HARMONISED FLEXIBLE CABLE 450/750 V · DIN VDE 0282 / EN 50525 | 450/750 V | 16 sizes | halogen-free FRNC | BARE COPPER

H07ZZ-F 450/750 V

Halogen-Free Flexible Cable 450/750 V 450/750 V – A single round core with a class 5 copper conductor, insulation and sheath. Halogen-free FRNC sheath. Complete technical data sheet: construction, dimensions, weights, current ratings, voltage drop and installation guidance for 16 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

16 sizes	450/750 V	+90 °C	Halogen-free
Cross-section 1.5 – 300 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
- 16 sizes from 1.5 to 300 mm²; weight from 60 to 3,850 kg/km; copper from 14 to 2,880 kg/km

Core layout and conductor

A single round core with a class 5 copper conductor, insulation and sheath. In a three-phase circuit the three single-core cables are laid together. The conductors are bare annealed copper. Bare copper has the lowest conductor resistance of the class 5 range and is the usual choice for dry and damp indoor use. Where the cable is exposed to salt, sulphur or permanent moisture, the tinned version of the same cable is preferable.

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.

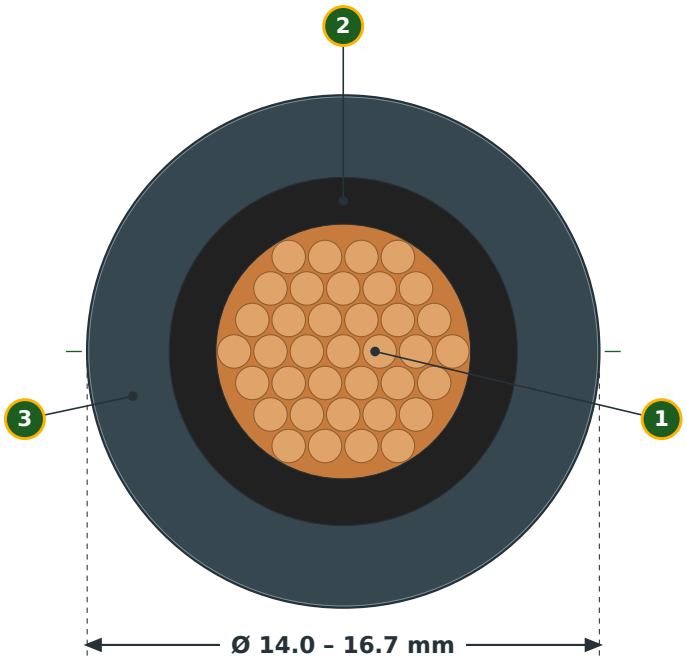
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450/750 V is the common rating for industrial and building-site distribution on 400 V systems and allows a margin for DC and rectified supplies. The test voltage is 2.5 kV.

02 Construction

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

H07ZZ-F
Sample size 1×35 · Rev 0 · Illustrative, not to scale



No.	Component	Material
1	Conductor	Bare annealed fine-wire copper, class 5 to IEC 60228 / DIN VDE 0295
2	Insulation	Halogen-free cross-linked compound, type HX
3	Outer sheath	Halogen-free flame-retardant elastomer, type 5GM5-HF (FRNC)

The drawing shows size 1×35. 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	Bare 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	Black to DIN VDE 0293-308
Stranding	Single core
Outer sheath	Halogen-free flame-retardant elastomer, type 5GM5-HF (FRNC); thickness about 2.5 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, bare

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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 (16 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
1×1.5	FC-H07Z-0887-01	1.7	5.4	6.5	20	20	60	14	22	13.3	23	0.214
1×2.5	FC-H07Z-0887-02	2.2	6.2	7.5	22	22	79	24	38	7.98	31	0.357
1×4	FC-H07Z-0887-03	2.7	7.4	8.9	27	36	89	38	60	4.95	42	0.572
1×6	FC-H07Z-0887-04	3.3	8.2	9.8	29	39	122	58	90	3.30	54	0.858
1×10	FC-H07Z-0887-05	4.1	9.7	11.7	35	47	194	96	150	1.91	74	1.43
1×16	FC-H07Z-0887-06	5.2	11.2	13.5	54	68	288	154	240	1.21	99	2.29
1×25	FC-H07Z-0887-07	6.5	13.5	16.1	64	80	440	240	375	0.780	131	3.58
1×35	FC-H07Z-0887-08	7.7	14.0	16.7	67	84	530	336	520	0.554	162	5.00
1×50	FC-H07Z-0887-09	9.2	16.3	19.2	77	96	740	480	750	0.386	202	7.15
1×70	FC-H07Z-0887-10	10.8	18.3	21.4	86	107	980	670	1,050	0.272	250	10.01
1×95	FC-H07Z-0887-11	12.6	20.9	24.3	97	122	1,310	910	1,420	0.206	302	13.59
1×120	FC-H07Z-0887-12	14.2	23.0	26.5	106	132	1,600	1,150	1,800	0.161	350	17.16
1×150	FC-H07Z-0887-13	15.8	25.5	29.0	116	145	1,990	1,440	2,250	0.129	402	21.45
1×185	FC-H07Z-0887-14	17.6	28.0	32.0	128	160	2,430	1,780	2,780	0.106	459	26.45
1×240	FC-H07Z-0887-15	20.0	31.5	35.5	142	178	3,110	2,300	3,600	0.0801	540	34.32
1×300	FC-H07Z-0887-16	22.4	35.0	39.0	156	195	3,850	2,880	4,500	0.0641	621	42.90

