Tecni Kabel
SPECIAL ELECTRICAL CABLES

AUTOMATION

Tecni Kabel
SPECIAL ELECTRICAL CABLES

SPECIAL CABLES FOR

AUTOMATION

TECNIKABEL.IT

Tecni Kabel
SPECIAL ELECTRICAL CABLES

TECNIKABEL is a European leader in the special electric cable sector. Established in **1978**, research and development have been the company's cornerstones from the start.
TECNIKABEL is on the leading edge, wherever the future is being designed:

- It works with leading companies in various fields
- Adapting to its Customers' needs
- With the goal of continuously improving quality and reliability targets.

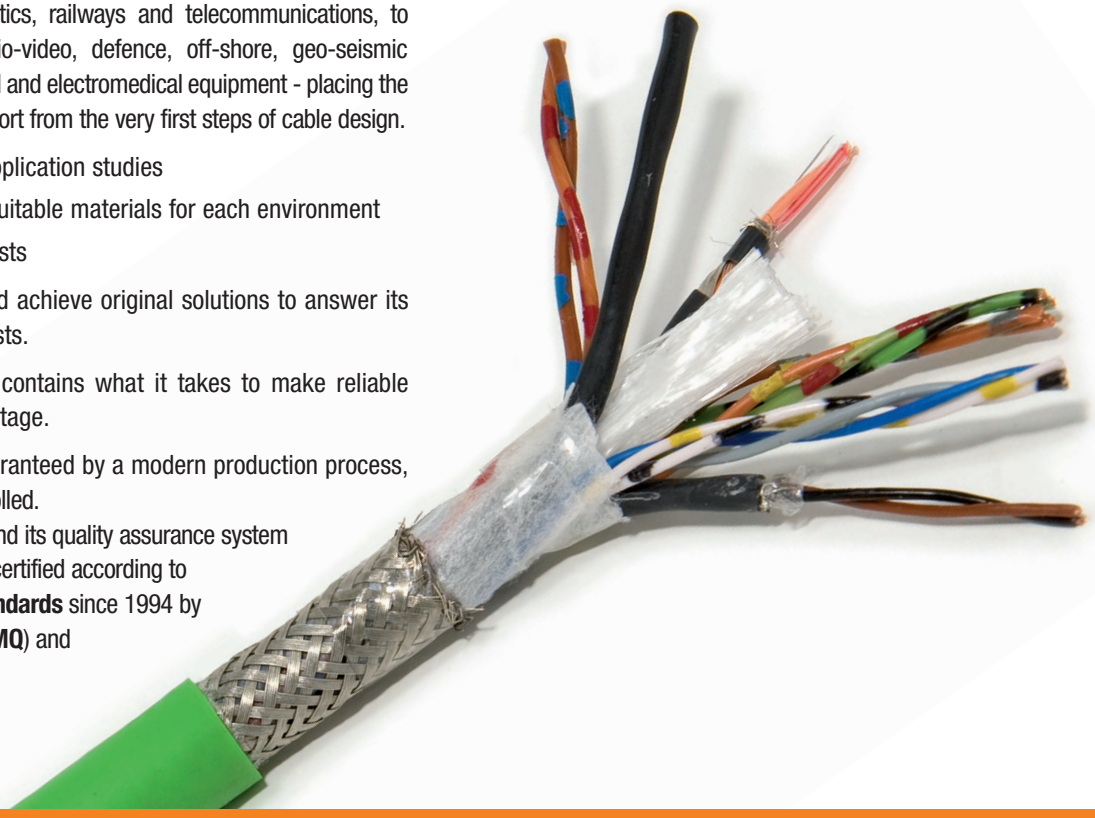
TECNIKABEL creates cables for a very wide variety of applications - from industrial automation, robotics, railways and telecommunications, to industrial electronics, audio-video, defence, off-shore, geo-seismic research, solar energy, naval and electromedical equipment - placing the emphasis on technical support from the very first steps of cable design.

- It conducts in-depth application studies
- It evaluates the most suitable materials for each environment
- It optimises product costs

to provide suggestions and achieve original solutions to answer its customers' specific requests.

Every **TECNIKABEL** cable contains what it takes to make reliable products for any target voltage.

High quality levels are guaranteed by a modern production process, each step of which is controlled.
The know-how of its staff and its quality assurance system have been recognised and certified according to **UNI EN ISO 9001:2000 standards** since 1994 by Italian national (**CISQ** and **IMQ**) and international certification bodies (**IQNET**).



Tecni Kabel
SPECIAL ELECTRICAL CABLES

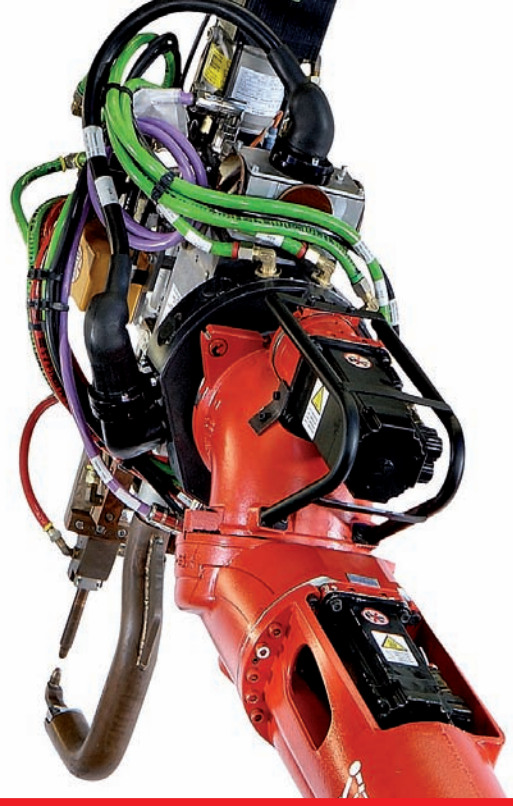
TECNIKABEL has always cared for quality and customer service, right from the first sales contact.

Over the years, major certification bodies, such as **UL** and **CSA** haverecognised the quality and performance of its cables and issued **over 600 type-approvals.**

Our cables are used in the industrial automation and robotic sectors as well, by prestigious companies such as: ABB, KUKA, MOTOMAN, COMAU, BOSCH REXROTH, BAUMÜLLER, SALVAGNINI, TRUMPF, SCM, BIESSE, HEXAGON, DANAHER, PERINI, ELCIS, LIKA, ELTRA, SICK STEGMANN.

PRODUCT LINES

- NAVAL
- HEALTHCARE
- OIL & GAS
- TELECOMMUNICATION
- AUDIO-VIDEO
- SUN
- DEFENSE
- RAILWAYS
- AUTOMATION



TECNIKABEL
is committed to constant product innovation
to achieve a competitive advantage while focusing on
research and development.

A TECHNICAL HEART BEATS INSIDE OUR COMPANY

PRODUCTION

cutting-edge production systems, precise operating procedures and expert operators have allowed us to produce in an efficient and flexible manner. In 30 years of business we have constructed over 22,000 different types of cables.

FINAL INSPECTIONS

At the end of the production process, each cable is inspected to verify its electrical performance and its complete compliance with the buyer's specifications.

LABORATORY TESTS

We subject our cables to the most severe tests, simulating critical conditions of use. In addition to the classical tests required by current regulations, we have constructed special machinery for various types of mechanical and electrical tests.

R&D INTO MATERIALS

Our thirty years' experience has encouraged us on our ongoing search for new materials to optimise performances, costs, and to achieve the standards required by our customers.


ecni Kabel

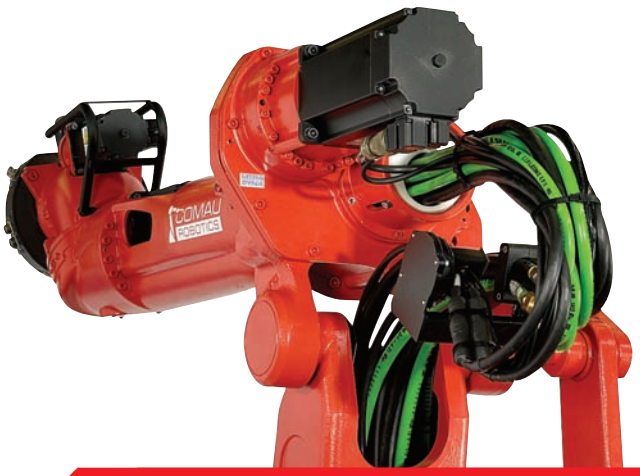
TECNIKABEL is a European leader in the special electric cable segment.
Established in 1978, research and development have been the company's cornerstones from the start.
TECNIKABELis on the leading edge, wherever the future is being designed:

- It works with leading companies in various fields
- Adapting to its Customers' needs
- With the goal of continuously improving quality and reliability targets.

Institutional

Products

Characteristics



notes:
The cross-section drawings provided in the catalogue are indicative and are not always to scale.

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.
TK F100® series cables are suitable for static installations. They can also be used in the presence of medium mechanical stresses and in very contained dynamic applications. 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.

The TK F100® series includes:

- UL-CSA single-core, gauges from AWG 30 up to 4/0 and from 250MCM to 1000MCM
- Shielded and non-shielded multicore, from 2 to 61 conductors, gauges from AWG 26 to 1/0 for controls, signals and power.
- Low capacitance shielded cables for servomotors UL CSA Desina
- Shielded VECTORFLEX cables (3 conductors+ ground) UL CSA Desina
- Field bus cables: Profibus, Interbus, DeviceNet, CANopen, MODbus, industrial Ethernet, Multibus
- ENCODER, RESOLVER, SINCODER cables compatible with the different models available on the market

SPECIAL CABLES FOR
TK F100®
AUTOMATION

TK-F100

CHARACTERISTICS OF THE CABLE

Conductors	CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	PVC Y, Polyolefin 2Y and TPE-E 12Y (UL-CSA standards)
Core Identification	CEI UNEL 00722 – VDE 0293
Overall shield (optional)	Tinned copper coverage ≥ 85% according to EMC 89/336 (c)
Sheath	PVC Y (UL-CSA standards)
Outer sheath colour	Grey or DESINA colours

TECHNICAL DATA

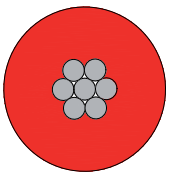
Operating voltage	Cross-sectional Area ≤ 1mm² : 300V (450/750V) or 30V Cross-sectional Area ≥ 1.5mm² : 1000V
Test Voltage	2000 a.c. (300V) - 4000 V a.c. (1000V)
Temperature range	- 20°C ÷ + 90 (static installation)
Minimum bending radius	5 x Ø cable (static installation)

REFERENCE STANDARDS

Cables according to UL 758, UL 1581	**Single-core for cabling** Single-core wires UL-CSA 80°C-105°C 300V and 105°C 600V, gauges from AWG 30 to 4/0 and from 250 MCM to 1000 MCM **Power and control** Cross-sectional Area ≤ 1mm² : UL 80°C 300V - CSA AWM I/II A/B 300V Cross-sectional Area ≥ 1.5mm² : UL 80°C ÷ 90°C 1000V CSA AWM I/II A/B 1000V or UL 90°C 600V - CSA AWM I/II A/B 600V **Data transmission** UL 80°C 30V – CSA AWM I/II A/B 30V UL 80°C 30V – CSA AWM I/II A/B 30V
Fire resistance	CEI 20-35 – EN 50265 – 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 72/23/EEC
Directive EMC 89/336	Electromagnetic Compatibility, in order to obtain maximum results in terms of a reduction in radio frequency interferences (European Directive EMC 89/336), shield connections must comply with the instructions provided by individual manufacturers of electric equipment

European Directive 2002/95/CE (RoHs – Reduction of Hazardous Substance) and 2002/96/CE (WEEE – Waste from Electrical and Electronic Equipment)

SINGLE-CORE STYLE 1007/1569 80°C 105°C 300V PVC Insulation

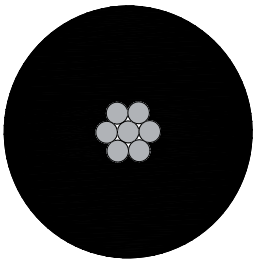


218TKF1001x

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø 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	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 PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø 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	3.3	13	22.7
250TKF1001x	AWG14	3.6	20.1	31.1
263TKF1001x	AWG12	4.3	36.5	50.3
269TKF1001x	AWG10	4.7	50	65.5
278TKF1001x	AWG8	6.5	94	125
283TKF1001x	AWG6	8.4	128.7	180
288TKF1001x	AWG4	9.6	211.2	272
291TKF1001x	AWG3	10.7	253.4	322
292TKF1001x	AWG2	11.2	345.7	417
294TKF1001x	AWG1	13.5	412.8	526
296TKF1001x	AWG1/0	14.7	528	653
297TKF1001x	AWG2/0	15.8	641.3	777
29ATKF1001x	AWG3/0	16.8	902.4	1051
29BTKF1001x	AWG4/0	18.4	1152	1322
29CTKF1001x	250MCM	21.2	1219.2	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	2678.4	3078
29LTKF1001x	600MCM	32.3	2918.4	3333
29XTKF1001x	650MCM	32.8	3158.4	3580
29YTKF1001x	700MCM	33	3408	3853
29ZTKF1001x	750MCM	33.5	3648	4080
29MTKF1001x	800MCM	34	3908	4330
29NTKF1001x	900MCM	36	4377.6	4844
29OTKF1001x	1000MCM	38	4896	5393



218TKF1002x

MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation

322TKF10004

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
322TKF10001	2x0,25 mm²	4	4.8	21.4
322TKF10002	3x0,25 mm²	4.2	7.2	25
322TKF10003	4x0,25 mm²	4.5	9.6	29.4
322TKF10004	5x0,25 mm²	4.8	12	34.1
322TKF10005	7x0,25 mm²	5.1	16.8	42.5
322TKF10006	12x0,25 mm²	6.4	28.8	56
322TKF10007	16x0,25 mm²	7	38.4	82
322TKF10008	18x0,25 mm²	7.3	43.2	90.2
322TKF10009	25x0,25 mm²	8.6	54.5	119
322TKF10010	30x0,25 mm²	8.9	60	107
322TKF10011	36x0,25 mm²	9.5	72	163
322TKF10012	40x0,25 mm²	9.9	86.4	175
322TKF10013	50x0,25 mm²	11.1	120	214
322TKF10014	61x0,25 mm²	11.7	146.4	254
				AWG24-0,25 mm²

MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100PVC Insulation

325TKF10007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
325TKF10001	2x0,35 mm²	4.4	6.7	27
325TKF10002	3x0,35 mm²	4.6	10.1	32
325TKF10003	4x0,35 mm²	5	13.4	38
325TKF10004	5x0,35 mm²	5.4	16.8	44
325TKF10005	7x0,35 mm²	5.7	23.5	55
325TKF10006	12x0,35 mm²	7.2	40.3	86
325TKF10007	16x0,35 mm²	8	53.8	110
325TKF10008	18x0,35 mm²	8.3	60.5	120
325TKF10009	25x0,35 mm²	10	84	164
325TKF10010	30x0,35 mm²	10.2	100.8	186
325TKF10011	36x0,35 mm²	11	121	221
325TKF10012	40x0,35 mm²	11.3	134.4	233
325TKF10013	50x0,35 mm²	12.8	168	288
325TKF10014	61x0,35 mm²	13.5	205	341
				AWG22-0,35 mm²

SHIELDED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKF10001	2x0,25 mm²	4.4	12.1	23
522TKF10002	3x0,25 mm²	4.6	14.6	33.4
522TKF10003	4x0,25 mm²	4.9	18.2	39.2
522TKF10004	5x0,25 mm²	5.2	21.8	45.1
522TKF10005	7x0,25 mm²	5.7	33.5	61
522TKF10006	12x0,25 mm²	7	51.6	90
522TKF10007	16x0,25 mm²	7.6	61.5	106.1
522TKF10008	18x0,25 mm²	7.9	69.3	117.1
522TKF10009	25x0,25 mm²	9.2	91.4	152
522TKF10010	30x0,25 mm²	9.5	103.7	170.3
522TKF10011	36x0,25 mm²	10.1	123.2	198.4
522TKF10012	40x0,25 mm²	10.5	133.2	214.1
522TKF10013	50x0,25 mm²	11.8	163.2	259.2
522TKF10014	61x0,25 mm²	12.5	190.4	300
				AWG24-0,25 mm²

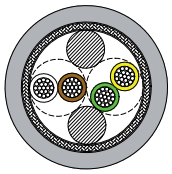
522TKF10004

SHIELDED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKF10001	2x0,35 mm²	4.8	15.3	34.6
525TKF10002	3x0,35 mm²	5	18.7	40.2
525TKF10003	4x0,35 mm²	5.4	23.3	48
525TKF10004	5x0,35 mm²	5.7	27.3	55.2
525TKF10005	7x0,35 mm²	6.1	36	68
525TKF10006	12x0,35 mm²	7.8	66.3	112
525TKF10007	16x0,35 mm²	8.5	83.2	137
525TKF10008	18x0,35 mm²	8.9	90.5	149
525TKF10009	25x0,35 mm²	10.4	121.1	195
525TKF10010	30x0,35 mm²	10.7	139.5	221.4
525TKF10011	36x0,35 mm²	11.7	164	257.3
525TKF10012	40x0,35 mm²	12.1	178.4	279
525TKF10013	50x0,35 mm²	13.6	218.6	339
525TKF10014	61x0,35 mm²	14.3	256.7	395
				AWG22-0,35 mm²

525TKF10007

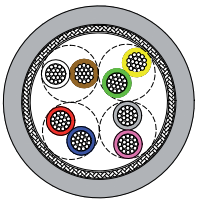
SHIELDED PAIRED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation



522TKF10015

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKF10015	2x2x0,25 mm²	5.8	20.8	45.7
522TKF10016	3x2x0,25 mm²	6.1	26.9	55.1
522TKF10017	4x2x0,25 mm²	6.8	39.1	72.2
522TKF10018	6x2x0,25 mm²	7.8	54.8	96.2
522TKF10019	8x2x0,25 mm²	8.5	67.8	116.2
522TKF10020	10x2x0,25 mm²	9.6	79.7	137
522TKF10021	12x2x0,25 mm²	9.9	94.1	156.4
522TKF10022	16x2x0,25 mm²	10.9	114.4	189
				AWG24-0,25 mm²

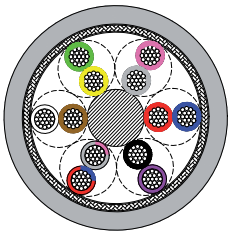
SHIELDED PAIRED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation



525TKF10017

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKF10015	2x2x0,35 mm²	6.4	25.9	54.7
525TKF10016	3x2x0,35 mm²	7	42.9	76.5
525TKF10017	4x2x0,35 mm²	7.5	49.9	88.7
525TKF10018	6x2x0,35 mm²	8.7	69.8	119.1
525TKF10019	8x2x0,35 mm²	9.5	85.5	143.5
525TKF10020	10x2x0,35 mm²	10.8	104.7	173.7
525TKF10021	12x2x0,35 mm²	11.1	123.1	198.7
525TKF10022	16x2x0,35 mm²	12.5	151.5	257.4
				AWG22-0,35 mm²

SHIELDED PAIRED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation



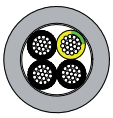
530TKF10004

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
530TKF10001	2x2x0,50 mm²	7.4	42.2	79.3
530TKF10002	3x2x0,50 mm²	7.8	54.8	103.8
530TKF10003	4x2x0,50 mm²	8.4	67.7	118.4
530TKF10004	6x2x0,50 mm²	9.9	94.1	160.6
530TKF10005	8x2x0,50 mm²	10.8	114.3	194.1
530TKF10006	10x2x0,50 mm²	12.4	140.2	236.2
				AWG20-0.50 mm²

MULTICORE CONTROL CABLES 80°C 300V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
330TKF10001	2x0,50 mm²	4.8	9.6	42.8
330TKF10002	3x0,50 mm²	5.1	14.4	51.2
330TKF10003	4x0,50 mm²	5.6	19.2	61.8
330TKF10004	5x0,50 mm²	6	24	72.6
330TKF10005	7x0,50 mm²	7	33.6	93.4
330TKF10006	12x0,50 mm²	8.4	57.6	147.3
330TKF10007	18x0,50 mm²	11.3	86.4	216.9
330TKF10008	25x0,50 mm²	13.1	12	288.5
330TKF10009	34x0,50 mm²	15	163.2	379.1
330TKF10010	41x0,50 mm²	16.8	196.8	435.6

AWG20-0.50 mm²

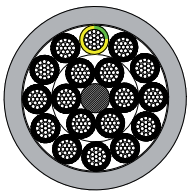


330TKF10003

MULTICORE CONTROL CABLES 80°C 300V BLACK NUMBERED + G/V PVC Insulation

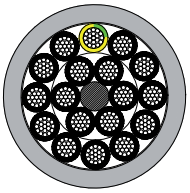
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
340TKF10001	2x1 mm²	5.9	19.2	51.7
340TKF10002	3x1 mm²	6.2	28.8	62.6
340TKF10003	4x1 mm²	6.7	38.4	75.1
340TKF10004	5x1 mm²	7.3	48	90.2
340TKF10005	7x1 mm²	8	67.2	117.1
340TKF10006	12x1 mm²	10.3	115.2	186.3
340TKF10007	18x1 mm²	12.3	172.8	272.6
340TKF10008	25x1 mm²	14.6	240	315.8
340TKF10009	34x1 mm²	16.6	326.4	493.3
340TKF10010	41x1 mm²	18.2	393.6	577.1
340TKF10011	50x1 mm²	19.8	480	695.8
340TKF10012	61x1 mm²	21.9	585.6	872.5

