/0 AWG to 250 MCM	B8-B10
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Industrial Butt Connectors	B12
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Standard Barrel, Two Holes	B14
Long Barrel, One Hole	B15
Long Barrel, Two Holes	B16
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# Lugs

## LUG OVERVIEW & NUMBERING SYSTEM

**B2**

These heavy duty ring type lugs are made from high grade electrolytic copper, ETP CDA 110, ASTM-b-152 copper. They are available in cable sizes from #8 AWG to 500 MCM and in a wide range of mounting holes. They are tin plated for resistance to corrosion. The terminals are CSA and UL listed using our tooling and other popular tools, such as T&B and Burndy.

Lugs

### Plain Type

A general purpose seamless electrical terminal used where special installation characteristics are not required. Available in various pad widths to accommodate most stud sizes.



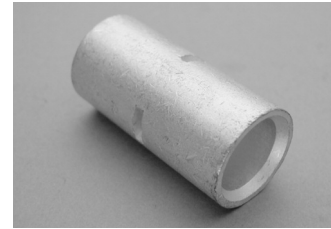
### With Sight Hole

Has the same characteristics as the general purpose terminal and permits inspection of cable insertion depth and solder flow. The new type sight hole does not create a weak spot under severe vibration.



### Connectors

Seamless connectors in wire size from #8 through 4/0 AWG. Available in flared or chamfered barrels.



10383-10-90

Wire Size AWG	Stud Size	Pad Width	Suffix
8 - 8	10 - #10	1 - NARROW	1 - PLATED
6 - 6	14 - 1/4"	2 - MEDIUM	3 - RING WITH SIGHT HOLE
4 - 4	56 - 5/16"	3 - WIDE	9 - BENT RING PLATED
2 - 2	38 - 3/8"		10 - BENT RING PLATED
1 - 1	12 - 1/2"		INDICATE THE ANGLE
10 - 1/0	00 - BLANK		11 - BENT WITH SIGHT HOLE
20 - 2/0			PLATED, INDICATE THE ANGLE
30 - 3/0			20 - CONNECTOR CHAMFERED
40 - 4/0			PLATED

### Ordering Bent Lugs

To order Bent Type Lugs, remove suffix and add the suffix "-11-ANGLE". For example: 8562-3 would become 8562-11-45 for a lug bent at 45°.





## LUG NUMBERING SYSTEM & STUD SIZE CHART

B3



### WHEN A PART NUMBER HAS FOUR DIGITS (NOT COUNTING THE SUFFIX)

The first number is the wire size, ie:  
**4 = 4 AWG**

### THE SECOND AND THIRD NUMBERS ARE THE STUD SIZE, IE:

**438 = 4 AWG - 3/8" STUD**

### THE FOURTH NUMBER INDICATES THE PAD WITH, IE:

**4381 = 4 AWG - 3/8" STUD - 1 SMALLEST WIDTH**

In some wire ranges, such as #4, there are three pad widths.  
 Widths are listed under different wire ranges.

### WHEN A NUMBER HAS FIVE DIGITS (NOT COUNTING THE SUFFIX)

The first two numbers are the wire size, ie:  
**10381 IS A 1/0 AWG - 3/8" STUD - 1 SMALLEST PATTERN**

### A SIX DIGIT NUMBER IS USED TO COVER THE MCM SIZES, IE:

**250381 IS A 250 MCM - 3/8" STUD - 1 SMALLEST PATTERN**

WIRE SIZE	STUD SIZE	PAD WIDTH
4	38	2

SUFFIX CODE	DESCRIPTION
NONE	RING - UNPLATED
1	RING - PLATED
2	RING WITH SIGHT HOLE - UNPLATED
3	RING WITH SIGHT HOLE - PLATED
20	CONNECTORS CAMFERED - PLATED
25	CONNECTORS FLARED - PLATED - COLOUR CODED
25	CONNECTORS FLARED - PLATED
60	RING WITH SIGHT HOLE - PLATED - COLOUR CODED



# Lugs

## WIRE GAUGE CONVERSION CHARTS

B4

### WIRE GAUGE CONVERSION

AMERICAN WIRE GAUGE	DIAMETER (IN)	CIRC. MIL AREA	AMERICAN WIRE GAUGE	DIAMETER (IN)	CIRC. MIL AREA	AMERICAN WIRE GAUGE	DIAMETER (IN)	CIRC. MIL AREA
4/0	0.460	211,600	12	0.081	6,530	27	0.0142	202
3/0	0.410	168,000	13	0.072	5,180	28	0.0126	160
2/0	0.365	133,000	14	0.064	4,110	29	0.0113	127
1/0	0.325	106,000	15	0.057	3,260	30	0.0100	100
1	0.289	83,700	16	0.051	2,580	31	0.0089	79.7
2	0.258	66,400	17	0.045	2,050	32	0.0080	63.2
3	0.229	52,600	18	0.040	1,620	33	0.0071	50.1
4	0.204	41,700	19	0.036	1,290	34	0.0063	39.8
5	0.182	33,100	20	0.032	1,020	35	0.0056	31.5
6	0.162	26,300	21	0.0285	810	36	0.0050	25.0
7	0.144	20,820	22	0.0253	640	37	0.0045	20.2
8	0.128	16,500	23	0.0226	509	38	0.0040	15.7
9	0.114	13,100	24	0.0201	404	39	0.0035	12.5
10	0.102	10,400	25	0.0179	320	40	0.0031	9.9
11	0.091	8,230	26	0.0159	254	41	0.0028	7.8

# Lugs

STANDARD STUD SIZE	SCREW DIAMETER	HOLE DIAMETER	STANDARD STUD SIZE	SCREW DIAMETER	HOLE DIAMETER
● #0	.060		● 1/2	.500	.515
● #1	.073	.094	● 5/8	.625	.656
● #2	.086		● 3/4	.750	.781
● #3	.099	.120	● 7/8	.875	.906
● #4	.112		● 1	1.000	1.031
● #5	.125	.143			
● #6	.138				
● #8	.164	.174			
● #10	.190	.196			
● #12	.216				
● #14	.242	.265			
● 1/4	.250				
● 5/16	.312	.328			
● 3/8	.375	.390			
● 7/16	.437	.453			



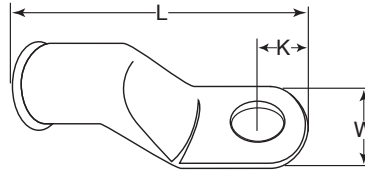


# Lugs

## CRIMP OR SOLDER TYPE HEAVY DUTY ELECTRICAL TUBULAR LUGS



8561-3



B5

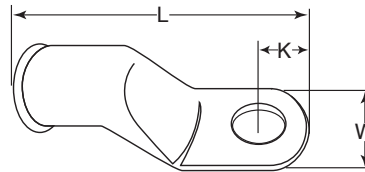
### 8 AWG HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .185

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
8101	8101-2	8101-1	8101-3	10	1-3/16	7/16	15/64
8141	8141-2	8141-1	8141-3	1/4	1-3/16	7/16	15/64
8561	8561-2	8561-1	8561-3	5/16	1-3/16	7/16	15/64
8142	8142-2	8142-1	8142-3	1/4	1-5/16	19/32	5/16
8562	8562-2	8562-1	8562-3	5/16	1-5/16	19/32	5/16
8382	8382-2	8382-1	8382-3	3/8	1-5/16	19/32	5/16
8383	8383-2	8383-1	8383-3	3/8	1-15/16	49/64	13/32
8503	8503-2	8503-1	8503-3	1/2	1-15/16	49/64	13/32
BUTT CONNECTOR - FLARED ENDS							
--	--	8001	--	--	31/32	--	--
BUTT CONNECTOR - CHAMFERED ENDS							
--	--	8001-20	--	--	31/32	--	--

Lugs



6101-1



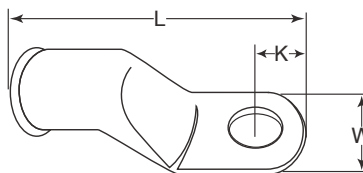
### 6 AWG HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .232

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
6101	6101-2	6101-1	6101-3	10	1-9/16	7/16	15/64
6141	6141-2	6141-1	6141-3	1/4	1-9/16	7/16	15/64
6561	6561-2	6561-1	6561-3	5/16	1-9/16	7/16	15/64
6142	6142-2	6142-1	6142-3	1/4	1-13/32	19/32	5/16
6562	6562-2	6562-1	6562-3	5/16	1-13/32	19/32	5/16
6382	6382-2	6382-1	6382-3	3/8	1-13/32	19/32	5/16
6383	6383-2	6383-1	6383-3	3/8	1-9/16	49/64	13/32
6503	6503-2	6503-1	6503-3	1/2	1-9/16	49/64	13/32
BUTT CONNECTOR - FLARED ENDS							
--	--	6001	--	--	1-1/16	--	--
BUTT CONNECTOR - CHAMFERED ENDS							
--	--	6001-20	--	--	1-1/16	--	--

# Electrical Lugs

## CRIMP OR SOLDER TYPE HEAVY DUTY ELECTRICAL TUBULAR LUGS

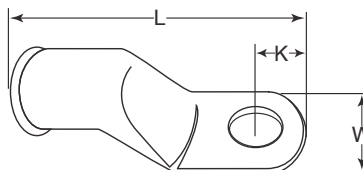
B6



### 4 AWG HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .286

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
4101	4101-2	4101-1	4101-3	10	1-1/2	17/32	9/32
4141	4141-2	4141-1	4141-3	1/4	1-1/2	17/32	9/32
4561	4561-2	4561-1	4561-3	5/16	1-1/2	17/32	9/32
4142	4142-2	4142-1	4142-3	1/4	1-1/2	17/32	9/32
4562	4562-2	4562-1	4562-3	5/16	1-17/32	5/8	5/16
4382	4382-2	4382-1	4382-3	3/8	1-17/32	5/8	5/16
4383	4383-2	4383-1	4383-3	3/8	1-11/16	49/64	13/32
4503	4503-2	4503-1	4503-3	1/2	1-11/16	49/64	13/32
BUTT CONNECTOR - FLARED ENDS							
--	--	4001	--	--	1-7/32	--	--
BUTT CONNECTOR - CHAMFERED ENDS							
--	--	4001-20	--	--	1-7/32	--	--

Lugs



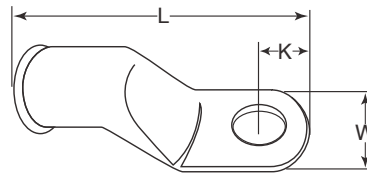
### 2 AWG HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .336

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
2141	2141-2	2141-1	2141-3	1/4	1-5/8	5/8	5/16
2561	2561-2	2561-1	2561-3	5/16	1-5/8	5/8	5/16
2381	2381-2	2381-1	2381-3	3/8	1-5/8	5/8	5/16
2383	2383-2	2383-1	2383-3	3/8	1-3/4	3/4	13/32
2503	2503-2	2503-1	2503-3	1/2	1-3/4	3/4	13/32
BUTT CONNECTOR - FLARED ENDS							
--	--	2001	--	--	1-11/32	--	--
BUTT CONNECTOR - CHAMFERED ENDS							
--	--	2001-20	--	--	1-11/32	--	--

**CRIMP OR SOLDER TYPE  
HEAVY DUTY ELECTRICAL TUBULAR LUGS**



1382-3



B7

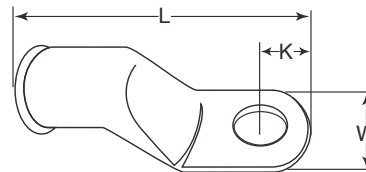
**1 AWG HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .360**

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
1141	1141-2	1141-1	1141-3	1/4	1-23/32	21/32	11/32
1561	1561-2	1561-1	1561-3	5/16	1-23/32	21/32	11/32
1381	1381-2	1381-1	1381-3	3/8	1-23/32	21/32	11/32
1501	1501-2	1501-1	1501-3	1/2	1-23/32	21/32	11/32
1383	1383-2	1383-1	1383-3	3/8	1-27/32	3/4	13/32
1503	1503-2	1503-1	1503-3	1/2	1-27/32	3/4	13/32
BUTT CONNECTOR - FLARED ENDS							
--	--	1001	--	--	1-11/32	--	--
BUTT CONNECTOR - CHAMFERED ENDS							
--	--	1001-20	--	--	1-11/32	--	--

Lugs



10501-1



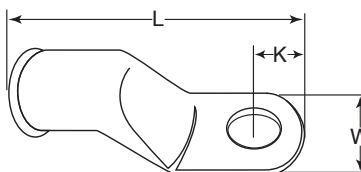
**1/0 AWG HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .407**

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
10141	10141-2	10141-1	10141-3	1/4	1-27/32	23/32	3/8
10561	10561-2	10561-1	10561-3	5/16	1-27/32	23/32	3/8
10381	10381-2	10381-1	10381-3	3/8	1-27/32	23/32	3/8
10501	10501-2	10501-1	10501-3	1/2	1-27/32	23/32	3/8
10383	10383-2	10383-1	10383-3	3/8	1-29/32	13/16	7/16
10503	10503-2	10503-1	10503-3	1/2	1-29/32	13/16	7/16
BUTT CONNECTOR - FLARED ENDS							
--	--	10001	--	--	1-9/16	--	--
BUTT CONNECTOR - CHAMFERED ENDS							
--	--	10001-20	--	--	1-9/16	--	--

# Electrical Lugs

## CRIMP OR SOLDER TYPE HEAVY DUTY ELECTRICAL TUBULAR LUGS

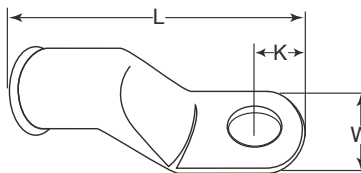
B8



### 2/0 AWG HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .461

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
20141	20141-2	20141-1	20141-3	1/4	2-1/16	13/16	7/16
20561	20561-2	20561-1	20561-3	5/16	2-1/16	13/16	7/16
20381	20381-2	20381-1	20381-3	3/8	2-1/16	13/16	7/16
20501	20501-2	20501-1	20501-3	1/2	2-1/16	13/16	7/16
BUTT CONNECTOR - FLARED ENDS							
--	--	20001	--	--	1-13/16	--	--
BUTT CONNECTOR - CHAMFERED ENDS							
--	--	20001-20	--	--	1-13/16	--	--

Lugs

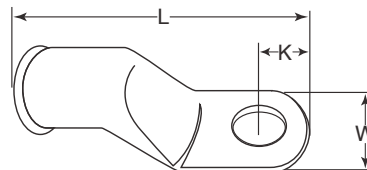


### 3/0 AWG HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .511

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
30141	30141-2	30141-1	30141-3	1/4	2-5/32	29/32	15/32
30561	30561-2	30561-1	30561-3	5/16	2-5/32	29/32	15/32
30381	30381-2	30381-1	30381-3	3/8	2-5/32	29/32	15/32
30501	30501-2	30501-1	30501-3	1/2	2-5/32	29/32	15/32
BUTT CONNECTOR - FLARED ENDS							
--	--	30001	--	--	1-29/32	--	--
BUTT CONNECTOR - CHAMFERED ENDS							
--	--	30001-20	--	--	1-29/32	--	--

**CRIMP OR SOLDER TYPE  
HEAVY DUTY ELECTRICAL TUBULAR LUGS**

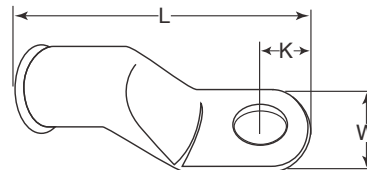
B9



**4/0 AWG HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .559**

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
40141	40141-2	40141-1	40141-3	1/4	2-11/32	63/64	1/2
40561	40561-2	40561-1	40561-3	5/16	2-11/32	63/64	1/2
40381	40381-2	40381-1	40381-3	3/8	2-11/32	63/64	1/2
40501	40501-2	40501-1	40501-3	1/2	2-11/32	63/64	1/2
BUTT CONNECTOR - FLARED ENDS							
--	--	40000	--	--	2.000	--	--
BUTT CONNECTOR - CHAMFERED ENDS							
--	--	40000-20	--	--	2.000	--	--

Lugs



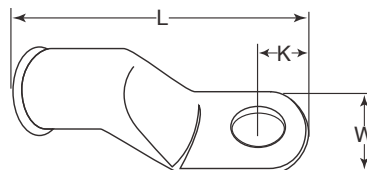
**4/0 AWG HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .590**

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
40382	40382-2	40382-1	40382-3	3/8	2-25/64	1-1/32	17/32
40502	40502-2	40502-1	40502-3	1/2	2-25/64	1-1/32	17/32
40582	40582-2	40582-1	40582-3	5/8	2-25/64	1-1/32	17/32
BUTT CONNECTOR - FLARED ENDS							
--	--	40001	--	--	2.000	--	--
BUTT CONNECTOR - CHAMFERED ENDS							
--	--	40001-20	--	--	2.000	--	--

# Electrical Lugs

## CRIMP OR SOLDER TYPE HEAVY DUTY ELECTRICAL TUBULAR LUGS

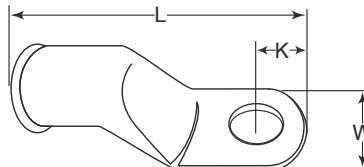
B10



### 4/0 AWG HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .625

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
40383	40383-2	40383-1	40383-3	3/8	2-15/32	1-3/32	9/16
40503	40503-2	40503-1	40503-3	1/2	2-15/32	1-3/32	9/16
40583	40583-2	40583-1	40583-3	5/8	2-15/32	1-3/32	9/16
BUTT CONNECTOR - FLARED ENDS							
--	--	40002	--	--	2.000	--	--
BUTT CONNECTOR - CHAMFERED ENDS							
--	--	40002-20	--	--	2.000	--	--

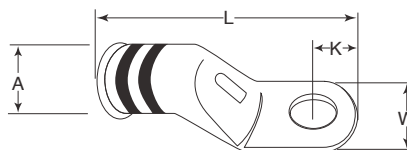
Lugs



### 250 MCM HEAVY DUTY ELECTRICAL TUBULAR LUGS, FLARED ENDS, BARREL ID .685

PART NUMBER				STUD SIZE	L	W	K
COPPER		TIN PLATED					
PLAIN	W/ SIGHT HOLE	PLAIN	W/ SIGHT HOLE				
250381	250381-2	250381-1	250381-3	3/8	2-21/32	1-13/64	19/32
250501	250501-2	250501-1	250501-3	1/2	2-21/32	1-13/64	19/32
250581	250581-2	250581-1	250581-3	5/8	2-21/32	1-13/64	19/32

## CRIMP OR SOLDER TYPE HEAVY DUTY ELECTRICAL TUBULAR LUGS



B11

INDUSTRIAL ELECTRICAL TUBULAR LUGS, ETP COPPER, CDA-110, 600V  
COLOUR CODED, TIN PLATED, SIGHT HOLED, FLARED ENDS, ROUNDED TONGUE

PART NUMBER	AWG	STUD SIZE	COLOUR CODE	A	L	W	K
8101-60	8	10	RED	.185	1-3/16	7/16	15/64
8141-60	8	1/4	RED	.185	1-3/16	7/16	15/64
8142-60	8	1/4	RED	.185	1-5/16	19/32	5/16
8562-60	8	5/16	RED	.185	1-5/16	19/32	5/16
8382-60	8	3/8	RED	.185	1-5/16	19/32	5/16
8383-60	8	3/8	RED	.185	1-15/32	49/64	13/32
8503-60	8	1/2	RED	.185	1-15/32	49/64	13/32
6101-60	6	10	BLUE	.232	1-9/32	7/16	15/64
6141-60	6	1/4	BLUE	.232	1-9/32	7/16	15/64
6142-60	6	1/4	BLUE	.232	1-13/32	19/32	5/16
6562-60	6	5/16	BLUE	.232	1-13/32	19/32	5/16
6382-60	6	3/8	BLUE	.232	1-13/32	19/32	5/16
6383-60	6	3/8	BLUE	.232	1-9/16	49/64	13/32
6503-60	6	1/2	BLUE	.232	1-9/16	49/64	13/32
4101-60	4	10	GREY	.286	1-1/2	17/32	9/32
4141-60	4	1/4	GREY	.286	1-1/2	17/32	9/32
4562-60	4	5/16	GREY	.286	1-17/32	5/8	5/16
4382-60	4	3/8	GREY	.286	1-17/32	5/8	5/16
4383-60	4	3/8	GREY	.286	1-11/16	49/64	13/32
4503-60	4	1/2	GREY	.286	1-11/16	49/64	13/32
2141-60	2	1/4	BROWN	.336	1-5/8	5/8	5/16
2561-60	2	5/16	BROWN	.336	1-5/8	5/8	5/16
2381-60	2	3/8	BROWN	.336	1-5/8	5/8	5/16
2383-60	2	3/8	BROWN	.336	1-3/4	3/4	13/32
2503-60	2	1/2	BROWN	.336	1-3/4	3/4	13/32
1141-60	1	1/4	GREEN	.360	1-23/32	21/32	11/32
1561-60	1	5/16	GREEN	.360	1-23/32	21/32	11/32
1381-60	1	3/8	GREEN	.360	1-23/32	21/32	11/32
1383-60	1	3/8	GREEN	.360	1-27/32	3/4	13/32
1503-60	1	1/2	GREEN	.360	1-27/32	3/4	13/32

Electrical Lugs are made from ETP Copper (Electrolytic Tough Pitch) for 100% conductivity. They are colour coded to identify correct dies on crimping tools.

# Electrical Lugs

## CRIMP OR SOLDER TYPE HEAVY DUTY ELECTRICAL TUBULAR LUGS

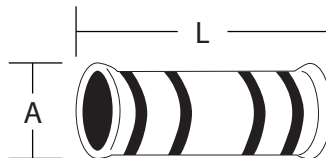
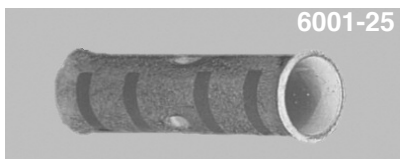
B12

INDUSTRIAL ELECTRICAL TUBULAR LUGS, ETP COPPER, CDA-110, 600V  
COLOUR CODED, TIN PLATED, SIGHT HOLED, FLARED ENDS (cont'd)

Lugs

PART NUMBER	AWG	STUD SIZE	COLOUR CODE	A	L	W	K
10141-60	1/0	1/4	PINK	.407	1-27/32	23/32	3/8
10561-60	1/0	5/16	PINK	.407	1-27/32	23/32	3/8
10381-60	1/0	3/8	PINK	.407	1-27/32	23/32	3/8
10501-60	1/0	1/2	PINK	.407	1-27/32	23/32	3/8
10383-60	1/0	3/8	PINK	.407	1-29/32	13/16	7/16
10503-60	1/0	1/2	PINK	.407	1-29/32	13/16	7/16
20141-60	2/0	1/4	BLACK	.461	2-1/16	13/16	7/16
20561-60	2/0	5/16	BLACK	.461	2-1/16	13/16	7/16
20381-60	2/0	3/8	BLACK	.461	2-1/16	13/16	7/16
20501-60	2/0	1/2	BLACK	.461	2-1/16	13/16	7/16
30141-60	3/0	1/4	ORANGE	.511	2-5/32	29/32	15/32
30561-60	3/0	5/16	ORANGE	.511	2-5/32	29/32	15/32
30381-60	3/0	3/8	ORANGE	.511	2-5/32	29/32	15/32
30501-60	3/0	1/2	ORANGE	.511	2-5/32	29/32	15/32
40141-60	4/0	1/4	PURPLE	.559	2-11/32	63/64	1/2
40561-60	4/0	5/16	PURPLE	.559	2-11/32	63/64	1/2
40381-60	4/0	3/8	PURPLE	.559	2-11/32	63/64	1/2
40501-60	4/0	1/2	PURPLE	.559	2-11/32	63/64	1/2

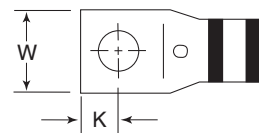
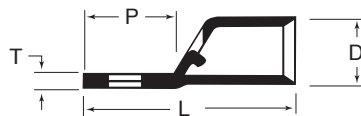
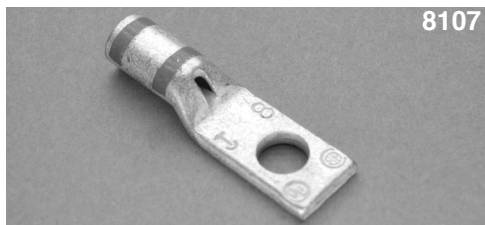
### BUTT CONNECTORS FOR INDUSTRIAL LUGS



PART NUMBER	AWG	COLOUR CODE	ID A	L
8001-25	8	RED	.185	31/32
6001-25	6	BLUE	.232	1-1/16
4001-25	4	GREY	.286	1-7/32
2001-25	2	BROWN	.336	1-11/32
1001-25	1	GREEN	.360	1-11/32
10001-25	1/0	PINK	.407	1-9/16
20001-25	2/0	BLACK	.461	1-13/16
30001-25	3/0	ORANGE	.511	1-29/32
40001-25	4/0	PURPLE	.559	2



COMPRESSION LUGS



B13

COPPER COMPRESSION LUGS, STANDARD BARREL, ONE HOLE, 600V, WITH SIGHT HOLE, SQUARED OFF TONGE

PART NUMBER	AWG	STUD SIZE	COLOUR CODE	DIMENSIONS IN INCHES					
				L	W	P	K	D	T
8107	8	10	RED	1-5/16	11/32	9/16	1/4	1/4	5/64
8147	8	1/4	RED	1-5/16	15/32	9/16	1/4	17/64	5/64
6107	6	10	BLUE	1-15/64	13/32	19/32	1/4	9/32	5/64
6147	6	1/4	BLUE	1-15/64	13/32	19/32	1/4	9/32	5/64
6567	6	5/16	BLUE	1-15/64	17/32	19/32	1/4	5/16	3/32
4107	4	10	GREY	1-13/32	1/2	45/64	19/64	23/64	7/64
4147	4	1/4	GREY	1-13/32	1/2	45/64	19/64	23/64	7/64
4567	4	5/16	GREY	1-13/32	1/2	45/64	19/64	23/64	7/64
4387	4	3/8	GREY	1-13/32	41/64	45/64	19/64	3/8	7/64
2147	2	1/4	BROWN	1-19/32	39/64	13/16	11/32	7/16	1/8
2567	2	5/16	BROWN	1-19/32	39/64	13/16	11/32	7/16	1/8
2387	2	3/8	BROWN	1-19/32	39/64	13/16	11/32	7/16	1/8
1147	1	1/4	GREEN	1-27/32	11/16	31/32	13/32	31/64	9/64
1567	1	5/16	GREEN	1-27/32	11/16	31/32	13/32	31/64	9/64
1387	1	3/8	GREEN	1-27/32	11/16	31/32	13/32	31/64	9/64
1507	1	1/2	GREEN	1-27/32	11/16	31/32	13/32	31/64	9/64
10147	1/0	1/4	PINK	2-1/64	49/64	1	29/64	17/32	9/64
10567	1/0	5/16	PINK	2-1/64	49/64	1	29/64	17/32	9/64
10387	1/0	3/8	PINK	2-1/64	49/64	1	29/64	17/32	9/64
10507	1/0	1/2	PINK	2-1/64	49/64	1	29/64	17/32	9/64
20147	2/0	1/4	BLACK	2-1/8	53/64	1	29/64	37/64	9/64
20567	2/0	5/16	BLACK	2-1/8	53/64	1	29/64	37/64	9/64
20387	2/0	3/8	BLACK	2-1/8	53/64	1	29/64	37/64	9/64
20507	2/0	1/2	BLACK	2-1/8	53/64	1	29/64	37/64	9/64
30147	3/0	1/4	ORANGE	2-1/4	29/32	1	29/64	5/8	9/64
30567	3/0	5/16	ORANGE	2-1/4	29/32	1	29/64	5/8	9/64
30387	3/0	3/8	ORANGE	2-1/4	29/32	1	29/64	5/8	9/64
30507	3/0	1/2	ORANGE	2-1/4	29/32	1	29/64	5/8	9/64
40147	4/0	1/4	PURPLE	2-11/32	11/64	1	29/64	45/64	5/32
40567	4/0	5/16	PURPLE	2-11/32	11/64	1	29/64	45/64	5/32
40387	4/0	3/8	PURPLE	2-11/32	11/64	1	29/64	45/64	5/32
40507	4/0	1/2	PURPLE	2-11/32	11/64	1	29/64	45/64	5/32
250567	250 MCM	5/16	YELLOW	2-5/8	19/64	1-5/32	1/2	25/32	3/16
250387	250 MCM	3/8	YELLOW	2-5/8	19/64	1-5/32	1/2	25/32	3/16
250507	250 MCM	1/2	YELLOW	2-5/8	19/64	1-5/32	1/2	25/32	3/16
250587	250 MCM	5/8	YELLOW	2-5/8	19/64	1-5/32	1/2	25/32	3/16
300387	300 MCM	3/8	WHITE	2-13/16	17/32	1-7/32	9/16	27/32	3/16
300507	300 MCM	1/2	WHITE	2-13/16	17/32	1-7/32	9/16	27/32	3/16
300587	300 MCM	5/8	WHITE	2-13/16	17/32	1-7/32	9/16	27/32	3/16
350387	350 MCM	3/8	RED	3	15/16	1-1/4	9/16	29/32	13/64
350507	350 MCM	1/2	RED	3	15/16	1-1/4	9/16	29/32	13/64
350587	350 MCM	5/8	RED	3	15/16	1-1/4	9/16	29/32	13/64
400387	400 MCM	3/8	BLUE	3-3/32	1-13/32	1-9/32	9/16	31/32	7/32
400507	400 MCM	1/2	BLUE	3-3/32	1-13/32	1-9/32	9/16	31/32	7/32
400587	400 MCM	5/8	BLUE	3-3/32	1-13/32	1-9/32	9/16	31/32	7/32
500387	500 MCM	3/8	BROWN	3-11/32	1-37/64	1-5/16	9/16	1-3/32	1/4
500507	500 MCM	1/2	BROWN	3-11/32	1-37/64	1-5/16	9/16	1-3/32	1/4
500587	500 MCM	5/8	BROWN	3-11/32	1-37/64	1-5/16	9/16	1-3/32	1/4

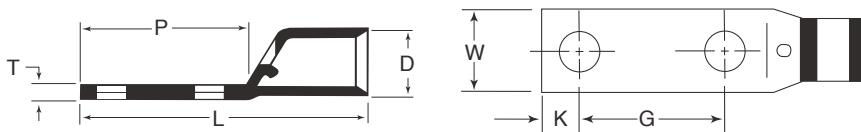
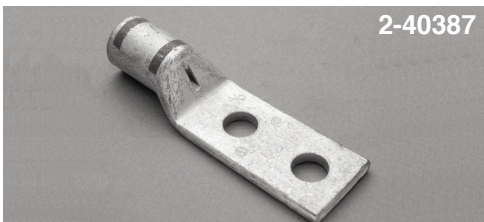
High conductivity wrought copper, electro tin plate to minimize corrosion. Colour code designates cable size and tool setting die. Chamfered ends provide easy cable insertion.

Lugs

# Compression Lugs

## COMPRESSION LUGS

B14



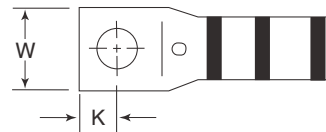
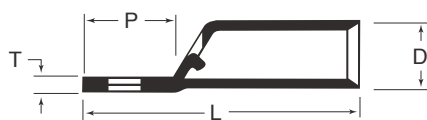
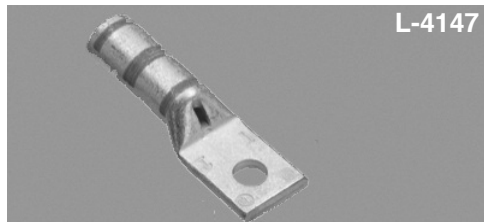
**COPPER COMPRESSION LUGS, STANDARD BARREL, TWO HOLES, 600V, WITH SIGHT HOLE, SQUARED OFF TONGUE**

Lugs

PART NUMBER	AWG	STUD SIZE	COLOUR CODE	DIMENSIONS IN INCHES						
				L	W	P	K	D	T	G
2-8107	8	10	RED	1-3/4	11/32	1-5/32	1/4	1/4	5/64	5/8
2-6147	6	1/4	BLUE	1-29/32	13/32	1-9/32	1/4	9/32	5/64	5/8
2-4147	4	1/4	GREY	2	1/2	1-9/32	5/16	23/64	7/64	5/8
2-4567	4	5/16	GREY	2	1/2	1-9/32	5/16	23/64	7/64	5/8
2-2147	2	1/4	BROWN	2-3/32	39/64	1-5/16	5/16	7/16	1/8	5/8
2-2567	2	5/16	BROWN	2-7/32	39/64	1-7/16	5/16	7/16	1/8	3/4
2-1147	1	1/4	GREEN	2-1/4	11/16	1-11/32	5/16	31/64	9/64	5/8
2-1567	1	5/16	GREEN	2-3/8	11/16	1-15/32	5/16	31/64	9/64	3/4
2-10567	1/0	5/16	PINK	2-11/16	49/64	1-11/32	11/32	17/32	9/64	7/8
2-10387	1/0	3/8	PINK	2-29/32	49/64	1-29/32	13/32	17/32	9/64	1
2-20567	2/0	5/16	BLACK	2-29/32	53/64	1-25/32	11/32	37/64	9/64	1
2-20387	2/0	3/8	BLACK	2-29/32	53/64	1-25/32	11/32	37/64	9/64	1
2-20507	2/0	1/2	BLACK	3-13/16	53/64	2-11/16	29/64	37/64	9/64	1-3/4
2-30567	3/0	5/16	ORANGE	3-7/32	29/32	1-31/32	29/64	5/8	9/64	1
2-30387	3/0	3/8	ORANGE	3-7/32	29/32	1-31/32	29/64	5/8	9/64	1
2-30507	3/0	1/2	ORANGE	3-31/32	29/32	2-23/32	29/64	5/8	9/64	1-3/4
2-40387	4/0	3/8	PURPLE	3-11/32	1-1/64	1-31/32	29/64	45/64	5/32	1
2-40507	4/0	1/2	PURPLE	4-1/8	1-1/64	2-3/4	29/64	45/64	5/32	1-3/4
2-250387	250 MCM	3/8	YELLOW	3-7/16	1-9/64	1-31/32	29/64	25/32	3/16	1
2-250507	250 MCM	1/2	YELLOW	4-1/4	1-9/64	2-25/32	1/2	25/32	3/16	1-3/4
2-300387	300 MCM	3/8	WHITE	3-19/32	1-7/32	2-1/64	29/64	27/32	3/16	1
2-300507	300 MCM	1/2	WHITE	4-13/32	1-7/32	2-13/16	1/2	27/32	3/16	1-3/4
2-350387	350 MCM	3/8	RED	3-23/32	1-5/16	1-31/32	29/64	29/32	13/64	1
2-350507	350 MCM	1/2	RED	4-9/16	1-5/16	2-13/16	1/2	29/32	13/64	1-3/4
2-400387	400 MCM	3/8	BLUE	3-13/16	1-13/32	2	29/64	31/32	7/32	1
2-400507	400 MCM	1/2	BLUE	4-21/32	1-13/32	2-27/32	1/2	31/32	7/32	1-3/4
2-500387	500 MCM	3/8	BROWN	4-1/16	1-37/64	2	29/64	1-3/32	1/4	1
2-500507	500 MCM	1/2	BROWN	4-29/32	1-37/64	2-7/8	1/2	1-3/32	1/4	1-3/4

High conductivity wrought copper, two holes to prevent turning on the bus bar, electro tin plate to minimize corrosion. Colour code designates cable size and tool setting die. Chamfered ends provide easy cable insertion.

COMPRESSION LUGS



B15

COPPER COMPRESSION LUGS, LONG BARREL, ONE HOLE, 600V, WITH SIGHT HOLE, SQUARED OFF TONGUE

PART NUMBER	AWG	STUD SIZE	COLOUR CODE	DIMENSIONS IN INCHES					
				L	W	P	K	D	T
L-8107	8	10	RED	1-21/32	11/32	21/32	1/4	1/4	5/64
L-6147	6	1/4	BLUE	1-45/64	13/32	21/32	1/4	9/32	5/64
L-4147	4	1/4	GREY	1-3/4	1/2	45/64	19/64	23/64	7/64
L-2147	2	1/4	BROWN	2-1/16	39/64	51/64	11/32	7/16	1/8
L-2567	2	5/16	BROWN	2-1/16	39/64	51/64	11/32	7/16	1/8
L-2387	2	3/8	BROWN	2-1/16	39/64	51/64	11/32	7/16	1/8
L-1147	1	1/4	GREEN	2-5/32	11/16	13/16	11/32	31/64	9/64
L-1567	1	5/16	GREEN	2-5/32	11/16	13/16	11/32	31/64	9/64
L-1387	1	3/8	GREEN	2-5/32	11/16	13/16	11/32	31/64	9/64
L-10567	1/0	5/16	PINK	2-11/32	49/64	15/16	13/32	17/32	9/64
L-10387	1/0	3/8	PINK	2-11/32	49/64	15/16	13/32	17/32	9/64
L-10507	1/0	1/2	PINK	2-11/32	49/64	15/16	13/32	17/32	9/64
L-20567	2/0	5/16	BLACK	2-1/2	53/64	1-5/64	29/64	37/64	9/64
L-20387	2/0	3/8	BLACK	2-1/2	53/64	1-5/64	29/64	37/64	9/64
L-20507	2/0	1/2	BLACK	2-1/2	53/64	1-5/64	29/64	37/64	9/64
L-30567	3/0	5/16	ORANGE	2-45/64	29/32	1-5/32	29/64	5/8	9/64
L-30387	3/0	3/8	ORANGE	2-45/64	29/32	1-5/32	29/64	5/8	9/64
L-30507	3/0	1/2	ORANGE	2-45/64	29/32	1-5/32	29/64	5/8	9/64
L-40567	4/0	5/16	PURPLE	3-3/64	1-1/64	1-13/64	1/2	45/64	5/32
L-40387	4/0	3/8	PURPLE	3-3/64	1-1/64	1-13/64	1/2	45/64	5/32
L-40507	4/0	1/2	PURPLE	3-3/64	1-1/64	1-13/64	1/2	45/64	5/32
L-250567	250 MCM	5/16	YELLOW	3-11/32	1-9/64	1-1/4	1/2	25/32	3/16
L-250387	250 MCM	3/8	YELLOW	3-11/32	1-9/64	1-1/4	1/2	25/32	3/16
L-250507	250 MCM	1/2	YELLOW	3-11/32	1-9/64	1-1/4	1/2	25/32	3/16
L-300387	300 MCM	3/8	WHITE	3-1/2	1-7/32	1-17/64	1/2	27/32	3/16
L-300507	300 MCM	1/2	WHITE	3-1/2	1-7/32	1-17/64	1/2	27/32	3/16
L-350387	350 MCM	3/8	RED	3-45/64	1-5/16	1-5/16	9/16	29/32	13/64
L-350507	350 MCM	1/2	RED	3-45/64	1-5/16	1-5/16	9/16	29/32	13/64
L-400387	400 MCM	3/8	BLUE	3-29/32	1-13/32	1-27/64	9/16	31/32	7/32
L-400507	400 MCM	1/2	BLUE	3-29/32	1-13/32	1-27/64	9/16	31/32	7/32
L-500387	500 MCM	3/8	BROWN	4-1/2	1-37/64	1-7/16	9/16	1-3/32	1/4
L-500507	500 MCM	1/2	BROWN	4-1/2	1-37/64	1-7/16	9/16	1-3/32	1/4

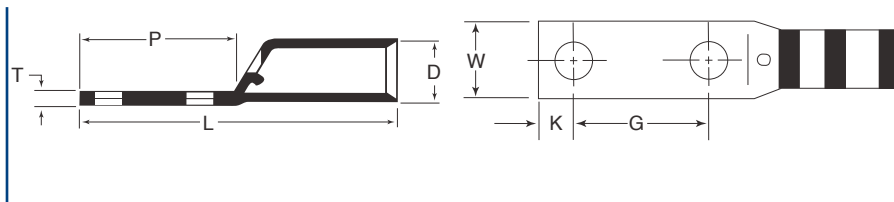
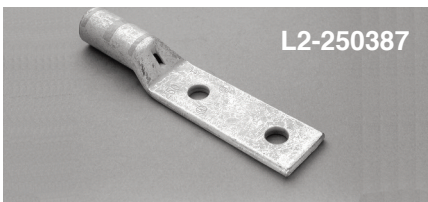
High conductivity wrought copper, electro tin plate to minimize corrosion. Long barrel permits two crimps due to heavy loads. Colour code designates cable size and tool setting die. Chamfered ends provide easy cable insertion.

Lugs

# Compression Lugs

## COMPRESSION LUGS

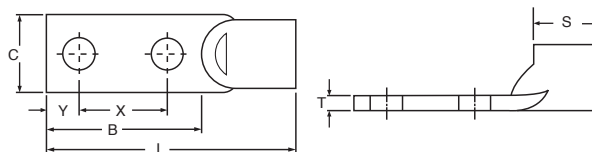
B16



### COPPER COMPRESSION LUGS, LONG BARREL, TWO HOLES, 600V

PART NUMBER	AWG	STUD SIZE	COLOUR CODE	DIMENSIONS IN INCHES						
				L	W	P	K	D	T	G
L2-8107	8	10	RED	2-1/4	11/32	1-17/64	1/4	1/4	5/64	5/8
L2-6147	6	1/4	BLUE	2-5/16	13/32	1-9/32	1/4	9/32	5/64	5/8
L2-4147	4	1/4	GREY	2-11/32	1/2	1-5/16	5/16	23/64	7/64	5/8
L2-2147	2	1/4	BROWN	2-13/16	5/8	1-17/32	11/32	7/16	1/8	3/4
L2-2567	2	5/16	BROWN	2-13/16	5/8	1-17/32	11/32	7/16	1/8	3/4
L2-1147	1	1/4	GREEN	3-3/32	11/16	1-3/41	11/32	31/64	9/64	3/4
L2-1567	1	5/16	GREEN	3-3/32	11/16	1-3/4	11/32	31/64	9/64	3/4
L2-10567	1/0	5/16	PINK	3-7/32	49/64	1-13/16	13/32	17/32	9/64	3/4
L2-10387	1/0	3/8	PINK	3-7/32	49/64	1-13/16	13/32	17/32	9/64	3/4
L2-20387	2/0	3/8	BLACK	4-1/2	53/64	3-1/16	5/8	37/64	9/64	1-3/4
L2-20507	2/0	1/2	BLACK	4-1/2	53/64	3-1/16	5/8	37/64	9/64	1-3/4
L2-30387	3/0	3/8	ORANGE	4-21/32	29/32	3-3/32	5/8	5/8	9/64	1-3/4
L2-30507	3/0	1/2	ORANGE	4-21/32	29/32	3-3/32	5/8	5/8	9/64	1-3/4
L2-40387	4/0	3/8	PURPLE	4-31/32	1-1/64	3-3/32	5/8	45/64	5/32	1-3/4
L2-40507	4/0	1/2	PURPLE	4-31/32	1-1/64	3-3/32	5/8	45/64	5/32	1-3/4
L2-250387	250 MCM	3/8	YELLOW	5-7/32	1-9/64	3-3/32	5/8	25/32	3/16	1-3/4
L2-250507	250 MCM	1/2	YELLOW	5-7/32	1-9/64	3-3/32	5/8	25/32	3/16	1-3/4
L2-300387	300 MCM	3/8	WHITE	5-11/32	1-7/32	3-1/8	5/8	27/32	3/16	1-3/4
L2-300507	300 MCM	1/2	WHITE	5-11/32	1-7/32	3-1/8	5/8	27/32	3/16	1-3/4
L2-350387	350 MCM	3/8	RED	5-1/2	1-5/16	3-1/8	5/8	29/32	13/64	1-3/4
L2-350507	350 MCM	1/2	RED	5-1/2	1-5/16	3-1/8	5/8	29/32	13/64	1-3/4
L2-400387	400 MCM	3/8	BLUE	5-19/32	1-13/32	3-1/8	5/8	31/32	7/32	1-3/4
L2-400507	400 MCM	1/2	BLUE	5-19/32	1-13/32	3-1/8	5/8	31/32	7/32	1-3/4
L2-500387	500 MCM	3/8	BROWN	6-7/32	1-37/64	3-5/32	5/8	1-3/32	1/4	1-3/4
L2-500507	500 MCM	1/2	BROWN	6-7/32	1-37/64	3-5/32	5/8	1-3/32	1/4	1-3/4

High conductivity wrought copper, electro tin plate to minimize corrosion, two holes to prevent turning on bus bar. Long barrel permits two crimps due to heavy load. Colour code designates cable size and tool setting die. Chamfered ends provide easy cable insertion.

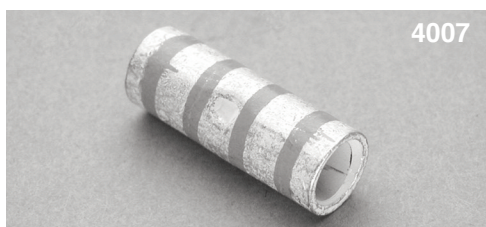


### MAC COPPER COMPRESSION LUGS, SHORT BARREL, TWO HOLES

PART NUMBER	AWG	STUD SIZE	DIMENSIONS IN INCHES						
			L	S	B	C	X	Y	T
MSB600-8N	600 MCM	1/2	4-7/8	1-3/8	2-13/16	1-11/16	1-3/4	1/2	17/64
MSB750-8N	750 MCM	1/2	5-7/32	1-5/8	2-13/16	1-29/32	1-3/4	1/2	17/64
MSB800-8N	800 MCM	1/2	5-7/32	1-5/8	2-13/16	1-31/32	1-3/4	1/2	19/64
MSB1000-8N	1000 MCM	1/2	5-9/16	1-7/8	2-13/16	2-3/16	1-3/4	1/2	21/64
MSB1500-8N	1500 MCM	1/2	6-1/16	2-3/4	2-13/16	2-11/16	1-3/4	1/2	25/64
MSB2000-8N	2000 MCM	1/2	6-3/8	3-1/16	2-13/16	3-1/16	1-3/4	1/2	15/32

**MSB Series:** A two hole, single indent lug which is produced from pure, seamless copper tubing, the MSB Series is tin-plated for added resistance to corrosion. The window in the back of the barrel permits visual inspection of the cable insertion. CSA and UL Approved.

COMPRESSION CONNECTORS



4007

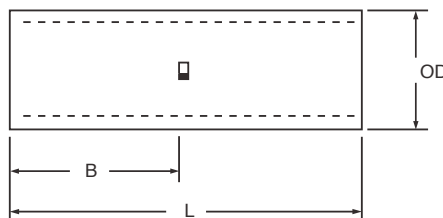


B17

COPPER COMPRESSION CONNECTORS  
STANDARD BARREL, COLOUR CODED, 600V

PART NUMBER	AWG	COLOUR CODE	DIMENSIONS IN INCHES		
			L	D	A
8007	8	RED	1	1/4	11/64
6007	6	BLUE	1	9/32	13/64
4007	4	GREY	1	23/64	1/4
2007	2	BROWN	1-1/4	7/16	5/16
1007	1	GREEN	1-7/16	31/64	11/32
10007	1/0	PINK	1-7/16	17/32	25/64
20007	2/0	BLACK	1-9/16	37/64	7/16
30007	3/0	ORANGE	1-11/16	5/8	31/64
40007	4/0	PURPLE	1-13/16	45/64	35/64
250007	250 MCM	YELLOW	2-3/16	25/32	19/32
300007	300 MCM	WHITE	2-3/16	27/32	21/32
350007	350 MCM	RED	2-3/16	29/32	45/64
400007	400 MCM	BLUE	2-3/4	31/32	3/4
500007	500 MCM	BROWN	2-3/4	1-3/32	27/32
600007	600 MCM	GREEN	3		

High conductivity wrought copper, seamless construction. Chamfered ends provide easy cable insertion. Colour code designates cable size and tool setting die.



MAC SHORT BARREL COPPER COMPRESSION COUPLER

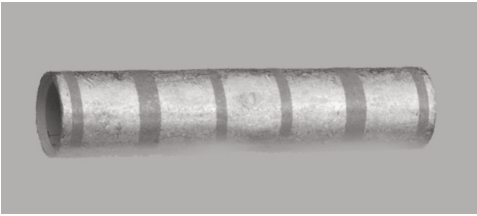
PART NUMBER	AWG	DIMENSIONS IN INCHES		
		B	L	OD
MSC600	600 MCM	1-3/8	2-7/8	1-3/16
MSC750	750 MCM	1-5/8	3-3/8	1-5/16
MSC800	800 MCM	1-5/8	3-3/8	1-11/32
MSC1000	1000 MCM	1-7/8	3-7/8	1-1/2
MSC1500	1500 MCM	2	4-1/8	1-27/32
MSC2000	2000 MCM	2-1/4	4-5/8	2-1/8

**MSC Series Coupler** This short barrel end to end coupler is fabricated of pure, seamless copper tubing and is tin-plated for added resistance to corrosion. Produced in a wide range of cable sizes from 6 AWG to 2000 MCM, this economical connector is installed with standard compression tooling. CSA and UL Approved.

# Solderless Lugs

## COMPRESSION CONNECTORS

B18



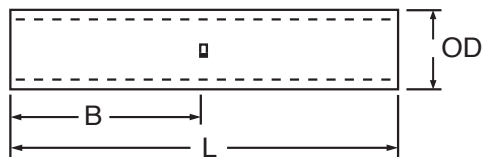
### COPPER COMPRESSION CONNECTORS LONG BARREL, COLOUR CODED, 600V

Lugs

PART NUMBER	AWG	COLOUR CODE	DIMENSIONS IN INCHES		
			L	D	A
L-8007	8	RED	2	1/4	11/64
L-6007	6	BLUE	2	9/32	13/64
L-4007	4	GREY	2	23/64	1/4
L-2007	2	BROWN	2	7/16	5/16
L-1007	1	GREEN	2-1/4	31/64	11/32
L-10007	1/0	PINK	2-1/4	17/32	25/64
L-20007	2/0	BLACK	2-3/8	37/64	7/16
L-30007	3/0	ORANGE	2-1/2	5/8	31/64
L-40007	4/0	PURPLE	3	45/64	35/64
L-250007	250 MCM	YELLOW	3-5/8	25/32	19/32
L-300007	300 MCM	WHITE	3-11/16	27/32	21/32
L-350007	350 MCM	RED	3-15/16	29/32	45/64
L-400007	400 MCM	BLUE	3-15/16	31/32	3/4
L-500007	500 MCM	BROWN	4-15/16	1-3/32	27/32

High conductivity wrought copper, seamless construction. Chamfered ends provide easy cable insertion. Colour code designates cable size and tool setting die.

## COPPER COMPRESSION COUPLER

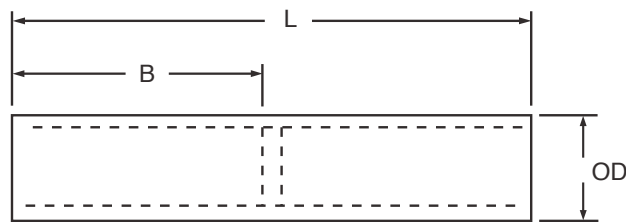


B19

### MAC LONG BARREL COPPER COMPRESSION COUPLER

PART NUMBER	AWG	DIMENSIONS IN INCHES		
		B	L	OD
MRC600	600 MCM	2-11/16	5-1/2	1-3/16
MRC750	750 MCM	2-13/16	5-7/8	1-5/16
MRC800	800 MCM	2-7/8	6	1-11/32
MRC1000	1000 MCM	3	6-1/8	1-1/2
MRC1250	1250 MCM	3-3/16	6-1/2	1-11/16
MRC1500	1500 MCM	3-3/16	6-1/2	1-27/32
MRC1750	1750 MCM	3-7/16	7	2
MRC2000	2000 MCM	3-7/16	7	2-1/8

**MRC Series Coupler:** The MRC long barrel copper coupler is produced in a wide range of cable sizes from 6 AWG to 2000 MCM. Fabricated of pure, seamless copper tubing and tin-plated for added corrosion resistance. This end to end cable coupler is installed with standard compression tooling. Centre cable stops are provided to assure proper length of cable insertion, and smooth chamfers at each end of the connector add ease of installation. Sizes above 250 MCM are designed for two indents on each end of coupler. CSA and UL Approved.



Lugs

### MAC COPPER COMPRESSION COUPLER, WITH OIL STOP BARRIER

PART NUMBER	AWG	DIMENSIONS IN INCHES		
		B	L	OD
MRCP6	6	1-1/8	2-3/8	9/32
MRCP4	4	1-1/8	2-3/8	11/32
MRCP3	3	1-1/4	2-5/8	3/8
MRCP2	2	1-1/4	2-5/8	13/32
MRCP1	1	1-3/8	2-7/8	15/32
MRCP1/0	1/0	1-3/8	2-7/8	1/2
MRCP2/0	2/0	1-1/2	3-1/8	9/16
MRCP3/0	3/0	1-1/2	3-1/8	5/8
MRCP4/0	4/0	1-5/8	3-3/8	11/16
MRCP250	250 MCM	1-5/8	3-3/8	3/4
MRCP300	300 MCM	2	4-1/8	13/16
MRCP350	350 MCM	2	4-1/8	7/8
MRCP400	400 MCM	2-1/8	4-3/8	15/16
MRCP500	500 MCM	2-1/4	4-5/8	1-1/16
MRCP600	600 MCM	2-11/16	5-1/2	1-3/16
MRCP750	750 MCM	2-7/8	5-7/8	1-5/16
MRCP800	800 MCM	2-15/16	6	1-11/32
MRCP1000	1000 MCM	3	6-1/8	1-1/2

**MRCP Series Coupler:** The MRCP long barrel compression coupler with oil seal barrier is available in cable sizes ranging from 6 AWG to 1000 MCM. A pure copper oil stop barrier is brazed in the centre of the connector barrel, assuring a positive seal between cables. Fabricated of pure, seamless copper tubing and tin-plated for corrosion resistance. CSA and UL Approved.

# Solderless Lugs

## STRAIGHT CONNECTORS MOVEABLE SLEEVES

B20

Lugs

**General Information:** All Etlin Daniels Solderless Lugs are made from pure electrolytic copper. The sleeves are made of seamless tubing for mechanical strength and electrical conductivity; the tongues are made from thick solid copper buss bar. These lugs require no special tooling and can be installed with screwdriver, wrench or pliers. They are re-useable and cover a wide range of conductor sizes, which reduces inventory costs.

**Copper Lugs with Moveable Sleeves:**

Type ETU: Twin Sleeve, Offset Tongue  
 Type EU: Offset Tongue, One Hole  
 Type FT: Fixed Tongue, One Hole

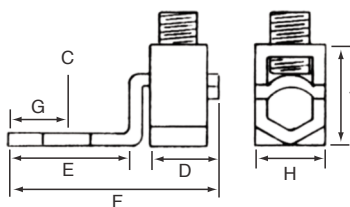
**Copper Lugs:** Type EO: One-Piece Body and Tongue

**Copper Connectors**

**Aluminum Lugs – Dual Rated**

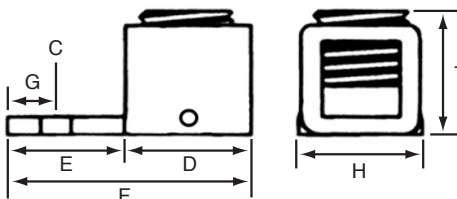
Type CA: Single Hole  
 Type TCA: Two Holes

Special mounting holes, tongue shapes and other variations of the above lugs are available on special order. Please consult the factory. Custom designs can be engineered and built according to your special application or your individual specifications. Steel screws, cadmium plated are standard design. Non-ferrous components can be furnished with cadmium, silver flash or nickel plating at extra cost.



### TYPE EU - OFFSET TONGUE - ONE MOUNTING HOLE - MOVEABLE SLEEVE

ITEM NUMBER	AMP RATING	WIRE RANGE	DIMENSIONS							SCREW TYPE
			D	G	E	T	F	C	H	
EU25	25	10 - 14	.297	.187	.438	.625	1.000	.156	.312	SLOT-FILLISTER
EU35	35 - 50	6 - 14	.438	.219	.531	.687	1.187	.203	.375	SLOT-FILLISTER
EU70	70 - 90	2 - 8	.500	.250	.656	1.000	1.531	.266	.500	SLOT-FILLISTER
EU125	125	1/0 - 2	.594	.438	.812	1.250	2.000	.266	.625	SLOT-HEXAGON
EU225	225	4/0 - 2/0	1.000	.500	1.156	1.750	2.625	.343	1.000	HEXAGON
EU400	400	500 MCM - 4/0	1.500	.922	1.875	2.625	4.250	.406	1.500	HEXAGON
EU650	650	1000 MCM - 600 MCM	1.875	1.187	1.875	3.687	4.625	.531	2.000	HEXAGON



### TYPE FT - FIXED TONGUE - ONE MOUNTING HOLE

ITEM NUMBER	AMP RATING	WIRE RANGE	DIMENSIONS							SCREW TYPE
			D	G	E	T	F	C	H	
FT25	25	10 - 14	.281	.187	.531	.531	.875	.156	.312	SLOT-HEADLESS
FT35	35 - 50	6 - 14	.375	.219	.531	.625	1.000	.203	.375	SLOT-HEADLESS
FT70	70 - 90	4 - 14	.500	.312	.750	.750	1.250	.266	.500	SLOT-FILLISTER
FT125	125	1/0 - 6	.625	.438	.906	1.000	1.531	.266	.625	SLOT-HEXAGON
FT225	225	4/0 - 2	1.000	.562	1.062	1.625	2.187	.344	1.000	HEXAGON
FT400*	400	500 MCM - 2/0	1.375	.875	1.687	1.562	3.187	.438	1.500	HEXAGON

\*PRESSURE PAD IS INCLUDED IN THIS SIZE

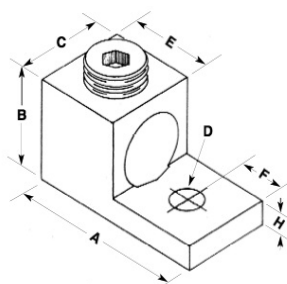
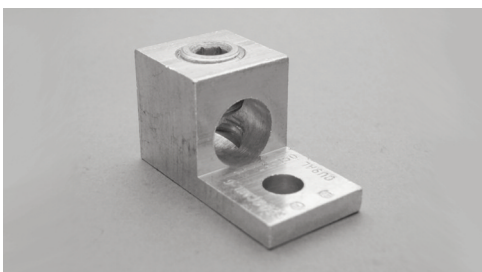


## ALUMINUM LUGS AND CONNECTORS

## General Information

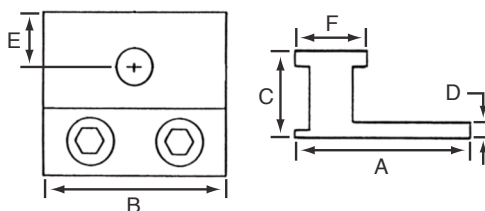
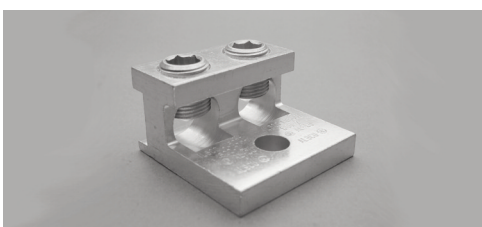
Made from high grade Aluminum Alloy No. 6061-T6 or 65ST6 extrusion for excellent conductivity. They feature high yield strength, light-weight, and solid construction which provides long life with no elongation. They are 100% re-useable requiring no special installation tools. Electro tin plating by special triple tin plating process, protects against galvanic corrosion when used with copper conductors.

All dimensions are approximate.



## TYPE CA - DUAL RATED - SINGLE HOLE LUG

ITEM NUMBER	WIRE RANGE	DIMENSIONS						MOUNTING HOLE (D)
		A	B	C	E	F	H	
CA-6	6 - 14	0.835	0.500	0.375	0.375	0.250	0.100	0.193
CA-2	2 - 12	1.156	0.560	0.500	0.470	0.470	0.100	0.265
CA-0	1/0 - 14	1.468	0.781	0.625	0.625	0.437	0.187	0.265
CA-250	250 MCM - 6	2.000	1.125	1.000	1.000	0.406	0.250	0.328
CA-350	350 MCM - 6	2.250	1.250	1.125	1.125	0.500	0.250	0.406
CA-500	500 MCM - 6	2.812	1.562	1.500	1.218	0.875	0.312	0.406
CA-600	600 MCM - 4	3.125	1.562	1.500	1.375	0.875	0.437	0.531
CA-800	800 MCM - 350 MCM	3.375	1.937	1.575	1.625	0.875	0.500	0.656
CA-1000	1000 MCM - 500 MCM	3.375	1.937	1.750	1.625	0.875	0.500	0.656



## TYPE TCA - DUAL RATED - TWO CONDUCTOR - SINGLE HOLE LUG

ITEM NUMBER	WIRE RANGE	DIMENSIONS						MOUNTING HOLE
		A	B	C	D	E	F	
TCA-250	2:250 MCM - 6	1.875	1.648	1.000	0.250	0.470	0.875	0.406
TCA-350	2:350 MCM - 4	2.125	1.920	1.13	0.293	0.500	1.000	0.406
TCA-600	3:250 MCM - 2	2.613	2.575	1.50	0.423	0.690	1.200	0.562

# Neutral Bars





## NEUTRAL BAR OVERVIEW MAIN LINE NEUTRAL BARS

B22

### General Information

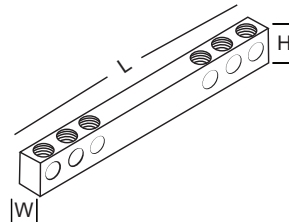
Unassembled for the use of manufacturers of Switch and Panel Boards who may find it convenient to produce special neutral bar assemblies, suitable for their own particular needs. A fast and secure connection is assured by inserting the wire into the "V" shaped hole and tightening the screw. The bars are constructed of pure electrolytic seamless copper tubing, ensuring high conductivity and superior strength.

