



## SELECTION GUIDE

|   | Part Number | Material   | Product Type         | Shrink Ratio | Operating Temp. & Voltage Rating | Min. Shrink Temp. | Min. Full Recovery Temp. | Flame Retardant               | MIL Spec.                       | General Description   |
|---|-------------|------------|----------------------|--------------|----------------------------------|-------------------|--------------------------|-------------------------------|---------------------------------|---|
| Heat Shrinkable Single Wall Polyolefin Tubing | Q1          | Polyolefin | Thin Wall            | 2:1          | -55°C +105°C<br>600V             | 80°C              | 100°C                    | -                             | -                               | Non Flame-Retardant, General Purpose, Flexible, Glossy Black or Clear<br>Size: 1.0-100mm (3/64" to 2")                        |
|   | Q1-2000     | Polyolefin | Thin Wall            | 1.5:1        | -55°C +105°C<br>600V             | -                 | 120°C                    | -                             | -                               | Non Flame-Retardant, for Brake Pipe Protection<br>Size: 5.0-15mm (1/8" to 3/8")   |
|   | Q2          | Polyolefin | Thin Wall            | 2:1          | -55°C +125°C<br>600V             | 70°C              | 100°C                    | VW-1                          | -                               | UL & CSA, Flexible, Highly Flame-Retardant<br>Size: 1.0-150mm (3/64" to 6")   |
|   | Q2-3X       | Polyolefin | Thin Wall            | 3:1          | -55°C +125°C<br>600V             | 70°C              | 100°C                    | VW-1                          | -                               | UL & CSA, Flexible, High Shrink Ratio, Highly Flame-Retardant<br>Size: 1.5-39mm (1/16" to 1 1/2")                             |
|   | Q2-CB       | Polyolefin | Super Thin Wall      | 2:1          | -55°C +125°C<br>300V             | 70°C              | 100°C                    | VW-1                          | -                               | No PBB's, PBBE's, PBBO's, Low Cadmium and Lead<br>Size: 1.0-10mm (3/64" to 1")  |
|   | Q2-F        | Polyolefin | Thin Wall            | 2:1          | -55°C +135°C<br>600V             | 70°C              | 100°C                    | VW-1                          | SAE-AMS-DTL-23053/5 Class 1 & 3 | No PBB's, PBBO's, PBBE's, Very Flexible, Highly Flame-Retardant<br>Size: 1.2-152mm (3/64" to 6")                              |
|   | Q2-F3X      | Polyolefin | Thin Wall            | 3:1          | -55°C +135°C<br>600V             | 70°C              | 100°C                    | VW-1                          | SAE-AMS-DTL-23053/5 Class 1 & 3 | No PBB's, PBBE's, PBBO's, Very Flexible, High Shrink Ratio, Highly Flame-Retardant<br>Size: 1.6-38.1mm (1/16" to 1 1/2")      |
|   | Q2-F4X      | Polyolefin | Thin Wall            | 4:1          | -55°C +135°C<br>600V             | 70°C              | 100°C                    | VW-1                          | SAE-AMS-DTL-23053/5 Class 1 & 3 | No PBB's, PBBE's, PBBO's, Very flexible, High Shrink Ratio, Highly Flame-Retardant<br>Size: 19.1-115mm (3/4" to 4 1/2")       |
|   | Q2-F2XYG    | Polyolefin | Thin Wall            | 2:1          | -55°C +135°C<br>600V             | 70°C              | 100°C                    | VW-1                          | SAE-AMS-DTL-23053/5 Class 1 & 3 | Yellow-Green Striped, Flexible, Flame-Retardant Tubing<br>Size: 1.6-39mm (1/16" to 1 1/2")                                    |
|   | Q2-F3XYG    | Polyolefin | Thin Wall            | 3:1          | -55°C +135°C<br>600V             | 70°C              | 100°C                    | VW-1                          | SAE-AMS-DTL-23053/5 Class 1 & 3 | Yellow-Green Striped, Flexible, Flame-Retardant Tubing<br>Size: 1.6-39mm (1/16" to 1 1/2")                                    |
|   | Q2-HF       | Polyolefin | Thin Wall            | 2:1          | -55°C +105°C<br>600V             | 65°C              | 95°C                     | -                             | -                               | Halogen Free Polyolefin Tubing, Low Smoke<br>Size: 1.0-150mm (3/64" to 6")  |
|   | Q2-LS       | Polyolefin | Thin Wall            | 2:1          | -45°C +125°C<br>600V             | 65°C              | 95°C                     | MVSS 302                      | -                               | Low ShrinkTemp., Very Flexible, Halogen Free Polyolefin Tubing<br>Size: 1.6-50.8mm (1/16" to 2")                              |
|   | Q2-R        | Polyolefin | Semi-rigid Thin-Wall | 2:1          | -55°C +135°C<br>600V             | 90°C              | 120°C                    | Self-extinguish in 30 seconds | SAE-AMS-DTL-23053/5 Class 1     | Semi-Rigid Flame-Retardant Tubing, Resistant to Common Chemicals and Solvents.<br>Size: 1.2-25.4mm (3/64" to 1")              |
|   | Q2-Z        | Polyolefin | Thin Wall            | 2:1          | -55°C +125°C<br>600V             | 70°C              | 100°C                    | VW-1                          | -                               | UL & CSA, No PBB's, PBBE's, PBBO's, Flexible, Cadmium < 5PPM & Lead < 10PPM<br>Size: 1.0-150mm (3/64" to 6")                  |
