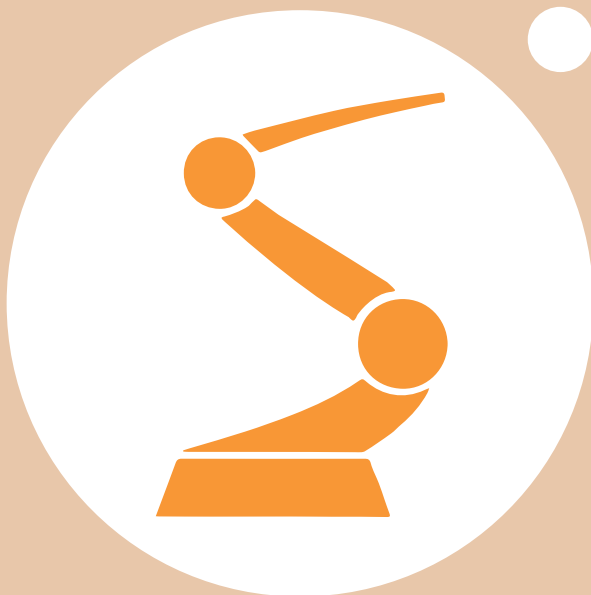




AUTOMATION



TecniKabel

SPECIAL ELECTRICAL AND OPTICAL CABLES

WWW.TECNIKABEL.COM

TecniKabel

SPECIAL ELECTRICAL AND OPTICAL CABLES



INTRODUCTION

In drive technology, the trend is towards ever more complex cable systems. The quantity of data and speed of transmission are simultaneously rising rapidly. Interference-proof, fixed and dynamic compatible signal and power cables are required. In addition, harsh industrial environments, often calls for cables that can handle motion in several axes, high acceleration and number of bending cycles.

Tecnikabel provides cables for motion&drive devices for the following application market:

- food processing and packaging machines
- machine tools
- wood machines
- glass machines
- conveyor equipment assembly
- robotic
- handling systems

Tecnikabel is able to meet the market's requirements, suitable for US and Canadian markets, we will support you in developing the right product for your application. In addition to the good electrical and mechanical properties, we have a wide range of materials at our disposal that enables us to assist with know-how and expert advice able to guarantee the long service life of your cables.

PRODUCT LINES

	TRANSPORTATION
	OIL / GAS & PETROCHEMICALS
	TELECOMMUNICATION
	OPTICAL
	AUTOMATION
	BUILDING TECHNOLOGY
	SUBMARINE
	AUDIOVIDEO
	NAVAL
	GREEN ENERGY

TECNIKABEL

is focused on constant product innovation to get competitive advantages with endless commitment to research and development.

PRODUCTION

Updated production Systems, stringent process procedures and expert operators reached the goal to carry out our production efficient and flexible.

FINAL INSPECTIONS

At the end of every production process each cable is checked in its electrical and physical performances for a complete compliance to customer specifications.

LABORATORY TESTS

We submit our cables to the most severe tests, simulating critical applications. In addition to the tests required by current norms, we invest on new special equipment for additional mechanical and electrical testing, heading to a steady increase of standard performance of our cables.

MATERIALS RESEARCH AND DEVELOPMENT

Our experience took us to carry on research of new materials in order to improve performances, costs and fulfill the standards required by our customers.

COMPANY MANAGEMENT SYSTEM AND PRODUCT CERTIFICATION

Since 1978, constant commitment to Quality has awarded Tecnikabel approval from international authorities, complying with the most demanding international manufacturing and quality, health and safety, and environment standards.



Sito certificato:
Volpiano



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FOR STATIC APPLICATION, PVC OIL RESISTANT, UL/CSA APPROVALS



PRODUCT DESCRIPTION AND APPLICATION

UL and **CSA** compliant single-core and multicore cables to meet the needs of industrial machinery manufacturers, suitable for export to all countries that adopt these reference standards.

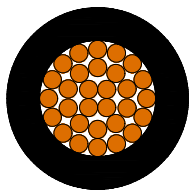
Used specifically to power and control machine tools, conveyor belts, conveyors, assembly chains, automated lines, and the associated electric panels.

TKF100® series cables are suitable for static installations. The PVC employed makes it suitable for use in damp environments where resistance to emulsions, cutting oils, and numerous other aggressive chemical substances is needed.

These images are solely for illustrative purposes

TK-F100-SINGLE CORE CABLE STYLE 105°C 300V/600V

TK-F100-SERIES CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 5 – IEC 60228 Class 5 – VDE 0295 Class 5



Insulation

PVC Y (UL-CSA Standards)



Colour code

Available upon request

TECHNICAL DATA



Operating voltage

300V for Styles 1007/1569
600V for Style 1015



Test voltage

2000V a.c. for Styles 1007/1569
3000V a.c. for Styles 1015



Temperature range

-20°C ÷ +80°C (Static Installation) for Style 1007
-10°C ÷ +105°C (Static Installation) for Style 1569
-10°C ÷ +105°C (Static Installation) for Style 1015



Bending Radius Static Installation

4 x Ø

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

Single-core wires UL-CSA 80°C-105°C 300V and 105°C 600V, gauges from AWG30 to AWG4/0 and from 250MCM to 1000MCM



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Water Resistance

UL 1581 – IEC 60811



TK-F100-SINGLE CORE CABLE STYLE 105°C 300V/600V

MAIN FEATURES

SINGLE CORE STYLE 1007/1570 80°C ±105°C -300V

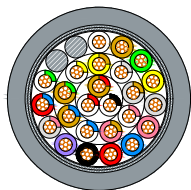
TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
205TKF1001x	AWG30	1.2	0.5	1.9
208TKF1001x	AWG28	1.3	0.9	2.4
212TKF1001x	AWG26	1.4	1.4	3.1
218TKF1001x	AWG24	1.5	2.0	4
224TKF1001x	AWG22	1.6	3.3	5.5
231TKF1001x	AWG20	1.9	5.4	8
238TKF1001x	AWG18	2.1	8.2	11.2
243TKF1001x	AWG16	2.5	13	16.6

SINGLE CORE STYLE 1015 105°C 600V

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
218TKF1002x	AWG24	2.3	2	7.8
224TKF1002x	AWG22	2.5	3.3	9.7
231TKF1002x	AWG20	2.7	5.4	12.8
238TKF1002x	AWG18	3	8.2	16.4
243TKF1002x	AWG16	3.2	13	22.7
250TKF1001x	AWG14	3.5	20.1	31.1
263TKF1001x	AWG12	4.1	36.5	50.3
269TKF1001x	AWG10	4.6	50	65.5
278TKF1001x	AWG8	6.2	94	125
283TKF1001x	AWG6	8.4	128	180
288TKF1001x	AWG4	9.6	211	272
291TKF1001x	AWG3	10.7	256	322
292TKF1001x	AWG2	11.2	345	417
294TKF1001x	AWG1	13.5	412	526
296TKF1001x	AWG1/0	14.7	528	653
297TKF1001x	AWG2/0	15.8	647	777
29ATKF1001x	AWG3/0	16.8	902	1051
29BTKF1001x	AWG4/0	18.4	1152	1322
29CTKF1001x	250MCM	21.2	1220	1450
29DTKF1001x	300MCM	22.2	1469	1840
29ETKF1001x	355MCM	25.4	1776	2056
29GTKF1001x	400MCM	26	1949	2250
29HTKF1001x	450MCM	27.8	2189	2499
29JTKF1001x	500MCM	29.2	2429	2756
29KTKF1001x	555MCM	31.2	2678	3078
29LTKF1001x	600MCM	32.3	2918	3333
29XTKF1001x	650MCM	32.8	3158	3580
29YTKF1001x	700MCM	33	3408	3853
29ZTKF1001x	750MCM	33.5	3648	4080
29MTKF1001x	800MCM	34	3908	4330
29NTKF1001x	900MCM	36	4377	4844
29OTKF1001x	1000MCM	38	4896	5393

TK-F100-MULTICORE/MULTIPAIR CONTROL AND SIGNAL CABLE UNSHIELDED AND SHIELDED

TK-F100-SERIES CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 5 – IEC 60228 Class 5 – VDE 0295 Class 5



Insulation

PVC Y (UL-CSA Standards)



Core identification

DIN 47100



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Grey Ral 7040 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

300V



Test voltage

2000V a.c.



Temperature range

$-20^{\circ}\text{C} \div +80^{\circ}\text{C}$ (Static Installation)



Bending Radius Static Installation

$5 \times \varnothing$

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, Cross-sectional area $\leq 0,50\text{mm}^2$ (AWG21)



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



TK-F100-MULTICORE/MULTIPAIR CONTROL AND SIGNAL CABLE UNSHIELDED AND SHIELDED

MAIN FEATURES

UNSHIELDED MULTICORE CONTROL AND SIGNAL

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
322TKF10001	2x0.25mm ²	4.2	4.8	21.4
322TKF10002	3x0.25mm ²	4.4	7.5	25
322TKF10003	4x0.25mm ²	4.6	10	29.4
322TKF10004	5x0.25mm ²	5	12.5	34.1
322TKF10005	7x0.25mm ²	5.4	17.5	42.5
322TKF10006	12x0.25mm ²	6.7	29	56
322TKF10007	16x0.25mm ²	7.5	37	82
322TKF10008	18x0.25mm ²	7.8	45	90.2
322TKF10009	25x0.25mm ²	9.2	63	119
322TKF10010	30x0.25mm ²	9.5	72	107
322TKF10011	36x0.25mm ²	10.4	86	163

UNSHIELDED MULTICORE CONTROL AND SIGNAL

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
325TKF10001	2x0.35mm ²	4.4	6.7	27
325TKF10002	3x0.35mm ²	4.6	10	32
325TKF10003	4x0.35mm ²	4.8	13	38
325TKF10004	5x0.35mm ²	5.2	17	44
325TKF10005	7x0.35mm ²	5.6	23.5	55
325TKF10006	12x0.35mm ²	7.1	41	86
325TKF10007	16x0.35mm ²	7.7	54	110
325TKF10008	18x0.35mm ²	8.3	61	120
325TKF10009	25x0.35mm ²	9.8	84	164
325TKF10010	30x0.35mm ²	10.2	101	186
325TKF10011	36x0.35mm ²	11	121	221

TK-F100-MULTICORE/MULTIPAIR CONTROL AND SIGNAL CABLE UNSHIELDED AND SHIELDED

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND SIGNAL

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKF10001	2x0.25mm ²	4.6	15	23
522TKF10002	3x0.25mm ²	4.8	19	33.4
522TKF10003	4x0.25mm ²	5	21	39.2
522TKF10004	5x0.25mm ²	5.5	29	45.1
522TKF10005	7x0.25mm ²	5.8	39	61
522TKF10006	12x0.25mm ²	7.3	54	90
522TKF10007	16x0.25mm ²	8	67	106
522TKF10008	18x0.25mm ²	8.2	78	117
522TKF10009	25x0.25mm ²	9.9	101	152
522TKF10010	30x0.25mm ²	10.2	105	170
522TKF10011	36x0.25mm ²	11	118	198

SHIELDED MULTICORE CONTROL AND SIGNAL

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKF10001	2x0.35mm ²	4.9	16	34.6
525TKF10002	3x0.35mm ²	5	20	40.2
525TKF10003	4x0.35mm ²	5.2	25	48
525TKF10004	5x0.35mm ²	5.8	29	55.2
525TKF10005	7x0.35mm ²	6.1	38	68
525TKF10006	12x0.35mm ²	7.7	63	112
525TKF10007	16x0.35mm ²	8.2	83	137
525TKF10008	18x0.35mm ²	9	88	149
525TKF10009	25x0.35mm ²	10.4	122	195
525TKF10010	30x0.35mm ²	11.8	142	221
525TKF10011	36x0.35mm ²	11.6	165	257

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND SIGNAL

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKF10015	2x2x0.25mm ²	6.2	23	45.7
522TKF10016	3x2x0.25mm ²	6.4	28	55.1
522TKF10017	4x2x0.25mm ²	7	38	72.2
522TKF10018	6x2x0.25mm ²	8	52	96.2
522TKF10019	8x2x0.25mm ²	9	65	116
522TKF10020	10x2x0.25mm ²	10.4	75	137
522TKF10021	12x2x0.25mm ²	10.9	89	156
522TKF10022	16x2x0.25mm ²	12.1	108	189

SHIELDED MULTICORE CONTROL AND SIGNAL

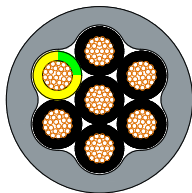
TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKF10015	2x2x0.35mm ²	6.8	28	54.7
525TKF10016	3x2x0.35mm ²	7	42	76.5
525TKF10017	4x2x0.35mm ²	7.5	49	88.7
525TKF10018	6x2x0.35mm ²	8.8	68	119.1
525TKF10019	8x2x0.35mm ²	9.6	83	143
525TKF10020	10x2x0.35mm ²	11.2	102	173
525TKF10021	12x2x0.35mm ²	12.6	120	198
525TKF10022	16x2x0.35mm ²	12.6	147	257

SHIELDED MULTICORE CONTROL AND SIGNAL

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
530TKF10001	2x2x0.50mm ²	7.4	45	79.3
530TKF10002	3x2x0.50mm ²	7.9	58	103
530TKF10003	4x2x0.50mm ²	8.3	73	118
530TKF10004	6x2x0.50mm ²	10	101	160
530TKF10005	8x2x0.50mm ²	11	124	194
530TKF10006	10x2x0.50mm ²	12.5	150	236

TK-F100-MULTICORE CONTROL AND POWER CABLE UNSHIELDED AND SHIELDED

TK-F100-SERIES CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 5 – IEC 60228 Class 5 – VDE 0295 Class 5



Insulation

PVC Y (UL-CSA Standards)



Core identification

Black Numbered + Yellow/Green



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Grey Ral 7040 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

300V Cross-sectional area 0.5mm^2 (AWG21) ÷ 1.0mm^2 (AWG18)
1000V Cross-sectional area $> 1.0\text{mm}^2$ (AWG18)



Test voltage

2000V a.c. Cross-sectional area 0.5mm^2 (AWG21) ÷ 1.0mm^2 (AWG18)
3000V a.c. Cross-sectional area $> 1.0\text{mm}^2$ (AWG18).



Temperature range

-20°C ÷ $+80^\circ\text{C}$ (Static Installation)



Bending Radius Static Installation

$5 \times \varnothing$

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V,
Cross-sectional area 0.5mm² (AWG21) ÷ 1.0mm²
(AWG18)
UL 80°C 1000V – CSA AWM I/II A/B 80°C 1000V,
Cross-sectional area > 1.0mm² (AWG18)



Water Resistance
UL 1581 – IEC 60811



Flame Retardant
EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



EC Directives Product compliant with Low
Voltage Regulation 72/33/EEC



Hydrocarbons and Oil Resistance
UL 1581 – VDE 0472 part 803 A/B



Directive EMC 2014/30/EU Electromagnetic
Compatibility



TK-F 100-MULTICORE CONTROL AND POWER CABLE UNSHIELDED AND SHIELDED

MAIN FEATURES

UNSHIELDED MULTICORE CONTROL CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
330TKF10001	2x0.50mm ²	4.7	11	42.8
330TKF10002	3x0.50mm ²	4.9	15	51.2
330TKF10003	4x0.50mm ²	5.3	23	61.8
330TKF10004	5x0.50mm ²	5.8	25	72.6
330TKF10005	7x0.50mm ²	6.4	40	93.4
330TKF10006	12x0.50mm ²	8	58	147
330TKF10007	18x0.50mm ²	9.3	103	216
330TKF10008	25x0.50mm ²	11	143	288
330TKF10009	34x0.50mm ²	12.4	165	379
330TKF10010	41x0.50mm ²	14	197	435

UNSHIELDED MULTICORE CONTROL CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
340TKF10001	2x1mm ²	5.7	19	51.7
340TKF10002	3x1mm ²	5.9	29	62.6
340TKF10003	4x1mm ²	6.5	38	75.1
340TKF10004	5x1mm ²	7.1	48	90.2
340TKF10005	7x1mm ²	7.5	67	117
340TKF10006	12x1mm ²	10	116	186
340TKF10007	18x1mm ²	11.5	173	272
340TKF10008	25x1mm ²	14.2	240	315
340TKF10009	34x1mm ²	16.2	327	493
340TKF10010	41x1mm ²	17.6	394	577

MAIN FEATURES

SHIELDED MULTICORE CONTROL CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
530TKF10007	2x0.50mm ²	5.2	30	50.1
530TKF10008	3x0.50mm ²	5.4	39	61.5
530TKF10009	4x0.50mm ²	5.8	46	83.5
530TKF10010	5x0.50mm ²	6.2	54	94.7
530TKF10011	7x0.50mm ²	7	70	118
530TKF10012	12x0.50mm ²	8.6	106	181
530TKF10013	18x0.50mm ²	10	153	253
530TKF10014	25x0.50mm ²	11.6	202	330
530TKF10015	34x0.50mm ²	13	277	458
530TKF10016	41x0.50mm ²	14.6	328	549

SHIELDED MULTICORE CONTROL CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
540TKF10001	2x1mm ²	6.1	42	58.8
540TKF10002	3x1mm ²	6.3	56	82.7
540TKF10003	4x1mm ²	7	68	95.3
540TKF10004	5x1mm ²	7.5	79	114
540TKF10005	7x1mm ²	8	99	143
540TKF10006	12x1mm ²	10.8	160	219
540TKF10007	18x1mm ²	12.2	250	315
540TKF10008	25x1mm ²	15	330	446
540TKF10009	34x1mm ²	17	450	581
540TKF10010	41x1mm ²	18.4	530	659

TK-F 100-MULTICORE CONTROL AND POWER CABLE UNSHIELDED AND SHIELDED

MAIN FEATURES

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
345TKF10001	2x1.5mm ²	6.7	29	68.8
345TKF10002	3x1.5mm ²	7.2	43	85
345TKF10003	4x1.5mm ²	7.8	58	104
345TKF10004	5x1.5mm ²	8.6	72	124
345TKF10005	7x1.5mm ²	9.4	101	162
345TKF10006	12x1.5mm ²	12.3	173	267
345TKF10007	18x1.5mm ²	14.5	260	384
345TKF10008	25x1.5mm ²	17.5	360	529
345TKF10009	34x1.5mm ²	20.2	490	709
345TKF10010	41x1.5mm ²	23.2	590	882

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
355TKF10001	2x2.5mm ²	8	48	93.4
355TKF10002	3x2.5mm ²	8.5	72	117
355TKF10003	4x2.5mm ²	9.2	96	145
355TKF10004	5x2.5mm ²	10.1	120	175
355TKF10005	7x2.5mm ²	11	168	231
355TKF10006	12x2.5mm ²	14.8	288	385
355TKF10007	18x2.5mm ²	17.8	432	554
355TKF10008	25x2.5mm ²	22	600	781

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
365TKF10001	2x4mm ²	9	77	134
365TKF10002	3x4mm ²	9.5	116	171
365TKF10003	4x4mm ²	10.6	154	214
365TKF10004	5x4mm ²	11.8	192	263
365TKF10005	7x4mm ²	12.8	269	355

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
545TKF10001	2x1.5mm ²	7.2	57	83.9
545TKF10002	3x1.5mm ²	7.6	75	105
545TKF10003	4x1.5mm ²	8.2	91	126
545TKF10004	5x1.5mm ²	9.2	110	149
545TKF10005	7x1.5mm ²	10	140	192
545TKF10006	12x1.5mm ²	13	240	304
545TKF10007	18x1.5mm ²	15.2	345	446
545TKF10008	25x1.5mm ²	18.2	497	608
545TKF10009	34x1.5mm ²	21.2	650	843
545TKF10010	41x1.5mm ²	24.2	720	998

SHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
555TKF10001	2x2.5mm ²	8.5	100	107
555TKF10002	3x2.5mm ²	9	120	138
555TKF10003	4x2.5mm ²	9.9	160	167
555TKF10004	5x2.5mm ²	10.7	190	204
555TKF10005	7x2.5mm ²	11.8	261	260
555TKF10006	12x2.5mm ²	15.8	311	422
555TKF10007	18x2.5mm ²	18.6	472	635
555TKF10008	25x2.5mm ²	23	640	911

SHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
565TKF10001	2x4mm ²	9.6	110	134
565TKF10002	3x4mm ²	10.2	165	193
565TKF10003	4x4mm ²	11.2	230	238
565TKF10004	5x4mm ²	12.4	280	288
565TKF10005	7x4mm ²	13.6	360	385

TK-F 100-MULTICORE CONTROL AND POWER CABLE UNSHIELDED AND SHIELDED

MAIN FEATURES

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
370TKF10001	4x6mm ²	12.8	230	327
370TKF10002	5x6mm ²	14.2	288	395
370TKF10003	7x6mm ²	15.6	403	533

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
380TKF10001	4x10mm ²	16.7	384	527
380TKF10002	5x10mm ²	18.8	480	645
380TKF10003	7x10mm ²	20.6	672	882

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
385TKF10001	4x16mm ²	20.6	615	857
385TKF10002	5x16mm ²	22.7	768	1041
385TKF10003	7x16mm ²	25	1076	1385

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
390TKF10001	4x25mm ²	26	960	1315
393TKF10001	4x35mm ²	30.5	1344	1865
395TKF10001	4x50mm ²	37	1920	2866
397TKF10001	4x70mm ²	40	2688	3561
398TKF10001	4x95mm ²	45	3650	4713

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
570TKF10001	4x6mm ²	13.6	282	352
570TKF10002	5x6mm ²	15	340	408
570TKF10003	7x6mm ²	16.4	450	573

SHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
580TKF10001	4x10mm ²	17.6	485	566
580TKF10002	5x10mm ²	19.6	562	697
580TKF10003	7x10mm ²	21.6	796	985

SHIELDED MULTICORE CONTROL AND POWER CABLES

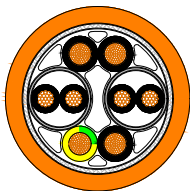
TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
585TKF10001	4x16mm ²	21.5	723	858
585TKF10002	5x16mm ²	23.5	889	1086
585TKF10003	7x16mm ²	26	1240	1439

SHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
590TKF10001	4x25mm ²	27	1090	1442
593TKF10001	4x35mm ²	31.8	1536	2046
595TKF10001	4x50mm ²	38.2	2381	3073
597TKF10001	4x70mm ²	41.2	2921	3801
598TKF10001	4x95mm ²	46.8	3950	4992

TK-F 100-SERVOMOTOR POWER CABLE SHIELDED 0.6/1KV

TK-F 100-SERIES CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 5 – IEC 60228 Class 5 – VDE 0295 Class 5



Insulation

Polyolefin (UL-CSA Standards)



Core identification

Black Numbered U/L1/C/L+, V/L2, W/L3/D/L-, Yellow/Green

Pairs Identification (where request)

One pair: black, white. Two pairs: Black Numbered 5÷6 and Black Numbered 7÷8



Pairs Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC (UL-CSA Standards)



Outer jacket colour

Orange Ral 2003 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

1000V Cross-sectional area $\geq 1.0\text{mm}^2$ (AWG18)



Test voltage

4000V a.c. Cross-sectional area $\geq 1.0\text{mm}^2$ (AWG18)



Temperature range

$-20^\circ\text{C} \div +80^\circ\text{C}$



Bending Radius Static Installation

$5 \times \varnothing$

REFERENCE STANDARDS



Cable according to UL75, UL1581 and CSA C22.2 210.2

UL75, UL1581, UL 80°C 1000V – CSA AWM I/II A/B 80°C 1000V Cross-sectional area $\geq 1.0\text{mm}^2$ (AWG18)



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES

SERVO CABLES 80°C 1000V

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
545TKF10013	4G1.5 H2	8.4	83	131
555TKF10009	4G2.5 H2	10.6	130	198
565TKF10006	4G4 H2	11.5	193	276
570TKF10004	4G6 H2	13.2	275	376
580TKF10004	4G10 H2	16.5	440	567
585TKF10004	4G16 H2	21.2	705	885
590TKF10002	4G25 H2	25	1003	1314
593TKF10002	4G35 H2	28.8	1514	2146
595TKF10002	4G50 H2	33.9	2168	2992

