

NEW



FIRE EXIT DOOR HARDWARE
FIRE RATED & FIRE TESTED

FIRE EXIT DOOR HARDWARE

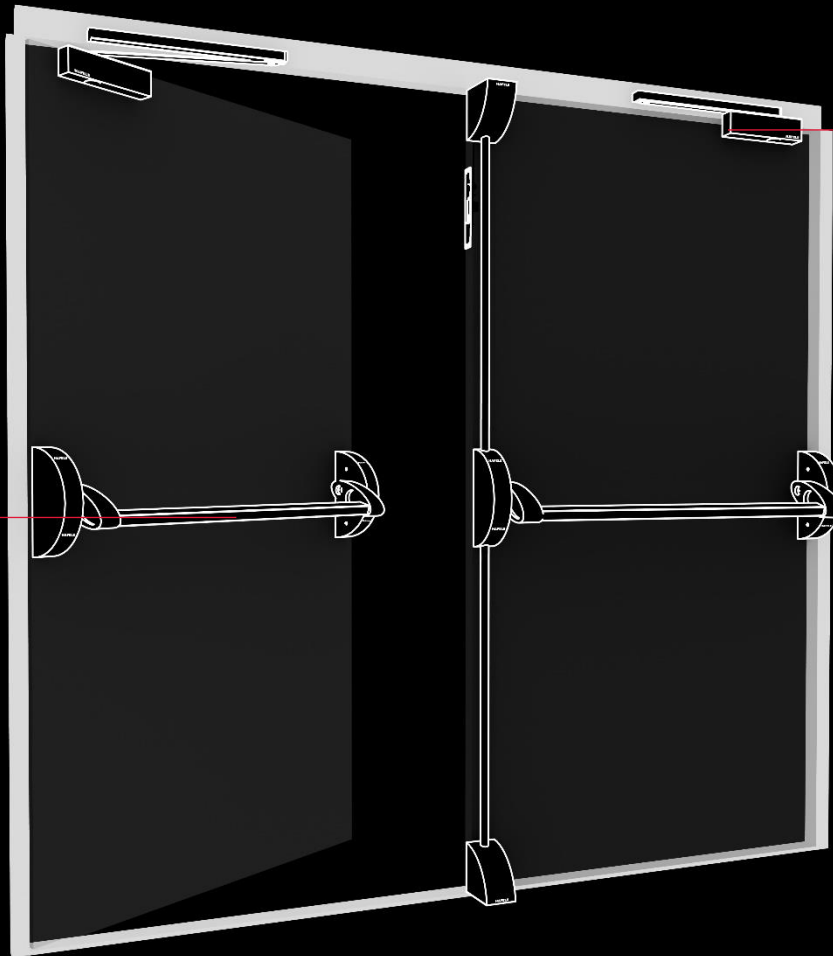
Hardware provides the much needed operational functionality to doors. It also enables you to distinguish spaces and helps provide privacy and style to your interiors. It is essential for doors, especially exit doors of buildings / office complexes to provide safety besides other things and this can be achieved through the installation of fire-rated hardware.

Fire doors have two important functions in event of a fire; when closed they form a barrier to stop the spread of fire and when opened they provide a means of escape. A well designed fire door, installed with the right kind of hardware, will delay the spread of fire and smoke without causing hindrance to the movement of people and goods.

Häfele presents its range of approved fire-rated door controllers, panic exit devices, hinges and door sealing systems that suit small to large heavy fire safety doors and have the strength to work in the event of an emergency. These fittings offer advanced technology together with sleek designs, making them both, beautiful as well as functional to meet the demands of any building design.

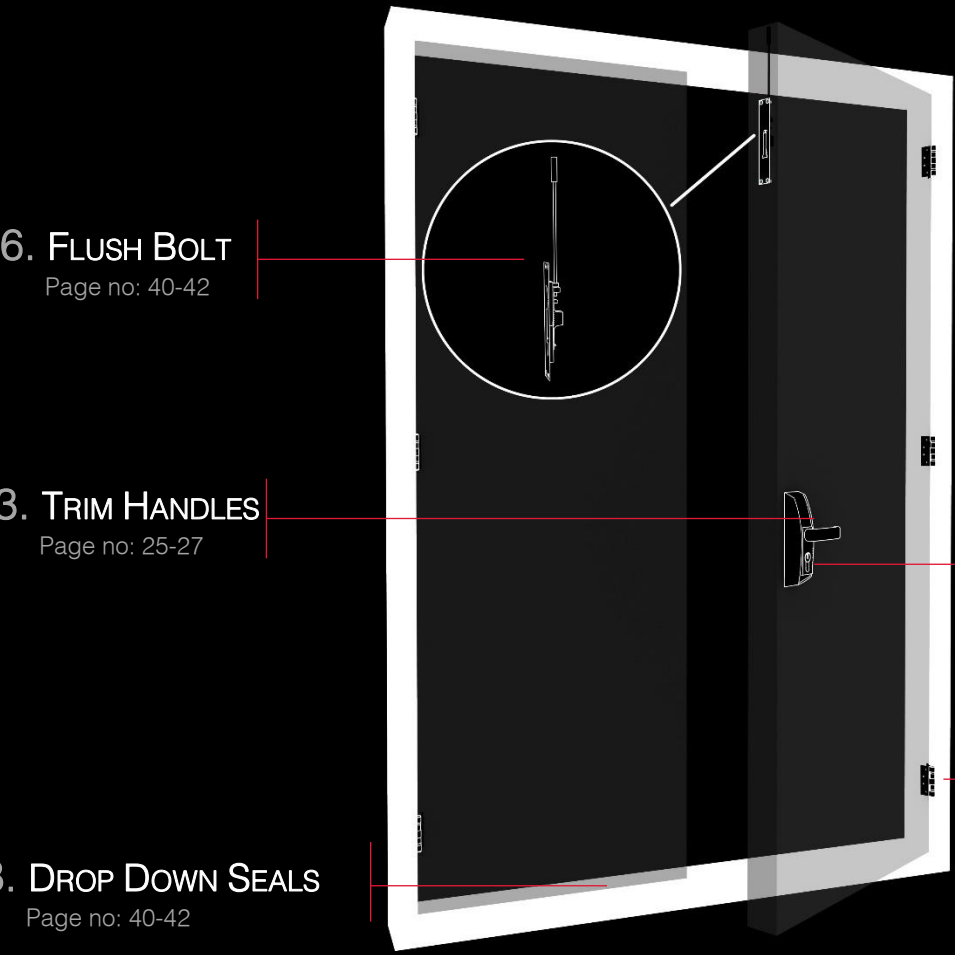
This product communication takes you through our product range that can safely be installed onto fire doors without compromising its fire and smoke integrity.





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1. DOOR CLOSERS



1 EN Standards For Controlled Door Closing Devices

Standards relevant to the architectural hardware industry

There are two standards currently in existence for door closing devices:

EN 1154: 1997 - Mechanical closers

EN 1155; 1997 - Electronically controlled closers

The standard provides details on product types, classification by use, test cycles, door mass, corrosion resistance, as well as definitions, product performance requirements, test apparatus, test methods and marking of products.



Digit 1

Category of Use

For all internal and external doors for use by the public, and others, with little incentive to take care, i.e. where there is some chance of misuse of the door.

Grade **3**: For closing doors from at least 105° open

Grade **4**: For closing doors from 180° open

Note 1 : Grade 4 classification assumes standard installation according to the manufacturer's instructions.

Note 2 : For applications subject to extremes of abuse, or for particular limitations of opening angle, door closers incorporating a backcheck function or provision of a separate door stop should be considered



Digit 2

Number of test cycles

Only one test duration is identified for door closer manufactured to this standard:

Grade **8**: 500 000 test cycles



Digit 3

Test door mass / size

Seven test door mass grades and related door closer power sizes are identified according to table 1 of this standard. Where a door closer provides a range of power sizes both the minimum and the maximum sizes shall be identified.

Table 1:

Door closer size	Recommended Test door mass power size door leaf width max. mm	Test door mass
1	<750	20
2	850	40
3	950	60
4	1,100	80
5	1,250	100
6	1,400	120
7	1,600	160

Note 1: The door widths given are for standard installations. In the case of unusually high or heavy doors, windy or draughty conditions, or special installations, a larger power size of door closer should be used

Note 2: The test door masses shown are only related to door closer power sizes for the purpose of the test procedure. These test door masses are not intended to indicate maximum values for actual use



Digit 4

Fire behaviour

Two grades of fire behaviour are identified for door closing devices manufactured to this standard:

Grade **0**: Not suitable for use on fire/smoke door assemblies

Grade **1**: Suitable for use on fire/smoke door assemblies, subject to satisfactory assessment of the contribution of the door closer to the fire resistance of specified fire/smoke assemblies. Such assessment is outside the scope of this European Standard

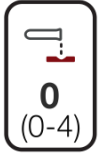


Digit 5

Safety

All door closers are required to satisfy the essential requirement of safety in use. Therefore only grade 1 is identified.

1 EN Standards For Controlled Door Closing Devices



Digit 6

Corrosion resistance

Five grades of corrosion resistance are identified according to EN 1670:

Grade 0: No defined corrosion resistance

Grade 1: Mild resistance

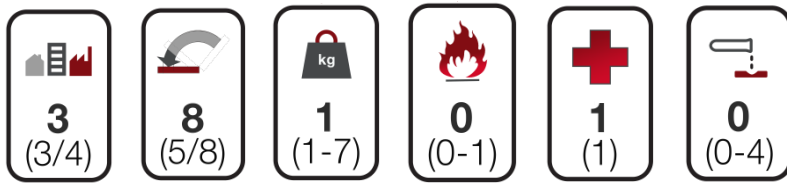
Grade 2: Moderate resistance

Grade 3: High resistance

Grade 4: Very high resistance

Example:

The following marking denotes a closer capable of opening to at least 105°, with ranging power size from size 2 to size 5. Note that as the 4th digit is zero, such a closer would not be suitable for fire door use.



CE marking

Door closers intended for use on fire resisting doors and smoke control doors are covered by a Construction Products Directive mandate issued by the European Commission. Consequently, this standard is regarded as a “harmonised” standard and compliance with it, supported by suitable evidence, allows the application of the CE mark. As closers for fire/smoke doors have a critical safety function, application of the CE mark will require the involvement of a notified certification body to provide verification of the compliance claims. This will involve initial type-testing of the product to EN 1154, initial inspection of the manufacturer’s factory production control and continuing surveillance and approval of the factory production control. On satisfactory fulfilment of these tasks, the notified body issues an EC Certificate of Conformity which then permits the manufacturer to declare compliance and affix the CE marking to his product.

Door Closer Compatibility with Fire Door:

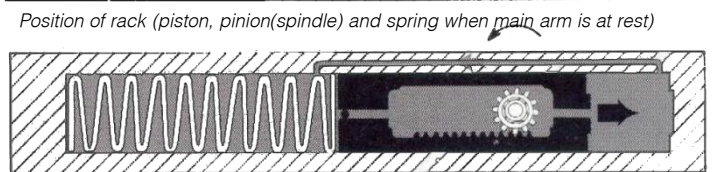
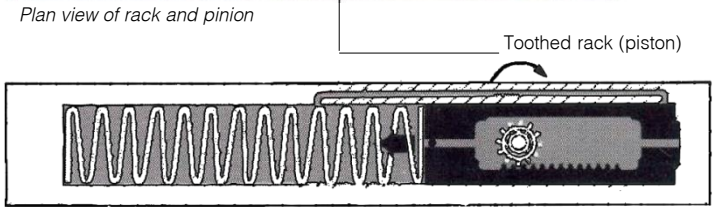
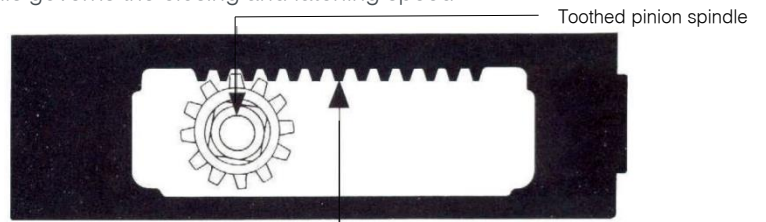
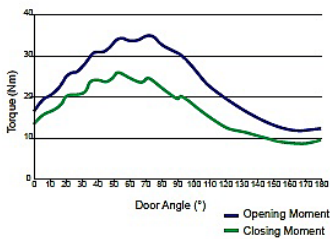
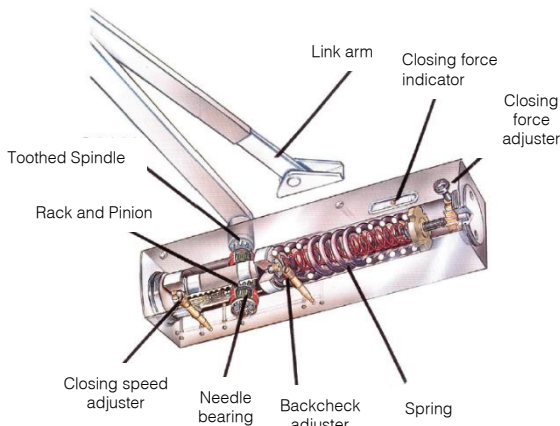
BS EN 1154 makes recommendations as to the closing forces considered necessary for the door closers fitted to fire doors.

- The door closer when installed in accordance with Häfele’s installation instructions shall be capable of closing the test door from any angle to which it may be opened
- Due to their low closing force, door closers of size 1 and 2 are not considered suitable for use on fire/smoke door assemblies. Only door closers with adjustable closing force shall be capable of adjustment to at least power size 3
- The door closer shall not include a hold open device unless it is an electrically powered device in accordance with EN 1155
- Control regulators shall be either concealed or operable only by means of a tool
- The design of a door closer cannot be altered to inhibit its closing action in any way without the use of a tool
- Any incorporated delayed action function shall be capable of adjustment to less than 25 seconds between the door closing angles of 120° and the end of the delay zone
- The door closer representative of its model shall have been incorporated in a door assembly that has satisfied the appropriate criteria of a fire test. The test shall have been on a full sized assembly in accordance with EN 1634-1

1 Door Closer Mechanism

Rack and Pinion Mechanism:

- > Rack and Pinion is the most widely used mechanism, and is used with a jointed arm (cross arm/scissor arm)
- > As the door is opened, the arm is pulled round, rotating the pinion
- > The pinion runs through the door closer body and its teeth engage with the teeth of a rack in a piston
- > As the arm rotates the pinion, it in turn drives the piston down the cylinder bore
- > The piston compresses the spring lying in the cylinder bore
- > The energy used to open the door is stored in the spring and when the door is released the spring begins to expand which puts the process in reverse and the door closes
- > The speed of closing is controlled by the hydraulic fluid in the system. It flows unrestricted in one direction as the door is opened but it has to make the return journey through valves
- > These valves can be adjusted to control the rate of flow, and this governs the closing and latching speed

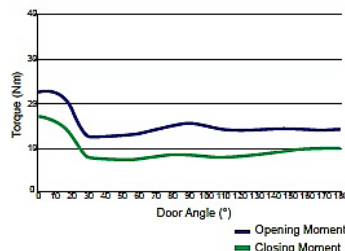
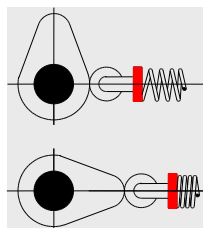
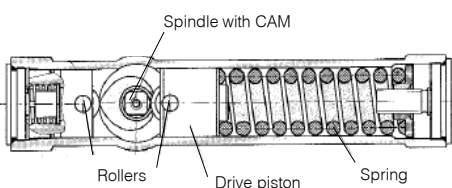


NOTE :

- > These closers are sometimes offered with slide (track) arms and channels. This might improve their aesthetic appeal but completely alters the opening and closing force characteristics
- > These changes usually mean that the closer is no longer suitable for fire doors because the force will weaken as it nears the closing position
- > On the other hand, the opening force required for this closer will be much more

CAM Action Mechanism

- > A cam action mechanism makes use of the same principle as that of the Rack and Pinion mechanism
- > But instead of having a gear mechanism a cam mechanism uses discs/rollers that rotate the cam towards the Drive Piston. The nearer the pointed end of the cam gets to the drive piston roller, the further the piston is pushed.
- > Since with this mechanism, there is lesser friction due to the absence of teeth interfacing with each other, the movement of the door is smoother. The CAM action produces a rapidly decreasing opening torque, thereby greatly reducing the amount of effort required.



