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Qui somme-nous



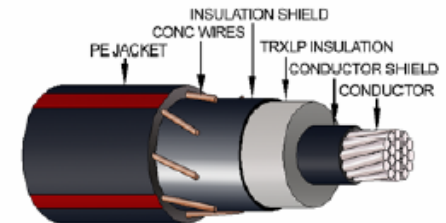
Agence Béliveau-Turmel & Associés est un agent manufacturier de premier plan au Québec, offrant des produits de distributions et de transport d'énergie électrique provenant de fabricants reconnus dans notre industrie.



Nos lignes de produits



- Isolateur en Polyéthylène
- Système de suspension de câble 15-69kV
- Câble sous-terrain tension moyenne
- Application câble pour projet éolien sous-terrain & aérien



Nos lignes de produits



HENDRIX



Application câble pour projet Éolien

Expérience





To: **Consulting Engineering/ Contractors**

Date: 1-2-2007

Hendrix - Windfarm Projects

Hendrix Biography:

Hendrix Wire & Cable was established in 1951 and has been in continuous operation for over 50 years. During that time, Hendrix has manufactured primary cable (15kV - 35KV) exclusively for the utility industry. Hendrix is owned by The Marmon Group. The Marmon Group is a privately-held company with sales in 2005 of over \$6 billion.

The Hendrix plant is a modern facility of 250,000 sq. feet, employing approximately 160 employees. A non-union workforce and location in a stable region of the country provides customers with a high degree of supply confidence. Plant equipment includes three true-triple, primary extrusion lines that are fully supported by neutral and jacket machines. Electrical and physical test facilities are capable of performing all standard industry tests.

Hendrix Service (Wind Farm Customers):

Hendrix provides a high degree of service to our utility customers. A hallmark of that service is flexibility. We believe that that flexibility can prove advantageous to Wind Farm customers as well. Hendrix has recently completed a number of significant wind farm projects. The projects were for underground and overhead cables. Services provided included:

Short Leadtimes - Hendrix is careful not to overload plant capacity i.e., we stay on top of the production schedule. We can provide wind farm customers very short leadtimes on primary cable (as short as three weeks). The key to receiving these short, non-standard leadtimes is fore-knowledge from the customer that fast delivery is critical.

Changes to Items/Lengths - Hendrix understands that wind farm projects are unique i.e., that project requirements are subject to change at the last moment. Hendrix can handle many of those changes up to the start of manufacturing and sometimes even after processing has begun.

Ship-to Locations - Hendrix can handle changes in the ship-to location and delivery times, right up to the day of shipment.

Bill and Hold Capability - Hendrix has provided wind farm customers with "Bill and Hold" options. This allows the customer to have product manufactured and then held at the plant until the shipment time is confirmed. This can be an important option when a customer has not determined the exact date of shipment, but must respond quickly once that information is received.

For further information or a quote, please contact the Hendrix rep in your area (see attached).



A member of The Marmon Group of companies



Application câble pour projet Éolien

Comparaison coût Aérien & Sous-Terrain



Cost Comparison – 35kV 600 amps

		Bare Wire	Spacer Cable	Underground
Conductor Size (for 600 amp capacity)		477kcmil	556kcmil	1,000kcmil
Conductor Cost/cft (spacer includes messenger and spacers)		\$ 3.00	\$ 8.75	\$ 15.00
Other material costs/cft (poles, guys, anchors, conduit, etc)		\$ 4.00	\$ 3.00	\$ 10.00
Labor Costs/cft		\$ 30.00	\$ 25.00	\$ 50.00
TOTAL/cft		\$ 37.00	\$ 36.75	\$ 75.00
TOTAL/mile		\$ 195,360.00	\$ 194,040.00	\$ 396,000.00

Cost Comparison – 35kV 600 amps Double Circuit

		Bare Wire	Spacer Cable	Underground
Conductor Size (for 600 amp capacity)		477kcmil	556kcmil	1,000kcmil
Conductor Cost/cft (spacer includes messenger and spacers)		\$ 3.00	\$ 8.75	\$ 15.00
Other material costs/cft (poles, guys, anchors, conduit, etc)		\$ 3.00	\$ 2.00	\$ 10.00
Labor Costs/cft		\$ 25.00	\$ 15.00	\$ 50.00
TOTAL/cft		\$ 31.00	\$ 25.75	\$ 75.00
TOTAL/mile		\$ 327,360.00	\$ 271,920.00	\$ 792,000.00