AWG18-1,00 mm²



340TKF10007

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

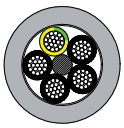


345TKF10007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
345TKF10001	2x1,5 mm²	6.6	28.8	68.8
345TKF10002	3x1,5 mm²	7	43.2	85
345TKF10003	4x1,5 mm²	7.6	57.6	104.2
345TKF10004	5x1,5 mm²	8.3	72	124.4
345TKF10005	7x1,5 mm²	9	100.8	162.6
345TKF10006	12x1,5 mm²	12	172.8	267.9
345TKF10007	18x1,5 mm²	14	259.2	384.5
345TKF10008	25x1,5 mm²	17	360	529.3
345TKF10009	34x1,5 mm²	19.2	489.6	709.2
345TKF10010	41x1,5 mm²	22.8	590.4	882.1
345TKF10011	50x1,5 mm²	23.8	720	1045
345TKF10012	61x1,5 mm²	25.4	878.4	1255.5

AWG16-1.50 mm²

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

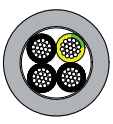


355TKF10004

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
355TKF10001	2x2,5 mm²	7.4	48	93.4
355TKF10002	3x2,5 mm²	7.8	72	117.3
355TKF10003	4x2,5 mm²	8.5	96	145.5
355TKF10004	5x2,5 mm²	9.4	120	175
355TKF10005	7x2,5 mm²	10.5	168	231.2
355TKF10006	12x2,5 mm²	13.6	288	385
355TKF10007	18x2,5 mm²	16	432	554.5
355TKF10008	25x2,5 mm²	19.8	600	781

AWG14-2.50 mm²

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation



330TKF10003

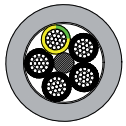
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
365TKF10001	2x4 mm²	8.6	76.8	134.7
365TKF10002	3x4 mm²	9.1	115.2	171.6
365TKF10003	4x4 mm²	10	153.6	214.6
365TKF10004	5x4 mm²	11.2	192.0	263.8
365TKF10005	7x4 mm²	12.2	268.8	355.5

AWG12-4.00 mm²

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
370TKF10001	4x6 mm²	12.6	230.4	327.2
370TKF10002	5x6 mm²	13.9	288	395.1
370TKF10003	7x6 mm²	15.4	403.2	533.7

AWG10-6.00 mm²

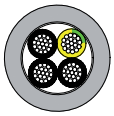


370TKF10002

MULTICORE CONTROL AND POWER CABLES 90°C600V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
380TKF10001	4x10 mm²	15.7	384	527
380TKF10002	5x10 mm²	17.6	480	645.9
380TKF10003	7x10 mm²	19.7	672	882.1

AWG8-10.00 mm²

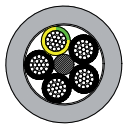


380TKF10001

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
385TKF10001	4x16 mm²	20.6	614.4	857.2
385TKF10002	5x16 mm²	22.7	768	1041.8
385TKF10003	7x16 mm²	24.8	1075.2	1385.8

AWG6-16.00 mm²

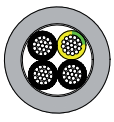


385TKF10002

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

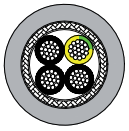
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
390TKF10001	4x25 mm²	25.9	960	1315.9
393TKF10001	4x35 mm²	29.5	1344	1865
395TKF10001	4x50 mm²	36.5	1920	2866.5
397TKF10001	4x35 mm²	39.6	2688	3561.4
398TKF10001	4x95 mm²	45	3648	4713.2

AWG4-25.00 mm² | AWG2-35.00 mm² | AWG1-50.00 mm² | AWG3/0-95.00 mm²



390TKF10001

SHIELDED MULTICORE CONTROL CABLES 80°C 300V BLACK NUMBERED + G/V PVC Insulation

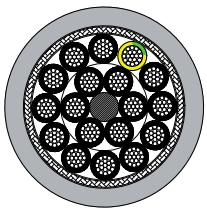


530TKF10009

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
530TKF10007	2x0,50 mm²	5.2	20.8	50.1
530TKF10008	3x0,50 mm²	5.5	29.9	61.5
530TKF10009	4x0,50 mm²	6.0	41.9	83.5
530TKF10010	5x0,50 mm²	6.4	47	94.7
530TKF10011	7x0,50 mm²	7.4	59.8	118
530TKF10012	12x0,50 mm²	9	94.3	181.5
530TKF10013	18x0,50 mm²	11.9	129.6	253.2
530TKF10014	25x0,50 mm²	13.7	171	330.1
530TKF10015	34x0,50 mm²	16	245.2	458.8
530TKF10016	41x0,50 mm²	18	289.2	549.2

AWG20-0.50 mm²

SHIELDED MULTICORE CONTROL CABLES 80°C 300V BLACK NUMBERED + G/V PVC Insulation



540TKF10007

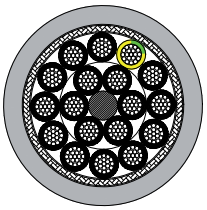
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKF10001	2x1 mm²	6.3	31.7	58.8
540TKF10002	3x1 mm²	6.8	51.5	82.7
540TKF10003	4x1 mm²	7.2	61.3	95.3
540TKF10004	5x1 mm²	7.9	74.1	114.1
540TKF10005	7x1 mm²	8.6	96.7	143.8
540TKF10006	12x1 mm²	10.9	152.8	219.9
540TKF10007	18x1 mm²	12.9	222.3	315.3
540TKF10008	25x1 mm²	15.6	321.4	446.9
540TKF10009	34x1 mm²	17.6	418.7	581.2
540TKF10010	41x1 mm²	19.2	489.3	659
540TKF10011	50x1 mm²	21.4	585,9	846.4
540TKF10012	61x1 mm²	22.9	694.2	970.5

AWG18-1,00 mm²

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
545TKF10001	2x1,5 mm²	7.2	51.6	83.9
545TKF10002	3x1,5 mm²	7.6	69.1	105.9
545TKF10003	4x1,5 mm²	8.2	83.9	126
545TKF10004	5x1,5 mm²	8.9	101.7	149.6
545TKF10005	7x1,5 mm²	9.6	135.7	192
545TKF10006	12x1,5 mm²	12.6	217	304.9
545TKF10007	18x1,5 mm²	14.8	331.8	446.6
545TKF10008	25x1,5 mm²	17.8	453	608.5
545TKF10009	34x1,5 mm²	21	594.8	843.6
545TKF10010	41x1,5 mm²	23.4	710.8	998.2
545TKF10011	50x1,5 mm²	24.6	843.4	1175.1
545TKF10012	61x1,5 mm²	26.2	1005.7	1390

AWG16-1.50 mm²

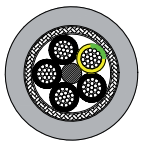


545TKF10007

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
565TKF10001	2x4 mm²	9	96.7	134.4
565TKF10002	3x4 mm²	9.7	151.6	193.9
565TKF10003	4x4 mm²	10.6	190.8	238.5
565TKF10004	5x4 mm²	11.6	235.1	288.7
565TKF10005	7x4 mm²	12.8	318.2	385.2

AWG12-4.00 mm²

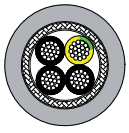


565TKF10004

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED+G/V PVC Insulation

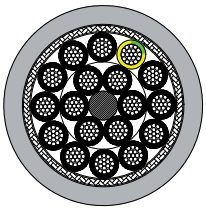
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
570TKF10001	4x6 mm²	13.2	280.4	352.6
570TKF10002	5x6 mm²	14.1	340.1	408.6
570TKF10003	7x6 mm²	16.2	462.9	573.5

AWG10-6.00 mm²



570TKF10001

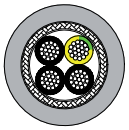
SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation



555TKF10007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
555TKF10001	2x2,5 mm²	8	74.2	107.8
555TKF10002	3x2,5 mm²	8.4	101.3	138.3
555TKF10003	4x2,5 mm²	9.1	125.8	167.7
555TKF10004	5x2,5 mm²	10	156.6	204
555TKF10005	7x2,5 mm²	10.8	205.5	260
555TKF10006	12x2,5 mm²	14.2	339.6	422.6
555TKF10007	18x2,5 mm²	17	521.4	635.7
555TKF10008	25x2,5 mm²	21.4	710.2	911.5
				AWG14-2.50 mm²

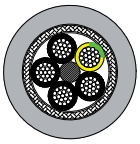
SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C600V BLACK NUMBERED + G/V PVC Insulation



580TKF10001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
580TKF10001	4x10 mm²	16.9	444.7	566.1
580TKF10002	5x10 mm²	18.8	550	697
580TKF10003	7x10 mm²	21.3	782.6	985
				AWG8-10.00 mm²

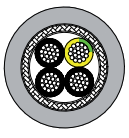
SHIELDED MULTICORE CONTROL AND POWER CABLES90°C 600V BLACK NUMBERED + G/V PVC Insulation



585TKF10002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
585TKF10001	4x16 mm²	21	688.1	858.7
585TKF10002	5x16 mm²	23.3	884.5	1086.8
585TKF10003	7x16 mm²	25.6	1199.7	1439.6
				AWG6-16.00 mm²

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation



590TKF10001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
590TKF10001	4x25 mm²	26.5	1093.4	1442
593TKF10001	4x35 mm²	31.5	1492.9	2046.8
595TKF10001	4x50 mm²	37.8	2151.3	3073
597TKF10001	4x35 mm²	40.6	3013.3	3801.9
598TKF10001	4x95 mm²	46	4033.6	4992.3
				AWG4-25.00 mm²

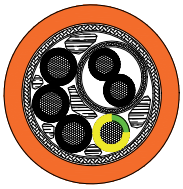
SHIELDED DESINA SERVOMOTOR MULTICORE POWER CABLES 90°C 1000V Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKF10013	4G1	7.5	53.9	92.5
545TKF10013	4G1.5	8.6	82.3	131.5
555TKF10009	4G2.5	10.6	129.5	198.7
565TKF10006	4G4	11.2	193	276.3
570TKF10004	4G6	13.2	275.3	376
580TKF10004	4G10	16.5	424.2	567.7
585TKF10004	4G16	22.4	673.5	885
590TKF10002	4G25	27	1003	1314.4
593TKF10002	4G35	32.6	1513.9	2146.8
595TKF10002	4G50	37.8	2167.8	2992.7

585TKF10001

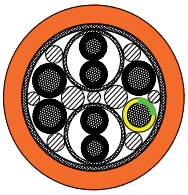
SHIELDED DESINA SERVOMOTOR MULTICORE POWER CABLES90°C 1000V Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKF10014	4G1+(2x0.50)	10.2	77.9	141.5
545TKF10014	4G1.5+(2x1)	11.7	130.2	221.5
555TKF10010	4G2.5+(2x1)	12.8	167.8	264.2
565TKF10007	4G4+(2x1)	13.9	193.8	315.6
570TKF10005	4G6+(2x1.5)	15.8	328.7	480.4
580TKF10005	4G10+(2x1.5)	18.5	523.5	774.5
585TKF10005	4G16+(2x1.5)	24.4	763.5	1043.4
590TKF10003	4G25+(2x1.5)	29	1156	1567.6
593TKF10003	4G35+(2x1.5)	33	1544.6	1978.1
595TKF10003	4G50+(2x1.5)	37.5	2145.5	2766



555TKF10002

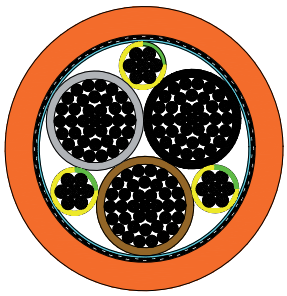
SHIELDED DESINA SERVOMOTOR POWER CABLES 90°C 1000V Polyolefin Insulation



545TKF10003

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKF10015	4G1+2x(2x0.75)	12.6	134.4	216.9
545TKF10015	4G1.5+2x(2x0.75)	12.6	154	259
555TKF10011	4G2.5+2x(2x0.75)	14.2	196.7	320.5
565TKF10008	4G4+(2x1)+(2x1.5)	15.8	286.4	439.4
570TKF10006	4G6+(2x1)+(2x1.5)	17.5	371.1	594
580TKF10006	4G10+(2x1)+(2x1.5)	20.5	568.1	845.7
585TKF10006	4G16+2x(2x1.5)	26.8	863.5	1231.5
590TKF10004	4G25+2x(2x1.5)	30	1213	1615.8
593TKF10004	4G35+2x(2x1.5)	33	1597.4	2022.6

VECTORFLEX 90°C 1000V Polyolefin Insulation



585TKF10004

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
585TKF10007	3x16+3G2.5	20.2	637.8	852.4
590TKF10005	3x25+3G4	24.5	973.2	1170.4
593TKF10005	3x35+3G6	27.4	1331.8	1756
595TKF10004	3x50+3G10	29.6	1897	2207.5
597TKF10002	3x70+3G10	34	2492	2889.7
598TKF10002	3x95+3G16	38.5	3408.8	3851.4
599TKF10001	3x120+3G16	43	4169.8	4690
59DTKF10001	3x150+3G25	51	5334	5552.4
59FTKF10001	3x185+3G35	55	6672	7099.5
59ITKF10001	3x240+3G42.5	62.5	8508	9128

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES HEIDENHEIM TPE Insulation

514TKF10002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKF10001	4x(2x0.14)St+(4x0.14)+(4x0.50)	8.3	56	102
514TKF10002	3x(2x0.14)St+2x(0.5)ST	8.9	66	124.8
514TKF10003	4x2x0.14+4x0.50	9	50.9	106.5

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES SICK STEGMANN TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKF10004	(4x2x0.14)ST	5.3	29.5	90.1

514TKF10004

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES OSAI Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKF10023	5x(2xAWG24)Sn+3xAWG20	8.5	65.6	123.4
512TKF10001	3x(2xAWG26)Sn+3xAWG20	6.4	42.8	71.6
518TKF10024	3x(2xAWG24)Sn+3xAWG19	8	66.5	108.6
518TKF10025	4x2xAWG24+2xAWG20	7.4	46.2	77.1

512TKF10001

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES ABB TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKF10005	4x(2x0.14)St+2x2x0.50	10.8	97.3	174.8
522TKF10023	3x(2x0.25)St+2x0.50	10.2	77.5	139.4

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES B&R TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKF10006	(5x2x0.14+2x0.50)	7.9	39.4	73.2
518TKF10026	(3x2xAWG24)	6.5	25.5	52.4

514TKF10006

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES ELAU Polyolefin Insulation

522TKF10003

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKF10024	3x2x0.25+2x0.50	8	25	87.9
522TKF10025	3x(2x0.25)ST	10.2	73.7	150.9

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES BERGER Polyolefin Insulation

522TKF10004

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKF10026	5x2x0.25+2x0.50	8.5	49	91

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES CONTROL TECNIQUE PVC Insulation

512TKF10002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKF10023	6x2x0.34+(2x0.34)Sn+2x1	11	102	172.7
512TKF10002	(2x2xAWG26)ST	5.6	18.6	45

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES LENZE TPE Insulation

514TKF10007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKF10007	3x(2x0.14)St+2x(0.50)ST	8.7	44	152
514TKF10008	4x(2x0.14)St+(2x1)ST	11.5	65	229

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES YASKAWA-FUJI-PANASONIC Polyolefin Insulation

525TKF10003

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKF10024	(2x2x0.34)ST	8.5	36.1	83.3

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES BOSCH REXROTH INDRAMAT TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKF10027	4x2x0.25+2x0.50	8.7	54.3	111.2
514TKF10009	4x2x0.14+4x1+(4x0.14)ST	9.7	92.8	165.5
522TKF10028	3x(2x0.25)St+3x0.25+ 2x1	9,2	58,9	115,9
530TKF10017	9x0.50	8.8	65.2	148.5

522TKF10005

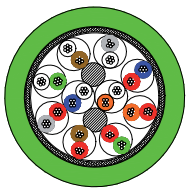
ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES SIEMENS TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
520TKF10001	12x0.22	7.2	37.8	82.3
526TKF10001	4x2x0.38+4x0.50	9.2	70.5	130
517TKF10001	8x2x0.18	8.2	54	85
514TKF10010	3x(2x0.14)St+4x0.14+4x0.25+2x0.50	9.8	86	139
514TKF10011	3x(2x0.14)St+4X0.14+2x0.50	8.9	66	101

514TKF10010

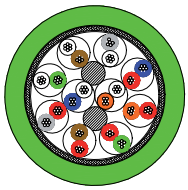
ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES FANUC Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
517TKF10002	4x2x0.18+2x0.50	7.6	32.9	70.5
517TKF10003	3x2x0.18+6x0.50	8.7	63	94
517TKF10004	3x2x0.18+6x1	8.7	89	140
517TKF10005	5x2x0.18+6x0.50	8.7	71	94
530TKF10018	5x0.5+2x0.18	7.7	48.6	143.7
530TKF10019	5x0.5+2x2x0.18	7.4	44.5	84.4
518TKF10027	10x2xAWG24	9.3	60	121
538TKF10013	10x2xAWG18	6.4	16.6	66



518TKF10027

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES DANAHER Polyolefin Insulation



518TKF10030

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKF10028	5x2xAWG24	7.3	40	79.4
518TKF10029	7x2xAWG24	8	48	94.7
518TKF10030	10x2xAWG24	10.2	73	140.6

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES BAUMUELLER TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKF10012	5x2x0.14 + 2x0.50	9	51.6	118
514TKF10013	(6x2x0.14)Sn/ST	7.5	31.6	61.8

514TKF10014

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES BOSCH MANDRINO TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKF10014	(6x0.14)SF+2(2x0.14)+2x2x0.14+9x0.5	14,2	128,7	210,9

RESOLVER SIGNAL TRANSMISSION CABLES Polyolefin Insulation

522TKF10007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKF10029	3x(2x0.25)ST	8.2	73.7	150.9
522TKF10030	4x(2x0.25)ST	9	63.6	120.8
522TKF10031	8x(2x0.25)ST	12.2	138.8	206.1
525TKF10025	4x(2x0.34)ST	11.2	56.6	145.6
525TKF10026	5x(2x0.34)ST	12.2	77.6	166.6

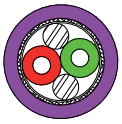
BUS CABLES/ INTERBUS Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKF10032	3x2x0.25	7	21.5	61.7
522TKF10033	3x2x0.25+3x1	8	53.7	96.6

522TKF10011

BUS CABLES/PROFIBUS DP-FIP Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKF10027	1x2x Ø 0.64	7.9	20.6	66.1
524TKF10023	1x2x AWG22 (7)	7.9	20.9	70.4
518TKF10031	1x2xAWG24 (7)	8	14.1	67.1



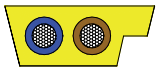
524TKF10006

BUS CABLES/ CAN OPEN Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKF10028	2x2x0.34	7	31.7	68.5
530TKF10020	2x0.50	6.7	25	69.1
530TKF10021	2x2x0.50	8.4	42.4	92.7
525TKF10029	2x0.34	6	22	50

525TKF10007

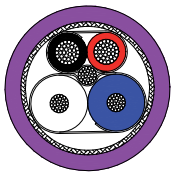
BUS CABLES/ ASI PVC Insulation



545TKF10004

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
545TKF10004	2x1.5	2.5	28.2	76.3

BUS CABLES/ DEVICE NET Polyolefin Insulation



538TKF10014

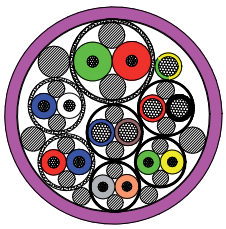
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKF10032	2xAWG24 + 2x AWG22	7	27.7	74.7
538TKF10014	2xAWG18 + 2xAWG15	11	90.3	179.6

BUS CABLES/ ETHERNET CAT 5E Polyolefin Insulation

518TKF10034

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKF10033	2x2xAWG24(7)	5.7	19.2	44
518TKF10034	4x2xAWG24 (0.50)	6.5	29.8	64.8
512TKF10003	4x2xAWG26	5.3	23.3	42
524TKF10003	2x2x0.64 mm Profinet	6.5	26.8	60.6
524TKF10004	2x2x0.64 mm Ethercat	6.5	26.8	60.6

BUS CABLES/ MULTIBUS Polyolefin Insulation



518TKF10035

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKF10035	2x(2x0,25)SF+2X(2x0,34)SF+(2x0,34)SF+2x(2x1)SF	14.3	133.3	283.9

Product description and application

Multicore cables designed and made to satisfy even the most demanding requests of machine tool, automatic machine and industrial system manufacturers.
Excellent results when used in cable chains.
TK F200 series cables are recommended for slow-speed dynamic installations. Its external PVC sheath is particularly resistant to abrasion and is suitable for use in damp environments, in contact with emulsions, cutting oils and aggressive chemical substances.