NOTE : These closers work only with Slide Channels

1 DOOR CLOSERS

New Range

931.46.009 / 931.46.179

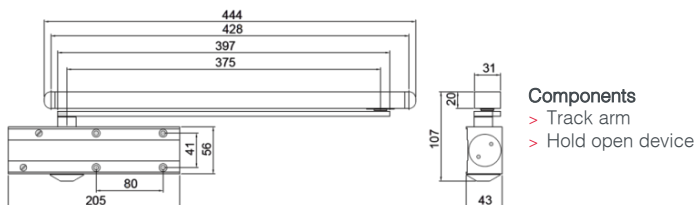
Surface Mounted Door Closer DCL 87 with CAM action

- > Versions: Non hold open (931.46.009), With hold open (931.46.179) *Note 2*
- > Max. Door Width: 950 mm
- > Door Weight: Up to 60 Kg.
- > Max. Opening Angle: 180°
- > Hold Open Angle: Adjustable
- > EN Size: 3 (If the door closer is mounted further away from the hinges, then the closing force can be increased up to size 4)
- > Adjustments: Closing speed and latching speed
- > Finishes: Anodized aluminium for door closer body and track rail as standard
- > Mounting: Surface; For DIN left hand and DIN right hand use

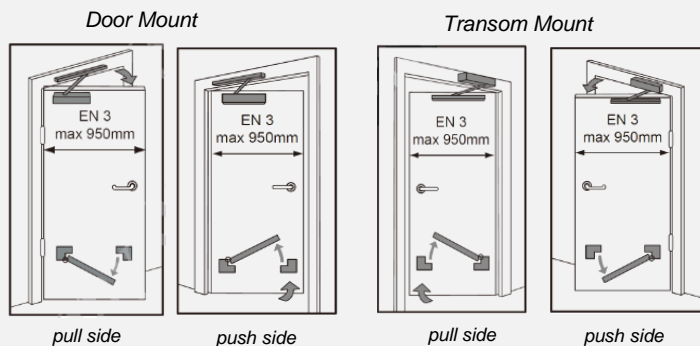
 4 (3/4)	 8 (5/8)	 3 (1-7)	 1 (0-1)	 1 (1)	 3 (0-4)	EN 1154 CE
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Technical Specification



Installation



931.46.029 / 931.46.199

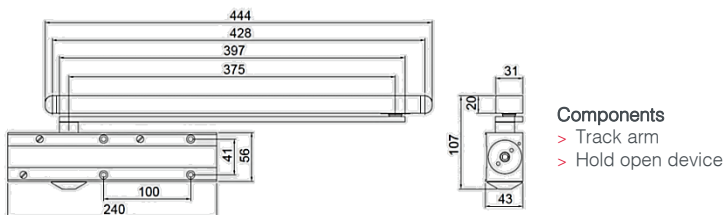
Surface Mounted Door closer DCL - 88 with CAM action

- > Versions: Non hold open (931.46.029), With hold open (931.46.199) *Note 2*
- > Max. Door Width: 1100 mm
- > Door Weight: Up to 80 Kg.
- > Max. Opening Angle: 180°
- > Hold Open Angle: Adjustable
- > EN Size: 2 – 4 adjustable
- > Adjustments: Closing speed and latching along with adjustable back check
- > Finishes: Anodized aluminium for door closer body and track rail as standard
- > Mounting: Surface; For DIN left hand and DIN right hand use

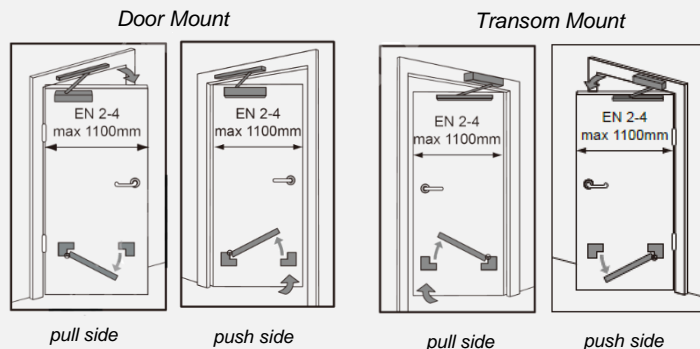
 4 (3/4)	 8 (5/8)	 2-4 (1-7)	 1 (0-1)	 1 (1)	 3 (0-4)	EN 1154 CE
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Technical Specification



Installation



Note 1: Installation template available in the box

Note 2: Hold open door closers are not fire rated

Disclaimer: The image shown here is only for reference. The actual product and finish might differ.

1 DOOR CLOSERS

New Range

						EN 1154	
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931.46.049 / 931.46.219

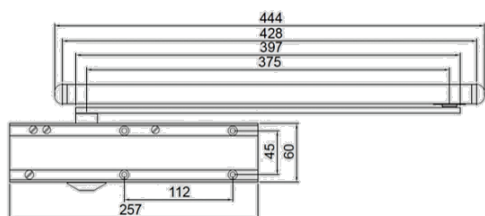
Surface Mounted Door Closer DCL - 89 with CAM action

- > Versions: Non hold open (931.46.049), With hold open (931.46.219) *Note 2*
- > Max. Door Width: 1250
- > Door Weight: Up to 100 Kg.
- > Max. Opening Angle: 180°
- > Hold Open Angle: Adjustable
- > EN Size : 2 – 5 adjustable
- > Adjustments: Closing speed and latching along with back check and delay action
- > Finishes: Anodized aluminium for door closer body and track rail as standard
- > Mounting: Surface; For DIN left hand and DIN right hand use



10 YEARS Warranty

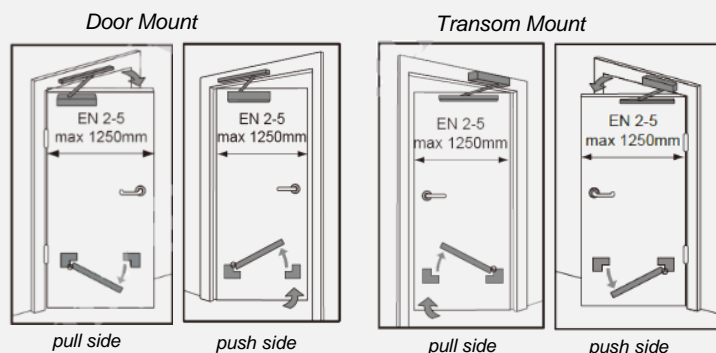
Technical Specification



Components

- > Track arm
- > Cover
- > Hold open device

Installation



931.46.069 / 931.46.239

Concealed CAM action Door Closer DCL - 35 with Track arm

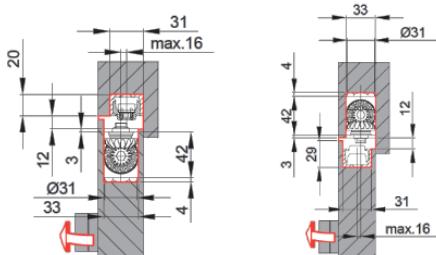
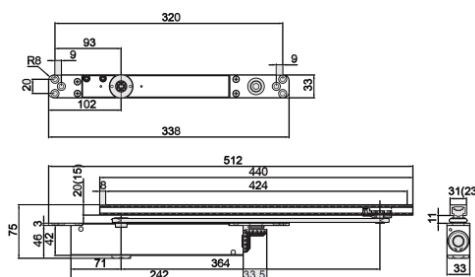
						EN 1154	
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- > Versions: Non hold open (931.46.069), With hold open (931.46.239) *Note 2*
- > Max. Door Width: 1100
- > Door Weight: Up to 80 Kg
(as per the EN size the ideal door weight is 80 Kg but, the door weight can exceed up to 100 Kg)
- > Door Thickness: Min. 40 mm
- > Max. Opening Angle: 120°
- > Hold Open Angle: Adjustable
- > EN Size: 2 – 4 adjustable
- > Adjustments: Closing and latching speed
- > Finishes: Anodized aluminium for door closer body and track rail as standard
- > Mounting: Concealed



10 YEARS Warranty

Technical Specification



Components

- > Track arm
- > Hold open device

Note 1: Installation template available in the box

Note 2: Hold open door closers are not fire rated

Disclaimer: The image shown here is only for reference. The actual product and finish might differ.

1 DOOR CLOSERS

Existing Range

 4 (3/4)	 8 (5/8)	 2-5 (1-7)	 1 (0-1)	 1 (1)	 3 (0-4)	EN 1154 
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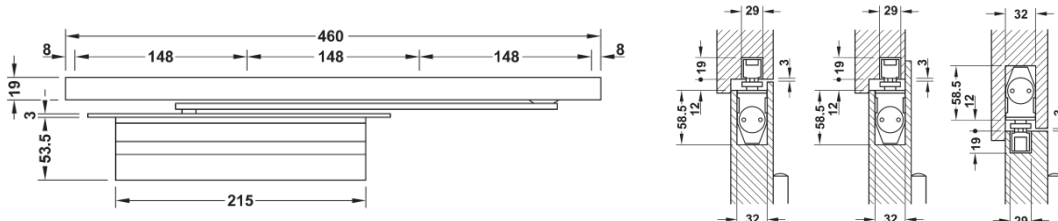
931.84.469 / 931.84.409 DCL 71 CAM Concealed Door Closer

- > Versions: Non hold open (931.84.469), With hold open (931.84.409) *Note 2*
- > Max. Door Width: ≤ 1250 mm
- > Max. Door Weight: ≤ 100 kg (as per EN size the ideal door weight is 100 Kg but the door weight can exceed up to 120 Kg)
- > Min. Door Thickness : 55 mm
- > Max. Opening Angle: 120°
- > Max. Hold Open Angle: 110°
- > EN Size: 2 - 5 adjustable
- > Finishes: Anodized aluminium for door closer body and track rail as standard
- > Mounting : For DIN left hand and DIN right hand use



5 YEARS
Warranty

Technical Specification



931.84.039 / 931.84.269 DCL 33 CAM Concealed Door Closer

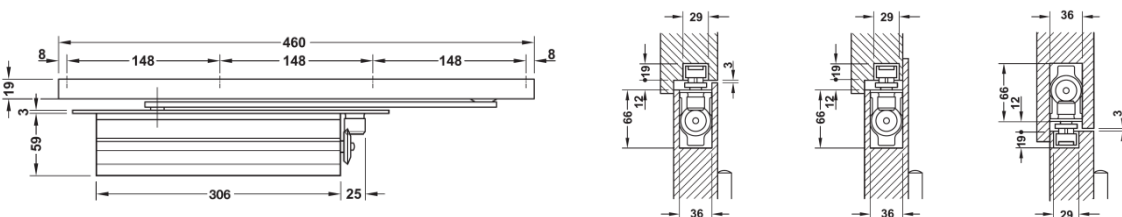
 4 (3/4)	 8 (5/8)	 2-4 (1-7)	 1 (0-1)	 1 (1)	 3 (0-4)	EN 1154 
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- > Versions: Non hold open (931.84.039), With hold open (931.84.269) *Note 2*
- > Max. Door Width : 750 - 1,100 mm
- > Door Weight : 80 kg
- > Min. Door Thickness : 45 mm
- > Max. Opening Angle : 120°
- > Max. Hold Open Angle : 110°
- > EN Size: 2 – 4 adjustable
- > Adjustments Closing speed and latching speed
- > Mounting : For DIN left hand and DIN right hand use



5 YEARS
Warranty

Technical Specification



Note 1: Installation template available in the box

Note 2: Hold open door closers are not fire rated

Disclaimer: The image shown here is only for reference. The actual product and finish might differ.

1 DOOR CLOSERS

Existing Range

 4 (3/4)	 8 (5/8)	 3 (1-7)	 1 (0-1)	 1 (1)	 3 (0-4)	EN 1154 CE
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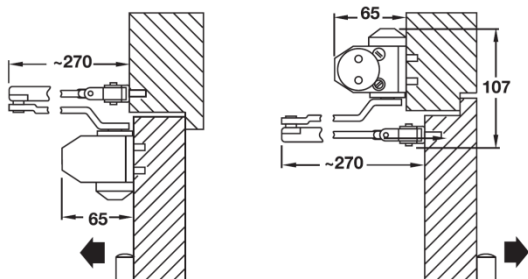
931.84.649 / 931.84.659

Surface Mounted Door Closer DCL 11 Star Tec (Rack & Pinion mechanism)

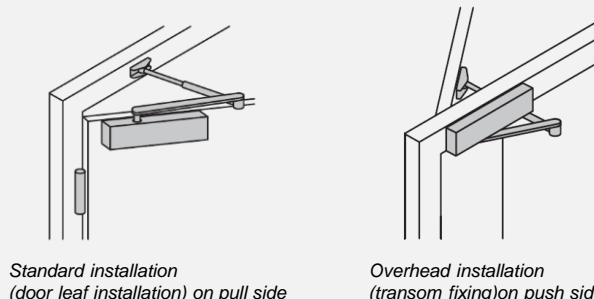
- > Versions: Standard arm (931.84.649), With hold open arm (931.84.659) *Note 2*
- > Door Width : 850-950 mm
- > Door Weight : 60 Kg
- > Max. Opening Angle : Approx. 180°
- > Max. Hold Open Angle: 160°
- > EN Size: 3
- > Adjustments : Closing speed and hydraulic latching action valve adjustable
- > Mounting : For DIN left hand and DIN right hand use



Technical Specification



Installation



499.30.002 / 499.30.003

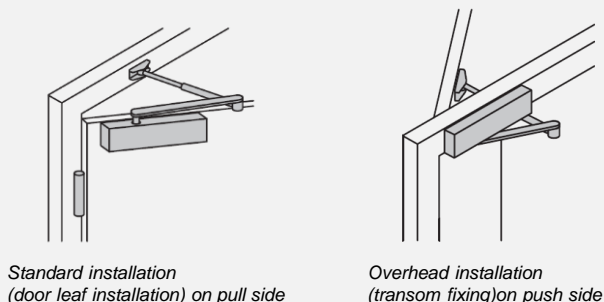
Surface Mounted Door Closer DIY – 78 (Rack & Pinion mechanism)

 4 (3/4)	 8 (5/8)	 2/3/4 (1-7)	 1 (0/1)	 1 (1)	 3 (0-4)	EN 1154 CE
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- > Versions : Standard arm (499.30.002), With hold open arm (499.30.003) *Note 2*
- > Max. Door Width: Up to 1,100 mm
- > Door Weight: Up to 80 Kg
- > Max. Opening Angle : Approx. 180°
- > Max. Hold Open Angle: 160°
- > EN Size: 2/3/4 (mounting position)
- > Adjustments: Closing speed and latching action are adjustable
- > Finishes: Anodized aluminium for door closer body and track rail as standard
- > Mounting: For DIN left hand and DIN right hand use



Installation



Note 1: Installation template available in the box

Note 2 : Hold open door closers are not fire rated

Disclaimer: The image shown here is only for reference. The actual product and finish might differ.

