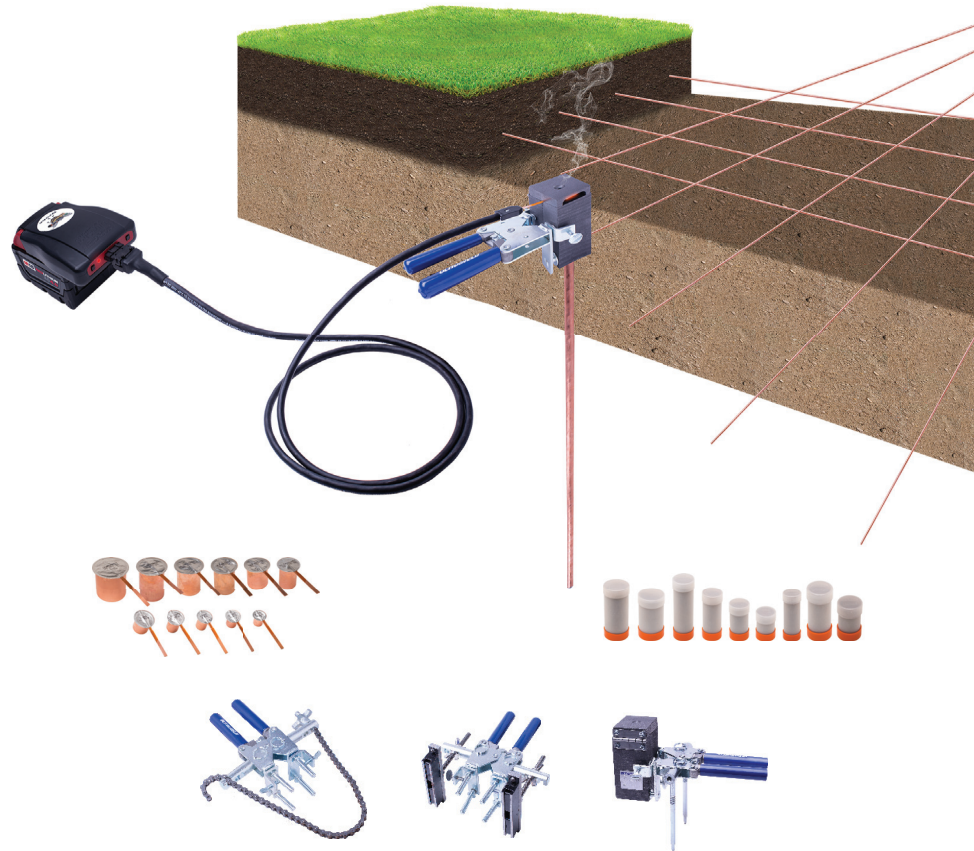


ULTRAWELD[®]

Exothermic Connections

Field Catalog



Harger Lightning & Grounding

800-842-7437

www.harger.com

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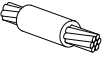










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
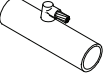

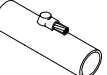



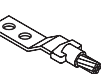
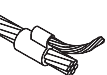

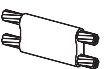
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








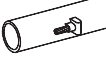

Connection Types

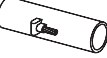




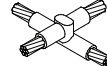
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For more exothermic connections, please see our Master Catalog.

Exothermic Process

The Exothermic Process is an effective and safe method of welding copper to copper, copper to cast iron 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 cared for. 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 always provide an ampacity that exceeds the conductors they join and will never loosen.



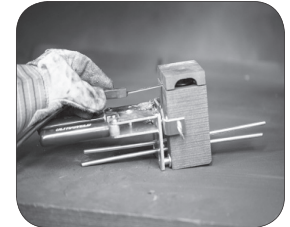
UltraShot® Drop-In Process



- Step 1:**
- Clean and dry conductors and mold
 - Insert conductors into mold



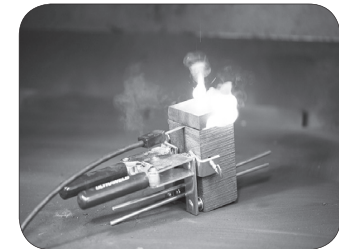
- Step 2:**
- Close handle clamp and lock mold
 - Insert UltraShot drop-in into mold



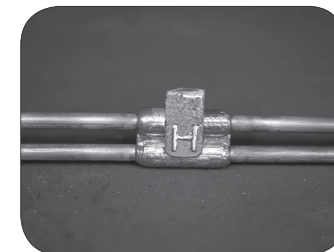
- Step 3:**
- Attach cord to UltraShot igniter



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



- Step 5:**
- Reaction is made
 - Open mold and remove connection
 - Remove slag and clean mold before making the 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

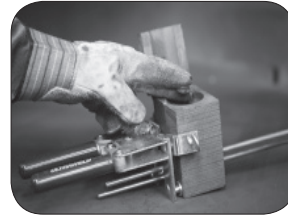
NUWTube® Pour & Shoot Process



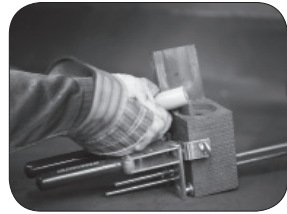
- Step 1:**
- Torch dry the mold before making the first connection



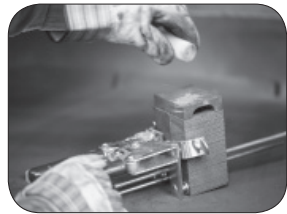
- Step 2:**
- Clean and dry conductors
 - Insert conductor into mold
 - Close handle clamp and lock mold



- Step 3:**
- Insert disk into mold



- Step 4:**
- Remove Clear plastic cap from NUWTube
 - Pour weld metal into mold



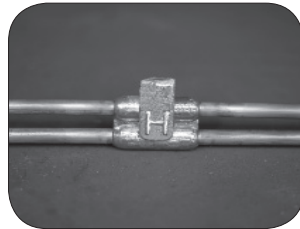
- Step 5:**
- Close Lid
 - Remove orange cap from starting powder chamber
 - Sprinkle next to ignition hole



- 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

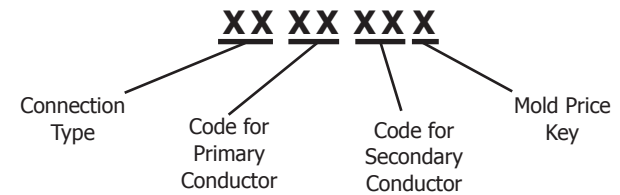
Note: When exothermic welding, always wear proper clothing, safety glasses and gloves. Harger offers Ultraweld training. Please contact the factory for more information.

Introduction

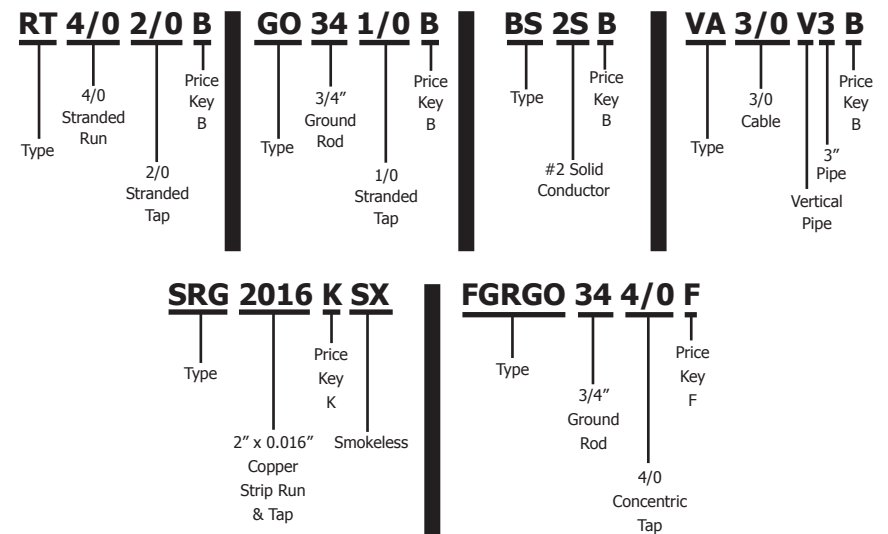
Mold Numbering System

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

- Type of connection, conductor size(s) and mold price key.
- If frame or handle clamp is not required, add a suffix "X" after the mold part number.
- See chart on page 80 for conductor identification.
- For mold Wear Plates (Page 68), add suffix "WP" to the end of the Mold Part No.
- For molds using solid conductor, add suffix "S" after conductor number. Example RT2S2SB for a #2 Solid Run and Tap mold.
- The below number are examples only. For actual part numbers, please refer to the proper pages in this catalog or request a number from Harger customer service.
- If there is a "H" or a "V" after the primary conductor then the secondary conductor is a pipe in a horizontal or vertical orientation, respectively.



Examples



Cable to Cable

Mold Information:

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

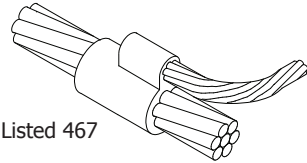
Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 73)

Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 70)

MCBRSH1 - Mold Cleaning Brushes (Page 71)



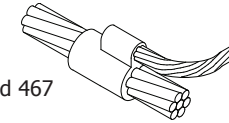
PB
(Parallel Butt)

PB Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Stranded	PB66 B	NUWTUBE25	US25
#4 Stranded	PB48 SB	NUWTUBE32	US32
	PB46 SB	NUWTUBE32	US32
	PB46 B	NUWTUBE32	US32
	PB44 B	NUWTUBE32	US32
#2 Solid	PB252 SB	NUWTUBE65	US65
#2 Stranded	PB28 SB	NUWTUBE32	US32
	PB26 SB	NUWTUBE32	US32
	PB26 B	NUWTUBE32	US32
	PB24 B	NUWTUBE45	US45
	PB22 B	NUWTUBE65	US65
1/0 Stranded	PB1/08 SB	NUWTUBE45	US45
	PB1/06 SB	NUWTUBE45	US45
	PB1/06 B	NUWTUBE45	US45
	PB1/04 B	NUWTUBE65	US65
	PB1/02 SB	NUWTUBE65	US65
	PB1/01/0 B	NUWTUBE90	US90
	PB1/02 B	NUWTUBE65	US65

Continued on next page

Cable to Cable



PB
(Parallel Butt)

PB Connection Type Continued

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
2/0 Stranded	PB2/08 SB	NUWTUBE65	US65
	PB2/06 SB	NUWTUBE65	US65
	PB2/06 B	NUWTUBE65	US65
	PB2/04 B	NUWTUBE65	US65
	PB2/02 SB	NUWTUBE90	US90
	PB2/02 B	NUWTUBE90	US90
	PB2/01/0 B	NUWTUBE115	US115
	PB2/02/0 B	NUWTUBE115	US115
4/0 Stranded	PB4/08 SB	NUWTUBE90	US90
	PB4/06 SB	NUWTUBE90	US90
	PB4/06 B	NUWTUBE90	US90
	PB4/04 B	NUWTUBE90	US90
	PB4/02 SB	NUWTUBE115	US115
	PB4/02 B	NUWTUBE115	US115
	PB4/01/0 B	NUWTUBE115	US115
	PB4/02/0 B	NUWTUBE115	US115
	PB4/04/0 B	NUWTUBE150	US150

Cable to Cable

Mold Information:

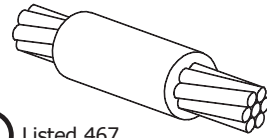
- Price Key is the **Bold Letter** in the Mold Part No.
- Molds with Price Key **"L"** SOLD WITH HANDLES

Required Tools & Accessories:

- MH1 - Handle for **"B"** Price Key Molds (Page 73)
- MH2 - Handle for **"C"** Price Key Molds (Page 73)
- FLTIG - Flint Igniter when using NUWTube & when Price Key is **"L"** (Page 76)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



BS

(Butt Splice Cables)



Cable to Cable

Mold Information:

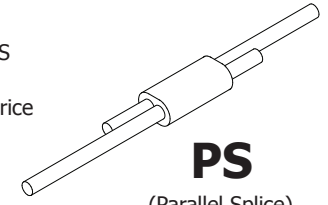
- Price Key is the **Bold Letter** in the Mold Part No.
- Molds with Price Key **"L"** & **"M"** SOLD WITH HANDLES

Required Tools & Accessories:

- FLTIG - Flint Igniter when using NUWTube & when Price Key is **"L"** & **"M"** (Page 76)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



PS

(Parallel Splice)

PS Connection Type

Cable Size		Mold Part No.	Weld Metal	
Run	Tap		NUWTube	UltraShot
#8 Solid	#8 Solid	PS8S8SL	NUWTUBE25	US25
#8 Stranded	#8 Stranded	PS88L	NUWTUBE25	US25
#6 Solid	#6 Solid	PS6S6SL	NUWTUBE25	US25
#6 Stranded	#6 Stranded	PS66L	NUWTUBE25	US25
#4 Solid	#4 Solid	PS4S4 SM	NUWTUBE32	US32
#4 Stranded	#4 Stranded	PS44 M	NUWTUBE32	US32
#2 Solid	#2 Solid	PS2S2 SM	NUWTUBE45	US45

BS Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Solid	BS6SL	NUWTUBE25	US25
#4 Stranded	BS4 L	NUWTUBE25	US25
#2 Solid	BS2SL	NUWTUBE32	US32
#2 Stranded	BS2 L	NUWTUBE32	US32
1/0 Stranded	BS1/0 B	NUWTUBE45	US45
2/0 Stranded	BS2/0 B	NUWTUBE65	US65
3/0 Stranded	BS3/0 B	NUWTUBE90	US90
4/0 Stranded	BS4/0 B	NUWTUBE90	US90
250 MCM	BS25C M	NUWTUBE115	US115
300 MCM	BS3C M	NUWTUBE115	US115
350 MCM	BS35C M	NUWTUBE150	US150
500 MCM	BS5C M	NUWTUBE200	US200
750 MCM	BS75C M	NUWTUBE2X150	US300
1000 MCM	BS1M M	NUWTUBE2X200	US400



Cable to Cable

Mold Information:

