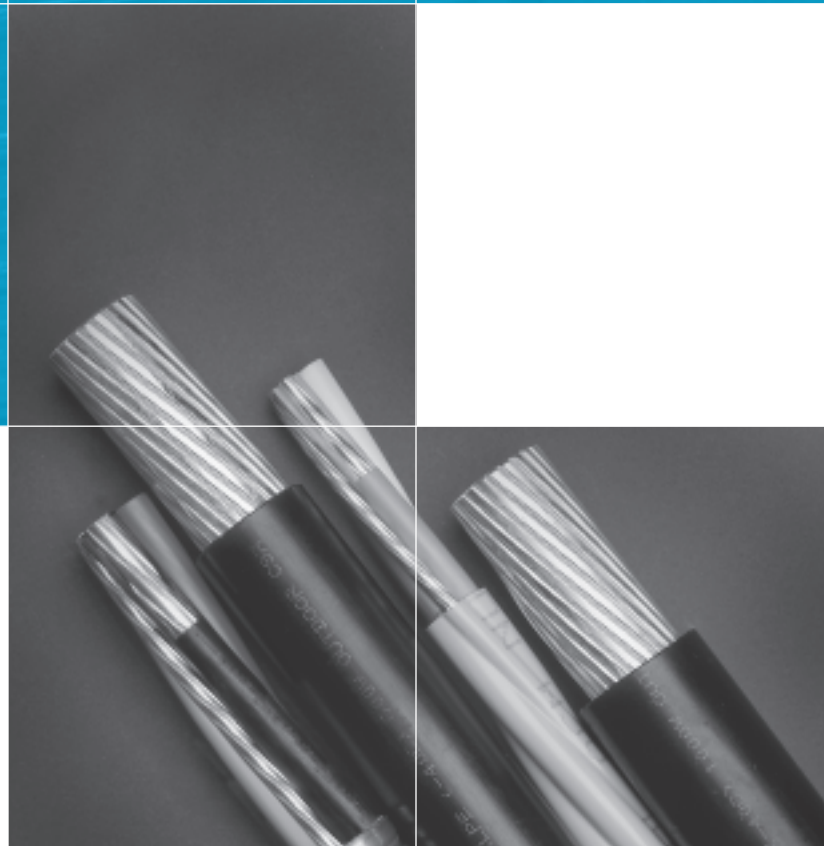


# BUILDING WIRE

CANADIAN PRODUCT CATALOGUE

ALCAN CABLE

grounded in service  
wired to innovate.<sup>SM</sup>



## **About this catalogue**

This catalogue is intended to provide introductory technical data to aid the correct selection of wire and cable for permanent installation in commercial, institutional and industrial premises. Such installations are governed by the requirement of the Canadian Electrical Code Part I, and enforced by the appointed authority having jurisdiction in this area under provincial law (federal law in the case of federal territories), with or without Code amendments as the case may be.

Wires and cables in installations falling under the jurisdiction of the provincial and territorial inspection authorities are almost invariably required to be certified to the requirements of CSA standards under the approval of the CSA Technical Committee on Wiring Products.

This catalogue provides information on standard products stocked by Alcan's Distributors. Alcan manufactures a wide range of additional products in various sizes which can be supplied by special order. For more information, contact your distributor or visit [www.cable.alcan.com](http://www.cable.alcan.com) for the most current list of product offerings.

