



# coldcut cobra

Safer Fire Fighting    Efficient Fire Fighting    Saving Environment

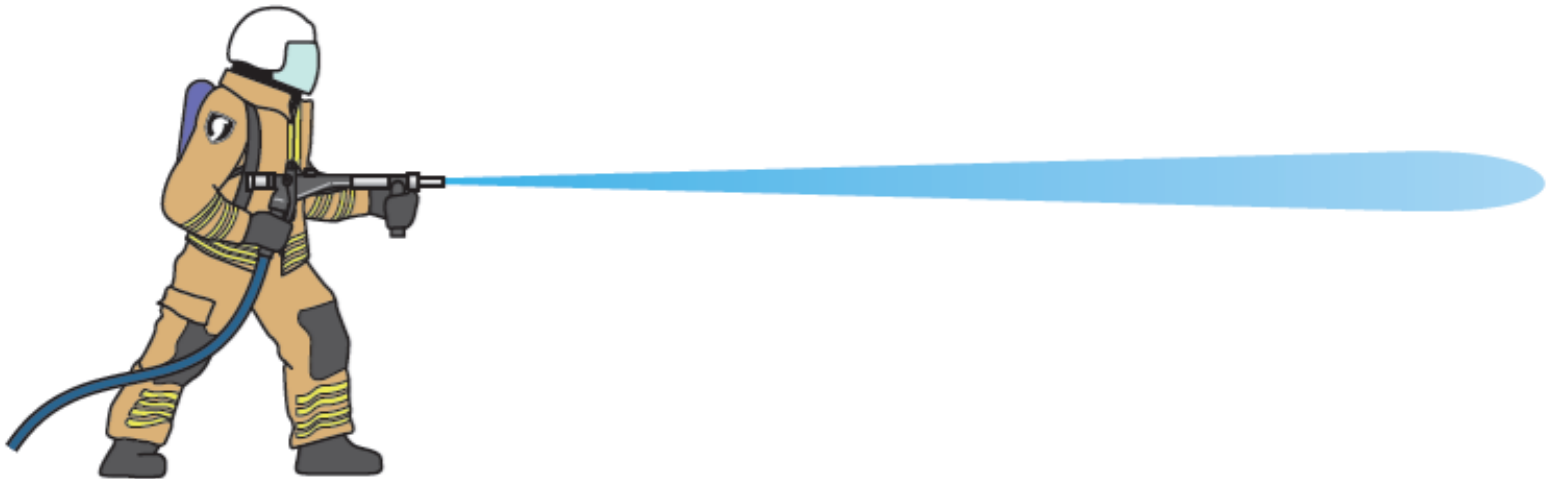
# Agenda

- The Concept & Safety
- The Method
- Cobra for the future - Societal changes
- The Company and Market
- Cases
  - *House*
  - *Attic*
  - *Roof*
  - *Garage*
  - *Silo*
  - *Industrial*
- Products & Installation
- Other Applications & Accessories
- Training & Maintenance

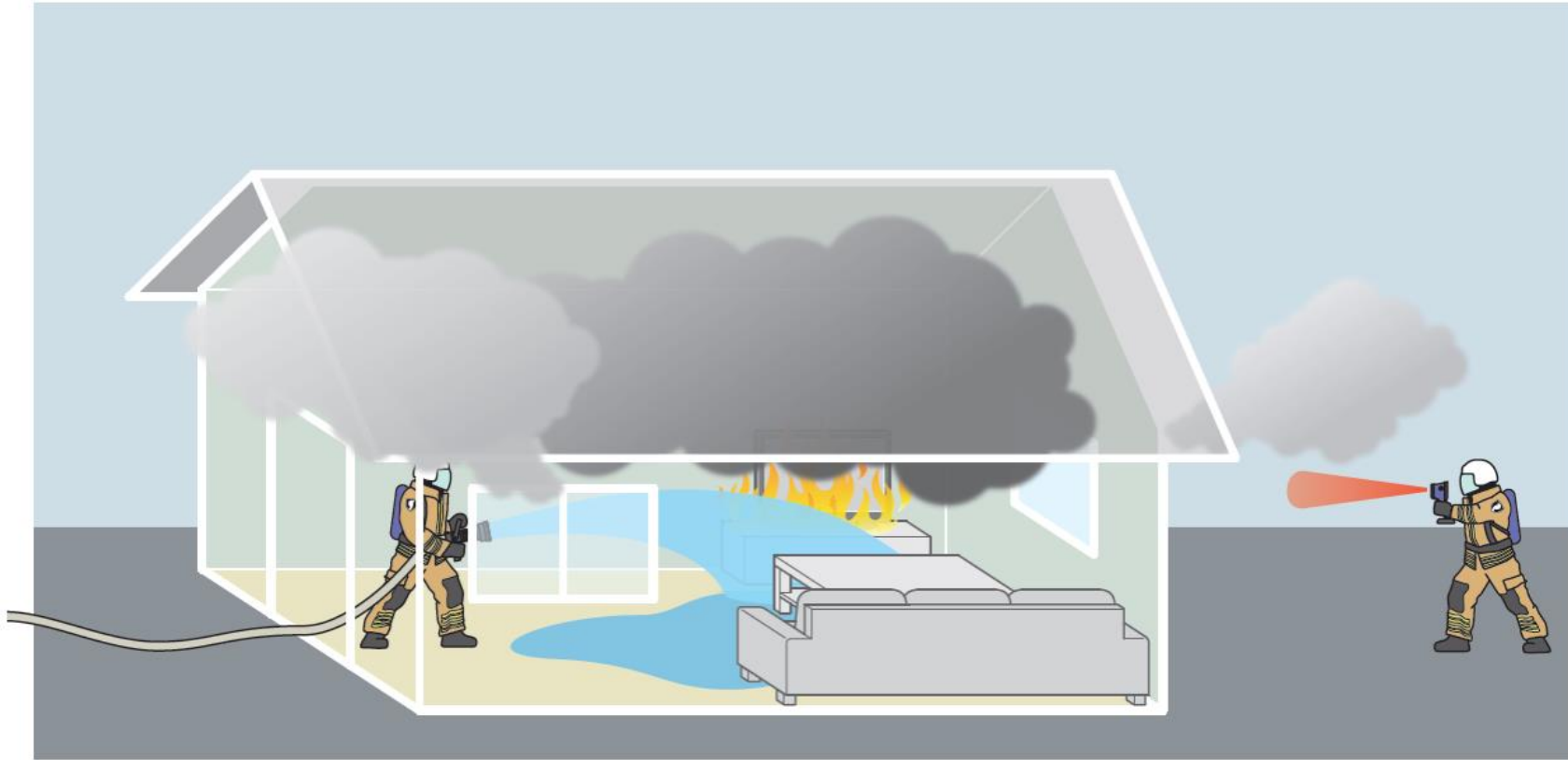
# Vision

A World of Safe, Clean and  
Efficient Fire Fighting

# The Method



# Conventional FF and Risks



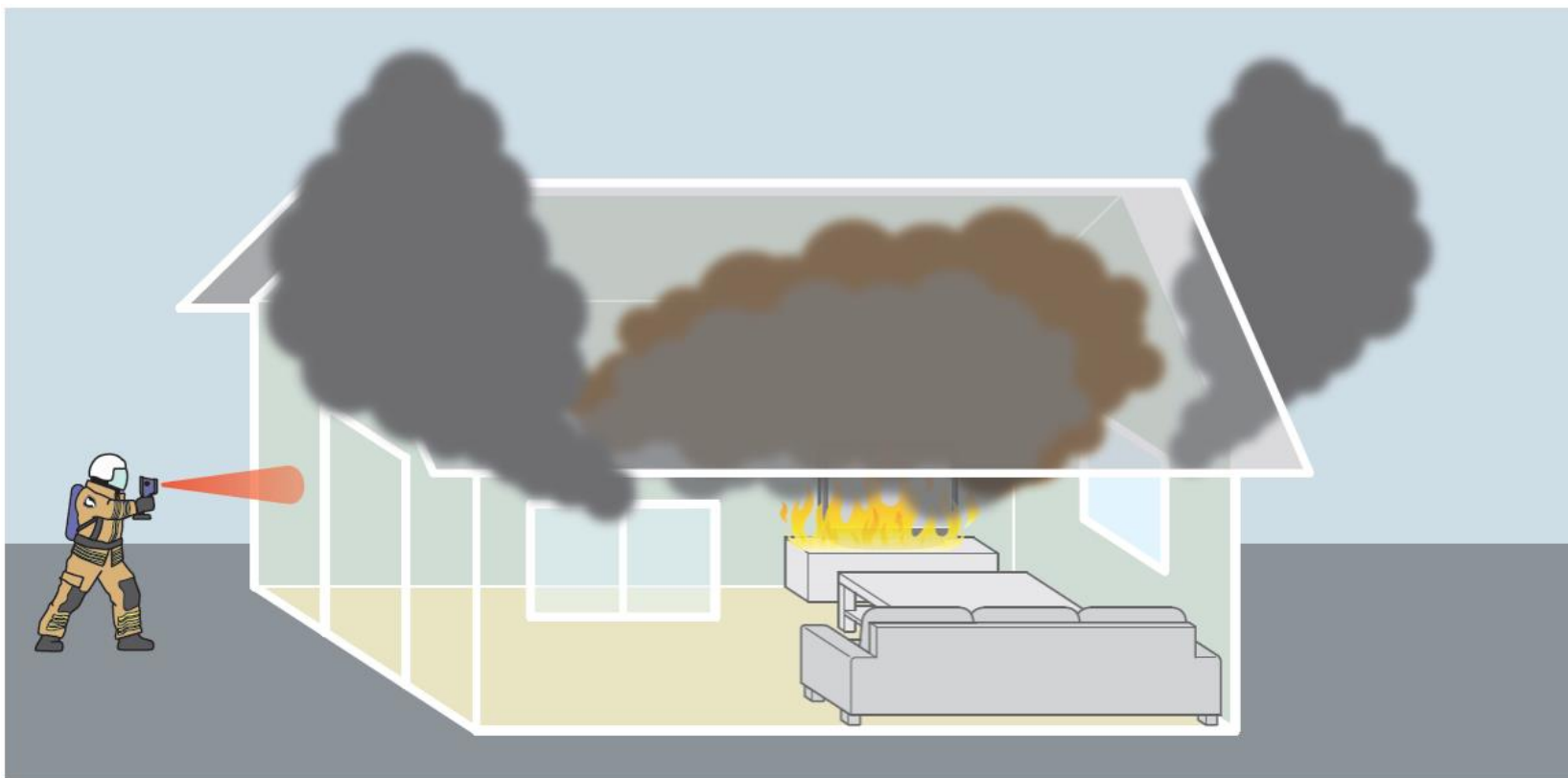
- Ventilation?
- Exposure to gases?
- Speed?
- Water damages?
- Risk for backdraft?