### AVAILABLE SCREW TYPES

SCREW TYPE 1		SCREW TYPE 2	
	<b>STYLE:</b> HEADLESS SET SCREW. <b>SLOT:</b> SLOTTED <b>MATERIAL:</b> STEEL ZINC PLATED		<b>STYLE:</b> HEADED MACHINE SCREW. <b>SLOT:</b> SLOTTED <b>MATERIAL:</b> STEEL ZINC PLATED
SCREW TYPE 3		SCREW TYPE 4	
	<b>STYLE:</b> HEADED MACHINE SCREW. <b>SLOT:</b> COMBINATION SQUARE, SOCKET/SLOT <b>MATERIAL:</b> STEEL ZINC PLATED		<b>STYLE:</b> HEADLESS SET SCREW. <b>SLOT:</b> HEX SOCKET/SLOT <b>MATERIAL:</b> ALUMINUM TIN PLATED

\* NORMALLY SUPPLIED WITH TYPE 1

### TYPE N70 - 70 AMP MAIN LINE NEUTRAL BAR ASSEMBLIES - 14-4 AWG



ITEM NUMBER	NO. OF CIRCUIT TAPS	RANGE LOAD	LENGTH	HEIGHT WITH MAX COND	WIDTH	TWO MOUNTING HOLES
N70-4	4	14-6	2.750	.750	.344	.203*
N70-6	6	14-6	3.500	.750	.344	.203*
N70-8	8	14-6	4.438	.750	.344	.203*
N70-10	10	14-6	5.125	.750	.344	.203*
N70-12	12	14-6	5.938	.750	.344	.203*
N70-14	14	14-6	6.687	.750	.344	.203*

### TYPE N125 - 125 AMP MAIN LINE NEUTRAL BAR ASSEMBLIES - 1/0-2 AWG

ITEM NUMBER	NO. OF CIRCUIT TAPS	RANGE LOAD	LENGTH	HEIGHT WITH MAX COND	WIDTH	TWO MOUNTING HOLES
N125-16	16	14-6	4.750	1.438	1.344	.203*
N125-20	20	14-6	5.500	1.438	1.344	.203*
N125-22	22	14-6	5.750	1.438	1.344	.203*
N125-24	24	14-6	6.312	1.438	1.344	.203*
N125-26	26	14-6	6.500	1.438	1.344	.203*
N125-28	28	14-6	7.125	1.438	1.344	.203*
N125-30	30	14-6	7.132	1.438	1.344	.203*

\*PLEASE SPECIFY MOUNTING HOLE POSITION



# ETLIN-DANIELS

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## SECTION C TERMINAL BLOCKS

C1



TERMINAL BLOCKS

### Terminal Blocks

Appliance(High Heat) Applications	C2
European Pillar Style Terminal Blocks	C3
Power Distribution Technical Data	C4
Power Distribution Blocks	C5-C6
Double Row Blocks	C7-C18
Miscellaneous Terminal Blocks	C9
Copper Contact Series	C10-C11

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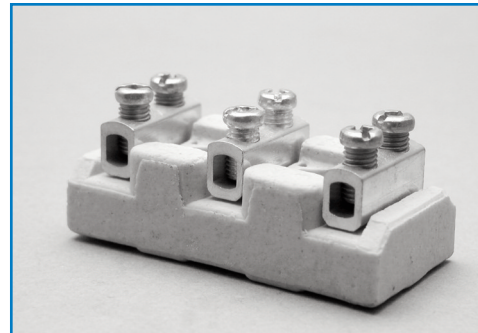
## TERMINAL BLOCKS FOR APPLIANCE APPLICATIONS

C2

### 270AL - Three Pole Terminal Block

- Porcelain base suitable for high heat applications
- Aluminum connectors are tin plated for use with 12-8 AWG Copper wire
- 1/4 – 28 combination head terminal screws for easier wiring
- Robertson driver No. 2 (RED) Cadmium Dichromated screws on the outside terminals
- Cadmium Dichromated screws on the middle connector for easy identification of neutral position
- Flush mounting on 1" centres with 2 slotted  $\frac{5}{16}$ " x  $\frac{7}{32}$ " holes
- This block is ideally suited for electric ranges, ovens and industrial heaters

Rating: 70A 250V



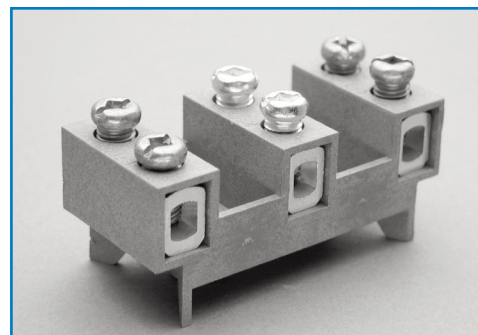
### 270AL-2 - Two Pole Terminal Block

- As above, but only two pole with no marked terminal.

### 273 - Three Pole Terminal Block

- Self-extinguishing NORYL high heat plastic base
- Aluminum connectors are tin plated for use with 12-8 AWG copper/aluminum wire
- 1/4 – 28 combination head terminal screws for easier wiring
- Robertson driver No. 2 (RED) Cadmium Dichromated screws on the outside terminals
- Cadmium Dichromated screws on the middle connector for easy identification of neutral position
- Flush mounting on 1" centres with 2 slotted  $\frac{5}{16}$ " x  $\frac{7}{32}$ " holes

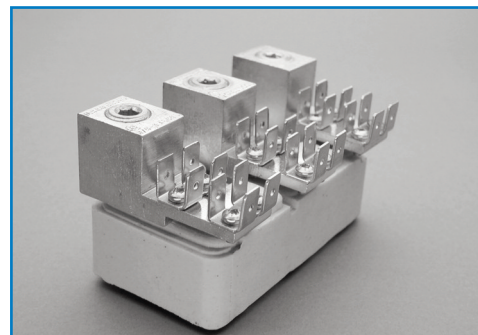
Rating: 70A 250V



### 1-1503 - Three Pole Terminal Block

- Porcelain base suitable for high heat applications
- Aluminum connectors are tin plated for use with 6 – 3/0 AWG copper/aluminum wire
- Eight .250" x .032" male quick connect terminals per pole are provided to speed up wiring
- Flush mounting on 1-1/4" centres with 2 slotted  $\frac{5}{16}$ " x  $\frac{7}{32}$ " holes
- This block is ideally suited for use in electric furnaces, heat pumps and industrial heaters

Rating: 165A 600V



### 1-1503-2 - Two Pole Terminal Block

- As above, but only two pole.

## EUROPEAN PILLAR STYLE TERMINAL BLOCKS

### European Pillar Style Terminal Blocks

C3

**General Information:** These screw terminal strips are used for connecting stranded or solid wires, ranging from 22-8 AWG, depending on the product selected. Each strip has 12 circuits and can easily be cut to the required number of poles. Standard 12 pole blocks can be supplied in cut sections 1 – 12 way at an extra charge. For a section which is not an equal division of 12, a surplus will be charged.

A mounting hole is provided between every pole. The screws are protected against working loose and are backed out for easy wiring. All the metal parts of these blocks are captive and completely recessed and have a dead front design to ensure safety and prevent short circuiting.

All of these blocks are available with a wire protector spring, by adding the suffix –DS to the part number, which prevents damage to the wire from the turning screw. In addition, there is a built-in centre stop to prevent the overlapping of wires.

For proper circuit identification, single or double width marking strips are available, which can easily be marked with a felt-tip pen.

#### Materials:

- Insulating Body: Polyamide 6, self-extinguishing to UL 94, colour natural, tracking resistance KB>600 to DIN 53480
- Rated Temperature: 110°C, short period 180°C; cold resistance to -40°C
- Clamping Part: Brass Nickel Plated
- Clamping Screw: Chrome Plated Steel M 2.6-5
- Wire Protection Spring: Stainless Steel or Phosphor Bronze

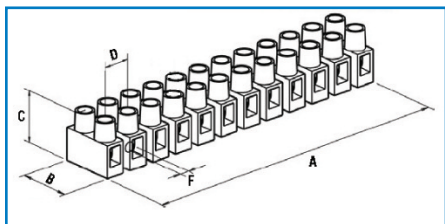


FIGURE A

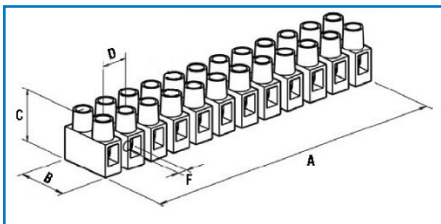


FIGURE B

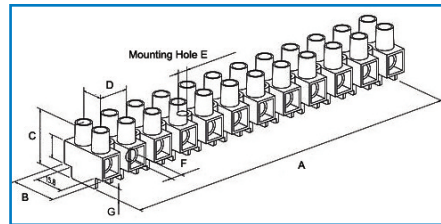
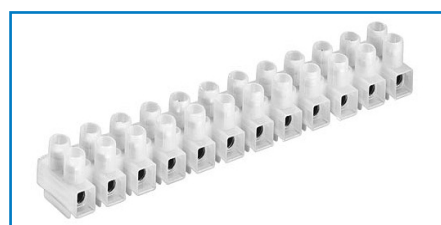
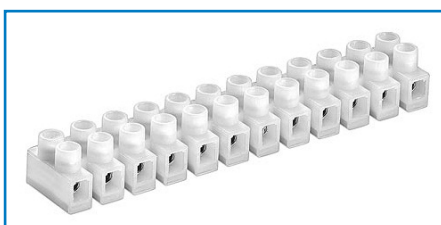
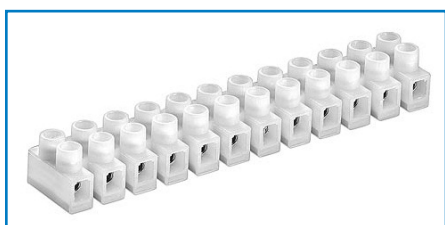


FIGURE C



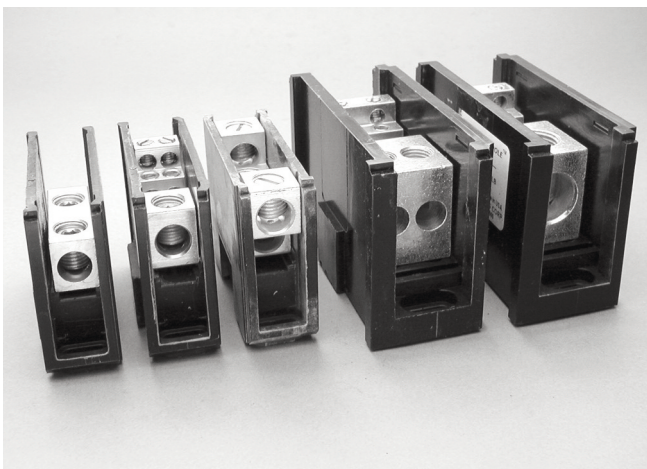
Model	Approvals	Wire Range	Figure	Ratings	Mounting Hole E	Screw	Dimensions(mm)					
							A	B	C	D	F	G
EKL0EFPADS		22-14 AWG	B	20A / 300V	2.8	M2.6	93.6	16.2	15.4	8.0	2.8	--
EKL1BEF3.5PADS		20-12 AWG	C	30A / 300V	3.5	M3	117	18.6	18.5	10.0	3.6	3.5
EKL2EF3.5PADS		14-10 AWG	C	35A / 300V	3.6	M3.5	132.7	22.2	20.8	11.5	4.2	3.5
EKL3EFM4PADS		14-8 AWG	C	50A / 600V	5.2	M4	178.9	25.2	26.3	15.0	5.8	5.5
PA8-12*		22-12 AWG	A	7A / 300V	--	M2.6x5	96.20	17.00	14.50	8.20	3.3+-0.1	--
PA8-12-DS		22-12 AWG	A	10A / 300V	--	M2.6x5	96.20	17.00	14.50	8.20	2.8+-0.1	--
PA10-12		22-10 AWG	A	20A / 300V	--	M3.0x6	117.2	20.20	16.80	10.00	3.4+-3.4	--
PA10-12-DS		18-14 AWG	A	20A / 300V	--	M3.0x6	117.2	20.20	16.80	10.00	3.4+-3.4	--
PA12-12		22-10 AWG	A	35A / 300V	--	M3.5x7	140.7	23.80	19.00	12.00	4.2+-4.2	--
PA12-12-DS		22-8 AWG	A	35A / 300V	--	M3.5x7	140.7	23.80	19.00	12.00	4.2+-4.2	--

\* Economy 85°C

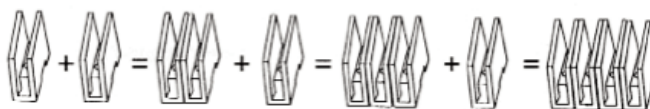
## TECHNICAL DATA FOR POWER DISTRIBUTION BLOCKS

C4

### Add-A-Pole Power Distribution Blocks



#### Modular Power Distribution Block System



- Versatile
- 90° C Rated
- Underwriters Recognized
- 14 AWG To 1000 MCM
- Handles Copper and/or Aluminum Wire
- Rated for up to 600 volts
- Wide Wire Ranges
- High-Impact, Extra-Strong Bases

#### Moulded Glass-Filled Polyester Insulator Block

##### Thermal:

Heat Distortion Temperature: 264 psi: 500+°F  
 Flame Resistance – UL 94 (File No. E27601):  
 • 1/4": 94V-0  
 • 1/8": 94V-0  
 • 1/16": 94V-0

##### Mechanical/Physical:

Flexural Strength: 16,000 - 20,000 psi  
 Compressive Strength: 24,000 - 28,000 psi  
 Tensile Strength: 6,000 - 8,000 psi  
 Impact Strength, Notch Izod: 2.0 – 4.0 ft-lb/in  
 Water Absorption, 24 hours, 23°C: 0.14%  
 Hardness, Barcol: 40-50

##### Electrical:

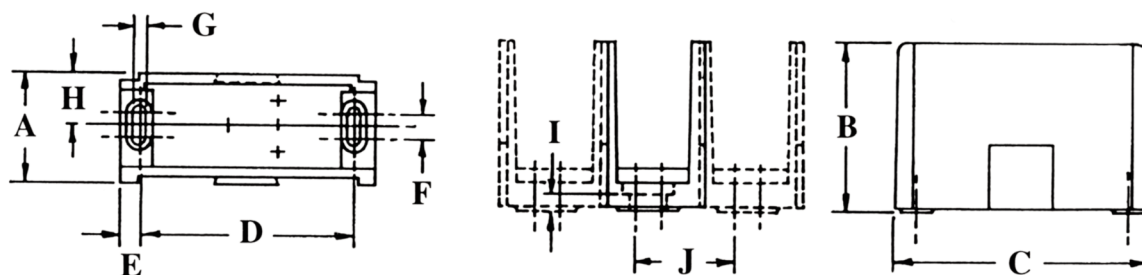
Arc Resistance: 190 sec  
 Comparative Tracking Index: 500+ volts  
 Inclined Plane Track Resistance, 2.5 kv: 900+ minutes  
 Dielectric Strength, Short Time: 350 volts/mil  
 Dielectric Constant, 60 Hz: 5.5  
 Dissipation Factor, 60 Hz: 0.008

##### Material: Cyglass 605

Connector body made of high strength, high conductive aluminum alloy, tin plated using ALSTAN 70 Process.

Base moulded from glass-filled polyester guaranteeing ultimate strength and best possible electrical insulating properties.

#### Detailed Dimensions



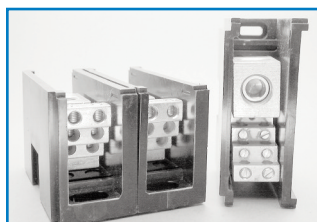
SIZE	A	B	C	D	E	F	G	H	I	J
SMALL	1.04	2.34	2.90	2.53	.18	.35	.20	.46	.19	6.25/1.250
MEDIUM	1.71	2.62	4.00	3.50	.25	.37	.20	.79	.20	1.250/1.875
LARGE	2.90	3.25	5.50	5.00	.25	.50	.27	1.388	.28	2.250/3.250

## POWER DISTRIBUTION BLOCKS

## Power Distribution Blocks - Aluminum - 600 VAC Rated - Single Primary/Multiple Secondary



AS-K1-H6



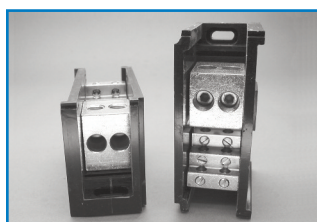
AM-P1-H6

ITEM NUMBER	CONNECTOR				SIZE	DIMENSIONS			AMPERES PER POLE
	LINE SIDE		LOAD SIDE			LENGTH	WIDTH	HEIGHT	
AS-K1-H4	2/0-14 AWG		4-14 AWG		S	2.90"	1.04"	2.34"	175
AS-K1-H6	2/0-14 AWG		4-14 AWG		S	2.90"	1.04"	2.34"	175
AM-P1-H6	350 MCM-6 AWG		4-14 AWG		M	4.00"	1.71"	2.62"	310
AM-P1-H8	350 MCM-6 AWG		4-14 AWG		M	4.00"	1.71"	2.62"	310
AM-P1-H12	350 MCM-6 AWG		4-14 AWG		M	4.00"	1.71"	2.62"	310
AM-R1-H12	500 MCM-6 AWG		4-14 AWG		M	4.00"	1.71"	2.62"	310
AL-R1-M4	500 MCM-4 AWG		4/0-6 AWG		L	5.50"	2.90"	3.25"	380
AL-P1-K6	350 MCM-6 AWG		2/0-14 AWG		L	5.50"	2.90"	3.25"	310
AL-R1-K6	500 MCM-4 AWG		2/0-14 AWG		L	5.50"	2.90"	3.25"	310
AL-V1-K6	1000 MCM - 250 MCM		2/0-14 AWG		L	5.50"	2.90"	3.25"	545
AL-V1-H12	1000 MCM - 250 MCM		4-14 AWG		L	5.50"	2.90"	3.25"	545

## Power Distribution Blocks - Aluminum - 600 VAC Rated - Double Primary/Multiple Secondary



AS-K2-H6



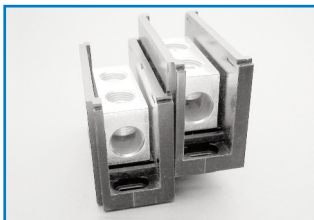
AM-K2-H6

ITEM NUMBER	CONNECTOR				INSULATOR CAT. NO.	DIMENSIONS			AMPERES PER POLE
	LINE SIDE		LOAD SIDE			LENGTH	WIDTH	HEIGHT	
AS-K2-H6	2/0-14 AWG		4-14 AWG		S	2.90"	1.04"	2.34"	350
AM-K2-H6	2/0-14 AWG		4-14 AWG		M	4.00"	1.71"	2.62"	350
AM-K2-H8	2/0-14 AWG		4-14 AWG		M	4.00"	1.71"	2.62"	350
AM-K2-H12	2/0-14 AWG		4-14 AWG		M	4.00"	1.71"	2.62"	350
AM-K2-I6	2/0-14 AWG		2-14 AWG		M	4.00"	1.71"	2.62"	350
AL-P2-H12	350MCM-6 AWG		4-14 AWG		L	5.50"	2.90"	3.25"	620
AL-P2-K6	350MCM-6 AWG		2/0-14 AWG		L	5.50"	2.90"	3.25"	620
AL-R2-H12	500MCM-4 AWG		4-14 AWG		L	5.50"	2.90"	3.25"	760
AL-R2-K6	500MCM-4 AWG		2/0-14 AWG		L	5.50"	2.90"	3.25"	760
AL-R2-M4	500MCM-4 AWG		4/0-6 AWG		L	5.50"	2.90"	3.25"	760

Terminal  
BlocksSPLICERS / REDUCERS  
DOUBLE ROW TERMINAL BLOCKS

C6

## Splicers/Reducers - Aluminum - 600 VAC Rated



AM-P1-P1



AS-K2-K2

ITEM NUMBER	CONNECTOR				INSULATOR CAT. NO.	DIMENSIONS			AMPERES PER POLE
	LINE SIDE		LOAD SIDE			LENGTH	WIDTH	HEIGHT	
AS-I1-I1	2-14 AWG		2-14 AWG		S	2.90"	1.04"	2.34"	115
AS-K1-K1	2/0-14 AWG		2/0-14 AWG		S	2.90"	1.04"	2.34"	175
AM-N1-N1	250 MCM-6 AWG		250 MCM-6 AWG		M	4.00"	1.71"	2.62"	310
AM-P1-P1	350 MCM-6 AWG		350 MCM-6 AWG		M	4.00"	1.71"	2.62"	350
AM-R1-R1	500 MCM-6 AWG		500 MCM-6 AWG		M	4.00"	1.71"	2.62"	380
AS-K2-K2	2/0-14 AWG		2/0-14 AWG		S	2.90"	1.04"	2.34"	350
AL-P2-P2	350 MCM-6 AWG		350 MCM-6 AWG		L	5.50"	2.90"	3.25"	620
AL-R2-R2	500 MCM-6 AWG		500 MCM-6 AWG		L	5.50"	2.90"	3.25"	760

## TB100 Series Double Row Terminal Blocks

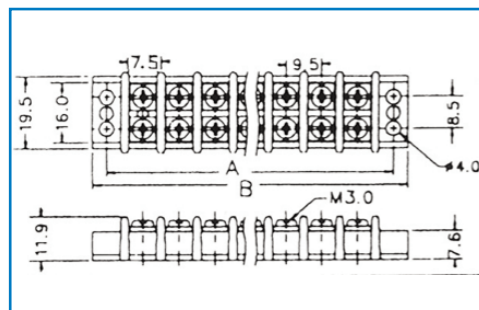
ITEM NUMBER	NUMBER OF POLES	OA LENGTH	MOUNT CC
TB100-02	2	1.40"	1.12"
TB100-03	3	1.78"	1.50"
TB100-04	4	2.16"	1.88"
TB100-05	5	2.53"	2.25"
TB100-06	6	2.90"	2.62"
TB100-07	7	3.28"	3.00"
TB100-08	8	3.66"	3.38"
TB100-09	9	4.03"	3.75"
TB100-10	10	4.40"	4.12"
TB100-11	11	4.78"	4.50"
TB100-12	12	5.16"	4.88"

## TB100 Series

- 10 Amp/300 Volt
- 3/8" Centre-to-Centre
- #6-32 Philslot Screw Terminal
- Maximum Wire Size: #14 AWG



TB100





## DOUBLE ROW TERMINAL BLOCKS

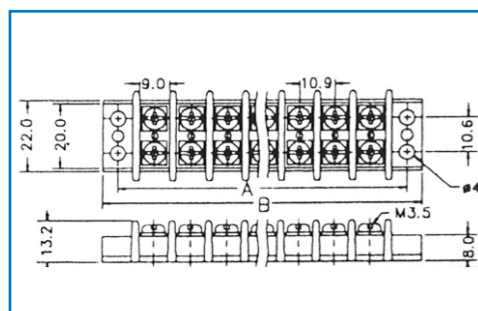
## TB200 Series Double Row Terminal Blocks

C7

ITEM NUMBER	NUMBER OF POLES	OA LENGTH	MOUNT CC
TB200-02	2	1.63"	1.31"
TB200-03	3	2.07"	1.75"
TB200-04	4	2.51"	2.18"
TB200-05	5	2.94"	2.62"
TB200-06	6	3.38"	3.06"
TB200-07	7	3.82"	3.50"
TB200-08	8	4.25"	3.93"
TB200-09	9	4.69"	4.37"
TB200-10	10	5.13"	4.81"
TB200-11	11	5.57"	5.25"
TB200-12	12	6.00"	5.68"

## TB200 Series

- 20 Amp/300 Volt
- $\frac{7}{16}$ " Centre-to-Centre
- #6-32 Philslot Screw Terminal
- Maximum Wire Size: #12 AWG

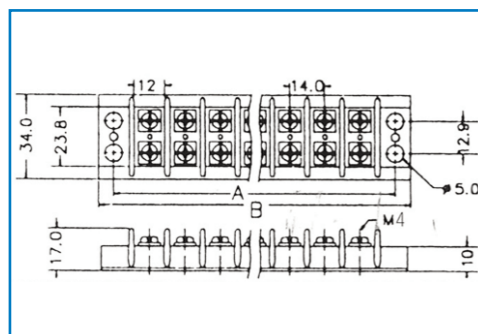
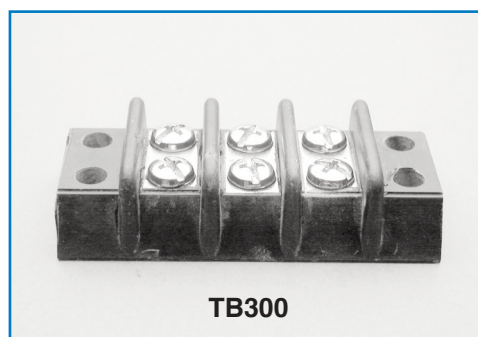
Terminal  
Blocks

## TB300 Series Double Row Terminal Blocks

ITEM NUMBER	NUMBER OF POLES	OA LENGTH	MOUNT CC
TB300-02	2	2.13"	1.68"
TB300-03	3	2.69"	2.25"
TB300-04	4	3.25"	2.81"
TB300-05	5	3.81"	3.37"
TB300-06	6	4.37"	3.93"
TB300-07	7	4.94"	4.50"
TB300-08	8	5.50"	5.06"
TB300-09	9	6.06"	5.62"
TB300-10	10	6.62"	6.18"
TB300-11	11	7.18"	6.75"
TB300-12	12	7.75"	7.31"

## TB300 Series

- 30 Amp/300 Volt
- $\frac{9}{16}$ " Centre-to-Centre
- #8-32 Philslot Screw Terminal
- Maximum Wire Size: #10 AWG



## DOUBLE ROW TERMINAL BLOCKS

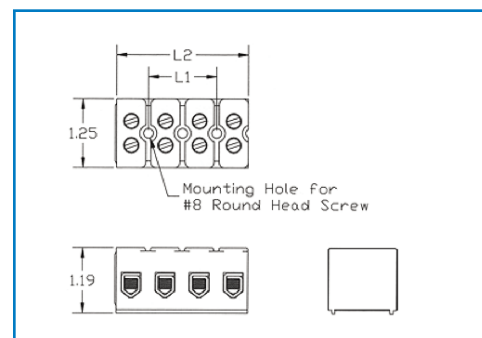
C8

## B Series Double Row Terminal Blocks

ITEM NUMBER	NUMBER OF POLES	OA LENGTH(L2)	MOUNT CC(L1)
B-02	2	1.19"	---
B-03	3	1.81"	0.625"
B-04	4	2.44"	1.250"
B-05	5	3.06"	1.875"
B-06	6	3.69"	2.500"
B-07	7	4.31"	3.125"
B-08	8	4.94"	3.750"
B-09	9	5.56"	4.375"
B-10	10	6.19"	5.000"
B-11	11	6.84"	5.625"
B-12	12	7.46"	6.250"

**B Series**

- 85 Amp/600 Volt
- Temperature Range: -30°C to 150°C
- Slot Screw Terminal
- Screw Tightening Torque: 20 Inch-Pounds
- Maximum Wire Range: #18 AWG to #4 AWG
- Wire Strip Length: 3/8 Inch

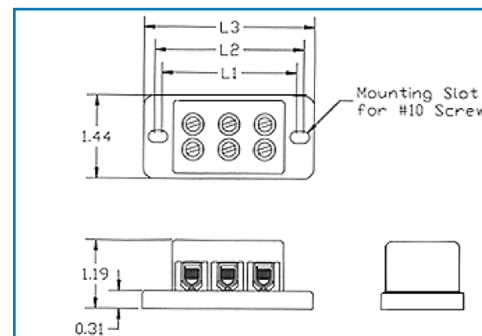


## C Series Double Row Terminal Blocks

ITEM NUMBER	NUMBER OF POLES	(L1)	(L2)	OA LENGTH(L3)
C-02	2	2.33"	2.59"	2.96"
C-03	3	2.33"	2.59"	2.96"
C-04	4	2.96"	3.22"	3.59"

**C Series**

- 85 Amp/600 Volt
- Temperature Range: -30°C to 130°C
- Screw Tightening Torque: 20 Inch-Pounds
- Maximum Wire Range: #18 AWG to #4 AWG
- Wire Strip Length: 3/8 Inch



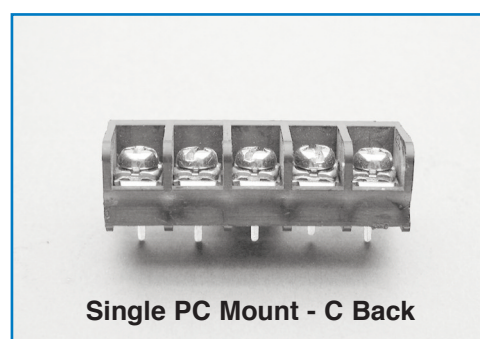
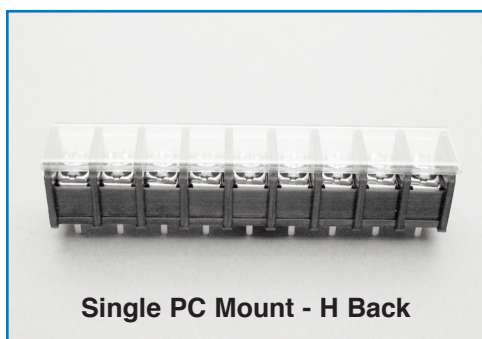
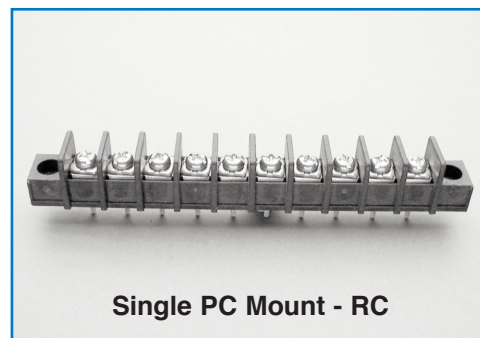
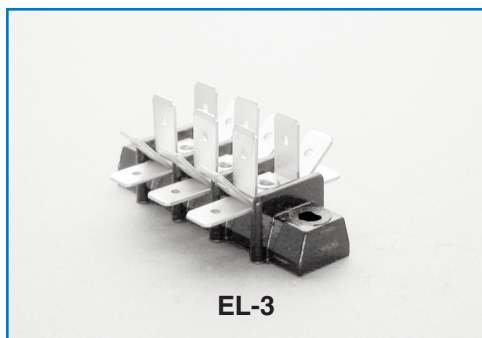
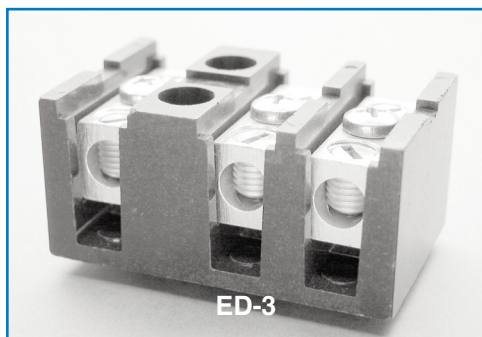


## MISCELLANEOUS TERMINAL BLOCK

### Miscellaneous Terminal Blocks

C9

Miscellaneous Terminal Blocks Available Upon Request:



Terminal  
Blocks


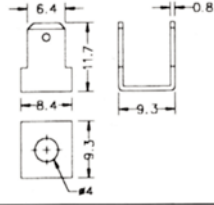

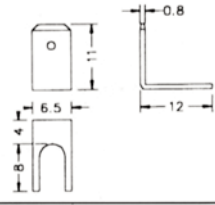

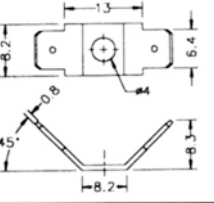

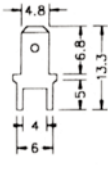

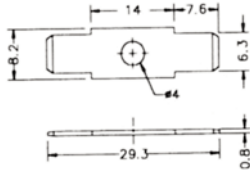

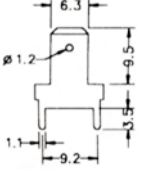

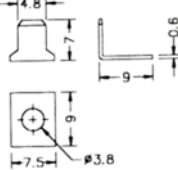

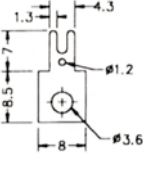

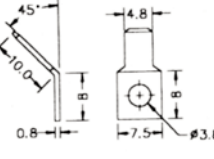

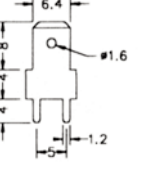

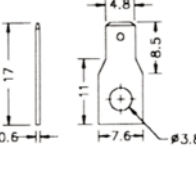

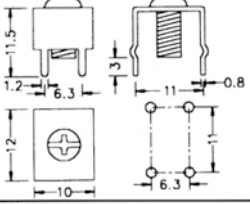

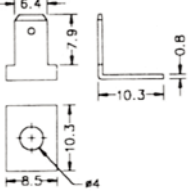

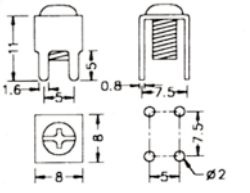
Jumpers, single row blocks, high barrier blocks and marking strips are also available upon request.



## COPPER CONTACTS

## C10 Copper Contact Series


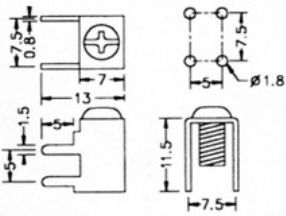

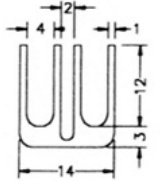

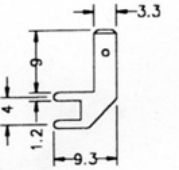

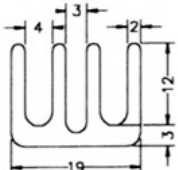

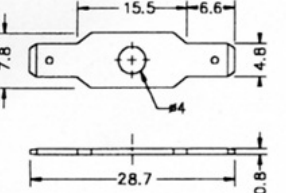
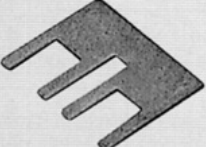
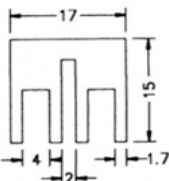

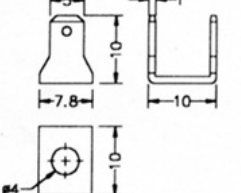
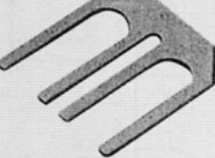
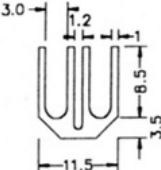

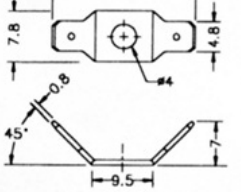
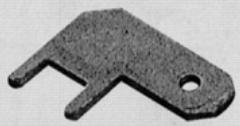
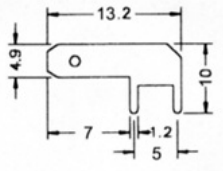

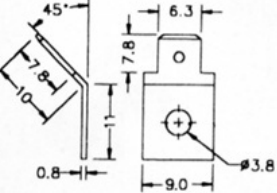
## G Series Copper Contacts:

G1	 	G8	 
G2	 	G9	 
G3	 	G10	 
G4	 	G11	 
G5	 	G12	 
G6	 	G13	 
G7	 	G14	 

**COPPER CONTACTS**

Copper Contact Series

C11

<p>G15</p> 		<p>G22</p> 	
<p>G16</p> 		<p>G23</p> 	
<p>G17</p> 		<p>G24</p> 	
<p>G18</p> 		<p>G25</p> 	
<p>G19</p> 			
<p>G20</p> 			
<p>G21</p> 			

Terminal  
Blocks





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**SECTION D  
 FUSE BLOCKS  
 AND HOLDERS**

D1



PANEL MOUNT FUSEHOLDERS



**Panel Mount Fuseholders**

**Fuse Holders**

Panel Mount

D2-D4

**Fuse Blocks**

R3-45 & S-8000 Series

D5

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# Fuse Blocks

## PANEL MOUNT FUSEHOLDERS

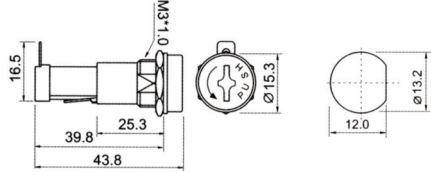
### D2 Panel Mount Fuseholders

Compact through the panel fuseholders are designed to fit a 1/2" hole and be serviceable from the front. Shocksafe and Touchproof. Available in two styles: low profile where there is more space behind the panel; high profile where there is little space behind the panel. They are available in bayonet or screw type knobs with either screwdriver slot head or finger grip knob. Connections are either solder or with quick connect terminals for fast assembly.

Fuse Blocks



**R3-9A - Bayonet Type Cap  
R3-9C - Screw Type Cap**



15A 250V AC



0.187" Quick Connect Tabs

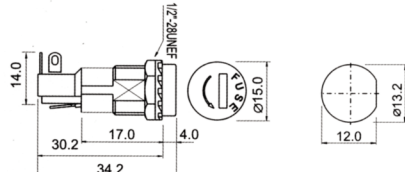


0.5-4.5 mm

**FUSE** Ø 6.4 x 30 mm; Ø 6.35 x 31.8 mm



**R3-11A - Bayonet Type Cap  
R3-11B - Screw Type Cap**



10A 250V AC

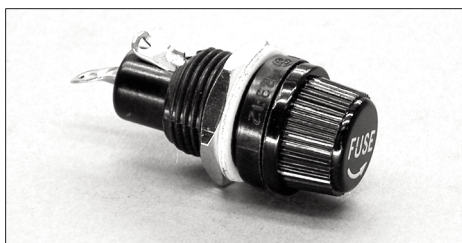


0.156" Solder Lugs

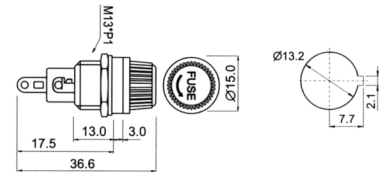


4.5 mm Maximum

**FUSE** Ø 5.0 x 20 mm



**R3-12 - Screw Type Cap**



10A 250V AC



0.156" Solder Lugs

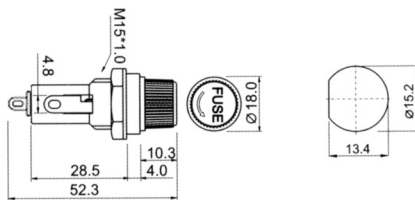


4.5 mm Maximum

**FUSE** Ø 5.0 x 20 mm



**R3-13 - Screw Type Cap**



10A 250V AC



0.163" Lugs / 0.187" Tabs

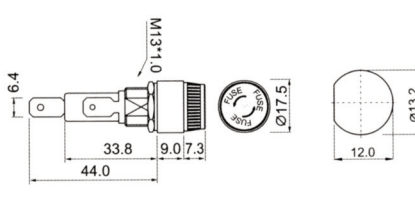


4.5 mm Maximum

**FUSE** Ø 6.4 x 30 mm; Ø 6.35 x 31.8 mm



**R3-14C - Bayonet Type Cap**



10A 250V AC



0.250" Male Tabs

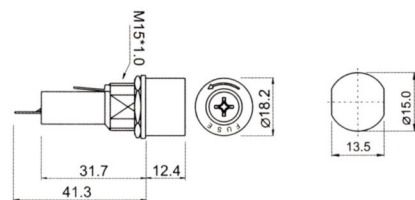


0.5-6.5 mm

**FUSE** Ø 6.4 x 30 mm; Ø 6.35 x 31.8 mm



**R3-22A - Screw Type Cap**



10A 250V AC



0.187" Quick Connect Tabs



0.5-5.0 mm

**FUSE** Ø 6.4 x 30 mm; Ø 6.35 x 31.8 mm







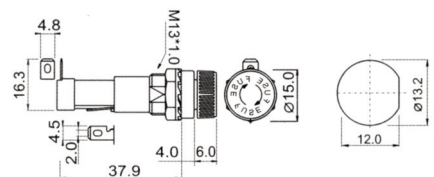
PANEL MOUNT FUSEHOLDERS

Panel Mount Fuseholders (cont'd)

D3



R3-28A - Bayonet Type Cap



15A 250V AC



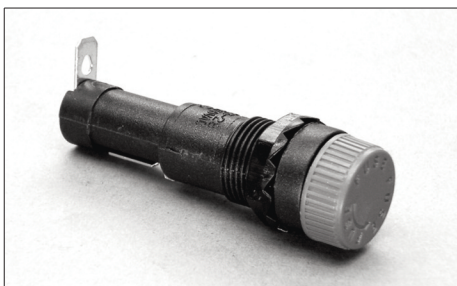
0.187" Quick Connect Tabs



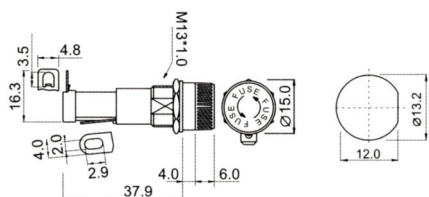
4.5 mm Maximum

FUSE

Ø 6.0 x 30 mm; Ø 6.35 x 31.8 mm



R3-28C - Screw Type Cap



15A 250V AC



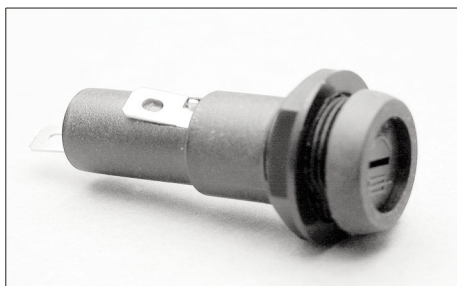
0.187" Quick Connect Tabs



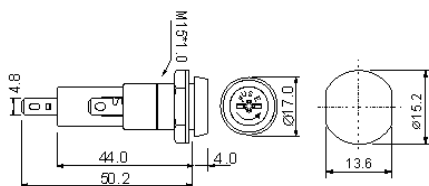
4.5 mm Maximum

FUSE

Ø 6.0 x 30 mm; Ø 6.35 x 31.8 mm



R3-44A - Bayonet Type Cap  
R3-44C - Screw Type Cap



15A 250V AC



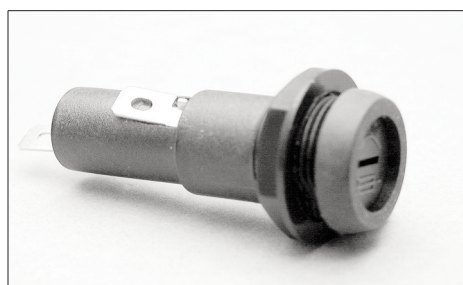
0.187" Quick Connect Tabs



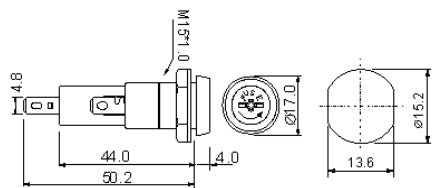
0.5-4.0 mm

FUSE

Ø 6.0 x 30 mm; Ø 6.35 x 31.8 mm



R3-44B - Bayonet Type Cap



15A 250V AC



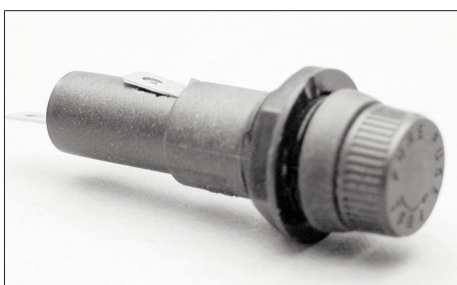
0.187" Quick Connect Tabs



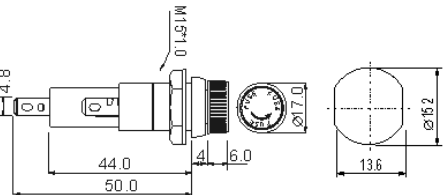
0.5-4.0 mm

FUSE

Ø 5.0 x 20 mm Bayonet Type



R3-46A - Bayonet Type Cap  
R3-46C - Screw Type Cap



15A 250V AC



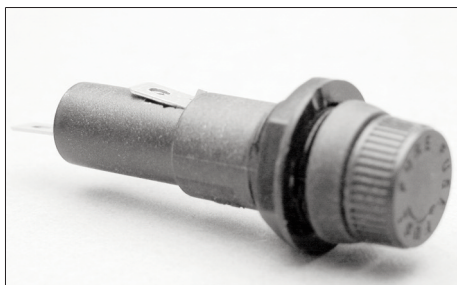
0.187" Quick Connect Tabs



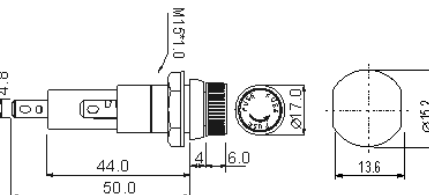
0.5-4.5 mm

FUSE

Ø 6.4 x 30 mm; Ø 6.35 x 31.8 mm



R3-46B - Bayonet Type Cap



15A 250V AC



0.187" Quick Connect Tabs



0.5-4.5 mm

FUSE

Ø 5.0 x 20 mm

Fuse Holders





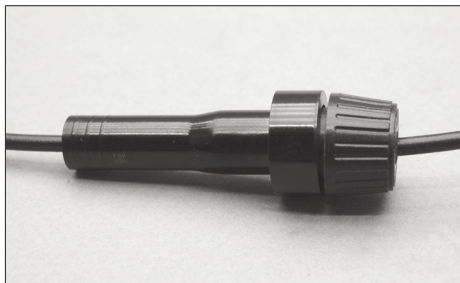
# Fuse Holders

## PANEL MOUNT FUSEHOLDERS

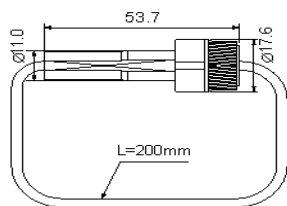
D4

### Panel Mount Fuseholders (cont'd)

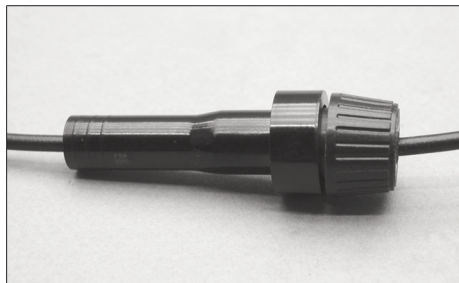
Fuse Holders



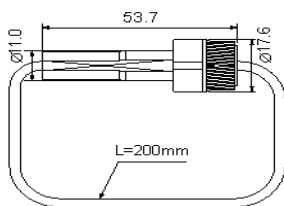
**R3-32A - In Line Fuseholder**



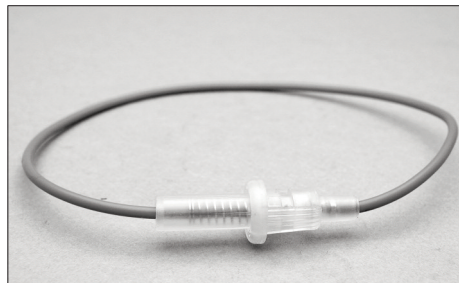
	15A 32VDC, 15A 250VAC
	12 AWG Wire
<b>FUSE</b>	ø 5.2 x 20 mm



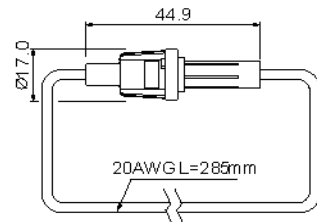
**R3-32B - In Line Fuseholder**



	15A 32V DC, 15A 250V AC
	14 AWG Wire
<b>FUSE</b>	ø 6.0 x 30 mm; ø 6.3 x 32 mm



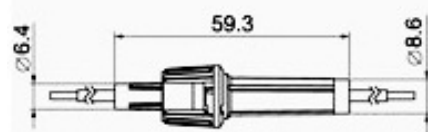
**R3-48 - In Line Fuseholder**



	5A 250V AC
	20 AWG Wire Red
<b>FUSE</b>	ø 5.0 x 20 mm



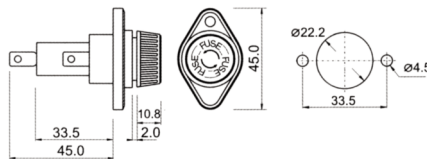
**R3-64 - In-Line Fuseholder**



	10A 250V AC
	16 AWG Wire Red
<b>FUSE</b>	ø 6.0 x 30.0 mm



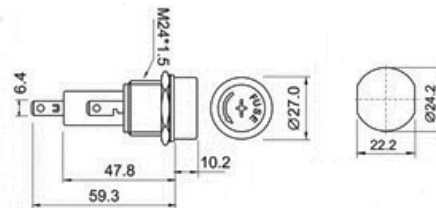
**R3-18 - Bayonet Type Cap (Heavy Duty)**



	30A 600V AC
	0.250" Quick Connect Tabs
	0.5-10.0 mm
<b>FUSE</b>	ø 10.3 x 38.1 mm



**R3-41 - Bayonet Type Cap (Heavy Duty)**



	30A 600V AC
	0.250" Quick Connect Tabs
	0.5-15.5 mm
<b>FUSE</b>	ø 10.3 x 38.1 mm




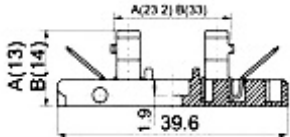
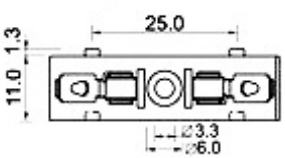




# Fuse Blocks

## FUSE BLOCKS

### Fuse Blocks

D5

<b>R3-45</b>					
 <p><b>R3-45</b></p>				15A 250V, 10A 125V AC	
				 0.187" Quick Connect Tabs	
				<b>FUSE</b> ø 6.0 x 30 mm 125V ø 6.35 x 31.8 mm 250V	

**Description**

- For 1/4" x 11/4" (6.3 x 32mm) fuses
- Bolt-in and snap-in mounting available
- Tight cluster mounting
- All types of terminal configurations
- Clips made of spring-bronze
- Anti-rotational pin provided
- Flame retardant thermoplastic meets UL 94V0

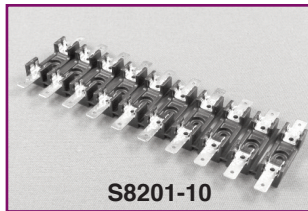


**Environmental Data**

- Relative Temperature Index (RTI) : Bolt-in 130°C, Snap-in 110°C

**Agency Information**

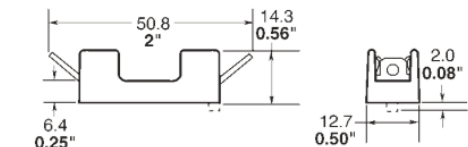
- UL Recognized: E14853
- CSA Certified: 47235



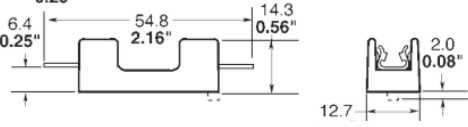
Specifications					
Series	Terminal	UL Max	CSA Max.	Angle	Poles
S-8100	3/16" Quick Connect	CSA 20A	UL 13A	0° 40°	1-12
S-8200	1/4" Quick Connect	UL 20A	CSA 16A	0° 40° Side	

**Bolt-in Mounting:**

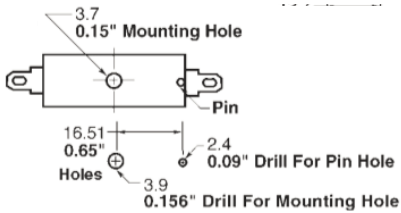
40° Terminal



0° Terminal

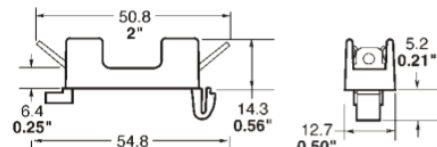


Flat Base Mounting

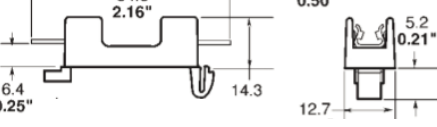


**Snap-in Mounting:**

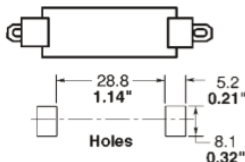
40° Terminal



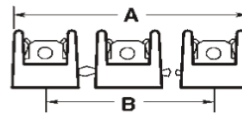
0° Terminal



Mounting

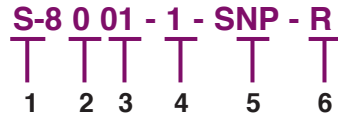


**Multiple Pole**



No. of Poles	Mounting Dimensions			
	Inches		Millimeters	
	A	B	A	B
1	-	-	-	-
2	1 1/8"	5/8"	28.6	15.9
3	1 3/4"	1 1/4"	44.4	31.8
4	2 3/8"	1 7/8"	60.3	47.6
5	3"	2 1/2"	76.2	63.5
6	3 3/8"	3 1/8"	92.1	79.4
7	4 1/4"	3 3/4"	108.0	95.2
8	4 7/8"	4 3/8"	123.8	111.1
9	5 1/2"	5"	139.7	127.0
10	6 1/8"	5 5/8"	155.6	142.9
11	6 3/4"	6 1/4"	171.4	158.8
12	7 3/8"	6 7/8"	187.3	174.6

Example:



- |                            |  |
|----------------------------|--|
| 1. Series Number:          | S-8/   |
| 2. Type Terminal:          | 0 = Solder<br>1 = 3/16" quick connect<br>2 = 1/4" quick connect<br>3 = Screw |
| 3. Terminal Angle:         | 01 = Straight (0°)<br>02 = 40° Angle<br>03 = Side*                           |
| 4. Number of Poles:        | (1-12)<br>1X = One pole, No mounting Stud<br>SNP = Snap-in Mounting          |
| 5. Mounting Style:         |  |
| 6. RoHS Compliant Version: | R  |

Fuse Holders

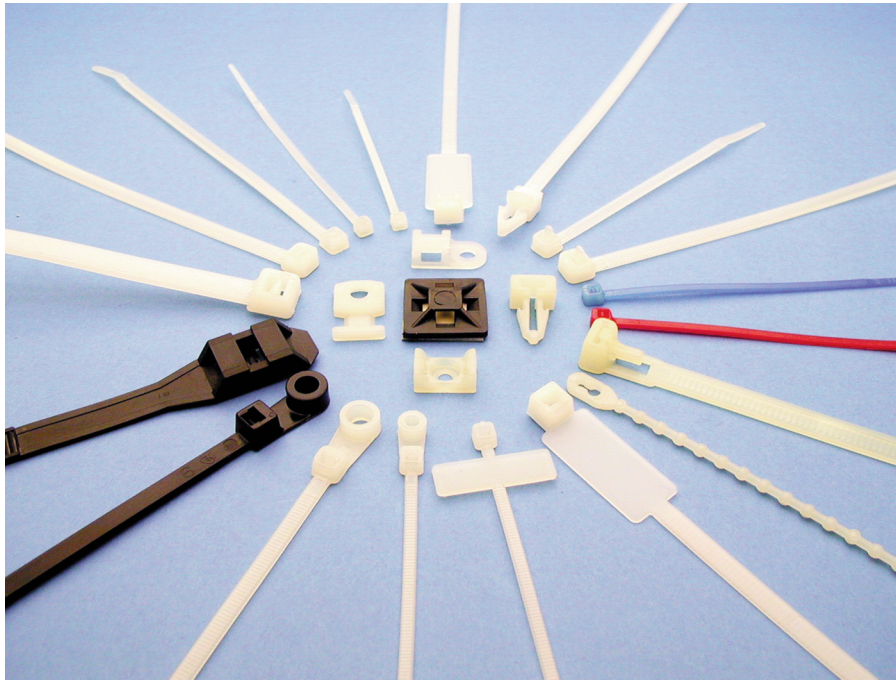





**ETLIN-DANIELS**

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## SECTION E CABLE TIES

**E1**
**CABLE TIES**


### Cable Ties

Technical Data	E2
Cable Tie Cross Reference	E3
<b>Nylon Ties</b>	
Standard Nylon Tie	E4
Weather Resistant Ties	E5
Mounting Ties	E6
Speciality Ties	E6-E9
<b>Steel Ties</b>	
Ladder Type	E10
Ball Lock Tie	E11
Marker Plates	E11
Mounting Hardware	E12-E13

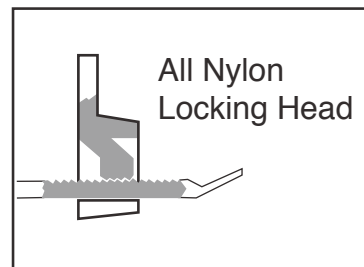
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## TECHNICAL DATA

E2

## Standard Nylon Cable Ties Suffix Key

MATERIAL	COLOUR	SUFFIX CODE
NYLON 66	NATURAL	--
NYLON 66	BLACK	B
NYLON 66 - WEATHER RESISTANT	BLACK	UV
NYLON 66 - HEAT STABILIZED	NATURAL	HS
NYLON 66 - FLAME RETARDANT	NATURAL	FR

**General Information:**

Engineered for simple and secure wire and cable wrapping, Etlin Cable Ties are designed for quick and easy use. Strong and flexible, the Ties can be wrapped around a bundle quickly and the tail inserted into a patented self-locking head. The smaller standard size ties have bent tails to facilitate rapid tail-to-head insertion by the user.

Etlin Cable Ties are made of high-strength nylon that resists abrasion and chemicals such as common oils, greases, solvents, dilute acids and alkalis. They are fungus resistant, self-extinguishing, and have excellent dielectric properties. Designed for continuous use from -40°F to +185°F (-40°C to +85°C) and will withstand temperatures up to 300°F (149°C). They also meet applicable Military Specifications.

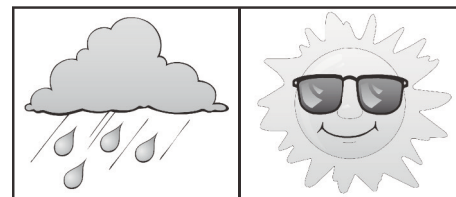
**Extra Heavy Duty Cable Ties**

For applications where higher tensile strength is needed, part numbers have HD as the suffix.

**Weather Resistant Ties**

For applications exposed to outside elements, a Weather Resistant Tie is available. Carbonate A was added for greater resistance to ultra violet in outdoor usage, which prolongs the useful life of the cable tie. Black in colour, all Ties shown are available as Weather Resistant Ties. To order, add the suffix "-UV" to the part number.

UR Listed.



## CABLE TIE CROSS REFERENCE

## Cross Reference By Manufacturer

E3

## STANDARD CABLE TIES

ETLIN	MIL SPEC	THOMAS & BETTS	PANDUIT	BURNDY	HELLERMAN TYTON	AVERY DENNISON	CORDS HEYCO
NT400	MS3367-4	QTY-23M	PLT1M-C	--	T18R	08432	NT-70
NT550L	MS3367-5	--	PLT1.5M-C	--	T18I	--	NT-70L
NT550	MS3367-5	TY-24M	PLT1.51-C	TF4	T30R	08376	NT-90
NT800	--	TY-242M	PLT21-C	--	T40R	08377	NT-170
NT1100	MS3367-7	TY-253M	PLT3S-C	--	T50I	08471	NT-250
NT1400HD	MS3367-3	TY-27M	PLT4H-C	TF7	T120R	08378	NT-340H

## MOUNTING TIES

ETLIN	MIL SPEC	THOMAS & BETTS	PANDUIT	BURNDY	HELLERMAN TYTON	AVERY DENNISON	CORDS HEYCO
MNT550	--	TY-34M	PLC1.51	--	T30MR	--	MNT-90
MNT675	--	TY-35M	PLC2S	TF5H	T50MR	08415	MNT-150

## PUSH MOUNT TIES

ETLIN	MIL SPEC	THOMAS & BETTS	PANDUIT	BURNDY	HELLERMAN TYTON	AVERY DENNISON	CORDS HEYCO
PIMNT750	--	TY-38M	PLP2S	--	T50R/SF	08414	PMT-150

## IDENTIFICATION TIES

ETLIN	MIL SPEC	THOMAS & BETTS	PANDUIT	BURNDY	HELLERMAN TYTON	AVERY DENNISON	CORDS HEYCO
IDNT400	MS3368-5	TY-51M	PLM1M	--	IT18R	08412	--
IDNT750	MS3368-1	TY-46M	PLM2S	TF5L	IT50R	08413	LT-150

## MOUNTING HARDWARE

ETLIN	MIL SPEC	THOMAS & BETTS	PANDUIT	BURNDY	HELLERMAN TYTON	AVERY DENNISON	CORDS HEYCO
4-SMPA	--	TY344A	ABMM-A	--	MB-4A	08461	MP-4AS
4-MPA	--	TY342A	ABM4S-A	--	MB4A/SH	08463	MP-4A
CM-4	--	TC140	TM1S4	--	--	10044	--
CM-8	--	TC141	TM2S8	--	CTM-1	10045	MP-S-68
CM-10	--	TC142	TM3S10	--	CTM-3	10046	MP-S-10
PIM-250	--	TC823	PM2H25	--	TM1SF1	10056	MP-PM-25
LPM-8	--	TC502	LPMS-S8	--	MB-2	08458	--
TA-8	--	TC828	TA1S8	--	CTAM-1	10027	--
TA-10	--	--	TA1S10	--	CTAM-2	10028	--

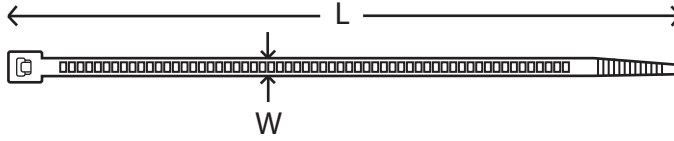
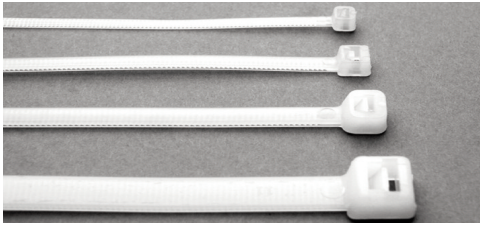
This cross-reference has been prepared to aid in the selection of Etlin materials. Although checked for accuracy, we recommend familiarity with our product before purchase.

**ETLIN DANIELS CANNOT ASSUME RESPONSIBILITY FOR ERRORS, OMISSIONS OR CHANGES.**

# Cable Ties

## STANDARD NYLON CABLE TIES

E4



### Standard Nylon Cable Ties

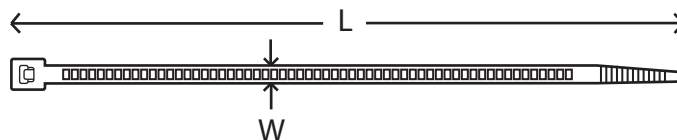
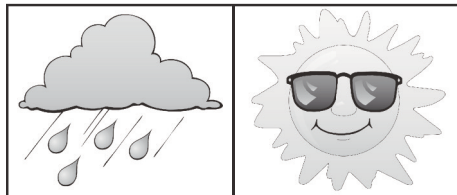
ITEM NUMBER	LENGTH (L)		WIDTH (W)		MAXIMUM BUNDLE DIAMETER		MINIMUM TENSILE STRENGTH	MILITARY SPEC NO.
	in	mm	in	mm	in	mm		
NT400	4.00	102	0.10	2.5	0.625	15.9	18 LBS	MS3367-4
NT550L	5.50	140	0.10	2.5	0.750	19.1	18 LBS	MS3367-4
NT800L	8.00	203	--	--	2.000	50.8	18 LBS	
NT550	5.50	142	0.14	3.6	1.250	31.8	30 LBS	MS3367-5
NT1100L	11.00	279	--	--	3.000	76.2	40 LBS	
NT800	8.00	203	0.14	3.6	2.000	50.8	50 LBS	
NT1100	11.00	279	0.18	4.6	3.000	76.2	50 LBS	MS3367-7
NT1400	14.50	368	0.18	4.6	4.000	102	50 LBS	MS3367-2
NT2000L	19-11/16	500	0.189	4.8	5.91	150	50 LBS	
NT3600L	36.00	914	0.189	4.8	10.63	270	50 LBS	
NT1100HD	11.00	280	0.30	7.6	3.07	78	120 LBS	
NT1400HD	14.75	375	0.30	7.6	4.000	102	120 LBS	MS3367-3
NT1800	17.75	451	--	--	5.250	133	175 LBS	
NT2100	21.50	546	--	--	6.000	152	175 LBS	
NT2400	24.00	610	0.354	9.0	7.28	185	175 LBS	
NT2800	28.00	710	0.354	9.0	8.66	220	175 LBS	
NT3200	32.00	813	--	--	9.500	241	175 LBS	
NT3300HD	33.00	838	0.350	8.9	10.000	254	175 LBS	
NT4800	48.00	1219	0.354	9.0	15.00	380	175 LBS	

NYLON-66  
Add "-C" suffix for 100 pack

Cable Ties



## WEATHER RESISTANT CABLE TIES



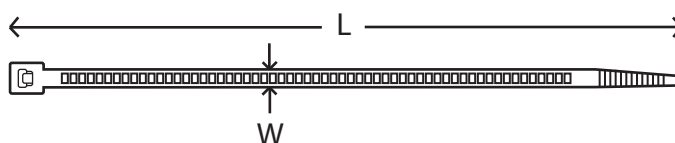
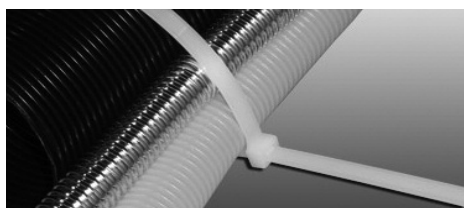
E5

### Weather Resistant Nylon Cable Ties

ITEM NUMBER	LENGTH (L)		WIDTH (W)		MAXIMUM BUNDLE DIAMETER		MINIMUM TENSILE STRENGTH
	in	mm	in	mm	in	mm	
NT400-UV	4.00	100	0.10	2.5	0.984	25	18 LBS
NT550L-UV	5.50	142	0.10	2.5	1.38	35	18 LBS
NT800L-UV	8.00	203	0.10	2.5	2.17	55	18 LBS
NT550-UV	5.50	142	0.126	3.2	1.38	35	40 LBS
NT800-UV	8.00	203	0.181	4.6	2.17	55	50 LBS
NT1100L-UV	11.50	292	0.142	3.6	3.35	85	40 LBS
NT1100-UV	11.00	280	0.189	4.8	3.19	81	50 LBS
NT1400-UV	14.50	368	0.189	4.8	4.02	102	50 LBS
NT1800-UV	17.75	450	0.189	4.8	5.12	130	50 LBS
NT1100HD-UV	11.00	280	0.30	7.6	3.07	78	120 LBS
NT1400HD-UV	15.00	380	0.30	7.6	4.33	110	120 LBS
NT2100-UV	21-11/16	550	0.314	8.0	6.54	166	175 LBS
NT2400-UV	24.00	605	0.354	9.0	7.28	185	175 LBS
NT2800-UV	28.00	705	0.354	9.0	8.66	220	175 LBS
NT3200-UV	32.00	812	0.354	9.0	9.69	246	175 LBS
NT3600-UV	36.00	914	0.354	9.0	10.63	270	175 LBS
NT4800-UV	48.00	1219	0.354	9.0	15.00	380	175 LBS

Black colour. NYLON-66. Carbonate is added to increase resistance to UV for increased useful life in sunshine/outdoor applications

### HVAC Duct Straps



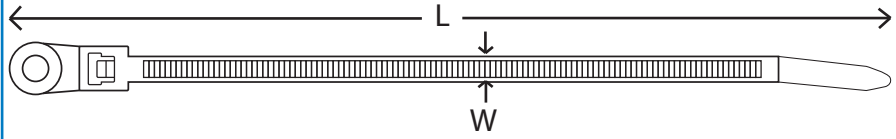
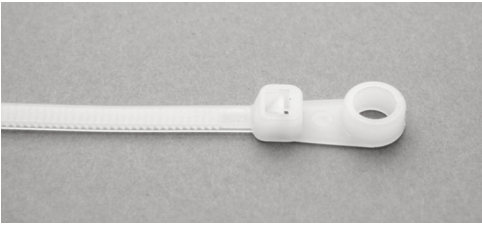
ITEM NUMBER	LENGTH (L)		WIDTH (W)		MAXIMUM BUNDLE DIAMETER		MINIMUM TENSILE STRENGTH
	in	mm	in	mm	in	mm	
NTDT-36-914	36"	914	0.35"	9	10.63	270	175 LBS (80 KGS)
NTDT-37-940	37"	940	0.35"	9	11.22	285	175 LBS (80 KGS)
NTDT-48-1219	48"	1219	0.35"	9	14.96	380	175 LBS (80 KGS)

Heavy Duty NYLON-66, UL 181B-C for non-metallic air ducts (R6-R8 Flex Duct).

