



Efficient
smoke control,
more safety.

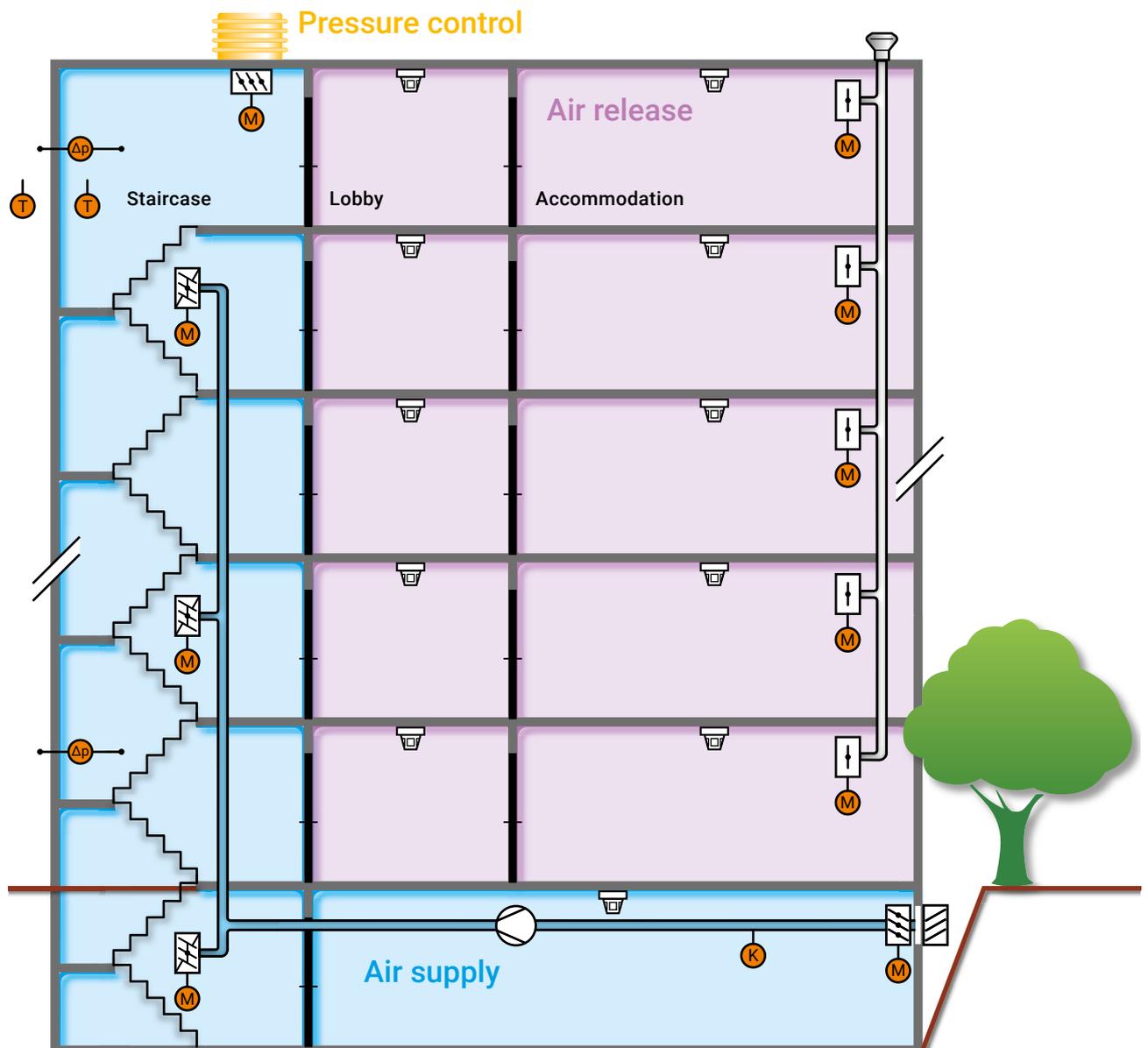
Applications Pressure differential systems

Edition 2020-11/A

Preface

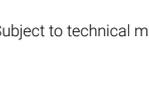
Belimo Automation AG is the world market leader in the development, production and sales of actuator solutions. In this brochure we would like to provide you with information on the use of Belimo products in a pressure differential system and show you which Belimo products can be used in which areas of the system, such as air supply, pressure control or air release.

This brochure is aimed at installers and specialist planners of pressure differential systems and is intended to offer support and recommendations. Information and notes in this brochure are no substitute for individual system planning and design by a specialist planner.



Example picture: system areas

Belimo product types and system areas

	Product type from Belimo	Air supply	Pressure control	Air release
	NF24A-S2	■	■	
	NFA-S2	■	■	
	NF24A-MOD	■	■	
	SF24A-S2	■	■	
	SFA-S2	■	■	
	SF24A-MOD	■	■	
	EF24A-S2	■	■	
	EF230A-S2	■	■	
	NKQ24A-SR		■	
	LMQ24A-SR		■	
	NMQ24A-SR		■	
	CM24-SR-L	■		
	CM24-SR-R	■		
	LM24A-SR	■		
	LM230ASR	■		
	LM24A-MOD	■		
	BEN24	■		■
	BEN230	■		■
	BEE24	■		■
	BEE230	■		■
	BE24	■		■
	BE230	■		■
	22ADP-15Q		■	
	22ADP-18Q		■	
	22UT-12		■	
	22DT-12T		■	

Belimo product types

Air supply ■

Pressure control ■

Air release ■

Rotary actuator with fail-safe

Safe, strong, versatile

Spring-return actuators with a torque and holding torque of 10 Nm or 20 Nm, proven millions of times over.

The actuators automatically move to the defined fail-safe position in the event of a voltage interruption.

- Integrated manual override with locking mechanism
- Degree of protection IP54
- Auxiliary switch (1 x fixed/1 x adjustable)
- Control: Open/close, modulating, Modbus



NF24A-S2/NFA-S2/NF24A-MOD
SF24A-S2/SFA-S2/SF24A-MOD

Rotary actuator with fail-safe

The most powerful of its kind

Spring-return actuators with a torque of 30 Nm. Predestined for use on large air dampers.

- Robust components
- Integrated manual override with locking mechanism
- Aluminium die-cast housing
- Degree of protection IP54
- Auxiliary switch (1 x fixed/1 x adjustable)
- Control: Open/close



EF24A-S2/EF230A-S2

Very fast running fail-safe rotary actuator

Controlling Critical Environments

Modulating very fast running fail-safe rotary actuator, 6 Nm.

- Monitored supply and discharge of the very fast running actuators
- Very fast running actuator with 4 s running time
- Degree of protection IP54
- Control: Open/close modulating



NKQ24A-SR

Very fast running rotary actuator without fail-safe

Created for more sophisticated tasks

Modulating control, 4 Nm/8 Nm

- Very fast running actuators with 2.5 s/4 s running time
- Degree of protection IP54
- Control: Open/close modulating



LMQ24A-SR/NMQ24A-SR

Damper actuator

Compact and slim like no other

Extremely compact CM actuator can easily be installed in spaces that are too tight for others.

- Extremely slim
- Quick assembly
- Gear disengagement with magnet
- Degree of protection IP54
- Adjustable without limits



CM24-SR-L/R

Non fail-safe damper actuator

Proven and robust

- Brushless DC motors
- Dynamic holding force detection
- Degree of protection IP54
- Current reduction in rest position

Smoke control damper actuators

Powerful technology in a compact design

Actuators with a torque of 15 Nm/25 Nm/40 Nm

- Suitable for the motorisation of smoke control dampers
- Safety Position Lock™ function
- Integrated manual override
- Low power consumption
- Degree of protection IP54
- Fixed auxiliary switches
- Control: Open/close

Differential Pressure Sensor

Seamless integration and reliability

- Simple assembly
- Output signals DC 0...5 V/0...10 V/4...20 mA
- Pressure measuring range: 0...250 Pa
- Communicative control via Modbus
- Excellent zero point stability
- Degree of protection IP65
- High accuracy
- Manual calibration possible

Outdoor sensor temperature

Reliable temperature measurement in outdoor areas

- Simple assembly
- Output signals DC 0...5 V/0...10 V/4...20 mA
- Temperature measuring range -50...250°C
- Degree of protection IP65

Duct sensor temperature

Accurate and reliable temperature measurement

- Simple assembly
- Output signals DC 0...5 V/0...10 V/4...20 mA
- Temperature measuring range in the duct -50...250°C
- Degree of protection IP65
- Probe length 50...450 mm

Air supply ■

Pressure control ■

Air release ■



LM24A-SR/LM230ASR/LM24A-MOD



BEN24/BEN230



BEE24/BEE230



BE24/BE230



22ADP-18Q



22ADP-15Q

Modbus

Outdoor sensor temperature

Reliable temperature measurement in outdoor areas

- Simple assembly
- Output signals DC 0...5 V/0...10 V/4...20 mA
- Temperature measuring range -50...250°C
- Degree of protection IP65



22UT-...

