

# DEMKA

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# ABC CABLES & ALUMINIUM CONDUCTOR

## Content of ABC Cables & Aluminium Conductor

- \* MEDIUM VOLTAGE AERIAL BUNDLED CABLES (ABC)
  - Acc. to NF C 33-226
  
- \* AERIAL BUNDLED CABLES (ABC)
  - Acc. to HD 626 S1
  - Acc. to IEC 60502
  - Acc. to NF C 33-209
  - Acc. to BS 7870-5
  - Acc. to SFS 2200
  - Acc. to SANS 1418
  
- \* AAC CONDUCTOR
  - Acc. to ASTM B-231
  - Acc. to DIN 48201 / EN 50182
  - Acc. to BS 215 / EN 50182
  - Acc. to UNE 2101 / EN 50182
  - Acc. to GOST 839-80
  
- \* AAAC CONDUCTOR
  - Acc. to EN 50182 TYPE AL3
  - Acc. to EN 50182 TYPE AL2
  - Acc. to ASTM B-232 IEC 61089
  - Acc. to NFC 34-125 / EN 50182
  
- \* ACS CONDUCTOR
  - Acc. to ASTM B 416
  - Acc. to IEC 61232 / ACS 20 SA
  - Acc. to DIN 48201 / 8 ACS 20 SA
  
- \* ACSR CONDUCTOR
  - Acc. to ASTM B 232 / B 232M
  - Acc. to CSA C4 9
  - Acc. to DIN EN 50182
  
- \* OPGW
  - OPGW-95
  - OPGW-127-1
  - OPGW-127-2
  - OPGW Joint Box
  
- \* STAY WIRE

## AAC CONDUCTOR



### GENERAL INFORMATION

AAC conductors are composed of several wires stranded over each layer. All wires have same outer diameter. Most common AAC conductors are composed of 7,19,37 and 61 wires. AAC conductors that are used for insulated cables as compacted will be composed of various number of wires.

### APPLICATION

AAC conductors can be used in substation, electricity distribution lines and insulated cables as cable core.

\* Sections of Related Standard is down below;

CODE	SECTION mm <sup>2</sup>	STRANDING N2xØmm	OVERALL DIAMETER mm	APPROXIMATE WEIGHT kg/km	BREAKING LOAD kN	ELECTRICAL RESISTANCE			CURRENT CARRYING CAPACITY (A)
						D.C. 20 °C W/km	C.C 25 °C W/km	C.C 75 °C W/km	
ROSE	21,1	7*1,96	5,90	58,00	4	1,3640	1,4	2	145
IRIS	33,5	7*2,47	7,4	93,0	6,0	0,9	0,9	1,0	195
PANSY	42,5	7*2,78	8,3	117,0	7,3	0,7	0,7	0,8	225
POPY	53,5	7*3,12	9,4	148,0	8,9	0,5	0,6	0,7	260
ASTER	67,3	7*3,50	10,5	186,0	11,2	0,4	0,4	0,5	305
PHLOX	84,9	7*3,93	11,8	234,0	13,4	0,3	0,3	0,4	350
OXLIP	107,4	7*4,42	13,3	296,0	17,1	0,3	0,3	0,3	410
SNEEZEWORTH	127,6	7*4,80	14,4	349,0	20,1	0,2	0,2	0,3	455
VALERIAN	126,4	17*2,91	14,6	349,0	20,7	0,2	0,2	0,3	455
DAISY	135,3	7*4,96	14,9	328,0	21,5	0,2	0,2	0,3	475
LAUREL	135,2	19*3,01	15,1	328,0	22,1	0,2	0,2	0,3	475
PEONY	151,9	19*3,19	16,0	419,0	24,4	0,2	0,2	0,2	515
TULIP	170,9	19*3,38	16,9	470,0	27,4	0,2	0,2	0,2	555
DAFFODİL	177,6	19*3,45	17,3	489,0	28,5	0,2	0,2	0,2	565
CANNA	202,1	19*3,68	18,4	55,0	31,6	0,1	0,1	0,2	615
GOLDENTUFT	228,1	19*3,91	19,6	683,0	35,1	0,1	0,1	0,2	665
COSMOS	241,2	19*4,02	20,1	666,0	37,2	0,1	0,1	0,1	690
SYRINGA	241	37*2,95	20,2	666,0	38,7	0,1	0,1	0,1	690
ZINNIA	253,3	19*4,95	20,6	699,0	39,0	0,1	0,1	0,1	715
HYACINTH	252,9	37*2,95	20,7	690,0	40,5	0,1	0,2	0,1	715
DAHLIA	282,4	19*4,35	21,8	777,0	43,4	0,1	0,1	0,1	765
MISTLETOE	281,1	37*3,11	21,8	777,0	44,3	0,1	0,1	0,1	765
MEADOWSWEET	303,2	37*3,23	22,6	838,0	47,6	0,1	0,1	0,0	800
ORCHID	322,2	37*3,33	23,3	888,0	50,7	0,1	0,1	0,1	835
HEUCHERA	320	37*3,37	23,6	908,0	51,8	0,1	0,1	0,1	855
VERBANA	354	37*3,49	24,4	978,0	55,6	0,1	0,1	0,1	880
FLAG	354,5	61*2,72	24,5	978,0	57,4	0,1	0,1	0,1	900
VIOLET	362,1	37*3,53	24,7	1000,0	57,0	0,1	0,1	0,1	900
NASTURIUM	24,8	91,2,75	999,6	1000,0	58,3	0,8	0,1	0,1	900

## According to: ASTM B-231

CODE	SECTION	STRANDING	OVERALL DIAMETER	APPROXIMATE WEIGHT	BREAKING LOAD	ELECTRICAL RESISTANCE			CURRENT CARRYING CAPACITY (A)
						D.C. 20 °C	C.C 25 °C	C.C 75 °C	
	mm <sup>2</sup>	N2xØmm	mm	kg/km	kN	W/km	W/km	W/km	
PETUNNA	380,8	37x3,62	25,3	1048	58,3	0,076	0,079	0,094	922
CATTAIL	381	61x3,82	25,4	1048	60,08	0,076	0,079	0,094	922
ARBUTUIS	402,1	37x3,72	26	1111	61,86	0,072	0,075	0,089	960
LILAC	402	61x2,90	26,1	1111	63,65	0,072	0,075	0,089	960
FUCHSIA	408,7	37x3,75	26,3	1115	62,3	0,071	0,074	0,088	960
HELICOPTER	408,7	61x2,92	26,3	1115	64,08	0,071	0,074	0,088	960
ANEMONE	444,3	37x3,91	27,4	1222	66,75	0,065	0,068	0,081	1020
CROCUS	444,3	61x3,04	27,4	1222	70,31	0,065	0,068	0,081	1020
COCKCOOMB	455,7	37x3,96	27,7	1257	68,53	0,063	0,067	0,079	1040
SNAPDRAGON	457,4	61x3,09	27,8	1257	70,76	0,063	0,067	0,079	1040
MAGNOLIA	483,7	37x4,08	28,6	1333	1332,8	0,6	0,063	0,075	1080
GALDENGON	484,5	61x3,18	28,6	1333	75,22	0,06	0,063	0,075	1080
HAWKWEED	505,3	37x4,17	29,2	1397	76,54	0,057	0,06	0,071	1110
CAMELLA	506	61x3,25	29,3	1397	78,77	0,057	0,06	0,071	1110
BLUEBEL	522,4	37x4,24	29,7	1444	78,77	0,055	0,058	0,069	1350
LARKSPUR	524,9	61x3,31	29,8	1444	81,45	0,055	0,058	0,069	1350
MARIGOLD	563,6	61x3,43	30	1555	87,67	0,051	0,055	0,064	1190
HAWTHORN	603,8	61x3,55	32	1665	93,9	0,048	0,051	0,06	1240
NARCISSUS	645,3	61x3,67	33	1777	97,9	0,045	0,048	0,057	1290
COLUMBINE	684,5	61x3,78	34	1889	104,13	0,042	0,046	0,054	1340
CARNATION	725	61x3,89	35	1999	108,14	0,398	0,043	0,051	1390
GADIOLUS	766,5	61x4	36	2110	113,92	0,038	0,041	0,049	1430
COREOPSIS	805,4	61x4,10	36,9	2222	120,15	0,036	0,04	0,046	1480
JESSANINE	885,8	61x4,30	38,7	2445	132,17	0,036	0,036	0,043	1565
COWSLIP	1010,4	91x3,76	41,4	2793	152,19	0,028	0,033	0,038	1695
SAGEPRUS	1137,8	91x3,99	43,9	3174	167,77	0,028	0,03	0,034	1810
PIGWEED	1164,4	61x4,93	44,4	3240	173,56	0,025	0,029	0,034	1830
LUPINE	1266,8	91x4,21	46,3	3527	186,46	0,023	0,028	0,032	1920
BITTERROOT	1390	91x4,41	48,5	3880	205,15	0,021	0,026	0,029	2020
TRILLIUM	1517	127x3,90	50,7	4232	223,84	0,019	0,025	0,028	2120
BLUEBONNET	1776,3	127x4,22	54,9	4985	261,22	0,017	0,022	0,025	2295

