

AERIAL



Nexans
Olex



Australia's cable specialist

Olex has been designing and manufacturing cables in Australia for over half a century, delivering superior performance in design, quality engineering excellence, distribution and customer service.

And now as part of the world's largest cable manufacturer, Nexans, Olex are able access the worldwide resources of the company, including R&D and testing facilities, new products and technical knowledge and experience.

World leader in overhead transmission cables

Olex supports Australia's position as a world leader in overhead transmission line technology, based on more than 50 years of experience in manufacturing bare overhead conductors.

Every Olex cable is subject to exacting quality control procedures, ensuring rigid testing to relevant standards at every stage of manufacture.

The extensive range of Olex bare overhead conductors includes internationally accepted conductor configurations. All-aluminium, contemporary aluminium alloy and steel-reinforced conductor

designs are manufactured to Australian Standards and specific customer requirements, including most international standards. Electrical, mechanical and cost considerations determine the selection of a conductor for a particular application. The values of resistance, inductance and, where applicable, capacitance, should be such that voltage regulation, temperature rise and losses will be within acceptable limits when the conductor is carrying the required current load. On high voltage lines, radio interference characteristics or corona losses often dictate the minimum diameters which may be used. Conductor design and span lengths are also determined by

mechanical loads likely to be imposed by wind or ice, as well as by economic considerations.

This catalogue presents the standard range of Olex overhead conductors and cables. Information on other power and industrial cable products is available from the Olex office in your state or

www.olex.com.au



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Bare Overhead Conductors

Olex offers a number of materials meeting the requirements of both Australian and International Standards.

- Aluminium 1350** High purity electrical conductor (EC) grade aluminium (alloy 1350) has a conductivity of 61% IACS and UTS of 160–185MPa.
- Aluminium alloy 1120** Olex alloy 1120 has a conductivity of 59% IACS and UTS of 240–250MPa and 40–50% higher strength than a similar conductor of EC grade material. This alloy can be considered a ‘high tech’ version of EC grade aluminium and offers significant advantages over older type alloys, such as alloy 6201. Steel-reinforced aluminium alloy 1120 conductors have a high strength to weight ratio, resulting in small sags on long span lengths. Fittings for alloy 1120 conductors are similar to those used for EC grade aluminium conductors. Please note that Olex no longer offers alloy 6201 conductors, as they have little, if any, practical advantage over alloy 1120. Compared with alloy 1120, alloy 6201 conductors have poor electrical performance, are less resistant to corrosion, more susceptible to fatigue failure, more expensive and require the use of special fittings.
- Copper** Hard drawn copper wire produced from high conductivity alloy 110A has a conductivity of 97% IACS and UTS of 405–460MPa.
- Galvanised steel** Galvanised steel wire made from fully-killed steel with a carbon content of 0.6% has a UTS of 1.31–1.39GPa. It is

- galvanised by either a hot dip or electrolytic process to give a zinc coating mass of 200–260g/m².
- Aluminium-clad steel** Aluminium-clad steel has an aluminium cladding with a radial thickness not less than 5% of the overall wire diameter. It has a conductivity of 20.3% IACS and UTS of 1.27–1.34GPa. Conductors incorporating aluminium-clad steel for reinforcement have lower electrical resistance and provide better protection against corrosion than those using galvanised steel.
- Construction** The wires in all bare conductors are stranded concentrically with successive layers having an opposite direction of lay, the outermost layer being right-handed. When required, a larger central wire (king-wire) is included in a conductor. The diameter of this wire is based on conductor design considerations and is usually 5% greater than the surrounding wires. The incorporation of a king wire is often an advantage for ACSR type conductors, as it ensures that the surrounding layer of wires fits firmly on the central wire. ACSR conductors may be subjected to corrosive conditions such as high pollution found in industrial areas or salt spray in coastal areas. The application of a high melting point grease over the steel

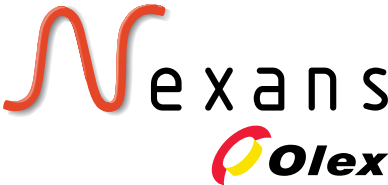
Properties of Materials

Unit	Aluminium	Aluminium alloy 1120	Copper	Galvanised steel	Aluminium-clad steel
Density at 20°C					
kg/m ³	2700	2700	8890	7800	6590
Conductivity at 20°C					
% IACS	61	59	97	10.1	20.3
Resistivity at 20°C					
μΩ.m	0.0283	0.0293	0.01777	0.17	0.085
Constant-mass temperature coefficient of resistance					
per °C	0.00403	0.00390	0.00381	0.0044	0.0036
Ultimate tensile stress					
MPa	160–185	230–250	405–460	1310–1390	1270–1340
Modulus of elasticity					
GPa	68	68	124	193	162
Coefficient of linear expansion					
per °C	23.0 × 10 ⁻⁶	23.0 × 10 ⁻⁶	17 × 10 ⁻⁶	11.5 × 10 ⁻⁶	12.9 × 10 ⁻⁶

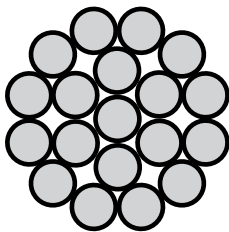
Further technical information is available if required. Topics include:

- Thermal characteristics**
 - air movement
 - continuous current carrying capacity
 - ambient temperature
- emissivity and solar absorption coefficients
- solar radiation
- Electrical characteristics**
 - AC resistance
 - inductive reactance
- Physical and mechanical characteristics**
 - sag and tension
 - everyday tension
 - stress-strain characteristics
 - thermal elongation
 - creep

- wires provides additional protection against corrosion. Conductors incorporating aluminium-clad steel are more corrosion-resistant than those incorporating galvanised steel. Aluminium alloy 1120 conductors are becoming more popular as replacements for steel-reinforced conductors in areas of high corrosion risk.
- The exposed surface of aluminium wires can be specially treated to provide a dull, non-specular finish when conductors are required to blend into the environment. Aluminium alloy 1120 conductors may be identified by means of a blue thread incorporated within the conductor.
- Packing** Conductor lengths are determined from a consideration of such factors as physical drum dimensions, drum weights, span length and handling equipment.



Bare Conductors
Type AAC



Aluminium conductors manufactured to AS 1531.

Physical and Mechanical Performance Data

Conductor codename	Stranding and wire diameter no/mm	Nominal overall diameter mm	Cross- sectional area mm²	Approximate mass kg/km	Breaking load kN	Modulus of elasticity GPa	Coefficient of linear expansion × 10 ⁻⁶ /°C	Product code
Leo	7/2.50	7.50	34.4	94.3	5.71	65	23.0	Leo
Leonids	7/2.75	8.25	41.6	113	6.72	65	23.0	Leonids
Libra	7/3.00	9.00	49.5	135	7.98	65	23.0	Libra
Mars	7/3.75	11.3	77.3	211	11.8	65	23.0	Mars
Mercury	7/4.50	13.5	111	304	16.9	65	23.0	Mercury
Moon	7/4.75	14.3	124	339	18.9	65	23.0	Moon
Neptune	19/3.25	16.3	158	433	24.7	65	23.0	Neptune
Orion	19/3.50	17.5	183	503	28.7	65	23.0	Orion
Pluto	19/3.75	18.8	210	576	31.9	65	23.0	Pluto
Saturn	37/3.00	21.0	262	721	42.2	64	23.0	Saturn
Sirius	37/3.25	22.8	307	845	48.2	64	23.0	Sirius
Taurus	19/4.75	23.8	337	924	51.3	65	23.0	Taurus
Triton	37/3.75	26.3	409	1120	62.2	64	23.0	Triton
Uranus	61/3.25	29.3	506	1400	75.2	64	23.0	Uranus
Ursula	61/3.50	31.5	587	1620	87.3	64	23.0	Ursula
Venus	61/3.75	33.8	673	1860	97.2	64	23.0	Venus

Electrical Performance Data

Cond. code name	DC resist. at 20°C	AC resist. at 50Hz 75°C	Inductive reactance to 0.3m at 50Hz	Continuous current carrying capacity, A											
				Winter night Still air	Rural weathered		Summer noon		Winter night Still air	Industrial weathered		Summer noon			
					1m/s wind	2m/s wind	Still air	1m/s wind		2m/s wind	1m/s wind	2m/s wind	Still air	1m/s wind	2m/s wind
Leo	0.833	1.02	0.295	123	211	245	95	190	225	132	216	250	88	186	222
Leonids	0.689	0.842	0.289	140	237	276	107	213	253	150	243	282	99	209	249
Libra	0.579	0.707	0.284	157	265	308	119	237	281	169	272	314	110	232	277
Mars	0.370	0.452	0.270	211	350	408	157	311	369	228	361	417	143	304	364
Mercury	0.258	0.315	0.259	269	440	511	196	388	461	292	454	524	176	378	453
Moon	0.232	0.284	0.255	289	470	546	209	413	492	314	486	560	188	403	483
Neptune	0.183	0.224	0.244	343	548	636	243	479	570	373	568	653	216	465	559
Orion	0.157	0.192	0.240	381	603	699	269	525	625	416	626	719	238	510	612
Pluto	0.137	0.168	0.235	420	657	762	295	570	679	458	683	784	260	553	665
Saturn	0.110	0.135	0.227	490	755	875	341	651	776	536	786	901	299	630	759
Sirius	0.0940	0.116	0.222	547	834	975	379	716	854	599	869	1006	331	692	834
Taurus	0.0857	0.105	0.220	583	883	1039	402	756	902	639	921	1071	350	730	880
Triton	0.0706	0.0872	0.213	668	997	1190	457	849	1028	733	1042	1228	396	818	1002
Uranus	0.0572	0.0710	0.206	773	1137	1377	525	962	1188	850	1191	1422	452	925	1158
Ursula	0.0493	0.0616	0.201	856	1246	1524	578	1049	1314	942	1307	1574	495	1006	1280
Venus	0.0429	0.0539	0.197	941	1356	1674	631	1137	1442	1036	1424	1730	539	1089	1405

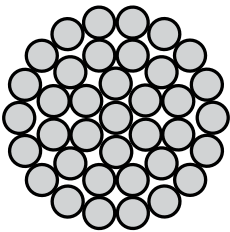
Note Current ratings are based on the following conditions:

- Conductor temperature rise above ambient of 40°C
- Ambient air temp. of 35°C for summer noon or 10°C for winter night
- Direct solar radiation intensity of 1000W/m² for summer noon or zero for winter night
- Diffuse solar radiation intensity of 100W/m² for summer noon or zero for winter night
- Ground reflectance of 0.2
- Emissivity of 0.5 for rural weathered conductor or 0.85 for industrial weathered conductor
- Solar absorption coefficient of 0.5 for rural weathered conductor or 0.85 for industrial weathered conductor

Cross sections not to scale



Bare Conductors
Type AAAC/1120



Aluminium alloy 1120 conductors manufactured to AS 1531.

