

Product range

custom design cable solutions

ITC Thermo Cable GmbH®



www.itc-thermo-cable.de

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FEP 6Y

Hook-up wire metric size

Referring to VDE 0881

conductor and temperature range from – 100 ° C		
bare-copper up to + 130 °C	tin-plated-copper up to + 180 °C	silver-plated-copper up to + 200 °C only in AWG size available

working voltage / test voltage		
250 V / 2,50 kV	600 V / 3,40 kV	1.000 V / 5,00 kV

cross-section mm ²	stranding mm	250 V outer Ø / mm	600 V outer Ø / mm	1.000 V outer Ø / mm	Copper weight kg / km
0,14	18 x 0,10	0,74 – 0,84	0,89 – 1,09	1,14 – 1,35	1,40
0,25	14 x 0,15	0,90 – 1,00	1,08 – 1,28	1,30 – 1,50	2,50
0,50	16 x 0,20	1,20 – 1,30	1,35 – 1,55	1,60 – 1,80	4,80
0,75	24 x 0,20	•	1,60 – 1,85	1,85 – 2,05	7,20
1,00	32 x 0,20	•	1,65 – 1,90	1,95 – 2,27	9,80
1,50	30 x 0,25	•	2,00 – 2,35	2,25 – 2,55	14,40
2,50	50 x 0,25	•	2,50 – 2,85	2,75 – 3,15	24,00
4,00	56 x 0,30	•	3,15 – 3,45	3,40 – 3,85	38,00
6,00	84 x 0,30	•	3,95 – 4,25	4,15 – 4,45	58,00
10,00	80 x 0,40	•	5,50 – 5,80	5,80 – 6,10	96,00
16,00	126 x 0,40	•	6,50 – 6,80	6,80 – 7,10	154,00
25,00	196 x 0,40	•	8,30 – 8,60	8,60 – 8,90	240,00
35,00	276 x 0,40	•	9,50 – 9,90	9,90 – 10,30	336,00
50,00	399 x 0,40	•	•	12,00 – 12,40	480,00

At different stranding other outer diameters values may result in.
Minimum bending radius 5 times outer diameter.

FEP hook-up wires are characterized by

- high thermal resistance
- excellent resistance to acids, oils and chemicals
- excellent ozone and weather resistance

PTFE 5Y / PFA 51Y

Hook-up wire metric size

Referring to VDE 0881

insulation	conductor quality	temperature range	
PTFE / PFA	nickel-plated-copper pure-nickel	PTFE - 190 °C up to + 260 °C	PFA - 100 °C up to + 250 °C

working voltage / test voltage		
250 V / 2,50 kV	600 V / 3,40 kV	1.000 V / 5,00 kV

cross-section mm ²	stranding mm	250 V outer Ø / mm	600 V outer Ø / mm	1.000 V outer Ø / mm	copper weight kg / km
0,25	19 x 0,127	0,86 – 0,97	1,02 – 1,22	1,27 – 1,47	2,50
0,50	19 x 0,185	1,20 – 1,30	1,35 – 1,55	1,60 – 1,80	4,80
0,75	19 x 0,225	•	1,60 – 1,85	1,85 – 2,05	7,20
1,00	19 x 0,254	•	1,63 – 1,88	1,88 – 2,13	9,80
1,50	37 x 0,225	•	2,00 – 2,25	2,30 – 2,50	14,40
2,50	50 x 0,25	•	2,50 – 2,80	2,85 – 3,05	24,00
4,00	61 x 0,29	•	3,15 – 3,45	3,40 – 3,85	38,00
6,00	84 x 0,30	•	3,95 – 4,25	4,15 – 4,45	58,00
10,00	80 x 0,40	•	5,50 – 5,80	5,80 – 6,10	96,00
16,00	133 x 0,395	•	6,50 – 6,80	6,80 – 7,10	154,00
25,00	200 x 0,40	•	8,30 – 8,60	8,60 – 8,90	240,00
35,00	280 x 0,40	•	9,50 – 9,90	9,90 – 10,30	336,00

With additional glass-yarn braid the temperature range for PTFE can be increased to + 300 ° C.

At different stranding other outer diameters values may result in. Bending radius 5 times outer diameter.

