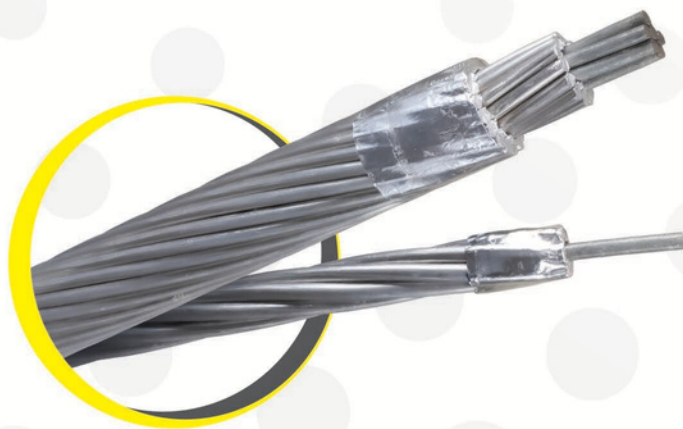




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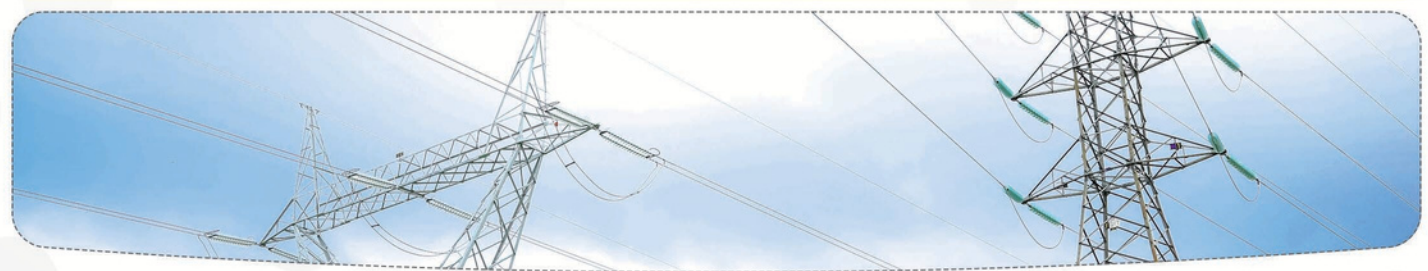
Aluminum Conductor Steel Reinforced Aerial cables (ACSR)

BS EN 50182 Standard

12 / 20 kv Voltage range

It is a type of conductor mostly used worldwide for aerial transmission that composed of one or more steel core. In order to increase mechanical support, the steel core can have a coverage of galvanized or in case you desire additional corrosion protection the coverage can be aluminized.

