CSH Series

Cold Shrink Hammerhead

2016 PRODUCT GUIDE

15/25/28kV Class

Richards MANUFACTURING CO.

CSH Series

INTRODUCTION & PRODUCT RATINGS

A proven design. A game-changing transformation.

For over 70 years, Richards has remained dedicated to manufacturing high-quality, innovative products for electrical distribution systems. The Cold Shrink Hammerhead epitomizes this legacy by introducing a truly unique, robust solution for terminating and splicing medium voltage power cable. We've taken our industry-leading 600/900A Deadbreak Elbow design and given it a cutting-edge transformation.

- **All-In-One Solution:** The CSH is range-taking and includes an integral jacket seal, providing a complete solution in a simple package. Three separate components have been elegantly combined into a single design.
- **100% EPDM:** Richards Cold Shrink Products are molded from 100% EPDM, a proven material in underground electrical applications for decades. This proprietary formulation of Cold Shrink EPDM is produced in-house. To achieve maximum durability in underground environments, the CSH features a fully-integrated, oil-resistant EPDM jacket that provides outstanding mechanical impact/tear resistance.
- **Easy Installation:** We've optimized our design to minimize installation time, complexity, and overall cost. No more cable adapter and no more separate jacket seal kit. The cold shrink Cable Entrance eliminates problems that arise when sliding traditional interference-fit Deadbreak elbows into position. This ergonomic improvement substantially simplifies positioning/aligning the lug in the CSH housing.
- **Made in the USA:** From EPDM rubber to finished molded product, the Richards Cold Shrink Hammerhead is designed, tested, and manufactured in the USA.

Product Ratings

Voltage Class, Phase-to-Phase	15kV • 25kV	28kV
Maximum Voltage Rating – (phase to ground)	16.2kV	16.2kV
Corona Voltage Level – (CEV)	22kV R	22kV R
AC Withstand, 1 minute	45kV R	45kV
Impulse-Withstand Voltage – (BIL)	162kV BIL R	162kV BIL R

Continuous Current	
Aluminum	600A
Copper	900A

Short-Time Current	
Aluminum	40kA, 10c. and 10kA, 3s
Copper	

R *Exceeds IEEE 386 required minimum test level*

Production Testing

IEEE requires a Partial Discharge test and choice between AC and Impulse Withstand. Richards runs 3/3 tests on ***all*** Medium Voltage products governed by IEEE 386.R

100% Routine Electrical Test:

- Partial Discharge
- AC Withstand
- Impulse Withstand

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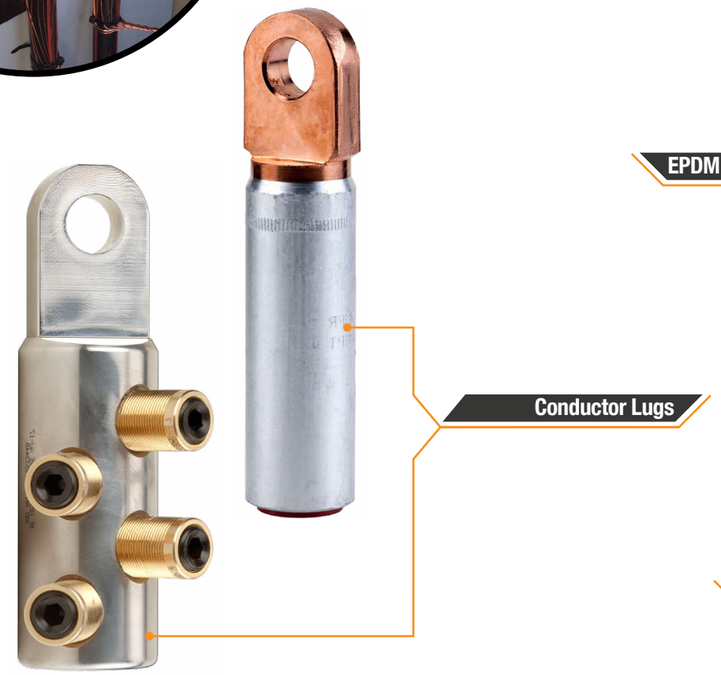
DESIGN & FEATURES

To Schedule a Demonstration
Contact Your Local Sales Rep



1. Conductor Lugs

The CSH Series is available with a variety of conductor lugs. We offer a range-taking shear bolt option as well as the traditional 600 or 900A compression connector. One of the most impressive improvements of the CSH is the ease with which the housing can be installed onto the prepared cable/installed lug. Without having to overcome any interference-fit (remember, we've obsoleted the cable adapter!), positioning the lug properly is incredibly easy.

2. IEEE 386 Interface

This 600/900A 15/25/28kV Deadbreak interface accepts IEEE 386 Interface 11 components, such as Apparatus Bushings, Elbow Tap Plugs, Hammerhead Insulating Plugs (HIPs) and more.

3. Capacitive Test Point

The CSH Series is available with an optional capacitive test point. This enables system operators to utilize suitable equipment to test for voltage, or install a faulted circuit indicator (FCI).

4. EPDM Jacket

The entire CSH Series is molded from a proprietary EPDM formulation. This material has excellent mechanical impact/tear resistance—an important trait given the often harsh conditions of the underground environment. The bonded outer jacket is semi-conductive, making the CSH fully-shielded.

5. Cable Entrance

The Cable Entrance of the CSH is shrinkable, obsoleting the cable adapter. This eliminates the performance risk associated with cable adapter positioning and makes installation markedly more ergonomic. This cold shrink Cable Entrance also allows the CSH to cover a range of cable sizes, as laid out in our Use Range Tables. With fewer components and range-taking capabilities, customers are able to reduce inventory.

