

TS 99 FL/FLR EN 2-5 Door closer



For easy use of fire and smoke check doors combined with safe closing in an emergency

The TS 99 FL in the Contur design is a hold-open device with a free-swing function from a door opening angle of $>0^\circ$, which, combined with a smoke detector system (e.g. RMZ), can be used as a hold-open system for fire doors. An integrated solution, i.e. hold-open device with free-swing function from a door opening angle of $>0^\circ$, plus built-in smoke detector system, is also available in the form of the TS 99 FLR or TS 99 FLR-K. In both systems, the door can be operated without resistance thanks to their free-swing feature. In the event of an alarm or power failure, however, the door is reliably closed by the re-instated action of the door closer.

The production plant is ISO 9001 certified.

Plus points

For the trade

- Ideal complement to the product range
- Clear range structure for easy stock management

For the installer/fabricator

- Easy and quick to fit
- Flexible application suitability thanks to standard leaf or overhead transom installation

For the architect/specifier

- Meets legal requirements for barrier-free building
- Universally suitable for single or double doors
- Uniform appearance matching all products of the dormakaba Contur design

For the user

- Free-swing function from a door opening angle of $>0^\circ$
- Resistance-free opening of doors in passive/preventive fire protection applications
- Maximum degree of user safety

F Approval certification

TS 99 FL

The TS 99 FL is approved and certified by the MPA NRW, Dortmund, to EN 1155. When using the TS 99 FL in a transom-mounted arrangement, a certificate of compliance in conjunction with the relevant fire and smoke check door is mandatory.

TS 99 FLR

The TS 99 FLR is approved and certified by the MPA NRW, Dortmund, to EN 1155. Approved by the German Institute for Building Technology, Berlin, for use as a hold-open system. An acceptance inspection is mandatory. Certificate of compliance in conjunction with the fire and smoke check door concerned is additionally required.

TS 99 FLR-K

The TS 99 FLR-K is certified and approved by the MPA NRW, Dortmund, to EN 1155. Approved by the German Institute for Building Technology, Berlin, for use as a hold-open system. An acceptance inspection is mandatory.

Note

According to the regulations governing hold-open systems issued by the Institute of Building Technology (DIBt), Berlin, a manual release switch (e.g. dormakaba HT) must be provided for free-swing door closers. This switch must be red and carry the inscription "Close Door". The switch must be located in the immediate vicinity of the door and must not be hidden by the opened door. Please note that the maximum door opening angle is often larger than the available free-running range.

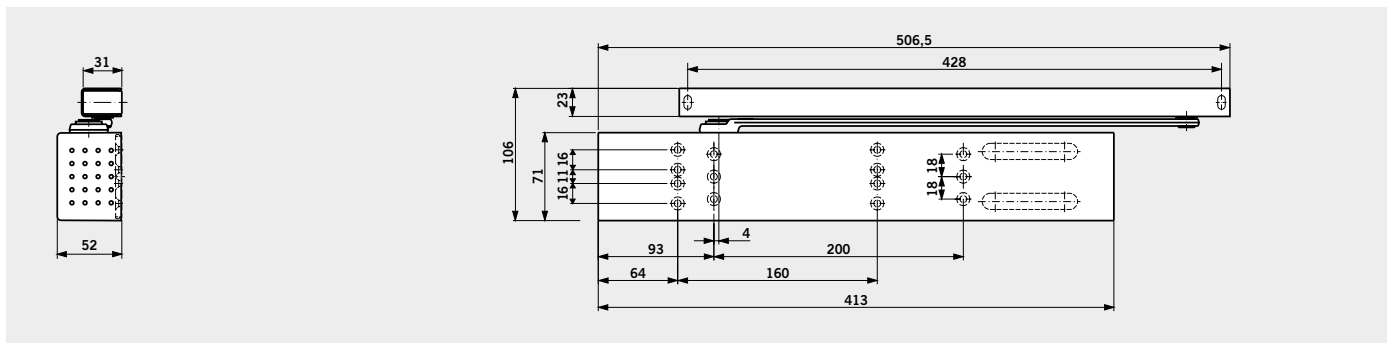
Data and features		TS 99 FL	TS 99 FLR	TS 99 FLR-K
Adjustable spring strength setting	Size	EN 2-5		
Standard doors	1250 mm	●		
Fire and smoke check doors	≤ 1250 mm	●		
Non-handed		●		
Slide channel		●		
Closing speed adjustable at valve		●		
Latching action adjustable at valve		●		
Cushioned limit stay, mechanical		○		
Free-swing function from a door opening angle of $>0^\circ$		●		
Weight in kg		5.2	5.9	5.7
Dimensions in mm (without slide channel)	Length	413	785	413
	Overall depth	52	52	52
	Height	71	71	71
Door closer compliant with EN 1154		●		
Hold-open device compliant with EN 1155		●		
Hold-open device compliant with DIN EN 14637		under preparation		
CE mark for building products		●	●	
Functions	Smoke detector	–	●	
	Release device	●	●	
	Power supply unit	–	●	
Smoke detection	Scattered light principle Optical sensor	–	●	
Connection of other detectors		–	●	
Total installed load (max.) for further detectors in W		–	7.8	
LED indicators	Alarm	–	●	
	Standby	–	●	
	Maintenance due	–	●	
	Contaminated	–	●	
Input voltage		24 V DC $\pm 15\%$	230 V AC $+10\% / -15\%$	
Output voltage		–	24 V DC	
Power consumption in W		2	14.8	
Floating change-over contact, safety extra low voltage (SELV)		–	24 V AC/DC 1 A	
Reset	Manual reset	–	●	
Connection terminals for external manual release		–	●	
Degree of protection		–	IP 20	

● yes – no ○ optional

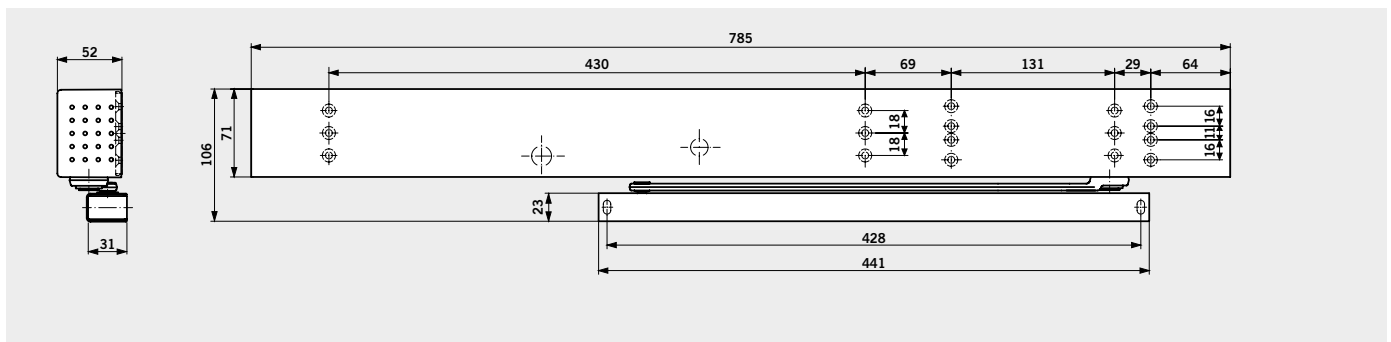
TS 99 FLR / FLR-K

The smoke detector unit has to be replaced after 8 years according to DIN 14677. Having reached the replacement time, a light-emitting diode will light continuously.

