



# Durable Labels & Nameplates

Technical Solutions Through Expertise and Partnership

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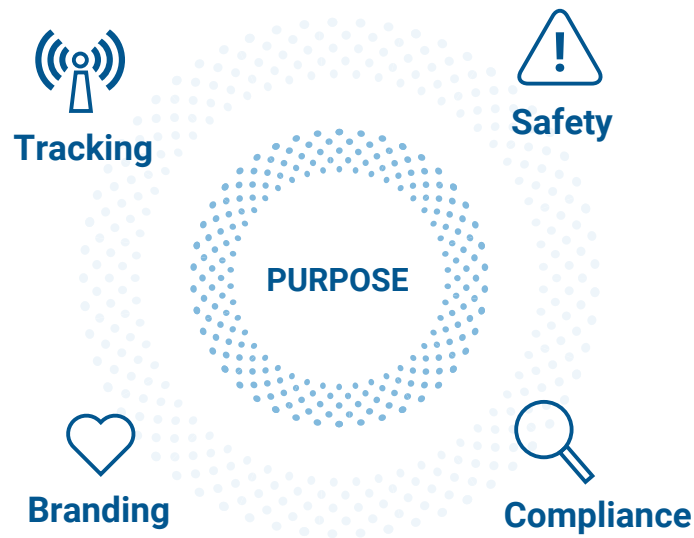
# Design Guide for Durable Labels and Nameplates

This guide is designed to help you think through the many variables involved in designing your next label or nameplate. It's a great starting point. And when you're ready to dive deeper, our knowledgeable and experienced team is here to help you find the best solution for your specific needs.

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# PURPOSE AND APPLICATION

Before designing, determine the purpose of the durable label or nameplate:



## **TRACKING**

Product name, brand, serial number, barcode.



## **SAFETY**

Operating procedures, warnings.



## **COMPLIANCE / SECURITY**

Regulatory or safety information (UL, CE, FCC, RoHS).



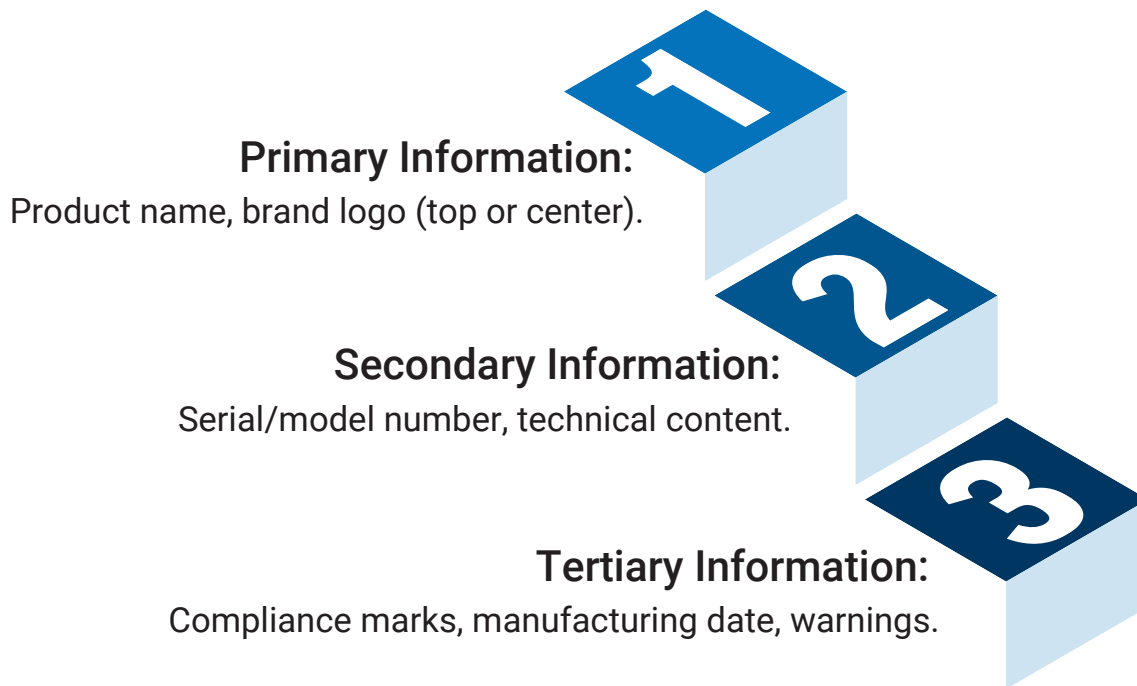
## **BRANDING/AESTHETIC**

Logos, custom design elements.

# DESIGN LAYOUT & COMPOSITION

A well-structured label or nameplate ensures information is easy to find and understand. From visual hierarchy to font choices and icon usage, thoughtful layout decisions make a big impact on usability and clarity.

## INFORMATIONAL ELEMENTS AND HIERARCHY



## TYPOGRAPHY **A A A**

- Use legible fonts (e.g., Arial, Helvetica).
- Font size should suit the viewing distance:
  - Minimum 6 pt for close-up items.
  - ≥12 pt for larger, industrial applications.
- Maintain sufficient contrast between text and background.
- Plan for sufficient spacing and sizing for elements like barcodes or borders.

