MINING REELING CONTROL CABLE · MOBILE MACHINERY | 0.6/1 kV | 4 sizes | PUR low-temp

HIGH TENSILE · ARAMID BRAID

# FC-MCR-A-HT 19G 0.6/1 kV

Mining Reeling Control Cable 0.6/1 kV – 19-core reeling control cable, with aramid tensile support braid, halogen-free low-temperature PUR sheath. Complete technical data sheet: construction, dimensions, weights, current ratings, standards and installation guidance for 4 sizes.

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## 01 Application and Product Overview

FC-MCR-A-HT 19G is a 19-core reeling control cable, with aramid tensile support braid rated 0.6/1 kV for cable reels on drill rigs, LHD machines, shuttle cars and mobile mining plant. It has fine-wire class 5 copper cores with halogen-free cross-linked polyethylene (XLPE) insulation, an inner sheath and an outer sheath of halogen-free polyurethane (PUR), flame-retardant, low-temperature grade. Core cross-sections: 0.75 – 2.5 mm². An aramid tensile support braid between the inner and outer sheath carries the axial load; the permissible pull of the largest size is 3,710 N.

### Design

19 cores in concentric layers with a short lay length and polyester binder tape. Black cores carry white numbers; the green-yellow protective core lies in the outer layer. The cores are bound with halogen-free filler and covered by an inner sheath before the outer sheath is applied. With 19 cores this cable replaces several smaller control cables on a single reel channel. A braid of aramid yarn is applied between the inner and outer sheath. The braid is a high-modulus, low-elongation element: it takes the axial load that would otherwise stretch the copper conductors, keeps the stranded cores from lengthening and from forming loops (“bird-caging”) when the cable is released from tension on a reel, and raises the permissible working load well above the 20 N/mm² (power) or 15 N/mm² (control) copper-based rating. To use the rating, the load must be introduced through the braid, with a cable grip or strain-relief clamp that holds the sheath and braid at both ends, and never through the conductors.

### Typical applications

- Control, signal and measuring circuits of drill rigs, LHD machines, shuttle cars and mobile crushers supplied through a cable reel
- Spring-driven and motor-driven cable reels on mining machines, cable handlers and conveyor take-up systems
- Operation with repeated winding, unwinding and bending within the permitted bending radius
- Wet, muddy, oily and abrasive environments typical of underground headings and open pits
- Control cabinets, junction boxes and remote-control stations of mining machinery
- Operations where the ambient temperature falls to −40 °C while the cable is in motion, such as open-pit mines and decline portals in cold climates
- Steep declines, ramps, raises and shaft installations where the cable weight or the reel tension would otherwise load the conductors; the aramid braid carries the axial load

| 4 sizes | 0.6/1 kV | +90 °C | Halogen-free |
|---|---|---|---|
| Cross-section 0.75 – 2.5 mm² | Rated voltage $U_0/U$ | Maximum conductor temperature | Sheath: PUR low-temp |


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## Key features

- Fine-wire class 5 copper cores with insulation thickness to 0.6/1 kV for reliable operation on a reel
- Cores laid in concentric layers with a short lay length and polyester binder tape
- Number-printed black cores; green-yellow protective core in the outer layer (G types)
- Aramid tensile support braid: permissible pull up to 3,710 N in the largest size
- Halogen-free insulation and sheaths; no halogen acid gases when burned (IEC 60754-1/-2)
- Flexible in motion down to −40 °C (fixed installation −50 °C)
- Flame retardant to IEC 60332-1-2