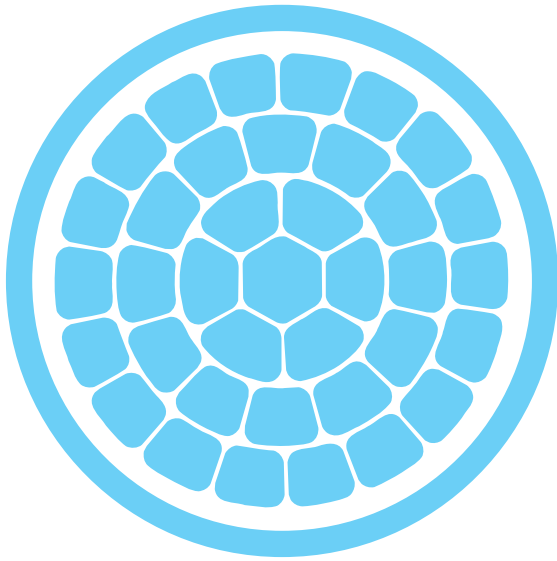
Wire and cable products supplied by Alcan comply with the codes, standards and product specifications as indicated in this catalogue.

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.

**Alcan Cable**  
Division of Alcan Inc.



## ABOUT ALCAN

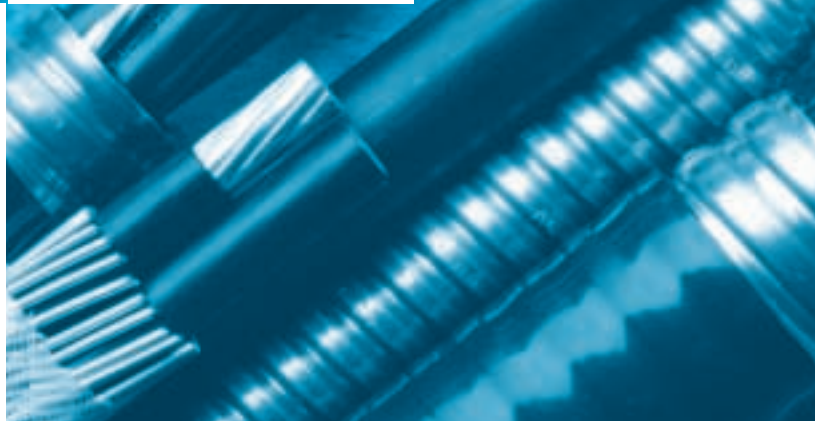


**A**lcan is a name people know and trust. For over a century, our products have helped supply communities with power from coast to coast across the continent. And in that time we've become synonymous not only with aluminium, but with the latest technology and highest standards of quality and service.

We offer a full range of bare and insulated wires to both the utility and distribution markets, and support them with technical experts specifically trained to help our customers achieve their desired end results.

We believe our customers' satisfaction relies entirely on the quality of our products. That's why we work hard to ensure they're consistently superior to anything else on the market. Our distribution centre, technical centre and manufacturing facilities have all attained ISO 9000 certification, and we're proud to have the only North American manufacturing plant with the triple accreditation of ISO 9000, 14000 and 18000.

We're committed to the success of our products, and to the satisfaction of our customers. That's why Alcan will continue to be a name people know and trust.



# BUILDING WIRES

## NUAL Conductors

Among Alcan’s most significant contributions to the cable industry is the aluminium conductor known as “NUAL”. While EC-grade aluminium has long been the material of choice for electrical transmission lines, NUAL is an advanced Alcan alloy created specifically for use in service cables and building wires. Specified as “ACM” by the Canadian Standards Association, NUAL conductor combines technical performance equal to copper conductor with the attractive cost, weight and flexibility advantages of aluminium. Alcan’s NUAL cables feature high conductivity and connectability, superior corrosion resistance and proven fire protection. Compared to copper constructions, NUAL also can offer project designers significant life cycle savings with reduced material costs, easier installation and energy-efficient design alternatives.

## Thermoset Insulated Wires and Cable

### Types RW90 and RWU90

Cross-linked polyethylene insulation is used for its excellent combination of electrical, physical and environmental properties. Alcan manufactures two standard single-conductor constructions with XLPE insulation – RW90 and RWU90. The two are similar except RWU90 comprises thicker insulation than RW90. XLPE resists cracking under extreme temperatures, from very low temperatures (-40°C) with high resistance to cracking during installation, and withstands conductor temperatures of 90°C for continuous operation, 130°C for sustained overloads, and 250°C for short circuits.

