

From Rough Layout to Finished Product

The following was designed to demonstrate how easy it is to work with MetalWorks.

Step One:

Quotation: Client either faxes or emails MetalWorks specifications and a rough layout of the nameplate, along with a good copy of any logos needed.

Step Two:

A quotations is worked up from the specifications supplied and faxed to the client within 48 - 72 hours.

Step Three:

After notification of acceptance of the quotation by the client, MetalWorks takes the rough layout and prepares the computer generated artwork. A copy of this artwork is then faxed back to the client for approval.

Step Four:

Client faxes the signed approval sheet and a purchase order to MetalWorks. If there are any changes needed MetalWorks will make the changes and fax them back to the client for approval.

Step Five:

MetalWorks will begin to process the job. Normal delivery on a job is ten to fifteen working days.

Step Six:

After the job is completed and inspected it is shipped to the client in a timely fashion.

And that is how easy it is to get high quality nameplates at a competitive price!

Below are definitions of terms used by MetalWorks.

Quotations:

To provide an accurate quote, you must supply MetalWorks with all the appropriate information. Including but not limited to: nameplate size, material thickness, finish, quantity, adhesive, protective lamination, corner radius, hole radius, color, serial numbers, etc.

Art Charge:

Every nameplate will require artwork to be produced in accordance with our production line. The art charge is a one time charge unless the artwork needs to be modified at a later date. The art charge includes the computerized layout of the nameplates and any negatives required.

Set-up Charge:

The set-up charge is a reoccurring charge each time a job is run. This charge covers time and materials to set-up the processors to produce the nameplates.

Shipping:

Unless specified, all jobs will be shipped by UPS ground, and billed to the client. UPS red, UPS blue & Federal Express are also available for shipping.

Delivery:

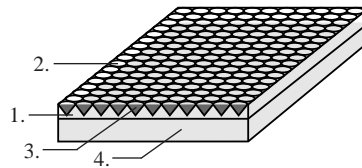
Normal delivery on a job is ten to fifteen working days after receipt of purchase order and/or approval of artwork. Delivery may vary depending on the quantity of nameplates ordered, and will be indicated on the quotation. RUSH DELIVERY is also available.

Material Specifications

Material: 1100 H-18 (full hard) series alloy, anodized aluminum with silver halide photographic compound imbedded in the anodic layer

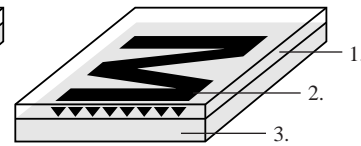
Graphics: Graphics are imbedded in the anodic layer and protected by its sapphire-hard surface that resists abrasion and chipping.

Anodizing: Meets to MIL-8625 Type II



Cross section of unsealed plate.

1. Anodized layer
2. Unsealed pores
3. Photo-sensitive material
4. Aluminum



Cross section of exposed and sealed plate.

1. Anodic layer
2. Sealed image beneath a clear layer of anodized aluminum
3. Aluminum

Product Group I, II, III & IV

| Finishes | Thickness | | | | | | | | |
|----------|-----------|------|------|------|------|------|------|------|------|
| | .003 | .005 | .008 | .012 | .020 | .032 | .063 | .090 | .125 |
| Satin | • | • | • | • | • | • | • | • | • |
| Matte | • | • | • | • | • | • | • | • | • |
| Gloss | | | | • | • | | | | |
| #4 | | | | | | • | • | • | • |

Product Group V

| Finish/Color | Thickness | | | | | |
|--------------|-----------|------|------|------|------|--|
| | .005 | .020 | .032 | .063 | .125 | |
| Satin | | | | | | |
| Black | • | • | • | • | • | |
| Red | • | • | • | | | |
| Lt. Blue | • | • | • | | | |
| Dk. Blue | • | • | • | | | |
| Green | • | • | • | | | |
| Brown | • | • | • | | | |
| Purple | • | • | • | | | |
| Clear | • | • | • | | | |

Satin Finish Midway between gloss and matte finish. Attractive in appearance, satin finish is widely specified for nameplate and panel front applications.

Matte Finish Offers a non-reflective surface with a dull or frosted appearance. Widely specified where non-glare surface is desirable.