PTFE and PFA hook-up wires are characterized by

- very high thermal resistance
- excellent resistance to acids, oils and chemicals
- excellent ozone and weather resistance

PTFE 5Y / FEP 6Y

Hook-up wire AWG size

Referring to MIL-W-16878D / NEMA HP3 / NEMA HP4

insulation	referring to	working voltage	test voltage	temperature range silver-plated-copper	temperature range nickel-plated-copper
PTFE	MIL-W-16878/6	250 V / ET	2,50 kV	- 190 °C up to + 205 °C	- 190 °C up to + 260 °C
	MIL-W-16878/4	600 V / E	3,40 kV	- 190 °C up to + 205 °C	- 190 °C up to + 260 °C
	MIL-W-16878/5	1.000 V / EE	5,00 kV	- 190 °C up to + 205 °C	- 190 °C up to + 260 °C
insulation	referring to	working voltage	test voltage	temperature range tin-plated-copper	temperature range silver-plated-copper
FEP	MIL-W-16878/13	250 V / KT	2,50 kV	- 100 °C up to + 180 °C	- 100 °C up to + 200 °C
	MIL-W-16878/11	600 V / K	3,40 kV	- 100 °C up to + 180 °C	- 100 °C up to + 200 °C
	MIL-W-16878/12	1.000 V / KK	5,00 kV	- 100 °C up to + 180 °C	- 100 °C up to + 200 °C

AWG	cross section mm ²	stranding mm	250 V ET / KT outer Ø / mm	600 V E / K outer Ø / mm	1.000 V EE / KK outer Ø / mm	copper weight kg / km
36	0,014	7 x 0,051	0,33 – 0,48	0,56 – 0,71	•	•
34	0,022	7 x 0,064	0,38 – 0,53	0,61 – 0,81	•	•
32	0,034	7 x 0,079	0,48 – 0,58	0,64 – 0,84	0,89 – 1,09	0,40
30	0,057	7 x 0,102	0,56 – 0,66	0,71 – 0,91	0,97 – 1,17	0,60
28	0,089	7 x 0,127	0,64 – 0,74	0,79 – 0,99	1,04 – 1,25	0,90
26	0,141	7 x 0,160	0,74 – 0,84	0,89 – 1,09	1,14 – 1,35	1,40
26	0,155	19 x 0,102	0,74 – 0,84	0,89 – 1,09	1,14 – 1,35	1,50
24	0,227	7 x 0,203	0,86 – 0,97	1,02 – 1,22	1,27 – 1,47	2,30
24	0,241	19 x 0,127	0,86 – 0,97	1,02 – 1,22	1,27 – 1,47	2,50
22	0,355	7 x 0,254	1,02 – 1,12	1,17 – 1,37	1,42 – 1,63	3,40
22	0,382	19 x 0,160	1,02 – 1,12	1,17 – 1,37	1,42 – 1,63	3,80
20	0,563	7 x 0,320	1,22 – 1,32	1,37 – 1,58	1,63 – 1,83	5,40
20	0,616	19 x 0,203	1,22 – 1,32	1,37 – 1,58	1,63 – 1,83	5,90
18	0,897	7 x 0,404	•	1,63 – 1,88	1,88 – 2,13	8,60
18	0,963	19 x 0,254	•	1,63 – 1,88	1,88 – 2,13	9,80
16	1,229	19 x 0,287	•	1,85 – 2,21	2,11 – 2,41	11,80
14	1,941	19 x 0,361	•	2,21 – 2,66	2,46 – 2,87	18,70
12	3,085	19 x 0,455	•	2,69 – 3,05	2,95 – 3,35	29,60
10	4,743	37 x 0,404	•	3,23 – 3,58	3,58 – 3,89	45,60
8	8,604	133 x 0,287	•	•	5,00 – 5,51	82,80
6	13,589	133 x 0,361	•	•	7,19 – 7,67	131,00

PTFE 5Y / FEP 6Y

Hook-up wire AWG size solid conductor

Referring to MIL-W-16878D

insulation	referring to	working voltage	test voltage	temperature range silver-plated-copper	temperature range nickel-plated-copper
PTFE	MIL-W-16878/6	250 V / ET	2,50 kV	- 190 °C up to + 205 °C	- 190 °C up to + 260 °C
	MIL-W-16878/4	600 V / E	3,40 kV	- 190 °C up to + 205 °C	- 190 °C up to + 260 °C
	MIL-W-16878/5	1.000 V / EE	5,00 kV	- 190 °C up to + 205 °C	- 190 °C up to + 260 °C
insulation	referring to	working voltage	test voltage	temperature range tin-plated-copper	temperature range silver-plated-copper
FEP	MIL-W-16878/13	250 V / KT	2,50 kV	- 100 °C up to + 180 °C	- 100 °C up to + 200 °C
	MIL-W-16878/11	600 V / K	3,40 kV	- 100 °C up to + 180 °C	- 100 °C up to + 200 °C
	MIL-W-16878/12	1.000 V / KK	5,00 kV	- 100 °C up to + 180 °C	- 100 °C up to + 200 °C