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

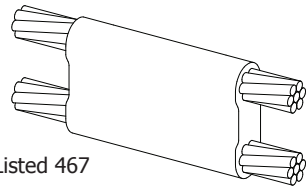
Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 73)

Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 70)

MCBRSH1 - Mold Cleaning Brushes (Page 71)



PT

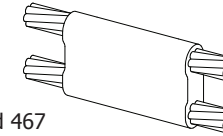
(Parallel Thru Cables)

PT Connection Type

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

Continued on next page

Cable to Cable



PT Connection Type Continued

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

Cable to Cable

Mold Information:

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

Required Tools & Accessories:

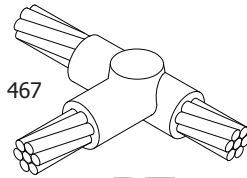
- MH1 - Handle for "B" Price Key Molds (Page 73)
- MH2 - Handle for "C" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



Listed 467



RT

(Run & Tap)

RT Connection Type

Cable Size		Mold Part No.	Weld Metal	
Run	Tap		NUWTube	UltraShot
#6 Stranded	#6 Stranded	RT66 B	NUWTUBE32	US32
#4 Stranded	#4 Stranded	RT44 B	NUWTUBE32	US32
#2 Solid	#2 Solid	RT252 SB	NUWTUBE45	US45
#2 Stranded	#6 Stranded	RT26 B	NUWTUBE45	US45
	#4 Stranded	RT24 B	NUWTUBE45	US45
	#2 Solid	RT22 SB	NUWTUBE45	US45
#2 Stranded	#2 Stranded	RT22 B	NUWTUBE45	US45
	#6 Stranded	RT1/06 B	NUWTUBE45	US45
	#4 Stranded	RT1/04 B	NUWTUBE45	US45
	#2 Solid	RT1/02 SB	NUWTUBE45	US45
1/0 Stranded	#2 Stranded	RT1/02 B	NUWTUBE45	US45
	1/0 Stranded	RT1/01/0 B	NUWTUBE90	US90
	#6 Stranded	RT2/06 B	NUWTUBE45	US45
	#4 Stranded	RT2/04 B	NUWTUBE45	US45
2/0 Stranded	#2 Solid	RT2/02 SB	NUWTUBE45	US45
	#2 Stranded	RT2/02 B	NUWTUBE45	US45
	1/0 Stranded	RT2/01/0 B	NUWTUBE90	US90
	2/0 Stranded	RT2/02/0 B	NUWTUBE90	US90
3/0 Stranded	#6 Stranded	RT3/06 B	NUWTUBE45	US45
	#4 Stranded	RT3/04 B	NUWTUBE45	US45
	3/0 Stranded	RT3/03/0 B	NUWTUBE115	US115
	#2 Solid	RT3/02 SB	NUWTUBE45	US45
	#2 Stranded	RT3/02 B	NUWTUBE45	US45
4/0 Stranded	1/0 Stranded	RT3/01/0 B	NUWTUBE90	US90
	2/0 Stranded	RT3/02/0 B	NUWTUBE90	US90
	#6 Stranded	RT4/06 B	NUWTUBE90	US90
	#4 Stranded	RT4/04 B	NUWTUBE90	US90
4/0 Stranded	#2 Solid	RT4/02 SB	NUWTUBE90	US90
	#2 Stranded	RT4/02 B	NUWTUBE90	US90
	1/0 Stranded	RT4/01/0 B	NUWTUBE90	US90
	2/0 Stranded	RT4/02/0 B	NUWTUBE90	US90
	3/0 Stranded	RT4/03/0 B	NUWTUBE115	US115
	4/0 Stranded	RT4/04/0 B	NUWTUBE150	US150

Continued on next page

Cable to Cable

RT Connection Type Continued

Cable Size		Mold Part No.	Weld Metal	
Run	Tap		NUWTube	UltraShot
250 MCM	#2 Stranded	RT25CM2 B	NUWTUBE90	US90
	1/0 Stranded	RT25CM1/0 B	NUWTUBE90	US90
	2/0 Stranded	RT25CM2/0 B	NUWTUBE90	US90
	3/0 Stranded	RT25CM3/0 B	NUWTUBE150	US150
	4/0 Stranded	RT25CM4/0 B	NUWTUBE150	US150
	250 MCM	RT25CM25C MB	NUWTUBE150	US150
300 MCM	#2 Stranded	RT3CM2 B	NUWTUBE90	US90
	1/0 Stranded	RT3CM1/0 B	NUWTUBE90	US90
	2/0 Stranded	RT3CM2/0 B	NUWTUBE90	US90
	3/0 Stranded	RT3CM3/0 B	NUWTUBE150	US150
	4/0 Stranded	RT3CM4/0 B	NUWTUBE150	US150
	250 MCM	RT3CM25C MB	NUWTUBE150	US150
350 MCM	300 MCM	RT3CM3C MB	NUWTUBE200	US200
	#2 Stranded	RT35CM2 B	NUWTUBE90	US90
	1/0 Stranded	RT35CM1/0 B	NUWTUBE90	US90
	2/0 Stranded	RT35CM2/0 B	NUWTUBE90	US90
	3/0 Stranded	RT35CM3/0 B	NUWTUBE150	US150
	4/0 Stranded	RT35CM4/0 B	NUWTUBE150	US150
500 MCM	250 MCM	RT35CM25C MB	NUWTUBE200	US200
	300 MCM	RT35CM3C MB	NUWTUBE200	US200
	350 MCM	RT35CM35C MB	NUWTUBE200	US200
	#2 Stranded	RT5CM2 B	NUWTUBE90	US90
	1/0 Stranded	RT5CM1/0 B	NUWTUBE90	US90
	2/0 Stranded	RT5CM2/0 B	NUWTUBE90	US90
750 MCM	4/0 Stranded	RT5CM4/0 B	NUWTUBE150	US150
	250 MCM	RT5CM25C MB	NUWTUBE200	US200
	300 MCM	RT5CM3C MB	NUWTUBE200	US200
	350 MCM	RT5CM35C MB	NUWTUBE200	US200
	500 MCM	RT5CM5C MB	NUWTUBE2X150	US300
	1/0 Stranded	RT75CM1/0 B	NUWTUBE150	US150
1000 MCM	2/0 Stranded	RT75CM2/0 B	NUWTUBE150	US150
	4/0 Stranded	RT75CM4/0 B	NUWTUBE150	US150
	250 MCM	RT75CM25C MB	NUWTUBE200	US200
	300 MCM	RT75CM3C MB	NUWTUBE200	US200
	350 MCM	RT75CM35C MB	NUWTUBE250	US250
	500 MCM	RT75CM5C MC	NUWTUBE2X200	US400
1000 MCM	750 MCM	RT75CM75C MC	NUWTUBE2X250	US500
	1/0 Stranded	RT1MM1/0 B	NUWTUBE150	US150
	2/0 Stranded	RT1MM2/0 B	NUWTUBE150	US150
	4/0 Stranded	RT1MM4/0 B	NUWTUBE200	US200
	250 MCM	RT1MM25C MB	NUWTUBE200	US200
	300 MCM	RT1MM3C MB	NUWTUBE200	US200
1000 MCM	350 MCM	RT1MM35C MB	NUWTUBE250	US250
	500 MCM	RT1MM5C MC	NUWTUBE2X200	US400
	750 MCM	RT1MM75C MC	NUWTUBE2X250	US500
	1000 MCM	RT1MM1MM C	NUWTUBE2X250	US500

Cable to Cable

Mold Information:

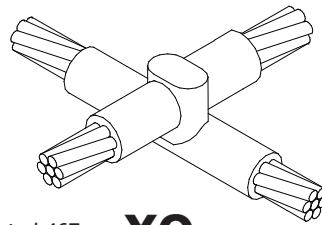
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" & "Q" Price Key Molds (Page 73)
- MH2 - Handle for "Z" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



XO

(Cross ("X") Over)

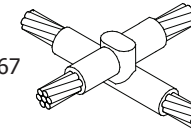


XO Connection Type

Cable Size		Mold Part No.	Weld Metal	
Run	Tap		NUWTube	UltraShot
#6 Stranded	#6 Stranded	XO66 B	NUWTUBE45	US45
#4 Stranded	#4 Stranded	XO44 B	NUWTUBE65	US65
#2 Solid	#2 Solid	XO2S2 S	NUWTUBE90	US90
#2 Stranded	#4 Stranded	XO24 B	NUWTUBE65	US65
	#2 Stranded	XO22 B	NUWTUBE90	US90
1/0 Stranded	#4 Stranded	XO1/04 Q	NUWTUBE115	US115
	#2 Stranded	XO1/02 Q	NUWTUBE115	US115
2/0 Stranded	1/0 Stranded	XO1/01/0 Q	NUWTUBE150	US150
	#2 Stranded	XO2/02 Q	NUWTUBE150	US150
3/0 Stranded	1/0 Stranded	XO2/01/0 Q	NUWTUBE200	US200
	2/0 Stranded	XO2/02/0 Q	NUWTUBE200	US200
	#2 Stranded	XO3/02 Q	NUWTUBE150	US150
	1/0 Stranded	XO3/01/0 Q	NUWTUBE200	US200
4/0 Stranded	2/0 Stranded	XO3/02/0 Q	NUWTUBE200	US200
	3/0 Stranded	XO3/03/0 Q	NUWTUBE250	US250
	#2 Stranded	XO4/02 Q	NUWTUBE150	US150
	1/0 Stranded	XO4/01/0 Q	NUWTUBE200	US200
250 MCM	2/0 Stranded	XO4/02/0 Q	NUWTUBE200	US200
	3/0 Stranded	XO4/03/0 Q	NUWTUBE250	US250
	4/0 Stranded	XO4/04/0 Q	NUWTUBE250	US250
	#2 Stranded	XO25CM2 Q	NUWTUBE150	US150
	1/0 Stranded	XO25CM1/0 Q	NUWTUBE250	US250
	2/0 Stranded	XO25CM2/0 Q	NUWTUBE250	US250
300 MCM	3/0 Stranded	XO25CM3/0 Q	NUWTUBE2X150	US300
	4/0 Stranded	XO25CM4/0 Q	NUWTUBE2X150	US300
	250 MCM	XO25CM25CM Q	NUWTUBE2X150	US300

Continued on next page

Cable to Cable



XO Connection Type Continued

Cable Size		Mold Part No.	Weld Metal	
Run	Tap		NUWTube	UltraShot
300 MCM	#2 Stranded	XO3CM2 Q	NUWTUBE150	US150
	1/0 Stranded	XO3CM1/0 Q	NUWTUBE250	US250
	2/0 Stranded	XO3CM2/0 Q	NUWTUBE250	US250
	3/0 Stranded	XO3CM3/0 Q	NUWTUBE2X150	US300
	4/0 Stranded	XO3CM4/0 Q	NUWTUBE2X150	US300
	250 MCM	XO3CM25CM Z	NUWTUBE2X200	US400
350 MCM	300 MCM	XO3CM3CM Z	NUWTUBE2X200	US400
	#2 Stranded	XO35CM2 Q	NUWTUBE200	US200
	1/0 Stranded	XO35CM1/0 Q	NUWTUBE250	US250
	2/0 Stranded	XO35CM2/0 Q	NUWTUBE2X150	US300
	3/0 Stranded	XO35CM3/0 Z	NUWTUBE2X200	US400
	4/0 Stranded	XO35CM4/0 Z	NUWTUBE2X200	US400
	250 MCM	XO35CM25CM Z	NUWTUBE2X250	US500
500 MCM	300 MCM	XO35CM3CM Z	NUWTUBE2X250	US500
	350 MCM	XO35CM35CM Z	NUWTUBE2X250	US500
	#2 Stranded	XO5CM2 Q	NUWTUBE250	US250
	1/0 Stranded	XO5CM1/0 Q	NUWTUBE2X150	US300
	2/0 Stranded	XO5CM2/0 Z	NUWTUBE2X200	US400
	3/0 Stranded	XO5CM3/0 Z	NUWTUBE2X250	US500
	4/0 Stranded	XO5CM4/0 Z	NUWTUBE2X250	US500
	250 MCM	XO5CM25CM Z	NUWTUBE2X250	US500
500 MCM	300 MCM	XO5CM3CM Z	NUWTUBE3X250	US750
	350 MCM	XO5CM35CM Z	NUWTUBE3X250	US750
	500 MCM	XO5CM5CM Z	NUWTUBE3X250	US750

Cable to Ground Rod

Mold Information:

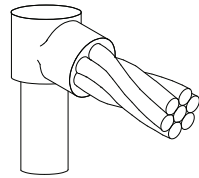
- Molds listed are for copper-clad ground rods.
- For threaded sectional rods, add suffix "S" after the ground rod number. i.e. 58S = 5/8" sectional ground rod.
- Molds with Price Key "L" SOLD WITH HANDLES but not igniter.
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73)
- MH2 - Handle for "C" Price Key Molds (Page 73)
- FLTIG - Flint Igniter when using NUWTube & when Price Key is "L" (Page 76)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



GD

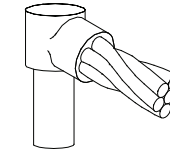
(Ground Rod to Dead End Cable)

GD Connection Type

Ground Rod Size	Cable Size	Mold Part No.	Weld Metal	
			NUWTube	UltraShot
1/2" CC GRD ROD	#6 Stranded	GD126 L	NUWTUBE25	US25
	#4 Stranded	GD124 L	NUWTUBE25	US25
	#2 Solid	GD122 SB	NUWTUBE65	US65
	#2 Stranded	GD122 B	NUWTUBE65	US65
	1/0 Stranded	GD121/ 0B	NUWTUBE90	US90
	2/0 Stranded	GD122/ 0B	NUWTUBE90	US90
	3/0 Stranded	GD123/ 0B	NUWTUBE90	US90
	4/0 Stranded	GD124/ 0B	NUWTUBE90	US90
	250 MCM	GD1225 CMB	NUWTUBE90	US90
	300 MCM	GD123 CMB	NUWTUBE90	US90
5/8" CC GRD ROD	#6 Stranded	GD586 L	NUWTUBE32	US32
	#4 Stranded	GD584 L	NUWTUBE32	US32
	#2 Solid	GD582 SB	NUWTUBE65	US65
	#2 Stranded	GD582 B	NUWTUBE65	US65
	1/0 Stranded	GD581/ 0B	NUWTUBE90	US90
	2/0 Stranded	GD582/ 0B	NUWTUBE90	US90
	3/0 Stranded	GD583/ 0B	NUWTUBE90	US90
	4/0 Stranded	GD584/ 0B	NUWTUBE90	US90
	250 MCM	GD5825 CMB	NUWTUBE90	US90
	300 MCM	GD583 CMB	NUWTUBE115	US115
	350 MCM	GD5835 CMB	NUWTUBE115	US115
	500 MCM	GD585 CMB	NUWTUBE150	US150