Nos lignes de produits



HENDRIX



Application câble pour projet Éolien Aérien





HENDRIX SPACER CABLE

FOR USE WHEN TOPOGRAPHY OR
SOIL CONDITIONS MAKE UNDERGROUND
DISTRIBUTION SYSTEMS TOO EXPENSIVE

RELIABILITY

WITHSTANDS STORMS
REDUCES OUTAGES
ELIMINATES TEMPORARY
FAULTS
REDUCES TREE TRIMMING

DESIGN FLEXIBILITY

LONG SPANS
MULTIPLE CIRCUITS
COMPACT CONFIGURATION
REDUCED VOLTAGE DROP



53 Old Wilton Road
Milford, NH 03055
603-673-2040

www.hendrix-wc.com



HENDRIX MAKES IT EASY TO USE SPACER CABLE

WE ARE THERE TO **SUPPORT** YOU
FROM THE PLANNING STAGES TO SYSTEM OPERATION

INSTALLATION SUPPORT

JOB KITS

BACK UP ACCESSORY STOCK

CONSTRUCTION DRAWINGS

INSTALLATION GUIDE

INSTALLATION VIDEO

INSTALLATION EQUIPMENT

ONSITE ADVISORY SERVICES

JOB LAYOUT & COST ESTIMATES

COMPLETE BILL OF MATERIAL

AMPACITY ANALYSIS

& CONDUCTOR SIZING

SAG & TENSION CALCULATIONS

GUYING REQUIREMENTS

GROUNDING REQUIREMENTS

ARRESTER REQUIREMENTS

POLE LOADING REQUIREMENTS



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Application câble pour projet Éolien Aérien

Wind Farm Multiple Circuit Comparison
Bare Wire Double Circuit vs Spacer Cable Triple Circuit



Nos lignes de produits



Wind Farm Multiple Circuit Comparison Bare Wire Double Circuit vs Spacer Cable Triple Circuit



Photo Left – shows double circuit 34.5kV pole at Caribou Wind Farm in New Brunswick, Canada
Photo Right – shows triple circuit 34.5kV, 556 kcmil AAC at Noble Environmental 345 MW Windfarm in Chateaugay, New York, directly on border with Quebec.





Application câble pour projet Éolien Aérien

Réalisation



Nos lignes de produits



HENDRIX



Plattsburgh NY wind farm



Nos lignes de produits



City of Summerside 12MW (4 turbines of 3 MW each) windfarm. For the 34.5kV circuit they used 336 kcmil AAC spacer cable.



Nos lignes de produits



HENDRIX



City of Summerside Windfarm PEI



Nos lignes de produits



HENDRIX



Searsville VT



Nos lignes de produits



HENDRIX



Application câble pour projet Éolien Sous-Terrain





WIND POWER - 1250 kcmil

Over the past few years, wind farm projects have grown in scope and turbine generating capacity has also increased. To accommodate these changes, the top-end cable size, on the home run portion of the collection grid, has moved from 1000 kcmil to 1250 kcmil.

Hendrix Wire & Cable has developed a 1250 kcmil cable that provides the same current carrying capacity as the traditional 1250 kcmil, but at a lower cost. This was accomplished by using a 61-strand conductor instead of the typical 91-wire stranding. Using fewer strands reduces the amount of wire drawing needed. It also allows the stranding to be performed on equipment that runs at a higher speed. The conductor diameter and circular mill area are identical to the 91-wire construction and so there is no loss in current carrying capacity.

Hendrix conducted extensive testing to ensure that this new conductor performed the same as the historical product. Bend radius and a full range of electrical tests showed excellent results. *See back page for details.*

Hendrix made its first shipments of this new conductor in early 2008. Since then, over a million feet of Hendrix 1250 kcmil cable with 61-wire conductor has been successfully installed on wind projects throughout the US.



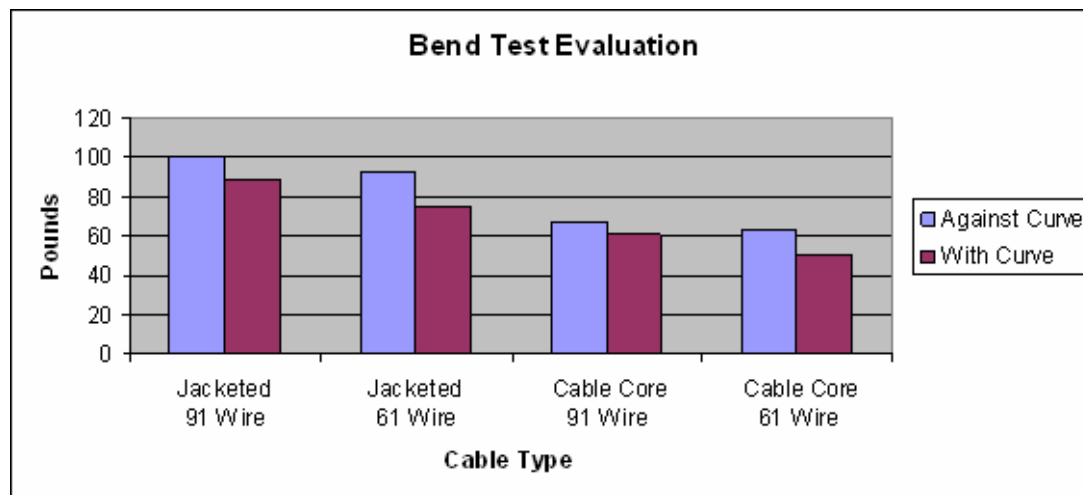
Photos courtesy of Consulting Engineers Group

WIND POWER – 1250 kcmil (Cont.)

BEND RADIUS TESTING:

Bending evaluations were performed with the Hendrix 1250 kcmil cable with 61-wire conductor and a typical 91-wire conductor cable. The ASTM B230/231 conductor tensile strength, number of strands and strand diameter were modified to produce the Hendrix 61-wire conductor cable. All other properties of the Hendrix 61-wire were the same as the 91-wire including the dc resistance and overall conductor diameter. Both cables were 35 kV TRXLPE with 14 #12 bare copper concentric neutrals and an encapsulated LLDPE overall jacket.

