DIN VDE 0250-812 · HEAVY RUBBER-SHEATHED FLEXIBLE CABLE | 0.6/1 kV | 14 sizes | CR rubber | BARE COPPER | SCREENED

NSSHCöu 4G 0.6/1 kV

Heavy Rubber-Sheathed Flexible Cable 0.6/1 kV – 4 cores of equal cross-section in concentric layers with a short lay length. Polychloroprene rubber sheath. Complete technical data sheet: construction, dimensions, weights, current ratings, voltage drop and installation guidance for 14 sizes.

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01 Application and Product Overview

NSSHCöu is the VDE designation of the heavy rubber-sheathed flexible cable (Gummischlauchleitung) for 0.6/1 kV. EPR-insulated cores of fine-wire class 5 copper are stranded together, bedded in a rubber inner sheath and protected by a thick, oil-resistant polychloroprene outer sheath that withstands crushing, abrasion and repeated bending. It is the established connection cable for mobile machines, portable switchgear and heavy tools on building sites, in quarries and in mines.

Design

The cores are insulated with a cross-linked EPR compound of type 3GI3, which permits a conductor temperature of 90 °C, and are stranded in layers with a short lay length. A rubber inner sheath fills the interstices and gives the stranded core a round, stable shape. The outer sheath is a polychloroprene compound of type 5GM5 to DIN VDE 0207-21. In the VDE designation the letters ö and u stand for oil resistance and flame retardancy; the suffix J marks a version with a green-yellow protective core, O a version without. In this datasheet J corresponds to the “G” configurations and O to the “×” configurations.

Typical applications

- Mobile switchgear, site distribution boards and portable generators on building sites and in quarries
- Feeder cables for electric tools, concrete pumps, mixers, crushers and conveyor drives that are moved regularly
- Underground and open-cast mining equipment that needs a robust connection cable of moderate length
- Cranes, hoists and loading equipment where the cable is dragged, stepped on or run over
- Machine tools and switch cabinets in dry, damp and wet areas, indoors and outdoors
- Converter-fed drives where the screened design limits electromagnetic interference
- Battery and DC-motor connections of industrial trucks and mining vehicles
- Replacement and extension of existing NSSHöu cabling in plants built to DIN VDE 0250-812

14 sizes	0.6/1 kV	+90 °C	CR rubber
Cross-section 1.5 – 185 mm²	Rated voltage U_0/U	Maximum conductor temperature	Sheath: CR rubber

Key features

- Thick rubber double sheath (inner and outer) for high resistance to crushing, impact and abrasion
- EPR insulation rated for 90 °C at the conductor; short-circuit temperature 250 °C
- Oil-resistant to DIN EN 60811-404 and flame-retardant to IEC 60332-1-2
- Fine-wire class 5 conductors for flexibility and easy termination
- Suitable for outdoor use: resistant to weather, ozone and UV radiation
- Cores identified to DIN VDE 0293-308; green-yellow PE core in the J versions
- 14 sizes from 1.5 to 185 mm²; weight from 283 to 10,040 kg/km; copper from 58 to 7,100 kg/km

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Core layout and conductor

4 cores of equal cross-section in concentric layers with a short lay length. Core colours: green-yellow, brown, black, grey (DIN VDE 0293-308); the green-yellow core is the protective conductor. The four-core layout carries three phases and PE (4G) or three phases and neutral (4×). 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

DIN VDE 0250-812 is the national standard for the NSSHöu heavy rubber-sheathed flexible cable. It fixes the conductor class, the insulation and sheath compounds, the wall thicknesses, the dimension limits and the routine and type tests. The harmonised H07RN-F cable covers lighter duty at 450/750 V; NSSHöu is the step up for 0.6/1 kV systems and for heavier mechanical loading.

The standard sheath compound is flexible down to 25 °C in motion and 40 °C in fixed installation. For regular use below this limit select the low-temperature grade of the same cable.

