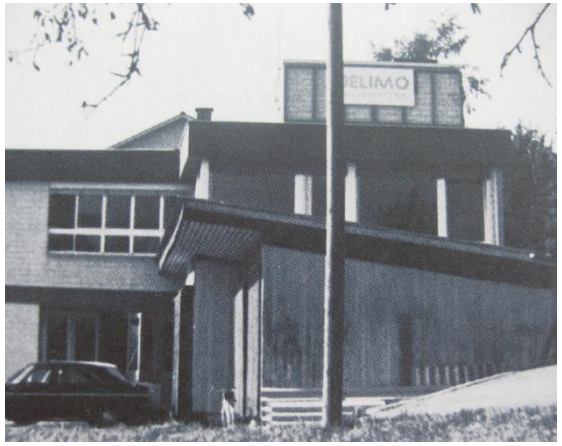
Small Devices, Big Impact.

Belimo
Safety Solutions Europe

CESIM Talk

History

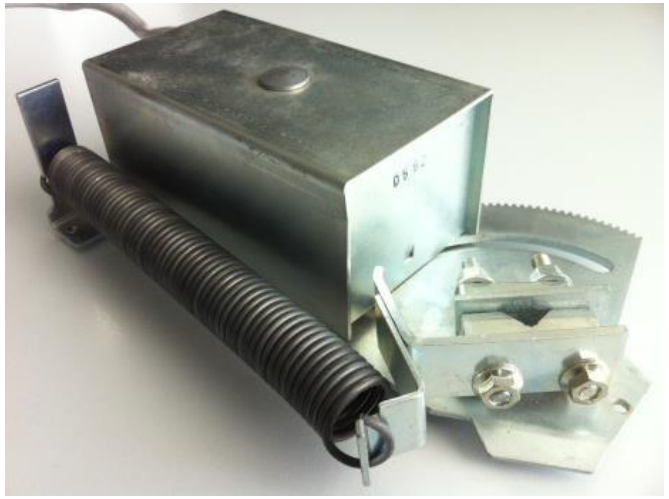


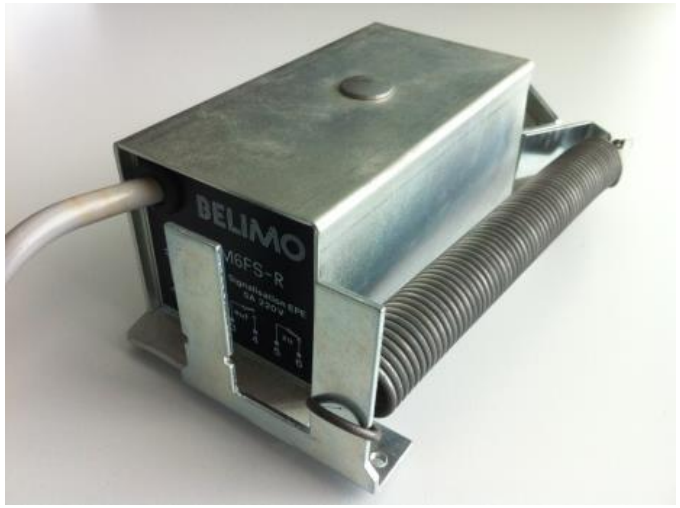
1975: Foundation of BELIMO

→ Basic idea: Actuator mounted directly on damper spindle («direct coupled damper motor»)

1978: Starting in fire and smoke business

→ First actuator with a spring-return





2015

2019

Fire Protection in Buildings - Basics

Why Fire Safety matters

BELIMO

Fire Statistics Europe:

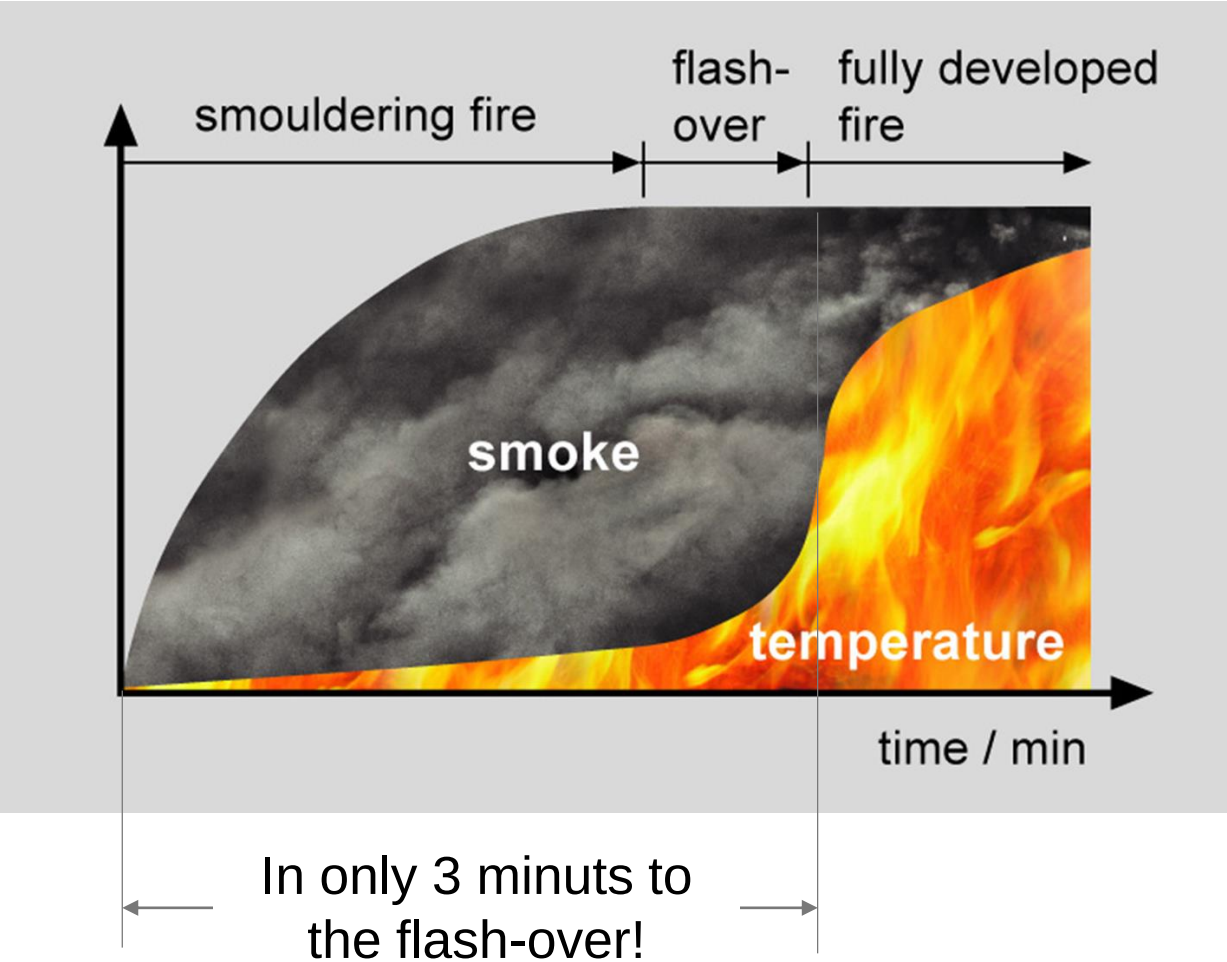
4’000 people killed by fire in Europe every year, or 11 deaths per day!
192 people are hospitalized in Europe every day with serious fire injuries.
126 Billion €, or 1% of European GDP, burned in fire costs yearly.
3 minutes is all it takes today for a fire to engulf an entire room.

Todays Life:

People in the civilized world spend 90% of their time in a building and expect to be save!

Source: https://firesafeeurope.eu/

What happens in Case of a Fire in a Building



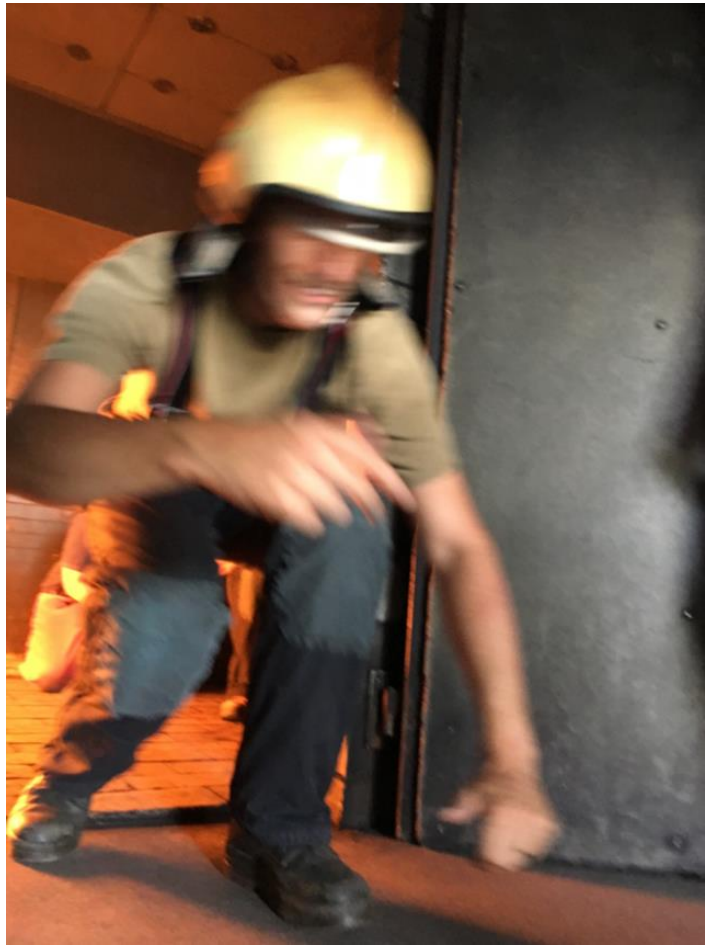
Time is a very critcal factor in case of a fire in a building!