# Cable Ties

## MOUNTING CABLE TIES & SPECIALTY CABLE TIES

E6

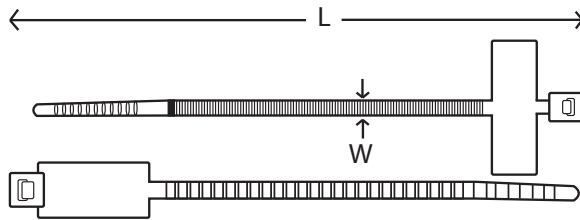
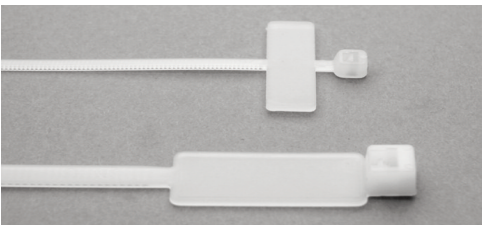


### Mounting Cable Ties

ITEM NUMBER	LENGTH (L)		WIDTH (W)		MAXIMUM BUNDLE DIAMETER		MINIMUM TENSILE STRENGTH	SCREW SIZE
	in	mm	in	mm	in	mm		
MNT400	4.00	100	0.10	2.5	0.98	25	18 LBS	#6
MNT550	6.00	150	0.10	2.5	0.750	19.1	40 LBS	#8
MNT675	8.00	203	0.18	4.6	1.750	44.5	50 LBS	#10
MNT1100	11-7/8	300	0.189	4.8	3.35	85	50 LBS	#10
MNT1400	14.00	356	0.30	7.6	4.00	102	120 LBS	0.250

Bundling and mounting is done with one tie. Natural White colour (available in Black). The cable tie can be secured to the panel with a single screw. Made of UL Approved Nylon 66, 94V-2. UR Listed.

Cable Ties



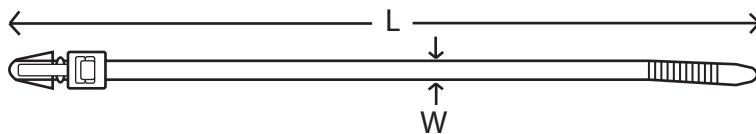
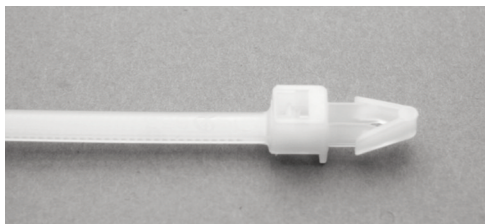
### Identification Cable Ties

ITEM NUMBER	LENGTH (L)		WIDTH (W)		MAXIMUM BUNDLE DIAMETER		MINIMUM TENSILE STRENGTH	MILITARY SPEC NO.
	in	mm	in	mm	in	mm		
IDNT400	4.00	100	0.18	4.6	0.750	19.1	18 LBS	MS3368-5
IDNT750	7.00	178	0.18	4.6	1.500	38.1	50 LBS	MS3368-1
IDNT1100	10.63	270	0.18	4.6	2.95	75	50 LBS	

Tie and identify bundles of cable in one operation. Flat areas may be imprinted or written on with a marking pen. Made of UL Approved Nylon 66, 94V-2. UR Listed.

## SPECIALTY CABLE TIES

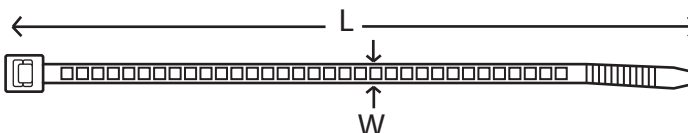
E7



### Push Mount Cable Ties

ITEM NUMBER	LENGTH (L)		WIDTH (W)		MAXIMUM BUNDLE DIAMETER		MINIMUM TENSILE STRENGTH	HOLE SIZE
	in	mm	in	mm	in	mm		
PIMNT600	6.125	156	0.15	3.8	1.57	39.9	40 LBS	#10(4.8mm)
PIMNT750	7.50	190	0.18	4.6	1.750	44.5	50 LBS	#10(4.8mm)
PIMNT800	8.00	203	0.19	4.8	1.97	50	50 LBS	0.250(6.4mm)
PIMNT1100	11.00	279	--	--	3.00	76.2	50 LBS	0.250(6.4mm)

Bundle and press the tie into a pre-drilled hole for secure one-piece harness tying and mounting. Made of UL Approved Nylon 66, 94V-2.



### Ladder Cable Ties

ITEM NUMBER	LENGTH (L)		WIDTH (W)		MAXIMUM BUNDLE DIAMETER		MINIMUM TENSILE STRENGTH
	in	mm	in	mm	in	mm	
LNT700	7.00	178	0.14	3.56	1.59	44.5	40 LBS
LNT1100	11.00	279	0.14	3.56	3.000	76.2	50 LBS

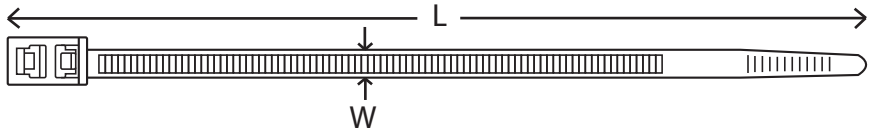
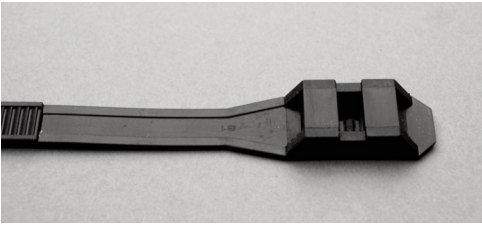
Strong open construction for reduced cost.

Cable Ties

# Cable Ties

## SPECIALTY CABLE TIES

E8

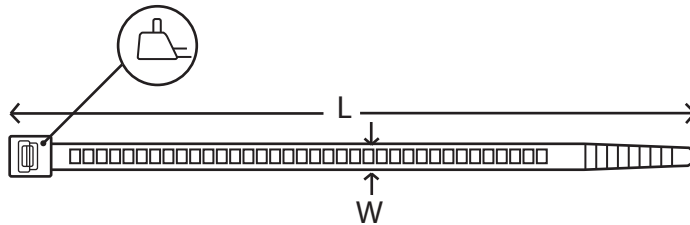
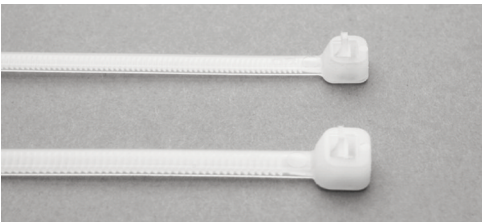


### Double Head/Locking Cable Ties

ITEM NUMBER	LENGTH (L)		WIDTH (W)		MAXIMUM BUNDLE DIAMETER		MINIMUM TENSILE STRENGTH
	in	mm	in	mm	in	mm	
DHNT800	8.25	210	0.18	4.6	0.750	19.1	40 LBS
DHNT900	9.25	235	0.354	9.0	2.17	55	120 LBS
DHNT1100	11-7/8	300	0.354	9.0	3.46	88	120 LBS
DHNT1400	14.25	360	0.354	9.0	3.94	100	120 LBS
DHNT2000	20.00	510	0.354	9.0	5.91	150	120 LBS
DHNT2400	24.00	610	0.354	9.0	7.09	180	120 LBS
DHNT3000	30.00	760	0.354	9.0	9.01	230	120 LBS

Designed to harness two cables at once. Black colour. White is available, add suffix –"WT" to part number. Made of UL Approved Nylon 66, 94V-2.

Cable Ties

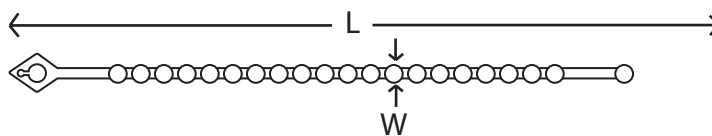
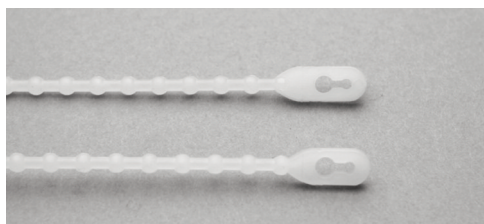


### Releasable Cable Ties

ITEM NUMBER	LENGTH (L)		WIDTH (W)		MAXIMUM BUNDLE DIAMETER		MINIMUM TENSILE STRENGTH
	in	mm	in	mm	in	mm	
RNT400	4-15/16	125	0.30	7.6	1.18	30	50 LBS
RNT600	6.00	150	0.30	7.6	1.25	31.75	50 LBS
RNT800	8.00	203	0.30	7.6	2.00	50.8	50 LBS
RNT1100	11.00	280	0.30	7.6	3.00	76.2	50 LBS

Perfect for prototypes and applications requiring service. These ties which are easily assembled by hand or with pliers, remain securely locked until intentionally released by operating the finger catch. Made of UL Approved Nylon 66, 94V-2. Black is available, add suffix –"UV" to part number. UR Listed

## SPECIALTY CABLE TIES

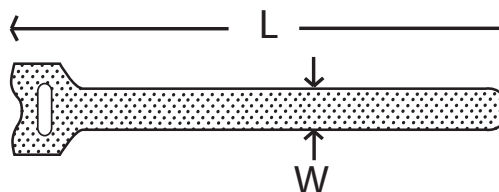


E9

### Beaded Cable Ties

ITEM NUMBER	LENGTH (L)		WIDTH (W)		MAXIMUM BUNDLE DIAMETER		MINIMUM TENSILE STRENGTH
	in	mm	in	mm	in	mm	
BNT400	4.50	114	--	--	0.750	19.1	18 LBS
BNT600	6.00	150	--	--	1.125	28.6	30 LBS
BNT800	8.00	203	--	--	2.000	50.8	40 LBS
BNT1000	10.00	250	--	--	2.750	192.1	40 LBS
BNT1100	11.00	280	--	--	3.000	76.2	50 LBS

Easy to install and release. Beaded design keeps wires from shifting or slipping. Made of UL Approved Nylon 66, 94V-2.



Cable Ties

### Velcro Ties

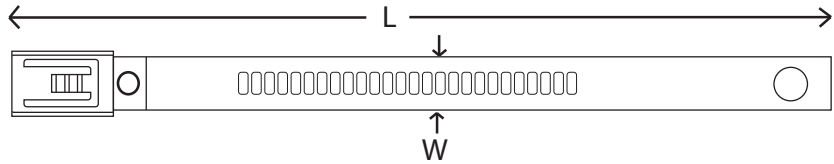
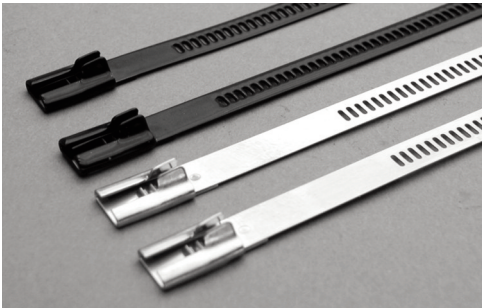
ITEM NUMBER	LENGTH (L)		WIDTH (W)		MAXIMUM BUNDLE DIAMETER	
	in	mm	in	mm	in	mm
VT550	5.30	135	.470	12	1.5	38
VT800	8.20	208	.625	16	2.5	64
VT1200	12.20	310	.625	16	3.5	89

Reusable, durable velcro ties.

# Steel Cable Ties

## STAINLESS STEEL CABLE TIES

E10



### Stainless Steel Cable Ties - Uncoated Ladder Type

ITEM NUMBER	LENGTH (L)		MAXIMUM BUNDLE DIAMETER (W)	
	in	mm	in	mm
STL-195S	8	195	1.7	45
STL-255S	10	255	2.5	64
STL-335S	13	335	3.5	89
STL-490S	19	490	5.4	139
STL-635S	25	635	7.2	185
STL-195M	8	195	1.7	45
STL-255M	10	255	2.5	64
STL-335M	13	335	3.5	89
STL-490M	19	490	5.4	139
STL-635M	25	635	7.2	185

### Stainless Steel Cable Ties

Made from 316 Stainless Steel  
 Non-Magnetic.  
 W = 0.28" (7 mm)  
 T = 0.010" (0.3 mm)  
 Tensile Strength S = 75 lbs (34 kg)  
 M = 100 lbs (45.3 kg)

In general, stainless steel exhibits excellent resistance to most common acids and bases such as sulfuric acid and sodium hydroxide.

For applications requiring superior corrosion resistance, such as off-shore drilling rigs which are constantly exposed to salt water and spray.

Cable Ties

### Stainless Steel Cable Ties - Ladder Type, Black Nylon 11 Coating

ITEM NUMBER	LENGTH (L)		MAXIMUM BUNDLE DIAMETER (W)	
	in	mm	in	mm
STLC-195S	8	195	1.7	45
STLC-255S	10	255	2.5	64
STLC-335S	13	335	3.5	89
STLC-490S	19	490	5.4	139
STLC-635S	25	635	7.2	185
STLC-195M	8	195	1.7	45
STLC-255M	10	255	2.5	64
STLC-335M	13	335	3.5	89
STLC-490M	19	490	5.4	139
STLC-635M	25	635	7.2	185

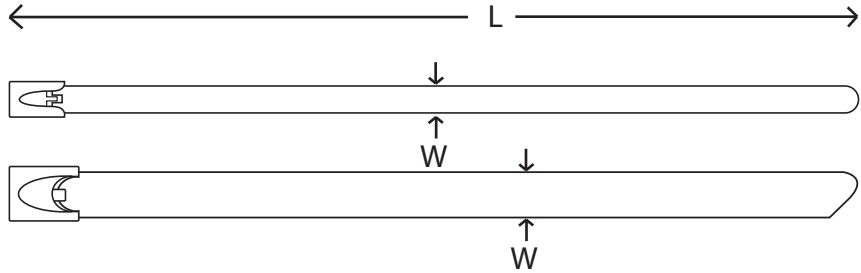
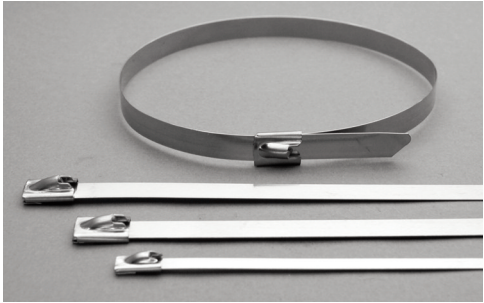
### Coated Stainless Steel Cable Ties

Made from 316 Stainless Steel  
 Non-Magnetic.  
 W = 0.28" (7 mm)  
 T = 0.010" (0.3 mm)  
 Tensile Strength S = 75 lbs (34 kg)  
 M = 100 lbs (45.3 kg)

Nylon 11 coating reduces corrosion.

# Steel Cable Ties

## STAINLESS STEEL CABLE TIES



E11

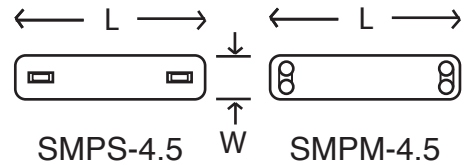
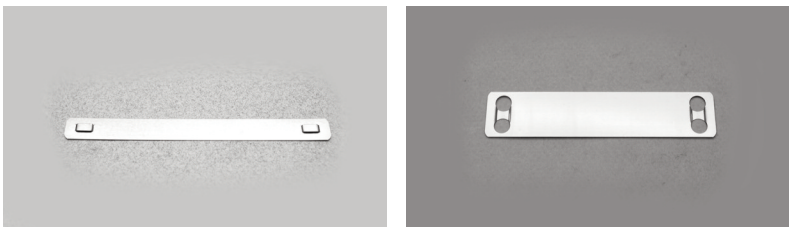
### Stainless Steel Cable Ties - With Ball Lock

ITEM NUMBER	LENGTH (L)		MAXIMUM BUNDLE DIAMETER (W)	
	in	mm	in	mm
STB-152S	6	152	1	25
STB-200S	8	200	2	50
STB-360S	14	360	4	102
STB-520S	20	520	6	152
STB-680S	27	680	8	203
STB-840S	33	840	10	254
STB-1050S	41	1050	12.5	318
STB-152M	6	152	1	25
STB-200M	8	200	2	50
STB-360M	14	360	4	102
STB-520M	20	520	6	152
STB-680M	27	680	8	203
STB-840M	33	840	10	254
STB-1050M	41	1050	12.5	318

#### Stainless Steel Cable Ties With Ball Lock

Made from 316 Stainless Steel  
Non-Magnetic.  
W = 0.177" (4.5 mm)  
T = 0.010" (0.3 mm)  
Tensile Strength S = 100 lbs (45.3 kg)  
M = 250 lbs (113.3 kg)  
Bias tip design on heavier ties speeds installation by allowing smoother entry into the locking head.  
Individual locking heads slip onto banding; turn back extended band to hold head in place. Install upside down to disengage ball.

Cable Ties



### Steel Tie Marker Plates

ITEM NUMBER	LENGTH	WIDTH
SMPS-4.5	3.5" (88.9)	.375" (9.5)
SMPM-4.5	3.5" (88.9)	.750" (19.0)

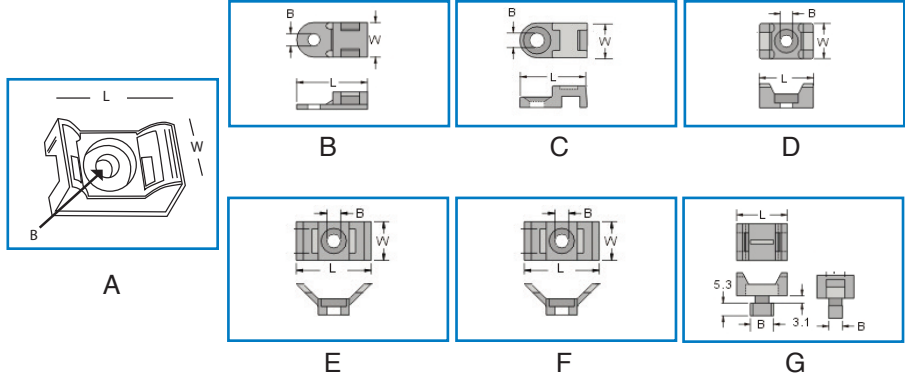
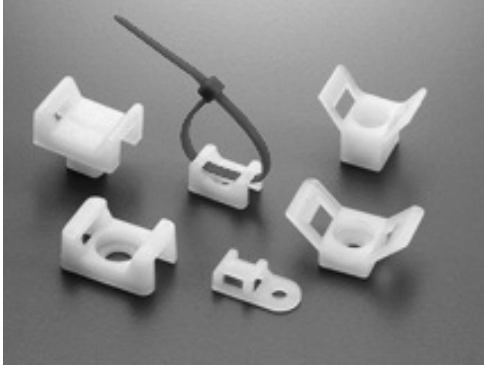
For use with Stainless Steel Cable Ties.  
Tag equipment, identify cables or bundles. Marker plates with round holes may be used in various ways.  
Made of 316 Stainless Steel.

# Hardware

## CABLE TIE MOUNTING HARDWARE

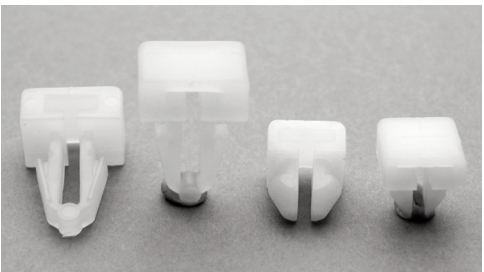
E12

### Cradle Mounts



ITEM NUMBER	DIAGRAM	(B)	LENGTH (L)		WIDTH (W)	
			in	mm	in	mm
CM-4	A	0.312"	0.540	13.7	1.340	34.0
CM-8	A	0.375"	0.720	12.3	0.520	13.2
CM-10	A	0.500"	1.040	26.4	0.640	16.3
HC-0	B	0.146"	0.771	19.6	0.374	9.5
HC-0M	B	0.170"	0.748	19.0	0.374	9.5
HC-0L	B	0.217"	0.748	19.0	0.374	9.5
HC-0R	C	0.165"	0.751	19.1	0.393	10.0
HC-1	D	0.138"	0.590	15.0	0.393	10.0
HC-1S	D	0.130"	0.503	12.8	0.275	7.0
HC-2S	D	0.196"	0.905	23.0	0.629	16.0
HC-2	D	0.248"	0.905	23.0	0.629	16.0
HC-2A	D	0.196"	0.807	20.5	0.673	17.1
HC-2L	D	0.255"	0.905	23.0	0.629	16.0
HC-3	E	0.208"	0.905	23.0	0.543	13.8
HC-4	F	0.196"	1.181	30.0	0.578	14.7
HC-5	G	0.228" x 0.381	0.846	21.5	0.629	16.0

Provides stability in wire runs.



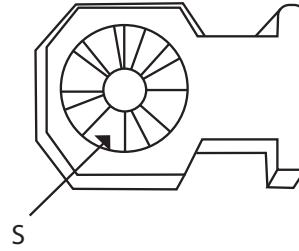
### Push Tie Mounts

ITEM NUMBER	FOR CABLE TIES	HOLE SIZE (B)
PIM-187	UP TO 50 LBS	.187
PIM-250	UP TO 120 LBS	.250



## CABLE TIE MOUNTING HARDWARE

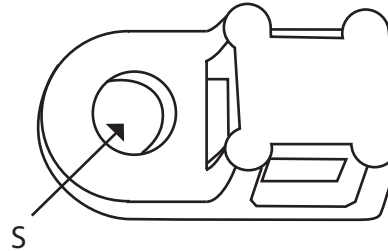
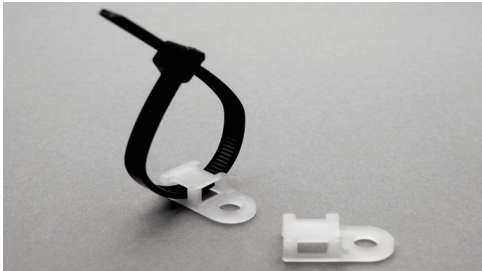
E13



### Low Profile Mounts

ITEM NUMBER	FOR CABLE TIES	SCREW SIZE (S)
LPM-8	UP TO 50 LBS	#8

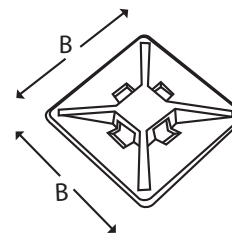
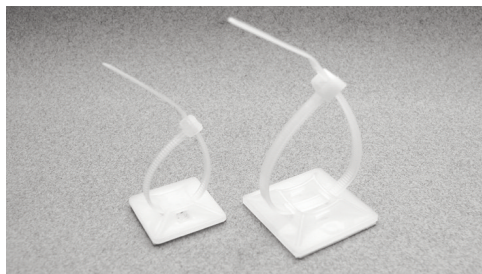
For use where space is limited.



### Tie Anchor Bases

ITEM NUMBER	FOR CABLE TIES	SCREW SIZE (S)
TA-8	UP TO 50 LBS	#8
TA-10	UP TO 120 LBS	#10

Secure tie to panel with a single screw.



### 4-Way Adhesive Backed Mounting Bases

ITEM NUMBER	FOR CABLE TIES	BASE SIZE (B x B)	TYPE
4-SMPA	UP TO 50 LBS	.75" X .75"	ACRYLIC
4-MPA	UP TO 50 LBS	1.0" X 1.0"	ACRYLIC
4-SMPR	UP TO 50 LBS	.75" X .75"	RUBBER
4-MPR	UP TO 50 LBS	1.0" X 1.0"	RUBBER

- 3/4" square for 18 through 50 lb ties
- 1" square for 18 through 50 lb ties

Cable Ties




**ETLIN-DANIELS**

1850 Wilson Avenue, Toronto,  
Ontario, Canada, M9M 1A1  
Ph: 416-741-7336 Fax: 416-741-9104

## SECTION F WIRE ACCESSORIES

**F1**

**WIRE ACCESSORIES**

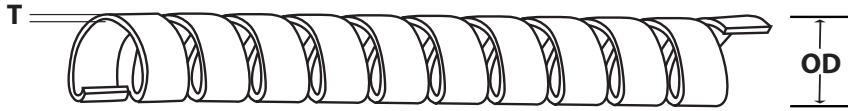
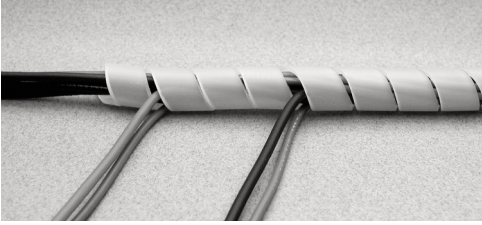
### Wire Accessories

Spiral Wrap	F2
Split Loom	F3
Nylon Cable Clamps	F4
<b>Clips</b>	
Adhesive Base Clips	F5-F7
Adhesive Wire Saddles	F7
Standard Hose Clamps	F8
Twist Clips, Spring Clips	F9
Nail Cable Clips	F9-F10
Push in Releasable Cable Clips, Push-in Wire Saddle	F11
Push in Twist Clips with Standoff, Lock-in Wire Saddles, Twist Clips	F12-F14
Rubber Grommets	F15

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SPIRAL WRAP  
PROTECTIVE SHEATHING

F2



## Non-Flame Retardant Polyethylene

ITEM NUMBER	OD DIAMETER (OD)		WALL THICKNESS (T)		BUNDLE RANGE (inches)
	inch	mm	inch	mm	
1NFP	.125	3.18	.032	.81	1/16 - 1/4
1.5NFP	.250	6.35	.035	.89	3/16 - 2
2NFP	.250	6.35	.045	1.14	3/16 - 2
2.2NFP	.375	9.53	.040	1.02	3/16 - 2
2.5NFP	.375	9.53	.052	1.32	5/16 - 3
2.6NFP	.375	9.53	.062	1.57	5/16 - 3
2.7NFP	.500	12.70	.030	0.76	3/8 - 3
2.8NFP	.500	12.70	.040	1.02	3/8 - 4
3NFP	.500	12.70	.062	1.57	3/8 - 4
3.1NFP	.500	12.70	.072	1.83	3/8 - 4
3.5NFP	.625	15.87	.062	1.57	5/8 - 4 1/2
4NFP	.750	19.05	.065	1.65	3/4 - 5
4.5NFP	1.000	25.40	.070	1.77	1 - 7
5NFP	1.000	25.40	.095	2.41	1 - 7

## Non- Flame Retardant Spiral Wrap Protective Sheathing

Non-flame retardant polyethylene for general-purpose indoor use. Temperature Range: -80°F(-62°C) to 212°F(100°C). For weather resistant Polyethylene, add suffix -UV to part number. (Polyethylene is not affected by ordinary solvents and is resistant to abrasion.)

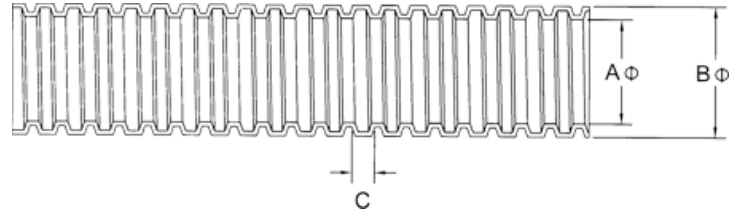
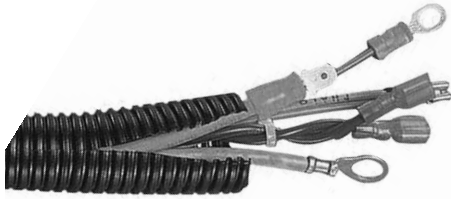
## Flame Retardant Polyethylene

ITEM NUMBER	OD DIAMETER (OD)		WALL THICKNESS (T)		PITCH		BUNDLE RANGE (inches)
	inch	mm	inch	mm	inch	mm	
1FRP	.125	3.18	.032	.81	.187	4.75	1/16 - 1/4
2FRP	.250	6.35	.045	1.14	.375	9.53	3/16 - 2
2.5FRP	.375	9.53	.052	1.32	.438	11.13	5/16 - 3
3FRP	.500	12.70	.062	1.57	.563	14.30	3/8 - 4
4FRP	.750	19.05	.065	1.65	.750	19.05	3/4 - 5
5FRP	1.000	25.40	.095	2.41	.999	25.40	1 - 7

## Flame Retardant Spiral Wrap Protective Sheathing

Flame retardant polyethylene, self-extinguishing.

Forms a flexible sheath to bundle, harness, protect or insulate wires, cables, tubing or hoses. The inner edges are rounded to protect the lead out cables. Spiral wrap is re-useable and is resistant to most chemicals, including aircraft fuels and hydraulic oils. Spiral wrap is available in a broad range of colours, for a colour other than natural, please contact our office.

**SPLIT LOOM**

F3

**Standard Polypropylene Black**

ITEM NUMBER	A		B		C		SIZE (inches)
	inches	mm	inches	mm	inches	mm	
22SL0250PP	.266"	6.8	.395"	10.0	.120"	3.05	1/4"
22SL0375PP	.419"	10.6	.535"	13.6	.128"	3.25	3/8"
22SL0500PP	.505"	12.8	.670"	17.0	.143"	3.63	1/2"
22SL0625PP	.650"	16.5	.825"	21.0	.145"	3.68	5/8"
22SL0750PP	.761"	19.3	.927"	23.6	.144"	3.66	3/4"
22SL1000PP	.909"	23.1	1.033"	26.2	.172"	4.37	1"

Convolutd Split Loom provides protection from heat, sunlight, water, snow, ice, friction wear, fraying and puncture. Split loom has a slit for easy insertion of wires over a long run. Soft and very flexible.

Made from Polyethylene in Black 100 foot rolls.

Temperature Range - 40°C to 90°C (-40°F to 200°F)

**Non- Flame Retardent Spiral Wrap Protective Sheathing**

All split loom is manufactured in BLACK

ALL NYLON Split Loom has a GRAY stripe for identification.

ALL FR POLYPROPYLENE Split Loom has a BLUE stripe.

**Flame Retardant\* Polypropylene Black**

ITEM NUMBER	A		B		C		SIZE (inches)
	inches	mm	inches	mm	inches	mm	
22SL0250FRPPBL	.266"	6.8	.395"	10.0	.120"	3.05	1/4"
22SL0375FRPPBL	.419"	10.6	.535"	13.6	.128"	3.25	3/8"
22SL0500FRPPBL	.505"	12.8	.670"	17.0	.143"	3.63	1/2"
22SL0625FRPPBL	.650"	16.5	.825"	21.0	.145"	3.68	5/8"
22SL0750FRPPBL	.761"	19.3	.927"	23.6	.144"	3.66	3/4"
22SL1000FRPPBL	.909"	23.1	1.033"	26.2	.172"	4.37	1"

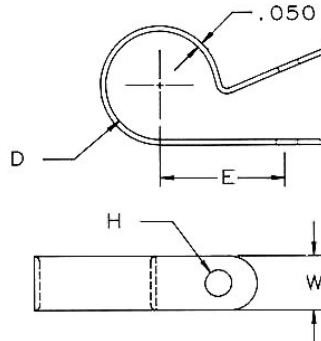
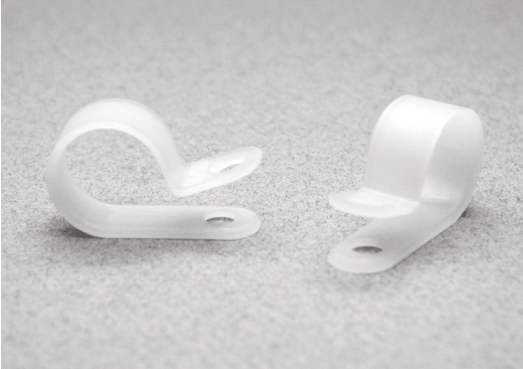
**Flame Retardant\* Polypropylene Black**

\*FR Polypropylene split loom has a blue strip identifier

## NYLON CABLE CLAMPS

F4

## Nylon Cable Clamps



ITEM NUMBER	DIMENSIONS IN INCHES				DIMENSIONS IN MM			
	D	E	H	W	D	E	H	W
3302	1/8"	.329	.203	3/8"	3.2	8.36	5.16	9.5
3303	3/16"	.430	.203	3/8"	4.8	10.92	5.16	9.5
3304	1/4"	.410	.203	3/8"	6.3	10.41	5.16	9.5
3305	5/16"	.495	.203	3/8"	7.9	12.57	5.16	9.5
3306	3/8"	.595	.203	3/8"	9.5	15.11	5.16	9.5
3307	7/16"	.574	.203	3/8"	11.1	14.58	5.16	9.5
3308	1/2"	.605	.203	3/8"	12.7	15.37	5.16	9.5
3309	9/16"	.678	.203	3/8"	14.3	17.22	5.16	9.5
3322	1/8"	.315	.203	1/2"	3.2	8.00	5.16	12.7
3323	3/16"	.425	.203	1/2"	4.8	10.80	5.16	12.7
3324	1/4"	.410	.203	1/2"	6.3	10.41	5.16	12.7
3325	5/16"	.500	.203	1/2"	7.9	12.70	5.16	12.7
3326	3/8"	.530	.203	1/2"	9.5	13.46	5.16	12.7
3327	7/16"	.560	.203	1/2"	11.1	14.22	5.16	12.7
3328	1/2"	.595	.203	1/2"	12.7	15.11	5.16	12.7
3329	9/16"	.606	.203	1/2"	14.3	15.39	5.16	12.7
3330	5/8"	.655	.203	1/2"	15.9	16.64	5.16	12.7
3331	11/16"	.755	.203	1/2"	17.4	19.18	5.16	12.7
3332	3/4"	.780	.203	1/2"	19.0	19.81	5.16	12.7
3333	13/16"	.815	.203	1/2"	20.6	20.70	5.16	12.7
3334	7/8"	.845	.203	1/2"	22.2	21.46	5.16	12.7
3340	1"	.910	.203	1/2"	25.4	23.11	5.16	12.7
3342	1-1/8"	.970	.203	1/2"	28.6	24.63	5.16	12.7
3343	1-3/16"	1.00	.203	1/2"	30.1	25.40	5.16	12.7
3344	1-1/4"	1.06	.203	1/2"	31.8	26.92	5.16	12.7
3346	1-3/8"	1.125	.203	1/2"	34.9	28.57	5.16	12.7
3348	1-1/2"	1.19	.203	1/2"	38.1	30.23	5.16	12.7

**Nylon Cable Clamps**

For clamping cables or tubing securely in place. Made from tough, resilient, chemical resistant nylon.

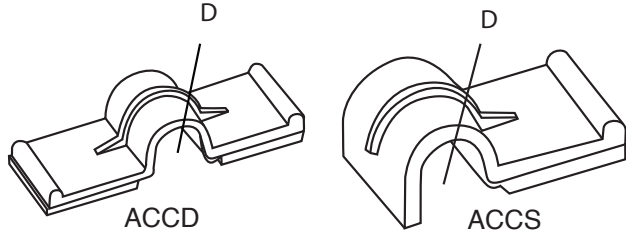
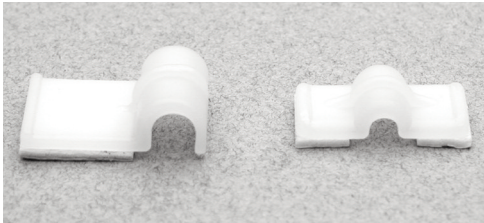
Molded in open position for easy assembly. Radius edges protect against insulation abrasion.

They are also available in black by adding the suffix - "BL"

**ADHESIVE BASE CABLE CLIPS**

**Cable Clips**

F5



ITEM NUMBER	FOR CABLE DIAMETER (D)
ACCD-1/8	UP TO 1/8"
ACCD-1/4	UP TO 1/4"
ACCD-3/8	UP TO 3/8"
ACCD-1/2	UP TO 1/2"
ACCS-1/8	UP TO 1/8"
ACCS-1/4	UP TO 1/4"
ACCS-3/8	UP TO 3/8"
ACCS-1/2	UP TO 1/2"

**Double Backed Cable Clips**

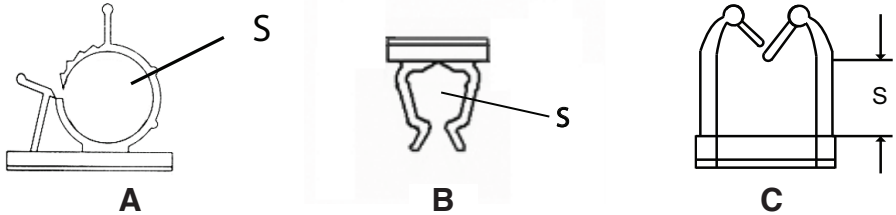
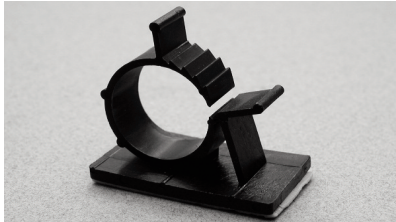
A convenient and fast way to install wires and cable to almost any surface. Nylon cable clips provide a low in-place assembly that is quick and permanent. The double clip design develops greater shear loads and holding power. Tough, corrosion resistant Nylon 6/6 clip is backed with a quality foam adhesive tape. Polyurethane foam tape has excellent conformability, high temperature and solvent resistance and high ultimate bond strength.

**Single Backed Cable Clips**

Tough, corrosion resistant Nylon 6/6 clip is backed with a quality foam adhesive tape. Polyurethane foam tape has excellent conformability, high temperature and solvent resistance and high ultimate bond strength. The single clip is designed to be used in areas where space is limited or in corners or edges. To install, simply pull the clip off the backing and press into place, no holes to drill or screws to turn.

**Releasable, Adjustable Cable Clips**

Wire Accessories



ITEM NUMBER	FOR CABLE DIAMETER (S)	FIGURE
AP-0810	.315" TO .395"	A
AP-1013	.395" TO .500"	A
AP-1316	.500" TO .630"	A
AP-1720	.670" TO .785"	A
AP-2225	.850" TO 1.00"	A
AWCS312	0.200"	B
MWCA500	0.250"	C

**Releasable, Adjustable Cable Clips**

One size of adjustable clamp can accommodate various cables that will save your cost stock. Easy to install; open for unlimited usage. Made of UL Approved Black Nylon 66 94V2 (backed with adhesive tape).

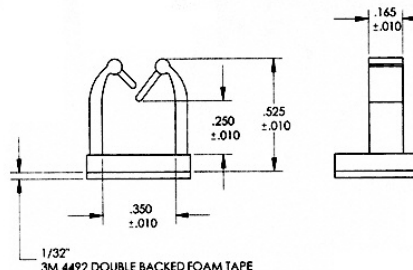
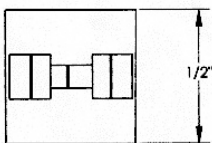
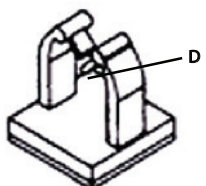


# Wire Accessories

## ADHESIVE BASE CABLE CLIPS

F6

### Miniature Wire Saddle

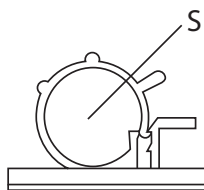
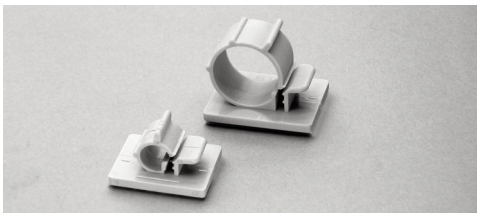


ITEM NUMBER	FOR CABLE DIAMETER D
TSCA-0500	.236" TO .275"

### Miniature Wire Saddle

Adhesive Backed Clip eliminates the need for mounting holes. Molded in Nylon 6/6 natural, this item is good for space saving applications due to the small base.

### Releasable Cable Clips



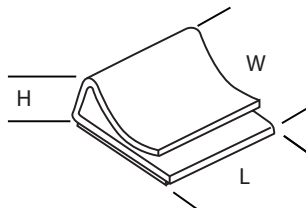
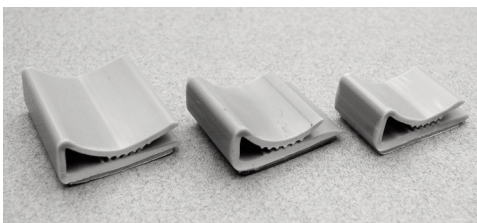
ITEM NUMBER	FOR CABLE DIAMETER (S)
TS-0607	.236" TO .275"
TS-0708	.275" TO .315"
TS-0910	.350" TO .395"
TS-1214	.475" TO .550"
TS-1618	.630" TO .705"

### Releasable Cable Clips

Two stage lock design to accommodate different cable sizes in one clamp. Made of UL Approved Grey Nylon 66, 94V2 (backed with adhesive tape).

Wire Accessories

### Flat Cable Clips



ITEM NUMBER	SIZE L x W	HEIGHT (H)
FC-15	.590" L X 1.00" W	0.354
FC-20	.785" L X 1.00" W	0.354
FC-25	1.00" L X 1.00" W	0.354
FC-28	1.10" L X 1.00" W	0.354
SFC-15	.590"L X .511" W	0.254"
SFC-20	.787"L X .511" W	0.254"
SFC-25	.984"L X .511" W	0.254"
SFC-28	1.10"L X .511" W	0.254"

### Flat Cable Clips

Made of Grey PVC backed with quality adhesive tape. Conducts flat cable neatly and firmly, simply insert the cable into the clamp and the job is done.

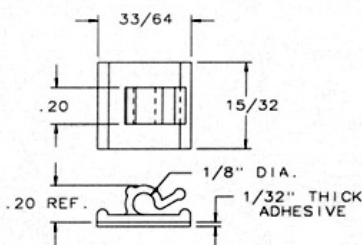




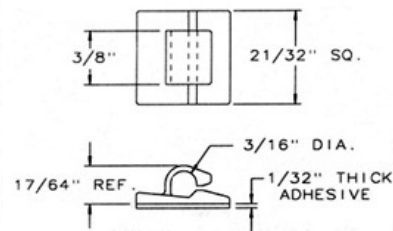
**ADHESIVE BASE CABLE CLIPS**

Adhesive Wire Clips

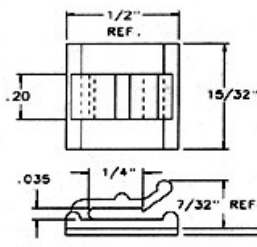
F7



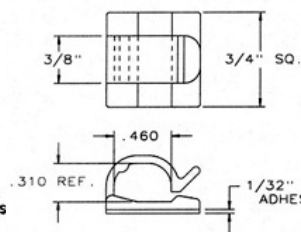
AWC125



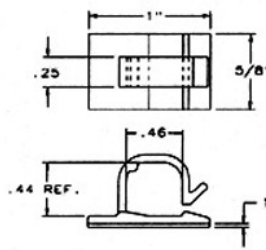
AWC187



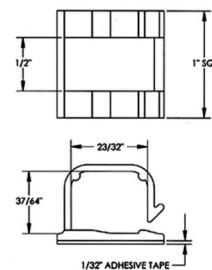
AWCF250047



AWC375



AWC440



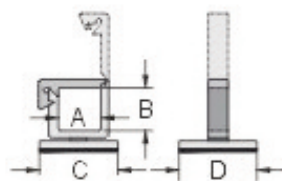
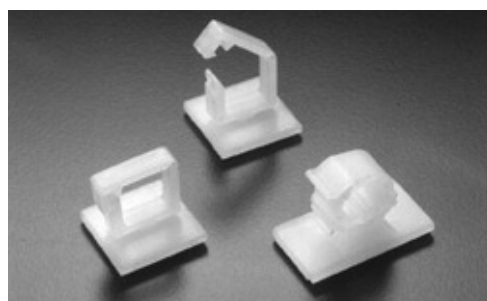
AWC580

ITEM NUMBER	SIZE
AWC125	.125" DIA
AWC187	.187" DIA
AWCF250047	.245" W X .035" H
AWC375	.460" W X .310" H
AWC440	.460" W X .440"H
AWC580	.718" W X .578"H

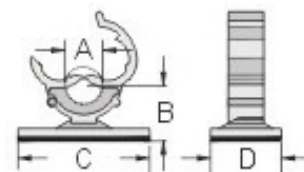
**Adhesive Wire Clips**

For routing wires and cables. The parts are backed with Polyurethane foam tape. Clip is releasable so that wires can be removed after assembly.

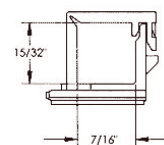
Adhesive Wire Saddles



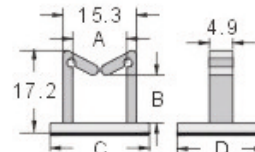
AWS-11



AWS-9R



AWCS-438469



AWS-1210

ITEM NUMBER	A inches (mm)	B inches (mm)	C inches (mm)	D inches (mm)
AWS-11	0.44(11.2)	0.43(11.0)	0.78(20.0)	0.78(19.8)
AWS-9R	0.33(8.5)	0.53(13.6)	1.17(29.8)	0.63(16.0)
AWCS-438469	0.44(11.3)	0.39(10.0)	0.81(20.7)	0.72(18.3)
AWS-1210	0.44(11.2)	0.45(11.6)	0.62(15.8)	0.37(9.5)

**Adhesive Base Wire Saddles**

Made of UL Approved Nylon 66 94V2 (backed with adhesive tape).

STANDARD NYLON  
HOSE CLAMPS

F8



## Standard Nylon Hose Clamps

## Hose Clamps

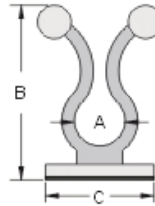
Nylon 6/6 (natural), with releasable overlapping tapered ring fastened around the hose/cable. It is secured to the required tightness by compressing the interacting grooves in a ratcheting manner.

ITEM NUMBER	A (mm)	B (mm)	CLAMPING RANGE inches(mm)
HSC010	0.156 (+/- 0.005)	0.040 (+/- .015)	0.009-0.010(0.235-0.26)
HSC015	0.150 (+/- 0.005)	0.050 (+/- .015)	0.011-0.012(0.283-0.312)
HSC020	0.230 (+/- 0.005)	0.070 (+/- .015)	0.014-0.015(0.35-0.395)
HSC040	0.230 (+/- 0.005)	0.070 (+/- .015)	0.014-0.016(0.36-0.41)
HSC060	0.230 (+/- 0.005)	0.070 (+/- .015)	0.017-0.019(0.43-0.48)
HSC080	0.230 (+/- 0.005)	0.070 (+/- .015)	0.019-0.021(0.5-0.545)
HSC100	0.230 (+/- 0.005)	0.070 (+/- .015)	0.020-0.024(0.525-0.605)
HSC120	0.230 (+/- 0.005)	0.070 (+/- .015)	0.023-0.026(0.58-0.66)
HSC140	0.230 (+/- 0.005)	0.070 (+/- .015)	0.026-0.295(0.65-0.75)
HSC180	0.230 (+/- 0.005)	0.070 (+/- .015)	0.031-0.035(0.779-0.899)
HSC190	0.230 (+/- 0.005)	0.070 (+/- .015)	0.034-0.039(0.859-0.989)
HSC220	0.250 (+/- 0.005)	0.070 (+/- .015)	0.035-0.042(0.9-1.072)
HSC240	0.250 (+/- 0.005)	0.070 (+/- .015)	0.039-0.045(0.99-1.135)
HSC280	0.280 (+/- 0.005)	0.070 (+/- .015)	0.044-0.051(1.123-1.296)

## ADHESIVE BASE CABLE CLIPS SCREW MOUNT CLIPS & NAIL CABLE CLIPS

### Twist Clips

F9



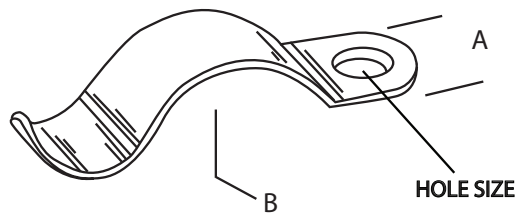
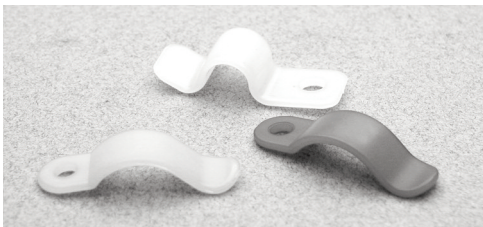
ITEM NUMBER	A (mm)	B (mm)	C (mm)
ATTB-08(ATC375)	0.31"	1.08"	0.69"
ATTB-15	0.58"	1.39"	0.87"
ATTB-20	0.81"	1.57"	1.003"

### Adhesive Base Twist Clips

Peel off adhesive paper prior to use, insert cables into twist lock, and twist ends to close.

Made of UL Approved Nylon 66 94V2 (backed with adhesive tape).

### Spring Wire Clips



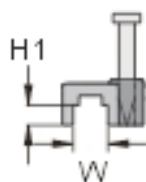
ITEM NUMBER	A	B	HOLE SIZE
WC500312	0.500"	up to 0.312"	0.182"
SCP375132	0.375"	up to 0.265"	0.179"

### Spring Wire Clips

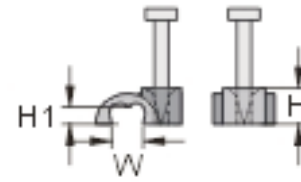
Provides a fast, secure assembly and routing of wires, standard round cable, flat cable and tubing. Can also be used to mount panels, glass, displays or signs.

To inspect, add or replace wires, simply pull back the clip to allow placement. The tough, flexible Nylon clip will spring back to hold the material securely. All contact edges are rounded for product protection.

### Nail Cable Clips



NF-0.18



NFR-1 NFR-1S

### Nail Cable Clips

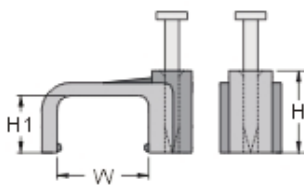
Nail cable clips are designed to secure cables with an inserted nail. Just hammer the nail to your mounting surface. Perfect for retrofitting cables. Impact resistant white polyethylene For telephone cords, flat cable. Inserted steel nail for masonry.

ITEM NUMBER	W	H	H1	SUITABLE WIRE	NAILS
NF-0.18	0.18"(4.5)	0.17"(4.3)	0.11"(2.7)	0.0314in <sup>2</sup> 2C	0.08" x 0.59"
NFR-1	0.20"(5.1)	0.27"(6.8)	0.12"(3.0)	0.0314in <sup>2</sup> 2C	0.10" x 0.71"
NFR-1S	0.20"(5.1)	0.27"(6.8)	0.12"(3.0)	0.0314in <sup>2</sup> 2C	0.08" x 0.78"

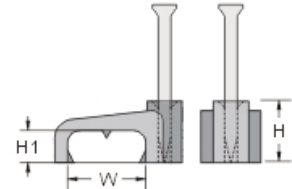
## NAIL CABLE CLIPS

F10

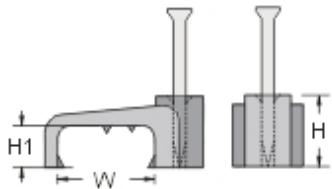
## Nail Cable Clips



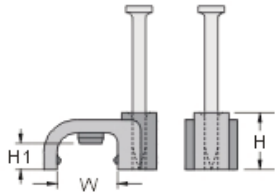
Standard Design



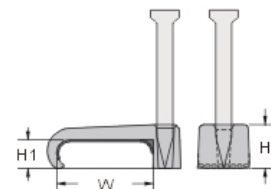
NF2.6S



NF2.8S



NFD-0508GY, 0610GY



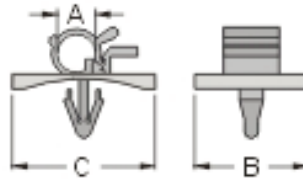
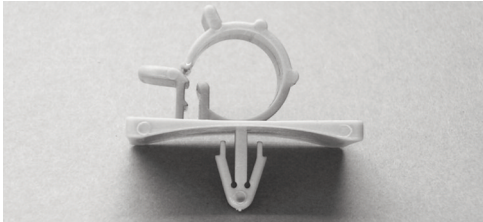
NFP-2.1

ITEM NUMBER	W (mm)	H (mm)	H1 (mm)	SUITABLE WIRE	NAILS (mm)
NF-0.25	2.1	4.5	1.2		1.65 x 15
NF-0.7	5.5	5.5	3.1		2.0 x 15
NF-1.2	6.2	6.4	3.8		2.0 x 15
NF-1.4	6.4	7	4.1		2.0 x 25
NF-1.6	8	8	5	1mm <sup>2</sup> T & E	2.0 x 15
NF-2.0S	8.5	8	5.2	1.5mm <sup>2</sup> T & E	2.0 x 25
NF-2.2S	10	10	6.5	2.5mm <sup>2</sup> T & E	2.0 x 25
NF-2.3	10.2	8	4.6		2.0 x 25
NF-2.6S	11.9	9.6	6.2	6mm <sup>2</sup> T & E	2.0 x 25
NF-2.8S	15	11	6.8	4mm <sup>2</sup> T & E	2.0 x 25
NFT-1.5	9.8	6.7	4.4	1.5mm <sup>2</sup> T & E	2.0 x 25
NFT-4.0	11.6	9.7	6.4	4mm <sup>2</sup> T & E	2.0 x 25
NFD-1.0	16.8	7.2	4.4	1.0 / 1.5mm <sup>2</sup> Double T & E	2.0 x 25
NFP-2.1	9.3	8.7	4	1 & 1.5mm <sup>2</sup> T & E	2.0 x 25
NF-2.0	8.5	8	5.2	1.5mm <sup>2</sup> T & E	2.5 x 18
NF-2.2	10	10	6.5	2.5mm <sup>2</sup> T & E	2.5 x 18
NF-2.6	13.5	11.6	8.1	6mm <sup>2</sup> T & E	2.5 x 22
NF-2.8	15	12.8	8.7		2.5 x 22
NF-3.0	18	12.9	9.5	10mm <sup>2</sup> T & E	2.5 x 27
NF-3.2	19	14.2	11.1		2.5 x 27
NFT-16	20.2	13.2	10.1	16mm <sup>2</sup> T & E	2.5 x 35
NF-1122	20.8	14.5	11		2.0 x 35
NFD-0508GY	15.1	7	4.5	2 x 1.0 and 1.5mm T & E Cable	2.5 x 25
NFD-0610GY	19.2	8.4	5.3	2 x 2.5mm T & E Cable	2.5 x 25
NFD-2.5	19.3	8.7	5.5	2.5mm <sup>2</sup> Double T & E	2.5 x 30
NF-5.0	49	33	26		4.0 x 50

## PUSH-IN MOUNT CABLE CLIPS

### Releasable, Push-In Cable Clips

F11



ITEM NUMBER	A inches(mm)	B inches(mm)	C inches(mm)	Hole Size inches(mm)
PTS-0607	0.24-0.28(6~7)	0.79(20.0)	0.98(25.0)	0.19"(4.8)
PTS-0708	0.28-0.31(7~8)	0.79(20.0)	0.98(25.0)	0.19"(4.8)
PTS-0910	0.35~0.39(9~10)	0.96(24.5)	1.18(30.0)	0.19"(4.8)
PTS-1214	0.47~0.55(12~14)	0.96(24.5)	1.18(30.0)	0.19"(4.8)
	0.63~0.71(16~18)	0.96(24.5)	1.18(30.0)	0.19"(4.8)

### Releasable, Push-In Cable Clips

Two stage lock design to accommodate different cable sizes in one clamp.

Mounts into a 4.8 mm diameter hole.

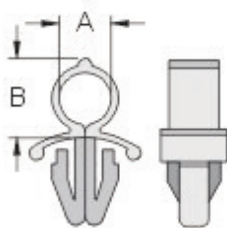
Made of UL Approved Grey Nylon 66, 94V2.

### Push-in Wire Saddle

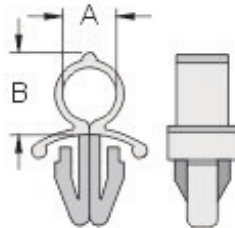


### Wire Saddle Clips

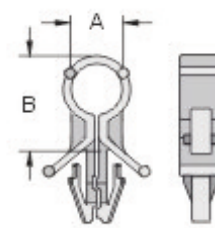
- Material: UL approved Nylon 66, 94V-2
- Color: Natural



RH-5. 8



RH-6



RH-9

ITEM NUMBER	A inches(mm)	B inches(mm)	HOLE inches(mm)	Thickness inches(mm)
RH-5	0.31(8)	0.20(5.1)	0.22(5.5)	0.08(2)
RH-6	0.37(9.5)	0.24(6.2)	0.31(8)	0.07(1.8)
RH-8	0.45(11.5)	0.30(7.5)	0.24(6.2)	0.08(2)
RH-9	0.71(18)	0.38(9.6)	0.37(9.5)	0.08(2)

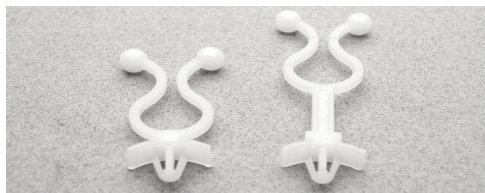


# Wire Accessories

## PUSH-IN MOUNT CABLE CLIPS WIRE SADDLES & TWIST CLIPS

F12

### Push-In Twist Clips With Standoff

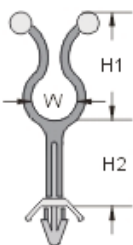


#### Push-In Twist Clips with Standoff

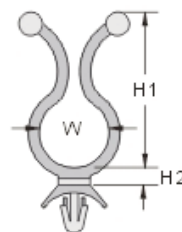
Locks into a pre-drilled 4.8 mm hole. Cables assemble into "W" part and clamp locks with a twist.

Made of UL Approved Nylon 66 94V2.

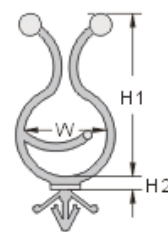
ITEM NUMBER	H1	H2	W	Mounting Hole	Thickness
ST-1	.83"	1.22"	.24"	(0.18"-0.19")	(0.04"-0.11")
ST-2	1.18"	.71"	.43"	(0.19"-0.20")	(0.04"-0.11")
ST-3	1.18"	.16"	.43"	(0.18"-0.19")	(0.04"-0.11")
ST-3B	1.20"	.12"	.43"	(0.24"-0.26")	(0.02"-0.08")
ST-3C	1.20"	.09"	.58"	(0.18"-0.19")	(0.02"-0.06")
ST-3D	1.36"	.08"	.72"	(0.17"-0.19")	(0.04"-0.09")
ST-4S	1.18"	.50"	.43"	(0.165"-0.19")	(0.04"-0.09")
ST-4	1.32"	.34"	.60"	(0.18"-0.19")	(0.04"-0.08")
ST-0560	.85"	2.29"	.20"	(0.18"-0.20")	(0.06"-0.12")
ST-1112	1.00"	.48"	.43"	(0.18"-0.19")	(0.06"-0.12")
ST-1247	1.05"	1.83"	.47"	(0.18"-0.19")	(0.06"-0.12")
ST-1602	1.26"	.10"	.63"	(0.17"-0.18")	(0.04"-0.11")
ST-2403	1.70"	.125"	.94"	(0.19"-0.20")	(0.02"-0.10")



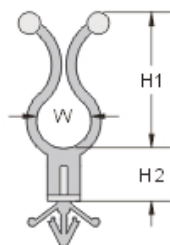
Standard Design



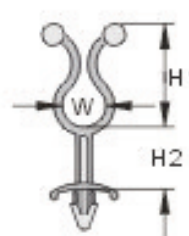
ST-3C



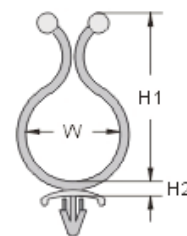
ST-3D



ST-4S



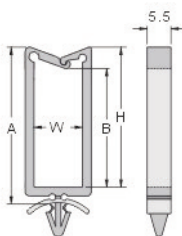
ST-1112 & ST-1247



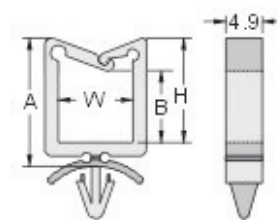
ST-2403

Wire Accessories

### Push-in Lock-in Wire Saddles



KWS-0,1,2,3



KWS-2L

ITEM NUMBER	H	A	B	W	Hole	Thickness
KWS-0	0.35"	0.51"	0.16"	0.43"	0.19"	0.079"
KWS-1	0.56"	0.75"	0.41"	0.43"	0.19"	0.079"
KWS-2	0.91"	1.06"	0.75"	0.43"	0.19"	0.079"
KWS-2L	0.59"	0.71"	0.47"	0.41"	0.19"	0.079"
KWS-3	1.22"	1.41"	1.10"	0.43"	0.19"	0.079"

#### Lock-in Wire Saddles

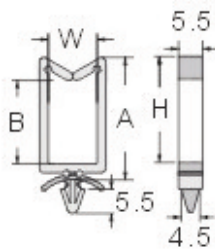
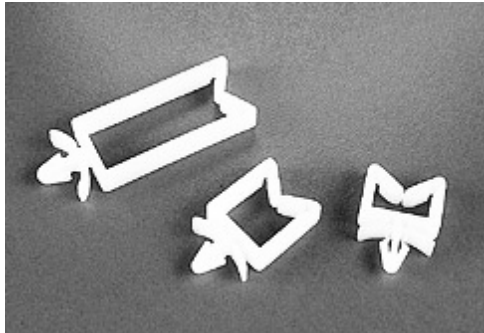
- Material: UL approved Nylon 66, 94V-2
- Color: Natural
- For directing and gathering cables at low cost. Locking into 4.8mm diameter mounting hole with fingertip pressure. Self adjust to various panel thickness.