# Firefighter Risks mitigated with Cobra

- Flashover and Backdraft
- Collapsing structures
- Firefighter in all countries are exposed to toxins and carcinogens
- Exposure to toxins and carcinogens leads to cancer
- Risks for 10 types of cancer were significantly increased in fire fighters

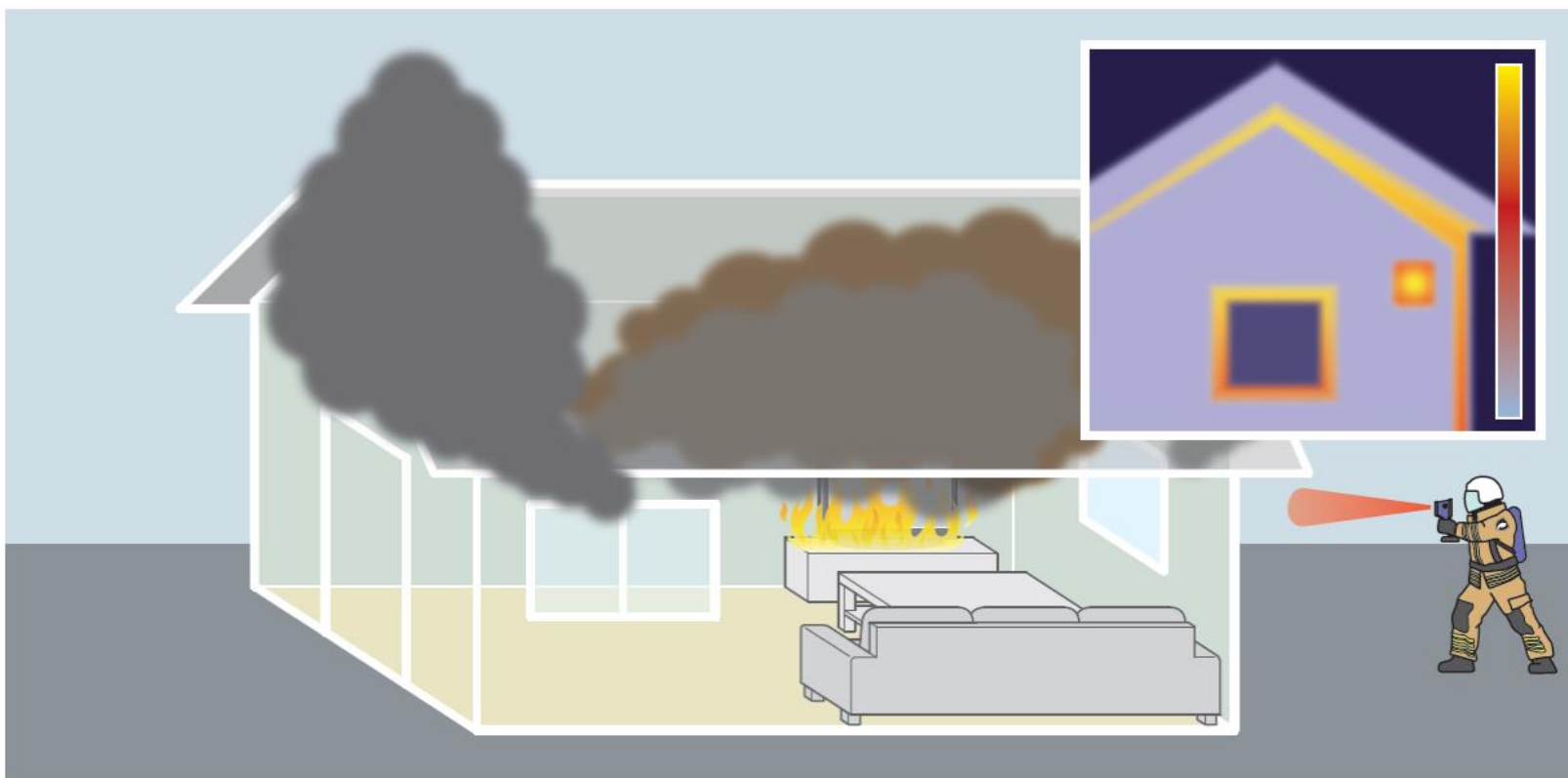


# Cobra Cutting Extinguishing Concept



- Fire services with skills in external scanning will have an advantage to implement **modern fire fighting**

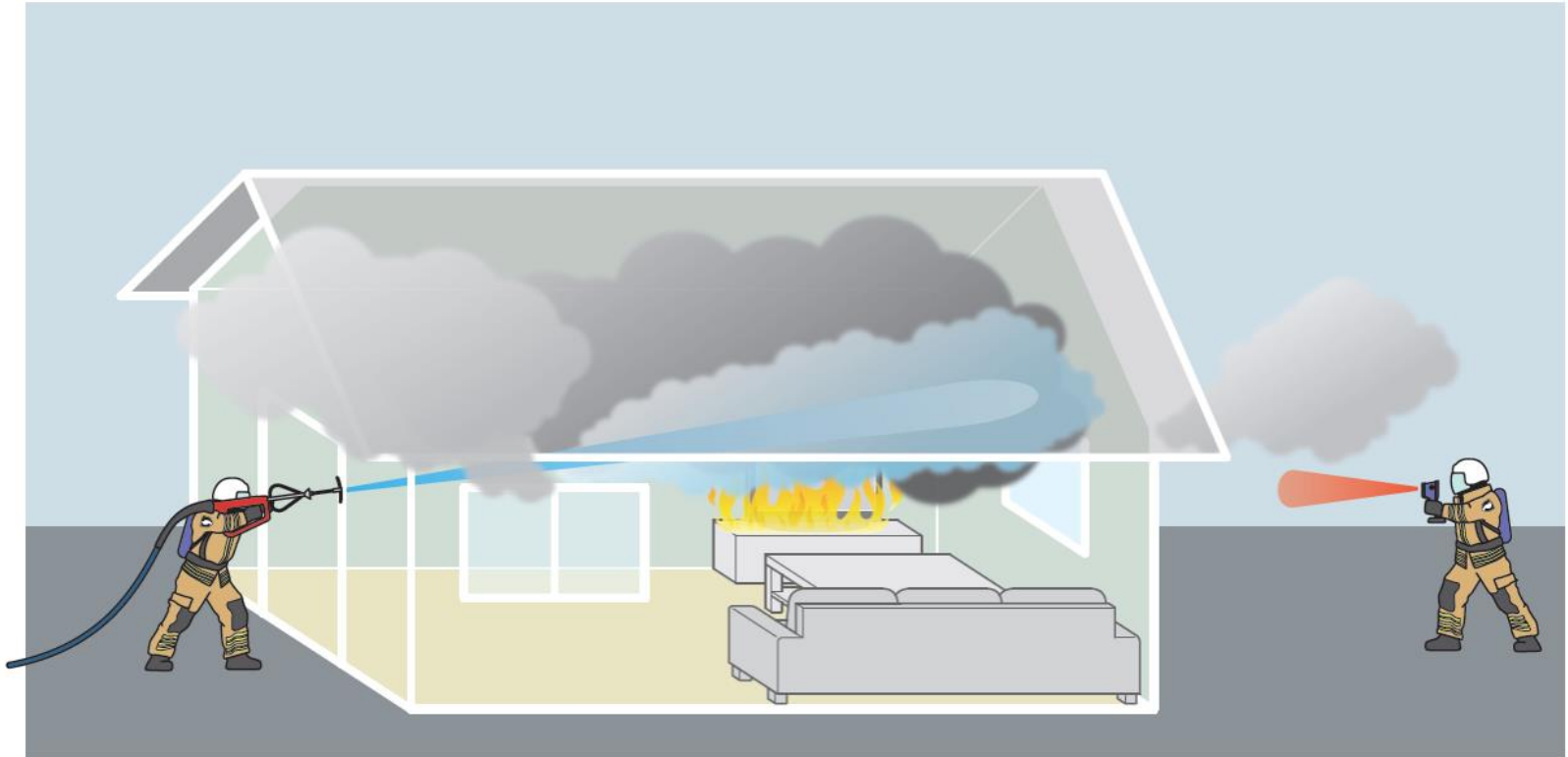
# Cobra Cutting Extinguishing Concept



- First external scanning from outside to read high temperatures inside the building



# Cobra Cutting Extinguishing Concept

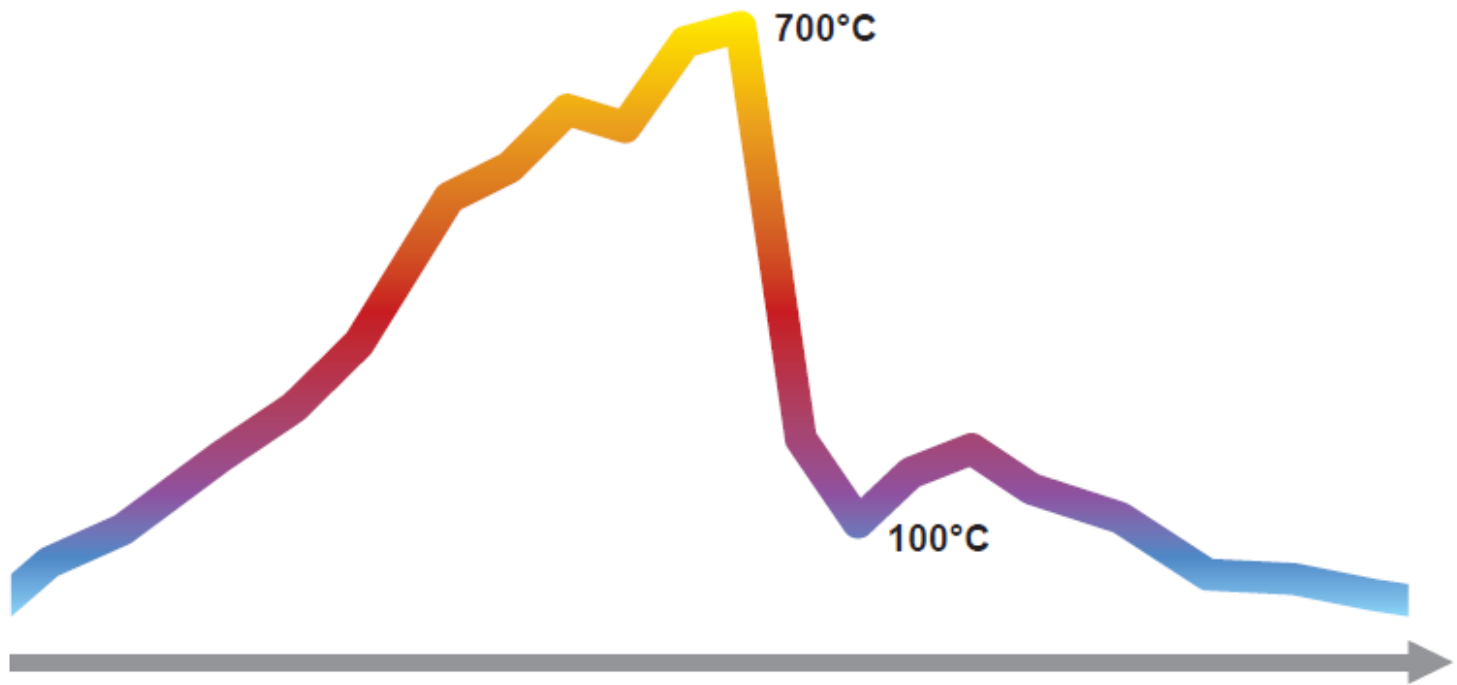


- Cobra attack starts instantly – **speed of response**
- No ventilation, no exposure
- High efficiency, no water damages

