GLOBAL

#4

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Security Matters

Risk Levels Intensify

How should vulnerable sites approach security?

ATM SAFES

Smash & grab: the ATM attack cycle

VISUAL GUIDE

The inside track on petrol station security

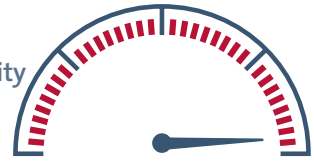
FAQS: SECURITY DOORS

Ballistic and blast resistance – your questions answered

SMARTER SECURITY IS ...

CONTENTS

In this edition, *Global* talks to experts about the evolving threat faced by public areas and critical infrastructure sites. "Many more types of site are seen as potential terrorist targets and are therefore vulnerable," says French security specialist, Jean-Charles Proskuryn. *Global* asks what approach should be taken.



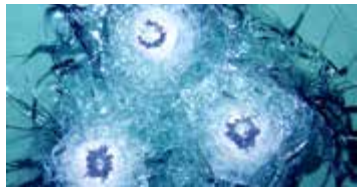
MEET THE EXPERTS

JEAN-CHARLES PROSKURYN

French business development manager with nearly two decades of experience in the security industry.

PIETER DE VLAAM

Chair of several committees responsible for setting industry standards for safes.



The Changing Face of *High-Risk Sites*

The evolution of the threats posed by terrorism has meant that sites not previously considered vulnerable are now in need of far higher levels of security.

Global met with Jean-Charles Proskuryn, an expert in high-risk site protection based in Paris, France and asked about the security challenges a larger number of sites are having to tackle today.

Rob Suddaby

What type of sites have been traditionally classified as high-risk?

"Firstly, sites which contain something of high value which is at obvious risk from theft or industrial espionage, such as a luxury jewellers or a research and development centre."

"And secondly, sites which store or process dangerous substances. These are known as 'Seveso sites' and are considered high-risk since an accident at one of these locations can have potentially severe consequences on the surrounding area. There are 10,000 such sites across the European Union, mainly in the chemical, petrochemical, logistics and metal refining sectors – and they are highly regulated."

How has this changed?

"Today many more types of site are seen as potential terrorist targets and are therefore vulnerable.

"These can also be split into two groups: critical infrastructure – such as a power station, water treatment plant or data centre – and public areas where there are lots of people – such as a sports stadium, railway station, airport, department store or school."

JEAN-CHARLES PROSKURYN

Jean-Charles is based in France and has been active in the security industry for nearly 20 years. Originally an electronic security expert, he is now in charge of Business Development and Gunnebo's market strategy for the Industry, Transport and Government sectors in France.

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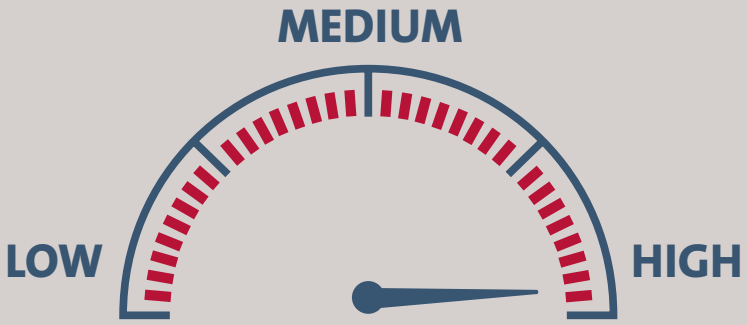


8 SECURITY TIPS FOR HIGH-RISK SITES

1 Conduct a security audit or risk assessment

– every site is different and you should define the level and type of security to fit your site

2 Invest in security which will ensure operational continuity

– business-critical processes need to remain functional in the event of an attack

3 Adopt a system which is able to evolve

– it will allow you to integrate new technology, grow the scale of your system when required, and maximise the potential for connectivity

4 To get the most out of your security systems, make sure they are fully integrated with one another

– it will improve performance and help you identify potential threats more quickly

5 Take advantage of the Internet of Things

– data gathered by smart security systems can be used to provide valuable insights into your business

6 Make security an integrated part of your business

– incorporate it into your day-to-day operational processes

7 Train staff to be vigilant

– they can be taught to recognise potential threats and act as an early-warning system

8 Remember that you however strong your security, you cannot prevent an attack

– but you can slow it down

How do you assess the risk of a site and therefore the required security?

"The security approach a site should take is determined by a number of core factors:

i) The type of activity carried out on that site
ii) The surrounding area
iii) The movement of people to, from and around the site
iv) The reaction times of local emergency services
v) The potential impact an accident or attack would have on the business, both in terms of its activities and its reputation

"Using this basic information as a starting point, a risk assessment should identify all the relevant threats, hazards and vulnerabilities. This is an essential first step towards creating an overall protection plan for a site."

Do different types of site need to take different approaches to security?

