FLUOROPOLYMERS

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Fluoropolymers

Fluoropolymers are high-performance insulation and sheath materials which cover a very wide temperature range (-190°C up to +260°C). Other characteristics of these materials are an excellent resistance to chemicals and other aggressive media and remarkable electrical and mechanical properties.
Mainly, HEW-KABEL/CDT processes the four following materials:

PTFE: Temperature range: -190°C up to +260°C
Best chemical resistance and very good electrical and mechanical properties are characteristic for this material. *HEW-KABEL/CDT processes PTFE in the form of wrapped tapes and extrusion.*

PFA: Temperature range: -190°C up to +260°C
Same material properties as PTFE. Applied by extrusion.

FEP: Temperature range: -100°C up to +205°C
Material properties comparable to PTFE except temperature range. Applied by extrusion.

ETFE: Temperature range: -100°C up to +150°C
Chemical and mechanical properties comparable to PTFE. Applied by extrusion

The above listed materials are distributed under the following trade names:

	PTFE (Polytetrafluorethylene)	FEP (Fluorethylenepropylene)	ETFE (Ethylene-Tetrafluorethylene)	PFA (Perfluoralcoxy)
Asahi Glass Fluoropolymers	Fluon®		Aflon® COP	Aflon® PFA
Daikin	POLYFLON™ TFE	NEOFLON™ FEP	NEOFLON™ ETFE	NEOFLON™ PFA
DuPont	TEFLON® PTFE	TEFLON® FEP	TEFZEL® ETFE	TEFLON® PFA
Dyneon	Dyneon™ PTFE	Dyneon™ FEP	Dyneon™ ETFE	Dyneon™ PFA

The publication of the product names occurrs by courtesy of Asahi Glass Fluoropolymers, Daikin, DuPont and Dyneon.

Further information and technical data concerning fluoropolymers are to be found on the insert.

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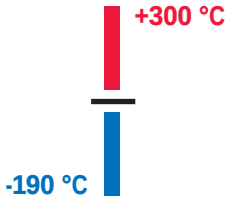


PTFE single core according to MIL-W-16878 (metric cross sections) TE

Construction

Conductor: Cu sp, np, solid or stranded acc. to VDE 0295 or pure nickel
Insulation: PTFE 5Y to ASTM-D 4895
Colour: On request

Application

For internal wiring at low and high ambient temperatures and/or corrosive environments
200 °C with spc conductor
260 °C with npc conductor
260 °C with pure nickel conductor taking into consideration reduced conductor conductivity

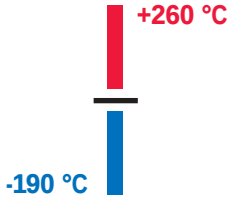
Technical data

Temperature range: - 190 °C up to + 260 °C, short-term +300 °C
Rated voltage: 250 V / 600 V / 1000 V
Test voltage: 2,5 kV / 3,4 kV / 5 kV
Min. bending radius: 5 x diameter

Notes

→ PTFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ PTFE cores are also available in different cross sections and various conductor materials
→ For PTFE cores with VDE-approval please refer to page 12 + 13 (VDE 0881) and page 14 + 15 (VDE ÜG)

cross section [mm²]	conductor construction [mm]	o.d. [mm] (min.-max.)			copper weight [kg/km]	weight approx. [kg/km]		
		250 V	600 V	1000 V		250 V	600 V	1000 V
0,051	1 x 0,254	----	0,66 - 0,86	0,91 - 1,12	0,49	1,0	1,4	2,3
0,080	1 x 0,32	0,56 - 0,68	0,72 - 0,92	0,99 - 1,19	0,77	1,4	2,0	2,9
0,126	1 x 0,40	0,64 - 0,76	0,80 - 1,00	1,07 - 1,27	1,2	1,8	2,7	3,5
0,197	1 x 0,50	0,74 - 0,86	0,90 - 1,10	1,17 - 1,37	1,9	2,7	3,7	4,6
0,32	1 x 0,64	0,88 - 1,00	1,04 - 1,24	1,30 - 1,50	3,2	4,0	4,8	6,0
0,5	1 x 0,80	1,04 - 1,16	1,20 - 1,40	1,47 - 1,68	4,8	6,1	7,0	8,4
0,5	7 x 0,30	1,15 - 1,27	1,31 - 1,51	1,63 - 1,83	4,8	6,4	7,4	8,6
0,5	15 x 0,203	1,16 - 1,28	1,32 - 1,52	1,63 - 1,83	4,8	6,3	7,6	8,8
0,75	1 x 0,98	----	1,38 - 1,58	1,65 - 1,91	7,2	----	9,3	11
0,75	19 x 0,228	----	1,49 - 1,69	1,85 - 2,05	7,2	----	11	12
0,75	22 x 0,203	----	1,50 - 1,70	1,85 - 2,05	7,2	----	10	12
1	1 x 1,13	----	1,53 - 1,73	1,85 - 2,05	9,6	----	13	14
1	29 x 0,203	----	1,68 - 1,88	2,05 - 2,25	9,6	----	13	15
1,5	1 x 1,38	----	1,88 - 2,08	2,08 - 2,28	14,4	----	18	19
1,5	27 x 0,254	----	2,04 - 2,24	2,30 - 2,50	14,4	----	18	20
2,5	1 x 1,78	----	2,28 - 2,48	2,58 - 2,78	24	----	29	31
2,5	45 x 0,254	----	2,45 - 2,65	2,85 - 3,05	24	----	30	32
4	50 x 0,30	----	2,95 - 3,15	3,50 - 3,70	38	----	45	48
6	75 x 0,30	----	3,65 - 3,85	4,15 - 4,45	58	----	66	69
10	80 x 0,404	----	5,50 - 5,70	5,80 - 6,10	96	----	116	120
16	126 x 0,404	----	6,60 - 6,80	6,80 - 7,10	154	----	176	181
25	196 x 0,404	----	8,30 - 8,60	8,60 - 8,90	240	----	272	286
35	276 x 0,404	----	9,50 - 9,90	9,90 - 10,30	336	----	375	398



TE
MIL-W-16878

PTFE single core according to MIL-W-16878

Construction

Conductor: Cu sp, np, stranded acc. to MIL- W-16878
Insulation: PTFE 5Y to ASTM-D 4895
Colour: On request

Application

For internal wiring at high ambient temperatures
200 °C with spc conductor
260 °C with npc conductor

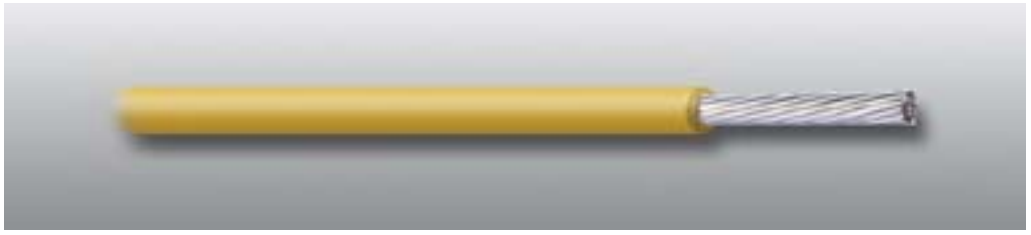
Technical data

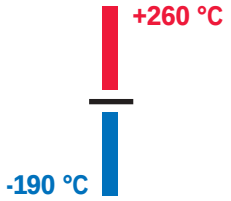
Temperature range: - 190 °C up to + 260 °C
Rated voltage: ET = 250 V / E = 600 V / EE = 1000 V
Test voltage: ET = 2,5 kV / E = 3,4 kV / EE = 5 kV
Min. bending radius: 5 x diameter

Notes

→ PTFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ PTFE cores are also available in different cross sections and various conductor materials.
→ For PTFE cores with VDE-approval please refer to page 12 + 13 (VDE 0881) and page 14 + 15 (VDE ÜG)

AWG	cross section [mm²]	conductor construction [mm]	o.d. [mm] (min.-max.)			conductor resistance at 20° C max. [Ohm/km]		weight approx. [kg/km]		
			ET	E	EE	s.p.	n.p.	ET	E	EE
32	0,034	7 x 0,079	0,508 - 0,610	0,660 - 0,864	0,914 - 1,117	567	607	0,8	1,4	2,2
30	0,057	7 x 0,102	0,559 - 0,660	0,711 - 0,914	0,965 - 1,168	330	363	1,0	1,8	2,6
28	0,089	7 x 0,127	0,635 - 0,737	0,787 - 0,991	1,041 - 1,245	209	223	1,5	2,0	2,8
26	0,141	7 x 0,160	0,737 - 0,838	0,889 - 1,092	1,143 - 1,346	133	141	2,1	2,7	3,9
26	0,155	19 x 0,102	0,737 - 0,838	0,889 - 1,092	1,143 - 1,346	126	138	2,3	2,9	4,2
24	0,227	7 x 0,203	0,864 - 0,965	1,016 - 1,219	1,270 - 1,473	82,7	86,9	3,0	3,8	5,1
24	0,241	19 x 0,127	0,864 - 0,965	1,016 - 1,219	1,270 - 1,473	79,7	84,9	3,2	4,0	5,3
22	0,355	7 x 0,254	1,016 - 1,118	1,168 - 1,372	1,422 - 1,626	52,1	54,4	4,5	5,4	6,6
22	0,382	19 x 0,160	1,016 - 1,118	1,168 - 1,372	1,422 - 1,626	49,5	52,5	4,8	5,7	7,0
20	0,563	7 x 0,320	1,219 - 1,321	1,372 - 1,575	1,626 - 1,829	32,8	34,1	6,7	7,7	9,1
20	0,616	19 x 0,203	1,219 - 1,321	1,372 - 1,575	1,626 - 1,829	30,1	32,0	7,1	8,2	9,7
18	0,897	7 x 0,404	-----	1,626 - 1,880	1,880 - 2,134	20,6	21,3	-----	12	13
18	0,963	19 x 0,254	-----	1,626 - 1,880	1,880 - 2,134	19,0	20,0	-----	12	14
16	1,229	19 x 0,287	-----	1,854 - 2,210	2,108 - 2,413	14,8	15,6	-----	16	17
14	1,941	19 x 0,361	-----	2,235 - 2,591	2,489 - 2,896	9,44	9,84	-----	23	25
12	3,085	19 x 0,455	-----	2,718 - 3,073	2,972 - 3,378	5,94	6,17	-----	35	37
10	4,743	37 x 0,404	-----	3,226 - 3,581	3,480 - 3,886	3,90	4,07	-----	51	55
8	8,604	133 x 0,287	-----	-----	5,055 - 5,563	2,16	2,28	-----	-----	103
6	13,613	133 x 0,361	-----	-----	6,426 - 6,934	1,37	1,43	-----	-----	159
4	21,153	133 x 0,450	-----	-----	8,865 - 9,373	0,865	0,902	-----	-----	277
2	33,696	665 x 0,254	-----	-----	10,033 - 10,541	0,557	0,580	-----	-----	403
1	41,398	817 x 0,254	-----	-----	12,065 - 12,573	0,455	0,472	-----	-----	498
0	52,951	1045 x 0,254	-----	-----	12,802 - 13,310	0,354	0,370	-----	-----	619
00	67,392	1330 x 0,254	-----	-----	14,046 - 14,656	0,278	0,291	-----	-----	735
0000	106,865	2109 x 0,254	-----	-----	17,856 - 18,466	0,177	0,183	-----	-----	1139





PTFE single core according to MIL-W-22759

TE
MIL-W-22759

Construction

Conductor: Cu sp, np acc. to MIL-W-22759
Insulation: PTFE 5Y to VDE 0207 part 6 + ASTM-D 4895
Colour: On request

Application

For internal wiring at high ambient temperatures

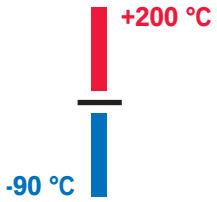
Technical data

Temperature range: Cu sp + 200 °C
Cu np + 260 °C
Rated voltage: 600 V / 1000 V
Test voltage: 3,4 kV / 5 kV
Min. bending radius: 5 x diameter

Notes

→ PTFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ PTFE cores with metric conductor constructions see page 9.
→ PTFE cores with VDE-approval please refer to page 12+13 (VDE 0881) and page 14+15 (VDE ÜG)

AWG	cross section [mm²]	conductor construction [mm]	o.d. [mm] (min.-max.)		conductor resistance at 20° C max. [Ohm/km]		weight approx. [kg/km]	
			600 V	1000 V	vs	vn	600 V	1000 V
28	0,089	7 x 0,127	0,787 - 0,889	1,041 - 1,143	209	223	2	2,9
26	0,155	19 x 0,102	0,914 - 1,016	1,168 - 1,270	126	138	3	4,1
24	0,241	19 x 0,127	1,041 - 1,143	1,295 - 1,397	79,7	84,9	4	5,3
22	0,382	19 x 0,160	1,194 - 1,295	1,473 - 1,575	49,5	52,5	5,9	7,1
20	0,616	19 x 0,203	1,422 - 1,524	1,676 - 1,778	30,1	32,0	8,1	9,4
18	0,963	19 x 0,254	1,676 - 1,778	1,930 - 2,032	19,0	20,0	12	14
16	1,229	19 x 0,287	1,854 - 1,956	2,108 - 2,210	14,8	15,6	16	17
14	1,941	19 x 0,361	2,235 - 2,337	2,464 - 2,616	9,44	9,84	24	26
12	3,085	19 x 0,455	2,743 - 2,896	2,946 - 3,150	5,94	6,17	36	39
10	4,743	37 x 0,404	3,429 - 3,632	3,480 - 3,683	3,90	4,07	53	56
8	8,604	133 x 0,287	5,029 - 5,232	5,131 - 5,385	2,16	2,28	95	99



TE
Li5Y VDE 0881

PTFE single core according to DIN VDE 0881, stranded

Construction

Conductor:	Cu sp, stranded, to VDE 0881
Insulation:	PTFE 5Y to VDE 0207 part 6
Colour:	On request

Application

For internal wiring of telecommunication devices, electronic modules in appliances and for wiring of telecommunication and data processing systems.

