

## 8 - Tunnels

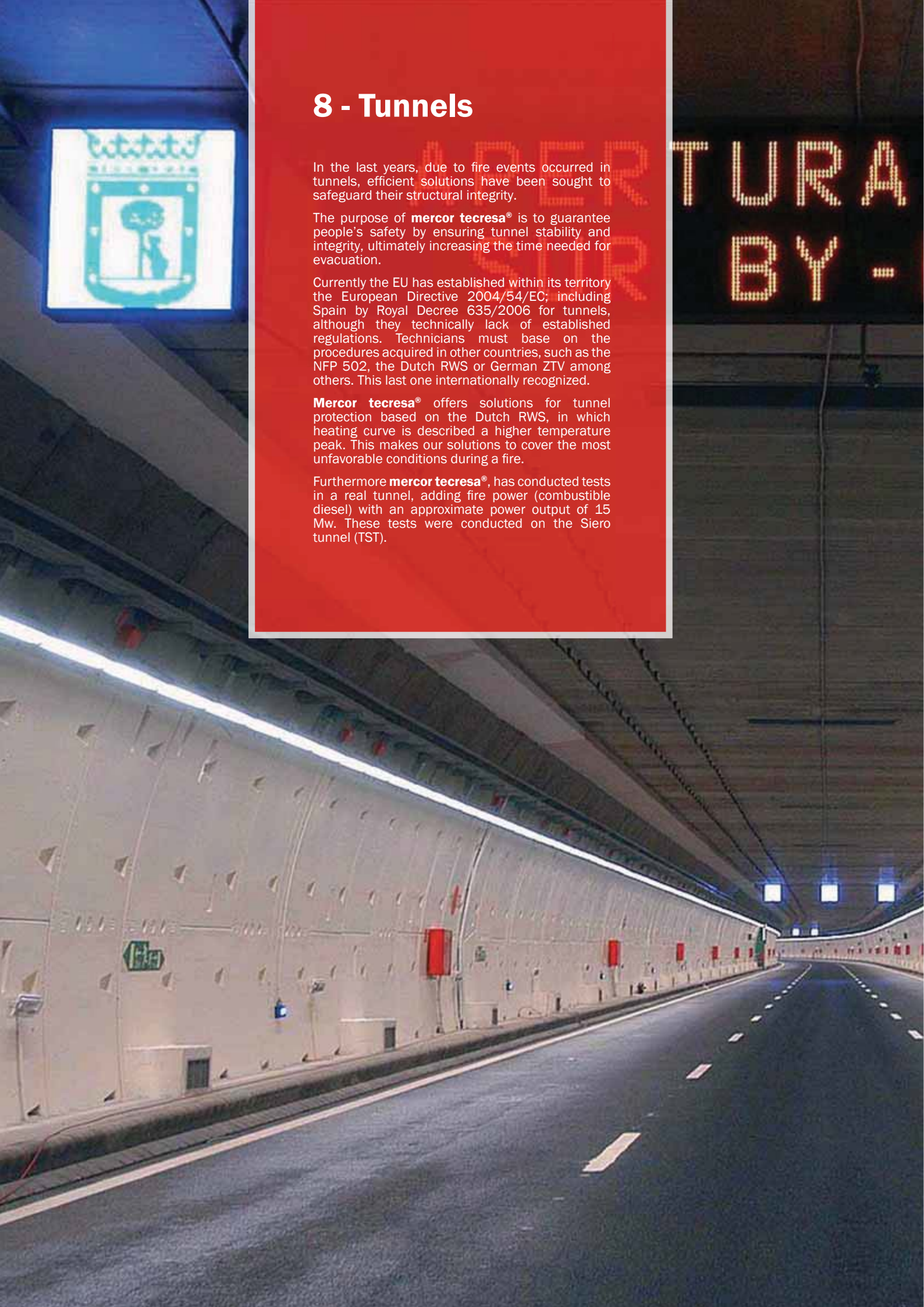
In the last years, due to fire events occurred in tunnels, efficient solutions have been sought to safeguard their structural integrity.

