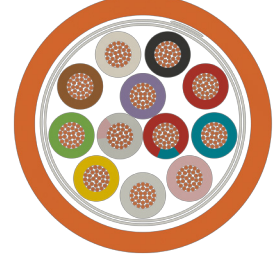


# Elektronik Kontrol Kabloları Yangına Dayanıklı Kablolar LIHH (FE180 / PH120)



## Kullanım Alanları

- Sinyal İletişiminde.
- Enstrüman ve kontrol mühendisliğinde.
- Endüstriyel elektronikte.
- Bina içi haberleşme sistemlerinde.
- Bina içi ses sistemlerinde.
- Güvenlik ve yangın ihbar sistemlerinde.
- İnsan hayatının, değerli malzemelerin ve ekipmanların korunması gereken uygulamalarda.

## Kablo Yapısı

- 1 - İletken : Bükülü elektrolitik bakır iletken (Sınıf 5) (IEC 60228, EN 60228, DIN VDE 0295)
- 2 - İzole : Çapraz bağlı seramik formda polimer bileşke (DIN 47100)
- 3 - Büküm : Katmanlar halinde büküm.
- 4 - Ayırıcı : Polyester bant, cam elyaf bant
- 5 - Dış Kılıf : Ultraviyole ışınlara dayanıklı halojensiz dış kılıf. RAL 2008 (Turuncu)

## Teknik Özellikler

| İletken Çapı         | İletken Direnci<br>Ω/km (20 °C) | İzolasyon Direnci<br>MΩ/km<br>(500 V DC) | Efektif Kapasite<br>nF/km<br>(800 Hz) | Akım Taşıma<br>Kapasitesi<br>A | Çalışma Voltajı<br>V DC | Test Voltajı<br>V (DC,<br>1 dakika) |
|----------------------|---------------------------------|------------------------------------------|---------------------------------------|--------------------------------|-------------------------|-------------------------------------|
| 0.50 mm <sup>2</sup> | 39                              | 20                                       | 120                                   | 9                              | 300                     | 2000                                |
| 0.75 mm <sup>2</sup> | 26                              | 20                                       | 120                                   | 12                             | 300                     | 2000                                |
| 1.00 mm <sup>2</sup> | 19.5                            | 20                                       | 130                                   | 15                             | 300                     | 2000                                |
| 1.5 mm <sup>2</sup>  | 13.3                            | 20                                       | 140                                   | 18                             | 300                     | 2000                                |
| 2.5 mm <sup>2</sup>  | 7.98                            | 20                                       | 150                                   | 26                             | 300                     | 2000                                |

## Mekanik Özellikler

| Bükülme Yarıçapı | Sıcaklık Aralığı<br>Çalışma |
|------------------|-----------------------------|
| 10xD mm          | -40°C~+70°C                 |

## Standartlar

| Duman Yoğunluk Testi                              | Korozif Gaz Testi                                    | Halojensizlik Testi                                                   | Alev Geciktiricilik Testi                              | Alev Yayılm Testi                                         |
|---------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------|
| IEC 61034-2,<br>VDE 0482-1034-2,<br>BS EN 61034-2 | IEC 60754-2,<br>VDE 0482-267-2-3,<br>BS EN 50267-2-3 | IEC 60754-1,<br>VDE 0482-267-2-1,<br>EN 50267-2-1,<br>BS EN 50267-2-1 | IEC 60332-1-2,<br>VDE 0482-332-1-2,<br>BS EN 60332-1-2 | IEC 60332-3-24,<br>VDE 0482-332-3-24,<br>BS EN 60332-3-24 |
| Devre Bütünlük Testi (FE180)                      |                                                      |                                                                       | Mekanik Şoklu Akım Bütünlük Testi (PH120)              |                                                           |
| IEC 60331-23                                      |                                                      |                                                                       | EN 50200, VDE 0482-200, BS EN 50200                    |                                                           |