## According to: DIN 48201(Old Code) / EN 50182(New Code)

CODE	NEW CODE	SECTION	COMPOSITION		DIAMETER	RATED STRENGTH	ELECTRICAL RESISTANCE	CABLE WEIGHT	CURRENT CARRYING CAPACITY (A)
			mm <sup>2</sup>	N°					
16	16-AL1	15,89	7	1,7	5,1	2,84	1,802	43,4	110
25	24-AL1	24,25	7	2,1	6,3	4,17	1,181	66,3	145
35	34-AL1	34,46	7	2,5	7,5	5,74	0,833	93,9	180
50	49-AL1	49,48	7	3	9	7,95	0,579	135,2	225
50	48-AL1	48,36	19	1,8	9	8,44	0,595	132,9	225
70	66-AL1	65,82	19	2,1	10,5	11,25	0,437	180,9	270
95	93-AL1	93,27	19	2,5	12,5	15,65	1,309	256,3	340
120	117-AL1	117	19	2,8	14	18,75	0,246	321,5	390
150	147-AL1	147,1	37	2,25	15,7	25,25	0,196	405,7	455
185	182-AL1	181,6	37	2,5	17,5	30,45	0,159	500,9	520
240	243-AL1	242,5	61	2,25	20,2	39,35	0,119	871,1	625
300	299-AL1	299,4	61	2,5	22,5	47,55	0,097	828,5	710
400	400-AL1	400,1	61	2,89	26	60,7	0,072	1107,1	855
500	500-AL1	499,8	61	3,23	29,1	74,5	0,058	1382,9	990
625	626-AL1	626,3	91	2,96	32,6	95	0,046	1379,7	1140
800	802-AL1	802,1	91	3,35	36,8	118,2	0,036	2228,3	1340
1000	1000-AL1	999,7	91	3,74	41,1	145,5	0,029	2777,3	1540

**According to: BS 215(Old Code) / EN 50182 (New Code)**

CODE	NEW CODE	AREA	DIAMETER		No. Of WIRES	MASS per UNIT LENGHT	RATED STRENGHT	ELECTRICAL RESISTANCE	CURRENT CARRYING CAPACITY (A)
			WIRE CONDUCTOR	CONDUCTOR					
			mm <sup>2</sup>	mm					
MIDGE	23-AL1	23,3	2,1	6,2	7	64	4,2	1,224	167
GNAT	27-AL1	26,9	2,2	6,6	7	73	4,83	1,064	182
MOSQUITO	37-AL1	36,9	2,6	7,8	7	101	6,27	0,774	222
LADYBIRD	43-AL1	42,8	2,8	8,4	7	117	7,28	0,667	244
ANT	53-AL1	52,8	3,1	9,3	7	144	8,72	0,54	278
FLY	64-AL1	63,6	3,4	10,2	7	174	10,49	0,449	311
BLUEBOTTLE	74-AL1	73,6	3,7	11	7	201	11,78	0,388	342
EARWIG	79-AL1	78,6	3,8	11,3	7	215	12,57	0,363	356
GRASSHOPPER	84-AL1	84,1	3,9	11,7	7	230	13,45	0,34	370
CLEGG	96-AL1	95,6	4,2	12,5	7	261	15,3	0,298	401
WASP	106-AL1	106	4,4	13,2	7	290	6,95	0,269	428
BEETLE	106-AL1	106,4	2,7	13,4	19	292	18,08	0,27	429
BEE	132-AL1	132	4,9	14,7	7	361	21,12	0,216	491
HORNET	158-AL1	157,6	3,3	16,3	19	433	26,01	0,182	548
CATERPILLAR	186-AL1	185,9	3,5	17,7	19	511	29,75	0,154	608
CHAFER	213-AL1	213,2	3,8	18,9	19	586	34,12	0,134	662
SPIDER	238-AL1	237,6	4	20	19	653	38,01	0,121	708
COCKROACH	266-AL1	265,7	4,2	21,1	19	730	42,52	0,108	759
BUTTERFLY	323-AL1	322,7	4,7	23,3	19	887	51,63	0,089	857
MOTH	373-AL1	373,1	5	25	19	1025	59,69	0,077	939
DRONE	372-AL1	372,4	3,6	25,1	37	1027	59,69	0,077	938
CETIPEDE	415-AL1	415,2	3,8	26,5	37	1145	66,43	0,069	1004
MAYBUG	486-AL1	486,1	4,1	28,6	37	1341	77,78	0,059	1108
SCORPION	530-AL1	529,8	4,3	29,9	37	1461	84,77	0,054	1170
CICADA	628-AL1	628,3	4,7	32,6	37	1733	100,54	0,045	1302

**According to: UNE 2101(Old Code) / EN 50182(New Code)**

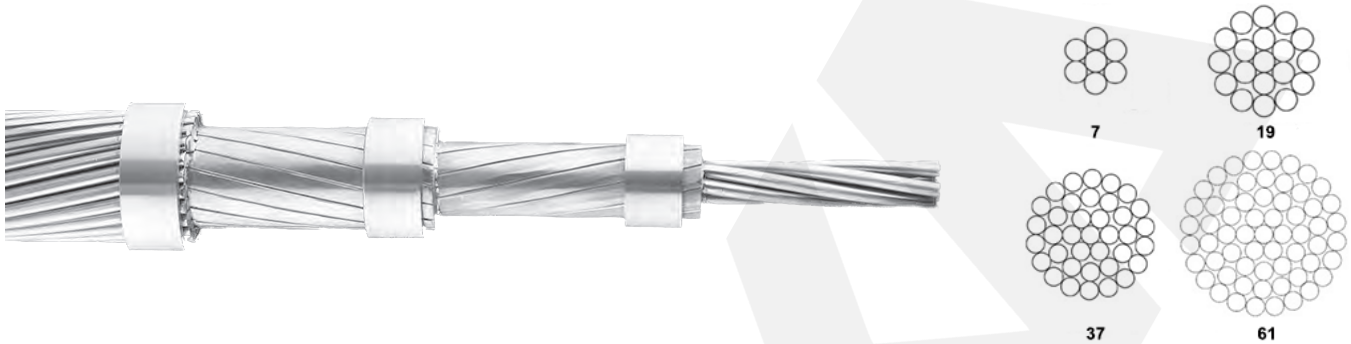
CODE	NEW CODE	SECTION	COMPOSITION		DIAMETER	RATED STRENGHT	ELECTRICAL RESISTANCE	CABLE WEIGHT	CURRENT CARRYING CAPACITY (A)
		mm <sup>2</sup>	N°	Ømm	mm	Kn	Ω/km	kg/km	
L-28	28-AL1	27,80	7,00	2,30	7	5,01	1,0	76	187
L-40	43-AL1	43,1	7,0	2,8	8,4	7,33	0,7	118,0	245
L-46	55-AL1	54,6	7,0	3,2	9,5	9	0,5	149,0	284
L-80	76-AL1	75,5	19,0	2,3	11,4	13,6	0,4	208,0	348
L-110	117-AL1	117,0	19,0	2,8	14,0	19,89	0,2	322,0	456
L-145	148-AL1	148,1	19,0	3,2	15,8	24,43	0,2	407,0	528
L-180	188-AL1	188,1	19,0	3,6	17,8	30,09	0,2	517,0	613
L-280	279-AL1	279,3	37,0	3,1	21,7	46,08	0,1	770,0	782
L-400	301-AL1	381,4	61,0	2,8	25,4	64,77	0,1	1053,0	951
L-450	454-AL1	454,5	61,0	3,1	27,7	74,99	0,1	1256,0	1060
L-550	547-AL1	547,3	61,0	0,4	30,4	90,3	0,1	1512,0	1192
L-630	638-AL1	638,3	61,0	3,7	32,9	102,2	0,0	1763,0	1315



According to: GOST / ГОСТ 839-80

CODE	No. Of WIRES	SECTION	DIAMETER		RATED STRENGTH	ELECTRICAL RESISTANCE	CABLE WEIGHT
			WIRE	CONDUCTOR			
		mm <sup>2</sup>	mm	mm	kN	Ω/km	kg/km
4	1	3,94	2,24	2,24	670	7,1736	10,7
6	1	6,0	2,8	2,8	1015	4,7	16,2
10	1	10,0	3,6	3,4	1950	2,9	27,4
16	7	15,9	1,7	5,1	3021	1,8	43,0
25	7	24,9	2,1	6,4	4500	1,1	68,0
35	7	34,4	2,5	7,5	5913	0,8	94,0
40	7	40,1	2,7	8,1	6800	0,7	109,4
50	7	49,5	3,0	9,0	8193	0,6	135,0
63	7	63,2	3,4	10,2	10390	0,5	172,3
70	7	69,3	3,6	10,7	11288	0,4	189,0
95	7	92,4	4,1	12,3	14784	0,3	252,0
100	19	100,1	2,6	12,9	17000	0,3	274,9
120	19	117,0	2,8	14,0	19890	0,2	321,0
125	19	124,6	2,9	14,5	21250	0,2	343,6
150	19	148,1	3,2	15,8	24420	0,2	406,0
160	19	159,6	3,3	16,4	26400	0,2	439,8
185	19	182,8	3,5	17,5	29832	0,2	502,0
200	19	199,9	3,7	18,3	32000	0,1	549,7
240	19	238,8	4,0	20,0	38192	0,1	655,0
250	19	249,6	4,1	20,5	40000	0,1	687,1
300	37	288,4	3,2	22,1	47569	0,1	794,0
315	37	314,6	3,3	23,1	51970	0,1	867,5
350	37	345,9	3,5	24,2	57057	0,1	952,0
400	37	389,3	3,7	25,6	63420	0,1	1072,0
450	37	442,0	3,9	27,3	71856	0,1	1206,0
500	37	500,5	4,2	29,1	80000	0,1	1378,0
550	61	544,1	3,4	30,3	89760	0,1	1500,0
560	37	560,0	4,4	30,7	89600	0,1	1542,2
600	61	586,9	3,5	31,5	95632	0,0	1618,0
630	61	631,3	3,6	32,6	100800	0,0	1738,4
650	61	641,8	3,7	32,9	104575	0,0	1771,0
700	61	691,8	3,8	34,2	112725	0,0	1902,0
710	61	710,1	3,9	34,7	113600	0,0	1959,2
750	61	747,5	4,0	35,6	119584	0,0	2062,0

## AAAC CONDUCTOR



### GENERAL INFORMATION

AAAC conductors are composed of several wires stranded over each layer. All wires have same outer diameter. Most common AAAC conductors are composed of 7, 19, 37 and 61 wires AAAC conductors that are used for insulated cables as compacted will be composed of various number of wires.

### APPLICATION

AAAC conductors can be used in substation, electricity distribution lines, electricity transmission lines and 0,6-1kV overhead bundled insulated aluminium cables.