Conclusion:
Only a very fast reaction to a fire saves lives!

Two Main Protection Strategies

1. **Compartmentation**
   In case of a fire, close the fire dampers and fire doors as early as possible

2. **Smoke Control**
   Keep escape and rescue routes free from smoke



Two Main Protection Strategies

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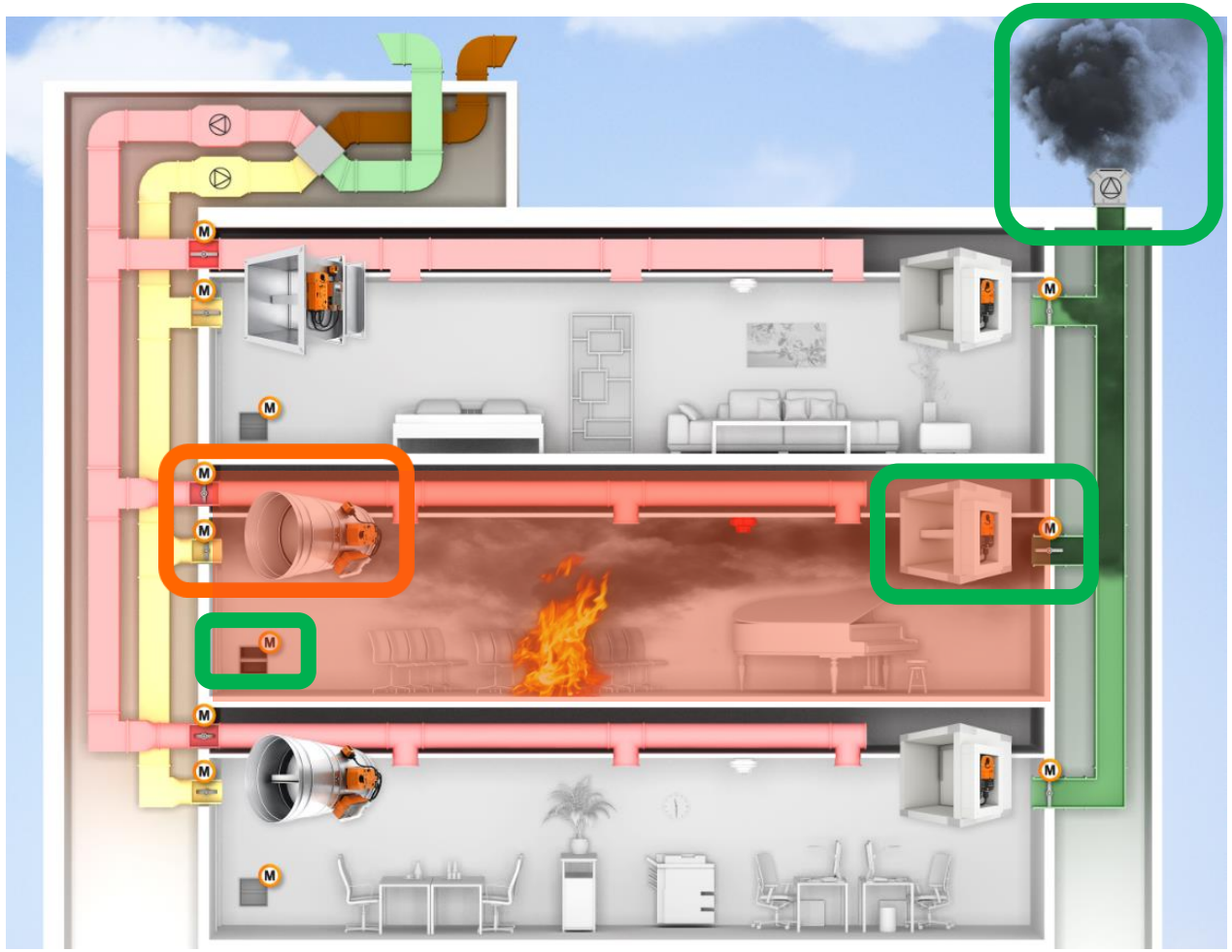
2. Smoke Control