This cable is widely used in aerial transmission & distribution lines

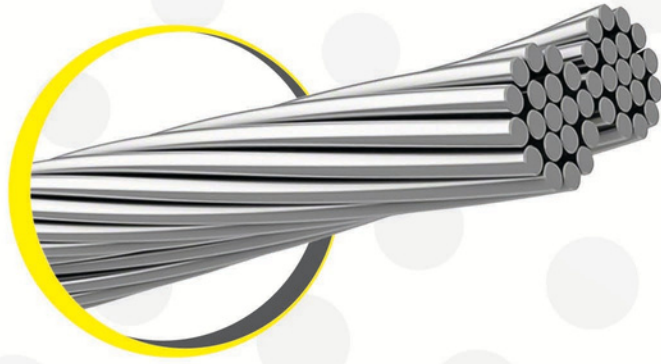


ACSR Aluminum Conductor Steel Reinforced												Specifications
Current Capacity A	Approx. Weight Kg / Km	Dia mm	Steel		Aluminium		Cross Section (mm ²)					Type
			Dia (mm)	No.	Dia (mm)	No.	Copper Equivalent	St	Al	Actual	Nominal	
126	106	7.08	2.36	1	2.36	6	16.1	4.37	26.24	30.62	25	Gopher
134	128	7.77	2.59	1	2.59	6	19.4	5.27	31.61	36.88	35	Weasel
147	149	8.37	2.79	1	2.79	6	22.6	6.11	36.66	42.77	35	Fox
185	214	10.05	3.35	1	3.35	6	32.3	8.81	52.88	61.7	70	Rabbit
174	255	10.97	3.66	1	3.66	6	38.7	10.53	63.18	73.77	70	Mink
278	394	14.15	1.57	7	4.72	6	64.5	13.5	105	118.5	120	Dog
287	450	14.57	1.93	7	4.39	7	64.5	20.44	105.8	126.2	120	Hyena
316	492	15.81	1.75	7	5.28	6	80.7	16.8	131.2	148.1	150	Leopard
321	545	16.28	2	7	2.57	26	85	22	135.16	157.16	150	Partridge
355	726	18.13	2.59	7	2.59	30	96.8	36.88	158	194.9	195	Wolf
386	842	19.53	2.79	7	2.79	30	113	42.77	183.4	226.2	200	Lynx

Feature

- ◆ ACSR conductors are recognized for their record of economy, dependability and favorable strength / weight ratio.
- ◆ ACSR conductors combine the light weight and good conductivity of aluminum with the high tensile strength and ruggedness of steel. In line design, this can provide higher tensions, less sag, and longer span lengths than obtainable with most other types of overhead conductors.

All Aluminum Air Conductors (AAC)



DIN 48201 Standard
12 / 20 kV Voltage range

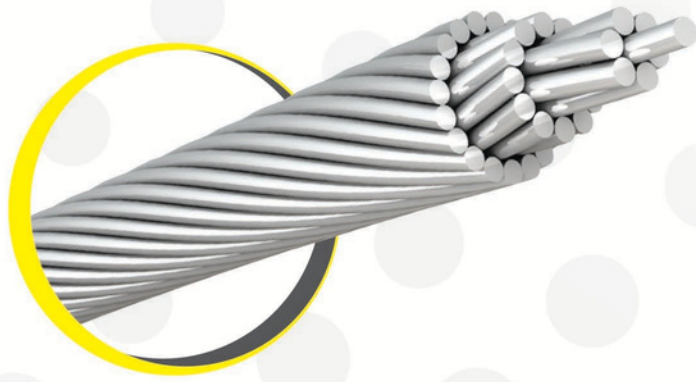
AAC All Aluminum Air Conductors							Specifications
Type	Aluminum Strands	Aluminum Diameter	Outside Diameter	Cross Section	Weight	Tensile Force	Electrical Resistance
		mm	mm	mm ²	Kg / Km	kgf	ohm / Km
16	7	1.7	5.1	15.89	43	289	1.80206
25	7	2.1	6.3	24.24	66	432	1.18094
35	7	2.5	7.5	34.36	94	589	0.83327
50	7	3	9	49.48	135	810	0.57866
50.1	19	1.8	9	48.35	133	881	0.59512
70	19	2.1	10.5	65.81	181	1173	0.43723
95	19	2.5	12.5	93.26	256	1599	0.30851
120	19	2.8	14	116.99	322	1961	0.24594
150	37	2.25	15.8	147.11	405	2580	0.19597
185	37	2.5	17.5	181.62	500	3115	0.15874
240	61	2.25	20.3	242.53	670	4030	0.11922
300	61	2.5	22.5	299.42	827	4865	0.09657

All Aluminium conductors include high strength aluminium wires that are woven around a central wire in one or more layers. The high flexibility of these conductors has caused an increase in the number of layers in a certain cross section. These conductors are generally designed with specific number of strands which consists of 7 - 19 - 37 - 61 - 91 strands.

AAC Conductors can have a significant use in aerial transmission & distribution lines. These conductors are even specifically economic choice in case current flowability is considered as an important factor while mechanical resistance and high thermodynamic condition are not.

Feature

- ◆ Light weight, Easier handling in installation, Reduction of complex connections
- ◆ High resistance against corrosion due to all aluminum structure of AAC conductors
- ◆ All aluminum conductors have high corrosion resistance inherently, which is due to the homogeneous structure of this conductor



Aluminum Alloy Air Conductors (AAAC)

DIN 48201 Standard
12 / 20 kV Voltage range

All aluminum alloy conductors are composed off 6201 or 6101 aluminum alloy wires which are woven around a central wire in one or more layers. high mechanical resistance of these conductors is their advantage.