Physical and Mechanical Performance Data

Conductor codename	Stranding and wire diameter no/mm	Nominal overall diameter mm	Cross- sectional area mm²	Approximate mass kg/km	Breaking load kN	Modulus of elasticity GPa	Coefficient of linear expansion × 10 ⁻⁶ /°C	Product code
Chlorine	7/2.50	7.50	34.4	94.3	8.18	65	23.0	Chlorine
Chromium	7/2.75	8.25	41.6	113	9.91	65	23.0	Chromium
Fluorine	7/3.00	9.00	49.5	135	11.8	65	23.0	Fluorine
Helium	7/3.75	11.3	77.3	211	17.6	65	23.0	Helium
Hydrogen	7/4.50	13.5	111	304	24.3	65	23.0	Hydrogen
Iodine	7/4.75	14.3	124	339	27.1	65	23.0	Iodine
Krypton	19/3.25	16.3	158	433	37.4	65	23.0	Krypton
Lutetium	19/3.50	17.5	183	503	41.7	65	23.0	Lutetium
Neon	19/3.75	18.8	210	576	47.8	65	23.0	Neon
Nitrogen	37/3.00	21.0	262	721	62.2	64	23.0	Nitrogen
Nobelium	37/3.25	22.8	307	845	72.8	64	23.0	Nobelium
Oxygen	19/4.75	23.8	337	924	73.6	65	23.0	Oxygen
Phosphorus	37/3.75	26.3	409	1120	93.1	64	23.0	Phosphorus
Selenium	61/3.25	29.3	506	1400	114	64	23.0	Selenium
Silicon	61/3.50	31.5	587	1620	127	64	23.0	Silicon
Sulfur	61/3.75	33.8	673	1860	145	64	23.0	Sulfur

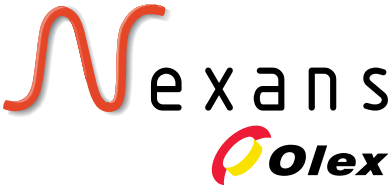
Electrical Performance Data

Cond. code name	DC resist. at 20°C	AC resist. at 50Hz 75°C	Inductive reactance to 0.3m at 50Hz	Continuous current carrying capacity, A											
				Winter night Still air	Rural weathered		Summer noon		Winter night Still air	Industrial weathered		Summer noon			
					1m/s wind	2m/s wind	Still air	1m/s wind		2m/s wind	1m/s wind	2m/s wind	Still air	1m/s wind	2m/s wind
Chlorine	0.864	1.05	0.295	121	207	241	94	187	221	130	212	246	87	183	219
Chromium	0.713	0.866	0.289	137	234	272	106	210	249	148	240	277	98	206	246
Fluorine	0.599	0.728	0.284	154	261	303	118	234	277	166	268	309	108	229	273
Helium	0.383	0.465	0.270	208	345	401	155	307	364	225	356	410	141	300	358
Hydrogen	0.266	0.323	0.259	265	434	504	194	383	455	288	448	517	74	373	447
Iodine	0.239	0.291	0.255	285	464	539	207	409	486	310	480	553	185	398	477
Krypton	0.189	0.230	0.244	338	540	627	240	473	562	368	560	644	213	459	551
Lutetium	0.163	0.198	0.240	375	593	688	265	517	615	409	615	707	234	502	603
Neon	0.142	0.173	0.235	413	647	750	290	562	669	451	672	771	256	545	655
Nitrogen	0.114	0.139	0.227	482	743	861	336	642	765	528	774	887	295	621	748
Nobelium	0.0973	0.119	0.222	539	821	961	373	706	842	590	856	990	326	682	822
Oxygen	0.0884	0.108	0.220	575	871	1025	397	747	891	630	908	1057	346	721	870
Phosphorus	0.0731	0.0897	0.213	658	982	1172	451	837	1013	722	1026	1209	391	807	988
Selenium	0.0592	0.0730	0.206	762	1120	1357	518	949	1172	838	1173	1401	446	912	1142
Silicon	0.0511	0.0634	0.201	843	1227	1501	569	1034	1295	928	1287	1550	488	992	1262
Sulfur	0.0444	0.0554	0.197	927	1336	1650	623	1122	1423	1021	1403	1705	532	1074	1386

Note Current ratings are based on the following conditions:

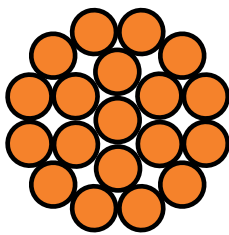
- Conductor temperature rise above ambient of 40°C
- Ambient air temp. of 35°C for summer noon or 10°C for winter night
- Direct solar radiation intensity of 1000W/m² for summer noon or zero for winter night
- Diffuse solar radiation intensity of 100W/m² for summer noon or zero for winter night
- Ground reflectance of 0.2
- Emissivity of 0.5 for rural weathered conductor or 0.85 for industrial weathered conductor
- Solar absorption coefficient of 0.5 for rural weathered conductor or 0.85 for industrial weathered conductor

Cross sections not to scale



Bare Conductors

Hard Drawn Copper



Hard drawn copper conductors manufactured to AS 1746.

Physical and Mechanical Performance Data

Stranding and wire	Nominal overall diameter mm	Cross-sectional area mm ²	Approximate mass kg/km	Breaking load kN	Modulus of elasticity GPa	Coefficient of linear expansion × 10 ⁻⁶ /°C	Product code
no/mm							
7/1.00	3.00	5.50	49.3	2.32	120	17.0	ACUT35AA001
7/1.25	3.75	8.59	76.9	3.59	120	17.0	ACUT36AA001
7/1.75	5.25	16.8	151	6.89	120	17.0	ACUT37AA001
7/2.00	6.00	22.0	197	8.89	120	17.0	ACUT38AA001
7/2.75	8.25	41.6	375	16.2	120	17.0	ACUT39AA001
19/1.75	8.75	45.7	413	18.3	118	17.0	ACUT40AA001
19/2.00	10.0	59.7	538	23.6	118	17.0	ACUT41AA001
7/3.50	10.5	67.4	607	25.4	120	17.0	ACUT42AA001
7/3.75	11.3	77.3	696	28.8	120	17.0	ACUT63AA001
37/1.75	12.3	89.0	806	35.6	117	17.0	ACUT43AA001
19/2.75	13.8	113	1020	43.1	118	17.0	ACUT44AA001
19/3.00	15.0	134	1210	50.8	118	17.0	ACUT45AA001
37/2.50	17.5	182	1640	70.3	117	17.0	ACUT46AA001
37/2.75	19.3	220	1990	83.9	117	17.0	ACUT47AA001
37/3.00	21.0	262	2370	98.9	117	17.0	ACUT48AA001
61/2.75	24.8	362	3290	138	117	17.0	ACUT49AA001

Electrical Performance Data

Stranding and wire	DC resist. at 20°C	AC resist. at 50Hz 75°C	Inductive reactance to 0.3m at 50Hz	Continuous current carrying capacity, A											
				Winter night Still air	Rural weathered		Summer noon		Winter night Still air	Industrial weathered		Summer noon			
					1m/s wind	2m/s wind	Still air	1m/s wind		2m/s wind	1m/s wind	2m/s wind	Still air	1m/s wind	2m/s wind
no/mm	Ω/km	Ω/km	Ω/km												
7/1.00	3.25	3.93	0.353	47	85	99	39	79	93	49	86	101	37	78	92
7/1.25	2.09	2.53	0.339	62	112	131	51	103	122	66	114	133	48	102	121
7/1.75	1.06	1.28	0.318	97	171	200	78	156	185	104	175	203	73	154	183
7/2.00	0.815	0.986	0.310	116	202	235	92	183	217	124	206	239	86	180	215
7/2.75	0.433	0.524	0.289	176	300	350	136	270	320	190	308	356	126	265	316
19/1.75	0.395	0.478	0.283	188	319	371	144	286	340	203	327	379	133	281	335
19/2.00	0.303	0.367	0.275	225	377	438	170	337	400	242	388	448	156	330	394
7/3.50	0.268	0.324	0.274	243	406	472	183	362	430	262	418	482	167	354	423
7/3.75	0.233	0.282	0.270	267	443	515	199	394	468	288	456	526	181	385	460
37/1.75	0.203	0.246	0.261	294	485	564	217	430	511	318	500	577	197	420	502
19/2.75	0.160	0.194	0.255	344	563	653	251	496	590	374	581	670	226	484	579
19/3.00	0.134	0.163	0.249	388	629	730	280	552	657	423	650	748	250	538	645
37/2.50	0.0996	0.121	0.239	479	758	879	339	661	787	523	786	903	300	642	771
37/2.75	0.0823	0.100	0.233	547	854	989	384	742	883	598	887	1018	339	719	864
37/3.00	0.0691	0.0846	0.227	618	952	1102	431	823	981	676	991	1136	378	796	959
61/2.75	0.0500	0.0618	0.217	772	1162	1376	533	996	1193	847	1213	1419	463	961	1164

Note Current ratings are based on the following conditions:

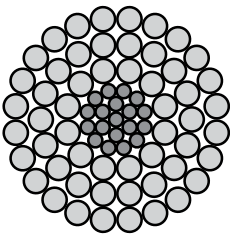
- Conductor temperature rise above ambient of 40°C
- Ambient air temp. of 35°C for summer noon or 10°C for winter night
- Direct solar radiation intensity of 1000W/m² for summer noon or zero for winter night
- Diffuse solar radiation intensity of 100W/m² for summer noon or zero for winter night
- Ground reflectance of 0.2
- Emissivity of 0.5 for rural weathered conductor or 0.85 for industrial weathered conductor
- Solar absorption coefficient of 0.5 for rural weathered conductor or 0.85 for industrial weathered conductor

Cross sections not to scale



Bare Conductors

Type ACSR/GZ



Aluminium conductors, galvanised steel reinforced manufactured to AS 3607.

Physical and Mechanical Performance Data

Conductor codename	Stranding and wire diameter no/mm		Nominal overall diameter mm	Cross-sectional area mm ²	Approximate mass kg/km	Breaking load kN	Modulus of elasticity GPa	Coefficient of linear expansion × 10 ⁻⁶ /°C	Product code
	Aluminium	Steel							
Almond	6/2.50	1/2.50	7.5	34.4	119	10.5	83	19.3	Almond
Apricot	6/2.75	1/2.75	8.3	41.6	144	12.6	83	19.3	Apricot
Apple	6/3.00	1/3.00	9.0	49.5	171	14.9	83	19.3	Apple
Banana	6/3.75	1/3.75	11.3	77.3	268	22.7	83	19.3	Banana
Cherry	6/4.75	7/1.60	14.3	120	402	33.4	80	19.9	Cherry
Grape	30/2.50	7/2.50	17.5	182	677	63.5	88	18.4	Grape
Lemon	30/3.00	7/3.00	21.0	262	973	90.4	88	18.4	Lemon
Lychee	30/3.25	7/3.25	22.8	307	1140	105	88	18.4	Lychee
Lime	30/3.50	7/3.50	24.5	356	1320	122	88	18.4	Lime
Mango	54/3.00	7/3.00	27.0	431	1440	119	78	19.9	Mango
Orange	54/3.25	7/3.25	29.3	506	1690	137	78	19.9	Orange
Olive	54/3.50	7/3.50	31.5	587	1960	159	78	19.9	Olive
Pawpaw	54/3.75	19/2.25	33.8	672	2240	178	77	20.0	Pawpaw
Quince	3/1.75	4/1.75	5.3	16.8	95	12.7	136	13.9	Quince
Raisin	3/2.50	4/2.50	7.5	34.4	195	24.4	136	13.9	Raisin
Sultana	4/3.00	3/3.00	9.0	49.5	243	28.3	119	15.2	Sultana
Walnut	4/3.75	3/3.75	11.3	77.3	380	43.9	119	15.2	Walnut