The purpose of **mercortecresa**<sup>®</sup> is to guarantee people's safety by ensuring tunnel stability and integrity, ultimately increasing the time needed for evacuation.

Currently the EU has established within its territory the European Directive 2004/54/EC; including Spain by Royal Decree 635/2006 for tunnels, although they technically lack of established regulations. Technicians must base on the procedures acquired in other countries, such as the NFP 502, the Dutch RWS or German ZTV among others. This last one internationally recognized.

**Mercortecresa**<sup>®</sup> offers solutions for tunnel protection based on the Dutch RWS, in which heating curve is described a higher temperature peak. This makes our solutions to cover the most unfavorable conditions during a fire.

Furthermore **mercortecresa**<sup>®</sup>, has conducted tests in a real tunnel, adding fire power (combustible diesel) with an approximate power output of 15 Mw. These tests were conducted on the Siero tunnel (TST).



## 8.3 TECBOR® B 40 TUNNEL SUSPENDED CEILING ON METAL STRUCTURE. RWS 120 AND RWS 180



TECBOR® A & B



Tunnels

45

### EI-120

#### TEST

**Standard:** RWS Fire Curve  
**Laboratory:** EFACTIS  
**Test N°:** 2009-Efectis-R0998

#### SOLUTION

- 1 Tecbor® B 40 mm boards
- 2 Slabs
- 3 Concrete wall
- 4 Metal profiles

### EI-180

#### TEST

**Standard:** RWS Fire Curve  
**Laboratory:** EFACTIS  
**Test N°:** 2009-Efectis-R0999

#### SOLUTION

- 1 Tecbor® B 40 mm boards
- 2 Slabs
- 3 Concrete wall
- 4 Metal profiles



## SOLUTION 1

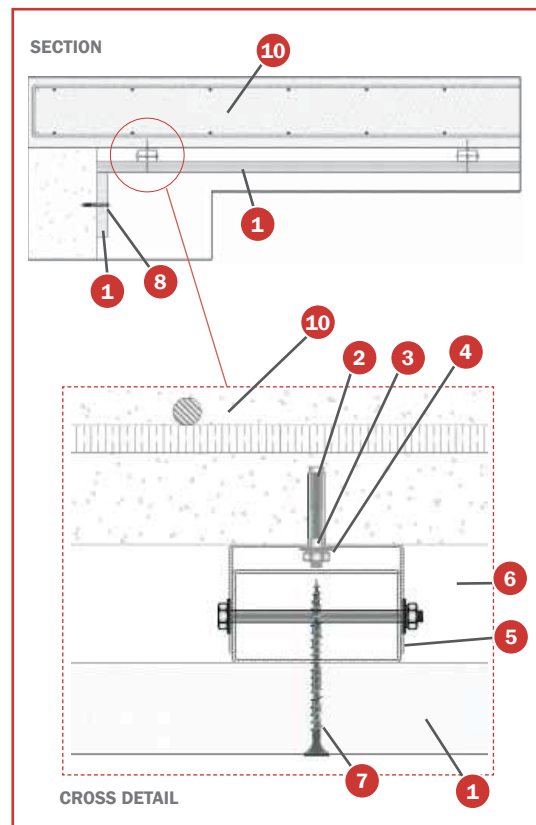
- 1 **Tecbor® B** 40 mm boards
- 2 Expanding metal anchor with inner thread
- 3 Steel threaded rod  $\varnothing$  12 mm
- 4 Zinc coated nut  $\varnothing$  12 mm
- 5 75x46x1,2 mm metal profile
- 6 75x40x1,2 mm metal profile
- 7 5,5x73 mm screw
- 8 Plug anchoring + 10x100 mm screw
- 9 **Tecsel®** mastic for joints
- 10 Reinforced concrete slab

### DESCRIPTION OF ASSEMBLY

Install the metal structure that will support the suspended ceiling forming a grid (refer to Technical Department for sizes) with primary profiles and secondary profiles sized 75x46x1.2 mm and 75x40x1.2 mm respectively.