6. Greaseless Core

Hold-out cores that rely on grease or a ribbon/spiral design can be unreliable and messy. Richards' product development engineers created a short, Greaseless Core design that is easy to eject and consistent across our Cold Shrink Family. Once ejected, the Core separates into halves which can be recycled. Our simple yet effective design was engineered to perform consistently across a variety of installation environments.

7. Integral Jacket Seal

Once the core is removed, a jacket seal is deployed over sealing mastic, completing the jacket restoration without the need for a separate component.

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ORDERING INFORMATION

Sample Part Number

6	2	CSH	T	2	P	18	G
Current Ratings	Voltage Class	Product Series	Test Point	Kit Type	Elbow Size	Conductor Lug Code	Ground Adapter Option

6 = 600A (All Aluminum Components)
7 = 600A (Aluminum Components and Copper-Top Lug)
9 = 900A (All Copper Components)

2 = 15/25/28kV

CSH = Cold Shrink Hammerhead

N = None
T = W/ Capacitive Test-Point

Elbow Only (No Lug):
Select **O**, **P**, or **Q** based on USE RANGE CHART. Leave Lug Code blank.

Compression Lug Kit:
Select **O**, **P**, or **Q** based on Use Range Chart. Determine Lug Code using TABLE X.

Range Taking Kit w/ Shear Bolt Lug:
Determine Elbow Size + Lug Code using TABLE XRA.

1 = CSH Housing and Stud
2 = CSH Housing, Stud, Insulating Plug & Cap

Note: Leave blank if Ground Adapter is not needed.
G = Tinned Copper Braid w/ Solder Block and Constant Force Spring
Braid Size is #6 for housing size "O" and #4 for housing sizes "P" and "Q".

Table X - Compression Lug Selection

Cable Size	Strd/Compr "X"	Cmpt/Sol "X"
#2	7	6
#1	8	7
1/0 AWG	9	8
2/0 AWG	10	9
3/0 AWG	11	10
4/0 AWG	12	11
250 kcmil	13	12
300 kcmil	14	13
350 kcmil	15	14
400 kcmil	16	15
450 kcmil	17	16
500 kcmil	18	17
550 kcmil	20	18
600 kcmil	20	18
650 kcmil	211*	20
700 kcmil	22	20
750 kcmil	23	211*
800 kcmil	24	22
900 kcmil	26	23
1000 kcmil	28	26
1100 kcmil	285	26
1250 kcmil	29	contact factory
1500 kcmil	30	contact factory

* *For copper P9CU Series Lugs, use code 21 instead.*

Table XRA - Range Taking Lug Selection

Elbow Size + Lug Code	Voltage	Nominal Conductor Range Min.	Nominal Conductor Range Max.
PR3	15kV (175/220 mil)	350 kcmil**	600 kcmil
	25kV (260 mil)	4/0 AWG	
PR4	15kV (175/220 mil)	350 kcmil**	750 kcmil
	25kV (260 mil)		
QR4	15kV (175 mil)	750 kcmil	750 kcmil
	15kV (220 mil)	600 kcmil	
	25kV (260 mil)	500 kcmil**	
QR5	15kV (175 mil)	750 kcmil	1250 kcmil
	15kV (220 mil)	600 kcmil	
	25kV (260 mil)		

** *May not fit some compact cables. Check corresponding Use Range Table.*

Sample Part Number is a "P" size CSH with Capacitive Test Point, complete with Aluminum Stud, Aluminum Insulating Plug & Cap, Aluminum Compression Lug for 500 kcmil Strd/Compr, #4 Tinned Copper Ground Braid (with solder block) and Constant Force Spring.

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USE RANGE INFORMATION

The following product sizing information is based on AEIC/ICEA dimensional ranges. The true range of the CSH Series on a particular cable construction may vary. To confirm sizing on non-standard cables, or to check sizing on cables that fall just outside our min or max, contact the factory.

Nominal Use Range - Elbow Size "O"

COMING SOON!

Nominal Use Range - Elbow Size "P"

Voltage Class	Conductor Size	
	Minimum	Maximum
15kV (175/220 mil)	350 kcmil *	750 kcmil
25kV (260 mil)	4/0 AWG	

Minimum Insulation Diameter = 0.990"

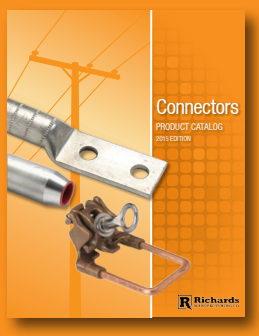
* *May not fit some 350 kcmil compact 100% (175 mil) insulated power cables. Check minimum insulation diameter to confirm.*

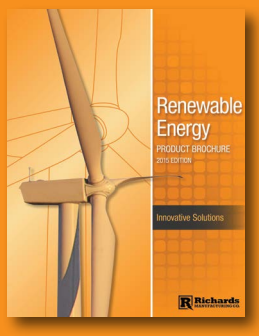
Nominal Use Range - Elbow Size "Q"

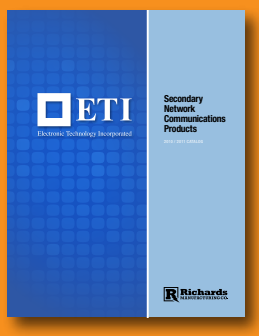
Voltage Class	Conductor Size	
	Minimum	Maximum
15kV (175 mil)	750 kcmil	1500 kcmil
15kV (220 mil)	600 kcmil	
25kV (260 mil)	500 kcmil **	

Minimum Insulation Diameter = 1.268"

** *May not fit some 25kV 500 kcmil compact insulated power cables. Check minimum insulation diameter to confirm.*







Richards MANUFACTURING CO.

517 Lyons Avenue, Irvington, NJ 07111
973.371.1771 | www.Richards-Mfg.com