Cold Shrink

QT-III Indoor and Outdoor Terminations

3M™ Cold Shrink Silicone Rubber QT-III terminations are designed for faster installation and higher reliability.

Cold Shrink QT-III Indoor Termination 1

Cold Shrink QT-III Outdoor Termination 2

3M Cold Shrink QT-III terminations offer easy installation and reliable performance when terminating indoor and outdoor medium voltage cable. The built-in Hi-K stress controlling compound along with the built in sealing compound means simpler installation on all types of cables. These factory applied compounds make field installation easier and reduce installation errors. Plus its high-K stress design delivers excellent BIL performance and lower surface stress resulting in a more compact termination. Through superior engineering, 3M Cold Shrink QT-III terminations deliver maximum performance.

QT-III Inverted applications

Terminations that are inverted inside of equipment (switchgear, transformers, etc.) can be made using the QT-III indoor tubular design. However, for outdoor applications skirted terminations are recommended. The standard skirts of most terminations are oriented to shed water when installed in the upright direction. The skirts could collect moisture and contamination when inverted. This could lead to tracking problems. 3M has designed the 7600-S-INV series inverted kits to eliminate this problem. These inverted kits are recommended for all outdoor inverted applications.

Cold Shrink technology; over 30 years of field-proven reliability

Over thirty years ago, 3M pioneered Cold Shrink technology. Since then, field use and laboratory analysis have repeatedly proven its merits and reliability. Through constant innovation, we have refined Cold Shrink products making them better than ever. They're easier to apply and built to withstand even the most punishing environmental conditions. Enhanced performance at a lower installed cost continue to make 3M the preferred choice for Cold Shrink solutions.

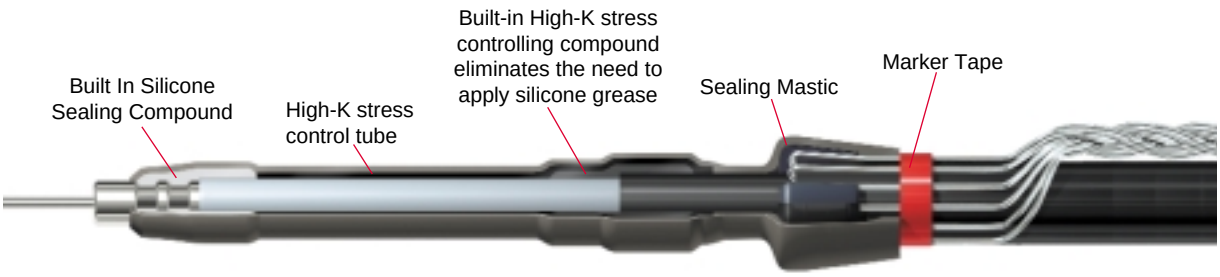
QT-III Termination Features

Improved long term reliability
- Hydrophobic silicone body
- Superior track and erosion resistance
- Optimum high-K stress control
- Built-in sealing and stress controlling compounds
- Outstanding UV stability
- Designed to meet IEEE 48, CENELEC 0278 and IEC 502 standards
- Easier installation
- Installation requires no silicone tape or grease
- Shorter installed length

Cold Shrink Benefits

Lower Installed Cost
- Minimal training required
- All materials included in the kit
- Easy cable preparation
- Compact to fit into smaller equipment

High Reliability
- No heat, flames or special tools needed
- Simple, straight forward installation
- Built-in stress relief
- 30 years of proven field experience

