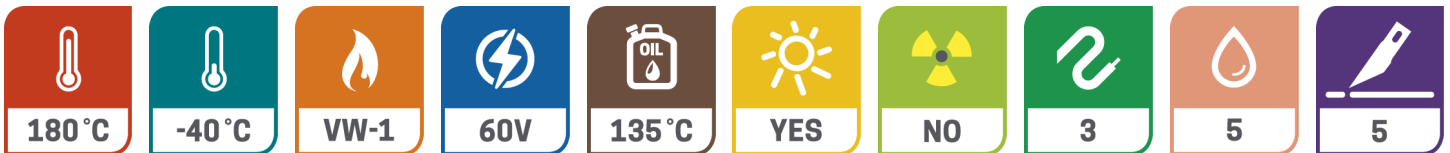




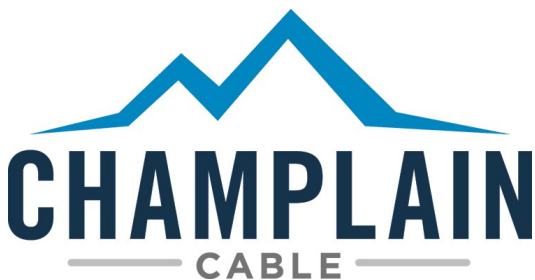
# 180UT Ultra-Thin Powertrain Wire

AWG, Ultra-Thin-Wall, 180°C, 60V

- Highly Engineered EXRAD 180 Irradiation Crosslinked Fluoroelastomer
- Withstands Thermal Excursions to 250°C for Short Periods
- Thinner than Standard SAE TXL for Tight Spaces and Ease of Routing
- Designed for the Most Demanding Environments
- Designed for a Long Life for Today's Longer Vehicle Warranties
- Highly Fluid Resistant. Performs well in Engine Oil and Transmission Fluid



| Product Number | Standard Conductors Bare Copper | Nominal Conductor OD |      | Nom. Insulation Thickness |     | Nom. Finished OD |      | Finished Weight (lbs/mft) | Ampacity (40°C in Free Air) |
|----------------|---------------------------------|----------------------|------|---------------------------|-----|------------------|------|---------------------------|-----------------------------|
|                |                                 | in.                  | mm.  | in.                       | mm. | in.              | mm.  |                           |                             |
| EXRAD-XUT-24XX | 24 (7/32)                       | .024                 | .61  | .012                      | .31 | .046             | 1.17 | 2.42                      | 6                           |
| EXRAD-XUT-22XX | 22 (7/30)                       | .031                 | .79  | .012                      | .31 | .055             | 1.40 | 3.41                      | 11                          |
| EXRAD-XUT-20XX | 20 (7/28)                       | .038                 | .97  | .012                      | .31 | .062             | 1.57 | 4.91                      | 15                          |
| EXRAD-XUT-18XX | 18 (19/.0092)                   | .047                 | 1.19 | .012                      | .31 | .071             | 1.85 | 6.70                      | 21                          |
| EXRAD-XUT-16XX | 16 (19/29)                      | .057                 | 1.45 | .012                      | .31 | .081             | 2.06 | 9.53                      | 28                          |
| EXRAD-XUT-14XX | 14 (19/27)                      | .071                 | 1.81 | .012                      | .31 | .095             | 2.41 | 14.22                     | 46                          |
| EXRAD-XUT-12XX | 12 (65/30)                      | .086                 | 2.16 | .013                      | .33 | .112             | 2.85 | 22.90                     | 60                          |
| EXRAD-XUT-10XX | 10 (105/30)                     | .112                 | 2.84 | .013                      | .33 | .138             | 3.51 | 36.90                     | 80                          |