The TK F200® series includes:

- Shielded and non-shielded multicore, from 2 to 61 conductors; gauges from 0.50 to 50 mm² and low capacitance shielded cables for servomotors (3 conductors + ground)

SPECIAL CABLES FOR
TK F200®
AUTOMATION

TK-F200

CHARACTERISTICS OF THE CABLE

Conductors	CEI 20-29 Class 5 - IEC 60228 Class 5 – VDE 0295 Class 5
Insulation	PVC Y and Polyolefin 2Y and TPE-E 12Y
Core Identification	CEI UNEL 00722 – VDE 0293
Overall shield (optional)	Copper braid coverage ≥ 85% according to EMC 89/336 (c)
Sheath	PVC Y
Outer sheath colour	Grey or DESINA colours

TECHNICAL DATA

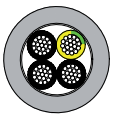
Operating voltage	450/750V
Test Voltage	3000 V a.c.
Temperature range	- 20°C ÷ + 70□ (static installation) - 5□÷ + 70□ (dynamic installation)
Minimum bending radius	10 x Ø cable
Maximum speed	140 m/min
Maximum acceleration	up to 5 m/s²
Chain length	10 m (horizontal only)
Flex life	3 million
Torsion	Please contact our technical support office

REFERENCE STANDARDS

Fire resistance	CEI 20-35 – EN 50265 – IEC 60332-1
Hydrocarbons and oil resistance	UL 1581 – VDE 0472 part 803 A/B – HD 22.10 S1 – CNOMO E.03.40.150N
Water resistance	IEC 60811
EC Directives	Product compliant with Low Voltage Regulation 72/23/EEC
Directive EMC 89/336	Electromagnetic Compatibility, in order to obtain maximum results in terms of the reduction of radio frequency interferences (European Directive EMC 89/336), shield connections must comply with the instructions provided by individual manufacturers of electric equipment

European Directive 2002/95/CE (RoHs – Reduction of Hazardous Substance) and 2002/96/CE (WEEE – Waste from Electrical and Electronic Equipment)

MULTICORE, CONTROL 70°C 450/750V BLACK NUMBERED + G/V PVC Insulation

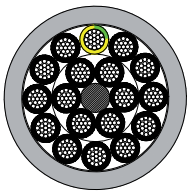


330TKF20003

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
330TKF20001	2x0,50 mm²	5.5	10.1	42.8
330TKF20002	3x0,50 mm²	5.8	15.2	51.2
330TKF20003	4x0,50 mm²	6.3	20.2	61.8
330TKF20004	5x0,50 mm²	6.8	25.3	72.6
330TKF20005	7x0,50 mm²	7.4	35.4	93.4
330TKF20006	12x0,50 mm²	9.5	60.6	147.3
330TKF20007	18x0,50 mm²	11.3	90.9	216.9
330TKF20008	25x0,50 mm²	13.1	126.3	288.5
330TKF20009	34x0,50 mm²	15	171.7	379.1
330TKF20010	41x0,50 mm²	16.8	207.1	435.6

AWG20-0.50 mm²

MULTICORE, CONTROL 70°C 450/750V BLACK NUMBERED + G/V PVC Insulation



340TKF20007

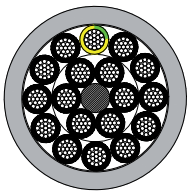
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
340TKF20001	2x1 mm²	5.9	20.2	51.7
340TKF20002	3x1 mm²	6.2	30.3	62.6
340TKF20003	4x1 mm²	6.7	40.4	75.1
340TKF20004	5x1 mm²	7.3	50.5	90.2
340TKF20005	7x1 mm²	8	70.7	117.1
340TKF20006	12x1 mm²	10.3	121.2	186.3
340TKF20007	18x1 mm²	12.3	181.8	272.6
340TKF20008	25x1 mm²	14.6	252.5	315.8
340TKF20009	34x1 mm²	16.6	343.4	493.3
340TKF20010	41x1 mm²	18.2	414.1	577.1
340TKF20011	50x1 mm²	19.8	505	695.8
340TKF20012	61x1 mm²	21.9	616.1	872.5

AWG14-2.50 mm²

MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
345TKF20001	2x1,5 mm²	6.6	30.3	68.8
345TKF20002	3x1,5 mm²	7	45.5	85
345TKF20003	4x1,5 mm²	7.6	60.6	104.2
345TKF20004	5x1,5 mm²	8.3	75.8	124.4
345TKF20005	7x1,5 mm²	9	106.1	162.6
345TKF20006	12x1,5 mm²	12	181.8	267.9
345TKF20007	18x1,5 mm²	14	272.7	384.5
345TKF20008	25x1,5 mm²	17	378.8	529.3
345TKF20009	34x1,5 mm²	19.2	515.1	709.2
345TKF20010	41x1,5 mm²	22.8	621.2	882.1
345TKF20011	50x1,5 mm²	23.8	757.5	1045
345TKF20012	61x1,5 mm²	25.4	924.2	1255.5

AWG16-1.50 mm²

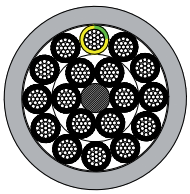


345TKF20007

MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED + G/V PVC Insulation

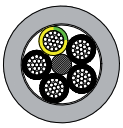
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
355TKF20001	2x2,5 mm²	8.0	50.5	93.4
355TKF20002	3x2,5 mm²	8.5	85.8	117.3
355TKF20003	4x2,5 mm²	9.4	101	145.5
355TKF20004	5x2,5 mm²	10.2	126.3	175
355TKF20005	7x2,5 mm²	11.2	176.8	231.2
355TKF20006	12x2,5 mm²	14.8	303	385
355TKF20007	18x2,5 mm²	18.0	454.5	554.5
355TKF20008	25x2,5 mm²	22.0	631.3	781

AWG14-2.50 mm²



355TKF20007

MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED + G/V PVC Insulation

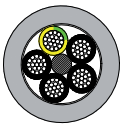


365TKF20003

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
365TKF20001	2x4 mm²	8.6	80.8	134.7
365TKF20002	3x4 mm²	9.1	121.2	171.6
365TKF20003	4x4 mm²	10	161.6	214.6
365TKF20004	5x4 mm²	11.2	202	263.8
365TKF20005	7x4 mm²	12.2	282.8	355.5

AWG12-4.00 mm²

MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED + G/V PVC Insulation



365TKF20003

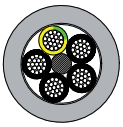
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
370TKF20001	4x6 mm²	12.6	242.4	327.2
370TKF20002	5x6 mm²	13.9	303	395.1
370TKF20003	7x6 mm²	15.4	424.2	533.7

AWG10-6.00 mm²

MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
380TKF20001	4x10 mm²	15.7	404	527
380TKF20002	5x10 mm²	17.6	505	645.9
380TKF20003	7x10 mm²	19.7	707	882.1

AWG8-10.00 mm²

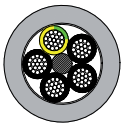


380TKF20001

MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
385TKF20001	4x16 mm²	20.6	646.4	857.2
385TKF20002	5x16 mm²	22.7	808	1041.8
385TKF20003	7x16 mm²	24.8	1131.2	1385.8

AWG6-16.00 mm²

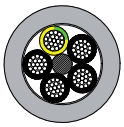


385TKF20002

MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED + G/V PVC Insulation

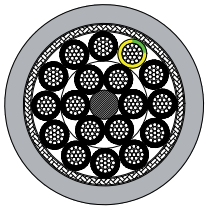
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
390TKF20001	4x25 mm²	25.9	1010	1315.9
393TKF20001	4x35 mm²	29.5	1414	1865

AWG4-25.00 mm²



390TKF20001

SHIELDED MULTICORE, CONTROL 70°C 450/750V BLACK NUMBERED + G/V PVC Insulation

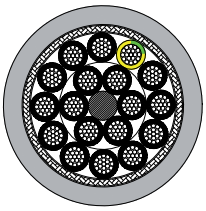


530TKF20007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
530TKF20001	2x0,50 mm²	5.9	21.3	50.1
530TKF20002	3x0,50 mm²	6.2	27.7	61.5
530TKF20003	4x0,50 mm²	6.9	42.9	83.5
530TKF20004	5x0,50 mm²	7.4	48.3	94.7
530TKF20005	7x0,50 mm²	8	61.6	118
530TKF20006	12x0,50 mm²	10.1	97.3	181.5
530TKF20007	18x0,50 mm²	11.9	134.1	253.2
530TKF20008	25x0,50 mm²	13.7	177.3	330.1
530TKF20009	34x0,50 mm²	16	253.7	458.8
530TKF20010	41x0,50 mm²	18	300.1	549.2

AWG20-0.50 mm²

SHIELDED MULTICORE, CONTROL 70°C 450/750V BLACK NUMBERED + G/V PVC Insulation



540TKF20007

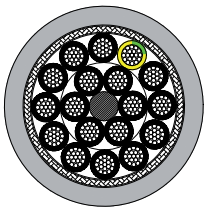
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKF20001	2x1 mm²	6.3	32.7	58.8
540TKF20002	3x1 mm²	6.8	53	82.7
540TKF20003	4x1 mm²	7.2	63.3	95.3
540TKF20004	5x1 mm²	7.9	76.6	114.1
540TKF20005	7x1 mm²	8.6	100.2	143.8
540TKF20006	12x1 mm²	10.9	158.8	219.9
540TKF20007	18x1 mm²	12.9	231.3	315.3
540TKF20008	25x1 mm²	15.6	333.9	446.9
540TKF20009	34x1 mm²	17.6	435.7	581.2
540TKF20010	41x1 mm²	19.2	509.8	659
540TKF20011	50x1 mm²	21.4	610.9	846.4
540TKF20012	61x1 mm²	22.9	724.7	970.5

AWG18□.00 mm²

SHIELDED MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED+G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
545TKF20001	2x1,5 mm²	7.2	53.1	83.9
545TKF20002	3x1,5 mm²	7.6	71.4	105.9
545TKF20003	4x1,5 mm²	8.2	86.9	126
545TKF20004	5x1,5 mm²	8.9	105.5	149.6
545TKF20005	7x1,5 mm²	9.6	141	192
545TKF20006	12x1,5 mm²	12.6	226	304.9
545TKF20007	18x1,5 mm²	14.8	345.3	446.6
545TKF20008	25x1,5 mm²	17.8	471.8	608.5
545TKF20009	34x1,5 mm²	21	620.3	843.6
545TKF20010	41x1,5 mm²	23.4	741.6	998.2
545TKF20011	50x1,5 mm²	24.6	880.9	1175.1
545TKF20012	61x1,5 mm²	26.2	1051.5	1390

AWG16-1.50 mm²

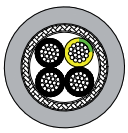


545TKF20007

SHIELDED MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED+G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
555TKF20001	2x2,5 mm²	8.6	76.7	107.8
555TKF20002	3x2,5 mm²	9.1	105.1	138.3
555TKF20003	4x2,5 mm²	10	130.8	167.7
555TKF20004	5x2,5 mm²	11	162.9	204
555TKF20005	7x2,5 mm²	11.8	214.3	260
555TKF20006	12x2,5 mm²	15.8	354.6	422.6
555TKF20007	18x2,5 mm²	19	543.9	635.7
555TKF20008	25x2,5 mm²	23	741.5	911.5

AWG14-2.50 mm²



555TKF20003

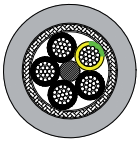
SHIELDED MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED+G/V PVC Insulation

565TKF20002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
565TKF20001	2x4 mm²	9	100.7	134.4
565TKF20002	3x4 mm²	9.7	157.6	193.9
565TKF20003	4x4 mm²	10.6	198.8	238.5
565TKF20004	5x4 mm²	11.6	245.1	288.7
565TKF20005	7x4 mm²	12.8	332.2	385.2

AWG12-4.00 mm²

SHIELDED MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED+G/V PVC Insulation

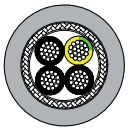


570TKF20002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
570TKF20001	4x6 mm²	13.2	292.4	352.6
570TKF20002	5x6 mm²	14.1	355.1	408.6
570TKF20003	7x6 mm²	16.2	483.9	573.5

AWG10-6.00 mm²

SHIELDED MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED+G/V PVC Insulation

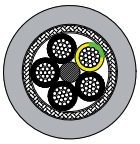


580TKF20001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
580TKF20001	4x10 mm²	16.9	464.7	566.1
580TKF20002	5x10 mm²	18.8	575	697
580TKF20003	7x10 mm²	21.3	817.6	985

AWG8-10.00 mm²

SHIELDED MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED+G/V PVC Insulation

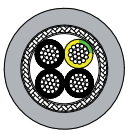


585TKF20002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
585TKF20001	4x16 mm²	21	720.1	858.7
585TKF20002	5x16 mm²	23.3	924.5	1086.8
585TKF20003	7x16 mm²	25.6	1255.7	1439.6

AWG6-16.00 mm²

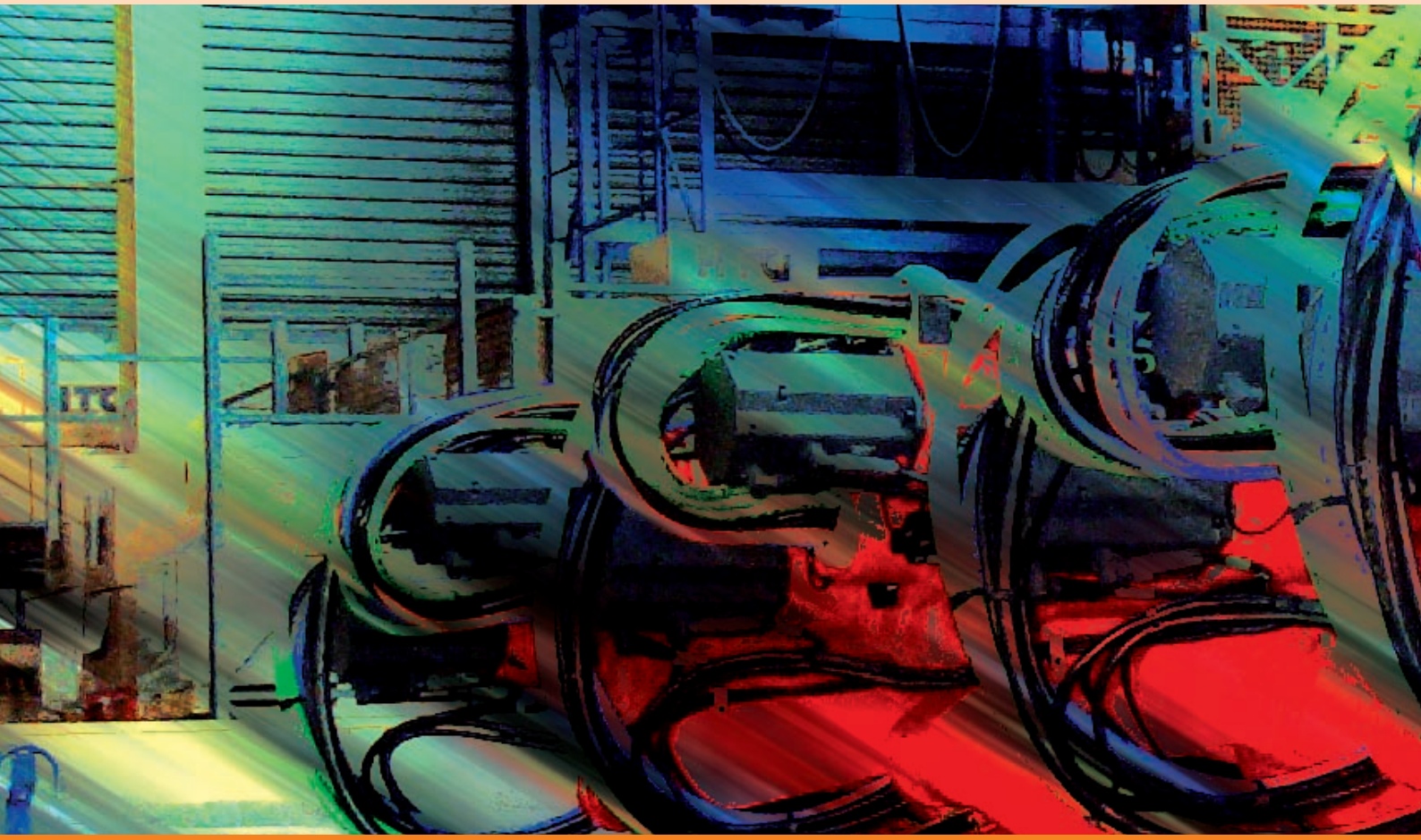
SHIELDED MULTICORE, CONTROL AND POWER 70°C 450/750V BLACK NUMBERED+G/V PVC Insulation



590TKF20001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
590TKF20001	4x25 mm²	26.5	1143.4	1442
593TKF20001	4x35 mm²	31.5	1562.9	2046.8

AWG4-25.00 mm²



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 with high mechanical applications.
The PVC outer shield is particularly resistant to abrasion and is indicated for use in damp environments in contact with emulsions, cutting oils, and aggressive chemical substances.

The TK FF200® series includes

- Shielded and non-shielded multicore from 2 to 36 conductors; gauges from AWG 26 to 1/0 for controls, signals and power.
- Low capacitance shielded cables for servomotors UL, CSA, Desina
- Field bus cables: Profibus, Interbus, DeviceNet, CANopen, MODbus, industrial Ethernet, MULTIBUS (mixed protocol)

SPECIAL CABLES FOR
TK FF200®
AUTOMATION

TK-FF200

CABLE FEATURES

Conductors	CEI 20-29 Class 6 - IEC 60228 Class 6 – VDE 0295 Class 6
Insulation	PVC Y, Polyolefin 2Y and TPE-E 12Y (UL-CSA standards)
Core Identification	CEI UNEL 00722 – VDE 0293
Overall shield (optional)	Tinned copper braid coverage ≥ 85% according to EMC 89/336 (c)
Sheath	PVC Y (UL-CSA standards)
Outer sheath colour	Grey or DESINA colours

TECHNICAL DATA

Operating voltage	Cross-sectional Area ≤ 1mm² : 300V (450/750V) or 30V Cross-sectional Area ≥ 1.5mm² : 1000V
Test Voltage	2000 a.c. (300V) - 4000 V a.c. (1000V)
Temperature range	- 20°C ÷ + 90□ (static installation) - 5□÷ + 90□ (dynamic installation)
Minimum bending radius	7.5 x Ø cable
Maximum speed	180 m/min
Maximum acceleration	up to 6 m/s²
Chain length	15 m (horizontal only)
Flex life	5 million
Torsion	Please contact our technical support office

REFERENCE STANDARDS

Cables compliant with UL 758, UL 1581 standards	**Power and Control** Cross-sectional Area ≤ 1mm² : UL 80°C 300V – CSA AWM I/II A/B 300V Cross-sectional Area ≥ 1.5mm² : UL 80°C 1000V – CSA AWM I/II A/B 1000V or UL 90°C 600V – CSA AWM I/II A/B 600V **Data transmission** UL 80°C 30V – CSA AWM I/II A/B 30V UL 80°C 30V – CSA AWM I/II A/B 30V
Fire resistance	CEI 20-35 – EN 50265 – 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 72/23/EEC
Directive EMC 89/336	Electromagnetic Compatibility, in order to obtain maximum results in terms of the reduction of radio frequency interferences (European Directive EMC 89/336), shield connections must comply with the instructions provided by individual manufacturers of electric equipment.