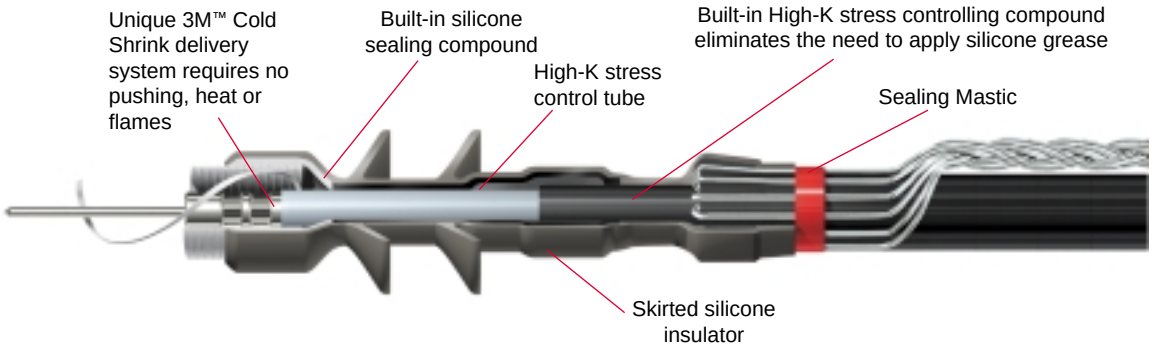


Cold Shrink QT-III Indoor Termination

Kit number	Bil	Cable insulation O.D. range in. (mm)	Conductor size range AWG and kcmil (mm²) 5kV	8.7kV	15kV	25/28kV	★35kV
Shielded Cable Kits (Each Shielded Cable Kit makes three terminations.)							
7620-T-95	95kV	0.32-0.59 (8,2-15,0)	8-4	8-6	—	—	
7621-T-95	95kV	0.44-0.89 (11,2-22,7)	2-3/0	4-2/0	—	—	
7622-T-110	110kV	0.64-1,08 (16,3-27,4)	4/0-400	3/0-300	2-4/0 (35-120)	—	
7624-T-110	110kV	0.83-1.53 (21,1-38,9)	500-750	350-700	4/0-500 (120-240)	—	
7625-T-110	110kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	—	
7626-T-110	110kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (500-1000)	—	
7693-T-150	150kV	0.72-1.29 (18,3-32,8)	300-500	250-500	2/0-300 (70-150)	2-4/0 (35-120)	2-2/0 (35-70)
7695-T-150	150kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	250-800 (150-400)	3/0-600 (95-325)
7696-T-150	150kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (500-1000)	900-1750 (500-800)	700-1500 (400-725)
Concentric and Jacketed Concentric Cable Kits (Each Concentric and Jacketed Concentric Cable Kit makes one termination.)							
7642-T-110	110kV	0.64-1.08 (16,3-27,4)	4/0-400	3/0-300	2-4/0 (35-120)	—	
7644-T-110	110kV	0.83-1.53 (21,1-38,9)	500-750	350-700	4/0-500 (120-240)	—	
7645-T-110	110kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	—	
7646-T-110	110kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (500-1000)	—	
7653-T-150	150kV	0.72-1.29 (18,3-32,8)	300 -500	250 - 500	2/0-300 (70-150)	2-4/0 (35-120)	2-2/0 (35-70)
7655-T-150	150kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	250-800 (150-400)	3/0-600 (95-325)
7656-T-150	150kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (500-1000)	900-1750 (500-800)	700-1500 (400-725)
High Fault Current Cable Kits (Each High Fault Current Cable Kit makes one termination.)							
7642-T-HSG-110	110kV	0.64-1.08 (16,3-27,4)	4/0-400	3/0-300	2-4/0 (35-120)	—	
7644-T-HSG-110	110kV	0.83-1.53 (21,1-38,9)	500-750	350-700	4/0-500 (120-240)	—	
7645-T-HSG-110	110kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	—	
7646-T-HSG-110	110kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (500-1000)	—	
7653-T-HSG-150	150kV	0.72-1.29 (18,3-32,8)	300 -500	250 - 500	2/0-300 (70-150)	2-4/0 (35-120)	2-2/0 (35-70)
7655-T-HSG-150	150kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	250-800 (150-400)	3/0-600 (95-325)
7656-T-HSG-150	150kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (500-1000)	900-1750 (500-800)	700-1500 (400-725)

★ 150kV impulse level meets the impulse requirements for 35.0kV class equipment where indoor terminations are used.