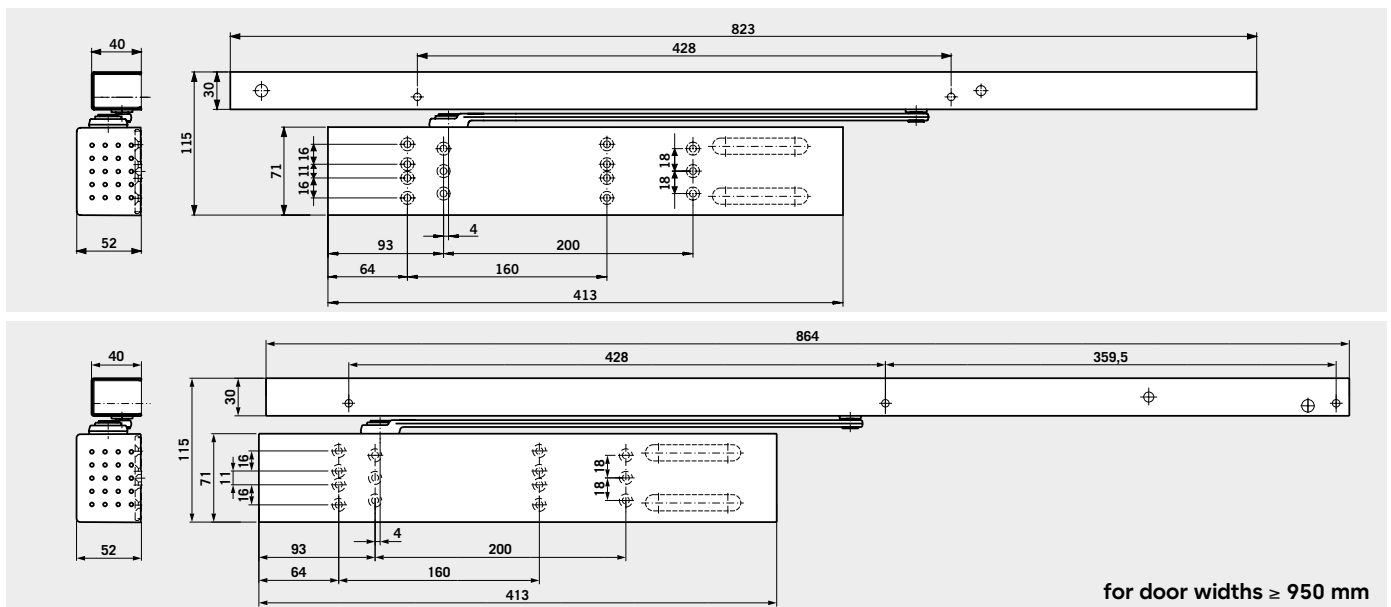
TS 99 FL



TS 99 FLR



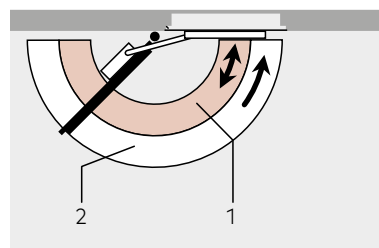
TS 99 FLR-K



Free-swing function from an opening angle $> 0^\circ$

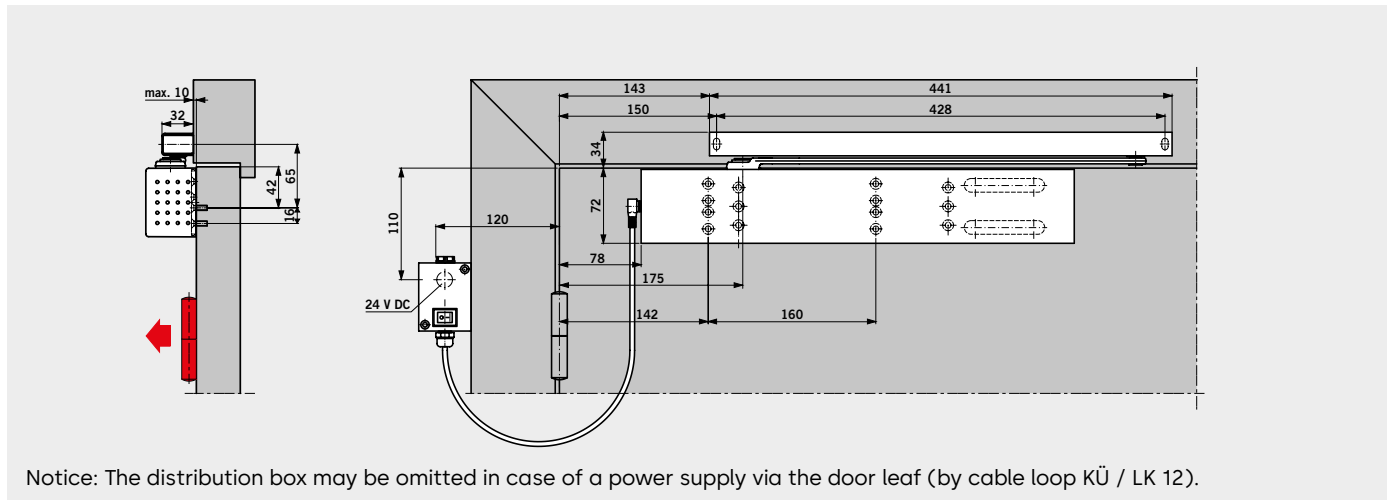
As the door is opened, the free-swing function is activated from an opening angle of $> 0^\circ$. The free-swing function enables the door to be opened with ease by reducing the amount of resistance encountered by the user. The door remains freely operable and is not automatically closed, facilitating access in both directions in heavily frequented zones and passageways. In the event of a fire or power failure, the door is automatically and safely closed by the door closer.

This system is ideal for ensuring the closure of fire and smoke check doors in senior homes, centres for the disabled, hospitals and clinics.



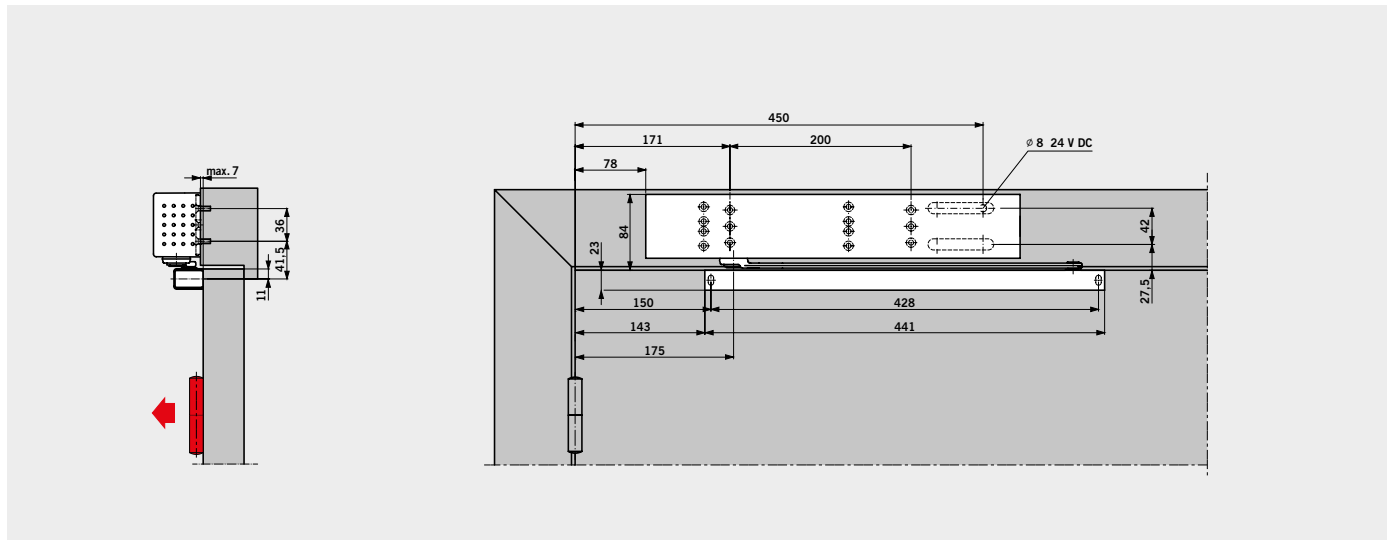
- 1 Free-swing range
- 2 Fully controlled closing action (mechanical)

TS 99 FL – Applications and fixing



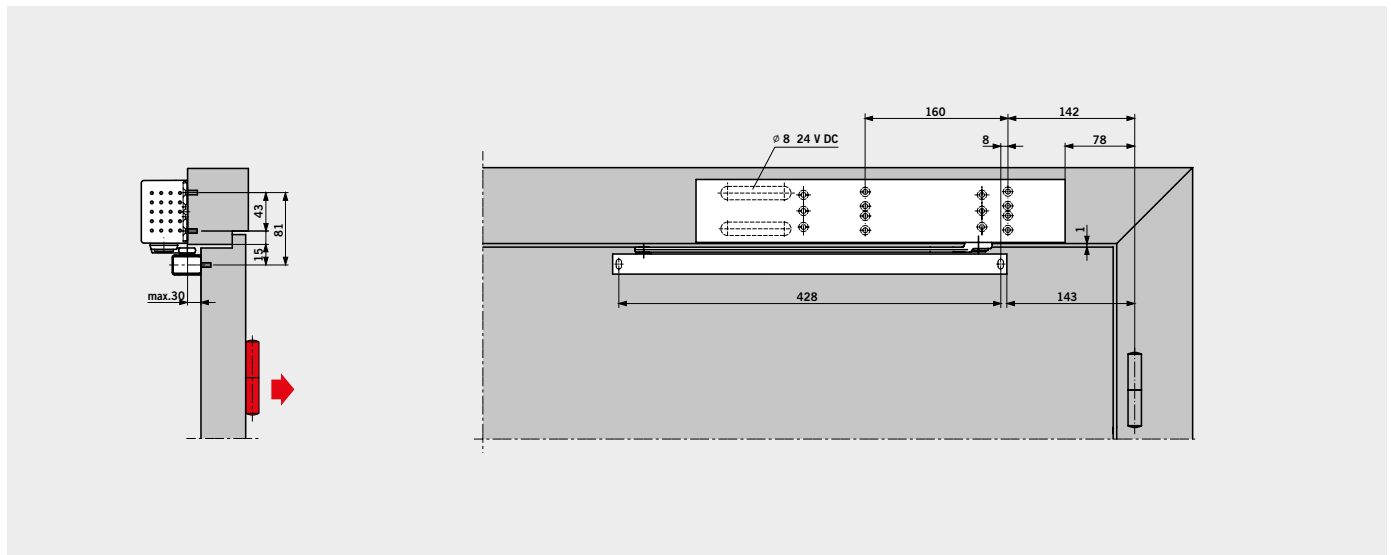
Door closer **TS 99 FL in standard application** (door leaf fixing)

