

**COPPER ALLOY WASHERS, PLAIN AND LOCK**



plain



external tooth



split lock

**1. Foreword**

**1.1 Scope**

This material standard covers the requirements for copper alloy, plain, external tooth and helical spring (split) lock washers.

**1.2 Application**

Copper alloy washers are used in conjunction with silicon bronze cap screws and nuts to make up electrical connections. Refer to Construction Guideline D14-4/NSV-20. Silicon bronze hardware is also used in situations where high-strength and corrosion-resistance is desired.

**1.3 Industry Standards**

Washers shall meet the applicable requirements of the following industry standards:

**ASME B18.21.1-1999** - Lock Washers (Inch Series)

**ASME B18.22.1-1965 (R2003)** - Plain Washers

**ASME B18.12-2001** - Glossary of Terms for Mechanical Fasteners

**ASTM B96-1993** - Standard Specification for Copper-Silicon Alloy Plate, Sheet, Strip, and Rolled Bar for General Purposes and Pressure Vessels

**ASTM B99-2001** - Standard Specification for Copper-Silicon Alloy Wire for General Applications

**ASTM B591-1993** - Standard Specification for Copper-Zinc-Tin Alloys Plate, Sheet, Strip, and Rolled Bar

**2. Fabrication**

**2.1 Common Requirements – Plain Washers**

	<b>Requirements</b>	<b>Reference</b>
<b>Product Name</b>	plain washer	ASME B18.12, Section 3.3.1.13
<b>Material</b>	copper alloy UNS No. C65100 (general name, silicon bronze)	ASTM B96, Table 1
<b>Dimensions</b>	per reference	ASME B18.22.1, Type B, Table 2, Regular

STANDARDS COORDINATOR

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**MATERIAL STANDARD**

Copper Alloy Washers, Plain and Lock

STANDARD NUMBER: **7880.2**

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SUPERSEDING: July 10, 2001

EFFECTIVE DATE: July 19, 2006

**2. Fabrication, continued****2.2 Common Requirements – External Tooth Lock Washers**

	Requirements	Reference
<b>Product Name</b>	external tooth lock washer	ASME B18.12, Section 3.3.1.17
<b>Material</b>	copper alloy UNS No. C42500	ASTM B591, Tables 1, 2, and 4
<b>Dimensions</b>	per reference	ASME B18.21.1, Type A, Table 8

**2.3 Common Requirements – Helical Spring (Split) Washers**

	Requirements	Reference
<b>Product Name</b>	helical spring lock washer	ASME B18.12, Section 3.3.1.10
<b>Material</b>	copper alloy UNS No. C65100	ASTM B99, Tables 1 and 2
<b>Dimensions</b>	per reference	ASME B18.21.1 Table 1 (for Regular) or Table 2 (for Heavy)

**2.4 Detailed Requirements**

Nominal Size, in.	Stock Number		
	Plain	External Tooth	Split Lock
1/4	788022	788101	788121
5/16	788025	788102	788122
3/8	788024	788103	788123
1/2	788026	788104	788125
5/8	788027	788105	788126
3/4	788028	–	788127

**3. Packaging**

Standard package quantity shall not exceed 100 per box.

Each standard package shall be legibly marked with the following information:

- Manufacturer's identification
- Product description
- Seattle City Light's Stock Number
- Quantity contained

Each shipping container shall be legibly marked with the following information:

- Manufacturer's identification
- Country of origin
- Product description
- Seattle City Light's Purchase Order Number
- Seattle City Light's Stock Number

**4. Shipping**

Product shall be shipped to the address specified on the Purchase Order.

**5. Issuance**

Stock Unit: EA

**6. Approved Manufacturers**

Seattle City Light Material Control personnel will identify and approve distributors, and hence manufacturers, for this group of Stock Numbers.