HARMONISED FLEXIBLE CABLE 450/750 V · DIN VDE 0282 / EN 50525 | 450/750 V | 12 sizes | halogen-free FRNC | TINNED COPPER

# H07ZZ-F 5G 450/750 V

Halogen-Free Flexible Cable 450/750 V 450/750 V – 5 cores of equal cross-section in concentric layers with a short lay length. Halogen-free FRNC sheath. Complete technical data sheet: construction, dimensions, weights, current ratings, voltage drop and installation guidance for 12 sizes.

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## 01 Application and Product Overview

H07ZZ-F is the harmonised halogen-free flexible cable for 450/750 V. Cross-linked halogen-free insulation and a halogen-free flame-retardant sheath give a flexible, oil-resistant cable that does not release halogen acids in a fire, for installations where people or equipment must be protected.

### Design

The conductors are class 5 fine-wire copper, bare or tinned. The cores are insulated with a cross-linked halogen-free compound for 90 °C at the conductor. The sheath is a halogen-free flame-retardant elastomer; multi-core cables from 7 cores and cables from 10 mm² carry an inner sheath. The type is covered by DIN EN 50525-3-21.

### Typical applications

- Exhibition halls, theatres and venues with high safety requirements
- Public transport, tunnels and underground installations
- Data centres, control rooms and clean production areas
- Ships and offshore installations where halogen-free cables are specified
- Mobile power distribution for events in enclosed buildings
- Machine connections in plants with halogen-free requirements
- Cable for hospitals, airports and schools
- General connections for medium mechanical stress in damp rooms

| 12 sizes | 450/750 V | +90 °C | Halogen-free |
|---|---|---|---|
| Cross-section 1.5 – 120 mm² | Rated voltage $U_0/U$ | Maximum conductor temperature | Sheath: halogen-free FRNC |

### Key features

- Halogen-free insulation and sheath (IEC 60754-1/-2)
- Rated 90 °C at the conductor; short-circuit temperature 250 °C
- Rated voltage 450/750 V, test voltage 2.5 kV
- Class 5 conductors for flexible use
- Flame-retardant to IEC 60332-1-2; low smoke development
- Oil-resistant sheath
- 12 sizes from 1.5 to 120 mm²; weight from 245 to 8,500 kg/km; copper from 72 to 5,760 kg/km

### Core layout and conductor

5 cores of equal cross-section in concentric layers with a short lay length. Core colours: green-yellow, blue, brown, black, grey (DIN VDE 0293-308); the green-yellow core is the protective conductor. Five cores carry three phases, neutral and PE (5G) or three phases, neutral and a spare core. The conductors are tinned: each copper wire carries a thin tin coating. Tinning protects the copper against oxidation and corrosion in damp, salty or sulphurous atmospheres and keeps the conductor solderable, which is an advantage in outdoor, marine and mining installations. The resistance limits of tinned class 5 conductors are marginally higher than for bare copper; the $R_{20}$ column shows the tinned values.


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### Standard background

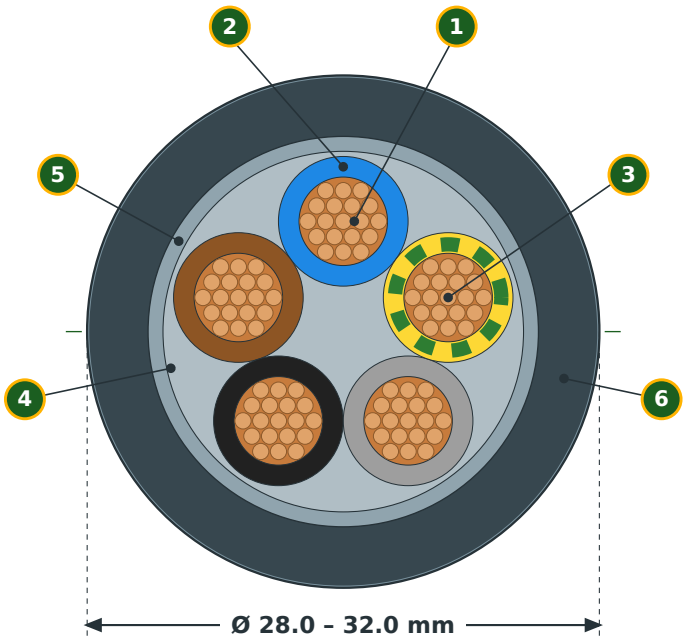
H07ZZ-F and H05ZZ-F are harmonised halogen-free types covered by DIN EN 50525-3-21 (VDE 0285-525-3-21). ZZ identifies the thermoset halogen-free insulation and sheath.