"If we start with critical infrastructure, these sites are already security-savvy. A site like a power plant or a data centre will often look at security as a series of layers or zones. They start with the perimeter walls – the fencing, gates and CCTV – and move inwards. The next layer is controlling access to the building itself and then, once inside, to the various areas of the site."

So how should public sites address security?

"We're talking about sites where there are large numbers of visitors moving around and which have to allow access to the general public, like a shopping centre or a metro station. Here the starting point is always the flow of people. A shopping centre does not want to prevent people from coming and going nor does it want security which makes the site look unwelcoming – the retail business depends on footfall. Here more discreet surveillance and monitoring systems are essential, as well as the vigilance of on-site security staff.

"At a metro station, ticket gates provide an obvious level of security, but again without disrupting the required flow of people. Passengers need to have their tickets validated but without causing a jam. The flow of people dictates how strict the security is. Dual authentication, typical for access control within a building such as a data centre, is not a viable option for a metro station, for example. Maybe in the future biometrics could be incorporated here for an extra level of security in much the same way we are seeing it used in airports."

What is...?

Zonal Security

Starting outside and moving inwards, zoning is designed to reduce the risk of unwanted events by allowing access to specific areas of a site to those with who have a legitimate reason to be there and preventing access to all other groups.

These zones, or layers, incorporate perimeter protection, monitoring and intrusion systems, access and entrance control, and physical protection which all contribute to the overall security of a site by either deterring, detecting or delaying an attack.

The view from around the world

Mikael Sundebäck, Nordic market security specialist, Sweden

"Fear is the fuel which drives terrorism. Previously it was easier to identify which types of sites or which people were at most at risk, but today terrorists aim to create as much chaos as possible – which makes their actions more unpredictable."

"Where it was once embassies, military bases and cash centres which were on the high-risk list, nowadays they are joined by night clubs, schools and public transport hubs."

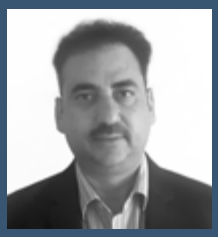
"Even though Sweden has been relatively free of terrorist attacks, events elsewhere in Europe have affected the outlook many people have here. We need to feel safe, but when threat levels are on the rise, it creates a growing sense of insecurity."

Laurie Mugridge, entrance security expert, Australia

"Much as in other parts of the world, different types of buildings are now considered to be at high risk. The list has grown from premises such as embassies, defence bases and prisons to include sites such as data centres and news offices.

"In Australia much of the perceived threat is from shootings so many sites are fitting bullet-resistant doors and glazing."

Chetanya Vali, perimeter protection specialist, India



"One of the major challenges high-risk sites are tackling in India is how to manage access. This covers everything from authorisation control to monitoring and tracking the movement of people.

"Sites want to have more control and be better prepared for the risks they face, so I can see high-security protection moving to another level in coming years, becoming more integrated through central command and control centres."

The Internet of Things (IoT)

According The Guardian, "at its core, IoT is simple: it's about connecting devices over the internet, letting them talk to us, applications, and each other."

According to Ericsson, IoT is about "enabling anything to be connected and providing 'smartness' to these connected things"

What does this mean for the world of security?

"What used to be a single product will become part of a system of connected products, or a whole system of systems, allowing monitoring, remote control, optimisation and autonomous operation," explains Srdjan Malbasic, Director of Solutions Development at Gunnebo.

"Moreover, data generated by these products will be used to provide valuable business analytics for customers."

Entrance security gates are one such example. Traffic data can be analysed to show patterns in people flow and behaviour. This is particularly useful for retailers as it generates data such as footfall, time spent in the store before going to the checkout and conversion rate. This helps for instance when measuring the efficacy of a campaign or setting staffing levels.

Quick Guide to Seveso Sites

THE SEVESO DISASTER

In 1976 an industrial accident occurred at a chemical manufacturing plant near the Italian community of Seveso which led to the aerial release of 6 tonnes of chemicals. As a result resident populations were exposed to high concentrations of TCDD, a highly toxic chemical.

The severity of the accident prompted the adoption of European-wide legislation on the prevention and control of such accidents. This law became known as the Seveso Directive and aims to improve the safety of sites containing large quantities of dangerous substances.

