



Other Aluminium products:

- AAC (All aluminium conductor)
- AAAC (All aluminium alloy conductor)
- AACSR (All aluminium alloy conductor steel reinforced)
- OPGW (Optic fiber protection overhead conductor)
- Solid sector shaped aluminium conductor

- Aluminium strip
- Aluminium wire
- Aluminium alloy wire

Specifications:

IEC 61089	IEC
IEC 888	IEC
IEC 889	IEC
BS 215 (British)	BS
EN 50182	EN
ASTM B231/2 (USA)	ASTM
CAN/ CSA/C49 & C61089 (Canada)	CAN
AS 3607 (Australia)	AS

Grease:

Drop point IP 33 Min	220°C
Operating temperature	- 20°C to 80°C

Grease weight is calculated in accordance with EN 50182 Annex B

Material properties

Aluminium

Grade	99.7 EC	
Density / Specific gravity	g/cm ³	2.7
Tensile strength (hard drawn)	Mpa	110-130
Conductivity	Min.	62.3
Volume resistivity @ 20°C	Ω.m	2.826x10 ⁻⁸
Coefficient of linear expansion	per °C	23x10 ⁻⁶
Specific heat	KJ/kg/K	0.904
Melt point	°C	658

Chemical properties

	Min. %	Nom. %	Max. %
Al	99.650	99.700	-
Si	-	-	0.100
Fe	0.160	0.220	0.280
B	0.003	0.005	0.020
Other	-	-	0.013

* Calculated and estimated values.

Installation conditions	Value /
	Variables
Wind speed (m/sec)	0.440
Thermal conductivity Air (W m-1 K-1)	0.0264
Velocity of Air (V) (m/hr.)	16.04
Ambient (°C)	30
Conductor continues maximum operating (°C)	75
Conductor maximum short circuit temperature (°C)	200
Conductor surface absorbcency (0.27-0.95)	0.60
Solar beam Intensity (W/m ²) I _b	890
Intensity of Solar sky radiation (W/m ²) I _d	7.154

The stated values are estimated and nominal values.
The installer should verify the actual conditions for the specific location of installation.

Permittivity of air 1.00058986

Typical conductor configurations

	# conductors	SIL
	per phase	
Up to 132 & 220kV	1	100
Up to 440kV	2	130
Intermittent HV and EHV voltages.	3	145
	4	155
Up to 765kV an above	6	165

Conductor creep

Details in Annexure A

Sag and tension charts are available on request.

The following information need to be supplied:

- Conductor span lengths
- Maximum design load (45% of UTS is standard)
- Nominal ambient temperature when stringing will take place.

R03: (08/04/2021) Added Lapwing

R02: (31/05/2019) Content reviewed

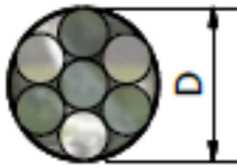
R01: (17/09/2018) Updated ZAMBEZI and added estimated Conductor Creep values.

R00: (01/12/2016)

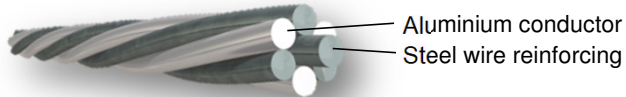
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M-TEC



ACSR (Aluminium Conductor Steel Reinforced) (A1/S1A) 4 Steel centre wires + 3 Aluminium wires

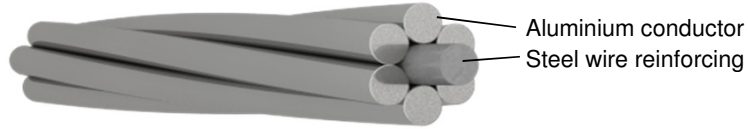
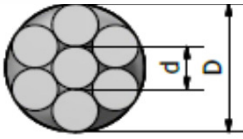


Construction and dimensions	Conductor name	Steel core			Aluminium Outer layer(s)		Total Conductor			Outer layer Lay direction	Standard drum length m	Specification		
		Number/ Size	dia.	area	mass	Number/ Size	area	mass	dia.				area	mass
			mm	mm ²	kg/km		mm ²	kg/km	mm				mm ²	kg/km
			Nom.	Nom.	Nom.		Nom.	Nom.	Nom.				Nom.	Nom.
4 Steel + 3 Aluminium														
Bantam	4 / 1.68	1.68	8.9	71	3 / 1.68	6.7	18	5.04	15.52	89	(Z) RH	1500	ASTM	
Magpie	4 / 2.12	2.12	14.1	113	3 / 2.12	10.6	29	6.36	24.71	140	(Z) RH	1500	ASTM	
Shrike	4 / 2.67	2.67	22.4	179	3 / 2.67	16.8	46	8.01	39.19	226	(Z) RH	1500	ASTM	
Snipe	4 / 3.37	3.37	35.7	286	3 / 3.37	26.8	74	10.11	62.44	360	(Z) RH	1500	ASTM	

Physical properties	Conductor name	Modulus of Elasticity		Coefficient of linear expansion	UTS	Grease Nom. (Case 2)	Resistance		Current rating	Short circuit rating	Creep constant	#Creep (nominal, calculated)
		Initial	Final				dc	ac				
		kN/mm ²		x10 ⁻⁶ /°C	kN	kg/km	Ω/km		A	kA.1s	mm/m	mm/km
		Nom.					20°C	75°C				
Bantam	33.8	54.1	13.57	11.68	0.44	4.335	5.1922	69	1.57	57.14	222	
Magpie	83.5	133.8	13.68	18.57	0.71	2.707	3.2606	92	2.01	57.14	222	
Shrike	33.8	54.1	13.57	28.55	1.12	1.716	2.0556	122	2.57	57.14	222	
Snipe	33.8	54.1	13.57	43.80	1.78	1.077	1.2904	162	3.30	57.14	222	