Duct sensor temperature

Accurate and reliable temperature measurement

- Simple assembly
- Output signals DC 0...5 V/0...10 V/4...20 mA
- Temperature measuring range in the duct -50...250°C
- Degree of protection IP65
- Probe length 50...450 mm



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Introduction

Pressure differential system

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Introduction

Thank you for your interest in our products. In this brochure you will find supporting information for selecting the right Belimo products for pressure differential systems. Using various examples and descriptions, we explain the various areas of the system and which Belimo products can be used for them.

Pressure differential system (PDS)

Increasing urbanisation is leading to a dense approach to construction, with greater height and depth on a small surface area. Buildings of this type, which are typically high-rises, require new technical solutions that enable safe evacuation in case of fire and support fire-fighting operations.

Pressure differential systems ensure smoke-free escape and rescue routes—especially in staircases or fire-fighting lifts—and are becoming increasingly important. They enable the implementation of a so-called protected staircase, which may eliminate the requirement for a second staircase without compromising safety (the relevant local standards and guidelines must be observed). Ideally, this freed-up space could then be used for other purposes and construction costs thereby reduced.

We would like to highlight the following information:

- Qualified building products must be used in the air release.
(e.g. certified smoke control dampers).
- The smoke can be discharged via a shaft or a facade.
- Depressurisation and air purge (flush mode) systems are not covered in this brochure.
- Our recommendations and advice do not replace individual system planning and design by a specialist planner.
- The focus is on systems with a staircase height ≤ 60 m.

Belimo Experience Center – Safety Lab

Belimo PDS pilot system for testing and demonstration purposes

Pressure differential systems are becoming increasingly important for the safety of modern buildings. Belimo is investing in an internal PDS test environment as part of its preventive fire protection system. This allows new solutions to be realistically tested and demonstrated. Both a system with a pressure relief damper (barometric damper) and a variant with a motor-controlled pressure relief damper can be demonstrated. We focus on custom motorisation for specific dampers but also on acquiring relevant physical parameters with our sensors. Actual value signals are fed to intelligent controllers, which then regulate and control the damper actuators and the dampers. Training and practical experience are another focal point for different target groups such as public authorities, specialist planners, system-integrators, investors or maintenance companies. The Belimo development and sales staff also use the test environment as a test facility or for training and further education.



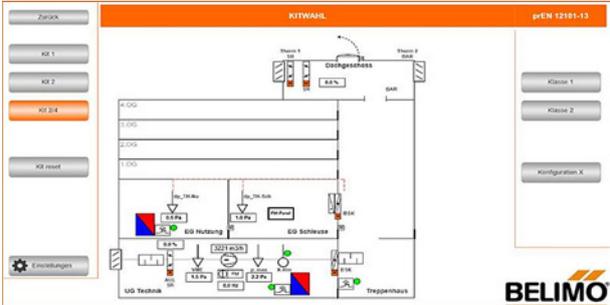
Example picture: pressure relief damper



Example picture: accommodation area



Example picture: overpressure release



Example picture: surface live demo system

Status of European standards

Within the framework of European harmonisation, the components of the EN 12101 series of standards apply to smoke and heat control.

Current status	Future situation	
EN 12101-6: 2005	New EN 12101-6: 2022	New EN 12101-13: 2022
Specification for pressure differential systems - Kits. The standard has been published and is currently under revision!	This standard defines essential features and test procedures for components and kits for differential pressure systems.	This standard covers planning, dimensioning, installation, acceptance testing, function tests, operation and maintenance.

Excerpt of design criteria according to the future standard EN 12101-13, 2022

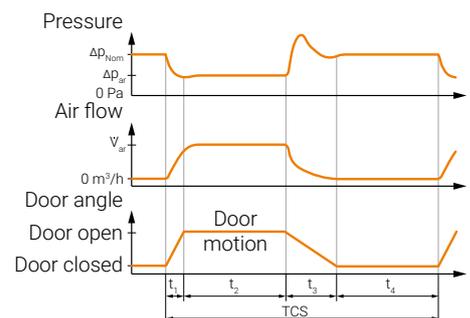
The following parameters for the design are defined and must be fulfilled and confirmed by the acceptance test on site:

- Maximum door opening force (N)
- Minimum differential pressure (Pa)
- Minimum air release rate (m/s)
- Maximum response delay(s) - defined by triggering, operation and response times

Parameters	Class 1	Class 2
Door opening force	≤100 N	
Differential pressure	≥30 Pa	
Air flow rate	≥1 m/s	≥2 m/s
Reaction time	≤60 s	
Operational readiness	≤120 s	
Control time	≤5 s	

Excerpt from the test cycle according to the future standard EN 12101-6, 2022

The test cycle sequence (TCS) simulates door operation in a building between a protected and unprotected staircase and thereby enables velocity of the air flowing into the unprotected space (lobby/accommodation) to be determined. The test cycle sequence is broken down into its components and applied against time. The times for opening and closing the door are based on measurements of different door sizes, weights and door closer settings.



Description of the function of a pressure differential system

Pressure differential systems are permanently installed devices that prevent the penetration of smoke through controlled overpressure in the areas to be protected - usually vertical escape and rescue routes (protected staircase) in high-rise buildings.

Smoke control in escape and rescue routes is an important requirement for the evacuation of people and firefighting measures by the fire department over a longer period of time.

The following criteria play an important role:

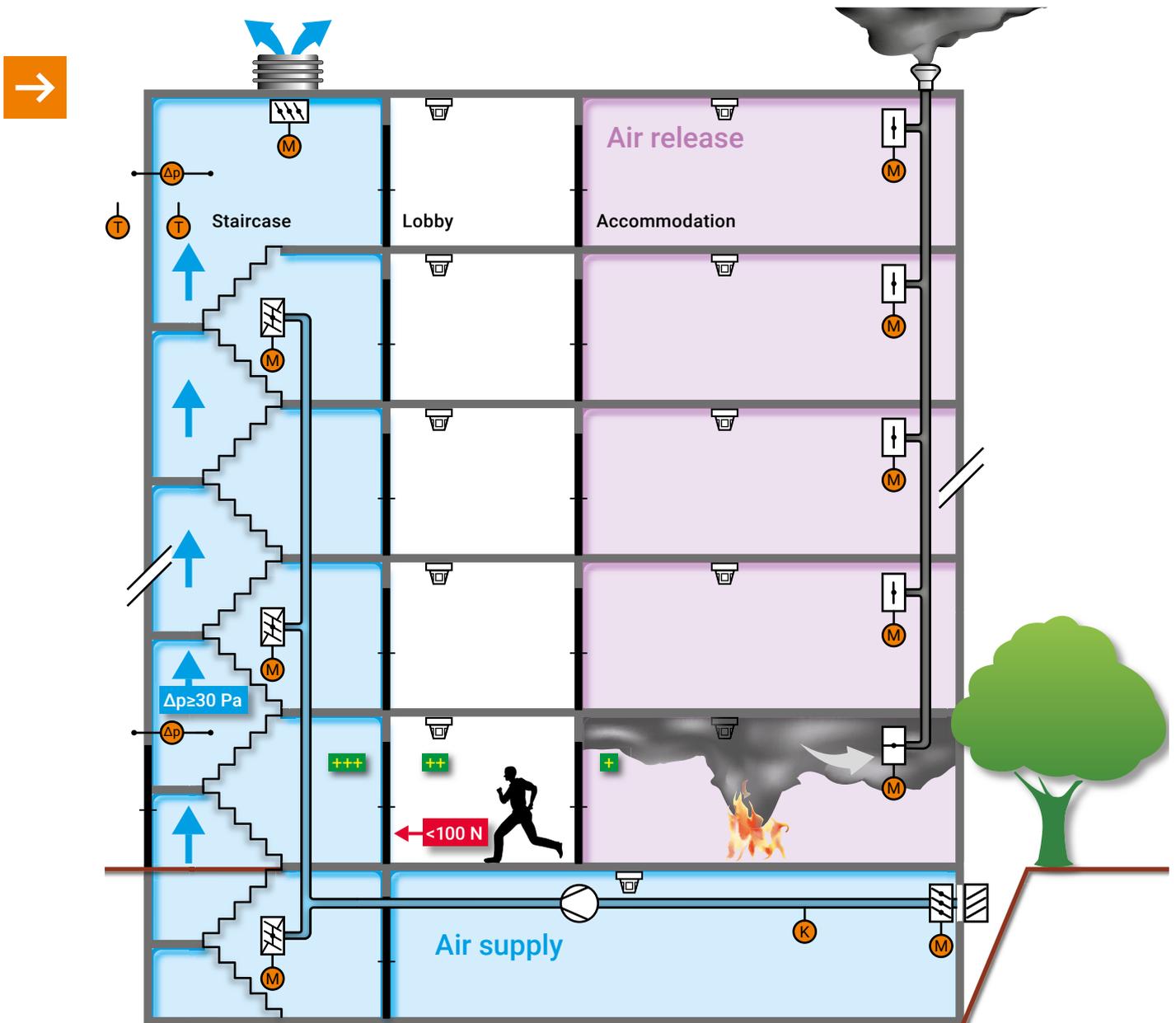
- the pressure gradation (pressure Δp) between the protected and the unprotected area with closed doors
- Maximum door opening force of $\leq 100 \text{ N}$
- Air flow rate of $\geq 1 \text{ m/s}$; $\geq 2 \text{ m/s}$ when the doors are open, from the area to be protected via the air release path to the outside