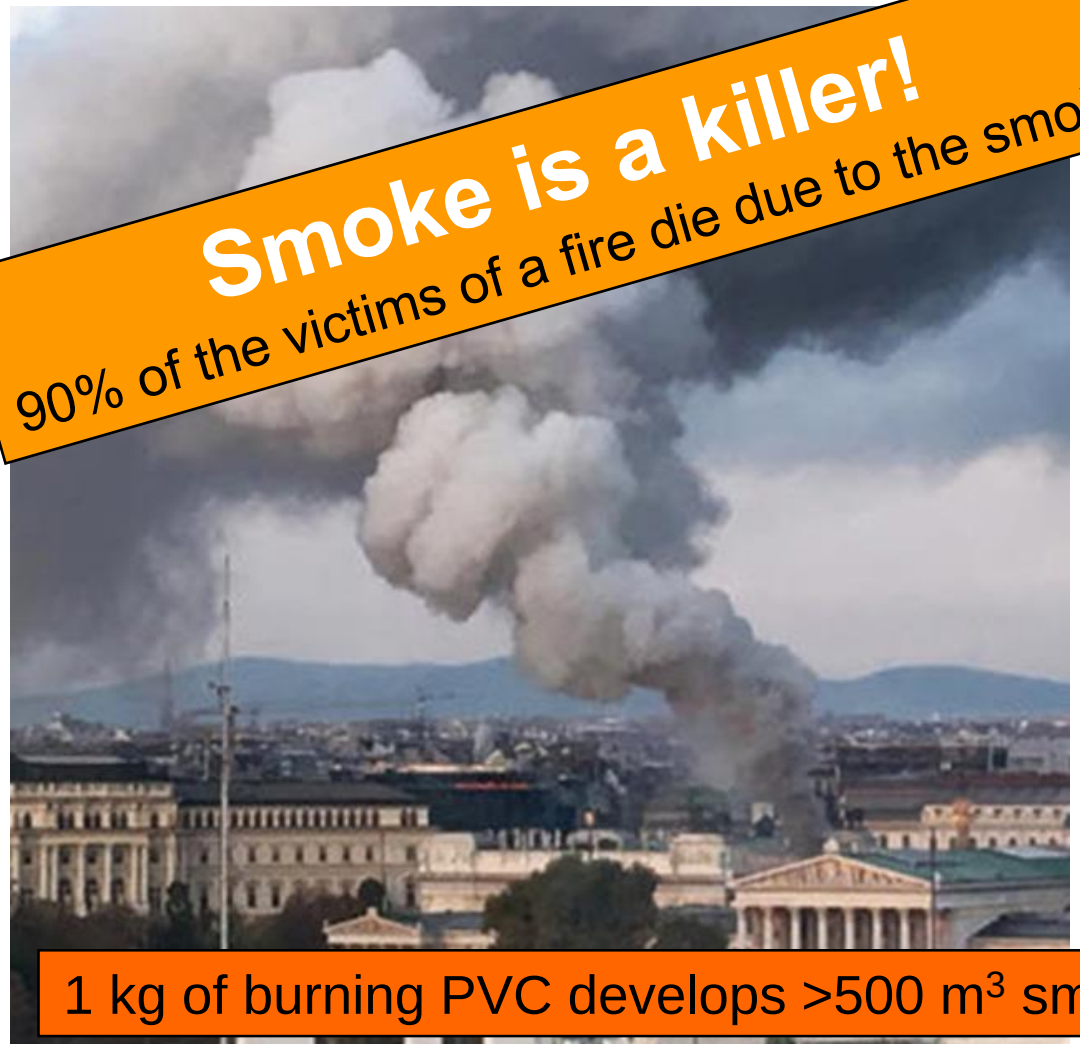
Fire Dampers

Smoke Control Dampers

Toxic Smoke

Smoke is a killer!