SERVO CABLES 80°C 1000V

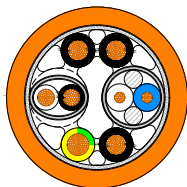
TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
545TKF10016	[4G1.5 + (2x1.5) H2]H2	11.6	149	221
555TKF10016	[4G2.5 + (2x1.5) H2]H2	13	192	264
565TKF10016	[4G4 + (2x1.5) H2]H2	14.3	255	315
570TKF10005	[4G6 + (2x1.5) H2]H2	15.8	339	480
580TKF10005	[4G10 + (2x1.5) H2]H2	18.5	526	774
585TKF10005	[4G16 + (2x1.5) H2]H2	23.6	773	1043
590TKF10003	[4G25 + (2x1.5) H2]H2	28.5	1190	1567
593TKF10003	[4G35 + (2x1.5) H2]H2	31	1590	1978
595TKF10003	[4G50 + (2x1.5) H2]H2	34.5	2230	2766

SERVO CABLES 80°C 1000V

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
540TKF10015	[4G1 + 2x(2x0.75) H2]H2	12	135	216
545TKF10015	[4G1.5 + 2x(2x0.75) H2]H2	12.6	154	259
555TKF10012	[4G2.5 + 2x(2x1) H2]H2	14.2	210	320
565TKF10008	[4G4 + (2x1) + (2x1.5) H2]H2	15.8	287	439
570TKF10006	[4G6 + (2x1) + (2x1.5) H2]H2	17.5	370	594
580TKF10006	[4G10 + (2x1) + (2x1.5) H2]H2	20.5	570	845
585TKF10006	[4G16 + 2x (2x1.5) H2]H2	25.5	830	1231
590TKF10004	[4G25 + 2x (2x1.5) H2]H2	28.8	1213	1615
593TKF10004	[4G35 + 2x (2x1.5) H2]H2	31.2	1598	2022

HYBRID SERVO CABLE SHIELDED 0.6/1KV

CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 5 – IEC 60228 Class 5 – VDE 0295 Class 5



Insulation

Polyolefin (UL-CSA Standards)



Core identification

Black Numbered U/L1/C/L+, V/L2, W/L3/D/L-, Yellow/Green

Pairs Identification (where request)

One pair: blue, white. Two pairs: black, white and blue, white



Pairs Shield (where request)

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC (UL-CSA Standards)



Outer jacket colour

Orange Ral 2003 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

1000V Cross-sectional area $\geq 1.0\text{mm}^2$ (AWG18)



Test voltage

4000V a.c. Cross-sectional area $\geq 1.0\text{mm}^2$ (AWG18)



Temperature range

$-20^\circ\text{C} \div +80^\circ\text{C}$



Bending Radius Static Installation

$5 \times \varnothing$

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 1000V – CSA AWM I/II A/B 80°C 1000V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

MAIN FEATURES



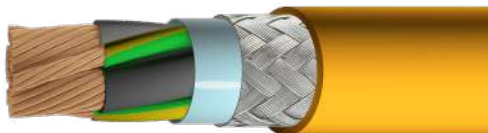
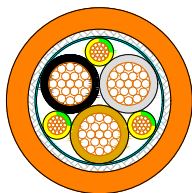
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DSL

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
545TKF19D01	[4G1,5+(2x1)H2+(2xAWG22)H2/H]H2	12.8	155	268
545TKF19D02	[4G1,5+(2xAWG22)H2/H]H2	11.2	113	198
555TKF19D01	[4G2,5+(2x1)H2+(2xAWG22)H2/H]H2	14	198	316
555TKF19D02	[4G2,5+(2xAWG22)H2/H]H2	12.9	161	273

TK-F 100-VECTORFLEX 0.6/1KV

TK-F100-SERIES CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 5 – IEC 60228 Class 5 – VDE 0295 Class 5



Insulation

Polyolefin (UL-CSA Standards)



Core identification

Grey, Black, Brown, Yellow/Green



Overall Shield

Aluminum/Plastic Tape + Tinned Copper
Coverage ≥ 85% according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Orange Ral 2003 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

1000V



Test voltage

3000V a.c.



Temperature range

-20°C ÷ +80°C (Static Installation)



Bending Radius Static Installation

8 x Ø

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 1000V – CSA AWM I/II A/B 80°C 1000V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

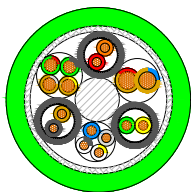
MAIN FEATURES

VECTORFLEX 0.6/1KV

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
585TKF10004	(3x16 + 3G2.5)H2	20.2	586	852
590TKF10004	(3x25 + 3G4)H2	24.5	930	1170
593TKF10004	(3x35 + 3G6)H2	27.4	1360	1756
595TKF10003	(3x50 + 3G10)H2	29.6	1841	2207
597TKF10002	(3x70 + 3G10)H2	34	2640	2889
598TKF10001	(3x95 + 3G16)H2	38.5	3574	3851
599TKF10001	(3x120 + 3G16)H2	43	4290	4690
590TKF10001	(3x150 + 3G25)H2	51	5365	5552
59FTKF10001	(3x185 + 3G35)H2	55	6700	7099
59ITKF10001	(3x240 + 3G42.5)H2	62.5	8320	9128

TK-F100-ENCODER AND RESOLVER CABLE

TK-F100-SERIES CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS

**Conductor**

CEI 20-29 Class 5 - IEC 60228 Class 5 - VDE 0295 Class 5

**Insulation**

PVC Y and/or Polyolefin (UL-CSA standard)

**Core identification**

More informations are available upon request

**Overall Shield**

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©

**Sheath**

PVC (UL-CSA Standards)

**Outer jacket colour**

Green Ral 6018 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA

**Operating voltage**

30V or 300V

**Test voltage**

1000V a.c. or 2000V a.c.

**Temperature range**

-20°C ÷ +80°C

**Bending Radius Static Installation**

5 x Ø

REFERENCE STANDARDS

**Cable according to UL758, UL1581 and CSA C22.2 210.2**

UL 80°C 300V - CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V - CSA AWM I/II A/B 80°C 30V

**Flame Retardant**

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1

**Hydrocarbons and Oil Resistance**

UL 1581 - VDE 0472 part 803 A/B

**Water Resistance**

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION HEIDENHAIN

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
514TKF10001	[4x2x0.14 + (4x0.14)H1 + 4x0.5]H2	8.6	80	102
514TKF10002	[3x(2x0.14)H1 + 2x(0.5)H1]H2	8.7	66	124
514TKF10003	(4x2x0.14 + 4x0.50)H2	8.6	51	106
514TKF1001N	[4x2x0.14 + (4x0.14)H1 + 4x0.5]H2	8.6	80	102
514TKF1002N	[3x(2x0.14)H1 + 2x(0.5)H1]H2	8.7	66	124
514TKF1003N	(4x2x0.14 + 4x0.50)H2	8.6	51	106

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION B&R

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
514TKF10006	(5x2x0.14 + 2x0.50)H2	7.9	42	73.2
518TKF10026	(3x2xAWG24)H2	6.5	27	52.4

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION ELAU

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKF10024	(3x2x0.25 + 2x0.50)H2	8.2	44	88
522TKF10025	3x(2x0.25)H2	8.5	74	150

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION CONTROL TECHNIQUES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKF10023	[(2x0.34)H + 6x2x0.34 + 2x1]H2	11	102	172
512TKF10002	(2x2xAWG26)H2	5.6	19	45

MAIN FEATURES

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION LENZE

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
514TKF10007	3x(2x0.14)H2 + (2x0.50)H2	9.4	47	152
514TKF10008	4x(2x0.14)H2 + (2x1)H2	11.8	70	229

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION YASKAWA

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKF10024	(2x2x0.34)H2	7	36	83.3

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION BOSCH REXROTH

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKF10027	(4x2x0.25 + 2x0.50)H2	8.7	65	111
514TKF10009	[4x2x0.14 + 4x1 + (4x0.14)H2]H2	9.7	93	165
522TKF10028	[3x(2x0.25)H2 + 3x0.25 + 2x1]H2	10	59	115
530TKF10017	(9x0.50)H2	8.8	75	148
522TKF1027A	(4x2x0.25 + 2x0.50)H2	8.7	65	111
514TKF1009A	[4x2x0.14 + 4x1 + (4x0.14)H2]H2	9.7	93	165
522TKF1028A	[3x(2x0.25)H2 + 3x0.25 + 2x1]H2	10	59	115
530TKF1017A	(9x0.50)H2	8.8	75	148

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION SIEMENS

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKF10001	(12x0.25)H2	7.2	48	82.3
526TKF10001	(4x2x0.38 + 4x0.50)H2	9.2	71	130
517TKF10001	(8x2x0.18)H2	7.8	54	85
517TKF10006	(4x2x0.18)H2	6.5	28	45
514TKF10010	[3x(2x0.14)H1 + 4x0.14 + 4x0.25 + 2x0.50]H2	9.8	76	139
514TKF10011	[3x(2x0.14)H1 + 4x0.14 + 2x0.50]H2	8.6	66	101
512TKF10004	(2x2xAWG26 + 2xAWG22)H2 Drive Cliq	7	33	71
518TKF10036	(2x2xAWG24+2xAWG22)H2 Drive Cliq	7.3	36	74

MAIN FEATURES

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION FANUC

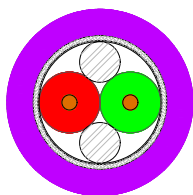
TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
517TKF10002	(4x2x0.18 + 2x0.50)H2	7.6	33	70.5
517TKF10003	(3x2x0.18 + 6x0.50)H2	8.4	63	94
517TKF10004	(3x2x0.18 + 6x1)H2	9.4	89	140
517TKF10005	(5x2x0.18 + 6x0.50)H2	9.4	71	94
530TKF10018	(2x0.18 + 5x0.5)H2	7.4	49	143
530TKF10019	(2x2x0.18 + 5x0.5)H2	7.7	45	84.4
518TKF10027	(10x2xAWG24)H2	11.2	60	121
538TKF1013V	(10x2xAWG28)H2	8.5	42	66

RESOLVER SIGNAL TRANSMISSION

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKF10029	[3x(2x0.25)H2]H2	8.5	74	150
522TKF10030	[4x(2x0.25)H2]H2	9	85	120
522TKF10031	[8x(2x0.25)H2]H2	11.6	139	206
525TKF10025	[4x(2x0.34)H2]H2	10.5	97	145
525TKF10026	[5x(2x0.34)H2]H2	12.2	113	166

TK-F100 BUS CABLE – PROFIBUS L2 DP-FIP

TK-F100-SERIES CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 5 – IEC 60228 Class 5 – VDE 0295 Class 5 or Solid Conductor Ø 0.64mm



Insulation

Foam Polyolefin (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and Tinned Copper Coverage ≥ 85% according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Temperature range

- 20°C ÷ +80°C (Static Installation)



Bending Radius Static Installation

5 x Ø (Static Installation)



Mutual capacitance

≤ 30 pF/m



Characteristic impedance

150 Ω ± 15 Ω



Transmission speed

12 Mbit/s with maximum length 200m
0,6 kbit/s with maximum length 1000m

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



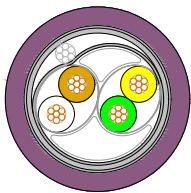
MAIN FEATURES

PROFIBUS L2 DP-FIP

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKF10027	(1x2xØ 0.64mm)HH2	7.9	21	66.1
524TKF10023	(1x2x0.34mm ²)HH2	7.9	24	70.4
525TKF10031	(1x2x0.25mm ²)HH2	7.9	21	67.1
525TKF10027	1x2xØ 0.64mm		Green - Red	
524TKF10023	1x2x0.34mm ²		Green - Red	
525TKF10031	1x2x0.25mm ²		Green - Red	

TK-F100 BUS CABLE – CANOPEN – CANBUS

TK-F100-SERIES CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 5 – IEC 60228 Class 5 – VDE 0295 Class 5



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and/or Tinned Copper
Coverage ≥ 85% according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart
page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Temperature range

- 20°C ÷ +80°C (Static Installation)



Mutual capacitance

≤ 60 pF/m



Characteristic impedance

120 Ω ± 15 Ω



Transmission speed

1000 Kbit/s with maximum length 40m
500 Kbit/s with maximum length 300m
100 Kbit/s with maximum length 600m
50 Kbit/s with maximum length 1000m



Bending Radius Static Installation

5 x Ø

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



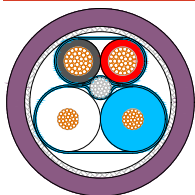
MAIN FEATURES

BUS CABLE - CANOPEN - CANBUS

TECHNİKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKF10029	(2x0.34)H2	6	22	50
525TKF10028	(2x2x0.34)H2	7	31.7	68.5
525TKF10030	(1x4x0.34)Q/H2	6.5	31.7	68.5
530TKF10020	(2x0.50)H2	6.7	25	69.1
530TKF10021	(2x2x0.50)H2	8.4	43	93
525TKF10029	2x0.34		(White - Brown)	
525TKF10028	2x2x0.34		(White - Brown) - (Green - Yellow)	
525TKF10030	1x4x0.34		White - Green - Brown - Yellow	
530TKF10020	2x0.50		(White - Brown)	
530TKF10021	2x2x0.50		(White - Brown) - (Green - Yellow)	

TK-F100 BUS CABLE – DEVICENET DROP AND TRUNK

TK-F100-SERIES CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 5 – IEC 60228 Class 5 – VDE 0295 Class 5



Insulation

Polyolefin and Foam Polyolefin (UL-CSA Standards)



Core identification

See following table



Pairs Shield

Aluminum/Plastic on each pairs



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Temperature range

-20°C ÷ +80°C (Static Installation)



Bending Radius Static Installation

5 x Ø



Mutual capacitance

≤ 50 pF/m



Characteristic impedance

120 $\Omega \pm 15 \Omega$



Transmission speed

500 Kbit/s with maximum length 200m
250 Kbit/s with maximum length 250m
125 Kbit/s with maximum length 500m

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



TK-F100 BUS CABLE – DEVICENET DROP AND TRUNK

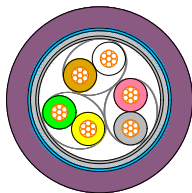
MAIN FEATURES

BUS CABLES - DEVICENET

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKF10032	[(2xAWG24)H + (2xAWG22)H]H2 Drop	7.2	28	74.7
538TKF10014	[(2xAWG18)H + (2xAWG15)H]H2 Trunk	11	91	179
518TKF10032	2xAWG24 - Data		(Blue - White)	
	2xAWG22 - Power		(Red - White)	
538TKF10014	2xAWG18 - Data		(Blue - White)	
	2xAWG15 - Power		(Red - Black)	

TKF 100-BUS CABLE INTERBUS

TK-F100-SERIES CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 5 - IEC 60228 Class 5 - VDE 0295 Class 5



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and/or Tinned Copper
Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Temperature range

- 20°C ÷ +80°C (Static Installation)



Bending Radius Static Installation

5 x Ø



Mutual capacitance

≤ 60 pF/m



Characteristic impedance

100 $\Omega \pm 15 \Omega$



Transmission speed

500 Kbit/s with maximum length 400m

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V - CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V - CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



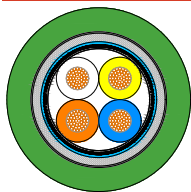
MAIN FEATURES

BUS CABLES - INTERBUS

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKF10032	(3x2x0,22)HH2	6.6	22	61.7
522TKF10033	(3x2x0,22+3G1)HH2	8	54	96.6
522TKF10032	3x2x0,22	(White-Brown) - (Green-Yellow) - (Grey-Pink)		
522TKF10033	3x2x0,22	(White-Brown) - (Green-Yellow) - (Grey-Pink)		
	3G1	Blue - Red - Yellow/Green		

TK-F100 ETHERNET – PROFINET/ETHERCAT CATEGORY 5E

TK-F100-SERIES CABLES FOR STATIC APPLICATIONS PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 5 – IEC 60228 Class 5 – VDE 0295 Class 5 / Solid conductor



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Inner sheath

Only Profinet/Ethercat version



Overall Shield

Aluminum/Plastic Tape and/or Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Green Ral 6018 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V



Test voltage

1000V



Temperature range

-20°C ÷ +80°C (Static Installation)



Bending Radius Static Installation

5 x Ø



Mutual capacitance

≤ 60 pF/m



Characteristic impedance

100 $\Omega \pm 15 \Omega$



Transmission speed

100 Mbit/s with maximum length 100m
10 Mbit/s with maximum length 500m

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES

BUS CABLES - ETHERNET - PROFINET/ETHERNET CATEGORY 5E

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKF10033	Ethernet Category 5E (2x2xAWG24)HH2	6.2	21	50
518TKF10034	Ethernet Category 5E (4x2xAWG24)HH2	6.3	27	52
512TKF10003	Ethernet Category 5E (4x2xAWG26)HH2	5.5	23	42
524TKF10024	Ethercat/Profinet Category 5E (4xAWG22)HH2	6.5	31	65
518TKF10039	Ethercat/Profinet Category 5E (4xAWG24)HH2	5.5	22	46
518TKF10033	2x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange)		
518TKF10034	4x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
512TKF10003	4x2xAWG26	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
524TKF10024	4xAWG22	White - Yellow - Blue - Orange		
518TKF10039	4xAWG24	White - Yellow - Blue - Orange		

TK-F100 ETHERNET CATEGORY 6

CABLES FOR STATIC APPLICATIONS - UL/CSA RECOGNIZED 80°C 30V OR 300V (600V ON REQUEST) ACCORDING TO UL758



CABLE SPECIFICATIONS



Conductor

Bare Copper according to CEI 20-29 Class 5 - IEC 60228 Class 5 - VDE 0295 Class 5



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and Tinned Copper Braid
Coverage $\geq 85\%$ according to EMC 2014/30/EU ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Green Ral 6018 according to DESINA colour chart
page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V (600V on request)



Test voltage

1000V a.c. or 2000V a.c.



Temperature range

- 20°C ÷ + 80°C (Static Installation)



Bending Radius Static Installation

5 x Ø (Static Installation)



Mutual capacitance

≤ 50 pF/m



Characteristic impedance

100 Ω

REFERENCE STANDARDS



Cable according to UL758, UL1581 UL Style 2464

80°C 300V - CSA AWM I/II A/B 80°C 300V, or and
CSA C22.2 210.2 UL Style 2502 80°C 30V - CSA AWM
I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low
Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic
Compatibility



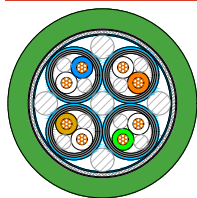
MAIN FEATURES

BUS CABLES - ETHERNET CATEGORY 6

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKF10035	Ethernet Category 6 (4x2xAWG24)HH2	7.8	34	70
512TKF10005	Ethernet Category 6 (4x2xAWG26)HH2	7.4	27	63
518TKF10035	4x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
512TKF10005	4x2xAWG26	(Blue-White/Blue) - (Orange-White/Orange) (Green-White/Green) - (Brown-White/Brown)		

TK-F100 ETHERNET CATEGORY 7

CABLES FOR STATIC APPLICATIONS - UL/CSA RECOGNIZED 80°C 30V OR 300V (600V ON REQUEST) ACCORDING TO UL758



CABLE SPECIFICATIONS



Conductor

Bare Copper according to CEI 20-29 Class 5 - IEC 60228 Class 5 - VDE 0295 Class 5



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Pairs Shield

Aluminum/Plastic Tape



Overall Shield

Aluminum/Plastic Tape and Tinned Copper Braid Coverage $\geq 85\%$ according to EMC 2014/30/EU ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Green Ral 6018 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V (600V on request)



Test voltage

1000V a.c. or 2000V a.c.



Temperature range

- 20°C ÷ + 80°C (Static Installation)



Bending Radius Static Installation

5 x Ø (Static Installation)



Mutual capacitance

≤ 50 pF/m



Characteristic impedance

100 Ω

REFERENCE STANDARDS



Cable according to UL758, UL1581 UL Style 2464

80°C 300V - CSA AWM I/II A/B 80°C 300V, or and CSA C22.2 210.2 UL Style 2502 80°C 30V - CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES

BUS CABLES - ETHERNET CATEGORY 7

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKF10036	Ethernet Category 7 [4x(2xAWG24)H]HH2	9.2	42	89
512TKF10006	Ethernet Category 7 [4x(2xAWG26)H]HH2	6.4	25	56
518TKF10036	4x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
512TKF10006	4x2xAWG26	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		



DEFINITIONS

UL

Underwriters Laboratories Inc. (UL) is a private non-profit entity for the certification of products. Though there is no law which states that a UL marked product must be used, there are States or Municipal Authorities which insist that some products must be tested by a valid and recognised certification entity.

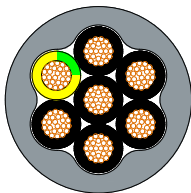
LISTED

This is a device that has undergone an homologation process by an entity whose authority is recognised (e.g. UL or CSA), whose outcome is in the public domain, and which can be sold, installed and/or used as an asset in itself. Over time there is also provision for production control and verification procedures. In practice this is the equivalent of IMQ or VDE homologation on a household appliances or on an individual component.



TRAY CABLE MULTICORE TC-ER/TC-ER SERVO-TFFN/THHN

TRAY CABLES MULTICORE UL LISTED



CABLE SPECIFICATIONS



Conductor

Bare Copper Conductor (IEC 60228 Class 5)



Insulation

PVC + Nylon Insulation, Type THHN UL83 Table 10 and 11 Section $\geq$ AWG14 or Type TFFN UL 66 Table 4.7 AWG18 $\div$ AWG16 Colour Black Numbered + Yellow/Green



Pairs only type SERVO (if required)

2 cores twisted (Colour Pairs : Black Numbered 5÷6 and 7÷8) + Plastic Tape
Shield Tinned Copper Braid - Coverage $\geq$ 85%
Plastic Tape wrapped



Overall Shield (if required)

Shield Tinned Copper Braid - Coverage $\geq$ 85%



Outer jacket colour

PVC Sheath, UL 1277 T - Chapter 12.1
Grey Ral 7040 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Electrical Resistance at 20°C

IEC 60228 Class 5



Insulation Resistance at 20°C

$\geq 20 \text{ M}\Omega \times \text{km}$



Operating Voltage

600V



Test Voltage

3 kVa.c.