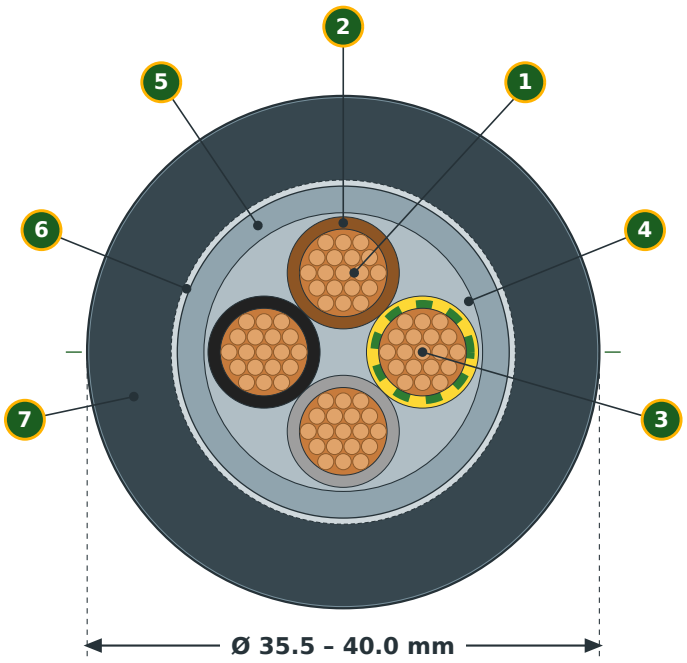
The overall screen is a tinned-copper wire braid between the inner and outer sheath. It reduces emitted and received interference in converter-fed drives and lets the cable meet the EMC requirements of the installation. A 360° termination of the screen at both ends gives the best effect; a screen that is terminated with a pigtail loses most of its benefit at high frequencies.

0.6/1 kV (rated phase-to-earth / phase-to-phase voltage) covers 400 V and 690 V three-phase systems; the test voltage is 3 kV.

02 Construction

FEICHUN · CROSS-SECTION A–A · 0.6/1 kV

NSSHCöu
Sample size 4G25 · 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	EPR rubber, type 3GI3 (90 °C)
3	Protective (PE) core	Green-yellow insulation, same cross-section as the power cores
4	Filler and binder tape	Rubber or compound filler with polyester binder tape
5	Inner sheath	Rubber compound, extruded over the stranded core
6	Overall screen	Bare copper-wire braid, coverage ≥ 85 %
7	Outer sheath	Polychloroprene (CR) rubber, type 5GM5

The drawing shows size 4G25. Other sizes have the same construction with scaled dimensions; the layout of every size is checked for non-overlap of all elements.

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Construction details

Conductor	Bare annealed fine-wire copper, class 5 to DIN VDE 0295 / IEC 60228
Insulation	EPR rubber, type 3GI3 (90 °C), maximum conductor temperature 90 °C
Core identification	Green-yellow, brown, black, grey to DIN VDE 0293-308
Stranding	Cores in concentric layers with a short lay length
Overall screen	Bare copper-wire braid, coverage ≥ 85 %, between inner and outer sheath
Inner sheath	Rubber compound; thickness about 2.0 mm at this size
Outer sheath	Polychloroprene (CR) rubber, type 5GM5; thickness about 6.2 mm at this size

03 Electrical, Thermal and Mechanical Characteristics

Electrical data

Rated voltage U_0/U	0.6/1 kV AC
Test voltage	3 kV AC, 5 min
Maximum operating voltage, three-phase	1.2 kV
Maximum operating voltage, DC (core-earth / core-core)	0.9/1.8 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

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 +80 °C
Ambient temperature, in motion	−25 °C to +80 °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	No (CR rubber)
Mineral oil resistance	Resistant, DIN EN 60811-404
UV and ozone resistance	Resistant
Water	Damp and wet areas, spray water