### Notlar

Referans Standardı: DIN VDE 0812

## LIHH (FE180 / PH120)

| Part Numarası           | İletken Sayısı | İletken Kesiti (mm <sup>2</sup> ) | Ortalama Dış Çap (mm) | Bakır Ağırlığı (kg/km) | Ortalama Ağırlık (kg/km) | Makara Boyu (m) |
|-------------------------|----------------|-----------------------------------|-----------------------|------------------------|--------------------------|-----------------|
| 3.512.2.4.3.0050.0.0002 | 2              | 0.5                               | 5.4                   | 8.9                    | 34                       | 100/500/1000    |
| 3.512.2.4.3.0050.0.0003 | 3              | 0.5                               | 5.7                   | 13.3                   | 42                       | 100/500/1000    |
| 3.512.2.4.3.0050.0.0004 | 4              | 0.5                               | 6.1                   | 17.7                   | 51                       | 100/500/1000    |
| 3.512.3.4.3.0050.0.0005 | 5              | 0.5                               | 6.8                   | 22.1                   | 64                       | 100/500/1000    |
| 3.512.3.4.3.0050.0.0006 | 6              | 0.5                               | 7.3                   | 26.5                   | 75                       | 100/500/1000    |
| 3.512.3.4.3.0050.0.0007 | 7              | 0.5                               | 7.3                   | 30.9                   | 78                       | 100/500/1000    |
| 3.512.3.4.3.0050.0.0008 | 8              | 0.5                               | 8                     | 35.3                   | 95                       | 100/500/1000    |
| 3.512.3.4.3.0050.0.0009 | 9              | 0.5                               | 9.2                   | 39.7                   | 109                      | 100/500/1000    |
| 3.512.3.4.3.0050.0.0010 | 10             | 0.5                               | 9.2                   | 44.1                   | 112                      | 100/500/1000    |
| 3.512.3.4.3.0050.0.0012 | 12             | 0.5                               | 9.6                   | 52.9                   | 130                      | 100/500/1000    |
| 3.512.3.4.3.0050.0.0014 | 14             | 0.5                               | 10.1                  | 61.7                   | 148                      | 100/500/1000    |
| 3.512.3.4.3.0050.0.0016 | 16             | 0.5                               | 10.7                  | 70.5                   | 165                      | 100/500/1000    |
| 3.512.3.4.3.0050.0.0018 | 18             | 0.5                               | 11.3                  | 79.3                   | 188                      | 100/500/1000    |
| 3.512.3.4.3.0050.0.0019 | 19             | 0.5                               | 11.3                  | 83.7                   | 191                      | 100/500/1000    |
| 3.512.3.4.3.0050.0.0020 | 20             | 0.5                               | 11.9                  | 88.1                   | 207                      | 100/500/1000    |
| 3.512.3.4.3.0050.0.0021 | 21             | 0.5                               | 11.9                  | 92.5                   | 219                      | 100/500/1000    |
| 3.512.3.4.3.0050.0.0024 | 24             | 0.5                               | 13.2                  | 105.7                  | 243                      | 100/500/1000    |
| 3.512.3.4.3.0050.0.0025 | 25             | 0.5                               | 13.2                  | 110.1                  | 257                      | 100/500/1000    |
| 3.512.3.4.3.0050.0.0027 | 27             | 0.5                               | 13.5                  | 118.9                  | 265                      | 100/500/1000    |
| Part Numarası           | İletken Sayısı | İletken Kesiti (mm <sup>2</sup> ) | Ortalama Dış Çap (mm) | Bakır Ağırlığı (kg/km) | Ortalama Ağırlık (kg/km) | Makara Boyu (m) |
| 3.512.2.4.3.0075.0.0002 | 2              | 0.75                              | 5.9                   | 13.3                   | 43                       | 100/500/1000    |
| 3.512.2.4.3.0075.0.0003 | 3              | 0.75                              | 6.2                   | 19.9                   | 53                       | 100/500/1000    |
| 3.512.2.4.3.0075.0.0004 | 4              | 0.75                              | 6.8                   | 26.5                   | 67                       | 100/500/1000    |
| 3.512.3.4.3.0075.0.0005 | 5              | 0.75                              | 7.5                   | 33.1                   | 83                       | 100/500/1000    |
| 3.512.3.4.3.0075.0.0006 | 6              | 0.75                              | 8.1                   | 39.7                   | 98                       | 100/500/1000    |
| 3.512.3.4.3.0075.0.0007 | 7              | 0.75                              | 8.1                   | 46.3                   | 103                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0008 | 8              | 0.75                              | 8.9                   | 52.9                   | 124                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0009 | 9              | 0.75                              | 10.2                  | 59.5                   | 141                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0010 | 10             | 0.75                              | 10.2                  | 66.1                   | 146                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0012 | 12             | 0.75                              | 10.6                  | 79.3                   | 169                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0014 | 14             | 0.75                              | 11.2                  | 92.5                   | 194                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0016 | 16             | 0.75                              | 11.8                  | 105.7                  | 216                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0018 | 18             | 0.75                              | 12.5                  | 118.9                  | 246                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0019 | 19             | 0.75                              | 12.5                  | 125.5                  | 251                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0020 | 20             | 0.75                              | 13.1                  | 132.1                  | 272                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0021 | 21             | 0.75                              | 13.1                  | 138.7                  | 287                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0024 | 24             | 0.75                              | 14.6                  | 158.5                  | 318                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0025 | 25             | 0.75                              | 14.6                  | 165.1                  | 336                      | 100/500/1000    |
| 3.512.3.4.3.0075.0.0027 | 27             | 0.75                              | 14.9                  | 178.3                  | 348                      | 100/500/1000    |

