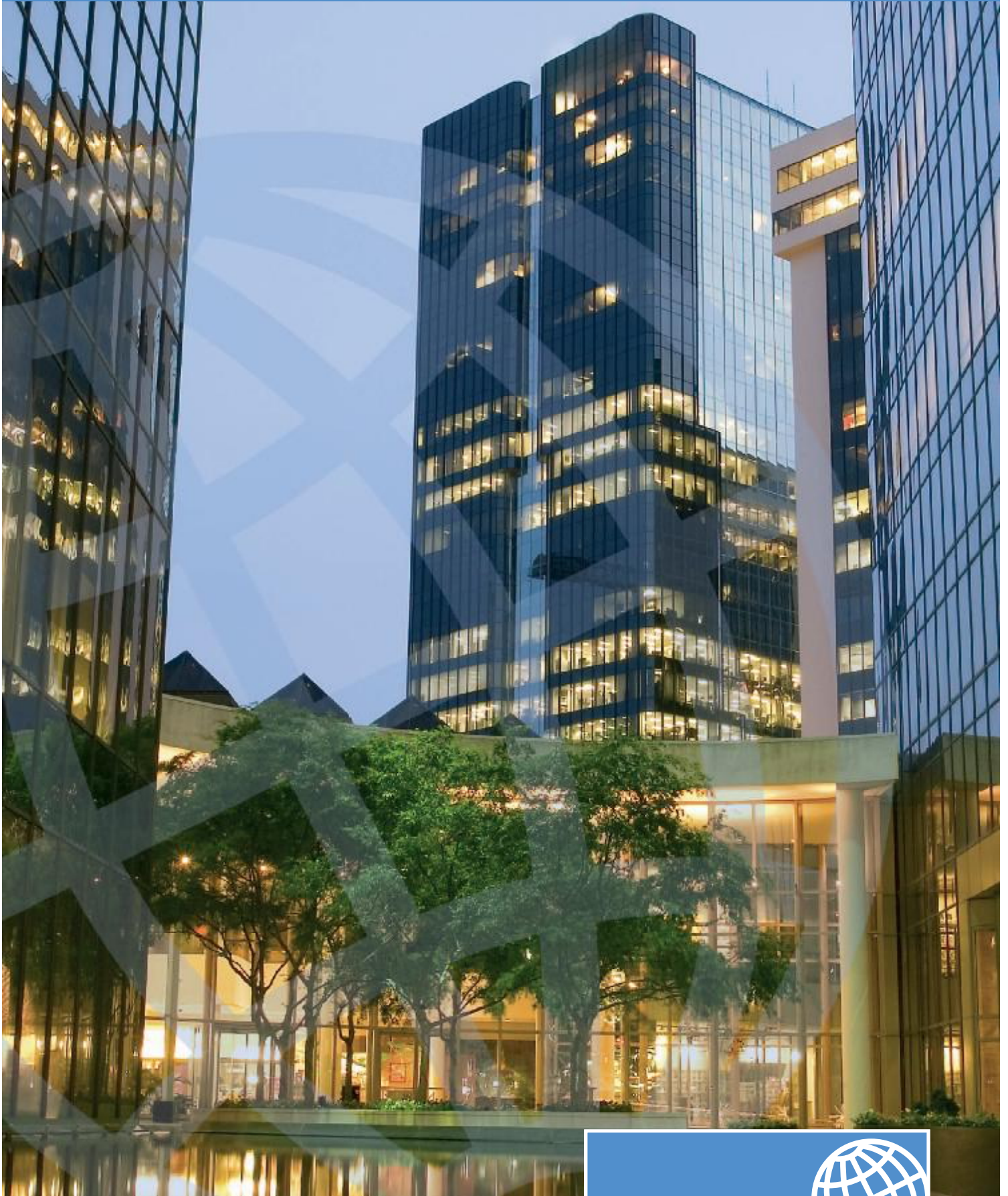




Door Controls

for Specifiers, Architectural Ironmongers & Door Hardware Specialists



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 *Disability Discrimination Act*; in particular Part III.

According to *DDA Part III (effective 1st October 2004) 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 Relcross automatic door operators provides an immediate solution.

Low energy & powered entrance doors, i.e. those doors fitted with Relcross 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.

Type A - Low Energy & Powered Operators and Accessories

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 Relcross 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. Relcross 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.



See also, Relcross publication - Hardware for the Real World, Issue No. 1, February 2006.

Type A - Electro-Mechanical Power Assisted Operator

REL.9130 and REL.9140 Series An Overview

This Relcross 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 Disability Discrimination 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



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).

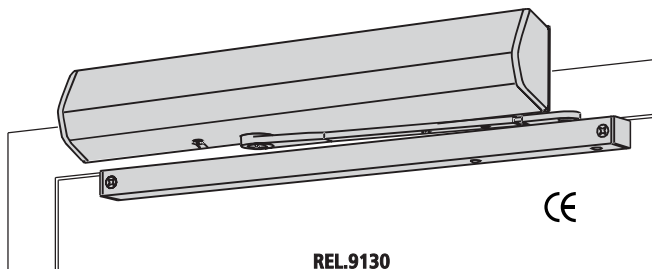
Type A - Electro-Mechanical Power Assisted Operator

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.

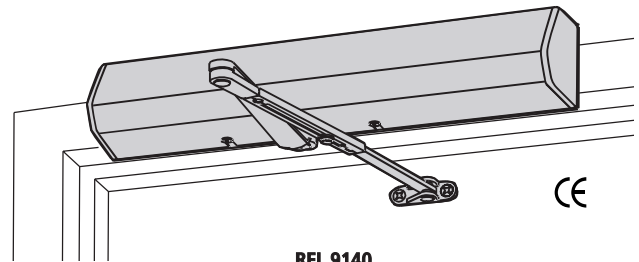
Head Frame minimum 51mm for mounting plate, requires 102mm clearance.

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.