HISTORY OF THE SEVESO DIRECTIVE

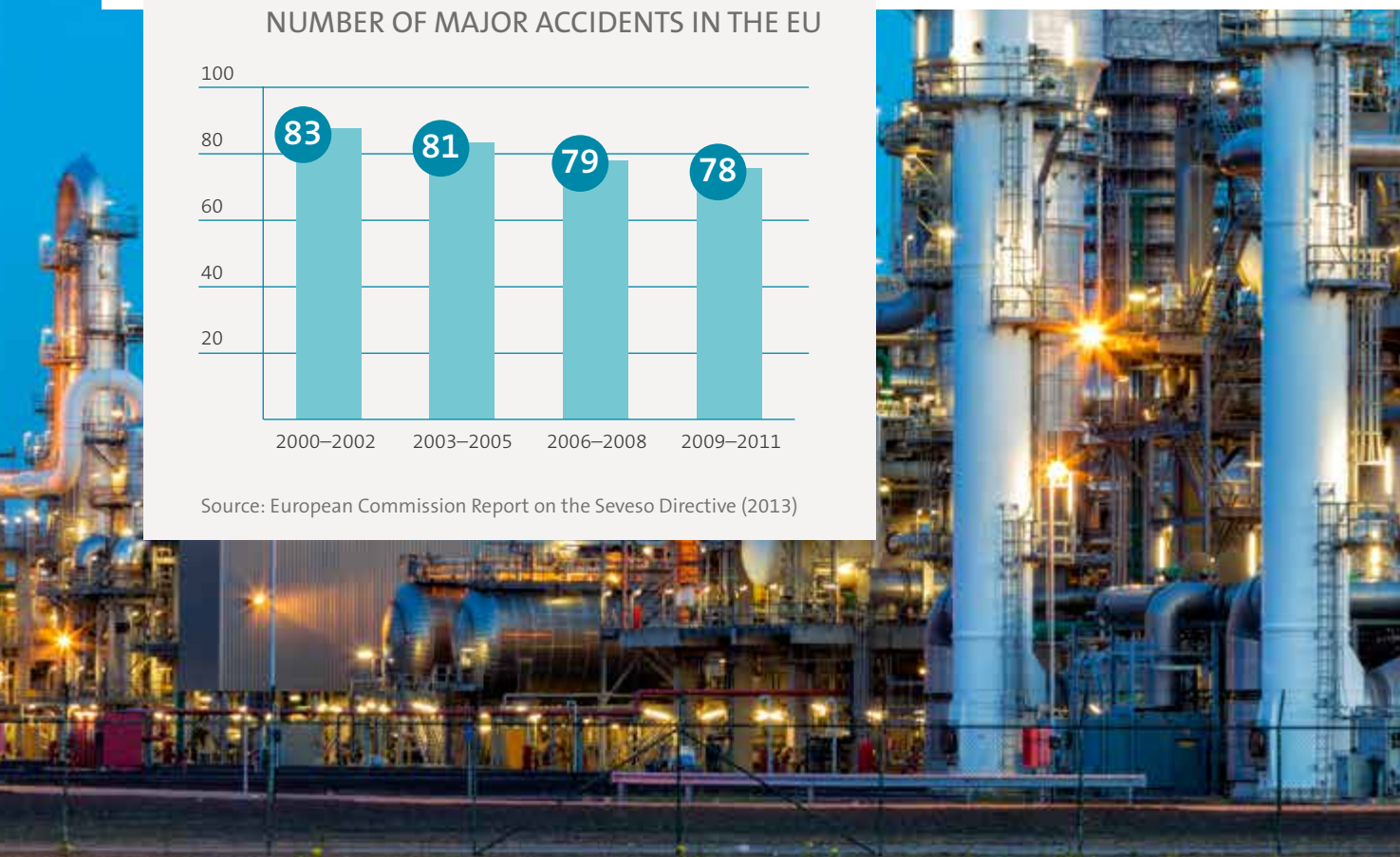
The first Directive came into force in 1982, was amended in 1996 and again in 2012. The current legislation – Seveso-III or Directive 2012/18/EU – takes into account changes in European Union legislation on the classification of chemicals and increased rights for citizens to access information.

IMPACT

Even though the EU has a high rate of industrialisation, the Seveso Directive has helped keep the number of major accidents down. The Directive is also used as a benchmark for industrial accident policy and for legislation in many countries outside of the EU.

NUMBER OF MAJOR ACCIDENTS IN THE EU

Source: European Commission Report on the Seveso Directive (2013)



TYPES OF SEVESO SITES

The Directive now applies to more than 10,000 industrial sites across the EU, mainly in the chemical, petrochemical, logistics and metal refining sectors. 49 activities are used to categorise Seveso sites in total.

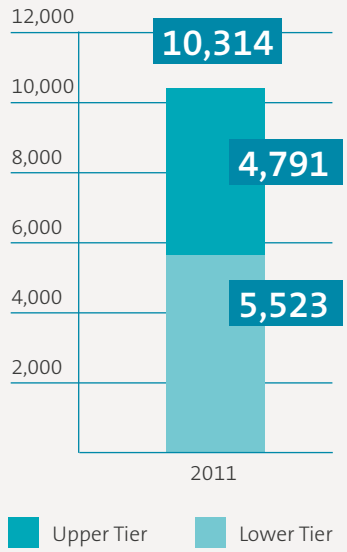
Among the 49 activities used to categorize the Seveso establishments, seven activities contribute to 50% of establishments:

- Fuel storage (including heating, retail sale, etc.)
- Wholesale and retail storage and distribution (excluding LPG)
- LPG storage
- General chemicals manufacture
- Production of basic organic chemicals
- Power generation, supply and distribution
- LPG production, bottling and bulk distribution

Neither military sites not nuclear power plants are included in the Directive. Military sites are exempt because their inclusion would make certain information public which would be a threat to national security. Safety at nuclear power plants is already covered by other legislation.