Temperature Range

-25°C $\div$ +90°C (Fixed Use)



Bending Radius

5 x $\varnothing$ (Fixed Use)

REFERENCE STANDARDS



Flame Retardant

IEC 60332-1 - UL 1277 and VW-1 - CSA FT1 and FT4



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B - HD 22.10 S1 - CNOMO E.03.40.150N



Standard Reference

UL Type TC-ER 90°C 600V and CSA Type CIC 90°C 600V UL Type MTW UL Recognized

MAIN FEATURES

TRAY CABLES MULTICORE UNSHIELDED

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
338FTC02N	(2 x AWG18)	7.3	17	79
338FTC03N	(3 G AWG18)	7.6	25	91
338FTC04N	(4 G AWG18)	8.3	33	108
338FTC05N	(5 G AWG18)	9	42	130
338FTC07N	(7 G AWG18)	9.7	58	156
338FTC09N	(9 G AWG18)	11.5	75	199
338FTC12N	(12 G AWG18)	12.4	100	240
338FTC18N	(18 G AWG18)	15.2	149	370
338FTC25N	(25 G AWG18)	18	208	497
338FTC34N	(34 G AWG18)	22	226	651
338FTC41N	(41 G AWG18)	23.2	340	854
343FTC03N	(3 G AWG16)	8.4	39	117
343FTC04N	(4 G AWG16)	9.2	52	140
343FTC05N	(5 G AWG16)	10	65	166
343FTC07N	(7 G AWG16)	10.7	91	207
343FTC12N	(12 G AWG16)	14.7	156	352
343FTC18N	(18 G AWG16)	16.9	233	495
343FTC25N	(25 G AWG16)	20.1	324	664
343FTC41N	(41 G AWG16)	26	532	1103
350FTC03N	(3 G AWG14)	9.3	62	154
350FTC04N	(4 G AWG14)	10.2	83	188
350FTC05N	(5 G AWG14)	11	103	226
350FTC07N	(7 G AWG14)	11.9	145	281
350FTC12N	(12 G AWG14)	16.4	248	481
350FTC18N	(18 G AWG14)	19.2	372	695
350FTC25N	(25 G AWG14)	23.5	516	984
363FTC03N	(3 G AWG12)	10.4	98	207
363FTC04N	(4 G AWG12)	11.3	131	253
363FTC05N	(5 G AWG12)	12.4	163	312
363FTC07N	(7 G AWG12)	14.2	229	419
369FTC04N	(4 G AWG10)	14.5	204	402
369FTC05N	(5 G xAWG10)	15.8	255	491
369FTC12N	(12 G AWG10)	23.6	611	1050
378FTC04N	(4 G AWG8)	18.1	334	651
378FTC05N	(5 G xAWG8)	19.8	418	801
383FTC04N	(4 G AWG6)	22.8	589	1066
388FTC04N	(4 G AWG4)	28.2	964	1661
392FTC04N	(4 G AWG2)	30.8	1343	2164
396FTC04N	(4 G AWG1/0)	36.8	1756	3002
397FTC04N	(4 G AWG2/0)	51.8	2846	5327

MAIN FEATURES

TRAY CABLES MULTICORE SHIELDED

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
538FCT03N	(3 G AWG18)H2	8	41	103
538FCT04N	(4 G AWG18)H2	8.7	51	124
538FCT05N	(5 G AWG18) H2	9.4	62	149
538FCT07N	(7 G AWG18)H2	10.2	79	178
538FCT12N	(12 G AWG18)H2	13	144	284
538FCT18N	(18 G AWG18)H2	15.8	203	426
538FCT25N	(25 G AWG18)H2	18.6	273	566
543FTC03N	(3 G AWG16)H2	8.8	57	129
543FTC04N	(4 G AWG16)H2	9.6	72	155
543FTC05N	(5 G AWG16)H2	10.4	87	184
543FTC07N	(7 G AWG16)H2	11.2	115	228
543FTC12N	(12 G AWG16)H2	15.3	210	406
543FTC18N	(18 G AWG16)H2	17.5	295	556
543FTC25N	(25 G AWG16)H2	20.9	429	771
550FTC03N	(3 G AWG14)H2	9.7	83	164
550FTC04N	(4 G AWG14)H2	10.6	106	203
550FTC05N	(5 G AWG14)H2	11.6	142	258
550FTC07N	(7 G AWG14)H2	12.5	186	315
550FTC18N	(18 G AWG14)H2	20	465	822
550FTC25N	(25 G AWG14)H2	24.5	630	1112
563FTC03N	(3 G AWG12)H2	11	132	227
563FTC04N	(4 G AWG12)H2	11.9	171	281
563FTC07N	(7 G AWG12)H2	14.8	278	459
569FTC04N	(4 G AWG10)H2	15.1	257	433
578FCT04N	(4 G AWG8)H2	18.7	400	669
583FTC04N	(4 G AWG6)H2	23.6	699	1166
588FTC04N	(4 G AWG4)H2	29.2	1140	1814
592FTC04N	(4 G AWG2)H2	31.8	1545	2323

MAIN FEATURES

TRAY CABLES MULTICORE SERVO

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
538FTCS01	[4GAWG18 + (2xAWG18)H2]H2	11.6	88	198
543FTCS01	[4GAWG16 + (2xAWG18)H2]H2	12.4	125	251
550FTCS01	[4GAWG14 + (2xAWG18)H2]H2	13.2	160	299
563FTCS01	[4GAWG12 + (2xAWG16)H2]H2	15.3	227	414
569FTCS01	[4GAWG10 + (2xAWG16)H2]H2	17.3	307	533
578FTCS01	[4GAWG8 + (2xAWG16)H2]H2	20.8	480	816
583FTCS01	[4GAWG6 + (2xAWG16)H2]H2	25.5	758	1242
588FTCS01	[4GAWG4 + (2xAWG16)H2]H2	31	1195	1875
592FTCS01	[4GAWG2 + (2xAWG16)H2]H2	35	1596	2455
543FTCS02	[4GAWG16 + 2x(2xAWG18)H2]H2	15	166	347
550FTCS02	[4GAWG14 + 2x(2xAWG18)H2]H2	15.7	200	393
563FTCS02	[4GAWG12 + (2xAWG18)ST + (2xAWG16)H2]H2	17	266	486
569FTCS02	[4GAWG10 + (2xAWG18)ST + (2xAWG16)H2]H2	19.4	377	647
578FTCS02	[4GAWG8 + (2xAWG18)ST + (2xAWG16)H2]H2	23.4	515	974
583FTCS02	[4GAWG6 + 2x(2xAWG16)H2]H2	27.5	840	1385



FOR DYNAMIC APPLICATION, PVC OIL RESISTANT, UL/CSA APPROVALS



PRODUCT DESCRIPTION AND APPLICATION

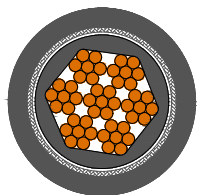
UL and **CSA** compliant multicore cables designed and made to satisfy the most demanding requests of manufacturers of machine tools, automatic machines and industrial systems. Excellent for use in cable chains.

The installation of **TK FF200®** series cables is recommended for dynamic installations. The PVC outer jacket is particularly resistant to abrasion and is indicated for use in damp environments in contact with emulsions, cutting oils, and aggressive chemical substances.

These images are solely for illustrative purposes

TK-FF200-SINGLE CORE UNSHIELDED AND SHIELDED CABLE

TKFF200-SERIES CABLES FOR DYNAMIC APPLICATIONS, PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 - IEC 60228 Class 6 - VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

Black (other colours available upon request)



Overall Shield (if required)

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Black Ral 9005 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

1000V



Test voltage

3000V a.c.



Temperature range

- 20°C ÷ +80°C (Static Installation)
- 5°C ÷ +80°C (Dynamic Installation)



Bending Radius

5 x Ø (Static Installation)
7.5 x Ø (Dynamic Installation)



Maximum Speed

180 m/min



Maximum Acceleration

10m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 1000V - CSA AWM I/II A/B 80°C 1000V



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



TK-FF200-SINGLE CORE UNSHIELDED AND SHIELDED CABLE

MAIN FEATURES

SINGLE CORE 80°C 1000V

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
270TKFF200N0N	1x6 mm ²	7	58	96.5
280TKFF200N0N	1x10 mm ²	8.3	96	148
285TKFF200N0N	1x16 mm ²	9.6	154	216
290TKFF200N0N	1x25 mm ²	11.2	240	321
293TKFF200N0N	1x35 mm ²	12.7	336	454
295TKFF200N0N	1x50 mm ²	15	480	625
297TKFF200N0N	1x70 mm ²	16.6	672	799
298TKFF200N0N	1x95 mm ²	19.4	912	1094
299TKFF200N0N	1x120 mm ²	22.6	1152	1345
29DTKFF200N0N	1x150 mm ²	23.8	1440	1719
29FTKFF200N0N	1x185 mm ²	25.3	1776	2022
29ITKFF200N0N	1x240 mm ²	28.5	2304	2514

SINGLE CORE SHIELDED 80°C 1000V

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
570TKFF200N0N	(1x6 mm ²)H2	7.5	78	121
580TKFF200N0N	(1x10 mm ²)H2	8.7	122	179
585TKFF200N0N	(1x16 mm ²)H2	10.2	181	253
590TKFF200N0N	(1x25 mm ²)H2	11.8	272	366
593TKFF200N0N	(1x35 mm ²)H2	13.4	401	495
595TKFF200N0N	(1x50 mm ²)H2	15.6	579	682
597TKFF200N0N	(1x70 mm ²)H2	17.4	766	869
598TKFF200N0N	(1x95 mm ²)H2	20.4	1009	1201
599TKFF200N0N	(1x120 mm ²)H2	23.5	1272	1488
59DTKFF200N0N	(1x150 mm ²)H2	24.6	1705	1722
59FTKFF200N0N	(1x185 mm ²)H2	26.3	2095	2283
59ITKFF200N0N	(1x240 mm ²)H2	29.5	2510	2697

TK-FF200-MULTICORE/MULTIPAIR CONTROL AND SIGNAL CABLE UNSHIELDED AND SHIELDED

TKFF200-SERIES CABLES FOR DYNAMIC APPLICATIONS, PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 - IEC 60228 Class 6 - VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

DIN 47100



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Grey Ral 7040 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

300V



Test voltage

2000V a.c.



Temperature range

-20°C ÷ +80°C (Static Installation)
-5°C ÷ +80°C (Dynamic Installation)



Bending Radius

5 x Ø (Static Installation)
7.5 x Ø (Dynamic Installation)



Maximum Speed

180 m/min



Maximum Acceleration

10 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V - CSA AWM I/II A/B 80°C 300V,
Cross-sectional area $\leq 0,50\text{mm}^2$ (AWG21)



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES

UNSHIELDED MULTICORE CONTROL AND SIGNAL

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
322TKFF20001	2x0.25mm ²	4.2	4.8	21.4
322TKFF20002	3x0.25mm ²	4.5	7.5	25
322TKFF20003	4x0.25mm ²	4.8	10	29.4
322TKFF20004	5x0.25mm ²	5.1	12.5	34.1
322TKFF20005	7x0.25mm ²	5.9	17.5	42.5
322TKFF20006	12x0.25mm ²	7	29	56
322TKFF20007	16x0.25mm ²	7.6	37	82
322TKFF20008	18x0.25mm ²	9.8	45	90.2
322TKFF20009	25x0.25mm ²	10.8	63	119
322TKFF20010	30x0.25mm ²	12	72	107
322TKFF20011	36x0.25mm ²	13.2	86	163

UNSHIELDED MULTICORE CONTROL AND SIGNAL

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
325TKFF20001	2x0.35mm ²	4.4	6.7	27
325TKFF20002	3x0.35mm ²	4.6	10	32
325TKFF20003	4x0.35mm ²	5	13	38
325TKFF20004	5x0.35mm ²	5.4	17	44
325TKFF20005	7x0.35mm ²	6.2	23.5	55
325TKFF20006	12x0.35mm ²	7.4	41	86
325TKFF20007	16x0.35mm ²	8.5	54	110
325TKFF20008	18x0.35mm ²	10.4	61	120
325TKFF20009	25x0.35mm ²	11.8	84	164
325TKFF20010	30x0.35mm ²	12.8	101	186
325TKFF20011	36x0.35mm ²	14.4	121	221

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND SIGNAL

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF20001	2x0.25mm ²	4.6	15	23
522TKFF20002	3x0.25mm ²	4.9	19	33.4
522TKFF20003	4x0.25mm ²	5.2	21	39.2
522TKFF20004	5x0.25mm ²	5.5	29	45.1
522TKFF20005	7x0.25mm ²	6.3	39	61
522TKFF20006	12x0.25mm ²	7.4	54	90
522TKFF20007	16x0.25mm ²	8.2	67	106
522TKFF20008	18x0.25mm ²	10.4	78	117
522TKFF20009	25x0.25mm ²	11.5	101	152
522TKFF20010	30x0.25mm ²	12.6	105	170
522TKFF20011	36x0.25mm ²	13.8	118	198

SHIELDED MULTICORE CONTROL AND SIGNAL

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKFF20001	2x0.35mm ²	4.8	16	34.6
525TKFF20002	3x0.35mm ²	5	20	40.2
525TKFF20003	4x0.35mm ²	5.4	25	48
525TKFF20004	5x0.35mm ²	5.8	29	55.2
525TKFF20005	7x0.35mm ²	6.8	38	68
525TKFF20006	12x0.35mm ²	7.8	65	112
525TKFF20007	16x0.35mm ²	9	83	137
525TKFF20008	18x0.35mm ²	11	88	149
525TKFF20009	25x0.35mm ²	12.4	122	195
525TKFF20010	30x0.35mm ²	13.4	142	221
525TKFF20011	36x0.35mm ²	15	165	257

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND SIGNAL

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF20015	2x2x0.25mm ²	6.3	23	45.7
522TKFF20016	3x2x0.25mm ²	6.7	28	55.1
522TKFF20017	4x2x0.25mm ²	7.3	38	72.2
522TKFF20018	6x2x0.25mm ²	8.6	52	96.2
522TKFF20019	8x2x0.25mm ²	9.8	64	116
522TKFF20020	10x2x0.25mm ²	10.8	75	137
522TKFF20021	12x2x0.25mm ²	11.2	89	156
522TKFF20022	16x2x0.25mm ²	12.4	107	189

SHIELDED MULTICORE CONTROL AND SIGNAL

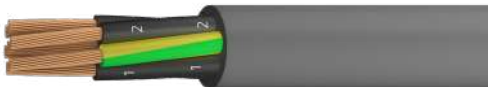
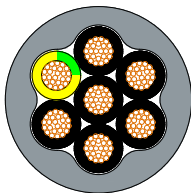
TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKFF20015	2x2x0.35mm ²	7	28	54.7
525TKFF20016	3x2x0.35mm ²	7.3	42	76.5
525TKFF20017	4x2x0.35mm ²	7.9	49	88.7
525TKFF20018	6x2x0.35mm ²	9.4	68	119
525TKFF20019	8x2x0.35mm ²	10.6	83	143
525TKFF20020	10x2x0.35mm ²	12	102	173
525TKFF20021	12x2x0.35mm ²	12.6	120	198
525TKFF20022	16x2x0.35mm ²	14	147	257

SHIELDED MULTICORE CONTROL AND SIGNAL

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
530TKFF20001	2x2x0.50mm ²	7.8	45	79.3
530TKFF20002	3x2x0.50mm ²	8.1	58	103
530TKFF20003	4x2x0.50mm ²	8.5	73	118
530TKFF20004	6x2x0.50mm ²	10.4	101	160
530TKFF20005	8x2x0.50mm ²	11.5	124	194
530TKFF20006	10x2x0.50mm ²	13.5	150	236

TK-FF200-MULTICORE CONTROL AND POWER CABLE UNSHIELDED AND SHIELDED

TKFF200-SERIES CABLES FOR DYNAMIC APPLICATIONS, PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

Black Numbered + Yellow/Green



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Grey Ral 7040 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

300V Cross-sectional area 0.5mm^2 (AWG21) ÷ 1.0mm^2 (AWG18)
1000V Cross-sectional area $> 1.0\text{mm}^2$ (AWG18)



Test voltage

2000V a.c. Cross-sectional area 0.5mm^2 (AWG21) ÷ 1.0mm^2 (AWG18)
3000V a.c. Cross-sectional area $> 1.0\text{mm}^2$ (AWG18)



Temperature range

$-20^\circ\text{C} \div +80^\circ\text{C}$ (Static Installation)
 $-5^\circ\text{C} \div +80^\circ\text{C}$ (Dynamic Installation)



Bending Radius

$5 \times \emptyset$ (Static Installation)
 $7.5 \times \emptyset$ (1.5 – 16mm² / Dynamic Installation)
 $10 \times \emptyset$ (25 – 95mm² / Dynamic Installation)



Maximum Speed

180 m/min



Maximum Acceleration

10 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V - CSA AWM I/II A/B 80°C 300V,
Cross-sectional area 0.5mm² (AWG21) ÷ 1.0mm² (AWG18)

UL 80°C 1000V - CSA AWM I/II A/B 80°C 1000V,
Cross-sectional area > 1.0mm² (AWG18)



According to NFPA 79-2018-Chapter 12.9



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

MAIN FEATURES

UNSHIELDED MULTICORE CONTROL CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
330TKFF20001	2x0.50mm ²	5.2	11	42.8
330TKFF20002	3x0.50mm ²	5.5	17	51.2
330TKFF20003	4x0.50mm ²	5.9	23	61.8
330TKFF20004	5x0.50mm ²	6.1	29	72.6
330TKFF20005	7x0.50mm ²	7.5	40	93.4
330TKFF20006	12x0.50mm ²	8.8	69	147
330TKFF20007	18x0.50mm ²	12	87	216
330TKFF20008	25x0.50mm ²	13.8	120	288
330TKFF20009	34x0.50mm ²	16.7	165	379
330TKFF20010	41x0.50mm ²	18.4	197	435

UNSHIELDED MULTICORE CONTROL CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
340TKFF20001	2x1mm ²	6	19	51.7
340TKFF20002	3x1mm ²	6.5	29	62.6
340TKFF20003	4x1mm ²	7	38	75.1
340TKFF20004	5x1mm ²	7.5	48	90.2
340TKFF20005	7x1mm ²	9	67	117
340TKFF20006	12x1mm ²	10.8	116	186
340TKFF20007	18x1mm ²	16	173	272
340TKFF20008	25x1mm ²	17.6	240	315
340TKFF20009	34x1mm ²	21.5	327	493
340TKFF20010	41x1mm ²	24.4	394	577

MAIN FEATURES

SHIELDED MULTICORE CONTROL CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
530TKFF20007	2x0.50mm ²	5.3	30	50.1
530TKFF20008	3x0.50mm ²	5.5	39	61.5
530TKFF20009	4x0.50mm ²	6.2	46	83.5
530TKFF20010	5x0.50mm ²	6.5	54	94.7
530TKFF20011	7x0.50mm ²	7.6	70	118
530TKFF20012	12x0.50mm ²	9	106	181
530TKFF20013	18x0.50mm ²	12.6	153	253
530TKFF20014	25x0.50mm ²	14.4	202	330
530TKFF20015	34x0.50mm ²	17.3	277	458
530TKFF20016	41x0.50mm ²	19.2	328	549

SHIELDED MULTICORE CONTROL CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
540TKFF20001	2x1mm ²	6.5	42	58.8
540TKFF20002	3x1mm ²	6.8	56	82.7
540TKFF20003	4x1mm ²	7.4	68	95.3
540TKFF20004	5x1mm ²	8	79	114
540TKFF20005	7x1mm ²	9.4	99	143
540TKFF20006	12x1mm ²	11.5	160	219
540TKFF20007	18x1mm ²	16.6	250	315
540TKFF20008	25x1mm ²	18.2	330	446
540TKFF20009	34x1mm ²	22.8	450	581
540TKFF20010	41x1mm ²	25.4	530	659

MAIN FEATURES

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
345TKFF20001	2x1.5mm ²	7	29	68.8
345TKFF20002	3x1.5mm ²	7.3	43	85.0
345TKFF20003	4x1.5mm ²	8.2	58	104
345TKFF20004	5x1.5mm ²	8.8	72	124
345TKFF20005	7x1.5mm ²	10.8	101	162
345TKFF20006	12x1.5mm ²	12.6	173	267
345TKFF20007	18x1.5mm ²	19.8	260	384
345TKFF20008	25x1.5mm ²	21.8	360	529
345TKFF20009	34x1.5mm ²	26.5	490	709
345TKFF20010	41x1.5mm ²	29.8	590	882

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
355TKFF20001	2x2.5mm ²	8.6	48	93.4
355TKFF20002	3x2.5mm ²	9.2	72	117
355TKFF20003	4x2.5mm ²	10	96	145
355TKFF20004	5x2.5mm ²	11	120	175
355TKFF20005	7x2.5mm ²	13.2	168	231
355TKFF20006	12x2.5mm ²	15.7	288	385
355TKFF20007	18x2.5mm ²	24.6	432	554
355TKFF20008	25x2.5mm ²	28	600	781

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
365TKFF20001	2x4mm ²	9.8	77	134
365TKFF20002	3x4mm ²	10.6	116	171
365TKFF20003	4x4mm ²	11.8	154	214
365TKFF20004	5x4mm ²	13	192	263
365TKFF20005	7x4mm ²	15.6	269	355

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
545TKFF20001	2x1.5mm ²	7.5	57	83.9
545TKFF20002	3x1.5mm ²	8	75	105
545TKFF20003	4x1.5mm ²	8.6	91	126
545TKFF20004	5x1.5mm ²	9.2	110	149
545TKFF20005	7x1.5mm ²	11.4	140	192
545TKFF20006	12x1.5mm ²	13.6	240	304
545TKFF20007	18x1.5mm ²	20.8	345	446
545TKFF20008	25x1.5mm ²	22.6	497	608
545TKFF20009	34x1.5mm ²	27.5	650	843
545TKFF20010	41x1.5mm ²	30.2	720	998

SHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
555TKFF20001	2x2.5mm ²	9.2	100	107
555TKFF20002	3x2.5mm ²	9.8	120	138
555TKFF20003	4x2.5mm ²	10.9	160	167
555TKFF20004	5x2.5mm ²	11.6	190	204
555TKFF20005	7x2.5mm ²	14	261	260
555TKFF20006	12x2.5mm ²	16.8	311	422
555TKFF20007	18x2.5mm ²	25.5	472	635
555TKFF20008	25x2.5mm ²	29	640	911

SHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
565TKFF20001	2x4mm ²	10.4	110	134
565TKFF20002	3x4mm ²	11.4	165	193
565TKFF20003	4x4mm ²	12.4	230	238
565TKFF20004	5x4mm ²	13.6	280	288
565TKFF20005	7x4mm ²	16.2	360	385

MAIN FEATURES

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
370TKFF20001	4x6mm ²	13.6	230	327
370TKFF20002	5x6mm ²	14.8	288	395
370TKFF20003	7x6mm ²	18.2	403	533

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
380TKFF20001	4x10mm ²	16.8	384	527
380TKFF20002	5x10mm ²	18.8	480	645
380TKFF20003	7x10mm ²	23.5	672	882

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
385TKFF20001	4x16mm ²	20.4	615	857
385TKFF20002	5x16mm ²	22.7	768	1041
385TKFF20003	7x16mm ²	28	1076	1385

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
390TKFF20001	4x25mm ²	24.2	960	1315
393TKFF20001	4x35mm ²	28	1344	1865
395TKFF20001	4x50mm ²	33.2	1920	2866
397TKFF20001	4x70mm ²	39.6	2688	3561
398TKFF20001	4x95mm ²	47.6	3650	4713

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
570TKFF20001	4x6mm ²	14.2	282	352
570TKFF20002	5x6mm ²	15.5	340	408
570TKFF20003	7x6mm ²	19.2	450	573

SHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
580TKFF20001	4x10mm ²	17.6	485	566
580TKFF20002	5x10mm ²	19.6	562	697
580TKFF20003	7x10mm ²	24.5	796	985

SHIELDED MULTICORE CONTROL AND POWER CABLES

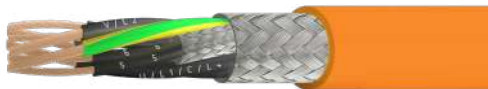
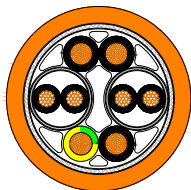
TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
585TKFF20001	4x16mm ²	21.5	723	858
585TKFF20002	5x16mm ²	23.5	889	1086
585TKFF20003	7x16mm ²	29	1240	1439

SHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
590TKFF20001	4x25mm ²	25	1090	1442
593TKFF20001	4x35mm ²	29	1536	2046
595TKFF20001	4x50mm ²	34.2	2381	3073
597TKFF20001	4x70mm ²	40.5	2921	3801
598TKFF20001	4x95mm ²	48.4	3950	4992

TK-FF200-SERVOMOTOR POWER CABLE SHIELDED 0.6/1KV

TKFF200-SERIES CABLES FOR DYNAMIC APPLICATIONS, PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 - IEC 60228 Class 6 - VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

Black Numbered U/L1/C/L+, V/L2, W/L3/D/L-, Yellow/Green

Pairs Identification (where request)

Black - White or Black Numbered 5÷6 and Black Numbered 7÷8



Pairs Shield (where request)

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Orange Ral 2003 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

1000V Cross-sectional area 1.0mm² (AWG18)



Test voltage

3000V a.c. Cross-sectional area 1.0mm² (AWG18)



Temperature range

-20°C ÷ +80°C (Static Installation)
-5°C ÷ +80°C (Dynamic Installation)



Bending Radius

5 x Ø (Static Installation)
7.5 x Ø (1.5 - 16mm² / Dynamic Installation)
10 x Ø (25 - 50mm² / Dynamic Installation)



Maximum Speed

180 m/min



Maximum Acceleration

10 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 1000V - CSA AWM I/II A/B 80°C 1000V, Cross-sectional area $\geq 1.0\text{mm}^2$ (AWG18)



