# 3M™ Deadbreak Elbow 625-Series

## 600-Amp, 125 kV BIL, 15/25 kV

**Data Sheet** **September 2021**

**Product Description**

The 3M™ Deadbreak Elbow 625-Series, 600-Amp, 125 kV BIL, 15/25 kV is a fully shielded separable connector system which meets the requirements of ANSI/IEEE Standard 386 – "Separable Insulated Connector Systems" and IEEE Standard 592 - "Exposed Semi-conducting Shields on High-Voltage Cable Joints and Separable Insulated. These modular kits are available for splicing, dead-ending and connecting to deadfront apparatus such as transformers, switches and switchgear equipped with 600 Amp bushings. The system has the capability for future modification by simply adding or removing components. By combining components, the system can accommodate 3-way, 4-way, parallel feed, etc. connections in various tap splicing configurations. These components are designed to mate with all other manufacturer's products that also conform to IEEE Std. 386, Interface 11.

These kits are designed for use on a 15kV and 25kV rated industrial shielded power cables. Kit instructions describe installations for tape shield, flat strap neutral, and jacketed concentric neutral types of solid dielectric cables with extruded semi-conductive insulation shields. A capacitive test point on the insulating plug and the body provides a safe means of testing the circuit without disturbing the bolted connection. The completed installation is fully shielded to provide a complete deadfront connection which is suitable for operation in submerged or direct burial locations.

**Agency Approvals & Self Certifications**

Meets the requirements of ANSI/IEEE Standard 386 – "Separable Insulated Connector Systems."

For RoHS and REACH information, please visit www.3M.com/regs

**Kit Contents**

A complete system installation may require one or more deadbreak kits. Each 3M Deadbreak Elbow 625-Series kit contains the following materials:

- 1 T-Body; 600A, 15/25kV with Test Point
- 1 Dead End Plug with Cap
- 1 AL Stud; 15/25kV
- 1 Compression Connector or Shearbolt Lug
- 1 Copper Tape strip
- 1 Cable Adapter
- 1 3M™ Cold Shrink Jacketing Tube
- 1 Ground Braid Assembly
- 1 Bleeder Wire (for use on JCN & Flat Strap Cable)
- 1 Constant Force Spring
- 2 Mastic Sealing Strips
- 4 Silicone Lubricants
- 1 3M Cable Cleaning Kit CC-2
- 1 Instruction Sheet

# 3M™ Deadbreak Elbow 625-Series 600-Amp, 125 kV BIL, 15/25 kV

**Applications**

The 3M™ Deadbreak Elbow 625-Series system provides an easy and reliable method of terminating and splicing main feeder circuits. The T-Body is fully shielded, molded rubber and has been designed and tested to meet the requirements of IEEE Std. 386 and IEEE Std. 592.

This system is designed to terminate shielded power cables with aluminum or copper conductors ranging in size from #2 AWG to 1250 kcmil. It may be installed on any 600 A rated bushing apparatus that meets IEEE Std. 386, Interface 11. The cable adapters will accommodate cable insulation diameters from 0.53" - 1.94".

This system is designed to terminate medium voltage underground distribution cables to switchgear, transformers, sectionalizing cabinets and underground distribution vault applications. This system has also been submersion tested in accordance with IEEE Std. 386.

**Characteristics**

**Voltage Ratings**

| Description | kV |
|---|---|
| Standard Voltage Class | 25 |
| Maximum Rating Phase-to-Ground<br>ac 60 Hz 1 Minute Withstand<br>dc 15 Minute Withstand<br>BIL and Full Wave Crest | 16.2<br>45<br>78<br>125 |
| Minimum Corona Voltage Level | 19 |

Voltage ratings and characteristics are in accordance with ANSI/IEEE Standard 386.

**Current Ratings**

| Description (600 A Interface) | Amperes |
|---|---|
| Continuous | 600 A rms |
| 4 Hour Overload | 900 A rms |
| Short Time | 25,000 A rms symmetrical for 0.17 s<br>10,000 A rms symmetrical for 3.00 s |

Current ratings and characteristics are in accordance with ANSI/IEEE Standard 386.

