CONTINUOUSLY TRANSPOSED CABLE (CTC)

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Rea Material Code: CTC-F,CTC-FB

Rea Insulation Code: 78 79

Insulation Material Description: Polyvinyl Formal (78), or Polyvinyl Formal + Epoxy Bond (79) + Paper Wrapped

Shape: Shaped

Conductor: Copper

MARKETS

Transformers:
- General
- Utility Distribution Transformers
- Utility Power Transformers
- Specialty Transformers

FEATURES AND BENEFITS

- Competitive Lead Times
- Exceptional Quality
- Personal Customer Service
- Long Industry History
- Flexible Capability
- Design Experience

Standard Construction

Individual strands are ETP copper magnet wire conforming to ASTM B-48-68. Each strand is insulated with heavy build Formvar (modifed polyvinyl formal) enamel insulation conforming to NEMA and IEC standards.

Optional Construction

Cold work hardened strands and anneal resistant DCDA 11400 silver bearing copper strands. Self bonding \\\"B\\\" staged epoxy coating over the enamel insulation. Nomex covered and paperless CTC.

Outer Covering

An outer covering of insulated tapes or polyester netting is applied over the transposed conductors to provide mechanical and dielectric strength. These are normally applied with a butt lap and are registered approximately 30% over the previous layer. The top two tapes are normally applied with a butt intercalated lap of 50%.

Standard Insulation

0.003\\\" (0.076 mm) thermally upgraded creped kraft paper.

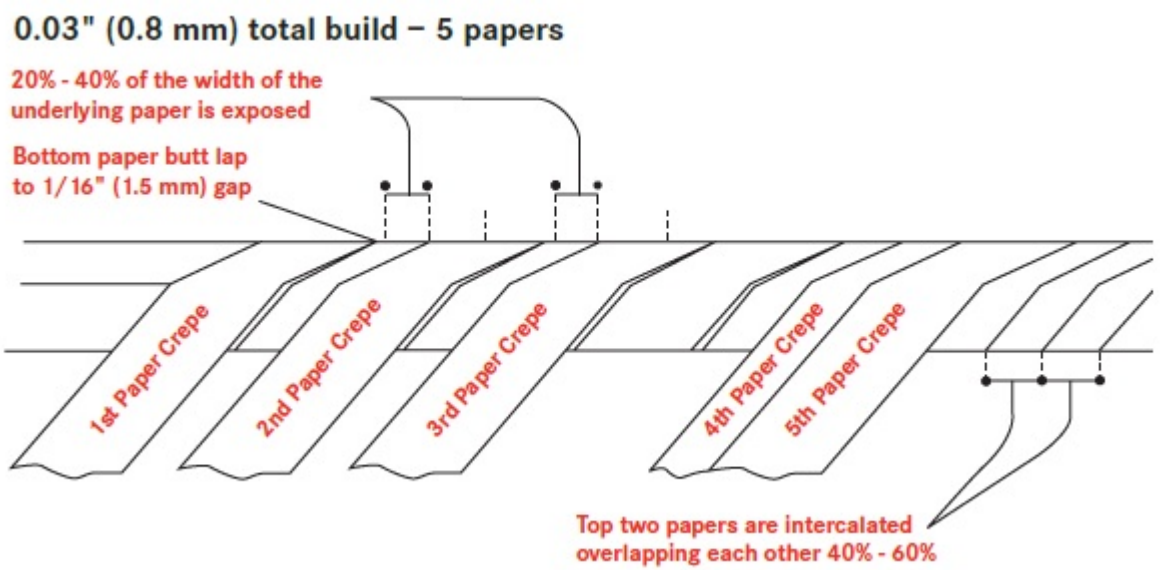
Design Limits (English)

Individual Strands	Soft ETP Cu	Work Hardened	Silver Bearing
Min Number	5	5	5
Max Number	79	79	79
Min Thickness (in)	0.040	0.040	0.040
Max Thickness (in)	0.120	0.120	0.120
Min Width (in)	0.120	0.120	0.120
Max Width (in)	0.590	0.590	0.358

