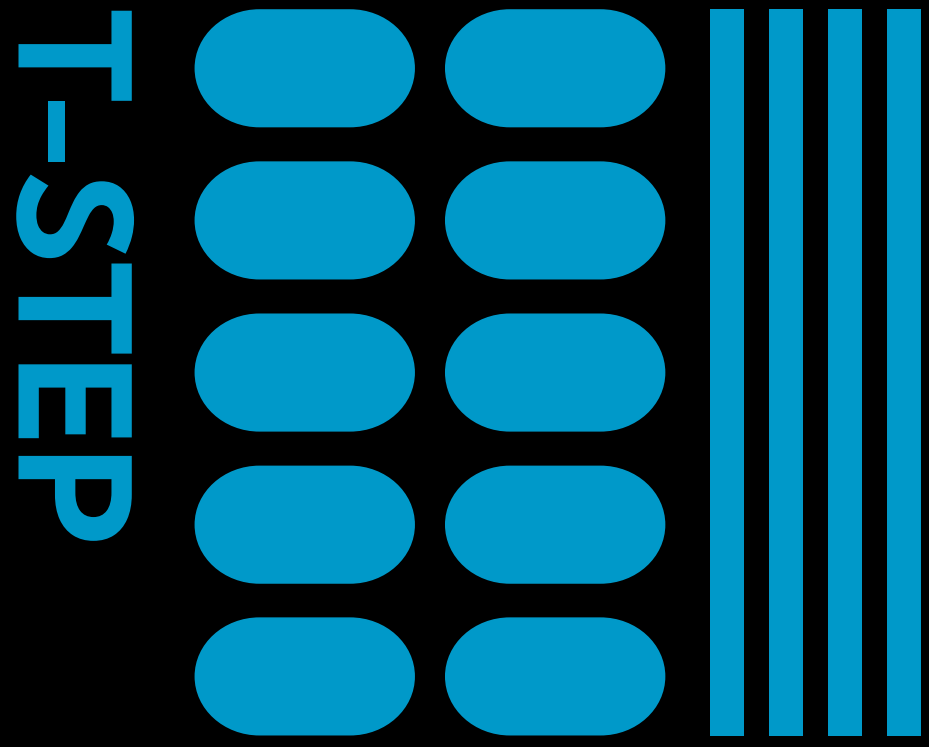
Your **safe** and
independent journey.

ENG



bsi. In accordance with BS 7997:2003

Your **safe** and
independent journey.

ENG

T-STEP

Tactile Paving Tiles

bsi. In accordance with ISO/FDIS 23599

T-STEP

T-Step Tactile Paving Tiles System

JKJ's tactile paving tiles T-Step are designed according to the parameters outlined in the **British Standard 7997:2003**. The whole system represents a **primary aid** and allows for the adaptation and accessibility of places and areas of public use like railway and metro stations, airports, hospitals and clinics, shopping malls, libraries and museums.

The key innovation of JKJ's tactile systems primarily consists in their material, a custom **M-PVC-P technopolymer** that makes the product resilient and elastic, perfect for both indoor and outdoor installations and with high performance characteristics regardless of temperature.
Unlike other TWSI built in cement or stone, M-PVC-P technopolymer tiles do not break under concentrated loads, as it frequently happens in highly walkable environments, providing both **sound and colour contrast feedback**, being it made of a different material from the floor underneath.

Recent studies show that **TWSI** are not only useful for blind and visually impaired people but also for all the users as they send **mechanical stimuli** inducing attention to the surrounding environment. The results of the study highlight that the presence of tactiles has a positive global effect also on the walking of **sighted people**.

JKJ Srl solutions can also provide blind and visually impaired users with both tactile and **vocal information,** where the paving has been equipped with **Radio Frequency Ground Tags**. Thanks to our proprietary **electronic T-Stick** that intercepts the tags, users can receive messages in any language and any duration just using JKJ's free **T-Go app**. A technology useful for ensuring autonomous and safe walking.

User

The **user** listens to messages via smartphone or using Bluetooth earphones.

