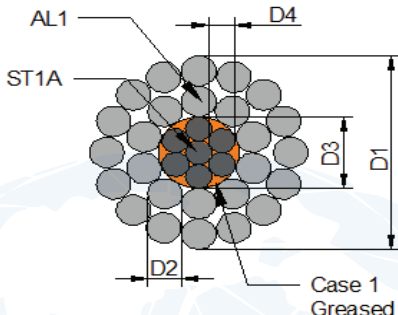


TECHNICAL SPECIFICATION
CONDUCTORS FOR OVERHEAD LINES- ROUND WIRE CONCENTRIC LAY STRANDED CONDUCTORS

Technical Description	Units	Guaranteed Characteristics
1. General Data		
a)Manufacturer		HASÇELİK KABLO
b)Conductor type		Aluminum Conductor Steel Reinforced
c)Conductor coding		ACSR 120/20
d)Applied Standards		EN 50182
e)SAP Product Number		-

2. Technical Drawing:


3. Construction Data / Layers of Conductor:	Units	Guaranteed Characteristics
Number of wires		
a)Steel	pcs.	7
a.1) Lay ratio		Number of wires Lay ratio of layer (min.-max.)
Center		1 -
Layer 1		6 16-26
b)Aluminum	pcs.	26
b.1) Lay ratio		Number of wires Lay ratio of layer (min.-max.)
Layer 2		10 10-16
Layer 3		16 10-14
Nominal diameter of wires		
a)Steel wires (D4)	mm	1,90
b)Aluminum wires (D2)	mm	2,44

4. Constructional and dimensional details	Units	Guaranteed Characteristics
4.1 Aluminum part (AL1)		
a)Number of wires	pcs.	26
b)Nominal diameter of wires	mm	2,44
c)Nominal section area of aluminum part	mm ²	121,57
d)Tensile strength		
1)Before stranding (min.)	N/mm ²	175
2)After stranding (min.)	N/mm ²	166
e)Density at 20 C°	kg/dm ³	2,703
f)Coefficient of linear expansion	K ⁻¹	23 x 10 ⁻⁶
g)Max. Resistivity at 20 C°	nΩm	28,264
h)Temperature coefficient		0,00403
4.2 Zinc-Coated Steel part (ST 1A)		
a)Number of wires	pcs.	7
b)Nominal diameter of wires	mm	1,90
c)Nominal diameter of steel part (D3)	mm	5,70
d)Nominal section area of steel part	mm ²	19,85
e)Tensile strength		
1)Tension at 1% elongation (min.)	N/mm ²	1112
2)Before stranding (min.)	N/mm ²	1400
3)After stranding (min.)	N/mm ²	1330
4)elongation in % on breaking	%	2,5
f)Mass of zinc	gr/m ²	215
g)Density at 20 C°	kg/dm ³	7,78
h)Coefficient of linear expansion	K ⁻¹	11,5 x 10 ⁻⁶
i)Max. Resistivity at 20 C°	nΩm	192
4.3 Conductor		
a)Nominal Diameter of conductor (D1)	mm	15,46
b)Nominal section area of conductor	mm ²	141,42
c)Grease application		Case 1 (Steel core only greased)
d)Aluminum to steel ratio		6,1
e)Conductor mass per unit length (approx.)-without grease	kg/km	490,99
f)Grease mass per unit length (approx.)	kg/km	3,93
g)Direction of lay of the external layer		Z
h)Conductor rated tensile strength	kN	44,50
i)Conductor rated tensile strength	kgf	4537,4
j)Modulus of Elasticity (E-Modulus)	kN/mm ²	77,2
k)Thermal Elongation Coefficient	10-6/°C	18,7

l) Permissible Maximum Working Stress (%40 RTS)	N/mm ²	125,9
m) Everyday Stress (EDS) (20% RTS)	N/mm ²	62,9
n) Ultimate Exceptional Stress (%70 RTS)	N/mm ²	220,2
o) Minimum Bending Radius Installation (15XD1)	mm	232
p) Minimum Bending Radius Operation (30XD1)	mm	464
r) Geometric mean radius	m	0,0063

5.	Temperature Range	Units	Guaranteed Characteristics
a)	Installation	C°	-10 C° ~ +50 C°
b)	Transportation and Operation	C°	-40 C° ~ +80 C°

6.	Electrical Technical Data Sheet	Units	Guaranteed Characteristics
a)	Maximum DC resistance of a conductor at 20 C°	Ω/km	0,2376
b)	Maximum AC resistance of a conductor at 25 C°	Ω/km	0,2433
c)	Maximum AC resistance of a conductor at 75 C°	Ω/km	0,2912
d)	Maximum conductor temperature (Normal operation)	C°	80
e)	Maximum conductor temperature (Short-circuit condition)	C°	200
f)	Current Carrying Capacity*	A	434
*Assumed values for calculation of current carrying capacity:			
1)	Solar Radiation	W/m ²	900
2)	Wind Velocity	m/s	0,6
3)	Maximum conductor temperature	C°	80
4)	Ambient temperature	C°	30
g)	Short-circuit current** (1 second)	kA	13,2
h)	Short circuit current capacity	kA ² s	172,9
**Assumed values for calculation of short-circuit current:			
1)	Specific conductivity of aluminum at 20 °C	1/(Ωm)	35,38
2)	Specific conductivity of steel at 20 °C	1/(Ωm)	5,208
3)	Temperature coefficient of aluminum	1/K	0,00403
4)	Temperature coefficient of steel	1/K	0,0045
5)	Specific thermal capacity of aluminum	J/(kg K)	0,91
6)	Specific thermal capacity of steel	J/(kg K)	0,48
7)	Conductor temperature of the beginning of a short-circuit	C°	40
8)	Conductor temperature at the end of a short-circuit	C°	200
i)	Total heat capacity of conductor	(J / m C°)	395
j)	Inductive reactance	Ω/km	0,243
k)	Capacitive reactance	MΩ.km	0,210

7.	Drum Labeling
The following information to be attached to the outside of both flanges of each drum;	
a)	Name of Manufacturer
b)	Year of Manufacture
c)	Drum Number
d)	Cable Type
e)	Length
f)	Net Weight
g)	Gross Weight