

MEDIUM VOLTAGE POWER CABLES

Concentric Neutral Distribution Cables (CN Cables) are suitable for use above ground in open air, in conduit in air, directly buried, in underground duct, or aerially when suspended on a messenger wire. CN cables are suitable for continuous operation at 90°C wet or dry, and are sunlight resistant. Typical applications include residential, commercial and industrial main underground feeders where voltages of 5kv to 46kv are required. CN cables can also be used in Wind and Solar power distribution when cables are to be used in an underground application. These cables conform to CSA C68.5 specifications.



Concentric Neutral Medium Voltage Power Cable

Standard Design

CN Distribution cables are single conductor concentric neutral power cables, available from 5 kV to 46 kV suitable for continuous operation at 90°C, wet or dry, and are sunlight resistant. The cables can be manufactured using either Copper or ACM (Aluminum alloy).

While suitable for use in cable tray in a typical Utility installation, CN is not TC rated and cannot be used in cable tray in an installation subject to the requirements of the Canadian Electrical Code.

The standard design consists of:

- Stranded copper or aluminum conductors from #8 AWG to 1000 kcmil made to the latest ASTM standards.
- Solid aluminum conductors from #2 to 2/0.
- Conventional conductor shield.
- Tree-retardant insulation. EPR upon request
- Strippable insulation shield.
- Concentric neutrals wires based on full, 1/3, 1/6, etc. requirements.
- Encapsulating (polyethylene), or overlaying (PVC) jacket.
(Unjacketed cables may be supplied upon request)

Design Options

STRANDBLOCK® Conductor OR Strandseal®

It has been long understood that the presence of moisture in a power cable can contribute to the growth of water trees within the insulation and lead to premature cable failure. CN Distribution cable can be designed to effectively prevent the ingress of moisture into the cable core.

The most critical area is the conductor shield/insulation interface where the highest electrical stress is found. CN Distribution cable can utilize STRANDBLOCK® conductors to offer vital protection against moisture migration in the conductor.

All interstices between the individual strands of the conductor are filled with a semi-conducting sealant applied during the stranding operation. The STRANDBLOCK® sealant does not cover the exposed surface of the outer strands and does not interfere with the conductor to conductor shield interface.

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Manufacturers of CN medium voltage concentric neutral cables also can add an Extruded-to-fill (encapsulating) polyethylene jacket and a water swellable agent. This prevents the longitudinal migration of moisture between the copper neutral wires and the jacket. Water can penetrate a cable jacket through open unprotected ends or through jacket damage incurred during installation or cable failure. The presence of moisture can lead to premature failure of Medium voltage cables. Any effort to minimize the presence of moisture in medium voltage power cables are a step towards improving service life.

- Alternative constructions with water swellable tapes and an overlaying (sleeved) jacket are also available.
- Cable in Conduit; Manufacturers have the ability to manufacture CN Distribution cable already installed inside conduit. Cable in conduit comes on reels up to 610 meters in length (longer lengths may be available on request). The advantages of this system are that installation time is significantly reduced and complicated pulls of cable are no longer a problem as the cable no longer has to be pulled into the conduit. A High Density Polyethylene (HDPE) duct to ASTM D 348.