According to NFPA 79-2018-Chapter 12.9



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

MAIN FEATURES

SERVOMOTOR POWER CABLES SHIELDED

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
545TKFF20013	(4G1.5)H2	8.7	83	131
555TKFF20009	(4G2.5)H2	10.8	130	198
565TKFF20006	(4G4)H2	12.2	193	276
570TKFF20004	(4G6)H2	14.2	275	376
580TKFF20004	(4G10)H2	17.6	450	567
585TKFF20004	(4G16)H2	21.2	720	885
590TKFF20002	(4G25)H2	25	1003	1314
593TKFF20002	(4G35)H2	28.8	1514	2146
595TKFF20002	(4G50)H2	33.9	2167	2992

SERVOMOTOR POWER CABLES SHIELDED

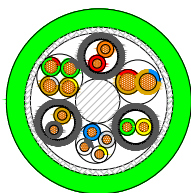
TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
545TKFF20016	[4G1.5 + (2x1.5)H2]H2	11.6	149	221
555TKFF20012	[4G2.5 + (2x1.5)H2]H2	13	193	264
565TKFF20009	[4G4 + (2x1.5)H2]H2	14.7	255	315
570TKFF20005	[4G6 + (2x1.5)H2]H2	16.2	339	480
580TKFF20005	[4G10 + (2x1.5)H2]H2	19.7	526	774
585TKFF20005	[4G16 + (2x1.5)H2]H2	23.2	773	1043
590TKFF20003	[4G25 + (2x1.5)H2]H2	27.4	1190	1567
593TKFF20003	[4G35 + (2x1.5)H2]H2	31	1590	1978
595TKFF20003	[4G50 + (2x1.5)H2]H2	34.5	2240	2766

SERVOMOTOR POWER CABLES SHIELDED

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
540TKFF20015	[4G1 + 2x(2x0.75)H2]H2	11.8	137	216
545TKFF20015	[4G1.5 + 2x(2x0.75)H2]H2	12.4	155	259
555TKFF20013	[4G2.5 + 2x(2x1)H2]H2	14.2	220	320
565TKFF20008	[4G4 + (2x1) + (2x1.5)H2]H2	16.3	293	439
570TKFF20006	[4G6 + (2x1) + (2x1.5)H2]H2	18	372	594
580TKFF20006	[4G10 + (2x1) + (2x1.5)H2]H2	21.8	570	845
585TKFF20006	[4G16 + 2x (2x1.5)H2]H2	25.5	830	1231
590TKFF20004	[4G25 + 2x (2x1.5)H2]H2	29.8	1213	1615
593TKFF20004	[4G35 + 2x (2x1.5)H2]H2	32.2	1598	2022

TK-FF200-ENCODER AND RESOLVER CABLE

TKFF200-SERIES CABLES FOR DYNAMIC APPLICATIONS, PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Polyolefin and/or Polyester (UL-CSA Standards)



Core identification

More informations are available upon request



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Green Ral 6018 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Temperature range

-20°C ÷ +80°C (Static Installation)
-5°C ÷ +80°C (Dynamic Installation)



Bending Radius

5 x Ø (Static Installation)
7.5 x Ø (Dynamic Installation)



Maximum Speed

180 m/min



Maximum Acceleration

10 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - HEIDENHAIN

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
514TKFF20001	[4x2x0.14 + (4x0.14)H1 + 4x0.5]H2	8.6	70	102
514TKFF20002	[3x(2x0.14)H1 + 2x(0.5)H1]H2	8.5	66	112
514TKFF20003	(4x2x0.14 + 4x0.50)H2	8.6	51	106
514TKFF2001N	[4x2x0.14 + (4x0.14)H1 + 4x0.5]H2	8.6	70	102
514TKFF2002N	[3x(2x0.14)H1 + 2x(0.5)H1]H2	8.5	66	112
514TKFF2003N	(4x2x0.14 + 4x0.50)H2	8.6	51	106

Note: outer sheath black

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - B&R

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
514TKFF20012	(5x2x0.14 + 2x0.50)H2	7.9	42	73.2
518TKFF20030	(3x2xAWG24)H2	6.6	27	52.4

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - ELAU

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF20026	(3x2x0.25 + 2x0.50)H2	8.2	47	88
522TKFF20027	3x(2x0.25)H2	8.5	74	150

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - CONTROL TECHNIQUES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKFF20025	[(2x0.34)H + 6x2x0.34 + 2x1]H2	11	102	172
512TKFF20002	(2x2xAWG26)H2	5.6	19	45

MAIN FEATURES

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - LENZE

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
514TKFF20007	3x(2x0.14)H2 + (2x0.50)H2	9.4	47	152
514TKFF20008	4x(2x0.14)H2 + (2x1)H2	11.2	70	229

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - YASKAWA

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKFF20026	(2x2x0.34)H2	7	36	83.3

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - BOSCH REXROTH

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF20029	(4x2x0.25 + 2x0.50)H2	8.7	65	11.2
514TKFF20009	[4x2x0.14 + 4x1 + (4x0.14)H2]H2	9.5	93	165
522TKFF20030	[3x(2x0.25)H2 + 3x0.25 + 2x1]H2	10	59	115
530TKFF20019	(9x0.50)H2	8.8	75	148
522TKFF2029A	(4x2x0.25 + 2x0.50)H2	8.7	65	111
514TKFF2009A	[4x2x0.14 + 4x1 + (4x0.14)H2]H2	9.7	93	165
522TKFF2030A	[3x(2x0.25)H2 + 3x0.25 + 2x1]H2	10	59	115
530TKFF2019A	(9x0.50)H2	8.8	75	148

Note: outer sheath orange

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - SIEMENS

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF20012	(12x0.25)H2	7.2	48	82.3
526TKFF20001	(4x2x0.38 + 4x0.50)H2	9.2	71	130
517TKFF20001	(8x2x0.18)H2	8	54	85
517TKFF20006	(4x2x0.18)H2	6.5	28	45
514TKFF20010	[3x(2x0.14)H1 + 4x0.14 + 4x0.25 + 2x0.50]H2	9.8	76	139
514TKFF20011	[3x(2x0.14)H1 + 4x0.14 + 2x0.50]H2	8.6	66	101
512TKFF20003	(2x2xAWG26 + 2xAWG22)H2 Drive Cliq	6.8	33	71
518TKFF20031	(2x2xAWG24 + 2xAWG22)H2 Drive Cliq	7.2	36	74

MAIN FEATURES

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - FANUC

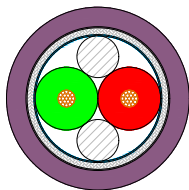
TECHNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
517TKFF20002	(4x2x0.18 + 2x0.50)H2	7.7	32.9	70.5
517TKFF20003	(3x2x0.18 + 6x0.50)H2	8.4	63	94
517TKFF20004	(3x2x0.18 + 6x1)H2	8.7	89	140
517TKFF20005	(5x2x0.18 + 6x0.50)H2	8.7	71	94
530TKFF20020	(2x0.18 + 5x0.5)H2	7.5	48.6	143
530TKFF20021	(2x2x0.18 + 5x0.5)H2	7.7	44.5	84.4
518TKFF20032	(10x2xAWG24)H2	11.5	60	121
538TKFF2014V	(10x2xAWG28)H2	9.2	46	66

RESOLVER SIGNAL TRANSMISSION

TECHNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF20031	[3x(2x0.25)H2]H2	8.5	74	150
522TKFF20032	[4x(2x0.25)H2]H2	9	85	120
522TKFF20033	[8x(2x0.25)H2]H2	13.8	139	206
525TKFF20027	[4x(2x0.34)H2]H2	11.2	97	145
525TKFF20005	[5x(2x0.34)H2]H2	12.2	113	166

TK-FF200 BUS CABLE — PROFIBUS L2 DP-FIP

TKFF200-SERIES CABLES FOR DYNAMIC APPLICATIONS, PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Foam Polyolefin (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and Tinned Copper
Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart
page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000 V a.c. or 2000 V a.c.



Mutual capacitance

≤ 30 pF/m



Characteristic impedance

$150 \Omega \pm 15 \Omega$



Transmission speed

12 Mbit/s with maximum length 200m
0.6 Kbit/s with maximum length 1000m



Temperature range

$-20^{\circ}\text{C} \div +80^{\circ}\text{C}$ (Static Installation)
 $-5^{\circ}\text{C} \div +80^{\circ}\text{C}$ (Dynamic Installation)



Bending Radius

$5 \times \emptyset$ (Static Installation)
 $7.5 \times \emptyset$ (Dynamic Installation)



Maximum Speed

180 m/min



Maximum Acceleration

10 m/s^2



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

TK-FF200 BUS CABLE – PROFIBUS L2 DP-FIP

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



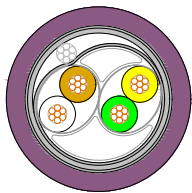
MAIN FEATURES

BUS CABLES – PROFIBUS L2 DP-FIP

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
524TKFF20023	(1x2x0.34mm ²)HH2	8.3	24	70.4
518TKFF20023	(1x2x0.25mm ²)HH2	7.8	20	67.1
524TKFF20023	1x2x0.34mm ²		Green - Red	
518TKFF20023	1x2x0.25mm ²		Green - Red	

TK-FF200 BUS CABLE – CANOPEN – CANBUS

TKFF200-SERIES CABLES FOR DYNAMIC APPLICATIONS, PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class6 – VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

More informations are available upon request



Overall Shield

Aluminum/Plastic Tape and Tinned Copper
Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Mutual capacitance

≤ 60 pF/m



Characteristic impedance

$120 \Omega \pm 15 \Omega$



Transmission speed

1000 Kbit/s with maximum length 40m
500 Kbit/s with maximum length 300m
100 Kbit/s with maximum length 600m
50 Kbit/s with maximum length 1000m



Temperature range

-20°C ÷ +80°C (Static Installation)
-5°C ÷ +80°C (Dynamic Installation)



Bending Radius

5 x Ø (Static Installation)
7.5 x Ø (Dynamic Installation)



Maximum Speed

180 m/min



Maximum Acceleration

10 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



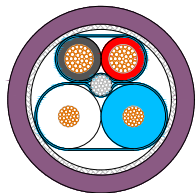
MAIN FEATURES

BUS CABLES – CANOPEN – CANBUS

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKFF20024	(2x0.34)H2	6	25	50
525TKFF20023	(2x2x0.34)H2	7.4	36	68.5
525TKFF20028	(1x4x0.34)Q/H2	7.5	36	68.5
530TKFF20017	(2x0.50)H2	6.8	29	69.1
530TKFF20018	(2x2x0.50)H2	8.8	48	92.7
525TKFF20024	2x0.34		(White – Brown)	
525TKFF20023	2x2x0.34		(White – Brown) – (Green – Yellow)	
525TKFF20028	1x4x0.34		White – Green – Brown – Yellow	
530TKFF20017	2x0.50		(White – Brown)	
530TKFF20018	2x2x0.50		(White – Brown) – (Green – Yellow)	

TK-FF200 BUS CABLE – DEVICENET DROP AND TRUNK

TKFF200-SERIES CABLES FOR DYNAMIC APPLICATIONS, PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS

**Conductor**

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6

**Insulation**

Polyolefin and Foam Polyolefin (UL-CSA Standards)

**Core identification**

See following table

**Pairs Shield**

Aluminum/Plastic on each pairs

**Overall Shield**

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©

**Sheath**

PVC Y (UL-CSA Standards)

**Outer jacket colour**

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA

**Operating voltage**

30V or 300V

**Test voltage**

1000V a.c. or 2000V a.c.

**Mutual capacitance**

≤ 50 pF/m

**Characteristic impedance**

$120 \Omega \pm 15 \Omega$

**Transmission speed**

500 Kbit/s with maximum length 200m

250 Kbit/s with maximum length 250m

125 Kbit/s with maximum length 500m

**Temperature range**

$-20^{\circ}\text{C} \div +80^{\circ}\text{C}$ (Static Installation)

$-5^{\circ}\text{C} \div +80^{\circ}\text{C}$ (Dynamic Installation)

**Bending Radius**

$5 \times \emptyset$ (Static Installation)

$7.5 \times \emptyset$ (Dynamic Installation)

**Maximum Speed**

180 m/min

**Maximum Acceleration**

10 m/s^2

**Maximum Chain length**

15 m (only horizontal)

**Flex life**

5.000.000 cycles

**Torsion**

Please contact our technical support office

TK-FF200 BUS CABLE – DEVICENET DROP AND TRUNK

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



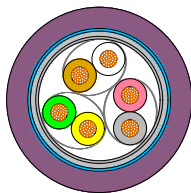
MAIN FEATURES

BUS CABLES - DEVICENET

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKFF20024	[(2xAWG24)H + (2xAWG22)H]H2 - Drop	7.2	31	74.7
538TKFF20013	[(2xAWG18)H + (2xAWG15)H]H2 - Trunk	11	103	179
518TKFF20024	2xAWG24 - Data	(Blue - White)		
	2xAWG22 - Power	(Red - Black)		
538TKFF20013	2xAWG18 - Data	(Blue - White)		
	2xAWG15 - Power	(Red - Black)		

TK-FF200 BUS CABLE – INTERBUS

TKFF200-SERIES CABLES FOR DYNAMIC APPLICATIONS, PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and/or Tinned Copper
Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart
page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Mutual capacitance

≤ 60 pF/m



Characteristic impedance

$100 \Omega \pm 15 \Omega$



Transmission speed

500 Kbit/s with maximum length 400m



Temperature range

- 20°C ÷ +80°C (Static Installation)
- 5°C ÷ +80°C (Dynamic Installation)



Bending Radius

5 x $\emptyset$ (Static Installation)
7.5 x $\emptyset$ (Dynamic Installation)



Maximum Speed

180 m/min



Maximum Acceleration

10 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



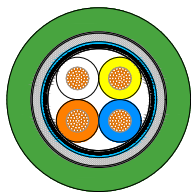
MAIN FEATURES

BUS CABLES - INTERBUS

TECHNICAL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF20034	(3x2x0.22)HH2	7	22	61.7
522TKFF20035	(3x2x0.22 + 3G1)HH2	8.4	54	96.6
522TKFF20034	3x2x0.22	(White-Brown) – (Green-Yellow) – (Grey-Pink)		
522TKFF20035	3x2x0.22 3G1	(White-Brown) – (Green-Yellow) – (Grey-Pink) Blue – Red – Yellow/Green		

TK-FF200 ETHERNET – PROFINET/ETHERCAT CATEGORY 5E

TKFF200-SERIES CABLES FOR DYNAMIC APPLICATIONS, PVC OIL RESISTANT, UL/CSA APPROVAL



CABLE SPECIFICATIONS

**Conductor**

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6

**Insulation**

Polyolefin (UL-CSA Standards)

**Core identification**

See following table

**Inner sheath**

Only Profinet/Ethernet version

**Overall Shield**

Aluminum/Plastic Tape and Tinned Copper
Coverage $\geq 85\%$ according to EMC 89/336 ©

**Sheath**

PVC Y (UL-CSA Standards)

**Outer jacket colour**

Green Ral 6018 according to DESINA colour chart
page 163, other colours available upon request

TECHNICAL DATA

**Operating voltage**

30V

**Test voltage**

1000V a.c.

**Mutual capacitance**

≤ 60 pF/m

**Characteristic impedance**

100 $\Omega \pm 15 \Omega$

**Transmission speed**

100 Mbit/s with maximum length 100m
10 Mbit/s with maximum length 500m

**Temperature range**

- 20°C ÷ +80°C (Static Installation)
- 5°C ÷ +80°C (Dynamic Installation)

**Bending Radius**

5 x $\emptyset$ (Static Installation)
7.5 x $\emptyset$ (Dynamic Installation)

**Maximum Speed**

180 m/min

**Maximum Acceleration**

10 m/s²

**Maximum Chain length**

15 m (only horizontal)

**Flex life**

5.000.000 cycles

**Torsion**

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



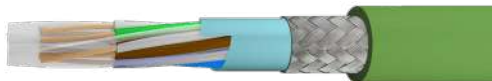
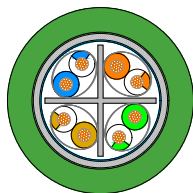
MAIN FEATURES

BUS CABLES - ETHERNET CAT 5E

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKFF20025	Ethernet Category 5E (2x2xAWG24)HH2	6.3	21	50
518TKFF20026	Ethernet Category 5E (4x2xAWG24)HH2	7.2	33	68
512TKFF20001	Ethernet Category 5E (4x2xAWG26)HH2	6.8	26	53
524TKFF20039	Ethercat/Profinet Category 5E (4xAWG22)HH2	6.5	31	65
518TKFF20040	Ethercat/Profinet Category 5E (4xAWG24)HH2	5.5	22	46
518TKFF20025	2x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange)		
518TKFF20026	4x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
512TKFF20001	4x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
524TKFF20039	2xAWG22	White - Yellow - Blue - Orange		
518TKFF20040	4xAWG24	White - Yellow - Blue - Orange		

TK-FF200 ETHERNET CATEGORY 6

CABLES FOR DYNAMIC APPLICATIONS ON DRAG CHAIN LOW PERFORMANCE - UL/CSA RECOGNIZED 80°C 30V OR 300V (600V ON REQUEST) ACCORDING TO UL758



CABLE SPECIFICATIONS



Conductor

Bare Copper according to CEI 20-29 Class 6 - IEC 60228 Class 6 - VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and Tinned Copper Braid Coverage $\geq 85\%$ according to EMC 2014/30/EU ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Green Ral 6018 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V (600V on request)



Test voltage

1000V a.c. or 2000V a.c.



Mutual capacitance

< 50 pF/m



Characteristic impedance

100 Ω



Temperature range

- 20°C ÷ +80°C (Static Installation)
- 5°C ÷ +80°C (Dynamic Installation)



Bending Radius

5 x $\emptyset$ (Static Installation)
7.5 x $\emptyset$ (Dynamic Installation)



Maximum Speed

180 m/min



Maximum Acceleration

10 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



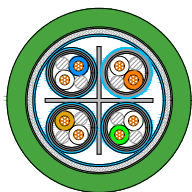
MAIN FEATURES

BUS CABLES - ETHERNET CAT 6

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKFF20041	Ethernet Category 6 (4x2xAWG24)HH2	7.6	34	70
512TKFF20011	Ethernet Category 6 (4x2xAWG26)HH2	7.2	27	63
518TKFF20041	4x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
512TKFF20011	4x2xAWG26	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		

TK-FF200 ETHERNET CATEGORY 7

CABLES FOR DYNAMIC APPLICATIONS ON DRAG CHAIN LOW PERFORMANCE - UL/CSA RECOGNIZED 80°C 30V OR 300V (600V ON REQUEST) ACCORDING TO UL758



CABLE SPECIFICATIONS



Conductor

Bare Copper according to CEI 20-29 Class 6 - IEC 60228 Class 6 - VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Pairs Shield

Aluminum/Plastic Tape



Overall Shield

Aluminum/Plastic Tape and Tinned Copper Braid
Coverage $\geq 85\%$ according to EMC 2014/30/EU ©



Sheath

PVC Y (UL-CSA Standards)



Outer jacket colour

Green Ral 6018 according to DESINA colour chart
page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V (600V on request)



Test voltage

1000V a.c. or 2000V a.c.



Mutual capacitance

< 50 pF/m



Characteristic impedance

100 Ω



Temperature range

- 20°C $\div$ +80°C (Static Installation)
- 5°C $\div$ +80°C (Dynamic Installation)



Bending Radius

5 x $\varnothing$ (Static Installation)
7.5 x $\varnothing$ (Dynamic Installation)



Maximum Speed

180 m/min



Maximum Acceleration

10 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES

BUS CABLES - ETHERNET CAT 7

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKFF20042	Ethernet Category 7 [4x(2xAWG24)H]HH2	10.6	42	108
512TKFF20012	Ethernet Category 7 [4x(2xAWG26)H]HH2	9.7	32	90
518TKFF20042	4x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
512TKFF20012	4x2xAWG26	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		

▶ NOTE



Handwriting practice lines consisting of 18 horizontal lines.

FOR HIGH DYNAMIC APPLICATION, PUR OIL RESISTANT,
UL/CSA APPROVALS, HALOGEN FREE



PRODUCT DESCRIPTION AND APPLICATION

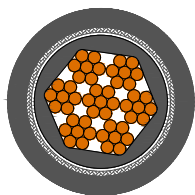
Single-core and multicore cables for dynamic installations built in compliance with **UL** and **CSA** standards to satisfy the highest performance levels required by automation system and machine tool makers and for some applications aboard industrial robots. The most modern materials and features are used in **TK FF390®** to obtain small dimensions, allowing for use in bending-torsion, with the best price/performance ratio. Use in high dynamic installations is guaranteed with temperatures down to -40°C.

The outer sheath in Polyurethane provides good resistance to the most aggressive cutting and industrial oils, chemical substances typically found in industrial environments, and UV rays.

These images are solely for illustrative purposes

TK-FF390-SINGLE CORE UNSHIELDED AND SHIELDED CABLE

TKFF390-SERIES CABLES FOR HIGH DYNAMIC APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 - IEC 60228 Class 6 - VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

Black (other colours available upon request)



Overall Shield (optional)

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11V (UL-CSA Standards)



Outer jacket colour

Black Ral 9005 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

1000V



Test voltage

3000V a.c.



