DIN VDE 0250-813 · MV TRAILING AND REELING CABLE | 8.7/15 kV | 9 sizes | CR rubber | BARE COPPER | REELING / FESTOON DUTY

R(N)TSCGEWöu-F 3×+3E+12FO

8.7/15 kV

Medium-Voltage Trailing and Reeling Cable 8.7/15 kV – 3 screened power cores + 3 split PE conductors + 12-fibre single-mode optical element. Polychloroprene rubber sheath. Complete technical data sheet: construction, dimensions, weights, current ratings, voltage drop and installation guidance for 9 sizes.

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01 Application and Product Overview

R(N)TSCGEWöu-F is a medium-voltage trailing cable to DIN VDE 0250-813 for mobile equipment that is supplied from a drag cable or a cable reel. Three individually screened, EPR-insulated power cores and three split protective conductors are stranded together, bedded in a rubber inner sheath and covered with an oil-resistant polychloroprene outer sheath. The cable is used for 8.7/15 kV supply of excavators, shovels, crushers and reclaimers.

Design

Each power core has an inner and an outer semi-conductive layer extruded together with the EPR insulation and a tinned or bare copper-wire braid screen. This keeps the electric field inside the core insulation and lets the cores be terminated with standard medium-voltage accessories. The three protective conductors lie in the outer interstices and carry the earth current; their total cross-section is stated in the designation (for example 3×50+3×25/3E means three conductors of 50 mm² and three protective conductors of 25 mm² in total). The inner and outer sheath are polychloroprene rubber.

Typical applications

- Electric rope shovels, draglines and large excavators fed through a cable reel
- Bucket-wheel excavators, stackers and reclaimers in open-cast mines and bulk-material plants
- Mobile crushing and screening plants and relocatable conveyor drive stations
- Mobile transformer stations, skid-mounted switchgear and pump sets
- Ship-to-shore and harbour cranes fed from a reel at medium voltage
- Tunnelling machines and long-wall equipment with medium-voltage supply
- Drag-cable connections that are laid on the ground and moved with the machine
- Replacement of existing (N)TSCGEWöu cabling to DIN VDE 0250-813

9 sizes	8.7/15 kV	+90 °C	CR rubber
Cross-section 25 – 240 mm²	Rated voltage U_0/U	Maximum conductor temperature	Sheath: CR rubber

Key features

- Individually screened cores with semi-conductive layers for 8.7/15 kV
- Split PE conductors in the outer interstices for a round, torsion-stable core
- Oil-resistant polychloroprene sheath; flame-retardant to IEC 60332-1-2
- Permanent tensile load 15 N/mm², dynamic load 30 N/mm² on the copper cross-section
- Reeling bending radius 12.5 × D, trailing 10 × D, fixed 6 × D
- Short-circuit temperature 250 °C; rated 90 °C at the conductor

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◆ 9 sizes from 25 to 240 mm²; weight from 2,790 to 12,300 kg/km; copper from 960 to 8,060 kg/km

Core layout and conductor

Three power cores and three split protective conductors in the outer interstices of the stranded core, laid with a short lay length. The power cores are individually screened with semi-conductive layers and a copper braid. A central 12-fibre single-mode (G.652.D) optical element carries data through the same reel channel. 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 0250-813 defines the medium-voltage trailing cable (N)TSCGEWöu in the voltage classes 3.6/6 kV to 18/30 kV. The standard specifies the screened core design, the protective-conductor arrangement and the dimensional and test requirements; the R(N)TSCGEWöu version is the design for reeling duty.

The reeling version has a lighter core and a more flexible sheath than the drag-cable version, so that it can be wound on a cable reel with a core diameter of 2 × the reeling bending radius. For a reel, use the data of the reeling section: it gives the minimum reel core diameter, the winding capacity and the current rating by number of layers.