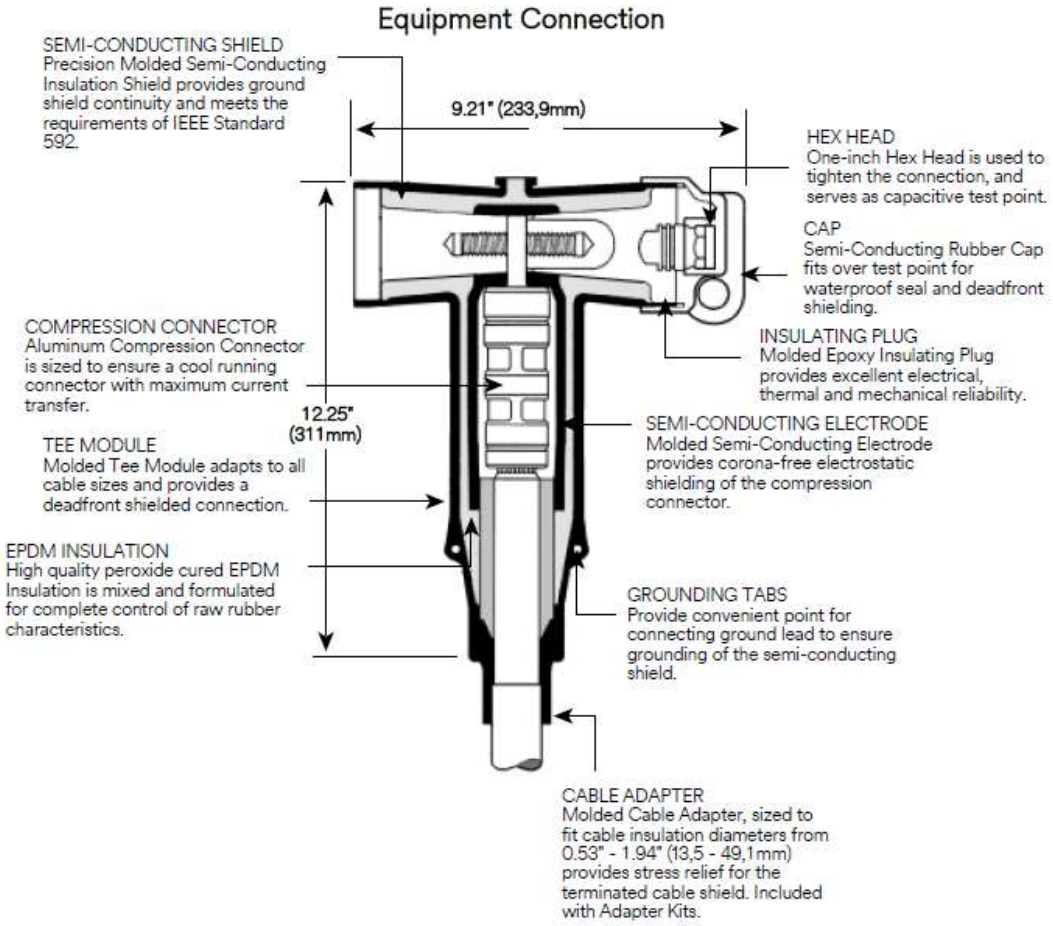
**Typical Splice Dimensions**

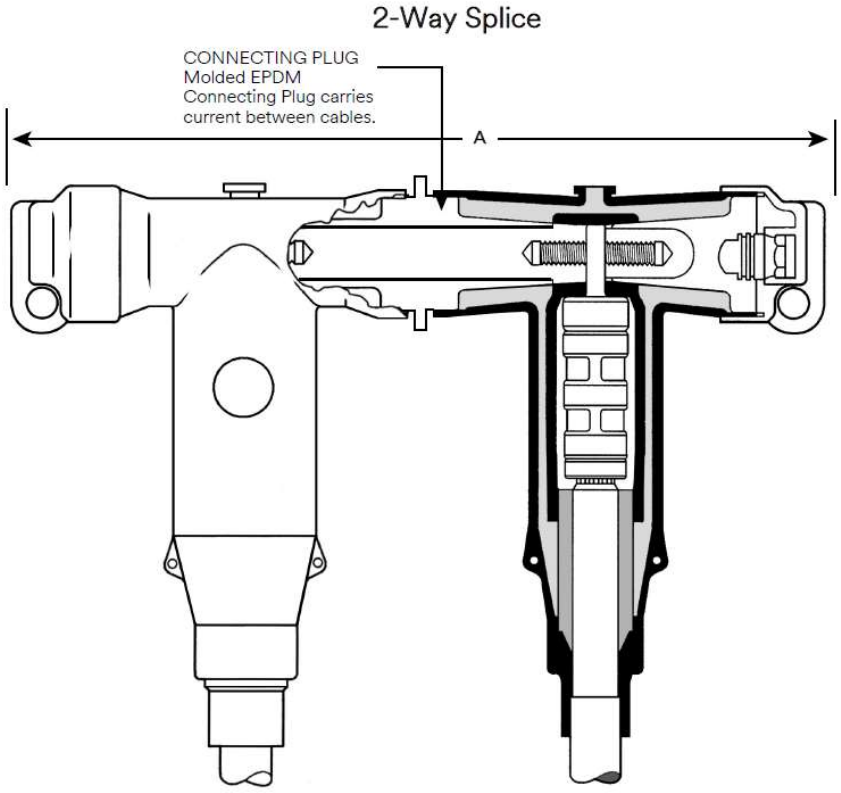
| Splice Assembly | Dimension “A” (inches/mm) |
|---|---|
| 2-way Splice | 20.97" (532,6mm) |
| 3-way Splice | 29.73" (755,1mm) |
| 4-way Splice | 38.49" (977,6mm) |
| Equipment Connection | 9.21" (233,9mm) |