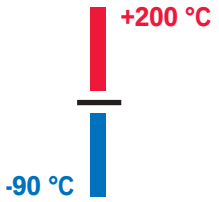
Technical data

Temperature range:	Fixed installation - 90 °C up to + 200 °C Flexible installation - 55 °C up to + 200 °C
Rated voltage max: (Peak voltage)	375[1] / 900[2] / 1500[3] V
Test voltage max: (r.m.s)	1500[1] / 2500[2] / 3000[3] V
Insulation resistance:	min. 1500 MΩ x km at 20 °C

Notes

→ PTFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ Hook-up wires and strands according to this standard must not be used for high voltage installations

	nominal cross section/ core∅ [mm²]/[mm]	minimum number of wires x diameter [mm]	strand∅ max. [mm]	nominal insulation wall thickness (minimum value) [mm]	core∅		conductor resistance at 20° C max.		weight approx. [kg/km]
					min. [mm]	max. [mm]	1 core [Ω/km]	multicore [Ω/km]	
.../... = nominal conductor cross section in mm²/nominal core diameter in mm	x 0,035/0,55	7 x 0,08	0,27	0,15[1] (0,12)	0,48	0,62	545	567	0,7
	x 0,055/0,6	7 x 0,10	0,33		0,54	0,68	349	363	1
	x 0,079/0,7	7 x 0,12	0,39		0,60	0,74	236	245	1,3
	x 0,12/0,8	7 x 0,15	0,48		0,69	0,83	151	157	1,8
	x 0,22/0,9	7 x 0,20	0,63		0,84	0,98	84,8	87,3	2,8
	x 0,34/1,1	7 x 0,25	0,78		0,99	1,13	54,3	55,9	4,1
	x 0,56/1,3	7 x 0,32	0,99		1,20	1,34	32,5	33,1	6,3
	x 0,035/0,75	7 x 0,08	0,27	0,25[2] (0,20)	0,64	0,87	545	567	1,2
	x 0,055/0,8	7 x 0,10	0,33		0,70	0,93	349	363	1,5
	x 0,079/0,9	7 x 0,12	0,39		0,76	0,99	236	245	1,8
	x 0,12/1,0	7 x 0,15	0,48		0,85	1,08	151	157	2,4
	x 0,22/1,1	7 x 0,20	0,63		1,00	1,23	84,8	87,3	3,5
	x 0,34/1,3	7 x 0,25	0,78		1,15	1,38	54,3	55,9	4,9
	x 0,56/1,5	7 x 0,32	0,99		1,36	1,59	32,5	33,1	7,3
	x 0,93/1,8	19 x 0,25	1,30		1,65	1,90	20,0	20,4	11
	x 1,3/2,0	19 x 0,29	1,50		1,85	2,10	14,9	15,2	15
	x 1,9/2,3	19 x 0,36	1,85		2,20	2,45	9,46	9,65	21
	x 3,2/2,8	19 x 0,46	2,35		2,70	2,95	5,79	5,91	34
	x 0,12/1,3	7 x 0,15	0,48	0,40[3] (0,30)	1,05	1,40	151	157	3,4
	x 0,22/1,4	7 x 0,20	0,63		1,20	1,55	84,8	87,3	4,6
	x 0,34/1,6	7 x 0,25	0,78		1,35	1,73	54,3	55,9	6,2
	x 0,56/1,8	7 x 0,32	0,99		1,56	1,94	32,5	33,1	8,9
	x 0,93/2,1	19 x 0,25	1,30		1,85	2,25	20,0	20,4	13
	x 1,3/2,3	19 x 0,29	1,50		2,05	2,45	14,9	15,2	17
	x 1,9/2,6	19 x 0,36	1,85		2,40	2,80	9,46	9,65	24
	x 3,2/3,1	19 x 0,46	2,35		2,90	3,30	5,79	5,91	37
	x 4,6/3,6	37 x 0,40	2,87		3,40	3,82	3,93	4,01	51
	x 8,8/5,2	133 x 0,29	4,50	0,60[3] (0,45)	4,95	5,45	2,12	2,16	93
	x 13,5/6,2	133 x 0,36	5,55		6,00	6,50	1,35	1,38	140



PTFE single core according to DIN VDE 0881, solid

TE
5Y VDE 0881

Construction

Conductor: Cu sp, solid, to VDE 0881
Insulation: PTFE 5Y to VDE 0207 part 6
Colour: On request

Application

For internal wiring of telecommunication devices, electronic modules in appliances and for wiring of telecommunication and data processing systems.

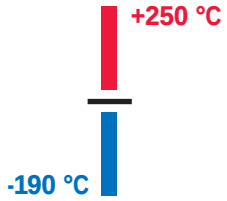
Technical data

Temperature range: Fixed installation - 90 °C up to + 200 °C
Flexible installation - 55 °C up to + 200 °C
Rated voltage max. (Peak voltage): 375[1] / 900[2] V
Test voltage max. (r.m.s.): 1500[1] / 2500[2]
Insulation resistance: min. 1500 MΩ × km at 20 °C

Notes

→ PTFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ Hook-up wires and strands according to this standard must not be used for high voltage installations

	nominalØ conductor/core [mm]	nominal wall thickness of insulation (minimum value) [mm]	coreØ		conductor resistance at 20° C max.		weight approx. [kg/km]
			min. [mm]	max. [mm]	1 core [Ω/km]	multicore [Ω/km]	
.../... = nominal conductor diameter in mm/ nominal core diameter in mm	x 0,25/0,55	0,15[1] (0,12)	0,49	0,61	369	384	0,9
	x 0,32/0,6		0,56	0,68	221	230	1,2
	x 0,4/0,7		0,64	0,76	141	146	1,7
	x 0,5/0,8		0,74	0,86	90,4	93,1	2,4
	x 0,63/0,95		0,87	0,99	57	58,7	3,6
	x 0,8/1,1		1,04	1,17	35,3	36,0	5,5
	x 0,25/0,75	0,25[2] (0,20)	0,65	0,85	369	384	1,3
	x 0,32/0,8		0,72	0,92	221	230	1,7
	x 0,4/0,9		0,80	1,00	141	146	2,2
	x 0,5/1,0		0,90	1,10	90,4	93,1	3
	x 0,63/1,2		1,03	1,23	57,0	58,7	4,3
	x 0,8/1,3		1,20	1,40	35,3	36,0	6,3
	x 1,0/1,5		1,40	1,60	22,6	23,1	9,1
	x 1,3/1,8		1,70	1,90	13,4	13,6	15
	x 1,6/2,1		2,00	2,23	8,83	9,01	21
	x 2,1/2,6		2,50	2,70	5,13	5,23	35



TE
VDE-Reg.-Nr. 6574 5411

PTFE single core with VDE-approval, stranded

Construction

Conductor:	Cu bare, tp, sp, np, stranded to VDE 0295 class 5 or pure nickel
Insulation:	PTFE 5Y to VDE 0207 part 6
Colour:	On request
Identification:	Printing of VDE registration number

Application

For wiring of electrical appliances and lighting up to a maximum operating temperature of:
130 °C with bare copper conductor
180 °C with tpc conductor
200 °C with spc conductor
250 °C with npc conductor
250 °C with pure nickel conductor taking into consideration reduced conductor conductivity

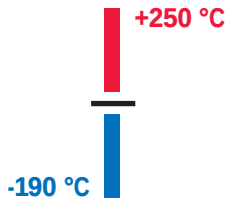
Technical data

Temperature range:	- 190 °C up to + 250 °C
Rated voltage Uo/U:	300 / 500 V
Test voltage:	3,4 kV
Min. bending radius:	5 x diameter

Notes

→ PTFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ PTFE cores with VDE-approval are also available with conductors to VDE 0295 class 2

cross section [mm²]	maximum Ø of single wires [mm]	max. coreØ [mm]	o.d. [mm] ± 5 %	copper weight [kg/km]	weight approx. [kg/km]
0,22 (AWG 24)	0,21	0,63	1,2	2,2	4,2
0,5	0,21	0,98	1,5	2,4	4,5
0,75	0,21	1,16	1,7	4,8	7,3
1	0,21	1,35	1,9	7,2	10
1,5	0,26	1,61	2,1	9,6	13
2,5	0,26	2,00	2,7	14,4	19



PTFE single core with VDE-approval, solid

TE
VDE-Reg.-Nr. 6574 5411

Construction

Conductor:	Cu bare, tp, sp, np solid acc.. to VDE 0295 class 1 or pure nickel
Insulation:	PTFE 5Y to VDE 0207 part 6
Colour:	On request
Identification:	Printing of VDE registration number

Application

For wiring in electrical appliances and lighting up to a maximum operating temperature of:
130 °C with bare copper conductor
180 °C with tpc conductor
200 °C with spc conductor
250 °C with npc conductor
250 °C with pure nickel conductor taking into consideration reduced conductor conductivity

Technical data

Temperature range:	- 190 °C up to + 250 °C
Rated voltage Uo/U:	300 / 500 V
Test voltage:	3,4 kV
Min. bending radius:	10 x diameter

Notes

→ PTFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ PTFE cores with VDE ÜG and flexible conductors are to be found on page 14.

cross section [mm²]	conductorØ [mm]	o.d. [mm] ± 5 %	copper weight [kg/km]	weight approx. [kg/km]
0,22 (AWG 24)	0,51	1,1	2	3,8
0,5	0,80	1,4	4,8	6,8
0,75	0,98	1,6	7,2	9,5
1	1,13	1,7	9,6	12
1,5	1,38	2,0	14,4	17

TE
UL file no. E 69837 (M)

PTFE single core with UL approval

Construction

Conductor:	Conductor construction and material according to table below
Insulation:	PTFE acc. to UL standards 62 and 83
Colour:	On request
Identification:	Print or temperature marker (stripe)***

Application

For internal wiring of appliances according to corresponding style approvals

Technical data

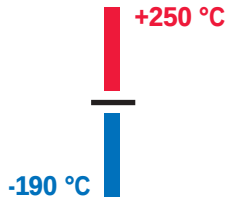
Temperature range:	- 190 °C up to max. + 250 °C
Rated voltage:	125 - 1000 V
Test voltage:	Acc. to style approvals
Flame test:	FT1

Notes

→ The itemized cables are also available
- with combined UL/CSA approvals
- screened, UL approved construction

→ UL/CSA approved cables with additional insulation materials refer to pages 143 onwards.

UL Style*	AWG*	average wall thickness [mm]	range*		conductor construction		
			temperature [°C]	voltage [Volt]	material	solid / stranded	
1164	32 - 10	0,33	150	300*	spc, npc, pure nickel, NiCr-alloy	x	x
1180	32 - 10	0,33	200	300*	spc, npc, pure nickel, NiCr-alloy	x	x
1198	30 - 10	0,51	150	600*	spc, npc, pure nickel, NiCr-alloy	x	x
	8 - 2	0,77	150	600*	spc, npc, pure nickel, NiCr-alloy	x	x
	1 - 4/0	1,15	150	600*	spc, npc, pure nickel, NiCr-alloy	x	x
1199	30 - 10	0,51	200	600*	spc, npc, pure nickel, NiCr-alloy	x	x
	8 - 2	0,77	200	600*	spc, npc, pure nickel, NiCr-alloy	x	x
	1 - 4/0	1,15	200	600*	spc, npc, pure nickel, NiCr-alloy	x	x
1212	36 - 16	0,20	80	-----	spc, npc, pure nickel, Cw sp	x	x
1213	32 - 20	0,20	105	-----	spc, npc, pure nickel, Cw sp	x	x
1371	36 - 20	0,14	105	-----	bare copper, tpc, spc, npc, pure nickel	x	x
	19 - 16	0,20	105	-----	bare copper, tpc, spc, npc, pure nickel	x	x
	15 - 10	0,33	105	-----	bare copper, tpc, spc, npc, pure nickel	x	x
	9 - 6	0,51	105	-----	bare copper, tpc, spc, npc, pure nickel	x	x
1512	16 - 14	0,25	105	-----	spc, npc		x
1538	36 - 20	0,14	105	125*	tpc, spc, npc, pure nickel, Cw sp	x	x
	19 - 15	0,2	105	125*	tpc, spc, npc, pure nickel, Cw sp	x	x
	14 - 10	0,33	105	125*	tpc, spc, npc, pure nickel, Cw sp	x	x
	9 - 6	0,51	105	125*	tpc, spc, npc, pure nickel, Cw sp	x	x
1577	32 - 16	0,3	200	-----	tpc, spc, npc, pure nickel	x	x
1584	30 - 10	0,56	200	1000	tpc, spc, npc, alloy sp	x	x
1659**	26 - 10	0,51	250	600*	npc, pure nickel, Cw sp	x	x
	8 - 2	0,77	250	600*	npc, pure nickel, Cw sp	x	x
	1 - 4/0	1,15	250	600*	npc, pure nickel, Cw sp	x	x



PTFE single core with UL approval

TE
UL file no. E 69837 (M)

UL Style*	AWG*	average wall thickness [mm]	range*		conductor construction		
			temperature [°C]	voltage [Volt]	material	solid / stranded	
1716	40 - 20	0,14	150	150*	bare copper, spc, npc	x	x
	19 - 16	0,2	150	150*	bare copper, spc, npc	x	x
	15 - 10	0,33	150	150*	bare copper, spc, npc	x	x
	9 - 6	0,51	150	150*	bare copper, spc, npc	x	x
1723	32 - 16	0,28	200	-----	tpc, spc, npc, pure nickel	x	x
1746	20 - 16	0,23	200	125	npc, spc, pure nickel, Cw sp	x	x
1815	32 - 10	0,33	250	300*	npc, pure nickel	x	x

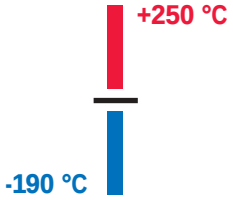
* pay attention to UL-Style specifications.
** on request choice of teflon impregnated glass fibre braid

*** temperature identification stripe:

operating temperature [°C]	colour of identification stripe
80	blue
105	yellow
150	orange
200	black
250	2 x black or printing max. 250 °C

If base colour is identical with temperature identification stripe a printing of °C is necessary.

If cross sections are < AWG 20 above mentioned identification is not necessary.



TE
CSA file no. LL 59063

PTFE single core with CSA approval

Construction

Conductor*:	Cu sp, np, pure nickel, nickel alloy to CSA-C22.2 No.210.2-M90
Insulation:	PTFE to CSA-C22.2 No.210.2-M90
Colour:	On request (except transparent and clear)
Identification:	Print (not necessary with conductor diameter < 1,3 mm)

Application

Internal wiring of appliances

Technical data

Temperature range:	- 190 °C up to max. + 250 °C
Rated voltage:	150 - 1000 V
Test voltage:	According to CSA standard
Flame test:	FT1

Notes

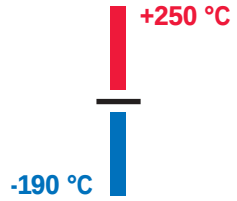
→ The itemized cables are also available with combined UL/CSA approvals
→ UL/CSA approved cables with additional insulation materials refer to page 148 onwards.

AWG	average wall thickness [mm]	range	
		temperature [°C]	voltage [Volt]
28 - 16	0,25	150	150
28 - 16	0,25	200	150
14 - 10	0,33		
8 - 2	0,76		
1 - 4/0	1,15		
28 - 16	0,33	200	300
14 - 10	0,51		
8 - 2	0,76		
1 - 4/0	1,15		
28 - 16	0,51	200	600
14 - 10	0,76		
8 - 2	1,15		
1 - 4/0	1,52		
28 - 16	0,25	250	300
14 - 10	0,33		
8 - 2	0,76		
1 - 4/0	1,15		
28 - 16	0,33	250	600
14 - 10	0,51		
8 - 2	0,76		
1 - 4/0	1,15		
28 - 16	0,51	250	1000
14 - 10	0,76		
8 - 2	1,15		
1 - 4/0	1,52		

conductor material	temperature limit [°C]
bare copper, single wire ∅ < 0,38 mm	150
bare copper, single wire ∅ ≥ 0,38 mm	200
tpc, single wire ∅ < 0,38 mm	150
tpc, single wire ∅ ≥ 0,38 mm	200
spc	200
npc	250
nickel alloy	250
cadmium-chrome-copper silver plated	250

*temperature limits of conductor
(C 22.2 No. 210.2 - M 90 class I, group A/B)

*pay attention to CSA specification.



