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axis

Door Controls

for Specifiers, Architectural Ironmongers & Door Hardware Specialists

Introducing the NEW REL.SLR4 Low Profile - Wireless Radio Controlled Actuator

Contents

Introduction to the range

Solutions

Axis is synonymous with door control. We believe that our unrivalled track record in the door control industry qualifies us to speak knowledgeably on the subject and to offer our assistance, expertise and independent advice to specifiers and end users alike. With almost 30 years of experience behind us we can say, without fear of contradiction, that we have solved most door control issues over the years - from the mundane to the spectacular.

Levels of Door Control

Our range of door control solutions encompasses a wide variety of product types from door holders, coordinators & door closers through to low energy automatic operators. Each product range functions at various levels and will address, either as a stand alone solution or as a combined solution, the requirements of just about every commercial door control situation.

For ease of reference this brochure separates the range into 5 levels of product type:

Type A - Low Energy & Powered Operators.

Type B - Fire & Life Safety Products.

Type C - Heavy Duty Mechanical Door Controls.

Type D - Standard Duty Mechanical Door Controls.

Type E - Special Solutions.

Each product type has its own section within this brochure complete with all necessary certification, dimensional and template details. We also include a product selector on pages 50 - 52 to assist in the correct choice of product to suit the door's location, function and traffic profile.

Compatibility

Hardware products selected for a particular door are very often selected from different sources. This is a perfectly acceptable practice provided it is remembered that, where any two items have to work together, they must be compatible. If they are not, the system will be very likely to fail and the problem of having to establish supplier responsibility will be costly and time consuming. Axis offers a complete range of compatible hardware products from which a properly matched successful door control package can be selected with total confidence.

Performance, Strength & Versatility

The Axis range of door control hardware has been chosen not just because it will outlast and outperform anything available on the market but also because it can be used successfully with other building management systems.

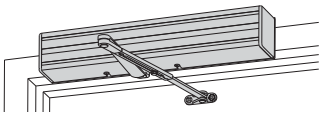
Technical & Specification Services

Axis offers a free technical specification and advisory service to assist you in the correct choice of door control equipment. We keep substantial stocks of most products. Our team of trained specifiers will discuss problems, offer guidance, make recommendations and, most importantly, help on site if difficulties should occur.

Product Portfolio

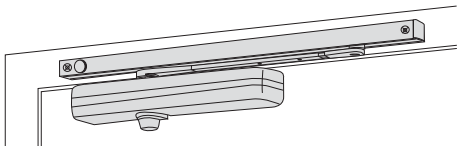
Axis has developed a range of solutions to rival any currently available on the UK market. We employ professional technical consultants capable of supporting some of the most sophisticated (and often simple) solutions. Our range of door control hardware is summarized in this brochure.

Type A - Low Energy & Powered Operators



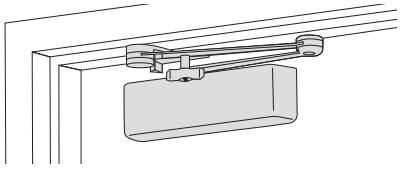
Type A products are selected to provide complete system solutions addressing the requirements of ADM04, the Equality Act and BS 8300. We have a choice of options including mains powered, pneumatic and hydraulic technologies. Each solution is designed to suit specific traffic profile requirements and systems are designed complete with all necessary controllers, power supplies, safety products and switching.

Type B - Fire & Life Safety Products



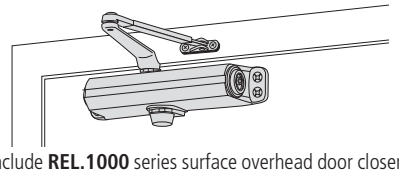
Type B products include fire door hardware suitable for door assemblies on accessible routes. Fire doors must close in the event of a fire. At all other times (when the building is occupied) these doors may be held open at 90°. We offer single point electromagnetic hold open closers requiring a 24V supply with fire alarm relay - a standard offering from our range of access control accessories.

Type C - Heavy Duty Mechanical



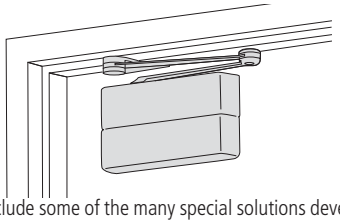
Type C products include **REL.4000** and **REL.2000** series surface and concealed overhead door closers, **REL.70** & **REL.79** series heavy duty door holders & stops and **REL.COR** coordinators.

Type D - Standard Duty Mechanical



Type D products include **REL.1000** series surface overhead door closers and **REL.410** & **REL.450** series standard duty door holders & stops.

Type E - Special Solutions



Type E products include some of the many special solutions developed by Axis to address those situations where a door's size and/or weight is outside the norm or its desired function is not accommodated by standard, off-the-shelf, door control hardware.

Certification, Legislation & the Door Hardware Specialist

In recent years legislation concerning the design of the built environment, with particular reference to fire & life safety and disabled access, has placed the onus for correct specification squarely on the shoulders of the hardware specialist. Axis welcomes legislation designed to promote safety and ease of access and has developed a range of solutions, with full certification, to satisfy the requirements of *the Equality Act and Approved Document M (ADM04).*

The Disability Discrimination Act 1995 was replaced by the Equality Act on 1 October 2010. The new Equality Act consolidates 116 different pieces of equality legislation, 35 acts of parliament, 52 statutory instruments, numerous Codes of Practice and 16 EC Directives and Recommendations including the Disability Discrimination Act 1995.

The introduction of the Equality Act, in reality, changes very little for specifiers with regards to doors and building access which still falls under the auspices of BS8300 and Approved Document M. In 2009 a revised version of the Code of Practice for BS8300 was published offering guidance on specifying architectural ironmongery and doors.

Current relevant legislation is outlined in the following:

The Equality Act 2010.

The Code of Practice BS 8300:2001 "Design of buildings and their approaches to meet the needs of disabled people" (Revised 2009).

BS EN 1154:1997 (Incorporating Amendment No. 1 and Corrigendum No. 1) "Building hardware - Controlled door closing devices - Requirements and test methods".

BS EN 1155:1997 "Building hardware - Electrically powered hold open devices for swing doors - Requirements and test methods".

Approved Document to Part 'M' of the Building Regulations for England & Wales (Revised March 2005).

Who are the issuing bodies?

Equality Act – an act of parliament.

BS 8300:2001 – a code of practice written by the British Standards Institution.

BS EN 1154:1997 – an EC Directive adopted by BSI.

BS EN 1155:1997 – an EC Directive adopted by BSI.

Approved Doc. M – issued as part of the building regulations by the government department - Communities & Local Government or CLG.

Negotiating the Minefield

This brochure is aimed at guiding the user towards a correct specification of door control hardware in the safe knowledge that the equipment listed is, where appropriate, previously tested and is certified fit for purpose. All the products included herein are marked accordingly and the limitations for their use are clearly explained.

It is not our intention that this brochure be used as a design guide to the Equality Act, Approved Doc M or any other government sponsored publication. Where specific detailed guidance is required then we shall be pleased to advise or, in situations where we feel it is necessary, refer you to the appropriate professional body.

Fire Certification -
Fire & Smoke Control Doors

According to *BS EN 1154* (See above) 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 *BS EN 1154 (see EN 1634-1:2000).*

According to *BS EN 1155* (See above) only one grade of fire behaviour is identified for door closing devices manufactured to this standard:

Grade 1: Suitable for use on fire/smoke door assemblies, subject to satisfactory assessment of the contribution of the electrically powered hold open device to the fire resistance of specified fire/smoke assemblies. Such assessment is outside the scope of *BS EN 1155 (see EN 1634-1:2000).*

EN 1634-1:2000 Fire resistance tests for door and shutter assemblies. Fire doors and shutters. Adopted by BS in April 2000.

CE Certification

Where the supply of door hardware to fire resisting, smoke control and escape doors is concerned, compliance with the *Construction Products Directive 1989 and Construction Products Regulations 1991* is mandatory. The recognizable way to demonstrate compliance is to include CE marked hardware where relevant EC directives exist.

Under European and UK law, all Door Control Hardware must comply with the Construction Products Regulations Act. Products bearing the CE mark show that they satisfy the requirements of the Act, and their performance has been ratified by the appointed authorities.

CE

Certified Axis products are marked clearly in this brochure with the recognizable CE logo.

Other Publications & Guidelines

Axis recommends visiting the *Centre for Accessible Environments'* website at *www.cae.org.uk.*

CAE's popular and leading design guides offer practical and valuable guidance for access auditors and those seeking information on how to meet their duties under the Disability Discrimination Act 1995 (the Equality Act wef 1st October 2010).

A series of design guides has been published jointly with RIBA Publishing; these include Designing for Accessibility (the best selling design guide based on *BS 8300:2001* and the 2004 edition of the *Approved Document M*), the Access Audit Handbook (a multimedia planning tool for auditing the accessibility of buildings and services) and the Specifiers' Handbooks for Inclusive Design series (prepared to assist designers, specifiers, building owners & occupiers, building managers and facilities managers to understand key design aspects and characteristics of specific architectural elements).

Door Controls - Our Formula for Success

Long Term Economics

Door hardware can receive more use and abuse (per £1.00 of investment) than any other building component. Physical interaction with the fabric of the building (with the exception of the floor!) is often restricted to doors exclusively. Factors influencing specification decisions are sometimes based around initial investment cost comparisons and aesthetics rather than the life cycle costs of the whole installation over 20 years.

Who picks up the maintenance bill and lives with the consequences of such a short term approach? Ultimately, of course, it is the owner or occupier who picks up the bill and, in the long term, those using and working in the facility live with the consequences and inconvenience. But for a small amount of foresight and a little extra initial investment these problems can be avoided.

In our endeavours to offer long term, economically sound solutions we have become (almost) exclusively reliant upon one source for our door control components:

Our partners at LCN Closers have been manufacturing door closers in the USA since 1925. They concentrate their engineering expertise on designing and manufacturing door controls to outlast and outperform anything else on the world market. The secret of our ongoing success lies in these areas.

Materials Choice

We select cast iron cylinders and forged steel working components (hardened where necessary) in all of our closer designs. There isn't a stronger, harder, more reliable material for door closers that are expected to deliver millions of cycles than cast iron. It is compatible with high-grade steel components and is highly resistant to wear from millions of opening and closing cycles.

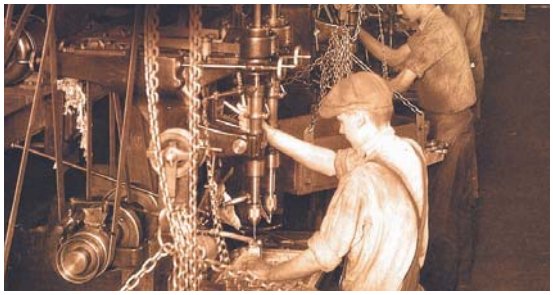
The closing power and control generated within LCN closers is transferred to the door through forged steel arms. Forged steel arms have considerably greater strength than stamped steel or similar alternative materials. LCN forged steel pinions have larger, stronger teeth and are double heat treated for the greatest possible strength on the shaft. Heat treating makes the pinion harder and better able to resist wear after years of service and results in less stress on the cylinder.

A special formula hydraulic fluid is used that acts as an insulator to keep closer components working smoothly. This unique all weather, fire resistant hydraulic fluid eliminates the need for seasonal adjustments. Many closer manufacturers use less expensive oil tempered springs but we know that such a spring loses up to 20% of its power after a few thousand cycles. The chrome silicone springs used in our closers have the strength to perform beyond 10 million cycles.

Piston & Shaft Detail

The larger the cylinder (i.e. piston diameter), the better the closer. A larger cylinder creates less hydraulic pressure in operation, reducing the possibility of damage or leaking. Larger pistons also displace larger volumes of hydraulic fluid giving greater overall control.

The larger the shaft (or pinion) the greater the strength. A large shaft accommodates larger bearings, providing a longer and more durable life. LCN heavy duty closers' shaft teeth are large and the journals are double heat treated to provide the strength without brittleness required for good, durable closer operation.



Arms, Fluid & Valve Technology

All LCN closers feature a forged steel main arm and a forged steel forearm on EDA (Extra Duty) options. Forged arms are superior in strength to stamped arms of equal size and generally look better.

LCN's Liquid X is an all-weather hydraulic fluid unsurpassed in the industry. It will accommodate temperature variations down to -34° C. without requiring closer adjustment.

All LCN Closers incorporate V-Slot valves. A V-Slot valve has a much better regulation capacity than the more usual tapered valve. The V-slot valve permits non-critical adjustment for fine tuning of the closer speed, back-check and latching action.

Design, Engineering and Service

Axis is constantly developing and improving solutions. The amazingly low incidence of faulty units is evidence of the success of this programme. In addition to ensuring our product is right we can support you with unrivalled service and technical assistance. Our 'specials' department welcomes 'problems' and can offer solutions in the most obscure and demanding situations.

Type A - Low Energy & Powered Operators and Accessories

Automation -
A Summary Relating to Accessibility

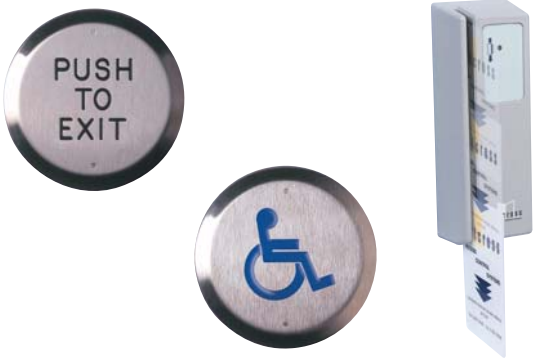
Correct selection of the appropriate door control system to provide automation is paramount. The choice must be based upon operational expectations with the capabilities of the operator being the primary consideration.

All our automatic door operators are suitable for use at 'accessible entrances' as defined in *The Building Regulations 2000, Approved Document M (2004) – Access to and use of Buildings.* When specified correctly automatic doors and their associated hardware allow architects, specifiers, designers and building owners to address the needs outlined in the *Equality Act.*

According to the *Equality Act (effective 1st October 2010)* Private and Public Sector service providers have a *''Duty to make reasonable adjustments to remove, alter or provide a reasonable means of avoiding a physical feature of their premises which makes it difficult or impossible for disabled people to make use of their services.''* BS 8300, as amended, states that forces no greater than 30N at the leading edge of any accessible entrance must be sufficient to open the door from the closed position to 30°, thence 22.5N from 30° to 60°. Full automation using Axis automatic door operators provides an immediate solution.

Low energy & powered entrance doors, i.e. those doors fitted with Axis automatic door operators, satisfy the requirements of *Approved Doc. M 2004* edition when controlled (or switched) in the following ways:

Manually – Via Actuators (Push Pads), Card Swipe, Proximity Tag, Coded Entry or Remote Control.



Automatically - Via Microwave Motion Sensors or Proximity Sensors such as Contact Mats.

We can offer three distinct solutions operating at the following levels:

Pneumatic/Hydraulic -
Very high to medium traffic capabilities

Designed for doors primarily where occasional automation is desired but where able bodied users will operate the door manually.

Electro Mechanical -
High to medium traffic capabilities.

Designed for doors primarily where automated opening is desired for all users since a conventional (mechanical) solution may impede the flow in high to medium traffic applications.

All Electric Motor Driven -
Medium to low traffic capabilities.

Designed for doors where automated opening is available by default for all users.

All our operators are designed for use on swing doors only - as defined in *BS 7036 parts 3 & 4 1996.* They are not suitable for sliding or revolving doors of any type.

Low Energy Swing Doors - Definition

Low energy systems incorporate features that enable elderly, frail or disabled users to gain access through swing doors with ease and are generally intended for internal use only.

Low energy swing doors can be defined easily as those with kinetic energy levels not exceeding 1.6J at any point in their travel during normal operation (see table 1 - Kinetic Energy Levels BS 7036: Part 1 1996) .

Assuming the above criterion is met then doors fitted with Axis automatic door operators can be classified as low energy swing doors (as detailed in BS 7036: Part 4 1996) if:

- they have a "power assisted" operation in which the initiating signal is provided by the action of pushing, pulling or touching the door leaf or handle. This is commonly referred to as the 'Push & Go' facility and is normally a user-defined feature set via on-board dip switches.
- the initiating signal is provided by manual or automatic* activation devices as those described briefly on page 6 opposite.

*See also notes below.

Low energy swing doors are not fitted with safety devices generally, since the kinetic energy levels present at the leading edge of the door leaf on both the opening and closing arcs are not considered to be dangerous. Installing low energy swing doors without safety devices should be considered only where a suitable hazard analysis and risk assessment audit has taken account of the profile of the traffic using the doors. In other words, where the risk to elderly, frail and disabled traffic is deemed to be low.

Powered Doors - Definition

Automated swing doors specified for fast moving simultaneous two-way traffic operation give rise to increased risks to users and should be given special consideration. The introduction of automatic activation devices such as microwave motion sensors (or detectors), designed to ease traffic flow, often necessitate the introduction of additional safety devices at the door.

Powered doors can be defined easily as those doors falling outside the scope of those described in the section headed Low Energy Swing Doors, i.e. those with kinetic energy levels exceeding 1.6J.

Installation & Commissioning

In accordance with BS 7036: Part 1 1996 all automatic door systems (whether low energy or powered systems) should be installed by authorized technicians. Axis has a network of partners, authorized to install, maintain and repair our equipment in accordance with our exacting recommendations and the recommendations of BS 7036: parts 1, 3 & 4 1996.

Limitation of Leaf Forces for Low Energy Swing Doors

Since it is unrealistic to expect installers to calculate kinetic energy levels at installation or during commissioning, the 'compliance' process is simplified using minimum opening and minimum closing times where the door width and leaf mass is known.
(see table C.1 Limitation of Leaf Forces BS 7036: Part 4 1996).

For example - a 900mm wide door leaf @ 44 kilos must have a minimum opening time and a minimum closing time of 4.5 seconds to conform to the kinetic energy recommendations for low energy swing door operators.

Similarly, for powered door systems, an alternative table of minimum opening and closing times is available in part 3 of the standard.

As an additional check, although not specifically detailed in BS 7036, a force gauge can be used to establish the closing moment or torque (Nm) at a height of 1000mm.

Type A - Auto Equalizers - a pneumatic/hydraulic solution

Auto Equalizers -
An introduction to the range

The entire **Auto Equalizer** range incorporates the proven heavy duty **REL.4000 series** door closer cylinder, independently tested in excess of **10 million cycles**. These systems have exceeded **3 Million** full load automatic operating cycles; 10 times the US industry standard! With that type of high performance you can be confident that the **Auto Equalizer** will cope with the most demanding automatic door control situations you can think of.

Even with its high traffic capabilities the **Auto Equalizer** is equally at home in smaller low traffic environments where single doors are used infrequently by individuals requiring manually switched automation alongside others wishing to use the same door manually in the conventional manner.

The **Auto Equalizer** is set apart from other automatic operators inasmuch as it can be used as a conventional stand-alone overhead door closer with all the usual adjustments such as closing speed, latching speed and back-check as standard and, when required, can be switched manually via an actuator - for example, a wall mounted switch.

The Auto Equalizer Principle

Typical systems have three main basic components which vary in their capacity depending upon the number of doors within that system.

The Operator - Use one operator per door leaf, usually transom mounted, i.e. to the frame above the door. The **Auto Equalizer** uses the basic engineering of the **REL.4000 series** Super Smoothee door closer cylinder with the addition of a bolt-on air cylinder. During a switched opening cycle the resistance of the spring is overcome by the in-rush of compressed air at the necessary rate to open the door to the desired maximum opening angle. The speed at which the door opens is a function of the air pressure available from the compressor. When the air is released the spring and hydraulics take over, closing the door in a controlled mechanical fashion.

The Controller - Each system (or group of doors) is controlled by a separate controller incorporating one air valve per door or pair of doors. Compressed air is switched through the valve and held in the door closer cylinder for a pre-set (but adjustable) period of time. That time period is deemed sufficient to allow users to traverse the entrance. It is therefore important to understand the profile of the likely traffic using the door. Controllers are custom built to give optimum performance on a system by system basis.

The Compressor - All **Auto Equalizer** systems are reliant upon a source of compressed air to power them. The capacity of the compressor is selected carefully at the specification stage by Axis technicians and will provide sufficient compressed air at the necessary pressure and flow rate. Multi door systems are accommodated easily although it is important to understand from the outset the likely traffic profile (i.e. frequency of use of doors) and the distances involved between the compressor and the doors to be controlled. The proximity of doors to one another is also important and, where doors become distant from each other, it may be prudent to introduce reserve tanks to store a ready source of compressed air adjacent to where it will be needed most.

Quiet Operation

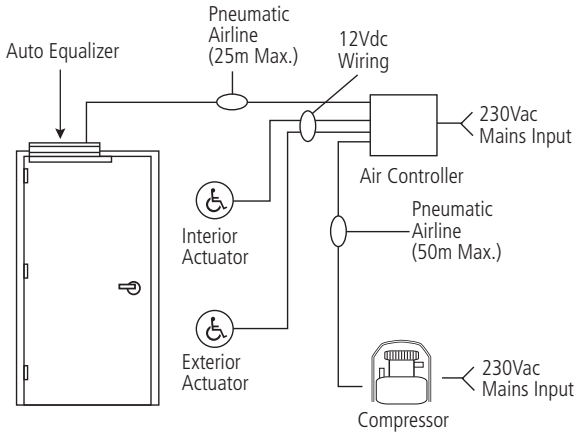
Since **Auto Equalizers** are powered by compressed air, they are quiet, efficient, and very reliable. Flexible pneumatic tubing is the only connection between the controller and the door frame. There is no need for mains voltage wiring at the door frame since all of the power for operation is generated by pressurized air located away from the door frame.

Typical Pneumatic Powered Systems Using Auto Equalizers

Please consult Axis for assistance with specific installations and material requirements.

Single Interior Door System

How It Works: The user requiring automated assistance triggers the system using either actuator. The controller supplies pressurized air to the **Auto Equalizer** which opens the door slowly to 90°, holds it for up to 30 seconds, then applies full spring power to close and latch the door reliably. If not actuated, the **Auto Equalizer** functions as a full featured door closer.



How to Specify or Order*

Part #	Description
REL.4811.US28	Pull Side Mounted Auto Equalizer – Silver
REL.SLR4/EAS	Actuator with RF Receiver (Exterior)
REL.SLR4/EAS	Actuator with RF Receiver (Interior)
REL.ACC1	Air Controller for one door (or pair of doors)
REL.4-4	Compressor
REL.PUN	Air Line - 50 metre roll (or as necessary)

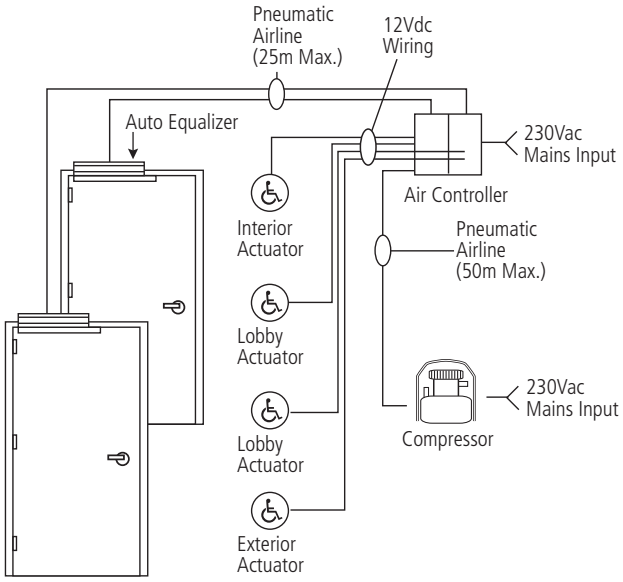
* Applies only to the system shown in the schematic and assumes a maximum of 4 operations per minute. However, it is unlikely (taking into account door hold open times) that 4 operations are permissible.