1

DOOR CLOSERS

Existing Range

 4 (3/4)	 8 (5/8)	 2/3/4 (1-7)	 1 (0-1)	 1 (1)	 3 (0-4)	EN 1154 
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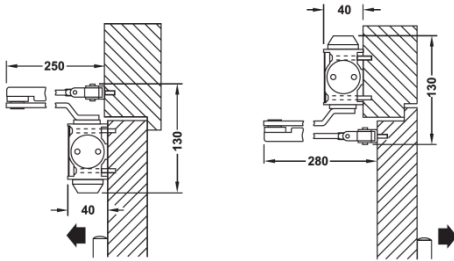
931.84.629 / 931.84.639

Surface Mounted Door Closer DCL 15 Star Tec (Rack & Pinion mechanism)

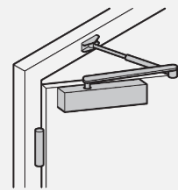
- > Versions: Standard arm (931.84.629), With hold open arm (931.84.639) *Note 2*
- > Door Width : 750 -1,100 mm
- > Door Weight : 80 Kg
- > Max. Opening Angle : Approx. 180°
- > Max. Hold Open Angle: 160°
- > EN Size: 2/3/4
- > Adjustments : Closing speed and latching speed
- > Backcheck: Available on request
- > Mounting : For DIN left hand and DIN right hand use



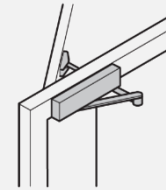
Technical Specification



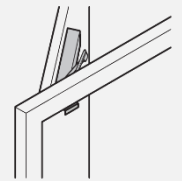
Installation



Standard Installation
(door leaf installation on pull - side)



Overhead Installation
(transom fixing on push side)



Parallel arm Installation
on push side

931.84.829 / 931.84.669 / 931.84.820

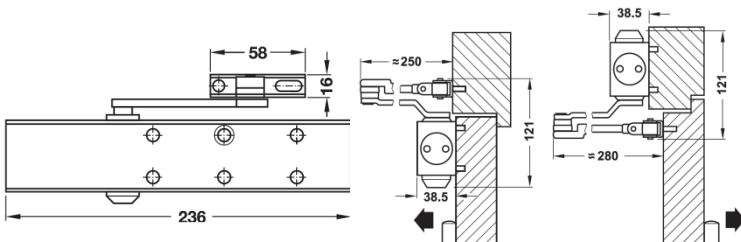
Surface Mounted Door Closer DCL 51 Star Tec

 4 (3/4)	 8 (5/8)	 2-5 (1-7)	 1 (0/1)	 1 (1)	 3 (0-4)	EN 1154 
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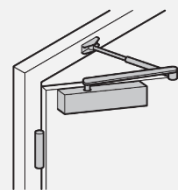
- > Versions: Standard arm (931.84.829 / 931.84.820), With hold open arm (931.84.669) *Note 2*
- > Max. Door Width: 750 -1,250 mm
- > Door Weight: 110 Kg
- > Max. Opening Angle : Approx. 180°
- > Max. Hold Open Angle: 160°
- > EN Size: 2-5 adjustable
- > Adjustments: Closing speed and hydraulic latching action valve adjustable
- > Finishes: 93184829 / 93184669 : Anodized aluminium for door closer body and track rail
931.84.820: Stainless Steel Matt for door closer body and track rail
- > Mounting: For DIN left hand and DIN right hand use



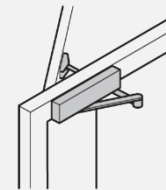
Technical Specification



Installation



Standard Installation
(door leaf installation on pull - side)



Overhead Installation
(transom fixing on push side)



Parallel arm Installation
on push side

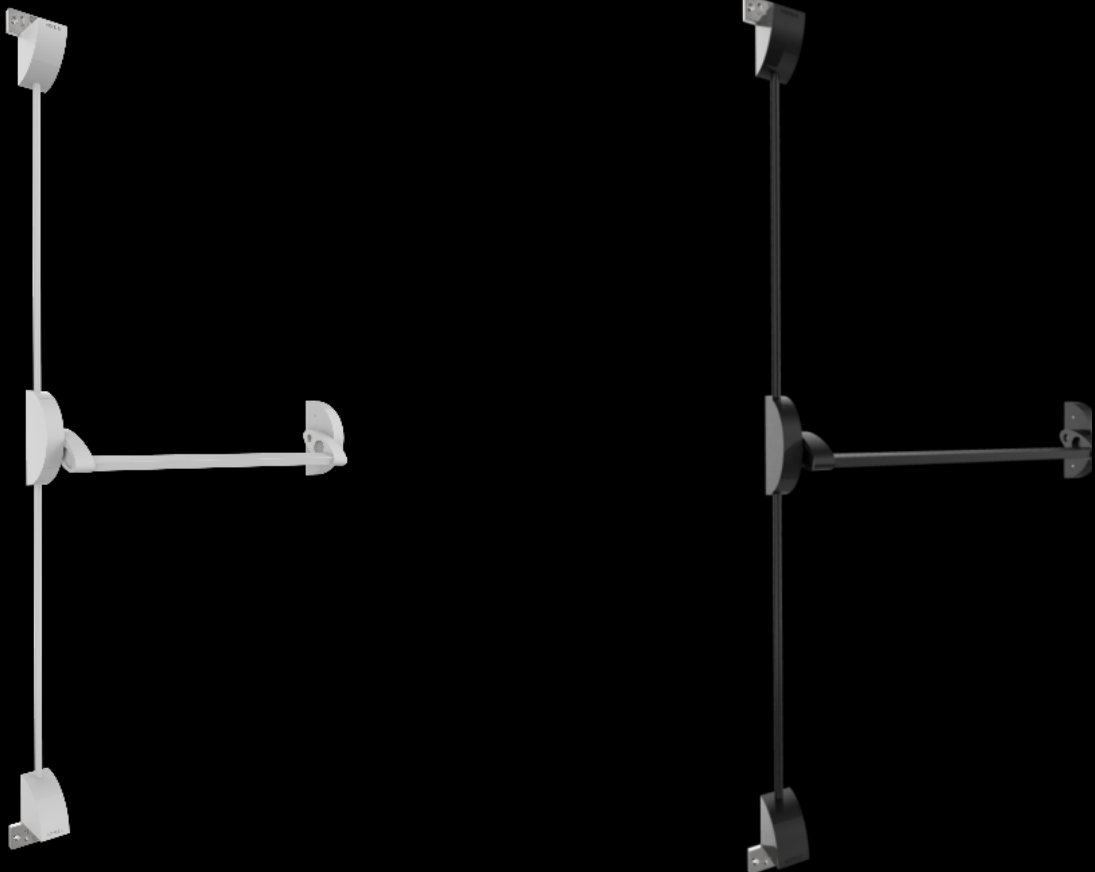
Note 1: Installation template available in the box

Note 2: Hold open door closers are not fire rated

Disclaimer: The image shown here is only for reference. The actual product and finish might differ.



2. PANIC EXIT DEVICES

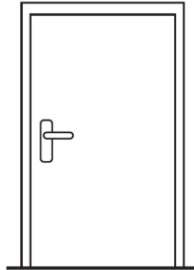


2

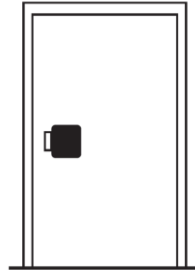
EN Standards For Panic and Emergency Exit Devices

BS EN 179

The main purpose of the performance requirements of this standard is to give safe and effective escape through a doorway with one single operation to release the device. However, escape can require prior knowledge of the operation of the device which is consequently considered suitable for locked doors on escape routes only where panic situations are not foreseen.



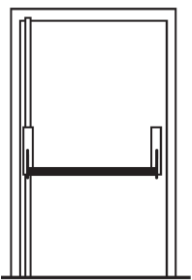
Type A: Emergency device lever handle



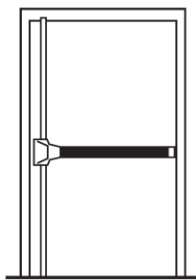
Type B: Emergency device push pad

BS EN 1125

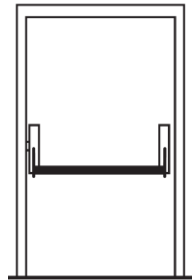
The main purpose of the performance requirements of this standard is to give safe and effective escape through a doorway with minimum effort and without prior knowledge of the device, i.e. for locked doors on escape routes where panic situations can be foreseen



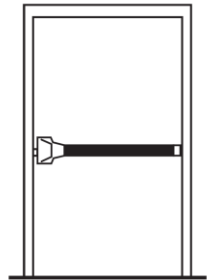
Type A: Panic bolt push bar



Type B: Panic bolt touch bar



Type A: Panic latch push bar

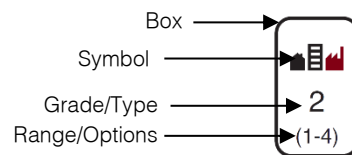


Type B: Panic latch touch bar

Classification

BS EN 1125 and BS EN 179 classify panic and emergency exit devices by using a 10 digit coding system. A similar classification applies to all building hardware product standards so that complementary items of hardware can be specified to, for instance, a common level of corrosion resistance, category of use, etc. Each digit refers to a particular feature of the product measured against the standard's performance requirements. The DHF(Door and Hardware Federation) recommends the use of graphic icons to enhance clarity of information and has devised a system

to facilitate assimilation of the various product classifications. Each feature within the product classification code is represented by an icon comprising four elements; Symbol, Grade/Type, Range/Options and Box:-



The icon above is for a product which meets Grade 3 in the category of use classification, where EN 1125 and EN 179 stipulate only Grade 3.

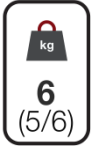


Digit 1
Category of use
 Only one category is identified, that being
 Grade 3: high frequency of use by public and others with little incentive to exercise care



Digit 2
Number of test cycles
 Two categories of durability are defined:
 Grade 6: 100 000 cycles
 Grade 7: 200 000 cycles

2 EN Standards For Panic and Emergency Exit Devices



Digit 3

Test door mass

Three categories of test door mass are identified:

Grade 5: up to 100 kg

Grade 6: up to 200 kg

Grade 7: over 200 kg



Digit 4

Fire resistance

Three categories of fire door resistance are identified:

Grade 0: Not approved for use on fire/smoke door assemblies

Grade A: Suitable for use on smoke door assemblies, subject to satisfactory assessment of the contribution of the panic/emergency device to the smoke resistance of specified smoke door assemblies

Grade B: Suitable for use on fire/smoke door assemblies, subject to satisfactory assessment of the contribution of the panic/emergency device to the fire resistance of specified fire/smoke door assemblies



Digit 5

Safety

All panic and emergency devices have a critical safety function therefore only the top grade - 1 - is identified



Digit 6

Corrosion resistance

Two grades of corrosion resistance are identified according to EN 1670:

Grade 3: high resistance (96 salt spray hours)

Grade 4: very high resistance (240 salt spray hours)



Digit 7

Security

Products covered by BS EN 179 have 4 identified categories and generally have the opportunity of greater security against forced opening than devices covered by BS EN 1125.

BS EN 179

Grade 2: 1,000 N

Grade 3: 2,000 N

Grade 4: 3,000 N

Grade 5: 5,000 N

BS EN 1125

Only one category of security is identified:

Grade 2: 1,000 N panic devices are primarily for the operation of a door from the inside. Safety considerations will always be given priority over security



Digit 8

Projection of device

Two grades are identified relating to the projection of the device from the door face:

Grade 1: projection up to 150 mm (large projection)

Grade 2: projection up to 100 mm (standard projection)



Digit 9

Type of device

Two categories are identified for each standard:

BS EN 179

Type A: emergency device with lever handle operation

Type B: emergency device with push or pull pad operation

BS EN 1125

Type A: panic device with push bar operation

Type B: panic device with touch bar operation

2

EN Standards For Panic and Emergency Exit Devices



Digit 10

Field of application

EN179

A: Outward opening - Single & double exit doors; active & inactive leaf

B: Outward opening - Single exit door only

C: Outward opening - Double exit door; inactive door

D: Inward opening - Single exit only

EN1125

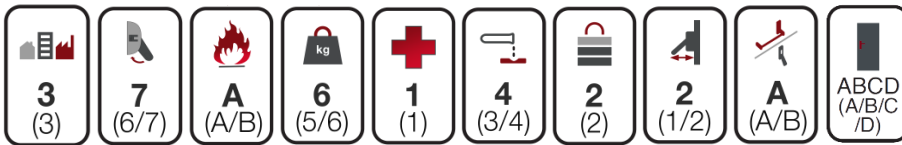
A: Outward opening - Single & double exit doors; active & inactive leaf

B: Outward opening - Single exit door only

C: Outward opening - Double exit door; inactive door

Example:

The following marking denotes a panic exit device tested to 200,000 operations for a door mass up to 200 kg, suitable for fire door use with very high corrosion resistance with standard bar projection for use on single & double doors.

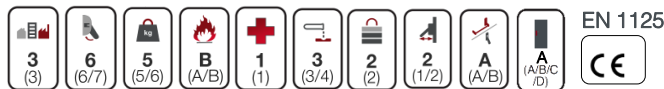


CE Marking

Panic and emergency exit devices intended for use on escape route doors are covered by a Construction Products Directive mandate issued by the European Commission. Consequently, these standards are regarded as “harmonised” standards and compliance with them, supported by suitable evidence, allows for the application of the CE mark. As panic and emergency exit devices have a critical safety function, application of the CE mark will require the involvement of a notified certification body to provide verification of the compliance claims. This will involve initial type testing of the product to either EN 1125 or EN 179, initial inspection of the manufacturer’s factory production control and continuing surveillance and approval of the factory production control. On satisfactory fulfilment of these tasks, the notified body issues an EC Certificate of Conformity which then permits the manufacturer to declare compliance and affix the CE marking to this product.