Legend

	Smoke control damper		Smoke detector		Duct smoke detector
	Multi blade damper		Fan		Actuator
	Air damper		Differential pressure sensor		Temperature sensor
	Weather protection				

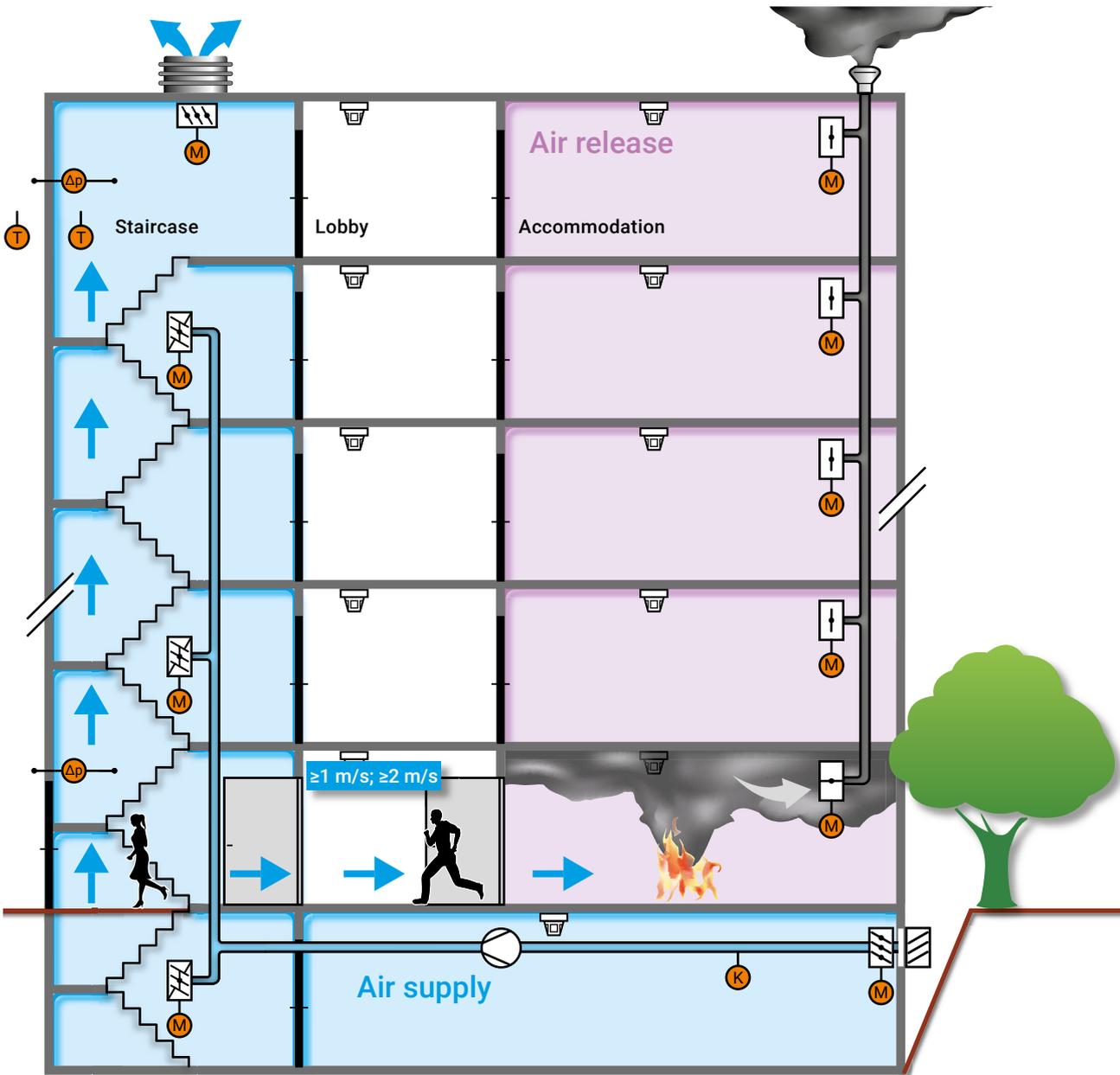
Examples of functions of the pressure differential system

Pressure gradation cascade \oplus with closed doors (door opening force $\leq 100 \text{ N}$) between the area to be protected and the unprotected area.



Example picture: criteria for closed doors

Air flow rate of $\geq 1 \text{ m/s}$; $\geq 2 \text{ m/s}$ when the doors are open, from the area to be protected via the air release path to the outside.



Example picture: criteria for open doors

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Air supply

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Air supply

Description of the air supply system area

Outside air

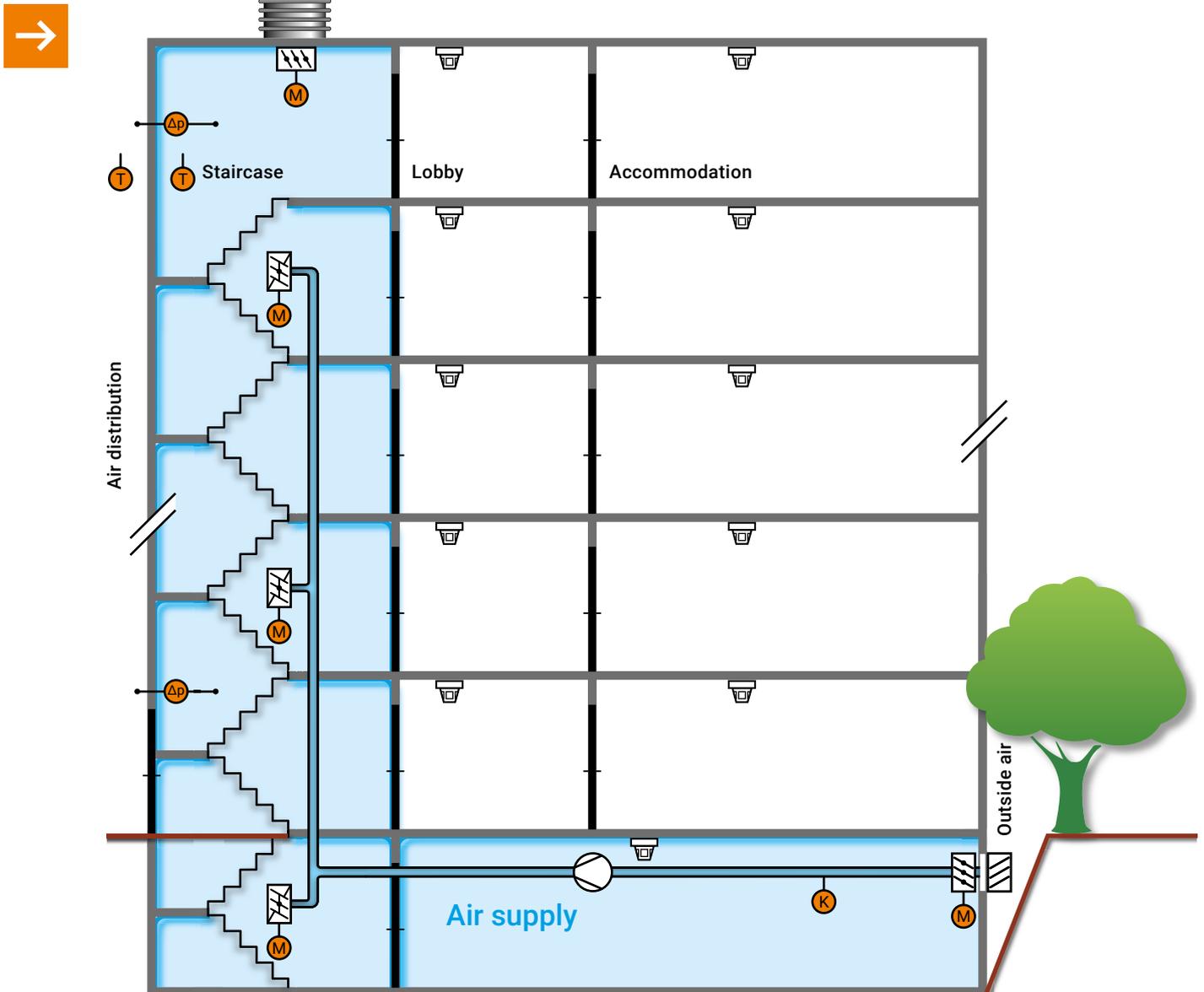
The outdoor air is taken directly from the outside and must be protected against the intake of smoke, flammable gases and steam. The outdoor air supply must be monitored by means of duct smoke detectors.