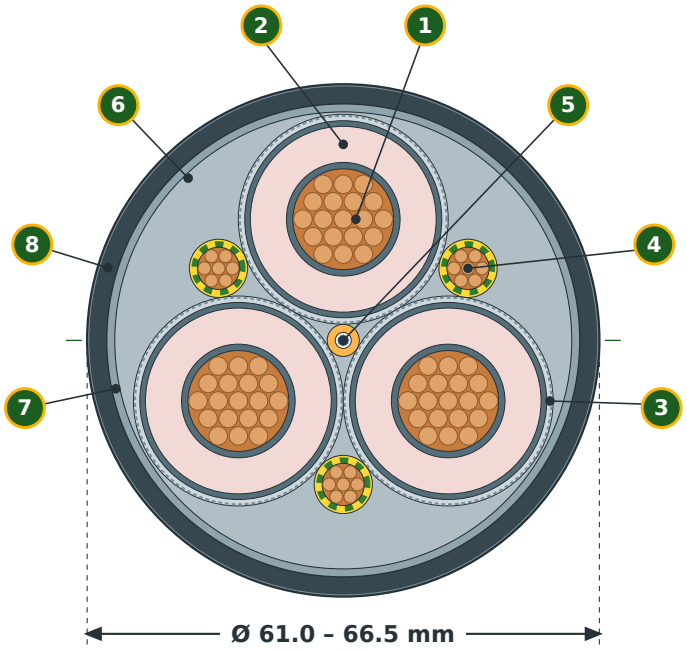
8.7/15 kV suits 15 kV systems with a maximum operating voltage of 17.5 kV. The insulation wall is 4.5 mm; the test voltage is 24 kV.

02 Construction

FEICHUN · CROSS-SECTION A–A · 8.7/15 kV

R(N)TSCGEWöu-F

Sample size 3×95+3×50/3E+12FO · 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	Semi-conductive layers and insulation	Inner and outer semi-conductive compound with EPR insulation (3GI3), extruded together
3	Core screen	Bare copper-wire braid, coverage ≥ 80 %
4	Split PE conductor	Class 5 copper, green-yellow insulation, laid in the outer interstices between the power cores
5	Optical element	12 single-mode G.652.D fibres in a compression-resistant loose tube
6	Filler and binder tape	Rubber or compound filler with polyester binder tape
7	Inner sheath	Rubber compound, extruded over the stranded core
8	Outer sheath	Polychloroprene (CR) rubber, type 5GM5

The drawing shows size 3×95+3×50/3E+12FO. 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	EPR rubber, type 3GI3 (90 °C), maximum conductor temperature 90 °C
Core screen	Semi-conductive layers extruded with the insulation; bare copper-wire braid screen
Core identification	Power cores brown, black, grey; protective conductors green-yellow
Stranding	Power cores, split PE conductors and auxiliary elements stranded together with a short lay length
Inner sheath	Rubber compound; thickness about 1.0 mm at this size
Outer sheath	Polychloroprene (CR) rubber, type 5GM5; thickness about 2.4 mm at this size

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03 Electrical, Thermal and Mechanical Characteristics

Electrical data

Rated voltage U_0/U	8.7/15 kV AC
Test voltage	24 kV AC, 5 min
Maximum operating voltage, three-phase	17.5 kV
Maximum operating voltage, DC (core-earth / core-core)	13/26 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: 6 × D; trailing: 10 × D; on a cable reel: 12.5 × D
Maximum tensile load	Permanent 15 N/mm², dynamic 30 N/mm² on the total copper cross-section of the power cores
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

04 Dimensions, Weights and Rated Data – 8.7/15 kV (9 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
3×25+3×25/3E+12FO	FC-NTSC-0535-01	6.5	46.5	50.5	303	505	2,790	960	1,120	0.780	135	3.58
3×35+3×25/3E+12FO	FC-NTSC-0535-02	7.7	48.5	53.0	318	530	3,260	1,250	1,580	0.554	167	5.00
3×50+3×25/3E+12FO	FC-NTSC-0535-03	9.2	51.5	56.0	336	560	3,970	1,680	2,250	0.386	208	7.15
3×70+3×35/3E+12FO	FC-NTSC-0535-04	10.8	55.5	60.5	363	605	4,840	2,350	3,150	0.272	257	10.01
3×95+3×50/3E+12FO	FC-NTSC-0535-05	12.6	61.0	66.5	399	665	6,110	3,220	4,280	0.206	311	13.59
3×120+3×70/3E+12FO	FC-NTSC-0535-06	14.2	64.0	69.5	417	695	6,980	4,130	5,400	0.161	360	17.16
3×150+3×70/3E+12FO	FC-NTSC-0535-07	15.8	68.0	74.0	444	740	8,310	4,990	6,750	0.129	414	21.45
3×185+3×95/3E+12FO	FC-NTSC-0535-08	17.6	72.0	78.0	468	780	10,070	6,240	8,320	0.106	472	26.45
3×240+3×120/3E+12FO	FC-NTSC-0535-09	20.0	77.0	84.0	504	840	12,300	8,060	10,800	0.0801	556	34.32

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 Tensile Load, Reeling and Festoon Data

The values below support reel and festoon design: the permitted pull split into copper and braid parts, the free-hanging length (the length at which the cable's own weight reaches the rated pull, without a safety factor), the minimum reel core diameter and an indicative winding capacity for a reel with 2,500 mm flange diameter and 1,000 mm traverse width at 90 % fill. They are not a substitute for the reel manufacturer's calculation.