2

PANIC EXIT DEVICES



903.10.625 / 903.10.623

Single Point Panic Exit Device

- > Versions : 903.10.625 (Single Point Panic Exit Device, Grey), 903.10.623 (Single Point Panic Exit Device, Black) **OTS**
- > Material : Housing: Steel, Profile: Aluminium
- > Finish : Black and Grey RAL 9006 Powder Coating
- > Max. Door Width : ≤1300 mm
- > Door Height : ≤ 2400 mm
- > Door Weight : ≤ 200 Kg
- > Door Thickness : ≤ 60 mm
- > Lever Follower : 8 mm
- > Version : DIN left and right suitable for electric access controls in combination with electric strike
- > Area of application : For wooden, steel and aluminium doors

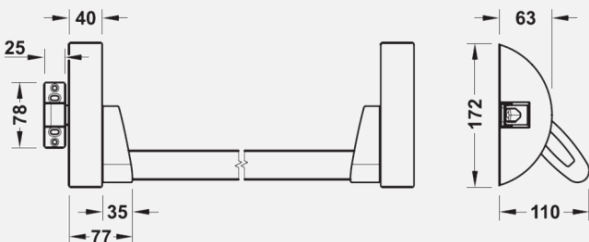


Required Bar length is given in the table below:

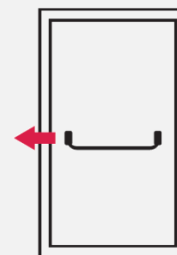
Article Number	Horizontal Bar Length	Max. Door Width
903.10.625 / 903.10.623	1100 mm	1300 mm
OTS	1400 mm	1600 mm

Note: The horizontal bar is cut-to-size

Technical Drawing

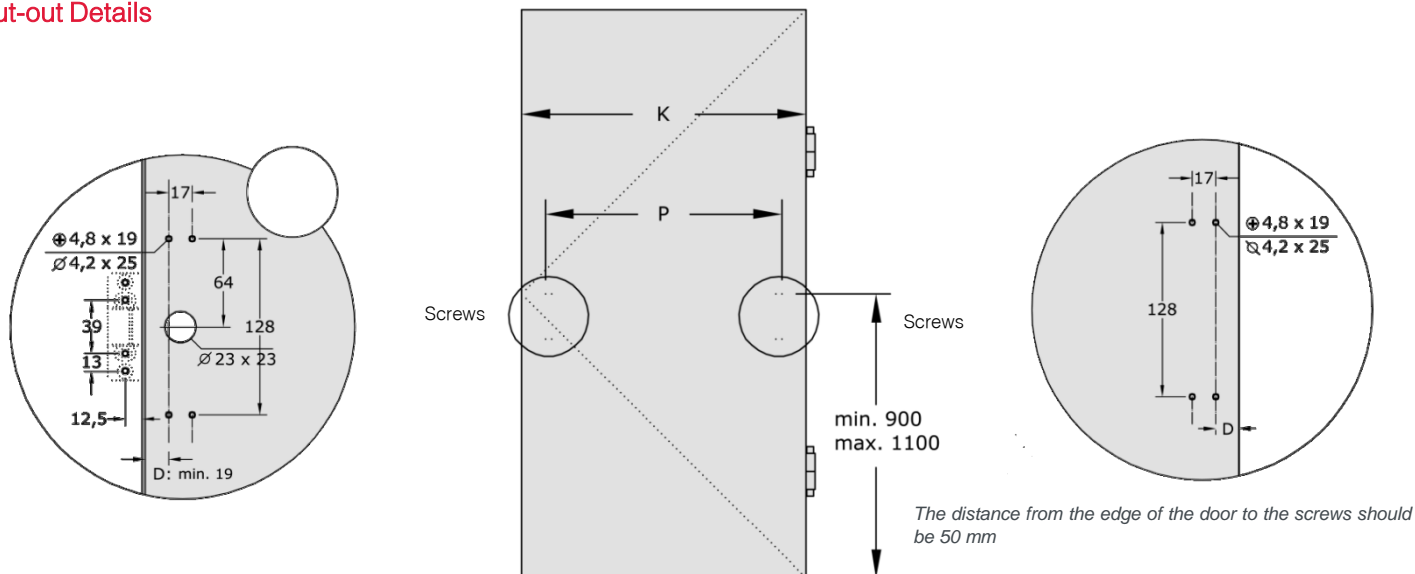


Locking Version For Single Leaf Doors



Internal – One point panic device
External – Outdoor handle

Cut-out Details

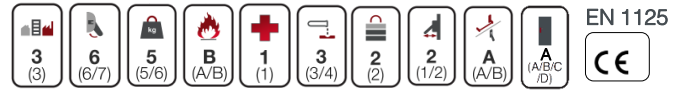


OTS – Order to stock

Disclaimer: The image shown here is only for reference. The actual product and finish might differ.

2

PANIC EXIT DEVICES



911.52.648

Single Point Panic Exit Device with Mortise Lock, Cylinder & External Trim Handle

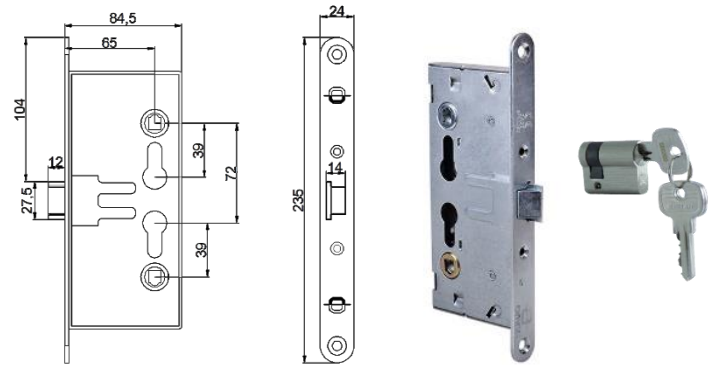
- > Material : Housing: Steel, Profile: Aluminium
- > Finish : Stainless Steel
- > Max. Door Width : 1300 mm
- > Door Height : 2400 mm
- > Door Weight : ≤ 200 Kg
- > Door Thickness : 60 mm
- > Lever Follower : 9 mm
- > Version : DIN left and right suitable for electric access controls in combination with electric strike
- > Area of application : For wooden, steel and aluminium doors



Note: The horizontal bar is cut-to-size

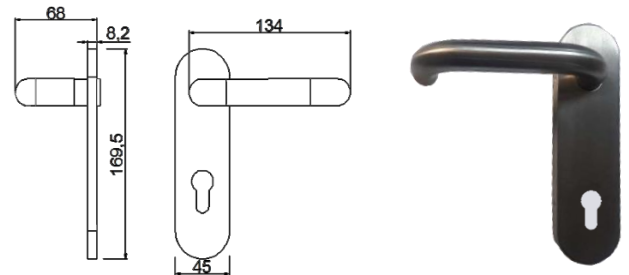
Mortise Lock

- > Fire resistant anti-panic mortise lock
- > Used with panic bar mechanisms or push bars
- > In locked position: access from outside not available, while panic bars continue operating
- > Backset: 65 mm
- > For European profile cylinder : 45 + 10 mm
- > Non-handed
- > Used for single leaf doors

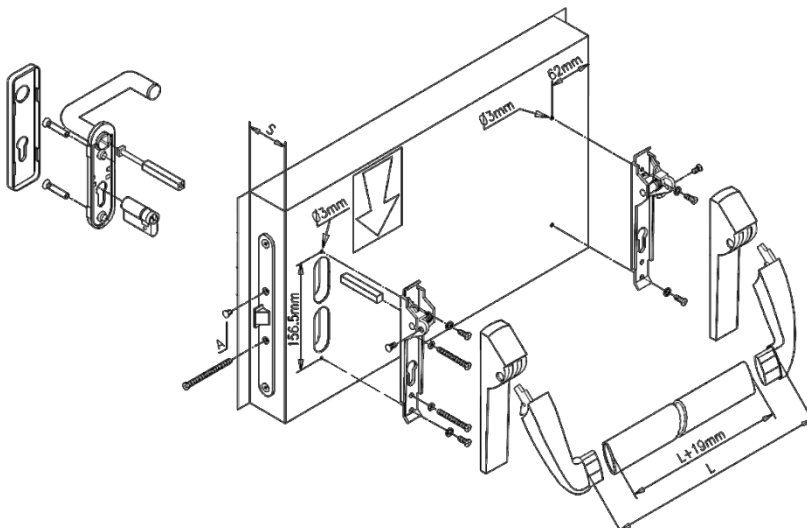


Exterior Trim Handle with Cylinder Cut-out

- > Finish: Stainless Steel
- > Material: SS 304
- > Suitable for mortise locks that have centre distance of 72mm
- > Square spindle: 9mm
- > Can be used with panic exit bars as well as in a double sided application (handle + handle)



Installation Drawing



2

PANIC EXIT DEVICES

										EN 1125	
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911.52.649

Single Point Panic Exit Device with Mortise Lock & External Trim Handle (without Cylinder)

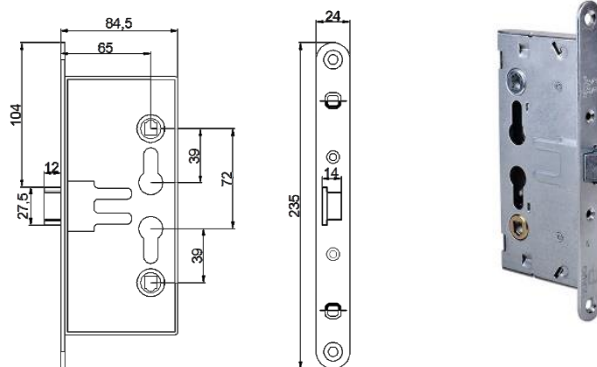
- > Material : Housing: Steel, Profile: Aluminium
- > Finish : Stainless Steel
- > Max. Door Width : 1300 mm
- > Door Height : 2400 mm
- > Door Weight : ≤ 200 Kg
- > Door Thickness : 60 mm
- > Lever Follower : 9 mm
- > Version : DIN left and right suitable for electric access controls in combination with electric strike
- > Area of application : For wooden, steel and aluminium doors



Note: The horizontal bar is cut-to-size

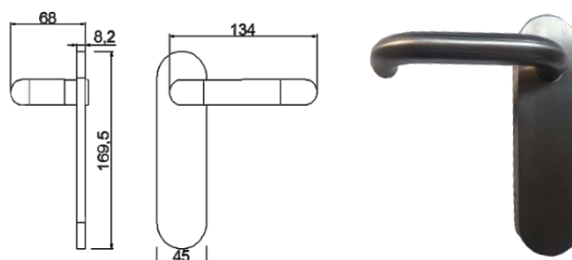
Mortise Lock

- > Fire resistant anti-panic mortise lock
- > Used with panic bar mechanisms or push bars
- > In locked position: access from outside not available, while panic bars continue operating
- > Backset: 65 mm
- > For European profile cylinder : 45 + 10 mm
- > Non-handed
- > Used for single leaf doors

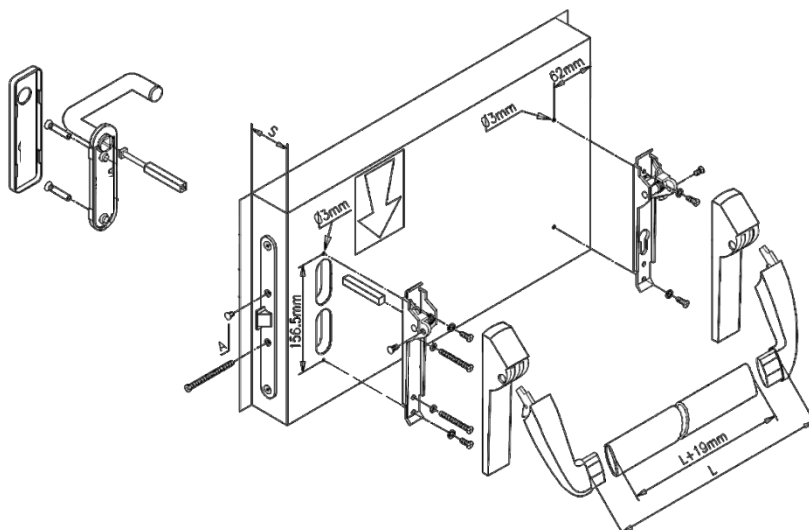


Exterior Trim Handle without Cylinder Cut-out

- > Finish: Stainless Steel
- > Material: SS 304
- > Suitable for mortise locks that have centre distance of 72mm
- > Square spindle: 9mm
- > Can be used with panic exit bars as well as in a double sided application (handle + handle)

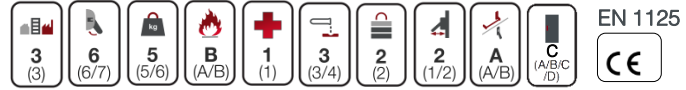


Installation Drawing



2

PANIC EXIT DEVICES



903.10.665/ 903.10.663
Double Point Panic Exit Device

- > Versions : 903.10.665 (Double Point Panic Exit Device, Grey)
903.10.663 (Double Point Panic Exit Device, Black) **OTS**
- > Material : Housing: Steel, Profile: Aluminium
- > Finish : Black and Grey RAL 9006 powder coating
- > Max. Door Width : ≤1300 mm
- > Door Height : ≤ 2400 mm
- > Door Weight : ≤ 200 Kg
- > Door Thickness : ≤ 60 mm
- > Lever Follower : 8 mm
- > Version : DIN left and right suitable for electric access controls in combination with electric strike
- > Area of application : For wooden, steel and aluminium doors

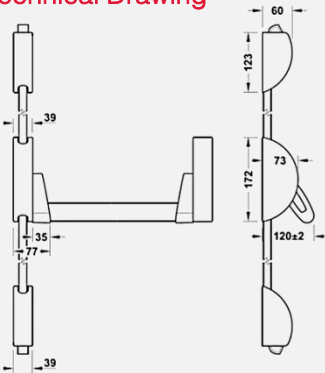
Required Bar length is given in the table below:

Article Number	Horizontal Bar Length	Max. Door Width
903.10.665/ 903.10.663	1100 mm	1300 mm
OTS	1400 mm	1600 mm

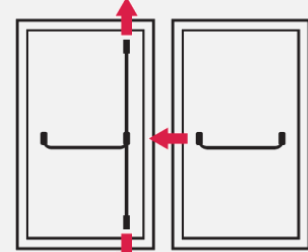
Note: The horizontal bar is cut-to-size



Technical Drawing

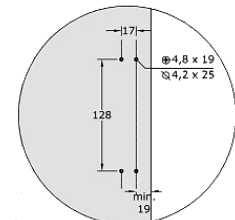
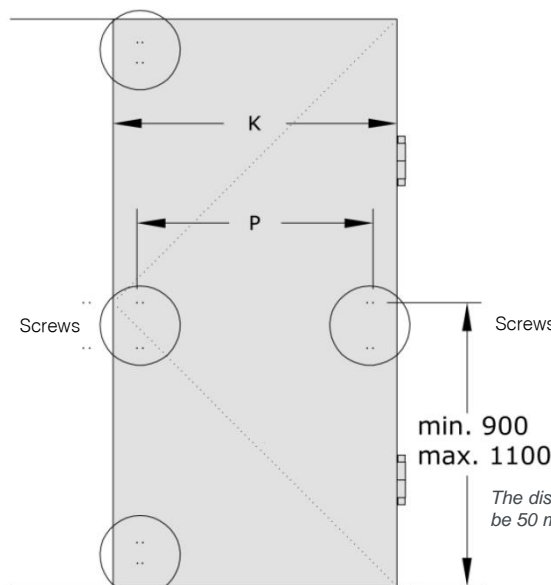
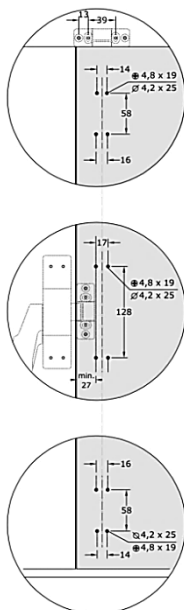


Locking Version For Double Leaf Doors



Internal - Active leaf: One point locking panic device
Passive leaf: Two point locking panic device
External - Outdoor handle

Cut-out Details



min. 900
max. 1100

The distance from the edge of the door to the screws should be 50 mm

OTS – Order to stock

Disclaimer: The image shown here is only for reference. The actual product and finish might differ.