MED. VOLTAGE TRXLPE RATED 15KV 100% (175MM) C/N POWER CABLES STRANDED COPPER CONDUCTORS



Cond. (AWG,MCM)	Concentric Neutral	C/N Value	Cond. Dia. (mm)	Insulation Dia. (mm)	Insulation Sheild Dia. (mm)	Jacket Dia. (mm)	Cable Weight KG/KM	Minimum Bending Radius (mm)	Ampacity 90°C In Duct	Ampacity 90°C Direct Buried
#2 AWG	16x 14awg	100%	6.81	16.92	18.8	24.9	1015	203	158	217
1/0	16x 12awg	100%	8.59	18.69	20.57	27.52	1446	229	207	279
2/0	20x 12awg	100%	9.6	19.71	21.59	28.54	1713	229	237	317
3/0	26x 12awg	100%	10.82	20.93	22.81	29.76	2076	254	270	359
4/0	32x 12awg	100%	12.14	22.25	24.13	31.08	2484	254	307	407
250 MCM	21x 14awg	33%	13.28	23.65	25.53	31.63	2156	254	336	409
350 MCM	28x 14awg	33%	15.72	26.09	28.42	34.52	2840	279	400	457
500 MCM	26x 12awg	33%	18.77	29.13	31.47	38.42	3914	330	471	501
750 MCM	25x 10awg	33%	24.59	35.2	37.54	46.99	5903	381	550	557
1000 MCM	32x 10awg	33%	28.37	38.99	42.19	51.64	7613	432	599	611

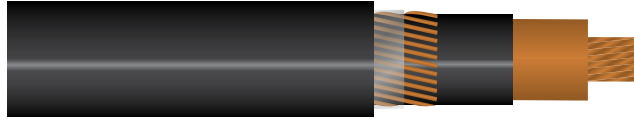
MED. VOLTAGE TRXLPE RATED 25KV 100% (260MM) C/N POWER CABLES STRANDED COPPER CONDUCTORS



Cond. (AWG,MCM)	Concentric Neutral	C/N Value	Cond. Dia. (mm)	Insulation Dia. (mm)	Insulation Sheild Dia. (mm)	Jacket Dia. (mm)	Cable Weight KG/KM	Minimum Bending Radius (mm)	Ampacity 90°C In Duct	Ampacity 90°C Direct Buried
#1 Solid	13x12awg	100%	7.34	21.97	23.85	30.8	1405	254	186	245
#1	13x12awg	100%	7.59	22.12	24	30.95	1421	254	187	246
1/0 Solid	16x12awg	100%	8.26	22.89	24.77	31.71	1623	254	210	277
1/0	16x12awg	100%	8.59	23.11	24.99	31.94	1640	279	212	279
2/0	20x12awg	100%	9.6	24.13	26.01	32.96	1914	279	243	317
3/0	26x12awg	100%	10.82	25.35	27.23	34.18	2285	279	276	359
4/0	32x12awg	100%	12.14	26.67	29.01	35.96	2729	305	314	406
250mcm	21x14awg	33%	13.28	28.07	30.4	36.5	2405	305	341	410
350mcm	28x14awg	33%	15.72	30.51	32.84	38.94	3080	330	405	460
500mcm	26x12awg	33%	18.77	33.55	35.89	44.26	4269	356	475	504
750mcm	25x10awg	33%	24.59	39.62	42.82	52.27	6301	432	557	566
1000mcm	32x10awg	33%	28.37	43.41	46.61	56.06	7964	457	606	618

MED. VOLTAGE TRXLPE RATED 28KV 100%

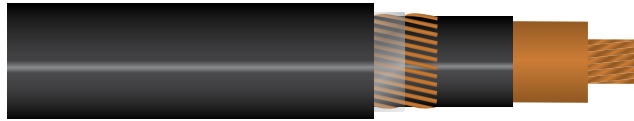
(280MM) C/N POWER CABLES STRANDED COPPER CONDUCTORS



Cond. (AWG,MCM)	Concentric Neutral	C/N Value	Cond. Dia. (mm)	Insulation Dia. (mm)	Insulation Sheild Dia. (mm)	Jacket Dia. (mm)	Cable Weight KG/KM	Minimum Bending Radius (mm)	Ampacity 90°C In Duct	Ampacity 90°C Direct Buried
1/0	16x 12awg	100%	8.59	24.18	26.06	31.49	1323	254	212	278
2/0	20x 12awg	100%	9.6	25.2	27.08	34.03	1516	279	240	312
3/0	26x 12awg	100%	10.82	26.42	28.75	34.18	2368	305	276	359
4/0	32x 12awg	100%	12.14	27.74	30.07	37.02	2787	305	312	407
250 MCM	21x 14awg	33%	13.28	29.13	31.47	37.57	2463	305	338	407
350 MCM	28x 14awg	33%	15.72	31.57	33.91	40.01	3142	330	402	458
500 MCM	26x 12awg	33%	18.77	34.62	36.96	45.33	4339	381	473	502
750 MCM	25x 10awg	33%	24.59	40.69	43.89	53.34	6384	432	557	568
1000 MCM	32x 10awg	33%	28.37	44.48	47.68	57.12	8052	457	609	620