European Directive 2002/95/CE (RoHs – Reduction of Hazardous Substance) and 2002/96/CE (WEEE – Waste from Electrical and Electronic Equipment)

MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation

322TKFF20004

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
322TKFF20001	2x0,25 mm²	4	5.1	21.4
322TKFF20002	3x0,25 mm²	4.2	7.6	25
322TKFF20003	4x0,25 mm²	4.5	10.1	29.4
322TKFF20004	5x0,25 mm²	4.8	12.6	34.1
322TKFF20005	7x0,25 mm²	5.1	17.7	42.5
322TKFF20006	12x0,25 mm²	6.4	30.3	56
322TKFF20007	16x0,25 mm²	7	40.4	82
322TKFF20008	18x0,25 mm²	7.3	45.5	90.2
322TKFF20009	25x0,25 mm²	8.6	63.1	119
322TKFF20010	30x0,25 mm²	8.9	75.8	107
322TKFF20011	36x0,25 mm²	9.5	90.9	163
322TKFF20012	40x0,25 mm²	9.9	101	175
322TKFF20013	50x0,25 mm²	11.1	126.3	214
322TKFF20014	61x0,25 mm²	11.7	154	254

AWG24-0,25 mm²

MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation

325TKFF20007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
325TKFF20001	2x0,35 mm²	4.4	7.1	27
325TKFF20002	3x0,35 mm²	4.6	10.6	32
325TKFF20003	4x0,35 mm²	5	14.1	38
325TKFF20004	5x0,35 mm²	5.4	17.7	44
325TKFF20005	7x0,35 mm²	5.7	24.7	55
325TKFF20006	12x0,35 mm²	7.2	42.4	86
325TKFF20007	16x0,35 mm²	8	56.6	110
325TKFF20008	18x0,35 mm²	8.3	63.6	120
325TKFF20009	25x0,35 mm²	10	88.4	164
325TKFF20010	30x0,35 mm²	10.2	106.1	186
325TKFF20011	36x0,35 mm²	11	127.3	221
325TKFF20012	40x0,35 mm²	11.3	141.4	233
325TKFF20013	50x0,35 mm²	12.8	176.8	288
325TKFF20014	61x0,35 mm²	13.5	215.6	341

AWG22-0,35 mm²

SHIELDED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF20001	2x0,25 mm²	4.4	12.4	23
522TKFF20002	3x0,25 mm²	4.6	15	33.4
522TKFF20003	4x0,25 mm²	4.9	18.7	39.2
522TKFF20004	5x0,25 mm²	5.2	22.4	45.1
522TKFF20005	7x0,25 mm²	5.7	34.4	61
522TKFF20006	12x0,25 mm²	7	53.1	90
522TKFF20007	16x0,25 mm²	7.6	63.5	106.1
522TKFF20008	18x0,25 mm²	7.9	71.6	117.1
522TKFF20009	25x0,25 mm²	9.2	94.5	152
522TKFF20010	30x0,25 mm²	9.5	107.5	170.3
522TKFF20011	36x0,25 mm²	10.1	127.7	198.4
522TKFF20012	40x0,25 mm²	10.5	138.2	214.1
522TKFF20013	50x0,25 mm²	11.8	169.5	259.2
522TKFF20014	61x0,25 mm²	12.5	198	300
				AWG24 0,25 mm²

522TKFF20004

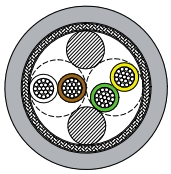
SHIELDED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKFF20001	2x0,35 mm²	4.8	15.7	34.6
525TKFF20002	3x0,35 mm²	5	19.2	40.2
525TKFF20003	4x0,35 mm²	5.4	24	48
525TKFF20004	5x0,35 mm²	5.7	28.9	55.2
525TKFF20005	7x0,35 mm²	6.1	37.2	68
525TKFF20006	12x0,35 mm²	7.8	68.4	112
525TKFF20007	16x0,35 mm²	8.5	86	137
525TKFF20008	18x0,35 mm²	8.9	93.6	149
525TKFF20009	25x0,35 mm²	10.4	125.5	195
525TKFF20010	30x0,35 mm²	10.7	144.8	221.4
525TKFF20011	36x0,35 mm²	11.7	170.3	257.3
525TKFF20012	40x0,35 mm²	12.1	185.4	279
525TKFF20013	50x0,35 mm²	13.6	227.4	339
525TKFF20014	61x0,35 mm²	14.3	267.3	395

AWG22 0,35 mm²

525TKFF20007

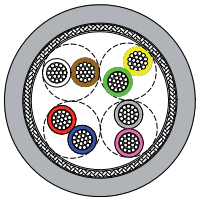
SHIELDED PAIRED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation



522TKFF20015

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF20015	2x2x0,25 mm²	5.8	21.3	45.7
522TKFF20016	3x2x0,25 mm²	6.1	27.7	55.1
522TKFF20017	4x2x0,25 mm²	6.8	40.1	72.2
522TKFF20018	6x2x0,25 mm²	7.8	56.3	96.2
522TKFF20019	8x2x0,25 mm²	8.5	69.8	116.2
522TKFF20020	10x2x0,25 mm²	9.6	82.2	137
522TKFF20021	12x2x0,25 mm²	9.9	97.1	156.4
522TKFF20022	16x2x0,25 mm²	10.9	118.4	189
				AWG24 - 0,25 mm²

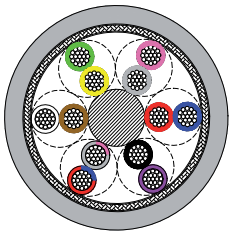
SHIELDED PAIRED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation



525TKFF20017

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKFF20015	2x2x0,35 mm²	6.4	26.6	54.7
525TKFF20016	3x2x0,35 mm²	7.2	43.9	76.5
525TKFF20017	4x2x0,35 mm²	7.5	51.3	88.7
525TKFF20018	6x2x0,35 mm²	8.7	71.9	119.1
525TKFF20019	8x2x0,35 mm²	9.5	88.3	143.5
525TKFF20020	10x2x0,35 mm²	10.8	108.2	173.7
525TKFF20021	12x2x0,35 mm²	11.1	127.3	198.7
525TKFF20022	16x2x0,35 mm²	12.5	157.1	257.4
				AWG22 - 0,35 mm²

SHIELDED PAIRED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 PVC Insulation



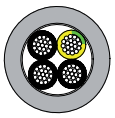
530TKFF20004

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
530TKFF20001	2x2x0,50 mm²	7.4	43.2	79.3
530TKFF20002	3x2x0,50 mm²	7.8	56.3	103.8
530TKFF20003	4x2x0,50 mm²	8.4	69.7	118.4
530TKFF20004	6x2x0,50 mm²	9.9	97.1	160.6
530TKFF20005	8x2x0,50 mm²	10.8	118.3	194.1
530TKFF20006	10x2x0,50 mm²	12.4	145.2	236.2
				AWG20-0.50 mm²

MULTICORE CONTROL CABLES 80°C 300V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
330TKFF20001	2x0,50 mm²	4.8	10.1	42.8
330TKFF20002	3x0,50 mm²	5.1	15.2	51.2
330TKFF20003	4x0,50 mm²	5.6	20.2	61.8
330TKFF20004	5x0,50 mm²	6	25.3	72.6
330TKFF20005	7x0,50 mm²	7	35.4	93.4
330TKFF20006	12x0,50 mm²	8.4	60.6	147.3
330TKFF20007	18x0,50 mm²	11.3	90.9	216.9
330TKFF20008	25x0,50 mm²	13.1	126.3	288.5
330TKFF20009	34x0,50 mm²	15	171.7	379.1
330TKFF20010	41x0,50 mm²	16.8	207.1	435.6

AWG20-0.50 mm²

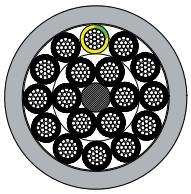


330TKFF20003

MULTICORE CONTROL CABLES80°C 300V BLACK NUMBERED+ G/V PVC Insulation

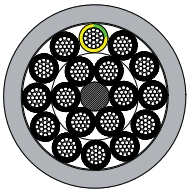
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
340TKFF20001	2x1 mm²	5.9	20.2	51.7
340TKFF20002	3x1 mm²	6.2	30.3	62.6
340TKFF20003	4x1 mm²	6.7	40.4	75.1
340TKFF20004	5x1 mm²	7.3	50.5	90.2
340TKFF20005	7x1 mm²	8	70.7	117.1
340TKFF20006	12x1 mm²	10.3	121.2	186.3
340TKFF20007	18x1 mm²	12.3	181.8	272.6
340TKFF20008	25x1 mm²	14.6	252.5	315.8
340TKFF20009	34x1 mm²	16.6	343.4	493.3
340TKFF20010	41x1 mm²	18.2	414.1	577.1
340TKFF20011	50x1 mm²	19.8	505	695.8
340TKFF20012	61x1 mm²	21.9	616.1	872.5

AWG18-1,00 mm²



340TKFF20007

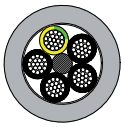
MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation



345TKFF20007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
345TKFF20002	3x1,5 mm²	7	45.5	85
345TKFF20003	4x1,5 mm²	7.6	60.6	104.2
345TKFF20004	5x1,5 mm²	8.3	75.8	124.4
345TKFF20005	7x1,5 mm²	9	106.1	162.6
345TKFF20006	12x1,5 mm²	12	181.8	267.9
345TKFF20013	15x1,5 mm²	14.2	224	410
345TKFF20007	18x1,5 mm²	14	272.7	384.5
345TKFF20008	25x1,5 mm²	17	378.8	529.3
345TKFF20009	34x1,5 mm²	19.2	515.1	709.2
345TKFF20010	41x1,5 mm²	22.8	621.2	882.1
345TKFF20011	50x1,5 mm²	23.8	757.5	1045
345TKFF20012	61x1,5 mm²	25.4	924.2	1255.5
				AWG16-1.50 mm²

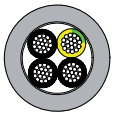
MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation



355TKFF20004

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
355TKFF20001	2x2,5 mm²	7.4	50.5	93.4
355TKFF20002	3x2,5 mm²	7.8	75.8	117.3
355TKFF20003	4x2,5 mm²	8.5	101	145.5
355TKFF20004	5x2,5 mm²	9.4	126.3	175
355TKFF20005	7x2,5 mm²	10.5	176.8	231.2
355TKFF20006	12x2,5 mm²	13.6	303	385
355TKFF20007	18x2,5 mm²	16	454.5	554.5
355TKFF20008	25x2,5 mm²	19.8	631.3	781
				AWG14-2.50 mm²

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation



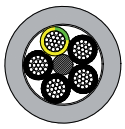
365TKFF20003

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
365TKFF20001	2x4 mm²	8.6	80.8	134.7
365TKFF20002	3x4 mm²	9.1	121.2	171.6
365TKFF20003	4x4 mm²	10	161.6	214.6
365TKFF20004	5x4 mm²	11.2	202	263.8
365TKFF20005	7x4 mm²	12.2	282.8	355.5
				AWG12-4.00 mm²

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
370TKFF20001	4x6 mm²	13.4	242.4	327.2
370TKFF20002	5x6 mm²	13.9	303	395.1
370TKFF20003	7x6 mm²	15.4	424.2	533.7

AWG10-6.00 mm²

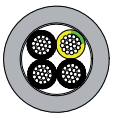


370TKFF20002

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
380TKFF20001	4x10 mm²	15.7	404	527
380TKFF20002	5x10 mm²	17.6	505	645.9
380TKFF20003	7x10 mm²	19.7	707	882.1

AWG8-10.00 mm²

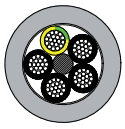


380TKFF20001

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
385TKFF20001	4x16 mm²	20.6	646.4	857.2
385TKFF20002	5x16 mm²	22.7	808	1041.8
385TKFF20003	7x16 mm²	24.8	1131.2	1385.8

AWG6-16.00 mm²

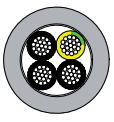


385TKFF20002

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

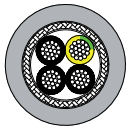
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
390TKFF20001	4x25 mm²	25.9	1010	1315.9
393TKFF20001	4x35 mm²	29.5	1414	1865
395TKFF20001	4x50 mm²	36.5	2020	2866.5
397TKFF20001	4x70 mm²	39.6	2828	3561.4
398TKFF20001	4x95 mm²	45	3838	4713.2

AWG4-25.00 mm² | AWG2-35.00 mm² | AWG1-50.00 mm² | AWG2/0-70.00 mm² | AWG3/0-95.00 mm²



390TKFF20001

SHIELDED MULTICORE CONTROL CABLES 80°C 300V BLACK NUMBERED + G/V PVC Insulation

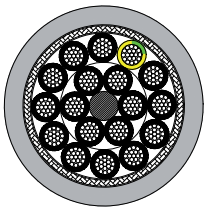


530TKFF20009

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
530TKFF20007	2x0,50 mm²	5.2	21.3	50.1
530TKFF20008	3x0,50 mm²	5.5	27.7	61.5
530TKFF20009	4x0,50 mm²	6.0	42.9	83.5
530TKFF20010	5x0,50 mm²	6.4	48.3	94.7
530TKFF20011	7x0,50 mm²	7.4	61.6	118
530TKFF20012	12x0,50 mm²	9	97.3	181.5
530TKFF20013	18x0,50 mm²	11.9	134.1	253.2
530TKFF20014	25x0,50 mm²	13.7	177.3	330.1
530TKFF20015	34x0,50 mm²	16	253.7	458.8
530TKFF20016	41x0,50 mm²	18	300.1	549.2

AWG20-0.50 mm²

SHIELDED MULTICORE CONTROL CABLES 80°C 300V BLACK NUMBERED + G/V PVC Insulation



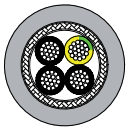
540TKFF20007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKFF20001	2x1 mm²	6.3	32.7	58.8
540TKFF20002	3x1 mm²	6.8	53	82.7
540TKFF20003	4x1 mm²	7.2	63.3	95.3
540TKFF20004	5x1 mm²	7.9	76.6	114.1
540TKFF20005	7x1 mm²	8.6	100.2	143.8
540TKFF20006	12x1 mm²	10.9	158.8	219.9
540TKFF20007	18x1 mm²	12.9	231.3	315.3
540TKFF20008	25x1 mm²	15.6	333.9	446.9
540TKFF20009	34x1 mm²	17.6	435.7	581.2
540TKFF20010	41x1 mm²	19.2	509.8	659
540TKFF20011	50x1 mm²	21.4	610.9	846.4
540TKFF20012	61x1 mm²	22.9	724.7	970.5

AWG18-1,00 mm²

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

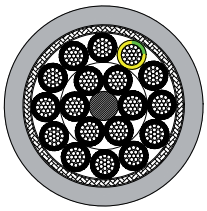
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
545TKFF20001	2x1,5 mm²	7.2	53.1	83.9
545TKFF20002	3x1,5 mm²	7.9	71.4	105.9
545TKFF20003	4x1,5 mm²	8.4	86.9	126
545TKFF20004	5x1,5 mm²	9.3	105.5	149.6
545TKFF20005	7x1,5 mm²	9.6	141	192
545TKFF20006	12x1,5 mm²	13	226	304.9
545TKFF20007	18x1,5 mm²	14.8	345.3	446.6
545TKFF20008	25x1,5 mm²	17.8	471.8	608.5
545TKFF20009	34x1,5 mm²	21	620.3	843.6
545TKFF20010	41x1,5 mm²	23.4	741.6	998.2
545TKFF20011	50x1,5 mm²	24.6	880.9	1175.1
545TKFF20012	61x1,5 mm²	26.2	1051.5	1390
				AWG16-1.50 mm²



545TKFF20003

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/VPVC Insulation

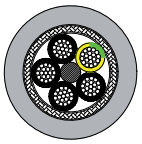
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
555TKFF20001	2x2,5 mm²	8	76.7	107.8
555TKFF20002	3x2,5 mm²	8.4	105.1	138.3
555TKFF20003	4x2,5 mm²	9.1	130.8	167.7
555TKFF20004	5x2,5 mm²	10	162.9	204
555TKFF20005	7x2,5 mm²	10.8	214.3	260
555TKFF20006	12x2,5 mm²	14.2	354.6	422.6
555TKFF20007	18x2,5 mm²	17	543.9	635.7
555TKFF20008	25x2,5 mm²	21.4	741.5	911.5
				AWG14-2.50 mm²



555TKFF20007

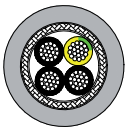
SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
565TKFF20001	2x4 mm²	9	100.7	134.4
565TKFF20002	3x4 mm²	9.7	157.6	193.9
565TKFF20003	4x4 mm²	10.6	198.8	238.5
565TKFF20004	5x4 mm²	11.6	245.1	288.7
565TKFF20005	7x4 mm²	12.8	332.2	385.2
				AWG12-4.00 mm²



565TKFF20004

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

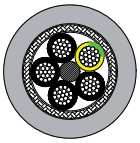


570TKFF20001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
570TKFF20001	4x6 mm²	13.2	292.4	352.6
570TKFF20002	5x6 mm²	14.1	355.1	408.6
570TKFF20003	7x6 mm²	16.2	483.9	573.5

AWG10-6.00 mm²

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

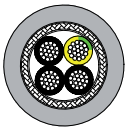


580TKFF20002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
580TKFF20001	4x10 mm²	18.8	464.7	566.1
580TKFF20002	5x10 mm²	19.6	575	697
580TKFF20003	7x10 mm²	24	817.6	985

AWG16-10.00 mm²

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation

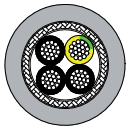


585TKFF20001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
585TKFF20001	4x16 mm²	21	720.1	858.7
585TKFF20002	5x16 mm²	23.3	924.5	1086.8
585TKFF20003	7x16 mm²	25.6	1255.7	1439.6

AWG6-16.00 mm²

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V PVC Insulation



590TKFF20001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
590TKFF20001	4x25 mm²	26.5	1143.4	1442
593TKFF20001	4x35 mm²	31.5	1562.9	2046.8
595TKFF20001	4x50 mm²	37.8	2251.3	3073
597TKFF20001	4x70 mm²	40.6	3153.3	3801.9
598TKFF20001	4x95 mm²	46	4223.6	4992.3

AWG4-25.00 mm² | AWG2-35.00 mm² | AWG1-50.00 mm² | AWG2/0-70.00 mm² | AWG3/0-95.00 mm²

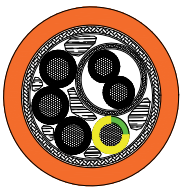
SHIELDED DESINA SERVOMOTOR POWER CABLES 90°C 1000V Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKFF20013	4G1	7.5	56.7	95.3
545TKFF20013	4G1.5	8.7	86.6	135.8
555TKFF20009	4G2.5	10.9	136.2	205.4
565TKFF20006	4G4	12.3	203.1	286.4
570TKFF20004	4G6	14	289.6	390.3
580TKFF20004	4G10	17.6	446.3	589.8
585TKFF20004	4G16	22	708.6	920.1
590TKFF20002	4G25	27	1055.2	1366.6
593TKFF20002	4G35	33	1592.7	2225.6
595TKFF20002	4G50	37.6	2280.7	3105.6

585TKFF20001

SHIELDED DESINA SERVOMOTOR POWER CABLES 90°C 1000V Polyolefin Insulation

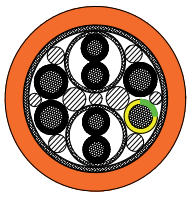
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKFF20014	4G1+(2x0.50)	10.2	82.0	145.6
545TKFF20014	4G1.5+(2x1)	12.5	137.0	228.3
555TKFF20010	4G2.5+(2x1)	12.8	176.5	272.9
565TKFF20007	4G4+(2x1)	13.9	203.9	325.7
570TKFF20005	4G6+(2x1.5)	16.2	345.8	497.5
580TKFF20005	4G10+(2x1.5)	19.7	550.8	801.8
585TKFF20005	4G16+(2x1.5)	24.2	803.3	1083.2
590TKFF20003	4G25+(2x1.5)	27.5	1216.2	1627.8
593TKFF20003	4G35+(2x1.5)	32	1625.0	2058.5
595TKFF20003	4G50+(2x1.5)	37.5	2257.2	2877.7



555TKFF20002

SHIELDED DESINA SERVOMOTOR POWER CABLES 90°C 1000V Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKFF20015	4G1+2x(2x0.75)	12.5	141.4	223.9
545TKFF20015	4G1.5+2x(2x0.75)	12.9	162.0	267.0
555TKFF20011	4G2.5+2x(2x0.75)	14.2	206.9	330.7
565TKFF20008	4G4+(2x1)+(2x1.5)	16.3	301.3	454.3
570TKFF20006	4G6+(2x1)+(2x1.5)	18.3	390.4	613.3
580TKFF20006	4G10+(2x1)+(2x1.5)	22.3	597.7	875.3
585TKFF20006	4G16+2x(2x1.5)	26.8	908.5	1276.5
590TKFF20004	4G25+2x(2x1.5)	29.3	1276.2	1679.0
593TKFF20004	4G35+2x(2x1.5)	32.4	1680.6	2105.8



555TKFF20002

BUS CABLES/ INTERBUS Polyolefin Insulation

522TKFF20002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF20023	3x2x0.25	7	24.4	61.7
522TKFF20024	3x2x0.25+3x1	8	60.9	96.6

BUS CABLES/PROFIBUS DP-FIP Polyolefin Insulation

524TKFF20023

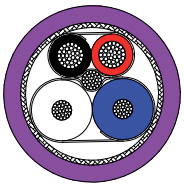
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
524TKFF20023	1x2xAWG22	7.9	23.7	70.4
518TKFF20023	1x2xAWG24	8	16	67.1

BUS CABLES/ CAN OPEN Polyolefin Insulation

525TKFF20002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKFF20023	2x2x0.34	7.5	36	68.5
530TKFF20017	2x0.50	6.7	28.4	69.1
530TKFF20018	2x2x0.50	8.4	48.1	92.7
525TKFF20024	2x0.34	6	25	50