The bending evaluation was performed on a motorized bending table. The cable was bent around a 30” diameter mandrel to a 135 degree touch down point on the mandrel. Samples were tested as completed cable (i.e., jacketed) and as cable core (neutrals and jacket removed). Three samples of each cable type were bent first **“Against”** the natural curve of the cable, then **“With”** the natural curve of the cable. The chart below shows the results of the bending evaluation.



The testing showed comparable results for both the 61-wire and 91-wire samples. After the bending tests were completed, an Internal Cable Core Examination was performed to ensure no adverse effects had occurred during the bending tests. Again, both cables performed well within the accepted industry standards.

ELECTRICAL/PHYSICAL TESTING:

The Hendrix 61-wire conductor cable was also run through a full series of electrical and physical tests including: DC resistance, partial discharge, AC withstand, hot creep, tensile and elongation. Wall thickness and diameters were also examined. The cable met or exceeded all these standard industry tests.

** The complete Bend Radius and Electrical Test reports are available on request.*

For additional information contact: **Hendrix Wire & Cable**

Phone: 603-673-2040

Fax: 603-249-1367

Website: www.hendrix-wc.com

or contact your local Hendrix representative

Nos lignes de produits



HENDRIX



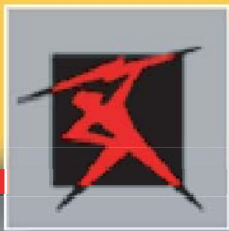
Application câble pour projet Éolien

Catalogue



Hendrix Wire and Cable Inc

INNOVATION
SOLUTIONS
VALUE



HENDRIX

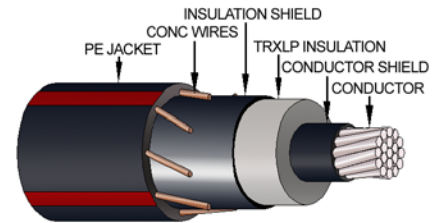
Solutions
Through Reliability,
Value & Innovation



HENDRIX

Hendrix Wire and Cable Inc

HQ2000 .175" TRXLP 15 KV CONCENTRIC NEUTRAL UNDERGROUND CABLE 100% INSULATION THICKNESS COMPRESSED STRANDING AND SOLID CONDUCTORS



PHYSICAL DATA

ALUMINUM	CONDUCTOR		COPPER NEUTRAL		DIAMETER (PER ANSI/ICEA S-94-649-2000)				WEIGHTS			
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG	Conductor	Min. Over Insulation	Max. Over Insulation	Over Embedded Jacket	Conductor	Neutral	Total Without Jacket	Total With Embedded Jacket
FULL NEUTRAL	2	SOLID	10	14	.258	.610	.695	.978	61.1	130	356	477
	2	7	10	14	.283	.635	.720	1.003	62.3	130	370	487
	1	SOLID	13	14	.289	.645	.725	1.008	78.5	173	424	543
	1	19	13	14	.322	.675	.760	1.038	78.5	173	437	556
	1/0	SOLID	16	14	.325	.680	.760	1.043	97.2	210	494	615
	1/0	19	16	14	.362	.715	.800	1.078	99.1	210	510	632
	2/0	19	13	12	.406	.760	.845	1.157	124.9	276	616	760
	3/0	19	16	12	.456	.810	.895	1.207	157.5	340	730	874
ONE-THIRD NEUTRAL	4/0	19	20	12	.512	.865	.950	1.262	198.6	425	875	1030
	1/0	SOLID	6	14	.325	.680	.760	1.043	97.2	80	356	460
	1/0	19	6	14	.362	.715	.800	1.078	99.1	80	373	515
	2/0	19	7	14	.406	.760	.845	1.123	124.9	94	434	575
	3/0	19	9	14	.456	.810	.895	1.173	157.5	120	510	655
	4/0	19	11	14	.512	.865	.950	1.228	198.6	147	598	759
	250	37	13	14	.558	.920	1.005	1.288	234.7	174	684	889
	350	37	11	12	.661	1.025	1.110	1.462	328.6	238	913	1175
	500	37	16	12	.789	1.150	1.235	1.562	469.4	341	1207	1498
	750	61	15	10	.968	1.340	1.425	1.884	704.0	508	1685	2057
	1000	61	20	10	1.117	1.485	1.575	2.069	938.7	683	2210	2516