Continued on next page

Cable to Ground Rod



GD Connection Type Continued

Ground Rod Size	Cable Size	Mold Part No.	Weld Metal	
			NUWTube	UltraShot
3/4" CC GRD ROD	#6 Stranded	GD346 L	NUWTUBE32	US32
	#4 Stranded	GD344 L	NUWTUBE45	US45
	#2 Solid	GD342 SB	NUWTUBE90	US90
	#2 Stranded	GD342 B	NUWTUBE90	US90
	1/0 Stranded	GD341/ 0B	NUWTUBE90	US90
	2/0 Stranded	GD342/ 0B	NUWTUBE90	US90
	3/0 Stranded	GD343/ 0B	NUWTUBE90	US90
	4/0 Stranded	GD344/ 0B	NUWTUBE90	US90
	250 MCM	GD3425 CMB	NUWTUBE90	US90
	300 MCM	GD343 CMB	NUWTUBE115	US115
	350 MCM	GD3435 CMB	NUWTUBE115	US115
	500 MCM	GD345 CMB	NUWTUBE150	US150
	750 MCM	GD3475 CMB	NUWTUBE250	US250
	1" CC GRD ROD	1/0 Stranded	GD101/ 0B	NUWTUBE150
2/0 Stranded		GD102/ 0B	NUWTUBE150	US150
3/0 Stranded		GD103/ 0B	NUWTUBE150	US150
4/0 Stranded		GD104/ 0B	NUWTUBE150	US150
250 MCM		GD1025 CMB	NUWTUBE150	US150
300 MCM		GD103 CMB	NUWTUBE200	US200
350 MCM		GD1035 CMB	NUWTUBE200	US200
500 MCM		GD105 CMB	NUWTUBE200	US200
750 MCM		GD1075 CMB	NUWTUBE250	US250
1000 MCM		GD101 MMC	NUWTUBE2X150	US300

NOTE:

- Molds listed are for copper-clad steel ground rods.
- For welding to full size stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size.

Cable to Ground Rod

Mold Information:

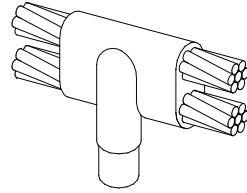
- Molds listed are for copper-clad ground rods.
- For threaded sectional rods, add suffix "S" after the ground rod number. i.e. 58S = 5/8" sectional ground rod.
- Molds with Price Key "L" SOLD WITH HANDLES but not igniter.
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "K" Price Key Molds (Page 73)
- MH2 - Handle for "D" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



GF

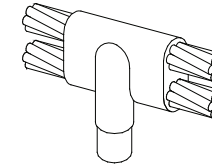
(Ground Rod Top to 4 Horizontal Cables)

GF Connection Type

Ground Rod Size	Cable Size	Mold Part No.	Weld Metal	
			NUWTube	UltraShot
1/2" CC GRD ROD	#6 Stranded	GF126 K	NUWTUBE90	US90
	#4 Stranded	GF124 K	NUWTUBE115	US115
	#2 Solid	GF122 SK	NUWTUBE115	US115
	#2 Stranded	GF122 K	NUWTUBE115	US115
	1/0 Stranded	GF121/ OK	NUWTUBE150	US150
	2/0 Stranded	GF122/ OK	NUWTUBE200	US200
	3/0 Stranded	GF123/ OK	NUWTUBE250	US250
	4/0 Stranded	GF124/ OK	NUWTUBE250	US250
5/8" CC GRD ROD	#6 Stranded	GF586 K	NUWTUBE90	US90
	#4 Stranded	GF584 K	NUWTUBE115	US115
	#2 Solid	GF582 SK	NUWTUBE150	US150
	#2 Stranded	GF582 K	NUWTUBE150	US150
	1/0 Stranded	GF581/ OK	NUWTUBE200	US200
	2/0 Stranded	GF582/ OK	NUWTUBE250	US250
	3/0 Stranded	GF583/ OD	NUWTUBE2X150	US300
	4/0 Stranded	GF584/ OD	NUWTUBE2X150	US300
	250 MCM	GF5825 CMD	NUWTUBE2X200	US400
	300 MCM	GF583 CMD	NUWTUBE2X250	US500
	350 MCM	GF5835 CMD	NUWTUBE2X250	US500

Continued on next page

Cable to Ground Rod



GF Connection Type Continued

Ground Rod Size	Cable Size	Mold Part No.	Weld Metal	
			NUWTube	UltraShot
3/4" CC GRD ROD	#6 Stranded	GF346 K	NUWTUBE90	US90
	#4 Stranded	GF344 K	NUWTUBE115	US115
	#2 Solid	GF342 SK	NUWTUBE150	US150
	#2 Stranded	GF342 K	NUWTUBE150	US150
	1/0 Stranded	GF341/ OK	NUWTUBE200	US200
	2/0 Stranded	GF342/ OK	NUWTUBE250	US250
	3/0 Stranded	GF343/ OD	NUWTUBE2X150	US300
	4/0 Stranded	GF344/ OD	NUWTUBE2X150	US300
	250 MCM	GF3425 CMD	NUWTUBE2X200	US400
	300 MCM	GF343 CMD	NUWTUBE2X250	US500
1" CC GRD ROD	#4 Stranded	GF104 K	NUWTUBE150	US150
	#2 Stranded	GF102 K	NUWTUBE200	US200
	1/0 Stranded	GF101/ OK	NUWTUBE250	US250
	2/0 Stranded	GF102/ OD	NUWTUBE2X150	US300
	3/0 Stranded	GF103/ OD	NUWTUBE2X200	US400
	4/0 Stranded	GF104/ OD	NUWTUBE2X200	US400
250 MCM	GF1025 CMD	NUWTUBE2X250	US500	

NOTE:

- Molds listed are for copper-clad steel ground rods.
- For welding to full size stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size.

Cable to Ground Rod

Mold Information:

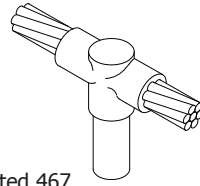
- Molds listed are for copper-clad ground rods.
- For threaded sectional rods, add suffix "S" after the ground rod number. i.e. 58S = 5/8" sectional ground rod.
- For Full size rods, add suffix "F" after the ground rod number. i.e. 58F = 5/8" Full Size rod.
- Molds with Price Key "L" and "M" SOLD WITH HANDLES but not igniter.
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73)
- MH2 - Handle for "C" Price Key Molds (Page 73)
- FLTIG - Flint Igniter when using NUWTube & when Price Key is "L" & "M" (Page 76)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



GO

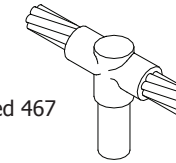
(Ground Rod to Cable Over Top)

GO Connection Type

Ground Rod Size	Cable Size	Mold Part No.	Weld Metal	
			NUWTube	UltraShot
1/2" CC GRD ROD	#6 Stranded	GO126 L	NUWTUBE32	US32
	#4 Stranded	GO124 L	NUWTUBE32	US32
	#2 Solid	GO122 SB	NUWTUBE90	US90
	#2 Stranded	GO122 B	NUWTUBE90	US90
	1/0 Stranded	GO121/ 0B	NUWTUBE90	US90
	2/0 Stranded	GO122/ 0B	NUWTUBE90	US90
	3/0 Stranded	GO123/ 0B	NUWTUBE115	US115
	4/0 Stranded	GO124/ 0B	NUWTUBE115	US115
	250 MCM	GO1225 CMB	NUWTUBE150	US150
	300 MCM	GO123 CMB	NUWTUBE200	US200
5/8" CC GRD ROD	#6 Stranded	GO586 L	NUWTUBE32	US32
	#4 Stranded	GO584 L	NUWTUBE32	US32
	#2 Solid	GO582 SB	NUWTUBE90	US90
	#2 Stranded	GO582 B	NUWTUBE90	US90
	1/0 Stranded	GO581/ 0B	NUWTUBE90	US90
	2/0 Stranded	GO582/ 0B	NUWTUBE115	US115
	3/0 Stranded	GO583/ 0B	NUWTUBE115	US115
	4/0 Stranded	GO584/ 0B	NUWTUBE115	US115
	250 MCM	GO5825 CMB	NUWTUBE150	US150
	300 MCM	GO583 CMB	NUWTUBE200	US200
	350 MCM	GO5835 CMB	NUWTUBE200	US200
	500 MCM	GO585 CMB	NUWTUBE250	US250

Continued on next page

Cable to Ground Rod



GO Connection Type Continued

Ground Rod Size	Cable Size	Mold Part No.	Weld Metal	
			NUWTube	UltraShot
3/4" CC GRD ROD	#6 Stranded	GO346 L	NUWTUBE45	US45
	#4 Stranded	GO344 M	NUWTUBE65	US65
	#2 Solid	GO342 SB	NUWTUBE90	US90
	#2 Stranded	GO342 B	NUWTUBE90	US90
	1/0 Stranded	GO341/ 0B	NUWTUBE115	US115
	2/0 Stranded	GO342/ 0B	NUWTUBE115	US115
	3/0 Stranded	GO343/ 0B	NUWTUBE115	US115
	4/0 Stranded	GO344/ 0B	NUWTUBE115	US115
	250 MCM	GO3425 CMB	NUWTUBE150	US150
	300 MCM	GO343 CMB	NUWTUBE200	US200
1" CC GRD ROD	350 MCM	GO3435 CMB	NUWTUBE200	US200
	500 MCM	GO345 CMB	NUWTUBE250	US250
	750 MCM	GO3475 CMB	NUWTUBE2X200	US400
	1/0 Stranded	GO101/ 0B	NUWTUBE150	US150
	2/0 Stranded	GO102/ 0B	NUWTUBE150	US150
	3/0 Stranded	GO103/ 0B	NUWTUBE150	US150
	4/0 Stranded	GO104/ 0B	NUWTUBE150	US150
	250 MCM	GO1025 CMB	NUWTUBE200	US200
	300 MCM	GO103 CMB	NUWTUBE200	US200
	350 MCM	GO1035 CMB	NUWTUBE200	US200
	500 MCM	GO105 CMB	NUWTUBE250	US250
	750 MCM	GO1075 CMB	NUWTUBE2X200	US400
	1000 MCM	GO101 MMC	NUWTUBE2X250	US500

NOTE:

- Molds listed are for copper-clad steel ground rods.
- For welding to full size stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size.

Cable to Ground Rod

Mold Information:

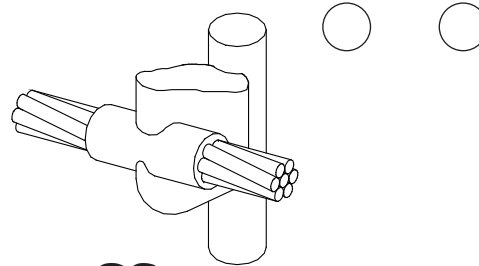
- Molds listed are for copper-clad ground rods.
- For threaded sectional rods, add suffix "S" after the ground rod number. i.e. 58S = 5/8" sectional ground rod.
- For Full size rods, add suffix "F" after the ground rod number. i.e. 58F = 5/8" Full Size rod.
- Handles for "R" Price Key Molds DO NOT INCLUDE Flint Igniters.
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "P" Price Key Molds (Page 73)
- MH2 - Handle for "Y" Price Key Molds (Page 73)
- MH3 - Handle for "R" Price Key Molds (Page 73)
- FLTIG - Flint Igniter when Price Key is "L" (Page 76)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



GS

(Ground Rod to Cable on Side)

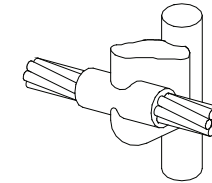


GS Connection Type

Ground Rod Size	Cable Size	Mold Part No.	Weld Metal	
			NUWTube	UltraShot
1/2" CC GRD ROD	#6 Stranded	GS126R	NUWTUBE65	US65
	#4 Stranded	GS124R	NUWTUBE65	US65
	#2 Solid	GS122SR	NUWTUBE65	US65
	#2 Stranded	GS122R	NUWTUBE65	US65
	1/0 Stranded	GS121/0P	NUWTUBE115	US115
	2/0 Stranded	GS122/0P	NUWTUBE115	US115
	3/0 Stranded	GS123/0P	NUWTUBE150	US150
	4/0 Stranded	GS124/0P	NUWTUBE150	US150
3/4" CC GRD ROD	250 MCM	GS1225CMP	NUWTUBE150	US150
	#6 Stranded	GS346R	NUWTUBE65	US65
	#4 Stranded	GS344R	NUWTUBE65	US65
	#2 Solid	GS342SR	NUWTUBE65	US65
	#2 Stranded	GS342R	NUWTUBE65	US65
	1/0 Stranded	GS341/0P	NUWTUBE115	US115
	2/0 Stranded	GS342/0P	NUWTUBE115	US115
	3/0 Stranded	GS343/0P	NUWTUBE150	US150
	4/0 Stranded	GS344/0P	NUWTUBE150	US150
	250 MCM	GS3425CMP	NUWTUBE200	US200
500 MCM	GS345CMY	NUWTUBE2X250	US500	

Continued on next page

Cable to Ground Rod



GS Connection Type Continued

Ground Rod Size	Cable Size	Mold Part No.	Weld Metal	
			NUWTube	UltraShot
5/8" CC GRD ROD	#6 Stranded	GS586R	NUWTUBE65	US65
	#4 Stranded	GS584R	NUWTUBE65	US65
	#2 Solid	GS582SR	NUWTUBE65	US65
	#2 Stranded	GS582R	NUWTUBE65	US65
	1/0 Stranded	GS581/0P	NUWTUBE115	US115
	2/0 Stranded	GS582/0P	NUWTUBE115	US115
	3/0 Stranded	GS583/0P	NUWTUBE150	US150
	4/0 Stranded	GS584/0P	NUWTUBE150	US150
	250 MCM	GS5825CMP	NUWTUBE150	US150
	500 MCM	GS585CMY	NUWTUBE2X200	US400

NOTE:

- Molds listed are for copper-clad steel ground rods.
- For welding to full size stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size.