Once the metal structure is in place, fix the **Tecbor® B** 40 mm board to it using 5.5x73 mm self-drilling screws.

**Mercor tecsresa®** offers different assembly options. Please contact the Technical Department.



## SOLUTION 2

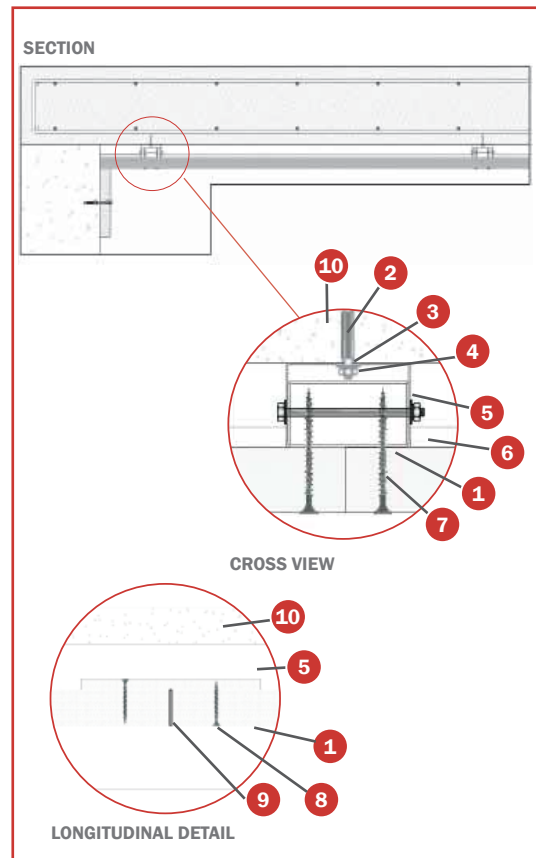
- 1 **Tecbor® B** 40 mm boards for tunnel
- 2 Expanding metal anchor with inner thread
- 3 Steel threaded rod  $\varnothing$  12 mm
- 4 Zinc coated nut  $\varnothing$  12 mm
- 5 75x46x1,2 mm metal profile
- 6 **Tecbor® A** 12 mm boards
- 7 6,3x65 mm screw
- 8 4,5x50 mm Hi-Low screw
- 9 **Tecsel®** mastic for joints
- 10 Reinforced concrete slab

### DESCRIPTION OF ASSEMBLY

Install the metal structure that will support the suspended ceiling forming a grid (refer to Technical Department for sizes) using primary profiles 75x46x1.2 mm in size. The secondary profile is replaced with a strip of **Tecbor® A** 12 mm board 150 mm wide.

Once the metal structure is in place, fix the **Tecbor® B** 40 mm board to it using 6.3x65 mm self-drilling screws.

**Mercor tecsresa®**, offers different assembly options. Please contact the Technical Department.



## SOLUTION 3

- 1 **Tecbor® B** 40 mm boards
- 2 Expanding metal anchor with inner thread  $\varnothing$  12 mm
- 3 Steel threaded rod  $\varnothing$  12 mm
- 4 Zinc coated  $\varnothing$  12 mm
- 5 Pivot TC-60 Steel grip,  $e=0,6$  mm
- 6 TC-60 connection
- 7 5x80 mm screw
- 8 Plug anchoring + 10x100 mm screw
- 9 **Tecsel®** mastic for joints
- 10 Concrete slab
- 11 TC 60/27 profile

### DESCRIPTION OF ASSEMBLY

Install the metal structure that will support the suspended ceiling forming a grid (refer to Technical Department for sizes) with a TC 60/27 profile. Once the metal structure is in place, fix the **Tecbor® B** 40 mm board to it using 5.5x73 mm self-drilling screws.

**Mercor tecresa®**, offers different assembly options. Please contact the Technical Department.