Smartphone

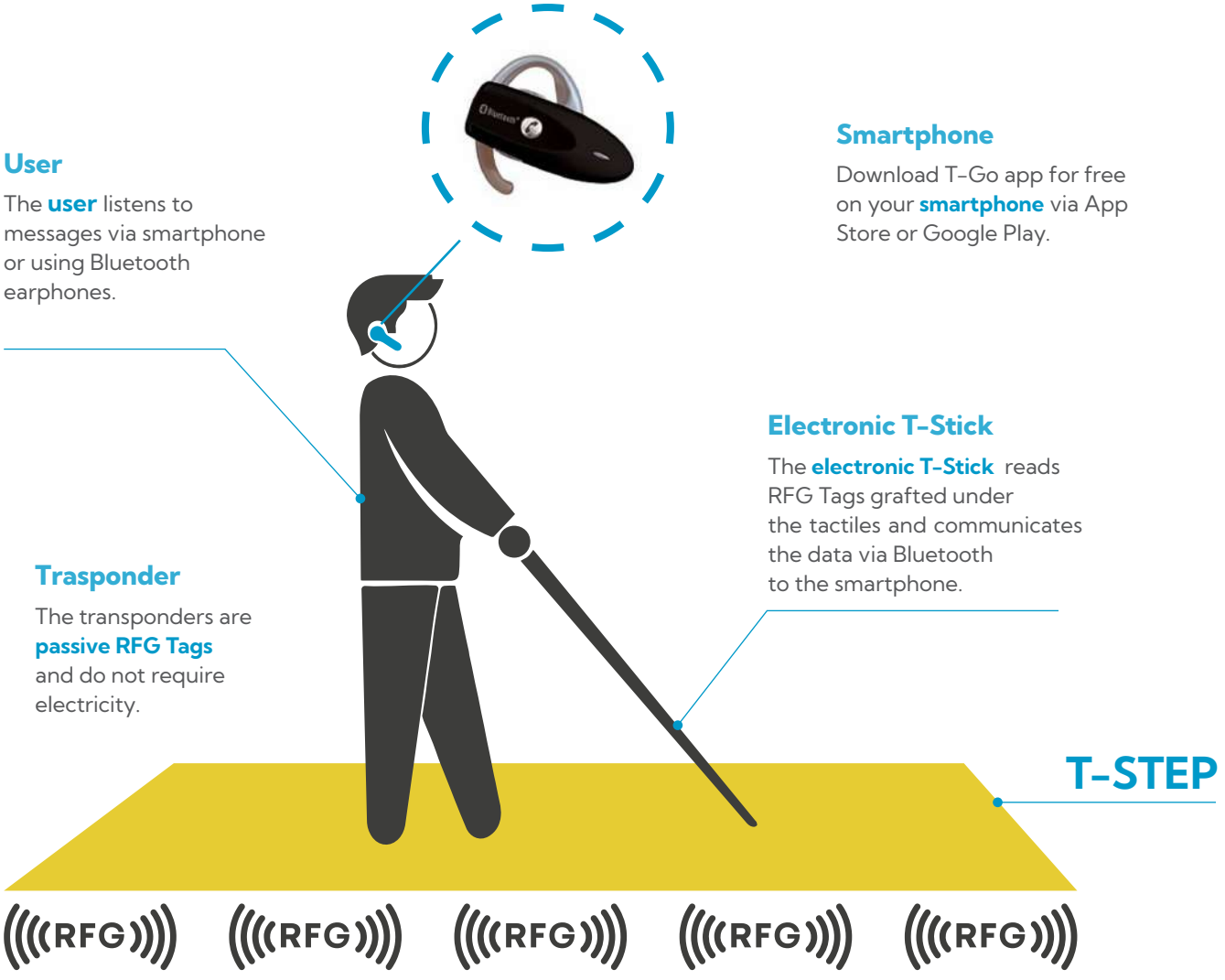
Download T-Go app for free on your **smartphone** via App Store or Google Play.

Electronic T-Stick

The **electronic T-Stick** reads RFG Tags grafted under the tactiles and communicates the data via Bluetooth to the smartphone.

Trasponder

The transponders are **passive RFG Tags** and do not require electricity.



TACTILE PAVING TILES OPERATING SCHEME WITH RFG TAGS

Zero Project AWARD WINNER 2018

Android **IoS**

T-STEP

COMPONENTS

Tactile Paving Tiles

All tiles can be integrated with RFG tags 134.2 kHz

All tiles can be supplied with 3M double sided tape upon request.

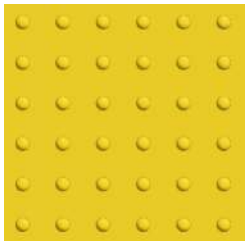
Description Indications

01 – CORDUROY HAZARD WARNING SURFACE

M-PVC-P technopolymer tile measuring **40x40** cm featuring raised rounded bars running transversely across the product.

It is used to warn about the presence of specific dangers like steps, crossings and so on.