## Service notes for mining duty

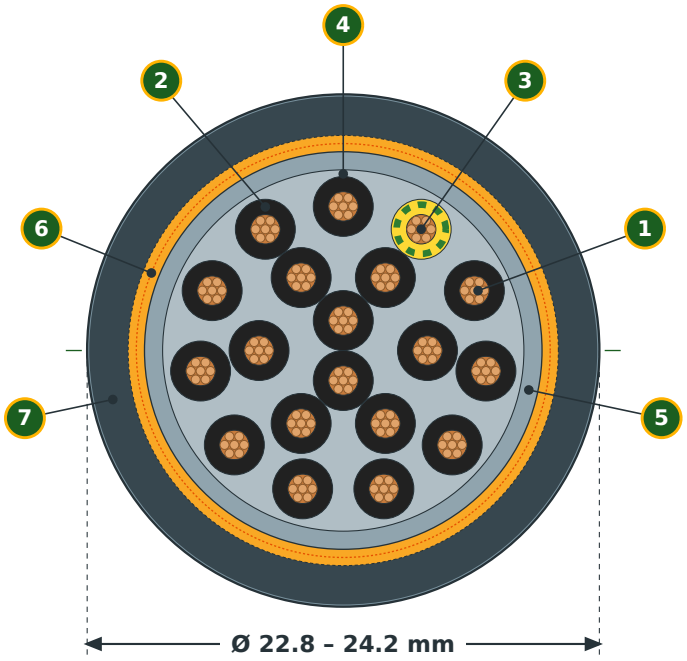
- Route control cables on the reel in a separate channel from MV or unscreened power cables, or use the screened version.
- Strip the outer sheath only as far as required for termination and seal the cable entry against water.

# 02 Construction

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

**FC-MCR-A-HT**

Sample size 19G1 · Rev 0 · Illustrative, not to scale




| No. | Component | Material |
|---|---|---|
| 1 | Conductor | Bare annealed fine-wire copper, class 5 to IEC 60228 |
| 2 | Insulation | Halogen-free cross-linked polyethylene (XLPE) |
| 3 | Protective (PE) core | Class 5 copper, green-yellow insulation |
| 4 | Filler and binder tape | Halogen-free compound, polyester tape |
| 5 | Inner sheath | Halogen-free polymer compound |
| 6 | Tensile support braid | Aramid yarn braid between inner and outer sheath; carries the axial load |
| 7 | Outer sheath | Halogen-free polyurethane (PUR), flame-retardant, low-temperature grade |

The drawing shows size 19G1. Other sizes have the same construction with scaled dimensions.

## Construction details

| | |
|---|---|
| **Conductor** | Bare annealed fine-wire copper, class 5 to DIN EN 60228 / IEC 60228 / VDE 0295 |
| **Insulation** | Halogen-free cross-linked polyethylene (XLPE) to IEC 60502-1, maximum conductor temperature 90 °C |
| **Core identification** | Black cores with white numbers; green-yellow protective core in the outer layer |
| **Stranding** | Cores stranded in concentric layers with a short lay length; polyester binder tape |
| **Inner sheath** | Halogen-free polymer compound, extruded tightly over the stranded cores |
| **Tensile support braid** | Aramid yarn braid, 0.75 mm thick, between the inner and the outer sheath; the braid carries the axial load |
| **Outer sheath** | Halogen-free polyurethane (PUR), flame-retardant, low-temperature grade |


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### Sheath material

The low-temperature grade of halogen-free polyurethane (PUR) keeps the sheath flexible down to −40 °C in motion (−50 °C fixed), so the cable can be reeled and trailed at sub-zero surface temperatures without sheath cracking. It retains the abrasion, cut and tear resistance of standard PUR, resists mineral oil, UV radiation and ozone, and emits no halogen acid gases when burned. Typical use: open-pit and portal-to-decline operations in cold climates, and mines with cold intake air.