AWG	cross section mm ²	stranding mm	250 V ET / KT outer Ø / mm	600 V E / K outer Ø / mm	1.000 V EE / KK outer Ø / mm	copper weight kg / km
38	0,008	1 x 0,102	0,31 – 0,46	•	•	•
36	0,013	1 x 0,127	0,33 – 0,48	•	•	•
34	0,018	1 x 0,152	0,36 – 0,51	•	•	•
32	0,032	1 x 0,203	0,41 – 0,56	0,61 – 0,81	0,86 – 0,99	0,31
30	0,050	1 x 0,254	0,46 – 0,61	0,66 – 0,86	0,91 – 1,04	0,50
28	0,080	1 x 0,320	0,53 – 0,69	0,74 – 0,94	0,99 – 1,18	0,80
26	0,130	1 x 0,404	0,61 – 0,76	0,81 – 1,02	1,07 – 1,27	1,30
24	0,200	1 x 0,511	0,71 – 0,89	0,91 – 1,12	1,17 – 1,37	2,00
22	0,330	1 x 0,643	0,90 – 1,10	1,06 – 1,24	1,30 – 1,50	3,20
20	0,520	1 x 0,813	1,08 – 1,28	1,22 – 1,42	1,47 – 1,60	5,00
18	0,800	1 x 1,024	•	1,45 – 1,65	1,70 – 1,90	7,90

Alternatively we can offer this design also with PFA insulation.
Bending radius 5 times outer diameter.

PTFE and FEP hook-up wires and solid wires are characterized by

- very high thermal resistance
- excellent resistance to acids, oils and chemicals
- excellent ozone and weather resistance

ETFE 7Y

Hook-up wire AWG size

Referring to MIL-W-22759/16-19

referring to	conductor quality	temperature range	working voltage
MIL-W-22759/16	tin-plated-copper	- 100 °C up to + 150 °C	600 V
MIL-W-22759/17	silver-plated-copper	- 100 °C up to + 150 °C	600 V
MIL-W-22759/18	tin-plated-copper	- 100 °C up to + 150 °C	250 V
MIL-W-22759/19	silver-plated-copper	- 100 °C up to + 150 °C	250 V

working- and test voltage	
250 V / 2,50 kV	600 V / 3,40 kV

AWG	cross section mm ²	stranding mm	MIL-W-22759/16 + 17 medium weight outer Ø / mm	MIL-W-22759/18+19 light weight outer Ø / mm	copper weight kg / km
32	0,034	7 x 0,079	0,69 – 0,79	0,43 – 0,53	0,40
30	0,057	7 x 0,102	0,76 – 0,86	0,51 – 0,61	0,60
28	0,089	7 x 0,127	0,84 – 0,94	0,58 – 0,69	0,90
26	0,141	7 x 0,160	0,96 – 1,06	0,76 – 0,86	1,40
26	0,155	19 x 0,102	0,96 – 1,06	0,76 – 0,86	1,50
24	0,227	7 x 0,203	1,09 – 1,19	0,86 – 0,97	2,30
24	0,241	19 x 0,127	1,09 – 1,19	0,86 – 0,97	2,50
22	0,355	7 x 0,254	1,27 – 1,37	1,04 – 1,14	3,40
22	0,382	19 x 0,160	1,27 – 1,37	1,04 – 1,14	3,80
20	0,563	7 x 0,320	1,47 – 1,57	1,25 – 1,35	5,40
20	0,616	19 x 0,203	1,47 – 1,57	1,25 – 1,35	5,90
18	0,897	7 x 0,404	1,75 – 1,85	1,50 – 1,60	8,60
18	0,963	19 x 0,254	1,75 – 1,85	1,50 – 1,60	9,80
16	1,229	19 x 0,287	1,96 – 2,06	1,73 – 1,83	11,80
14	1,941	19 x 0,361	2,31 – 2,41	2,10 – 2,21	18,70
12	3,085	19 x 0,455	2,82 – 2,97	2,64 – 2,79	29,60
10	4,743	37 x 0,404	3,45 – 3,61	3,33 – 3,48	45,60
8	8,604	133 x 0,287	4,98 – 5,13	•	82,80
6	13,589	133 x 0,361	6,27 – 6,43	•	131,00

Bending radius 5 times outer diameter.

ETFE 7Y

Hook-up wire AWG size solid conductor

Referring to MIL-W-81822/13

referring to	conductor quality	temperature range
MIL-W-81822/13	tin-plated-copper	- 100 °C up to + 150 °C
MIL-W-81822/13	silver-plated-copper	- 100 °C up to + 150 °C

working- and test voltage	
250 V / 2,50 kV	600 V / 3,40 kV

AWG	cross section mm ²	solid conductor Ø / mm	600 V outer Ø / mm	300 V outer Ø / mm	Cu-weight kg / km
32	0,032	1 x 0,203	0,66 – 0,76	0,43 – 0,48	0,31
30	0,050	1 x 0,254	0,71 – 0,81	0,47 – 0,52	0,50
28	0,080	1 x 0,320	0,78 – 0,88	0,64 – 0,71	0,80
26	0,130	1 x 0,404	0,86 – 0,97	0,71 – 0,79	1,30
24	0,200	1 x 0,511	0,97 – 1,07	0,83 – 0,90	2,00
22	0,330	1 x 0,643	1,09 – 1,19	0,94 – 1,04	3,20
20	0,520	1 x 0,813	1,27 – 1,37	1,12 – 1,22	5,00
18	0,800	1 x 1,024	1,47 – 1,57	1,30 – 1,45	7,90