UPPER AND LOWER TIER

Depending on the amount of dangerous substances present, sites are classed as either lower or upper tier. There are stricter regulations for upper tier sites.



Source: figures are for 2011 as released in the European Commission Report on the Seveso Directive (2013).

MAIN REQUIREMENTS FOR SEVESO SITES

Operators of Seveso sites are obliged to take all necessary measures to prevent major accidents and to limit their consequences for human health and the environment. The requirements include:

- Notification of all concerned establishments
- Deploying a major accident prevention policy
- Producing a safety report for upper-tier establishments
- Producing internal emergency plans for upper tier establishments
- Providing information in case of accidents

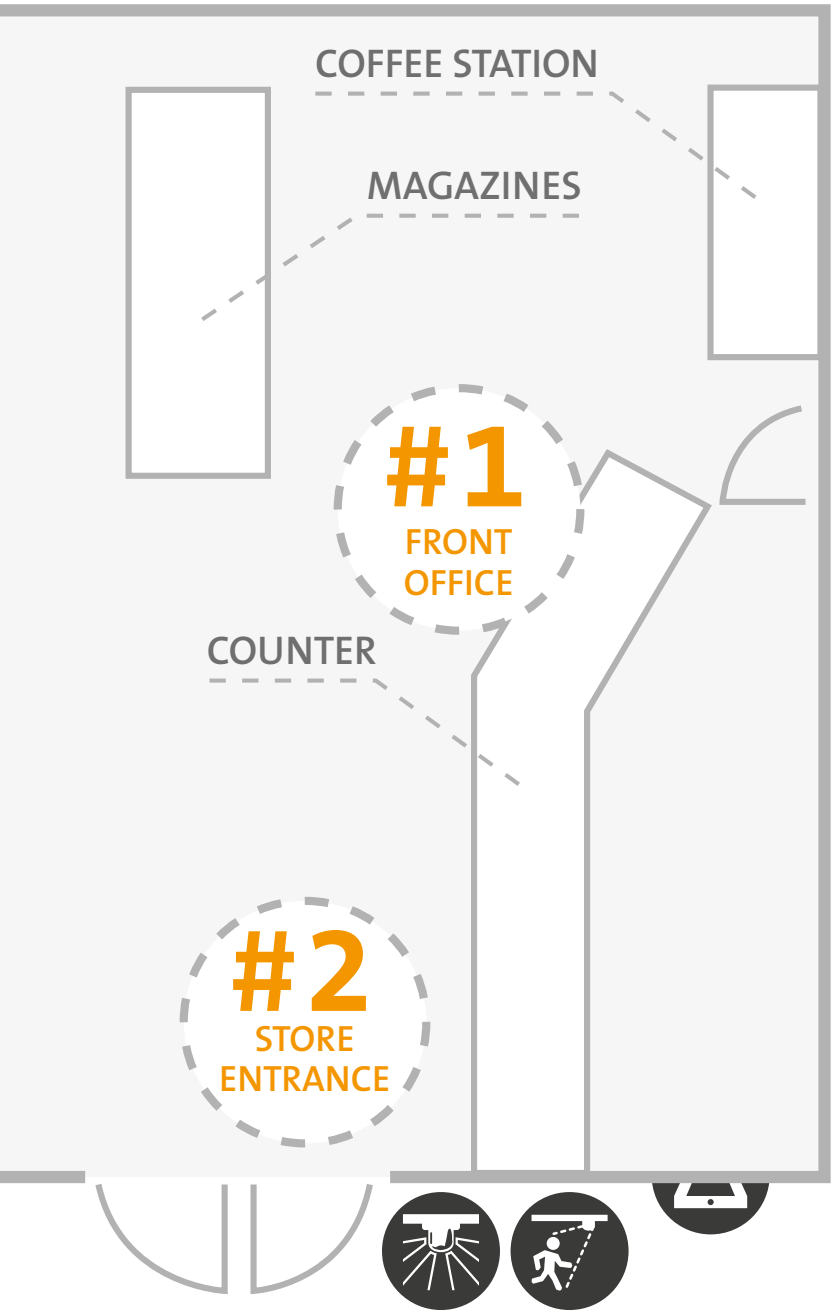
SOURCES

European Commission website, EU reports, Wikipedia


#5
CIT
TRANSFER
#4
BACK
OFFICE
FOOD MARKET
REFRIGERATOR UNIT
#3
VIDEO
SURVEILLANCE

Inside Security: The Petrol Station

CCTV and monitoring systems may suffice for a simple forecourt, but with an integrated convenience store, petrol stations need to operate security like a retailer. This means expanding traditional surveillance to include cash management and access control. The graphic below highlights the five areas of the store which petrol stations address and the security they use.



