

TS 77

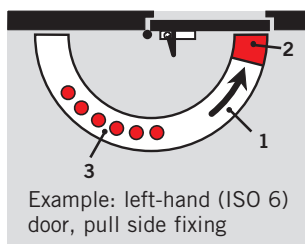
—

Door Closer

# THE BUDGET DOOR CLOSER FOR STANDARD DOORS

- The economical solution for standard doors.
- Non-handed, suitable for standard, parallel arm and frame installation.
- Fully controlled closing cycle.
- Backcheck version available for door and wall protection.

## Functions



- 1 Fully controlled closing with adjustable speed between 180° - 20°
- 2 Adjustable latching action between 20° and 0°
- 3 Hold-open range if equipped with hold-open arm (optional extra)

Data and features		TS 77		
Closing force	Size	EN 2	EN 3	EN 4
Standard doors	850 mm	●	–	–
	950 mm	–	●	–
	≤ 1100 mm	–	–	●
External doors, opening outwards		–	–	–
Non-handed		●	●	●
Arm type standard scissor arm		●	●	●
Closing force variable at adjustment screw		–	–	–
Closing speed variable by valve adjustment		●	●	●
Backcheck		○	○	○
Delayed action		–	–	–
Hold-open		○	○	○
Weight in kg		1.7	1.7	1.7
Dimensions in mm	Length	180		
	Overall depth	65		
	Height	43		

● Yes – no ○ Option

## Specification text

Rack-and-pinion door closer with hydraulically fully controlled closing cycle, non-handed.

### Model:

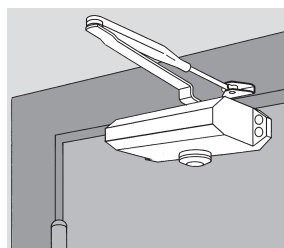
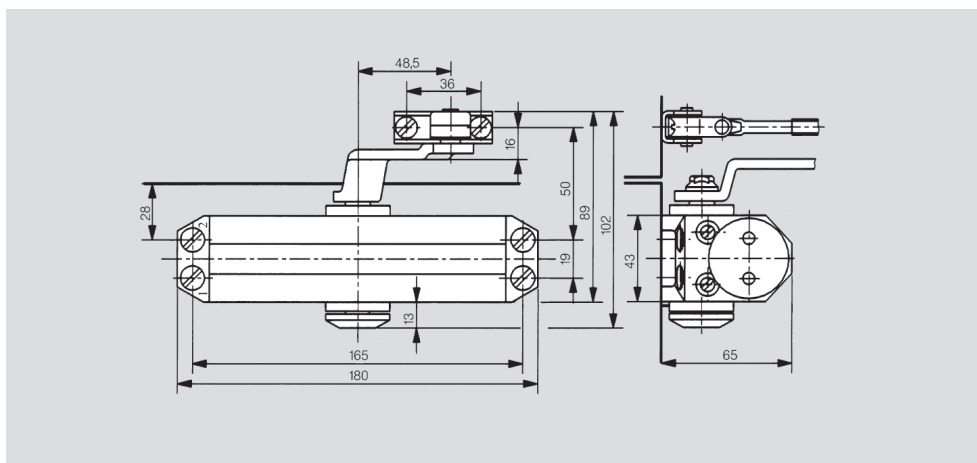
- ☐ Size 2
- ☐ Size 3
- ☐ Size 4
- ☐ With hold-open arm

Accessories: \_\_\_\_\_

### Closer Colour:

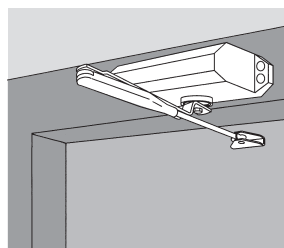
- ☐ silver

Make: DORMA TS 77



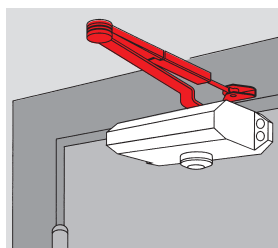
ON THE PULL SIDE

Door leaf fixing (standard)



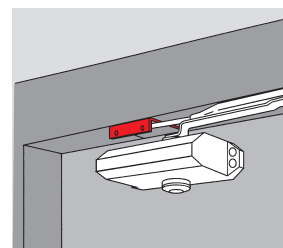
ON THE PUSH SIDE

Transom fixing  
(overhead installation)



WITH HOLD-OPEN ARM  
ASSEMBLY

for temporary door hold-open  
(optional extra)



PARALLEL ARM

for parallel arm assembly  
(for installation dimensions,  
see fixing instructions)



DORMA Australia P/L  
Head Office  
46-52 Abbott Road,  
Hallam, Victoria 3803  
Telephone (03) 8795 0666  
Facsimile (03) 8795 0280  
Toll Free Facsimile  
1800 333 309

DORMA NZ Limited  
Head Office  
Building P  
61-69 Patiki Road  
Avondale  
Auckland 1026  
Telephone (09) 830 2052  
Facsimile (09) 820 4909



TS 68

---

Door Closer

# THE IDEAL LOW-COST SOLUTION FOR STANDARD DOORS

With the TS 68, DORMA has developed a low-cost door closer which can be universally used on all common door types. It is particularly quick and easy to install — and does not require a mounting

backplate. The closer arm's power shoe and changes in templating allow easy selection of closing force to suit various door sizes.

Certified to ISO 9001

### Plus points

#### For the trade

- Low-cost solution for standard doors.
- Just one model for all mounting positions.

#### For the user

- Two valves for optimum closing speed and reliable latching action

#### For the installer

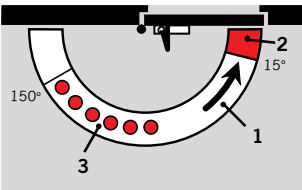
- Non-handed unit.
- Quick and easy to install.
- Fixes perfectly to all door types without the need for a mounting backplate.

#### For the specifier/architect

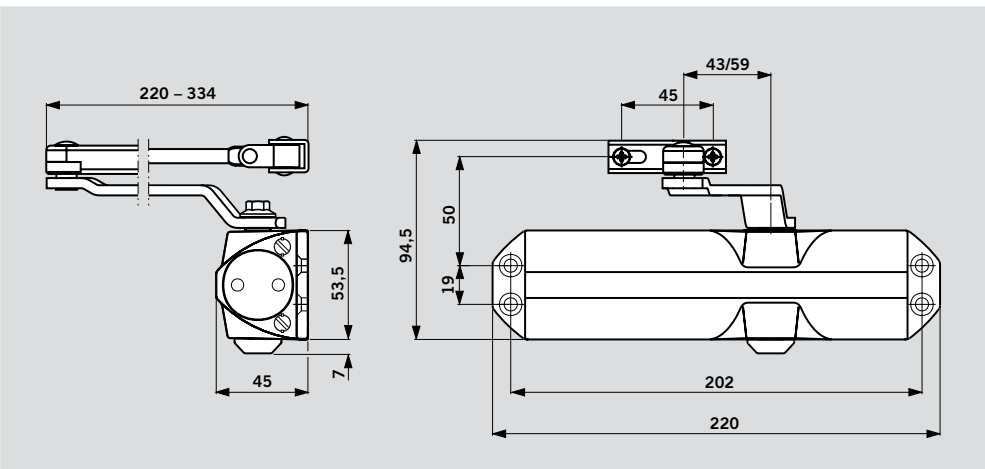
- Compact design.
- Inexpensive, proven reliability.

Data and features		TS 68
Selectable closing force (variable via arm power shoe and templating)	Size	EN 2/3/4
Door width	≤ 1100 mm	●
External doors, opening outwards		–
Non-handed		●
Arm	Standard	●
	Slide channel	–
Closing speed adjustable at 2 separate valves	180° – 15°	●
	15° – 0°	
Backcheck		○
Delayed action		–
Hold-open		○
Weight in kg		1.4
Dimensions in mm	Length	220
	Overall depth	45
	Height	53.5
Approved to AS1905 Part 1 Fire Resistant Doors (Backcheck model only)		●
● Yes – No ○ Option		

### Functions



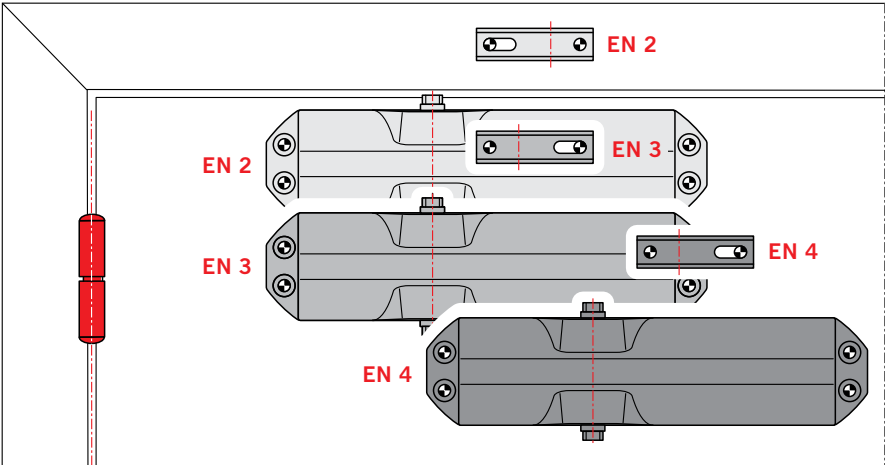
- 1 Adjustable closing speed in the range 180° – 15°.
- 2 Adjustable closing speed in the range 15° – 0°.
- 3 Hold-open range with hold-open arm model (optional extra).



### Closing force settings

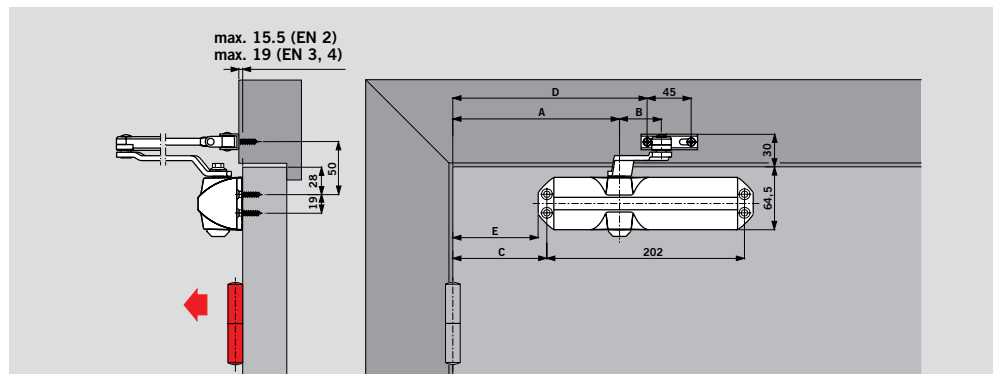
Door width	Size setting
≤ 850	EN 2
≤ 950	EN 3
≤ 1100	EN 4

The TS 68's size setting is selected for the door width by moving the closer body and/or turning the arm power shoe.



