Link to the future the 50 years history.

~ NL wire (New Lead) of KANZACC ~

Since its inception, for 50 years, KANZACC has been pouring a passion for the plating and the wire processing, and by maximizing the benefit of the integrated production of our plant, we have been providing the high-function wires in various fields such as social infrastructure, electronics, automobile, medical and the other fields. We continue to walk towards the future and continue our challenge in adding new features to the wire as well as to meet the customer’s diverse needs.

Features of NL wire (New Lead)

1. A Wide variety of high-performance plated films can be provided.
   - A wide variety of plating including tin, nickel, silver and others can be provided.
   - The plating film is uniform in the circumferential direction at any thickness.
   - It is possible for plating to the various substrate such as copper alloy, iron alloy, aluminum wire and fiber depending on the application.

   ![The surface of the Tin-plated copper wire.](image)

2. Both fining and coating insulation film for plating wire are possible.
   - The fining copper or aluminum wire which has various type of plating can be provided as less than 100μm of diameter.
   - It is possible that the aluminum wire is processed to fining until 40μm.
     * In case of copper wire, it is to 30μm.
   - In addition to the variety of enamel coating, the high-performance and low-cost film can be provided.

3. The integrated production from plating-drawing-stranding to sheathing, makes possible to provide high-performance cables.
   - The wide range of cables which are processed from the ultra fining of micron-diameter to the power current of millimeter-diameter can be provided.
   - The conductor can be applied as either single wire or stranded plurality collected wires with required size.
   - The various insulation such as PVC, polyethylene, fluorine and others can be sheathed for either heat resistance or environmental consideration.
**Next-Generation High-Function NL wire (New Lead) “KANZACC-DYNAMIC series”**

### ALC series ~ Light weight tin-plated aluminum wire solderable regardless of the cut position ~

**Tin plated heat resistant aluminum cable “ALC”**

ALC is an insulated cable using an aluminum conductor which is subjected to tin plating over the entire length and the entire circumference.

- Compared with a copper wire, ALC provides a significant weight reduction.
- Corrosion (oxidation and galvanic corrosion) is reduced, then the reliability of the terminal connection is significantly improved.
- By adopting the heat resistant insulation, the cable size can be reduced to the same size of a general purpose copper cable.
- Cables from the small diameter to the large diameter can be provided.

#### Comparison of ALC and the general purpose copper wire

<table>
<thead>
<tr>
<th></th>
<th>Copper cable</th>
<th>ALC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>100</td>
<td>41.56</td>
</tr>
<tr>
<td>Ampacity</td>
<td>100</td>
<td>122</td>
</tr>
</tbody>
</table>

*The comparison is based on our KIV (600V vinyl insulated cable for electric equipment) typical value.*

### Tin plated aluminum magnet wire “ALC-fine”

ALC-fine is the light weight magnet wire subjected to insulating coating on a tin plated aluminum wire.

- The fine aluminum wire, 40μm of diameter in minimum, can be provided.
- Various insulation coating such as heat resistant grade, self-fusion and others can be provided.

**Applications:** Automotive cable, Robot cable, Equipment cable etc.

### Tin Plated Aluminum Litz Wire “ALC-fine · Litz77”

ALC-fine · Litz77 is the Litz wire made of ALC-fine strands.

- Multi core conductor suppresses AC resistance increase due to the skin effect.
- Easy soldering characteristics solves, at once, the major issue of the Litz wire on the terminal connection.

**Applications:** Electric vehicle coil, High frequency equipment, etc.

### High strength · High flexibility fiber cable “COFT”

COFT is the cable using the fibers subjected to various type of plating as a conductor.

- Light weight and high strength fiber, such as aramide fiber and carbon fiber, is used and the cable is able to withstand the stressful harsh environment.
- Excellent repetitive bending characteristics make the ideal cable for wiring of the moving portion.
- Choice of the plating film, such as copper, silver or tin, is possible, depending on the application.

**Applications:** Robot cable, Medical equipment, etc.
Plating possible material and dimension

<table>
<thead>
<tr>
<th>Material type</th>
<th>Plating possible alloy type, etc.</th>
<th>Standard diameter (mm)</th>
<th>Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper, Copper alloy</td>
<td>Brass, Phosphor bronze, other alloy</td>
<td>0.03~2.0</td>
<td>Round/Flat wire</td>
</tr>
<tr>
<td>Steel, Steel-Nickel</td>
<td>30-52% Nickel alloy wire, Kovar, etc.</td>
<td>0.08~1.6</td>
<td></td>
</tr>
<tr>
<td>Stainless steel</td>
<td>SUS304, 430, etc.</td>
<td>0.04~2.0</td>
<td></td>
</tr>
<tr>
<td>Aluminum</td>
<td>Pure aluminum, alloy wire (1000-7000 series)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber</td>
<td>Aramid fiber, Carbon fiber, etc.</td>
<td>Consult each case</td>
<td></td>
</tr>
</tbody>
</table>

Applicable plating type • processing content

<table>
<thead>
<tr>
<th>Item</th>
<th>Plating type</th>
<th>Standard film thickness (μm)</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plating type</td>
<td>Tin</td>
<td>1-10</td>
<td>Reflow treatment or surface smoothing treatment can be selected.</td>
</tr>
<tr>
<td></td>
<td>Silver</td>
<td>1-10</td>
<td>Film hardness and the gross can be selected according to the application.</td>
</tr>
<tr>
<td></td>
<td>Copper</td>
<td>1-20</td>
<td>Film is highly dense and ductile.</td>
</tr>
<tr>
<td></td>
<td>Nickel</td>
<td>1-30</td>
<td>Inner stress is low and high in workability.</td>
</tr>
</tbody>
</table>

Designation of the NL wire

Example)
- Nickel plated oxygen-free copper wire 0.3mm: NL-C1020-N 0.3mm
- Tin plated brass wire strands 7/0.3mm: NL-C2800-T 7/0.3mm
- Copper plated aluminum wire strands 100mm²: NL-ALC-C 100mm²
- Tin plated aluminum Litz wire 144/0.18mm: NL-ALC-fine • Litz77 144/0.18mm
- Copper plated fiber cable 6000d: NL-COFT-C 6000d