COPPER	CONDUCTOR		COPPER NEUTRAL		DIAMETER (PER ANSI/ICEA S-94-649-2000)				WEIGHTS			
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG	Conductor	Min. Over Insulation	Max. Over Insulation	Over Embedded Jacket	Conductor	Neutral	Total Without Jacket	Total With Embedded Jacket
FULL NEUTRAL	2	7	16	14	.283	.635	.720	1.003	205	232	642	700
	1	19	13	12	.322	.675	.760	1.072	259	300	504	570
	1/0	19	16	12	.362	.715	.800	1.112	326	370	923	993
	2/0	19	20	12	.406	.760	.845	1.157	411	462	1107	1176
	3/0	19	25	12	.456	.810	.895	1.207	518	578	1334	1402
	4/0	19	32	12	.512	.865	.950	1.262	653	740	1642	1708
ONE-THIRD NEUTRAL	1/0	19	9	14	.362	.715	.800	1.078	326	131	708	777
	2/0	19	11	14	.406	.760	.845	1.123	411	160	836	907
	3/0	19	14	14	.456	.810	.895	1.173	518	203	1002	1074
	4/0	19	11	12	.512	.865	.950	1.262	653	255	1227	1317
	250	37	13	12	.558	.920	1.005	1.322	772	301	1427	1546
	350	37	12	10	.661	1.025	1.110	1.504	1080	440	1904	2055
	500	37	17	10	.789	1.150	1.235	1.694	1544	623	2664	2823
	750	61	25	10	.968	1.340	1.425	1.884	2316	917	3794	3964
	1000	61	33	10	1.117	1.485	1.575	2.105	3088	1211	4948	5127



HENDRIX

Hendrix Wire and Cable Inc

**HQ2000 .175" TRXLP 15 KV CONCENTRIC NEUTRAL
UNDERGROUND CABLE 100% INSULATION THICKNESS
COMPRESSED STRANDING AND SOLID CONDUCTORS**

ELECTRICAL DATA

ALUMINUM	CONDUCTOR		COPPER NEUTRAL		Resistance DC OHMS Per 1000' @ 90° C	Inductive Reactance	AMPACITY - 20°C Ambient 100% LF, RHO-90		
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG		OHMS Per 1000'	1/C Direct Buried	1/C Duct Buried	1/C Duct in Air
FULL NEUTRAL	2	SOLID	10	14	.328	.032	170	115	100
	2	7	10	14	.336	.030	170	115	100
	1	SOLID	13	14	.260	.030	195	140	123
	1	19	13	14	.265	.029	195	140	123
	1/0	SOLID	16	14	.206	.028	230	155	135
	1/0	19	16	14	.211	.028	230	155	135
	2/0	19	13	12	.167	.025	270	185	162
	3/0	19	16	12	.132	.024	295	210	184
ONE-THIRD NEUTRAL	4/0	19	20	12	.105	.023	335	240	210
						OHMS to Neutral Per 1000'	3/C Direct Buried 8" Spacing	3/C Triplex in Duct	3/C Duct In Air
	1/0	SOLID	6	14	.206	.102	230	165	145
	1/0	19	6	14	.211	.099	230	165	145
	2/0	19	7	14	.167	.097	250	190	167
	3/0	19	9	14	.132	.094	280	215	189
	4/0	19	11	14	.105	.092	320	245	215
	250	37	13	14	.089	.089	345	270	237
	350	37	11	12	.0635	.085	405	325	285
	500	37	16	12	.0445	.082	460	385	338
	750	61	15	10	.0296	.077	515	475	417
	1000	61	20	10	.0222	.074	565	540	475

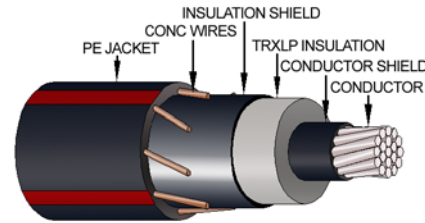
COPPER	CONDUCTOR		COPPER NEUTRAL		Resistance DC OHMS Per 1000' @ 90° C	Inductive Reactance	AMPACITY - 20°C Ambient 100% LF, RHO-90		
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG		OHMS Per 1000'	1/C Direct Buried	1/C Duct Buried	1/C Duct in Air
FULL NEUTRAL	2	7	16	14	.202	.030	225	160	140
	1	19	13	12	.161	.029	260	185	162
	1/0	19	16	12	.127	.028	295	210	185
	2/0	19	20	12	.102	.025	330	240	210
	3/0	19	25	12	.0802	.024	375	270	237
	4/0	19	32	12	.0635	.023	430	305	268
ONE-THIRD NEUTRAL						OHMS to Neutral Per 1000'	3/C Direct Buried 8" Spacing	3/C Triplex in Duct	3/C Duct in Air
	1/0	19	9	14	.127	.099	290	210	185
	2/0	19	11	14	.102	.097	320	240	210
	3/0	19	14	14	.0802	.094	350	275	241
	4/0	19	11	12	.0635	.092	390	315	276
	250	37	13	12	.0539	.089	415	340	298
	350	37	12	10	.0385	.085	475	415	364
	500	37	17	10	.0270	.082	525	480	420
	750	61	25	10	.0180	.077	560	530	465
	100	61	33	10	.0135	.074	600	590	518



HENDRIX

Hendrix Wire and Cable Inc

HQ2000 .220" TRXLP 15 KV CONCENTRIC NEUTRAL UNDERGROUND CABLE 133% INSULATION THICKNESS COMPRESSED STRANDING AND SOLID CONDUCTORS