#1 FRONT OFFICE

CASH DEPOSIT
Cash is rapidly and securely deposited into an under-the-counter unit.

CASH RECYCLING
A system which also returns cash to the customer and therefore needs less emptying.

ACCESS CONTROL
Authorised staff enter the counter area once authenticated via a card or PIN.

PASS-THROUGH TRAY
Allows customers to be served late at night whilst keeping the shop entrance closed.

#2 STORE ENTRANCE

INTRUSION DETECTION & ALARM SYSTEMS
Anyone entering an unauthorised area is detected and triggers an alarm. Smoke and fire sensors are also integrated as part of the alarm system.

#3 VIDEO SURVEILLANCE

CCTV
Strategically placed cameras record and analyse activity inside and out.

REMOTE MONITORING
Potential threats are monitored through the integrated management of surveillance systems at a remote alarm centre.

#4 BACK OFFICE

CASH SAFE
A certified safe fitted with a high-security electronic lock stores cash safely in the back office.

#5 CIT TRANSFER

TRANSFER SAFE
Using a one-time code, cash is collected by cash in transit services from a transfer unit connected to the back office.

PIETER DE VLAAM

Pieter de Vlaam has been part of the security industry for over 30 years. During this time he has worked in engineering, product development, plant management, product management and product testing & certification.

Today Pieter manages Gunnebo's online training centre whilst lecturing on security management and working actively with the drafting of international standards for the certification of burglary and fire resistant products.

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Smash and Grab ATMs Under Attack

From a hammer and chisel to solid explosives, as criminals up the ante, ATM safes are in a constant battle to provide a sufficient level of protection.

Rob Suddaby

ATMs are a global product and are essentially the same the world over – located close to the street and full of cash. Unsurprising then that they have been a prime target for criminals for several decades.

"We see a clear cycle in terms of attacks on ATMs," says Pieter de Vlaam, Gunnebo's certification specialist for safes. "The criminals choose their method of attack and optimise it over time. The industry then reacts by developing new forms of protection against these types of attacks and rolls them out. The criminals then adapt their approach and so the cycle continues."

This evolution of attack methodology had been observed globally. It always starts with simple tools which eventually become more sophisticated as the ATM installed base in that country is upgraded.

"However, you can see from the cycle that the criminals are one step ahead," continues Pieter. "Old ATM safes could be broken into, for example, with basic electrical or thermal tools, such as an angle grinder or an oxyacetylene torch. This was combatted through the installation of more stringently tested, higher grade safes, so instead criminals started pumping gas into the safe to blow the door off."

The latest generation of ATM safes now has to deal with the latest threat level – solid explosives.

"Often the level of ATM protection is too low – a decision taken because of cost," concludes Pieter. "But ultimately a higher price is paid when an attack wave targets an ATM installed base with insufficient levels of security."

THE ATTACK CYCLE

1 ATTACKS

Criminals choose their method of attack. If old forms of protection are still being used, they will continue to target these weak links until the "market" dries up.

2 ATTACKS OPTIMISED

Criminals optimise their method of attack over time and successful methods spread geographically.

3 NEW PROTECTION DEVELOPED

Security experts and safe manufacturers react by developing new forms of protection against existing attacks and drive improvements in security standards.

4 ROLL-OUT OF NEW TECH

Over a number of years, the new technology eventually replaces the old. Criminals will adapt and find new ways of getting what they want.

ABOUT THE ATM

ATM stands for automated teller machine – a 'teller' being the person who traditionally deals directly with customers in a bank. The ATM is also known as a cash machine, cash-point and, more familiarly, the hole in the wall.

The first ATM was installed in the UK in 1967 and before the decade was out, cash machines could also be found in Sweden, Spain, the USA and Australia. According to Retail Banking Research, today there are an estimated 3 million ATMs worldwide.

ATM Safes
History of Protection

1960–1975
Basic Tools Do the Job

The first ATMs had safes which unsurprisingly did not offer a great deal of protection for the cash inside.

These could be opened in a matter of minutes with tools you could find in someone's shed, such as a hammer and chisel.

As the level of these attacks increased, banks started to switch to a safe offering a higher level of protection

1975–1994
Enter Power Tools

As more and more banks upgraded their safes, criminals were forced to adapt their methods.

The result was a rise in the use of grinders and oxyacetylene torches. Most safes were still made of pure steel so attacking them with a grinder or torch was like a knife through butter.

1994–2007
Mixed Methods of Attack

1994 saw the introduction of EN 1143-1 – a tougher and more exacting standard set in Europe, supplanting the UL standard which had been globally applied since the 60s.

ATM safes could be certified in four grades and were strong enough to protect the cash inside from classic electrical and thermal tools.