# 40 seconds of cooling with 40 l water

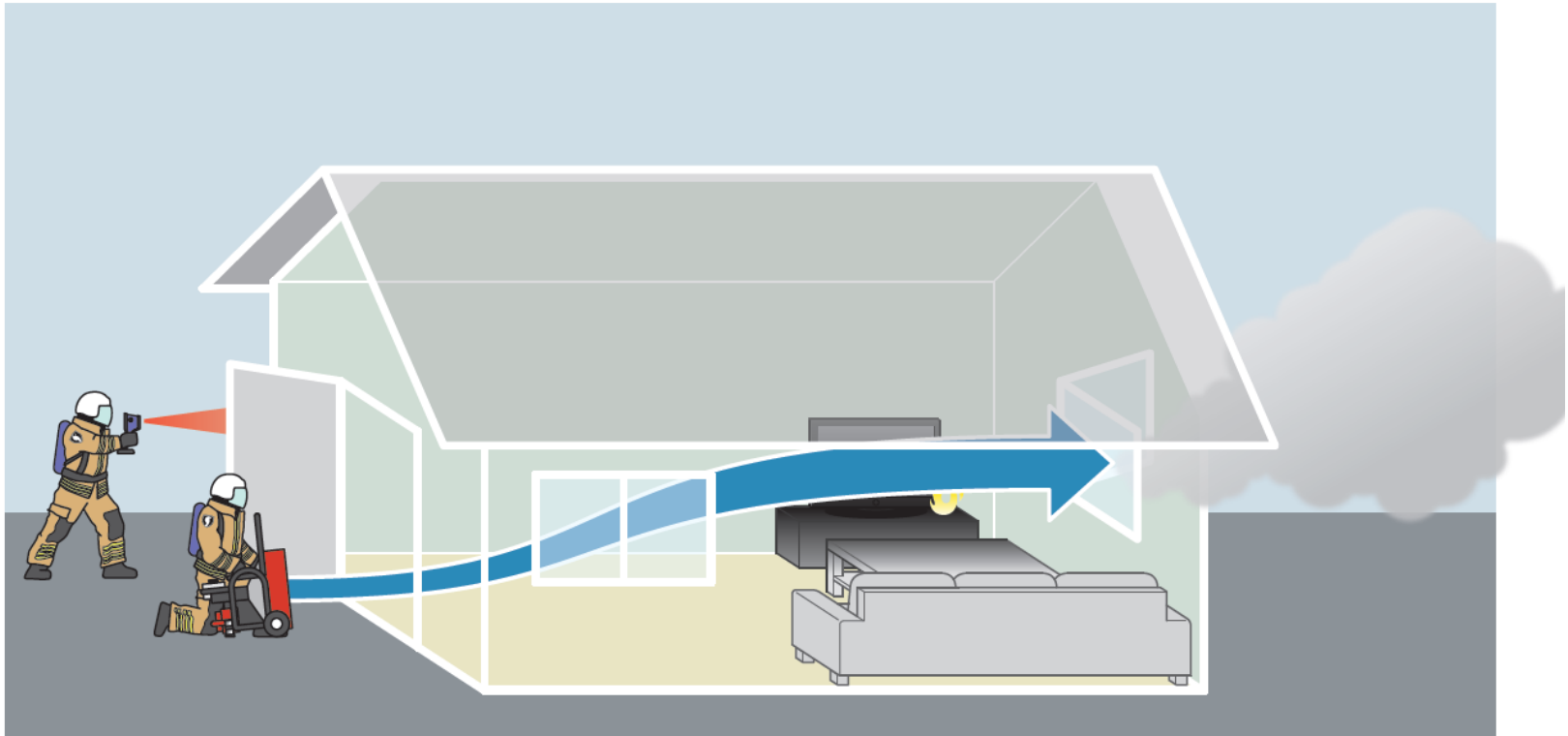


# Cobra Cutting Extinguishing Concept



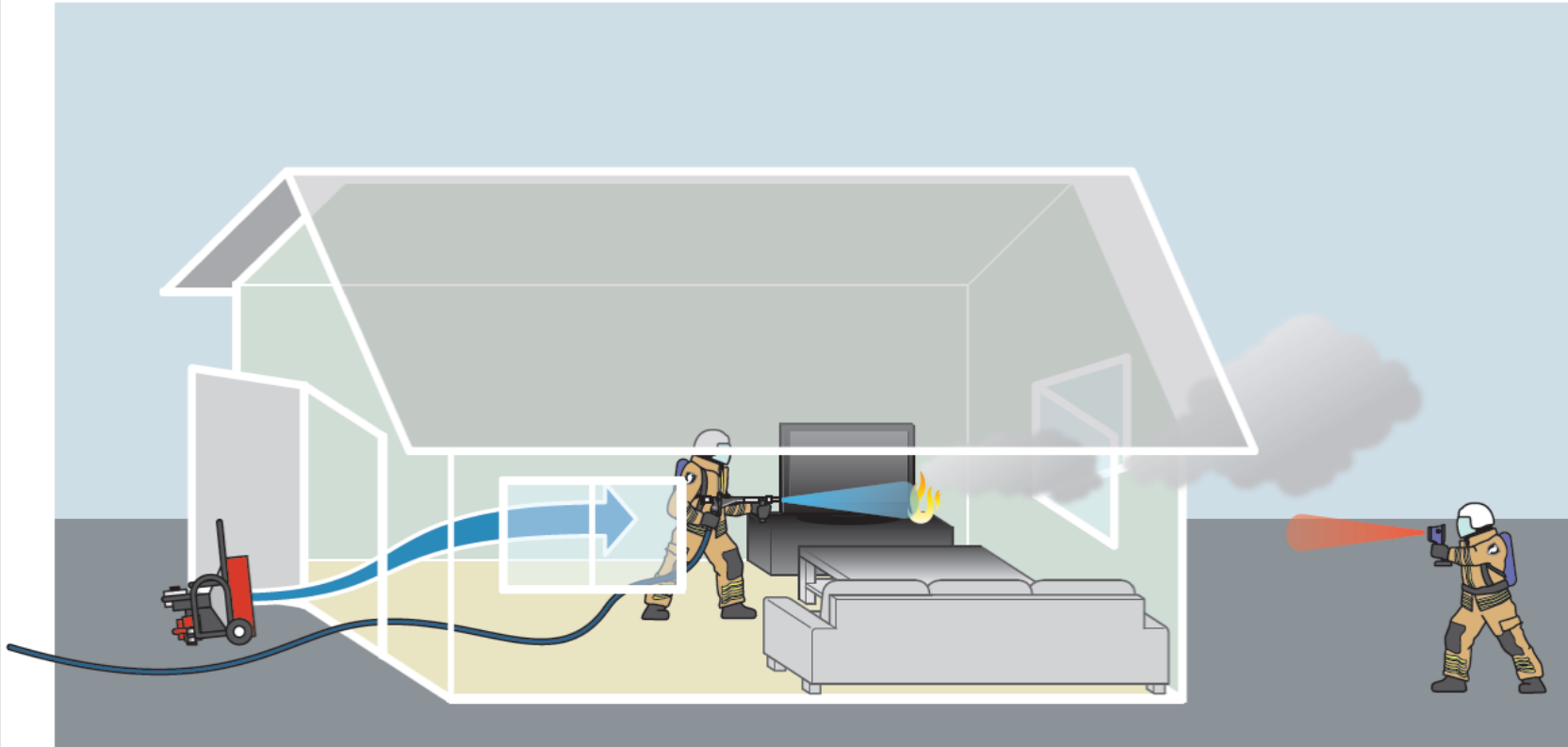
- Rapid temperature drop due to very small droplets
- Incomparable with any other system in the market.

# Cobra Cutting Extinguishing Concept



- Once fire gases are cooled, fire services with PPV experience start ventilating the cool and non-combustible gases and steam

# Cobra Cutting Extinguishing Concept



- Residual fire can, if needed, be extinguished with MPN or other systems.
- When compartment fire fighting is necessary, it will be in a safe and controlled environment for BA operation.

# Fast cutting through all materials

- Using special abrasive for cutting
- Steel, Concrete, Wood .....





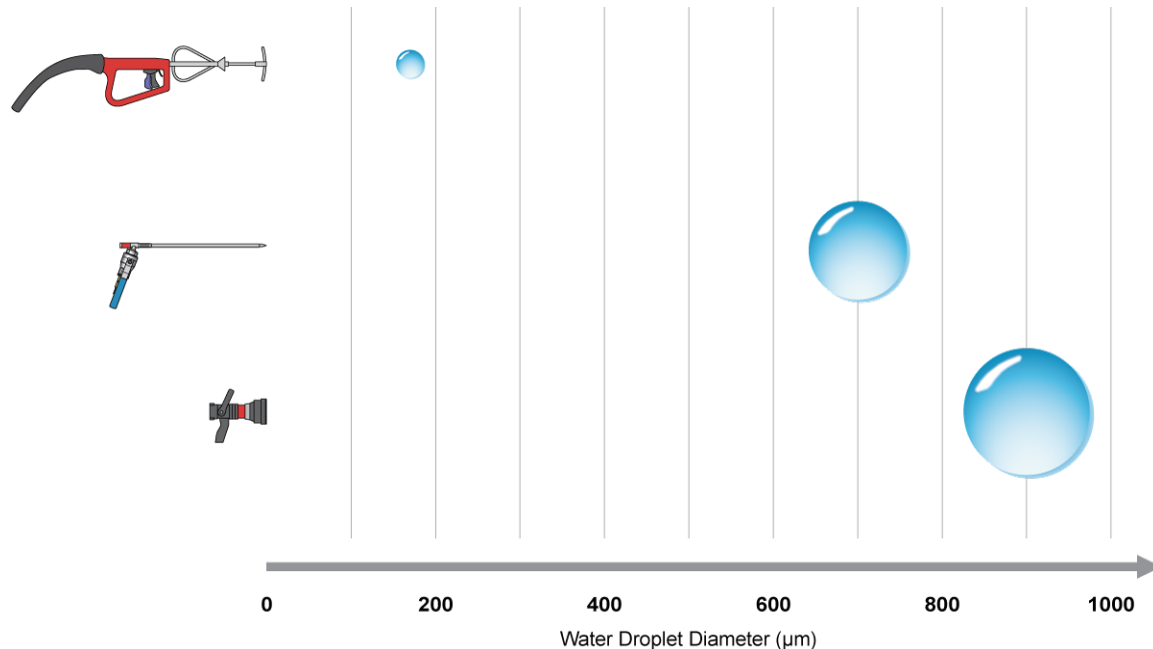
# Characteristic of the spray



# Cobra Theory Droplet Size



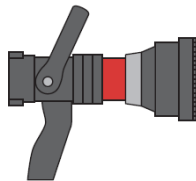
- Traditional fire fighting systems has very high flow and very low pressure
- Total surface area of the water is critical extinguishing parameter
- Efficiency is exponentially connected to the surface area