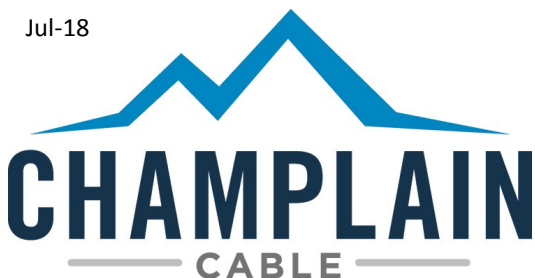


# 180UT Ultra-Thin Powertrain Wire

| Property / Attribute         |                                                                                        | SAE J1128<br>TXL Req. | EXRAD 180UT<br>18 AWG<br>Typical Performance |     |
|------------------------------|----------------------------------------------------------------------------------------|-----------------------|----------------------------------------------|-----|
| <b>Flex Life</b>             |                                                                                        |                       |                                              |     |
| Flex Test                    | Per Modified ISO 14572                                                                 | NA                    | NA                                           |     |
| <b>Dielectric Strength</b>   |                                                                                        |                       |                                              |     |
| Dielectric Test              | Wet Dielectric after 5 hour soak                                                       | 1 kV 1 min.           | 5 kV 30 min.                                 |     |
| <b>Flame Resistance</b>      |                                                                                        |                       |                                              |     |
| Flame Test                   | Burn time after removal of gas burner                                                  | 70 sec max.           | 1 sec                                        |     |
| <b>Thermal Performance</b>   |                                                                                        |                       |                                              |     |
| Cold Bend                    | 4 hours at temperature no cracks / breakdown                                           | -40°C                 | -40°C                                        |     |
| Temperature Rating           | 240 Hours @213°C heat aging                                                            | 155°C                 | 213°C                                        |     |
| Temperature Rating           | 3000 Hours @180°C                                                                      | 125°C                 | 180°C                                        |     |
| <b>Mechanical Properties</b> |                                                                                        |                       |                                              |     |
| Tensile                      | psi                                                                                    | 1500 min.             | 3800                                         |     |
| Elongation                   | %                                                                                      | 150 min.              | 320                                          |     |
| Abrasion                     | Sand Paper Resistance Length in.                                                       | 10 min.               | 31                                           |     |
| Abrasion                     | Scrape Cycles                                                                          | None                  | 1400                                         |     |
| Pinch                        | Pounds                                                                                 | 5.5 min.              | 26                                           |     |
| <b>Hydrolysis Resistance</b> |                                                                                        |                       |                                              |     |
| Hydrolysis Resistance        | 168 Hours @ 75°C saltwater immersion and 48 volts dc, no cracks, no dielectric failure | pass                  | pass                                         |     |
| <b>Ozone Resistance</b>      |                                                                                        |                       |                                              |     |
| Ozone Test                   | 192 Hours @ 65°C 100 ppm no cracks                                                     | Pass                  | Pass                                         |     |
| <b>Fluids</b>                |                                                                                        |                       |                                              |     |
| Engine Oil                   | ASTM D471, IRM-902                                                                     | 115 +/-3°C            | 15% Max.                                     | 0%  |
| Gasoline                     | ASTM D471 Ref. Fuel C                                                                  | 23 +/-5°C             | 15% Max.                                     | 0%  |
| Brake Fluid                  | SAE-J-1703                                                                             | 50 +/-5°C             | None                                         | 0%  |
| Ethanol                      | 85% Ethanol +15% ASTM D471, Ref. Fuel C                                                | 23 +/-5°C             | 15% Max.                                     | 0%  |
| Diesel Fuel                  | ASTM D471, 90% IRM-903 + 10% p-xylene                                                  | 23 +/-5°C             | 15% Max.                                     | 0%  |
| Power Steering               | ASTM D471, IRM-903                                                                     | 50 +/-3°C             | 30% Max.                                     | 0%  |
| Auto Transmission            | Citgo #33123 SAE-J311                                                                  | 50 +/-3°C             | 25% Max.                                     | <2% |
| Methanol                     |                                                                                        | 23 +/-5°C             | 25% Max.                                     | 0%  |
| Engine Coolant               | 50% Ethylene Glycol + 50% distilled Water                                              | 50 +/-3°C             | 15% Max.                                     | 0%  |
| Battery Acid                 | H2SO4 Specific Gravity = 1.260 +/- .005                                                | 23 +/-5°C             | 5% Max.                                      | <0% |

We cannot anticipate all conditions under which this information and our products or the products of other manufacturers in combination with our products may be used. We accept no responsibility for results obtained by the application of this information or the safety and suitability of our products alone or in combination with other products. Users are advised to make their own tests to determine the safety and suitability of each such product combination for their own purpose. Unless otherwise agreed in writing, we sell the products without warranty, and buyers and users assume all responsibility and liability for loss and damage arising from the handling and use of our products whether used alone or in combination with other products

Jul-18



**Manufacturing Locations:**  
Colchester, Vermont  
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