PTFE single core double insulated with VDE approval, stranded

TETE
VDE reg. no. 6574 6594

Construction

Conductor:	Cu bare, tp, sp, np, stranded acc to VDE 0295 class 5 or pure nickel
Insulation:	PTFE 5Y to VDE 0207 part 6
Sheath:	PTFE 5Y to VDE 0207 part 6
Colour:	On request
Identification:	Printing of VDE registration number

Application

For wiring in electrical appliances and lighting up to a maximum operating temperature of:
130 °C with bare copper conductor
180 °C with tpc conductor
200 °C with spc conductor
250 °C with npc conductor
250 °C with pure nickel conductor taking into consideration reduced conductor conductivity

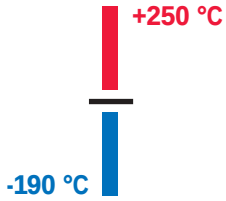
Technical data

Temperature range:	- 190 °C up to + 250 °C
Rated voltage Uo/U:	300 / 300 V
Test voltage:	3,4 kV
Min. bending radius:	5 x diameter

Notes

→ PTFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ PTFE cores with VDE ÜG are also available with conductors to VDE 0295 class 2

cross section [mm²]	maximum Ø of single wire [mm]	maximum strand diameter [mm]	o.d. [mm] ± 5 %	copper weight [kg/km]	weight approx. [kg/km]
0,5	0,21	0,98	1,95	4,8	11
0,75	0,21	1,16	2,1	7,2	14
1	0,21	1,35	2,3	9,6	18



TETE
VDE-reg.-nr. 6574 6594

PTFE single core double insulated with VDE-approval, solid

Construction

Conductor:	Cu bare, tp, sp, np solid acc. to VDE 0295 class 1 or pure nickel
Insulation:	PTFE 5Y to VDE 0207 part 6
Sheath:	PTFE 5Y to VDE 0207 part 6
Colour:	On request
Identification:	Printing of VDE registration number

Application

For wiring in electrical appliances and lighting up to a maximum operating temperature of:
130 °C with bare copper conductor
180 °C with tpc conductor
200 °C with spc conductor
250 °C with npc conductor
250 °C with pure nickel conductor taking into consideration reduced conductor conductivity

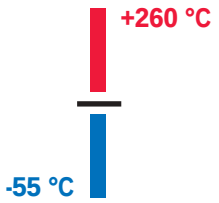
Technical data

Temperature range:	- 190 °C up to + 250 °C
Rated voltage Uo/U:	300 / 300 V
Test voltage:	3,4 kV
Min. bending radius:	10 x diameter

Note

→ PTFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties

cross section [mm²]	conductor ∅ [mm]	o.d. [mm] ± 5 %	copper weightt [kg/km]	weight approx. [kg/km]
0,5	0,8	1,8	4,8	11
0,75	0,98	2,0	7,2	14
1	1,13	2,15	9,6	17



PTFE/glass fibre single core according to MIL-W-22759 class 1 and 2

TEGL
MIL-W-22759

Construction

Conductor:	Cu sp, stranded, for class 1 Cu np, stranded, for class 2
Insulation:	PTFE 5Y to ASTM-D 4895
Colour:	Transparent
Braiding:	PTFE impregnated glass fibre yarn
Identification:	Class 1 with blue identification tracer Class 2 with orange identification tracer

Application

For wiring at high ambient temperature and increased mechanical stress e.g.
- Lead wires for engine constructions
- Traffic and automotive

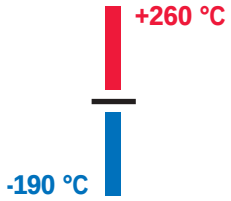
Technical data

Temperature range:	Class 1 - 55 °C up to + 200 °C Class 2 - 55 °C up to + 260 °C
Rated voltage:	600 V
Test voltage:	3,4 kV
Min. bending radius:	5 x diameter

Note

→ Standard MIL-W-22759 supersedes MIL-W-7139

AWG	cross section [mm²]	conductor construction [mm]	o.d. [mm] (min.-max.)	weight approx. [kg/km]
22	0,382	19 x 0,160	2,032 - 2,235	9,4
20	0,616	19 x 0,203	2,286 - 2,489	13
18	0,963	19 x 0,254	2,540 - 2,794	17
16	1,229	19 x 0,287	2,921 - 3,175	20
14	1,941	19 x 0,361	3,378 - 3,632	27
12	2,976	37 x 0,320	3,861 - 4,115	49
10	4,743	37 x 0,404	4,420 - 4,775	65
8	8,605	133 x 0,287	6,121 - 6,477	116
6	13,613	133 x 0,361	7,188 - 7,696	159
4	21,625	133 x 0,455	8,636 - 9,398	248
2	33,696	665 x 0,254	10,287 - 11,049	380
1	41,398	817 x 0,254	11,557 - 12,319	464
0	52,951	1045 x 0,254	12,573 - 13,589	581
00	67,392	1330 x 0,254	14,097 - 15,113	763
000	84,367	1665 x 0,254	15,748 - 16,764	920
0000	106,865	2109 x 0,254	17,526 - 18,542	1145



TEYTE VG 95218 — PTFE/Kapton®/PTFE single core according to VG 95218 part 20 B

Construction

Conductor:	Cu np, stranded
Insulation:	PTFE 5Y to ASTM-D 4895
Wrapping:	Kapton® foil
Sheath:	PTFE 5Y to ASTM-D 4895
Sheath colour:	White

Application

For wiring at high ambient temperatures and increased mechanical stress e.g.
- aerospace
- lead wires for engines and gear-boxes

Technical data

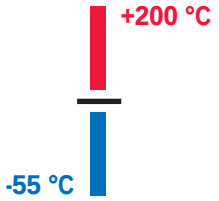
Temperature range:	- 190 °C up to + 260 °C
Rated voltage:	600 V
Test voltage:	3,4 kV

Note

→ The itemized cables are also available with reduced wall thickness, but without VG-approval.

part no.	nominal cross section [mm²]	number of single wires / legs (L)	maximum single wire∅ [mm]	maximum conductor ∅ [mm]	maximum conductor resistance at 20°C [Ohm/km]	o.d. [mm]		weight approx. [kg/km]
						minimum	maximum	
001	0,5	37	----	0,94	42,3	1,8	2,1	9,9
002	0,75			1,20	26,6	2,0	2,3	13
003	1			1,32	21,0	2,2	2,5	16
004	1,5			1,68	13,5	2,5	2,8	23
005	2,5			2,14	8,20	3,1	3,5	35
006	4	7 L	0,16	3,05	5,09	4,0	4,4	56
007	6		0,21	3,8	3,39	4,8	5,3	77
008	10	19 L		4,8	1,95	5,9	6,5	123
009	16			5,8	1,24	7,1	7,7	198
010	25	37 L		7,7	0,795	9,0	9,6	299
011	35			9	0,565	10,3	10,9	410
012	50		0,31	10,7	0,393	12,1	12,8	550
013	70			12,6	0,277	14,2	14,9	752
014	95			14,8	0,210	16,6	17,4	997
015	120			16,4	0,163	18,4	19,2	1212

Kapton® is a registered trademark of Du Pont.



Fluoropolymer insulated coaxial cables according to MIL-C-17

TECTE
MIL-C-17

Construction

Conductor:	Cu sp or copperweld sp steel wire
Insulation:	PTFE 5Y to VDE 0207 part 6
Screen:	Cu sp braid
Sheath:	PTFE, FEP or PTFE with impregnated glass fibre braid

Application

For wiring at high ambient temperatures, increased mechanical stress and limited space e.g.
- high frequency technology
- communication technology
- instrumentation engineering
- mechanical engineering

Technical data

Temperature range: - 55 °C up to + 200 °C
For additional technical data refer to table below.

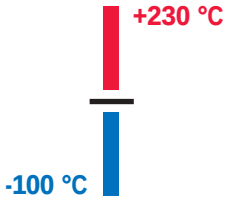
Notes

→ PTFE insulated coaxial cables offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties. Additional characteristics are a wide temperature range and small outer diameters
→ Upon request, the itemized coaxial cables are also available with UL approval
→ Upon request, we also offer coaxial- and triaxial cables acc. to customers specifications.

type	conductor construction [mm]	dielectric Ø [mm] min. max.	screening	sheath			impedance [Ohm]	capacitance [pF/m] nom. *max.	max. attenuation at 400 MHz [dB/ 100 m]	operating voltage: [kV]	corona voltage [kV]	weight approx. [kg/km]
				sheath material	minimum wall thickness [mm]	o.d. [mm] min. max.						
RG-140 /U	1 x 0,64 Cwsp	3,60 - 3,81	GC sp	TGL	--------	5,72 - 6,12	75 ± 3	63,0	26,2	1,7	2,3	70
RG-142 B/U	1 x 0,94 Cw sp	2,82 - 3,07	2xGC sp	FEP	0,381	4,82 - 5,08	50 ± 2	96,1	32,5	1,4	1,9	66
RG-165 /U	7 x 0,80 C sp	7,12 - 7,36	GC sp	TGL	--------	10,16 - 10,66	50 ± 2	96,1	15,0	3,7	5,0	198
RG-178 B/U	7 x 0,10 Cw sp	0,79 - 0,88	GCsp	FEP	--------	1,70 - 1,90	50 ± 2	*104,9	108,0	0,75	1,0	9
RG-179 B/U	7 x 0,10 Cw sp	1,53 - 1,67	GC sp	FEP	--------	2,41 - 2,66	75 ± 3	*75,0	68,8	0,9	1,2	16
RG-180 B/U	7 x 0,10 Cw sp	2,52 - 2,66	GCsp	FEP	--------	3,47 - 3,68	95 ± 5	*57,0	55,7	1,1	1,5	28
RG-187 A/U	7 x 0,10 Cw sp	1,53 - 1,67	GC sp	PTFE	--------	2,41 - 2,66	75 ± 3	*75,0	68,8	0,9	1,2	15
RG-188 A/U	7 x 0,17 Cw sp	1,45 - 1,60	GC sp	PTFE	--------	2,38 - 2,59	50 ± 2	*104,9	68,8	0,9	1,2	15
RG-195 A/U	7 x 0,10 Cw sp	2,52 - 2,66	GC sp	PTFE	--------	3,47 - 3,68	95 ± 3	*57,0	55,7	1,1	1,5	27
RG-196 A/U	7 x 0,10 Cw sp	0,79 - 0,88	GC sp	PTFE	--------	1,70 - 1,90	50 ± 2	*104,9	108,0	0,75	1,0	8,6
RG-225 /U	7 x 0,79 C sp	7,12 - 7,36	2xGC sp	TGL	--------	10,67 - 11,17	50 ± 2	*106,0	16,4	3,7	5,0	268
RG-302 /U	1 x 0,64 Cw sp	3,60 - 3,81	GC sp	FEP	--------	5,00 - 5,25	75 ± 2	*104,9	28,2	1,4	1,9	59
RG-303 /U	1 x 0,94 Cw sp	2,82 - 3,07	GC sp	FEP	--------	4,19 - 4,44	50 ± 2	*104,9	28,2	1,4	1,9	47
RG-304 /U	1 x 1,50 Cw sp	4,58 - 4,82	GCsp	FEP	0,381	6,90 - 7,31	50 ± 2	*104,9	20,9	2,2	3,0	128
RG-316 /U	7 x 0,17 Cw sp	1,45 - 1,60	GC sp	FEP	--------	2,38 - 2,59	50 ± 2	*104,9	68,8	0,9	1,2	16

C = copper
Cw = copperweld steel wire
sp = silver plated
G = braid

PTFE = polytetrafluorethylene
FEP = fluorethylene propylene
TGL = PTFE + glass fibre braid with silicone impregnation



TE FEP single core solid and stranded (metric cross sections)

Construction

Conductor:	Cu bare, tp, sp, np, solid and stranded acc. to VDE 0295 or pure nickel
Insulation:	FEP 6Y to ASTM-D 2116 + VDE 0207 part 6
Colour:	On request

Application

- For wiring at low and high ambient temperatures and/or corrosive environments

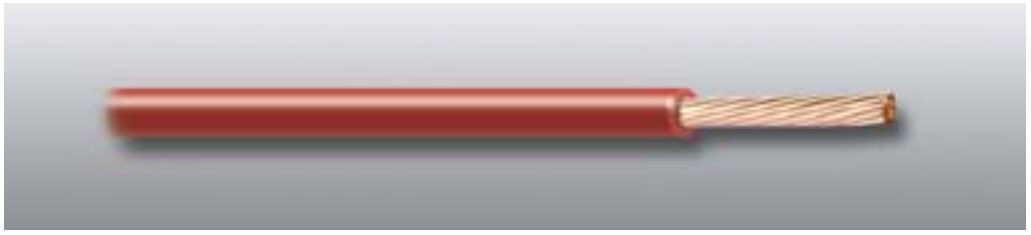
Technical data

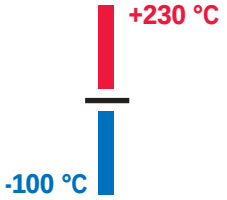
Temperature range:	- 100 °C up to + 205 °C, short-term + 230 °C
Rated voltage Uo/U:	250 /600 V / 1000 V
Test voltage:	2,5 kV / 3,4 kV / 5 kV
Min. bending radius:	10 x diameter

Notes

→ FEP cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ FEP cores are also available in different cross sections and various conductor materials
→ For FEP cores with VDE-approval please refer to page 26+27 (VDE 0881) and page 28+29 (VDE ÜG)

cross section [mm²]	conductor construction [mm]	o.d. [mm] (min.-max.)			copper weight [kg/km]	weight approx. [kg/km]		
		250 V	600 V	1000 V		250 V	600 V	1000 V
0,051	1 x 0,254	-----	0,66 - 0,86	0,91 - 1,12	0,49	1	1,4	2,3
0,080	1 x 0,32	0,56 - 0,68	0,72 - 0,92	0,99 - 1,19	0,77	1,4	2,0	2,9
0,126	1 x 0,40	0,64 - 0,76	0,80 - 1,00	1,07 - 1,27	1,2	1,8	2,7	3,5
0,197	1 x 0,50	0,74 - 0,86	0,90 - 1,10	1,17 - 1,37	1,9	2,7	3,7	4,6
0,32	1 x 0,64	0,88 - 1,00	1,04 - 1,24	1,30 - 1,50	3,2	4,0	4,8	6,0
0,5	1 x 0,80	1,04 - 1,16	1,20 - 1,40	1,47 - 1,68	4,8	6,1	7,0	8,4
0,5	7 x 0,30	1,15 - 1,27	1,31 - 1,51	1,57 - 1,77	4,8	6,4	7,4	8,6
0,5	15 x 0,203	1,16 - 1,28	1,32 - 1,52	1,58 - 1,78	4,8	6,3	7,6	8,8
0,75	1 x 0,98	-----	1,38 - 1,58	1,65 - 1,91	7,2	-----	9,3	11
0,75	19 x 0,228	-----	1,49 - 1,69	1,95 - 2,05	7,2	-----	11	12
0,75	22 x 0,203	-----	1,50 - 1,70	1,76 - 1,96	7,2	-----	10	12
1	1 x 1,13	-----	1,53 - 1,73	1,79 - 1,99	9,6	-----	13	14
1	29 x 0,203	-----	1,68 - 1,88	1,94 - 2,14	9,6	-----	13	15
1,5	1 x 1,38	-----	1,88 - 2,08	2,08 - 2,28	14,4	-----	18	19
1,5	27 x 0,254	-----	2,04 - 2,24	2,30 - 2,50	14,4	-----	18	20
2,5	1 x 1,78	-----	2,28 - 2,48	2,58 - 2,78	24	-----	29	31
2,5	45 x 0,254	-----	2,45 - 2,65	2,85 - 3,05	24	-----	30	32
4	50 x 0,30	-----	2,95 - 3,15	3,35 - 3,55	38	-----	45	48
6	75 x 0,30	-----	3,65 - 3,85	4,15 - 4,45	58	-----	66	69
10	80 x 0,404	-----	5,50 - 5,80	5,80 - 6,10	96	-----	116	120
16	126 x 0,404	-----	6,60 - 6,80	7,00 - 7,30	154	-----	176	181
25	196 x 0,404	-----	8,30 - 8,60	8,60 - 8,90	240	-----	272	286
35	276 x 0,404	-----	9,50 - 9,90	9,90 - 10,30	336	-----	375	398





