FLAT LOW VOLTAGE CABLES FOR FESTOON OPERATION

	PLANOFLEX	M(StD)HOEU
Designation	NGFLGOEU	M(StD)HOEU
Dimension	DIN VDE 0250 part 809	Similar to DIN VDE 0250 part 809
Cores	Power: 4C, 5C, 7C Control: multicore (also with IS and TSP)	Power: 4C Control: multicore (also with TSP)
Outer Sheath	Rubber	Rubber
Approvals	VDE, GOST-R, UL-File E 113313	VDE, UL AWM Style 4540
Tensile Load	15 N/mm²	15 N/mm²
Speed	180 m/min	180 m/min
Temp. (moving)	-35°C/+80°C	-30°C/+80°C

PLANOFLEX NGFLGOEU

Low voltage flat cable for festoon application

Application

Flexible low voltage power and control cable, for use on festoon systems and for connecting moveable parts of machine tools, material handling equipment, etc., associated with high mechanical stresses and frequent bending during operation and for bending in one plane only.

Global data

Brand	PLANOFLEX
Type designation	NGFLGOEU-J/-O
Standard	DIN VDE 0250-809
Certifications / Approvals	VDE Marking; UL-File E 113313; GOST-R

Design features

Conductor	Eletrolytic copper, not tinned: - up to 25 mm²: extremely finely stranded, class 6 - above 35 mm²: finely stranded, class 5
Insulation	PROTOLON Basic material EPR, Rubber compound 3GI3 (refer also to DIN VDE 0207, Part 20)
Core identification	Up to 5 cores, colored: green/yellow (or black for version...-O) black, blue, brown, grey; For more than 5 cores: black with white colored numbers
Individual screen	Braid screen made of tinned copper wires, transfer impedance optimized at 30 MHz. Surface covered: approx. 60% for shielded cores, approx. 80% for twisted and shielded pairs.
Core arrangement	Parallel, for more than 12 cores: parallel bundles
Outer sheath	Basic material CR, Rubber compound 5GM3 (refer also to DIN VDE 0207, Part 21) Colour: black
Marking	<VDE>PLANOFLEX NGFLGOEU-J/-O (number of cores)x(cross-section) 600V, 90°C, (UL), PLANOFLEX (cross-section) AWG/(number of cores)(type of core) OUTDOOR

Electrical parameters

Rated voltage	300/500V (600V)
Max. permissible operating voltage AC	0.7/1.2 kV
Max. permissible operating voltage DC	0.9/1.8 kV
AC Test Voltage	2.5 kV (5 Min.)
Current Carrying Capacity description	Acc. to DIN VDE 0298-4

Chemical parameters

Resistance to oil	Acc. to DIN VDE 0473-404, 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

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	- Gantry (reeling operation): no application; - Trolley (festoon system): guidance value up to 180m/min (it is recommended to consult the manufacturer for speeds beyond 180m/min).
Additional tests	Bending test