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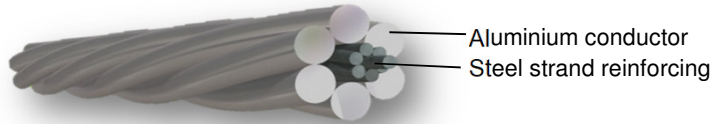
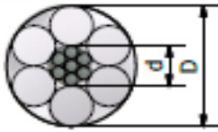
Construction and dimensions	Conductor name	Steel core			Aluminium Outer layer(s)			Total Conductor			Outer layer Lay direction	Standard drum length m	Specification	
		Number/ Size	dia.	area	mass	Number/ Size	area	mass	dia.	area				mass
			mm	mm ²	kg/km		mm ²	kg/km	mm	mm ²				kg/km
			Nom.	Nom.	Nom.		Nom.	Nom.	Nom.	Nom.				Nom.
1 Steel + 6 Aluminium														
Mole	1 / 1.50	1.50	1.77	14	6 / 1.50	10.60	29	4.50	12.37	43	(Z) RH	1500	EN	
Turkey	1 / 1.68	1.68	2.22	17	6 / 1.68	13.30	36	5.04	15.52	53	(Z) RH	1500	CAN	
Squirrel	1 / 2.11	2.11	3.50	27	6 / 2.11	20.98	57	6.33	24.48	85	(Z) RH	1500	EN	
Gopher	1 / 2.36	2.36	4.37	34	6 / 2.36	26.25	71	7.08	30.62	105	(Z) RH	1500	EN	
Weasel	1 / 2.59	2.59	5.27	41	6 / 2.59	31.61	85	7.77	36.88	127	(Z) RH	1500	EN	
Fox	1 / 2.79	2.79	6.11	48	6 / 2.79	36.68	99	8.37	42.80	149	(Z) RH	1500	EN	
Robin	1 / 3.00	3.00	7.07	56	6 / 3.00	42.41	115	9.00	49.48	170	(Z) RH	1500	CAN	
Ferret	1 / 3.00	3.00	7.07	56	6 / 3.00	42.41	115	9.00	49.48	170	(Z) RH	1500	EN	
Rabbit	1 / 3.35	3.35	8.81	69	6 / 3.35	52.88	143	10.05	61.71	212	(Z) RH	1500	EN	
Mink	1 / 3.66	3.66	10.52	83	6 / 3.66	63.13	171	10.98	73.65	257	(Z) RH	1500	EN	
Banana	1 / 3.75	3.75	11.04	87	6 / 3.75	66.27	179	11.25	77.31	266	(Z) RH	1500	ASTM	
Quail	1 / 3.78	3.78	11.22	88	6 / 3.78	67.33	182	11.34	78.55	270	(Z) RH	1500	CAN	
Beaver	1 / 3.99	3.99	12.50	98	6 / 3.99	75.02	203	11.97	87.53	301	(Z) RH	1500	EN	
Raccoon	1 / 4.09	4.09	13.14	103	6 / 4.09	78.83	213	12.27	91.97	316	(Z) RH	1500	EN	
Otter	1 / 4.22	4.22	13.99	110	6 / 4.22	83.92	227	12.66	97.91	337	(Z) RH	1500	EN	
Cat	1 / 4.50	4.50	15.90	125	6 / 4.50	95.43	258	13.50	111.33	383	(Z) RH	1500	EN	
Hare	1 / 4.72	4.72	17.50	137	6 / 4.72	104.98	284	14.16	122.48	427	(Z) RH	1500	EN	
Penguin	1 / 4.77	4.77	17.87	140	6 / 4.77	107.22	290	14.31	125.09	430	(Z) RH	1500	CAN	

Physical properties	Conductor name	Modulus of Elasticity		Coefficient of linear expansion	UTS	Grease Nom. (Case 2)	Resistance		Current rating	Short circuit rating	Creep constant	#Creep (nominal, calculated)
		Initial	Final				dc	ac				
		kN/mm ²		x10 ⁻⁶ /°C	kN	kg/km	Ω/km	A	kA.1s	mm/m	mm/km	
		Nom.										
Mole	52.6	80.4	19.31	4.10	0.35	2.7057	3.2565	87	2.00	14.29	364	
Turkey	52.6	80.4	19.31	5.19	0.44	2.1569	2.5961	100	2.25	14.29	364	
Squirrel	52.6	80.4	19.31	8.02	0.70	1.3677	1.6458	130	2.87	14.29	364	
Gopher	52.6	80.4	19.31	9.60	0.87	1.0930	1.3156	150	3.23	14.29	364	
Weasel	52.6	80.4	19.31	11.40	1.05	0.9075	1.0923	170	3.57	14.29	364	
Fox	52.6	80.4	19.31	13.10	1.22	0.7822	0.9413	190	3.86	14.29	364	
Robin	52.6	80.4	19.31	15.00	1.41	0.6766	0.8141	210	4.17	14.29	364	
Ferret	52.6	80.4	19.31	15.20	1.41	0.6764	0.8141	210	4.17	14.29	364	
Rabbit	52.6	80.4	19.31	18.50	1.76	0.5425	0.6529	240	4.68	14.28	364	
Mink	52.6	80.4	19.31	21.90	2.10	0.4545	0.5470	260	5.14	14.29	364	
Banana	52.6	80.4	19.31	22.90	2.21	0.4329	0.5210	269	5.27	14.29	364	
Quail	52.6	80.4	19.31	23.50	2.24	0.4261	0.5128	270	5.32	14.29	364	
Beaver	52.6	80.4	19.31	25.80	2.50	0.3824	0.4602	290	5.63	14.29	364	
Raccoon	52.6	80.4	19.31	27.20	2.63	0.3639	0.4380	300	5.78	14.29	364	
Otter	52.6	80.4	19.31	28.80	2.80	0.3418	0.4114	310	5.98	14.29	364	
Cat	52.6	80.4	19.31	32.70	3.18	0.3006	0.3618	340	6.40	14.29	364	
Hare	52.6	80.4	19.31	36.00	3.50	0.2733	0.3289	360	6.73	14.29	364	
Penguin	52.6	80.4	19.31	37.30	3.57	0.2676	0.3220	370	6.80	14.29	364	

