

## Why large HGV fires in tunnels have devastating impact on tunnel structure and infrastructure - and the destruction caused by the recent HGV fire in the Rannersdorf Tunnel in Austria!

By Johnny Jessen – VID Fire-Kill (TUNPROTEC<sup>®</sup>) Fixed Fire Fighting Systems



Watch the video of the Rannersdorf Tunnel HGV fire: <https://www.youtube.com/watch?v=aM82GIXf9QI>

### The accident

On Monday the 29<sup>th</sup> of April 2019 a heavy Goods Vehicle burst into fire in the middle of the 1880 m long Rannersdorf Tunnel in Austria. When the driver entered the roadway, he felt tremors in the steering wheel, and he noticed smoke coming from his rear wheel. The driver tried to extinguish the fire with his extinguisher, but the fire was developing too rapidly. Most likely the fire was caused by a poorly maintained vehicle.

First the good news; The smoke extraction system performed well and allowed the fire fighters to Access the fire from a short distance and the evacuation procedures functioned well. Only a couple of people suffered minor injuries.

### **90% of all tunnels are relying on a standalone ventilation system to create tenability, structural protection and accessibility for the fire brigade!**

Most tunnels worldwide are depending on a standalone ventilation system in combination with detection to avoid or prevent the effect of major vehicle fires. Therefore, in the Rannersdorf case, it must be very unsatisfactory to the tunnel owners and other people affected that the existing safety

equipment could not prevent severe damage to the tunnel and its infrastructure - or the complete closure of the important infrastructure network for months.

### Impact on the Rannersdorf Tunnel fire

At this moment, the full amount of structural damage cannot be established, but the preliminary results are;

- Tunnel will be completely closed for 6 weeks
- Additional 12 weeks are predicted for repair work on the damaged 600 m tunnel stretch (safety system, structural protection lining & road surface)
- The complete value of the burned-out HGV is estimated at min. 180,000 €

The incident will be a very costly and time-consuming process - not just because of the tunnel repair work, but also the inconvenience of delays and long queues the closing of the tunnel is causing road users and society.

### Can major damages to tunnel structure and closure of highly important traffic hubs as a result of Heavy Goods Vehicle fires be avoided?

The answer is clearly **yes it can!**

The installation of a Fixed Fire Fight System has proved to be very efficient in preventing structural damage to the tunnel and limit the closure of important infrastructure networks to a couple of days, even in potential major HGV collision accidents.

### The Burnley HGV fire in Sydney, Australia



The 2007 Burnley Tunnel HGV fire included;

- A collision between 8 vehicles including HGVs
- A vehicle explosion
- A potentially much higher fire potential HHR than the recent Rannersdorf Tunnel fire in Austria.

In 2007 a semi-trailer stopped inexpertly in the left hand side of the tunnel, which resulted in a collision and explosion

Because a fixed fire fighting system was installed and immediately activated when the fire was detected, the actual tunnel fire was quickly suppressed, and ambient temperatures reduced, preventing any damage to the tunnel or its structure.

NB.: After thorough cleaning the tunnel was re-opened only 3 days after the fire.

## Conclusion

In the last decade European manufactures of Fixed Fire Fighting Systems have undergone numerous full-scale tunnel fire tests. Therefore, today there is a large amount of fire test data, research and fire investigation results available. The published material proves and witnesses a Fixed Fire Fighting System's ability to minimize risks and effectively protect assets of costly and important traffic hubs. Also, in the last 10 years the cost of a Fixed Fire Fighting System has fallen substantially making the system more cost effective to invest in and to install.

*"VID Fire-Kill & TUNPROTEC<sup>®</sup> is an innovative Danish based provider of Low Pressure Watermist Solutions with the aim to minimize installation and maintenance costs, while ensuring fast and reliable protection of humans and assets from the effect of fires."*

#### References:

- Heute Österreich Nachrichten - 30th of April 2019
- Asfinag info - 8th of May 2019
- Report Burnley Fire - Arnold Dix 9th of June 2011