Cable to Ground Rod

Mold Information:

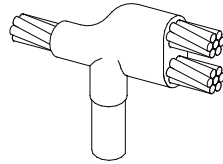
- Molds listed are for copper-clad ground rods.
- For threaded sectional rods, add suffix "S" after the ground rod number. i.e. 58S = 5/8" sectional ground rod.
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "K" Price Key Molds (Page 73)
- MH2 - Handle for "D" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRS1 - Mold Cleaning Brushes (Page 71)



GT

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

GT Connection Type

Ground Rod Size	Cable Size	Mold Part No.	Weld Metal	
			NUWTube	UltraShot
5/8" CC GRD ROD	#6 Stranded	GT586 K	NUWTUBE90	US90
	#4 Stranded	GT584 K	NUWTUBE90	US90
	#2 Solid	GT582 SK	NUWTUBE115	US115
	#2 Stranded	GT582 K	NUWTUBE115	US115
	1/0 Stranded	GT581/ OK	NUWTUBE150	US150
	2/0 Stranded	GT582/ OK	NUWTUBE200	US200
	3/0 Stranded	GT583/ OK	NUWTUBE250	US250
	4/0 Stranded	GT584/ OK	NUWTUBE250	US250
	250 MCM	GT5825 CMD	NUWTUBE2X150	US300
3/4" CC GRD ROD	#6 Stranded	GT346 K	NUWTUBE90	US90
	#4 Stranded	GT344 K	NUWTUBE90	US90
	#2 Solid	GT342 SK	NUWTUBE115	US115
	#2 Stranded	GT342 K	NUWTUBE115	US115
	1/0 Stranded	GT341/ OK	NUWTUBE150	US150
	2/0 Stranded	GT342/ OK	NUWTUBE200	US200
	3/0 Stranded	GT343/ OK	NUWTUBE250	US250
	4/0 Stranded	GT344/ OK	NUWTUBE250	US250
	250 MCM	GT3425 CMD	NUWTUBE2X150	US300
	300 MCM	GT343 CMD	NUWTUBE2X200	US400
	350 MCM	GT3435 CMD	NUWTUBE2X200	US400

NOTE:

- Molds listed are for copper-clad steel ground rods.
- For welding to full size stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size.

Ground Rod to Ground Rod

Mold Information:

- Molds listed are for copper-clad ground rods.
- For threaded sectional rods, add suffix "S" after the ground rod number. i.e. 58S = 5/8" sectional ground rod.
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73)
- MH2 - Handle for "C" Price Key Molds (Page 73)
- GRCC - Ground Rod & Cable Clamp (Page 76)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRS1 - Mold Cleaning Brushes (Page 71)



GG

(Butt Splice of Vertical Ground Rods)

GG Connection Type

Ground Rod Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
1/2" CC GRD ROD	GG12 B	NUWTUBE250	US250
5/8" CC GRD ROD	GG58 C	NUWTUBE2X150	US300
3/4" CC GRD ROD	GG34 C	NUWTUBE2X200	US400

NOTE:

- Molds listed are for copper-clad steel ground rods.
- For welding to full size stainless steel, galvanized steel or solid copper ground rods, add letter "F" to ground rod size.

Cable to Steel Surface

Mold Information:

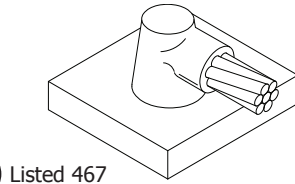
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73)
- MH2 - Handle for "C" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)
- UMHDKIT - Mold Hold Down Kit (Page 74)



HB

(Horizontal Butt OFF Surface)

HB Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 STR	HB6 B	NUWTUBE65	US65
#2 SOL	HB2 SB	NUWTUBE65	US65
#2 STR	HB2 B	NUWTUBE65	US65
1/0 STR	HB1/0 B	NUWTUBE90	US90
2/0 STR	HB2/0 B	NUWTUBE90	US90
3/0 STR	HB3/0 B	NUWTUBE115	US115
4/0 STR	HB4/0 B	NUWTUBE115	US115
250 MCM	HB25C MB	NUWTUBE115	US115
300 MCM	HB3C MB	NUWTUBE150	US150
350 MCM	HB35C MB	NUWTUBE200	US200
500 MCM	HB5C MB	NUWTUBE200	US200
750 MCM	HB75C MC	NUWTUBE2X150	US300
1000 MCM	HB1M MC	NUWTUBE2X200	US400



UMHDKIT



UMHDKIT with Handle

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:

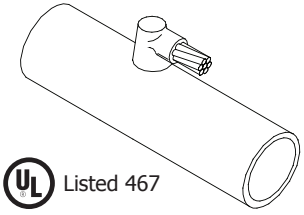
- MH1 - Handle for "B" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)
- UMHDKIT - Mold Hold Down Kit (Page 74)

OR

- CSKITHP - Chain Support Kit for Horizontal (Page 73)



HB

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

HB (Pipe) Connection Type

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

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



UMHDKIT

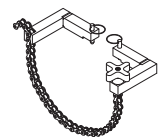
CABLE TO HORIZONTAL STEEL PIPE (HB & HD)

Use Mold Part No. with Pipe Size (**) Indicator

Cable	Nominal Pipe Size	Pipe Size Indicator
#1 and Smaller	12" and Smaller 14" and Larger	Nominal Pipe Size* None
1/0 thru 250	28" and Smaller 30" and Larger	Nominal Pipe Size* None

Example: #1/0 cable to 2-1/2" pipe = HB-1/02.5**B**

*See Pipe Sizes on page 79.



CSKITHP

Cable to Steel Surface

Mold Information:

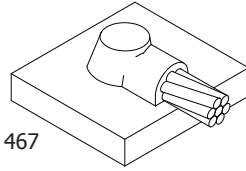
- Molds with Price Key "A" SOLD WITH FRAME.
- Frame for "A" Price Key Molds INCLUDES Flint Igniters.
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73)
- MH2 - Handle for "C" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)
- UMHDKIT - Mold Hold Down Kit (Page 74)
- UMMHDA - Hold Down Kit for price key "A" molds (Page 74)



HD

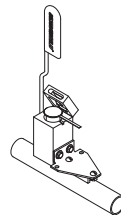
(Horizontal Butt DOWN on Surface)

HD Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 SOL	HD6 SA	NUWTUBE45	US45
#6 STR	HD6 A	NUWTUBE45	US45
#4 STR	HD4 A	NUWTUBE45	US45
#2 SOL	HD2 SA	NUWTUBE45	US45
#2 STR	HD2 A	NUWTUBE45	US45
1/0 STR	HD1/0 B	NUWTUBE90	US90
2/0 STR	HD2/0 B	NUWTUBE90	US90
3/0 STR	HD3/0 B	NUWTUBE115	US115
4/0 STR	HD4/0 B	NUWTUBE115	US115
250 MCM	HD25 CMB	NUWTUBE115	US115
300 MCM	HD3 CMB	NUWTUBE150	US150
350 MCM	HD35 CMB	NUWTUBE200	US200
500 MCM	HD5 CMB	NUWTUBE200	US200
750 MCM	HD75 CMC	NUWTUBE2X150	US300
1000 MCM	HD1 MMC	NUWTUBE2X200	US400

NOTE:

- Mold Sealer (Page 70) required on conductors 1/0 and larger



UMMHDA

Cable to Steel Surface / Pipe

Mold Information:

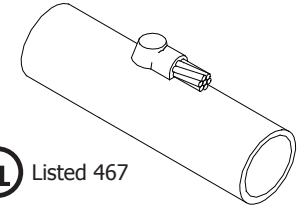
- Mold cable is **on** the pipe surface.
- Frame for "A" Price Key Molds INCLUDES Flint Igniters.
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)
- UMHDKIT - Mold Hold Down Kit (Page 74)
- UMMHDA - Hold Down Kit when price key is "A" (Page 74)
- OR**
- CSKITHP - Chain Support Kit for Horizontal (Page 73)



HD

(Horizontal Cable to Top of Horizontal Steel Pipe, ON Surface)

HD (Pipe) Connection Type

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

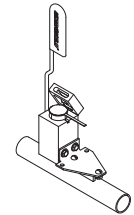
**Add Pipe Size to Mold Part No. See chart below.

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 14" and Larger	Nominal Pipe Size* None
1/0 thru 250	28" and Smaller 30" and Larger	Nominal Pipe Size* None
Example: #1/0 cable to 2-1/2" pipe = HD-1/02.5 B		

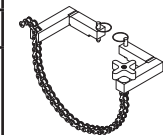
*See Pipe Sizes on page 79.

NOTE:

- Mold Sealer (Page 70) required on conductors 1/0 and larger



UMMHDA



CSKITHP

Cable to Steel Surface

Mold Information:

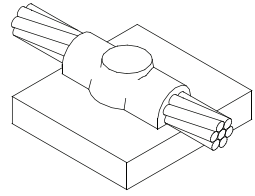
- Mold cable is **on** the pipe surface.
- Frame for "A" Price Key Molds INCLUDES Flint Igniters.
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73)
- MH2 - Handle for "C" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)
- UMHDKIT - Mold Hold Down Kit (Page 74)
- UMMHDA - Hold Down Kit when price key is "A" (Page 74)



HT

(Horizontal Thru ON Surface)

HT Connection Type

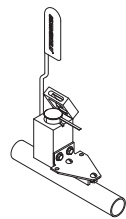
Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Stranded	HT6 A	NUWTUBE45	US45
#4 Stranded	HT4 A	NUWTUBE45	US45
#2 Solid	HT2 SA	NUWTUBE45	US45
#2 Stranded	HT2 A	NUWTUBE45	US45
1/0 Stranded	HT1/0 B	NUWTUBE90	US90
2/0 Stranded	HT2/0 B	NUWTUBE115	US115
3/0 Stranded	HT3/0 B	NUWTUBE115	US115
4/0 Stranded	HT4/0 B	NUWTUBE150	US150
250 MCM	HT25 CMB	NUWTUBE150	US150
300 MCM	HT3 CMB	NUWTUBE200	US200
350 MCM	HT35 CMB	NUWTUBE250	US250
500 MCM	HT5 CMC	NUWTUBE2X150	US300



UMHDKIT



UMHDKIT with Handle



UMMHDA

NOTE:

- Mold Sealer (Page 70) required on conductors 1/0 and larger

Cable to Steel Surface

Mold Information:

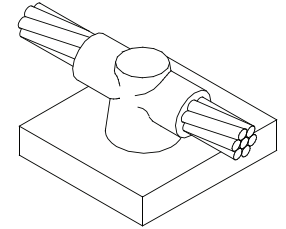
- Mold cable is **off** the pipe surface.
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73)
- MH2 - Handle for "C" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)
- UMHDKIT - Mold Hold Down Kit (Page 74)



HU

(Horizontal Thru Up OFF Surface)

HU Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
1/0 Stranded	HU1/0 B	NUWTUBE90	US90
2/0 Stranded	HU2/0 B	NUWTUBE115	US115
3/0 Stranded	HU3/0 B	NUWTUBE115	US115
4/0 Stranded	HU4/0 B	NUWTUBE150	US150
250 MCM	HU25 CMB	NUWTUBE150	US150
300 MCM	HU3 CMB	NUWTUBE200	US200
350 MCM	HU35 CMB	NUWTUBE250	US250
500 MCM	HU5 CMC	NUWTUBE2X150	US300



UMHDKIT



UMHDKIT with Handle

Cable to Steel Surface

Mold Information:

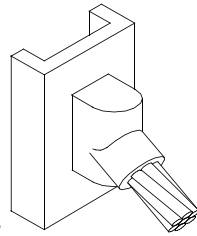
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73)
- MH2 - Handle for "C" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)
- MSKIT - Magnetic Support Kit (Page 74)



VA

(Vertical Angle 45°)



Cable to Steel Surface / Pipe

Mold Information:

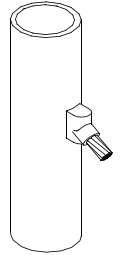
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- CSH1 - Chain Support Handle clamp for "B" Price Key Molds (Page 73)
- MH1 - Handle for "B" Price Key Molds (Page 73)
- CSKIT - Chain Support Kits (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



VA

(Vertical Angle 45°)

VA Connection Type

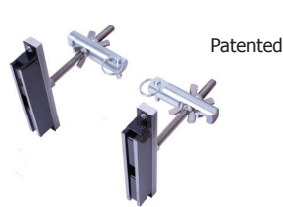
Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Stranded	VA6 B	NUWTUBE45	US45
#4 Stranded	VA4 B	NUWTUBE45	US45
#2 Solid	VA2 SB	NUWTUBE45	US45
#2 Stranded	VA2 B	NUWTUBE45	US45
1/0 Stranded	VA1/0 B	NUWTUBE90	US90
2/0 Stranded	VA2/0 B	NUWTUBE90	US90
3/0 Stranded	VA3/0 B	NUWTUBE115	US115
4/0 Stranded	VA4/0 B	NUWTUBE115	US115
250 MCM	VA25 CMB	NUWTUBE115	US115
300 MCM	VA3 CMB	NUWTUBE150	US150
350 MCM	VA35 CMB	NUWTUBE200	US200
500 MCM	VA5 CMB	NUWTUBE200	US200
750 MCM	VA75 CMC	NUWTUBE2X150	US300
1000 MCM	VA1 MMC	NUWTUBE2X200	US400



VA (Pipe) Connection Type (Range Taking)

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

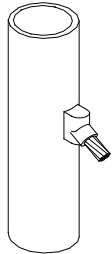
Continued on next page



MSKIT



MSKIT with Handle



VA
(Vertical Angle 45°)



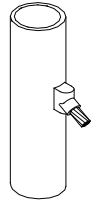
VA (Pipe) Connection Type (Range Taking) Continued

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



VA (Pipe) Connection Type

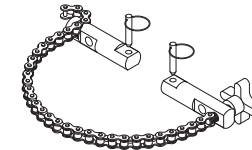
Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Solid	VA-6**A	NUWTUBE45	US45
#4 Stranded	VA-4**A	NUWTUBE45	US45
#2 Solid	VA-2S**A	NUWTUBE45	US45
#2 Stranded	VA-2**A	NUWTUBE45	US45
1/0 Stranded	VA-1/0**B	NUWTUBE90	US90
2/0 Stranded	VA-2/0**B	NUWTUBE90	US90
3/0 Stranded	VA-3/0**B	NUWTUBE115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



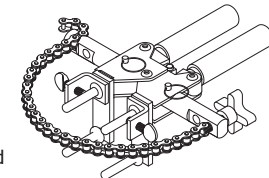
**Add Horizontal or Vertical Pipe Orientation and Pipe Size Indicator. See chart below.