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. 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 (single-phase AC, round trip). 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
1×1.5	23	17.0	62.63	15.66	1.79	0.678	0.303	0.214	0.124
1×2.5	31	10.2	50.77	12.69	1.96	1.13	0.506	0.357	0.206
1×4	42	6.31	42.82	10.70	2.23	1.81	0.809	0.572	0.330
1×6	54	4.21	36.87	9.22	2.45	2.71	1.21	0.858	0.495
1×10	74	2.44	29.55	7.39	2.67	4.52	2.02	1.43	0.826
1×16	99	1.54	25.39	6.35	3.02	7.24	3.24	2.29	1.32
1×25	131	0.995	22.10	5.53	3.41	11.31	5.06	3.58	2.06
1×35	162	0.706	19.87	4.97	3.71	15.83	7.08	5.00	2.89
1×50	202	0.492	17.85	4.46	4.02	22.61	10.11	7.15	4.13
1×70	250	0.347	16.27	4.07	4.34	31.65	14.16	10.01	5.78
1×95	302	0.263	15.59	3.90	4.79	42.96	19.21	13.59	7.84
1×120	350	0.205	14.86	3.71	5.03	54.26	24.27	17.16	9.91
1×150	402	0.164	14.44	3.61	5.32	67.83	30.33	21.45	12.38
1×185	459	0.135	14.33	3.58	5.70	83.66	37.41	26.45	15.27
1×240	540	0.102	14.01	3.50	5.96	108.53	48.54	34.32	19.81
1×300	621	0.0817	14.08	3.52	6.30	135.66	60.67	42.90	24.77

06 Selection Guide and Sizing Aid

H07ZZ-F covers 16 sizes. The smallest, 1×1.5, has an outer diameter of up to 6.5 mm and weighs about 60 kg/km; the largest, 1×300, has an outer diameter of up to 39.0 mm and weighs about 3,850 kg/km, 64.2 times as much. Across the range the rated current rises from 23 A to 621 A at 30 °C and the fixed bending radius from 20 mm to 156 mm.

Example 1. A circuit draws 67 A continuously at 40 °C ambient temperature, in a group of two cables. Temperature factor 0.91, grouping factor 0.80: required table current = 67 / (0.91 × 0.80) = 92 A. The smallest suitable size is 1×16 with 99 A.

Example 2. A circuit draws 266 A continuously at 35 °C ambient temperature, on its own. Temperature factor 0.96: required table current = 266 / (0.96) = 278 A. The smallest suitable size is 1×95 with 302 A.

07 Engineering Profile by Size

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

1×1.5. 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 1.3 mm; outer diameter 5.4–6.5 mm, weight about 60 kg/km of which copper 14 kg/km (23 %). Rated current 23 A at 30 °C; at that load the voltage drop is 62.63 V per 100 m (15.66 % of 400 V) and the loss 1.79 kW per 100 m. Bending radius 20 mm fixed, 20 mm moving; gland M16, lug bolt M5. Short-circuit rating 0.214 kA for 1 s; permitted pull 22 N, free-hanging length 37 m.

1×2.5. 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 1.5 mm; outer diameter 6.2–7.5 mm, weight about 79 kg/km of which copper 24 kg/km (30 %). Rated current 31 A at 30 °C; at that load the voltage drop is 50.77 V per 100 m (12.69 % of 400 V) and the loss 1.96 kW per 100 m. Bending radius 22 mm fixed, 22 mm moving; gland M16, lug bolt M5. Short-circuit rating 0.357 kA for 1 s; permitted pull 38 N, free-hanging length 49 m.

