

Safe Deployment, Even Under the Toughest of Conditions

The Swiss railway company BLS AG has its own Fire and Rescue Service Department. Their safety and emergency response plan includes a firefighting and rescue train (FFRT). Peter Luginbühl, Commander of the Fire and Rescue Service Department at BLS AG, explains why this solution has proven so valuable.



Mr Luginbühl, when is a rescue train required?

When the primary deployment area is difficult to reach or in places where common road vehicles cannot reach the incident area at all. Across the BLS network, there are 71 tunnels, and the longest of them is the Lötschberg Base Tunnel, which is almost 35 kilometers. Road vehicles are of very limited use in this case. Such areas cannot be reached with road vehicles and so when the tunnel was built, it was decided that a firefighting and rescue train would be the best solution.

In your opinion, what are the advantages of a rescue train compared to conventional fire trucks?

First of all, we can travel with the FFRT into areas with heavy smoke, and thanks to the integrated thermal imaging cameras, we can easily orient ourselves even when visibility is poor. Also, we are less sensitive to heat-related challenges. During a tunnel fire, temperatures can reach 1,000 degrees (Celsius). A fire truck with rubber tires, for example, doesn't allow us to get near to such an incident. Important as well, we have a higher level of protection because we have sufficient breathing air with us. When our air cylinders need recharging, we can

simply go back to the train and refill them. That means we're back on the job faster and for extended periods.

That is probably a psychological factor as well. Definitely, yes. If you are using a regular fire truck during deployment, then you know that when your cylinder is empty, it's empty. With the FFRT, we have a protected area with enough breathing air to survive for hours. That provides a different kind of confidence for the crews.

Have you experienced such a situation?

Our biggest deployment was the fire in the Simplon Tunnel in 2011. The tunnel connects Italy and Switzerland and is 20 kilometers long. A 500 meter long freight train caught fire, and at the time, I was chief of operations. Before it started, a few of my colleagues quickly called home to tell their families that they were going in. You can imagine what was going through their heads. One must understand, you train and train for years and then suddenly the alarm goes off. So they went into the tunnel in response to the incident. In such a situation, it is a big relief to know that you have a safe and protected area and enough breathing air to be able to work for a couple of hours. Also, for the head of the rescue team, the best part is being able to shake the hands of all the colleagues afterwards and say "thank you for a job well done."

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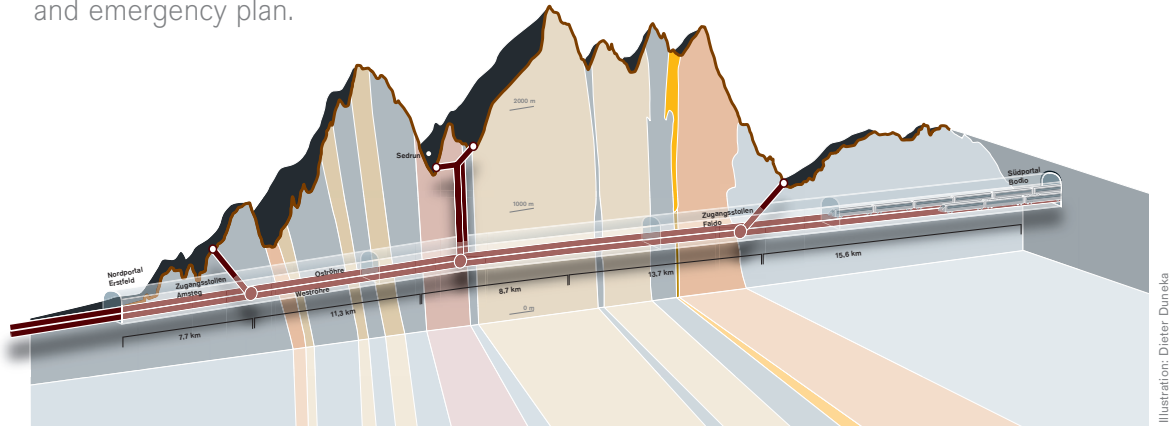
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Effective Rail Incident Response
Firefighting and Rescue Systems

Safely Through the Alps

The countdown for one of the most spectacular rail construction projects has begun. Planned for completion during December 2016, the Gotthard Base Tunnel will commence operation. Firefighting and rescue trains are a central part of the comprehensive safety and emergency plan.



From Zurich to Milan in only three hours – only flying will be faster. The 57 km long Gotthard Base Tunnel, together with the 15 km long Ceneri Base Tunnel, will drastically reduce the traveling time for both passengers and freight. Each day, 260 freight trains will be able to pass through the tunnels, and SBB (Swiss Federal Railways) estimates that the number of passengers will increase from an initial 9,000 to 15,000 by 2020. The tunnel systems shall also take over heavy goods transportation on the important European

North-South axis. Every hour, an average of up to six freight trains will travel in both directions through the Gotthard Base Tunnel; including trains with potentially hazardous materials.

As a result, this creates the need for a comprehensive overall safety concept. Apart from the twin-tube tunnel design, the latest fire protection and ventilation systems, firefighting and rescue trains are part of the safety measures, for which Dräger has developed and supplied state-of-the-art solutions.

Rapid Response to Various Incidents

Firefighting and rescue trains offer a wide variety of deployment possibilities. They also provide aid and support during common railway incidents, which makes them a cost-efficient and versatile response solution.



SBB operates a railroad network that stretches almost 3,000 km, along which are 264 tunnels, with 20 of them being over 3 km in length. Firefighting and rescue trains have formed part of SBB's safety and emergency planning for decades. Originally, they were used for firefighting in tunnels and remote areas. Today, the current fleet of 16 rescue trains respond to more than one thousand incidents per year. Apart from being used for the typical duties of the fire services, the trains are used for a number of other missions.

- These include:
- Fire protection of buildings, facilities, infrastructure
 - Environmental protection following incidents with hazardous substances
 - The evacuation of passenger trains in remote areas
 - Rapid damage control following an incident and the speedy return to normal operating conditions
 - Towing of damaged trains

A modular train design makes all this possible. The firefighting and rescue train cars can be individually arranged and deployed; this in turn increases the overall economic efficiency.

Tactical Advantages During Deployment

Not all incidents can be avoided. Potential risks have to be taken into account, especially in remote areas.

Limited escape routes, remote incident areas, heavy smoke, poor visibility and extreme temperatures in tunnels, on bridges, or on remote track areas can mean conventional rescue vehicles have limited effect. It is in these scenarios that firefighting and rescue trains offer a number of concrete tactical advantages.

- Areas inaccessible for road vehicles can be reached irrespective of road and terrain conditions.
- The emergency team and their equipment are transported directly to the heart of the incident.
- A firefighting car with water and foam on board is immediately available for deployment.
- Gastight rail cars are equipped with independent air and oxygen supplies that provide contamination-free areas for hours for the emergency crew and enable passengers to be evacuated safely.
- The Dräger breathing protection system creates a positive pressure within the rail cars and provides the highest level of protection for the crew and passengers against smoke, toxic gases and hazardous substances.
- SCBA air cylinders can be replaced or refilled within these protected cars.
- The temperature and air quality both inside and outside of the rescue train is continuously monitored.
- Integrated communication systems and medical equipment support the operation management and first aid at the incident area.
- Due to its modular design, the individual rail cars can be quickly and easily used for various operational scenarios.
- Each rescue train is designed and built according to the specific requirements of the operator and in accordance with applicable regulations.

Ready for Deployment

Dräger designs and supplies complete modular system solutions for modern firefighting and rescue trains. Such trains are already operating in Switzerland, Germany and Austria. An example of a firefighting and rescue train configuration.