450/750 V is the common rating for industrial and building-site distribution on 400 V systems and allows a margin for DC and rectified supplies. The test voltage is 2.5 kV.

## 02 Construction

**FEICHUN · CROSS-SECTION A-A · 450/750 V**

**H07ZZ-F**
Sample size 5G16 · Rev 0 · Illustrative, not to scale




| No. | Component | Material |
|---|---|---|
| 1 | Conductor | Tinned annealed fine-wire copper, class 5 to IEC 60228 / DIN VDE 0295 |
| 2 | Insulation | Halogen-free cross-linked compound, type HX |
| 3 | Protective (PE) core | Green-yellow insulation, same cross-section as the power cores |
| 4 | Filler and binder tape | Halogen-free filler with polyester binder tape |
| 5 | Inner sheath | Halogen-free compound, extruded over the stranded core |
| 6 | Outer sheath | Halogen-free flame-retardant elastomer, type 5GM5-HF (FRNC) |

The drawing shows size 5G16. Other sizes have the same construction with scaled dimensions; the layout of every size is checked for non-overlap of all elements.

### Construction details

| | |
|---|---|
| **Conductor** | Tinned annealed fine-wire copper, class 5 to DIN VDE 0295 / IEC 60228 |
| **Insulation** | Halogen-free cross-linked compound, type HX, maximum conductor temperature 90 °C |
| **Core identification** | Green-yellow, blue, brown, black, grey to DIN VDE 0293-308 |
| **Stranding** | Cores in concentric layers with a short lay length |
| **Inner sheath** | Halogen-free compound; thickness about 0.9 mm at this size |
| **Outer sheath** | Halogen-free flame-retardant elastomer, type 5GM5-HF (FRNC); thickness about 3.6 mm at this size |

## 03 Electrical, Thermal and Mechanical Characteristics

### Electrical data

| | |
|---|---|
| **Rated voltage $U_0/U$** | 450/750 V AC |
| **Test voltage** | 2.5 kV AC, 5 min |
| **Maximum operating voltage, three-phase** | 825 V |
| **Maximum operating voltage, DC (core-earth / core-core)** | 0.45/0.75 kV (DC 0.675/1.1 kV) |
| **Current-carrying capacity** | Design values by the method of DIN VDE 0298-4, free air, 30 °C ambient |
| **Conductor resistance** | Maximum at 20 °C, class 5, tinned |


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## Thermal and mechanical data

| | |
|---|---|
| **Maximum conductor temperature** | +90 °C |
| **Maximum temperature at short circuit** | +250 °C (5 s maximum) |
| **Ambient temperature, fixed installation** | −40 °C to +90 °C |
| **Ambient temperature, in motion** | −25 °C to +90 °C |
| **Minimum bending radius** | Fixed: 3 × D (D ≤ 12 mm), 4 × D (D > 12 mm); moving: 3 × D (D ≤ 8 mm), 4 × D (D ≤ 12 mm), 5 × D (D > 12 mm) (DIN VDE 0298-3) |
| **Maximum tensile load** | 15 N/mm² continuous on the total copper cross-section |
| **Flame propagation** | IEC 60332-1-2 / DIN EN 60332-1-2 |
| **Halogen-free** | Yes (insulation and sheath), IEC 60754-1/-2 |
| **Mineral oil resistance** | Resistant, DIN EN 60811-404 |
| **UV and ozone resistance** | Resistant |
| **Water** | Damp and wet areas, spray water |