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ACSR (Aluminium Conductor Steel Reinforced) (A1/S1A) 7 Steel centre wires + 6, 7 Aluminium wires

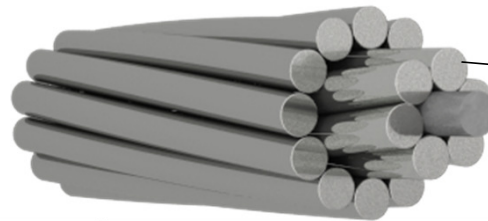
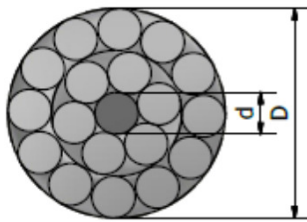


Construction and dimensions	Conductor name	Steel core			Aluminium Outer layer(s)			Total Conductor			Outer layer Lay direction	Standard drum length m	Specification		
		Number/ Size	dia.	area	mass	Number/ Size	area	mass	dia.	area				mass	
			mm	mm ²	kg/km		mm ²	kg/km		mm				mm ²	kg/km
			Nom.	Nom.	Nom.		Nom.	Nom.		Nom.				Nom.	Nom.
7 Steel + 6 Aluminium															
	Dog	7 / 1.57	4.79	13.6	106	6 / 4.72	105.0	284	14.15	118.54	397	(Z) RH	2000	EN	
	Leopard	7 / 1.75	5.34	16.8	132	6 / 5.28	131.4	355	15.81	148.21	410	(Z) RH	3000	EN	
7 Steel + 7 Aluminium															
	Hyena	7 / 1.97	6.02	21.3	168	7 / 4.39	106.0	286	14.69	127.29	360	(Z) RH	3000	EN	

Physical properties	Conductor name	Modulus of Elasticity		Coefficient of linear expansion	UTS	Grease Nom. (Case 2)	Resistance		Current rating	Short circuit rating	Creep constant	#Creep (nominal, calculated)
		Initial	Final				dc	ac				
		kN/mm ²		x10 ⁻⁶ /°C	kN	kg/km	20°C	75°C	A	kA.1s	mm/m	mm/km
		Nom.					Ω/km	Ω/km				
7 Steel + 6 Aluminium												
	Dog	48.8	76.4	19.86	32.70	5.67	0.2733	0.3289	360	6.73	11.43	381
	Leopard	48.8	76.4	19.87	40.80	7.08	0.2194	0.2628	410	7.57	11.36	381
7 Steel + 7 Aluminium												
	Hyena	46.9	73.4	18.72	41.00	6.30	0.2721	0.3259	360	6.76	16.76	350

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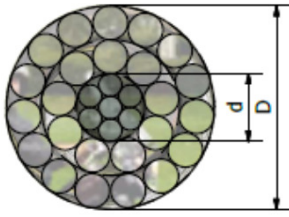


Aluminium conductor
Steel wire reinforcing

Construction and dimensions	Conductor name	Steel core			Aluminium Outer layer(s)		Total Conductor			Outer layer Lay direction	Standard drum length m	Specification		
		Number/ Size	dia.	area	mass	Number/ Size	area	mass	dia.				area	mass
			mm	mm ²	kg/km		mm ²	kg/km	mm				mm ²	kg/km
			Nom.	Nom.	Nom.		Nom.	Nom.	Nom.				Nom.	Nom.
1 Steel + 18 Aluminium														
Dingo	1 / 3.35	3.35	8.81	69	18 / 3.35	158.65	429	16.75	167.47	498	(Z) RH	3000	ASTM	
IEC 160	1 / 3.36	3.36	8.87	70	18 / 3.36	159.60	440	10.08	168.47	509	(Z) RH	1500	IEC	
Chicadee	1 / 3.77	3.77	11.16	88	18 / 3.77	200.93	543	18.85	212.09	631	(Z) RH	3000	CAN	
Pelican	1 / 4.14	4.14	13.46	106	18 / 4.14	242.31	655	20.70	255.77	761	(Z) RH	3000	CAN	
Osprey	1 / 4.47	4.47	15.69	123	18 / 4.47	282.47	764	22.35	298.17	887	(Z) RH	3000	CAN	
Kingbird	1 / 4.78	4.78	17.95	141	18 / 4.78	323.01	873	23.90	340.96	1014	(Z) RH	3000	ASTM	