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04 Dimensions, Weights and Rated Data – 0.6/1 kV (14 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
4G1.5	FC-NSSH-0111-01	1.7	14.9	16.9	68	84	283	58	90	13.3	23	0.214
4G2.5	FC-NSSH-0111-02	2.2	17.1	19.4	78	97	400	96	150	7.98	31	0.357
4G4	FC-NSSH-0111-03	2.7	19.6	22.3	89	112	530	154	240	4.95	42	0.572
4G6	FC-NSSH-0111-04	3.3	21.7	24.6	98	123	660	230	360	3.30	54	0.858
4G10	FC-NSSH-0111-05	4.1	25.0	28.5	114	142	1,020	384	600	1.91	74	1.43
4G16	FC-NSSH-0111-06	5.2	28.0	32.0	128	160	1,530	610	960	1.21	99	2.29
4G25	FC-NSSH-0111-07	6.5	35.5	40.0	160	200	2,120	960	1,500	0.780	131	3.58
4G35	FC-NSSH-0111-08	7.7	38.5	43.5	174	218	2,850	1,340	2,100	0.554	162	5.00
4G50	FC-NSSH-0111-09	9.2	44.0	50.0	200	250	3,880	1,920	3,000	0.386	202	7.15
4G70	FC-NSSH-0111-10	10.8	50.0	57.0	228	285	4,250	2,690	4,200	0.272	250	10.01
4G95	FC-NSSH-0111-11	12.6	57.0	64.5	258	322	5,300	3,650	5,700	0.206	302	13.59
4G120	FC-NSSH-0111-12	14.2	63.0	71.5	286	358	6,620	4,610	7,200	0.161	350	17.16
4G150	FC-NSSH-0111-13	15.8	68.5	78.0	312	390	8,000	5,760	9,000	0.129	402	21.45
4G185	FC-NSSH-0111-14	17.6	78.0	88.5	354	442	10,040	7,100	11,100	0.106	459	26.45

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).

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
4G1.5	23	17.0	54.24	13.56	2.69	0.678	0.303	0.214	0.124
4G2.5	31	10.2	43.97	10.99	2.93	1.13	0.506	0.357	0.206
4G4	42	6.31	37.08	9.27	3.34	1.81	0.809	0.572	0.330
4G6	54	4.21	31.93	7.98	3.68	2.71	1.21	0.858	0.495
4G10	74	2.44	25.59	6.40	4.00	4.52	2.02	1.43	0.826
4G16	99	1.54	21.99	5.50	4.54	7.24	3.24	2.29	1.32
4G25	131	0.995	19.14	4.79	5.12	11.31	5.06	3.58	2.06
4G35	162	0.706	17.20	4.30	5.56	15.83	7.08	5.00	2.89
4G50	202	0.492	15.46	3.86	6.02	22.61	10.11	7.15	4.13
4G70	250	0.347	14.09	3.52	6.50	31.65	14.16	10.01	5.78
4G95	302	0.263	13.50	3.38	7.19	42.96	19.21	13.59	7.84
4G120	350	0.205	12.87	3.22	7.54	54.26	24.27	17.16	9.91
4G150	402	0.164	12.50	3.13	7.97	67.83	30.33	21.45	12.38
4G185	459	0.135	12.41	3.10	8.54	83.66	37.41	26.45	15.27

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06 Selection Guide and Sizing Aid

NSSHCöu 4G covers 14 sizes. The smallest, 4G1.5, has an outer diameter of up to 16.9 mm and weighs about 283 kg/km; the largest, 4G185, has an outer diameter of up to 88.5 mm and weighs about 10,040 kg/km, 35.5 times as much. Across the range the rated current rises from 23 A to 459 A at 30 °C and the fixed bending radius from 68 mm to 354 mm.

Example 1. A circuit draws 50 A continuously at 40 °C ambient temperature, in a group of two cables. Temperature factor 0.91, grouping factor 0.80: required table current = 50 / (0.91 × 0.80) = 69 A. The smallest suitable size is 4G10 with 74 A.

Example 2. A circuit draws 220 A continuously at 35 °C ambient temperature, on its own. Temperature factor 0.96: required table current = 220 / (0.96) = 230 A. The smallest suitable size is 4G70 with 250 A.