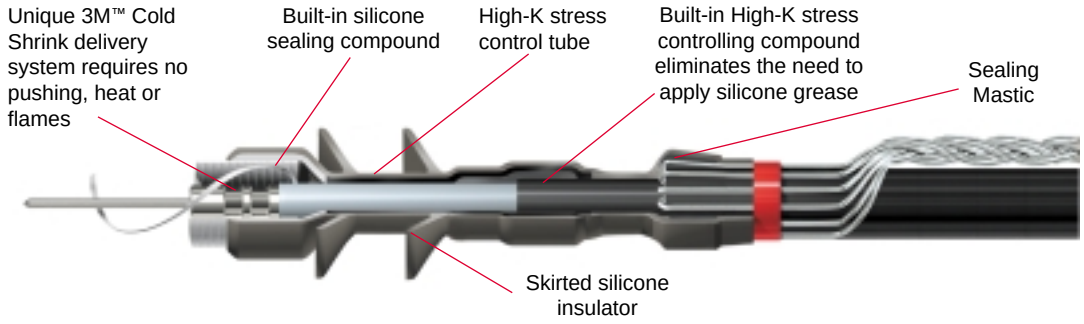
Please contact your local 3M representative for more information.



Cold Shrink QT-III Outdoor Termination

Kit number	Bil	Cable insulation O.D. range in. (mm)	Conductor size range AWG and kcmil (mm²) 5kV	8.7kV	15kV	25/28kV	35kV
Shielded Cable Kits (Each Shielded Cable Kit makes three terminations. Each inverted termination kit makes three terminations.)							
7620-S-2	95kV	0.32-0.59 (8,2-15,0)	8-4	8-6	-	-	-
7621-S-2	95kV	0.44-0.89 (11,2-22,7)	2-3/0	4-2/0	-	-	-
7622-S-2	110kV	0.64-1.08 (16,3-27,4)	4/0-400	3/0-300	2-4/0 (35-120)	-	-
7692-S-4	150kV	0.64-1.08 (16,3-27,4)	4/0-400	3/0-300	2-4/0 (35-120)	2-1/0 (35-50)	-
7693-S-4	150kV	0.72-1.29 (18,3-32,8)	300-500	250-500	2/0-300 (70-150)	2-4/0 (35-120)	-
7694-S-4	150kV	0.83-1.53 (21,1-38,9)	500 -750	350-700	4/0-500 (120-240)	2/0-250 (70-150)	
7695-S-4	150kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	250-800 (125-400)	-
7696-S-4	150kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (625-1000)	900-1750 (500-800)	-
7683-S-8	200kV	0.72-1.29 (18,3-32,8)	300-500	250-500	2/0-300 (70-150)	2-4/0 (35-120)	2-2/0 (35-70)
7684-S-8	200kV	0.83-1.53 (21,1-38,9)	500 -750	350-700	4/0-500 (120-240)	2/0-250 (70-150)	2-4/0 (35-120)
7685-S-8	200kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	250-800 (125-400)	3/0-600 (95-325)
7686-S-8	200kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (625-1000)	900-1750 (500-800)	700-1500 (400-725)
Concentric and Jacketed Concentric Cable Kits (Each Concentric and Jacketed Concentric Cable Kit makes one termination.)							
7642-S-2	110kV	0.64-1.08 (16,3-27,4)	4/0-400	3/0-300	2-4/0 (35-120)	-	-
7652-S-4	150kV	0.64-1.08 (16,3-27,4)	4/0-400	3/0-300	2-4/0 (35-120)	2-1/0 (35-50)	-
7653-S-4	150kV	0.72-1.29 (18,3-32,8)	300-500	250-500	2/0-300 (70-150)	2-4/0 (35-120)	-
7654-S-4	150kV	0.83-1.53 (21,1-38,9)	500 -750	350-700	4/0-500 (120-240)	2/0-250 (70-150)	
7655-S-4	150kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	250-800 (125-400)	-
7656-S-4	150kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (625-1000)	900-1750 (500-800)	-
7663-S-8	200kV	0.72-1.29 (18,3-32,8)	300-500	250-500	2/0-300 (70-150)	2-4/0 (35-120)	2-2/0 (35-70)
7664-S-8	200kV	0.83-1.53 (21,1-38,9)	500 -750	350-700	4/0-500 (120-240)	2/0-250 (70-150)	2-4/0 (35-120)
7665-S-8	200kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	250-800 (125-400)	3/0-600 (95-325)
7666-S-8	200kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (625-1000)	900-1750 (500-800)	700-1500 (400-725)
High Fault Current Cable Kits (Each High Fault Current Cable Kit makes one termination.)							
7652-S-HSG-4	150kV	0.64-1.08 (16,3-27,4)	4/0-400	3/0-300	2-4/0 (35-120)	2-1/0 (35-50)	-
7653-S-HSG-4	150kV	0.72-1.29 (18,3-32,8)	300-500	250-500	2/0-300 (70-150)	2-4/0 (35-120)	-
7654-S-HSG-4	150kV	0.83-1.53 (21,1-38,9)	500-750	350-700	4/0-500 (120-240)	2/0-250 (70-150)	
7655-S-HSG-4	150kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	250-800 (125-400)	-
7656-S-HSG-4	150kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (625-1000)	900-1750 (500-800)	-
7663-S-HSG-8	200kV	0.72-1.29 (18,3-32,8)	300-500	250-500	2/0-300 (70-150)	2-4/0 (35-120)	2-2/0 (35-70)
7664-S-HSG-8	200kV	0.83-1.53 (21,1-38,9)	500-750	350-700	4/0-500 (120-240)	2/0-250 (70-150)	2-4/0 (35-120)
7665-S-HSG-8	200kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	500-1000 (240-500)	250-800 (125-400)	3/0-600 (95-325)
7666-S-HSG-8	200kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (625-1000)	900-1750 (500-800)	700-1500 (400-725)