AAAC All Aluminum Alloy Air Conductors							Specifications
Type	Aluminum Strands	Aluminum Diameter	Outside Diameter	Cross Section	Weight	Tensile Force	Electrical Resistance
		mm	mm	mm ²	Kg / Km	kgf	ohm / Km
16	7	1.7	5.1	15.89	43	453	2.09127
25	7	2.1	6.3	24.24	66	651	1.37047
35	7	2.5	7.5	34.36	94	979	0.96700
50	7	3	9	49.48	135	1409	0.67153
50.1	19	1.8	9	48.35	133	1377	0.69063
70	19	2.1	10.5	65.81	181	1875	0.50740
95	19	2.5	12.5	93.26	256	2657	0.35802
120	19	2.8	14	116.99	322	3333	0.28541
150	37	2.25	15.8	147.11	405	4191	0.22742
185	37	2.5	17.5	181.62	500	5174	0.18421
240	61	2.25	20.3	242.53	670	6909	0.13835
300	61	2.5	22.5	299.42	827	8530	0.11206

AAAC Conductors are widely used in distribution and transmission overhead lines. these conductors have specific usage in every with a possibility of corrosion problems for the steel core of ACSR conductors.

Feature

- ◆ Less energy loss in compare of ACSR conductors with aluminum layer
- ◆ increase the current intensity up to 20%
- ◆ Excellent resistance alongside of corrosion in active environments
- ◆ Equivalent or higher electrical conductivity
- ◆ Greater resistance to fatigue (up to 80%)
- ◆ Better creep resistance



IEC 60502 - BS 5467 Standard

12 / 20 kV Voltage range

Aluminum covered-conductor steel-reinforced Aerial cables (CC-ACSR)

Aerial cables are initially covered with one or multi-layer Cross-linked polyethylene (XLPE) and then they're exposed to steam under certain conditions in the steam chamber in order to provide greater protection.

This cable is used in aerial transmission & distribution lines



ACSR		Covered Conductor A.C.S.R					Specifications
Rated Current	Tensile Strength	Approx. Weight	Dia	Sheath Thickness	No & Dia (N x mm)		Type
A	N	Kg / Km	mm	mm	St	Al	
147	13500	198	12.6	2.3	1 x 2.79	6 x 2.79	Fox
174	21800	335	15.1	2.3	1 x 3.66	6 x 3.66	Mink
278	33000	480	18.1	2.3	7 x 1.57	6 x 4.72	Dog
287	40900	546	18.5	2.3	7 x 1.93	7 x 4.39	Hyena
355	69200	831	22	2.3	7 x 2.59	30 x 2.59	Wolf

Feature

- ◆ Useful in narrow and dark passages
- ◆ Eliminating the short-time and long-time power outages
- ◆ Protecting the environment by decreasing the pruning of trees
- ◆ Increasing the safety of people
- ◆ Reducing current losses and line maintenance costs



IEC 60502 - BS 5467

600 / 1000 v

Low tension aluminum self supporting cables, 5 alloy strand (ABC)

The structure of this type of cables consists of three strand of wire with the same cross section as a phase made of aluminum and one strand as lighting of the same material and one strand as a neutral holder as the same time with aluminum alloy (magnesium, silicon).

ABC cables are mostly used in low voltage aerial power grids, especially in narrow passages and places with lots of barriers such as trees where there is not enough space