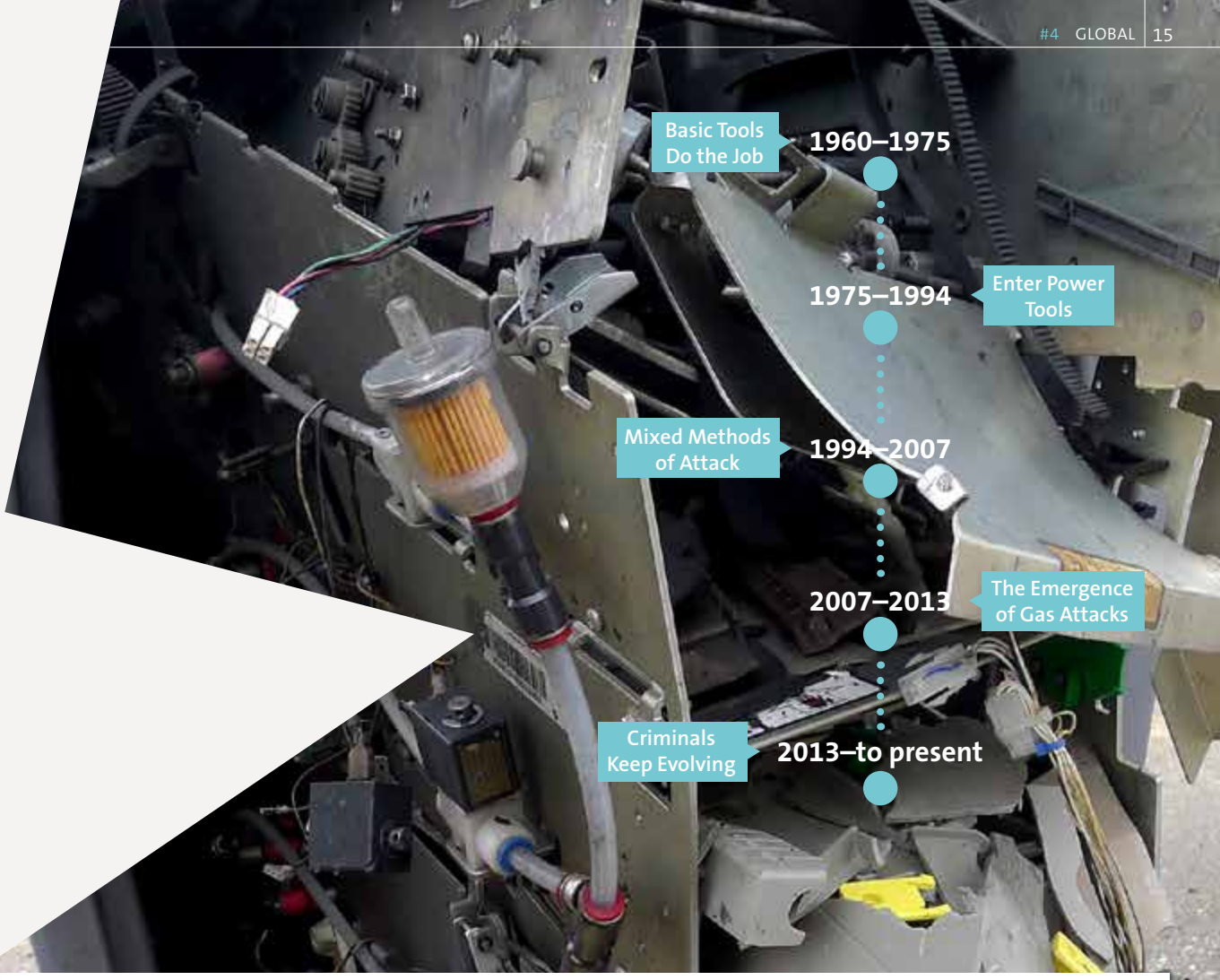
However, with such a large install base, replacing and upgrading ATM safes takes time so even after the advent of EN 1143-1, UL safes were still prevalent in some countries. During this period the range of attack methods differed considerably – from basic to more advanced – depending on the country and the level of adoption of stronger safes.

2007–2013
The Emergence of Gas Attacks

In countries where EN had sufficiently replaced UL – and the flow of "easy cash" had dried up – criminals started to get inventive.

By pumping gas into the ATM and then igniting it, they were able to blow the door off.

These types of attack started in Italy and although initial success rates were low, once criminals had spent a few years perfecting the technique, it spread to other European countries such as France, the UK, Germany and the Netherlands.



2013–to present

Criminals Keep Evolving

Today there are ATM safes available strong enough to withstand the maximum amount of gas which can be pumped into them and ignited. They are also constructed in a smart enough way so as to relieve some of the pressure caused by the build-up of gas. It means that even if the safe bulges, the bolts and the door stay in place.

