

## ROUND, CONDUCTOR PROPERTIES

Copper & Aluminum

WINDING TENSIONS

| WHOLE AWG SIZE | COPPER                              | ALUMINUM                            | WHOLE AWG SIZE | COPPER                               | ALUMINUM                             |
|----------------|-------------------------------------|-------------------------------------|----------------|--------------------------------------|--------------------------------------|
|                | Recommended Maximum* Tension (Lbs.) | Recommended Maximum* Tension (Lbs.) |                | Recommended Maximum* Tension (Grams) | Recommended Maximum* Tension (Grams) |
| 4              | 393.4                               | 209.8                               | 29             | 546                                  | 291                                  |
| 5              | 311.8                               | 166.3                               | 30             | 427                                  | 228                                  |
| 6              | 247.3                               | 131.9                               | 31             | 339                                  | ***                                  |
| 7              | 196.2                               | 104.7                               | 32             | 274                                  | ***                                  |
| 8              | 155.6                               | 83.0                                | 33             | 216                                  | ***                                  |
| 9              | 123.3                               | 65.8                                | 34             | 170                                  | ***                                  |
| 10             | 97.9                                | 52.2                                | 35             | 134                                  | ***                                  |
| 11             | 77.5                                | 41.4                                | 36             | 107                                  | ***                                  |
| 12             | 61.5                                | 32.8                                | 37             | 87                                   | ***                                  |
| 13             | 48.9                                | 26.1                                | 38             | 68                                   | ***                                  |
| 14             | 38.7                                | 20.7                                | 39             | 52                                   | ***                                  |
| 15             | 30.7                                | 16.4                                | 40             | 41                                   | ***                                  |
| 16             | 24.3                                | 13.0                                | 41             | 34                                   | ***                                  |
| 17             | 19.3                                | 10.3                                | 42             | 27                                   | ***                                  |
| 18             | 15.3                                | 8.2                                 | 43             | 21                                   | ***                                  |
| 19             | 12.1                                | 6.5                                 | 44             | 17                                   | ***                                  |
| 20             | 9.7                                 | 5.1                                 | 45             | 13                                   | ***                                  |
| 21             | 7.7                                 | 4.1                                 | 46             | 11                                   | ***                                  |
| 22             | 6.0                                 | 3.2                                 |                |                                      |                                      |
| 23             | 4.8                                 | 2.6                                 |                |                                      |                                      |
| 24             | 3.8                                 | 2.0                                 |                |                                      |                                      |
| 25             | 3.0                                 | 731 Grams                           |                |                                      |                                      |
| 26             | 2.4                                 | 576 Grams                           |                |                                      |                                      |
| 27             | 1.9                                 | 460 Grams                           |                |                                      |                                      |
| 28             | 1.5                                 | 362 Grams                           |                |                                      |                                      |

This table contains the maximum recommended winding tensions and is offered as a guide to establishing effective winding tensions. Use the minimum winding tension that produces a good winding. The type of winder, payoff device, and type of coil will vary the tensions used. Some minor variations in the softness of the wire from one lot to another may also dictate minor adjustments.

Note: Start-up acceleration surge can produce tensions well in excess of running tensions and need to be taken into consideration.

\* Maximum recommended tensions are based upon 12,000 p.s.i. for copper and 6,400 p.s.i. for aluminum. The units are listed in Lbs. unless indicated by "Grams".