**Note:** All assemblies are approximately 13.5" (342,9mm) long.

# 3M™ Deadbreak Elbow 625-Series 600-Amp, 125 kV BIL, 15/25 kV

**Examples:**



**Specifications**

**Installation**

A torque wrench and one-inch socket is used to tighten the insulating plug through the compression connector within the T-body, onto a deenergized 600 A bushing interface. Installation should be torqued to 55 ft-lbs of torque.

**Interchangeability**

All 3M™ Deadbreak Elbow 625-Series, 600 Amp, 125kV BIL, 15/25kV components conform to the electrical, mechanical and dimensional requirements of ANSI/IEEE Standard 386. The connectors can be used on any comparably rated bushing interface that also meets the requirements of this standard. In addition, all
connecting plugs, dead-end plugs, compression connectors and connecting studs are designed to be interchangeable with those available from other major manufacturers.

**Data**

The 3M Deadbreak Elbow 625-Series components can be used on shielded power cables with a rated operating temperature of 90°C and an emergency overload rating of 130°C. Connections made with these kits are rated for Voltages up to 25 kV
and meet the requirements of ANSI/IEEE 386 for 600 Amp dead-break interfaces.

**Production Tests**

Test are conducted in accordance with ANSI/IEEE Standard 386:

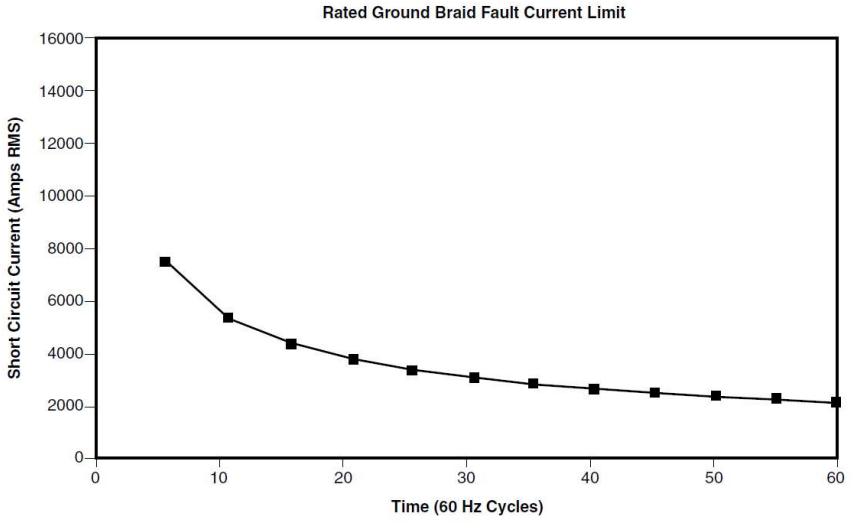
- Ac 60 Hz 1 Minute Withstand - 45 kV
- Minimum Corona Voltage Level - 19 kV

**Grounding**

Grounding of the T-Body and cable metallic shield is performed using the Ground Braid Assembly provided with each kit. The assembly is an integrated design which incorporates both a ground braid for grounding the cable metallic shielding and a ground lead (bleeder wire) for connecting to the T-Body grounding tabs. A solderless connection is made to the cable metallic shield using a constant force spring.

