

BLUE STRAND

Quality That Strengthens Steel



Operating in the field of Steel Wire Ropes and Steel Wires production, Köşkerler Çelik Halat ve Mak. San. Tic. A.Ş. was established in Kocaeli in 1989. Köşkerler, which has been continuously developing since its establishment, continued to increase the quality of the service it provides to its customers by expanding its product range and capacity with the wire patenting and galvanising facility in 2017.

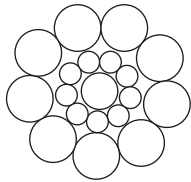
With the steel wire ropes and steel wires produced in the 28.000 m² production facilities located in the IMES OSB ; Köşkerler serves many sectors such as elevator, crane, automotive, cable, spring, fasteners, marine, fishing, construction, agriculture etc.

Certificates

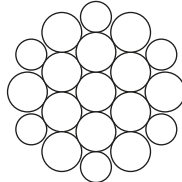


Strand Constructions

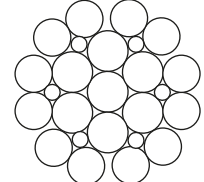
Seale (S) (1+9+9)



Warrington (W) (1+6+6+6)



Filler (F) (1+6+6+12)



Note: Seale type ropes are preferred when the rope service life is more impacted by abrasion than by rope fatigue due to bending. On the other hand, Warrington type ropes are preferred when the rope service life is impacted by fatigue due to bending and smaller sheaves than by abrasion.

Coating

- **Galvanized (B)** - B class galvanized wires (EN 10244-2)
- **Bright (U)** - Ungalvanized (phosphated) wires

Type of Core

- **FC** - Fiber Core (Jute, Sisal, Polypropylene(PPC))
- **WSC** - Strand Core
- **IWRC** - Independent Wire Rope Core

Tensile Strength

Elevator ropes should be in the following tensile strength according to EN 12385-5;

- 1370/1770 N/mm²
- 1570 N/mm²
- 1570/1770 N/mm²
- 1770 N/mm²

Direction of Lay

- **RHOL (s/Z)** - Right Hand Ordinary Lay
- **LHOL (z/S)** - Left Hand Ordinary Lay

Note: "z" represents the right side, "s" represents the left side. For instance, (s/Z) means left sided strand and right sided rope.



Standard: EN 12385

Coating: Bright (U) or Galvanized (B Class)

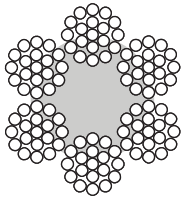
Tensile Strength: 1570 N/mm² or 1770 N/mm²

Core: Fiber Core (FC), Wire Strand Core (WSC), and Independent Wire Rope Core (IWRC)

Diameter Tolerance: See page 9

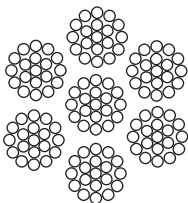
Direction of Lay: RHOL (s/Z) and LHOL (z/S), Regular Lay

6x19M + FC



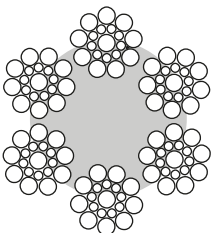
Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1570 N/mm ² (kN)	Minimum Breaking Load 1770 N/mm ² (kN)
6	0,125		19,6
7	0,170		26,6
8	0,221		34,8

6x19M + WSC



Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1570 N/mm ² (kN)	Minimum Breaking Load 1770 N/mm ² (kN)
6	0,137		22,7
7	0,187		31,4
8	0,244		41,0

6x19S + FC



Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1570 N/mm ² (kN)	Minimum Breaking Load 1770 N/mm ² (kN)
6	0,129	18,7	21,0
6,5	0,151	21,9	24,7
7	0,176	25,4	28,6
8	0,230	33,2	37,4



Standard: EN 12385

Coating: Bright (U) or Galvanized (B Class)

Tensile Strength: 1570 N/mm² or 1770 N/mm²

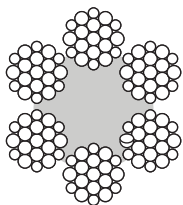
Core: Fiber Core (FC), Wire Strand Core (WSC),
and Independent Wire Rope Core (IWRC)