| Heat Shrinkable Dual Wall Tubing              | Q5-2X       | Polyolefin | Dual Wall            | 2:1          | -45°C +125°C<br>600V             | 80°C              | 100°C                    | Self-extinguish in 30 seconds | -                               | UL & ABS Approval, Adhesive Lined, Flexible, Flame-Retardant Tubing<br>Size: 3.2-38.1mm (1/8" to 1 1/2")                      |
|   | Q5-3X       | Polyolefin | Dual Wall            | 3:1          | -45°C +125°C<br>600V             | 80°C              | 100°C                    | Self-extinguish in 30 seconds | -                               | UL & ABS Approval, Adhesive Lined, Flexible, High Shrink Ratio, Flame-Retardant Tubing<br>Size: 3.0-50.0mm (1/8" to 2")       |
|   | Q5-4X       | Polyolefin | Dual Wall            | 4:1          | -45°C +125°C<br>600V             | 80°C              | 100°C                    | Self-extinguish in 30 seconds | -                               | UL & ABS Approval, Adhesive Lined, Flexible, High Shrink Ratio, Flame-Retardant Tubing<br>Size: 4.0-32.0mm (3/16" to 1 1/4")  |
|   | Q5-3XM      | Polyolefin | Heavy Dual Wall      | 3:1          | -45°C +125°C<br>600V             | 110°C             | -                        | Self-extinguish in 30 seconds | -                               | UL & ABS Approval, Adhesive Lined, Flexible, High Shrink Ratio, Flame-Retardant Tubing<br>Size: 19.0-100.0mm (3/4" to 4")     |
|   | Q5-4XR      | Polyolefin | Semi-rigid Dual Wall | 4:1          | -45°C +125°C<br>600V             | 120°C             | -                        | Self-extinguish in 30 seconds | -                               | UL & ABS Approval, Adhesive-Lined, Flexible, High Shrink Ratio, Flame-Retardant Tubing<br>Size: 6.0-18.0mm (0.236" to 0.708") |
|   | Q5-2000     | Polyolefin | Dual Wall            | 1.5:1        | -55°C +105°C<br>600V             | -                 | 120°C                    | -                             | -                               | Adhesive Lined Tubing, Protects Automotive Metal Pipes & Fuel Lines<br>Size: 5.0-15mm (1/8" to 3/8")                          |

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| Heat Shrinkable Tubing<br>Medium & Heavy Wall | QFRA        | Polyolefin                       | Heavy Wall              | 3:1                   | -55°C +110°C<br>600V             | 120°C             |                          | ASTM D 2671     | -  | Heavy wall adhesive-lined, Flame-Retardant Polyolefin Tubing<br>Size: 9.0-120mm  |
|   | QR2         | Polyolefin                       | Medium Wall             | 3:1                   | -55°C +110°C<br>600V             |                   | 120°C                    |                 | -  | High Electrical Insulation, Excellent Mechanical Protection to Protect Cable Joints and Terminations<br>Size: 8.0-200mm (.315"-8")               |
|   | QRA2        |                                  | Medium Dual Wall        |                       |                                  |                   |                          |                 |  |  |
|   | QR3         | Polyolefin                       | Heavy Wall              | 3:1                   | -55°C +110°C<br>600V             |                   | 120°C                    |                 | -  | High Electrical Insulation, Excellent Mechanical Protection to Protect Cable Joints and Terminations<br>Size: 9.0-200mm (.354" to 8")            |
|   | QRA3        |                                  | Heavy Dual Wall         |                       |                                  |                   |                          |                 |  |  |
|   | QRA-6X      | Polyolefin                       | Heavy Dual Wall         | 6:1                   | -55°C +110°C<br>600V             |                   | 120°C                    |                 | -  | High Electrical Insulation, Excellent Mechanical Protection to Protect Cable Joints and Terminations<br>Size: 19-119.4mm (3/4" to 5")            |
| High Voltage Insulation Tubing                | QAT         | Polyolefin                       | Medium Wall             | 2.:1                  | -55°C +105°C<br>up to 36KV       | 110°C             | -                        | IEC 93          | -  | Halogen Free, High Creep Resistance & Anti-Tracking Properties<br>Size: 19-130mm (3/4" to 4")  |
|   | QBM         | Polyolefin                       | Medium Wall             | 2.5:1                 | -55°C +105°C<br>5-24KV           | 110°C             | -                        | IEC 93          | -  | Halogen Free, High Voltage Bus Bar Insulation Tubing<br>Wall Thickness: 3.0mm<br>Size: 15-150mm (3/5" to 6")                                     |
|   | QBT         | Polyolefin                       | Medium Wall             | 2.5:1                 | -55°C +105°C<br>5-24KV           | 110°C             | -                        | IEC 93          | -  | Halogen Free, High Voltage Bus Bar Insulation Tubing<br>Wall Thickness: 2.0mm<br>Size: 25-100mm (1" to 4")                                       |