\* Sections of Related Standard is down below;

### According to EN 50182 TYPE AL3

CODE	OLD CODE	AREA	STRANDING WIRE DIAMETER	OVERALL DIAMETER	No. Of WIRES	APPROXIMATE WEIGHT	BREAKING LOAD	DC RESISTANCE	CURRENT CARRYING CAPACITY (A)
		mm <sup>2</sup>	mm	mm		kg/km	kN	Ω/km	
19-AL3	BOX	18,8	1,85	5,6	7	51,4	5,55	1,748 0	138
24-AL3	ACACIA	23,8	2,08	6,2	7	64,9	7,02	1,382 8	160
30-AL3	ALMOND	30,1	2,34	7	7	82,2	8,88	1,092 6	185
42-AL3	CEDAR	35,5	2,54	7,6	7	96,8	10,46	0,927 3	205
48-AL3	DEODAR	42,2	2,77	8,3	7	115,2	12,44	0,7797	228
48-AL3	FIR	47,8	2,95	8,9	7	130,6	14,11	0,687 5	246
60-AL3	HAZEL	59,9	3,3	9,9	7	163,4	17,66	0,549 4	283
72-AL3	PINE	71,6	3,61	10,8	7	195,6	21,14	0,4591	316
84-AL3	HOLLY	84,1	3,91	11,7	7	229,5	24,79	0,3913	350
90-AAL3	WILLOW	89,7	4,04	12,1	7	245	26,47	0,366 5	364
119-AL3	AOK	118,9	4,65	14	7	324,5	35,07	0,276 7	434
151-AL3	MULBERRY	150,9	3,18	15,9	19	414,3	44,52	0,2192	503
181-AL3	ASH	180,7	3,48	17,4	19	469,1	53,31	0,183 0	563
211-AL3	ELM	211	3,76	18,8	37	579,2	62,24	0,156 8	620
239-AL3	POPLAR	239,4	2,87	20,1	37	659,4	70,61	0,1387	671
303-AL3	SYCAMORE	303,2	3,23	22,6	37	835,2	89,4	0,1095	777
362-AL3	UPAS	362,1	3,53	24,7	37	997,5	106,32	0,091 7	870
479-AL3	YEW	479	4,06	28,4	37	1 319,6	141,31	0,069 3	1037
498-AL3	TOTARA	489,1	4,14	29	37	1 372,1	146,93	0,066 6	1062
587-AL3	RUBUS	586,9	3,5	31,5	61	1 622,0	173,13	0,056 7	1177
659-AL3	SORBUS	659,4	3,71	33,4	61	1 822,0	194,53	0,0505	1264
821-AL3	ARAUCARIA	821,1	4,14	37,3	61	2 269,4	242,24	0,040 6	1454
996-AL3	REDWOOD	996,2	4,56	41	61	2 753,2	293,88	0,0334	1639

## According to: EN 50182 TYPE AL2

CODE	AREA	STRANDING WIRE DIAMETER	OVERALL DIAMETER	No. Of WIRES	APPROXIMATE WEIGHT	BREAKING LOAD	DC RESISTANCE	CURRENT CARRYING CAPACITY (A)
	mm <sup>2</sup>	mm	mm		kg/km			
28-AL2	27,80	2,3	6,8	7	76	5,55	1,193 0	175
43-AL2	43,10	2,8	8,4	7	118	7,02	0,7704	230
55-AL2	54,6	3,2	9,5	7	149	8,88	0,6087	266
76-AL2	75,5	2,3	11,3	19	207	10,46	0,4420	326
117-AL2	117,0	2,8	14,0	19	321	12,44	0,2854	428
148-AL2	148,1	3,2	15,8	19	407	14,11	0,2255	496
188-AL2	188,1	3,6	17,8	19	516	17,66	0,1176	707
279-AL2	279,3	3,1	21,7	37	769	21,14	0,1200	735
381-AL2	381,1	2,8	25,4	61	1 053,0	24,79	0,0882	892
454-AL2	454,5	3,1	27,7	61	1 256,1	26,47	0,0740	996
547-AL2	547,3	3,4	30,4	61	1 512,7	35,07	0,0614	1119
638-AL2	638,3	3,7	32,9	61	1 764,0	44,52	0,0527	1233

## According to: EN 50182 TYPE AL3

CODE	AREA	STRANDING WIRE DIAMETER	OVERALL DIAMETER	No. Of WIRES	APPROXIMATE WEIGHT	BREAKING LOAD	DC RESISTANCE	CURRENT CARRYING CAPACITY (A)
	mm <sup>2</sup>	mm	mm		kg/km			
16-AL3	15,9	1,70	5,10	7	43,4	4,69	2,070 1	105
24-AL3	24,2	2,10	6,30	7	66,2	7,15	1,356 6	135
34-AL3	34,4	2,50	7,50	7	93,8	10,14	0,957 2	170
49-AL3	49,5	3,00	9,00	7	135,1	14,60	0,664 7	210
48-AL3	48,3	1,80	9,00	19	132,7	14,26	0,684 1	210
66-AL3	65,8	2,10	10,5	19	180,7	19,41	0,502 6	255
93-AL3	93,3	2,50	12,5	19	256,0	27,51	0,354 6	320
117-AL3	117,0	2,80	14,0	19	321,2	34,51	0,282 7	365
147-AL3	147,1	2,25	15,8	37	405,3	43,40	0,225 6	425
182-AL3	181,6	2,50	17,5	37	500,3	53,58	0,182 7	490
243-AL3	242,5	2,25	20,3	61	670,3	71,55	0,137 3	585
299-AL3	299,4	2,50	22,5	61	827,5	88,33	0,111 2	670
400-AL3	400,1	2,89	26,0	61	1 105,9	118,04	0,083 2	810
500-AL3	499,8	3,23	29,1	61	1 381,4	147,45	0,066 6	930
626-AL3	626,2	2,96	32,6	91	1 737,7	184,73	0,053 4	1 075
802-AL3	802,1	3,35	36,9	91	2 225,8	236,62	0,041 7	1 255
1000-AL3	999,7	3,74	41,1	91	2 774,3	249,91	0,033 4	1 450



### According to: ASTM B-232 IEC 61089

CODE	CROSS SECTION		OVERALL DIAMETER mm	STRANDING & WIRE DIAMETER NØxmm ALLOY	APPROXIMATE WEIGHT kg/km	BREAKING LOAD Kn	DC RESISTANCE Ω/km	CURRENT CARRYING CAPACITY (A)
	Al. EQUIV mm <sup>2</sup>	ALLOY mm <sup>2</sup>						
ALTON	48,69	24,7	6,4	7x2,12	68	7,84	1,3576	162
AMES	77,47	39,3	8,0	7x2,67	108	12,40	0,8533	216
AZUSA	123,3	62,5	10,1	7x3,37	172	19,00	0,5364	288
ANAHEIM	155,4	78,7	11,4	7x3,78	217	24,00	0,4255	333
AMHERST	195,7	99,2	12,8	7x4,25	273	30,20	0,3379	384
ALLIANCE	246,9	125,1	14,3	7x4,77	345	38,10	0,2658	444
BUTTE	312,8	158,5	16,3	19x3,26	437	46,70	0,2114	516
CANTON	394,5	199,9	18,3	19x3,66	551	59,00	0,1675	596
CAIRO	465,4	235,8	19,9	19x3,98	650	69,60	0,1421	661
DARIEN	559,5	283,5	21,8	19x4,36	781	83,60	0,1181	741
ELGIN	652,4	330,6	23,5	19x4,71	911	97,50	0,1013	817
FLINT	740,8	375,4	25,2	37x3,59	1,035	108,00	0,0892	885
GREELEY	927,2	469,8	28,1	37x4,02	1,295	136,00	0,0712	1018

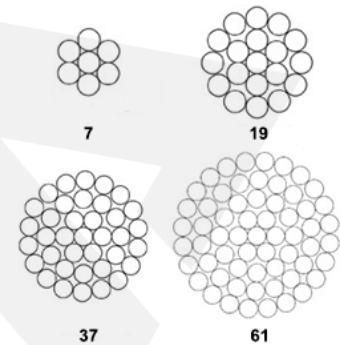
### According to: ASTM B-232 IEC 61089

CODE	CROSS SECTION mm <sup>2</sup>	STRANDING & WIRE DIAMETER	OVERALL DIAMETER	APPROXIMATE WEIGHT	BREAKING LOAD	DC RESISTANCE	CURRENT CARRYING CAPACITY (A)
	Al. EQUIV	NØxmm ALLOY	mm		kN	Ω/km	
16	18,4	7x1,83	5,50	50	5,4	1,79	136
25	28,8	7x2,29	6,90	79	8,5	1,15	180
40	46,0	7x2,89	8,70	126	13,6	0,72	241
63	72,5	7x3,63	10,90	198	21,4	0,45	319
100	115,0	19x2,78	13,90	316	34,0	0,29	426
125	144,0	19x3,10	15,5	395	42,4	0,23	489
160	184,0	19x3,51	17,6	506	54,3	0,18	518
200	230,0	19x3,93	19,6	633	67,9	0,14	597
250	288,0	19x4,39	22,0	791	84,9	0,12	685
315	363,0	37x3,53	24,7	999	107,0	0,09	794
400	460,0	37x3,98	27,9	1268	135,8	0,07	921
450	518,0	37x4,22	29,6	1427	152,8	0,06	992
500	575,0	37x4,45	31,2	1586	169,76	0,06	1059
560	645	61x3,67	33	1778	190,14	0,0516	1137
630	725,0	61x3,89	35,0	2001	213,9	0,05	1225
710	817	61x4,13	37,2	2255	241,07	0,0407	1449
800	921,0	61x4,38	39,5	2541	271,62	0,04	1562
900	1036	91x3,81	41,8	2861	305,58	0,0321	1683
1000	1151	91x4,01	44,1	3179	339,53	0,0289	1799
1120	1289,0	91x4,25	46,70	3561	380,3	0,03	1929
1250	1439,0	91x4,49	49,40	3974	424,4	0,02	2069