## 04 Dimensions, Weights and Rated Data – 450/750 V (12 sizes)

| Type designation cores × mm² | FeiChun article no. | Cond. Ø max mm | Outer Ø min mm | Outer Ø max mm | Bend radius fixed mm | Bend radius moving mm | Weight approx. kg/km | Copper kg/km | Max. pull N | $R_{20}$ max Ω/km | Rated current A | $I_k$ (1 s) kA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **5G1.5** | FC-H07Z-0922-01 | 1.7 | 11.2 | 13.4 | 54 | 67 | 245 | 72 | 112 | 13.7 | 19 | 0.214 |
| **5G2.5** | FC-H07Z-0922-02 | 2.2 | 13.2 | 15.8 | 63 | 79 | 341 | 120 | 188 | 8.21 | 26 | 0.357 |
| **5G4** | FC-H07Z-0922-03 | 2.7 | 16.1 | 19.0 | 76 | 95 | 410 | 192 | 300 | 5.09 | 35 | 0.572 |
| **5G6** | FC-H07Z-0922-04 | 3.3 | 18.2 | 21.4 | 86 | 107 | 570 | 288 | 450 | 3.39 | 45 | 0.858 |
| **5G10** | FC-H07Z-0922-05 | 4.1 | 24.0 | 27.5 | 110 | 138 | 1,010 | 480 | 750 | 1.95 | 62 | 1.43 |
| **5G16** | FC-H07Z-0922-06 | 5.2 | 28.0 | 32.0 | 128 | 160 | 1,520 | 770 | 1,200 | 1.24 | 83 | 2.29 |
| **5G25** | FC-H07Z-0922-07 | 6.5 | 34.0 | 38.0 | 152 | 190 | 2,360 | 1,200 | 1,880 | 0.795 | 110 | 3.58 |
| **5G35** | FC-H07Z-0922-08 | 7.7 | 35.5 | 40.0 | 160 | 200 | 2,810 | 1,680 | 2,620 | 0.565 | 136 | 5.00 |
| **5G50** | FC-H07Z-0922-09 | 9.2 | 41.5 | 46.0 | 184 | 230 | 3,900 | 2,400 | 3,750 | 0.393 | 170 | 7.15 |
| **5G70** | FC-H07Z-0922-10 | 10.8 | 46.5 | 52.0 | 208 | 260 | 5,190 | 3,360 | 5,250 | 0.277 | 210 | 10.01 |
| **5G95** | FC-H07Z-0922-11 | 12.6 | 53.5 | 59.5 | 238 | 298 | 6,920 | 4,560 | 7,120 | 0.210 | 254 | 13.59 |
| **5G120** | FC-H07Z-0922-12 | 14.2 | 58.0 | 64.5 | 258 | 322 | 8,500 | 5,760 | 9,000 | 0.164 | 294 | 17.16 |

Current-carrying capacity: design values by the method of DIN VDE 0298-4, free air, 30 °C ambient; for other ambient temperatures use the factors below and the multi-core reduction factor already included in the table. Copper weight = 9.6 kg/(km·mm²) of copper cross-section (VDE copper index). Pull force = 15 N/mm² × total copper cross-section of the power cores. Diameters, dimensions and weights are nominal design values calibrated to published type tables; they vary within manufacturing tolerances. Confirm critical dimensions before dimensioning reels, glands or festoon systems. Other sizes and configurations are produced to order.

### Ambient temperature factors (conductor 90 °C)

| °C | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
|---|---|---|---|---|---|---|---|---|---|
| Factor | 1.08 | 1.04 | 1.00 | 0.96 | 0.91 | 0.87 | 0.82 | 0.76 | 0.71 |

### Short-circuit current rating

$I_k$ = 0.143 kA/mm² × cross-section of the power core (conductor 90 °C → 250 °C). For another duration t: $I_{k,t} = I_{k,1s} / \sqrt{t}$ (0.1 s ≤ t ≤ 5 s).


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## 05 Voltage Drop, Losses and Short-Circuit Data

Voltage drop per 100 m of cable at rated current with the conductor at 90 °C, cos φ = 0.8 and reactance 0.08 Ω/km (three-phase). The percentage refers to a system voltage of 400 V. Loss is the total I²R loss of the loaded cores per 100 m. The short-circuit columns give the permitted current for four durations.

