

H07RN-F Flexible Rubber Cable



Application

These cables are designed to provide high flexibility and have the capacity to withstand weather, oil/grease, mechanical and thermal stresses. Applications include handling equipment, mobile power supplies, worksites, stage and audio visual equipment, port areas and dams. Also for use in drainage and water treatment, cold environments and severe industrial environments.

Standards

2014/68/EU; EN 50525-2-21; EU Directive 2011/65/
EU (RoHS); HD 516; IEC 60245-4 type 66
Flame Retardant according to IEC/EN 60332-1-2
Water Resistant according to AD7

Characteristics

Voltage Rating U/U₀ 450/750V

Temperature Rating

Fixed: -30°C to +60°C

Fixed protected installations: +85°C

Flexed: -15°C to +60°C

Insulation tested to +90°C

Minimum Bending Radius

Fixed: 3 x outer diameter of the cable if OD < or = 12mm ; 4x if OD > 12mm

Flexed: 6 to 8 x overall diameter

Construction

Conductor

Class 5 flexible copper conductor

Insulation

Special cross-linked elastomer

Sheath

Special cross-linked elastomer

Sheath Colour

Black



Dimensions

| NO. OF CORES | NOMINAL CROSS SECTIONAL AREA mm ² | NOMINAL THICKNESS OF INSULATION mm | NOMINAL OVERALL DIAMETER mm | NOMINAL WEIGHT kg/km | A2 GLANDS Brass | A2PL GLAND Plastic |
|-----------------|--|---|-----------------------------------|----------------------------|--------------------|-----------------------|
| 1 | 1.5 | 0.8 | 5.8 | 50 | 20/16 | 20S |
| 1 | 2.5 | 0.9 | 6.5 | 66 | 20/16 | 20S |
| 1 | 4 | 1 | 7.4 | 94 | 20/16 | 20S |
| 1 | 6 | 1 | 8.1 | 109 | 20S | 20S |
| 1 | 10 | 1.2 | 9.8 | 182 | 20S | 20S |
| 1 | 16 | 1.2 | 11.35 | 256 | 20 | 20 |
| 1 | 25 | 1.4 | 13.3 | 375 | 25 | 20 |
| 1 | 35 | 1.4 | 14.6 | 482 | 25 | 25 |
| 1 | 50 | 1.6 | 17.2 | 662 | 25 | 25 |
| 1 | 70 | 1.6 | 19.35 | 895 | 32 | 32 |
| 1 | 95 | 1.8 | 22.2 | 1144 | 32 | 32 |
| 1 | 120 | 1.8 | 24.3 | 1430 | 32 | 32 |
| 1 | 150 | 2 | 25.9 | 1740 | 40 | 40 |
| 1 | 185 | 2.2 | 29.7 | 2160 | 40 | 40 |
| 1 | 240 | 2.4 | 31.5 | 2730 | 50S | 50S |
| 1 | 300 | 2.6 | 36.5 | 3348 | 50 | 50S |
| 1 | 400 | 2.8 | 40.4 | 4510 | 50 | 50 |
| 1 | 500 | 3 | 42.6 | 5700 | 50 | 50 |
| 1 | 630 | 3 | 47.2 | 6790 | 63S | 63S |
| 2 | 1 | 0.8 | 8.1 | 94 | 20S | 20S |
| 2 | 1.5 | 0.8 | 9 | 111 | 20S | 20S |
| 2 | 2.5 | 0.9 | 10.7 | 173 | 20S | 20S |
| 2 | 4 | 1 | 12.3 | 238 | 20 | 20 |
| 2 | 6 | 1 | 13.8 | 279 | 25 | 25 |
| 2 | 10 | 1.2 | 18.6 | 538 | 32 | 25 |
| 2 | 16 | 1.2 | 21.7 | 744 | 32 | 32 |
| 2 | 25 | 1.4 | 25.8 | 1074 | 40 | 40 |
| 3 | 1 | 0.8 | 8.74 | 117 | 20S | 20S |
| 3 | 1.5 | 0.8 | 9.68 | 134 | 20S | 20S |
| 3 | 2.5 | 0.9 | 11.48 | 195 | 20 | 20 |
| 3 | 4 | 1 | 13.2 | 297 | 25 | 25 |
| 3 | 6 | 1 | 14.78 | 346 | 25 | 25 |
| 3 | 10 | 1.2 | 19.9 | 663 | 32 | 32 |
| 3 | 16 | 1.2 | 23.31 | 924 | 32 | 32 |
| 3 | 25 | 1.4 | 27.7 | 1345 | 40 | 40 |
| 3 | 35 | 1.4 | 30.2 | 1760 | 50S | 50S |
| 3 | 50 | 1.6 | 35.8 | 2390 | 50 | 50S |
| 3 | 70 | 1.6 | 40.1 | 3484 | 50 | 50 |
| 3 | 95 | 1.8 | 46.4 | 4594 | 63S | 63S |
| 4 | 1 | 0.8 | 9.63 | 144 | 20S | 20S |
| 4 | 1.5 | 0.8 | 10.63 | 165 | 20S | 20S |
| 4 | 2.5 | 0.9 | 12.6 | 245 | 20 | 20 |
| 4 | 4 | 1 | 14.6 | 357 | 25 | 25 |
| 4 | 6 | 1 | 16.4 | 443 | 25 | 32 |
| 4 | 10 | 1.2 | 21.8 | 818 | 32 | 32 |
| 4 | 16 | 1.2 | 25.4 | 1150 | 40 | 40 |
| 4 | 25 | 1.4 | 30.7 | 1700 | 50S | 50 |