All black coloured XLPE insulations are sunlight resistant and are suitable for outdoor use. Insulation colours other than black are not suitable for outdoor use unless marked ‘Outdoor’.

## Conductors

Alcan Cable supplies conductors in CSA-certified XLPE insulated wires and cables in NUAL. NUAL is supplied in size 8 AWG to 1500 kcmil in stranded form. All are compact configurations except 1500 kcmil, which is conventional strand.

## Non-metallic Sheathed Cable

### Type NMD90 XLPE

Alcan Type NMD90 is CSA-certified and is suitable for residential branch circuit wiring in dry locations. The construction features Type R90 XLPE NUAL conductors, a bare bonding conductor and a PVC outer jacket. NMD90 is available in sizes 8 to 2 AWG NUAL.

## CEC ampacities

Size	Ampacity	
	Table 3	Table 4
8	45	30
6	80	*55
4	105	65
3	120	75
2	140	*95
1	165	105
1/0	190	120
2/0	220	145
3/0	255	165
4/0	300	**185
250	330	215
300	375	240
350	415	260
400	450	290
500	515	330
600	585	370
750	670	405
1000	800	480
1500	1020	580

\* For 3 wire 120/240 and 120/208 V residential services or sub-services the allowable ampacity for size number 6AWG shall be 60 A and size 2AWG shall be 100 A. In this case the 5% adjustment per Rule 8-106(1) cannot be applied.

\*\* Subject to the permission and conditions of the electrical inspection authority having jurisdiction, the conductors shall be allowed for 200 A rated residential services.

Table 3 ampacities are for free air installations.

Table 4 ampacities are for 3 conductors in conduit, not including neutral conductor for above ground installations.



## NUAL RW90 XLPE Minus 40°C – 600 V

CSA-certified Type RW90 XLPE is recognized for use in enclosed raceways in wet and dry locations. Most commonly, an approved raceway would consist of rigid metal or plastic conduit, flexible conduit, electrical

metallic tubing or other enclosed raceway. Type RW90 XLPE is certified to be pulled into underground ducts. Standard RW90 XLPE is not approved for direct burial in the earth.

TABLE 1

Conductor Size AWG or kcmil	Conductor Diameter		Insulation Thickness mm	Overall Diameter mm	Approximate Mass	
	NUAL compact mm				Conductor Metal kg/km	Total kg/km
8	3.4		1.14	6.0	23	42
6	4.3		1.14	6.8	38	57
4	5.4		1.14	7.8	59	84
3	6.1		1.14	8.5	73	101
2	6.8		1.14	9.3	94	124
1	7.6		1.40	10.5	116	155
1/0	8.5		1.40	11.4	146	190
2/0	9.6		1.40	12.4	185	233
3/0	10.7		1.40	13.6	231	285
4/0	12.1		1.40	15.0	293	353
250	13.2		1.65	16.9	344	428
300	14.5		1.65	18.2	416	508
350	15.7		1.65	19.4	491	590
400	16.7		1.65	20.4	554	660
500	18.7		1.65	22.4	695	813
600	20.7		2.03	25.2	841	1002
750	23.1		2.03	27.6	1033	1212
1000	26.9		2.03	31.5	1402	1610
*1500	35.9		2.41	42.0	2102	2528

Conversion Factors:

kcmil x 0.5067 = mm<sup>2</sup>  
 mm x 0.0394 = inches  
 kg/km x 0.6720 = lb/M ft.

\*Conventional stranding.  
 Size 8–1000 are compact.





## NUAL RWU90 Minus 40°C – 1000 V

Type RWU90 minus 40°C in its common construction carries a voltage rating of 1000 volts. An optional PVC jacket can be supplied upon request having a low temperature (minus 40°C) impact classification. Consult Alcan Cable for further information concerning these

special constructions. Rules 12-012 and 4-004 of the Canadian Electrical Code, Part I should be consulted for limitations with respect to depth of burial, required additional protection and conductor to conductor spacing.