Physical properties	Conductor name	Modulus of Elasticity		Coefficient of linear expansion	UTS	Grease Nom. (Case 2)	Resistance		Current rating	Short circuit rating	Creep constant	#Creep (nominal, calculated)
		Initial	Final				dc	ac				
		kN/mm ²		x10 ⁻⁶ /°C	kN	kg/km	Ω/km	A	kA.1s	mm/m	mm/km	
		Nom.										
Dingo	43.1	66.2	21.41	35.70	20.99	0.1817	0.2176	576	8.36	5.26	421	
IEC 160	43.1	66.2	21.44	37.42	21.11	0.1797	0.2163	530	8.47	5.26	421	
Chicadee	43.1	66.2	21.44	44.90	26.58	0.1427	0.1718	530	9.47	5.26	421	
Pelican	43.1	66.2	21.41	53.80	32.05	0.1190	0.1425	600	10.45	5.26	421	
Osprey	43.1	66.2	21.41	60.52	37.36	0.1021	0.1222	660	11.33	5.26	421	
Kingbird	43.1	66.2	21.69	71.32	42.73	0.0891	0.1069	773	12.16	5.26	421	

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Aluminium conductor
Steel strand reinforcing
Grease (if applicable)

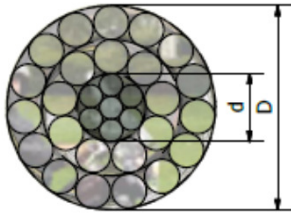
ACSR (Aluminium Conductor Steel Reinforced) (A1/S1A) 7 Steel centre wires + 12, 22, 24, 26, 30 Aluminium wires

Conductor name	Number/ Size	Steel core			Aluminium Outer layer(s)		Total Conductor			Outer layer Lay direction	Standard drum length	Specification	
		dia.	area	mass	Number/ Size	area	mass	dia.	area				mass
		mm	mm ²	kg/km		mm ²	kg/km	mm	mm ²				kg/km
		Nom.	Nom.	Nom.	Nom.	Nom.	Nom.	Nom.	Nom.				Nom.
7 Steel + 12 Aluminium													
Petrel	7 / 2.34	7.02	30.10	238	12 / 2.34	51.61	139	11.70	81.71	377	(Z) RH	2000	ASTM
Skunk	7 / 2.59	7.77	36.88	291	12 / 2.59	63.22	171	12.95	100.10	462	(Z) RH	2000	ASTM
Leghorn	7 / 2.69	8.07	39.78	314	12 / 2.69	68.20	184	13.45	107.98	498	(Z) RH	2000	ASTM
Horse	7 / 2.79	8.37	42.80	338	12 / 2.79	73.36	198	13.95	116.16	536	(Z) RH	2000	BS
Guinea	7 / 2.92	8.76	46.88	370	12 / 2.92	80.36	217	14.60	127.24	587	(Z) RH	2000	ASTM
Dotterel	7 / 3.08	9.24	52.15	412	12 / 3.08	89.41	242	15.40	141.56	653	(Z) RH	2000	ASTM
Oden	7 / 3.52	10.56	68.12	538	12 / 3.52	116.78	316	17.60	184.90	853	(Z) RH	2000	ASTM
7 Steel + 22 Aluminium													
Toucan	7 / 2.08	6.24	23.8	188	22 / 3.74	241.7	667	13.72	265.47	855	(Z) RH	2000	ASTM
7 Steel + 24 Aluminium													
Flicker	7 / 2.39	7.17	31.4	248	24 / 3.58	241.6	653	14.33	272.99	901	(Z) RH	2000	CAN
Rook	7 / 2.76	8.28	41.9	331	24 / 4.14	323.1	873	16.56	364.95	1204	(Z) RH	2000	CAN
7 Steel + 26 Aluminium													
70/12	7 / 1.44	4.32	11.4	90	26 / 1.85	69.9	189	11.72	81.29	279	(Z) RH	2000	ASTM
Dove	7 / 2.89	8.67	45.9	363	26 / 3.72	282.6	764	23.55	328.50	1126	(Z) RH	2000	ASTM
Hawk	7 / 2.68	8.03	39.3	311	26 / 3.43	240.2	649	21.75	279.58	960	(Z) RH	2000	ASTM
Drake	7 / 3.45	10.36	65.6	518	26 / 4.44	402.9	1 089	28.13	468.51	1607	(Z) RH	2000	ASTM

