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Hinges & Pivots

for Specifiers, Architectural Ironmongers & Door Hardware Specialists

Introducing the *LifeSpan*
REL.CB1960R a CE marked hinge
Available exclusively from Relcross



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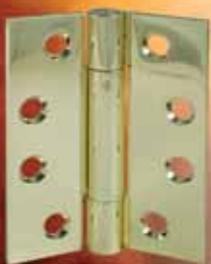
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Important note

All drawings shown in this brochure are for illustrative purposes only. Warranty information, installation instructions and templates are available to download at www.relcross.co.uk

Introduction to the range

hinges & pivots

Solutions

Most door hardware industry professionals and specifiers will know of the important role correctly specified hinges play, particularly on fire compartmentation doors, doors on escape routes and doors in busy thoroughfares. With this in mind, Relcross has promoted the highest quality architectural grade hinge solutions to the hardware industry in the United Kingdom since 1980.

Relcross is closely allied to some of the finest hinge manufacturers in the world today. Together with our partners at Stanley Hardware, Pemko Manufacturing and Ives we believe we have put together the most comprehensive range of commercial grade solutions available from one source anywhere in the world.

The Importance of Correct Specification

It is all very well having access to a vast range of quality products but this is of little use without a comprehensive understanding of how, where and when to specify each product. This brochure attempts to simplify the specification process for you by drawing together a number of basic criteria. Pages 4 to 9 concentrate solely on the specification process giving you, the specifier, peace of mind that not only have you specified a product capable of performing the necessary task but also that you have complied with regulatory requirements inasmuch as the product you use has up-to-date certification and will not let you down.

Certification – CE Marking

European Union Law in the United Kingdom recognizes the following EU Directives

- Construction Products Directive 1989
- Construction Products Regulations 1991

The Construction Products Directive is an instrument of the single market. It requires that all construction products* be CE marked before being placed on the European Market.

(*relating to health and safety)

What does it all mean in layman's terms? Essentially, and very briefly, it means that all door hardware products sold, or offered for sale, for use on fire doors and fire escape doors must comply with the CPD. That is all it means. No more. No less.

Compliance with the directive will become mandatory eventually for a number of types of door hardware, including single axis hinges. Specifically, the directive states that single axis hinge products must satisfy the requirements of relevant EU Technical Specifications, these are the European Standards:

Namely:

- Stage 1 (Performance) – BS EN 1935: 2002 Grade **
- Stage 2 (Fire) – EN 1634-1:2000 – E30 & E60
- Stage 3 (Manufacture) – Factory Production Control

Where appropriate, all products shown in this brochure, bearing the CE mark logo, have undergone the three stage certification process summarized above.



CE

Getting it Right First Time - Concealed Bearing Hinges

The majority of conventional butt hinges included in this brochure are 3 knuckle concealed bearing hinges. This range offers a comprehensive choice of sizes and features to suit most applications and door types.



This patented two piece **LifeSpan** bearing system is an integral part of the design on all REL.CB1960R and REL.CB1961R concealed bearing hinges.

Performance & Warranty - REL.CB1960R and REL.CB1961R*

The CB concealed bearing system is a revolutionary concept in bearing construction and materials developed by our manufacturing partners at Stanley. It eliminates metal to metal contact between knuckles by creating its own bearing surface between the washer and the sleeve. As the stainless steel washer extends into the sleeve it eliminates metal to metal contact between the pin and barrel resulting in a smooth, quiet operation superior to that of a ball bearing assembly.

- Vertical wear performance - Exceeds BS EN 1935:2002
- Lateral wear performance - Exceeds BS EN 1935:2002
- Fewer horizontal barrel lines provide an aesthetically pleasing appearance
- Limited **LifeSpan** Warranty - for the life of the building

*REL.CB1961R is not a CE marked hinge

Pivots

Our range now includes quality offset and centre hung pivot sets suitable for a wide range of installations from high traffic situations to extra heavy doors and emergency rescue scenarios.

Continuous Hinges

Continuous hinges dissipate a door's weight and stresses along the full length of the door and frame instead of concentrating most of the stress on one top hinge.

Trouble free door operation is guaranteed. Our heavy duty continuous hinges have been tested successfully in excess of 2,500,000 cycles.

Technical & Specification Services

Relcross offers a free technical specification and advisory service to assist you in the correct choice of door hardware. 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

Relcross 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.

Tel: 01380 729600
Fax: 01380 729888

Correct Specification - Conventional Hinges

Factors Determining Selection

An array of external factors will affect the performance of any door set and all these factors should be considered when determining the choice of hinge. The Relcross route to a correct specification is summarized here.

The location and function of the door dictates the frequency of that door's usage. Location will also dictate the base material of the hinge, possibly its finish and definitely any special security features.

A combination of location, function and frequency of use will determine the door construction. Namely the materials used, the door height, width and thickness.

In turn, door construction along with other door hardware used (particularly door closers) are two factors directly influencing the door mass.

Door mass is a primary factor for consideration since this will affect the gauge of the material used in the hinge and the type and number of bearing surfaces necessary for correct load bearing.

The extent of the available overall bearing surface is dictated by the chosen hinge height and the number & type of hinges specified per leaf. Additionally, hinge location will affect greatly the ability of individual bearing surfaces to perform a worthwhile task.

Fasteners are an integral part of the hinge and due consideration should be placed on the correct choice. This choice will be influenced by the construction of the door, the application of the hinge (see below) and any additional security considerations.

Hinge Applications

The 'application' of a hinge refers to its shape and relative mounting position. Different shapes and positions allow hinges to behave differently geometrically and to accommodate varying types of door/frame materials. They can move the door through slightly different arcs thus avoiding obstacles to leave the door offset and out of harm's way. It should be borne in mind that varying the hinge application may affect the performance of door control hardware. Consult the appropriate door control technical binders for guidance in this respect.

The four basic mounting configurations are:

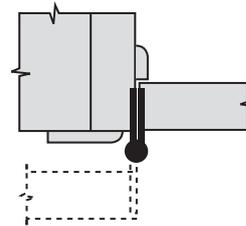
- FULL MORTICE
- HALF MORTICE
- FULL SURFACE
- HALF SURFACE

See the hinge configuration chart (opposite) for an explanation of each application.

Hinge Configuration Chart

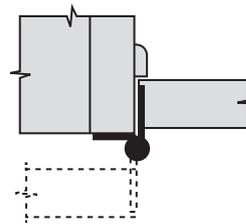
Full Mortice -

Standard configuration with one hinge leaf morticed, or recessed, in the edge of the door & one in the frame.



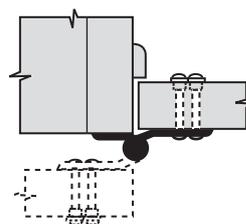
Half Mortice -

For frame assemblies that do not permit morticing - e.g. metal frames.



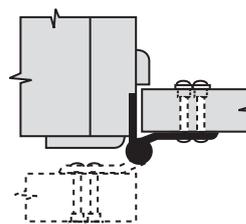
Full Surface -

For door/frame assemblies that do not permit morticing - both leaves are surface applied.



Half Surface -

For doors that do not permit morticing - the door hinge leaf is surface applied and bolted through.



The plan drawings show the general layout of each hinge in a typical situation and are for indication purposes only.

Correct Specification - Conventional Hinges

Door Location & Frequency of Use

Frequency of use can be estimated if you know the location of the door and the function of the building. For example, a school corridor door will be busier than a typical office door in a small solicitors office (see table below). Variations in frequency of use and abuse of a door will affect the performance of the hinge in similar ways to variations in door mass.

Frequency of Door Operation		
Building and Door Type	Daily	Annually
Dept. Store Entrance	5,000	1,500,000
School Entrance	1,250	250,000
Bank Entrance	500	150,000
School Corridor	80	15,000
Office Door	25	6,000

For hinge specification purposes Relcross classifies frequency of use as follows:

- **Low Frequency** - up to 50 full cycle operations per day
- **Medium Frequency** - up to 500 full cycle operations per day
- **High Frequency** - up to 5,000 full cycle operations per day

Door Construction, Dimensions & Mass

Door construction varies according to proposed usage. Inevitably, different materials vary considerably in mass. Mass is an important factor when determining hinge selection and must be one of the primary considerations.

The gauge of the material used in the hinge allied to the correct choice of bearing surface will usually address the mass issue (See page 7).