PHYSICAL DATA

ALUMINUM	CONDUCTOR		COPPER NEUTRAL		DIAMETER (PER ANSI/ICEA S-94-649-2000)				WEIGHTS			
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG	Conductor	Min. Over Insulation	Max. Over Insulation	Over Embedded Jacket	Conductor	Neutral	Total Without Jacket	Total With Embedded Jacket
FULL NEUTRAL	2	SOLID	10	14	.258	.700	.790	1.068	61.0	130	401	537
	2	7	10	14	.283	.725	.815	1.093	62.3	130	415	549
	1	SOLID	13	14	.289	.735	.820	1.098	77.0	173	470	604
	1	19	13	14	.322	.765	.855	1.128	78.5	173	487	619
	1/0	SOLID	16	14	.325	.770	.855	1.133	97.2	210	544	680
	1/0	19	16	14	.362	.805	.895	1.168	99.1	210	562	697
	2/0	19	13	12	.406	.850	.935	1.247	124.9	275	670	830
	3/0	19	16	12	.456	.900	.985	1.297	157.5	340	787	946
ONE-THIRD NEUTRAL	4/0	19	20	12	.512	.955	1.045	1.352	198.6	425	934	1148
	1/0	SOLID	6	14	.325	.770	.855	1.133	97.2	80	423	562
	1/0	19	6	14	.362	.805	.895	1.168	99.1	80	441	580
	2/0	19	7	14	.406	.850	.935	1.213	124.9	94	490	643
	3/0	19	9	14	.456	.900	.985	1.263	157.5	120	567	725
	4/0	19	11	14	.512	.955	1.045	1.318	198.6	147	656	842
	250	37	13	14	.558	1.010	1.100	1.418	234.7	173	781	1013
	350	37	11	12	.661	1.115	1.200	1.612	328.6	228	987	1266
	500	37	16	12	.789	1.240	1.330	1.742	469.4	340	1284	1597
	750	61	15	10	.968	1.430	1.520	1.974	704.0	506	1774	2230
	1000	61	20	10	1.117	1.575	1.670	2.159	938.7	681	2301	2718

COPPER	CONDUCTOR		COPPER NEUTRAL		DIAMETER (PER ANSI/ICEA S-94-649-2000)				WEIGHTS			
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG	Conductor	Min. Over Insulation	Max. Over Insulation	Over Embedded Jacket	Conductor	Neutral	Total Without Jacket	Total With Embedded Jacket
FULL NEUTRAL	2	7	16	14	.283	.725	.815	1.093	205	232	695	760
	1	19	13	12	.322	.765	.855	1.162	259	300	559	633
	1/0	19	16	12	.362	.805	.895	1.202	326	370	982	1060
	2/0	19	20	12	.406	.850	.935	1.247	411	462	1169	1246
	3/0	19	25	12	.456	.900	.985	1.293	518	578	1399	1475
	4/0	19	32	12	.512	.955	1.045	1.394	653	740	1747	1825
ONE-THIRD NEUTRAL	1/0	19	9	14	.362	.805	.895	1.168	326	131	767	842
	2/0	19	11	14	.406	.850	.935	1.213	411	160	897	975
	3/0	19	14	14	.456	.900	.985	1.263	518	203	1066	1145
	4/0	19	11	12	.512	.955	1.045	1.394	653	255	1333	1434
	250	37	13	12	.558	1.010	1.100	1.452	772	301	1539	1673
	350	37	12	10	.661	1.115	1.200	1.654	1080	440	1987	2149
	500	37	17	10	.789	1.240	1.330	1.784	1544	624	2754	2924
	750	61	25	10	.968	1.430	1.520	1.974	2316	918	3952	4138
	1000	61	33	10	1.117	1.575	1.670	2.159	3088	1211	5061	5251



HENDRIX

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UNDERGROUND CABLE 133% INSULATION THICKNESS
COMPRESSED STRANDING AND SOLID CONDUCTORS**

ELECTRICAL DATA

ALUMINUM	CONDUCTOR		COPPER NEUTRAL		Resistance DC OHMS Per 1000' @ 90° C	Inductive Reactance	AMPACITY - 20°C Ambient 100% LF, RHO-90		
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG		OHMS Per 1000'	1/C Direct Buried	1/C Duct Buried	1/C Duct in Air
FULL NEUTRAL	2	SOLID	10	14	.328	.033	170	115	100
	2	7	10	14	.336	.031	170	115	100
	1	SOLID	13	14	.260	.031	195	140	123
	1	19	13	14	.265	.029	195	140	123
	1/0	SOLID	16	14	.206	.028	230	155	135
	1/0	19	16	14	.211	.028	230	155	135
	2/0	19	13	12	.167	.026	270	185	162
	3/0	19	16	12	.132	.024	295	210	184
	4/0	19	20	12	.105	.024	335	240	210
ONE-THIRD NEUTRAL						OHMS to Neutral Per 1000'	3/C Direct Buried 8" Spacing	3/C Triplex in Duct	3/C Duct in Air
	1/0	SOLID	6	14	.206	.102	230	165	145
	1/0	19	6	14	.211	.099	230	165	145
	2/0	19	7	14	.167	.097	250	190	167
	3/0	19	9	14	.132	.094	280	215	189
	4/0	19	11	14	.105	.092	320	245	215
	250	37	13	14	.0890	.089	345	270	237
	350	37	11	12	.0635	.085	405	325	285
	500	37	16	12	.0445	.082	460	385	338
	750	61	15	10	.0296	.077	515	475	417
	1000	61	20	10	.0222	.074	565	540	475