Examples: Anticlockwise-closing (ISO 6/LH) door; mirrored arrangements apply to clockwise-closing (ISO 5/RH) doors



Door closer **TS 99 FL in frame mounted** (transom fixing)

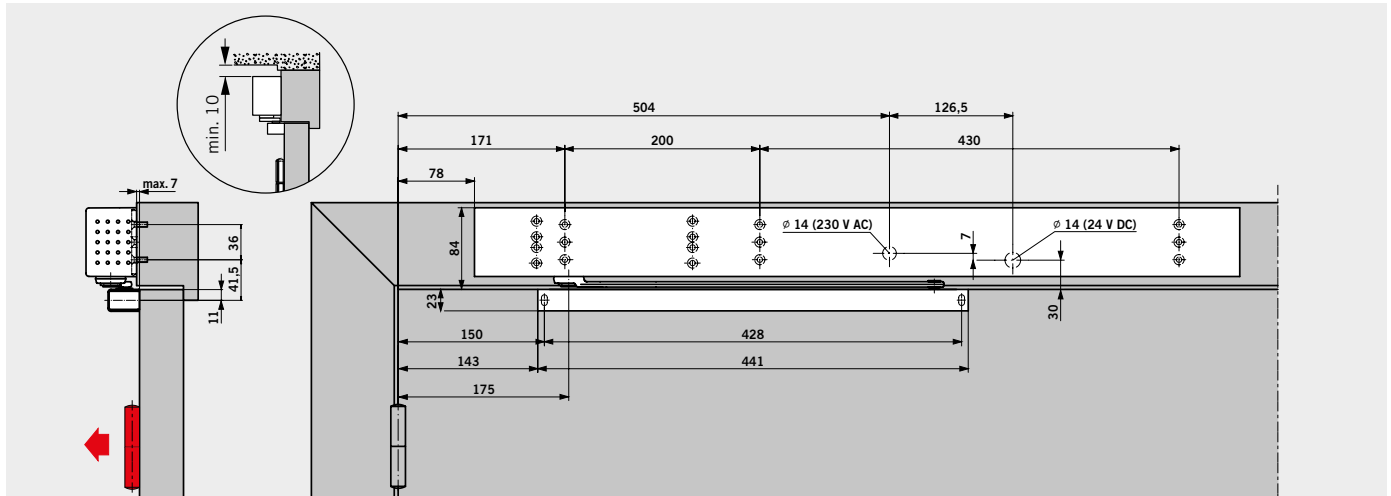
Examples: Anticlockwise-closing (ISO 6/LH) door; mirrored arrangements apply to clockwise-closing (ISO 5/RH) doors



Door closer **TS 99 FL in frame mounted on push side** (transom fixing)

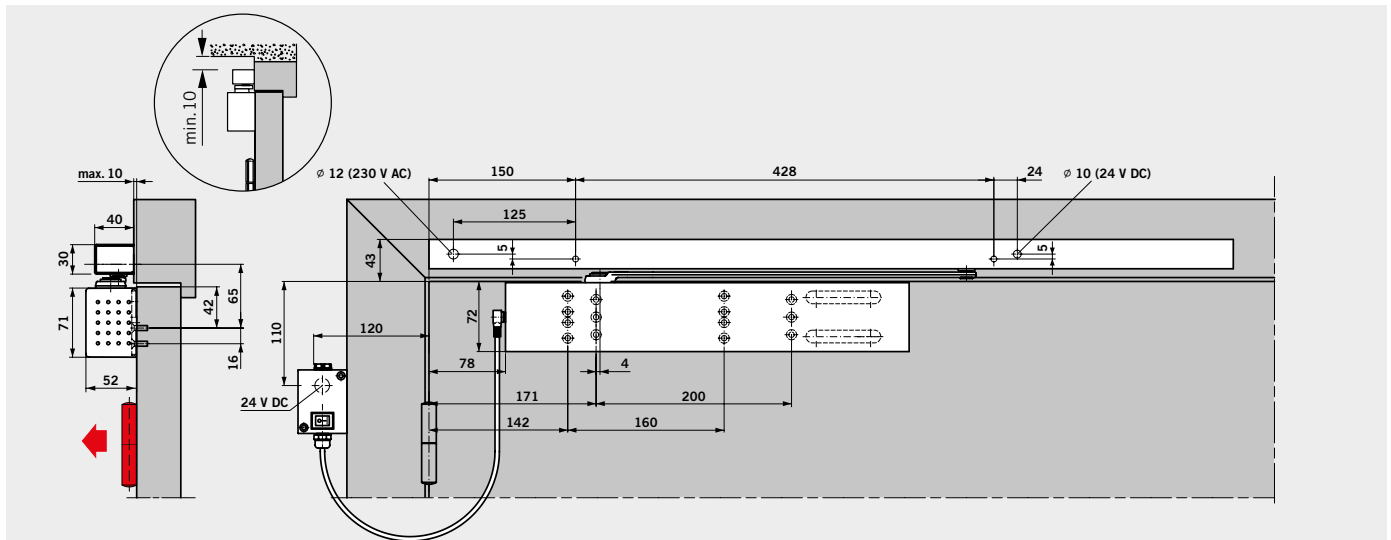
Examples: Anticlockwise-closing (ISO 6/LH) door; mirrored arrangements apply to clockwise-closing (ISO 5/RH) doors

TS 99 FLR – Applications and fixing



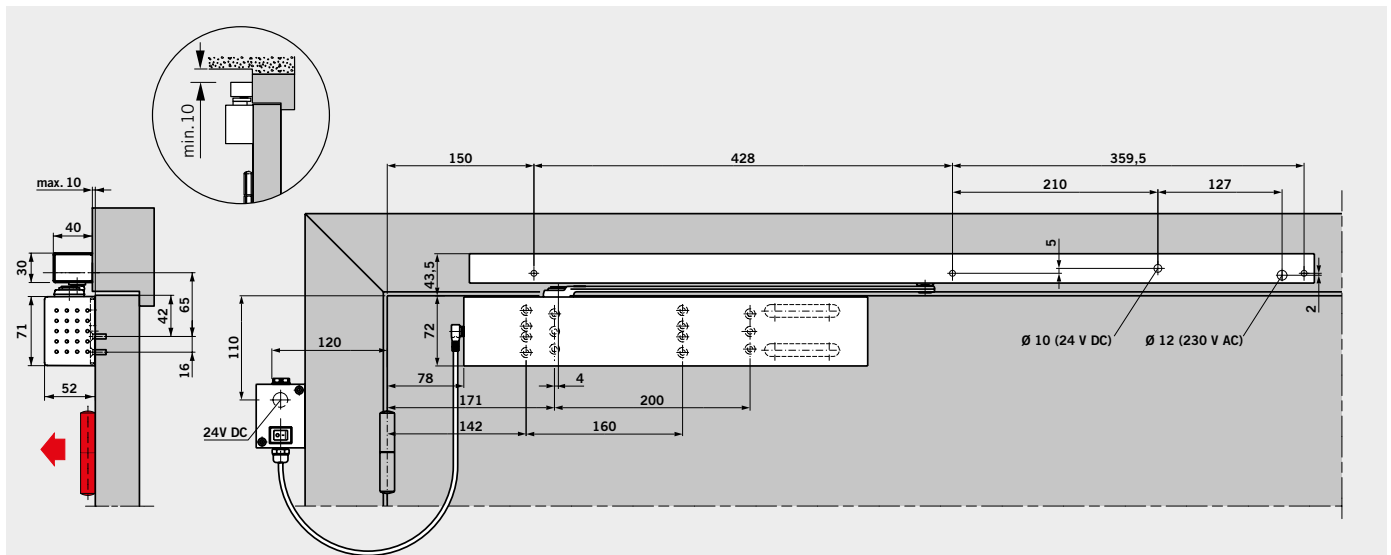
Door closer **TS 99 FLR**

Examples: Anticlockwise-closing (ISO 6/LH) door; mirrored arrangements apply to clockwise-closing (ISO 5/RH) doors



Door closer **TS 99 FLR-K**

Examples: Anticlockwise-closing (ISO 6/LH) door; mirrored arrangements apply to clockwise-closing (ISO 5/RH) doors



Door closer **TS 99 FLR-K**

Examples: Anticlockwise-closing (ISO 6/LH) door; mirrored arrangements apply to clockwise-closing (ISO 5/RH) doors

TS 99 FL – Application on double doors

The modular TS 93 GSR system also enables the use of the TS 99 FL EN 2-5 on the active leaf of double doors.