Timber doors vary in mass dependent upon the source material, e.g. Oak, Ash, Spruce etc. Some timber doors are solid core, some are veneered with a honeycomb infill. Metal doors vary dramatically in mass and construction. Information on door construction should be available from the Architect. If not, check the door manufacturers' technical specifications.

Average (Unadjusted) Door Mass Architectural Grade Doors

Material	44mm kg/m ²	54mm kg/m ²
Hollow Metal	24.40	29.95
Hollow Core	12.20	14.97
Solid Core	22.00	27.00
Mineral Core	19.50	23.93
Pine (White)	17.00	20.86
Oak	34.20	41.97
Ash	24.40	29.95
Mahogany	22.00	27.00

Some heavier doors will require alternative fixing methods, dictated by variations in the hinge application (See page 4).

Wherever possible, Relcross requires the Architect's drawings showing the details of all the doors on the project. It is possible to calculate door mass if you have the dimensional information and you know the door construction material.

Special Materials - Used in Door Construction

Occasionally, special materials are incorporated in a door's construction to facilitate a particular function. Careful attention should be given to such installations and precise dimensional detail should be sought prior to specification of the hinges.

Glass & Lead Lining

Thickness	Glass kg/m ²	Lead kg/m ²
0.4mm	-	4.90
1.6mm	-	18.30
3.2mm	-	36.60
6.4mm	17.00	73.20

Important Note - All the information shown on this page is 'typical' and is for guidance only. For precise information on door mass consult the door manufacturer. For a summary of other factors affecting door mass calculation please refer to page 6.

Correct Specification - Conventional Hinges

Factors Affecting Door Mass Calculation

Door Closers

Since all Relcross door hardware is designed for commercial grade installations, invariably the doors we deal with are fitted with overhead door closers. Relcross recommends closers exclusively from the LCN Closers range. All LCN door closers incorporate a back-check feature as standard.

Annexe E of BS EN 1935:2002 states that door closers increase the loading on hinges and their rate of wear. It is a safe assumption that doors fitted with correctly templated and adjusted LCN door closers have an effective door mass 75% greater than the measurable mass.

Excessive Door Width

This affects the adjusted door mass since wider doors increase the bending moment acting upon the hinges. This is compensated for by a reduction in the maximum door mass supportable by each class of hinge. To accommodate this 'reduction' we must increase the adjusted door mass by an appropriate level. This increase is calculated as follows and is summarized in the table below.

■ Factor = $\frac{\text{Height}}{\text{Width}}$ e.g. $\frac{2000}{1150} = 1.74$

■ Normal Increase (%) = $\frac{2.00 - \text{Factor}}{0.01}$

e.g. $(2.00 - 1.74) / 0.01 = 26\%$

Additional Mass for Wider Elements Door Height 2000mm		
Door Width	Factor	Normal Increase
1000mm	2.00	0%
1050mm	1.90	10%
1100mm	1.82	18%
1150mm	1.74	26%
1200mm	1.66	34%
1250mm	1.60	40%

Increased Door Height

Door height affects the number of hinges used. The hinge selection chart (See page 8) assumes three hinges per door and accommodates situations where neither the door's height nor width exceeds the stated parameters.

You will see on page 7 that all doors require one additional hinge for each 760mm of height above 2290mm.

Clearance of Trim

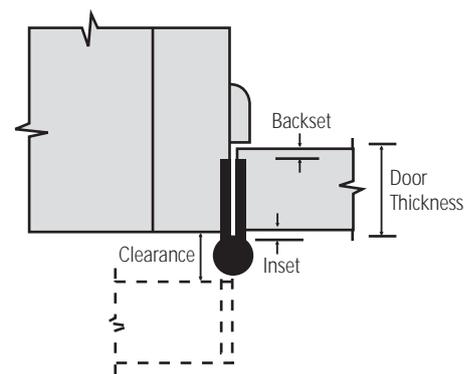
What do we mean by clearance of trim?

So far as hinges and pivots are concerned, 'trim' refers to the frame and any surrounding features in close proximity to the opening. These features become important if they interfere with the door during a normal opening and closing arc. When specified correctly, the hinge must enable the door to avoid these features completely, or where appropriate, to take them into account.

The following table shows standard Relcross hinge widths and the clearance they provide on standard door thicknesses.

Trim Clearance by Hinge Width		
Min. Open Width of Hinge	Door Thickness	Clearance Provided
89mm	35mm	<32mm
102mm	35mm	<44mm
102mm	44mm	<25mm
114mm	44mm	<38mm
114mm	54mm	<25mm

Formula to Determine Hinge Width - Where Additional Clearance is Required



■ $((\text{door thickness} - \text{backset}) \times 2) + \text{clearance} + \text{inset}$
= minimum open hinge width required

Decorative features such as architraves can be common problems, but more usually particularly deep reveals pose greater problems. Deep reveals will, in some instances, restrict a door's ability to open past 90°.

For other hinge applications:

Full Surface, Half Surface & Half Mortice:

Clearance is dictated by the offset of the hinge (i.e. its pivot point) rather than its width.

Correct Specification - Conventional Hinges

Choosing a Suitable Bearing Surface

A combination of the mass of the door and its frequency of use will determine whether the hinge you choose is from our Heavy Weight or Standard Weight options.

The **Heavy Weight** and **Standard Weight** options comprise hinges with anti-friction* bearings exclusively. Heavy weight hinges should be always used on heavy doors (See page 8) and doors where high frequency service is expected.

*Anti-friction bearings include the following two options:

- The **CB Series** - Three knuckle **CB** series concealed bearing hinges are our top of the range architectural solution. Built around a proven two-piece concealed bearing system that never needs maintenance, the **CB** bearing provides both lateral and vertical support.



(See pages 10 & 11 for further details).

- The **FM Series** - Ball bearing hinges have become the industry standard in many commercial and institutional applications. The ball race comprises hardened chrome alloy bearings and a (type 1008) steel sustainer for vertical support.



A plated steel or stainless steel non-rising pin is included for lateral support.

(See www.relcross.co.uk for further details).

For very light duty, low frequency door applications the **F Series** plain bearing hinge will usually suffice - (not shown in this brochure). Please consult the sales office for further information on this type of hinge.

Gauge of Hinge Material

The gauge of the metal used in the construction of the hinge varies between **Heavy Weight** and **Standard Weight** and over the different hinge size options (See the table below).

Gauge of Metal		
Hinge Size – mm Height x Width	Heavy Weight	Standard Weight
100/76 (REL.FM)	–	3.0mm
102/76 (REL.CB1960R)	–	3.3mm
102/89 (REL.CB1960R)	–	3.3mm
102/102 (REL.CB1960R)	–	3.3mm
114/102 (REL.CB1960R)	–	3.4mm
114/114 (REL.CB1961R)	4.6mm	–

Number of Hinges Required

A combination of the quantity of hinges specified along with their size and type will dictate the extent of the available bearing surface.

Hinge Numbers	
Door Height	Quantity
<1520mm	2
<2290mm	3
<3050mm	4
<3810mm	5
<4570mm	6

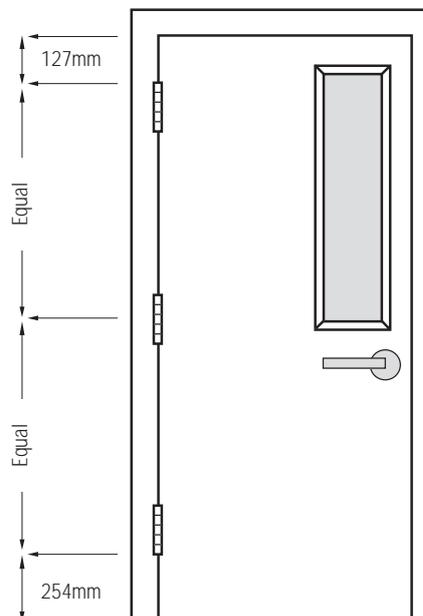
Typically, conventional doors in commercial situations are <2290mm in height and invariably call for 3 hinges per leaf. As a result, the majority of hinges detailed in this brochure are packaged in boxes of three.

Hinge Positions - Relative to Door Sizes & Mass

When fixing hinges certified to BS EN 1935:2002 Relcross recommends that the guidance detailed therein is followed.

Where hinges are to be used on fire doors then the information detailed in the fire test report is the overriding factor and should be followed accordingly.