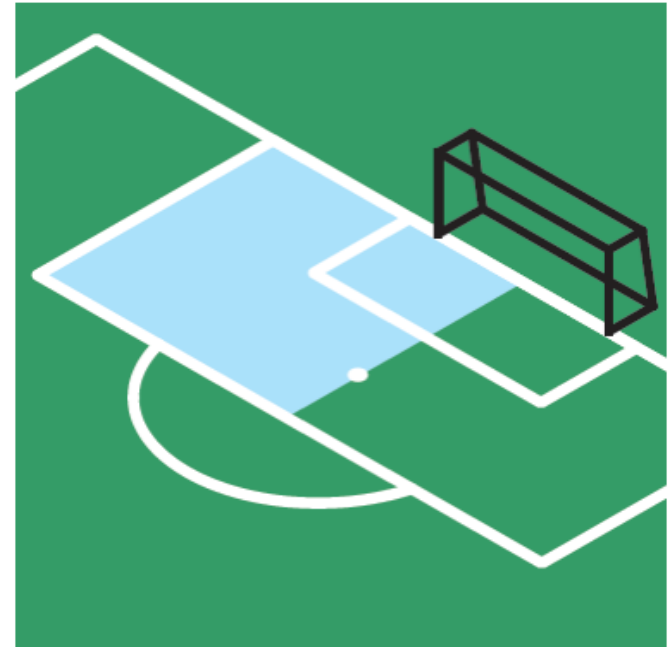
# Cobra Theory Comparision

- Total surface area of the water is critical extinguishing parameter
- 8 bar pressure will cover a total area of a soccer goal
- Efficiency is exponentially connected to the surface area



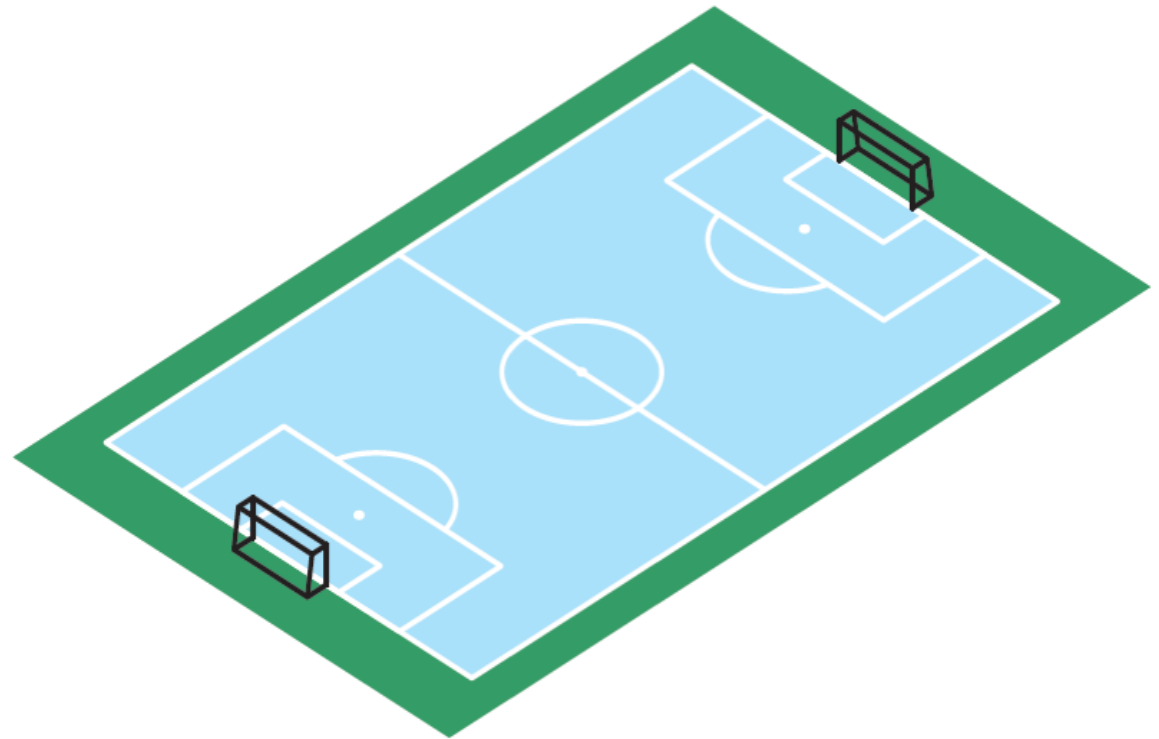
# Cobra Theory Comparision

- ▶ A "high pressure" system of 40 bars will with the same amount of water generate a total surface area of a half penalty area



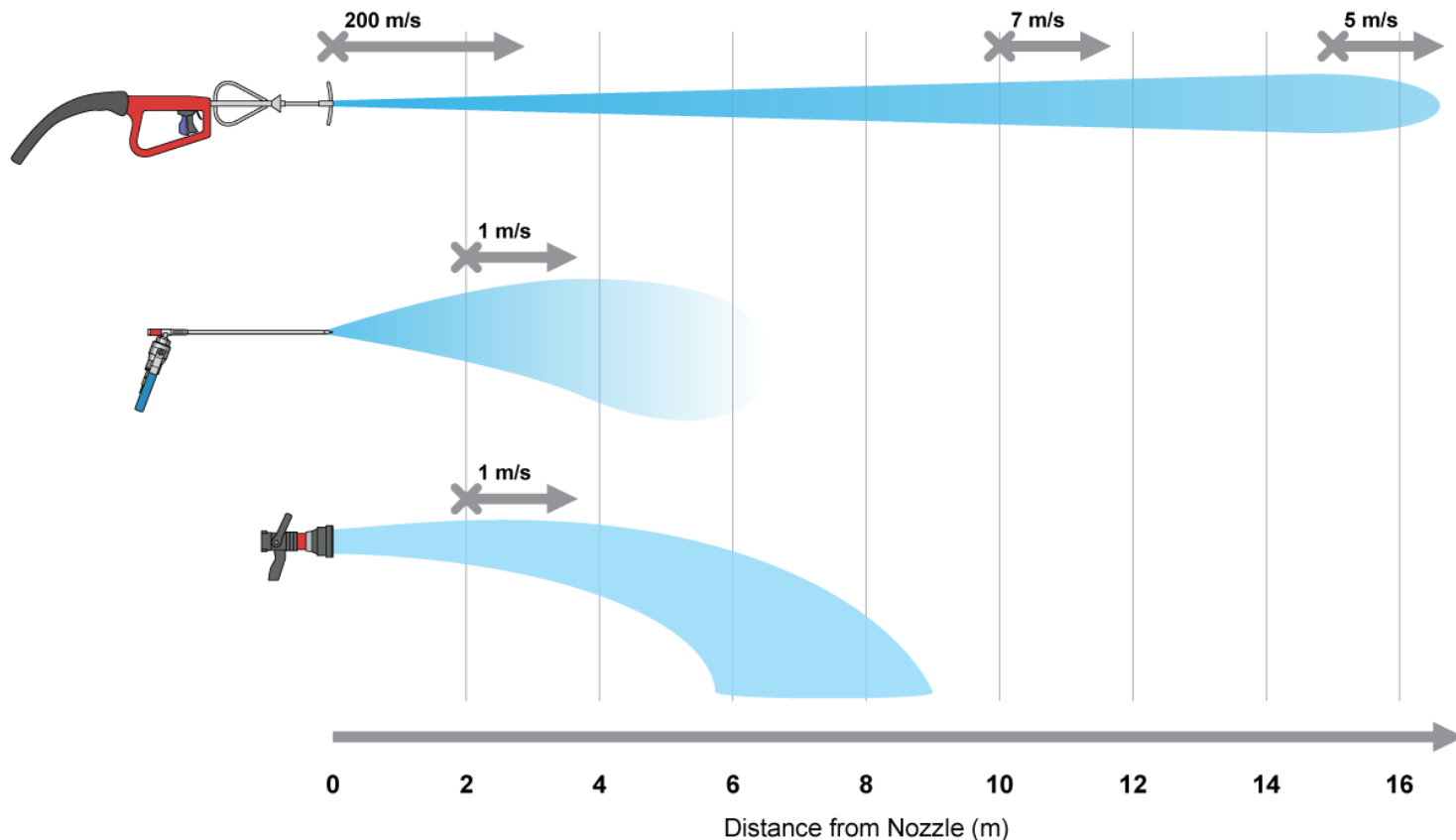
# Cobra Theory Comparision

- The Cobra equivalent of total water droplet area of the same water usage will cover the whole soccer field!