According to: NFC 34-125(Old Code) / EN 50182(New Code)

CODE	AREA	No Of WIRES	DIAMETER		MASS per UNIT LENGHT	RATED STRENGHT	DC RESISTANCE	FINAL MODULUS of ELASTICITY	COEFFICIENT of LINEAR EXPANSION	DIRECTION of LAY of EXTERNAL LAYER	CURRENT CARRYING CAPACITY I(A)
			WIRE	CONDUCTOR							
	mm <sup>2</sup>		mm	mm							
22-AL4	22	7	2	6	60	7,15	1,498 9	62 000	2,30-E	S	152
34-AL4	34,4	7	2,5	7,5	93,8	11,17	0,959 3	62 000	2,30-E	S	201
55-AL4	54,6	7	3,15	9,45	148,9	17,73	0,604 2	62 000	2,30-E	S	267
76-AL4	75,5	19	2,25	11,3	207,4	24,55	0,438 8	60 000	2,30-E	S	327
117-AL4	117	19	2,8	14	321,2	38,02	0,283 8	60 000	2,30-E	S	429
148-AL4	148,1	19	3,15	15,8	406,5	48,12	0,223 9	60 000	2,30-E	S	497
182-AL4	181,6	37	2,5	17,5	500,3	59,03	0,183 1	57 000	2,30-E	S	564
228-AL4	227,8	37	2,8	19,6	627,6	74,04	0,146 0	57 000	2,30-E	S	650
288-AL4	288,3	37	3,15	22,1	794,3	93,71	0,115 4	57 000	2,30-E	S	754
366-AL4	366,2	37	3,55	24,9	1008,9	115,36	0,090 8	57 000	2,30-E	S	876
570-AL4	570,2	61	3,45	31,1	1576	185,33	0,058 5	54 000	2,30-E	S	1155
851-AL4	850,7	91	3,45	38	2360,7	276,47	0,039 4	52 000	2,30-E	S	1485
1144-AL4	1 143,5	91	4	44	3173,4	360,22	0,029 3	52 000	2,30-E	S	1786
1596-AL4	1 595,9	127	4	52	4427,5	502,72	0,021 0	50 000	2,30-E	S	2221

## ACS CONDUCTOR



### GENERAL INFORMATION

ACS cable with full name as Aluminium Clad Steel Wire Stranded conductor is a composite Concentric-lay-stranded conductors made of aluminium-clad steel wires. The wires of the conductive layers could be made of hard-drawn aluminium or of thermal aluminium alloy and they have a rounded section.

\* Sections of Related Standard is down below;

### APPLICATION

Due to its excellent characteristics, this product is used extensively in the cable industry for the manufacturing of Optical Ground Wire (OPGW), conventional stranded earth wired and steel-reinforced cores for phases conductors, all to be used in overheads lines. Also, it can be used in alternative applications as helical hardware for overhead lines or those where corrosion resistance is an important factor.

### According to ASTM B 416

Size AWG	DIAMETER		STRANDED DIAMETER		BREAKING LOAD		WEIGHT		RESISTANCE at 20°C		CROSS SECTION		
	in.	mm	in.	mm	lb.	kg	lb./1,000 ft.	kg/lkm	O / 1,000 ft.	O / km	Cmils	in <sup>2</sup>	mm <sup>2</sup>
37/5	0.1819	4.620	1.27	32.36	142.800	64.770	2.802	4.170	0.04247	0.1394	1.225.000	0.9619	620.6
37/6	0.1620	4.115	1.13	28.70	120.200	54.520	2.222	3.307	0.05356	0.1758	971.300	0.7629	492.2
37/7	0.1443	3.665	1.01	25.65	100.700	45.670	1.762	2.622	0.06754	0.2216	770.300	0.6050	390.3
37/8	0.1285	3.264	0.899	22.83	84.200	37.190	1.398	2.080	0.08516	0.2794	610.900	0.4798	309.5
37/9	0.1144	2.906	0.801	20.35	66.770	30.250	1.108	1.649	0.1074	0.3524	484.400	0.3805	245.5
37/10	0.1019	2.588	0.713	18.11	52.950	24.010	879.0	1.308	0.1354	0.443	384.200	0.3017	194.6
19/5	0.1819	4.620	0.910	23.11	73.350	33.270	1.430	2.128	0.08224	0.2699	628.900	0.4940	318.7
19/6	0.1620	4.115	0.810	20.57	61.700	27.980	1.134	1.688	0.137	0.3403	498.800	0.3719	252.7
19/7	0.1443	3.665	0.721	18.31	51.730	23.460	899.5	1.339	0.1308	0.4292	385.500	0.3107	200.4
19/8	0.1285	3.264	0.642	16.31	43.240	19.610	713.5	1.062	0.1649	0.5411	313.700	0.2464	159.0
19/9	0.1144	2.906	0.572	14.53	34.290	15.550	565.8	842.0	0.2079	0.6821	248.800	0.1954	126.1
19/10	0.1019	2.588	0.509	12.93	27.190	12.330	448.7	667.8	0.2622	0.8603	197.300	0.1549	99.93
7/5	0.1819	4.620	0.546	13.87	27.030	12.260	524.9	781.2	0.2264	0.7428	231.700	0.1820	117.4
7/6	0.1620	4.115	0.486	12.34	22.730	10.310	416.3	619.5	0.2803	0.9197	183.800	0.1443	93.09
7/7	0.1443	3.665	0.433	11.00	19.060	8.645	330.0	491.1	0.3535	1.1598	145.700	0.1145	73.87
7/8	0.1285	3.264	0.385	9.779	15.930	7.225	261.8	389.6	0.4458	1.4627	115.600	0.09077	58.56
7/9	0.1144	2.906	0.343	8.712	12.630	5.728	207.6	308.9	0.5621	1.8442	91.650	0.07198	46.44
7/10	0.1019	2.588	0.306	7.772	10.020	4.544	164.7	245.1	0.7088	2.3255	72.680	0.05708	36.82
7/ 11	0.0907	2.304	0.272	6.909	7.945	3.603	130.6	194.4	0.8938	2.9325	57.590	0.04523	29.18
3/5	0.1819	4.620	0.392	9.957	12.230	5.547	224.5	334.1	0.5177	1.6985	99.310	0.07800	50.32
3/6	0.1620	4.115	0.349	8.864	10.280	4.662	178.1	265.0	0.6528	2.1418	78.750	0.06185	39.90
3/7	0.1443	3.665	0.311	7.899	8.624	3.910	141.2	210.7	0.8232	2.1009	62.450	0.04905	31.64
3/8	0.1285	3.264	0.277	7.036	7.206	3.268	112.0	166.7	1.038	3.4057	49.530	0.03890	25.10
3/9	0.1144	2.906	0.247	6.274	5.715	2.592	88.81	132.2	1.309	4.2947	38.280	0.03085	19.90
3/10	0.1019	2.588	0.220	5.588	4.532	2.055	70.43	104.8	1.651	5.4168	31.150	0.2446	15.78

## According to IEC 61232, ACS 20 SA

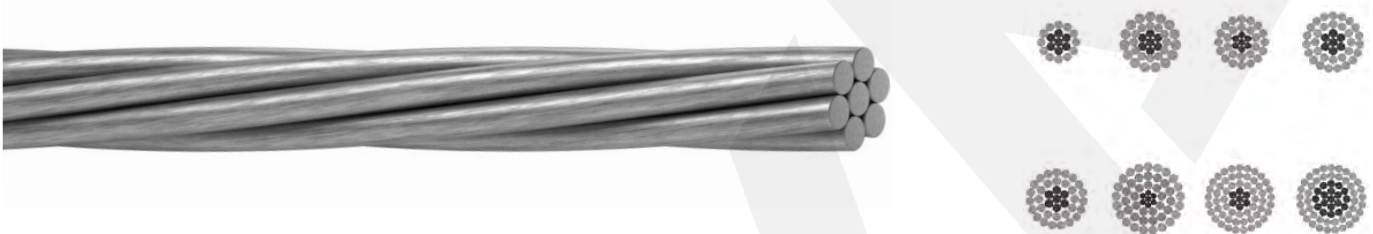
NOMINAL SECTION	CONSTRUCTION	CROSS SECTION AREA (mm <sup>2</sup> )			DIAMETER	DC RESISTANCE	RTS	WEIGHT
		Al.	Steel	Total				
mm <sup>2</sup>	No./Dia n/mm				mm	Ω/km	Kn	kg/km
25	3/3.25	6.22	18.67	24.89	7.00	3.435	33.35	165.3
35	3/3.85	8.73	26.19	34.92	8.30	2.448	43.65	232.0
50	3/4.60	12.46	37.40	49.86	9.91	1.714	56.84	331.2
16	7/1.70	3.97	11.92	15.89	5.10	5.391	21.29	105.8
25	7/2.15	6.35	19.06	25.41	6.45	3.370	34.05	169.1
30	7/2.30	7.27	21.81	29.08	6.90	2.945	38.97	193.6
35	7/2.50	8.59	25.77	34.36	7.50	2.493	46.04	228.7
40	7/2.75	10.40	31.18	41.58	8.25	2.060	57.72	276.7
50	7/3.00	12.57	37.11	49.68	9.00	1.731	66.30	329.3
55	7/3.20	14.08	42.22	56.30	9.60	1.521	75.44	374.7
65	7/3.50	16.84	50.51	67.35	10.50	1.272	85.53	448.3
70	7/3.60	17.81	53.44	71.25	10.80	1.202	90.48	474.2
80	7/3.80	19.85	59.54	79.39	11.40	1.079	99.23	528.4
95	7/4.16	23.79	71.35	95.14	12.48	0.900	112.26	633.3
80	19/2.32	20.08	60.24	80.32	11.60	1.071	107.62	536.7
100	19/2.60	25.22	75.66	100.88	13.00	0.852	135.18	674.1
120	19/2.85	30.30	90.91	121.21	14.25	0.709	162.42	809.9
150	19/3.15	37.02	111.05	148.07	15.75	0.582	198.41	989.4
185	19/3.50	45.70	137.10	182.80	17.50	0.470	232.15	1221.5
210	19/3.75	52.46	157.39	209.85	18.75	0.410	262.31	1402.3
240	19/4.00	59.69	179.07	238.76	20.00	0.360	288.89	1595.5