Type A - Auto Equalizers - a pneumatic/hydraulic solution

Lobby Door System

How It Works: The user requiring automated assistance presses the exterior actuator for entry. The exterior door opens and after a short delay the interior door opens. When the system times out, first the exterior, then the interior door closes. Pressing the interior actuator reverses the process to exit the building. This allows passage through the lobby without both doors opening for the entire cycle. If the user stops in the lobby and the system times out before they exit, pressing either lobby actuator opens the appropriate door. If not actuated, the **Auto Equalizer** functions as a full featured door closer.

Often, in systems including exterior (or entrance) doors traffic levels can be high. Where this is anticipated then it becomes important to ensure the capacity of the compressor is adequate (See page 12).



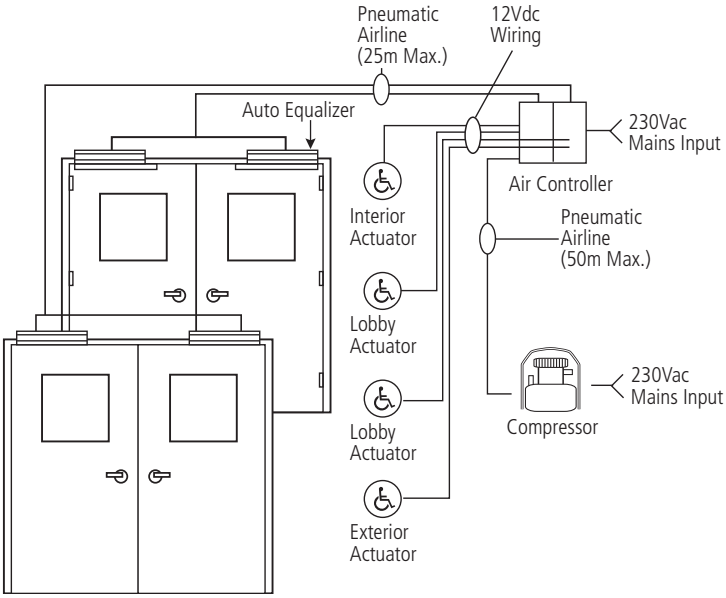
How to Specify or Order*

Part #	Description
REL.4811.US28 (2 Off)	Pull Side Mounted Auto Equalizer – Silver
REL.SLR4/EAS	Actuator with RF Receiver (Exterior)
REL.SLR4/EAS	Actuator with RF Receiver (Interior)
REL.SLR4/EAS (2 off)	Actuator with RF Receiver (Lobby)
REL.ACC2	Air Controller for two doors (or pairs of doors)
REL.4-4	Compressor
REL.PUN	Air Line - 50 metre roll (or as necessary)

* Applies only to the system shown in the schematic and assumes a maximum of 4 operations per minute in total.

Multiple Door System

How It Works: As in the previously described systems the user requiring assistance presses an actuator adjacent to the appropriate door to effect automation. Automation is available, if required, at a number of doors (singles or pairs) throughout the building. Switching is controlled via a series of air valves housed in a multi-door controller. The compressor is sized for multiple systems. If not actuated, the **Auto Equalizer** functions as a full feature door closer.



How to Specify or Order*

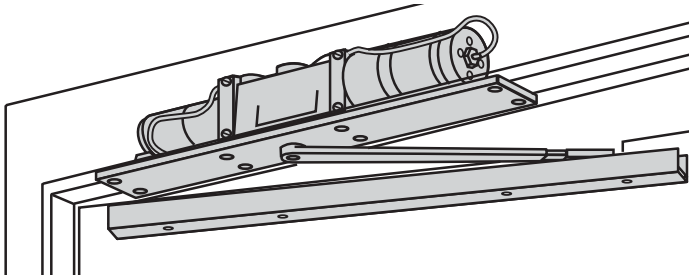
Part #	Description
REL.4811.US28 (2 Off)	Pull Side Mounted Auto Equalizer – Silver
REL.4822.US28 (2 Off)	Push Side Mounted Auto Equalizer – Silver
REL.SLR4/EAS	Actuator with RF Receiver (Exterior)
REL.SLR4/EAS	Actuator with RF Receiver (Interior)
REL.SLR4/EAS (2 off)	Actuator with RF Receiver (Lobby)
REL.ACC2	Air Controller for two doors (or pairs of doors)
REL.4-25	Compressor
REL.PUN	Air Line - 50 metre roll (or as necessary)

* Applies only to the system shown in the schematic and assumes a maximum of 8 operations per minute in total (each pair = 2 operations).

Type A - Auto Equalizers

REL.2610 Series -
Concealed (in Frame) Mounting

- Standard **REL.2610** series closer shipped with single lever (standard) arm, mounting/finish plate, standard track, track roller and wood & machine screw pack
- Sized cylinders **REL.2613** for interior doors to 965mm & **REL.2614** for interior doors to 1220mm and exterior (perimeter) doors to 914mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors.
- Requires additional system components. See pages 12 & 13 for specifications relating to ACC controllers and compressors
- Standard or optional custom powder coated finish - Optional plated finish on arm, fasteners, and mounting/finish plate



Series comprises models REL.2613 & REL.2614
(as **REL.2013** & **REL.2014** consult table of sizes & options - pages 50 - 52)

Concealed Mounting
For interior or exterior doors. Single acting cylinder in head frame.
Concealed arm and track in door top rail.

Maximum Opening
Butt hinge template allows 90° power opening and 160° manual opening.

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

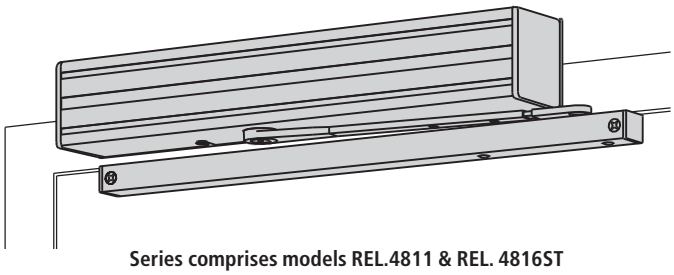
Head Frame minimum 102mm x 102mm for hollow metal or aluminium tube construction.

Top Rail 35 mm mortice required. 8 mm cut-out required at the top of the door, push side only.

Standard Finish - US28 powder coated silver.

UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **60 mins.**

REL.4810 Series -
Top Jamb (Pull Side) Mounting



Series comprises models REL.4811 & REL. 4816ST
(consult table of sizes & options - pages 50 - 52)

- Standard plate mounted **REL.4810** series closer shipped with single lever (standard) arm, metal cover, standard track, track roller and wood & machine screw pack
- Non-sized cylinders (**REL.4811**) for interior doors to 1220mm and exterior (perimeter) doors to 914mm (**except ST version - consult sales office**)
- Non-handed
- Requires additional system components. See pages 12 & 13 for specifications relating to ACC controllers and compressors
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners

Surface Mounting
For interior or exterior doors. Single acting cylinder on head frame.
Exposed arm and track on door top rail.

Maximum Opening
Butt hinge template allows 90° power opening and 170° manual opening.

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal should not exceed 3mm.

Head Frame minimum 55mm for mounting plate, requires 102mm clearance.

Top Rail minimum 32mm.

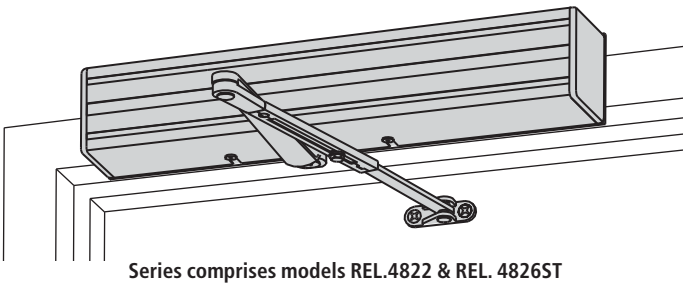
Standard Finish - US28 powder coated silver.

UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins.**

Type A - Auto Equalizers

REL.4820 Series -
Top Jamb (Push Side) Mounting

- Standard plate mounted **REL.4820** series closer shipped with regular arm, metal cover and wood & machine screw pack
- Non-sized cylinders (**REL.4822**) for interior doors to 1372mm and exterior (perimeter) doors to 1067mm (**except ST version - consult sales office**)
- Non-handed
- Requires additional system components. See pages 12 & 13 for specifications relating to ACC controllers and compressors
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



Series comprises models REL.4822 & REL. 4826ST
(consult table of sizes & options - pages 50 - 52)

Surface Mounting
For interior or exterior doors. Single acting cylinder on head frame.
Exposed regular arm to door top rail.

Maximum Opening
Butt hinge template allows 90° power opening and 100° manual opening.

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

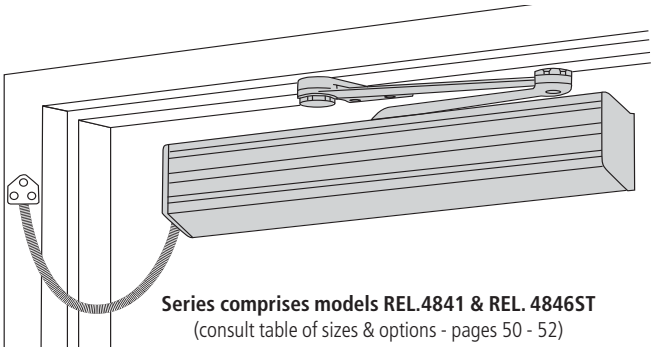
Head Frame minimum 44mm for mounting plate.
With flush ceiling use **REL.4820-18G** plate.

Top Rail minimum 44mm (76mm with **REL.4820-18G** plate).

Standard Finish - US28 powder coated silver.

UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins.**

REL.4840 Series -
Parallel Arm (Push Side) Mounting



Series comprises models REL.4841 & REL. 4846ST
(consult table of sizes & options - pages 50 - 52)

- Standard plate mounted **REL.4840** series closer shipped with **EXTRA DUTY** arm, metal cover and wood & machine screw pack
- Installation requires the transfer of air across the hinge line -use **REL.ARM** door loop or **REL.PNT-1** power transfer device (See page 13)
- Non-sized cylinders (**REL.4841**) for interior doors to 1372mm and exterior (perimeter) doors to 1067mm (**except ST version - consult sales office**)
- Non-handed
- Requires additional system components. See pages 12 & 13 for specifications relating to ACC controllers and compressors
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners

Surface Mounting
For interior or exterior doors. Single acting cylinder on push side face of door.
Exposed parallel arm to underside of reveal.

Maximum Opening
Butt hinge template allows 90° power opening and 105° manual opening (100° with Cush-N-Stop arm).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Head Frame (flush) requires PA shoe adaptor **REL.4840-418**
(as **REL.4110-418** - See page 38)

Top Rail minimum 105mm

Standard Finish - US28 powder coated silver.

Type A - Auto Equalizers - Compressors

Compressors - An Overview

All **Auto Equalizer** systems require a source of compressed air as their primary power source. Experience shows that a reliable supply of quiet compressed air is the best option. The Axis oil-lubricated range of compressors is the perfect choice. The noise level is as low as 45 dB(A) - far below the level of normal conversation. These quiet, vibration-free and reliable compressors have a compact design and are mounted easily adjacent to doors, out of sight in storage cupboards or in the ceiling void. Oil-lubricated piston compressors are supplied ready for use with a range of receiver sizes.

Compressors are available with various types of accessories, including trolleys, wall brackets and different filters for removal of oil and dirt particles as well as possible oil vapour and odours to improve the air quality.

Quiet Oil-Lubricated Compressors

Axis oil-lubricated piston compressors are not supplied with piston rings. Instead the tolerance between the piston and the cylinder has been reduced, minimizing the heat development and the energy loss.

The unique synthetic SJ-27 oil optimizes the lubrication of the compressor and is also used for cooling the motor. The oil minimizes the wear and tear of vital parts, prolonging their life and, at the same time, ensuring low maintenance costs.

The motor is mounted on springs inside the motor housing, which means that hardly any vibrations are imparted to the surroundings. Two noise reduction chambers on the intake side and two noise reduction chambers on the pressure side ensure absorption of the noise. The internal motor part is mounted in a closed motor housing, reducing the noise level even further.

The compressor is supplied with rubber feet, preventing vibrations from imparting to the mounting bolts and foundation. The noise level of the oil-lubricated compressor is as low as 45 dB(A) – below the noise level of a refrigerator. Oil-lubricated compressors may, therefore, be installed directly at the place of use.

Compressors and their Capacity

When setting up a compressor to work with an **Auto Equalizer** system it is recommended that it be set to deliver air at 82 psi since pressure in the tank will drop immediately the first door is switched. Once pressure in the tank drops by 2 psi replenishment is triggered giving a constant 80 psi for the duration of that series of operations. All Axis **REL.4000** series compressors perform at a 50/50 ratio. In other words they will happily keep the tank full (i.e. compressed air available for immediate use) for **up to 15 minutes** continuously but they must then rest for the equivalent period of time before resumption.

Where a compressor's workload falls outside these strict parameters it is necessary to upgrade the specification from the **REL.4000** series to the **REL.6000** series (not shown in this brochure) or greater depending upon the system's anticipated requirement. Simply adding additional tank capacity is not recommended.

The pressure of the oil-lubricated compressors is adjusted to 8 bar - with the unadjusted maximum pressure available being 16 bar.

Additional information – The rate of air displacement falls as the requirement for pressure increases. The displacement values given opposite are values at 0 psi. The relevant data is the capacity (or free air delivery) - that is the rate at which the reserve tank is replenished.
Larger compressors (for multiple door systems) are available to special order. Consult the sales office.

Compressors and their Location

All Axis supplied compressors include an automatic drain feature to exhaust condensation periodically from the pressure tank. When selecting compressor locations consideration should be given to the sound level, vibration, space requirements, condensation drainage, mounting, maintenance access and placement of air lines.

Provide adequate ventilation to avoid overheating the compressor. Compressors carry the compressor manufacturer's limited one year warranty. Contact Axis for details.

REL.4-4 Compressor

The model **REL.4-4** oil lubricated compressor is the standard offering for smaller systems where traffic levels are moderate - up to four operations per minute (See page 8).

Tank Size - 4 litres.

Displacement - 44 litres (1.55 cubic feet) per minute.

Max. Adjusted Pressure - 120 psi (8 bar).

Capacity (Free air delivery into tank)
@ 80 psi
= 30 litres/min. approx.

Dimensions - 325mm x 300mm x 295mm high.

Electrical - Voltage 230V, frequency 50Hz.

Max. Current - 1.75A.

Acoustical - 45 dB (A) at 1 metre.

CE

REL.4-25 Compressor

The model **REL.4-25** oil lubricated compressor is the upgraded offering for larger systems where traffic levels are moderate to high - up to eight operations per minute (See page 9).

Tank Size - 25 litres.

Displacement - 44 litres (1.55 cubic feet) per minute.

Max. Adjusted Pressure - 120 psi (8 bar).

Capacity (Free air delivery into tank)
@ 80 psi
= 30 litres/min. approx.

Dimensions - 380mm x 380mm x 542mm high.

Electrical - Voltage 230V, frequency 50Hz.

Max. Current - 1.75A.

CE

Acoustical - 45 dB (A) at 1 metre.

Important Note - Compressor size recommendations are based on normal useage. This is a function of the number of operators in the system.

Type A - Auto Equalizers - Controllers & Accessories

REL.ACC Controllers -
An Overview

Axis heavy duty, surface mounted controllers contain the requisite number of electrically controlled pneumatic circuits to suit the system to be controlled. For example, a two door system (i.e. two single doors or two pairs of doors) will contain two separately switched valves - regulating air flow to the doors.

Air filtration, pneumatic regulation and system timing is performed by the controller. Each pneumatic circuit can be adjusted for a hold open time, normally up to 30 seconds although this can be increased at order placement if required.

Pneumatic connections use standard push-in fittings and tubing leading from the compressor to the controller to the **Auto Equalizer** (see below). A package of push-in tee, Y and in-line connectors can be supplied with each controller to simplify installations. Consult Axis for details.

Locate the **REL.ACC** controllers accordingly to minimize the slight exhaust noise when doors close. Additional air line can be utilized to direct the exhaust away from the controller if necessary.

REL. ACC1 controllers accommodate one door or one pair of doors.

REL. ACC2 controllers accommodate two doors or two pairs of doors.

REL. ACC3 controllers accommodate three doors or three pairs of doors.

All **REL.ACC1, REL. ACC2** & **REL.ACC3** controllers incorporate 12Vdc 2 Amp power supplies and can power miscellaneous access control accessories used in **Auto Equalizer** systems.

Standard Features & Benefits

- **Continuously rated** – The output current is continuously drawn from the power supply under specified conditions
- **Voltage regulated to correct output for battery charging** – All power supplies will maintain an output voltage to within specified limits under varying conditions of input line and output load
- **Fire relay standard on all power supplies** – Electrically locked doors on escape routes will 'fail safe' in emergency situations
- **Output is current regulated** – If overloaded, output shuts down until cleared
- **Fused** – Protects batteries (if fitted) from overload
- **Metal enclosure with 20mm conduit knockouts** – For ease of installation

Custom built controllers can be designed to accommodate multiple door systems. There is no restriction on the number of doors within an **Auto Equalizer** system although it should be borne in mind that the compressor capacity must be chosen carefully to suit the necessary number of doors and expected traffic levels.

Auto Equalizers -
Air flow requirements

Axis compressors are capable of providing pressures up to 120 psi.

Axis controllers operate at between 80 psi minimum to 100 psi maximum.

Regulated air output, up to 80 psi, is required for **Auto Equalizers**.

Auto Equalizers require approximately 14 litres per minute airflow in heavy traffic situations (see also page 12).

REL.PNT-I
Pneumatic Power Transfer

Available for **REL.4840** series (door mounted) **Auto Equalizers**.

Important Note - Careful consideration should be given to the overall opening arc of the door and the offset of the pivot point. This device is not suitable for use with swing clear hinges or centre-hung pivots. If in doubt, please consult the sales office.

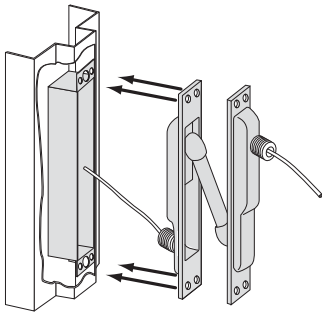
Correct Specification

REL.PNT-1 – Accommodates 6mm o/s diameter air line.

Housing – 229mm x 32mm x 38mm.

Standard Finishes -

SP28 – Sprayed Silver.
SP313 – Sprayed Dark Bronze.



REL. PUN.6XI.SI.50M
Pneumatic Air Line

Axis supplies highly flexible plastic tubing with all **Auto Equalizer** installations.

The compressor and controller will be provided with the necessary compatible connections to suit this air line.

Outside Diameter - 6mm.

Inside Diameter - 4mm.

Colour - Silver.

Length - 50 Metre Roll.

Type A - Electro-Mechanical Power Assisted Operator

REL.9130 and REL.9140 Series
An Overview

This Axis solution is a universal mains powered automatic door operator. When installed correctly with all necessary safety equipment **REL.9130** and **REL.9140** series operators are fully compliant with the requirements of the Equality Act.

The **REL.9130** and **REL.9140** series allow safe and easy access for all users and are designed primarily with slow moving traffic in mind - taking into account the needs of the disabled, wheelchair users, the elderly or infirm and those carrying heavy loads.

REL.9130

CE

This state-of-the art solution is suitable for interior and exterior doors. **REL.9130** and **REL.9140** operators are non-handed and suit both pull side and push side applications respectively.

The many standard features include a "push and go" facility and an automatic safety stop (or obstacle detection) mechanism, that is activated immediately if the door makes contact with an obstacle.

Additional features such as power boost, adjustable spring closing force and adjustable latching position facilitate precise door control in all conditions. Integral ports are provided for additional activation and sensor units. Accessories such as electric strikes, access control systems, electrified locks and card readers may be easily retro-fitted.

Standard Features and Benefits

- **Mains Power** - Requires no supplementary power source
- **Switchable Push and Go** - For automation without additional activation devices
- **Power Boost** - Ensuring positive latching
- **Adjustable Spring Closing Force** - To accommodate multi-site conditions
- **Safety Stop** - Providing built-in obstacle detection
- **Adjustable Latching Position** - For precise door control
- **Integral 'Ports'** - For additional activation and sensor units

Minimum door widths*	660mm (push) & 760mm (pull)
Maximum door width	1200mm
Maximum door weight	80 kilos
Opening system	Electromechanical
Closing system	Spring controlled
Opening speed	Adjustable
Closing speed	Adjustable
Hold open time	Up to 30 seconds
Power requirement	230/250V AC single phase 50/60Hz
Transformer output	24V ac/dc
Fire certification	120 minutes

***Door Widths**

Although this operator suits doors as narrow as 660mm it should be borne in mind that, in order to accommodate wheelchair access, the minimum effective clear width through a doorway (per BS 8300:2001 part 6.4.1) is 800mm (850mm preferred).

Mains Power & Other Connections

Power is fed directly to the back of the unit where hollow metal frames allow or, alternatively, via the cover end caps where the operator is fixed to a solid frame.

When using this operator with door mounted safety sensors, power transfer devices (either surface mounted or concealed) must be introduced (see Access Control Brochure).

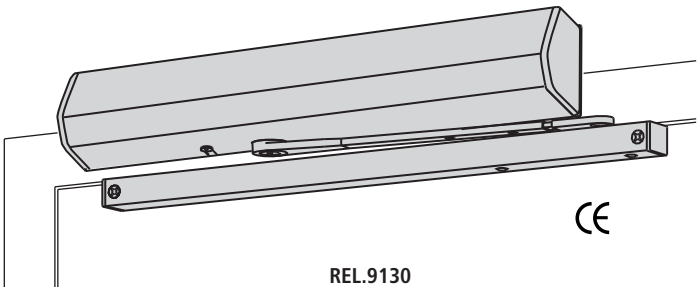
Type A - Electro-Mechanical Power Assisted Operator

REL.9130 Series -
Top Jamb (Pull Side) Mounting

The **REL.9130** operator is an electrically powered low-energy operator. It provides easy access for people with disabilities, the elderly or the frail. Designed primarily for automatic opening applications that occasionally require manual operation.

Complete with adjustable opening and closing speeds the microprocessor controller ensures reliability. This unit has been tested successfully to over three million cycles.

- The **REL.9130** series operator is shipped with motor gearbox, control box, mounting plate, standard arm, metal cover, standard track, track roller and wood & machine screw pack.
- For door widths from 760mm
- Single door, surface mounted
- On/Off switch included as standard
- Non-handed
- A 686mm single cover is standard. Full length covers are available up to 1245mm for single doors.



REL.9130
(consult table of sizes & options - page 14)

Surface Mounting
For interior or exterior doors. Single acting operator on head frame.
Exposed arm and track to door top rail.

Maximum Opening
Butt hinge template allows 90° power opening and 90° manual opening.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal should not exceed 3mm.

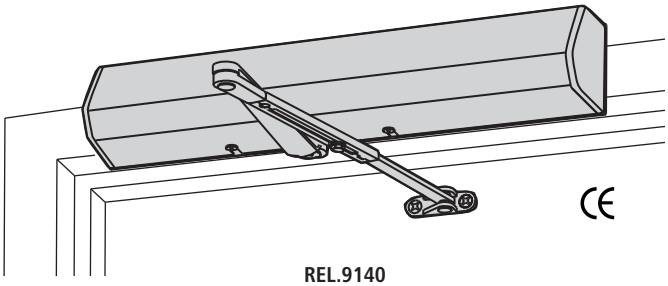
Head Frame minimum 51mm for mounting plate, requires 102mm clearance.

Top Rail minimum 51mm.

Opening and Closing Times are variable by adjustments to the control module located on the operator assembly. The maximum hold open time is adjustable up to approximately 30 seconds.

Standard Finish - US28 powder coated silver.