FEP single core according to MIL-W-16878

TE
MIL-W-16878

Construction

Conductor: Cu bare, tp, sp, np, stranded, acc. to MIL-W-16878
Insulation: FEP 6Y to ASTM-D 2116
Colour: On request

Application

- For wiring at high ambient temperatures

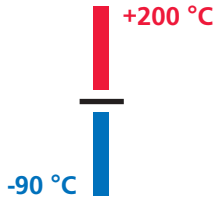
Technical data

Temperature range: - 100 °C up to + 200 °C
short-term + 230 °C
tpc + 180 °C
Rated voltage: KT=250 V/ K=600 V / KK=1000 V
Test voltage: KT=2,5 kV / K=3,4 kV / KK=5 kV
Min. bending radius: 5 x diameter

Notes

→ FEP cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ FEP cores with metric conductor constructions see page 24
→ FEP cores with VDE-approval please refer to page 26+27 (VDE 0881) and page 28+29 (VDE ÜG)

AWG	cross section [mm²]	conductor construction [mm]	o.d. [mm] (min.-max.)			conductor resistance at 20° C max. [Ohm/km]			weight approx. [kg/km]		
			KT	K	KK	tp	sp	np	KT	K	KK
32	0,034	7 x 0,079	0,508 - 0,610	0,660 - 0,864	0,889 - 1,092	620	567	607	0,8	1,4	2,2
30	0,057	7 x 0,102	0,559 - 0,660	0,711 - 0,914	0,965 - 1,168	374	330	363	1	1,8	2,6
28	0,089	7 x 0,127	0,635 - 0,737	0,787 - 0,991	1,041 - 1,245	225	209	223	1,5	2	2,8
26	0,141	7 x 0,160	0,737 - 0,838	0,889 - 1,092	1,143 - 1,346	142	133	141	2,1	2,7	3,9
26	0,155	19 x 0,102	0,737 - 0,838	0,889 - 1,092	1,143 - 1,346	135	126	138	2,3	2,9	4,2
24	0,227	7 x 0,203	0,864 - 0,965	1,016 - 1,219	1,270 - 1,473	88,6	82,7	86,9	3	3,8	5,1
24	0,241	19 x 0,127	0,864 - 0,965	1,016 - 1,219	1,270 - 1,473	85,9	79,7	84,9	3,2	4	5,3
22	0,355	7 x 0,254	1,016 - 1,118	1,168 - 1,372	1,422 - 1,626	56,1	52,1	54,4	4,5	5,4	6,6
22	0,382	19 x 0,160	1,016 - 1,118	1,168 - 1,372	1,422 - 1,626	53,1	49,5	52,5	4,8	5,7	7
20	0,563	7 x 0,320	1,219 - 1,321	1,372 - 1,575	1,626 - 1,829	35,1	32,8	34,1	6,7	7,7	9,1
20	0,616	19 x 0,203	1,219 - 1,321	1,372 - 1,575	1,626 - 1,829	32,4	30,1	32,0	7,1	8,2	9,7
18	0,897	7 x 0,404	-----	1,626 - 1,880	1,880 - 2,134	21,9	20,6	21,3	-----	12	13
18	0,963	19 x 0,254	-----	1,626 - 1,880	1,880 - 2,134	20,4	19,0	20,0	-----	12	14
16	1,229	19 x 0,287	-----	1,854 - 2,210	2,108 - 2,413	15,7	14,8	15,6	-----	16	17
14	1,941	19 x 0,361	-----	2,235 - 2,591	2,489 - 2,896	10,03	9,44	9,84	-----	23	25
12	3,085	19 x 0,455	-----	2,718 - 3,073	2,972 - 3,378	6,29	5,94	6,17	-----	35	37
10	4,743	37 x 0,404	-----	3,226 - 3,581	3,480 - 3,886	4,13	3,90	4,07	-----	51	55
8	8,604	133 x 0,287	-----	4,699 - 5,055	5,055 - 5,563	2,30	2,16	2,28	-----	92	103
6	13,613	133 x 0,361	-----	-----	7,264 - 7,645	1,45	1,37	1,43	-----	-----	159
4	21,153	133 x 0,450	-----	-----	8,865 - 9,373	0,918	0,865	0,902	-----	-----	277
2	33,696	665 x 0,254	-----	-----	10,033 - 10,541	0,600	0,557	0,580	-----	-----	403
1	41,398	817 x 0,254	-----	-----	12,065 - 12,573	0,488	0,455	0,472	-----	-----	498
0	52,951	1045 x 0,254	-----	-----	12,802 - 13,310	0,380	0,354	0,370	-----	-----	619
00	67,392	1330 x 0,254	-----	-----	14,046 - 14,656	0,298	0,278	0,291	-----	-----	735
000	106,865	2109 x 0,254	-----	-----	17,856 - 18,466	0,183	0,177	0,183	-----	-----	1139



TE
Li6Y VDE 0881

FEP single core according to DIN VDE 0881, stranded

Construction

Conductor: Cu sp, stranded, to VDE 0881
Insulation: FEP 6Y to VDE 0207 part 6
Colour: On request

Application

For internal wiring of telecommunication devices, electronic modules in appliances and for wiring of telecommunication and data processing systems.

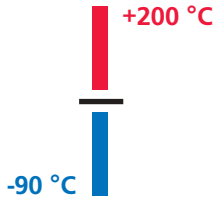
Technical data

Temperature range: Fixed installation -90 °C up to + 180 °C, short-term + 200 °C
Flexible installation - 55 °C up to + 180 °C, short-term + 200 °C
Rated voltage max. (Peak voltage): 375[1]) / 900[2]) / 1500[3]) V
Test voltage max. (r.m.s.): 1500[1]) / 2500[2]) / 3000[3]) V
Insulation resistance: min. 500 MΩ x km at 20 °C

Notes

→ FEP cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ Hook-up wires and strands according to this standard must not be used for high voltage installations

	nominal cross section/ coreØ [mm²]/[mm]	minimum number of wires x diameter [mm]	strandØ max. [mm]	nominal insulation wall thickness (minimum value) [mm]	coreØ		conductor resistance at 20° C max.		weight approx. [kg/km]
					min. [mm]	max. [mm]	1 core [Ω/km]	multi core [Ω/km]	
../... = nominal conductor cross section in mm² /nominal core diameter in mm	x 0,035/0,55	7 x 0,08	0,27	0,15[1]) (0,12)	0,48	0,62	545	567	0,7
	x 0,055/0,6	7 x 0,10	0,33		0,54	0,68	349	363	1,0
	x 0,079/0,7	7 x 0,12	0,39		0,60	0,74	236	245	1,3
	x 0,12/0,8	7 x 0,15	0,48		0,69	0,83	151	157	1,8
	x 0,22/0,9	7 x 0,20	0,63		0,84	0,98	84,8	87,3	2,8
	x 0,34/1,1	7 x 0,25	0,78		0,99	1,13	54,3	55,9	4,1
	x 0,56/1,3	7 x 0,32	0,99		1,20	1,34	32,5	33,1	6,3
	x 0,035/0,75	7 x 0,08	0,27	0,25[2]) (0,20)	0,64	0,87	545	567	1,2
	x 0,055/0,8	7 x 0,10	0,33		0,70	0,93	349	363	1,5
	x 0,079/0,9	7 x 0,12	0,39		0,76	0,99	236	245	1,8
	x 0,12/1,0	7 x 0,15	0,48		0,85	1,08	151	157	2,4
	x 0,22/1,1	7 x 0,20	0,63		1,00	1,23	84,8	87,3	3,5
	x 0,34/1,3	7 x 0,25	0,78		1,15	1,38	54,3	55,9	4,9
	x 0,56/1,5	7 x 0,32	0,99		1,36	1,59	32,5	33,1	7,3
	x 0,93/1,8	19 x 0,25	1,30		1,65	1,90	20,0	20,4	11
	x 1,3/2,0	19 x 0,29	1,50		1,85	2,10	14,9	15,2	15
	x 1,9/2,3	19 x 0,36	1,85		2,20	2,45	9,46	9,65	21
	x 3,2/2,8	19 x 0,46	2,35		2,70	2,95	5,79	5,91	34
	x 0,12/1,3	7 x 0,15	0,48	0,40[3]) (0,30)	1,05	1,40	151	157	3,4
	x 0,22/1,4	7 x 0,20	0,63		1,20	1,55	84,8	87,3	4,6
	x 0,34/1,6	7 x 0,25	0,78		1,35	1,73	54,3	55,9	6,2
	x 0,56/1,8	7 x 0,32	0,99		1,56	1,94	32,5	33,1	8,9
	x 0,93/2,1	19 x 0,25	1,30		1,85	2,25	20,0	20,4	13
	x 1,3/2,3	19 x 0,29	1,50		2,05	2,45	14,9	15,2	17
	x 1,9/2,6	19 x 0,36	1,85		2,40	2,80	9,46	9,65	24
	x 3,2/3,1	19 x 0,46	2,35		2,90	3,30	5,79	5,91	37
	x 4,6/3,6	37 x 0,40	2,87		3,40	3,82	3,93	4,01	51
	x 8,8/5,2	133 x 0,29	4,50	0,60[3]) (0,45)	4,95	5,45	2,12	2,16	93
	x 13,5/6,2	133 x 0,36	5,55		6,00	6,50	1,35	1,38	139



FEP single core to DIN VDE 0881, solid

TE
6Y VDE 0881

Construction

Conductor: Cu sp, solid to VDE 0881
Insulation: FEP 6Y to VDE 0207 part 6
Colour: On request

Application

For internal wiring of telecommunication devices, electronic modules in appliances and for wiring of telecommunication and data processing systems.

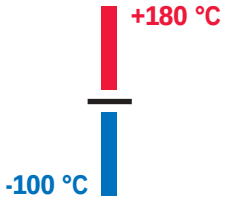
Technical data

Temperature range: Fixed installation - 90 °C up to + 180 °C, short-term + 200 °C
Flexible installation - 55 °C up to + 180 °C, short-term + 200 °C
Rated voltage max. (Peak voltage): 375[1]) / 900[2]) V
Test voltage max. (r.m.s.): 1500[1]) / 2500[2]) V
Insulation resistance: min. 500 MΩ x km at 20 °C

Notes

→ FEP cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ Hook-up wires and strands according to this standard must not be used for high voltage installations

	nominalØ conductor/core [mm]	nominal wall thickness of insulation (minimum value) [mm]	coreØ		conductor resistance at 20° C max.		weight approx. [kg/km]
			min. [mm]	max. [mm]	1 core [Ω/km]	multicore [Ω/km]	
../... = nominal conductor diameter in mm / nominal core diameter in mm	x 0,25/0,55	0,15[1]) (0,12)	0,49	0,61	369	384	0,9
	x 0,32/0,6		0,56	0,68	221	230	1,2
	x 0,4/0,7		0,64	0,76	141	146	1,7
	x 0,5/0,8		0,74	0,86	90,4	93,1	2,4
	x 0,63/0,95		0,87	0,99	57	58,7	3,6
	x 0,8/1,1		1,04	1,17	35,3	36,0	5,5
	x 0,25/0,75	0,25[2]) (0,20)	0,65	0,85	369	384	1,3
	x 0,32/0,8		0,72	0,92	221	230	1,7
	x 0,4/0,9		0,80	1,00	141	146	2,2
	x 0,5/1,0		0,90	1,10	90,4	93,1	3
	x 0,63/1,2		1,03	1,23	57,0	58,7	4,3
	x 0,8/1,3		1,20	1,40	35,3	36,0	6,3
	x 1,0/1,5		1,40	1,60	22,6	23,1	9,1
	x 1,3/1,8		1,70	1,90	13,4	13,6	15
	x 1,6/2,1		2,00	2,23	8,83	9,01	21
	x 2,1/2,6		2,50	2,70	5,13	5,23	35



TE
VDE reg. no. 6574 5519

FEP single core with VDE approval, stranded

Construction

Conductor:	Cu bare, tp, sp, np, stranded, to VDE 0295 class 5 or pure nickel
Insulation:	FEP 6Y to VDE 0207 part 6
Colour:	On request
Identification:	Printing of VDE registration number

Application

For wiring in electrical appliances and lighting up to a maximum operating temperature of:
130 °C with bare copper conductor
180 °C with tpc conductor
180 °C with spc conductor
180 °C with npc conductor
180 °C with pure nickel conductor taking into consideration reduced conductor conductivity

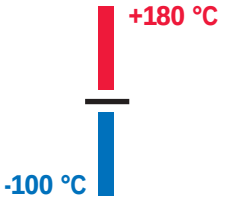
Technical data

Temperature range:	- 100 °C up to + 180 °C
Rated voltage Uo/U:	300 / 500 V
Test voltage:	3,4 kV
Min. bending radius:	5 x diameter

Notes

→ FEP cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ FEP cores with VDE-approval are also available with conductors to VDE 0295 class 2

cross section [mm²]	maximum Ø of single wire [mm]	maximum strand diameter [mm]	o.d. [mm] ± 5 %	copper weight [kg/km]	weight [kg/km]
0,5	0,21	0,98	1,5	2,4	4,5
0,75	0,21	1,16	1,7	4,8	7,3
1	0,21	1,35	1,9	7,2	10
1,5	0,26	1,61	2,1	9,6	13
2,5	0,26	2,11	2,7	14,4	19



FEP single core with VDE-approval, solid

TE
VDE reg. no. 6574 5519

Construction

Conductor:	Cu bare, tp, sp, np, solid acc. to VDE 0295 class 1 or pure nickel
Insulation:	FEP 6Y to VDE 0207 part 6
Colour:	On request
Identification:	Printing of VDE registration number

Application

For wiring in electrical appliances and lighting up to a maximum operating temperature of:
130 °C with bare copper conductor
180 °C with tpc conductor
180 °C with spc conductor
180 °C with npc conductor
180 °C with pure nickel conductor taking into consideration reduced conductor conductivity

Technical data

Temperature range:	- 100 °C up to + 180 °C
Rated voltage Uo/U:	300 / 500 V
Test voltage:	3,4 kV
Min. bending radius:	10 x diameter

Notes

→ FEP cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ FEP cores with VDE ÜG and stranded conductors see page 28

cross section [mm²]	conductorØ [mm]	o.d. [mm] ± 5 %	copper weight [kg/km]	weight approx. [kg/km]
0,5	0,80	1,4	4,8	6,8
0,75	0,98	1,6	7,2	9,5
1	1,13	1,65	9,6	12
1,5	1,38	2,0	14,4	17
2,5	1,78	2,5	24	28

TE
UL file no. E 69837 (M)

FEP single core with UL approval

Construction

Conductor:	Conductor construction and material acc. to table below
Insulation:	FEP acc. to UL standards 62 and 83
Colour:	On request
Identification:	Print or temperature marker (stripe)***

Application

For internal wiring of appliances taking into consideration corresponding style approvals

Technical data

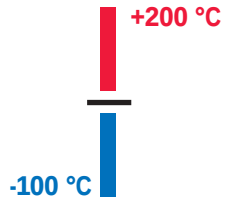
Temperature range:	- 100 °C up to max. + 200 °C
Rated voltage:	125 - 1000 V
Test voltage:	According to style approvals
Flame test:	FT1

Notes

→ The itemized cables are also available
- with combined UL/CSA approvals,
- screened, UL approved construction

→ UL/CSA approved cables with additional insulation materials refer to page 143 onwards.