Temperature range

-40°C + +90°C



Bending Radius

5 x Ø (Static Installation)
7.5 x Ø (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 1000V - Style 11773 - CSA AWM I/II A/B 90°C 1000V



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Halogen Free

UL 1581 - VDE 0472 part 803 A/B - HD 22.10 S1 - CNO-MO E.03.40.150N



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

EN 50267-2-1 - IEC 60754-1



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

TK-FF390-SINGLE CORE UNSHIELDED AND SHIELDED CABLE

MAIN FEATURES

SINGLE CORE 90°C 1000V

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
270TKFF390N0N	1x6 mm ²	7	58	96.6
280TKFF390N0N	1x10 mm ²	8.3	96	148
285TKFF390N0N	1x16 mm ²	9.6	154	216
290TKFF390N0N	1x25 mm ²	11.2	240	321
293TKFF390N0N	1x35 mm ²	12.7	336	454
295TKFF390N0N	1x50 mm ²	15	480	625
297TKFF390N0N	1x70 mm ²	16.6	672	799
298TKFF390N0N	1x95 mm ²	19.4	912	1094
299TKFF390N0N	1x120 mm ²	22.6	1152	1345
29DTKFF390N0N	1x150 mm ²	23.8	1440	1719
29FTKFF390N0N	1x185 mm ²	25.3	1776	2022
29ITKFF390N0N	1x240 mm ²	28.5	2304	2514

SINGLE CORE SHIELDED 90°C 1000V

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
570TKFF390N0N	(1x6 mm ²)H2	7.5	78	121.4
580TKFF390N0N	(1x10 mm ²)H2	8.7	122	179
585TKFF390N0N	(1x16 mm ²)H2	10.2	181	253
590TKFF390N0N	(1x25 mm ²)H2	11.8	272	366
593TKFF390N0N	(1x35 mm ²)H2	13.4	401	495
595TKFF390N0N	(1x50 mm ²)H2	15.6	579	682
597TKFF390N0N	(1x70 mm ²)H2	17.4	766	869
598TKFF390N0N	(1x95 mm ²)H2	20.4	1009	1201
599TKFF390N0N	(1x120 mm ²)H2	23.5	1272	1489
59DTKFF390N0N	(1x150 mm ²)H2	24.6	1705	1722
59FTKFF390N0N	(1x185 mm ²)H2	26.3	2095	2283
59ITKFF390N0N	(1x240 mm ²)H2	29.5	2510	2697

TKFF390-MULTICORE/MULTIPAIR CONTROL AND SIGNAL CABLE UNSHIELDED AND SHIELDED

TKFF390-SERIES CABLES FOR HIGH DYNAMIC APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

DIN 47100



Overall Shield (optional)

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Grey Ral 7040 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

300V



Test voltage

2000 V a.c.



Temperature range

$-40^{\circ}\text{C} \div +90^{\circ}\text{C}$

TK-FF390

≤ 12 conductors : concentric conductors
 > 12 conductors : in group



Bending Radius

$5 \times \varnothing$ (Static Installation)
 $7.5 \times \varnothing$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s^2



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

TK-FF390L

From 16 to 25 conductors in concentric layers



Bending Radius

$5 \times \varnothing$ (Static Installation)
 $7.5 \times \varnothing$ (Dynamic Installation)



Maximum Speed

240 m/min



Maximum Acceleration

30 m/s^2



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

TKFF390-MULTICORE/MULTIPAIR CONTROL AND SIGNAL CABLE UNSHIELDED AND SHIELDED

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2
UL 90°C 300V - Style 21209 - CSA AWM I/II A/B 90°C 300V, Cross-sectional area $\leq 0,50\text{mm}^2$ (AWG21)



Hydrocarbons and Oil Resistance
UL 1581 - VDE 0472 part 803 A/B



Flame Retardant
EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Water Resistance
UL 1581 - IEC 60811



Halogen Free
EN 50267-2-1 - IEC 60754-1



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

MAIN FEATURES

UNSHIELDED MULTICORE CONTROL AND SIGNAL

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
322TKFF39001	2x0.25mm ²	4.2	4.8	21.4
322TKFF39002	3x0.25mm ²	4.5	7.5	25
322TKFF39003	4x0.25mm ²	4.8	10	29.4
322TKFF39004	5x0.25mm ²	5.1	12.5	34.1
322TKFF39005	7x0.25mm ²	5.9	17.5	42.5
322TKFF39006	12x0.25mm ²	7	29	56
322TKFF39007	16x0.25mm ²	7.6	37	82
322TKFF39008	18x0.25mm ²	9.8	45	90.2
322TKFF39009	25x0.25mm ²	10.8	63	119
322TKFF39010	30x0.25mm ²	12	72	107
322TKFF39011	36x0.25mm ²	13.2	86	163

UNSHIELDED MULTICORE CONTROL AND SIGNAL

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
325TKFF39001	2x0.35mm ²	4.4	6.7	27
325TKFF39002	3x0.35mm ²	4.6	10	32
325TKFF39003	4x0.35mm ²	5	13	38
325TKFF39004	5x0.35mm ²	5.4	17	44
325TKFF39005	7x0.35mm ²	6.4	23.5	55
325TKFF39006	12x0.35mm ²	7.4	41	86
325TKFF39007	16x0.35mm ²	9.7	54	110
325TKFF39008	18x0.35mm ²	10.4	61	120
325TKFF39009	25x0.35mm ²	11.8	84	164
325TKFF39010	30x0.35mm ²	12.8	101	186
325TKFF39011	36x0.35mm ²	14.4	121	221

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND SIGNAL

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF39001	2x0.25mm ²	4.6	15	23
522TKFF39002	3x0.25mm ²	4.9	19	33.4
522TKFF39003	4x0.25mm ²	5.2	21	39.2
522TKFF39004	5x0.25mm ²	5.5	29	45.1
522TKFF39005	7x0.25mm ²	6.3	39	61
522TKFF39006	12x0.25mm ²	7.4	54	90
522TKFF39007	16x0.25mm ²	8.2	67	106
522TKFF39008	18x0.25mm ²	10.4	78	117
522TKFF39009	25x0.25mm ²	11.5	101	152
522TKFF39010	30x0.25mm ²	12.6	105	170
522TKFF39011	36x0.25mm ²	13.8	118	198

SHIELDED MULTICORE CONTROL AND SIGNAL

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKFF39001	2x0.35mm ²	4.8	16	34.6
525TKFF39002	3x0.35mm ²	5	20	40.2
525TKFF39003	4x0.35mm ²	5.4	25	48
525TKFF39004	5x0.35mm ²	5.8	29	55.2
525TKFF39005	7x0.35mm ²	6.8	38	68
525TKFF39006	12x0.35mm ²	7.8	65	112
525TKFF39007	16x0.35mm ²	9	83	137
525TKFF39008	18x0.35mm ²	11	88	149
525TKFF39009	25x0.35mm ²	12.4	122	195
525TKFF39010	30x0.35mm ²	13.4	142	221
525TKFF39011	36x0.35mm ²	15	165	257

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND SIGNAL

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF39015	2x2x0.25mm ²	6.3	23	45.7
522TKFF39016	3x2x0.25mm ²	6.7	28	55.1
522TKFF39017	4x2x0.25mm ²	7.3	38	72.2
522TKFF39018	6x2x0.25mm ²	8.6	52	96.2
522TKFF39019	8x2x0.25mm ²	9.8	64	116
522TKFF39020	10x2x0.25mm ²	10.8	75	137
522TKFF39021	12x2x0.25mm ²	11.2	89	156
522TKFF39022	16x2x0.25mm ²	12.4	107	189

SHIELDED MULTICORE CONTROL AND SIGNAL

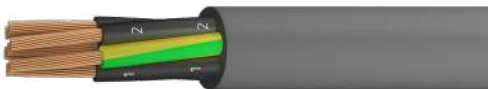
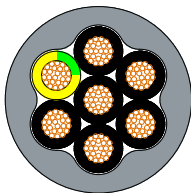
TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKFF39015	2x2x0.35mm ²	7	28	54.7
525TKFF39016	3x2x0.35mm ²	7.3	42	76.5
525TKFF39017	4x2x0.35mm ²	7.9	49	88.7
525TKFF39018	6x2x0.35mm ²	9.4	68	119
525TKFF39019	8x2x0.35mm ²	10.6	83	143
525TKFF39020	10x2x0.35mm ²	12	102	173
525TKFF39021	12x2x0.35mm ²	12.6	120	198
525TKFF39022	16x2x0.35mm ²	14	147	257

SHIELDED MULTICORE CONTROL AND SIGNAL

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
530TKFF39001	2x2x0.50mm ²	7.8	45	79.3
530TKFF39002	3x2x0.50mm ²	8.1	58	103
530TKFF39003	4x2x0.50mm ²	8.5	73	118
530TKFF39004	6x2x0.50mm ²	10.4	101	160
530TKFF39005	8x2x0.50mm ²	11.5	124	194
530TKFF39006	10x2x0.50mm ²	13.5	150	236

TKFF390-MULTICORE CONTROL AND POWER CABLE UNSHIELDED AND SHIELDED

TKFF390-SERIES CABLES FOR HIGH DYNAMIC APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

Black Numbered + Yellow/Green



Overall Shield (optional)

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11V (UL-CSA Standards)



Outer jacket colour

Grey Ral 7040 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

300V Cross-sectional area 0.5mm^2 (AWG21) ÷ 1.0mm^2 (AWG18)
1000V Cross-sectional area $> 1.0\text{mm}^2$ (AWG18)



Test voltage

2000 Va.c. Cross-sectional area 0.5mm^2 (AWG21) ÷ 1.0mm^2 (AWG18)
3000 Va.c. Cross-sectional area $> 1.0\text{mm}^2$ (AWG18)



Temperature range

-40°C ÷ $+90^\circ\text{C}$

TK-FF390

≤ 12 conductors : concentric conductors

> 12 conductors : in group



Bending Radius

$5 \times \emptyset$ (Static Installation)
 $7.5 \times \emptyset$ ($1.5 \div 16\text{mm}^2$ / Dynamic installation)
 $10 \times \emptyset$ ($25 \div 50\text{mm}^2$ / Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s^2



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

TK-FF390L

From 16 to 25 conductors in concentric layers



Bending Radius

$5 \times \emptyset$ (Static Installation)
 $7.5 \times \emptyset$ ($1.5 \div 16\text{mm}^2$ / Dynamic Installation)
 $10 \times \emptyset$ ($25 \div 50\text{mm}^2$ / Dynamic Installation)



Maximum Speed

240 m/min



Maximum Acceleration

30 m/s^2



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 300V -Style 21209 - CSA AWM I/II A/B
90°C 300V, Cross-sectional area 0,5mm² (AWG21) ÷
1,0mm² (AWG18)

UL 90°C 1000V - Style 21209 - CSA AWM I/II A/B
90°C 1000V, Cross-sectional area > 1,0mm² (AWG18)



According to NFPA 79-2018-Chapter 12.9



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Halogen Free

EN 50267-2-1 - IEC 60754-1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low
Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic
Compatibility



MAIN FEATURES

UNSHIELDED MULTICORE CONTROL CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
330TKFF39001	2x0.50mm ²	5.2	10	42.8
330TKFF39002	3x0.50mm ²	5.5	15	51.2
330TKFF39003	4x0.50mm ²	5.9	20	61.8
330TKFF39004	5x0.50mm ²	6.1	24	72.6
330TKFF39005	7x0.50mm ²	7.5	34	93.4
330TKFF39006	12x0.50mm ²	8.8	58	147
330TKFF39007	18x0.50mm ²	12	87	216
330TKFF39008	25x0.50mm ²	13.8	120	288
330TKFF39009	34x0.50mm ²	16.7	164	379
330TKFF39010	41x0.50mm ²	18.4	197	435
330TKFF390L1	18x0.50mm ²	10	87	184
330TKFF390L2	25x0.50mm ²	12	120	245

UNSHIELDED MULTICORE CONTROL CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
340TKFF39001	2x1mm ²	6	19	51.7
340TKFF39002	3x1mm ²	6.5	29	62.6
340TKFF39003	4x1mm ²	7.0	38	75.1
340TKFF39004	5x1mm ²	7.5	48	90.2
340TKFF39005	7x1mm ²	9	67	117
340TKFF39006	12x1mm ²	10.8	116	186
340TKFF39007	18x1mm ²	16	173	272
340TKFF39008	25x1mm ²	17.6	240	315
340TKFF39009	34x1mm ²	21.5	327	493
340TKFF39010	41x1mm ²	24.4	394	577
340TKFF390L1	18x1mm ²	12.6	173	231
340TKFF390L2	25x1mm ²	15.8	240	268

MAIN FEATURES

SHIELDED MULTICORE CONTROL CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
530TKFF39007	2x0.50mm ²	5.3	30	50.1
530TKFF39008	3x0.50mm ²	5.5	39	61.5
530TKFF39009	4x0.50mm ²	6.2	46	83.5
530TKFF39010	5x0.50mm ²	6.5	54	94.7
530TKFF39011	7x0.50mm ²	7.6	70	118
530TKFF39012	12x0.50mm ²	9	105	181
530TKFF39013	18x0.50mm ²	12.6	153	253
530TKFF39014	25x0.50mm ²	14.4	202	330
530TKFF39015	34x0.50mm ²	17.3	277	458
530TKFF39016	41x0.50mm ²	19.2	328	549
530TKFF390L1	18x0.50mm ²	10.6	153	215
530TKFF390L2	25x0.50mm ²	12.8	202	280

SHIELDED MULTICORE CONTROL CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
540TKFF39001	2x1mm ²	6.5	42	58.8
540TKFF39002	3x1mm ²	6.8	56	82.7
540TKFF39011	4x1mm ²	7.4	68	95.3
540TKFF39004	5x1mm ²	8	79	114
540TKFF39005	7x1mm ²	9.4	99	143
540TKFF39006	12x1mm ²	11.5	175	219
540TKFF39007	18x1mm ²	16.6	196	315
540TKFF39008	25x1mm ²	18.2	285	446
540TKFF39009	34x1mm ²	22.8	450	581
540TKFF39010	41x1mm ²	25.4	530	659
540TKFF390L1	18x1mm ²	13.2	240	268
540TKFF390L2	25x1mm ²	16.6	285	380

TKFF390-MULTICORE CONTROL AND POWER CABLE UNSHIELDED AND SHIELDED

MAIN FEATURES

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
345TKFF39001	2x1.5mm ²	7	29	68.8
345TKFF39002	3x1.5mm ²	7.3	43	85
345TKFF39003	4x1.5mm ²	8.2	58	104
345TKFF39004	5x1.5mm ²	8.8	72	124
345TKFF39005	7x1.5mm ²	10.8	101	162
345TKFF39006	12x1.5mm ²	12.6	173	267
345TKFF39007	18x1.5mm ²	19.8	260	384
345TKFF39008	25x1.5mm ²	21.8	360	529
345TKFF39009	34x1.5mm ²	26.5	490	709
345TKFF39010	41x1.5mm ²	29.8	590	882
345TKFF390L1	18x1.5mm ²	15.2	260	326
345TKFF390L2	25x1.5mm ²	19.2	360	450

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
355TKFF39001	2x2.5mm ²	8.6	48	93.4
355TKFF39002	3x2.5mm ²	9.2	72	117
355TKFF39003	4x2.5mm ²	10	96	145
355TKFF39004	5x2.5mm ²	11	120	175
355TKFF39005	7x2.5mm ²	13.2	168	231
355TKFF39006	12x2.5mm ²	15.7	288	385
355TKFF39007	18x2.5mm ²	24.6	432	554
355TKFF39008	25x2.5mm ²	28	600	781
355TKFF390L1	18x2.5mm ²	19	432	471
355TKFF390L2	25x2.5mm ²	24.5	600	750

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
365TKFF39001	2x4mm ²	9.8	77	134
365TKFF39002	3x4mm ²	10.6	116	171
365TKFF39003	4x4mm ²	11.8	154	214
365TKFF39004	5x4mm ²	13	192	263
365TKFF39005	7x4mm ²	15.6	269	355

MAIN FEATURES

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
370TKFF39001	4x6mm ²	13.6	230	327
370TKFF39002	5x6mm ²	14.8	288	395
370TKFF39003	7x6mm ²	18.2	403	533

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
380TKFF39001	4x10mm ²	16.8	354	527
380TKFF39002	5x10mm ²	18.8	480	645
380TKFF39003	7x10mm ²	23.5	672	882

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
385TKFF39001	4x16mm ²	20.4	615	857
385TKFF39002	5x16mm ²	22.7	768	1041
385TKFF39003	7x16mm ²	28	1076	1385

UNSHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
390TKFF39001	4x25mm ²	24.2	960	1315
393TKFF39001	4x35mm ²	28	1344	1865
395TKFF39001	4x50mm ²	33.2	1920	2866
397TKFF39001	4x70mm ²	39.6	2688	3561
398TKFF39001	4x95mm ²	47.6	3651	4713

TKFF390-MULTICORE CONTROL AND POWER CABLE UNSHIELDED AND SHIELDED

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
545TKFF39001	2x1.5mm ²	7.5	57	83.9
545TKFF39018	3x1.5mm ²	8	75	105
545TKFF39015	4x1.5mm ²	8.6	91	126
545TKFF39004	5x1.5mm ²	9.2	110	149
545TKFF39005	7x1.5mm ²	11.4	140	192
545TKFF39006	12x1.5mm ²	13.6	240	304
545TKFF39007	18x1.5mm ²	20.8	345	446
545TKFF39008	25x1.5mm ²	22.6	497	608
545TKFF39009	34x1.5mm ²	27.5	650	843
545TKFF39010	41x1.5mm ²	30.2	720	998
545TKFF390L1	18x1.5mm ²	15.8	345	380
545TKFF390L2	25x1.5mm ²	19.8	497	517

SHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
555TKFF39013	2x2.5mm ²	9.2	100	107
555TKFF39010	3x2.5mm ²	9.8	120	138
555TKFF39011	4x2.5mm ²	10.9	160	167
555TKFF39004	5x2.5mm ²	11.6	190	204
555TKFF39005	7x2.5mm ²	14	261	260
555TKFF39006	12x2.5mm ²	16.8	311	422
555TKFF39007	18x2.5mm ²	25.5	472	636
555TKFF39008	25x2.5mm ²	29	640	911
555TKFF390L1	18x2.5mm ²	20	472	635
555TKFF390L2	25x2.5mm ²	25.3	640	911

SHIELDED MULTICORE CONTROL AND POWER CABLES

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
565TKFF39001	2x4mm ²	10.4	110	134
565TKFF39002	3x4mm ²	11.4	165	193
565TKFF39016	4x4mm ²	12.4	230	238
565TKFF39017	5x4mm ²	13.6	280	288
565TKFF39005	7x4mm ²	16.2	360	385

MAIN FEATURES

SHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
570TKFF39005	4x6mm ²	14.2	282	352
570TKFF39006	5x6mm ²	15.5	340	408
570TKFF39007	7x6mm ²	19.2	450	573

SHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
580TKFF39001	4x10mm ²	17.6	485	566
580TKFF39002	5x10mm ²	19.6	562	697
580TKFF39004	7x10mm ²	24.5	796	985

SHIELDED MULTICORE CONTROL AND POWER CABLES

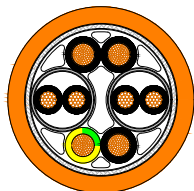
TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
585TKFF39001	4x16mm ²	21.5	723	858
585TKFF39002	5x16mm ²	23.5	889	1086
585TKFF39004	7x16mm ²	29	1240	1439

SHIELDED MULTICORE CONTROL AND POWER CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
590TKFF39001	4x25mm ²	25	1090	1442
593TKFF39001	4x35mm ²	29	1536	2046
595TKFF39001	4x50mm ²	34.2	2381	3073
597TKFF39001	4x70mm ²	40.5	2921	3801
598TKFF39001	4x95mm ²	48.4	3950	4992

TKFF390-SERVOMOTOR POWER CABLE SHIELDED 0.6/1KV

TKFF390-SERIES CABLES FOR HIGH DYNAMIC APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

Black Numbered U/L1/C/L+, V/L2, W/L3/D/L-, Yellow/Green

Pairs Identification (where request)

One pair: black, white. Two pairs: Black Numbered 5÷6 and Black Numbered 7÷8



Pairs Shield (where request)

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Orange Ral 2003 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

1000V Cross-sectional area 1.0mm² (AWG18)



Test voltage

4000V a.c. Cross-sectional area 1.0mm² (AWG18)



Temperature range

-40°C ÷ +90°C



Bending Radius

5 x Ø (Static Installation)
7.5 x Ø (1.5 – 16mm² / Dynamic Installation)
10 x Ø (25 – 50mm² / Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s²



Maximum Chain length

25 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 1000V - Style 21209 - CSA AWM I/II A/B 90°C 1000V



According to NFPA 79-2018-Chapter 12.9



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Halogen Free

EN 50267-2-1 - IEC 60754-1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



TKFF390-SERVOMOTOR POWER CABLE SHIELDED 0.6/1KV

MAIN FEATURES

SERVO CABLES 90°C 1000V

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
545TKFF39001	(4G1.5)H2	8.7	83	131
555TKFF39001	(4G2.5)H2	10.8	130	198
565TKFF39001	(4G4)H2	12.2	193	276
570TKFF39001	(4G6)H2	14.2	282	376
580TKFF39001	(4G10)H2	17.6	450	567
585TKFF39001	(4G16)H2	21.2	720	885
590TKFF39001	(4G25)H2	25	1003	1314
593TKFF39001	(4G35)H2	28.8	1514	2146
595TKFF39001	(4G50)H2	33.9	2167	2992

SERVO CABLE 90°C 1000V

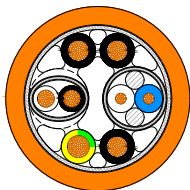
TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
545TKFF39016	[4G1.5 + (2x1.5)H2]H2	11.6	149	221
555TKFF39009	[4G2.5 + (2x1.5)H2]H2	13	193	264
565TKFF39004	[4G4 + (2x1.5)H2]H2	14.7	255	315
570TKFF39002	[4G6 + (2x1.5)H2]H2	16.2	339	480
580TKFF39002	[4G10 + (2x1.5)H2]H2	19.7	526	774
585TKFF39002	[4G16 + (2x1.5)H2]H2	23.2	773	1043
590TKFF39002	[4G25 + (2x1.5)H2]H2	27.4	1190	1567
593TKFF39002	[4G35 + (2x1.5)H2]H2	31	1590	1978
595TKFF39002	[4G50 + (2x1.5)H2]H2	34.5	2240	2766

SERVO CABLES 90°C 1000V

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
540TKFF39003	[4G1 + 2x(2x0.75)H2]H2	11.8	137	216
545TKFF39003	[4G1.5 + 2x(2x0.75)H2]H2	12.4	155	259
555TKFF39012	[4G2.5 + 2x(2x1)H2]H2	14.2	220	320
565TKFF39003	[4G4 + (2x1) + (2x1.5)H2]H2	16.3	293	439
570TKFF39003	[4G6 + (2x1) + (2x1.5)H2]H2	18	372	594
580TKFF39003	[4G10 + (2x1) + (2x1.5)H2]H2	21.8	570	845
585TKFF39003	[4G16 + 2x (2x1.5)H2]H2	25.5	830	1231
590TKFF39003	[4G25 + 2x (2x1.5)H2]H2	29.8	1213	1615
593TKFF39003	[4G35 + 2x (2x1.5)H2]H2	31.2	1598	2022

HYBRID SERVO CABLE SHIELDED 0.6/1KV

CABLES FOR HIGH DYNAMIC APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 - IEC 60228 Class 6 - VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

Black Numbered U/L1/C/L+, V/L2, W/L3/D/L-, Yellow/Green

Pairs Identification (where request)

One pair: blue, white. Two pairs: black, white and blue, white



Pairs Shield (where request)

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Overall Shield (optional)

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Orange Ral 2003 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

1000V



Test voltage

4000V a.c.



Temperature range

-40°C ÷ +90°C



Bending Radius

5 x Ø (Static Installation)
7.5 x Ø (1.5 - 16mm² / Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s²



Maximum Chain length

25 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 1000V - Style 21209 - CSA AWM I/II A/B
90°C 1000V



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Halogen Free

EN 50267-2-1 - IEC 60754-1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES



...guaranteed up to 100 m...

HIPERFACE DSL

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
540TKFF39D02	[4G1+(2xAWG22)H2/H]H2	10.6	93	163
545TKFF39D02	[4G1,5+(2xAWG22)H2/H]H2	11.2	113	194
555TKFF39D02	[4G2,5+(2xAWG22)H2/H]H2	12.6	161	253
565TKFF39D02	[4G4+(2xAWG22)H2/H]H2	14.1	222	325
530TKFF39D01	[4G0,50+(2x0,50)H2+(2xAWG22)H2/H]H2	11.3	100	178
540TKFF39D01	[4G1+(2x0,75)H2+(2xAWG24)H2/H]H2	11.6	127	209
540TKFF39D03	[4G1+(2x0,75)H2+(2xAWG22)H2/H]H2	11.6	124	215
545TKFF39D01	[4G1,5+(2x1)H2+(2xAWG22)H2/H]H2	13.2	155	255
555TKFF39D01	[4G2,5+(2x1)H2+(2xAWG22)H2/H]H2	14	198	305
565TKFF39D01	[4G4+(2x1)H2+(2xAWG22)H2/H]H2	15.8	265	388
570TKFF39D01	[4G6+(2x1)H2+(2xAWG22)H2/H]H2	17.8	336	481
580TKFF39D01	[4G10+(2x1,5)H2+(2xAWG22)H2/H]H2	21	532	736
585TKFF39D01	[4G16+(2x1,5)H2+(2xAWG22)H2/H]H2	24	776	1099

IndraDyn S*

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
535G0053	[4G0,75+(2x0,5)H2+(4xAWG24)H2/H]H2	11.5	115	190
545G0153	[4G1,5+(2x1,5)H2+(4xAWG24)H2/H]H2	13.3	153	252
555G0138	[4G2,5+(2x1,5)H2+(4xAWG24)H2/H]H2	14	201	309

S210*

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
524V0069	[4G0,34+(2x0,34)H2+(4x0,20)H/H2]H2	9.5	75	126
535V0039	[4G0,75+(2x0,5)H2+(4x0,20)H/H2]H2	10.3	101	157
545G0191	[4G1,5+(2x1,5)H2+(4x0,20)H/H2]H2	12.5	168	251
555G0159	[4G2,5+(2x1,5)H2+(4x0,20)H/H2]H2	13.5	210	298

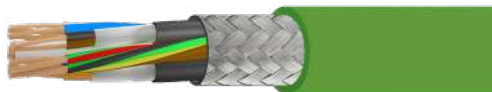
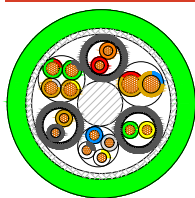
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TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
545G0193	[4G1,5+(2x0,75)H2+(2x2x0,15+2x0,3)H/H2]H2	12.8	160	246
555G0161	[4G2,5+(2x1)H2+(2x2x0,15+2x0,3)H/H2]H2	14.4	208	310
565G0099	[4G4+(2x1)H2+(2x2x0,15+2x0,3)H/H2]H2	15.8	270	390

* The reference to trademarks and standards is made for reference or information purposes only. These trademarks and standards are the exclusive property of their respective owners.