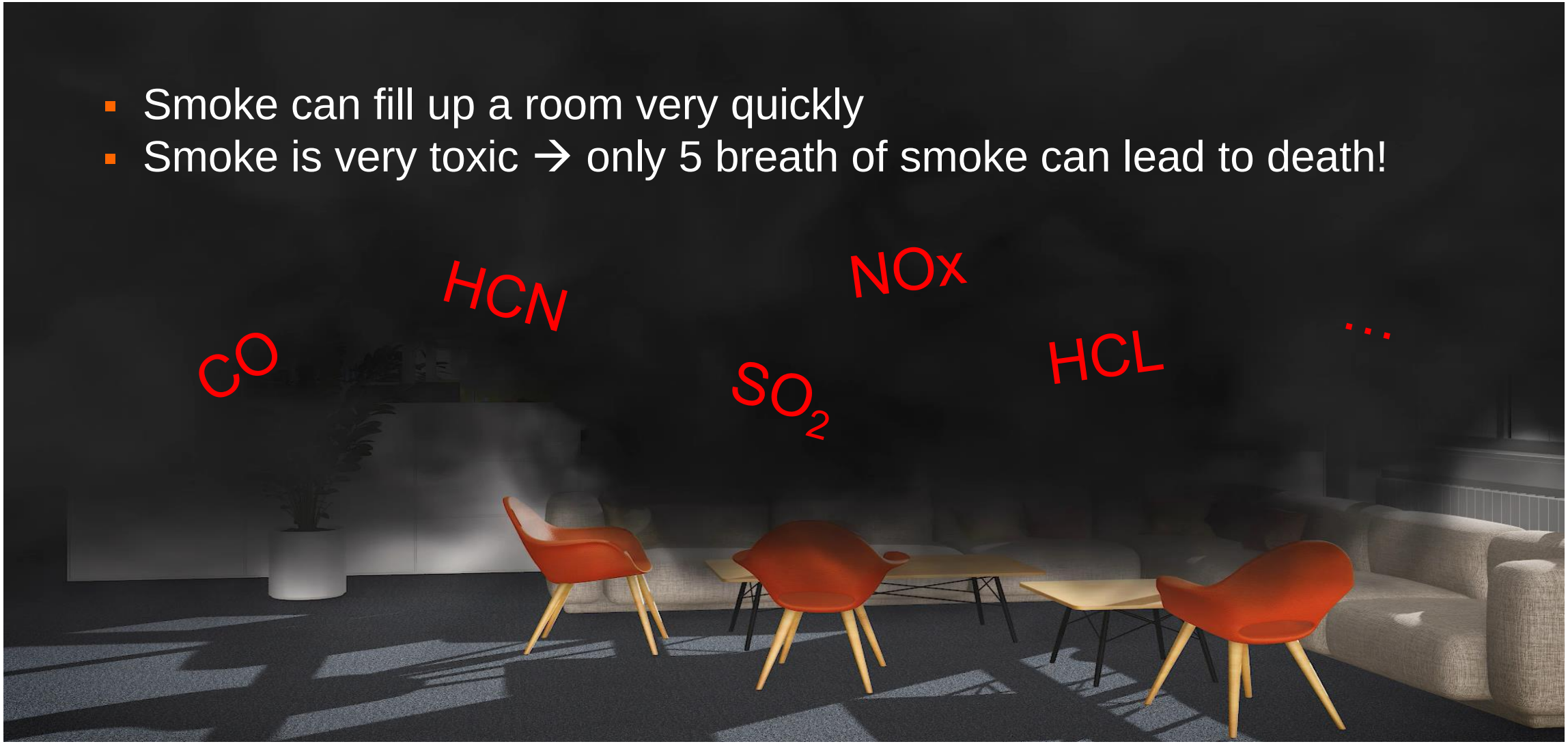
90% of the victims of a fire die due to the smoke!



1 kg of burning PVC develops >500 m^3 smoke!

Toxic Smoke

- Smoke can fill up a room very quickly
- Smoke is very toxic → only 5 breath of smoke can lead to death!



Benefits of Smoke Control

Supports the evacuation of people and animals (smoke free escape routes)

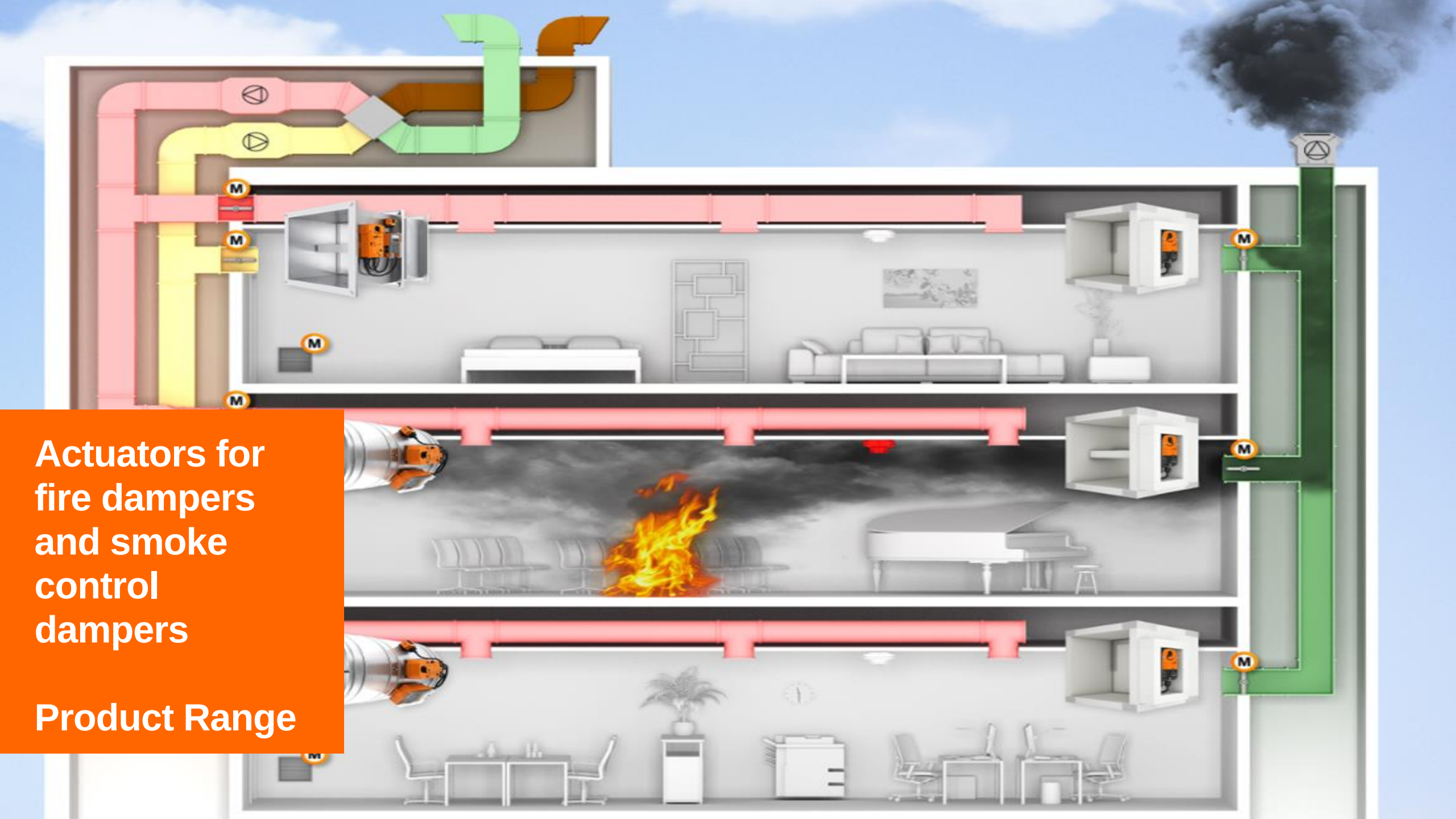
Cools the fire compartment and delays the flash-over by exhausting the hot gases