For all other installations Relcross recommends the following:



Where door height dictates that additional hinges are required they should be fixed adjacent to and immediately below the top hinge.

Correct Specification - Conventional Hinges

Drawing The Specification Together

After establishing the criteria outlined in the previous pages it is necessary to apply this detail to the following table to determine hinge class, height & width.

Hinge Selection Guide (for Doors 2000mm x 1000mm)					
Unadjusted Door Weight / Kilos (not exceeding)	45kg	45kg	54kg	68kg	100kg
Adjusted Door Weight* / Kilos (not exceeding)	80kg	80kg	95kg	120kg	175kg
Door Thickness (minimum)	35mm	44mm	44mm	44mm	54mm
Hinge Size – mm (height/open width)	102/76	102/89	102/102	114/102	114/114
Gauge of Metal	3.3mm	3.3mm	3.3mm	3.4mm	4.6mm
Quantity of hinges per 2000mm x 1000mm Door	3	3	3	3	3
Anticipated Cycles / 24 Hours (Max.)	Class Code				
	Polished Brass Plated Stainless Steel	CE Marked Hinges – BS EN 1935:2002 & EN 1634-1:2000 – E30 & E60			
	Satin or Bright Stainless Steel				
<50 (low)	REL.FM**	✓			
<500 (medium)	REL.CB1960R	✓	✓	✓	✓
<5000 (high)	REL.CB1961R				✓

*Assumes doors fitted with LCN Overhead Door Closers

**FM hinges are 100mm x 76mm x 3mm gauge only

Class Code - Key

- REL.FM - Ball Bearing (Standard Weight) - Grade 13
- REL.CB1960R - Concealed Bearing (Standard Weight) - Grade 13
- REL.CB1961R* - Concealed Bearing (Heavy Weight)

*REL.CB1961R is not a CE marked hinge

Using The Table

The information contained in the table above is offered strictly as a guide to assist in the selection of hinges for normal situations. The major factors affecting hinge selection are addressed but no attempt has been made to include extraordinary factors such as abuse, impacts, hostile atmospheres or other such conditions that can, and often do, affect hinge performance.

The unadjusted/adjusted door weights listed (for CE marked hinges) are maximum figures allowable for doors expected to perform only to the criteria outlined in BS EN 1935: 2000 for Grade 13 hinges.

If your door falls within the standard criteria so far as sail area is concerned (i.e. height x width) then hinge selection becomes relatively straight-forward.

It is important to adjust the door weight where excess door width is a factor (See page 6) and to include additional hinges where excess height is a factor (See page 7).

All the standard weight hinge types shown are CE marked and can be used on fire escape doors and most fire doors - check certification requirements before final specification.

Creating the Hinge Code

Read off the class code and use the appropriate hinge size (height/open width) as a suffix to the code.



For example:

REL.CB1960R.102.89 signifies a concealed bearing standard weight hinge measuring 102mm high x 89mm open width.

Finishes

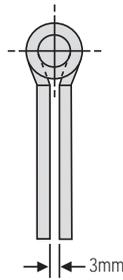
- US3 - Polished Brass Plated Stainless Steel
- US32 - Polished Stainless Steel
- US32D - Satin Stainless Steel

Hinge Features - Standard & Optional

This section describes features available by default (or to special order) on all the hinges described in the preceding section.

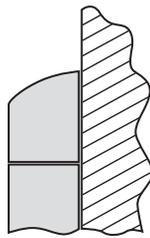
Hinge Swaging (standard 3mm)

Swaging is a slight offset of the hinge leaf at the barrel permitting the leaves to come closer together when parallel. Standard swaging on Relcross hinges is 3mm. A 3mm swage is usually sufficient to accommodate most seals and intumescent materials.



Hospital Tips - Anti-Ligature (optional)

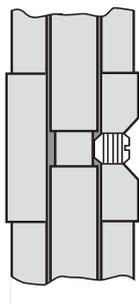
Hospital type barrel ends are sloped, making cleaning easier and making it difficult to attach ropes, clothing apparel and other items. The pin is held in place by a cross pin for increased security.



Use prefix **HT** - when ordering

Non-removable Pin (Optional)

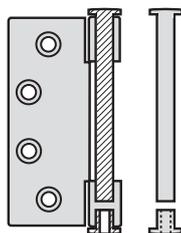
Enhanced security is available as an option in the form of a non-removable pin. A set screw in the barrel intercepts a small groove in the loose pin (see drawing). The set screw is not accessible when the door is closed.



Use suffix **NRP** - when ordering

Pin Design (standard)

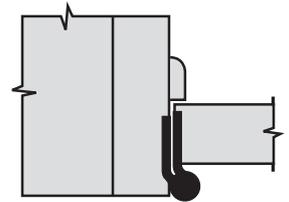
The non-rising pin construction features an easily seated pin that will not rise. A hole in the bottom tip provides for easy pin removal. The pin is removed by inserting a punch or a punch-like tool through the bottom hole of the tip and tapping upwards. This helps prevent marring of the hinge finish during pin removal.



(REL.CB1960R and REL.CB1961R only).

Raised Barrel (optional)

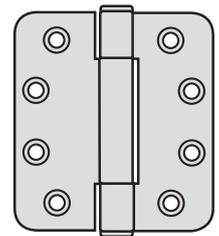
Used where doors are set deep in a reveal. The pivot point is offset at an angle of 45° allowing the hinge barrel to sit inside the reveal. Bending the barrel in this manner will produce unequal leaves. Hinges may be ordered with equal leaves if required. All raised barrel hinges are handed LH or RH. The sketch shows a plan view of a RH hinge.



Use prefix **RB** - when ordering

Radius Corners (optional)

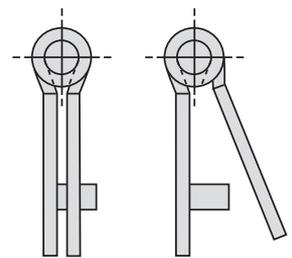
Standard Relcross hinge designs are offered with square corners by default. Radius corner hinges will aid installation when using a router (a power tool with a shaped cutter) for installing full mortise hinges to timber doors and frames. A 16mm radius is common.



Use prefix **RD** - when ordering

Security Stud (optional)

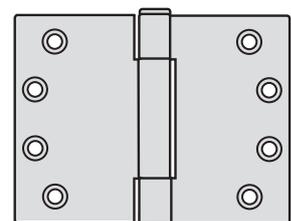
Full mortise hinges are available with studs for added security. With the door in its closed position, a stud attached to one leaf of the hinge projects into a hole in the matching leaf. The hinged side of the door cannot be moved, even with the hinge pin removed, since the stud prevents the leaves from being slid apart.



Use prefix **SEC** - when ordering

Wide Throw Hinge (optional)

A full mortise hinge with wider than normal leaves. Used when doors are set in a reveal and are required to open 180°.



Use prefix **WT** - when ordering

(See 'Clearance of Trim' - page 6)