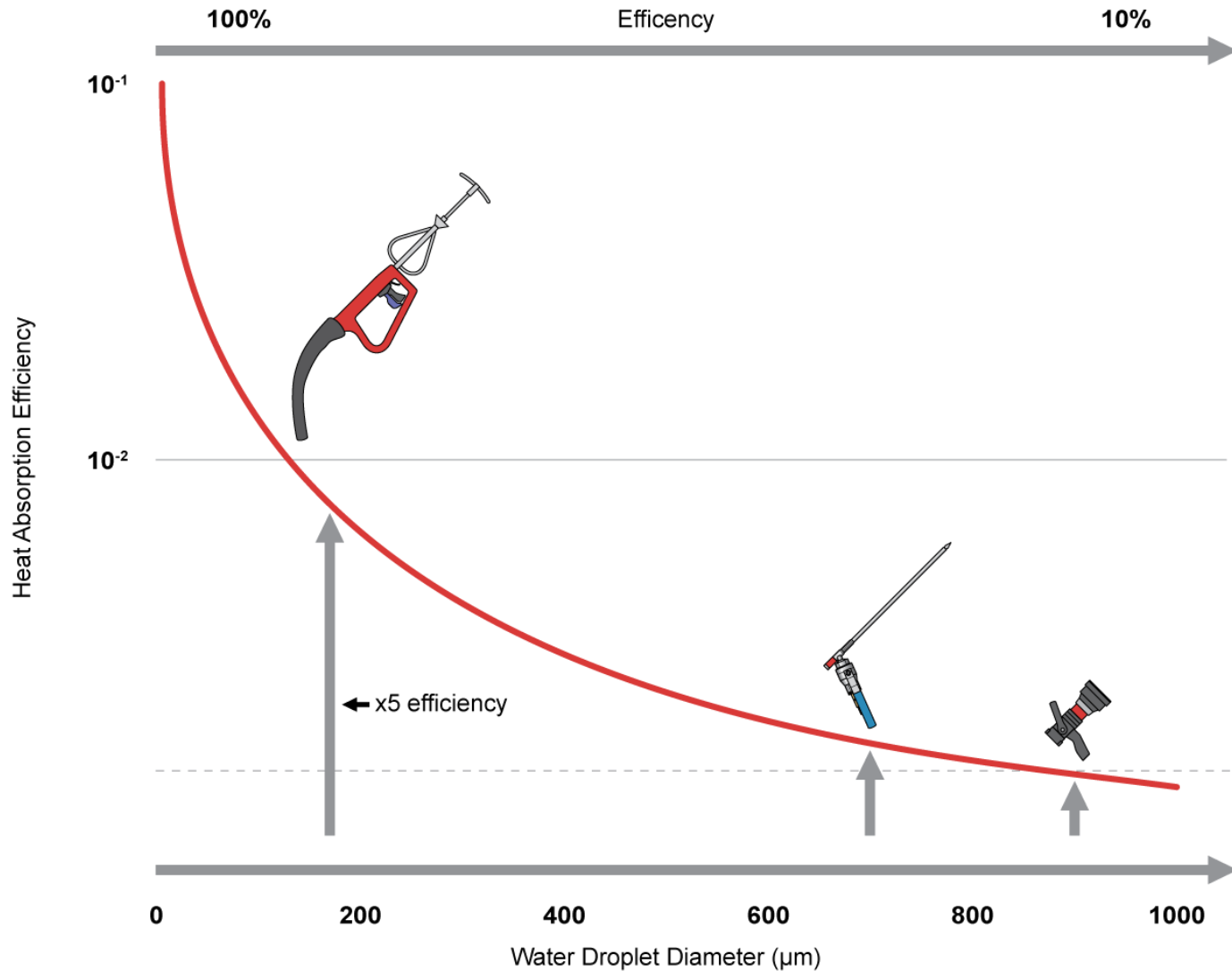


# Cobra Theory Speed

- Speed of droplets are of critical importance.
  - ✦ Higher speed = longer range
  - ✦ Higher speed = much faster heat absorption



# Efficient fire fighting



# Safe use of Cobra

- ✚ No use of the Cobra without proper basic training and protective clothes.
- ✚ Risk assessment leads to safe procedures.
- ✚ From outside – aim diagonally upwards towards the hot surfaces inside the room.
- ✚ No risk for persons inside by proper use of Cobra method (casualties, vapor heat, abrasive).
- ✚ Research shows that survivability is dramatically increased when using Cobra

# System

- ✦ 250-300 bar at the pump
- ✦ Water speed 200 m/s
- ✦ Water 30-60 l/min
- ✦ Abrasive 5%
- ✦ Cutting speed mild steel  
40 mm/min
- ✦ Additive pump
- ✦ Up to 200 m hose, standard 80 m



# 4 Main Components

- Pump



- Abrasive vessel



- Hand lance with radio control








- Hose





# Scalable & integrated

				
Urban Domestic High-rise Residential Rural Remote / Isolated	Urban Commercial Large Residential	Complex Residential Large Commercial	Large Industrial Complex Retail & Commercial	High Bay Warehousing Large Complex Industrial & Commercial



Thermal Image Scanning (TIS)



TIS & PPV



# Applications

- ✦ **Fire & Rescue Services**
- ✦ Airports
- ✦ Offshore
- ✦ **Navy**
- ✦ Maritime Search & Rescue SAR
- ✦ Marine Salvage
- ✦ Nuclear Power plants
- ✦ **Industry**
  - Petroleum
  - Steel / Automotive
  - Chemical
  - Mining

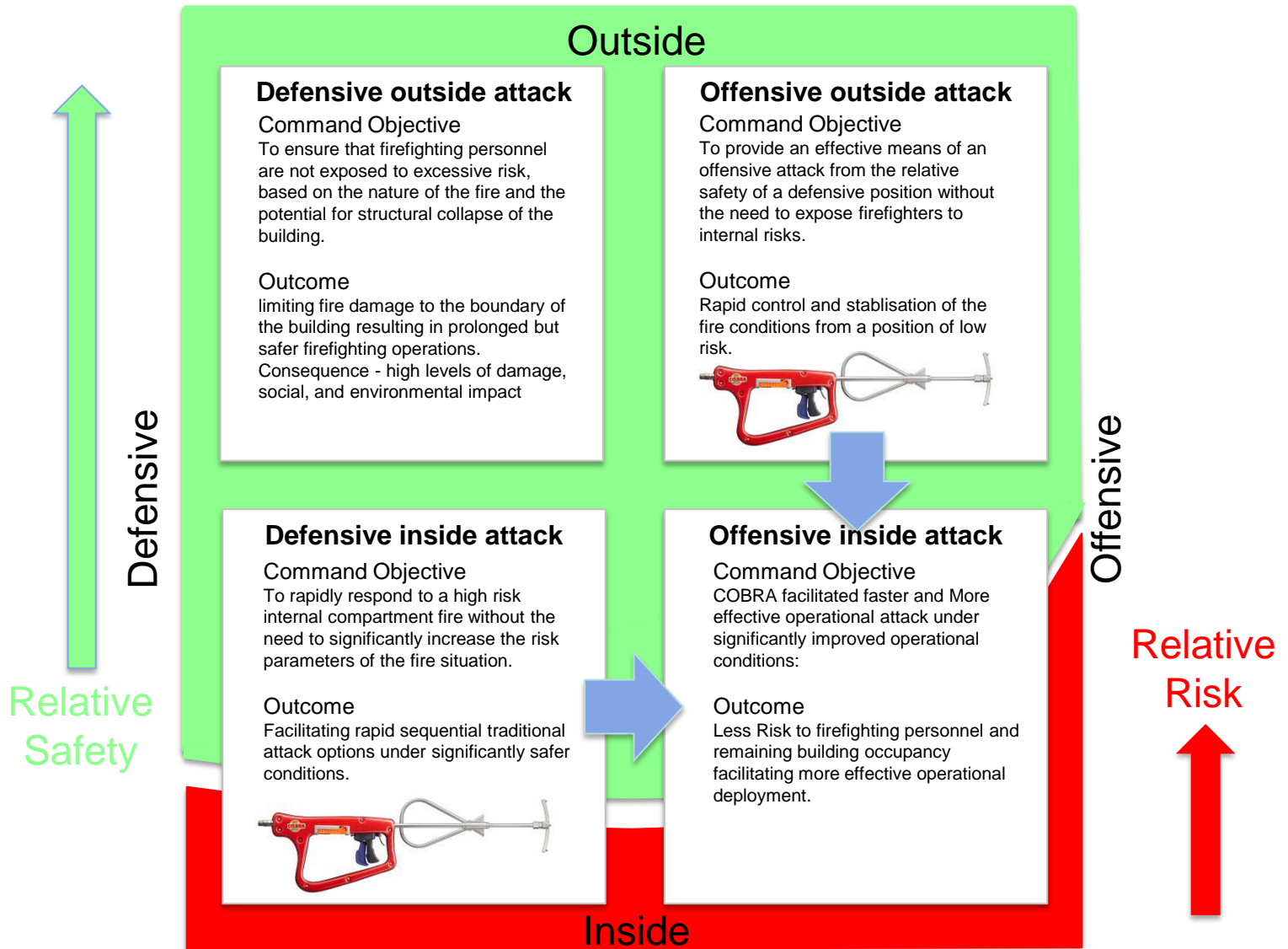


# Command Options

- COBRA gives the officer in command more options – making the operation more effective and safe.
- The result is an effective offensive attack from a defensive position.
- It will also rapidly stabilize the fire conditions compared to other offensive operations.
- Once integrated into operational response it will create confidence and reduce risk, converting uncontrolled risk to risk control.



# Enhanced command options



# Rural & Isolated

## Cobra is responsive to:

- Restrictive training time.
- Limited crew size.
- Limited availability of water supplies.
- Isolated risks and heritage.
- Isolated firefighting resources.
- Limited operational support.
- Finite operational capacity.
- Local community expectation.



# Urban

## COBRA is responsive to:

- ✦ High rise
- ✦ Congested traffic
- ✦ Fast response and fast intervention
- ✦ Tampered wet/dry-risers
- ✦ Steel doors and bar doors



# Societal Changes and Future Fire Fighting

- Casualties in fire fighting demands new methods
- Difficulty to recruit retained fire fighters and training restrictions
- Challenges with congested traffic in urban areas
- Higher buildings, tunnels, new infrastructure, new building constructions and materials leads to higher and new risks
- Cost saving initiatives leads to smaller appliances with more flexibility
- Higher pressure on residual values and focus on water damages
- Pressure to sustain environment



# Cobra can be one solution

- ✦ The Cobra offers an efficient intervention from a safe position – the outside
- ✦ A Cobra attack can be rapidly deployed to the scene of operations. 1-2 minutes of Cobra intervention will make a dramatic effect and a safer environment for the BA (rescue situation)
- ✦ The Cobra intervenes without ventilating and entering into the building
- ✦ The Cobra fits perfectly on a Rapid Response appliance
- ✦ The Cobra uses 100% of 60 l/m instead of 5-10% of 600 l/m → No water damage and minimized environmental damages





