

MBL, WLL, Proof Load and Safety Factor

Load Terms Must Not Be Used Interchangeably

1 WLL — Permitted Load in Service



Controlled operating load after the required design basis is applied.

2 Proof Load — Verification When Specified

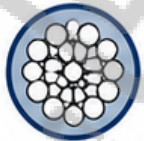


Controlled acceptance loading for inspection or verification.

3 MBL — Minimum Breaking Load



Minimum force required for the finished rope under the applicable specification.



MBL

Minimum force required for the finished rope under the applicable specification.



WLL

Maximum permitted service load after applying the required design or safety factor.



Safety Factor

Ratio between breaking load and permitted working load.



Proof Load

Controlled acceptance load applied when specified; it is not the breaking load.



$$WLL = MBL \div \text{Required Safety Factor}$$



The purchaser, equipment designer or applicable regulation must define the required safety factor and working-load basis.



Material grade alone does not establish lifting suitability.

Application and Equipment Interface

Rope Selection Must Match the Operating System

1 Architectural Tension

1×19 or 7×7 Stainless Cable



Review Points

- Terminal and Anchor
- Installation Tension
- Corrosion Exposure
- Supporting Structure



2 Control Cable and Pulley

7×7 or 7×19 Rope



Review Points

- Sheave Diameter
- Groove Condition
- Bending Cycle
- Rope Flexibility



3 Winch and Drum

7×19 or 6×19 Rope



Review Points

- Crushing Resistance
- Lay Direction
- Multi-Layer Winding
- Lubrication



4 Lifting and Rigging

7×19 or 6×36 Rope



Review Points

- MBL
- WLL
- Safety Factor
- Termination and Inspection



Indoor

Generally controlled conditions with low corrosion exposure.



Outdoor

Weather exposure requires attention to drainage and cleaning.



Coastal / Marine

Chloride and salt exposure require material and maintenance review.



Chemical / Wet

Chemicals, humidity and wet service require compatibility and inspection.



A flexible rope does not compensate for an undersized or damaged sheave, and corrosion resistance does not replace strength and fatigue review.

Inspection and Damage Identification

Manufacturing Conformity and Service-Related Damage

1 Diameter Reduction



Measure and compare to original diameter.

2 Broken Wires



Localized broken wires in the outer strands.

3 Pitting and Crevice Corrosion



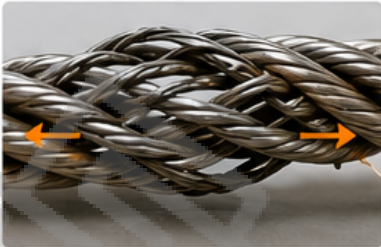
Pitting, crevice attack or deposits between wires.

4 Kink



Permanent deformation that distorts the rope.

5 Birdcaging



Outward displacement of strands from the normal rope structure.

6 Drum Crushing



Flattened or crushed strands from drum contact pressure.

7 Lubrication Loss



Dry, dull or contaminated rope surface.

8 Termination Damage



Slippage, cracking, wear or deformation at the fitting.

INSPECTION AND DECISION FLOW



Observe

Visual and tactile examination of the entire rope and fittings.



Identify Damage

Determine the type and extent of any damage.



Record Location and Severity

Document position, description and observed severity.



Review Applicable Criteria

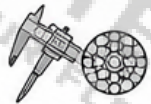
Compare against the applicable equipment, service and inspection requirements.



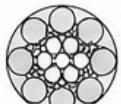
Service Decision

Continue in service, monitor more closely, repair if allowed or remove from service.

TRACEABILITY CHAIN



Diameter



Construction



Core



Material



Tensile Grade



MBL



Length



Reel Number



Inspection Documents



Discard decisions must follow the applicable equipment, service and inspection requirements.

Packing, Documents and Inquiry Inputs

From Confirmed Rope Specification to Delivery Traceability

PACKING FORMS



Coil

- Controlled winding
- Secured rope end
- Identification tag
- Surface protection
- Stable handling support



Steel Reel

- Controlled winding
- Secured rope end
- Identification tag
- Surface protection
- Stable handling support



Wooden Drum

- Controlled winding
- Secured rope end
- Identification tag
- Surface protection
- Stable handling support



Offshore Reel

- Controlled winding
- Secured rope end
- Identification tag
- Surface protection
- Stable handling support

ORDER AND DELIVERY WORKFLOW



Inquiry Data

Collect and provide complete inquiry inputs.



Technical Review

Evaluate feasibility and confirm key requirements.



Confirmed Rope Specification

Finalize material, construction, strength grade and condition.



Inspection and Documents

Manufacturing, testing and document preparation.

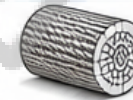


Packing and Delivery

Professional packing and on-time shipment.

INQUIRY INPUTS CHECKLIST

1



Rope Identity

Material and nominal diameter.

2



Construction

Construction, core and lay.

3



Strength

Tensile-strength grade and required MBL.

4



Product Condition

Bare, lubricated, coated or protected.

5



Length and Ends

Cut or continuous length and end termination.

6



Service Information

Application, environment, load, sheave or drum condition.

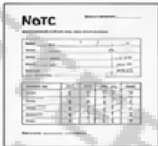
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Delivery Scope

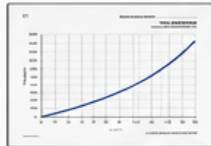
Packing form and inspection-document requirements.

DOCUMENTS TYPICALLY PROVIDED



MTC

(Material Test Certificate)



Breaking-Load Certificate

(When Specified)



Dimensional Report

(When Required)



Inspection Certificate

(Manufacturing Inspection)



Certificate of Conformity

(CoC)



Packing List

(Contents and Quantity)



Third-Party Inspection

(When Required)



Document scope must be confirmed before order release; listing a document does not mean it is automatically included.