BUS CABLES/ DEVICE NETPolyolefin Insulation



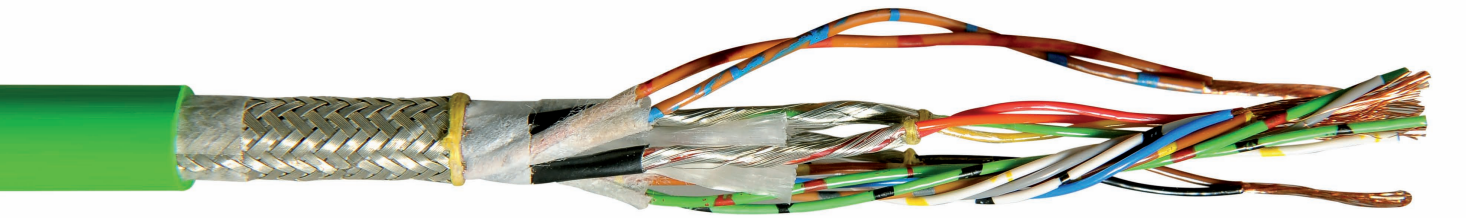
538TKFF20013

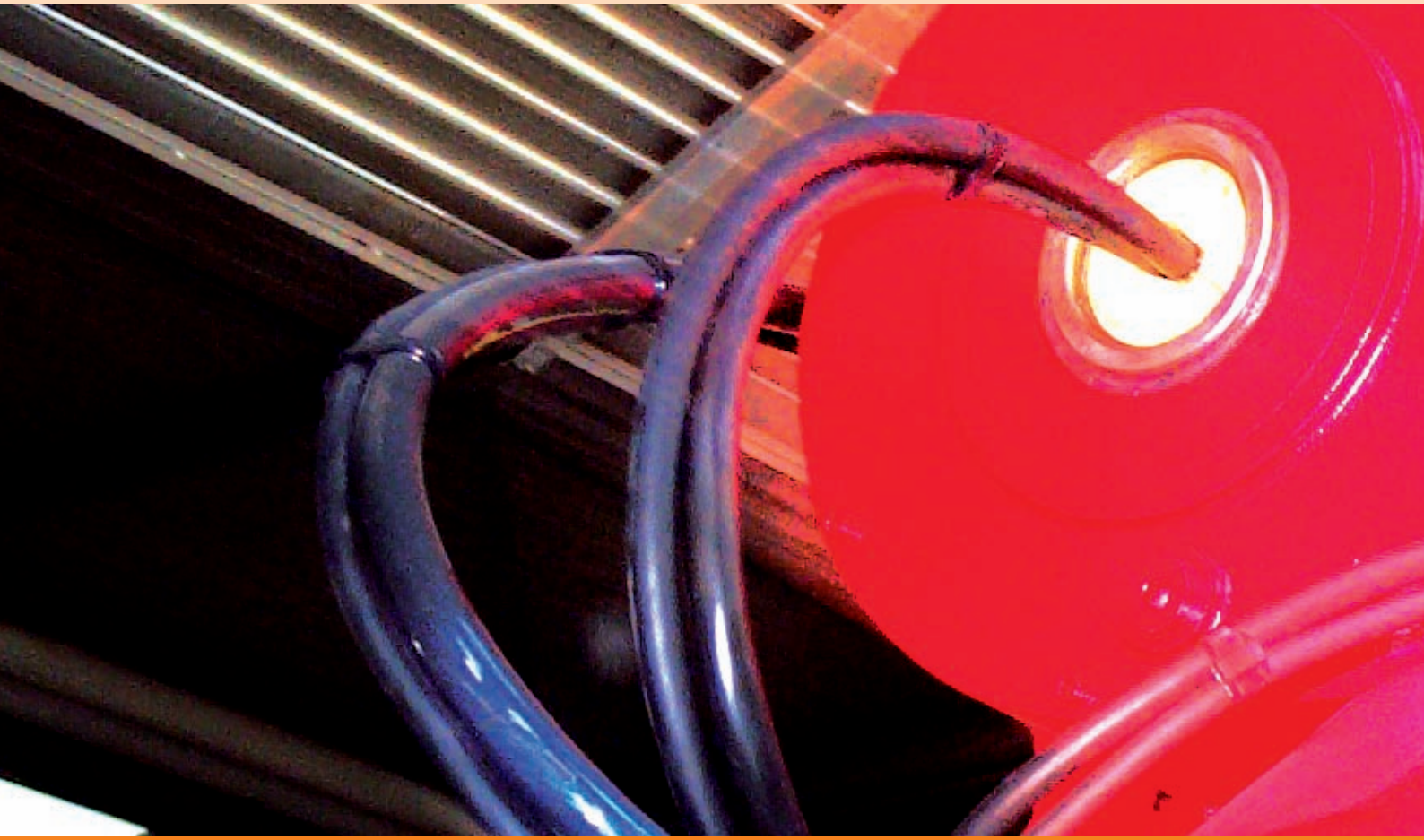
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKFF20024	2xAWG24+2xAWG22	7	31.4	74.7
538TKFF20013	2xAWG18+2xAWG15	11	102.5	179.6

BUS CABLES/ ETHERNET CAT 5E Polyolefin Insulation

512TKFF20001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKFF20025	2x2xAWG24(7)	5.7	21.8	44
518TKFF20026	4x2xAWG24 (0.50)	6.5	33.8	64.8
512TKFF20001	4x2xAWG26(7)	5.3	26.4	42





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 FF300®** to obtain small dimensions, allowing for use in bending-torsion, with the best price/performance ratio.
Use in 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.

The TK FF300® series includes

- Shielded and non-shielded single-core cables from AWG 10 to 1/0
- Shielded and non-shielded multicore from 2 to 36 conductors; gauges from AWG 26 to 1/0 for controls, signals and power
- Low capacitance shielded cables for servomotors UL CSA Desina
- Field bus cables, such as Profibus, Interbus, DeviceNet, CANopen, MODbus, industrial Ethernet, MULTIBUS (mixed protocol)
- ENCODER, RESOLVER, SINCODER cables compatible with the different standards available on the market

SPECIAL CABLES FOR
TK FF300®
AUTOMATION

TK-FF300

CHARACTERISTICS OF THE CABLE

Conductors	CEI 20-29 Class 6 - IEC 60228 Class 6 – VDE 0295 Class 6
Insulation	Polyolefin 2Y and TPE-E 12Y (UL-CSA standards)
Core Identification	CEI UNEL 00722 – VDE 0293
Overall shield (optional)	Tinned copper braid coverage ≥ 85% according to EMC 89/336 (c)
Sheath	Abrasion resistant polyurethane - 11Y (UL-CSA standards)
Outer sheath colour	Matt black or grey or DESINA colours

TECHNICAL DATA

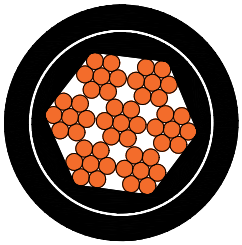
	TKFF300	TKFF300L
Structure	≤ 12 conductors: concentric conductor*	From 16 to 25 conductors:
	> 12 conductors: in groups	in concentric layers
Operating voltage	Cross-sectional Area ≤ 1mm² : 300V (450/750V) or 30V Cross-sectional Area ≥ 1.5mm² : 1000V	
Test Voltage	2000 a.c. (300V) - 4000 V a.c. (1000V)	
Temperature range	- 40÷ + 90 (static and dynamic installations)	
Minimum bending radius	6 x Ø cable	7.5 x Ø cable
Maximum speed	250 m/min	200 m/min
Maximum acceleration	up to 30 m/s²	10 m/s²
Chain length	15 m (horizontal only)	
Flex life	6 million	
Torsion	Please contact our technical support office	

REFERENCE STANDARDS

Cables compliant with UL 758, UL 1581 standards	**Power and Control** Cross-sectional Area ≤ 1mm² : UL – CSA AWM I/II A/B 300V Cross-sectional Area ≥ 1.5mm² : UL – CSA AWM I/II A/B 600V 1000V
Data Transmission	UL 90°C 30V – CSA AWM I/II A/B 30V UL 80°C 30V – CSA AWM I/II A/B 30V
Fire resistance	CEI 20-35 – EN 50265 – 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 72/23/EEC
Directive EMC 89/336	Electromagnetic Compatibility, in order to obtain maximum results in terms of the reduction of radio frequency interferences (European Directive EMC 89/336), shield connection must comply with the instructions provided by individual manufacturers of electric equipment.

European Directive 2002/95/CE (RoHs – Reduction of Hazardous Substance) and 2002/96/CE (WEEE – Waste from Electrical and Electronic Equipment)

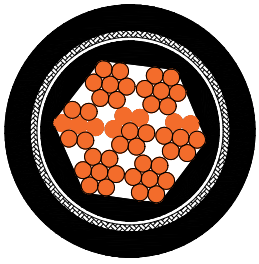
SINGLE-CORE STYLE 80°C 1000V Polyolefin Insulation



290TKFF30006

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
270TKFF30006	6 mm²	7,1	55,459	96,557
280TKFF30006	10 mm²	8,4	93,097	148,332
285TKFF30006	16 mm²	9,8	147,935	216,429
290TKFF30006	25 mm²	11,4	232,413	321,036
293TKFF30006	35 mm²	13,4	325,710	454,681
295TKFF30006	50 mm²	15,2	477,712	625,431
297TKFF30006	70 mm²	16,6	644,614	799,312
298TKFF30006	95 mm²	19,2	887,341	1094,668
299TKFF30006	120 mm²	22,8	1123,757	1345,289

SHIELDED SINGLE-CORE STYLE 80°C 1000V Polyolefin Insulation



590TKFF30006

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
570TKFF30006	6 mm²	7,7	76,635	121,408
580TKFF30006	10 mm²	9,0	120,591	179,144
585TKFF30006	16 mm²	10,4	180,384	253,176
590TKFF30006	25 mm²	12,0	272,531	366,146
593TKFF30006	35 mm²	14,0	372,270	495,619
595TKFF30006	50 mm²	15,8	530,421	682,225
597TKFF30006	70 mm²	17,4	705,638	869,694
598TKFF30006	95 mm²	20,2	979,193	1201,197
599TKFF30006	120 mm²	23,8	1232,061	1488,921

MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 Polyolefin Insulation

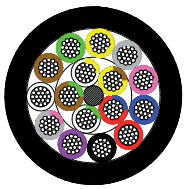
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
322TKFF30001	2x0,25 mm²	4	5.1	21.4
322TKFF30002	3x0,25 mm²	4.2	7.6	25
322TKFF30003	4x0,25 mm²	4.5	10.1	29.4
322TKFF30004	5x0,25 mm²	4.8	12.6	34.1
322TKFF30005	7x0,25 mm²	5.1	17.7	42.5
322TKFF30006	12x0,25 mm²	6.4	30.3	56
322TKFF30007	16x0,25 mm²	7	40.4	82
322TKFF30008	18x0,25 mm²	7.3	45.5	90.2
322TKFF30009	25x0,25 mm²	8.6	63.1	119
322TKFF30010	30x0,25 mm²	8.9	75.8	107
322TKFF30011	36x0,25 mm²	9.5	90.9	163
322TKFF30012	40x0,25 mm²	9.9	101	175
322TKFF30013	50x0,25 mm²	11.1	126.3	214
322TKFF30014	61x0,25 mm²	11.7	154	254
				AWG24-0,25 mm²

322TKFF30004

MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
325TKFF30001	2x0,35 mm²	4.4	7.1	27
325TKFF30002	3x0,35 mm²	4.6	10.6	32
325TKFF30003	4x0,35 mm²	5	14.1	38
325TKFF30004	5x0,35 mm²	5.4	17.7	44
325TKFF30005	7x0,35 mm²	5.7	24.7	55
325TKFF30006	12x0,35 mm²	7.2	42.4	86
325TKFF30007	16x0,35 mm²	8	56.6	110
325TKFF30008	18x0,35 mm²	8.3	63.6	120
325TKFF30009	25x0,35 mm²	10	88.4	164
325TKFF30010	30x0,35 mm²	10.2	106.1	186
325TKFF30011	36x0,35 mm²	11	127.3	221
325TKFF30012	40x0,35 mm²	11.3	141.4	233
325TKFF30013	50x0,35 mm²	12.8	176.8	288
325TKFF30014	61x0,35 mm²	13.5	215.6	341

AWG22-0,35 mm²



325TKFF30007

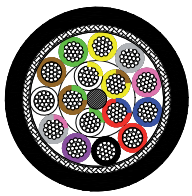
SHIELDED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 Polyolefin Insulation

522TKFF30004

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF30001	2x0,25 mm²	4.4	12.4	23
522TKFF30002	3x0,25 mm²	4.6	15	33.4
522TKFF30003	4x0,25 mm²	4.9	18.7	39.2
522TKFF30004	5x0,25 mm²	5.2	22.4	45.1
522TKFF30005	7x0,25 mm²	5.7	34.4	61
522TKFF30006	12x0,25 mm²	7	53.1	90
522TKFF30007	16x0,25 mm²	7.6	63.5	106.1
522TKFF30030	18x0,25 mm²	7.9	71.6	117.1
522TKFF30009	25x0,25 mm²	9.2	94.5	152
522TKFF30010	30x0,25 mm²	9.5	107.5	170.3
522TKFF30011	36x0,25 mm²	10.1	127.7	198.4
522TKFF30012	40x0,25 mm²	10.5	138.2	214.1
522TKFF30013	50x0,25 mm²	11.8	169.5	259.2
522TKFF30014	61x0,25 mm²	12.5	198	300

AWG24-0,25 mm²

SHIELDED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 Polyolefin Insulation



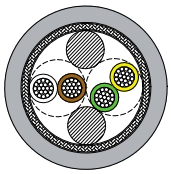
525TKFF30007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKFF30001	2x0,35 mm²	4.8	15.7	34.6
525TKFF30002	3x0,35 mm²	5	19.2	40.2
525TKFF30003	4x0,35 mm²	5.4	24	48
525TKFF30004	5x0,35 mm²	5.7	28.9	55.2
525TKFF30026	7x0,35 mm²	6.1	37.2	68
525TKFF30006	12x0,35 mm²	7.8	68.4	112
525TKFF30007	16x0,35 mm²	8.5	86	137
525TKFF30008	18x0,35 mm²	8.9	93.6	149
525TKFF30009	25x0,35 mm²	10.4	125.5	195
525TKFF30010	30x0,35 mm²	10.7	144.8	221.4
525TKFF30011	36x0,35 mm²	11.7	170.3	257.3
525TKFF30012	40x0,35 mm²	12.1	185.4	279
525TKFF30013	50x0,35 mm²	13.6	227.4	339
525TKFF30014	61x0,35 mm²	14.3	267.3	395

AWG22-0,35 mm²

SHIELDED PAIRED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 Polyolefin Insulation

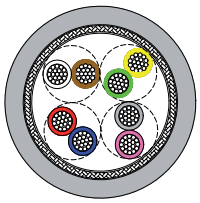
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF30015	2x2x0,25 mm²	6.0	21.3	45.7
522TKFF30016	3x2x0,25 mm²	6.4	27.7	55.1
522TKFF30017	4x2x0,25 mm²	6.8	40.1	72.2
522TKFF30018	6x2x0,25 mm²	7.8	56.3	96.2
522TKFF30019	8x2x0,25 mm²	8.8	69.8	116.2
522TKFF30020	10x2x0,25 mm²	9.6	82.2	137
522TKFF30021	12x2x0,25 mm²	9.9	97.1	156.4
522TKFF30022	16x2x0,25 mm²	10.9	118.4	189
				AWG24-0,25 mm²



522TKFF30015

SHIELDED PAIRED MULTICORE CONTROL AND SIGNAL CABLES 80°C 300V DIN 47100 Polyolefin Insulation

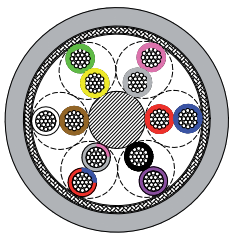
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKFF30015	2x2x0,35 mm²	6.4	26.6	54.7
525TKFF30016	3x2x0,35 mm²	6.9	43.9	76.5
525TKFF30017	4x2x0,35 mm²	7.5	51.3	88.7
525TKFF30018	6x2x0,35 mm²	8.7	71.9	119.1
525TKFF30019	8x2x0,35 mm²	9.5	88.3	143.5
525TKFF30020	10x2x0,35 mm²	10.8	108.2	173.7
525TKFF30021	12x2x0,35 mm²	11.1	127.3	198.7
525TKFF30022	16x2x0,35 mm²	12.5	157.1	257.4
				AWG22-0,35 mm²



525TKFF30017

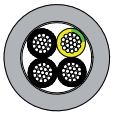
SHIELDED PAIRED MULTICORE CONTROLS AND SIGNAL CABLES 80°C 300V DIN 47100 Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
530TKFF30001	2x2x0,50 mm²	7.4	43.2	79.3
530TKFF30002	3x2x0,50 mm²	7.8	56.3	103.8
530TKFF30003	4x2x0,50 mm²	8.4	69.7	118.4
530TKFF30004	6x2x0,50 mm²	9.9	97.1	160.6
530TKFF30005	8x2x0,50 mm²	10.8	118.3	194.1
530TKFF30006	10x2x0,50 mm²	12.4	145.2	236.2
				AWG200.50 mm²



530TKFF30004

MULTICORE CONTROL AND POWER CABLES 90°C 300V BLACK NUMBERED Polyolefin Insulation

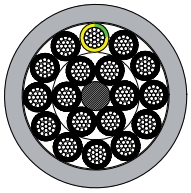


330TKFF30003

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
330TKFF30001	2x0,50 mm²	5	10.1	42.8
330TKFF30002	3x0,50 mm²	5.2	15.2	51.2
330TKFF30003	4x0,50 mm²	5.9	20.2	61.8
330TKFF30004	5x0,50 mm²	6.2	25.3	72.6
330TKFF30005	7x0,50 mm²	7.2	35.4	93.4
330TKFF30006	12x0,50 mm²	8.4	60.6	147.3
330TKFF30007	18x0,50 mm²	11.3	90.9	216.9
330TKFF30008	25x0,50 mm²	13.1	126.3	288.5
330TKFF30009	34x0,50 mm²	15	171.7	379.1
330TKFF30010	41x0,50 mm²	16.8	207.1	435.6
330TKFF300L1	18x0,50 mm²	9.5	90.9	184
330TKFF300L2	25x0,50 mm²	12.2	126.3	245

AWG2-0.50 mm²

MULTICORE CONTROL AND POWER CABLES 90°C 300V BLACK NUMBERED + G/V Polyolefin Insulation



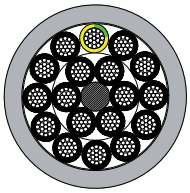
340TKFF30007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
340TKFF30001	2x1 mm²	6	20.2	51.7
340TKFF30002	3x1 mm²	6.5	30.3	62.6
340TKFF30003	4x1 mm²	7	40.4	75.1
340TKFF30004	5x1 mm²	7.5	50.5	90.2
340TKFF30005	7x1 mm²	9	70.7	117.1
340TKFF30006	12x1 mm²	10.3	121.2	186.3
340TKFF30007	18x1 mm²	16	181.8	272.6
340TKFF30008	25x1 mm²	17.6	252.5	315.8
340TKFF30009	34x1 mm²	22	343.4	493.3
340TKFF30010	41x1 mm²	24.4	414.1	577.1
340TKFF30011	50x1 mm²	27.4	505	695.8
340TKFF30012	61x1 mm²	34	616.1	872.5
340TKFF300L1	18x1 mm²	12.2	181.8	231
340TKFF300L2	25x1 mm²	15.8	252.5	268

AWG18-1,00 mm²

MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V Polyolefin Insulation

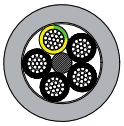
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
345TKFF30001	2x1,5 mm²	7.0	30.3	68.8
345TKFF30002	3x1,5 mm²	7.7	45.5	85
345TKFF30003	4x1,5 mm²	8.2	60.6	104.2
345TKFF30004	5x1,5 mm²	8.9	75.8	124.4
345TKFF30005	7x1,5 mm²	10.8	106.1	162.6
345TKFF30006	12x1,5 mm²	12.8	181.8	267.9
345TKFF30007	18x1,5 mm²	19.2	272.7	384.5
345TKFF30008	25x1,5 mm²	21.8	378.8	529.3
345TKFF30009	34x1,5 mm²	26.5	515.1	709.2
345TKFF30010	41x1,5 mm²	29.2	621.2	882.1
345TKFF30011	50x1,5 mm²	33	757.5	1045
345TKFF30012	61x1,5 mm²	40.5	924.2	1255.5
345TKFF300L1	18x1,5 mm²	15.2	272.7	326
345TKFF300L2	25x1,5 mm²	19.8	378.8	450
				AWG16-1.50 mm²



345TKFF30007

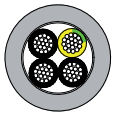
MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
355TKFF30001	2x2,5 mm²	8.6	50.5	93.4
355TKFF30002	3x2,5 mm²	9.2	75.8	117.3
355TKFF30003	4x2,5 mm²	10	101	145.5
355TKFF30004	5x2,5 mm²	11	126.3	175
355TKFF30005	7x2,5 mm²	13.5	176.8	231.2
355TKFF30006	12x2,5 mm²	16	303	385
355TKFF30007	18x2,5 mm²	24.6	454.5	554.5
355TKFF30008	25x2,5 mm²	28	631.3	881
355TKFF300L1	18x2,5 mm²	19	454.5	471
355TKFF300L2	25x2,5 mm²	23.4	631.3	750
				AWG14-2.50 mm²



355TKFF30004

MULTICORE CONTROL AND POWER CABLES90°C 600V BLACK NUMBERED + G/V Polyolefin Insulati

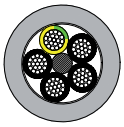


365TKFF30003

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
365TKFF30001	2x4 mm²	10	80.8	134.7
365TKFF30002	3x4 mm²	10.6	121.2	171.6
365TKFF30003	4x4 mm²	11.8	161.6	214.6
365TKFF30004	5x4 mm²	13	202	263.8
365TKFF30005	7x4 mm²	15.8	282.8	355.5

AWG12-4.00 mm²

MULTICORE CONTROL AND POWER CABLES90°C 600V BLACK NUMBERED + G/V Polyolefin Insulation

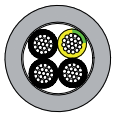


370TKFF30002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
370TKFF30001	4x6 mm²	13.8	292.4	327.2
370TKFF30002	5x6 mm²	15.5	355.1	395.1
370TKFF30003	7x6 mm²	19	483.9	533.7

AWG10-6.00 mm²

MULTICORE CONTROL AND POWER CABLES90°C 600V BLACK NUMBERED + G/V Polyolefin Insulation

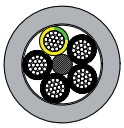


380TKFF30001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
380TKFF30001	4x10 mm²	16.7	464.7	527
380TKFF30002	5x10 mm²	18.5	575	645.9
380TKFF30003	7x10 mm²	23.5	817.6	882.1

AWG8-10.00 mm²

MULTICORE CONTROL AND POWER CABLES90°C 600V BLACK NUMBERED + G/V Polyolefin Insulation

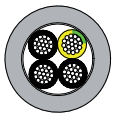


385TKFF30002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
385TKFF30001	4x16 mm²	20.4	720.1	857.2
385TKFF30002	5x16 mm²	22.7	924.5	1041.8
385TKFF30003	7x16 mm²	28	1255.7	1385.8