Gloss Finish Ideal for nameplate and signage applications where a lustrous finish is desired.

#4 Finish A coarse, brushed finish with directional “scratch” lines. Resembles #4 stainless in appearance.

Product Groups

Group I

Black & silver images - One side image - One side anodized (Group I)

| Finish | Thickness | Background |
|--------|----------------|------------|
| Satin | .003 | Silver |
| Matte | .005 | |
| | .005 Dead Soft | |
| | .008 | |
| | .012 | |
| | .012 Dead Soft | |
| | .020 | |
| | .032 | |

Group II

Black & silver images - Two side image - Two side anodized (Group II)

| Finish | Thickness | Background |
|--------|-----------|------------|
| Satin | .020 | Silver |
| Matte | .032 | |
| #4 | .039 | |
| | .063 | |
| | .079 | |
| | .090 | |
| | .118 | |
| | .125 | |

Group III

Black images on silver or colored backgrounds - One side image - One side anodized (Plus)

| Finish | Thickness | Background |
|--------|-----------|------------|
| Satin | .012 | Silver |
| | .020 | Gold |
| | .032 | Copper |
| | | Yellow |
| | | Red |
| Gloss | .020 | Silver |
| | | Gold |
| | | Copper |
| | | Yellow |
| | | Red |

Product Groups

Group IV

Black & silver images - Barcode metal (SO354)

| Finish | Thickness | Background |
|--------|-----------|------------|
| Matte | .003 | Silver |
| | .005 | |
| | .008 | |
| | .012 | |
| | .020 | |
| | .032 | |
| | .063 | |
| | .125 | |

Group V

One color & silver images - Spot color - One side image (Ultracolor)

| Finish | Thickness | Background |
|--------|-----------|---|
| Satin | .005 | Black |
| | .020 | Red |
| | .032 | Blue |
| | .063 | Green |
| | .125 | Brown |
| | | Purple |
| | | Clear - Multi-color (Polycolor Dyes) |

Group VI

Multi-color & silver images - Close registration - One side image (Polycolor)

| Finish | Thickness | Background |
|--------|-----------|---------------------|
| Satin | .008 | Clear - Multi-color |
| Matte | .012 | (Polycolor Dyes) |
| | .020 | |
| | .032 | |

Available Dyes

Dyes

Background & selective coloring dyes

| Polycolor | Background | Dye-N-Seal |
|-------------|------------|-------------|
| Black | Gold | OSHA Purple |
| Yellow | Copper | OSHA Green |
| Green | Green | OSHA Orange |
| Light Green | Blue | OSHA Yellow |
| Blue | Red | |
| Dark Blue | Bronze | |
| Red | | |
| Orange | | |
| Gold | | |
| Purple | | |
| Brown | | |
| Cyan | | |
| Magenta | | |

Family of Products Characteristics

Durability

| Desired Result | Product Group | Durability Characteristic | | | | | |
|--|--|---------------------------|------|----------|---|---|----------|
| | | Exterior Exposure | Heat | Abrasion | Salt Spray as long as Galvanic Corrosion is avoided | Chemicals except in strong Acids or Alkalines | Solvents |
| Black & Silver Plates | Group I, II, III & IV <i>Image Intensified</i> | ■ | ■ | ■ | ■ | ■ | ■ |
| | Group I, II, III & IV <i>Not Image Intensified</i> | □ | □ | ■ | ■ | ■ | ■ |
| Adding Background Colors | Background Colors <i>Sunfast & Classic Gold</i> | ■ | ■ | ■ | ■ | ■ | ■ |
| | Background Colors <i>All Others</i> | N/R | N/R | ■ | ■ | ■ | ■ |
| Adding Selective Colors & One Color Plates | Group V | N/R | N/R | ■ | ■ | ■ | ■ |
| Multi-Color Plates | Group VI | N/R | N/R | ■ | ■ | ■ | ■ |