UL Style*	AWG*	average wall thickness (min. wall thickness) [mm]	range *		conductor construction	
			temperature [°C]	voltage [Volt]	material	solid / stranded
1226	32 - 20	0,2 (0,18)	80	-----	spc, npc, pure nickel Cw sp	x x
	19 - 14	0,33 (0,30)	80	----	spc, npc, pure nickel Cw sp	x x
1227	32 - 20	0,2 (0,18)	105	-----	bare copper, tpc, spc, npc, pure nickel	x x
	19 - 14	0,33 (0,3)	105	-----	bare copper, tpc, spc, npc, pure nickel	x x
1330	30 - 10	0,51 (0,46)	200	600	bare copper, tpc, spc, npc, pure nickel	x x
	8 - 2	0,76 (0,69)	200	600	bare copper, tpc, spc, npc, pure nickel	x x
	1 - 4/0	1,15 (1,02)	200	600	bare copper, tpc, spc, npc, pure nickel	x x
1331	30 - 10	0,5 (0,46)	150	600	bare copper, tpc, spc, npc, pure nickel	x x
	8 - 2	0,76 (0,69)	150	600	bare copper, tpc, spc, npc, pure nickel	x x
	1 - 4/0	1,15 (1,02)	150	600	bare copper, tpc, spc, npc, pure nickel	x x
1332	30 - 10	0,33 (0,31)	200	300*	bare copper, tpc, spc, npc, pure nickel	x x
1333	30 - 10	0,33 (0,31)	150	300*	bare copper, tpc, spc, npc, pure nickel	x x
1371	32 - 20	0,14 (0,13)	105	600	bare copper, tpc, spc, npc, pure nickel	x x
	19 - 16	0,2 (0,18)	105	600	bare copper, tpc, spc, npc, pure nickel	x x
	15 - 10	0,33 (0,31)	105	600	bare copper, tpc, spc, npc, pure nickel	x x
	9 - 6	0,51 (0,46)	105	600	bare copper, tpc, spc, npc, pure nickel	x x
1538	36 - 20	0,14 (0,13)	105	125*	bare copper, tpc, spc, npc, pure nickel	x x
	19 - 16	0,2 (0,18)	105	125*	bare copper, tpc, spc, npc, pure nickel	x x
	15 - 10	0,33 (0,30)	105	125*	bare copper, tpc, spc, npc, pure nickel	x x
	9 - 6	0,51 (0,46)	105	125*	bare copper, tpc, spc, npc, pure nickel	x x
1577	32 - 16	0,31 (0,25)	200	-----	tpc, spc, npc, pure nickel	x x
1591	32 - 16	0,41 (0,33)	150	300	tpc, spc, npc, pure nickel	x x
1592	32 - 16	0,41 (0,33)	200	300	npc, > 0,38 mm, pure nickel	x x
1716	40 - 20	0,14 (0,13)	150	150	bare copper, spc, npc	x x
	19 - 16	0,2 (0,18)	150	150	bare copper, spc, npc	x x
	15 - 10	0,33 (0,31)	150	150	bare copper, spc, npc	x x
	9 - 6	0,51 (0,46)	150	150	bare copper, spc, npc	x x



FEP single cores with UL approval

TE
UL file no. E 69837 (M)

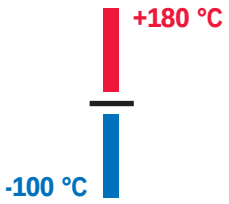
UL Style*	AWG*	average wall thickness (min. wall thickness) [mm]	range*		conductor construction		
			temperature [°C]	voltage [Volt]	material	solid / stranded	
1723	32 - 16	0,25 (0,2)	200	-----	tpc, spc, npc, pure nickel	x	x
1886	30 - 10	0,25 (0,23)	150	300	tpc, spc, npc, pure nickel	x	x
1887	30 - 10	0,35 (0,33)	150	600	tpc, spc, npc, pure nickel	x	x
	8 - 2	0,51 (0,46)	150	600	tpc, spc, npc, pure nickel	x	x
	1 - 4/0	0,76 (0,69)	150	600	tpc, spc, npc, pure nickel	x	x
10203	30 - 10	0,51 (0,46)	150	1000	bare copper, tpc, spc, npc, pure nickel	x	x
	8 - 2	0,76 (0,69)	150	1000	bare copper, tpc, spc, npc, pure nickel	x	x
	1 - 4/0	1,15 (1,02)	150	1000	bare copper, tpc, spc, npc, pure nickel	x	x
10203	30 - 10	0,51 (0,46)	200	1000	bare copper, tpc, spc, npc, pure nickel	x	x
	8 - 2	0,76 (0,69)	200	1000	bare copper, tpc, spc, npc, pure nickel	x	x
	1 - 4/0	1,15 (1,02)	200	1000	bare copper, tpc, spc, npc, pure nickel	x	x

* pay attention to UL-Style specifications.

*** temperature identification stripe:

operating temperature [°C]	colour of identification stripe
80	blue
105	yellow
150	orange
200	black
250	2 x black or printing max. 250°C

If base colour is identical with temperature identification stripe a printing of °C is necessary.
If cross sections are < AWG 20 above mentioned identification is not necessary.



TE
CSA file no. LL 59063

FEP single core with CSA approval

Construction

Conductor*:	Cu bare tp sp, np, pure nickel, nickel alloy to CSA-C22.2 No.210.2-M90
Insulation:	FEP acc. to CSA-C22.2 No. 210.2-M90
Colour:	On request (except transparent and clear)
Identification:	Print (not necessary with conductor diameter < 1,3 mm)

Application

For internal wiring of appliances

Technical data

Temperature range:	- 100 °C up to max. + 180 °C
Rated voltage:	150 - 1000 V
Test voltage:	According to CSA standard
Flame test:	FT1

Notes

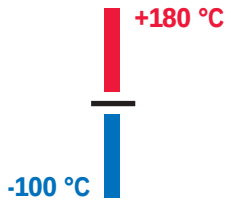
→ The itemized cables are also available with combined UL/CSA approvals
→ UL/CSA approved cables with additional insulation materials refer to page 148 onwards.

AWG	average wall thickness (min. wall thickness) [mm]	range	
		temperature [°C]	voltage [Volt]
32 - 16	0,25 (0,21)	150	150
32 - 10	0,38 (0,33)	180	300
32 - 10 8 - 2 1 - 4/0	0,76 (0,69) 1,15 (1,02) 1,52 (1,37)	180	600

* temperature limits of conductor
(C 22.2 No. 210.2 - M 90 class I, group A/B)

conductor material	temperature limit [°C]
bare copper, single wire ∅ < 0,38 mm	150
bare copper, single wire ∅ ≥ 0,38 mm	200
tpc, single wire ∅ < 0,38 mm	150
tpc, single wire ∅ ≥ 0,38 mm	200
spc	200
npc	250
npc 27 %	450
pure nickel	250 flexible application 450 fixed application
nickel alloy	250
cadmium-chrome-copper-silver plated	250

pay attention to CSA specification.



FEP single core double insulated with VDE-approval, stranded

TETE
VDE reg. no. 6574 9410

Construction

Conductor:	Cu bare, tp, sp, np, stranded, acc. to VDE 0295 class 5 or pure nickel
Insulation:	FEP 6Y to VDE 0207 part 6
Sheath:	FEP 6Y to VDE 0207 part 6
Colour:	On request
Identification:	Printing of VDE registration number

Application

For wiring in electrical appliances and lighting appropriate for protection class II up to an operating temperature of:
130 °C with bare copper conductor
180 °C with tpc, spc, npc conductor
180 °C with pure nickel conductor taking into consideration reduced conductor conductivity

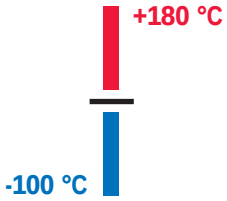
Technical data

Temperature range:	- 100 °C up to + 180 °C
Rated voltage Uo/U:	300 / 500 V
Test voltage:	3,4 kV
Min. bending radius:	5 x diameter

Notes

→ FEP cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ FEP cores with VDE ÜG are also available with conductors to VDE 0295 class 2

cross section [mm²]	maximum Ø of single wire [mm]	maximum strand diameter [mm]	o.d. [mm] ± 5 %	copper weight [kg/km]	weight approx. [kg/km]
0,5	0,21	0,98	2,1	4,8	12
0,75	0,21	1,16	2,3	7,2	15
1	0,21	1,35	2,5	9,6	18
1,5	0,26	1,61	2,7	14,4	24
2,5	0,26	2,11	3,4	24	37



TETE
VDE reg. no. 6574 9410

FEP single core double insulated with VDE-approval, solid

Construction

Conductor:	Cu bare, tp, sp, np, solid acc. to VDE 0295 class 1 or pure nickel
Insulation:	FEP 6Y to VDE 0207 part 6
Jacket:	FEP 6Y to VDE 0207 part 6
Colour:	On request
Identification:	Printing of VDE registration number

Application

For wiring in electrical appliances and lighting appropriate for protection class II up to an operating temperature of:
130 °C with bare copper conductor
180 °C with tpc, spc, npc conductor
180 °C with pure nickel conductor taking into consideration reduced conductor conductivity

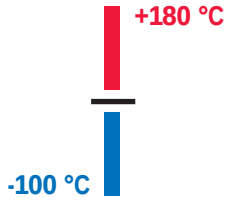
Technical data

Temperature range:	- 100 °C up to + 180 °C
Rated voltage Uo/U:	300 / 500 V
Test voltage:	3,4 kV
Min. bending radius:	10 x diameter

Note

→ FEP cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties

cross section [mm²]	conductor ∅ [mm]	o.d. [mm] ± 5 %	copper weight [kg/km]	weight approx. [kg/km]
0,5	0,8	2	4,8	11
0,75	0,98	2,2	7,2	14
1	1,13	2,3	9,6	17
1,5	1,38	2,6	14,4	23
2,5	1,78	3,2	24	36



ETFE single core solid and stranded, (metric cross sections) TE

Construction

Conductor: Cu bare, tp, sp, np, solid or stranded acc. to VDE 0295 or pure nickel
Insulation: ETFE 7Y to ASTM-D 3159 + VDE 0207 part 6
Colour: On request

Application

For wiring at low and high ambient temperatures and/or corrosive environments

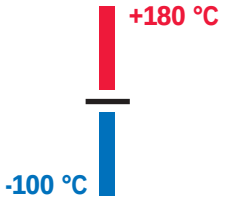
Technical data

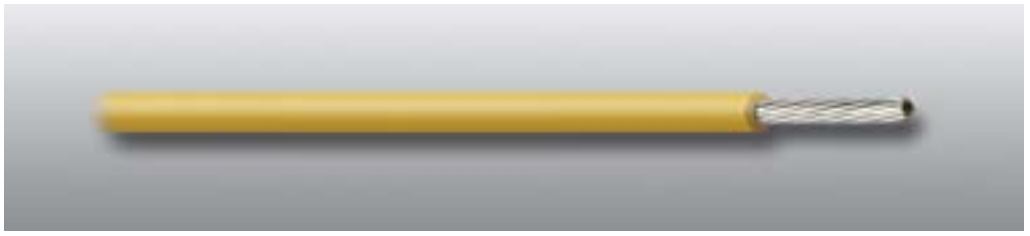
Temperature range: - 100 °C up to + 150 °C, short-term + 180 °C
Rated voltage Uo/U: 250 V / 600 V / 1000 V
Test voltage: 2,5 kV / 3,4 kV / 5 kV
Min. bending radius: 10 x diameter

Notes

→ ETFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ ETFE cores are also available in different cross sections and various conductor materials
→ For ETFE cores with VDE-approval please refer to page 38-40 (VDE 0881) and page 41+43 (VDE ÜG)

cross section [mm²]	conductor construction [mm]	o.d. [mm] (min.-max.)			copper weight [kg/km]	weight approx. [kg/km]		
		250 V	600 V	1000 V		250 V	600 V	1000 V
0,051	1 x 0,254	-----	0,66 - 0,86	0,91 - 1,12	0,49	0,8	1,2	2,0
0,080	1 x 0,32	0,56 - 0,68	0,72 - 0,92	0,99 - 1,19	0,77	1,1	1,6	2,7
0,126	1 x 0,40	0,64 - 0,76	0,80 - 1,00	1,07 - 1,27	1,2	1,6	2,1	2,9
0,197	1 x 0,50	0,74 - 0,86	0,90 - 1,10	1,17 - 1,37	1,9	2,4	3,0	3,9
0,32	1 x 0,64	0,88 - 1,00	1,04 - 1,24	1,30 - 1,50	3,2	3,6	4,2	5,3
0,5	1 x 0,80	1,04 - 1,16	1,20 - 1,40	1,47 - 1,68	4,8	5,5	6,4	7,3
0,5	7 x 0,30	1,15 - 1,27	1,31 - 1,51	1,57 - 1,77	4,8	5,8	6,8	7,7
0,5	15 x 0,203	1,16 - 1,28	1,32 - 1,52	1,58 - 1,78	4,8	6,0	6,9	7,7
0,75	1 x 0,98	-----	1,38 - 1,58	1,65 - 1,91	7,2	-----	9,0	10
0,75	19 x 0,228	-----	1,49 - 1,69	1,75 - 1,95	7,2	-----	10	11
0,75	22 x 0,203	-----	1,50 - 1,70	1,76 - 1,96	7,2	-----	9,4	10
1	1 x 1,13	-----	1,53 - 1,73	1,79 - 1,99	9,6	-----	12	13
1	29 x 0,203	-----	1,68 - 1,88	1,94 - 2,14	9,6	-----	12	13
1,5	1 x 1,38	-----	1,88 - 2,08	2,08 - 2,28	14,4	-----	17	18
1,5	27 x 0,254	-----	2,04 - 2,24	2,30 - 2,50	14,4	-----	17	19
2,5	1 x 1,78	-----	2,28 - 2,48	2,58 - 2,78	24	-----	27	29
2,5	45 x 0,254	-----	2,45 - 2,65	2,85 - 3,05	24	-----	28	30
4	50 x 0,30	-----	2,95 - 3,15	3,50 - 3,70	38	-----	43	46
6	75 x 0,30	-----	3,65 - 3,85	4,15 - 4,45	58	-----	63	66
10	80 x 0,404	-----	5,50 - 5,70	5,80 - 6,10	96	-----	110	114
16	126 x 0,404	-----	6,60 - 6,80	7,00 - 7,30	154	-----	168	177
25	196 x 0,404	-----	8,30 - 8,60	8,60 - 8,90	240	-----	256	267
35	276 x 0,404	-----	9,50 - 9,90	9,90 - 10,30	336	-----	359	370





TE ETFE single core stranded, (AWG cross sections)

Construction

Conductor: Cu tp, sp, np acc. to MIL-W-16878
Insulation: ETFE 7Y to VDE 0207 part 6 + ASTM-D 3159
Colour: On request

Application

For wiring at high ambient temperatures

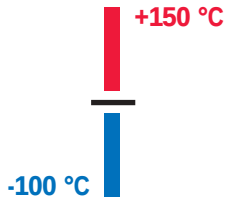
Technical data

Temperature range: - 100 °C up to + 150 °C, short-term + 180 °C
Rated voltage: ZT=250 V / Z=600 V / ZZ=1000 V
Test voltage: ZT=2,5 kV / Z=3,4 kV / ZZ=5 kV
Min. bending radius: 5 x diameter

Notes

→ ETFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ ETFE cores with metric conductor constructions see page 35
→ For ETFE cores with VDE-approval please refer to page 38-40 (VDE 0881) and page 41+43 (VDE 0250)