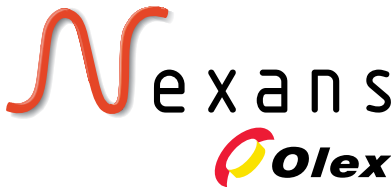
Electrical Performance Data

Cond. code name	DC resist. at 20°C	AC resist. at 50Hz 75°C	Inductive reactance to 0.3m at 50Hz	Continuous current carrying capacity, A												
				Rural weathered						Industrial weathered						
				Winter night Still air	1m/s wind	2m/s wind	Summer noon Still air	1m/s wind	2m/s wind	Winter night Still air	1m/s wind	2m/s wind	Summer noon Still air	1m/s wind	2m/s wind	
	Ω/km	Ω/km	Ω/km													
Almond	0.975	1.31	0.296	108	186	216	84	167	198	116	190	220	79	164	196	
Apricot	0.805	1.08	0.290	123	209	244	95	188	223	131	215	248	89	184	220	
Apple	0.677	0.910	0.285	138	233	272	107	209	248	148	240	277	98	205	244	
Banana	0.433	0.582	0.271	187	309	359	141	274	326	201	318	367	129	268	321	
Cherry	0.271	0.367	0.256	259	416	483	191	364	434	280	430	495	171	354	426	
Grape	0.196	0.263	0.240	330	513	598	238	449	531	361	532	614	211	436	520	
Lemon	0.136	0.167	0.228	441	680	787	307	586	698	482	707	811	269	567	682	
Lychee	0.116	0.142	0.223	493	752	879	341	645	769	540	783	906	298	623	751	
Lime	0.100	0.123	0.219	548	826	976	377	706	843	601	862	1007	328	681	823	
Mango	0.0758	0.0955	0.212	648	960	1147	443	816	991	711	1003	1183	383	786	966	
Orange	0.0646	0.0816	0.207	724	1061	1282	492	898	1106	796	1110	1323	424	863	1078	
Olive	0.0557	0.0705	0.202	804	1165	1421	543	981	1225	884	1220	1466	466	941	1194	
Pawpaw	0.0485	0.0615	0.198	885	1270	1563	595	1065	1347	974	1333	1614	508	1020	1312	
Quince	3.25	4.37	0.346	53	93	108	42	85	100	56	95	110	40	83	99	
Raisin	1.59	2.14	0.324	85	145	169	66	131	155	91	149	172	61	129	153	
Sultana	0.897	1.21	0.302	120	203	236	91	181	215	129	208	241	84	178	212	
Walnut	0.573	0.770	0.288	161	269	312	121	238	283	175	277	319	111	233	279	

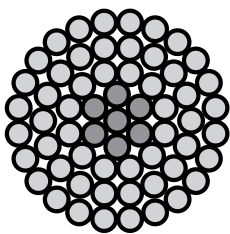
Note Current ratings are based on the following conditions:

- Conductor temperature rise above ambient of 40°C
- Ambient air temp. of 35°C for summer noon or 10°C for winter night
- Direct solar radiation intensity of 1000W/m² for summer noon or zero for winter night
- Diffuse solar radiation intensity of 100W/m² for summer noon or zero for winter night
- Ground reflectance of 0.2
- Emissivity of 0.5 for rural weathered conductor or 0.85 for industrial weathered conductor
- Solar absorption coefficient of 0.5 for rural weathered conductor or 0.85 for industrial weathered conductor

Cross sections not to scale



Bare Conductors
Type ACSR/AC



Aluminium conductors, aluminium-clad steel reinforced manufactured to AS 3607.

Physical and Mechanical Performance Data

Conductor codename	Stranding and wire diameter no/mm		Nominal overall diameter mm	Cross- sectional area mm ²	Approximate mass kg/km	Breaking load kN	Modulus of elasticity GPa	Coefficient of linear expansion × 10 ⁻⁶ /°C	Product code
	Aluminium	Steel							
Angling	6/2.50	1/2.50	7.5	34.4	113	10.6	79	20.1	Angling
Aquatics	6/2.75	1/2.75	8.3	41.6	137	12.7	79	20.1	Aquatics
Archery	6/3.00	1/3.00	9.0	49.5	163	15.1	79	20.1	Archery
Baseball	6/3.75	1/3.75	11.3	77.3	254	22.3	79	20.1	Baseball
Bowls	6/4.75	7/1.60	14.3	120	385	32.7	76	20.6	Bowls
Cricket	30/2.50	7/2.50	17.5	182	636	64.4	82	19.4	Cricket
Darts	30/3.00	7/3.00	21.0	262	913	91.6	82	19.4	Darts
Dice	30/3.25	7/3.25	22.8	307	1070	106	82	19.4	Dice
Diving	30/3.50	7/3.50	24.5	356	1240	122	82	19.4	Diving
Golf	54/3.00	7/3.00	27.0	431	1380	120	75	20.6	Golf
Gymnastics	54/3.25	7/3.25	29.3	506	1620	139	75	20.6	Gymnastics
Hurdles	54/3.50	7/3.50	31.5	587	1880	159	75	20.6	Hurdles
Lacrosse	54/3.75	19/2.25	33.8	672	2150	180	74	20.7	Lacrosse
Skating	3/1.75	4/1.75	5.3	16.8	83	12.3	119	15.3	Skating
Soccer	3/2.50	4/2.50	7.5	34.4	171	24.9	119	15.3	Soccer
Swimming	4/3.00	3/3.00	9.0	49.5	218	28.9	106	16.5	Swimming
Tennis	4/3.75	3/3.75	11.3	77.3	340	42.6	106	16.5	Tennis

Electrical Performance Data

Cond. code name	DC resist. at 20°C Ω/km	AC resist. at 50Hz 75°C Ω/km	Inductive reactance to 0.3m at 50Hz Ω/km	Continuous current carrying capacity, A						Industrial weathered					
				Rural weathered			Summer noon			Winter night			Summer noon		
				Still air	1m/s wind	2m/s wind	Still air	1m/s wind	2m/s wind	Still air	1m/s wind	2m/s wind	Still air	1m/s wind	2m/s wind
Angling	0.923	1.24	0.296	111	191	222	87	172	204	119	195	226	81	169	201
Aquatics	0.763	1.03	0.290	126	215	250	98	193	229	136	221	255	91	189	226
Archery	0.641	0.861	0.285	141	240	279	109	215	255	152	246	285	100	210	251
Baseball	0.410	0.551	0.271	192	318	369	145	282	335	207	327	378	133	276	329
Bowls	0.259	0.352	0.256	265	425	494	195	372	444	286	440	506	175	362	436
Cricket	0.182	0.245	0.240	342	532	620	246	465	554	374	555	637	219	452	540
Darts	0.126	0.155	0.228	458	706	817	319	609	725	501	735	842	280	589	709
Dice	0.108	0.133	0.223	511	779	911	354	668	797	560	812	939	309	646	779
Diving	0.0928	0.114	0.219	569	857	1013	391	732	875	624	895	1045	340	707	854
Golf	0.0726	0.0915	0.212	662	980	1172	452	834	1012	726	1024	1208	392	803	987
Gymnastics	0.0619	0.0782	0.207	740	1084	1309	503	917	1130	813	1134	1351	433	882	1101
Hurdles	0.0533	0.0675	0.202	821	1190	1452	555	1003	1252	903	1247	1499	476	962	1220
Lacrosse	0.0465	0.0590	0.198	904	1297	1596	607	1088	1375	995	1361	1648	519	1042	1339
Skating	2.75	3.70	0.346	57	101	118	46	92	109	61	103	120	43	91	108
Soccer	1.34	1.80	0.324	92	158	184	72	143	169	99	162	188	67	140	167
Swimming	0.807	1.08	0.302	127	214	249	96	191	227	136	219	254	89	187	224
Tennis	0.517	0.695	0.288	170	283	329	127	251	298	184	291	336	116	245	293

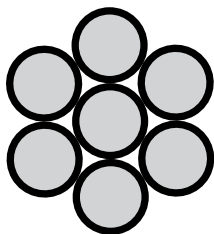
Note Current ratings are based on the following conditions:

- Conductor temperature rise above ambient of 40°C
- Ambient air temp. of 35°C for summer noon or 10°C for winter night
- Direct solar radiation intensity of 1000W/m² for summer noon or zero for winter night
- Diffuse solar radiation intensity of 100W/m² for summer noon or zero for winter night
- Ground reflectance of 0.2
- Emissivity of 0.5 for rural weathered conductor or 0.85 for industrial weathered conductor
- Solar absorption coefficient of 0.5 for rural weathered conductor or 0.85 for industrial weathered conductor

Cross sections not to scale



Bare Conductors
Type SC/GZ & SC/AC



Galvanised steel conductors manufactured to AS 1222.1
and aluminium-clad steel conductors manufactured to AS 1222.2

SC/GZ

Stranding and wire diameter no/mm	Nominal overall diameter mm	Cross- sectional area mm ²	Approx. mass kg/km	Breaking load kN	Modulus of elasticity GPa	Coeff. of linear expan. x 10 ⁻⁶ /°C	DC resistance		Continuous current carrying capacity, A						Product code
							at 20°C Ω/km	at 75°C Ω/km	Winter night Still air	1m/s wind	Summer noon 2m/s wind	Still air	1m/s wind	2m/s wind	
3/2.00	4.3	9.43	74	11.7	189	11.5	20	25	21	37	43	17	34	40	GALSTEEL 3/2.00
3/2.75	5.9	17.8	140	22.2	189	11.5	11	14	31	54	63	25	49	58	GALSTEEL 3/2.75
7/2.00	6.0	22.0	173	26.0	187	11.5	8.7	11	35	61	71	28	55	66	GALSTEEL 7/2.00
7/2.75	8.3	41.6	328	49.0	187	11.5	4.6	5.7	54	91	106	41	82	97	GALSTEEL 7/2.75
7/3.25	9.8	58.1	458	68.7	187	11.5	3.3	4.1	67	113	131	51	100	119	GALSTEEL 7/3.25
7/3.75	11.3	77.3	609	91.3	187	11.5	2.5	3.1	81	134	156	60	119	141	GALSTEEL 7/3.75
19/2.00	10.0	59.7	473	70.5	184	11.5	3.2	4.0	69	115	134	52	102	121	GALSTEEL 19/2.00
19/2.75	13.8	113	894	133	184	11.5	1.7	2.1	105	171	199	76	150	179	GALSTEEL 19/2.7
19/3.25	16.3	158	1250	186	184	11.5	1.2	1.5	133	213	247	94	186	221	GALSTEEL 19/3.25