Air distribution

In order to minimise flow or pressure losses in the staircase, outdoor air is blown in through a shaft on several levels (e.g. every third floor) for taller buildings.

Product selection

Open/close and modulating actuators can be used for this system area.



Example picture: air supply

Belimo product types

The following products can be used for the air supply system area:

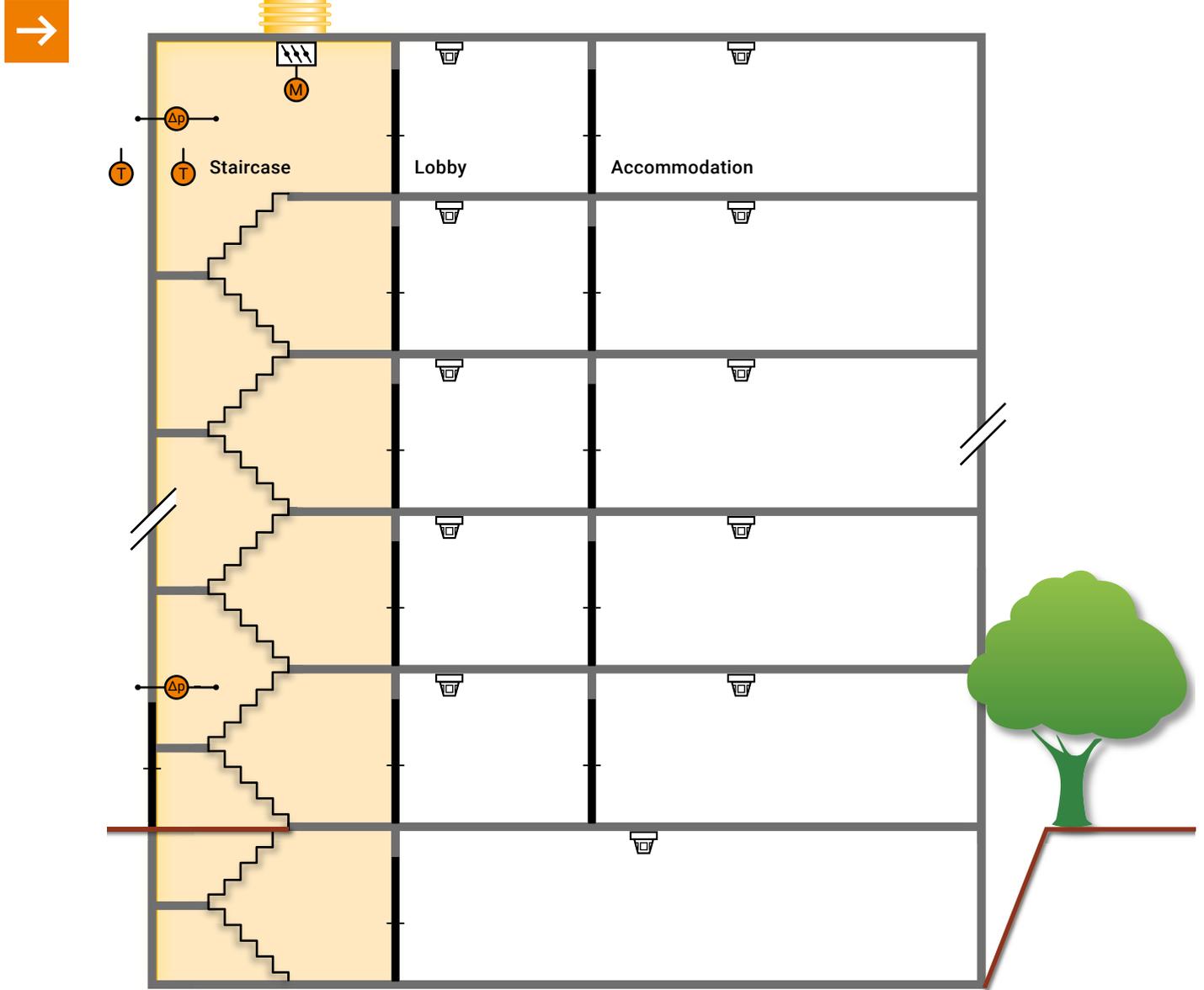
		NF24A-S2	NFA-S2	NF24A-MOD	SF24A-S2	SFA-S2	SF24A-MOD	EF24A-S2	EF230A-S2	CM24-SR-L CM24-SR-R	LM24A-SR	LM230A-SR	LM24A-MOD	BEN24	BEN230	BEE24	BEE230	BE24	BE230
Damper size up to approx.	0.4 m ²									■									
	1.0 m ²										■	■	■						
	2.0 m ²	■	■																
	4.0 m ²				■	■	■												
	6.0 m ²							■	■										
Torque	2 Nm									■									
	5 Nm										■	■	■						
	10 Nm	■	■	■															
	15 Nm													■	■				
	20 Nm				■	■	■												
	25 Nm															■	■		
	30 Nm								■	■									
	40 Nm																	■	■
Running time motor	30 s													■	■				
	60 s															■	■	■	■
	75 s	■	■		■	■		■	■	■									
	150 s			■				■			■	■	■						
Running time variable	40...150 s			■															
	70...220 s							■											
	35...150 s												■						
Nominal voltage	AC/DC 24 V	■		■	■		■	■		■	■	■	■		■		■		■
	AC 230 V								■		■				■		■		■
	Wide range AC 24...240 V / DC 24...125 V		■			■													
Control	Open/close	■	■		■	■		■	■					■	■	■	■	■	■
	Modulating			■				■		■	■	■							
	Modbus			■				■					■						
Fail-safe		■	■	■	■	■	■	■											
Auxiliary switch in actuator	1 x SPDT fixed	■	■		■	■		■	■										
	1 x SPDT adjustable				■	■		■	■										
	2 x SPDT fixed													■	■	■	■	■	■

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Pressure control

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Pressure control



Example picture: pressure control

Description of the pressure control system area

The pressure relief damper is a device for the release of excess compressed air from an overpressure area (staircase). This device is usually located at the top of the staircase .

In pressure control mode (i.e. when the staircase doors are closed), the excess air should be discharged into the atmosphere via the pressure relief damper. Mechanically or motorised pressure controls are possible.

Mechanical pressure relief damper

A mechanically controlled pressure relief damper (barometric pressure relief damper) is a purely mechanical regulating device that only opens when the opening pressure is reached.

Product selection

These dampers are not typically motorised. Using a Belimo open/close actuator makes it easy to implement a ventilation function for the summer. A fail-safe can also be activated in the event of a power failure.

Motorised pressure relief damper

A pressure relief damper (electrically controlled damper) with motorised control is a modulating regulating device that opens in the event of differential pressure between the staircase and the outdoors.

Product selection

Fast-running, modulating actuators can be used for this type of system in connection with differential pressure sensors and temperature sensors from Belimo.

Advantages of a motorised solution

With a motorised solution, the function of individual components can be tested at any time and with little effort, thereby increasing building safety.