**PUSH-IN MOUNT CABLE CLIPS  
WIRE SADDLES**

Push-in Lock-in Wire Saddles

F13

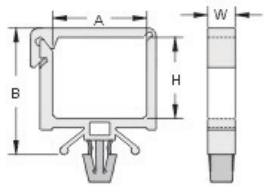
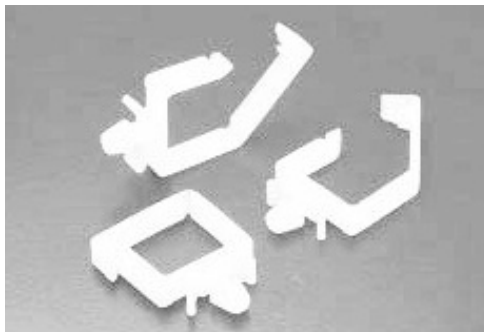


KWS-0N, 1N, 2N, 3N

**Lock-in Wire Saddles**

- Material: UL approved Nylon 66, 94V-2
- Color: Natural
- For directing and gathering cables at low cost. Locking into 4.8mm diameter mouting hole with fingertip pressure. Self adjust to various panel thickness.

ITEM NUMBER	H inches(mm)	A inches(mm)	B inches(mm)	W inches(mm)	Hole inches(mm)	Thickness inches(mm)
KWS-0N	0.36"(9.2)	0.50"(12.7)	0.16"(4)	0.43"(11)	0.19"(4.8)	0.079"(2)
KWS-1N	0.45"(11.4)	0.70"(17.9)	0.34"(8.6)	0.43"(11)	0.19"(4.8)"	0.079"(2)
KWS-2N	0.92"(23.4)	1.06"(26.9)	0.72"(18.2)	0.43"(11)	0.19"(4.8)	0.079"(2)
KWS-3N	1.23"(31.3)	1.37"(34.8)	1.03"(26.2)	0.43"(11)"	0.19"(4.8)	0.079"(2)"

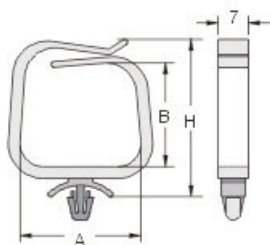
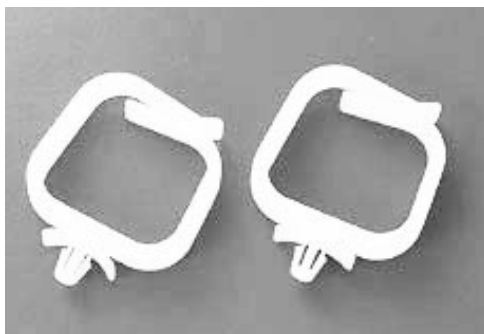


PWS-1715

**Wire Saddles**

- Material: UL approved Nylon 66, 94V-2
- Color: Natural

ITEM NUMBER	H inches(mm)	A inches(mm)	B inches(mm)	W inches(mm)	Hole inches(mm)	Thickness inches(mm)
PWS-1715	0.59"(15.0)	0.66"(16.7)	0.91"(23.0)	0.20"(5.0)	0.19"(4.8)	0.079"(2.4)



PWS-2824

**Wire Saddles**

- Material: UL approved Nylon 66, 94V-2
- Color: Natural

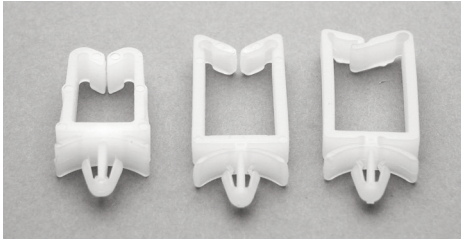
ITEM NUMBER	H inches(mm)	A inches(mm)	B inches(mm)	Hole inches(mm)	Thickness inches(mm)
PWS-2824	1.39"(35.3)	1.09"(27.6)	0.94"(24.0)	0.19"(4.8)	0.079"(2.4)

Wire Accessories

## PUSH-IN MOUNT CABLE CLIPS WIRE SADDLES, TWIST CLIPS

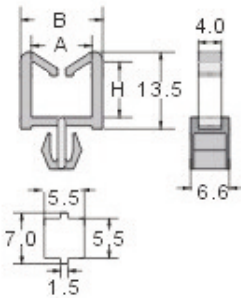
F14

### Push-in Wire Saddles

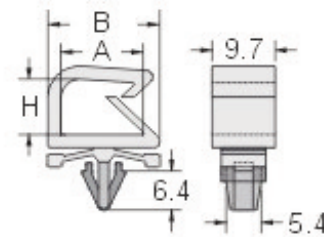


#### Wire Saddle Clips

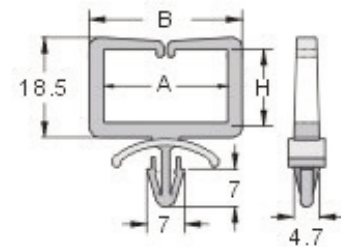
- Material: UL approved Nylon 66, 94V-2
- Color: Natural



KWS-1110



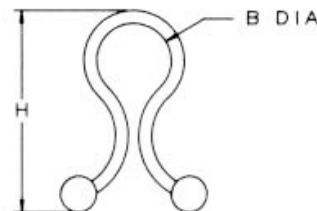
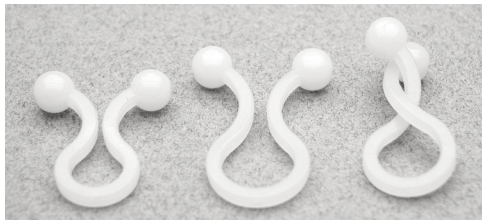
KWS-1308



KWS-2314

ITEM NUMBER	H inches(mm)	A inches(mm)	B inches(mm)	Hole inches(mm)	Thickness inches(mm)
KWS-1110	0.38"(9.8)	0.43"(10.9)	0.57"(14.4)	As Figure	0.09"(2.2)
KWS-1308	0.33"(8.5)	0.50"(12.7)	0.68"(17.2)	0.23"(5.8)	0.06"(1.6)
KWS-2314	0.54"(13.6)	0.90"(22.9)	1.11"(28.3)	0.19"(4.8)	0.13"(3.4)

### Twist Clips



ITEM NUMBER	B	OVERALL HEIGHT (H)
TC125N	.11 / .14	0.715"
TC250N	.20 / .27	0.875"
TC0375N	.30 / .40	1.080"
TC0500N	.40 / .50	1.200"
TC0600N	.55 / .65	1.260"
TC0750N	.70 / .80	1.550"
TC0950N	.90 / 1.00	1.870"
TC1125N	1.20 / 1.30	2.170"
TC1375N	1.45 / 1.55	2.670"
TC1500N	1.55 / 1.65	2.930"
TC1750N	1.90 / 2.00	3.460"

#### Twist Clips

A fast, economical way to securely position and hold wire, cable or tubing. A single twist of the finger locks the bundle together. Another twist will open the lock to add or remove wire to the bundle.

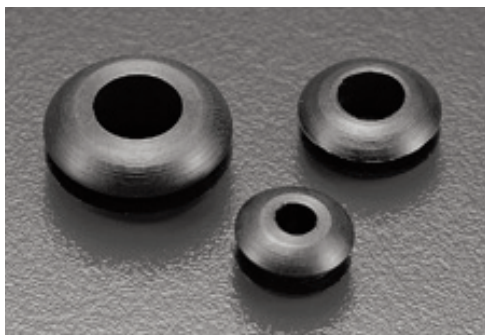
Made of Nylon 6/6 (UL 94V2).



## RUBBER GROMMETS

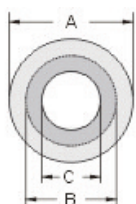
## Rubber Grommets - Open or Closed Style

F15

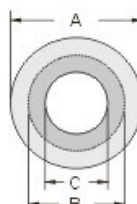
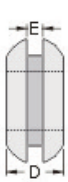
**Rubber Grommets**

Ideal for electrical insulation and mechanical damping.

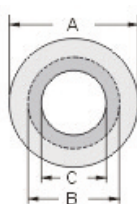
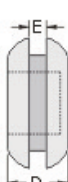
Made of rubber.



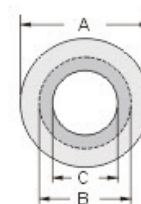
GM, GMQ Type



GMC, GMCQ Type



GM-1108, GMQ-1108



GMC-1108, GMCQ-1108



## Wire Saddle

OPEN	CLOSED	A inches(mm)	B inches(mm)	C inches(mm)	D inches(mm)	E inches(mm)
GM-0603	GMC-0603	0.33"(8.5)	0.24"(6)	0.12"(3)	0.19"(4.7)	0.07"(1.7)
GM-0705	GMC-0705	0.40"(10.2)	0.28"(7.2)	0.19"(5)	0.17"(4.4)	0.07"(1.7)
GM-1006	GMC-1006	0.52"(13.3)	0.39"(10)	0.25"(6.4)	0.25"(6.3)	0.07"(1.7)
GM-1108S	GMC-1108S	0.61"(15.5)	0.43"(10.9)	0.31"(7.8)	0.31"(7.8)	0.09"(2.3)
GM-1108	GMC-1108	0.61"(15.5)	0.43"(11)	0.31"(7.8)	0.35"(9)	0.12"(3)
GM-1410	GMC-1410	0.77"(19.5)	0.55"(13.9)	0.41"(10.5)	0.25"(6.4)	0.13"(3.4)
GM-2015	GMC-2015	0.93"(23.7)	0.79"(20.1)	0.61"(15.5)	0.24"(6.1)	0.07"(1.7)
GM-2518	GMC-2518	1.18"(29.9)	0.99"(25.1)	0.74"(18.9)	0.28"(7.2)	0.06"(1.5)
GM-3225	GMC-3225	1.50"(38.1)	1.25"(31.7)	0.98"(25)	0.31"(7.8)	0.06"(1.5)
GMQ-0603	GMCQ-0603	0.33"(8.5)	0.24"(6)	0.12"(3)	0.19"(4.7)	0.07"(1.7)
GMQ-0705	GMCQ-0705	0.40"(10.2)	0.28"(7.2)	0.20"(5)	0.17"(4.4)	0.07"(1.7)
GMQ-1006	GMCQ-1006	0.52"(13.3)	0.39"(10)	0.25"(6.4)	0.25"(6.3)	0.07"(1.7)
GMQ-1108S	GMCQ-1108S	0.61"(15.5)	0.43"(10.9)	0.31"(7.8)	0.31"(7.8)	0.09"(2.3)
GMQ-1108	GMCQ-1108	0.61"(15.5)	0.43"(11)	0.31"(7.8)	0.35"(9)	0.12"(3)
GMQ-1410	GMCQ-1410	0.77"(19.5)	0.55"(13.9)	0.41"(10.5)	0.25"(6.4)	0.13"(3.4)
GMQ-2015	GMCQ-2015	0.93"(23.7)	0.79"(20.1)	0.61"(15.5)	0.24"(6.1)	0.07"(1.7)
GMQ-2518	GMCQ-2518	1.18"(29.9)	0.99"(25.1)	0.74"(18.9)	0.28"(7.2)	0.06"(1.5)
GMQ-3225	GMCQ-3225	1.50"(38.1)	1.25"(31.7)	0.98"(25)	0.31"(7.8)	0.06"(1.5)





**ETLIN-DANIELS**

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**SECTION G  
STRAIN RELIEF  
BUSHINGS**

G1



STRAIN RELIEF BUSHINGS / LIQUID TIGHT

**Strain Relief Bushings / Liquid Tight**

<b>Strain Relief Type</b>	
Straight Through Type	G2-G5
90° Angle	G5
<b>Insulating Type</b>	
Miniature	G6
All-Fit	G6
Standard	G7
<b>Plugs</b>	
Snap-In Hole Plugs	G8
Snap-In Vent Plugs	G8
Poly Hole Plugs	G9
Poly Vent Plugs	G10
Lampcord Bushings	G10
Anti-Short Bushings	G10
<b>Liquid Tight</b>	
Dome Style - PG Thread	G11
Dome Style - NPT Thread	G12
Flex Style	G13
Nickel Plated Brass	G14
Locking Nut	G15

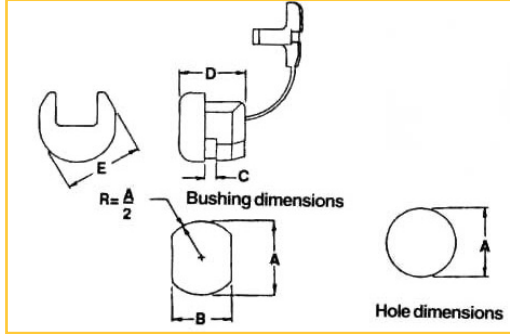
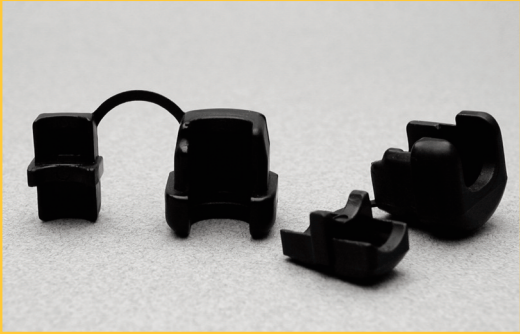
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# Bushings

## STRAIN RELIEF BUSHINGS STRAIGHT THROUGH TYPE

G2

### Strain Relief Bushings - Straight Through Type



DESCRIPTION						DIMENSIONS inches(mm)					
ITEM NUMBER	UL / CSA DESCRIPTION	CROSS SECTION	CABLE SIZE	CABLE TYPE	GAUGE (AWG)	MOUNTING HOLE		MAX PANEL THICKNESS C	BUSHINGS		
						DIAMETER A	FLATS B		LENGTH D	WIDTH E	
ESR2M4	MP2M4	ROUND	0.156 X 0.187 (3.9 X 4.7)	AWN	14	0.375 (9.6)	0.330 (8.4)	0.062 (1.6)	0.410 (10.4)	0.420 (10.7)	
ESR2M5	MP2M5	ROUND	0.125 X 0.156 (3.2 X 3.9)	AWN	16	0.375 (9.6)	0.330 (8.4)	0.062 (1.6)	0.410 (10.4)	0.420 (10.7)	
ESR3P4	MP3P4	FLAT	0.120 X 0.220 (3.0 X 5.6)	SP1	18/2	0.437 (11.1)	0.390 (9.9)	0.062 (1.6)	0.410 (10.4)	0.484 (12.3)	
			0.120 X 0.220 (3.0 X 5.6)	SPT-1	18/2	0.437 (11.1)	0.390 (9.9)	0.062 (1.6)	0.410 (10.4)	0.484 (12.3)	
ESR4K1	MP4K1	FLAT	0.150 X 0.400 (3.8 X 10.1)	SPT-2	18/3	0.500 (12.7)	0.460 (11.7)	0.095 (2.4)	0.495 (12.6)	0.565 (14.3)	
			0.160 X 0.300 (4.1 X 7.6)	HPN	16/2	0.500 (12.7)	0.460 (11.7)	0.095 (2.4)	0.495 (12.6)	0.565 (14.3)	
			0.160 X 0.300 (4.1 X 7.6)	SPT-2	16/2	0.500 (12.7)	0.460 (11.7)	0.095 (2.4)	0.495 (12.6)	0.565 (14.3)	
			0.150 X 0.280 (3.8 X 7.1)	HPN	18/2	0.500 (12.7)	0.460 (11.7)	0.095 (2.4)	0.495 (12.6)	0.565 (14.3)	
			0.150 X 0.280 (3.8 X 7.1)	SPT-2	18/2	0.500 (12.7)	0.460 (11.7)	0.095 (2.4)	0.495 (12.6)	0.565 (14.3)	
ESR4K4	MP4K4	FLAT	0.120 X 0.300 (3.0 X 7.6)	SPT-1	18/3	0.500 (12.7)	0.465 (11.8)	0.100 (2.5)	0.406 (10.3)	0.565 (14.3)	
			0.120 X 0.300 (3.0 X 7.6)	SPT-2	18/2	0.500 (12.7)	0.465 (11.8)	0.100 (2.5)	0.406 (10.3)	0.565 (14.3)	
			0.120 X 0.300 (3.0 X 7.6)	HPN	18/2	0.500 (12.7)	0.465 (11.8)	0.100 (2.5)	0.406 (10.3)	0.565 (14.3)	
ESR4L4	MP4L4	FLAT	0.120 X 0.300 (3.0 X 7.6)	SPT-1	18/3	0.500 (12.7)	0.465 (11.8)	0.156 (3.9)	0.406 (10.3)	0.578 (14.7)	
			0.120 X 0.300 (3.0 X 7.6)	SPT-2	18/2	0.500 (12.7)	0.465 (11.8)	0.156 (3.9)	0.406 (10.3)	0.578 (14.7)	
			0.120 X 0.300 (3.0 X 7.6)	HPN	18/2	0.500 (12.7)	0.465 (11.8)	0.156 (3.9)	0.406 (10.3)	0.578 (14.7)	
ESR4N4	MP4N4	FLAT	0.120 X 0.300 (3.0 X 7.6)	SPT-1	18/3	0.500 (12.7)	0.465 (11.8)	0.062 (1.6)	0.406 (10.3)	0.578 (14.7)	
			0.120 X 0.300 (3.0 X 7.6)	SPT-2	18/2	0.500 (12.7)	0.465 (11.8)	0.062 (1.6)	0.406 (10.3)	0.578 (14.7)	
			0.120 X 0.300 (3.0 X 7.6)	HPN	18/2	0.500 (12.7)	0.465 (11.8)	0.062 (1.6)	0.406 (10.3)	0.578 (14.7)	

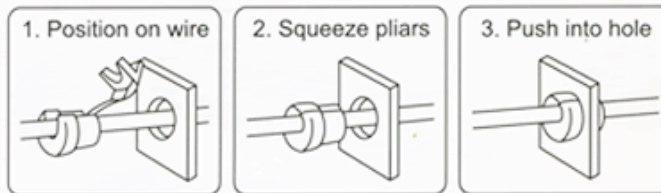
add "-WH" suffix for WHITE

### Strain Relief Bushings – Straight Through Type

Etlin Strain Reliefs securely anchor, absorb and protect cables and wires from push, pull and twist forces and insulate them from irregular or sharp panel edges. They are made of tough heat-stabilized nylon. They are easily and quickly installed using special bushing pliers or other hand tools. Stocked in black heat stabilized nylon 6/6 temperature index 105°C (UL rated 94V2).

Holes shaped with flats prevent rotation of the bushing if the cable is subject to twist.

1. Position on the wire
2. Compress with pliers
3. Push into panel hole



### Installation Tool – IT100

Adjustable for all strain relief bushings that assemble into holes up to 7/8" diameter. Indispensable for fast, accurate assembly of the bushings.

## STRAIN RELIEF BUSHINGS STRAIGHT THROUGH TYPE

### Strain Relief Bushings - Straight Through Type (cont'd)



G3

DESCRIPTION						DIMENSIONS inches(mm)				
ITEM NUMBER	UL / CSA DESCRIPTION	CROSS SECTION	CABLE SIZE	CABLE TYPE	GAUGE (AWG)	MOUNTING HOLE		MAX PANEL THICKNESS C	BUSHINGS	
						DIAMETER A	FLATS B		LENGTH D	WIDTH E
ESR5K4	MP5K4	FLAT	0.150 x 0.160 (3.8 x 4.1)	SPT-2	18/3	0.562 (14.3)	0.530 (13.5)	0.125 (3.2)	0.609 (15.5)	0.625 (15.9)
ESR5KN4	MP5KN4	FLAT	0.150 X 0.400 (3.8 X 10.1)	SPT-2	18/3	0.562 (14.3)	0.530 (13.5)	0.062 (1.6)	0.609 (15.5)	0.625 (15.9)
			0.160 X 0.300 (4.1 X 7.6)	SPT-2	16/3	0.562 (14.3)	0.530 (13.5)	0.062 (1.6)	0.609 (15.5)	0.625 (15.9)
ESR5N4	MP5N4	ROUND	0.250 (6.4)	SV	18/2	0.500 (12.7)	0.450 (11.4)	0.062 (1.6)	0.438 (11.1)	0.578 (14.7)
			0.250 (6.4)	SVT	18/2	0.500 (12.7)	0.450 (11.4)	0.062 (1.6)	0.438 (11.1)	0.578 (14.7)
			0.255 (6.5)	SV	18/3	0.500 - 0.515	0.450 (11.4)	0.062 (1.6)	0.438 (11.1)	0.578 (14.7)
			0.255 (6.5)	SVT	18/3	0.500 - 0.515	0.450 (11.4)	0.062 (1.6)	0.438 (11.1)	0.578 (14.7)
			0.290 (7.4)	HPD	16/2	0.500 - 0.515	0.450 (11.4)	0.062 (1.6)	0.438 (11.1)	0.578 (14.7)
ESR5P4	MP5P4	ROUND	0.250 (6.4)	SV	18/2	0.500 (12.7)	0.450 (11.4)	0.100 (2.5)	0.438 (11.1)	0.578 (14.7)
			0.250 (6.4)	SVT	18/2	0.500 (12.7)	0.450 (11.4)	0.100 (2.5)	0.438 (11.1)	0.578 (14.7)
			0.255 (6.5)	SV	18/3	0.500 - 0.515	0.450 (11.4)	0.100 (2.5)	0.438 (11.1)	0.578 (14.7)
			0.255 (6.5)	SVT	18/3	0.500 - 0.515	0.450 (11.4)	0.100 (2.5)	0.438 (11.1)	0.578 (14.7)
			0.290 (7.4)	HPD	16/2	0.500 - 0.515	0.450 (11.4)	0.100 (2.5)	0.438 (11.1)	0.578 (14.7)
ESR5W1	MP5W1	FLAT	0.120 X 0.300 (3.0 X 7.6)	SPT-2	18/3	0.562 (14.3)	0.530 (13.5)	0.125 (3.2)	0.609 (15.5)	0.625 (15.9)
			0.160 X 0.300 (4.1 X 7.6)	SPT-2	16/2	0.562 (14.3)	0.530 (13.5)	0.125 (3.2)	0.609 (15.5)	0.625 (15.9)
			0.160 X 0.410 (4.1 X 10.4)	SPT-2	16/3	0.562 (14.3)	0.530 (13.5)	0.125 (3.2)	0.609 (15.5)	0.625 (15.9)
			0.160 X 0.370 (4.1 X 9.4)	HPN	16/3	0.562 (14.3)	0.530 (13.5)	0.125 (3.2)	0.609 (15.5)	0.625 (15.9)
ESR6N34	MP6N34	ROUND	0.355 (9.0)	SJ	16/3	0.625 (15.9)	0.550 (14.0)	0.062 (1.6)	0.580 (14.7)	0.703 (17.9)
			0.405 (10.3)	SJT	18/3	0.625 (15.9)	0.550 (14.0)	0.062 (1.6)	0.580 (14.7)	0.703 (17.9)
			0.430 (10.9)	SJT	16/3	0.625 (15.9)	0.550 (14.0)	0.062 (1.6)	0.580 (14.7)	0.703 (17.9)
ESR6N35	MP6N35	ROUND	0.390 (9.9)	SJO	18/2	0.625 (15.9)	0.550 (14.0)	0.062 (1.6)	0.580 (14.7)	0.703 (17.9)
			0.390 (9.9)	SJ	18/2	0.625 (15.9)	0.550 (14.0)	0.062 (1.6)	0.580 (14.7)	0.703 (17.9)
			0.405 (10.3)	SJT	16/2	0.625 (15.9)	0.550 (14.0)	0.062 (1.6)	0.580 (14.7)	0.703 (17.9)
			0.405 (10.3)	SJO	16/2	0.625 (15.9)	0.550 (14.0)	0.062 (1.6)	0.580 (14.7)	0.703 (17.9)
			0.390 (9.9)	SJT	18/2	0.625 (15.9)	0.550 (14.0)	0.062 (1.6)	0.580 (14.7)	0.703 (17.9)
ESR6N4	MP6N4	ROUND	0.300 (7.2)	SJT	18/2	0.625 (15.9)	0.550 (14.0)	0.062 (1.6)	0.580 (14.7)	0.703 (17.9)
			0.300 (7.2)	SJO	18/2	0.625 (15.9)	0.550 (14.0)	0.062 (1.6)	0.580 (14.7)	0.703 (17.9)
ESR6N44	MP6N44	FLAT	0.120 X 0.300 (3.0 X 7.6)	SPT-1	18/3	0.625 (15.9)	0.570 (14.4)	0.062 (1.6)	0.600 (15.2)	0.690 (17.5)
ESR6P34	MP6P34	ROUND	0.325 X 0.360 (8.3 X 9.1)	SJ	18/3	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.580 (14.7)	0.703 (17.9)
			0.325 X 0.360 (8.3 X 9.1)	SJT	16/3, 18/3	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.580 (14.7)	0.703 (17.9)
			0.325 X 0.360 (8.3 X 9.1)	SJO	18/3	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.580 (14.7)	0.703 (17.9)
ESR6P35	MP6P35	ROUND	0.325 X 0.360 (8.3 X 9.1)	SJ	18/2, 18/3, 16/2	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.580 (14.7)	0.703 (17.9)
			0.325 X 0.360 (8.3 X 9.1)	SJT	16/2, 18/2	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.580 (14.7)	0.703 (17.9)
			0.325 X 0.360 (8.3 X 9.1)	SJO	18/2, 18/3, 16/2	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.580 (14.7)	0.703 (17.9)

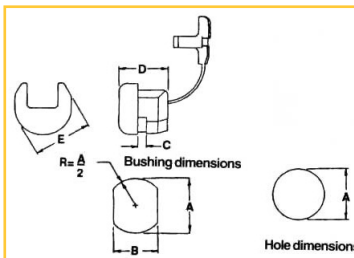
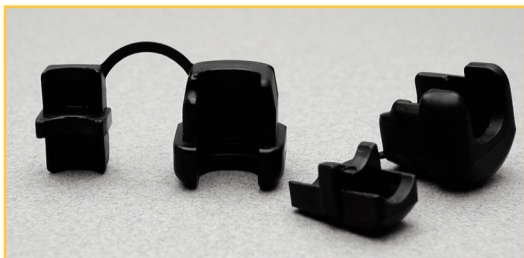
Add "-WH" suffix for WHITE

# Bushings

## STRAIN RELIEF BUSHINGS STRAIGHT THROUGH TYPE

G4

### Strain Relief Bushings - Straight Through Type (cont'd)



DESCRIPTION						DIMENSIONS inches(mm)				
ITEM NUMBER	UL / CSA DESCRIPTION	CROSS SECTION	CABLE SIZE	CABLE TYPE	GAUGE (AWG)	MOUNTING HOLE		MAX PANEL THICKNESS C	BUSHINGS	
						DIAMETER A	FLATS B		LENGTH D	WIDTH E
ESR6P4	MP6P4	ROUND	0.300 (7.6)	SJ	18/2	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.590 (14.9)	0.703 (17.9)
			0.300 (7.6)	SJT	18/2	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.590 (14.9)	0.703 (17.9)
			0.300 (7.6)	SJO	18/2	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.590 (14.9)	0.703 (17.9)
ESR6L1	MP6L1	ROUND	0.325 X 0.430 (8.3 X 10.9)	SJ	18/2, 18/3, 16/2	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.590 (14.9)	0.703 (17.9)
			0.325 X 0.430 (8.3 X 10.9)	SJT	18/2, 18/3, 16/2	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.590 (14.9)	0.703 (17.9)
			0.325 X 0.430 (8.3 X 10.9)	SJO	18/2, 18/3, 16/2	0.625 (15.9)	0.550 (14.0)	0.125 (3.2)	0.590 (14.9)	0.703 (17.9)
ESR6W1	MP6W1	ROUND	0.300 (7.6)	SJ	18/2	0.500 (12.7)	0.465 (11.8)	0.090 (2.3)	0.437 (11.1)	0.563 (14.3)
			0.300 (7.6)	SJT	18/2	0.500 (12.7)	0.465 (11.8)	0.090 (2.3)	0.437 (11.1)	0.563 (14.3)
			0.300 (7.6)	SJO	18/2	0.500 (12.7)	0.465 (11.8)	0.090 (2.3)	0.437 (11.1)	0.563 (14.3)
ESR7K2	MP7K2	ROUND	0.325 X 0.360 (8.3 X 9.1)	SJ	18/4, 16/2, 16/3, 14/2	0.875 (22.2)	0.770 (19.6)	0.125 (3.2)	0.750 (19.1)	0.922 (23.4)
			0.325 X 0.360 (8.3 X 9.1)	SJT	18/3, 16/3	0.875 (22.2)	0.770 (19.6)	0.125 (3.2)	0.750 (19.1)	0.922 (23.4)
			0.325 X 0.360 (8.3 X 9.1)	SJO	14/2, 16/3, 18/4	0.875 (22.2)	0.770 (19.6)	0.125 (3.2)	0.750 (19.1)	0.922 (23.4)
ESR7K3	MP7K3	ROUND	0.325 X 0.360 (8.3 X 9.1)	SJ	18/3, 16/2	0.875 (22.2)	0.770 (19.6)	0.125 (3.2)	0.750 (19.1)	0.922 (23.4)
			0.325 X 0.360 (8.3 X 9.1)	SJT	16/2	0.875 (22.2)	0.770 (19.6)	0.125 (3.2)	0.750 (19.1)	0.922 (23.4)
			0.325 X 0.360 (8.3 X 9.1)	SJO	18/3, 16/2	0.875 (22.2)	0.770 (19.6)	0.125 (3.2)	0.750 (19.1)	0.922 (23.4)
ESR7P2	MP7P2	ROUND	0.360 (9.1)	SJTO	18/4	0.750 (19.0)	0.660 (16.8)	0.125 (3.2)	0.745 (18.9)	0.830 (21.0)
			0.370 (9.4)	SJT	14/3	0.750 (19.0)	0.660 (16.8)	0.125 (3.2)	0.745 (18.9)	0.830 (21.0)
			0.405 (10.3)	S	18/3	0.750 (19.0)	0.660 (16.8)	0.125 (3.2)	0.745 (18.9)	0.830 (21.0)
			0.430 (10.9)	S	16/3	0.750 (19.0)	0.660 (16.8)	0.125 (3.2)	0.745 (18.9)	0.830 (21.0)
			0.405 (10.3)	DTO	18/3	0.750 (19.0)	0.660 (16.8)	0.125 (3.2)	0.745 (18.9)	0.830 (21.0)
			0.430 (10.9)	STO	16/3	0.750 (19.0)	0.660 (16.8)	0.125 (3.2)	0.745 (18.9)	0.830 (21.0)
			0.405 (10.3)	S	16/2	0.750 (19.0)	0.660 (16.8)	0.125 (3.2)	0.745 (18.9)	0.830 (21.0)
			0.390 (9.9)	S	18/2	0.750 (19.0)	0.660 (16.8)	0.125 (3.2)	0.745 (18.9)	0.830 (21.0)
			0.390 (9.9)	STO	18/2	0.750 (19.0)	0.660 (16.8)	0.125 (3.2)	0.745 (18.9)	0.830 (21.0)
0.405 (10.3)	STO	16/2	0.750 (19.0)	0.660 (16.8)	0.125 (3.2)	0.745 (18.9)	0.830 (21.0)			
ESR7P3	MP7P3	FLAT	0.160 X 0.410 (4.1 X 10.4)	SPT-2	16/3	0.736 (18.7)	0.657 (16.7)	0.125 (3.2)	0.590 (14.9)	0.785 (19.9)
ESR7W2	MP7W2	ROUND	0.370 X 0.425 (9.4 X 10.8)	SJT	14/3, 12/3	0.875 (22.2)	0.770 (19.6)	0.125 (3.2)	0.750 (19.1)	0.922 (23.4)
			0.390 X 0.430 (9.9 X 10.9)	S	18/3, 16/3	0.875 (22.2)	0.770 (19.6)	0.125 (3.2)	0.750 (19.1)	0.922 (23.4)
			0.390 X 0.430 (9.9 X 10.9)	STO	16/2, 16/3, 18/3	0.875 (22.2)	0.770 (19.6)	0.125 (3.2)	0.750 (19.1)	0.922 (23.4)
ESR8P2	MP8P2	ROUND	0.530 X 0.600 (13.5 X 15.2)	S	14/2, 14/3	0.875 (22.2)	0.840 (21.3)	0.125 (3.2)	0.812 (20.6)	0.922 (23.4)
			0.530 X 0.600 (13.5 X 15.2)	ST	12/2	0.875 (22.2)	0.840 (21.3)	0.125 (3.2)	0.812 (20.6)	0.922 (23.4)
ESR9P2	MP9P2	ROUND	0.570 (14.4)	S	12/2	1.093 (27.7)	1.000 (25.4)	0.281 (7.1)	0.990 (25.1)	1.215 (30.8)
			0.640 (16.3)	S	12/3	1.125 (28.6)	1.000 (25.4)	0.281 (7.1)	0.990 (25.1)	1.215 (30.8)
			0.650 (16.5)	S	10/2	1.093 (27.7)	1.000 (25.4)	0.281 (7.1)	0.990 (25.1)	1.215 (30.8)
			0.700 (17.7)	S	10/3	1.187 (30.1)	1.000 (25.4)	0.281 (7.1)	0.990 (25.1)	1.215 (30.8)

Bushings

## STRAIN RELIEF BUSHINGS STRAIGHT THROUGH TYPE

### Strain Relief Bushings - Straight Through Type (cont'd)

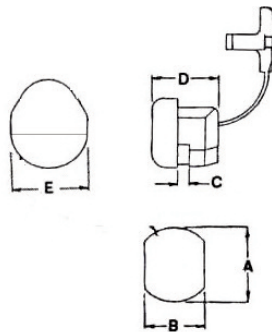
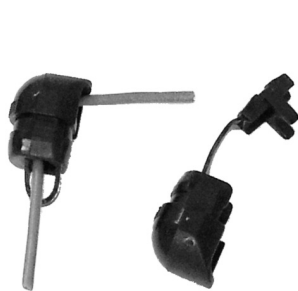
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DESCRIPTION						DIMENSIONS inches(mm)				
ITEM NUMBER	UL / CSA DESCRIPTION	CROSS SECTION	CABLE SIZE	CABLE TYPE	GAUGE (AWG)	MOUNTING HOLE		MAX PANEL THICKNESS C	BUSHINGS	
						DIAMETER A	FLATS B		LENGTH D	WIDTH E
ESR30-10	MP30-1	FLAT	0.160 X 0.410 (4.1 X 10.4)	SPT-2	16/3	0.560 (14.2)	0.730 (18.5)	0.125 (3.2)	0.670 (17.0)	0.750 (19.6)
ESR30-20	MP30-2	FLAT	0.120 X 0.300 (3.0 X 7.6)	SPT-1	18/3	0.625 / 0.375 (15.9 / 9.5)	0.625 (15.9)	0.100 (2.5)	0.460 (11.6)	0.660 (16.7)
			0.150 X 0.400 (3.8 X 10.1)	SPT-2	18/3	0.625 / 0.375 (15.9 / 9.5)	0.625 (15.9)	0.100 (2.5)	0.460 (11.6)	0.660 (16.7)
			0.160 X 0.410 (4.1 X 10.4)	SPT-2	16/3	0.625 / 0.375 (15.9 / 9.5)	0.625 (15.9)	0.100 (2.5)	0.460 (11.6)	0.660 (16.7)
ESR31-20	MP31-2	FLAT	0.320 X 0.650 (8.1 X 16.5)	SPT-3	12/3	0.875 (22.2)	0.840 (21.3)	0.125 (3.2)	0.812 (20.6)	0.922 (23.4)
		ROUND	0.425 X 0.475 (10.8 X 12.1)	SJT	12/3	0.875 (22.2)	0.840 (21.3)	0.125 (3.2)	0.812 (20.6)	0.922 (23.4)
ESR33-10	MP33-10	FLAT	0.180 X 0.425 (4.5 X 10.8)	SPT-3	16/3	0.750 / 0.875 (19.1 / 22.2)	0.875 (22.2)	0.125 (3.2)	0.770 (19.5)	0.895 (22.7)
			0.245 X 0.425 (6.2 X 10.8)	SPT-3	14/2	0.750 / 0.875 (19.1 / 22.2)	0.875 (22.2)	0.125 (3.2)	0.770 (19.5)	0.895 (22.7)
			0.240 X 0.420 (6.1 X 10.7)	SPT-3	14/3	0.750 / 0.875 (19.1 / 22.2)	0.875 (22.2)	0.125 (3.2)	0.770 (19.5)	0.895 (22.7)
			0.240 X 0.525 (6.1 X 13.3)	HPN	14/3	0.750 / 0.875 (19.1 / 22.2)	0.875 (22.2)	0.125 (3.2)	0.770 (19.5)	0.895 (22.7)
ESR34-2X	MP34-2X	FLAT	0.240 X 0.420 (6.1 X 10.7)	SPT-3	14/3, 12/3	0.875 (22.2)	0.840 (21.3)	0.125 (3.2)	0.812 (20.6)	0.905 (23.0)

Add suffix "-WH" for WHITE version. Standard color is BLACK.

### Strain Relief Bushings - 90° Angle Style



Bushings

DESCRIPTION						DIMENSIONS inches(mm)				
ITEM NUMBER	UL / CSA DESCRIPTION	CROSS SECTION	CABLE SIZE	CABLE TYPE	GAUGE (AWG)	MOUNTING HOLE		MAX PANEL THICKNESS C	BUSHINGS	
						DIAMETER A	FLATS B		LENGTH D	WIDTH E
ESR13L1*	MP13L1	FLAT	0.120 X 0.220 (3.1 X 5.6)	SPT-1	18/2	0.437 (11.1)	0.390 (9.9)	0.062 (1.6)	0.500 (12.7)	0.510 (12.9)
ESR14L1	MP14L1	FLAT	0.150 X 0.280 (3.8 X 7.1)	SPT-2	18/2, 16/2	0.500 (12.7)	0.450 (11.4)	0.100 (2.5)	0.687 (17.5)	0.563 (14.3)
			0.160 X 0.300 (4.1 X 7.6)	HPN	16/2	0.500 (12.7)	0.450 (11.4)	0.100 (2.5)	0.687 (17.5)	0.563 (14.3)
ESR15L1	MP15L1	ROUND	0.250 X 0.265 (6.4 X 6.7)	SVT	18/2, 18/3	0.500 (12.7)	0.450 (11.4)	0.100 (2.5)	0.687 (17.5)	0.563 (14.3)

\* Not UL

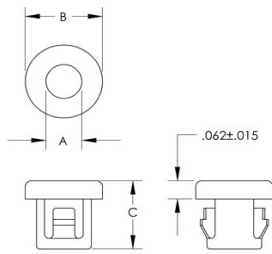
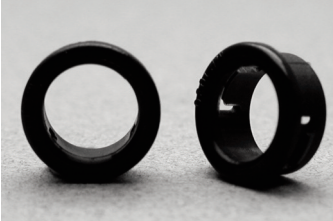


# Bushings

## INSULATING BUSHINGS

G6

### Insulating Bushings - Miniature Bushings Series



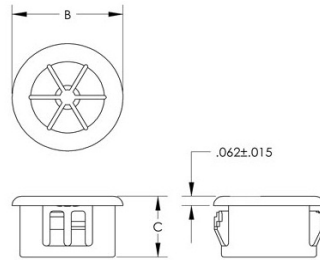
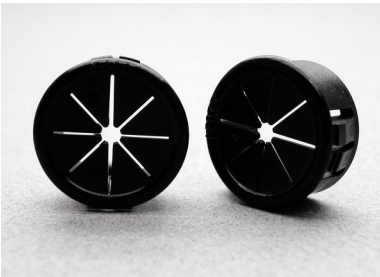
ITEM NUMBER	INSIDE DIAMETER A inches(mm)	HEAD DIAMETER B inches(mm)	THICKNESS inches(mm) C	PANEL HOLE DIAMETER
MB187-125	.125 (3.2)	.250 (6.4)	.234 (6.2)	.187 (4.8)
MB312-250	.250 (6.4)	.375 (9.5)	.234 (6.2)	.312 (8.0)
MB468-343	.343 (8.8)	.531 (13.5)	.250 (6.4)	.468 (11.9)
MB500-375	.375 (9.5)	.562 (14.3)	.250 (6.4)	.500 (12.7)
MB531-406	.406 (10.3)	.593 (15.2)	.250 (6.4)	.531 (13.5)
MB625-500	.500 (12.7)	.703 (17.9)	.250 (6.4)	.625 (15.9)
MB750-625	.625 (16.0)	.828 (21.0)	.250 (6.4)	.750 (19.0)
MB781-625	.625 (16.0)	.859 (21.5)	.250 (6.4)	.781 (19.9)
MB875-750	.750 (19.0)	.937 (23.8)	.250 (6.4)	.875 (22.2)

#### Insulating Bushings - Miniature Series

These bushings are the economical solution to insulate wires, cables, etc. from raw edges in compact designs where internal clearances are critical. Miniature bushings accommodate panels up to 1/16" thickness and require only 1/8" clearance. Material: Nylon 6/6 UL 94V2, Temperature Index 105°C. Stocked in Standard Black; colours available upon request.



### Insulating Bushings - All-Fit Adjustable Series



#### Insulating Bushings - All-Fit Series

Etlin Nylon "All-Fit" Adjustable Bushings are designed to protect wire, cable, tubing or irregular shaped items from sharp, unfinished edges. The specially designed, resilient multiple supports absorb shock and vibration, and adjust to accept various diameters and shapes.

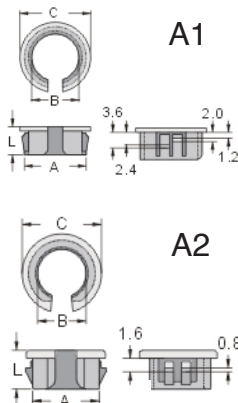
The All-Fit Bushing is equipped with multiple locks to positively snap in panel thickness ranging from .32" to .8". Bushings are molded and stocked in Black heat stabilized nylon.



Bushings

ITEM NUMBER	CHASSIS DIMENSIONS inches(mm)		PART DIMENSIONS inches(mm)		
	HOLE DIAMETER A	MAX THICKNESS	HEAD DIAMETER B	THICKNESS C	MAXIMUM ID
UBE625	.625 (15.9)	.125 (3.2)	.718 (18.2)	.406 (10.3)	.437 (11.1)
UBE750	.750 (19.0)	.125 (3.2)	.859 (21.8)	.390 (9.9)	.500 (12.7)
UBE812	.812 (20.6)	.125 (3.2)	.890 (22.6)	.390 (9.9)	.500 (12.7)
UBE875	.875 (22.2)	.125 (3.2)	.937 (23.8)	.453 (11.5)	.562 (14.3)
UBE1000	1.000 (25.4)	.125 (3.2)	1.062 (26.9)	.453 (11.5)	.750 (19.0)
UBE1093	1.093 (27.8)	.125 (3.2)	1.156 (29.3)	.453 (11.5)	.812 (20.6)

### Open - Closed Bushings



ITEM NUMBER	INSIDE DIAMETER A	B	C	L	DIAGRAM
OSB-9S	9.5 mm	6.5 mm	11.3 mm	6.1 mm	A2
OSB-12S	12.7 mm	9.6 mm	15.8 mm	7.3 mm	A2
OSB-10	9.5 mm	6.0 mm	11.8 mm	9.8 mm	A1
OSB-13	12.7 mm	7.5 mm	15.1 mm	10.3 mm	A1
OSB-16	15.9 mm	11.2 mm	18.5 mm	10.3 mm	A1
OSB-19	19.1 mm	12.5 mm	21.0 mm	10.3 mm	A1
OSB-22	22.2 mm	17.0 mm	24.6 mm	10.3 mm	A1
OSB-26	25.4 mm	20.0 mm	28.0 mm	10.6 mm	A1

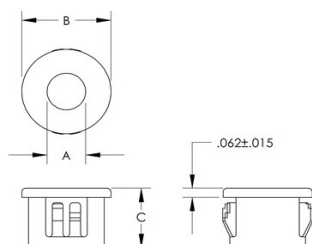
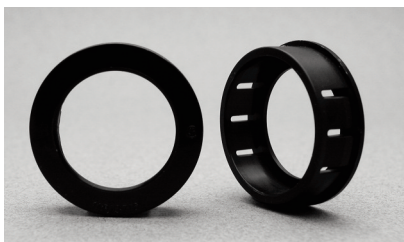
Material: UL approved Nylon 66, 94V-2. Color: Black. Protect power cord and smooth you chasis hole. Under 3.2mm chassis. Finger-tip pressure to install. No tool is needed. Can be applied after power cable installed.





## INSULATING BUSHINGS

## Insulating Bushings - Standard Series



## Insulating Bushings – Standard Series

These bushings are available in a large selection of sizes from ¼" to 2" in various inside diameter openings. Standard bushings are designed with multiple locks to positively snap in panels ranging from ½" to ⅝" thickness. Standard bushings meet UL and CSA temperature and pull-out tests molded of heat stabilized nylon (UL 94V2).



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ITEM NUMBER	PART DIMENSIONS inches(mm)			CHASSIS DIMENSIONS inches(mm)	
	INSIDE DIAMETER A	HEAD DIAMETER B	THICKNESS C	HOLE DIAMETER	MAX THICKNESS
SBE250-2	.125 (3.2)	.312 (8.0)	.312 (8.0)	.250 (6.4)	.062 (1.6)
SBE312-3*	.187 (4.8)	.375 (9.5)	.312 (8.0)	.312 (8.0)	.062 (1.6)
SBE375-3	.187 (4.8)	.468 (11.9)	.406 (10.3)	.375 (9.5)	.125 (3.2)
SBE375-4*	.250 (6.4)	.468 (11.9)	.406 (10.3)	.375 (9.5)	.125 (3.2)
SBE437-4*	.250 (6.4)	.531 (13.5)	.406 (10.3)	.437 (11.1)	.125 (3.2)
SBE437-5*	.312 (8.0)	.531 (13.5)	.406 (10.3)	.437 (11.1)	.125 (3.2)
SBE437-6*	.243 (6.2)	.531 (13.5)	.406 (10.3)	.437 (11.1)	.125 (3.2)
SBE500-4	.250 (6.4)	.578 (14.7)	.406 (10.3)	.500 (12.7)	.125 (3.2)
SBE500-5	.312 (8.0)	.578 (14.7)	.406 (10.3)	.500 (12.7)	.125 (3.2)
SBE500-6	.375 (9.5)	.578 (14.7)	.406 (10.3)	.500 (12.7)	.125 (3.2)
SBE562-5	.312 (8.0)	.656 (16.7)	.406 (10.3)	.562 (14.3)	.125 (3.2)
SBE562-6	.375 (9.5)	.656 (16.7)	.406 (10.3)	.562 (14.3)	.125 (3.2)
SBE562-7	.437 (11.1)	.656 (16.7)	.406 (10.3)	.562 (14.3)	.125 (3.2)
SBE625-4	.250 (6.4)	.718 (18.2)	.406 (10.3)	.625 (15.9)	.125 (3.2)
SBE625-7	.437 (11.1)	.718 (18.2)	.406 (10.3)	.625 (15.9)	.125 (3.2)
SBE625-8*	.500 (12.7)	.718 (18.2)	.406 (10.3)	.625 (15.9)	.125 (3.2)
SBE687-8	.500 (12.7)	.781 (19.8)	.406 (10.3)	.687 (17.4)	.125 (3.2)
SBE687-9	.562 (14.3)	.781 (19.8)	.406 (10.3)	.687 (17.4)	.125 (3.2)
SBE750-6	.375 (9.5)	.843 (21.4)	.406 (10.3)	.750 (19.0)	.125 (3.2)
SBE750-8	.500 (12.7)	.843 (21.4)	.406 (10.3)	.750 (19.0)	.125 (3.2)
SBE750-9	.562 (14.3)	.843 (21.4)	.406 (10.3)	.750 (19.0)	.125 (3.2)
SBE750-10	.625 (15.9)	.843 (21.4)	.406 (10.3)	.750 (19.0)	.125 (3.2)
SBE812-9	.562 (14.3)	.890 (22.6)	.406 (10.3)	.812 (20.6)	.125 (3.2)
SBE812-10	.625 (15.9)	.890 (22.6)	.406 (10.3)	.812 (20.6)	.125 (3.2)
SBE875-6	.375 (9.5)	.953 (24.2)	.453 (11.5)	.875 (20.6)	.125 (3.2)
SBE875-7	.437 (11.1)	.953 (24.2)	.453 (11.5)	.875 (20.6)	.125 (3.2)
SBE875-8	.500 (12.7)	.953 (24.2)	.453 (11.5)	.875 (20.6)	.125 (3.2)
SBE875-9	.562 (14.3)	.953 (24.2)	.453 (11.5)	.875 (20.6)	.125 (3.2)
SBE875-10	.625 (15.9)	.953 (24.2)	.453 (11.5)	.875 (20.6)	.125 (3.2)
SBE875-11	.687 (17.4)	.953 (24.2)	.453 (11.5)	.875 (20.6)	.125 (3.2)
SBE1000-12	.750 (19.0)	1.125 (28.6)	.453 (11.5)	1.000 (25.4)	.125 (3.2)
SBE1093-13	.812 (20.6)	1.218 (30.9)	.453 (11.5)	1.093 (27.8)	.125 (3.2)
SBE1093-14	.875 (22.2)	1.218 (30.9)	.453 (11.5)	1.093 (27.8)	.125 (3.2)
SBE1093-15	.937 (23.8)	1.218 (30.9)	.453 (11.5)	1.093 (27.8)	.125 (3.2)
SBE1187-15	.937 (23.8)	1.312 (33.3)	.453 (11.5)	1.187 (30.2)	.125 (3.2)
SBE1250-15	.937 (23.8)	1.468 (37.3)	.453 (11.5)	1.250 (31.7)	.125 (3.2)
SBE1375-16	1.000 (25.4)	1.468 (37.3)	.453 (11.5)	1.375 (34.9)	.125 (3.2)
SBE1500-17	1.062 (27.0)	1.609 (40.9)	.453 (11.5)	1.500 (38.1)	.125 (3.2)
SBE1500-18	1.125 (28.5)	1.609 (40.9)	.453 (11.5)	1.500 (38.1)	.125 (3.2)
SBE1500-21	1.312 (30.1)	1.609 (40.9)	.453 (11.5)	1.500 (38.1)	.125 (3.2)
SBE1750-22	1.375 (34.9)	1.875 (47.6)	.453 (11.5)	1.750 (44.4)	.125 (3.2)
SBE2000-26	1.625 (41.2)	2.125 (54.0)	.453 (11.5)	2.000 (50.8)	.125 (3.2)

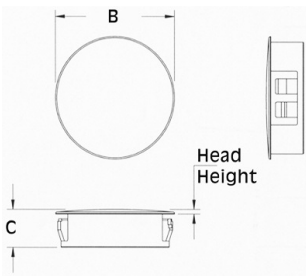
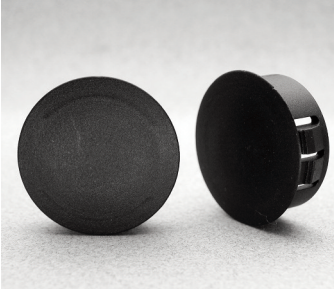
\* Add suffix "-WH" for WHITE version. Standard color is BLACK.

# Plugs

## SNAP-IN HOLE PLUGS

G8

### Snap-In Hole Plugs - Standard Series



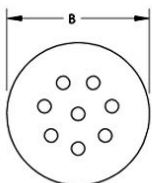
ITEM NUMBER	CHASSIS DIMENSIONS inches(mm)		PART DIMENSIONS inches(mm)	
	HOLE DIAMETER	MAXIMUM THICKNESS	HEAD DIAMETER B	THICKNESS C
DPE-187	.187 (4.8)	.062 (1.6)	.250 (6.4)	.234 (5.9)
DPE-250	.250 (6.4)	.062 (1.6)	.312 (8.0)	.312 (8.0)
DPE-312	.312 (8.0)	.062 (1.6)	.375 (9.5)	.312 (8.0)
DPE-375	.375 (9.5)	.125 (3.2)	.468 (12.0)	.406 (10.3)
DPE-437	.437 (11.1)	.125 (3.2)	.531 (13.5)	.406 (10.3)
DPE-500	.500 (12.7)	.125 (3.2)	.578 (14.6)	.406 (10.3)
DPE-562	.562 (14.3)	.125 (3.2)	.656 (16.7)	.406 (10.3)
DPE-625	.625 (15.9)	.125 (3.2)	.718 (18.2)	.406 (10.3)
DPE-687	.687 (17.5)	.125 (3.2)	.781 (20.0)	.406 (10.3)
DPE-750	.750 (19.0)	.125 (3.2)	.922 (23.2)	.406 (10.3)
DPE-812	.812 (20.6)	.125 (3.2)	.890 (22.6)	.406 (10.3)
DPE-875	.875 (22.2)	.125 (3.2)	1.016 (25.8)	.453 (11.5)
DPE-1000	1.000 (25.4)	.125 (3.2)	1.203 (30.5)	.453 (11.5)
DPE-1093	1.093 (28.0)	.125 (3.2)	1.218 (31.0)	.453 (11.5)
DPE-1187	1.187 (30.1)	.125 (3.2)	1.312 (33.3)	.453 (11.5)
DPE-1250	1.250 (32.0)	.125 (3.2)	1.375 (34.9)	.453 (11.5)
DPE-1375	1.375 (35.0)	.125 (3.2)	1.500 (38.0)	.453 (11.5)
DPE-1500	1.500 (38.0)	.125 (3.2)	1.672 (42.7)	.453 (11.5)
DPE-1750	1.750 (45.0)	.125 (3.2)	1.906 (48.4)	.453 (11.5)
DPE-2000	2.000 (51.0)	.125 (3.2)	2.140 (55.0)	.453 (11.5)
DPE-2500	2.500 (63.5)	.125 (3.2)	2.700 (68.6)	.453 (11.5)

### Snap-In Hole Plugs – Standard Series

Nylon Locking Hole Plugs are available in a large selection of sizes from 3/16" to 2 1/2". These hole plugs are designed with multiple locks to positively snap in panel thickness' ranging from 1/4" to 1/8".

Locking Hole Plugs are used to close excess chassis holes, wiring outlets, and production access holes. These hole plugs are molded of heat stabilized nylon (UL 94V2) and may be more suitable for critical or elevated temperature applications.

### Snap-In Vent Plugs



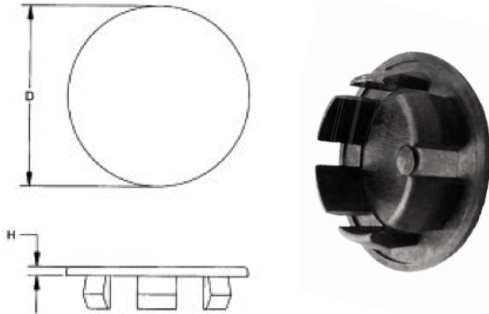
ITEM NUMBER	CHASSIS DIMENSIONS		PART DIMENSIONS	
	HOLE DIAMETER inches(mm)	MAXIMUM THICKNESS inches(mm)	HEAD DIAMETER inches(mm) B	THICKNESS inches(mm) C
VP750	0.750 (19)	.125 (3.2)	0.906 (23.0)	.406 (10.3)
VP875	.875 (22.2)	.125 (3.2)	1.016 (25.8)	.453 (11.5)
VP1000	1.000 (25.4)	.125 (3.2)	1.215 (30.9)	.453 (11.5)

### Snap-In Vent Plugs

Vent Plugs are available in the 7/8" and 1" diameters. Locking hole plugs are stocked in Black. Other colours are available in volume requirements.

## SNAP-IN HOLE PLUGS

## Poly Hole Plugs



Etlin economical snap-in Poly Plugs will close unneeded chassis holes, wiring outlets, fill unused accessory openings, cover inspection and production access holes. They can be used as tube end caps and protective bumpers. Poly Plugs are molded in Nylon 6/6, which is abrasion and vibration resistant, making them ideal for drawer glides and small appliance feet. Poly Plugs are designed with special flexible and tapered prongs which snugly lock in place with finger pressure, but can be removed and reused when necessary. Parts can be furnished in natural nylon or dyed in colours. Poly Plugs are available in smooth, gloss finish or dull, matte finish.

G9

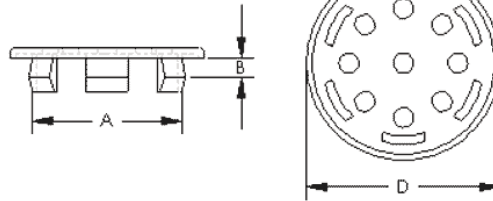
ITEM NUMBER	HEAD STYLE	FINISH	HOLE SIZE inches(mm)	PANEL THICKNESS inches(mm)	HEAD SIZE D inches(mm)	HEAD HEIGHT H inches(mm)
PP125BS	BINDER	SMOOTH	.125 (3.18)	.031/.094 (0.79/2.39)	13/64 (5.16)	.040 (1.02)
PP150BS	BINDER	SMOOTH	.150 (3.81)	.031/.094 (0.79/2.39)	1/4 (6.35)	.040 (1.02)
PP187BS	BINDER	SMOOTH	.187 (4.75)	.031/.140 (0.79/3.56)	11/32 (8.74)	.040 (1.02)
PP187BM	BINDER	MATTE	.187 (4.75)	.031/.140 (0.79/3.56)	11/32 (8.74)	.040 (1.02)
PP218DS	DOME	SMOOTH	.218 (5.54)	.031/.062 (0.79/1.58)	3/8 (9.53)	.250 (6.35)
PP250BS	BINDER	SMOOTH	.250 (6.35)	.031/.062 (0.79/1.58)	27/64 (10.72)	.040 (1.02)
PP250BM	BINDER	MATTE	.250 (6.35)	.031/.062 (0.79/1.58)	27/64 (10.72)	.040 (1.02)
PP312BS	BINDER	SMOOTH	.312 (7.93)	.031/.140 (0.79/3.56)	29/64 (11.51)	.050 (1.27)
PP312BM	BINDER	MATTE	.312 (7.93)	.031/.140 (0.79/3.56)	29/64 (11.51)	.050 (1.27)
PP375BS	BINDER	SMOOTH	.375 (9.53)	.031/.140 (0.79/3.56)	43/64 (17.07)	.062 (1.58)
PP375BS-1	BINDER	SMOOTH	.375 (9.53)	.031/.140 (0.79/3.56)	37/64 (14.68)	.050 (1.27)
PP375BM	BINDER	MATTE	.375 (9.53)	.031/.140 (0.79/3.56)	37/64 (14.68)	.050 (1.27)
PP437BS	BINDER	SMOOTH	.437 (11.1)	.031/.171 (0.79/4.34)	39/64 (15.47)	.050 (1.27)
PP437BM	BINDER	MATTE	.437 (11.1)	.031/.171 (0.79/4.34)	39/64 (15.47)	.050 (1.27)
PP500BS	BINDER	SMOOTH	.500 (12.7)	.031/.140 (0.79/3.56)	43/64 (17.07)	.062 (1.58)
PP500BMW	BINDER	MATTE	.500 (12.7)	.031/.140 (0.79/3.56)	43/64 (17.07)	.062 (1.58)
PP562BS	BINDER	SMOOTH	.562 (14.28)	.031/.140 (0.79/3.56)	47/64 (18.64)	.062 (1.58)
PP562BM	BINDER	MATTE	.562 (14.28)	.031/.140 (0.79/3.56)	47/64 (18.64)	.062 (1.58)
PP625BS	BINDER	SMOOTH	.625 (15.88)	.031/.072 (0.79/1.83)	51/64 (20.24)	.062 (1.58)
PP625BMW	BINDER	MATTE	.625 (15.88)	.031/.072 (0.79/1.83)	51/64 (20.24)	.062 (1.58)
PP687BS	BINDER	SMOOTH	.687 (17.45)	.031/.109 (0.79/2.77)	57/64 (22.63)	.062 (1.58)
PP687BM	BINDER	MATTE	.687 (17.45)	.031/.109 (0.79/2.77)	57/64 (22.63)	.062 (1.58)
PP750BS	BINDER	SMOOTH	.750 (19.05)	.031/.109 (0.79/2.77)	63/64 (25.0)	.062 (1.58)
PP750BM	BINDER	MATTE	.750 (19.05)	.031/.109 (0.79/2.77)	63/64 (25.0)	.062 (1.58)
PP787BS	BINDER	SMOOTH	.787 (20.0)	.059/.080 (1.50/2.03)	63/64 (25.0)	.062 (1.58)
PP787BM	BINDER	MATTE	.787 (20.0)	.059/.080 (1.50/2.03)	63/64 (25.0)	.062 (1.58)
PP812BS	BINDER	SMOOTH	.812 (20.63)	.031/.109 (0.79/2.77)	1-1/32 (26.19)	.062 (1.58)
PP812BM	BINDER	MATTE	.812 (20.63)	.031/.109 (0.79/2.77)	1-1/32 (26.19)	.062 (1.58)
PP875BS	BINDER	SMOOTH	.875 (22.23)	.031/.109 (0.79/2.77)	1-5/64 (27.38)	.062 (1.58)
PP875BM	BINDER	MATTE	.875 (22.23)	.031/.109 (0.79/2.77)	1-5/64 (27.38)	.062 (1.58)
PP1000BS	BINDER	SMOOTH	1.000 (25.4)	.031/.109 (0.79/2.77)	1-7/32 (30.96)	.062 (1.58)
PP1000BM	BINDER	MATTE	1.000 (25.4)	.031/.109 (0.79/2.77)	1-7/32 (30.96)	.062 (1.58)

Plugs / Misc

**VENT PLUGS & MISCELLANEOUS BUSHINGS**

G10

Poly Vent Plugs



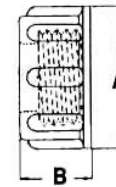
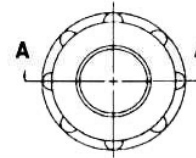
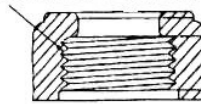
Vent Plugs are available in 7/8" and 1" diameters.

ITEM NUMBER	HEAD STYLE	FINISH	HOLE SIZE inches(mm) <b>A</b>	PANEL THICKNESS inches(mm) <b>B</b>	HEAD SIZE <b>D</b> inches(mm)	HEAD HEIGHT inches(mm)
VP875BM	BINDER	MATTE	.875 (22.23)	.031/.109 (0.79/2.77)	1-5/64 (27.38)	.062 (1.58)
VP1000BM	BINDER	MATTE	1.000 (25.40)	.031/.109 (0.79/2.77)	1-7/32 (30.96)	.062 (1.58)

Threaded Lampcord Bushings



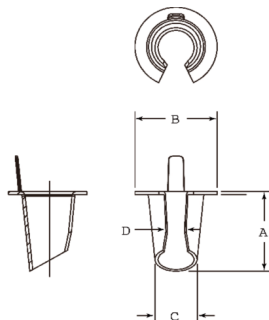
STRAIGHT PIPE THREAD



ITEM NUMBER	FOR	<b>A</b>	<b>B</b>
125TLP	1/8" IPS PIPE	19/32"	9/32"
250TLP	1/4" IPS PIPE	23/32"	3/8"
375TLP	3/8" IPS PIPE	7/8"	15/32"

These molded black heat stabilized nylon (UL rated, 94V2, temperature index 105°C) bushings are designed to protect the lampcord from the knife-edge of the threaded pipe used in the light fixtures. They will easily thread onto standard lamp fixture 1/8 IPS, 1/4 IPS, 1/2 IPS threaded ends. They provide safe, reliable and insulated connections.

Anti-Short Bushings



ITEM NUMBER	CABLE SIZE	FLEX CONDUIT
AS-0	14/2 - 14/3, 12/2	5/16"
AS-1	14/4 - 12/3, 6/1 - 4/1	3/8"
AS-2	12/4 - 10/2, 10/3 - 2/1	7/16"
AS-3	10/4 - 8/2, 3/3 - 1/1	1/2"
AS-4	8/4 - 6/2, 6/3 - 4/2, 4/3 - 6/4	3/4"

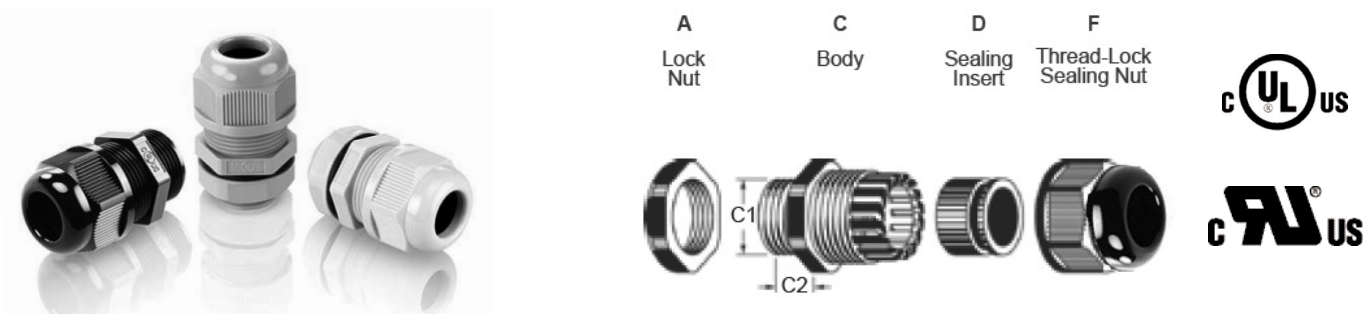
Maximize safety for your electronics with our anti-short bushings. Made of high quality material, our bushings can withstand high voltage of electrical energy passing through the conduit. They also make for excellent insulating barriers against sharp edges of metal conduits, which, in turn, protect the wires from short circuits and damage.

