

Steel Wire Rope Construction Data Guide

Clean layout version: selection logic, data table, performance map and order checks

Construction Code	Example: 7x19 means 7 strands, with about 19 wires in each strand. It is a structure code, not the rope diameter.
Selection Rule	Final rope selection must confirm diameter, construction, core type, material, tensile grade, minimum breaking load and end termination.
Acceptance Focus	For lifting, winch and offshore projects, the rope certificate, MBL, reel label and packing list should match the purchase order.



What changed in this revision

Repeated illustration blocks were removed. Each page now has a single function: overview, selection table, performance comparison, application map, or ordering check.

Drawing note

Construction drawings are simplified visual references only. Actual rope geometry, metallic area, lay direction and certified MBL depend on the final product data sheet.

1. Steel Wire Rope Construction Selection Table

Common constructions, main features and typical application choices.

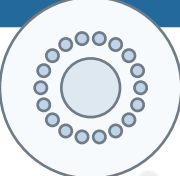
Construction	Meaning	Main Feature	Common Selection
1x19	1 strand with 19 wires	Rigid, smooth surface, low flexibility	Stainless railing, stay cable, marine rigging
7x7	7 strands with 7 wires each	Medium flexibility	Control cable, light rigging, safety line
7x19	7 strands with 19 wires each	Flexible, suitable for small sheaves and pulleys	Winch line, marine cable, pulley system
6x19	6 strands with 19 wires each	Good abrasion resistance	Crane, hoist, lifting and pulling
6x36	6 strands with 36 wires each	Better flexibility and bending fatigue resistance	Crane rope, drum winding, repeated bending
8x19 / 8x25	8-strand rope construction	Smooth running and round rope body	Elevator and special lifting equipment
18x7 / 19x7	Multi-strand rotation-resistant rope	Reduced load rotation	Tower crane, high lifting height, single-line lifting
35Wx7	High rotation-resistant rope	Better stability and flexibility	Offshore lifting, tower crane, precision lifting
19x37	Multi-layer special construction	High flexibility and rotation control	Deep-sea winch, ROV, offshore special rope

Selection note: rope construction affects flexibility, abrasion resistance, rotation control and sheave compatibility. Final choice should also confirm diameter, core type, material, tensile grade, breaking load and working environment.

2. Construction Performance Comparison

Relative rating: 1 to 5 for flexibility, abrasion resistance and rotation resistance.

1x19 Single strand




Flexibility
 ■■■■■ 1/5

Abrasion
 ■■■■■ 5/5

Rotation
 ■■■■■ 1/5

Selection: Railing / stay cable

7x7 General purpose




Flexibility
 ■■■■■ 2/5

Abrasion
 ■■■■■ 3/5

Rotation
 ■■■■■ 1/5

Selection: Control cable

7x19 General purpose




Flexibility
 ■■■■■ 3/5

Abrasion
 ■■■■■ 3/5

Rotation
 ■■■■■ 1/5

Selection: Winch / pulley

6x19 Class




Flexibility
 ■■■■■ 3/5

Abrasion
 ■■■■■ 3/5

Rotation
 ■■■■■ 1/5

Selection: Crane / hoist

6x36 Improved flexibility




Flexibility
 ■■■■■ 4/5

Abrasion
 ■■■■■ 4/5

Rotation
 ■■■■■ 2/5

Selection: Drum winding

19x7 Rotation resistant




Flexibility
 ■■■■■ 3/5

Abrasion
 ■■■■■ 5/5

Rotation
 ■■■■■ 4/5

Selection: Tower crane

35Wx7 High rotation resistant



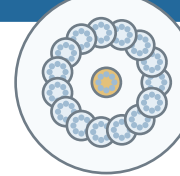
Flexibility
 ■■■■■ 5/5

Abrasion
 ■■■■■ 5/5

Rotation
 ■■■■■ 5/5

Selection: Offshore lifting

19x37 High-flex non-rotating



Flexibility
 ■■■■■ 4/5

Abrasion
 ■■■■■ 4/5

Rotation
 ■■■■■ 5/5

Selection: Deep-sea winch / ROV

3. Application Selection Map

Match construction to working condition first, then confirm MBL, core, material and documents.

Application / Working Condition	Primary Requirement	Common Construction to Review	Critical Check Before Order
Stainless railing / stay cable	Smooth surface, stiffness, appearance	1x19	Diameter, stainless grade, end fitting, tensioning method
Control cable / safety line	Moderate flexibility, light load	7x7	Diameter consistency, coating, end termination
Winch line / pulley system	High flexibility around small sheaves	7x19	Sheave diameter, bending cycle, MBL, lubrication
Crane / hoist / pulling	Abrasion resistance and load holding	6x19	Outer wire wear, core type, MBL, certificate
Repeated drum winding	Bending fatigue and running stability	6x36	Drum groove, layer winding, fatigue cycle, core support
Elevator / special lifting	Round body, smooth running	8x19 / 8x25	Equipment match, elongation, inspection certificate
Tower crane / high lift	Reduced load rotation	18x7 / 19x7	Rotation resistance, lifting height, single-line use
Offshore / precision lifting	High stability and rotation control	35Wx7	Corrosion protection, class certificate, MBL
Deep-sea winch / ROV	High flexibility with rotation control	19x37	Continuous length, marine lubrication, reel packing

Need high flexibility?

7x19 / 6x36 / 19x37

Need abrasion resistance?

6x19 / 1x19

Need rotation control?

19x7 / 35Wx7 / 19x37

4. How to Read Common Construction Codes

Use the code as a structure reference, not as a diameter, WLL or certificate value.

Code	How to Read It	Selection Meaning	Do Not Treat As
7x19	7 strands x about 19 wires per strand	Flexible rope for winch, pulley and control systems	Diameter or load rating
6x36	6 strands x about 36 wires per strand	Better flexibility and bending fatigue resistance	Universal heavy-lift answer
19x7	Multi-strand rotation-resistant structure	Reduced load rotation for high lifting height	Non-rotating guarantee without equipment review
35Wx7	High rotation-resistant construction	Better stability for offshore, tower crane and precision lifting	Replacement for MBL calculation
19x37	Multi-layer special construction	High flexibility and rotation control for deep-sea winch and ROV use	Final certificate value

Final order and certificate check

Selection point

7x19, 6x19 and 6x36 are among the most frequently requested commercial constructions.

Rotation control

19x7, 35Wx7 and 19x37 should be reviewed for high-lift or suspended loads that must not spin freely.

Architectural cable

1x19 and 7x19 stainless rope are common for railing, stay cable and decorative tension cable.

Certificate check

Construction code must be confirmed together with diameter, core type, material, tensile grade, MBL and application.