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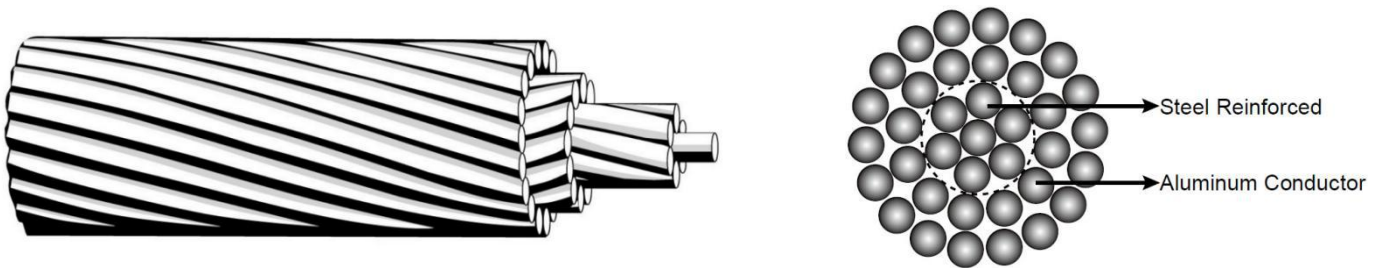
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German DIN48204 Standard Aluminum Conductor Steel reinforced (ACSR)

Application

ACSR conductors are widely used for electrical power transmission over long distances, since they are ideal for long overhead lines spans. They are also used as a messenger for supporting overhead electrical cables.

Construction



ACSR conductors are formed by several wires of aluminium and galvanized steel, stranded in concentric layers. The wire or wires which form the core, are made of galvanized steel and the external layer or layers, are of aluminium. Galvanized steel core consist normally of 1, 7 or 19 wires. The diameters of steel and aluminium wires can be the same, or different.

By varying the relative proportions of aluminium and steel, the required characteristics for any particular application can be reached. A higher U. T. S. Can be obtained, by increasing steel content, and a higher current carrying capacity by increasing aluminium content.

Electrical Properties

Density: 20°C

Aluminium: 2.703 kg/dm

Galvanized Steel: 7.80 kg/dm

Temperature Coefficient: 20°C

Aluminium: 0.00403 (°C)

Resistivity: 20°C

Aluminium: Should not exceed 0.028264

Linear Expansivity

Aluminium: 23 x10 (°C)



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Galvanized Steel: 11.5 x10 (1/°C)

Service Conditions

Ambient Temperature	-5°C - 50°C
Wind Pressure	80 - 130kg/m ²
Seismic Acceleration	0.12 - 0.05g
Isokeraunic Level	10 - 18
Relative Humidity	5 - 100%

Construction Parameters

DIN 48204

Nominal Sectional Area		Sectional Area			Stranding		Overall Diameter	Weight	Breaking Load	Electrical Resistance @20o	Current Rating *
AL	Steel	AL	Steel	Total	AL	Steel					
mm ²	mm ²	mm ²	mm ²	mm ²	No. x m m	No. x m m	mm	Kg/K m	KN	Ω/Km	A
16	2.5	15.27	2.54	17.8	6/1.80	1/1.80	5.4	62	5.81	1.8793	83
25	4	23.86	3.98	27.8	6/2.25	1/2.25	6.8	97	9.02	1.2028	109
35	6	34.35	5.73	40.1	6/2.70	1/2.70	8.1	140	12.7	0.8353	136
44	32	43.98	31.67	75.7	14/2.0 0	7/2.40	11.2	373	45.46	0.6573	166
50	8	48.25	8.04	56.3	6/3.20	1/3.20	9.6	196	17.18	0.5946	168
50	30	51.17	29.85	81	12/2.3 3	7/2.33	11.7	378	44.28	0.5644	181
70	12	69.89	11.4	81.3	26/1.8 5	7/1.44	11.7	284	26.31	0.413	211
95	15	94.39	15.33	109.7	26/2.1	7/1.67	13.6	383	35.17	0.3058	254