Bushings

## LIQUID TIGHT STRAIN RELIEF CONNECTOR FOR CABLE, WIRE & TUBING

### Liquid Tight Strain Relief Connectors - Dome Style - PG Thread

G11



**Dome Nut With Inside Taper:** As the dome nut is tightened the seal ring grips and holds the cable, wire or tubing positively in place.

**Lead Screw Thread:** The dome nut can be firmly tightened due to the high strength of the lead screw thread.

**Body Seal:** Annular concentric rings from a liquid tight seal between body and housing.

**Standard Colours:** Black and Grey. Nylon.

**Seal and Grip Ring:** Superior pull-out resistance due to recessed configuration of the body, holding the Buna-N seal ring in place.

**Clamping Spines:** Various sizes and odd shaped cables, wires and tubing can be accommodated due to overlapping diagonally split clamping spines.

ITEM NUMBER	CABLE RANGE inches(mm)	THREAD TYPE	DIMENSIONS inches(mm)				
			THREAD O.D. C1	PANEL MOUNTING HOLE	THREAD LENGTH C2	WRENCHING SIZE A / F	Body Min. I.D.
CD07AA-BL	0.16~0.27(4-6.8)	PG7	0.49(12.5)	0.49~0.50(12.5-12.8)	0.31(8)	.67" / .59"	0.28(7)
CD07AR-BL	0.12~0.22(3-5.5)	PG7	0.49(12.5)	0.49~0.50(12.5-12.8)	0.31(8)	.67" / .59"	0.28(7)
CD09AV-BL	0.08~0.12(2-3.1)	PG9	0.60(15.2)	0.60~0.61(15.2-15.5)	0.33(8.5)	.87" / .75"	0.33(8.5)
CD09AR-BL	0.12~0.22(3-5.5)	PG3	0.60(15.2)	0.60~0.61(15.2-15.5)	0.33(8.5)	.87" / .75"	0.33(8.5)
CD09AA-BL	0.18~0.32(4.5-8.2)	PG5	0.60(15.2)	0.60~0.61(15.2-15.5)	0.33(8.5)	.87" / .75"	0.33(8.5)
CD11AR-BL	0.16~0.27(4-7)	PG11	0.73(18.6)	0.73~0.74(18.6-18.9)	0.35(9)	.94" / .87"	0.43(11)
CD11AA-BL	0.24~0.43(6-11)	PG11	0.73(18.6)	0.73~0.74(18.6-18.9)	0.35(9)	.94" / .87"	0.43(11)
CD13AR-BL	0.18~0.23(4.5-9)	PG13	0.80(20.4)	0.80~0.81(20.4-20.7)	0.39(10)	1.06"/.94"	0.49(12.5)
CD13AA-BL	0.26~0.49(6.5-12.5)	PG13	0.80(20.4)	0.80~0.81(20.4-20.7)	0.39(10)	1.06"/.94"	0.49(12.5)
CD16AV-BL	0.22~0.44(5.5-11.2)	PG16	0.89(22.5)	0.89~.90(22.5-22.8)	0.39(10)	1.18"/1.06"	0.55(14)
CD16AR-BL	0.31~0.55(8-14)	PG16	0.89(22.5)	0.89~.90(22.5-22.8)	0.39(10)	1.18"/1.06"	0.55(14)
CD16AA-BL	0.39~0.55(10-14)	PG16	0.89(22.5)	0.89~.90(22.5-22.8)	0.39(10)	1.18"/1.06"	0.55(14)
CD21AR-BL	0.41~0.64(10.5-16.2)	PG21	1.11(28.3)	1.11~1.13(28.3-28.7)	0.47(12)	1.42"/1.30"	0.75(19)
CD21AA-BL	(13-18.5)	PG21	1.11(28.3)	1.11~1.13(28.3-28.7)	0.39(10)	1.42"/1.30"	0.75(19)
CD29AR-BL	0.63~0.87(16-22)	PG29	1.46(37)	1.46~1.47(37-37.4)	0.59(15)	1.81"/1.65"	0.98(25)
CD29AA-BL	0.71~0.98(18-25)	PG29	1.46(37)	1.46~1.47(37-37.4)	0.59(15)	1.81"/1.65"	0.98(25)
CD36AR-BL	0.83~1.04(21-26.5)	PG36	1.85(47)	1.85~1.87(47-47.4)	0.59(15)	2.24"/2.04"	1.24(31.4)
CD36AA-BL	0.94~1.24(24-31.4)	PG36	1.85(47)	1.85~1.87(47-47.4)	0.59(15)	2.24"/2.04"	1.24(31.4)
CD42AR-BL	1.02~1.26(26-32)	PG42	2.13(54)	2.13~2.14(54-54.4)	0.61(15.5)	2.52"/ 2.44"	1.61(41)
CD42AA-BL	1.22~1.61(31-41)	PG42	2.13(54)	2.13~2.14(54-54.4)	0.61(15.5)	2.52"/ 2.44"	1.61(41)
CD48AR-BL	1.18~1.49(30-38)	PG48	2.33(59.3)	2.33~2.35(59.3-59.7)	0.61(15.5)	2.76"/2.56"	1.77(45)
CD48AA-BL	1.38~1.77(35-45)	PG48	2.33(59.3)	2.33~2.35(59.3-59.7)	0.61(15.5)	2.76"/2.56"	1.77(45)

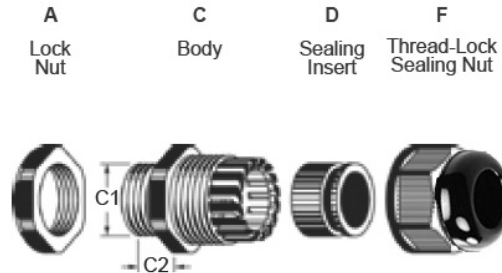
\*FOR GREY COLOUR, REPLACE '-BL' WITH '-GR'

Liquid Tight

## LIQUID TIGHT STRAIN RELIEF CONNECTOR FOR CABLE, WIRE & TUBING

G12

### Liquid Tight Strain Relief Connectors - NPT Thread



**Dome Nut With Inside Taper:** As the dome nut is tightened the seal ring grips and holds the cable, wire or tubing positively in place.

**Lead Screw Thread:** The dome nut can be firmly tightened due to the high strength of the lead screw thread.

**Body Seal:** Annular concentric rings from a liquid tight seal between body and housing.

**Standard Colours:** Black and Grey. Nylon.

**Seal and Grip Ring:** Superior pull-out resistance due to recessed configuration of the body, holding the Buna-N seal ring in place.

**Clamping Spines:** Various sizes and odd shaped cables, wires and tubing can be accommodated due to overlapping diagonally split clamping spines.



Bushings

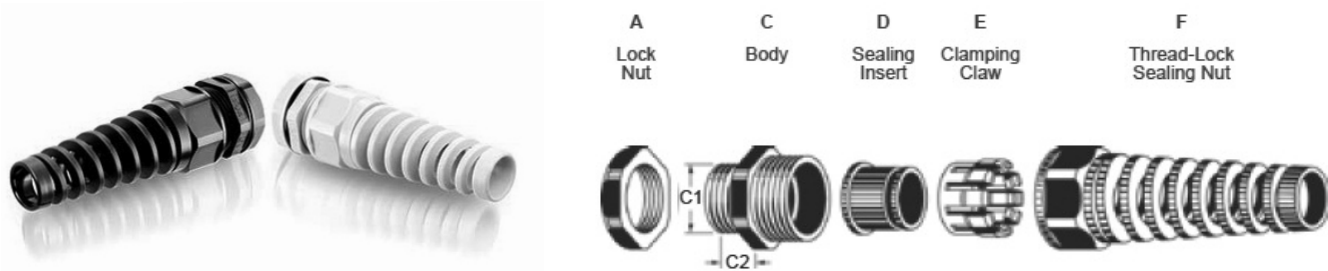
ITEM NUMBER	CABLE RANGE inches(mm)	THREAD TYPE	DIMENSIONS inches(mm)			
			THREAD O.D. C1	THREAD LENGTH C2	WRENCHING SIZE A / F	Body Min. I.D.
CD09NA-BL	0.16~0.27(4-7)	3/8" NPT	0.67(17.055)	0.59(15)	.67" / .59"	0.43(11)
CD09NR-BL	0.08~0.24(2~6)	3/8" NPT	0.68(17.2)	0.59(15)	.87" / .75"	--
CD09NV-BL	0.26~0.43(6-11)	3/8" NPT	0.67(17.055)	0.59(15)	.87" / .75"	0.43(11)
CD13NA-BL	0.28~0.43(7-11)	1/2" NPT	0.84(21.223)	0.51(13)	1.06"/1.06"	0.55(14)
CD13NR-BL	0.22~0.44(5.5-11.2)	1/2" NPT	0.84(21.223)	0.59(15)	1.06"/1.06"	0.55(14)
CD16NA-BL	0.35~0.55(9-14)	1/2" NPT	0.84(21.223)	0.51(13)	1.06"/1.06"	0.55(14)
CD16NR-BL	0.31~0.55(8-14)	1/2" NPT	0.84(21.223)	0.59(15)	1.06"/1.06"	0.55(14)
CD21NA-BL	0.51~0.73(13-18.5)	3/4" NPT	1.04(26.568)	0.59(15)	1.30"/1.30"	0.75(19)
CD21NR-BL	0.41~0.64(10.5-16.2)	3/4" NPT	1.04(26.568)	0.59(15)	1.30"/1.30"	0.75(19)
CD29NA-BL	0.71~0.98 (18~25)	1" NPT	1.31(33.227)	0.67(17)	1.65" / 1.65"	0.98(25)
CD29NR-BL	0.63~0.87(16-22)	1" NPT	1.31(33.227)	0.67(17)	1.65" / 1.65"	0.98(25)
CD29LA-BL	0.83~1.04(21-26.5)	1 1/4" NPT	1.65(41.984)	0.67(17)	2.09" / 2.09"	1.26(32)
CD29LR-BL	0.94~1.26(24-32)	1 1/4" NPT	1.65(41.984)	0.67(17)	2.09" / 2.05"	1.26(32)
CD36NA-BL	0.87~1.26(22~32)	1 1/2" NPT	1.92(48.7)	0.79(20)	2.09" / 2.09"	--
CD36NR-BL	0.79~1.42(20~36)	1 1/2" NPT	1.92(48.7)	0.79(20)	2.09" / 2.09"	--

\*FOR GREY COLOUR, REPLACE '-BL' WITH '-GR'

## LIQUID TIGHT STRAIN RELIEF CONNECTOR FOR CABLE, WIRE & TUBING

### Liquid Tight Strain Relief Connectors - Flex Style

G13



**Flex Protecting Extension:** Installs in either clearance or threaded holes. Kinking or caving of cable or tubing is eliminated with use of the flex connector.

**Non-Corrosive:** The Nylon strain relief connector is resistant to salt water, weak acids, weak alkalis, alcohol, esters, ketones, ether, gasoline, mineral oil, animal and vegetable oil.

**Large Range:** Ten sizes accommodate diameters from 1/8" to 1 1/4".

**Easy, Time Saving Installation:** Simply push cable or tubing through installed strain relief connector and tighten dome nut. No disassembly is required.

**Applications:** Underwater to 300 feet, underground for direct burial cables, control cabinets, car washes, hot tubs, instruments, carpet cleaning machines, etc.



ITEM NUMBER	CABLE RANGE inches(mm)	THREAD TYPE	DIMENSIONS inches(mm)				
			THREAD O.D. C1	PANEL MOUNTING HOLE	THREAD LENGTH C2	WRENCHING SIZE A / F	Body Min. I.D.
CF07AA-BK	0.16~0.27(4-6.8)	PG7	0.49(12.5)	0.49~0.50(12.5-12.8)	0.31(8)	.67" / .59"	0.28(7)
CF07AR-BK	0.12~0.22(3-5.5)	PG7	0.49(12.5)	0.49~0.50(12.5-12.8)	0.31(8)	.67" / .59"	0.28(7)
CF09AV-BK	0.08~0.12(2-3.1)	PG9	0.60(15.2)	0.60~0.61(15.2-15.5)	0.33(8.5)	.87" / .75"	0.33(8.5)
CF09AA-BK	0.18~0.32(4.5-8.2)	PG9	0.60(15.2)	0.60~0.61(15.2-15.5)	0.33(8.5)	.87" / .75"	0.33(8.5)
CF09AR-BK	0.12~0.22(3-5.5)	PG9	0.60(15.2)	0.60~0.61(15.2-15.5)	0.33(8.5)	.87" / .75"	0.33(8.5)
CF11AA-BK	0.24~0.41(6~10.4)	PG11	0.73(18.6)	0.73~0.74(18.6-18.9)	0.35(9)	.94" / .87"	0.41(10.5)
CF11AR-BK	0.16~0.27(4-7)	PG11	0.73(18.6)	0.73~0.74(18.6-18.9)	0.35(9)	.94" / .87"	0.41(10.5)
CF13AA-BK	0.26~0.43(6-11)	PG13	0.80(20.4)	0.80~0.81(20.4-20.7)	0.39(10)	1.06"/.94"	0.45(11.5)
CF13AR-BK	0.18~0.23(4.5-9)	PG13	0.80(20.4)	0.80~0.81(20.4-20.7)	0.39(10)	1.06"/.94"	0.45(11.5)
CF16AV-BK	0.22~0.44(5.5-11.2)	PG16	0.89(22.5)	0.89~.90(22.5-22.8)	0.39(10)	1.18"/1.06"	0.53(13.5)
CF16AR-BK	0.31~0.53(8~13.5)	PG16	0.89(22.5)	0.89~.90(22.5-22.8)	0.39(10)	1.18"/1.06"	0.53(13.5)
CF16AA-BK	0.39~0.55(10-14)	PG16	0.89(22.5)	0.89~.90(22.5-22.8)	0.39(10)	1.06"/1.06"	0.53(13.5)
CF21AR-BK	0.41~0.62(10.5~15.8)	PG21	1.11(28.3)	1.11~1.13(28.3-28.7)	0.47(12)	1.42"/1.30"	0.63(16)
CF21AA-BK	0.51~0.71(13~18)	PG21	1.11(28.3)	1.11~1.13(28.3-28.7)	0.43(11)	1.30"/1.30"	--
CF09NA-BK	0.16~0.27(4-7)	3/8" NPT	0.67(17.055)	0.67~0.67(17.06-17.18)	0.59(15)	.87"/.87"	0.41(10.5)
CF09NR-BK	0.08~0.24(2~6)	3/8" NPT	0.68(17.2)	0.67~0.69(17.20-17.50)	0.59(15)	.87"/.75"	--
CF09NV-BK	0.24~0.41(6~10.4)	3/8" NPT	0.67(17.06)	0.67~0.67(17.06-17.18)	0.59(15)	.87"/.87"	0.41(10.5)
CF13NA-BK	0.22~0.44(5.5-11.2)	1/2" NPT	0.84(21.223)	0.84~0.842(21.23-21.4)	0.59(15)	.87"/.87"	0.53(13.5)
CF13NV-BK	0.31~0.53(8~13.5)	1/2" NPT	0.84(21.223)	0.84~0.842(21.23-21.4)	0.59(15)	1.06"/1.06"	0.53(13.5)
CF13NR-BK	0.20~0.35(5~9)	1/2" NPT	0.83(21.1)	0.83~0.842(21.1-21.4)	0.51(13)	.94"/.94"	--
CF21NA-BK	0.51~0.71(13~18)	3/4" NPT	1.05(26.70)	1.05~1.06(26.7~26.9)	0.55(14)	1.30"/1.30"	--
CF21NR-BK	0.41~0.62(10.5~15.8)	3/4" NPT	1.05(26.57)	1.05~1.06(26.6~26.8)	0.59(15)	1.30"/1.30"	0.63(16)

\*FOR GREY COLOUR, REPLACE '-BL' WITH '-GR'

Liquid  
Tight

## LIQUID TIGHT STRAIN RELIEF CONNECTOR FOR CABLE, WIRE & TUBING

G14

Nickel Plated Brass- Liquid Tight Strain Relief Connectors



Dome Style

Flex Fittings

ITEM NUMBER		CABLE RANGE inches(mm)	THREAD TYPE	DIMENSIONS inches(mm)				
Dome Fittings	Flex Fittings			A	B	C	D	F/F
CD07AA-BR	CF07AA-BR	.12 - .26 (3 - 6.5)	PG 7 / 1/4" NPT	.49 (12.5)	.75 (19)	2.17 (55)	.20 (5)	.55 (14)
CD07AR-BR	CF07AR-BR	.08 - .20 (2 - 5)		.49 (12.5)	.75 (19)	2.17 (55)	.20 (5)	.55 (14)
CD09AA-BR	CF09AA-BR	.16 - .31 (4 - 8)	PG 9	.60 (15.2)	.83 (21)	2.60 (66)	.24 (6)	.67 (17)
CD09AR-BR	CF09AR-BR	.08 - .24 (2 - 6)		.60 (15.2)	.83 (21)	2.60 (66)	.24 (6)	.67 (17)
CD11AA-BR	CF11AA-BR	.20 - .39 (5 - 10)	PG 11	.73 (18.5)	.87 (22)	3.03 (77)	.24 (6)	.79 (20)
CD11AR-BR	CF11AR-BR	.12 - .28 (3 - 7)		.73 (18.5)	.87 (22)	3.03 (77)	.24 (6)	.79 (20)
CD13AA-BR	CF13AA-BR	.24 - .47 (6 - 12)	PG 13 / 13.5	.80 (20.3)	.94 (24)	3.46 (88)	.26 (6.5)	.87 (22)
CD13AR-BR	CF13AR-BR	.20 - .35 (5 - 9)		.80 (20.3)	.94 (24)	3.46 (88)	.26 (6.5)	.87 (22)
CD16AA-BR	CF16AA-BR	.39 - .55 (10 - 14)	PG 16	.89 (22.5)	.91 (23)	3.86 (98)	.26 (6.5)	.94 (24)
CD16AR-BR	CF16AR-BR	.28 - .47 (7 - 12)		.89 (22.5)	.91 (23)	3.86 (98)	.26 (6.5)	.94 (24)
CD21AA-BR	CF21AA-BR	.51 - .71 (13 - 18)	PG 21	1.12 (28.4)	.94 (24)	4.37 (111)	.28 (7)	1.18 (30)
CD21AR-BR	CF21AR-BR	.35 - .63 (9 - 16)		1.12 (28.4)	.94 (24)	4.37 (111)	.28 (7)	1.18 (30)
CD29AA-BR	--	.71 - .98 (18 - 25)	PG 29	1.47 (37.3)	1.14 (29)	--	.31 (8)	1.57 (40)
CD29AR-BR	--	.51 - .79 (13 - 20)		1.47 (37.3)	1.14 (29)	--	.31 (8)	1.57 (40)
CD36AA-BR	--	.87 - 1.26 (22 - 32)	PG 36	1.85(47)	1.38 (35)	--	.31 (8)	1.97 (50)
CD36AR-BR	--	.79 - 1.02 (20 - 26)		1.85(47)	1.38 (35)	--	.31 (8)	1.97 (50)
CD42AA-BR	--	1.26 - 1.50 (32 - 38)	PG 42	2.13 (54.1)	1.46 (37)	--	.35 (9)	2.24 (57)
CD42AR-BR	--	.98 - 1.22 (25 - 31)		2.13 (54.1)	1.46 (37)	--	.35 (9)	2.24 (57)
CD48AA-BR	--	1.46 - 1.73 (37 - 44)	PG 48	2.34 (59.4)	1.50 (38)	--	.39 (10)	2.52 (64)
CD48AR-BR	--	1.14 - 1.38 (29 - 35)		2.34 (59.4)	1.50 (38)	--	.39 (10)	2.52 (64)
CD09NA-BR	CF09NA-BR	.16 - .31 (4 - 8)	3/8" NPT	.68 (17.2)	.83 (21)	2.60 (66)	.59 (15)	.67 (17) / .75 (19)
CD09NR-BR	CF09NR-BR	.08 - .24 (2 - 6)		.68 (17.2)	.83 (21)	2.60 (66)	.59 (15)	.67 (17) / .75 (19)
CD13NA-BR	CF13NA-BR	.24 - .47 (6 - 12)	1/2" NPT	.83 (21.1)	.94 (24)	3.46 (88)	.51 (13)	.87 (22) / .94 (24)
CD13NR-BR	CF13NR-BR	.20 - .35 (5 - 9)		.83 (21.1)	.94 (24)	3.46 (88)	.51 (13)	.87 (22) / .94 (24)
CD16NA-BR	CF16NA-BR	.39 - .55 (10 - 14)	1/2" NPT	.83 (21.1)	.94 (24)	3.89 (99)	.51 (13)	.94 (24)
CD16NR-BR	CF16NR-BR	.28 - .47 (7 - 12)		.83 (21.1)	.94 (24)	3.89 (99)	.51 (13)	.94 (24)
CD21NA-BR	CF21NA-BR	.51 - .71 (13 - 18)	3/4" NPT	1.05 (26.7)	.98 (25)	4.37 (111)	.51 (13)	1.30 (33)
CD21NR-BR	CF21NR-BR	.35 - .63 (9 - 16)		1.05 (26.7)	.98 (25)	4.37 (111)	.51 (13)	1.30 (33)
CD29NA-BR	--	.71 - .98 (18 - 25)	1" NPT	1.35 (34.3)	1.14 (29)	--	.75 (19)	1.57 (40)
CD29NR-BR	--	.51 - .79 (13 - 20)		1.35 (34.3)	1.14 (29)	--	.75 (19)	1.57 (40)

Bushings



## LIQUID TIGHT STRAIN RELIEF CONNECTOR FOR CABLE, WIRE & TUBING

### Locking Nuts For Liquid Tight Connectors

G15



**Locking Nuts:** To specify fitting with nut, add "-N" to product number, eg: CD13AA-BK-N, or order separately.

**General Information:**

Liquid Tight: Exceeds NEMA 6 specifications.

Specifications (Based on Hummel Laboratory Tests):

- Pressure Rating: 150 PSIG (10 BAR)
- Materials: Nylon 6/6, flame resistant, self-extinguishing, BUNA-N seal
- Operating Temperature:
  - Static: -40°F to 250°F (-40°C to 120°C)
  - Short Term Exposure: 300°F (150°C)
  - Dynamic: -4°F to 212°F (-20°C to 100°C)
  - Short Term Exposure: 250°F (150°C)
- Top Quality
- Inexpensive
- Saves Installation Time

ITEM NUMBER	DIMENSIONS inches		
	THREAD TYPE	THICKNESS (G)	WRENCHING SIZE
NP-07-BL	PG7	.22"	.75"
NP-07-GR	PG7	.22"	.75"
NP-09-BL	PG9	.22"	.86"
NP-09-GR	PG9	.22"	.86"
NN-09-BL	3/8" NPT	.26"	1.08"
NP-11-BL	PG11	.22"	.94"
NP-11-GR	PG11	.22"	.94"
NP-13-BL	PG13	.25"	1.06"
NP-13-GR	PG13	.25"	1.06"
NN-13-BL	1/2" NPT	.26"	1.08"
NP-16-BL	PG16	.25"	1.17"
NP-16-GR	PG16	.25"	1.17"
NP-21-BL	PG21	.28"	1.41"
NP-21-GR	PG21	.28"	1.41"
NN-21-BL	3/4" NPT	.26"	1.31"
NP-29-BL	PG29	.31"	1.81"
NP-29-GR	PG29	.31"	1.81"
NN-29-BL	1" NPT	.26"	1.63"
NP-36-BL	PG36	.31"	2.38"
NP-36-GR	PG36	.31"	2.38"
NP-42-BL	PG42	.31"	2.56"
NP-42-GR	PG42	.31"	2.56"
NP-48-BL	PG48	.31"	2.75"
NP-48-GR	PG48	.31"	2.75"

### Thread Specifications For Locking Nuts For Liquid Tight Connectors

**Thread Specifications:** These are steel conduit thread per DIN 40430 (European Standard)

THREAD SIZE	PG7	PG9	PG11	PG13	PG16	PG21	PG29	PG36	PG42	PG48
MAJOR DIAMETER (mm)	12.5	15.2	18.6	20.4	22.5	28.3	37.0	47.0	54.0	59.3
PITCH (mm)	1.27	1.41	1.41	1.41	1.41	1.59	1.59	1.59	1.59	1.59

Bushings



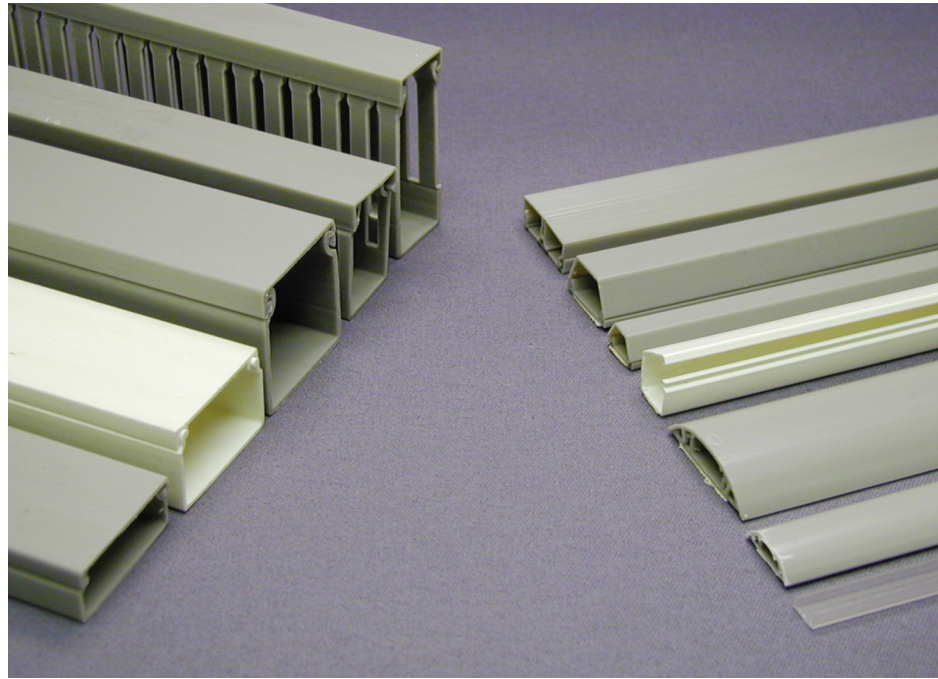


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**SECTION H  
WIRING DUCT**

H1



WIRING DUCT



**Wiring Duct**

Technical Data	H2
Slotted Duct - Type P & Type P-VD	H3
Slotted Duct - Type HD	H4
Solid Duct - Type L	H5
Push Rivets, Manual Wire Cutter	H6
Type TC - Telephone or Data Duct and Accessories	H7
Type SD - Telephone or Data Duct	H8
Type SD - Telephone or Data Duct Accessories	H9
Type TF - SOLID One Piece Duct with Hinged Cover	H10
Type TD - Transparent YVC U -Type Wiring Duct with Adhesive Backing	H10
Type RD - Treshold/Floor Wiring Duct with Adhesive Backing	H10

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# Wiring Duct

## TECHNICAL DATA

### H2 Technical Data for Etlin PVC Wire Ducting

PROPERTY	TEST METHOD	PVC
Specific Gravity	DIN 53479	1.5 Kg/dm <sup>3</sup>
Water Absorption	DIN 53475	0.2 mg/cm <sup>2</sup>
Modulus of Elasticity	DIN 53457	34.000
Tensile Strength	DIN 53455	470 Kg/cm <sup>2</sup>
Hardness (Rockwell Scale)	--	90
Temperature VICAT	DIN 53460	82°C
Thermal Conductivity	DIN 52612	0.14 Kcal/mh°C
Self Extinguishability	UL 94	Grade V-O
Dielectric Strength	DIN 53481	450 Kv/cm
Dielectric Constant	DIN 53483	Approximately 3.4

**Etlin Plastic Wire Ducting provides a simple solution to all the problems associated with the distribution and layout of cables.**

Available in Two Styles: Slotted and Solid Wall

#### Slotted Wall:

Used primarily in control panels. By deflecting the plastic fingers, wires can be added or removed, but the restricted opening design prevents the accidental removal of the wires. Smooth edges ensure worker comfort and safety.

#### Solid Wall:

Used indoors and outdoors for straight wire runs where no breakouts are required. This style provides the maximum in environmental protection.

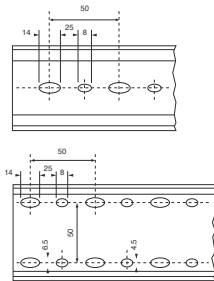
Standard Colours are Light Grey and White for both.

The above information is believed to be accurate. The user should, however, check the applicable specifications to verify values.

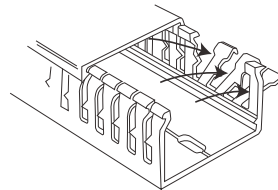
### All Etlin Wiring Duct Features:



**Non-Slip Cover:**  
Remains in place even under heavy vibration, but is easily snapped on or off to access the wires.



**Mounting Holes:**  
Are elongated, which allows for more tolerance when drilling holes on the mounting surface. These holes allow for a wide range of fastening hardware to be used.



**Double Scored Walls:**  
Can be broken at the upper score line by bending the finger by hand. The lower score line can be used to make corner or T-junctions.

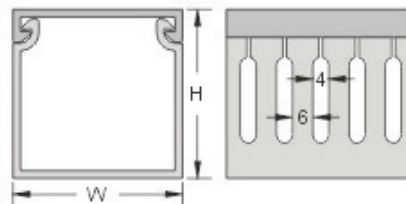
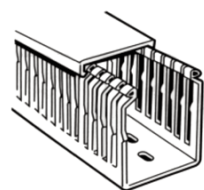
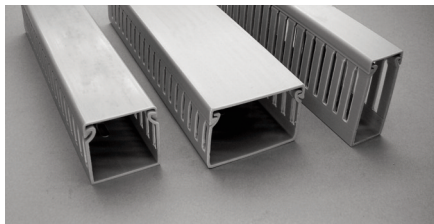


**Restricted Slot Design:**  
By deflecting the individual finger, wires can easily be positioned in the duct. This design also helps prevent the accidental removal of wires. Wires can be snapped out of the duct when tracing wires without disconnecting.

# Wiring Duct



TYPE P & VD - SLOTTED WIRING DUCT



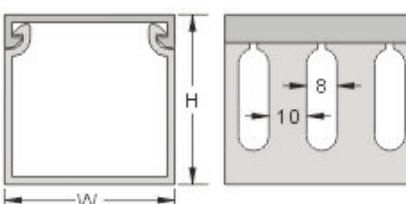
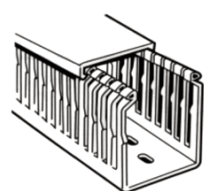
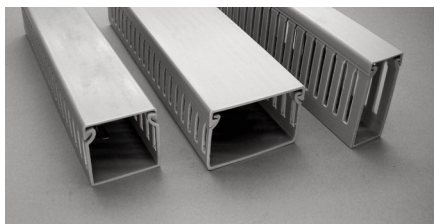
H3

Type P – Slotted Duct (Slot :4mm)

ITEM NUMBER	DIMENSIONS IN MM		STANDARD PACK / M	WEIGHT KG / M	DIMENSIONS IN INCHES		STANDARD PACK / FT
	(H)	(W)			(H)	(W)	
30.25P	30	25	120	.29	1.18	.98	393.7
40.25P	40	25	100	.31	1.57	.98	328.1
60.25P	60	25	72	.38	2.36	.98	236.2
80.25P	80	25	72	.47	3.15	.98	236.2
40.40P	40	40	64	.38	1.57	1.57	209.9
60.40P	60	40	48	.44	2.36	1.57	157.5
80.40P	80	40	48	.55	3.15	1.57	157.5
40.60P	40	60	48	.55	1.57	2.36	157.5
60.60P	60	60	48	.62	2.36	2.36	157.5
80.60P	80	60	36	.71	2.36	3.15	118.1
80.80P	80	80	24	.80	3.15	3.15	78.7
80.100P	80	100	20	1.00	3.15	3.94	65.6
100.100P	100	100	16	1.22	3.94	3.94	52.5
60.120P	60	120	20	1.15	2.36	4.72	65.6
80.120P	80	120	16	1.21	3.15	4.72	52.5

Standard length is 2 meters or 6'6" long, supplied with the cover.

Standard colour is Light Grey or White. Add suffix -LG for Light Grey or -WH for White to the part number.



Wiring Duct

Type P-VD – Slotted Duct (Slot :8mm)

ITEM NUMBER	DIMENSIONS IN MM		STANDARD PACK / M	WEIGHT KG / M	DIMENSIONS IN INCHES		STANDARD PACK / FT
	(H)	(W)			(H)	(W)	
30.25P-VD	30	25	120	.29	1.18	.98	393.7
40.25P-VD	40	25	100	.31	1.57	.98	328.1
60.25P-VD	60	25	72	.38	2.36	.98	236.2
80.25P-VD	80	25	72	.47	3.15	.98	236.2
40.40P-VD	40	40	64	.38	1.57	1.57	209.9
60.40P-VD	60	40	48	.44	2.36	1.57	157.5
80.40P-VD	80	40	48	.55	3.15	1.57	157.5
40.60P-VD	40	60	48	.55	1.57	2.36	157.5
60.60P-VD	60	60	48	.62	2.36	2.36	157.5
80.60P-VD	80	60	36	.71	2.36	3.15	118.1
80.80P-VD	80	80	24	.80	3.15	3.15	78.7
80.100P-VD	80	100	20	1.00	3.15	3.94	65.6
100.100P-VD	100	100	16	1.22	3.94	3.94	52.5
60.120P-VD	60	120	20	1.15	2.36	4.72	65.6
80.120P-VD	80	120	16	1.21	3.15	4.72	52.5

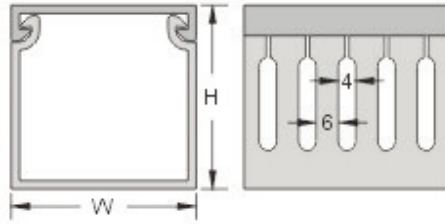
Standard length is 2 meters or 6'6" long, supplied with the cover.

Standard colour is Light Grey or White. Add suffix -LG for Light Grey or for White, add the suffix -WH to the part number.

# Wiring Duct

## TYPE HD - SLOTTED WIRING DUCT

H4



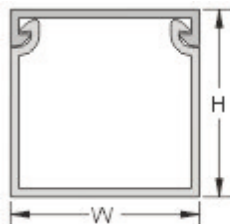
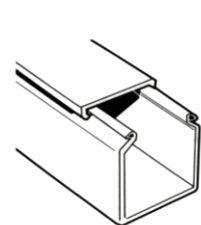
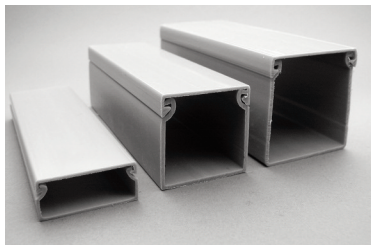
### Type HD – Slotted Duct (Slot :4mm)

ITEM NUMBER	DIMENSIONS IN MM		DIMENSIONS IN INCHES	
	(H)	(W)	(H)	(W)
25.15HD	25	15	.98	.59
20.20HD	20	20	.79	.79
25.25HD	25	25	.98	.98
45.25HD	45	25	1.77	.98
30.30HD	30	30	1.18	1.18
33.33HD	33	33	1.30	1.30
45.33HD	45	33	1.77	1.30
45.45HD	45	45	1.77	1.77
50.50HD	50	50	1.97	1.97
45.65HD	45	65	1.77	2.56
65.33HD	65	33	2.56	1.30
65.25HD	65	25	2.56	.98
65.45HD	65	45	2.56	1.77
60.60HD	60	60	2.36	2.36
65.65HD	65	65	2.56	2.56
64.72HD	64	72	2.52	2.83
100.33HD	100	33	3.94	1.30
100.48HD	100	48	3.94	1.89
100.55HD	100	55	3.94	2.17
75.75HD	75	75	2.95	2.95
100.70HD	100	70	3.94	2.76
100.75HD	100	75	3.94	2.95
50.100HD	50	100	1.96	3.94
75.100HD	75	100	2.95	3.94
100.100HD	100	100	3.94	3.94
75.150HD	75	150	2.95	5.91
100.150HD	100	150	3.94	5.91
100.200HD	100	200	3.94	7.87
150.200HD	150	200	5.91	7.87

Standard length is 2 meters or 6'6" long, supplied with the cover.

Standard colour is Light Grey or White. Add suffix -LG for Light Grey or for White, add the suffix -WH to the part number.

## TYPE L - SLOTTED WIRING DUCT



H5

### Type L – Solid Duct

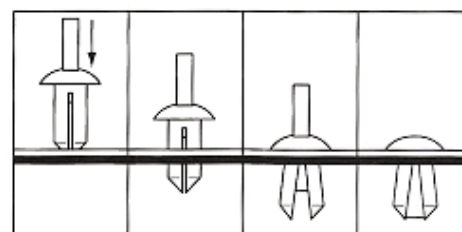
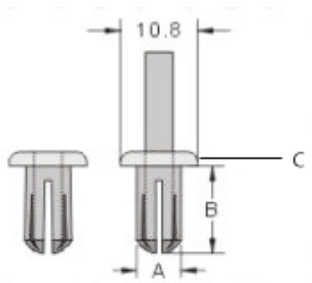
ITEM NUMBER	DIMENSIONS IN MM		STANDARD PACK / M	WEIGHT KG / M	DIMENSIONS IN INCHES		STANDARD PACK / FT
	A (H)	B (W)			A (H)	B (W)	
30.25L	30	25	120	.29	1.18	.98	393.7
40.25L	40	25	100	.31	1.57	.98	328.1
60.25L	60	25	72	.38	2.36	.98	236.2
80.25L	80	25	72	.47	3.15	.98	236.2
40.40L	40	40	64	.38	1.57	1.57	209.9
60.40L	60	40	48	.44	2.36	1.57	157.5
80.40L	80	40	48	.55	3.15	1.57	157.5
40.60L	40	60	48	.55	1.57	2.36	157.5
60.60L	60	60	48	.62	2.36	2.36	157.5
80.60L	80	60	36	.71	2.36	3.15	118.1
80.80L	80	80	24	.80	3.15	3.15	78.7
80.100L	80	100	20	1.00	3.15	3.94	65.6
100.100L	100	100	16	1.22	3.94	3.94	52.5
60.120L	60	120	20	1.15	2.36	4.72	65.6
80.120L	80	120	16	1.21	3.15	4.72	52.5

Wiring Duct



## ACCESSORIES FOR WIRE DUCTING

### H6 Type RC Push Rivets



ITEM NUMBER	Width (A) mm(in)	Height (B) mm(in)	THICKNESS (C) mm(in)	STANDARD PACK
RP-4	4.7(0.19)	7.9(0.31)	1.98~9.53(.078~.375)	1,000
RP-612	6.2(0.24)	12.3(0.48)	7.0~12.0(0.27~0.47)	1,000
RP-0815	8.0(0.31)	14.0(0.55)	7.0~12.0(0.27~0.47)	1,000

### Manual Wire Duct Cutter



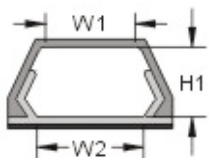
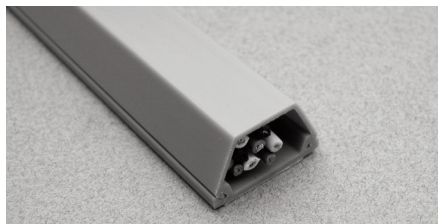
#### Model Wt-1 Manual Wire Duct Cutter:

Wire Duct and Conduit Cutting Tool. An economical manual tool specifically designed for cutting PVC wire ducts (including cover) or conduits

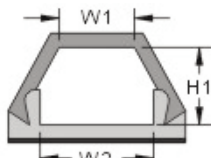




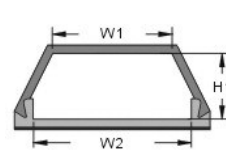
## TYPE TC TELEPHONE OR DATA DUCT ADHESIVE BACKED, 1 METER LENGTHS



TC-0.5, 1, 2, 3, 3.5



TC-1.5, 4, 5, 6



TC-8



H7

### Type TC - Telephone or Data Duct

ITEM NUMBER	W1	W2	H	WIRES TO BE CONTAINED	STANDARD PACK
TC-1	.24"	.28"	.16"	HOLDS 1 WIRE	350
TC-1.5	.24"	.31"	.30"	HOLDS 1-2 WIRES	300
TC-2	.31"	.31"	.24"	HOLDS 2-3 WIRES	190
TC-3	.39"	.39"	.28"	HOLDS 3-4 WIRES	140
TC-4	.47"	.59"	.39"	HOLDS 4-7 WIRES	90
TC-5	.39"	.67"	.51"	HOLDS 7-9 WIRES	75
TC-6	.43"	.75"	.63"	HOLDS 10-15 WIRES	60

Solid Wire Ducting sold in one meter lengths. Holds up to 15 wires.  
Self-extinguishing PVC with high-quality adhesive backing. Grey colour.

### Type TC Series Duct Accessories



MID COUPLER



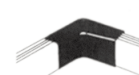
OUTSIDE CORNER



TEE



"L" RIGHT ANGLE



INSIDE CORNER



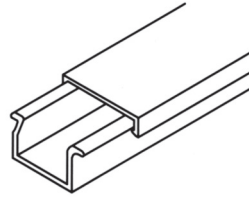
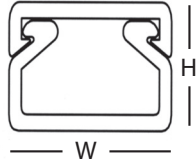
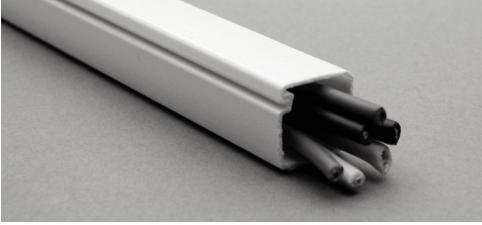
END CAP

USED WITH	ITEM NUMBER	TYPE	STANDARD PACK
TC-2	TCM-2	MID COUPLER	10
	TCT-2	TEE	10
	TCI-2	INSIDE CORNER	10
	TCO-2	OUTSIDE CORNER	10
	TCL-2	"L" RIGHT ANGLE	10
	TCE-2	END CAP	10
TC-3	TCM-3	MID COUPLER	10
	TCT-3	TEE	10
	TCI-3	INSIDE CORNER	10
	TCO-3	OUTSIDE CORNER	10
	TCL-3	"L" RIGHT ANGLE	10
	TCE-3	END CAP	10
TC-4	TCM-4	MID COUPLER	10
	TCT-4	TEE	10
	TCI-4	INSIDE CORNER	10
	TCO-4	OUTSIDE CORNER	10
	TCL-4	"L" RIGHT ANGLE	10
	TCE-4	END CAP	10
TC-5	TCM-5	MID COUPLER	10
	TCT-5	TEE	10
	TCI-5	INSIDE CORNER	10
	TCO-5	OUTSIDE CORNER	10
	TCL-5	"L" RIGHT ANGLE	10
	TCE-5	END CAP	10
TC-6	TCM-6	MID COUPLER	10
	TCT-6	TEE	10
	TCI-6	INSIDE CORNER	10
	TCO-6	OUTSIDE CORNER	10
	TCL-6	"L" RIGHT ANGLE	10
	TCE-6	END CAP	10

# Wiring Duct

## TYPE SD TELEPHONE OR DATA DUCT 2 METER LENGTHS

H8



### Type SD - Telephone or Data Duct

ITEM NUMBER	W	H	WIRES TO BE CONTAINED	STANDARD PACK
SD-1616	.63"	.63"	HOLDS 3-10 WIRES	300
SD-2516	.98"	.63"	HOLDS 5-12 WIRES	200
SD-3816	1.5"	.63"	HOLDS 12-30 WIRES	140
SD-1525	.59"	.98"	HOLDS 5-12 WIRES	270
SD-2525	.98"	.98"	HOLDS 10-25 WIRES	126
SD-3825	1.5"	.98"	HOLDS 20-40 WIRES	100
SD-5025	1.97"	.98"	HOLDS 25-45 WIRES	80
SD-2540	.98"	1.57	HOLDS 20-25 WIRES	88
SD-3340	.87"	1.57	HOLDS 40-45 WIRES	70
SD-4040	1.57"	1.57	HOLDS 60-70 WIRES	60
SD-6040	2.36"	1.57	HOLDS 100-115 WIRES	40
SD-7540	2.95"	1.57	HOLDS 120-135 WIRES	32
SD-8040	3.15"	1.57	HOLDS 120-135 WIRES	56
SD-10040	3.94"	1.57	HOLDS 180-200 WIRES	36
SD-2550	.98"	1.97	HOLDS 20-30 WIRES	80
SD-3850	1.5"	1.97	HOLDS 20-35 WIRES	64
SD-5050	1.97"	1.97	HOLDS 80-90 WIRES	66
SD-7550	2.95"	1.97	HOLDS 180-200 WIRES	32
SD-10050	3.94"	1.97	HOLDS 200-250 WIRES	24
SD-2560	.98"	2.36	HOLDS 40-45 WIRES	60
SD-4060	1.57"	2.36	HOLDS 100-115 WIRES	42
SD-6060	2.36"	2.36	HOLDS 120-135 WIRES	50
SD-8060	3.15"	2.36	HOLDS 180-210 WIRES	36
SD-10060	3.94"	2.36	HOLDS 240-290 WIRES	24
SD-12060	4.72"	2.36	HOLDS 240-290 WIRES	24
SD-2575	.98"	2.95	HOLDS 50-55 WIRES	48
SD-5075	1.97"	2.95	HOLDS 80-200 WIRES	24
SD-7575	2.95"	2.95	HOLDS 200-250 WIRES	32
SD-10075	3.94	2.95	HOLDS 260-350 WIRES	24
SD-15075	5.91"	2.95	HOLDS 335-500 WIRES	16
SD-2580	.98"	3.15	HOLDS 60-75 WIRES	60
SD-4080	1.57"	3.15	HOLDS 120-135 WIRES	56
SD-6080	2.36"	3.15	HOLDS 180-210 WIRES	48
SD-8080	3.15"	3.15	HOLDS 240-290 WIRES	30
SD-10080	3.94"	3.15	HOLDS 260-350 WIRES	24
SD-12080	4.72"	3.15	HOLDS 300-400 WIRES	16
SD-33100	1.3"	3.94	HOLDS 180-200 WIRES	48
SD-40100	1.57"	3.94	HOLDS 130-175 WIRES	48
SD-48100	1.89"	3.94	HOLDS 215-250 WIRES	36
SD-55100	2.15"	3.94	HOLDS 220-260 WIRES	24
SD-70100	2.76"	3.94	HOLDS 250-300 WIRES	24
SD-75100	2.95"	3.94	HOLDS 260-300 WIRES	24
SD-100100	3.94"	3.94	HOLDS 300-400 WIRES	18

Solid Wire Ducting, sold in two meter lengths. Holds up to 400 wires.

Self-extinguishing PVC solid wire ducting. Grey colour. Maximum service temperature 85°C.

See page H9 for diagrams

Wiring Duct

## TELEPHONE OR DATA DUCT ACCESSORIES FOR SD SERIES

H9



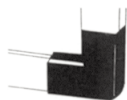
MID COUPLER



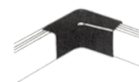
OUTSIDE CORNER



TEE



"L" RIGHT ANGLE



INSIDE CORNER



END CAP

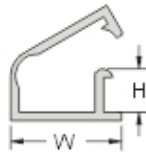
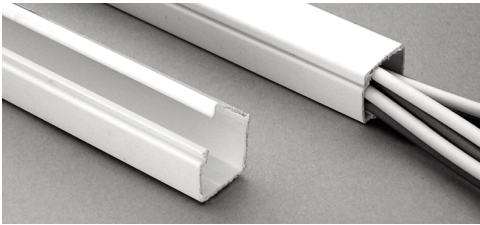
### Type SD Series Duct Accessories

USED WITH	ITEM NUMBER	TYPE	STANDARD PACK
SD-1616	SDM-1616	MID COUPLER	10
	SDO-1616	OUTSIDE CORNER	10
	SDT-1616	TEE	10
	SDL-1616	"L" RIGHT ANGLE	10
	SDI-1616	INSIDE CORNER	10
	SDE-1616	END CAP	10
SD-2516	SDM-2516	MID COUPLER	10
	SDO-2516	OUTSIDE CORNER	10
	SDT-2516	TEE	10
	SDL-2516	"L" RIGHT ANGLE	10
	SDI-2516	INSIDE CORNER	10
	SDE-2516	END CAP	10
SD-3816	SDM-3816	MID COUPLER	10
	SDO-3816	OUTSIDE CORNER	10
	SDT-3816	TEE	10
	SDL-3816	"L" RIGHT ANGLE	10
	SDI-3816	INSIDE CORNER	10
	SDE-3816	END CAP	10
SD-4040	SDM-4040	MID COUPLER	10
	SDO-4040	OUTSIDE CORNER	10
	SDT-4040	TEE	10
	SDL-4040	"L" RIGHT ANGLE	10
	SDI-4040	INSIDE CORNER	10
	SDE-4040	END CAP	10
SD-5050	SDM-5050	MID COUPLER	10
	SDO-5050	OUTSIDE CORNER	10
	SDT-5050	TEE	10
	SDL-5050	"L" RIGHT ANGLE	10
	SDI-5050	INSIDE CORNER	10
	SDE-5050	END CAP	10
SD-7575	SDM-7575	MID COUPLER	10
	SDO-7575	OUTSIDE CORNER	10
	SDT-7575	TEE	10
	SDL-7575	"L" RIGHT ANGLE	10
	SDI-7575	INSIDE CORNER	10
	SDE-7575	END CAP	10

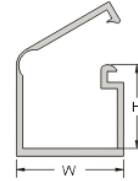
Wiring Duct

**ONE PIECE WIRING DUCT  
THRESHOLD/FLOOR WIRING DUCT**

**H10** Type TF - Solid One Piece Duct With Hinged Cover



TF-0905

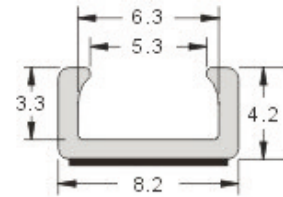
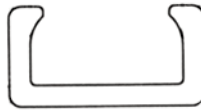
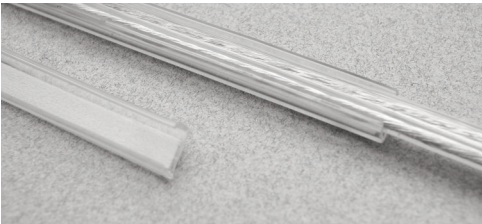


TF-1313

ITEM NUMBER	W	H	WIRES CONTAINED	STANDARD PACK
TF-0905	.375"	.110"	HOLDS 2-3 WIRES	10
TF-1313	.510"	.425"	HOLDS 4-7 WIRES	10

Rigid PVC one piece duct sold in 2 meter lengths. Holds up to 7 wires. Maximum service temperature 85°C.

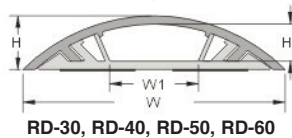
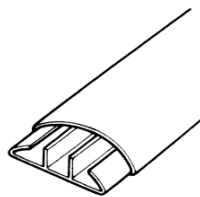
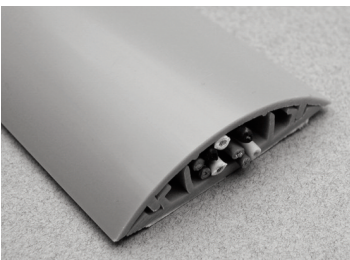
Type TD - Transparent PVC U-Type Wiring Duct With Adhesive Backing



ITEM NUMBER	FOR WIRE DIAMETER	WIRES CONTAINED	STANDARD PACK
TD-1	.375"	HOLDS 1 WIRE	10

Transparent PVC with adhesive backing sold in 2 meter lengths. Holds a single wire.

Type RD - Threshold/Floor Wiring Duct With Adhesive Backing



ITEM NUMBER	W	H	W1	H1	STANDARD PACK
RD-30	1.18"	.31"	.43"	.24"	150
RD-40	1.57"	.37"	.63"	.28"	100
RD-50	1.97"	.43"	.79"	.31"	65
RD-60	2.36"	.51"	1.18"	.35"	50
RD-70	2.76"	.59"	1.57"	.39"	30
RD-90	3.54"	.75"	1.77"	.59"	24

High impact PVC with adhesive backing sold in 1 meter lengths. Routes wiring over carpet, concrete or tile to prevent tripping. Grey colour.


**ETLIN-DANIELS**

 1850 Wilson Avenue, Toronto,  
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**SECTION I  
 PLASTIC  
 HARDWARE**

11


**Plastic Hardware**

Machine Screw Prefix and Suffix Key, Technical Data	I2-I3
<b>Nylon Machine Screws</b>	
Standard Screws	I4
Flat and Oval Head	I5
Metric	I6
Metal Core	I7-I8
Nylon Hex Bolts	I9-I10
<b>Nylon Thumb Screws</b>	
Knurled	I11
Slotted	I12
Threaded Rods	I13
<b>Nylon Nuts</b>	
Standard	I14-i15
License Plate Nuts and Bolt Sets	I16
Jam Type Hex Nuts	I17
Wing Nuts	I18
Miscellaneous Nuts	I19
<b>Nylon Washers</b>	
Standard Shoulder Washers	i20-I25
Screw Insulators	I26
Standard Flat Washers	I27
Retaining Flat Washers	I28
Finishing Washers, Metric Flat Washers, Protective Bumpers	I29
Screw Anchors (Wall Plugs), Wall Plug Mounts	I30
Premium Hose Clamps	I30
Nylon Spacers	I31-J33
Expansion Nuts	I34-J35
Threaded Standoffs	I36

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## NYLON MACHINE SCREWS PREFIX/SUFFIX KEY

I2

### NYLON MACHINE SCREWS PREFIX KEY

DESCRIPTION	PREFIX CODE
NYLON MACHINE SCREWS	NMS
NYLON MACHINE SCREWS - FLAT & OVAL	NMS
METRIC NYLON MACHINE SCREWS	NMSM
METAL CORE NYLON MACHINE SCREWS	NSMC
NYLON HEX BOLTS (CAP SCREWS)	NHB
NYLON THUMB SCREWS - KNURLED	NKTS
NYLON THUMB SCREWS	NTS
THREADED ROD	NTR
UNSLOTTED NYLON THUMB SCREW	NUTS

### NYLON MACHINE SCREWS SUFFIX KEY

HEAD STYLE	SIZE & LENGTH RANGE	SUFFIX CODE
BINDING SLOTTED	$\frac{2}{56} - \frac{3}{32}$ TO $\frac{1}{4}$ -28 - 1	BS
FILLISTER SLOTTED	$\frac{2}{56} - \frac{3}{32}$ TO $\frac{1}{4}$ -28 - 1	FS
HEX SLOTTED	$\frac{2}{56} - \frac{3}{32}$ TO $\frac{1}{4}$ -28 - 1	HS
HEX UNSLOTTED	$\frac{2}{56} - \frac{3}{32}$ TO $\frac{1}{4}$ -28 - 1	HU
PAN SLOTTED	$\frac{1}{64} - \frac{1}{4}$ TO $\frac{5}{16}$ -18 - $\frac{7}{8}$	PS
ROUND SLOTTED	$\frac{1}{64} - \frac{1}{4}$ TO $\frac{1}{4}$ -28 - 1	RS
SET SLOTTED	$\frac{2}{56} - \frac{3}{32}$ TO $\frac{1}{4}$ -28 - 1	SS
SOCKET SET	$\frac{4}{36} - \frac{1}{2}$ TO $\frac{3}{4}$ -10 - $\frac{1}{4}$	SO
PHILLIPS PAN	$\frac{2}{56} - \frac{3}{32}$ TO $1\frac{10}{32} - 2$	PP
PHILLIPS BINDER	$\frac{4}{36} - \frac{1}{2}$ TO $\frac{1}{4}$ -28 - 1	PB

### METRIC NYLON MACHINE SCREWS SUFFIX KEY

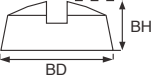
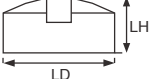
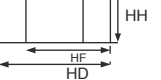

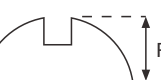
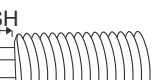
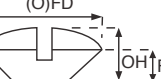
HEAD STYLE	SIZE & LENGTH RANGE	SUFFIX CODE
CHEESE SLOTTED	M2X.4 X 4MM TO M10X1.50 X 60 MM	CS
HEX SLOTTED	M2X.4 X 4MM TO M10X1.50 X 60 MM	HS
HEX UNSLOTTED	M2X.4 X 4MM TO M10X1.50 X 60 MM	HU
FILLISTER PHILLIPS	M2X.4 X 4MM TO M10X1.50 X 60 MM	FP
FILLISTER SLOTTED	M2X.4 X 4MM TO M10X1.50 X 60 MM	FS
FLAT PHILLIPS	M2X.4 X 4MM TO M10X1.50 X 60 MM	LP
FLAT SLOTTED	M2X.4 X 4MM TO M10X1.50 X 60 MM	LS
OVAL SLOTTED	M2X.4 X 4MM TO M10X1.50 X 60 MM	OS
PHILLIPS PAN	M2X.4 X 4MM TO M10X1.50 X 60 MM	PP
PAN SLOTTED	M2X.4 X 4MM TO M10X1.50 X 60 MM	PS
OVAL PHILLIPS	M2.5X.45 X 4MM TO M10X1.50 X 35 MM	OP
THUMB SCREW	M3X.5 X 4 MM TO M6X1.00 X 75 MM	TS

TECHNICAL DATA

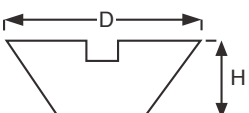
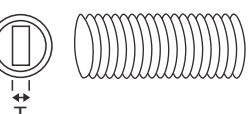
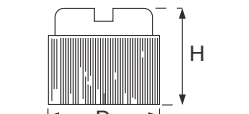
TECHNICAL DATA FOR NYLON MACHINE SCREWS

I3

NOMINAL DIMENSIONS (INCHES). DATA LISTED IS FOR REFERENCE PURPOSES ONLY.

HEAD TYPE	THREAD SIZE											
		#0	#2	#3	#4	#5	#6	#8	#10	1/4	5/16	3/8
<b>BINDING</b> 	BH BD	0.028 0.123	0.050 0.175	0.056 0.203	0.065 0.235	0.073 0.256	0.080 0.290	0.110 0.350	0.120 0.380	0.155 0.500	--	--
<b>FILLISTER</b> 	LH LD	0.051 0.090	0.075 0.140	0.087 0.153	0.100 0.180	0.100 0.196	0.125 0.215	0.150 0.255	0.175 0.300	0.230 0.400	--	0.335 0.606
<b>HEX &amp; SLOTTED HEX</b> 	HH HF HD	--	0.040 0.125 0.140	0.050 0.180 0.205	0.055 0.180 0.205	0.064 0.180 0.283	0.085 0.250			0.175 0.370 0.545	0.219 0.495 0.545	--
<b>PAN</b> 	PH PD	0.035 0.110	0.050 0.160	0.056 0.186	0.065 0.210	0.070 0.238	0.075 0.265	0.080 0.320	0.110 0.365	0.160 0.475	0.170 0.604	--
<b>ROUND</b> 	RH RD	0.050 0.106	0.070 0.150	0.075 0.175	0.090 0.210	--	0.100 0.260	0.110 0.290	0.130 0.325	0.160 0.475	--	--
<b>SET</b> 	SH	--	0.035	--	0.045	--	0.055	0.055	0.060	0.080	--	--
<b>FLAT (OVAL)</b> 	OH FH (O)FD	--	0.070 0.050 0.170	--	0.090 0.070 0.225	--	0.110 0.085 0.280	0.140 0.100 0.332	0.160 0.120 0.385	0.220 0.115 0.507	0.270 0.191 0.602	0.325 0.230 0.723

STEEL CORE ROUND, FILLISTER AND FLAT HEADS, SAME AS ABOVE

HEAD TYPE APPROXIMATE AMERICAN STANDARD EQUIVALENT	SCREW SIZE										
		M2	2.5	3	3.5	4	5	6	8	10	
		#2	#3	#4	#6	#8	#10	1/4	5/16	3/8	
<b>FLAT DIN 963</b> 	D H	0.16 0.05	0.20 0.05	0.24 0.06	0.27 0.07	0.31 0.08	0.39 0.098	0.47 0.12	0.63 0.16	0.79 0.20	
<b>SLOTTED GRUB</b> 	SD T	-- --	-- --	-- --	-- --	0.08 0.03	0.13 0.05	0.16 0.06	0.20 0.09	0.26 0.11	
<b>SLOTTED THUMB</b> 	D H	-- --	-- --	0.22 0.32	0.25 0.35	0.28 0.38	0.31 0.41	0.33 0.49	-- --	-- --	

# NYLON MACHINE SCREWS

I4

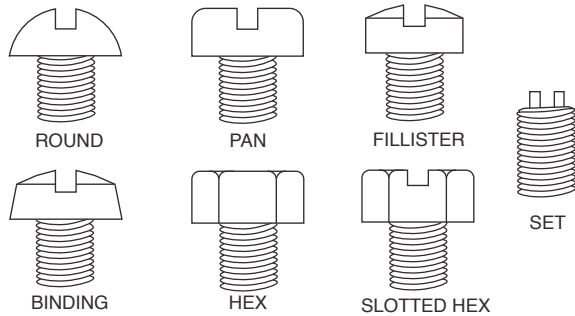
## STANDARD NYLON MACHINE SCREWS



### Nylon Machine Screws

Nylon screws are anti-corrosive, non-marring, tough and lightweight. They conform to irregular surfaces and are friction, abrasion and vibration resistant, and are good electrical and thermal insulators.

Specify head style by adding the following suffixes when ordering:



- BS = Binding
- FS = Fillister
- HS = Hex Slotted
- HU = Hex Unslotted
- PB = Phillips Binder
- PP = Phillips Pan
- PS = Pan Slotted
- RS = Round Slotted
- SS = Set Slotted
- SO = Socket Set

Minimum Order: 100 (Slotted Hex Minimum 1,000)

Other sizes and lengths available.