| NO. OF CORES | NOMINAL CROSS SECTIONAL AREA mm ² | NOMINAL THICKNESS OF INSULATION mm | NOMINAL OVERALL DIAMETER mm | NOMINAL WEIGHT kg/km | A2 GLANDS Brass | A2PL GLAND Plastic |
|--------------|---|---------------------------------------|--------------------------------|-------------------------|--------------------|-----------------------|
| 4 | 35 | 1.4 | 33.4 | 2180 | 50S | 50 |
| 4 | 50 | 1.6 | 39.6 | 3030 | 50 | - |
| 4 | 70 | 1.6 | 44.9 | 3990 | 63 | - |
| 4 | 95 | 1.8 | 51.9 | 5360 | 63 | - |
| 4 | 120 | 1.8 | 55.3 | 6546 | - | - |
| 4 | 150 | 2.0 | 60.8 | 8095 | - | - |
| 4 | 185 | 2.2 | 65.7 | 9910 | - | - |
| 4 | 240 | 2.4 | 75.7 | 13120 | - | - |
| 5 | 1.5 | 0.8 | 11.8 | 238 | 20 | 20L |
| 5 | 2.5 | 0.9 | 14 | 297 | 25 | 25 |
| 5 | 4 | 1 | 16.2 | 453 | 25 | 25 |
| 5 | 6 | 1 | 18.2 | 557 | 32 | 32 |
| 5 | 10 | 1.2 | 24 | 1001 | 40 | 40 |
| 5 | 16 | 1.2 | 28.2 | 1430 | 40 | 40 |
| 5 | 25 | 1.4 | 33.9 | 2096 | 50S | 50 |
| 5 | 35 | 1.4 | 37.2 | 2690 | 50 | 50 |
| 5 | 50 | 1.6 | 44 | 3840 | 63S | 63S |
| 5 | 70 | 1.6 | 48 | 5033 | 63 | - |
| 5 | 95 | 1.6 | 53.2 | 6640 | 63 | - |
| 7 | 1.5 | 0.8 | 15.13 | 487 | 25 | 25 |
| 7 | 2.5 | 0.9 | 17.6 | 445 | 25 | 32 |
| 12 | 1.5 | 0.8 | 18.2 | 510 | 25 | 32 |
| 12 | 2.5 | 0.9 | 21.4 | 702 | 32 | 32 |
| 19 | 1.5 | 0.8 | 22.1 | 710 | 32 | 32 |

