

EMERGENCY PNEUMATICS

SAFETY CUSHION

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NEWS IN BRIEF



A brigade leader discusses setup of the safety cushion on site.

Two workers secured by safety cushion in rescue effort

During façade work in Düsseldorf, an accident occurred involving the façade basket: The basket tipped over at an angle at a height of 20 metres and the two workers could not exit the basket rig. **Fire brigade members went into action, secured their deployment with a safety cushion and roped down**

from the roof at a height of 94 metres. The two workers were unharmed.

(WZ, October 2013)

Rapid, safe exit thanks to safety cushion

France: In Nantes a person threatened to jump from a first-floor hotel room. She wanted to flee an aggressive person inside the room. The **brigade members immediately put a safety cushion in place** to facilitate a **safe exit**. The cushion was also the **fastest** way to save the person. This was the first deployment of an emergency safety cushion by the Nantes fire brigade.

(Faire Face, January 2016)

Safety cushion saves lives in suicide attempt

In Saxony, a man threatened to jump from the fourth floor of a residential building. The **brigade members positioned a safety cushion** below the window, while the emergency medical services and friends attempted to persuade the man not to jump. The man decided to jump anyway. **He landed safely without any injuries.**

(City of Wurzen, SG Brand- & Katastrophenschutz, November 2016)

Man brought to safety from high-voltage mast

A man in Baden-Württemberg climbed a high-voltage mast to a height of 30 metres, resulting in a major fire brigade deployment. **The brigade members set up several safety cushions under the mast for protection.** A psychologist spoke with the man from the rescue hoist and guided him through a safe descent.

(Volunteer Fire Brigade Forst (Baden), July 2016)



Zurich Fire Brigade depends on SP 16 (16 m / 629 inch)

Switzerland: The Zurich Fire Brigade has used the safety cushion SP 16 for many years as standard ladder truck equipment. It is deployed above all in the narrow streets of the old quarter and in residential areas with backyards. "Safety cushions are the lifesaver when all else fails. That is why they are part of every fire truck equipment check-in", says Daniel Inderbitzin from the Zurich Professional Fire Brigade.

(Zurich Professional Fire Brigade)





Wilhelm Schnicke
Managing Director

Dear Reader,

You can save lives every day in your work with a fire brigade. To do this, you require equipment you can always rely on 100 percent. That is why the safety cushion has been standard equipment for many fire brigades worldwide for some time now.

Safety cushions are adaptable and quickly deployed, making them the ideal rescue equipment for many different challenges. And how are the cushions actually used? What are the potential deployment scenarios? What has proved useful? How are they structured and why do many of the models feature a blue circle on the jump impact surface? What tips and tricks are current among fire brigades? The literature provides answers to these and many other questions only infrequently.

So we asked them. Our interviewees and sources are tried and tested fire brigade men and women, a psychologist, a stunt man, the head of our safety cushion production and many others. They told us many an exciting tale and provided the information on safety cushions that we are passing on to you here. We hope it will be an interesting read – even with a few surprises.

Yours,

A handwritten signature in black ink, appearing to read 'Wilhelm Schnicke', written in a cursive style.

Wilhelm Schnicke
Managing Director, Vetter GmbH

PS: How do you like EMERGENCY PNEUMATICS? What unusual deployments have you experienced with safety cushions? Write me – I look forward to feedback from you, my readers: wilhelm.schnicke@emergency-pneumatics.de