1×4. 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 1.7 mm; outer diameter 7.4–8.9 mm, weight about 89 kg/km of which copper 38 kg/km (43 %). Rated current 42 A at 30 °C; at that load the voltage drop is 42.82 V per 100 m (10.70 % of 400 V) and the loss 2.23 kW per 100 m. Bending radius 27 mm fixed, 36 mm moving; gland M16, lug bolt M5. Short-circuit rating 0.572 kA for 1 s; permitted pull 60 N, free-hanging length 68 m.

1×6. 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 1.9 mm; outer diameter 8.2–9.8 mm, weight about 122 kg/km of which copper 58 kg/km (48 %). Rated current 54 A at

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30 °C; at that load the voltage drop is 36.87 V per 100 m (9.22 % of 400 V) and the loss 2.45 kW per 100 m. Bending radius 29 mm fixed, 39 mm moving; gland M16, lug bolt M5. Short-circuit rating 0.858 kA for 1 s; permitted pull 90 N, free-hanging length 75 m.

1×10. This size has with a conductor of Ø 4.1 mm under 1.20 mm of insulation (core Ø 6.5 mm) and an outer sheath of 2.1 mm; outer diameter 9.7–11.7 mm, weight about 194 kg/km of which copper 96 kg/km (49 %). Rated current 74 A at 30 °C; at that load the voltage drop is 29.55 V per 100 m (7.39 % of 400 V) and the loss 2.67 kW per 100 m. Bending radius 35 mm fixed, 47 mm moving; gland M20, lug bolt M6. Short-circuit rating 1.43 kA for 1 s; permitted pull 150 N, free-hanging length 78 m.

1×16. This size has with a conductor of Ø 5.2 mm under 1.20 mm of insulation (core Ø 7.6 mm) and an outer sheath of 2.4 mm; outer diameter 11.2–13.5 mm, weight about 288 kg/km of which copper 154 kg/km (53 %). Rated current 99 A at 30 °C; at that load the voltage drop is 25.39 V per 100 m (6.35 % of 400 V) and the loss 3.02 kW per 100 m. Bending radius 54 mm fixed, 68 mm moving; gland M25, lug bolt M6. Short-circuit rating 2.29 kA for 1 s; permitted pull 240 N, free-hanging length 84 m.

1×25. This size has with a conductor of Ø 6.5 mm under 1.40 mm of insulation (core Ø 9.3 mm) and an outer sheath of 2.8 mm; outer diameter 13.5–16.1 mm, weight about 440 kg/km of which copper 240 kg/km (55 %). Rated current 131 A at 30 °C; at that load the voltage drop is 22.10 V per 100 m (5.53 % of 400 V) and the loss 3.41 kW per 100 m. Bending radius 64 mm fixed, 80 mm moving; gland M25, lug bolt M8. Short-circuit rating 3.58 kA for 1 s; permitted pull 375 N, free-hanging length 86 m.

1×35. This size has with a conductor of Ø 7.6 mm under 1.40 mm of insulation (core Ø 10.4 mm) and an outer sheath of 2.5 mm; outer diameter 14.0–16.7 mm, weight about 530 kg/km of which copper 336 kg/km (63 %). Rated current 162 A at 30 °C; at that load the voltage drop is 19.87 V per 100 m (4.97 % of 400 V) and the loss 3.71 kW per 100 m. Bending radius 67 mm fixed, 84 mm moving; gland M25, lug bolt M8. Short-circuit rating 5.00 kA for 1 s; permitted pull 520 N, free-hanging length 100 m.

1×50. This size has with a conductor of Ø 9.1 mm under 1.60 mm of insulation (core Ø 12.3 mm) and an outer sheath of 2.7 mm; outer diameter 16.3–19.2 mm, weight about 740 kg/km of which copper 480 kg/km (65 %). Rated current 202 A at 30 °C; at that load the voltage drop is 17.85 V per 100 m (4.46 % of 400 V) and the loss 4.02 kW per 100 m. Bending radius 77 mm fixed, 96 mm moving; gland M32, lug bolt M10. Short-circuit rating 7.15 kA for 1 s; permitted pull 750 N, free-hanging length 103 m.