Supports the rescue and fire fighting work

Protects asset values and the infrastructure

Where are Smoke Control Systems Required?

- Protection targets of the fire safety strategy must be reached.
- Depending on the construction and the use of a building, this can only be reached by using a powered smoke control system.
- Typically smoke control systems are used in buildings with "special utilisation", e. g.:
  - Cinemas
  - High rise buildings
  - Hospitals
  - Hotels
  - Car parks, underground parking
  - Malls, shopping centers
  - Museums
  - etc.



Actuators for fire dampers and smoke control dampers

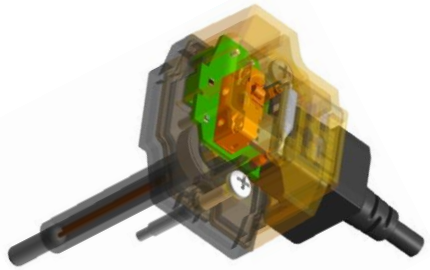
Product Range

Actuators for Fire Dampers

BFL	BFN	BF
Motor min. 4 Nm / < 60 s **Spring min. 3 Nm / 20 s**	**Motor min. 9 Nm / < 60 s** **Spring min. 7 Nm / 20 s**	**Motor min. 18 Nm / < 120 s** **Spring min. 12 Nm / ~ 16 s**
Slim design, optimised actuator for small and medium fire dampers	Flat design, high torque actuator for medium and large fire dampers	Well established actuator for large fire dampers with high torque requirements
Safety Position Lock™ (patented technical solution)	Safety Position Lock™ (patented technical solution)	Safety Position Lock™

Note: these actuators are sold to OEMs only!

BFL, BFN Actuators

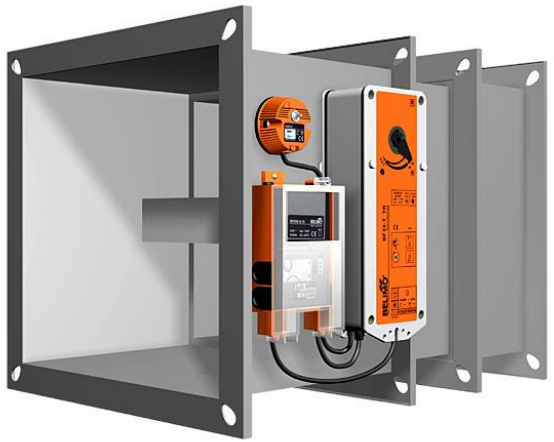


Normal condition...

Fire condition...