2

PANIC EXIT DEVICES



911.56.301

Double Point Panic Exit Device with Mortise Lock, Cylinder, External Trim Handle & Passive Door Accessories

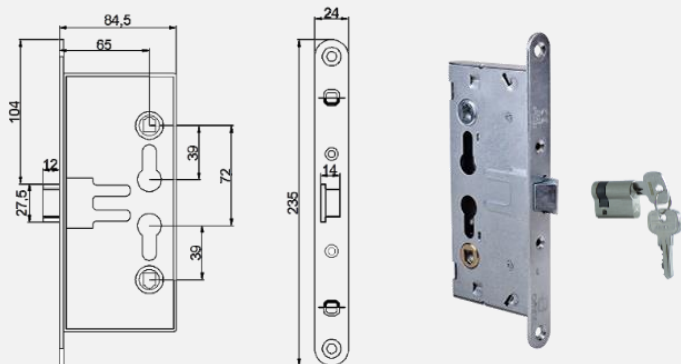
- > Material : Housing: Steel, Profile: Aluminium
- > Finish : Stainless Steel
- > Max. Door Width : 1300 mm
- > Door Height : 2400 mm
- > Door Weight : ≤ 200 Kg
- > Door Thickness : 60 mm
- > Lever Follower : 9 mm
- > Version : DIN left and right suitable for electric access controls in combination with electric strike
- > Area of application : For wooden, steel and aluminium doors



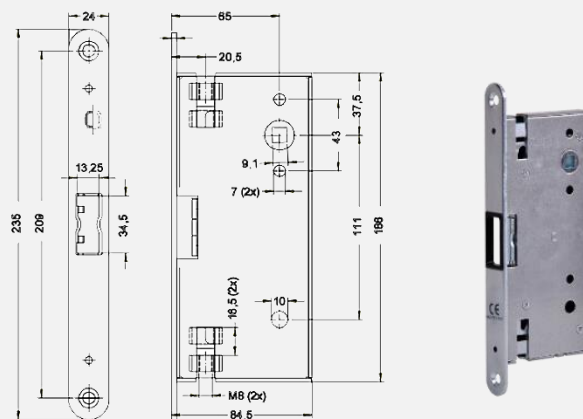
Note: The horizontal bar is cut-to-size

Mortise Lock

- > Fire resistant anti-panic / inactive mortise lock
- > Corrosion-resistant steel body, stainless steel forend
- > Used with panic bar mechanisms or push bars
- > In locked position (anti-panic mortise lock): access from outside not available, while panic bars continue operating
- > Backset: 65 mm
- > For European profile cylinder (only compatible with the anti-panic mortise lock) : 45 + 10 mm
- > Non-handed



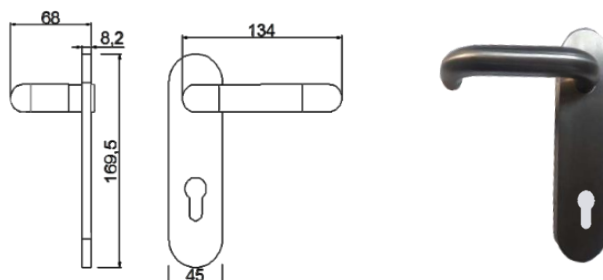
Anti-panic Mortise Lock - For active leaf



Inactive Mortise Lock - For passive leaf

Exterior Trim Handle with Cylinder Cut-out

- > Finish: Stainless Steel
- > Material: SS 304
- > Suitable for mortise locks that have centre distance of 72mm
- > Square spindle: 9mm
- > Can be used with panic exit bars as well as in a double sided application (handle + handle)



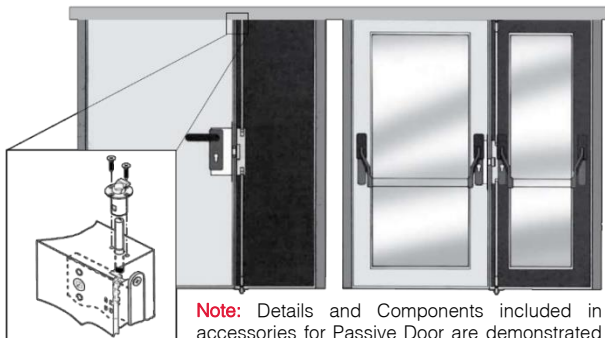
2

PANIC EXIT DEVICES

911.56.301 (Contd.)

Double Point Panic Exit Device with Mortise Lock, Cylinder, External Trim Handle & Passive Door Accessories

Installation Drawing



Note: Details and Components included in accessories for Passive Door are demonstrated on Pg. 23

										EN 1125	
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911.56.302

Double Point Panic Exit Device with Mortise Lock, External Trim Handle & Passive Door Accessories (without Cylinder)

- > Material : Housing: Steel, Profile: Aluminium
- > Finish : Stainless Steel
- > Max. Door Width : 1300 mm
- > Door Height : 2400 mm
- > Door Weight : ≤ 200 Kg
- > Door Thickness : 60 mm
- > Lever Follower : 9 mm
- > Version : DIN left and right suitable for electric access controls in combination with electric strike
- > Area of application : For wooden, steel and aluminium doors

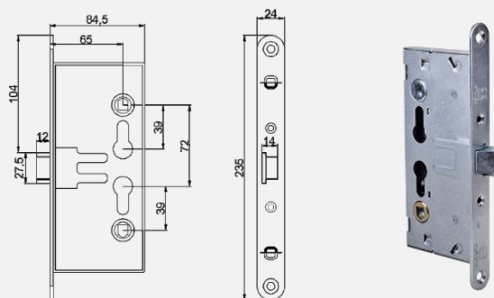
Note: The horizontal bar is cut-to-size

										EN 1125	
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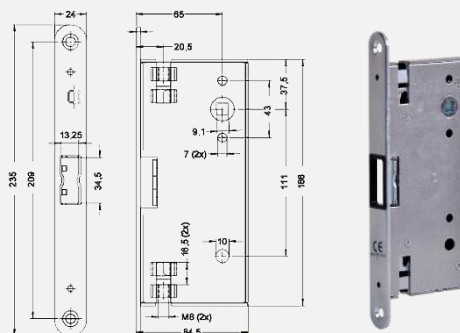


Mortise Lock

- > Fire resistant anti-panic / inactive mortise lock
- > Corrosion-resistant steel body, stainless steel forend
- > Used with panic bar mechanisms or push bars
- > In locked position (anti-panic mortise lock): access from outside not available, while panic bars continue operating
- > Backset: 65 mm
- > For European profile cylinder (only compatible with the anti-panic mortise lock) : 45 + 10 mm
- > Non-handed



Anti-panic Mortise Lock - For active leaf



Inactive Mortise Lock - For passive leaf

2

PANIC EXIT DEVICES

3 (3)	6 (6/7)	5 (5/6)	B (A/B)	1 (1)	3 (3/4)	2 (2)	2 (1/2)	A (A/B)	C (A/B/C/D)

EN 1125

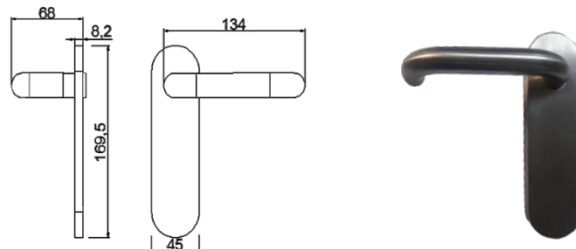


911.56.302 (Contd.)

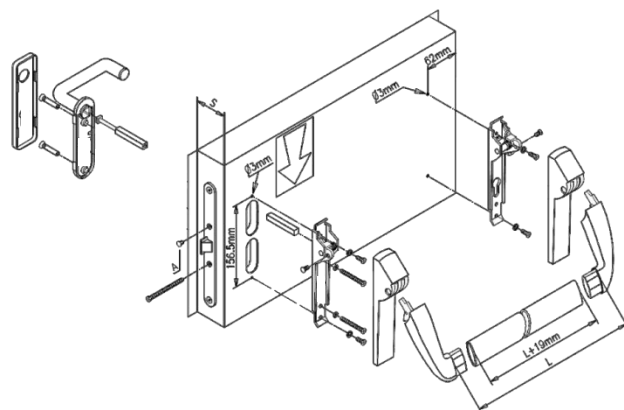
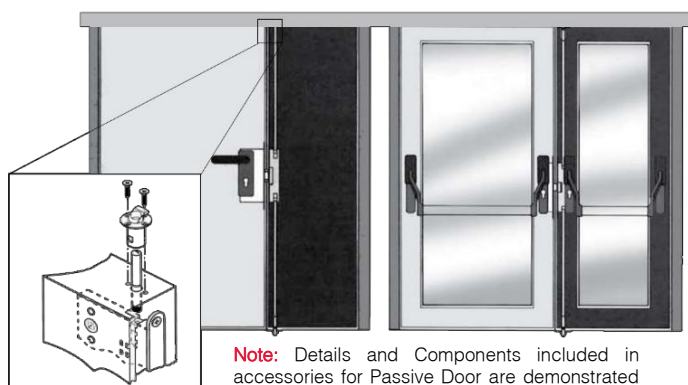
Double Point Panic Exit Device with Mortise Lock, External Trim Handle & Passive Door Accessories (without Cylinder)

Exterior Trim Handle without Cylinder Cut-out

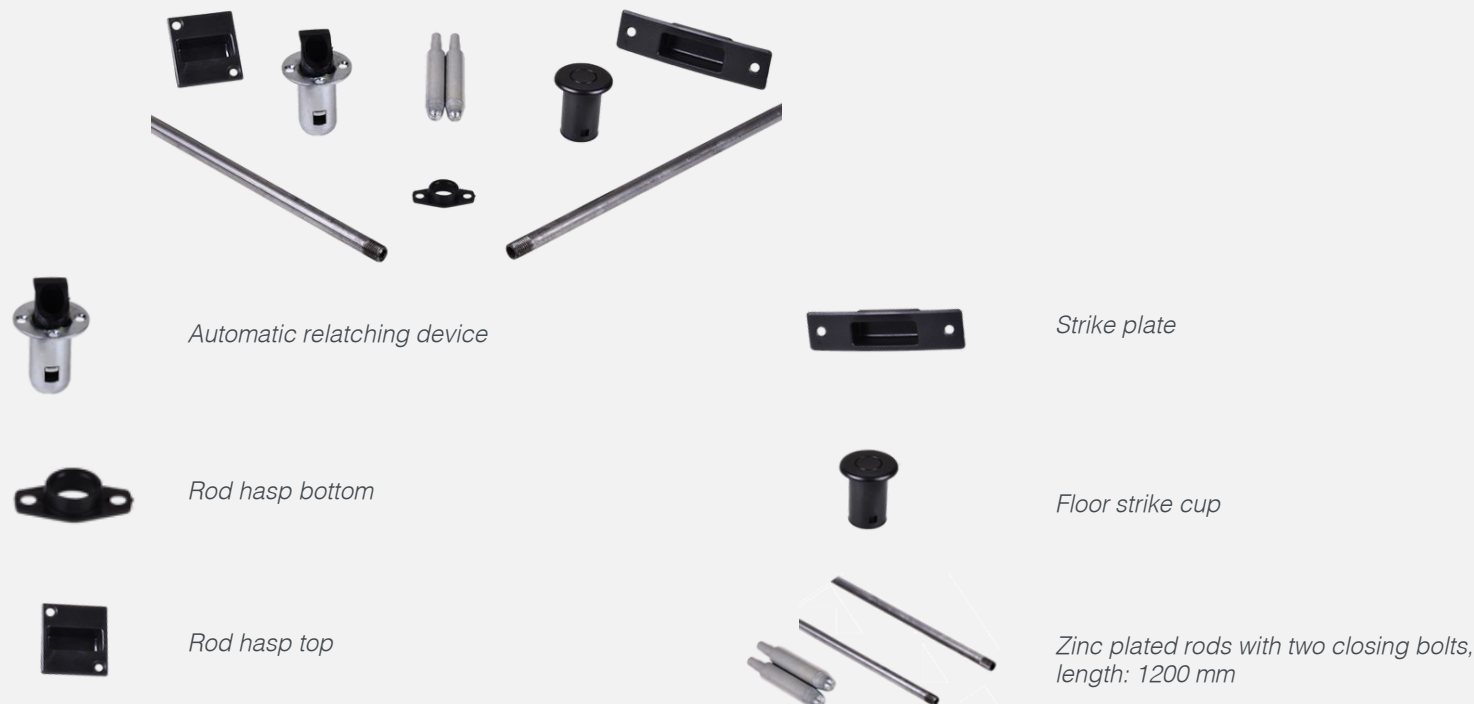
- > Finish: Stainless Steel
- > Material: SS 304
- > Suitable for mortise locks that have centre distance of 72mm
- > Square spindle: 9mm
- > Can be used with panic exit bars as well as in a double sided application (handle + handle)



Installation Drawing



Passive Leaf Accessories

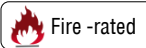


Note: These accessories are a part of the double point panic exit devices (Art. No. 911.56.301 and 911.56.302)

