



Exel Plating

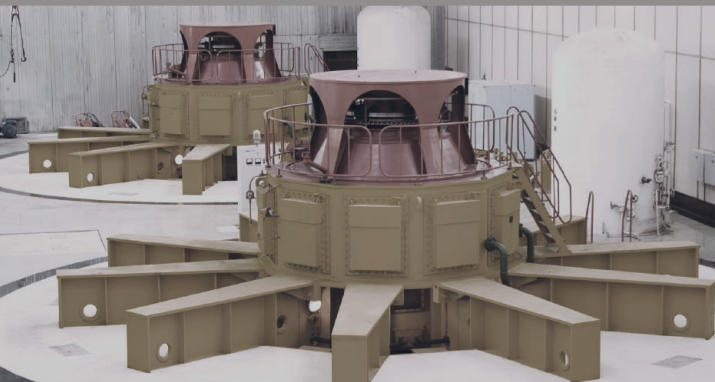
ELECTROPLATING AND METAL FINISHING

SPECIALIZING IN THE ELECTRICAL, ELECTRONIC
AND TELECOMMUNICATIONS INDUSTRIES

A DIVISION OF EXEL INTERNATIONAL



ELECTROPLATING AND METAL FINISHING





From technical expertise and meticulous production to quality assurance via precision technology, Exel Plating, an ISO 9001:2015-certified company, provides high-end finishing and personalized customer service.

With more than 50 years of cumulative experience in plating, our team's leadership is supported by a collaborative ensemble of seasoned technicians and chemists. Plating options include tin, silver, nickel, copper and gold.

ABOUT EXEL INTERNATIONAL

Active in the energy sector for more than 25 years, Exel International has secured a leading role in electrical component manufacturing. Now one of the major companies in the industry, it offers a full range of high-performance products developed and manufactured using highly sophisticated technologies of its own design. At the helm of the company are Kevin Healy and Toan Tran, two renowned and passionate professionals who drive Exel International to progress continuously with success.

PLATING PROCESSES

BARREL PLATING

The barrel plating process is the ideal economic solution when electroplating relatively small and durable manufactured parts. Our extensive range of barrel sizes will easily accommodate a wide range of parts in small or multiple quantities. We do not recommend this process for parts that have a tendency to nest or mesh together.

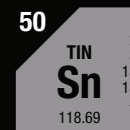
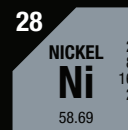
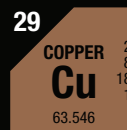
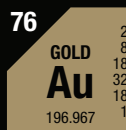
RACK PLATING

The rack plating process allows great flexibility of part selection and shape. Each part is attached to a coated metal rack by our highly skilled operatives, using spring fingers, wire or screws, depending on the size, configuration and weight of each piece. The racks are then passed through one of our numerous lines, allowing a very wide selection of finishes, including the masking or plugging of certain areas of the part for selective plating.

BRUSH PLATING

A highly specialized process, perfected by Exel Plating, provides plating to parts that by their size, shape or complicated nature are not appropriate for the barrel or rack process.

QUALITY CONTROL



EXEL PLATING has an unwavering commitment to the quality and accuracy of all our finishing operations. We have ongoing training programs with all our employees, and encourage them to contribute to the continuous search for better methods and processes.

As a registered ISO 9001:2015 organization, we are mandated to run a sophisticated system of tracking and reporting, ensuring timely delivery of finished product, and complete control over customer parts throughout the whole plating process. We have invested substantially in testing equipment as well as an onsite laboratory, to maintain and increase our quality capability. Inspection methods and techniques employed include microscopic x-ray fluorescence and Kocour.

Our laboratory provides the vital analytical service of ensuring that all the electroplating solutions we use are maintained within ideal operating parameters. Regular sample testing and evaluation contributes to the quality of every job that passes through our door. The ultimate quality checkers are the customers that continue to use our facility as their preferred source of plating.

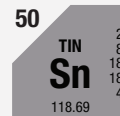


PROCESSES



BRIGHT/DULL TIN / ASTM B545 / MIL-T-10727

Color is gray-white in a plated condition. Has very high luster in fused condition. Soft, but very ductile. Corrosion resistance is good. (Coated items should meet 24 hours 5% salt-spray requirement). Solderability is excellent. Tin is not good for low-temperature applications (changes structure and loses adhesion when exposed to temperature of -40°C). If a bright finish is desired instead of fused tin, specify Bright Tin plate. Thickness can exceed that of used tin and deposit shows excellent corrosion resistance and solderability.