## LIHH (FE180 / PH120)

| Part Numarası           | İletken Sayısı | İletken Kesiti (mm <sup>2</sup> ) | Ortalama Dış Çap (mm) | Bakır Ağırlığı (kg/km) | Ortalama Ağırlık (kg/km) | Makara Boyu (m) |
|-------------------------|----------------|-----------------------------------|-----------------------|------------------------|--------------------------|-----------------|
| 3.512.2.4.3.0100.0.0002 | 2              | 1                                 | 6.3                   | 16.6                   | 49                       | 100/500/1000    |
| 3.512.2.4.3.0100.0.0003 | 3              | 1                                 | 6.7                   | 24.8                   | 62                       | 100/500/1000    |
| 3.512.3.4.3.0100.0.0004 | 4              | 1                                 | 7.3                   | 33.1                   | 78                       | 100/500/1000    |
| 3.512.3.4.3.0100.0.0005 | 5              | 1                                 | 8                     | 41.3                   | 97                       | 100/500/1000    |
| 3.512.3.4.3.0100.0.0006 | 6              | 1                                 | 8.7                   | 49.6                   | 115                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0007 | 7              | 1                                 | 8.7                   | 57.8                   | 121                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0008 | 8              | 1                                 | 9.5                   | 66.1                   | 146                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0009 | 9              | 1                                 | 11                    | 74.3                   | 167                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0010 | 10             | 1                                 | 11                    | 82.6                   | 173                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0012 | 12             | 1                                 | 11.5                  | 99.1                   | 201                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0014 | 14             | 1                                 | 12.1                  | 115.6                  | 230                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0016 | 16             | 1                                 | 12.7                  | 132.1                  | 257                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0018 | 18             | 1                                 | 13.5                  | 148.6                  | 293                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0019 | 19             | 1                                 | 13.5                  | 156.9                  | 299                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0020 | 20             | 1                                 | 14.2                  | 165.1                  | 324                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0021 | 21             | 1                                 | 14.2                  | 173.4                  | 343                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0024 | 24             | 1                                 | 15.7                  | 198.1                  | 375                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0025 | 25             | 1                                 | 15.7                  | 206.4                  | 397                      | 100/500/1000    |
| 3.512.3.4.3.0100.0.0027 | 27             | 1                                 | 16.1                  | 222.9                  | 412                      | 100/500/1000    |
| Part Numarası           | İletken Sayısı | İletken Kesiti (mm <sup>2</sup> ) | Ortalama Dış Çap (mm) | Bakır Ağırlığı (kg/km) | Ortalama Ağırlık (kg/km) | Makara Boyu (m) |
| 3.512.2.4.3.0150.0.0002 | 2              | 1.5                               | 6.9                   | 25.8                   | 63                       | 100/500/1000    |
| 3.512.2.4.3.0150.0.0003 | 3              | 1.5                               | 7.3                   | 38.6                   | 81                       | 100/500/1000    |
| 3.512.2.4.3.0150.0.0004 | 4              | 1.5                               | 8                     | 51.5                   | 102                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0005 | 5              | 1.5                               | 8.8                   | 64.3                   | 128                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0006 | 6              | 1.5                               | 9.5                   | 77.2                   | 151                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0007 | 7              | 1.5                               | 9.5                   | 90.1                   | 161                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0008 | 8              | 1.5                               | 10.5                  | 102.9                  | 193                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0009 | 9              | 1.5                               | 12.1                  | 115.8                  | 220                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0010 | 10             | 1.5                               | 12.1                  | 128.6                  | 229                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0012 | 12             | 1.5                               | 12.6                  | 154.4                  | 267                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0014 | 14             | 1.5                               | 13.3                  | 180.1                  | 307                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0016 | 16             | 1.5                               | 14                    | 205.8                  | 344                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0018 | 18             | 1.5                               | 14.8                  | 231.5                  | 392                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0019 | 19             | 1.5                               | 14.8                  | 244.4                  | 401                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0020 | 20             | 1.5                               | 15.6                  | 257.2                  | 434                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0021 | 21             | 1.5                               | 15.6                  | 270.1                  | 459                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0024 | 24             | 1.5                               | 17.4                  | 308.7                  | 508                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0025 | 25             | 1.5                               | 17.4                  | 321.5                  | 537                      | 100/500/1000    |
| 3.512.3.4.3.0150.0.0027 | 27             | 1.5                               | 17.8                  | 347.2                  | 559                      | 100/500/1000    |