TKFF390-ENCODER AND RESOLVER CABLE

TKFF390-SERIES CABLES FOR HIGH DYNAMIC APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Polyolefin and/or Polyester (UL-CSA Standards)



Core identification

More informations are available upon request



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Green Ral 6018 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30 V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Temperature range

- 40°C ÷ +90°C



Bending Radius

5 x Ø (Static Installation)
7.5 x Ø (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s²



Maximum Chain length

25 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 300V -Style 21209 – CSA AWM I/II A/B 90°C 300V, or UL 90°C 30V -Style 20671 – CSA AWM I/II A/B 90°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Halogen Free

EN 50267-2-1 – IEC 60754-1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

MAIN FEATURES

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - HEIDENHAIN

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
514TKFF39001	[4x2x0.14 + (4x0.14)H1 + 4x0.5]H2	8.6	70	102
514TKFF39002	[3x(2x0.14)H1 + 2x(0.5)H1]H2	8.9	66	124
514TKFF39003	(4x2x0.14 + 4x0.50)H2	8.6	51	106
514TKFF3901N	[4x2x0.14 + (4x0.14)H1 + 4x0.5]H2	8.6	70	102
514TKFF3902N	[3x(2x0.14)H1 + 2x(0.5)H1]H2	8.9	66	124
514TKFF3903N	(4x2x0.14 + 4x0.50)H2	8.6	51	106

Note: outer sheath black

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - B&R

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
514TKFF39012	(5x2x0.14 + 2x0.50)H2	7.9	42	73.2
518TKFF39026	(3x2xAWG24)H2	6.6	27	52.4

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - ELAU

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF39024	(3x2x0.25 + 2x0.50)H2	8.2	47	88
522TKFF39025	3x(2x0.25)H2	8.5	74	150

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - CONTROL TECHNIQUES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKFF39023	[(2x0.34)H + 6x2x0.32 + 2 x1)]H2	11	102	172
512TKFF39002	(2x2xAWG26) H2	5.6	19	45

MAIN FEATURES

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - LENZE

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
514TKFF39007	3x(2x0.14)H2 + (2x0.50)H2	9.4	47	152
514TKFF39008	4x(2x0.14)H2 + 2x(1)H2	11.2	70	229

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - YASKAWA

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKFF39024	(2x2x0.34)H2	7	36	83.3

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - BOSCH REXROTH

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF39027	(4x2x0.25 + 2x0.50)H2	8.7	65	111
514TKFF39009	[4x2x0.14 + 4x1 + (4x0.14)H2]H2	9.5	93	165
522TKFF39028	[3x(2x0.25)H2 + 3x0.25 + 2x1]H2	10	59	115
530TKFF39024	(9x0.50)H2	8.8	75	148
522TKFF3927A	(4x2x0.25 + 2x0.50)H2	8.7	65	111
514TKFF3909A	[4x2x0.14 + 4x1 + (4x0.14)H2]H2	9.7	93	165
522TKFF3928A	[3x(2x0.25)H2 + 3x0.25 + 2x1]H2	10	59	115
530TKFF3919A	(9x0.50)H2	8.8	75	148

Note: outer sheath orange

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - SIEMENS

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF39012	(12x0.25)H2	7.2	48	82.3
526TKFF39001	(4x2x0.38 + 4x0.50)H2	9.2	71	130
517TKFF39007	(8x2x0.18)H2	8	54	85
517TKFF39006	(4x2x0.18)H2	6.5	28	45
514TKFF39010	[3x(2x0.14)H1 + 4x0.14 + 4x0.25 + 2x0.50]H2	9.8	76	139
514TKFF39011	[3x(2x0.14)H1 + 4x0.14 + 2x0.50]H2	8.6	66	101
512TKFF39003	(2x2xAWG26 + 2xAWG22)H2 Drive Cliq	9.8	33	71
518TKFF39035	(2x2xAWG24 + 2xAWG22)H2 Drive Cliq	7.2	36	74

MAIN FEATURES

ANALOGIC/DIGITAL ENCODER SIGNAL TRANSMISSION - FANUC

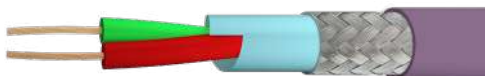
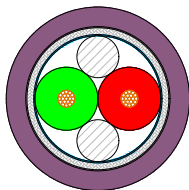
TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
517TKFF39002	(4x2x0.18 + 2x0.50)H2	7.7	32.9	70.5
517TKFF39003	(3x2x0.18 + 6x0.50)H2	8.4	63	94
517TKFF39004	(3x2x0.18 + 6x1)H2	8.7	89	140
517TKFF39005	(5x2x0.18 + 6x0.50)H2	8.7	71	94
530TKFF39017	(2x0.18 + 5x0.5)H2	7.5	48.6	143
530TKFF39018	(2x2x0.18 + 5x0.5)H2	7.7	44.5	84.4
518TKFF39027	(10x2xAWG24)H2	11.5	60	121
538TKFF3913V	(10x2xAWG28)H2	9.2	47	66

RESOLVER SIGNAL TRANSMISSION

TEKNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF39029	[3x(2x0.25)H2]H2	8.5	74	150
522TKFF39008	[4x(2x0.25)H2]H2	9	85	120
522TKFF39033	[8x(2x0.25)H2]H2	13.8	139	206
525TKFF39025	[4x(2x0.34)H2]H2	11.2	97	145
525TKFF39005	[5x(2x0.34)H2]H2	12.2	113	166

TK-FF390 BUS CABLE – PROFIBUS L2 DP-FIP

TKFF390-SERIES CABLES FOR HIGH DYNAMIC APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Foam Polyolefin (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and Tinned Copper
Coverage ≥ 85% according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart
page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Mutual capacitance

≤ 30 pF/m



Characteristic impedance

150 Ω ± 15 Ω



Transmission speed

12 Mbit/s with maximum length 200m
0.6 kbit/s with maximum length 1000m



Temperature range

- 40°C ÷ +90°C



Bending Radius

5 x Ø (Static Installation)
7.5 x Ø (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 300V - Style 21209 - CSA AWM I/II A/B 90°C 300V, or UL 90°C 30V - Style 20671 - CSA AWM I/II A/B 90°C 30V



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Halogen Free

EN 50267-2-1 - IEC 60754-1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



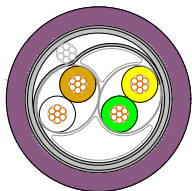
MAIN FEATURES

BUS CABLES - PROFIBUS

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
524TKFF39023	(1x2x0.34mm ²)HH2	8.3	24	70.4
518TKFF39032	(1x2x0.25mm ²)HH2	7.8	20	67.1
524TKFF39023	1x2x0.34mm ²		Green - Red	
518TKFF39032	1x2x0.25mm ²		Green - Red	

TK-FF390 BUS CABLE – CANOPEN – CANBUS

TKFF390-SERIES CABLES FOR HIGH DYNAMIC APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and Tinned Copper
Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11V (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Mutual capacitance

≤ 60 pF/m



Characteristic impedance

$120 \Omega \pm 15 \Omega$



Transmission speed

1000 Kbit/s with maximum length 40m
500 Kbit/s with maximum length 300m
100 Kbit/s with maximum length 600m
50 Kbit/s with maximum length 1000m



Temperature range

$-40^{\circ}\text{C} \div +90^{\circ}\text{C}$



Bending Radius

$5 \times \emptyset$ (Static Installation)
 $7.5 \times \emptyset$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s^2



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 300V -Style 21209 - CSA AWM I/II A/B 90°C 300V, or UL 90°C 30V - Style 20671 - CSA AWM I/II A/B 90°C 30V



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Water Resistance

UL 1581 - IEC 60811



Halogen Free

EN 50267-2-1 - IEC 60754-1



EC Directives Product compliant with Low

Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

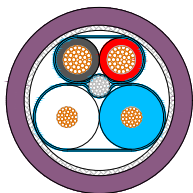
MAIN FEATURES

BUS CABLES – CANOPEN - CANBUS

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKFF39028	(2x0.34)H2	6	25	50
525TKFF39027	(2x2x0.34)H2	7.4	36	68.5
525TKFF39029	(1x4x0.34)Q/H2	7.5	36	68.5
530TKFF39019	(2x0.50)H2	6.8	28	69.1
530TKFF39023	(2x2x0.50)H2	8.8	48	92.7
525TKFF39028	2x0.34		(White - Brown)	
525TKFF39027	2x2x0.34		(White - Brown) - (Green - Yellow)	
525TKFF39029	1x4x0.34		White - Green - Brown - Yellow	
530TKFF39019	2x0.50		(White - Brown)	
530TKFF39023	2x2x0.50		(White - Brown) - (Green - Yellow)	

TK-FF390 BUS CABLE – DEVICENET DROP AND TRUNK

TKFF390-SERIES CABLES FOR HIGH DYNAMIC APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Polyolefin and Foam Polyolefin (UL-CSA Standards)



Core identification

See following table



Pairs Shield

Aluminum/Plastic on each pairs



Overall Shield

Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11V (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Mutual capacitance

≤ 50 pF/m



Characteristic impedance

$120 \Omega \pm 15 \Omega$



Transmission speed

500 Kbit/s with maximum length 200m
250 Kbit/s with maximum length 250m
125 Kbit/s with maximum length 500m



Temperature range

$-40^{\circ}\text{C} \div +90^{\circ}\text{C}$



Bending Radius

$5 \times \emptyset$ (Static Installation)
 $7.5 \times \emptyset$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 300V - Style 21209 - CSA AWM I/II A/B 90°C 300V, or UL 90°C 30V -Style 20671 - CSA AWM I/II A/B 90°C 30V



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Water Resistance

UL 1581 - IEC 60811



Halogen Free

EN 50267-2-1 - IEC 60754-1



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

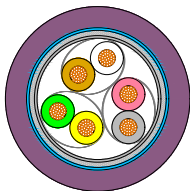
MAIN FEATURES

BUS CABLES - DEVICENET

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKFF39033	[(2xAWG24)H + (2xAWG22)H]H2 Drop	7.2	31	74.7
538TKFF39014	[(2xAWG18)H + (2xAWG15)H]H2 Trunk	11	102	179
518TKFF39033	2xAWG24 - Data 2xAWG22 - Power		(Blue - White) (Red - Black)	
538TKFF39014	2xAWG18 - Data 2xAWG15 - Power		(Blue - White) (Red - Black)	

TK-FF390 BUS CABLE – INTERBUS

TKFF390-SERIES CABLES FOR HIGH DYNAMIC APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and/or Tinned Copper Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Mutual capacitance

≤ 60 pF/m



Characteristic impedance

$100 \Omega \pm 15 \Omega$



Transmission speed

500 Kbit/s with maximum length 400m



Temperature range

$-40^{\circ}\text{C} \div +90^{\circ}\text{C}$



Bending Radius

$5 \times \emptyset$ (Static Installation)
 $7.5 \times \emptyset$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s^2



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 300V - Style 21209 – CSA AWM I/II A/B 90°C 300V, or UL 90°C 30V - Style 20671 – CSA AWM I/II A/B 90°C 30V



Flame Retardant

EN 50265-1-2 – IEC 60332-1-2 – UL VW-1 – CSA FT1



Halogen Free

EN 50267-2-1 – IEC 60754-1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



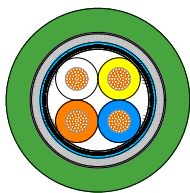
MAIN FEATURES

BUS CABLES - INTERBUS

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF39031	(3x2x0.22)HH2	7	24	61.7
522TKFF39032	(3x2x0.22 + 3G1)HH2	8.4	61	96.6
522TKFF39031	3x2x0.22	(White-Brown) – (Green-Yellow) – (Grey-Pink)		
522TKFF39032	3x2x0.22	(White-Brown) – (Green-Yellow) – (Grey-Pink)		
	3G1	Blue – Red – Yellow/Green		

TK-FF390 ETHERNET – PROFINET/ETHERCAT CATEGORY 5E

TKFF390-SERIES CABLES FOR HIGH DYNAMIC APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE



CABLE SPECIFICATIONS



Conductor

CEI 20-29 Class 6 – IEC 60228 Class 6 – VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Inner sheath

Only Profinet/Ethernet version



Overall Shield

Aluminum/Plastic Tape and Tinned Copper
Coverage $\geq 85\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Green Ral 6018 according to DESINA colour chart
page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V



Test voltage

1000V a.c.



Mutual capacitance

≤ 60 pF/m



Characteristic impedance

$100 \Omega \pm 15 \Omega$



Transmission speed

100 Mbit/s with maximum length 100m
10 Mbit/s with maximum length 500m



Temperature range

$-40^{\circ}\text{C} \div +90^{\circ}\text{C}$



Bending Radius

$5 \times \emptyset$ (Static Installation)
 $7.5 \times \emptyset$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s^2



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

TK-FF390 ETHERNET – PROFINET/ETHERCAT CATEGORY 5E

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 300V -Style 21209 - CSA AWM I/II A/B 90°C 300V, or UL 90°C 30V -Style 20671 - CSA AWM I/II A/B 90°C 30V



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Water Resistance

UL 1581 - IEC 60811



Halogen Free

EN 50267-2-1 - IEC 60754-1



EC Directives Product compliant with Low

Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

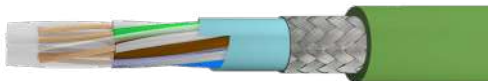
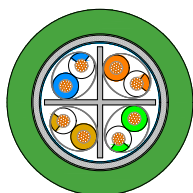
MAIN FEATURES

BUS CABLES - ETHERNET CAT 5E

TECHNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKFF39034	Ethernet Category 5E (2x2xAWG24)HH2	6.3	21	50
518TKFF39037	Ethernet Category 5E (4x2xAWG24)HH2	7.2	33	68
512TKFF39004	Ethernet Category 5E (4x2xAWG26)HH2	6.8	26	53
524TKFF39006	Ethercat/Profinet Category 5E (4xAWG22)HH2	6.5	31	65
518TKFF39039	Ethercat/Profinet Category 5E (4xAWG24)HH2	5.5	22	46
518TKFF39034	2x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange)		
518TKFF39037	4x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
512TKFF39004	4x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
524TKFF39006	2xAWG22	White - Yellow - Blue - Orange		
518TKFF39039	4xAWG24	White - Yellow - Blue - Orange		

TK-FF390 ETHERNET CATEGORY 6

CABLES FOR DYNAMIC APPLICATIONS ON DRAG CHAIN HIGH PERFORMANCE - UL/CSA RECOGNIZED 80°C 30V OR 300V (600V ON REQUEST) ACCORDING TO UL758



CABLE SPECIFICATIONS



Conductor

Bare Copper according to CEI 20-29 Class 6 - IEC 60228 Class 6 - VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and Tinned Copper Braid Coverage $\geq 85\%$ according to EMC 2014/30/EU ©



Sheath

Polyurethane 12Y (UL-CSA Standards)



Outer jacket colour

Green Ral 6018 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V (600V on request)



Test voltage

1000V a.c. or 2000V a.c.



Characteristic impedance

100 Ω



Mutual capacitance

< 50 pF/m



Temperature range

- 40°C ÷ +90°C



Bending Radius

5 x $\varnothing$ (Static Installation)

7.5 x $\varnothing$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

Bare Copper according to CEI 20-29 Class 6 - IEC 60228 Class 6 - VDE 0295 Class 6



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Halogen Free

EN 50267-2-1 - IEC 60754-1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

MAIN FEATURES

BUS CABLES - ETHERNET CAT 6

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKFF39041	Ethernet Category 6 (4x2xAWG24)HH2	7.6	34	70
512TKFF39011	Ethernet Category 6 (4x2xAWG26)HH2	7.2	27	63
518TKFF39041	4x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
512TKFF39011	4x2xAWG26	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		

TK-FF390 ETHERNET CATEGORY 7

CABLES FOR DYNAMIC APPLICATIONS ON DRAG CHAIN HIGH PERFORMANCE - UL/CSA RECOGNIZED 80°C 30V OR 300V (600V ON REQUEST) ACCORDING TO UL758



CABLE SPECIFICATIONS



Conductor

Bare Copper according to CEI 20-29 Class 6 - IEC 60228 Class 6 - VDE 0295 Class 6



Insulation

Polyolefin (UL-CSA Standards)



Core identification

See following table



Pairs Shield

Aluminum/Plastic Tape



Overall Shield

Aluminum/Plastic Tape and Tinned Copper Braid Coverage $\geq 85\%$ according to EMC 2014/30/EU ©



Sheath

Polyurethane 12Y (UL-CSA Standards)



Outer jacket colour

Green Ral 6018 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V (600V on request)



Test voltage

1000V a.c. or 2000V a.c.



Characteristic impedance

100 Ω



Mutual capacitance

< 50 pF/m



Temperature range

$-40^{\circ}\text{C} \div +90^{\circ}\text{C}$



Bending Radius

5 x $\varnothing$ (Static Installation)

7.5 x $\varnothing$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s²



Maximum Chain length

15 m (only horizontal)



Flex life

5.000.000 cycles



Torsion

Please contact our technical support office

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 90°C 300V -Style 21209 - CSA AWM I/II A/B 90°C 300V, or UL 90°C 30V - Style 20671 - CSA AWM I/II A/B 90°C 30V



Flame Retardant

EN 50265-1-2 - IEC 60332-1-2 - UL VW-1 - CSA FT1



Halogen Free

EN 50267-2-1 - IEC 60754-1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

MAIN FEATURES

BUS CABLES - ETHERNET CAT 7

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKFF39040	Ethernet Category 7 [4x(2xAWG24)H]HH2	10.6	42	108
512TKFF39012	Ethernet Category 7 [4x(2xAWG26)H]HH2	9.7	32	90
518TKFF39040	4x2xAWG24	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		
512TKFF39012	4x2xAWG26	(Blue - White/Blue) - (Orange - White/Orange) (Green - White/Green) - (Brown - White/Brown)		

FOR ROBOTICS APPLICATION, PUR OIL RESISTANT,
UL/CSA APPROVALS, HALOGEN FREE



PRODUCT DESCRIPTION AND APPLICATION

Single-core and multicore cables for dynamic installations with bending-torsion expressly designed for automatic machine, gantry, and **wrist robot** manufacturers. **TK FF600®** series cables are **UL** and **CSA** compliant and particularly suitable for bending-torsion applications, with very high speeds and acceleration, and small bending radii. The outer sheath on these cables is made of materials chosen to guarantee excellent resistance, even to cooling oils.

TKFF600-SINGLE AND MULTICORE UNSHIELDED WELDING CABLE

TKFF600-SERIES CABLES FOR ROBOTICS APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE

CABLE SPECIFICATIONS



Conductor

Copper wire, finest multi-strand according to VDE 0295



Insulation

Polyolefin (UL-CSA Standards)



Core identification

Black (other colours available upon request)



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Black Ral 9005 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

1000V Cross-sectional area $\geq 1.0\text{mm}^2$ (AWG18)



Test voltage

3000V a.c. Cross-sectional area $\geq 1.0\text{mm}^2$ (AWG18)



Temperature range

$-40^\circ\text{C} \div +80^\circ\text{C}$



Bending Radius

$10 \times \varnothing$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s²



Maximum Chain length

30 m (only horizontal)



Flex life

6.000.000 $\div$ 10.000.000 cycles



Torsion

$\pm 360^\circ$ on a length of $100 \times \varnothing$ cable

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 1000V - CSA AWM I/II A/B 80°C 1000V



Flame Retardant

CEI 20-35 - EN50265 - IEC 60332-1 - UL VW-1 - CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B - HD 22.10 S1 - CNOMO E.03.40.150N



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

MAIN FEATURES

SINGLE AND MULTICORE UNSHIELDED - WELDING CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
290TKFF60001	1x25mm ²	11.1	245	336
291TKFF60001	1x27mm ²	13.4	288	400
293TKFF60001	1x35mm ²	12.7	346	498
293TKFF60001	1x35mm ²	15	346	510
295TKFF60001	1x50mm ²	16.5	513	688
385TKFF60001	1x3x16mm ²	19	517	799
390TKFF60001	1x3x25mm ²	22.2	807	1156
393TKFF60001	1x3x35mm ²	26.6	1143	1798
393TKFF60002	1x2x35mm ² +1x16mm ²	24.5	962	1361
393TKFF60003	1x2x35mm ² + 1x25mm ²	25	1064	1427

TKFF600-MULTICORE COMMAND/DATA/BUS CABLE

TKFF600-SERIES CABLES FOR ROBOTICS APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE

CABLE SPECIFICATIONS



Conductor

Copper wire, finest multi-strand according to VDE 0295



Insulation

Special Thermoplastic Material (UL-CSA standards)



Core identification

Black Numbered + Yellow/Green (other colours available upon request)



Overall Shield

Wrap Copper Coverage $\geq 90\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA standards)



Outer jacket colour

Black Ral 9005 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

300V Cross-sectional area 0.5mm² (AWG21) ÷ 1.0mm² (AWG18)
1000V Cross-sectional area 1.0mm² (AWG18)



Test voltage

2000V a.c. Cross-sectional area 0.5mm² (AWG21) ÷ 1.0mm² (AWG18)
3000V a.c. Cross-sectional area 1.0mm² (AWG18)



Temperature range

-40°C ÷ +80°C



Bending Radius

10 x Ø (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s²



Maximum Chain length

30 m (only horizontal)



Flex life

6.000.000 ÷ 10.000.000 cycles



Torsion

± 360° on a length of 100 x Ø cable

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V
Cross-sectional area 0.5mm² (AWG21) ÷ 1.0mm² (AWG18)
UL 80°C 1000V – CSA AWM I/II A/B 80°C 1000V,
Cross-sectional area ≥ 1.0 mm² (AWG18)



Flame Retardant

CEI 20-35 – EN50265 – IEC 60332-1 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B – HD 22.10 S1 – CNOMO E.03.40.150N



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES
TK-FF600 COMMAND CABLES (KSR)

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
540TKFF60001	7x1 + (2x0.50)H1	9.8	93.3	172
540TKFF60002	(2x1)H1H + 23x1	13.2	242	370
540TKFF60003	(2x1)HH1 + 5x4x1 + 3x1	15.5	260	419
540TKFF60004	[(2x1)H1H + 24x1]	14.8	289	441
540TKFF60005	(2x1)H1H + 5x3x1 + 1x1	14	190	323
540TKFF60006	(2x1)H1H + 16x1	13	180	315
540TKFF60007	(2x1)H1H + 3x3x1 + 1x1	11.5	137	228
530TKFF60001	3x3x0.5 + 4x0.5 + 3x1 + (2x0.5)H1	12.5	125	245
530TKFF60002	4G1.5 + 4x(2x.25)H1 + 2x.5	12.8	127	270
522TKFF60001	4G1.5 + 5x(2x.25)H1 + 2x.5	16	196	419

TK-FF600 DATA AND BUS CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF60002	2x(2x1)H1 + 5x(2x0.25)H1	12.9	140	266
522TKFF60003	5x(2x.25)H1 + (2x1)H1 + (3x1)H1	16	168	356
522TKFF60004	4G1.5 + 4x(2x.25)H1 + 2x.5	12.8	127	270
530TKFF60003	[2x(2x0.5)H1/N + 24G0.5]H1	16	198	439
535TKFF60001	2x(2x0.75)H1	9.3	55.3	119
345TKFF60001	(5 G 1.5)	9.8	79.9	169
900TKFF60001	(2x F.O. PMMA/PE 1000/2.2)	8	0	64.4

TKFF600-BUS CABLE PROFIBUS L2 DP-FIP

TKFF600-SERIES CABLES FOR ROBOTICS APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE

CABLE SPECIFICATIONS



Conductor

Copper wire, finest multi-strand according to VDE 0295



Insulation

Special Thermoplastic Material (UL-CSA standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and Wrap Copper
Coverage $\geq 90\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Mutual Capacitance