- Ground Braid: 21,600 circular mils, tinned copper (7 AWG copper equivalent)
- Ground Lead (bleeder wire): 14 AWG solid, tinned copper

The typical fault current performance for the 21,600 circular mils Ground Braid can be plotted as follows:



# 3M™ Deadbreak Elbow 625-Series 600-Amp, 125 kV BIL, 15/25 kV

**Deadbreak Elbow 625-Series, 600 Amp, 125kV BIL, 15/25kV Selection Charts**

**15kV Kits with Compression Connector**

**PLEASE READ - - IMPORTANT NOTES:**

Kit sizing noted below is based off of 15kV Shielded, Compact CU, EPR, 133% Insulation Level, 220 mil cable. Final kit selection should be based off of the cable insulation diameter for your specific application. If your application falls beyond the parameters of the kits noted below, please utilize the appropriate base kit and components charts to construct a kit for your specific application. For conductor sizes not noted on the chart below, please contact your local Sales Representative.

| Kit # | Cable Insulation OD Range in. (mm) | Cable Adapter Code # | Conductor Size | | Compression Connector Code # |
|---|---|---|---|---|---|
| | | | Stranded & Compressed | Compact & Solid | |
| 625EG22AL | .760 - .950" (19,3 - 24,1 mm) | G | 2 | 1 | 22 |
| 625EG23AL | .760 - .950" (19,3 - 24,1 mm) | G | 1 | 1/0 | 23 |
| 625EG24AL | .760 - .950" (19,3 - 24,1 mm) | G | 1/0 | 2/0 | 24 |
| 625EH25AL | .850 - 1.050" (21,6 - 26,7 mm) | H | 2/0 | 3/0 | 25 |
| 625EH26AL | .850 - 1.050" (21,6 - 26,7 mm) | H | 3/0 | 4/0 | 26 |
| 625EJ27AL | .980 - 1.180" (24,9 - 30,0 mm) | J | 4/0 | 250 | 27 |
| 625EH29AL | .980 - 1.180" (24,9 - 30,0 mm) | J | 300 | 350 | 29 |
| 625EK32AL | 1.090 - 1.310" (27,7 - 33,3 mm) | K | 450 | 500/550 | 32 |
| 625EL33AL | 1.180 - 1.465" (30,0 - 37,2 mm) | L | 500 | 600 | 33 |
| 625ELM35AL | 1.280 - 1.430" (32,5 - 36,3 mm) | LM | 600 | 700 | 35 |
| 625EM36AL | 1.370 - 1.630" (34,8 - 41,4 mm) | M | 650 | 750 | 36 |
| 625EM38AL | 1.370 - 1.630" (34,8 - 41,4 mm) | M | 700/750 | 900 | 38 |
| 625EM39AL | 1.370 - 1.630" (34,8 - 41,4 mm) | M | 800 | n/a | 39 |
| 625EN40AL | 1.515 - 1.780" (38,5 - 45,2 mm) | N | 900 | 1000 | 40 |
| 625EN44AL | 1.515 - 1.780" (38,5 - 45,2 mm) | N | 1250 | n/a | 44 |

# 3M™ Deadbreak Elbow 625-Series 600-Amp, 125 kV BIL, 15/25 kV

**Deadbreak Elbow 625-Series, 600 Amp, 125kV BIL, 15/25kV Selection Charts Continued**

**15kV Kits with Shearbolt Connector**

**PLEASE READ - - IMPORTANT NOTES:**

Kit sizing noted below is based off of 15kV Shielded, Compact CU, EPR, 133% Insulation Level, 220 mil cable. Final kit selection should be based off of the cable insulation diameter for your specific application. If your application falls beyond the parameters of the kits noted below, please utilize the appropriate base kit and components charts to construct a kit for your specific application. For conductor sizes not noted on the chart below, please contact your local Sales Representative.