Number of cores x cross section	Part number	MLFB Number	Conduc-tor diameter max. mm	Min. Height (for flat cable) mm	Max. Height (for flat cable) mm	Min. Width (for flat cable) mm	Max. Width (for flat cable) mm	Bending radius free moving min. mm	Weight (ca.) kg/km	Permis-sible tensile force max. N	Con-ductor resis-tance at 20°C max. Ω/km	Current carrying capacity for install. free in air (2) A	Short Circuit Current (conduc-tor) kA
NGFLGOEU-J control cables													
3x1,5		5DG5751	1.5	5.7	6.2	11.7	12.5	19	130	68	13.3	24	0.21
4x1,5	20003476	5DG5711	1.5	5.7	6.2	15	15.8	19	170	90	13.3	24	0.21
5x1,5		5DG5712	1.5	5.5	6	18.5	20.1	18	210	113	13.3	24	0.21
7x1,5		5DG5714	1.5	5.5	6	25	26.8	18	280	158	13.3	24	0.21
8x1,5	20003480	5DG5715	1.5	5.5	6	27.5	29.3	18	310	180	13.3	24	0.21
10x1,5		5DG5717	1.5	6.2	6.7	35.5	37	20	440	225	13.3	24	0.21
12x1,5	20003483	5DG5718	1.5	6.3	6.8	42	43.5	20	530	270	13.3	24	0.21
24x1,5	20003485	5DG5720	1.5	11.5	12.3	51	53.2	62	1040	540	13.3	24	0.21
42x1,5	20003470	5DG5653	1.5	15.1	16.1	70.2	72.3	81	1920	945	13.3	24	0.21
4x2,5	20003487	5DG5721	2	6.8	7.3	18.5	19.5	22	260	150	7.98	32	0.36
5x2,5		5DG5722	2	6.6	7.4	22.9	24.6	22	320	188	7.98	32	0.36
7x2,5	20003490	5DG5724	2	6.8	7.4	31	32.8	22	440	263	7.98	32	0.36
8x2,5	20003492	5DG5725	2	6.8	7.4	34.1	35.9	22	490	300	7.98	32	0.36
10x2,5		5DG5727	2	7.4	8	43	45.3	24	660	375	7.98	32	0.36
12x2,5	20003494	5DG5728	2	7.4	8	50.6	53.5	24	780	450	7.98	32	0.36
24x2,5	20003496	5DG5730	2	14.8	15.6	65.4	68	78	1690	900	7.98	32	0.36
7x(3x1)	20037062	5DG5483	1.3	8.7	10.3	49.3	51.8	41	770	315	19.5	19	0.14
NGFLGOEU-J power cables													
4x4	20003498	5DG5731	2.8	8.4	8.9	22.5	23.5	36	390	240	4.95	43	0.57
4x6	20003503	5DG5741	3.5	9	9.5	25.4	26.9	38	500	360	3.3	56	0.86
4x10	20003509	5DG5765	4.5	10.5	11	30.1	32.6	44	750	600	1.91	78	1.43
4x16	20003511	5DG5766	5.6	12.1	12.9	36	37.5	65	1060	960	1.21	104	2.29
4x25	20003513	5DG5767	6.6	13.6	14.4	41.9	43.4	72	1500	1500	0.78	138	3.58
4x35	20003515	5DG5768	8.1	14.8	16.7	47	49.9	84	2040	2100	0.55	170	5.01
4x50	20003517	5DG5770	9.5	18	19	56	58	95	2830	3000	0.39	212	7.15
4x70	20003519	5DG5771	11.1	20.3	21.3	63.2	65.2	107	3820	4200	0.27	263	10.01
4x95	20003521	5DG5772	12.9	23.1	24.1	72.6	74.6	121	4930	5700	0.21	316	13.59
4x120		5DG5773	15	24.2	27.2	79.2	83.2	136	6220	7200	0.16	370	17.16
5x4		5DG5732	2.8	8.5	9	28.9	31.2	36	510	300	4.95	43	0.57
5x6	20003505	5DG5742	3.5	9.1	9.6	31.8	34.1	38	640	450	3.3	56	0.86
5x10		5DG5687	4.5	10.5	11.3	39.2	41.6	45	960	750	1.91	78	1.43
5x16	20003523	5DG5776	5.6	12.2	12.7	45.1	47.6	64	1360	1200	1.21	104	2.29
7x4	20003501	5DG5734	2.8	8.4	9	38.5	40.9	36	690	420	4.95	43	0.57
7x6	20003507	5DG5744	3.5	9	9.6	42.9	45.3	38	870	630	3.3	56	0.86
7x10		5DG5865	4.5	10.5	11.3	53	55.9	45	1320	1050	1.91	78	1.43
7x16		5DG5866	5.6	12.6	13.4	60.7	63.9	67	1990	1680	1.21	104	2.29
7x25	20070764	5DG5867	6.6	14.8	15.6	72.6	75.9	78	2820	2625	0.78	138	3.58
7x35		5DG5868	8.1	16.4	17.4	83.7	87	87	3820	3675	0.55	170	5.01
(N)GFLGOEU-O control cables with individually screened cores													
12x1(C)	20003474	5DG5670	1.3	6.6	7.1	48.2	51.3	21	660	180	19.5	19	0.14
4x1,5(C)	20155763	5DG5880	1.5	6.8	7.4	18.5	19.5	22	250	90	13.3	24	0.21
8x1,5(C)		5DG5884	1.5	6.8	7.4	35.1	35.1	22	510	180	13.3	24	0.21
12x1,5(C)	20003527	5DG5888	1.5	7.4	8	51.7	55	24	780	270	13.3	24	0.21

