Elevator Ropes

KÖŞKERLER®

ÇELİK HALAT ve MAK. SAN. TİC. A.Ş.

KÖŞKERLER has been in the industry for over 25 years. In our manufacturing plant with modern production line in Turkey, we keep providing the best service to our customers for elevator ropes produced according to related standards.

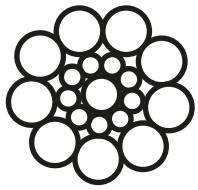
Our goals are to be a part of the solution and have long and frutiful relationships based on trust with our partners. To ensure that, research and development activities, using high-quality materials, continuos inspections and tests, and economic efficiency are main princples of our company.

Elevator ropes demands high safety and efficincy levels and KÖŞKERLER is a reliable partner in providing them.

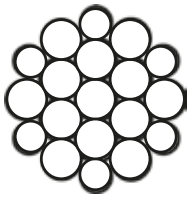
General Wire Rope Terms

Strand Constructions

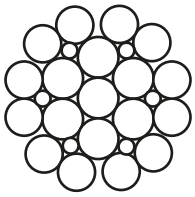
Seale (S) (1+9+9)



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



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



- *Note: Seale type ropes are prefered 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 prefered 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

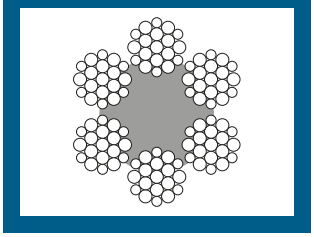
- RHOL (s/Z) – Right Hand of Lay
- LHOL (z/S) – Left Hand of Lay

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

Rope Specifications

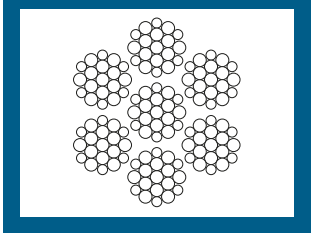
SWR K-100 – Overspeed Governor Ropes

6x19M + FC



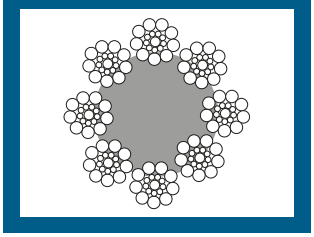
Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Minimum Breaking Load 1770 N/mm² (kN)	Cross Section Area (mm²)
6	0,125		19,6	13,1
7	0,170		26,6	17,8
8	0,221		34,8	23,5

6x19M + WSC



Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Minimum Breaking Load 1770 N/mm² (kN)	Cross Section Area (mm²)
6	0,137		23,1	15,3
7	0,187		31,4	20,8
8	0,244		41,0	27,5

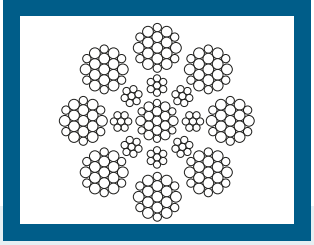
6x19S + FC



Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Minimum Breaking Load 1770 N/mm² (kN)	Cross Section Area (mm²)
6	0,128	18,7	21,0	14,1
6,5	0,150	21,9	24,7	16,6
7	0,174	25,4	28,6	19,2
8	0,228	33,2	37,4	25,1

6x19S + IWRC

(SWR K-200 S)



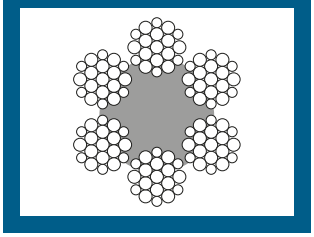
Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Minimum Breaking Load 1770 N/mm² (kN)	Cross Section Area (mm²)
6	0,146	20,2	22,6	15,4
6,5	0,171	23,4	26,5	18,6
8	0,259	35,9	40,2	28,2

- 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

Rope Specifications

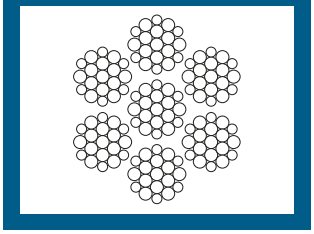
SWR K-100 – Overspeed Governor Ropes

6x19W + FC



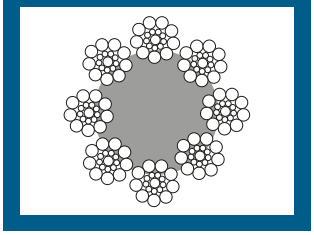
Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Minimum Breaking Load 1770 N/mm² (kN)	Cross Section Area (mm²)
6	0,132	19,4	21,9	14,7
6,5	0,155	22,8	25,7	17,2
7	0,179	26,4	29,8	20,0
8	0,235	34,5	38,9	26,2

6x19W + WSC



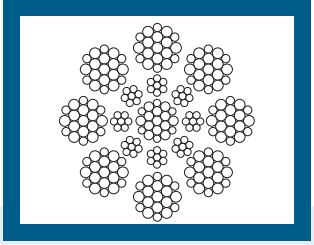
Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Minimum Breaking Load 1770 N/mm² (kN)	Cross Section Area (mm²)
6	0,148		23,6	17,2