SC/AC

Stranding and wire diameter no/mm	Nominal overall diameter mm	Cross- sectional area mm ²	Approx. mass kg/km	Breaking load kN	Modulus of elasticity GPa	Coeff. of linear expan. x 10 ⁻⁶ /°C	DC resistance		Continuous current carrying capacity, A						Product code
							at 20°C Ω/km	at 75°C Ω/km	Winter night Still air	1m/s wind	Summer noon 2m/s wind	Still air	1m/s wind	2m/s wind	
3/2.75	5.9	17.82	118	22.7	159	12.9	4.80	5.75	48	83	97	38	76	90	ALCLAD3/2.75
3/3.00	6.5	21.21	141	27.0	159	12.9	4.02	4.82	54	93	108	42	84	100	ALCLAD3/3.00
3/3.25	7.0	24.89	165	31.6	159	12.9	3.42	4.10	60	103	120	47	93	110	ALCLAD3/3.25
3/3.75	8.1	33.12	220	39.3	159	12.9	2.58	3.09	72	123	143	56	111	131	ALCLAD3/3.75
7/2.75	8.3	41.58	277	50.1	157	12.9	2.06	2.47	81	138	161	63	124	148	ALCLAD7/2.75
7/3.00	9.0	49.48	330	59.7	157	12.9	1.73	2.07	91	154	179	70	138	164	ALCLAD7/3.00
7/3.25	9.8	58.07	387	69.9	157	12.9	1.47	1.76	102	170	198	77	153	181	ALCLAD7/3.25
7/3.75	11.3	77.28	515	86.9	157	12.9	1.11	1.33	123	204	237	92	181	215	ALCLAD7/3.75
7/4.25	12.8	99.33	662	105	157	12.9	0.864	1.04	145	238	277	107	211	251	ALCLAD7/4.25
19/2.75	13.8	112.9	755	136	155	12.9	0.764	0.915	158	259	300	116	228	272	ALCLAD19/2.75
19/3.00	15.0	134.3	899	162	155	12.9	0.642	0.769	178	288	335	129	54	302	ALCLAD19/3.00
19/3.25	16.3	157.6	1060	189	155	12.9	0.545	0.653	200	320	371	142	280	334	ALCLAD19/3.25
19/3.75	18.8	209.8	1410	236	155	12.9	0.411	0.492	244	382	443	172	333	397	ALCLAD19/3.75
19/4.25	21.3	269.6	1800	286	155	12.9	0.320	0.383	291	448	519	203	387	462	ALCLAD19/4.25

Note The electrical performance characteristics shown above do not take magnetic effects

into consideration and are therefore only approximate. Current ratings are based on the following conditions:

- Conductor temperature rise above ambient of 40°C
- Ambient air temp. of 35°C for summer noon or 10°C for winter night
- Direct solar radiation intensity of 1000W/m² for summer noon or zero for winter night
- Diffuse solar radiation intensity of 100W/m² for summer noon or zero for winter night
- Ground reflectance of 0.2
- Emissivity and solar absorption coefficient of the conductor surface, 0.5

Cross sections not to scale



Low Voltage Aerial Bundled Cables

AS/NZS 3560 specifies the requirements of Aerial Bundled Cables with XLPE insulation for use up to 0.6/1kV. It is a result of considerable deliberation among supply authorities and manufacturers seeking to improve on the overseas standard, and features unique tests to verify superior field service performance.

Conductor

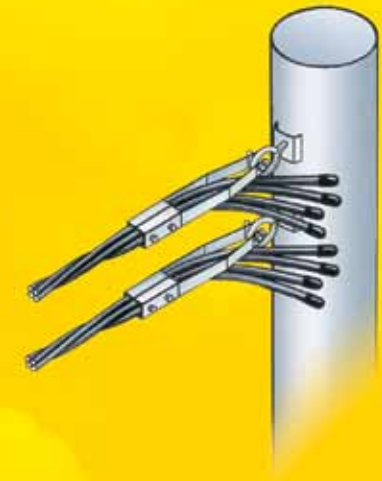
All four conductors are manufactured from high conductivity high purity aluminium alloy 1350 and are stranded circular compacted. Based on extensive development testing and production research, the surface of the conductor is specially treated to improve adhesion of the insulation to the conductor. This is important because the installed cable tension is completely provided by this 'adhesion' or 'friction' between the conductor and the insulation.

Insulation

The insulation consists of X-90UV, a cross-linked polyethylene with a minimum of 2% carbon black to provide adequate protection from ultraviolet radiation. This material is far superior to PVC, in its ability to withstand higher operating temperatures, is more robust during installation, and has much better (higher) insulation resistance values.

For improved characteristics in fire or overload situations, X-FP-90 insulation is available. For this application, Olex uses a highly filled XLPE with greater levels of carbon black and other fillers. Both insulation types are tested at 80°C with a special adhesion test that simulates the conditions prevailing under tension at strain clamps to ensure no failure of insulation adhesion occurs in the field. X-FP-90 insulated cables are additionally tested at the higher temperature of 120°C, and are also subjected to a heat radiation test that simulates conditions prevalent in bush fires. The X-90UV material used by Olex passes the criteria test at 105°C which provides our customer with a further safety margin over the Standard. Proper carbon black dispersion is even more important than carbon black content and Olex has developed special processing procedures to ensure adequate protection from UV radiation. Both X-90UV and X-FP-90 compounds are tested for carbon black content and dispersion.

In the fully supported LV ABC system tension is shared equally by all four conductors. This has distinct advantages, one obvious benefit being higher working and operating tensions.



LV ABC at suspension clamp and at strain point

The cores

Each phase core is marked with numerals 1, 2 or 3 and with one rib, two ribs or three ribs to denote the three phases. The neutral core carries equally spaced ribs right round the circumference. These ribs facilitate identification of the phases and the neutral even when numerals cannot be properly seen due to bad light. Alternative identification means, using coloured extruded stripes, are also available. To expedite ascertaining the approximate length of cable left on the drum, sequential six-digit numerals are marked on one active core at one metre intervals. Drum lengths start at any number with the lowest number near the end at the drum barrel. The cores are laid up in a bundle with a left hand lay. Rating of LV-ABC is based on a conductor operating temperature of 80°C.



LV XLPE Insulated Aerial Bundled Cables 2/3/4 Core Aluminium



0.6/1kV XLPE (X-90) insulated, aerial bundled cables (service and mains cables) to AS/NZS 3560.1. Hard drawn aluminium conductors.

Physical Data

Nominal conductor area mm ²	Nominal conductor diameter mm	Average insulation thickness mm	Nominal diameter over insulation mm	Nominal diameter over laid-up cores mm	Approximate mass kg/km	Product code
2 Core						
16	4.7	1.3	7.4	14.8	130	XDAB15AA002
25	5.9	1.3	8.6	17.2	190	XDAB17AA002
35	6.9	1.3	9.6	19.3	250	XDAB18AA002
50	8.1	1.5	11.2	22.3	340	XDAB19AA002
95	11.4	1.7	14.9	29.8	640	XDAB22AA002
3 Core						
25	5.9	1.3	8.6	18.5	290	XDAB17AA003
35	6.9	1.3	9.6	20.8	370	XDAB18AA003
50	8.1	1.5	11.2	24.1	510	XDAB19AA003
4 Core						
16	4.7	1.3	7.4	17.8	270	XDAB15AA004
25	5.9	1.3	8.6	20.8	390	XDAB17AA004
35	6.9	1.3	9.6	23.2	500	XDAB18AA004
50	8.1	1.5	11.2	27.0	670	XDAB19AA004
70	9.7	1.5	12.8	30.8	930	XDAB20AA004
95	11.4	1.7	14.9	36.0	1280	XDAB22AA004
120	12.8	1.7	16.3	39.3	1570	XDAB23AA004
150	14.2	1.7	17.7	42.8	1890	XDAB24AA004

Performance Data

Nominal conductor area	DC resist. at 20°C	AC resist. at 50Hz 80°C	Inductive reactance at 50Hz	Voltage drop at 50Hz 80°C	Continuous current rating, A			Fault current rating kA for 1s	Minimum bending radius (installed) mm		Min. breaking load of cable kN	Rec. tension		Modulus of elasticity	Coeff. of linear expansion
					Still air	1m/s wind	2m/s wind		Core	Cable		Highest everyday tension kN	Max working tension kN		
mm ²	Ω/km	Ω/km	Ω/km	mV/A.m											
2 Core															
16	1.91	2.37	0.094	4.75	49	78	91	1.4	30	90	4.4	0.79	1.23	59	23.0
25	1.20	1.49	0.089	2.99	64	105	120	2.2	35	100	7.0	1.26	1.96	59	23.0
35	0.868	1.08	0.086	2.16	78	125	145	3.1	60	120	9.8	1.76	2.74	59	23.0
50	0.641	0.796	0.086	1.60	94	150	180	4.1	65	130	14.0	2.52	3.92	59	23.0
95	0.320	0.398	0.080	0.812	140	230	275	8.3	90	270	26.6	4.79	7.45	56	23.0
3 Core															
25	1.20	1.49	0.089	2.99	59	97	115	2.2	35	110	10.5	1.89	2.94	59	23.0
35	0.868	1.08	0.086	2.16	72	120	135	3.1	60	120	14.7	2.65	4.12	59	23.0
50	0.641	0.796	0.086	1.60	88	140	165	4.1	65	140	21.0	3.78	5.88	59	23.0
4 Core															
16	1.91	2.37	0.10	4.11	44	74	86	1.4	30	110	8.8	1.58	2.46	59	23.0
25	1.20	1.49	0.097	2.59	59	97	115	2.2	35	120	14.0	2.52	3.92	59	23.0
35	0.868	1.08	0.094	1.87	72	120	135	3.1	60	140	19.6	3.53	5.49	59	23.0
50	0.641	0.796	0.093	1.39	88	140	165	4.1	65	160	28.0	5.04	7.84	59	23.0
70	0.443	0.551	0.088	0.966	110	175	205	6.0	75	280	39.2	7.06	11.0	56	23.0
95	0.320	0.398	0.087	0.706	135	215	255	8.3	90	320	53.2	9.58	14.9	56	23.0
120	0.253	0.315	0.085	0.566	155	250	300	10.5	100	350	67.2	12.1	18.8	56	23.0
150	0.206	0.257	0.084	0.468	180	280	345	12.9	110	390	84.0	15.1	23.5	56	23.0

Note Voltage drops are single-phase for 2 & 3 core cables and three-phase for 4 core cables. Continuous current ratings are based on an ambient temperature of 40°C, maximum conductor temperature of 80°C and solar radiation intensity of 1000W/m². Ratings for 2 & 3 core cables are based on all cores fully loaded. Ratings for 4 core cables are based on a lightly loaded neutral. Fault current ratings are based on initial and final conductor temperatures of 80°C and 210°C respectively.

An improved performance grade of XLPE (X-FP-90) designed to provide improved circuit integrity when subjected to the heat radiation effects of a bush fire or overload conditions is available as an option.



LV XLPE Insulated Aerial Bundled Cables 2/3/4 Core Copper



0.6/1kV XLPE (X-90) insulated aerial bundled cables (service cables) to AS/NZS 3560.2. Hard drawn copper conductors.