02 – BLISTER SURFACE



M-PVC-P technopolymer tile measuring **40x40** cm featuring truncated studs arranged in parallel.

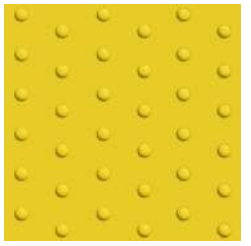
Blister surface code provides warning and identifies drop kerbs and road-crossings.

03 – PLATFORM EDGE (ON-STREET)

Warning M-PVC-P technopolymer tile measuring **40x40** cm featuring six lozenge-shaped relieves.

It is designed to alert visually impaired people that they are approaching the edge of an on-street Light Rail Transit or tram platform. It is also used to delimit cycle paths and areas dedicated to bicycles.

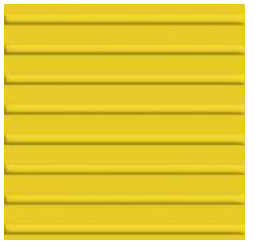
04 – PLATFORM EDGE (OFF-STREET)



Warning M-PVC-P technopolymer tactile tile measuring **40x40** cm. It displays truncated studs arranged diagonally.

This code warns pedestrians of the platform edge all over the rail and metro network

05 – GUIDANCE PATH SURFACE



Guidance path surface M-PVC-P technopolymer tactile tile measuring **40x40** cm featuring raised flat top bars with rounded edges.

It is used to indicate a straight direction and a safe path to follow where natural guides are not available.

06 – CYCLE TRACK/FOOTWAY SURFACE

Cycle track M-PVC-P technopolymer tactile tile measuring **40x40** cm featuring raised flat-top bars running the full width of the product.

This kind of code indicates segregated shared cycle track/footway surface and advises of the correct side to enter the track or footway.

Item tender specifications

JKJ's straight Tactile Walking Surface Indicators (TWSI) are primary aids made up of equidistant reliefs with height and width made in accordance with BS 7997:2003 technical standards. The distance between the reliefs in made with the same criteria.
The warning tiles display spherical studs arranged diagonally. The height of studs, as well as the distance between them, is compliant toBS 7997:2003 technical standards. Each one is superficially finished with a characteristic 2x1mm "small olives" design, a distinctive feature of JKJ Srl productions. Every tile is made of M-PVC-P Technopolymer with the following technical specifications:

DESCRIPTION	UM	VALUE	TESTING METHOD
Friction coefficient	μ	> 0,40	B.C.R.A. method
Residual Imprint	mm	> 0,1	EN433
Wheelchair	-	suitable	EN425
Electrical insulation	ohm	1010	DIN 51953
Resistance to chemical product	-	suitable	DIN 51958
Resistance to fire	-	B-fl/s1	UNI EN 13501-1
Hardness	Shore A	94 +/- 2	ISO 868
Xenon arc aging test (with anti-UV)	h	> 300	UNI EN ISO 4892-2
Heat insulation	W/mk	0,12	DIN 52612
Specific weight	gr/cm^3	1,24+/- 0,02	ISO 1183
Failing load (after 168h at 100 °C)	N/mm^2	19	CEI 20-34
Stretch (after 168h at 100 °C)	%	305	CEI 20-34
Thermal stability	min	35	CEI 20-34
Twisting stability	°C	-20	ASTM D 104
Anti-slip test	-	R 11	DIN 51130

According to European C. 202/95 (RoHS) CEI 20 - 52 '98, products formulated in compliance with the reach regulation 1907/2006 / EU.

COLORS

Yellow 3F9

Yellow 3FA

Charcoal 1B68

Gray 1B82

Red BC3

White 232B

Other colors on request

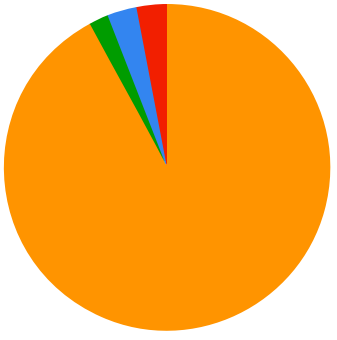
M-PVC-P Technopolymer tactile tiles features:

- CAN BE OVERLAID ON EXISTING FLOORING
- SUITABLE FOR INDOOR AND OUTDOOR INSTALLATION
- B-FL/S1 FIRE REACTION CLASS
- RESISTANT TO HIGH AND LOW TEMPERATURES
- UV-RESISTANT
- R11 ANTI-SLIP
- ROHS COMPLIANT & LEAD-FREE
- DOES NOT CRACK UNDER CONCENTRATED LOADS

What do users think about the innovation?