PART NUMBER	SIZE (in / mm)	LENGTH (in / mm)
NMS164X.250	1/64 (.397)	1/4 (6.35)
NMS172X.250	1/72 (.353)	1/4 (6.35)
NMS172X.500	1/72 (.353)	1/2 (12.7)
NMS256X.094	2/56 (.907)	3/32 (2.38)
NMS256X.125	2/56 (.907)	1/8 (3.18)
NMS256X.187	2/56 (.907)	3/16 (4.76)
NMS256X.250	2/56 (.907)	1/4 (6.35)
NMS256X.312	2/56 (.907)	5/16 (7.94)
NMS256X.375	2/56 (.907)	3/8 (9.53)
NMS256X.437	2/56 (.907)	7/16 (11.11)
NMS256X.500	2/56 (.907)	1/2 (12.7)
NMS256X.625	2/56 (.907)	5/8 (15.88)
NMS256X.750	2/56 (.907)	3/4 (19.05)
NMS436X.500	4/36 (2.82)	1/2 (12.7)
NMS440X.125	4/40 (2.54)	1/8 (3.18)
NMS440X.187	4/40 (2.54)	3/16 (4.76)
NMS440X.250	4/40 (2.54)	1/4 (6.35)
NMS440X.312	4/40 (2.54)	5/16 (7.94)
NMS440X.375	4/40 (2.54)	3/8 (9.53)
NMS440X.437	4/40 (2.54)	7/16 (11.11)
NMS440X.500	4/40 (2.54)	1/2 (12.7)
NMS440X.625	4/40 (2.54)	5/8 (15.88)
NMS440X.750	4/40 (2.54)	3/4 (19.05)
NMS440X.875	4/40 (2.54)	7/8 (22.23)
NMS440X1.000	4/40 (2.54)	1 (25.4)
NMS440X1.250	4/40 (2.54)	1-1/4 (31.75)
NMS632X.125	6/32 (4.76)	1/8 (3.18)
NMS632X.187	6/32 (4.76)	3/16 (4.76)
NMS632X.250	6/32 (4.76)	1/4 (6.35)
NMS632X.312	6/32 (4.76)	5/16 (7.94)
NMS632X.375	6/32 (4.76)	3/8 (9.53)
NMS632X.437	6/32 (4.76)	7/16 (11.11)
NMS632X.500	6/32 (4.76)	1/2 (12.7)
NMS632X.625	6/32 (4.76)	5/8 (15.88)
NMS632X.750	6/32 (4.76)	3/4 (19.05)

PART NUMBER	SIZE (in / mm)	LENGTH (in / mm)
NMS632X1.000	6/32 (4.76)	1 (25.4)
NMS632X1.250	6/32 (4.76)	1-1/4 (31.75)
NMS632X1.500	6/32 (4.76)	1-1/2 (38.1)
NMS832X.187	8/32 (6.35)	3/16 (4.76)
NMS832X.250	8/32 (6.35)	1/4 (6.35)
NMS832X.312	8/32 (6.35)	5/16 (7.94)
NMS832X.375	8/32 (6.35)	3/8 (9.53)
NMS832X.437	8/32 (6.35)	7/16 (11.11)
NMS832X.500	8/32 (6.35)	1/2 (12.7)
NMS832X.625	8/32 (6.35)	5/8 (15.88)
NMS832X.750	8/32 (6.35)	3/4 (19.05)
NMS832X.875	8/32 (6.35)	7/8 (22.23)
NMS832X1.000	8/32 (6.35)	1 (25.4)
NMS832X1.250	8/32 (6.35)	1-1/4 (31.75)
NMS832X1.500	8/32 (6.35)	1-1/2 (38.1)
NMS1024X.250	10/24 (10.58)	1/4 (6.35)
NMS1024X.312	10/24 (10.58)	5/16 (7.94)
NMS1024X.375	10/24 (10.58)	3/8 (9.53)
NMS1024X.500	10/24 (10.58)	1/2 (12.7)
NMS1024X.750	10/24 (10.58)	3/4 (19.05)
NMS1024X1.000	10/24 (10.58)	1 (25.4)
NMS1024X1.500	10/24 (10.58)	1-1/2 (38.1)
NMS1032X.125	10/32 (7.94)	1/8 (3.18)
NMS1032X.187	10/32 (7.94)	3/16 (4.76)
NMS1032X.250	10/32 (7.94)	1/4 (6.35)
NMS1032X.312	10/32 (7.94)	5/16 (7.94)
NMS1032X.375	10/32 (7.94)	3/8 (9.53)
NMS1032X.500	10/32 (7.94)	1/2 (12.7)
NMS1032X.625	10/32 (7.94)	5/8 (15.88)
NMS1032X.750	10/32 (7.94)	3/4 (19.05)
NMS1032X.875	10/32 (7.94)	7/8 (22.23)
NMS1032X1.000	10/32 (7.94)	1 (25.4)
NMS1032X1.250	10/32 (7.94)	1-1/4 (31.75)
NMS1032X1.500	10/32 (7.94)	1-1/2 (38.1)
NMS1032X2.000	10/32 (7.94)	2 (50.8)

PART NUMBER	SIZE (in)	LENGTH (in / mm)
NMS1420X.250	1/4-20	1/4 (6.35)
NMS1420X.312	1/4-20	5/16 (7.94)
NMS1420X.375	1/4-20	3/8 (9.53)
NMS1420X.500	1/4-20	1/2 (12.7)
NMS1420X.625	1/4-20	5/8 (15.88)
NMS1420X.750	1/4-20	3/4 (19.05)
NMS1420X.875	1/4-20	7/8 (22.23)
NMS1420X1.000	1/4-20	1 (25.4)
NMS1420X1.250	1/4-20	1-1/4 (31.75)
NMS1420X1.500	1/4-20	1-1/2 (38.1)
NMS1420X2.000	1/4-20	2 (50.8)
NMS1428X.500	1/4-28	1/2 (12.7)
NMS1428X.625	1/4-28	5/8 (15.88)
NMS1428X.750	1/4-28	3/4 (19.05)
NMS1428X1.000	1/4-28	1 (25.4)
NMS1428X1.250	1/4-28	1-1/4 (31.75)
NMS1428X1.500	1/4-28	1-1/2 (38.1)
NMS51618X.500	5/16-18	1/2 (12.7)
NMS51618X.750	5/16-18	3/4 (19.05)
NMS51618X.875	5/16-18	7/8 (22.23)
NMS51618X1.000	5/16-18	1 (25.4)
NMS51618X1.250	5/16-18	1-1/4 (31.75)
NMS51618X1.500	5/16-18	1-1/2 (38.1)
NMS51618X2.000	5/16-18	2 (50.8)
NMS51618X2.500	5/16-18	2-1/2 (63.5)
NMS51618X3.000	5/16-18	3 (76.2)
NMS3410X.250	3/4-10	1/4 (6.35)
NMS3816X.500	3/8-16	1/2 (12.7)
NMS3816X.750	3/8-16	3/4 (19.05)
NMS3816X1.000	3/8-16	1 (25.4)
NMS3816X1.250	3/8-16	1-1/4 (31.75)
NMS3816X1.500	3/8-16	1-1/2 (38.1)
NMS3816X2.000	3/8-16	2 (50.8)
NMS3816X2.500	3/8-16	2-1/2 (63.5)
NMS3816X3.000	3/8-16	3 (76.2)

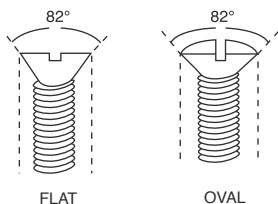
Plastic Hardware



## FLAT AND OVAL NYLON MACHINE SCREWS

### NYLON MACHINE SCREWS - FLAT AND OVAL HEAD (82°)

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PART NUMBER	SIZE (in)	LENGTH (in / mm)
NMS256X.187	2/56 (.907)	3/16 (4.76)
NMS256X.250	2/56 (.907)	1/4 (6.35)
NMS256X.312	2/56 (.907)	5/16 (7.94)
NMS256X.375	2/56 (.907)	3/8 (9.53)
NMS256X.500	2/56 (.907)	1/2 (12.7)
NMS256X.625	2/56 (.907)	5/8 (15.88)
NMS256X.750	2/56 (.907)	3/4 (19.05)
NMS440X.187	4/40 (2.54)	3/16 (4.76)
NMS440X.250	4/40 (2.54)	1/4 (6.35)
NMS440X.312	4/40 (2.54)	5/16 (7.94)
NMS440X.375	4/40 (2.54)	3/8 (9.53)
NMS440X.500	4/40 (2.54)	1/2 (12.7)
NMS440X.625	4/40 (2.54)	5/8 (15.88)
NMS440X.750	4/40 (2.54)	3/4 (19.05)
NMS440X1.000	4/40 (2.54)	1 (25.4)
NMS440X1.250	4/40 (2.54)	1-1/4 (31.75)
NMS632X.187	6/32 (4.76)	3/16 (4.76)
NMS632X.250	6/32 (4.76)	1/4 (6.35)
NMS632X.312	6/32 (4.76)	5/16 (7.94)
NMS632X.375	6/32 (4.76)	3/8 (9.53)
NMS632X.500	6/32 (4.76)	1/2 (12.7)
NMS632X.625	6/32 (4.76)	5/8 (15.88)
NMS632X.750	6/32 (4.76)	3/4 (19.05)
NMS632X1.000	6/32 (4.76)	1 (25.4)
NMS632X1.250	6/32 (4.76)	1-1/4 (31.75)
NMS832X.250	8/32 (6.35)	1/4 (6.35)

PART NUMBER	SIZE (in)	LENGTH (in / mm)
NMS832X.312	8/32 (6.35)	5/16 (7.94)
NMS832X.375	8/32 (6.35)	3/8 (9.53)
NMS832X.500	8/32 (6.35)	1/2 (12.7)
NMS832X.625	8/32 (6.35)	5/8 (15.88)
NMS832X.750	8/32 (6.35)	3/4 (19.05)
NMS832X1.000	8/32 (6.35)	1 (25.4)
NMS1024X.500	10/24 (10.58)	1/2 (12.7)
NMS1032X.250	10/32 (7.94)	1/4 (6.35)
NMS1032X.312	10/32 (7.94)	5/16 (7.94)
NMS1032X.375	10/32 (7.94)	3/8 (9.53)
NMS1032X.500	10/32 (7.94)	1/2 (12.7)
NMS1032X.750	10/32 (7.94)	3/4 (19.05)
NMS1032X1.000	10/32 (7.94)	1 (25.4)
NMS1032X1.250	10/32 (7.94)	1-1/4 (31.75)
NMS1032X1.500	10/32 (7.94)	1-1/2 (38.1)
NMS1420X.250	1/4-20	1/4 (6.35)
NMS1420X.500	1/4-20	1/2 (12.7)
NMS1420X.625	1/4-20	5/8 (15.88)
NMS1420X.750	1/4-20	3/4 (19.05)
NMS1420X.875	1/4-20	7/8 (22.23)
NMS1420X1.000	1/4-20	1 (25.4)
NMS1420X1.250	1/4-20	1-1/4 (31.75)
NMS1420X1.500	1/4-20	1-1/2 (38.1)
NMS1420X2.000	1/4-20	2 (50.8)
NMS51618X1.000	5/16-18	1 (25.4)
NMS3816X1.750	3/8-16	1-3/4 (44.45)

#### Nylon Machine Screws – Flat and Oval Head

Specify head style by adding the following suffixes when ordering:

FH = Flat  
OH = Oval

Minimum Order: 100 Flat Head; 1,000 Oval Head

Other sizes and lengths available.

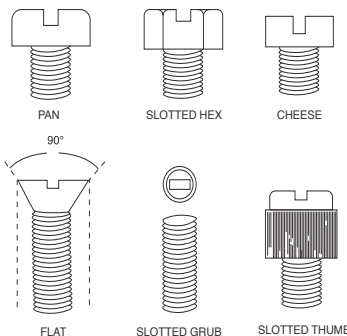
Plastic Hardware

# Machine Screws

## METRIC NYLON MACHINE SCREWS

I6

### METRIC NYLON MACHINE SCREWS



**Metric Nylon Machine Screws:** Serving the same purpose as standard nylon machine screws but with metric threads, diameters and lengths. They are anti-corrosive, non-marring, tough and lightweight.

Add the following suffixes to specify head styles when ordering:

- CS = Cheese Slotted
- HS = Hex Slotted
- HU = Hex Unslotted
- FP = Fillister Phillips
- FS = Fillister Slotted
- LP = Flat Phillips
- LS = Flat Slotted
- OS = Oval Slotted
- OP = Oval Phillips
- PP = Phillips Pan
- PS = Pan Slotted
- SG = Slotted Grub
- TS = Slotted Thumb Screws

**Minimum Order: 1000**

PART NUMBER	SIZE	LENGTH (mm)
NMSM2X5	M2 PITCH .40	5
NMSM2X6	M2 PITCH .40	6
NMSM2X8	M2 PITCH .40	8
NMSM2X10	M2 PITCH .40	10
NMSM2X12	M2 PITCH .40	12
NMSM2X16	M2 PITCH .40	16
NMSM2X20	M2 PITCH .40	20
NMSM2.5X5	M2.5 PITCH .45	5
NMSM2.5X6	M2.5 PITCH .45	6
NMSM2.5X10	M2.5 PITCH .45	10
NMSM2.5X12	M2.5 PITCH .45	12
NMSM2.5X16	M2.5 PITCH .45	16
NMSM2.5X20	M2.5 PITCH .45	20
NMSM2.5X25	M2.5 PITCH .45	25
NMSM3X5	M3 PITCH .50	5
NMSM3X6	M3 PITCH .50	6
NMSM3X8	M3 PITCH .50	8
NMSM3X10	M3 PITCH .50	10
NMSM3X12	M3 PITCH .50	12
NMSM3X16	M3 PITCH .50	16
NMSM3X20	M3 PITCH .50	20
NMSM3X25	M3 PITCH .50	25
NMSM3X30	M3 PITCH .50	30
NMSM3.5X5	M3.5 PITCH .60	5
NMSM3.5X6	M3.5 PITCH .60	6
NMSM3.5X8	M3.5 PITCH .60	8
NMSM3.5X10	M3.5 PITCH .60	10
NMSM3.5X12	M3.5 PITCH .60	12
NMSM3.5X16	M3.5 PITCH .60	16
NMSM3.5X20	M3.5 PITCH .60	20
NMSM3.5X25	M3.5 PITCH .60	25
NMSM3.5X35	M3.5 PITCH .60	35
NMSM4X6	M4 PITCH .70	6
NMSM4X8	M4 PITCH .70	8
NMSM4X10	M4 PITCH .70	10
NMSM4X12	M4 PITCH .70	12
NMSM4X16	M4 PITCH .70	16
NMSM4X20	M4 PITCH .70	20
NMSM4X25	M4 PITCH .70	25

PART NUMBER	SIZE	LENGTH (mm)
NMSM4X30	M4 PITCH .70	30
NMSM4X35	M4 PITCH .70	35
NMSM4X40	M4 PITCH .70	40
NMSM5X6	M5 PITCH .80	6
NMSM5X8	M5 PITCH .80	8
NMSM5X10	M5 PITCH .80	10
NMSM5X12	M5 PITCH .80	12
NMSM5X16	M5 PITCH .80	16
NMSM5X20	M5 PITCH .80	20
NMSM5X25	M5 PITCH .80	25
NMSM5X30	M5 PITCH .80	30
NMSM5X35	M5 PITCH .80	35
NMSM5X40	M5 PITCH .80	40
NMSM6X8	M6 PITCH 1.00	8
NMSM6X10	M6 PITCH 1.00	10
NMSM6X12	M6 PITCH 1.00	12
NMSM6X16	M6 PITCH 1.00	16
NMSM6X20	M6 PITCH 1.00	20
NMSM6X25	M6 PITCH 1.00	25
NMSM6X30	M6 PITCH 1.00	30
NMSM6X35	M6 PITCH 1.00	35
NMSM6X40	M6 PITCH 1.00	40
NMSM8X10	M8 PITCH 1.25	10
NMSM8X16	M8 PITCH 1.25	16
NMSM8X20	M8 PITCH 1.25	20
NMSM8X25	M8 PITCH 1.25	25
NMSM8X30	M8 PITCH 1.25	30
NMSM8X35	M8 PITCH 1.25	35
NMSM10X10	M10 PITCH 1.50	10
NMSM10X12	M10 PITCH 1.50	12
NMSM10X16	M10 PITCH 1.50	16
NMSM10X20	M10 PITCH 1.50	20
NMSM10X25	M10 PITCH 1.50	25
NMSM10X30	M10 PITCH 1.50	30
NMSM10X35	M10 PITCH 1.50	35
NMSM10X40	M10 PITCH 1.50	40
NMSM10X50	M10 PITCH 1.50	50
NMSM10X60	M10 PITCH 1.50	60

SLOTTED GRUB SCREWS IN SIZES M4 TO M10 ONLY. SLOTTED THUMB SCREWS IN SIZES M3 TO M ONLY. OTHER LENGTHS AVAILABLE.

Plastic Hardware

## NYLON MACHINE SCREWS

### TECHNICAL DATA FOR NYLON MACHINE SCREWS

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DATA LISTED IS FOR REFERENCE PURPOSES ONLY.

SIZE	ULTIMATE TORQUE	MAXIMUM TORQUE BEFORE DEFORMATION	TENSILE TEST		DOUBLE SHEAR	
			YIELD LBS	BREAK LBS	YIELD LBS	BREAK LBS
2/56	NO TEST	NO TEST	16	19	NO TEST	NO TEST
4/40	24" OZ	12" - 16" OZ	38	41	45	50
6/32	30" OZ	18" - 20" OZ	65	69	91	97
8/32	5" LBS	2" - 3" LBS	99	108	158	164
10/24	6" LBS	2" - 4" LBS	139	149	187	257
10/32	7" LBS	3" - 4" LBS	155	165	234	241
1/4-20	13" LBS	9" - 10" LBS	296	312	413	432

#### Moulded Nylon Screws – Technical Data

Moulded nylon parts are subject to moisture loss and gain. In moulded nylon screws, moistness or dryness can cause subtle size changes. The same is true for temperature change.

Additionally, there are tooling problems because all screws come from cavities parted along the screw length. Although the moulds are doweled and pinned to provide mould match, in the course of moulding, wear takes place on the pins, on the mould face and base and even on the moulding machine itself, thus working against ideal alignment. Moulded nylon screws are not held to tolerances as close as those for metal screws. However, the slight mismatch and the natural fractional flash are not as serious as they would be in metal. Nylon, being flexible, is also forgiving of tolerance lapses.

Nylon cannot be held to tolerances that apply to metal and the use of gauges to measure screws just doesn't work. They are tested by trying them in their actual applications. Otherwise, it is impractical for the customer to use them or the supplier to make them.

Amazingly enough, they work.

All tests performed per ASTM specifications. Parts moulded in Nylon 6/6 Dupont Zytel 101, dry as moulded, unmoisturized, at 73°F. Results are average of random parts tested.

## METAL CORE MACHINE SCREWS

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## TECHNICAL DATA FOR METAL CORE NYLON SCREWS



DATA LISTED IS FOR REFERENCE PURPOSES ONLY.

SIZE	ULTIMATE TORQUE	MAXIMUM TORQUE BEFORE DEFORMATION	TENSILE TEST		DOUBLE SHEAR	
			YIELD LBS	BREAK LBS	YIELD LBS	BREAK LBS
6/32	1" LBS	1.5" LBS	24	32	200	240
8/32	3" LBS	4" LBS	66	72	300	360
10/32	5" LBS	6" LBS	96	104	600	640
1/4-20	12" LBS	13" LBS	120	174	1,400	1,600

## METAL CORE NYLON SCREWS

## Metal Core Nylon Screws

PART NUMBER	SIZE (in/mm)	LENGTH (in/mm)
NSMC632X.250	6/32 (4.76)	1/4 (6.35)
NSMC632X.375	6/32 (4.76)	3/8 (9.53)
NSMC632X.500	6/32 (4.76)	1/2 (12.7)
NSMC632X.625	6/32 (4.76)	5/8 (15.88)
NSMC632X.750	6/32 (4.76)	3/4 (19.05)
NSMC832X.375	8/32 (6.35)	3/8 (9.53)
NSMC832X.500	8/32 (6.35)	1/2 (12.7)
NSMC832X.750	8/32 (6.35)	3/4 (19.05)
NSMC832X1.000	8/32 (6.35)	1 (25.4)
NSMC1032X.375	10/32 (7.94)	3/8 (9.53)
NSMC1032X.500	10/32 (7.94)	1/2 (12.7)
NSMC1032X.750	10/32 (7.94)	3/4 (19.05)
NSMC1032X1.000	10/32 (7.94)	1 (25.4)
NSMC1420X.375	1/4-20	3/8 (9.53)
NSMC1420X.500	1/4-20	1/2 (12.7)
NSMC1420X.625	1/4-20	5/8 (15.88)
NSMC1420X.750	1/4-20	3/4 (19.05)
NSMC1420X1.000	1/4-20	1 (25.4)
NSMC1420X1.250	1/4-20	1-1/4 (31.75)
NSMC1420X1.500	1/4-20	1-1/2 (38.1)

Stocked in round and fillister heads. Also available in round washer head and flat head.

A hardened, cadmium plated, corrugated steel core inside a nylon screw. Provides up to four times the strength of standard nylon fasteners.

Recommended in applications requiring electrical, thermal and vibration insulation in shear or double shear connections. The recessed metal heads allow adequate torque and may be driven with power drivers.

Add the following suffixes to specify head styles when ordering:

RO = Round

FI = Fillister

RW = Round Washer

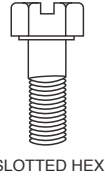
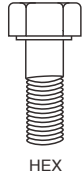
LS = Flat Slotted

Minimum order: 1,000

All tests performed per ASTM specifications. Parts moulded in Nylon 6/6 Dupont Zytel 101, dry as moulded, unmoisturized, at 73°F. Results are average of random parts tested.

# NYLON HEX BOLTS

## TECHNICAL DATA FOR NYLON HEX BOLTS (CAP SCREWS)



### Nylon Hex Bolts (Cap Screws)

Add the following suffixes to specify head styles when ordering:

- HU = Hex Unslotted
- HS = Hex Slotted

Minimum order:

- Hex Head: 100
- Slotted Hex: 500
- Thread Length:

Bolts are usually threaded as follows:  
(Diameter X 2) + 1/2 inch

### Nylon Hex Bolts (Cap Screws) – Technical Data

All tests performed per ASTM specifications. Parts moulded in Nylon 6/6 Dupont Zytel 101, dry as moulded, unmoisturized, at 73°F. Results are average of random parts tested.

DATA LISTED IS FOR REFERENCE PURPOSES ONLY.

SIZE	ULTIMATE TORQUE	MAXIMUM TORQUE BEFORE DEFORMATION	TENSILE TEST		DOUBLE SHEAR	
			YIELD LBS	BREAK LBS	YIELD LBS	BREAK LBS
1/4-20	19" LBS	15-16 " LBS	200	228	413	432
5/16-18	37" LBS	32-34" LBS	403	424	866	880
3/8-16	49" LBS	45-46" LBS	480	513	1,108	1,173
1/2-13	11' LBS	7-8' LBS	1,393	1,425	2,276	2,313
5/8-11	22' LBS	18-19' LBS	2,260	2,303	3,340	3,410

## TECHNICAL DATA FOR NYLON HEX BOLTS (CAP SCREWS)

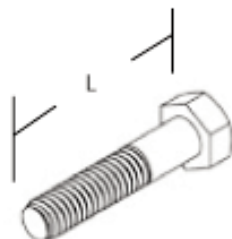
NOMINAL DIMENSIONS - DATA LISTED FOR REFERENCES PURPOSES ONLY

HEAD TYPE	DIMENSION	THREAD SIZE (in)				
		1/4	5/16	3/8	1/2	5/8
	H	.175	.215	.250	.320	.390
	W	.500	.555	.625	.850	1.100
	A	.425	.485	.565	.740	.935

## NYLON HEX BOLTS

I10

## NYLON HEX BOLTS (CAP SCREWS)



PART NUMBER	SIZE	LENGTH (in/mm)
NHB1420X.375	1/4-20*	3/8 (9.53)
NHB1420X.500	1/4-20*	1/2 (12.7)
NHB1420X.625	1/4-20*	5/8 (15.88)
NHB1420X.750	1/4-20*	3/4 (19.05)
NHB1420X1.000	1/4-20*	1 (25.4)
NHB1420X1.250	1/4-20*	1-1/4 (31.75)
NHB1420X1.500	1/4-20*	1-1/2 (38.1)
NHB1420X2.000	1/4-20*	2 (50.8)
NHB1420X2.500	1/4-20*	2-1/2 (63.5)
NHB1420X3.000	1/4-20*	3 (76.2)
NHB1428X.500	1/4-28	1/2 (12.7)
NHB1428X.625	1/4-28	5/8 (15.88)
NHB1428X.750	1/4-28	3/4 (19.05)
NHB1428X1.000	1/4-28	1 (25.4)
NHB1428X1.250	1/4-28	1-1/4 (31.75)
NHB1428X1.500	1/4-28	1-1/2 (38.1)
NHB1618X.500	5/16-18	1/2 (12.7)
NHB51618X.750	5/16-18	3/4 (19.05)
NHB51618X1.000	5/16-18	1 (25.4)
NHB51618X1.250	5/16-18	1-1/4 (31.75)
NHB51618X1.500	5/16-18	1-1/2 (38.1)
NHB51618X2.000	5/16-18	2 (50.8)
NHB51618X2.500	5/16-18	2-1/2 (63.5)
NHB51618X3.000	5/16-18	3 (76.2)
NHB3816X.500	3/8-16	1/2 (12.7)

PART NUMBER	SIZE	LENGTH (in/mm)
NHB3816X.750	3/8-16	3/4 (19.05)
NHB3816X1.000	3/8-16	1 (25.4)
NHB3816X1.250	3/8-16	1-1/4 (31.75)
NHB3816X1.500	3/8-16	1-1/2 (38.1)
NHB3816X2.000	3/8-16	2 (50.8)
NHB3816X2.500	3/8-16	2-1/2 (63.5)
NHB3816X3.000	3/8-16	3 (76.2)
NHB1213X.500	1/2-13	1/2 (12.7)
NHB1213X.750	1/2-13	3/4 (19.05)
NHB1213X1.000	1/2-13	1 (25.4)
NHB1213X1.250	1/2-13	1-1/4 (31.75)
NHB1213X1.500	1/2-13	1-1/2 (38.1)
NHB1213X2.000	1/2-13	2 (50.8)
NHB1213X2.500	1/2-13	2-1/2 (63.5)
NHB1213X3.000	1/2-13	3 (76.2)
NHB5811X.500	5/8-11	1/2 (12.7)
NHB5811X1.000	5/8-11	1 (25.4)
NHB5811X2.000	5/8-11	2 (50.8)
NHB5811X4.000**	5/8-11	4 (101.6)
NHB3410X.750	3/4-10	3/4 (19.05)
NHB3410X4.000**	3/4-10	4 (101.6)
NHB3410X5.500	3/4-10	5-1/2 (139.7)
NHB789X.750	7/8-9	3/4 (19.05)
NHB789X4.500**	7/8-9	4-1/2 (114.3)

\* ALSO AVAILABLE IN SOCKET HEAD AND PHILLIPS FILLISTER

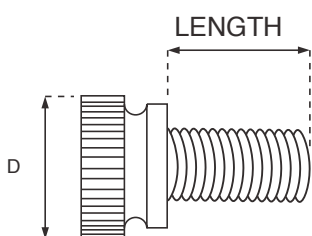
\*\* FULLY THREADED

LONGER LENGTHS AVAILABLE

## KNURLED THUMB SCREWS

## NYLON KNURLED THUMB SCREWS

111

**Nylon Thumb Screws – Knurled  
Thumb Screws**

Thumb screws offer easy assembly and adjustment and will not cut fingers.

Vibration-resistant, they stay in place and are knurled for positive grip.

These can be used as an economical alternative for knobs.

Minimum order: 1,000

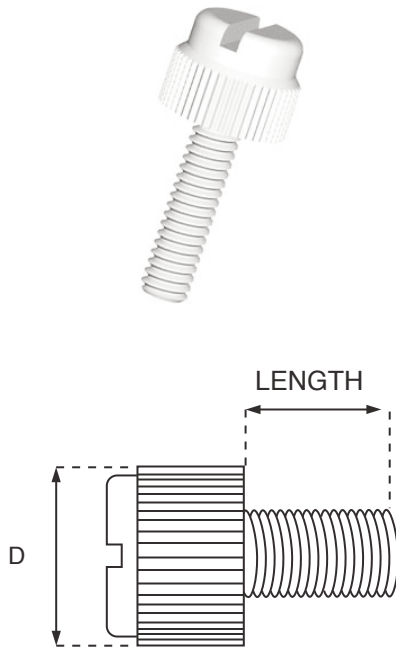
Other sizes and lengths available.

PART NUMBER	SIZE (mm/in)	LENGTH (in/mm)	D (in/mm)
NKTS440X.187	4/40 (2.54)	3/16 (4.76)	.300 (7.62)
NKTS440X.250	4/40 (2.54)	1/4 (6.35)	.300 (7.62)
NKTS440X.375	4/40 (2.54)	3/8 (9.53)	.300 (7.62)
NKTS440X.500	4/40 (2.54)	1/2 (12.7)	.300 (7.62)
NKTS440X.750	4/40 (2.54)	3/4 (19.05)	.300 (7.62)
NKTS632X.250	6/32 (4.76)	1/4 (6.35)	.360 (9.14)
NKTS632X.375	6/32 (4.76)	3/8 (9.53)	.360 (9.14)
NKTS632X.500	6/32 (4.76)	1/2 (12.7)	.360 (9.14)
NKTS632X.750	6/32 (4.76)	3/4 (19.05)	.360 (9.14)
NKTS632X1.000	6/32 (4.76)	1 (25.4)	.360 (9.14)
NKTS832X.187	8/32 (6.35)	3/16 (4.76)	.425 (10.8)
NKTS832X.375	8/32 (6.35)	3/8 (9.53)	.425 (10.8)
NKTS832X.500	8/32 (6.35)	1/2 (12.7)	.425 (10.8)
NKTS832X.750	8/32 (6.35)	3/4 (19.05)	.425 (10.8)
NKTS832X1.000	8/32 (6.35)	1 (25.4)	.425 (10.8)
NKTS1024X.500	10/24 (10.58)	1/2 (12.7)	.425 (10.8)
NKTS1024X.750	10/24 (10.58)	3/4 (19.05)	.425 (10.8)
NKTS1024X1.000	10/24 (10.58)	1 (25.4)	.425 (10.8)
NKTS1024X1.250	10/24 (10.58)	1-1/4 (31.75)	.425 (10.8)
NKTS1024X2.000	10/24 (10.58)	2 (50.8)	.425 (10.8)
NKTS1032X.375	10/32 (7.94)	3/8 (9.53)	.425 (10.8)
NKTS1032X.500	10/32 (7.94)	1/2 (12.7)	.425 (10.8)
NKTS1032X.750	10/32 (7.94)	3/4 (19.05)	.425 (10.8)
NKTS1032X1.000	10/32 (7.94)	1 (25.4)	.425 (10.8)
NKTS1032X1.062	10/32 (7.94)	1-1/16 (26.99)	.425 (10.8)
NKTS1032X1.500	10/32 (7.94)	1-1/2 (38.1)	.425 (10.8)
NKTS1032X2.000	10/32 (7.94)	2 (50.8)	.425 (10.8)
NKTS1420X.500	1/4-20	1/2 (12.7)	.540 (13.72)
NKTS1420X.750	1/4-20	3/4 (19.05)	.540 (13.72)
NKTS1420X1.000	1/4-20	1 (25.4)	.540 (13.72)
NKTS1420X1.250	1/4-20	1-1/4 (31.75)	.540 (13.72)
NKTS1420X1.500	1/4-20	1-1/2 (38.1)	.540 (13.72)
NKTS51618X.500	5/16-18	1/2 (12.7)	.615 (15.62)
NKTS51618X1.000	5/16-18	1 (25.4)	.615 (15.62)
NKTS51618X1.500	5/16-18	1-1/2 (38.1)	.615 (15.62)
NKTS51618X2.000	5/16-18	2 (50.8)	.615 (15.62)
NKTS3816X.500	3/8-16	1/2 (12.7)	.687 (17.45)
NKTS3816X1.000	3/8-16	1 (25.4)	.687 (17.45)
NKTS3816X1.500	3/8-16	1-1/2 (38.1)	.687 (17.45)
NKTS3816X2.000	3/8-16	2 (50.8)	.687 (17.45)
NKTS3816X.500	3/8-16	1/2 (12.7)	.687 (17.45)
NKTS1213X1.000	1/2-13	1 (25.4)	.750 (19.05)
NKTS1213X1.500	1/2-13	1-1/2 (38.1)	.750 (19.05)
NKTS1213X2.000	1/2-13	2 (50.8)	.750 (19.05)

# Thumb Screws

## SLOTTED THUMB SCREWS

### I12 NYLON SLOTTED THUMB SCREWS



#### Slotted Thumb Screws

Minimum order: 1,000

Other standard and metric sizes and lengths available.

Plastic Hardware

PART NUMBER	SIZE (mm/in)	LENGTH (in/mm)	D (in/mm)
NTS440X.250	4/40 (2.54)	1/4 (6.35)	.317 (8.05)
NTS440X.312	4/40 (2.54)	5/16 (7.94)	.317 (8.05)
NTS440X.375	4/40 (2.54)	3/8 (9.53)	.317 (8.05)
NTS440X.500	4/40 (2.54)	1/2 (12.7)	.317 (8.05)
NTS440X.625	4/40 (2.54)	5/8 (15.88)	.317 (8.05)
NTS440X1.000	4/40 (2.54)	1 (25.4)	.317 (8.05)
NTS632X.250	6/32 (4.76)	1/4 (6.35)	.348 (8.84)
NTS632X.375	6/32 (4.76)	3/8 (9.53)	.348 (8.84)
NTS632X.500	6/32 (4.76)	1/2 (12.7)	.348 (8.84)
NTS632X.750	6/32 (4.76)	3/4 (19.05)	.348 (8.84)
NTS632X1.000	6/32 (4.76)	1 (25.4)	.348 (8.84)
NTS832X.250	8/32 (6.35)	1/4 (6.35)	.381 (9.68)
NTS832X.375	8/32 (6.35)	3/8 (9.53)	.381 (9.68)
NTS832X.500	8/32 (6.35)	1/2 (12.7)	.381 (9.68)
NTS832X.625	8/32 (6.35)	5/8 (15.88)	.381 (9.68)
NTS832X.750	8/32 (6.35)	3/4 (19.05)	.381 (9.68)
NTS832X1.000	8/32 (6.35)	1 (25.4)	.381 (9.68)
NTS1024X.250	10/24 (10.58)	1/4 (6.35)	.412 (10.46)
NTS1024X.500	10/24 (10.58)	1/2 (12.7)	.412 (10.46)
NTS1024X1.000	10/24 (10.58)	1 (25.4)	.412 (10.46)
NTS1032X.375	10/32 (7.94)	3/8 (9.53)	.412 (10.46)
NTS1032X.500	10/32 (7.94)	1/2 (12.7)	.412 (10.46)
NTS1032X.750	10/32 (7.94)	3/4 (19.05)	.412 (10.46)
NTS1032X1.000	10/32 (7.94)	1 (25.4)	.412 (10.46)
NTS1032X1.250	10/32 (7.94)	1-1/4 (31.75)	.412 (10.46)
NTS1032X1.500	10/32 (7.94)	1-1/2 (38.1)	.412 (10.46)
NTS1420X.250	14-20*	1/4 (6.35)	.492 (12.5)
NTS1420X.500	14-20*	1/2 (12.7)	.492 (12.5)
NTS1420X.625	14-20*	3/8 (9.53)	.492 (12.5)
NTS1420X.750	14-20*	3/4 (19.05)	.492 (12.5)
NTS1420X1.000	14-20*	1 (25.4)	.492 (12.5)
NTS1420X1.250	14-20*	1-1/4 (31.75)	.492 (12.5)
NTS1420X1.500	14-20*	1-1/2 (38.1)	.492 (12.5)
NTS1428X.187	14-28	3/16 (4.76)	.480 (12.19)
NTS1428X.250	14-28	1/4 (6.35)	.480 (12.19)
NTS1428X.375	14-28	3/8 (9.53)	.480 (12.19)
NTS1428X.750	14-28	3/4 (19.05)	.480 (12.19)
NTS1428X1.000	14-28	1 (25.4)	.480 (12.19)

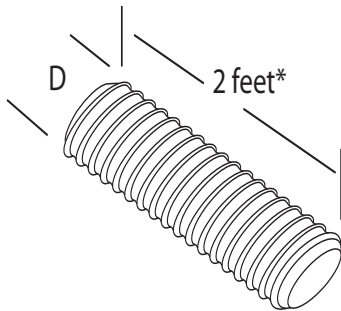
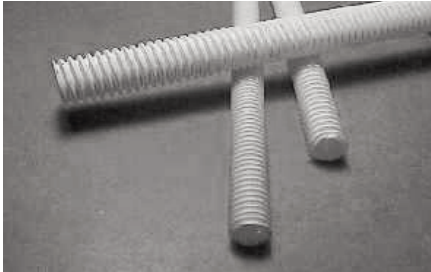
\* UNSLOTTED AVAILABLE IN 1/4-20 SIZE ONLY. SUBSTITUTE PREFIX UTS WHEN ORDERING.



## THREADED RODS

### ROD - THREADED

I13



PART NUMBER	D Diameter (in)	SIZE (in/mm)
NTR4/40N	0.112	4/40 (2.54)
NTR6/32N	0.138	6/32 (4.76)
NTR8/32N	0.164	8/32 (6.35)
NTR10/24N	0.190	10/24 (10.58)
NTR10/32N	0.190	10/32 (7.94)
NTR1/4-20N	0.250	1/4-20
NTR5/16-18N	0.312	5/16-18
NTR3/8-16N	0.375	3/8-16
NTR1/2-13N	0.500	1/2-13
NTR5/8-11N	0.625	5/8-11
NTR3/4-10N	0.750	3/4-10
NTR7/8-9N	0.875	7/8-9
NTR1-8N	1.00	1.01-8

\*SOLD IN 2 FOOT LENGTHS

#### Nylon Threaded Rod

Use with corresponding nuts for longer length or non-standard bolts. Can be bent with heat to form U-bolts or other shapes.

This versatile threaded rod stock is easily cut to size, resistant to most chemicals, electrically insulating, non-magnetic, lightweight, low thermal conductivity, vibration and abrasion resistant.

Longer lengths up to 8 feet are available on special order.

We can furnish cut to your length with a nominal cutting charge.

Other plastic materials can be furnished on special order, contact the factory.

#### PVC Threaded Rod

Minimum order: 5 feet. Sold in 5-foot lengths only. Other sizes available.

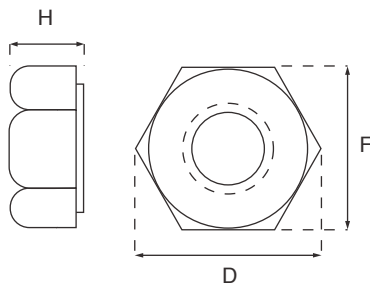
#### FRP Threaded Rod

Sold in 4-foot lengths only. Minimums on request. Glass-filled polyphenyl sulphide nuts are available

## STANDARD NYLON HEX NUTS

I14

## NYLON NUTS - HEX NUTS (SINGLE CHAMFERED, WASHER FACED)

**Nylon Nuts – Hex Nuts  
(Single chamfered, washer faced)**

Especially useful with brittle surfaces such as glass, ceramic or enamel.

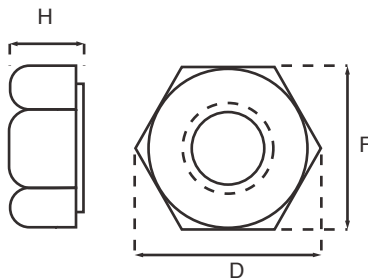
Their resilience allows even load distribution, particularly on irregular surfaces.

Minimum order: 100

\* AVAILABLE IN THINNER HEX JAM NUT

PART NUMBER	F	D	H
NHN2/56	.180 (4.57)	.205 (5.21)	.070 (1.78)
NHN3/48	.180 (4.57)	.205 (5.21)	.070 (1.78)
NHN4/40	.250 (6.35)	.275 (6.99)	.100 (2.54)
NHN6/32	.305 (7.75)	.350 (8.89)	.120 (3.05)
NHN6/40	.305 (7.75)	.350 (8.89)	.120 (3.05)
NHN8/32	.335 (8.51)	.380 (9.65)	.130 (3.30)
NHN10/24	.365 (9.27)	.420 (10.67)	.135 (3.43)
NHN10/32	.365 (9.27)	.420 (10.67)	.135 (3.43)
NHN12/24	.425 (10.80)	.510 (12.95)	.207 (5.26)
NHN1/4-20	.433 (11.00)	.510 (12.95)	.233 (5.92)
NHN1/4-28	.433 (11.00)	.510 (12.95)	.233 (5.92)
NHN5/16-18*	.500 (12.7)	.575 (14.61)	.270 (6.86)
NHN5/16-24	.500 (12.7)	.575 (14.61)	.270 (6.86)
NHN3/8-16*	.560 (14.22)	.630 (16.00)	.330 (8.38)
NHN3/8-24	.560 (14.22)	.630 (16.00)	.330 (8.38)
NHN3/8-32	.560 (14.22)	.630 (16.00)	.330 (8.38)
NHN7/16-14	.685 (17.40)	.780 (19.81)	.380 (9.65)
NHN7/16-20	.685 (17.40)	.780 (19.81)	.380 (9.65)
NHN1/2-13*	.750 (19.05)	.860 (21.84)	.430 (10.92)
NHN1/2-20	.750 (19.05)	.860 (21.84)	.430 (10.92)
NHN5/8-11*	.925 (23.50)	1.050 (26.68)	.550 (13.97)
NHN5/8-18	.925 (23.50)	1.050 (26.68)	.550 (13.97)
NHN11/16-27	1.000 (25.4)	1.140 (28.96)	.250 (6.35)
NHN3/4-10	1.100 (27.94)	1.250 (31.75)	.640 (16.26)
NHN7/8-9	1.280 (32.51)	1.480 (37.59)	.750 (19.05)
NHN1"-8	1.470 (37.34)	1.700 (43.18)	.870 (22.10)

## METRIC HEX NUTS



Metric Hex Nuts

Minimum order: 1,000

PART NUMBER	PITCH	F (mm)	D (mm)	H (mm)
NLMHN2	.40	3.90	4.50	1.2
NLMHN2.5	.45	4.960	5.60	1.8
NLMHN3	.50	5.40	6.20	2.2
NLMHN3.5	.60	6.90	7.90	2.7
NLMHN4	.70	6.90	7.90	3.0
NLMHN5	.80	7.90	9.00	4.3
NLMHN6	1.00	10.00	11.30	5.4
NLMHN8	1.25	12.90	14.70	6.4
NLMHN10	1.50	14.80	17.00	9.8

## STANDARD NYLON HEX NUTS

## TECHNICAL DATA FOR NYLON NUTS

115

DATA LISTED IS FOR REFERENCE PURPOSES ONLY

SIZE	TEST NO. 1 TENSILE LBS	TEST NO. 2 ULTIMATE TORQUE	RECOMMENDED TORQUE BEFORE DEFORMATION
4/40	85	2 INCH LBS	1.5 INCH LBS
6/32	135	5.2 INCH LBS	4 INCH LBS
8/32	172	6.8 INCH LBS	5 INCH LBS
10/24	211	7 INCH LBS	5.5 INCH LBS
10/32	276	8 INCH LBS	6.5 INCH LBS
1/4-20	311	19.3 INCH LBS	17 INCH LBS
5/16-18	877	44.3 INCH LBS	42 INCH LBS
3/8-16	994	74 INCH LBS	72 INCH LBS
1/2-13	2,367	15.7 FOOT LBS	13 FOOT LBS
5/8-11	3,487	31.7 FOOT LBS	30 FOOT LBS

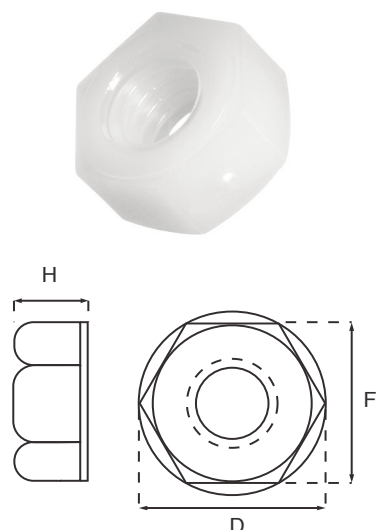
## Nylon Nuts – Technical Data

Test No. 1 Pull Test: Nylon Nut on Metal Screw

Test No. 2 Torque: Nylon Nut on Metal Screw

All tests performed per ASTM specifications. Parts moulded in Nylon 6/6 Dupont Zytel 101, dry as moulded, unmoisturized, at 73°F. Results are average of random parts tested.

## LOCKING HEX NUTS



PART NUMBER	F	D	H
NLHN2/56	.180 (4.57)	.205 (5.21)	.140 (3.56)
NLHN4/40	.250 (6.35)	.275 (6.99)	.200 (5.08)
NLHN6/32	.305 (7.75)	.350 (8.89)	.200 (5.08)
NLHN8/32	.335 (8.51)	.380 (9.65)	.230 (5.84)
NLHN10/24	.365 (9.27)	.420 (10.67)	.250 (6.35)
NLHN10/32*	.365 (9.27)	.420 (10.67)	.250 (6.35)
NLHN1/4-20	.425 (10.80)	.510 (12.95)	.275 (6.99)

\* ALSO AVAILABLE WITH LH6/32 BODY AND TAPPED 10/32. PART NUMBER IS LH6-10/32.

## Locking Hex Nuts

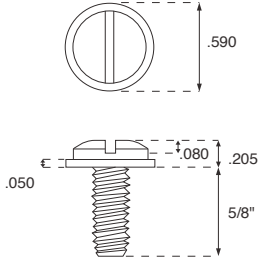
Minimum order: 100

Nylon Nuts

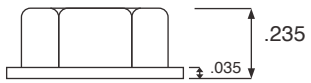
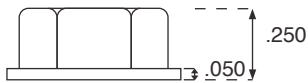
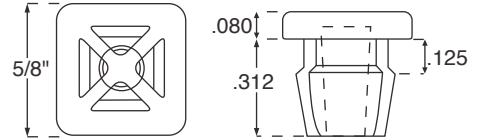
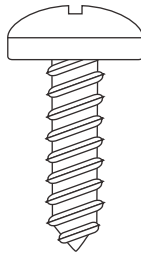
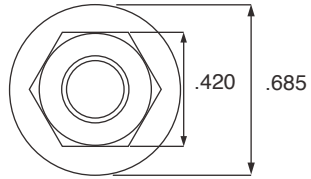
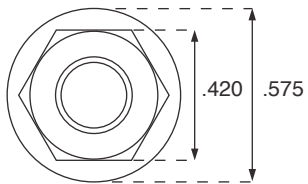
SPECIALTY NYLON HEX & BOLT SETS

I16

NYLON LICENSE PLATE NUT AND BOLT SETS



PART NUMBER	DESCRIPTION
NLPNB12520062	STANDARD BOLT
NLPNB42520	STANDARD NUT
NLPNB42520S	SPECIAL STANDARD NUT
MS11032W06Z	METAL SCREW; 10-32 X 5/8" PHIL PAN
60SGN01010	GROMMET
60SGN01010LPS	FOUR PIECE SET



Nylon License Plate Nut and Bolt Sets

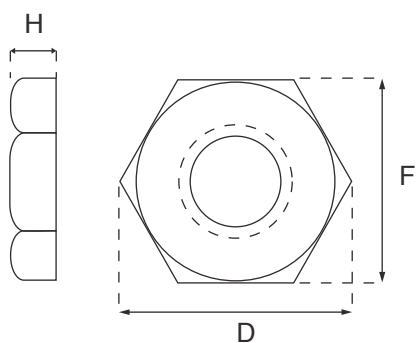
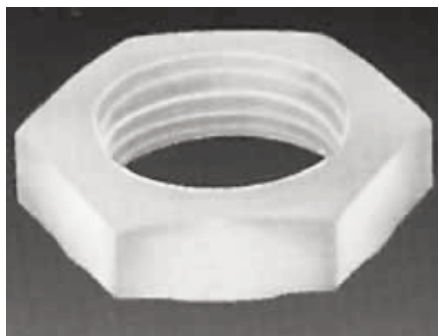
Part number **60SGN01010LPS** is a set of deluxe license plate fasteners, packaged in a clear poly bag. The set includes two each of part number **60SGN01010** (grommet) and **011032W062ZP** (zinc plated screw).

Plastic Hardware

## JAM TYPE HEX NUTS

## JAM HEX NUTS

117



Standard Jam Nuts

Minimum order: 1,000

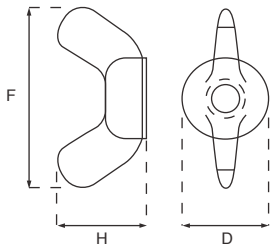
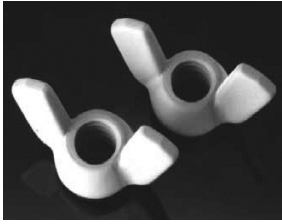
PART NUMBER	F	D	H
JN5/16-18	.500 (12.70)	.575 (14.61)	.190 (4.83)
JN5/16-24	.500 (12.70)	.575 (14.61)	.190 (4.83)
JN3/8-16	.500 (12.70)	.575 (14.61)	.125 (3.18)
JN3/8-24	.500 (12.70)	.575 (14.61)	.125 (3.18)
JN3/8-32	.500 (12.70)	.575 (14.61)	.125 (3.18)
JN3/8-16SPEC	.670 (17.02)	.760 (19.30)	.219 (5.56)
JN7/16-14	.687 (17.45)	.780 (19.81)	.375 (9.53)
JN7/16-20	.687 (17.45)	.780 (19.81)	.250 (6.35)
JN15/32-32	.625 (15.88)	.720 (18.29)	.125 (3.18)
JN1/2-13	.687 (17.45)	.790 (20.06)	.220 (5.59)
JN1/2-24	.687 (17.45)	.780 (19.81)	.220 (5.59)
JN1/2-28	.660 (16.76)	.755 (19.18)	.125 (3.18)
JN9/16-18	.750 (19.05)	.860 (21.84)	.250 (6.35)
JN5/8-11	.930 (23.62)	1.07 (27.18)	.375 (9.53)
JN5/8-18	.937 (23.80)	1.07 (27.18)	.375 (9.53)
JN3/4-10	1.12 (28.50)	1.26 (32.00)	.250 (6.35)
JN3/4-16	1.12 (28.50)	1.26 (32.00)	.250 (6.35)
JN3/4-27	1.00 (25.40)	1.14 (28.96)	.125 (3.18)
JN7/8-14	1.25 (31.75)	1.43 (36.32)	.340 (8.64)
JN1-8	1.48 (37.59)	1.70 (43.18)	.410 (10.41)
JN1/8-27	.56 (14.22)	.64 (6.26)	.110 (2.79)
JN1/4-18NPT	.740 (18.80)	.850 (21.60)	.187 (4.75)
JN3/8-18NPT	1.00 (25.40)	1.15 (29.21)	.280 (7.11)
JN1/2-14NPT	1.25 (31.75)	1.43 (36.32)	.340 (8.64)
JN3/4-14NPT	1.48 (37.59)	1.70 (43.18)	.410 (10.41)
JN1/4-18NPS	1.48 (37.59)	1.70 (43.18)	.410 (10.41)
JN3/8-18NPS	.687 (17.45)	.796 (20.22)	.225 (5.72)
JN1/2-14NPS	1.00 (25.40)	1.15 (29.21)	.280 (7.11)
JN3/4-14NPS	1.25 (31.75)	1.43 (36.32)	.340 (8.64)
JN3/4-14NPS	1.48 (37.59)	1.70 (43.18)	.410 (10.41)

## NYLON WING NUTS

I18

## WING NUTS

## WING NUT



## Nylon Wing Nuts

Minimum order: 100

## Nylon Deco Wing Nuts, Nylon Locking Deco Wing Nuts

Similar to our standard cap nut, except with a molded-in locking thread. Use for applications which require higher torque, vibration resistance or a more secure assembly.

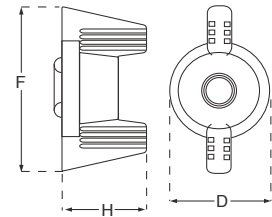
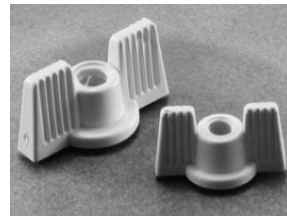
Minimum order: 100

PART NUMBER	F	D	H
NWN4/40	.900 (22.86)	.400 (10.16)	.480 (12.19)
NWN6/32	.900 (22.86)	.400 (10.16)	.480 (12.19)
NWN8/32	.900 (22.86)	.400 (10.16)	.480 (12.19)
NWN10/24	.900 (22.86)	.400 (10.16)	.480 (12.19)
NWNS10/24	1.100 (27.94)	.560 (14.22)	.630 (16.00)
NWN10/32	.900 (22.86)	.400 (10.16)	.480 (12.19)
NWNS10/32	1.100 (27.94)	.560 (14.22)	.630 (16.00)
NWNS1/4-20	1.100 (27.94)	.560 (14.22)	.630 (16.00)
NWN1/4-20	1.360 (34.54)	.650 (16.51)	.700 (17.78)
NWNS1/4-28	1.100 (27.94)	.560 (14.22)	.630 (16.00)
NWN1/4-28	1.380 (35.05)	.650 (16.51)	.700 (17.78)
NWN5/16-18	1.380 (35.05)	.650 (16.51)	.700 (17.78)
NWN3/8-16	1.380 (35.05)	.650 (16.51)	.700 (17.78)
NWN7/16-14	1.76 (44.70)	.850 (21.59)	.900 (22.86)
NWN1/2-13	1.76 (44.70)	.850 (21.59)	.900 (22.86)
NWN9/16-12	1.76 (44.70)	.850 (21.59)	.900 (22.86)

## NYLON DECO WING NUTS

PART NUMBER	F	D	H
NDWN4/40	5/8 (15.88)	3/8 (9.53)	5/16 (7.94)
NDWN6/32	5/8 (15.88)	3/8 (9.53)	5/16 (7.94)
NDWN8/32	5/8 (15.88)	3/8 (9.53)	5/16 (7.94)
NDWN10/24	7/8 (22.23)	1/2 (12.70)	7/16 (11.10)
NDWN10/32	7/8 (22.23)	1/2 (12.70)	7/16 (11.10)
NDWN1/4-20	1-11/64 (29.74)	5/8 (15.88)	17/32 (13.49)
NDWN3/8-24	1-9/16 (39.67)	63/64 (25.0)	29/64 (11.51)

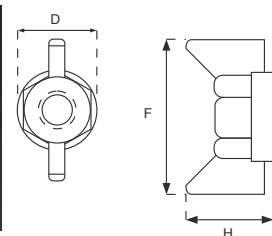
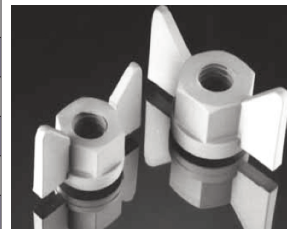
## DECO WING NUT



## NYLON LOCKING DECO WING NUTS

PART NUMBER	F	D	H
NLDWN4/40	5/8 (15.88)	3/8 (9.53)	5/16 (7.94)
NLDWN6/32	5/8 (15.88)	3/8 (9.53)	5/16 (7.94)
NLDWN8/32	5/8 (15.88)	3/8 (9.53)	5/16 (7.94)
NLDWN10/24	7/8 (22.23)	1/2 (12.70)	7/16 (11.10)
NLDWN10/32	7/8 (22.23)	1/2 (12.70)	7/16 (11.10)
NLDWN1/4-20	1-11/64 (29.74)	5/8 (15.88)	17/32 (13.49)
NLDWN5/16-18*	1-9/16 (39.67)	63/64 (25.0)	29/64 (11.51)

## LOCKING WING NUT



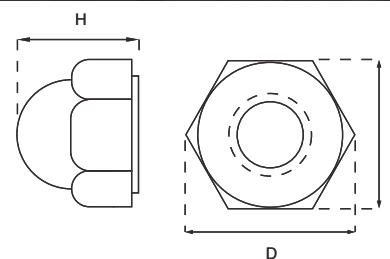
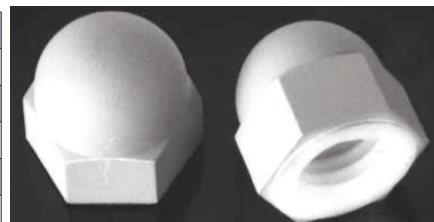
\*PART IS FLUSH ACROSS WINGS

## MISCELLANEOUS NYLON NUTS

119

## CAP NUTS

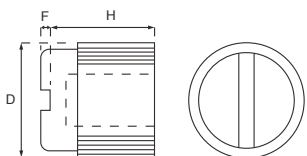
PART NUMBER	F	D	H
CN4/40	.250 (6.35)	.275 (6.98)	.280 (7.11)
CN6/32	.305 (7.75)	.350 (8.89)	.345 (8.76)
CN8/32	.330 (8.38)	.380 (9.65)	.375 (9.53)
CN10/24	.365 (9.27)	.420 (10.67)	.400 (10.16)
CN10/32	.365 (9.27)	.420 (10.67)	.400 (10.16)
CN1/4-20	.425 (10.80)	.510 (12.95)	.475 (12.07)
CN1/4-28	.425 (10.80)	.510 (12.95)	.475 (12.07)
CN5/16-18	.500 (12.70)	.570 (14.48)	.530 (13.46)
CN5/16-24	.500 (12.70)	.575 (14.61)	.530 (13.46)
CN3/8-16	.560 (14.22)	.645 (16.38)	.620 (15.75)
CN3/8-24	.560 (14.22)	.630 (16.00)	.620 (15.75)
CN1/2-13	.750 (19.05)	.860 (21.84)	.810 (20.57)
CN5/8-11	.935 (23.75)	1.075 (27.30)	.970 (24.64)



Cap Nuts Minimum order: 100

## SLOTTED THUMB (CAP) NUTS

## SLOTTED NUT



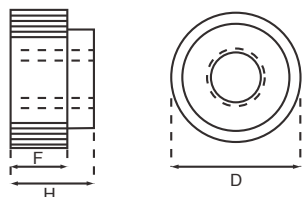
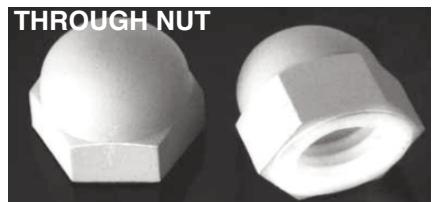
PART NUMBER	F	D	H
NSTN4/40	.045 (1.14)	.317 (8.05)	.295 (7.49)
NSTN6/32	.051 (1.30)	.348 (8.84)	.334 (8.48)
NSTN8/32	.059 (1.50)	.381 (9.68)	.378 (9.60)
NSTN10/24	.068 (1.73)	.400 (10.16)	23/64 (9.12)
NSTN10/32	.068 (1.73)	.400 (10.16)	23/64 (9.12)
NSTN1/4-20	.088 (2.24)	.478 (12.14)	.370 (9.40)

## Slotted Thumb (Cap) Nuts:

Minimum order: 100

## THROUGH THUMB NUTS

## THROUGH NUT



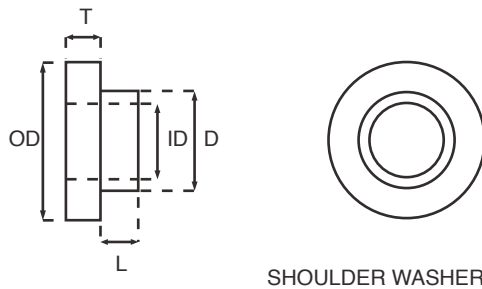
PART NUMBER	F	D	H
NTTN4/40	.120 (3.05)	.300 (7.62)	.280 (7.11)
NTTN6/32	.125 (3.18)	.360 (9.14)	.275 (6.99)
NTTN8/32	.140 (3.56)	.425 (10.80)	.305 (7.75)
NTTN10/24	.140 (3.56)	.425 (10.80)	.325 (8.26)
NTTN10/32	.140 (3.56)	.425 (10.80)	.325 (8.26)
NTTN1/4-20	.155 (3.94)	.540 (13.72)	.365 (9.27)
NTTN5/16-18	.171 (4.34)	.615 (15.62)	.385 (9.78)
NTTN3/8-16	.187 (4.75)	.687 (17.45)	.430 (10.92)
NTTN1/2-13	.203 (5.16)	.750 (19.05)	.468 (11.89)

Through Thumb Nuts Minimum order: 100

# NYLON FINISHING WASHERS

I20

## NYLON WASHERS OVERVIEW



### Shoulder Washers and Screw Insulators – Standard Nylon Shoulder Washers

Minimum order: 1,000

### Special Nylon Shoulder Washers and Screw Insulators

Tolerances all dimensions  $\pm 0.015$

Suitable for a variety of insulation and mechanical applications.

They seal, reduce vibration, act as spacers, guides, bushings and bearings. Isolate metal screws electrically and reduce corrosion.

They can also be used as light load bearings in many applications. Shoulder washers are shown with prefix NSW.

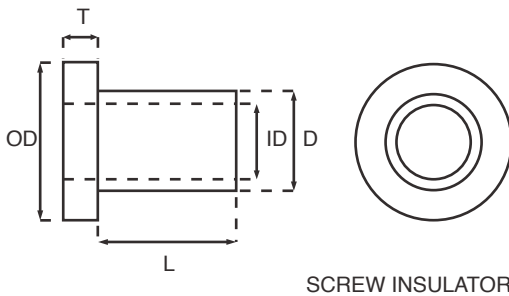
Screw insulators are for standard screw sizes (#2 up to 1/4) and are shown with the prefix SC.

Shoulder washers can often be interchanged with screw insulators, but they tend to have a shorter shank (L dimension).

Custom sizes can be tooled for moulding.

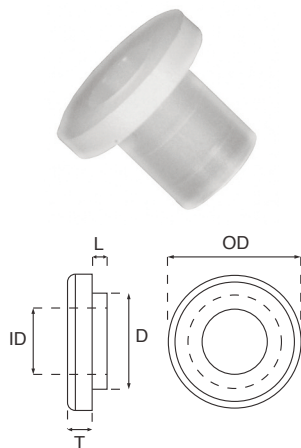
Please specify size, quantity and tolerances when requesting a quote.

Minimum order: 1,000



Plastic Hardware

## SHOULDER WASHERS - STANDARD NYLON SHOULDER WASHERS



PART NUMBER	ID	OD	T	D	L
NSW2	.093 (2.36)	.250 (6.35)	.040 (1.02)	.156 (3.96)	.040 (1.02)
NSW4	.122 (3.09)	.281 (7.14)	.040 (1.02)	.187 (4.75)	.040 (1.02)
NSW6	.146 (3.71)	.328 (8.33)	.040 (1.02)	.218 (5.54)	.040 (1.02)
NSW8	.174 (4.42)	.375 (9.53)	.050 (1.27)	.250 (6.35)	.050 (1.27)
NSW10	.201 (5.11)	.437 (11.10)	.050 (1.27)	.281 (7.14)	.050 (1.27)
NSW1/4	.260 (6.60)	.562 (14.27)	.060 (1.52)	.375 (9.53)	.060 (1.52)
NSW3/8	.385 (9.78)	.750 (19.05)	.060 (1.52)	.500 (12.7)	.060 (1.52)











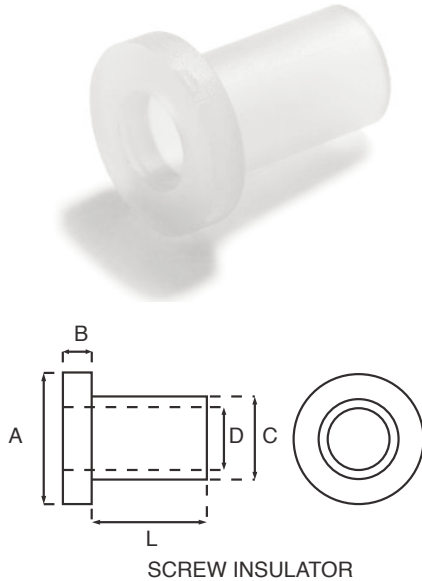


# Nylon Washers

## NYLON SCREW INSULATORS

I26

### NYLON SCREW INSULATORS



#### Screw Insulators

Isolate metal screws electrically, reduce corrosion.

Screw insulators may also be used as light load bearings in many applications.

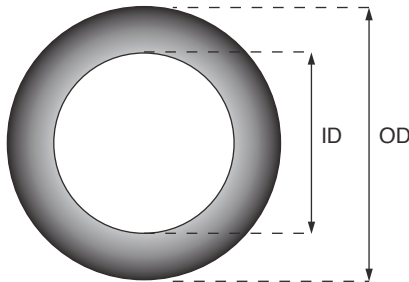
Specify screw size and length when ordering.