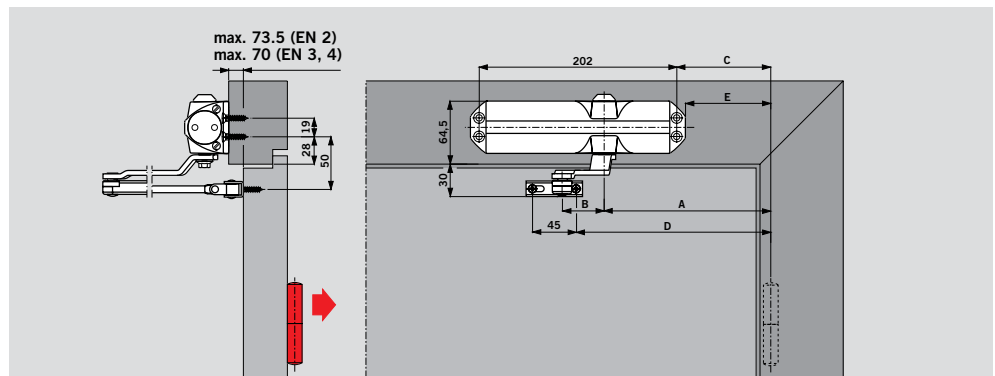
## DOOR-LEAF FIXING, PULL SIDE

	EN 2	EN 3	EN 4
A	170	170	250
B	59	43	43
C	96	96	176
D	198.5	198.5	278.5
E	87	87	167

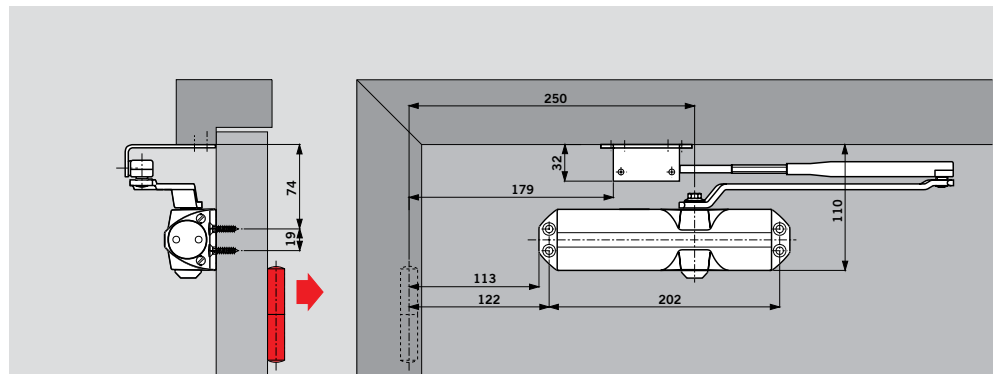


## FRAME FIXING, PUSH SIDE

	EN 2	EN 3	EN 4
A	170	170	250
B	59	43	43
C	96	96	176
D	198.5	198.5	278.5
E	87	87	167



## PARALLEL ARM FIXING, PUSH SIDE



### Standard equipment and accessories

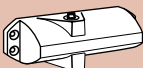
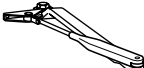


xx	Colour
01	silver
02	brass
03	dark brown
11	white

### Order-Number

■ = Closer with arm, complete  
# = Accessory

### Specification text

Rack and pinion door closer with selectable closing force, size EN 2, 3 and 4 and adjustable closing speed in two independent ranges.  
Non-handed.

Door closer TS 68	Standard arm	Hold-open arm	Parallel arm bracket
			
Size EN 2/3/4	<input type="checkbox"/> 664105xxBC <input type="checkbox"/> 664005xxNBC	<input type="checkbox"/> 664008xx	660005xx #

### Model

- ☐ with standard arm
- ☐ with hold-open arm

### Colour

- ☐ silver
- ☐ brass
- ☐ dark brown
- ☐ white (similar to RAL 9016)

### Make DORMA TS 68



DORMA Australia P/L  
Head Office  
Victorian Sales Office  
46-52 Abbott Road,  
Hallam, Victoria 3803  
Telephone (03) 8795 0666  
Facsimile (03) 8795 0280  
Toll Free Facsimile  
1800 333 309

New South Wales &  
Australian Capital Territory  
Telephone (02) 9645 8350  
Facsimile (02) 9645 8355

Queensland  
Telephone (07) 3394 6810  
Facsimile (07) 3394 2953

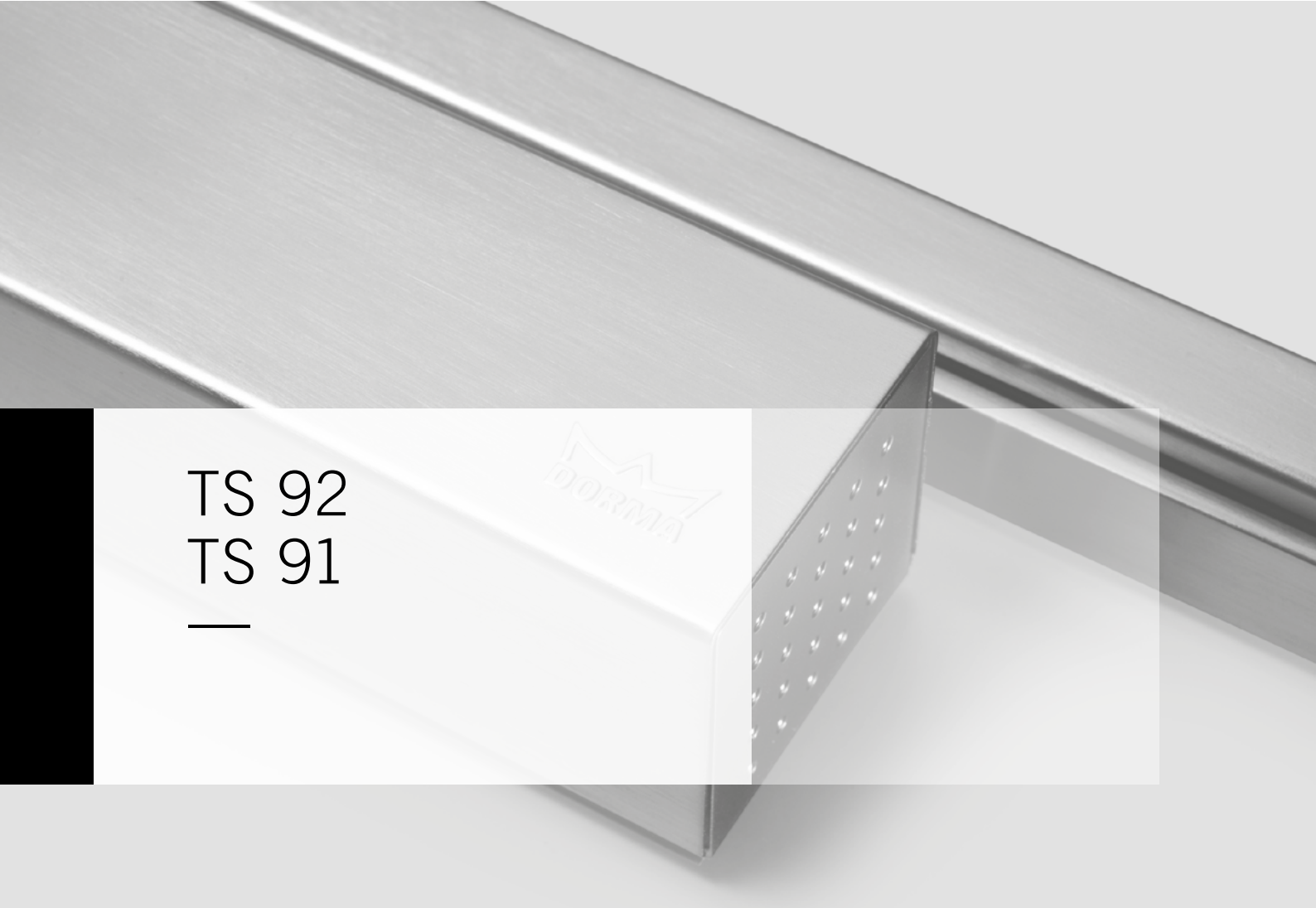
New Zealand  
Dorma NZ Limited  
Building P  
61-69 Patiki Road  
Avondale  
Auckland 1026  
Telephone (09) 830 2052  
Facsimile (09) 820 4909

South Australia &  
Northern Territory  
Telephone (08) 8337 4064  
Facsimile (08) 8365 8572

Western Australia  
Telephone (08) 9228 2322  
Facsimile (08) 9228 2422

Newcastle  
Telephone (02) 4960 2606  
Facsimile (02) 4960 2544  
  
ACT  
Telephone (02) 6203 0323  
Facsimile (02) 6260 1810

Tasmania  
Telephone (03) 6225 4117



TS 92  
TS 91  
—

Cam action door closers  
in Contur Design

# THE UNIVERSAL CLOSERS FOR STANDARD DOORS – TESTED AND APPROVED TO EN 1154

As units designed especially for interior applications, the TS 92 and TS 91 door closers constitute the perfect complement to the DORMA TS 93 cam-action door closer system. They likewise come in the Contur design and, thanks to their linear drive mechanism with heart-shaped cam, they

offer the same ease of use. Moreover, their competitive pricing combined with their outstanding level of assured quality make them particularly attractive from an economic standpoint as well.

Certified to ISO 9001

## Plus points

### For the trade

- Inexpensive cam-action technology for standard interior doors.
- Low storage costs and reduced inventory requirement thanks to uniform slide channels of the Contur series.

### For the fabricator

- Non-handed.
- Easy to fix and quickly adjustable.

### For the architect/specifier

- Excellent value for money.
- Uniform appearance throughout the entire Contur slide channel range.

### For the user

- Exceptional ease of use and fully controlled closing action.
- Optimum adaptability of the closing speed with reliable latching thanks to two regulating valves.

Data and features		TS 92 B/G <sup>1)</sup>	TS 91 B
Closing force	Size	EN 1–4	EN 3
Adjustable		●	–
Standard doors <sup>2)</sup>	≤ 950 mm	–	●
	≤ 1100 mm	●	–
External doors, outward opening <sup>2)</sup>		–	–
For fire and smoke check doors		●	●
Non-handed design		●	●
Arm assembly type	Slide channel	●	●
Closing speed and latching action independently adjustable at two separate valves	180°–15° 15°– 0°	●	●
Cushioned limit stay, mechanical		○	○
Backcheck		–	–
Delayed action		–	–
Hold-open		○	○
Weight in kg		2.0	1.9
Dimensions in mm	Length	281	267
	Overall depth	47	47
	Height	65	65
Door closer tested to EN 1154		●	●
CE mark for building products		●	●

● yes – no ○ optional

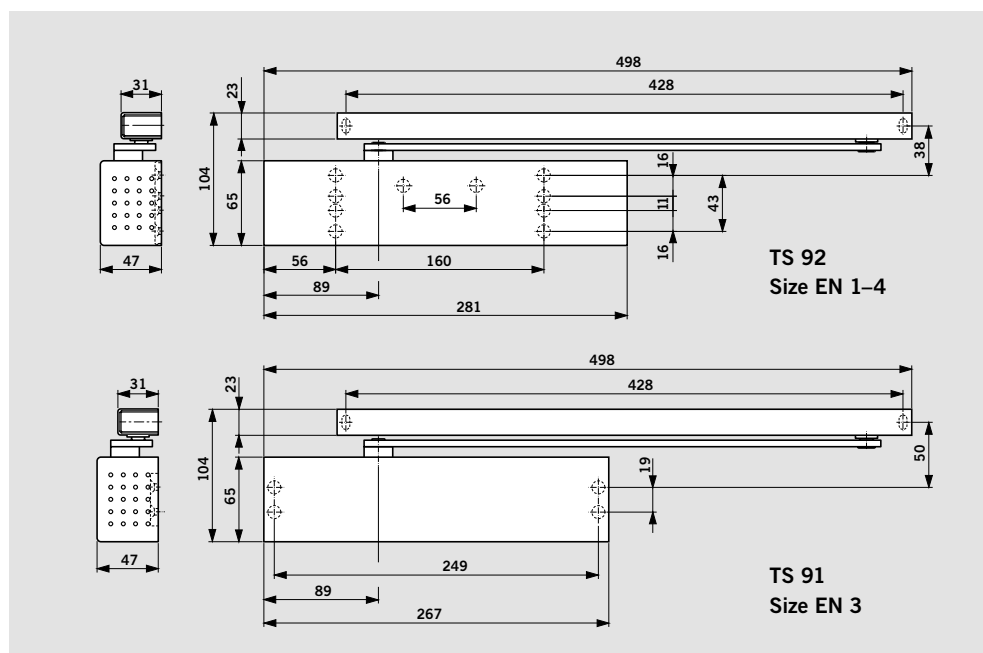
<sup>1)</sup> B = Standard model for pull-side door leaf fixing/push-side transom fixing

G = Special model for push-side door leaf fixing/pull-side transom fixing.

<sup>2)</sup> For particularly heavy doors and doors which have to close against wind resistance, we recommend the DORMA TS 93.