AWG	cross section [mm²]	conductor construction [mm]	o.d. [mm] (min.-max.)			conductor resistance at 20° C max. [Ω/km]			weight approx. [kg/km]		
			ZT	Z	ZZ	vz	vs	vn	ZT	Z	ZZ
32	0,034	7 x 0,079	0,508 - 0,610	0,660 - 0,864	0,914 - 1,117	620	567	607	0,8	1,1	1,8
30	0,057	7 x 0,102	0,559 - 0,660	0,711 - 0,914	0,965 - 1,168	374	330	363	0,9	1,6	2,1
28	0,089	7 x 0,127	0,635 - 0,737	0,787 - 0,991	1,041 - 1,245	225	209	223	1,3	1,8	2,4
26	0,141	7 x 0,160	0,737 - 0,838	0,889 - 1,092	1,143 - 1,346	142	133	141	1,9	2,4	3,4
26	0,155	19 x 0,102	0,737 - 0,838	0,889 - 1,092	1,143 - 1,346	135	126	138	2	2,5	3,5
24	0,227	7 x 0,203	0,864 - 0,965	1,016 - 1,219	1,270 - 1,473	88,6	82,7	86,9	2,8	3,4	4,4
24	0,241	19 x 0,127	0,864 - 0,965	1,016 - 1,219	1,270 - 1,473	85,9	79,7	84,9	3	3,6	4,6
22	0,355	7 x 0,254	1,016 - 1,118	1,168 - 1,372	1,422 - 1,626	56,1	52,1	54,4	4,3	4,9	6,2
22	0,382	19 x 0,160	1,016 - 1,118	1,168 - 1,372	1,422 - 1,626	53,1	49,5	52,5	4,5	5,2	6,4
20	0,563	7 x 0,320	1,219 - 1,321	1,372 - 1,575	1,626 - 1,829	35,1	32,8	34,1	6,4	7,2	8,2
20	0,616	19 x 0,203	1,219 - 1,321	1,372 - 1,575	1,626 - 1,829	32,4	30,1	32,0	7	7,8	8,8
18	0,897	7 x 0,404	-----	1,626 - 1,880	1,880 - 2,134	21,9	20,6	21,3	-----	11	12
18	0,963	19 x 0,254	-----	1,626 - 1,880	1,880 - 2,134	20,4	19,0	20,0	-----	12	13
16	1,229	19 x 0,287	-----	1,854 - 2,210	2,108 - 2,413	15,7	14,8	15,6	-----	14	15
14	1,941	19 x 0,361	-----	2,235 - 2,591	2,489 - 2,896	10,03	9,44	9,84	-----	22	24
12	3,085	19 x 0,455	-----	2,718 - 3,073	2,972 - 3,378	6,29	5,94	6,17	-----	34	35
10	4,743	37 x 0,404	-----	3,226 - 3,581	3,480 - 3,886	4,13	3,9	4,07	-----	50	52
8	8,604	133 x 0,287	-----	4,699 - 5,055	5,055 - 5,563	2,30	2,16	2,28	-----	91	98
6	13,613	133 x 0,361	-----	-----	6,426 - 6,934	1,45	1,37	1,43	-----	-----	152
4	21,153	133 x 0,450	-----	-----	8,865 - 9,373	0,918	0,865	0,902	-----	-----	260
2	33,696	665 x 0,254	-----	-----	10,033 - 10,541	0,600	0,557	0,580	-----	-----	356
1	41,398	817 x 0,254	-----	-----	12,065 - 12,573	0,488	0,455	0,472	-----	-----	465
0	52,951	1045 x 0,254	-----	-----	12,802 - 13,310	0,380	0,354	0,370	-----	-----	591
00	67,392	1330 x 0,254	-----	-----	14,046 - 14,656	0,298	0,278	0,291	-----	-----	762
000	106,865	2109 x 0,254	-----	-----	17,856 - 18,466	0,183	0,177	0,183	-----	-----	1215



ETFE single core according to MIL-W-22759, light weight + medium weight

TE
MIL-W-22759

Construction

Conductor: Cu tp acc. to MIL-W-22759
Insulation: ETFE 7Y to VDE 0207 part 6 + ASTM-D 3159
Colour: On request

Application

For wiring at high ambient temperatures and increased mechanical stress, e.g.
- lighting
- domestic appliances
- instrumention engineering
- mechanical engineering
- chemical industry
- traffic and automotive

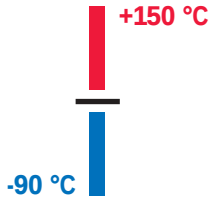
Technical data

Temperature range: - 100 °C up to + 150 °C
Rated voltage: 600 V
Test voltage: 3,4 kV
Min. bending radius: 5 x diameter

Notes

→ ETFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ ETFE cores with metric conductor constructions see page 35
→ For ETFE cores with VDE-approval please refer to page 38-40 (VDE 0881) and page 41+43 (VDE 0250)

AWG	cross section [mm²]	conductor construction [mm]	o.d. [mm] (min.-max.)		conductor resistance at 20° C max. [Ohm/km]	weight approx. [kg/km]	
			light weight	medium weight		light weight	medium weight
26	0,155	19 x 0,102	0,762 - 0,864	-----	135,5	2	-----
24	0,241	19 x 0,127	0,864 - 0,965	1,092 - 1,194	85,9	3	3,6
22	0,382	19 x 0,160	1,041 - 1,143	1,270 - 1,372	53,1	4,6	5,2
20	0,616	19 x 0,203	1,245 - 1,346	1,473 - 1,575	32,4	7	7,8
18	0,963	19 x 0,254	1,499 - 1,600	1,753 - 1,854	20,4	10,3	12
16	1,229	19 x 0,287	1,727 - 1,829	1,956 - 2,057	15,7	13,1	14
14	1,941	19 x 0,361	2,108 - 2,210	2,311 - 2,413	10,03	20,2	22
12	3,085	37 x 0,32	2,642 - 2,794	2,819 - 2,972	6,63	31,8	34
10	4,743	37 x 0,404	3,327 - 3,480	3,454 - 3,607	4,13	50,1	51
8	8,604	133 x 0,287	-----	4,978 - 5,131	2,30	-----	91
6	13,613	133 x 0,361	-----	6,274 - 6,426	1,45	-----	144
4	21,153	133 x 0,450	-----	7,823 - 8,026	0,918	-----	226
2	33,696	665 x 0,254	-----	9,754 - 9,957	0,600	-----	345
1	41,398	817 x 0,254	-----	10,820 - 11,074	0,488	-----	425
0	52,951	1045 x 0,254	-----	12,014 - 12,319	0,380	-----	559
00	67,392	1330 x 0,254	-----	13,691 - 14,046	0,298	-----	747



TE
Li7Y VDE 0881

ETFE single core to DIN VDE 0881, stranded

Construction

Conductor: Cu bare, tp, sp to VDE 0881
Insulation: ETFE 7Y to VDE 0207 part 6
Colour: On request

Application

For internal wiring of telecommunication devices, electronic modules in appliances and for wiring of telecommunication and data processing systems.

Technical data

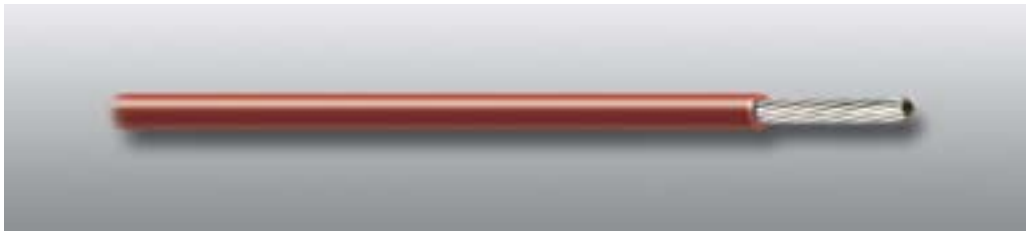
Temperature range: Fixed installation - 90 °C up to + 135 °C
Flexible installation - 55 °C up to + 135 °C

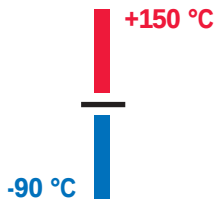
Rated voltage max. (Peak voltage): 375[1]) / 900[2]) / 1500[3]) V
Test voltage max. (r.m.s.): 1500[1]) / 2500[2]) / 3000[3]) V
Insulation resistance: min. 1500 MΩ x km at 20 °C

Notes

→ ETFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ Hook-up wires and strands according to this standard must not be used for high voltage installations

.../... = nominal conductor cross section in mm²/nominal core diameter in mm	nominal cross section/ coreØ [mm²]/[mm]	minimum number of wires x diameter [mm]	strandØ max. [mm]	nominal insulation wall thickness (minimum value) [mm]	coreØ		conductor resistance at 20° C max.		weight approx. [kg/km]
					min. [mm]	max. [mm]	1 core [Ω/km]	multicore [Ω/km]	
	x 0,035/0,55	7 x 0,08	0,27	0,15[1]) (0,12)	0,48	0,62	545	567	0,6
	x 0,055/0,6	7 x 0,10	0,33		0,54	0,68	349	363	0,9
	x 0,079/0,7	7 x 0,12	0,39		0,60	0,74	236	245	1,1
	x 0,12/0,8	7 x 0,15	0,48		0,69	0,83	151	157	1,6
	x 0,22/0,9	7 x 0,20	0,63		0,84	0,98	84,8	87,3	2,6
	x 0,34/1,1	7 x 0,25	0,78		0,99	1,13	54,3	55,9	3,9
	x 0,56/1,3	7 x 0,32	0,99		1,20	1,34	32,5	33,1	5,9
	x 0,035/0,75	7 x 0,08	0,27	0,25[2]) (0,20)	0,64	0,87	545	567	1,0
	x 0,055/0,8	7 x 0,10	0,33		0,70	0,93	349	363	1,3
	x 0,079/0,9	7 x 0,12	0,39		0,76	0,99	236	245	1,6
	x 0,12/1,0	7 x 0,15	0,48		0,85	1,08	151	157	2,1
	x 0,22/1,1	7 x 0,20	0,63		1,00	1,23	84,8	87,3	3,2
	x 0,34/1,3	7 x 0,25	0,78		1,15	1,38	54,3	55,9	4,5
	x 0,56/1,5	7 x 0,32	0,99		1,36	1,59	32,5	33,1	6,8
	x 0,93/1,8	19 x 0,25	1,30		1,65	1,90	20,0	20,4	11
	x 1,3/2,0	19 x 0,29	1,50		1,85	2,10	14,9	15,2	14
	x 1,9/2,3	19 x 0,36	1,85		2,20	2,45	9,46	9,65	20
	x 3,2/2,8	19 x 0,46	2,35		2,70	2,95	5,79	5,91	33
	x 0,12/1,3	7 x 0,15	0,48	0,40[3]) (0,30)	1,05	1,40	151	157	2,9
	x 0,22/1,4	7 x 0,20	0,63		1,20	1,55	84,8	87,3	4,0
	x 0,34/1,6	7 x 0,25	0,78		1,35	1,73	54,3	55,9	5,5
	x 0,56/1,8	7 x 0,32	0,99		1,56	1,94	32,5	33,1	8,0
	x 0,93/2,1	19 x 0,25	1,30		1,85	2,25	20,0	20,4	12
	x 1,3/2,3	19 x 0,29	1,50		2,05	2,45	14,9	15,2	16
	x 1,9/2,6	19 x 0,36	1,85		2,40	2,80	9,46	9,65	22
	x 3,2/3,1	19 x 0,46	2,35		2,90	3,30	5,79	5,91	35
	x 4,6/3,6	37 x 0,40	2,87		3,40	3,82	3,93	4,01	49
	x 8,8/5,2	133 x 0,29	4,50	0,60[3]) (0,45)	4,95	5,45	2,12	2,16	90
	x 13,5/6,2	133 x 0,36	5,55		6,00	6,50	1,35	1,38	135





ETFE single core to DIN VDE 0881, stranded, light weight

TE
Li7Y VDE 0881

Construction

Conductor: Cu tp to VDE 0881
Insulation: ETFE 7Y to VDE 0207 part 6
Colour: On request

Application

For internal wiring of telecommunication devices, electronic modules in appliances and for wiring of telecommunication and data processing systems.

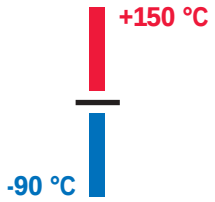
Technical data

Temperature range: Fixed installation - 90 °C up to + 135 °C, short-term + 150 °C
Flexible installation - 55 °C up to + 135 °C, short-term + 150 °C
Rated voltage max. (Peak voltage): 900 V
Test voltage max. (r.m.s.): 2500 V
Insulation resistance: see table below

Notes

→ ETFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ Hook-up wires and strands according to this standard must not be used for high voltage installations

	nominal cross section/ coreØ [mm²]/[mm]	minimum number of wires x diameter [mm]	strandØ max. [mm]	nominal insulation wall thickness (minimum value) [mm]	coreØ		conductor resistance at 20° C max.		insulation resistance at 20° C min. [MΩ · Km]	weight approx. [kg/km]
					min. [mm]	max. [mm]	1 core [Ω/km]	multicore [Ω/km]		
.../..= nominal conductor cross section in mm²/ nominal core diameter in mm	x 0,15/0,8	19 x 0,10	0,51	0,16 (0,13)	0,76	0,86	135	139	1500	1,9
	x 0,22/0,9	19 x 0,12	0,61		0,86	0,97	86,0	88,5		2,6
	x 0,36/1,1	19 x 0,15	0,79		1,04	1,14	53,2	54,7		3,8
	x 0,59/1,3	19 x 0,20	0,99	0,17 (0,13)	1,24	1,35	32,4	33,1		6,3
	x 0,93/1,55	19 x 0,25	1,25		1,50	1,60	20,4	20,8	900	9,5
	x 1,3/1,8	19 x 0,29	1,40	0,21 (0,17)	1,73	1,83	15,8	16,1		13
	x 1,9/2,15	19 x 0,36	1,75	0,23 (0,18)	2,11	2,21	10,0	10,2		19
	x 2,8/2,7	37 x 0,31	2,26	0,26 (0,19)	2,64	2,79	6,63	6,76	600	29
	x 4,6/3,4	37 x 0,40	2,84	0,32 (0,25)	3,33	3,48	4,13	4,22		47



TE
7Y VDE 0881

ETFE single core to DIN VDE 0881, solid

Construction

Conductor: Cu bare, tp, sp, solid to VDE 0881
Insulation: ETFE 7Y to VDE 0207 part 6
Colour: On request

Application

For internal wiring of telecommunication devices, electronic modules in appliances and for wiring of telecommunication and data processing systems.