Conductors

Class 5 Flexible Copper Conductors for Single Core and Multi-Core Cables

| NOMINAL CROSS SECTIONAL AREA mm ² | MAXIMUM DIAMETER OF WIRES IN CONDUCTOR mm | MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C ohms/ km |
|---|---|---|
| | | |
| 1 | 0.21 | 19.5 |
| 1.5 | 0.26 | 13.3 |
| 2.5 | 0.26 | 7.98 |
| 4 | 0.31 | 4.95 |
| 6 | 0.31 | 3.3 |
| 10 | 0.41 | 1.91 |
| 16 | 0.41 | 1.21 |
| 25 | 0.41 | 0.78 |
| 35 | 0.41 | 0.554 |
| 50 | 0.41 | 0.386 |
| 70 | 0.51 | 0.272 |
| 95 | 0.51 | 0.206 |
| 120 | 0.51 | 0.161 |
| 150 | 0.51 | 0.129 |
| 185 | 0.51 | 0.106 |
| 240 | 0.51 | 0.0801 |
| 300 | 0.51 | 0.0641 |
| 400 | 0.51 | 0.0486 |
| 500 | 0.61 | 0.0384 |
| 630 | 0.61 | 0.0287 |

The above table is in accordance with EN 60228

Electrical Characteristics (1mm² to 2.5mm²)

Current Carrying Capacity and Mass Supportable

| NOMINAL CROSS SECTIONAL AREA mm ² | CURRENT CARRYING CAPACITY Amps | | MAXIMUM MASS SUPPORTABLE BY TWIN FLEXIBLE CABLE (See Regulations 522.7.2 and 559.6.1.5 of the 17th Edition of IEE Wiring Regulations) kg |
|--|--------------------------------|----------------|--|
| | Single-Phase AC | Three-Phase AC | |
| 1 | 10 | 10 | 5 |
| 1.5 | 16 | 16 | 5 |
| 2.5 | 25 | 20 | 5 |

Voltage Drop

| NOMINAL CROSS SECTIONAL AREA mm ² | DC OR SINGLE-PHASE AC mV/A/m | THREE-PHASE AC mV/A/m |
|--|------------------------------|-----------------------|
| 1 | 46 | 40 |
| 1.5 | 32 | 27 |
| 2.5 | 19 | 16 |

Conductor operating temperature: 60°C

Electrical Characteristics (4mm² and above)

Current Carrying Capacity

| NOMINAL CROSS SECTIONAL AREA mm ² | 60°C CONDUCTOR OPERATING TEMPERATURE Amps | | | 85°C CONDUCTOR OPERATING TEMPERATURE** Amps | | |
|--|--|----------------------|--|--|-------------------------------|--|
| | Single-Phase AC | | Three-Phase AC | Single-Phase AC | | Three-Phase AC |
| | 1 Two Core Cable, With or Without Protective Conductor | 2 Single Core Cables | 1 Three Core, Four Core or Five Core Cable | 1 Two Core Cable, With or Without Protective Conductor | 2 Single Core Cables Touching | 1 Three Core, Four Core or Five Core Cable |
| 4 | 30 | - | 26 | 41 | - | 36 |
| 6 | 39 | - | 34 | 53 | - | 47 |
| 10 | 51 | - | 47 | 73 | - | 64 |
| 16 | 73 | - | 63 | 99 | - | 86 |
| 25 | 97 | - | 83 | 131 | - | 114 |
| 35 | - | 140 | 102 | - | 192 | 140 |
| 50 | - | 175 | 124 | - | 240 | 170 |
| 70 | - | 216 | 158 | - | 297 | 216 |
| 95 | - | 258 | 192 | - | 354 | 262 |
| 120 | - | 302 | 222 | - | 414 | 303 |
| 150 | - | 347 | 255 | - | 476 | 348 |
| 185 | - | 394 | 291 | - | 540 | 397 |
| 240 | - | 471 | 343 | - | 645 | 467 |
| 300 | - | 541 | 394 | - | 741 | 537 |
| 400 | - | 644 | - | - | 885 | - |
| 500 | - | 738 | - | - | 1017 | - |
| 630 | - | 861 | - | - | 1190 | - |

Ambient temperature: 30°C

Conductor operating temperature: 60°C / 85°C

The above table for 60°C conductor operating temperature is in accordance with Table 4F1A of the 18th Edition of IEE Wiring Regulations BS7671 and IEC 60364-5-52

** 85°C Table is in accordance with Table 4H2A of the 16th Edition of IEE Wiring Regulations.

The current ratings tabulated are for cables in free air but may also be used for cables resting on a surface. If the cable is to be wound on a drum on load the ratings should be reduced in accordance with NOTE 2 below and for cables which may be covered, NOTE 3 below.