1×70. This size has with a conductor of Ø 10.8 mm under 1.60 mm of insulation (core Ø 14.0 mm) and an outer sheath of 2.9 mm; outer diameter 18.3–21.4 mm, weight about 980 kg/km of which copper 670 kg/km (68 %). Rated current 250 A at 30 °C; at that load the voltage drop is 16.27 V per 100 m (4.07 % of 400 V) and the loss 4.34 kW per 100 m. Bending radius 86 mm fixed, 107 mm moving; gland M32, lug bolt M10. Short-circuit rating 10.01 kA for 1 s; permitted pull 1,050 N, free-hanging length 109 m.

1×95. This size has with a conductor of Ø 12.6 mm under 1.80 mm of insulation (core Ø 16.2 mm) and an outer sheath of 3.2 mm; outer diameter 20.9–24.3 mm, weight about 1,310 kg/km of which copper 910 kg/km (69 %). Rated current 302 A at 30 °C; at that load the voltage drop is 15.59 V per 100 m (3.90 % of 400 V) and the loss 4.79 kW per 100 m. Bending radius 97 mm fixed, 122 mm moving; gland M32, lug bolt M12. Short-circuit rating 13.59 kA for 1 s; permitted pull 1,420 N, free-hanging length 110 m.

1×120. This size has with a conductor of Ø 14.1 mm under 1.80 mm of insulation (core Ø 17.7 mm) and an outer sheath of 3.4 mm; outer diameter 23.0–26.5 mm, weight about 1,600 kg/km of which copper 1,150 kg/km (72 %). Rated current 350 A at 30 °C; at that load the voltage drop is 14.86 V per 100 m (3.71 % of 400 V) and the loss 5.03 kW per 100 m. Bending radius 106 mm fixed, 132 mm moving; gland M40, lug bolt M12. Short-circuit rating 17.16 kA for 1 s; permitted pull 1,800 N, free-hanging length 114 m.

1×150. This size has with a conductor of Ø 15.8 mm under 2.00 mm of insulation (core Ø 19.8 mm) and an outer sheath of 3.7 mm; outer diameter 25.5–29.0 mm, weight about 1,990 kg/km of which copper 1,440 kg/km (72 %). Rated current 402 A at 30 °C; at that load the voltage drop is 14.44 V per 100 m (3.61 % of 400 V) and the loss 5.32 kW per 100 m. Bending radius 116 mm fixed, 145 mm moving; gland M40, lug bolt M12. Short-circuit rating 21.45 kA for 1 s; permitted pull 2,250 N, free-hanging length 115 m.

1×185. This size has with a conductor of Ø 17.5 mm under 2.20 mm of insulation (core Ø 21.9 mm) and an outer sheath of 4.0 mm; outer diameter 28.0–32.0 mm, weight about 2,430 kg/km of which copper 1,780 kg/km (73 %). Rated current 459 A at 30 °C; at that load the voltage drop is 14.33 V per 100 m (3.58 % of 400 V) and the loss 5.70 kW per 100 m. Bending radius 128 mm fixed, 160 mm moving; gland M40, lug bolt M16. Short-circuit rating 26.45 kA for 1 s; permitted pull 2,780 N, free-hanging length 116 m.

1×240. This size has with a conductor of Ø 20.0 mm under 2.40 mm of insulation (core Ø 24.8 mm) and an outer sheath of 4.3 mm; outer diameter 31.5–35.5 mm, weight about 3,110 kg/km of which copper 2,300 kg/km (74 %). Rated current 540 A at 30 °C; at that load the voltage drop is 14.01 V per 100 m (3.50 % of 400 V) and the loss 5.96 kW per 100 m. Bending radius 142 mm fixed, 178 mm moving; gland M50, lug bolt M16. Short-circuit rating 34.32 kA for 1 s; permitted pull 3,600 N, free-hanging length 117 m.

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1×300. This size has with a conductor of Ø 22.3 mm under 2.60 mm of insulation (core Ø 27.5 mm) and an outer sheath of 4.7 mm; outer diameter 35.0–39.0 mm, weight about 3,850 kg/km of which copper 2,880 kg/km (75 %). Rated current 621 A at 30 °C; at that load the voltage drop is 14.08 V per 100 m (3.52 % of 400 V) and the loss 6.30 kW per 100 m. Bending radius 156 mm fixed, 195 mm moving; gland M63, lug bolt M16. Short-circuit rating 42.90 kA for 1 s; permitted pull 4,500 N, free-hanging length 119 m.

Averaged over all sizes copper makes up 71 % of the cable weight; the share rises from 23 % at 1×1.5 to 75 % at 1×300, which is why the larger sizes are costed mostly on the copper market price.