07 Engineering Profile by Size

Every size of NSSHCöu 4G with the dimensions that decide how it behaves in a circuit: layers, weight, copper share, heat, voltage drop, bending, termination and pull.

4G1.5. This size has with a conductor of Ø 1.7 mm under 0.70 mm of insulation (core Ø 3.1 mm) and 1.1 mm inner and 2.4 mm outer sheath; outer diameter 14.9–16.9 mm, weight about 283 kg/km of which copper 58 kg/km (20 %). Rated current 23 A at 30 °C; at that load the voltage drop is 54.24 V per 100 m (13.56 % of 400 V) and the loss 2.69 kW per 100 m. Bending radius 68 mm fixed, 84 mm moving; gland M25, lug bolt M5. Short-circuit rating 0.214 kA for 1 s; permitted pull 90 N, free-hanging length 32 m.

4G2.5. This size has with a conductor of Ø 2.1 mm under 0.70 mm of insulation (core Ø 3.5 mm) and 1.2 mm inner and 2.9 mm outer sheath; outer diameter 17.1–19.4 mm, weight about 400 kg/km of which copper 96 kg/km (24 %). Rated current 31 A at 30 °C; at that load the voltage drop is 43.97 V per 100 m (10.99 % of 400 V) and the loss 2.93 kW per 100 m. Bending radius 78 mm fixed, 97 mm moving; gland M32, lug bolt M5. Short-circuit rating 0.357 kA for 1 s; permitted pull 150 N, free-hanging length 38 m.

4G4. This size has with a conductor of Ø 2.7 mm under 0.70 mm of insulation (core Ø 4.1 mm) and 1.3 mm inner and 3.5 mm outer sheath; outer diameter 19.6–22.3 mm, weight about 530 kg/km of which copper 154 kg/km (29 %). Rated current 42 A at 30 °C; at that load the voltage drop is 37.08 V per 100 m (9.27 % of 400 V) and the loss 3.34 kW per 100 m. Bending radius 89 mm fixed, 112 mm moving; gland M32, lug bolt M5. Short-circuit rating 0.572 kA for 1 s; permitted pull 240 N, free-hanging length 46 m.

4G6. This size has with a conductor of Ø 3.3 mm under 0.70 mm of insulation (core Ø 4.7 mm) and 1.4 mm inner and 3.7 mm outer sheath; outer diameter 21.7–24.6 mm, weight about 660 kg/km of which copper 230 kg/km (35 %). Rated current 54 A at 30 °C; at that load the voltage drop is 31.93 V per 100 m (7.98 % of 400 V) and the loss 3.68 kW per 100 m. Bending radius 98 mm fixed, 123 mm moving; gland M32, lug bolt M5. Short-circuit rating 0.858 kA for 1 s; permitted pull 360 N, free-hanging length 55 m.

4G10. This size has with a conductor of Ø 4.1 mm under 0.70 mm of insulation (core Ø 5.5 mm) and 1.5 mm inner and 4.5 mm outer sheath; outer diameter 25.0–28.5 mm, weight about 1,020 kg/km of which copper 384 kg/km (38 %). Rated current 74 A at 30 °C; at that load the voltage drop is 25.59 V per 100 m (6.40 % of 400 V) and the loss 4.00 kW per 100 m. Bending radius 114 mm fixed, 142 mm moving; gland M40, lug bolt M6. Short-circuit rating 1.43 kA for 1 s; permitted pull 600 N, free-hanging length 59 m.

4G16. This size has with a conductor of Ø 5.2 mm under 0.70 mm of insulation (core Ø 6.6 mm) and 1.7 mm inner and 4.7 mm outer sheath; outer diameter 28.0–32.0 mm, weight about 1,530 kg/km of which copper 610 kg/km (40 %). Rated current 99 A at 30 °C; at that load the voltage drop is 21.99 V per 100 m (5.50 % of 400 V) and the loss 4.54 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 960 N, free-hanging length 63 m.

