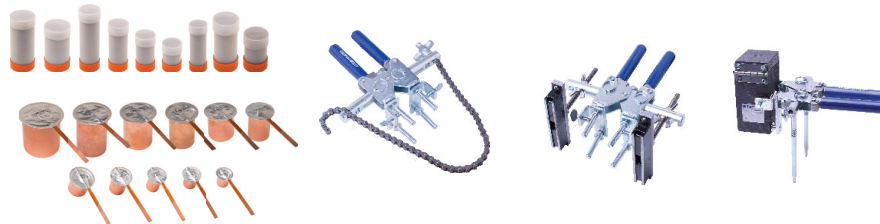
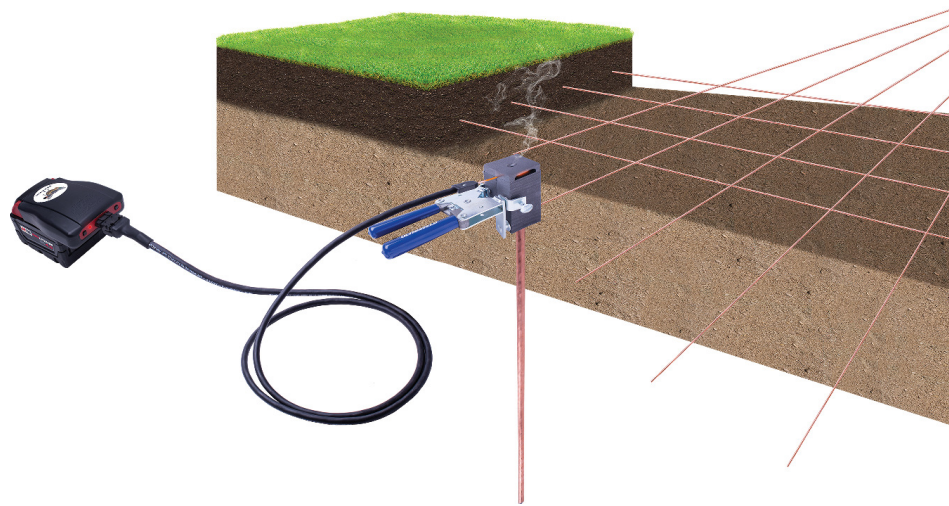


# ULTRAWELD®

## Exothermic Connections Field Catalog



**HARGER**  
847.548.8700  
www.harger.com



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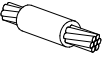










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
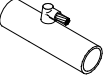

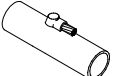


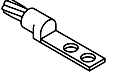
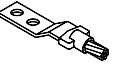
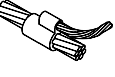
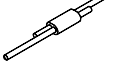
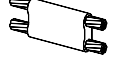
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
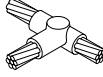







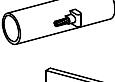

## Connection Types

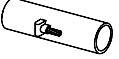




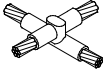
| Connection Type  | Page  |
|--|-------|
|  BS    | 14    |
|  G11  | 56,57 |
|  G21  | 56,57 |
|  G31   | 56,57 |
|  G41   | 56,57 |
|  GD   | 24    |
|  GF   | 26    |
|  GG  | 33    |
|  GO | 28    |
|  GS | 30    |
|  GT | 32    |

| Connection Type   | Page |
|---|------|
|  HB        | 34   |
|  HB (Pipe) | 35   |
|  HD        | 36   |
|  HD (Pipe) | 37   |
|  HT        | 38   |
|  HU        | 39   |
|  LBJ       | 60   |
|  LE       | 58   |
|  PB      | 12   |
|  PS      | 15   |
|  PT      | 16   |



## Connection Types

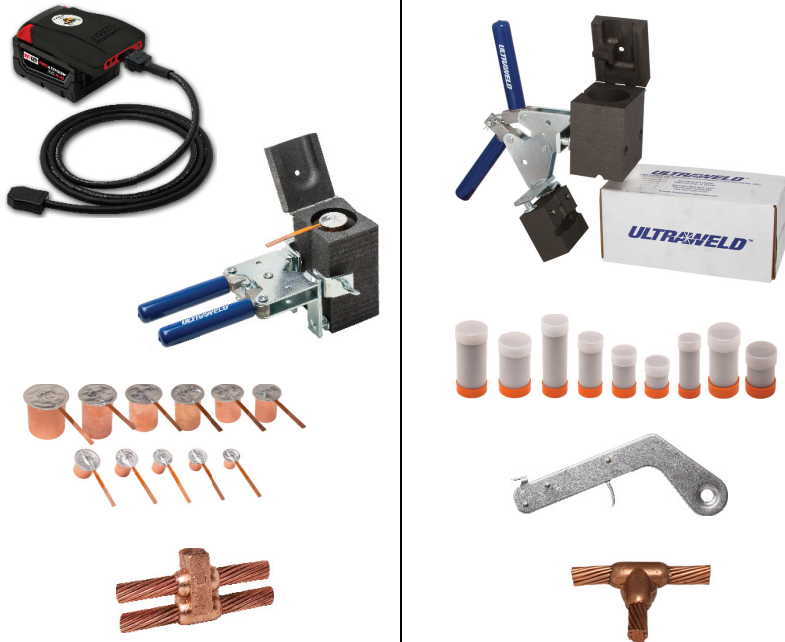
| Connection Type   | Page |
|---|------|
|  RP          | 55   |
|  RT          | 18   |
|  VA          | 40   |
|  VA (Pipe)   | 41   |
|  VD          | 44   |
|  VD (Pipe)   | 45   |
|  VH          | 48   |
|  VH (Pipe) | 49   |
|  VL        | 47   |
|  VL (Pipe) | 50   |
|  VR        | 47   |

| Connection Type   | Page |
|---|------|
|  VR (Pipe) | 50   |
|  VT        | 51   |
|  VT (Pipe) | 52   |
|  VU        | 53   |
|  VU (Pipe) | 54   |
|  XO        | 22   |

For more exothermic connections, please see our Master Catalog.

### Exothermic Process

The Exothermic Process is an effective and safe method of welding copper to copper or copper to steel for the purpose of producing permanent electrical connections. Exothermically welded connections are produced from the energy and molten copper metal liberated from an exothermic reaction between powdered copper oxide and aluminum. The exothermic reaction takes place at a theoretical temperature of 4600°F and as a result, molten copper alloy is created and used to melt the conductors and cast the finished connection. The exothermic reaction takes place in a semi-permanent graphite mold that will last 50 or more welds if properly maintained. The process is simple and easy to implement providing an on-site means to make welded electrical connections without requiring external power, equipment or the special training usually required for brazing and welding. The process will provide a finished connection that will never corrode, loosen or increase in resistance. The finished connection also provides an ampacity that exceeds that of the conductors being joined.



### UltraShot® Drop-In Process



**Step 1:**  
Dry and clean the mold and conductor.



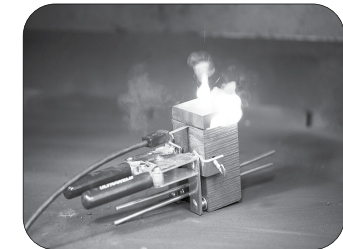
**Step 2:**  
Place conductors and UltraShot cartridge into mold.



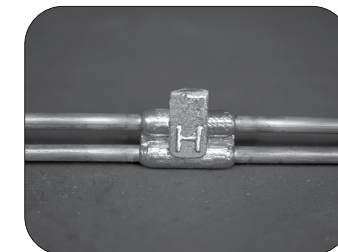
**Step 3:**  
Close the lid and attach DRONE cord to the UltraShot igniter.



**Step 4:**  
Push and hold both igniter buttons at the same time.



**Step 5:**  
Reaction is made, open mold to remove connection and clean mold before next connection.



A completed UltraShot connection

Note: When exothermic welding, always wear proper clothing, safety glasses and gloves. Harger offers UltraShot training. Please contact the factory for more information.

## Introduction

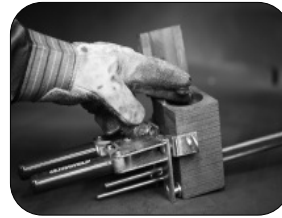
### NUWTube® Pour & Shoot Process



**Step 1:**  
Torch dry the mold before making the first connection.



**Step 2:**  
Clean and dry conductors, insert conductor into mold, close handle clamp and lock mold.



**Step 3:**  
Insert disk into mold.



**Step 4:**  
Remove Clear cap from NUWTube, pour weld metal into mold.



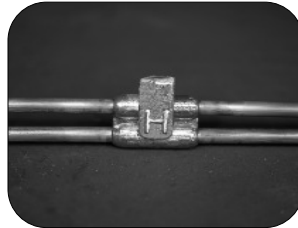
**Step 5:**  
Close Lid, remove Orange cap from starting powder chamber and sprinkle next to ignition hold.



**Step 6:**  
Ignite material located on top of the lid using a flint igniter (FLTIG).



**Step 7:**  
After the connection is complete, open the mold and remove the connection, remove slag and clean mold before making the next connection.



Complete NUWTube® connection

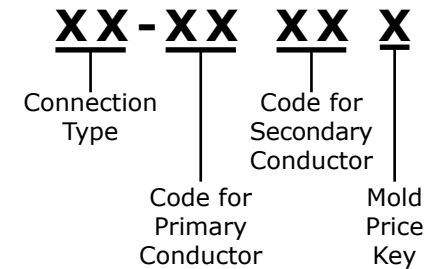
Note: When exothermic welding, always wear proper clothing, safety glasses and gloves. Harger offers Ultraweld training. Please contact the factory for more information.

## Introduction

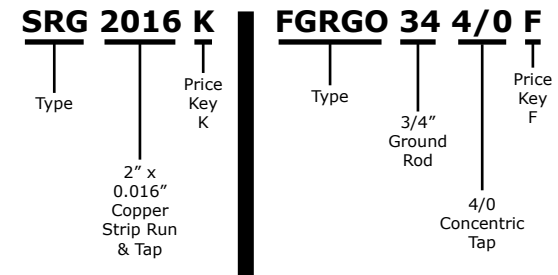
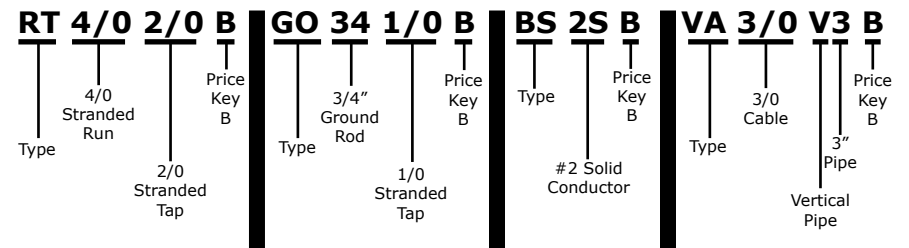
### Mold Numbering System

The Part Number gives, in code, the complete information of the mold.

- Type of connection, conductor size(s) and mold price key.
- Some connection types have more than 2 characters.



### Examples



### Mold Information:

• Price Key is the **Bold Letter** in the Mold Part No.

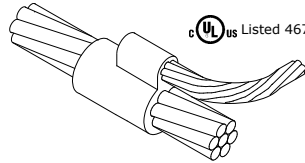
### Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 75)

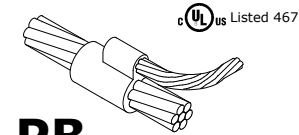
### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRSH1 - Mold Cleaning Brushes (Page 73)



**PB**  
(Parallel Butt)



**PB**  
(Parallel Butt)

### PB Connection Type Continued

| Cable Size |                   | Mold Part No.     | Weld Metal |           |
|------------|-------------------|-------------------|------------|-----------|
| Run        | Tap               |                   | NUWTube    | UltraShot |
| 2/0        | #8 Sol            | PB2/08 <b>SB</b>  | NUWTUBE65  | US65      |
|            | #6 Sol            | PB2/06 <b>SB</b>  | NUWTUBE65  | US65      |
|            | #6                | PB2/06 <b>B</b>   | NUWTUBE65  | US65      |
|            | #4                | PB2/04 <b>B</b>   | NUWTUBE65  | US65      |
|            | #2 Sol            | PB2/02 <b>SB</b>  | NUWTUBE90  | US90      |
|            | #2                | PB2/02 <b>B</b>   | NUWTUBE90  | US90      |
|            | 1/0               | PB2/01/0 <b>B</b> | NUWTUBE115 | US115     |
|            | 2/0               | PB2/02/0 <b>B</b> | NUWTUBE115 | US115     |
| 4/0        | #8 Sol            | PB4/08 <b>SB</b>  | NUWTUBE90  | US90      |
|            | #6 Sol            | PB4/06 <b>SB</b>  | NUWTUBE90  | US90      |
|            | #6                | PB4/06 <b>B</b>   | NUWTUBE90  | US90      |
|            | #4                | PB4/04 <b>B</b>   | NUWTUBE90  | US90      |
|            | #2 Sol            | PB4/02 <b>SB</b>  | NUWTUBE115 | US115     |
|            | #2                | PB4/02 <b>B</b>   | NUWTUBE115 | US115     |
|            | 1/0               | PB4/01/0 <b>B</b> | NUWTUBE115 | US115     |
|            | 2/0               | PB4/02/0 <b>B</b> | NUWTUBE115 | US115     |
| 4/0        | PB4/04/0 <b>B</b> | NUWTUBE150        | US150      |           |



### PB Connection Type

| Cable Size |        | Mold Part No.     | Weld Metal      |           |
|------------|--------|-------------------|-----------------|-----------|
| Run        | Tap    |                   | NUWTube         | UltraShot |
| #6         | #6     | PB66 <b>B</b>     | NUWTUBE25       | US25      |
| #4         | #8 Sol | PB48 <b>SB</b>    | NUWTUBE32       | US32      |
|            | #6 Sol | PB46 <b>SB</b>    | NUWTUBE32       | US32      |
|            | #6     | PB46 <b>B</b>     | NUWTUBE32       | US32      |
|            | #4     | PB44 <b>B</b>     | NUWTUBE32       | US32      |
|            | #2 Sol | #2 Sol            | PB2S2 <b>SB</b> | NUWTUBE65 |
| #2         | #8 Sol | PB28 <b>SB</b>    | NUWTUBE32       | US32      |
|            | #6 Sol | PB26 <b>SB</b>    | NUWTUBE32       | US32      |
|            | #6     | PB26 <b>B</b>     | NUWTUBE32       | US32      |
|            | #4     | PB24 <b>B</b>     | NUWTUBE45       | US45      |
|            | #2     | PB22 <b>B</b>     | NUWTUBE65       | US65      |
| 1/0        | #8 Sol | PB1/08 <b>SB</b>  | NUWTUBE45       | US45      |
|            | #6 Sol | PB1/06 <b>SB</b>  | NUWTUBE45       | US45      |
|            | #6     | PB1/06 <b>B</b>   | NUWTUBE45       | US45      |
|            | #4     | PB1/04 <b>B</b>   | NUWTUBE65       | US65      |
|            | #2 Sol | PB1/02 <b>SB</b>  | NUWTUBE65       | US65      |
|            | #2     | PB1/02 <b>B</b>   | NUWTUBE65       | US65      |
|            | 1/0    | PB1/01/0 <b>B</b> | NUWTUBE90       | US90      |

Continued on next page

## Cable to Cable

### Mold Information:

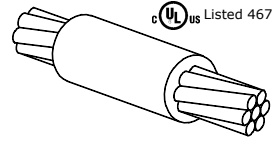
- Price Key is the **Bold Letter** in the Mold Part No.
- Molds with Price Key "L" SOLD WITH HANDLES but not FLTIG.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 75)
- MH2 - Handle for "C" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



**BS**

(Butt Splice Cables)



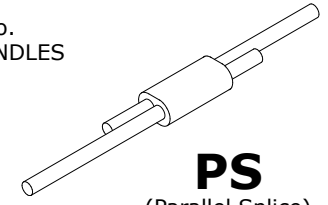
## Cable to Cable

### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.
- Molds with Price Key "L" & "M" SOLD WITH HANDLES but not FLTIG.

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



**PS**

(Parallel Splice)

### BS Connection Type

| Cable Size | Mold Part No.   | Weld Metal   |           |
|------------|-----------------|--------------|-----------|
|            |                 | NUWTube      | UltraShot |
| #6 Sol     | BS6 <b>SL</b>   | NUWTUBE25    | US25      |
| #4         | BS4 <b>L</b>    | NUWTUBE25    | US25      |
| #2 Sol     | BS2 <b>SL</b>   | NUWTUBE32    | US32      |
| #2         | BS2 <b>L</b>    | NUWTUBE32    | US32      |
| 1/0        | BS1/0 <b>B</b>  | NUWTUBE45    | US45      |
| 2/0d       | BS2/0 <b>B</b>  | NUWTUBE65    | US65      |
| 3/0        | BS3/0 <b>B</b>  | NUWTUBE90    | US90      |
| 4/0        | BS4/0 <b>B</b>  | NUWTUBE90    | US90      |
| 250 MCM    | BS25 <b>CMB</b> | NUWTUBE115   | US115     |
| 300 MCM    | BS3 <b>CMB</b>  | NUWTUBE115   | US115     |
| 350 MCM    | BS35 <b>CMB</b> | NUWTUBE150   | US150     |
| 500 MCM    | BS5 <b>CMB</b>  | NUWTUBE200   | US200     |
| 750 MCM    | BS75 <b>CMC</b> | 2-NUWTUBE150 | US300     |
| 1000 MCM   | BS1 <b>MMC</b>  | 2-NUWTUBE200 | US400     |

### PS Connection Type

| Cable Size |        | Mold Part No.   | Weld Metal |           |
|------------|--------|-----------------|------------|-----------|
| Run        | Tap    |                 | NUWTube    | UltraShot |
| #8 Sol     | #8 Sol | PS8 <b>S8SL</b> | NUWTUBE25  | US25      |
| #8         | #8     | PS8 <b>8L</b>   | NUWTUBE25  | US25      |
| #6 Sol     | #6 Sol | PS6 <b>S6SL</b> | NUWTUBE25  | US25      |
| #6         | #6     | PS6 <b>6L</b>   | NUWTUBE25  | US25      |
| #4 Sol     | #4 Sol | PS4 <b>S4SM</b> | NUWTUBE32  | US32      |
| #4         | #4     | PS4 <b>4M</b>   | NUWTUBE32  | US32      |
| #2 Sol     | #2 Sol | PS2 <b>S2SM</b> | NUWTUBE45  | US45      |





### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

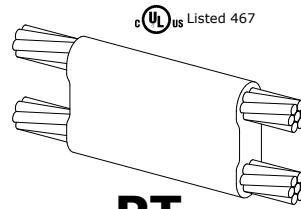
### Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRSH1 - Mold Cleaning Brushes (Page 73)



**PT**

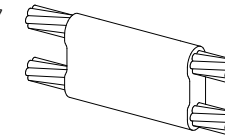
(Parallel Thru Cables)

### PT Connection Type

| Cable Size |                   | Mold Part No.    | Weld Metal       |           |      |
|------------|-------------------|------------------|------------------|-----------|------|
| Run        | Tap               |                  | NUWTube          | UltraShot |      |
| #6         | #6                | PT66 <b>B</b>    | NUWTUBE25        | US25      |      |
| #4         | #8 Sol            | PT48 <b>SB</b>   | NUWTUBE32        | US32      |      |
|            | #8                | PT48 <b>B</b>    | NUWTUBE32        | US32      |      |
|            | #6 Sol            | PT46 <b>SB</b>   | NUWTUBE32        | US32      |      |
|            | #6                | PT46 <b>B</b>    | NUWTUBE32        | US32      |      |
| #2         | #4                | PT44 <b>B</b>    | NUWTUBE32        | US32      |      |
|            | #2 Sol            | PT2S2 <b>SB</b>  | NUWTUBE65        | US65      |      |
|            | #8 Sol            | PT28 <b>SB</b>   | NUWTUBE45        | US45      |      |
|            | #8                | PT28 <b>B</b>    | NUWTUBE45        | US45      |      |
|            | #6 Sol            | PT26 <b>SB</b>   | NUWTUBE45        | US45      |      |
|            | #6                | PT26 <b>B</b>    | NUWTUBE45        | US45      |      |
| #2         | #4                | PT24 <b>B</b>    | NUWTUBE65        | US65      |      |
|            | #2 Sol            | PT22 <b>SB</b>   | NUWTUBE65        | US65      |      |
|            | #2                | PT22 <b>B</b>    | NUWTUBE65        | US65      |      |
|            | #1/0              | #8 Sol           | PT1/08 <b>SB</b> | NUWTUBE65 | US65 |
|            |                   | #8               | PT1/08 <b>B</b>  | NUWTUBE65 | US65 |
|            |                   | #6 Sol           | PT1/06 <b>SB</b> | NUWTUBE65 | US65 |
|            |                   | #6               | PT1/06 <b>B</b>  | NUWTUBE65 | US65 |
| #4         |                   | PT1/04 <b>B</b>  | NUWTUBE65        | US65      |      |
| #2 Sol     |                   | PT1/02 <b>SB</b> | NUWTUBE65        | US65      |      |
| #2         |                   | PT1/02 <b>B</b>  | NUWTUBE65        | US65      |      |
| 1/0        | PT1/01/0 <b>B</b> | NUWTUBE90        | US90             |           |      |

Continued on next page

UL US Listed 467



**PT**

(Parallel Thru Cables)

### PT Connection Type Continued

| Cable Size |        | Mold Part No.     | Weld Metal |           |
|------------|--------|-------------------|------------|-----------|
| Run        | Tap    |                   | NUWTube    | UltraShot |
| 2/0        | #8 Sol | PT2/08 <b>SB</b>  | NUWTUBE65  | US65      |
|            | #8     | PT2/08 <b>B</b>   | NUWTUBE65  | US65      |
|            | #6 Sol | PT2/06 <b>SB</b>  | NUWTUBE90  | US90      |
|            | #6     | PT2/06 <b>B</b>   | NUWTUBE90  | US90      |
|            | #4     | PT2/04 <b>B</b>   | NUWTUBE90  | US90      |
|            | #2 Sol | PT2/02 <b>SB</b>  | NUWTUBE90  | US90      |
|            | #2     | PT2/02 <b>B</b>   | NUWTUBE90  | US90      |
|            | 1/0    | PT2/01/0 <b>B</b> | NUWTUBE115 | US115     |
| 3/0        | 2/0    | PT2/02/0 <b>B</b> | NUWTUBE115 | US115     |
|            | #8 Sol | PT3/08 <b>SB</b>  | NUWTUBE90  | US90      |
|            | #8     | PT3/08 <b>B</b>   | NUWTUBE90  | US90      |
|            | #6 Sol | PT3/06 <b>SB</b>  | NUWTUBE90  | US90      |
|            | #6     | PT3/06 <b>B</b>   | NUWTUBE90  | US90      |
|            | #4     | PT3/04 <b>B</b>   | NUWTUBE115 | US115     |
|            | #2 Sol | PT3/02 <b>SB</b>  | NUWTUBE115 | US115     |
|            | #2     | PT3/02 <b>B</b>   | NUWTUBE115 | US115     |
|            | 1/0    | PT3/01/0 <b>B</b> | NUWTUBE115 | US115     |
|            | 2/0    | PT3/02/0 <b>B</b> | NUWTUBE150 | US150     |
| 4/0        | 3/0    | PT3/03/0 <b>B</b> | NUWTUBE150 | US150     |
|            | #8 Sol | PT4/08 <b>SB</b>  | NUWTUBE90  | US90      |
|            | #8     | PT4/08 <b>B</b>   | NUWTUBE90  | US90      |
|            | #6 Sol | PT4/06 <b>SB</b>  | NUWTUBE90  | US90      |
|            | #6     | PT4/06 <b>B</b>   | NUWTUBE90  | US90      |
|            | #4     | PT4/04 <b>B</b>   | NUWTUBE150 | US150     |
|            | #2 Sol | PT4/02 <b>SB</b>  | NUWTUBE150 | US150     |
|            | #2     | PT4/02 <b>B</b>   | NUWTUBE150 | US150     |
|            | 1/0    | PT4/01/0 <b>B</b> | NUWTUBE150 | US150     |
|            | 2/0    | PT4/02/0 <b>B</b> | NUWTUBE150 | US150     |
|            | 3/0    | PT4/03/0 <b>B</b> | NUWTUBE200 | US200     |
|            | 4/0    | PT4/04/0 <b>B</b> | NUWTUBE200 | US200     |

