NO-LEAD BRASS – THE ENGINEERING BASICS

EST. 1856
McDonald

09/11

MECHANICAL PROPERTIES

UNS Alloy Number	C83600	NL C89833	NL C89520
Minimum Ultimate Strength, psi	30,000	30,000	25,000
Minimum Yield Strength, psi	14,000	14,000	17,000
Minimum Elongation, %	20	16	6

CHEMICAL COMPOSITION, %

UNS Alloy Number	C83600	NL C89833	NL C89520
Copper	84-86	86-91	85-87
Tin	4-6	4-6	5-6
Zinc	4-6	2-6	4-6
Bismuth	0	1.7-2.7	1.6-2.2
Selenium	0	0	0.8-1.1
Lead	4-6	0.09 max	0.09 max
Nickel	1.0 max	1.0 max	1.0 max

AWWA C800-05 REQUIREMENTS

CASTING - Materials in contact with potable water shall be specified by the purchaser and be made from copper alloy CDA* No. C83600 or copper alloy CDA No. C89520, in accordance with the chemical and mechanical requirements of ANSI/ASTM B584; or copper alloy CDA No. C89833.

WHAT NSF STANDARDS APPLY TO MY PRODUCTS?

NSF/ANSI 61-4

Section 4 of NSF/ANSI 61 applies to pipes and pipe related products.

NSF/ANSI 61-8 Mechanical Devices

Section 8 of NSF/ANSI 61 applies to devices, components, and materials that are used in water treatment/transmission/distribution systems, and are in contact with water used for human consumption and/or treatment chemicals.

In general, Waterworks Brass products are covered by section 8 of NSF/ANSI 61.

NSF/ANSI 61-9 Mechanical Plumbing Devices

Section 9 of NSF/ANSI 61 applies to mechanical plumbing devices, components, and materials that are typically installed within the last liter of water distribution systems used for human consumption. These products are also called endpoint devices. Typical devices are faucets, hoses, and small shut off valves.

NSF/ANSI 61 Annex G and **NSF/ANSI 372** are standards that establish uniform procedures to allow ANSI certifiers to verify the lead content of any product, material and component that conveys or dispenses water for human consumption.

A.Y. NL BRASS IS THE COMPLETE SOLUTION:

Material	Material Capable of Meeting NSF 61-8 & Annex G & NSF 372 Certification	2005 AWWA C800 Certification	ASTM B584 Certification	Meets Requirements of U.S.A. Public Law 111-380, CA AB 1953 , MD Chapter 407, LA Act 362, & VT Act 193	Underground History	Corrosion Resistance, Chemicals, Mechanicals, Foundry, & Machining Acceptable
NL C89520	Yes	Yes	Yes	Yes	Yes	Yes
NL C89833	Yes	Yes	Yes	Yes	Yes	Yes

TECHNICAL SPECIFICATIONS – FITTINGS & VALVES

1 GENERAL

All brass fittings and valves for service lines shall be provided under this contract.

2 PRODUCT

a. All fittings and valves shall be manufactured in accordance with AWWA Standard C-800, latest revision, and as further specified in these technical specifications.

a. i Exception: Any brass part of the fitting or valve in contact with potable water shall be made of a "No-Lead Brass", defined for this specification as UNS Copper Alloy C89520 or C89833 in accordance with the chemical and mechanical requirements of ASTM B584. This "No-Lead Brass" alloy shall contain not more than nine one hundredths of one percent (0.09% or less) total lead content by weight.

a.ii Any brass part of the fitting or valve not in contact with potable water shall be made of 85-5-5-5 brass as defined for this specification as UNS Copper Alloy C83600 per ASTM B62, ASTM B584 and AWWA C-800.

b. All brass fittings and valves shall be certified by an ANSI accredited test lab per NSF/ANSI Standard 61, Drinking Water Components – Health Effects, Section 8. All brass parts in contact with potable water shall be certified by an ANSI accredited test lab for lead content not to exceed 0.25% lead. Proof of certification is required.

TECHNICAL SPECIFICATIONS – CONTINUED

c. Brass fittings and valves shall comply with the Safe Drinking Water Act, and the U.S.A. Environmental Protection Agency.

d. All brass fittings and valves shall have the manufacturers name or trademark integrally stamped or cast on it. Another marking identifying the "no lead" brass alloy, e.g., 'NL', shall be cast or stamped on the fitting or valve.

3 QUALITY CONTROL AND TESTING

If requested, an affidavit certifying compliance with these standards and specifications shall be signed and submitted by the manufacturing firm's Quality Assurance or Engineering Manager.

4 MANUFACTURER

The brass fittings and valves shall be produced by a North American manufacturer.

TECHNICAL SPECIFICATIONS – CONTINUED

Traditionally, waterworks brass products have been manufactured from **leaded brass (C83600) with 4-6% lead.**

A number of **Bismuth red brass alloy options (C89836, C89520 & C83300)** have been developed as replacement options. These alloys contain a maximum of 0.09% lead. The Bismuth alloys have similar mechanical and chemical properties compared with the traditional Leaded alloy (C83600) used in waterworks brass product and have been used for a number of years in certain parts of the country.

NSF/ANSI 61 is a performance-based standard established to measure contaminates introduced into drinking water from products. The contaminants include regulated metals including lead and copper, organics and pesticides.

NSF/ANSI 61 Annex G and NSF/ANSI 372 are standards that establish uniform procedures to allow ANSI certifiers to verify the lead content of any product, material and component that conveys or dispenses water for human consumption.

FOR MORE INFORMATION, GO TO:

WWW.NOLEADBRASS.COM

OR CALL TOLL-FREE

1-800-292-2737

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