4G25. This size has with a conductor of Ø 6.5 mm under 0.90 mm of insulation (core Ø 8.3 mm) and 2.0 mm inner and 6.2 mm outer sheath; outer diameter 35.5–40.0 mm, weight about 2,120 kg/km of which copper 960 kg/km (45 %). Rated current 131 A at 30 °C; at that load the voltage drop is 19.14 V per 100 m (4.79 % of 400 V) and the loss 5.12 kW per 100 m. Bending radius 160 mm fixed, 200 mm moving; gland M63, lug bolt M8. Short-circuit rating 3.58 kA for 1 s; permitted pull 1,500 N, free-hanging length 72 m.

4G35. This size has with a conductor of Ø 7.6 mm under 0.90 mm of insulation (core Ø 9.4 mm) and 2.2 mm inner and 6.2 mm outer sheath; outer diameter 38.5–43.5 mm, weight about 2,850 kg/km of which copper 1,340 kg/km (47 %). Rated current 162 A at 30 °C; at that load the voltage drop is 17.20 V per 100 m (4.30 % of 400 V) and the loss 5.56 kW per 100 m. Bending radius 174 mm fixed, 218 mm moving; gland M63, lug bolt M8. Short-circuit rating 5.00 kA for 1 s; permitted pull 2,100 N, free-hanging length 75 m.

4G50. This size has with a conductor of Ø 9.1 mm under 1.00 mm of insulation (core Ø 11.1 mm) and 2.4 mm inner and 7.0 mm outer sheath; outer diameter 44.0–50.0 mm, weight about 3,880 kg/km of which copper 1,920 kg/km (49

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%). Rated current 202 A at 30 °C; at that load the voltage drop is 15.46 V per 100 m (3.86 % of 400 V) and the loss 6.02 kW per 100 m. Bending radius 200 mm fixed, 250 mm moving; gland M75, lug bolt M10. Short-circuit rating 7.15 kA for 1 s; permitted pull 3,000 N, free-hanging length 78 m.

4G70. This size has with a conductor of Ø 10.8 mm under 1.00 mm of insulation (core Ø 12.8 mm) and 2.7 mm inner and 7.8 mm outer sheath; outer diameter 50.0–57.0 mm, weight about 4,250 kg/km of which copper 2,690 kg/km (63 %). Rated current 250 A at 30 °C; at that load the voltage drop is 14.09 V per 100 m (3.52 % of 400 V) and the loss 6.50 kW per 100 m. Bending radius 228 mm fixed, 285 mm moving; gland M85, lug bolt M10. Short-circuit rating 10.01 kA for 1 s; permitted pull 4,200 N, free-hanging length 100 m.

4G95. This size has with a conductor of Ø 12.6 mm under 1.10 mm of insulation (core Ø 14.8 mm) and 3.0 mm inner and 8.8 mm outer sheath; outer diameter 57.0–64.5 mm, weight about 5,300 kg/km of which copper 3,650 kg/km (69 %). Rated current 302 A at 30 °C; at that load the voltage drop is 13.50 V per 100 m (3.38 % of 400 V) and the loss 7.19 kW per 100 m. Bending radius 258 mm fixed, 322 mm moving; gland M90, lug bolt M12. Short-circuit rating 13.59 kA for 1 s; permitted pull 5,700 N, free-hanging length 109 m.

4G120. This size has with a conductor of Ø 14.1 mm under 1.10 mm of insulation (core Ø 16.3 mm) and 3.3 mm inner and 9.9 mm outer sheath; outer diameter 63.0–71.5 mm, weight about 6,620 kg/km of which copper 4,610 kg/km (70 %). Rated current 350 A at 30 °C; at that load the voltage drop is 12.87 V per 100 m (3.22 % of 400 V) and the loss 7.54 kW per 100 m. Bending radius 286 mm fixed, 358 mm moving; gland M90, lug bolt M12. Short-circuit rating 17.16 kA for 1 s; permitted pull 7,200 N, free-hanging length 110 m.