AS SPECIFIED ON DRAWING.
THICKNESS GUIDE (NOT PART OF SPEC.)

ASTM B545

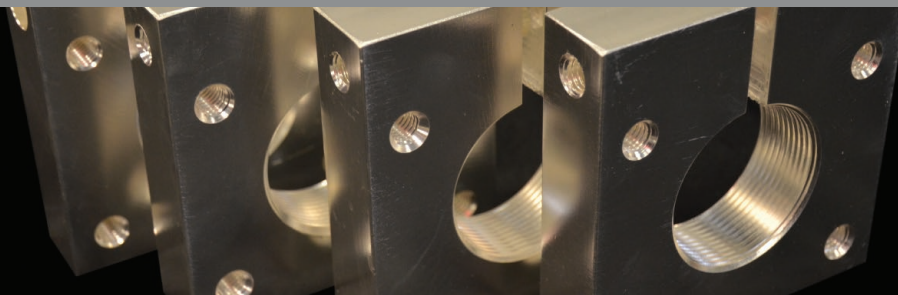
- Class A** – 0.0001"
- Class B** – 0.0002"
- Class C** – 0.000320"
- Class D** – 0.0006" - 0.0008"
- Class E** – 0.0012"
- Class F** – 0.000060"

MIL-T-10727

- Class 1** – Electrodeposited
- Class 2** – Hot dipped

- .0001-.00025" Flash for soldering
- .0002-.0004" To prevent galling and seizing
- .0003" min. Where corrosion resistance is important
- .0002-.0006" To prevent formation of case during nitriding

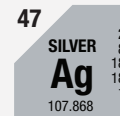
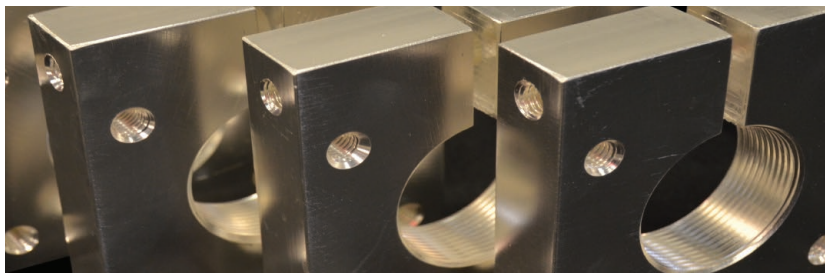
PROCESSES



SILVER / ASTM B700 / QQ-S-365

White matte to very bright in appearance. Good corrosion resistance depending on base metal. Will tarnish easily. Hardness varies from about 90 Brinell to about 135 Brinell depending on process and plating conditions. Solderability is excellent but decreases with age. Best electrical conductor. Has excellent lubricity and smear characteristics for anti-galling uses on static seals, bushings, etc.

0.0005" min. unless otherwise specified. Increased use in both decorative and engineering fields, including electrical and electronic fields.



UNLESS OTHERWISE SPECIFIED

ASTM B700

Grade B – Bright

Grade D – Semi-bright

Class N – Without anti-tarnish

Class S – With anti-tarnish

QQ-S-365

Type I – Matte

Type II – Semi-bright

Type III – Bright

Grade A – Chromate post-treatment
to improve tarnish resistance

Grade B – No chromate treatment

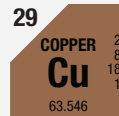
PROCESSES

COPPER / MIL-C-14550

Copper in color and matte to a very shiny finish. Good corrosion resistance when used as undercoat. A number of copper processes are available, each designed for a specific purpose.

Brightness (to eliminate the need for buffing); High speed (for electroforming); Fine grain (to prevent case hardening); etc.

Stress relief steel parts cold straightened or suspected of having residual tensile stresses (350°C +/- 25°C – 3 hours). Parts with tensile strength over 210 ksi bake 24 hours within 4 hours of plating.