| Type designation cores × mm² | Rated current A | R at 90 °C Ω/km | Voltage drop V / 100 m | Voltage drop % of 400 V | Loss kW / 100 m | $I_k$ 0.1 s kA | $I_k$ 0.5 s kA | $I_k$ 1 s kA | $I_k$ 3 s kA |
|---|---|---|---|---|---|---|---|---|---|
| **5G1.5** | 19 | 17.5 | 46.15 | 11.54 | 1.89 | 0.678 | 0.303 | 0.214 | 0.124 |
| **5G2.5** | 26 | 10.5 | 37.93 | 9.48 | 2.12 | 1.13 | 0.506 | 0.357 | 0.206 |
| **5G4** | 35 | 6.49 | 31.77 | 7.94 | 2.39 | 1.81 | 0.809 | 0.572 | 0.330 |
| **5G6** | 45 | 4.32 | 27.33 | 6.83 | 2.63 | 2.71 | 1.21 | 0.858 | 0.495 |
| **5G10** | 62 | 2.49 | 21.88 | 5.47 | 2.87 | 4.52 | 2.02 | 1.43 | 0.826 |
| **5G16** | 83 | 1.58 | 18.87 | 4.72 | 3.27 | 7.24 | 3.24 | 2.29 | 1.32 |
| **5G25** | 110 | 1.01 | 16.37 | 4.09 | 3.68 | 11.31 | 5.06 | 3.58 | 2.06 |
| **5G35** | 136 | 0.720 | 14.71 | 3.68 | 4.00 | 15.83 | 7.08 | 5.00 | 2.89 |
| **5G50** | 170 | 0.501 | 13.22 | 3.30 | 4.34 | 22.61 | 10.11 | 7.15 | 4.13 |
| **5G70** | 210 | 0.353 | 12.02 | 3.01 | 4.67 | 31.65 | 14.16 | 10.01 | 5.78 |
| **5G95** | 254 | 0.268 | 11.54 | 2.88 | 5.18 | 42.96 | 19.21 | 13.59 | 7.84 |
| **5G120** | 294 | 0.209 | 10.96 | 2.74 | 5.42 | 54.26 | 24.27 | 17.16 | 9.91 |

## 06 Selection Guide and Sizing Aid

H07ZZ-F 5G covers 12 sizes. The smallest, 5G1.5, has an outer diameter of up to 13.4 mm and weighs about 245 kg/km; the largest, 5G120, has an outer diameter of up to 64.5 mm and weighs about 8,500 kg/km, 34.7 times as much. Across the range the rated current rises from 19 A to 294 A at 30 °C and the fixed bending radius from 54 mm to 258 mm.

**Example 1.** A circuit draws 42 A continuously at 40 °C ambient temperature, in a group of two cables. Temperature factor 0.91, grouping factor 0.80: required table current = 42 / (0.91 × 0.80) = 58 A. The smallest suitable size is 5G10 with 62 A.

**Example 2.** A circuit draws 150 A continuously at 35 °C ambient temperature, on its own. Temperature factor 0.96: required table current = 150 / (0.96) = 157 A. The smallest suitable size is 5G50 with 170 A.

## 07 Engineering Profile by Size

Every size of H07ZZ-F 5G with the dimensions that decide how it behaves in a circuit: layers, weight, copper share, heat, voltage drop, bending, termination and pull.

**5G1.5.** This size has with a conductor of Ø 1.7 mm under 0.80 mm of insulation (core Ø 3.3 mm) and an outer sheath of 1.5 mm; outer diameter 11.2–13.4 mm, weight about 245 kg/km of which copper 72 kg/km (29 %). Rated current 19 A at 30 °C; at that load the voltage drop is 46.15 V per 100 m (11.54 % of 400 V) and the loss 1.89 kW per 100 m. Bending radius 54 mm fixed, 67 mm moving; gland M25, lug bolt M5. Short-circuit rating 0.214 kA for 1 s; permitted pull 112 N, free-hanging length 46 m.

**5G2.5.** This size has with a conductor of Ø 2.1 mm under 0.90 mm of insulation (core Ø 3.9 mm) and an outer sheath of 1.7 mm; outer diameter 13.2–15.8 mm, weight about 341 kg/km of which copper 120 kg/km (35 %). Rated current 26 A at 30 °C; at that load the voltage drop is 37.93 V per 100 m (9.48 % of 400 V) and the loss 2.12 kW per 100 m. Bending radius 63 mm fixed, 79 mm moving; gland M25, lug bolt M5. Short-circuit rating 0.357 kA for 1 s; permitted pull 188 N, free-hanging length 56 m.