≤ 30 pF/m



Characteristic Impedance

$150 \Omega \pm 15 \Omega$



Transmission Speed

12 Mbit/s with maximum length 200m
0,6 Kbit/s with maximum length 1000m



Temperature range

$-40^{\circ}\text{C} \div +80^{\circ}\text{C}$



Bending Radius

$10 \times \varnothing$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s^2



Maximum Chain length

30 m (only horizontal)



Flex life

$6.000.000 \div 10.000.000$ cycles



Torsion

$\pm 360^{\circ}$ on a length of $100 \times \varnothing$ cable

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

CEI 20-35 – EN50265 – IEC 60332-1 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B – HD 22.10 S1 – CNOMO E.03.40.150N



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

MAIN FEATURES

SINGLE AND MULTICORE UNSHIELDED - WELDING CABLES

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
524TKFF60001	(1x2x0.34mm ²)HH1	8.2	24	70.4
518TKFF60002	(1x2x0.25mm ²)HH1	7.8	20	67.1
524TKFF60001	1x2x0.34mm ²		Green - Red	
518TKFF60002	1x2x0.25mm ²		Green - Red	

TKFF600-BUS CABLE CANOPEN/CANBUS

TKFF600-SERIES CABLES FOR ROBOTICS APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE

CABLE SPECIFICATIONS



Conductor

Copper wire, finest multi-strand according to VDE 0295



Insulation

Special Thermoplastic Material (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and Wrap Copper Coverage $\geq 90\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Mutual Capacitance

≤ 60 pF/m



Characteristic Impedance

$120 \Omega \pm 15 \Omega$



Transmission Speed

1000 Kbit/s with maximum length 40m
500 Kbit/s with maximum length 300m
100 Kbit/s with maximum length 600m
50 Kbit/s with maximum length 1000m



Temperature range

$-40^{\circ}\text{C} \div +80^{\circ}\text{C}$



Bending Radius

$10 \times \varnothing$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s^2



Maximum Chain length

30 m (only horizontal)



Flex life

$6.000.000 \div 10.000.000$ cycles



Torsion

$\pm 360^{\circ}$ on a length of $100 \times \varnothing$ cable

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

CEI 20-35 – EN50265 – IEC 60332-1 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B – HD 22.10 S1 – CNOMO E.03.40.150N



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility

MAIN FEATURES

BUS CABLES – CANOPEN - CANBUS

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
525TKFF60004	(2x0.34)H1	6	25	50
525TKFF60003	(2x2x0.34)H1	7.5	36	68.5
530TKFF60006	(2x0.50)H1	6.7	28	69.1
530TKFF60005	(2x2x0.50)H1	8.4	48	92.7
525TKFF60028	2x0.34		(White - Brown)	
525TKFF60027	2x2x0.34		(White - Brown) - (Green - Yellow)	
525TKFF60029	1x4x0.34		White - Green - Brown - Yellow	
530TKFF60019	2x0.50		(White - Brown)	
530TKFF60020	2x2x0.50		(White - Brown) - (Green - Yellow)	

TKFF600-BUS CABLE DEVICENET

TKFF600-SERIES CABLES FOR ROBOTICS APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE

CABLE SPECIFICATIONS



Conductor

Copper wire, finest multi-strand according to VDE 0295



Insulation

Special Thermoplastic Material (UL-CSA Standards)



Core identification

See following table



Pairs Shield

Aluminum/Plastic on each pairs



Overall Shield

Wrap Copper Coverage $\geq 90\%$ according to EMC 89/336



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Mutual Capacitance

≤ 50 pF/m



Characteristic Impedance

$120 \Omega \pm 15 \Omega$



Transmission Speed

500 Kbit/s with maximum length 200m

250 Kbit/s with maximum length 250m

125 Kbit/s with maximum length 500m



Temperature range

$-40^{\circ}\text{C} \div +80^{\circ}\text{C}$



Bending Radius

$10 \times \varnothing$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s^2



Maximum Chain length

30 m (only horizontal)



Flex life

$6.000.000 \div 10.000.000$ cycles



Torsion

$\pm 360^{\circ}$ on a length of $100 \times \varnothing$ cable

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V - CSA AWM I/II A/B 80°C 300V, or UL

80°C 30V - CSA AWM I/II A/B 80°C 30V



Flame Retardant

CEI 20-35 - EN50265 - IEC 60332-1 - UL VW-1 - CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B - HD 22.10 S1 -

CNOMO E.03.40.150N



Water Resistance

UL 1581 - IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES

BUS CABLES - DEVICENET

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKFF60002	[(2xAWG24)H + (2xAWG22)H]H1 Drop	7.1	31	74.7
538TKFF60001	[(2xAWG18)H + (2xAWG15)H]H1 Trunk	11	102	179
518TKFF60002	2xAWG24 - Data		(Blue - White)	
	2xAWG22 - Power		(Red - Black)	
538TKFF60001	2xAWG18 - Data		(Blue - White)	
	2xAWG15 - Power		(Red - Black)	

TKFF600-BUS CABLE ETHERNET CAT 5E

TKFF600-SERIES CABLES FOR ROBOTICS APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE

CABLE SPECIFICATIONS



Conductor

Copper wire, finest multi-strand according to VDE 0295



Insulation

Special Thermoplastic Material (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and Wrap Copper Coverage $\geq 90\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Green Ral 6018 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V



Test voltage

1000V a.c.



Mutual Capacitance

≤ 60 pF/m



Characteristic Impedance

$100 \Omega \pm 15 \Omega$



Transmission Speed

100 Mbit/s with maximum length 100m

10 Mbit/s with maximum length 500m



Temperature range

$-40^{\circ}\text{C} \div +80^{\circ}\text{C}$



Bending Radius

$10 \times \varnothing$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s^2



Maximum Chain length

30 m (only horizontal)



Flex life

$6.000.000 \div 10.000.000$ cycles



Torsion

$\pm 360^{\circ}$ on a length of $100 \times \varnothing$ cable

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 30V - CSA AWM I/II A/B 80°C 30V



Water Resistance

UL 1581 - IEC 60811



Flame Retardant

CEI 20-35 - EN50265 - IEC 60332-1 - UL VW-1 - CSA FT1



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Hydrocarbons and Oil Resistance

UL 1581 - VDE 0472 part 803 A/B - HD 22.10 S1 - CNOMO E.03.40.150N



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES

BUS CABLES - ETHERNET CAT 5E

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
518TKFF60003	(2x2xAWG24)HH1	6.5	19	44
518TKFF60004	(4x2xAWG24)HH1	6.5	20	64.8
512TKFF60001	(4x2xAWG26)HH1	6.8	23	42
518TKFF60003	2x2xAWG24		(Blue - White/Blue) - (Orange - White/Orange)	
518TKFF60004	4x2xAWG24		(Blue - White/Blue) - (Orange - White/Orange)	
			(Green - White/Green) - (Brown - White/Brown)	
512TKFF60001	4x2xAWG26		(Blue - White/Blue) - (Orange - White/Orange)	
			(Green - White/Green) - (Brown - White/Brown)	

TKFF600-BUS CABLE INTERBUS

TKFF600-SERIES CABLES FOR ROBOTICS APPLICATIONS PUR OIL RESISTANT, UL/CSA APPROVAL, HALOGEN FREE

CABLE SPECIFICATIONS



Conductor

Copper wire, finest multi-strand according to VDE 0295



Insulation

Special Thermoplastic Material (UL-CSA Standards)



Core identification

See following table



Overall Shield

Aluminum/Plastic Tape and/or Wrap Copper Coverage $\geq 90\%$ according to EMC 89/336 ©



Sheath

Polyurethane 11Y (UL-CSA Standards)



Outer jacket colour

Violet Ral 4001 according to DESINA colour chart page 163, other colours available upon request

TECHNICAL DATA



Operating voltage

30V or 300V



Test voltage

1000V a.c. or 2000V a.c.



Mutual Capacitance

≤ 60 pF/m



Characteristic Impedance

$100 \Omega \pm 15 \Omega$



Transmission Speed

500 Kbit/s with maximum length 400m



Temperature range

$-40^{\circ}\text{C} \div +80^{\circ}\text{C}$



Bending Radius

$10 \times \emptyset$ (Dynamic Installation)



Maximum Speed

300 m/min



Maximum Acceleration

50 m/s^2



Maximum Chain length

30 m (only horizontal)



Flex life

$6.000.000 \div 10.000.000$ cycles



Torsion

$\pm 360^{\circ}$ on a length of $100 \times \emptyset$ cable

REFERENCE STANDARDS



Cable according to UL758, UL1581 and CSA C22.2 210.2

UL 80°C 300V – CSA AWM I/II A/B 80°C 300V, or UL 80°C 30V – CSA AWM I/II A/B 80°C 30V



Flame Retardant

CEI 20-35 – EN50265 – IEC 60332-1 – UL VW-1 – CSA FT1



Hydrocarbons and Oil Resistance

UL 1581 – VDE 0472 part 803 A/B – HD 22.10 S1 – CNOMO E.03.40.150N



Water Resistance

UL 1581 – IEC 60811



EC Directives Product compliant with Low Voltage Regulation 72/33/EEC



Directive EMC 2014/30/EU Electromagnetic Compatibility



MAIN FEATURES

BUS CABLES - INTERBUS

TECNIKABEL CODE	DESCRIPTION	Ø NOMINAL (mm)	COPPER WEIGHT (Kg/Km)	CABLE WEIGHT (Kg/Km)
522TKFF60007	(3x2x0.22)HH1	7	24	61.7
522TKFF60008	(3x2x0.22 + 3G1)HH1	8.4	61	96.6
522TKFF60007	3x2x0.22	(White-Brown) – (Green-Yellow) – (Grey-Pink)		
522TKFF60008	3x2x0.22 3G1	(White-Brown) – (Green-Yellow) – (Grey-Pink) Blue – Red – Yellow/Green		

RESEARCH & DEVELOPMENT



TECNIKABEL'S LABORATORIES

TECNIKABEL's work has always focused on research and development.

TECNIKABEL has followed this policy over the last few years, investing significant sums, as well as human resources, in research and development. Six staff members with technical diplomas and degrees work in this division. They are supported by a secretary's office, which handles customer contacts as well as contacts with other corporate bodies.

TECNIKABEL's laboratories can test product quality in all segments by carrying out the following:

- Electric/electronic tests
- Physical/chemical tests
- Mechanical/Dynamic tests

TECNIKABEL works jointly with customers who are leaders in the telecommunications, broadcasting, and data transmission sector, as well as in the automation, offshore, and railway sectors.

Specific products require particular transmission measurements, such as: resistance, electric capacitance, impedance, return loss, attenuation, crosstalk, skew time, etc...

These measurements provide feedback when preparing designs and are useful for project validation and cable prototyping.

The CPMS transmission parameter test bench has three different sections capable of measuring transmission features for:

- LAN cables to a frequency of 600 Mhz
- coaxial cables
- paired cables

The bench consists of:

- a network analyser up to 3 GHz
- an LCR meter
- hardware and software for data acquisition and processing

This test bench was validated by TELECOM Italia when approving (telephone) exchange cables (ADSL, coaxial, paired, etc...). The transmission test system is completed with other HP 4194 A and HP 8753 A network analysers spanning a frequency range of a few Hz to 3 Giga Hertz.

DIELECTRIC RESISTANCE TEST

A General Radio 1836 megohmmeter and a SATURN ISO megohmmeter are used to test the quality of insulation materials.

DIELECTRIC RIGIDITY TEST

These tests are carried out on small-sized specimens of up to 5 kV in the laboratory using an alternating voltage generator. A high voltage cabin is used for larger specimens up to 20 kV.

CURRENT STABILITY TEST

These tests are carried out using a direct voltage generator up to 10 kV.

CABLE OPERATING VOLTAGE TEST

These tests are carried out in two high-voltage cabins with capacity of up to 20 kV and 30 kV respectively.

HIGH-RESOLUTION ELECTRIC RESISTANCE TEST

These tests are carried out using a nanohmmeter for cables with cross-sectional areas greater than 16 mm².



TRANSMISSION TEST BENCH

PHYSICAL/CHEMICAL TESTS

The physical and chemical properties of each of the components of the cable must be tested to guarantee that performance remains unaltered throughout the cable's entire lifecycle.

Instruments used:

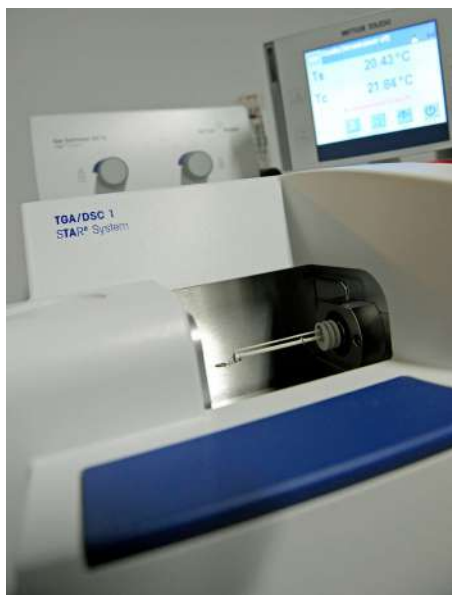
- Lloyd LRX dynamometer for tensile strengths of up to 2500 N
- Mitutoyo PJ 300 profile projector
- UL/CEI compliant aging ovens
- Mettler PM300 precision scales, accuracy 1/100
- Mettler PM100 hygrometric scales, accuracy 1/1000
- Kern ALJ 160-4M analytic scales, accuracy 1/1000
- Dynamometer for tensile strengths of up to 300,000N
- T.G.A.
- Cabinets for flame retardant tests according to CEI 20-35/IEC 60332-1, UL 1581 (UL VWI CSA FT1), UL CL2 and IEC 60332-3 standards

AGING TEST

UL/CEI compliant cables.

FIRE-RETARDANT TEST

according to CEI IEC EN 60332-3.



TGA THERMO GRAVIMETRIC ANALYSIS



MATERIAL AGING OVENS

MECHANICAL/DYNAMIC TESTS

In the industrial automation and robotics sector, guaranteeing unaltered cable performances while machines are operating is essential. Mechanical stress from bending, torsion, or a combination of these, are critical issues for this type of use.

Instruments used for these tests:

CABLE CHAINS

Cable chains with high dynamic performances, increasingly smaller bending radii and higher speeds and acceleration are in growing demand for industrial automatic storage systems and machine tools.

Tests spanning from a minimum bending radius of 15 mm to a maximum of 250 mm can be carried out. The chains used for tests are driven by brushless servomotors.

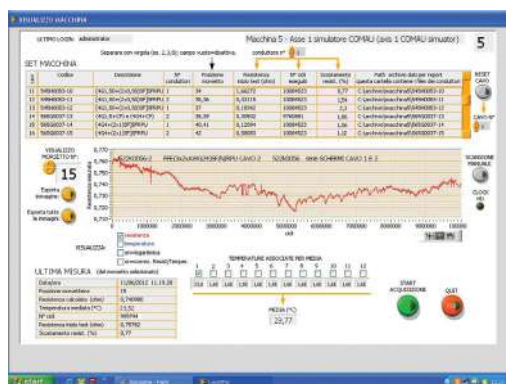
CHAIN 1,2,3

Top speed: 200 m/min. Maximum acceleration: 10 m/s² Bending radius: from 15 to 250 mm
Maximum length: 18 m

CHAINS 5-8 WITH A LINEAR MOTOR

Top speed: 300 m/min Acceleration: 50 m/s² Bending radius: from 50 to 150 Maximum length: 6 m.

The chains are connected to a data acquisition system, developed in a LabVIEW®, environment, to acquire electrical resistance values for conductor and monitor trends with regards to the number of cycles in real time. This system allows users to access a database, where they can retrieve and access data easily. The system is also visible via an Intranet and the Internet.



DATA ACQUISITION SYSTEM WITH UP TO 64 CHANNELS



CHAIN WITH A LENGTH OF 18 m – TOP SPEED 200 m/min – MAXIMUM ACCELERATION 10 m/s²

ROBOT SIMULATOR

TECNIKABEL working in close contact with leading robot manufacturers, has developed mechanical simulators that reproduce all of the axes of a wrist robot to test the technical lifespan of a cable after millions of cycles.



MATERIAL AGING OVENS

TORSION SIMULATOR

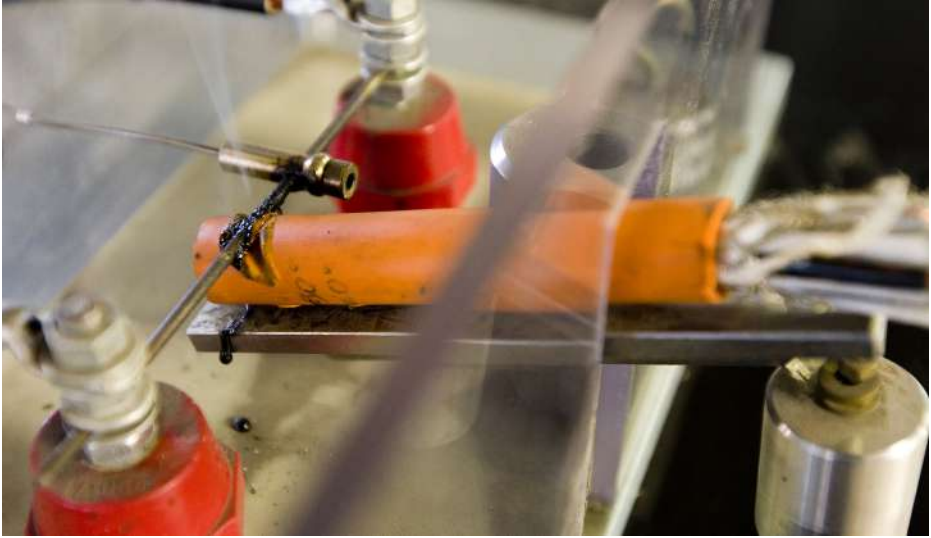
These devices are designed by Teknikabel technicians to test several cables at the same time, with the possibility of varying: rotation angles, length on which torsion takes place, bending radiiuses, speed and acceleration, the combination of different movements in terms of bending and torsion. Both devices can test cables with different diameters.



TORSION SIMULATOR – ANGULAR SPEED 20 RAD/s² ANGULAR ACCELERATION 30 RAD/s²

HOT PARTICLE RESISTANCE TESTS

The device below is CEI 20-19/2 and HD 22.2 compliant, which consists in bringing an incandescent filament close to a cable, applying an appropriate amount of force, for a predetermined period of time, and then evaluating the integrity of the cable with a voltage test.



HOT PARTICLE TEST DEVICE

UV RESISTANT

Some materials used to mold cable ties and associated fixing devices have declared resistance to UV light. The present standards for cable ties require additional testing for resistance to UV light conducted on the completed product. Although there are different exposure methods that can be used to represent actual sunlight exposure, the xenon-arc light source is increasingly recognized as providing the closest representation. The xenon-arc light source exposure method is found in ISO 4892-2 (method A) which is essentially harmonized with ASTM G 155 (Method 1). The test for cable ties consists of 1000 hours of continuous exposure to this light source, and intermittent exposure to water spray. Following this UV light exposure, cable ties and fixing devices are subjected to mechanical tests to determine any degree of degradation.



UV TEST MACHINE Q-SUN Xe-2 Xenon TEST CHAMBER

TECHNICAL INFORMATION

AWG CONDUCTOR SIZE ACCORDING TO UL758 STANDARDS

Size Conductors AWG	Diameter of the solid conductor				Stranded wire cross-sections			
	Nominal		Minimum		Nominal		Minimum	
	Mils	mm.	Mils	mm.	Cmils	mm ²	Cmils	mm ²
50	0.99	0.0251	0.98	0.025	0.980	0.000497	0.960	0.000486
49	1.11	0.0282	1.10	0.028	1.23	0.000624	1.21	0.000613
48	1.24	0.0315	1.23	0.031	1.54	0.000768	1.51	0.000765
47	1.40	0.0356	1.39	0.035	1.96	0.000993	1.92	0.000973
46	1.57	0.0399	1.55	0.039	2.46	0.00125	2.41	0.00122
45	1.76	0.0447	1.74	0.044	3.10	0.00157	3.04	0.00154
44	2.0	0.051	1.98	0.050	4.0	0.00203	3.92	0.00198
43	2.2	0.056	2.18	0.055	4.84	0.00245	4.74	0.00240
42	2.5	0.064	2.48	0.063	6.25	0.00317	6.13	0.003115
41	2.8	0.071	2.77	0.070	7.84	0.00397	7.68	0.00389
40	3.1	0.079	3.07	0.078	9.61	0.00487	9.42	0.00477
39	3.5	0.089	3.47	0.088	12.2	0.00621	11.9	0.00603
38	4.0	0.102	3.96	0.101	16.0	0.00811	15.7	0.00796
37	4.5	0.114	4.46	0.113	20.2	0.0103	19.8	0.0100
36	5.0	0.127	4.95	0.126	25.0	0.0127	24.5	0.0124
35	5.6	0.142	5.54	0.141	31.4	0.0159	30.8	0.0156
34	6.3	0.160	6.24	0.158	39.7	0.020	38.9	0.0197
33	7.1	0.180	7.03	0.179	50.4	0.0255	49.4	0.0250
32	8.0	0.203	7.92	0.201	64.0	0.0324	62.7	0.0318
31	8.9	0.226	8.81	0.224	79.2	0.0401	77.6	0.0393
30	10.0	0.254	9.9	0.251	100	0.0507	98	0.0497
29	11.3	0.287	11.2	0.284	128	0.0647	125	0.0633
28	12.6	0.320	12.5	0.318	159	0.0804	156	0.0790
27	14.2	0.361	14.1	0.358	202	0.102	198	0.100
26	15.9	0.404	15.7	0.399	253	0.128	248	0.126
25	17.9	0.455	17.7	0.450	320	0.162	314	0.159
24	20.1	0.511	19.9	0.506	404	0.205	396	0.201
23	22.6	0.574	22.4	0.569	511	0.259	501	0.254
22	25.3	0.643	25.0	0.635	640	0.324	627	0.318
21	28.5	0.724	28.2	0.716	812	0.412	796	0.404
20	32.0	0.813	31.7	0.805	1020	0.519	1000	0.509
19	35.9	0.912	35.6	0.904	1290	0.653	1264	0.641
18	40.3	1.02	40.0	1.016	1620	0.823	1588	0.807
17	45.3	1.15	44.9	1.140	2050	1.04	2009	1.02
16	50.8	1.29	50.3	1.278	2580	1.31	2528	1.28
15	57.1	1.45	56.5	1.435	3260	1.65	3195	1.62
14	64.1	1.63	63.5	1.613	4110	2.08	4028	2.04
13	72.0	1.83	71.0	1.80	5180	2.63	5076	2.58
12	80.8	2.05	80.0	2.03	6530	3.31	6399	3.24

AWG CONDUCTOR SIZE ACCORDING TO UL758 STANDARDS

Size Conductors AWG	Diameter of the solid conductor				Stranded wire cross-sections			
	Nominal		Minimum		Nominal		Minimum	
	Mils	mm.	Mils	mm.	Cmils	mm2	Cmils	mm²
11	90.7	2.30	90	2.29	8230	4.17	8065	4.09
10	101.9	2.588	101	2.57	10380	5.261	10172	5.16
9	114.4	2.906	113	2.87	13090	6.631	12828	6.50
8	128.5	3.264	127	3.23	16510	8.367	16180	8.2
7	144.3	3.665	143	3.63	20820	10.55	20404	10.34
6	162.0	4.115	160	4.06	26240	13.30	25715	13.03
5	181.9	4.620	180	4.57	33090	16.77	32428	16.43
4	204.3	5.189	202	5.13	41740	21.15	40905	20.73
3	229.3	5.827	227	5.77	52620	26.67	51568	26.14
2	257.6	6.543	255	6.48	66360	33.62	65033	32.95
1	289.3	7.348	286	7.26	83690	42.41	82016	41.56
1/0	324.9	8.252	322	8.18	105600	53.49	103488	52.42
2/0	364.8	9.226	361	9.17	133100	67.43	130438	66.08
3/0	409.6	10.40	406	10.31	167800	85.01	164444	83.31
4/0	460.0	11.68	455	11.56	211600	107.2	207368	105.1
250	-	-	-	-	250	127	245	124.1
300	-	-	-	-	300	152	294	149.0
350	-	-	-	-	350	177	343	173.8
400	-	-	-	-	400	203	392	198.6
450	-	-	-	-	450	228	441	223.5
500	-	-	-	-	500	253	490	248.3
550	-	-	-	-	550	279	539	273.1
600	-	-	-	-	600	304	588	297.9
650	-	-	-	-	650	329	637	322.8
700	-	-	-	-	700	355	686	347.6
750	-	-	-	-	750	380	735	372.4
800	-	-	-	-	800	405	784	397.2
900	-	-	-	-	900	456	882	446.9
1000	-	-	-	-	1000	507	980	496.6
1100	-	-	-	-	1100	557	1078	546.2
1200	-	-	-	-	1200	608	1178	595.9
1250	-	-	-	-	1250	633	1225	620.7
1300	-	-	-	-	1300	659	1274	645.5
1400	-	-	-	-	1400	709	1372	695.2
1500	-	-	-	-	1500	760	1470	744.9
1600	-	-	-	-	1600	811	1568	794.5
1700	-	-	-	-	1700	861	1666	844.2
1750	-	-	-	-	1750	887	1715	869.0
1800	-	-	-	-	1800	912	1764	893.8
1900	-	-	-	-	1900	963	1862	943.5
2000	-	-	-	-	2000	1010	1960	993.1