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 32" and Larger	Nominal Pipe Size* 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 79.



CSKIT



CSH1

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:

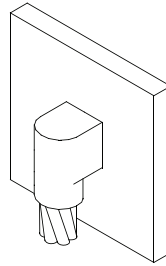
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

MH1 - Handle for "B" and "K" Price Key Molds (Page 73)

Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 70)
 MCBRS1 - Mold Cleaning Brushes (Page 71)
 MSKIT - Magnetic Support Kit (Page 74)



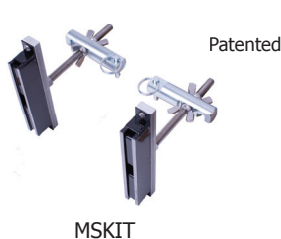
VD

(Vertical Down)



VD Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Stranded	VD6 B	NUWTUBE45	US45
#4 Stranded	VD4 B	NUWTUBE65	US65
#2 Solid	VD2 S B	NUWTUBE65	US65
#2 Stranded	VD2 B	NUWTUBE65	US65
1/0 Stranded	VD1/0 B	NUWTUBE115	US115
2/0 Stranded	VD2/0 B	NUWTUBE115	US115
3/0 Stranded	VD3/0 B	NUWTUBE150	US150
4/0 Stranded	VD4/0 B	NUWTUBE150	US150
250 MCM	VD25CM B	NUWTUBE200	US200
300 MCM	VD3CM B	NUWTUBE200	US200
350 MCM	VD35CM B	NUWTUBE250	US250
500 MCM	VD5CM K	NUWTUBE2X150	US300



Cable to Steel Surface / Pipe

Mold Information:

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

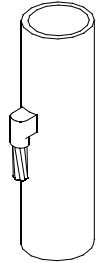
Required Tools & Accessories:

CSH1 - Chain Support Handle clamp for "B" Price Key Molds (Page 73) **OR**

MH1 - Handle for "B" Price Key Molds (Page 73) **AND**
 CSKIT - Chain Support Kits (Page 73)

Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 70)
 MCBRS1 - Mold Cleaning Brushes (Page 71)



VD

(Vertical Down)

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

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

VD (Pipe) Connection Type

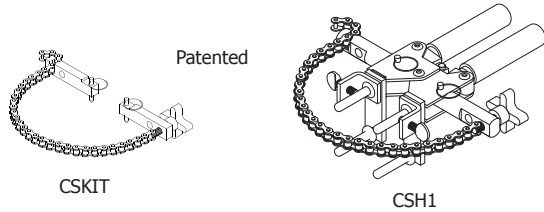
Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Stranded	VD6** B	NUWTUBE45	US45
#4 Stranded	VD4** B	NUWTUBE65	US65
#2 Solid	VD2S** B	NUWTUBE65	US65
#2 Stranded	VD2** B	NUWTUBE65	US65
1/0 Stranded	VD1/0** B	NUWTUBE115	US115
2/0 Stranded	VD2/0** B	NUWTUBE115	US115
3/0 Stranded	VD3/0** B	NUWTUBE150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

****Add Horizontal or Vertical Pipe Orientation and Pipe Size Indicator. See chart to the right.**

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 32" and Larger	Nominal Pipe Size* 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 79.



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:

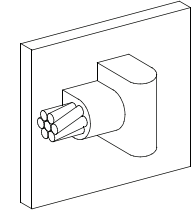
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)
- MSKIT - Magnetic Support Kit (Page 74)
- MSKITHSVS - Magnetic Support Kit (Page 74)



VL

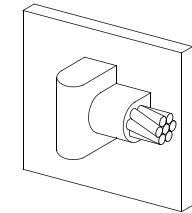
(Vertical Surface Left Hand Mold*)

NOTE:

- Mold Sealer (Page 70) required on conductors 1/0 and larger

VL Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	Ultra-Shot
#6 Stranded	VL6 B	NUWTUBE45	US45
#4 Stranded	VL4 B	NUWTUBE45	US45
#2 Solid	VL2 S	NUWTUBE45	US45
#2 Stranded	VL2 B	NUWTUBE45	US45
1/0 Stranded	VL1/0 B	NUWTUBE90	US90
2/0 Stranded	VL2/0 B	NUWTUBE90	US90
3/0 Stranded	VL3/0 B	NUWTUBE115	US115
4/0 Stranded	VL4/0 B	NUWTUBE115	US115
250 MCM	VL25 C	NUWTUBE115	US115
300 MCM	VL3 C	NUWTUBE150	US150
350 MCM	VL35 C	NUWTUBE200	US200
500 MCM	VL5 C	NUWTUBE200	US200

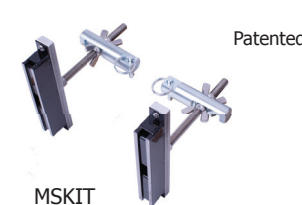


VR

(Vertical Surface Right Hand Mold*)

***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 Steel Surface

Mold Information:

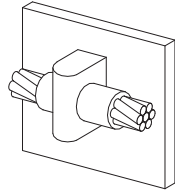
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)
- MSKIT - Magnetic Support Kit (Page 74)
- MSKITHSVS - Magnetic Support Kit (Page 74)



VH

(Vertical Surface
Horizontal Cable)

VH Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Stranded	VH6 B	NUWTUBE65	US65
#4 Stranded	VH4 B	NUWTUBE65	US65
#2 Solid	VH2 SB	NUWTUBE65	US65
#2 Stranded	VH2 B	NUWTUBE65	US65
1/0 Stranded	VH1/0 B	NUWTUBE115	US115
2/0 Stranded	VH2/0 B	NUWTUBE115	US115
3/0 Stranded	VH3/0 B	NUWTUBE150	US150
4/0 Stranded	VH4/0 B	NUWTUBE150	US150
250 MCM	VH25C MB	NUWTUBE150	US150

Cable to Steel Surface / Pipe

Mold Information:

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

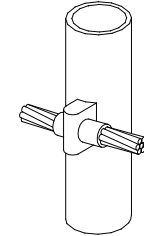
Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 73) **AND**

CSKITHSVM - Chain Support Kits (Page 73)

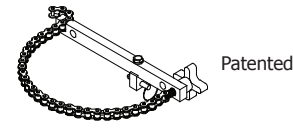
Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



VH

(Horizontal Thru Cable to Side of
Vertical Steel Pipe)



CSKITHSVM

VH (Pipe) Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Stranded	VH6** B	NUWTUBE65	US65
#4 Stranded	VH4** B	NUWTUBE65	US65
#2 Solid	VH2S** B	NUWTUBE65	US65
#2 Stranded	VH2** B	NUWTUBE65	US65
1/0 Stranded	VH1/0** B	NUWTUBE115	US115
2/0 Stranded	VH2/0** B	NUWTUBE115	US115
3/0 Stranded	VH3/0** B	NUWTUBE150	US150
4/0 Stranded	VH4/0** B	NUWTUBE150	US150
250 MCM	VH25CM** 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 14" and Larger	Nominal Pipe Size* None
1/0 thru 250	28" and Smaller 30" and Larger	Nominal Pipe Size* None
Example: #2 cable to 2-1/2" pipe = VH2V2.5 B		

***See Pipe Sizes on page 79.**

Cable to Steel Surface / Pipe

Mold Information:

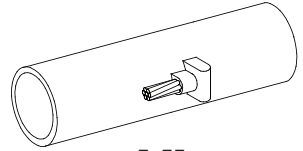
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73) **AND** CSKITHSVM - Chain Support Kits (Page 73)

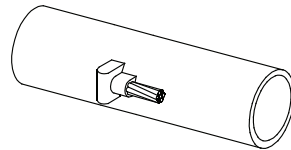
Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



VL

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



VR

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

VL (Pipe) Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Stranded	VL6** B	NUWTUBE65	US65
#4 Stranded	VL4** B	NUWTUBE65	US65
#2 Solid	VL2S** B	NUWTUBE65	US65
#2 Stranded	VL2** B	NUWTUBE65	US65
1/0 Stranded	VL1/0** B	NUWTUBE115	US115
2/0 Stranded	VL2/0** B	NUWTUBE115	US115
3/0 Stranded	VL3/0** B	NUWTUBE150	US150
4/0 Stranded	VL4/0** B	NUWTUBE150	US150
250 MCM	VL25CM** B	NUWTUBE150	US150

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

NOTE:

- Mold Sealer (Page 70) 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 14" and Larger	Nominal Pipe Size* None
1/0 thru 250	28" and Smaller 30" and Larger	Nominal Pipe Size* None
Example: #2 cable to 2-1/2" pipe = VL-2H2.5 B		

*See Pipe Sizes on page 79.

Cable to Steel Surface

Mold Information:

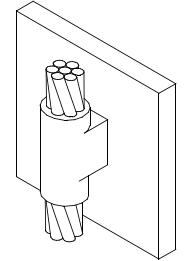
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- MH1 - Handle for "B" and "K" Price Key Molds (Page 73)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)
- MSKIT - Magnetic Support Kit (Page 74)

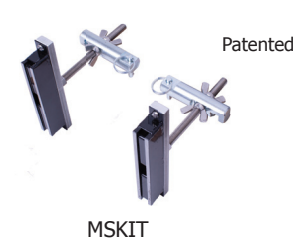


VT

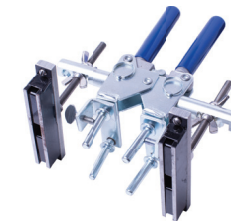
(Vertical Thru off Vertical Surface)

VT Connection Type

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



MSKIT



MSKIT with Handle

Cable to Steel Surface / Pipe

Mold Information:

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

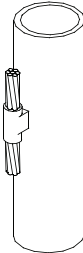
Required Tools & Accessories:

CSH1 - Chain Support Handle clamp for "B" and "K" Price Key Molds (Page 73) **OR**

MH1 - Handle for "B" and "K" Price Key Molds (Page 73) **AND**
CSKIT - Chain Support Kits (Page 73)

Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 70)
MCBRSH1 - Mold Cleaning Brushes (Page 71)

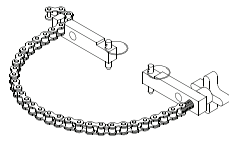


VT (Pipe) Connection Type

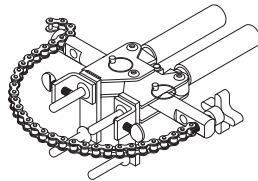
Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Stranded	VT6** B	NUWTUBE90	US90
#4 Stranded	VT4** B	NUWTUBE90	US90
#2 Solid	VT2S** B	NUWTUBE115	US115
#2 Stranded	VT2** B	NUWTUBE115	US115
1/0 Stranded	VT1/0** K	NUWTUBE200	US200
2/0 Stranded	VT2/0** K	NUWTUBE200	US200
3/0 Stranded	VT3/0** K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

VT

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



CSKIT Patented



CSH1

****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 30" and Larger	Nominal Pipe Size* None
Example: #2 cable to 2-1/2" pipe = VT-2V2.5 B		
CABLE TO HORIZONTAL STEEL PIPE		
Use Mold Part No.; add "H" and Pipe Size (**) Indicator		
Example: #2/0 cable to 6" pipe = VT-2/0H6 B		

***See Pipe Sizes on page 79.**

Cable to Steel Surface

Mold Information:

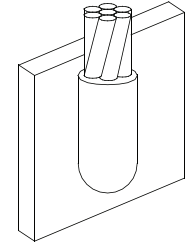
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

MH1 - Handle for "B" and "K" Price Key Molds (Page 73)
MH2 - Handle for "D" Price Key Molds (Page 73)

Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 70)
MCBRSH1 - Mold Cleaning Brushes (Page 71)
MSKIT - Magnetic Support Kit (Page 74)

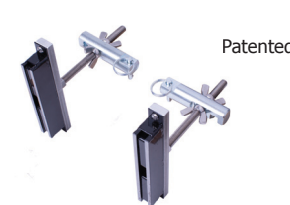


VU

(Vertical Upward Cable on Vertical Surface)

VU Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Stranded	VU6 B	NUWTUBE65	US65
#4 Stranded	VU4 B	NUWTUBE65	US65
#2 Solid	VU2S B	NUWTUBE65	US65
#2 Stranded	VU2 B	NUWTUBE65	US65
1/0 Stranded	VU1/0 B	NUWTUBE150	US150
2/0 Stranded	VU2/0 B	NUWTUBE150	US150
3/0 Stranded	VU3/0 K	NUWTUBE200	US200
4/0 Stranded	VU4/0 K	NUWTUBE200	US200
250 MCM	VU25CM K	NUWTUBE200	US200
300 MCM	VU3CM K	NUWTUBE250	US250
350 MCM	VU35CM D	NUWTUBE2X150	US300
500 MCM	VU5CM D	NUWTUBE2X200	US400
750 MCM	VU75CM D	NUWTUBE2X250	US500



MSKIT



MSKIT with Handle

Cable to Steel Surface / Pipe

Mold Information:

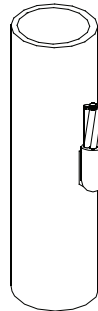
- Price Key is the **Bold Letter** in the Mold Part No.