## Cable to Cable

### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

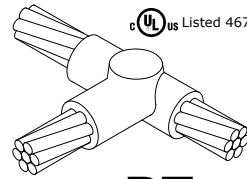
### Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRS1 - Mold Cleaning Brushes (Page 73)



**RT**  
(Run & Tap)

**Horizontal Split  
2-Piece Design**

### RT Connection Type

| Cable Size |        | Mold Part No.     | Weld Metal |           |
|------------|--------|-------------------|------------|-----------|
| Run        | Tap    |                   | NUWTube    | UltraShot |
| #6         | #6     | RT66 <b>B</b>     | NUWTUBE32  | US32      |
| #4         | #4     | RT44 <b>B</b>     | NUWTUBE32  | US32      |
| #2 Sol     | #2 Sol | RT2S2 <b>SB</b>   | NUWTUBE45  | US45      |
| #2         | #6     | RT26 <b>B</b>     | NUWTUBE45  | US45      |
|            | #4     | RT24 <b>B</b>     | NUWTUBE45  | US45      |
|            | #2 Sol | RT22 <b>SB</b>    | NUWTUBE45  | US45      |
|            | #2     | RT22 <b>B</b>     | NUWTUBE45  | US45      |
| 1/0        | #6     | RT1/06 <b>B</b>   | NUWTUBE45  | US45      |
|            | #4     | RT1/04 <b>B</b>   | NUWTUBE45  | US45      |
|            | #2 Sol | RT1/02 <b>SB</b>  | NUWTUBE45  | US45      |
|            | #2     | RT1/02 <b>B</b>   | NUWTUBE45  | US45      |
| 2/0        | 1/0    | RT1/01/0 <b>B</b> | NUWTUBE90  | US90      |
|            | #6     | RT2/06 <b>B</b>   | NUWTUBE45  | US45      |
|            | #4     | RT2/04 <b>B</b>   | NUWTUBE45  | US45      |
|            | #2 Sol | RT2/02 <b>SB</b>  | NUWTUBE45  | US45      |
|            | #2     | RT2/02 <b>B</b>   | NUWTUBE45  | US45      |
|            | 1/0    | RT2/01/0 <b>B</b> | NUWTUBE90  | US90      |
| 3/0        | 2/0    | RT2/02/0 <b>B</b> | NUWTUBE90  | US90      |
|            | #6     | RT3/06 <b>B</b>   | NUWTUBE45  | US45      |
|            | #4     | RT3/04 <b>B</b>   | NUWTUBE45  | US45      |
|            | #2 Sol | RT3/02 <b>SB</b>  | NUWTUBE45  | US45      |
|            | #2     | RT3/02 <b>B</b>   | NUWTUBE45  | US45      |
|            | 1/0    | RT3/01/0 <b>B</b> | NUWTUBE90  | US90      |
|            | 2/0    | RT3/02/0 <b>B</b> | NUWTUBE90  | US90      |
|            | 3/0    | RT3/03/0 <b>B</b> | NUWTUBE115 | US115     |

Continued on next page

## Cable to Cable

### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

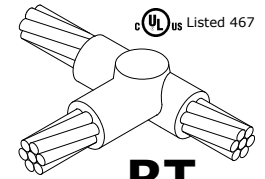
### Required Tools & Accessories:

MH6 - Handle for "I" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

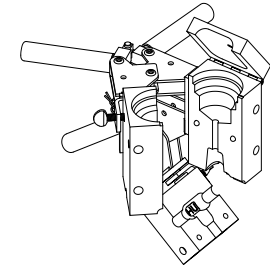
CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRS1 - Mold Cleaning Brushes (Page 73)



**RT**  
(Run & Tap)

**Vertical & Horizontal  
Split  
3-Piece Design**



### RT Connection Type Continued

| Cable Size |         | Mold Part No.       | Weld Metal |           |
|------------|---------|---------------------|------------|-----------|
| Run        | Tap     |                     | NUWTube    | UltraShot |
| 4/0        | #6      | RT4/06 <b>I</b>     | NUWTUBE90  | US90      |
|            | #4      | RT4/04 <b>I</b>     | NUWTUBE90  | US90      |
|            | #2 Sol  | RT4/02 <b>SI</b>    | NUWTUBE90  | US90      |
|            | #2      | RT4/02 <b>I</b>     | NUWTUBE90  | US90      |
|            | 1/0     | RT4/01/0 <b>I</b>   | NUWTUBE90  | US90      |
|            | 2/0     | RT4/02/0 <b>I</b>   | NUWTUBE90  | US90      |
|            | 3/0     | RT4/03/0 <b>I</b>   | NUWTUBE115 | US115     |
| 250 MCM    | 4/0     | RT4/04/0 <b>I</b>   | NUWTUBE150 | US150     |
|            | #2      | RT25CM2 <b>I</b>    | NUWTUBE90  | US90      |
|            | 1/0     | RT25CM1/0 <b>I</b>  | NUWTUBE90  | US90      |
|            | 2/0     | RT25CM2/0 <b>I</b>  | NUWTUBE90  | US90      |
|            | 3/0     | RT25CM3/0 <b>I</b>  | NUWTUBE150 | US150     |
|            | 4/0     | RT25CM4/0 <b>I</b>  | NUWTUBE150 | US150     |
| 250 MCM    | 250 MCM | RT25CM25CM <b>I</b> | NUWTUBE150 | US150     |

Continued on next page

### NOTES:

- Innovative 3-piece design allows for ease of cleaning mold cavities and tap holes between connections.
- Proper care and cleaning extends the life of exothermic molds.

## Cable to Cable

### Mold Information:

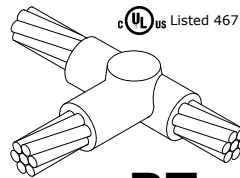
- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

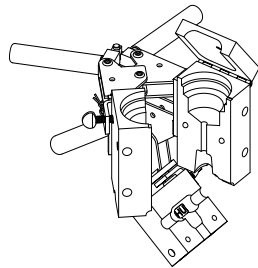
- MH6 - Handle for "I" Price Key Molds (Page 75)
- MH7 - Handle for "J" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



**RT**  
(Run & Tap)



**Vertical &  
Horizontal Split  
3-Piece Design**

### RT Connection Type Continued

| Cable Size |                     | Mold Part No.       | Weld Metal |           |
|------------|---------------------|---------------------|------------|-----------|
| Run        | Tap                 |                     | NUWTube    | UltraShot |
| 300 MCM    | #2                  | RT3CM2 <b>I</b>     | NUWTUBE90  | US90      |
|            | 1/0                 | RT3CM1/0 <b>I</b>   | NUWTUBE90  | US90      |
|            | 2/0                 | RT3CM2/0 <b>I</b>   | NUWTUBE90  | US90      |
|            | 3/0                 | RT3CM3/0 <b>I</b>   | NUWTUBE150 | US150     |
|            | 4/0                 | RT3CM4/0 <b>I</b>   | NUWTUBE150 | US150     |
|            | 250 MCM             | RT3CM25CM <b>I</b>  | NUWTUBE200 | US200     |
|            | 300 MCM             | RT3CM3CM <b>I</b>   | NUWTUBE200 | US200     |
| 350 MCM    | #2                  | RT35CM2 <b>I</b>    | NUWTUBE90  | US90      |
|            | 1/0                 | RT35CM1/0 <b>I</b>  | NUWTUBE90  | US90      |
|            | 2/0                 | RT35CM2/0 <b>I</b>  | NUWTUBE90  | US90      |
|            | 3/0                 | RT35CM3/0 <b>I</b>  | NUWTUBE150 | US150     |
|            | 4/0                 | RT35CM4/0 <b>I</b>  | NUWTUBE150 | US150     |
|            | 250 MCM             | RT35CM25CM <b>I</b> | NUWTUBE200 | US200     |
|            | 300 MCM             | RT35CM3CM <b>I</b>  | NUWTUBE200 | US200     |
| 350 MCM    | RT35CM35CM <b>I</b> | NUWTUBE200          | US200      |           |
| 500 MCM    | #2                  | RT5CM2 <b>I</b>     | NUWTUBE90  | US90      |
|            | 1/0                 | RT5CM1/0 <b>I</b>   | NUWTUBE90  | US90      |
|            | 2/0                 | RT5CM2/0 <b>I</b>   | NUWTUBE90  | US90      |
|            | 4/0                 | RT5CM4/0 <b>I</b>   | NUWTUBE150 | US150     |
|            | 250 MCM             | RT5CM25CM <b>I</b>  | NUWTUBE200 | US200     |
|            | 300 MCM             | RT5CM3CM <b>I</b>   | NUWTUBE200 | US200     |
|            | 350 MCM             | RT5CM35CM <b>I</b>  | NUWTUBE200 | US200     |
| 500 MCM    | RT5CM5CM <b>I</b>   | 2-NUWTUBE150        | US300      |           |

Continued on next page

## Cable to Cable

### Mold Information:

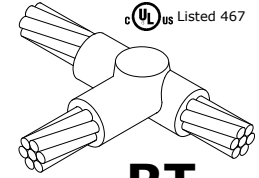
- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

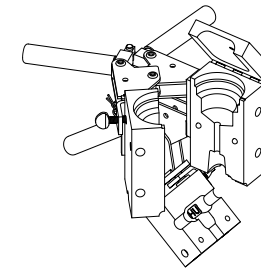
- MH6 - Handle for "I" Price Key Molds (Page 75)
- MH7 - Handle for "J" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



**RT**  
(Run & Tap)



**Vertical &  
Horizontal Split  
3-Piece Design**

### RT Connection Type Continued

| Cable Size |          | Mold Part No.       | Weld Metal   |           |
|------------|----------|---------------------|--------------|-----------|
| Run        | Tap      |                     | NUWTube      | UltraShot |
| 750 MCM    | 1/0      | RT75CM1/0 <b>I</b>  | NUWTUBE150   | US150     |
|            | 2/0      | RT75CM2/0 <b>I</b>  | NUWTUBE150   | US150     |
|            | 4/0      | RT75CM4/0 <b>I</b>  | NUWTUBE150   | US150     |
|            | 250 MCM  | RT75CM25CM <b>I</b> | NUWTUBE200   | US200     |
|            | 300 MCM  | RT75CM3CM <b>I</b>  | NUWTUBE200   | US200     |
|            | 350 MCM  | RT75CM35CM <b>I</b> | NUWTUBE250   | US250     |
|            | 500 MCM  | RT75CM5CM <b>J</b>  | 2-NUWTUBE200 | US400     |
| 1000 MCM   | 750 MCM  | RT75CM75CM <b>J</b> | 2-NUWTUBE250 | US500     |
|            | 1/0      | RT1MM1/0 <b>I</b>   | NUWTUBE150   | US150     |
|            | 2/0      | RT1MM2/0 <b>I</b>   | NUWTUBE150   | US150     |
|            | 4/0      | RT1MM4/0 <b>I</b>   | NUWTUBE200   | US200     |
|            | 250 MCM  | RT1MM25CM <b>I</b>  | NUWTUBE200   | US200     |
|            | 300 MCM  | RT1MM3CM <b>I</b>   | NUWTUBE200   | US200     |
|            | 350 MCM  | RT1MM35CM <b>I</b>  | NUWTUBE250   | US250     |
|            | 500 MCM  | RT1MM5CM <b>J</b>   | 2-NUWTUBE200 | US400     |
|            | 750 MCM  | RT1MM75CM <b>J</b>  | 2-NUWTUBE250 | US500     |
|            | 1000 MCM | RT1MM1MM <b>J</b>   | 2-NUWTUBE250 | US500     |

### NOTES:

- Innovative 3-piece design allows for ease of cleaning mold cavities and tap holes between connections.
- Proper care and cleaning extends the life of exothermic molds.

## Cable to Cable

### Mold Information:

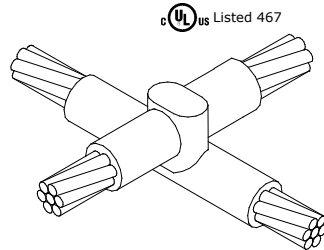
- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

MH1 - Handle for "B" & "Q" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



**XO**  
(Cross ("X") Over)

**Horizontal Split  
2-Piece Design**

### XO Connection Type

| Cable Size |        | Mold Part No.     | Weld Metal |           |
|------------|--------|-------------------|------------|-----------|
| Run        | Tap    |                   | NUWTube    | UltraShot |
| #6         | #6     | XO66 <b>B</b>     | NUWTUBE45  | US45      |
| #4         | #4     | XO44 <b>B</b>     | NUWTUBE65  | US65      |
| #2 Sol     | #2 Sol | XO2S2 <b>S</b>    | NUWTUBE90  | US90      |
| #2         | #4     | XO24 <b>B</b>     | NUWTUBE65  | US65      |
|            | #2     | XO22 <b>B</b>     | NUWTUBE90  | US90      |
| 1/0        | #4     | XO1/04 <b>Q</b>   | NUWTUBE115 | US115     |
|            | #2     | XO1/02 <b>Q</b>   | NUWTUBE115 | US115     |
|            | 1/0    | XO1/01/0 <b>Q</b> | NUWTUBE150 | US150     |
| 2/0        | #2     | XO2/02 <b>Q</b>   | NUWTUBE150 | US150     |
|            | 1/0    | XO2/01/0 <b>Q</b> | NUWTUBE200 | US200     |
|            | 2/0    | XO2/02/0 <b>Q</b> | NUWTUBE200 | US200     |
| 3/0        | #2     | XO3/02 <b>Q</b>   | NUWTUBE150 | US150     |
|            | 1/0    | XO3/01/0 <b>Q</b> | NUWTUBE200 | US200     |
|            | 2/0    | XO3/02/0 <b>Q</b> | NUWTUBE200 | US200     |
|            | 3/0    | XO3/03/0 <b>Q</b> | NUWTUBE250 | US250     |

Continued on next page

## Cable to Cable

### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

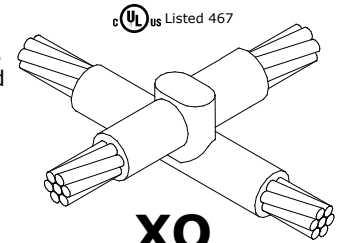
### Required Tools & Accessories:

MH6 - Handle for "I" Price Key Molds (Page 75)

MH7 - Handle for "J" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



**XO**  
(Cross ("X") Over)

**Vertical &  
Horizontal Split  
3-Piece Design**

### XO Connection Type Continued

| Cable Size |         | Mold Part No.       | Weld Metal   |           |
|------------|---------|---------------------|--------------|-----------|
| Run        | Tap     |                     | NUWTube      | UltraShot |
| 4/0        | #2      | XO4/02 <b>I</b>     | NUWTUBE150   | US150     |
|            | 1/0     | XO4/01/0 <b>I</b>   | NUWTUBE200   | US200     |
|            | 2/0     | XO4/02/0 <b>I</b>   | NUWTUBE200   | US200     |
|            | 3/0     | XO4/03/0 <b>I</b>   | NUWTUBE250   | US250     |
|            | 4/0     | XO4/04/0 <b>I</b>   | NUWTUBE250   | US250     |
| 250 MCM    | #2      | XO25CM2 <b>I</b>    | NUWTUBE150   | US150     |
|            | 1/0     | XO25CM1/0 <b>I</b>  | NUWTUBE250   | US250     |
|            | 2/0     | XO25CM2/0 <b>I</b>  | NUWTUBE250   | US250     |
|            | 3/0     | XO25CM3/0 <b>I</b>  | 2-NUWTUBE150 | US300     |
|            | 4/0     | XO25CM4/0 <b>I</b>  | 2-NUWTUBE150 | US300     |
|            | 250 MCM | XO25CM25CM <b>I</b> | 2-NUWTUBE150 | US300     |
| 500 MCM    | #2      | XO5CM2 <b>I</b>     | NUWTUBE250   | US250     |
|            | 1/0     | XO5CM1/0 <b>I</b>   | 2-NUWTUBE150 | US300     |
|            | 2/0     | XO5CM2/0 <b>J</b>   | 2-NUWTUBE200 | US400     |
|            | 3/0     | XO5CM3/0 <b>J</b>   | 2-NUWTUBE250 | US500     |
|            | 4/0     | XO5CM4/0 <b>J</b>   | 2-NUWTUBE250 | US500     |
|            | 250 MCM | XO5CM25CM <b>J</b>  | 2-NUWTUBE250 | US500     |
|            | 300 MCM | XO5CM3CM <b>J</b>   | 3-NUWTUBE200 | US600     |
|            | 350 MCM | XO5CM35CM <b>J</b>  | 3-NUWTUBE200 | US600     |
|            | 500 MCM | XO5CM5CM <b>J</b>   | 3-NUWTUBE250 | US750     |

## Cable to Ground Rod

### Mold Information:

- Molds listed are for copper-clad ground rods.
- Molds with Price Key "L" SOLD WITH HANDLES but not FLTIG.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.
- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRSH1 - Mold Cleaning Brushes (Page 73)



**GD**

(Ground Rod to Dead End Cable)

### GD Connection Type

| Ground Rod Size | Cable Size | Mold Part No.      | Weld Metal |           |
|-----------------|------------|--------------------|------------|-----------|
|                 |            |                    | NUWTube    | UltraShot |
| 1/2"            | #6         | GD12F6 <b>L</b>    | NUWTUBE25  | US25      |
|                 | #4         | GD12F4 <b>L</b>    | NUWTUBE25  | US25      |
|                 | #2 Sol     | GD12F2 <b>SB</b>   | NUWTUBE65  | US65      |
|                 | #2         | GD12F2 <b>B</b>    | NUWTUBE65  | US65      |
|                 | 1/0        | GD12F1/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 2/0        | GD12F2/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 3/0        | GD12F3/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 4/0        | GD12F4/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 250 MCM    | GD12F25 <b>CMB</b> | NUWTUBE90  | US90      |
|                 | 300 MCM    | GD12F3 <b>CMB</b>  | NUWTUBE90  | US90      |

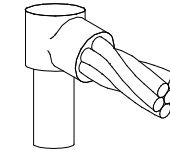
Continued on next page

### NOTES:

- Molds shown are for copper-clad steel ground rods.
- 1/2" molds are for full size ground rods. See page 83.
- For welding to stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size. For sectional ground rods, add letter "S" to ground rod size. See chart on page 83 for details.

## Cable to Ground Rod

cUL US Listed 467



**GD**

(Ground Rod to Dead End Cable)

### GD Connection Type Continued

| Ground Rod Size | Cable Size        | Mold Part No.     | Weld Metal |           |
|-----------------|-------------------|-------------------|------------|-----------|
|                 |                   |                   | NUWTube    | UltraShot |
| 5/8"            | #6                | GD586 <b>L</b>    | NUWTUBE32  | US32      |
|                 | #4                | GD584 <b>L</b>    | NUWTUBE32  | US32      |
|                 | #2 Sol            | GD582 <b>SB</b>   | NUWTUBE65  | US65      |
|                 | #2                | GD582 <b>B</b>    | NUWTUBE65  | US65      |
|                 | 1/0               | GD581/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 2/0               | GD582/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 3/0               | GD583/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 4/0               | GD584/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 250 MCM           | GD5825 <b>CMB</b> | NUWTUBE90  | US90      |
|                 | 300 MCM           | GD583 <b>CMB</b>  | NUWTUBE115 | US115     |
| 3/4"            | 350 MCM           | GD5835 <b>CMB</b> | NUWTUBE115 | US115     |
|                 | 500 MCM           | GD585 <b>CMB</b>  | NUWTUBE150 | US150     |
|                 | #6                | GD346 <b>L</b>    | NUWTUBE32  | US32      |
|                 | #4                | GD344 <b>L</b>    | NUWTUBE45  | US45      |
|                 | #2 Sol            | GD342 <b>SB</b>   | NUWTUBE90  | US90      |
|                 | #2                | GD342 <b>B</b>    | NUWTUBE90  | US90      |
|                 | 1/0               | GD341/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 2/0               | GD342/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 3/0               | GD343/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 4/0               | GD344/0 <b>B</b>  | NUWTUBE90  | US90      |
| 1"              | 250 MCM           | GD3425 <b>CMB</b> | NUWTUBE90  | US90      |
|                 | 300 MCM           | GD343 <b>CMB</b>  | NUWTUBE115 | US115     |
|                 | 350 MCM           | GD3435 <b>CMB</b> | NUWTUBE115 | US115     |
|                 | 500 MCM           | GD345 <b>CMB</b>  | NUWTUBE150 | US150     |
|                 | 750 MCM           | GD3475 <b>CMB</b> | NUWTUBE250 | US250     |
|                 | 1/0               | GD101/0 <b>B</b>  | NUWTUBE150 | US150     |
|                 | 2/0               | GD102/0 <b>B</b>  | NUWTUBE150 | US150     |
|                 | 3/0               | GD103/0 <b>B</b>  | NUWTUBE150 | US150     |
|                 | 4/0               | GD104/0 <b>B</b>  | NUWTUBE150 | US150     |
|                 | 250 MCM           | GD1025 <b>CMB</b> | NUWTUBE150 | US150     |
| 300 MCM         | GD103 <b>CMB</b>  | NUWTUBE200        | US200      |           |
| 350 MCM         | GD1035 <b>CMB</b> | NUWTUBE200        | US200      |           |
| 500 MCM         | GD105 <b>CMB</b>  | NUWTUBE200        | US200      |           |
| 750 MCM         | GD1075 <b>CMB</b> | NUWTUBE250        | US250      |           |
| 1000 MCM        | GD101 <b>MMB</b>  | 2-NUWTUBE150      | US300      |           |

## Cable to Ground Rod

### Mold Information:

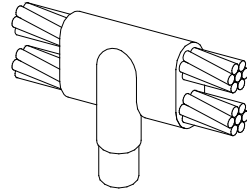
- Molds listed are for copper-clad ground rods.
- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

- MH1 - Handle for "K" Price Key Molds (Page 75)
- MH2 - Handle for "D" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRS1 - Mold Cleaning Brushes (Page 73)



**GF**

(Ground Rod Top to 4 Horizontal Cables)

### GF Connection Type

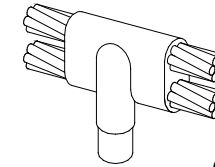
| Ground Rod Size | Cable Size | Mold Part No.     | Weld Metal |           |
|-----------------|------------|-------------------|------------|-----------|
|                 |            |                   | Part No.   | UltraShot |
| 1/2"            | #6         | GF12F6 <b>K</b>   | NUWTUBE90  | US90      |
|                 | #4         | GF12F4 <b>K</b>   | NUWTUBE115 | US115     |
|                 | #2 Sol     | GF12F2 <b>SK</b>  | NUWTUBE115 | US115     |
|                 | #2         | GF12F2 <b>K</b>   | NUWTUBE115 | US115     |
|                 | 1/0        | GF12F1/0 <b>K</b> | NUWTUBE150 | US150     |
|                 | 2/0        | GF12F2/0 <b>K</b> | NUWTUBE200 | US200     |
|                 | 3/0        | GF12F3/0 <b>K</b> | NUWTUBE250 | US250     |
|                 | 4/0        | GF12F4/0 <b>K</b> | NUWTUBE250 | US250     |

Continued on next page

### NOTES:

- Molds shown are for copper-clad steel ground rods.
- 1/2" molds are for full size ground rods. See page 83.
- For welding to stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size. For sectional ground rods, add letter "S" to ground rod size. See chart on page 83 for details.