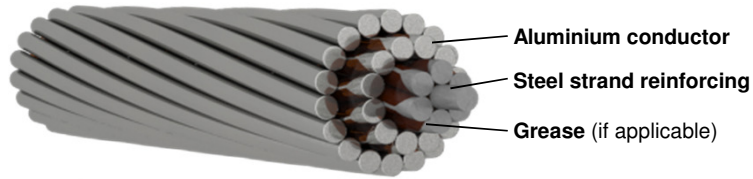
Conductor name	Modulus of Elasticity		Coefficient of linear expansion	UTS	Grease Nom. (Case 2)	Resistance		Current rating	Short circuit rating	Creep constant	#Creep (nominal, calculated)
	Initial	Final				dc	ac				
	kN/mm ²		x10 ⁻⁶ /°C	kN	kg/km	Ω/km	A	kA.1s	mm/m	mm/km	
7 Steel + 12 Aluminium											
Petrel	71.0	108.0	15.61	43.84	8.60	0.5586	0.6825	232	4.62	36.84	266
Skunk	46.1	70.8	15.61	52.90	10.53	0.4560	0.5571	270	5.14	36.84	266
Leghorn	46.1	70.8	15.61	57.52	11.36	0.4227	0.5164	275	5.35	36.84	266
Horse	71.0	108.0	15.61	60.70	13.39	0.3939	0.4383	300	5.82	36.84	266
Guinea	71.0	108.0	15.61	67.50	14.89	0.3588	0.3939	304	6.16	36.84	266
Dotterel	71.0	108.0	15.61	72.60	19.45	0.3224	0.3016	325	7.06	36.84	266
Oden	71.0	108.0	15.61	93.62	19.45	0.2473	0.3016	420	7.11	36.84	266
7 Steel + 22 Aluminium											
Toucan	47.3	73.9	20.44	68.90	40.14	0.1193	0.1457	452	10.55	8.96	396
7 Steel + 24 Aluminium											
Flicker	47.3	73.9	19.84	75.60	36.78	0.1193	0.1458	610	10.44	11.50	380
Rook	47.3	73.9	19.85	99.20	49.19	0.0892	0.1090	720	12.16	11.48	380
7 Steel + 26 Aluminium											
70/12	49.5	77.0	18.90	26.80	5.37	0.4756	0.5039	270	5.40	14.02	365
Dove	49.0	77.0	19.29	97.40	39.72	0.1020	0.1246	726	11.33	13.98	366
Hawk	49.5	77.0	19.27	84.30	18.47	0.1200	0.1466	610	10.41	14.07	365
Drake	48.4	77.0	19.29	137.00	30.98	0.0716	0.0874	830	13.66	14.00	365

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ACSR (Aluminium Conductor Steel Reinforced) (A1/S1A) 7 Steel centre wires + 30 Aluminium wires

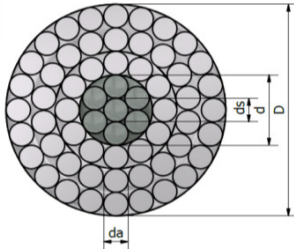


Construction and dimensions	Conductor name	Steel core			Aluminium Outer layer(s)			Total Conductor			Outer layer Lay direction	Standard drum length m	Specification	
		Number/ Size	dia.	area	mass	Number/ Size	area	mass	dia.	area				mass
			mm	mm ²	kg/km		mm ²	kg/km	mm	mm ²				kg/km
			Nom.	Nom.	Nom.		Nom.	Nom.	Nom.	Nom.				Nom.
7 Steel + 30 Aluminium														
94-AL3/22-ST1A (94/22)	7 / 2.00	6.00	21.99	173	30 / 2.00	94.25	255	14.00	116.24	606	(Z) RH	2000	EN	
Canna 147.1	7 / 2.25	6.75	27.83	219	30 / 2.25	119.28	322	15.75	147.11	549	(Z) RH	2000	EN	
Tiger	7 / 2.36	7.08	30.62	240	30 / 2.36	131.23	355	16.52	161.85	606	(Z) RH	2000	EN	
Wolf	7 / 2.59	7.77	36.88	290	30 / 2.59	158.06	427	18.13	194.94	730	(Z) RH	2000	EN	
Oriole	7 / 2.69	8.07	39.78	312	30 / 2.69	170.50	461	18.83	210.28	785	(Z) RH	2000	EN	
Lynx	7 / 2.79	8.37	42.80	336	30 / 2.79	183.41	496	19.53	226.20	832	(Z) RH	2000	CAN	
Panther	7 / 3.00	9.00	49.48	389	30 / 3.00	212.06	573	21.00	261.54	970	(Z) RH	2000	BS	
Bear	7 / 3.35	10.05	61.70	485	30 / 3.35	264.42	715	23.45	326.12	1220	(Z) RH	2000	EN	
Lion	7 / 3.18	9.54	55.60	437	30 / 3.18	238.27	644	22.26	293.86	1081	(Z) RH	2000	EN	
Goat	7 / 3.71	11.13	75.67	594	30 / 3.71	324.31	877	25.97	399.98	1500	(Z) RH	2000	EN	
Sheep	7 / 3.99	11.97	87.53	687	30 / 3.99	375.11	1 014	27.93	462.63	1701	(Z) RH	2000	EN	
Deer	7 / 4.27	12.81	100.24	787	30 / 4.27	429.60	1 161	29.89	529.84	1949	(Z) RH	2000	EN	
Elk	7 / 4.50	13.50	111.33	874	30 / 4.50	477.13	1 290	31.50	588.46	2164	(Z) RH	2000	EN	

