ACSR – Aluminum Conductor Steel

ACSR is a concentrically stranded bare overhead conductor made from hard-drawn EC grade aluminum wires stranded over a galvanized steel core. It is designed for transmission and distribution lines requiring higher tensile strength, better sag control, and reliable long-span performance.

Applications

ACSR is mainly used for overhead transmission and distribution lines where higher mechanical strength, longer spans, or demanding loading conditions require steel reinforcement without sacrificing the conductivity benefits of aluminum outer layers.

Description

ACSR (Aluminum Conductor Steel Reinforced) is a concentric-lay stranded bare overhead conductor composed of one or more layers of hard-drawn aluminum wires laid over a galvanized steel core. The aluminum strands carry most of the electrical current while the steel core supplies the tensile strength required for long spans, heavy mechanical loading, and improved sag control. Different aluminum-to-steel ratios are available so the conductor can be selected according to the required balance between ampacity and mechanical strength. Depending on project requirements, the steel core may be single-wire or stranded, and additional corrosion protection such as grease or enhanced galvanizing can be specified.

Specifications

- **IEC 61089**
- **GB/T 1179**
- **ASTM B232/B232M**
- **BS EN 50182 (United Kingdom sizes)**
- **BS EN 50182 (German sizes)**
- **DIN 48204**
- **BS 215-2**

Custom specifications and technical confirmation are available on request.

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Farwalk Cable — ACSR Complete Technical Tables

ACSR — IEC 61089

Al / Steel Area (mm²)	Stranding (Al/St)	Overall Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Max. DC Resistance at 20° C (Ω/km)
50/8	6/1	9.5	197.6	11.7	0.5653
75/12	6/1	11.7	296.3	17.5	0.3769
100/16	6/1	13.5	395.1	23.4	0.2826
150/25	30/7	17.2	600.5	35.5	0.1884
175/25	30/7	18.4	668.0	39.6	0.1615
200/32	30/7	19.8	790.2	46.8	0.1413
240/40	26/7	22.6	960.7	56.8	0.1178
300/50	30/7	25.3	1200.9	71.0	0.0942
400/50	54/7	28.6	1471.2	87.5	0.0707
500/65	54/7	33.3	1858.5	110.5	0.0565
700/85	54/19	39.2	2555.1	152.1	0.0404

ACSR — GB/T 1179

Nominal Designation (Al/St mm²)	Stranding (Al/St)	Overall Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Max. DC Resistance at 20° C (Ω/km)
JL/G1A-16/3	6/1	5.4	66.6	3.9	1.7665
JL/G1A-25/4	6/1	6.7	98.8	5.8	1.1306
JL/G1A-35/6	6/1	8.0	141.4	8.4	0.8075
JL/G1A-50/8	6/1	9.5	197.6	11.7	0.5653
JL/G1A-70/10	6/1	11.2	267.2	15.9	0.4038
JL/G1A-95/15	26/7	13.1	373.8	22.1	0.2975
JL/G1A-120/20	26/7	15.4	480.4	28.4	0.2355
JL/G1A-150/20	30/7	16.9	561.5	33.4	0.1884
JL/G1A-185/25	30/7	18.8	695.1	41.3	0.1528
JL/G1A-240/30	26/7	22.2	882.7	52.5	0.1178
JL/G1A-300/40	30/7	24.9	1122.9	66.7	0.0942
JL/G1A-400/50	54/7	28.6	1471.2	87.5	0.0707

ACSR — ASTM B232/B232M (Part 1)

Code Name	AWG/MCM	Stranding (Al/St)	Nominal Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Max. DC Resistance at 20° C (Ω/km)	Standard
Turkey	6	6/1	5.03	53.6	5.3	2.1030	ASTM B232/B232M
Swan	4	6/1	6.35	84.8	8.3	1.3222	ASTM B232/B232M
Swanate	4	7/1	6.53	99.7	10.5	1.3091	ASTM B232/B232M
Sparrow	2	6/1	8.03	135.4	12.7	0.8333	ASTM B232/B232M
Sparate	2	7/1	8.25	159.2	16.2	0.8235	ASTM B232/B232M
Robin	1	6/1	8.99	171.1	15.8	0.6594	ASTM B232/B232M
Raven	1/0	6/1	10.11	215.8	19.5	0.5217	ASTM B232/B232M
Quail	2/0	6/1	11.35	272.3	23.6	0.4134	ASTM B232/B232M
Pigeon	3/0	6/1	12.75	343.8	29.4	0.3281	ASTM B232/B232M
Penguin	4/0	6/1	14.30	433.1	37.1	0.2608	ASTM B232/B232M
Waxwing	266.8	18/1	15.47	431.6	30.6	0.2110	ASTM B232/B232M
Partridge	266.8	26/7	16.31	546.2	49.5	0.2090	ASTM B232/B232M
Ostrich	300.0	26/7	17.27	614.6	56.5	0.1860	ASTM B232/B232M

ACSR — ASTM B232/B232M (Part 2)

Code Name	AWG/MCM	Stranding (Al/St)	Nominal Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Max. DC Resistance at 20° C (Ω/km)	Standard
Merlin	336.4	18/1	17.35	543.2	38.6	0.1673	ASTM B232/B232M
Linnet	336.4	26/7	18.29	689.0	62.7	0.1657	ASTM B232/B232M
Oriole	336.4	30/7	18.82	784.3	77.0	0.1647	ASTM B232/B232M
Chickadee	397.5	18/1	18.87	642.9	44.2	0.1417	ASTM B232/B232M
Brant	397.5	24/7	19.61	761.9	64.9	0.1411	ASTM B232/B232M
Ibis	397.5	26/7	19.89	814.0	72.5	0.1404	ASTM B232/B232M
Lark	397.5	30/7	20.47	927.1	90.3	0.1394	ASTM B232/B232M