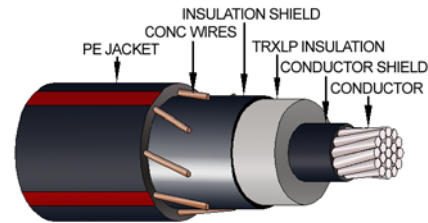
COPPER	CONDUCTOR		COPPER NEUTRAL		Resistance DC OHMS Per 1000' @ 90° C	Inductive Reactance	AMPACITY - 20°C Ambient 100% LF, RHO-90		
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG		OHMS Per 1000'	1/C Direct Buried	1/C Duct Buried	1/C Duct in Air
FULL NEUTRAL	2	7	16	14	.202	.031	225	160	140
	1	19	13	12	.161	.029	260	185	162
	1/0	19	16	12	.127	.028	295	210	185
	2/0	19	20	12	.102	.026	330	240	210
	3/0	19	25	12	.0802	.024	375	270	237
	4/0	19	32	12	.0635	.024	430	305	268
ONE-THIRD NEUTRAL						OHMS to Neutral Per 1000'	3/C Direct Buried 8" Spacing	3/C Triplex in Duct	3/C Duct in Air
	1/0	19	9	14	.127	.099	290	210	185
	2/0	19	11	14	.102	.097	320	240	210
	3/0	19	14	14	.0802	.094	350	275	241
	4/0	19	11	12	.0635	.092	390	315	276
	250	37	13	12	.0539	.089	415	340	298
	350	37	12	10	.0385	.085	475	415	364
	500	37	17	10	.0270	.082	525	480	420
	750	61	25	10	.0180	.077	560	530	465
	1000	61	33	10	.0135	.074	600	590	518



HENDRIX

Hendrix Wire and Cable Inc

HQ2000 .260" TRXLP 25 KV CONCENTRIC NEUTRAL UNDERGROUND CABLE 100% INSULATION THICKNESS COMPRESSED STRANDING AND SOLID CONDUCTORS



PHYSICAL DATA

ALUMINUM	CONDUCTOR		COPPER NEUTRAL		DIAMETER (PER ANSI/ICEA S-94-649-2000)				WEIGHTS			
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG	Conductor	Min. Over Insulation	Max. Over Insulation	Over Embedded Jacket	Conductor	Neutral	Total Without Jacket	Total With Embedded Jacket
FULL NEUTRAL	1	SOLID	13	14	.289	.805	.895	1.178	78.5	174	518	671
	1	19	13	14	.322	.835	.925	1.208	78.7	174	535	687
	1/0	SOLID	16	14	.325	.840	.930	1.217	97.2	212	590	748
	1/0	19	16	14	.362	.875	.965	1.250	99.1	212	614	767
	2/0	19	13	12	.406	.920	1.010	1.327	124.9	276	722	905
	3/0	19	16	12	.456	.970	1.060	1.417	157.5	340	875	1065
	4/0	19	20	12	.512	1.025	1.115	1.472	198.6	425	1025	1241
ONE-THIRD NEUTRAL	1/0	SOLID	6	14	.325	.840	.930	1.217	97.2	80	460	631
	1/0	19	6	14	.362	.875	.965	1.250	99.1	80	475	650
	2/0	19	7	14	.406	.920	1.010	1.293	124.9	93	540	715
	3/0	19	9	14	.456	.970	1.060	1.383	157.5	120	655	842
	4/0	19	11	14	.512	1.025	1.115	1.438	198.6	145	750	966
	250	37	13	14	.558	1.080	1.175	1.508	234.7	173	852	1117
	350	37	11	12	.661	1.185	1.275	1.702	328.6	240	1060	1380
	500	37	16	12	.789	1.310	1.405	1.832	469.4	340	1369	1721
	750	61	15	10	.968	1.500	1.595	2.104	704.0	505	1920	2373
	1000	61	20	10	1.117	1.645	1.740	2.249	938.7	680	2405	2870

COPPER	CONDUCTOR		COPPER NEUTRAL		DIAMETER (PER ANSI/ICEA S-94-649-2000)				WEIGHTS			
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG	Conductor	Min. Over Insulation	Max. Over Insulation	Over Embedded Jacket	Conductor	Neutral	Total Without Jacket	Total With Embedded Jacket
FULL NEUTRAL	1	19	13	12	.322	.835	.925	1.242	259	301	615	701
	1/0	19	16	12	.362	.875	.965	1.284	326	370	1044	1133
	2/0	19	20	12	.406	.920	1.010	1.327	411	463	1232	1321
	3/0	19	25	12	.456	.970	1.060	1.417	518	578	1502	1594
	4/0	19	32	12	.512	1.025	1.115	1.472	653	740	1828	1919
ONE-THIRD NEUTRAL	1/0	19	9	14	.362	.875	.965	1.250	326	131	826	912
	2/0	19	11	14	.406	.920	1.010	1.293	411	160	960	1048
	3/0	19	14	14	.456	.970	1.060	1.383	518	203	1168	1261
	4/0	19	11	12	.512	1.025	1.115	1.471	653	255	1414	1528
	250	37	13	12	.558	1.080	1.175	1.602	772	301	1628	1780
	350	37	12	10	.661	1.185	1.275	1.744	1080	440	2083	2266
	500	37	17	10	.789	1.310	1.405	1.874	1544	624	2858	3050
	750	61	25	10	.968	1.500	1.595	2.104	2316	918	4071	4280
	1000	61	33	10	1.117	1.645	1.740	2.249	3088	1212	5190	5404



