

Alcan Aluminum Underground ALGUARD™ Two Layer Ruggedized Cables:

Alcan Cable's ALGUARD™ two layer ruggedized cables provide outstanding performance and reliability when used in underground circuits where extra protection from mechanical abuse is required. The two layer ruggedized insulation on the phase conductors and neutral is composed of an inner layer of black high molecular weight polyethylene with the outer layer of black high density thermoplastic polyethylene which protects the cable from possible damage that may occur during installation. Alcan's ALGUARD™ Cable is available in a full range of sizes to meet any 600 volt electric distribution application, as a single conductor or with one, two or three phase conductors and a neutral twisted together with no overall cover.

Product Application and Features:

- Designed for use in electric distribution circuits not exceeding 600 volts phase to phase and may be directly buried or installed in ducts.
- May be used in wet or dry locations at conductor temperatures not exceeding 75° C for normal operation, 95° C for emergency overloads, and 150° C for short circuit conditions.
- Meets or exceeds industry requirements per ASTM B-231.
- Manufactured in accordance with ICEA S-81-570.

Product Construction:

Alcan Two layer ALGUARD™ cables are constructed of:

- Hard drawn (H19), Class B stranded, compressed 1350 aluminum conductors.
- Three quarter hard drawn aluminum (H26) available upon request.
- Insulation on the phase conductors and neutral is composed of an inner layer of black high molecular weight polyethylene and an outer layer of black high density thermoplastic polyethylene.
- TRISTRIPLE® cable features a neutral conductor that has three continuous extruded yellow stripes located 120° apart. The identification stripes are weather resistant.



- In multiplexed assemblies the phase conductors and neutral are twisted together with a left hand lay not greater than 60 times the outside diameter of one phase conductor.

Product Markings:

Each conductor displays the following surface marking:

- Alcan (Plant of Manufacture), conductor size, AL 600V HMWPE/HDPE ALGUARD™ (Year of Manufacture).
- The center aluminum wire in each stranded conductor is indent printed "Alcan (Year of Manufacture)."
- Sequential footage markings are printed every two feet on one phase conductor.



This catalog is intended to provide introductory technical data to aid the correct selection of wire and cable for permanent installation. Wire and cable products supplied by Alcan comply with the codes, standards and product specifications as indicated in this catalog. Weights and measurements are subject to manufacturing tolerances and product design changes. Consequently, Alcan does not accept responsibility for costs incurred by a purchaser as a result of weights and measurements not conforming exactly to those indicated.

ALGUARD™ TWO LAYER 600V RUGGEDIZED CABLES



Single Aluminum Conductor 75°C

Conductor Size	Nominal Insulation (MILS)		Approx. O.D. (Inches)	Estimated Wt. Lbs. / 1000 Ft.		Ampacity* Directly Buried	Standard Package (Ft.)
	HMWPE	HDPE		Aluminum	Total		
4	30	30	0.345	39	64	120	2000
2	30	30	0.403	62	92	160	2000
1	30	50	0.473	78	121	180	1000
1/0	30	50	0.512	99	146	200	1000
2/0	30	50	0.555	125	177	230	1000
3/0	30	50	0.603	157	216	265	1000
4/0	30	50	0.658	198	263	295	1000
250	45	50	0.732	234	315	325	1000
300	45	50	0.784	281	368	355	1000
350	45	50	0.831	328	421	390	1000
400	45	50	0.875	375	474	420	1000
500	45	50	0.956	468	578	475	1000
600	60	50	1.060	562	698	525	1000
700	60	50	1.127	656	802	570	1000
750	60	50	1.159	703	854	590	1000

Duplexed Aluminum Conductor 75°C

Black Neutral – TRISTRIFE®

Conductor Size		Nominal Insulation (MILS)				Approx. O.D. (Inches)	Estimated Wt. Lbs. / 1000 Ft.		Ampacity* Directly Buried	Standard Package (Ft.)
		Phase		Neutral			Aluminum	Total		
Phase	Neutral	HMWPE	HDPE	HMWPE	HDPE					
4	4	30	30	30	30	0.690	79	127	112	2000