HINGES & PIVOTS CONCEALED BEARING

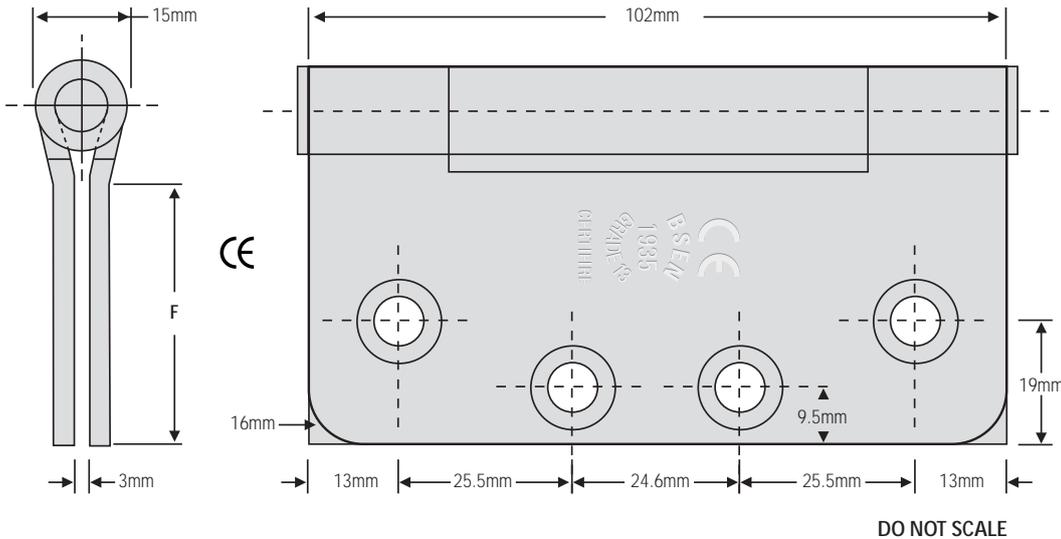
REL.CB196ORtemplate



REL.CB196OR Full Mortice Template Hinges

Template No. REL.E102

Sizes: 102mm x 76mm, 102mm x 89mm and 102mm x 102mm



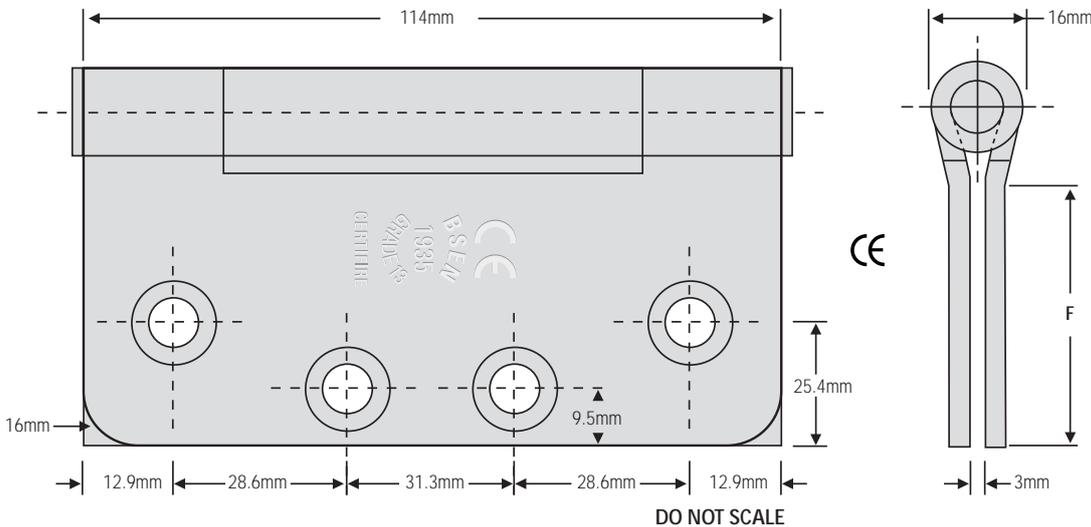
- CE-EC Certificate of Conformity 1720-CPD-0020
- Certifire Approved
- Manufacturing Facility ISO 9001 & ISO 14001 Certified
- Limited **LifeSpan** Warranty - for the life of the building
- Grade 304 Stainless Steel

Available options

- HT - Hospital Tip
- NRP - Non-removable Pin
- RD - Radius Corners (16mm standard)
- SEC - Security Stud (15mm standard)

Template No. REL.E114

Sizes: 114mm x 102mm only



BS EN 1935:2002

- Hinge Grade - 13
- Number of Test Cycles - 200,000
- Test Mass of Hinged Element - 120 kilos

Important Note: The test mass element of 120 kilos must not be interpreted as the maximum recommended capacity of all hinges passing this test successfully.

Please refer to the Hinge Selection Guide on page 8 for definitive guidance.

Similarly, the number of test cycles should not be interpreted as the maximum number of available cycles for doors incorporating this hinge. Under certain circumstances doors may exceed this figure significantly.

Class Code	Gauge of Metal	Distance from Edge of Leaf to Swage Line (F)			
		102mm x 76mm	102mm x 89mm	102mm x 102mm	114mm x 102mm
REL.CB196OR	3.3mm	27mm	33mm	41mm	-
REL.RD.CB196OR	3.3mm	27mm	33mm	41mm	-
REL.CB196OR	3.4mm	-	-	-	41mm
REL.RD.CB196OR	3.4mm	-	-	-	41mm

Supplied Screws: Pozidriv wood screws - No.12 x 32mm (8 per hinge).
Box Quantity: 3 off singles per box (48 off singles per case).

HINGES & PIVOTS SPRING HINGES

REL.2060R and REL.2060C

STANLEY

REL.2060R & REL.2060C - Stanley Spring and Companion Hinges

- Spring hinges are a proven cost effective and theft resistant alternative to conventional overhead door closers for use in apartments and other private dwellings
- Fitting reliable door closing hardware to internal fire door assemblies is essential (in our opinion) in all residential situations
- Relcross spring hinges combine both the hanging and closing of the door in one product
- Residents' occasional opposition to cumbersome and often ill-adjusted overhead door closers is understandable and can be addressed at the design stage by the introduction of spring hinges

REL.2060R.102.102



Standard Features & Benefits

- **Quick to Install** - Saves on installation costs compared with conventional overhead door closers
- **Lifetime Warranty** - Years of trouble free closing
- **Patented, Dependable Ratchet Adjustment** - Fast, one-handed hex key adjustment
- **Advanced Spring Design** - Square section spring for 25% extra power
- **LifeSpan Bearings** - No metal-to-metal contact
- **Safety Locking Screw** - Locks the tension spring setting and seals the hinge tip
- **UK Fire Approval** - For use on E30 & E60 and FD30 & FD60 fire doors
- **Un-sprung Companion Hinges** - Offer cost savings where conditions allow
- **'Grabber' Pintle** - No spring kink

Correct Specification

It should be borne in mind that the door size & weight, type of hinge, type of latch, type of smoke seal, door perimeter gaps and air pressure within a building all contribute to the closing action of a door. The specification should be considered as an entire solution and not as individual component parts.

Use spring hinges on internal doors only. Do not specify Relcross spring hinges to control external or perimeter doors. We always recommend using a minimum of three hinges on any door. Occasionally it may be possible to substitute one or two spring hinges with a corresponding number of companion hinges (i.e. un-sprung hinges) of the same size to reduce the overall cost.

Companion hinges are effectively spring hinges with the spring and ratchet mechanism removed. They are load bearing hinges but, so far as fire door installations are concerned, must only be used as part of a spring hinge set.

Important Note. We do not offer the REL.2060R hinges as an alternative to conventional door closing devices per se. We recommend, wherever possible, using devices offering door control throughout the opening and closing cycles, including a back-check feature as standard.

Certification Issues - Draft Standard prEN WI 0033 290 - Update

The draft standard for spring hinges and products of similar type will be sent shortly for its first CEN enquiry. The REL.2060R spring hinge will comply with the standard once it is finalized.

However, until such time as the draft standard prEN WI 0033 290 (see below) is adopted it is advisable (when specifying spring hinges) that the specific consent and approval of the local regulating body, i.e. the local fire officer is sought.

Fire Certification

UK Fire Approval: IFC Report IFCA/06239

EN 1634-1: 2000 - E30 & E60 Fire Doors and BS 476 part 22: 1987 FD30 & FD60 Fire Doors - as defined in the above report.



In summary:

REL.2060R spring hinges and REL.2060C companion hinges are assessed for use on previously tested and/or assessed 30 minute and 60 minute fire resisting timber doors of maximum leaf size:

- 2040mm high x 915mm wide (E30 & FD30)
- 1981mm high x 915mm wide (E60 & FD60)

- providing the conditions and limitations defined in IFCA/06239 are complied with. The doors to which hinges are fitted must have been tested or assessed for fire resistance according to BS EN1634 part 1: 2000 & BS 476: part 22:1987. Compliance limitations regarding leaf thickness and associated intumescent protection (as defined in IFCA/06239) is essential. This information is freely available from the Sales Office upon request.

Test reports and assessment reports are strictly confidential and are available for inspection at our offices by prior arrangement.