- Reduced operating costs through simple, regular function checks
- High reliability and transparent safety
- Differential pressure measurement independent of the pressure relief damper
- Enables additional functions, e.g. ventilation function in the summer, fail-safe in case of power failure

Belimo product types

The following products can be used for the pressure control system area:

Actuators		Barometric relief damper ¹⁾						Motor driven relief damper				
												
		NF24A-S2	NFA-S2	NF24A-MOD	SF24A-S2	SFA-S2	SF24A-MOD	EF230A-S2	EF24A-S2	NMQ24A-SR	LMQ24A-SR	NMQ24A-SR
Damper size up to approx.	0.8 m ²											
	1.2 m ²											
	1.5 m ²											
	2.0 m ²	■	■									
	4.0 m ²				■	■						
	6.0 m ²							■	■			
Torque	4 Nm										■	
	6 Nm									■		
	8 Nm											■
	10 Nm	■	■	■								
	20 Nm				■	■	■					
	30 Nm							■	■			
Running time motor	2.5 s										■	
	4 s									■		■
	75 s	■	■		■	■		■	■			
	150 s			■			■					
Running time variable	40...150 s			■								
	70...220 s						■					
Nominal voltage	AC/DC 24 V	■		■	■		■		■	■	■	■
	AC 230 V							■				
	Wide range AC 24...240 V / DC 24...125 V		■			■						
Control	Open/close	■	■		■	■		■	■			
	Modulating			■			■			■	■	■
	MP-Bus			■			■					
	Modbus			■			■					
Fail-safe		■	■	■	■	■	■	■	■			
Auxiliary switch in actuator	1 x SPDT fixed	■	■		■	■		■	■			
	1 x SPDT adjustable	■	■		■	■		■	■			

¹⁾ Actuators for ventilation function in the summer

The following products can be used for the pressure control system area:

Sensors					
		22ADP-15Q ¹⁾	22ADT-18Q	22AUT-12	22DT-12T
Product type from Belimo					
Sensor technology	Piezo measuring element	■	■		
Measuring range pressure	0...250 Pa	■	■		
Accuracy pressure	Deviation compared to the reference device ±1 Pa in the range <250 Pa	■	■		
Measuring range temperature	*) -50...250°C			■	■
Accuracy temperature active	±0.5°C @ 21°C [±0.9°F @ 70°F]			■	■
Control communicative	Modbus RTU	■			
Output signal active	DC 0...10 V		■	■	■
	4...20 mA		■		
Burst pressure	40 kPa	■	■		
Additional Features	External sensor			■	
	Duct sensor				■
Probe length	450 mm				■
Power supply DC	15...24 V, ±10%, 0.5 W			■	
	15...24 V, ±10%, 0.35 W				■
	15...24 V, ±10%, 1.1 W		■		
	15...24 V, ±10%, 1.4 W	■			
Power supply AC	24 V, ±10%, 0.8 VA			■	
	24 V, ±10%, 0.82 VA				■
	24 V, ±10%, 1.7 VA		■		
	24 V, ±10%, 2 VA	■			
Zero-point calibration	Manual with button	■	■		

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Air release

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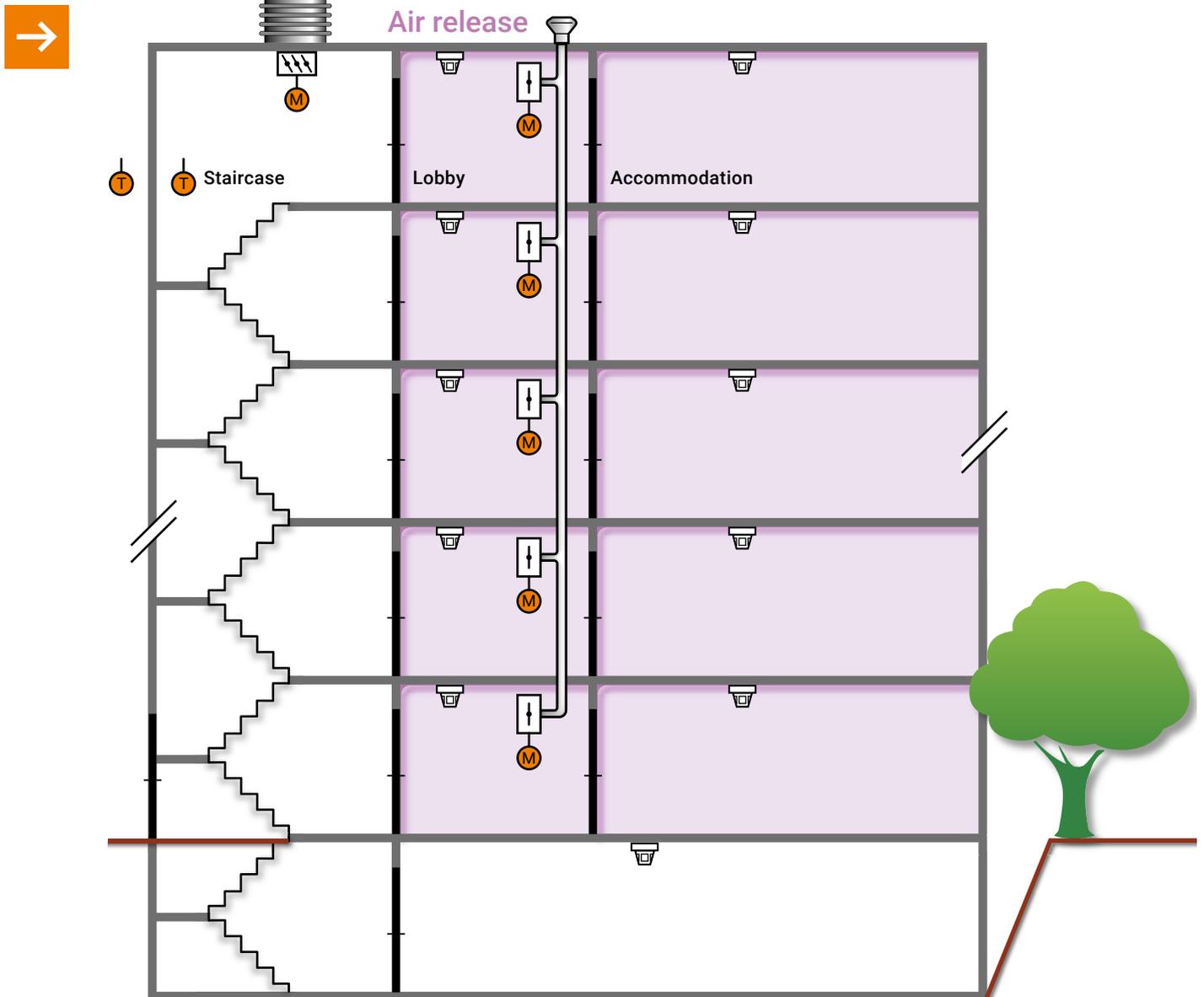
Air release

Description of the air release system area

Features (such as shafts and facade openings) through which the hot smoke can escape from the accommodation or another area not under pressure from the building.

Approved products must be used in the air release (e.g. certified smoke control dampers). Smoke can be released via the shaft in the lobby or via the facade opening, e.g. in the accommodation.

Open/close actuators (smoke control damper actuators) can be used in this system area.



Example picture: air release via the shaft in the lobby

Belimo product types

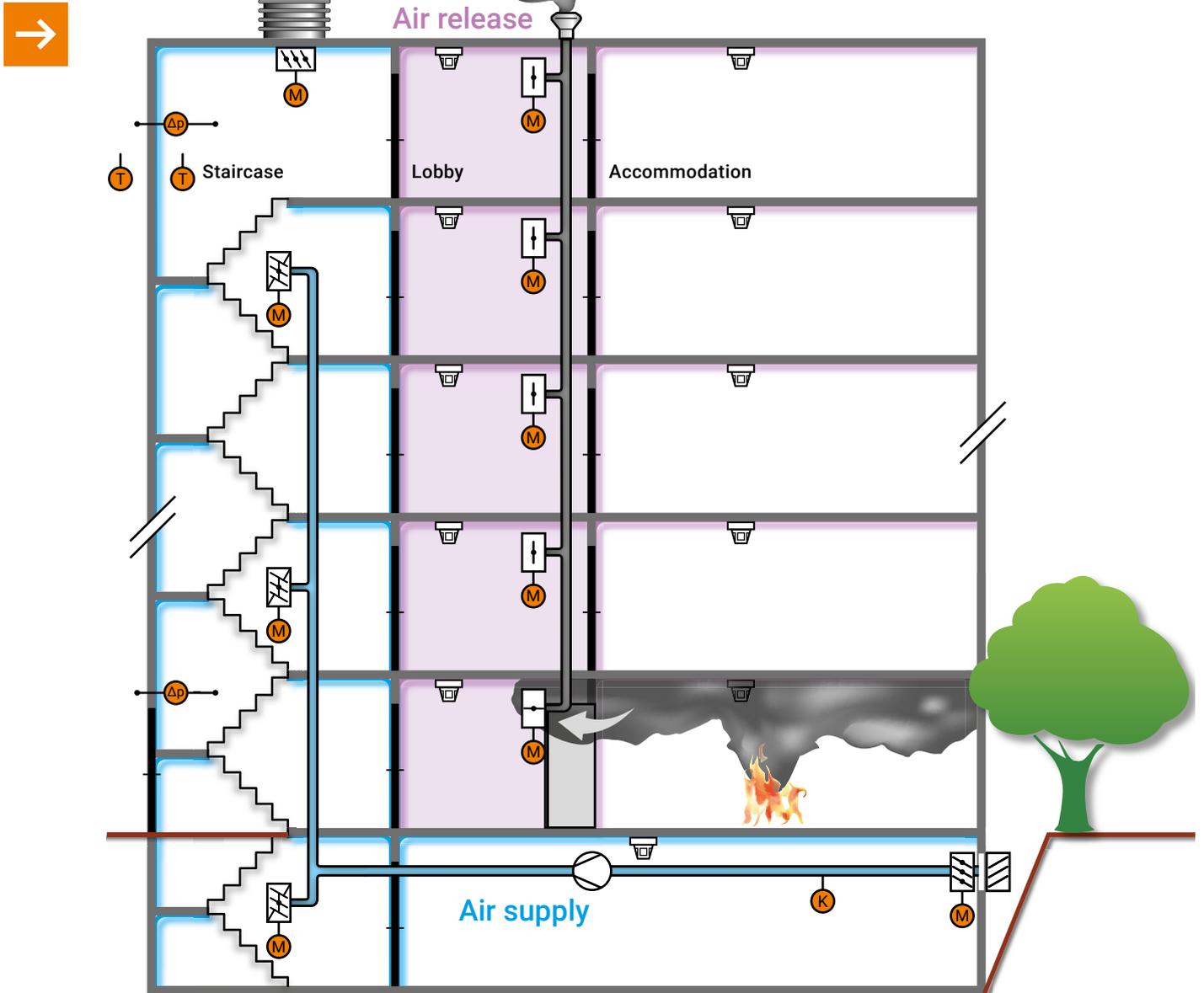
The following products can be used for the air release system area:

Actuators							
		BEN24	BEN230	BEE24	BEE230	BE24	BE230
Torque	15 Nm	■	■				
	25 Nm			■	■		
	40 Nm					■	■
Running time motor	30 s	■	■				
	60 s			■	■	■	■
Nominal voltage	AC/DC 24 V	■		■		■	
	AC 230 V		■		■		■
Control	Open/close	■	■	■	■	■	■
Auxiliary switch in actuator	2 x SPDT fixed	■	■	■	■	■	■

Note: these actuators are only available from manufacturers of smoke control dampers.

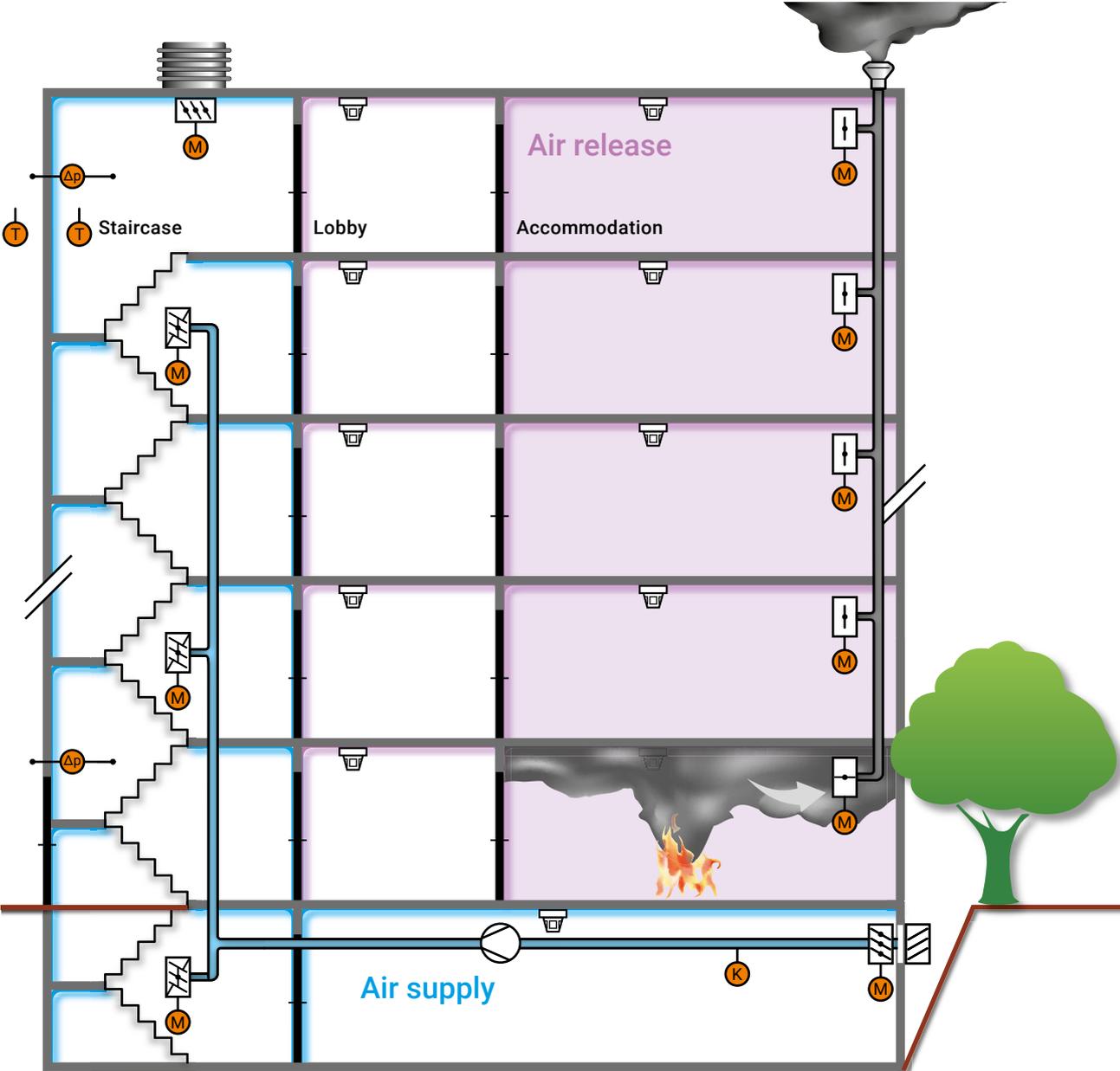
Typical applications

Example of air release via a shaft in the lobby



Example picture: air release via the shaft in the lobby

Example of air release via a shaft in the accommodation



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Picture example: air release via a shaft in the accommodation

Subject to technical modifications

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Tender texts

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Tender texts

Actuators

NF24A-S2

Rotary actuator with fail-safe

Torque:	10 Nm
Nominal voltage:	AC/DC 24 V
Control:	Open/close
Running time motor:	75 s/90°
Running time fail-safe:	<20 s/90°
Auxiliary switch:	2 x SPDT, 1 x 10%/1 x 11...90%
Manual override:	With hand crank and locking switch
Direction of motion of motor:	Selectable with L/R assembly
Degree of protection:	IP54
Connection cable:	1 m PVC



NF24A-S2

NFA-S2

Rotary actuator with fail-safe

Torque:	10 Nm
Nominal voltage:	AC 24...240 V/DC 24...125 V
Control:	Open/close
Running time motor:	75 s/90°
Running time fail-safe:	<20 s/90°
Auxiliary switch:	2 x SPDT, 1 x 10%/1 x 11...90%
Manual override:	With hand crank and locking switch
Direction of motion of motor:	Selectable with L/R assembly
Degree of protection:	IP54
Connection cable:	1 m PVC



NFA-S2

NF24A-MOD

Rotary actuator with fail-safe

Torque:	10 Nm
Nominal voltage:	AC/DC 24 V
Control:	Modulating, communicative
Communication:	Modbus RTU
Running time motor:	150 s/90°
Running time fail-safe:	<20 s/90°
Operating range:	2...10 V
Position feedback:	2...10 V
Manual override:	With hand crank and locking switch
Direction of motion of motor:	Selectable with L/R switch
Degree of protection:	IP54
Connection cable:	1 m PVC



NF24A-MOD

SF24A-S2

Rotary actuator with fail-safe

Torque:	20 Nm
Nominal voltage:	AC/DC 24 V
Control:	Open/close
Running time motor:	75 s/90°
Running time fail-safe:	<20 s/90°
Auxiliary switch:	2 x SPDT, 1 x 10%/1 x 11...90%
Manual override:	With hand crank and locking switch
Direction of motion of motor:	Selectable with L/R assembly
Degree of protection:	IP54
Connection cable:	1 m PVC



SF24A-S2

SFA-S2

Rotary actuator with fail-safe

Torque:	20 Nm
Nominal voltage:	AC 24...240 V/DC 24...125 V
Control:	Open/close
Running time motor:	75 s/90°
Running time fail-safe:	<20 s/90°
Auxiliary switch:	2 x SPDT, 1 x 10%/1 x 11...90%
Manual override:	With hand crank and locking switch
Direction of motion of motor:	Selectable with L/R assembly
Degree of protection:	IP54
Connection cable:	1 m PVC



SFA-S2

SF24A-MOD

Rotary actuator with fail-safe

Torque:	20 Nm
Nominal voltage:	AC/DC 24 V
Control:	Modulating, communicative
Communication:	Modbus RTU
Running time motor:	150 s/90°
Running time fail-safe:	<20 s/90°
Operating range:	2...10 V
Position feedback:	2...10 V
Manual override:	With hand crank and locking switch
Direction of motion of motor:	Selectable with L/R switch
Degree of protection:	IP54
Connection cable:	1 m PVC