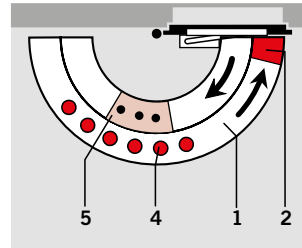
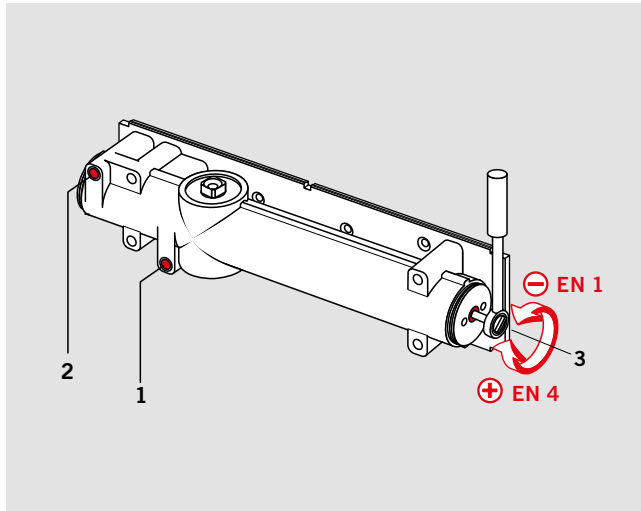
The TS 92/TS 91 complies with the requirements and/or recommendations of the following: CERTIFIRE approved for fire doors ITT 120, MM/IMM 240; Ref. CF 119





# STANDARD AND OPTIONAL FUNCTIONS

## TS 92 B/G

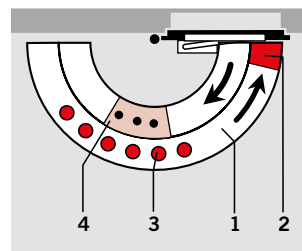
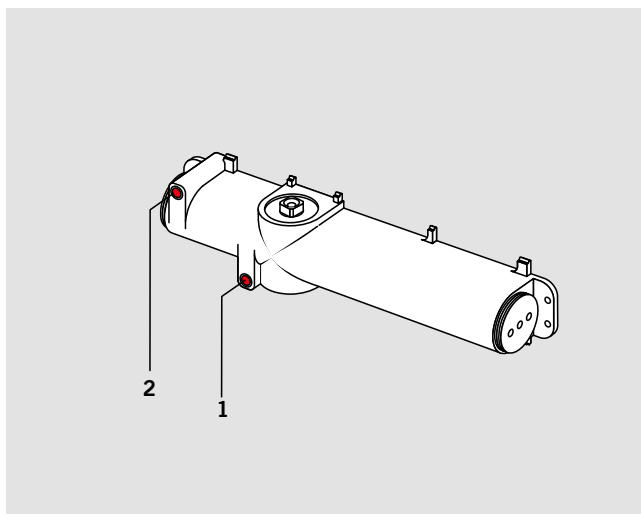


- 1 Variable closing speed in the range 180°–15°
- 2 Variable latching speed in the range 15°–0°
- 3 Infinitely variable closing force
- 4 Hold-open (option)
- 5 Cushioned limit stay (option)

The **closing speed** of the TS 92 is individually adjustable over two independent ranges at two separate valves.

The **closing force setting (spring strength)** for the relevant door width is adjusted with the TS 92 at an infinitely variable lateral adjustment screw.

## TS 91 B



- 1 Infinitely variable closing speed in the range 180°–15°
- 2 Infinitely variable latching speed in the range 15°–0°
- 3 Hold-open (option)
- 4 Cushioned limit stay (option)

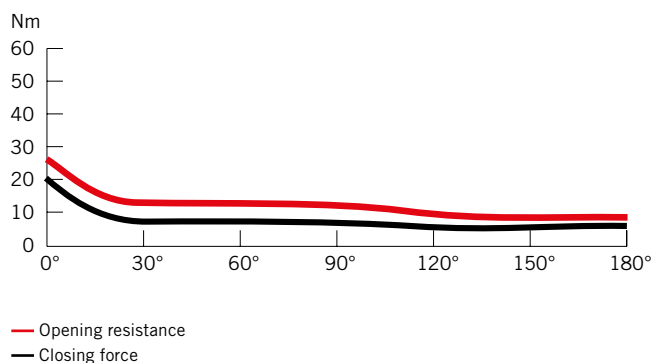
The **closing speed** of the TS 91 is individually adjustable over two independent ranges at two separate valves.

The **closing force (spring strength)** in the TS 91 is permanently set to size EN 3.

## Force profile

DORMA TS 92 B

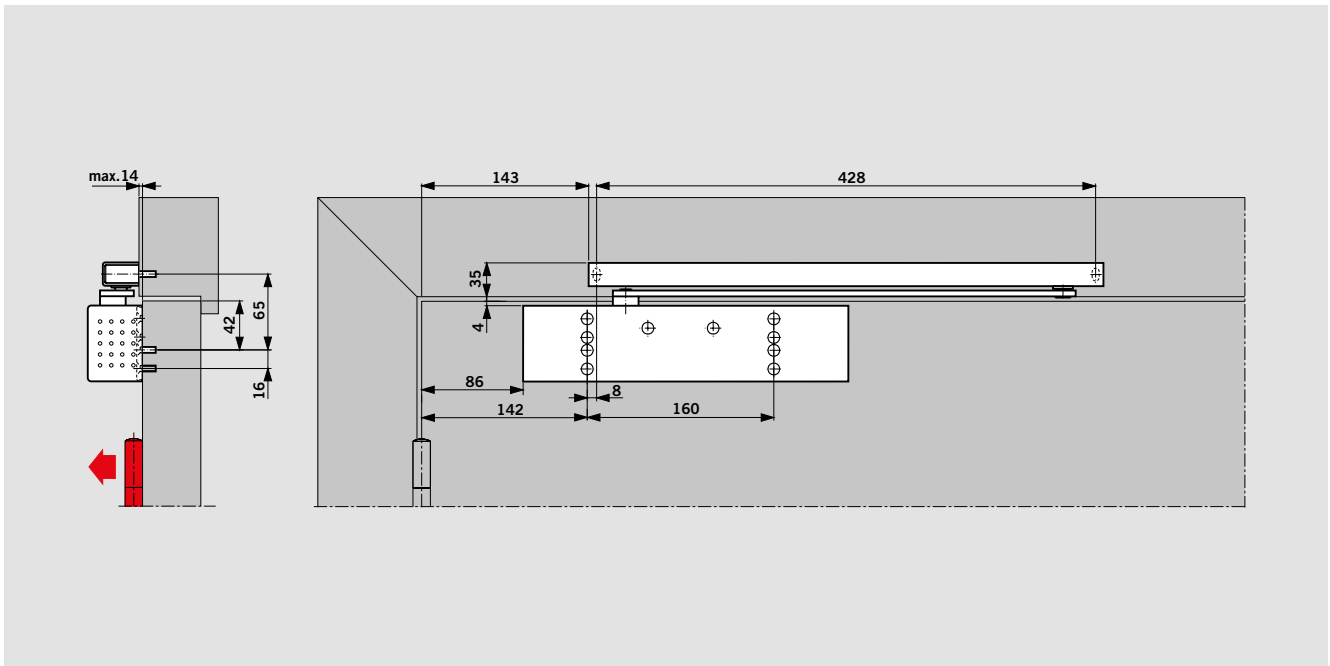
Closing force setting: size EN 3



The heart-shaped cam and the linear drive mechanism which characterise all DORMA cam-action door closers produce a rapidly decreasing opening torque, so greatly reducing the amount of effort required. This means that even children, the elderly and the disabled can open doors with ease.

The user-friendliness of the system is further enhanced by the reliable latching action achieved by the fact that the closing force only rises in the end phase of the cycle.

## TS 92 B DOOR LEAF FIXING, PULL SIDE

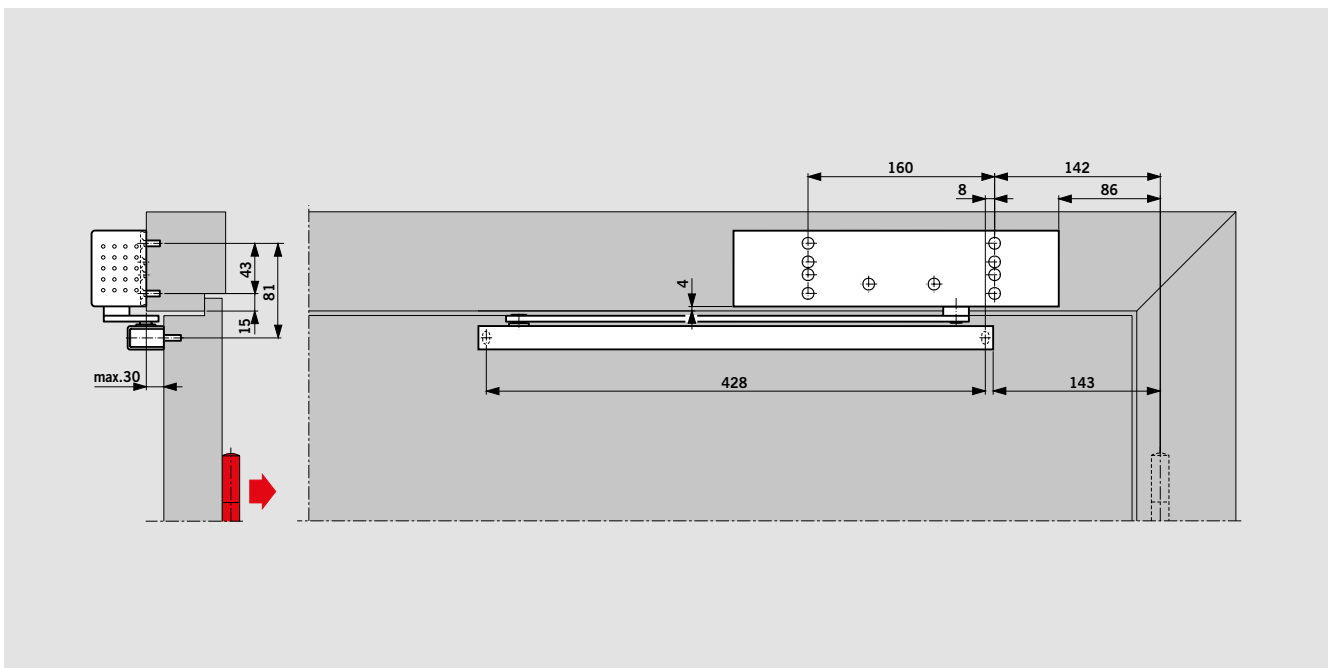


(example shows LH [ISO 6] door; RH [ISO 5] doors mirrored arrangement)

Provided the structural conditions allow, an opening angle of 180° is possible with this method of fixing.

In most cases, however, a wall recess will have to be provided for the door closer.

## TS 92 B TRANSOM FIXING, PUSH SIDE

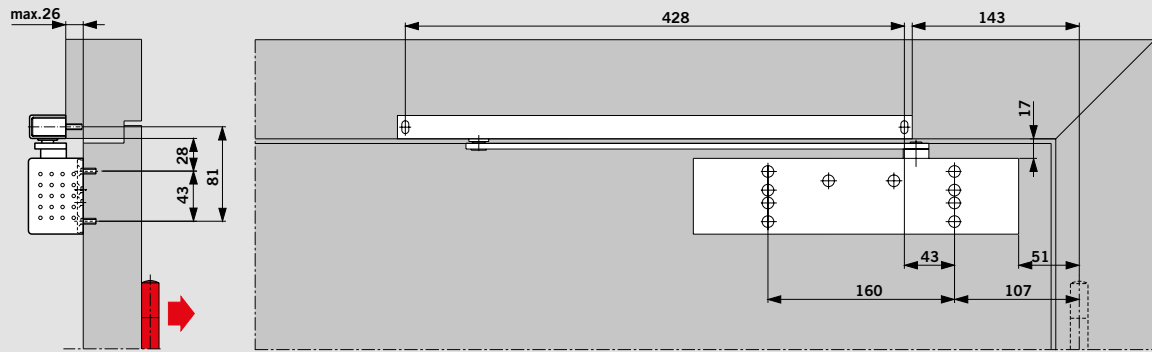


(example shows LH [ISO 6] door; RH [ISO 5] doors mirrored arrangement)

Depending on the structural conditions, the door opening angle with this method of fixing is limited to approx. 120° to 145°.

In order to avoid damage to the door or door closer, users are recommended to install a cushioned backstay or a door stop.