## ICONS & GRAPHICS

- Use standardized safety icons (ANSI, ISO).
- Ensure icons are clear and universally understood



# MATERIAL & FINISHES

Material selection is one of the most important design decisions you'll make. Factors like durability, appearance, and application environment all influence which substrates, adhesives, and finishes will work best.

## SUBSTRATE TYPES

- > **Metals:**  
Aluminum, stainless steel – high durability up to 20+ years, but be aware of compatibility considerations such as galvanic corrosion.
- > **Plastics:**  
Polycarbonate, polyester, PVC – provides a range of options for aesthetics as well as durability and function.



## ADHESIVE TYPES

- > **Permanent Adhesive:**  
Industrial equipment, electronics.
- > **Removable Adhesive:**  
Temporary labeling, inventory tags.
- > **Specialty Adhesives:**  
High-temp, chemical-resistant, viscoelastic.

[Bonding & Adhesives Guide](#)

## FINISHING OPTIONS

- > **Laminates:**  
UV protection, abrasion resistance.
- > **Embossing/Debossing:**  
Tactile function as well as enhanced aesthetics.
- > **Anodizing (metal only):**  
Enhances corrosion and wear resistance.

# DURABILITY CONSIDERATIONS

Labels and nameplates often need to perform in harsh or variable environments. Understanding exposure to heat, chemicals, UV, and abrasion will help you choose materials and coatings that hold up over time.



## **Temperature Range:**

Select materials that tolerate specified range.



## **Chemical Resistance:**

Required in industrial/medical/aerospace settings.



## **UV Resistance**

For outdoor applications where direct sunlight is involved.



## **Abrasion Resistance:**

Consider overlaminates or hard coatings.


# COMPLIANCE & STANDARDS

Whether you're labeling for safety, traceability, or global distribution, staying compliant is essential. Knowing which regulations apply to your product helps avoid delays, fines, or product recalls.



## UL969:

Standard for Marking and Labeling Systems

[What are UL 969 recognized labeling constructions?](#)  
[learn more](#) 



## RoHS/REACH:

Environmental compliance.



## CE/FCC/ISO

As applicable to the product type and market.

# COLOR GUIDELINES

Color plays a role in both branding and communication. Whether you're following corporate standards, safety codes, or accessibility needs, consistent and high-contrast color choices improve readability and recognition.

- Follow branding guidelines if available.
- Use high-contrast combinations (black on white, white on red).
- Warning labels should follow applicable ISO or ANSI color standards:



Red - Danger



Orange- Warning



Yellow- Caution



Blue/Green- Safety Information





# MANUFACTURING CONSIDERATIONS

Designing with manufacturing in mind can save time and reduce rework. The right print method, material tolerance, and mounting option ensures smooth production and a high-quality final part.

## PRINTING METHODS



### Screen Printing:

Long-lasting, good for harsh environments.



### Digital Printing

High-resolution graphics and variable data.



### Thermal Transfer:

On-demand, best for barcodes and serialization.



### Laser Engraving

Permanent, durable for metals and plastics.

## TOLERANCES

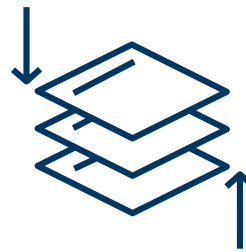
- > Account for tolerances

[Tolerance Guide](#)

- > Ensure safe spacing from holes, rivets, and edges. Melrose can help with DFM (design for manufacturability) to prevent issues and optimize for efficiency as projects ramp.

## MOUNTING OPTIONS

- > **Adhesive Backing**  
Most common.
- > **Rivets/Screws:**  
Heavy-duty or outdoor equipment.
- > **Magnetic Backing:**  
Temporary signage or ID plates.



# BARCODES, QR CODES AND SERIALIZATION

Tracking, traceability, and compliance often rely on data-rich markings. Proper code sizing, placement, and contrast are key to reliable scanning and long-term performance.