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, %
1×1.5	1.65	3.25	0.80	3.3	–	1.35	–	45
1×2.5	2.13	3.93	0.90	3.9	–	1.46	–	43
1×4	2.70	4.70	1.00	4.7	–	1.71	–	42
1×6	3.30	5.30	1.00	5.3	–	1.85	–	41
1×10	4.08	6.48	1.20	6.5	–	2.11	–	39
1×16	5.16	7.56	1.20	7.6	–	2.38	–	39
1×25	6.45	9.25	1.40	9.3	–	2.77	–	37
1×35	7.63	10.43	1.40	10.4	–	2.46	–	32
1×50	9.12	12.32	1.60	12.3	–	2.71	–	31
1×70	10.79	13.99	1.60	14.0	–	2.93	–	29
1×95	12.57	16.17	1.80	16.2	–	3.21	–	28
1×120	14.13	17.73	1.80	17.7	–	3.42	–	28
1×150	15.80	19.80	2.00	19.8	–	3.69	–	27
1×185	17.55	21.95	2.20	21.9	–	3.97	–	27
1×240	19.99	24.79	2.40	24.8	–	4.34	–	26
1×300	22.35	27.55	2.60	27.5	–	4.70	–	25

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
1×1.5	6.5	M16	M5	10	10
1×2.5	7.5	M16	M5	10	10
1×4	8.9	M16	M5	10	15
1×6	9.8	M16	M5	11	15
1×10	11.7	M20	M6	11	20
1×16	13.5	M25	M6	12	25
1×25	16.1	M25	M8	14	30
1×35	16.7	M25	M8	16	35
1×50	19.2	M32	M10	19	40
1×70	21.4	M32	M10	26	45
1×95	24.3	M32	M12	31	50
1×120	26.5	M40	M12	35	55
1×150	29.0	M40	M12	41	60
1×185	32.0	M40	M16	47	65
1×240	35.5	M50	M16	57	70
1×300	39.0	M63	M16	57	80

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 1×35

Variant	Differs in	Outer Ø / H mm	Weight kg/km	Pull N	Current A
This datasheet H07ZZ-F 450/750 V	–	16.7	530	520	162
H07ZZ-F 2× 450/750 V 2×16	core configuration	24.3 (+46%)	700 (+32%)	480 (-8%)	99 (-39%)
H07ZZ-F 3× 450/750 V 3×35	core configuration	32.5 (+95%)	1,770 (+234%)	1,580 (+204%)	162 (+0%)
H07ZZ-F 450/750 V 1×35	tinned vs bare copper	16.7 (+0%)	530 (+0%)	520 (+0%)	160 (-1%)
H07ZZ-F 450/750 V 1×35	low-temperature sheath	16.7 (+0%)	530 (+0%)	520 (+0%)	162 (+0%)
H07ZZ-F 3G 450/750 V 3G35	core configuration	32.5 (+95%)	1,770 (+234%)	1,580 (+204%)	162 (+0%)
H07ZZ-F 4× 450/750 V 4×35	core configuration	36.5 (+119%)	2,340 (+342%)	2,100 (+304%)	137 (-15%)
H07ZZ-F 4G 450/750 V 4G35	core configuration	36.5 (+119%)	2,340 (+342%)	2,100 (+304%)	162 (+0%)
H07ZZ-F 5× 450/750 V 5×35	core configuration	40.0 (+140%)	2,810 (+430%)	2,620 (+404%)	121 (-25%)

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
- 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

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FEICHUN H07ZZ-F [cross-section] 450/750 V [year] [serial no.] [metre mark]
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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 1×35 450/750 V – 500 m on one drum. When requesting a quotation, state the cable type, configuration, cross-section, voltage, conductor (bare copper), 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 2× 450/750 V – core configuration, halogen-free FRNC
- H07ZZ-F 3× 450/750 V – core configuration, halogen-free FRNC
- H07ZZ-F 450/750 V – tinned vs bare copper, halogen-free FRNC, tinned
- H07ZZ-F 450/750 V – low-temperature sheath, halogen-free FRNC, low-temp
- H07ZZ-F 3G 450/750 V – core configuration, halogen-free FRNC
- H07ZZ-F 4× 450/750 V – core configuration, halogen-free FRNC
- H07ZZ-F 4G 450/750 V – core configuration, halogen-free FRNC
- H07ZZ-F 5× 450/750 V – core configuration, halogen-free FRNC

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?
16 sizes from 1.5 to 300 mm². The outer dimension of the largest size, 1×300, is 39.0 mm and the weight is about 3,850 kg/km.

What current can 1×50 carry?
202 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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