UNLESS OTHERWISE SPECIFIED

MIL-C-14550

Class 0 – .001 - .005"

For heat treatment stop-off

Class 1 – .001"

For carburizing and decarburizing shield, also plated through printed circuit boards

Class 2 – .0005"

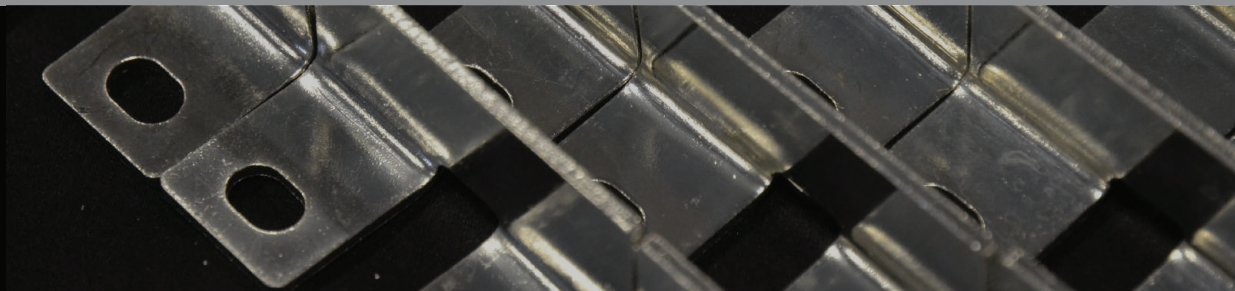
As an undercoat for nickel and other plating

Class 3 – .0002"

To prevent basis metal migration into tin (prevents poisoning solderability)

Class 4 – .0001"

PROCESSES



ELECTROLESS NICKEL / MIL-C-26074 / ASTM B733

Similar to stainless steel in color. Plates uniformly in recesses and cavities (does not build up on edges). Corrosion resistance is good for coatings of over .001" thickness. Electroless nickel is used extensively in salvage of mis-machined parts. Also, for inside dimensions and irregular shapes (where assembly tolerances need uniformity provided by "electroless" process).

NICKEL / QQ-N-290A

There is a nickel finish for almost any need. Nickel can be deposited soft or hard-dull or bright, depending on process used and conditions employed in plating. Thus, hardness can range from 150-500 Vickers. Can be similar to stainless steel in color, or can be a dull gray or light gray (almost white) color. Corrosion resistance is a function of thickness. Has a low coefficient of thermal expansion – is magnetic. All steel parts having a hardness of Rc-40 or greater require a post bake at 350°F for 3 hours.

Total thickness of copper and nickel

NOTE: All steel parts having strength of 220,000 or greater shall not be nickel plated without specific approval of procuring agency.

28

NICKEL
Ni
58.69

2
8
16
2

UNLESS OTHERWISE SPECIFIED

MIL-C-26074

Class 1 – As coated

Class 2 – Steel, copper, nickel, cobalt titanium-based alloys and any basis metal not adversely affected by heating as specified

Class 3 – Aluminum alloys non-heat-treatable, and beryllium alloys processed to improve adhesion of the nickel deposit

Class 4 – Aluminum alloy, heat treatable, processed to improve adhesion of the nickel deposit

Grade A – .001" min.

Grade B – .0005" min.

Grade C – .0015" min.

Class 1 – For corrosion protection

Grade A – .0016"

Grade B – .0012"

Grade C – .0010"

Grade D – .0008"

Grade E – .0006"

Grade F – .0004"

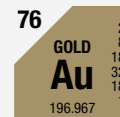
Grade G – .0002"

Class 2 – For application engineering

PROCESSES

GOLD / MIL-G-45204

Yellow to orange color depending on proprietary process used. Will range from matte to bright finish depending on basis metal. Good corrosion resistance and high tarnish resistance. Provides low contact resistance and is good conductor. Has excellent solderability. If the hardness grade for the gold coating is not specified, type 1 shall be furnished at hardness Grade B, type 2 at Grade C. For soldering, a thin high purified soft gold coating is preferred. A minimum thickness of 0.000050 inches and a maximum thickness of 0.00010 inches shall be plated.



UNLESS OTHERWISE SPECIFIED

MIL-G-45204

Type I – 99.7% gold min.

Grade B – 91-129 Knoop

Grade C – 130-200 Knoop

Grade D – 201 Knoop and over

Class 00 – .00002" min.

Class 0 – .00003" min.

Class 1 – .00005" min.