## 03 Electrical, Thermal and Mechanical Characteristics

### Electrical data

| | |
|---|---|
| **Rated voltage $U_0/U$** | 0.6/1 kV AC |
| **Test voltage** | 3.5 kV AC, 5 min |
| **Maximum operating voltage, DC** | 0.9/1.8 kV |
| **Current-carrying capacity** | To DIN VDE 0298-4 at 30 °C ambient; the table gives rated design values |
| **Conductor resistance** | Maximum at 20 °C, class 5 to IEC 60228 |

### Thermal and mechanical data

| | |
|---|---|
| **Maximum conductor temperature** | +90 °C |
| **Maximum temperature at short circuit** | +250 °C |
| **Ambient temperature, fixed installation** | −50 °C to +80 °C |
| **Ambient temperature, in motion** | −40 °C to +80 °C |
| **Minimum bending radius** | Fixed: 4 × D (D ≥ 8 mm), 3 × D (D < 8 mm); moving or reeling: 6 × D (D ≤ 12 mm), 8 × D (D ≤ 20 mm), 10 × D (D > 20 mm) |
| **Maximum tensile load** | 15 N/mm² on the copper cross-section plus the permissible load of the aramid support braid; the pull force of each size is in section 04 and in the tensile table |
| **Maximum travelling speed** | 60 m/min on a cable reel; higher speeds on request |
| **Flame propagation** | IEC 60332-1-2 / DIN EN 60332-1-2 |
| **Halogen-free** | Yes (insulation, inner and outer sheath); IEC 60754-1/-2 |
| **UV and ozone resistance** | Resistant |
| **Mineral oil resistance** | Resistant, IEC 60811-404 |

## 04 Dimensions, Weights and Rated Data – 0.6/1 kV (4 sizes)

| Type designation cores × mm² | FeiChun article no. | Conductor Ø max mm | Outer Ø min mm | Outer Ø max mm | Min. bend radius mm | Weight approx. kg/km | Max. pull force N | $R_{20}$ max Ω/km | Current per core A | $I_k$ (1 s) kA |
|---|---|---|---|---|---|---|---|---|---|---|
| **19G0.75** | FC-MC101-001 | 1.2 | 21.6 | 23.0 | 230 | 510 | 2,280 | 26.0 | 7 | 0.107 |
| **19G1** | FC-MC101-002 | 1.4 | 22.8 | 24.2 | 242 | 590 | 2,520 | 19.5 | 9 | 0.143 |
| **19G1.5** | FC-MC101-003 | 1.7 | 24.5 | 26.0 | 260 | 730 | 2,950 | 13.3 | 11 | 0.214 |
| **19G2.5** | FC-MC101-004 | 2.2 | 28.0 | 29.5 | 296 | 1,010 | 3,710 | 7.98 | 15 | 0.357 |

Current-carrying capacity: rated design values to DIN VDE 0298-4 for flexible cables, free air, 30 °C ambient; values per core include the derating factor for the number of cores; for other ambient temperatures, grouping or layered winding on a reel, apply the factors below. Pull force = 15 N/mm² × total copper cross-section of the power cores plus the permissible load of the aramid support braid (split out in the tensile table). Diameters, dimensions and weights are nominal design values and vary within manufacturing tolerances; confirm critical dimensions before dimensioning reels, guides 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 |
|---|---|---|---|---|---|---|---|
| Factor | 1.08 | 1.04 | 1.00 | 0.96 | 0.91 | 0.87 | 0.82 |

### Short-circuit current rating

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


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## 05 Reeling Performance and Reel Design Data

The values below support the dimensioning of the cable reel: minimum reel core diameter, copper weight for earthing and loop-resistance calculations, cable weight, and the rated current for the number of layers wound on the reel.

| Type designation cores × mm² | Outer Ø max mm | Min. bend radius on reel, mm | Min. reel core Ø mm | Copper weight kg/km | Cable weight kg/100 m |
|---|---|---|---|---|---|
| 19G0.75 | 23.0 | 230 | 460 | 127 | 51.0 |
| 19G1 | 24.2 | 242 | 484 | 169 | 59.0 |
| 19G1.5 | 26.0 | 260 | 520 | 253 | 73.0 |
| 19G2.5 | 29.5 | 296 | 592 | 420 | 101.0 |

### Reel design guidance

- Spring reels suit short travel and low tensile load; motor-driven reels with torque control keep the cable under constant, low tension.
- Fit a guide or level-wind that keeps the cable parallel to the reel axis to prevent crossing turns.
- Rated current falls with the number of layers on the reel because heat is not dissipated; see the layer factors below.

