



Case Study

Bonded tunnel doors in the Gotthard base tunnel save lives in the event of a fire

The world's largest railway tunnel is currently being constructed in the Gotthard massif. When completed, it will have two 57-kilometer long unidirectional tubes that are connected with 175 cross passages. Starting in 2017, high-speed trains will dramatically reduce North-South rail travel times. This once-in-a-century project is a challenge in every respect, from planning and construction to the safety concept. In the event of a fire in one tunnel, the other one will provide an evacuation route for rail passengers.

Tremendous pressure fluctuations

Harsh conditions prevail inside the tunnel: enormously high pressures ahead of the speeding trains as well as high levels of humidity at high temperatures. For this reason, project coordinator Alp Transit Gotthard AG asked various door fabricators to build 5 prototypes that were subsequently exposed to rigorous testing. Elkuch Bator AG, a tunnel door specialist, was awarded the contract for manufacturing the ultimate safety door.

Customized adhesive for extreme loads

Collano's custom-formulated RS 8507 adhesive features high strength combined with elasticity, so it precisely matches the criteria for assembling the frames of the safety doors. To streamline the fabrication process, the pot life of the adhesive was modified as well. This allows the adhesive to be applied to both sides of the doors before they are placed in the press. This considerably simplifies the work, makes handling more convenient, and saves valuable time. Jürg Ryser, who is in charge of fabrication at Elkuch Bator, enjoys working with Collano: "The excellent service and hands on development support we received from Collano contributed significantly to the success of the project."

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Fully assembled cross passage door in the opened state. Collano adhesives are a key element of these safety doors being installed in what will once be the world's longest railway tunnel (57 kilometers).

Technical data in brief

Project:	350 cross passage doors in the Gotthard base tunnel for high-speed trains
Year:	2008
Partner:	Elkuch Bator AG, manufacturer of tunnel and special doors, Herzogenbuchsee, Switzerland
Application:	Metal-on-metal bond exposed to high pressure and vacuum loads, with superior longevity
Country:	Switzerland
Product:	Collano® RS 8507
Properties:	Elastic adhesive with good adhesion on metal and mineral composites, pressure- and vibration-abating