Diameter Tolerance: See page 9

Direction of Lay: RHOL (s/Z) and LHOL (z/S), Regular Lay

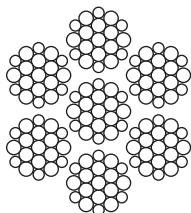


6x19W + FC



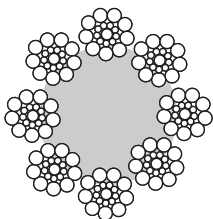
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6x19W +WSC



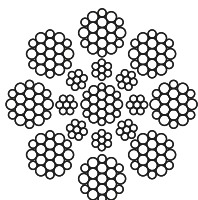
Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1570 N/mm ² (kN)	Minimum Breaking Load 1770 N/mm ² (kN)
6	0,144		23,1

8x19S + FC



Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1570 N/mm ² (kN)	Minimum Breaking Load 1770 N/mm ² (kN)
6,5	0,144		21,9
8	0,218		33,2

8x19W + IWRC (SWR K-240 W)



Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1570 N/mm ² (kN)	Minimum Breaking Load 1770 N/mm ² (kN)
6,5	0,172		31,7
8	0,268	41,1	



Standard: EN 12385

Coating: Bright (U) or Galvanized (B Class)

Tensile Strength: 1370/1770 N/mm² or 1570 N/mm²

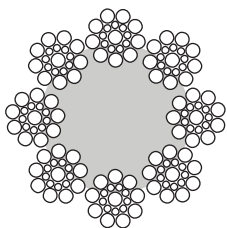
Core: Fiber Core (FC),

Diameter Tolerance: See page 9

Direction of Lay: RHOL (s/Z) and LHOL (z/S), Regular Lay

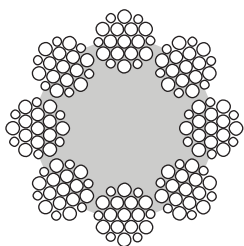


SWR 8x19S+FC



Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1370-1770 N/mm ² (kN)	Minimum Breaking Load 1570 N/mm ² (kN)
8	0,218	28,1	29,4
9	0,275	35,6	37,3
10	0,340	44,0	46,0
11	0,411	53,2	55,7
12	0,490	63,3	66,2
13	0,575	74,3	77,7
14	0,666	86,1	90,2
16	0,870	113,0	118,0

SWR 8x19W+FC



Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1370-1770 N/mm ² (kN)	Minimum Breaking Load 1570 N/mm ² (kN)
8	0,218		29,4
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Tensile Strength: 1570 N/mm² or 1370/1770 N/mm²

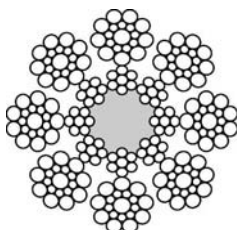
Core: Independent Wire Rope Core (IWRC)

Diameter Tolerance: See page 9

Direction of Lay: RHOL (s/Z) and LHOL (z/S), Regular Lay

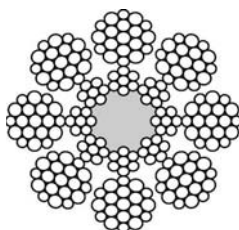


SWR K-200 S



Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1570 N/mm ² (kN)	Minimum Breaking Load 1770 N/mm ² (kN)
8	0,247	32,0	
10	0,386	50,1	
11	0,470	60,6	
12	0,560	72,1	
13	0,660	84,6	
14	0,760	98,1	
16	1,000	128,2	

SWR K-200 W



Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1570 N/mm ² (kN)	Minimum Breaking Load 1770 N/mm ² (kN)
8	0,253	32,0	
10	0,395	50,1	
11	0,478	60,6	
12	0,569	72,1	
13	0,668	84,6	
14	0,774	98,1	
16	1,010	128,2	



Standard: EN 12385

Coating: Bright (U) or Galvanized (B Class)

Tensile Strength: 1570 N/mm² or 1770 N/mm²

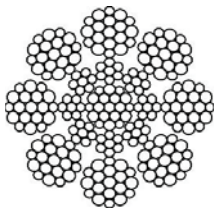
Core: Independent Wire Rope Core (IWRC)

Diameter Tolerance: See page 9

Direction of Lay: RHOL (s/Z) and LHOL (z/S), Regular Lay

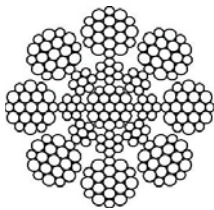


SWR K-240 W



Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1570 N/mm ² (kN)	Minimum Breaking Load 1770 N/mm ² (kN)
8	0,268	41,1	
10	0,407	64,1	
11	0,492	77,5	
12	0,586	92,3	
13	0,687	108,4	
14	0,798	126,2	
16	1,042	164,0	