HINGES & PIVOTS SPRING HINGES

STANLEY

REL.2060R and REL.2060C

REL.2060R & REL.2060C - Stanley Spring and Companion Hinges

Standard Specification

For spring hinges and un-sprung companion hinges

- **Full Mortice** Template Drilled
- **Stock Sizes** 89mm x 89mm
102mm x 102mm
- **Gauge of Metal** 2.5mm
- **Stock Finishes** US26D Satin Chrome
US26 Polished Chrome
US3 Polished Brass

Optional Specification

For heavy duty spring hinges

- **Full Mortice** Template Drilled
- **Stock Sizes** 114mm x 102mm
114mm x 114mm
- **Gauge of Metal** 3.4mm
- **Stock Finishes** US26D Satin Chrome
US26 Polished Chrome
US3 Polished Brass

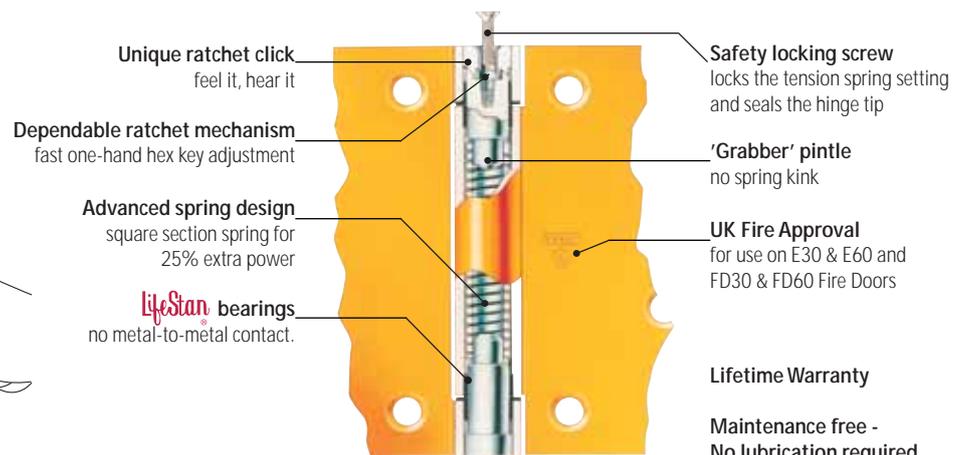
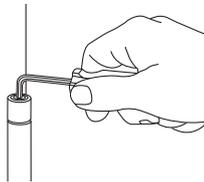
Optional Features

Available to special order

- **Radius Corners** Template Drilled with
16mm Radius Corners
(available on any listed finish)
- **Finishes** US32D Satin Stainless Steel
US32 Polished Stainless Steel

Ratchet Settings

All spring hinges fixed to the same leaf must be adjusted to the same setting. The actual setting is determined by prevailing conditions. To ensure correct installation the door must close and latch from any angle between 90° and 15° from closed.



Spring Hinge Selection Guide - For E30 & FD30 Fire Doors in Residential Dwellings

Hinge Size (door thickness - min.)	Door Weight/Kilos (not exceeding)	Max. Door Size E30 & FD30	Quantity of Spring Hinges	Quantity of Companion Hinges
89mm x 89mm (44mm*)	23 kilos	2040mm x 915mm	1 off Rel.2060R	2 off Rel.2060C
89mm x 89mm (44mm*)	39 kilos	2040mm x 915mm	2 off Rel.2060R	1 off Rel.2060C
89mm x 89mm (44mm*)	50 kilos	2040mm x 915mm	3 off Rel.2060R	-
102mm x 102mm (44mm)	23 kilos	2040mm x 915mm	1 off Rel.2060R	2 off Rel.2060C
102mm x 102mm (44mm)	39 kilos	2040mm x 915mm	2 off Rel.2060R	1 off Rel.2060C
102mm x 102mm (44mm)	50 kilos	2040mm x 915mm	3 off Rel.2060R	-
114mm x 102mm (44mm)	82 kilos	2040mm x 915mm	3 off Rel.2060R	-
114mm x 102mm (44mm)	82 kilos	2438mm** x 915mm	4 off Rel.2060R	-
114mm x 114mm (54mm)	82 kilos	2438mm** x 915mm	4 off Rel.2060R	-

*89mm x 89mm hinges can be used on door thicknesses down to 35mm. However, their use on door thicknesses other than 44mm nullifies UK fire approval.

**This door size falls outside UK fire approval - seek independent approval.

For commercial installations (including student accommodation) use conventional LCN overhead door closers (See Door Controls brochure).

Tel: 01380 729600
Fax: 01380 729888

HINGES & PIVOTS OFFSET HUNG

offset floor and jamb mounted

IVES.

Offset Floor & Jamb Mounted Pivot Sets

Pivots - Basic Principles

It is widely believed that pivot sets provide the most efficient means of hanging a door. All pivot sets (both centre hung and offset) work the same way with the weight of the door supported entirely by the bottom strap sitting directly upon the pivot spindle. The pivot method offers several important advantages:

- Fixings on the door and frame are in shear rather than tension meaning the fixings are less likely to fail or pull out over time
- This fixing method applies less stress to the frame preventing doors from sagging and offering a freer swinging door assembly
- Doors hung on pivots rely upon the strength of the floor to carry the load rather than the strength of the frame. It follows that considerably heavier doors can be carried safely

REL.7200 Series Pivots - Overview

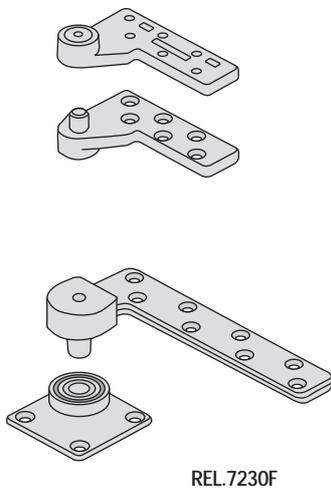
This series of pivots is a complete line of 19mm offset, centre hung, intermediate and power transfer pivots with all exposed parts made from brass or stainless steel for maximum corrosion resistance.

High strength brass and stainless steel forgings and castings are combined with precision bearings for smooth operation.

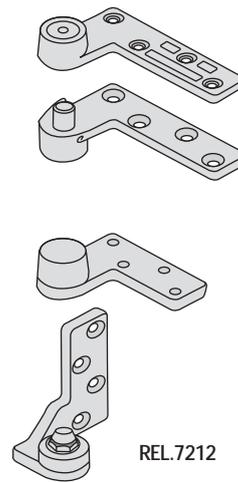
Positive locking vertical adjustment mechanisms allows the installer to position the door precisely to balance the load.

REL.7230F Heavy Duty 19mm Offset Pivot Set

- Non-handed - 19mm offset pivot set consisting of a base plate mounted REL.7230F bottom pivot and a head frame mounted REL.7230F top pivot
- Door thickness minimum 44mm
- Centre line offset 19mm from the face of the door and 19mm from the edge of the door
- **Maximum Load 455 kilos**
- Vertical adjustment range 5mm including a positive locking feature
- The optional REL.7230F Intermediate Pivot (handed) increases the overall capacity of the installation by up to 45.5 kilos and is required for doors >2134mm high

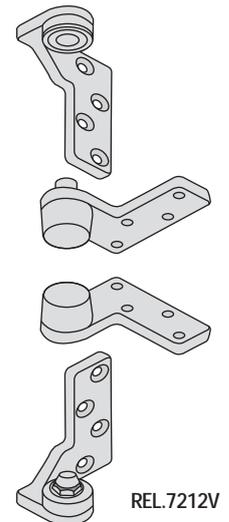


REL.7212 & REL.7212V Standard Duty 19mm Offset Pivot Set



- Handed - 19mm offset pivot set consisting of a jamb mounted REL.7212 bottom pivot and a head frame mounted REL.7212 top pivot
- Door thickness minimum 44mm
- Centre line offset 19mm from the face of the door and 19mm from the edge of the door
- **Maximum Load 91 kilos**

- Vertical adjustment range 5mm including a positive locking feature
- The optional REL.7212 Intermediate Pivot (handed) increases the overall capacity of the installation by up to 45.5 kilos and is required for doors >2134mm high



How to Specify or Order

Part #	Description
REL.7230F Complete	Pivot Set with Head Frame Mounted Top Pivot
REL.7212 Complete	Pivot Set with Head Frame Mounted Top Pivot
REL.7212V Complete	Pivot Set with Jamb Mounted Top Pivot
Handing LH	Clockwise Closing Door
Handing RH	Anti-Clockwise Closing Door

Finishes (applies to all products on pages 14 & 15)

- SP28 - Sprayed Silver
- SP313 - Sprayed Dark Bronze

Plated finishes are available on request

Intermediate Pivots & Centre Hung Floor Mounted Pivot Sets

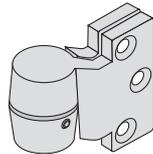
Intermediate Pivots – Where to Use

Intermediate pivots can only ever be included in specifications where offset pivots on single action doors are required. Excessive door height dictates that intermediate pivots are required to maintain the integrity of the installation. Relcross recommends one intermediate pivot for every additional 762mm of height (or fraction thereof) over 2134mm. Typically, therefore, a standard door height of 2100mm will not require an intermediate pivot unless the mass of the door dictates otherwise.