PART NUMBER	L		A		B		C		D	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
NSI002012	1/8	3.18	.181	4.60	3/64	1.19	.120	3.05	.090	2.29
NSI002018	3/16	4.76	.181	4.60	3/64	1.19	.120	3.05	.090	2.29
NSI002025	1/4	6.35	.181	4.60	3/64	1.19	.120	3.05	.090	2.29
NSI002037	3/8	9.53	.181	4.60	3/64	1.19	.120	3.05	.090	2.29
NSI004003	1/32	0.79	.235	5.97	3/64	1.19	.145	3.68	.115	2.92
NSI004004	3/64	1.19	.235	5.97	3/64	1.19	.145	3.68	.115	2.92
NSI004006	1/16	1.59	.235	5.97	3/64	1.19	.145	3.68	.115	2.92
NSI004009	3/32	2.38	.235	5.97	3/64	1.19	.145	3.68	.115	2.92
NSI004012	1/8	3.18	.235	5.97	3/64	1.19	.145	3.68	.115	2.92
NSI004015	5/32	3.97	.235	5.97	3/64	1.19	.145	3.68	.115	2.92
NSI004018	3/16	4.76	.235	5.97	3/64	1.19	.145	3.68	.115	2.92
NSI004025	1/4	6.35	.235	5.97	3/64	1.19	.145	3.68	.115	2.92
NSI004037	3/8	9.53	.235	5.97	3/64	1.19	.145	3.68	.115	2.92
NSI004050	1/2	12.70	.235	5.97	3/64	1.19	.145	3.68	.115	2.92
NSI006004	3/64	1.19	.290	7.37	3/64	1.19	.170	4.32	.140	3.56
NSI006006	1/16	1.59	.290	7.37	3/64	1.19	.170	4.32	.140	3.56
NSI006009	3/32	2.38	.290	7.37	3/64	1.19	.170	4.32	.140	3.56
NSI006012	1/8	3.18	.290	7.37	3/64	1.19	.170	4.32	.140	3.56
NSI006015	5/32	3.97	.290	7.37	3/64	1.19	.170	4.32	.140	3.56
NSI006018	3/16	4.76	.290	7.37	3/64	1.19	.170	4.32	.140	3.56
NSI006025	1/4	6.35	.290	7.37	3/64	1.19	.170	4.32	.140	3.56
NSI006037	3/8	9.53	.290	7.37	3/64	1.19	.170	4.32	.140	3.56
NSI006050	1/2	12.70	.290	7.37	3/64	1.19	.170	4.32	.140	3.56
NSI008012	1/8	3.18	.344	8.74	1/16	1.59	.205	5.21	.173	4.39
NSI008014	9/64	3.58	.344	8.74	1/16	1.59	.205	5.21	.173	4.39
NSI008025	1/4	6.35	.344	8.74	1/16	1.59	.205	5.21	.173	4.39
NSI008037	3/8	9.53	.344	8.74	1/16	1.59	.205	5.21	.173	4.39
NSI008050	1/2	12.70	.344	8.74	1/16	1.59	.205	5.21	.173	4.39
NSI008062	5/8	15.88	.344	8.74	1/16	1.59	.205	5.21	.173	4.39
NSI008075	3/4	19.05	.344	8.74	1/16	1.59	.205	5.21	.173	4.39
NSI010006	1/16	1.59	.399	10.13	1/16	1.59	.260	6.60	.200	5.08
NSI010014	9/64	3.58	.399	10.13	1/16	1.59	.260	6.60	.200	5.08
NSI010018	3/16	4.76	.399	10.13	1/16	1.59	.260	6.60	.200	5.08
NSI010025	1/4	6.35	.399	10.13	1/16	1.59	.260	6.60	.200	5.08
NSI010037	3/8	9.53	.399	10.13	1/16	1.59	.260	6.60	.200	5.08
NSI010050	1/2	12.70	.399	10.13	1/16	1.59	.260	6.60	.200	5.08
NSI010056	9/16	14.29	.399	10.13	1/16	1.59	.260	6.60	.200	5.08
NSI010062	5/8	15.88	.399	10.13	1/16	1.59	.260	6.60	.200	5.08
NSI010075	3/4	19.05	.399	10.13	1/16	1.59	.260	6.60	.200	5.08
NSI050012	1/8	3.18	.513	13.03	1/16	1.59	.312	7.92	.260	6.60
NSI050014	9/64	3.58	.513	13.03	1/16	1.59	.312	7.92	.260	6.60
NSI050018	3/16	4.76	.513	13.03	1/16	1.59	.312	7.92	.260	6.60
NSI050025	1/4	6.35	.513	13.03	1/16	1.59	.312	7.92	.260	6.60
NSI050037	3/8	9.53	.513	13.03	1/16	1.59	.312	7.92	.260	6.60
NSI050050	1/2	12.70	.513	13.03	1/16	1.59	.312	7.92	.260	6.60
NSI050062	5/8	15.88	.513	13.03	1/16	1.59	.312	7.92	.260	6.60
NSI050075	3/4	19.05	.513	13.03	1/16	1.59	.312	7.92	.260	6.60
NSI012012	1/8	3.18	.620	15.75	1/16	1.59	.360	9.14	.320	8.13
NSI012025	1/4	6.35	.620	15.75	1/16	1.59	.360	9.14	.320	8.13
NSI012037	3/8	9.53	.620	15.75	1/16	1.59	.360	9.14	.320	8.13
NSI012050	1/2	12.70	.620	15.75	1/16	1.59	.360	9.14	.320	8.13
NSI012062	5/8	15.88	.620	15.75	1/16	1.59	.360	9.14	.320	8.13

## NYLON FLAT WASHERS

## NYLON FLAT WASHERS - STANDARD TOLERANCES

I27



## Nylon Flat Washers

Standard Tolerances:

OD =  $\pm 0.010$   
 ID =  $\pm 0.005$   
 T =  $\pm 0.015$

These washers are made to be used with standard screw sizes #2 up to 1/2. They come in the four most popular thickness', from 1/32 up to 1/8.

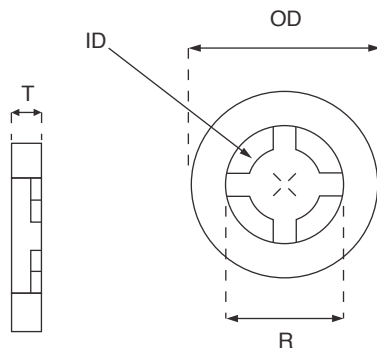
Minimum order: 1,000

PART NUMBER	ID	OD	T
NFW2-032	.090 (2.29)	.250 (6.35)	.032 (0.81)
NFW2-062	.090 (2.29)	.250 (6.35)	.062 (1.58)
NFW2-093	.090 (2.29)	.250 (6.35)	.093 (2.36)
NFW2-125	.090 (2.29)	.250 (6.35)	.125 (3.18)
NFW4-032	.115 (2.92)	.250 (6.35)	.032 (0.81)
NFW4-062	.115 (2.92)	.250 (6.35)	.062 (1.58)
NFW4-093	.115 (2.92)	.250 (6.35)	.093 (2.36)
NFW4-125	.115 (2.92)	.250 (6.35)	.125 (3.18)
NFW6-032	.140 (3.56)	.312 (7.94)	.032 (0.81)
NFW6-062	.140 (3.56)	.312 (7.94)	.062 (1.58)
NFW6-093	.140 (3.56)	.312 (7.94)	.093 (2.36)
NFW6-125	.140 (3.56)	.312 (7.94)	.125 (3.18)
NFW8-032	.171 (4.34)	.375 (9.53)	.032 (0.81)
NFW8-062	.171 (4.34)	.375 (9.53)	.062 (1.58)
NFW8-093	.171 (4.34)	.375 (9.53)	.093 (2.36)
NFW8-125	.171 (4.34)	.375 (9.53)	.125 (3.18)
NFW10-032	.194 (4.93)	.375 (9.53)	.032 (0.81)
NFW10-062	.194 (4.93)	.375 (9.53)	.062 (1.58)
NFW10-093	.194 (4.93)	.375 (9.53)	.093 (2.36)
NFW10-125	.194 (4.93)	.375 (9.53)	.125 (3.18)
NFW250-032	.257 (6.53)	.500 (12.7)	.032 (0.81)
NFW250-062	.257 (6.53)	.500 (12.7)	.062 (1.58)
NFW250-093	.257 (6.53)	.500 (12.7)	.093 (2.36)
NFW250-125	.257 (6.53)	.500 (12.7)	.125 (3.18)
NFW312-032	.317 (8.05)	.500 (12.7)	.032 (0.81)
NFW312-062	.317 (8.05)	.500 (12.7)	.062 (1.58)
NFW312-093	.317 (8.05)	.500 (12.7)	.093 (2.36)
NFW312-125	.317 (8.05)	.500 (12.7)	.125 (3.18)
NFW375-032	.380 (9.65)	.625 (15.88)	.032 (0.81)
NFW375-062	.380 (9.65)	.625 (15.88)	.062 (1.58)
NFW375-093	.380 (9.65)	.625 (15.88)	.093 (2.36)
NFW375-125	.380 (9.65)	.625 (15.88)	.125 (3.18)
NFW437-032	.443 (11.25)	.750 (19.05)	.032 (0.81)
NFW437-062	.443 (11.25)	.750 (19.05)	.062 (1.58)
NFW437-093	.443 (11.25)	.750 (19.05)	.093 (2.36)
NFW437-125	.443 (11.25)	.750 (19.05)	.125 (3.18)
NFW500-032	.505 (12.83)	.750 (19.05)	.032 (0.81)
NFW500-062	.505 (12.83)	.750 (19.05)	.062 (1.58)
NFW500-093	.505 (12.83)	.750 (19.05)	.093 (2.36)
NFW500-125	.505 (12.83)	.750 (19.05)	.125 (3.18)

## NYLON FLAT WASHERS

I28

## NYLON FLAT WASHERS - RETAINING WASHERS



## Retaining Washers

Similar to our standard flat washers, but with a specially configured inside diameter designed to grip the outside of the screw shank.

The washer slides on the screw easily, but is retained on the screw.

For use in applications requiring pre-assembly of the screw and washer to reduce final assembly cost.

Other sizes may be tooled on request.

Minimum order: 1,000

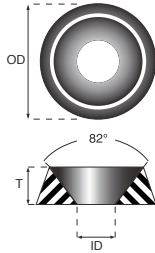
PART NUMBER	ID	RETAINING DIAMETER R	OD	T
NFWR2-032	.078 (1.98)	.115 (2.92)	13/64 (5.16)	.031 (0.79)
NFWR2-062	.078 (1.98)	.115 (2.92)	13/64 (5.16)	.062 (1.58)
NFWR4-032	.102 (2.59)	.156 (3.96)	17/64 (6.75)	.031 (0.79)
NFWR4-062	.102 (2.59)	.156 (3.96)	17/64 (6.75)	.062 (1.58)
NFWR6-032	.128 (3.25)	.198 (5.03)	21/64 (8.33)	.031 (0.79)
NFWR6-062	.128 (3.25)	.198 (5.03)	21/64 (8.33)	.062 (1.58)
NFWR8-032	.152 (3.86)	.235 (5.97)	25/64 (9.92)	.031 (0.79)
NFWR8-062	.152 (3.86)	.235 (5.97)	25/64 (9.92)	.062 (1.58)
NFWR10-032	.177 (4.50)	.277 (7.04)	29/64 (11.51)	.031 (0.79)
NFWR10-062	.177 (4.50)	.277 (7.04)	29/64 (11.51)	.062 (1.58)
NFWR250-032	.234 (5.94)	.375 (9.53)	19/32 (15.08)	.031 (0.79)
NFWR250-062	.234 (5.94)	.375 (9.53)	19/32 (15.08)	.062 (1.58)
NFWR312-032	.292 (7.42)	.470 (11.94)	47/64 (18.65)	.031 (0.79)
NFWR312-062	.292 (7.42)	.470 (11.94)	47/64 (18.65)	.062 (1.58)
NFWR375-032	.350 (8.89)	.564 (14.33)	57/64 (22.62)	.031 (0.79)
NFWR375-062	.350 (8.89)	.564 (14.33)	57/64 (22.62)	.062 (1.58)
NFWR437-032	.410 (10.41)	.570 (14.48)	1-1/32 (26.19)	.031 (0.79)
NFWR437-062	.410 (10.41)	.570 (14.48)	1-1/32 (26.19)	.062 (1.58)
NFWR500-032	.468 (11.89)	.690 (17.53)	1-1/8 (28.58)	.031 (0.79)
NFWR500-062	.468 (11.89)	.690 (17.53)	1-1/8 (28.58)	.062 (1.58)



# NYLON FLAT WASHERS PROTECTIVE BUMPERS

## MOULDED NYLON FINISHING WASHERS

I29



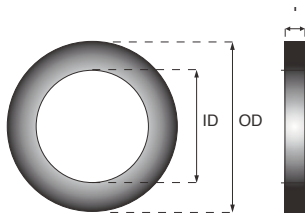
**Moulded Nylon Finishing Washers** These washers protect cabinets from scratching, cover misaligned holes, etc.

May also be used as glides, bumpers, feet, and spacers.

Available in Natural or Black Nylon

PART NUMBER	ID	OD	T
MFW6	.143 (3.63)	.437 (11.10)	.100 (2.54)
MFW8	.171 (4.34)	.510 (12.95)	.115 (2.92)
MFW10	.191 (4.85)	.580 (14.73)	.152 (3.86)
MFW12	.225 (5.75)	.609 (15.47)	.160 (4.06)
MFW25	.260 (6.61)	.683 (17.35)	.180 (4.57)

## NYLON FLAT WASHERS - METRIC

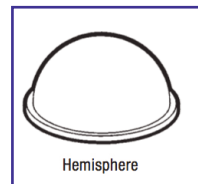
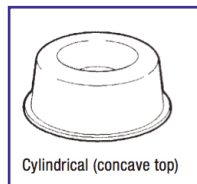
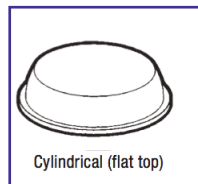
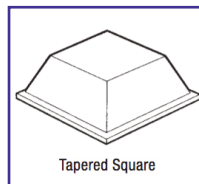


### Metric Washers

Minimum order: 1,000

PART NUMBER	ID (mm)	OD (mm)	T (mm)
NFW2	2.15	5.00	.080
NFW2.5	2.65	5.60	.080
NFW3	3.20	8.00	.080
NFW3.5	3.70	8.00	.080
NFW4	4.30	9.00	.080
NFW5	5.30	11.00	1.00
NFW6	6.40	12.00	1.50
NFW8	8.40	18.00	2.00
NFW8.5	8.50	25.00	2.00
NFW10	10.50	22.00	2.50

## PROTECTIVE PRODUCTS (BUMPERS)



PART NUMBER	SHAPE	COLOUR	HEIGHT		DIAMETER		DIE CUT METHOD	CASE QTY
			in	mm	in	mm		
SJ-5001	CYLINDRICAL	BLACK	0.14	3.56	0.50	12.7	KISS CUT PADS - 40	3,000
SJ-5003	HEMISPHERICAL	WHITE, GREY, BROWN, BLACK	0.20	5.1	0.44	11.2	KISS CUT PADS - 58	3,000
SJ-5007	TAPERED SQUARE	BLACK	0.10	2.5	0.40	10.2	KISS CUT PADS - 108	3,000
SJ-5008	TAPERED SQUARE	WHITE, GREY, BROWN, BLACK	0.12	3.1	0.50	12.7	KISS CUT PADS - 108	3,000
SJ-5009	HEMISPHERICAL	WHITE, GREY, BROWN, BLACK	0.40	10.2	0.88	22.4	KISS CUT PADS - 24	1,000
SJ-5012	CYLINDRICAL	WHITE, GREY, BROWN, BLACK	0.14	3.56	0.50	12.7	KISS CUT PADS - 56	3,000
SJ-5017	HEMISPHERICAL	WHITE, GREY, BROWN, BLACK	0.38	9.7	0.75	19.0	KISS CUT PADS - 40	1,000
SJ-5018	TAPERED SQUARE	WHITE, GREY, BROWN, BLACK	0.23	5.8	0.50	12.7	KISS CUT PADS - 80	3,000
SJ-5023	TAPERED SQUARE	WHITE, GREY, BROWN, BLACK	0.30	7.6	0.81	20.6	KISS CUT PADS - 36	1,000
SJ-5027	HEMISPHERICAL	WHITE, GREY, BROWN, BLACK	0.31	7.9	0.63	16.0	KISS CUT PADS - 40	1,000
SJ-5302	HEMISPHERICAL	TRANSPARENT	0.085	2.16	0.312	7.9	KISS CUT PADS - 144	3,000
SJ-5303	HEMISPHERICAL	TRANSPARENT	0.20	5.1	0.44	11.2	KISS CUT PADS - 56	3,000
SJ-5306	HEMISPHERICAL	TRANSPARENT	0.15	3.8	0.375	9.5	KISS CUT PADS - 54	3,000
SJ-5312	HEMISPHERICAL	TRANSPARENT	0.14	3.56	0.50	12.7	KISS CUT PADS - 56	3,000
SJ-5508	TAPERED SQUARE	WHITE, GREY, BROWN, BLACK	0.12	3.1	0.50	12.7	8X1 PERFORATED MATRIX	3,000
SJ-5518	TAPERED SQUARE	WHITE, GREY, BROWN, BLACK	0.23	5.8	0.50	12.7	8X1 PERFORATED MATRIX	3,000
SJ-5523	TAPERED SQUARE	WHITE, GREY, BROWN, BLACK	0.30	7.6	0.81	20.6	4X1 PERFORATED MATRIX	1,000
SJ-5532	CIRCULAR DEPRESSED	WHITE, GREY, BROWN, BLACK	0.66	16.8	1.88	47.8	4X1 PERFORATED MATRIX	100
SJ-5705	TAPERED SQUARE	BLACK	0.24	6.1	1.25	31.8	SEPERATE PARTS	1,000
SJ-5744	CYLINDRICAL	BLACK	0.16	4.06	0.75	19.1	KISS CUT PADS - 40	2,600

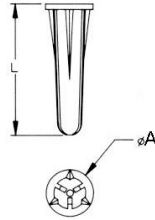
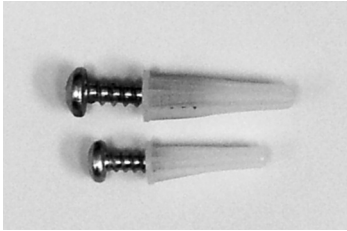
Plastic Hardware

# Nylon Washers

## NYLON SCREW ANCHORS NYLON HOSE CLAMPS

I30

### NYLON SCREW ANCHORS (WALL PLUGS)



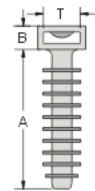
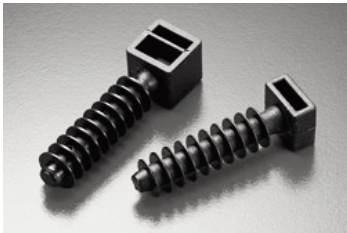
#### Nylon Screw Anchors (Wall Anchors)

Multi-use, light duty nylon anchor for use with sheet metal or wood screws.

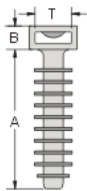
For use in wood, concrete, tile, brick or sheet metal. The expanded rim prevents the loss of the wall plugs inside the hole. Non-twist fins keep them firmly in place and stop rotation. Anchors can be colour-coded for size identification.

PART NUMBER	SCREW SIZE	HOLE SIZE A	LENGTH L
WA210875	#6-8	3/16 (4.76)	7/8 (22.23)
WA281700	#10-12	1/4 (6.35)	1-1/16 (26.99)
WA351385	#14-16	5/16 (7.94)	1-3/8 (34.93)

### WALL PLUG MOUNTS



WPM-01



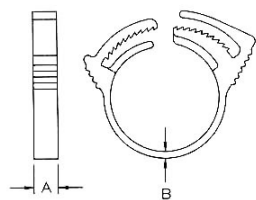
WPM-02

#### Wall Plug Mounts

Parts are molded in black UL approved Nylon 66, 94V-2 for use in pre-drilled holes in wood, masonry, and a variety of other materials.

PART NUMBER	MEASUREMENTS in(mm)			
	A	B	T	MOUNTING HOLE
WPM-01	1.48(37.5)	0.25(6.3)	0.38(9.7)	0.35(9)
WPM-02	1.43(36.2)	0.51(13)	0.38(9.7)	0.35(9)

### PREMIUM NYLON HOSE CLAMPS



#### Nylon Hose Clamps

Premium advanced interlocking design eliminates leaks possible from lesser clamps.

PART NUMBER	MAXIMUM WIRE DIAMETER	A	B	CLAMPING RANGE in(mm)
HC-0344	11/32 (8.73)	0.219"	0.062"	.360 - .390 (9.14 - 10.31)
HC-0406	13/32 (10.32)	0.250"	0.062"	.406 - .468 (10.31 - 11.89)
HC-0468	15/32 (11.91)	0.219"	0.062"	.475 - .532 (12.07 - 13.51)
HC-0531	17/32 (13.49)	0.250"	0.062"	.538 - .608 (13.67 - 15.44)
HC-0593	19/32 (15.08)	0.250"	0.062"	.597 - .665 (15.16 - 16.89)
HC-0750	3/4 (19.05)	0.219"	0.062"	.740 - .850 (18.8 - 21.59)
HC-0953	61/64 (24.21)	0.250"	0.062"	.953 - 1.085 (24.21 - 27.56)
HC-1031	1-1/32 (26.19)	0.321"	0.062"	1.031 - 1.168 (26.19 - 29.67)
HC-1250	1-1/4 (31.75)	0.321"	0.062"	1.250 - 1.425 (31.75 - 36.2)
HC-1406	1-13/32 (35.72)	0.344"	0.062"	1.406 - 1.610 (35.71 - 40.89)
HC-1593	1-19/32 (40.48)	0.344"	0.062"	1.593 - 1.812 (40.46 - 46.02)
HC-1687	1-11/16 (42.86)	0.344"	0.062"	1.790 - 2.11 (45.47 - 53.59)
HC-1875	1-7/8 (47.63)	0.406"	0.062"	1.870 - 2.125 (47.5 - 53.97)
HC-2125	2-1/8 (53.98)	0.406"	0.062"	2.120 - 2.390 (53.85 - 60.71)

Plastic Hardware

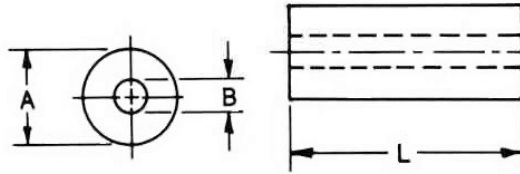
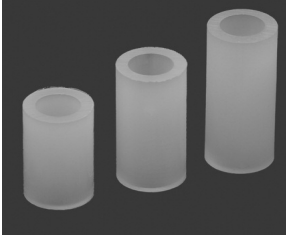




## NYLON SPACERS

I33

### STANDARD NYLON SPACERS (continued)



#### Standard Nylon Spacers

Tough and resilient, nylon spacers are useful for many applications. They are ideal for use in electrical and electronic assemblies. They also can be used as bushings, bearing, rollers, and glides. Molded from corrosion resistant Type 6/6 Nylon.

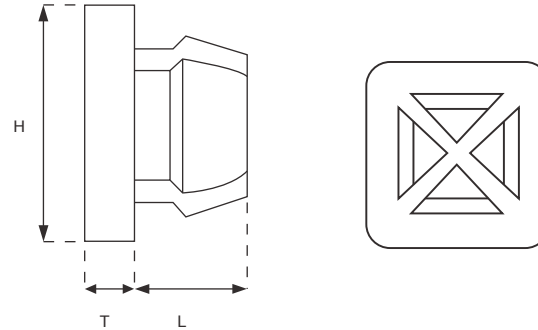
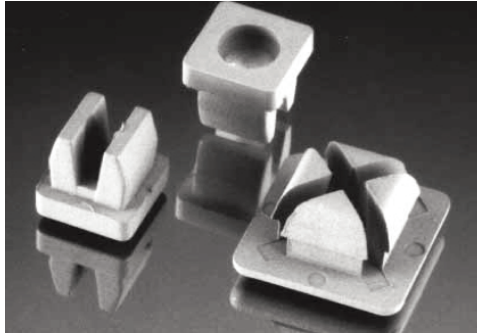
**\*All standard nylon spacers can be tapped two thread sizes larger than screw size listed.**

ITEM NUMBER	A		B		L		SCREW SIZE
	IN	MM	IN	MM	IN	MM	
13SP231	1/2	12.70	0.219	5.56	0.4375	11.11	12
13SP232	1/2	12.70	0.257	6.53	0.4375	11.11	1/4
13SP233	1/2	12.70	0.14	3.56	0.5	12.70	6
13SP234	1/2	12.70	0.171	4.34	0.5	12.70	8
13SP235	1/2	12.70	0.194	4.93	0.5	12.70	10
13SP236	1/2	12.70	0.219	5.56	0.5	12.70	12
13SP237	1/2	12.70	0.257	6.53	0.5	12.70	1/4
13SP238	1/2	12.70	0.14	3.56	0.5625	14.29	6
13SP239	1/2	12.70	0.171	4.34	0.5625	14.29	8
13SP240	1/2	12.70	0.194	4.93	0.5625	14.29	10
13SP241	1/2	12.70	0.219	5.56	0.5625	14.29	12
13SP242	1/2	12.70	0.257	6.53	0.5625	14.29	1/4
13SP243	1/2	12.70	0.14	3.56	0.625	15.88	6
13SP244	1/2	12.70	0.171	4.34	0.625	15.88	8
13SP245	1/2	12.70	0.194	4.93	0.625	15.88	10
13SP246	1/2	12.70	0.219	5.56	0.625	15.88	12
13SP247	1/2	12.70	0.257	6.53	0.625	15.88	1/4
13SP248	1/2	12.70	0.14	3.56	0.6875	17.46	6
13SP249	1/2	12.70	0.171	4.34	0.6875	17.46	8
13SP250	1/2	12.70	0.194	4.93	0.6875	17.46	10
13SP251	1/2	12.70	0.219	5.56	0.6875	17.46	12
13SP252	1/2	12.70	0.257	6.53	0.6875	17.46	1/4
13SP253	1/2	12.70	0.14	3.56	0.75	19.05	6
13SP254	1/2	12.70	0.171	4.34	0.75	19.05	8
13SP255	1/2	12.70	0.194	4.93	0.75	19.05	10
13SP256	1/2	12.70	0.219	5.56	0.75	19.05	12
13SP257	1/2	12.70	0.260	6.60	0.75	19.05	1/4
13SP258	1/2	12.70	0.14	3.56	0.8125	20.64	6
13SP259	1/2	12.70	0.171	4.34	0.8125	20.64	8
13SP260	1/2	12.70	0.194	4.93	0.8125	20.64	10
13SP261	1/2	12.70	0.219	5.56	0.8125	20.64	12
13SP262	1/2	12.70	0.260	6.60	0.8125	20.64	1/4
13SP263	1/2	12.70	0.14	3.56	0.875	22.22	6
13SP264	1/2	12.70	0.171	4.34	0.875	22.22	8
13SP265	1/2	12.70	0.194	4.93	0.875	22.22	10
13SP266	1/2	12.70	0.219	5.56	0.875	22.22	12
13SP267	1/2	12.70	0.260	6.60	0.875	22.22	1/4
13SP268	1/2	12.70	0.14	3.56	0.9375	23.81	6
13SP269	1/2	12.70	0.171	4.34	0.9375	23.81	8
13SP270	1/2	12.70	0.194	4.93	0.9375	23.81	10
13SP271	1/2	12.70	0.219	5.56	0.9375	23.81	12
13SP272	1/2	12.70	0.260	6.60	0.9375	23.81	1/4
13SP273	1/2	12.70	0.14	3.56	1.00	25.40	6
13SP274	1/2	12.70	0.171	4.34	1.00	25.40	8
13SP275	1/2	12.70	0.194	4.93	1.00	25.40	10
13SP276	1/2	12.70	0.219	5.56	1.00	25.40	12
13SP277	1/2	12.70	0.260	6.60	1.00	25.40	1/4

## NYLON EXPANSION NUTS

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## NYLON EXPANSION NUTS



## Nylon Expansion Nuts

Used with self-threading metal screws, these snap-in nuts expand and securely lock screws and assembled parts in place, connecting thin-gauge materials and eliminating cross-threading. They are corrosion and vibration resistant. Design variation is available.

Minimum order: 1,000 for full range.

SQUARE HEAD	HOLE SIZE		PANEL THICKNESS		SCREW SIZE	H Head Size	T Head Height	L Length
	IN	MM	IN	MM				
NENS00001	.275/.290	6.99/7.37	.031/.125	0.79/3.18	8 OR 10	.375(9.63)	.031(0.79)	.320(8.13)
NENS00002	.275/.290	6.99/7.37	.031/.125	0.79/3.18	8 OR 10	.375(9.63)	.062(1.57)	.320(8.13)
NENS00003	.275/.290	6.99/7.37	.031/.125	0.79/3.18	8 OR 10	.375(9.63)	.125(3.18)	.320(8.13)
NENS00004	.275/.290	6.99/7.37	.031/.125	0.79/3.18	8 OR 10	.375(9.63)	.250(6.35)	.320(8.13)
NENS00005	.375	9.53	.031/.125	0.79/3.18	1/4	5/8(15.88)	1-1/16 (27.0)	9/32 (7.14)
NENS00006	.250/.260	6.35/6.61	.031/.125	0.79/2.92	6	.437(11.10)	.094 (2.39)	.220 (5.59)
NENS00007	.270/.270	6.86/6.86	.062/.275	1.57/6.99	6	.375 (9.53)	.031 (0.79)	.435 (11.05)
NENS00912	.225/.255	5.71/6.48	.031/.125	0.79/3.18	8	.375 (9.53)	.187 (4.75)	.300 (7.62)
NENS00915	.245/.255	6.22/6.48	.031/.125	0.79/3.18	6 OR 8	3/8 (9.53)	1/32 (0.79)	9/32 (7.14)
NENS01000	.250/.255	6.35/6.48	.110/.125	2.79/3.18	6	.375 (9.53)	.031 (1.79)	.265 (6.73)
NENS01012	.173/.178	4.39/4.52	.031/.078	0.79/1.98	4	.218 (5.54)	.250(6.35)	.218 (5.54)
NENS01014	.250/270	6.35/6.86	.062/.155	1.57/3.94	6	.375 (9.53)	.032 (0.81)	.312 (7.92)
NENS01016	.285	7.24	.078/.175	1.98/4.45	8	.380 (9.65)	.045 (1.14)	.340 (8.64)
NENS01020	.275/.280	6.99/7.11	.040/.045	1.02/1.14	8 OR 10	.370 (9.40)	.032 (0.81)	.330 (8.38)
NENS01021	.375/.390	9.53/9.91	.230	5.48	1/4	5/8 (15.88)	.080 (2.03)	.438 (11.13)
NENS01122	.350/.355	8.89/9.02	.218/.230	5.54/5.84	8 OR 10	.475 (12.07)	.062 (1.57)	.421 (10.69)
NENS01125	.370/.390	9.40/9.91	.064/.187	1.57/4.75	10	.609 (15.47)	.085 (2.16)	.290 (7.37)
NENS01126	.305/.315	7.75/8.00	.031/.175	0.79/4.44	8	.470 (11.94)	.060(1.52)	.300 (7.62)
NENS01130	.370/.375	9.40/9.52	.031/.100	0.79/2.54	12	.620 (15.75)	.080(2.03)	.275 (6.98)
NENS01135	.173/178	4.39/4.52	.031/.078	0.79/1.98	4	.218 (5.54)	.050 (1.27)	.218 (5.54)
NENS01145	.270/.310	6.85/7.87	.031/.170	0.79/4.32	8	.405 (10.29)	.050 (1.27)	.218(5.54)
NENS01150	.310/.310	7.87/7.87	.031/.170	0.79/.032	10	.465 (11.81)	.062 (1.57)	.295(7.49)
NENS01154	.320/.320	8.13/8.13	.031/.155	0.79/3.94	10	.650 (16.51)	.062 (1.57)	.305(7.75)
NENS01155	.245/.270	6.22/6.85	.047/.095	1.19/2.41	2	.375 (9.52)	.032 (0.81)	.240 (6.07)
NENS01160	.335/.340	8.52/8.64	.062/.125	1.58/3.17	8	.512 (12.96)	.075 (1.90)	.315 (7.92)
NENS01165	.270/.270	6.86/6.86	.062/.125	1.58/3.17	6	.390 (9.90)	.050 (1.27)	.275 (6.99)
NENS01170	.275/.285	6.90/7.24	.031/.125	0.79/3.17	4	.375 (9.53)	.050 (1.27)	.218 (5.54)
NENS01171	.200/.270	5.08/6.86	.032/.156	0.81/3.96	6	.312/.437 (7.93/11.1)	.035 (0.89)	.312 (7.93)
NENS01175	.275/.280	6.99/7.11	.062/.120	1.60/3.05	6	.390 (9.90)	.055 (1.40)	.281 (7.14)
NENS01176	.260/.270	6.61/6.86	.093/.187	2.36/4.75	6	.410 (10.41)	.040 (1.02)	.310 (7.87)
NENS01178	.265	6.73	.047/.180	1.19/4.57	8	.375 (9.53)	.032 (0.81)	.327 (8.31)
NENS01179	.365	9.28	.062/.120	1.19/4.57	1/4	5/8 (15.88)	.080 (2.04)	.281 (7.14)
NENS01180	.370/.375	9.40/9.50	.062/.120	1.60/3.05	1/4	.625 (15.90)	.080 (2.04)	.281 (7.14)
NENS01181	.410/.410	10.72/10.42	.031/.062	0.79/1.58	1/4	.630 (16.00)	.140 (3.56)	.280 (7.12)
NENS01185	.320/.335	8.08/8.51	.032/.234	0.81/5.94	10	.470 (11.94)	.055 (1.40)	.420 (10.67)
NENS01190	.335/.345	8.51/8.76	.062/.171	1.58/4.35	10	.468 (11.88)	.095 (2.42)	.400 (10.16)
NENS01195	.330/.365	8.38/9.28	.032/.095	0.81/2.41	8	.500 (12.70)	.094 (2.39)	.295 (7.50)
NENS01200	.250/.260	6.35/6.61	.062/.125	1.58/3.18	6	.375 (9.53)	.140 (3.56)	.265 (6.73)

## NYLON EXPANSION NUTS

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## NYLON EXPANSION NUTS (continued)

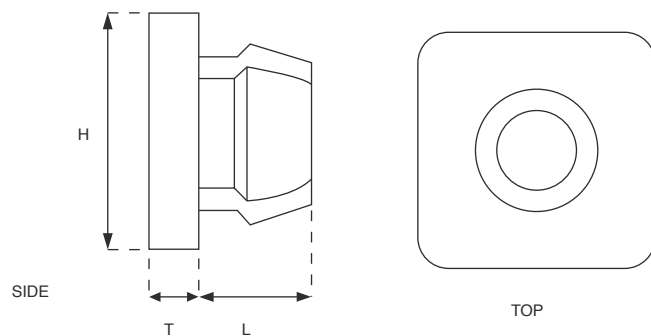
ITEM NUMBER	HOLE SIZE		PANEL THICKNESS		SCREW SIZE	H Head Size	T Head Height	L Length
	IN	MM	IN	MM				
NENS01010	.377/.82	9.58/9.70	.125/.130	3.18/3.30	10	.39/.64(15.48)	.082(2.08)	.308(7.82)
NENS01015	.228/.233	5.79/5.92	.250/.271	6.35/6.88	8	.375(9.53)	.031(0.79)	.406(10.31)
NENS01018	.310/.315	7.87/8.00	.110/.115	2.79/2.92	8	.437 (11.10)	.078(1.98)	.281(7.14)
NENS01019	.305/.310	7.75/7.87	.125/.130	3.18/3.43	8	.437 (11.10)	.062(1.57)	.281(7.14)
NENS01025	.250/.250	6.35/6.35	.093/.275	0.91/6.99	8	.375(9.53)	.047(1.19)	.420(10.67)
NENS01028	0.330/.330	8.38/8.38	.031/.125	0.79/3.18	8	.505(12.83)	.032(0.81)	.275(6.98)
NENS01030	.303	7.70	.031/.145	0.79/3.68	8 OR 10	.435(11.05)	.062(1.57)	.270(6.86)

ROUND HEAD	HOLE SIZE		PANEL THICKNESS		SCREW SIZE	H Head Size	T Head Height	L Length
	IN	MM	IN	MM				
NENS00009	.270/.280	6.86/7.11	.062/.165	1.57/4.19	6	0.975(9.53)	.093(2.36)	.297(7.54)
NENS00010	.275/.290	6.99/7.37	.031/.125	0.79/3.18	8 OR 10	.500(12.70)	.031(0.79)	.320(8.13)
NENS00011	.271/.290	6.88/7.37	.031/.125	0.79/3.18	8 OR 10	.500(12.70)	.062(1.57)	.320(8.13)
NENS00012	.271/.290	6.88/7.37	.031/.125	0.79/3.18	8 OR 10	.500(12.70)	.125(3.18)	.320(8.13)
NENS00013	.275/.290	6.99/7.37	.031/.125	0.79/3.18	8 OR 10	.500(12.70)	.250(6.35)	.320(8.13)
NENS00038	.275/.290	6.99/7.37	.031/.156	0.79/3.96	8	.500(12.70)	.375(9.53)	.320(8.13)
NENS00072	.275/.290	6.99/7.37	.031/.156	0.79/3.96	8 OR 10	.500(12.70)	.708(17.98)	.315(8.00)
NENS00073	.280/.285	7.11/7.24	.032/.150	0.81/3.81	6	.500(12.70)	23/32(18.26)	11/32(8.73)
NENS00100	.275/.290	6.99/7.37	.031/.156	0.79/3.96	8 OR 10	.437(11.10)	.032(0.81)	.325(8.26)
NENS00818	.275/.290	6.99/7.37	.031/.109	0.79/2.77	8 OR 10	.547(13.89)	1.062(26.97)	.281(7.14)
NENS01013	.285/.290	7.24/7.37	.031/.094	0.79/2.39	8	.455(11.56)	1.505(38.23)	.275(6.99)
NENS01121	.350/.355	8.89/9.27	.032/.125	0.81/3.185	12	.531(13.31)	.125(3.18)	.281(7.14)
NENS01140	.310/.310	7.87/7.87	.031/.160	0.79/4.06	10	.500(12.70)	.035(0.89)	.292(7.42)
NENS02200	.425/.429	10.80/10.90	.031/.110	0.79/2.79	5/16	.740(18.80)	.190(4.83)	.312(7.92)
NENS02300	.415/.430	10.54/10.92	.032/.135	0.81/3.43	1/4	.750(19.05)	.062(1.57)	.310(7.87)
NENS02400	.325/.330	8.26/8.38	.031/.156	0.79/3.96	10	.565(14.35)	.062(1.57)	.320(8.13)
NENS02500	.275	6.99	.062/.170	1.57/4.32	8	.495(12.57)	.312(7.92)	0.325(8.26)

THREE LEGGED SQUARE HEAD	HOLE SIZE		PANEL THICKNESS		SCREW SIZE	H Head Size	T Head Height	L Length
	IN	MM	IN	MM				
NENS03300*	.300/.300	7.62/7.62	.031/.135	0.78/3.43	6	.485(12.32)	.055(1.40)	.265(6.73)

\*Three legged square head expansion nut fits round hole

## ROUND &amp; THREE LEG



## NYLON THREADED STANDOFFS

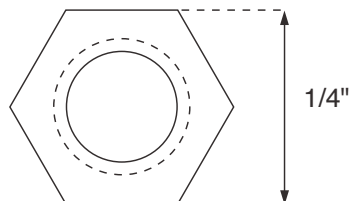
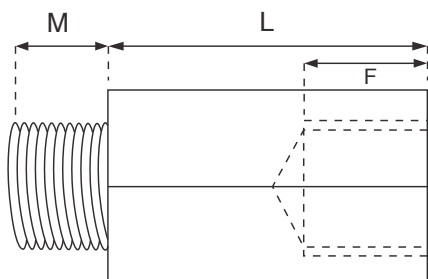
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## NYLON MALE - FEMALE THREADED STANDOFFS



\* F DIMENSION IS ADJUSTED WHEN THE LENGTH WILL NOT PERMIT FULL THREAD DEPTH AS FOLLOWS:

WHERE L = 1/4 (6.35)      F = 3/16 (4.76)  
 WHERE L = 3/8 (9.53)      F = 1/4 (6.35)  
 WHERE L = 1/2 (12.7)      F = 3/8 (9.53)



## Nylon Male-Female Threaded Standoffs

Minimum order: 1,000

THREAD SIZE	M	F*
4/40 (2.54)	3/16 (4.76)	1/4 (6.35)
6/32 (4.76)	1/4 (6.35)	3/8 (9.53)
8/32 (6.35)	3/8 (9.53)	7/16 (11.11)

PART NUMBER	THREAD (IN/MM)	LENGTH (IN/MM)
NMF440X.250	4/40 (2.54)	1/4 (6.35)
NMF632X.250	6/32 (4.76)	1/4 (6.35)
NMF832X.250	8/32 (6.35)	1/4 (6.35)
NMF440X.375	4/40 (2.54)	3/8 (9.53)
NMF632X.375	6/32 (4.76)	3/8 (9.53)
NMF832X.375	8/32 (6.35)	3/8 (9.53)
NMF440X.500	4/40 (2.54)	1/2 (12.7)
NMF632X.500	6/32 (4.76)	1/2 (12.7)
NMF832X.500	8/32 (6.35)	1/2 (12.7)
NMF440X.625	4/40 (2.54)	5/8 (15.88)
NMF632X.625	6/32 (4.76)	5/8 (15.88)
NMF832X.625	8/32 (6.35)	5/8 (15.88)
NMF440X.750	4/40 (2.54)	3/4 (19.05)
NMF632X.750	6/32 (4.76)	3/4 (19.05)
NMF832X.750	8/32 (6.35)	3/4 (19.05)
NMF440X.875	4/40 (2.54)	7/8 (22.23)
NMF632X.875	6/32 (4.76)	7/8 (22.23)
NMF832X.875	8/32 (6.35)	7/8 (22.23)
NMF440X1.000	4/40 (2.54)	1 (25.4)
NMF632X1.000	6/32 (4.76)	1 (25.4)
NMF832X1.000	8/32 (6.35)	1 (25.4)
NMF440X1.125	4/40 (2.54)	1-1/8 (28.58)
NMF632X1.125	6/32 (4.76)	1-1/8 (28.58)
NMF832X1.125	8/32 (6.35)	1-1/8 (28.58)
NMF440X1.250	4/40 (2.54)	1-1/4 (31.75)
NMF632X1.250	6/32 (4.76)	1-1/4 (31.75)
NMF832X1.250	8/32 (6.35)	1-1/4 (31.75)
NMF440X1.375	4/40 (2.54)	1-3/8 (34.93)
NMF632X1.375	6/32 (4.76)	1-3/8 (34.93)
NMF832X1.375	8/32 (6.35)	1-3/8 (34.93)
NMF440X1.500	4/40 (2.54)	1-1/2 (38.1)
NMF632X1.500	6/32 (4.76)	1-1/2 (38.1)
NMF832X1.500	8/32 (6.35)	1-1/2 (38.1)
NMF440X1.625	4/40 (2.54)	1-5/8 (41.28)
NMF632X1.625	6/32 (4.76)	1-5/8 (41.28)
NMF832X1.625	8/32 (6.35)	1-5/8 (41.28)
NMF440X1.750	4/40 (2.54)	1-3/4 (44.45)
NMF632X1.750	6/32 (4.76)	1-3/4 (44.45)
NMF832X1.750	8/32 (6.35)	1-3/4 (44.45)
NMF440X2.000	4/40 (2.54)	2 (50.8)
NMF632X2.000	6/32 (4.76)	2 (50.8)
NMF832X2.000	8/32 (6.35)	2 (50.8)




**ETLIN-DANIELS**

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## SECTION J HEAT SHRINK & PROTECTIVE SLEEVING

**J1**

**HEAT SHRINK & PROTECTIVE SLEEVING**

### Heat Shrink & Protective Sleeving

Cross Reference	J2
Technical Data	J3
Estimator Chart	J4
Non-Irradiated PVC	J5
<b>Polyolefin</b>	
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<b>Monofilament Sleeving (PET)</b>	
Expandable Braided - General Purpose	J18
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# Protective Sleeving

## TECHNICAL DATA FOR HEAT SHRINKABLE SLEEVING

J2

### Cross Reference By Manufacturer

ETLIN	ALPHA	ICO / RALLY	MARKEL	BIRNBACH	VOLTREX	DABURN	PANDUIT	ESSEX	ECC / 3M	AMP	RAYCHEM	REMTEK	SIGMAFORM	SINCLAIR & RUSH	SUMITOMO
HST/PVC	FIT100	HVX	HT105	SKI105 (SK265)	PVS	SH265	--	VC		--	RT800 (HS105-3)	PVC105	--	RPVC105	V
HST/POL	FIT105*	HCG	--	--	--		--	VCX	CP221	--	--	CPGE105	--	GP105	A4
HST/TWP	FIT295	HRK	HM140	--	SRS	SH290	--	ASR	SR350	--	CRN (RT350)	GPR135	--	RPO135	B8 D
HST/SRPA	FIT300	HIM	--	--	SRM	SM270	--	--	MW	--	SCL (RT1301)	DWP105	--	--	W5DL
HST/TEF	FIT400	--	--	--	SST	SH400	--	--	--	--	FEP	FEP200	--	--	--
HST/PSS	FIT700 (21-25)	--	--	--	--	--	HST	--	ITCS (HDT)	6031	WCSF* (RT1508)	SST	SST / SCTV*	--	--

\*Check Specification

ETLIN	ALPHA	ICO / RALLY	MARKEL	BIRNBACH	VOLTREX	DABURN	PANDUIT	ESSEX	KULKA/ SMITH	AMP	BENTLY HARRIS	VARFLEX	BRAND-REX
EVT	PVC105	SLV105	FLEXITE HT105C	B105	PVI	D105 D74	--	ASTRA 703/105	--	35	FLEXTRUDE 105	SYNTHOL VAR SHH	TURBOLEX 105
FSHT/AC	PIF150	--	HYGRADE 463	--	GSA	--	--	ACRYFLEX F	--	--	BEN-HAR	VARGLAS	TURBOCRYL
FSHT	PIF240	SLV1200	HYGRADE 1200FRI	B1200	GSX	D1200	--	VARNISHE D GLASS	--	35	--	VARGLAS	TURBOGLAS
FSHT/VC	PIF130	SLV130	HYGRADE VFB	B105	GSV	D130	--	VINYLGLAS	--	--	VINYL FLEX4000	--	TRUBOTUF 4000
FSHT/SR	PIF200	SLV398	HYGRADE SR398	--	GSR	--	--	SILICONE RR	--	--	BEN-HAR 1151	VARGLAS SILICONE	TURBO 117

Protective Sleeving

## TECHNICAL DATA FOR HEAT SHRINKABLE SLEEVING

### Recovered Wall Thickness – 2:1 Shrink Ratio Tubing

J3

% RECOVERY	K	% RECOVERY	K	% RECOVERY	K	% RECOVERY	K	% RECOVERY	K
1	0.505	21	0.605	41	0.705	61	0.805	81	0.905
2	0.51	22	0.61	42	0.71	62	0.81	82	0.91
3	0.515	23	0.615	43	0.715	63	0.815	83	0.915
4	0.52	24	0.62	44	0.72	64	0.82	84	0.92
5	0.525	25	0.625	45	0.725	65	0.825	85	0.925
6	0.53	26	0.63	46	0.73	66	0.83	86	0.93
7	0.535	27	0.635	47	0.735	67	0.835	87	0.935
8	0.54	28	0.64	48	0.74	68	0.84	88	0.94
9	0.545	29	0.645	49	0.745	69	0.845	89	0.945
10	0.55	30	0.65	50	0.75	70	0.85	90	0.95
11	0.555	31	0.655	51	0.755	71	0.855	91	0.955
12	0.56	32	0.66	52	0.76	72	0.86	92	0.96
13	0.565	33	0.665	53	0.765	73	0.865	93	0.965
14	0.57	34	0.67	54	0.77	74	0.87	94	0.97
15	0.575	35	0.675	55	0.775	75	0.875	95	0.975
16	0.58	36	0.68	56	0.78	76	0.88	96	0.98
17	0.585	37	0.685	57	0.785	77	0.885	97	0.985
18	0.59	38	0.69	58	0.79	78	0.89	98	0.99
19	0.595	39	0.695	59	0.795	79	0.895	99	0.995
20	0.6	40	0.7	60	0.8	80	0.9		

To determine the wall thickness, in inches or millimeters, of any 2:1 shrink ratio at any percentage of recovery, find the recovery in the table below and multiply the fully recovered wall thickness of the tubing by the constant, K, located opposite the percentage of recovery.

**Example:** What will the wall thickness of Type XYZ, size  $\frac{1}{8}$ , tubing be when the tubing is recovered 30%?

**Solution:** Constant K, from the table, for 30% recovery is 0.650. The fully recovered nominal wall thickness of the tubing per the product specification is 0.020 inches (0.051 mm). Therefore: 0.020" (0.051mm) X 0.650 = 0.013" (0.03315 mm) wall thickness at 30% recovery.

The above method is mathematically correct, and the values derived from it are useful in practice. The method and values cannot, however, take into account individual variations in tubing manufacture and nominal value or ranges of tolerances in the specification of same, or variations in the application of the tubing.

### Insulation Materials Properties Selection Chart

PROPERTIES	POLYOLEFIN	PVC (VINYL)	TEFLON (FEP)	TEFLON (TFE)	TEFLON (ETFE)	KYNAR	NEOPRENE	SILICON
ABRASION RESISTANCE	GOOD	GOOD	GOOD	FAIR	GOOD	GOOD	EXCELLENT	FAIR
HEAT RESISTANCE	GOOD	GOOD	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	GOOD	EXCELLENT
WEATHERABILITY	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	EXCELLENT
FLAME RESISTANCE	VW-1 EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	GOOD	GOOD
WATER RESISTANCE	EXCELLENT	GOOD	GOOD	GOOD	EXCELLENT	GOOD	EXCELLENT	EXCELLENT
ACID RESISTANCE	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	GOOD	GOOD
ALKALI RESISTANCE	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	GOOD	GOOD
ALIPHATIC HYDRO RESISTANCE (GASOLINE, KEROSENE, ETC.)	FAIR	GOOD	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	GOOD	FAIR
AROMATIC HYDRO RESISTANCE (BENZOL, TOLUOL, ETC.)	POOR	POOR	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	FAIR	FAIR

The above material is for reference purposes only. Note that application variables influence performance - favourably or unfavourably. The above data is based only as a recommendation. However, no guarantee is expressed or implied.

# Protective Sleeving

## ESTIMATOR CHART FOR CUT TUBING PIECES

J4

### Estimator Chart For Cut Tubing Pieces

LENGTH INCHES	FT REQ PER M PIECES	NO PIECES IN 1M FT	LENGTH INCHES	FT REQ PER M PIECES	NO PIECES IN 1M FT	LENGTH INCHES	FT REQ PER M PIECES	NO PIECES IN 1M FT	LENGTH INCHES	FT REQ PER M PIECES	NO PIECES IN 1M FT
			3-1/16	255.2	3,950	6-1/16	505.2	1,975	9-1/16	755.2	1,300
1/8	10.4	96,000	3-1/8	260.5	3,850	6-1/8	510.4	1,950	9-1/8	760.4	1,300
3/16	15.7	64,000	3-3/16	265.7	3,800	6-3/16	515.6	1,925	9-3/16	765.7	1,300
1/4	20.9	48,000	3-1/4	270.9	3,700	6-1/4	520.8	1,900	9-1/4	770.8	1,275
5/16	26.1	38,400	3-5/16	276.1	3,650	6-5/16	526.0	1,900	9-5/16	776.1	1,275
3/8	31.3	32,000	3-3/8	281.3	3,600	6-3/8	531.3	1,875	9-3/8	781.3	1,275
7/16	36.5	27,500	3-7/16	286.5	3,500	6-7/16	536.5	1,850	9-7/16	786.5	1,250
1/2	41.7	24,000	3-1/2	291.7	3,450	6-1/2	541.7	1,825	9-1/2	791.7	1,250
9/16	46.9	21,400	3-9/16	296.9	3,400	6-9/16	546.9	1,800	9-9/16	796.9	1,250
5/8	52.1	19,200	3-5/8	302.1	3,350	6-5/8	552.1	1,800	9-5/8	802.1	1,225
11/16	57.3	17,500	3-11/16	307.3	3,300	6-11/16	557.3	1,775	9-11/16	807.3	1,225
3/4	62.5	16,000	3-3/4	312.5	3,200	6-3/4	562.5	1,775	9-3/4	812.5	1,225
13/16	67.7	14,800	3-13/16	317.7	3,150	6-13/16	567.7	1,750	9-13/16	817.7	1,200
7/8	73.0	13,750	3-7/8	323.0	3,100	6-7/8	572.9	1,725	9-7/8	823.0	1,200
15/16	78.2	12,800	3-15/16	328.2	3,050	6-15/16	578.1	1,725	9-15/16	828.1	1,200
1	83.4	12,000	4	333.4	3,000	7	583.4	1,714	10	833.3	1,200
1-1/16	88.6	11,300	4-1/16	338.6	2,950	7-1/16	588.5	1,700	10-1/16	838.5	1,175
1-1/8	93.8	10,700	4-1/8	343.8	2,850	7-1/8	593.7	1,650	10-1/8	843.7	1,175
1-3/16	99.0	10,100	4-3/16	349.0	2,800	7-3/16	598.9	1,650	10-3/16	848.9	1,150
1-1/4	104.2	9,600	4-1/4	354.2	2,800	7-1/4	604.2	1,650	10-1/4	854.1	1,150
1-5/16	109.4	9,150	4-5/16	363.3	2,775	7-5/16	609.4	1,625	10-5/16	859.4	1,150
1-3/8	114.6	8,750	4-3/8	364.6	2,725	7-3/8	614.6	1,625	10-3/8	864.5	1,150
1-7/16	119.8	8,350	4-7/16	369.9	2,700	7-7/16	619.8	1,600	10-7/16	869.8	1,125
1-1/2	125.0	8,000	4-1/2	375.0	2,650	7-1/2	625.0	1,600	10-1/2	875.0	1,125
1-9/16	130.2	7,700	4-9/16	380.3	2,625	7-9/16	630.2	1,575	10-9/16	880.2	1,125
1-5/8	135.5	7,400	4-5/8	385.4	2,575	7-5/8	635.4	1,575	10-5/8	885.4	1,125
1-11/16	140.7	7,150	4-11/16	390.7	2,550	7-11/16	640.6	1,550	10-11/16	890.6	1,100
1-3/4	145.9	6,900	4-3/4	395.9	2,525	7-3/4	645.8	1,550	10-3/4	895.9	1,100
1-13/16	151.1	6,650	4-13/16	401.1	2,475	7-13/16	651.0	1,525	10-13/16	901.0	1,100
1-7/8	156.3	6,400	4-7/8	406.2	2,450	7-7/8	656.2	1,500	10-7/8	906.2	1,100
1-15/16	161.5	6,200	4-15/16	411.5	2,425	7-15/16	661.4	1,500	10-15/16	911.5	1,075
2	166.7	6,000	5	416.7	2,400	8	666.7	1,500	11	916.7	1,075
2-1/16	171.9	5,850	5-1/16	421.9	2,350	8-1/16	671.9	1,475	11-1/16	921.8	1,075
2-1/8	177.1	5,650	5-1/8	427.1	2,325	8-1/8	677.1	1,475	11-1/8	927.0	1,075
2-3/16	182.3	5,500	5-3/16	432.3	2,300	8-3/16	682.3	1,450	11-3/16	932.2	1,050
2-1/4	187.5	5,350	5-1/4	437.5	2,275	8-1/4	687.5	1,450	11-1/4	937.4	1,050
2-5/16	192.7	5,200	5-5/16	442.8	2,250	8-5/16	692.7	1,425	11-5/16	942.7	1,050
2-3/8	198.0	5,100	5-3/8	447.9	2,225	8-3/8	698.0	1,425	11-3/8	947.9	1,050
2-7/16	203.2	4,950	5-7/16	453.2	2,200	8-7/16	703.2	1,400	11-7/16	953.1	1,025
2-1/2	208.4	4,800	5-1/2	458.4	2,175	8-1/2	708.4	1,400	11-1/2	958.3	1,025
2-9/16	213.6	4,700	5-9/16	463.6	2,150	8-9/16	713.6	1,400	11-9/16	963.5	1,025
2-5/8	218.8	4,600	5-5/8	468.8	2,125	8-5/8	718.7	1,375	11-5/8	968.7	1,025
2-11/16	224.0	4,500	5-11/16	474.0	2,100	8-11/16	723.9	1,375	11-11/16	973.9	1,000
2-3/4	229.2	4,400	5-3/4	479.2	2,075	8-3/4	729.2	1,350	11-3/4	979.1	1,000
2-13/16	234.4	4,300	5-13/16	484.4	2,050	8-13/16	734.4	1,350	11-13/16	984.3	1,000
2-7/8	239.6	4,200	5-7/8	489.6	2,025	8-7/8	739.6	1,350	11-7/8	989.5	1,000
2-15/16	244.8	4,100	5-15/16	494.8	2,000	8-15/16	744.8	1,325	11-15/16	994.7	1,000
3	250	4,000	6	500	2,000	9	750	1,325	12	1,000	1,000

Chart relates the length of tubing required, to the necessary footage to make 1,000 pieces; and to the number of individual pieces that can be cut from 1,000 feet of material.

Protective Sleeving

## NON-IRRADIATED PVC HEAT SHRINKABLE SLEEVING

### Heat Shrinkable Sleeving, Non-Irradiated PVC

J5



#### Features:

- Economical
- Excellent sunlight and ozone resistance
- Excellent oil, moisture and fungus resistance
- Semi-gloss finish ideal for cosmetic application
- Outstanding flame and chemical resistance
- Easily hot stamped for wire identification
- Spooled lengths reduce waste



#### Stock Colours:

Black is Standard; add suffix -CL for Clear. Other colours available to order (minimums required).



PART NUMBER	EXPANDED ID D		RECOVERED ID d		RECOVERED NOMINAL WALL THICKNESS W		STANDARD PUT-UP	M23053/CL2 MIL STD SIZE
	in	mm	in	mm	in	mm	feet	CODE
HST/PVC-1/16	0.063	1.57	.031	0.79	.020	.50	100, 1000	02
HST/PVC-3/32	0.093	2.30	.046	1.17	.025	.64	100, 1000	03
HST/PVC-1/8	0.125	3.17	.063	1.57	.025	.64	100, 1000	04
HST/PVC-3/16	0.187	4.74	.093	2.396	.025	.64	100, 1000	05
HST/PVC-1/4	0.250	6.35	.125	3.17	.025	.64	100, 1000	06
HST/PVC-3/8	0.375	9.50	.187	4.74	.025	.64	100, 1000	07
HST/PVC-1/2	0.500	12.70	.250	6.35	.025	.64	100, 250	08
HST/PVC-3/4	0.750	18.05	.375	9.50	.033	.84	100, 250	09
HST/PVC-1	1.000	25.40	.500	12.70	.038	.97	100, 250	10
HST/PVC-1-1/2	1.500	38.10	.750	18.05	.045	1.14	100	11
HST/PVC-2	2.000	50.80	1.000	25.40	.045	1.14	100	12

#### Description:

Low cost economical heat shrink tubing for military, commercial and industrial cable assemblies.

#### Specifications:

UL 224 VW-1 (Colours)  
CSA OFT (Colours)  
MIL-I-23053/2 CL 2  
ASTM D 3150

#### Properties:

Shrinkage Ratio: 50% (2:1) @ 105°C  
Longitudinal Shrinkage: ±10% (minimum)  
Operating Temperature Range: -35°C to +105°C  
Dielectric Strength: 1,083 V/mil  
UL Rating: 600V @ 105°C  
Volume Resistivity: 21.5 X 10<sup>12</sup> ohm-cm  
Specific Gravity: 1.33  
Tensile Strength: 2,500 psi (176 kg/cm<sup>2</sup>)  
Ultimate Elongation: 300% (minimum)  
Non-Irradiated

For ultra thin wall shrinkable PVC used in insulating battery packs and capacitors, consult factory.

Irradiated shrinkable PVC available – contact factory.

Storage Note: Tubing should be stored below 80°C (176°F) away from direct sunlight.

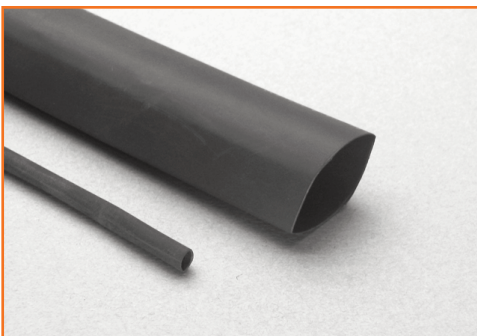
#### Hot Stamped Tubing and Cable Markers:

For markers made to order, regardless of quantities, the Hot Stamped Wire and Cable Markers can be made from various tubing materials to code, identify, protect, or advertise a cable assembly or circuit installation or terminals. We can also imprint company logos and custom symbols on Polyolefin shrink tubing products. Send drawings or sketches for quotation to our Sales Department.

IRRADIATED INDUSTRIAL GRADE  
POLYOLEFIN HEAT SHRINKABLE SLEEVING

J6

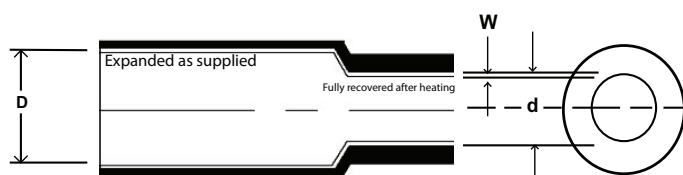
## Heat Shrinkable Sleeving, Irradiated Polyolefin – Industrial Grade

**Features:**

- Economical
- Commercial and industrial harnesses
- Indefinite shelf life
- Thermally stable
- Mechanically durable
- Easily hot stamped for wire identification
- Long lengths ideal for cable jacketing, minimize waste

**Stock Colours:**

Black is standard for additional colours contact factory.



PART NUMBER	EXPANDED ID D		RECOVERED ID d		RECOVERED NOMINAL WALL THICKNESS W		STANDARD PUT-UP
	in	mm	in	mm	in	mm	
HS-3/64-SWB	.046	1.17	.023	0.58	.016	0.41	100, 1000
HS-1/16-SWB	.063	1.60	.031	0.79	.017	0.43	100, 500
HS-3/32-SWB	.093	2.38	.046	1.17	.020	0.50	100, 500
HS-1/8-SWB	.125	3.18	.063	1.57	.020	0.50	100, 500
HS-3/16-SWB	.187	4.76	.093	2.36	.020	0.50	100, 250
HS-1/4-SWB	.250	6.35	.125	3.17	.025	0.63	100, 200
HS-3/8-SWB	.375	9.53	.187	4.74	.025	0.63	100, 200
HS-1/2-SWB	.500	12.70	.250	6.35	.025	0.63	100, 200
HST-3/4-SWB	.750	19.05	.375	9.50	.030	0.76	100, 200
HST-1-SWB	1.000	25.40	.500	12.70	.035	0.88	100

**Description:**

Very versatile all purpose heat shrinkable Polyolefin tubing for commercial or industrial applications.

**Properties:**

Shrinkage Ratio: 50% (2:1) @ 121°C  
 Longitudinal Shrinkage: ±5% (maximum)  
 Operating Temperature Range: -55°C to +135°C  
 Dielectric Strength: 500 V/mil  
 Volume Resistivity: 10<sup>14</sup> ohm-cm (minimum)  
 Specific Gravity: 1.1  
 Tensile Strength: 1,800 psi  
 Ultimate Elongation: 400%

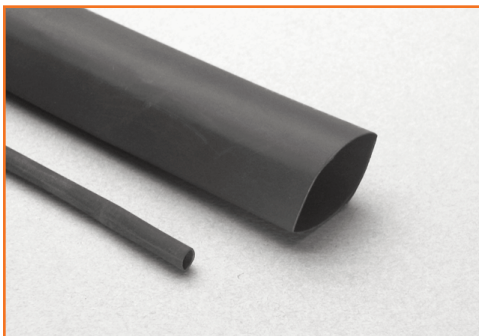
**Hot Stamped Tubing and Cable Markers:**

For markers made to order, regardless of quantities, the Hot Stamped Wire and Cable Markers can be made from various tubing materials to code, identify, protect, or advertise a cable assembly or circuit installation or terminals. We can also imprint company logos and custom symbols on Polyolefin shrink tubing products. Send drawings or sketches for quotation to our Sales Department.