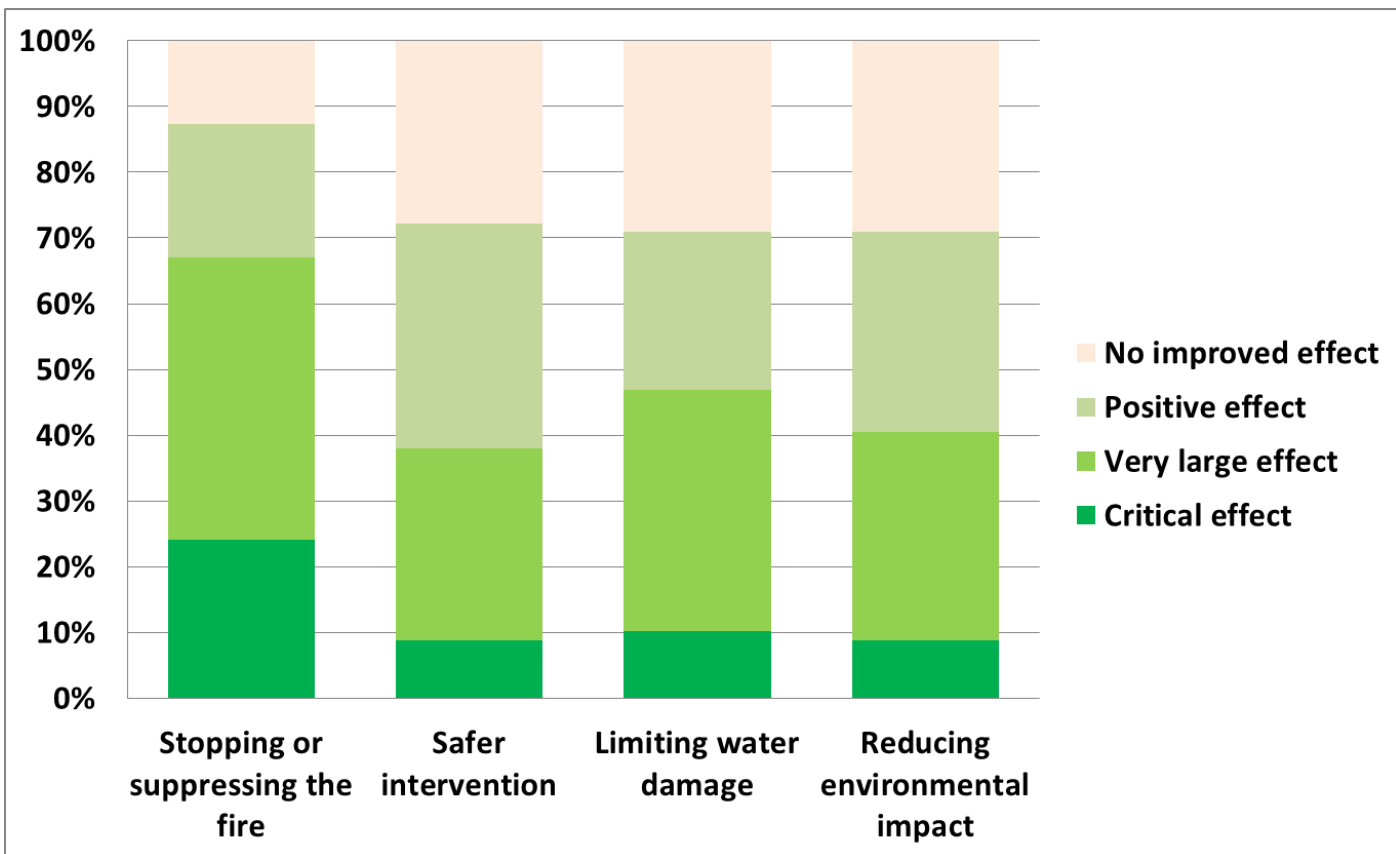
# Very effective first intervention



## Using Cobra as the first intervention method

76%	Critical / very large effect on Stopping / Suppressing the Fire
43%	Critical / very large effect Safer Firefighting
62%	Critical / very large effect on Limiting Water Damage
55%	Critical / very large effect on Reducing Environmental Impact

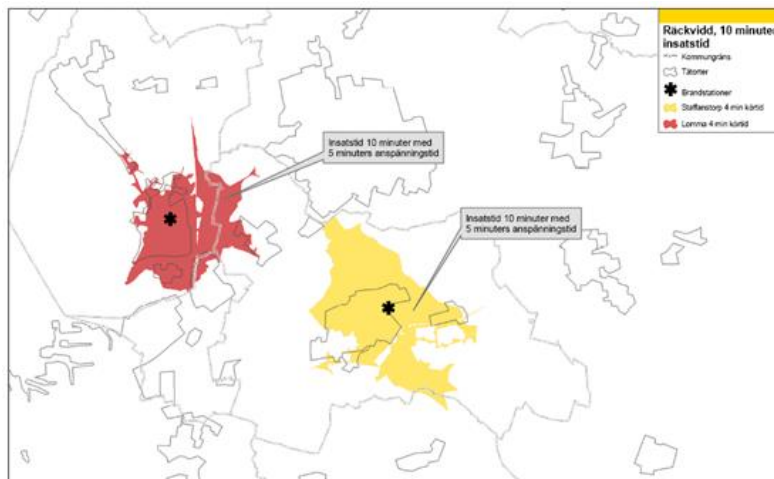
# Very positive users



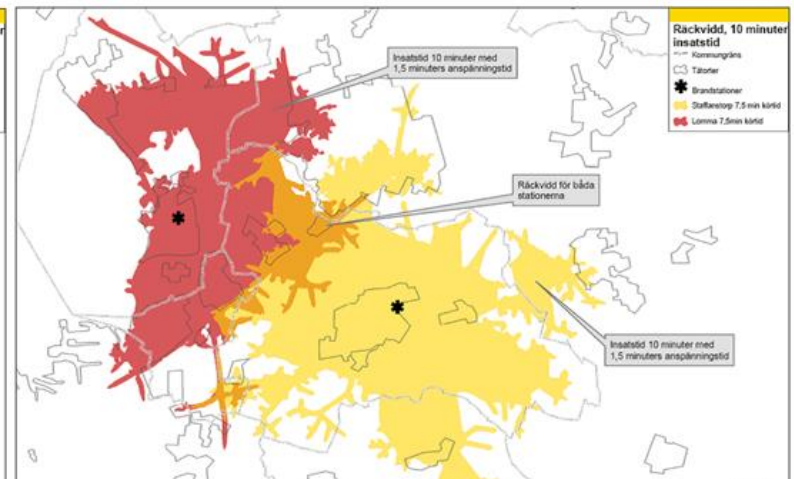
# Speed of response = Speed of extinction

- Staffanstorp-Lomma: the **fastest response time** in Sweden. A retained fire service with Cobra HSE only outperforms all full time fire services.
- 3-4 minute reduction with new organization
- Cobra had in 82% of incidents a very **large or decisive effect** on extinguishing the fire

Traditional Retained Organization  
10 minutes coverage after call



Cobra Fast Response coverage  
10 minutes coverage after call



# Financial drivers

- All markets are experiencing financial constraints
- Still – services come to conclusion to fully embed the cobra for safety or economical drivers
- **Return on investment** can be extremely high: examples of cobras on 200 calls/year and 15 years
- **Track record:** numerous cases with major savings – eg. €10 million savings in 2 industrial fires
- **Crewing flexibility:** initial intervention requires minimal personnel – safe and efficient offensive intervention before full crew arrives
- **Wide range of usage**

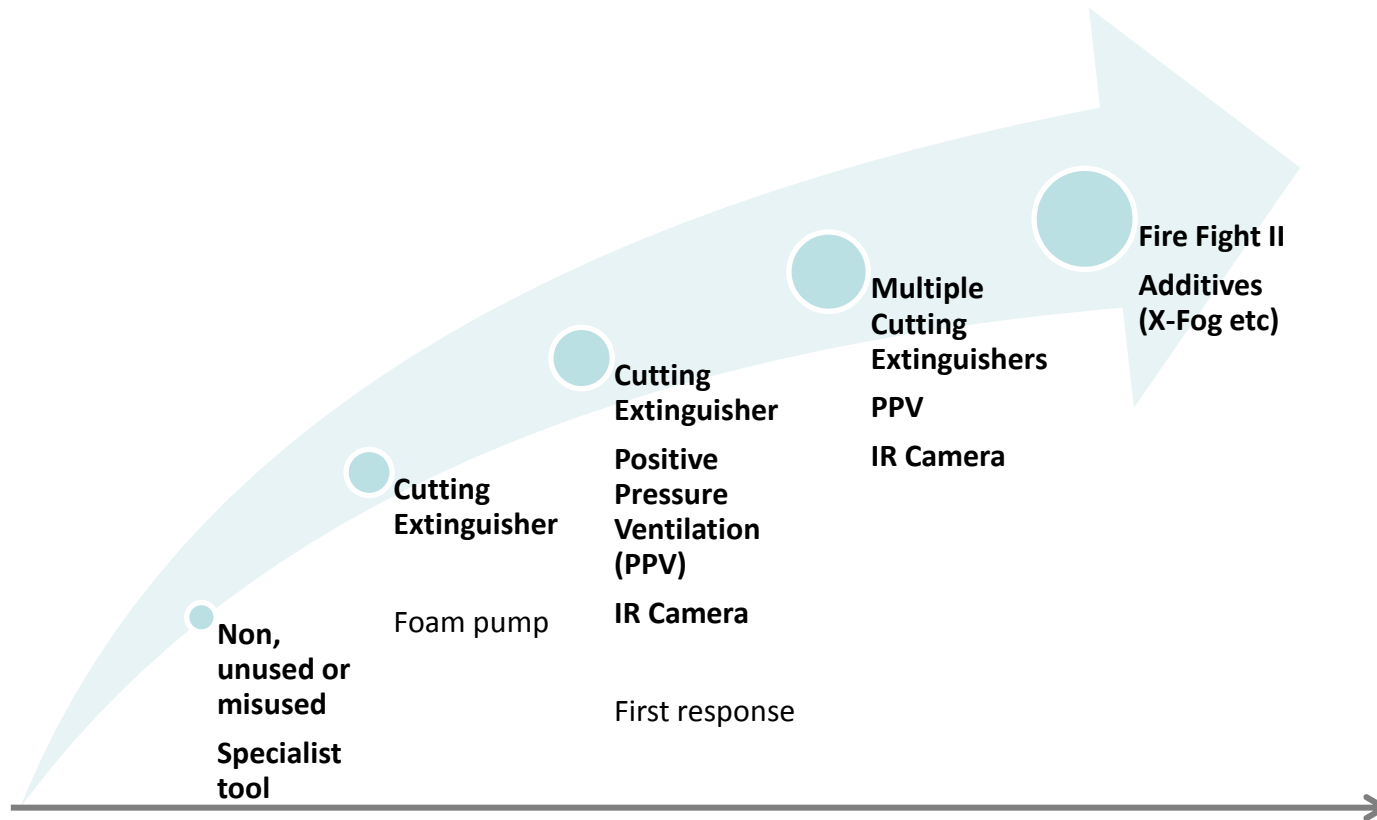


# Background

- Cold Cut System AB was started 1989 in Sweden.
- In the beginning only "cutting with water".
- Production and development of the Cutting extinguisher by CCS AB since 1997.
- The main system "Cold Cut Cobra" now developed from a "Tool" to a "Method".



# Evolution of the Cutting Extinguisher Concept



2000



2006



2009



2010



2012



2014

coldcut™ cobra – in more than 30 countries

coldcut™ cobra



# Examples of market developments

- ✚ Very strong growth in the UK
  - Large metropolitans
  - Many rural services (Lincolnshire 23 this year only!, Northamptonshire 20, Scotland, Wales...)
  - Channel tunnel, MIRG, Urban, Rural, Isolated, Full time, Retained
  
- ✚ Nordic countries steady growth and acceptance
  
- ✚ Proactive activities and investment in Continental Europe including industrial customers
  
- ✚ Rapid development expected 2013-2014
  - Belgium, Netherlands, Turkey
  
- ✚ Metropolitans very high momentum
  - Bangkok, Moscow, Singapore, Hong Kong, Dubai, London, Amsterdam