Required Tools & Accessories:

- CSH1 - Chain Support Handle clamp for "B" and "K" Price Key Molds (Page 73) **OR**
- MH1 - Handle for "B" and "K" Price Key Molds (Page 73) **AND**
- CSKIT - Chain Support Kits (Page 73)

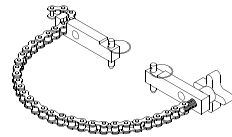
Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



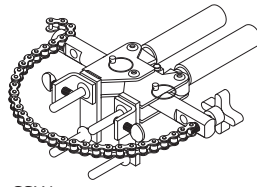
VU

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



CSKIT

Patented



CSH1

VU (Pipe) Connection Type

Cable Size	Mold Part No.	Weld Metal	
		NUWTube	UltraShot
#6 Stranded	VU6** B	NUWTUBE65	US65
#4 Stranded	VU4** B	NUWTUBE65	US65
#2 Solid	VU2S** B	NUWTUBE65	US65
#2 Stranded	VU2** B	NUWTUBE65	US65
1/0 Stranded	VU1/0** B	NUWTUBE150	US150
2/0 Stranded	VU2/0** B	NUWTUBE150	US150
3/0 Stranded	VU3/0** K	NUWTUBE200	US200
4/0 Stranded	VU4/0** K	NUWTUBE200	US200
250 MCM	VU25CM** K	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 30" and Larger	Nominal Pipe Size* None
Example: #2 cable to 2-1/2" pipe = VU-2V2.5 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		

*See Pipe Sizes on page 67.

Cable to Rebar

Mold Information:

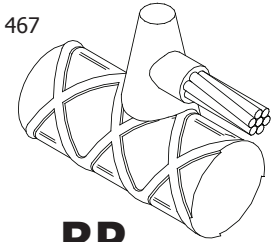
- Price Key is the **Bold Letter** in the Mold Part No.  Listed 467

Required Tools & Accessories:

- MH1 - Handle for "B" Price Key Molds (Page 73)
- Wrap Sleeves (Page 69) **OR**
- Ceramic Rebar Packing Material (Page 70)
- UMHDKIT - Mold Hold Down Kit (Page 74)

Recommended Tools & Accessories:

- CCBRSH1 - Cable Cleaning Brush (Page 70)
- MCBRSH1 - Mold Cleaning Brushes (Page 71)



RP

(Rebar Parallel Tap)

RP Connection Type

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

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

See Packing Material Materials and Notes on Page 70.

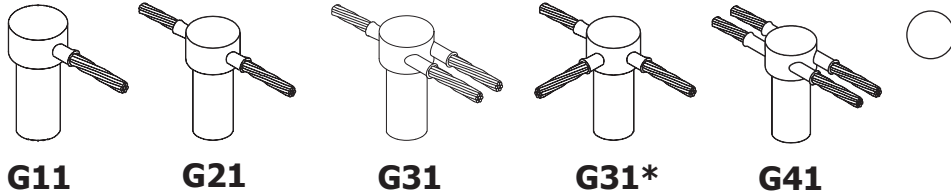


UMHDKIT



UMHDKIT with Handle

Uni-Shot - UltraShot



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	G3158F1/0US	G21341/0US	G2134F1/0US
G21		2/0	G21582/0US	G3158F2/0US	G21342/0US	G2134F2/0US
G21		4/0	G21584/0US	G3158F4/0US	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.
- No frames or handle clamps are required.
- Drone required to make UltraShot Uni-Shot connection. See page 64.

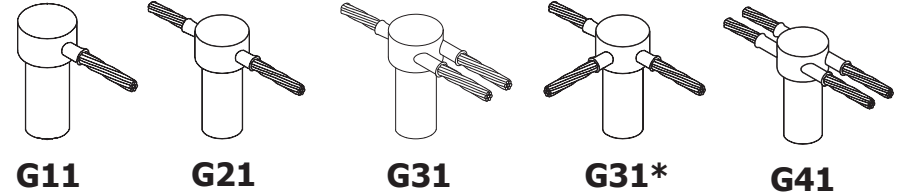


Use locking pliers to support mold



UltraShot (Electronic)

Uni-Shots - NUWTube



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 76.
- No frames or handle clamps are required.

Use locking pliers to support mold



NUWTube (Traditional)



Cable to Lug or Bus Bar

Mold Information:

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

Required Tools & Accessories:

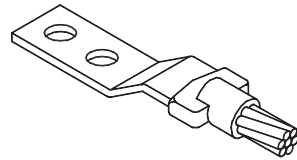
MH1 - Handle for "B" Price Key Molds (Page 73)

MH2 - Handle for "C" Price Key Molds (Page 73)

Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 70)

MCBRSH1 - Mold Cleaning Brushes (Page 71)



LE

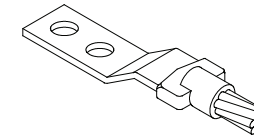
(Lug End)

LE Connection Type

Cable Size	Lug Size	Mold Part No.	Weld Metal	
			NUWTube	UltraShot
#6 Stranded	.125 X 1"	LE6181 B	NUWTUBE45	US45
#4 Stranded	.125 X 1"	LE4181 B	NUWTUBE45	US45
#2 Solid	.125 X 1"	LE2S181 B	NUWTUBE45	US45
#2 Stranded	.125 X 1"	LE2181 B	NUWTUBE45	US45
1/0 Stranded	.125 X 1"	LE1/0181 B	NUWTUBE45	US45
	.25 X 1"	LE1/0141 B	NUWTUBE65	US65
2/0 Stranded	.125 X 1"	LE2/0181 B	NUWTUBE65	US65
	.25 X 1"	LE2/0141 B	NUWTUBE65	US65
3/0 Stranded	.188 X 1"	LE3/03161 B	NUWTUBE90	US90
	.25 X 1"	LE3/0141 B	NUWTUBE90	US90
4/0 Stranded	.188 X 1"	LE4/03161 B	NUWTUBE90	US90
	.25 X 1"	LE4/0141 B	NUWTUBE90	US90
	.25 X 1.25"	LE4/0141.25 B	NUWTUBE90	US90
	.25 X 1.5"	LE4/0141.5 B	NUWTUBE90	US90
250 MCM	.25 X 1"	LE25CM141 B	NUWTUBE90	US90
	.25 X 1.5"	LE25CM141.5 B	NUWTUBE90	US90
	.25 X 1.25"	LE25CM141.25 B	NUWTUBE90	US90
300 MCM	.25 X 1"	LE3CM141 B	NUWTUBE90	US90
	.25 X 1.25"	LE3CM141.25 B	NUWTUBE90	US90
	.25 X 1.5"	LE3CM141.5 B	NUWTUBE90	US90

Continued on next page

Cable to Lug or Bus Bar



LE Connection Type Continued

Cable Size	Lug Size	Mold Part No.	Weld Metal	
			NUWTube	UltraShot
350 MCM	.25 X 1"	LE35CM141 B	NUWTUBE115	US115
	.25 X 1.25"	LE35CM141.25 B	NUWTUBE115	US115
	.375 X 1"	LE35CM381 B	NUWTUBE150	US150
500 MCM	.25 X 1.5"	LE5CM141.5 B	NUWTUBE200	US200
	.25 X 2"	LE5CM142 B	NUWTUBE200	US200
	.375 X 1"	LE5CM381 B	NUWTUBE200	US200
	.375 X 1.5"	LE5CM381.5 B	NUWTUBE200	US200
	.375 X 2"	LE5CM382 C	NUWTUBE2X150	US300
750 MCM	.25 X 2"	LE75CM142 C	NUWTUBE2X150	US300
	.375 X 1.5"	LE75CM381.5 C	NUWTUBE2X150	US300
	.375 X 2"	LE75CM382 C	NUWTUBE2X150	US300
1000 MCM	.375 X 2"	LE1MM382 C	NUWTUBE2X200	US400
	.438 X 2"	LE1MM7162 C	NUWTUBE2X200	US400
	.5 X 2"	LE1MM122 C	NUWTUBE2X250	US500

See pages 59 and 60 for Lugs

Cable to Lug or Bus Bar

Mold Information:

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

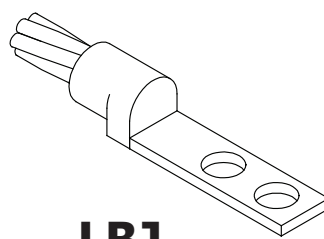
Required Tools & Accessories:

MH1 - Handle for "B" Price Key Molds (Page 73)

Recommended Tools & Accessories:

CCBRSH1 - Cable Cleaning Brush (Page 70)

MCBRSH1 - Mold Cleaning Brushes (Page 71)



LBJ

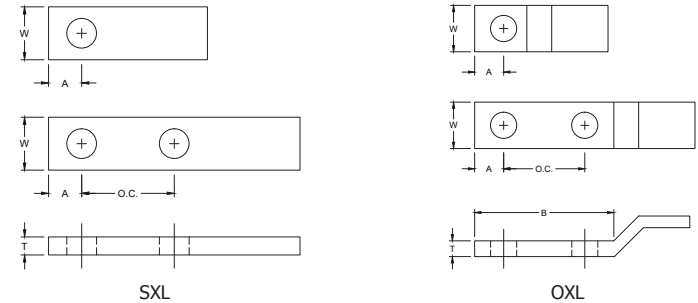
(Lug Bent J)

LBJ Connection Type

Cable Size	Lug Size	Mold Part No.	Weld Metal	
			NUWTube	Ultra-Shot
#6 Stranded	.125 X 1"	LBJ6181 B	NUWTUBE32	US32
#4 Stranded	.125 X 1"	LBJ4181 B	NUWTUBE32	US32
#2 Solid	.125 X 1"	LBJ2S181 B	NUWTUBE32	US32
#2 Stranded	.125 X 1"	LBJ2181 B	NUWTUBE45	US45
1/0 Stranded	.125 X 1"	LBJ1/0181 B	NUWTUBE45	US45
2/0 Stranded	.125 X 1"	LBJ2/0181 B	NUWTUBE45	US45
	.188 X 1"	LBJ2/03161 B	NUWTUBE65	US65
3/0 Stranded	.125 X 1"	LBJ3/0181 B	NUWTUBE65	US65
	.188 X 1"	LBJ3/03161 B	NUWTUBE65	US65
4/0 Stranded	.125 X 1"	LBJ4/0181 B	NUWTUBE65	US65
	.188 X 1"	LBJ4/03161 B	NUWTUBE65	US65

See pages 59 and 60 for Lugs

Copper Lugs

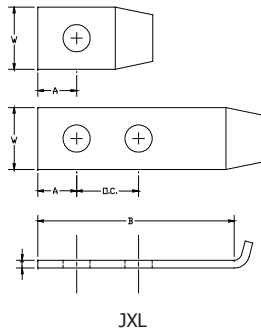


Straight & Offset

Lug Size	Straight P/N	Offset P/N	# of Holes	Hole Size	O.C. Dim	T	W	A	B
1/8 x 1	SXL181	OXL181	1	3/8	N/A	1/8	1	1/2	7/8
	SXL1812C3/8	OXL1812C3/8	2	3/8	1	1/8	1	5/8	3
	SXL1812B	OXL1812B	2	1/2	.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	N/A	3/16"	1"	9/16"	1-1/8"
	SXL31612C3/8	OXL31612C3/8	2	3/8	1	3/16"	1"	5/8"	3"
	SXL31612B	OXL31612B	2	1/2	.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	N/A	1/4"	1"	5/8"	1-1/8"
	SXL1412B	OXL1412B	2	1/2	.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	N/A	1/4"	1-1/2"	3/4"	1-1/2"
	SXL141.52B	OXL141.52B	2	1/2	.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	1/2	.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	N/A	3/8"	1-1/2"	3/4"	1-1/2"
	SXL381.52B	OXL381.52B	2	1/2	.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	N/A	3/8"	2"	1"	2-1/8"
	SXL3822B	OXL3822B	2	1/2	.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 56.

Copper Lugs



Tinned Copper Lugs - Bent J

Lug Size	Bent J Part No.	# of Holes	Screw Size	O.C. Dim	T	W	A	B
1/8 x 1	JXL-1813/8	1	3/8	N/A	1/8	1	1/2	7/8
1/8 x 1	JXL-181	2	3/8	1	1/8	1	5/8	3
1/8 x 1	JXL-1812C1/4	2	1/2	.75"	1/8"	1"	5/8"	3"
1/8 x 1	JXL-1812C3/8	2	1/2	1"	1/8"	1"	5/8"	3"
1/8 x 1	JXL-1812D	2	1/2	1.75"	1/8"	1"	5/8"	3"
3/16 x 1	JXL-3161	1	3/8	N/A	3/16"	1"	9/16"	1-1/8"
3/16 x 1	JXL-31612D	2	3/8	1	3/16"	1"	5/8"	3"

For Use with LBJ Style Molds on Page 58.

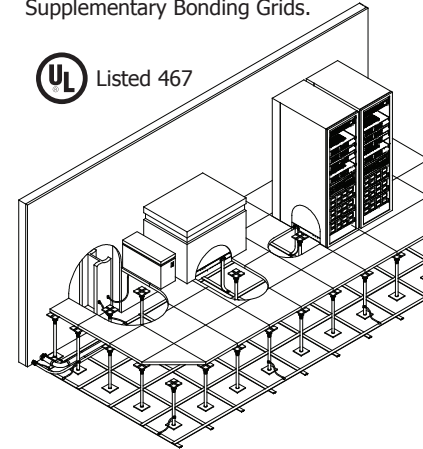
Supplementary Bonding Grids

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.

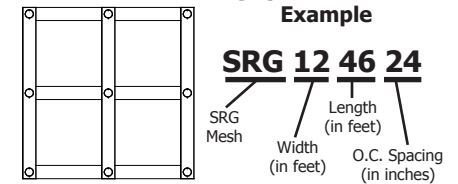
Flat Strip Signal Reference Grids

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. The following page offers a design guide to help determine what part numbers are required for the flat strip system. Signal Reference Grids (SRG) are also known as Mesh-BN's, System Reference Potential Planes (SRPP) and Supplementary Bonding Grids.

