JÄGER GROUP

CASE STUDY

HELPER IN DISTRESS

THE JÄGER GROUP SAVES LIVES IN SECONDS WITH THE RUBBER BLADDER

Bildmaterial: Adobe Stock

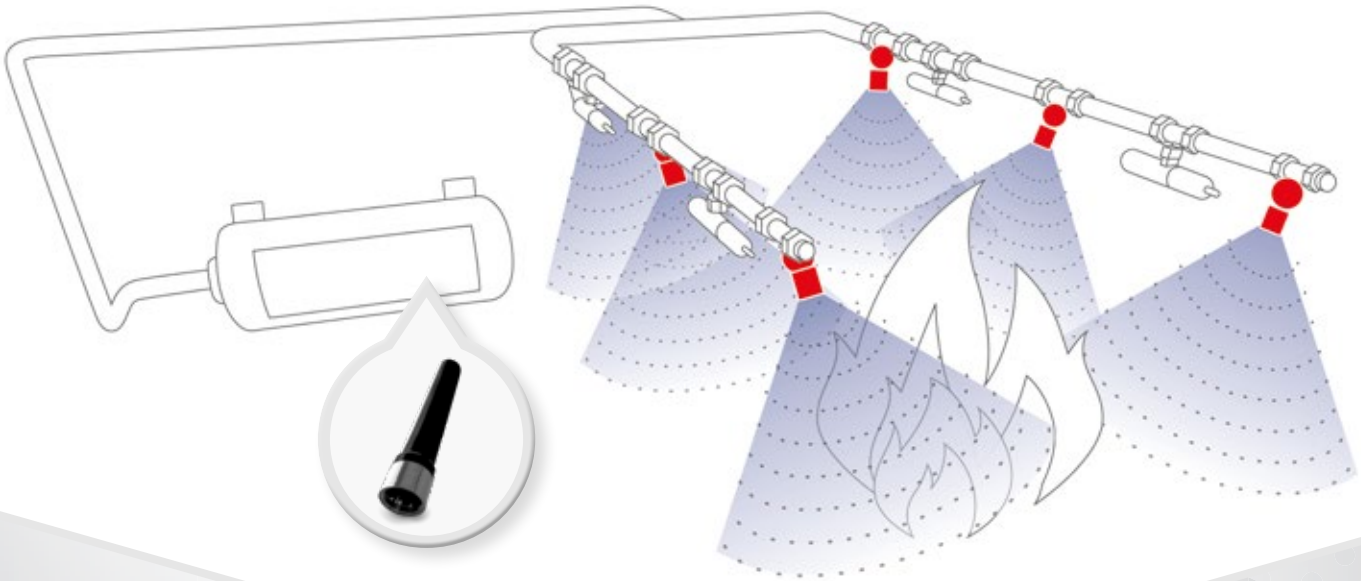
SAFELY ON THE MOVE WITH OUR FIRE EXTINGUISHING EXPERT

Taking the bus to work, kindergarten or sports? For many people this is everyday life. None of the passengers think about a possible fire in the bus. But we are aware of this danger and, together with our partners, are developing solutions for greater safety when driving by bus – even with compact engine compartments in the vehicle.

According to analyses by the DEKRA expert organization, 75 percent of all bus fires occur in the engine compartment. The specialist for fire protection and early fire detection, the company Protecfire from Luebeck, has developed a new space-saving extinguishing system with just one line especially for the protection of buses and trucks.

The company turned to Jäger Gummi und Kunststoff GmbH with the challenge of being able to pump the extinguishing agent precisely into the pipeline, regardless of its position.

Bildmaterial: Protecfire



HELP IN SECONDS

Since the patented „detexline“ extinguishing system, unlike conventional systems, works with just one line, both fire detection and extinguishing take place via this line. During normal operation, the system is depressurized and only becomes active in an emergency. In the event of a fire, however, the extinguishing agent must be able to enter the line precisely from the opening of the stainless steel extinguisher within seconds. For a position-independent and fast extinguishing process, Jäger Gummi und Kunststoff together with Protecfire developed the so-called rubber bladder.

In case of fire the following happens: The control head in the extinguishing system receives a command and releases the gas pressure cartridge in the bladder. The bladder inflates – starting from the bottom – in the extinguishing agent tank. In this way, the existing extinguishing agent is successfully pressed in one direction towards the extinguishing line, which distributes the extinguishing agent via several nozzles. Therefore it does not matter how the extinguisher is positioned.

HIGHEST DEMANDS ON AN EXTINGUISHING SYSTEM READY FOR USE

The specifications are high: the material must fit the requirements for extinguishing agents and be resistant according to use – at ambient temperatures of -30 °C to +80 °C. The wall thicknesses must be thin so that there is enough space in the extinguisher for the propellant gas cartridge (with nitrogen) and the extinguishing agent, the bladder can be inflated and the expansion during inflation begins evenly from the bottom of the extinguisher. Consequently, the rubber bladder must be reliably manufactured with a constant wall thickness in order to be able to press the extinguishing agent evenly from all sides in the direction of the outlet opening to the extinguishing pipe.

FROM THE RIGHT COMPOUND TO THE RIGHT TOOL

Together with its sister company Artemis, Jäger develops a tool concept and a suitable mix. The requirements are high and must be met over a long period of time. The Protecfire system is designed to be maintenance free for ten years and must function at all times in the event of an emergency.

The compounding experts at Jäger Gummi und Kunststoff and Artemis are developing a mixture of extremely elastic natural rubber (NR) and styrene-butadiene rubber (SBR) to meet the required material resistance at sub-zero temperatures. In addition, a threaded metal ring is vulcanized on for the connection to the extinguishing line.

The rubber bladder is manufactured using an injection mold in the injection molding (IM) process. Initially, there are still deviations in the wall thickness, as the core centering cannot be held permanently. Jäger reworks the tool immediately and subsequently realizes reliable core centering. Now the product is perfect – it can be delivered to Protecfire.

Bildmaterial: Adobe Stock

PUT TO THE ACID TEST

To withstand the rigors of a fire, Protecfire carries out extensive testing on the finished product. Jäger's rubber bladder has proven itself successfully in tests with extinguishing agents, tests under conditions similar to those of fire, tests in a climatic chamber – for approval in cold regions - as well as in the state-approved test methods SP4912 and UNECE R107 for engine protection.

This also involves checking how much extinguishing agent is pressed out of the extinguishing container and over what period of time.

The results show: More extinguishing agent is pressed out of the container by the rubber bladder – hardly any reserve of extinguishing agent has to be taken into account. Even a small container with only 7 liters of extinguishing agent can extinguish a fire evenly and comprehensively within 25 seconds – this applies to an engine compartment volume of up to 8 cubic meters.

Bildmaterial: Protecfire

TRAVEL SAFELY INTO THE FUTURE WITH US

Since January 1, 2019 all new tourist coaches and double-deckers in the European Union (regulation UNECE R107) must have a permanently installed extinguishing system in the engine compartment.

From 2021 this will also apply to regional and city buses. Protecfire's extinguishing system and the Jäger rubber bladder for firefighting guarantee safe travel in the new decade!

Your contact for the rubber bladder is Andreas Fröhner from the Hamburg location

Contact:
Jäger Gummi und Kunststoff GmbH
Brunnenkoppel 26
22041 Hamburg
Tel. +49-40 639055-0
E-Mail: **hamburg@jaeger-gk.de**

Are you interested in fire protection technology? Visit also our customer: **www.protecfire.de**