- Safety Position Lock™
- Casing made from engineering premium polymer
- Fire-resistant mechanics
- Manual override control with integrated position lock
- Thermoelectric tripping device BAT tested according to ISO 10294-4

Fire Dampers / European Standards



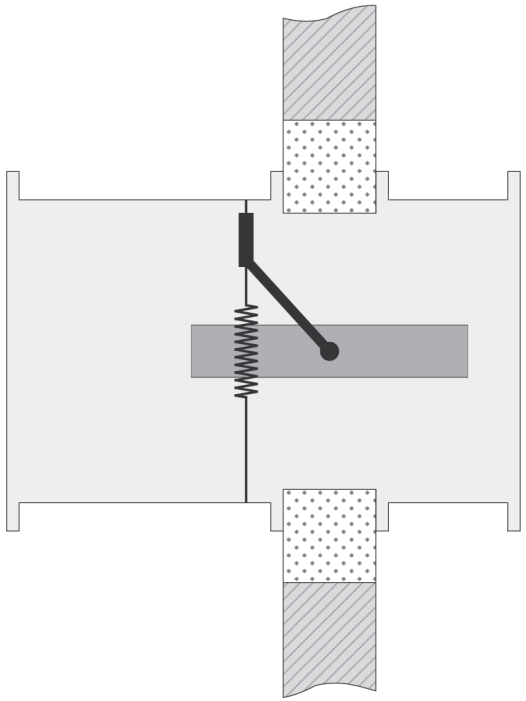
European Standards:

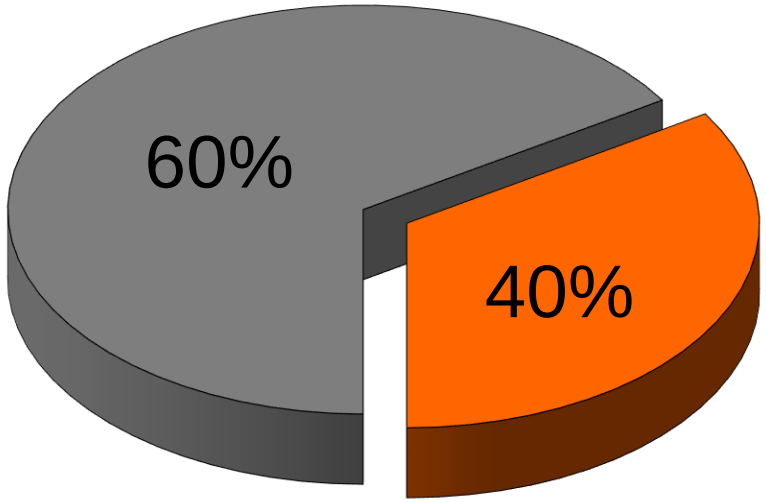
- EN 15650 Product Standard
- EN 1366-2 Test Standard
- EN 13501-3 Classification
- EN 15882-2 Extended Appl.

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

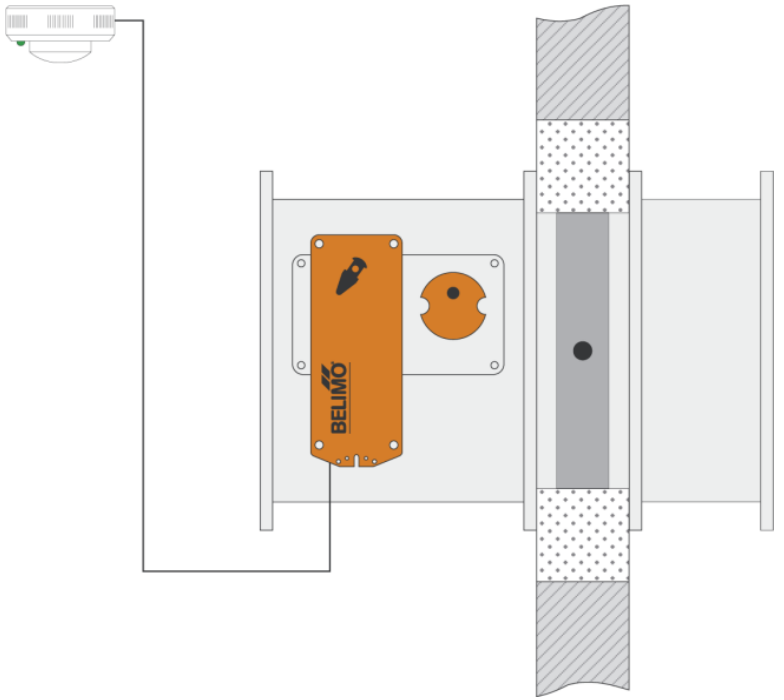
Degree of Motorization of Fire Dampers in Europe

Non-motorized (mechanical)





Motorised



Situation in Europe Today

- **Only 40% of the fire dampers in Europe are motorized!**

This means 60% of the installed fire dampers:

- will not react in an early stage of a fire
- will not stop cold smoke from spreading within the building
- cannot be tested remotely on a regular basis
- result in high maintenance costs over the lifetime of a building

Only a regularly tested system is a safe system!
Building owners are often not aware of their responsibility!