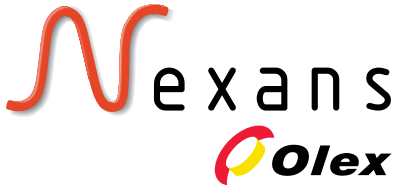
Physical Data

Nominal conductor area mm ²	Number and nominal diameter of wires no/mm	Nominal conductor diameter mm	Average insulation thickness mm	Nominal diameter over insulation mm	Nominal diameter over laid-up cores mm	Approximate mass kg/km	Product code
2 Core							
6	7/1.04	3.1	1.3	5.8	11.7	150	XDAT11AA002
10	7/1.35	4.1	1.3	6.8	13.5	230	XDAT13AA002
16	7/1.70	5.1	1.3	7.8	15.6	350	XDAT15AA002
3 Core							
6	7/1.04	3.1	1.3	5.8	12.6	220	XDAT11AA003
10	7/1.35	4.1	1.3	6.8	14.6	340	XDAT13AA003
16	7/1.70	5.1	1.3	7.8	16.9	520	XDAT15AA003
4 Core							
6	7/1.04	3.1	1.3	5.8	14.1	290	XDAT11AA004
10	7/1.35	4.1	1.3	6.8	16.3	460	XDAT13AA004
16	7/1.70	5.1	1.3	7.8	18.9	690	XDAT15AA004

Performance Data

Nominal conductor area	DC resist. at 20°C	AC resist. at 50Hz 80°C	Inductive reactance at 50Hz	Voltage drop at 50Hz 80°C	Continuous current rating, A			Fault current rating kA for 1s	Minimum bending radius (installed) mm		Min. breaking load of cable kN	Rec. tension		Modulus of elasticity	Coeff. of linear expansion
					Still air	1m/s wind	2m/s wind		Core	Cable		Highest everyday tension kN	Max working tension kN		
mm ²	Ω/km	Ω/km	Ω/km	mV/A.m											
2 Core															
6	3.17	3.18	0.11	7.79	36	56	66	0.8	25	70	4.6	0.84	1.30	112	17.0
10	1.88	1.89	0.098	4.62	48	77	90	1.4	25	80	7.8	1.41	2.20	112	17.0
16	1.18	1.19	0.092	2.91	64	100	120	2.2	30	95	11.8	2.13	3.32	112	17.0
3 Core															
6	3.17	3.89	0.11	7.79	32	54	62	0.8	25	75	7.0	1.25	1.95	112	17.0
10	1.88	2.31	0.098	4.62	44	73	84	1.4	25	90	11.8	2.12	3.29	112	17.0
16	1.18	1.45	0.092	2.91	58	96	110	2.2	30	100	17.8	3.20	4.97	112	17.0
4 Core															
6	3.17	3.89	0.11	6.75	32	54	62	0.8	25	85	9.3	1.67	2.60	112	17.0
10	1.88	2.31	0.11	4.00	44	73	84	1.4	25	100	15.7	2.82	4.39	112	17.0
16	1.18	1.45	0.10	2.52	58	96	110	2.2	30	110	23.7	4.26	6.63	112	17.0

Note Voltage drops are single-phase for 2 & 3 core cables and three-phase for 4 core cables. Continuous current ratings are based on an ambient temperature of 40°C, maximum conductor temperature of 80°C and solar radiation intensity of 1000W/m². Ratings for 2 & 3 core cables are based on all cores fully loaded. Ratings for 4 core cables are based on a lightly loaded neutral. Fault current ratings are based on initial and final conductor temperatures of 80°C and 220°C respectively.



PVC Insulated Aerial Cables

Single/2/3 Core Copper



0.6/1kV PVC insulated aerial cables to AS/NZS 5000.1.
Hard drawn copper conductors.

Physical Data

Nominal conductor area	Number and nominal diameter of wires no/mm	Nominal conductor diameter	Average insulation thickness	Nominal diameter over insulation	Approximate mass	Product code
mm²		mm	mm	mm	kg/km	
Single Core						
6	7/1.04	3.1	1.0	5.3	80	BAAT11AA001
10	7/1.35	4.1	1.0	6.2	120	BAAT13AA001
16	7/1.70	5.1	1.0	7.2	180	BAAT15AA001
25	19/1.35	6.8	1.2	9.3	300	BAAT17AA001
35	19/1.53	7.7	1.2	10.2	370	BAAT18AA001
50	19/1.78	8.9	1.4	11.9	510	BAAT19AA001
70	19/2.14	10.7	1.4	13.7	710	BAAT20AA001
2 Core						
6	7/1.04	3.1	1.0	5.3 x 11.1	150	DAAT11AA002
10	7/1.35	4.1	1.0	6.2 x 13.0	240	DAAT13AA002
16	7/1.70	5.1	1.0	7.2 x 15.1	360	DAAT15AA002
25	19/1.35	6.8	1.2	9.3 x 19.2	600	DAAT17AA002
3 Core						
6	7/1.04	3.1	1.0	5.3 x 17.0	230	FAAT11AA003
10	7/1.35	4.1	1.0	6.2 x 19.8	360	FAAT13AA003
16	7/1.70	5.1	1.0	7.2 x 22.9	540	FAAT15AA003

Performance Data

Nominal conductor area	DC resist. at 20°C	AC resist. at 50Hz 75°C	Inductive reactance at 50Hz	Voltage drop at 50Hz	Continuous current rating, A			Fault current rating kA for 1s	Minimum bending radius (installed) mm	Min. breaking load of cable kN	Rec. tension		Modulus of elasticity	Coeff. of linear expansion
					Still air	1m/s wind	2m/s wind				Highest everyday tension kN	Max working tension kN		
mm²	Ω/km	Ω/km	Ω/km	mV/A.m									GPa	× 10 ⁻⁶ /°C
Single Core														
6	3.17	3.83	0.38	6.67	35	70	79	0.6	20	2.3	0.42	0.65	112	17.0
10	1.88	2.27	0.37	3.99	48	96	110	1.0	25	3.9	0.71	1.10	112	17.0
16	1.18	1.43	0.35	2.55	65	125	145	1.7	30	5.9	1.07	1.66	112	17.0
25	0.749	0.906	0.33	1.67	88	165	190	2.8	35	10.4	1.87	2.91	110	17.0
35	0.540	0.653	0.32	1.26	105	205	230	3.6	60	12.7	2.29	3.56	110	17.0
50	0.399	0.483	0.31	0.998	130	240	275	4.9	70	17.3	3.11	4.84	110	17.0
70	0.276	0.334	0.30	0.781	165	305	345	7.1	80	25.0	4.50	7.00	110	17.0
2 Core														
6	3.17	3.83	0.10	7.67	30	50	59	0.6	30	4.6	0.84	1.30	112	17.0
10	1.88	2.27	0.096	4.55	40	68	80	1.0	35	7.8	1.41	2.20	112	17.0
16	1.18	1.43	0.091	2.86	52	90	105	1.7	45	11.8	2.13	3.32	112	17.0
25	0.749	0.906	0.085	1.82	68	120	140	2.8	55	20.8	3.74	5.82	110	17.0
3 Core														
6	3.17	3.83	0.12	7.67	30	50	59	0.6	30	7.0	1.25	1.95	112	17.0
10	1.88	2.27	0.11	4.55	40	68	80	1.0	35	11.8	2.12	3.29	112	17.0
16	1.18	1.43	0.11	2.86	52	90	105	1.7	45	17.8	3.20	4.97	112	17.0

Note Reactance and voltage drop are based on three cables laid in flat formation spaced 0.46m apart. The values can also be applied to single-phase circuits or 3-phase circuits with cables in trefoil formation. For single-phase circuits the voltage drop values should be multiplied by 1.155. Continuous current ratings are based on an ambient temperature of 40°C, maximum conductor temperature of 75°C and solar radiation intensity of 1000 W/m². Fault current ratings are based on initial and final conductor temperatures of 75°C and 150°C respectively.



PVC Insulated Twisted Aerial Cables 2/3/4 Core Copper



0.6/1kV PVC insulated twisted aerial cables to AS/NZS 5000.1.
Hard drawn copper conductors.

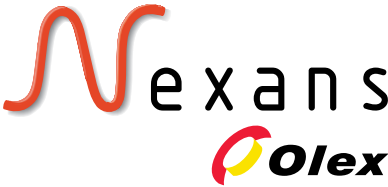
Physical Data

Nominal conductor area	Number and nominal diameter of wires no/mm	Nominal conductor diameter	Average insulation thickness	Nominal diameter over insulation	Nominal diameter over laid-up cores	Approximate mass	Product code
mm²		mm	mm	mm	mm	kg/km	
2 Core							
6	7/1.04	3.1	1.0	5.3	10.5	160	DAFT11AA002
10	7/1.35	4.1	1.0	6.2	12.4	240	DAFT13AA002
16	7/1.70	5.1	1.0	7.2	14.5	370	DAFT15AA002
25	19/1.35	6.8	1.2	9.3	18.6	610	DAFT17AA002
3 Core							
6	7/1.04	3.1	1.0	5.3	11.3	240	FAFT11AA003
10	7/1.35	4.1	1.0	6.2	13.3	360	FAFT13AA003
16	7/1.70	5.1	1.0	7.2	15.6	550	FAFT15AA003
25	19/1.35	6.8	1.2	9.3	20.1	910	FAFT17AA003
4 Core							
6	7/1.04	3.1	1.0	5.3	12.7	310	HAFT11AA004
10	7/1.35	4.1	1.0	6.2	14.9	480	HAFT13AA004
16	7/1.70	5.1	1.0	7.2	17.5	730	HAFT15AA004
25	19/1.35	6.8	1.2	9.3	22.5	1210	HAFT17AA004

Performance Data

Nominal conductor area	DC resist. at 20°C	AC resist. at 50Hz 75°C	Inductive reactance at 50Hz	Voltage drop at 50Hz	Continuous current rating, A			Fault current rating kA for 1s	Minimum bending radius (installed)		Minimum breaking load of cable kN	Recomm. Highest everyday tension kN	Max. working tension kN	Modulus of elasticity	Coeff. of linear expansion
					Still air	1 m/s wind	2 m/s wind		Core	Cable					
mm²	Ω/km	Ω/km	Ω/km	mV/A.m										GPa	× 10 ⁻⁶ /°C
2 Core															
6	3.17	3.83	0.098	7.67	30	50	59	0.6	20	65	4.6	0.84	1.30	112	17.0
10	1.88	2.27	0.092	4.55	40	68	80	1.0	25	75	7.8	1.41	2.20	112	17.0
16	1.18	1.43	0.087	2.86	52	90	105	1.7	30	85	11.8	2.13	3.32	112	17.0
25	0.749	0.906	0.083	1.82	68	120	140	2.8	35	110	20.8	3.74	5.82	110	17.0
3 Core															
6	3.17	3.83	0.098	7.67	26	48	56	0.6	20	70	7.0	1.25	1.95	112	17.0
10	1.88	2.27	0.092	4.55	36	65	76	1.0	25	80	11.8	2.12	3.29	112	17.0
16	1.18	1.43	0.087	2.86	47	85	100	1.7	30	95	17.8	3.20	4.97	112	17.0
25	0.749	0.906	0.083	1.82	63	115	135	2.8	35	120	31.2	5.62	8.74	110	17.0
4 Core															
6	3.17	3.83	0.11	6.64	26	48	56	0.6	20	75	9.3	1.67	2.60	112	17.0
10	1.88	2.27	0.10	3.94	36	65	76	1.0	25	90	15.7	2.82	4.39	112	17.0
16	1.18	1.43	0.095	2.48	47	85	100	1.7	30	100	23.7	4.26	6.63	112	17.0
25	0.749	0.906	0.090	1.58	63	115	135	2.8	35	140	41.6	7.49	11.6	110	17.0

Note Voltage drops are single-phase for 2 & 3 core cables and three-phase for 4 core cables. Continuous current ratings are based on an ambient temperature of 40°C, maximum conductor temperature of 75°C and solar radiation intensity of 1000 W/m². Ratings for 2 and 3 core cables are based on all cores fully loaded. Ratings for 4 core cables are based on a lightly loaded neutral. Fault current ratings are based on initial and final conductor temperatures of 75°C and 150°C respectively.



Covered Conductors

Covered conductors are conductors covered with insulation material but without conductor or insulation screens. They must be used in a similar manner to open wire 11 to 33kV bare overhead systems with exceptions described in the Australian Standard for Covered Conductors, AS/NZS 3675. Two main types of Covered Conductors are available: CC and CCT. Olex technical staff can provide detailed recommendations on the most suitable installation conditions and fittings for both systems.