Type designation cores × mm²	Pull, copper N	Dynamic pull N	Total permitted pull N	Free-hanging length m (vertical)	Min. reel core Ø mm	Winding capacity m (reel 2,500 × 1,000)
3×25+3×25/3E+12FO	1,120	2,250	1,120	40	1,262	1,205
3×35+3×25/3E+12FO	1,580	3,150	1,580	49	1,324	1,070
3×50+3×25/3E+12FO	2,250	4,500	2,250	57	1,400	825
3×70+3×35/3E+12FO	3,150	6,300	3,150	66	1,512	720
3×95+3×50/3E+12FO	4,280	8,550	4,280	71	1,662	525
3×120+3×70/3E+12FO	5,400	10,800	5,400	78	1,738	415
3×150+3×70/3E+12FO	6,750	13,500	6,750	82	1,850	315
3×185+3×95/3E+12FO	8,320	16,650	8,320	84	1,950	220
3×240+3×120/3E+12FO	10,800	21,600	10,800	89	2,100	140

06 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 0.10 Ω/km (three-phase). The percentage refers to a system voltage of 15,000 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 15,000 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
3×25+3×25/3E+12FO	135	0.995	20.01	0.13	5.44	11.31	5.06	3.58	2.06
3×35+3×25/3E+12FO	167	0.706	18.08	0.12	5.91	15.83	7.08	5.00	2.89
3×50+3×25/3E+12FO	208	0.492	16.35	0.11	6.39	22.61	10.11	7.15	4.13
3×70+3×35/3E+12FO	257	0.347	15.02	0.10	6.87	31.65	14.16	10.01	5.78
3×95+3×50/3E+12FO	311	0.263	14.55	0.10	7.62	42.96	19.21	13.59	7.84
3×120+3×70/3E+12FO	360	0.205	13.98	0.09	7.98	54.26	24.27	17.16	9.91
3×150+3×70/3E+12FO	414	0.164	13.74	0.09	8.46	67.83	30.33	21.45	12.38
3×185+3×95/3E+12FO	472	0.135	13.74	0.09	9.03	83.66	37.41	26.45	15.27
3×240+3×120/3E+12FO	556	0.102	13.65	0.09	9.47	108.53	48.54	34.32	19.81

07 Selection Guide and Sizing Aid

R(N)TSCGEWöu-F 3×+3E+12FO covers 9 sizes. The smallest, 3×25+3×25/3E+12FO, has an outer diameter of up to 50.5 mm and weighs about 2,790 kg/km; the largest, 3×240+3×120/3E+12FO, has an outer diameter of up to 84.0 mm and weighs about 12,300 kg/km, 4.4 times as much. Across the range the rated current rises from 135 A to 556 A at 30 °C and the fixed bending radius from 303 mm to 504 mm.

Example 1. A circuit draws 173 A continuously at 40 °C ambient temperature, in a group of two cables. Temperature factor 0.91, grouping factor 0.80: required table current = 173 / (0.91 × 0.80) = 237 A. The smallest suitable size is 3×70+3×35/3E+12FO with 257 A.

Example 2. A circuit draws 365 A continuously at 35 °C ambient temperature, on its own. Temperature factor 0.96: required table current = 365 / (0.96) = 382 A. The smallest suitable size is 3×150+3×70/3E+12FO with 414 A.

08 Engineering Profile by Size

Every size of R(N)TSCGEWöu-F 3×+3E+12FO with the dimensions that decide how it behaves in a circuit: layers, weight, copper share, heat, voltage drop, bending, termination and pull.

3×25+3×25/3E+12FO. This size has with a conductor of Ø 6.5 mm under semi-conductive layers and EPR insulation (core Ø 20.1 mm) and 1.0 mm inner and 0.8 mm outer sheath; outer diameter 46.5–50.5 mm, weight about 2,790 kg/km of which copper 960 kg/km (34 %). Rated current 135 A at 30 °C; at that load the voltage drop is 20.01 V per 100 m (0.13 % of 15,000 V) and the loss 5.44 kW per 100 m. Bending radius 303 mm fixed, 505 mm moving; gland M75, lug bolt M8. Short-circuit rating 3.58 kA for 1 s; permitted pull 1,120 N, free-hanging length 40 m.

