230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - One Circuit

25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF | delta Td for .0010 pf & Rho 60 | 90 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 85°C - Copper Conductor - Compact Round Strand | | | | | | | | |
| 1000 | 6.125 | 844 | 772 | 773 | 687 | 717 | 622 | 2.8 | 3.5 | 4.3 |
| 1250 | 6.125 | 929 | 845 | 846 | 748 | 782 | 675 | 2.9 | 3.8 | 4.6 |
| | | 85°C - Copper Conductor - Compact Segmental Strand | | | | | | | | |
| 1000 | 6.125 | 887 | 809 | 810 | 717 | 750 | 649 | 2.9 | 3.7 | 4.5 |
| 1250 | 6.125 | 991 | 900 | 900 | 793 | 830 | 714 | 3.0 | 3.9 | 4.8 |
| 1500 | 8.125 | 1108 | 995 | 1009 | 875 | 932 | 788 | 3.0 | 3.8 | 4.7 |
| 1750 | 8.125 | 1186 | 1059 | 1076 | 928 | 990 | 833 | 3.1 | 4.0 | 4.9 |
| 2000 | 8.125 | 1252 | 1113 | 1131 | 973 | 1038 | 871 | 3.2 | 4.2 | 5.1 |
| 2250 | 8.125 | 1302 | 1156 | 1174 | 1007 | 1076 | 900 | 3.2 | 4.2 | 5.2 |
| 2500 | 8.125 | 1351 | 1195 | 1216 | 1039 | 1111 | 927 | 3.3 | 4.3 | 5.3 |
| 2750 | 8.125 | 1395 | 1231 | 1251 | 1066 | 1142 | 949 | 3.4 | 4.4 | 5.5 |
| 3000 | 8.125 | 1430 | 1258 | 1279 | 1087 | 1165 | 967 | 3.5 | 4.6 | 5.7 |

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2980

230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - One Circuit

25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF |
|---|---|---|---|---|---|---|---|
| | | Total Watts/ft | | | | | |
| 85°C - Copper Conductor - Compact Round Strand | | | | | | | |
| 1000 | 6.125 | 38.1 | 32.1 | 32.2 | 25.8 | 27.9 | 21.4 |
| 1250 | 6.125 | 40.1 | 33.5 | 33.6 | 26.7 | 29.0 | 22.0 |
| 85°C - Copper Conductor - Compact Segmental Strand | | | | | | | |
| 1000 | 6.125 | 39.3 | 33.0 | 33.1 | 26.3 | 28.6 | 21.9 |
| 1250 | 6.125 | 41.4 | 34.5 | 34.5 | 27.2 | 29.6 | 22.4 |
| 1500 | 8.125 | 46.9 | 38.2 | 39.2 | 30.0 | 33.8 | 24.7 |
| 1750 | 8.125 | 48.9 | 39.4 | 40.6 | 30.8 | 34.7 | 25.2 |
| 2000 | 8.125 | 50.6 | 40.4 | 41.7 | 31.4 | 35.5 | 25.6 |
| 2250 | 8.125 | 51.7 | 41.3 | 42.5 | 31.9 | 36.1 | 25.9 |
| 2500 | 8.125 | 53.1 | 42.0 | 43.4 | 32.3 | 36.6 | 26.2 |
| 2750 | 8.125 | 54.4 | 42.9 | 44.2 | 32.8 | 37.3 | 26.5 |
| 3000 | 8.125 | 55.6 | 43.6 | 45.0 | 33.2 | 37.8 | 26.8 |

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230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - One Circuit

25°C Earth Ambient

| Condr Size | Pipe ID | OD | Wd | Rac | Qs | Qe | Ri | Rj | Rsd | Rd | Re @ 90 Rho & loss factor 75% | 100% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 85°C - Copper Conductor - Compact Round Strand | | | | | | | |
| 1000 | 6.125 | 2.290 | 0.56 | 14.89 | 1.022 | 1.144 | 2.08 | 0.00 | 0.91 | 0.13 | 2.78 | 4.31 |
| 1250 | 6.125 | 2.415 | 0.60 | 12.64 | 1.024 | 1.171 | 1.92 | 0.00 | 0.86 | 0.13 | 2.78 | 4.31 |
| | | | | | 85°C - Copper Conductor - Compact Segmental Strand | | | | | | | |
| 1000 | 6.125 | 2.370 | 0.59 | 13.75 | 1.023 | 1.157 | 1.97 | 0.00 | 0.88 | 0.13 | 2.78 | 4.31 |
| 1250 | 6.125 | 2.490 | 0.63 | 11.23 | 1.026 | 1.194 | 1.83 | 0.00 | 0.84 | 0.13 | 2.78 | 4.31 |
| 1500 | 8.125 | 2.605 | 0.67 | 9.60 | 1.032 | 1.269 | 1.71 | 0.00 | 0.81 | 0.10 | 2.41 | 3.95 |
| 1750 | 8.125 | 2.710 | 0.71 | 8.47 | 1.035 | 1.307 | 1.62 | 0.00 | 0.78 | 0.10 | 2.41 | 3.95 |
| 2000 | 8.125 | 2.800 | 0.75 | 7.66 | 1.037 | 1.342 | 1.54 | 0.00 | 0.75 | 0.10 | 2.41 | 3.95 |
| 2250 | 8.125 | 2.925 | 0.76 | 7.08 | 1.038 | 1.374 | 1.51 | 0.00 | 0.72 | 0.10 | 2.41 | 3.95 |
| 2500 | 8.125 | 3.000 | 0.79 | 6.59 | 1.039 | 1.404 | 1.46 | 0.00 | 0.70 | 0.10 | 2.41 | 3.95 |
| 2750 | 8.125 | 3.090 | 0.82 | 6.22 | 1.040 | 1.432 | 1.40 | 0.00 | 0.68 | 0.10 | 2.41 | 3.95 |
| 3000 | 8.125 | 3.170 | 0.85 | 5.94 | 1.040 | 1.455 | 1.35 | 0.00 | 0.67 | 0.10 | 2.41 | 3.95 |