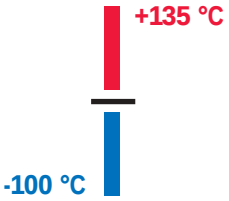
Technical data

Temperature range: Fixed installation - 90 °C up to + 135 °C, short-term + 150 °C
Flexible installation - 55 °C up to + 135 °C, short-term + 150 °C
Rated voltage max: 375[1]) / 900[2]) V
(Peak voltage)
Test voltage max: 1500[1]) / 2500[2]) V
(r.m.s.)
Insulation resistance: min. 1500 MΩ x km at 20 °C

Notes

→ ETFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ Hook-up wires and strands according to this standard must not be used for high voltage installations

	nominal diameter conductor/core [mm]	nominal insulation wall thickness (minimum value) [mm]	coreØ		conductor resistance at 20° C max.		weight approx. [kg/km]
			min. [mm]	max. [mm]	1 core [Ω/km]	multicore [Ω/km]	
.../... = nominal conductor diameter in mm/ nominal core diameter in mm	x 0,25/0,55	0,15[1]) (0,12)	0,49	0,61	369	384	0,8
	x 0,32/0,6		0,56	0,68	221	230	1,1
	x 0,4/0,7		0,64	0,76	141	146	1,5
	x 0,5/0,8		0,74	0,86	90,4	93,1	2,3
	x 0,63/0,95		0,87	0,99	57,0	58,7	3,4
	x 0,8/1,1		1,04	1,17	35,3	36,0	5,2
	x 0,25/0,75	0,25[2]) (0,20)	0,65	0,85	369	384	1,1
	x 0,32/0,8		0,72	0,92	221	230	1,5
	x 0,4/0,9		0,80	1,00	141	146	2,0
	x 0,5/1,0		0,90	1,10	90,4	93,1	2,7
	x 0,63/1,2		1,03	1,23	57,0	58,7	3,9
	x 0,8/1,3		1,20	1,40	35,3	36,0	5,8
	x 1,0/1,5		1,40	1,60	22,6	23,1	8,6
	x 1,3/1,8		1,70	1,90	13,4	13,6	14
	x 1,6/2,1		2,00	2,23	8,83	9,01	20
	x 2,1/2,6		2,50	2,70	5,13	5,23	34



ETFE single core to VDE 0250 part 106, stranded

TE
N7YAF

Construction

Conductor:	Cu bare, tp sp, np, stranded, acc, to VDE 0295 class 5
Insulation:	ETFE 7Y to VDE 0207 part 6
Colour:	On request
Identification:	Print on insulation

Application

For internal wiring of power electronics, heating appliances and lighting at an ambient temperature exceeding 55°C.

Technical data

Temperature range:	- 100 °C up to + 135 °C
Rated voltage Uo/U:	450 V / 750 V
Test voltage:	2,5 kV

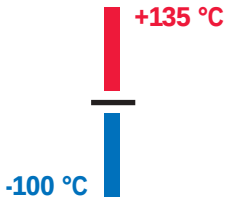
Note

→ ETFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties

VDE-type	cross section [mm²]	maximum Ø of single wire [mm]	nominal insulation wall thickness nominal value [mm]	o.d. min. - max. [mm]	insulation resistance at 20° C minimum value [MΩ x km]	copper weight [kg/km]	weight approx. [kg/km]
N7YAF	0,25	0,21	0,4	1,3 - 1,55	1,0	2,4	4,5
	0,5	0,21	0,4	1,6 - 1,85	1,0	4,8	7,3
	0,75	0,21	0,4	1,75 - 2,0	1,0	7,2	10
	1	0,21	0,4	1,95 - 2,2	1,0	9,6	13
	1,5	0,26	0,5	2,4 - 2,65	1,0	14,4	19
	2,5	0,26	0,6	3,1 - 3,35	1,0	24	31
	4	0,31	0,6	3,55 - 3,8	1,0	38	46
	6	0,31	0,6	4,1 - 4,4	1,0	58	64

NOTES

NOTES



ETFE single core to VDE 0250 part 106, solid

TE
N7YA

Construction

Conductor:	Cu bare, tp, sp, np, solid, acc. to VDE 0295 class 1
Insulation:	ETFE 7Y to VDE 0207 part 6
Colour:	On request
Identification:	Print on insulation

Application

For internal wiring of power electronics, heating appliances and lighting at an ambient temperature exceeding 55°C.

Technical data

Temperature range:	- 100 °C up to + 135 °C
Rated voltage Uo/U:	450 V / 750 V
Test voltage:	2,5 kV

Note

→ ETFE cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties

VDE-type	cross section [mm²]	conductorØ [mm]	nominal insulation wall thickness [mm]	o.d. min. - max. [mm]	insulation resistance at 20° C minimum value [MΩ x km]	copper weight [kg/km]	weight approx. [kg/km]
N7YA	0,25	1 x 0,56	0,4	1,25 - 1,45	1,0	2,4	4,4
	0,5	1 x 0,80	0,4	1,45 - 1,7	1,0	4,8	7,2
	0,75	1 x 0,98	0,4	1,65 - 1,9	1,0	7,2	9,8
	1	1 x 1,13	0,4	1,8 - 2,05	1,0	9,6	12
	1,5	1 x 1,38	0,5	2,25 - 2,5	1,0	14,4	18
	2,5	1 x 1,78	0,6	2,8 - 3,1	1,0	24	30
	4	1 x 2,26	0,6	3,3 - 3,6	1,0	38	44
	6	1 x 2,76	0,6	3,8 - 4,1	1,0	58	64

TE
UL file no. E 69837 (M)

ETFE single core with UL approval

Construction

Conductor:	Conductor construction and material according to table below
Insulation:	ETFE to UL standards 62 and 83
Colour:	On request
Identification:	Print or temperature marker (stripe)**

Application

For internal wiring of appliances taking into consideration corresponding style approvals

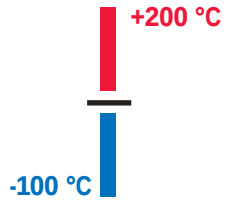
Technical data

Temperature range:	- 100 °C up to max. + 200 °C
Rated voltage:	30 - 600 V
Test voltage:	According to style approvals
Flame test:	FT1

Notes

→ Upon request also available in screened UL-approved construction
→ UL/CSA approved cables with additional insulation materials refer to page 143 onwards.

UL Style*	AWG*	average wall thickness [mm]	range*		conductor construction	
			temperature [°C]	voltage [Volt]	material	solid / stranded
1508	32 - 20	0,13	105	30	tpc, spc, npc, alloy sp	x x
1513	36 - 20	0,13	105	-----	tpc, spc, npc, alloy sp	x x
1516	36 - 20	0,1	105	-----	tpc, spc, npc, alloy sp	x x
1517	32 - 20	0,15	105	-----	tpc, spc, npc, alloy sp	x x
1523	32 - 20	0,13	105	-----	tpc, spc, npc, alloy sp	x x
1558	34 - 16	0,1	125	-----	tpc, spc, npc, alloy sp	x x
1586	36 - 20	0,14	105	-----	tpc, spc, npc, alloy sp	x x
	19 - 16	0,2	105	-----	tpc, spc, npc, alloy sp	x x
	15 - 10	0,33	105	-----	tpc, spc, npc, alloy sp	x x
	9 - 6	0,51	105	-----	tpc, spc, npc, alloy sp	x x
1609	36 - 20	0,14	105	125	bare copper, tpc, spc, npc, pure Ni, alloy sp	x x
	19 - 16	0,2	105	125	bare copper, tpc, spc, npc, pure Ni, alloy sp	x x
	15 - 10	0,33	105	125	bare copper, tpc, spc, npc, pure Ni, alloy sp	x x
	9 - 6	0,51	105	125	bare copper, tpc, spc, npc, pure Ni, alloy sp	x x
1610	32 - 10	0,25	105	-----	tpc, spc, npc, alloy sp	x x
1643	32 - 10	0,33	150	300*	tpc, spc, npc, alloy sp	x x
	9 - 2	0,51	150	300*	tpc, spc, npc, alloy sp	x x
	1 - 4/0	0,76	150	300*	tpc, spc, npc, alloy sp	x x
1644	30 - 10	0,51 (0,40)	150	600*	tpc, spc, npc, alloy sp	x x
	9 - 2	0,76 (0,69)	150	600*	tpc, spc, npc, alloy sp	x x
	1 - 4/0	0,15 (1,02)	150	600*	tpc, spc, npc, alloy sp	x x
1671	32 - 10	0,25	150	300	bare copper, tpc, spc, npc, alloy sp	x x
1814	36 - 20	0,15	150	150	bare copper, tpc, spc, npc, pure nickel	x x
1828	32 - 10	0,33	150	300	bare copper, tpc	x x



ETFE single core with UL approval

TE
UL file no. E 69837 (M)

UL Style*	AWG*	average wall thickness [mm]	range*		conductor construction		
			temperature [°C]	voltage [Volt]	material	solid / stranded	
1829	32 - 10	0,51	150	600	bare copper, tpc	x	x
10086	36 - 14	0,25	150	600	bare copper, tpc, spc, npc, pure nickel	x	x
	12 - 10	0,38	150	600	bare copper, tpc, spc, npc, pure nickel	x	x
	8 - 2	0,64	150	600	bare copper, tpc, spc, npc, pure nickel	x	x
	1 - 4/0	1,15	150	600	bare copper, tpc, spc, npc, pure nickel	x	x
10086	36 - 14	0,25	200	600	bare copper, tpc, spc, npc, pure nickel	x	x
	12 - 10	0,38	200	600	bare copper, tpc, spc, npc, pure nickel	x	x
	8 - 2	0,64	200	600	bare copper, tpc, spc, npc, pure nickel	x	x
	1 - 4/0	1,15	200	600	bare copper, tpc, spc, npc, pure nickel	x	x
10109	36 - 18	0,15	150	300	bare copper, tpc, spc, npc, pure nickel	x	x
	16 - 14	0,2	150	300	bare copper, tpc, spc, npc, pure nickel	x	x
	12 - 10	0,25	150	300	bare copper, tpc, spc, npc, pure nickel	x	x
	8 - 2	0,76	150	300	bare copper, tpc, spc, npc, pure nickel	x	x
	1 - 4/0	1,15	150	300	bare copper, tpc, spc, npc, pure nickel	x	x
10109	36 - 18	0,15	200	300	bare copper, tpc, spc, npc, pure nickel	x	x
	16 - 14	0,2	200	300	bare copper, tpc, spc, npc, pure nickel	x	x
	12 - 10	0,25	200	300	bare copper, tpc, spc, npc, pure nickel	x	x
	8 - 2	0,76	200	300	bare copper, tpc, spc, npc, pure nickel	x	x
	1 - 4/0	1,15	200	300	bare copper, tpc, spc, npc, pure nickel	x	x
10125	36 - 18	0,15	150	300	bare copper, tpc, spc, npc, pure nickel	x	x
	16 - 14	0,2	150	300	bare copper, tpc, spc, npc, pure nickel	x	x
	12 - 10	0,25	150	300	bare copper, tpc, spc, npc, pure nickel	x	x
	8 - 2	0,76	150	300	bare copper, tpc, spc, npc, pure nickel	x	x
	1 - 4/0	1,15	150	300	bare copper, tpc, spc, npc, pure nickel	x	x
10126	36 - 18	0,15	150	600	bare copper, tpc, spc, npc, pure nickel	x	x
	16 - 14	0,2	150	600	bare copper, tpc, spc, npc, pure nickel	x	x
	12 - 10	0,25	150	600	bare copper, tpc, spc, npc, pure nickel	x	x
	8 - 2	0,76	150	600	bare copper, tpc, spc, npc, pure nickel	x	x
	1-4/0	1,15	150	600	bare copper, tpc, spc, npc, pure nickel	x	x

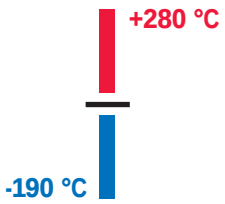
* pay attention to UL-Style specifications.

*** temperature identification stripe:

operating temperature [°C]	colour of identification stripe
80	blue
105	yellow
150	orange
200	black

If base colour is identical with temperature identification stripe a printing of °C is necessary.

If cross sections are < AWG 20 above mentioned identification is not necessary.



TE PFA single core solid and stranded, (metric cross sections)

Construction

Conductor: Cu bare, tp, sp, np, solid or stranded acc. to VDE 0295 or pure nickel
Insulation: PFA 51Y to ASTM-D 3307
Colour: On request

Application

For internal wiring at low and high ambient temperatures and/ or corrosive environments

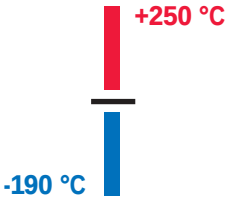
Technical data

Temperature range: - 190 °C up to + 260 °C, short-term + 280 °C
Rated voltage Uo/U: 250 V / 600 V / 1000 V
Test voltage: 2,5 kV / 3,4 kV / 5 kV
Min. bending radius: 10 x diameter

Notes

→ PFA cores offer exceptionally good chemical resistance as well as excellent electrical and mechanical properties
→ PFA cores are also available in different cross sections and various conductor materials

cross section [mm²]	conductor construction [mm]	o.d. [mm] (min.-max.)			copper weight [kg/km]	weight approx. [kg/km]		
		250 V	600 V	1000 V		250 V	600 V	1000 V
0,051	1 x 0,254	-----	0,66 - 0,86	0,91 - 1,12	0,49	1	1,4	2,3
0,080	1 x 0,32	0,56 - 0,68	0,72 - 0,92	0,99 - 1,19	0,77	1,4	2	2,9
0,126	1 x 0,40	0,64 - 0,76	0,80 - 1,10	1,07 - 1,27	1,2	1,8	2,7	3,5
0,197	1 x 0,50	0,74 - 0,86	0,90 - 1,10	1,17 - 1,37	1,9	2,7	3,7	4,6
0,32	1 x 0,64	0,88 - 1,00	1,04 - 1,24	1,30 - 1,50	3,2	4	4,8	6
0,5	1 x 0,80	1,04 - 1,16	1,20 - 1,40	1,47 - 1,68	4,8	6,1	7	8,4
0,5	7 x 0,30	1,15 - 1,27	1,31 - 1,51	1,57 - 1,77	4,8	6,4	7,4	8,6
0,5	15 x 0,20	1,16 - 1,28	1,32 - 1,52	1,58 - 1,78	4,8	6,3	7,6	8,8
0,75	1 x 0,98	-----	1,38 - 1,58	1,65 - 1,91	7,2	-----	9,3	11
0,75	19 x 0,228	-----	1,49 - 1,69	1,75 - 1,95	7,2	-----	11	12
0,75	22 x 0,20	-----	1,50 - 1,70	1,76 - 1,96	7,2	-----	10	12
1	1 x 1,13	-----	1,53 - 1,73	1,79 - 1,99	9,6	-----	13	14
1	29 x 0,20	-----	1,68 - 1,88	1,94 - 2,14	9,6	-----	13	15
1,5	1 x 1,38	-----	1,88 - 2,08	2,08 - 2,28	14	-----	18	19
1,5	27 x 0,25	-----	2,04 - 2,24	2,30 - 2,50	14	-----	18	20
2,5	1 x 1,78	-----	2,28 - 2,48	2,58 - 2,78	24	-----	29	31
2,5	45 x 0,25	-----	2,45 - 2,65	2,85 - 3,05	24	-----	30	32
4	50 x 0,30	-----	2,95 - 3,15	3,35 - 3,55	38	-----	45	48
6	75 x 0,30	-----	3,65 - 3,85	4,15 - 4,45	58	-----	66	69
10	80 x 0,404	-----	5,50 - 5,70	5,80 - 6,10	96	-----	116	120
16	126 x 0,404	-----	6,60 - 6,80	7,00 - 7,30	154	-----	176	181
25	196 x 0,404	-----	8,30 - 8,60	8,60 - 8,90	240	-----	272	286
35	276 x 0,404	-----	9,50 - 9,90	9,90 - 10,30	336	-----	375	398



PFA single core with UL approval

TE
UL file no. E 69837 (M)

Construction

Conductor:	Conductor construction and material according to table below
Insulation:	PFA to UL standards 62 and 83
Colour:	On request
Identification:	Print or temperature marker (stripe)**

Application

For internal wiring of appliances taking into consideration corresponding style approvals

Technical data

Temperature range:	- 190 °C up to max. + 250 °C
Rated voltage:	30 - 600 V
Test voltage:	According to style approvals
Flame test:	FT1

Notes

→ The itemized cables are also available in screened, UL approved constructions
→ UL/CSA approved cables with additional insulation materials refer to page 143 onwards.