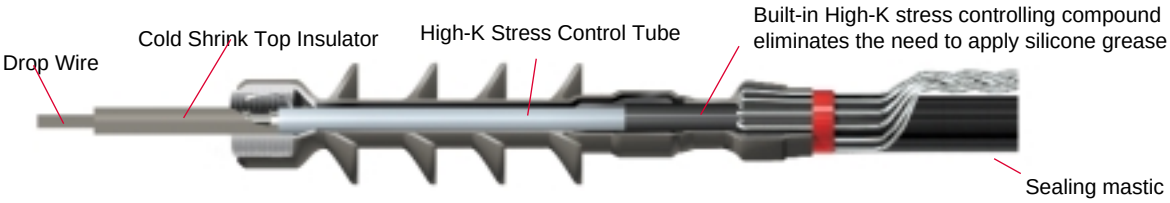
Please contact your local 3M representative for more information.



Cold Shrink QT-III Inverted Outdoor Termination

Kit number	Bil	Cable insulation O.D. range in. (mm)	Conductor size range AWG and kcmil (mm²) 5kV	8.7kV	15kV	25/28kV	★35kV
Inverted Kits (Each inverted termination kit makes three terminations.)							
7622-S-INV-2	110kV	0.64-1.08 (16,3-27,4)	4/0-400	3/0-300	2-4/0 (35-120)	—	—
7693-S-INV-4	150kV	0.72-1.29 (18,3-32,8)	300-500	250-500	2/0-300 (70-150)	2-4/0	2-2/0 (35-70)
7695-S-INV-4	150kV	1.05-1.80 (26,7-45,7)	700-1500	600-1250	350-1000 (185-500)	250-800 (150-400)	3/0-600 (95-325)
7696-S-INV-4	150kV	1.53-2.32 (38,9-58,9)	1750-2000	1500-2000	1250-2000 (500-1000)	900-1750 (500-800)	700-1500 (400-725)