SF24A-MOD

EF230A-S2

Rotary actuator with fail-safe

Torque:	30 Nm
Nominal voltage:	AC 230 V
Control:	Open/close
Running time motor:	75 s/90°
Running time fail-safe:	<20 s/90°
Auxiliary switch:	2 x SPDT, 1 x 10%/1 x 11...90%
Manual override:	With hand crank and locking switch
Direction of motion of motor:	Selectable with L/R assembly
Degree of protection:	IP54
Connection cable:	1 m FRNC (halogen-free)



EF230A-S2

EF24A-S2

Rotary actuator with fail-safe

Torque:	30 Nm
Nominal voltage:	AC/DC 24 V
Control:	Open/close
Running time motor:	75 s/90°
Running time fail-safe:	<20 s/90°
Auxiliary switch:	2 x SPDT, 1 x 10%/1 x 11...90%
Manual override:	With hand crank and locking switch
Direction of motion of the motor:	Selectable with L/R assembly, mechanical interface
Degree of protection:	IP54
Connection cable:	1 m FRNC (halogen-free)



EF24A-S2

NKQ24A-SR

Very fast running rotary actuator

Torque:	6 Nm
Nominal voltage:	AC/DC 24 V
Control:	Modulating
Running time motor:	4 s/90°
Running time fail-safe:	4 s/90°
Operating range:	2...10 V
Position feedback:	2...10 V
Manual override:	With push button
Direction of motion of motor:	Selectable with switch 0/1
Degree of protection:	IP54
Connection cable:	1 m PVC



NKQ24A-SR

NMQ24A-SR

Very fast running rotary actuator

Torque:	8 Nm
Nominal voltage:	AC/DC 24 V
Control:	Modulating
Running time motor:	4 s/90°
Operating range:	2...10 V
Position feedback:	2...10 V
Manual override:	With push button, can be locked
Direction of motion of motor:	Selectable with switch 0/1
Degree of protection:	IP54
Connection cable:	1 m PVC



NMQ24A-SR

LMQ24A-SR

Very fast running rotary actuator

Torque:	4 Nm
Nominal voltage:	AC/DC 24 V
Control:	Modulating
Running time motor:	2.5 s/90°
Operating range:	2...10 V
Position feedback:	2...10 V
Manual override:	With push button, can be locked
Direction of motion of motor:	Selectable with switch 0/1
Degree of protection:	IP54
Connection cable:	1 m PVC



LMQ24A-SR

CM24-SR-L/CM24-SR-R

Rotary actuator

Torque:	2 Nm
Nominal voltage:	AC/DC 24 V
Control:	Modulating
Running time motor:	75 s/90°
Operating range:	2...10 V
Position feedback:	2...10 V
Manual override:	With magnet
Direction of motion of motor:	Counterclockwise or clockwise rotation
Degree of protection:	IP54
Connection cable:	1 m PVC



CM24-SR-L/CM24-SR-R

LM24A-SR

Rotary actuator

Torque:	5 Nm
Nominal voltage:	AC/DC 24 V
Control:	Modulating
Running time motor:	150 s/90°
Operating range:	2...10 V
Position feedback:	2...10 V
Manual override:	With push button, can be locked
Direction of motion of motor:	Selectable with switch 0/1
Degree of protection:	IP54
Connection cable:	1 m PVC



LM24A-SR

LM230ASR

Rotary actuator

Torque:	5 Nm
Nominal voltage:	AC 230 V
Control:	Modulating
Running time motor:	150 s/90°
Operating range:	2...10 V
Position feedback:	2...10 V
Manual override:	With push button, can be locked
Direction of motion of motor:	Selectable with switch 0/1
Degree of protection:	IP54
Connection cable:	1 m PVC



LM230ASR

LM24A-MOD

Rotary actuator

Torque:	5 Nm
Nominal voltage:	AC/DC 24 V
Control:	Modulating, communicative
Control Communication:	Modbus RTU
Running time motor:	150 s/90°
Operating range:	2...10 V
Position feedback:	2...10 V
Manual override:	With push button, can be locked
Direction of motion of motor:	Selectable with switch 0/1
Degree of protection:	IP54
Connection cable:	1 m PVC



LM24A-MOD

BEN24

Smoke control actuator 90°

Torque:	15 Nm
Nominal voltage:	AC/DC 24 V
Control:	Open/close
Running time motor:	<30 s
Mechanical interface:	Form fit 12x12 mm, hollow shaft throughout
Auxiliary switch:	2 x SPDT (5°/80°)
Manual override:	With hand crank
Direction of motion of motor:	Selectable by assembly
Degree of protection:	IP54
Connection cable:	1 m FRNC (halogen-free)

**BEN24****BEN230**

Smoke control actuator 90°

Torque:	15 Nm
Nominal voltage:	AC 230 V
Control:	Open/close
Running time motor:	<30 s
Mechanical interface:	Form fit 12x12 mm, hollow shaft throughout
Auxiliary switch:	2 x SPDT (5°/80°)
Manual override:	With hand crank
Direction of motion of motor:	Selectable by assembly
Degree of protection:	IP54
Connection cable:	1 m FRNC (halogen-free)

**BEN230****BEE24**

Smoke control actuator 90°

Torque:	25 Nm
Nominal voltage:	AC/DC 24 V
Control:	Open/close
Running time motor:	<60 s
Mechanical interface:	Form fit 12x12 mm, hollow shaft throughout
Auxiliary switch:	2 x SPDT (5°/80°)
Manual override:	With hand crank
Direction of motion of motor:	Selectable by assembly
Degree of protection:	IP54
Connection cable:	1 m FRNC (halogen-free)

**BEE24**

BEE230

Smoke control actuator 90°

Torque:	25 Nm
Nominal voltage:	AC 230 V
Control:	Open/close
Running time motor:	<60 s
Mechanical interface:	Form fit 12x12 mm, hollow shaft throughout
Auxiliary switch:	2 x SPDT (5°/80°)
Manual override:	With hand crank
Direction of motion of motor:	Selectable by assembly
Degree of protection:	IP54
Connection cable:	1 m FRNC (halogen-free)

**BEE230****BE24**

Smoke control actuator 90°

Torque:	40 Nm
Nominal voltage:	AC/DC 24 V
Control:	Open/close
Running time motor:	<60 s
Mechanical interface:	Form fit 14x14 mm, hollow shaft throughout ^{*)}
Auxiliary switch:	2 x SPDT (3°/87°)
Manual override:	With hand crank
Direction of motion of motor:	Selectable by assembly
Degree of protection:	IP54
Connection cable:	1 m FRNC (halogen-free)

^{*)} Also available as BE24-12 with 12x12 mm form fit.**BE24****BE230**

Smoke control actuator 90°

Torque:	40 Nm
Nominal voltage:	AC 230 V
Control:	Open/close
Running time motor:	<60 s
Mechanical interface:	Form fit 14x14 mm, hollow shaft throughout ^{*)}
Auxiliary switch:	2 x SPDT (3°/87°)
Manual override:	With hand crank
Direction of motion of motor:	Selectable by assembly
Degree of protection:	IP54
Connection cable:	1 m FRNC (halogen-free)

^{*)} Also available as BE24-12 with 12x12 mm form fit.**BE230**

Sensors

22ADP-15Q

Differential Pressure Sensor Air

Pressure measuring range:	-150...250 Pa
Nominal voltage:	AC/DC 24 V
Output signal:	Modbus RTU RS485
Pressure range:	Adjustable, 8 measuring ranges can be selected
Spring loaded terminal block:	Removable, max. 2.5 mm ²
Degree of protection:	IP65
Inclusive:	2 duct connections (plastic material) 2 m tube (PVC) Mounting plate



22ADP-15Q

22ADP-18Q

Differential Pressure Sensor Air

Pressure measuring range:	-150...250 Pa
Nominal voltage:	AC/DC 24 V
Output signals:	0...5 V, 0...10 V, 4...20 mA
Pressure range:	Adjustable, 8 measuring ranges can be selected
Spring loaded terminal block:	Removable, max. 2.5 mm ²
Degree of protection:	IP65
Inclusive:	2 duct connections (plastic material) 2 m tube (PVC) Mounting plate



22ADP-18Q

22UT-12

Outdoor temperature sensor active

Temperature measuring range:	-50...250°C
Nominal voltage:	AC/DC 24 V
Output signals:	0...5 V, 0...10 V
Temperature range:	Adjustable, 8 measuring ranges can be selected
Spring loaded terminal block:	Removable, max. 2.5 mm ²
Degree of protection:	IP65
Inclusive:	mounting plate