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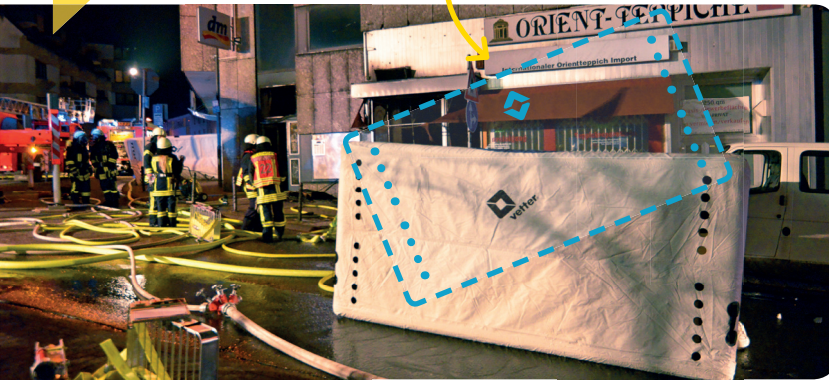
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DEPLOYMENT

Two SP 16 save human lives



It was presumably one of the most complex fire calls of recent years involving safety cushions: The fire brigade of Bergisch Gladbach saved the lives of several of the 35 persons trapped in the Bensberg neighbourhood using an unusually positioned safety cushion during a major fire in 2013. A second cushion provided security for lifesaving measures involving two rescue hoists. A reconstruction of the lifesaving scenario follows.

When the first fire brigade members arrived at the scene of the fire, flames were already shooting out of the cellar fire source. The 35 residents are standing at the open windows, calling for help. The exit route through the stairwell is blocked by thick smoke.

On the east side of the building, the thick smoke, a parked van and a steep slope offer no ladder

positions. Also, one of the persons needing saving cannot walk. The rescue workers decide to place the first SP 16 at a slant on the bonnet of the van. The minimal weight of the cushion makes this unusual positioning possible. A traffic signpost on the other side provides needed stability. The person who is unable to walk is tossed into the safety cushion, two others then jump to safety. The safety cushion functions perfectly in the slanted position as well.

The rescue crews are able to use two rescue hoists on the south side of the building. The second safety cushion – also an SP 16 – is positioned to keep the residents safe while they climb into the hoist basket. The challenge: Road barrier posts block the desired position. The low weight of the safety cushion mean it can be easily lifted over the posts by two of the crew. The rescue begins.

Smoke intoxication is diagnosed in 34 persons. One resident suffers severe burns and is brought to a special clinic. Five other victims are also hospitalized for overnight observation. Injuries caused by jumping into the safety cushion? **None.**

(Kölner Stadtanzeiger April 2013 & Fire Brigade Bergisch Gladbach)



JUMPING TECHNIQUE

Short, clear commands

Being rescued with a safety cushion is an extreme situation involving fear for one's life. That means the person being rescued is in need of the right support. We asked stunt man Matthias Schendel what is important when jumping.

"When someone nearly falls or is forced to jump, the body is flooded with stress hormones" stunt man Matthias Schendel knows this from his own experience. When instructing such persons, **short, clear commands** are

particularly important. "That is all they can handle in such a situation." His recommendation for the jumping technique is also clear: After jumping, move the hips upwards, the legs forwards and the knees upwards. To protect head and neck upon impact, he also recommends claspng the hands behind the head.

The command would sound something like this: **"Hands behind your head / knees up / try to land on your back / and now:**



Tips for optimized safety cushion deployment

01. If the situation is uncertain, set up a safety cushion to secure the area. This will prepare for unpredictable situations, making a quick reaction possible.

02. Use an SP 16 or SP 25 to provide initial security if insufficient personnel are on hand until backup arrives. For example, only two fire members are needed to set up the SP 16.

03. Make sure the space is sufficient so the cushion will not be restricted. The setup area should be as even as possible, but parked vehicles or the kerb

can also be used. Avoid walls and pointed objects.

04. Position safety cushions under ladders. This provides everyone involved with more safety during the rescue.

05. Set up the safety cushion outside of the immediate emergency site. This will help prevent anyone from jumping prematurely.

06. Position the safety cushion close to the outer wall. Jumping means overcoming fear. Experience has shown that this

reticence prevents people from executing strong leaping motions.