## 06 Tensile Performance of the Aramid Support Braid

The aramid braid adds its own permissible working load to the copper-based rating. The table splits the permissible pull of every size into the copper part (15 N/mm² × copper cross-section) and the braid part, and shows how long a length of cable can hang vertically before its own weight reaches the rated pull. The braid part is a design value: aramid yarn strength 2,900 N/mm², braid efficiency 0.70 and a safety factor of 15 on the yarn strength. Introduce the load only through a cable grip or strain-relief clamp that holds the sheath and the braid.

| Type designation cores × mm² | Pull, copper only N | Pull, aramid braid N | Total permissible pull N | Factor × standard | Free-hanging length m (vertical) |
|---|---|---|---|---|---|
| 19G0.75 | 214 | 2,066 | 2,280 | 10.7 | 455 |
| 19G1 | 285 | 2,235 | 2,520 | 8.8 | 435 |
| 19G1.5 | 430 | 2,520 | 2,950 | 6.9 | 411 |
| 19G2.5 | 710 | 3,000 | 3,710 | 5.2 | 374 |

Free-hanging length = permissible pull ÷ (weight × 9.81). For hoisting, shaft suspension or lifting applications apply the safety factor required by the applicable regulations and confirm the arrangement with FeiChun.

## 07 Selection Guide and Sizing Aid

FC-MCR-A-HT 19G covers 4 sizes. The smallest, 19G0.75, has an outer diameter of up to 23.0 mm and weighs about 510 kg/km; the largest, 19G2.5, has an outer diameter of up to 29.5 mm and weighs about 1,010 kg/km, 2.0 times as much. Across the range the rated current per core rises from 7 A to 15 A at 30 °C, and the minimum bending radius from 230 mm to 296 mm.

**Example 1.** A circuit carries 8 A per core at an ambient temperature of 40 °C. Required table current = 8 / 0.91 = 9 A per core. The smallest suitable size is 19G1 with 9 A per core.

**Example 2.** A circuit carries 10 A per core at an ambient temperature of 35 °C. Required table current = 10 / 0.96 = 11 A per core. The smallest suitable size is 19G1.5 with 11 A per core.

| Type designation cores × mm² | Total copper mm² | Cable weight kg/100 m | Winding capacity m | Free-hanging length m (vertical) |
|---|---|---|---|---|
| 19G0.75 | 14.25 | 51.0 | 7,875 | 455 |
| 19G1 | 19 | 59.0 | 7,015 | 435 |
| 19G1.5 | 28.5 | 73.0 | 6,155 | 411 |
| 19G2.5 | 47.5 | 101.0 | 4,585 | 374 |

Winding capacity is an indicative value for a reel with 2,500 mm flange diameter, 1,000 mm traverse width, core diameter equal to the minimum reel core diameter and 90 % fill; it is not a substitute for the reel manufacturer’s calculation. Free-hanging length = permissible pull ÷ (weight × 9.81); it is the length at which the cable’s own weight reaches the rated pull, without any safety factor for hoisting.


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## 08 Engineering Profile by Size

Each size of FC-MCR-A-HT 19G with the values that matter when sizing a circuit: dimensions, weight, copper share, heat and voltage drop at rated current, and the permissible pull. Voltage drop is for 100 m of cable at rated current with conductors at 90 °C (single-phase AC or DC round trip).

19G0.75: outer Ø 23.0 mm, about 510 kg/km of which 127 kg/km is copper (25%). Rated current is 7 A in free air at 30 °C; at that current the conductor loss is about 3.2 W per metre and the voltage drop over 100 m is 46.4 V (conductors at 90 °C). Reel and handling: at 19G0.75 the minimum reel core is 460 mm and the cable weighs 51.0 kg per 100 m, so a 500 m length weighs about 255 kg before the drum.