As the door is opened, the free-swing function is activated from an opening angle of $>0^\circ$ at the active leaf. The door remains freely operable and is not automatically closed, which facilitates access in doors located in heavily frequented areas.

The GSR system ensures the closure of double doors in the correct sequence: first the inactive leaf then the active leaf. The system operates independently of the door closer hydraulics using a push rod clamping arrangement with protective overload release.

The door release/closer activator mechanism is integrated in the slide channel.

TS 99 FL GSR –

Door co-ordinator with free-swinging active leaf

The GSR system ensures the closure of double doors in the correct sequence: first the inactive leaf then the active leaf.

Note

The hold-open point of the inactive leaf is always located at the maximum door opening angle – install a door stop at this position.

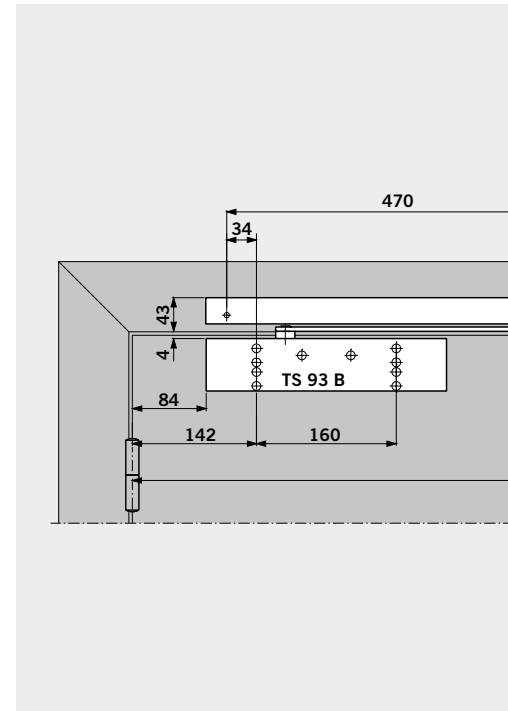
TS 99 FL GSR-EMF 1 –

Door co-ordinator with free-swinging active leaf and electro-mechanical hold-open of the inactive leaf

The GSR-EMF 1 system ensures the closure of double doors in the correct sequence: first the inactive leaf then the active leaf. It also facilitates the combined hold-open of both door leaves. The inactive leaf can be held at an angle between 80° and 130° , and the active leaf is held open at any angle up to max. 150° by the door co-ordinator. In the event of an alarm or power failure, the hold-open is released and the door co-ordinator ensures that the door leaves close in the correct sequence.

The release signal is emitted by external smoke detectors (e.g. RMZ in the Contur design).

RM-N units can also be connected as a second and third detector. With adjustable pull-off force (no tools required), the hold-open can also be readily released by hand.

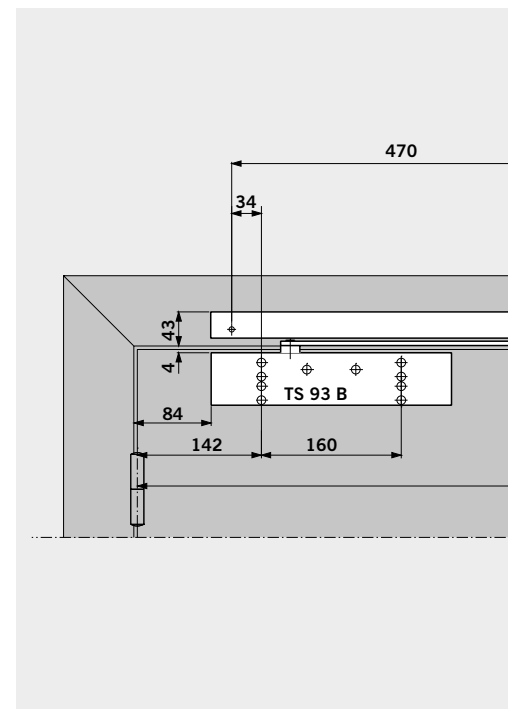


TS 99 FL GSR-EMR 1 –

Door coordinator with free-swinging active leaf, electro-mechanical hold-open of the inactive leaf and integral smoke detector

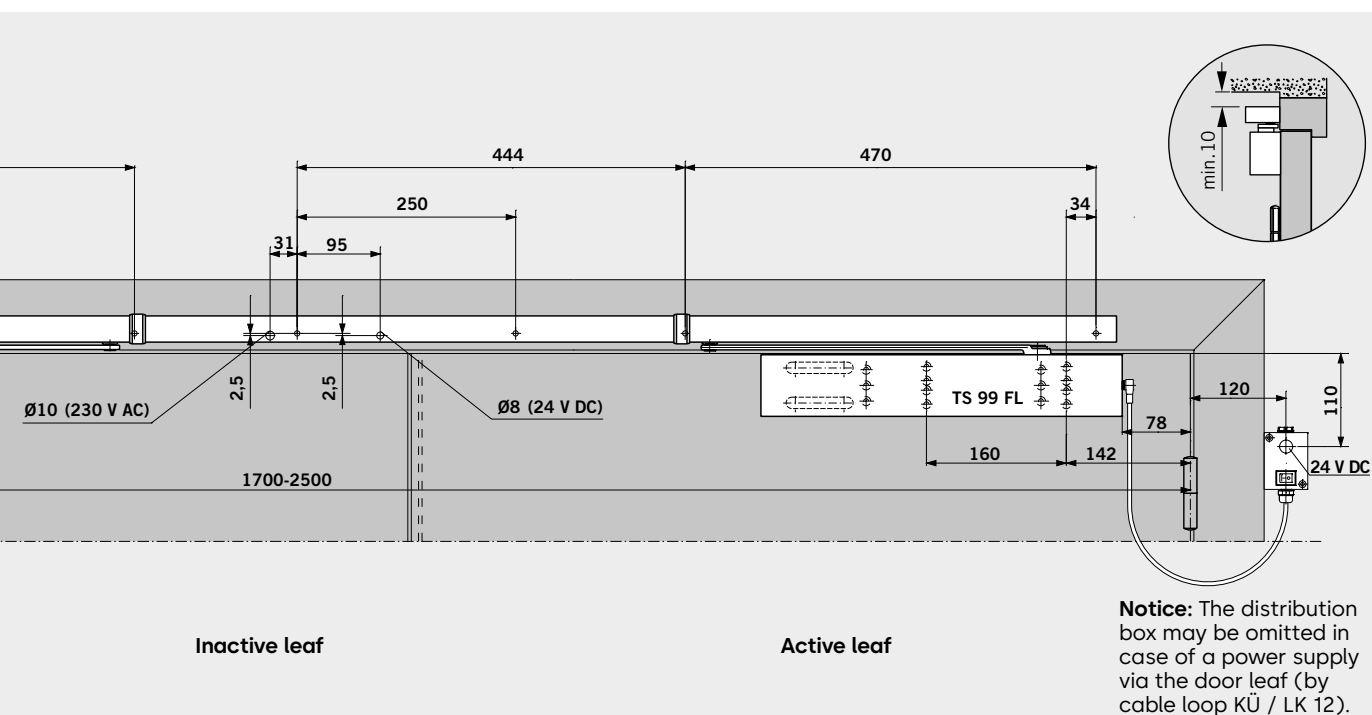
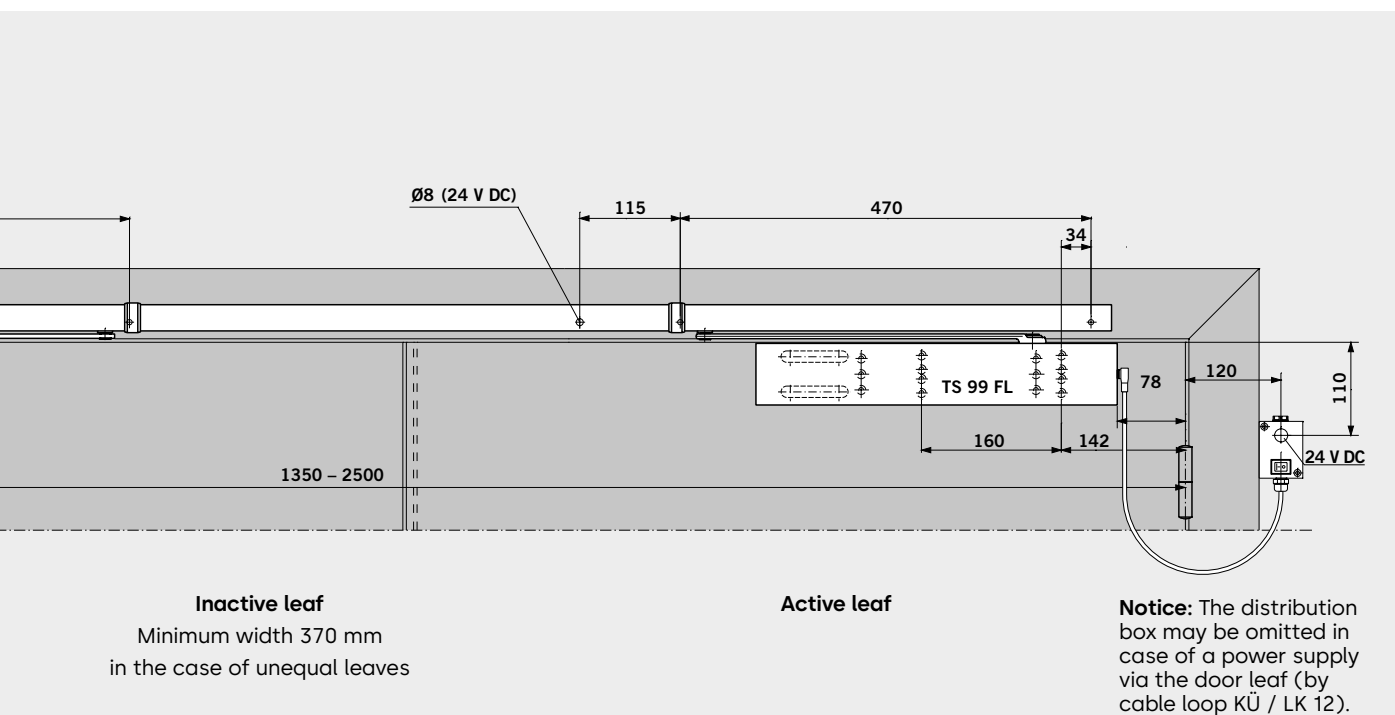
The GSR-EMR 1 system ensures the closure of double doors in the correct sequence: first the inactive leaf then the active leaf. It also facilitates the combined hold-open of both door leaves. The inactive leaf can be held at an angle between 80° and 130° , and the active leaf is held open at any angle up to max. 150° by the door co-ordinator. In the event of an alarm or power failure, the hold-open is released and the door co-ordinator ensures that the door leaves close in the correct sequence. Hold-open release is initiated by the GSR-EMR via a smoke detector integrated in the door coordinator.

