



turboflex

THE ULTRA FLEXIBLE RUGGED POWER CABLE

TurboFlex® power distribution cables are constructed from highly flexible conductors and high-performance insulation to produce cables ideally suited for applications where flexibility, durability, and weight reduction are required. Amazingly durable and flexible—especially in cold weather—the 16 AWG to 450 MCM TurboFlex cable features high strand count rope lay inner conductors made with tin-, nickel- and silver-plated copper. TurboFlex is jacketed with Glenair's unique Duraelectric™ compound that provides outstanding flexibility and resistance to environmental and chemical exposure. Duraelectric is also low smoke, zero halogen.

Long life and performance are critical in power distribution applications. TurboFlex, with its flexible conductors and durable jacket delivers both.



◀ Duraelectric™ is the high-performance TurboFlex® jacketing material perfectly suited for immersion, chemical or caustic fluid exposure, temperature extremes, UV radiation and more—available in a broad range of colors including safety orange



Ultra flexible rope lay construction



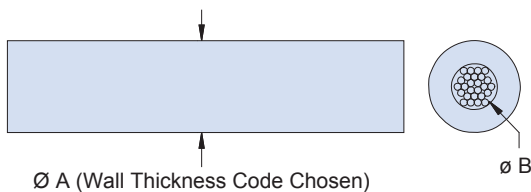
Available in a broad range of gauges, 16 AWG to 450 MCM



Many sizes In-stock and available for immediate, same-day shipment. No minimums!

How to Order • Dimensions • Voltage rating data Duralectric™ jacketing specifications and colors

| How to Order TurboFlex® | | | | | |
|--------------------------|--|------|----|----|----|
| Sample Part Number | 961 | -001 | -T | -G | -2 |
| Basic No. | TurboFlex with Duralectric Jacket | | | | |
| Wall Thickness | -001 = .125" -002 = .093" -003 = .062" -004 = .032" | | | | |
| Conductor Material | -T = Tin/Copper (-60 -150°C) -S = Silver/Copper (-60 -200°C) -N = Nickel/Copper (-60 -260°C) | | | | |
| Wire Size (See Table I) | See Table I: -001 = G, H, I, J, K, L -002 = D, E, F, G, H, I, J, K, L -003 = A, B, C, D, E, F, G, H -004 = R, S, A, B, C, D, E, F, G | | | | |
| Duralectric Jacket Color | See Table II | | | | |



| Voltage Ratings | |
|-----------------|----------|
| 961-004 | 2000 VAC |
| 961-003 | 3000 VAC |
| 961-002 | 3500 VAC |
| 961-001 | 4500 VAC |

| Table I: TurboFlex Wire Size, Dimensions, DC Resistance and Ampacity Ratings | | | | | | | | | |
|--|---------|----------------------|---------------|--------------|--|------------|---------------|------------------------------|-------------------|
| AWG Code | AWG | Strand / Count / AWG | Cir Mil (nom) | Ø B in. (mm) | DC Resistance @ 20°C (Ohms / 1000 ft.) | | | Ampacity (Amps) 40°C Ambient | |
| | | | | | Nickel Copper | Tin Copper | Silver Copper | Nickel Copper | Tin/Silver Copper |
| R | 16 | 7 X 15 X 36 | 2625 | .063 (1.60) | 4.5510 | 4.5930 | 4.2780 | 40 | 36 |
| S | 14 | 7 X 24 X 36 | 4200 | .080 (2.03) | 2.8450 | 2.8710 | 2.6740 | 59 | 54 |
| A | 12 | 7 X 37/36 | 6475 | .099 (2.51) | 1.8450 | 1.8620 | 1.7340 | 78 | 68 |
| B | 10 | 7 X 59/36 | 10325 | .126 (3.20) | 1.1570 | 1.1680 | 1.0880 | 107 | 90 |
| C | 8 | 7 X 95/36 | 16625 | .159 (4.04) | .7188 | .7252 | .6755 | 142 | 124 |
| D | 6 | 7 X 150/36 | 26250 | .200 (5.08) | .4551 | .4593 | .4278 | 205 | 165 |
| E | 4 | 7 X 7 X 34/36 | 41650 | .271 (6.88) | .2979 | .3006 | .2800 | 278 | 220 |
| F | 2 | 7 X 7 X 54/36 | 66150 | .342 (8.69) | .1876 | .1893 | .1763 | 381 | 293 |
| G | 1/0 | 7 X 7 X 86/36 | 105350 | .431 (10.95) | .1178 | .1188 | .1107 | 532 | 399 |
| H | 2/0 | 7 X 7 X 108/36 | 132300 | .483 (12.27) | .0938 | .0946 | .0882 | 591 | 467 |
| I | 3/0 | 19 X 7 X 51/36 | 169575 | .547 (13.89) | .0738 | .0745 | .0694 | 708 | 546 |
| J | 4/0 | 19 X 7 X 64/36 | 212800 | .613 (15.57) | .0588 | .0594 | .0553 | 830 | 629 |
| K | 250 MCM | 19 X 7 X 75/36 | 249375 | .663 (16.84) | .0479 | .0483 | .0450 | 910 | 705 |
| L | 450 MCM | 19 X 7 X 135/36 | 448875 | .890 (22.61) | .0266 | .0263 | .0250 | 1320 | 1020 |