22UT-12

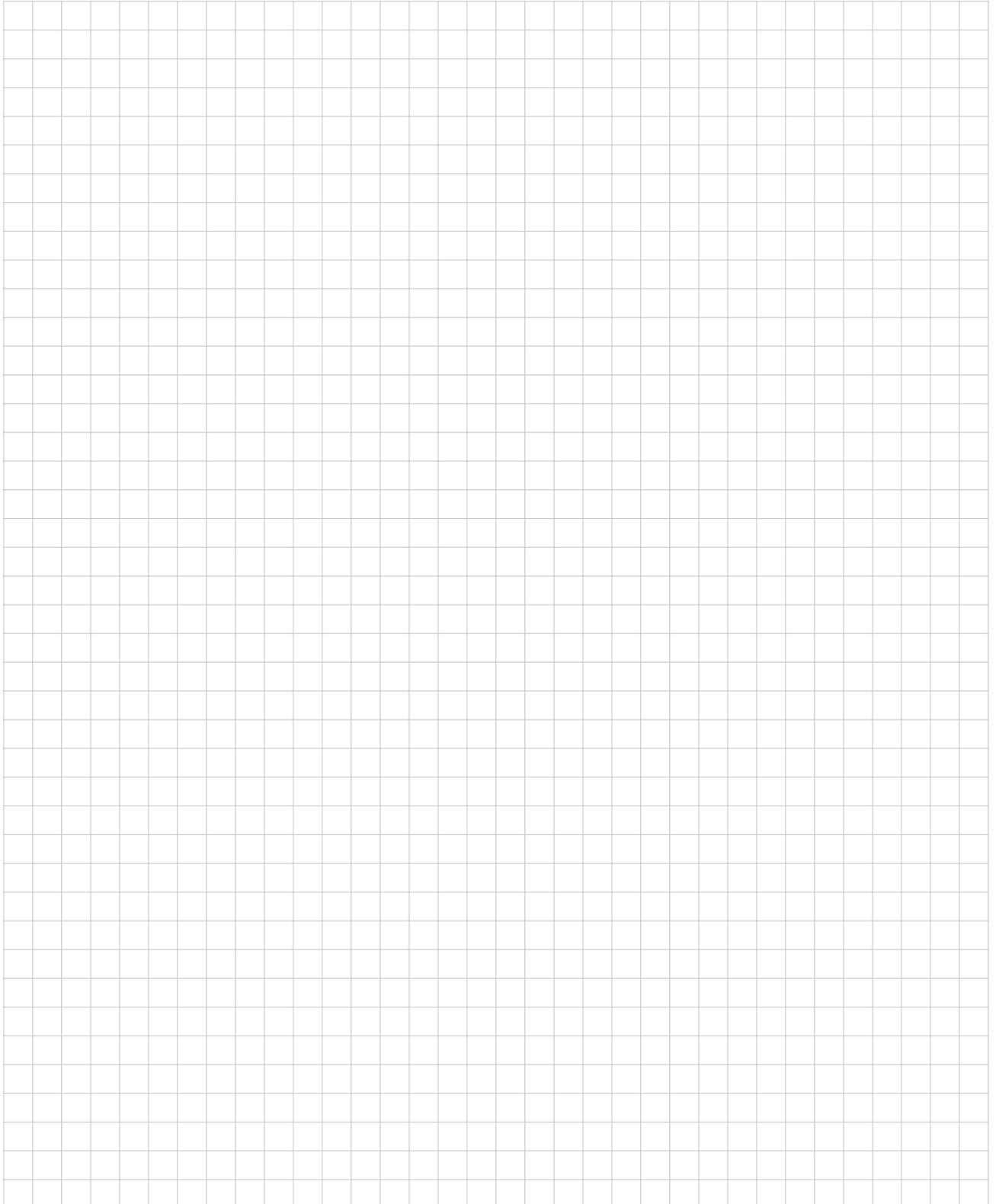
22DT-12T

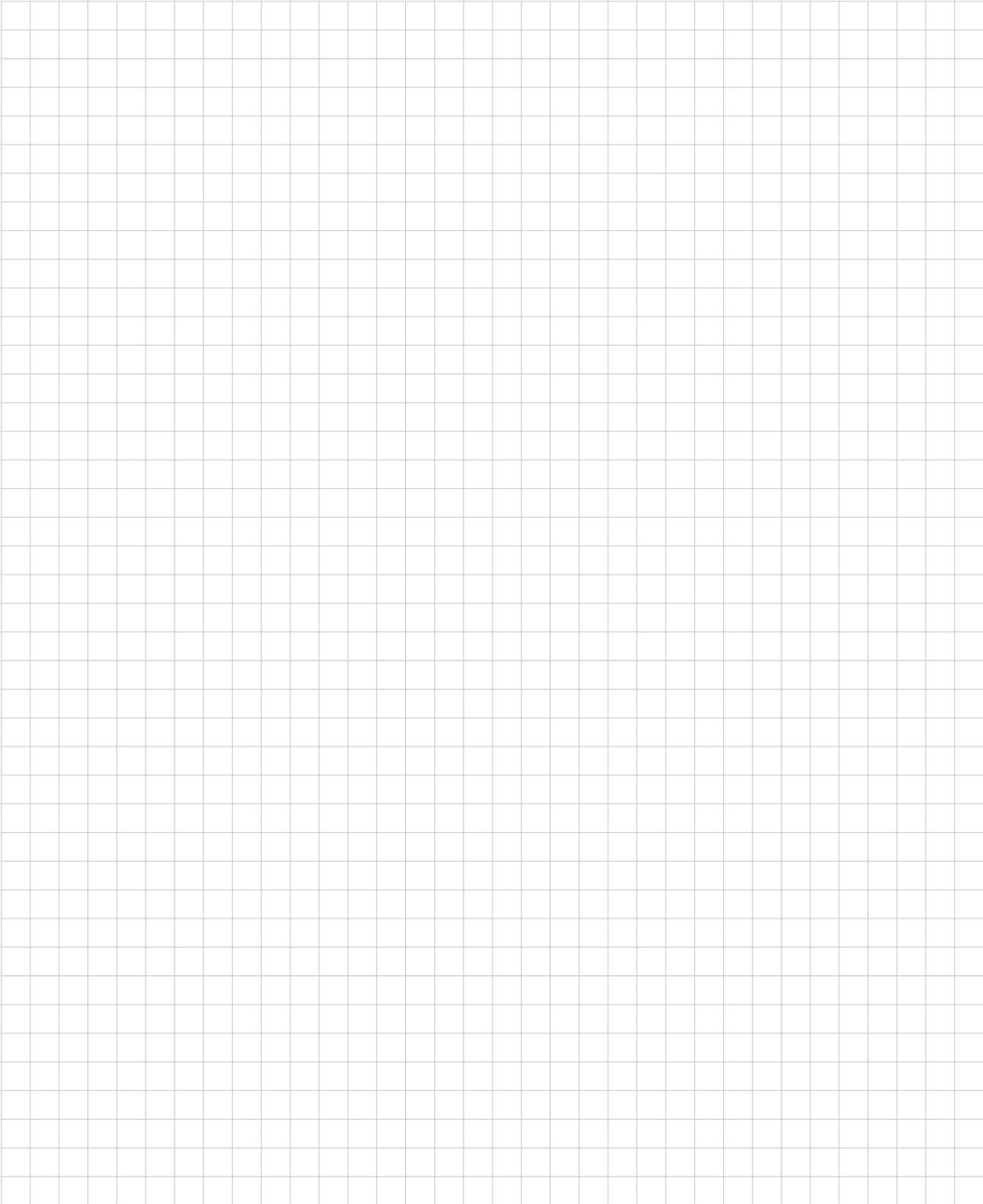
Duct/immersion temperature sensor active

Temperature measuring range:	-50...250°C
Nominal voltage:	AC/DC 24 V
Output signals:	0...5 V, 0...10 V
Temperature range:	Adjustable, 8 measuring ranges can be selected
Probe length:	450 mm
Probe diameter:	6 mm
Spring loaded terminal block:	Removable, max. 2.5 mm ²
Degree of protection:	IP65
Inclusive:	Mounting plate



22DT-12T





All inclusive.

As the global market leader, Belimo develops innovative solutions for the regulation and control of heating, ventilation and air-conditioning systems. In doing so, actuators, valves and sensors make up the core business.

With a consistent focus on customer value, we deliver more than just products. We offer you a complete product range of actuator and sensor solutions for the regulation and control of HVAC systems from a single source. At the same time, we rely on tested Swiss quality with a 5-year guarantee. Our worldwide representatives in over 80 countries guarantee short delivery times and comprehensive support through the entire product life. Belimo does indeed include everything.

"Small" Belimo products have a major impact on comfort, energy efficiency, safety, installation, and maintenance. In short: small devices, big impact.



5-year guarantee



On site around the globe



Complete product range



Tested quality



Short delivery times



Comprehensive support



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