RM-N units can also be connected as a second and third detector. With adjustable pull-off force (no tools required), the hold-open can also be readily released by hand.



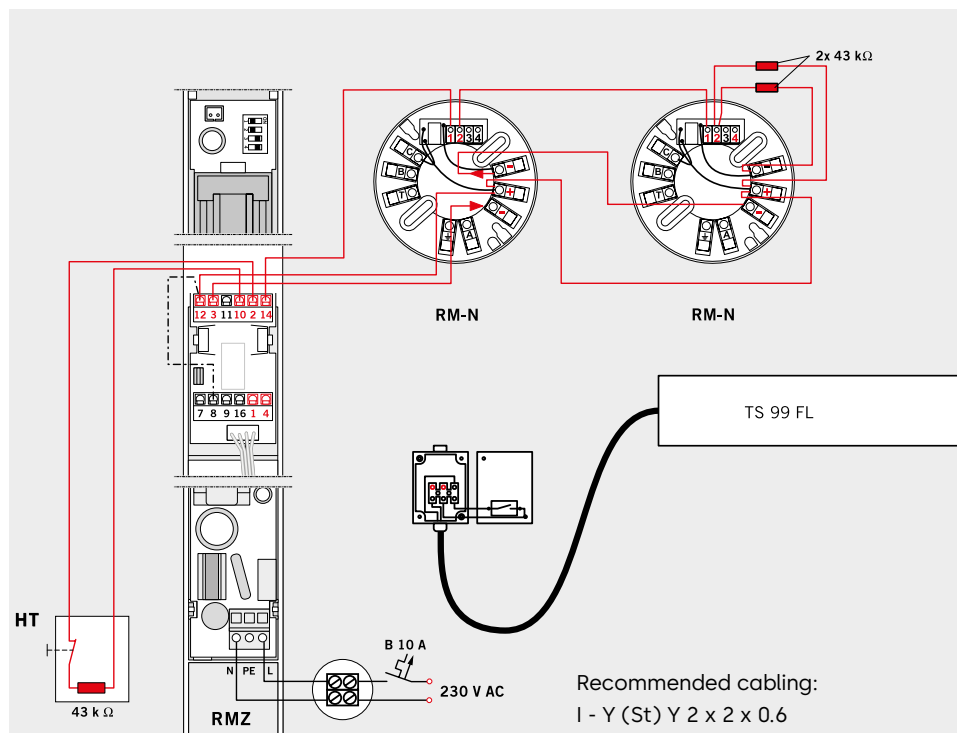
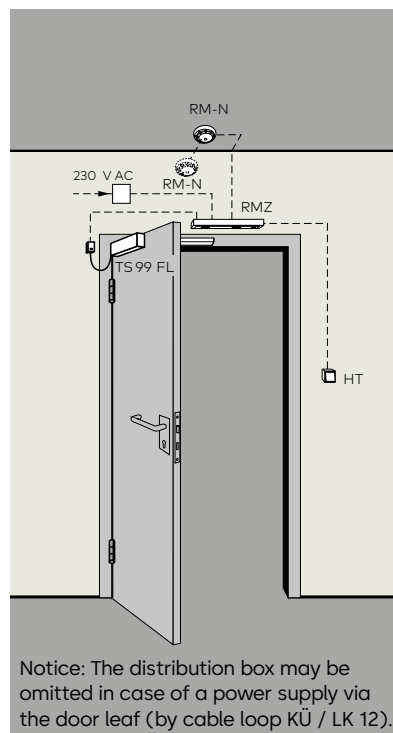
Note

The hold-open point of the inactive leaf is always located at the maximum door opening angle – install a door stop at this position. The smoke detector unit has to be replaced after 8 years according to DIN 14677. Having reached the replacement time, a light-emitting diode will light continuously.

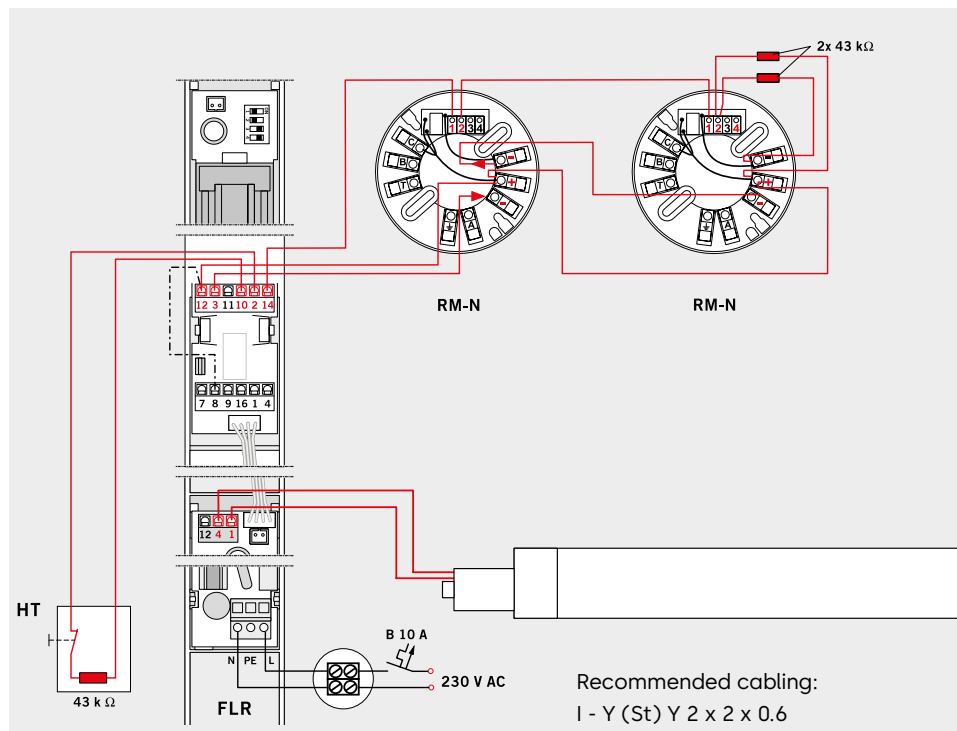
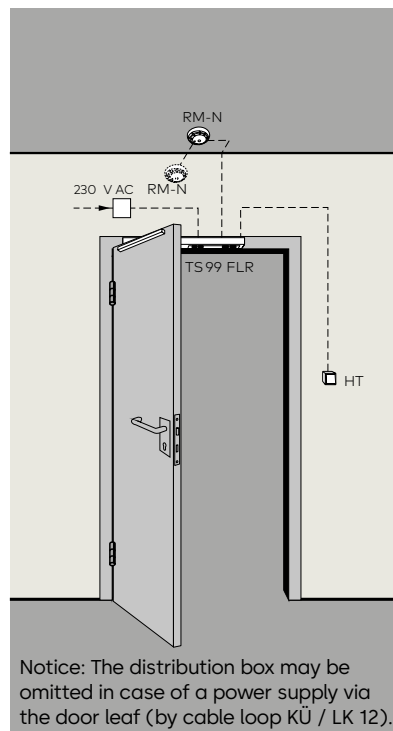


