CORTLAND™
A CORTLAND INTERNATIONAL COMPANY

Plasma® High Performance Rope

Inspection Guidelines

Plasma® 12-Strand

Plasma® 12-Strand is made up of 12 twisted strands, 6 right-handed and 6 left-handed, which when braided together, create a torque neutral construction. During processing, a polyurethane coating is added to provide protection against application hazards such as abrasion. The finished Plasma is very durable, cut resistant (compared to other synthetic ropes) and has very good UV resistance. It also has excellent bending flex fatigue—far superior to wire rope. It is extremely flexible and conforms easily to surfaces.

Plasma® 12x12

Plasma® 12x12 is a 12-Strand braided rope in which each of the twelve strands is, in turn, a 12-Strand rope, or braided primary strand. This construction addresses the most critical properties of the fibers to provide very high strength translation efficiency for larger ropes. This design allows for long lay lengths, making rope that is more flexible for bending applications, easy to inspect, and can be quickly spliced using standard 12-Strand splicing techniques. Plasma 12x12 is supplied with our standard polyurethane finish, although other coatings can be applied to suit specific applications.

2 step inspection and safe use guidelines for Cortland Plasma® 12-Strand and 12x12

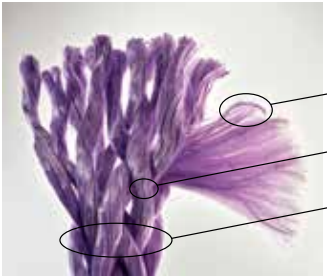
Step # 1 – Inspect the rope

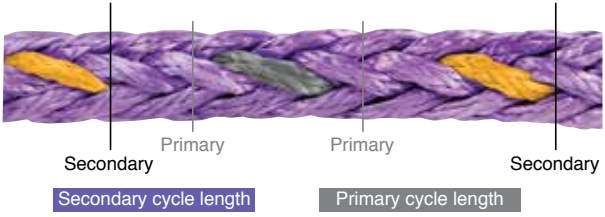
- Cuts; in strand(s)
- Overall abrasion of rope
  - Internal
  - External
- Areas of heat or compression damage
- Braid diameter size inconsistencies
- Glazed or melted fiber

Step # 2 – Inspect bearing surfaces of the rope

- Ensure all contact curvatures are clean, free of debris
- Wear protection
  - Begin at bearing surface “eye” and work your way down the rope
  - Inspect wear protection for integrity; cuts, snags, compression, abrasion, diameter changes
    - If damage is noticed, further inspection of the core Plasma® is required

Inspecting Plasma® Rope





6 or more cut yarns within a **Secondary** cycle length—must repair or retire
3 or more cut yarns within a **Primary** cycle length—must repair or retire rope

External

Internal

Removal from Service Criteria

The following is an inspection guideline for fiber ropes and elements that—if occur—should dictate the fiber rope be removed from service.

	Condition	Remove from service
1	**Rope splice integrity damaged; e.g. tucks pulled out**	√
2	**Distortion of construction/Diameter inconsistency**	√
3	**Internal or external abrasion** Melted or fused yarns and strands, powdery or brittle fibers	√
4	**Cuts (fiber, yarn and strands)** 12x12 construction: Two (2) or more cut adjacent yarns in a strand, or 1/2-cut strand or more 12x1 construction: 1/2-cut strand or more	√
5	**Reduction in overall diameter of rope** Localized diameter area reduction; stiff and flat areas on rope unable to be flexed back into shape	√
6	**Heat damage** Localized areas of fused and melted fibers	√
7	**Discoloration caused by unknown source** Localized areas that cleaning cannot repair	√

Types of Damage

Distortion
Reference retirement criteria #2

Cut Strand
Reference retirement criteria #4

Heat Damage
Reference retirement criteria #6

Discoloration and Burns
Reference retirement criteria #6–7

Abrasion level 1: normal wear—rope is showing normal wear, internal and external yarn shows light fuzziness and compression.

External

Internal

Abrasion level 2: normal wear—rope has more abrasion internally and externally, some slight total yarn volume loss, but rope is still good for use.

External

Internal

Abrasion level 3: normal wear—heavy internal abrasion, compression and diameter change. Carefully inspect for multiple cut yarns and full strands.

External

Internal

Abrasion level 4: caution—heavy internal abrasion and heat compression fusion of yarns. Also loss of fibers due to abrasion and cutting. Rope has probably lost a percentage of full new-rope strength. Carefully inspect for cut strands.

External

Internal

Abrasion level 5: remove rope from service—heavy external and internal heat compression, yarn volume loss and overall diameter size loss. Rope has lost a major percentage of its full new-rope strength.

External

Internal

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