## According to DIN 48201 / 8 ACS 20 SA

CODE	SECTION	No. Of WIRE	DIAMETER (mm)		UNIT WEIGHT	RATED STRENGTH	RESISTANCE
			WIRE	CONDUCTOR			
	mm <sup>2</sup>	7			Kg/Km	Kn	Ω/km
25	24,25	7	2,10	6,30	162,0	31,56	3,5460
35	34,36	7	2,50	7,50	229,0	44,72	2,4990
50	49,48	7	3,00	9,00	330,0	64,40	1,7360
70	65,81	19	2,10	10,5	441,0	85,65	1,3130
95	93,27	19	2,50	12,5	626,0	121,39	0,9250
120	116,99	19	2,80	14,0	785,0	152,26	0,7370
150	147,11	37	2,25	15,7	990,0	191,46	0,5870
185	181,62	37	2,50	17,5	1221,0	236,38	0,4760
240	252,54	61	2,25	20,2	1635,0	299,05	0,3570
300	299,43	61	2,50	22,5	2017,0	369,20	0,2890



## ACSR CONDUCTOR



### GENERAL INFORMATION — APPLICATION

ACSR conductors are composed of several aluminium and steel wires. Steel wires are always central and aluminium wires stranded over steel wire strands. Steel wires are galvanized (zinc-coated) and mostly composed of 1,7,19 or 37 wires. Wire outer diameters of steel and aluminium will be the same or different but all steel wires have the same diameter as well aluminium wires have the same diameter. The function of galvanized steel wires is a suspension of the conductor on the line.

ACSR conductors can be used in substation, electricity distribution lines, electricity transmission lines.

\* Sections of Related Standard is down below;

### According to: ASTM B 232 / B 232M (AMERICAN SIZES)

CODE NAME	STRANDING WIRE DIAMETER		OVERALL DIAMETER	SECTIONAL AREA			APPROXIMATE WEIGHT	BREAKING LOAD	D.C. RESISTANCE	CURRENT CARRYING CAPACITY
	ALUMINIUM	STEEL		ALUMINIUM	STEEL	TOTAL				
	mm	mm		mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>				
COOT	36/3.77	1/3.77	26.39	401.9	11.2	413.1	1198	74.7	0.07397	884
TERN	45/3.38	7/2.25	27.03	402.84	27.87	430.71	1331.8	98.3	0.07192	887
CONDOR	54/3.08	7/3.08	27.72	402.84	52.19	455.03	1520.7	125.4	0.07192	889
CUCKOO	24/4.62	7/3.08	27.74	402.9	52.2	455.1	1522.2	124.1	0.07190	887
DRAKE	26/4.44	7/3.45	28.11	402.84	65.61	468.45	1626.4	140.1	0.07192	907
MALLARD	30/4.14	19/2.48	28.96	402.84	91.87	494.71	1836.0	170.8	0.07208	918
RUDDY	45/3.59	7/2.40	28.73	455.81	31.54	487.35	1507.3	108.3	0.06356	958
CANARY	54/3.28	7/3.28	29.52	456.06	59.1	515.16	1723.1	141.9	0.06352	961
RAIL	45/3.70	7/2.47	29.61	483.42	33.42	516.84	1598.1	115.2	0.05994	993
CARDINAL	54/3.38	7/3.38	30.42	483.42	62.65	546.07	1825.9	150.3	0.05994	996
ORTOLAN	45/3.85	7/2.57	30.81	523.68	36.19	559.87	1730.5	123.2	0.05531	1043
CURLEW	54/3.52	7/3.52	31.68	523.68	67.87	591.55	1977.6	162.8	0.05531	1047
BLUEJAY	45/4.00	7/2.66	31.98	563.93	39.03	602.96	1866.0	132.6	0.05161	1092
FINCH	54/3.65	19/2.19	32.85	563.93	71.48	635.41	2127.8	173.9	0.05161	1093
BUNTING	45/4.14	7/2.76	33.12	604.26	41.55	645.81	1996.9	141.9	0.04820	1139
GRACKLE	54/3.77	19/2.27	33.97	604.26	76.52	680.78	2278.1	185.9	0.04820	1140
BITTERN	45/4.27	7/2.85	34.17	644.1	44.52	688.62	2130.8	151.7	0.04518	1184
PHEASANT	54/3.90	19/2.34	35.1	644.51	81.68	726.19	2431.4	193.9	0.04518	1187
DIPPER	45/4.40	7/2.92	35.16	685.16	47.1	732.26	2263.0	161.0	0.04259	1229
MARTIN	54/4.02	19/2.40	36.17	684.84	86.71	771.55	2581.7	205.9	0.04259	1232
BOBOLINK	45/4.53	7/3.02	36.24	725.16	50.32	775.48	2397.2	170.8	0.04016	1272
PLOVER	54/4.14	19/2.48	37.24	725.16	91.81	816.97	2734.9	218.0	0.04016	1275
NUTHATCH	45/4.65	7/3.10	37.2	765.16	52.9	818.06	2529.6	178.4	0.03802	1313
PARROT	54/4.25	19/2.55	38.25	765.16	97.16	862.32	2883.7	230.4	0.03802	1318
LAPWING	45/4.77	7/3.18	38.16	805.8	55.48	861.28	2663.5	187.3	0.03612	1354
FALCON	54/4.36	19/2.62	39.26	805.8	102.32	908.12	3038.5	242.9	0.03612	1359
CHUCKAR	84/3.70	19/2.22	42.7	901.93	73.55	975.48	3083.1	228.2	0.03228	1453
BLUEBIRD	84/4.07	19/2.44	44.76	1092.2895	88.80	1181.09	3736.1	268.7	0.02667	1623
KIWI	72/4.41	7/2.94	44.1	1099.21	47.50	1146.70	3425.6	222.0	0.02667	1607

According to: ASTM B 232 / B 232M (AMERICAN SIZES)

CODE NAME	STRANDING WIRE DIAMETER		OVERALL DIAMETER	SECTIONAL AREA			APPROXIMATE WEIGHT	BREAKING LOAD	D.C. RESISTANCE	CURRENT CARRYING CAPACITY
	ALUMINIUM	STEEL		ALUMINIUM	STEEL	TOTAL				
	mm	mm		mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>				
TURKEY	6/1.68	1/1.68	5.03	13.29	2.21	15.52	53,7	5.29	2.1030	105
SWAN	6/ 2.12	1/ 2.12	6.35	21.17	3.53	24.70	85,3	8.28	1.3222	140
SWANATE	7/1.96	1/ 2.62	6.53	21.11	5.38	26.49	99,6	10.50	1.3090	140
SPARROW	6/2 .67	1/ 2.67	8.03	33.57	5.60	39.20	136,0	12.68	0.8333	184
SPARATE	7/ 2.47	1/3.3	8.26	33.53	8.55	42.08	159,0	15.39	0.8235	184
ROBIN	6/3	1/3	8.99	42.40	7.06	49.46	171,0	15.79	0.6594	212
RAVEN	6/3 .37	1/3.37	10.11	53.50	8.91	62.41	216,0	19.49	0.5216	242
QUAIL	6/3 .78	1/3 .78	11.35	67.30	11.22	78.52	272,0	23.62	0.4134	276
PIGEON	6/ 4.25	1/ 4.25	12.75	85.07	14.18	99.25	343,0	29.45	0.3281	315
PENGUIN	6/4 .77	1/ 4.77	14.30	107.20	17.86	125.06	433,0	37.15	0.2608	357
WAXWING	18/3.09	1/3.09	15.47	135.00	7.50	142.50	430,0	30.61	0.2110	449
PARTRIDGE	26/ 2.57	7/2	16.31	135.00	21.98	156.98	546,0	50.27	0.2090	475
OSTRICH	26/ 2.73	7/ 2.12	17.27	152.00	24.70	176.70	613,0	56.50	0.1860	492
MERLIN	18/3.47	1/3.47	17.37	170.14	9.45	179.59	543,0	38.62	0.1673	519
LINNET	26/2.89	7/ 2.25	18.29	170.46	27.82	198.30	687,0	62.73	0.1657	529
ORIOLE	30/2.69	7/ 2.69	18.82	170.41	39.76	210.20	783,0	76.97	0.1647	535
CHICKADEE	18/3 .77	1/3 .77	18 .87	200 .83	11.16	212.00	641,0	44.22	0.1417	576
BRANT	24/3 .27	7/ 2.18	19.61	201.45	26.11	227.60	761,0	64.96	0.1411	584
IBIS	26/3.14	7/ 2.44	19.89	201.23	32.71	234.00	812,0	72.52	0.1404	587
LARK	30/2.92	7/ 2.92	20.47	200.80	47.00	247.80	925,0	90.31	0.1394	594
PELICAN	18/4 .14	1/ 4.14	20.68	242.20	13.45	255.65	770,0	52.50	0.1181	646
FLICKER	24/3.58	7/ 2.39	21.49	241.50	31.40	273.00	913,0	76.52	0.1175	655
HAWK	26/3.44	7/ 2.67	21.79	241.50	39.17	280.70	975,0	86.76	0.1168	659
HEN	30/3.2	7/3.2	22.43	241.15	56.27	297.50	1111,0	105.9	0.1161	666
OSPREY	18/4.47	1/ 4.47	22.33	282.30	15.70	298.00	898,0	60.95	0.1010	711
PARAKEET	24/3 .87	7/2.58	23.22	282.16	36.60	318.80	1066,0	88.01	0.1007	721
DOVE	26/3.72	7/ 2.89	23.55	282.44	45.90	328.34	1139,0	100.5	0.1004	726
EAGLE	30/3.46	7/3.46	24.21	282.00	65.80	348.00	1296,0	123.6	0.0994	734
PEACOCK	24/4 .03	7/ 2.69	24.21	306 .00	40 .00	346 .00	1159,0	96.01	0.0925	760
SQUAB	26/3 .87	7/3 .01	24.54	305.70	50.00	355.70	1237,0	108.0	0.0922	765
WOODDUCK	30/3.6 1	7/3 .61	25.25	307.00	71.61	378.60	1408,0	128.5	0.0915	774
TEAL	30/3 .61	19/ 2.16	25.25	307.00	69.60	376.60	1397,0	133.4	0.0915	773
KINGBIRD	18/4.78	1/ 4.78	23.88	323.00	18.00	341.00	1027,0	69.79	0.0886	773
SWIFT	36/3.38	1/3.38	23.62	323.00	9.00	332.00	956,0	60.85	0.0889	769
ROOK	24/4 .14	7/ 2.76	24.82	323.00	42.00	365 .00	1217,0	97 .79	0.0879	784
GROSBEEK	26/3.97	7/3.09	25.17	321.70	52.50	374.20	1301,0	112.0	0.0876	789
SCOTER	30/3.7	7/3.7	25.88	322.40	75.23	397.60	1481,0	135.1	0.0840	798
EGRET	30/3 .7	19/ 2.22	25.88	322.40	73.51	396.00	1469,0	140.0	0.0873	798
FLAMINGO	24/4.23	7/ 2.82	25.40	337.10	43.70	381.00	1277,0	105.3	0.0840	807
GANNET	26/4.07	7/3.16	25.76	338.10	55.00	393.10	1363,0	117.3	0.0837	812
STILT	24/4.39	7/ 2.92	26.31	363.10	46.85	410.00	1370,0	113.3	0.0784	844
STARLING	26/4.21	7/3.28	26.70	361.75	59.12	421.00	1464,0	126.2	0.0781	849
REDWING	30/3.92	19/ 2.35	27.46	362.00	82.37	444.40	1651,0	153.8	0.0774	859