AWG6-16.00 mm²

MULTICORE CONTROL AND POWER CABLES90°C 600V BLACK NUMBERED + G/V Polyolefin Insulatio



390TKFF30001

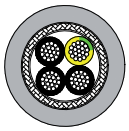
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
390TKF30001	4x25 mm²	26	1010	1315.9
393TKFF30001	4x35 mm²	30.5	1414	1865
395TKF30001	4x50 mm²	36.5	2020	2866.5
397TKF30001	4x70 mm²	39.6	2828	3561.4
398TKF30001	4x95 mm²	45	3838	4713.2

AWG4-25.00 mm² | AWG2-35.00 mm² | AWG1-50.00 mm² | AWG2/0-70.00 mm² | AWG3/0-95.00 mm²

SHIELDED MULTICORE CONTROL CABLES 80°C 300V BLACK NUMBERED + G/V Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
530TKFF30007	2x0,50 mm²	5.4	21.3	50.1
530TKFF30008	3x0,50 mm²	5.7	27.7	61.5
530TKFF30009	4x0,50 mm²	6.3	42.9	83.5
530TKFF30010	5x0,50 mm²	6.6	48.3	94.7
530TKFF30011	7x0,50 mm²	7.8	61.6	118
530TKFF30012	12x0,50 mm²	9.2	97.3	181.5
530TKFF30013	18x0,50 mm²	11.9	134.1	253.2
530TKFF30014	25x0,50 mm²	13.7	177.3	330.1
530TKFF30015	34x0,50 mm²	16	253.7	458.8
530TKFF30016	41x0,50 mm²	18	300.1	549.2
530TKFF300L1	18x0,50 mm²	10.1	127	215
530TKFF300L2	25x0,50 mm²	12.8	168	280

AWG20-0.50 mm²

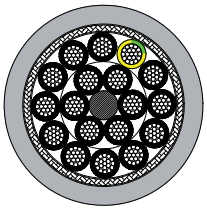


530TKFF30009

SHIELDED MULTICORE CONTROL CABLES 80°C 300V BLACK NUMBERED + G/V Polyolefin Insulation

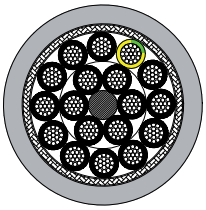
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKFF30013	2x1 mm²	6.3	32.7	58.8
540TKFF30014	3x1 mm²	6.8	53	82.7
540TKFF30015	4x1 mm²	7.4	63.3	95.3
540TKFF30004	5x1 mm²	8.0	76.6	114.1
540TKFF30005	7x1 mm²	9.4	100.2	143.8
540TKFF30006	12x1 mm²	10.9	158.8	219.9
540TKFF30007	18x1 mm²	16.6	231.3	315.3
540TKFF30008	25x1 mm²	18.2	333.9	446.9
540TKFF30009	34x1 mm²	22.8	435.7	581.2
540TKFF30010	41x1 mm²	25.4	509.8	659
540TKFF30011	50x1 mm²	28.5	610.9	846.4
540TKFF30012	61x1 mm²	35.4	724.7	970.5
540TKFF300L1	18x1 mm²	12,8	219	268
540TKFF300L2	25x1 mm²	16,7	316	380

AWG18-1,00 mm²



540TKFF30007

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V Polyolefin Insulation

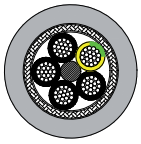


545TKFF30007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
545TKFF30013	2x1,5 mm²	7.7	53.1	83.9
545TKFF30014	3x1,5 mm²	8.2	71.4	105.9
545TKFF30015	4x1,5 mm²	8.7	86.9	126
545TKFF30004	5x1,5 mm²	9.0	105.5	149.6
545TKFF30005	7x1,5 mm²	11.4	141	192
545TKFF30006	12x1,5 mm²	13.4	226	304.9
545TKFF30007	18x1,5 mm²	19.8	345.3	446.6
545TKFF30008	25x1,5 mm²	22.6	471.8	608.5
545TKFF30009	34x1,5 mm²	27.4	620.3	843.6
545TKFF30010	41x1,5 mm²	30.2	741.6	998.2
545TKFF30011	50x1,5 mm²	34	880.9	1175.1
545TKFF30012	61x1,5 mm²	41.8	1051.5	1390
545TKFF300L1	18x1,5 mm²	15.8	328	380
545TKFF300L2	25x1,5 mm²	19.5	447	517

AWG16-1.50 mm²

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C600V BLACK NUMBERED + G/V Polyolefin Insulation



555TKFF30004

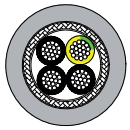
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
555TKFF30009	2x2,5 mm²	9.2	76.7	107.8
555TKFF30010	3x2,5 mm²	9.8	105.1	138.3
555TKFF30011	4x2,5 mm²	10.6	130.8	167.7
555TKFF30004	5x2,5 mm²	11.6	162.9	204
555TKFF30005	7x2,5 mm²	14.2	214.3	260
555TKFF30006	12x2,5 mm²	16.6	354.6	422.6
555TKFF30007	18x2,5 mm²	25.5	543.9	635.7
555TKFF30008	25x2,5 mm²	29	741.5	911.5
555TKFF300L1	18x2,5 mm²	19.6	516	540
555TKFF300L2	25x2,5 mm²	24.2	704	874

AWG14-2.50 mm²

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
565TKFF30005	2x4 mm²	10.6	100.7	134.4
565TKFF30006	3x4 mm²	11.2	157.6	193.9
565TKFF30007	4x4 mm²	12.4	198.8	238.5
565TKFF30008	5x4 mm²	13.6	245.1	288.7
565TKFF30009	7x4 mm²	16.4	332.2	385.2

AWG12-4.00 mm²

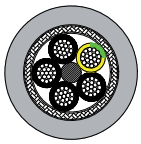


565TKFF30003

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
570TKFF30004	4x6 mm²	14.2	292.4	352.6
570TKFF30005	5x6 mm²	16	355.1	408.6
570TKFF30006	7x6 mm²	19.5	483.9	573.5

AWG19-6.00 mm²

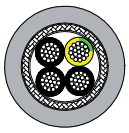


570TKFF30002

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED + G/V Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
580TKFF30004	4x10 mm²	17.6	464.7	566.1
580TKFF30005	5x10 mm²	19.4	575	697
580TKFF30006	7x10 mm²	24.2	817.6	985

AWG16-10.00 mm²

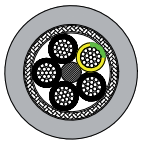


580TKFF30001

SHIELDED MULTICORE CONTROL AND POWER CABLES 90°C 600V BLACK NUMBERED Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
585TKFF30004	4x16 mm²	21.5	720.1	858.7
585TKFF30005	5x16 mm²	23.5	924.5	1086.8
585TKFF30006	7x16 mm²	29	1255.7	1439.6

AWG6-16.00 mm²

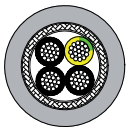


585TKFF30002

SHIELDED MULTICORE POWER CABLES 90°C 600V BLACK NUMBERED+ G/V Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
590TKFF30004	4x25 mm²	27	1143.4	1442
593TKFF30005	4x35 mm²	31.8	1562.9	2046.8
595TKFF30006	4x50 mm²	37.8	2251.3	3073
597TKFF30001	4x70 mm²	40.6	3153.3	3801.9
598TKFF30001	4x95 mm²	46	4223.6	4992.3

AWG4-25.00 mm² | AWG2-35.00 mm² | AWG1-50.00 mm² | AWG2/0-70.00 mm² | AWG3/0-95.00 mm²



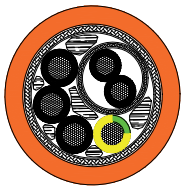
590TKFF30001

SHIELDED DESINA MULTICORE SERVOMOTOR POWER CABLES 90°C 1000V Polyolefin Insulation

585TKFF30001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKFF30001	4G1	7.5	56.7	95.3
545TKFF30001	4G1.5	8.6	86.6	135.8
555TKFF30001	4G2.5	10.6	136.2	205.4
565TKFF30001	4G4	12.3	203.1	286.4
570TKFF30001	4G6	14.2	289.6	390.3
580TKFF30001	4G10	17.6	446.3	589.8
585TKFF30001	4G16	21.5	708.6	920.1
590TKFF30001	4G25	27	1055.2	1366.6
593TKFF30001	4G35	31.8	1592.7	2225.6
595TKFF30001	4G50	37.8	2280.7	3105.6

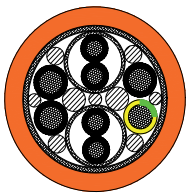
SHIELDED DESINA MULTICORE SERVOMOTOR POWER CABLES 90°C 1000V Polyolefin Insulation



555TKFF30002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKFF30002	4G1+(2x0.50)	10.5	82.0	145.6
545TKFF30002	4G1.5+(2x1)	11.6	137.0	228.3
555TKFF30002	4G2.5+(2x1,5)	12.7	176.5	272.9
555TKFF30009	4G2.5+(2x1.5)	13.6	208	330
565TKFF30002	4G4+(2x1,5)	14	203.9	325.7
565TKFF30004	4G4+(2x1,5)	15.2	275	430
570TKFF30002	4G6+(2x1.5)	16.2	345.8	497.5
580TKFF30002	4G10+(2x1.5)	19.7	550.8	801.8
585TKFF30002	4G16+(2x1.5)	24	803.3	1083.2
590TKFF30002	4G25+(2x1.5)	28.5	1216.2	1627.8
593TKFF30002	4G35+(2x1.5)	32.4	1625.0	2058.5
595TKFF30002	4G50+(2x1.5)	37.5	2257.2	2877.7

SHIELDED DESINA MULTICORE SERVOMOTOR POWER CABLES 90°C 1000V Polyolefin Insulation



545TKFF30003

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKFF30003	4G1+2x(2x0.75)	12.5	141.4	223.9
545TKFF30003	4G1.5+2x(2x0.75)	12.9	162.0	267.0
555TKFF30003	4G2.5+2x(2x0.75)	14.2	206.9	330.7
565TKFF30003	4G4+(2x1)+(2x1.5)	16.3	301.3	454.3
570TKFF30003	4G6+(2x1)+(2x1.5)	18	390.4	613.3
580TKFF30003	4G10+(2x1)+(2x1.5)	21.8	597.7	875.3
585TKFF30003	4G16+2x(2x1.5)	26.5	908.5	1276.5
590TKFF30003	4G25+2x(2x1.5)	30	1276.2	1679.0
593TKFF30003	4G35+2x(2x1.5)	32.8	1680.6	2105.8

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES HEIDENHAIN TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKFF30001	4x(2x0.14)ST+(4x0.14)+(4x0.50)	8.3	59.9	102
514TKFF30002	3x(2x0.14)ST+2x(0.5)ST	8.5	70.6	124.8
514TKFF30003	4x2x0.14+4x0.50	8.6	54.1	106.5

514TKFF30002

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES SICK STEGMANN TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKFF30004	(4x2x0.14)ST	5.3	31.6	90.1

514TKFF30004

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES OSAI Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKFF30023	5x(2xAWG24)Sn+3xAWG20	8.5	70.2	123.4
512TKFF30001	3x(2xAWG26)Sn+3xAWG20	6.4	45.8	71.6
518TKFF30024	3x(2xAWG24)Sn+3xAWG19	8	71.2	108.6
518TKFF30025	4x2xAWG24+2xAWG20	7.4	49.4	77.1
508TKFF30001	5x(2xAWG28)Sn+AWG24	7,5	44.4	70.3

512TKFF30001

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES ABB TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKFF30005	4x(2x0.14)ST+2x2x0.50	10.8	104.1	174.8
522TKFF30023	3x (2x0.25)ST+2 x0.50	10.2	82.9	139.4

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES B&R TPE Insulation

514TKFF30006

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKFF30006	(5x2x0.14+2x0.50)	7.9	42.2	73.2
518TKFF30026	(3x2xAWG24)	6.5	27.3	52.4

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES ELAU TPE Insulation

522TKFF30003

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF30024	3x2x0.25+2x0.50	8	26.8	87.9
522TKFF30025	3x(2x0.25)ST	10.2	78.9	150.9

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES BERGER TPE Insulation

522TKFF30004

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF30026	5x2x0.25+2x0.50	8.5	52.4	91

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES CONTROL TECNIQUE TPE Insulation

512TKFF30002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKFF30023	6x2x0.34+(2x0.34)Sn+2x1	11	109.1	172.7
512TKFF30002	(2x2xAWG26)ST	5.6	19.9	45

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES LENZE TPE Insulation

514TKFF30007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKFF30007	3x(2x0.14)ST+(2x0.50)ST	10	47.1	152
514TKFF30008	4x(2x0.14)ST+(2x1)ST	11.5	69.6	229

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES YASKAWA-FUJI-PANASONIC Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKFF30024	(2x2x0.34)ST	8.5	38.6	83.3

525TKFF30003

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES BOSCH REXROTH INDRAMAT TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF30027	4x2x0.25+2x0.50	8.7	58.1	111.2
514TKFF30009	4x2x0.14+4x1+(4x0.14)ST	9.7	99.3	165.5
522TKFF30028	3x(2x0.25)ST+3x0.25+2x1	9.2	63	115.9
530TKFF30001	9x0.50	8.8	69.8	148.5

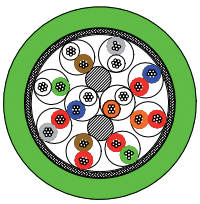
522TKFF30005

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES SIEMENS TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF30012	12x0.25	7,2	40.4	82.3
526TKFF30001	4x2x0.35+4x0.50	9.2	75.4	130
517TKFF30001	8x2x0.18	8.7	57.8	85
514TKFF30010	3x(2x0.14)St+4x0.14+4x0.25+2x0.50	9.8	92	139
514TKFF30011	3x(2x0.14)ST+4X0.14+2x0.50	8.6	70.6	101
512TKFF30003	2x2xAWG26+2xAWG22	7	33	71

512TKFF30003

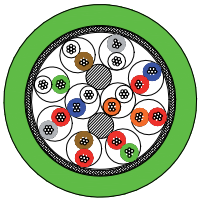
ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES FANUC TPE Insulation



518TKFF30027

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
517TKFF30002	4x2x0.18+2x0.50	7.6	35.2	70.5
517TKFF30003	3x2x0.18+6x0.50	8.7	67.4	94
517TKFF30004	3x2x0.18+6x1	8.7	95.2	140
517TKFF30005	5x2x0.18+6x0.50	8.7	76	94
530TKFF30017	5x0.5+2x0.18	7.7	52	143.7
530TKFF30018	5x0.5+2x2x0.18	7.4	47.6	84.4
518TKFF30027	10x2xAWG24	9.3	64.2	121
538TKFF30013	10x2xAWG18	6.4	17.8	66

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES DANAHER TPE Insulation



518TKFF30031

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKFF30029	5x2xAWG24	7.3	42.8	79.4
518TKFF30030	7x2xAWG24	8,8	54.4	116.9
518TKFF30031	10x2xAWG24	10,2	84.4	156.4

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES BAUMUELLER TPE Insulation

514TKFF30013

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKFF30012	5x2x0.14+2x0.50	11,2	10	192.8
514TKFF30013	(6x2x0.14)Sn/ST	7.5	33.8	61.8

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES MANDRINO BOSCH TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKFF30014	(6x0.14)SF+2(2x0.14)+2x2x0.14+9x0.5	14,2	137.7	210.9

RESOLVER SIGNAL TRANSMISSION CABLES Polyolefin Insulation

522TKFF30007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF30029	3x(2x0.25)ST	10.2	78.9	150.9
522TKFF30008	4x(2x0.25)ST	9	68.1	120.8
525TKFF30025	4x(2x0.34)ST	11.2	60.6	145.6
525TKFF30005	5x(2x0.34)ST	12.2	83	166.6

BUS CABLES/ INTERBUS Polyolefin Insulation

522TKFF30011

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF30031	3x2x0.25	7	24.4	61.7
522TKFF30032	3x2x0.25+3x1	8	60.9	96.6

BUS CABLES/PROFIBUS DP-FIP Polyolefin Insulation

524TKFF30023

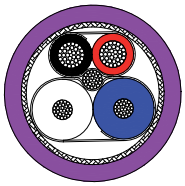
TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
524TKFF30023	1x2xAWG22	8.2	23.7	70.4
518TKFF30032	1x2xAWG24	7.6	16	67.1

BUS CABLES/ CAN OPEN Polyolefin Insulation

525TKFF30007

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKFF30027	2x2x0.34	7	36	68.5
530TKFF30019	2x0.50	6.7	28.4	69.1
530TKFF30020	2x2x0.50	8.4	48.1	92.7
525TKFF30028	2x0.34	6	25	50

BUS CABLES/ DEVICE NET Polyolefin Insulation



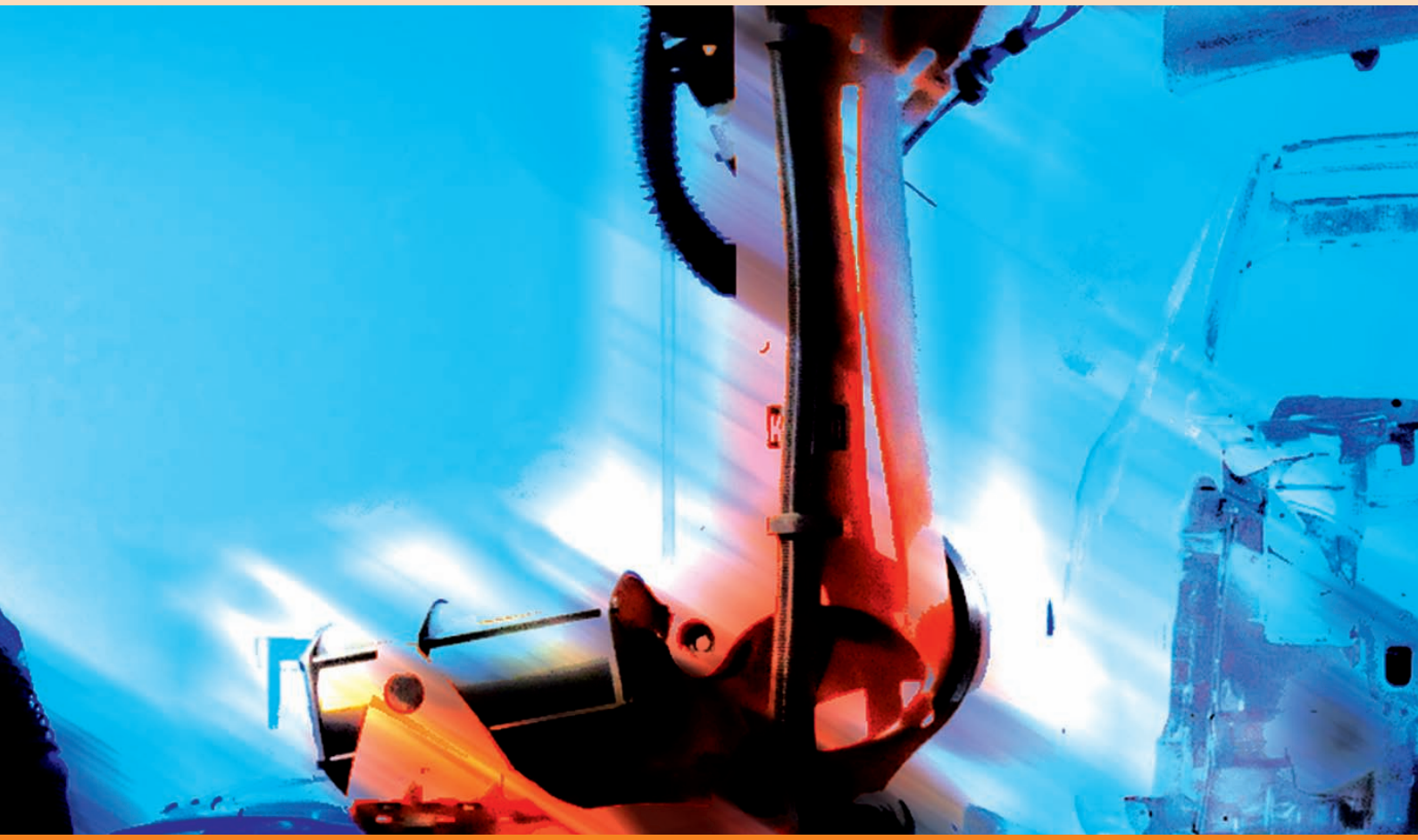
538TKFF30014

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKFF30033	2xAWG24+2xAWG22	7	31.4	74.7
538TKFF30014	2xAWG18+2xAWG15	11	102.5	179.6

BUS CABLES/ ETHERNET CAT 5E Polyolefin Insulation

518TKFF30034

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKFF30034	2x2xAWG24	5.7	21.8	44
512TKFF30004	4x2xAWG26	5.3	26.4	42
524TKFF0005	2x2xAWG22 Profinet	6.5	28.9	62.7
524TKFF0006	2x2xAWG22 Ethercat	6.5	28.9	62.7



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.