TS 99 FL – Application examples Hold-open system

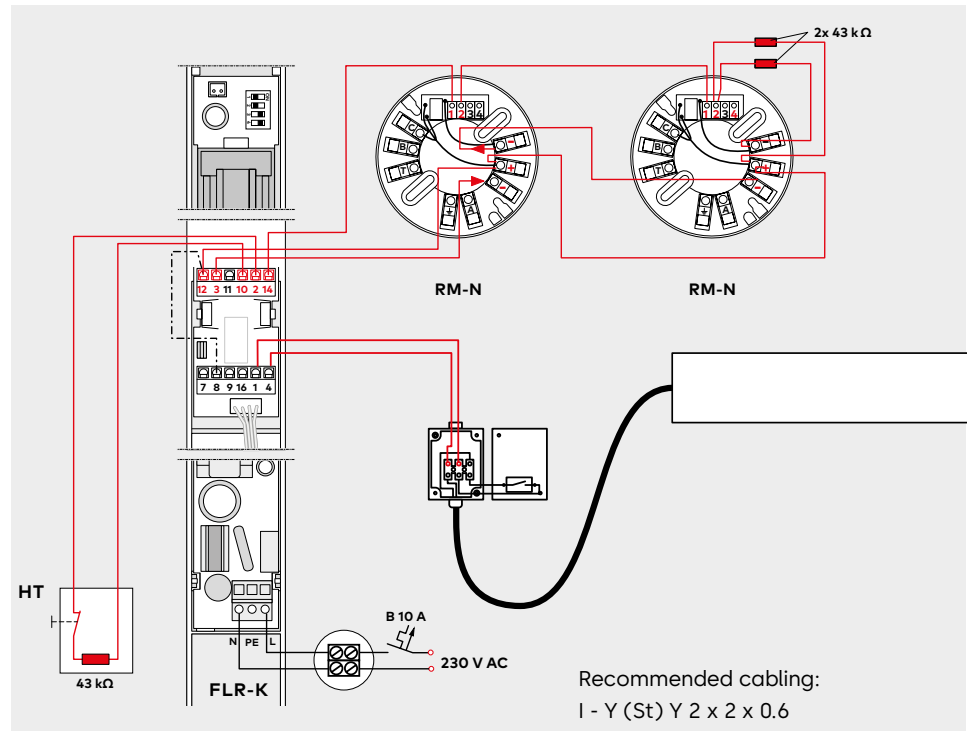
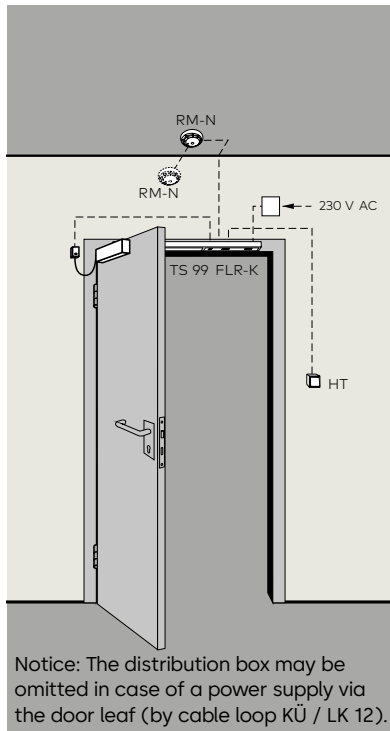
TS 99 FL + RMZ + 2x RM-N



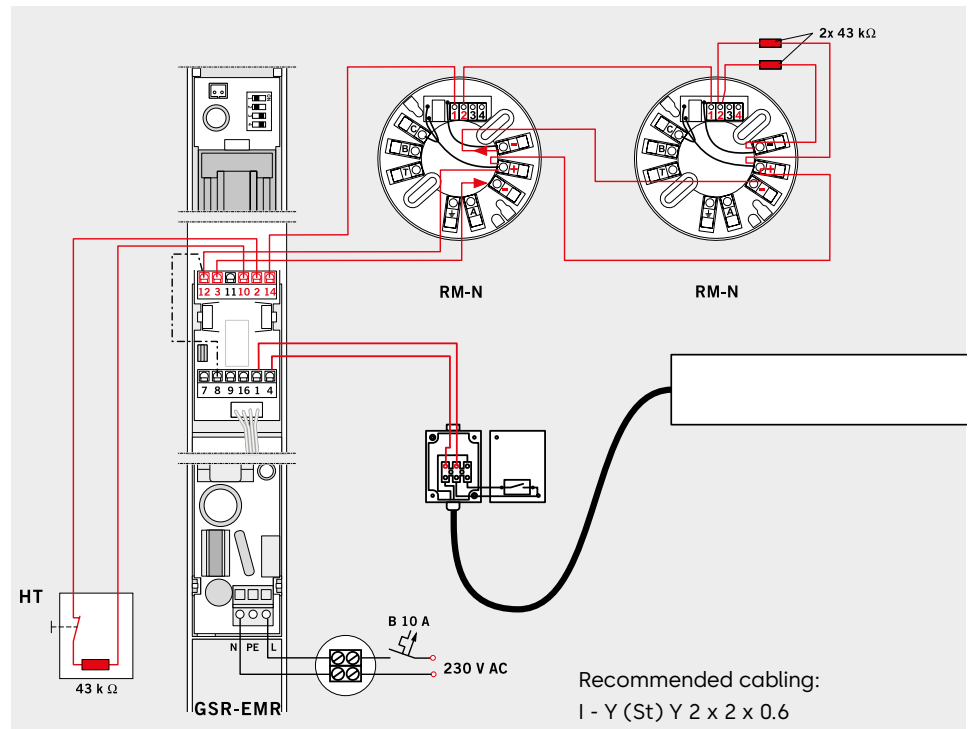
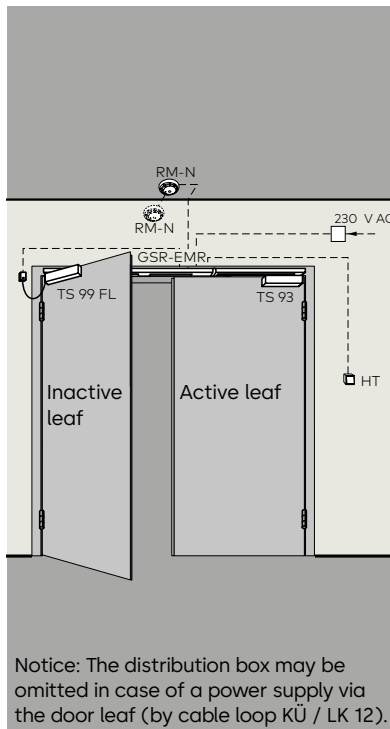
TS 99 FLR + 2x RM-N



TS 99 FLR-K + 2x RM-N



TS 99 FL GSR-EMR 1 + 2x RM-N



Smoke detectors

The RMZ in the Contur design and RM-N smoke detectors provide the ideal complement to the TS 99 FL system for passive/preventive fire protection.

They are designed in accordance with the latest codes issued by the German Institute for Building Technology and ensure perfect interaction between all the devices employed for holding open fire and smoke check doors – whatever the situation.