**According to: CSA C4 9 (CANADIAN SIZES)**

CODE NAME	STRANDING WIRE DIAMETER		OVERALL DIAMETER	SECTIONAL AREA			APPROXIMATE WEIGHT	BREAKING LOAD	D.C. RESISTANCE	CURRENT CARRYING CAPACITY
	ALUMINIUM	STEEL		ALUMINIUM	STEEL	TOTAL				
	mm	mm		mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>				
WREN	6/1.33	1/1.33	3.99	8.39	1.42	9.81	34	3.3	3.4226	63
WARBLER	6/1.50	1/1.50	4.5	10.59	1.34	11.93	43	4.2	2.7139	67
TURKEY	6/1.68	1/1.68	5.04	13.29	2.19	15.48	54	5.2	2.1535	86
THRUSH	6/1.89	1/1.89	5.67	16.77	2.77	19.54	68	6.5	1.7077	93
SWAN	6/2.12	1/2.12	6.36	21.16	3.55	24.71	85	8.2	1.3537	109
SWALLOW	6/2.38	1/2.38	7.14	26.65	4.45	31.09	108	10.0	1.0738	126
SPARROW	6/2.67	1/2.67	8.01	33.61	5.61	39.22	136	12.4	0.8504	140
ROBIN	6/3.00	1/3.00	9	42.39	7.1	49.49	171	15.5	0.6752	162
RAVEN	6/3.37	1/3.37	10.11	53.48	8.9	62.38	215	19.0	0.5351	186
QUAIL	6/3.78	1/3.78	11.34	67.42	11.23	78.65	273	23.5	0.4245	211
PIGEON	6/4.25	1/4.25	12.75	85.03	14.19	99.22	343	29.7	0.3366	241
PENGUIN	6/4.77	1/4.77	14.31	107.23	17.87	125.1	433	37.5	0.2671	276
OWL	6/5.36	1/5.36	16.09	135.16	22.48	157.64	508	47.5	0.2119	322
WAXWING	18/3.09	1/3.09	15.15	135.16	7.48	142.6	430	31.5	0.2126	319
PARTRIDGE	26/2.57	1/2.57	16.28	135.16	7.28	142.4	430	31.5	0.2126	319
PHOEBE	18/3.28	1/3.28	16.4	152	8.45	160.5	483	35.5	0.1893	341
OSTRICH	26/2.73	1/2.73	17.28	152	24.71	176.7	613	56.2	0.19	343
PIPER	30/2.54	1/2.54	17.78	152	35.48	187.5	697	68.6	0.1903	348
MERLIN	18/3.47	1/3.47	17.35	170.45	9.48	179.9	543	39.8	0.1686	364
LINNET	26/2.89	1/2.89	18.31	170.45	27.81	198.3	687	62.5	0.1696	368
ORIOLE	30/2.69	1/2.69	18.83	170.45	39.81	210.3	783	75.8	0.1696	370
CHICKADEE	18/3.77	1/3.77	18.85	201.42	11.16	212.6	641	46.3	0.143	402
IBIS	26/3.14	1/3.14	19.88	201.42	32.77	234.2	813	72.0	0.1434	404
LARK	30/2.92	1/2.92	20.44	201.42	46.97	248.4	923	88.8	0.1437	410
PELICAN	18/4.14	1/4.14	20.7	241.68	13.42	255.1	769	54.8	0.1191	449
	22/3.74	1/3.74	21.2	241.68	23.74	265.4	853	68.6	0.1194	452
HAWK	26/3.44	1/3.44	21.77	241.68	39.42	281.1	975	86.5	0.1194	450
HEN	30/3.20	1/3.20	22.4	241.68	56.39	298.1	1108	103.9	0.1198	453
HERON	30/3.28	1/3.28	22.96	253.35	59.1	312.5	1162	108.8	0.1142	469
	22/4.04	1/4.04	22.88	282	27.68	309.7	993	79.1	0.1024	496
DOVE	26/3.72	1/3.72	23.55	282	45.94	327.9	1137	99.9	0.1024	495
EAGLE	30/3.46	1/3.46	24.22	282	65.81	347.8	1293	121.2	0.1027	497
	22/4.21	1/4.21	23.86	306.58	30.07	336.7	1080	84.9	0.0942	519
DUCK	54/2.69	1/2.69	24.21	306.58	39.81	346.4	1159	100.1	0.0945	520
	22/4.32	1/4.32	24.48	322.26	31.61	353.9	1135	84.8	0.0896	532
GROSBEAK	26/3.97	1/3.97	25.15	322.26	52.45	374.7	1299	111.2	0.0896	530
EGRET	30/3.70	1/3.70	25.9	322.26	73.55	395.8	1467	140.6	0.0896	542
GOOSE	54/2.76	1/2.76	24.84	322.26	41.74	364	1217	105.2	0.0899	534
	42/3.20	1/3.20	24.54	337.74	17.35	355.1	1068	78.6	0.0856	546
GULL	54/2.82	1/2.82	25.38	337.74	43.81	381.6	1277	109.2	0.0856	553
STARLING	26/4.21	1/4.21	26.68	362.58	59.03	421.6	1462	125.0	0.0797	575
REDWING	30/3.92	1/3.92	27.43	362.58	82.58	445.2	1648	153.9	0.0797	581
	42/3.31	1/3.31	25.38	362.58	18.65	381.2	1148	84.3	0.0797	573
CROW	54/2.92	1/2.92	26.28	362.58	46.97	409.6	1369	117.2	0.0797	577
DRAKE	26/4.44	1/4.44	28.11	402.84	65.61	468.5	1624	139	0.0715	611
MALLARD	30/4.14	1/4.14	28.96	402.8	91.84	494.7	1832	171.0	0.0719	618
	42/3.50	1/3.50	26.82	402.8	20.71	423.6	1274	93.6	0.0719	610
CONDOR	54/3.08	1/3.08	27.72	402.8	52.19	455	1521	127.0	0.0719	615
	42/3.67	1/3.67	28.14	443.1	22.84	465.9	1402	102	0.0653	645
CRANE	54/3.23	1/3.23	29.07	443.1	57.48	500.7	1674	133	0.0653	649
	42/3.72	1/3.72	28.53	456.1	23.42	479.5	1442	105	0.0633	655