Listed 467



Supplementary Bonding Grid (SRG) Numbering System



NOTES:

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

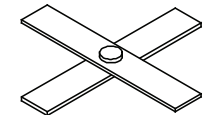
Standard SRG Sizes

Mold No.	Description	Approx. Wt. (lbs.)
SRG105024	10' x 50', 24" O.C. Spacing	70
SRG125024	12' x 50', 24" O.C. Spacing	97

• Commonly stocked.

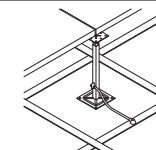
SRG to SRG Connections

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
BCF61.5016B	#6 Conc. to SRG	NUWTUBE25	US25	MH1

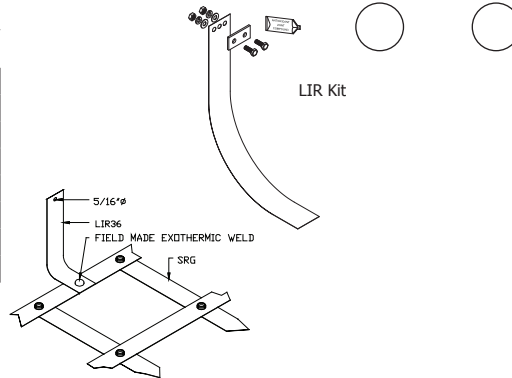


Supplementary Bonding Grids

Low Impedance Risers

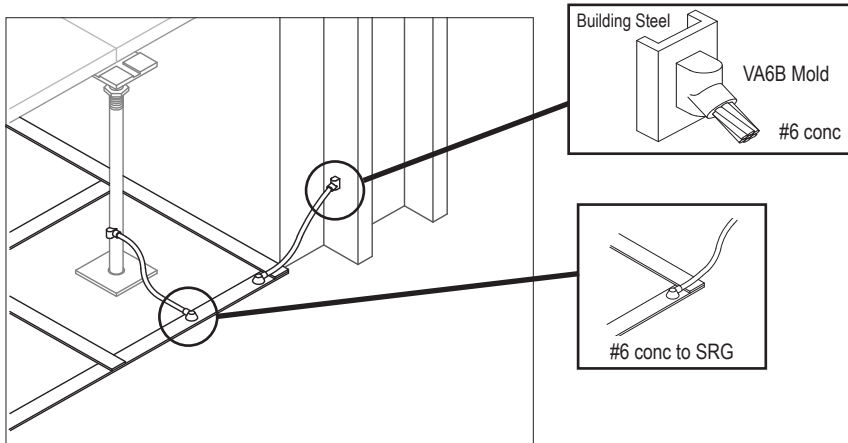
Part No.	Material	Length
LIR18	2" x .016" Flat Copper	18"
LIR18KIT	2" x .016" Flat Copper	18"
LIR24	2" x .016" Flat Copper	24"
LIR24KIT	2" x .016" Flat Copper	24"
LIR36	2" x .016" Flat Copper	36"
LIR36KIT	2" x .016" Flat Copper	36"
LIR72	2" x .016" Flat Copper	72"
LIR72KIT	2" x .016" Flat Copper	72"

- 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. Building Steel	NUWTUBE45	US45	MH1
VA4B	#4 Conc. Building Steel	NUWTUBE45	US45	MH1
VA2B	#2 Conc. 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 67) is required to convert standard UltraShot molds into low smoke-no flame molds using UltraShot weld metal only.

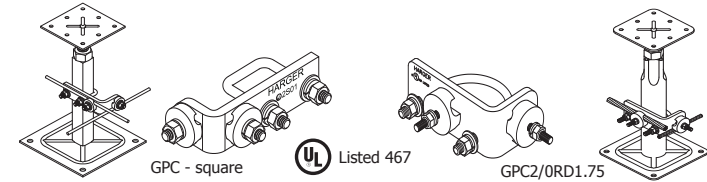
Supplementary Bonding Grids

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. Wt. (lbs.)
GPC6SQ	Square	1" (1-1/8" OD)	#6	5	0.63
GPC6RD	Round	1" (1-1/8" OD)	#6	5	0.63
GPC4SQ	Square	1" (1-1/8" OD)	#4	5	0.63
GPC4RD	Round	1" (1-1/8" OD)	#4	5	2
GPC2SQ	Square	1" (1-1/8" OD)	#2	5	0.5
GPC2RD	Round	1" (1-1/8" OD)	#2	5	0.63
GPC2/ORD1.75	Round	1-1/8" - 1-3/4"	2/0 & #6	5	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



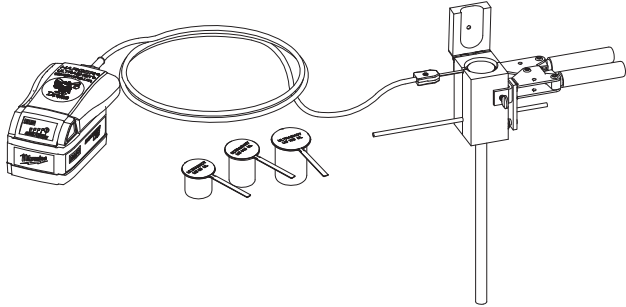
Part No.	Conductor Size (AWG)	Box Qty.	Approx. Box Wt. (lbs.)
CRGC6	#6	25	4
CRGC4	#4	10	2.5
CRGC2	#2	10	3.7

- 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 bronze.

UltraShot® Drone

Harger's new handheld DRONE:

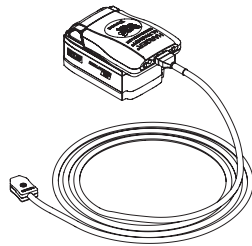
- Ignites UltraShot® copper drop-in weld metal cartridges that are consumed in the exothermic connection.
- Utilizes a Milwaukee® M18™ REDLITHIUM™ XC 4.0 18 volt battery featuring a built-in fuel gauge, the DRONE makes over 1,300 connections on a single charge!
- The Ultra Bright LED indicates instantaneous ignition. Borrowing from our previous model, the dual trigger ignition design adds an additional safety measure.
- Includes a 6' cord featuring a quick latch disconnect which allows for easy storage.



Drone

Part No.	Wt. (lbs.)
DRONE	1

- Does NOT INCLUDE battery.

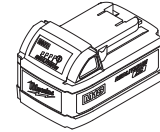


Drone Accessories

Battery

Part No.	Wt. (lbs.)
MIL1840BAT	1.5

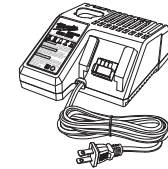
- M18™ REDLITHIUM™ XC 4.0 Battery



Charger

Part No.	Wt. (lbs.)
MIL1812CHARGER	1.5

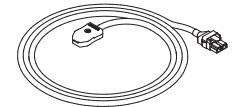
- M18™ & M12™ Multi-Voltage



6' Cord

Part No.	Wt. (lbs.)
DRONECORD	1

- Replacement cord



Pouch

Part No.	Wt. (lbs.)
DRONEPOUCH	0.24

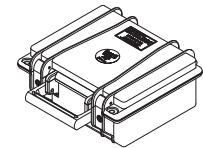
- Easily transport the DRONE hands-free from connection to connection



Case

Part No.	Wt. (lbs.)
DRONECASE	3

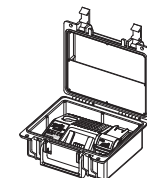
- Keep organized with this storage option. Holds the Drone, Battery, Charger & Cord.



Drone Accessory Kit

Part No.	Wt. (lbs.)
DAK	18

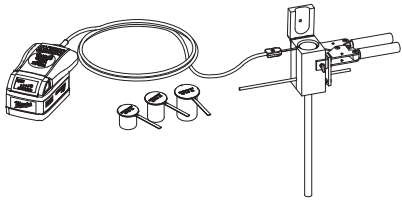
- Includes the Case, Battery & Charger.



Weld Metal

UltraShot® (Drop-In)

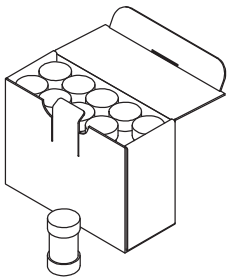
- The UltraShot system uses an electric charge to dependably fire the exothermic welding shot.
- The weld metal, a mixture of copper oxide and aluminum, is packaged in individual, moisture resistant copper drop-ins.
- The copper drop-in is consumed during the reaction process.
- Each drop-in copper container is marked with the size.
- The drop-ins are packaged in a box containing either 5, 10, or 20 units per box. See table to right for carton quantities.



UltraShot	Qty. Per Carton
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.



NUWTube	Qty. Per Carton
NUWTUBE25	20
NUWTUBE32	20
NUWTUBE45	20
NUWTUBE65	20
NUWTUBE90	10
NUWTUBE115	10
NUWTUBE150	10
NUWTUBE200	10
NUWTUBE250	10

Low Smoke-No Flame System

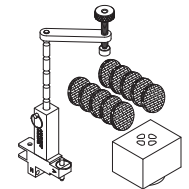
Using Harger's unique mold design and patented handle clamp system, any mold that uses a MH1 or MH2 handle can be made into a Low Smoke-No Flame mold. All that is required is the purchase of a USSKIT which includes the Universal Clamp, filter housing, and enough filters to do 10 shots. This system does require the use of the UltraShot® electronic ignition system. There are three different kit sizes determined by the size of the US shot required and price key of the mold.



- The filter should be changed every connection to ensure the best performance.
- Ignition is accomplished with the use of a DRONE

Low Smoke-No Flame Kits

Part No.	Fits Mold Price Key	Weld Metal Size	Wt. (lbs.)
USSKIT1	B, E, K, P, Q	25 thru 115	6
USSKIT2	B, E, K, P, Q	150 thru 300	6
USSKIT3	C, D, F, G, Y, Z	150 thru 500	6

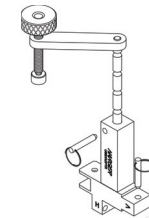


Kit Includes:

- (1) Low Smoke-No Flame Adapter Clamp (USSXADPTR)
- (1) Replacement Filter Housing
- (10) Low Smoke-No Flame Filters

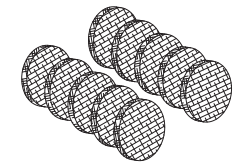
Low Smoke-No Flame Adapter Clamp

Part No.	Qty.	Wt. (lbs.)
USSXADPTR	EACH	3



Low Smoke-No Flame Filters

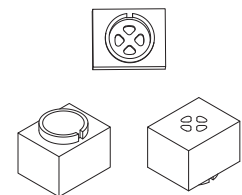
Part No.	Filter Housing	Wt. (lbs.)
USSXFLR1.8	SAFHB25115	0.5
USSXFLR2	SAFHB150300	0.5
USSXFLR3	SAFHC400	0.5



- Sold as 10 pack.

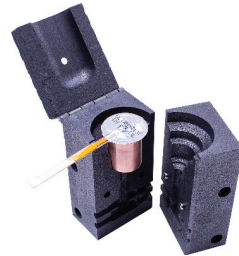
Replacement Filter Housing

Part No.	Weld Metal Size	Wt. (lbs.)
SAFHB25115	25 thru 115	0.5
SAFHB150300	150 thru 300	0.5
SAFHC400	150 thru 500	0.75



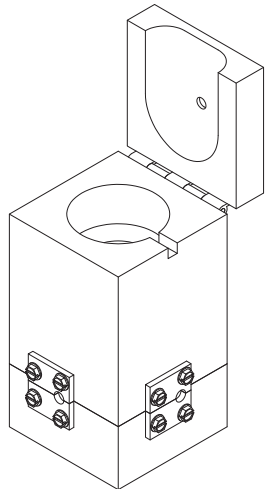
Ultraweld® Molds

- Depending on the care and treatment of the mold, it will average 50 or more welds. Substantially more with the UltraShot process.
- The Low Smoke-No Flame 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 67)
- For the Low Smoke-No Flame process, ignition is accomplished with the use of a Drone (Page 64)
- Mold Handle not included.



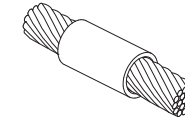
Wear Plates

- 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 Copperweld 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 Copperweld 7/#10 and larger run and tap cables. Also available from #2 solid run and tap cables.



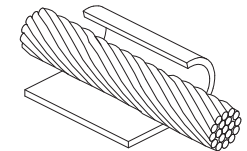
Adapter Sleeves

Part No.	Cable Size		Fits Molds	Sleeve Dimensions			Box Qty.	Approx. Box Wt. (lbs.)
	Concentric Strand	Solid		O.D.	I.D.	Length		
ADPSLV6	#12, 14	#10, 12, 14	#6 Solid	0.156	0.111	1	25	0.25
ADPSLV4	#7, 8, 10	#6, 8	#4 Stranded	0.227	0.177	1	25	0.25
ADPSLV2A	#6	#5	#2 Stranded	0.292	0.198	1	25	0.25
ADPSLV2B	#4, 5	#3, 4	#2 Stranded	0.287	0.246	1	25	0.25
ADPSLV1	#4	n/a	#1 Stranded	0.34	0.246	1	25	0.25
ADPSLV1/0	#2	#1	1/0 Stranded	0.37	0.307	1	25	3
ADPSLV2/0	#1	1/0	2/0 Stranded	0.42	0.359	1	25	0.25
ADPSLV3/0	1/0, 1	2/0	3/0 Stranded	0.45	0.389	1	25	.25
ADPSLV4/0	2/0, 1/0	3/0	4/0 Stranded	0.52	0.437	1	25	0.25

- 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.	Qty.	Approx. Wt. (lbs.)
WRPSLV	50	0.5



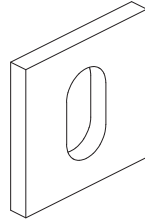
- Wrap Sleeves can be used when welding cables smaller than indicated on mold tag.
- When the cable opening in the mold is larger than the cable, copper Wrap Sleeves are wrapped around the cable until the diameter is about the same size as the mold cable opening.
- A copper Wrap Sleeve is also used for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

Packing Material Notes

Packing Material or Wrap Sleeve(s) are necessary when making Ultraweld connections to Rebar. 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 rebar 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 69 & 70 for Packing Material.