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2982

230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - Two Circuits - 24 in. Spacing

25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF | delta Td for .0010 pf & Rho 60 | 90 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 85°C - Copper Conductor - Compact Round Strand | | | | | | |
| 1000 | 6.125 | 789 | 706 | 708 | 615 | 646 | 550 | 3.4 | 4.4 | 5.5 |
| 1250 | 6.125 | 864 | 769 | 771 | 667 | 701 | 594 | 3.6 | 4.7 | 5.9 |
| | | | | 85°C - Copper Conductor - Compact Segmental Strand | | | | | | |
| 1000 | 6.125 | 827 | 738 | 740 | 641 | 674 | 572 | 3.5 | 4.6 | 5.8 |
| 1250 | 6.125 | 920 | 816 | 819 | 706 | 742 | 627 | 3.7 | 4.9 | 6.1 |
| 1500 | 8.125 | 1020 | 894 | 907 | 771 | 823 | 684 | 3.7 | 4.9 | 6.2 |
| 1750 | 8.125 | 1087 | 949 | 963 | 815 | 870 | 721 | 3.8 | 5.1 | 6.4 |
| 2000 | 8.125 | 1144 | 995 | 1009 | 851 | 910 | 751 | 4.0 | 5.3 | 6.7 |
| 2250 | 8.125 | 1188 | 1030 | 1045 | 879 | 941 | 775 | 4.0 | 5.4 | 6.8 |
| 2500 | 8.125 | 1229 | 1063 | 1079 | 905 | 969 | 796 | 4.1 | 5.6 | 7.0 |
| 2750 | 8.125 | 1266 | 1091 | 1108 | 927 | 993 | 814 | 4.3 | 5.8 | 7.3 |
| 3000 | 8.125 | 1294 | 1114 | 1130 | 943 | 1011 | 827 | 4.4 | 5.9 | 7.5 |

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230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - Two Circuits - 24 in. Spacing

25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF |
|---|---|---|---|---|---|---|---|
| | | Total Watts/ft | | | | | |
| 85°C - Copper Conductor - Compact Round Strand | | | | | | | |
| 1000 | 6.125 | 67.0 | 54.3 | 54.6 | 42.0 | 46.0 | 34.3 |
| 1250 | 6.125 | 69.9 | 56.1 | 56.4 | 43.1 | 47.3 | 35.0 |
| 85°C - Copper Conductor - Compact Segmental Strand | | | | | | | |
| 1000 | 6.125 | 68.8 | 55.5 | 55.8 | 42.7 | 46.9 | 34.7 |
| 1250 | 6.125 | 71.9 | 57.4 | 57.8 | 43.9 | 48.1 | 35.4 |
| 1500 | 8.125 | 80.1 | 62.5 | 64.2 | 47.5 | 53.6 | 38.2 |
| 1750 | 8.125 | 82.8 | 64.1 | 65.9 | 48.4 | 54.6 | 38.8 |
| 2000 | 8.125 | 85.2 | 65.5 | 67.3 | 49.1 | 55.6 | 39.3 |
| 2250 | 8.125 | 86.9 | 66.5 | 68.3 | 49.7 | 56.2 | 39.6 |
| 2500 | 8.125 | 88.6 | 67.5 | 69.4 | 50.2 | 56.9 | 39.9 |
| 2750 | 8.125 | 90.5 | 68.5 | 70.5 | 50.8 | 57.6 | 40.3 |
| 3000 | 8.125 | 92.0 | 69.5 | 71.3 | 51.2 | 58.1 | 40.6 |

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230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - Two Circuits - 24 in. Spacing