REL.9140 Series -
Top Jamb (Push Side) Mounting



REL.9140
(consult table of sizes & options - page 14)

The **REL.9140** operator is an electrically powered low-energy operator. It provides easy access for people with disabilities, the elderly or the frail. Designed primarily for automatic opening applications that occasionally require manual operation.

Complete with adjustable opening and closing speeds the microprocessor controller ensures reliability. This unit has been tested successfully to over three million cycles.

- The **REL.9140** series operator is shipped with motor gearbox, control box, mounting plate, regular arm, metal cover and wood & machine screw pack.
- For door widths from 660mm
- Single door, surface mounted
- On/Off switch included as standard
- Non-handed
- A 686mm single cover is standard. Full length covers are available up to 1245mm for single doors.

Surface Mounting
For interior or exterior doors. Single acting operator on head frame.
Exposed regular arm to door top rail.

Maximum Opening
Butt hinge template allows 90° power opening and 90° manual opening.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal should not exceed 152mm for reg. arm & 248mm for long arm.

Head Frame minimum 51mm for fixings.

Top Rail minimum 51mm (flush ceiling installation requires 133mm minimum).

Opening and Closing Times are variable by adjustments to the control module located on the operator assembly. The maximum hold open time is adjustable up to approximately 30 seconds.

Standard Finish - US28 powder coated silver.

Type A - Motor Driven Operator

REL.1001 and REL.1002 Series - An Overview

This unit is a compact, self-contained, all electric door operator able to interface with any switching device or building management system. The operator is motor driven through both opening and closing cycles and is provided with an 'on-board' battery back-up pack as standard.

REL.1001 and **REL.1002** series operators are an economic alternative to other systems described in this brochure and, when installed correctly with all necessary safety equipment, are fully compliant with the requirements of the Equality Act.

REL.1001 and **REL.1002** series operators are designed to accommodate one way and two way traffic flow for low energy or powered doors (with full safety) as necessary. The operator body is universal, fitting both pull and push side applications of either hand. The variance lies in the choice of operating arm configuration.

REL.1001

This state-of-the art solution is suitable for interior and exterior doors. **REL.1001** and **REL.1002** operators are non-handed and suit both pull and push side applications respectively.

The many standard features include a "push and go" facility and an automatic safety stop (or obstacle detection) mechanism, that is activated immediately if the door makes contact with an obstacle.

REL.1002

All commands are performed directly and positively via intelligent microprocessor control with none of the delays associated with some other mechanisms. The all electric operation simplifies installation via a single mains connection. Integral ports are provided for additional activation and sensor units. Accessories such as electric strikes, access control systems, electrified locks and card readers may be easily retro-fitted.

Standard Features & Benefits

- **Mains Power** - Requires no supplementary power source
- **Switchable Push and Go** - For automation without additional activation devices
- **Safety Stop** - Providing built-in obstacle detection
- **Integral 'Ports'** - For additional activation and sensor units
- **Master & Slave Setting** - Ensures sequenced opening and closing on pairs of doors
- **Battery Back-Up** - Standard pack allows up to 10 full cycle operations in the event of a mains power failure

Minimum door widths*	580mm (push) & 700mm (pull)
Maximum door width	1200mm (max. weight 150kilos)
Maximum door weight	250 kilos (max. width 800mm)
Opening system	Reversible 24V gear motor
Closing system	Reversible 24V gear motor
Opening speed	Adjustable
Closing speed	Adjustable
Hold open time	Up to 16 seconds**
Power requirement	230V AC single phase 50/60Hz
Transformer output	24V ac/dc
Fire certification	Not for use on fire doors

***Door Widths**

Although this operator suits doors as narrow as 580mm it should be borne in mind that, in order to accommodate wheelchair access, the minimum effective clear width through a doorway (per BS 8300:2001 part 6.4.1) is 800mm (850mm preferred).

Mains Power & Other Connections

Power is fed directly to the back of the unit where hollow metal frames allow or, alternatively, via the cover end caps where the operator is fixed to a solid frame.

When using this operator with door mounted safety sensors, power transfer devices (either surface mounted or concealed) must be introduced (see Access Control Brochure).

Important Note

Since the mains powered motor drives the operator through both opening and closing cycles this solution is best suited to doors where automation is a pre-requisite. Manual (non-switched) operation (although possible) is not recommended since the door will move only against resistance from the motor.

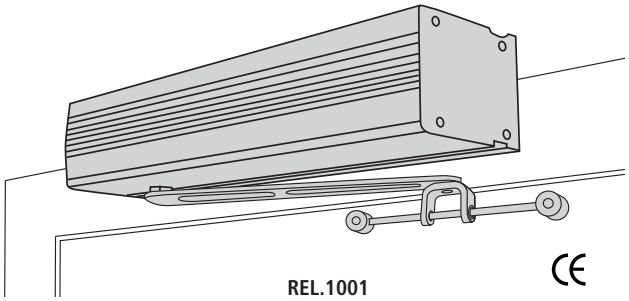
Type A - Motor Driven Operator

REL.1001 Series -
Top Jamb (Pull Side) Mounting

The **REL.1001** operator is an electrically powered low-energy operator. It provides easy access for people with disabilities, the elderly or the frail. Designed for doors where automated opening is available by default for all users.

Complete with adjustable opening and closing speeds the microprocessor controller ensures reliability. This unit is designed for medium to low traffic situations.

- The **REL.1001** series operator is shipped with motor gearbox, control board, mounting plate, standard arm, metal cover, standard track and screw pack.
- Single door, surface mounted
- Non-handed
- A 580mm single cover is standard. Full length single and double covers are available and can be custom built to order



REL.1001
(consult table of sizes & options - page 16)

Surface Mounting
For interior or exterior doors. Single acting operator on head frame.
Exposed arm and track to door top rail.

Maximum Opening
Pull side (slide arm) - Maximum opening 180° (120° recommended).

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal not permissible, otherwise packers will be required for the track.

Head Frame minimum 145mm.

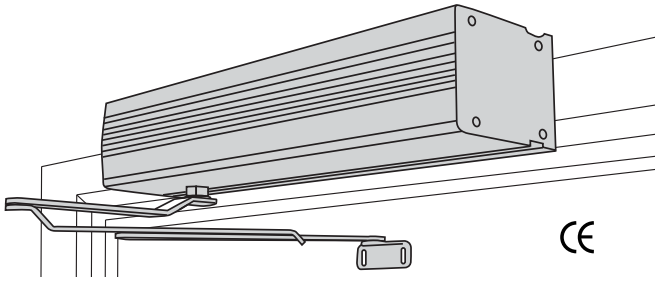
Top Rail minimum 60mm.

Opening and Closing Times are variable by adjustments to the control module located on the operator assembly. The maximum hold open time is adjustable up to approximately 16 seconds** without additional time delay.

Hold open time can be extended with the introduction of **REL.TD12/REL.TD24 (See page 21).

Standard Finish - US28 powder coated silver.

REL.1002 Series -
Top Jamb (Push Side) Mounting



REL.1002
(consult table of sizes & options - page 16)

The **REL.1002** operator is an electrically powered low-energy operator. It provides easy access for people with disabilities, the elderly or the frail. Designed for doors where automated opening is available by default for all users.

Complete with adjustable opening and closing speeds the microprocessor controller ensures reliability. This unit is designed for medium to low traffic situations.

- The **REL.1002** series operator is shipped with motor gearbox, control board, mounting plate, standard arm, metal cover and screw pack.
- Single door, surface mounted
- Non-handed
- A 580mm single cover is standard. Full length single and double covers are available and can be custom built to order

Surface Mounting
For interior or exterior doors. Single acting operator on head frame.
Exposed regular arm to door top rail.

Maximum Opening
Push side (regular arm) - Maximum opening 180° (120° recommended).

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal must not exceed 350mm for a maximum 120° opening angle and 50mm for a maximum 180° opening angle.

Head Frame minimum 140mm.

Top Rail minimum 75mm.

Opening and Closing Times are variable by adjustments to the control module located on the operator assembly. The maximum hold open time is adjustable up to approximately 16 seconds** without additional time delay.

Hold open time can be extended with the introduction of **REL.TD12/REL.TD24 (See page 21).

Standard Finish - US28 powder coated silver.

Type A - Activation Controls and Accessories

Activation Controls -
Basic Principles

An activation control is used to switch an automatic door operator. The correct choice of control is critical since this will dictate how well the automated entrance works. The choice of switching method will regulate traffic flow and prescribe how and by whom the door is used. Your choice may also dictate whether the automated doors are classed as Low Energy Swing Doors or Powered Doors.

...How to Make the Correct Choice

Initially the choice is two-fold between automatic activation and manual activation. Consideration should be given to the following:

- Traffic flow or density
- Traffic profile

High traffic situations, found in public or commercial buildings, require frequent unhindered switching of doors via microwave motion sensors (or detectors).

Low traffic situations, usually residential applications or automated doors specifically designed for the exclusive use of those requiring automated access, can be controlled manually using actuators (or push pads).

In summary:

- **High traffic – Powered doors**
  Switched automatically via Microwave Motion Sensors or Proximity Sensors such as Contact Mats
- **Low traffic – Low energy swing doors**
  Switched manually via Actuators (Push Pads) or Hand Held Fobs*

- **Access control – Low energy swing doors**
  Switched manually via Card Swipe*, Proximity Tag*, Coded Entry* or Remote Control*.

*see Access Control Brochure.

REL.MMS.ONE
Microwave Motion Sensor

REL.MMS.ONE 'active' microwave motion sensors will detect a moving object or person and have the advantage over 'passive' infra-red sensors since they can detect and distinguish between a wide range of motion patterns.

The sensor emits microwaves that are reflected back from moving objects. The resultant shift in the frequency of the wave being proportionate to the speed of the object detected. This shift in frequency is the signal instructing the sensor to switch the operator and open the door.

General & Technical Characteristics

The **REL.MMS.ONE** can be set as a uni-directional sensor (default mode) or as an optional bi-directional sensor.

Uni-directional sensors will detect motion in one direction only, i.e. towards the sensor. Bi-directional sensors will detect motion both towards and away from the sensor.

- **Technology** - Microwave & microprocessor
- **Frequency emitted** - 24.175 GHz
- **Mounting height** - 4 metres maximum
- **Tilt angles** - 0° to 90° vertical and -30° to 30° lateral
- **Detection mode** - Motion
- **Min. detection speed** - 5cm per second
- **Supply voltage** - 12 to 24V ac/dc
  Usually supplied by the operator with no additional power source required
- **Temperature range** - Minus 20°C to plus 55°C
- **Materials** - High impact ABS plastic
- **Protection** - IP54

Optional Accessories

REL.FCA - False Ceiling Adaptor.

REL.FRA - Rain Cover.

REL.FBA - Alternative Fixing Bracket.

REL.FCA

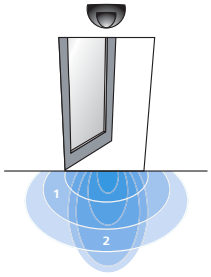
Type A - Activation Controls and Accessories

REL.MMS.ONE -
Mechanical & Remote Configuration

Sensing Field Adjustment

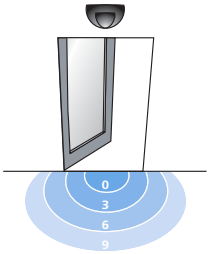
When specifying automatic activation controls it is important to understand the directional flow of the traffic around the door. This should not only include those wishing to use to the door but also those passing in close proximity to the door without wishing to traverse the entrance.

The sensitivity, orientation and shape of the sensing fields are adjustable directly at the sensor with various additional features (including sensitivity) adjustable via the infra-red remote control.



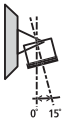
Each sensor is supplied with two planar antennae. The sensing field variations shown here reflect the capabilities of each antenna so far as the potential width of the sensing field is concerned.

1: Wide field, standard antenna.
2: Narrow field, optional antenna.

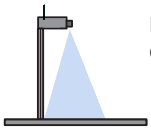


The size of the sensing field is determined by the sensitivity setting (0-9), vertical angle of the antenna and the mounting height.

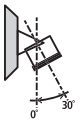
The position of the sensing field is determined by the vertical angle of the chosen antenna.



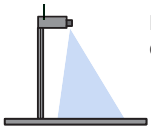
To obtain a sensing field as close to the door as possible, set the antenna at its minimum tilt angle (0° to 15°).



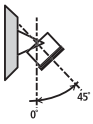
Example of deep-field operator application.



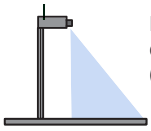
To obtain a sensing field close to the door set the antenna at a tilt angle of 30°.



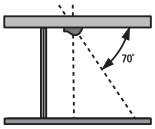
Example of standard operator application.



To obtain a sensing field distant from the door set the antenna at a tilt angle of 45°.



Example of standard operator application (with dead zone)



The **REL.MMS.ONE** may be fixed to the ceiling as shown here or via the false ceiling adaptor with an angular setting of around 70° for the antenna.

REL.SLR4 Low Profile -
Wireless Radio Controlled Actuators

Manual Activation -
Actuators (Push Pads)

We offer low profile surface mounted actuators with an integrated transmitter primarily for manually switched automated entrances. These switches can be incorporated into any automated or access control system where larger, easily operable switches are required.

Correct Specification

For manual activation (single or double doors) specify **REL.SLR4** actuators and accessories as follows:

REL.SLR4.PTO – Actuator & Transmitter (Push To Open).

Optional Engraving

Actuators can be supplied with a number of standard engraved designs.

REL.SLR4.BLANK – No engraving.

REL.SLR4.PTE – Push to Exit (blue infill).

REL.SLR4.WC – Wheelchair Symbol (blue infill).

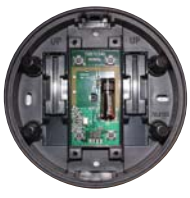
All engraved designs including those incorporating the wheelchair symbol are blue infill.

REL.EAS – RF Receiver.

This receiver has a maximum detection distance of 25m (open field). The maximum number of programmable transmitter buttons per receiver is 100.

General & Technical Characteristics

- **Max voltage at the contacts** - 250V ac
- **Max current at the contacts** - 6A dc - 15A ac
- **Output contacts** - Dry contacts (NO,NC, COM)
- **Switch plate and housing**- Stainless steel and ABS
- **Temperature range** - Minus 30°C to plus 55°C
- **Protection**- IP52 (housing)
- **Typical operating force** - 0.45kg
- **Size** - 130mm dia. x 36mm projection
- **Battery** - 12V, type A23



Type A - Safety

An Overview

Provision should be made to protect users occupying the swept area on all automated swing door applications. Safety devices take many forms and careful consideration must be given to their inclusion in the design of any system. A hazard analysis and risk assessment will determine the extent to which these products are used.

Potential hazards include traffic being struck and/or trapped by doors during both the opening and closing cycles, tripping hazards, congestion and other hazards such as a lack of supervision.

At Powered Doors

Signage is of particular importance and requirements vary between doors designed for uni-directional and bi-directional traffic.

Finger guards overcome potential finger traps created at the heel of the door on both the pull side and the push side.

Presence sensing devices are a necessary part of any powered door installation and can be set to interrupt a door's movement at any point during both the opening and closing cycle.

Barriers should be included along the line of the door leaf in its open position where doors can be approached from the side.

Refer to BS 7036 part 3: 1996 for definitive guidance on safety at powered doors including **Means of Escape** and **Break-out** facilities.

At Low-Energy Doors

Opening and closing speeds on low energy swing door installations are, by definition, adjusted so that the kinetic energy of the door does not exceed the safe maximum (See page 7). This means that of the areas mentioned in the section above (**Powered Doors**) presence sensors and barriers may be considered as an optional resource. All other items should be included.

Refer to BS 7036 part 4: 1996 for definitive guidance on safety at low energy swing doors including **Means of Escape.**

Signage

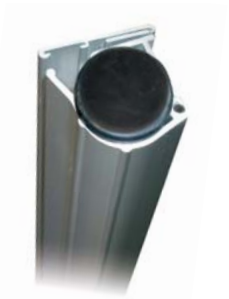
Various signs are recommended for use in different situations.
These include 'Keep Clear' signs for use at powered doors, 'Direction of Travel', 'Emergency Break-Out' and 'Automatic Door' signs amongst others.
Details of their design and required placement can be found in BS 7036 part 1: 1996.

We can supply signs and will include 2 off (as shown) per operator. If additional signs are required we suggest a specialist signage supplier is used.

REL.2000.FG Finger Guard
(Push Side Only)

The **REL.2000.FG** incorporates a flexible blind preventing fingers entering the gap between the heel of the door & the frame when the door is open.

The flexible blind is retained within the housing and is exposed only when the door is ajar. Supplied in finished lengths of 1950mm the installation can be cut to suit a desired length where required.



Please be aware that doors incorporating the **REL.2000.FG** are restricted in their opening angle to a maximum of 135° and the operator should be set accordingly.

Correct Specification

REL.2000.FG - Finger Guard @ 1950mm.

Door Thickness - 44mm & 54mm (please specify).

Finishes

US28 - Satin Anodized Aluminium Housing (White PVC).

Type A - Safety

REL.SS.ONE & REL.SS.TWO -
Infra-Red Safety (or Presence) Sensors

Active infra-red safety (or presence) sensors provide high performance safety for automated swing doors. All powered door systems should include safety sensors as should low energy systems where traffic profiles dictate.

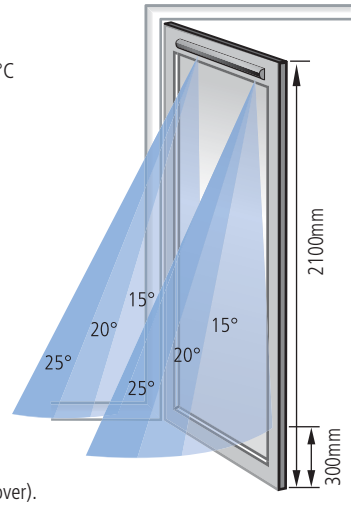
This high performance 'modular' safety sensor system is fixed to both sides of the door (at the top) and protects users at both sides during the opening and closing cycles.

Sensors will detect stationary and moving objects within their sensing field and will send a signal to the automatic door operator. This signal is used normally to reverse the swing of the door. The precise order of events is dictated by the operator itself and many variants can be set.

General & Technical Characteristics

The **REL.SS.ONE** & **REL.SS.TWO** provide perfect safety for swing door applications with an additional safety zone forward of the leading edge of the door.

- **Technology** - Active Infra-Red
- **Detection range** - 700mm to 2500mm adjustable
- **Tilt angles** - 0° to 25° in 5° increments
- **Detection mode** - Presence (& Motion)
- **Response time** - <50 ms
- **Supply voltage** - 12 to 24V ac/dc
  Usually supplied by the operator with no additional power source required - All installations require a power transfer device
  (see Access Control Brochure - page 27)
- **Temperature range** - Minus 20°C to plus 50°C
- **Materials** - Aluminium, ABS & Plexiglas
- **Protection** - IP52



Correct Specification

For all round safety at both sides of the door specify:

REL.SS.ONE - Sensor (Push Side).

REL.SS.TWO - Sensor (Pull Side).

Standard Finish -

US28 - Satin Anodized Aluminium Housing (Black Cover).

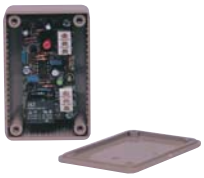
REL.TD12 & REL.TD24 Time Delay
Coping with Locked Doors

Locked doors require a time delay feature incorporated into the system and these are usually housed in the locks' power supply enclosure.

The **REL.TD** Time Delay is a miniature timer that functions to extend momentary switch closures (NO) by up to 45 seconds via a potentiometer.

Application

Timers of this nature are often referred to as 'Off Delay' timers and are used to ensure that enough time is available for a 'secondary' operation to take place while power is removed from an electrified lock. This 'secondary' operation is usually the movement of the door away from its closed (and locked) position.



Correct Specification

REL.TD12 – Time Delay 0-45 Seconds 12Vdc.
REL.TD24 – Time Delay 0-45 Seconds 24Vdc.

For **Auto Equalizer** systems the timer will be housed in the **REL.ACC** enclosure along with a power supply module to power the electrified lock (See page 13).

Note - The time delay principle applies to all automatic operator systems featured in this brochure.

REL.KS Key Switches
System & Actuator Override

Where zonal timers are not used (see Access Control Brochure - page 25) entire systems may be switched via manual operation such as a key switch. The key switch is supplied in 'Alternate' mode and controls power to the system's actuators whether they be microwave motion sensors or wall mounted switches.

Correct Specification

REL.KS-1.A – Alternate Contact.

Operation – Key switch with NO & NC contacts.

Switch Rating – 5 Amps @ 12Vdc/24Vdc.

Cylinder – Round screw-in mortice cylinder.

Default – Double gang (flush mount only).

Type B - Fire & Life Safety Products

Fire & Life Safety Door Control - An Introduction

Automatic detection and containment of fire and smoke is the best way to protect life and property in both commercial and residential type dwellings. Buildings are compartmentalized in order to stop the spread of fire and will include fire doors in corridors and at many other locations.

Fire doors can be an effective solution only when they are closed. However, on occasions, a closed door can become an encumbrance impeding the normal flow of traffic. Where this situation occurs, for example in an hospital corridor, it becomes desirable to open a door back against the corridor wall and hold it there permanently - a potentially dangerous situation if not properly controlled.

The Sentronic System

The door controls in this section offer an adjustable, single point, hold open function controlled electro-magnetically via a solenoid assembly in the door closer track. Upon receiving a signal from the fire alarm system, the door is released and will close in a controlled manner.

Since all of the solutions listed in this section use a conventional overhead door closer cylinder as an integral part of their design all products can be used as conventional closers without detriment to the fail safe mechanism once engaged.

REL.PS07 Transformer

The **REL.PS07** transformer is manufactured by Axis specifically for use with low voltage electromagnetic hold open door closers. Special transformers with higher ratings can be manufactured to meet applications where large numbers of door closers are used within close proximity of each other.

This transformer can be used also with any manufacturers' electrified locks and accessories so long as the rating and operational expectations are checked carefully.

Please contact the sales office to discuss available options.

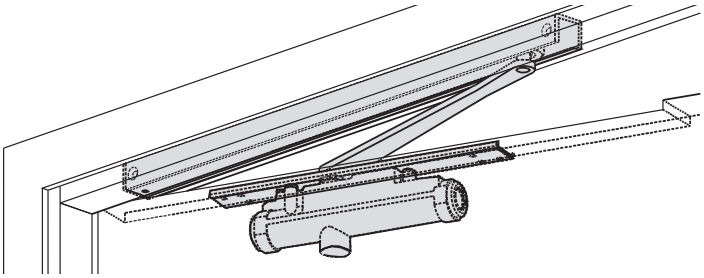
Application

The **REL.PS07** transformer is designed to meet the requirements of installations where fire and life safety is essential. Each transformer includes a fire alarm relay as standard. This is designed to take a signal from the fire alarm system; releasing the doors from their normal 'hold open' position allowing the doors to close and form the necessary fire compartmentation barrier.

Electrical Specification

220-230 Volts AC	– 50 Hertz mains input
Mains Input Fuse	– 0.5A H
AC Output	– 24 Volts
Continuous Output Current	– 1.0 Amp RMS
Maximum Output Current	– 1.25 Amps
Fire Relay	– Voltage Free

REL.3130SE Series - Concealed in Door Mounting



Series comprises models REL.3133SE & REL.3134SE
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.3130SE** series closer shipped with a standard arm, 24V SE track, track roller and wood & machine screw pack
- Sized cylinders **REL.3133** for interior doors to 965mm & **REL.3134** for interior doors to 1220mm
- Functions as a full rack & pinion door closer when the hold open is not engaged or when the current is interrupted
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- Requires additional system components. See this page for specifications relating to the **REL.PS07** transformer
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners

Concealed Mounting
For interior fire and smoke barrier doors. Single acting cylinder in door top rail. Concealed arm and track in head frame.

Maximum Opening
Butt hinge template allows 110° with hold open points between 85° and 110° at approximately 3° increments. Optional SEL special long arm and track allow hold open points at 110°, 120° and 130°.