HENDRIX

Hendrix Wire and Cable Inc

**HQ2000 .260" TRXLP 25 KV CONCENTRIC NEUTRAL
UNDERGROUND CABLE 100% INSULATION THICKNESS
COMPRESSED STRANDING AND SOLID CONDUCTORS**

ELECTRICAL DATA

ALUMINUM	CONDUCTOR		COPPER NEUTRAL		Resistance DC OHMS Per 1000' @ 90° C	Inductive Reactance	AMPACITY - 20°C Ambient 100% LF, RHO-90		
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG		OHMS Per 1000'	1/C Direct Buried	1/C Duct Buried	1/C Duct in Air
FULL NEUTRAL	1	SOLID	13	14	.260	.033	195	145	127
	1	19	13	14	.265	.031	195	145	127
	1/0	SOLID	16	14	.206	.031	220	165	145
	1/0	19	16	14	.211	.030	220	165	145
	2/0	19	13	12	.167	.028	250	190	167
	3/0	19	16	12	.132	.027	290	210	185
	4/0	19	20	12	.105	.026	325	245	215
ONE-THIRD NEUTRAL						OHMS to Neutral Per 1000'	3/C Direct Buried 8" Spacing	3/C Triplex in Duct	3/C Duct In Air
	1/0	SOLID	6	14	.206	.102	225	165	145
	1/0	19	6	14	.211	.099	225	165	145
	2/0	19	7	14	.167	.097	250	180	158
	3/0	19	9	14	.132	.094	275	205	180
	4/0	19	11	14	.105	.092	310	240	210
	250	37	13	14	.0890	.089	335	260	228
	350	37	11	12	.0635	.085	395	325	285
	500	37	16	12	.0445	.082	445	390	342
	750	61	15	10	.0296	.077	515	475	417
	1000	61	20	10	.0222	.074	560	525	460

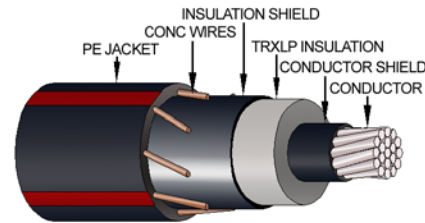
COPPER	CONDUCTOR		COPPER NEUTRAL		Resistance DC OHMS Per 1000' @ 90° C	Inductive Reactance	AMPACITY - 20°C Ambient 100% LF, RHO-90		
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG		OHMS Per 1000'	1/C Direct Buried	1/C Duct Buried	1/C Duct in Air
FULL NEUTRAL	1	19	13	12	.161	.031	245	185	162
	1/0	19	16	12	.127	.030	280	215	189
	2/0	19	20	12	.102	.028	315	240	210
	3/0	19	25	12	.0802	.027	360	275	241
	4/0	19	32	12	.0635	.026	415	315	276
ONE-THIRD NEUTRAL						OHMS to Neutral Per 1000'	3/C Direct Buried 8" Spacing	3/C Triplex in Duct	3/C Duct in Air
	1/0	19	9	14	.127	.099	275	215	189
	2/0	19	11	14	.102	.097	310	250	220
	3/0	19	14	14	.0802	.094	345	285	250
	4/0	19	11	12	.0635	.092	385	320	280
	250	37	13	12	.0539	.089	410	345	303
	350	37	12	10	.0385	.085	460	405	355
	500	37	17	10	.0270	.082	520	470	412
	750	61	25	10	.0180	.077	567	550	483
	1000	61	33	10	.0135	.074	625	615	540



HENDRIX

Hendrix Wire and Cable Inc

HQ2000 .345" TRXLP 35 KV CONCENTRIC NEUTRAL UNDERGROUND CABLE 100% INSULATION THICKNESS COMPRESSED STRANDING AND SOLID CONDUCTORS



PHYSICAL DATA

ALUMINUM	CONDUCTOR		COPPER NEUTRAL		DIAMETER (PER ANSI/ICEA S-94-649-2000)				WEIGHTS			
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG	Conductor	Min. Over Insulation	Max. Over Insulation	Over Embedded Jacket	Conductor	Neutral	Total Without Jacket	Total With Embedded Jacket
FULL NEUTRAL	1/0	SOLID	16	14	.325	1.010	1.110	1.432	97.2	212	745	934
	1/0	19	16	14	.362	1.045	1.145	1.458	99.0	212	768	957
	2/0	19	13	12	.406	1.090	1.190	1.593	125.0	275	885	1105
	3/0	19	16	12	.456	1.140	1.240	1.647	157.5	340	1010	1231
	4/0	19	20	12	.512	1.195	1.295	1.702	198.6	425	1170	1421
ONE-THIRD NEUTRAL	1/0	SOLID	6	14	.325	1.010	1.110	1.432	97.2	80	610	817
	1/0	19	6	14	.362	1.045	1.145	1.458	99.1	80	635	840
	2/0	19	7	14	.406	1.090	1.190	1.503	124.9	93	703	911
	3/0	19	9	14	.456	1.140	1.240	1.613	157.5	120	790	1003
	4/0	19	11	14	.512	1.195	1.295	1.668	198.6	145	890	1120
	250	37	13	14	.558	1.250	1.350	1.743	234.7	173	1005	1305
	350	37	11	12	.661	1.355	1.455	1.877	328.6	240	1225	1584
	500	37	16	12	.789	1.480	1.580	2.047	469.4	340	1599	2001
	750	61	15	10	.968	1.670	1.770	2.279	704.0	506	2125	2623
	1000	61	20	10	1.117	1.815	1.920	2.424	938.7	681	2730	3137