4G150. This size has with a conductor of Ø 15.8 mm under 1.40 mm of insulation (core Ø 18.6 mm) and 3.6 mm inner and 9.8 mm outer sheath; outer diameter 68.5–78.0 mm, weight about 8,000 kg/km of which copper 5,760 kg/km (72 %). Rated current 402 A at 30 °C; at that load the voltage drop is 12.50 V per 100 m (3.13 % of 400 V) and the loss 7.97 kW per 100 m. Bending radius 312 mm fixed, 390 mm moving; gland M100, lug bolt M12. Short-circuit rating 21.45 kA for 1 s; permitted pull 9,000 N, free-hanging length 114 m.

4G185. This size has with a conductor of Ø 17.5 mm under 1.60 mm of insulation (core Ø 20.7 mm) and 4.0 mm inner and 11.9 mm outer sheath; outer diameter 78.0–88.5 mm, weight about 10,040 kg/km of which copper 7,100 kg/km (71 %). Rated current 459 A at 30 °C; at that load the voltage drop is 12.41 V per 100 m (3.10 % of 400 V) and the loss 8.54 kW per 100 m. Bending radius 354 mm fixed, 442 mm moving; gland special, lug bolt M16. Short-circuit rating 26.45 kA for 1 s; permitted pull 11,100 N, free-hanging length 112 m.

Averaged over all sizes copper makes up 62 % of the cable weight; the share rises from 20 % at 4G1.5 to 71 % at 4G185, 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 0.6/1 kV.

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, %
4G1.5	1.65	3.05	0.70	8.0	1.13	2.38	0.45	50
4G2.5	2.13	3.53	0.70	9.1	1.21	2.90	0.45	50
4G4	2.70	4.10	0.70	10.5	1.30	3.48	0.45	50
4G6	3.30	4.70	0.70	12.0	1.39	3.74	0.45	48
4G10	4.08	5.48	0.70	13.8	1.52	4.49	0.45	48
4G16	5.16	6.56	0.70	16.4	1.69	4.68	0.45	45
4G25	6.45	8.25	0.90	20.5	1.96	6.19	0.45	46
4G35	7.63	9.43	0.90	23.4	2.15	6.21	0.45	43
4G50	9.12	11.12	1.00	27.5	2.42	6.95	0.45	42
4G70	10.79	12.79	1.00	31.5	2.69	7.81	0.45	41
4G95	12.57	14.77	1.10	36.3	3.01	8.81	0.45	40
4G120	14.13	16.33	1.10	40.0	3.25	9.86	0.45	40
4G150	15.80	18.60	1.40	45.5	3.62	9.82	0.45	38
4G185	17.55	20.75	1.60	50.7	3.96	11.90	0.45	39

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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
4G1.5	16.9	M25	M5	10	35
4G2.5	19.4	M32	M5	10	40
4G4	22.3	M32	M5	10	45
4G6	24.6	M32	M5	11	50
4G10	28.5	M40	M6	11	55
4G16	32.0	M40	M6	12	65
4G25	40.0	M63	M8	14	80
4G35	43.5	M63	M8	16	85
4G50	50.0	M75	M10	19	100
4G70	57.0	M85	M10	26	115
4G95	64.5	M90	M12	31	130
4G120	71.5	M90	M12	35	145
4G150	78.0	M100	M12	41	155
4G185	88.5	special	M16	47	175

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

10 Comparison with Related Variants at Size 4G25

Variant	Differs in	Outer Ø / H mm	Weight kg/km	Pull N	Current A
This datasheet NSSHCöu 4G 0.6/1 kV	–	40.0	2,120	1,500	131
NSSHCöu 4× 0.6/1 kV 4×25	core configuration	40.0 (+0%)	2,120 (+0%)	1,500 (+0%)	111 (-15%)
NSSHCöu 5× 0.6/1 kV 5×25	core configuration	44.0 (+10%)	2,590 (+22%)	1,880 (+25%)	98 (-25%)
NSSHCöu 4G 0.6/1 kV 4G25	tinned vs bare copper	40.0 (+0%)	2,120 (+0%)	1,500 (+0%)	130 (-1%)
NSSHCöu 4G 0.6/1 kV 4G25	low-temperature sheath	40.0 (+0%)	2,120 (+0%)	1,500 (+0%)	131 (+0%)
NSSHöu 4G 0.6/1 kV 4G25	overall screen	39.0 (-2%)	2,000 (-6%)	1,500 (+0%)	131 (+0%)
NSSHCöu 4G 0.66/1.14 kV 4G25	voltage class	42.0 (+5%)	2,230 (+5%)	1,500 (+0%)	131 (+0%)
NSSHCöu 3G 0.6/1 kV 3G25	core configuration	36.0 (-10%)	1,640 (-23%)	1,120 (-25%)	131 (+0%)
NSSHCöu 5G 0.6/1 kV 5G25	core configuration	44.0 (+10%)	2,590 (+22%)	1,880 (+25%)	111 (-15%)

