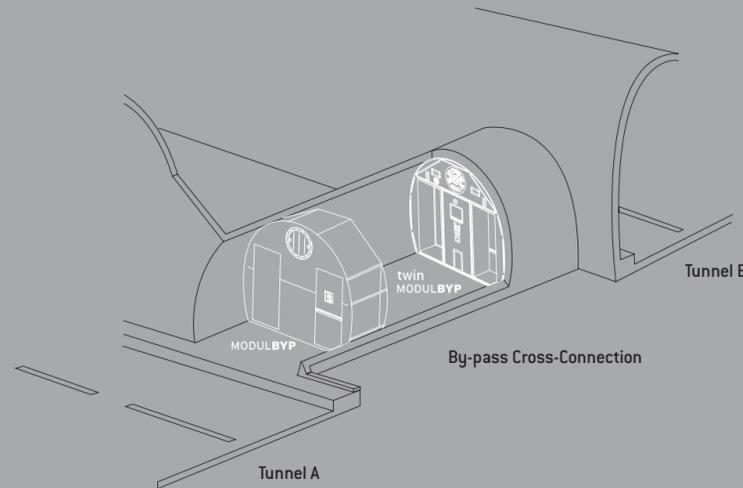
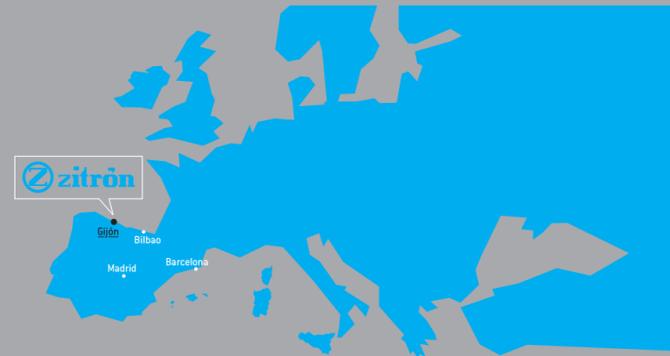


**MODULBYP**  
allows the **standardisation**  
of escape routes and temporary  
shelters in tunnel by-passes.



The main regulations and directives for tunnel safety at national and European level require the presence of pedestrian cross-connections and entryways with a maximum separation of 300 m between the two tubes of a tunnel.

The cross-connections between the two tubes of the tunnel **guarantee** an **escape route to the outside** and the possibility, where space permits, of constructing a **temporary shelter** for the safety of users in the event of a fire.



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**MODULBYP**

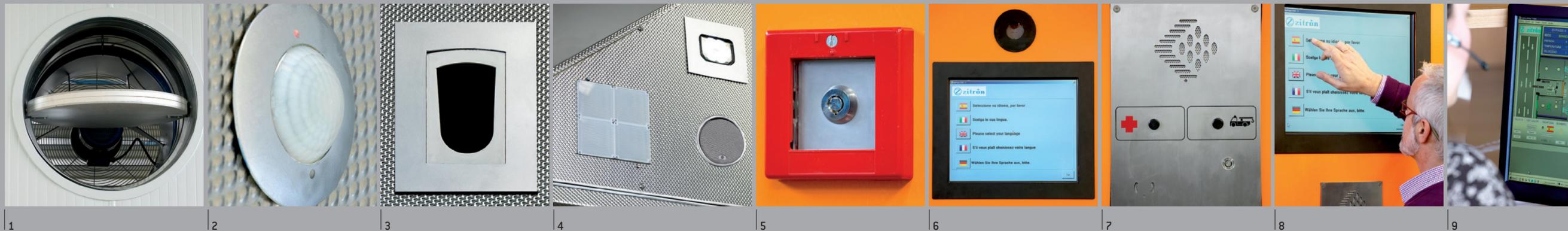


[Upper image] MODULBYP View 1.

Outer view of the tunnel-side of the MODULBYP wall, built from an isolating panel that guarantees REI120 rated fire protection. It consists of two pedestrian doors and axial ventilation with a fire-resistant valve.

>> The **MODULBYP** makes it possible to support the area buffer while guaranteeing the equipment required for the safety, maintenance and communication of shelters with simple connections to the electricity supply grid and data network.

MODULBYP Patent N° MI2009A2211



1\_ Ventilation and fire-resistant closure  
2\_ Presence sensor  
3\_ Smoke detector

4\_ Lighting, loudspeaker and retroreflectors  
5\_ Fire fighting control system  
6\_ LCD touch screen and video camera

7\_ SOS panel buttons  
8\_ Incident communication  
9\_ Response centre

## TECHNICAL FEATURES

- \_ Built under the guidelines established by Spanish Royal Decree 635/2006
- \_ Modular construction with prefabricated structure that allows for precision assembly in by-pass tube.
- \_ REI120 rated fire protection.
- \_ Double pedestrian door with opening contact.
- \_ Ventilation system that guarantees the correct pressurisation of the by-pass.
- \_ Pre-installed safety and communications systems, in addition to an autonomous redundant power supply that guarantees the correct operation of the module at all times.
- \_ Electrical power supply with direct connection to outer substations.
- \_ Interface for connection to the data network.

[Right image] MODULBYP View 2.

Interior view of MODULBYP wall, characterised by the presence of a space for housing electrical apparatus that also serves as an SOS column. It is equipped with lighting, ventilation, fire-resistant closure, Ethernet switch, PLC unit, installation for exterior communication, fire detection centre and extinguisher.

>> The **MODULBYP** is characterised by its high level of safety

## ADVANTAGES

- \_ Standardisation of the construction of by-pass cross-connections.
- \_ Modular “turnkey” installation.
- \_ Reduction of the time taken to execute installations.
- \_ High level of safety.