## TS 92 G DOOR LEAF FIXING, PUSH SIDE



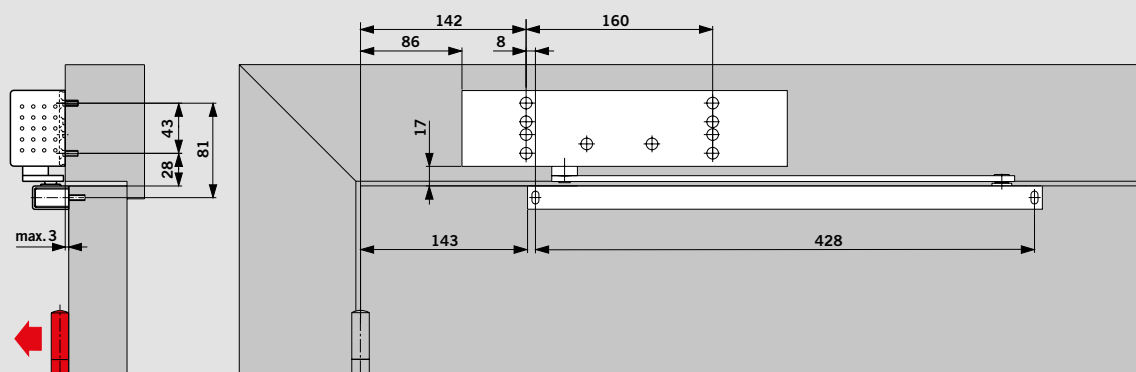
(example shows LH [ISO 6] door; RH [ISO 5] doors mirrored arrangement)

Depending on the structural conditions, the door opening angle with this method of fixing is limited to approx. 120° to 145°.

In order to avoid damage to the door or door closer, users are recommended to install a cushioned backstay or a door stop.

**A door stop must be installed in the case of fire and smoke check doors.**

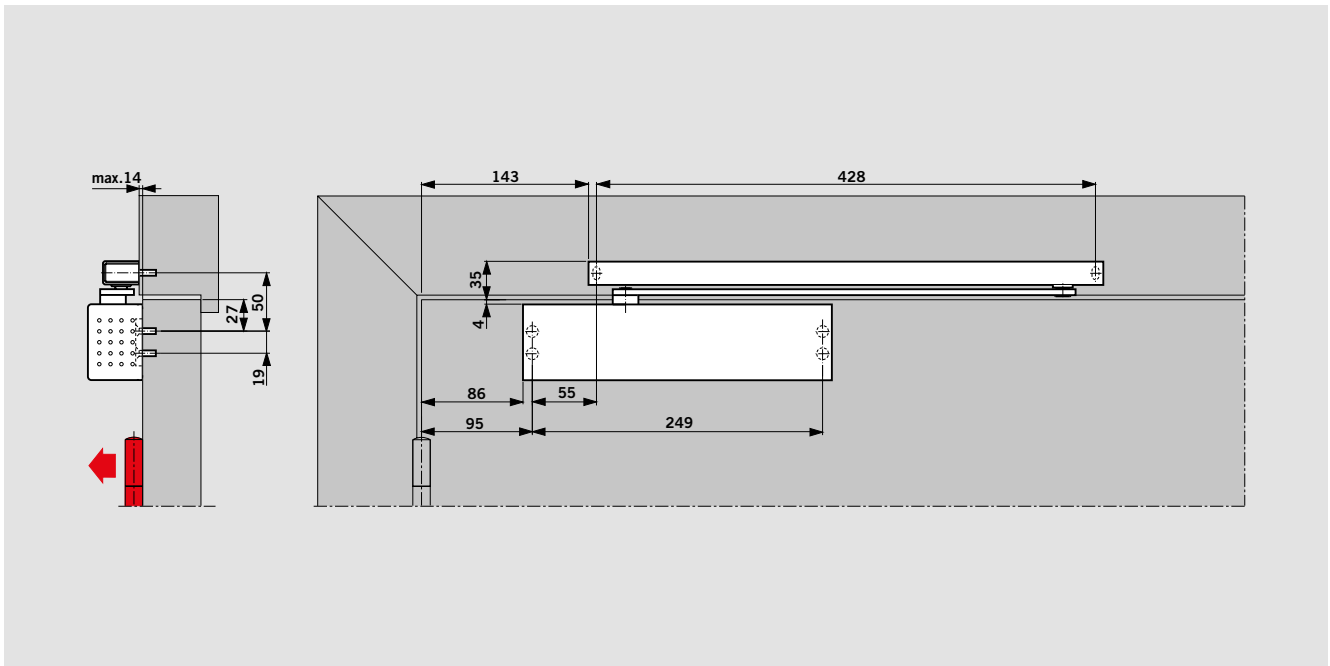
## TS 92 G TRANSOM FIXING, PULL SIDE



(example shows LH [ISO 6] door; RH [ISO 5] doors mirrored arrangement)

Provided the structural conditions allow, an opening angle of 180° is possible with this method of fixing.

## TS 91 B DOOR LEAF FIXING, PULL SIDE

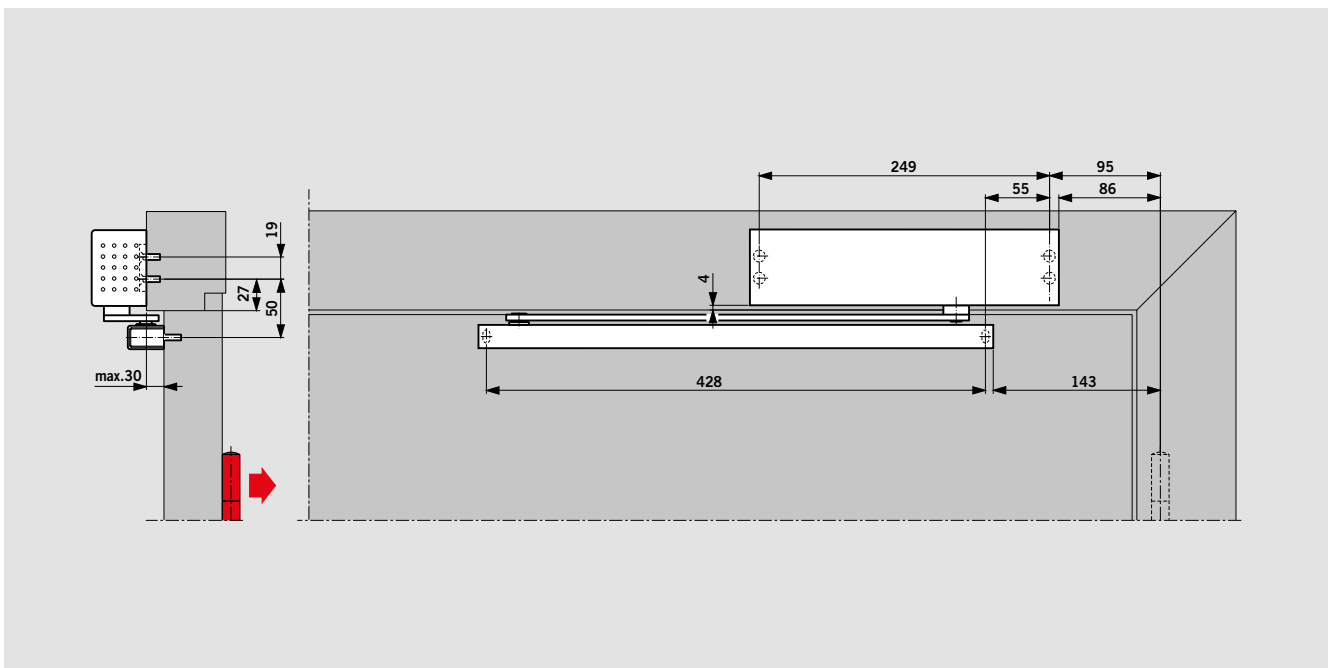


(example shows LH [ISO 6] door; RH [ISO 5] doors mirrored arrangement)

Provided the structural conditions allow, an opening angle of 180° is possible with this method of fixing.

In most cases, however, a wall recess will have to be provided for the door closer.

## TS 91 B TRANSOM FIXING, PUSH SIDE



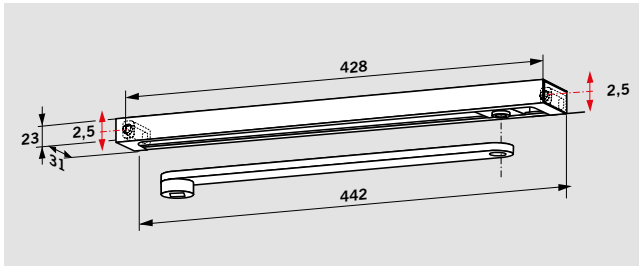
(example shows LH [ISO 6] door; RH [ISO 5] doors mirrored arrangement)

Depending on the structural conditions, the door opening angle with this method of fixing is limited to approx. 120° to 145°.

In order to avoid damage to the door or door closer, users are recommended to install a cushioned backstay or a door stop.

# SLIDE CHANNEL

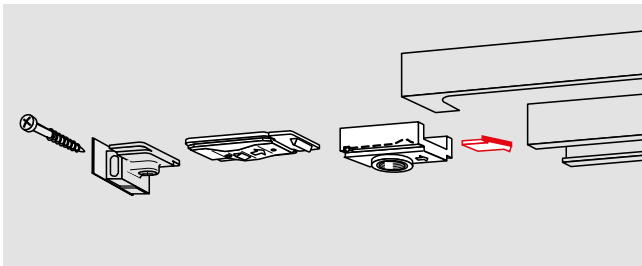
## Slide channel



The **G-N** slide channel assembly comprises the main arm, slide channel, slide block, fixings, screws and end caps. The G-N slide channel is non-handed and can be combined with both door closers.

Thanks to oblong holes in the fixing pads, it is possible to compensate for deviations in the drill hole pattern and to keep the door closer body and slide channel perfectly parallel.

## Hold-open unit

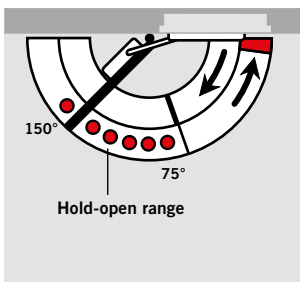


The **RF** mechanical hold-open unit ensures that doors are held open at precisely the correct angle – up to approx. 150° – without any fallback.

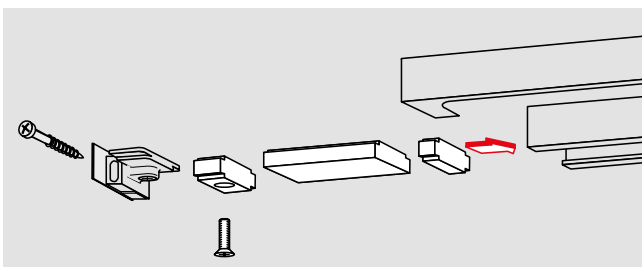
The hold-open unit can be switched on and off by the user as required, and the pull-off force can be adjusted to suit

each individual door situation. The RF hold-open unit is non-handed and can also be supplied for retrofitting to the slide channel at a later date.

**Not for fire and smoke check doors.**



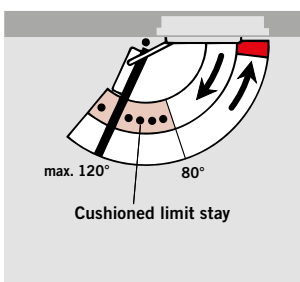
## Cushioned limit stay



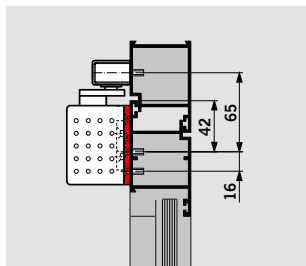
Cushioned limit stay simply slides into the slide channel. Adjustable between 80° and max. 120°. Also suitable for retrofitting.

Fitting a cushioned limit stay prevents doors which are opened normally from impacting against adjacent walls.