Choose 19G1 when the load is near 9 A: the conductor resistance is 19.50 Ω/km, the overall size is Ø 24.2 mm and the weight 590 kg/km. The minimum reel core is 484 mm and the 1 s short-circuit rating 0.14 kA. Per 100 m, 19G1 contains 16.9 kg of copper and 42.1 kg of insulation, filler and sheath material, which sets the scrap value and the recycling split.

19G1.5: Ø 26.0 mm; bend radius 260 mm; weight 730 kg/km. Voltage drop at rated current (11 A) is 37.3 V per 100 m, loss 4.1 W/m, and the cable can support 411 m of its own length vertically at the rated pull of 2,950 N. Handling 19G1.5: 73.0 kg per 100 m, bending radius 260 mm; two people can lift a 20 m piece of about 14.6 kg.

19G2.5: Ø 29.5 mm; bend radius 296 mm; weight 1,010 kg/km. Voltage drop at rated current (15 A) is 30.5 V per 100 m, loss 4.6 W/m, and the cable can support 374 m of its own length vertically at the rated pull of 3,710 N. A 500 m length of 19G2.5 weighs about 505 kg; with a 592 mm minimum core the drum must be sized for that load.

## 09 Configuration Guidance and Variant Comparison

Typical case: a machine whose control cabinet needs 19 circuits through the reel. For this case FC-MCR-A-HT 19G is a fit in the 19G1 size (Ø 24.2 mm).

Choose this grade for cold intake air and surface sections while keeping the halogen-free benefit.

Rated 0.6/1 kV, the cable covers the common 400 V, 690 V and 1,000 V mining supplies.

In the drawn size 19G1 the cores fill 52% of the circle inside the inner sheath, the inner sheath is 0.8 mm thick, the aramid braid 0.75 mm and the outer sheath 1.9 mm, giving a total wall of 3.5 mm around a core bundle of Ø 16.6 mm.

The aramid braid adds 2,235 N of permissible pull in the 19G1 size (2,520 N total instead of 285 N), at the cost of about 1.5 mm more diameter and 16 kg/km more weight than the standard design.

FC-MCR-A-HT 19G is one of 360 datasheets in the mining reeling control cable group and one of 953 in the library. The next smaller core count, FC-MCR-A-HT 16G, has an outer Ø of 24.5 mm at 1 mm² against 24.2 mm here. The next larger core count, FC-MCR-A-HT 24G, measures 25.5 mm and weighs 670 kg/km (this model: 590 kg/km).

### Element inventory and core layout

Element inventory of the drawn size 19G1: 19 elements with 19.0 mm² of copper in total. The 19 cores are stranded in 3 concentric layers (layer 1: 2 cores; layer 2: 6 cores; layer 3: 11 cores), counted from the centre outwards, each layer with a short lay length and alternating lay direction. Keeping about 15 % of the cores as spare leaves 15 usable circuits plus the protective core; plan the core allocation before ordering because the number cannot be changed after manufacture.

| Element | Quantity | Cross-section | Ø over insulation mm | Copper mm² |
|---|---|---|---|---|
| Power / main core | 18 | 1 mm² | 2.7 | 18.0 |
| Protective (PE) conductor | 1 | 1 mm² | 2.7 | 1.0 |

### Termination data (indicative)

| Type designation cores × mm² | Outer Ø or W × H mm | Cable gland thread | Lug / ferrule bolt | Strip length mm | Terminal row mm | Gland-to-bend straight mm |
|---|---|---|---|---|---|---|
| 19G0.75 | 23.0 | M40 | ferrule | 12 | 97 | 115 |
| 19G1 | 24.2 | M40 | ferrule | 12 | 97 | 121 |
| 19G1.5 | 26.0 | M40 | ferrule | 12 | 97 | 130 |
| 19G2.5 | 29.5 | M50 | ferrule | 12 | 97 | 148 |

Gland, lug and terminal-row values are planning guides computed from the dimensions above; confirm them with the accessory manufacturer.