MED. VOLTAGE TRXLPE RATED 35KV 100%

(345MM) C/N POWER CABLES STRANDED COPPER CONDUCTORS



Cond. (AWG,MCM)	Concentric Neutral	C/N Value	Cond. Dia. (mm)	Insulation Dia. (mm)	Insulation Sheild Dia. (mm)	Jacket Dia. (mm)	Cable Weight KG/KM	Minimum Bending Radius (mm)	Ampacity 90°C In Duct	Ampacity 90°C Direct Buried
1/0	16x 12awg	100%	8.59	27.64	29.97	36.92	1897	305	217	278
2/0	20x 12awg	100%	9.6	28.65	30.99	37.94	2178	305	248	316
3/0	26x 12awg	100%	10.82	29.87	32.21	39.16	2558	330	281	358
4/0	32x 12awg	100%	12.14	31.19	33.53	40.48	2984	330	319	402
250 MCM	21x 14awg	33%	13.28	32.29	34.93	41.03	2663	330	344	408
350 MCM	28x 14awg	33%	15.72	35.03	37.36	44.89	3445	381	408	461
500 MCM	26x 12awg	33%	18.77	38.07	40.41	48.78	4578	406	480	510
750 MCM	25x 10awg	33%	24.59	44.15	47.35	56.79	6664	457	562	572
1000 MCM	32x 10awg	33%	28.37	47.93	51.13	60.58	8352	508	612	624

MED. VOLTAGE TRXLPE RATED 15KV 100% (175MM) C/N POWER CABLES STRANDED ALUMINUM CONDUCTORS (ALLOY 1350)



Cond. (AWG,MCM)	Concentric Neutral	C/N Value	Cond. Dia. (mm)	Insulation Dia. (mm)	Insulation Sheild Dia. (mm)	Jacket Dia. (mm)	Cable Weight KG/KM	Minimum Bending Radius (mm)	Ampacity 90°C In Duct	Ampacity 90°C Direct Buried
#2 AWG	10x 14awg	100%	6.81	16.92	18.8	24.9	700	203	124	170
1/0	16x 14awg	100%	8.59	18.69	20.57	26.68	911	229	162	220
2/0	13x 12awg	100%	9.6	19.71	21.59	28.54	1095	229	186	251
3/0	16x 12awg	100%	10.82	20.93	22.81	29.76	1264	254	212	284
4/0	20x 12awg	100%	12.14	22.25	24.13	31.08	1427	254	241	323
250 MCM	21x 16awg	33%	13.28	23.65	25.53	30.95	1174	254	264	346
350 MCM	27x 16awg	33%	15.72	26.09	28.42	33.85	1480	279	319	401
500 MCM	25x 14awg	33%	18.8	29.16	31.5	37.6	1967	305	385	453
750 MCM	24x 12awg	33%	23.11	33.73	36.07	44.44	2857	356	469	508
1000 MCM	31x 12awg	33%	26.92	37.54	39.88	48.25	3547	406	531	551

MED. VOLTAGE TRXLPE RATED 25KV 100% (260MM) C/N POWER CABLES STRANDED ALUMINUM CONDUCTORS (ALLOY 1350)