Durability Code

■ Excellent □ Good N/R Not Recommended

Product Durability Chart

Durability

| Specific Characteristic | Test Condition | Effect |
|---|--|---------------------------|
| Exterior Exposure | Black and silver image exceeds 400 hr. Weatherometer Test GG-P-455b, estimated equivalent to 20 year exposure. | No effect |
| Abrasion Resistance | Taber Abraser with CS17 wheel, a total of 1000 gm. load, 7000 cycles | Slight dulling of surface |
| Temperature Resistance | Black & silver image, intensified, 1000°F Black & silver image, standard, 750°F | No effect |
| Salt Spray | 5% at 95°F for 700 hrs. | No effect |
| Chemical Resistance | | |
| MIL-S-3136 111 Hydrocarbon Fluid | 1 hr. immersion | No effect |
| MIL-L-5161C-Turbine and jet engine fuel | 1 hr. immersion | No effect |
| JP-4 fuel | 72 hr. immersion | No effect |
| Kerosene | 12 hr. immersion | No effect |
| Skydrol (Hydraulic Fluid) | 24 hr. immersion, at both room temperature and boiling point | No effect |
| Methyl Ethyl Ketone (MEK) | 24 hr. immersion | No effect |
| Ethyl Acetate | 24 hr. immersion | No effect |
| Xylol | 72 hr. immersion | No effect |
| Heptane | 72 hr. immersion | No effect |
| Ethyl Alcohol | 72 hr. immersion | No effect |
| Ferric Chloride | 10% solution, 16 hr. immersion | No effect |
| Ammonium Hydroxide | 10% solution, 16 hr. immersion | Slight dulling |
| MIL-P-21563 soap solution | 16 hr. immersion | No effect |
| MIL-C-25179 AIN in heptane | 25% solution, 1 min. immersion (cleaning solution) | No effect |
| Sulfuric Acid | 10% solution, 24 hr. immersion | No effect |
| Phosphoric Acid | 1% solution, 12 hr. immersion | No effect |
| Nitric Acid | 3% solution, 72 hr. immersion | No effect |
| TSP (Trisodium Phosphate) | 1% solution, 40 hr. immersion | No effect |

Product Specification Chart

Government Specifications

Product Group I, II, III & IV

| Specification | Publication | Detail | Description |
|---------------|------------------------|---------------------------------------|--|
| GG-P-455b | Federal Specification | Type I, Grade A or B Classes 1 & 2 | Photosensitive anodized aluminum impregnated with silver compounds printable on one or two sides—all finishes and thicknesses. |
| MIL-P-15024D | Military Specification | Type H & G | Totally anodized aluminum with characters integrated into the anodized layer photographically using silver compounds. |
| MIL-P-514D | Military Specification | Composition C | Photosensitive aluminum plates, grade and class as specified in federal specification GGP-455b. |
| MIL-P-19834B | Military Specification | Type I or II, Style III or IV | Metalphoto .003" thick plates with the proper adhesive applied meets or exceeds all of the performance requirements of this specification. |
| MIL-P-6906B | Military Specification | Para. 3.2.6 Type I or II | Photosensitive aluminum plates, grade and class as specified in federal specification GGP-455b. |
| MIL-N-18307F | Military Specification | Type H | Totally anodized aluminum with characters integrated into the anodized layer photographically using silver compounds. |
| MIL-A-8625E | Military Specification | Type II | Performance characteristics of Metalphoto materials meet or exceed the performance characteristics of materials mfg'd under this spec. |

Government Specifications

Product Group V & VI

| Specification | Publication | Detail | Description |
|---------------|------------------------|---------------------------------------|--|
| GG-P-455b | Federal Specification | Type I, Grade A or B Classes 1 & 2 | Photosensitive anodized aluminum impregnated with silver compounds printable on one or two sides—all finishes and thicknesses. |
| MIL-P-15024D | Military Specification | Type H & G | Totally anodized aluminum with characters integrated into the anodized layer photographically using silver compounds. |
| MIL-A-8625E | Military Specification | Type II | Performance characteristics of Metalphoto materials meet or exceed the performance characteristics of materials mfg'd under this spec. |

Industrial Specifications

| UL Recognition | Description |
|--------------------------------|--|
| FILE #MH17767 June 1993 | Component - Marking and Labeling System Material Marking and Labeling material face stock Metalphoto photo-sensitive anodized aluminum. For producing finished labels when combined with a suitable laminating adhesive. |