|   | QDWT        | Polyolefin                       | Heavy Wall              | 3:1                   | -45°C +100°C<br>up to 36KV       | 100°C-            | 130°C                    | -               | -  | Semi Conducting Insulation Dual Wall Tubing. Suitable for applications in power cable joints up to 36KV<br>Size: 35-140mm                        |
|   | QSC-100     | Polyolefin                       | Medium Wall             | 2.:1                  | -45°C +100°C<br>up to 36KV       | 100°C             | 130°C                    | -               | -  | Stress Control Tubing. Controls the High Electrical Stress Present at the end of the Cable Termination and Joint<br>Size: 16-95mm                |
|   | QSCT        | Polyolefin                       | Medium Wall             | 2.:1                  | -45°C +105°C<br>up to 36KV       | 100°C             | 120°C                    | -               | -  | Semi Conductive Tubing. Provides Effective Insulation Screen on High Voltage Cable Connectors<br>Size: 30-120mm                                  |
| Molded Parts<br>End Caps                      | QAS         | Polyolefin                       | -                       | -                     | -55°C +105°C<br>up to 36KV       | -                 | 110°C                    | IEC93           | -  | High Creep Resistance & Anti-Tracking Properties<br>Provides Insulation Protection for Outdoor Cable Termination<br>Size: 35-120mm 1 1/2" to 5") |
|   | QBR3C       | Polyolefin                       | -                       | -                     | -55°C +100°C<br>up to 36KV       | 110°C             | 130°C                    | IEC93           | -  | Insulation & Sealing of Cable Breakouts for 1KV Cables. 3, 4 & 5 Core Types<br>Size: 30-120mm  |
|   | QBR4C       |                                  |                         |                       |                                  |                   |                          |                 |  |  |
|   | QBR5C       |                                  |                         |                       |                                  |                   |                          |                 |  |  |
| QSEC  | Polyolefin  | -                                | -                       | -55°C +110°C<br>1000V | -                                | 120°C             | -                        | -               | Spiral Hot Melt Adhesive Coated End Cap, for Protecting Cable End from the Environmental Effects.<br>Size: 14-120mm (3/5" to 5") |  |
| Specialty Products                            | Q-150K      | Modified PVDF Kynar®             | Flexible Thin Wall      | 2:1                   | -55°C +150°C<br>600V             | 175°C             | -                        | VW-1            | SAE-AMS-DTL-23053/8  | Black, Flexible, High-Temperature Chemical Resistant Polyvinylidene Fluoride (PVDF) Kynar®.<br>Size : 1.2-25.4mm (3/64" to 1")                   |
|   | Q-175K      | PVDF Kynar®                      | Semi-rigid Thin Wall    | 2:1                   | -55°C +175°C<br>600V             | 175°C             | -                        | VW-1            | SAE-AMS-DTL-23053/8  | Clear, High Temperature Chemical Resistant Polyvinylidene Fluoride (PVDF) Kynar®<br>Size: 1.2-25.4mm (3/64" to 1")                               |
|   | Q-200E      | Modified Fluoro Elastomer Viton® | Very Flexible Thin Wall | 2:1                   | -55°C +200°C<br>600V             | 175°C             | -                        | VW-1            | SAE-AMS-DTL-23053/13   | Flexible, Elastic, High Temperature, Solvent Resistance Viton<br>Size: 3.2-50.8mm (1/8" to 2")   |
|   | Q2-XT       | Polyolefin                       | Thin Wall               | Non - Shrink          | -55°C +125°C<br>600V             | -                 | -                        | VW-1            | -  | Non-Shrink, Irradiated Flexible Flame-Retardant Tubing<br>Size: AWG 24-0 (3/8" to 1")  |
|   | QFSP        | Polyolefin                       | -                       | -                     | -45°C +100°C                     | -                 | 120°C                    | -               | -  | Optical Fiber Splices for Strength & Protection  |
|   | QBCS        | -                                | -                       | -                     | -55°C +105°C                     | -                 | -                        | -               | -  | Heat Shrinkable Crimp Butt Splice<br>22-10AWG  |
|   | Q-PVC       | PVC                              | Thin Wall               | Non - Shrink          | -40°C +105°C<br>600V             | -                 | -                        | VW-1            | -  | Flexible, Flame Retardant PVC Non-Shrink Tubing with Excellent Electrical & Physical Properties<br>Size: .80mm-16.0mm                            |
|   | QTT-L       | Teflon (PTFE)                    | Thin Wall               | Non - Shrink          | -80°C +200°C<br>600V             | -                 | -                        | VW-1            | -  | High Temperature Teflon Non-Shrink Tubing with Excellent Insulation & Mechanical Strength Properties   |

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