## Cable to Ground Rod



**GF**

(Ground Rod Top to 4 Horizontal Cables)

### GF Connection Type Continued

| Ground Rod Size | Cable Size | Mold Part No.     | Weld Metal     |            |
|-----------------|------------|-------------------|----------------|------------|
|                 |            |                   | Part No.       | UltraShot  |
| 5/8"            | #6         | GF586 <b>K</b>    | NUWTUBE90      | US90       |
|                 | #4         | GF584 <b>K</b>    | NUWTUBE115     | US115      |
|                 | #2 Sol     | GF582 <b>SK</b>   | NUWTUBE150     | US150      |
|                 | #2         | GF582 <b>K</b>    | NUWTUBE150     | US150      |
|                 | 1/0        | GF581/0 <b>K</b>  | NUWTUBE200     | US200      |
|                 | 2/0        | GF582/0 <b>K</b>  | NUWTUBE250     | US250      |
|                 | 3/0        | GF583/0 <b>K</b>  | 2-NUWTUBE150   | US300      |
|                 | 4/0        | GF584/0 <b>K</b>  | 2-NUWTUBE150   | US300      |
|                 | 250 MCM    | GF5825 <b>CMD</b> | 2-NUWTUBE200   | US400      |
|                 | 300 MCM    | GF583 <b>CMD</b>  | 2-NUWTUBE250   | US500      |
|                 | 350 MCM    | GF5835 <b>CMD</b> | 2-NUWTUBE250   | US500      |
|                 | 3/4"       | #6                | GF346 <b>K</b> | NUWTUBE90  |
| #4              |            | GF344 <b>K</b>    | NUWTUBE115     | US115      |
| #2 Sol          |            | GF342 <b>SK</b>   | NUWTUBE150     | US150      |
| #2              |            | GF342 <b>K</b>    | NUWTUBE150     | US150      |
| 1/0             |            | GF341/0 <b>K</b>  | NUWTUBE200     | US200      |
| 2/0             |            | GF342/0 <b>K</b>  | NUWTUBE250     | US250      |
| 3/0             |            | GF343/0 <b>K</b>  | 2-NUWTUBE150   | US300      |
| 4/0             |            | GF344/0 <b>K</b>  | 2-NUWTUBE150   | US300      |
| 250 MCM         |            | GF3425 <b>CMD</b> | 2-NUWTUBE200   | US400      |
| 300 MCM         |            | GF343 <b>CMD</b>  | 2-NUWTUBE250   | US500      |
| 350 MCM         |            | GF3435 <b>CMD</b> | 2-NUWTUBE250   | US500      |
| 1"              |            | #4                | GF104 <b>K</b> | NUWTUBE150 |
|                 | #2         | GF102 <b>K</b>    | NUWTUBE200     | US200      |
|                 | 1/0        | GF101/0 <b>K</b>  | NUWTUBE250     | US250      |
|                 | 2/0        | GF102/0 <b>K</b>  | 2-NUWTUBE150   | US300      |
|                 | 3/0        | GF103/0 <b>D</b>  | 2-NUWTUBE200   | US400      |
|                 | 4/0        | GF104/0 <b>D</b>  | 2-NUWTUBE200   | US400      |
|                 | 250 MCM    | GF1025 <b>CMD</b> | 2-NUWTUBE250   | US500      |



## Cable to Ground Rod

### Mold Information:

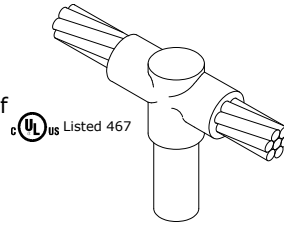
- Molds listed are for copper-clad ground rods.
- Molds with Price Key "L" and "M" SOLD WITH HANDLES but not FLTIG.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.
- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 75)
- MH2 - Handle for "C" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



**GO**

(Ground Rod to Cable Over Top)



### GO Connection Type

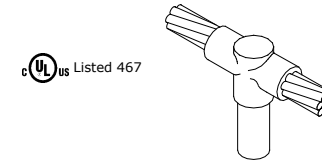
| Ground Rod Size | Cable Size | Mold Part No.      | Weld Metal |           |
|-----------------|------------|--------------------|------------|-----------|
|                 |            |                    | NUWTube    | UltraShot |
| 1/2"            | #6         | GO12F6 <b>L</b>    | NUWTUBE32  | US32      |
|                 | #4         | GO12F4 <b>L</b>    | NUWTUBE32  | US32      |
|                 | #2 Sol     | GO12F2 <b>SB</b>   | NUWTUBE90  | US90      |
|                 | #2         | GO12F2 <b>B</b>    | NUWTUBE90  | US90      |
|                 | 1/0        | GO12F1/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 2/0        | GO12F2/0 <b>B</b>  | NUWTUBE90  | US90      |
|                 | 3/0        | GO12F3/0 <b>B</b>  | NUWTUBE115 | US115     |
|                 | 4/0        | GO12F4/0 <b>B</b>  | NUWTUBE115 | US115     |
|                 | 250 MCM    | GO12F25 <b>CMB</b> | NUWTUBE150 | US150     |
|                 | 300 MCM    | GO12F3 <b>CMB</b>  | NUWTUBE200 | US200     |

Continued on next page

### NOTES:

- Molds shown are for copper-clad steel ground rods.
- 1/2" molds are for full size ground rods. See page 83.
- For welding to stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size. For sectional ground rods, add letter "S" to ground rod size. See chart on page 83 for details.

## Cable to Ground Rod



**GO**

(Ground Rod to Cable Over Top)

### GO Connection Type Continued

| Ground Rod Size | Cable Size        | Mold Part No.     | Weld Metal   |           |
|-----------------|-------------------|-------------------|--------------|-----------|
|                 |                   |                   | NUWTube      | UltraShot |
| 5/8"            | #6                | GO586 <b>L</b>    | NUWTUBE32    | US32      |
|                 | #4                | GO584 <b>L</b>    | NUWTUBE32    | US32      |
|                 | #2 Sol            | GO582 <b>SB</b>   | NUWTUBE90    | US90      |
|                 | #2                | GO582 <b>B</b>    | NUWTUBE90    | US90      |
|                 | 1/0               | GO581/0 <b>B</b>  | NUWTUBE90    | US90      |
|                 | 2/0               | GO582/0 <b>B</b>  | NUWTUBE115   | US115     |
|                 | 3/0               | GO583/0 <b>B</b>  | NUWTUBE115   | US115     |
|                 | 4/0               | GO584/0 <b>B</b>  | NUWTUBE115   | US115     |
|                 | 250 MCM           | GO5825 <b>CMB</b> | NUWTUBE150   | US150     |
|                 | 300 MCM           | GO583 <b>CMB</b>  | NUWTUBE200   | US200     |
| 3/4"            | 350 MCM           | GO5835 <b>CMB</b> | NUWTUBE200   | US200     |
|                 | 500 MCM           | GO585 <b>CMB</b>  | NUWTUBE250   | US250     |
|                 | #6                | GO346 <b>L</b>    | NUWTUBE45    | US45      |
|                 | #4                | GO344 <b>M</b>    | NUWTUBE65    | US65      |
|                 | #2 Sol            | GO342 <b>SB</b>   | NUWTUBE90    | US90      |
|                 | #2                | GO342 <b>B</b>    | NUWTUBE90    | US90      |
|                 | 1/0               | GO341/0 <b>B</b>  | NUWTUBE115   | US115     |
|                 | 2/0               | GO342/0 <b>B</b>  | NUWTUBE115   | US115     |
|                 | 3/0               | GO343/0 <b>B</b>  | NUWTUBE115   | US115     |
|                 | 4/0               | GO344/0 <b>B</b>  | NUWTUBE115   | US115     |
| 1"              | 250 MCM           | GO3425 <b>CMB</b> | NUWTUBE150   | US150     |
|                 | 300 MCM           | GO343 <b>CMB</b>  | NUWTUBE200   | US200     |
|                 | 350 MCM           | GO3435 <b>CMB</b> | NUWTUBE200   | US200     |
|                 | 500 MCM           | GO345 <b>CMB</b>  | NUWTUBE250   | US250     |
|                 | 750 MCM           | GO3475 <b>CMC</b> | 2-NUWTUBE200 | US400     |
|                 | 1/0               | GO101/0 <b>B</b>  | NUWTUBE150   | US150     |
|                 | 2/0               | GO102/0 <b>B</b>  | NUWTUBE150   | US150     |
|                 | 3/0               | GO103/0 <b>B</b>  | NUWTUBE150   | US150     |
|                 | 4/0               | GO104/0 <b>B</b>  | NUWTUBE150   | US150     |
|                 | 250 MCM           | GO1025 <b>CMB</b> | NUWTUBE200   | US200     |
| 300 MCM         | GO103 <b>CMB</b>  | NUWTUBE200        | US200        |           |
| 350 MCM         | GO1035 <b>CMB</b> | NUWTUBE200        | US200        |           |
| 500 MCM         | GO105 <b>CMB</b>  | NUWTUBE250        | US250        |           |
| 750 MCM         | GO1075 <b>CMC</b> | 2-NUWTUBE200      | US400        |           |
| 1000 MCM        | GO101 <b>MMC</b>  | 2-NUWTUBE250      | US500        |           |



## Cable to Ground Rod

### Mold Information:

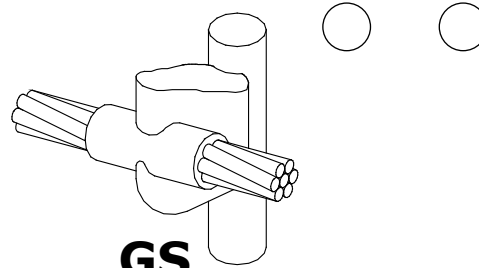
- Molds listed are for copper-clad ground rods.
- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

- MH1 - Handle for "P" Price Key Molds (Page 75)
- MH2 - Handle for "Y" Price Key Molds (Page 75)
- MH3 - Handle for "R" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



**GS**  
(Ground Rod to Cable on Side)

**Cost Effective  
2-Piece Design**

### GS Connection Type

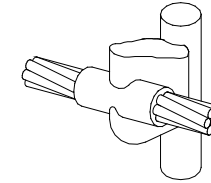
| Ground Rod Size | Cable Size | Mold Part No.      | Weld Metal |           |
|-----------------|------------|--------------------|------------|-----------|
|                 |            |                    | NUWTube    | UltraShot |
| 1/2"            | #6         | GS12F6 <b>R</b>    | NUWTUBE65  | US65      |
|                 | #4         | GS12F4 <b>R</b>    | NUWTUBE65  | US65      |
|                 | #2 Sol     | GS12F2 <b>SR</b>   | NUWTUBE65  | US65      |
|                 | #2         | GS12F2 <b>R</b>    | NUWTUBE65  | US65      |
|                 | 1/0        | GS12F1/0 <b>P</b>  | NUWTUBE115 | US115     |
|                 | 2/0        | GS12F2/0 <b>P</b>  | NUWTUBE115 | US115     |
|                 | 3/0        | GS12F3/0 <b>P</b>  | NUWTUBE150 | US150     |
|                 | 4/0        | GS12F4/0 <b>P</b>  | NUWTUBE150 | US150     |
|                 | 250 MCM    | GS12F25 <b>CMP</b> | NUWTUBE150 | US150     |

Continued on next page

### NOTES:

- Molds shown are for copper-clad steel ground rods.
- 1/2" molds are for full size ground rods. See page 83.
- For welding to stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size. For sectional ground rods, add letter "S" to ground rod size. See chart on page 83 for details.

## Cable to Ground Rod



**GS**  
(Ground Rod to Cable on Side)

**Cost Effective  
2-Piece Design**

### GS Connection Type Continued

| Ground Rod Size | Cable Size | Mold Part No.     | Weld Metal   |           |
|-----------------|------------|-------------------|--------------|-----------|
|                 |            |                   | NUWTube      | UltraShot |
| 5/8"            | #6         | GS586 <b>R</b>    | NUWTUBE65    | US65      |
|                 | #4         | GS584 <b>R</b>    | NUWTUBE65    | US65      |
|                 | #2 Sol     | GS582 <b>SR</b>   | NUWTUBE65    | US65      |
|                 | #2         | GS582 <b>R</b>    | NUWTUBE65    | US65      |
|                 | 1/0        | GS581/0 <b>P</b>  | NUWTUBE115   | US115     |
|                 | 2/0        | GS582/0 <b>P</b>  | NUWTUBE115   | US115     |
|                 | 3/0        | GS583/0 <b>P</b>  | NUWTUBE150   | US150     |
|                 | 4/0        | GS584/0 <b>P</b>  | NUWTUBE150   | US150     |
|                 | 250 MCM    | GS5825 <b>CMP</b> | NUWTUBE150   | US150     |
|                 | 500 MCM    | GS585 <b>CMY</b>  | 2-NUWTUBE200 | US400     |
| 3/4"            | #6         | GS346 <b>R</b>    | NUWTUBE65    | US65      |
|                 | #4         | GS344 <b>R</b>    | NUWTUBE65    | US65      |
|                 | #2 Sol     | GS342 <b>SR</b>   | NUWTUBE65    | US65      |
|                 | #2         | GS342 <b>R</b>    | NUWTUBE65    | US65      |
|                 | 1/0        | GS341/0 <b>P</b>  | NUWTUBE115   | US115     |
|                 | 2/0        | GS342/0 <b>P</b>  | NUWTUBE115   | US115     |
|                 | 3/0        | GS343/0 <b>P</b>  | NUWTUBE150   | US150     |
|                 | 4/0        | GS344/0 <b>P</b>  | NUWTUBE150   | US150     |
|                 | 250 MCM    | GS3425 <b>CMP</b> | NUWTUBE200   | US200     |
|                 | 500 MCM    | GS345 <b>CMY</b>  | 2-NUWTUBE250 | US500     |



## Cable to Ground Rod

### Mold Information:

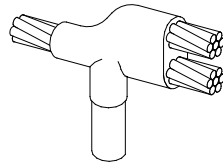
- Molds listed are for copper-clad ground rods.
- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

- MH1 - Handle for "K" Price Key Molds (Page 75)
- MH2 - Handle for "D" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



**GT**

(Horizontal Thru Cable Plus Tap Cable to Top of Ground Rod)



## Ground Rod to Ground Rod

### Mold Information:

- Molds listed are for copper-clad ground rods.
- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 75)
- MH2 - Handle for "C" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



**GG**

(Butt Splice of Vertical Ground Rods)



### GT Connection Type

| Ground Rod Size | Cable Size        | Mold Part No.     | Weld Metal   |           |
|-----------------|-------------------|-------------------|--------------|-----------|
|                 |                   |                   | NUWTube      | UltraShot |
| 5/8"            | #6                | GT586 <b>K</b>    | NUWTUBE90    | US90      |
|                 | #4                | GT584 <b>K</b>    | NUWTUBE90    | US90      |
|                 | #2 Sol            | GT582 <b>SK</b>   | NUWTUBE115   | US115     |
|                 | #2                | GT582 <b>K</b>    | NUWTUBE115   | US115     |
|                 | 1/0               | GT581/0 <b>K</b>  | NUWTUBE150   | US150     |
|                 | 2/0               | GT582/0 <b>K</b>  | NUWTUBE200   | US200     |
|                 | 3/0               | GT583/0 <b>K</b>  | NUWTUBE250   | US250     |
|                 | 4/0               | GT584/0 <b>K</b>  | NUWTUBE250   | US250     |
| 3/4"            | 250 MCM           | GT5825 <b>CMK</b> | 2-NUWTUBE150 | US300     |
|                 | #6                | GT346 <b>K</b>    | NUWTUBE90    | US90      |
|                 | #4                | GT344 <b>K</b>    | NUWTUBE90    | US90      |
|                 | #2 Sol            | GT342 <b>SK</b>   | NUWTUBE115   | US115     |
|                 | #2                | GT342 <b>K</b>    | NUWTUBE115   | US115     |
|                 | 1/0               | GT341/0 <b>K</b>  | NUWTUBE150   | US150     |
|                 | 2/0               | GT342/0 <b>K</b>  | NUWTUBE200   | US200     |
|                 | 3/0               | GT343/0 <b>K</b>  | NUWTUBE250   | US250     |
|                 | 4/0               | GT344/0 <b>K</b>  | NUWTUBE250   | US250     |
|                 | 250 MCM           | GT3425 <b>CMK</b> | 2-NUWTUBE150 | US300     |
| 300 MCM         | GT343 <b>CMD</b>  | 2-NUWTUBE200      | US400        |           |
| 350 MCM         | GT3435 <b>CMD</b> | 2-NUWTUBE200      | US400        |           |

### GG Connection Type

| Ground Rod Size | Mold Part No.  | Weld Metal   |           |
|-----------------|----------------|--------------|-----------|
|                 |                | NUWTube      | UltraShot |
| 1/2"            | GG12 <b>FB</b> | NUWTUBE250   | US250     |
| 5/8"            | GG58 <b>C</b>  | 2-NUWTUBE150 | US300     |
| 3/4"            | GG34 <b>C</b>  | 2-NUWTUBE200 | US400     |

#### NOTES:

- Molds shown are for copper-clad steel ground rods.
- 1/2" molds are for full size ground rods. See page 83.
- For welding to stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size. For sectional ground rods, add letter "S" to ground rod size. See chart on page 83 for details.

#### NOTES:

- Molds shown are for copper-clad steel ground rods.
- 1/2" molds are for full size ground rods. See page 83.
- For welding to stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size. For sectional ground rods, add letter "S" to ground rod size. See chart on page 83 for details.

## Cable to Steel Surface

### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

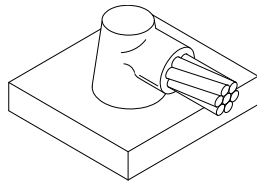
### Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 75)
- MH2 - Handle for "C" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)
- UMHDKIT - Mold Hold Down Kit (Page 76)

UL US Listed 467



**HB**

(Horizontal Butt OFF Surface)



## Cable to Steel Surface / Pipe

### Mold Information:

- Mold cable is off the pipe surface.
- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 75)

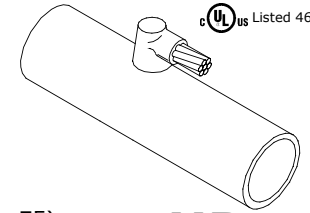
### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)
- UMHDKIT - Mold Hold Down Kit (Page 76)

OR

- CSKITHP - Chain Support Kit for Horizontal (Page 75)

UL US Listed 467



**HB**

(Horizontal Cable to Top of Horizontal Steel Pipe OFF Surface)

## HB Connection Type

| Cable Size | Mold Part No.   | Weld Metal   |           |
|------------|-----------------|--------------|-----------|
|            |                 | NUWTube      | UltraShot |
| #6         | HB6 <b>B</b>    | NUWTUBE65    | US65      |
| #2 Sol     | HB2 <b>S</b>    | NUWTUBE65    | US65      |
| #2         | HB2 <b>B</b>    | NUWTUBE65    | US65      |
| 1/0        | HB1/0 <b>B</b>  | NUWTUBE90    | US90      |
| 2/0        | HB2/0 <b>B</b>  | NUWTUBE90    | US90      |
| 3/0        | HB3/0 <b>B</b>  | NUWTUBE115   | US115     |
| 4/0        | HB4/0 <b>B</b>  | NUWTUBE115   | US115     |
| 250 MCM    | HB25CM <b>B</b> | NUWTUBE115   | US115     |
| 300 MCM    | HB3CM <b>B</b>  | NUWTUBE150   | US150     |
| 350 MCM    | HB35CM <b>B</b> | NUWTUBE200   | US200     |
| 500 MCM    | HB5CM <b>B</b>  | NUWTUBE200   | US200     |
| 750 MCM    | HB75CM <b>B</b> | 2-NUWTUBE150 | US300     |
| 1000 MCM   | HB1MM <b>C</b>  | 2-NUWTUBE200 | US400     |

## HB (Pipe) Connection Type

| Cable Size | Mold Part No.      | Weld Metal |           |
|------------|--------------------|------------|-----------|
|            |                    | NUWTube    | UltraShot |
| 1/0        | HB-1/0** <b>B</b>  | NUWTUBE90  | US90      |
| 2/0        | HB-2/0** <b>B</b>  | NUWTUBE90  | US90      |
| 3/0        | HB-3/0** <b>B</b>  | NUWTUBE115 | US115     |
| 4/0        | HB-4/0** <b>B</b>  | NUWTUBE115 | US115     |
| 250 MCM    | HB-25CM** <b>B</b> | NUWTUBE115 | US115     |

\*\*Add Pipe Size to Mold Part No.  
See chart below.



UMHDKIT  
U.S. Patent  
No. 6,382,496



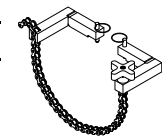
UMHDKIT

UMHDKIT with Handle

U.S. Patent No. 6,382,496

| CABLE TO HORIZONTAL STEEL PIPE (HB & HD)<br>Use Mold Part No. with Pipe Size (**) Indicator |                                   |                            |
|---|-----------------------------------|----------------------------|
| Cable   | Nominal Pipe Size                 | Pipe Size Indicator        |
| #1 and Smaller  | 12" and Smaller<br>14" and Larger | Nominal Pipe Size*<br>None |
| 1/0 thru 250  | 28" and Smaller<br>30" and Larger | Nominal Pipe Size*<br>None |
| Example: #1/0 cable to 2-1/2" pipe = HB-1/02.5 <b>B</b>                                     |                                   |                            |

\*See Pipe Sizes on page 81.



CSKITHP  
U.S. Patent  
No. 6,382,496

## Cable to Steel Surface

### Mold Information:

- Molds with Price Key "A" SOLD WITH FRAME.
- Frame for "A" Price Key Molds INCLUDES Flint Igniters.
- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 75)

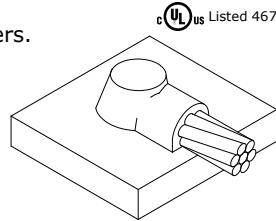
### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRSH1 - Mold Cleaning Brushes (Page 73)

UMHDKIT - Mold Hold Down Kit (Page 76)

UMMHDA - Hold Down Kit when Price Key is "A" (Page 76)



### HD

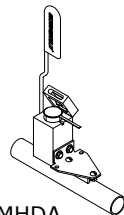
(Horizontal Butt DOWN on Surface)

### HD Connection Type

| Cable Size | Mold Part No. | Weld Metal |           |
|------------|---------------|------------|-----------|
|            |               | NUWTube    | UltraShot |
| #6 Sol     | HD6SA         | NUWTUBE45  | US45      |
| #6         | HD6A          | NUWTUBE45  | US45      |
| #4         | HD4A          | NUWTUBE45  | US45      |
| #2 Sol     | HD2SA         | NUWTUBE45  | US45      |
| #2         | HD2A          | NUWTUBE45  | US45      |
| 1/0        | HD1/0B        | NUWTUBE90  | US90      |
| 2/0        | HD2/0B        | NUWTUBE90  | US90      |
| 3/0        | HD3/0B        | NUWTUBE115 | US115     |
| 4/0        | HD4/0B        | NUWTUBE115 | US115     |
| 250 MCM    | HD25CMB       | NUWTUBE115 | US115     |
| 300 MCM    | HD3CMB        | NUWTUBE150 | US150     |
| 350 MCM    | HD35CMB       | NUWTUBE200 | US200     |
| 500 MCM    | HD5CMB        | NUWTUBE200 | US200     |

#### NOTE:

- Mold Sealer (Page 72) required on conductors 1/0 and larger



UMMHDA  
U.S. Patent No. 6,382,496

## Cable to Steel Surface / Pipe

### Mold Information:

- Mold cable is on the pipe surface.
- Frame for "A" Price Key Molds INCLUDES Flint Igniters.
- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

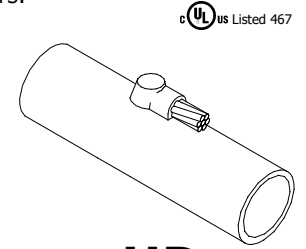
MCBRSH1 - Mold Cleaning Brushes (Page 73)

UMHDKIT - Mold Hold Down Kit (Page 76)

UMMHDA - Hold Down Kit when Price Key is "A" (Page 76)

OR

CSKITHP - Chain Support Kit for Horizontal (Page 75) (Horizontal Cable to Top of Horizontal Steel Pipe, ON Surface)



### HD

### HD (Pipe) Connection Type

| Cable Size | Mold Part No. | Weld Metal |           |
|------------|---------------|------------|-----------|
|            |               | NUWTube    | UltraShot |
| #6 Sol     | HD-6**A       | NUWTUBE45  | US45      |
| #4         | HD-4**A       | NUWTUBE45  | US45      |
| #2 Sol     | HD-2S**A      | NUWTUBE45  | US45      |
| #2         | HD-2**A       | NUWTUBE45  | US45      |
| 1/0        | HD-1/0**B     | NUWTUBE90  | US90      |
| 2/0        | HD-2/0**B     | NUWTUBE90  | US90      |
| 3/0        | HD-3/0**B     | NUWTUBE115 | US115     |
| 4/0        | HD-4/0**B     | NUWTUBE115 | US115     |
| 250 MCM    | HD-25CM**B    | NUWTUBE115 | US115     |

\*\*Add Pipe Size to Mold Part No.