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### Comparison with related variants at size 19G1

| Variant | Differs in | Outer Ø / H mm | Weight kg/km | Pull N | Current A |
|---|---|---|---|---|---|
| **This datasheet** FC-MCR-A-HT 19G | – | 24.2 | 590 | 2,520 | 9 |
| FC-MCR-U-HT 19G 0.6/1 kV | sheath | 24.2 (+0%) | 590 (+0%) | 2,520 (+0%) | 9 (+0%) |
| FC-MCR-S-HT 19G 0.6/1 kV | sheath | 24.2 (+0%) | 640 (+8%) | 2,520 (+0%) | 9 (+0%) |
| FC-MCR-A-HT 16G 0.6/1 kV | configuration | 24.5 (+1%) | 570 (-3%) | 2,520 (+0%) | 9 (+0%) |
| FC-MCR-A-HT 24G 0.6/1 kV | configuration | 25.5 (+5%) | 670 (+14%) | 2,740 (+9%) | 8 (-11%) |
| FC-MCR-A-C-HT 19G 0.6/1 kV | screen | 25.0 (+3%) | 680 (+15%) | 2,630 (+4%) | 9 (+0%) |
| FC-MCR-A 19G 0.6/1 kV | tensile braid | 22.7 (-6%) | 520 (-12%) | 285 (-89%) | 9 (+0%) |

Percentages show the change against this datasheet for the same cross-section; use them to judge what a change of sheath, voltage class, screen or tensile braid costs in size and weight.

## 10 Standards and Testing

| Standard | Scope |
|---|---|
| **DIN EN 60228 / IEC 60228 / VDE 0295** | Conductors, class 5 |
| **IEC 60502-1** | Insulation compound, power cables up to 1 kV |
| **DIN VDE 0298-3** | Application of cables – bending radii and tensile loads |
| **DIN VDE 0298-4** | Application of cables – current-carrying capacity |
| **DIN EN 60332-1-2 / IEC 60332-1-2** | Flame propagation, single cable |
| **DIN VDE 0293-308** | Core identification |
| **IEC 60754-1 / -2** | Halogen acid gas emission when burned |
| **IEC 60811-404** | Mineral oil immersion test |

### Routine and type tests

- AC voltage test on every reel length (routine test): 3.5 kV AC, 5 min
- Conductor resistance and checks of dimensions, insulation thickness and sheath thickness
- Continuity of conductors and protective earth
- Bending, tensile tests (type test)
- Flame propagation (IEC 60332-1-2) and confirmation of halogen-free materials
- Tensile test of the finished cable including elongation at the rated pull, and inspection of the aramid braid coverage (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.

## 11 Installation, Marking and Delivery

### Installation guidance

- Use a reel core diameter of at least twice the minimum bending radius; keep the cable free of loops and kinks while winding.
- Do not exceed the tensile load in the table; relieve the cable of tension at the reel hub and at the machine.
- Keep control cables away from unscreened power cables running in parallel where possible.
- Inspect the sheath regularly for abrasion and mechanical damage.
- Terminate the tensile braid: fix the cable with a cable grip or strain-relief clamp that holds the sheath and braid at both ends, so the braid, not the conductors, carries the load.

### Sheath marking

FEICHUN FC-MCR-A-HT [cross-section] 0.6/1 kV [year] [serial no.] [metre mark]

### Packing and delivery

| | |
|---|---|
| **Reel** | Steel or fumigated wooden reels; 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 |
| **Reel label** | Type, cross-section, length, gross/net weight, batch no., reel no. |

### Ordering information

**Order example: FC-MCR-A-HT 19G1 0.6/1 kV** – 500 m on one steel reel. When requesting a quotation, state the cable type, configuration, cross-section, voltage, length per piece, required standards and installation conditions.