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended at the hold open point.

Top Rail minimum 102mm.

Door Thickness minimum 45mm - but check with the door manufacturer to ensure integrity is maintained.

Door Width minimum 711mm for standard SE solution.

Standard Finish - US28 powder coated silver.

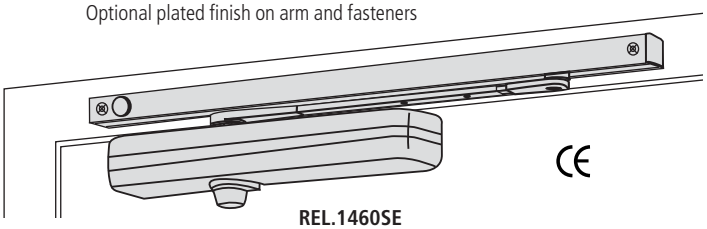
US Fire Certification only.
UL Listed for labelled fire doors.

Type B - Fire & Life Safety Products

REL.1460SE Series - Standard Duty Universal Mounting

REL.1460SE -
Hinge (Pull Side) Mounting

- Standard **REL.1460SE** series closer shipped with a standard arm, plastic cover, 24V SE track, track roller and wood & machine screw pack
- Non-sized cylinders **(REL.1461)** for interior doors to 1220mm
- Adjustable hold open force
- Momentary on/off switch board assembly for testing
- Functions as a full rack & pinion door closer when the hold open is not engaged or when the current is interrupted
- Non-handed
- Requires additional system components. See opposite page for specifications relating to the **REL.PS07** transformer
- Universal Sentronic track offers concealed or surface wiring
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



REL.1460SE
(consult table of sizes & options - pages 50 - 52)

Surface Mounting
For interior fire and smoke barrier doors. Single acting cylinder on door top rail. Exposed arm and track to head frame.

Maximum Opening
Butt hinge template allows 110° with hold open points between 85° and 110° at approximately 3° increments. Optional SEL special long track allows hold open points to 120°.

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Reveal should not exceed 3mm for standard arm.

Head Frame minimum 51mm.

Top Rail minimum 64mm (38mm with **REL.1460SE-18** plate).

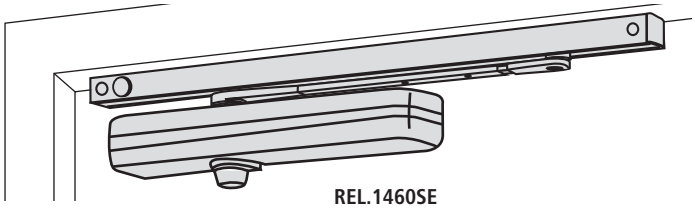
Door Width minimum 711mm for standard SE solution.

Clearance minimum 60mm behind the door for 90° installation.

Standard Finish - US28 powder coated silver.

UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins.** **BS EN 1154:1997**
CE Certification applies to this application only.

REL.1460SE -
Stop Face (Push Side) Mounting



REL.1460SE
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.1460SE** series closer shipped with a standard arm, plastic cover, 24V SE track, track roller and wood & machine screw pack
- Non-sized cylinders **(REL.1461)** for interior doors to 1220mm
- Adjustable hold open force
- Momentary on/off switch board assembly for testing
- Functions as a full rack & pinion door closer when the hold open is not engaged or when the current is interrupted
- Non-handed
- Requires additional system components. See opposite page for specifications relating to the **REL.PS07** transformer
- Universal Sentronic track offers concealed or surface wiring
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners

Surface Mounting
For interior fire and smoke barrier doors. Single acting cylinder on door top rail. Exposed arm and track to head frame.

Maximum Opening
Butt hinge template allows 110° with hold open points between 85° and 110° at approximately 3° increments. Optional SEL special long track allows hold open points to 120°.

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended at the hold open point- applies to both applications.

Top Rail minimum 102mm (38mm from stop face with **REL.1460SE-18PA** plate)

Stop Width minimum 32mm for track installation.

Door Width minimum 711mm for standard SE solution.

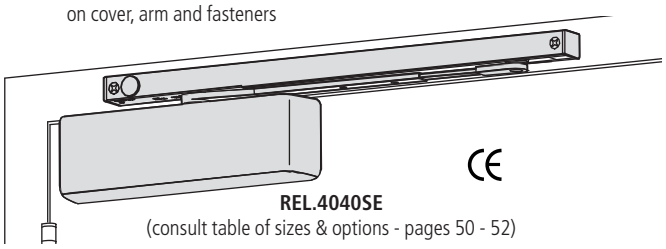
Standard Finish - US28 powder coated silver.

Type B - Fire & Life Safety Products

REL.4040SE Series - Heavy Duty Universal Mounting

REL.4040SE - Hinge (Pull Side) Mounting

- Standard **REL.4040SE** series closer shipped with a standard arm, plastic cover, 24V SE track, track roller and wood & machine screw pack
- Non-sized cylinders **(REL.4041)** for interior doors to 1220mm
- Adjustable hold open force
- Momentary on/off switch board assembly for testing
- Functions as a full rack & pinion door closer when the hold open is not engaged or when the current is interrupted
- Non-handed
- Requires additional system components. See page 22 for specifications relating to the **REL.PS07** transformer
- Universal Sentronic track offers concealed or surface wiring
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners



REL.4040SE
(consult table of sizes & options - pages 50 - 52)

Surface Mounting
For interior fire and smoke barrier doors. Single acting cylinder on door top rail. Exposed arm and track to head frame.

Maximum Opening
Butt hinge template allows 110° with hold open points between 85° and 110° at approximately 3° increments. Optional SEL special long track allows hold open points between 90° and 120° in approximately 3° increments.

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended at the hold open point - applies to both applications.

Reveal should not exceed 3mm for standard arm.

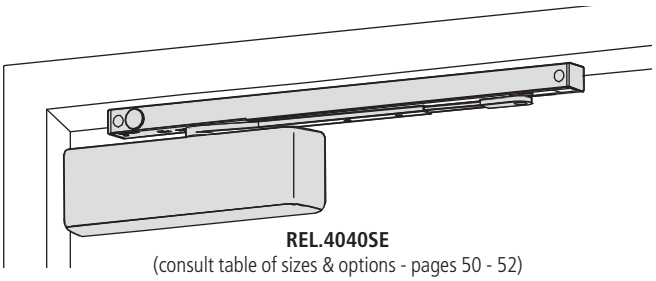
Head Frame minimum 51mm.

Top Rail minimum 89mm (44mm with **REL.4040SE-18** plate).

Door Width minimum 711mm for standard SE solution.

Clearance minimum 60mm behind the door for 90° installation.

REL.4040SE - Stop Face (Push Side) Mounting



REL.4040SE
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.4040SE** series closer shipped with a standard arm, plastic cover, 24V SE track, track roller and wood & machine screw pack
- Non-sized cylinders **(REL.4041)** for interior doors to 1220mm
- Adjustable hold open force
- Momentary on/off switch board assembly for testing
- Functions as a full rack & pinion door closer when the hold open is not engaged or when the current is interrupted
- Non-handed
- Requires additional system components. See page 22 for specifications relating to the **REL.PS07** transformer
- Universal Sentronic track offers concealed or surface wiring
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners

Surface Mounting
For interior fire and smoke barrier doors. Single acting cylinder on door top rail. Exposed arm and track to head frame.

Maximum Opening
Butt hinge template allows 110° with hold open points between 85° and 110° at approximately 3° increments. Optional SEL special long track allows hold open points between 90° and 120° in approximately 3° increments.

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Top Rail minimum 146mm (51mm from stop face with **REL.4040SE-18PA** plate).

Stop Width minimum 32mm for track installation.

Door Width minimum 711mm for standard SE solution.

Standard Finish - US28 powder coated silver (both applications).

UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins. BS EN 1154:1997**
CE Certification applies to Hinge (Pull Side) Mounting Only.

Type C - Heavy Duty Mechanical Door Controls

REL.4000 Series - 'Smoothee' & 'Super Smoothee'
Heavy Duty Mechanical Door Controls

An Introduction

More than any other, the **REL.4000** series heavy duty closer cylinder is the mechanism upon which our reputation is built. Closers incorporating this cylinder are controlling doors in many of the worst possible situations worldwide and they do so for incredible numbers of operating cycles without maintenance or adjustment. This continuing unsurpassed performance in real world situations demonstrates the excellence of the engineering far more conclusively than even the almost incredible results of the recently updated, independently monitored, **10 million** full load cycles test.

REL.4000 Smoothee - No Compromises

The **REL.4000** series 'Smoothee' has three separate 'application specific' designs employing the regular arm configuration -

- **REL.4010** Hinge (Pull Side) Mounting - Fig. 1
- **REL.4020** Top Jamb (Push Side) Mounting - Fig. 61
- **REL.4110** Stop Face (Push Side) Mounting - Fig. 6

Fig. 1

Fig. 6

Additionally, different models are used for the aesthetically more pleasing but less efficient track arm units. Each model (both regular and track arm) is designed specifically to do the job for which it was intended. There are no design compromises and the result is what we believe to be the best door closer in the world.

REL.4010T

All application specific designs require an additional amount of specification work since the mounting position and hand of the door must be agreed. The reward for this small amount of additional preparation work will be years of trouble free and maintenance free perfection.

REL.4000 Super Smoothee - A Specifier's Delight

The **REL.4000** series 'Super Smoothee' meets stockists requirements since it is a fully universal solution Because of its versatile design it will suit both left and right hand doors, in any of three mounting positions.

- **REL.4041** Hinge (Pull Side) Mounting - Fig. 1
- **REL.4041** Top Jamb (Push Side) Mounting - Fig. 61
- **REL.4041P** Stop Face (Push Side) Mounting - Fig. 6

Fig. 61

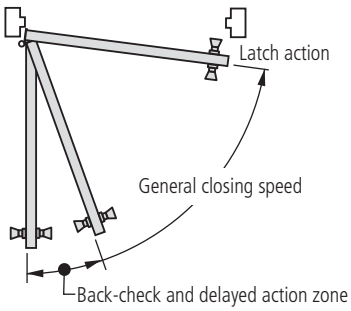
'Super Smoothees' incorporate the same high level of fine tuning adjustment as the 'Smoothee' range. Spring power strength can be set to suit the door size and conditions. The **REL.4041** cylinder is adjustable through sizes 1 to 6.

Additionally, a different model is used for the aesthetically more pleasing but less efficient track arm units.

REL.4041T

'Smoothee' & 'Super Smoothee' - Controls & Adjustments

All models, both 'Smoothee' and 'Super Smoothee' have full hydraulic, rack and pinion action with spring power adjustment and all have three hydraulic controls for **latch action, general closing speed and back-check**. Each hydraulic control is totally independent and adjusting one will not affect another.



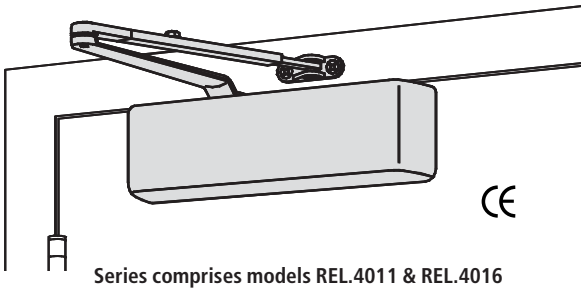
The non-critical nature of the adjustment of the valves means that several complete turns of the hex key are necessary for the full range of adjustment.

Delayed closing action is an optional feature available on all **REL.4000** Series 'Smoothee' and 'Super Smoothee' closers (except size 6 versions).

Type C - Heavy Duty Mechanical Door Controls

REL.4010 Series -
Hinge (Pull Side) Mounting

- Standard **REL.4010** series closer shipped with regular arm, plastic cover and wood & machine screw pack
- Non-sized cylinders **(REL.4011)** for interior doors to 1372mm and exterior (perimeter) doors to 1067mm
- Sized cylinders **(REL.4016)** for interior doors to 1524mm and exterior (perimeter) doors to 1220mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners



Series comprises models REL.4011 & REL.4016
(consult table of sizes & options - pages 50 - 52)

Surface Mounting
For interior or exterior doors. Single acting cylinder on door top rail. Exposed regular arm to head frame.

Maximum Opening
Butt hinge template allows 140° with hold open points available to this point with optional hold open arm (See page 38).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal should not exceed 19mm for standard arm.

Top Rail minimum 95mm (51mm with **REL.4010-18** plate).

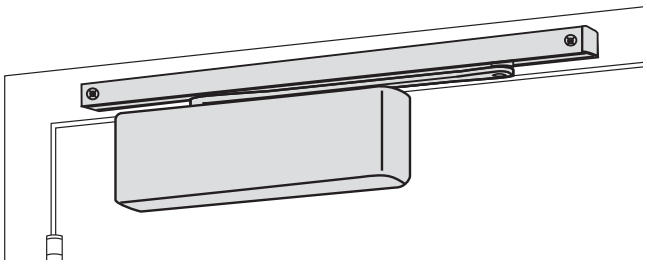
Clearance minimum 60mm behind the door for 90° installation.

Delayed Action add suffix **DEL** to the selected closer.
Not available on **REL.4016**. Delays closing from maximum opening down to 70° - adjustable up to 60 seconds.

Standard Finish - US28 powder coated silver.

BS EN 1154:1997 (this application only).

REL.4010T Series -
Hinge (Pull Side) Mounting



Series comprises models REL.4013T & REL.4014T
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.4010T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Sized cylinders **REL.4013** for interior doors to 965mm & **REL.4014** for interior doors only to 1220mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners

Surface Mounting
For interior doors. Single acting cylinder on door top rail. Exposed arm and track to head frame.

Maximum Opening
Butt hinge template allows 180° with standard track arm, limited to 120° when optional bumper is installed (See page 33).

Hold Open Points 90°, 95°, 100°, 105°, 110° & 120° dictated by the hold open clip location in the track. **HO Clip** is optional (See page 33).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal should not exceed 3mm for standard arm.

Top Rail minimum 95mm (51mm with **REL.4010T-18** plate).

Head Frame minimum 38mm .

Clearance minimum 60mm behind the door for 90° installation.

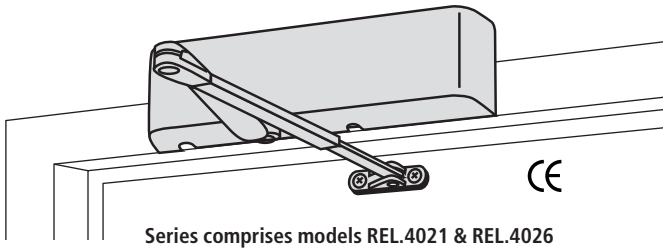
Standard Finish - US28 powder coated silver.

UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins.**
Certification applies to both applications.

Type C - Heavy Duty Mechanical Door Controls

REL.4020 Series -
Top Jamb (Push Side) Mounting

- Standard **REL.4020** series closer shipped with regular arm, plastic cover and wood & machine screw pack
- Non-sized cylinders **(REL.4021)** for interior doors to 1372mm and exterior (perimeter) doors to 1067mm
- Sized cylinders **(REL.4026)** for interior doors to 1524mm and exterior (perimeter) doors to 1220mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners



Series comprises models REL.4021 & REL.4026
(consult table of sizes & options - pages 50 - 52)

Surface Mounting
For interior or exterior doors. Single acting cylinder on head frame. Exposed regular arm to door top rail.

Maximum Opening
Butt hinge template allows 180° or 140° with optional hold open arm. For hold open points beyond 140° use **REL.4110** series closer.

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal of 65mm allows 180° opening with regular arm, reducing to 140° opening with a 122mm reveal. The **LONG ARM** option allows greater opening angles - consult the sales office.

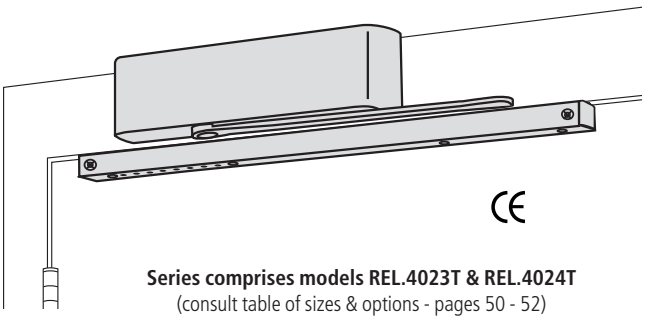
Head Frame minimum 100mm (44mm with **REL.4020-18G** plate).

Top Rail minimum 38mm (51mm with **REL.4020-18** plate & 70mm with **REL.4020-18G** plate).

Delayed Action add suffix **DEL** to the selected closer. Not available on **REL.4026**. Delays closing from maximum opening down to 75° - adjustable up to 60 seconds.

Standard Finish - US28 powder coated silver.

REL.4020T Series -
Top Jamb (Pull Side) Mounting



Series comprises models REL.4023T & REL.4024T
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.4020T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Sized cylinders **REL.4023** for interior doors to 965mm & **REL.4024** for interior doors only to 1220mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners

Surface Mounting
For interior doors. Single acting cylinder on head frame. Exposed arm and track to door top rail.

Maximum Opening
Butt hinge template allows 180° with standard track arm, limited to 100° when optional bumper is installed (See page 33).

Hold Open Points 80°, 85°, 90°, 95° & 100° dictated by the hold open clip location in the track. **HO Clip** is optional (See page 33).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal should not exceed 3mm for standard arm.

Head Frame minimum 98mm (44mm with **REL.4020T-18** plate).

Clearance minimum 38mm behind the door for 90° or 180° installations.

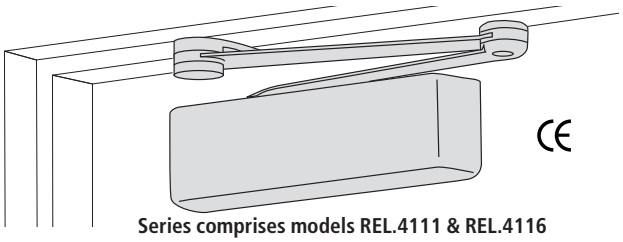
Standard Finish - US28 powder coated silver.

UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins.**
BS EN 1154:1997
Certification applies to both applications.

Type C - Heavy Duty Mechanical Door Controls

REL.4110 Series -
Parallel Arm (Push Side) Mounting

- Standard **REL.4110** series closer shipped with **EXTRA DUTY** arm, plastic cover, 5th screw spacer and wood & machine screw pack
- Non-sized cylinders **(REL.4111)** for interior doors to 1372mm and exterior (perimeter) doors to 1067mm
- Sized cylinders **(REL.4116)** for interior doors to 1524mm and exterior (perimeter) doors to 1220mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners



Series comprises models REL.4111 & REL.4116
(consult table of sizes & options - pages 50 - 52)

Surface Mounting
For interior or exterior doors. Single acting cylinder on door top rail. Exposed regular arm to head frame.

Maximum Opening
Butt hinge template allows 180° with EDA arm and optional hold open arm (See page 38). Optional CUSH-N-STOP & H-CUSH-N-STOP arms allow up to 110° (See page 38).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended - Except CUSH options.

Reveal less than 70mm, use **REL.4110-30** CUSH SHOE SUPPORT (See page 38).

Stop Width minimum 25mm.

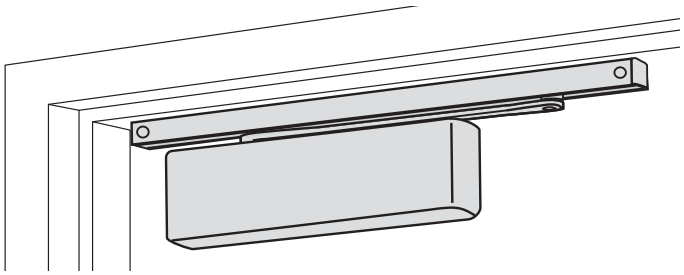
Top Rail minimum 130mm from the underside of the stop (51mm with **REL.4110-18** plate).

Delayed Action add suffix **DEL** to the selected closer. Not available on **REL.4116**. Delays closing from maximum opening down to 70° - adjustable up to 60 seconds.

Standard Finish - US28 powder coated silver.

BS EN 1154:1997 (this application only).

REL.4110T Series -
Stop Face (Push Side) Mounting



Series comprises models REL.4113T & REL.4114T
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.4110T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Sized cylinders **REL.4113** for interior doors to 965mm & **REL.4114** for interior doors to 1220mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners

Surface Mounting
For interior doors. Single acting cylinder on door top rail. Exposed arm and track to head frame.

Maximum Opening
Butt hinge template allows 110° with standard track arm, limited to 100° when optional bumper is installed (See page 33).

Hold Open Points 85°, 90°, 95° & 100° dictated by the hold open clip location in the track. **HO Clip** is optional (See page 33).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Stop Width minimum 32mm to accommodate track.

Top Rail minimum 133mm from the underside of the stop (57mm with **REL.4110T-18** plate).

Standard Finish - US28 powder coated silver.

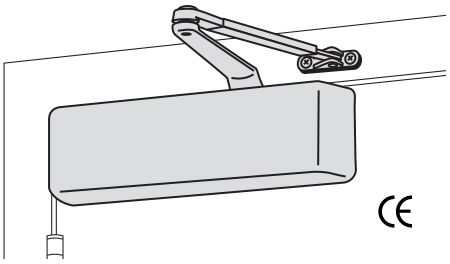
UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins.**
Certification applies to both applications.

Type C - Heavy Duty Mechanical Door Controls

REL.4040 Series - Heavy Duty Universal Mounting
One Closer - Three Possible Applications

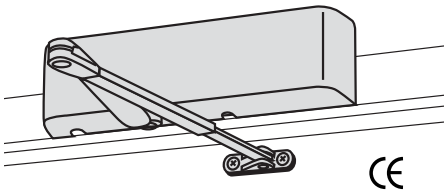
REL.4041 - Hinge (Pull Side) Mounting

- Standard **REL.4040** series closer shipped with regular arm, plastic cover and wood & machine screw pack
- Non-sized cylinders **(REL.4041)** for interior doors to 1524mm and exterior (perimeter) doors to 1220mm
- Closer mounts pull side on door
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners



REL.4041
(consult table of sizes & options - pages 50 - 52)

REL.4041 - Top Jamb (Push Side) Mounting

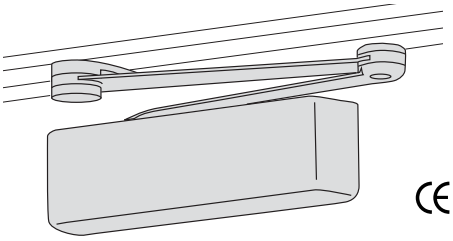


REL.4041
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.4040** series closer shipped with regular arm, plastic cover and wood & machine screw pack
- Non-sized cylinders **(REL.4041)** for interior doors to 1524mm and exterior (perimeter) doors to 1220mm
- Closer mounts push side top jamb
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners

REL.4041P - Stop Face (Push Side) Mounting

- Standard **REL.4040** series closer shipped with regular arm, plastic cover and wood & machine screw pack
- Non-sized cylinders **(REL.4041)** for interior doors to 1524mm and exterior (perimeter) doors to 1220mm
- Closer mounts push side on door with PA shoe
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners



REL.4041P
(consult table of sizes & options - pages 50 - 52)
optional **EDA** arm shown (for this application only)

REL.4040 Series - All Applications

Surface Mounting
For interior or exterior doors. Single acting cylinder on door top rail with exposed regular arm to head frame (hinge pull side). Single acting cylinder on head frame with exposed regular arm to door top rail (top jamb push side). Single acting cylinder on door top rail with exposed regular arm to head frame (stop face push side).

Maximum Opening
Butt hinge template allows 120° with hold open points between 90° and 120° with the optional hold open arm (hinge pull side & top jamb push side). 180° opening and hold open points with all except CUSH-N-STOP arms (stop face push side). 110° opening and optional hold open with CUSH-N-STOP arms.

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended - Except CUSH options.

Reveal should not exceed 19mm (hinge pull side), 65mm (top jamb push side).