TABLE 2

Conductor Size AWG or kcmil	Conductor Diameter mm	Insulation** Thickness mm	Overall Diameter mm	Approximate Mass	
				Conductor Metal kg/km	Total kg/km
8	3.6	2.03	7.7	23	59
6	4.6	2.03	8.6	38	79
4	5.8	2.03	9.8	59	109
2	7.2	2.03	11.3	94	154
1	8.2	2.41	13.0	116	198
1/0	9.2	2.41	14.1	146	237
2/0	10.4	2.41	15.2	185	285
3/0	11.6	2.41	16.5	231	344
4/0	13.1	2.41	17.9	293	418
250	14.2	2.79	19.8	344	502
350	15.7	2.79	21.3	491	648
500	18.7	2.79	24.4	695	885
750	22.9	3.17	29.5	1033	1307
1000	26.9	3.17	33.8	1402	1719
1500	35.9	3.55	43.5	2102	2619

Conversion Factors:

kcmil x 0.5067 = mm<sup>2</sup>

mm x 0.0394 = inches

kg/km x 0.6720 = lb/M ft.

\*\*Minimum average.

1500 kcmil is conventional round. All sizes 8 up to 1000 kcmil are compact.





## NUAL NMD90 XLPE – 300 V

Alcan NMD90, insulated with R90 XLPE, provides excellent resistance to thermal deformation when the cable is required to operate at high temperatures. Compared to PVC insulated constructions, XLPE insulation will greatly improve the cable performance when subjected to repeated overloads. With the advent of higher levels of thermal insulation in residences, and with continuing use of electrical space heaters, Type NMD90 XLPE cables are highly recommended for contemporary homes.



TABLE 3

Conductor Size AWG/ No. of Cond.	Conductor		Bonding Conductor		Overall		
	Diameter mm	Insulation** Thickness mm	Size AWG	Diameter mm	Jacket** Thickness mm	Approx. Diameter mm	Approx. Mass kg/km
8/3	3.4	1.14	10	2.6	1.14	15.7	220
6/3	4.3	1.14	8	3.4	1.14	17.4	280
4/3	5.4	1.14	6	4.3	1.52	20.7	432
2/3	6.9	1.14	6	4.3	2.05	24.4	630

\*\*Minimum average



## NUAL Bare Bonding Conductors

Alcan Cable can provide an extensive range of bare NUAL conductors for use as bonding conductors. A bare bonding conductor is required in any non-metallic raceway installation to ensure the interconnection of non-

energized metallic components and to ensure the integrity of the ground fault path.

Consult the Canadian Electrical Code Part I section 10 for the correct choice of bare or insulated conductor.

TABLE 4 DIMENSIONS AND WEIGHTS

Conductor Size AWG or kcmil	Number of Wires	Diameter mm	Mass kg/km
8	7	3.6	23
6	7	4.5	37
4	7	5.7	58
3	7	6.4	74
2	7	7.2	93
1	19	8.2	117
1/0	19	9.2	148
2/0	19	10.3	186
3/0	19	11.6	235
4/0	19	13.0	296
250	37	14.2	350

Conversion Factors:

kcmil x 0.5067 = mm<sup>2</sup>  
 mm x 0.0394 = inches  
 kg/km x 0.6720 = lb/M ft.

## **Alcan Cable Sales Offices**

### **TORONTO**

Tel.: (905) 206-6855

Fax: (905) 206-6857

### **MONTREAL**

Tel.: (514) 956-4006

Fax: (514) 956-4016

Toll Free: 1-800-265-6825

### **CALGARY**

Tel.: (403) 269-5362

Fax: (403) 266-5066

**CANADA-WIDE TOLL FREE: 1-866-289-6825**  
**1-866-BUY-NUAL**

[www.cable.alcan.com](http://www.cable.alcan.com)

**Alcan Cable**  
Division of Alcan Inc.