Individual Strands	Soft ETP Cu	Work Hardened	Silver Bearing
Min Ratio	1.5 to 1	1.51 to 1	1.9 to 1
Max Ratio	7.0 to 1	7.0 to 1	6.5 to 1

Design Limits (Metric)

Individual Strands	Soft ETP Cu	Work Hardened	Silver Bearing
Min Number	5	5	5
Max Number	79	79	79
Min Thickness (mm)	1.01	1.01	1.01
Max Thickness (mm)	3.05	3.05	3.05
Min Width (mm)	3.05	3.05	3.05
Max Width (mm)	12.5	12.5	8.89
Min Ratio	1.5 to 1	1.51 to 1	1.9 to 1
Max Ratio	7.0 to 1	7.0 to 1	6.5 to 1

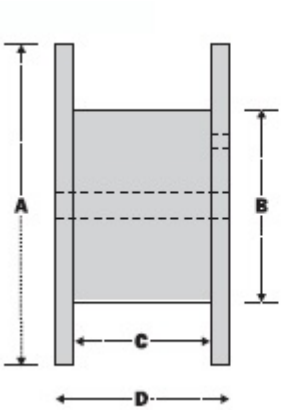


Standard Package Options

Flange Diameter		Barrell Diameter		Traverse Width		Overall Width	
in	mm	in	mm	in	mm	in	mm
72	1829	48	1219	36	914	42.5	1080
60	1524	36	914	32	813	38.5	978
60	1524	36	914	24	610	30.5	775
60	1524	36	914	12	305	18.5	470
48	1219	24	610	24	610	30.5	775
48	1219	24	610	8.75	222	15.3	387

Arbor Diameter	Drive Hole Location	Drive Hole Diameter	Approximate Capacity

Flange Diameter		Barrell Diameter		Traverse Width		Overall Width	
in	mm	in	mm	in	mm	lbs	kg
5	127	10	254	2.5	64	13,500	6,124
5	127	10	254	2.5	64	9,600	4,355
5	127	10	254	2.5	64	7,200	3,266
5	127	10	254	2.5	64	3,600	1,633
5	127	10	254	2	51	5,400	2,449
5	127	10	254	2	51	1,900	862



Metric (mm)		Standard (in)	
Dimension	**Description**	**Dimension**	**Description**
1.3	Min Conductor Thickness	0.050	Min Conductor Thickness
3.2	Max Conductor Thickness	0.125	Max Conductor Thickness
3.0	Min Conductor Width	0.120	Min Conductor Width
11.9	Max Conductor Width	0.470	Max Conductor Width
24	Max Axial of Bundle	0.940	Max Axial of Bundle
100	Max Radial of Bundle	3.940	Max Radial of Bundle
79	Max # Strands	79	Max # Strands

CTC Height to Width Ratio Capability

Conductor Width (mm)	With Paper Covering Max Ratio	Paperless Max Ratio	Conductor Width (in)	With Paper Covering Max Ratio	Paperless Max Ratio
3.0 – 3.5	3.75	4.00	0.120 – 0.139	3.75	4.00
3.6 – 4.3	4.00	4.25	0.140 – 0.169	4.00	4.25
4.3 – 4.8	4.25	4.63	0.170 – 0.189	4.25	4.63
4.8 – 5.6	4.50	5.00	0.190 – 0.219	4.50	5.00
5.6 – 6.3	4.75	5.25	0.220 – 0.249	4.75	5.25
6.4 – 7.1	5.00	5.50	0.250 – 0.279	5.00	5.50
7.1 – 7.8	5.25	5.75	0.280 – 0.309	5.25	5.75
7.9 – 8.6	5.50	6.00	0.310 – 0.340	5.50	6.00

CTC K Factor Minimum: Shortest Measured Pitch Lengh = 35 mm
(Review width, thickness and mm^2, and largest aspect ratio will be the minimum capability for the cable)