8x19S + FC



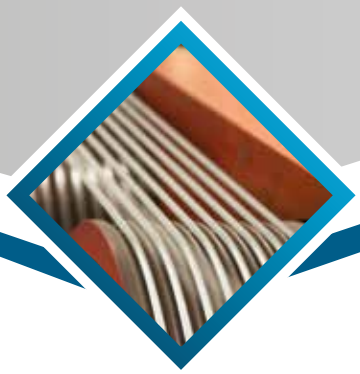
Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Minimum Breaking Load 1770 N/mm² (kN)	Cross Section Area (mm²)
6,5	0,144		21,9	14,7
8	0,218		33,2	22,3

8x19W+IWRC
(SWR K-240 W)



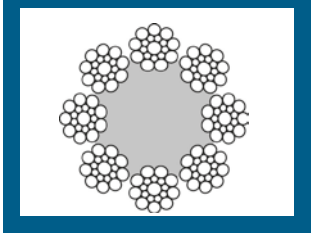
Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Minimum Breaking Load 1770 N/mm² (kN)	Cross Section Area (mm²)
6,5	0,177		31,5	20,1
8	0,268	43,3	46,6	30,4

- 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



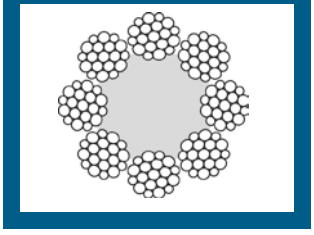
Rope Specifications

SWR 8x19S+FC



Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1370/1770 N/mm² (kN)	Minimum Breaking Load 1570 N/mm² (kN)	Cross Section Area (mm²)
8	0,218	28,1	29,4	22,3
9	0,275	35,6	37,3	28,3
10	0,340	44,0	46,0	34,9
11	0,411	53,2	55,7	42,2
12	0,490	63,3	66,2	50,3
13	0,575	74,3	77,4	29,0
14	0,666	86,1	90,2	68,4
16	0,870	113,0	118,0	89,3

SWR 8x19W+FC



Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1370/1770 N/mm² (kN)	Minimum Breaking Load 1570 N/mm² (kN)	Cross Section Area (mm²)
8	0,225		29,4	23,2
9	0,283		37,3	29,4
10	0,350		46,0	36,3
11	0,423		55,7	43,9
12	0,505		66,2	52,3
13	0,592		77,4	30,1
14	0,686		90,2	71,1
16	0,896		118,0	92,9

- 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

Rope Specifications

SWR K-200 S

Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Cross Section Area (mm²)
8	0,243	38,5	27,4
10	0,379	58,9	42,8
11	0,456	73,2	51,7
12	0,544	84,9	61,6
13	0,645	101,9	72,3
14	0,745	118,2	83,9
16	0,971	150,0	109,5

SWR K-200 W

Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Cross Section Area (mm²)
8	0,250	40,0	28,5
10	0,394	61,3	44,5
11	0,470	76,1	53,8
12	0,560	88,3	64,1
13	0,660	106,0	75,2
14	0,767	123,0	87,2
16	1,020	156,0	113,9

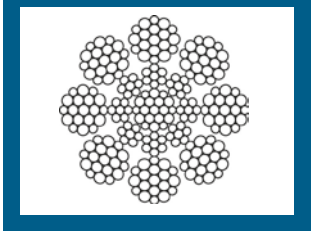
- Standard: EN 12385
- Coating: Bright (U) or Galvanized (B Class)
- Tensile Strength: 1570 N/mm² or 1370/1770 N/mm²
- Core: Independent Wire Rope Core (IWRC)
- Diameter Tolerance: See page 9
- Direction of Lay: RHOL (s/Z) and LHOL (z/S), Regular Lay

Rope Specifications

SWR K-240 W

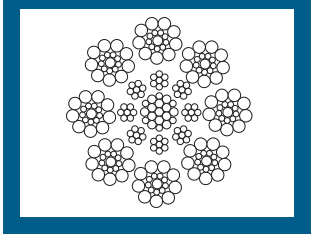
Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Cross Section Area (mm²)
8	0,268	43,3	30,4
10	0,423	67,7	49,4
11	0,512	81,9	59,7
12	0,610	97,4	71,1
13	0,715	114,0	83,4
14	0,829	133,0	96,7
16	1,083	173,0	126,0

SWR K-240 W



Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1770 N/mm² (kN)	Cross Section Area (mm²)
6,5	0,177	31,5	20,1

SWR K-280 S



Nominal Rope Diameter (mm)	Unit Weight (Kg/Mt)	Minimum Breaking Load 1570 N/mm² (kN)	Minimum Breaking Load 1770 N/mm² (kN)	Cross Section Area (mm²)
8	0,261	42,1	44,9	30,8