Bending radius 5 times outer diameter

ETFE hook-up wires are characterized by

- very high thermal resistance
- very good mechanical strength
- excellent resistance to acids, oils and chemicals
- excellent ozone and weather resistance

Polyimide 8Y

Hook-up wire AWG size

conductor quality	temperature range
bare-copper	- 100 °C up to + 130 °C
tin-plated-copper	- 100 °C up to + 180 °C
silver-plated-copper	- 100 °C up to + 200 °C
nickel-plated-copper	- 100 °C up to + 200 °C

working- test voltage		
250 V / 2,50 kV	600 V / 3,40 kV	1.000 V / 5,00 kV

AWG	cross section mm ²	stranding mm	250 V outer Ø / mm	600V outer Ø / mm	1.000 V outer Ø / mm	copper weight kg / km
32	0,034	7 x 0,080	0,33 – 0,39	0,45 – 0,51	0,54 – 0,60	0,40
30	0,057	7 x 0,102	0,39 – 0,45	0,51 – 0,57	0,60 – 0,66	0,60
28	0,089	7 x 0,127	0,47 – 0,53	0,59 – 0,65	0,68 – 0,74	0,90
26	0,141	7 x 0,160	0,56 – 0,62	0,66 – 0,72	0,75 – 0,81	1,40
26	0,155	19 x 0,102	0,59 – 0,65	0,71 – 0,77	0,80 – 0,86	1,50
24	0,227	7 x 0,203	0,69 – 0,75	0,81 – 0,87	0,90 – 0,96	2,30
24	0,241	19 x 0,127	0,72 – 0,78	0,84 – 0,90	0,93 – 0,99	2,50
22	0,355	7 x 0,254	0,81 – 0,87	0,93 – 0,99	1,02 – 1,08	3,40
22	0,382	19 x 0,160	0,84 – 0,90	0,96 – 1,02	1,05 – 1,11	3,80
20	0,563	7 x 0,320	1,06 – 1,12	1,18 – 1,24	1,27 – 1,33	5,40
20	0,616	19 x 0,203	1,12 – 1,18	1,21 – 1,27	1,30 – 1,36	5,90
18	0,897	7 x 0,404	1,34 – 1,40	1,42 – 1,48	1,51 – 1,57	8,60
18	0,963	19 x 0,254	1,38 – 1,44	1,46 – 1,52	1,55 – 1,61	9,80

Polyimide hook-up are characterized by

- high thermal resistance
- very good abrasion resistance
- non flammability and halogenfree

Polyimide 8Y

Hook-up wire AWG size

conductor quality	temperature range
bare-copper	- 100 °C up to + 130 °C
tin-plated-copper	- 100 °C up to + 180 °C
silver-plated-copper	- 100 °C up to + 200 °C
nickel-plated-copper	- 100 °C up to + 200 °C

working- and test voltage		
250 V / 2,50 kV	600 V / 3,40 kV	1.000 V / 5,00 kV

AWG	cross section mm ²	conductor mm	250 V outer Ø / mm	600 V outer Ø / mm	1.000 V outer Ø / mm	copper weight kg / km
32	0,03	1 x 0,203	0,30 – 0,36	0,40 – 0,46	0,49 – 0,56	0,31
30	0,05	1 x 0,254	0,34 – 0,40	0,46 – 0,52	0,55 – 0,62	0,50
28	0,08	1 x 0,320	0,41 – 0,47	0,53 – 0,59	0,62 – 0,68	0,80
26	0,13	1 x 0,404	0,49 – 0,55	0,61 – 0,67	0,70 – 0,76	1,30
24	0,20	1 x 0,511	0,59 – 0,65	0,72 – 0,78	0,81 – 0,87	2,00
22	0,33	1 x 0,643	0,69 – 0,75	0,81 – 0,84	0,92 – 0,98	3,20
20	0,52	1 x 0,813	0,91 – 0,97	1,02 – 1,09	1,11 – 1,17	5,00
18	0,82	1 x 1,024	1,12 – 1,18	1,21 – 1,28	1,30 – 1,36	7,90

PEEK 20Y

Hook-up wire AWG size

conductor	operating temperatur	working voltage
silver-plated-copper	- 75 ° C up to + 200 °C	600 V
nickel-plated-copper	- 75 ° C up to + 200 °C	600 V

AWG	conductor diameter mm	stranding mm	cross section qmm	outer diameter (mm)	
				Min.	Max.
26	0,50	19 x 0,10	0,149	0,80	0,95
24	0,60	19 x 0,12	0,215	0,90	1,05
22	0,75	19 x 0,15	0,336	1,05	1,20
20	1,00	19 x 0,20	0,597	1,30	1,50
18	1,25	19 x 0,25	0,933	1,55	1,75
16	1,50	19 x 0,30	1,343	1,80	2,00
14	1,75	37 x 0,25	1,815	2,15	2,35
12	2,10	37 x 0,30	2,614	2,50	2,70

Multicore cables with or without screen and jacket are also available.