**The cushioned limit stay is not an overload protection device and in many applications will not be a suitable substitute for a door stop.**

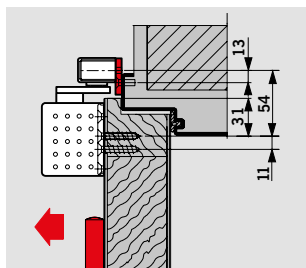
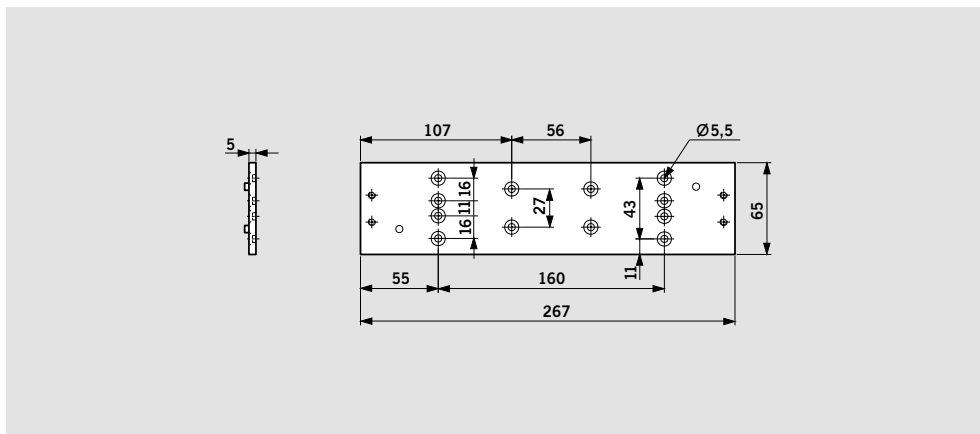


## ACCESSORIES



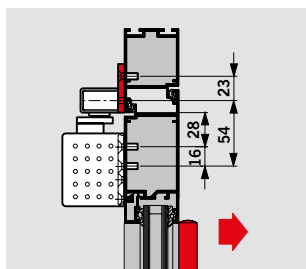
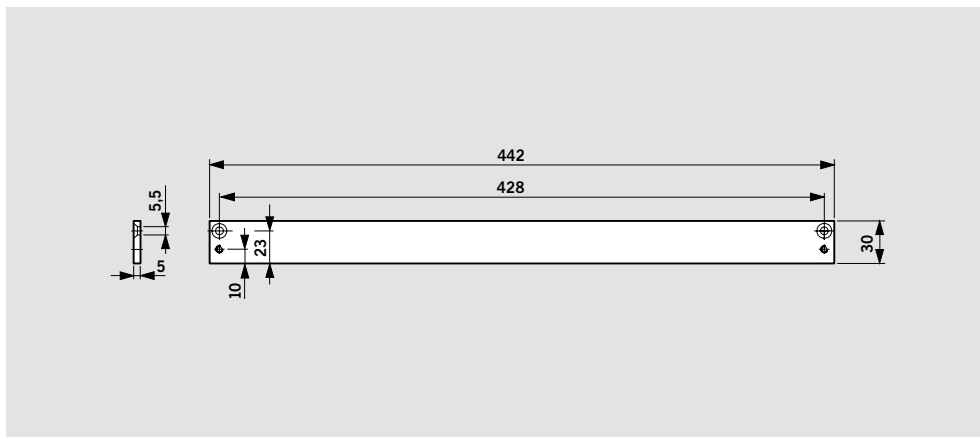
### Mounting backplate for TS 91

For fixing to doors which provide no means of direct mounting.  
Fixing hole pattern as per Supplement 1 to EN 1154.



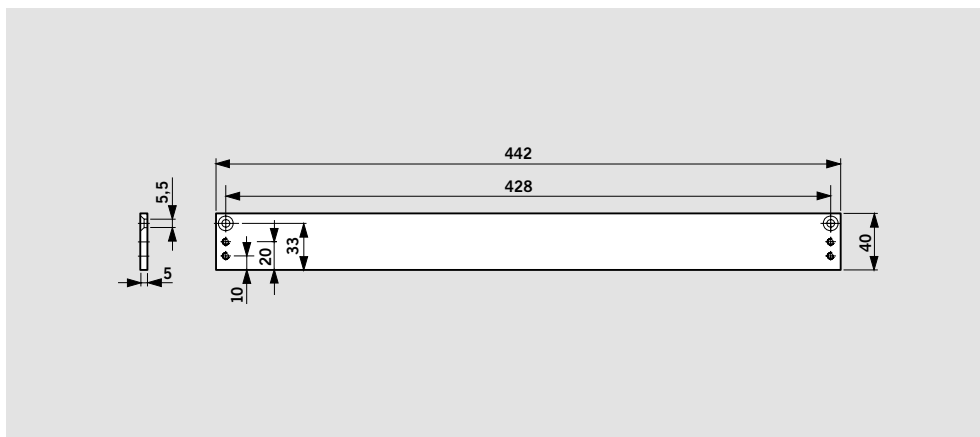
### Mounting backplate 30 mm for G-N

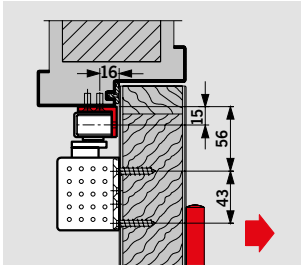
For fixing the slide channel to the door frame where there is no means of direct mounting.



### Mounting backplate 40 mm for G-N

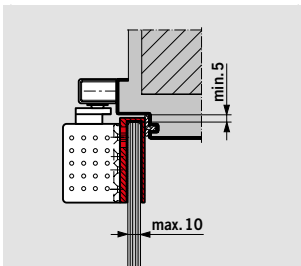
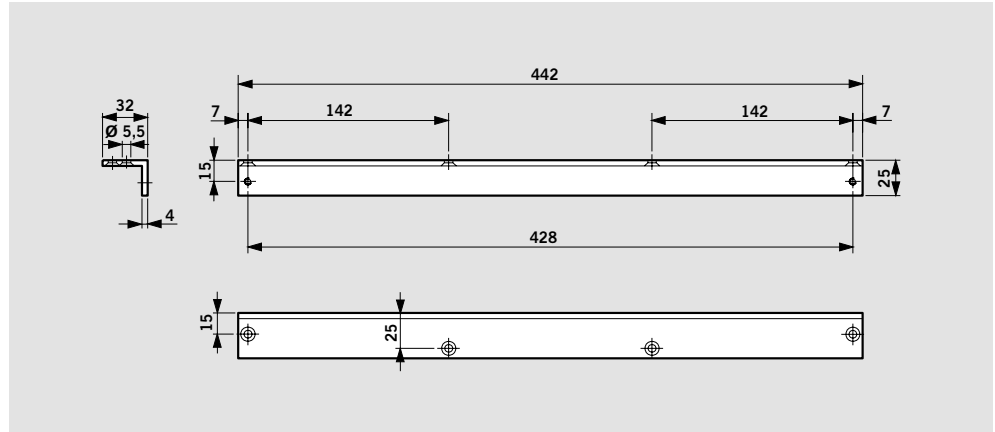
For fixing the slide channel to the door frame where there is no means of direct mounting.





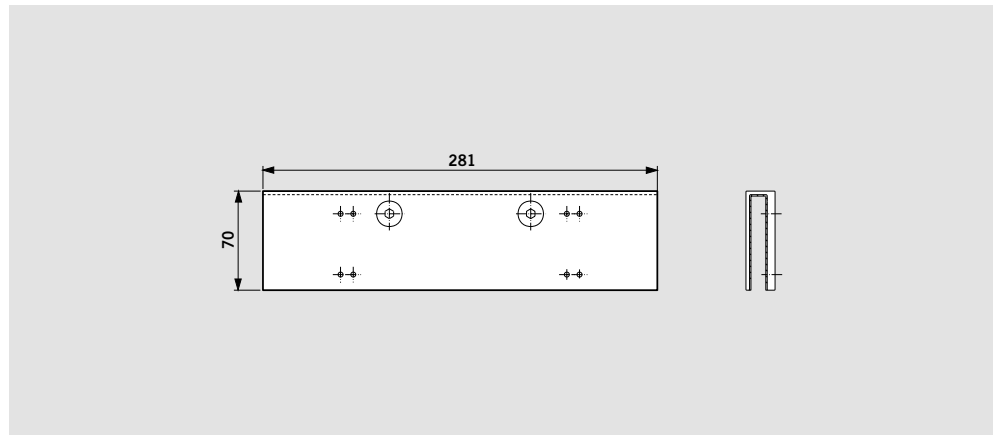
#### Angle bracket for G-N

For push-side fixing of the slide channel to door frames with a deep reveal.

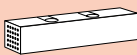
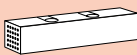
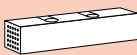




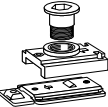
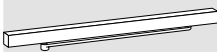
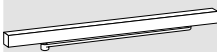
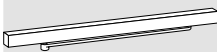
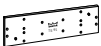
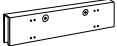


#### Glass door saddle plate for TS 92

For fixing the closer to toughened glass doors –  
No glass drilling or recessing required.



## STANDARD EQUIPMENT AND ACCESSORIES

	TS 92 B		TS 92 G		TS 91 B		Mounting backplate 30 mm for G-N	Mounting backplate 40 mm for G-N	Angle bracket for G-N	Cushioned limit stay set for G-N	Hold-open unit for G-N
											
	Size EN 1-4		Size EN 1-4		Size EN 3		644000xx	644100xx	644300xx	35800093	18570000
	■ 420201xx		■ 420301xx		■ 410201xx						
<b>G-N</b>							△	△	△	△	△
	□ 640100xx										
<b>Mounting backplate for TS 91</b>					△						
							410002xx				
<b>Glass door saddle plate for TS 92</b>											
	△		△								
							420001xx				

### xx Colour

01 Silver

11 White (RAL 9016)

09 Special colour

TS 92 also available in matching "Design" finishes

04 Stainless steel

05 Polished brass

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

xx Colour

■ Closer separate

□ Slide channel assembly separate

△ Optional accessory



# SPECIFICATION TEXT

---

## TS 92 B/G

Cam-action door closer,  
CERTIFIRE approved (CF 119),  
in Contur design with linear  
drive and rapidly decreasing  
opening resistance/torque,  
adjustable closing speed in  
two independent ranges and  
mounting backplate with  
universal fixing hole pattern;  
closing force infinitely variable  
between size EN 1 and EN 4.  
Non-handed.  
Approved to EN 1154.

### Model

- ☐ TS 92 B
- ☐ TS 92 G

### Accessories

- ☐ Hold-open unit
- ☐ Cushioned limit stay
- ☐ Mounting backplate  
(30 mm) for G-N
- ☐ Mounting backplate  
(40 mm) for G-NN
- ☐ Angle bracket for G-N
- ☐ Saddle plate for toughened  
glass doors

### Colour

- ☐ silver
- ☐ white (sim. to RAL 9016)
- ☐ stainless steel
- ☐ polished brass
- ☐ special colour (sim. to RAL)

### Make

- DORMA TS 92 B
- DORMA TS 92 G

## TS 91 B

Cam-action door closer,  
CERTIFIRE approved (CF 119),  
in Contur design with linear  
drive and rapidly decreasing  
opening resistance/torque,  
adjustable closing speed in  
two independent ranges and  
mounting backplate with  
universal fixing hole pattern;  
closing force EN 3.  
Non-handed.  
Approved to EN 1154.

### Accessories

- ☐ Hold-open unit
- ☐ Cushioned limit stay
- ☐ Mounting backplate  
(30 mm) for G-N
- ☐ Mounting backplate  
(40 mm) for G-N
- ☐ Mounting backplate for TS 91

### Colour

- ☐ silver
- ☐ white (sim. to RAL 9016)
- ☐ special colour (sim. to RAL)

### Make

- DORMA TS 91 B



DORMA Deutschland GmbH  
DORMA Platz 1  
58256 ENNEPETAL  
GERMANY  
Phone +49 2333 793-0  
Fax +49 2333 793-4950  
[www.dorma.com](http://www.dorma.com)

## The concealed cam action door closer system with slide channel

The DORMA ITS 96 system has become a standard in door closer technology. Closers and slide channels are now so compact that they can be installed out of sight in doors and their frames. Yet these devices offer the same high quality expected of DORMA door closers with all the familiar ease of operation and widely ranging functionality.


### Force profiles

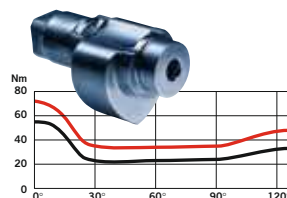
Equipped with the linear drive and heart-shaped cam, the door closers of the DORMA ITS 96 system offer the compelling advantage of an almost immediate reduction in resistance as the door is opened.

### Pre-assembly

The door closers of the DORMA ITS 96 system are particularly suitable for pre-assembly. This is because the closing speed, closing force and latching action can all be adjusted without problem after component installation in the door.