ABC Low tension aluminum self supporting cables 5 strand										Specifications
Type	Phase Conductors			Lighting			Null & Messenger			Approx. Weight
	No & Dia	No & Dia	Insulation Thickness	No & Dia	No & Dia	Insulation Thickness	No & Dia	No & Dia	Insulation Thickness	
N x mm ²	N x mm ²	N x mm	mm	N x mm ²	N x mm	mm	N x mm ²	N x mm	mm	Kg / Km
3 x 35 + 16 + 50	3 x 35	7 x 2.6	1.6 - 2	1 x 16	7 x 1.72	1.2 - 1.5	1 x 50	7 x 3.15	1.6 - 1.9	684
3 x 50 + 16 + 50	3 x 50	7 x 3	1.6 - 2	1 x 16	7 x 1.72	1.2 - 1.5	1 x 50	7 x 3.15	1.6 - 1.9	803
3 x 70 + 16 + 70	3 x 70	19 x 2.2	1.8 - 2.2	1 x 16	7 x 1.72	1.2 - 1.5	1 x 70	7 x 3.61	1.6 - 1.9	1083
3 x 95 + 25 + 70	3 x 95	19 x 2.6	1.8 - 2.4	1 x 25	7 x 2.2	1.4 - 1.7	1 x 70	7 x 3.61	1.6 - 1.9	1362
3 x 120 + 25 + 70	3 x 120	19 x 2.83	1.8 - 2.4	1 x 25	7 x 2.2	1.4 - 1.7	1 x 70	7 x 3.61	1.6 - 1.9	1575

Feature

- ◆ Useful in narrow and dark passages
- ◆ Reducing the possibility of phases-contacts with each other and energy losses
- ◆ Protecting security of people
- ◆ Decreasing the theft of conductors in power distribution lines



Low tension aluminum self supporting cables, 6 strand (ABC)

IEC 60502 - BS 5467 Standard

600 / 1000 v Voltage range

These cables are composed of four aluminum strings with the same cross section (3P,1N), an aluminum string for lighting usage and a retaining string made of steel or aluminum alloy. The Insulating coverage material is weather resistant cross-linked thermosetting polyethylene (XLPE).

ABC cables are mostly used in low voltage aerial power grids, especially in narrow passages and places with lots of barriers such as trees where there is not enough space

ABC Low tension aluminum self supporting cables 6 strand													Specifications
Type	Phase Conductors			Null			Lighting			Messenger			Approx. Weight Kg / Km
	No & Dia N x mm ²	No & Dia N x mm	Insulation Thickness mm	No & Dia N x mm ²	No & Dia N x mm	Insulation Thickness mm	No & Dia N x mm ²	No & Dia N x mm	Insulation Thickness mm	No & Dia N x mm ²	No & Dia N x mm	Insulation Thickness mm	
3x35+35+25+25	3 x 35	7 x 2.6	1.6 - 2	1 x 35	7 x 2.6	1.6 - 2	1 x 25	7 x 2.2	1.4 - 1.7	1 x 25	7 x 1.93	1.2 - 1.5	806
3x50+50+25+25	3 x 50	7 x 3	1.6 - 2	1 x 50	7 x 3	1.6 - 2	1 x 25	7 x 2.2	1.4 - 1.7	1 x 25	7 x 1.93	1.2 - 1.5	964
3x70+70+25+25	3 x 70	19 x 2.2	1.8 - 2.2	1 x 70	19 x 2.2	1.8 - 2.2	1 x 25	7 x 2.2	1.4 - 1.7	1 x 25	7 x 1.93	1.2 - 1.5	1259
3x95+95+25+25	3 x 95	19 x 2.6	1.8 - 2.4	1 x 95	19 x 2.6	1.8 - 2.4	1 x 25	7 x 2.2	1.4 - 1.7	1 x 25	7 x 1.93	1.2 - 1.5	1619
3x120+120+25+25	3 x 120	19 x 2.83	1.8 - 2.4	1 x 120	19 x 2.83	1.8 - 2.4	1 x 25	7 x 2.2	1.4 - 1.7	1 x 25	7 x 1.93	1.2 - 1.5	1896

Feature

- ◆ Reducing maintenance costs of lines
- ◆ Better and more competitive prices in compare of copper conductors
- ◆ Reducing the corrosion of conductors caused by environmental conditions



Single phase low voltage aluminum cables (NAYY)

IEC 60502 - BS 5467 Standard

600 / 1000 v Voltage range

NAYY Mono Phase Low Voltage Aluminium Cables						Specifications
Type	No & Dia	Insulation Thickness	Sheath Thickness	Approx. Dia	Max Resistance at 20 C	Approx. Weight
N × mm ²	N × mm	mm	mm	mm		Kg / Km
1 × 50	19 × 1.83	1.4	1.4	14.4	0.641	280
1 × 70	19 × 2.11	1.4	1.4	16.2	0.443	353
1 × 95	19 × 2.5	1.6	1.5	18.7	0.32	477
1 × 120	37 × 2.01	1.6	1.5	20.3	0.253	566
1 × 150	37 × 2.22	1.8	1.6	22.3	0.206	688
1 × 185	37 × 2.5	2	1.7	24.9	0.164	858
1 × 240	37 × 2.9	2.2	1.8	28	0.125	1089
1 × 300	37 × 3.2	2.4	1.9	31.1	0.1	1353