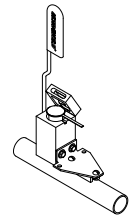
See chart below.

| CABLE TO HORIZONTAL STEEL PIPE (HB & HD)        |                                   |                            |
|---|-----------------------------------|----------------------------|
| Use Mold Part No. with Pipe Size (**) Indicator |                                   |                            |
| Cable   | Nominal Pipe Size                 | Pipe Size Indicator        |
| #1 and Smaller                                  | 12" and Smaller<br>14" and Larger | Nominal Pipe Size*<br>None |
| 1/0 thru 250                                    | 28" and Smaller<br>30" and Larger | Nominal Pipe Size*<br>None |
| Example: #1/0 cable to 2-1/2" pipe = HD-1/02.5B |                                   |                            |

\*See Pipe Sizes on page 81.

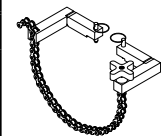
#### NOTE:

- Mold Sealer (Page 72) required on conductors 1/0 and larger



UMMHDA

U.S. Patent  
No. 6,382,496



CSKITHP

U.S. Patent  
No. 6,382,496

## Cable to Steel Surface

### Mold Information:

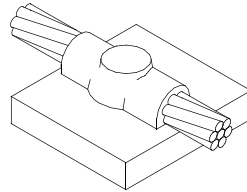
- Mold cable is on the pipe surface.
- Frame for "A" Price Key Molds sold with frame.
- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 75)
- MH2 - Handle for "C" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)
- UMHDKIT - Mold Hold Down Kit (Page 76)



**HT**

(Horizontal Thru  
ON Surface)



### HT Connection Type

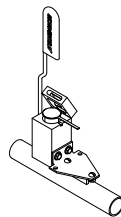
| Cable Size | Mold Part No.   | Weld Metal   |           |
|------------|-----------------|--------------|-----------|
|            |                 | NUWTube      | UltraShot |
| #6         | HT6 <b>A</b>    | NUWTUBE45    | US45      |
| #4         | HT4 <b>A</b>    | NUWTUBE45    | US45      |
| #2 Sol     | HT2 <b>SA</b>   | NUWTUBE45    | US45      |
| #2         | HT2 <b>A</b>    | NUWTUBE45    | US45      |
| 1/0        | HT1/0 <b>B</b>  | NUWTUBE90    | US90      |
| 2/0        | HT2/0 <b>B</b>  | NUWTUBE115   | US115     |
| 3/0        | HT3/0 <b>B</b>  | NUWTUBE115   | US115     |
| 4/0        | HT4/0 <b>B</b>  | NUWTUBE150   | US150     |
| 250 MCM    | HT25 <b>CMB</b> | NUWTUBE150   | US150     |
| 300 MCM    | HT3 <b>CMB</b>  | NUWTUBE200   | US200     |
| 350 MCM    | HT35 <b>CMB</b> | NUWTUBE200   | US200     |
| 500 MCM    | HT5 <b>CMC</b>  | 2-NUWTUBE150 | US300     |



UMHDKIT

UMHDKIT with Handle

U.S. Patent  
No. 6,382,496



UMMHDA

**NOTE:**

- Mold Sealer (Page 72) required on conductors 1/0 and larger



## Cable to Steel Surface

### Mold Information:

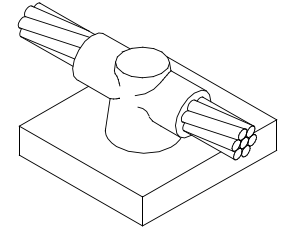
- Mold cable is off the pipe surface.
- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 75)
- MH2 - Handle for "C" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)
- UMHDKIT - Mold Hold Down Kit (Page 76)



**HU**

(Horizontal Thru  
OFF Surface)

### HU Connection Type

| Cable Size | Mold Part No.   | Weld Metal   |           |
|------------|-----------------|--------------|-----------|
|            |                 | NUWTube      | UltraShot |
| 1/0        | HU1/0 <b>B</b>  | NUWTUBE90    | US90      |
| 2/0        | HU2/0 <b>B</b>  | NUWTUBE115   | US115     |
| 3/0        | HU3/0 <b>B</b>  | NUWTUBE115   | US115     |
| 4/0        | HU4/0 <b>B</b>  | NUWTUBE150   | US150     |
| 250 MCM    | HU25 <b>CMB</b> | NUWTUBE150   | US150     |
| 300 MCM    | HU3 <b>CMB</b>  | NUWTUBE200   | US200     |
| 350 MCM    | HU35 <b>CMB</b> | NUWTUBE250   | US250     |
| 500 MCM    | HU5 <b>CMC</b>  | 2-NUWTUBE150 | US300     |



UMHDKIT

UMHDKIT with Handle

U.S. Patent No. 6,382,496

## Cable to Steel Surface

### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

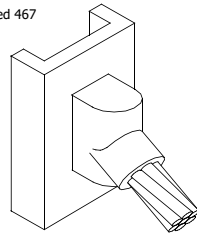
### Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 75)
- MH2 - Handle for "C" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)
- MSKIT - Magnetic Support Kit (Page 76)

cULus Listed 467



**VA**

(Vertical Angle 45°)



## Cable to Steel Surface / Pipe

### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

CSH1 - Chain Support Handle clamp for "B" Price Key Molds (Page 75)

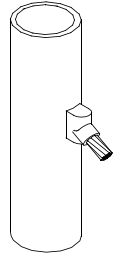
MH1 - Handle for "B" Price Key Molds (Page 75)

CSKIT - Chain Support Kits (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)

cULus Listed 467



**VA**

(Vertical Angle 45°)

### VA Connection Type

| Cable Size | Mold Part No.   | Weld Metal   |           |
|------------|-----------------|--------------|-----------|
|            |                 | NUWTube      | UltraShot |
| #6         | VA6 <b>B</b>    | NUWTUBE45    | US45      |
| #4         | VA4 <b>B</b>    | NUWTUBE45    | US45      |
| #2 Sol     | VA2 <b>SB</b>   | NUWTUBE45    | US45      |
| #2         | VA2 <b>B</b>    | NUWTUBE45    | US45      |
| 1/0        | VA1/0 <b>B</b>  | NUWTUBE90    | US90      |
| 2/0        | VA2/0 <b>B</b>  | NUWTUBE90    | US90      |
| 3/0        | VA3/0 <b>B</b>  | NUWTUBE115   | US115     |
| 4/0        | VA4/0 <b>B</b>  | NUWTUBE115   | US115     |
| 250 MCM    | VA25 <b>CMB</b> | NUWTUBE115   | US115     |
| 300 MCM    | VA3 <b>CMB</b>  | NUWTUBE150   | US150     |
| 350 MCM    | VA35 <b>CMB</b> | NUWTUBE200   | US200     |
| 500 MCM    | VA5 <b>CMB</b>  | NUWTUBE200   | US200     |
| 750 MCM    | VA75 <b>CMC</b> | 2-NUWTUBE150 | US300     |
| 1000 MCM   | VA1 <b>MMC</b>  | 2-NUWTUBE200 | US400     |



### VA (Pipe) Connection Type (Range Taking)

| Cable Size         | Nominal Pipe Size  | Mold Part No.       | Weld Metal |           |
|--------------------|--------------------|---------------------|------------|-----------|
|                    |                    |                     | NUWTube    | UltraShot |
| #6                 | 1-1/4" to 4" Pipe  | VA6V1.25X4 <b>B</b> | NUWTUBE45  | US45      |
|                    | 4" to 6" Pipe      | VA6V4X6 <b>B</b>    | NUWTUBE45  | US45      |
|                    | 6" to 10" Pipe     | VA6V6X10 <b>B</b>   | NUWTUBE45  | US45      |
|                    | 12" to 30" Pipe    | VA6V12X30 <b>B</b>  | NUWTUBE45  | US45      |
|                    | 32" Pipe or Larger | VA6 <b>B</b>        | NUWTUBE45  | US45      |
| #4                 | 1-1/2" to 4" Pipe  | VA4V1.5X4 <b>B</b>  | NUWTUBE45  | US45      |
|                    | 4" to 6" Pipe      | VA4V4X6 <b>B</b>    | NUWTUBE45  | US45      |
|                    | 6" to 10" Pipe     | VA4V6X10 <b>B</b>   | NUWTUBE45  | US45      |
|                    | 12" to 30" Pipe    | VA4V12X30 <b>B</b>  | NUWTUBE45  | US45      |
|                    | 32" Pipe or Larger | VA4 <b>B</b>        | NUWTUBE45  | US45      |
| #2 Sol             | 1/2" to 1" Pipe    | VA2SV.5X1 <b>B</b>  | NUWTUBE45  | US45      |
|                    | 1-1/2" to 4" Pipe  | VA2SV1.5X4 <b>B</b> | NUWTUBE45  | US45      |
|                    | 4" to 6" Pipe      | VA2SV4X6 <b>B</b>   | NUWTUBE45  | US45      |
|                    | 6" to 10" Pipe     | VA2SV6X10 <b>B</b>  | NUWTUBE45  | US45      |
|                    | 12" to 30" Pipe    | VA2SV12X30 <b>B</b> | NUWTUBE45  | US45      |
| #2                 | 32" Pipe or Larger | VA2 <b>SB</b>       | NUWTUBE45  | US45      |
|                    | 1-1/2" to 4" Pipe  | VA2V1.5X4 <b>B</b>  | NUWTUBE45  | US45      |
|                    | 4" to 6" Pipe      | VA2V4X6 <b>B</b>    | NUWTUBE45  | US45      |
|                    | 6" to 10" Pipe     | VA2V6X10 <b>B</b>   | NUWTUBE45  | US45      |
|                    | 12" to 30" Pipe    | VA2V12X30 <b>B</b>  | NUWTUBE45  | US45      |
| 32" Pipe or Larger | VA2 <b>B</b>       | NUWTUBE45           | US45       |           |



MSKIT

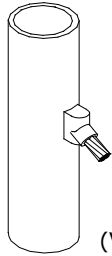
U.S. Patent  
No. 6,382,496



MSKIT with Handle

Continued on next page

UL US Listed 467



### VA

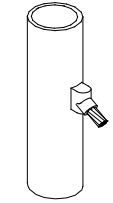
(Vertical Angle 45°)

### VA (Pipe) Connection Type (Range Taking) Continued

| Cable Size | Nominal Pipe Size  | Mold Part No. | Weld Metal |           |
|------------|--------------------|---------------|------------|-----------|
|            |                    |               | NUWTube    | UltraShot |
| 1/0        | 2" to 4" Pipe      | VA1/0V2X4B    | NUWTUBE90  | US90      |
|            | 4" to 6" Pipe      | VA1/0V4X6B    | NUWTUBE90  | US90      |
|            | 6" to 10" Pipe     | VA1/0V6X10B   | NUWTUBE90  | US90      |
|            | 12" to 30" Pipe    | VA1/0V12X30B  | NUWTUBE90  | US90      |
|            | 32" Pipe or Larger | VA1/0B        | NUWTUBE90  | US90      |
| 2/0        | 2" to 4" Pipe      | VA2/0V2X4B    | NUWTUBE90  | US90      |
|            | 4" to 6" Pipe      | VA2/0V4X6B    | NUWTUBE90  | US90      |
|            | 6" to 10" Pipe     | VA2/0V6X10B   | NUWTUBE90  | US90      |
|            | 12" to 30" Pipe    | VA2/0V12X30B  | NUWTUBE90  | US90      |
|            | 32" Pipe or Larger | VA2/0B        | NUWTUBE90  | US90      |
| 3/0        | 2" to 4" Pipe      | VA3/0V2X4B    | NUWTUBE115 | US115     |
|            | 4" to 6" Pipe      | VA3/0V4X6B    | NUWTUBE115 | US115     |
|            | 6" to 10" Pipe     | VA3/0V6X10B   | NUWTUBE115 | US115     |
|            | 12" to 30" Pipe    | VA3/0V12X30B  | NUWTUBE115 | US115     |
|            | 32" Pipe or Larger | VA3/0B        | NUWTUBE115 | US115     |
| 4/0        | 2" to 4" Pipe      | VA4/0V2X4B    | NUWTUBE115 | US115     |
|            | 4" to 6" Pipe      | VA4/0V4X6B    | NUWTUBE115 | US115     |
|            | 6" to 10" Pipe     | VA4/0V6X10B   | NUWTUBE115 | US115     |
|            | 12" to 30" Pipe    | VA4/0V12X30B  | NUWTUBE115 | US115     |
|            | 32" Pipe or Larger | VA4/0B        | NUWTUBE115 | US115     |

### VA (Pipe) Connection Type

| Cable Size | Mold Part No. | Weld Metal |           |
|------------|---------------|------------|-----------|
|            |               | NUWTube    | UltraShot |
| #6 Sol     | VA-6**B       | NUWTUBE45  | US45      |
| #4         | VA-4**B       | NUWTUBE45  | US45      |
| #2 Sol     | VA-2S**B      | NUWTUBE45  | US45      |
| #2         | VA-2**B       | NUWTUBE45  | US45      |
| 1/0        | VA-1/0**B     | NUWTUBE90  | US90      |
| 2/0        | VA-2/0**B     | NUWTUBE90  | US90      |
| 3/0        | VA-3/0**B     | NUWTUBE115 | US115     |
| 4/0        | VA-4/0**B     | NUWTUBE115 | US115     |

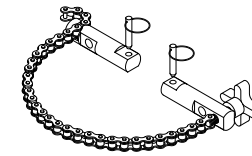


UL US Listed 467

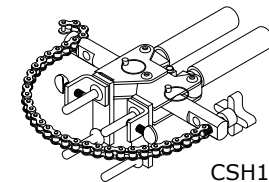
**\*\*Add Horizontal or Vertical Pipe Orientation and Pipe Size Indicator. See chart below.**

| CABLE TO VERTICAL STEEL PIPE                            |                                   |                            |
|---|-----------------------------------|----------------------------|
| Use Mold Part No.; add "V" and Pipe Size (**) Indicator |                                   |                            |
| Cable   | Nominal Pipe Size                 | Pipe Size Indicator        |
| #4 thru 250   | 30" and Smaller<br>32" and Larger | Nominal Pipe Size*<br>None |
| Example: #2 cable to 2-1/2" pipe = VA-2V2.5B            |                                   |                            |
| CABLE TO HORIZONTAL STEEL PIPE                          |                                   |                            |
| Use Mold Part No.; add "H" and Pipe Size (**) Indicator |                                   |                            |
| Example: #2/0 cable to 6" pipe = VA-2/0H6B              |                                   |                            |

**\*See Pipe Sizes on page 81.**



CSKIT



CSH1

U.S. Patent No. 6,382,496

**NOTE:**

- Thin walled pipe may be unsuitable for exothermic connections. If experiencing burn through issues with the pipe (typically with 2/0 or 4/0 conductors), adding sand inside the fence post well past the exothermic connection may solve this problem. Another solution would be to use a smaller conductor such as a #2 AWG jumper which uses a smaller size weld metal. The last solution may be to use mechanical fence clamp assembly such as the ones found in the Master Equipment Catalog.



## Cable to Steel Surface

### Mold Information:

• Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

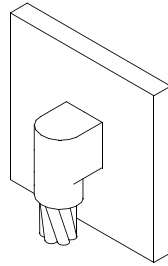
MH1 - Handle for "B" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRSH1 - Mold Cleaning Brushes (Page 73)

MSKIT - Magnetic Support Kit (Page 76)



**VD**  
(Vertical Down)



### VD Connection Type

| Cable Size | Mold Part No.  | Weld Metal   |           |
|------------|----------------|--------------|-----------|
|            |                | NUWTube      | UltraShot |
| #6d        | VD6 <b>B</b>   | NUWTUBE45    | US45      |
| #4         | VD4 <b>B</b>   | NUWTUBE65    | US65      |
| #2 Sol     | VD2 <b>S</b>   | NUWTUBE65    | US65      |
| #2         | VD2 <b>B</b>   | NUWTUBE65    | US65      |
| 1/0        | VD1/0 <b>B</b> | NUWTUBE115   | US115     |
| 2/0        | VD2/0 <b>B</b> | NUWTUBE115   | US115     |
| 3/0        | VD3/0 <b>B</b> | NUWTUBE150   | US150     |
| 4/0        | VD4/0 <b>B</b> | NUWTUBE150   | US150     |
| 250 MCM    | VD25C <b>M</b> | NUWTUBE200   | US200     |
| 300 MCM    | VD3C <b>M</b>  | NUWTUBE200   | US200     |
| 350 MCM    | VD35C <b>M</b> | NUWTUBE250   | US250     |
| 500 MCM    | VD5C <b>M</b>  | 2-NUWTUBE150 | US300     |



MSKIT



MSKIT with Mold Handle

U.S. Patent No. 6,382,496

## Cable to Steel Surface / Pipe

### Mold Information:

• Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

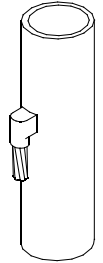
CSH1 - Chain Support Handle clamp for "B" Price Key Molds (Page 75) **OR**

MH1 - Handle for "B" Price Key Molds (Page 75) **AND**  
CSKIT - Chain Support Kits (Page 75)

### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRSH1 - Mold Cleaning Brushes (Page 73)



**VD**  
(Vertical Down)

### VD (Pipe) Connection Type (Range Taking)

| Mold Part No.         | Cable Size | Nominal Pipe Size | Weld Metal |           |
|-----------------------|------------|-------------------|------------|-----------|
|                       |            |                   | NUWTube    | UltraShot |
| VD2SV1.25X4 <b>B</b>  | #2 Sol     | 1-1/4" to 4" Pipe | NUWTUBE65  | US65      |
| VD2V1.25X4 <b>B</b>   | #2         | 1-1/4" to 4" Pipe | NUWTUBE65  | US65      |
| VD1/0V1.25X4 <b>B</b> | 1/0        | 1-1/4" to 4" Pipe | NUWTUBE115 | US115     |
| VD2/0V1.25X4 <b>B</b> | 2/0        | 1-1/4" to 4" Pipe | NUWTUBE115 | US115     |
| VD4/0V1.25X4 <b>B</b> | 4/0        | 1-1/4" to 4" Pipe | NUWTUBE150 | US150     |

### VD (Pipe) Connection Type

| Cable Size | Mold Part No.     | Weld Metal |           |
|------------|-------------------|------------|-----------|
|            |                   | NUWTube    | UltraShot |
| #6         | VD6** <b>B</b>    | NUWTUBE45  | US45      |
| #4         | VD4** <b>B</b>    | NUWTUBE65  | US65      |
| #2 Sol     | VD2S** <b>B</b>   | NUWTUBE65  | US65      |
| #2         | VD2** <b>B</b>    | NUWTUBE65  | US65      |
| 1/0        | VD1/0** <b>B</b>  | NUWTUBE115 | US115     |
| 2/0        | VD2/0** <b>B</b>  | NUWTUBE115 | US115     |
| 3/0        | VD3/0** <b>B</b>  | NUWTUBE150 | US150     |
| 4/0        | VD4/0** <b>B</b>  | NUWTUBE150 | US150     |
| 250 MCM    | VD25CM** <b>B</b> | NUWTUBE200 | US200     |

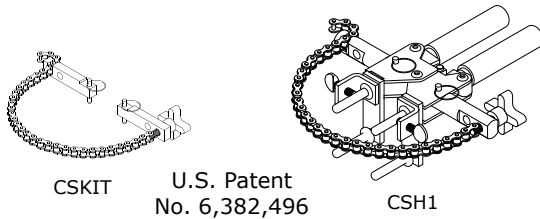
**\*\*Add Horizontal or Vertical Pipe Orientation and Pipe Size Indicator. See chart on the next page.**



### VD (Pipe & Fence Post) Connection Type (Range Taking) Continued

| CABLE TO VERTICAL STEEL PIPE                            |                                   |                            |
|---|-----------------------------------|----------------------------|
| Use Mold Part No.; add "V" and Pipe Size (**) Indicator |                                   |                            |
| Cable   | Nominal Pipe Size                 | Pipe Size Indicator        |
| #4 thru 250   | 30" and Smaller<br>32" and Larger | Nominal Pipe Size*<br>None |
| Example: #2 cable to 2-1/2" pipe = VD-2V2.5B            |                                   |                            |
| CABLE TO HORIZONTAL STEEL PIPE                          |                                   |                            |
| Use Mold Part No.; add "H" and Pipe Size (**) Indicator |                                   |                            |
| Example: #2/0 cable to 6" pipe = VD-2/0H6B              |                                   |                            |

\*See Pipe Sizes on page 81.



**NOTE:**

- Thin walled pipe may be unsuitable for exothermic connections. If experiencing burn through issues with the pipe (typically with 2/0 or 4/0 conductors), adding sand inside the fence post well past the exothermic connection may solve this problem. Another solution would be to use a smaller conductor such as a #2 AWG jumper which uses a smaller size weld metal. The last solution may be to use mechanical fence clamp assembly such as the ones found in the Master Equipment Catalog.

**Mold Information:**

- Price Key is the **Bold Letter** in the Mold Part No.

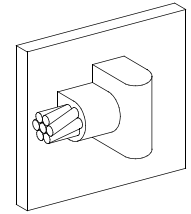
**Required Tools & Accessories:**

MH1 - Handle for "B" Price Key Molds (Page 75)

**Recommended Tools & Accessories:**

CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRS1 - Mold Cleaning Brushes (Page 73)

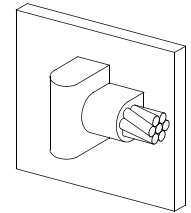


**VL**

(Vertical Surface Left Hand Mold\*)

### VL Connection Type

| Cable Size | Mold Part No.   | Weld Metal |            |
|------------|-----------------|------------|------------|
|            |                 | NUWTube    | Ultra-Shot |
| #6         | VL6 <b>B</b>    | NUWTUBE45  | US45       |
| #4         | VL4 <b>B</b>    | NUWTUBE45  | US45       |
| #2 Sol     | VL2 <b>SB</b>   | NUWTUBE45  | US45       |
| #2         | VL2 <b>B</b>    | NUWTUBE45  | US45       |
| 1/0        | VL1/0 <b>B</b>  | NUWTUBE90  | US90       |
| 2/0        | VL2/0 <b>B</b>  | NUWTUBE90  | US90       |
| 3/0        | VL3/0 <b>B</b>  | NUWTUBE115 | US115      |
| 4/0d       | VL4/0 <b>B</b>  | NUWTUBE115 | US115      |
| 250 MCM    | VL25 <b>CMB</b> | NUWTUBE115 | US115      |
| 300 MCM    | VL3 <b>CMB</b>  | NUWTUBE150 | US150      |
| 350 MCM    | VL35 <b>CMB</b> | NUWTUBE200 | US200      |
| 500 MCM    | VL5 <b>CMB</b>  | NUWTUBE200 | US200      |



**VR**

(Vertical Surface Right Hand Mold\*)

**NOTE:**

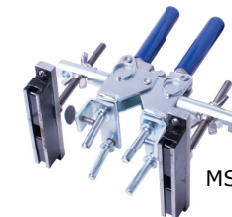
- Mold Sealer (Page 72) required on conductors 1/0 and larger

**\*NOTES:**

- VL is a Left Hand mold.
- To order a Right Hand mold, change the VL in the Mold Part No. to VR. Example: VR4B.



