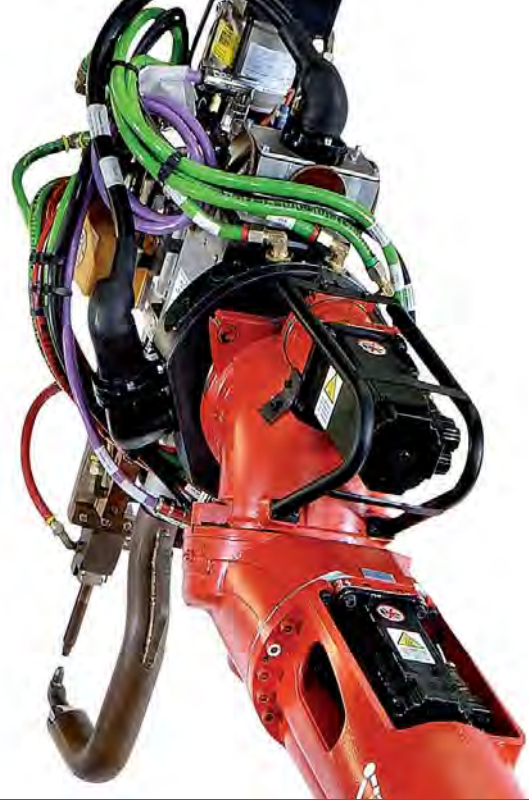




## TECNIKABEL

Has a constant focus on product innovation in order to obtain a competitive edge, concentrating on research and development.



# A TECHNICAL HEART BEATS AT OUR COMPANY

## PRODUCTION

Constantly-updated production systems, accurate operating procedures and expert operators who promote efficient, flexible production. In more than 30 years of business, we have manufactured more than 22,000 different types of cables.

## FINAL INSPECTIONS

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

## LABORATORY TESTS

We carry out extremely stringent tests on our cables, 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.

## RESEARCH AND DEVELOPMENT INTO MATERIALS

Our thirty years' experience has encouraged us towards a continuous search for new materials in order to optimize performance, costs and to achieve the standards required by our customers.

**TECNIKABEL** has always dedicated particular attention to quality and to customer service, starting from the initial phases of the sale.

Over the years, leading sector associations such as **UL** and **CSA** have recognized the quality and performance of our cables, issuing **more than 600 approvals**.

In the sector of industrial automation and robotics our cables are used by leading companies worldwide: ABB, KUKA, MOTOMAN, COMAU, BOSCH REXROTH, BAUMÜLLER, SALVAGNINI, TRUMPF, SCM, BIESSE, HEXAGON, DANAHER, PERINI, ELCIS, LIKA, ELTRA, SICK STEGMANN





**AGENT/DEALER:**

**Tecni Kabel**  
SPECIAL ELECTRICAL CABLES

**TECNIKABEL** srl

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**AUTOMATION**

**Tecni Kabel**  
SPECIAL ELECTRICAL CABLES

SPECIAL CABLES FOR  
**AUTOMATION**

# Tecni Kabel

SPECIAL ELECTRICAL CABLES

**TECNIKABEL** is a leading company in the special electric cables sector. When it was founded in 1978, immediately established its business approach, giving priority to research and innovation. Where the future is designed, **TECNIKABEL** is out in front:

- ▶ Cooperating with leading companies in the various sectors
- ▶ Aligning with customer requirements
- ▶ Aiming at continuous improvement of quality and reliability targets

At its production plants, **TECNIKABEL** builds cables for a vast range of different applications, from automation to railways, from telecommunications to industrial electronics, from audio video to defense, from offshore to solar, from naval to electro-medical, giving priority to technical support right from the cable design phases

- ▶ Attentive study of the applications
- ▶ Assessment of the most suitable materials for any type of environment
- ▶ Optimization of product costs

make it possible to propose and implement original solutions able to match customers' specific requirements.

Inside each **TECNIKABEL** cable, there is everything that makes the products reliable for any type of required application.

Top-class quality is assured by a modern production process in which each stage is fully controlled. The high level expertise of our staff and a company quality system recognized and certified according to **UNI EN ISO 9001:2000** since 1994, through auditing by national (**CISQ** and **IMQ**) and international (**IQNET**) authorities.



## PRODUCT LINES



# SPECIAL CABLES FOR AUTOMATION

# TK F100®

## Description and product application

Single and multicore cables built according to **UL** and **CSA** specifications to satisfy the demanding needs of industrial machinery manufacturers; ready for export in all countries adopting these standards as reference.