07. Remove yourself from the hazard zone as soon as the cushion is properly positioned and set up.

08. Injuries are always a possibility. Therefore, make sure there are no alternatives to a rescue jump **BEFORE** telling a person to jump.

09. Remove the person from the hazard zone quickly after a jump.

10. Check cushion after each use for damage as per manufacturer instructions.

STRUCTURE

For optimized safety: How a safety cushion works! Presented by Head of Production ...

1 Jump impact surface with blue circle

A sense of safety and security: The blue circle on the upper side of the safety cushion was designed in keeping with psychological criteria and has a calming effect because of its similarity to a water surface.

2 Sealed zip

The seal says its safe and secure: Every safety cushion is inspected by a tester, who then attaches a seal closing the lateral zip closure. If the seal is damaged, the cushion may not be used. Before the cushion can be used again, it must be reinspected by an expert (acc. to DGUV-G-305-002).

3 Central separating sheet

Controlled airflow: The central separating sheet ensures optimized airflow for the jump. This enhances stability and safety. The separating sheet is sewn to the textile cover.

4 Flame retardant and tear resistant cover

Prepared for everything: The cover of each safety cushion is made from rugged, flame retardant and tear resistant safety textile. In the production process it is cut, cemented and sewn as well. The cover is later cemented to the support frame.

5 Tube support frame

The heart of the safety cushion: The tube support frame com-

Jump impact surface with blue circle

Sealed zip

Central separating sheet

Flame retardant and tear resistant cover

Tube support frame

Reinforced bottom sheet

prises special long-lasting rubber elements that are integrated by vulcanization. Each tube support frame is tested for leaks before it is covered with the safety textile.

6 Reinforced bottom sheet

Ready for use on every surface: Whether it's on asphalt, paving stones or grass – the reinforced bottom sheet, which is integrated with the cover, protects the safety cushion from potential damage.

7 Safety valve

Protects against overpressure: The safety valve ensures that excess air is released from the frame.

8 Air holes

To keep the air flowing: The air holes punched through the cover ensure optimised airflow control for rescue jumps. This ensures a soft landing for the rescue jump.