MSKIT



MSKIT with Mold Handle

U.S. Patent No. 6,382,496



## Cable to Steel Surface

### Mold Information:

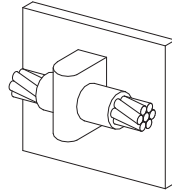
- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



### VH

(Vertical Surface  
Horizontal Cable)



## Cable to Steel Surface / Pipe

### Mold Information:

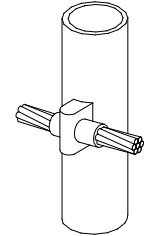
- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 75) **AND**
- CSKITHSVM - Chain Support Kits (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



### VH

(Horizontal Thru Cable to Side of  
Vertical Steel Pipe)



CSKITHSVM

U.S. Patent  
No. 6,382,496

### VH Connection Type

| Cable Size | Mold Part No.   | Weld Metal |           |
|------------|-----------------|------------|-----------|
|            |                 | NUWTube    | UltraShot |
| #6         | VH6 <b>B</b>    | NUWTUBE65  | US65      |
| #4         | VH4 <b>B</b>    | NUWTUBE65  | US65      |
| #2 Sol     | VH2 <b>S</b>    | NUWTUBE65  | US65      |
| #2         | VH2 <b>B</b>    | NUWTUBE65  | US65      |
| 1/0        | VH1/0 <b>B</b>  | NUWTUBE115 | US115     |
| 2/0        | VH2/0 <b>B</b>  | NUWTUBE115 | US115     |
| 3/0        | VH3/0 <b>B</b>  | NUWTUBE150 | US150     |
| 4/0        | VH4/0 <b>B</b>  | NUWTUBE150 | US150     |
| 250 MCM    | VH25CM <b>B</b> | NUWTUBE150 | US150     |



### VH (Pipe) Connection Type

| Cable Size | Mold Part No.            | Weld Metal |           |
|------------|--------------------------|------------|-----------|
|            |                          | NUWTube    | UltraShot |
| #6         | VH6** <b>B</b>           | NUWTUBE65  | US65      |
| #4         | VH4** <b>B</b>           | NUWTUBE65  | US65      |
| #2 Sol     | VH2 <b>S</b> ** <b>B</b> | NUWTUBE65  | US65      |
| #2         | VH2** <b>B</b>           | NUWTUBE65  | US65      |
| 1/0        | VH1/0** <b>B</b>         | NUWTUBE115 | US115     |
| 2/0d       | VH2/0** <b>B</b>         | NUWTUBE115 | US115     |
| 3/0        | VH3/0** <b>B</b>         | NUWTUBE150 | US150     |
| 4/0        | VH4/0** <b>B</b>         | NUWTUBE150 | US150     |
| 250 MCM    | VH25CM** <b>B</b>        | NUWTUBE150 | US150     |

**\*\*Add Pipe Size and Vertical Pipe to  
Mold Part No. See chart below.**

| CABLE TO VERTICAL STEEL PIPE                            |                                   |                            |
|---|-----------------------------------|----------------------------|
| Use Mold Part No.; add "V" and Pipe Size (**) Indicator |                                   |                            |
| Cable   | Nominal Pipe Size                 | Pipe Size Indicator        |
| #1 and Smaller  | 12" and Smaller<br>14" and Larger | Nominal Pipe Size*<br>None |
| 1/0 thru 250  | 28" and Smaller<br>30" and Larger | Nominal Pipe Size*<br>None |
| Example: #2 cable to 2-1/2" pipe = VH2V2.5 <b>B</b>     |                                   |                            |

**\*See Pipe Sizes on page 81.**

## Cable to Steel Surface / Pipe

### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 75)

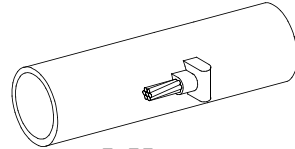
**AND**

CSKITHSVM - Chain Support Kits (Page 75)

### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRSH1 - Mold Cleaning Brushes (Page 73)



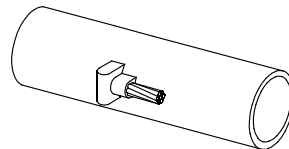
**VL**

(Vertical Dead End Cable to Side of Horizontal Steel Pipe\*)



## VL (Pipe) Connection Type

| Cable Size | Mold Part No.     | Weld Metal |           |
|------------|-------------------|------------|-----------|
|            |                   | NUWTUBE    | UltraShot |
| #6         | VL6** <b>B</b>    | NUWTUBE65  | US65      |
| #4         | VL4** <b>B</b>    | NUWTUBE65  | US65      |
| #2 Sol     | VL2S** <b>B</b>   | NUWTUBE65  | US65      |
| #2         | VL2** <b>B</b>    | NUWTUBE65  | US65      |
| 1/0        | VL1/0** <b>B</b>  | NUWTUBE115 | US115     |
| 2/0        | VL2/0** <b>B</b>  | NUWTUBE115 | US115     |
| 3/0        | VL3/0** <b>B</b>  | NUWTUBE150 | US150     |
| 4/0        | VL4/0** <b>B</b>  | NUWTUBE150 | US150     |
| 250 MCM    | VL25CM** <b>B</b> | NUWTUBE150 | US150     |



**VR**

(Horizontal Dead End Cable to Side of Horizontal Steel Pipe\*)

\*\*Add Pipe Size and Horizontal Pipe to Mold Part No. See chart below.

### NOTE:

- Mold Sealer (Page 72) required on conductors 1/0 and larger

### \*NOTES:

- VL is a Left Hand mold.
- To order a Right Hand mold, change the VL in the Mold Part No. to VR. Example: VR4\*\***B**.



| CABLE TO HORIZONTAL STEEL PIPE                          |                                   |                            |
|---|-----------------------------------|----------------------------|
| Use Mold Part No.; add "H" and Pipe Size (**) Indicator |                                   |                            |
| Cable   | Nominal Pipe Size                 | Pipe Size Indicator        |
| #1 and Smaller  | 12" and Smaller<br>14" and Larger | Nominal Pipe Size*<br>None |
| 1/0 thru 250  | 28" and Smaller<br>30" and Larger | Nominal Pipe Size*<br>None |
| Example: #2 cable to 2-1/2" pipe = VL-2H2.5 <b>B</b>    |                                   |                            |

\*See Pipe Sizes on page 81.

## Cable to Steel Surface

### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

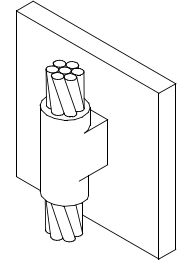
MH1 - Handle for "B" and "K" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRSH1 - Mold Cleaning Brushes (Page 73)

MSKIT - Magnetic Support Kit (Page 76)



**VT**

(Vertical Thru off Vertical Surface)

## VT Connection Type

| Cable Size | Mold Part No.     | Weld Metal |           |
|------------|-------------------|------------|-----------|
|            |                   | NUWTUBE    | UltraShot |
| #6         | VT6 <b>B</b>      | NUWTUBE90  | US90      |
| #4         | VT4 <b>B</b>      | NUWTUBE90  | US90      |
| #2 Sol     | VT2S <b>B</b>     | NUWTUBE115 | US115     |
| #2         | VT2 <b>B</b>      | NUWTUBE115 | US115     |
| 1/0        | VT1/0 <b>K</b>    | NUWTUBE200 | US200     |
| 2/0        | VT2/0 <b>K</b>    | NUWTUBE200 | US200     |
| 3/0        | VT3/0 <b>K</b>    | NUWTUBE250 | US250     |
| 4/0        | VT4/0 <b>K</b> *  | NUWTUBE250 | US250     |
| 250 MCM    | VT25CM <b>K</b> * | NUWTUBE250 | US250     |

\* MSKITXL recommended



MSKIT



MSKIT with Mold Handle

U.S. Patent  
No. 6,382,496

## Cable to Steel Surface / Pipe

### Mold Information:

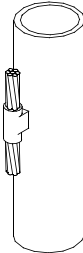
- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

- CSH1 - Chain Support Handle clamp for "B" and "K" Price Key Molds (Page 75) **OR**
- MH1 - Handle for "B" and "K" Price Key Molds (Page 75) **AND**
- CSKIT - Chain Support Kits (Page 75)

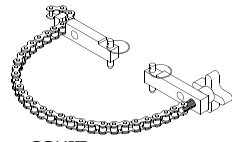
### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)



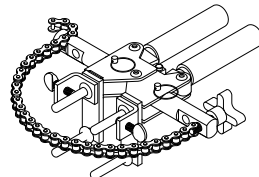
**VT**

(Vertical Thru Cable to Side of Vertical or Horizontal Steel Pipe)



CSKIT

U.S. Patent No. 6,382,496



CSH1

### VT (Pipe) Connection Type

| Cable Size | Mold Part No. | Weld Metal |           |
|------------|---------------|------------|-----------|
|            |               | NUWTube    | UltraShot |
| #6         | VT6**B        | NUWTUBE90  | US90      |
| #4         | VT4**B        | NUWTUBE90  | US90      |
| #2 Sol     | VT2S**B       | NUWTUBE115 | US115     |
| #2         | VT2**B        | NUWTUBE115 | US115     |
| 1/0        | VT1/0**K      | NUWTUBE200 | US200     |
| 2/0        | VT2/0**K      | NUWTUBE200 | US200     |
| 3/0        | VT3/0**K      | NUWTUBE250 | US250     |
| 4/0        | VT4/0**K      | NUWTUBE250 | US250     |
| 250 MCM    | VT25CM**K     | NUWTUBE250 | US250     |

\*\*Add Horizontal or Vertical Pipe Orientation and Pipe Size Indicator. See chart below.

| CABLE TO VERTICAL STEEL PIPE                            |                                   |                            |
|---|-----------------------------------|----------------------------|
| Use Mold Part No.; add "V" and Pipe Size (**) Indicator |                                   |                            |
| Cable   | Nominal Pipe Size                 | Pipe Size Indicator        |
| #4 thru 250   | 28" and Smaller<br>30" and Larger | Nominal Pipe Size*<br>None |
| Example: #2 cable to 2-1/2" pipe = VT-2V2.5B            |                                   |                            |
| CABLE TO HORIZONTAL STEEL PIPE                          |                                   |                            |
| Use Mold Part No.; add "H" and Pipe Size (**) Indicator |                                   |                            |
| Example: #2/0 cable to 6" pipe = VT-2/0H6B              |                                   |                            |

\*See Pipe Sizes on page 81.

## Cable to Steel Surface

### Mold Information:

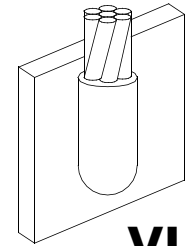
- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

- MH1 - Handle for "B" and "K" Price Key Molds (Page 75)
- MH2 - Handle for "D" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRSH1 - Mold Cleaning Brushes (Page 73)
- MSKIT - Magnetic Support Kit (Page 76)



**VU**

(Vertical Upward Cable on Vertical Surface)

### VU Connection Type

| Cable Size | Mold Part No. | Weld Metal   |           |
|------------|---------------|--------------|-----------|
|            |               | NUWTube      | UltraShot |
| #6         | VU6B          | NUWTUBE65    | US65      |
| #4         | VU4B          | NUWTUBE65    | US65      |
| #2 Sol     | VU2SB         | NUWTUBE65    | US65      |
| #2         | VU2B          | NUWTUBE65    | US65      |
| 1/0        | VU1/0B        | NUWTUBE150   | US150     |
| 2/0        | VU2/0B        | NUWTUBE150   | US150     |
| 3/0        | VU3/0K        | NUWTUBE200   | US200     |
| 4/0        | VU4/0K        | NUWTUBE200   | US200     |
| 250 MCM    | VU25CMK       | NUWTUBE200   | US200     |
| 300 MCM    | VU3CMK        | NUWTUBE250   | US250     |
| 350 MCM    | VU35CMK       | 2-NUWTUBE150 | US300     |
| 500 MCM    | VU5CMD*       | 2-NUWTUBE200 | US400     |
| 750 MCM    | VU75CMD*      | 2-NUWTUBE250 | US500     |

\* MSKITXL recommended



MSKIT



MSKIT with Mold Handle

U.S. Patent No. 6,382,496

## Cable to Steel Surface / Pipe

### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

CSH1 - Chain Support Handle clamp for "B" and "K" Price Key Molds (Page 75) **OR**

MH1 - Handle for "B" and "K" Price Key Molds (Page 75) **AND**

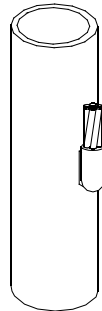
CSKIT - Chain Support Kits (Page 75)

### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

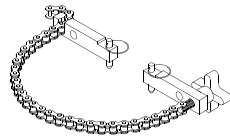
MCBRSH1 - Mold Cleaning Brushes (Page 73)

UL US Listed 467



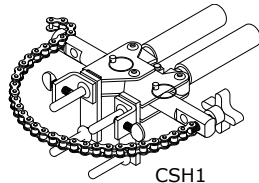
## VU

(Vertical Cable Dead End to Side of Vertical or Horizontal Steel Pipe)



CSKIT

U.S. Patent No. 6,382,496



CSH1

## VU (Pipe) Connection Type

| Cable Size | Mold Part No.     | Weld Metal |           |
|------------|-------------------|------------|-----------|
|            |                   | NUWTube    | UltraShot |
| #6         | VU6** <b>B</b>    | NUWTUBE65  | US65      |
| #4         | VU4** <b>B</b>    | NUWTUBE65  | US65      |
| #2 Sol     | VU2S** <b>B</b>   | NUWTUBE65  | US65      |
| #2         | VU2** <b>B</b>    | NUWTUBE65  | US65      |
| 1/0        | VU1/0** <b>B</b>  | NUWTUBE150 | US150     |
| 2/0        | VU2/0** <b>B</b>  | NUWTUBE150 | US150     |
| 3/0        | VU3/0** <b>K</b>  | NUWTUBE200 | US200     |
| 4/0        | VU4/0** <b>K</b>  | NUWTUBE200 | US200     |
| 250 MCM    | VU25CM** <b>K</b> | NUWTUBE200 | US200     |

**\*\*Add Pipe Size and Horizontal or Vertical Pipe to Mold Part No. See chart below.**

| CABLE TO VERTICAL STEEL PIPE                            |                                   |                            |
|---|-----------------------------------|----------------------------|
| Use Mold Part No.; add "V" and Pipe Size (**) Indicator |                                   |                            |
| Cable   | Nominal Pipe Size                 | Pipe Size Indicator        |
| #4 thru 250   | 28" and Smaller<br>30" and Larger | Nominal Pipe Size*<br>None |
| Example: #2 cable to 2-1/2" pipe = VU-2V2.5 <b>B</b>    |                                   |                            |
| CABLE TO HORIZONTAL STEEL PIPE                          |                                   |                            |
| Use Mold Part No.; add "H" and Pipe Size (**) Indicator |                                   |                            |
| Example: #2/0 cable to 6" pipe = VU-2/0H6 <b>B</b>      |                                   |                            |

**\*See Pipe Sizes on page 81.**

## Cable to Reinforcing Steel

### Mold Information:

- Price Key is the **Bold Letter** in the Mold Part No.

### Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 75)

Wrap Sleeves (Page 71) **OR**

Ceramic Packing Material (Page 72)

UMHDKIT - Mold Hold Down Kit (Page 76)

### Recommended Tools & Accessories:

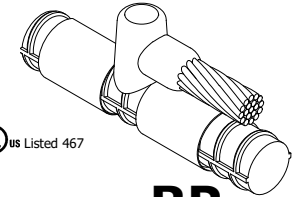
CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRSH1 - Mold Cleaning Brushes (Page 73)

UMHDKIT - Mold Hold Down Kit (Page 76)

UMMHDA - Hold Down Kit when Price Key is "A" (Page 76)

UL US Listed 467



## RP

(Reinforcing Steel Parallel Tap)

## RP Connection Type

| Size         | Cable Size       | Mold Part No.    | Packing Mat'l No. | Weld Metal |           |
|--------------|------------------|------------------|-------------------|------------|-----------|
|              |                  |                  |                   | NUWTube    | UltraShot |
| #3           | #6               | RP36 <b>B</b>    | WRPSLV            | NUWTUBE25  | US25      |
|              | #4               | RP34 <b>B</b>    | WRPSLV            | NUWTUBE32  | US32      |
|              | #2 Sol           | RP32S <b>B</b>   | WRPSLV            | NUWTUBE45  | US45      |
|              | #2               | RP32 <b>B</b>    | WRPSLV            | NUWTUBE45  | US45      |
|              | 1/0              | RP31/0 <b>B</b>  | WRPSLV            | NUWTUBE90  | US90      |
|              | 2/0              | RP32/0 <b>B</b>  | WRPSLV            | NUWTUBE90  | US90      |
|              | 3/0              | RP33/0 <b>B</b>  | WRPSLV            | NUWTUBE115 | US115     |
|              | 4/0              | RP34/0 <b>B</b>  | WRPSLV            | NUWTUBE115 | US115     |
| #4 & Larger  | #6               | RP4L6 <b>A</b>   | CERPM1            | NUWTUBE25  | US25      |
|              | #4               | RP4L4 <b>A</b>   | CERPM1            | NUWTUBE32  | US32      |
|              | #2 Sol           | RP4L2S <b>A</b>  | CERPM1            | NUWTUBE45  | US45      |
| #4           | #2               | RP4L2 <b>A</b>   | CERPM1            | NUWTUBE45  | US45      |
|              | 1/0              | RP41/0 <b>B</b>  | WRPSLV            | NUWTUBE90  | US90      |
|              | 2/0              | RP42/0 <b>B</b>  | WRPSLV            | NUWTUBE90  | US90      |
|              | 3/0              | RP43/0 <b>B</b>  | WRPSLV            | NUWTUBE115 | US115     |
| #5           | 4/0              | RP44/0 <b>B</b>  | WRPSLV            | NUWTUBE115 | US115     |
|              | 1/0              | RP51/0 <b>B</b>  | WRPSLV            | NUWTUBE90  | US90      |
|              | 2/0              | RP52/0 <b>B</b>  | WRPSLV            | NUWTUBE90  | US90      |
|              | 3/0              | RP53/0 <b>B</b>  | WRPSLV            | NUWTUBE115 | US115     |
| #6* & Larger | 4/0              | RP54/0 <b>B</b>  | WRPSLV            | NUWTUBE115 | US115     |
|              | 1/0              | RP6L1/0 <b>B</b> | CERPM2            | NUWTUBE90  | US90      |
|              | 2/0              | RP6L2/0 <b>B</b> | CERPM2            | NUWTUBE90  | US90      |
|              | 3/0              | RP6L3/0 <b>B</b> | CERPM2            | NUWTUBE115 | US115     |
| 4/0          | RP6L4/0 <b>B</b> | CERPM2           | NUWTUBE115        | US115      |           |

\* Requires Hold Down Kit (UMHDKIT) for welds made to #6 and Larger reinforcing steel.

- (2) #WRPSLV Wrap Sleeve required per weld.

- (1) #CERPM1 or #CERPM2 Ceramic Packing Material required per weld.



UMHDKIT

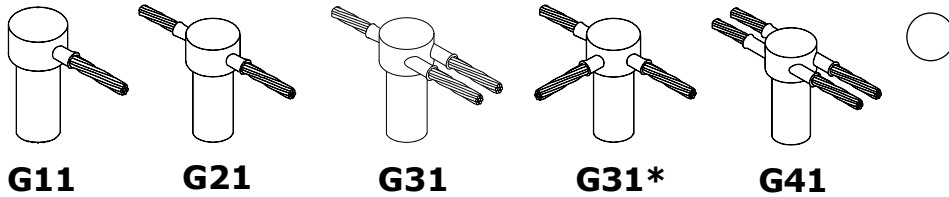
U.S. Patent No. 6,382,496



UMHDKIT with Handle

**See Packing Material Materials and Notes on Page 72.**

## Uni-Shot - UltraShot



UL US Listed 467

## Uni-Shots - UltraShot®

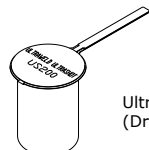
| Type | Cable Sizes |          | Ground Rod      |              |                 |              |
|------|-------------|----------|-----------------|--------------|-----------------|--------------|
|      | Solid       | Stranded | 5/8 Copper Clad | 5/8 Full     | 3/4 Copper Clad | 3/4 Full     |
| G11  | #6, #8      | #8       | G11588US        | G1158F8US    | G11348US        | G1134F8US    |
| G11  | #3, #4      | #4, #6   | G11584US        | G1158F4US    | G11344US        | G1134F4US    |
| G11  | #1, #2      | #2, #3   | G11582US        | G1158F2US    | G11342US        | G1134F2US    |
| G11  | 2/0, 1/0    | 1/0, #1  | G11581/0US      | G1158F1/0US  | G11341/0US      | G1134F1/0US  |
| G11  | ---         | 2/0      | G11582/0US      | G1158F2/0US  | G11342/0US      | G1134F2/0US  |
| G11  | ---         | 4/0      | G11584/0US      | G1158F4/0US  | G11344/0US      | G1134F4/0US  |
| G21  | #6, #8      | #8       | G21588US        | G2158F8US    | G21348US        | G2134F8US    |
| G21  | #3, #4      | #4, #6   | G21584US        | G2158F4US    | G21344US        | G2134F4US    |
| G21  | #1, #2      | #2, #3   | G21582US        | G2158F2US    | G21342US        | G2134F2US    |
| G21  | 2/0, 1/0    | 1/0, #1  | G21581/0US      | G2158F1/0US  | G21341/0US      | G2134F1/0US  |
| G21  | ---         | 2/0      | G21582/0US      | G2158F2/0US  | G21342/0US      | G2134F2/0US  |
| G21  | ---         | 4/0      | G21584/0US      | G2158F4/0US  | G21344/0US      | G2134F4/0US  |
| G31  | #6, #8      | #8       | G31588US        | G3158F8US    | G31348US        | G3134F8US    |
| G31  | #3, #4      | #4, #6   | G31584US        | G3158F4US    | G31344US        | G3134F4US    |
| G31  | #1, #2      | #2, #3   | G31582US        | G3158F2US    | G31342US        | G3134F2US    |
| G31  | 2/0, 1/0    | 1/0, #1  | G31581/0US*     | G3158F1/0US* | G31341/0US*     | G3134F1/0US* |
| G41  | #6, #8      | #8       | G41588US        | G4158F8US    | G41348US        | G4134F8US    |
| G41  | #3, #4      | #4, #6   | G41584US        | G4158F4US    | G41344US        | G4134F4US    |
| G41  | #1, #2      | #2, #3   | G41582US        | G4158F2US    | G41342US        | G4134F2US    |

### NOTES:

- Disposable single use ceramic mold provides convenience and ease of use.
- Packaged 12 per box.
- DRONE or USCONTROLLER required to make UltraShot connection. See page 66.
- No frames or handle clamps are required.