Typical applications are for power supply and signal control on machine tools, conveyors, transportation belts, automatic lines and related electrical cabinets.

Use of series **TK F100®** is recommended for static installations. It can also be in use with light mechanical duty or in very limited dynamic applications. The PVC jacket is suitable for damp environments and where you need resistance to emulsified cut oils and to numerous other aggressive chemical substances.

### The TK F100® series features:

- ▶ Single core UL-CSA in section from AWG 30 up to 4/0 and from 250MCM to 1000MCM
- ▶ Shielded and unshielded multicore from 2 to 61 conductors in section from AWG 26 to 1/0 for control, signals and power.
- ▶ Shielded cable for servodrive with low capacity, UL, CSA, Desina, approved.
- ▶ VECTORFLEX screened cables (3 conductors + grounding) UL, CSA, Desina, approved.
- ▶ Cables for field Bus such as Profibus, Interbus, DeviceNet, CANopen, MODbus, industrial Ethernet, Multibus.
- ▶ ENCODER, RESOLVER, SINCODER cables compatibles with many models available on the market.

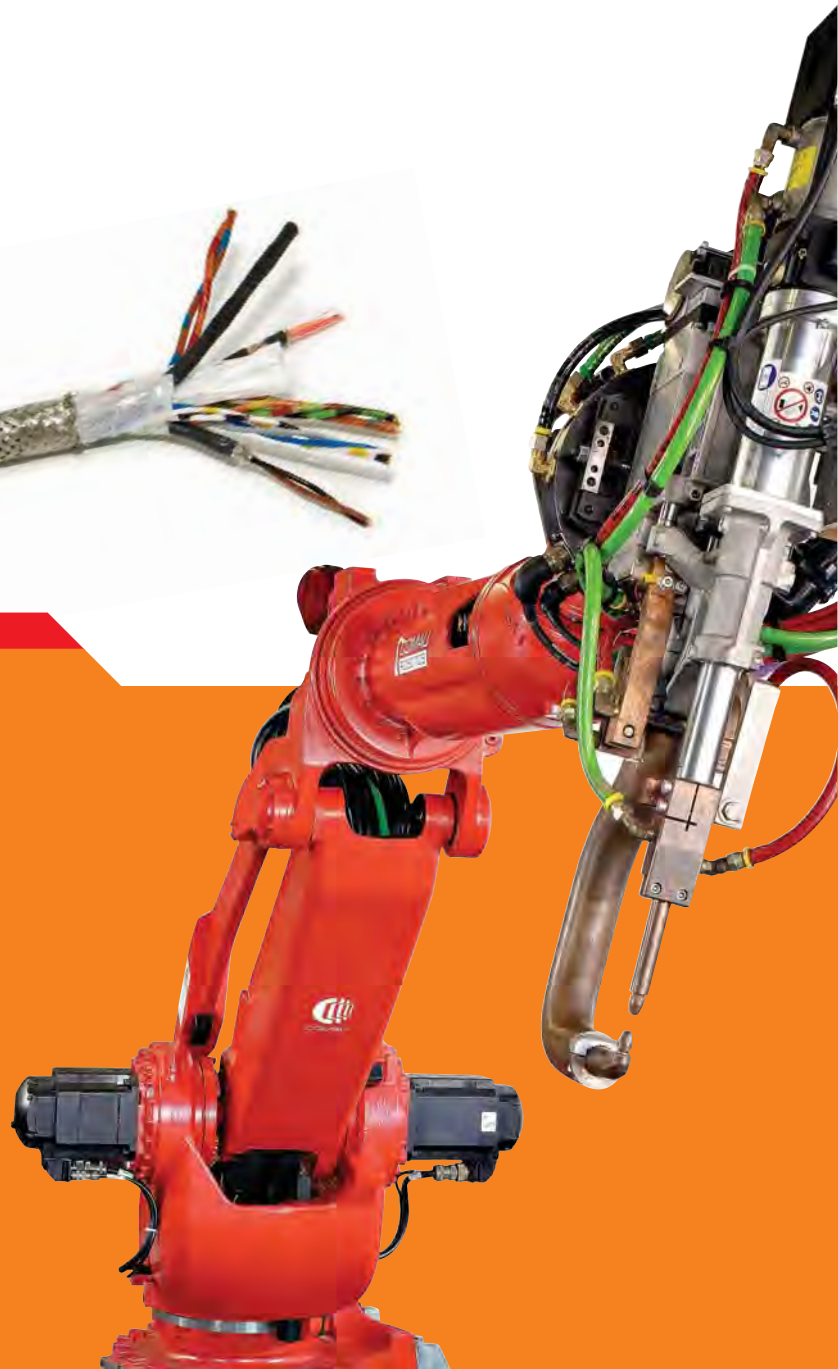
# TK F200®

## Description and product application

Multicore cables built according to **UL** and **CSA** specifications to satisfy the demanding needs of industrial machinery manufacturers for dynamic installation in cable carrier chains. The installation of **TK F200®** series is recommended for normal mechanical applications in dynamic installations. The PVC outer jacket is particularly resistant to the abrasion and is suitable for damp environments and where you need resistance to emulsified cut oils and to numerous other aggressive chemical substances.