**5G4.** This size has with a conductor of Ø 2.7 mm under 1.00 mm of insulation (core Ø 4.7 mm) and an outer sheath of 2.1 mm; outer diameter 16.1–19.0 mm, weight about 410 kg/km of which copper 192 kg/km (47 %). Rated current 35 A at 30 °C; at that load the voltage drop is 31.77 V per 100 m (7.94 % of 400 V) and the loss 2.39 kW per 100 m. Bending radius 76 mm fixed, 95 mm moving; gland M32, lug bolt M5. Short-circuit rating 0.572 kA for 1 s; permitted pull 300 N, free-hanging length 74 m.

**5G6.** This size has with a conductor of Ø 3.3 mm under 1.00 mm of insulation (core Ø 5.3 mm) and an outer sheath of 2.4 mm; outer diameter 18.2–21.4 mm, weight about 570 kg/km of which copper 288 kg/km (51 %). Rated current 45 A at 30 °C; at that load the voltage drop is 27.33 V per 100 m (6.83 % of 400 V) and the loss 2.63 kW per 100 m. Bending radius 86 mm fixed, 107 mm moving; gland M32, lug bolt M5. Short-circuit rating 0.858 kA for 1 s; permitted pull 450 N, free-hanging length 80 m.


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**5G10.** This size has with a conductor of Ø 4.1 mm under 1.20 mm of insulation (core Ø 6.5 mm) and 0.8 mm inner and 3.0 mm outer sheath; outer diameter 24.0–27.5 mm, weight about 1,010 kg/km of which copper 480 kg/km (48 %). Rated current 62 A at 30 °C; at that load the voltage drop is 21.88 V per 100 m (5.47 % of 400 V) and the loss 2.87 kW per 100 m. Bending radius 110 mm fixed, 138 mm moving; gland M40, lug bolt M6. Short-circuit rating 1.43 kA for 1 s; permitted pull 750 N, free-hanging length 75 m.

**5G16.** This size has with a conductor of Ø 5.2 mm under 1.20 mm of insulation (core Ø 7.6 mm) and 0.9 mm inner and 3.6 mm outer sheath; outer diameter 28.0–32.0 mm, weight about 1,520 kg/km of which copper 770 kg/km (51 %). Rated current 83 A at 30 °C; at that load the voltage drop is 18.87 V per 100 m (4.72 % of 400 V) and the loss 3.27 kW per 100 m. Bending radius 128 mm fixed, 160 mm moving; gland M40, lug bolt M6. Short-circuit rating 2.29 kA for 1 s; permitted pull 1,200 N, free-hanging length 80 m.

**5G25.** This size has with a conductor of Ø 6.5 mm under 1.40 mm of insulation (core Ø 9.3 mm) and 0.9 mm inner and 4.4 mm outer sheath; outer diameter 34.0–38.0 mm, weight about 2,360 kg/km of which copper 1,200 kg/km (51 %). Rated current 110 A at 30 °C; at that load the voltage drop is 16.37 V per 100 m (4.09 % of 400 V) and the loss 3.68 kW per 100 m. Bending radius 152 mm fixed, 190 mm moving; gland M50, lug bolt M8. Short-circuit rating 3.58 kA for 1 s; permitted pull 1,880 N, free-hanging length 81 m.

**5G35.** This size has with a conductor of Ø 7.6 mm under 1.40 mm of insulation (core Ø 10.4 mm) and 1.0 mm inner and 3.5 mm outer sheath; outer diameter 35.5–40.0 mm, weight about 2,810 kg/km of which copper 1,680 kg/km (60 %). Rated current 136 A at 30 °C; at that load the voltage drop is 14.71 V per 100 m (3.68 % of 400 V) and the loss 4.00 kW per 100 m. Bending radius 160 mm fixed, 200 mm moving; gland M63, lug bolt M8. Short-circuit rating 5.00 kA for 1 s; permitted pull 2,620 N, free-hanging length 95 m.