SWR K-240 W



Nominal Rope Diameter (mm)	Unit Weight (Kg/m)	Minimum Breaking Load 1570 N/mm ² (kN)	Minimum Breaking Load 1770 N/mm ² (kN)
6,5	0,172		31,7



Diameter Tolerances of Elevator Ropes

Diameter tolerance of elevator ropes are different from the ropes used in other application areas. The table below shows the diameter tolerances for elevator ropes according to EN 12385-5 and ISO 4344.

Note: F_{min} is minimum breaking strength of the rope.

Application	Construction of The Rope	Nominal Rope Diameter (mm)	Diameter Tolerance of The Rope in % of Nominal Rope Diameter		
			Max. Unloaded	Min. Loaded	
				With 5% of F_{min}	With 10% of F_{min}
Traction Drive Ropes and Governor Ropes	6 x 19 + FC	≤ 10	6	1	0
	8 x 19 + FC	> 10	5	1	0
	6 x 19 + IWRC	≤ 10	3	0	-1
	8 x 19 + IWRC	> 10	2	0	-1
	9 x 19 + IWRC				
Ropes for Hydraulic Elevators	6 x 19 + FC	≤ 8	6	1	0
	8 x 19 + FC		5	1	0
	6 x 19 + IWRC	> 8	3	0	-1
	8 x 19 + IWRC		2	0	-1
	9 x 19 + IWRC				

Discarding Criteria of Elevator Ropes

In discarding elevator ropes, wire breaks, wear, corrosion, rope deformation or excessive elongation should be taken into account. On the other hand, diameter reduction is also another criterion. Elevator ropes should be discarded if the reduction of diameter is %6 or more of the nominal diameter. The table below shows the discarding criteria according to EN 12385-5 and ISO 4344.

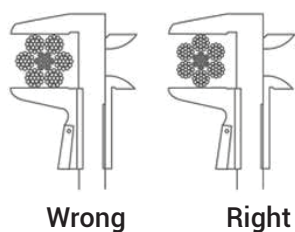
Note: Approximately, one rope lay equals to $6 \times d$ (nominal rope diameter).

Condition	Replace ropes or examine within a specified period as stated by the competent person			Discard ropes immediately		
	Class 6 x 19	Class 8 x 19	Class 9 x 19	Class 6 x 19	Class 8 x 19	Class 9 x 19
Broken wires randomly distributed among the other strands	More than 12 per rope lay ^a	More than 15 per rope lay ^a	More than 17 per rope lay ^a	More than 24 per rope lay ^a	More than 30 per rope lay ^a	More than 34 per rope lay ^a
Broken wires predominating in one or two outer strands	More than 6 per rope lay ^a	More than 8 per rope lay ^a	More than 9 per rope lay ^a	More than 8 per rope lay ^a	More than 10 per rope lay ^a	More than 11 per rope lay ^a
Adjacent broken wires in one outer strand	4	4	4	More than 4 ^a	More than 4 ^a	More than 4 ^a
Valley breaks	1 per rope lay ^a	1 per rope lay ^a	1 per rope lay ^a	More than 1 per rope lay ^a	More than 1 per rope lay ^a	More than 1 per rope lay ^a

^a The length of one rope lay is approximately equivalent to $6 \times d$ (where d is the nominal rope diameter).

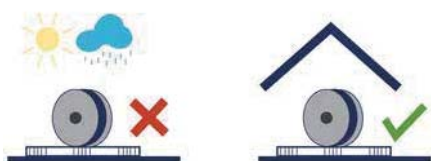


Measuring Rope Diameter



Storage

- Ropes should be stored on pallets in places that are clean, dry and protected against sunlight.