25°C Earth Ambient

| Condr Size | Pipe ID | OD | Wd | Rac | Qs | Qe | Ri | Rj | Rsd | Rd | Re @ 90 Rho & loss factor 75% | 100% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 85°C - Copper Conductor - Compact Round Strand | | | | | | | |
| 1000 | 6.125 | 2.290 | 0.56 | 14.89 | 1.022 | 1.144 | 2.08 | 0.00 | 0.87 | 0.13 | 3.11 | 4.85 |
| 1250 | 6.125 | 2.415 | 0.60 | 12.64 | 1.024 | 1.171 | 1.92 | 0.00 | 0.82 | 0.13 | 3.11 | 4.85 |
| | | | | | 85°C - Copper Conductor - Compact Segmental Strand | | | | | | | |
| 1000 | 6.125 | 2.370 | 0.59 | 13.75 | 1.023 | 1.157 | 1.97 | 0.00 | 0.84 | 0.13 | 3.11 | 4.85 |
| 1250 | 6.125 | 2.490 | 0.63 | 11.23 | 1.026 | 1.194 | 1.83 | 0.00 | 0.79 | 0.13 | 3.11 | 4.85 |
| 1500 | 8.125 | 2.605 | 0.67 | 9.60 | 1.032 | 1.269 | 1.71 | 0.00 | 0.77 | 0.10 | 2.75 | 4.49 |
| 1750 | 8.125 | 2.710 | 0.71 | 8.47 | 1.035 | 1.307 | 1.62 | 0.00 | 0.74 | 0.10 | 2.75 | 4.49 |
| 2000 | 8.125 | 2.800 | 0.75 | 7.66 | 1.037 | 1.342 | 1.54 | 0.00 | 0.71 | 0.10 | 2.75 | 4.49 |
| 2250 | 8.125 | 2.925 | 0.76 | 7.08 | 1.038 | 1.374 | 1.51 | 0.00 | 0.69 | 0.10 | 2.75 | 4.49 |
| 2500 | 8.125 | 3.000 | 0.79 | 6.59 | 1.039 | 1.404 | 1.46 | 0.00 | 0.67 | 0.10 | 2.75 | 4.49 |
| 2750 | 8.125 | 3.090 | 0.82 | 6.22 | 1.040 | 1.432 | 1.40 | 0.00 | 0.65 | 0.10 | 2.75 | 4.49 |
| 3000 | 8.125 | 3.170 | 0.85 | 5.94 | 1.040 | 1.455 | 1.35 | 0.00 | 0.63 | 0.10 | 2.75 | 4.49 |

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230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - Two Circuits - 36 in. Spacing

25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF | delta Td for .0010 pf & Rho 60 | 90 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 85°C - Copper Conductor - Compact Round Strand | | | | | | | | |
| 1000 | 6.125 | 805 | 724 | 726 | 635 | 666 | 569 | 3.2 | 4.2 | 5.2 |
| 1250 | 6.125 | 883 | 791 | 793 | 689 | 724 | 616 | 3.4 | 4.4 | 5.5 |
| | | 85°C - Copper Conductor - Compact Segmental Strand | | | | | | | | |
| 1000 | 6.125 | 844 | 758 | 760 | 662 | 695 | 592 | 3.3 | 4.3 | 5.4 |
| 1250 | 6.125 | 940 | 840 | 841 | 730 | 766 | 651 | 3.5 | 4.6 | 5.7 |
| 1500 | 8.125 | 1045 | 922 | 935 | 799 | 852 | 711 | 3.5 | 4.6 | 5.7 |
| 1750 | 8.125 | 1115 | 979 | 994 | 845 | 903 | 751 | 3.6 | 4.8 | 6.0 |
| 2000 | 8.125 | 1174 | 1027 | 1043 | 884 | 945 | 783 | 3.8 | 5.0 | 6.2 |
| 2250 | 8.125 | 1220 | 1064 | 1081 | 913 | 977 | 808 | 3.8 | 5.0 | 6.3 |
| 2500 | 8.125 | 1263 | 1099 | 1116 | 941 | 1007 | 831 | 3.9 | 5.2 | 6.5 |
| 2750 | 8.125 | 1302 | 1129 | 1147 | 964 | 1033 | 850 | 4.0 | 5.4 | 6.7 |
| 3000 | 8.125 | 1332 | 1152 | 1170 | 981 | 1052 | 864 | 4.1 | 5.5 | 6.9 |

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# 230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

## Buried - Two Circuits - 36 in. Spacing

### 25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF |
|---|---|---|---|---|---|---|---|
| | | Total Watts/ft | | | | | |
| 85°C - Copper Conductor - Compact Round Strand | | | | | | | |
| 1000 | 6.125 | 69.6 | 56.9 | 57.2 | 44.6 | 48.7 | 36.4 |
| 1250 | 6.125 | 72.9 | 59.2 | 59.5 | 45.8 | 50.2 | 37.3 |
| 85°C - Copper Conductor - Compact Segmental Strand | | | | | | | |
| 1000 | 6.125 | 71.5 | 58.4 | 58.6 | 45.3 | 49.6 | 37.0 |
| 1250 | 6.125 | 74.9 | 60.6 | 60.7 | 46.7 | 51.0 | 37.9 |
| 1500 | 8.125 | 83.9 | 66.2 | 68.0 | 50.7 | 57.1 | 41.0 |
| 1750 | 8.125 | 86.9 | 68.0 | 69.9 | 51.7 | 58.5 | 41.8 |
| 2000 | 8.125 | 89.5 | 69.5 | 71.6 | 52.7 | 59.6 | 42.3 |
| 2250 | 8.125 | 91.4 | 70.6 | 72.8 | 53.2 | 60.3 | 42.7 |
| 2500 | 8.125 | 93.3 | 71.8 | 73.9 | 53.9 | 61.1 | 43.1 |
| 2750 | 8.125 | 95.5 | 73.0 | 75.2 | 54.6 | 61.9 | 43.5 |
| 3000 | 8.125 | 97.1 | 73.9 | 76.1 | 55.0 | 62.5 | 43.8 |

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230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - Two Circuits - 36 in. Spacing