**5G50.** This size has with a conductor of Ø 9.1 mm under 1.60 mm of insulation (core Ø 12.3 mm) and 1.0 mm inner and 3.9 mm outer sheath; outer diameter 41.5–46.0 mm, weight about 3,900 kg/km of which copper 2,400 kg/km (62 %). Rated current 170 A at 30 °C; at that load the voltage drop is 13.22 V per 100 m (3.30 % of 400 V) and the loss 4.34 kW per 100 m. Bending radius 184 mm fixed, 230 mm moving; gland M75, lug bolt M10. Short-circuit rating 7.15 kA for 1 s; permitted pull 3,750 N, free-hanging length 98 m.

**5G70.** This size has with a conductor of Ø 10.8 mm under 1.60 mm of insulation (core Ø 14.0 mm) and 1.1 mm inner and 4.3 mm outer sheath; outer diameter 46.5–52.0 mm, weight about 5,190 kg/km of which copper 3,360 kg/km (65 %). Rated current 210 A at 30 °C; at that load the voltage drop is 12.02 V per 100 m (3.01 % of 400 V) and the loss 4.67 kW per 100 m. Bending radius 208 mm fixed, 260 mm moving; gland M75, lug bolt M10. Short-circuit rating 10.01 kA for 1 s; permitted pull 5,250 N, free-hanging length 103 m.

**5G95.** This size has with a conductor of Ø 12.6 mm under 1.80 mm of insulation (core Ø 16.2 mm) and 1.2 mm inner and 4.8 mm outer sheath; outer diameter 53.5–59.5 mm, weight about 6,920 kg/km of which copper 4,560 kg/km (66 %). Rated current 254 A at 30 °C; at that load the voltage drop is 11.54 V per 100 m (2.88 % of 400 V) and the loss 5.18 kW per 100 m. Bending radius 238 mm fixed, 298 mm moving; gland M85, lug bolt M12. Short-circuit rating 13.59 kA for 1 s; permitted pull 7,120 N, free-hanging length 104 m.

**5G120.** This size has with a conductor of Ø 14.1 mm under 1.80 mm of insulation (core Ø 17.7 mm) and 1.2 mm inner and 5.2 mm outer sheath; outer diameter 58.0–64.5 mm, weight about 8,500 kg/km of which copper 5,760 kg/km (68 %). Rated current 294 A at 30 °C; at that load the voltage drop is 10.96 V per 100 m (2.74 % of 400 V) and the loss 5.42 kW per 100 m. Bending radius 258 mm fixed, 322 mm moving; gland M90, lug bolt M12. Short-circuit rating 17.16 kA for 1 s; permitted pull 9,000 N, free-hanging length 107 m.

Averaged over all sizes copper makes up 62 % of the cable weight; the share rises from 29 % at 5G1.5 to 68 % at 5G120, which is why the larger sizes are costed mostly on the copper market price.


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## 08 Construction Dimensions by Size

Wall thicknesses and diameters of the layers at each size, taken from the validated cross-section layout; the overall diameter in section 04 is the sum of these layers within tolerance. The insulation wall follows the voltage class 450/750 V.

| Type designation cores × mm² | Conductor Ø mm | Core Ø over insulation, mm | Insulation wall mm | Laid-up core Ø mm | Inner sheath mm | Outer sheath mm | Screen + braid mm | Sheath share of Ø, % |
|---|---|---|---|---|---|---|---|---|
| **5G1.5** | 1.65 | 3.25 | 0.80 | 9.4 | – | 1.46 | – | 24 |
| **5G2.5** | 2.13 | 3.93 | 0.90 | 11.2 | – | 1.65 | – | 23 |
| **5G4** | 2.70 | 4.70 | 1.00 | 13.3 | – | 2.15 | – | 24 |
| **5G6** | 3.30 | 5.30 | 1.00 | 14.9 | – | 2.44 | – | 25 |
| **5G10** | 4.08 | 6.48 | 1.20 | 18.1 | 0.83 | 2.99 | – | 30 |
| **5G16** | 5.16 | 7.56 | 1.20 | 21.0 | 0.87 | 3.55 | – | 30 |
| **5G25** | 6.45 | 9.25 | 1.40 | 25.6 | 0.93 | 4.36 | – | 29 |
| **5G35** | 7.63 | 10.43 | 1.40 | 28.8 | 0.97 | 3.50 | – | 24 |
| **5G50** | 9.12 | 12.32 | 1.60 | 33.9 | 1.04 | 3.93 | – | 23 |
| **5G70** | 10.79 | 13.99 | 1.60 | 38.4 | 1.09 | 4.32 | – | 22 |
| **5G95** | 12.57 | 16.17 | 1.80 | 44.3 | 1.17 | 4.83 | – | 21 |
| **5G120** | 14.13 | 17.73 | 1.80 | 48.5 | 1.22 | 5.19 | – | 21 |