Pelican	477.0	18/1	20.68	770.9	52.5	0.1181	ASTM B232/B232M
Flicker	477.0	24/7	21.49	915.2	76.5	0.1175	ASTM B232/B232M
Hawk	477.0	26/7	21.79	976.2	86.7	0.1168	ASTM B232/B232M
Hen	477.0	30/7	22.43	1111.7	105.9	0.1161	ASTM B232/B232M
Osprey	556.5	18/1	22.33	898.8	60.9	0.1010	ASTM B232/B232M
Parakeet	556.5	24/7	23.22	1067.0	88.1	0.1007	ASTM B232/B232M
Dove	556.5	26/7	23.55	1139.9	100.5	0.1004	ASTM B232/B232M
Eagle	556.5	30/7	24.21	1297.7	123.7	0.0994	ASTM B232/B232M

ACSR — BS EN 50182 (United Kingdom Sizes)

Code Name	Al / Steel Area (mm^2)	Stranding (Al/St)	Nominal Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Max. D.C. Resistance at 20° C (Ω/km)	Standard
Squirrel	20/3	6/1	6.0	77.5	4.6	1.4132	BS EN 50182
Weasel	30/7	6/1	7.6	135.7	8.0	0.9421	BS EN 50182
Rabbit	50/7	6/1	9.4	189.8	11.3	0.5653	BS EN 50182
Mink	100/15	6/1	13.4	387.3	22.9	0.2826	BS EN 50182
Dog	100/20	6/1	13.7	426.3	25.1	0.2826	BS EN 50182
Fox	150/25	30/7	17.2	600.5	35.5	0.1884	BS EN 50182
Otter	175/25	30/7	18.4	668.0	39.6	0.1615	BS EN 50182
Cat	200/30	30/7	19.7	774.6	45.9	0.1413	BS EN 50182
Panther	200/50	30/7	20.6	930.6	54.5	0.1413	BS EN 50182
Zebra	400/50	54/7	28.6	1471.2	87.5	0.0707	BS EN 50182
Moose	500/65	54/7	33.3	1858.5	110.5	0.0565	BS EN 50182

ACSR — BS EN 50182 (German Sizes)

Designation	Al / Steel Area (mm²)	Stranding (Al/St)	Overall Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Max. D.C. Resistance at 20° C (Ω/km)
Al/St 16/2.5	16/2.5	6/1	5.4	62.7	3.7	1.7665
Al/St 25/4	25/4	6/1	6.7	98.8	5.8	1.1306
Al/St 40/6.7	40/6.7	6/1	8.5	160.4	9.5	0.7066
Al/St 50/8	50/8	6/1	9.5	197.6	11.7	0.5653
Al/St 70/11	70/11	26/7	11.2	275.0	16.3	0.4038
Al/St 95/15	95/15	26/7	13.1	373.8	22.1	0.2975
Al/St 120/20	120/20	26/7	15.4	480.4	28.4	0.2355
Al/St 150/25	150/25	30/7	17.2	600.5	35.5	0.1884
Al/St 185/30	185/30	30/7	19.1	734.1	43.4	0.1528
Al/St 240/40	240/40	26/7	22.6	960.7	56.8	0.1178
Al/St 300/50	300/50	30/7	25.3	1200.9	71.0	0.0942
Al/St 400/65	400/65	54/7	30.2	1588.2	94.0	0.0707

ACSR — DIN 48204

Designation	Al / Steel Area (mm²)	Stranding (Al/St)	Overall Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Max. D.C. Resistance at 20° C (Ω/km)
DIN 16/2.5	16/2.5	6/1	5.4	62.7	3.7	1.7665
DIN 25/4	25/4	6/1	6.7	98.8	5.8	1.1306
DIN 35/6	35/6	6/1	8.0	141.4	8.4	0.8075
DIN 50/8	50/8	6/1	9.5	197.6	11.7	0.5653
DIN 70/11	70/11	26/7	11.2	275.0	16.3	0.4038
DIN 95/15	95/15	26/7	13.1	373.8	22.1	0.2975
DIN 120/20	120/20	26/7	15.4	480.4	28.4	0.2355
DIN 150/25	150/25	30/7	17.2	600.5	35.5	0.1884
DIN 185/30	185/30	30/7	19.1	734.1	43.4	0.1528
DIN 240/40	240/40	26/7	22.6	960.7	56.8	0.1178
DIN 300/50	300/50	30/7	25.3	1200.9	71.0	0.0942

ACSR — BS 215-2

Code Name	Al / Steel Area (mm²)	Stranding (Al/St)	Overall Diameter (mm)	Weight (kg/km)	Rated Strength (kN)	Max. D.C. Resistance at 20° C (Ω/km)
Mole	10/1.5	6/1	4.2	38.7	2.3	2.8264
Squirrel	20/3	6/1	6.0	77.5	4.6	1.4132
Ferret	25/4	6/1	6.7	98.8	5.8	1.1306
Weasel	30/7	6/1	7.6	135.7	8.0	0.9421
Rabbit	50/7	6/1	9.4	189.8	11.3	0.5653
Mink	100/15	6/1	13.4	387.3	22.9	0.2826
Beaver	150/25	30/7	17.2	600.5	35.5	0.1884
Otter	175/25	30/7	18.4	668.0	39.6	0.1615
Cat	200/30	30/7	19.7	774.6	45.9	0.1413
Panther	200/50	30/7	20.6	930.6	54.5	0.1413
Zebra	400/50	54/7	28.6	1471.2	87.5	0.0707