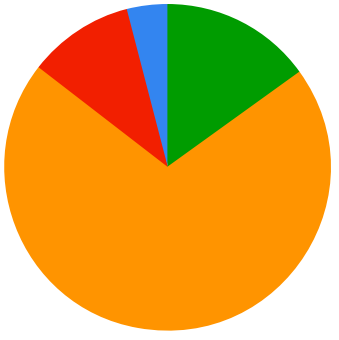
TWSI T-Step is designed according to BS 7997:2003 standard. It allows blind or visually impaired people to reach a destination thanks to the help of a tactile map, the feedback from the feet and the white cane. In addition to the sound contrast for blind users, it is also possible to use colour contrast for visually impaired ones.
The orientation process that these tools can provide is divided into three different phases: map reading, information memorization, guided walking.

In the case of T-Step system integrated with RFG Tags, the procedure of knowledge of the environment and orientation becomes precise and immediate as it provides vocal information at the exact point of contact of the electronic cane, thus providing not only directions but also information about the surrounding space, therefore accessibility becomes integration.



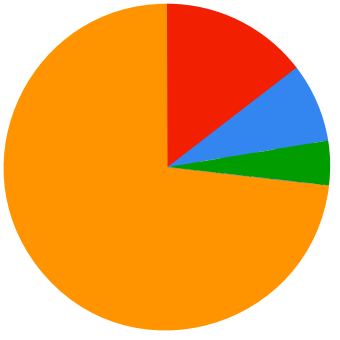
Do you think the vocalization of a tactile route is useful?

- Yes
- No
- If no, why not
- No answer



If you could choose would you like that the voice message was sent from the:

- Headset
- External mini speakers
- Mobile phone hands free
- No answer



Do you believe that the system meets the needs of blind and partially sighted most of the current systems?

- Yes
- No
- If no, why not
- No answer

T-STEP

JKJ's tactile paving tiles in M-PVC-P technopolymer are produced to be **high-performance** and resilient, nevertheless **installation** is a fundamental aspect of their resistance. JKJ guarantees the maximum **durability** when the installation is carried out according to the rules which are here only summarized.

Installation with bicomponent glue

Outdoor and indoor use

To obtain the expected outcome, the installation surface must be dry and mechanically resistant. On fresh asphalt please be sure there is no humidity.
Before laying the tiles, please fill every hole or groove with a first layer of bicomponent glue. **JKJ Srl has tested and improved the installation of tactile tiles in M-PVC-P technopolymer with specific products** to achieve the highest standards of grip and resistance over time.
Before the installation, please make a path using adhesive tape. Use an even spatula to fill the holes if needed to make a uniformly even first layer, let it rest/catalyse for a few minutes and then use the rest of the glue with a 0,3 or 0,5mm teeth spatula on the screed or under the tiles. The glue must be carefully massaged from the centre outwards, paying attention to the edges to be sealed, to prevent water from entering and to allow total contact. Remember to remove the tape before the glue fully catalyses.
The tiles tend to slightly shrink or expand according to temperature, even when they are installed, as **M-PVC-P technopolymer is elastic**. So does the glue with the tiles allowing the passage of rainwater between them.
JKJ's tactile paving tiles are very quick and clean to be installed to **avoid closures for construction sites in areas with very high pedestrian traffic such as stations and subways.**

Installation with double-sided tape

Indoor use only

Before the installation, please be sure the surface is absolutely dry and thereare no traces of wax.
Once the path has been marked, remove the double-sided tape from the back of the tiles and proceed with installation by applying light pressure. **JKJ's tactile paving tiles can be walked on immediately**.

Cleaning information

JKJ's tactiles paving tiles can be cleaned with a common acetone-free detergent or degreaser normally used for floor cleaning. It is also possible to use common **equipment like electric brooms or brushing machines** that are not going to ruin the surface of the tiles.
To clean the floor before installation we warmly suggest the use of specific detergents to be sure there is no wax. When cleaning is done regularly, we advise the use of specific products for plastic surfaces. In cases of extraordinary cleaning and more decisive maintenance, it is possible to use a more aggressive cleaner as long as there is no acetone.

All those indicated for installation and cleaning are products for professional use.

Our commitment goes beyond simple numbers and technical solutions. We believe that every project is a story to be told, every product a hand extended toward a more accessible future. With passion and expertise, we design tactile paving tiles that improve mobility for everyone in the world, making the urban environment truly accessible.

JKJ S.R.L.

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