Key characteristics

Halogen free and low toxicity
Excellent radiation resistance
Excellent mechanical properties

Typical applications:

nuclear wiring
Chemical Processing
Ultrahigh vacuum environments

Aircraft wire and cable

Aircraft approved wiring and harness material

reference	
general aviation	ABS0124 ASNE0260 ASNE0261 ASNE0262 ASNE0264 ASNE0265 ASNE0266 ASNE0267 ASNE0269 ASNE0270 ASNE0271 ASNE0272 ASNE0273 ASNE0274 ASNE0275 Lacing Cord CO 45 DAN 107-1 Lacing Cord CO85 DAN 107-2
military aviation	JN1007 JN1018 JN1019 JN1026 JN1039 JN1142
Panavia	PAN6411 PAN6412 PAN6413 PAN6417 PAN6420 PAN6421 PAN6422 PAN6423 PAN6424 PAN6425 PAN6427 PAN6429 PAN6588 PAN6595 PAN6843 PAN6845 PAN75XB PAN76XB
other	KP260 ECM44 KTCL
Aircraft Engine	EWS1000 ESW1200 ESW1201 ESW1202 ESW1203 ESW1250 ESW1251 EWS1252 ESW1253 ESW1600 ESW1601 ESW1602 ESW01DDA ESW04JDA ESW04KDA ESW05BDA ESW11DDA ESW13DEA ESW21DDA ESW24LDA ESW31DDA ESW33DEA
Aircraft Engine	RTS49897 RTS50634 RTS52154-18 RTS52155-2 RTS52155-3 RTS52156-2 RTS52156-3 RTS64677 RTS64678 RTS64720 RTS64721 RTS65046 RTS65623 RTS65778 RTS67263 RTS65778 RTS67223 RTS67624 RTS68673 RTS77161 RTS71380 RTS77086

PTFE - coated fiber yarn cords

type	nominal diameter mm	quantity meter / kg	nominal tensile strength / N	nominal weight Kg /km	operating temperatur °C
CO37	0,9	1.075	127,48	0,93	- 75 up to + 300
CO45	1,1	725	215,74	1,38	- 75 up to + 300
CO85	2,0	205	784,50	4,87	- 75 up to + 300

PTFE – coated fiber yarn tapes

TO70	1,78	1.042	156,90	0,96 kg	- 75 up to + 300
TO85	2,16	1031	196,13	0,97 kg	- 75 up to + 300
TO100	2,60	952	196,13	1,05 kg	- 75 up to + 300
TO120	3,05	654	235,35	1,53 kg	- 75 up to + 300

Fluoropolymer insulated multicore cable

Screened and unscreened AWG size referring to MIL-C-27500

feasible material combinations				
conductor quality	core insulation	screen quality	sheath insulation	temperature
Cu-bare / Cu-tin-plated	ETFE 7Y	Cu-bare / Cu-tin-plated	ETFE 7Y	+ 130 °C / + 150 °C
Cu-tin-plated / Cu-silver-plated	FEP 6Y	Cu-tin-plated / Cu-silver-plated	FEP 6Y	+ 180 °C / + 200 °C
Cu-silver-plated / Cu-nickel-plated	PTFE 5Y	Cu-silver-plated / Cu-nickel-plated	PTFE 5Y	+ 205 °C / + 260 °C
Cu-silver-plated / Cu-nickel-plated	PTFE 5Y	Cu-silver-plated / Cu-nickel-plated	PFA 51Y	+ 205 °C / + 250 °C
Cu-silver-plated / Cu-nickel-plated	PTFE 5Y	Cu-silver-plated / Cu-nickel-plated	FEP 6Y	+ 205 °C / + 205 °C

core working- test voltage	test voltage core to core	test voltage core to screen
600 V / 3,40 kV	2,00 kV	1,50 kV

AWG	cross section mm ²	stranding mm	outer diameter (mm / nominal)							
			1 core		2 core		3 core		4 core	
32	0,034	7 x 0,079	1,59	•	2,35	1,92	2,45	2,04	2,64	2,23
30	0,057	7 x 0,102	1,66	•	2,47	2,06	2,60	2,20	2,81	2,40
28	0,089	7 x 0,127	1,74	•	2,63	2,22	2,77	2,60	3,00	2,59
26	0,141	7 x 0,160	1,84	•	2,83	2,48	3,15	2,64	3,40	2,90
26	0,155	19 x 0,102	1,84	•	2,83	2,48	3,15	2,64	3,40	2,90
24	0,227	7 x 0,203	2,13	•	3,25	2,74	3,43	2,92	3,72	3,21
24	0,241	19 x 0,127	2,13	•	3,25	2,74	3,43	2,92	3,72	3,21
22	0,355	7 x 0,254	2,28	•	3,55	3,04	3,75	3,24	4,08	3,57
22	0,382	19 x 0,160	2,28	•	3,55	3,04	3,75	3,24	4,08	3,57
20	0,563	7 x 0,320	2,49	•	3,97	3,46	4,20	3,70	4,60	4,08
20	0,616	19 x 0,203	2,49	•	3,97	3,46	4,20	3,70	4,60	4,08
18	0,963	19 x 0,254	2,84	•	4,63	4,12	4,81	4,30	5,27	4,76
cursive = for unscreened versions										