NOTES

1. Bend radius is 3X the outer diameter
2. Cable will be marked with "GLENAIR TURBOFLEX", wire gauge, part number, CAGE code.
3. Jacket thickness tolerance is $\pm 10\%$ ($\pm .005$ for 961-004)

How to Order • Dimensions • Voltage rating data
Duralectric™ jacketing specifications and colors

961-001 TURBOFLEX, .125 WALL, 4500 VAC

| 961-001 Wire Weight and Outer Diameter | | | |
|--|----------------------------|---------------|--------------------------------|
| AWG Code | Weight lbs/1000 ft. (nom.) | Ø A In. (mm) | Jacket wall thickness In. (mm) |
| G | 494.50 | .681 (17.30) | .125 (3.18) |
| H | 600.00 | .733 (18.62) | |
| I | 749.50 | .797 (20.24) | |
| J | 916.00 | .863 (21.92) | |
| K | 1055.60 | .913 (23.19) | |
| L | 1806.20 | 1.140 (28.96) | |

961-002 TURBOFLEX, .093 WALL, 3500 VAC

| 961-002 Wire Weight and Outer Diameter | | | |
|--|----------------------------|---------------|--------------------------------|
| AWG Code | Weight lbs/1000 ft. (nom.) | Ø A In. (mm) | Jacket wall thickness In. (mm) |
| D | 138.40 | .386 (9.80) | .093 (2.36) |
| E | 207.40 | .457 (11.61) | |
| F | 304.60 | .528 (13.41) | |
| G | 455.80 | .617 (15.67) | |
| H | 558.20 | .649 (16.48) | |
| I | 703.90 | .733 (18.62) | |
| J | 866.50 | .799 (20.29) | |
| K | 1003.10 | .849 (21.56) | |
| L | 1740.10 | 1.076 (27.33) | |

961-003 TURBOFLEX, .062 WALL, 3000 VAC

| 961-003 Wire Weight and Outer Diameter | | | |
|--|----------------------------|--------------|--------------------------------|
| AWG Code | Weight lbs/1000 ft. (nom.) | Ø A In. (mm) | Jacket wall thickness In. (mm) |
| A | 40.20 | .223 (5.66) | .062 (1.57) |
| B | 56.20 | .250 (6.35) | |
| C | 81.00 | .283 (7.19) | |
| D | 117.90 | .324 (8.23) | |
| E | 182.80 | .395 (10.03) | |
| F | 275.90 | .466 (11.84) | |
| G | 422.00 | .555 (14.10) | |
| H | 521.40 | .607 (15.42) | |

961-004 TURBOFLEX, .032 WALL, 2000 VAC

| 961-004 Wire Weight and Outer Diameter | | | |
|--|----------------------------|--------------|--------------------------------|
| AWG Code | Weight lbs/1000 ft. (nom.) | Ø A In. (mm) | Jacket wall thickness In. (mm) |
| R | 14.40 | .127 (3.23) | .032 (.81) |
| S | 20.70 | .144 (3.66) | |
| A | 29.40 | .163 (4.14) | |
| B | 43.90 | .190 (4.83) | |
| C | 66.90 | .223 (5.66) | |
| D | 101.40 | .264 (6.71) | |
| E | 162.40 | .335 (8.51) | |
| F | 251.60 | .406 (10.31) | |
| G | 392.70 | .495 (12.57) | |

