

RONDOFLEX(C)-FC (N)GRDGCGOEU: low voltage screened round cables for festoon application



Application

For use on festoon systems, e.g. on gantry cranes, hall gantry cranes, rack material handling equipment, transportation systems or machine tools. Especially suitable where power cables are expected to cause interference and disruption on data cables or where the maximum emission values according to EN 55011/55022 must be achieved.

The cables are used under high mechanical stresses and frequent bending. Also suitable for use as flexible motor power supply cable.

Global data

Brand	RONDOFLEX(C)-FC
Type designation	(N)GRDGCGOEU-J
Standard	Based on DIN VDE 0250-814
Certifications / Approvals	VDE Reg. Nr. 7841; GOST-R

Notes on installation

Notes on installation	Due to external damages a short circuit current can occur between phase conductor and the screen or between a phase conductor and a protective conductor. In these cases only the cross-section of the screen or the cross-section of the protective conductor is available to carry the fault current. The effective resistance of the screen or protective conductor is given by the distance between the point of the fault and the ground connection.
Notes on installation	Especially for festoon application it is not recommended the use of cross-sections beyond 3x50mm ² .

Design features

Conductor	Bare electrolytic copper conductor, finely stranded, class 5. Earth conductor made of tinned, extremely finely stranded copper, class FS (better than class 5).
Insulation	PROTOLON MS high grade special compound based on high-quality EPR (at least GI3); improved mechanical and electrical characteristics
Core identification	Light colored insulation with numbers printed in black for power and control cables, earth conductor green/ yellow
Core arrangement	Up to 10mm ² : 4-core design; from 16mm ² on: three main conductors, earth conductor splitted into three parts and placed into the interstices
Inner sheath	Basic material EPR, compound type GM1b, color: black
Screen over inner sheath	Braid screen made of tinned copper wires, surface covered: >80%, transfer impedance <100mΩ/m at ≤ 30MHz
Outer sheath	Basic material PCP, rubber compound 5GM3, colour: black
Marking	RONDOFLEX (C)-FC (N)GRDGCGÖU-J (nr. of cores)x(cross section) 0,6/1 kV VDE-Reg.-Nr. 7841

Electrical parameters

Rated voltage	0.6/1 kV (600/1000V)
Max. permissible operating voltage AC	0.7/1.2 kV
Max. permissible operating voltage DC	0.9/1.8 kV
AC Test Voltage	5 kV (5 Min.)
Peak voltage	2400 V
Max. AC voltage for connection on frequency converter	690 V
EMC	Main application thanks to the special cable design
Current Carrying Capacity description	Acc. to DIN VDE 0298-4

Chemical parameters

Resistance to oil	Acc. to DIN EN 60811-404 and DIN VDE 0473-811-404, paragraph 10
Weather resistance	Unrestricted use outdoors and indoors, resistant to ozone, UV and moisture

Thermal parameters

Max. permissible temperature at conductor	90 °C
Max. short circuit temperature of the conductor	250 °C
Ambient temperature for fixed installation	min -50 °C ; max +80 °C
Ambient temperature in fully flexible operation	min -35 °C ; max +80 °C

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Mechanical parameters

Max. tensile load on the conductor

15 N/mm²

Torsional stress

Not allowed

Min. bending radius

Acc. to DIN VDE 0298 part 3

Travel speed

- Trolley (festoon system): up to 240m/min

Note: the trouble free operation is influenced by a number of factors (e.g. space, cable weight, loop length, number of motor driven carriers). It is recommended to consult the cable manufacturer for travel speeds beyond 240 m/min.

Additional tests

Bending test

Number of cores x cross section	Part number	MLFB Number	Conductor diameter max. mm	Outer diameter min. mm	Outer diameter max. mm	Bending radius free moving min. mm	Weight (ca.) kg/km	Nom. operating capacitance $\mu\text{F}/\text{km}$	Inductance nom. mH/km	Current carrying capacity for install. free in air (2) A	Transfer impedance at 1 MHz $\text{m}\Omega/\text{m}$	Transfer impedance at 10 MHz $\text{m}\Omega/\text{m}$	Transfer impedance at 30 MHz $\text{m}\Omega/\text{m}$
(N)GRDGCGOEU-J screened power cables													
4x2,5	20007109	5DG6651	2	13	15	75	340	0.17	0.58	32			
4x4	20003583	5DG6682	2.5	14.8	17.8	89	480	0.18	0.55	43			
4x6	20003584	5DG6683	3	16.2	19.2	96	640	0.19	0.53	56			
4x10	20003585	5DG6684	4	19.6	22.6	113	890	0.23	0.51	78	0.4	1.3	3.5
3x16+3x2,5	20003586	5DG6685	5.7	22.4	25.4	127	1150	0.225	0.48	104	0.2	0.6	1.5
3x25+3x4	20003587	5DG6686	6.8	25.4	28.4	142	1590	0.275	0.45	138	0.2	0.4	1.3
3x35+3x6	20003588	5DG6687	8.1	29.3	32.3	162	2160	0.325	0.43	170	0.1	0.4	0.9
3x50+3x10	20003589	5DG6688	9.6	35.4	38.4	192	3060	0.4	0.41	212	0.1	0.2	0.7
3x70+3x10	20003591	5DG6690	11.5	40.8	43.8	219	3960	0.475	0.39	263	0.1	0.2	0.5
3x95+3x16	20003580	5DG6679	12.9	43.4	46.4	232	4840	0.6	0.375	316	0.1	0.2	0.4
3x120+3x16	20003581	5DG6680	14.6	47.8	50.8	254	5910	0.7	0.36	370	0.1	0.1	0.3
3x150+3x25	20003558	5DG6650	16.5	54.6	57.6	288	7540			424			

(2) Nominal current carrying capacity for rubber cables installed free in air, at 30°C ambient temperature (see also technical annexes). Especially for festoon application it is not recommended the use of cross-sections beyond 3x50mm²!