★ 35kV weather protected applications only



Cold Shrink QT-III Silicone Rubber Terminationwith Top Insulator

Kit number	Bil	Cable insulation O.D. range	Connnector & Drop Wire O.D. Range	Conductor Size Range AWG & kcmil 15kV	25/28kV
7652-S-4-TI	150kV	0.64 - 1.08 (16,3 - 27,4 mm)	0.51" - 0.82" (12,9 - 20,8 mm)	2 - 4/0 (35 - 120 mm²)	2 - 1/0 (35 - 50 mm²)
7653-S-4-TI	150kV	0.72 - 1.29 (18,3 - 32,8 mm)	0.62" - 1.00" (15,7 - 25,4 mm)	2 - 300 (70 - 150 mm²)	2 - 4/0 (35 - 120 mm²)
7654-S-4-TI	150kV	0.83 - 1.53 (21,1 - 38,9 mm)	0.66" - 1.18" (16,7 - 30,0 mm)	4/0 - 500 (120 - 240 mm²)	2/0 - 250 (70 - 150 mm²)
7655-S-4-TI	150kV	1.05 - 1.80 (26,7 - 45,7 mm)	0.69" - 1.30" (17,5 - 33,0 mm)	500 - 1000 (240 - 500 mm²)	250 - 800 (150 - 400 mm²)
7656-S-4-TI	150kV	1.53 - 2.32 (38,9 - 58,9 mm)	1/05" - 1.94" (26,6 - 49,3 mm)	1250 - 2000 (500 - 1000 mm²)	900 - 1750 (500 - 800 mm²)

Please contact your local 3M representative for more information.

Important Notice

Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use.

Warranty; Limited Remedy; Limited Liability.

3M's product warranty is stated in its Product Literature available upon request. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any loss or damage arising from this 3M product, whether direct, indirect, special, incidental or consequential regardless of the legal theory asserted.**

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WM TAO & ASSOCIATES
CONSULTING ENGINEERS

Shop Drawing Submittal Review

Transmitted To: Cannon Design

Date: August 8, 2016

Attention: **stl-cac@cannondesign.com**

Contact Person / WTA Field Inspector: Patrick Garner

Project Name: Webster University-**ISB**

Reviewed by: Bill Shaw

Project No. WT 14127.01

☐ UPS ☐ Courier ☒ **Email**

Copies	No.	Description
1 PDF	261100E01	(Submittal No.'s) (R&B CxSRC - None)
		(Cannon #261100-003) - (Paric #15051-) – (WES #607)
		• **Wiring Over 600 Volts**

Remarks:

c: **Kelvin Patel**
Kpatel@cannondesign.com

☒ **Furnish as Submitted** ☐ Furnish as Noted

☐ Rejected ☐ Revise & Resubmit

☐ Reviewed ☐

Corrections or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of drawings and specifications. This check is only for review of general conformance with the design concept of project and general compliance with information given in contract documents. Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner.

WTASHOP - Webster ISB - 26 1100-003

From: STL-CAC <STL-CAC@CANNONDESIGN.COM>
To: 'Patrick Garner' <pgarner@wmtao.com>, WTASHOP <wtashop@wmtao.com>
Date: 8/2/2016 2:52 PM
Subject: Webster ISB - 26 1100-003
Cc: "Patel, Kelvin" <kpatel@CANNONDESIGN.COM>
Attachments: 261100-003 Wiring Over 600V Product Data.pdf

Attached for review.

Melissa Pirtle
Construction Admin
CANNONDESIGN
1100 Clark Ave
St. Louis, Missouri 63102
T 314.425.8797 • M
cannondesign.com

CANNONDESIGN

SUBMITTAL IDENTIFICATION SHEET

To be completed by Contractor/CM

WEBSTER UNIVERSITY ISB
PROJECT NAME

8274 BIG BEND BLVD
ADDRESS

NUMBER

WEBSTER UNIVERSITY
OWNER

CANNON DESIGN
ARCHITECT / ENGINEER

Joe Voypick
SUBMITTED BY

261100-003
CONTRACTOR / CM SUBMITTAL NO.

CANNON DESIGN SUBMITTAL NO.

DRAWING / DETAIL REFERENCE

261100
SPECIFICATION SECTION / PARAGRAPH

Guarantee Electrical
MANUFACTURER / SUPPLIER

ITEM / PRODUCT ID

REQUIRED DATE

PRIORITY

◯ CRITICAL

ITEM BEING SUBMITTED (check only one)

- ◯ Shop Drawings
- ◯ Samples (_____ copies)
- ◯ LEED Submittal
- ◯ Certification / Qualifications
- ◯ Record Documents
- ◉ Product Data
- ◯ Coordination Drawing
- ◯ Calculations
- ◯ Schedules
- ◯ O&M Manuals
- ◯ Other _____

ITEM BEING SUBMITTED FOR (check only one)

◉ Action ◯ Information Only ◯ Record

REMARKS OR DEVIATIONS

CONTRACTOR / CM CERTIFICATION
(SUBMITTALS NOT CERTIFIED WILL BE RETURNED WITHOUT REVIEW)

PARIC

PARIC CORPORATION
SUBMITTAL STAMP

THIS SHOP DRAWING HAS BEEN REVIEWED BY PARIC CORPORATION

Subcontractor remains responsible for dimensions, quantities, coordination with other trades and compliance with contract documents.