UL Style*	AWG*	average wall thickness (min. wall thickness) [mm]	range *		conductor construction	
			temperature [°C]	voltage [Volt]	material	solid / stranded
1538	36 - 20	0,14 (0,13)	105	125	tpc, spc, npc, pure nickel, Cw sp	x x
	19 - 15	0,2 (0,18)	105	125	tpc, spc, npc, pure nickel, Cw sp	x x
	14 - 10	0,33 (0,3)	105	125	tpc, spc, npc, pure nickel, Cw sp	x x
	9 - 6	0,51 (0,46)	105	125	tpc, spc, npc, pure nickel, Cw sp	x x
1707	32 - 20	0,13 (0,1)	200	30	tpc, spc, npc, pure nickel	x x
1708	32 - 20	0,13 (0,1)	200	-----	tpc, spc, npc, pure nickel	x x
1709	32 - 10	0,33 (0,28)	200	300	bare copper, tpc, spc, npc, pure nickel	x x
1710	32 - 10	0,55 (0,51)	200	600	tpc, spc, npc, pure nickel	x x
	8 - 2	0,76 (0,7)	200	600	tpc, spc, npc, pure nickel	x x
	1 - 4/0	0,15 (1,1)	200	600	tpc, spc, npc, pure nickel	x x
1716	40 - 20	0,14 (0,13)	150	150	bare copper, spc, npc	x x
	19 - 16	0,2 (0,18)	150	150	bare copper, spc, npc	x x
	15 - 10	0,33 (0,3)	150	150	bare copper, spc, npc	x x
	9 - 6	0,51 (0,45)	150	150	bare copper, spc, npc	x x
1726	32 - 4/0	0,33 (0,3)	250	300	npc, pure nickel	x x
1727	32 - 10	0,51 (0,46)	250	600	npc, pure nickel	x x
	8 - 2	0,76 (0,69)	250	600	npc, pure nickel	x x
	1 - 4/0	1,14 (1)	250	600	npc, pure nickel	x x
1857	32 - 16	0,25 (0,23)	150	150	tpc, spc, npc	x x
1858	32 - 10	0,33 (0,28)	150	300	tpc, spc, npc	x x
1859	32 - 10	0,51 (0,46)	150	600	tpc, spc, npc	x x
	8 - 2	0,76 (0,69)	150	600	tpc, spc, npc	x x
	0 - 00	1,14 (1,02)	150	600	tpc, spc, npc	x x
1860	32 - 16	0,25 (0,23)	200	150	tpc, spc, npc	x x
1882	36 - 16	0,25 (0,23)	250	150	npc, pure nickel	x x

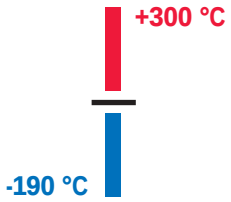
* pay attention to UL-Style specifications.

*** temperature identification stripe:

operating temperature [°C]	colour of identification stripe
80	blue
105	yellow
150	orange
200	black
250	2 x black or printing max. 250 °C

If base colour is identical with temperature identification stripe a printing of °C is necessary.

If cross sections are < AWG 20 above mentioned identification is not necessary.



TEHTE — Fluoropolymer insulated multicore cable

Construction

Conductor:	Cu bare, tp, sp, np, acc. to VDE 0295 or pure nickel
Core insulation:	PTFE, FEP, ETFE to VDE 0207 part 6
Colour:	On request
Twisting:	In layers
Sheath:	PTFE, FEP, ETFE to VDE 0207 part 6
Colour:	On request

Application

Industrial areas with high temperature and increased mechanical stress, e.g.
- instrumentation engineering
- mechanical engineering
- chemical industry
- traffic- and automotive
- lighting industry

Technical data

Temperature range:	(When using corresponding conductor materials)*
	PTFE - 190 °C up to + 260 °C, short-term + 300 °C
	FEP - 100 °C up to + 205 °C, short-term + 230 °C
	ETFE - 100 °C up to + 150 °C, short-term + 180 °C
Rated voltage:	600 V
Test voltage:	2000 V
Min. bending radius:	10 x diameter

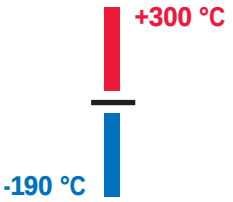
Notes

→ Fluoropolymer insulated multicore cables are also available in different metric and AWG cross sections as well as with various conductor materials

→ On request the itemized cables are also available with UL-approvals

number of cores x cross section [mm²]	maximum Ø of single wire [mm]	maximum strandØ [mm]	coreØ [mm] ± 5 %	o.d. [mm] ± 5 %	weight approx. [kg/km]
2 x 0,75	0,21	1,16	1,7	4,5	31
3 x 0,75	0,21	1,16	1,7	4,8	42
4 x 0,75	0,21	1,16	1,7	5,1	58
5 x 0,75	0,21	1,16	1,7	5,8	75
7 x 0,75	0,21	1,16	1,7	6,1	92
2 x 1	0,21	1,35	1,9	4,9	38
3 x 1	0,21	1,35	1,9	5,2	54
4 x 1	0,21	1,35	1,9	5,7	70
5 x 1	0,21	1,35	1,9	6,1	88
7 x 1	0,21	1,35	1,9	6,9	119
2 x 1,5	0,26	1,61	2,1	5,4	53
3 x 1,5	0,26	1,61	2,1	5,8	72
4 x 1,5	0,26	1,61	2,1	6,3	91
5 x 1,5	0,26	1,61	2,1	7,1	117
7 x 1,5	0,26	1,61	2,1	7,8	154
2 x 2,5	0,26	2,11	2,7	6,5	88
3 x 2,5	0,26	2,11	2,7	7,2	114
4 x 2,5	0,26	2,11	2,7	7,8	147
5 x 2,5	0,26	2,11	2,7	8,6	180
7 x 2,5	0,26	2,11	2,7	9,7	243

* temperature range for conductor materials:
- bare copper + 130 °C
- tpc + 180 °C
- spc + 200 °C
- npc + 300 °C
- pure nickel + 600 °C



Fluoropolymer insulated cable with copper screen — TEHCTE

Construction

Conductor:	Cu bare, tp, sp, np, pure nickel, stranded, 7 or 19 wires
Core insulation:	PTFE, FEP, ETFE to VDE 0207 part 6
Colour:	On request
Twisting:	In layers
Wrapping:	1 layer separator foil
Screen:	Braid, cu bare, tp, sp, np, approx. 85% coverage
Sheath:	PTFE, FEP, ETFE to VDE 0207 part 6
Colour:	On request

Application

In industrial areas with high temperature and increased mechanical stress, e.g.
- instrumentation engineering
- mechanical engineering
- chemical industry
- traffic and automotive
- lighting industry

Technical data

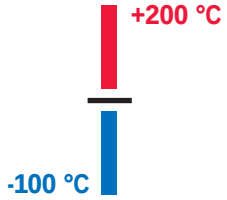
Temperature range:	(When using corresponding conductor and screen materials)* PTFE - 190 °C up to + 260 °C, short-term + 300 °C FEP - 100 °C up to + 205 °C, short-term + 230 °C ETFE - 100 °C up to + 150 °C, short-term + 180 °C
Voltage rating:	600 V
Test voltage:	Core/core 2000 V, Core/screen 1500 V
Min. bending radius:	15 x diameter

Notes

→ Due to the copper screen electromagnetic interference is greatly reduced.
→ Fluoropolymer insulated cables with copper screen are also available in different metric and AWG cross sections as well as with various conductor materials
→ On request the itemized cables are also available with UL-approvals

number of cores x cross section [mm²]	maximum strandØ [mm]	coreØ [mm] ± 5 %	o.d. [mm] ± 5 %	weight approx. [kg/km]
2 x AWG 26	0,54	1,06	3,6	25
3 x AWG 26	0,54	1,06	3,8	30
4 x AWG 26	0,54	1,06	3,9	35
5 x AWG 26	0,54	1,06	4,4	44
6 x AWG 26	0,54	1,06	4,9	51
7 x AWG 26	0,54	1,06	4,9	54
2 x AWG 24	0,64	1,12	3,8	30
3 x AWG 24	0,64	1,12	4,0	35
4 x AWG 24	0,64	1,12	4,2	39
5 x AWG 24	0,64	1,12	4,8	51
6 x AWG 24	0,64	1,12	5,0	55
7 x AWG 24	0,64	1,12	5,0	63
2 x AWG 22	0,79	1,27	4,1	36
3 x AWG 22	0,79	1,27	4,3	44
4 x AWG 22	0,79	1,27	4,9	54
5 x AWG 22	0,79	1,27	5,3	64
6 x AWG 22	0,79	1,27	5,7	72
7 x AWG 22	0,79	1,27	5,7	78
2 x AWG 20	1,02	1,47	4,5	44
3 x AWG 20	1,02	1,47	4,9	56
4 x AWG 20	1,02	1,47	5,4	74
5 x AWG 20	1,02	1,47	5,8	84
6 x AWG 20	1,02	1,47	6,3	98
7 x AWG 20	1,02	1,47	6,3	107

* temperature range for conductor and screen materials
- bare copper + 130° C
- tpc + 180 °C
- spc + 200 °C
- npc + 300 °C
- pure nickel + 600 °C



TEHGLP/TEHGLC — Fluoropolymer insulated cable

to Germanischer Lloyd 63713-73 HH

Construction

Conductor:	Cu bare, tp, sp, np, acc. to VDE 0295 class 5
Core insulation:	PTFE or FEP to VDE 0207 part 6
Colour:	On request
Twisting:	In layers with glass fibre filler(s)
Braiding:	Impregnated glass fibre yarn
Braiding:	Choice of galvanized steel wire, tpc , npc, stainless steel (V4A)

Application

In industrial areas with high temperature and increased mechanical stress, e.g.

- shipbuilding industry
- motor- and turbine engineering
- mechanical engineering

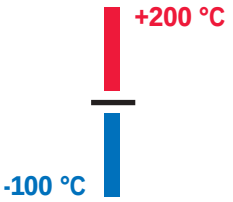
Technical data

Temperature range:	- 100 °C up to + 130 °C, conductor material copper bare - 100 °C up to + 180 °C, conductor material tpc - 100 °C up to + 200 °C, conductor material spc and npc
Rated voltage:	300/500 V
Test voltage:	Core/core 2000 V, Core/braid 1500 V
Min. bending radius:	15 x diameter

Note

→ On request, we also deliver GL-cables with different cross sections.

number of cores x cross section [mm²]	maximum single wire∅ [mm]	maximum strand∅ [mm]	core∅ [mm] ± 5 %	o.d. [mm] ± 5 %	weight approx. [kg/km]
2 x 0,75	0,21	1,16	1,7	4,9	49
3 x 0,75	0,21	1,16	1,7	5,1	69
5 x 0,75	0,21	1,16	1,7	6,1	94
2 x 1	0,21	1,35	1,9	5,2	61
3 x 1	0,21	1,35	1,9	5,5	82
4 x 1	0,21	1,35	1,9	6	94
2 x 1,5	0,26	1,61	2,1	5,7	84
3 x 1,5	0,26	1,61	2,1	6,1	100
4 x 1,5	0,26	1,61	2,1	6,6	118
5 x 1,5	0,26	1,61	2,1	7,3	142
7 x 1,5	0,26	1,61	2,1	8	172
12 x 1,5	0,26	1,61	2,1	10,5	278
2 x 2,5	0,26	2,11	2,7	6,8	105
3 x 2,5	0,26	2,11	2,7	7,2	140
4 x 2,5	0,26	2,11	2,7	8	174
5 x 2,5	0,26	2,11	2,7	8,7	214
7 x 2,5	0,26	2,11	2,7	9,5	261
2 x 4	0,31	2,58	3,4	8,3	158
3 x 4	0,31	2,58	3,4	9	206
4 x 4	0,31	2,58	3,4	9,9	255
5 x 4	0,31	2,58	3,4	10,8	331
2 x 6	0,31	3,22	4,1	9,7	198
3 x 6	0,31	3,22	4,1	10,4	272
4 x 6	0,31	3,22	4,1	11,7	336
2 x 10	0,41	4,78	5,7	13,2	287
3 x 10	0,41	4,78	5,7	14,1	394
4 x 10	0,41	4,78	5,7	15,6	502



Fluoropolymer insulated cable
to Germanischer Lloyd 73 340-77 HH

TEHTEPTE/TEHTECTE

Construction

Conductor:	Cu bare, tp, sp, np, acc. to VDE 0295 class 5
Core insulation:	PTFE or FEP to VDE 0207 part 6
Colour:	On request
Twisting:	In layers
Inner sheath:	FEP to VDE 0207 part 6
Braiding:	Choice of galvanized steel wire, tpc, npc, stainless steel (V4A)
Sheath:	FEP to VDE 0207 part 6
Sheath colour:	On request

Application

In industrial areas with high temperature and increased mechanical stress, e.g.
- shipbuilding industry
- motor- and turbine engineering
- mechanical engineering

Technical data

Temperature range:	- 100 °C up to + 130 °C, conductor material copper bare - 100 °C up to + 180 °C, conductor material tpc - 100 °C up to + 200 °C, conductor material spc and npc
Voltage rating:	300/500 V
Test voltage:	Core/core 2000 V, Core/braid 1500 V
Min. bending radius:	15 x diameter

Note

→ On request, we also deliver GL-cables with different cross sections

number of cores x cross section [mm²]	maximum single wire∅ [mm]	maximum strand∅ [mm]	core∅ [mm] ± 5 %	o.d. [mm] ± 5 %	weight approx. [kg/km]
2 x 0,75	0,21	1,16	1,7	6,3	71
3 x 0,75	0,21	1,16	1,7	6,6	88
5 x 0,75	0,21	1,16	1,7	7,3	132
2 x 1	0,21	1,35	1,9	6,5	87
3 x 1	0,21	1,35	1,9	6,8	119
4 x 1	0,21	1,35	1,9	7,3	130
2 x 1,5	0,26	1,61	2,1	7,1	99
3 x 1,5	0,26	1,61	2,1	7,4	122
4 x 1,5	0,26	1,61	2,1	8,0	141
5 x 1,5	0,26	1,61	2,1	8,6	172
7 x 1,5	0,26	1,61	2,1	9,3	215
12 x 1,5	0,26	1,61	2,1	11,8	394
2 x 2,5	0,26	2,11	2,7	8,3	149
3 x 2,5	0,26	2,11	2,7	8,7	196
4 x 2,5	0,26	2,11	2,7	9,4	245
5 x 2,5	0,26	2,11	2,7	10,3	302
7 x 2,5	0,26	2,11	2,7	11,1	366
2 x 4	0,31	2,58	3,4	10,0	221
3 x 4	0,31	2,58	3,4	10,5	288
4 x 4	0,31	2,58	3,4	11,4	357
5 x 4	0,31	2,58	3,4	12,4	462
2 x 6	0,31	3,22	4,1	12,5	276
3 x 6	0,31	3,22	4,1	13,2	381
4 x 6	0,31	3,22	4,1	14,3	470
2 x 10	0,41	4,78	5,7	15,3	398
3 x 10	0,41	4,78	5,7	16,2	550
4 x 10	0,41	4,78	5,7	17,7	698