- 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

Diameter Tolerances of Elevator Ropes

Diameter tolearance of elevator ropes are different from the ropes used in other application areas. The table below shows the diameter tolerances for elevator ropes acroding 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 Governer Ropes	6 x 19 + FC	≤ 10	6	1	0
	8 x 19 + FC	> 10	5	1	0
	6 x 19 + IWRC 8 x 19 + IWRC 9 x 19 + IWRC	≤ 10	3	0	-1
		> 10	2	0	-1
Ropes for Hydraulic Elevators	6 x 19 + FC	≤ 8	6	1	0
	8 x 19 + FC		5	1	0
	6 x 19 + IWRC 8 x 19 + IWRC 9 x 19 + IWRC	> 8	3	0	-1
			2	0	-1

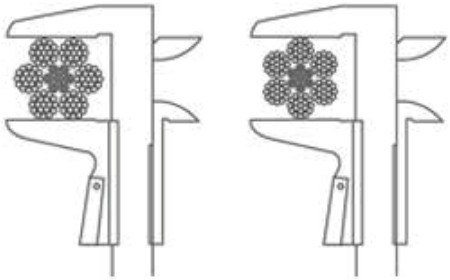
Discarding Criteria of Elevator Ropes

In discarding of elevator ropes,wire breaks, wear, corrosion, rope deformation or excessive elongation should be taken in to aacount. On the other hand, diameter reduction is also another criteria. Elevator ropes should be discarded if 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 x d (nominal rope diameter).***

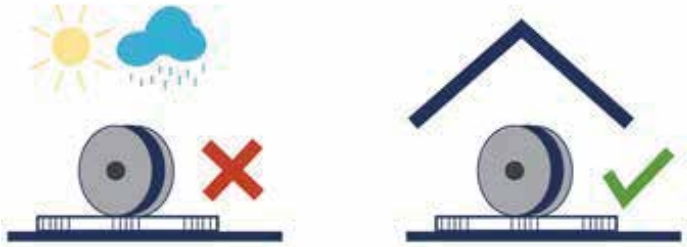
Evaluation cases in discarding the ropes	Discard or examine within a specified time period advised by an expert			Discard immediately		
	Construction of Rope			Construction of Rope		
	6 x19	8 x19	9 x19	6 x19	8 x19	9 x19
Number of broken wires randomly distributed among other strands per rope lay	More than 12 per lay	More than 15 per lay	More than 17 per lay	More than 24 per lay	More than 30 per lay	More than 34 per lay
Number of broken wires predominating in one or two outer strands per rope lay	More than 6 per lay	More than 6 per lay	More than 9 per lay	More than 8 per lay	More than 10 per lay	More than 11 per lay
Number of djacent wires in one outer strand	4	4	5	4	4	4
Number of vallely breaks per rope lay	1	1	1	1	1	1

Measuring Rope Diameter



Storage

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

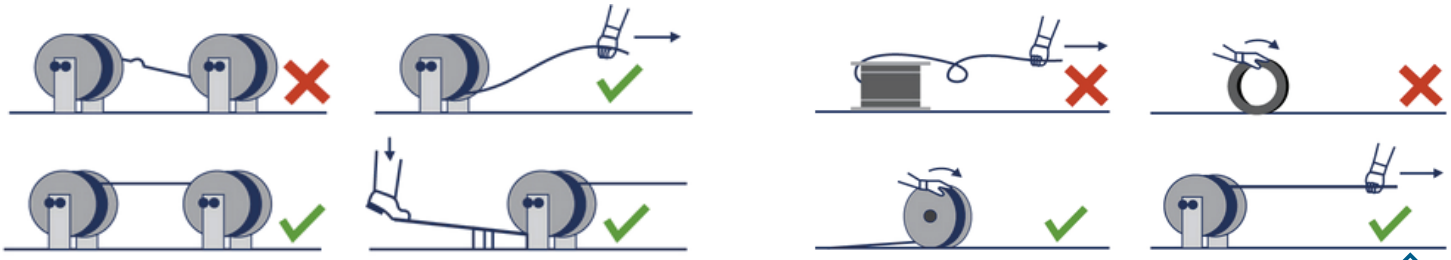


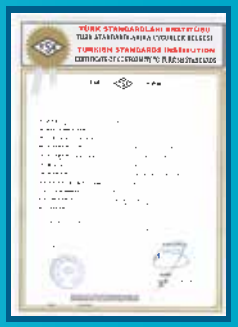
Transport

Using right accesories 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 applicaitons causes kinks.
Cleanliness of the ground where uncoiling is made is important.
Pre-tension during rewinding has to be at a certain level.





KÖŞKERLER®

ÇELİK HALAT ve MAK. SAN. TİC. A.Ş.

Çerkeşli Köyü OSB Mahallesi İMES Bulvarı No: 20 DİLOVASI / KOCAELİ
Tel: 0(262) 754 00 01 **Fax:** 0(262) 754 17 93
Web: www.koskerler.com.tr **E-mail:** info@koskerler.com.tr