Pitch Factor by Thickness (mm)		Pitch Factor by Width (mm)		Pitch Factor by mm^2	
1.3 – 1.4	6.00	3.0 – 3.6	12.00	3.9 – 4.8	7.75
1.4 – 1.5	6.00	3.6 – 4.1	6.00	4.9 -6.0	7.45
1.5 – 1.6	6.05	4.1 – 4.6	6.05	6.1 – 7.2	7.15
1.6 – 1.7	6.10	4.6 – 5.1	6.10	7.3 – 8.6	6.85
1.7 – 1.8	6.10	5.1 – 5.6	6.10	8.7 – 10.0	6.60
1.8 – 1.9	6.50	5.6 – 6.1	6.50	10.1 – 11.6	6.40
1.9 – 2.0	6.30	6.1 – 6.6	6.30	11.7 – 13.3	6.20
2.0 – 2.1	6.35	6.6 – 7.1	6.35	13.4 – 15.1	6.10
2.1 – 2.2	6.40	7.1 – 7.6	6.40	15.2 – 17.0	6.00
2.2 – 2.3	6.50	7.6 – 8.1	6.50	17.1 – 19.0	6.00
2.3 – 2.4	6.60	8.2 – 8.6	6.60	19.1 – 21.1	6.10
2.4 – 2.5	6.70	8.7 – 9.1	6.70	21.2 – 23.3	6.20
2.6 – 2.6	6.80	9.2 – 9.7	6.80	23.4 – 25.6	6.40
2.7 – 2.7	6.95	9.7 – 10.2	6.95	25.7 – 28.0	6.60
2.8 – 2.8	7.10	10.2 – 10.7	7.10	28.1 – 30.6	6.85
2.9 – 3.0	7.25	10.7 – 11.2	7.25	30.7 – 33.2	7.15
3.0 – 3.1	7.50	11.2 – 11.7	7.50	33.3 – 36.0	7.45
3.1 – 3.2	7.75	11.7 – 11.9	7.75	36.1 – 37.9	7.80

Charts apply to all Copper at 210 N/MM^2 yield and less. Please inquire for Silver Bearing Copper.

CTC K Factor Minimum: Shortest Measured Pitch Lengh = 1.38 in
(Review width, thickness and SQML, and largest aspect ratio will be the minimum capability for the cable)

Pitch Factor by Thickness (in)		Pitch Factor by Width (in)		Pitch Factor by SQML	
0.050 – 0.053	6.00	0.120 – 0.140	12.00	6,000 – 7,599	7.75
0.054 – 0.057	6.00	0.141 – 0.160	6.00	7,600 – 9,399	7.45

0.058 – 0.062	6.05	0.161 – 0.180	6.05	9,400 – 11,299	7.15
0.063 – 0.066	6.10	0.181 – 0.200	6.10	11,300 – 13,399	6.85
0.067 – 0.070	6.10	0.201 – 0.220	6.10	13,400 – 15,699	6.60
0.071 – 0.074	6.50	0.221 – 0.240	6.50	15,700 – 18,099	6.40
0.075 – 0.078	6.30	0.241 – 0.260	6.30	18,100 – 20,699	6.20
0.079 – 0.083	6.35	0.261 – 0.280	6.35	20,700 – 23,499	6.10
0.084 – 0.087	6.40	0.281 – 0.300	6.40	23,500 – 26,399	6.00
0.088 – 0.091	6.50	0.301 – 0.320	6.50	26,400 – 29,499	6.00
0.092 – 0.095	6.60	0.321 – 0.340	6.60	29,500 – 32,799	6.10
0.096 – 0.099	6.70	0.341 – 0.360	6.70	32,800 – 36,199	6.20
0.100 – 0.104	6.80	0.361 – 0.380	6.80	36,200 – 39,899	6.40
0.105 – 0.108	6.95	0.381 – 0.400	6.95	39,900 – 43,599	6.60
0.109 – 0.112	7.10	0.401 – 0.420	7.10	43,600 – 47,599	6.85
0.113 – 0.116	7.25	0.421 – 0.440	7.25	47,600 – 51,699	7.15
0.117 – 0.120	7.50	0.441 – 0.460	7.50	51,700 – 55,999	7.45
0.121 – 0.125	7.75	0.461 – 0.470	7.75	56,000 – 58,570	7.80

Charts apply to all Copper at 210 N/MM^2 yield and less. Please inquire for Silver Bearing Copper.