Differing numbers of cores or other cladding materials, we will gladly provide you upon request.

Fluoropolymer insulated multicore cable

Screened and unscreened in metric size

feasible material combinations				
conductor quality	core insulation	screen quality	sheath insulation	temperature
Cu-bare / Cu-tin-plated	ETFE 7Y	Cu-bare / Cu-tin-plated	ETFE 7Y	+ 130 °C / + 150 °C
Cu-tin-plated / Cu-silver-plated	FEP 6Y	Cu-tin-plated / Cu-silver-plated	FEP 6Y	+ 180 °C / + 200 °C
Cu-silver-plated / Cu-nickel-plated	PTFE 5Y	Cu-silver-plated / Cu-nickel-plated	PTFE 5Y	+ 205 °C / + 260 °C
Cu-silver-plated / Cu-nickel-plated	PTFE 5Y	Cu-silver-plated / Cu-nickel-plated	PFA 51Y	+ 205 °C / + 250 °C
Cu-silver-plated / Cu-nickel-plated	PTFE 5Y	Cu-silver-plated / Cu-nickel plated	FEP 6Y	+ 205 °C / + 205 °C

core working- and test voltage	test voltage core to core	test voltage core to screen
600 V / 3,40 kV	2,00 kV	1,50 kV

cross-section mm ²	outer diameter (mm / nominal)											
	1 core		2 core		3 core		4 core		5 core		6 core	
0,14	1,95	•	2,95	<i>2,50</i>	3,10	<i>2,65</i>	3,35	<i>2,90</i>	3,65	<i>3,20</i>	3,95	<i>3,50</i>
0,25	2,05	•	3,15	<i>2,70</i>	3,35	<i>2,90</i>	3,60	<i>3,15</i>	3,95	<i>3,50</i>	4,25	<i>3,80</i>
0,50	2,40	•	3,95	<i>3,40</i>	3,95	<i>3,60</i>	4,45	<i>4,00</i>	4,85	<i>4,40</i>	5,30	<i>4,85</i>
0,75	2,70	•	4,45	<i>4,00</i>	4,75	<i>4,30</i>	5,20	<i>4,75</i>	5,65	<i>5,20</i>	6,20	<i>6,75</i>
1,00	2,85	•	4,85	<i>4,40</i>	5,15	<i>4,70</i>	5,65	<i>5,20</i>	6,15	<i>5,70</i>	6,75	<i>6,30</i>
1,50	3,15	•	5,45	<i>5,00</i>	5,80	<i>5,35</i>	6,35	<i>5,90</i>	7,00	<i>6,55</i>	7,65	<i>7,20</i>
2,50	3,65	•	6,75	<i>6,10</i>	6,50	<i>6,95</i>	7,70	<i>7,25</i>	7,45	<i>7,30</i>	9,25	<i>8,80</i>
cursive = for unscreened versions												

Differing numbers of cores or other cladding materials, we will gladly provide you upon request

Fluoropolymer hook-up wires are characterized by

- very high thermal resistance
- excellent resistance to acids, oils and chemicals
- excellent ozone and weather resistance

Coaxial cable

Referring to style of MIL-C-17 extruded dielectric

type	impedance	capacitance pF / m max.	attenuation dB / 100m at 400 MHz max.	test voltage kV / effective	conductor mm	conductor quality	solid PTFE dielectric diameter / mm	screen silver plated copper diameter / mm	sheath insulation	outer diameter mm / max.
RG 178 B/U	50	105	108	2,0	7 x 0,10	SCW	0,84	1,30	FEP	1,90
RG 179 B/U	75	75,5	68,9	2,0	7 x 0,10	SCW	1,60	2,06	FEP	2,66
RG 316 U	50	105	68,9	2,0	7 x 0,17	SCW	1,52	2,00	FEP	2,59
RG 179 B/U DS	75	75,5	68,9	2,0	7 x 0,10	SCW	1,60	2,54	FEP	3,10
RG 316 U DS	50	105	68,9	2,0	7 x 0,17	SCW	1,52	2,45	FEP	3,00
RG 142 B/U	50	105	38,4	5,0	1 x 0,94	SCW	2,95	4,10	FEP	5,08
RG 400 U	50	105	34,4	5,0	19 x 0,20	SPC	2,95	4,15	FEP	4,95
RG 393 U	50	105	16,4	10,0	7 x 0,80	SPC	7,24	8,70	FEP	9,91
RG 302 U	75	72,2	26,2	7,0	1 x 0,64	SCW	3,71	4,30	FEP	5,25
RG 180 U	95	55,8	45,9	2,0	7 x 0,10	SCW	2,59	3,06	FEP	3,68
RG 187 A/U	75	75,5	68,9	2,0	7 x 0,10	SCW	1,60	2,06	PFA	2,66
RG 188 A/U	50	105	65,6	2,0	7 x 0,17	SCW	1,52	2,00	PFA	2,59
RG 196 A/U	50	105	108	2,0	7 x 0,10	SCW	0,84	1,30	PFA	1,90