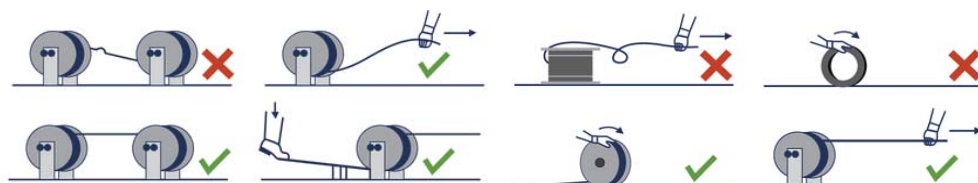
Transport

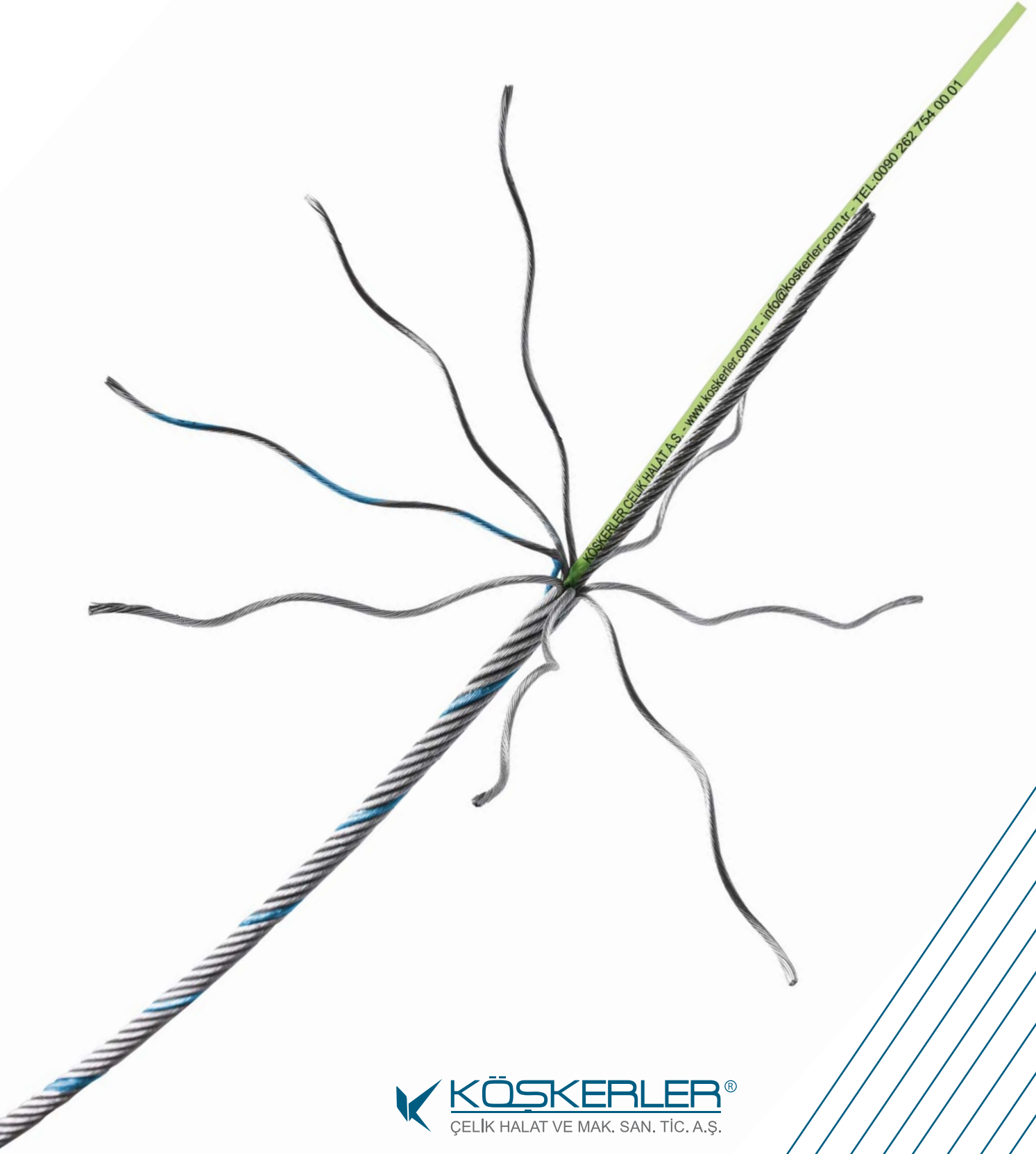
- Using right accessories in transporting is vital to prevent any damage to the ropes.



Rewinding and Uncoiling

- Ropes have to be rewinded and uncoiled according to figures below. Wrong applications causes kinks.
- Cleanliness of the ground where uncoiling is made is important.





KÖŞKERLER®
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