Ceramic Rebar Packing Material

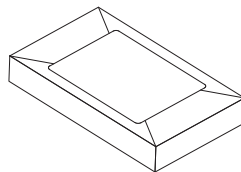
Part No.	Qty.	Approx. Wt. (lbs.)
CERPM1	25	0.25
CERPM2	25	0.25
CERPM3	25	0.25



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

Mold Sealer

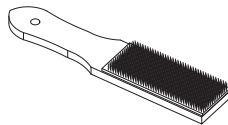
Part No.	Qty.	Approx. Wt. (lbs.)
MLDSLRL	EACH	2



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

Cable Cleaning Brush

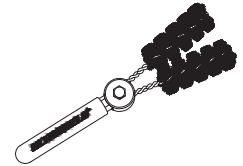
Part No.	Qty.	Approx. Wt. (lbs.)
CCBRSH1	1	0.11



- 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. Wt. (lbs.)
CCBRSH2	1	1.50
CCBRSH2R	1	0.25



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

Rasp

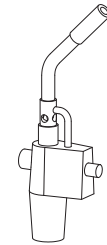
Part No.	Qty.	Approx. Wt. (lbs.)
RASP	EACH	3



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

Torch Head

Part No.	Qty.	Approx. Wt. (lbs.)
TRCHD	EACH	2



- 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

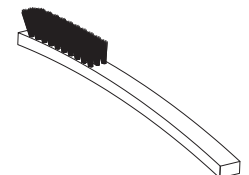
Part No.	Qty.	Net Contents
CGS	EACH	0.88



- Instant cold galvanizing spray provides protection equal to hot dip galvanizing.
- Used for touching up surfaces affected by welding.

Mold Cleaning Brushes

Part No.	Qty.	Approx. Wt. (lbs.)
MCBRSH1	1	0.11
MCBRSH2	1	0.05

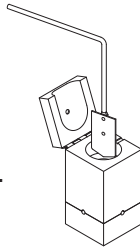


- Slag can be removed from molds by using a Mold Cleaning Brush.
- The brush is especially useful on vertical split molds.
- Consistent and proper use of the brush will aid in maintaining or exceeding the average mold life of 50 connections.

Mold Cleaning Spades

Part No.	Weld Metal Sizes	Qty.	Approx. Wt. (lbs.)
MCSPD25/115	25 - 115	1	0.21
MCSPD150/400	150 and larger	1	0.26

- 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	0.6
DISK90/115	Used in molds using 90 thru 115 weld metal	1"	10	0.3
DISK150/500	Used in molds using 150 thru 250 weld metal	1-1/2"	10	0.6

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

Disk Kit

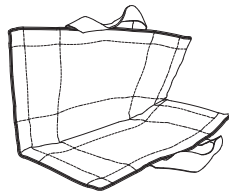
Part No.	Qty.	Approx. Wt. (lbs.)
DISKKIT1	1	0.37

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

Mold Blanket

Part No.	Qty.	Approx. Wt. (lbs.)
ULTRAWRAP	EACH	2

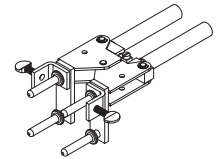
- Contains an inner and outer E-glass yarn with a padded non-crystalline silicate filling, finished with Kevlar®.
- Extends mold life by protecting against shock impact caused by rough handling.
- Protects exothermic welders from coming into contact with hot molds.
- Used as a protection blanket against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



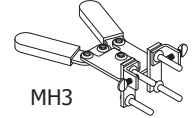
Mold Handle Clamp

Part No.	Application	Qty.	Approx. Wt. (lbs.)
MH1	For All molds with B, E, K, P & Q mold price key (3" wide)	1	3.05
MH2	For All molds with C, D, F, Y & Z mold price key (4" wide)	1	3.63
MH3	For all L, M & R mold price key	1	0.65

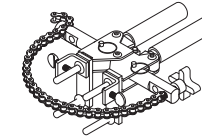
- MH3 Mold Handle Clamps are included with L & M molds.
- Some molds are used with specialized frames.
- Handle clamps MH1 & MH2 come with a flint igniter (FLTIG).
- Handle clamps have a Zinc plated finish.



MH1, MH2



MH3

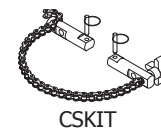


CSH1, CSH2

Chain Support Handle Clamps & Kits

Part No.	Fits Mold Price Key	For Following Connection Types	Pipe/Rebar	Qty.	Approx. Wt. (lbs.)
CSH1	B, E, K	RE, VA, VD, VT, VU	Vertical	1	5
CSH2	C, D, F	VA, VD, VT, VU	Vertical	1	5
CSKIT	B, C, D, E, F, K	RE, VA, VD, VT, VU	Vertical	1	1
CSKITHSVM	B, C	VH, RS	Vertical	1	2
CSKITHP	B, C	HB, HD, HT, HU	Horizontal	1	2
CSKITHPVS	B	HTCP, RO	Horizontal	1	2

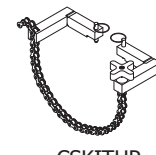
- Handle clamps CSH1 & CSH2 come with MH1 & MH2 clamps respectively as well as a CSKIT and flint igniter (FLTIG).
- Chain Support Handle Clamps are used to securely hold the mold to either a vertical or horizontal pipe.
- A 20" length of chain, which fits up to 4" pipes, comes with the chain support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



CSKIT



CSKITHSVM



CSKITHP

Magnetic Support Handle Clamp

Part No.	Fits Mold Price Key	Minimum Width Requirements	Qty.	Approx. Wt. (lbs.)
MSHC1	B, E, K	8"	1	6
MSHC2	C, D, F	8"	1	7

- Handle clamps MSHC1 & MSHC2 come with MH1 & MH2 clamps respectively as well as a MSKIT and a flint igniter (FLTIG).
- Magnetic Support Handle Clamp allows mold to be securely held in place to steel surfaces.



Magnetic Support Kit

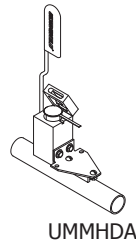
Part No.	Fits Mold Price Key	Minimum Width Requirements	Qty.	Approx. Wt. (lbs.)
MSKIT	B, C, D, E, F, K	8"	1	3
MSKITHSVS	B, C, D, K	10"	1	5

- These kits convert the standard mold handle clamp into a magnetic support handle clamp.

Hold Down Kit

Part No.	Qty.	Approx. Wt. (lbs.)
UMHDKIT	EACH	1.5
UMMHDA	EACH	0.5

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



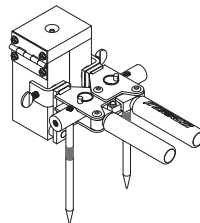
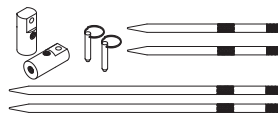
Mold Stabilizer Kit

Part No.	Qty.	Approx. Wt. (lbs.)
MLDSTBLZR	EACH	0.55

- Used to stabilize mold when making cable to cable welds in a trench.
- 6" or 12" spikes can be used depending on soil conditions.

Kit includes:

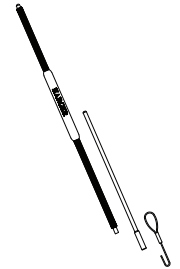
- 2 ea. 6" Spikes,
- 2 ea. 12" Spikes
- 2 ea. Spike Mounting Adaptors
- 2 ea. Pins



Ground Rod Driver

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

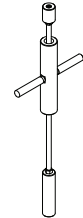
- Drives ground rods from ground level without the need for a ladder or sledge hammer.
- 3/4" insert is interchangeable with driver body.
- Insert prevents driver from slipping off ground rod near ground level.
- Insert prevents "mushrooming" top of ground rod.



Ground Rod Drivers

Part No.	Description	Qty.	Approx. Wt. (lbs.)
SMGRD58U	5/8" Ground Rod Driver	1	16
SMGRD58USHGR	5/8" Ground Rod Driver	1	14

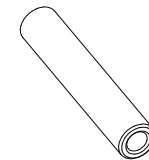
- SMGRD58U - Ground rod driver with slide hammer. One end is threaded for use with threaded 5/8" ground rods and the other end is for use with tapered 5/8" copper-clad steel ground rods.
- SMGRD58USHGR - Ground rod driver with slide hammer, connects to ground rods with 5/8" threads on both ends.
- Used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



Drive Sleeves

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

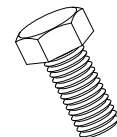
- For Copper Clad Steel ground rods.
- Prevents "mushrooming" top of ground rod while driving ground rod.



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

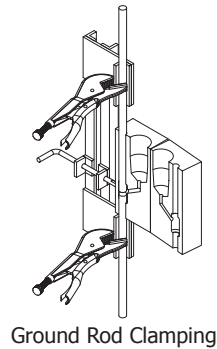
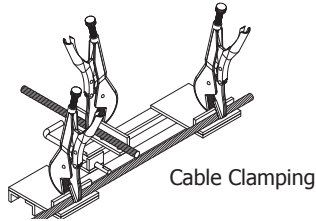
- High strength alloy driving stud prevents damage to the coupler or ground rod threads when driving ground rods.



Ground Rod & Cable Clamp

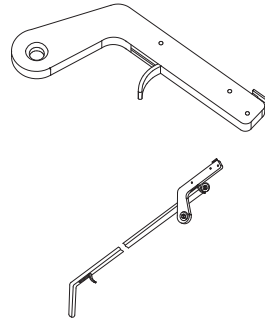
Part No.	Qty.	Approx. Wt. (lbs.)
GRCC	1	10

- 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.



Flint Igniter

Part No.	Description	Qty.	Approx. Wt. (lbs.)
FLTIG	Flint Igniter	EACH	0.21
FLTIGEXT	Flint Igniter 36" Extension	EACH	3
RPLFLT	Replacement Flint	EACH	0.01



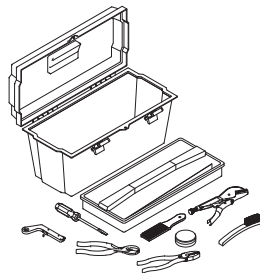
- When making an Ultraweld connection, Flint Igniters are used to ignite the starting material.
- Flint igniters come with Price Key "A" Molds, MH1 & MH2 handle clamps.
- Replacement Flints are also available.

Toolkit

Part No.	Qty.	Approx. Wt. (lbs.)
GRCC	1	10

• TOOLKIT Includes:

- (1) TOOLBOX: 22" x 9.5" x 9.75" plastic toolbox with tray
- (1) CC9: 9" Cable Cutters
- (1) LP9: Lineman's Pliers
- (1) SSS6: 6" Screwdriver
- (1) VG10: 10" Vise-Grips
- (1) FLTIG: Flint Igniter
- (1) CCBRS1: Card Cloth Brush
- (1) MCBRS1: Mold Cleaning Brush
- (1) DISKKIT: Disk Kit



PROBLEM	POSSIBLE CAUSE	SUGGESTED CORRECTION
UltraShot did not fire	Battery not charged	Charge battery and retry. 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.
	Starting powder being used improperly	Sprinkle starting powder on the side of the lid's ignition pocket.
Weld cavity under fills	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. Replace mold. Wrong mold used for the conductors being welded. 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.
Conductors pull out of mold during process	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 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 7.862×10^{-4} = Square Inches

Square Inches x 645.2 = Square Millimeter
Square Millimeter x 1.550×10^{-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 A.W.G.	Conductor Diameter	Number of Wires					Cable Code
			7	19	37	61	91	
1,000,000	1000	1.152"			.1644*	.1280	.0148	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 A.W.G.	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 Stranding	Nominal Diameter (in.)	Cross Sectional Area (kcmil)	Cable Code
3/#10 CW	.220	31.15	3/10CW
3/#9 CW	.247	39.28	3/9CW
3/#8 CW	.277	49.53	3/8CW
7/#10 CW	.306	72.68	7/10CW
3/#7 CW	.311	62.45	3/7CW
7/#9 CW	.343	91.65	7/9CW
3/#6 CW	.349	78.75	3/6CW
7/#8 CW	.385	115.60	7/8CW
3/#5 CW	.392	99.31	3/5CW
7/#7 CW	.433	145.70	7/7CW
7/#6 CW	.486	183.80	7/6CW
7/#5 CW	.546	231.63	7/5CW
19/#9 CW	.572	248.70	19/9CW
7/#4 CW	.613	292.20	7/4CW
19/#8 CW	.642	313.70	19/8CW
19/#7 CW	.721	395.60	19/7CW
19/#6 CW	.810	498.60	19/6CW
19/#5 CW	.910	628.70	19/5CW

Ground Rods

Nominal Size	Material	Type	Body Diameter	Thread Size	Ground Rod Code
1/2"	Copper-clad	Sectional	.500"	9/16"	12S
1/2"	Copper-clad	Plain	.500"	N/A	12
1/2"	Steel*	Plain	.500"	N/A	12F
1/2"	Copper-clad	Plain	.475"	N/A	12
5/8"	Steel*	Plain	.625"	N/A	58F
5/8"	Copper-clad	Plain	.563"	N/A	58
5/8"	Copper-clad	Sectional	.563"	5/8"	58S**
3/4"	Steel*	Plain	.750"	N/A	34F
3/4"	Copper-clad	Plain	.682"	N/A	34
3/4"	Copper-clad	Sectional	.682"	3/4"	34S**
1"	Steel*	Plain	1.000"	N/A	10F
1"	Copper-clad	Plain	.914"	N/A	10
1"	Copper-clad	Sectional	.914"	1"	10S**

* Plain steel, stainless steel, stainless clad rods or galvanized steel.

** Add S to sectional ground rod size for connections to end of rod such as: GD, GF, GO, GT, GG

Ground Rods

Thickness	Width	Circular Mil Size	Weight lbs. per Ft.	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
	3"	1,432,000	4.36	383
1/2"	4"	1,910,000	5.81	384
	2"	1,273,000	3.88	122
	3"	1,910,000	5.81	123
	4"	2,546,000	7.75	124

Reinforcing Bars

Rebar Sizes	Nominal Dimensions		Equivalent Copper Sizes	Rebar 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

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

**301 Ziegler Drive
Grayslake, IL 60030**

800-842-7437

Phone: 847-548-8700

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