Stop Width minimum 25mm or 38mm with CUSH-N-STOP arm (stop face push side).

Head Frame minimum 100mm or 45mm with **REL.4040-18TJ** & **REL.4040-18G** plate (top jamb push side). Flush head frame requires **REL.4040-418** PA shoe adaptor (stop face push side).

Top Rail minimum 95mm or 51mm with **REL.4040-18** plate (hinge pull side), 32mm or 57mm & 76mm with **REL.4040-18TJ** & **REL.4040-18G** respectively (top jamb push side), 137mm from underside of stop or 51mm with **REL.4040-18PA** plate (stop face push side).

Clearance minimum 60mm behind the door for 90° installation (hinge pull side).

Delayed Action add suffix **DEL** to the selected closer.
Delays closing from 120° down to 70° (hinge pull side), 80° (top jamb push side) and 75°*(stop face push side) - adjustable up to 60 seconds. * for 90° template.

Bull Nose Trim requires **REL.4040-65** soffit shoe (See page 38) (hinge pull side).

Standard Finish - US28 powder coated silver.

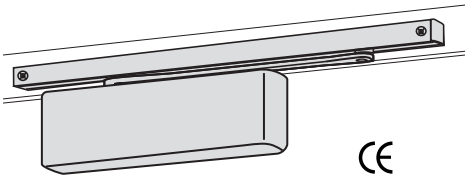
UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins.** **BS EN 1154:1997**
Certification applies to all three applications.

Type C - Heavy Duty Mechanical Door Controls

REL.4040T Series - Heavy Duty Universal Mounting
One Closer - Three Possible Applications

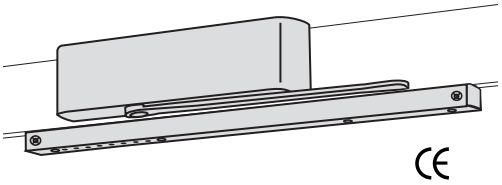
REL.404IT - Hinge (Pull Side) Mounting

- Standard **REL.4040T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Non-sized cylinders (**REL.4041**) for interior doors to 1220mm
- Closer mounts pull side on door
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



REL.4041T
(consult table of sizes & options - pages 50 - 52)

REL.404IT - Top Jamb (Pull Side) Mounting

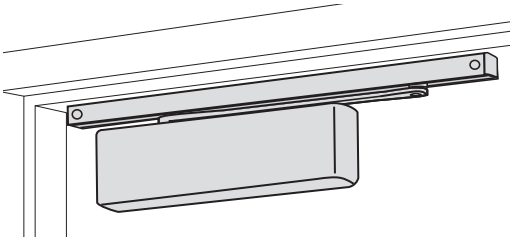


REL.4041T
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.4040T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Non-sized cylinders (**REL.4041**) for interior doors to 1220mm
- Closer mounts pull side top jamb
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners

REL.404IT - Stop Face (Push Side) Mounting

- Standard **REL.4040T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Non-sized cylinders (**REL.4041**) for interior doors to 1220mm
- Closer mounts push side on door
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



REL.4041T
(consult table of sizes & options - pages 50 - 52)

REL.4040T Series - All Applications

Surface Mounting
Our most flexible heavy duty track closer for interior doors to 1220mm. Single acting cylinder on door top rail with exposed arm and track to head frame (hinge pull side). Single acting cylinder on head frame with exposed arm and track to door top rail (top jamb pull side). Single acting cylinder on door top rail with exposed arm and track to head frame (stop face push side).

Maximum Opening
Butt hinge template allows 120° with hold open points between 85° and 110° with the optional hold open clip (hinge pull side & stop face push side). 180° opening and hold open points between 85° and 110° with the optional hold open clip (top jamb pull side).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal should not exceed 3mm (hinge pull side & top jamb pull side).

Stop Width minimum 32mm (stop face push side).

Head Frame minimum 38mm (hinge pull side), 98mm or 44mm with **REL.4040T-18TJ** plate (top jamb pull side).

Top Rail minimum 95mm or 44mm with **REL.4040T-18** plate (hinge pull side), 133mm from the underside of the stop or 89mm with **REL.4040T-18** plate (stop face push side).

Clearance minimum 60mm behind the door for 90° installation (hinge pull side).

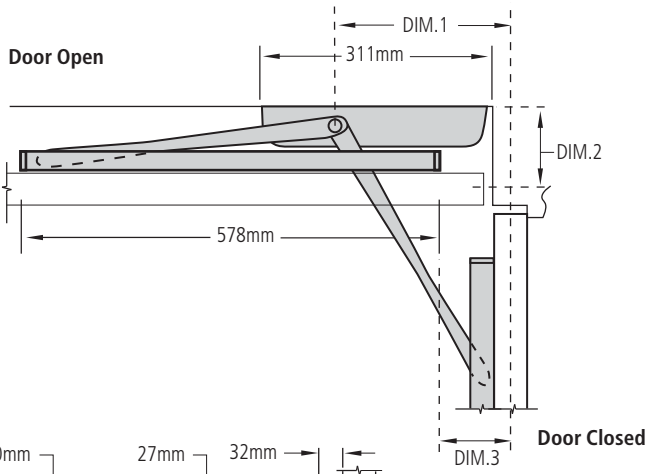
Standard Finish - US28 powder coated silver.

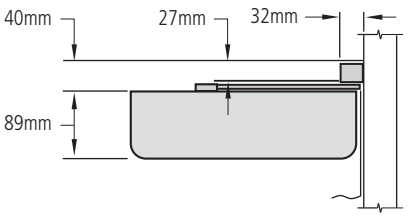
UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins.** **BS EN 1154:1997**
CE Certification does not apply to Stop Face (Push Side) Mounting.

Type C - Heavy Duty Mechanical Door Controls

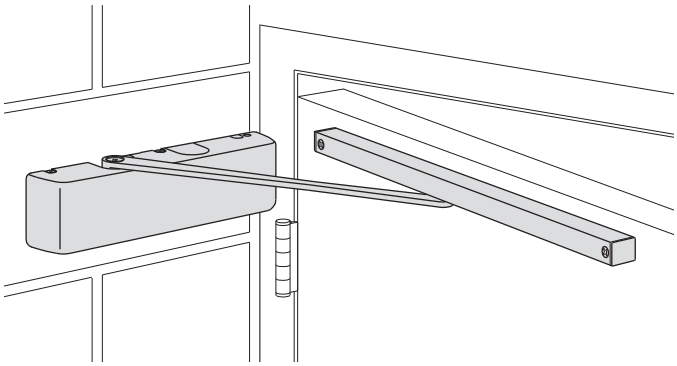
REL.4000T Series - Heavy Duty Wall Pocket Mounting

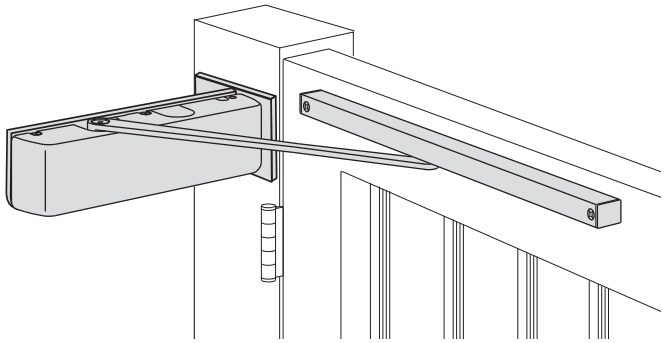
- Standard **REL.4000T** series heavy duty closer, shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Sized cylinders **REL.4003** for doors and gates to 965mm & **REL.4004** for doors and gates to 1220mm
- Closer mounts in a wall pocket on the hinge side or on the custom T bracket
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on cover, arm and fasteners





Door Closed (in section)





Series comprises models REL.4003T & REL.4004T
(consult table of sizes & options - pages 50 - 52)

Wall Pocket Mounting

Cylinder mounts on the wall. Track mounts on hinge side of door.

Maximum Opening

Templating allows 90° only.
Hold open point 90° - possible with a wall magnet.

DIM. 1 is the distance from the centerline of the closer shaft to the centerline of the hinge or pivot. For butt hinges 203 mm. For centre pivots 254 mm.

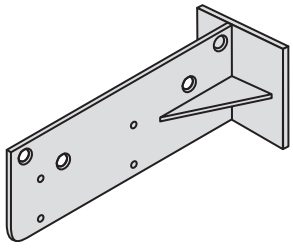
DIM. 2 is the distance from the centerline of the pivot or hinge to the cylinder mounting surface. For butt hinges 73 mm. For centre pivots 114 mm.

DIM. 3 is the distance from the centerline of the pivot or hinge to the end of the track. For butt hinges 60mm. For centre pivots 117mm.

Special Templating & Custom Solutions

Variants of this arrangement are used to address situations where conventional door closer applications are unsuitable - Particularly where hardware cannot be mounted above the door due to a flush ceiling or (on external gates) where a head frame (or transom bar) does not exist.

In situations where a wall is not available at 90° specify the **REL.4000T** bracket.



This can be screw fixed or welded to a metal frame as necessary.

Important note - for external applications, a liberal coating of grease must be applied to the closer mechanism upon installation and periodically thereafter.

Type C - Heavy Duty Mechanical Door Controls

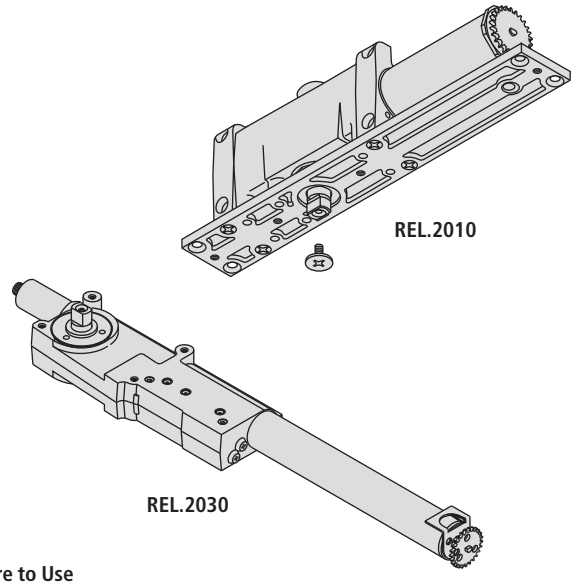
REL.2000 Series - Head Frame Concealed

An Introduction

REL.2000 series concealed heavy duty door closers are designed for aluminium, hollow metal or timber doors and frames. They can be used on conventional hinge or pivot mounted doors. **Always consult Axis when fitting closers to pivot hung doors.** Options included in this section suit head frames with either 102mm or 45mm available for concealing the closer body.

The range includes two single action head frame (or transom) concealed closers. The **REL.2030** series low profile 'Pacer' closer and the **REL.2010** closer - a concealed version of the heavy duty 'Smoothee' closer (See page 25).

All **REL.2000** series concealed heavy duty door closers are handed for clockwise closing (left hand) or anti-clockwise closing (right hand) doors with mountings for the head frame and the door top rail. All models have full hydraulic, rack and pinion action with spring power adjustment and all have three hydraulic controls for **latch action, general closing speed and back-check.** Each hydraulic control is totally independent and adjusting one will not affect another.



REL.2010

REL.2030

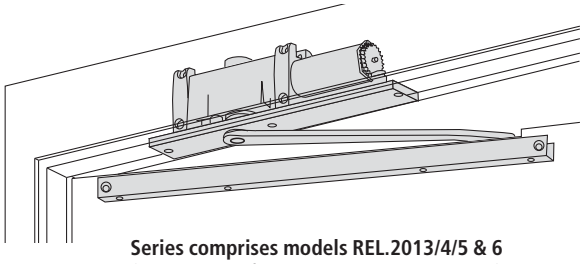
Where to Use

Wherever aesthetics are important or vandalism is expected. The **REL.2030** is ideal for use in aluminium or steel head frames (transoms) with the **REL.2010** series particularly suited to timber head frames and doors.

External Doors

Unlike traditional concealed in 'door top rail' closers, **REL.2030** and **REL.2010** series closers are designed specifically for external (perimeter) door applications and will give excellent performance under the most difficult conditions.

REL.2010 Series - Concealed (In Frame) Mounting



Series comprises models REL.2013/4/5 & 6
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.2010** series closer shipped with single lever (standard) arm, mounting/finish plate, standard track, track roller and wood & machine screw pack
- Sized cylinders (See above) for interior doors to 1524mm and exterior (perimeter) doors to 1220mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- Head frame requires minimum 102mm x 102mm 'tube'
- Standard or optional custom powder coated finish - Optional plated finish on arm, fasteners, and mounting/finish plate

Concealed Mounting
For interior or exterior doors. Single acting cylinder in head frame. Concealed arm and track in door top rail.

Maximum Opening
Butt hinge template allows 180° (trim permitting), limited to 110° when the optional bumper is installed. Hold open points are available between 85° and 110° with the optional **HO Clip** (See page 33).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended - The optional track bumper assists the back-check function in cushioning the opening swing of the door. It is not intended to replace an auxiliary stop (See page 33).

Top Rail 35mm mortice required with an 8mm cut-out required at the top of the door (stop face only).

Door Thickness minimum 45mm

Hollow Metal Frames consult Axis for installation instructions.

UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **60 mins.**
BS EN 1154:1997.

***CE mark** applies to sizes 5 and 6 only.

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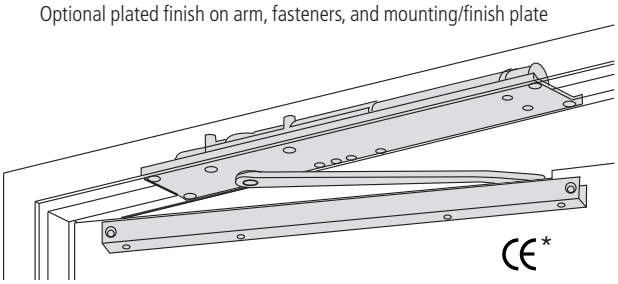
sales@axisautomatic.com

Type C - Heavy Duty Mechanical Door Controls

REL.2030 Series -
Concealed (In 45mm Tube) Mounting

- Standard **REL.2030** series closer shipped with single lever (standard) arm, mounting/finish plate, standard track, track roller and wood & machine screw pack
- Sized cylinders (See below) for interior doors to 1372mm and exterior (perimeter) doors to 1067mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- Head frame requires minimum 45mm x 102mm 'tube'
- Standard or optional custom powder coated finish - Optional plated finish on arm, fasteners, and mounting/finish plate



Series comprises models REL.2032/3/4 & 5
(consult table of sizes & options - pages 50 - 52)

Concealed Mounting
For interior or exterior doors. Single acting cylinder in head frame. Concealed arm and track in door top rail.

Maximum Opening
Butt hinge template allows 180° (trim permitting), limited to 110° when the optional bumper is installed. Hold open points are available between 85° and 110° with the optional **HO Clip** (see adjacent column).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended - The optional track bumper assists the back-check function in cushioning the opening swing of the door. It is not intended to replace an auxiliary stop (see adjacent column).

Top Rail 35mm mortice required with an 8mm cut-out required at the top of the door (stop face only).

Door Thickness minimum 45mm.

Hollow Metal Frames consult Axis for installation instructions.

Timber Frame Installation is simplified by the timber mounting clip set **REL.2030-416** & **REL.2030-417** for centre pivot and offset pivot/butt hung installations respectively. Consult Axis for door preparation details.

UK Fire Certification in accordance with EN 1634-1:2000 (timber) WFRC No. 142058 **60 mins. BS EN 1154:1997.**

***CE mark** applies to size 5 only.

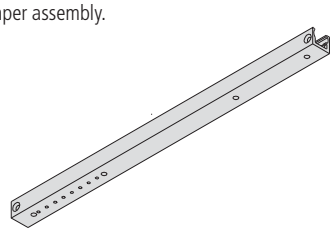
REL.2010 & REL.2030 Series -
Tracks & Installation Accessories

Standard Track
REL.2010-2038 & REL.2030-2038

Standard non hold open, non-handed track.
Will accept hold open clip and/or track bumper assembly.

Standard Track with Bumper
REL.2010-2038B & REL.2030-2038B

Optional non hold open, non-handed track with bumper. Will accept hold open clip.



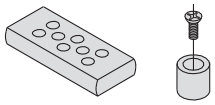
Hold Open Track
REL.2010-2038H & REL.2030-2038H

Optional non-handed hold open track. Will accept bumper assembly.

Hold Open Track with Bumper
REL.2010-2038HB & REL.2030-2038HB

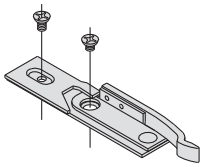
Optional non-handed hold open track with bumper.

Track Bumper*
REL.2010-169 & REL.2030-169



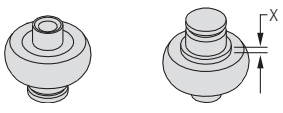
Mounts in the track to assist the back-check function. Limits the maximum opening angle. Consists of the bumper, bumper post and mounting screw.

Hold Open Clip*
REL.2010-3054 & REL.2030-3054



This device mounts in the track providing hold open points dictated by the clip's location.

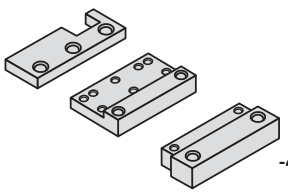
Track Roller
REL.2010-3034 & REL.2030-3034

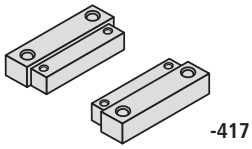


Quiet, low friction nylon roller assembly.
Shoulder dimension 'X' = 2mm.

Timber Mounting Clip Sets
REL.2030-416 & REL.2030-417

REL.2030-416 set includes latch stile clip, hinge stile clip and cover (for use with centre pivots). Consult Axis for special template.





REL.2030-417 set includes two clips (for use with off-set pivots and conventional full mortice hinges).

*** Also suits all surface track arm closers (REL.4000 & REL.1000 series).**

Type C - Heavy Duty Mechanical Door Controls

An Introduction to Overhead Door Holders & Stops

We believe that the best application for a 'door holder' or 'auxiliary stop' is one that operates overhead, with an arm functioning from the header frame to the door top rail. This type of device performs best when the maximum stop or hold open angle does not exceed 110°.

Overhead holders and stops are **'out of the way'** in contrast with floor or wall-mounted stops which can be a hazard to pedestrian traffic and may be vulnerable to damage, either by accident or maliciously. Auxiliary holders or stops should be used on all doors furnished with overhead door closers. Door closers are not door stops and a back-check function should not be expected to perform the function of a stop.

Definition of 'Door Opening'

The term 'door opening' is defined as the dimension of the door opening from jamb to jamb. This should not be confused with the width of the door. Refer to the chart below and you will find, for example, that a 1143mm opening requires a size 5 holder if the door is hung on butts (conventional full mortice hinges) or offset pivots.

You will note also that, regardless of the style or series of holder, we have standardized the size of holders and stops for all openings, combining the size in the model number. The third digit in all models designates the size. If any further information is required on sizing a holder or stop, please contact the sales office for assistance.

Concealed Series			Surface Series		
Size	Door Opening	410 Series	70 Series	79 Series	450 Series
1	457 - 584mm	411	-	-	451
2	585 - 686mm	412	702	792	452
3	687 - 838mm	413	703	793	453
4	839 - 991mm	414	704	794	454
5	992 - 1143mm	415	705	795	455
6	1144 - 1372mm	-	706	796	-

Selecting the Degree of Hold Open or Stop

Our overhead holders and stops are designed to function effectively from 85° to 110°. Where conditions permit, we recommend the minimum degree of hold open be set at 95° - placing any projecting door hardware (fitted to the push side face of the door) beyond the flow of traffic.

When selecting maximum opening angles for overhead holders and stops on doors opening back-to-back or against a wall, please note all our holders have shock absorbers allowing approximately 5° – 7° movement beyond the hold open or initial stop point. The concept of dead stop templating means that the degree of opening must be set at 5° – 7° less than the point of the required dead stop to accommodate the compression of the shock absorber.

Exposed Applications

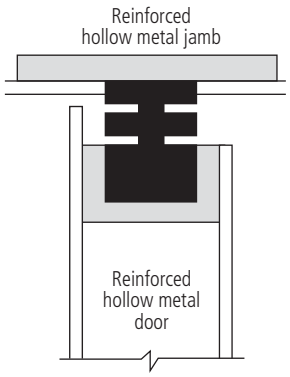
A heavy duty holder or stop should be considered (See page 35) where doors and frames are subject to heavy, frequent use or where external doors open out to exposed situations and high winds are a factor.

Environmental Considerations

Environmental factors should be considered always when specifying overhead holders and stops. Exterior (perimeter) doors or doors subject to corrosive conditions should be equipped with a stop or holder constructed primarily of stainless steel, brass or bronze materials. For interior applications, steel is acceptable, although brass and bronze substrates generally provide a more attractive architectural grade finish.

Door and Frame Reinforcement

Our overhead holders and stops are fabricated from quality brass, steel and stainless steel materials, and are designed to function even under constant heavy duty abuse. Therefore, it is essential that all doors and frames are reinforced adequately to provide proper anchorage for the overhead stop. It is important that timber doors and frames are strong enough to provide proper anchorage for the door holders. For reinforcement details, refer to individual templates for each overhead stop (contact the sales office).



Typical reinforcement points for a concealed installation on hollow metal doors and frames.

Closer Applications - Surface Overhead Door Holders/Stops

Surface mounted models require minimal door and frame preparation. They may be used in conjunction with most surface mounted Axis door closers. In some cases, optional drop plates are required with the closer (consult sales office for more details).

Suffix .SOC - Hex-pin Socket Security Screw Package

An optional screw package with hex-pin socket screws for mounting the jamb bracket to the frame is provided instead of the standard screw package.

Available with all overhead door holders/stops.

Type C - Heavy Duty Mechanical Door Controls

REL.70 Series Heavy Duty & REL.79 Series Extra-Heavy Duty
Surface Overhead Door Holders/Stops

REL.70 series and **REL.79** series surface mounted holders and stops are designed to meet the demands of high-traffic and exposed doors in commercial applications. Simple to install they are compatible with most door closers shown in this catalogue. Templates allow for variable mounting positions, ranging from 85° to 110° hold open/stop angles. These door holders and stops can be used on most types of doors, including all doors hung with conventional hinges or pivots.

Four distinct versions offer solutions as follows:

- **REL.70H** Series Hold Open Model – **Heavy Duty**
- **REL.70S** Series Stop Only Model – **Heavy Duty**
- **REL.79H** Series Hold Open Model – **Extra Heavy Duty**
- **REL.79S** Series Stop Only Model – **Extra Heavy Duty**

Each model is available in five sizes as shown in the table on page 34. **REL.70** series hold open and stop only models provide heavy duty door protection. The **REL.79** series models incorporate the basic characteristics of the **REL.70** series, but can protect extremely heavy or large doors subject to violent use or abusive conditions (e.g. vault doors, cell doors, oversized plant entry doors).

REL.796H

Materials and Finishes

REL.70 and **REL.79** series models are constructed primarily of brass and 300 series stainless steel substrates.

REL.70 series utilize a 13mm dia. stainless steel bar.
REL.79 series utilize a 19mm dia. stainless steel bar.

The bar is always provided in US32D Satin Stainless Steel.
The spring, washer and nut are provided in a clear zinc finish.
The door bracket, jamb bracket and hook (for hold open units) are available in a number of alternative plated and painted finishes (consult the sales office for details).