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

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11 Standards and Testing

Standard	Scope
DIN VDE 0250-812	Rubber-insulated flexible cable NSSHöu, 0.6/1 kV
DIN VDE 0295 / IEC 60228	Conductors, class 5
DIN VDE 0207-20 / -21	Rubber insulation and sheath compounds (3GI3, 5GM5)
DIN VDE 0293-308	Core identification
DIN VDE 0298-3 / -4	Application: bending, tensile load; current-carrying capacity
DIN EN 60811-404	Mineral oil resistance of sheath
DIN EN 60332-1-2 / IEC 60332-1-2	Flame propagation, single cable

Routine and type tests

- AC voltage test on every drum length (routine test): 3 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) and mineral-oil resistance on type-test samples

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 VDE 0250-812. 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.

12 Installation, Marking and Delivery

Installation guidance

- Do not exceed the permissible tensile load of 15 N/mm² of the total copper cross-section; use a cable grip that holds the sheath, never the conductors.
- Keep the bending radius at or above the values in section 04; for free movement use 3 × D up to 8 mm, 4 × D up to 12 mm and 5 × D above 12 mm outer diameter.
- Lay the cable without kinks and unwind it completely from the reel before loading it above 50 % of the rated current.
- Use cable glands whose clamping range covers the maximum outer diameter and seal the cable entry to the enclosure rating.
- Protect the cable against permanent running-over by vehicles; where this cannot be avoided use cable ramps or protective ducts.
- Leave the green-yellow protective core slightly longer than the power cores, so that it is the last to be loaded if the cable is pulled at the terminal.

Sheath marking

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FEICHUN NSSHCöu [cross-section] 0.6/1 kV [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: NSSHCöu 4G25 0.6/1 kV – 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.

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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.

- NSSHCöu 4× 0.6/1 kV – core configuration, CR rubber
- NSSHCöu 5× 0.6/1 kV – core configuration, CR rubber
- NSSHCöu 4G 0.6/1 kV – tinned vs bare copper, CR rubber, tinned
- NSSHCöu 4G 0.6/1 kV – low-temperature sheath, CR rubber, low-temp
- NSSHöu 4G 0.6/1 kV – overall screen, CR rubber
- NSSHCöu 4G 0.66/1.14 kV – voltage class, CR rubber
- NSSHCöu 3G 0.6/1 kV – core configuration, CR rubber
- NSSHCöu 5G 0.6/1 kV – core configuration, CR rubber

Overview of all NSSHöu datasheets: NSSHöu Heavy Rubber-Sheathed Flexible Cables

Frequently asked questions

Which cable is meant by NSSHöu?
NSSHöu is the VDE designation of the heavy rubber-sheathed flexible cable to DIN VDE 0250-812, rated 0.6/1 kV, with EPR insulation and a polychloroprene sheath.

What is the difference between the -J and the -O version?
The J version contains a green-yellow protective core; the O version does not. NSSHCöu 4G is the J (with PE core) version.

What sizes are available for NSSHCöu 4G?
14 sizes from 1.5 to 185 mm². The outer dimension of the largest size, 4G185, is 88.5 mm and the weight is about 10,040 kg/km.

What current can 4G35 carry?
162 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.

15 Trademark Notice and Intellectual Property

Cable type designations such as NSSHCöu 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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