By:
Devin D. Gates

Joe Voypick
REVIEWED BY

8/2/16
DATE

To be completed by Reviewer

26 1100-003
CANNON DESIGN SUBMITTAL NUMBER

8/2/16
RECEIVED DATE

- ◯ A. No Exceptions Taken
  No further review of submittal is required.
- ◯ B. Make Corrections Noted
  Incorporate corrections in work; resubmission is not required.
- ◯ C. Revise and Resubmit
  Revise as noted, and resubmit for review.
- ◯ D. Rejected
  Submittal is not in compliance with Contract Documents; provide new submittal.
- ◯ E. For Record / Information Only
  Submittal was reviewed for Record / Information purposes only.
- ◯ F. Not Required for Review
  Submittal is not required by Contract Documents and has not been reviewed.

Review is for conformance with the design concept of this project and for general compliance with contract documents. Contractor is responsible for quantities, dimensions and compliance with contract documents and for information that pertains to fabrication processes, construction techniques and coordination of this work with all trades which will be affected thereby. This review is null and void if submittal deviates from contract documents and does not indicate or note deviations.

A/E COMMENTS ◯ See attached sheet(s) for additional comments

REVIEWED BY

DATE

77 Westport Plaza
Suite 250
St. Louis, MO 63146

TRANSMITTAL

No. 15051-0169

Paric Corporation

PROJECT: 15051-Webster University Interdisciplinary Science Building

DATE: 08/02/2016

TO: Cannon Design
1100 Clark Ave
St Louis MO 63102

RE: Wiring Over 600V Product Data

ATTN: Kelvin Patel

JOB: 15051

WE ARE SENDING:	SUBMITTED FOR:	ACTION TAKEN:
☐ Shop Drawings	☑ Approval	☐ Approved as Submitted
☐ Letter	☐ Your Use	☐ Approved as Noted
☐ Prints	☐ As Requested	☐ Returned After Loan
☐ Change Order	☐ Review and Comment	☐ Resubmit
☐ Plans		☐ Submit
☐ Samples	**SENT VIA:**	☐ Returned
☐ Specifications	☐ Attached	☐ Returned for Corrections
☑ Other: Product Data	☐ Separate Cover Via:	☐ Due Date:

Item	*Package*	*Code*	*Rev.*	*Copies*	*Date*	*Description*	*Status*
Submittal		261100-003	1		08/02/2016	Wiring Over 600V Product Data	Submitted

NOTES:

CC:

Signed: _____
Devin Gates

GUARANTEE
ELECTRICAL CONSTRUCTION

3415 Bent Avenue
St. Louis, MO 63116
Phone: (314) 772-5400
Fax: (314) 772-2526

Transmittal

To Paric Corporation

Date 8/2/16

Job Number 11317

Job Name Webster Univ. ISB Building

Attention Devin Gates

Transmittal Number 11317-014

We are sending you:

- X Attached
- ___ Under separate cover, the following:
- ___ Preliminary Drawings
- ___ Samples
- ___ Construction Drawings
- ___ Copy of Letter
- ___ Specifications
- ___ Other

Quantity	Drawing #	Date/Revision	Description
1			Submittal for Wire Over 600V - Spec Section
			26 11 00

These are transmitted as checked:

- X For Your Review & Comment
- X For Approval
- ___ For Your File
- ___ As Requested
- ___ Approved As Noted
- ___ Returned For Corrections
- ___ Approved As Submitted
- ___

Copy: Transmittal Enclosure

___ ___

___ ___

___ ___

Rick Branstetter

Signed: Rick Branstetter, Project Manager