2

PANIC EXIT DEVICES

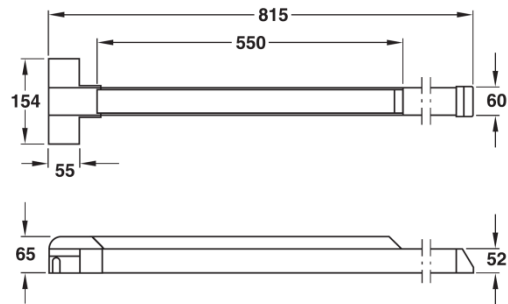
EN1125



911.52.634

Touchbar

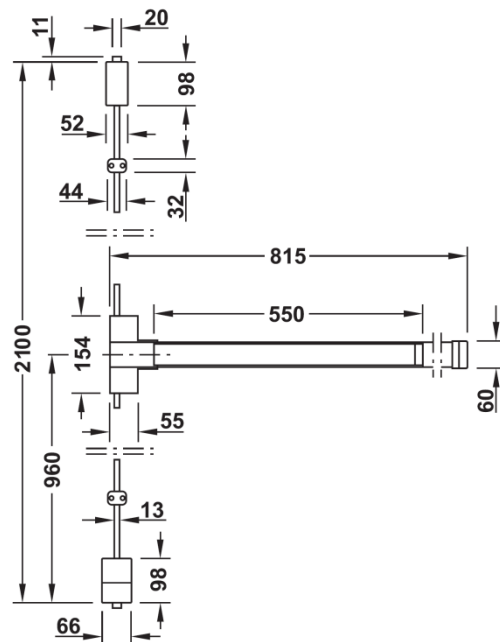
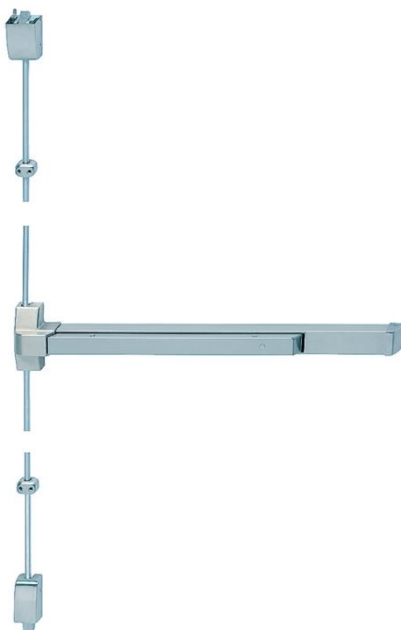
- > This product is ANSI A156.3 Grade 1 certified
- > Versions: Rim Touch Pad Exit Device with trim handle, 815 mm (36")
- > Fire rated: 3 hrs.
- > Door width: 840-914 mm
- > Door thickness: 40-75 mm
- > Suitable for emergency exit door
- > Area of application: For rebated or flush, single or couple wooden or steel doors
- > Function: Opening of door from inside by pushing the touchbar



911.56.039

Touchbar with vertical locking rod

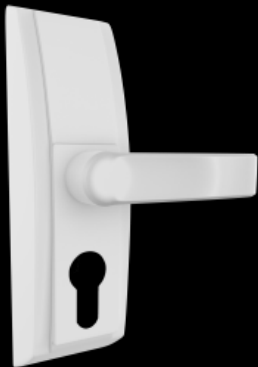
- > This product is ANSI A156.3 Grade 1 certified
- > Material: Aluminium
- > Touchbar height to finished floor: 1,043 mm at center
- > Door width: 840-914 mm
- > Door thickness: 40-75 mm
- > Suitable for emergency exit door
- > Area of application: For rebated or flush, single or couple wooden or steel doors
- > Function: Opening of door from inside by pushing the touchbar



Disclaimer: The image shown here is only for reference. The actual product and finish might differ.



3. LEVER HANDLES





3

OUTDOOR LEVER HANDLES

EN1125

**901.02.401**

Outdoor lever handle with Euro Profile Cylinders

- > Finish : Grey
- > Door Thickness : ≤ 60 mm
- > Area of application : For one point locking panic exit device

**901.02.781 (OTS) ***

Outdoor lever handle with Euro Profile Cylinders

- > Finish : Black
- > Door Thickness : ≤ 60 mm
- > Area of application : For one point locking panic exit device

5 YEARS
Warranty**903.78.836**

Outdoor lever handle without Euro Profile Cylinders

- > Finish : Grey
- > Door Thickness : ≤ 60 mm
- > Area of application : For one point locking panic exit device

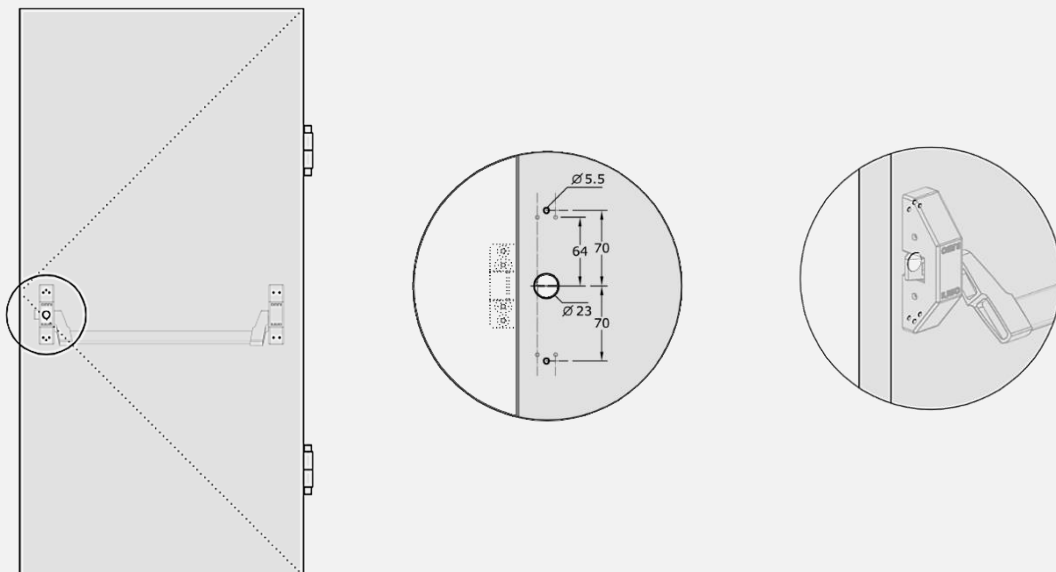
**903.78.837 (OTS) ***

Outdoor lever handle without Euro Profile Cylinders

- > Finish : Black
- > Door Thickness : ≤ 60 mm
- > Area of application : For one point locking panic exit device

5 YEARS
Warranty

Cut-out Details



*OTS – Order to stock

Note: EPC (Euro Profile Cylinder) has to be ordered separately

Disclaimer: The image shown here is only for reference. The actual product and finish might differ.



4. LOCKS



4. LOCKS

EN Standards For Mechanically operated locks, latches and locking plates

Classification

The standard classifies locks and latches using the 11 digit coding system. Each digit relates to a particular feature of the product measured against the standards performance requirements.



Digit 1

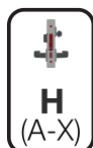
Category of Use

Classification is in three grades, grade 1 being the lowest

Grade **1**: Low frequency. For use by people with a high incentive to exercise care and a small chance of misuse, e.g. internal residential doors

Grade **2**: Medium frequency. For use by people with some incentive to exercise care but where there is some chance of misuse, e.g. internal office doors

Grade **3**: High frequency. For use by public or others with little incentive to exercise care and with a high chance of misuse, e.g. public doors



Digit 2

Durability

Twelve grades of durability are identified:

Grade **A** : 50,000 cycles, no load on latch bolt

Grade **B** : 100,000 cycles, no load on latch bolt

Grade **C** : 200,000 cycles, no load on latch bolt

Grade **F** : 50,000 cycles, 10N load on latch bolt

Grade **G** : 100,000 cycles, 10N load on latch bolt

Grade **H** : 200,000 cycles, 10N load on latch bolt

Grade **L** : 100,000 cycles, 25N load on latch bolt

Grade **M** : 200,000 cycles, 25N load on latch bolt

Grade **R** : 100,000 cycles, 50N load on latch bolt

Grade **S** : 200,000 cycles, 50N load on latch bolt

Grade **W** : 100,000 cycles, 120N load on latch bolt

Grade **X** : 200,000 cycles, 120N load on latch bolt



Digit 3

Door mass and closing force

Nine grades of door mass and closing force are identified:

Grade **1**: Up to 100 kg door mass; 50N maximum closing force

Grade **2**: Up to 200 kg door mass; 50N maximum closing force

Grade **3**: Up to 200 kg door mass or specified by the manufacturer; 50N maximum closing force

Grade **4**: Up to 100 kg door mass; 25N maximum closing force

Grade **5**: Up to 200 kg door mass; 25N maximum closing force

Grade **6**: Up to 200 kg door mass or specified by the manufacturer; 25N maximum closing force

Grade **7**: Up to 100 kg door mass; 15N maximum closing force

Grade **8**: Up to 200 kg door mass; 15N maximum closing force

Grade **9**: Up to 200 kg door mass or specified by the manufacturer; 15N maximum closing force



Digit 4

Fire/smoke doors are identified:

Grade **0**: Not approved for use on fire/smoke door assemblies

Grade **1**: Suitable for use on fire/smoke door assemblies tested to EN 1634-1 etc

Note 1 : A grade 1 classification means only that the lock has been designed for use on fire/smoke control doors; the actual fire performance achieved (e.g. fire integrity of 30 minutes on a partially glazed timber door etc.) will be contained in a separate fire test report.

Note 2 : Where a product is intended for fire/smoke use (i.e. "1" in box 4), it must be possible to demonstrate compliance with the Essential Requirements of the Construction Products (Amendments) Regulations. It is recommended that the product should bear the CE mark.

4. LOCKS

EN Standards For Mechanically operated locks, latches and locking plates

**Digit 5
Safety**

Only one grade of safety is identified

Note: A lock or latch conforming to this standard can, at the same time, also be part of an exit device conforming to EN 179 or EN 1125

**Digit 6
Corrosion resistance and temperature**

Eight grades of corrosion resistance are identified:

Grade **0**: No defined corrosion resistance; no temperature requirement

Grade **A**: Low corrosion resistance; no temperature requirement

Grade **B**: Moderate corrosion resistance; no temperature requirement

Grade **C**: High corrosion resistance; no temperature requirement

Grade **D**: Very high corrosion resistance; no temperature requirement

Grade **E**: Moderate corrosion resistance; temperature requirement: from -20°C to + 80°C

Grade **F**: High corrosion resistance; temperature requirement: from -20°C to + 80°C

Grade **G**: Very high corrosion resistance; temperature requirement: from -20°C to + 80°C

**Digit 7
Security and drill resistance**

Seven grades of security and drill resistance are identified:

Grade **1**: Minimum security and no drill resistance

Grade **2**: Low security and no drill resistance

Grade **3**: Medium security and no drill resistance

Grade **4**: High security and no drill resistance

Grade **5**: High security with drill resistance

Grade **6**: Very high security and no drill resistance

Grade **7**: Very high security with drill resistance

**Digit 8
Field of door application**

Fifteen grades are identified for differing applications – hinged or sliding doors with rim or mortise locks with either keyless egress from inside or key locking from both sides. The grading determines which application is appropriate. In addition, there is a requirement that lock/latch should not be removable from outside or, for grades K to R, from inside using “standard” tools. Grades H and P require support for the lockcase when installed.

Grade	Type	Application 1	Application 2	Application 3
A	Mortise	Unrestricted application	-	-
B	Mortise	Hinged Door	-	-
C	Mortise	Sliding door	-	-
D	Rim	Unrestricted application	-	-
E	Rim	Hinged Door	-	-
F	Rim	Sliding door	-	-
G	Bored Lock	Unrestricted application	-	-
H	Mortise	Hinged Door	Supported	-
J	Rim	Hinged Door	Inwards	-
K	Mortise	Hinged Door	-	Locked from inside
L	Mortise	Sliding door	-	Locked from inside
M	Rim	Hinged Door	-	Locked from inside
N	Rim	Sliding door	-	Locked from inside
P	Mortise	Hinged Door	Supported	Locked from inside
R	Rim	Hinged Door	Inwards	Locked from inside

4. LOCKS

EN Standards For Mechanically operated locks, latches and locking plates



Digit 9

Type of key operation and locking

Nine grades of type of key operation and locking are identified:

Grade **0**: Not applicable

Grade **A**: Cylinder lock or latch; manual locking

Grade **B**: Cylinder lock or latch; automatic locking

Grade **C**: Cylinder lock or latch; manual locking with intermediate locking

Grade **D**: Lever lock or latch; manual locking

Grade **E**: Lever lock or latch; automatic locking

Grade **F**: Lever lock or latch; manual locking with intermediate locking

Grade **G**: Lock or latch without key operation; manual locking

Grade **H**: Lock without key operation; automatic locking



Digit 10

Type of spindle operation

Five grades of spindle operation are identified:

Grade **0**: Lock without follower

Grade **1**: Lock with sprung lever or knob

Grade **2**: Lock with light unsprung lever

Grade **3**: Lock with heavy unsprung lever

Grade **4**: Lock with manufacturer's own specification furniture



Digit 11

Key identification Nine grades of key identification are identified:

Grade **0**: No requirement

Grade **A**: Minimum three detaining elements

Grade **B**: Minimum five detaining elements

Grade **C**: Minimum five detaining elements, extended number of effective differs

Grade **D**: Minimum six detaining elements

Grade **E**: Minimum six detaining elements, extended number of effective differs

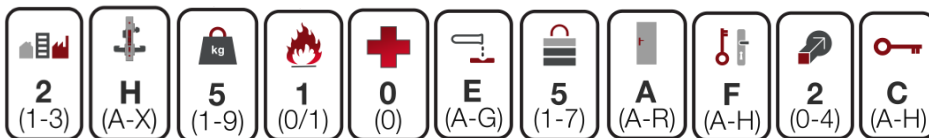
Grade **F**: Minimum seven detaining elements

Grade **G**: Minimum seven detaining elements, extended number of effective differs

Grade **H**: Minimum eight detaining elements, extended number of effective differs

Note: This applies only to lever locks: cylinders are assessed to BS EN 1303: 1998

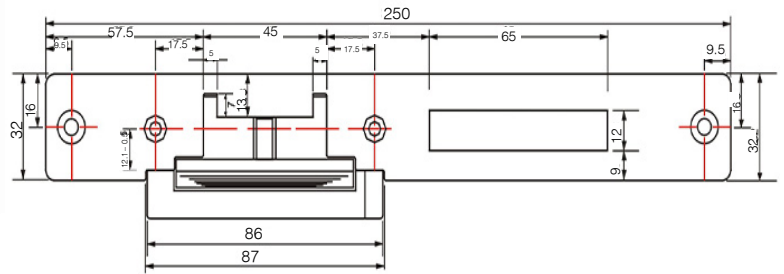
Example



This indicates a mechanically operated lock and locking plate intended for use in situations where there is an incentive to exercise care; that will withstand a durability of 200,000 cycles with a 10N side load on the latch bolt on a door of up to 200 kg in mass; that will close with a maximum force of 25N; that is suitable for use on a fire/smoke resisting door; that has no safety requirement; that has moderate corrosion resistance over a temperature range of -20°C to +80°C; that has high security and drill resistance; that is a lever mortice lock with manual locking; that is suitable for unsprung furniture; and that has five detaining elements with a minimum of 10,000 differs.