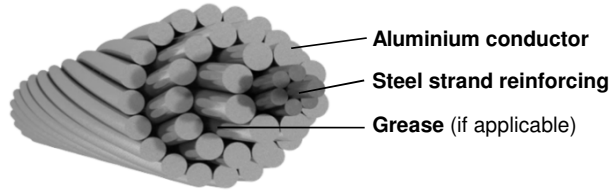
Physical properties	Conductor name	Modulus of Elasticity		Coefficient of linear expansion	UTS	Grease Nom. (Case 2)	Resistance		Current rating	Short circuit rating	Creep constant	#Creep (nominal, calculated)
		Initial	Final				dc	ac				
		kN/mm ²					20°C	75°C				
		Nom.					Ω/km	A				
7 Steel + 30 Aluminium												
94-AL3/22-ST1A (94/22)	53.4	82.0	18.43	53.53	11.48	0.3530	0.3737	330	6.33	18.92	339	
Canna 147.1	49.2	75.5	18.43	54.00	0.1322	0.2430	0.2953	415	7.19	18.92	339	
Tiger	54.3	83.4	18.43	58.70	15.98	0.2202	0.2684	420	7.56	18.92	339	
Wolf	54.3	83.4	18.43	69.20	19.25	0.1828	0.2228	470	8.34	18.92	339	
Oriole	54.3	83.4	18.45	74.20	20.77	0.1695	0.2066	498	8.68	18.92	339	
Lynx	54.3	83.4	18.45	79.30	22.34	0.1572	0.1920	520	9.03	18.92	339	
Panther	54.3	83.4	18.43	90.80	25.83	0.1363	0.1661	560	9.74	18.92	339	
Bear	54.3	83.4	18.43	112.00	32.21	0.1093	0.1332	650	10.94	18.92	339	
Lion	54.3	83.4	18.45	100.50	29.02	0.1210	0.1478	610	10.36	18.92	339	
Goat	54.3	83.4	18.43	136.00	39.50	0.0891	0.1086	730	12.18	18.92	339	
Sheep	54.3	83.4	18.45	156.30	45.69	0.0769	0.0939	800	13.15	18.92	339	
Deer	54.3	83.4	18.45	178.50	52.33	0.0671	0.0820	870	14.13	18.92	339	
Elk	54.3	83.4	18.45	198.30	58.12	0.0604	0.0738	930	14.93	18.92	339	

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ACSR (Aluminium Conductor Steel Reinforced) (A1/S1A) 7 Steel centre wires + 42, 45, 48 Aluminium wires



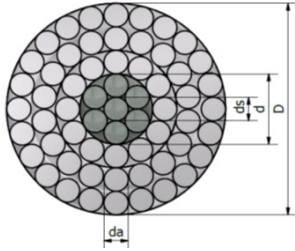
Conductor name	Number/ Size	Steel core			Aluminium Outer layer(s)			Total Conductor			Outer layer Lay direction	Standard drum length m	Specification
		dia.	area	mass	Number/ Size	area	mass	dia.	area	mass			
		mm	mm ²	kg/km	mm ²	kg/km	mm	mm ²	kg/km	mm			
7 Steel + 42 Aluminium													
Zambezi	7 / 2.32	6.96	29.59	235	42 / 4.14	565.38	1 528	31.80	594.97	1764	(Z) RH	2000	EN
7 Steel + 45 Aluminium													
IEC 315	7 / 1.99	5.97	21.77	173	45 / 2.99	315.97	871	23.91	337.74	1040	(Z) RH	2000	IEC
IEC 450	7 / 2.38	7.14	31.14	248	45 / 3.57	450.44	1 242	28.56	481.58	1485	(Z) RH	2000	IEC
IEC 500	7 / 2.51	7.53	34.64	272	45 / 3.76	499.66	1 378	30.09	534.30	1650	(Z) RH	2000	IEC
IEC 560	7 / 2.65	7.95	38.61	303	45 / 3.98	559.85	1 544	31.83	598.45	1848	(Z) RH	2000	IEC
IEC 630	7 / 2.81	8.43	43.41	341	45 / 4.22	629.40	1 735	33.75	672.81	2079	(Z) RH	2000	IEC
IEC 710	7 / 4.48	13.44	110.34	867	45 / 4.48	709.35	1 956	40.32	819.69	1848	(Z) RH	2000	IEC
Tern	7 / 2.25	6.75	27.83	221	45 / 3.38	403.77	1 113	27.03	431.60	1340	(Z) RH	2000	ASTM
Ruddy	7 / 2.40	7.20	31.67	249	45 / 3.59	455.50	1 256	28.74	487.17	1505	(Z) RH	2000	ASTM
Rail	7 / 2.47	7.41	33.54	263	45 / 3.70	483.84	1 334	29.59	517.39	1610	(Z) RH	3000	ASTM
Bluejay	7 / 2.66	7.98	38.90	306	45 / 4.00	565.49	1 559	31.98	604.39	1865	(Z) RH	2000	ASTM
Bunting	7 / 2.76	8.28	41.88	329	45 / 4.12	599.92	1 654	33.00	641.80	1983	(Z) RH	2000	ASTM
Lapwing	7 / 3.18	9.54	55.60	440	45 / 4.77	804.15	2 217	38.16	859.75	2657	(Z) RH	1000	ASTM
7 Steel + 48 Aluminium													
Bersfort	7 / 3.32	9.96	60.60	476	48 / 4.27	687.36	1 895	35.58	747.96	2386	(Z) RH	2000	CAN
Peacriver	7 / 2.25	6.87	27.83	219	48 / 2.90	317.05	874	24.15	344.88	1093	(Z) RH	2000	CAN

