GRANDCABLE

DIN 48 201-5 · HARD-DRAWN ALUMINIUM · CONCENTRIC-LAY-STRANDED

AAC

All Aluminum Conductor — Bare, Overhead Distribution & Transmission



16	1000	7–91	17
MM² MIN.	MM² MAX.	WIRES	STANDARD ENTRIES

Jiangsu Grand Cable Co., Ltd.
Overhead Bare Conductor · Yixing, Jiangsu, China

All Aluminum Conductor (AAC) — DIN 48 201-5

AAC to DIN 48 201-5 is a bare conductor stranded from hard-drawn aluminum round wires in a concentric-lay construction. DIN 48 201-5 defines the standard sizes, stranding geometries and electrical data for German-market overhead conductors, making it the reference AAC for projects specified to German standards.

Also manufactured to

The same construction is available to other national and international AAC standards on request:

ASTM B 231 / B 231M | IEC 61089 | BS 215-1 | AS 1531 | UNE 21018 | SANS 182-2 | JIS C 3109 | GOST 839

Typical applications

Primary and secondary overhead distribution lines with short spans where high mechanical strength is not required; river and valley crossings; busbar and jumper connections in substations. As a homogeneous aluminum conductor, the ampacity of AAC is used to best advantage.

Wire material

Hard-drawn aluminum round wires with a maximum resistivity of 0.028264 Ω·mm²/m at 20 °C (equivalent to 61.0 % IACS conductivity). Wires are concentric-lay stranded in successive layers with opposite lay direction per DIN 48 201-5.

Construction summary

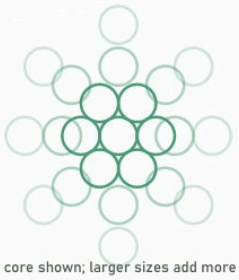
Standard	DIN 48 201-5 — Overhead line conductors, aluminium
Designation	Nominal section + stranding, e.g. 50 mm² — 7 × 3.00 mm
Wire material	Hard-drawn aluminum, resistivity at 20 °C max. 0.028264 Ω·mm²/m
Size range	16 – 1000 mm², 16 nominal sizes (50 mm² in two strandings)
Constructions	7, 19, 37, 61 or 91 wires — according to size
Surface	Bare — no insulation or covering

Concentric-lay stranding

DIN 48 201-5 conductors are built up in concentric layers around a central wire: 7, 19, 37, 61 and 91-wire constructions cover the range from 16 to 1000 mm². Successive layers are laid up with opposite directions of lay, and the outermost layer is right-hand (Z) lay as standard.

1. **Central wire** — single hard-drawn aluminum wire at the core.
2. **Concentric layers** — 6, 12, 18 and 24 wires added per layer, giving the 7 / 19 / 37 / 61 / 91-wire series.
3. **Lay direction** — successive layers opposite; outer layer right-hand (Z) as standard. Left-hand outer lay on request.

> For most sizes one stranding is standard; 50 mm² is listed in two constructions (7/3.00 and 19/1.80) with slightly different weight, strength and resistance — both to DIN 48 201-5, select per project preference.



7-wire core shown; larger sizes add more layers

Concentric-lay stranding — schematic; numbers refer to the layers listed opposite.

Design options

Stranding	Standard geometries per DIN 48 201-5; compressed or compacted constructions on request
Lay direction	Right-hand outer layer (Z) standard; left-hand (S) on request
Jointing	Fully compatible with standard compression fittings and automatic splices
Packaging	Returnable steel or wooden reels, lengths to suit project stringing plans

Why homogeneous aluminum

With no steel core there is no bi-metallic corrosion cell, no magnetic loss and no need for grease — the full cross-section conducts, and the ampacity of AAC is used to best advantage. The trade-off is lower rated strength, which is why AAC is normally chosen for shorter spans.

Quality & testing

Wire samples are tested for resistivity, elongation and torsional ductility per DIN 48 201-5 before stranding; finished conductor is checked for lay length, diameter and D.C. resistance on every production lot. Third-party inspection on request.

DIN 48 201-5 — dimensions & technical data

Nominal sizes 16 to 1000 mm². The code name column is the nominal cross-section in mm².

Code Name mm²	Stranding No. × Ø mm	Section mm²	Overall Dia. mm	Weight kg/km	Rated Strength kN	D.C. Resistance at 20 °C, Ω/km
16	7/1.70	15.89	5.1	44	2.84	1.8018
25	7/2.10	24.25	6.3	67	4.17	1.1808
35	7/2.50	34.46	7.5	94	5.74	0.8332
50	7/3.00	49.48	9.0	135	7.95	0.5786
50	19/1.80	48.36	9.0	133	8.44	0.595
70	19/2.10	65.82	10.5	181	11.25	0.4371
95	19/2.50	93.27	12.5	256	15.65	0.3085
120	19/2.80	117.00	14.0	322	18.75	0.2459
150	37/2.25	147.10	15.7	406	25.25	0.1961
185	37/2.50	181.60	17.5	501	30.45	0.1587
240	61/2.25	242.50	20.2	670	39.35	0.1192
300	61/2.50	299.40	22.5	827	47.55	0.0965
400	61/2.89	400.10	26.0	1105	60.70	0.0722
500	61/3.23	499.80	29.1	1381	74.50	0.0578
625	91/2.96	626.30	32.6	1733	95.00	0.0462
800	91/3.35	802.10	36.8	2219	118.20	0.0361
1000	91/3.74	999.70	41.1	2766	145.50	0.029

Electrical resistance: maximum D.C. values at 20 °C for hard-drawn aluminum. Weights nominal. Breaking load = sum of wire minimum breaking loads. For A.C. ratings add skin and proximity effects per project conditions.

Reading the table

Stranding is the number of aluminum wires and their individual diameter. **Rated strength** is the sum of the wire breaking loads — for engineering use apply the stringing limits of the project. **Resistance** is the maximum D.C. value at 20 °C.

Ampacity

Steady-state ampacity of bare AAC depends on ambient temperature, wind and emissivity and is calculated per IEEE 738 on request for the specific span conditions. As a homogeneous aluminum conductor, AAC gives the highest ampacity per unit weight of any stranded overhead type.

How to specify

Information needed	Example
Type designation	AAC — All Aluminum Conductor, bare
Standard	DIN 48 201-5
Size and stranding	50 mm² — 7 wires × 3.00 mm (or 19 × 1.80 mm)
Lay direction	Concentric lay, right-hand outer layer
Options and delivery	Reel lengths to suit stringing plans · left-hand outer lay on request

Quality & testing

Routine tests — every production lot

Wire samples per DIN 48 201-5: resistivity, elongation and torsional ductility. Finished conductor: lay length, overall diameter and D.C. resistance measured on every production lot before despatch.

Certification & documentation

Mill certificates for the wire, routine test reports and inspection certificates issued on request. Third-party inspection (SGS, BV or nominated) welcome before shipment.

Packing & delivery

Reels & lengths

Supply on returnable steel or wooden reels in single lengths to suit the project stringing plan. Conductor ends are secured and tagged; reels are battened and marked for identification.

Export packing

Reel lagging and additional weather protection available for sea freight and long-term outdoor storage. Delivery ex works or CIF — Incoterms 2020 — as agreed.

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