Miniature coaxial cable

RG 50 mini	50	85	130	1,5	0,25	1 x 0,17	SCW	0,52	0,72	FEP	1,17
RG 75 mini	75	60	140	1,5	0,25	1 x 0,10	APC	0,57	0,77	FEP	1,22

Explanations

SPW = silver plated copper wire

SCW = steel wire, copper plated silver

DS = double screened

Fluoropolymer coaxial cables are characterized by

- very high temperature range -55 °C to +200 °C
- excellent resistance to acids, oils and chemicals
- very good electrical characteristics

Our coax cable will be manufactured and tested strictly referring to MIL-C-17.

Thermocouple and compensating cables

Composite materials

core insulation	sheath insulation	maximal temperature range
PTFE	PTFE / Silicone / FEP	+ 260 °C / + 200 °C / + 200 °C
PFA	PFA / Silicone / FEP	+ 250 °C / + 200 °C / + 200 °C
FEP	FEP / Silicone	+ 200 °C / + 200 °C
PVC	PVC	+ 105 °C
glass fibre	glass fibre	> + 300 °C depending to glass yarn type

Shielding and conductor cross-section

According to the above mentioned combinations the following materials can be used as a shield braid:
bare copper / tinned copper / silver-plated copper / nickel-plated copper / pure nickel

Our standard range of extension and compensating cables covers the cross-sections from 0,14 mm² to 1,50 mm².
Individual designs we offer gladly on request.

Colour code

thermocouple wire	compensating wire	IEC 60 584		DIN 43722/43714		ANSI MC 96.1	
type - K (+) Ni-Cr (-) Ni	type - KCA (+) So-Ni-Cr (-) So-Ni	sheath	+ —	sheath	+ —	sheath	+ —
type - E (+) Ni-Cr (-) Cu-Ni	•	sheath	+ —	•	•	sheath	+ —
type - J (+) Fe (-) Cu-Ni	•	sheath	+ —	•	•	sheath	+ —
type - L (+) Fe (-) Cu-Ni	•	•	•	sheath	+ —	•	•
type - T (+) Cu (-) Cu-Ni	•	sheath	+ —	•	•	sheath	+ —
type - U (+) Cu (-) Cu-Ni	•	•	•	sheath	+ —	•	•
•	type - SCA (+) Pt-Rh (-) Pt	sheath	+ —	sheath	+ —	sheath	+ —
type - N (+) Nicrosil (-) Nisil	•	sheath	+ —	•	•	•	•

Miniatuur hook-up wire

with PTFE or PFA insulation

insulation	conductor	working voltage	temperature range
PTFE/PFA	silver-plated-copper	300 V	- 100 °C up to + 205 °C

AWG	stranding	outer diameter / mm		
		minimal	nominal	maximal
30	7 x 0,1007	0,4064	0,4318	0,4572
32	7 x 0,0798	0,3378	0,3632	0,3886
34	7 x 0,0632	0,2921	0,3175	0,3429
36	7 x 0,0500	0,2083	0,2388	0,2692

AWG	solid conductor	outer diameter / mm		
		minimal	nominal	maximal
30	1 x 0,254	0,389	0,414	0,439
32	1 x 0,203	0,328	0,348	0,368
34	1 x 0,160	0,264	0,282	0,300
36	1 x 0,127	0,221	0,234	0,246

Bending radius 5 times outer diameter.