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95	55	96.51	56.3	152.8	12/3.2 0	7/3.20	16	714	80.2	0.2992	267	
105*	75	105.6 7	75.55	181.2	14/3.1 0	19/2.2 5	17.5	899	106.69	0.2736	284	
120	20	121.5 7	19.85	141.4	26/2.4 4	7/1.90	15.5	494	44.94	0.2374	297	
120	70	122.1 5	71.25	193.4	12/3.6 0	7/3.60	18	904	98.16	0.2364	308	
125	30	127.9 2	29.85	157.8	30/2.3 3	7/2.33	16.3	590	57.86	0.2259	308	
150	25	148.8 6	24.25	173.1	26/2.7 0	7/2.10	17.1	604	54.37	0.1939	336	
170	40	171.7 7	40.08	211.9	30/2.7 0	7/2.70	18.9	794	77.01	0.1682	369	
185	30	183.7 8	29.85	213.6	26/3.0 0	7/2.33	19	744	66.28	0.1571	382	
210	35	209.1	34.09	243.2	26/3.2 0	7/2.49	20.3	848	74.94	0.138	414	
210	50	212.0 6	49.48	261.5	30/3.0 0	7/3.00	21	979	92.25	0.1363	420	
230	30	230.9 1	29.85	260.8	24/3.5 0	7/2.33	21	874	73.09	0.1249	438	
240	40	243.0 5	39.49	282.5	26/3.4 5	7/2.68	21.8	985	86.46	0.1188	453	
265	35	263.6 6	34.09	297.8	24/3.7 4	7/2.49	22.4	998	82.94	0.1094	475	
300	50	304.2 6	49.48	353.7	26/3.8 6	7/3.00	24.5	1233	105.09	0.0949	520	
305	40	304.6 2	39.49	344.1	54/2.6 8	7/2.68	24.1	1155	99.3	0.0949	518	
340	30	339.2	29.85	369.1	48/3.0	7/2.33	25	1174	92.56	0.0851	551	



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		9			0							
380	50	381.7	49.48	431.2	54/3.0 0	7/3.00	27	1448	120.91	0.0757	593	
385	35	386.0 4	34.09	420.1	48/3.2 0	7/2.49	26.7	1336	104.31	0.0748	595	
435	55	434.2 9	56.3	490.6	54/3.2 0	7/3.20	28.8	1647	136.27	0.0666	641	
450	40	448.7 1	39.49	488.2	48/3.4 5	7/2.68	28.7	1553	120.19	0.0644	651	
490	65	490.2 8	63.55	553.8	54/3.4 0	7/3.40	30.6	1860	152.85	0.059	689	
550	70	549.6 5	71.25	620.9	54/3.6 0	7/3.60	32.4	2085	167.42	0.0526	737	
560	50	561.7	49.48	611.2	48/3.8 6	7/3.00	32.2	1943	146.28	0.0514	744	
680*	85	678.5 8	85.95	764.5	54/4.0 0	19/2.4 0	36	2564	209.99	0.0426	834	

* The items marked with "*" are not in our current product range and the details are for information only.

(*) Note: The values of current rating mentioned in above Table are based on wind velocity of 0.6 metre/second, solar heat radiation of 1200 watt/metre², ambient temperature of 50° C & conductor temperature of 80°C.

Technical Data

Numbers of Wires		Final Modules of Elasticity		Coefficient of linear Expansion	
AL	Steel	Kg/mm ²	lb/in ²	1/Co	1/Fo
6	1	81	11.5 x10 ⁶	19.1 x10 ⁻⁶	10.6 x10 ⁻⁶
6	7	77	11.0 x10 ⁶	19.8 x10 ⁻⁶	11.0 x10 ⁻⁶
12	7	107	15.2 x10 ⁶	15.3 x10 ⁻⁶	8.5 x10 ⁻⁶
18	1	67	9.5 x10 ⁶	21.2 x10 ⁻⁶	11.8 x10 ⁻⁶



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24	7	74	10.5×10^6	19.6×10^{-6}	10.9×10^{-6}
26	7	77	10.9×10^6	18.9×10^{-6}	10.5×10^{-6}
28	7	79	11.2×10^6	18.4×10^{-6}	10.2×10^{-6}
30	7	82	11.6×10^6	17.8×10^{-6}	9.9×10^{-6}
30	19	80	11.4×10^6	18.0×10^{-6}	10.0×10^{-6}
32	19	82	11.7×10^6	17.5×10^{-6}	9.7×10^{-6}
54	7	70	9.9×10^6	19.3×10^{-6}	10.7×10^{-6}
54	19	68	9.7×10^6	19.4×10^{-6}	10.8×10^{-6}