Sadly, these innovations have led to more aggressive methods of attack using solid explosives. Unlike gas attacks, where the blast is more localised and pressure-based, solid explosives cause a lot of damage, or 'fragmentation', around the explosion. Despite the strong chance that the blast will destroy much of the cash, coming away with 10% of the notes from a fully loaded machine is still incentive enough for criminals to go in hard.

Fortunately, just as criminals evolve, so does the level of protection – ATM safe manufacturers are already offering explosion-resistant safes. However, the rate at which existing ATMs are being replaced or upgraded means that it takes many years before ATM safes offering the latest protection make up the bulk of the install base. And as long as this remains the case, criminals will always be one step ahead.

Security Doors and Windows: Ballistic and Blast Resistance

To protect a site from a firearms or explosives attack, security doors and windows offer a first-rate line of defence.

FAQs

How do security doors and windows differ from standard reinforced doors and windows?

Security doors and security glazing are typically certified for ballistic and/or blast resistance, offering a specific level of protection in the event of an attack.

Who decides on the level of certification?

Certification is awarded after testing in accordance with recognised standards.

In Europe, standards for ballistic resistance, for example, have been defined by international experts including manufacturers, consumers, consultants, engineers and public authorities.

The standards are not only based on the combined knowledge of these specialists, but also draw from field tests and the results of actual attacks.

What sort of weapons are included in the tests?

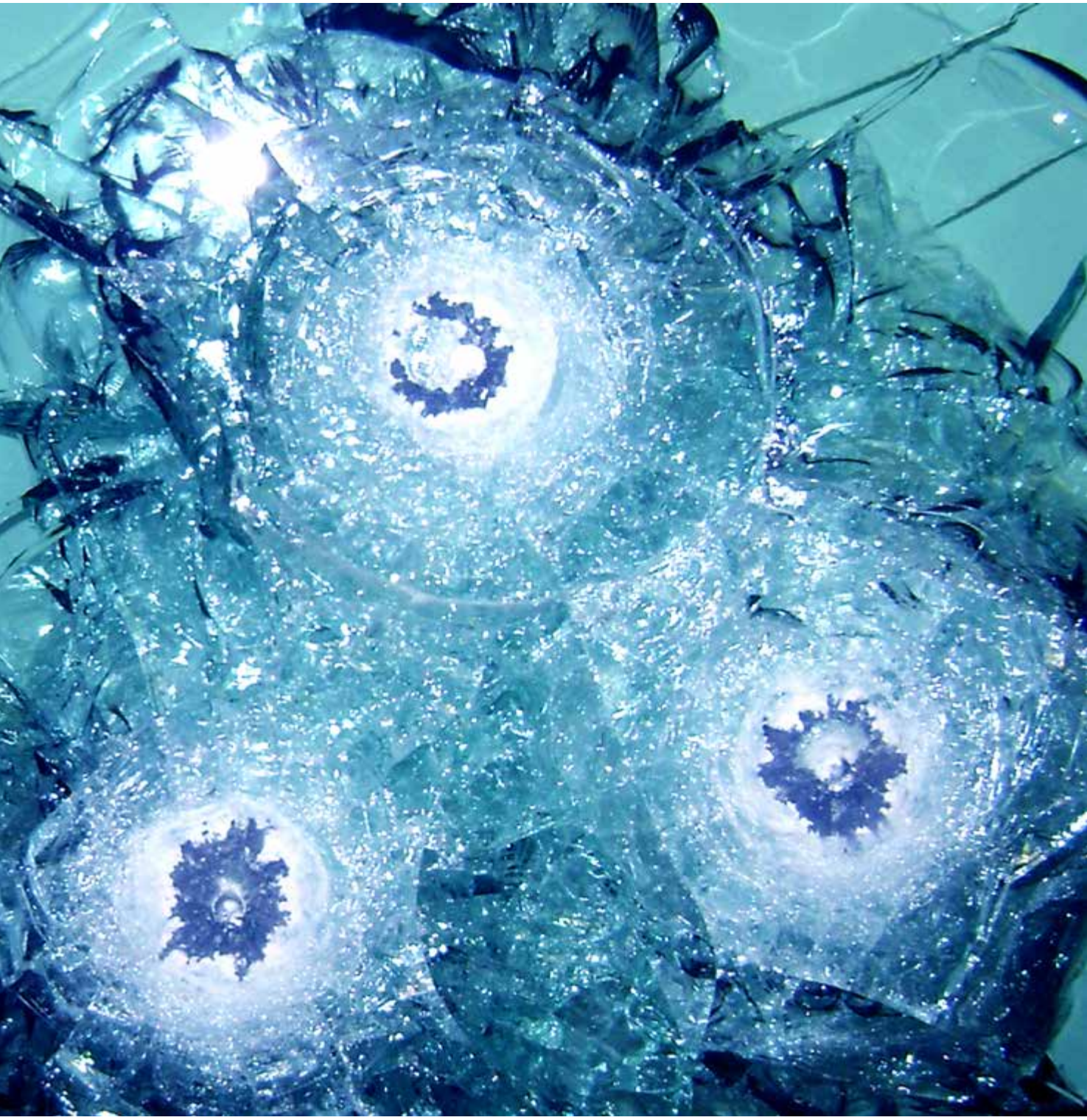
Pistols, rifles, assault rifles and shotguns, as well as a range of different types of ammunition, from soft core to hardened steel core bullets.