RMZ

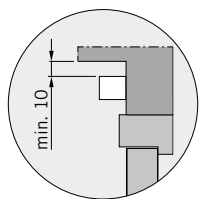
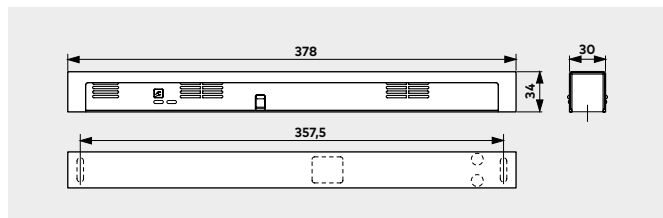
The RMZ smoke detector in the Contur design provides a 24 V DC supply for all the hold-open devices connected to it.

In the event of an alarm or power failure, it de-energizes the devices (release function). It has an automatic reset which can be switched to manual mode if required.

A floating (no-volt) change-over contact and connections for both further detectors and for an external manual release device are also provided.

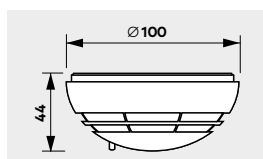
The unit is available in the RMZ version with a stabilised power pack, or in the RMZ DCW® version without a power pack for integration in building management and control systems via a DCW® bus and the TMS door management system.

The smoke detector unit has to be replaced after 8 years according to DIN 14677. Having reached the replacement time, a light-emitting diode will light continuously.



RM-N

The RM-N smoke detector ensures the early detection both of smouldering fires and open fires with smoke evolution. It can be connected to all dormakaba hold-open systems.



Data and features		RMZ	RM-N
Functions	Smoke detector	●	●
	Release device	●	–
	Power supply unit	●	–
Smoke detection	Scattered light principle (optical sensor)	●	●
Fixing	Lintel or transom-mounted	●	–
	Ceiling-mounted	–	●
Connection of other detectors		●	–
Total installed load (max.) for hold-open device and other detectors in W		9.8	–
Power consumption of internal detectors in W		1.2	0.65
LED indicators	Alarm	●	●
	Standby	●	–
	Maintenance due	●	–
	Contaminated	●	–
Input voltage		230 V AC ± 10 %	24 V DC +15%, -10%
Output voltage		24 V DC	–
Detector operating voltage		24 V DC +15%, -10%	24 V DC
Input current (max.) in mA		75	20
Floating (no-volt) change-over contact Safety extra low voltage (SELV)		24 V AC/DC 1 A	30 V AC/DC 1 A
Reset	Automatic	●	●
	Can be changed to manual reset ¹⁾	●	–
Functional check	Smoke detection	●	●
Connection terminals for external manual release		●	–
Degree of protection		IP 30	IP 43
Ambient temperature in °C		–20, +40	–10, +60
Weight in kg		0.25	0.15
Dimensions in mm	Length	379	
	Overall depth	34	ø 100
	Height	30	44
Compliant with EN 54 Part 7		●	●
CE mark for building products		●	●

● yes – no

¹⁾ Required in connection with TS 99 FL and ITS 96 FL

F Approval certification

RMZ in the Contur design and RM-N smoke detectors have been granted general building approval by the German Institute for Building Technology, Berlin; acceptance inspection mandatory in Germany.

Hold-open systems regulations/information

The use of hold-open systems is subject to special regulations based on official approval requirements. These relate in particular to the final inspection (acceptance), continuous monitoring and maintenance.

The regulations and instructions provided below are intended as an aid, pursuant to statutory regulations that apply e.g. in Germany, to ensure that all participants are properly informed of the most important requirements that relate to the installation and operation of hold-open systems.

Further information can be found in the following documents:

- Code of practice relating to hold-open systems issued by the German Institute for Building Technology, Berlin
- General building regulations pertaining to the approval of the hold-open system concerned
- EN 1155
- DIN EN 14637

1. General

1.1 In the case of fire doors (and similar shutters/closures/barriers) that are held open by hold-open systems, the sweep area necessary for the closing operation must be kept constantly clear. This area must be clearly identified by lettering, floor markings or similar. Where necessary, structural measures must also be implemented to ensure that cables, leads, lines, pipes, stored/deposited goods or components (e.g. false ceilings or other overhead items/elements) are reliably prevented from falling into the sweep area.

1.2 Wherever possible, smoke detectors should be used for hold-open systems. For hold-open systems for fire doors in emergency escape routes, smoke detectors must be used.

1.3 Each hold-open device must also be capable of being released by hand, without adversely affecting the functional capabilities of the automatic release device.

In the case of door closers with electro-magnetic hold-open, the manual release may be performed by a small tug applied to the door leaf. If holding electro-magnets or free-swing door closers are used, a pushbutton must be provided to facilitate manual release.

The manual release pushbuttons employed for this purpose must be red and carry the wording "Close Door" or equivalent. The pushbutton must be located in the immediate vicinity of the door and must not be concealed by the door when this is held open.

2. 2. Final inspection (acceptance)

2.1 In Germany and countries governed by DIN regulations: Following on-site installation of the operable hold-open system, its functional integrity and quality of installation must be confirmed by an acceptance inspection procedure. The acceptance inspection may only be performed by skilled personnel of manufacturers of monitoring and/or hold-open devices, skilled personnel authorized by same, or skilled personnel from an accredited inspection agency.

2.2 In Germany and countries governed by DIN regulations: Once the acceptance inspection has been successfully completed, the operator shall permanently fix on the wall in the immediate vicinity of the door, a plate supplied by the manufacturer of the hold-open system measuring 105 mm x 52 mm and carrying the inscription
Hold-open system
Inspected by...
(company logo with month and year of acceptance inspection) or equivalent.

2.3 The operator is to be provided with a certificate detailing the successful acceptance inspection; this certificate must be retained by the operator.

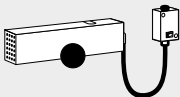
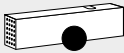
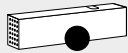



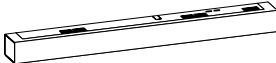



3. Periodic surveillance

3.1 The hold-open system must be kept by the operator in a constantly good operating condition, and inspected at least once a month to ensure that it is functioning properly.

3.2 In addition, the operator is obliged at least once a year, or at shorter intervals if specified in the approval certificate, to inspect all the devices to ensure that they are operating and interacting properly and without fault, and to carry out or instigate adequate maintenance. The associated test, inspection and the maintenance work may only be performed by an expert or an appropriately trained person.

3.3 The scope, result and time of the periodic inspection are to be recorded. These records must be retained by the operator.

Standard equipment and accessories

		TS 99 FL door leaf fixing Size EN 2-5	TS 99 FL transom fixing Size EN 2-5	TS 99 FL transom fixing, push side Size EN 2-5
				
Slide channel with free-swing arm assembly		■ 533202xx	■ 533302xx	■ 533202xx
Slide channel with free-swing arm assembly				
Slide channel with free-swing arm assembly for door widths ≥ 950 mm				
G-SR	 □ 641020XX			
G-SR-EMF 1	 □ 641120XX			
G-SR-EMR 1	 □ 642150XX			
RMZ smoke detector	 648000xx	△	△	△
RM-N smoke detector	 64830900 packaging unit 2 pcs.	△	△	△
Manual release pushbutton				
HT-UP 	19144601175	△	△	△
HT-AP 	19144601175 + 5158533332			

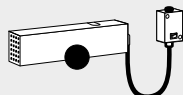
Cable Transition	KÜ 260	15811000
	KÜ 480	15813000
Cable Loop	KS 155	15817000
	KS 370	15819000
Detachable cable transition plug	LK-12	15813010

- Hold-open device – tested to EN 1155 (max. EN 5)
- RMZ smoke detector
- Free-swing action
- Closer body complete with slide channel assembly
- Closer separate
- Slide channel assembly separate
- △ Optional accessory

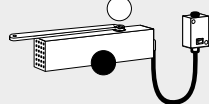
TS 99 FLR
Overhead Mounting
Pullside
Size EN 2-5



TS 99 FLR-K
Mounting
Pullside
Size EN 2-5

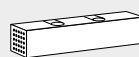


TS 99 FL
door leaf fixing
Size EN 2-5



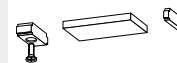
with free-swing arm
assembly, without slide
channel, for GSR
co-ordinator fixed to
active leaf
■ 533802XX

TS 93 B
Mounting
Pullside
Size EN 2-5



for GSR door co-ordinator
fixed to inactive leaf
■ 430200XX

Cushioned
limit stay



35800093

■ 542903xx

△

■ 543001xx

■ 543101xx

□

1 x ■

□

1 x ■

□

1 x ■

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1 x ■

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1 x ■

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△¹⁾

△¹⁾

△

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△

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xx Colour

01 Silver
11 White (RAL 9016)
09 Special colour
Also available in matching "Design" finishes
04 Stainless steel

TS 99 FLR only available in 01 and 04

* „Design" refers to the surface finish
of the products

¹⁾ Not necessary in the case of the
G-SR-EMR 1

Specification texts

TS 99 FL EN 2-5

Slide channel door closer compliant with EN 1154, with CE mark, in the Contur design, for door widths up to 1250 mm, with electro-hydraulic hold-open, compliant with EN 1155, with free-swing action from a door opening angle of > 0°. Closing speed and latching action adjustable. Non-handed. Operating voltage 24 V DC. Approved by the German Institute for Building Technology, Berlin, for use in a hold-open system. Acceptance inspection mandatory in Germany. In transom-mounted arrangement, a certificate of compliance in conjunction with the relevant fire and smoke check door is mandatory.