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3×35+3×25/3E+12FO. This size has with a conductor of Ø 7.6 mm under semi-conductive layers and EPR insulation (core Ø 21.2 mm) and 1.0 mm inner and 0.8 mm outer sheath; outer diameter 48.5–53.0 mm, weight about 3,260 kg/km of which copper 1,250 kg/km (38 %). Rated current 167 A at 30 °C; at that load the voltage drop is 18.08 V per 100 m (0.12 % of 15,000 V) and the loss 5.91 kW per 100 m. Bending radius 318 mm fixed, 530 mm moving; gland M75, lug bolt M8. Short-circuit rating 5.00 kA for 1 s; permitted pull 1,580 N, free-hanging length 49 m.

3×50+3×25/3E+12FO. This size has with a conductor of Ø 9.1 mm under semi-conductive layers and EPR insulation (core Ø 22.7 mm) and 1.0 mm inner and 0.8 mm outer sheath; outer diameter 51.5–56.0 mm, weight about 3,970 kg/km of which copper 1,680 kg/km (42 %). Rated current 208 A at 30 °C; at that load the voltage drop is 16.35 V per 100 m (0.11 % of 15,000 V) and the loss 6.39 kW per 100 m. Bending radius 336 mm fixed, 560 mm moving; gland M85, lug bolt M10. Short-circuit rating 7.15 kA for 1 s; permitted pull 2,250 N, free-hanging length 57 m.

3×70+3×35/3E+12FO. This size has with a conductor of Ø 10.8 mm under semi-conductive layers and EPR insulation (core Ø 24.4 mm) and 1.0 mm inner and 1.3 mm outer sheath; outer diameter 55.5–60.5 mm, weight about 4,840 kg/km of which copper 2,350 kg/km (49 %). Rated current 257 A at 30 °C; at that load the voltage drop is 15.02 V per 100 m (0.10 % of 15,000 V) and the loss 6.87 kW per 100 m. Bending radius 363 mm fixed, 605 mm moving; gland M85, lug bolt M10. Short-circuit rating 10.01 kA for 1 s; permitted pull 3,150 N, free-hanging length 66 m.

3×95+3×50/3E+12FO. This size has with a conductor of Ø 12.6 mm under semi-conductive layers and EPR insulation (core Ø 26.2 mm) and 1.0 mm inner and 2.4 mm outer sheath; outer diameter 61.0–66.5 mm, weight about 6,110 kg/km of which copper 3,220 kg/km (53 %). Rated current 311 A at 30 °C; at that load the voltage drop is 14.55 V per 100 m (0.10 % of 15,000 V) and the loss 7.62 kW per 100 m. Bending radius 399 mm fixed, 665 mm moving; gland M90, lug bolt M12. Short-circuit rating 13.59 kA for 1 s; permitted pull 4,280 N, free-hanging length 71 m.

3×120+3×70/3E+12FO. This size has with a conductor of Ø 14.1 mm under semi-conductive layers and EPR insulation (core Ø 27.7 mm) and 1.0 mm inner and 2.2 mm outer sheath; outer diameter 64.0–69.5 mm, weight about 6,980 kg/km of which copper 4,130 kg/km (59 %). Rated current 360 A at 30 °C; at that load the voltage drop is 13.98 V per 100 m (0.09 % of 15,000 V) and the loss 7.98 kW per 100 m. Bending radius 417 mm fixed, 695 mm moving; gland M90, lug bolt M12. Short-circuit rating 17.16 kA for 1 s; permitted pull 5,400 N, free-hanging length 78 m.

3×150+3×70/3E+12FO. This size has with a conductor of Ø 15.8 mm under semi-conductive layers and EPR insulation (core Ø 29.4 mm) and 1.0 mm inner and 2.5 mm outer sheath; outer diameter 68.0–74.0 mm, weight about 8,310 kg/km of which copper 4,990 kg/km (60 %). Rated current 414 A at 30 °C; at that load the voltage drop is 13.74 V per 100 m (0.09 % of 15,000 V) and the loss 8.46 kW per 100 m. Bending radius 444 mm fixed, 740 mm moving; gland M100, lug bolt M12. Short-circuit rating 21.45 kA for 1 s; permitted pull 6,750 N, free-hanging length 82 m.