## 09 Termination Planning (indicative)

| Type designation cores × mm² | Outer Ø or W × H mm | Cable gland thread | Lug / ferrule bolt | Strip length mm | Straight length behind gland, mm |
|---|---|---|---|---|---|
| **5G1.5** | 13.4 | M25 | M5 | 10 | 25 |
| **5G2.5** | 15.8 | M25 | M5 | 10 | 30 |
| **5G4** | 19.0 | M32 | M5 | 10 | 40 |
| **5G6** | 21.4 | M32 | M5 | 11 | 45 |
| **5G10** | 27.5 | M40 | M6 | 11 | 55 |
| **5G16** | 32.0 | M40 | M6 | 12 | 65 |
| **5G25** | 38.0 | M50 | M8 | 14 | 75 |
| **5G35** | 40.0 | M63 | M8 | 16 | 80 |
| **5G50** | 46.0 | M75 | M10 | 19 | 90 |
| **5G70** | 52.0 | M75 | M10 | 26 | 105 |
| **5G95** | 59.5 | M85 | M12 | 31 | 120 |
| **5G120** | 64.5 | M90 | M12 | 35 | 130 |

Gland threads, lug bolts and strip lengths are planning guides computed from the dimensions above; confirm them with the accessory manufacturer.


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## 10 Comparison with Related Variants at Size 5G16

| Variant | Differs in | Outer Ø / H mm | Weight kg/km | Pull N | Current A |
|---|---|---|---|---|---|
| **This datasheet** H07ZZ-F 5G 450/750 V | – | 32.0 | 1,520 | 1,200 | 83 |
| H07ZZ-F 5× 450/750 V 5×16 | core configuration | 32.0 (+0%) | 1,520 (+0%) | 1,200 (+0%) | 74 (-11%) |
| H07ZZ-F 6G 450/750 V 6G4 | core configuration | 21.4 (-33%) | 490 (-68%) | 360 (-70%) | 31 (-63%) |
| H07ZZ-F 5G 450/750 V 5G16 | tinned vs bare copper | 32.0 (+0%) | 1,520 (+0%) | 1,200 (+0%) | 84 (+1%) |
| H07ZZ-F 5G 450/750 V 5G16 | low-temperature sheath | 32.0 (+0%) | 1,520 (+0%) | 1,200 (+0%) | 83 (+0%) |
| H07ZZ-F 4G 450/750 V 4G16 | core configuration | 29.0 (-9%) | 1,280 (-16%) | 960 (-20%) | 98 (+18%) |
| H07ZZ-F 7G 450/750 V 7G4 | core configuration | 23.7 (-26%) | 580 (-62%) | 420 (-65%) | 29 (-65%) |
| H07ZZ-F 4× 450/750 V 4×16 | core configuration | 29.0 (-9%) | 1,280 (-16%) | 960 (-20%) | 83 (+0%) |
| H07ZZ-F 12G 450/750 V 12G2.5 | core configuration | 23.9 (-25%) | 720 (-53%) | 450 (-62%) | 16 (-81%) |

Percentages show the change against this datasheet; where a variant does not offer the exact size, the nearest listed size is used.

## 11 Standards and Testing

| Standard | Scope |
|---|---|
| **DIN EN 50525-3-21 (VDE 0285-525-3-21)** | Halogen-free thermoset flexible cables |
| **IEC 60754-1 / -2** | Halogen content and acidity |
| **DIN VDE 0293-308** | Core identification |
| **DIN VDE 0295 / IEC 60228** | Conductors, class 5 |
| **DIN EN 60332-1-2 / IEC 60332-1-2** | Flame propagation |

### Routine and type tests

- AC voltage test on every drum length (routine test): 2.5 kV, 5 min
- Conductor resistance and checks of dimensions, insulation thickness and sheath thickness
- Continuity of conductors and protective earth
- Flame propagation test (IEC 60332-1-2) on type-test samples
- Verification of the halogen-free compounds (IEC 60754-1/-2)

**Test documentation:** every delivery is accompanied by a test certificate from FeiChun’s own laboratory. Third-party witnessed tests can be arranged at the buyer’s cost.