Conductor name	Modulus of Elasticity		Coefficient of linear expansion	UTS	Grease Nom. (Case 2)	Resistance		Current rating	Short circuit rating	Creep constant	#Creep (nominal, calculated)
	Initial	Final				dc 20°C	ac 75°C				
	kN/mm ²					Ω/km	A				
7 Steel + 42 Aluminium											
Zambezi	47.7	73.2	21.49	98.3	73	0.0510	0.0623	610	13.93	4.97	423
7 Steel + 45 Aluminium											
IEC 315	47.7	66.6	21.12	79.03	38	0.0917	0.1115	525	12.14	6.45	413
IEC 450	47.7	66.6	21.11	107.47	54	0.0642	0.0782	650	14.63	6.47	413
IEC 500	49.0	68.4	21.11	119.41	54	0.0578	0.0782	690	14.67	6.48	413
IEC 560	49.0	68.4	21.12	133.74	67	0.0516	0.0629	740	16.40	6.45	413
IEC 630	49.0	68.4	21.12	150.45	67	0.0459	0.0629	790	16.45	6.45	413
IEC 710	46.6	65.1	19.43	176.43	85	0.0407	0.0497	740	18.57	13.46	369
Tern	47.7	66.6	21.12	98.70	49	0.0718	0.0872	830	13.81	6.45	413
Ruddy	48.9	68.4	21.11	109.40	55	0.0633	0.0773	955	14.71	6.50	413
Rail	47.7	66.7	21.11	117.00	58	0.0596	0.0728	920	15.19	6.48	413
Bluejay	49.0	68.4	21.12	135.00	68	0.0510	0.0623	1 000	16.49	6.44	413
Bunting	49.0	68.4	21.10	142.20	72	0.0481	0.0587	1 100	17.01	6.53	413
Lapwing	49.0	68.4	21.11	186.90	97	0.0359	0.0438	1 300	19.83	6.47	413
7 Steel + 48 Aluminium											
Bersfort	48.4	68.8	20.68	177.65	77	0.0420	0.0512	1 132	18.27	8.10	402
Peacriver	48.4	68.8	20.69	88.00	36	0.0909	0.1111	1 002	12.16	8.07	402

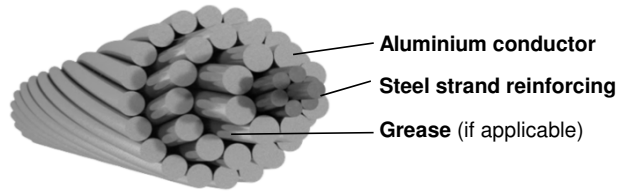
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ACSR (Aluminium Conductor Steel Reinforced) (A1/S1A) 7 Steel centre wires + 54 Aluminium wires



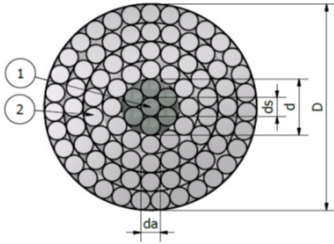
Construction and dimensions	Conductor name	Steel core			Aluminium Outer layer(s)			Total Conductor			Outer layer Lay direction	Standard drum length m	Specification		
		Number/Size	dia.	area	mass	Number/Size	area	mass	dia.	area				mass	
			mm	mm ²	kg/km		mm ²	kg/km		mm				mm ²	kg/km
			Nom.	Nom.	Nom.		Nom.	Nom.		Nom.				Nom.	Nom.
7 Steel + 54 Aluminium															
Crow	7 / 2.92	8.76	46.88	368	54 / 4.27	773.28	2 090	34.38	820.16	2458	(Z) RH	2000	ASTM		
Antelope	7 / 2.97	8.91	48.50	381	54 / 2.97	374.11	1 011	26.73	422.60	1392	(Z) RH	2000	BS		
Bison	7 / 3.00	9.00	49.48	389	54 / 3.00	381.70	1 032	27.00	431.18	1420	(Z) RH	2000	BS		
Zebra	7 / 3.18	9.54	55.60	437	54 / 3.18	428.88	1 159	28.62	484.48	1630	(Z) RH	2000	EN		
Camel	7 / 3.35	10.05	61.70	485	54 / 3.35	475.96	1 287	30.15	537.66	1771	(Z) RH	2000	EN		
Moose	7 / 3.53	10.59	68.51	538	54 / 3.53	528.49	1 428	31.77	596.99	1967	(Z) RH	2000	EN		
Condor	7 / 3.08	9.24	52.15	410	54 / 3.08	402.33	1 088	27.72	454.49	1497	(Z) RH	2000	EN		
Cardinal	7 / 3.38	10.14	62.81	493	54 / 3.38	484.53	1 310	30.42	547.33	1803	(Z) RH	2000	EN		
19 Steel + 54 Aluminium															
Dinosaur	19 / 2.37	11.85	83.82	658	54 / 3.95	661.73	1 789	35.55	745.54	2483	(Z) RH	2000	EN		

Physical properties	Conductor name	Modulus of Elasticity		Coefficient of linear expansion	UTS	Grease Nom. (Case 2)	Resistance		Current rating	Short circuit rating	Creep constant	#Creep (nominal, calculated)
		Initial	Final				dc 20°C	ac 75°C				
		kN/mm ²					Ω/km					
		Nom.					x10 ⁻⁶ /°C					
7 Steel + 54 Aluminium												
Crow	49.2	76.2	21.29	113.00	77	0.0373	0.0455	780	19.24	5.72	418	
Antelope	49.2	76.2	19.85	117.00	37	0.0771	0.0941	790	13.14	11.48	380	
Bison	47.3	73.2	19.85	119.00	38	0.0755	0.0923	800	13.28	11.48	380	
Zebra	47.3	73.2	19.91	133.00	43	0.0674	0.0821	860	14.11	11.48	380	
Camel	47.3	73.2	19.85	145.90	48	0.0606	0.0740	920	14.91	11.48	380	
Moose	47.3	73.2	19.85	161.00	53	0.0546	0.0666	980	15.75	11.48	380	
Condor	47.3	73.2	19.85	127.91	40	0.0717	0.0875	889	13.65	11.48	380	
Cardinal	47.3	73.2	19.85	149.00	49	0.0595	0.0727	1 022	15.05	11.48	380	
19 Steel + 54 Aluminium												
Dinosaur	46.7	72.3	19.89	203.66	63	0.0437	0.0532	1 110	17.73	11.24	382	