3×185+3×95/3E+12FO. This size has with a conductor of Ø 17.5 mm under semi-conductive layers and EPR insulation (core Ø 31.1 mm) and 1.0 mm inner and 2.7 mm outer sheath; outer diameter 72.0–78.0 mm, weight about 10,070 kg/km of which copper 6,240 kg/km (62 %). Rated current 472 A at 30 °C; at that load the voltage drop is 13.74 V per 100 m (0.09 % of 15,000 V) and the loss 9.03 kW per 100 m. Bending radius 468 mm fixed, 780 mm moving; gland M100, lug bolt M16. Short-circuit rating 26.45 kA for 1 s; permitted pull 8,320 N, free-hanging length 84 m.

3×240+3×120/3E+12FO. This size has with a conductor of Ø 20.0 mm under semi-conductive layers and EPR insulation (core Ø 33.6 mm) and 1.0 mm inner and 2.8 mm outer sheath; outer diameter 77.0–84.0 mm, weight about 12,300 kg/km of which copper 8,060 kg/km (66 %). Rated current 556 A at 30 °C; at that load the voltage drop is 13.65 V per 100 m (0.09 % of 15,000 V) and the loss 9.47 kW per 100 m. Bending radius 504 mm fixed, 840 mm moving; gland special, lug bolt M16. Short-circuit rating 34.32 kA for 1 s; permitted pull 10,800 N, free-hanging length 89 m.

Averaged over all sizes copper makes up 56 % of the cable weight; the share rises from 34 % at 3×25+3×25/3E+12FO to 66 % at 3×240+3×120/3E+12FO, which is why the larger sizes are costed mostly on the copper market price.

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09 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 8.7/15 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, %
3×25+3×25/3E+12FO	6.45	20.05	semi-cond. + EPR	44.8	1.00	0.80	–	7
3×35+3×25/3E+12FO	7.63	21.23	semi-cond. + EPR	47.2	1.00	0.80	–	7
3×50+3×25/3E+12FO	9.12	22.72	semi-cond. + EPR	50.2	1.00	0.80	–	7
3×70+3×35/3E+12FO	10.79	24.39	semi-cond. + EPR	53.4	1.00	1.27	–	8
3×95+3×50/3E+12FO	12.57	26.17	semi-cond. + EPR	57.0	1.00	2.44	–	11
3×120+3×70/3E+12FO	14.13	27.73	semi-cond. + EPR	60.4	1.00	2.25	–	10
3×150+3×70/3E+12FO	15.80	29.40	semi-cond. + EPR	63.9	1.00	2.46	–	10
3×185+3×95/3E+12FO	17.55	31.15	semi-cond. + EPR	67.7	1.00	2.69	–	10
3×240+3×120/3E+12FO	19.99	33.59	semi-cond. + EPR	73.0	1.00	2.78	–	9

10 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
3×25+3×25/3E+12FO	50.5	M75	M8	14	150
3×35+3×25/3E+12FO	53.0	M75	M8	16	160
3×50+3×25/3E+12FO	56.0	M85	M10	19	170
3×70+3×35/3E+12FO	60.5	M85	M10	26	180
3×95+3×50/3E+12FO	66.5	M90	M12	31	200
3×120+3×70/3E+12FO	69.5	M90	M12	35	210
3×150+3×70/3E+12FO	74.0	M100	M12	41	220
3×185+3×95/3E+12FO	78.0	M100	M16	47	235
3×240+3×120/3E+12FO	84.0	special	M16	57	250

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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11 Comparison with Related Variants at Size 3×95+3×50/3E+12FO

Variant	Differs in	Outer Ø / H mm	Weight kg/km	Pull N	Current A
This datasheet R(N)TSCGEWöu-F 3×+3E+12FO 8.7/15 kV	–	66.5	6,110	4,280	311
R(N)TSCGEWöu-C 3×+3E+2×1.5 8.7/15 kV 3×95+3×50/3E+2×1.5	core configuration	66.5 (+0%)	6,130 (+0%)	4,280 (+0%)	311 (+0%)
R(N)TSCGEWöu-P 3×+3E+2×2.5 8.7/15 kV 3×95+3×50/3E+2×2.5	core configuration	66.5 (+0%)	6,150 (+1%)	4,280 (+0%)	311 (+0%)
R(N)TSCGEWöu-F 3×+3E+12FO 8.7/15 kV 3×95+3×50/3E+12FO	tinned vs bare copper	66.5 (+0%)	6,110 (+0%)	4,280 (+0%)	308 (-1%)
R(N)TSCGEWöu-F-HT 3×+3E+12FO 8.7/15 kV 3×95+3×50/3E+12FO	tensile braid	69.0 (+4%)	6,400 (+5%)	15,960 (+273%)	311 (+0%)
(N)TSCGEWöu-F 3×+3E+12FO 8.7/15 kV 3×95+3×50/3E+12FO	reeling design	66.5 (+0%)	6,110 (+0%)	4,280 (+0%)	311 (+0%)
R(N)TSCGEWöu-F 3×+3E+12FO 6/10 kV 3×95+3×50/3E+12FO	voltage class	62.0 (-7%)	5,680 (-7%)	4,280 (+0%)	302 (-3%)
R(N)TSCGEWöu 3×+3E 8.7/15 kV 3×95+3×50/3E	core configuration	66.5 (+0%)	6,100 (-0%)	4,280 (+0%)	311 (+0%)
R(N)TSCGEWöu-F 3×+3E+12FO 12/20 kV 3×95+3×50/3E+12FO	voltage class	71.0 (+7%)	6,550 (+7%)	4,280 (+0%)	320 (+3%)