| Kit # | Cable Insulation OD Range in. (mm) | Cable Adapter Code # | Conductor Size | | Shearbolt Lug Code # |
|---|---|---|---|---|---|
| | | | Stranded & Compressed | Compact & Solid | |
| 625EGSB1 | .760 - .950" (19,3 - 24,1 mm) | G | 2 | 1 | SB1 |
| 625EGSB1 | .760 - .950" (19,3 - 24,1 mm) | G | 1 | 1/0 | |
| 625EGSB1 | .760 - .950" (19,3 - 24,1 mm) | G | 1/0 | 2/0 | |
| 625EHSB1 | .850 - 1.050" (21,6 - 26,7 mm) | H | 2/0 | 3/0 | |
| 625EHSB1 | .850 - 1.050" (21,6 - 26,7 mm) | H | 3/0 | 4/0 | |
| 625EJSB1 | .980 - 1.180" (24,9 - 30,0 mm) | J | 4/0 | 250 | |
| 625EJSB2 | .980 - 1.180" (24,9 - 30,0 mm) | J | 300 | 350 | SB2 |
| 625EKSB2 | 1.090 - 1.310" (27,7 - 33,3 mm) | K | 450 | 500 | |
| 625ELSB3 | 1.180 - 1.465" (30,0 - 37,2 mm) | L | 500 | 600 | SB3 |
| 625ELMSB3 | 1.280 - 1.430" (32,5 - 36,3 mm) | LM | 600 | 700 | |
| 625EMSB3 | 1.370 - 1.630" (34,8 - 41,4 mm) | M | 650 | 750 | |
| 625EMSB3 | 1.370 - 1.630" (34,8 - 41,4 mm) | M | 700/750 | 900 | |
| 625ENSB4 | 1.515 - 1.780" (38,5 - 45,2 mm) | N | 900 | 1000 | SB4 |
| 625ENSB4 | 1.515 - 1.780" (38,5 - 45,2 mm) | N | 1250 | 1250 | |

# 3M™ Deadbreak Elbow 625-Series 600-Amp, 125 kV BIL, 15/25 kV

**Deadbreak Elbow 625-Series, 600 Amp, 125kV BIL, 15/25kV Selection Charts Continued**
**25kV Kits with Compression Connector**

**PLEASE READ - - IMPORTANT NOTES:**

Kit sizing noted below is based off of 25kV Shielded, Compact CU, EPR, 100% Insulation Level, 260 mil cable. Final kit selection should be based off of the cable insulation diameter for your specific application. If your application falls beyond the parameters of the kits noted below, please utilize the appropriate base kit and components charts to construct a kit for your specific application. For conductor sizes not noted on the chart below, please contact your local Sales Representative.

| Kit # | Cable Insulation OD Range in. (mm) | Cable Adapter Code # | Conductor Size | | Compression Connector Code # |
|---|---|---|---|---|---|
| | | | Stranded & Compressed | Compact & Solid | |
| 625EG22AL | .760 - .950" (19,3 - 24,1 mm) | G | 2 | 1 | 22 |
| 625EG23AL | .760 - .950" (19,3 - 24,1 mm) | G | 1 | 1/0 | 23 |
| 625EH24AL | .850 - 1.050" (21,6 - 26,7 mm) | H | 1/0 | 2/0 | 24 |
| 625EH25AL | .850 - 1.050" (21,6 - 26,7 mm) | H | 2/0 | 3/0 | 25 |
| 625EJ26AL | .980 - 1.180" (24,9 - 30,0 mm) | J | 3/0 | 4/0 | 26 |
| 625EJ27AL | .980 - 1.180" (24,9 - 30,0 mm) | J | 4/0 | 250 | 27 |
| 625EK29AL | 1.090 - 1.310" (27,7 - 33,3 mm) | K | 300 | 350 | 29 |
| 625EL32AL | 1.180 - 1.465" (30,0 - 37,2 mm) | L | 450 | 500/550 | 32 |
| 625ELM33AL | 1.280 - 1.430" (32,5 - 36,3 mm) | LM | 500 | 600 | 33 |
| 625EM35AL | 1.370 - 1.630" (34,8 - 41,4 mm) | M | 600 | 700 | 35 |
| 625EM36AL | 1.370 - 1.630" (34,8 - 41,4 mm) | M | 650 | 750 | 36 |
| 625EM39AL | 1.370 - 1.630" (34,8 - 41,4 mm) | M | 800 | n/a | 39 |
| 625EN38AL | 1.515 - 1.780" (38,5 - 45,2 mm) | N | 700/750 | 900 | 38 |
| 625EN40AL | 1.515 - 1.780" (38,5 - 45,2 mm) | N | 900 | 1000 | 40 |
| 625EP44AL | 1.725 - 1.935" (43,8 - 49,1 mm) | P | 1250 | --- | 44 |