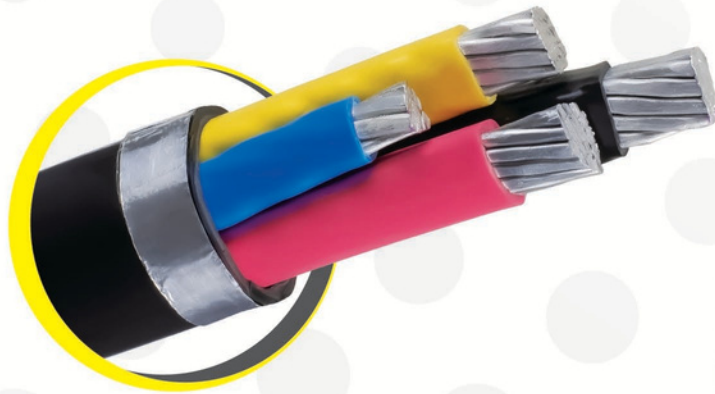
The low pressure aluminum cables produced by “Sazeh Novin Betoni” company, depending on the type of application, consist of an aluminum strand with the same cross sectional area, and the insulating material of each strand by pvc.

NAYY cables can be used in earth, ducts, on support brackets, in dry and wet conditions etc., where one does not expect mechanical damages and the cables are not exposed to the mechanical tensile strain. distribution networks of Industrial companies, streets and passages lightning and transmission of driving force to electric motors are some of other applications of NAYY cables.



Feature

- ◆ High resistance to ultraviolet rays
- ◆ Anti-oil and hydrocarbons



Three phase low voltage aluminum cables (NAYY)

IEC 60502 - BS 5467 Standard
600 / 1000 v Voltage range

NAYY Aluminum Conductor Steel Reinforced						Specifications
Type	No & Dia	Insulation Thickness	Sheath Thickness	Approx. Dia	Max Resistance at 20 C	Approx. Weight Kg / Km
N × mm ²	N × mm	mm	mm	mm		
4 × 16	7 × 1.68	1	1.8	22.6	1.91	667
4 × 25	7 × 2.1	1.2	1.8	26.7	1.2	839
3 × 35 + 16	7 × 2.48, 7 × 1.68	1.2	1.8	27.7	0.868	891
3 × 50 + 25	7 × 3.05, 7 × 2.14	1.4	1.9	28.3	0.841	971
3 × 70 + 35	19 × 2.17, 7 × 2.52	1.4	2	31.6	0.443	1231
3 × 95 + 50	19 × 2.58, 7 × 3.05	1.6	2.2	36.2	0.320	1675
3 × 120 + 70	19 × 2.8, 19 × 2.17	1.6	2.3	39.6	0.253	2025
3 × 150 + 70	30 × 2.55, 19 × 2.16	1.8	2.4	42.7	0.206	2398
3 × 185 + 95	30 × 2.8, 19 × 2.58	2	2.6	50.1	0.164	2983
3 × 240 + 120	37 × 2.91, 19 × 2.89	2.2	2.8	54.8	0.125	3794

The low voltage aluminum cables produced by “Sazehaye Novin Betoni” company, depending on the usage, can be consists of one or three strings as phase with the same cross section and one string as neutral. Depending on the application, the cross section of the Neutral string can has the same amount with phase strings. The mentioned strings are made of aluminum and each of them insulated by PVC. In order to prevent sticking coverage to the insulation and also to minimize the fire risks, the company is using Talc powder on the strings. The final coverage of the cables is also made of PVC.

NAYY cables can be used in earth, ducts, on support brackets, in dry and wet conditions etc., where one does not expect mechanical damages and the cables are not exposed to the mechanical tensile strain. distribution networks of Industrial companies, streets and passages lightning and transmission of driving force to electric motors are some of other applications of NAYY cables.