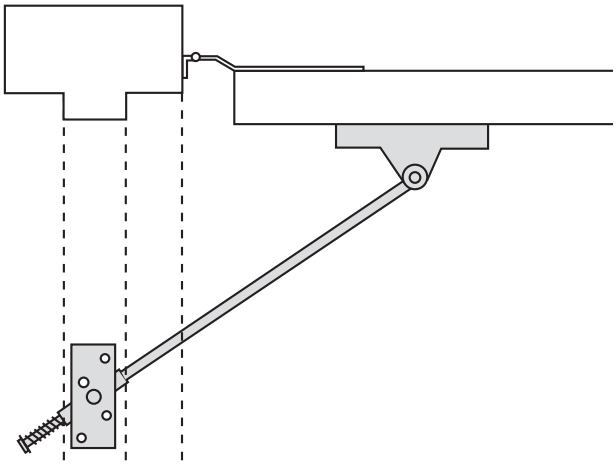
Stop Only Models

REL.70S and **REL.79S** series stop only models **(suffix S)** are used when the hold open function (see below) is not a requirement. Stop only models provide a reliable method of door control with the same shock-absorbing capability as hold open models.

Hold Open Models

REL.70H and **REL.79H** series hold open models **(suffix H)** provide a selective hold open function with easy-to-adjust tension. A simple 90° rotation of the roller mechanism disables the hold open function allowing the unit to serve as a shock-absorbing stop only. The hold open function provides a convenient method of holding the door open at a predetermined position for short or long periods of time permitting an unobstructed traffic flow through the opening.

The hold open tension is adjusted simply and incrementally for increased or decreased holding power by turning the nut at the end of the bar. While both series are designed for demanding applications, the **REL.79** series is recommended for extremely heavy or wide doors subject to violent or abusive conditions.



REL.70 & REL.79 series - typical plan view (showing door ajar at 90°).

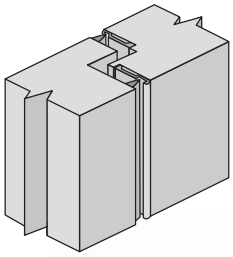
How to Specify or Order

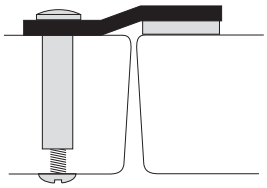
Example	70 — 4 — S — SP28 — SB1
REL.70 or REL.79 Series	
Size (from table opposite)	
Function (stop or hold open)	
Finish (SP28 = sprayed silver)	
SB1 (sex bolts for door bracket)	

Type C - Heavy Duty Mechanical Door Controls

REL.COR Coordinators (or Door Selectors) - Bar Coordinators and Filler Bars

REL.COR series coordinators are designed for use on pairs of single action doors where leaves must close in the correct order. This type of door arrangement is often referred to as a rebated pair of doors.





The rebate may be a part of the door construction (commonly found on pairs of timber doors) or it may be a 'plant-on' rebate or 'astragal' introduced as a lock protector or a weather strip. In each instance, in order to effect correct door control, it is necessary always to ensure that the active leaf (or first opening leaf) is the second leaf to close.

Standard Features & Benefits

- **Override Feature** - All units are equipped with an override feature allowing the active door to close under extreme pressure, protecting the mechanism
- **Compatibility** - All units are compatible with Axis overhead door closers and manual & automatic flush bolts (consult the sales office for templates and layout information)
- **Versatility** - The **REL.COR** series is available in five sizes for variable door opening widths
- **Low Profile** - Continuous channels and filler bars maintain architecturally clean lines along the entire length of the stop
- **Aluminium Construction** - Powder coating or plating matches all design requirements

REL.COR52
(trigger mechanism this end)

Basic Principles

Unlike traditional drop-arm (or gravity) door coordinators all **REL.COR** coordinators are 'Bar' type coordinators - where the mechanism is concealed within a full length channel and fixed to the underside of the stop on the push side face of a pair of doors.

All **REL.COR** units function easily. The active leaf lever, located nearest to the active leaf jamb, holds the active leaf ajar until this lever is released by the closing of the inactive leaf against the trigger mechanism (See above).

At this point the inactive leaf has necessarily passed the potential obstruction posed by the active leaf during its closing arc, and the active leaf cannot now close before it.

Where To Use

Coordinators should be specified for use on all rebated pairs of doors (See above) where door closers are controlling both leaves and where it is possible to open either leaf independently or both leaves simultaneously.

Doors of this type, not controlled with coordinators, have the potential to close in the incorrect order, leaving one door slightly ajar and (usually) both doors insecure (i.e. unlocked).

In particular, exterior (or perimeter) doors, fitted with escape hardware, are vulnerable if they double as access control doors and are necessarily equipped with door closers*.

* Doors fitted with surface overhead door closers require special attention ensuring that the two types of hardware do not clash or impede one another in their normal operation.

For opening widths where door leaf widths are equal		
Coordinator Reference	Length of Channel	For Opening Widths
REL.COR32	813mm	864mm - 1321mm
REL.COR42	1067mm	1321mm - 1829mm
REL.COR52	1321mm	1575mm - 2337mm
REL.COR62	1524mm	1778mm - 2743mm
REL.COR72	1829mm	2134mm - 3353mm

REL.FL Series Filler Bars

Filler bars are used where the **REL.COR** channel does not extend across the entire width of the pair of doors, i.e. jamb to jamb on the push side face.

Product Ref. ≠	Length
REL.FL20	508mm
REL.FL32	813mm
REL.FL44	1118mm

- **REL.FL** Filler Bars are available in three sizes to suit variable frame openings
- **REL.FL** Filler Bars are constructed from hollow aluminium channel and are furnished normally in a US28 powder coated silver finish. They are also available in US26D satin chrome and 315AN black anodized aluminium
- **REL.FL** Filler Bars are cut on site to suit the opening

Dimensions: 41mm wide x 16mm deep x Ordered Length.

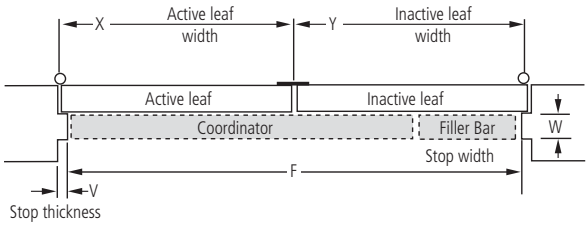
Type C - Heavy Duty Mechanical Door Controls

REL.COR Coordinators - (or Door Selectors)

Correct Specification & Ordering

Correct specification and ordering is straightforward with the following step-by-step instructions:

- Start with the active leaf width (X)
- Next consider the overall opening between stops (F)
- Preferably, the coordinator would equal the active door width (X) + approximately 1/2 the inactive door width (Y)
- Keep in mind the coordinator must be at least 152mm longer than the active door width (X) and less than the overall frame opening between stops (F)



Example:

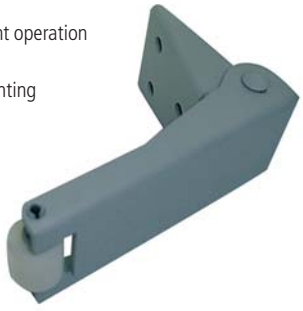
- Active (X) & inactive (Y) leaf widths 762mm each with 16mm stops
- Overall frame opening between stops (F) = 1492mm

Recommended Coordinator: **REL.COR42** with **REL.FL20** Filler Bar
(See page 36 for more dimensional detail).

REL.CBI - Carry Bar

Carry bars are a necessary part of any specification (including coordinators) where it is possible to open the inactive leaf before the active leaf. Fixed to the inactive leaf, the carry bar straddles the meeting stile and pushes the active leaf open at the same time as the inactive leaf. At a point just before the nylon roller leaves the active leaf the coordinator is able to hold the active leaf ajar - ensuring both doors close in the correct order.

- **REL.CB1** carry bars prevent damage to doors and associated hardware
- The nylon roller ensures quiet and efficient operation
- Standard sex bolts for through door mounting
- **REL.CB1** carry bars are non-handed
- All steel construction



How to Specify or Order

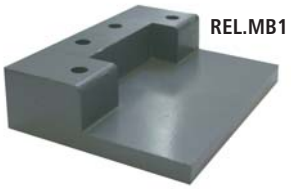
Example	COR — 52 — US28 — FL20 — 2/MB
COR Size: 32, 42, 52, 62, 72	
Finishes: US28, US26D, 315AN (Black)	
Filler Bar: REL.FL20, REL.FL32, REL. FL44	
Mounting Brackets: REL.MB1, REL.MB2	

REL.MBI & REL.MB2 - Coordinator Mounting Brackets

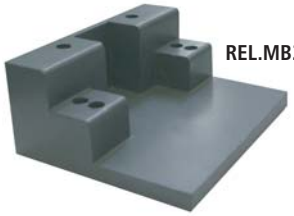
Often, where coordinators are used in conjunction with surface overhead door closers to the stop face (push side) of pairs of doors, additional brackets must be introduced.

REL.MB brackets allow stop mounted hardware, such as a door closer PA (parallel arm) shoe or the top latch strike of a surface vertical rod escape device, to be properly installed without damaging the **REL.COR** coordinator. Stop mounted hardware is lowered necessarily to compensate for the depth of the coordinator and the 'wrap-around' mounting bracket.

REL.MB mounting brackets are manufactured from aluminium and furnished normally in a USP (primed for painting) finish.



REL.MB1



REL.MB2

Dimensions:

REL.MB1 - 102mm wide x 76mm deep x 24mm high.
REL.MB2 - 102mm wide x 83mm deep x 41mm high.

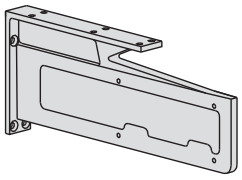
Product Ref. ≠	Reveal Depth	Stop Width
REL.MB1	121mm min	>63.5mm
REL.MB2	121mm min	<63.5mm

Type C - Heavy Duty Mechanical Door Controls

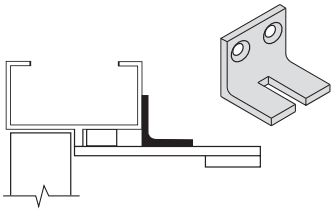
Surface Mounted Accessories, Brackets & Arms

REL.4010-16 - Corner Bracket.
Push side frame mounted adaptor used to position the closer in the frame opening where a conventional Fig. 6 installation is not possible.

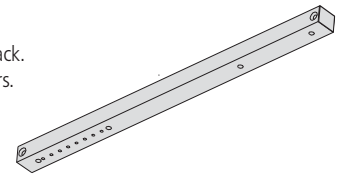
(Uses a fig. 1 closer of the opposite hand to the hand of the door).



REL.4110-30* - Cush-Shoe Support.
Provides anchorage for the 5th screw when fixing the PA shoe to narrow push side reveals.

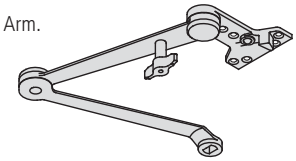


REL.4010-3038 - Non hold open universal track.
Used with all **REL.4000** series track arm closers.



REL.4110-3049CNS* - Hold Open Cush-N-Stop Arm.
Providing a selectable hold open function with a 'handle' or 'snib' control.

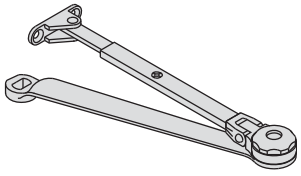
Handed (except **REL.4040** version).



REL.4010-3049H* - Hold Open Arm.
Providing a hold open function - adjustable either at the elbow (as shown) or at the shoe.

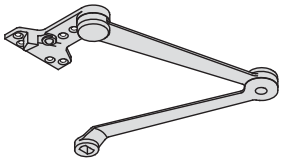
Specify **REL.4110-3049** for Fig. 6 applications.

Handed (except **REL.4040** version).



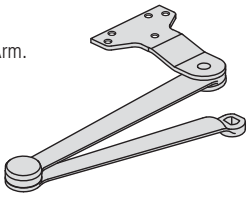
REL.4110-3077CNS* - Extra Duty Parallel Arm.
Including an integral stop on the PA shoe.

Handed (except **REL.4040** version).



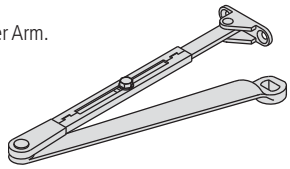
REL.4110-3077EDA* - Extra Duty Double Lever Arm.
Both main and forearm** constructed of solid forged steel for extra strength.

**PA (parallel arm) applications only unless using 'High Security' closers (See page 48).

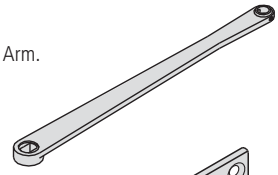


REL.4010-3077REG*Δ - Regular Double Lever Arm.
The geometry of the arm provides superior leverage and greater mechanical advantage.

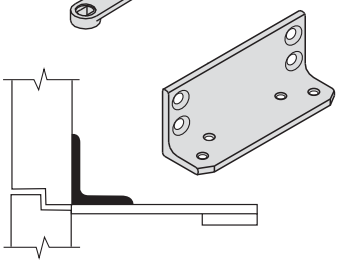
Specify **REL.4020-3077REG** for Fig. 61 applications.



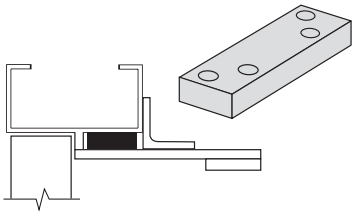
REL.4010-3077T* - Single Lever Standard Track Arm.
Connects directly the cylinder assembly (via the nylon track roller - **REL.4010-3034**) to the track.



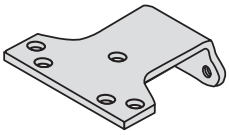
REL.4110-418* - PA Shoe Adaptor.
Providing horizontal mounting for the PA shoe on a flush door and frame application.



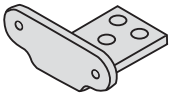
REL.4110-61* - Blade Stop Spacer.
Lowering the parallel arm 13mm allowing the arm to clear the underside of the stop.



REL.4040-62PA - Parallel Arm Shoe.
Attaches the forearm to the underside of the reveal on parallel arm applications.



REL.4010-65* - Soffit Shoe.
Enables the regular arm to be fixed to a radius where a 90° break is not available.



*Substitute the application specific ref. no. (e.g. **4010**) with **4040** for **REL.4040** Super Smoothee versions.

Δ Requires **REL.62** - PA shoe when used with **REL.4040** in Fig. 6 application - (See page 29).

Type D - Standard Duty Mechanical Door Controls

REL.1000 Series
'Super Stock' & 'Super Thriftee'
Standard Duty Mechanical Door Controls

An Introduction

The **REL.1000** series of universal standard duty mechanical door controls comprises two distinct designs and was introduced to satisfy the growing demand for an aesthetically pleasing slim unit. Despite their comparably diminutive sizes these smaller designs manage to cram in amazingly high levels of strength and accurate adjustability. 'Super Stock' closers, for example, will control internal doors up to 1524mm wide and external (perimeter) doors to 1220mm.

Fully Universal

All regular arm **REL.1000** series closers meet stockists requirements since they are a fully universal solution. Because of their versatile design they will suit both left and right hand doors, in any of three mounting positions.

Fig. 6

Super Stock

- **REL.1461** Hinge (Pull Side) Mounting - Fig. 1
- **REL.1461** Top Jamb (Push Side) Mounting - Fig. 61
- **REL.1461P** Stop Face (Push Side) Mounting - Fig. 6

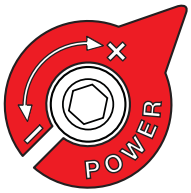
Fig. 1

Super Thriftee

- **REL.1261** Hinge (Pull Side) Mounting - Fig. 1
- **REL.1261** Top Jamb (Push Side) Mounting - Fig. 61
- **REL.1261P** Stop Face (Push Side) Mounting - Fig. 6

'Super Stock' & 'Super Thriftee' -
Controls & Adjustments

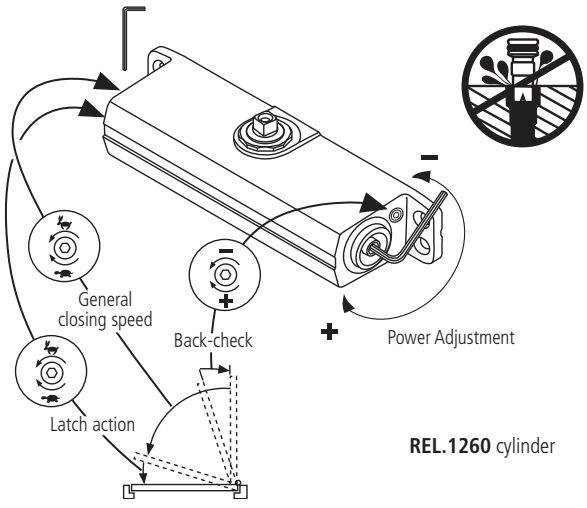
Both 'Super Stock' and 'Super Thriftee' door closer models incorporate the same high level of fine tuning adjustment as the 'Smoothee' range. Spring power strength can be set to suit the door size and conditions. The **REL.1461** is adjustable through sizes 1 to 6 while the smaller, but no less flexible **REL.1261** solution offers spring strength adjustment through sizes 1 to 5.



Additionally, a different model is used for the aesthetically more pleasing but less efficient track arm units - **REL.1460T** & **REL.1260T** series.

REL.1460T

All models, both 'Super Stock' and 'Super Thriftee' have full hydraulic, rack and pinion action with spring power adjustment and all have three hydraulic controls for **latch action, general closing speed and back-check**. Each hydraulic control is totally independent and adjusting one will not affect another.



REL.1260 cylinder

The non-critical nature of the adjustment of the valves means that several complete turns of the hex key are necessary for the full range of adjustment.

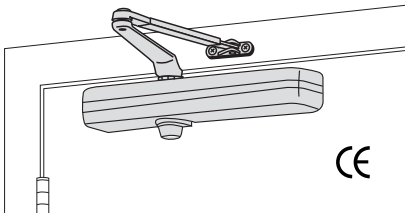
Delayed closing action is an optional feature available on all 'Super Stock' closers.

Type D - Standard Duty Mechanical Door Controls

REL.1460 Series - Standard Duty Universal Mounting
One Closer - Three Possible Applications

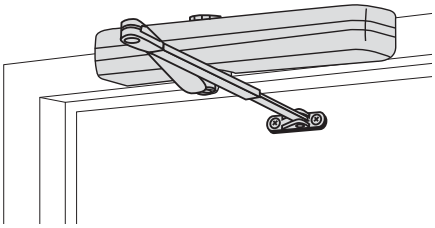
REL.1461 -
Hinge (Pull Side) Mounting

- Standard **REL.1460** series closer shipped with regular arm, plastic cover and wood & machine screw pack
- Non-sized cylinders **(REL.1461)** for interior doors to 1524mm and exterior (perimeter) doors to 1220mm
- Closer mounts pull side on door
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



REL.1461
(consult table of sizes & options - pages 50 - 52)

REL.1461 -
Top Jamb (Push Side) Mounting

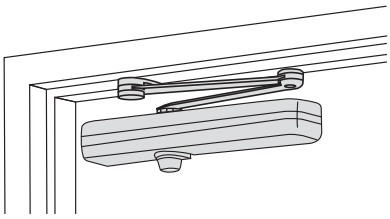


REL.1461
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.1460** series closer shipped with regular arm, plastic cover and wood & machine screw pack
- Non-sized cylinders **(REL.1461)** for interior doors to 1524mm and exterior (perimeter) doors to 1220mm
- Closer mounts push side top jamb
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners

REL.1461P -
Stop Face (Push Side) Mounting

- Standard **REL.1460** series closer shipped with regular arm, plastic cover and wood & machine screw pack
- Non-sized cylinders **(REL.1461)** for interior doors to 1524mm and exterior (perimeter) doors to 1220mm
- Closer mounts push side on door with PA shoe
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



REL.1461P
(consult table of sizes & options - pages 50 - 52)
optional **EDA** arm shown (for this application only)

REL.1460 Series - All Applications

Surface Mounting
For interior or exterior doors. Single acting cylinder on door top rail with exposed regular arm to head frame (hinge pull side). Single acting cylinder on head frame with exposed regular arm to door top rail (top jamb push side). Single acting cylinder on door top rail with exposed regular arm to head frame (stop face push side).

Maximum Opening
Butt hinge template allows 180° with hold open points up to maximum opening with the optional hold open arm (hinge pull side & top jamb push side). 180° opening and hold open points (stop face push side). Optional EDA arm allows 110° opening and hold open points (stop face push side). Optional CUSH-N-STOP arm allows 100° opening and hold open points (stop face push side).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended - Except CUSH options.

Reveal should not exceed 19mm for regular arm or 13mm for hold open arm (hinge pull side), 90mm for regular arm or 64mm for hold open arm (top jamb push side).

Stop Width minimum 25mm (stop face push side).

Head Frame minimum 60mm or 40mm with **REL.1460-18** plate (top jamb push side). Flush head frame requires **REL.1460-418** PA shoe adaptor (stop face push side).

Top Rail less than 64mm requires **REL.1460-18** (hinge pull side). 48mm minimum or 70mm minimum with **REL.1460-18** (top jamb push side). Less than 111mm from the underside of the stop requires **REL.1460-18PA** (stop face push side).

Clearance minimum 60mm behind the door for 90° installation (hinge pull side).

Delayed Action add suffix **DEL** to the selected closer.
Delays closing from 160° down to 75° (hinge pull side), 180° down to 95° (top jamb push side) and from maximum opening down to 75° (stop face push side) - adjustable up to 60 seconds.

Bull Nose Trim requires **REL.1460-65** soffit shoe (See page 47) (hinge pull side).

Standard Finish - US28 powder coated silver.

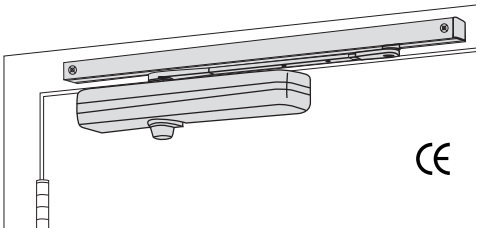
UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins.**
BS EN 1154:1997
CE Certification applies to Hinge (Pull Side) Mounting Only.

Type D - Standard Duty Mechanical Door Controls

REL.1460T Series - Standard Duty Universal Mounting
One Closer - Three Possible Applications

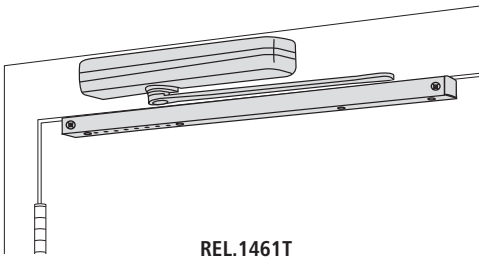
REL.1461T - Hinge (Pull Side) Mounting

- Standard **REL.1460T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Non-sized cylinders (**REL.1461**) for interior doors to 1220mm
- Closer mounts pull side on door
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



REL.1461T
(consult table of sizes & options - pages 50 -52)

REL.1461T - Top Jamb (Pull Side) Mounting

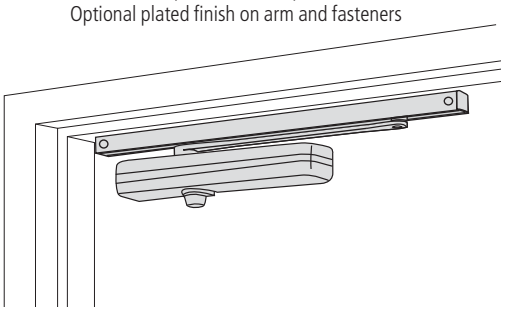


REL.1461T
(consult table of sizes & options - pages 50 -52)

- Standard **REL.1460T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Non-sized cylinders (**REL.1461**) for interior doors to 1220mm
- Closer mounts pull side top jamb
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners

REL.1461T - Stop Face (Push Side) Mounting

- Standard **REL.1460T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Non-sized cylinders (**REL.1461**) for interior doors to 1220mm
- Closer mounts push side on door
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



REL.1461T
(consult table of sizes & options - pages 50 -52)

REL.1460T Series - All Applications

Surface Mounting
This standard duty track closer is designed to suit interior doors to 1220mm where a 'low profile' aesthetically pleasing solution is preferred. Single acting cylinder on door top rail with exposed arm and track to head frame (hinge pull side). Single acting cylinder on head frame with exposed arm and track to door top rail (top jamb pull side). Single acting cylinder on door top rail with exposed arm and track to head frame (stop face push side).

