

## Rope, 12-Strand, Class 1, Red/Black



### 1. Scope

This standard covers the requirements for red/black, Class 1, 12-strand rope.

This standard applies to the following Seattle City Light (SCL) stock numbers:

Stock No.	Size (in)
014786	3/8
014785	1/2

### 2. Application

Red/black, Class 1, 12-strand rope is for use on aerial trucks, jibs, winches, and material handlers.

12-strand, Class 1 rope offers high strength with low stretch, outstanding abrasion resistance, and easy splicing. Product is coated to enhance wear life and snag resistance.

Two-color rope provides visual twist indication.

The improper use of rope may be dangerous. Rope will fail if worn-out, overloaded, misused, damaged, or improperly maintained or abused. Rope failure may cause death, serious injury, or property damage.

This rope should be secured to the drum with a minimum of four wraps.

Standard Coordinator  
Chad Rehahn



Standards Engineering Supervisor  
Brett Hanson



Division Director  
Bob Risch



### 3. Industry Standards

Rope shall meet the applicable requirements of the latest revisions of the following industry standards:

**Cordage Institute International Standard CI 1500**; "Test Methods for Fiber Rope"

**ISO 2307 (en)**; "Fibre Ropes; Determination of Certain Physical and Mechanical Properties"

**OSHA 29 CFR 1910.184**; Slings

**OSHA 29 CFR 1926.251**; Rigging equipment for material handling

### 4. Requirements

Rope shall meet the requirements of Tables 4.1a–c.

**Table 4a. General Requirements**

<b>Fiber</b>	Polyester
<b>Color</b>	Red/black
<b>Class</b>	1
<b>Construction</b>	12-strand
<b>Coating</b>	Coated and UV-resistant
<b>Lay</b>	None

**Table 4b. 3/8-Inch Size Requirements**

<b>Diameter, nominal (in)</b>	3/8
<b>Breaking strength, average (lb)</b>	6100
<b>Breaking strength, minimum (MBS) (lb)</b>	5500
<b>Working load limit (WLL) (lb)</b>	990

**Table 4c. 1/2-Inch Size Requirements**

<b>Diameter, nominal (in)</b>	1/2
<b>Breaking strength, average (lb)</b>	11,600
<b>Breaking strength, minimum (MBS) (lb)</b>	10,400
<b>Working load limit (WLL) (lb)</b>	1872

#### 4.1 Working Load Limit

Working Load Limit (WLL) shall be calculated using the manufacturer's recommendations as follows:

$$WLL = (MBS * DF) / SF$$

- WLL = Working Load Limit
- MBS = Minimum Breaking Strength
- DF = Derating Factor
- SF = Safety Factor

MBS is provided by the manufacturer and shown in tables 4b and 4c.

DF as recommended by the manufacturer is:

- 0.9 when splices are present
- 0.5 when knots are present

SF = 5 for normal conditions as recommended by the manufacturer. If dynamic loads are involved or if life or limb are at risk, WLL shall be recalculated using SF = 10.

The WLL in the tables above has been calculated use DF = 0.9 and SF = 5. If knots are used, WLL must be recalculated using DF = 0.5.

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#### 5. Testing

Test data that establishes compliance with the requirements of either CI 1500 or ISO 2307, and this standard shall be provided upon request.

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#### 6. Packaging

Rope shall be packaged on reels to prevent damage during shipping, handling, and inside storage.

Rope shall be packaged on 600-foot reels.

Each length shall be continuous throughout, containing no splices, hockles, kinks, or loose ends.

Each reel shall be legibly marked with the following information:

- Manufacturer identification
- Product description
- Length, nominal
- Seattle City Light stock number

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

- Manufacturer identification
- Seattle City Light purchase order number

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#### 7. Issuance

Stock Unit: FT

## 8. Approved Manufacturers

Manufacturer	Product Family	Product Code
Samson	TW-12, red/black	821 (coated)

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## 9. Sources

**Atkins, Dustin**; SCL Capital Projects Coordinator Senior, Fleet, subject matter expert for 7272.31

**Hutchison, Will**; Capital Projects Coordinator, Fleet, subject matter expert for 7272.31

**Jahangiri, Bahram**; SCL Sr. Structural Engineer and subject matter expert for 7272.31

**SamsonRope.com**

**Samson Utility Product Guide, 2016/2017**, YGS:MSW 109598 500 8/2017

**Shipek, John**; SCL Standards Engineering Supervisor and originator for 7272.31

**WAC 296-24-29401**; Wire rope

**WAC 296-24-29403**; Hemp rope