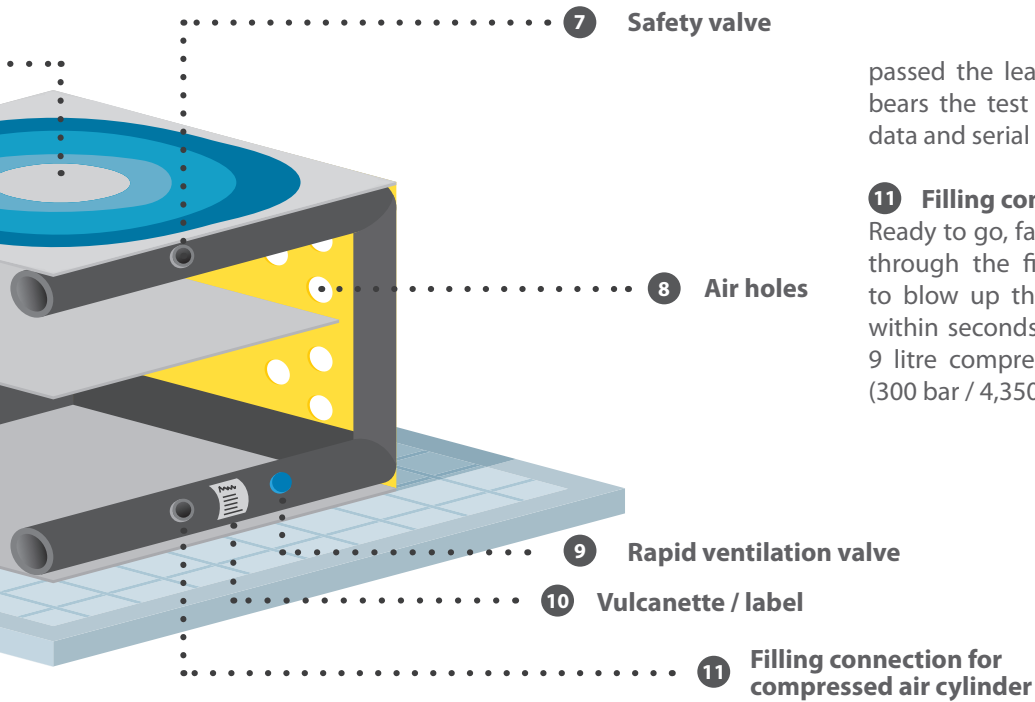
9 Ventilation valve

Not only rapidly inflated, but also rapidly deflated: Two ventilation valves make sure the air can escape from the tube support frame after deployment.

10 Vulcanette / label

Safety seal: A vulcanette rubber label is vulcanized to the tube support frame when it has

STRUCTURE



passed the leak test. This label bears the test stamp, technical data and serial number.

11 Filling connection

Ready to go, fast: Air is pumped through the filling connection to blow up the safety cushion within seconds by either a 6 or 9 litre compressed air cylinder (300 bar / 4,350 psi)

Table comparing rescue systems

| | SAFETY CUSHION SP 25 | RESCUE HOIST DLA(K) 23/12 | PORTABLE LADDER |
|-------------------------------|-------------------------|--|-------------------------------|
| Number of rescue crew members | 4 | 3 | 5 |
| Rescuer training | No special training | 2x Turntable ladder mechanic | Various safety knots |
| Max. deployment height | 25 m / 984 inch | 23 m / 906 inch | 12 m / 472 inch |
| Flexibility | High | Low | Moderate |
| Time to deployment readiness | Short | Long | Middle |
| Ground surface requirements | Low (incline possible) | High (flat + min. loadbearing capacity 16 t) | Moderate (flat) |
| Deployment site requirements | Low | High (setup area) | Moderate (ladder setup point) |

DEPLOYMENT STRATEGY

Fast lifesaver in all situations



No matter what awaits a fire brigade at the deployment site: They can always react if their equipment includes one or more safety cushions. More versatile and flexible than just about any other item of rescue equipment. Here are the most common loading concepts and scenarios.

When are safety cushions used?

Fire brigade men and women are familiar with deployments that demand speed above all else: A person threatens to jump or is in danger of falling. Fire brigades therefore include safety cushions as a permanent part of their deployment strategies to secure a hazard area as quickly as possible and - if possible - prepare additional rescue approaches. If the access route for a ladder truck is blocked or the deployment site is unsuitable for use of a portable ladder, safety cushions are also

often the only possible way to save lives.

How are safety cushions transported?

Safety cushions are most frequently carried by technical support vehicles since they are usually one of the first vehicles to arrive at the deployment site. Turntable ladder trucks are also increasingly used to carry safety cushions. In Germany, for example, they have been included as standard equipment for some time now.

What are the advantages of safety cushions for the fire brigade themselves during a deployment?

Safety cushions are the only item of rescue equipment that does not require colleagues to remain in the hazard zone for longer periods. Also, fire brigades can

always use the cushions to save or secure endangered colleagues.

How can safety cushions and turntable ladders be used together?

At the fire brigade in Magdeburg (west of Berlin) the safety cushion SP 25 has had a permanent place on the turntable ladder truck of Senior Fire Councillor and Technical Director Armin Hilgers for many years now. Safety cushions and turntable ladders are designed for rescue routes of up to 25 metres supplement each other ideally: If the ladder cannot be set up at the deployment site, rescuers always have an alternative with the SP 25.

In Magdeburg, turntable ladder rescues always involve the safety cushion as well: The cushion provides the person to be rescued with initial security and safety until the turntable ladder is in position. During the ensuing ladder rescue, the cushion beneath the ladder provides an additional measure of safety.

What deployment strategies have proved their worth in suicide attempts?