| Jacketing Options | | |
|--|------------|---------------------|
| Weatherproof, halogen free, flame resistant, functional to 260°C | | |
| 0 | Black | Fed-Std-595C #17038 |
| 1 | Desert Tan | Fed-Std-595C #33446 |
| 2 | Red | Fed-Std-595C #11120 |
| 3 | Orange | Fed-Std-595C #12300 |
| 4 | Yellow | Fed-Std-595C #13591 |
| 5 | Green | Fed-Std-595C #14193 |
| 6 | Blue | Fed-Std-595C #15125 |
| 7 | Violet | Fed-Std-595C #17142 |
| 8 | Gray | Fed-Std-595C #26270 |
| 9 | White | Fed-Std-595C #17875 |
| Consult factory for other specific Fed Std colors | | |

| | |
|---------------------|-----------|
| Abrasion Resistance | Good |
| Wear Resistance | Good |
| Flame Resistance | Excellent |
| Sunlight Resistance | Excellent |
| Flex Resistance | Excellent |

DURALECTRIC™ ENVIRONMENTAL PERFORMANCE

Temperature rating: -60°C to 260°C

Halogen free per IEC 60614-1

Accelerated weathering and simulated solar radiation at ground level per IEC 60068-2-5; 56 Days exposure, suitable for greater than 50 years of service in direct sunlight

Flame resistant per IEC 60614-1

Flame resistant per UL 1685, section 12 (FT4/IEEE120), vertical-tray fire-propagation and smoke release test

Flame resistant per FAR 25.853 (A) amendment 25-116, appendix Fpart I (A) (1) (i), 60 second vertical burn test

Limiting oxygen index of 45 per ISO 4589-2:1999

Low smoke per NES 711, smoke density of 11.75
Smoke density class F1 per NF F 16-101 IAW DIN EN 60695-2-11:2011

Low smoke toxicity per NES 713, tested value of 1.9

Fungus rating of 0 per MIL-STD-810g method 508.5. Does not support fungal growth

ASTM D624, die B tear strength, 150 pounds per inch minimum on jacket material

Low outgassing per ASTM e595 after post curing, TML .06%, CVM .006%, WVR .02%

Resistant to fluids per MIL-STD-810F, method 504

JP-8 per MIL-DTL-83133 (NATO type 34)

MIL-H-5606 hydraulic fluid

MIL-PRF-23699 lubricating oil

MIL-C-85570 cleaner

TT-I-735 Isopropyl alcohol

AMS 1432 potassium acetate deicing/anti-icing fluid

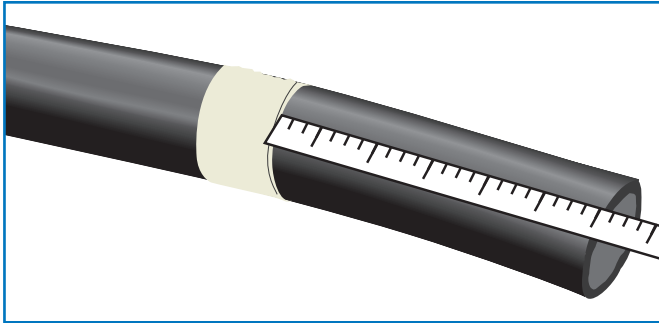
MIL-C-87252 coolant

Amerex AFF fire extinguishing foam

Insulation stripping procedure

Step 1

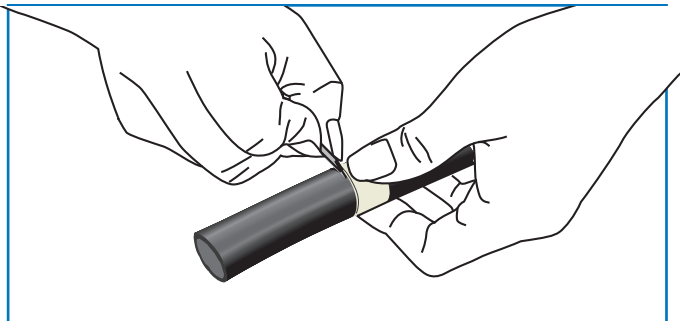
Using scale mark required length of insulation to be removed. Wrap tape around diameter of wire to provide a visual guide to indicate where incisions are to be made.