### The TK F200® series features:

- ▶ Shielded and unshielded multicore from 2 to 61 conductors in section from 0,50 up to 50mm<sup>2</sup> and low capacitance shielded cables (3 cores plus earth conductor) for servo drivers.



SPECIAL CABLES FOR  
**AUTOMATION**

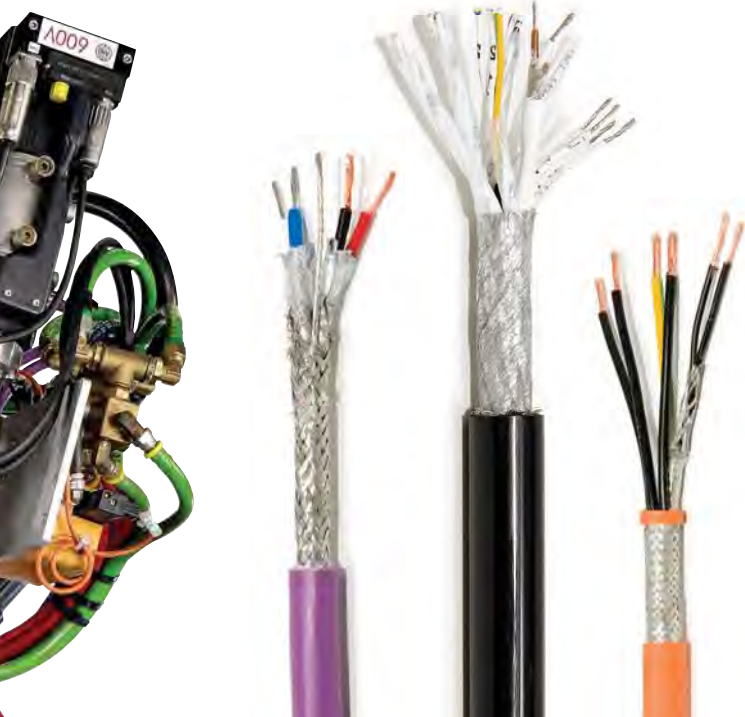
# TK FF200®

## Description and product application

Multicore cables built in accordance with **UL** and **CSA** norms to satisfy the demanding needs of industrial machinery manufacturers for dynamic installation in cable chains. The installation of **TK FF200®** series is recommended for superior mechanical applications in dynamic use (see table overview on right page for details).

### The TK FF200® series features:

- ▶ Shielded and unshielded multicore from 2 to 36 conductors in section from AWG 26 to 1/0 for control, signals and power.
- ▶ Shielded cables for servodrive with low capacitance (3 cores + earth conductor) UL, CSA, Desina, approved.
- ▶ Cables for field Bus such as Profibus, Interbus, DeviceNet, CANopen, MODbus, industrial Ethernet, Multibus (mixed protocol).



# TK FF300®

## Description and product application

Single and multicore cables for dynamic installation in cable carrier chains, designed and built according to **UL** and **CSA** to satisfy the most demanding needs of machine tools manufacturers, industrial automation systems and for some application on board of industrial robots.

The advanced material and design concept used for the production of the cables of **TK FF300®** series offer reduced size and allow the use in flex-torsion with an excellent price/performance ratio. The use in dynamic installation is guaranteed up to -40°C and in presence of very aggressive cutting oils and chemical agents typical of the industrial environments. The outer jacket in Polyurethan gives a good resistance to the UV rays.