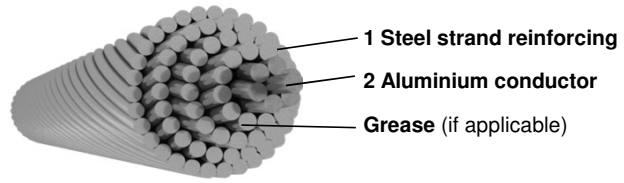
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ACSR (Aluminium Conductor Steel Reinforced) (A1/S1A) 7 Steel centre wires + 72 Aluminium wires



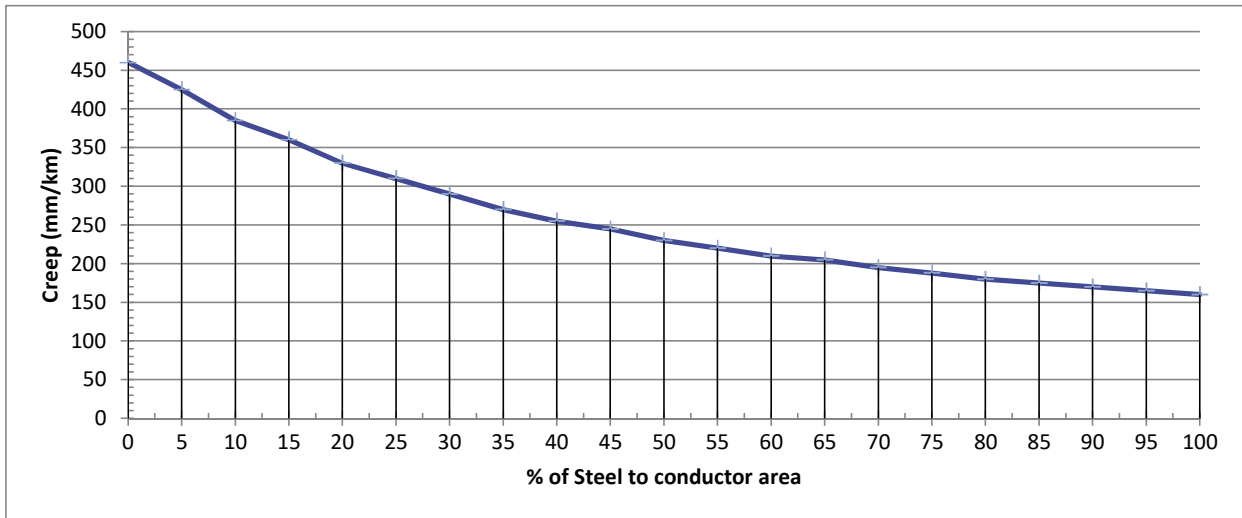
Construction and dimensions	Conductor name	Steel core			Aluminium Outer layer(s)			Total Conductor			Outer layer Lay direction	Standard drum length m	Specification	
		Number/ Size	dia.	area	mass	Number/ Size	area	mass	dia.	area				mass
			mm	mm ²	kg/km		mm ²	kg/km	mm	mm ²				kg/km
			Nom.	Nom.	Nom.		Nom.	Nom.	Nom.	Nom.				Nom.
7 Steel + 72 Aluminium														
	IEC 800	7 / 2.51	7.53	34.64	277	72 / 3.76	799.46	2 203	37.61	834.10	2480	(Z) RH	2000	ASTM

Physical properties	Conductor name	Modulus of Elasticity		Coefficient of linear expansion	UTS	Grease Nom. (Case 2)	Resistance		Current rating	Short circuit rating	Creep constant	#Creep (nominal, calculated)
		Initial	Final				dc 20°C	ac 75°C				
		kN/mm ²					Ω/km	A				
		Nom.		x10 ⁻⁶ /°C	kN	kg/km						
7 Steel + 72 Aluminium												
	IEC 800	49.7	69.5	21.76	167.41	60	0.0361	0.0441	1 607	19.77	4.15	429

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ACSR Conductor creep estimate



Creep formula derived from Chart :

$$\text{Creep constant (mm/m)} = \frac{\text{Area of Steel}}{\text{Area of Conductor}} \times 100$$

$$\text{Creep} = \frac{m}{1000} \times -0.0003 \times \text{Creep constant}^3 + 0.0817 \times \text{Creep constant}^2 - 7.8701 \times \text{Creep constant} + 460.48$$

m = length of conductor span

Creep Constant formula in accordance with DISASABH1-Rev 2, Annex B, graph 1 - conductor creep.

Creep have been verified with a 20 year creep test performed on Tern conductor: Refer too type test report: CT14-4711-5

20 Year creep calculation correlate with actual Creep tested data at 20% of UTS stringing tension.