The design follows DIN EN 50525-3-21. This datasheet does not claim the VDE approval mark; mark or approval certificates, where required for a project, are arranged on request and apply only to the type tested.


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## 12 Installation, Marking and Delivery

### Installation guidance

- Observe the bending radii in section 04.
- Do not exceed the tensile load of 15 N/mm² of the copper cross-section.
- Select halogen-free glands and fittings to maintain the halogen-free concept of the installation.
- Do not use below the rated minimum temperature when moving the cable.
- Unwind from the drum completely before applying full load.
- Protect the sheath from permanent abrasion.

### Sheath marking

FEICHUN H07ZZ-F [cross-section] 450/750 V [year] [serial no.] [metre mark]

### Packing and delivery

| | |
|---|---|
| **Drum** | Steel or fumigated wooden drums; cable ends sealed with heat-shrink caps |
| **Delivery length** | As ordered, in one continuous length without joints |
| **Lead time** | 2–3 weeks after technical approval |
| **Warranty** | At least 3 years against manufacturing defects |
| **Drum label** | Type, cross-section, length, gross/net weight, batch no., drum no. |

### Ordering information

**Order example: H07ZZ-F 5G16 450/750 V** – 500 m on one drum. When requesting a quotation, state the cable type, configuration, cross-section, voltage, conductor (tinned), length per piece, required standards and installation conditions.

## 13 Certification and Quality

All cable is subject to FeiChun’s quality control, with routine testing over 100 % of the delivered length. Declarations of conformity, type-test reports and third-party tests (for example for a mine, a tunnel or a rail project) are provided per project requirement; copies of the records are available on request. FeiChun holds CE, EAC and UKCA documentation for certain product groups. Whether a certificate covers this specific construction must be confirmed with FeiChun before it is quoted in a tender.

VDE, mine-specific (for example coal-mine safety marks, MSHA) and ATEX / IECEx approvals are not implied by this datasheet. They depend on the project, the machine and the country and are arranged with the end user.

## 14 Related Datasheets and Frequently Asked Questions

Variants of this cable with a different configuration, conductor, temperature grade, screen or voltage. All datasheets are PDF files.

- H07ZZ-F 5× 450/750 V – core configuration, halogen-free FRNC, tinned
- H07ZZ-F 6G 450/750 V – core configuration, halogen-free FRNC, tinned
- H07ZZ-F 5G 450/750 V – tinned vs bare copper, halogen-free FRNC
- H07ZZ-F 5G 450/750 V – low-temperature sheath, halogen-free FRNC, low-temp, tinned
- H07ZZ-F 4G 450/750 V – core configuration, halogen-free FRNC, tinned
- H07ZZ-F 7G 450/750 V – core configuration, halogen-free FRNC, tinned
- H07ZZ-F 4× 450/750 V – core configuration, halogen-free FRNC, tinned
- H07ZZ-F 12G 450/750 V – core configuration, halogen-free FRNC, tinned

Overview of all H07ZZ-F datasheets: H07 Series Flexible Cables 450/750 V

### Frequently asked questions

**What does ZZ mean in H07ZZ-F?**
Halogen-free thermoset insulation (Z) and halogen-free thermoset sheath (Z); F means flexible conductors.

**Is H07ZZ-F suitable for outdoor use?**
Yes, within the temperature range; for permanent outdoor exposure check the sheath for UV and weather suitability.

**What sizes are available for H07ZZ-F 5G?**
12 sizes from 1.5 to 120 mm². The outer dimension of the largest size, 5G120, is 64.5 mm and the weight is about 8,500 kg/km.

**What current can 5G25 carry?**
110 A in free air at 30 °C ambient, with the conductor at 90 °C. Other temperatures and grouping change the value; use the factors in section 04.


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## 15 Trademark Notice and Intellectual Property

Cable type designations such as H07ZZ-F are standardised, descriptive designations defined in DIN VDE and EN standards; they are used to state which standard this product is designed to. References to other manufacturers' trade names, where made, serve only for technical comparison; FeiChun Cables is not affiliated with them.

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