### The TK FF300® series features:

- ▶ Shielded and unshielded single core from AWG 6 to 1/0
- ▶ Shielded and unshielded multicore from 2 up to 36 conductor in section from AWG26 to 1/0 for control, signals and power.
- ▶ Shielded cables for servodrive with low capacity UL, CSA, Desina, approved.
- ▶ Cables for field Bus such as Profibus, Interbus, DeviceNet, CANopen, MODbus, industrial Ethernet, Multibus (mixed protocol).
- ▶ ENCODER, RESOLVER, SINCODER cables compatibles with many models available on the market.

# AUTOMATION

**Tecni Kabel**  
SPECIAL ELECTRICAL CABLES



# TK FF600®

## Description and product application

Single and multicore cables for dynamic installation in flex-torsion application, designed and built according to **UL** and **CSA** expressly designed for manufacturing of automatic machinery, portals and anthropomorphous **ROBOT**.

The **TK FF600®** series designed and built according to **UL** and **CSA** are particularly suitable for applications in flex-torsion with speed and elevated accelerations combined with reduced bending radius. The materials used for the outer jacket give a very good resistance to refrigerating oils.

### Typical applications are:

- ▶ Grinding machines
- ▶ Milling, lathes and chips removal machines
- ▶ Automatic storage systems even operating in very low temperature
- ▶ Industrial environment with aggressive substances

**TECNIKABEL** technical staff is always available to guide Customers to choose the most correct choice of the right cable according to your purpose. The overall performances are guaranteed if the laying of the cables is following our prescriptions.

### The TK FF600® series features:

- ▶ Single core for internal and external cablings in robotic application and for welding guns in section from AWG 6 to 2/0
- ▶ Shielded and unshielded multicore for internal and external harnesses in robotic application from 2 to 61 conductors in section from AWG 26 to 1/0 for control, signals and power.
- ▶ Shielded cables for servodrive with low capacity UL, CSA, Desina, approved
- ▶ Cables for field Bus such as Profibus, Interbus, DeviceNet, CANopen, MODbus, industrial Ethernet, Multibus (mixed protocol)
- ▶ ENCODER, RESOLVER, SINCODER cables compatibles with many models available on the market.

# UL LISTED® TRAY CABLE

## Description and product application

Single and multicore cables complying with **UL LISTED** norms to fulfill the needs of companies exporting into US and Canadian markets. Designed for use in tray, ducts and connection between electrical, electronic cabinet, frequency converter and other components of machinery.

**UL LISTED** single core series are designed for static application while multicore cables might be used also in dynamic mode withstanding medium mechanical stress of moderate travel speed.

### Typical constructions:

- ▶ PVC insulation under polyamide jacket.
- ▶ High resistance to refrigerating oils, cutting oils, hydrocarbons, UV rays, humidity, harsh environment.

### UL LISTED® SINGLE CORE

- ▶ MTW
- ▶ THN - THWN - THW - TW

### UL LISTED® MULTI CORE

- ▶ MTW
- ▶ Tray Cable TC-ER
- ▶ Tray Cable TC-ER SERVO



## CABLE DESIGN

		TK F100®	TK F200®	TK FF200®	TK FF300®	TK FF600®
▶ <b>Conductor</b>	CEI 20-29 Class 5 - IEC 60228 Class 5 - VDE 0295 Class 5	●	●			
	CEI 20-29 Class 6 - IEC 60228 Class 6 - VDE 0295 Class 6			●	●	●
▶ <b>Insulation</b>	PVC Y and Polyolefin 2Y or TPE-E 12Y (UL-CSA standard)	●	●	●		
	Polyolefin 2Y or TPE-E 12Y (UL-CSA standard)				●	●
▶ <b>Core Identification</b>	CEI UNEL 00722 - VDE 0293	●	●	●	●	●
▶ <b>Overall Shield (optional)</b>	Tinned Copper coverage 85% - According to EMC 89/336 (c)	●	●	●	●	●
▶ <b>Jacket</b>	PVC Y (UL-CSA standard)	●	●	●		
	Abrasion resistant polyurethane 11Y- (UL-CSA standard)				●	●
▶ <b>Colour</b>	Grey or DESINA colours	●	●	●		
	Matt Black or Grey or DESINA colours				●	●