Maximum Opening
Butt hinge templating allows up to 180° limited to 115° with the optional bumper, hold open points between 85° and 115° in 5° increments with the optional hold open track (hinge pull side & top jamb pull side). 110° limited to 100° with the optional bumper, hold open points between 85° and 100° in 5° increments with the optional hold open track (stop face push side).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal should not exceed 3mm (hinge pull side & top jamb pull side).

Stop Width minimum 32mm (stop face push side).

Head Frame less than 70mm requires **REL.1460T-18** plate - plate requires 44mm minimum (top jamb pull side).

Top Rail less than 64mm requires **REL.1460T-18** plate - plate requires 38mm minimum (hinge pull side). Minimum 32mm (top jamb pull side). Less than 102mm from the underside of the stop face requires **REL.1460T-18PA** plate - plate requires 38mm minimum (stop face push side).

Clearance minimum 60mm behind the door for 90° installation (hinge pull side).

Standard Finish - US28 powder coated silver.

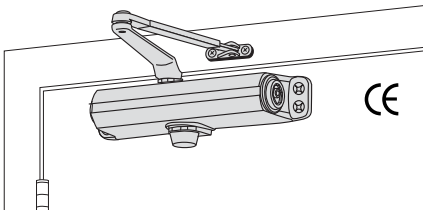
UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins.**
BS EN 1154:1997
CE Certification applies to Hinge (Pull Side) Mounting Only.

Type D - Standard Duty Mechanical Door Controls

REL.1260 Series - Standard Duty Universal Mounting
One Closer - Three Possible Applications

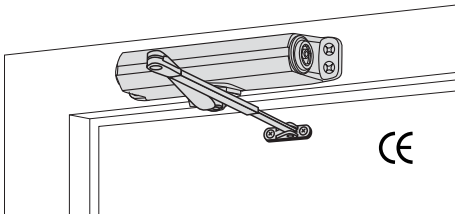
REL.1261 - Hinge (Pull Side) Mounting

- Standard **REL.1260** series closer shipped with regular arm, plastic cover and wood & machine screw pack
- Non-sized cylinders (**REL.1261**) for interior doors to 1372mm and exterior (perimeter) doors to 1067mm
- Closer mounts pull side on door
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



REL.1261
(consult table of sizes & options - pages 50 - 52)

REL.1261 - Top Jamb (Push Side) Mounting

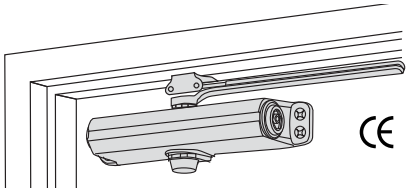


REL.1261
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.1261** series closer shipped with regular arm, plastic cover and wood & machine screw pack
- Non-sized cylinders (**REL.1261**) for interior doors to 1372mm and exterior (perimeter) doors to 1067mm
- Closer mounts push side top jamb
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners

REL.1261P - Stop Face (Push Side) Mounting

- Standard **REL.1260** series closer shipped with regular arm, plastic cover and wood & machine screw pack
- Non-sized cylinders (**REL.1261**) for interior doors to 1372mm and exterior (perimeter) doors to 1067mm
- Closer mounts push side on door with PA shoe
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



REL.1261P
(consult table of sizes & options - pages 50 - 52)

Please note - snap on plastic covers are available on all applications with the **REL.1260** series
(See image at the bottom of page 39)

REL.1260 Series - All Applications

Surface Mounting
For interior or exterior doors. Single acting cylinder on door top rail with exposed regular arm to head frame (hinge pull side). Single acting cylinder on head frame with exposed regular arm to door top rail (top jamb push side). Single acting cylinder on door top rail with exposed regular arm to head frame (stop face push side).

Maximum Opening
Butt hinge template allows 180° with hold open points up to maximum opening with the optional hold open arm (hinge pull side & top jamb push side). 180° opening and hold open points (stop face push side).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal should not exceed 19mm for regular arm or 13mm for hold open arm (hinge pull side). 64mm reveal allows 180° with standard REG regular arm while 89mm allows 180° opening with the optional **REL.1260-79LR** long rod & shoe (top jamb push side).

Stop Width minimum 25mm (stop face push side).

Head Frame minimum 55mm or 40mm with **REL.1260-18** plate (top jamb push side). Flush head frame requires **REL.1260-418** PA shoe adaptor (stop face push side).

Top Rail less than 64mm requires **REL.1260-18** plate - plate requires 38mm minimum (hinge pull side). 44mm minimum or 64mm minimum with **REL.1260-18** (top jamb push side). Less than 102mm from the underside of the stop requires **REL.1260-18PA** plate (stop face push side).

Clearance minimum 73mm behind the door for 90° installation (hinge pull side).

Bull Nose Trim requires **REL.1260-65** soffit shoe (See page 47) (hinge pull side).

Standard Finish - US28 powder coated silver.

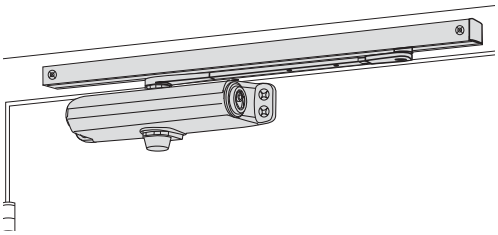
UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 176021 **120 mins.**
BS EN 1154:1997
Certification applies to all three applications.

Type D - Standard Duty Mechanical Door Controls

REL.1260T Series - Standard Duty Universal Mounting
One Closer - Three Possible Applications

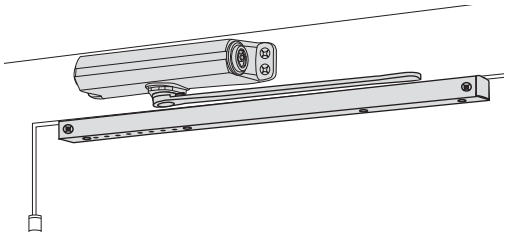
REL.1261T - Hinge (Pull Side) Mounting

- Standard **REL.1260T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Non-sized cylinders **(REL.1261)** for interior doors to 914mm
- Closer mounts pull side on door
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



REL.1261T
(consult table of sizes & options - pages 50 - 52)

REL.1261T - Top Jamb (Pull Side) Mounting

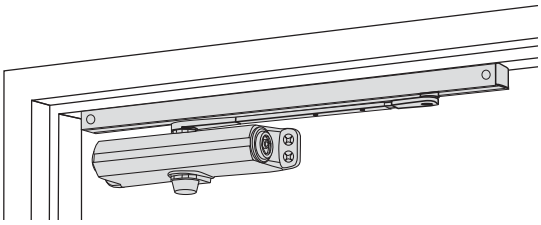


REL.1261T
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.1260T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Non-sized cylinders **(REL.1261)** for interior doors to 914mm
- Closer mounts pull side top jamb
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners

REL.1261T - Stop Face (Push Side) Mounting

- Standard **REL.1260T** series closer shipped with standard arm, standard track, track roller, plastic cover and wood & machine screw pack
- Non-sized cylinders (**REL.1261**) for interior doors to 914mm
- Closer mounts push side on door
- Non-handed
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners



REL.1261T
(consult table of sizes & options - pages 50 - 52)

Please note - snap on plastic covers are available on all applications with the **REL.1260** series
(See image at the bottom of page 39)

REL.1260T Series - All Applications

Surface Mounting
REL.1260T series closers are designed to fit the most common commercial footprint. This closer is both economic and durable, and so is able to stand up to the toughest conditions that most alternative closers cannot handle. Single acting cylinder on door top rail with exposed arm and track to head frame (hinge pull side). Single acting cylinder on head frame with exposed arm and track to door top rail (top jamb pull side). Single acting cylinder on door top rail with exposed arm and track to head frame (stop face push side).

Maximum Opening
Butt hinge templating allows up to 180° limited to 115° with the optional bumper, hold open points between 85° and 115° in 5° increments with the optional hold open track (hinge pull side & top jamb pull side). 110° limited to 100° with the optional bumper, hold open points between 85° and 100° in 5° increments with the optional hold open track (stop face push side).

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Reveal should not exceed 3mm (hinge pull side & top jamb pull side).

Stop Width minimum 32mm (stop face push side).

Head Frame less than 70mm requires **REL.1260T-18** plate - plate requires 44mm minimum (top jamb pull side).

Top Rail less than 64mm requires **REL.1260T-18** plate - plate requires 38mm minimum (hinge pull side). Minimum 32mm (top jamb pull side). Less than 102mm from the underside of the stop face requires **REL.1260T-18PA** plate - plate requires 38mm minimum (stop face push side).

Clearance minimum 73mm behind the door for 90° installation (hinge pull side).

Standard Finish - US28 powder coated silver.

Type D - Standard Duty Mechanical Door Controls

REL.410 Series Standard Duty -
Concealed Overhead Door Holders/Stops

The **REL.410** series offers the industry's widest variety of functions, base materials and finishes to fit all standard (medium) to light duty applications. The perfect combination of form and function, **REL.410** series holders and stops offer effective door control and a low-profile design. Each model is constructed so that the channel is concealed in the top rail of the door with the jamb bracket morticed into the frame. When the door is closed the entire holder is concealed.

REL.410

These versatile models can be used with almost all Axis surface overhead door closers . Templates provide variable mounting positions allowing hold open and stop positions between 85° and 100°. **REL.410** series holders and stops accommodate doors hung with conventional full mortice hinges, offset and centre hung pivot sets (consult sales office for more details).

Three distinct versions offer solutions as follows:

- **REL.410H** Series Hold Open Model – **Standard Duty**

Holding the door open at a pre-determined position for long or short periods. The hold open function is an automatic mechanism that 'kicks-in' when the door is opened to a preset angle. Tension is adjusted using an Allen key.

- **REL.410S** Series Stop Only Model – **Standard Duty**

Providing an effective 'out of the way' auxiliary stop when the hold open function is not a requirement.

- **REL.410F** Series Friction Hold Open Model – **Standard Duty**

Used in situations where multiple hold open points are desirable. Friction tension is adjusted using an Allen key

Each model is available in five sizes as shown in the **table on page 34**.

Dead Stop Templating -
REL.410 & REL.450 Series

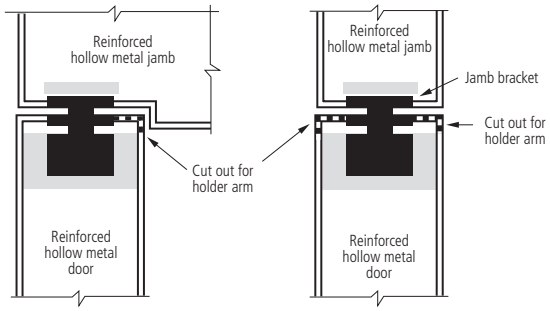
For situations where a wall or a similar obstruction is in place at an opening angle of 110° or less (e.g. doors opening back-to-back), **dead stop** templating should be used. This includes all hold open, stop only and friction models. The **dead stop** position is reached when the shock-absorbing spring is fully compressed, allowing an initial degree of opening of 5° to 7° less than the dead stop opening.

For example: If the holder is templated for 100° dead stop, the door will hold open somewhere between 93° and 95°, and open no further than 100°.

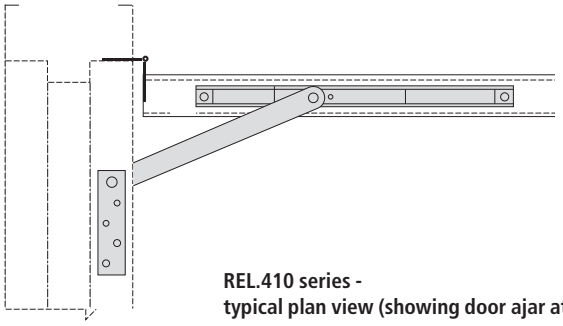
Concealed Installation

Concealed overhead door holder and stop installation requires that the 'jamb bracket' is installed flush with the underside of the head frame. The arm and channel must be installed in the door's top rail with the arm flush with top of the door. A cut-out must be made for the arm on the stop side of single acting doors. Double action or 'swing-through' doors require a cut-out for the arm on both sides of the door - see the illustrations below.

Typical layout for single and double action doors



Accurate template drawings for each holder give complete reinforcement and morticing specifications. They are readily available from the sales office.



REL.410 series -
typical plan view (showing door ajar at 90°)

Materials and Finishes

All models are available in 300 series Stainless Steel, Brass and Steel substrates. Stock finishes include **US32D** satin stainless steel and **SP28** powder coated silver.

How to Specify or Order

Example	41 — 3 — F — SP28 — SOC
REL.410 Series	
Size (from table on page 34)	
Function (hold open, stop or friction)	
Finish (SP28 = powder coated silver)	
SOC (Hex-pin security screws)	

Type D - Standard Duty Mechanical Door Controls

REL.450 Series Standard Duty -
Surface Overhead Door Holders/Stops

The **REL.450** series offers the industry's widest variety of functions, base materials and finishes to fit all standard (medium) to light duty applications. The perfect combination of form and function, **REL.450** series holders and stops offer effective door control and a low-profile design. The visible components are available in a wide variety of architectural finishes to complement any design.

REL.450

These versatile models can be used with almost all Axis surface overhead door closers . Templates provide variable mounting positions allowing hold open and stop positions between 85° and 100°. **REL.450** series holders and stops accommodate doors hung with conventional full mortice hinges, offset and centre hung pivot sets (consult sales office for more details).

Three distinct versions offer solutions as follows:

- **REL.450H** Series Hold Open Model – **Standard Duty**

Holding the door open at a pre-determined position for long or short periods. The hold open function is an automatic mechanism that 'kicks-in' when the door is opened to a preset angle. Tension is adjusted using an Allen key.

- **REL.450S** Series Stop Only Model – **Standard Duty**

Providing an effective 'out of the way' auxiliary stop when the hold open function is not a requirement.

- **REL.450F** Series Friction Hold Open Model – **Standard Duty**

Used in situations where multiple hold open points are desirable. Friction tension is adjusted using an Allen key.

Each model is available in five sizes as shown in the **table on page 34**.

Materials and Finishes

All models are available in 300 series Stainless Steel, Brass and Steel substrates. Stock finishes include **US32D** satin stainless steel and **SP28** powder coated silver.

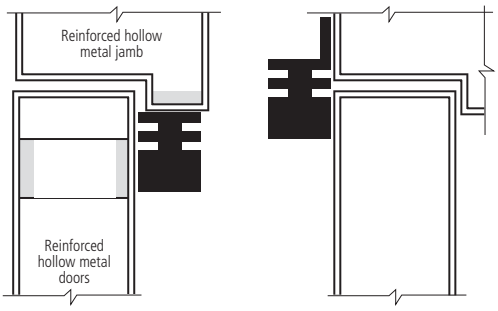
Suffix .J -
(Angle Jamb Bracket)

An additional option on the **REL.450** series is the Angle Jamb Bracket for hinge side or flush transom mounting. The angle jamb bracket affixes to the standard jamb bracket. If ordered with the overhead stop or holder add suffix **.J** If needed separately order **REL.450** Angle Jamb Bracket.

Surface Installation

Surface mounted overhead door holder and stop installation does not require morticing of either the jamb or the door. The jamb bracket is mounted normally to the underside of the stop. The channel is surface mounted to the face of the door. Hollow metal frames must be reinforced in the jamb to provide strength for the jamb bracket. For timber doors and frames the available timber must be adequate for the holder specified.

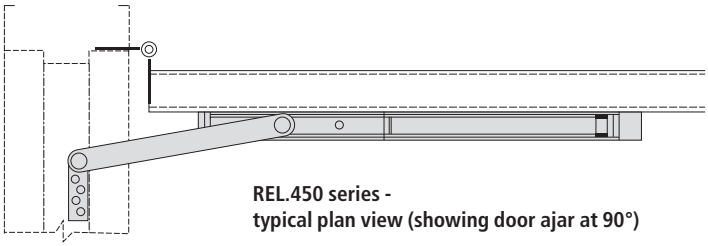
Typical layout for single action doors showing push side and hinge side applications



A typical surface mounted installation is shown above (left) where the jamb bracket is fastened to the stop.

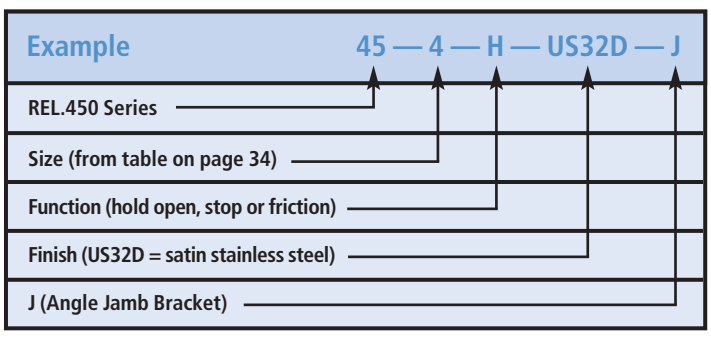
Angle jamb brackets are available for hinge side mounting and for use with rebated doors or flush transom installations.

Jamb brackets with special shims for use on jambs with blade stops are also available. Advise the stop height and the appropriate shim kit will be provided.



**REL.450 series -
typical plan view (showing door ajar at 90°)**

How to Specify or Order



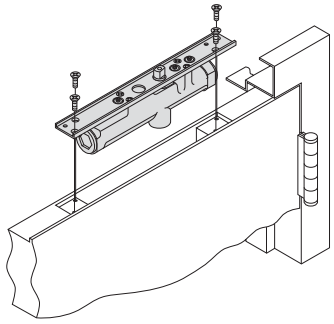
Type D - Standard Duty Mechanical Door Controls

Door Top Rail Concealed

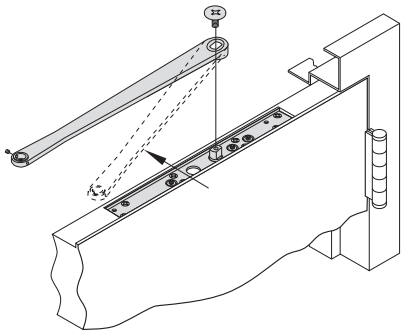
An Introduction

LCN pioneered the concealed-in-door closer. The **REL.3130** series is ideal for use on internal doors where aesthetics are of importance.

The standard compact cylinder is a handed cast iron cylinder assembly with mounting plate and is installed in the top rail of the door.

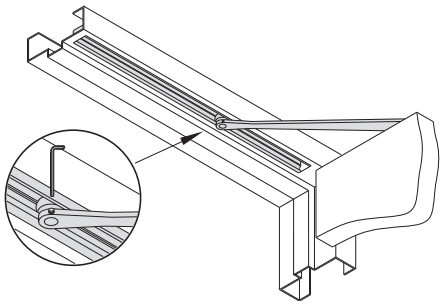


The standard **REL.3130-3077T** arm is handed (see opposite column).



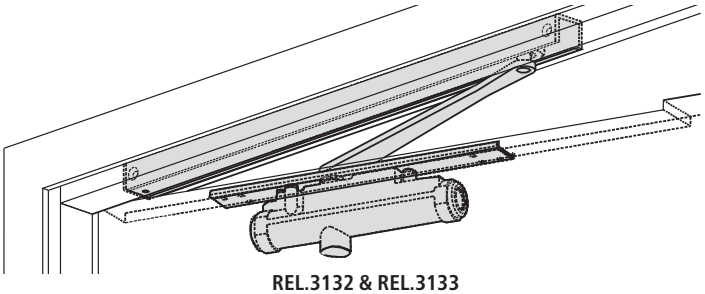
The standard **REL.3130-3038** is a non hold open, non-handed track and accepts the **HO Clip** (hold open clip) and/or bumper assembly -

(See page 33 for **REL.2010** & **REL.2030** track accessories and options - these are common to the **REL.3130** also).



The **REL.3130** series is a US fire rated product* for use on previously tested timber or mineral composite door sets. Seek advice from the door manufacturer before specifying this closer since the removal of timber at the door's top rail will affect the door's integrity.

REL3130 Series -
Concealed in Door Mounting



REL.3132 & REL.3133
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.3130** series closer shipped with standard arm, standard track, track roller and wood & machine screw pack
- Sized cylinders **REL.3132** for interior doors to 864mm & **REL.3133** for interior doors to 965mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- For hollow metal or timber doors and frames
- Standard or optional custom powder coated finish - Optional plated finish on arm and fasteners

Concealed Mounting
For interior doors only. Single acting cylinder and arm in door top rail. Concealed track in head frame.

Maximum Opening
Butt hinge template allows 140° or 100° with the optional bumper installed. Adjustable hold open points from 85° to 100° with the hold open track.

Consult Axis for all pivot mounted installations.

Butt Hinges should not exceed 127mm in width.

Auxiliary Stop is recommended.

Top Rail minimum 102mm.

Door Thickness minimum 45mm - but check with the door manufacturer to ensure integrity is maintained.

Door Width minimum 660mm.

Standard Finish - US28 powder coated silver.

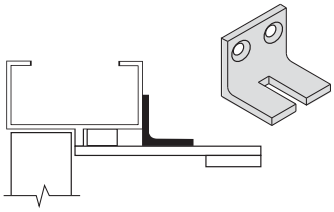
***US Fire Certification only.**
***UL Listed for labelled doors.**

Type D - Standard Duty Mechanical Door Controls

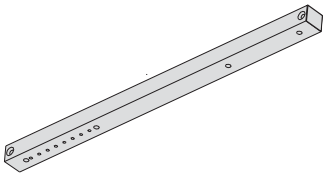
Surface Mounted Accessories, Brackets & Arms

REL.1460-30 - Cush-Shoe Support.
Provides anchorage for the 5th screw when fixing the PA shoe to narrow push side reveals.

Also suits **REL.1260** series (**REL.1260-30**).

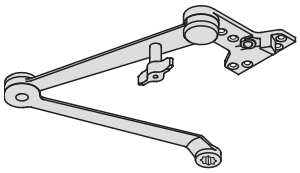


REL.1460-3038 - Non hold open universal track.
Used with all **REL.1000** series track arm closers.



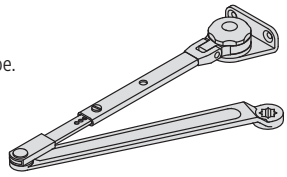
REL.1460-3049CNS - Hold Open Cush-N-Stop Arm.
Providing a selectable hold open function with a 'handle' or 'snib' control.

Not available with **REL.1260** series.



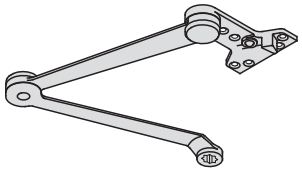
REL.1460-3049H - Hold Open Arm.
Providing a hold open function - adjustable at the shoe.

Also suits **REL.1260** series (**REL.1260-3049H**).



REL.1460-3077CNS - Extra Duty Parallel Arm.
Including an integral stop on the PA shoe.

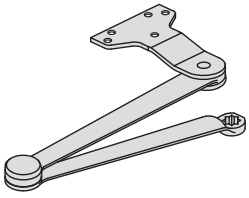
Not available with **REL.1260** series.



REL.1460-3077EDA - Extra Duty Double Lever Arm.
Both main arm and forearm** constructed of solid forged steel for extra strength.

**PA (parallel arm) applications only unless using 'High Security' closers (See page 48).

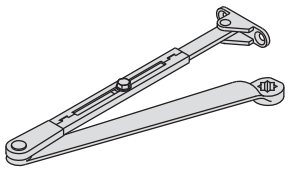
Not available with **REL.1260** series.



REL.1460-3077REG - Regular Double Lever Arm.
The geometry of the arm provides superior leverage and greater mechanical advantage on hinge side, top jamb and parallel arm* applications.

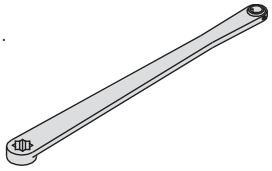
*Requires **REL.62PA** - PA shoe.