Covered Conductors

CC covered conductors have a covering with a minimum average thickness of 2.0mm for use on all working voltages up to and including 19/33kV. CC can withstand intermittent contact with conductive material between phases or to ground, e.g. trees and branches, but should not remain in permanent contact.

Conductors Conductors are available in aluminium alloy 1120 which was developed by Olex with technology obtained originally under license from Sweden in 1978. Alloy 1120 has excellent mass-tension-conductance properties and in Australia and Sweden has taken the place of other types of aluminium alloys.

Water blocking Olex pioneered the development of water blocking for covered conductors in Australia. Extensive research in material processing and techniques has enabled the manufacturing of covered conductors that are water blocked with a special material meeting all the test requirements of AS/NZS 3675.

Covering The conductors are covered with a track resistant UV stabilised XLPE. CC are marked on the external surface with “CC,” “Olex,” year of manufacture, and conductor material. They are also marked with sequential six-digit numbers at 1-metre intervals, with the lowest number at the inner end of the drum.



Operating temperatures

- (a) Normal operation 80°C
- (b) Emergency operation 100°C
- (c) Short circuit operation 210°C (5s max); (250°C for aluminium clad steel)

Full Thickness Covering (CCT)

CCT covered conductors have a specified thickness of covering for each of the nominated working voltages. While still required to operate under similar principles to a bare wire or CC system, they have electrical and mechanical characteristics which permit them to remain in contact with tree limbs for an extended period dependent on abrasive characteristics of the tree, frequency and strength of prevailing winds and operating temperature. CCT show better performance in polluted environments. They are suitable for use in ‘spacer cable’ systems and in the Insulated Unscreened Conductor (IUC) systems.

Conductors Conductors are available in aluminium alloy 1120.

Water blocking The conductors are water blocked with a special material meeting the test requirements of AS/NZS 3675.

Covering The conductors are covered with a track resistant UV stabilised XLPE or with an inner layer of non-UV stabilised XLPE, and an outer layer of UV stabilised High Density Polyethylene (HDPE). In the latter case, the average thickness of HDPE is not more than 40% of the specified minimum average thickness, and not less than 1.0mm. CCT are marked on the external surface with “CCT,” “Olex,” year of manufacture, and conductor material. They are also marked with sequential six-digit numbers at 1-metre intervals, with the lowest number at the inner end of the drum.

Covered Conductors Type CCT
6.35/11, 12.7/22 & 19/33kV



XLPE covered aerial cables to AS/NZS 3675. Waterblocked aluminium alloy 1120 conductors. Also available with XLPE/HDPE covering.

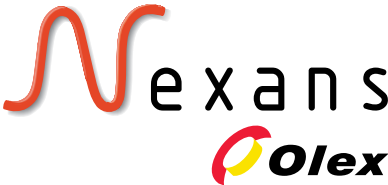
Physical Data

Nominal conductor area	Nominal and nominal diameter of wires no/mm	Nominal conductor diameter	Average insulation thickness	Nominal diameter over insulation	Approximate mass	Product code
mm²		mm	mm	mm	kg/km	
6.35/11kV						
40	7/2.75	8.4	3.4	15.8	260	UJAJ12AA001
80	7/3.75	11.4	3.4	18.8	400	UJAJ87AA001
120	7/4.75	14.5	3.4	21.9	580	UJAJ90AA001
180	19/3.50	17.7	3.4	25.0	790	UJAJ73AA001
240	19/4.01	20.2	3.4	27.7	1000	UJAJ83AA001
12.7/22kV						
80	7/3.75	11.4	5.5	23.0	530	ULAJ87AA001
120	7/4.75	14.5	5.5	26.1	720	ULAJ90AA001
180	19/3.50	17.7	5.5	29.2	960	ULAJ73AA001
19/33kV						
80	7/3.75	11.4	8.0	28.0	710	UNAJ87AA001
120	7/4.75	14.5	8.0	31.1	930	UNAJ90AA001
180	19/3.50	17.7	8.0	34.2	1190	UNAJ73AA001

Performance Data

Nominal conductor area	DC resist. at 20°C	AC resist. at 50Hz 80°C	Inductive reactance at 50Hz	Three-phase voltage drop at 50Hz 80°C	Continuous current rating, A			Earth fault current rating for 1s	Minimum bending radius (installed)	Min. breaking load of cable	Rec. tension Highest everyday tension	Max working tension	Modulus of elasticity	Coeff. of linear expansion
mm²	Ω/km	Ω/km	Ω/km	mV/A.m	Still air	1m/s wind	2m/s wind	kA	mm	kN	kN	kN	GPa	×10 ⁻⁶ /°C
6.35/11kV														
40	0.713	0.880	0.331	1.63	115	190	215	3.7	240	9.9	1.49	4.96	65	23.0
80	0.383	0.473	0.311	0.981	170	280	310	6.8	280	17.6	2.64	8.80	65	23.0
120	0.239	0.295	0.295	0.723	230	370	420	11.0	330	27.1	4.07	13.6	65	23.0
180	0.163	0.202	0.279	0.597	295	470	530	16.1	380	41.7	6.26	20.9	65	23.0
240	0.124	0.154	0.271	0.539	350	550	630	21.2	420	52.3	7.85	26.2	65	23.0
12.7/22kV														
80	0.383	0.473	0.311	0.981	170	265	295	6.8	350	17.6	2.64	8.80	65	23.0
120	0.239	0.295	0.295	0.723	230	355	395	11.0	390	27.1	4.07	13.6	65	23.0
180	0.163	0.202	0.279	0.597	295	450	500	16.1	440	41.7	6.26	20.9	65	23.0
19/33kV														
80	0.383	0.473	0.311	0.981	175	255	280	6.8	420	17.6	2.64	8.80	65	23.0
120	0.239	0.295	0.295	0.723	230	340	375	11.0	470	27.1	4.07	13.6	65	23.0
180	0.163	0.202	0.279	0.597	295	430	475	16.1	510	41.7	6.26	20.9	65	23.0

Note Reactance and voltage drop are based on three cables laid in flat formation spaced 0.46m apart. The values can also be applied to three-phase circuits with cables in trefoil formation. Continuous current ratings are based on an ambient temperature of 40°C, maximum conductor temperature of 80°C and solar radiation intensity of 1000W/m². Fault current ratings are based on initial and final conductor temperatures of 80°C and 210°C respectively.



High Voltage Aerial Bundled Cables

Two types of HV ABC are available:

Metallic Screened (MS HV ABC) and

Non Metallic Screened (NMS HV ABC).

Metallic Screened High Voltage Aerial Bundled Cable conforming to AS/NZS 3599.1 incorporates a metallic screen of copper wires and a galvanised steel messenger. Non-Metallic Screened High Voltage Aerial Bundled Cable conforming to AS/NZS 3599.2 is provided only with a semi-conductive screen and the fault currents are carried by the high conductivity Aluminium Alloy (1120) catenary. NMS HV-ABC is smaller, lighter and less expensive than MS HV ABC.

Metallic Screened HV ABC

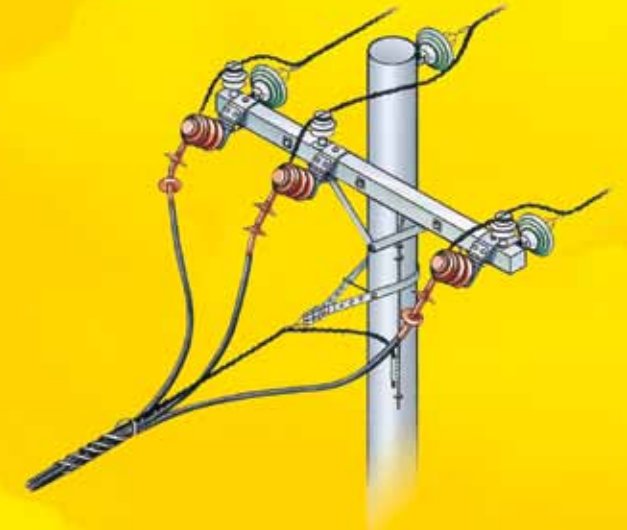
Conductors Phase conductors are stranded circular compacted aluminium alloy 1350 to H68 condition. The standard catenary is manufactured from galvanised stranded high tensile steel. For corrosive environments catenaries of aluminium clad steel are available.

Conductor Screen, Insulation and Insulation Screen

Semiconductive conductor screen, XLPE insulation and semiconductive insulation screen are triple extruded. The insulation screen is hand strippable without preheating and complies with strippability and adhesion tests given in AS/NZS 3599.1. Figures and words “1 ONE,” “2 TWO” and “3 THREE” are printed on the insulation screen to identify the three phase cores. Alternative identification means are available on request.

A water swellable textile tape is applied over the insulation screen to prevent longitudinal ingress of moisture in the event of damage to the outer sheath.

In HV ABC the three phase cores are supported from a bare ‘messenger’ or ‘catenary’ to prevent straining the insulation of the high voltage phase cores.



HV ABC in suspension and strain clamps

Metallic Screen The metallic screen comprises a layer of helically applied copper wires. For short circuit protection, two types of screens, a light and a heavy duty, are available. A separator tape to prevent the penetration of sheath material between the screen wires is applied over the metallic screen. On this design of cable it should be noted that the screens of individual cores are not in direct contact with each other and therefore the fault current level is limited.

Sheath High density polyethylene (HDPE) is used as the standard outer sheath of each phase core. In addition to the identification on the cores, the sheaths of each phase cable are marked with phase numbers matching those of the cores. Furthermore, identification of the bundled cable comprises embossing of the words “Olex,” the year of manufacture, and the voltage on the sheath or the use of printed tapes inserted throughout the length under the sheath of a phase cable.



High Voltage Aerial Bundled Cables

Metallic Screened HV ABC

The cable bundle

The three single core cables are bundled around the galvanised steel catenary in a right hand lay.

Operating temperature

- (a) Normal operation 90°C
- (b) Emergency operation 105°C
- (c) Short circuit operation 250°C (5s max)

This cable can be used for aerial as well as underground installations.

Non Metallic Screened HV ABC

Conductors

Phase conductors are stranded circular compacted aluminium alloy 1350 to H68 condition. The standard catenary is bare stranded circular compacted aluminium alloy 1120 conductor. For special applications, such as high wind locations, aluminium-clad steel-reinforced catenaries are available.

Conductor Screen, Insulation and Insulation Screen

Semiconductive conductor screen, XLPE insulation and semi-conductive insulation screen are triple extruded. The insulation

screen is hand strippable without preheating and complies with strippability and adhesion tests given in AS/NZS 3599.2. Figures and words “1 ONE,” “2 TWO” and “3 THREE” are marked on the insulation screen to identify the three phase cores.

In addition the words “Olex,” the year of manufacture, and the voltage is printed on one of the phase cables. Another phase cable is printed with sequential numbers at one metre intervals to indicate the length of cable remaining on the drum.

Olex has developed a special Non Metallic Screened HV ABC with far greater resistance to damage from abrasion during installation or due to brushing with trees. This special cable has a semiconductive HDPE layer over the hand-strippable insulation screen, providing less risk of damage during installation and service.

The cable bundle

The three single core cables are bundled around the aluminium alloy 1120 catenary in a right hand lay.