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## 12 Certification and Quality

All cable is subject to FeiChun's quality control, with routine testing over 100 % of the delivered length. Certificates, type tests and third-party tests (for example partial discharge or compatibility with cable accessories) are provided per project requirement; copies of the records are available on request.

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

## 13 Related Datasheets

Variants of this cable with a different sheath, configuration or voltage. All datasheets are in PDF format.

- FC-MCR-U-HT 19G 0.6/1 kV – 19-core reeling control cable, with aramid tensile support braid, PUR
- FC-MCR-S-HT 19G 0.6/1 kV – 19-core reeling control cable, with aramid tensile support braid, CSP rubber
- FC-MCR-A-HT 16G 0.6/1 kV – 16-core reeling control cable, with aramid tensile support braid, PUR low-temp
- FC-MCR-A-HT 24G 0.6/1 kV – 24-core reeling control cable, with aramid tensile support braid, PUR low-temp
- FC-MCR-A-C-HT 19G 0.6/1 kV – 19-core reeling control cable with overall tinned-copper braid screen, with aramid tensile support braid, PUR low-temp
- FC-MCR-A 19G 0.6/1 kV – 19-core reeling control cable, PUR low-temp
- FC-MCR-A-HT 14G 0.6/1 kV – 14-core reeling control cable, with aramid tensile support braid, PUR low-temp
- FC-MCR-A-HT 25G 0.6/1 kV – 25-core reeling control cable, with aramid tensile support braid, PUR low-temp

Overview of all datasheets: Mining Reeling Control Cables 300/500 V and 0.6/1 kV

### Frequently asked questions

**What is FC-MCR-A-HT 19G used for?**
Typical applications include control, signal and measuring circuits of drill rigs, LHD machines, shuttle cars and mobile crushers supplied through a cable reel.

**What are the outer diameter and minimum bending radius of 19G1?**
The outer diameter is 22.8 to 24.2 mm and the minimum bending radius in moving or reeling operation is 242 mm (6 to 10 × D depending on diameter).

**What minimum reel core diameter is needed for 19G1?**
At least 484 mm, which is twice the minimum bending radius of 242 mm. A larger core diameter extends cable life.

**What current can each core of 19G1 carry?**
The table gives 9 A per core in free air at 30 °C ambient, already reduced for the number of cores; apply the ambient temperature factor and, on a reel, the layer factor.

**How much tensile load can 19G1 take, and how long can it hang freely?**
The permissible pull force is 2,520 N (including the aramid braid; 285 N on the copper alone). With a weight of about 590 kg/km this corresponds to a free-hanging vertical length of about 435 m before the rated pull is reached; apply your own safety factor for hoisting or suspended installations.

**What does the tensile support braid add compared with the standard design?**
It raises the permissible pull of 19G1 from 285 N to 2,520 N, a factor of 8.8, and keeps the conductors from stretching and the cores from forming loops. The cable is somewhat larger and heavier than the standard version because of the braid layer.

**What is the voltage drop and heat loss of 19G1 at rated current?**
At 9 A and a conductor temperature of 90 °C the voltage drop is about 44.8 V per 100 m and the conductor loss about 4.0 W per metre (maximum resistance 19.500 Ω/km at 20 °C).

**Is this cable halogen-free?**
Yes. The insulation and all sheaths are halogen-free; see section 03 for flame-retardancy and temperature data.

**Which cross-sections are available?**
FC-MCR-A-HT 19G: 0.75, 1, 1.5, 2.5 mm². Other sizes and special designs can be produced to order.

**Does this datasheet include mine-specific approvals?**
No. Mine-specific approvals, such as coal-mine safety marks, MSHA or ATEX/IECEx for gassy atmospheres, depend on the project and the country and are not implied by this document. Send the requirements to FeiChun technical support.


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## 14 Trademark Notice and Intellectual Property

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