

Stainless Steel Wire Rope Selection Guide

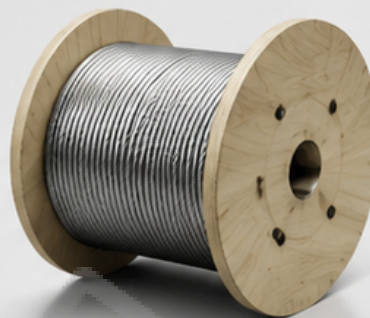
Material, Construction, Core and Service Condition



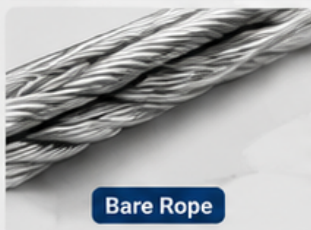
Steel Reel



Compact Coil



Wooden Drum



Bare Rope



Coated Rope



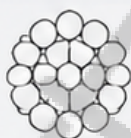
Cut Length



Finished Cable Assembly

Common Rope Constructions (Examples)

1×19



7×7



7×19



6×19



6×36



Corrosion-Resistant Stainless Construction

Designed for excellent corrosion resistance in demanding environments.



Bare, Coated or Finished Assembly

Available as bare rope, coated rope or with custom end fittings.



Reel, Drum or Cut Length

Supplied on steel reel, wooden drum, compact coil or cut to length.



Project-Specific Final Specification

Final specification is defined based on application requirements and conditions.



1

Material

304 or 316



2

Construction

1×19 / 7×7 / 7×19 /
6×19 / 6×36



3

Core

FC / WSC / IWRC / IWR,
where applicable



4

Strength Requirement

Tensile Grade and MBL



5

Service Condition

Static / Pulley / Winch /
Lifting / Marine



Final supply scope depends on the confirmed combination of diameter, construction, core, MBL and operating condition.

304 and 316 Stainless Steel Wire Rope

Preliminary Material Selection by Exposure Condition

304 STAINLESS STEEL



General Indoor



General Outdoor



Architectural Use

316 STAINLESS STEEL



Chloride Exposure



Coastal and Marine



Corrosive Service

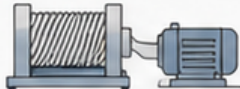
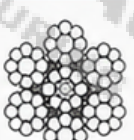
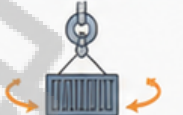
Selection Factor	304 Stainless Steel	316 Stainless Steel
General Indoor use	Suitable	Suitable
General outdoor exposure	Commonly selected	Suitable
Clean architectural appearance	Suitable	Suitable
Chloride and salt-spray exposure	Requires careful review	Preferred
Coastal and marine service	Limited or protected service	Normally reviewed first
Relative material cost	Lower	Higher
Final selection basis	Environment, construction and MBL	Environment, construction and MBL



Material grade alone does not determine service life. Crevice condition, deposits, temperature, cleaning, lubrication, wear and end-fitting design must also be reviewed.

Construction and Flexibility Selection

Preliminary Comparison of Common Stainless Steel Rope Constructions

1 1×19   Flexibility: Low Characteristic: Straight, stable strand for limited bending Direction: Architectural tensioning and standing rigging   Architectural tension and standing rigging
2 7×7   Flexibility: Medium Characteristic: Balance of flexibility and structural stability Direction: General cable assemblies and light pulley service   General cable assemblies and light pulley service
3 7×19   Flexibility: High Characteristic: Repeated bending and small-sheave compatibility Direction: Control cables, winches and pulleys   Control cables, winches and pulleys
4 6×19   Flexibility: Medium Characteristic: Larger outer wires and abrasion resistance Direction: Industrial pulling and lifting   Industrial pulling and lifting
5 6×36   Flexibility: High Characteristic: Improved bending-fatigue behavior Direction: Repeated drum and sheave operation   Repeated drum and sheave operation
6 19×7 / 35Wx7 / 19×37   Flexibility: Project-Specific Characteristic: Rotation control under suspended load Direction: High-lift and special winch systems   High-lift and special winch systems

Key Engineering Factors to Review

1

Load

Bending Frequency

Abrasion

Rotation Behavior

Rope Speed

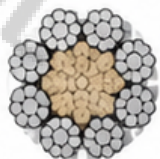
Equipment Geometry

i This page is a preliminary selection guide. Final construction must be matched to the complete rope specification and equipment interface.

Core, Surface and Coating Selection

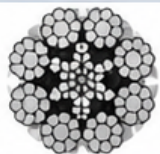
Support, Crushing Resistance, Lubrication and Environmental Protection

CORE TYPES



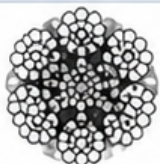
1 FC – Fiber Core

- Flexible and capable of retaining lubricant
- Selection direction: Light- or medium-duty service where high drum pressure is not expected



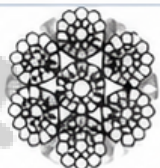
2 WSC – Wire Strand Core

- Greater support than fiber core
- Selection direction: General steel-core applications



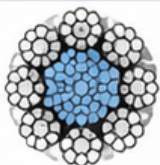
3 IWRC – Independent Wire Rope Core

- Higher support, strength and crushing resistance
- Selection direction: Heavy lifting, winch ropes and multi-layer drum winding



4 IWR – Independent Wire Rope

- Used in complex or cable-laid constructions
- Selection direction: Large-diameter and project-specific ropes



5 Protected Core Design

- Internal lubrication and corrosion control
- Selection direction: Offshore, wet or high-duty-cycle service



Core terminology must match the selected construction.

Not all core types are available in every construction.



Coating does not automatically increase MBL.

Coating improves surface protection, not the intrinsic strength of the rope.



Coating material and thickness require confirmation.

Material type, thickness, color and adhesion must match service requirements.



Equipment pressure and winding condition affect core selection.

Multi-layer winding and high drum pressure require greater core support.

SURFACE AND COATING OPTIONS

1 Bare Stainless Steel

- Clean metallic surface



2 Lubricated

- Internal and external lubrication for reduced friction and wear



3 Coated

- External polymer coating for added surface protection



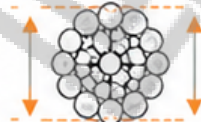
4 Marine Corrosion-Protected

- Internal and external protection for harsh marine environments

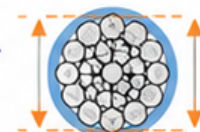


DIAMETER REFERENCE

Bare-Rope Diameter
Measured across the outer crowns of wires



Finished Coated Diameter
Measured across the coated rope



A 1×19 strand is not specified in the same way as a multi-strand rope with FC or IWRC.