## IRRADIATED THICK WALL POLYOLEFIN HEAT SHRINKABLE SLEEVING

### Heat Shrinkable Sleeving, Irradiated Polyolefin – Thick Wall

J7



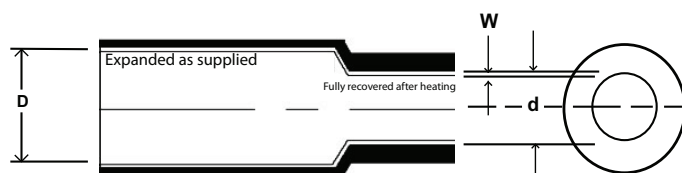
#### Features:

- Extremely strong
- Self-extinguishing (colours only)
- Provides maximum mechanical strength
- Abrasion resistant
- Thermally stable
- Will not cold flow or melt
- Excellent cut-through resistance
- Component strain relief
- Supplied in easy to use 4 foot lengths



#### Stock Colours:

Black is Standard; add suffix -CL for Clear. Available in an assortment of size packages. For 6" kit, order as part number-size-colour-6". Other colours subject to minimums.



PART NUMBER	EXPANDED ID D		RECOVERED ID d		RECOVERED NOMINAL WALL THICKNESS W		STANDARD PUT-UP	M23053/6- MIL STD SIZE CODE	
	in	mm	in	mm	in	mm		CL 1	CL 2
HST/TWP-3/64	0.046	1.17	0.023	0.58	.020	0.50	100	101	201
HST/TWP-1/16	0.063	1.57	0.031	0.79	.020	0.50	100	102	202
HST/TWP-3/32	0.093	2.36	0.045	1.17	.020	0.50	100	103	203
HST/TWP-1/8	0.125	3.17	0.063	1.57	.020	0.50	100	104	204
HST/TWP-3/16	0.187	4.74	0.093	2.36	.025	0.63	100	105	205
HST/TWP-1/4	0.250	6.35	0.125	3.17	.025	0.63	100	106	206
HST/TWP-3/8	0.375	9.50	0.187	4.74	.030	0.76	100	107	207
HST/TWP-1/2	0.500	12.70	0.250	6.35	.030	0.76	100	108	208

#### Description:

Semi-rigid, heat shrinkable tubing designed specifically to provide superior strain relief and add strength to wires and terminations.

#### Specifications:

UL Recognized  
MIL-DTL-23053/6:  
CL 1 – Colours  
CL 2 – Clear only  
AMS-3638B Colours  
AMS-3639B Clear

#### Properties:

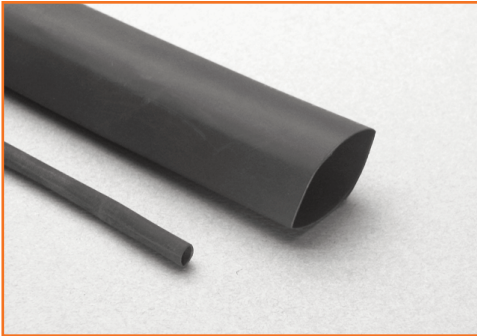
Shrinkage Ratio: 50% (2:1) @ 135°C  
Longitudinal Shrinkage: ±5% (maximum)  
Operating Temperature Range: -55°C to +135°C  
Dielectric Strength: 500 V/mil  
UL Rating: 600V @ 125°C  
Volume Resistivity: 1014 ohm-cm (minimum)  
Specific Gravity: 1.35 CL 1 (maximum)/1.00 CL 2 (maximum)  
Tensile Strength: 2,000 psi  
Ultimate Elongation: 200%

# Protective Sleeving

## IRRADIATED POLYOLEFIN, SEMI-RIGID ADHESIVE LINED SLEEVING

J8

Heat Shrinkable Sleeving, Irradiated Polyolefin – Semi-Rigid Adhesive Lined



### Features:

- Moisture protection
- Provides maximum mechanical strength
- Component strain relief
- Creates corrosion resistant seal
- Reinforces weak solder joints and terminations
- Thermally stable
- Ideal for field installations
- Supplied in easy to use 4 foot lengths



### Stock Colours:

Black is Standard. Available in an assortment of size packages.



PART NUMBER	EXPANDED ID <b>D</b>		RECOVERED ID <b>d</b>		RECOVERED NOMINAL WALL THICKNESS <b>W</b>		STANDARD PUT-UP	M23053/CL2 MIL STD SIZE CODE
	in	mm	in	mm	in	mm		
HST/SRPA-1/8	0.125	2.2	.023	0.6	.038	0.96	100	01
HST/SRPA-3/16	0.187	4.7	.060	1.5	.043	1.09	100	02
HST/SRPA-1/4	0.250	6.4	.080	2.0	.047	1.19	100	03
HST/SRPA-3/8	0.375	9.5	.135	3.4	.020	1.27	100	04
HST/SRPA-1/2	0.500	12.7	.195	5.0	.055	1.39	20	05
HST/SRPA-3/4	0.750	19.1	.313	8.0	.065	1.65	20	06
HST/SRPA-1	1.000	25.4	.400	10.2	.075	1.90	20	07

### Description:

Semi-rigid, flame retardant Polyolefin heat shrink tubing lined with a moisture proof sealant. For use in repairing and protecting cable jackets, outdoor connections and splices. Upon shrinking, the inner adhesive melts and flows while outer tubing shrinks to conform to substrate. Ideal for strain relief, sealing, encapsulating, moisture and corrosion protection of wires, terminals and connections.

### Specifications:

UL Recognized  
MIL-DTL-23053/4 CL 1  
AMS-3634

### Properties:

Shrinkage Ratio: Approximately (3:1) @ 135°C  
Longitudinal Shrinkage: ±10% (maximum)  
Operating Temperature Range: -55°C to +110°C  
Dielectric Strength: 700 V/mil  
UL Rating: 600V @ 125°C  
Volume Resistivity: 1015 ohm-cm (minimum)  
Specific Gravity: 1.01 (minimum)  
Tensile Strength: 2,100 psi  
Ultimate Elongation: 200% (minimum)  
Water Absorption: 0.1% (maximum)

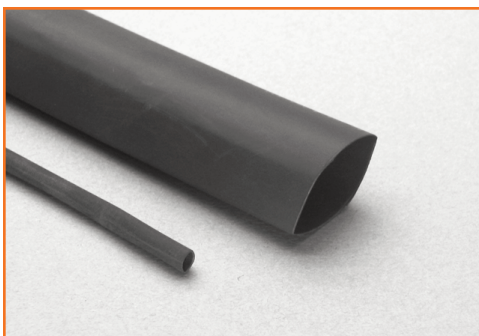
Protective Sleeving



## CROSS LINKED POLYOLEFIN, 3:1 SHRINK RATIO SLEEVING

### Heat Shrinkable Sleeving, Cross Linked Polyolefin – 3:1 Shrink Ratio

J9



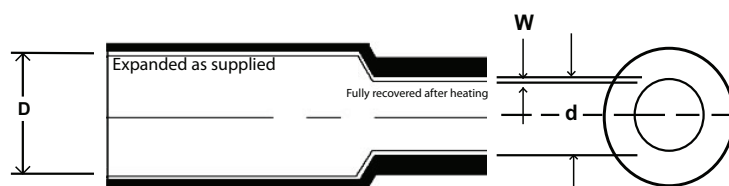
#### Features:

- Slips over large and irregular shapes easily
- 3:1 shrink ratio offers application size versatility
- Forms permanent tight mechanical bond
- Thermally stable
- Can be easily hot stamped for wire identification
- Ideal for connector backshells
- Wire strain relief
- Excellent physical and chemical properties
- Medium duty harnessing
- Electrical/Electronic identification
- Supplied in easy to use 4 foot lengths



#### Stock Colours:

Black is Standard. Spooled lengths available (minimums required). Non-standard colours available. Minimums required for Red, Yellow, Blue, White and, Clear.



PART NUMBER	EXPANDED ID D		RECOVERED ID d		RECOVERED NOMINAL WALL THICKNESS W		STANDARD PUT-UP
	in	mm	in	mm	in	mm	
HST/P31-1/16	.063	1.5	.021	0.5	.018	0.45	100
HST/P31-1/8	.125	3.0	.041	1.0	.022	0.55	100
HST/P31-1/4	.250	6.0	.083	2.0	.026	0.65	100
HST/P31-3/8	.375	9.0	.125	3.0	.030	0.75	100
HST/P31-1/2	.500	12.0	.167	4.0	.030	0.75	100
HST/P31-3/4	.750	18.0	.250	6.0	.040	1.00	100
HST/P31-1	1.000	24.0	.333	8.0	.040	1.00	100
HST/P31-1-1/2	1.500	39.0	.500	13.0	.045	1.15	100

#### Description:

Over expanded general purpose Polyolefin with excellent physical and chemical properties. Ideal for use in bundling wire and cable and over irregularly shaped components.

#### Specifications:

UL 224 VW-1  
MIL-DTL-23053/5  
(Exception taken to recovered dimensions)

#### Properties:

Shrinkage Ratio: 33% (3:1) @ 100°C  
Longitudinal Shrinkage: ±15% (maximum)  
Operating Temperature Range: -75°C to +135°C  
Dielectric Strength: 625 V/mil  
UL Rating: 600V @ 125°C  
Specific Gravity: 1.30  
Tensile Strength: 2,100 psi  
Ultimate Elongation: 300%

#### Hot Stamped Tubing and Cable Markers:

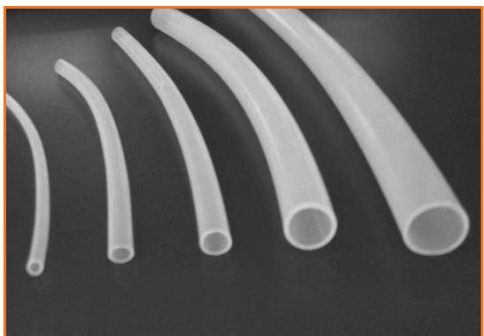
For markers made to order, regardless of quantities, the Hot Stamped Wire and Cable Markers can be made from various tubing materials to code, identify, protect, or advertise a cable assembly or circuit installation or terminals. We can also imprint company logos and custom symbols on Polyolefin shrink tubing products. Send drawings or sketches for quotation to our Sales Department.

# Protective Sleeving

## FEP TEFLON HEAT SHRINKABLE SLEEVING

J10

### Heat Shrinkable Sleeving, FEP Teflon



#### Description:

Heat shrinkable HST/TEF is a high temperature 204°C (400°F) FEP Teflon shrink tubing signed for tight protection of components subject to severe heat, shock and adverse environments.

PART NUMBER	EXPANDED ID <b>D</b>		RECOVERED ID <b>d</b>		RECOVERED NOMINAL WALL THICKNESS <b>W</b>		M23053/11-MIL STD SIZE CODE
	in	mm	in	mm	in	mm	
HST/TEF-24	.031	0.79	.027	0.69	.008	0.20	01
HST/TEF-22	.036	0.91	.032	0.81	.008	0.20	02
HST/TEF-20	.045	1.14	.039	0.99	.008	0.20	03
HST/TEF-18	.060	1.50	.049	1.24	.008	0.20	04
HST/TEF-16	.075	1.90	.061	1.55	.009	0.23	05
HST/TEF-14	.092	2.30	.072	1.83	.009	0.23	06
HST/TEF-12	.115	2.90	.089	2.26	.009	0.23	07
HST/TEF-10	.141	3.60	.114	2.89	.010	0.25	08
HST/TEF-09	.158	4.00	.124	3.15	.010	0.25	09
HST/TEF-08	.180	4.60	.143	3.63	.010	0.25	10
HST/TEF-07	.197	5.00	.158	4.01	.011	0.27	11
HST/TEF-06	.225	5.70	.180	4.57	.011	0.27	12
HST/TEF-05	.248	6.30	.198	5.03	.011	0.27	13
HST/TEF-04	.290	7.40	.226	5.74	.011	0.27	14
HST/TEF-03	.310	7.90	.249	6.32	.011	0.27	15
HST/TEF-02	.365	9.30	.280	7.11	.012	0.30	16
HST/TEF-01*	.400	10.20	.311	7.90	.012	0.30	17
HST/TEF-0	.440	11.20	.349	8.86	.012	0.30	18
HST/TEF-3/8	.500	12.70	.383	9.73	.015	0.38	19
HST/TEF-7/16	.580	14.70	.448	11.38	.020	0.51	20
HST/TEF-1/2	.666	16.90	.510	12.95	.020	0.51	21
HST/TEF-5/8	.830	21.10	.637	16.18	.025	0.63	22
HST/TEF-3/4	1.000	25.40	.764	19.40	.030	0.76	23
HST/TEF-7/8	1.170	29.70	.891	22.63	.035	0.89	24
HST/TEF-1*	1.330	33.80	1.020	25.90	.035	0.89	25

#### Specifications:

UL Recognized  
CSA Listed  
MIL-DTL-23053/11 CL 1

#### Properties:

Shrinkage Ratio: 1.3:1 (approximately 25%)  
Longitudinal Shrinkage: ±10% (maximum)  
Operating Temperature Range: -67°C to +204°C  
Dielectric Strength: 2,000 V/mil  
UL Rating: 150V @ 200°C  
Volume Resistivity: 10<sup>17</sup> ohm-cm (minimum)  
Specific Gravity: 2.15 (maximum)  
Tensile Strength: 3,500 psi  
Ultimate Elongation: 300% (minimum)

#### Features:

- Very high heat resistance
- Excellent chemical and solvent resistance
- See-through characteristics for viewing of splices or components
- Outstanding physical and electrical properties
- Excellent cut-through resistance
- Chemically inert
- Will not burn or support flame
- Repairs on high temperature components
- Wide range of sizes
- Supplied in easy to use 4 foot lengths

#### Stock Colours:

Natural (transparent light blue) is Standard. Standard Put-Up 100 feet (25 x 4 feet).

Protective Sleeving

# THICK WALL POLYOLEFIN SELF-SEALING SLEEVING

## Heat Shrinkable Sleeving, Thick Wall Polyolefin – Self-Sealing

J11



**Features:**

- 600V use
- Underground or overhead application
- Waterproofs – Insulates – Seals
- For flexible and semi-rigid drops and trunks
- Fits variety of coaxial cable sizes
- Used with THW, RHW, XLP, THHN, XW cables
- May be used with copper or aluminum cables splices
- No greases or sealants necessary
- Installs in minutes



**Stock Colours:**

Black is Standard. Available in 48", 12" and 6" lengths. Torch is the recommended heat tool for PSS material.



PART NUMBER	EXPANDED ID D		RECOVERED ID d		RECOVERED NOMINAL WALL		M23053/15-MIL STD SIZE
	in	mm	in	mm	in	mm	
HST/PSS-400	.400	10.20	.150	3.8	0.08	2.03	08
HST/PSS-800	.800	20.30	.200	5.1	0.11	2.79	01
HST/PSS-110	1.100	27.90	.370	9.4	0.12	3.05	02
HST/PSS-150	1.500	38.10	.500	12.7	0.17	4.32	03
HST/PSS-170	1.700	43.20	.650	16.5	0.17	4.32	--
HST/PSS-200	2.000	50.80	.750	19.1	0.17	4.32	04
HST/PSS-300	3.000	76.20	1.000	25.4	0.17	4.32	05

**Description:**

Thick wall adhesive lined tubing for use in outdoor and harsh environments. Ideal for cable splices. Equal to or better than similar wire jacketing materials.

**Specifications:**

UL Recognized  
 MIL-DTL-23053/15 CL 1  
 UL 486D (for cable splicing)

**Properties:**

Shrinkage Ratio: Approximately 67% (3:1) @ 121°C  
 Longitudinal Shrinkage: ±10% (maximum)  
 Operating Temperature Range: -55°C to +110°C  
 Dielectric Strength: 500 V/mil  
 UL Rating: 600V  
 Volume Resistivity: 1013 ohm-cm  
 Specific Gravity: 1.28 (minimum)  
 Tensile Strength: 2,400 psi  
 Ultimate Elongation: 475%  
 Water Absorption: 0.02%

**Applications:**

- Moisture proof insulation
- CATV line connectors
- Battery cables
- Cable splices

**Application Note:**

Alternative method to make breakouts more economical, use tubing with mastic, dual wall or melt liners

**Instructions:**

- Step 1: Heat tubing.
- Step 2: Squeeze tubing breakout with pliers.
- Step 3: Allow to cool and set mastic will form bridge seal.

Protective Sleeving

NON-SHRINKABLE  
EXTRUDED PVC SLEEVING

J12

## Non-Shrinkable Sleeving, Extruded PVC

**Description:**

All-purpose, economical extruded plastic tubing with excellent mechanical and electrical properties, self-extinguishing. Designed for general electronic, electrical and aircraft applications involving temperatures as high as 105°C.

**Specifications:**

UL 224 VW-1  
CSA 198 Approved  
MIL-I-631D Type F, Form U, Grade C, CL 1, Category 1

**Properties:**

Operating Temperature Range: -20°C to +105°C  
Dielectric Strength: 800 V/mil  
UL Rating: 600V @ 105°C



Volume Resistivity: 1013 ohm-cm  
Specific Gravity: 1.35 (Black); 1.25 (Clear)  
Tensile Strength: 2,800 psi (minimum)

**Features:**

- Economical tubing
- Highly flexible
- High dielectric strength
- Excellent heat, oil and chemical resistance
- Will not support fungus
- Exceptional abrasion resistance
- Can be easily hot stamped for wire identification
- Indefinite shelf life

**Stock Colours:**

Black is Standard; add suffix -CL for Clear.

Available Colours: White, Yellow, Red, Green (minimums required).

Items shown are for Grade C material per MIL-I-631D (-20°C to +105°C).

Consult factory for quotations for Grade A (-30°C to +85°C) low temperature material (minimums required).

**Hot Stamped Tubing and Cable Markers:**

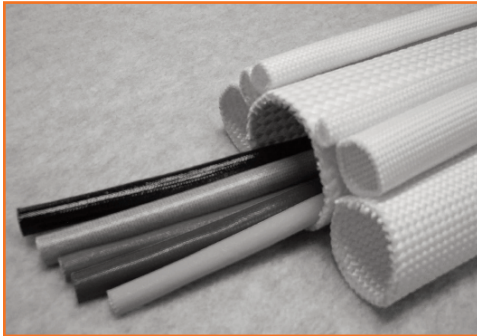
For markers made to order, regardless of quantities, the Hot Stamped Wire and Cable Markers can be made from various tubing materials to code, identify, protect, or advertise a cable assembly or circuit installation or terminals. We can also imprint company logos and custom symbols on Polyolefin shrink tubing products. Send drawings or sketches for quotation to our Sales Department.

PART NUMBER	NOMINAL ID		NOMINAL WALL THICKNESS		STANDARD PUT-UP feet
	in	mm	in	mm	
EVT-24	.022	0.56	.012	0.30	100, 1000 SPOOLS
EVT-22	.027	0.68	.012	0.30	100, 1000 SPOOLS
EVT-20	.034	0.86	.016	0.41	100, 1000 SPOOLS
EVT-19	.038	0.96	.016	0.41	100, 1000 SPOOLS
EVT-18	.042	1.07	.016	0.41	100, 1000 SPOOLS
EVT-17	.047	1.19	.016	0.41	100, 1000 SPOOLS
EVT-16	.053	1.35	.016	0.41	100, 1000 SPOOLS
EVT-15	.059	1.50	.016	0.41	100, 1000 SPOOLS
EVT-14	.066	1.68	.016	0.41	100, 500 SPOOLS
EVT-13	.076	1.93	.016	0.41	100, 500 SPOOLS
EVT-12	.085	2.16	.016	0.41	100, 500 SPOOLS
EVT-11	.095	2.41	.016	0.41	100, 500 SPOOLS
EVT-10	.106	2.69	.016	0.41	100, 500 SPOOLS
EVT-09	.118	3.00	.020	0.50	100, 500 SPOOLS
EVT-08	.133	3.38	.020	0.50	100, 500 SPOOLS
EVT-07	.148	3.76	.020	0.50	100, 500 SPOOLS
EVT-06	.166	4.22	.020	0.50	100, 500 SPOOLS
EVT-05	.186	4.72	.020	0.50	100, 500 SPOOLS
EVT-04	.208	5.28	.020	0.50	100, 250 SPOOLS
EVT-03	.234	5.94	.020	0.50	100, 250 SPOOLS
EVT-02	.263	6.68	.020	0.50	100, 250 SPOOLS
EVT-01	.294	7.47	.020	0.50	100, 250 COILS
EVT-0	.330	8.38	.020	0.50	100, 250 COILS
EVT-5/16	.312	7.92	.025	0.64	100, 250 COILS
EVT-3/8	.375	9.50	.025	0.64	100, 250 COILS
EVT-7/16	.438	11.10	.025	0.64	250 COILS
EVT-1/2	.500	12.70	.025	0.64	100 COILS
EVT-9/16	.562	14.30	.030	0.75	101 COILS
EVT-5/8	.625	15.90	.030	0.75	50 COILS
EVT-3/4	.750	19.10	.035	0.89	50 COILS
EVT-7/8	.875	22.20	.035	0.89	50 COILS
EVT-1	1.000	25.40	.035	0.89	50 COILS
EVT-1-1/8	1.125	28.60	.035	0.89	50 COILS
EVT-1-1/4	1.250	31.70	.040	1.01	50 COILS
EVT-1-3/8	1.375	34.90	.040	1.01	50 COILS
EVT-1-1/2	1.500	38.10	.045	1.14	50 COILS
EVT-1-3/4	1.750	44.40	.055	1.40	50 COILS
EVT-2	2.000	50.80	.060	1.52	50 COILS
EVT-2-1/4	2.250	57.10	.065	1.65	50 COILS
EVT-2-1/2	2.500	63.50	.070	1.78	50 COILS

## HIGH TEMPERATURE, ACRYLIC COATED FIBERGLASS - POLYESTER SLEEVING

Fiberglass – Polyester Sleeving – High Temperature – Acrylic Coated

J13



### Description:

Specially designed fiberglass sleeving coated with a thermally stable, flexible, acrylic resin for wire and cable protection in electrical equipment. Most economical and versatile of all coated sleeving products.

### Specifications:

UL Recognized  
(AF-155A Grade A only)  
MIL-I-3190/3  
NEMA VS-1  
ASTM D 372



PART NUMBER	NOMINAL ID		STANDARD PUT-UP feet	M3190/3- MIL STD SIZE CODE
	in	mm		
FSHT/AC-24	.022	0.56	100,500	01
FSHT/AC-22	.027	0.68	100,500	02
FSHT/AC-20	.034	0.86	100,500	03
FSHT/AC-18	.042	1.07	100,500	04
FSHT/AC-17	.047	1.19	100,500	05
FSHT/AC-16	.053	1.35	100,500	06
FSHT/AC-15	.059	1.50	100,500	07
FSHT/AC-14	.066	1.68	100,500	08
FSHT/AC-13	.076	1.93	100,250	09
FSHT/AC-12	.085	2.16	100,250	10
FSHT/AC-11	.095	2.41	100,250	11
FSHT/AC-10	.106	2.69	100,250	12
FSHT/AC-09	.118	3.00	100,250	13
FSHT/AC-08	.133	3.38	100,250	14
FSHT/AC-07	.148	3.76	100,250	15
FSHT/AC-06	.166	4.22	100,250	16
FSHT/AC-05	.186	4.72	100,250	17
FSHT/AC-04	.206	5.23	100,250	18
FSHT/AC-03	.234	5.94	100,250	19
FSHT/AC-02	.263	6.68	100,250	20
FSHT/AC-01	.294	7.47	125	21
FSHT/AC-0	.330	8.38	125	22
FSHT/AC-3/8	.387	9.83	125	23
FSHT/AC-7/16	.450	11.40	125	24
FSHT/AC-1/2	.512	13.00	100	25
FSHT/AC-5/8	.640	16.20	100	26
FSHT/AC-3/4	.768	19.50	100	27
FSHT/AC-7/8	.802	22.70	100	28
FSHT/AC-1	1.018	25.90	100	29

### Properties:

Temperature Class F: 155°C  
Low Temperature Brittleness: -30°C  
Dielectric Strength:  
AF-155 (Grade C-1):  
3,000 V/mil  
AF-155A (Grade A):  
8,800 V/mil

### Features:

Economical tubing  
High heat resistance  
Extremely flexible  
Resists cracking or splitting  
Excellent abrasion and cut-through  
resistance  
Superior mechanical and electrical  
properties  
Excellent chemical resistance  
Will not support flame  
Economical  
Supplied in spooled lengths to  
minimize waste

### Stock Colours:

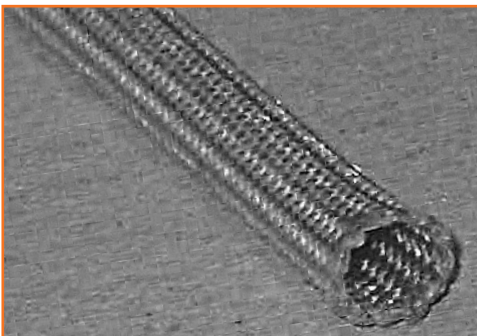
Natural (White) is Standard. Stock  
Grade: C-1, Grade A material  
available, order FSHT/AC-A, contact  
factory for minimums. Other colours  
available, contact factory. Not QPL  
Listed.

# Protective Sleeving

## BRAIDED FIBERGLASS UNCOATED SLEEVING

J14

### Fiberglass Sleeving – High Temperature – Uncoated



#### Description:

Heat-treated braided fiberglass designed to improve protection of wires while maintaining flexibility.

#### Specifications:

UL VW-1  
NEMA VS-1

#### Properties:

Temperature Class C: +240°C

Intermittent Temperature Range: -75°C to +648°C guaranteed value

Dielectric Strength: Determined by a space factor



PART NUMBER	NOMINAL ID		NOMINAL WALL THICKNESS		STANDARD PUT-UP feet
	in	mm	in	mm	
T500MB-24	.022	0.56	.012	.030	100, 1000
T500MB-22	.027	0.68	.012	.030	100, 1000
T500MB-20	.034	0.86	.012	.030	100, 1000
T500MB-18	.042	1.07	.012	.030	100, 1000
T500MB-17	.047	1.19	.013	.033	100, 1000
T500MB-16	.053	1.35	.013	.033	100, 500
T500MB-15	.059	1.50	.015	.038	100, 500
T500MB-14	.066	1.68	.015	.038	100, 500
T500MB-13	.076	1.93	.015	.038	100, 250
T500MB-12	.085	2.16	.015	.038	100, 250
T500MB-11	.095	2.41	.015	.038	100, 250
T500MB-10	.106	2.69	.015	.038	100, 250
T500MB-09	.118	3.00	.015	.038	100, 250
T500MB-08	.133	3.38	.015	.038	100, 250
T500MB-07	.148	3.76	.015	.038	100, 250
T500MB-06	.166	4.22	.015	.038	100, 250
T500MB-05	.186	4.72	.015	.038	100, 250
T500MB-04	.206	5.23	.015	.038	100, 250
T500MB-03	.234	5.94	.018	.046	100, 250
T500MB-02	.263	6.68	.018	.046	100, 250
T500MB-01	.294	7.47	.018	.046	125
T500MB-0	.330	8.38	.018	.046	125
T500MB-3/8	.387	9.83	.022	.056	125
T500MB-7/16	.450	11.40	.022	.056	125
T500MB-1/2	.512	13.00	.022	.056	100
T500MB-5/8	.640	16.20	.022	.056	100
T500MB-3/4	.768	19.50	.022	.056	100
T500MB-7/8	.802	22.70	.022	.056	100
T500MB-1	1.018	25.90	.022	.056	100

#### Features:

- High heat resistance
- Extremely flexible
- Good mechanical properties
- Excellent chemical properties
- Supplied in spooled lengths for minimize waste

#### Stock Colours:

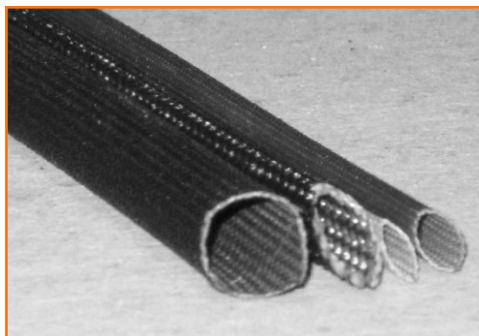
Natural (Silver) is Standard.  
Saturated types and colours available, contact factory.

Protective Sleeving

**BRAIDED FIBERGLASS  
SATURATED SLEEVING**

## Fiberglass Sleeving High Temperature – Saturated Sleeving

J15

**Description:**

Heat-treated acrylic saturated braided fiberglass is tightly woven, flexible, 100% electrical grade.

**Specifications:**

UL VW  
NEMA TF-2  
ASTM D 350 / 372  
MIL-Y-1140H  
Ford ESE-M12G17-B

**Properties:**

Temperature Class C: 240°C

Provides thermal and space factor insulation at temperatures from -59°C up to 650°C and has a continuous operating temperature of 450°C.

**Features:**

- High heat resistance
- Extremely flexible
- Good mechanical properties
- Excellent chemical properties
- Supplied in spooled lengths for minimize waste
- Used in high temperature, low voltage applications and wherever repeated flexing or temperature extremes prohibit the use of other materials. Its expandability and flexibility enables it to slip over irregular shapes and electrical connections to provide effective thermal, mechanical and electrical protection.

**Stock Colours:**

Natural(Tan) & Black is Standard. Other colours available, contact factory.

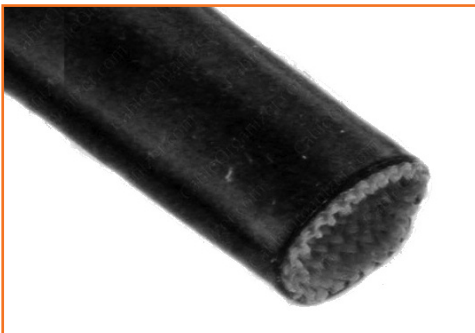
PART NUMBER	NOMINAL ID		NOMINAL WALL THICKNESS		STANDARD PUT-UP
	in	mm	in	mm	
TB1200MB-22	.029	0.74	.025	.032	1000
TB1200MB-20	.036	0.91	.032	.039	1000
TB1200MB-18	.044	1.12	.040	.049	1000
TB1200MB-17	.049	1.24	.045	.054	1000
TB1200MB-16	.056	1.42	.051	.061	1000
TB1200MB-15	.062	1.57	.057	.067	1000
TB1200MB-14	.069	1.75	.064	.074	1000
TB1200MB-13	.077	1.96	.072	.082	1000
TB1200MB-12	.086	2.18	.081	.091	1000
TB1200MB-11	.096	2.44	.091	.101	1000
TB1200MB-10	.107	2.72	.102	.112	1000
TB1200MB-09	.119	3.02	.114	.124	1000
TB1200MB-08	.135	3.43	.129	.141	1000
TB1200MB-07	.148	3.76	.144	.158	1000
TB1200MB-06	.166	7.22	.162	.178	1000
TB1200MB-05	.186	4.72	.182	.198	500
TB1200MB-04	.208	5.28	.204	.224	500
TB1200MB-03	.234	5.94	.229	.249	500
TB1200MB-02	.263	6.68	.258	.278	500
TB1200MB-01	.294	7.47	.289	.311	250
TB1200MB-0	.330	8.38	.325	.347	250
TB1200MB-3/8	.387	9.83	.375	.399	250
TB1200MB-7/16	.450	11.43	.438	.462	250
TB1200MB-1/2	.512	13.00	.500	.524	250
TB1200MB-5/8	.640	16.26	.625	.655	250
TB1200MB-3/4	.893	22.68	.875	.991	100
TB1200MB-7/8	1.018	25.86	1.000	1.036	100
TB1200MB-1	1.143	29.03	1.125	1.161	100

# Protective Sleeving

## BRAIDED FIBERGLASS VINYL COATED SLEEVING

J16

### Fiberglass Sleeving – High Temperature – Vinyl Coated



#### Description:

Fiberglass sleeving coated with a specially formulated vinyl compound to provide the maximum in electrical characteristics, chemical resistance, heat stability and abrasion resistance.

#### Specifications:

UL Recognized  
VW-1 (PF-130A – Grade A only)  
MIL-I-3190/2  
NEMA VS-1



PART NUMBER	NOMINAL ID		NOMINAL WALL THICKNESS		STANDARD PUT-UP feet	M3190/2- MIL STD SIZE CODE
	in	mm	in	mm		
FSHT/VC-24	.022	0.56	.030	0.76	100, 500	01
FSHT/VC-22	.027	0.68	.030	0.76	100, 500	02
FSHT/VC-20	.034	0.86	.030	0.76	100, 500	03
FSHT/VC-19	.038	0.96	.030	0.76	100, 500	--
FSHT/VC-18	.042	1.07	.030	0.76	100, 500	04
FSHT/VC-17	.047	1.19	.030	0.76	100, 500	05
FSHT/VC-16	.053	1.35	.030	0.76	100, 500	06
FSHT/VC-15	.059	1.50	.030	0.76	100, 500	07
FSHT/VC-14	.066	1.68	.045	1.14	100, 500	08
FSHT/VC-13	.076	1.93	.045	1.14	100, 250	09
FSHT/VC-12	.085	2.16	.045	1.14	100, 250	10
FSHT/VC-11	.095	2.41	.045	1.14	100, 250	11
FSHT/VC-10	.106	2.69	.045	1.14	100, 250	12
FSHT/VC-09	.118	3.00	.045	1.14	100, 250	13
FSHT/VC-08	.133	3.38	.045	1.14	100, 250	14
FSHT/VC-07	.148	3.76	.045	1.14	100, 250	15
FSHT/VC-06	.166	4.22	.045	1.14	100, 250	16
FSHT/VC-05	.186	4.72	.045	1.14	100, 250	17
FSHT/VC-04	.206	5.23	.045	1.14	100, 250	18
FSHT/VC-03	.234	5.94	.045	1.14	100, 250	19
FSHT/VC-02	.263	6.68	.055	1.40	100, 250	20
FSHT/VC-01	.294	7.47	.055	1.40	125	21
FSHT/VC-0	.330	8.38	.055	1.40	125	22
FSHT/VC-3/8	.387	9.83	.055	1.40	125	23
FSHT/VC-7/16	.450	11.40	.065	1.65	125	24
FSHT/VC-1/2	.512	13.00	.065	1.65	100	25
FSHT/VC-5/8	.640	16.20	.065	1.65	100	26
FSHT/VC-3/4	.768	19.50	.075	1.90	100	27
FSHT/VC-7/8	.802	22.70	.075	1.90	100	28
FSHT/VC-1	1.018	25.90	.075	1.90	50	29

#### Properties:

Temperature Class B: +130°C  
Low Temperature Brittleness: -40°C  
Dielectric Strength:  
PF-130 Grade B: 4,000 V/mil  
PF-130A Grade A: 8,000 V/mil

#### Applications:

- Electric motors
- For generators as resistor leads
- Environments requiring high flexibility

#### Features:

- High heat resistance
- Extremely flexible
- Resists cracking or splitting
- Excellent abrasion and cut-through resistance
- Excellent chemical and solvent resistance
- Superior mechanical and electrical properties
- Will not support flame
- Heat-treated for roundness
- Excellent colour retention
- Non-fraying when cut
- Supplied in spooled lengths for minimize waste

#### Stock Colours:

Black only. Stock Grade B

Protective Sleeving



## BRAIDED FIBERGLASS SILICON RUBBER COATED SLEEVING

Fiberglass Sleeving – High Temperature – Silicon Rubber Coated

J17



### Description:

Fiberglass sleeving coated with a silicon formulation to provide exceptional flexibility in extreme temperature ranges.

### Specifications:

UL 1441 Recognized  
CSA Listed  
MIL-I-3190/6  
NEMA VS-1  
ASTM D-372  
ASTM D-350



PART NUMBER	NOMINAL ID		NOMINAL WALL THICKNESS		STANDARD PUT-UP	M3190/6-MIL STD SIZE CODE
	in	mm	in	mm	feet	
FSHT/SR-24	.022	0.56	.030	0.76	100, 500	01
FSHT/SR-22	.027	0.68	.030	0.76	100, 500	02
FSHT/SR-20	.034	0.86	.030	0.76	100, 500	03
FSHT/SR-18	.042	1.07	.030	0.76	100, 500	04
FSHT/SR-17	.047	1.19	.030	0.76	100, 500	05
FSHT/SR-16	.053	1.35	.030	0.76	100, 500	06
FSHT/SR-15	.059	1.50	.030	0.76	100, 500	07
FSHT/SR-14	.066	1.68	.045	1.14	100, 500	08
FSHT/SR-13	.076	1.93	.045	1.14	100, 250	09
FSHT/SR-12	.085	2.16	.045	1.14	100, 250	10
FSHT/SR-11	.095	2.41	.045	1.14	100, 250	11
FSHT/SR-10	.106	2.69	.045	1.14	100, 250	12
FSHT/SR-09	.118	3.00	.045	1.14	100, 250	13
FSHT/SR-08	.133	3.38	.045	1.14	100, 250	14
FSHT/SR-07	.148	3.76	.045	1.14	100, 250	15
FSHT/SR-06	.166	4.22	.045	1.14	100, 250	16
FSHT/SR-05	.186	4.72	.045	1.14	100, 250	17
FSHT/SR-04	.206	5.23	.045	1.14	100, 250	18
FSHT/SR-03	.234	5.94	.045	1.14	100, 250	19
FSHT/SR-02	.263	6.68	.055	1.40	100, 250	20
FSHT/SR-01	.294	7.47	.055	1.40	100	21
FSHT/SR-0	.330	8.38	.055	1.40	100	22
FSHT/SR-3/8	.387	9.83	.055	1.40	100	23
FSHT/SR-7/16	.450	11.40	.065	1.65	100	24
FSHT/SR-1/2	.512	13.00	.065	1.65	100	25
FSHT/SR-5/8	.640	16.20	.065	1.65	100	26
FSHT/SR-3/4	.768	19.50	.075	1.90	100	27
FSHT/SR-7/8	.802	22.70	.075	1.90	100	28
FSHT/SR-1	1.018	25.90	.075	1.90	100	29

### Properties:

Temperature Class H: +200°C  
Low Temperature Brittleness: -70°C  
Dielectric Strength: 8,000 V/mil

### Features:

- High heat resistance
- Extremely resilient
- Long service life
- Extremely durable
- Excellent abrasion and cut-through resistance
- Excellent performance throughout temperature range
- Outstanding chemical and solvent resistance
- High tear strength
- Outstanding ozone, corona and weathering properties
- Will not support flame
- Supplied in spooled lengths for minimize waste

### Stock Colours:

White (Natural) is Standard. Other colours available, contact factory for minimums.

## BRAIDED POLYETHYLENE TEREPHTHALATE (PET)

J18

### General Purpose Expandable Braided Monofilament Sleeving



#### Description:

Tough, lightweight expandable sleeving made of specially formulated Polyethylene Terephthalate (PET) .010" (10mil) monofilaments braided into a cylindrical sleeve.

#### Specifications:

UL & CSA Recognized Component:  
UL File #E131769, CSA File #LR92464  
Ford E8ZB-18K459-AA (Chart)  
Ford E77H-18K459-AA (Chart)  
Ford E9TB-18K459-CA (Chart)  
Chrysler 441414566 (Chart)  
RoHS and WEEE compliant.



#### General Purpose Expandable Sleeving Dimensions

PART NUMBER	Nominal I.D. (inches)	Nominal I.D. (mm)	Size Range (inches)	Standard Put up (feet)	Approximate Weight (lbs/1000 ft)
PETS/GP-321	1/8	3.18	3/32 - 9/32	1000	1.8
PETS/GP-481	1/4	6.35	1/8 - 3/8	1000	2.7
PETS/GP-243	1/4	6.35	1/8 - 3/8	1000	3.9
PETS/GP-363	3/8	9.53	3/16 - 5/8	500	5.7
PETS/GP-483	1/2	12.70	1/4 - 3/4	500	7.4
PETS/GP-683	3/4	19.05	1/2 - 1 1/4	100	10.4
PETS/GP-963	1 1/4	31.75	3/4 - 1 3/4	100	15.9
PETS/GP-964	1 3/4	44.45	1 - 2 1/2	100	19.6
PETS/GP-1204	2	50.80	1 1/4 - 2 3/4	100	18.5
PETS/GP-1205	2 1/2	63.50	1 1/2 - 3 1/4	100	30.0
PETS/GP-1206	3	76.20	2 - 4	50	34.0

#### Properties:

Rated for continuous use between -70°C to +125°C and can stand intermittent operation up to 150°C

#### Applications & Features:

Expandable monofilament braided sleeveings provide a tough, durable protection over tubing, hoses, wire, wire bundles, wire harnesses, cable assemblies and flat ribbon cable without adding critical weight, bulk and extra cost. The resistance of the polyester monofilaments to most oils, salt water, fuels, cleaners, solvents and chemicals makes it ideal for applications in harsh environments and in electronics, marine, and industrial wire harness applications. It exhibits excellent stretch and flexibility even at low temperatures making it ideal for applications in machine tools, robotics, automated equipment and wherever exposure to extreme weather conditions is a concern..

#### Characteristics of General Purpose Expandable Sleeveings

Property	Test Method	Performance
Tensile strength	ASTM D 876	100,000 psi
Elongation	ASTM D 876	25%
Specific Gravity	ASTM D 792	1.31
Moisture Absorption 24 hours	ASTM D 570	0.08%
Shrinkage @ 180°C		4%
Max. Operating temp.	UL 224	150°C
Melt Temperature	ASTM D 2117	250°C
Low Temp. Flexibility	MIL I 23053	-70°C
Flammability	UL 224	Does not burn
Thermal Aging	ASTM D 3045	175°C for 3 hrs.
Flexural Modules 10 <sup>3</sup> psi @ 73°	ASTM D 790	400
Fungus Resistance	MIL STD 810 (508)	No Growth
Copper Corrosiveness	MIL I 23053	No effect

#### Stock Colours:

Black is Standard. Other colours available, please contact factory.

## BRAIDED POLYETHYLENE TEREPHTHALATE (PET)

### Flame Retardent Expandable Braided Monofilament Sleeving

J19



#### Description:

Tough, lightweight expandable sleeving made of specially formulated Flame Retardent Polyethylene Terephthalate (PET) .010" (10mil) monofilaments braided into a cylindrical sleeve.

#### Specifications:

Complies with UL 1441 VW-1  
UL & CSA VW-1 Recognized Component:  
UL File #E131769, CSA File #LR92464  
Ford E8ZB-18K459-AA (Chart)  
Ford E77H-18K459-AA (Chart)  
Ford E9TB-18K459-CA (Chart)  
Chrysler 441414566 (Chart)



Halogen Free (HF). RoHS and WEEE compliant.

#### Flame Retardent Expandable Sleeving Dimensions

PART NUMBER	Nominal I.D. (inches)	Nominal I.D. (mm)	Size Range (inches)	Standard Put up (feet)	Approximate Weight (lbs/1000 ft)
PETS/FR-321	1/8	3.18	3/32 - 9/32	1000	1.8
PETS/FR-481	1/4	6.35	1/8 - 3/8	1000	2.7
PETS/FR-243	1/4	6.35	1/8 - 3/8	1000	3.9
PETS/FR-363	3/8	9.53	3/16 - 5/8	500	5.7
PETS/FR-483	1/2	12.70	1/4 - 3/4	500	7.4
PETS/FR-683	3/4	19.05	1/2 - 1 1/4	100	10.4
PETS/FR-963	1 1/4	31.75	3/4 - 1 3/4	100	15.9
PETS/FR-964	1 1/4	44.45	1 - 2 1/2	100	19.6
PETS/FR-1204	2	50.80	1 1/4 - 2 3/4	100	18.5
PETS/FR-1205	2 1/2	63.50	1 1/2 - 3 1/4	100	30.0
PETS/FR-1206	3	76.20	2 - 4	50	34.0

#### Properties:

Rated for continuous use between -70°C to +125°C and can stand intermittent operation up to 150°C

#### Applications & Features:

Expandable monofilament braided sleeveings provide a tough, durable protection over tubing, hoses, wire, wire bundles, wire harnesses, cable assemblies and flat ribbon cable without adding critical weight, bulk and extra cost. The resistance of the polyester monofilaments to most oils, salt water, fuels, cleaners, solvents and chemicals makes it ideal for applications in harsh environments and in electronics, marine, and industrial wire harness applications. It exhibits excellent stretch and flexibility even at low temperatures making it ideal for applications in machine tools, robotics, automated equipment and

wherever exposure to extreme weather conditions is a concern. It is also used in aerospace, automotive, electronic, and military applications where flame resistance and selfextinguishing properties are required.

#### Stock Colours:

Available in black with contrasting white tracers or white with contrasting black tracers. For other tracer colors consult the factory.

#### Characteristics of Flame Retardent Expandable Sleeveings

Property	Test Method	Performance
Tensile strength	ASTM D 876	100,000 psi
Elongation	ASTM D 876	25%
Specific Gravity	ASTM D 792	1.31
Moisture Absorption 24 hours	ASTM D 570	0.08%
Shrinkage @ 180°C		4.2%
Max. Operating temp.	UL 224	150°C
Melt Temperature	ASTM D 2117	250°C
Low Temp. Flexibility	MIL I 23053	-70°C
Flammability	UL 224	VW-1/FR-1
Thermal Aging	ASTM D 3045	175°C for 3 hrs.
Flexural Modules 10 <sup>3</sup> psi @ 73°	ASTM D 790	410
Fungus Resistance	MIL STD 810 (508)	No Growth
Copper Corrosiveness	MIL I 23053	No Effect



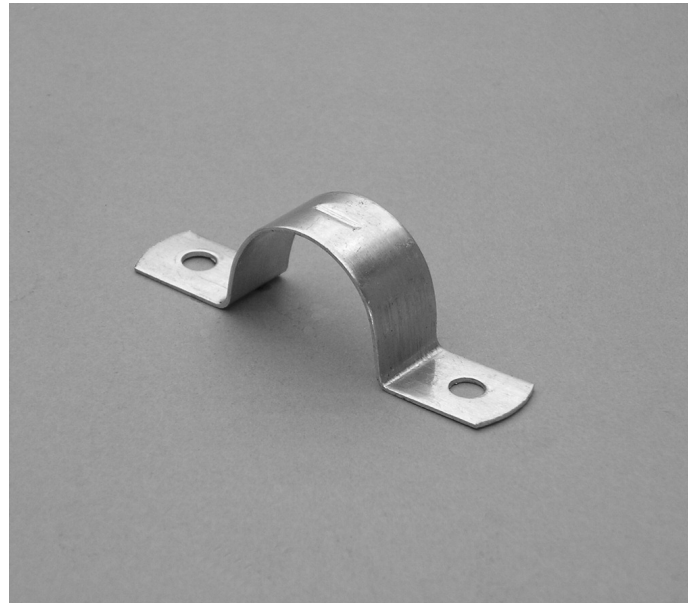


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**SECTION K  
ROUGH-IN  
MATERIALS**

**K1**



ROUGH-IN MATERIALS



**Rough-In Materials**

Two Hole Pipe Straps

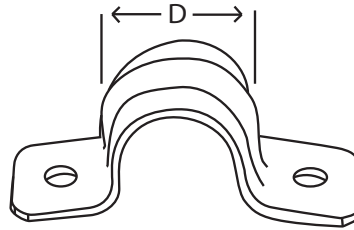
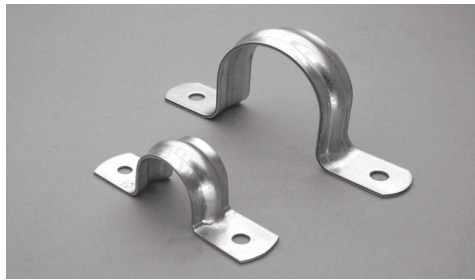
K2

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**Rough-In  
Materials**

**TWO HOLE PIPE & CABLE STRAPS**

K2

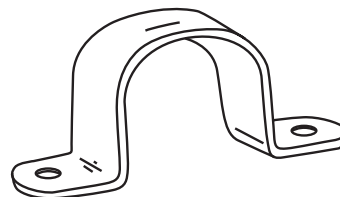
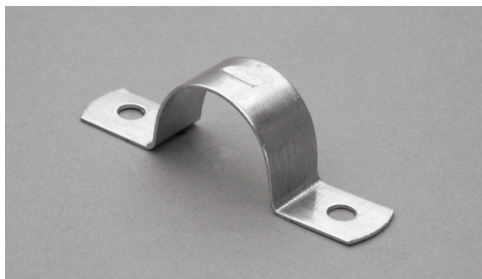


**Two Hole Pipe Straps**

ITEM NUMBER	DIAMETER D	STANDARD PACK
1/2-2PS	1/2"	200
3/4-2PS	3/4"	125
1-2PS	1"	75
1-1/4-2PS	1-1/4"	50
1-1/2-2PS	1-1/2"	40
2-2PS	2"	30
2-1/2-2PS	2-1/2"	25

**Two Hole Pipe Straps for Rigid Conduit**

These Etlin pipe straps are stamped from high-grade heavily galvanized steel. They have a deeply embossed reinforcing rib, and also sufficient hammerhead room. CSA Approved.



**Two Hole Cable Straps**

ITEM NUMBER	CABLE SIZE	FLEX SIZE	STANDARD PACK
#1	14/3, 14/2, 12/3, 12/2	3/8"	200
#3	14/3, 12/3, 10/3, 10/2, 8/2	--	100
#4	8/3, 6/3, 6/2	1/2"	50
#10	14/2, 12/2	--	250
#11	14/2, 12/2, 10/2	--	200

**Two Hole Cable Straps**

The material generally supplied is a special aluminum alloy, although galvanized steel may be supplied when available. Steel straps weigh three times the amount of the aluminum straps.

Rough-In Materials


**ETLIN-DANIELS**

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## SECTION L TOOLS

**M1**

**TOOLS**

### Tools

#### Crimping Tools

Crimping Tool Overview	L2
Tool Specification	L3-L4
Pneumatic	L5
1000 Series	L5
3100 Series	L6
4000 Series	L7
Miscellaneous Tools	L8

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## CRIMPING TOOL OVERVIEW

L2

### Crimping Tools

ITEM NUMBER	DESCRIPTION
111	RATCHET TYPE TOOL FOR BOTH INSULATED AND NON-INSULATED 8-2 AWG
AK38	ROTATING NEST TOOL FOR 8-2 AWG
AK60	ROTATING NEST TOOL FOR 6-1/0 AWG
AC-5N	BENCH MOUNT AIR CRIMP TOOL
ACS-300	PNEUMATIC CRIMP CYLINDER
CT-100	LEVER ACTION TOL FOR 6-4/0 AWG
Y801	MAINTENANCE PLIER FOR INSULATED AND NON-INSULATED 22-10 AWG TERMINALS
Y401	AS ABOVE, FOR INSULATED AND OPEN BARREL DISCONNECTS
YHM61	RATCHET CRIMP TOOL FOR NON-INSULATED 22-8 AWG TERMINALS
YHM88	RATCHET CRIMP TOOL FOR NON-INSULATED 16-6 AWG TERMINALS
YHT2210	RATCHET CRIMP TOOL FOR NON-INSULATED 22-10 AWG TERMINALS
YNM112	RATCHET CRIMP TOOL FOR INSULATED 22-14 AWG TERMINALS
YNM123	RATCHET CRIMP TOOL FOR INSULATED 16-10 AWG TERMINALS
YS2210	3 NEST RATCHET TOOL FOR CLOSED END CONNECTORS 22-10 AWG

Models 5560 PC and ACS-200 have jaws available for a wide range of connectors. Descriptions of these tools are on the pages following.



## TOOL SPECIFICATIONS

## Tool Specifications

L3

**111 Lever Type Heavy Duty Crimp Tool**

Durable heavy-duty crimp tool for #8, #6, #4 and #2 AWG insulated and non-insulated terminals and splices. Wire size is plainly marked on each crimp nest. Comfort designed vinyl grip handles. Length: 19"; Weight: 4.5 lbs


**AK38 Lever Type Heavy Duty Crimp Tool**  
**AK60 Lever Type Heavy Duty Crimp Tool**

Crimps uninsulated terminals without changing dies. Nests rotate in cast aluminum head with no removal necessary – a real time saver.. Save time and labour with this durable, heavy-duty crimp tool with its four built-in crimp nests. Eliminate die changing forever. Simply dial the desired forged steel nest for #8, #6, #4 or #2 AWG uninsulated terminals and crimp. Wire size is plainly marked on each crimp nest in both decimal and metric – no conversion is needed. The head's flat surface construction aids in leverage for handling tough jobs. Comfortable grips are easy on your hands. Attractive nickel-chrome plated steel handles are built strong to take years of hard work and keep performing.

## Features:

- Handle Material: Nickel-Chrome Plated Steel
- Crimp Nest Construction: Hardened Steel Dies
- Grip Construction: Molded Plastic
- Head: Cast Aluminum
- Weight: 6 lbs. Overall Length: 24-<sup>3</sup>/<sub>4</sub>"
- Wire Size (AWG): AK38: #8, #6, #4, #2; AK60: #6, #4, #2, 1/0

**AC-5N Bench Mounted Pneumatic Air Crimp Tool**

Crimps non-insulated terminals: 22-10 AWG; Crimps insulated terminals: 22-10 AWG; Crimps closed end connectors: 22-10 AWG. Lightweight, foot operated, complete with hose and foot pedal. Crimping jaws (listed separately) must be ordered separately.

Length: 7.5"; Weight: 6 lbs.

**ACS-300 Pneumatic Crimp Cylinder**

Small portable lightweight tool designed for crimping closed end connectors in wire range 22-10. Weight: 2.0 lbs; Length: 8.5 inches

**CT-100 Lever Action Crimping Tool**

(Note: this description is for the Hoffman 112 tubular lug crimping tool). Crimps 6 to 4/0 AWG terminals, ideal for field or shop use. Spring action holds lug firmly in place until crimped. Positive stop assures consistent crimp results. Unit may be used with a hammer or vise.


**Y800 Plier Type Crimping Tool**  
**Y401 Plier Type Crimping Tool**

## Features:

- Crimps 22-16, 16-14 and 12-10 terminals
- Wire cutter cuts wire cleanly and quickly (located in nose of unit)
- Insulation stripper strips 22, 18, 14, 12 and 10 AWG sizes
- Bolt cutter cuts five popular bolt sizes – 4-40, 6-32, 8-32, 10-24 and 10-32
- Thread chaser cleans and chases threads for above bolt sizes
- Professional quality, milled steel units ensure accurate operation and long life, versus less expensive stamped tools
- Comfort cushion grip handles alleviate operator hand fatigue
- Y401: Crimps insulated and open barrel disconnects

## TOOL SPECIFICATIONS

L4

## Tool Specifications (cont'd)



YHM61/88

**YHM61 Ratchet Type Crimping Tool****YHM88 Ratchet Type Crimping Tool****YHT2210 Ratchet Type Crimping Tool**

These quality ratchet tools are intended for professional use. All ratchet tools provide a controlled crimp in that the crimp cycle must be completed or the tool will not release. This prevents overcrimping and undercrimping. All tools (wire size 22-6 AWG) have spring-loaded handles which provide automatic release after the cycle has been completed.

YHM61 – For Non-Insulated Terminals

Features:

- Chrome-plated finish with vinyl grip handles
- Multi-terminal size applications
- Rugged construction
- High polished nest and indenter for precision quality crimps
- AWG Wire Range: 22-16, 16-14, 12-10 and 8

YHM88 – For Non-Insulated Terminals

Features:

- Chrome-plated finish with vinyl grip handles
- Multi-terminal size applications
- Rugged construction
- High polished nest and indenter for precision quality crimps
- AWG Wire Range: 16-14, 12-10, 8 and 6

YHT2210 – For Non-Insulated Terminals

Features:

- Rugged construction
- Baked enamel finish
- High polished nest and indenter for precision quality crimps
- AWG Wire Range: 22-16, 16-14 and 12-10



YHT2210

**YNM112 Ratchet Type Crimping Tool**

Features:

- For insulated terminals
- Vinyl-dipped, colour-coded handles (Red/Blue)
- Nickel-Chrome plated steel jaws
- Fully heat-treated
- Crimps two wire sizes
- Crimps barrel and insulation portion of terminal in one operation
- AWG Wire Range: 22-16 and 16-14

**YNM123 Ratchet Type Crimping Tool**

Features:

- For insulated terminals
- Vinyl-dipped, colour-coded handles (Blue/Yellow)
- Nickel-Chrome plated steel jaws
- Fully heat-treated
- Crimps two wire sizes
- Crimps barrel and insulation portion of terminal in one operation
- AWG Wire Range: 16-14 and 12-10

**YS2210 Ratchet Type Crimping Tool**

Features:

- For closed end connectors - 22-10 AWG
- Baked black enamel finish
- Rugged construction
- Cushion grip handles
- Terminal Type: 2218SDB, 1614SDB, CE230, 1210SBD and CE550 Series

## CRIMPING TOOLS

### AC-5N Pneumatic Air Crimp Tool Jaw Sets

L5

JAW NUMBER	FOR CRIMPING	TYPES AND SIZES
AC-1	NON-INSULATED	AWG 22-16, 16-14, 12-10
AC-3	INSULATED	AWG 22-16
AC-4	INSULATED	AWG 16-14
AC-5	INSULATED	AWG 12-10
AC-7	CLOSED END CONNECTORS	2218SDB, 1614SDB SERIES, 1210SDB SERIES
F200	OPEN BARREL QUICK DISCONNECTS	AWG 22-14

### ACS-300 Pneumatic Air Crimp Tool Die Sets

DIE HEAD NUMBER	DESCRIPTION	WIRE SIZE
ADCEAB	CLOSED END CONNECTOR	AWG 16-14
ADCEBD	CLOSED END CONNECTOR	AWG 12-10

### 1000 Series Crimping Tools - Economy Crimp



PART NUMBER	DESCRIPTION
1050 CT	CATV CONNECTOR CRIMP TOOL RG6 AND RG59

Economy Crimp is designed for the occasional user that insists on a reliable termination, yet cannot justify the cost of a full cycle tool. These cost-effective tools are precision manufactured and produce crimps to industry standards. The compact, lightweight construction provides a new level of accuracy and versatility for price sensitive applications.

#### 1050 CT Crimping Tool

Features:

- Straight line jaw closure to a positive stop
- All crimp configurations are manufactured to the same specifications as the full cycle tools
- Wide cushion grips provide a user-friendly feel
- The most cost-effective product available for the occasional user
- Working components are heat-treated to provide longevity

Crimps the RG59 loose piece ferrule on CATV connectors to 0.252 diameter and the RG6 loose piece ferrule to a 0.408 diameter.

## CRIMPING TOOLS

L6

## 3100 Series Crimping Tools - Industry Standard

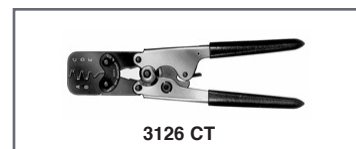
ITEM NUMBER	DESCRIPTION
3120 CT	INSULATED TERMINAL CRIMP TOOL FOR 10-22 AWG FVL SERIES
3125 CT	NON-INSULATED TERMINAL CRIMP TOOL FOR 10-22 AWG
3126 CT	OPEN BARREL CONTACT CRIMP TOOL FOR 10-22 AWG
3140 CT	INSULATED TERMINAL CRIMP TOOL FOR 10-22 AWG FVD SERIES



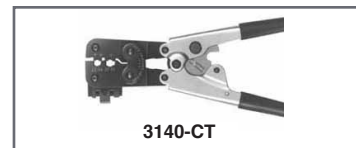
3120 CT



3125-CT



3126 CT



3140-CT

Tools are made of machined and heat-treated high carbon steel. Many other variations of these precision-engineered tools are available. Please call for more information on tools for flat cable, fiber optic and telephone connectors.

### 3120 CT; 3125 CT/3126 CT; 3140 CT Crimping Tools

The 3100 Series, the standard of the industry, the product by which all other crimp tools are judged is available for most connector applications. This tool has been the choice of professionals for over three decades. Longevity of operation coupled with fully machined crimp cavities, provide the level of performance required for the most stringent commercial applications. The years of association with the major connector manufacturers is apparent by the exacting crimps produced by these tools.

#### Features:

- Crimp cavities conforming to industry standards
- Longevity of operation is assured with this time-tested design
- The simple trouble-free full cycle mechanism assures consistent terminations
- Each tool is precisely engineered for a specific requirement
- All crimp cavities are fully machined in high carbon steel, then heat-treated

#### 3120 CT

- Crimps conductor portion of insulated terminals
- Crimps are produced in three cavities:  
Red 22-16 AWG; Blue 16-14 AWG; Yellow 12-10 AWG

#### 3125 CT

- Crimps non-insulated terminals and splices
- Crimps are produced in three cavities:  
22-16 AWG; 16-14 AWG; 12-10 AWG

#### 3126 CT

- Crimps a wide variety of open barrel contacts, including D-subminiature in small size ranges
- Crimps conductor and insulation portion of contacts in separate cavities -- tool must be closed twice to complete termination
- Oval type insulation crimps are produced in two cavities:  
B 20-16 AWG; D 30-22 AWG
- B type conductor crimps are produced in three cavities:  
A 18-16 AWG; C 22-20 AWG; E 30-24 AWG

#### 3140 CT

- Crimps conductor and strain relief portion of insulated terminals and splices in one tool closure
- Crimps are produced in two cavities:  
Red 22-16 AWG/Blue 16-14 AWG; Yellow 12-10 AWG
- A locator and wire stop are provided

## CRIMPING TOOLS

### 4000 Series Crimping Tools - Super Crimp System

L7



PART NUMBER	DESCRIPTION
4190 CT	POWER LUG TERMINAL CRIMP TOOL FOR 2, 4, 6, AND 8 AWG

Tools are made of machined and heat-treated high carbon steel. They have a colour coded crimp cavity for copper compression lugs, a full cycle crimp mechanism with rotating die, and a double indent for short barrels and triple indent for long barrels.

#### 4190 CT Crimping Tool

The 4100 Super Crimp System is designed for the professional that insists on the best commercial grade, full cycle crimp tool available. System integrity is maintained when components are terminated with this durable product. The ergonomic progressive pivoting design provides maximum crimping force with reasonable handle pressure. Fine blanked, high carbon steel construction provides a level of accuracy and performance usually reserved for MIL-SPEC tools. The 4100 series is North American manufactured and backed by over 100 years of quality craftsmanship.

##### Features:

- A multi-purpose frame manufactured to exacting specifications to accept interchangeable dies
- Molded grips and an easy reach frame to minimize user fatigue
- All bearing holes are reamed, pivots are centreless ground and all working components are heat-treated
- Positive ratcheting assembly with emergency release supplied as standard
- Tool life is conservatively rated at 50,000 cycles
- Crimps meet or exceed all UL tensile requirements
- Interlocking die sets are easily interchanged with mounting screws on most product applications

##### Frame Assembly:

The Super Crimp Frame can be ordered separately without dies. The frame is supplied complete with die mounting screws. You can select one or more dies based on your application requirements.

## MISCELLANEOUS TOOLS

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## Cable Tensioning Tools

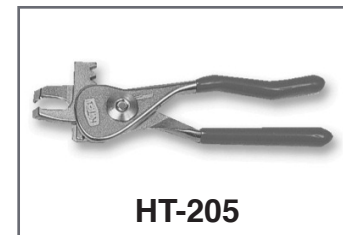
ITEM NUMBER	DESCRIPTION
TG-7	MAINTENANCE PLASTIC CASE TYPE
0998	QUALITY METAL CASE TYPE



**Description TG-7:** Economical, pocket type. WEIGHT: 275 g, For Tie width 2.5~5.0. **0998:** The standard tool fits all standard duty ties. Metal construction has three tension settings and automatically trims excess.

## Strain Relief Pliers

ITEM NUMBER	DESCRIPTION
HT-205	MAINTENANCE PLIER TYPE
IT-100	QUALITY STRAIN RELIEF TOOL



**Description: HT205:** Assembly Tool, Length: 184MM. **IT-100:** For Heavy Power Strain Relief Busing item no. 2P-4 to 6P3-4 series.

## Cable Cutters

ITEM NUMBER	DESCRIPTION
7101	HAND TYPE CABLE CUTTER FOR UP TO 1/2" CABLES
7106	LEVER TYPE CABLE CUTTER FOR UP TO 500 MCM CABLES



**Description 7101:** Max.: 60sq / AWG 1/0 / DIN 50mm. **7106:** Max.: 400sq / AWG 600mcm / DIN 300mm2.



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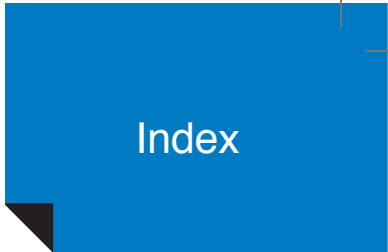
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