## LIHH (FE180 / PH120)

| Part Numarası           | İletken Sayısı | İletken Kesiti (mm <sup>2</sup> ) | Ortalama Dış Çap (mm) | Bakır Ağırlığı (kg/km) | Ortalama Ağırlık (kg/km) | Makara Boyu (m) |
|-------------------------|----------------|-----------------------------------|-----------------------|------------------------|--------------------------|-----------------|
| 3.512.2.4.3.0250.0.0002 | 2              | 2.5                               | 8.1                   | 42.9                   | 89                       | 100/500/1000    |
| 3.512.2.4.3.0250.0.0003 | 3              | 2.5                               | 8.6                   | 64.3                   | 118                      | 100/500/1000    |
| 3.512.2.4.3.0250.0.0004 | 4              | 2.5                               | 9.6                   | 85.8                   | 153                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0005 | 5              | 2.5                               | 10.6                  | 107.2                  | 195                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0006 | 6              | 2.5                               | 11.5                  | 128.6                  | 232                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0007 | 7              | 2.5                               | 11.5                  | 150.1                  | 248                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0008 | 8              | 2.5                               | 12.7                  | 171.5                  | 297                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0009 | 9              | 2.5                               | 14.7                  | 192.9                  | 337                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0010 | 10             | 2.5                               | 14.7                  | 214.4                  | 353                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0012 | 12             | 2.5                               | 15.3                  | 257.2                  | 412                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0014 | 14             | 2.5                               | 16.2                  | 300.1                  | 474                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0016 | 16             | 2.5                               | 17                    | 343                    | 533                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0018 | 18             | 2.5                               | 18                    | 385.8                  | 608                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0019 | 19             | 2.5                               | 18                    | 407.3                  | 623                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0020 | 20             | 2.5                               | 19                    | 428.7                  | 675                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0021 | 21             | 2.5                               | 19                    | 450.1                  | 715                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0024 | 24             | 2.5                               | 21.1                  | 514.4                  | 777                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0025 | 25             | 2.5                               | 21.1                  | 535.9                  | 830                      | 100/500/1000    |
| 3.512.3.4.3.0250.0.0027 | 27             | 2.5                               | 21.6                  | 578.7                  | 865                      | 100/500/1000    |