Feature

- ◆ High resistance to ultraviolet rays
- ◆ Anti-oil and hydrocarbons

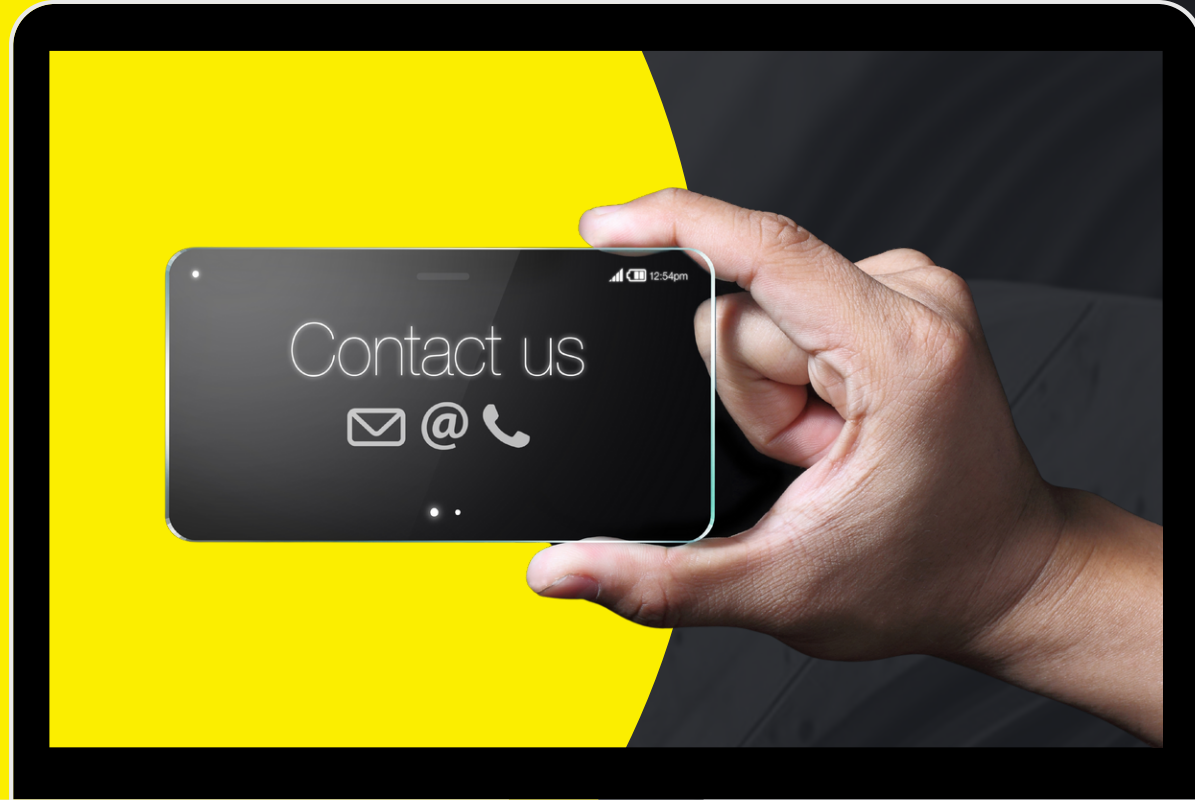
H-shaped concrete utility poles



The H-type utility poles are frequently used in distribution grid networks. Through these years, “Sazehaye Novin Company” has been manufacturing these utility poles in all sizes and standard tensile strength. It is noteworthy that the company had managed to acquire all the approvals of Iran’s power Generation, Distribution and Transmission company (TAVANIR).

Type	9-200	9-400	9-600	9-800	9-1000	12-200	12-400	12-600	12-800	12-1000	12-1200	15-400	15-600	15-800	15-1000	15-1200
Weight (kg)	600	1200	1525	2100	2228	850	1625	2125	2950	3200	3600	2125	3175	3972	4625	4800
Nominal Force (kg)	600	1200	1500	2000	2500	600	1200	1500	2000	2500	3000	1200	1500	2000	2500	3000





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