Number of cores x cross section	Part number	MLFB Number	Conduc-tor diameter max. mm	Min. Height (for flat cable) mm	Max. Height (for flat cable) mm	Min. Width (for flat cable) mm	Max. Width (for flat cable) mm	Bending radius free moving min. mm	Weight (ca.) kg/km	Permis-sible tensile force max. N	Con-ductor resis-tance at 20°C max. Ω/km	Current carrying capacity for install. free in air (2) A	Short Circuit Current (conduc-tor) kA
(N)GFLGOEU-O bus cables													
4x(2x1)C	20003528	5DG5890	1.3	10.5	11.3	31.8	33.8	45	630	120	19.5	19	0.14
6x(2x2,5)C	20054902	5DG5898	2	14.2	15.2	60	62.7	76	1680	450	7.98	32	0.36
7x(2x1)C	20003529	5DG5893	1.3	10.5	11.3	53.1	56	45	1090	210	19.5	19	0.14
(N)GFLGOEU-J power cables with individual screen													
4x4(C)		5DG5484	2.8	9.2	10.2	26.3	29.3	41	550	240	4.95	43	0.57
4x6(C)		5DG5485	3.5	9.5	11.1	28.8	31.8	44	665	360	3.3	56	0.86
4x10(C)		5DG5486	4.5	11.7	13.3	36	39	67	1060	600	1.91	78	1.43
4x16(C)		5DG5487	5.6	12.8	14.4	40.2	43.2	72	1360	960	1.21	104	2.29
4x25(C)		5DG5488	6.6	14.8	16.8	47.3	50.3	84	1980	1500	0.78	138	3.58
4x35(C)		5DG5489	8.1	16.9	18.9	53.4	57.4	95	2590	2100	0.55	170	5.01
4x50(C)		5DG5490	9.5	19.5	21.5	62	66	108	3590	3000	0.39	212	7.15
4x70(C)		5DG5491	11.1	21.9	23.9	69.8	73.8	120	4630	4200	0.27	263	10.01
4x95(C)		5DG5492	12.9	24.2	27.2	78.7	83.7	136	5950	5700	0.21	316	13.59

(2) Nominal current carrying capacity for rubber cables installed free in air, at 30°C ambient temperature (see also technical appendixes).

NOTES

M(StD)HOEU

Low voltage screened flat cable for festoon application

Application

Flexible power and control cables, in particular for hoisting gears transportation systems, machine tools, at medium mechanical stresses and for severe bending in one plane only; in dry, damp, wet areas and also outdoors; where resistance against oils, fats and chemical influences is required.