Typical applications:

- Grinding machines
- Chip-forming machines
- Automatic storage machines, suitable for use in very cold environments
- Extremely aggressive industrial environments

The TK FF600® series includes

- Single-core cables for wiring inside and outside robots and welding guns, gauges from AWG6 to 2/0
- Shielded and non-shielded multicore cables for wiring inside and outside industrial robots
- Low capacitance shielded cables for servomotors UL CSA Desina
- Field bus cables: Profibus, Interbus, DeviceNet, CANopen, MODbus, industrial Ethernet, MULTIBUS (mixed protocol)
- ENCODER, RESOLVER, SINCODER cables compatible with the different models available on the market

SPECIAL CABLES FOR
TK FF600®
AUTOMATION

TK-FF600

CHARACTERISTICS OF THE CABLE

Conductors	CEI 20-29 Class 6 - IEC 60228 Class 6 – VDE 0295 Class 6
Insulation	Polyolefin 2Y and TPE-E 12Y (UL-CSA standards)
Core Identification	CEI UNEL 00722 – VDE 0293
Overall shield (optional)	Tinned copper braid coverage ≥ 85% according to EMC 89/336 (c)
Sheath	Abrasion resistant polyurethane - 11Y (UL-CSA standards)
Outer sheath colour	Matt black, grey or DESINA colours

TECHNICAL DATA

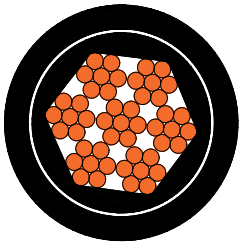
Operating voltage	Cross-sectional Area ≤ 1mm² : 300V (450/750V) or 30V Cross-sectional Area ≥ 1.5mm² : 1000V
Test Voltage	2000 a.c. (300V) - 4000 V a.c. (1000V)
Temperature range	- 40°÷ + 90° (static and dynamic installations)
Minimum bending radius	5 x Ø cable
Maximum speed	300 m/min
Maximum acceleration	up to 30 m/s²
Chain length	30 m
Flex life	6 ÷ 10 million
Torsion	± 360° on a length of 100 x Ø cable

REFERENCE STANDARDS

Cables compliant with UL 758, UL 1581 standards	**Power and Control** Cross-sectional Area ≤ 1mm² : UL – CSA AWM I/II A/B 300V Cross-sectional Area ≥ 1.5mm² : UL – CSA AWM I/II A/B 1000V **Data transmission** UL 90°C 30V – CSA AWM I/II A/B 30V UL 80°C 30V – CSA AWM I/II A/B 30V
Fire resistance	CEI 20-35 – EN 50265 – 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	
Directive EMC 89/336	Product compliant with Low Voltage Regulation 72/23/EEC
Directive EMC 89/336	Electromagnetic Compatibility, in order to obtain maximum results in terms of the reduction of radio frequency interferences (European Directive EMC 89/336), shield connections must comply with the instructions provided by individual manufacturers of electric equipment.

European Directive 2002/95/CE (RoHs – Reduction of Hazardous Substance) and 2002/96/CE (WEEE – Waste from Electrical and Electronic Equipment)

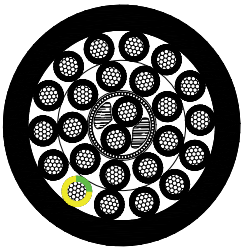
WELDING CABLES TPE Insulation



290TKFF60001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
290TKFF60001	FFR(1x25mm2)Rpu Black	11,1	244,8	336,6
291TKFF60001	FFR(27mmq)RPu Black	13,4	288,6	400,1
293TKFF60001	FFR(1x35mm2)Rpu Black	12,7	346,5	498,8
293TKFF60001	FFR(35mmq)R/RPu Black	15,0	346,4	510,4
295TKFF60001	FFR(50mmq)RPu Black	16,5	513,1	688,8
385TKFF60001	FFR(3x16)Rpu Black	19	517,2	799,1
390TKFF60001	FFR(3x25)Rpu Black	22,2	807,7	1156,1
393TKFF60001	FFR(3x35)Rpu Black	26,6	1143,3	1798,1
393TKFF60002	FFR(2x35+1x16)Rpu	24,5	962,4	1361,1
393TKFF60003	FFR(2x35+1x25)Rpu	25,0	1064,8	1427,7

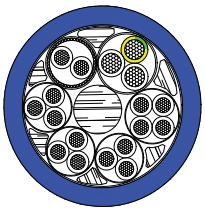
COMMAND CABLES (KSR) TPE Insulation



540TKFF60002

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
540TKFF60001	FFR[7x1+(2x0.50)SF/N]Rpu	9,8	93.3	172,1
540TKFF60002	FR[(2x1)SF/SN+23x1]Rpu Black	13,2	242,2	370,8
540TKFF60003	FFR[(2x1)SNSF/R+5x4x1+3x1]Rpu	15,5	260,4	419,3
540TKFF60004	FR[(2x1)SF/SN+24x1]Rpu	14,8	289,3	441
540TKFF60005	FFR[(2x1)SF/SN+5x3x1+1x1]Rpu	14,0	190,1	323,8
540TKFF60006	FFR[(2x1)SF/SN/G+16x1]Rpu	13,0	180	315,7
540TKFF60007	FFR[(2x1)SF/SN+3x3x1+1x1]Rpu	11,5	137,3	228,1

COMMAND CABLES TPE Insulation

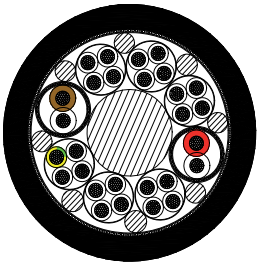


530TKFF60001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
530TKFF60001	FFR[3x3x0.5+4x0.5+3x1+(2x0.5)SF]Rpu	12,5	125,2	245
530TKFF60002	FFR[4G1.5+4x(2x.25)SFN+2x.5]Pu	12,8	127,2	270,8
522TKFF60001	FFR[4G1.5+5x(2x,25)SFN+2x.5]Pu	16,0	196,5	419,9

DATA AND BUS CABLES Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF60002	FFR[2x(2x1)SF/N+5x(2x0.25)SF/N+1x1]Rpu	12,9	140,8	266,2
522TKFF60003	[5x(2x,25)SF+(2x1)SF+(3x1)SF]R	16,0	168,2	356,7
522TKFF60004	FFR[4G1.5+4x(2x.25)SFN+2x.5]Pu	12,8	127,2	270,8
530TKFF60003	FFR[2x(2x0.5)SF/N+24G0.5]SF/Pu	16,0	198,1	439
535TKFF60001	FFR[2x(2x0.75)SF/N]Rpu Orange	9,3	55,3	119,2
345TKFF60001	FFE(5 G 1,5)RPu Grey	9,8	79,9	169,8
900TKFF60001	(2x F.O. PMMA/PE 1000/2.2)Rpu	8,0	0	64,4



530TKFF60003

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES HEIDENHAIN TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKFF60001	4x(2x0.14)St+(4x0.14)+(4x0.50)	8.3	59.9	102
522TKFF60005	3x2x0,25			

522TKFF60005

ANALOG/DIGITAL ENCODER SIGNAL TRANSMISSION CABLES SICK STEGMANN TPE Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
514TKFF60002	(4x2x0.14)ST	5.3	31.6	90.1

RESOLVER SIGNAL TRANSMISSION CABLES FEP Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF60006	4x(2x0.25)ST	8.9	68.1	120.8
525TKFF60001	4x(2x0.34)ST	10.2	60.6	145.6

514TKFF60002

BUS CABLES/ INTERBUS FEP Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
522TKFF60007	3x2x0.25	7	24.4	61.7
522TKFF60008	3x2x0.25+3x1	8	60.9	96.6

522TKFF60008

BUS CABLES/PROFIBUS DP-FIPPolyolefin Insulation

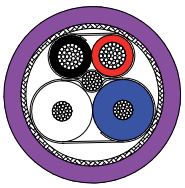
524TKFF60001

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
524TKFF60001	1x2xAWG22	7.9	23.7	70.4
518TKFF60001	1x2xAWG24	8	16	67.1

BUS CABLES/ CAN OPEN Polyolefin Insulation

525TKFF60003

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
525TKFF60003	2x2x0.34	7	36	68.5
530TKFF60005	2x2x0.50	8.4	48.1	92.7



538TKFF60001

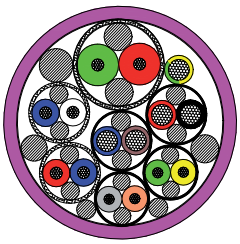
BUS CABLES/ DEVICE NETPolyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKFF60002	2xAWG24+2xAWG22	7	31.4	74.7
538TKFF60001	2xAWG18+2xAWG15	11	102.5	179.6

518TKFF60003

BUS CABLES/ ETHERNET CAT 5E Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKFF60003	2x2xAWG24	5.7	21.8	44
512TKFF60001	4x2xAWG26	5.3	26.4	42



518TKFF60005

BUS CABLES/ MULTIBUS Polyolefin Insulation

TECNIKABEL CODE	DESCRIPTION	NOMINAL Ø mm	COPPER WEIGHT kg/km	CABLE WEIGHT kg/km
518TKFF60005	(2x0,34)SF+4x(2x0,25)SF+(2X1)SF+(3G1)SF	16	156	356

Research & Development

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.

Electric/electronic 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.

Transmission test bench

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 tests.
These tests are carried out using a direct voltage generator up to 10 kV.
Cable operating voltage tests.
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 tests.
These tests are carried out using a nanohmmeter for cables with cross-sectional areas greater than 16 mm².

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 VW1 CSA FT1), UL CL2 and IEC 60332-3 standards

Fire-retardant tests
according to CEI IEC EN 60332-3

TGA thermo gravimetric analysis

Aging tests
UL/CEI compliant cables

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 radiuses 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 with a length of 17 m – top speed 200 m/min – maximum acceleration 6 m/s²

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Chain 1,2,3:

Top speed: 200 m/min.

Maximum acceleration: 6 m/s²

Bending radius: from 15 to 250 mm

Maximum length: 16.5 m

Chains 5-8 with a linear motor:

Top speed: 300 m/min

Acceleration: 30 m/s²

Bending radius: from 50 to 150

Maximum length: 7 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

Robot simulators

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.

Robot wrist simulator
speed 20 rad/s – acceleration 15 rad/s^2

Torsion simulators

These devices are designed by Tecnikabel technicians to test several cables at the same time, with the possibility of varying: rotation angles, length on which torsion takes place, bending radiuses, 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/s
angular acceleration 30 rad/s^2

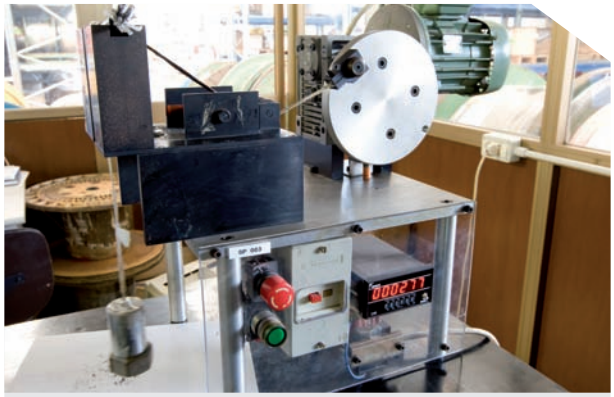
Hot particle resistance tests

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

Abrasion resistance tests

This device is used to correlate wear for the material used on the cable sheath with various degrees of roughness in terms of contact surfaces.



Abrasion test device

Extreme temperature resistance tests

This device can be used to monitor the behaviour of a moving cable subjected to temperatures down to -40°C.

AWG conductor size according to UL758 standards

Size conductors AWG	Diameter of the solid conductor				Stranded wire cross-sections*			
	Nominal		Minimum		Nominal		Minimum	
c/c	Mils	mm	mils	mm	Cmils	mm²	Cmils	mm²
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	0,00203	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	0,0088	12,2	0,00621	11,9	0,00603
38	4,0	0,0102	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	0,203	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

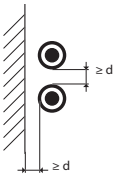
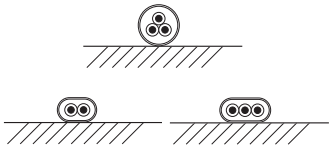
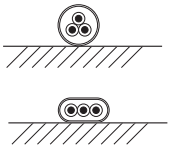
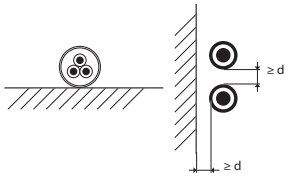
Size conductors AWG	Diameter of the solid conductor				Stranded wire cross-sections*			
	Nominal		Minimum		Nominal		Minimum	
c/c	Mils	mm	mils	mm	Cmils	mm²	Cmils	mm²
28	12,6	0,320	12,5	0,318	159	0,0804	156	0,0790
27	14,2	0,361	14,1	0,358	202	0,102	198	0,100
26	15,9	0,404	15,7	0,399	253	0,128	248	0,126
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	1,80	5180	2,63	5076	2,58
12	80,8	2,05	80	2,03	6530	3,31	6399	3,24
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

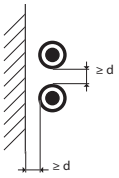
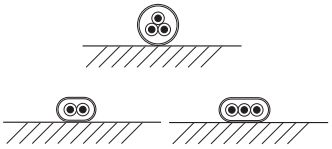
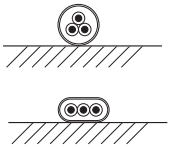
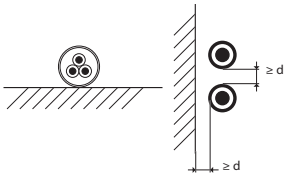
Size of the conductors, AWG and mm, according to UL758 standards

Size conductors AWG	Diameter of the solid conductor				Stranded wire cross-sections*			
	Nominal		Minimum		Nominal		Minimum	
c/c	Mils	mm	mils	mm	Cmils	mm²	Cmils	mm²
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	32,428	16,43
4	204,3	5,189	202	5,13	41740	21,15	40905	20,73
3	229,4	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

Size conductors AWG	Diameter of the solid conductor				Stranded wire cross-sections*			
	Nominal		Minimum		Nominal		Minimum	
c/c	Mils	mm	mils	mm	Cmils	mm²	Cmils	mm²
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

Tab 7 - current-carrying capacity for cables and conductors with a rated voltage of up to 1000V

	A Single-core cable rubber insulation PVC insulation TPE insulation heat resistant	B Multicore cables and extensions for uses domestic and manual rubber insulation PVC insulation TPE insulation		C Multicore cables and extensions for uses domestic and manual rubber insulation PVC insulation TPE insulation heat resistant	D Multicore cables in resistant rubber ≤0.6/1 kV Single-core cables in special rubber 0.6/1 kV or 1.8/3 kV	
Method of installation						
Number of live conductors	1 [3]	2	3	2 or 3	3	1 [3]
Nominal cross-section mm²	**Current rating in A**					
0,08 [1]	1,5	-	-	1	-	-
0,14 [1]	3	-	-	2	-	-
0,25 [1]	5	-	-	4	-	-
0,34 [1]	8	-	-	6	-	-
0,5	*12* [2]	3	3	*9* [2]	-	-
0,75	15	6	6	12	-	-
1,0	19	10	10	15	-	-
1,5	24	16	16	18	23	30
2,5	32	25	20	26	30	41
4	42	32	25	34	41	55
6	54	40	-	44	53	70
10	73	63	-	61	74	98

Method of installation						
Number of live conductors	1 [3]	2	3	2 or 3	3	1 [3]
Nominal cross-section mm²	Current rating in A	Current rating in A		Current rating in A	Current rating in A	
16	98	-	-	82	99	132
25	129	-	-	108	131	176
35	158	-	-	135	162	218
50	198	-	-	168	202	276
70	245	-	-	207	250	347
95	292	-	-	250	301	416
120	344	-	-	292	-	488
150	391	-	-	335	-	566
185	448	-	-	382	-	644
240	528	-	-	453	-	775
300	608	-	-	523	-	898
400	726	-	-	-	-	-
500	830	-	-	-	-	-

NOTES:
1) For smaller diameters (

Notes on the table above and those that follow:
For some positions, table 7 contains marked figures that do not refer to VDE0298-4.
The figures in table 7 must be derated, taking into account further conversion factors:
Different ambient temperatures: see Table 8
Groups of single-core or multicore cables in ducts and cable trays installed on the floor and ceiling: see Table 9
Groups of multicore cables in cable trays see Table 10

TAB. 9 - CURRENT-CARRYING CAPACITY - DERATING TABLES
Conversion factors
Groupings in walls, floors, ceilings, conduits or cable trays
(In accordance with DIN VDE 0298-4, 2003-08, Table 21)

Number of single-core cables, or circuits with alternating or three-phase current, with single-core conductors (2 or 3 live conductors)

Installation	Conversion factors, at the current value in Table														
	1	2	3	4	5	6	7	8	9	10	12	14	16	18	20
Grouped in conduits or cable trays installed directly on the wall or floor	1,00	0,80	0,70	0,65	0,60	0,57	0,54	0,52	0,50	0,48	0,45	0,43	0,41	0,39	0,38
Single layer in direct contact with the wall or floor.	1,00	0,85	0,79	0,75	0,73	0,72	0,72	0,71	0,70	0,70	0,70	0,70	0,70	0,70	0,70
Single layer with a space equal to the diameter of the cable between the wall or the floor.	1,00	0,94	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90	0,90
Single layer installed in direct contact under the ceiling.	1,00	0,81	0,72	0,68	0,66	0,64	0,63	0,62	0,61	0,61	0,61	0,61	0,61	0,61	0,61
Single layer installed under the ceiling with a space equal to the diameter of the cable.	1,00	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85	0,85

Note: O = Single-core o multicore cable

Conversion factors can only be applied to cables with electric charges referring to cross-sections.

Permissible operating temperature

Ambient temperature	conversion factors to be applied to current-carrying capacities in Table 7				
C^0	60^0	70^0	80^0	85^0	90^0
10	1,29	1,22	1,18	1,17	1,15
15	1,22	1,17	1,14	1,13	1,12
20	1,15	1,12	1,10	1,09	1,08
25	1,08	1,06	1,05	1,04	1,04
30	1,00	1,00	1,00	1,00	1,00
35	0,91	0,94	0,95	0,95	0,96
40	0,82	0,87	0,89	0,90	0,91
45	0,71	0,79	0,84	0,85	0,87
50	0,58	0,71	0,77	-	0,82
55	0,41	0,61	0,71	-	0,76
60	-	0,50	0,63	-	0,71
65	-	0,35	0,55	-	0,65
70	-	-	0,45	-	0,58
75	-	-	0,32	-	0,50
80	-	-	-	-	0,41
85	-	-	-	-	0,29

Conversion factors for multicore cables

Number of live conductors	Conversion factors Installation above ground	Conversion factors Underground installation
5	0,75	0,70
7	0,65	0,60
10	0,55	0,50
14	0,50	0,45
19	0,45	0,40
24	0,40	0,35
40	0,35	0,30
61	0,30	0,25

TAB. 10 - Current-carrying capacity - Derating tables
Conversion factors
groups of multicore cables in cable trays
(According to DIN VDE 0298-4, 2003-08, Table)

Type of installation (cable tray)	Number of cable trays	Number of multicore cables					
		1	2	3	4	6	9
		Conversion factors applicable to the figures in Table					
Closed Cable Tray	1	0,97	0,84	0,78	0,75	0,71	0,68
in direct contact	2	0,97	0,83	0,76	0,72	0,68	0,63
	3	0,97	0,82	0,75	0,71	0,66	0,61
	6	0,97	0,81	0,73	0,69	0,63	0,58
Ventilated Cable Tray	1	1,00	0,88	0,82	0,79	0,76	0,73
in direct contact	2	1,00	0,87	0,80	0,77	0,73	0,68
	3	1,00	0,86	0,79	0,76	0,71	0,66
	6	1,00	0,84	0,77	0,73	0,68	0,64
spaced out	1	1,00	1,00	0,98	0,95	0,91	-
	2	1,00	0,99	0,96	0,92	0,87	-
	3	1,00	0,99	0,95	0,91	0,85	-
in direct contact	1	1,00	0,88	0,82	0,78	0,73	0,72
	2	1,00	0,88	0,81	0,76	0,71	0,70
spaced out	1	1,00	0,91	0,89	0,88	0,87	-
	2	1,00	0,91	0,88	0,87	0,85	-
in direct contact	1	1,00	0,87	0,82	0,80	0,79	0,78
	2	1,00	0,86	0,81	0,78	0,76	0,73
	3	1,00	0,85	0,79	0,76	0,73	0,70
	6	1,00	0,83	0,76	0,73	0,69	0,66
spaced out	1	1,00	1,00	1,00	1,00	1,00	-
	2	1,00	0,99	0,98	0,97	0,96	-
	3	1,00	0,98	0,97	0,96	0,93	-

Note: Conversion factors can only be applied to cables with similar electric charges and types of installation, laid in a single layer, as shown above. Conversion factors are not applicable for overlapped cables or if the minimum distance provided has not been respected. In this case, the conversion factors must be rectified according to the figures in the Table.

Correspondence between Italian and International Standards

CEI STANDARD	TITLE OF THE STANDARD	VDE STANDARD	IEC STANDARD	HARMONISATION EUROPEAN
CEI 20-21	Technical characteristics and requirements for insulation and sheathing on electric cables.	0207	-	-
CEI 20-20	PVC insulated cables for electrical systems with a voltage of up to 150/750V.	0281	60227	HD21.1
CEI 20-22	Test on fire resistant electric cables. Part 2: Fire propagation Part 3: tests on bunched cables.	0482-266	60332-3	EN50266
CEI 20-29	Conductors for insulated cables.	0295	60228	HD383
CEI 20-34	Test methods for insulating and sheathing materials for electric cables.	0472	60811	EN60811
CEI 20-35	Flame retardant test on a single vertical wire.	0482-266	60332-1	EN50265
CEI 20-36	Test on electric cables in contact with fire.	0472-814	60331	-
CEI 46-4	Low frequency cables and wires with PVC insulation and PVC sheath. General tests and measuring methods.	-	60189-1	-
CEI 46-6	Low frequency cables with PVC insulation and a PVC sheath. Wires with solid or stranded conductors, single-core, pairs and triples.	-	60189-3	-

1 - CEI: Italian Electrotechnical Committee;
2 - VDE: Verband Deutscher Elektrotechniker;
3 - IEC: International Electrotechnical Commission;
4 - CENELEC: European Committee for Electrotechnical Standardizations.

