MINE REELING CABLE

R-(N)TSCGEWTOEUS

CABLE DESCRIPTION

- Conductor Flexible, plain copper, “FSC” better than IEC 60228 class 5.
- Insulation
- Inner semi-conductive layer.
- New special insulation compound EPDM, better than DIN VDE 207 part 20.
- Outer semi-conductive layer, easy strip design.
- Protective earth conductor Flexible, plain copper “FSC” better than IEC 60228 class 5.
- Ground check conductor (Pilot core).
- Inner sheath special synthetic rubber, better than GM1b
- Reinforcement Synthetic threads with very high tensile strength as a protection against twist stress and pressure loads.
- Outer Sheath New special sandwich construction for optimum flexibility, abrasion resistance and heavy load special rubber compound. Colour – red.

APPLICATIONS

Flexible reeling cable for power supply to machines with high and extreme mechanical stress, eg tensional stress and high reeling speeds:

- Open-cast and underground mining
- Ship to Shore Cranes (STS)
- Ship Unloader, Stacker, Reclaimer and other heavy duty mobile equipment.

Six cores: Three phase cores
Two Pilots and one protective earth core.

Standards: DIN VDE 0250 part 813; DIN VDE 0295; DIN VDE 0298; DIN VDE 0472; prEN 50363

PROPERTIES

Mechanical properties:

Tensile strength of the conductor

- Static 1.5 N/mm2
- Dynamic 30 N/mm2

Bending radius: exceeds the DIN VDE298 standards in tests performed on alternated bending/reversed bending/twisting/torsional resistance. Reeling speed: up to and exceeding 190m/min.

Chemical properties

- Oil resistant

- UV and ozone resistant
- Flame-retardant and according to IEC 60 332 part 1.

Electrical and thermal properties

Excellent EMC compatibility due to 6 core design

Nominal voltage:	Uo/U 1.8KV in AC
Maximum operating voltage in AC systems:	Um 1.2 x U
Maximum operating voltage in DC systems:	Vm 1.8 x U
Test voltage:	11 to 45 KV in AC 27.5 to 107.5 KV in DC

Max. temperature at conductor

In service	+ 900C
Under short-circuit conditions	+ 2500C

Max. surface temperature

Fixed installation	- 500C and up to + 800C
Mobile operations	- 350C and up to + 800C

BENEFITS

Vulcanised with the same compounds used to manufacture the cable:

- Restoring the conductive capabilities
- Maintaining the same high level of tensile strength; bending radius; torsion characteristics; maximum temperatures
- The cable remains oil resistant; UV and ozone resistant; flame-retardant.
- The original diameter is maintained which is particularly important for high speed reeling.
- Reduction in cable and power failures.

ELECTRICAL DATA

Current carrying capacity in ampere [A] at 30oC ambient temperature (acc. DIN VDE 0298-4) on ground:		
Cross-section (mm2)	**Up to 10kV [A]**	**Over 10kV [A]**
25	131	139
35	162	172
50	202	216
70	250	265
95	301	319
120	352	371
150	404	428
185	461	488
240	553	587

SHORT CIRCUIT CURRENT

(80 – 250oC / Ithr = 149 A/mm2) in kA Ithz = Ithr•√tkr/tk		
Cross-section (mm2)	**for 1 s (tkr)**	**for 0.5 s (tk)**
25	3.7	5.3
35	5.2	7.4
50	7.5	10.5
70	10.4	14.8
95	14.2	20
120	17.9	25.3
150	22.4	31.6
185	27.6	39
240	35.8	50.6

BENDING RADII

Smallest permissible bending radius:

- Fixed installation 6 x outer-Ø
- Reeling application 12 x outer- Ø
- Deflection pulleys 15 x outer- Ø
- Min. distance with S-type directional changes 20 x outer- Ø

Thermal Properties

Permissible temperature on cable surface:

- Static -50oC/+80oC
- Flexing -35oC/+80oC

Max. conductor temperature 90oC

Max. short-circuit temperature of conductor 250oC

Correction factor for ambient temperatures other than 30oC to be applied to the current-carrying capacities for cables in the air acc. DIN VDE 0298-4 (permissible conductor temperature 90oC):

10°C	20°C	30°C	40°C	50°C	60°C	70°C
1.15	1.08	1	0.91	0.82	0.71	0.58

CORRECTION FACTOR FOR REELED FLEXIBLE CABLES

No of layers	1	2	3	4	5
Factor	0.80	0.61	0.49	0.42	.038
Mono-spiral reel	0.80				

DIN VDE 0298-4: Application of cables and cords in power installations:
Part 4: recommended current-carrying capacity for sheathed and non-sheathed cables for fixed wirings in and around buildings and for flexible cables and cords.