## According to: CSA C4 9 (CANADIAN SIZES)

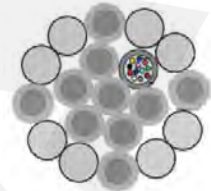
CODE NAME	STRANDING WIRE DIAMETER		OVERALL DIAMETER	SECTIONAL AREA			APPROXIMATE WEIGHT	BREAKING LOAD	D.C. RESISTANCE	CURRENT CARRYING CAPACITY
	ALUMINIUM	STEEL		ALUMINIUM	STEEL	TOTAL				
	mm	mm		mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>				
CANARY	54/3.28	7/3.28	29.52	456.1	59.1	515.20	1724	144	0.0633	660
-	42/3.38	7/2.13	29.87	483.4	24.84	508.24	1528	109.0	0.0597	678
CARDINAL	54/3.38	7/3.38	30.42	483.4	62.65	546.05	1826	152	0.0597	682
-	42/3.99	7/2.21	30.57	523.7	26.97	550.67	1657	118	0.0551	710
CURLEW	54/3.51	7/3.51	31.59	523.7	67.87	591.57	1978	165	0.0551	715
-	42/4.41	7/2.30	31.74	563.9	28.97	592.87	1783	126	0.0512	741
FINCH	54/3.65	19/2.19	32.85	563.9	71.55	635.45	2121	179	0.0512	746
-	42/4.28	7/2.38	32.82	604.3	31.1	635.40	1911	135	0.0479	772
GRACKLE	54/3.77	19/2.27	33.97	604.26	76.58	680.84	2271	192	0.0479	776
-	42/4.42	7/2.46	33.9	644.51	33.16	677.67	2039	144	0.0449	800
PHEASANT	54/3.90	19/2.34	35.1	644.51	81.68	726.19	2421	199	0.0449	805
-	42/4.56	7/2.53	34.95	684.84	35.23	720.07	2166	153	0.0423	829
MARTIN	54/4.02	19/2.41	36.17	684.84	86.71	771.55	2573	212	0.0423	835
-	42/4.69	7/2.61	35.97	725.1	37.35	762.45	2294	162	0.0397	858
PLOVER	54/4.14	19/2.48	37.24	725.1	91.87	816.97	2725	224	0.04	862
-	42/4.82	7/2.67	36.93	765.35	39.35	804.70	2420	171	0.0377	885
PARROT	54/4.25	19/2.55	38.25	765.4	96.84	862.24	2877	237	0.0377	890
-	48/4.36	7/3.60	38.58	805.7	71.1	876.80	2779	212	0.0358	929
FALCON	54/4.36	19/2.62	39.26	805.7	102.1	907.80	3028	250	0.0358	917
-	72/3.77	7/2.52	37.72	805.7	34.84	840.54	2498	176	0.0358	910
BANTAM	3/1.68	4/1.68	5.04	6.65	8.84	15.49	87.80	11.7	4.3218	61
MAGPIE	3/2.12	4/2.12	6.36	10.58	14.13	24.71	139.70	18.6	2.7077	77
SHRIKE	3/2.67	4/2.67	8.01	16.84	22.45	39.29	222.60	28.6	1.7054	99
SNIPE	3/3.37	4/3.37	10.11	26.17	35.68	61.85	354.10	43.9	1.0718	132
LOON	3/3.78	4/3.78	11.34	33.68	44.97	78.65	445.80	55.3	0.8514	149
GROUSE	8/2.54	1/4.24	9.32	40.52	14.13	54.65	221.20	23.1	0.7077	157
PETREL	12/2.34	7/2.34	11.7	51.61	30.01	81.62	376.90	43.8	0.5591	193
MINORCA	12/2.44	7/2.44	12.2	56.13	32.77	88.90	311.30	47.7	0.5134	198
LEGHORN	12/2.69	7/2.69	13.45	68.19	39.81	108.00	498.50	57.5	0.4226	221
GUINEA	12/2.92	7/2.92	14.6	80.68	46.97	127.65	587.80	67.6	0.3579	244
DOTTERELL	12/3.08	7/3.08	15.4	89.48	52.19	141.67	654.80	73.0	0.3215	260
DORKING	12/3.20	7/3.20	16	96.71	56.39	153.10	706.90	78.9	0.2982	271
BRAHMA	16/2.86	19/2.48	18.12	102.97	91.87	194.84	1004.9	122.5	0.2815	287
AUK	8/4.05	7/2.25	14.83	102.84	92.32	195.16	500.00	49.6	0.2789	276
COCHIN	12/3.37	7/3.37	16.85	107.1	62.45	169.55	782.8	87.4	0.2694	288



**According to: DIN EN 50182 (GERMAN SIZES)**

CODE NAME	STRANDING WIRE DIAMETER		OVERALL DIAMETER	SECTIONAL AREA			APPROXIMATE WEIGHT	BREAKING LOAD	D.C. RESISTANCE	CURRENT CARRYING CAPACITY
	ALUMINIUM	STEEL		ALUMINIUM	STEEL	TOTAL				
	mm	mm		mm <sup>2</sup>	mm <sup>2</sup>	mm <sup>2</sup>				
16/2.5	6/1.80	1/1.80	5.4	15.3	2.5	17.9	62	5.81	1.8793	105
25/4	6/2.25	1/2.25	6.8	23.8	4	27.8	96	9.02	1.2028	140
35/6	6/2.70	1/2.70	8.1	34.3	5.7	40	139	12.70	0.8353	170
44/32	14/2.00	7/2.40	11.2	44	31.7	75.7	369	45.46	0.6573	
50/8	6/3.20	1/3.20	9.6	48.3	8	56.3	195	17.18	0.5946	210
50/30	12/2.33	7/2.33	11.7	51.2	29.8	81	375	44.28	0.5644	-
70/12	26/1.85	7/1.44	11.7	69.9	11.4	81.3	282	26.31	0.4130	290
95/15	26/2.15	7/1.67	13.6	94.4	15.3	110	381	35.17	0.3058	350
95/55	12/3.20	7/3.20	16	96.5	56.3	153	707	80.20	0.2992	-
105/75	14/3.10	19/2.25	17.5	105.7	75.5	182	885	106.69	0.2736	-
120/20	26/2.44	7/1.90	15.5	121.6	19.8	141	491	44.94	0.2374	410
120/70	12/3.60	7/3.60	18	122	71.3	193	895	98.16	0.2364	-
125/30	30/2.33	7/2.33	16.1	127.9	29.8	158	587	57.86	0.2259	425
150/25	26/2.70	7/2.10	17.1	148.9	24.2	173	601	54.37	0.1939	470
170/40	30/2.70	7/2.70	18.9	171.8	40.1	212	788	77.01	0.1682	520
185/30	26/3.00	7/2.33	19	183.8	29.8	214	741	66.28	0.1571	535
210/35	26/3.20	7/2.49	20.3	209.1	34.1	243	844	74.94	0.1380	590
210/50	30/3.00	7/3.00	21.3	212.1	49.5	262	973	92.25	0.1363	610
230/30	24/3.50	7/2.33	21	230.9	29.8	261	871	73.09	0.1249	630
240/40	26/3.45	7/2.68	21.9	243	39.5	283	980	86.46	0.1188	645
265/35	24/3.74	7/2.49	22.4	263.7	34.1	298	994	82.94	0.1094	680
300/50	26/3.86	7/3.00	24.5	304.3	49.5	354	1227	105.09	0.0949	740
305/40	54/2.68	7/2.68	24.1	304.6	39.5	344	1151	99.30	0.0949	740
340/30	48/3.00	7/2.33	25	339.3	29.8	369	1171	92.56	0.0851	790
380/50	54/3.00	7/3.00	27	382	49.5	432	1443	120.91	0.0757	840
385/35	48/3.20	7/2.49	26.7	386	34.1	420	1334	104.31	0.0748	850
435/65	54/3.20	7/3.20	28.8	434.3	56.3	491	1641	136.27	0.0666	900
450/40	48/3.45	7/2.68	28.7	448.7	39.5	488	1549	120.19	0.0644	920
490/65	54/3.40	7/3.40	30.6	490.3	63.6	554	1853	152.85	0.0590	960
495/35	45/3.74	7/2.49	29.9	494.4	34.1	528.4	1632	117.96	0.0584	985
510/45	48/3.68	7/2.87	30.7	510.15	45.3	555.8	1765	133.31	0.0566	995
550/70	54/3.60	7/3.60	32.4	550	71.3	621	2077	166.32	0.0526	1020
560/50	48/3.86	7/3.00	32.2	561.7	49.5	611	1940	146.28	0.0514	1040
570/40	45/4.02	7/2.68	32.2	571.2	39.5	610.6	1887	136.4	0.0506	1050
650/45	45/4.30	7/2.87	34.4	653.5	45.3	698.8	2160	156.18	0.0442	1120
680/85	54/4.00	19/2.40	36	678.8	86	765	2550	206.56	0.0426	1150
1045/45	72/4.30	7/2.87	43	1045.6	45.3	1010	3248	218.92	0.0277	1580

## OPGW-95 (OPTICAL GROUND WIRE)



### DEFINITION

OPGW (optical ground wire) is a type of conductor that is used in the construction of electric power transmission lines. Here the conductor combines both the functions of grounding and communications. OPGW contains a tubular structure with one or more optical fibers in it, surrounded by layers of galvanized steel and aluminium alloy wire. In the OPGW system, the conductor serves as a normal ground wire protecting the phase conductors against the lightning strikes. The optical fibers are integrated in a stainless steel tube filled with a thixotropic jelly and hermetically sealed to provide best protection of enclosed fibers at any stage of the installation or operation.

### APPLICATION

The optical fiber of the OPGW is manufactured and designed to provide optimum transmission services. These fibers are used primarily in telecommunications networks characterised by long distance links and high capacity.

### TECHNICAL SPECIFICATION

ALUMINIUM ALLOY WIRE DIAMETER	ALUMINIUM CLAD STEEL WIRE DIAMETER	O/F STAINLESS STEEL TUBE DIAMETER	OPGW CONDUCTOR DIAMETER	ALUMINIUM ALLOY UNIT WEIGHT	TOTAL OPGW CROSS - SECTION	NUMBER OF STAINLESS STEEL TUBE
mm	mm	mm	mm	kg/km	mm <sup>2</sup>	1st Layer
2.60 ± 0.03	2.60 ± 0.05	2.60 ± 0.05	13.00 ± 0.5	115	95.6	1
NUMBER OF ALUMINIUM ALLOY (AAA) WIRE	LAY DIRECTION	LAY DIRECTION	NUMBER OF ALUMINIUM CLAD STEEL WIRE	NUMBER OF ALUMINIUM CLAD STEEL WIRE	ALUMINIUM CLAD STEEL WIRE UNIT WEIGHT	O/F TUBE & JELLY UNIT WEIGHT
2nd Layer	1st Layer	2nd Layer	1st Layer	2nd Layer	kg/km	kg/km
8	Left-Hand (S-twist)	Right-Hand (Z-twist)	5	4	350	16
TOTAL OPGW UNIT WEIGHT	OPGW RATED TENSILE STRENGTH (RTS)	FINAL MODULUS ELASTICITY of OPGW	THERMAL EXPANSION COEFFICIENT of OPGW	PERMISSIBLE MAX. WORKING STRESS	MEDIUM HIGHT TENSION	ENDURANCE TENSILE STRENGTH (ETS)
kg/km	daN	daN/mm <sup>2</sup>	10 <sup>-6</sup> /°C	daN	daN	daN
485	8200	11844	15.1	3280	1312 - 2050	5740
SHORT TIME OVERCURRENT (0.5 second) (40-180°C)	TEMPERATURE AFTER SHORT TIME OVERCURRENT	WORKING TEMPERATURE (MAX.)	RESISTANCE at 20°C (MAX.)	O/F STAINLESS STEEL TUBE DIAMETER (INNER/OUTER)	FIBER COUNT	WORKING TEMPERATURE
A	°C	°C	ohm/km	mm		°C
14000	180	80	0.540	2.2/2.6	12-24	-40 to 80

## OPGW-127-1 (OPTICAL GROUND WIRE)



### DEFINITION

OPGW (optical ground wire) is a type of conductor that is used in the construction of electric power transmission lines. Here the conductor combines both the functions of grounding and communications. OPGW contains a tubular structure with one or more optical fibers in it, surrounded by layers of galvanized steel and aluminium alloy wire. In the OPGW system, the conductor serves as a normal ground wire protecting the phase conductors against the lightning strikes. The optical fibers are integrated in a stainless steel tube filled with a thixotropic jelly and hermetically sealed to provide best protection of enclosed fibers at any stage of the installation or operation.