International Abbreviations

AFNOR	Association Francaise de NORmalisation (France)
ANSI	American National Standards Institute (USA)
AS	Australian Standard (Australia)
ASTM	American Standard of Testing Materials (USA)
BS	British Standard (GB)
BSI	British Standard Institution (GB)
BV	Bureau Veritas (France)
CATV	Community Antenna Television (international)
CEBEC	Comitè Eletrotechnique Belge (Belgium)
CEE	International Commission on rules for the approval of Electrical Equipment (international commission)
CEI	Commission Electrotechnique Internationale (international) Comitato Elettrotecnico Italiano (Italy)
CEMP	Centre d' Etude des Materie Plastiques (France)
CEN, CENELEC	Comitè Européen de Normalisation Electrotechniques (international)
CNET	Centre National d' Etude de Telecommunication (France)
CNOMO	Comité de Normalisation des Moyens de Production (France)
CSA	Canadian Standard Association (Canada)
CSTB	Centre Scientifique et Technique du Bâtiment (France)
DEMKO	Danmarks Elektriske Materielkontrol (Denmark)
DIN	Deutsches Institut für Normung (Germany)
DKE	Deutsche Elektrotechnishe Kommission im DIN und VDE (Germany)
EN	European Norm (Europe)
FAR	Federal Air Regulation (USA)
FTZ	FernmeldeTechnisches Zentralamt (Germany)
GOST	Russian Standard
HD	Harmonized Document
HN	Harmonisation des Normes (France)
IEC	International Electrotechnical Commission (international)

IEE	Institution of Electrical Engineers (GB)
IEEE	Institute of Electrical and Electronics Engineers (USA)
ISDN	Integrated Services Digital Network (international)
ISO	International Organization for Standardization (international)
KEMA	Keuring van Elektrotechnische Materialien (The Netherlands)
LCIE	Laboratoire Central Industries Electriques (France)
MIL	Military specification (USA)
NEC	National Electrical Code (USA)
NEMA	National Electrical Manufacturers Association (USA)
NEMKO	Norges Elektriske Materiellkontroll (Norway)
NEN	Nederland Normalisatie-Institut (The Netherlands)
NF	Normes Françaises (France)
NFC	Normes Françaises Class C (France)
ÖVE	Österreichischer Verband für Elektrotechnik (Austria)
SAE	Society of Automotive Engineers (USA)
SEK	Svenska Elektriska Kommissionen (Sweden)
SEMKO	Svenska Elektriska Materielkontrollanstalten (Sweden)
SETI	Sähkötarkastuslatios (Finland)
SEV	Schweizerischer Elektrotechnisher Verein (Switzerland)
SNV	Schweizerischer NormenVerband (Switzerland)
TGL	Technische Normen, Gütevorschriften und Lieferbedingungen (old DDR standards)
UL	Underwriters Laboratories (USA)
UNI	Unificazione Nazionale Italiana (Italy)
UTE	Union Technique de l' Electricité (France)
VDE	Verband Deutscher Elektro Techniker (Germany)
VDEW	Vereininigung Deutscher Elektrizitätswerke e.V. (Germany)
ZVEH	Zentralverband der Deutschen Elektrohandwerke e. V. (Germany)
ZVEI	Zentralverband der Elektrotechnik- und Elektronik Industrie (Germany)

General Characteristics of PlasticMaterials

Material	Abbreviation	Classification VDE	working temperature	elongation	tensile strength	dieletric constant	Density
			°C	%	N/mm²		
Polyvinyl chloride	PVC	Y	-30÷+105	150÷300	15÷25	3,5÷4,5	1,3÷1,45
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
Foam 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	40÷60	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 Polymer	M1	H	-40÷+80	150÷250	10÷15	3,5÷5	1,45÷1,6
LSZH Cross-linked Polymer	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
Polyethylethylketone	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
Ethylene Tetrafluoroethylene	ETFE	7Y	-100÷+170	100÷300	40÷50	2,7	1,7
Fluorinated Ethylene Propylene	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
Perfluoroalkoxy	PFA	-	-180÷+260	200÷400	20÷30	2,1	2,15

volume resistivity	flammability	Resistance to water	Resistance to hydrocarbons	Resistance to oils and greases	Resistance to solvents	Resistance to acids	Resistance to chemical substances
kV/mm							
15	Self-extinguishing	Very good	Sufficient	Good	Insufficient	Good	Good
20	Self-extinguishing	Very good	Sufficient	Good	Insufficient	Good	Good
24	Flammable	Very good	Insufficient	Good	Insufficient	Good	Good
24	Flammable	Very good	Insufficient	Good	Insufficient	Good	Good
20	Flammable	Very good	Insufficient	Good	Insufficient	Good	Good
24	Flammable	Very good	Good	Good	Sufficient	Good	Good
26	Flammable	Very good	Sufficient	Very good	Sufficient	Good	Good
15	Flammable	Good	Good	Very good	Good	Good	Good
20	Flammable	Good	Good	Very good	Good	Sufficient	Good
24	Flammable	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	Flammable	Sufficient	Sufficient	Very good	Good	Sufficient	Good
20	Non flammable	Good	Good	Very good	Very good	Very good	Good
10	Self-extinguishing	Good	Good	Good	Very good	Very good	Very good
19	Non flammable	Very good	Very good	Very good	Very good	Very good	Very good
20	Non flammable	Very good	Very good	Very good	Very good	Very good	Very good
19	Non flammable	Very good	Very good	Very good	Very good	Very good	Very good
20	Non flammable	Very good	Very good	Very good	Very good	Very good	Very good

The information provided in the table falls within the scope of the normal range of the properties, but should not be used univocally to establish specification limits, nor should projects be based on them. TecniKabel Srl shall in no way be liable for any disputes deriving from

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

Cross-section Nominal	MaxResistance of the conductor at 20°C Copper conductors with a circular cross-section	
mm²	Bare Ω/km	Sheathed Ω/k
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	-	-

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

Cross-section Nominal	Minimum number of wires in the conductor						MaxResistance of the conductor at 20°C Copper conductor	
	Round		Compacted		Sectorial			
mm²	Cu	Al	Cu	Al	Cu	Al	Bare Ω/km	Sheathed Ω/k
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

RoHS compliant 2002/95/EC

TABLE 3 – CLASS 5
FLEXIBLE COPPER CONDUCTORS FOR SINGLE-CORE AND MULTICORE CABLES

Cross-section Nominal	Max Diameter of the wires of the conductor	Max Resistance of the conductor at 20°C Copper conductors with a circular cross-section	
mm²	mm	Bare Ω/km	Sheathed Ω/k
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

TABLE 4 – CLASS 6
FLEXIBLE COPPER CONDUCTORS FOR SINGLE-CORE AND MULTICORE CABLES

Cross-section Nominal	Max Diameter of the wires of the conductor	Max Resistance of the conductor at 20°C Copper conductors with a circular cross-section	
mm²	mm	Bare Ω/km	Sheathed Ω/k
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).

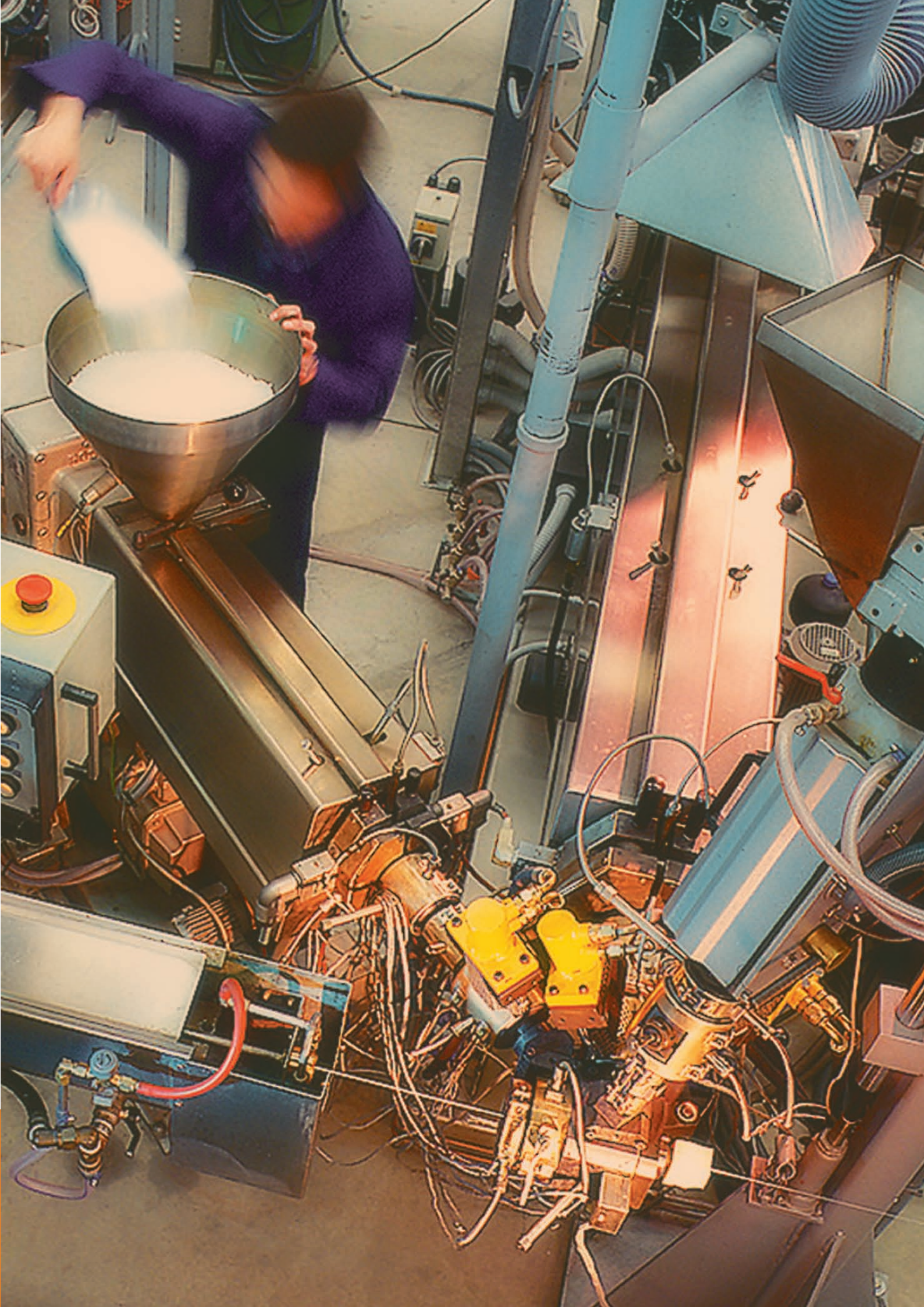
Phenomenon (a):
The influence of cable capacitance (C) on power transmission is fundamental, since line attenuation is $a=\sqrt{wRC}$. Therefore, the lower the electric capacitance of the cable (conductor/conductor and conductor/shield) the greater the power transmitted to the motor from the inverter/converter, 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.
The following table contains capacitance values with reference to different types of insulation and to temperature.

CAPACITANCE FOR POWER CABLES (pF/m)

Cable	PVC insulation				Polyester Insulation				Polyolefin Insulation			
	20°C		80°C		20°C		80°C		20°C		80°C	
	c/c	c/s	c/c	c/s	c/c	c/s	c/c	c/s	c/c	c/s	c/c	c/s
4x1.5	123	221	175	315	112	201	124	224	67	120	67	120
4x2.5	119	215	170	306	127	228	141	254	71	127	71	127
4x4	124	222	156	280	133	239	148	266	77	139	77	139
4x6	134	242	191	344	143	258	160	288	79	141	79	141
4x10	143	257	203	365	143	257	159	287	78	140	78	140
4x16	133	275	217	391	154	278	172	310	81	146	81	146
4x25	157	283	224	402	154	277	171	308	81	146	81	146
4x35	154	277	219	394	155	278	172	310	85	153	85	153
4x50	158	285	229	412	165	297	184	330	87	156	87	156

c/c = conductor/conductor
c/s = conductor/shield



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 lubrificants used in industrial applications.

Approvals

Underwriters Laboratories

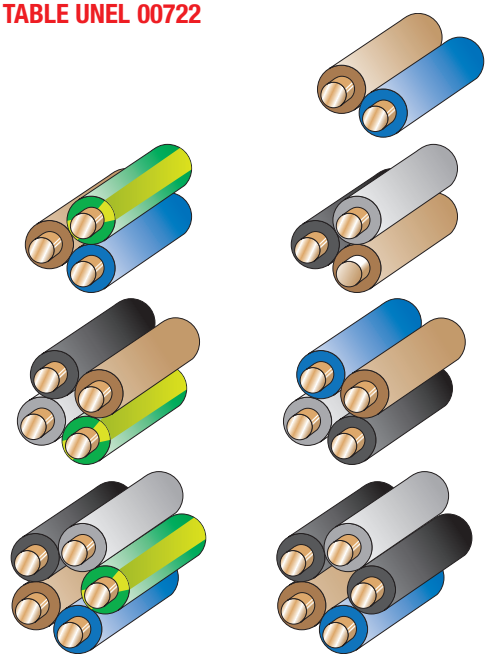
File	Category Name
AVLV2.E83517	Appliance Wiring Material - Component
AVLV8.E83517	Appliance Wiring Material Certified for Canada - Component
DUZX.E121174	Communications Cable
EMRB.E188962	Data Processing Cable
ZJCZ.E111400	Flexible Cord
ZKHZ.E174177	Machine-tool Wire
QPTZ.E121212	Power-limited Circuit Cable
ZLGR.E174178	Thermoplastic-insulated Wire
ZLGR7.E174178	Thermoplastic-insulated Wire Certified for Canada

CSA INTERNATIONAL

File	Category Name
056140	5835-01 - WIRES-Equipment
056141	5854-01 - WIRES-Radio-circuit Wires
067193	5851-01 - WIRES-Appliance
067193	5851-81 - WIRES-Appliance Certified to US Standards
068183	5831-01 - WIRES-Flexible Cord

DIN VDE 0293-308

CABLES FOR STATIC AND DYNAMIC INSTALLATIONS
HD 308 52
TABLE UNEL 00722



IMQ approved and/or certified cables

Cables with rubber insulation	Fire-retardant cables with a reduced emission of corrosive gases FG7R FG7OR CEI UNEL 35375
Cables with PVC insulation	H07V-K H05V-K H05VV5-F H05VVC4V5-K H05V2-U H05V2-K H07V2-U H07V2-K H05V2V2-F 03V2V2-F 05V2V2-F 03VV-F 05VV-F Fire-retardant cables with a reduced emission of corrosive gasses N1VV-K CEI UNEL 35755 - 35756 - 35757 N07V-K
Cables with LSZH thermoplastic insulation	03Z1Z1 – F/05Z1Z1 – F

Instructions

Technological innovations have brought electronics applied to automation to high levels of complexity and sophistication.
However, this has also made the 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…

GUIDELINES FOR CHOOSING CABLE SHIELDING

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:

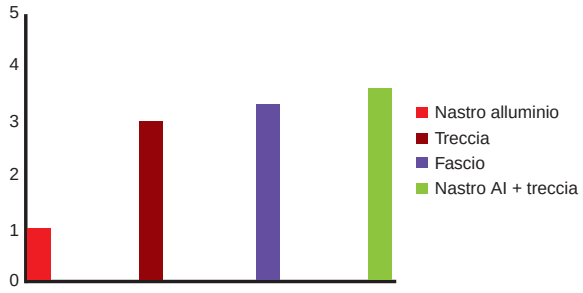
- For low impedance interferences such as to power inverter motors or to intermittently power inductive loads, etc…
- Both high and low frequency interferences, such as from computer cables, cables for instruments and commands

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

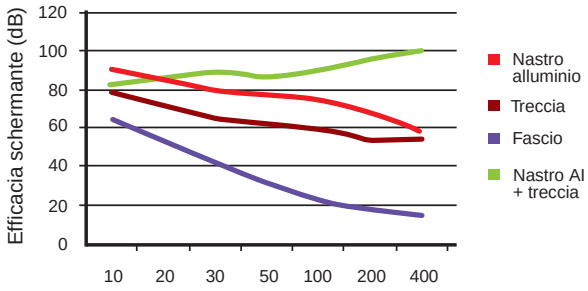
Cost comparison for coaxial cables



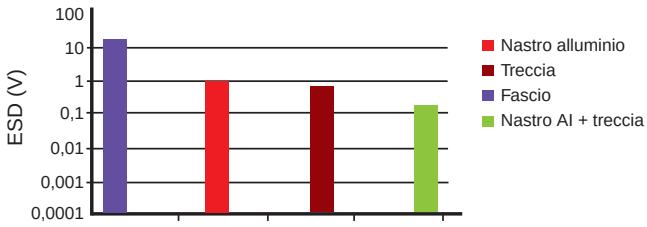
The cost depends on the shield, as a component of the total cost of the cable.
This information can vary based on the project of the cable.

The ESD shielding efficacy test was carried out with a 15000 V discharge to the ground
in a sample with a length of 91 cm. The lower the voltage the better the shielding efficacy.

EMI shielding efficacy



ESD shielding efficacy



1. The cable must be unravelled from the coil or reel since it must be inserted into the cable chain without additional torsion (see fig. 1, 2).

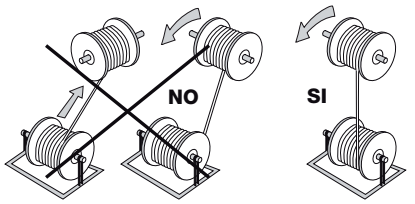


FIG. 1

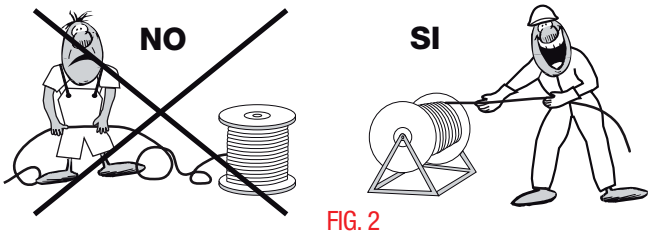


FIG. 2

2. After cutting the cable to the length required, extend it out on the floor for a few hours.
With this operation, internal voltage in the conductors diminish, stopping them from twisting while the work is carried out.
Then, the cables must be fixed at the ends, keeping them guided by the separators inside the chain.

3. When more than one cable is installed on a chain with separators, they must be distributed in an appropriate manner (see fig. 3).

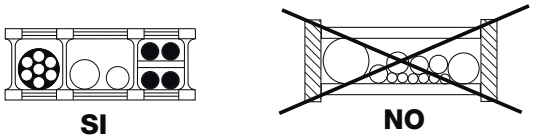
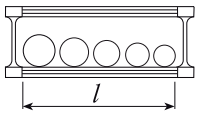


FIG. 3

4. The sum of the diameters of the cables installed cannot be greater than 90% of the length of the chain or the separator (see fig. 4).

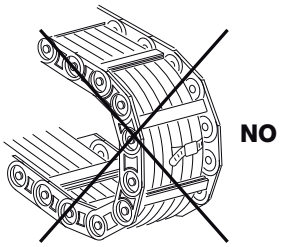


$l = 90\% \sum Øe$

FIG. 4

5. Do not secure or tie the cables together (see fig. 5).

FIG. 5



6. The cable must be secured to both ends of the chain, at a minimum distance from the final
bending point, equal to 20÷30 times the diameter of the largest cable (see fig. 6).

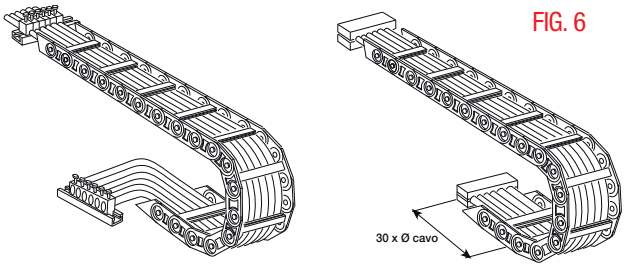


FIG. 6

7. For installations on robots or rotating systems with angular speeds of up to 210°/s, it is important to avoid bending or resting the cable on edges (see fig. 7).
Furthermore, the cable must be anchored at the maximum possible distance between a fixed and rotating unit in order to form a bend(see fig. 8).

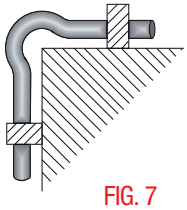


FIG. 7

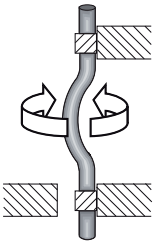
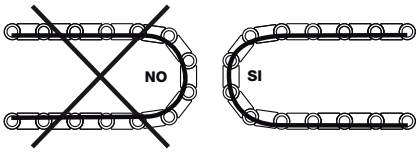


FIG. 8



GUIDELINES FOR THE INSTALLATION OF CABLES IN A DYNAMIC INSTALLATION

AGENT/DEALER:

Tecni Kabel
SPECIAL ELECTRICAL CABLES

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