Intermediate pivots will assist in load bearing to some extent although Relcross recommends that the standard pivot specification be capable of carrying the door's weight without reliance upon the negligible capacity afforded by intermediate pivots.

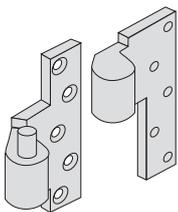
REL.7212 & REL.7212V Intermediate Pivot

- Handed - 19mm offset intermediate pivot compatible with both the REL.7212 and the REL.7212V
- Vertical adjustment range 5mm with a positive locking feature
- Increases the overall capacity of the installation by up to **45.5 kilos** and is required for doors >2134mm high



REL.7212.INT
REL.7212V.INT

REL.7230F Intermediate Pivot



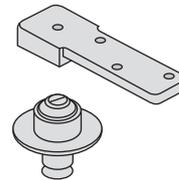
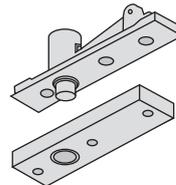
REL.7230F.INT

- Handed - 19mm offset intermediate pivot compatible with the REL.7230F
- Vertical adjustment range 5mm with a positive locking feature
- Increases the overall capacity of the installation by up to **45.5 kilos** and is required for doors >2134mm high

How to Specify or Order

Part #	Description
REL.7212.INT	Intermediate Pivot (Handed LH or RH)
REL.7212V.INT	Intermediate Pivot (Handed LH or RH)
REL.7230F.INT	Intermediate Pivot (Handed LH or RH)
REL.7253 Complete	Top and Bottom Pivot Set
REL.7259 Complete	Top and Bottom Pivot Set

REL.7253 Standard Duty Centre Hung Pivot Set

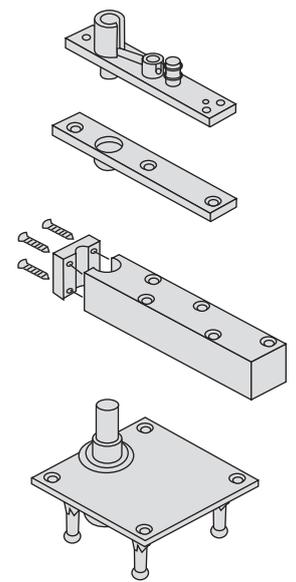


REL.7253

- Centre hung pivot set consisting of a base plate mounted REL.7253 bottom pivot and a head frame mounted REL.7253 top pivot
- Door thickness minimum 44mm
- Pivot distance 44mm minimum from the jamb to the centerline of the pivot pin
- Requires a radius to the heel edge of the door - 41mm minimum recommended
- Clearance from the bottom edge of the door to the floor is adjustable from 5mm to 19mm by varying the depth of the mortise in the bottom rail of the door
- For clearance distances in excess of 19mm consult the sales office
- **Maximum Load 136 kilos**

REL.7259 Heavy Duty Centre Hung Pivot Set

- Centre hung pivot set consisting of a base plate mounted REL.7259 bottom pivot and a head frame mounted REL.7259 top pivot
- Door thickness minimum 51mm
- Pivot distance 44mm minimum from the jamb to the centerline of the pivot pin
- Requires a radius to the heel edge of the door - 41mm minimum recommended
- Clearance from the bottom edge of the door to the floor is adjustable from 5mm to 19mm by varying the depth of the mortise in the bottom rail of the door
- For clearance distances in excess of 19mm consult the sales office
- **Maximum Load 455 kilos**



REL.7259

Power Transfer

Both REL.7253 & REL.7259 Centre Hung Pivot Sets can be modified to act as power transfer devices. In each instance the top centre is modified and the requisite number of wires is fed through from the frame to the door.

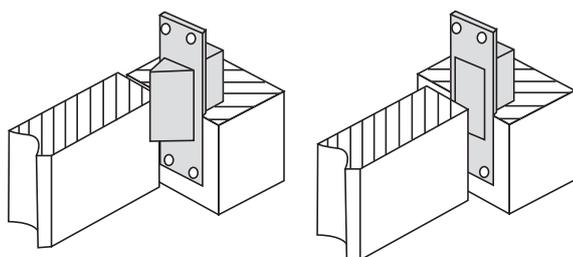
Please consult the sales office for further details.

Emergency Rescue Hardware

Effective Escape - Basic Principles

All privacy function locksets and most toilet compartment 'indicator' bolts offer a means of retracting the latch bolt from the outside – usually via a straightforward tool such as a slotted screw driver. This is a sufficient safeguard in most situations. However, in those instances where there is potential for, say, hospital patients to fall against the inside of doors or for residents of secure units to barricade themselves inside bedrooms then a little more sophistication is called for.

The emergency rescue hardware set is a two part solution offering a quick release method for WC compartment doors and other doors where fast access is required in the event of an emergency. The removable stop feature, in tandem with the double action pivot allows doors to be opened away from the obstacle or barricade facilitating unhindered access through the opening.



Application

The Emergency Rescue Hardware Set can be used on any internal door designed for double action operation, with a maximum weight of 65 kilos – dictated by the jamb mounted pivot set.

- The Building Regulations Part M – Access To & Use of Buildings M1/M3 Buildings other than dwellings. Section 5 – Sanitary accommodation in buildings other than dwellings

The above mentioned section of Approved Document M includes design considerations and provisions to address the issues mentioned in the introduction. Specifically: "5.4 e. WC compartment doors, and doors to wheelchair-accessible unisex toilets, changing rooms or shower rooms have an emergency release mechanism so that they are capable of being opened outwards, from the outside, in case of emergency."

How to Specify or Order

Part #	Description
REL.DAP-3	Double Action Top and Bottom Pivot Set
REL.ES-1	Emergency Stop
REL.DLS-1	Double Lipped Strike (Offset)
REL.DLS-2	Double Lipped Strike (Centre Hung)
REL.HB-1	Holdback for REL.ES-1

Finishes

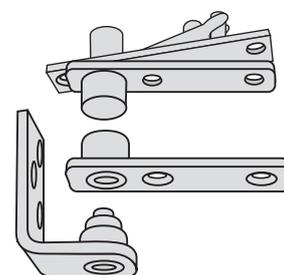
- US26D - Satin Chrome
- US3 - Polished Brass

REL.DAP-3 Double Action Pivot Set

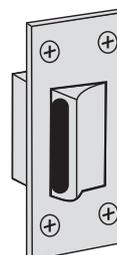
The REL.DAP-3 is a heavy duty jamb mounted centre pivot designed specifically for use as a component part of the emergency rescue hardware set although the pivot will work equally well in all commercial applications.

Standard Features & Benefits

- Heavy Duty Construction – Carries doors to 65 kilos
- Walking Beam Top Centre – Simplifies door installation
- Heavy Malleable Iron Bottom Door Plate – Houses smooth acting ball bearing unit



REL.ES-1 Emergency Stop



This unit is a strongly built buffered stop that can be pushed out of the way quickly and easily, without special tools, allowing normally in-swinging doors to open in the opposite direction.

Standard Features & Benefits

- Pullman Type Latch Bolt with Rubber Bumper Insert – Finger tip release
- Spring Action Stop – Stop release resets automatically

REL.DLS-1 & REL.DLS-2 Double Lipped Strikes

- These protection plates are designed to be used with the emergency rescue hardware set allowing offset and centre hung doors to be opened in both directions without damaging the door frame
- The REL.DLS-1 is designed for offset hung doors and suits frames to 146mm wide
- The REL.DLS-2 is designed for centre hung doors and suits frames to 146mm wide



Custom double lipped strikes can be fabricated to suit any frame and door detail.

High Security Emergency Rescue Hardware

REL.1461TB 'Breakout' - Overhead Door Closer

Basic Principles

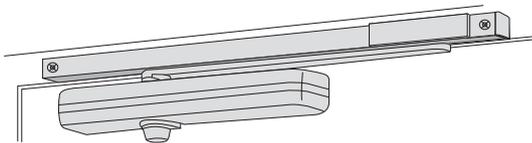
In some high security situations such as young offenders' institutions it can be necessary to 'upgrade' the security level of doors to ensure that rooms remain secure at all times but also offer safe and immediate release when necessary.