2. Flexible cables wound on reeling drums

The current ratings of cables used on reeling drums are to be reduced by the following factors:

a) Radial type drum

ventilated: 85%
 unventilated: 75%

b) Ventilated cylindrical type drum

| | | | | |
|---|--------|----|--------|-----|
| 1 | layers | of | cable: | 85% |
| 2 | layers | of | cable: | 65% |
| 3 | layers | of | cable: | 45% |
| 4 | layers | of | cable: | 35% |

A radial type drum is one where spiral layers of cable are accommodated between closely spaced flanges; if fitted with solid flanges the ratings given above should be reduced and the drum is described as non-ventilated. If the flanges have suitable apertures the drum is described as ventilated.

A ventilated cylindrical cable drum is one where layers of cable are accommodated between widely spaced flanges and the drum and end flanges have suitable ventilating apertures.

3. Where cable may be covered or coiled up whilst on load, or the air movement over the cable restricted, the current rating should be reduced.

It is not possible to specify the amount of reduction but the table of rating factors for reeling drums can be used as a guide.

Voltage Drop

| NOMINAL CROSS SECTIONAL AREA mm ² | TWO CORE CABLES DC mV/A/m | TWO CORE CABLE, SINGLE-PHASE AC mV/A/m | | | 1 THREE CORE, FOUR CORE OR FIVE CORE CABLE, THREE-PHASE AC mV/A/m | | | 2 SINGLE CORE CABLES, TOUCHING mV/A/m | | | |
|--|---------------------------------|--|-------|------|--|-------|-------|---------------------------------------|------------------|-------|-------|
| | | | | | | | | DC | Single-Phase AC* | | |
| 4 | 12 | 12 | | | 10 | | | - | - | | |
| 6 | 7.8 | 7.8 | | | 6.7 | | | - | - | | |
| 10 | 4.6 | 4.6 | | | 4 | | | - | - | | |
| 16 | 2.9 | 2.9 | | | 2.5 | | | - | - | | |
| | | r | x | z | r | x | z | | r | x | z |
| 25 | 1.80 | 1.80 | 0.175 | 1.85 | 1.55 | 0.150 | 1.55 | - | - | - | - |
| 35 | - | - | - | - | 1.10 | 0.150 | 1.15 | 1.31 | 1.31 | 0.21 | 1.32 |
| 50 | - | - | - | - | 0.83 | 0.145 | 0.84 | 0.91 | 0.91 | 0.21 | 0.93 |
| 70 | - | - | - | - | 0.57 | 0.140 | 0.58 | 0.64 | 0.64 | 0.20 | 0.67 |
| 95 | - | - | - | - | 0.42 | 0.135 | 0.44 | 0.49 | 0.49 | 0.195 | 0.53 |
| 120 | - | - | - | - | 0.33 | 0.135 | 0.36 | 0.38 | 0.38 | 0.190 | 0.43 |
| 150 | - | - | - | - | 0.27 | 0.130 | 0.30 | 0.31 | 0.31 | 0.190 | 0.36 |
| 185 | - | - | - | - | 0.22 | 0.130 | 0.26 | 0.25 | 0.25 | 0.190 | 0.32 |
| 240 | - | - | - | - | 0.170 | 0.130 | 0.21 | 0.190 | 0.195 | 0.185 | 0.27 |
| 300 | - | - | - | - | 0.135 | 0.125 | 0.185 | 0.150 | 0.155 | 0.180 | 0.24 |
| 400 | - | - | - | - | - | - | - | 0.115 | 0.120 | 0.175 | 0.21 |
| 500 | - | - | - | - | - | - | - | 0.090 | 0.099 | 0.170 | 0.20 |
| 630 | - | - | - | - | - | - | - | 0.068 | 0.079 | 0.170 | 0.185 |

Conductor operating temperature: 60°C

r = Resistive Component

x = Reactive Component

z = Impedance Value

* A larger voltage drop will result if the cables are spaced.

De-Rating Factors

| AMBIENT TEMPERATURE | 35°C | 40°C | 45°C | 50°C | 55°C |
|---------------------|------|------|------|------|------|
| DE-RATING FACTOR | 0.95 | 0.91 | 0.86 | 0.82 | 0.41 |

The information contained within this datasheet is for guidance only and is subject to change without notice or liability. All the information is provided in good faith and is believed to be correct at the time of publication. When selecting cable accessories, please note that actual cable dimensions may vary due to manufacturing tolerances.