# Market developments

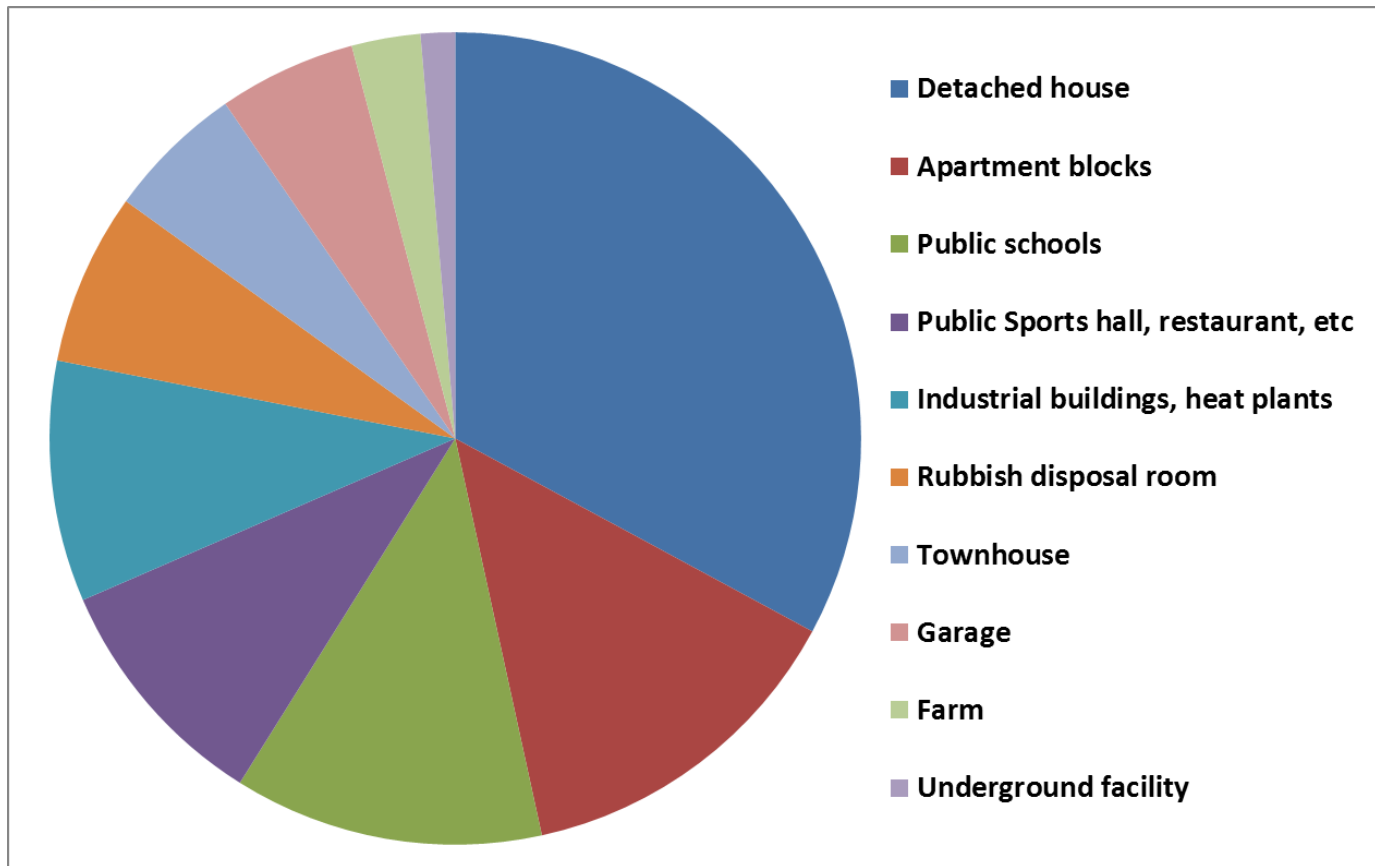
## ▾ Lincolnshire

- Fully embedded system
- Standard appliances
- Full time and retained stations
- First phase tender towards 23 units

## ▾ Kent

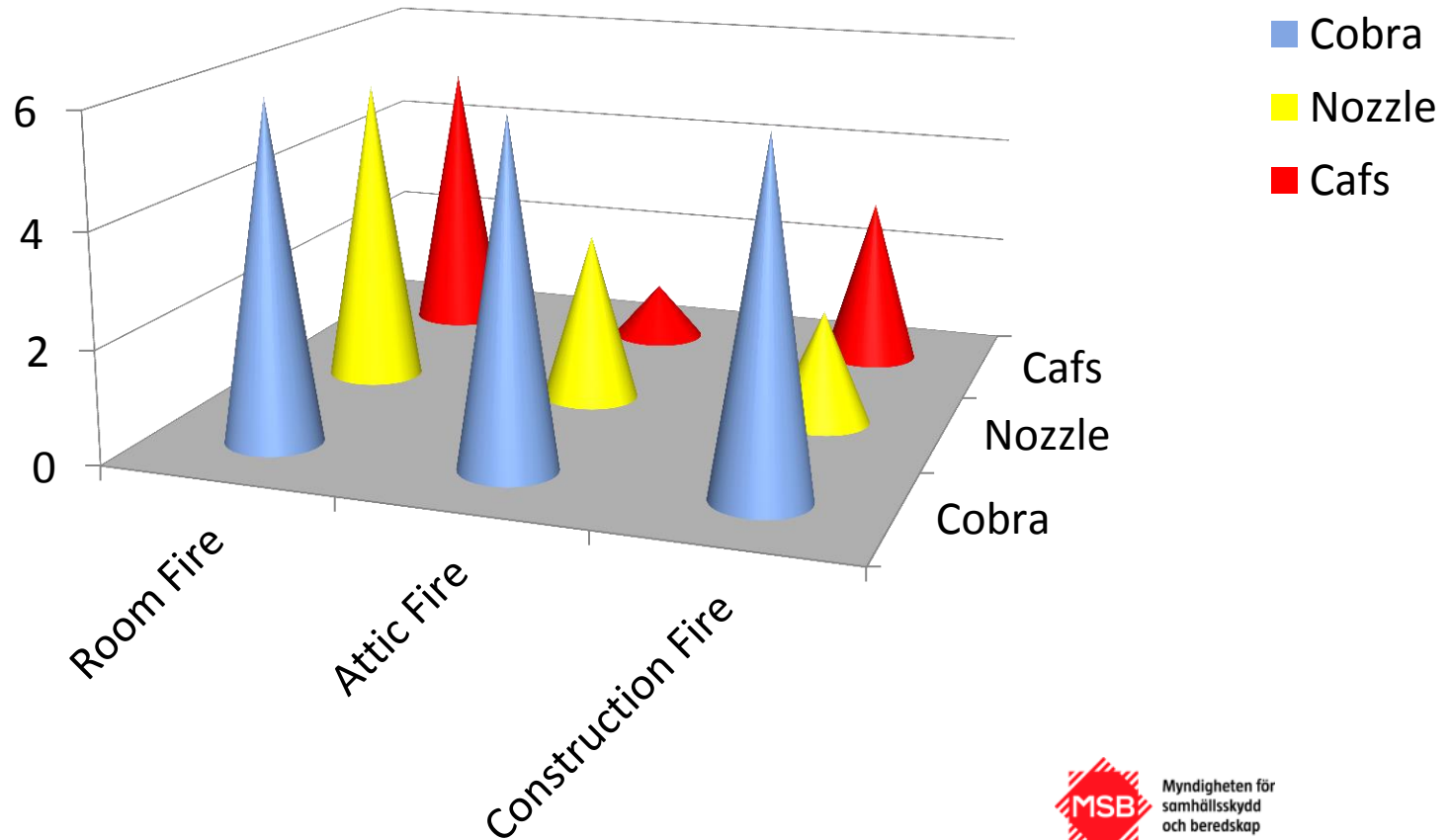
- Moving to a strategically diversified system
- 6 units purchased
- Progressive movement to wider implementation
- Developing maritime and Channel tunnel response options

# Wide range of usage



Source: The Cutting Extinguishing Project 2012-2013

# Extinguishing from outside – Result from efficiency comparance



# Key issues

- ✚ Firefighter Safety – The liability agenda.
- ✚ Rural capability
- ✚ Insurance industry costs and expectations.
- ✚ Limiting economic consequences.
- ✚ Reducing environmental damage.
- ✚ Community wellbeing and continuity.
- ✚ Operational flexibility.
- ✚ Critical assets and heritage.
- ✚ Continuity of service provision.

# Big agendas

## ✚ Firefighter Safety & Public Expectation

- *Taking risks in a measured way and in a way that is as safe as possible – but nevertheless still taking risks – must be intrinsic to the role of a Fire Service if it is to be effective.*

## ✚ Operational Flexibility

- *Responsive, flexible, and future proofed in terms of continuity of service provision and operational efficiency.*

## ✚ Environmental impact

- *Preventing impact and pollution through the implementation of Environmental Strategies. Targeted at demonstrating best practice in environmental management.*

# Embedding and integrated

Fully-integrated

*Fast response specialist units operating as part of a co-ordinated deployment*

*Embedded into local community response integrated with traditional firefighting methods*

Isolated Rural

*Fully integrated into traditional pumps, operating within a strategic deployment model*

*Embedded training and awareness, enhancing traditional methods*

Integrated Urban

Non-integrated

*Single unit will tend to respond only on request*

*Tendency to be secondary to traditional firefighting methods*

Low order secondary impact

*Multiple units strategically dispersed on traditional pumps*

*Lack of training and awareness leading to a continual focus on traditional methods*

Marginal impact – low benefit

Singular/ Limited resource

Distributed / Multiple resource

# Cases - examples

- ✦ Family House
- ✦ House Attic
- ✦ Roof Construction
- ✦ Garage
- ✦ Silo
- ✦ Industrial / Multiple use



**coldcut cobra**

# Fire in Family House

Fire in private house,  
Halmstad, S /  
Room Fire





# Fire in house ATTIC



Room and construction fire

# Fire in House Attic



Attic Fire in daycare centre,  
Lund, S  
- 2 Cobras used at the same  
time



# Fire in House Attic

- ✚ "Impossible to get a better result than by "St Lars" Daycare center!"
- ✚ "By experience I can say that we would have had big problems to extinguish the fire by conventional methods! "
- ✚ "Nearly no water damages, the small there was, came probably from conventional fog nozzle."





# Losen, Norway

## Traditional intervention

0 min



# Losen, Norway

## Traditional intervention

16 min





# Losen, Norway

## Traditional intervention



# Fire in Roof Construction



Fire by the chimney, Gothenburg  
/Construction fire (mouldering fire)