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.

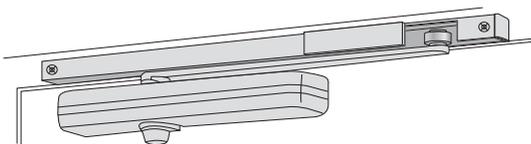
The closer is one part of a three part solution to this requirement that can be used as a whole or in part, dependent upon the specific requirements of the system.

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.

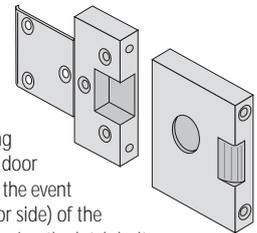
UK Fire Certification in accordance with EN 1634-1:2000 (timber)
WFRC No. 142058 120 mins.
BS EN 1154:1997.

REL.1462B 'Breakout' - Strike Box

Where rooms are secured using conventional locks, i.e. locks without a privacy function override, it is always necessary to provide fast and effective release from the 'corridor' side. Similarly, where a privacy function override is installed, pressure applied to a door from the inside may not allow external retraction of the latch bolt in the normal manner.

Operation

Where either of the above scenarios is a possibility then a two piece strike plate or 'keep' can be introduced. Fabricated usually from aluminium - allowing the latch bolt to engage normally when the door is set for single action operation. However, in the event of an emergency the outermost part (corridor side) of the strike is removed, via two security screws, freeing the latch bolt and allowing the door to open away from the obstacle.

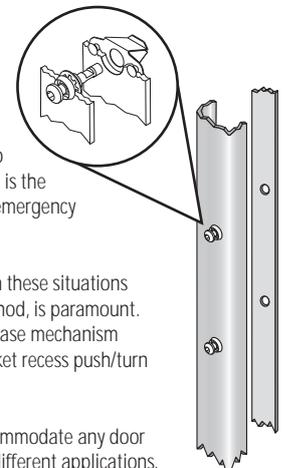


REL.1463B 'Breakout' - Full Height Continuous Emergency Stop

In high security situations the level of security offered by the conventional **REL.ES-1** stop is sometimes insufficient to keep occupants in their rooms. Where this is the case then a more substantial 'full height' emergency stop is required.

It should be borne in mind however that in these situations quick release of the stop, via a secure method, is paramount. The **REL.1463.B** incorporates a quick release mechanism requiring a special tool to operate the socket recess push/turn fasteners.

Full height stops can be fabricated to accommodate any door height and can be designed to suit many different applications.



How to Specify or Order

Part #	Description
REL.1461TB	'Breakout' Overhead Door Closer
REL.1462B	'Breakout' Strike Box
REL.1463B	'Breakout' Full Height Cont. Emergency Stop

Finishes

US28 - Powder Coated Silver (**REL.1461TB** only)
MILL - Mill Finish Aluminium (**REL.1462B** only)
USP - Steel Primed for Painting (**REL.1463B** only)

Continuous Geared Hinges

Hinge Construction - Basic Principles

This unique and innovative hinge is of a continuous geared design, manufactured in extruded 6063-T6 tempered aluminium alloy. The hinge consists of three interlocking extrusions in a 'pin-less' assembly intended for fixing to the full height of the door and frame. Each assembly consists of a frame blade, a door blade and a capping piece.



Tested and Proven

This hinge has been tested successfully under positive pressure fire test conditions to satisfy a wide range of UK fire performance requirements. The hinge also provides for security enhancement features and assists in the attainment of other performance requirements where air infiltration is a consideration (e.g. weather sealing). Other variants provide for 'finger safe' features preventing the trapping of fingers in the gap between the heel of the door and the door frame. A Hospital Tip (anti-ligature) feature is available for full mortice versions.

Flexibility in Design

- All aluminium components are clear or dark bronze anodized after milling and preparation to receive fixings, to provide for a hard and durable surface finish with excellent corrosion resistant properties. (other finishes are available to special order)
- The design of the blades varies to suit a number of applications. Various blade designs are held together using a common capping section providing an extensive range of standard and special designs for full mortice, half mortice and full surface applications
- The load bearing properties of the hinge are varied by the use of Delrin® - Teflon® bearings manufactured to a patented process providing medium and heavy duty options
- All hinge designs allow doors to open 180°. However, in some locations wall or frame decoration may prevent use of this facility. Special extended throw options are available for both full mortice and half mortice designs

Continuous Hinge Selection Guide (for Doors <3048mm x 914mm x 44mm & 54mm)

		Medium Duty			
Class Code Clear or Dark Bronze Anodized	Adjusted Door Weight / Kilos (not exceeding)	127kg	127kg	145kg	182kg
	Hinge Length / Door Height (not exceeding)	2108mm	2159mm	2413mm	3048mm
REL.FMF01 Full Mortice - Flanged		✓	✓	✓	✓
REL.FF02 Full Surface		✓	✓	✓	✓
REL.HMS01 Half Mortice - Safety (no UK Fire Certification)		✓	✓	✓	✓
		Heavy Duty			
Class Code Clear or Dark Bronze Anodized	Adjusted Door Weight / Kilos (not exceeding)	245kg	245kg	281kg	354kg
	Hinge Length / Door Height (not exceeding)	2108mm	2159mm	2413mm	3048mm
REL.FMF01.HD Full Mortice - Flanged		✓	✓	✓	✓
REL.FF02.HD Full Surface		✓	✓	✓	✓
REL.HMS01.HD Half Mortice - Safety (no UK Fire Certification)		✓	✓	✓	✓

All hinges are manufactured to template hole and template bearing positions.

UK Fire Certification in accordance with BS 476 parts 20 & 22:1987 including single action pairs of doors. For use on **FD30S** and **FD60S** fire resisting door sets. WFRC No.139560.

Performance & Durability

In the absence of an applicable standard for continuous geared hinges in the UK, we are reliant upon ANSI for confirmation of our hinge's mechanical capabilities – ANSI/BHMA A156.26-2000:

Medium Duty Hinges 350,000 cycles (68 kilo door) Grade 3
150,000 cycles (136 kilo door) Grade 3

Heavy Duty Hinges 2.5M cycles (68 kilo door) Grade 1
1M cycles (136 kilo door) Grade 1
500,000 cycles (272 kilo door) Grade 1

Creating the Hinge Code

Read off the class code and use the appropriate hinge type, i.e. medium or heavy duty followed by the hinge length as a suffix to the code.

For example:

REL.FMF01.C.2159 signifies a medium duty full mortice flanged hinge @ 2159mm in length - Clear Coated Anodized Aluminium.

Finishes

- C - Clear Coated Anodized Aluminium
- D - Dark Bronze Anodized Aluminium

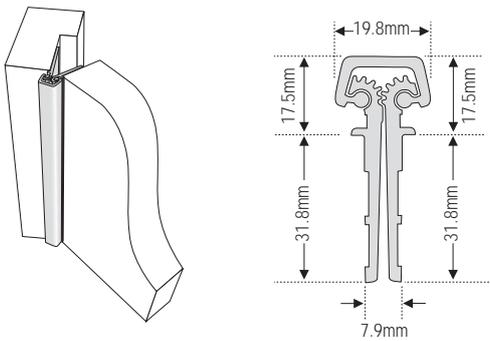


Continuous Geared Hinges

REL.FMFOI - Full Mortice Flanged Continuous Hinge

This hinge is designed primarily for new build situations but is suitable equally for retrofit situations where an upgrade is desirable. Full mortice flange type hinges may be recessed, semi recessed or surface mounted, the sectional drawing below shows a surface mounted installation where no timber has been removed from either the door or the frame.

When used in any of these applications the face of the door leaf is positioned to be flush with the face of the frame nosing. Where required, (e.g when using bolted assembly hollow metal frames) short leaf inset hinges (REL.FMF06) with offset flanges may be used. See www.relcross.co.uk for more information and variants of this application.