## TECHNICAL DATA

▶ <b>Operating Voltage</b>	Sections $\leq 1\text{mm}^2$ : 300V (450/750V) or 30V	●	●	●	●	●
	Sections $\geq 1,5\text{mm}^2$ : 1.000V	●	●	●	●	●
▶ <b>Test Voltage</b>	2.000 a.c. (300V) - 4.000 V a.c. (1.000V)	●	●	●	●	●
▶ <b>Temperature Range</b>	- 20°C ÷ + 70°C (static use)		●			
	- 20°C ÷ + 90°C (static use)	●		●		
	- 5°C ÷ + 70°C (dynamic use)		●			
	- 5°C ÷ + 90°C ((dynamic use)			●		
	- 40°C ÷ + 90°C (static and dynamic use)				●	●
▶ <b>Minimum Bending Radius</b>	5 x $\emptyset$ cable					●
	6 x $\emptyset$ cable				●	
	7,5 x $\emptyset$ cable			●		
	10 x $\emptyset$ cable		●			
▶ <b>Maximum Speed</b>	140 m/min		●			
	180 m/min			●		
	250 m/min				●	
	300 m/min					●
▶ <b>Maximum Acceleration</b>	Up to 5 m/s <sup>2</sup>		●			
	Up to 6 m/s <sup>2</sup>			●		
	Up to 30 m/s <sup>2</sup>				●	●
▶ <b>Chain length</b>	10 m (horizontal only)		●			
	15 m (horizontal only)			●	●	
	30 m (horizontal only)					●
▶ <b>Flex life</b>	3.000.000 cycles		●			
	5.000.000 cycles			●		
	6.000.000 cycles				●	
	6.000.000 ÷ 10.000.000 cycles					●
▶ <b>Torsion</b>	Please contact our technical support		●	●	●	
	$\pm 360^\circ$ over length $\geq 100 \times \emptyset$ ca					●

## REFERENCE STANDARD

▶ <b>Cables according to UL 758, UL 1581</b>	<b>Power and Control</b> Section $s \leq 1\text{mm}^2$ : UL Style 2464 80°C 300V - CSA AWM I/II A/B 300V Sections $\geq 1,5\text{mm}^2$ : UL Style 2570 80°C 1000V - CSA AWM I/II A/B 1000V o UL Style 2587 90°C 600V - CSA AWM I/II A/B 600V	●		●		
	<b>Signal Transmission</b> UL Style 2502 80°C 30V - CSA AWM I/II A/B 30V UL Style 2919 80°C 300V - CSA AWM I/II A/B 300V					
	<b>Power and Control</b> Sections $\leq 1\text{mm}^2$ : UL Style 2464 80°C 300V - CSA AWM I/II A/B 300V Sections $\geq 1,5\text{mm}^2$ : UL Style 2570 80°C 1000V - CSA AWM I/II A/B 1000V o UL Style 2587 90°C 600V - CSA AWM I/II A/B 600V				●	
	<b>Signal Transmission</b> UL Style 20671 90°C 30V - CSA AWM I/II A/B 30V UL Style 29963 80°C 300V - CSA AWM I/II A/B 300V					
	<b>Power and Control</b> Sections $\leq 1\text{mm}^2$ : UL Style - CSA AWM I/II A/B 300V Sections $\geq 1,5\text{mm}^2$ : UL Style - CSA AWM I/II A/B 1000V					●
	<b>Signal Transmission</b> UL Style 90°C 30V - CSA AWM I/II A/B 30V UL Style 80°C 30V - CSA AWM I/II A/B 30V					
▶ <b>Flame Resistance</b>	CEI 20-35 - EN 50265 - IEC 60332-1 - UL VW-1 - CSA FT1	●	●	●	●	●
▶ <b>Halogen Free</b>	CEI 20-37 - EN 50267 - IEC 60754				●	●
▶ <b>Hydrocarbons and oil resistance</b>	UL 1581 - VDE 0472 part 803 A/B - HD 22.10 S1 - CNOMO E.03.40.150N	●	●	●	●	●
▶ <b>Water resistance</b>	UL 1581 - IEC 60811	●	●	●	●	●
▶ <b>CE</b>	Cables complying low voltage regulation 72/23/CEE	●	●	●	●	●
▶ <b>EMC 89/336 Regulation</b>	Electromagnetic compatibility, in order to obtain maximum results in terms, of radio frequency interference reduction (EMC 89/336 regulation), shield connections must complying with the instruction provided by converter/motor manufacturers .	●	●	●	●	●