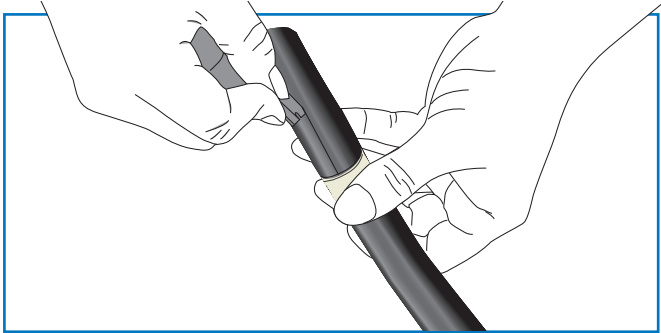
Step 2

Note: when scoring insulation be sure not to cut completely through material to protect wire strands from sustaining damage.

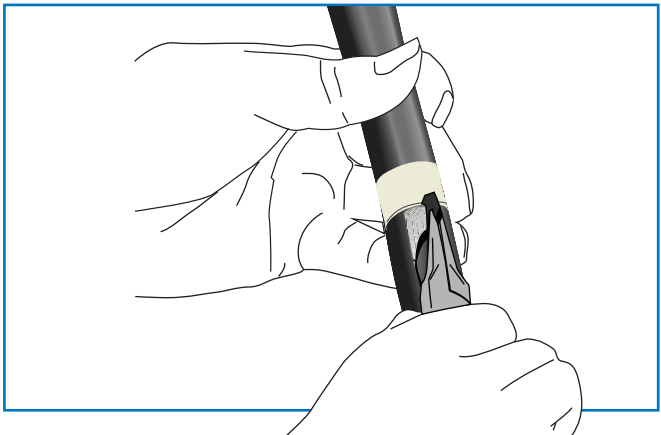
A) Make incision along guide, being sure not to cut completely through insulator. Once the initial incision is made continue the process around the circumference of the wire.



B) Proceed to score insulation lengthwise along the portion to be removed.

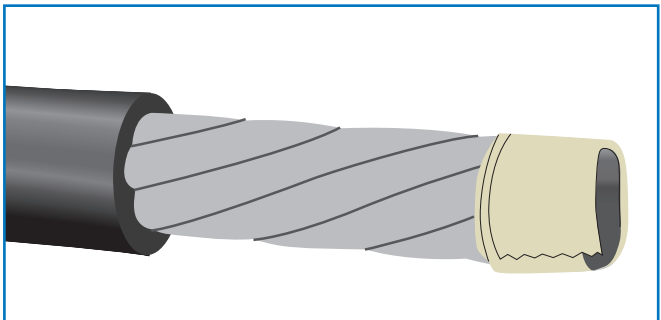


C) Beginning at the end of the wire, remove the scored insulation using needle nose pliers to gently pull insulation away, while working down the lengthwise incision and continue removing insulation from around diameter of wire. Once insulation is removed wire is ready for use.



Step 3

Wrap exposed wire strands with tape to prevent fraying.



Notes on wire crimping

Since wire gauges are defined by the cross sectional area of the metal conductor, please note the outer diameter of TurboFlex wires may be slightly larger than other wires of the same gauge. Consult the Glenair TurboFlex drawing (961-001 thru -004) for wire dimensions.

Note 1

Select appropriate crimp tool and die set as recommended by contact manufacturer. For optimal results, Glenair recommends the use of an indenting-type crimp die over a hex-style crimper.

Note 2

Always follow contact manufacturer specifications for minimum and maximum wire dimensions for the given contact size.

Note 3

Check TurboFlex wire-to-contact fit. The wire should fit freely but snugly into the crimp barrel. Never trim away individual strands to force-fit wire into a too-small crimp barrel.

Note 4

When crimping, hold the crimp die closed for a minimum of 8 seconds to allow adequate dwell time for wire strand deformation. Too-rapid crimping can result in a mechanically weak crimp joint.



TURBOFLEX CABLE ASSEMBLY SHOWCASE



This multibranch TurboFlex power and data interconnect assembly for a ruggedized defense application demonstrates the remarkable flexibility and minimal bend radius of large form-factor (up to 450 MCM) TurboFlex cable. Example shown features UV- and chemical-resistant Duraelectric jacketing in FED-STD 595C Safety Orange.