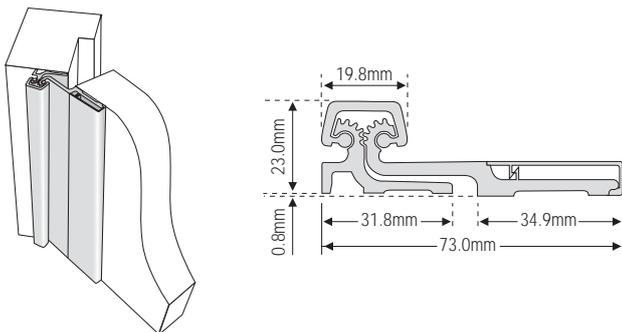


The flange detail used with some hinge designs assists with the accurate location of the hinge and provides for enhanced security and weather sealing performances. Intumescent sealing must be used when fitting these hinges to timber fire rated door sets. Please refer to the sales office for full details of intumescent requirements.

REL.FFO2 - Full Surface Continuous Hinge

Designed mainly for upgrading existing doorsets. Hinge leaves are applied to the exposed surfaces of the door and the frame.

Full surface hinges are fitted to the face of the door leaf and the frame allowing for the lateral adjustment of doors.



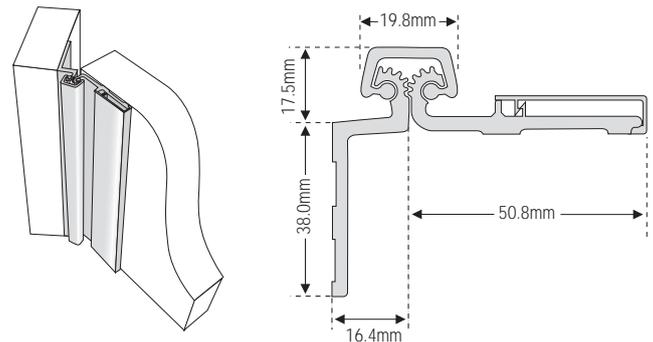
These hinge designs allow for unbroken sealing to the door leaf edges and / or the frame reveal. See www.relcross.co.uk for more information and variants of this application.

REL.HMSOI - Half Mortice (Safety) Continuous Hinge

The standard half mortice option is designed specifically for upgrading existing doorsets although it can be used where a through bolt fixing is desirable on new installations. The safety version (shown here) is ideal for new build situations where young fingers are at risk.

One hinge leaf is applied to the exposed surface of the door and the frame leaf is applied to the concealed surface of the frame.

Half mortice hinges provide for traditional fixing to timber or metal frames with face fixing through the door leaf. This design allows for extensive lateral adjustment of the door leaf to provide for optimum setting of operating tolerances. The half mortice design is recommended for use with some mineral core door leaf constructions that provide for limited edge screw fixings. The design will also allow for unbroken sealing systems fixed to the door leaf edges.



Half mortice hinges are available as a safety hinge when used without a doorstop to the hanging jamb. The same design of hinge can be used with a frame incorporating a door stop with the door leaf repositioned to suit. This allows for the door leaf to be set back within the frame partition thickness.

A further half mortice design option provides for an extended throw facility if required. See www.relcross.co.uk for more information and variants of this application.

Continuous Geared Hinges - Load Bearing Capacity

	Hinge Length	No. of Bearings	Max Door Weight* kg
Medium Duty (O)	2108mm	14	127
	2159mm	14	127
	2413mm	16	145
	3048mm	20	182
Heavy Duty (HD)	2108mm	27	245
	2159mm	27	245
	2413mm	31	281
	3048mm	39	354

* Adjusted

Concealed Bearing Hinges - (REL.CB1960R - CE Marked I720-CPD-0020)

Stability & Durability

The Patented 'Two Piece  Bearing System' hinge design provides the following stability and durability features:

- Template/jig drilled fixing holes allow off-site preparation of the door and frame
- Unadjusted door weights up to 68 kilos – Adjusted door weights up to 120 kilos
- Independent cycle test performance up to 1.5M cycles (reduces the adjusted load bearing capacity to 68 kilos - size 114mm x 102mm)
- Aesthetically pleasing 'clean' barrel lines permit inclusion in all architectural specifications
- Limited  warranty for the life of the building
- Maintenance free, long life operation. No oil, no grease, no lubrication
- Appropriate for use with all LCN door closers – i.e. with back-check feature

Security & Safety

All concealed bearing hinges (REL.CB1960R) can be specified to include the security variants **NRP** (Non-removable Pin) feature and/or the **SEC** (Security Stud) feature providing additional security at the opening face of all security door installations.

All concealed bearing hinges (REL.CB1960R) can be modified to include the 'anti-ligature' variant **HT** (Hospital Tip) that limits the risk of self-harm when used on projects where such considerations might apply.

Disability

All concealed bearing hinges (REL.CB1960R) incorporate the smooth low operating force feature – a function of the self lubricating properties of The Patented 'Two Piece  Bearing System' – making this hinge an ideal choice where a low coefficient of friction is a requirement, i.e. doors on accessible routes.

Fire Performance

UK Fire Approval: BTC Report 15425F
BS EN1634 part 1: 2000 E30 & E60 Fire Doors or BS 476 part 22: 1987
FD30 & FD60 Fire Doors - as defined in the above report.

In summary:

REL.CB1960R hinges are assessed for use on previously tested and/or assessed 30 minute and 60 minute fire resisting timber doors of leaf sizes:

2100mm high x 900mm wide (E30/E60 & FD30/FD60)

- providing the conditions and limitations defined in BTC Report 15425F are complied with. The doors to which hinges are fitted must have been tested or assessed for fire resistance according to BS EN1634 part 1: 2000 & BS 476: part 22:1987. The maximum door size is dependent upon the test evidence for doors used with a similar sized hinge. Compliance limitations regarding leaf thickness and associated intumescent protection (as defined in BTC Report 15425F) is essential. This information is freely available from the Sales Office upon request.

Test reports and assessment reports are strictly confidential and are available for inspection at our offices by prior arrangement.

Continuous Hinges -

Stability & Durability

The continuous hinge design provides the following stability and durability features:

- Template/jig drilled fixing holes allow off-site preparation of the door and frame
- Multiple fixings that distribute load stresses uniformly along the full length of the door and frame
- Adjusted door weights (a function of the door's height) up to 354 kilos
- Independent cycle test performance up to 2.5M cycles (reduces the adjusted load bearing capacity to 68 kilos)
- Assistance with the alignment of doors and frames reducing the risk of binding and consequent wear resulting in the virtual elimination of door sag

Vanity, Security & Safety

The full height continuous intermeshing gear with capping piece design eliminates gaps that occur between the door leaf and the frame when doors are hung on traditional hinges. This sight proof feature provides a privacy function desirable for both vanity and security purposes.

Various 'Safety' versions of the hinge can be used without a frame door stop providing sufficient space between the frame mounted hinge blade and the door mounted hinge blade to prevent entrapment of young fingers. The slightly rounded 'soft-edge' profile of the hinge knuckle reduces the risk of injury in the event of impact with the hinge.

Hinges can be modified to include the 'anti-ligature' variant that limits the risk of self-harm when used on projects where such considerations might apply.

Disability

All our continuous hinge designs can incorporate a number of features that are of assistance to the physically and visually impaired. The smooth low operating force feature, a function of the self lubricating properties of the patented bearing system, makes this hinge an ideal choice where a low coefficient of friction is a requirement, i.e. doors on accessible routes.

Additionally, the full height capping piece (or knuckle) can be finished to contrast with the door leaf and the frame to provide a navigational reference for users with impaired vision.

Acoustics, Smoke & Weather Sealing

The full height continuous intermeshing gear with capping piece design restricts the flow of air at the hanging stiles contributing to the acoustic, smoke and weather sealing performance of the door set.

Full surface versions provide 'clean' uninterrupted edges at the heel of the door and at the frame reveal. This allows the installation of a continuous sealing system that may be otherwise interrupted by the use of traditional full mortice hinges and other door hardware.

Fire Performance

Various versions of the hinge (as marked herein) have been tested successfully in the United Kingdom in accordance with the requirements of BS 476 parts 20 & 22:1987. FD30S & FD60S applications.

Where identified as fire rated, continuous hinges provide for a performance up to 3 Hour (A-Label) Fire listing for all 3048mm x 1220mm and 3048mm x 2440mm door and frame assemblies. Fire listing certifications apply to all approved hollow metal and wood door assemblies in drywall or masonry wall constructions.

NOTE 1: 'FirePins' are required on 3-Hour (A-Label) assemblies.

NOTE 2: BS 476 part 20 & 22:1987 test data relates to the use of identified hinge types for FD30S (Half Hour) and FD60S (One Hour) applications when used with approved wood doors and frames.