Cond. (AWG,MCM)	Concentric Neutral	C/N Value	Cond. Dia. (mm)	Insulation Dia. (mm)	Insulation Sheild Dia. (mm)	Jacket Dia. (mm)	Cable Weight KG/KM	Minimum Bending Radius (mm)	Ampacity 90°C In Duct	Ampacity 90°C Direct Buried
#1 Solid	13x14awg	100%	7.34	25.12	27	33.1	1118	279	145	192
#1	13X14AWG	100%	7.65	25.32	27.2	33.3	1130	279	146	194
1/0 Solid	16x14awg	100%	8.26	22.89	24.77	30.87	1085	254	165	218
1/0	16x14awg	100%	8.59	23.11	24.99	31.09	1099	254	166	219
2/0	13x12awg	100%	9.6	24.13	26.01	32.96	1295	279	190	250
3/0	16x12awg	100%	10.82	25.35	27.23	34.18	1472	279	217	283
4/0	20x12awg	100%	12.14	26.67	29.01	35.96	1672	305	247	322
250 MCM	21x16awg	33%	13.28	28.07	30.4	35.83	1419	305	268	344
350 MCM	27x16awg	33%	15.72	30.51	32.84	38.27	1713	330	322	400
500 MCM	25x14awg	33%	18.8	33.58	35.92	43.44	2302	356	389	453
750 MCM	24x12awg	33%	23.11	38.15	40.49	48.86	3157	406	473	514
1000 MCM	31x12awg	33%	26.92	41.96	45.16	53.53	3947	432	535	557

MED. VOLTAGE TRXLPE RATED 28KV 100% (280MM) C/N POWER CABLES STRANDED ALUMINUM CONDUCTORS (ALLOY 1350)



Cond. (AWG,MCM)	Concentric Neutral	C/N Value	Cond. Dia. (mm)	Insulation Dia. (mm)	Insulation Sheild Dia. (mm)	Jacket Dia. (mm)	Cable Weight KG/KM	Minimum Bending Radius (mm)	Ampacity 90°C In Duct	Ampacity 90°C Direct Buried
1/0	16x14awg	100%	8.59	24.18	26.06	32.16	1149	279	165	217
2/0	13x12awg	100%	9.6	25.2	27.08	34.03	1348	279	189	247
3/0	16x12awg	100%	10.82	26.42	28.75	35.7	1555	305	216	281
4/0	20x12awg	100%	12.14	27.74	30.07	37.02	1729	305	245	319
250mcm	21x16awg	33%	13.28	29.13	31.47	36.9	1475	305	266	340
350mcm	27x16awg	33%	15.72	31.57	33.91	39.33	1773	330	320	395
500mcm	25x14awg	33%	18.8	34.65	36.98	44.51	2371	381	386	449
750mcm	24x12awg	33%	23.11	39.22	42.42	50.79	3305	406	470	509
1000mcm	31x12awg	33%	26.92	43.03	46.23	54.6	4031	457	531	552

MED. VOLTAGE TRXLPE RATED 35KV 100% (345MM) C/N POWER CABLES STRANDED ALUMINUM CONDUCTORS (ALLOY 1350)



Cond. (AWG,MCM)	Concentric Neutral	C/N Value	Cond. Dia. (mm)	Insulation Dia. (mm)	Insulation Sheild Dia. (mm)	Jacket Dia. (mm)	Cable Weight KG/KM	Minimum Bending Radius (mm)	Ampacity 90°C In Duct	Ampacity 90°C Direct Buried
1/0	16x 14awg	100%	8.59	27.64	29.97	36.06	1349	305	169	218
2/0	13x 12awg	100%	9.6	28.65	30.99	37.94	1560	305	194	249
3/0	16x 12awg	100%	10.82	29.87	32.21	39.16	1746	330	220	283
4/0	20x 12awg	100%	12.14	31.19	33.53	40.48	1926	330	250	321
250 MCM	21x 16awg	33%	13.28	32.59	34.93	40.35	1670	330	268	338
350 MCM	27x 16awg	33%	15.72	35.03	37.36	44.21	2060	356	322	393
500 MCM	25x 14awg	33%	18.8	38.1	40.44	47.96	2603	406	388	449
750 MCM	24x 12awg	33%	23.11	42.87	45.87	54.24	3569	457	472	512
1000 MCM	31x 12awg	33%	26.92	46.48	49.68	58.05	4315	483	535	557