25°C Earth Ambient

| Condr Size | Pipe ID | OD | Wd | Rac | Qs | Qe | Ri | Rj | Rsd | Rd | Re @ 90 Rho & loss factor 75% | Re @ 90 Rho & loss factor 100% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 85°C - Copper Conductor - Compact Round Strand | | | | | | |
| 1000 | 6.125 | 2.290 | 0.56 | 14.89 | 1.022 | 1.144 | 2.08 | 0.00 | 0.88 | 0.13 | 3.01 | 4.69 |
| 1250 | 6.125 | 2.415 | 0.60 | 12.64 | 1.024 | 1.171 | 1.92 | 0.00 | 0.83 | 0.13 | 3.01 | 4.69 |
| | | | | | | 85°C - Copper Conductor - Compact Segmental Strand | | | | | | |
| 1000 | 6.125 | 2.370 | 0.59 | 13.75 | 1.023 | 1.157 | 1.97 | 0.00 | 0.85 | 0.13 | 3.01 | 4.69 |
| 1250 | 6.125 | 2.490 | 0.63 | 11.23 | 1.026 | 1.194 | 1.83 | 0.00 | 0.81 | 0.13 | 3.01 | 4.69 |
| 1500 | 8.125 | 2.605 | 0.67 | 9.60 | 1.032 | 1.269 | 1.71 | 0.00 | 0.78 | 0.10 | 2.65 | 4.32 |
| 1750 | 8.125 | 2.710 | 0.71 | 8.47 | 1.035 | 1.307 | 1.62 | 0.00 | 0.75 | 0.10 | 2.65 | 4.32 |
| 2000 | 8.125 | 2.800 | 0.75 | 7.66 | 1.037 | 1.342 | 1.54 | 0.00 | 0.73 | 0.10 | 2.65 | 4.32 |
| 2250 | 8.125 | 2.925 | 0.76 | 7.08 | 1.038 | 1.374 | 1.51 | 0.00 | 0.69 | 0.10 | 2.65 | 4.32 |
| 2500 | 8.125 | 3.000 | 0.79 | 6.59 | 1.039 | 1.404 | 1.46 | 0.00 | 0.67 | 0.10 | 2.65 | 4.32 |
| 2750 | 8.125 | 3.090 | 0.82 | 6.22 | 1.040 | 1.432 | 1.40 | 0.00 | 0.65 | 0.10 | 2.65 | 4.32 |
| 3000 | 8.125 | 3.170 | 0.85 | 5.94 | 1.040 | 1.455 | 1.35 | 0.00 | 0.64 | 0.10 | 2.65 | 4.32 |

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2988

230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - One Circuit

25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF | delta Td for .0010 pf & Rho 60 | 90 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|
| 85°C - Aluminum Conductor - Compact Round Strand | | | | | | | | | | |
| 1000 | 6.125 | 689 | 631 | 632 | 563 | 587 | 511 | 2.8 | 3.6 | 4.3 |
| 1250 | 6.125 | 772 | 705 | 705 | 625 | 653 | 565 | 2.9 | 3.8 | 4.6 |
| 85°C - Aluminum Conductor - Compact Segmental Strand | | | | | | | | | | |
| 1000 | 6.125 | 708 | 648 | 648 | 576 | 601 | 521 | 2.9 | 3.7 | 4.5 |
| 1250 | 6.125 | 799 | 728 | 728 | 643 | 672 | 581 | 3.0 | 3.9 | 4.8 |
| 1500 | 8.125 | 905 | 816 | 827 | 721 | 766 | 650 | 3.0 | 3.9 | 4.7 |
| 1750 | 8.125 | 980 | 880 | 893 | 774 | 824 | 697 | 3.1 | 4.0 | 4.9 |
| 2000 | 8.125 | 1048 | 937 | 951 | 822 | 875 | 737 | 3.2 | 4.2 | 5.1 |
| 2250 | 8.125 | 1102 | 983 | 998 | 860 | 917 | 771 | 3.2 | 4.2 | 5.2 |
| 2500 | 8.125 | 1157 | 1028 | 1044 | 897 | 958 | 803 | 3.3 | 4.3 | 5.3 |
| 2750 | 8.125 | 1209 | 1071 | 1088 | 932 | 995 | 832 | 3.4 | 4.5 | 5.5 |
| 3000 | 8.125 | 1250 | 1105 | 1123 | 959 | 1026 | 855 | 3.5 | 4.6 | 5.7 |
| 3250 | 8.125 | 1292 | 1140 | 1158 | 987 | 1056 | 878 | 3.6 | 4.7 | 5.8 |
| 3500 | 8.125 | 1333 | 1172 | 1191 | 1012 | 1084 | 898 | 3.7 | 4.8 | 6.0 |
| 3750 | 8.125 | 1368 | 1200 | 1219 | 1034 | 1108 | 917 | 3.7 | 4.9 | 6.2 |
| 4000 | 10.25 | 1429 | 1240 | 1281 | 1070 | 1170 | 950 | 3.6 | 4.8 | 5.9 |

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# 230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