Also suits **REL.1260** series (**REL.1260-3077REG**).



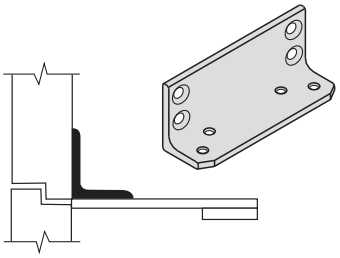
REL.1460-3077T - Single Lever Standard Track Arm.
Connects directly the cylinder assembly (via the nylon track roller - **REL.1460-3034**) to the track.

Also suits **REL.1260** series (**REL.1260-3077T**).



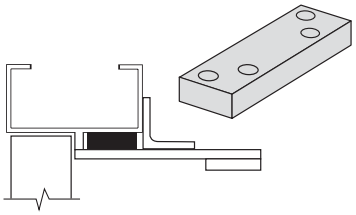
REL.1460-418 - PA Shoe Adaptor.
Providing horizontal mounting for the PA shoe on a flush door and frame application.

Also suits **REL.1260** series (**REL.1260-418**).



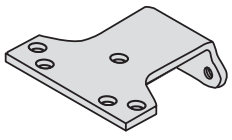
REL.1460-61 - Blade Stop Spacer.
Lowering the parallel arm 13mm allowing the arm to clear the underside of the stop.

Also suits **REL.1260** series (**REL.1260-61**).



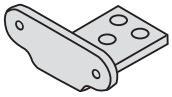
REL.1460-62PA - Parallel Arm Shoe.
Attaches the forearm to the underside of the reveal on parallel arm applications.

Also suits **REL.1260** series (**REL.1260-62PA**).



REL.1460-65 - Soffit Shoe.
Enables the regular arm to be fixed to a radius where a 90° break is not available.

Also suits **REL.1260** series (**REL.1260-65**).



Type E - Special Solutions

REL.4210 & REL.4510 -
High Security Door Controls

Applications

The High Security variant of the **REL.4000** series of heavy duty door closers is designed for areas subject to potential abuse or vandalism. The closers listed here are for use on aluminium, hollow metal and timber doors & frames.

Standard Features & Benefits

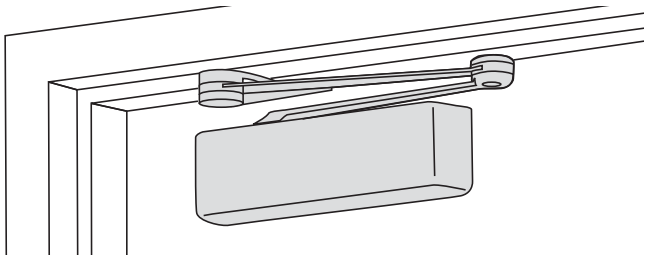
- **Vandal Resistant Design** – For hinge (pull side) and stop face (push side) mounting
- **REL.4000 Series Cylinders** – Independently tested to offer a guaranteed 10 million cycles
- **Application Specific** – Engineered for left hand (clockwise closing) or right hand (anti-clockwise closing) doors with no compromises
- **Security Fixings** – Furnished with hex-pin tamper resistant machine screws
- **Metal Covers** – Heavy gauge steel covers with four fixing points
- **Adjustment protection** – All adjustments are protected when the cover is in place
- **Warranty** – All High Security closers (shown here) carry a 10 year limited warranty

Security Fasteners

The hex-pin machine screw pack contains tamper resistant machine screws for installing the closer. **REL.TB** Through Bolts for hex-pin machine screws are available for all high security closers shown here. Through Bolts can be installed on 44mm thick doors with the1/4-20 hex-pin screws supplied with the closer. Optional sizes are available for varying door thicknesses.

Special driver bits are required for the installation and removal of hex-pin machine screws. The specific bits required for installation are sold separately. Please consult the sales office.

REL.4210 Series -
Parallel Arm (Push Side) Mounting

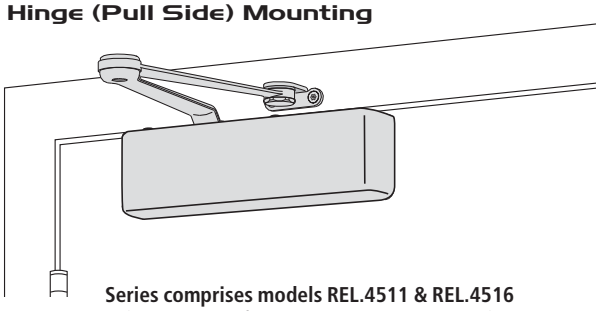


Series comprises models REL.4211 & REL.4216
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.4210** series closer shipped with **EXTRA DUTY** arm, metal security cover and hex-pin security screw pack
- Non-sized cylinders (**REL.4211**) adjustable for interior doors to 1372mm and exterior (perimeter) doors to 1067mm
- Sized cylinders (**REL.4216**) for interior doors to 1524mm and exterior (perimeter) doors 1220mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- Standard or optional custom powder coated finish – Optional plated finish on arm, cover and fasteners

Refer to templates and installation instructions for all setting out instructions, optional adaptor plates and miscellaneous features.

REL.4510 Series -
Hinge (Pull Side) Mounting



Series comprises models REL.4511 & REL.4516
(consult table of sizes & options - pages 50 - 52)

- Standard **REL.4510** series closer shipped with **EXTRA DUTY** arm, metal security cover and hex-pin security screw pack
- Non-sized cylinders (**REL.4511**) adjustable for interior doors to 1372mm and exterior (perimeter) doors to 1067mm
- Sized cylinders (**REL.4516**) for interior doors to 1524mm and exterior (perimeter) doors 1220mm
- Handed for clockwise (left hand) and anti-clockwise (right hand) closing doors
- Standard or optional custom powder coated finish – Optional plated finish on arm, cover and fasteners

Refer to templates and installation instructions for all setting out instructions, optional adaptor plates and miscellaneous features.

Type E - Special Solutions

Special Solutions -
Overhead Door Controls & Applications

An Introduction

By combining superb engineering with the finest materials available, LCN Closers has produced an incredibly reliable piece of machinery which, with only a little ingenuity, can be used to solve many door and gate closing problems in a way that has not been possible previously.

REL.4040.TANDEM -
Overhead Door Closer

Basic Principles

It should be borne in mind that the correct choice of door control involves many factors, not least the 'sail area' - i.e. a combination of the door's height and width. In general terms all Axis heavy duty overhead door closers are capable of controlling conventional doors up to 136 kilos in weight although it must be further borne in mind that all doors must be free swinging; the correct choice of hinges and pivots being a critical prerequisite.

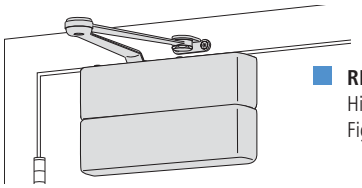
Where doors exceed the 136 kilo limit, a proven custom solution exists. Developed over many years the **REL.4040.TANDEM** Overhead Door Closer comprises two heavy duty cylinders linked to produce considerable power without any loss of control and suits doors up to a **272 kilo maximum**.

Additional cylinders can be introduced for extra heavy doors in excess of 272 kilos - consult the sales office for further information.

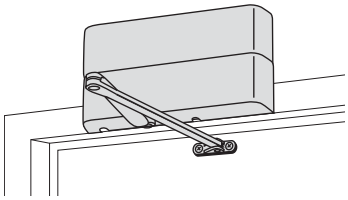
Application

The **REL.4040.TANDEM** suits any free swinging single action door and can be designed to suit any one of three mounting positions, each incorporating variations of the **EDA Extra Duty Arm**.

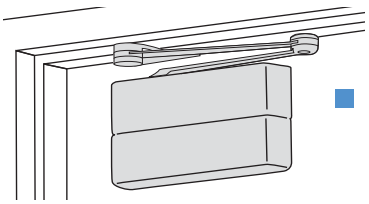
How to specify or order



REL.4040.TANDEM - Hinge (Pull Side) Mounting - Fig. 1



REL.4040.TANDEM - Top Jamb (Push Side) Mounting - Fig. 61



REL.4040P.TANDEM - Stop Face (Push Side) Mounting - Fig. 6

Standard Finish - US28 Powder Coated Silver

REL.1461TB 'Breakout' -
Overhead Door Closer

Basic Principles

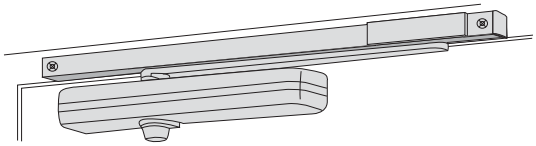
In some high security situations such as young offenders' institutions it can be necessary to 'upgrade' the security level of doors to ensure that rooms remain secure at all times but also offer safe and immediate release when necessary.

Application

A typical scenario may involve a series of bedroom doors in a secure unit, each opening off a corridor. Ideally, doors would open out into the corridor (away from the bedrooms) ensuring occupants were unable to barricade themselves in the room. Unfortunately, in most cases, room and corridor design dictates otherwise since doors opening regularly into corridors would cause a hazard to passing traffic. Consequently doors must open into the room and be available for fast emergency release from the corridor side by authorized personnel.

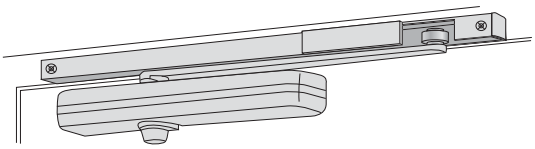
The closer is one part of a three part solution to this requirement that can be used as a whole or in part, dependent upon the specific requirements of the system (see also Hinges & Pivots brochure - Emergency Rescue Hardware).

Since most bedroom doors in this type of environment are fire doors an overhead closer is a prerequisite. The **REL.1461TB** is a fire rated track arm closer and is fixed to the door's top rail on the corridor side (out of harm's way) allowing the door to open out into the corridor when necessary.



Operation

The key feature of this solution is the 'break-out' track; comprising a slider system allowing the nylon arm roller to 'pop out' of the track (when the emergency stop is released) and the door to open in the opposite direction, i.e. away from any obstacle . The slider is normally secured in place using a hex-pin screw fixing – an appropriate tool is provided.



It is essential that the door and frame detail is known prior to final specification since the vertical layout of this closer is critical. This product is handed LH or RH and is the same hand as the door during the door's normal operation.

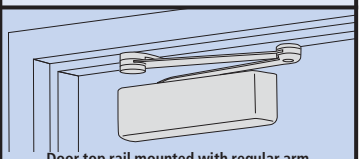
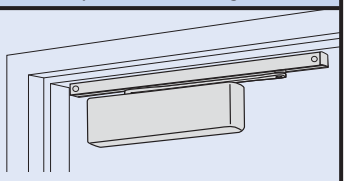
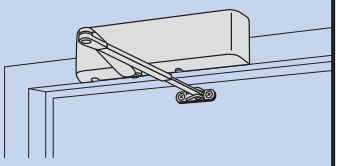
How to Specify or Order

REL.1461TB - Breakout Overhead Door Closer.

Standard Finish - US28 Powder Coated Silver.

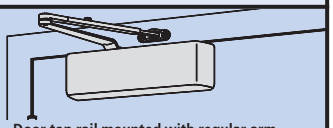
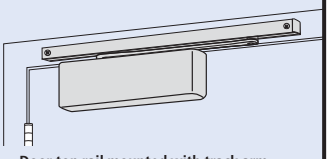
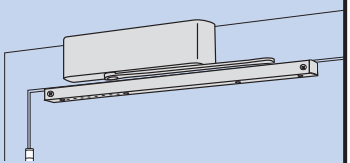
UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 **120 mins.**
BS EN 1154:1997.

Critical Dimensions Chart - I

	A MIN. TRANSOM DEPTH	A.18 MIN. TRANSOM DEPTH W. PLATE	B MIN. VISIBLE TOP RAIL	B.18 MIN. VISIBLE TOP RAIL W. PLATE	C. MIN REVEAL	HANDED	PUSH SIDE APPLICATIONS
REL.4041P	-	-	137	51	25 & 38 *	x	 Door top rail mounted with regular arm
REL.1461P	-	-	111	44	25 & 38 *	x	
REL.1261P	-	-	111	44	25 & 38 *	x	
REL.4111 & 4116	-	-	130	51	25 & 38 *	√	
REL.4841 & REL.4846ST	-	-	-	105	25 & 38 *	x	
REL.4040SE	-	-	146	51**	32	x	 Door top rail mounted with track arm
REL.1460SE	-	-	102	38**	32	x	
REL.4041T	-	-	133	89	32	x	
REL.1461T	-	-	102	38	32	x	
REL.1261T	-	-	102	38	32	x	
REL.4113T & 4114T	-	-	133	57	32	√	
REL.4041	100	45 ***	32	57	-	x	 Top jamb mounted with regular arm
REL.1461	60	40 ***	48	70	-	x	
REL.1261	55	40 ***	44	64	-	x	
REL.4021 & 4026	100	51	38	51	-	√	
REL.4822 & 4826ST	75	51	-	44	-	x	

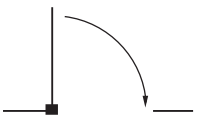
* with CUSH arm ** requires special template (ST) *** use 18TJ (top jamb) plate - See note on page 51

Critical Dimensions Chart - II

	E MAX. REVEAL	F MIN. TOP RAIL	F.18 MIN. TOP RAIL W. PLATE	G.MIN. TRANSOM DEPTH	G.18 MIN. TRANSOM DEPTH W. PLATE	HANDED	PULL SIDE APPLICATIONS
REL.4041	19	95	51	32	-	x	 Door top rail mounted with regular arm
REL.1461	19 & 13*	64	38	32	-	x	
REL.1261	19 & 13*	64	38	32	-	x	
REL.4011 & 4016	19 & 13*	95	51	32 & 35*	-	√	
REL.4040SE	3	89	44**	51	-	x	 Door top rail mounted with track arm
REL.1460SE	3	64	38**	51	-	x	
REL.4041T	3	95	44	38	-	x	
REL.1461T	3	64	38	38	-	x	
REL.1261T	3	67	38	38	-	x	
REL.4013T & 4014T	3	95	51	38	-	√	
REL.4041T	3	32	-	98	44***	x	 Top jamb mounted with track arm
REL.1461T	3	32	-	70	44***	x	
REL.1261T	3	32	-	70	44***	x	
REL.4023T & 4024T	3	32	-	98	44	√	
REL.4811 & 4816ST	3	32	-	102	55	x	

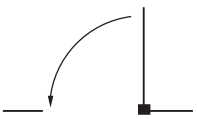
* with hold open arm ** requires special template (ST) *** use 18TJ (top jamb) plate - See note on page 51

Clockwise Closing = Left Hand



LH

Anti-Clockwise Closing = Right Hand



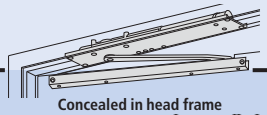
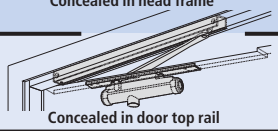
RH

How to use the Charts

Select the closer that best suits your requirements. Choose the appropriate mounting position (remember **REL.4040, REL.1460 & REL.1260** series closers each mount in one of three applications).

Read off the critical dimensions and check against your door and frame details. If in doubt please check with the sales office. We shall be pleased to assist you in ensuring your choice of closer is appropriate.

Critical Dimensions Chart - III

	D MIN. DOOR THICKNESS	F MIN. TOP RAIL	G MIN. TRANSOM DEPTH	L MIN. STOP DEPTH	X MIN. TRANSOM WIDTH FROM PULL FACE	HANDED	CONCEALED APPLICATIONS
REL.2013/4/5 & 6	45	40	102	13	65	√	 Concealed in head frame
REL.2032/3/4 & 5	45	40	45	13	102	√	
							 Concealed in door top rail
REL.3133SE & 3134SE	45	102	30	13	45	√	
REL.3132 & 3133	45	102	30	13	45	√	

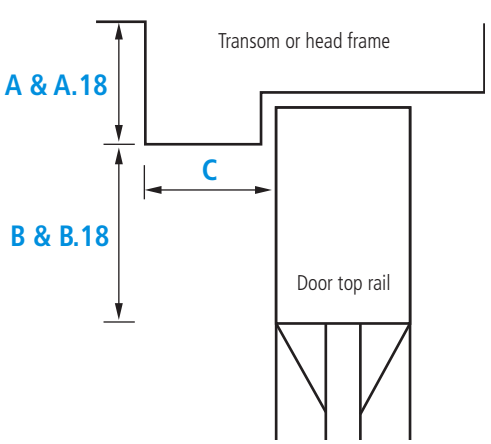


Chart - I

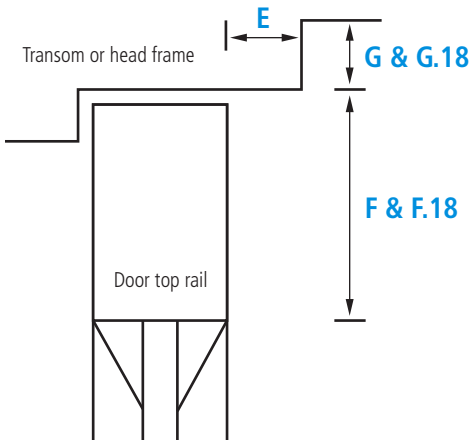


Chart - II

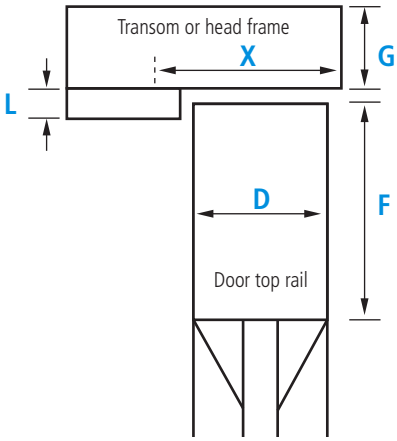


Chart - III

Notes on Drop Plates, Transom Depths and Clearance

Chart I
The minimum transom depth (**A.18**) denotes the minimum requirement for fixing the drop plate. Top jamb installations still require additional clearance up to the minimum transom depth (**A**) listed in the adjacent column in order to accommodate the full height of the closer body.

Top jamb installations, (with reg arm) where flush or low ceilings cause a problem, are accommodated using the **18TJ** and **18G** drop plate which drop the closer body even lower. Use of the **18TJ** and **18G** plate means that the minimum visible top rail dimension increases accordingly as shown in **Chart I**.

Chart II
The minimum transom depth (**G.18**) denotes the minimum requirement for fixing the drop plate. Top jamb installations (with track arm) still require the minimum transom depth (**G**) listed in the adjacent column in order to accommodate the full height of the closer body – since the closer arm must always pass over the top of the door for this application.

Please consult the sales office if further clarification is required.

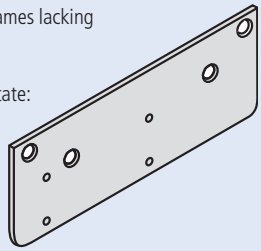
Drop Plates (suffix.18)

A wide range of drop plates facilitate installation on doors/frames lacking substantial material to make a good fixing.

When specifying drop plates for universal mounting closers state:

.18 drop plates for pull side
.18PA drop plates for parallel arm
.18TJ or .18G drop plates for transom mount

All application specific closers use **.18 drop plates**



KEY

- **A-** Minimum transom depth when mounting the closer directly
- **A.18-** Minimum transom depth when mounting the closer with a drop plate
- **B-** Minimum visible top rail (i.e. below the stop) when mounting the closer directly
- **B.18-** Minimum visible top rail (i.e. below the stop) when mounting the closer with a drop plate
- **C-** Minimum reveal
- **D-** Minimum door thickness
- **E-** Maximum reveal
- **F-** Minimum top rail when mounting the closer directly
- **F.18-** Minimum top rail when mounting the closer with a drop plate
- **G-** Minimum transom depth when mounting the closer directly
- **G.18-** Minimum transom depth when mounting the closer with a drop plate
- **L-** Minimum stop depth
- **X-** Minimum transom width from pull face

Critical Dimensions Chart - 1V

This chart details recommended minimum and maximum door leaf widths for exterior and interior installations

Page #	Model #	Minimum to maximum door widths (mm) Exterior → Interior 610	660	711	762	864	914	965	1067	1220	1372	1524
10	2613	610	660	711	762	864	914	965	1067	1220	1372	1524
10	2614	610	660	711	762	864	914	965	1067	1220	1372	1524
10	4811	610	660	711	762	864	914	965	1067	1220	1372	1524
10	4816ST*	610	660	711	762	864	914	965	1067	1220	1372	1524
11	4822	610	660	711	762	864	914	965	1067	1220	1372	1524
11	4826ST*	610	660	711	762	864	914	965	1067	1220	1372	1524
11	4841	610	660	711	762	864	914	965	1067	1220	1372	1524
11	4846ST*	610	660	711	762	864	914	965	1067	1220	1372	1524
22	3133SE	610	660	711	762	864	914	965	1067	1220	1372	1524
22	3134SE	610	660	711	762	864	914	965	1067	1220	1372	1524
23	1460SE	610	660	711	762	864	914	965	1067	1220	1372	1524
24	4040SE	610	660	711	762	864	914	965	1067	1220	1372	1524
26	4011	610	660	711	762	864	914	965	1067	1220	1372	1524
26	4016	610	660	711	762	864	914	965	1067	1220	1372	1524
26	4013T	610	660	711	762	864	914	965	1067	1220	1372	1524
26	4014T	610	660	711	762	864	914	965	1067	1220	1372	1524
27	4021	610	660	711	762	864	914	965	1067	1220	1372	1524
27	4026	610	660	711	762	864	914	965	1067	1220	1372	1524
27	4023T	610	660	711	762	864	914	965	1067	1220	1372	1524
27	4024T	610	660	711	762	864	914	965	1067	1220	1372	1524
28	4111	610	660	711	762	864	914	965	1067	1220	1372	1524
28	4116	610	660	711	762	864	914	965	1067	1220	1372	1524
28	4113T	610	660	711	762	864	914	965	1067	1220	1372	1524
28	4114T	610	660	711	762	864	914	965	1067	1220	1372	1524
29	4041	610	660	711	762	864	914	965	1067	1220	1372	1524
30	4041T	610	660	711	762	864	914	965	1067	1220	1372	1524
31	4003T	610	660	711	762	864	914	965	1067	1220	1372	1524
31	4004T	610	660	711	762	864	914	965	1067	1220	1372	1524
32	2013	610	660	711	762	864	914	965	1067	1220	1372	1524
32	2014	610	660	711	762	864	914	965	1067	1220	1372	1524
32	2015	610	660	711	762	864	914	965	1067	1220	1372	1524
32	2016	610	660	711	762	864	914	965	1067	1220	1372	1524
33	2032	610	660	711	762	864	914	965	1067	1220	1372	1524
33	2033	610	660	711	762	864	914	965	1067	1220	1372	1524
33	2034	610	660	711	762	864	914	965	1067	1220	1372	1524
33	2035	610	660	711	762	864	914	965	1067	1220	1372	1524
40	1461	610	660	711	762	864	914	965	1067	1220	1372	1524
41	1461T	610	660	711	762	864	914	965	1067	1220	1372	1524
42	1261	610	660	711	762	864	914	965	1067	1220	1372	1524
43	1261T	610	660	711	762	864	914	965	1067	1220	1372	1524
46	3132	610	660	711	762	864	914	965	1067	1220	1372	1524
46	3133	610	660	711	762	864	914	965	1067	1220	1372	1524
48	4211	610	660	711	762	864	914	965	1067	1220	1372	1524
48	4216	610	660	711	762	864	914	965	1067	1220	1372	1524
48	4511	610	660	711	762	864	914	965	1067	1220	1372	1524
48	4516	610	660	711	762	864	914	965	1067	1220	1372	1524

***Consult sales office** **Important note** - All drawings shown in this brochure are for illustrative purposes only.

axis

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