BALLISTICS RESISTANCE STANDARDS

EN 1522 Windows, doors and shutters
Defines seven resistance levels for pistols, rifles and assault rifles (FB1 to FB7) and one for shotguns (FSG).

EN 1063 SECURITY GLAZING

Defines seven resistance levels for pistols and rifles (BR1 to BR7) and two for shotguns (SG1 and SG2). If security glazing is certified together with the “NS” classification, this means it passed the test without splinters. An “S” designates that there were splinters.



FAQs

How is an explosion measured?

An explosion creates a shockwave or blast effect which is referred to as the 'incident pressure'.

When it meets an obstacle – such as a door – it creates a pressure peak and this is called 'reflected pressure'. Reflected pressure is about twice the force of incident pressure. It is this reflected pressure that is taken into account in standards.

After the shockwave comes a depression or 'negative pressure' equivalent to about one third of the peak reflected pressure.

Are there different types of explosion?

Two useful distinctions can be made between short explosions lasting 5 to 20 milliseconds – called detonations – and longer explosions lasting 200 milliseconds or more – called deflagrations. Industrial gas explosions are a common example of deflagration.

How are blast tests carried out?

There are two types of test: shock tube and outdoor. In a shock tube test, a volume of air is kept under pressure in a chamber and released via a tube. The door or window being tested is placed at the end of the tube.

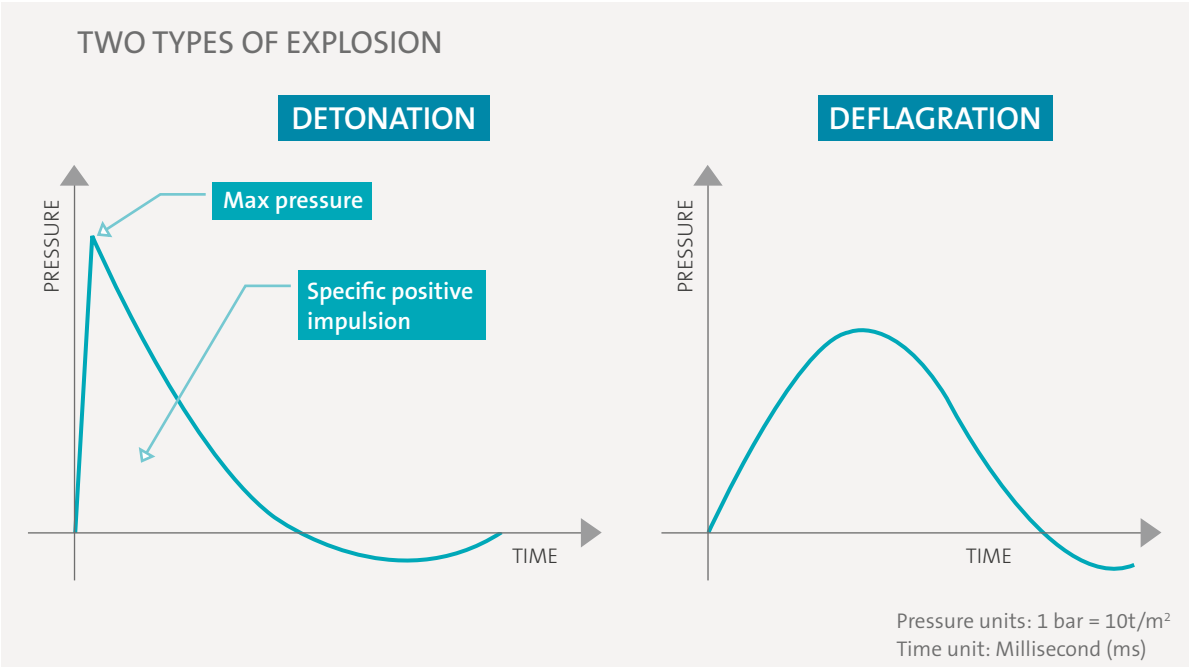
Outdoor tests are used to check the resistance of a door or window against a TNT equivalent. The object being tested is placed at a specific distance from the blast (between 3 to 5.5 metres).

BLAST RESISTANCE STANDARDS
EN 13123/124-1

Shock tube test for windows, doors and enclosures. Defines four levels of resistance (EPR1 to EPR4) for reflected pressure between 0.5 to 2 bar.

EN 13123/142-2

Outdoor test for windows, doors and enclosures. Defines five levels of resistance (EXR1 to EXR5) for an explosive charge of between 3kg to 20kg of TNT and reflected pressure between 2.5 to 28 bar.



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