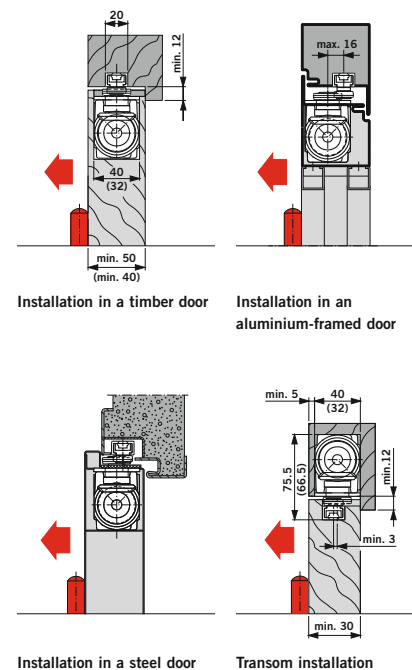
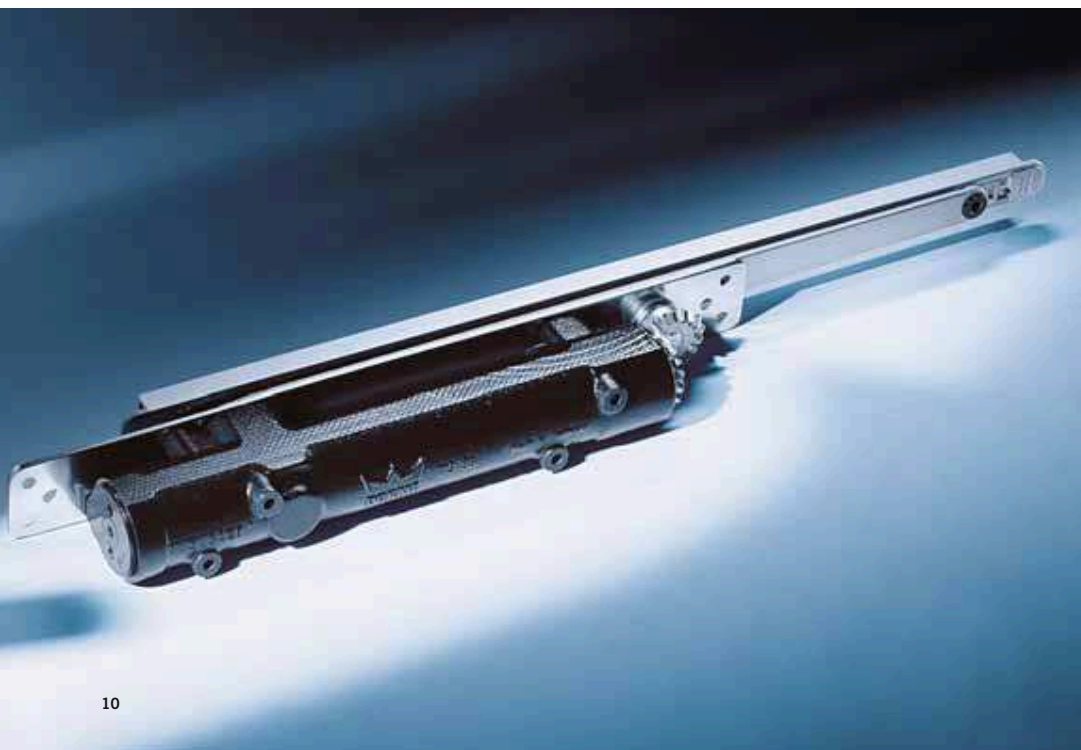
### Approval certification

The DORMA ITS 96 has been tested and approved to EN 1154 by the State Material Testing Authority, Dortmund/Germany and is subject to third-party quality verification. Regular audit testing is undertaken. Test reports and/or certificates are available on request. The ITS 96 carries the  mark. Additional approval certification of the relevant fire and smoke check door in combination with the closer system may be necessary – check local regulations.



Force profiles  
Closing force  
setting EN 6

— Opening moment  
— Closing moment



All examples refer to left-hand (ISO 6) doors; mirror image applies to right-hand (ISO 5) doors.  
All dimensions show ITS 96 3-6  
( ) = ITS 96 2-4

Data and features		ITS 96	
Closing force adjustable	Spring strength	EN 2-4	EN 3-6
Standard doors, fire and smoke check doors	≤ 1100 mm ≤ 1400 mm	● —	● ●
Door leaf thickness	≥ 40 mm ≥ 50 mm	● ●	— ●
Max. door leaf weight in kg		100	180
Non-handed		●	●
Slide channel		●	●
Closing force adjustable by screw		●	●
Closing speed adjustable by valve		●	●
Latching action adjustable by valve		●	●
Cushioned limit stay		●	●
Hold-open (not for fire and smoke check doors)		○	○
Max. door opening angle (depending on door design)		approx. 120°	
Door closer compliant with EN 1154		●	
Hold-open devices compliant with EN 1155		●	
Door co-ordinators compliant with EN 1158		●	
CE mark for construction products		●	
● yes    — no    ○ optional			

### ITS 96 compendium

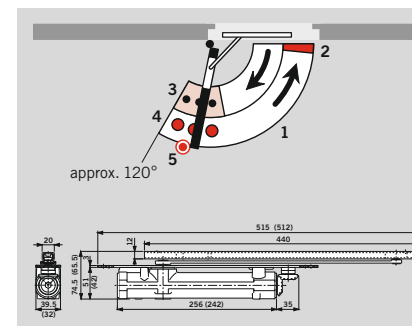
You will find all the information you need relating to the DORMA ITS 96 system on this CD-ROM, which you can order online at [www.dorma.com](http://www.dorma.com).



### DORMA ITS 96 N 20

- Non-handed model for RH (ISO 5) and LH (ISO 6)
- Adjustable closing force (EN 2-4, 3-6)
- Adjustable closing speed (1)
- Adjustable latching action (2)
- Cushioned limit stay (3)
- Hold-open device RF, optional (4)
- Floor stop OGRO TZ 5000 (5)

For specification texts, see page 288 ff.



## With hold-open for single-leaf fire and smoke check doors

### DORMA ITS 96 EMF

The electro-mechanical hold-open device ensures that the door is held open in precisely the position required. In the event of an alarm or power failure, the door is released and the door closer closes the door. Release activation is by external lintel or ceiling-mounted smoke detectors

(e.g. DORMA RMZ or RM in the Contur design). The hold-open can also be simply released by hand.

#### Note:

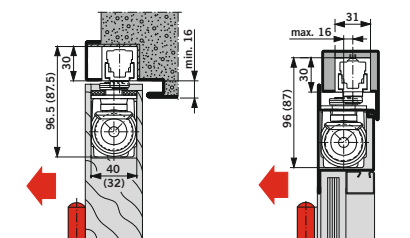
The hold-open point also constitutes the maximum door opening angle. A door stop must be installed at this position.

### Technical data

Operating voltage 24 V DC  
Power input 1.6 W  
Rated for continuous duty 100% DF  
Compliant with EN 1155

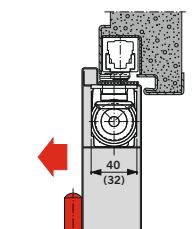
### F Approval certification

The DORMA ITS 96 EMF has been tested and approved to EN 1155 by the State Material Testing Authority, Dortmund/Germany and is subject to third-party quality verification. Regular audit testing is undertaken. Test reports and/or certificates are available on request. The ITS 96 carries the **CE** mark. Additional approval certification of the relevant fire and smoke check door in combination with the closer system may be necessary – check local regulations.



Installation in a timber door

Installation in an aluminium-framed door



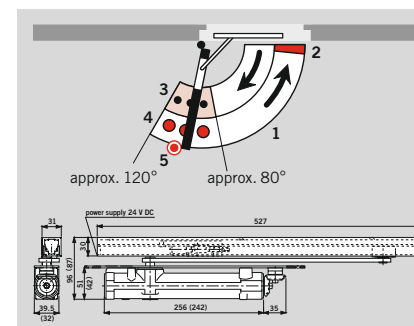
Installation in a steel door

All examples refer to left-hand (ISO 6) doors; mirror image applies to right-hand (ISO 5) doors.  
All dimensions show ITS 96 3-6  
( ) = ITS 96 2-4



#### Application example:

Hold-open system in a fire and smoke check door, comprising: Door closer DORMA ITS 96 (1); slide channel DORMA G 96 EMF (2); lintel-mounted smoke detector DORMA RMZ (3); one ceiling-mounted smoke detector DORMA RM (4) located either side of the door; door stop OGRO TZ 5000 (5)



### DORMA ITS 96 EMF

- Non-handed model for RH (ISO 5) and LH (ISO 6)
- Adjustable closing force (EN 2-4, 3-6)
- Adjustable closing speed (1)
- Adjustable latching action (2)
- Cushioned limit stay (3)
- Electro-mechanical hold-open, adjustable release force (4)
- Floor stop OGRO TZ 5000 (5)

For specification texts, see page 288 ff.

## DORMA ITS 96 System project applications

### DORMA Movable Walls

Varitrans CVA with sliding  
passdoor element.

Door closer system:  
DORMA ITS 96.

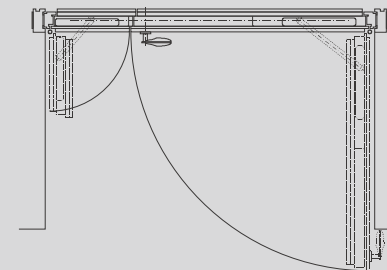


### T 30/RS/SD 42

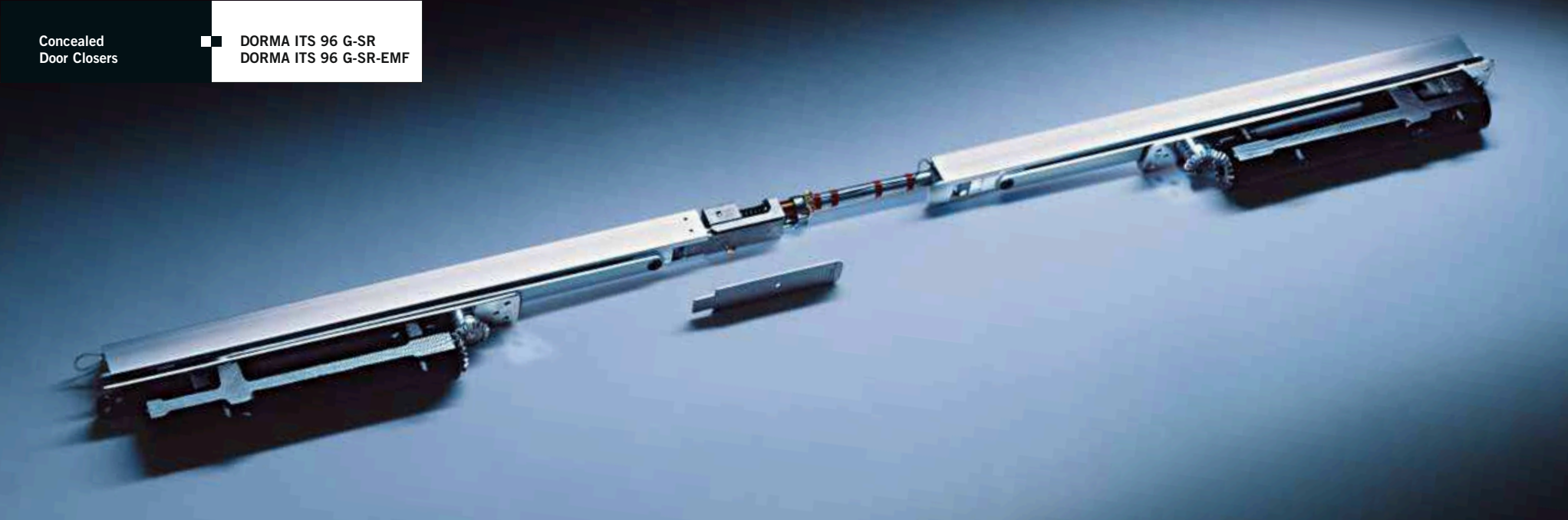
Double-leaf door set (smoke check, T30 fire rating, SD 42 sound insulation rating) with integrated DORMA ITS 96 G-SR door closer. 110 mm thick door leaf, with fixed side screens and arching over-panel. Surface RAL-painted. Flush stainless steel kick plates and edge protection trim profiles.



**Timber door**  
Double-leaf door set (smoke check, T30 fire rating, SD 42 sound insulation rating) with integrated DORMA ITS 96 G-SR door closer. 110 mm thick door leaf, panels 1500 x 3500 mm, solid timber frame.







## For double-leaf standard and fire/smoke check double doors

### DORMA ITS 96 G-SR

**with door co-ordinator**  
Ensures the correct closing sequence of double doors, i.e. inactive leaf before active leaf.

The system operates with a push-rod clamping system with overload release that operates independently of the closer hydraulics. The release mechanism is integrated in the slide channel.



### DORMA ITS 96 G-SR-EMF

**with door co-ordinator and electro-mechanical hold-open**

This system allows the precise and independent setting of the hold-open positions of each leaf of fire and smoke check double doors. In the event of an alarm or power failure, the hold-open is released and the door closer automatically closes the door leaves in the correct sequence.