Unfortunately, suicide attempts are everyday deployments for fire brigades all over the world. In such situations, the safety cushion is almost always deployed when

NO CUSHION AVAILABLE

it is included in the equipment. A man who attempted to commit suicide by jumping from the Golden Gate Bridge reported later in an interview: "The second my feet left the bridge I realized I had made a mistake." People do have an underlying will to survive and frequently regret their decision.

Caution is called for when setting up the safety cushion: A stress-related panic reaction can lead to overreaction, resulting in a jump. That is why experienced fire brigades always set up the rescue equipment out of sight of endangered persons, then transport it quickly to the jumping site. This approach is used to prevent premature jumps in other rescue scenarios as well. Parallel to these preparations, the person should be addressed "at eye level" – for example from a turntable ladder.

Not have a safety cushion along may cost lives

London (UK) Residents jumped in panic from the window of their London flat and were seriously injured. Neighbours had put mattresses in place for them to jump onto. (BBC, February 2010)

Paris (France) Two residents died after jumping from a burning house. It took too long to set up the rescue ladder.

(Focus, June 2014)

Kharkiv (Ukraine) Dead and injured in an industrial fire. Rescue ladders were either set up too slowly or were too short. Only three persons were rescued with ladders. (liveleak, January 2014)

Quebec (Canada) The rescue hoist vehicle failed to function during a rescue deployment. The family saved themselves

by jumping from the fourth floor into the snow. They were seriously injured. (CBC, January 2016)

Bankstown (Australia) Two female students had to jump from the fifth floor of a building due to faulty fire prevention facilities. One did not survive, the other is paraplegic. (ABC News, September 2012)

Pyeongtaek (South Korea) Due to a fire on the fourth floor of a building, a mother had to throw her three children out the window, then jump out herself. Passers-by held blankets stretched out to catch them. No one was injured. (CNN, May 2016)

IMPRESSUM

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PSYCHOLOGY

The blue circle: How psychology can help when deploying a safety cushion



*Professor Horst Schuh
Psychologist*

Being rescued with a safety cushion is an extreme situation involving fear for one's life. The rescue equipment should therefore also have a psychologically positive effect on the person to be rescued. This is realized, for example, with the blue circle developed by the psychologist Professor Horst Schuh.

Three tips from a psychologist on how to address a person in a rescue jump

1. Show empathy: Show the person(s) that you understand their fears.
2. Guide and instruct: Select your words for clarity and precision.
3. The mix is the thing: The more fraught the situation, the more guidance – and less personal communication – is needed.

Professor Schuh, you developed the blue circle for safety cushions over 15 years ago. What was the story on that?

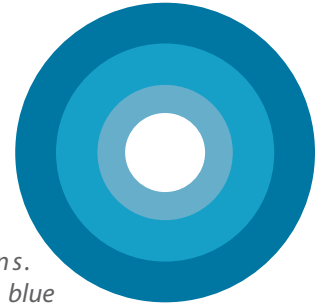
I was Professor for Psychology at the Federal University. As a officer in the reserves and troop psychologist in the Balkans and in Afghanistan I also had experience with extreme situations. I also knew the manufacturers of other projects in this field. What we were looking for was a new jump impact surface design that would calm the person to be rescued and present an element of trust.

Was the solution clear right from the start?

No, I worked out a number of different designs. Then we carried out perception experiments. We positioned cushions and tested various designs. It soon became clear that the blue circle was the best design.

What is the decisive aspect of the blue circle?

Three factors were important for me right from the start: Focus, perception and aesthetics. Aesthetic forms create trust. Objects with a clearly perceptible design tend to ease fears and create a sense of security in human subjects. As to focus, the decisive thing is being able to see the jump impact surface even under difficult condi-



tions. The blue colour also suggests water. We know from experience that jumping into water is not dangerous.

You mention clear perceptibility and focus, but don't other jump impact surface designs also reflect these principles?