COPPER	CONDUCTOR		COPPER NEUTRAL		DIAMETER (PER ANSI/ICEA S-94-649-2000)				WEIGHTS			
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG	Conductor	Min. Over Insulation	Max. Over Insulation	Over Embedded Jacket	Conductor	Neutral	Total Without Jacket	Total With Embedded Jacket
FULL NEUTRAL	1/0	19	16	12	.362	1.045	1.145	1.492	326	370	1218	1327
	2/0	19	20	12	.406	1.090	1.190	1.597	411	463	1414	1522
	3/0	19	25	12	.456	1.140	1.240	1.647	518	579	1653	1760
	4/0	19	32	12	.512	1.195	1.295	1.702	653	741	1992	2099
ONE-THIRD NEUTRAL	1/0	19	9	14	.362	1.045	1.145	1.458	326	131	999	1102
	2/0	19	11	14	.406	1.090	1.190	1.503	411	160	1139	1244
	3/0	19	14	14	.456	1.140	1.240	1.613	518	203	1316	1423
	4/0	19	11	12	.512	1.195	1.295	1.702	653	255	1576	1707
	250	37	13	12	.558	1.250	1.350	1.777	772	301	1799	1971
	350	37	12	10	.661	1.355	1.455	1.919	1080	441	2269	2474
	500	37	17	10	.789	1.480	1.580	2.089	1544	624	3117	3337
	750	61	25	10	.968	1.670	1.770	2.279	2316	918	4300	4531
	1000	61	33	10	1.117	1.815	1.920	2.424	3088	1212	5435	5671



HENDRIX

Hendrix Wire and Cable Inc

HQ2000 .345" TRXLP 35 KV CONCENTRIC NEUTRAL UNDERGROUND CABLE 100% INSULATION THICKNESS COMPRESSED STRANDING AND SOLID CONDUCTORS

ELECTRICAL DATA

ALUMINUM	CONDUCTOR		COPPER NEUTRAL		Resistance DC OHMS Per 1000' @ 90° C	Inductive Reactance	AMPACITY - 20°C Ambient 100% LF, RHO-90		
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG		OHMS Per 1000'	1/C Direct Buried	1/C Duct Buried	1/C Duct in Air
FULL NEUTRAL	1/0	SOLID	16	14	.206	.036	220	165	145
	1/0	19	16	14	.211	.034	220	165	145
	2/0	19	13	12	.167	.032	250	195	310
	3/0	19	16	12	.132	.030	285	220	193
	4/0	19	20	12	.105	.029	325	250	220
ONE-THIRD NEUTRAL						OHMS to Neutral Per 1000'	3/C Direct Buried 8" Spacing	3/C Triplex in Duct	3/C Duct In Air
	1/0	SOLID	6	14	.206	.102	215	165	145
	1/0	19	6	14	.211	.099	215	165	145
	2/0	19	7	14	.167	.097	245	190	167
	3/0	19	9	14	.132	.094	275	215	189
	4/0	19	11	14	.105	.092	305	245	215
	250	37	13	14	.0890	.089	335	270	238
	350	37	11	12	.0635	.085	390	320	280
	500	37	16	12	.0445	.082	440	385	338
	750	61	15	10	.0296	.077	515	475	417
	1000	61	20	10	.0222	.074	570	535	470

COPPER	CONDUCTOR		COPPER NEUTRAL		Resistance DC OHMS Per 1000' @ 90° C	Inductive Reactance	AMPACITY - 20°C Ambient 100% LF, RHO-90		
	AWG or KCMIL	Number of Strands	Number of Wires	Size AWG		OHMS Per 1000'	1/C Direct Buried	1/C Duct Buried	1/C Duct in Air
FULL NEUTRAL	1/0	19	16	12	.127	.034	280	215	189
	2/0	19	20	12	.102	.032	310	240	211
	3/0	19	25	12	.0802	.030	355	275	241
	4/0	19	32	12	.0635	.029	410	315	276
ONE-THIRD NEUTRAL						OHMS to Neutral Per 1000'	3/C Direct Buried 8" Spacing	3/C Triplex in Duct	3/C Duct in Air
	1/0	19	9	14	.127	.099	270	215	189
	2/0	19	11	14	.102	.097	305	240	211
	3/0	19	14	14	.0802	.094	340	280	246
	4/0	19	11	12	.0635	.092	380	315	276
	250	37	13	12	.0539	.089	405	340	298
	350	37	12	10	.0385	.085	460	400	350
	500	37	17	10	.0270	.082	520	470	412
	750	61	25	10	.0180	.077	567	550	483
	1000	61	33	10	.0135	.074	625	615	540