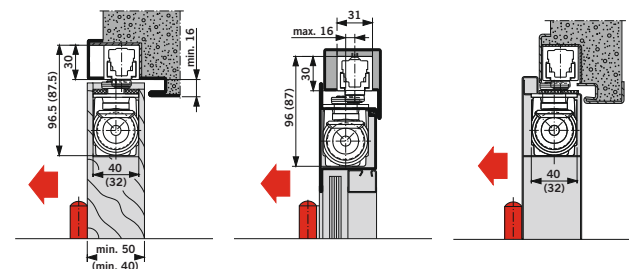
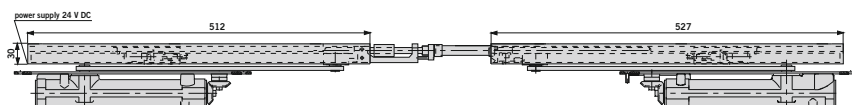
Release activation is by Intel or ceiling-mounted smoke detectors (e.g. DORMA RMZ or RM in the Contur design). Simple manual release is also possible.

#### Note:

The hold-open point is also the maximum door opening angle. A door stop must be installed at this position.

### F Approval certification

The DORMA ITS 96 G-SR-EMF has been tested and approved by the State Material Testing Authority, Dortmund/Germany for use on double doors in accordance with EN 1158 and EN 1155, and is subject to third-party verification. Regular audit testing is undertaken. Test reports and/or certificates are available on request. The ITS 96 carries the **CE** mark. Additional approval certification of the relevant fire and smoke check door in combination with the closer system may be necessary – check local regulations.



Installation in a timber door

Installation in an aluminium-framed door

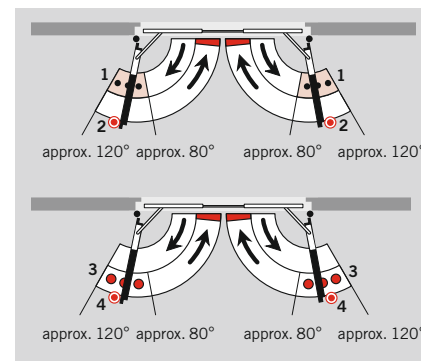
Installation in a steel door

All examples refer to left-hand (ISO 6) doors; mirror image applies to right-hand (ISO 5) doors.

All dimensions show ITS 96 3–6 ( ) = ITS 96 2–4

#### Technical data

Operating voltage  
24 V DC  
Power input  
3.2 W  
Rated for continuous duty  
100% DF  
Adjustable release force



### DORMA ITS 96 G-SR

Ensuring the correct closing sequence of door leaves. Compliant with EN 1158

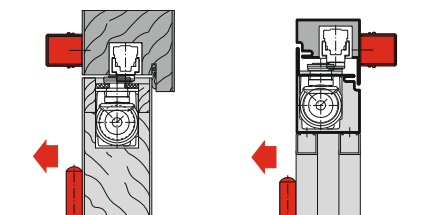
- Cushioned limit stay (1)
- Door stop OGRO TZ 5000 (2)

### DORMA ITS 96 G-SR-EMF

Independent hold-open of the door leaves and correct closing sequence in the event of an alarm

- Electro-mechanical hold-open, adjustable release force (3)
- Door stop OGRO TZ 5000 (4)

For specification texts, see page 288 ff.



Contur design RMZ lintel-mounted smoke detector on the pull side in conjunction with the ITS 96 G-SR-EMF

Contur design RMZ lintel-mounted smoke detector on the push side in conjunction with the ITS 96 G-SR-EMF

#### Double doors with ITS 96 G-SR/G-SR-EMF

ITS 96 door closer size	Total door width (mm)	Width of inactive leaf min. (mm)	Door leaf thickness min. (mm)
EN 2-4	1400-2200	700	40
EN 3-6	1400-2800	700	50

When installing on fire and smoke check doors, the DORMA MK 397 carry bar must also be used.

#### G-SR door co-ordinator for narrow inactive leaf

Only for timber doors

Inactive leaf width	540-700 mm
Active leaf width	min. 750 mm

Other door situations on application



**Application example:** Hold-open system on a double door, comprising: Two door closers type DORMA ITS 96 (1); active and inactive slide channel DORMA G 96 G-SR-EMF (2) with push-rod clamping system; Contur design RMZ lintel-mounted smoke detector (3), and one DORMA RM ceiling-mounted smoke detector in the Contur design (4) on either side of the door; two door stops type OGRO TZ 5000 (5); carry bar MK 397 (6)

#### Timber door

Double-leaf, T30 fire-rated door with integrated door closer system type DORMA ITS 96 G-SR-EMF. Project: Siebeneichen Castle near Dresden



#### Narrow-stile steel-framed door

Double-leaf, T30 fire-rated, integrated door closer system type DORMA ITS 96 G-SR-EMF (left)



#### Steel door

Double door with narrow inactive leaf, integrated door closer system type DORMA ITS 96 G-SR (right)



#### Special door

Double-leaf door set, fire rating T 90, with integrated door closer type DORMA ITS 96 G-SR-EMF; solid timber frame integrated in wall cladding

## Cam action door closers

The DORMA TS 92 – specially developed for internal doors and likewise styled in the Contur design – constitutes the ideal complement to the DORMA TS 93 cam action door closer system. The linear drive with the heart-shaped cam offers the same excellent ease of use, and all the usual installation options are available.

### Force profiles

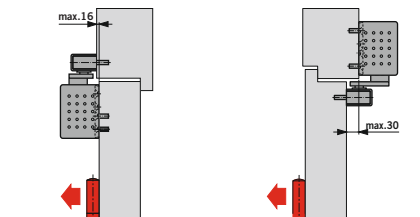
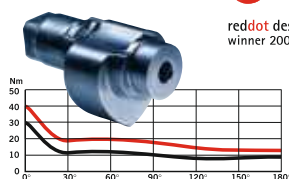
The linear drive and heart-shaped cam ensure that the resistance encountered when opening the door is reduced almost immediately.



reddot design award  
winner 2005



Force profiles  
Closing force  
setting EN 4

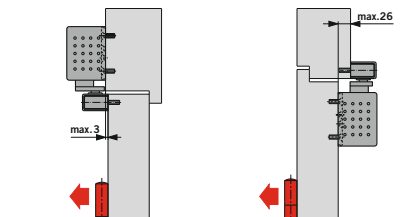


### Door leaf fixing on the pull side DORMA TS 92 B

Structural conditions permitting, opening angles up to approx. 180° are possible

### Transom fixing on the push side DORMA TS 92 B

Structural conditions permitting, opening angles of approx. 120° to 145° are possible. Install door stop at the maximum opening angle

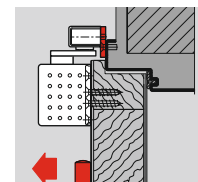


### Transom fixing on the pull side DORMA TS 92 G

Structural conditions permitting, opening angles up to approx. 180° are possible

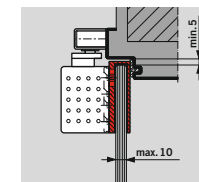
### Door leaf fixing on the push side DORMA TS 92 G

Structural conditions permitting, opening angle from 120° to 145° are possible. Install a door stop at the maximum opening angle



### Mounting backplate for G-N

For attaching the slide channel to the door frame where direct fixing is not possible



### Saddle plate

For attaching the closer to toughened glass doors – no glass preparation, e.g. cutting and drilling, required

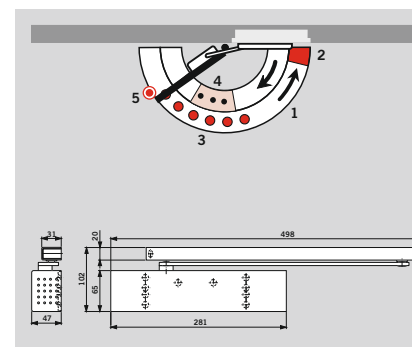
Data and features		TS 92 B/G <sup>1)</sup>
Closing force, adjustable	Spring size EN	2–4
Standard doors <sup>2)</sup>	≤ 1100 mm	•
External doors, outward opening <sup>2)</sup>		–
Fire and smoke check doors		•
Non-handed		•
Slide channel		•
Closing speed adjustable by valve in two individual ranges	180°–15° 15°–0°	•
Cushioned limit stay		○
Hold-open (not for fire and smoke check doors)		○
Door closer compliant with EN 1154		•
CE mark		•

• yes – no ○ optional

<sup>1)</sup> B = Model for door leaf fixing on the pull side/transom fixing on the push side.  
G = Model for door leaf fixing on the push side/transom fixing on the pull side.

<sup>2)</sup> For particularly heavy doors and doors that have to close against wind resistance, we recommend the DORMA TS 93.

All examples refer to left-hand (ISO 6) doors;  
mirror image applies to right-hand (ISO 5) doors.



### DORMA TS 92

- Non-handed model for RH (ISO 5) and LH (ISO 6)
- Adjustable closing force (EN 2–4)
- Closing speed adjustable in the range 180°–15° (1)
- Closing speed adjustable in the range 15°–0° (2)
- Optional mechanical RF hold-open with on/off switch (3)
- Cushioned limit stay, optional (4)
- Door stop OGRO TZ 5000 (5)

For specification texts, see page 288 ff.



## Cam action door closers

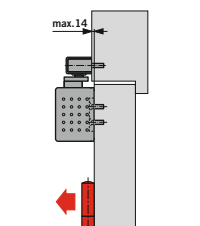
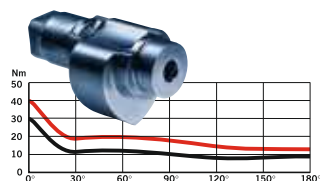
Designed for light internal doors, the DORMA TS 91 cam action door closer offers compelling benefits in the form of the easy to operate linear drive and its attractive Contur design. Its extensive fixing options and affordable price make it a highly popular solution for a wide range of applications.

### Force profiles

The linear drive and heart-shaped cam ensure that the resistance encountered when opening the door is reduced almost immediately.

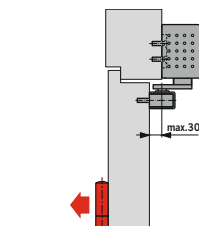


reddot design award  
winner 2005



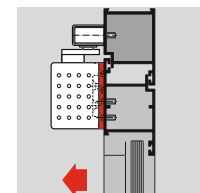
### Door leaf fixing on the pull side

Structural conditions permitting, opening angles up to approx. 180° are possible



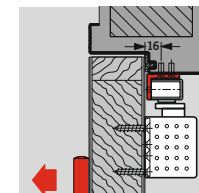
### Transom fixing on the push side

Structural conditions permitting, opening angles from 120° to 145° are possible. Install a door stop at the maximum opening angle



### Mounting backplate

For mounting on doors where direct fixing is not possible. With universal fixing hole pattern



### Angle bracket for G-N

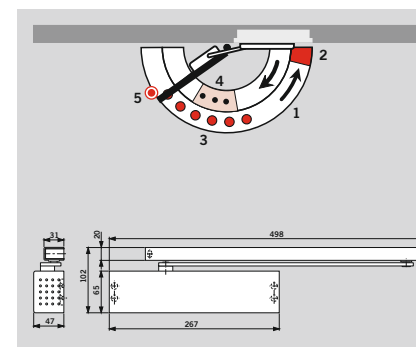
For attaching the slide channel to door frames with a deep-set frame reveal when fixing on the push side. For TS 92 and TS 91

All examples refer to left-hand (ISO 6) doors;  
mirror image applies to right-hand (ISO 5) doors.

Data and features	TS 91 B
Closing force	Spring size EN 3
Standard doors <sup>1)</sup>	≤ 950 mm •
External doors, outward opening <sup>1)</sup>	—
Fire and smoke check doors	•
Non-handed	•
Slide channel	•
Closing speed adjustable by valve in two individual ranges	180°–15° 15°– 0° •
Cushioned limit stay	○
Hold-open (not for fire and smoke check doors)	○
Door closer compliant with EN 1154	•
CE mark	•

• yes — no ○ optional

<sup>1)</sup> For particularly heavy doors and doors that have to close against wind resistance, we recommend the DORMA TS 93.



### DORMA TS 91

- Non-handed model for RH (ISO 5) and LH (ISO 6)
- Closing force EN 3
- Closing speed adjustable in the range 180°–15° (1)
- Closing speed adjustable in the range 15°–0° (2)
- Optional mechanical RF hold-open with on/off switch (3)
- Mounting backplate with universal fixing hole pattern
- Cushioned limit stay, optional (4)
- Door stop OGRO TZ 5000 (5)

For specification texts, see page 288 ff.