## Buried - One Circuit

## 25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF |
|---|---|---|---|---|---|---|---|
| | | Total Watts/ft | | | | | |
| 85°C - Aluminum Conductor - Compact Round Strand | | | | | | | |
| 1000 | 6.125 | 37.2 | 31.5 | 31.6 | 25.4 | 27.5 | 21.2 |
| 1250 | 6.125 | 39.1 | 32.9 | 32.9 | 26.3 | 28.5 | 21.8 |
| 85°C - Aluminum Conductor - Compact Segmental Strand | | | | | | | |
| 1000 | 6.125 | 38.2 | 32.3 | 32.3 | 25.9 | 28.0 | 21.5 |
| 1250 | 6.125 | 40.1 | 33.6 | 33.6 | 26.6 | 28.9 | 22.1 |
| 1500 | 8.125 | 45.0 | 37.0 | 37.9 | 29.3 | 32.8 | 24.2 |
| 1750 | 8.125 | 46.8 | 38.2 | 39.2 | 30.0 | 33.7 | 24.7 |
| 2000 | 8.125 | 48.5 | 39.2 | 40.3 | 30.7 | 34.5 | 25.1 |
| 2250 | 8.125 | 49.6 | 39.9 | 41.1 | 31.1 | 35.0 | 25.4 |
| 2500 | 8.125 | 51.0 | 40.7 | 41.9 | 31.6 | 35.7 | 25.8 |
| 2750 | 8.125 | 52.3 | 41.6 | 42.9 | 32.1 | 36.2 | 26.1 |
| 3000 | 8.125 | 53.4 | 42.3 | 43.6 | 32.5 | 36.8 | 26.4 |
| 3250 | 8.125 | 54.5 | 43.0 | 44.3 | 32.9 | 37.3 | 26.6 |
| 3500 | 8.125 | 55.9 | 43.8 | 45.2 | 33.4 | 37.9 | 26.9 |
| 3750 | 8.125 | 56.8 | 44.3 | 45.7 | 33.6 | 38.2 | 27.1 |
| 4000 | 10.25 | 62.5 | 47.8 | 50.8 | 36.3 | 42.8 | 29.2 |

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2990

230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - One Circuit

25°C Earth Ambient

| Condr Size | Pipe ID | OD | Wd | Rac | Qs | Qe | Ri | Rj | Rsd | Rd | Re @ 90 Rho & loss factor 75% | Re @ 90 Rho & loss factor 100% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 85°C - Aluminum Conductor - Compact Round Strand | | | | | | | |
| 1000 | 6.125 | 2.290 | 0.56 | 22.83 | 1.015 | 1.094 | 2.08 | 0.00 | 0.91 | 0.13 | 2.78 | 4.31 |
| 1250 | 6.125 | 2.415 | 0.60 | 18.69 | 1.016 | 1.116 | 1.92 | 0.00 | 0.87 | 0.13 | 2.78 | 4.31 |
| | | | | | 85°C - Aluminum Conductor - Compact Segmental Strand | | | | | | | |
| 1000 | 6.125 | 2.370 | 0.59 | 22.09 | 1.014 | 1.098 | 1.97 | 0.00 | 0.88 | 0.13 | 2.78 | 4.31 |
| 1250 | 6.125 | 2.490 | 0.63 | 17.78 | 1.016 | 1.122 | 1.83 | 0.00 | 0.84 | 0.13 | 2.78 | 4.31 |
| 1500 | 8.125 | 2.605 | 0.67 | 14.92 | 1.021 | 1.173 | 1.71 | 0.00 | 0.82 | 0.10 | 2.41 | 3.95 |
| 1750 | 8.125 | 2.710 | 0.71 | 12.90 | 1.023 | 1.202 | 1.62 | 0.00 | 0.79 | 0.10 | 2.41 | 3.95 |
| 2000 | 8.125 | 2.800 | 0.75 | 11.40 | 1.025 | 1.230 | 1.54 | 0.00 | 0.76 | 0.10 | 2.41 | 3.95 |
| 2250 | 8.125 | 2.925 | 0.76 | 10.34 | 1.026 | 1.256 | 1.51 | 0.00 | 0.73 | 0.10 | 2.41 | 3.95 |
| 2500 | 8.125 | 3.000 | 0.79 | 9.43 | 1.027 | 1.283 | 1.46 | 0.00 | 0.71 | 0.10 | 2.41 | 3.95 |
| 2750 | 8.125 | 3.090 | 0.82 | 8.69 | 1.028 | 1.309 | 1.40 | 0.00 | 0.69 | 0.10 | 2.41 | 3.95 |
| 3000 | 8.125 | 3.170 | 0.85 | 8.16 | 1.029 | 1.331 | 1.35 | 0.00 | 0.67 | 0.10 | 2.41 | 3.95 |
| 3250 | 8.125 | 3.245 | 0.88 | 7.64 | 1.030 | 1.355 | 1.31 | 0.00 | 0.65 | 0.10 | 2.41 | 3.95 |
| 3500 | 8.125 | 3.345 | 0.91 | 7.23 | 1.030 | 1.379 | 1.26 | 0.00 | 0.63 | 0.10 | 2.41 | 3.95 |
| 3750 | 8.125 | 3.410 | 0.94 | 6.86 | 1.030 | 1.401 | 1.23 | 0.00 | 0.63 | 0.10 | 2.41 | 3.95 |
| 4000 | 10.25 | 3.485 | 0.96 | 6.55 | 1.035 | 1.484 | 1.19 | 0.00 | 0.61 | 0.13 | 2.10 | 3.63 |

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230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - Two Circuits - 24 in. Spacing