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

12 Standards and Testing

Standard	Scope
DIN VDE 0250-813	Trailing cable (N)TSCGEWöu, 3.6/6 kV to 18/30 kV
DIN VDE 0295 / IEC 60228	Conductors, class 5
DIN VDE 0207-20 / -21	Rubber insulation and sheath compounds
DIN VDE 0298-3 / -4	Application and current-carrying capacity
DIN EN 60332-1-2 / IEC 60332-1-2	Flame propagation
IEC 60502-2 (reference)	Partial-discharge and voltage testing practice for screened MV cores

Routine and type tests

- AC voltage test on every drum length (routine test): 24 kV, 5 min
- Partial-discharge test of the screened power cores
- 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
- Bending and torsion tests for reeling duty (type test)

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 0250-813. 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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13 Installation, Marking and Delivery

Installation guidance

- Terminate the core screens with MV accessories rated for the voltage class and ground the screens at both ends.
- Use a reel core diameter of at least 2 × the reeling bending radius; wind in orderly layers without cross-over.
- Avoid torsion above the limit agreed with FeiChun for the reel design; release twist before respooling.
- Connect all three split PE conductors at both ends.
- Lay drag cables on a prepared surface and protect them against vehicle crossings with cable ramps.
- Carry out a voltage test of the installed cable after termination, with the test voltage in the table of section 03.

Sheath marking

FEICHUN R(N)TSCGEWöu-F [cross-section] 8.7/15 kV [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: R(N)TSCGEWöu-F 3×95+3×50/3E+12FO 8.7/15 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.

14 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.

15 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.

- R(N)TSCGEWöu-C 3×+3E+2×1.5 8.7/15 kV – core configuration, CR rubber
- R(N)TSCGEWöu-P 3×+3E+2×2.5 8.7/15 kV – core configuration, CR rubber
- R(N)TSCGEWöu-F 3×+3E+12FO 8.7/15 kV – tinned vs bare copper, CR rubber, tinned
- R(N)TSCGEWöu-F-HT 3×+3E+12FO 8.7/15 kV – tensile braid, CR rubber
- (N)TSCGEWöu-F 3×+3E+12FO 8.7/15 kV – reeling design, CR rubber
- R(N)TSCGEWöu-F 3×+3E+12FO 6/10 kV – voltage class, CR rubber
- R(N)TSCGEWöu 3×+3E 8.7/15 kV – core configuration, CR rubber
- R(N)TSCGEWöu-F 3×+3E+12FO 12/20 kV – voltage class, CR rubber

Overview of all (N)TSCGEWöu datasheets: (N)TSCGEWöu Medium-Voltage Trailing Cables

Frequently asked questions

What does 3×50+3×25/3E mean?
Three power cores of 50 mm² and three protective (PE) conductors with a total cross-section of 25 mm² (the /3 divides it into three conductors), designated E.

What is the difference between (N)TSCGEWöu and R(N)TSCGEWöu?
The R version is designed for reeling duty with a lighter, more flexible core and a smaller permitted bending radius on the reel; the unprefixed version is the drag-cable design.

What sizes are available for R(N)TSCGEWöu-F 3×+3E+12FO?
9 sizes from 25 to 240 mm². The outer dimension of the largest size, 3×240+3×120/3E+12FO, is 84.0 mm and the weight is about 12,300 kg/km.

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What current can 3×95+3×50/3E+12FO carry?
311 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.

16 Trademark Notice and Intellectual Property

Cable type designations such as R(N)TSCGEWöu-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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