Actuators for Smoke Control Dampers

Phase-out from 2019

BLE	BE
Torque min. 15 Nm Running time < 30 s / 90˚	Torque min. 40 Nm Running time < 60 s / 90˚
Slim, compact desing	Well established actuator for large smoke control dampers
Safety Position Lock™	Safety Position Lock™

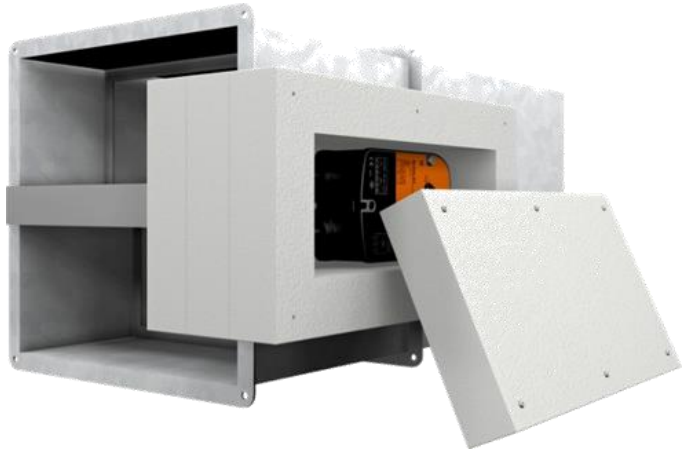
Note: these actuators are sold to OEMs only!

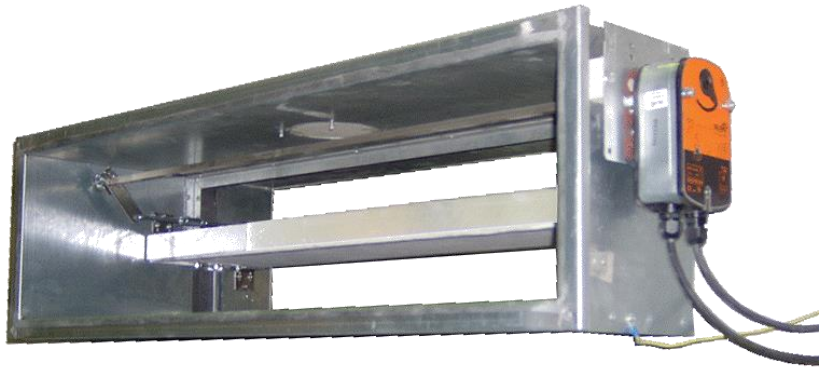
New Actuators for Smoke Control Dampers

BEN	BEE	BE
Torque min. 15 Nm Running time < 30 s / 90˚	Torque min. 25 Nm Running Time < 60 s / 90˚	Torque min. 40 Nm Running time < 60 s / 90˚
Slim design, highest torque in smallest smoke control actuator	High torque smoke control actuator in flat design	Well established actuator for large smoke control dampers
Safety Position Lock™	Safety Position Lock™	Safety Position Lock™

Note: these actuators are sold to OEMs only!

Fire Dampers / European Standards



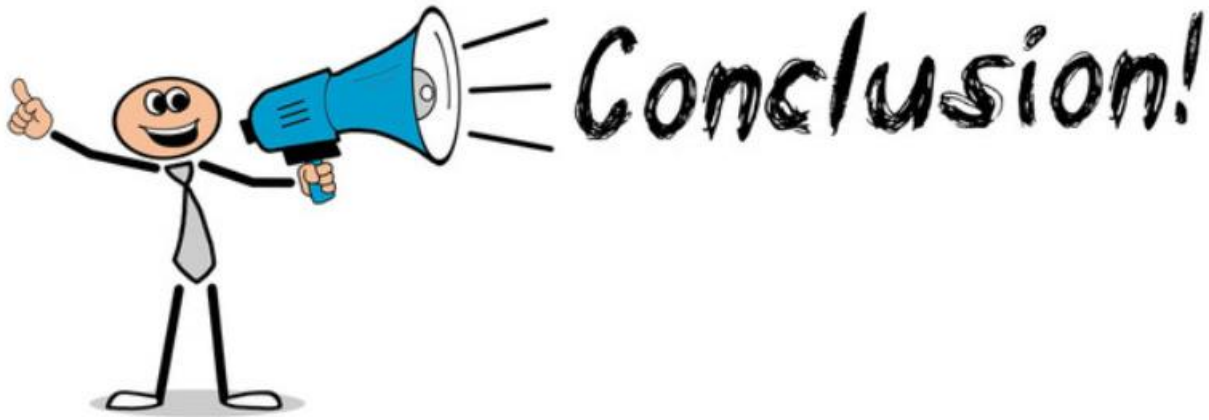


European Standards:

- EN 12101-8 Product Standard
- EN 1366-10 Test Standard
- EN 13501-4 Classification
- EN currently no Extended Application Standard

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Conclusion



Conclusion

- Belimo has a very long experience in the fire safety business
- We provide a full range of high quality actuators for the motorization of fire dampers and smoke control dampers
- Fire damper actuators and smoke control actuators are specially designed for the application
  (they are not general HVAC actuators)
- Early triggering of fire dampers and smoke control dampers in case of a fire protects life
- Fire dampers and smoke control dampers should be function tested on a regular basis and the result should be protocolled. This will ensure availability in case of fire.


BELIMO®