25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF | delta Td for .0010 pf & Rho 60 | 90 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 85°C - Aluminum Conductor - Compact Round Strand | | | | | | |
| 1000 | 6.125 | 645 | 578 | 580 | 505 | 530 | 452 | 3.4 | 4.4 | 5.5 |
| 1250 | 6.125 | 720 | 643 | 644 | 559 | 587 | 498 | 3.6 | 4.7 | 5.9 |
| | | | | 85°C - Aluminum Conductor - Compact Segmental Strand | | | | | | |
| 1000 | 6.125 | 662 | 592 | 593 | 515 | 541 | 460 | 3.5 | 4.6 | 5.8 |
| 1250 | 6.125 | 744 | 662 | 664 | 574 | 603 | 511 | 3.7 | 4.9 | 6.1 |
| 1500 | 8.125 | 836 | 736 | 746 | 637 | 678 | 566 | 3.7 | 4.9 | 6.2 |
| 1750 | 8.125 | 902 | 791 | 802 | 682 | 727 | 604 | 3.9 | 5.2 | 6.4 |
| 2000 | 8.125 | 961 | 840 | 851 | 721 | 770 | 638 | 4.0 | 5.3 | 6.7 |
| 2250 | 8.125 | 1009 | 879 | 891 | 753 | 804 | 665 | 4.0 | 5.4 | 6.8 |
| 2500 | 8.125 | 1056 | 918 | 931 | 784 | 838 | 692 | 4.2 | 5.6 | 7.0 |
| 2750 | 8.125 | 1100 | 953 | 967 | 812 | 868 | 715 | 4.3 | 5.8 | 7.3 |
| 3000 | 8.125 | 1136 | 982 | 995 | 834 | 892 | 733 | 4.4 | 5.9 | 7.5 |
| 3250 | 8.125 | 1172 | 1010 | 1024 | 857 | 917 | 751 | 4.5 | 6.1 | 7.7 |
| 3500 | 8.125 | 1205 | 1036 | 1050 | 877 | 938 | 767 | 4.6 | 6.3 | 8.0 |
| 3750 | 8.125 | 1235 | 1060 | 1074 | 895 | 958 | 782 | 4.7 | 6.4 | 8.1 |
| 4000 | 10.25 | 1278 | 1085 | 1115 | 917 | 997 | 802 | 4.7 | 6.3 | 8.0 |

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230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - Two Circuits - 24 in. Spacing

25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF |
|---|---|---|---|---|---|---|---|
| | | Total Watts/ft | | | | | |
| 85°C - Aluminum Conductor - Compact Round Strand | | | | | | | |
| 1000 | 6.125 | 65.7 | 53.4 | 53.7 | 41.6 | 45.4 | 33.9 |
| 1250 | 6.125 | 68.5 | 55.4 | 55.5 | 42.7 | 46.7 | 34.7 |
| 85°C - Aluminum Conductor - Compact Segmental Strand | | | | | | | |
| 1000 | 6.125 | 67.3 | 54.5 | 54.7 | 42.1 | 46.1 | 34.3 |
| 1250 | 6.125 | 70.0 | 56.2 | 56.6 | 43.2 | 47.3 | 35.0 |
| 1500 | 8.125 | 77.5 | 60.9 | 62.5 | 46.7 | 52.3 | 37.7 |
| 1750 | 8.125 | 80.0 | 62.5 | 64.1 | 47.5 | 53.4 | 38.2 |
| 2000 | 8.125 | 82.2 | 63.9 | 65.4 | 48.2 | 54.4 | 38.7 |
| 2250 | 8.125 | 83.9 | 64.8 | 66.4 | 48.8 | 54.9 | 39.0 |
| 2500 | 8.125 | 85.7 | 65.9 | 67.7 | 49.4 | 55.7 | 39.5 |
| 2750 | 8.125 | 87.5 | 66.9 | 68.7 | 49.9 | 56.3 | 39.8 |
| 3000 | 8.125 | 89.2 | 67.9 | 69.6 | 50.4 | 56.9 | 40.1 |
| 3250 | 8.125 | 90.6 | 68.7 | 70.4 | 50.9 | 57.5 | 40.3 |
| 3500 | 8.125 | 92.3 | 69.7 | 71.4 | 51.5 | 58.1 | 40.7 |
| 3750 | 8.125 | 93.6 | 70.4 | 72.2 | 51.8 | 58.6 | 40.9 |
| 4000 | 10.25 | 101.1 | 74.5 | 78.3 | 54.8 | 63.8 | 43.3 |

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230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - Two Circuits - 24 in. Spacing