4

ELECTRIC STRIKE DOOR LOCK

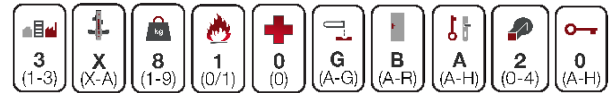


> Article Number	911.68.062 : Fail-locked(the strike is locked when the current is off)
> Shear strength	1600 lbs (800 kg)
> Lock Status Sensors	No
> Rated Operating Voltage	DC 12 V
> Standby Current	220 MA
> Optional Functions	Lock Status Sensors
> Face plate material	Stainless Steel
> Surface Temp	Low Temperature
> Ambient temperature in °C	-10°C to +55°C
> Suitable for	Wooden, aluminum, glass, fireproof and metal doors
> Strike Plate Dimensions (W x D x H)	32 W x 43.5 D x 250 H mm
> Weight in kg	0.42 kg
> CE-mark for building	Yes
> ROHS-mark for building	Yes

Function

- > Passed the 1600 lbs super linear static thrust test
- > Mode option: Fail-unlocked/Fail-locked
- > Suitable for ANSI standard for European Standard
- > Direct installation on wooden, PVC, metal door frame with mounting hole
- > Passed test of high temperature aging - 100,000 times
- > Made of high-quality stainless steel for high hardness, corrosion resistance & anti-deformation
- > Strike trough 15 mm deep, widely used with all kinds of mechanical lock
- > CE Certificate & MA Certificate approved

4 MORTISE LATCH LOCK

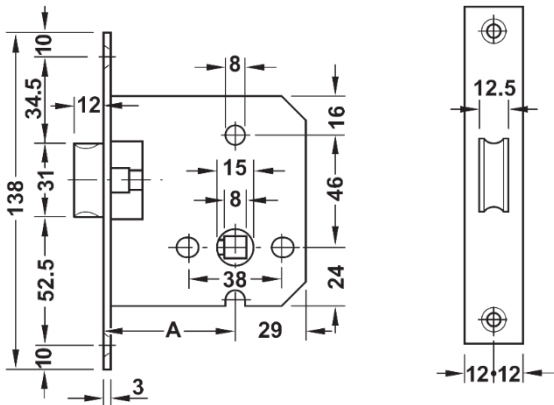


911.23.370
Latch Lock

- > Material: Forend and latch bolt: Stainless steel, Lock case: Steel
- > Forend: Square
- > Forend Width: 24 mm
- > Backset: 55 mm
- > Lever follower: 8 mm
- > Area of application: For flush doors
- > Mounting: DIN left and DIN right, reversible



Technical Drawing



Forend width is 24 mm for flush doors

LEVER HANDLES

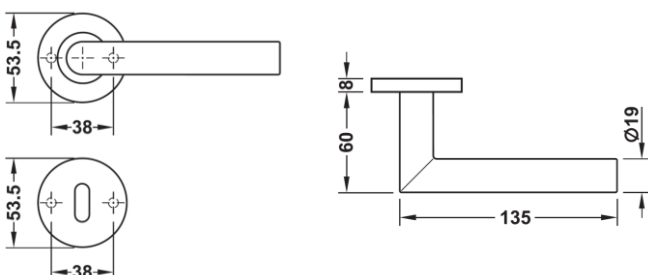


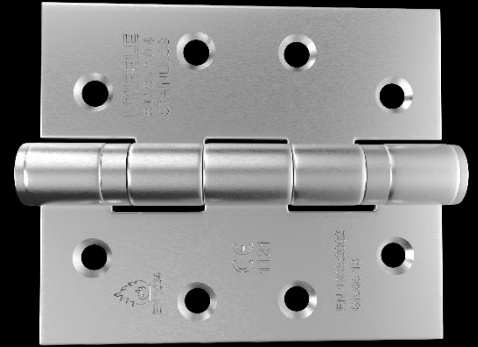
903.78.888
Lever handle with Euro Profile Cylinders

- > Material : Stainless Steel Grade 316
- > Door Thickness : 60 mm
- > Bearing : Lever handle pivot-fitted in rose, sprung
- > Supplied With: 2 Lever handle aperture parts
 1 Spindle 8 x 100 mm
 1 Pair of handle roses
 1 Pair of PC escutcheons
 8 Chipboard screws 3.9 x 19 mm
 4 Threaded screws M4 x 65 mm, can be shortened
 4 Sleeves with internal thread M4 x 17 mm



Technical Drawing





5. HINGES



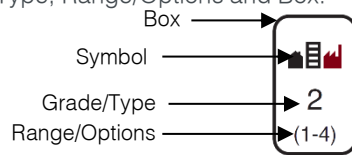
5

EN Standards For Single-axis Hinges

This European standard specifies requirements for single-axis hinges for windows and doors opening in one direction only, whose rotation axis is no more than 30mm from the face of the sash or door. It covers both fixed pin and lift-off hinges, and contains additional requirements for hinges intended for use on fire doors.

Classification

BS EN 1935 classifies door furniture by using an 8 digit coding system. A similar classification applies to all building hardware product standards so that complementary items of hardware can be specified to, for instance, a common level of corrosion resistance, category of use, etc. Each digit refers to a particular feature of the product measured against the standard's performance requirements. The DHF(Door and Hardware Federation) recommends the use of graphic icons to enhance clarity of information and has devised a system to facilitate assimilation of the various product classifications. Each feature within the product classification is represented by an icon comprising four elements; Symbol, Grade/Type, Range/Options and Box:-



The icon above is for a product which meets Grade 2 in the Category of Use classification, where EN 1935 stipulates a range of four possible grades from 1 to 4.



Digit 1
Category of use
 Four categories of use are identified:
 Grade 1: light duty
 Grade 2: medium duty
 Grade 3: heavy duty
 Grade 4: severe duty



Digit 2
Durability
 Three grades are identified for single-axis hinges manufactured to this European standard:
 Grade 3: 10,000 test cycles, for light duty hinges on windows only
 Grade 4: 25,000 test cycles, for light duty hinges on windows and doors
 Grade 7: 200,000 test cycles, for medium, heavy and severe duty hinges on doors only



Digit 3
Test door mass
 Eight door mass grades related to single-axis hinges are identified in this European standard as shown in Table 1 below.

Test door mass grade	Door mass
0	10
1	20
2	40
3	60
4	80
5	100
6	120
7	160



Digit 4
Suitability for fire/smoke door use
 Two grades of suitability are identified for single-axis hinges:
 Grade 0: not suitable for fire/smoke resistant door assemblies
 Grade 1: suitable for fire/smoke resistant door assemblies subject to satisfactory assessment of the contribution of the single-axis hinge to the fire resistance of the specified fire/smoke door assemblies. Such assessment is beyond the scope of this European standard



Digit 5
Safety
 Single-axis hinges are required to satisfy the essential requirements of safety in use. Therefore, only grade 1 is identified.

5

EN Standards For Single-axis Hinges



Digit 6

Corrosion resistance

Five grades of corrosion resistance are identified in accordance with EN 1670:

Grade 0: no defined corrosion resistance.

Grade 1: mild resistance.

Grade 2: moderate resistance.

Grade 3: high resistance.

Grade 4: very high resistance.



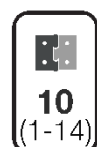
Digit 7

Security

Two grades of security are identified for single-axis hinges:

Grade 0: not suitable for use on burglar-resistant door assemblies

Grade 1: suitable for applications requiring a degree of security. Annex C of this European standard details the hinge grade to use for the level of security required.



Digit 8

Hinge grade

Fourteen grades are identified in this European standard and are detailed in Table 2 below. The full classification is shown in the standard.

Hinge grade	Usage	Test cycles	Door mass
1	Window	10,000	10 Kg
2	Window	10,000	20 Kg
3	Window	25,000	20 Kg
4	Door	200,000	20 Kg
5	Window	10,000	40 Kg
6	Window	25,000	40 Kg
7	Door	200,000	40 kg
8	Window	10,000	60 Kg
9	Window/Door	25,000	60 Kg
10	Door	200,000	60 Kg
11	Door	200,000	80 Kg
12	Door	200,000	100 Kg
13	Door	200,000	120 Kg
14	Door	200,000	160 Kg

Example:

The following marking denotes a single-axis hinge for use in medium duty situations, tested to 200000 cycles, for use on doors with a mass up to 60 kg, with stated fire door suitability, satisfying the essential requirement of safety in use, high corrosion resistance, suitable for burglar-resistant doors and with a hinge grading of 10.



CE Marking

Single axis hinges intended for use on fire resisting doors and smoke control doors are covered by a Construction Products Directive mandate issued by the European Commission. Consequently, this standard is regarded as a “harmonised” standard and compliance with it, supported by suitable evidence, allows the application of the CE mark. As fire/smoke door hinges have a critical safety function, application of the CE mark will require the involvement of a notified certification body to provide verification of the compliance claims. This will involve initial type-testing of the product to EN 1935, initial inspection of the manufacturer’s factory production control and continuing surveillance and approval of the factory production control. On satisfactory completion of these tasks, the notified body issues an EC Certificate of Conformity which then permits the manufacturer to declare compliance and affix the CE marking to his product.

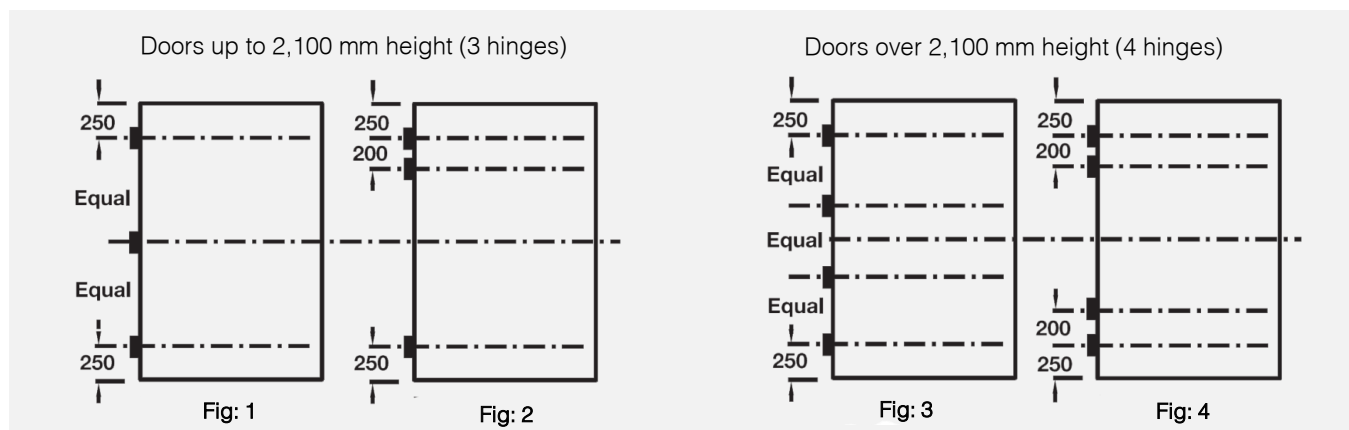
5

HINGES

Hinge Position Recommendation

In the EN standard for hinges (EN 1935:2002) it is not specified where a hinge has to be fixed exactly. The recommendation shown below is only a guide and should be followed as per the door specifications.

- **Figure 1** – Use for medium weight doors. The benefit of this solution is that door will be held straight and wont warp.
- **Figure 2** – Use for higher weight doors. This alternative is recommended when door closing device is fixed on the door.
- **Figure 3** – Use for door height over 2,100 mm. This solution is for constructions with a high risk of door warping.
- **Figure 4** – Use for door height over 2,100 mm. This version is especially recommended when door closers are fitted on the door.



Adjusting The Door Weight

Normally, three hinges are fitted to each door. Their positions are determined by the weight of the door and its resistance to warping or whipping. Hinge specification is also determined by the adjusted door weight (based on the actual weight supplied by the manufacturer). The factors by which the door mass has to be adjusted for excessive widths of door are calculated by dividing the door height by its width. For a factor of 2 or greater, no allowance has to be made. When the factor is less than 2, the door mass has to be increased by the value required to bring the factor to 2 expressed as a percentage. These percentages are shown in the side loading calculations table shown on the right.

For Example,

If the door weight is 60 Kgs., the door height is 2000 mm and the door width is 1250 mm then the Factor comes up to **1.60** (Door Height / Door Width = 1500 / 1000)

Since it is always recommended to have the Door Height twice as much as the door width, the factor desired should be either 2 or greater than 2.

The Door height and the Door Width in our example do not meet this criteria, which could make the door susceptible to warping. In order to prevent this, while suggesting the number of hinges, not only the actual door weight but also the factor needs to be take into consideration.

Factor arrived at = 1.60

Factor desired = 2.00

Difference in the Factors= 2.00 – 1.60 = 0.40

To accommodate for the difference in the factor we arrived at and the factor desired we should add 40% to door weight.

i.e. 60 Kgs. + 40% = 84 Kgs.

Therefore while recommending the number of hinges for this door, you should consider the door weight as 84 Kgs. instead of 60 Kgs.

The adjusted weight calculation table says that before suggesting the number of hinges for any door, other factors need to be taken into consideration. For example if on a door weighing 60 Kgs., a door closer is installed then the door weight that should be considered for suggesting the number of hinges should be 60 Kgs + 20 % which is equal to 72 Kgs.