Operating temperatures

- (a) Normal operation 90°C
- (b) Emergency operation 105°C
- (c) Short circuit operation 250°C (5s max)

HV XLPE Insulated Non Metallic Screened ABC 6.35/11kV & 12.7/22kV



XLPE insulated non metallic screened aerial bundled cables to AS/NZS 3599.2 Aluminium conductors, aluminium alloy 1120 support conductor.

Physical Data

Nominal conductor area	Nominal conductor diameter	Average insulation thickness	Nominal diameter over insulation	Average insulation screen thickness	Nominal diameter over core	AAAC/1120 support conductor Size	Diameter	Nominal overall diameter	Approximate mass	Product code
mm²	mm	mm	mm	mm	mm	no/mm	mm	mm	kg/km	
6.35/11kV										
35	6.9	3.4	14.9	1.0	17.1	7/4.75	14.3	48.4	1170	UJCA18AA003
50	8.1	3.4	16.0	1.0	18.2	7/4.75	14.3	50.7	1320	UJCA19AA003
70	9.6	3.4	17.6	1.0	19.8	7/4.75	14.3	53.9	1560	UJCA20AA003
95	11.4	3.4	19.3	1.0	21.5	7/4.75	14.3	57.3	1860	UJCA22AA003
120	12.8	3.4	20.7	1.0	22.9	19/3.50	17.5	63.3	2280	UJCA23AA003
150	14.2	3.4	22.1	1.0	24.3	19/3.50	17.5	66.2	2570	UJCA24AA003
185	15.7	3.4	23.6	1.0	25.8	19/3.50	17.5	69.2	2890	UJCA25AA003
12.7/22kV										
35	6.9	5.5	19.2	1.0	21.4	7/4.75	14.3	57.1	1540	ULCA18AA003
50	8.1	5.5	20.3	1.0	22.5	7/4.75	14.3	59.3	1710	ULCA19AA003
70	9.6	5.5	21.9	1.0	24.1	7/4.75	14.3	62.5	1990	ULCA20AA003
95	11.4	5.5	23.6	1.0	25.8	7/4.75	14.3	66.0	2310	ULCA22AA003
120	12.8	5.5	25.0	1.0	27.2	19/3.50	17.5	72.0	2760	ULCA23AA003
150	14.2	5.5	26.4	1.1	28.8	19/3.50	17.5	75.2	3100	ULCA24AA003
185	15.7	5.5	27.9	1.1	30.3	19/3.50	17.5	78.2	3460	ULCA25AA003

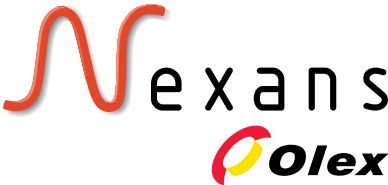
Performance Data

Nominal conductor area	DC resistance at 20°C	AC resistance at 50Hz 90°C	Inductive reactance at 50Hz	Three-phase voltage drop at 50Hz 90°C	Conductor to screen capacitance	Continuous current rating, A			Earth fault current rating for 1s conductor kA	Minimum bending radius (installed) mm		Projected diameter for wind loading mm
						Still air	1m/s wind	2m/s wind		Core	Cable	
6.35/11kV												
35	0.868	1.11	0.153	1.94	0.202	110	155	185	3.3	260	480	41.3
50	0.641	0.822	0.145	1.45	0.224	130	185	225	4.7	270	510	43.5
70	0.443	0.568	0.134	1.01	0.254	160	235	285	6.6	300	540	46.7
95	0.320	0.411	0.127	0.745	0.286	195	285	345	9.0	320	570	50.2
120	0.253	0.325	0.127	0.604	0.312	225	335	410	11.4	340	630	54.6
150	0.206	0.265	0.122	0.506	0.338	255	380	465	14.2	360	660	57.4
185	0.164	0.211	0.118	0.419	0.366	295	435	530	17.5	390	690	60.4
12.7/22kV												
35	0.868	1.11	0.161	1.94	0.144	110	155	185	3.3	320	570	49.9
50	0.641	0.822	0.153	1.45	0.158	130	185	220	4.7	340	590	52.2
70	0.443	0.568	0.142	1.01	0.177	160	230	275	6.6	360	630	55.4
95	0.320	0.411	0.134	0.749	0.197	195	285	340	9.0	390	660	58.8
120	0.253	0.325	0.134	0.609	0.214	225	330	395	11.4	410	720	63.2
150	0.206	0.265	0.129	0.511	0.230	255	375	450	14.2	430	750	66.4
185	0.164	0.211	0.125	0.424	0.247	290	430	520	17.5	460	780	69.4

AAAC/1120 Support Conductors

Stranding & nom. wire dia. no/mm	Nominal overall diameter mm	Cross-sectional area mm²	DC resistance at 20°C Ω/km	Minimum breaking load kN	Recommended tension Highest everyday kN	Max. working kN	Modulus of elasticity GPa	Coeff. of linear expansion ×10 ⁻⁶ /°C
7/4.75	14.3	124.0	0.239	27.1	4.1	13.6	59	23.0
19/3.50	17.5	182.8	0.163	41.7	6.3	20.9	56	23.0

Note Continuous current ratings are based on an ambient temperature of 40°C, maximum conductor temperature of 90°C and solar radiation intensity of 1000W/m². Fault current ratings are based on an initial conductor temperature of 90°C and final conductor temperature of 250°C.



HV XLPE Insulated Non Metallic Screened ABC HDPE 6.35/11kV & 12.7/22kV



XLPE insulated non metallic screened aerial bundled cables with HDPE covering to AS/NZS 3599.2
Aluminium conductors, aluminium alloy 1120 support conductor.

Physical Data

Nominal conductor area	Nominal conductor diameter	Average insulation thickness	Nominal diameter over insulation	Average insulation screen thickness	Nominal diameter over core	AAAC/1120 support conductor Size	Diameter	Nominal overall diameter	Approximate mass	Product code
mm²	mm	mm	mm	mm	mm	no/mm	mm	mm	kg/km	
6.35/11kV										
35	6.9	3.4	14.9	1.8	18.8	7/4.75	14.3	52.0	1320	UJDA18AA003
50	8.1	3.4	16.0	1.8	20.0	7/4.75	14.3	54.2	1490	UJDA19AA003
70	9.6	3.4	17.6	1.8	21.6	7/4.75	14.3	57.4	1740	UJDA20AA003
95	11.4	3.4	19.3	1.8	23.3	7/4.75	14.3	60.9	2050	UJDA22AA003
120	12.8	3.4	20.7	1.8	24.7	19/3.50	17.5	66.9	2480	UJDA23AA003
150	14.2	3.4	22.1	1.8	26.1	19/3.50	17.5	69.7	2780	UJDA24AA003
185	15.7	3.4	23.6	1.8	27.6	19/3.50	17.5	72.7	3120	UJDA25AA003
12.7/22kV										
35	6.9	5.5	19.2	1.8	23.1	7/4.75	14.3	60.6	1730	ULDA18AA003
50	8.1	5.5	20.3	1.8	24.3	7/4.75	14.3	62.9	1910	ULDA19AA003
70	9.6	5.5	21.9	1.8	25.9	7/4.75	14.3	66.1	2200	ULDA20AA003
95	11.4	5.5	23.6	1.8	27.6	7/4.75	14.3	69.5	2530	ULDA22AA003
120	12.8	5.5	25.0	1.8	29.0	19/3.50	17.5	75.5	3000	ULDA23AA003
150	14.2	5.5	26.4	1.8	30.4	19/3.50	17.5	78.3	3320	ULDA24AA003
185	15.7	5.5	27.9	1.8	31.9	19/3.50	17.5	81.3	3690	ULDA25AA003

Performance Data

Nominal conductor area	DC resistance at 20°C	AC resistance at 50Hz 90°C	Inductive reactance at 50Hz	Three-phase voltage drop at 50Hz 90°C	Conductor to screen capacitance	Continuous current rating, A			Earth fault current rating for 1s conductor	Minimum bending radius (installed)		Projected diameter for wind
						Still air	1m/s wind	2m/s wind		Core	loading Cable	
mm²	Ω/km	Ω/km	Ω/km	mV/A.m	μF/km				kA			mm
6.35/11kV												
35	0.868	1.11	0.156	1.94	0.202	110	155	185	3.3	280	520	44.8
50	0.641	0.822	0.149	1.45	0.224	130	185	225	4.7	300	540	47.1
70	0.443	0.568	0.137	1.01	0.254	160	235	280	6.6	320	570	50.3
95	0.320	0.411	0.130	0.746	0.286	195	285	345	9.0	350	610	53.7
120	0.253	0.325	0.130	0.606	0.312	225	335	400	11.4	370	670	58.1
150	0.206	0.265	0.125	0.508	0.338	255	380	460	14.2	390	700	60.9
185	0.164	0.211	0.121	0.421	0.366	290	435	530	17.5	410	730	63.9
12.7/22kV												
35	0.868	1.11	0.164	1.94	0.144	110	155	180	3.3	350	610	53.4
50	0.641	0.822	0.156	1.45	0.158	130	185	220	4.7	360	630	55.7
70	0.443	0.568	0.144	1.02	0.177	160	230	275	6.6	390	660	58.9
95	0.320	0.411	0.137	0.750	0.197	195	280	335	9.0	410	690	62.3
120	0.253	0.325	0.136	0.610	0.214	225	330	390	11.4	430	750	66.7
150	0.206	0.265	0.131	0.512	0.230	255	375	445	14.2	460	780	69.6
185	0.164	0.211	0.127	0.426	0.247	290	430	510	17.5	480	810	72.6

AAAC/1120 Support Conductors

Stranding & nom. wire dia. no/mm	Nominal overall diameter mm	Cross-sectional area mm²	DC resistance at 20°C Ω/km	Minimum breaking load kN	Recommended tension		Modulus of elasticity GPa	Coeff. of linear expansion ×10 ⁻⁶ /°C
					Highest everyday kN	Max. working kN		
7/4.75	14.3	124.0	0.239	27.1	4.1	13.6	59	23.0
19/3.50	17.5	182.8	0.163	41.7	6.3	20.9	56	23.0

Note Continuous current ratings are based on an ambient temperature of 40°C, maximum conductor temperature of 90°C and solar radiation intensity of 1000W/m². Fault current ratings are based on an initial conductor temperature of 90°C and final conductor temperature of 250°C.

HV XLPE Insulated Metallic Screened ABC 6.35/11kV



XLPE insulated copper wire screened HDPE sheathed aerial bundled cables to AS/NZS 3599.1
Aluminium conductors, galvanised steel catenary.