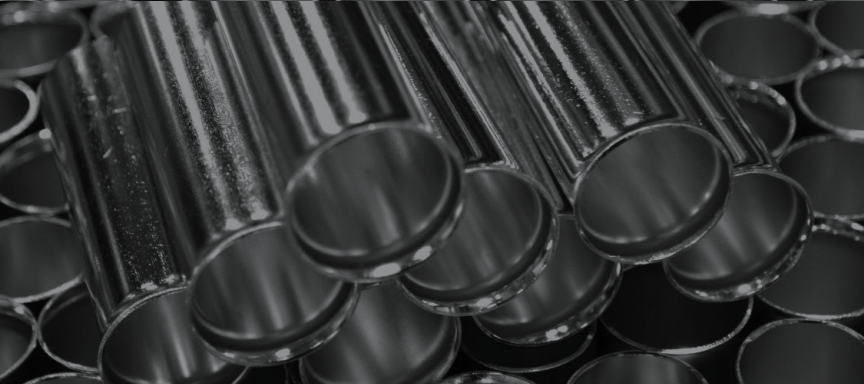
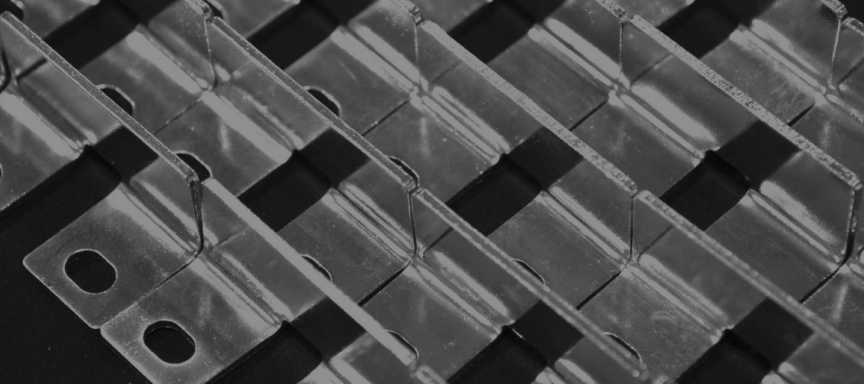
Class 2 – 00010" min.

Class 3 – 00020" min.

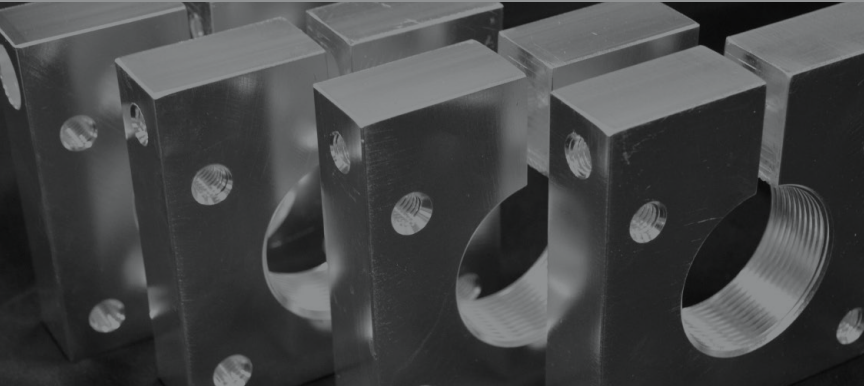
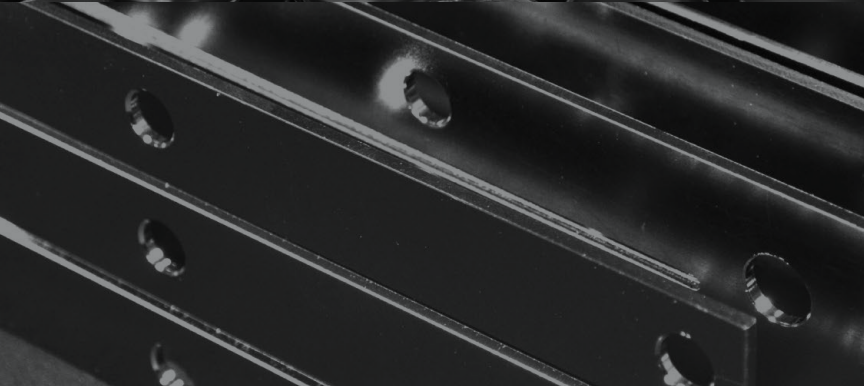
Class 4 – 00030" min.

Class 5 – 00050" min.

Class 6 – 00150" min.



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