Reduced Wall Triplex Aluminum Conductor 75°C

Black Neutral – TRISTRIFE®

Conductor Size		Nominal Insulation (MILS)				Approx. O.D. (Inches)	Estimated Wt. Lbs. / 1000 Ft.		Ampacity* Directly Buried	Standard Package (Ft.)
		Phase		Neutral			Aluminum	Total		
Phase	Neutral	HMWPE	HDPE	HMWPE	HDPE					
250	3/0	30	50	30	50	1.450	629	822	300	1000
350	4/0	30	50	30	50	1.640	858	1080	360	1000
350	350	30	50	30	50	1.726	989	1223	360	1000
500	350	30	50	30	50	1.914	1271	1534	440	1000
500	500	30	50	30	50	2.000	1412	1690	440	1000

Reduced Wall Quadruplex Aluminum Conductor 75°C

Black Neutral – TRISTRIFE®

Conductor Size		Nominal Insulation (MILS)				Approx. O.D. (Inches)	Estimated Wt. Lbs. / 1000 Ft.		Ampacity* Directly Buried	Standard Package (Ft.)
		Phase		Neutral			Aluminum	Total		
Phase	Neutral	HMWPE	HDPE	HMWPE	HDPE					
250	3/0	30	50	30	50	1.640	864	1124	270	1000
350	4/0	30	50	30	50	1.854	1188	1488	325	1000
350	350	30	50	30	50	1.934	1319	1631	325	1000
500	350	30	50	30	50	2.165	1742	2097	400	1000
500	500	30	50	30	50	2.235	1883	2253	400	1000

Reduced wall (80 mil) is available upon request in sizes 250-500 kcmil.

*75°C conductor temperature, ambient soil temp. 20°C, RHO 90 earth, load factor 100%, burial depth 36".

DO NOT USE THESE VALUES FOR NEC APPLICATIONS.

ALGUARD™ TWO LAYER 600V RUGGEDIZED CABLES



Triplexed Aluminum Conductor 75°C

Black Neutral – TRISTRIFE®

Conductor Size		Nominal Insulation (MILS)				Approx. O.D. (Inches)	Estimated Wt. Lbs. / 1000 Ft.		Ampacity* Directly Buried	Standard Package (Ft.)
Phase	Neutral	Phase		Neutral			Aluminum	Total		
		HMWPE	HDPE	HMWPE	HDPE					
4	4	30	30	30	30	0.742	118	191	112	1000
2	4	30	30	30	30	0.830	164	249	145	1000
2	2	30	30	30	30	0.867	187	278	145	1000
1/0	2	30	50	30	30	1.039	261	387	185	1000
1/0	1/0	30	50	30	50	1.103	298	441	185	1000
2/0	1	30	50	30	50	1.144	330	478	210	1000
2/0	2/0	30	50	30	50	1.196	376	535	210	1000
3/0	1/0	30	50	30	50	1.241	415	580	240	1000
3/0	3/0	30	50	30	50	1.299	474	650	240	1000
4/0	2/0	30	50	30	50	1.352	524	708	275	1000
4/0	4/0	30	50	30	50	1.418	598	794	275	1000
250	3/0	45	50	30	50	1.497	629	849	300	1000
350	4/0	45	50	30	50	1.687	859	1112	360	1000
350	350	45	50	45	50	1.791	989	1270	360	1000
500	350	45	50	45	50	1.978	1271	1586	440	1000
500	500	45	50	45	50	2.060	1412	1744	440	1000
750	350	60	50	45	50	2.325	1743	2140	560	1000
750	750	60	50	60	50	2.500	2120	2575	560	1000

Quadruplexed Aluminum Conductor 75°C

Black Neutral – TRISTRIFE®

Conductor Size		Nominal Insulation (MILS)				Approx. O.D. (Inches)	Estimated Wt. Lbs. / 1000 Ft.		Ampacity* Directly Buried	Standard Package (Ft.)
Phase	Neutral	Phase		Neutral			Aluminum	Total		
		HMWPE	HDPE	HMWPE	HDPE					
4	4	30	30	30	30	0.833	157	255	100	1000
2	4	30	30	30	30	0.940	227	342	130	1000
2	2	30	30	30	30	0.973	250	371	130	1000
1/0	2	30	50	30	30	1.176	361	534	170	1000
1/0	1/0	30	50	30	50	1.236	398	588	170	1000
2/0	1	30	50	30	50	1.293	455	657	190	1000
2/0	2/0	30	50	30	50	1.340	502	713	190	1000
3/0	1/0	30	50	30	50	1.405	573	797	215	1000
3/0	3/0	30	50	30	50	1.456	632	866	215	1000
4/0	2/0	30	50	30	50	1.530	724	973	245	1000
4/0	4/0	30	50	30	50	1.589	798	1059	245	1000
250	3/0	45	50	30	50	1.695	865	1165	270	1000
350	4/0	45	50	30	50	1.910	1188	1535	325	1000
350	350	45	50	45	50	2.006	1318	1694	325	1000
500	350	45	50	45	50	2.237	1741	2167	400	1000
500	500	45	50	45	50	2.308	1883	2325	400	1000

*75°C conductor temperature, ambient soil temp. 20°C, RHO 90 earth, load factor 100%, burial depth 36".
DO NOT USE THESE VALUES FOR NEC APPLICATIONS.