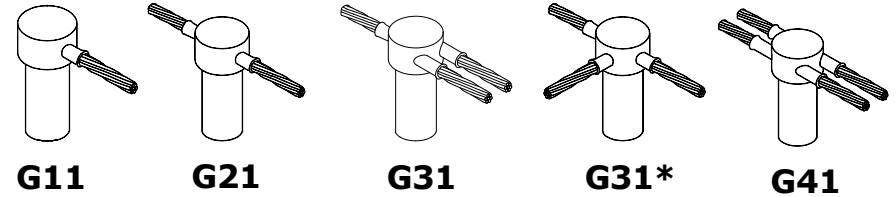


Use locking pliers to support mold



UltraShot (Drop-in)

## Uni-Shots - NUWTube



UL US Listed 467

## Uni-Shots - NUWTube®

| Type | Cable Sizes |          | Ground Rod      |              |                 |              |
|------|-------------|----------|-----------------|--------------|-----------------|--------------|
|      | Solid       | Stranded | 5/8 Copper Clad | 5/8 Full     | 3/4 Copper Clad | 3/4 Full     |
| G11  | #6, #8      | #8       | G11588NU        | G1158F8NU    | G11348NU        | G1134F8NU    |
| G11  | #3, #4      | #4, #6   | G11584NU        | G1158F4NU    | G11344NU        | G1134F4NU    |
| G11  | #1, #2      | #2, #3   | G11582NU        | G1158F2NU    | G11342NU        | G1134F2NU    |
| G11  | 2/0, 1/0    | 1/0, #1  | G11581/0NU      | G1158F1/0NU  | G11341/0NU      | G1134F1/0NU  |
| G11  | -           | 2/0      | G11582/0NU      | G1158F2/0NU  | G11342/0NU      | G1134F2/0NU  |
| G11  | -           | 4/0      | G11584/0NU      | G1158F4/0NU  | G11344/0NU      | G1134F4/0NU  |
| G21  | #6, #8      | #8       | G21588NU        | G2158F8NU    | G21348NU        | G2134F8NU    |
| G21  | #3, #4      | #4, #6   | G21584NU        | G2158F4NU    | G21344NU        | G2134F4NU    |
| G21  | #1, #2      | #2, #3   | G21582NU        | G2158F2NU    | G21342NU        | G2134F2NU    |
| G21  | 2/0, 1/0    | 1/0, #1  | G21581/0NU      | G3158F1/0NU  | G21341/0NU      | G2134F1/0NU  |
| G21  | -           | 2/0      | G21582/0NU      | G3158F2/0NU  | G21342/0NU      | G2134F2/0NU  |
| G21  | -           | 4/0      | G21584/0NU      | G3158F4/0NU  | G21344/0NU      | G2134F4/0NU  |
| G31  | #6, #8      | #8       | G31588NU        | G3158F8NU    | G31348NU        | G3134F8NU    |
| G31  | #3, #4      | #4, #6   | G31584NU        | G3158F4NU    | G31344NU        | G3134F4NU    |
| G31  | #1, #2      | #2, #3   | G31582NU        | G3158F2NU    | G31342NU        | G3134F2NU    |
| G31  | 2/0, 1/0    | 1/0, #1  | G31581/0NU*     | G3158F1/0NU* | G31341/0NU*     | G3134F1/0NU* |
| G41  | #6, #8      | #8       | G41588NU        | G4158F8NU    | G41348NU        | G4134F8NU    |
| G41  | #3, #4      | #4, #6   | G41584NU        | G4158F4NU    | G41344NU        | G4134F4NU    |
| G41  | #1, #2      | #2, #3   | G41582NU        | G4158F2NU    | G41342NU        | G4134F2NU    |

### NOTES:

- Disposable single use ceramic mold provides convenience and ease of use.
- Packaged 12 per box.
- Requires only a Flint Igniter (FLTIG) to make a connection. See Page 78.
- No frames or handle clamps are required.



Use locking pliers to support mold



NUWTube (Pour & Shoot)

## Cable to Lug or Bus Bar

### Mold Information:

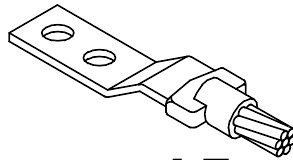
- Price Key is the **Bold Letter** in the Mold Part No.
- For mold Wear Plates, add suffix "WP" to the end of the Mold Part No. See page 70 for details.

### Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 75)
- MH2 - Handle for "C" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

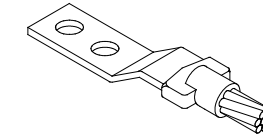
- CCBRSH1 - Cable Cleaning Brush (Page 72)
- MCBRS1 - Mold Cleaning Brushes (Page 73)



**LE**  
(Lug End)



## Cable to Lug or Bus Bar



**LE**  
(Lug End)



### LE Connection Type

| Cable Size | Lug Size    | Mold Part No.        | Weld Metal |           |
|------------|-------------|----------------------|------------|-----------|
|            |             |                      | NUWTube    | UltraShot |
| #6         | 1/8 x 1     | LE6181 <b>B</b>      | NUWTUBE45  | US45      |
| #4         | 1/8 x 1     | LE4181 <b>B</b>      | NUWTUBE45  | US45      |
| #2 Sol     | 1/8 x 1     | LE2S181 <b>B</b>     | NUWTUBE45  | US45      |
| #2         | 1/8 x 1     | LE2181 <b>B</b>      | NUWTUBE45  | US45      |
| 1/0        | 1/8 x 1     | LE1/0181 <b>B</b>    | NUWTUBE45  | US45      |
|            | 1/4 x 1     | LE1/0141 <b>B</b>    | NUWTUBE65  | US65      |
| 2/0        | 1/8 x 1     | LE2/0181 <b>B</b>    | NUWTUBE65  | US65      |
|            | 1/4 x 1     | LE2/0141 <b>B</b>    | NUWTUBE65  | US65      |
| 3/0        | 3/16 x 1    | LE3/03161 <b>B</b>   | NUWTUBE90  | US90      |
|            | 1/4 x 1     | LE3/0141 <b>B</b>    | NUWTUBE90  | US90      |
| 4/0        | 3/16 x 1    | LE4/03161 <b>B</b>   | NUWTUBE90  | US90      |
|            | 1/4 x 1     | LE4/0141 <b>B</b>    | NUWTUBE90  | US90      |
|            | 1/4 x 1-1/4 | LE4/0141.25 <b>B</b> | NUWTUBE90  | US90      |
|            | 1/4 x 1-1/2 | LE4/0141.5 <b>B</b>  | NUWTUBE90  | US90      |

Continued on next page

### LE Connection Type Continued

| Cable Size | Lug Size    | Mold Part No.         | Weld Metal   |           |
|------------|-------------|-----------------------|--------------|-----------|
|            |             |                       | NUWTube      | UltraShot |
| 250 MCM    | 1/4 x 1     | LE25CM141 <b>B</b>    | NUWTUBE90    | US90      |
|            | 1/4 x 1-1/4 | LE25CM141.25 <b>B</b> | NUWTUBE90    | US90      |
|            | 1/4 x 1-1/2 | LE25CM141.5 <b>B</b>  | NUWTUBE90    | US90      |
| 500 MCM    | 1/4 x 1-1/2 | LE5CM141.5 <b>B</b>   | NUWTUBE200   | US200     |
|            | 1/4 x 2     | LE5CM142 <b>B</b>     | NUWTUBE200   | US200     |
|            | 3/8 x 1     | LE5CM381 <b>B</b>     | NUWTUBE200   | US200     |
|            | 3/8 x 1-1/2 | LE5CM381.5 <b>B</b>   | NUWTUBE200   | US200     |
|            | 3/8 x 2     | LE5CM382 <b>B</b>     | 2-NUWTUBE150 | US300     |
| 750 MCM    | 1/4 x 2     | LE75CM142 <b>B</b>    | 2-NUWTUBE150 | US300     |
|            | 3/8 x 1-1/2 | LE75CM381.5 <b>B</b>  | 2-NUWTUBE150 | US300     |
|            | 3/8 x 2     | LE75CM382 <b>B</b>    | 2-NUWTUBE150 | US300     |
| 1000 MCM   | 3/8 x 2     | LE1MM382 <b>C</b>     | 2-NUWTUBE200 | US400     |
|            | 7/16 x 2    | LE1MM7162 <b>C</b>    | 2-NUWTUBE200 | US400     |
|            | 1/2 x 2     | LE1MM122 <b>C</b>     | 2-NUWTUBE250 | US500     |

See pages 61 and 62 for Lugs



## Cable to Lug or Bus Bar

### Mold Information:

• Price Key is the **Bold Letter** in the Mold Part No.

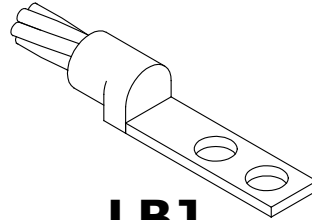
### Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 75)

### Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 72)

MCBRSH1 - Mold Cleaning Brushes (Page 73)



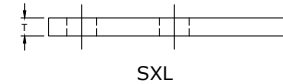
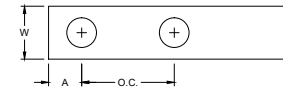
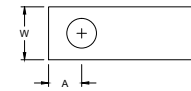
**LBJ**  
(Lug Bent J)

### LBJ Connection Type

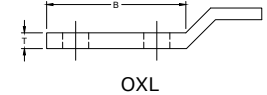
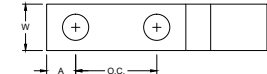
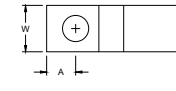
| Cable Size | Lug Size | Mold Part No.       | Weld Metal |           |
|------------|----------|---------------------|------------|-----------|
|            |          |                     | NUWTube    | UltraShot |
| #6         | 1/8 x 1  | LBJ6181 <b>B</b>    | NUWTUBE32  | US32      |
| #4         | 1/8 x 1  | LBJ4181 <b>B</b>    | NUWTUBE32  | US32      |
| #2 Sol     | 1/8 x 1  | LBJ2S181 <b>B</b>   | NUWTUBE32  | US32      |
| #2         | 1/8 x 1  | LBJ2181 <b>B</b>    | NUWTUBE32  | US32      |
| 1/0        | 1/8 x 1  | LBJ1/0181 <b>B</b>  | NUWTUBE45  | US45      |
| 2/0        | 1/8 x 1  | LBJ2/0181 <b>B</b>  | NUWTUBE45  | US45      |
|            | 3/16 x 1 | LBJ2/03161 <b>B</b> | NUWTUBE65  | US65      |
| 3/0        | 1/8 x 1  | LBJ3/0181 <b>B</b>  | NUWTUBE65  | US65      |
|            | 3/16 x 1 | LBJ3/03161 <b>B</b> | NUWTUBE65  | US65      |
| 4/0        | 1/8 x 1  | LBJ4/0181 <b>B</b>  | NUWTUBE65  | US65      |
|            | 3/16 x 1 | LBJ4/03161 <b>B</b> | NUWTUBE65  | US65      |

See pages 61 and 62 for Lugs

## Copper Lugs



SXL



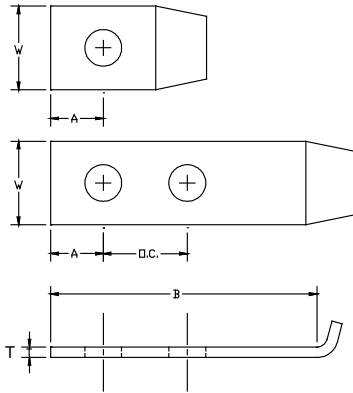
OXL

### Straight & Offset

| Lug Size    | Straight Part No. | Offset Part No. | No. of Holes | Screw Size | O.C. Dim. | T    | W     | A    | B     |
|-------------|-------------------|-----------------|--------------|------------|-----------|------|-------|------|-------|
| 1/8 x 1     | SXL181            | OXL181          | 1            | 3/8        | ---       | 1/8  | 1     | 1/2  | 7/8   |
|             | SXL1812B          | OXL1812B        | 2            | 3/8        | .75       | 1/8  | 1     | 5/8  | 3     |
|             | SXL1812C          | OXL1812C        | 2            | 1/2        | 1         | 1/8  | 1     | 5/8  | 3     |
|             | SXL1812D          | OXL1812D        | 2            | 1/2        | 1.75      | 1/8  | 1     | 5/8  | 3     |
| 3/16 x 1    | SXL3161           | OXL3161         | 1            | 3/8        | ---       | 3/16 | 1     | 9/16 | 1-1/8 |
|             | SXL31612B         | OXL31612B       | 2            | 3/8        | .75       | 3/16 | 1     | 5/8  | 3     |
|             | SXL31612C         | OXL31612C       | 2            | 1/2        | 1         | 3/16 | 1     | 5/8  | 3     |
| 1/4 x 1     | SXL31612D         | OXL31612D       | 2            | 1/2        | 1.75      | 3/16 | 1     | 5/8  | 3     |
|             | SXL141            | OXL141          | 1            | 1/2        | ---       | 1/4  | 1     | 5/8  | 1-1/8 |
|             | SXL1412B          | OXL1412B        | 2            | 3/8        | .75       | 1/4  | 1     | 5/8  | 3     |
|             | SXL1412C          | OXL1412C        | 2            | 1/2        | 1         | 1/4  | 1     | 5/8  | 3     |
| 1/4 x 1-1/2 | SXL1412D          | OXL1412D        | 2            | 1/2        | 1.75      | 1/4  | 1     | 5/8  | 3     |
|             | SXL141.5          | OXL141.5        | 1            | 5/8        | ---       | 1/4  | 1-1/2 | 3/4  | 1-1/2 |
|             | SXL141.52B        | OXL141.52B      | 2            | 3/8        | .75       | 1/4  | 1-1/2 | 5/8  | 3     |
|             | SXL141.52C        | OXL141.52C      | 2            | 1/2        | 1         | 1/4  | 1-1/2 | 5/8  | 3     |
| 1/4 x 2     | SXL141.52D        | OXL141.52D      | 2            | 1/2        | 1.75      | 1/4  | 1-1/2 | 5/8  | 3     |
|             | SXL1422B          | OXL1422B        | 2            | 3/8        | .75       | 1/4  | 2     | 5/8  | 3     |
|             | SXL1422C          | OXL1422C        | 2            | 1/2        | 1         | 1/4  | 2     | 5/8  | 3     |
|             | SXL1422D          | OXL1422D        | 2            | 1/2        | 1.75      | 1/4  | 2     | 5/8  | 3     |
| 3/8 x 1-1/2 | SXL381.5          | OXL381.5        | 1            | 5/8        | ---       | 3/8  | 1-1/2 | 3/4  | 1-1/2 |
|             | SXL381.52B        | OXL381.52B      | 2            | 3/8        | .75       | 3/8  | 1-1/2 | 5/8  | 3     |
|             | SXL381.52C        | OXL381.52C      | 2            | 1/2        | 1         | 3/8  | 1-1/2 | 5/8  | 3     |
|             | SXL381.52D        | OXL381.52D      | 2            | 1/2        | 1.75      | 3/8  | 1-1/2 | 5/8  | 3     |
| 3/8 x 2     | SXL382            | OXL382          | 1            | 5/8        | ---       | 3/8  | 2     | 1    | 2-1/8 |
|             | SXL3822B          | OXL3822B        | 2            | 3/8        | .75       | 3/8  | 2     | 5/8  | 3     |
|             | SXL3822C          | OXL3822C        | 2            | 1/2        | 1         | 3/8  | 2     | 5/8  | 3     |
|             | SXL3822D          | OXL3822D        | 2            | 1/2        | 1.75      | 3/8  | 2     | 5/8  | 3     |

For Use with LE Style Molds on Page 58.

## Copper Lugs



JXL

### Tinned Copper Lugs - Bent J

| Lug Size | Bent J Part No. | No. of Holes | Screw Size | O.C. Dim. | T    | W | A   | B     |
|----------|-----------------|--------------|------------|-----------|------|---|-----|-------|
| 1/8 x 1  | JXL-1813/8      | 1            | 3/8        | ---       | 1/8  | 1 | 5/8 | 1-1/4 |
|          | JXL-181         | 1            | 1/2        | ---       | 1/8  | 1 | 5/8 | 1-1/4 |
|          | JXL-1812C1/4    | 2            | 1/4        | 1         | 1/8  | 1 | 5/8 | 3     |
|          | JXL-1812C3/8    | 2            | 3/8        | 1         | 1/8  | 1 | 5/8 | 3     |
|          | JXL-1812D       | 2            | 1/2        | 1.75      | 1/8  | 1 | 5/8 | 3     |
| 3/16 x 1 | JXL-3161        | 1            | 1/2        | ---       | 3/16 | 1 | 5/8 | 1-1/4 |
|          | JXL-31612D      | 2            | 1/2        | 1.75      | 3/16 | 1 | 5/8 | 3     |

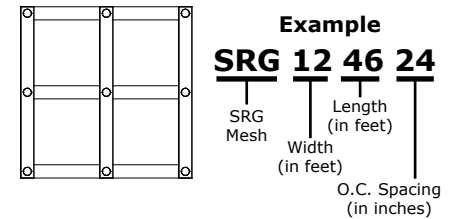
For Use with LBJ Style Molds on Page 60.

## Supplementary Bonding Grids

### Flat Strip Supplementary Bonding Grids

Harger's Flat Strip Supplementary Bonding Grids are manufactured from 2" wide x 26 gauge soft copper strip. They are welded together forming a 2' x 2' pattern. Rolls of SRG range from 2' to 18' wide and the weight per roll is usually limited to a maximum of 250 pounds. Signal Reference Grids (SRG) are also known as Mesh-BN's, System Reference Potential Planes (SRPP) and Supplementary Bonding Grids.

### Supplementary Bonding Grid (SRG) Numbering System

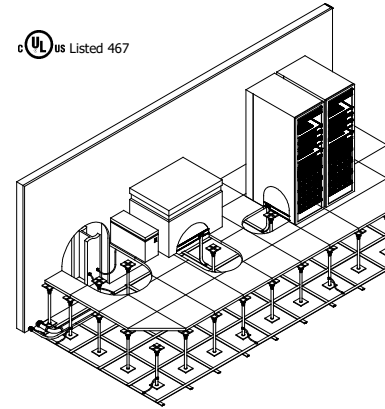


#### NOTES:

- 2" x .016" Copper Strip is used unless specified otherwise.
- Meets requirements of 2005 IEEE, Std. 1100

Today's electronic environments require specialized grounding applications. Understanding higher frequency grounds, equipotential ground planes and supplementary bonding subsystems are imperative to protecting sophisticated equipment systems. Harger offers the knowledge and products required to protect these delicate systems. Signal Reference Grids (SRG) are also known as Supplementary Bonding Grids.

UL Listed 467



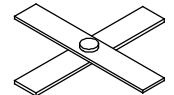
### Standard SRG Sizes

| Part No.  | Description                 | Approx. Each Wt. (lbs.) |
|-----------|-----------------------------|-------------------------|
| SRG105024 | 10' x 50', 24" O.C. Spacing | 90                      |
| SRG125024 | 12' x 50', 24" O.C. Spacing | 98                      |

- Commonly stocked.

### SRG to SRG Connections

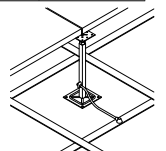
| Mold Part No. | Flat Strip | Weld Metal |           | Handle Clamp |
|---------------|------------|------------|-----------|--------------|
|               |            | NUWTube    | UltraShot |              |
| SRG2016K      | 2" x .016" | NUWTUBE32  | US32      | MH1          |



### Exothermically Welded Pedestal Connections

| Mold Part No. | Connection                  | Weld Metal |           | Handle Clamp |
|---------------|-----------------------------|------------|-----------|--------------|
|               |                             | NUWTube    | UltraShot |              |
| VHO61SQMX     | #6 Conc. to 1" Sq. Pedestal | NUWTUBE25  | US25      | MH4          |
| VHO41SQMX     | #4 Conc. to 1" Sq. Pedestal | NUWTUBE25  | US25      | MH4          |

- For LO-smoke™ connection, contact the factory.
- LO-smoke™ system requires the use of the UltraShot system.



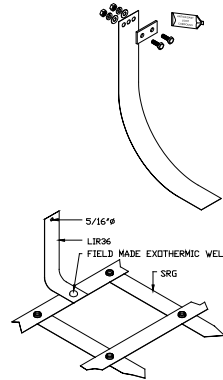


## Supplementary Bonding Grids

### Low Impedance Risers

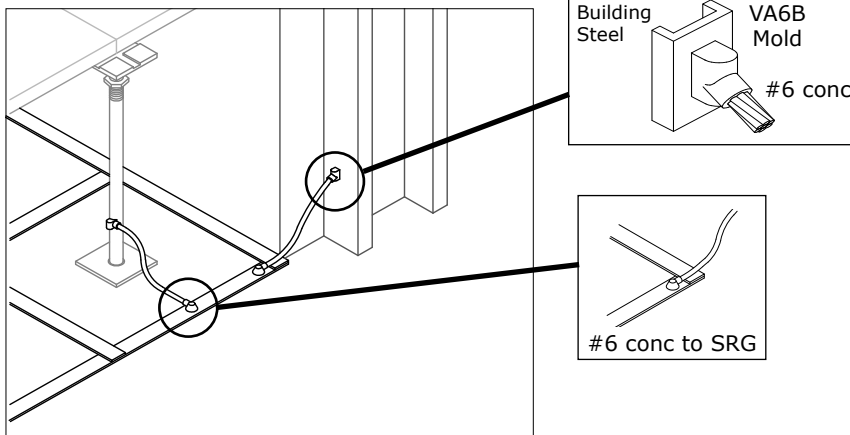
| Part No. | Material               | Length | Riser or Kit |
|----------|------------------------|--------|--------------|
| LIR18    | 2" x .016" Flat Copper | 18"    | Riser        |
| LIR18KIT | 2" x .016" Flat Copper | 18"    | Kit          |
| LIR24    | 2" x .016" Flat Copper | 24"    | Riser        |
| LIR24KIT | 2" x .016" Flat Copper | 24"    | Kit          |
| LIR36    | 2" x .016" Flat Copper | 36"    | Riser        |
| LIR36KIT | 2" x .016" Flat Copper | 36"    | Kit          |
| LIR72    | 2" x .016" Flat Copper | 72"    | Riser        |
| LIR72KIT | 2" x .016" Flat Copper | 72"    | Kit          |

- Kit includes all necessary hardware.
- Use mold SRG2016K to weld LIR to SRG.



### Exothermic Connections for Bonding to Building Steel

All columns within and at perimeter of the computer room shall be bonded to the SRG using a concentric stranded copper conductor. #6 AWG 7 strand copper is the most common conductor used for this application. The cable should take the shortest path between the building steel and the Supplementary Bonding Grid.



| Mold Part No. | Connection                 | Weld Metal |           | Handle Clamp |
|---------------|----------------------------|------------|-----------|--------------|
|               |                            | NUWTube    | UltraShot |              |
| VA6B          | #6 Conc. to Building Steel | NUWTUBE45  | US45      | MH1          |
| VA4B          | #4 Conc. to Building Steel | NUWTUBE45  | US45      | MH1          |
| VA2B          | #2 Conc. to Building Steel | NUWTUBE45  | US45      | MH1          |
| BCF61.5016B   | #6 Conc. to SRG            | NUWTUBE25  | US25      | MH1          |
| BCF41.5016B   | #4 Conc. to SRG            | NUWTUBE32  | US32      | MH1          |
| BCF21.5016B   | #2 Conc. to SRG            | NUWTUBE32  | US32      | MH1          |

- For low smoke requirements, a USSXKIT (Page 69) is required to convert standard UltraShot molds into LO-smoke™ molds using UltraShot® weld metal only.

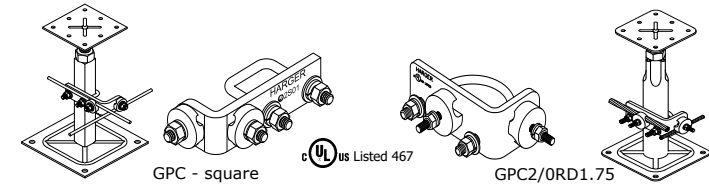
## Supplementary Bonding Grids

### Round-wire Supplementary Bonding Grid

"A Signal Reference Grid may also be economically fabricated from standard, bare round-wire joined together via welding, brazing, compression or a suitable grounding clamp arrangement at each of the crossing points". (2005 IEEE Std. 1100)

Harger offers a variety of ground pedestal clamps and conductors to achieve these objectives. Signal Reference Grids (SRG) are also known as Supplementary Bonding Grids.