# Fire in Garage

Garage fire /  
Room- and construction fire





# Fire in Silo



# Industrial Fire

Corby, UK

Room fire, confine – 6 Cobras at the same time

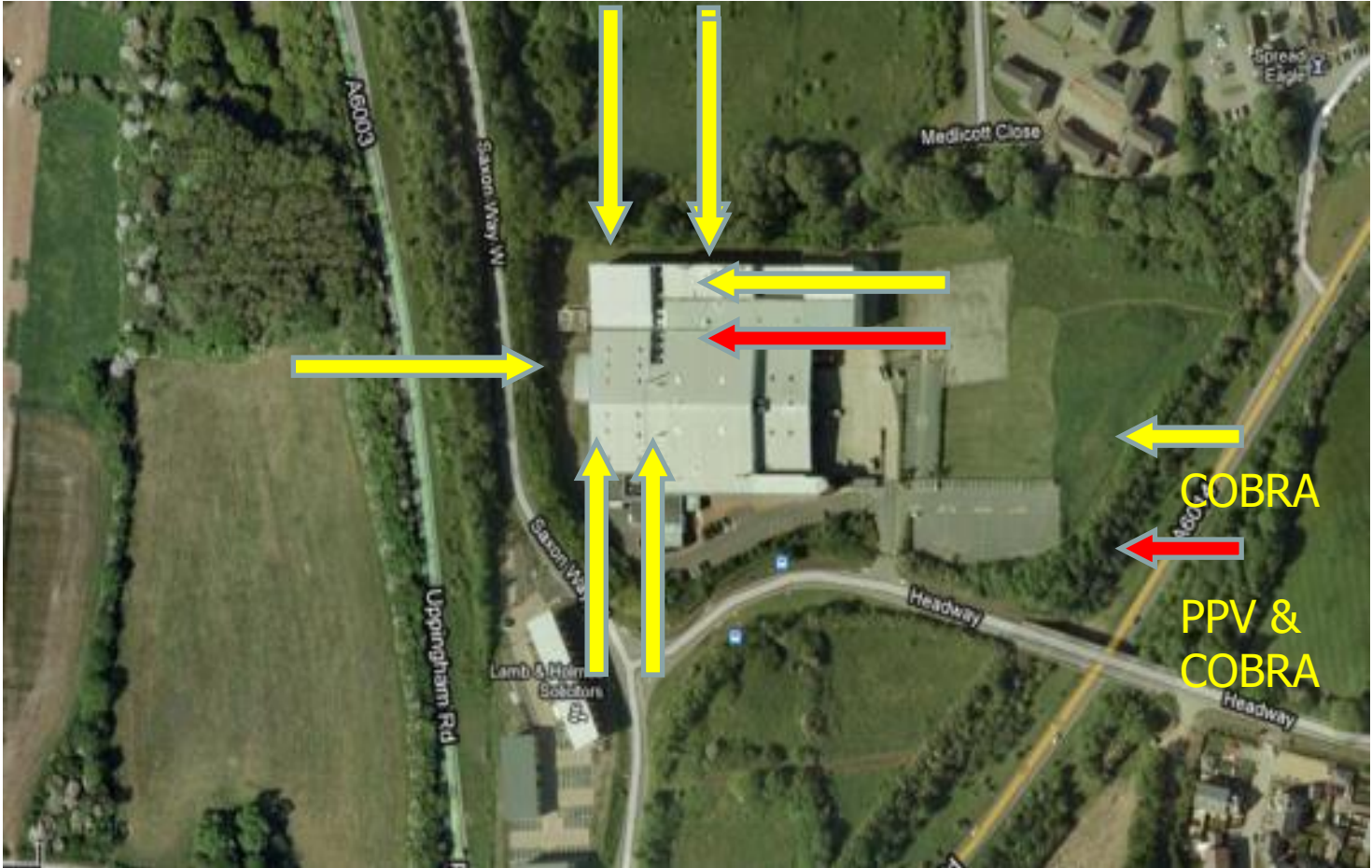


# Industrial fire





# Industrial fire



# Industrial fire





# Different Configurations



# C360H & C360HLS

- Complete hydraulic system
- Connected to PTO
- Common solution for pumpers and skylifts
- Total weights approx. 600 kg excl. water



# C360B

- Belt drive from PTO
- Developed for Mercedes Sprinter
- Weight approx. 600 kg incl. 270 L water





# C360 Split shaft

- Split shaft (Not supplied by CCS)
- A solution for vehicles without PTO
- Weight approx. 600 kg incl. 270 L water



# Frame units

- Different systems for different purposes
- Diesel or petroleum engines
- With or without water tank
- More used for training than first response

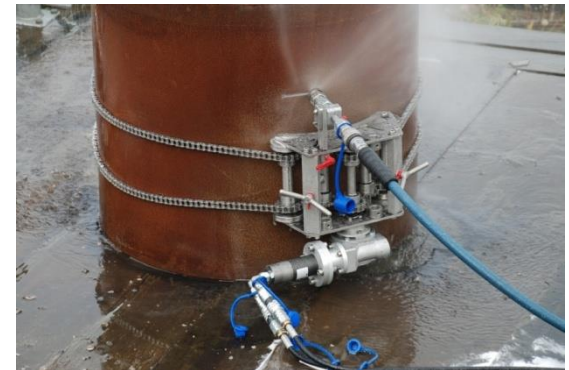


# Marine Application



# Accessories

- ▶ coldcut™ cold tap
- ▶ coldcut™ pipe cutter
- ▶ coldcut™ cutting frame

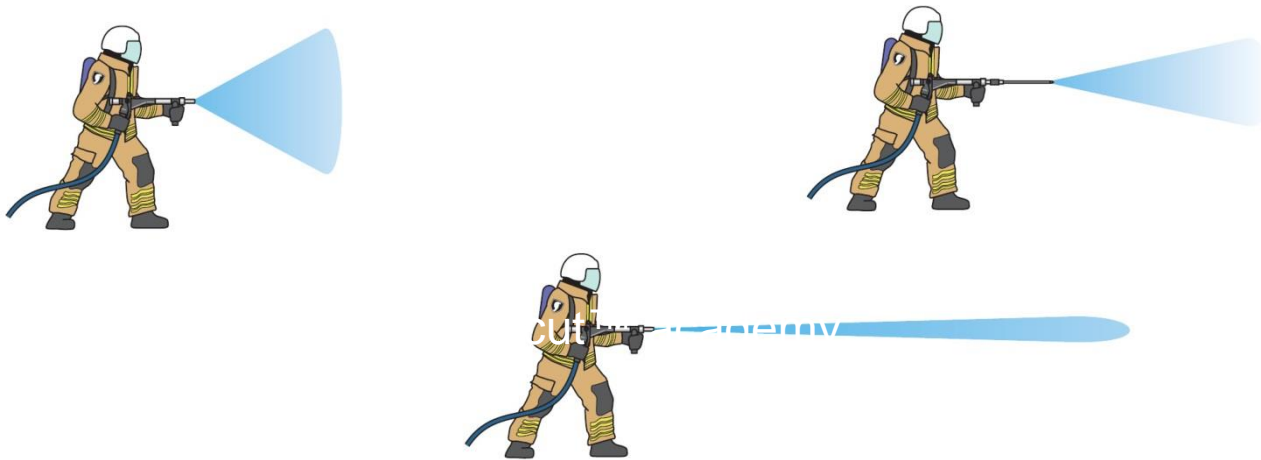


# Additive

- Increase extinguishing efficiency
- Smaller droplets
- Reduce risk of re-ignition
- Antifreeze performance (down to -50 degree C)



# Complement - coldcut™ MPN



- Developed as a complementary tool to Cobra
- Same hose used as for Cobra (standard 80 m)
- Pressure 15-60 bar
- Flow 58 l/min
- No radio control needed
- Easy switch from Cobra to MPN and vice versa

# coldcut™ MPN

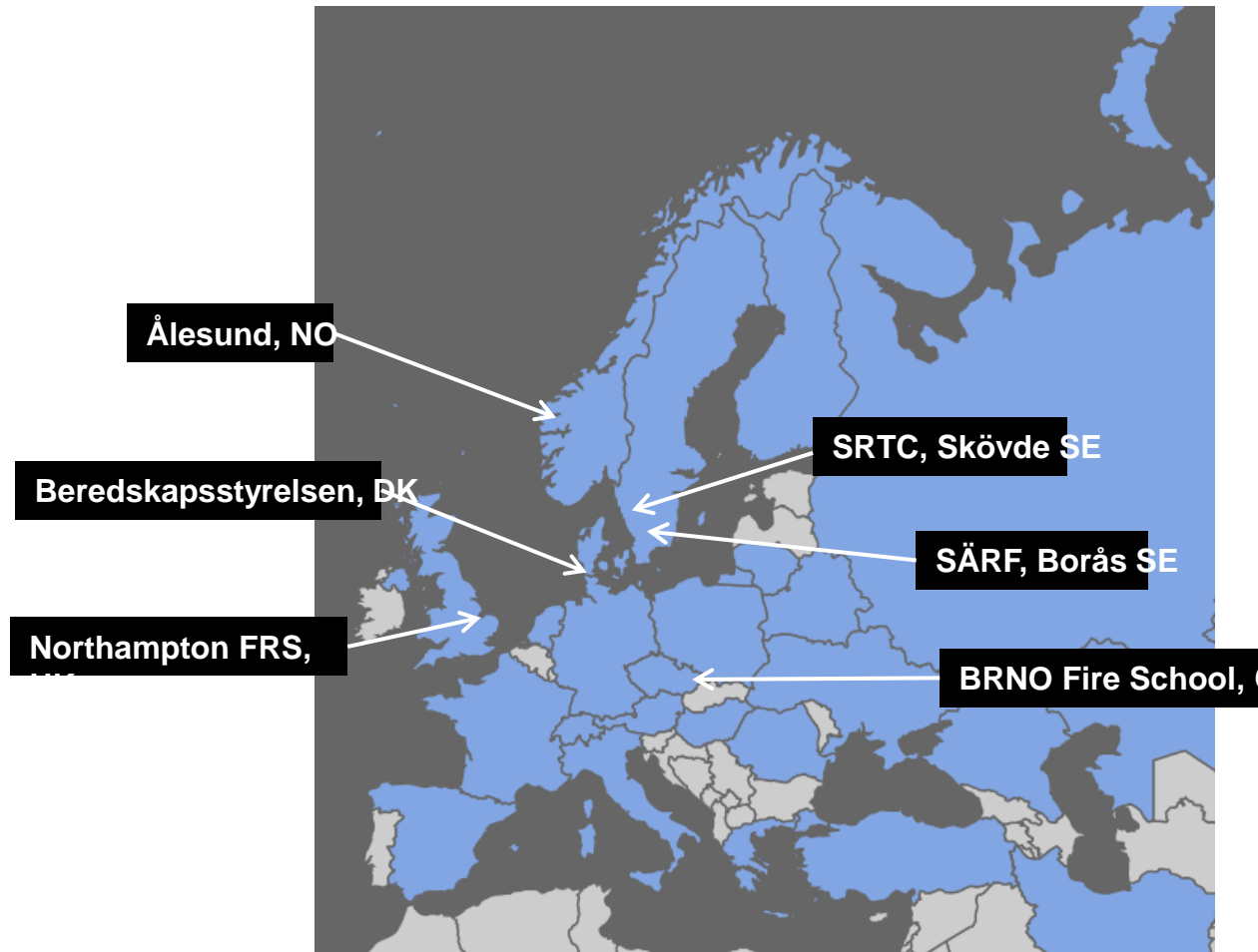


# coldcut™ academy





# coldcut™ academy



# Cold Cut Academy

- Basic training 2 days
- Officer training/tactic 1 day
- Instructor course 3 (5) days  
(train the trainer)
- Service/Technical training 1 day



# Installation Training

- ✦ Gives knowledge for installing the equipment
- ✦ ~2 days training during installation start up
- ✦ Distance support through entire installation
- ✦ Certified technicians



# Commissioning/Training

- Commissioning & quality checking of the entire Cold Cut system before delivery
- After finished commissioning a report is made and can be used as a quality document
- Installation feedback
- Possible to train coachbuilders personnel to perform commissioning on their own

# www.coldcutsystems.com

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**Cobra**  
CUTTING EXTINGUISHING

**Action reports**  
IN PRACTICE

**Solutions**  
A COMPREHENSIVE SOLUTION

**Accessories**  
EXTRA EQUIPMENT



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