ALGUARD™ TWO LAYER 600V RUGGEDIZED CABLES



Triplexed Aluminum Conductor 75°C

Impedance Data

Conductor Size		Resistance (OHMS/1000 Ft.)			Inductive Reactance (OHMS/1000 Ft.)
Phase	Neutral	25°C	50°C	75°C	X1
6	6	0.6725	0.7392	0.8059	0.0337
4	4	0.4227	0.4645	0.5064	0.0335
2	4	0.2655	0.2929	0.3182	0.0319
2	2	0.2655	0.2929	0.3182	0.0315
1/0	2	0.1671	0.1837	0.2002	0.0301
1/0	1/0	0.1671	0.1837	0.2002	0.0301
2/0	1	0.1326	0.1456	0.1587	0.0293
2/0	2/0	0.1326	0.1456	0.1587	0.0293
3/0	1/0	0.1053	0.1157	0.1259	0.0286
3/0	3/0	0.1053	0.1157	0.1259	0.0286
4/0	2/0	0.0835	0.0917	0.1000	0.0279
4/0	4/0	0.0835	0.0917	0.1000	0.0279
250	3/0	0.0706	0.0777	0.0847	0.0284
350	4/0	0.0506	0.0557	0.0606	0.0275
350	350	0.0506	0.0557	0.0606	0.0275
500	350	0.0356	0.0390	0.0426	0.0266
500	500	0.0356	0.0390	0.0426	0.0266
750	500	0.0251	0.0263	0.0286	0.0264

RHO = 90, phase spacing is phase conductor outside diameter.
DO NOT USE these values for "reduced wall" designs.

Quadruplexed Aluminum Conductor 75°C

Impedance Data

Conductor Size		Positive Sequence Resistance (OHMS/1000 Ft.)			Positive Sequence Inductive Reactance (OHMS/1000 Ft.)	Zero Sequence Resistance (OHMS/1000 Ft.)	Zero Sequence Inductive Reactance (OHMS/1000 Ft.)	Per Unit Neutral Return
Phase	Neutral	25°C	50°C	75°C	X1	RO 90°C	XO	IGW
4	2	0.4227	0.4645	0.5064	0.0315	0.8826	0.5854	0.472
2	4	0.2655	0.2929	0.3182	0.0315	0.8399	0.6088	0.418
2	2	0.2655	0.2929	0.3182	0.0298	0.6748	0.4716	0.565
1/0	2	0.1671	0.1837	0.2002	0.0301	0.5445	0.4667	0.558
1/0	1/0	0.1671	0.1837	0.2002	0.0301	0.5251	0.3278	0.693
2/0	1	0.1326	0.1456	0.1587	0.0293	0.4964	0.3952	0.626
2/0	2/0	0.1326	0.1456	0.1587	0.0293	0.4519	0.2678	0.744
3/0	1/0	0.1053	0.1157	0.1259	0.0286	0.4433	0.3268	0.687
3/0	3/0	0.1053	0.1157	0.1259	0.0286	0.3816	0.2199	0.784
4/0	2/0	0.0835	0.0917	0.1000	0.0280	0.3861	0.2678	0.738
4/0	4/0	0.0835	0.0917	0.1000	0.0280	0.3164	0.1838	0.814
250	3/0	0.0706	0.0777	0.0847	0.0284	0.3338	0.2210	0.776
350	4/0	0.0506	0.0557	0.0606	0.0275	0.2705	0.1861	0.804
350	350	0.0506	0.0557	0.0606	0.0275	0.2022	0.1383	0.852
500	350	0.0356	0.0390	0.0426	0.0267	0.1815	0.1402	0.846
750	500	0.0251	0.0263	0.0286	0.0264	0.1277	0.1263	0.856

RHO = 90, phase spacing is phase conductor outside diameter.
DO NOT use these values for "reduced wall" designs.