TS 99 FLR EN 2-5

Slide channel door closer compliant with EN 1154, with CE mark, in the Contur design, for door widths up to 1250 mm, with electro-hydraulic hold-open, compliant with EN 1155, with free-swing action from a door opening angle of > 0°. Closing speed and latching action adjustable. Non-handed. Additional connections available for further detectors, external manual release device and floating (no-volt) alarm contact. Power supply 230V AC. Operating voltage 24 V DC. Approved by the German Institute for Building Technology, Berlin, for use as a hold-open system. Acceptance inspection mandatory in Germany. Approval certification with the relevant fire and smoke check door mandatory.

TS 99 FLR-K EN 2-5

Slide channel door closer compliant with EN 1154, with CE mark, in the Contur design, for door widths up to 1250 mm, with electro-hydraulic hold-open, compliant with EN 1155, with free-swing action from a door opening angle of > 0°. Closing speed and latching action adjustable. Non-handed. Slide channel with integral power pack and smoke detector, with standby and maintenance due indicators. Overall height 30 mm. Additional connections available for further detectors, external manual release device and floating (no-volt) alarm contact. Power supply 230V AC. Operating voltage 24 V DC. Approved by the German Institute for Building Technology, Berlin, for use as a hold-open system. Acceptance inspection mandatory in Germany.

RMZ

Smoke detector in the Contur design, with standby and maintenance due indicators, integral power pack and optical smoke sensor for transom/lintel fixing. For release activation of dormakaba hold-open devices. A floating (no-volt) alarm contact and connections for further detectors and external manual release devices are provided. Can be switched to manual reset. One-piece cover. Overall height 30 mm. General building approval granted by DIBt, Berlin, for use in a hold-open system. Acceptance inspection of the system is mandatory in Germany.

RM-N

Optical smoke detector, 24 V DC, for ceiling fixing. For use as second and third triggering detector on all DORMA hold-open systems. With floating (no-volt) change-over contact. General building approval granted by DIBt, Berlin and the VdS, Cologne; compliant to EN 54, Part 7. Acceptance inspection mandatory in Germany.

Model

- ☐ Leaf-fixed/pull side
- ☐ Transom-fixed/pull side

Color

- ☐ Silver
- ☐ White (sim. to RAL 9106)
- ☐ Stainless steel "Design"
- ☐ Special color (sim. to RAL)

Make

TS 99 FL

Model

- ☐ Transom-fixed/pull side

Color

- ☐ Silver
- ☐ Stainless steel "Design"

Make

TS 99 FLR

Model

- ☐ Leaf-fixed/pull side

Color

- ☐ Silver
- ☐ White (sim. to RAL 9106)
- ☐ Stainless steel "Design"
- ☐ Special color (sim. to RAL)

Make

TS 99 FLR-K

Model

- ☐ RMZ with integrated power pack. Power supply 230 V AC. Operating voltage 24 V DC.
- ☐ RMZ DCW® Smoke detector without power pack for connection to DCW® bus.
- ☐ Optional integral alarm module adding an audible signal to the visual indicator.

Color

- ☐ White (sim. to RAL 9003)

Color

- ☐ Silver
- ☐ White (sim. to RAL 9106)
- ☐ Stainless steel "Design"
- ☐ Special color (sim. to RAL)

Make

RMZ
RMZ DCW®

Make

RM-N

TS 99 FL GSR EN 2-5

Slide channel door closer on the active leaf, compliant with EN 1154, with CE mark, in the Contur design, for door widths up to 1250 mm, with electro-hydraulic hold-open, compliant with EN 1155, and with a free-swing function from a door opening angle of > 0°. Closing speed and latching action adjustable. Non-handed.

Operating voltage 24 V DC.

Slide channel with integral mechanical door coordinator, compliant with EN 1158. This system operates independently of the door closer hydraulics using a push rod clamping system with a protective overload release and one-piece cover. Overall height 30 mm. Non-handed.

Cam-action door closer on the inactive leaf: TS 93 EN 2-5.

Approved by the German Institute for Building Technology, Berlin, for use in a hold-open system. Acceptance inspection mandatory in Germany.

TS 99 FL GSR-EMF 1 EN 2-5

Slide channel door closer on the active leaf, compliant with EN 1154, with CE mark, in the Contur design, for door widths up to 1250 mm, with electro-hydraulic hold-open, compliant with EN 1155, and with a free-swing function from a door opening angle of > 0°. Closing speed and latching action adjustable. Non-handed. Operating voltage 24 V DC.

Slide channel with integral mechanical door coordinator, compliant with EN 1158.

Electro-mechanical hold-open, 24 V DC, compliant with EN 1155.

Hold-open point 80° – 130° and pull-off force adjustable.

This system operates independently of the door closer hydraulics using a push rod clamping system with a protective overload release and one-piece cover. Overall height 30 mm. Non-handed.

Cam-action door closer on the inactive leaf: TS 93 EN 2-5.

Approved by the German Institute for Building Technology, Berlin, for use in a hold-open system. Acceptance inspection mandatory in Germany.

TS 99 FL GSR-EMR 1 EN 2-5

Slide channel door closer on the active leaf, compliant with EN 1154, with CE mark, in the Contur design, for door widths up to 1250 mm, with electro-hydraulic hold-open, compliant with EN 1155, and with a free-swing function from a door opening angle of > 0°. Closing speed and latching action adjustable. Non-handed. Operating voltage 24 V DC.

Smoke detector with standby and maintenance due indicators fully integrated in the housing of the door coordinator.

Additional connections available for further detectors, external manual release device and floating (no-volt) alarm contact.

Power supply 230V AC.

Operating voltage 24 V DC.

Slide channel with integral mechanical door coordinator, compliant with EN 1158.

Electro-mechanical hold-open, 24 V DC, compliant with EN 1155.

Hold-open point 80° – 130° and pull-off force adjustable.

This system operates independently of the door closer hydraulics using a push rod clamping system with a protective overload release and one-piece cover. Overall height 30 mm. Non-handed.

Cam-action door closer on the inactive leaf: TS 93 EN 2-5.

Approved by the German Institute for Building Technology, Berlin, for use as a hold-open system. Acceptance inspection mandatory in Germany.

Model

- ☐ Leaf-fixed/pull side
(TS 99 FL on active leaf,
TS 93 on inactive leaf)

Color

- ☐ Silver
- ☐ White (sim. to RAL 9106)
- ☐ Stainless steel "Design"
- ☐ Special color
(sim. to RAL)

Make

TS 99 FL GSR

Model

- ☐ Leaf-fixed/pull side
(TS 99 FL on active leaf,
TS 93 on inactive leaf)

Color

- ☐ Silver
- ☐ White (sim. to RAL 9106)
- ☐ Stainless steel "Design"
- ☐ Special color
(sim. to RAL)

Make

TS 99 FL GSR-EMF 1

Model

- ☐ Leaf-fixed/pull side
(TS 99 FL on active leaf,
TS 93 on inactive leaf)

Color

- ☐ Silver
- ☐ White (sim. to RAL 9106)
- ☐ Stainless steel "Design"
- ☐ Special color (sim. to RAL)

Make

TS 99 FL GSR-EMR 1

Our Sustainability Commitment

We are committed to foster a sustainable development along our entire value chain in line with our economic, environmental and social responsibilities toward current and future generations. Sustainability at product level is an important, future-oriented approach in the field of construction. In order to give quantified disclosures of a product's environmental impact through its entire life cycle, dormakaba provides Environmental Product Declarations (EPD), based on holistic life cycle assessments.

www.dormakaba.com/sustainability



Our offering

Access Automation Solutions

Entrance Automation
Entrance Security



Access Control Solutions

Electronic Access & Data
Escape and Rescue Systems
Lodging Systems



Access Hardware Solutions

Door Closers
Architectural Hardware
Mechanical Key Systems



Services

Technical Support
Installation and commissioning
Maintenance and Repair



Key & Wall Solutions

Key Systems
Movable / Sliding Walls



Safe Locks

Electronic Safe Locks
Mechanical Safe Locks
Boltworks and Accessories



Glass systems

Manual door systems
Glass fittings
Horizontal Sliding Walls



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