Physical Data

Nominal conductor area	Nominal conductor diameter	Average insulation thickness	Nominal diameter over insulation	Average insulation screen thickness	Copper wire screen stranding no/mm	Nominal diameter over screen	Average sheath thickness	Nominal diameter over sheath	Galvanised steel catenary stranding no/mm	Nominal overall diameter	Approx. mass	Product code
mm²	mm	mm	mm	mm		mm	mm	mm		mm	kg/km	
Light duty screen												
35	6.9	3.4	14.9	0.8	24/0.85	19.2	1.8	23.5	7/2.00	53.1	1760	UJLA18DZ003
35	6.9	3.4	14.9	0.8	24/0.85	19.2	1.8	23.5	19/2.00	57.1	2060	UJLA18AA003
50	8.1	3.4	16.0	0.8	24/0.85	20.4	1.8	24.7	19/2.00	59.3	2230	UJLA19AA003
70	9.6	3.4	17.6	0.8	24/0.85	22.0	1.8	26.3	19/2.00	62.5	2500	UJLA20AA003
95	11.4	3.4	19.3	0.8	24/0.85	23.7	1.8	28.0	19/2.00	66.0	2820	UJLA22AA003
120	12.8	3.4	20.7	0.8	24/0.85	25.1	1.8	29.4	19/2.00	68.8	3100	UJLA23AA003
150	14.2	3.4	22.1	0.8	24/0.85	26.5	1.9	31.0	19/2.00	72.0	3440	UJLA24AA003
185	15.7	3.4	23.6	0.8	24/0.85	28.0	1.9	32.5	19/2.00	75.0	3800	UJLA25AA003
Heavy duty screen												
35	6.9	3.4	14.9	0.8	40/0.85	19.2	1.8	23.5	7/2.00	53.1	2020	UJHA18DZ003
35	6.9	3.4	14.9	0.8	40/0.85	19.2	1.8	23.5	19/2.00	57.1	2310	UJHA18AA003
50	8.1	3.4	16.0	0.8	23/1.35	21.4	1.8	25.7	19/2.00	61.3	2790	UJHA19AA003
70	9.6	3.4	17.6	0.8	32/1.35	23.0	1.8	27.3	19/2.00	64.5	3420	UJHA20AA003
95	11.4	3.4	19.3	0.8	38/1.35	24.7	1.8	29.0	19/2.00	68.0	3980	UJHA22AA003
120	12.8	3.4	20.7	0.8	38/1.35	26.1	1.8	30.4	19/2.00	70.8	4270	UJHA23AA003
150	14.2	3.4	22.1	0.8	38/1.35	27.5	1.9	32.0	19/2.00	74.0	4600	UJHA24AA003
185	15.7	3.4	23.6	0.8	38/1.35	29.0	1.9	33.5	19/2.00	77.0	4960	UJHA25AA003

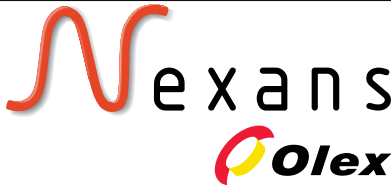
Performance Data

Nominal conductor area	DC resistance at 20°C	AC resistance at 50Hz 90°C	Inductive reactance at 50Hz	Three-phase voltage drop at 50Hz 90°C	Conductor to screen capacitance	Continuous current rating, A			Earth fault current rating for 1s conductor	Minimum bending radius (installed)		Projected diameter for wind
						Still air	1m/s wind	2m/s wind		Core	Cable	
mm²	Ω/km	Ω/km	Ω/km	mV/A.m	μF/km				kA			mm
Light duty screen												
35	0.868	1.11	0.149	1.94	0.202	99	140	165	2.0	350	530	50.1
35	0.868	1.11	0.157	1.94	0.202	100	145	165	2.0	350	570	52.1
50	0.641	0.822	0.149	1.45	0.224	120	170	200	2.0	370	590	54.3
70	0.443	0.568	0.138	1.01	0.254	150	215	250	2.0	390	630	57.5
95	0.320	0.411	0.130	0.747	0.286	180	260	305	2.0	420	660	61.0
120	0.253	0.325	0.125	0.603	0.312	205	300	355	2.0	440	690	63.8
150	0.206	0.265	0.121	0.505	0.338	235	340	400	2.0	460	720	67.0
185	0.164	0.211	0.117	0.418	0.366	265	390	460	2.0	490	750	70.0
Heavy duty screen												
35	0.868	1.11	0.149	1.94	0.202	99	140	165	3.4	350	530	50.1
35	0.868	1.11	0.157	1.94	0.202	100	145	165	3.4	350	570	52.1
50	0.641	0.822	0.151	1.45	0.224	120	175	200	4.9	390	610	56.3
70	0.443	0.568	0.140	1.01	0.254	150	215	255	6.8	410	650	59.5
95	0.320	0.411	0.132	0.748	0.286	180	260	310	8.1	430	680	63.0
120	0.253	0.325	0.127	0.604	0.312	205	300	355	8.1	460	710	65.8
150	0.206	0.265	0.123	0.506	0.338	230	340	400	8.1	480	740	69.0
185	0.164	0.211	0.119	0.419	0.366	265	390	460	8.1	500	770	72.0

Galvanised Steel Catenaries

Stranding & nom. wire dia. no/mm	Nominal overall diameter mm	Cross-sectional area mm²	DC resistance at 20°C Ω/km	Minimum breaking load kN	Recommended tension Highest everyday kN	Max. working kN	Modulus of elasticity GPa	Coeff. of linear expansion ×10 ⁻⁶ /°C
7/2.00	6.0	22.0	8.7	26.0	6.5	13.0	170	11.5
19/2.00	10.0	59.7	3.2	70.5	17.6	35.3	166	11.5

Note Continuous current ratings are based on an ambient temperature of 40°C, maximum conductor temperature of 90°C and solar radiation intensity of 1000W/m² with screens solidly bonded at both ends. Fault current ratings are based on an initial screen temperature of 85°C and final screen temperature of 250°C.



HV XLPE Insulated Metallic Screened ABC 12.7/22kV



XLPE insulated copper wire screened HDPE sheathed aerial bundled cables to AS/NZS 3599.1
Aluminium conductors, galvanised steel catenary.

Physical Data

Nominal conductor area	Nominal conductor diameter	Average insulation thickness	Nominal diameter over insulation	Average insulation screen thickness	Copper wire screen stranding	Nominal diameter over screen	Average sheath thickness	Nominal diameter over sheath	Galvanised steel catenary stranding		Nominal overall diameter	Approx. mass	Product code
mm ²	mm	mm	mm	mm	no/mm	mm	mm	mm	Size no/mm	Diameter mm	mm	kg/km	
Light duty screen													
35	6.9	5.5	19.2	0.8	24/0.85	23.5	1.8	27.8	7/2.00	6.0	61.7	2210	ULLA18DZ003
35	6.9	5.5	19.2	0.8	24/0.85	23.5	1.8	27.8	19/2.00	10.0	65.7	2500	ULLA18AA003
50	8.1	5.5	20.3	0.8	24/0.85	24.7	1.8	29.0	19/2.00	10.0	68.0	2690	ULLA19AA003
70	9.6	5.5	21.9	0.8	24/0.85	26.3	1.9	30.8	19/2.00	10.0	71.6	3020	ULLA20AA003
95	11.4	5.5	23.6	0.8	24/0.85	28.0	1.9	32.5	19/2.00	10.0	75.0	3370	ULLA22AA003
120	12.8	5.5	25.0	0.8	24/0.85	29.4	2.0	34.1	19/2.00	10.0	78.2	3720	ULLA23AA003
150	14.2	5.5	26.4	0.8	24/0.85	30.8	2.0	35.5	19/2.00	10.0	81.0	4060	ULLA24AA003
185	15.7	5.5	27.9	0.8	24/0.85	32.3	2.1	37.2	19/2.00	10.0	84.4	4470	ULLA25AA003
Heavy duty screen													
35	6.9	5.5	19.2	0.8	40/0.85	23.5	1.8	27.8	7/2.00	6.0	61.7	2460	ULHA18DZ003
35	6.9	5.5	19.2	0.8	40/0.85	23.5	1.8	27.8	19/2.00	10.0	65.7	2760	ULHA18AA003
50	8.1	5.5	20.3	0.8	23/1.35	25.7	1.8	30.0	19/2.00	10.0	70.0	3250	ULHA19AA003
70	9.6	5.5	21.9	0.8	32/1.35	27.3	1.9	31.8	19/2.00	10.0	73.6	3940	ULHA20AA003
95	11.4	5.5	23.6	0.8	38/1.35	29.0	1.9	33.5	19/2.00	10.0	77.0	4530	ULHA22AA003
120	12.8	5.5	25.0	0.8	38/1.35	30.4	2.0	35.1	19/2.00	10.0	80.2	4880	ULHA23AA003
150	14.2	5.5	26.4	0.8	38/1.35	31.8	2.0	36.5	19/2.00	10.0	83.0	5220	ULHA24AA003
185	15.7	5.5	27.9	0.8	38/1.35	33.3	2.1	38.2	19/2.00	10.0	86.4	5640	ULHA25AA003

Performance Data

Nominal conductor area	DC resistance at 20°C	AC resistance at 50Hz 90°C	Inductive reactance at 50Hz	Three-phase voltage drop at 50Hz 90°C	Conductor to screen capacitance	Continuous current rating, A			Earth fault current rating for 1s	Minimum bending radius (installed)		Projected diameter for wind loading
						Still air	1m/s wind	2m/s wind		Conductor	Cable	
mm ²	Ω/km	Ω/km	Ω/km	mV/A.m	μF/km				kA			mm
Light duty screen												
35	0.868	1.11	0.158	1.94	0.144	100	140	165	2.0	420	620	58.7
35	0.868	1.11	0.165	1.94	0.144	105	145	165	2.0	420	660	60.7
50	0.641	0.822	0.157	1.45	0.158	125	170	200	2.0	430	680	63.0
70	0.443	0.568	0.145	1.02	0.177	150	215	250	2.0	460	720	66.6
95	0.320	0.411	0.138	0.751	0.197	180	260	305	2.0	490	750	70.0
120	0.253	0.325	0.133	0.608	0.214	205	300	350	2.0	510	780	73.2
150	0.206	0.265	0.128	0.510	0.230	235	340	395	2.0	530	810	76.0
185	0.164	0.211	0.124	0.424	0.247	265	390	455	2.0	560	840	79.4
Heavy duty screen												
35	0.868	1.11	0.158	1.94	0.144	100	140	165	3.4	420	620	58.7
35	0.868	1.11	0.165	1.94	0.144	105	145	165	3.4	420	660	60.7
50	0.641	0.822	0.159	1.45	0.158	125	175	200	4.9	450	700	65.0
70	0.443	0.568	0.147	1.02	0.177	155	215	250	6.8	480	740	68.6
95	0.320	0.411	0.139	0.752	0.197	180	260	305	8.1	500	770	72.0
120	0.253	0.325	0.134	0.609	0.214	205	300	350	8.1	530	800	75.2
150	0.206	0.265	0.129	0.511	0.230	230	340	395	8.1	550	830	78.0
185	0.164	0.211	0.125	0.425	0.247	265	390	450	8.1	570	860	81.4

Galvanised Steel Catenaries

Stranding & nom. wire dia. no/mm	Nominal overall diameter mm	Cross-sectional area mm ²	DC resistance at 20°C Ω/km	Minimum breaking load kN	Recommended tension Highest everyday kN	Max. working kN	Modulus of elasticity GPa	Coeff. of linear expansion ×10 ⁻⁶ /°C
7/2.00	6.0	22.0	8.7	26.0	6.5	13.0	170	11.5
19/2.00	10.0	59.7	3.2	70.5	17.6	35.3	166	11.5

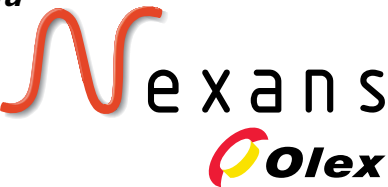
Note Continuous current ratings are based on an ambient temperature of 40°C, maximum conductor temperature of 90°C and solar radiation intensity of 1000W/m² with screens solidly bonded at both ends. Fault current ratings are based on an initial screen temperature of 85°C and final screen temperature of 250°C.

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