### Ground Pedestal Clamps & Bonding Clamps



| Part No.     | U-Bolt Type | Pedestal Size   | Conductor Size (AWG) | Box Qty. | Approx. Box Wt. (lbs.) |
|--------------|-------------|-----------------|----------------------|----------|------------------------|
| GPC6SQ       | Square      | 1" (1-1/8" OD)  | #6                   | 5        | 3-1/2                  |
| GPC6RD       | Round       | 1" (1-1/8" OD)  | #6                   | 5        | 3-1/2                  |
| GPC4SQ       | Square      | 1" (1-1/8" OD)  | #4                   | 5        | 3-1/2                  |
| GPC4RD       | Round       | 1" (1-1/8" OD)  | #4                   | 5        | 3-1/2                  |
| GPC2SQ       | Square      | 1" (1-1/8" OD)  | #2                   | 5        | 3-1/2                  |
| GPC2RD       | Round       | 1" (1-1/8" OD)  | #2                   | 5        | 3-1/2                  |
| GPC2/ORD1.75 | Round       | 1-1/8" - 1-3/4" | 2/0 & #6             | 5        | 7-1/2                  |

- Accommodates cross runs without adding an additional connector. Accommodates 4 conductors in total.
- Electro-tin plated copper.
- Includes stainless steel hardware.
- Other sizes available. Please contact factory for more information.

### Computer Room Ground Clamps



| Part No. | Conductor Size (AWG) | Box Qty. | Approx. Box Wt. (lbs.) |
|----------|----------------------|----------|------------------------|
| CRGC6    | 6                    | 25       | 4                      |
| CRGC4    | 4                    | 10       | 5                      |
| CRGC2    | 2                    | 10       | 5                      |

- Used when welded connections are not feasible.
- Unique design allows clamps to form connections at most any angle.
- Specific uses include fabrication under an existing computer room floor.
- Electro-tin plated brass.

### UltraShot® Drone

#### Harger's Hand Held DRONE:

- Ignition is accomplished with the use of a hand held DRONE and 18 volt battery.
- Audible ignition alert.
- Makes over 1,300 connections on a single charge.
- UltraBright LED indicates instantaneous ignition.
- Includes six-foot cord with quick latch disconnect.

#### DRONE

| Part No. | Approx. Wt. (lbs.) |
|----------|--------------------|
| DRONE    | 1                  |

- Does NOT INCLUDE battery.



#### DRONE Kit

| Part No. | Qty. | Approx. Each Wt. (lbs.) |
|----------|------|-------------------------|
| DRONEKIT | EA   | 6-1/2                   |

#### Kit Includes:

- (1) Controller #DRONE-Compact US Controller
- (1) Battery #MIL1820BAT-Milwaukee® M18™ REDLITHIUM™
- (1) Charger #MIL1812CHARGER-Milwaukee® M18™ & M12™ Multi-Voltage
- (1) Case #DRONECASE-Storage case for Drone, Battery and Charger.



#### USCONTROLLER

| Part No.     | Qty. | Approx. Each Wt. (lbs.) |
|--------------|------|-------------------------|
| USCONTROLLER | EA   | 11                      |

- Rugged long lasting 12-volt rechargeable battery control unit ignites hundreds of connections on a single charge.
- Six-foot controller cord standard, 15-foot cord optional.



### Drone Accessories

#### Milwaukee® Battery

| Part No.   | Approx. Wt. (lbs.) |
|------------|--------------------|
| MIL1820BAT | 1-1/2              |



- 18 volt battery featuring a built-in fuel gauge.

#### Milwaukee® Charger

| Part No.       | Approx. Wt. (lbs.) |
|----------------|--------------------|
| MIL1812CHARGER | 2                  |



- Accepts M18™ & M12™ Battery Packs.

#### DRONE Accessory Kit

| Part No. | Approx. Wt. (lbs.) |
|----------|--------------------|
| DAK      | 17-1/4             |

- Includes the DRONE Case, Battery & Charger.



#### DRONE Case

| Part No.  | Approx. Wt. (lbs.) |
|-----------|--------------------|
| DRONECASE | 5                  |

- Organized storage option.
- Holds the Drone, Battery, Charger & Cord (not included).



#### DRONE Pouch

| Part No.   | Approx. Wt. (lbs.) |
|------------|--------------------|
| DRONEPOUCH | 1/4                |

- Easily transports the DRONE hands-free from connection to connection.



#### 6' DRONE Cord

| Part No.  | Approx. Wt. (lbs.) |
|-----------|--------------------|
| DRONECORD | 1/8                |

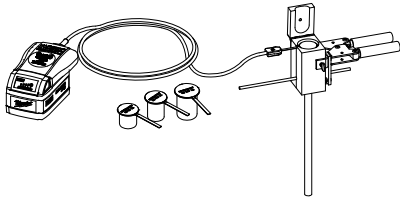
- Allows for flexibility in tight spaces as well as maintaining a safe distance from the reaction.



### Weld Metal

#### UltraShot® (Drop-In)

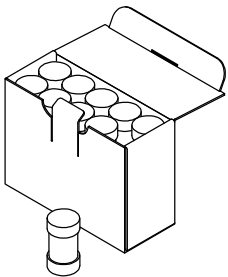
- The weld metal, a mixture of copper oxide and aluminum, is packaged in individual, moisture resistant copper drop-ins.
- The copper drop-in is consumed during the reaction process.
- Each drop-in is marked with the size.
- Requires DRONE to make connection. (Page 66)



| UltraShot | Box Qty. |
|-----------|----------|
| US25      | 20       |
| US32      | 20       |
| US45      | 20       |
| US65      | 20       |
| US90      | 10       |
| US115     | 10       |
| US150     | 10       |
| US200     | 10       |
| US250     | 10       |
| US300     | 10       |
| US400     | 5        |
| US500     | 5        |
| US600     | 5        |
| US750     | 5        |

#### NUWTube® (Pour & Shoot)

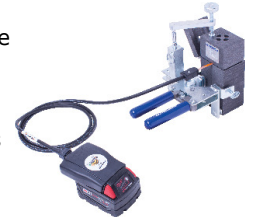
- The weld metal, a mixture of copper oxide and aluminum, is packaged in individual, moisture resistant plastic tubes.
- Dual chamber design holds starting material and weld metal separately, in the same tube.
- Easy to identify with color coded caps. Clear = Weld Metal, Orange = Starting Material.
- Each cartridge is marked with the size.
- Each box also contains instructions and metal disks. One metal disk is used for each connection.
- Requires FLTIG to make connection. (Page 78)



| NUWTube    | Box Qty. |
|------------|----------|
| NUWTUBE15  | 20       |
| NUWTUBE25  | 20       |
| NUWTUBE32  | 20       |
| NUWTUBE45  | 20       |
| NUWTUBE65  | 20       |
| NUWTUBE90  | 10       |
| NUWTUBE115 | 10       |
| NUWTUBE150 | 10       |
| NUWTUBE200 | 10       |
| NUWTUBE250 | 10       |

### LO-smoke™ System

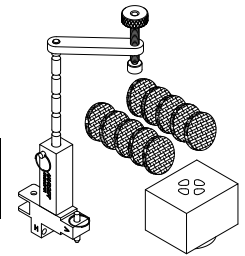
Using Harger's unique mold design and patented handle clamps, any mold that uses an MH1 or MH2 handle can be used with the LO-smoke™ System. The USSKIT, which includes a LO-smoke™ Adapter Clamp, Filter Housing, and 10 Disposable Filters is all that is required. There are three different USSKIT sizes, the selection of which is driven by the weld metal size and mold price key for the desired application.



- The use of LO-smoke™ requires the UltraShot® electronic ignition system.
- LO-smoke™ Filters should be replaced after every connection to ensure optimal system performance.

### LO-smoke™ Kits

| Part No. | Fits Mold Price Key | Weld Metal Size | Approx. Kit Wt. (lbs.) |
|----------|---------------------|-----------------|------------------------|
| USSKIT1  | B, E, K, I, P, Q    | 25 thru 115     | 6                      |
| USSKIT2  | B, E, K, I, P, Q    | 150 thru 300    | 6                      |
| USSKIT3  | C, D, F, G, J, Y, Z | 150 thru 400    | 6                      |

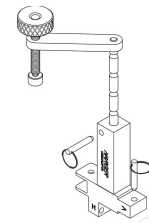


#### Kit Includes:

- (1) Adapter Clamp (USSXADPTR)
- (1) Filter Housing
- (10) Filters

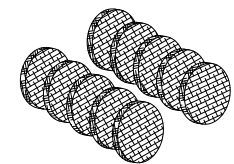
### LO-smoke™ Adapter Clamp

| Part No.  | Qty. | Approx. Each Wt. (lbs.) |
|-----------|------|-------------------------|
| USSXADPTR | EACH | 4                       |



### LO-smoke™ Filters

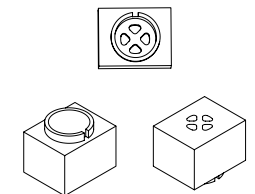
| Part No.   | Filter Housing | Filter Approx. Wt. (lbs.) |
|------------|----------------|---------------------------|
| USSXFLR1.8 | SAFHB25115     | 1/4                       |
| USSXFLR2   | SAFHB150300    | 1/4                       |
| USSXFLR3   | SAFHC400       | 3/4                       |



- Sold as 10 pack.

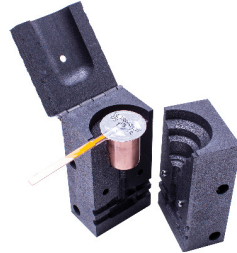
### Replacement Filter Housing

| Part No.    | Weld Metal Size | Housing Approx. Wt. (lbs.) |
|-------------|-----------------|----------------------------|
| SAFHB25115  | 25 thru 115     | 1/2                        |
| SAFHB150300 | 150 thru 300    | 1/2                        |
| SAFHC400    | 150 thru 400    | 3/4                        |



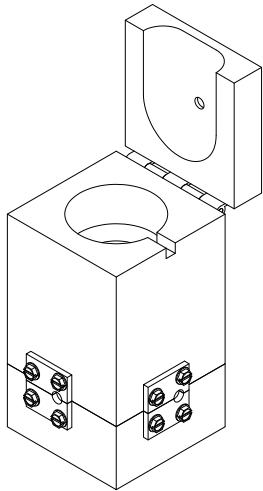
### Ultraweld® Molds

- Depending on the care and treatment of the mold, it will average 50 or more welds. Substantially more with the UltraShot process.
- The LO-smoke™ process uses an integrated filter system on the mold and electric ignition of the weld metal to produce a finished connection with minimal smoke emission. Ideal for indoor and confined space working conditions. (See Page 69)
- For the LO-smoke™ process, ignition is accomplished with the use of a DRONE. (Page 66)
- Mold Handle not included.



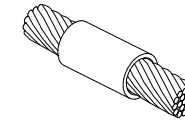
### Wear Plates

- Wear plates help extend the life of the mold.
- The openings of the mold get worn down due to forcing a mold shut over "out of round" conductors, the ends of conductors hitting and chipping the openings, etc.
- Wear plates can be supplied for all molds for cable sizes; #2 Solid, 1/0 AWG through 500 MCM and Copper Clad Steel cable 7/#10 through 19/#6.
- To order, add the suffix "WP" to the Ultraweld part number. Example: RT-4/04/0B-WP



| Available Weld Type | Number of Wear Plates |
|---------------------|-----------------------|
| BH                  | 2                     |
| BS                  | 2                     |
| GD                  | 2                     |
| GO                  | 3                     |
| GS                  | 3                     |
| HB                  | 1                     |
| HU                  | 2                     |
| LE                  | 1                     |
| PB*                 | 3                     |
| PT*                 | 4                     |
| RO                  | 2                     |
| RS                  | 2                     |
| RT                  | 3                     |
| VA                  | 1                     |
| VH                  | 2                     |
| VT                  | 2                     |
| XO                  | 4                     |
| XX                  | 4                     |

\*Wear plates only available on 1/0 stranded and larger or Copper Clad Steel 7/#10 and larger run and tap cables. Also available from #2 solid run and tap cables.



### Adapter Sleeves

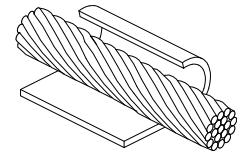
| Part No.  | Cable Size        |             | Use in Mold for Stranded | Sleeve Dimensions |      |        | Box Qty. | Approx. Box Wt. (lbs.) |
|-----------|-------------------|-------------|--------------------------|-------------------|------|--------|----------|------------------------|
|           | Concentric Strand | Solid       |                          | O.D.              | I.D. | Length |          |                        |
| ADPSLV6   | #12, 14           | #10, 12, 14 | #6 Sol.                  | .156              | .111 | 1.00   | 25       | 1/4                    |
| ADPSLV4   | #7, 8, 10         | #6, 8       | #4 Str.                  | .227              | .177 | 1.00   | 25       | 1/4                    |
| ADPSLV2A  | #6                | #5          | #2 Str.                  | .292              | .198 | 1.00   | 25       | 1/4                    |
| ADPSLV2B  | #4, 5             | #3, 4       | #2 Str.                  | .287              | .246 | 1.00   | 25       | 1/4                    |
| ADPSLV1   | #4                | n/a         | #1 Str.                  | .340              | .246 | 1.00   | 25       | 1/4                    |
| ADPSLV1/0 | #2                | #1          | 1/0 Str.                 | .370              | .307 | 1.00   | 25       | 1/4                    |
| ADPSLV2/0 | #1                | 1/0         | 2/0 Str.                 | .420              | .359 | 1.00   | 25       | 1/4                    |
| ADPSLV3/0 | 1/0, #1           | 2/0         | 3/0 Str.                 | .452              | .389 | 1.00   | 25       | 1/4                    |
| ADPSLV4/0 | 2/0, 1/0          | 3/0         | 4/0 Str.                 | .524              | .437 | 1.50   | 25       | 1/4                    |

- Adapter Sleeves can be used when welding cables smaller than indicated on mold tag.
- Adapter Sleeves slide over the cable to adapt smaller size cables to a larger size mold.

### Wrap Sleeves

| Part No. | Box Qty. | Approx. Box Wt. (lbs.) |
|----------|----------|------------------------|
| WRPSLV   | 50       | 1/2                    |

- Wrap Sleeves can be used when welding cables smaller than indicated on mold tag.
- When the cable opening in the mold is larger than the cable, copper Wrap Sleeves are wrapped around the cable until the diameter is about the same size as the mold cable opening.
- A copper Wrap Sleeve is also used for wrapping around reinforcing steel for certain connection styles.



### Exothermic Adapter Kit with Case

| Part No.  | Box Qty. | Approx. Box Wt. (lbs.) |
|-----------|----------|------------------------|
| EXOADPKIT | 1        | 10                     |

- Most common adapters and packing material used when required with specific molds.



### Packing Material Notes

**Packing Material or Wrap Sleeve(s)** are necessary when making Ultraweld connections to reinforcing steel. The two types of material used are CERPM or WRPSLV.

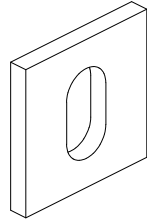
**CERPM Packing Material** is a ceramic fiber material and can be used for one connection only. CERPM is packaged in quantities of 25 per box.

**WRPSLV Copper Wrap Sleeve** is wrapped around the reinforcing steel for certain connection styles. WRPSLV is packaged in quantities of 50 per box.

Be sure to specify Packing Material No. when ordering Mold and Weld Metal. See pages 71 & 72 for Packing Material.

### Ceramic Reinforcing Steel Packing Material

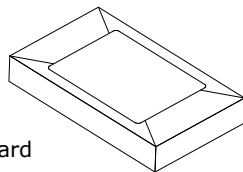
| Part No. | Box Qty. | Approx. Box Wt. (lbs.) |
|----------|----------|------------------------|
| CERPM1   | 25       | 1/4                    |
| CERPM2   | 25       | 1/4                    |
| CERPM3   | 25       | 1/4                    |



- Packing consists of preformed ceramic batting.
- Packing is required on all reinforcing steel connections to prevent leakage.
- Some connection styles may require wrap sleeves in place of ceramic packing.

### Mold Sealer

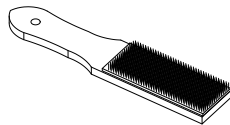
| Part No. | Qty. | Approx. Each Wt. (lbs.) |
|----------|------|-------------------------|
| MLDSLRL  | EACH | 1                       |



- Mold Sealer is for sealing slightly worn molds to guard against leakage from large stranded conductors.
- Available in a convenient 1 pound package.

### Cable Cleaning Brush

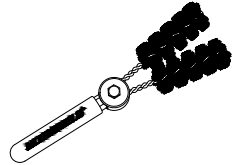
| Part No. | Qty. | Approx. Wt. (lbs.) |
|----------|------|--------------------|
| CCBRSH1  | EACH | 1/4                |



- The Cable Cleaning Brush has short, stiff, metal bristles which are generally preferred for cleaning concentric conductors and busbars, that are not heavily oxidized.

### Cable Cleaning Brush - Heavy Duty

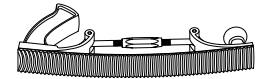
| Part No. | Qty. | Approx. Each Wt. (lbs.) |
|----------|------|-------------------------|
| CCBRSH2  | EACH | 3/4                     |
| CCBRSH2R | EACH | 1/4                     |



- Ideal for cleaning concentric stranded cable, especially very dirty or oxidized conductors.

### Rasp

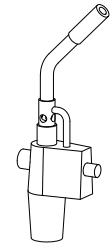
| Part No. | Qty. | Approx. Each Wt. (lbs.) |
|----------|------|-------------------------|
| RASP     | EACH | 2-1/2                   |



- Ideal for removing mill scale and rust from steel surfaces.

### Torch Head

| Part No. | Qty. | Approx. Each Wt. (lbs.) |
|----------|------|-------------------------|
| TRCHD    | EACH | 1-1/4                   |



- Self-igniting Torch Head is designed to fit 14 or 16 ounce propane cylinders.
- Torches are required to remove moisture from the mold and conductors before making the Ultraweld connections.

### Cold Galvanizing Spray

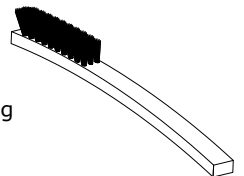
| Part No. | Qty. | Unit Wt. (oz.) |
|----------|------|----------------|
| CGS      | EACH | 14             |



- Instant cold galvanizing spray provides protection equal to hot dip galvanizing.
- Used for touching up surfaces affected by welding.
- Actual weight of the can is 18.5 oz.

### Mold Cleaning Brushes

| Part No. | Qty. | Approx. Each Wt. (lbs.) |
|----------|------|-------------------------|
| MCBRSH1  | EACH | 1/4                     |
| MCBRSH2  | EACH | 1/16                    |

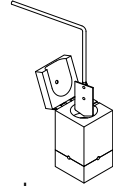


- Slag can be removed from molds by using a Mold Cleaning Brush.
- The brush is especially useful on vertical split molds.
- Consistent and proper use of the brush will aid in maintaining or exceeding the average mold life of 50 connections.



### Mold Cleaning Spades

| Part No.     | Weld Metal Sizes | Qty. | Approx. Each Wt. (lbs.) |
|--------------|------------------|------|-------------------------|
| MCSPD25/115  | 25 - 115         | EA   | 1/4                     |
| MCSPD150/400 | 150 and larger   | EA   | 1/4                     |



- Slag can be cleaned from the molds by using a Mold Cleaning Spade.
- The cleaning spade is especially useful on horizontally split molds.
- The cleaning spades are specifically designed to fit the mold crucible for a given range of weld metal sizes.
- Consistent and proper use of cleaning spades will aid in maintaining or exceeding the average mold life of 50 connections.

### Disks

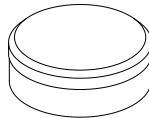
| Part No.    | Description                                 | Diameter | Box Qty. | Approx. Box Wt. (lbs.) |
|-------------|---|----------|----------|------------------------|
| DISK15/65   | Used in molds using 15 thru 65 weld metal   | 3/4"     | 20       | 1/8                    |
| DISK90/115  | Used in molds using 90 thru 115 weld metal  | 1"       | 10       | 1/8                    |
| DISK150/500 | Used in molds using 150 thru 250 weld metal | 1-1/2"   | 10       | 1/4                    |



- The disk rests on the bottom of the crucible and holds the weld metal powder in place until the reaction occurs.
- A new disk is required each time a weld is made.
- Disks are included with the NUWTUBE Weld Metal.

### Disk Kit

| Part No. | Qty. | Approx. Each Wt. (lbs.) |
|----------|------|-------------------------|
| DISKKIT1 | EA   | 1/4                     |



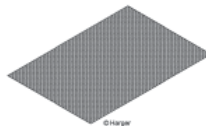
- A Disk Kit contains three sizes of steel disks; 60 small, 30 medium and 30 large.

### Mold Blanket

| Part No.  | Qty. | Approx. Each Wt. (lbs.) |
|-----------|------|-------------------------|
| ULTRAWRAP | EA   | 2                       |
| WELDBKT   | EA   | 1                       |

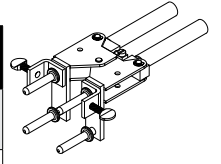


- Contains an inner and outer E-glass yarn with a padded non-crystalline silicate filling, finished with Kevlar®.
- Extends mold life by protecting against shock impact caused by rough handling.
- Protects exothermic welders from coming into contact with hot molds.
- Used as a protection blanket against weld splatter.

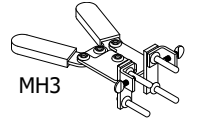


### Mold Handle Clamp

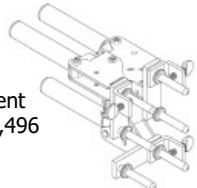
| Part No. | Application  | Qty. | Approx. Each Wt. (lbs.) |
|----------|--|------|-------------------------|
| MH1      | For All molds with B, E, K, P & Q mold price key (3" wide) | EA   | 2-3/4                   |
| MH2      | For All molds with C, D, F, Y & Z mold price key (4" wide) | EA   | 3-1/2                   |
| MH3      | For Combo molds with L & M mold price key                  | EA   | 1/4                     |
| MH4      | For Combo molds with R mold price key                      | EA   | 1-1/2                   |
| MH6      | For 3 Piece I mold price key                               | EA   | 4-3/4                   |
| MH7      | For 3 Piece J mold price key                               | EA   | 5                       |



MH1, MH2



MH3



MH6, MH7

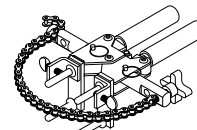
- Mold handle clamps are required for all molds.
- Some molds are used with specialized frames.
- Handle clamps have a Zinc plated finish.
- MH3 mold handle clamps are included with L & M molds.

U.S. Patent No. 6,382,496

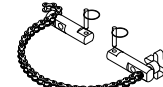
### Chain Support Handle Clamps & Kits

| Part No.  | Fits Mold Price Key | For Following Connection Types | Pipe/ Reinforcing Steel | Qty. | Approx. Ea. Wt. (lbs.) |
|-----------|---------------------|--------------------------------|-------------------------|------|------------------------|
| CSH1      | B, E, K             | RE, VA, VD, VT, VU             | Vertical                | EA   | 4                      |
| CSH2      | C, D, F             | VA, VD, VT, VU                 | Vertical                | EA   | 4-1/2                  |
| CSKIT     | B, C, D, E, F, K    | RE, VA, VD, VT, VU             | Vertical                | EA   | 2                      |
| CSKITHSVM | B, C                | VH, RS                         | Vertical                | EA   | 3                      |
| CSKITHP   | B, C                | HB, HD, HT, HU                 | Horizontal              | EA   | 3-1/4                  |
| CSKITHPVS | B                   | HTCP, RO                       | Horizontal              | EA   | 4                      |

- Handle clamps CSH1 & CSH2 come with MH1 & MH2 clamps respectively and a CSKIT.
- Chain Support Handle Clamps are used to securely hold the mold to either a vertical or horizontal pipe.
- A 20" length of chain, which fits up to 4" pipes, comes with the chain support handle clamps.
- Extra chain length is available. Please contact factory for details.
- CSKIT, CSKITHSVM, CSKITHP & CSKITHPVS Kits convert standard mold handle clamps into chain support clamps.