## TS 97 – a perfect combination of form and function

With the TS 97, high technological quality – based on the heart-shaped cam – has been effectively combined with a truly impressive design. The straight lines of its cubic form exude elegant compactness, complemented by the aesthetic benefits that derive from a closer body and slide channel of identical lengths. The single-piece faceplate has no slots or fix-

ing points, and even the end caps are "inboard". All the clearance and gap dimensions have been reduced to a minimum.

With a wide range of surface finishes available, the TS 97 in the Contur design can be ideally adapted to any décor. It is a solution that can satisfy all the requirements embodied in a high-quality architectural project.

### Force profiles

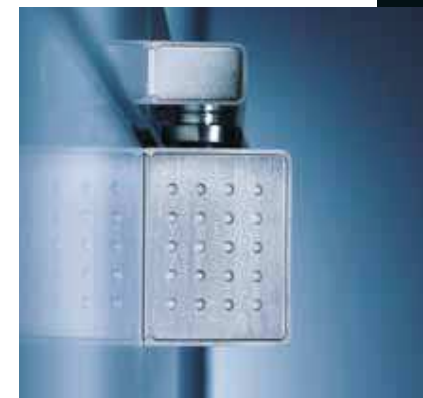
The linear drive and heart-shaped cam immediately minimise the resistance encountered as the door is opened.

### Approval certification

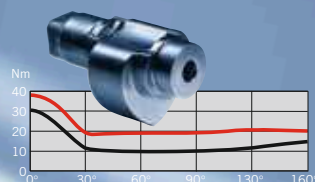
The DORMA TS 97 has been tested and approved to EN 1154 by the State Material Testing Authority, Dortmund/Germany and is subject to third-party quality verification. Regular audit testing is undertaken. Test reports and/or certificates are available on request. Additional approval certification may be required in conjunction with the fire and smoke check door concerned – check local regulations. The TS 97 carries the CE mark.

# 37 mm

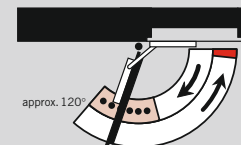
With an overall depth of just 37 mm, the TS 97 is the smallest surface-mounted door closer available for single doors in project applications. Ideally sized, it provides for a solution of exemplary elegance. Even when viewed from the side, the TS 97 offers unimpaired visual charm. Through its discrete appearance, such a closer enhances the overall architectural effect of the door and its surroundings.



reddot design award  
winner 2005

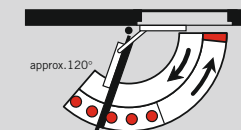


Force profiles  
Closing force  
setting EN 4



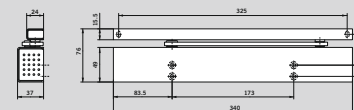
### Cushioned limit stay

The standard integrated slide channel allows a maximum opening angle of 120°, protecting both wall and door from accidental damage under normal conditions of usage.



### Mechanical hold-open unit

A mechanical hold-open unit is available as an optional extra.



Data and features		TS 97
Closing force	Spring strength	EN 2-4
General doors	1100 mm	•
External doors, outward opening		–
Fire and smoke check doors*		•
Non-handed		•
Slide channel height-adjustable		•
Closing speed adjustable by valve		•
Latching speed adjustable by valve		•
Cushioned limit stay		•
Delayed closing action		–
Backcheck		–
Hold-open		○
Weight in kg		2.5
Dimensions in mm	Length	340
	Overall depth	37
	Height	49
Door closer system compliant with EN 1154		•
CE mark for construction products		•

• yes – no ○ optional

\*Additional approval certification of the relevant fire and smoke check door in combination with the closer system may be necessary – check local regulations.

For specification texts, see page 288 ff.

## The cam action door closer system

Under the designation TS 93, DORMA is able to offer an impressive range of cam action door closers in the Contur design ensuring not only aesthetic appeal but also unbeatable ease of use. The DORMA TS 93 system is based on a modular concept designed to meet almost every conceivable functional requirement.

### Force profiles

The linear drive of the DORMA TS 93 door closer system features a heart-shaped cam that ensures an almost immediate reduction in resistance as the door is opened.

### Approval certification

The DORMA TS 93 B has been tested and approved to EN 1154 by the State Material Testing Authority, Dortmund/Germany and is subject to third-party quality verification. Regular audit testing is undertaken. Test reports and/or certificates are available on request. In the case of the transom-fixed DORMA TS 93 B and the DORMA TS 93 G for door leaf and transom fixing, additional approval certification may be required in conjunction with the fire and smoke check door concerned – check local regulations. The TS 93 carries the CE mark.



### Standard backcheck – BC/ÖD

The backcheck serves to absorb a large proportion of the energy generated when a door is thrown open or caught by the wind. This protects both the door and wall from damage.

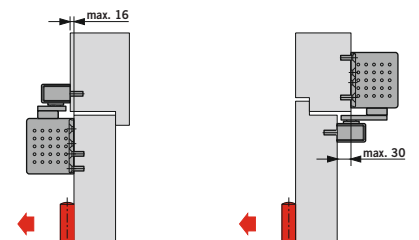


### Standard delayed closing action – DC/SV

The delayed action feature reduces the closing speed between door opening angles of 120° and 70°. This gives more time e.g. to the disabled, mothers with prams or nurses with hospital beds to pass through a doorway.

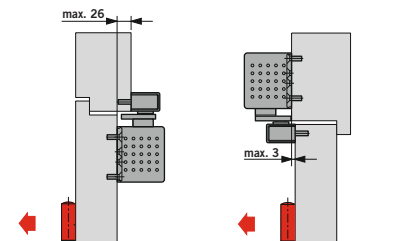


reddot design award  
winner 2005



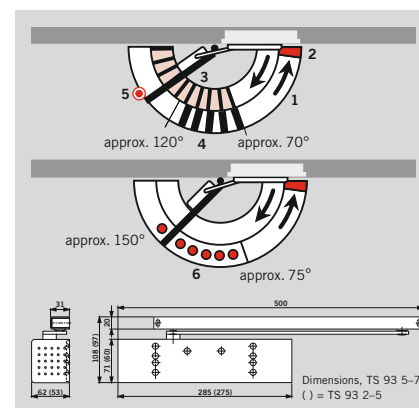
**Door leaf fixing  
on the pull side  
DORMA TS 93 B**  
Structural conditions  
permitting, opening angle  
= approx. 180°

**Transom fixing  
on the push side  
DORMA TS 93 B**  
Structural conditions  
permitting, opening angle  
= approx. 120° to 145°;  
backcheck and delayed  
closing action non-operative



**Door leaf fixing  
on the push side  
DORMA TS 93 G**  
Structural conditions  
permitting, opening angle  
= approx. 120° to 145°;  
a door stop must be installed  
for fire and smoke check doors

**Transom fixing  
on the pull side  
DORMA TS 93 G**  
Structural conditions  
permitting, opening angle  
= approx. 180°



Data and features		TS 93 B/G	
Closing force, adjustable	Spring strength	EN 2-5	EN 5-7
Standard doors and fire/smoke check doors <sup>1)</sup>	≤ 1250 mm	●	–
	≤ 1600 mm	–	●
External doors, outward opening <sup>1)</sup>	≤ 1250 mm	●	–
	≤ 1600 mm	–	●
Non-handed		●	●
Slide channel		●	●
Closing force adjustable by screw		●	●
Closing speed adjustable by valve		●	●
Latching speed adjustable by valve		●	●
Backcheck (BC) adjustable by valve		●	●
Delayed closing action (DC/SV) adjustable by valve		●	●
Hold-open (not for fire and smoke check doors)		○	○
Dimensions in mm	Length (L)	275	285
	Overall depth (B)	53	62
	Height (H)	60	71
☑ mark for construction products		●	
Door closer system compliant with EN 1154, EN 1155 and 1158			
● yes    – no    ○ optional			

<sup>1)</sup> For applications involving particularly heavy or wide doors, and doors that have to close against wind resistance, the next highest door closer size should be selected, or the closing force adjusted to a higher setting.

All examples refer to left-hand (ISO 6) doors; mirror image applies to right-hand (ISO 5) doors.

### DORMA TS 93 N

- Non-handed model for RH (ISO 5) and LH (ISO 6)
- Adjustable closing force (EN 2-5, 5-7)
- Adjustable closing speed (1)
- Adjustable latching action (2)
- Adjustable backcheck (3)
- Delayed closing action (4)
- Floor stop OGRO TZ 5000 (5)
- Optional mechanical RF hold-open with on/off switch (not suitable for fire and smoke check doors) (6)
- Mounting backplate, incl. universal fixing hole pattern
- Cushioned limit stay, optional

For specification texts, see page 288 ff.

## Door closers with free-swing arm assembly – for fire and smoke check doors

### DORMA TS 99 FL

The DORMA TS 99 FL in the Contur design is a door closer with a hold-open device featuring a free-swing function that can be used as a hold-open system in conjunction with a smoke detector

system (e.g. DORMA RMZ in the Contur design). The door is automatically and reliably closed in the event of an alarm or a power failure.

The free-swing function allows easy operation of the door due to the reduced resistance to the opening action. It remains freely operable and is not automatically closed, so facilitating ease of use for doors in heavily frequented areas.

### F Approval certification

The DORMA TS 99 FL has been tested and approved to EN 1155 by the State Material Testing Authority, Dortmund/Germany and is subject to third-party quality verification. Regular audit testing is undertaken. Test reports and/or certificates are available on request. The TS 99 FL carries the CE mark.

Additional approval certification of the relevant fire and smoke check door in combination with the closer system may be necessary – check local regulations.



reddot design award  
winner 2005



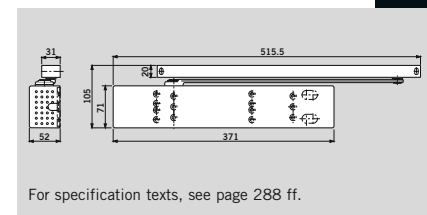
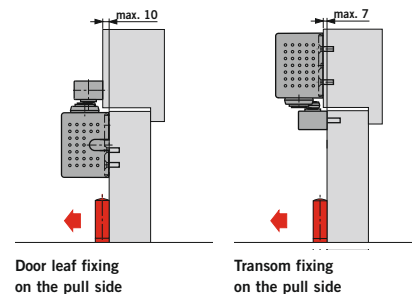
TS 99 FL for transom fixing



**Application example:** Hold-open device with free-swing function on a fire and smoke check door, comprising: Door closer DORMA TS 99 FL (1); slide channel with free-swing arm (2); lintel-mounted smoke detector DORMA RMZ (3); one ceiling-mounted smoke detector DORMA RM (4) on either side of the door; manual-release switch DORMA HT (5); door stop OGRO TZ 5000 (6)

Data and features		TS 99 FL	TS 99 FLR	TS 99 FLR/K
		EN 4	EN 4	EN 4
Closing force	Spring strength	•	•	•
Standard doors	1100 mm	•	•	•
Fire and smoke check doors	≤1100 mm	•	•	•
Non-handed		•	•	•
Slide channel		•	•	•
Closing speed adjustable by valve		•	•	•
Free-swing function		•	•	•
Weight in kg		3.5	4.9	5.1
Dimensions	Length	371	660	371
	Overall depth	52	52	52
	Height	71	71	71
Door closer compliant with EN 1154		•	•	•
Functions	Smoke detector	–	•	•
	Release device	•	•	•
	Power supply unit	–	•	•
Smoke detection	Scattered light principle, optical sensor	–	•	•
Connection of other detectors	2-wire system	–	•	•
	Smoke switches	–	•	•
Total installed load (max.) for other detectors in W		–	5.7	7.8
Indicators	Alarm – red LED	–	•	•
	Standby – green LED	–	•	•
Maintenance indicator		–	•	•
Contamination monitor		–	•	•
Input voltage		24 V DC ±15 %	230 V AC ±10 %	230 V AC ±10 %
Output voltage		–	24 V DC	24 V DC
Power input in W		2	14.6	14.8
Floating change-over contact		–	24 V AC/DC 2 A	24 V AC/DC 2 A
Safety extra-low voltage (SELV)		–	•	•
Reset	Automatic; selector for manual reset	–	•	•
Test port for function test		–	•	•
Connection terminals for remote manual release		–	•	•
Degree of protection		–	IP 20	IP 20
Hold-open compliant with EN 1155		•	•	•
CE mark for construction products		•	•	•

• yes – no



For specification texts, see page 288 ff.