GENERAL CHARACTERISTICS OF PLASTIC MATERIALS

Material	Reference	According to VDE	Temperature Range °C	Elongation at break %	Tensile strenght N/mm ²	Dielectric constant	Density
Polyvinyl chloride	PVC	Y	-30 ÷ +105	150 ÷ 300	15 ÷ 25	3.5 ÷ 4.5	1.3 ÷ 1.45
Semi-rigid Polyvinyl chloride	SR-PVC	-	-15 ÷ +105	150 ÷ 200	15 ÷ 21	3.5 ÷ 4	1.2 ÷ 1.35
High-Density Polyethylene	HDPE	2Y	-50 ÷ +100	400 ÷ 600	20 ÷ 30	2.3	0.94 ÷ 0.95
Low-Density Polyethylene	LDPE	2Y	-50 ÷ +70	400 ÷ 600	10 ÷ 20	2.3	0.91 ÷ 0.92
Cellular Polyethylene	PES	02Y	-50 ÷ +70	300 ÷ 400	8 ÷ 12	1.6	0.5 ÷ 0.6
Cross-linked Polyethylene	XLPE	2X	-50 ÷ +105	300 ÷ 400	15 ÷ 25	2.3	0.93
Polypropylene	PP	9Y	-30 ÷ +105	500 ÷ 700	15 ÷ 25	2.25	0.90
Polyester	TPE-E	12Y	-50 ÷ +105 (+125)	400 ÷ 1000	15 ÷ 25	2.8 ÷ 3.8	1.2 ÷ 1.3
Polyurethane	PUR	11Y	-50 ÷ +90	300 ÷ 600	30 ÷ 60	4 ÷ 6	1.1 ÷ 1.3
Polyolefin Elastomer	TPE-O	-	-40 ÷ +120	400 ÷ 600	9 ÷ 15	2.7	1.2 ÷ 1.25
LSZH Compuond	M1	H	-40 ÷ +80	150 ÷ 250	10 ÷ 15	3.5 ÷ 5	1.45 ÷ 1.6
LSZH Cross-linked Compuond	M2	HX	-40 ÷ +105	150 ÷ 250	10 ÷ 15	3.5 ÷ 5	1.45 ÷ 1.6
Polyamide	PA	4Y	-70 ÷ +125	200 ÷ 400	50 ÷ 80	3.5	1.1 ÷ 1.15
Polyethereterketone	PEEK	-	-60 ÷ +200	100 ÷ 150	40 ÷ 50	3.2	1.2
Polyvinylidene Fluoride	PVDF	10Y	-50 ÷ +130	100 ÷ 300	40 ÷ 50	7	1.7 ÷ 1.8
Ethylenetetrafluoroethylene	ETFE	7Y	-100 ÷ +170	100 ÷ 300	40 ÷ 50	2.7	1.7
Per fluoro ethylenepropylene	FEP	6Y	-100 ÷ +215	250 ÷ 350	20 ÷ 30	2.15	2.15
Polytetrafluoroethylene	PTFE	5Y	-180 ÷ +260	250 ÷ 400	20 ÷ 30	2.1	2,2
Perfluoroalkoxyl	PFA	-	-180 ÷ +260	200 ÷ 400	20 ÷ 30	2.1	2.15

GENERAL CHARACTERISTICS OF PLASTIC MATERIALS

Volume resistivity kV/mm	Flame resistance	Water Resistance	Hydrocarbons Resistance	Oil and grease Resistance	Solventes Resistance	Acid Resistance	Wheather Resistance
15	Self extinguishing	Very Good	Sufficient	Good	Insufficient	Good	Good
20	Self extinguishing	Very Good	Sufficient	Good	Insufficient	Good	Good
24	Inflammable	Very Good	Insufficient	Good	Insufficient	Good	Good
24	Inflammable	Very Good	Insufficient	Good	Insufficient	Good	Good
20	Inflammable	Very Good	Insufficient	Good	Insufficient	Good	Good
24	Inflammable	Very Good	Good	Good	Sufficient	Good	Good
26	Inflammable	Very Good	Sufficient	Very Good	Sufficient	Good	Good
15	Inflammable	Good	Good	Very Good	Good	Good	Good
20	Inflammable (Self extinguishing)	Good	Good	Very Good	Good	Sufficient	Good
24	Inflammable	Good	Insufficient	Insufficient	Insufficient	Good	Good
25	Self extinguishing	Sufficient	Sufficient	Insufficient	Insufficient	Insufficient	Good
25	Self extinguishing	Sufficient	Good	Sufficient	Sufficient	Insufficient	Good
15	Inflammable	Sufficient	Sufficient	Very Good	Good	Sufficient	Good
20	No Inflammable	Good	Good	Very Good	Very Good	Very Good	Good
10	Self extinguishing	Good	Good	Good	Very Good	Very Good	Very Good
19	No Inflammable	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
20	No Inflammable	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
19	No Inflammable	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good
20	No Inflammable	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good

CLASS 1 - SOLID CONDUCTOR FOR SINGLE-CORE AND MULTICORE CABLES

Nominal Section mm ²	Maximum resistance of conductors at 20°C Circular annealed copper conductors	
	Plain Ω/km	Metal-Coated Ω/km
0,5	36,0	36,7
0,75	24,5	24,8
1,0	18,1	18,2
1,5	12,1	12,2
2,5	7,41	7,56
4	4,61	4,70
6	3,08	3,11
10	1,83	1,84
16	1,15	1,16
25	0,727	-
35	0,524	-
50	0,387	-
70	0,268	-
95	0,193	-
120	0,153	-
150	0,124	-
185	0,101	-
240	0,0775	-
300	0,0620	-
400	0,0465	-
500	-	-
630	-	-
800	-	-
1000	-	-

CLASS 2 - STRANDED CONDUCTORS FOR SINGLE-CORE AND MULTICORE CABLES

Nominal Section mm ²	Minimum number of wires in the conductor						Maximum resistance of conductors at 20°C	
	Cicular		Compacted		Shaped		Annealed copper conductor	
	Cu	Al	Cu	Al	Cu	Al	Plain Ω/km	Metal- Coated Ω/km
0,5	7	-	-	-	-	-	36,0	36,7
0,75	7	-	-	-	-	-	24,5	24,8
1,0	7	-	-	-	-	-	18,1	18,2
1,5	7	-	6	-	-	-	12,1	12,2
2,5	7	-	6	-	-	-	7,41	7,56
4	7	-	6	-	-	-	4,61	4,70
6	7	-	6	-	-	-	3,08	3,11
10	7	7	6	6	-	-	1,83	1,84
16	7	7	6	6	-	-	1,15	1,16
25	7	7	6	6	6	6	0,727	0,734
35	7	7	6	6	6	6	0,524	0,529
50	19	19	6	6	6	6	0,387	0,391
70	19	19	12	12	12	12	0,268	0,270
95	19	19	15	15	15	15	0,193	0,195
120	37	37	18	18	18	18	0,153	0,154
150	37	37	18	18	18	18	0,124	0,126
185	37	37	30	30	30	30	0,0991	0,100
240	37	37	34	34	34	34	0,0754	0,0762
300	61	61	34	34	34	34	0,0601	0,0607
400	61	61	53	53	53	53	0,047	0,0475
500	61	61	53	53	53	53	0,0366	0,0369
630	91	91	53	53	53	53	0,0283	0,0286
800	91	91	53	53	-	-	0,0221	0,0224
1000	91	91	53	53	-	-	0,0177	0,0291

CLASS 5 - FLEXIBLE COPPER CONDUCTORS FOR SINGLE-CORE AND MULTICORE CABLES

Nominal Section mm ²	Maximum diameter of wire in conductor mm	Maximum resistance of conductors at 20°C Circular annealed copper conductors	
		Plain Ω/km	Metal-Coated Ω/km
0,5	0,21	39,0	40,1
0,75	0,21	26,0	26,7
1,0	0,21	19,5	20,0
1,5	0,26	13,3	13,7
2,5	0,26	7,98	8,21
4	0,31	4,95	5,09
6	0,31	3,30	3,39
10	0,41	1,91	1,95
16	0,41	1,21	1,24
25	0,41	0,780	0,795
35	0,41	0,554	0,565
50	0,41	0,386	0,393
70	0,51	0,272	0,277
95	0,51	0,206	0,210
120	0,51	0,161	0,164
150	0,51	0,129	0,132
185	0,51	0,106	0,108
240	0,51	0,0801	0,0817
300	0,51	0,0641	0,0654
400	0,51	0,0486	0,0495
500	0,61	0,0384	0,0391
630	0,61	0,0287	0,0292

CLASS 6 - FLEXIBLE COPPER CONDUCTORS FOR SINGLE-CORE AND MULTICORE CABLES

Nominal Section mm ²	Maximum diameter of wire in conductor mm	Maximum resistance of conductors at 20°C Circular annealed copper conductors	
		Plain Ω/km	Metal-Coated Ω/km
0,5	0,16	39,0	40,1
0,75	0,16	26,0	26,7
1,0	0,16	19,5	20,0
1,5	0,16	13,3	13,7
2,5	0,16	7,98	8,21
4	0,16	4,95	5,09
6	0,21	3,30	3,39
10	0,21	1,91	1,95
16	0,21	1,21	1,24
25	0,21	0,780	0,795
35	0,21	0,554	0,565
50	0,31	0,386	0,393
70	0,31	0,272	0,277
95	0,31	0,206	0,210
120	0,31	0,161	0,164
150	0,31	0,129	0,132
185	0,41	0,106	0,108
240	0,41	0,0801	0,0817
300	0,41	0,0641	0,0654

LOW CAPACITANCE POWER CABLES

With the use of the latest generation in IGBT (power semiconductors used in INVERTERS) electrical phenomena that was once almost insignificant can be enhanced, such as:

- a) Attenuation of energy being transmitted to the motor from the inverter
- b) Leakage current to ground

Especially when this is a consequence of increasingly faster switching fronts* (approximately 8 kV/μsec).

PHENOMENON (A)

The influence of cable capacitance (C) on power transmission is fundamental, since line attenuation is $a = \sqrt{wRC}$. Therefore, the lower the electric capacitance of the cable (conductor/conductor and conductor/shield) the greater the power transmitted to the motor from the inverter/converter, therefore enhancing system performance.

PHENOMENON (B)

The cable is considered a capacitor, because the capacitance (C) generated between two conductors and between a conductor and shield increases with the length of the cable itself.

The current absorbed by a capacitor and discharged to the ground is $I = wCU$. As such, we can deduce that, in this case as well, capacitance must also be as low as possible in order to reduce current leakage, which could be responsible for ill-timed differential interventions.

EXCERPT FROM NORM IEC 60204-1

CURRENT-CARRYING CAPACITY AND OVERCURRENT PROTECTION OF CONDUCTORS AND CABLES IN THE ELECTRICAL EQUIPMENT OF MACHINES

The purpose of this Annex is to provide additional information on the selection of conductor sizes where the conditions given for Table 6 (see Clause 12) have to be modified (see notes to Table 6).

D.1 - GENERAL OPERATING CONDITIONS

D.1.1 - Ambient air temperature

The current carrying capacity for PVC insulated conductors given in Table 6 is related to an ambient air temperature of +40 °C. For other ambient air temperatures, the correction factors are given in Table D.1.
The correction factors for rubber insulated cables are given by the manufacturer.

CORRECTION FACTORS - Tab. D.1

Ambient air temperature °C	Correction Factor
30	1.15
35	1.08
40	1.00
45	0.91
50	0.82
55	0.71
60	0.58

Note: The correction factors are derived from IEC 60364-5-52

The maximum temperature under normal conditions for PVC 70 DC

D.1.2 - Methods of installation

In machines, the methods of conductor and cable installation between enclosures and individual items of the equipment shown in Figure D.1 are assumed to be typical (the letters used are in accordance with IEC 60364-5-52: 2001):

- Method B1: using conduits (3.7) and cable trunking systems (3.5) for holding and protecting conductors or single core cables;
- Method B2: same as B1 but used for multicore cables;
- Method C: multicore cables installed in free air, horizontal or vertical without gap between cables on walls;
- Method E: multicore cables in free air, horizontal or vertical laid on open cable trays (3.4)

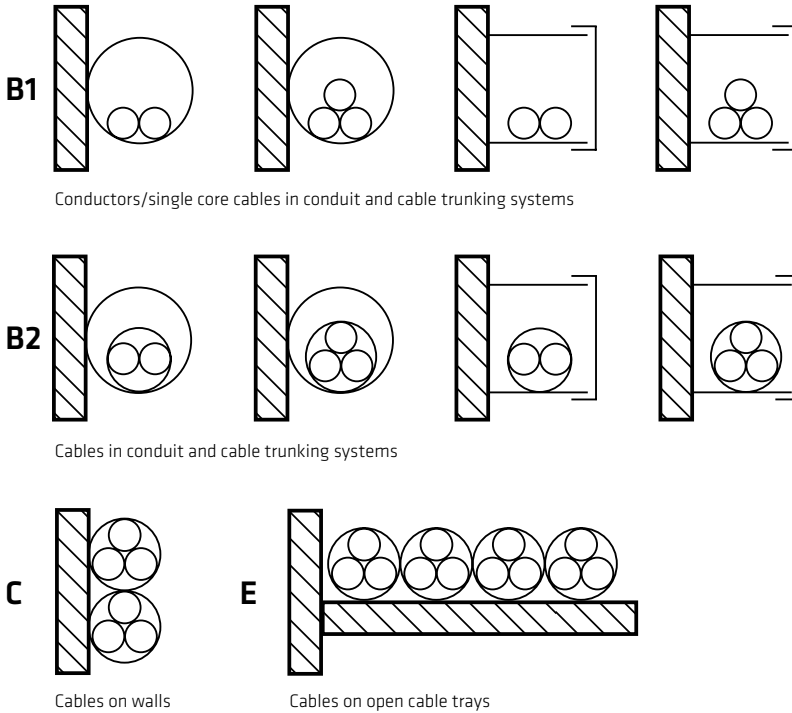


Figure D.1 - Methods of conductor and cable installation independent of number of conductors/cables

EXAMPLE OF CURRENT-CARRYING CAPACITY (I_Z) OF PVC INSULATED COPPER CONDUCTORS OR CABLES UNDER STEADY-STATE CONDITIONS IN AN AMBIENT AIR TEMPERATURE OF +40°C FOR DIFFERENT METHODS OF INSTALLATION

Cross Section Area (mm ²)	Current-carrying capacity I _Z for three phase circuit			
	Installation Method (see Figure D.1.2, pag 123)			
	B1	B2	C	E
0.75	8.6	8.5	9.8	10.4
1.0	10.3	10.1	11.7	12.4
1.5	13.5	13.1	15.2	16.1
2.5	18.3	17.4	21	22
4	24	23	28	30
6	31	30	36	37
10	44	40	50	52
16	59	54	66	70
25	77	70	84	88
35	96	86	104	110
50	117	103	125	133
70	149	130	160	171
95	180	156	194	207
120	208	179	225	240
Electronics (pairs)				
0.20	Not applicable	4.3	4.4	4.4
0.5	Not applicable	7.5	7.5	7.8
0.75	Not applicable	9.0	9.5	10

Note 1

The values of the current-carrying capacity of Table 6 are based on:

- One symmetrical three-phase circuit for cross-sectional areas 0,75mm² and greater
- One control circuit pair for cross-sectional areas between 0,2mm² and 0,75mm²

Note 2

For ambient temperature other than 40°C, correct the current-carrying capacities by using values given in Table D.1

Note 3

These values are not applicable to flexible cables wound on drums

Note 4

For the current-carrying capacities of other cables, see IEC 60364-5-52

Installation Technology in Machine Tools COLORS and DESIGN of the FIELD-CABLES



ORANGE RAL 2003		Power cable: e.g. servo drives, frequency controlled drives application specific design	
GREEN RAL 6018		Measurement cable: e.g. measuring systems, analogue sensors application specific and case specific design	
VIOLET RAL 4001		Hybrid-fieldbus cable: e.g. fieldbus systems 2 x optical fibres and 4 x 1.5/2.5 mm ² copper wires	Fibre optic; fieldbus Cu1: +24 V Cu2: 0V to PIN1 Cu3: 0V to PIN4 Cu4: +24 V switched
YELLOW RAL 1021		Actuator-sensor cable: e.g. fieldbus systems 4 x 0.34 mm ² , prefabricated with two M12 connectors, without LED	1: 24 V 2: signal (digital input) 3: 0V 4: signal (analogue input or digital output)
BLACK RAL 9005		Power cable: e.g. three-phase AC motors 5 x 1.5 mm ² or case specific design	
GREY RAL 7040		Control cable: 24 V technology, e.g. control voltage, power supply multiwire, case specific design	

The wiring has to be resistant against cooling lubricants used in industrial applications.

Number	Color	Number	Color
1	white	31	green-blue
2	brown	32	yellow-blue
3	green	33	green-red
4	yellow	34	yellow-red
5	grey	35	green-black
6	pink	36	yellow-black
7	blue	37	grey-blue
8	red	38	pink-blue
9	black	39	grey-red
10	violet	40	pink-red
11	grey-pink	41	grey-black
12	red-blue	42	pink-black
13	white-green	43	blue-black
14	brown-green	44	red-black
15	white-yellow	45	white-brown-black
16	yellow-brown	46	yellow-green-black
17	white-grey	47	grey-pink-black
18	grey-brown	48	red-blue-black
19	white-pink	49	white-green-black
20	pink-brown	50	green-brown-black
21	white-blue	51	white-yellow-black
22	brown-blue	52	yellow-brown-black
23	white-red	53	white-grey-black
24	brown-red	54	grey-brown-black
25	white-black	55	white-pink-black
26	brown-black	56	pink-brown-black
27	grey-green	57	white-blue-black
28	yellow-grey	58	brown-blue-black
29	pink-green	59	white-red-black
30	yellow-pink	60	brown-red-black
		61	black-white

GUIDELINES FOR CABLE INSTALLATION



TECNIKABEL'S LABORATORIES

TECNIKABEL'S work has always focused on research and development.

TECNIKABEL has followed this policy over the last few years, investing significant sums, as well as human resources, in research and development.

Six staff members with technical diplomas and degrees work in this division. They are supported by a secretary's office, which handles customer contacts as well as contacts with other corporate bodies.

TECNIKABEL'S laboratories can test product quality in all segments by carrying out the following:

- Electric/electronic tests
- Physical/chemical tests
- Mechanical/Dynamic tests

GUIDELINES FOR CHOOSING THE RIGHT SHIELD IN YOUR CABLE

Technological innovations have brought electronics applied to automation to high levels of complexity and sophistication. However, this has also made the automated industry system subject to interference, both in the power supply network and in the area surrounding the plant. These types of interference are referred to as EMI (Electro Magnetic Interference), an acronym which includes coupling phenomena: electric and magnetic field (noise), electrostatic discharge (ESD), conducted disturbance on the network, emission radiated from cables and electronic devices, sensitivity to electromagnetic fields and radio frequency interferences (RFI), etc...

This causes the automated plant to malfunction, so much as to make it dangerous for workers and objects. In order to guarantee safety, the European Community has issued Directive EMC 89/336, which has been incorporated into Machinery Directive 89/392.

A highly important element to reduce EMI is shielding on the device. In our case, it entails choosing the right type of shield, which will be used on the cables.

SHIELD TYPES

1. Aluminium/polyester tape shield wrapped around conductors, pairs, or groups*:

- It offers 100% coverage and requires an uninsulated conductor touching the aluminium in order to guarantee continuity and enhance grounding for electro-static charges
- Very effective against ESD it offers good shielding at low frequencies
- Unsuitable for moving cables
- Low cost

2. Spiral shield wrapped around either a single or several conductors made of parallel strands:

- Has a maximum coverage of approximately 97%
- Suitable for low frequency applications and as protection against ESD
- Excellent for bending cables and continued bending-torsion. **TECNIKABEL**. In order to guarantee signal cable immunity, it has added a conductive tape to the serve shield which enhances its shielding performance, even at high frequencies.

3. Braid shield:

- Has a maximum coverage of approximately 98%
- Offers excellent mechanical resistance to repeated bending while maintaining good flexibility
- Excellent shielding protection both at low and very high frequencies

4. Braid shields with aluminium tape provide the most complete shield:

- Effective both at low and high frequencies
- Excellent protection against ESD
- Unsuitable for continuous bending torsion

CHOOSING A SHIELD

The criteria to keep in mind in order to make the best choice are a compromise between the right technical solution and the price. They are:

1. Identifying interferences: ESD, radiated interferences, electromagnetic fields, etc...
2. Defining the frequencies for the interferences found in environment and the network
3. Precise knowledge of the movements the cable will be subjected to:
bending radiuses, speed, acceleration, torsion angles, etc.

TECNIKABEL recommends and guides its Customers, ensuring that they choose the best shield for the application provided.

a) Tape shield cables:

- For interferences generated by TV signals, crosstalk, radio signals, fluorescent lamps, etc...
- Environments with a low EMI level
- The presence of ESD generated by synthetic materials (yarns, textiles, etc...)

b) Spiral shield cables:

- Low frequency interferences
- Where elevated duration in terms of bending and continued torsions is required

c) Braided shield cables:

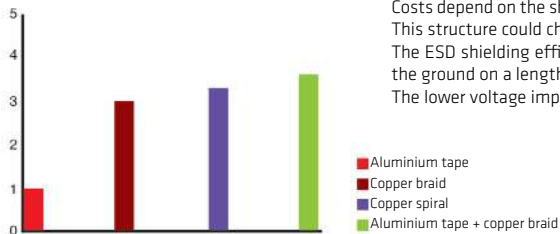
- For low impedance interferences such as to power inverter motors or to intermittently power inductive loads, etc...
- Both high and low frequency interferences, such as from computer cables, cables for instruments and commands

d) Braided and tape shield cables:

- Multiple interferences at low and high frequencies for environments with strong electromagnetic fields elevated background noise, etc...
- Suitable for use with bending and slight torsion for which the aluminium tape is replaced with conductive tape.

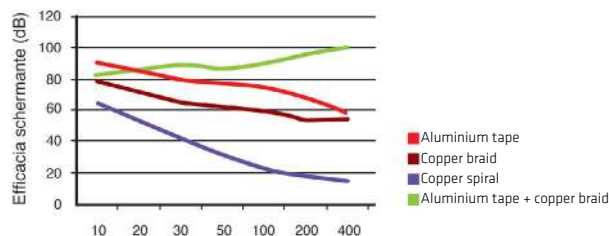
COMPARISON BETWEEN SHIELDS

Cost comparison for coaxial cables



Costs depend on the shield type as a component of the total cable cost. This structure could change according to the cable project. The ESD shielding efficacy test was made with a 15000V discharge to the ground on a length of 91cm sample. The lower voltage improves the shielding efficiency

EMI SHIELDING EFFICIENCY



ESD SHIELDING EFFICIENCY





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