PTFE and FEP hook-up wires and solid wires are characterized by

- very high thermal resistance
- excellent resistance to acids, oils and chemicals
- excellent ozone and weather resistance

High flexible hook-up wire

Silicone or FEP insulation

insulation	conductor	temperature range
Silicone	tin-plated-copper bare - copper	- 40 °C up to + 180 °C - 40 °C up to + 130 °C

cross-section mm ²	stranding mm	conductor Ø mm	wall thickness mm	outer Ø mm	test voltage V/AC	working voltage V/AC	copper weight kg / km
0,14	70 x 0,05	0,48	0,36	1,20	2.500	250	1,30
0,15	39 x 0,07	0,50	0,25	1,00	2.000	150	1,34
0,15	39 x 0,07	0,50	0,35	1,20	2.500	250	1,34
0,15	39 x 0,07	0,50	0,50	1,50	3.000	300	1,34
0,25	66 x 0,07	0,65	0,50	1,70	3.000	300	2,30
0,50	129 x 0,07	0,90	0,70	2,30	3.000	300	4,50
0,75	196 x 0,07	1,25	0,70	2,70	3.000	300	6,90
1,00	259 x 0,07	1,40	0,80	3,00	3.000	300	9,10

insulation	conductor	temperature range
FEP	tin-plated-copper bare-copper	- 100 °C up to + 180 °C - 100 °C up to + 130 °C

cross section mm ²	stranding mm	conductor Ø mm	wall thickness mm	outer Ø mm	test voltage V/AC	working voltage V/AC	copper weight kg / km
0,15	39 x 0,07	0,50	0,25	1,00	2.500	250	1,34
0,25	66 x 0,07	0,65	0,25	1,20	2.500	250	2,30
0,50	129 x 0,07	0,90	0,35	1,60	3.400	600	4,50
0,75	196 x 0,07	1,25	0,35	2,00	3.400	600	6,90
1,00	259 x 0,07	1,40	0,40	2,20	3.400	600	9,10

All details are nominal values.

High flexible Silicone and FEP hook-up wires are characterized by

- very high thermal resistance
- good connections for device in motion
- low space requirement

Glass fibre single core

for high temperature application

insulation	conductor	temperature range
type 1: GLEN	nickel-plated-copper	- 50 °C up to + 350 °C
type 2: GLENI	pure-nickel	- 50 °C up to + 400 °C
type 3: GLSNI	pure-nickel	- 50 °C up to + 600 °C for short term maximal + 670 °C
type 4: GLRNI	pure-nickel	- 50 °C up to + 600 °C for short term maximal + 710 °C
type 5: GLQNI	pure-nickel	- 50 °C up to + 950 °C for short term maximal + 1.000 °C

working- test voltage
300 V / 1.50 kV / AC

cross section	conductor pure nickel conductor	conductor nickel plated copper*	outer diameter nominal / mm	copper weight kg /km*
0,22	7 x 0,20	7 x 0,20	1,80	2,30
0,50	16 x 0,20	19 x 0,185	1,90	4,80
0,75	24 x 0,20	19 x 0,225	2,20	7,20
1,00	19 x 0,25	19 x 0,254	2,50	9,80
1,50	30 x 0,25	37 x 0,225	2,80	14,40
2,50	36 x 0,30	50 x 0,25	3,30	24,00
4,00	32 x 0,40	61 x 0,29	4,30	38,00
6,00	48 x 0,40	84 x 0,30	4,60	58,00

All versions can be coloured by identification tracers, protection braid in steel and stainless steel is also possible.

For multicore, thermocouple and compensation cable screened and unscreened sent us your enquiry.

Material information

characteristics	PTFE	FEP	ETFE	PFA	Polyimid	Silicone	PVC
VDE-code	5Y	6Y	7Y	51Y	8Y	2G	Y
temperature range °C	- 190 +260	-100 +205	-100 +150	-190 +250	- 190 +200	-40 +200	-20 +105
melting point °C	+ 327	max. + 282	max. + 275	max. + 310	infusible	cured	+ 140
dielectric strength kV/mm	20	25	36	25	28	30	25
resistance $\Omega \times \text{cm}$ (+ 20 °C)	1018	> 1018	> 1016	> 1017	> 1017	> 1015	> 1012
tensile strength MPa	> 20	> 15	> 30	> 20	>70	6 - 10	10 - 25
percentage elongation to break in %	> 200	> 200	> 150	> 200	> 50	> 250	> 150
specific density gr / cm ³	2,00 – 2,30	2,00 – 2,30	1,60 – 1,80	2,00 – 2,30	1,43	1,20 – 1,30	1,35 – 1,50
radioresistance rad	10 ⁵	10 ⁶	10 ⁸	10 ⁶	10 ¹⁰	5x10 ⁵	entfällt
flammability	excellent	excellent	excellent	excellent	excellent	very good	good
fire performance	no flammable	no flammable	no flammable	no flammable	no flammable	no flammable	self extinguishing
oil and petrol resistance	very good	very good	very good	very good	moderate	moderate	good
chemical resistance	very good	very good	very good	very good	moderate	moderate	moderate
weather resistance	very good	very good	very good	very good	moderate	moderate	moderate
ozon resistance	very good	very good	very good	very good	good	good	very good

All details are nominal values and refer of insulation manufacturer informations.



ITC Thermo Cable GmbH®

Hans-Böckler-Ring 19
D-22851 Norderstedt

 0049(0)40/529 527 41

 0049(0)40/529 527 42

info@itc-thermo-cable.de
www.itc-thermo-cable.de