Yes, at first glance. However, the design of the blue circle with its light-coloured core, guides one's focus more towards the centre, whereas the other designs can also emphasize the areas around the edges. Also, the blue circle makes a larger impression, whereas for example crosshairs appear optically smaller.

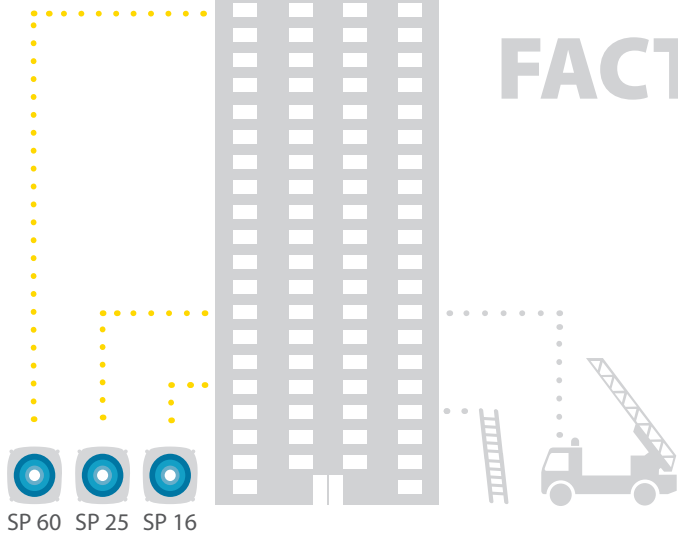
What is particularly important for fire brigades when deploying the safety cushion?

In technical terms, the lighting at the deployment site is always an important factor. Only a highly visible safety cushion can generate trust. Person-to-person contact is of course also decisive. Communications must be short and precise (see box, Editors).

FACTS

“Did you know ...

Safety cushions are frequently used together with rescue ladders to provide an extra measure of safety.”



Safety cushions

are used as emergency rescue equipment when a rescue using a fire brigade ladder or stairways is not possible or takes too much time.”

Peter Bachmeier
Chairman of the Work Group
Preventive Fire and
Hazard Protection

Whereas rescue crews can reach up to **the 4th floor with a portable ladder** and about **the 8th floor with a rescue hoist**, they can save persons with a **safety cushion who jump from the 20th floor**.

A person can be saved with a modern safety cushion every 10 seconds. That is the average recovery time required to set up the cushion again.

10 sec. / 

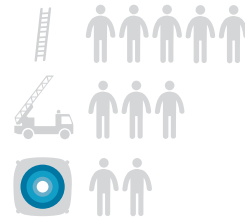
The maximum *useful life* of safety cushions is

15 years.

HOW MANY DOES EACH TOOL NEED?

“We use Safety cushions as a **“last-resort-tool”**. This means there is no possibility of using other rescue tools due to time or space issues – or that several rescue tools are needed parallel, as a backup.”

Adrian Hartwig
Platoon Leader
Fire Brigade Dortmund



60 METRES –

As high as the Sydney Opera House: That is the maximum jumping height made possible by the world's largest safety cushion.

30

Seconds: Maximum setup time for a small safety cushion (SP 16) with a compressed air bottle acc. to DIN 14151-3.



Safety in deployment – worldwide



From Chile to Russia, from Papua to Mexico, from the North Pole to South Africa, fire brigades trust Vetter safety cushions. We are at home in over 50 countries.

Vetter safety cushions can be positioned without delay in situations where space is limited at the deployment site or where turntable ladders cannot be set up in front of buildings. The combination of both of these rescue equipment items makes for an added measure of safety. Quickly set up and easy to transport even when set up – Vetter safety cushions SP 16 and SP 25 can also be readily carried around to the back of buildings or into courtyards. Even rescue deployments up to the 20th floor are no longer a problem with the SP 60. Besides: Our safety cushions are also a reliable solution when it comes to rescuing trapped rescue crew members.



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