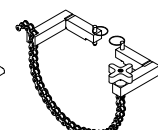
CSH1, CSH2



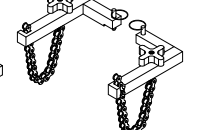
CSKIT



CSKITHSVM



CSKITHP

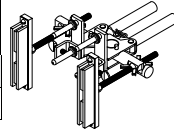


CSKITHPVS

U.S. Patent No. 6,382,496

### Magnetic Support Handle Clamps

| Part No. | Fits Mold Price Key | Minimum Width Requirements | Qty. | Approx. Each Wt. (lbs.) |
|----------|---------------------|----------------------------|------|-------------------------|
| MSHC1    | B, E, K             | 8"                         | EA   | 6-1/4                   |
| MSHC2    | C, D, F             | 8"                         | EA   | 6-1/2                   |



U.S. Patent No. 6,382,496

- Handle clamps MSHC1 & MSHC2 come with MH1 & MH2 clamps, respectively.
- Magnetic Support Handle Clamp allows mold to be securely held in place to steel surfaces.
- MSKIT converts the standard mold handle into a magnetic support handle clamp.

### Magnetic Support Kits

| Part No.  | Fits Mold Price Key | Minimum Width Requirements | Qty. | Approx. Each Wt. (lbs.) |
|-----------|---------------------|----------------------------|------|-------------------------|
| MSKIT     | B, C, D, E, F, K    | 8"                         | EA   | 3                       |
| MSKITHSVS | B, C, D, K          | 10"                        | EA   | 5                       |
| MSKITXL   | D*, K*              | 10"                        | EA   | 3-1/2                   |



U.S. Patent No. 6,382,496

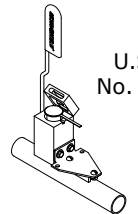
- These kits convert the standard mold handle clamp into a magnetic support handle clamp.
- \* MSKITXL is used when mold width is greater than 4", this is also noted in the Connection Type tables.

### Hold Down Kit

| Part No. | Qty. | Approx. Each Wt. (lbs.) |
|----------|------|-------------------------|
| UMHDKIT  | EA   | 1-1/2                   |
| UMMHDA   | EA   | 1/2                     |



UMHDKIT



UMMHDA

U.S. Patent No. 6,382,496

- UMHDKIT: Attaches easily to MH1 & MH2 handle clamp for holding mold in place.
- UMMHDA: Used for horizontal "A" molds.

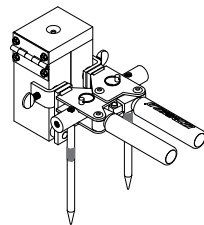
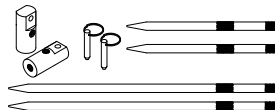
### Mold Stabilizer Kit

| Part No.  | Qty. | Approx. Each Wt. (lbs.) |
|-----------|------|-------------------------|
| MLDSTBLZR | EA   | 1/2                     |

- Help stabilize the mold when making cable to cable connections in the trench.
- Fits both the MH1 and MH2 mold handle.

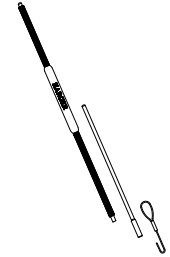
#### Kit includes:

- (2) 6" Spikes
- (2) 12" Spikes
- (1 set) Mold handle adapter
- (1 set) Quick release pin



### Ground Rod Drivers

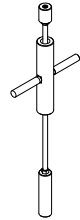
| Part No. | Description          | Ground Rod Size | Qty. | Approx. Each Wt. (lbs.) |
|----------|----------------------|-----------------|------|-------------------------|
| GRD58    | Driver & 5/8" Insert | 1/2" & 5/8"     | EA   | 25                      |
| GRD34I   | Replacement Insert   | 3/4"            | EA   | 12                      |



- Drives ground rods from ground level without the need for a ladder or sledge hammer.
- 3/4" insert is interchangeable with driver body.
- Insert prevents driver from slipping off ground rod near ground level.
- Insert prevents "mushrooming" top of ground rod.

### Ground Rod Drivers

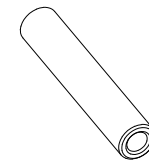
| Part No.     | Description            | Qty. | Approx. Each Wt. (lbs.) |
|--------------|------------------------|------|-------------------------|
| SMGRD58U     | 5/8" Ground Rod Driver | EA   | 16                      |
| SMGRD58USHGR | 5/8" Ground Rod Driver | EA   | 14                      |



- SMGRD58U - Ground rod driver with slide hammer. One end is threaded for use with threaded 5/8" ground rods and the other end is for use with tapered 5/8" copper clad steel ground rods.
- SMGRD58USHGR - Ground rod driver with slide hammer, connects to ground rods with 5/8" threads on both ends.
- Used to install or remove threaded ground rods.

### Drive Sleeves

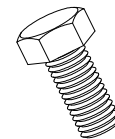
| Part No. | Ground Rod Size | Qty. | Approx. Each Wt. (lbs.) |
|----------|-----------------|------|-------------------------|
| GRDS58   | 5/8"            | EA   | 1-1/4                   |
| GRDS34   | 3/4"            | EA   | 1-1/4                   |



- For Copper Clad Steel ground rods.
- Prevents "mushrooming" top of ground rod while driving rod.

### Drive Studs

| Part No. | Ground Rod Size | Box Qty. | Approx. Box Wt. (lbs.) |
|----------|-----------------|----------|------------------------|
| GDS12    | 1/2"            | 5        | 1                      |
| GDS58    | 5/8"            | 5        | 1                      |
| GDS34    | 3/4"            | 5        | 3                      |
| GDS1     | 1"              | 3        | 2-1/2                  |



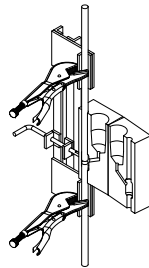
- High strength alloy driving stud prevents damage to the coupler or ground rod threads when driving ground rods.

## Materials, Tools & Accessories

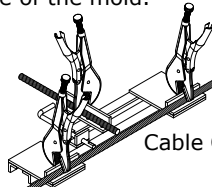
### Ground Rod & Cable Clamp

| Part No. | Qty. | Approx. Each Wt. (lbs.) |
|----------|------|-------------------------|
| GRCC     | EA   | 18                      |

- Clamp properly aligns and supports Ground Rods for welding type GG connections. (See page 31)
- Add-on third clamp (included) is used to convert into a Cable Clamping system. Thus preventing cables under tension from moving during welding and ensuring no weld metal leakage. This ensures quality connections and increases the life of the mold.



Ground Rod Clamping

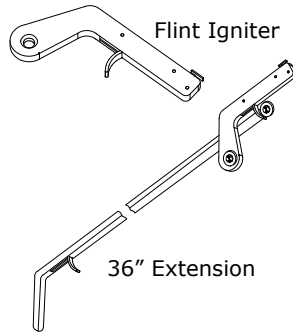


Cable Clamping

### Flint Igniter

| Part No. | Description       | Qty. | Approx. Each Wt. (lbs.) |
|----------|-------------------|------|-------------------------|
| FLTIG    | Flint Igniter     | EA   | 1/4                     |
| FLTIGEXT | 36" Extension     | EA   | 1-1/2                   |
| RPLFLT   | Replacement Flint | EA   | 1/8                     |

- When making an Ultraweld connection, Flint Igniters are used to ignite the starting material.
- Replacement Flints are also available.



Flint Igniter

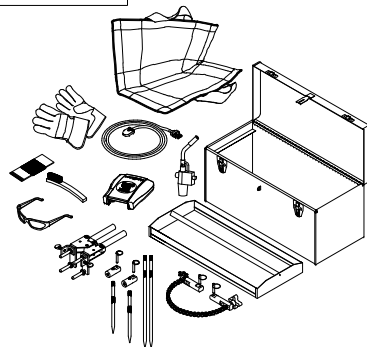
36" Extension

### Toolkit

| Part No.  | Qty. | Approx. Each Wt. (lbs.) |
|-----------|------|-------------------------|
| USTOOLKIT | EA   | 23-1/4                  |

#### • USTOOLKIT Includes:

- (1) DRONE
- (1) TOOLBOX: 20-1/16" x 8-7/16" x 9-7/16" metal toolbox with tray
- (1) MH1X: Mold Handle without Igniter
- (1) CSKIT: Chain Support Kit
- (1) MCBRSH2: Mold Cleaning Brush
- (1) SFTYGLS: Safety Glasses
- (1) GLOVES: Leather Palm Gloves
- (1) 3MABPAD: Abrasive Pad
- (1) ULTRAWRAP: Mold Blanket
- (1) TRCHD: Torch Head
- (1) MLDSTBLZR: Mold Stabilizer Kit



## Troubleshooting Guide

| PROBLEM  | POSSIBLE CAUSE  | SUGGESTED CORRECTION   |
|--|---|--|
| UltraShot did not fire                                     | Battery not charged   | Charge battery and retry.<br>Try different battery pack if available.  |
|  | Igniter not properly connected to plug                                      | Push igniter all the way into plug.  |
| NUWTube Starting Powder would not ignite                   | Old flint gun   | Replace flint gun.   |
| Weld cavity under fills                                    | Starting powder being used improperly                                       | Sprinkle starting powder on the side of the lid's ignition pocket.   |
|  | Wrong size cartridge for mold   | Check ID plate on mold for proper size weld material to be used.   |
|  | Mold leaked too much molten copper to make proper weld                      | Worn mold. Opening in mold is too large to seal the mold properly.<br>Replace mold.  |
| Weld not sticking to steel or cast iron surface            | Wrong mold used for the conductors being welded. Buy correct mold.          | Buy correct mold.  |
|  | Wrong mold being used   | Buy correct mold.  |
| Weld not sticking to steel or cast iron surface            | Surface not prepared properly   | Clean surface down to bright metal by either grinding or using tools suggested in the instructions.  |
|  | Cable not placed in mold according to instructions                          | Be sure to follow the mold instruction on the placement of the conductors in the mold to make sure sufficient heat is transferred to the steel surface to make the weld. |
|  | Not using cast iron powder when welding to cast iron surface                | Order cast iron powder.  |
| Problems welding to ground rod                             | Surface not prepared properly   | Clean and prepare surfaces according to instructions.  |
|  | Mold not supported during welding   | Place vice grips or clamp under mold to support it during welding process.   |
|  | Cable not placed in mold according to instructions                          | Be sure to follow the mold instructions on the placement of the conductors in the mold to make sure sufficient heat is transferred to the ground rod to make the weld.   |
| Mold does not close all the way or handle clamps will lock | Handle clamp is not adjusted properly                                       | Follow instructions on adjusting handle clamp to adjust them properly.   |
|  | Dirt, slag or other material stuck in the parting line or on the dowel pins | Clean off all material to get a good seal.   |
|  | Bent or out of round conductors   | Straighten conductors or cut out bad sections and retry.   |



| PROBLEM  | POSSIBLE CAUSE  | SUGGESTED CORRECTION   |
|--|---|--|
| Mold gets stuck on weld                        | Mold left on weld too long                              | Remove mold from weld within about 30 seconds to weld being made, especially on welds to steel.  |
| Excessively high weld or excessive gas in weld | Moisture or foreign substance on the mold or conductors | Preheat molds and conductors with a torch to a temperature that will burn off any water or organic material. Use steel brush to remove any residual material from conductors. Do not use steel brush on graphite mold.         |
|  | Wrong size cartridge used                               | Double check the mold ID plate to make sure the proper weld cartridge is being used.   |
|  | Moisture in weld metal                                  | Replace with new weld metal.   |
|  | Duct seal in weld cavity                                | Duct seal is to be used on the outside portion of the mold only as a last resort. If it has to be used do not let it migrate into the weld cavity.   |
| Conductors pull out of mold during process     | Conductors are under tension                            | Remove tension from conductors or use wire clamp GRCC to remove tension from conductors.   |
| Mold wearing out too fast                      | Improper cleaning of molds                              | Only use soft bristle brush or cotton rag to clean out the mold. Use of metal brushes, screw driver, or other metal objects will scratch the mold. Also, do not use plastic on the mold as it will melt and cause gassy welds. |
|  | Bent, burred, or out of round conductors                | Closing the mold on conductors that are bent, burred, or out of round will crack and chip the molds. Try removing the damaged sections if possible.  |
|  | Inserting conductors after mold is closed               | Try to close the mold with the conductors already inserted. This will reduce the wear on the conductor openings.   |

### Steel Pipe Sizes

Standard Weight  
(Schedule 40)

ASTM A53-90-B  
ANSI/ASME B36.10M-1985

| Nominal Size | O.D.   | Wall Thickness | Mold Code |
|--------------|--------|----------------|-----------|
| 1"           | 1.315" | .133"          | 1         |
| 1-1/4"       | 1.66"  | .14"           | 1.25      |
| 1-1/2"       | 1.9"   | .145"          | 1.5       |
| 2"           | 2.375" | .154"          | 2         |
| 2-1/2"       | 2.875" | .203"          | 2.5       |
| 3"           | 3.5"   | .216"          | 3         |
| 3-1/2"       | 4"     | .226"          | 3.5       |
| 4"           | 4.5"   | .237"          | 4         |
| 5"           | 5.563" | .258"          | 5         |
| 6"           | 6.625" | .28"           | 6         |
| 8"           | 8.625" | .322"          | 8         |
| 10"          | 10.75" | .365"          | 10        |

### Conductor Area Conversions

Square Inches x 1273 = MCM

MCM x  $7.862 \times 10^{-4}$  = Square Inches

Square Inches x 645.2 = Square Millimeter

Square Millimeter x  $1.550 \times 10^{-3}$  = Square Inches

Square Millimeters x 1.9736 = MCM

MCM x 0.5067 = Square Millimeters

1 MCM = 1 kcmil = 1,000 circular mil

### Conductor Identification

Bare Class A, B, and C Concentric Stranded Conductors  
Based on A.S.T.M Standard Specifications

| Size in Circular mils | Size AWG | Conductor Diameter | Number of Wires - Strand Dia. |        |        |       |       | Cable Code |
|-----------------------|----------|--------------------|-------------------------------|--------|--------|-------|-------|------------|
|                       |          |                    | 7                             | 19     | 37     | 61    | 91    |            |
| 1,000,000             | 1000     | 1.152"             |                               |        | .1644* | .1280 | 0.148 | 1MM        |
| 800,000               | 800      | 1.031"             |                               | .1470* | .1145  | .0938 |       | 8CM        |
| 750,000               | 750      | .998"              |                               | .1424* | .1109  | .0908 |       | 75CM       |
| 700,000               | 700      | .964"              |                               | .1375* | .1071  | .0877 |       | 7CM        |
| 600,000               | 600      | .893"              |                               | .1273  | .0992  | .0812 |       | 6CM        |
| 500,000               | 500      | .813"              |                               | .1622* | .1162  | .0905 |       | 5CM        |
| 400,000               | 400      | .728"              |                               | .1451  | .1040  | .0810 |       | 4CM        |
| 350,000               | 350      | .681"              |                               | .1357  | .0973  | .0757 |       | 35CM       |
| 300,000               | 300      | .630"              |                               | .1257  | .0900  | .0701 |       | 3CM        |
| 250,000               | 250      | .575"              |                               | .1147  | .0822  | .0640 |       | 25CM       |
| 211,600               | 4/0      | .528"              | .1739                         | .1055  | .0756  |       |       | 4/0        |
| 167,800               | 3/0      | .470"              | .1548                         | .0940  | .0763  |       |       | 3/0        |
| 133,100               | 2/0      | .419"              | .1379                         | .0837  | .0600  |       |       | 2/0        |
| 105,500               | 1/0      | .373"              | .1228                         | .0745  | .0534  |       |       | 1/0        |
| 83,690                | 1        | .332"              | .1093                         | .0664  | .0467  |       |       | 1          |
| 66,370                | 2        | .292"              | .0974                         | .0591  |        |       |       | 2          |
| 52,630                | 3        | .260"              | .0867                         | .0526  |        |       |       | 3          |
| 41,740                | 4        | .232"              | .0772                         | .0469  |        |       |       | 4          |
| 26,240                | 6        | .184"              | .0612                         | .0372  |        |       |       | 6          |
| 16,510                | 8        | .146"              | .0486                         | .0295  |        |       |       | 8          |
| 10,380                | 10       | .116"              | .0385                         | .0234  |        |       |       | 10         |
| 6,530                 | 12       | .0915"             | .0305                         | .0185  |        |       |       | 12         |
| 4,110                 | 14       | .0726"             | .0242                         | .0417  |        |       |       | 14         |

\* Class AA

### Bare Solid Copper Conductors

Based on A.S.T.M Standard Specifications

| Size AWG | Cross Sectional Area Circular Mils | Wire Diameter | Cable Code |
|----------|------------------------------------|---------------|------------|
| 4/0      | 211,600                            | .4600"        | 4/0S       |
| 3/0      | 167,800                            | .4096"        | 3/0S       |
| 2/0      | 133,100                            | .3648"        | 2/0S       |
| 1/0      | 105,500                            | .3249"        | 1/0S       |
| 1        | 83,690                             | .2893"        | 1S         |
| 2        | 66,370                             | .2576"        | 2S         |
| 3        | 52,630                             | .2294"        | 3S         |
| 4        | 41,740                             | .2043"        | 4S         |
| 6        | 26,250                             | .1620"        | 6S         |
| 8        | 16,510                             | .1285"        | 8S         |
| 10       | 10,380                             | .1019"        | 10S        |
| 12       | 6,530                              | .0808"        | 12S        |
| 14       | 4,110                              | .0641"        | 14S        |

### Copper-Clad Steel Conductors

| Cable Code | Cable Stranding | Nominal Diameter (in.) | Cross Sectional Area (kcmil) |
|------------|-----------------|------------------------|------------------------------|
| 3/10CW     | 3/#10 CW        | .220                   | 31.15                        |
| 3/9CW      | 3/#9 CW         | .247                   | 39.28                        |
| 3/8CW      | 3/#8 CW         | .277                   | 49.53                        |
| 7/10CW     | 7/#10 CW        | .306                   | 72.68                        |
| 3/7CW      | 3/#7 CW         | .311                   | 62.45                        |
| 7/9CW      | 7/#9 CW         | .343                   | 91.65                        |
| 3/6CW      | 3/#6 CW         | .349                   | 78.75                        |
| 7/8CW      | 7/#8 CW         | .385                   | 115.60                       |
| 3/5CW      | 3/#5 CW         | .392                   | 99.31                        |
| 7/7CW      | 7/#7 CW         | .433                   | 145.70                       |
| 7/6CW      | 7/#6 CW         | .486                   | 183.80                       |
| 7/5CW      | 7/#5 CW         | .546                   | 231.63                       |
| 19/9CW     | 19/#9 CW        | .572                   | 248.70                       |
| 7/4CW      | 7/#4 CW         | .613                   | 292.20                       |
| 19/8CW     | 19/#8 CW        | .642                   | 313.70                       |
| 19/7CW     | 19/#7 CW        | .721                   | 395.60                       |
| 19/6CW     | 19/#6 CW        | .810                   | 498.60                       |
| 19/5CW     | 19/#5 CW        | .910                   | 628.70                       |

### Ground Rods

| Nominal Size | Material    | Type      | Body Diameter | Thread Size | Ground Rod Code |
|--------------|-------------|-----------|---------------|-------------|-----------------|
| 1/2"         | Copper-Clad | Sectional | .504"         | 9/16"       | 12S             |
|              | Copper-Clad | Plain     | .504"         | N/A         | 12F             |
|              | Steel*      | Plain     | .504"         | N/A         | 12F             |
| 5/8"         | Copper-Clad | Plain     | .475"         | N/A         | 12              |
|              | Steel*      | Plain     | .625"         | N/A         | 58F             |
|              | Copper-Clad | Plain     | .56"          | N/A         | 58              |
| 3/4"         | Copper-Clad | Sectional | .56"          | 5/8"        | 58S             |
|              | Steel*      | Plain     | .75"          | N/A         | 34F             |
|              | Copper-Clad | Plain     | .678"         | N/A         | 34              |
| 1"           | Copper-Clad | Sectional | .678"         | 3/4"        | 34S             |
|              | Steel*      | Plain     | 1.00"         | N/A         | 10F             |
|              | Copper-Clad | Plain     | .912"         | N/A         | 10              |
|              | Copper-Clad | Sectional | .912"         | 1"          | 10S             |

\* Stainless steel, galvanized steel, solid copper

## Rectangular Copper Busbar

| Thickness | Width  | Circular Mil Size | Weight Lbs. per Foot | Busbar Code |
|-----------|--------|-------------------|----------------------|-------------|
| 1/8"      | 1"     | 159,200           | .484                 | 181         |
|           | 1-1/2" | 238,700           | .726                 | 181.5       |
|           | 2"     | 318,300           | .969                 | 182         |
| 3/16"     | 1"     | 238,700           | .727                 | 3161        |
|           | 2"     | 477,500           | 1.45                 | 3162        |
| 1/4"      | 1"     | 318,300           | .969                 | 141         |
|           | 1-1/2" | 477,500           | 1.45                 | 141.5       |
|           | 2"     | 636,600           | 1.94                 | 142         |
|           | 3"     | 954,900           | 2.91                 | 143         |
| 3/8"      | 4"     | 1,273,000         | 3.88                 | 144         |
|           | 1"     | 477,500           | 1.45                 | 381         |
|           | 1-1/2" | 716,200           | 2.18                 | 381.5       |
|           | 2"     | 954,900           | 2.91                 | 382         |
| 1/2"      | 3"     | 1,432,000         | 4.36                 | 383         |
|           | 4"     | 1,910,000         | 5.81                 | 384         |
|           | 2"     | 1,273,000         | 3.88                 | 122         |
| 1/2"      | 3"     | 1,910,000         | 5.81                 | 123         |
|           | 4"     | 2,546,000         | 7.75                 | 124         |

## Reinforcing Steel

| Size | Nominal Dimensions |                                 | Equivalent Copper Size* | Reinforcing Steel Code |
|------|--------------------|---------------------------------|-------------------------|------------------------|
|      | Diameter Inches    | Cross-sectional Area-Sq. Inches |                         |                        |
| 3    | .375"              | .11"                            | 9 AWG                   | 3                      |
| 4    | .50"               | .20"                            | 7                       | 4                      |
| 5    | .625"              | .31"                            | 5                       | 5                      |
| 6    | .75"               | .44"                            | 3                       | 6                      |
| 7    | .875"              | .60"                            | 2                       | 7                      |
| 8    | 1"                 | .79"                            | 1                       | 8                      |
| 9    | 1.128"             | 1"                              | 1/0                     | 9                      |
| 10   | 1.27"              | 1.27"                           | 2/0                     | 10                     |
| 11   | 1.41"              | 1.56"                           | 3/0                     | 11                     |
| 14   | 1.693"             | 2.25"                           | 250 MCM                 | 14                     |
| 18   | 2.257"             | 4"                              | 450                     | 18                     |

\* Based on 8% IACS, rounded to the next higher commercial copper size.

## Ultraweld® Exothermic Welding Certification Training by Harger

This training is hands-on and provides your team with understanding of Harger's Ultraweld exothermic welding process.

The tools required to make a connection as well as the inspection process, safety and troubleshooting are also discussed.

Attendees become certified!

### How Do You Get Started?

- Work with your Harger Sales Representative to pick a date and time that works best for you and your team.
- Harger will provide the training materials and train your team at your designated location, ex; jobsite or at your office.
- Attendees must sign-in and pass a test prior to certification.
- Individual certification cards will be sent for distribution after successful class completion.
- Depending on class size, training typically takes 1 to 3 hours.





**Exothermic Connections**

## **Harger Lightning & Grounding**

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