



**Nelson
Nameplate**

Cosmetic Inspection Standard for Nameplates



Chemical Processing



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Revision History

<u>Revision</u>	<u>Date</u>	<u>Description of change</u>
NC	8/93	Release of document.

Purpose & Scope

The purpose of this document is to establish a common cosmetic inspection procedure for use by Nelson and its customers. By using the same inspection method we can ensure that the requirements are understood the same way.

Some of Nelson's customers have their own inspection requirements. We encourage them to specify their cosmetic requirements in terms of an inspection procedure similar to this document. Mutually agreed upon customer supplied requirements always take precedence over this document.

This document is intended for use during in-process and final inspection of nameplates. It is intended that Nelson's customers will also use this document for their incoming inspection.

Definitions

Apparent Color Variation: Any unintended variation in the perceived color that is visible under the prescribed viewing conditions.

Dent: A crease in the material caused by bending the material sharply. The mark has been described as a “fingernail” mark.

Ink Delamination: The condition when the ink chips off the substrate. It is often noticed on the corners of parts or where the ink appears lighter.

Pin Hole: A small void in the ink that allows the substrate color to show through.

Printing Defects: Any defect in the image that is different from the film from which the part was printed. Printing defects may be stray smears of ink, smeared or filled in letters or other defects that appear in one of the printed colors.

Printing Misregistration: In this condition the printed color does not line up in the planned manner. The condition can be evidenced by obvious misalignment or by color coupons not printed within tolerance.

Scratches: Marks in the printed sheet caused by some sort of abrasion. This type of defect is typically long and narrow.

Stray Spots: This type of defect is typically a dark colored spot on a light colored background. It is typically caused by variables of the printing process. Several small spots close enough together as to appear as a single spot, without magnification, shall be considered one stray spot.

Applicable Tools

Under this specification, parts are viewed under the prescribed viewing condition with an unaided eye. Inspection tools may be used to measure the size of defects once they are noted under the outlined procedure.

Inspection tools that may be used are:

- 7X loop with graticule
- Venier calipers
- Films with standard defects portrayed
- Nelson's Process Capability Standard Samples of Legibility

Character Legibility

Legibility or character quality is dependent on many variables. Nelson Nameplate has made Process Capability Samples as guidelines to help determine what is capable based on the process and type style chosen.

Inspector Qualifications

Inspectors are to have either unaided, or corrected, 20/20 vision.

Viewing Conditions

This section describes the required viewing conditions for inspecting parts under this specification.

Lighting

Inspection will be performed with fluorescent lighting between 100 and 175 foot candles.

Reflective Light

Parts shall be viewed without the use of reflective lighting or glare.

Viewing Distance

Inspection for all types of cosmetic defects will be initially performed without the use of magnification. Inspection shall begin and be performed at a distance of 24 inches. Magnification can be used to confirm the size of defects.

Viewing Angle

Parts shall be viewed stationary on a fixture or held at 45 degrees to horizontal. The part should be located at approximately the height of the inspector's shoulders.

Viewing Time

Parts will be inspected for a maximum time of 3 seconds.

Nameplate Classification

Nameplates are used for different purposes and therefore have different cosmetic requirements. Nelson's standard breaks these different uses into three classifications that affect price and acceptability criteria.

Class A Nameplates

These parts are generally large, decorative in nature, and are a significant aspect of what the end user sees when the product is used. They generally have multiple colors.

Class B Nameplates

Parts that are primarily for identification. They will be in plain view on the end product. These parts are usually one or two colors. Examples of this type of part are small logos and model identification tags.

Class C Nameplates

Parts which are normally not visible when the end product is used. They are fixed on the inside or back of the end product. They are almost always one color. Examples of this type of part are rating plates and wiring diagrams.

Defect Types

There are two types of defects, linear and non-linear flaws. The following two charts define the maximum acceptable size for each flaw based on classification. Note: Each flaw, linear and non-linear, is counted separately.

Linear Defects

Class	Size: Maximum length X Width	Maximum Number per Square Inch
A	1/4" x .008"	1
B	1/2" x .008"	1
C	1/2" x .008"	3

Non-Linear Defects

Class	Size: Maximum length X Width	Maximum Number per Square Inch
A	.020"	1
B	.040"	1
C	.040"	3