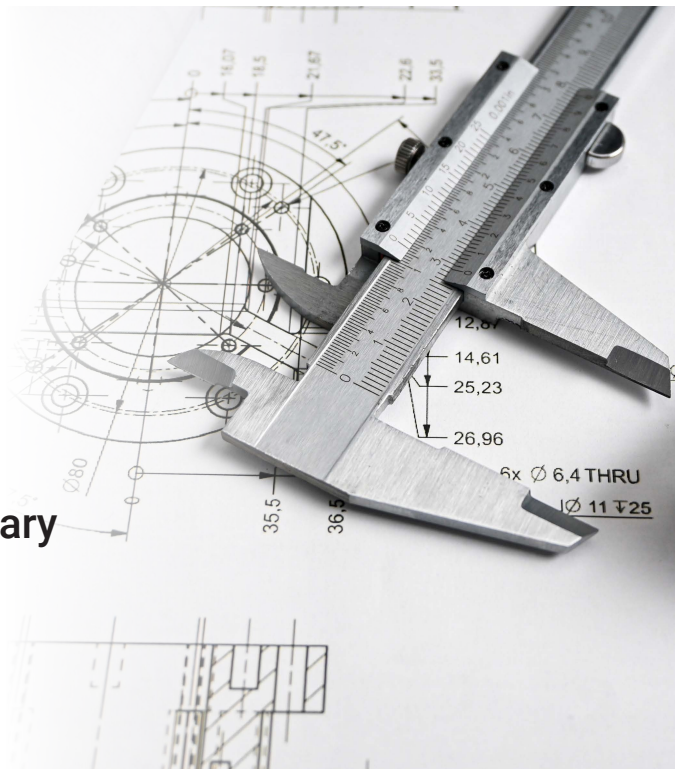
- Ensure codes are large enough and have enough quiet zone ( $\geq 4x$  module width).
- Use white/light backgrounds for scanning contrast.
- Test for readability under final conditions.
- Identify and specify any applicable standards, such as UDI for FDA compliance.



# QUALITY CONTROL & PROTOTYPING

Testing early helps prevent problems later. Prototyping and first-article inspections can confirm that your label or nameplate will meet expectations in the real world.

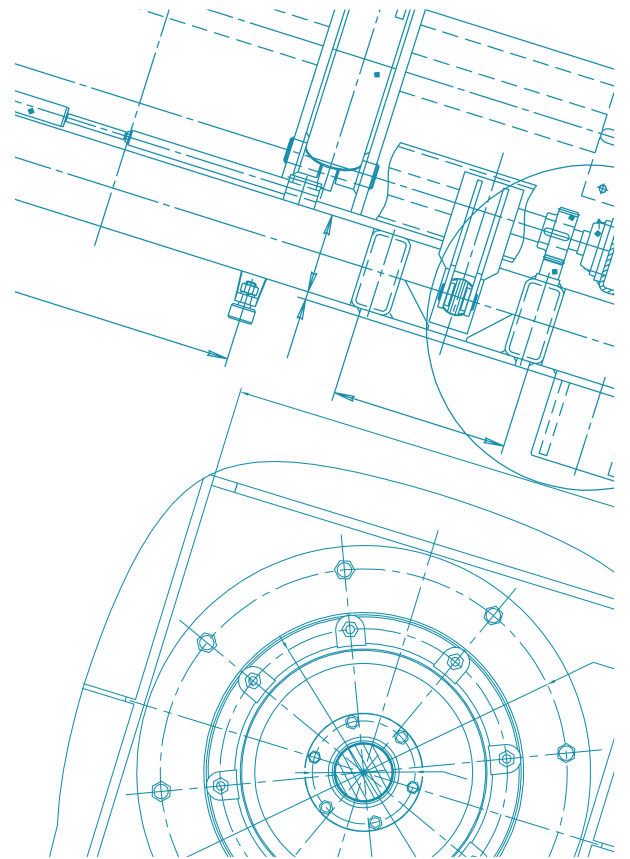
- Prototyping can be helpful for design review and approval.
- Conduct durability and readability tests under simulated end-use conditions.
- Utilize First Article Reporting as necessary to validate and document finished part results to specifications.



# DOCUMENTATION

Clear documentation ensures consistency, traceability, and compliance. A thorough spec sheet supports smooth reorders, manufacturing accuracy, and quality control processes.

- **Drawing with dimensions**
- **Material and adhesive specs**
- **Color references (Pantone or CMYK)**
- **Regulatory compliance notes**
- **Revision control/version history**



# INDUSTRIES

## Final Considerations for Industry Specific Label & Nameplate Designs:

### AEROSPACE

Custom Components for Aerospace & Defense

[Learn more](#) 

- › Document all applicable compliance requirements on your drawings:  
FAA, EASA, MIL-STD, AS9100

[MIL-SPEC](#) 

- › Ensure parts contain all necessary traceability elements:  
Serial and/or lot numbers, regulatory markings, component PN or other identifier.
- › Design in material specs based on any potential extreme condition:  
Temperature, chemical, flame, and UV exposure

[Military Design](#) 

- › Clearly communicate requirements for Material Certificate of Conformance and First Article Inspection Reports per AS9102.

### MEDICAL

Custom Components for Medical Devices

[Learn more](#) 

- › Document all applicable compliance requirements on your drawing:  
FDA, UDI, ISO, and UL.
- › Ensure drawings include critical performance requirements:  
Cleaning, Sterilization, Biocompatibility, and other end use conditions.
- › Design in regulatory markings and symbols for identification/traceability, compliance, and end use requirements.

While there are an infinite number of variables and considerations to designing your specific durable label and nameplate solutions, this design guide is intended to help start the process. So many times, labels and nameplates are the last considerations in finishing a product design and build, but rushing or short cutting this process can have dire consequences to delivering a quality product on time.

**The Melrose team eats, sleeps, and breathes labels and nameplates! How can we help you and your team?**

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