### APPLICATION

The optical fiber of the OPGW is manufactured and designed to provide optimum transmission services. These fibers are used primarily in telecommunications networks characterised by long distance links and high capacity.

### TECHNICAL SPECIFICATION

ALUMINIUM ALLOY WIRE DIAMETER	GALVANIZED STEEL WIRE DIAMETER	O/F STAINLESS STEEL TUBE DIAMETER	OPGW CONDUCTOR DIAMETER	NUMBER OF GALVANIZED STEEL WIRE	NUMBER OF GALVANIZED STEEL WIRE	NUMBER OF STAINLESS STEEL TUBE
mm	mm	mm	mm	Center	1st Layer	1st Layer
3.00±0.03	3.00±0.05	3.00±0.05	15.0±0.3 mm	1	5	1
NUMBER OF ALUMINIUM ALLOY (AAA) WIRE	LAY DIRECTION	LAY DIRECTION	TOTAL OPGW CROSS - SECTION	ALUMINIUM ALLOY UNIT WEIGHT	GALVANIZED STEEL UNIT WEIGHT	O/F TUBE&JELLY UNIT WEIGHT
2nd Layer	1st Layer	2nd Layer	mm <sup>2</sup>	kg/km	kg/km	kg/km
12	Left-Hand (S-twist)	Right -Hand (Z-twist)	134.3	235	344	16
TOTAL OPGW UNIT WEIGHT	OPGW RATED TENSILE STRENGHT (RTS)	FINAL MODULUS ELASTICITY of OPGW	THERMAL EXPANCION COEFFICIENT of OPGW	PERMISSIBLE MAX. TENSION	MEDIUM HIGHT TENSION	ENDURANCE TENSILE STRENGHT (ETS)
kg/km	daN	daN/mm <sup>2</sup>	10-6/°C	daN	daN	daN
595	8950	9500	15.Tem	10580	3650	6258
SHORT TIME OVERCURRENT (0.5 second) (40-180°C)	TEMPERATURE AFTER SHORT TIME OVERCURRENT	WORKING TEMPARATURE (MAX.)	RESISTANCE at 20°C (MAX.)	O/F STAINLESS STEEL TUBE DIAMETER (INNER/OUTER)	FIBER COUNT	WORKING TEMPERATURE
A	·c	·c	ohm/km	mm		·c
14700	180	80	0.4	2.6/3.0	12-24	-40 to 80

## OPGW-127-2 (OPTICAL GROUND WIRE)



### DEFINITION

OPGW (optical ground wire) is a type of conductor that is used in the construction of electric power transmission lines. Here the conductor combines both the functions of grounding and communications. OPGW contains a tubular structure with one or more optical fibers in it, surrounded by layers of galvanized steel and aluminium alloy wire. In the OPGW system, the conductor serves as a normal ground wire protecting the phase conductors against the lightning strikes. The optical fibers are integrated in a stainless steel tube filled with a thixotropic jelly and hermetically sealed to provide best protection of enclosed fibers at any stage of the installation or operation.

### APPLICATION

The optical fiber of the OPGW is manufactured and designed to provide optimum transmission services. These fibers are used primarily in telecommunications networks characterised by long distance links and high capacity.

### TECHNICAL SPECIFICATION

ALUMINIUM ALLOY WIRE DIAMETER	ALUMINIUM CLAD STEEL WIRE DIAMETER	O/F STAINLESS STEEL TUBE DIAMETER	OPGW CONDUCTOR DIAMETER	NUMBER OF ALUMINIUM CLAD STEEL WIRE	NUMBER OF ALUMINIUM CLAD STEEL WIRE	NUMBER OF STAINLESS STEEL TUBE
mm	mm	mm	mm	center	1 st Layer	1 st Layer
3.00 ± 0.03	3.00 ± 0.05	3.00 ± 0.05	15.00 ± 0.5	1	5	1
NUMBER OF ALUMINIUM ALLOY (AAA) WIRE	NUMBER OF ALUMINIUM CLAD STEEL WIRE	LAY DIRECTION	LAY DIRECTION	TOTAL OPGW UNIT WEIGHT	ALUMINIUM ALLOY UNIT WEIGHT	ALUMINIUM CLAD STEEL WIRE UNIT WEIGHT
2nd Layer	2 nd Layer	1st Layer	2nd Layer	kg/km	kg/km	kg/km
8	4	Left -Hand (S-twist)	Right-Hand (Z-twist)	134.3	152.8	465.6
O/F TUBE&JELLY UNIT WEIGHT	OPGW RATED TENSILE STRENGHT (RTS)	FINAL MODULUS ELASTICITY of OPGW	THERMAL EXPANCION COEFFICIENT of OPGW	PERMISSIBLE MAX. TENSION	MEDIUM HIGHT TENSION	ENDURANCE TENSILE STRENGHT (ETS)
kg/km	daN	daN/mm 2	10-6/°C	daN	daN	daN
16.0	10700	11200	15.1	4280	1712 - 2675	7490
SHORT TIME OVERCURRENT (0.5 second) (40-180°C)	TEMPERATURE AFTER SHORT TIME OVERCURRENT	WORKING TEMPARATURE (MAX.)	RESISTANCE at 20°C (MAX.)	O/F STAINLESS STEEL TUBE DIAMETER (INNER/OUTER)	FIBER COUNT	WORKING TEMPERATURE
A	°C	°C	ohm/km	mm		°C
14600	180	80	0.4	2.6/3.0	12-24	-40 ile 80



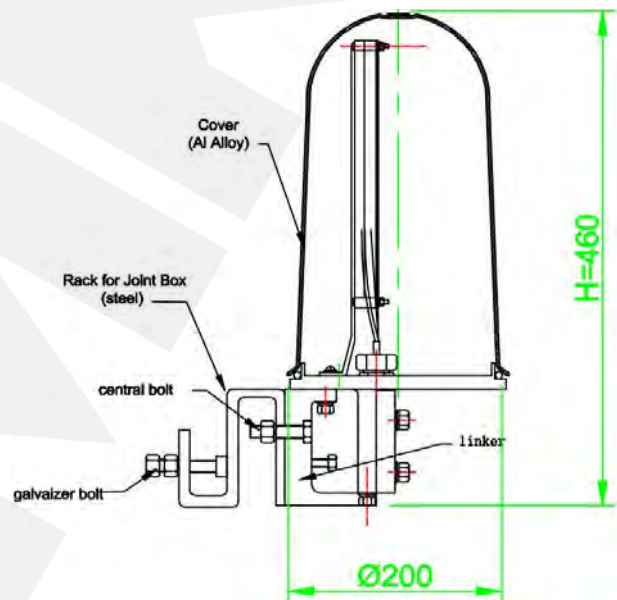
## OPGW JOINT BOX



### DEFINITION

Joint boxes are specially designed to provide the maximum versatility for OPGW cable splicing, which enables their use in OPGW and other optical cable systems. The joint box is made of aluminium alloy and has a maximum capacity of 192 fiber splices. A pre-moulded neoprene anti-aging gasket, perfectly inserted in the groove of the cover, provides excellent sealing against dust and water-jets. An assembling plate prepared with fixing devices for the cable and for the splice trays is placed inside the box. Cable glands and a heavy wall heat shrinkable tube are used for sealing the entries of the OPGW cables. The anchoring of the joint box to the tower is realized with galvanized steel clamps allowing the fixation in all types of towers, and with stainless steel tape in all types of poles.

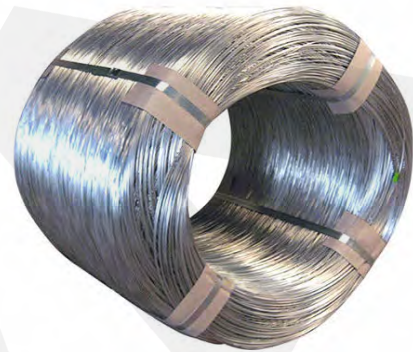
### STRUCTURE



### TECHNICAL DATA

MAXIMUM NUMBER OF CABLE ENTRIES	MAXIMUM CABLE DIAMETER	MAXIMUM NUMBER OF SPLICE TRAYS	MAXIMUM NUMBER OF SPLICE PER TRAYS	MAXIMUM NUMBER OF SPLICES	IP RATING	REQUIRED SPACE ENVELOPE	OPERATING TEMPERATURE
	mm					mm	°C
4	25	8	24	192	IP67	(l) 319 x (w) 219 x (d) 110	-40 - 85

## STAY WIRE



### STRUCTURE

- Wire Diameter: 0,80 - 8,00 mm
- Coating Amount: 30 - 300 gr/m<sup>2</sup>
- Coating Type: Hot-dip Galvanization
- Tensile Strength: 400 - 1.000 N/mm<sup>2</sup>
- Coil Weight: 50 - 1.500 kg
- Coil Inner Diameter: 350, 450, 550 mm
- Coil Outer Diameter: 650, 750, 850, 1.100 mm
- Raw Material Standards: SAE 1006, SAE 1008, SAE 1010
- Production Standards: BS 443, DIN 1548, ASTM A 475

### APPLICATION

Stay Wire can be used in viticulture, greenhouse and other agricultural fields, manufacture of fence wires, decoration, and construction industry, and various branches of industry.