25°C Earth Ambient

| Condr Size | Pipe ID | OD | Wd | Rac | Qs | Qe | Ri | Rj | Rsd | Rd | Re @ 90 Rho & loss factor 75% | 100% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 85°C - Aluminum Conductor - Compact Round Strand | | | | | | | |
| 1000 | 6.125 | 2.290 | 0.56 | 22.83 | 1.015 | 1.094 | 2.08 | 0.00 | 0.87 | 0.13 | 3.11 | 4.85 |
| 1250 | 6.125 | 2.415 | 0.60 | 18.69 | 1.016 | 1.116 | 1.92 | 0.00 | 0.83 | 0.13 | 3.11 | 4.85 |
| | | | | | 85°C - Aluminum Conductor - Compact Segmental Strand | | | | | | | |
| 1000 | 6.125 | 2.370 | 0.59 | 22.09 | 1.014 | 1.098 | 1.97 | 0.00 | 0.84 | 0.13 | 3.11 | 4.85 |
| 1250 | 6.125 | 2.490 | 0.63 | 17.78 | 1.016 | 1.122 | 1.83 | 0.00 | 0.80 | 0.13 | 3.11 | 4.85 |
| 1500 | 8.125 | 2.605 | 0.67 | 14.92 | 1.021 | 1.173 | 1.71 | 0.00 | 0.78 | 0.10 | 2.75 | 4.49 |
| 1750 | 8.125 | 2.710 | 0.71 | 12.90 | 1.023 | 1.202 | 1.62 | 0.00 | 0.74 | 0.10 | 2.75 | 4.49 |
| 2000 | 8.125 | 2.800 | 0.75 | 11.40 | 1.025 | 1.230 | 1.54 | 0.00 | 0.72 | 0.10 | 2.75 | 4.49 |
| 2250 | 8.125 | 2.925 | 0.76 | 10.34 | 1.026 | 1.256 | 1.51 | 0.00 | 0.69 | 0.10 | 2.75 | 4.49 |
| 2500 | 8.125 | 3.000 | 0.79 | 9.43 | 1.027 | 1.283 | 1.46 | 0.00 | 0.67 | 0.10 | 2.75 | 4.49 |
| 2750 | 8.125 | 3.090 | 0.82 | 8.69 | 1.028 | 1.309 | 1.40 | 0.00 | 0.65 | 0.10 | 2.75 | 4.49 |
| 3000 | 8.125 | 3.170 | 0.85 | 8.16 | 1.029 | 1.331 | 1.35 | 0.00 | 0.64 | 0.10 | 2.75 | 4.49 |
| 3250 | 8.125 | 3.245 | 0.88 | 7.64 | 1.030 | 1.355 | 1.31 | 0.00 | 0.62 | 0.10 | 2.75 | 4.49 |
| 3500 | 8.125 | 3.345 | 0.91 | 7.23 | 1.030 | 1.379 | 1.26 | 0.00 | 0.60 | 0.10 | 2.75 | 4.49 |
| 3750 | 8.125 | 3.410 | 0.94 | 6.86 | 1.030 | 1.401 | 1.23 | 0.00 | 0.59 | 0.10 | 2.75 | 4.49 |
| 4000 | 10.25 | 3.485 | 0.96 | 6.55 | 1.035 | 1.484 | 1.19 | 0.00 | 0.58 | 0.13 | 2.43 | 4.17 |

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230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - Two Circuits - 36 in. Spacing

25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF | delta Td for .0010 pf & Rho 60 | 90 | 120 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 85°C - Aluminum Conductor - Compact Round Strand | | | | | | | | |
| 1000 | 6.125 | 657 | 593 | 595 | 521 | 546 | 468 | 3.2 | 4.2 | 5.2 |
| 1250 | 6.125 | 735 | 660 | 661 | 577 | 605 | 516 | 3.4 | 4.4 | 5.5 |
| | | 85°C - Aluminum Conductor - Compact Segmental Strand | | | | | | | | |
| 1000 | 6.125 | 675 | 607 | 609 | 532 | 558 | 477 | 3.3 | 4.3 | 5.4 |
| 1250 | 6.125 | 760 | 680 | 682 | 593 | 622 | 530 | 3.5 | 4.6 | 5.7 |
| 1500 | 8.125 | 856 | 758 | 769 | 659 | 702 | 588 | 3.5 | 4.6 | 5.7 |
| 1750 | 8.125 | 924 | 816 | 827 | 707 | 753 | 629 | 3.6 | 4.8 | 6.0 |
| 2000 | 8.125 | 985 | 866 | 879 | 748 | 798 | 664 | 3.8 | 5.0 | 6.2 |
| 2250 | 8.125 | 1035 | 907 | 921 | 782 | 835 | 693 | 3.8 | 5.1 | 6.3 |
| 2500 | 8.125 | 1084 | 948 | 962 | 814 | 870 | 721 | 3.9 | 5.2 | 6.5 |
| 2750 | 8.125 | 1131 | 985 | 1000 | 844 | 903 | 746 | 4.0 | 5.4 | 6.8 |
| 3000 | 8.125 | 1168 | 1015 | 1030 | 868 | 928 | 765 | 4.1 | 5.5 | 6.9 |
| 3250 | 8.125 | 1205 | 1045 | 1060 | 891 | 954 | 785 | 4.2 | 5.7 | 7.1 |
| 3500 | 8.125 | 1241 | 1073 | 1088 | 912 | 977 | 802 | 4.3 | 5.9 | 7.4 |
| 3750 | 8.125 | 1272 | 1098 | 1113 | 931 | 998 | 818 | 4.4 | 6.0 | 7.5 |
| 4000 | 10.25 | 1320 | 1127 | 1160 | 957 | 1042 | 841 | 4.3 | 5.8 | 7.4 |

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230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