# 3M™ Deadbreak Elbow 625-Series 600-Amp, 125 kV BIL, 15/25 kV

**Deadbreak Elbow 625-Series, 600 Amp, 125kV BIL, 15/25kV Selection Charts Continued**

**25kV Kits with Shearbolt Connector**

**PLEASE READ - - IMPORTANT NOTES:**

Kit sizing noted below is based off of 25kV Shielded, Compact CU, EPR, 100% Insulation Level, 260 mil cable. Final kit selection should be based off of the cable insulation diameter for your specific application. If your application falls beyond the parameters of the kits noted below, please utilize the appropriate base kit and components charts to construct a kit for your specific application. For conductor sizes not noted on the chart below, please contact your local Sales Representative.

| Kit # | Cable Insulation OD Range in. (mm) | Cable Adapter Code # | Conductor Size | | Shearbolt Lug Code # |
|---|---|---|---|---|---|
| | | | Stranded & Compressed | Compact & Solid | |
| 625EGSB1 | .760 - .950" (19,3 - 24,1 mm) | G | 2 | 1 | SB1 |
| 625EGSB1 | .760 - .950" (19,3 - 24,1 mm) | G | 1 | 1/0 | |
| 625EHSB1 | .850 - 1.050" (21,6 - 26,7 mm) | H | 1/0 | 2/0 | |
| 625EHSB1 | .850 - 1.050" (21,6 - 26,7 mm) | H | 2/0 | 3/0 | |
| 625EJSB1 | .980 - 1.050" (24,9 - 30,0 mm) | J | 3/0 | 4/0 | |
| 625EJSB1 | .980 - 1.180" (24,9 - 30,0 mm) | J | 4/0 | 250 | |
| 625EKSB2 | 1.090 - 1.310" (27,7 - 33,3 mm) | K | 300 | 350 | SB2 |
| 625ELSB3 | 1.180 - 1.465" (30,0 - 37,2 mm) | L | 450 | 500/550 | SB3 |
| 625ELMSB3 | 1.280 - 1.430" (32,5 - 36,3 mm) | LM | 500 | 600 | |
| 625EMSB3 | 1.370 - 1.630" (34,8 - 41,4 mm) | M | 600 | 700 | |
| 625EMSB3 | 1.370 - 1.630" (34,8 - 41,4 mm) | M | 650 | 750 | |
| 625EMSB3 | 1.370 - 1.630" (34,8 - 41,4 mm) | M | 700 | n/a | |
| 625ENSB4 | 1.515 - 1.780" (38,5 - 45,2 mm) | N | 750/800 | 900 | SB4 |
| 625ENSB4 | 1.515 - 1.780" (38,5 - 45,2 mm) | N | 900 | 1000 | |
| 625EPSB4 | 1.725 - 1.935" (43,8 - 49,1 mm) | P | 750 | 1250 | |

# 3M™ Deadbreak Elbow 625-Series 600-Amp, 125 kV BIL, 15/25 kV

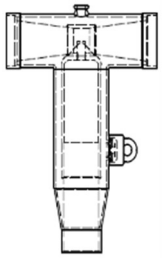
**Deadbreak Elbow 625-Series, 600 Amp, 125kV BIL, 15/25kV Selection Charts Continued**

## 625E-B Series 15/25kV Base Kit Selection Chart (without connector or cable adapter)

**PLEASE READ - - IMPORTANT NOTES:**

All kits noted below contain all of the same kit components as are found in the standard kits with the exception of a connector and an adapter. Please utilize the appropriate compression connector or shearbolt connector selection chart and cable adapter selection chart to complete the construction of this kit for your specific application. For conductor sizes not noted on the chart below, please contact your local Sales Representative.

| 625E-B Series 15/25kV Base Kit Selection Chart (without connector or cable adapter) | | |
|---|---|---|
| **Kit #** | **Jacket OD Size** | **35 kV Conductor Size** |
| 625E-B1 | 0.83" - 1.64" (21,1 - 41,6 mm) | 2 - 250 AWG (35 - 150 mm²) |
| 625E-B2 | 1.27" - 2.17" (32,3 - 55,1 mm) | 350 - 750 kcmil (185 - 500 mm²) |
| 625E-B3 | 1.70" - 2.60" (43,2 - 66,0 mm) | 1000 - 1500 kcmil (600 - 725 mm²) |