Side loading calculations:

Door Size		Factor	Normal increase of door height
Door Height	Door Width		
2,000 mm	1000	2.00	0
	1050	1.90	10
	1100	1.82	18
	1150	1.74	26
	1200	1.66	33
	1250	1.60	40

Adjusted door weight calculation table :

Doors of excess width, please refer to side loading calculation table		
Actual door weight	Door closer + 20%	=Adjusted door weight
	Door closer (backcheck) + 75%	
	Extra heavy use + 10%	
	Light use - 10%	

5 HINGES

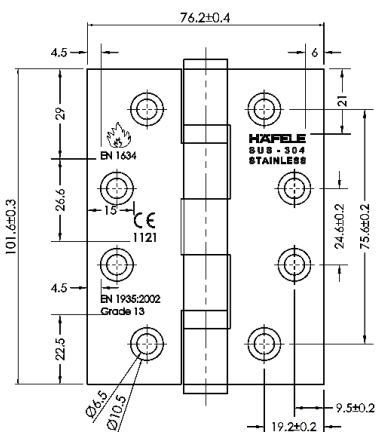
Butt Hinge

								EN1634 & EN1935	
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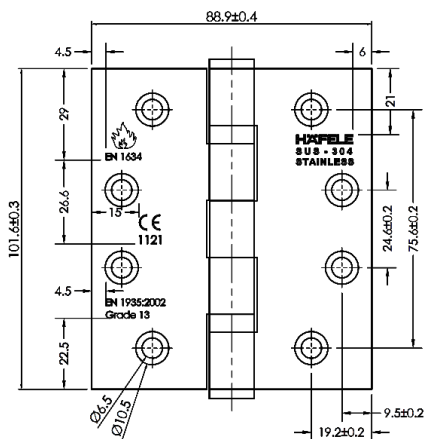
Article number	926.32.180	926.32.200	926.32.220	926.32.190	926.32.210	926.32.230
> Type of door	Timber door			Metal door		
> Size in inch (Height x Width)	4" x 3"	4" x 3.5"	4" x 4"	4" x 3"	4" x 3.5"	4" x 4"
> Weight carrying capacity (Kgs.):	120 (for 3 hinges)					
> Finish	SS Matt					
> Material	Stainless Steel Grade 304					
> Thickness in mm	3 mm					
> Door opening angle	180°					
> Application	Standard Doors, Fire and Smoke Doors					
> Non - handed	Yes					
> Corners	Square					
> Butt hinge tested	Yes (to BS EN 1935 & Certifire)					
> CE mark for building products	Yes					



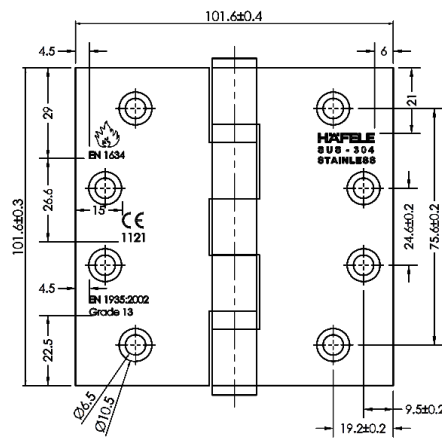
Technical Drawing



92632180/92632190



92632200/ 92632210



92632220/ 92632230

Disclaimer: The image shown here is only for reference. The actual product and finish might differ.

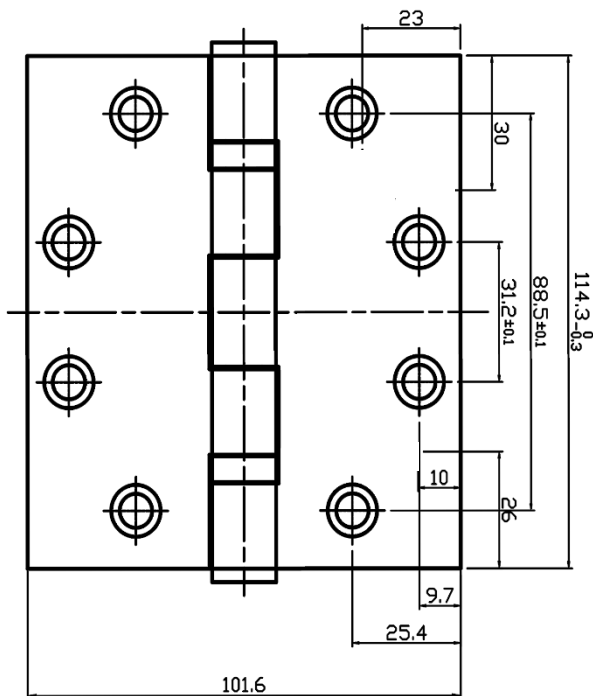
5

HINGES

Butt Hinge

Article number	926.32.330
> Type of door	Metal
> Size in mm (Height x Width)	114 mm x 102 mm (4.5" x 4")
> Weight carrying capacity (Kgs.):	120 Kg (for 3 hinges)
> Finish	SS Matt
> Material	Stainless Steel Grade 316
> Thickness in mm	3.4 mm
> Door opening angle	180°
> Application	Standard Doors, Fire and Smoke Doors
> Non - handed	Yes
> Corners	Square
> Butt hinge tested	Yes (to BS EN 1935 & Certifire)
> Screws	Metal door screws, M6 x 15 mm, 8 pcs per hinge
> CE mark for building products	Yes
> Standard	UL 10C Positive Pressure Fire Tests of Door Assemblies CAN/ULC -S104 Standard Method for Fire Tests of Door Assemblies

Technical Drawing



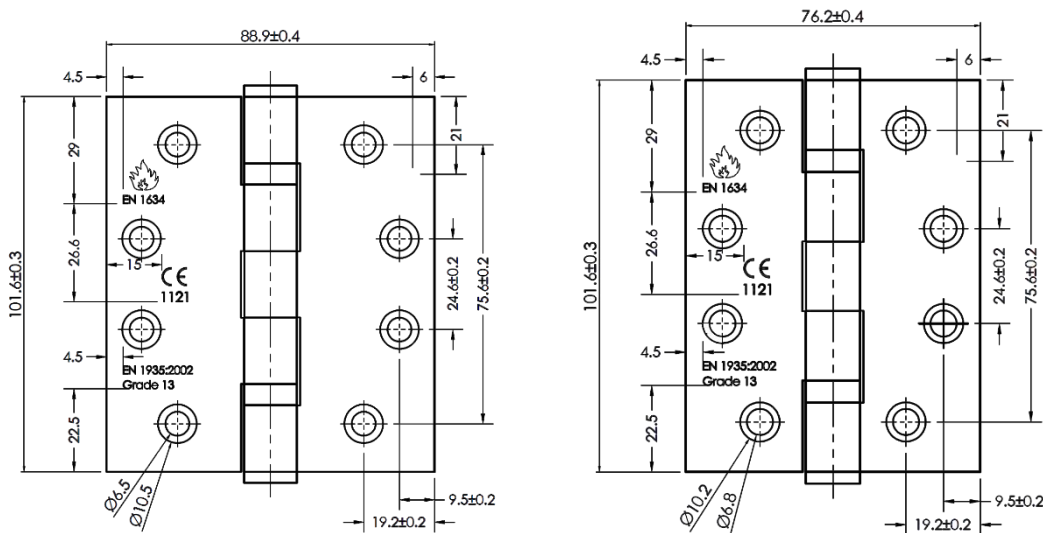
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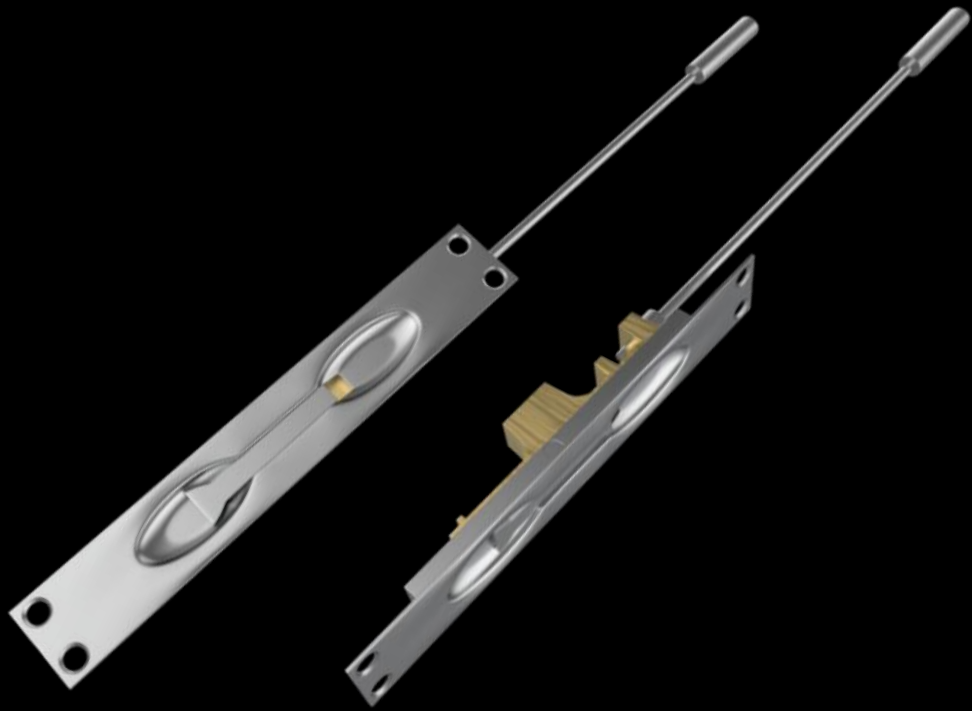
HINGES

Butt Hinge

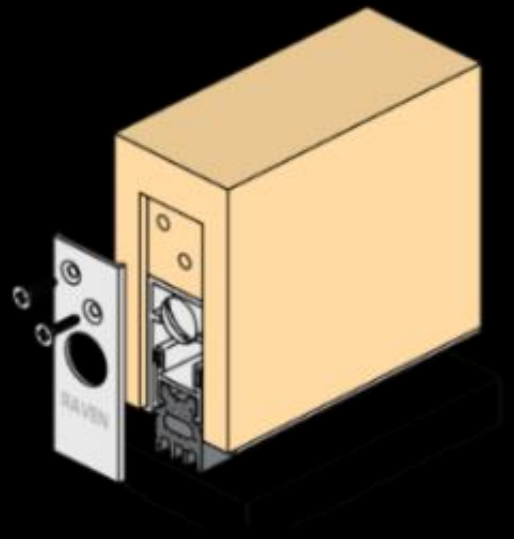
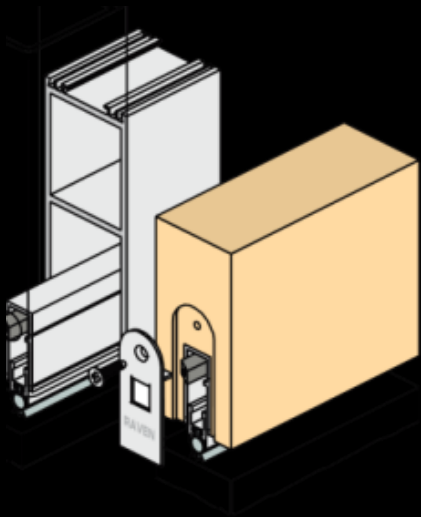
Article number	926.32.350	926.32.340
> Type of door	Timber	
> Size in mm (Height x Width)	102 mm x 89 mm (4" x 3.5")	102 mm x 76 mm (4" x 3")
> Weight carrying capacity (Kgs.):	120 Kg (for 3 hinges)	
> Finish	SS Matt	
> Material	Stainless Steel Grade 316	
> Thickness in mm	3 mm	
> Door opening angle	180°	
> Application	Standard Doors, Fire and Smoke Doors	
> Non - handed	Yes	
> Corners	Square	
> Butt hinge tested	Yes (to BS EN 1935 & Certifire)	
> Screws	M6 x 15 mm, 8 pcs per hinge	
> CE mark for building products	Yes	

Technical Drawing















6&7. FLUSH DOOR BOLT & DOOR SEALS


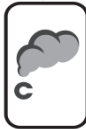













Door Accessories - Information

Häfele's range of Raven sealing systems are designed to meet the requirement of different interior and exterior applications and prevent infiltrations. The most common applications are as under:

Noise - Acoustic		These door seals help reduce the amount of sound that passes through a door-set
Fire & Smoke	   	These seals are used in conjunction with fire doors to meet various levels of fire/smoke safety
Weather & Energy	   	These seals are commonly used for exterior doors to prevent the infiltration of draughts, rainwater, insects/rodents, light etc.
Access & Mobility		These seals are drop-down seals that automatically drop down once the door shuts and lift once the door opens to allow easy mobility

Icon Key:

Noise	Cold Smoke	Medium Temperature Smoke	Fire & Hot Smoke	Fire	Weather	Energy
						

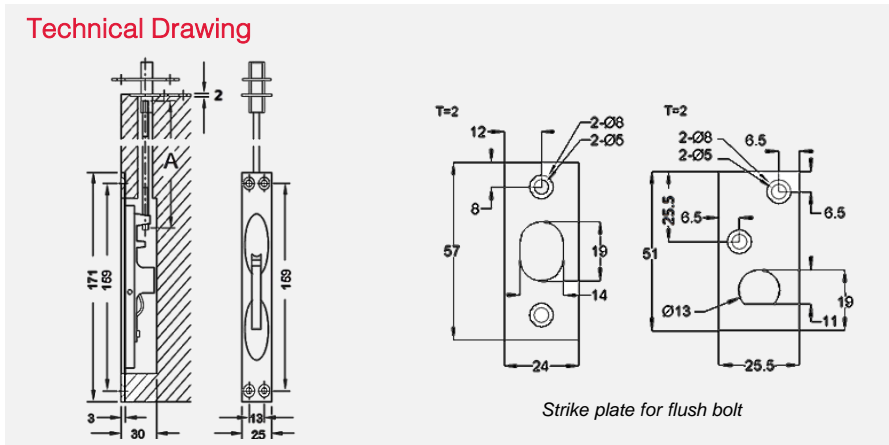
Insects/Rodents	Light	Access	Heavy Duty Seals	Medium Duty Seals	Light Duty Seals
					

6 FLUSH BOLT

911.62.536 (without bar) / **911.62.630** (with bar)
Flush Door Bolt

- > Finish : Chrome Matt
- > Material : Brass
- > Manual locking and release available
- > With lever arm
- > Area of application : For metal and timber doors

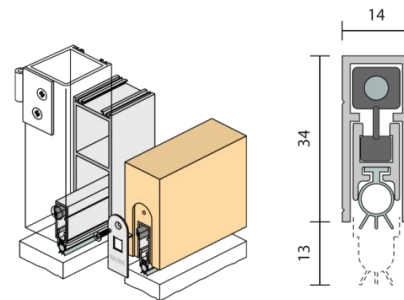
Technical Drawing



7 DOOR SEALS

Automatic Door Bottom Seal
Concealed seal for swing doors

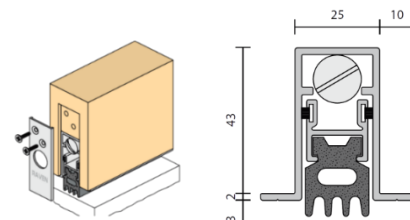
- > Finish : Satin aluminium (durable anodised finish)
- > Seal material : Silicon rubber (self extinguishing)
- > Withstands temperatures as high as 200°C
- > Approvals : Acoustic, Fire & Smoke, Energy FRL & FRR -/240/60 and FD240
- > Globally certified product
- > Testing cycle : Tested to over 1,000,000 operating cycles
- > Application : Fully Mortised on single and double butt hinged door
- > Ideal for residential and light commercial applications



Gap Coverage : 3mm (min) – 13mm (max)

Reversible Acoustic Door Bottom Seal
Fully mortise reversible seal

- > Finish : Satin clear (durable anodised finish)
- > Seal material : Silicon rubber and aluminium (self extinguishing)
- > Silicon rubber withstands temperatures as high as 200°C. Aircraft quality aluminium
- > Approvals : Acoustic, Fire & Smoke, Energy FRL & FRR -/240/60 and FD240
- > Globally certified product
- > Testing cycle : Tested to over 1,000,000 operating cycles
- > Application : Fully Mortised on single and double butt hinged door, minimum door thickness 45 mm
- > Ideal for butt hinged doors with large gaps, where internal access ramps are used and large clearances are necessary



Gap Coverage : 3mm (min) – 13mm (max)

Disclaimer: The image shown here is only for reference. The actual product and finish might differ.

HÄFELE

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