Buried - Two Circuits - 36 in. Spacing

25°C Earth Ambient

| Condr Size | Pipe ID | 60 Rho 75 LF | 60 Rho 100 LF | 90 Rho 75 LF | 90 Rho 100 LF | 120 Rho 75 LF | 120 Rho 100 LF |
|---|---|---|---|---|---|---|---|
| | | Total Watts/ft | | | | | |
| 85°C - Aluminum Conductor - Compact Round Strand | | | | | | | |
| 1000 | 6.125 | 68.0 | 56.0 | 56.4 | 44.0 | 48.0 | 36.2 |
| 1250 | 6.125 | 71.2 | 58.1 | 58.3 | 45.3 | 49.4 | 36.9 |
| 85°C - Aluminum Conductor - Compact Segmental Strand | | | | | | | |
| 1000 | 6.125 | 69.8 | 57.1 | 57.5 | 44.7 | 48.8 | 36.6 |
| 1250 | 6.125 | 72.9 | 59.1 | 59.5 | 45.9 | 50.1 | 37.4 |
| 1500 | 8.125 | 81.0 | 64.4 | 66.2 | 49.7 | 55.8 | 40.4 |
| 1750 | 8.125 | 83.7 | 66.2 | 67.9 | 50.8 | 57.0 | 41.1 |
| 2000 | 8.125 | 86.1 | 67.6 | 69.5 | 51.6 | 58.1 | 41.6 |
| 2250 | 8.125 | 88.0 | 68.7 | 70.7 | 52.2 | 58.9 | 42.0 |
| 2500 | 8.125 | 90.0 | 70.0 | 71.9 | 52.8 | 59.7 | 42.5 |
| 2750 | 8.125 | 92.2 | 71.1 | 73.2 | 53.5 | 60.6 | 42.9 |
| 3000 | 8.125 | 94.0 | 72.2 | 74.2 | 54.2 | 61.2 | 43.2 |
| 3250 | 8.125 | 95.5 | 73.1 | 75.1 | 54.6 | 61.8 | 43.6 |
| 3500 | 8.125 | 97.6 | 74.3 | 76.3 | 55.2 | 62.6 | 43.9 |
| 3750 | 8.125 | 98.9 | 75.2 | 77.1 | 55.6 | 63.1 | 44.2 |
| 4000 | 10.25 | 107.5 | 79.9 | 84.3 | 59.2 | 69.1 | 47.0 |

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# 230 kV LPP Insulated High Pressure Liquid Filled Pipe Type Cable

## Buried - Two Circuits - 36 in. Spacing

## 25°C Earth Ambient

| Condr Size | Pipe ID | OD | Wd | Rac | Qs | Qe | Ri | Rj | Rsd | Rd | Re @ 90 Rho & loss factor 75% | Re @ 90 Rho & loss factor 100% |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **85°C - Aluminum Conductor - Compact Round Strand** | | | | | | | | | | | | |
| 1000 | 6.125 | 2.290 | 0.56 | 22.83 | 1.015 | 1.094 | 2.08 | 0.00 | 0.88 | 0.13 | 3.01 | 4.69 |
| 1250 | 6.125 | 2.415 | 0.60 | 18.69 | 1.016 | 1.116 | 1.92 | 0.00 | 0.84 | 0.13 | 3.01 | 4.69 |
| **85°C - Aluminum Conductor - Compact Segmental Strand** | | | | | | | | | | | | |
| 1000 | 6.125 | 2.370 | 0.59 | 22.09 | 1.014 | 1.098 | 1.97 | 0.00 | 0.85 | 0.13 | 3.01 | 4.69 |
| 1250 | 6.125 | 2.490 | 0.63 | 17.78 | 1.016 | 1.122 | 1.83 | 0.00 | 0.81 | 0.13 | 3.01 | 4.69 |
| 1500 | 8.125 | 2.605 | 0.67 | 14.92 | 1.021 | 1.173 | 1.71 | 0.00 | 0.79 | 0.10 | 2.65 | 4.32 |
| 1750 | 8.125 | 2.710 | 0.71 | 12.90 | 1.023 | 1.202 | 1.62 | 0.00 | 0.76 | 0.10 | 2.65 | 4.32 |
| 2000 | 8.125 | 2.800 | 0.75 | 11.40 | 1.025 | 1.230 | 1.54 | 0.00 | 0.73 | 0.10 | 2.65 | 4.32 |
| 2250 | 8.125 | 2.925 | 0.76 | 10.34 | 1.026 | 1.256 | 1.51 | 0.00 | 0.70 | 0.10 | 2.65 | 4.32 |
| 2500 | 8.125 | 3.000 | 0.79 | 9.43 | 1.027 | 1.283 | 1.46 | 0.00 | 0.69 | 0.10 | 2.65 | 4.32 |
| 2750 | 8.125 | 3.090 | 0.82 | 8.69 | 1.028 | 1.309 | 1.40 | 0.00 | 0.66 | 0.10 | 2.65 | 4.32 |
| 3000 | 8.125 | 3.170 | 0.85 | 8.16 | 1.029 | 1.331 | 1.35 | 0.00 | 0.64 | 0.10 | 2.65 | 4.32 |
| 3250 | 8.125 | 3.245 | 0.88 | 7.64 | 1.030 | 1.355 | 1.31 | 0.00 | 0.63 | 0.10 | 2.65 | 4.32 |
| 3500 | 8.125 | 3.345 | 0.91 | 7.23 | 1.030 | 1.379 | 1.26 | 0.00 | 0.61 | 0.10 | 2.65 | 4.32 |
| 3750 | 8.125 | 3.410 | 0.94 | 6.86 | 1.030 | 1.401 | 1.23 | 0.00 | 0.60 | 0.10 | 2.65 | 4.32 |
| 4000 | 10.25 | 3.485 | 0.96 | 6.55 | 1.035 | 1.484 | 1.19 | 0.00 | 0.59 | 0.13 | 2.33 | 4.01 |

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