| 625-Series Cable Adapter Chart | | | |
|---|---|---|---|
| **Cable Adapter Code** | **Cable Insulation Range; in. (mm)** | **Cable Adapter Code** | **Cable Insulation Range; in. (mm)** |
| 625CAE | .530" - .675" (13,5 - 17,3 mm) | 625CAL | 1.180" - 1.465" (30,0 - 37,2 mm) |
| 625CAF | .640" - .820" (16,3 - 20,8 mm) | 625CALM | 1.280" - 1.430" (32,5 - 36,3 mm) |
| 625CAG | .760" - .950" (19,3 - 24,1 mm) | 625CAM | 1.370" - 1.630" (34,8 - 41,4 mm) |
| 625CAH | .850" - 1.050" (21,6 - 26,7 mm) | 625CAN | 1.515" - 1.780" (38,5 - 45,2 mm) |
| 625CAJ | .980" - 1.180" (24,9 - 30,0 mm) | 625CAP | 1.725" - 1.935" (43,8 - 49,1 mm) |
| 625CAK | 1.090" - 1.310" (27,7 - 33,3 mm) | - - - | - - - |

| Additional Connection Components | |
|---|---|
| **Part #** | **Description** |
| 625T | 600A Deadbreak T-body with Test Point; 15/25kV |
| 625IPC | Aluminum Insulation Plug with Cap |
| 625CP | Aluminum Connecting Plug; 15/25kV |
| 625ALSTUD | Stud, AL; 15/25kV |
| SIL5.3 | Silicone Lubricant; 5.3 oz Tube |

| **Connector Code** | **Conductor Size** | |
|---|---|---|
| | **Stranded/Compressed** | **Compact/Solid** |
| SB1 | #2 - 250 | #1 - 300 |
| SB2 | 4/0 - 450 | 250 - 500 |
| SB3 | 350 - 750 | 400 - 900 |
| SB4 | 750 - 1250 | 800 - 1250 |

**Note:** Shearbolt connectors noted above will accommodate stranded, compressed and compact conductor types.

# 3M™ Deadbreak Elbow 625-Series 600-Amp, 125 kV BIL, 15/25 kV

**Deadbreak Elbow 625-Series, 600 Amp, 125kV BIL, 15/25kV Selection Charts Continued**

| AL Compression Connector Code Chart | | | | | |
|---|---|---|---|---|---|
| Connector Code | Conductor Size | | Connector Code | Conductor Size | |
| | Str. & Compr. | Cmpct. & Sol. | | Str. & Compr. | Cmpct. & Sol. |
| 22AL | #2 | #1 | 33AL | 500 | 600 |
| 23AL | #1 | 1/0 | 35AL | 600 | 700 |
| 24AL | 1/0 | 2/0 | 36AL | 650 | 750/800 |
| 25AL | 2/0 | 3/0 | 38AL | 700 | 900 |
| 26AL | 3/0 | 4/0 | 38AL | 750 | 900 |
| 27AL | 4/0 | 250 | 39AL | 800 | 900 |
| 28AL | 250 | 300 | 40AL | 900 | 1000 |
| 29AL | 300 | 350 | 41AL | 1000 | - - - |
| 30AL | 350 | 400 | 44AL | 1250 | - - - |

**Note:** For sizes not shown on this chart, please contact your local Sales Representative.

| | |
|---|---|
| **Engineering/ Architectural** | The 600 Amp separable insulated connector system shall be rated for continuous operation on single conductor shielded power cables rated up to 25 kV. The system components shall be designed in accordance with the specifications listed in ANSI/IEEE Standard 386 for 600 Amp deadbreak interfaces. The system shall be made up of specific kits designed for splicing, tapping (adding-on), deadending and 600 Amp equipment (apparatus) connecting. Each kit shall contain all of the components necessary for its intended application. The system shall be capable of making 2-way, 3-way or multiple tap splices, and of making connections to ANSI/IEEE 386 specified 600 Amp apparatus bushings. |
| **Maintenance** | The components of the 3M Deadbreak Elbow 625-series kits are stable under normal storage conditions. Normal storage and stock rotation are recommended. The rubber and molded epoxy components are not impaired by freezing. |
| **Availability** | Deadbreak Elbows 625-series kits are available for splicing and tapping (adding-on) 15/25 kV shielded power cables, and for equipment (apparatus) connecting to ANSI/IEEE 386 specified 600 Amp bushings.<br><br>These kits are available from your local authorized 3M electrical distributor. |

**Note:** The core material being removed from the Cold Shrink Tube is mixed polymers and can be recycled with other waste.

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