Global data

Brand	M(StD)HOEU
Standard	UL Style 4540
Standard	Based on DIN VDE 0250-809

Design features

Conductor	Copper bare, up to 25 mm²: finest wire class 6 according to IEC 60228 / DIN EN 60228; 35 mm² and up: fine wire class 5 according to IEC 60228 / DIN EN 60228; Conductor wrapping: paper tape or PETP-film
Insulation	Rubber, type pf compound 3GI3 according to DIN VDE 0207-20
Core identification	Up to 5 cores: colored in accordance with DIN VDE 0293-308 From 6 cores: black with white numbers
Individual screen	ALU/PETP foil, overlapped. Spinning of tinned copper wires, covering > 85 %. Wrapping with PETP-film
Core arrangement	Cores arranged in parallel; Pair twisting: 2 Cores and 2 fillers twisted with varying direction of lay and short length of lay, wrapping with PETP-film, pairs parallel arranged
Outer sheath	Polychloroprene, type of compound 5GM3 according to DIN VDE 0207-21. Colour: black
Marking	White imprint: M(STD)HÖU-J/-O (number of cores) x (cross-section) (UL File Nr.)(UL-SZ) AWM Style 4540 90°C FT-1 600 V (week/year)

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	2.5 kV (5 Min.)
Current Carrying Capacity description	Acc. to VDE 0298-4

Thermal parameters

Max. permissible temperature at conductor	90 °C
Max. short circuit temperature of the conductor	250 °C
Ambient temperature for fixed installation	min -40 °C ; max +80 °C
Ambient temperature in fully flexible operation	min -30 °C ; max +80 °C

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	- In festoon system: up to 180m/min (it is recommended to consult the manufacturer for speeds beyond)

Number of cores x cross section	Part number	Conductor diameter max. mm	Min. Height (for flat cable) mm	Max. Height (for flat cable) mm	Min. Width (for flat cable) mm	Max. Width (for flat cable) mm	Bending radius free moving min. mm	Weight (ca.) kg/km	Permissible tensile force max. N	Conductor resistance at 20°C max. Ω/km	Current carrying capacity (1) A	Short Circuit Current (conductor) kA
M(STD)HOEU-J screened power cables, four core												
4x1,5		1.5	7	8	20.1	21.5	24	290	90	13.3	23	0.21
4x2,5		1.9	7.6	8.7	22.7	24.1	35	370	150	7.98	30	0.36
4x4		2.5	8.5	9.5	25.6	27.6	38	500	240	4.95	41	0.57
4x6		3.2	8.9	10.5	28.1	30.1	42	610	360	3.3	53	0.86
4x10		4.1	11.1	12.1	34.7	36.7	61	910	600	1.91	74	1.43
4x16		5.1	12.3	13.7	38.9	41.5	69	1320	960	1.21	99	2.29
4x25		6.4	12.5	15.5	43	47	78	1720	1500	0.78	131	3.58
4x35		7.7	14.6	17	49.8	53.2	85	2330	2100	0.55	162	5.01
4x50		9.6	17.1	19.7	58	61.6	99	3110	3000	0.39	202	7.15
4x70		11.1	22	24	73	77	120	4670	4200	0.27	250	10.01
4x95		13.1	22.7	25.3	76.3	81.9	127	5510	5700	0.21	301	13.59
M(STD)HOEU-J screened control cables												
5x1,5		1.5	7	8	23.8	25.8	24	350	110	13.3	23	0.21
8x1,5		1.5	7	8	36.2	38.6	24	550	180	13.3	23	0.21
12x1,5		1.5	7	8	52.7	57.1	24	810	270	13.3	23	0.21
4x4x1,5		1.5	10	13	36.6	42.6	65	900	360	13.3	23	0.21
6x2,5		1.9	7.6	8.7	31.5	33.5	35	530	220	7.98	30	0.36
12x2,5	20157618	1.9	7.6	8.7	60	64	35	1050	450	7.98	30	0.36
M(STD)HOEU-O individually screened control pairs												
4x(2x1)	20157617	1.3	10.2	11.8	30	33.5	47	590	120	19.5	18	0.14
7x(2x1)		1.3	10.9	12.5	55.3	59	63	1060	210	19.5	18	0.14
12x(2x1)		1.3	13.7	17	65.5	71	85	1500	360	19.5	18	0.14

(1) Nominal current carrying capacity for rubber cables laid on a surface, at 30°C ambient temperature (see also VDE 0298-4, Table 15).
For articles without part number the values shown are approximate, and need to be confirmed in case of order.