Ellickson Doors
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# *Ellickson*
# *Fire Rated Roller Shutter Door*


***Custom Made Quality Solutions.***

Ellickson Doors
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**Managing Director:** John O' Gorman
**Company Registration Number (Ire):** 346380 • **Vat Registration Number (Ire):** IE6366380J

Ellickson Doors Ltd

# Fire Resistant Roller Shutter Door

**The Fire resisting door criteria is Conditional on Adherence to Specification for fire walls and precise requirement for door Activation.**

## Fire Rating

Doors are designed for up to 4 hour fire resistance, to conform to test requirement BS 476 part 22 1987.

## Door Component Composition

Fire shutter door is constructed of galvanised steel, 75mm interlocking laths 20 SWG (.9mm). Malleable steel end locks are fitted to alternative laths, thus containing lateral movement of curtain.

Door curtain assembly is secured with a pair of side guides face fixed to door opening. Bottom rail cold rolled galvanised steel, T section, 75mm x 75mm.

Door curtain assembly will be secured to barrel assembly, consisting of hollow section tube designed to resist deflection. Barrel to rotate on BMS axle assembly and retained within endplate fixtures.

The top end door assembly will be enclosed with steel canopy, 16 SWG (1.6mm) and secured to end plates and at head above door opening. (Intermediate canopy supports are included for 4-hour fire resistant roller shutter doors).

## Shutter Door Operation

All doors to be electrically operated, will incorporate controlled descent facility and integrated upper and lower limit switch assembly.

## Power Supply

3 phase, 380-volt neutral earth supply.

## Door Components

All components other than shutter curtain finished in one coat Grey primer. Curtain and canopy to be galvanised finish.

*Please note:*
Door assemblies can be powder coated finish to standard RAL colour of choice.

All equipment is CE compliant and will conform to all EU and statutory health and safety regulations

## Door Opening

The door opening must conform to statuary fire regulations and its structural integrity must be certified.

**Electrically Operated Doors**

- When ambient temperature reaches 68 degrees C, a fusible link will automatically release door closing mechanism.

- *Door can be electrically interfaced with fire alarm system and will close automatically when fire alarm is activated.

*Please note:*
* This system is dependent on uninterrupted power supply to door. Auxiliary battery back up supply is required to activate closing of door in the event of termination of power supply to door.

## Additional Safety Features

- Audible warning siren to activate when door is closing.
- Flashing beacons to activate when doors are closing.

## Design Parameters for the Application of Fire Resistant Roller Shutter Doors

The Structural integrity and fire resistance of wall must conform to statuary regulations.

## Operation / Maintenance

The area beneath the roller shutter door must always be kept clear and clean. Door operation should be re-checked after painting or decoration. Fire shutter operation should be checked every 6 months.

After closure the following procedures should be followed:

**Manually Operated Shutters**

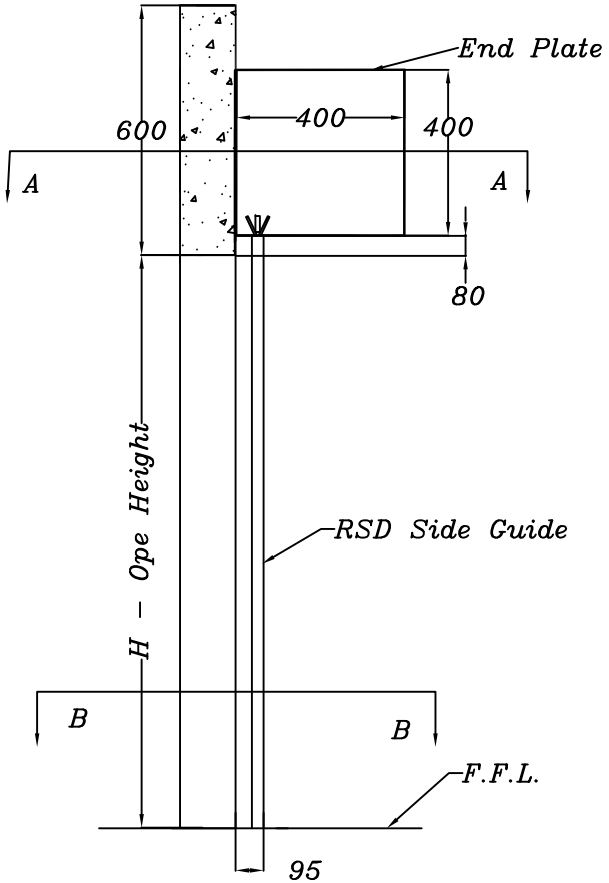
- The fusible link and drop bar is reset prior to opening the shutter.

**Electrically Operated Shutters**

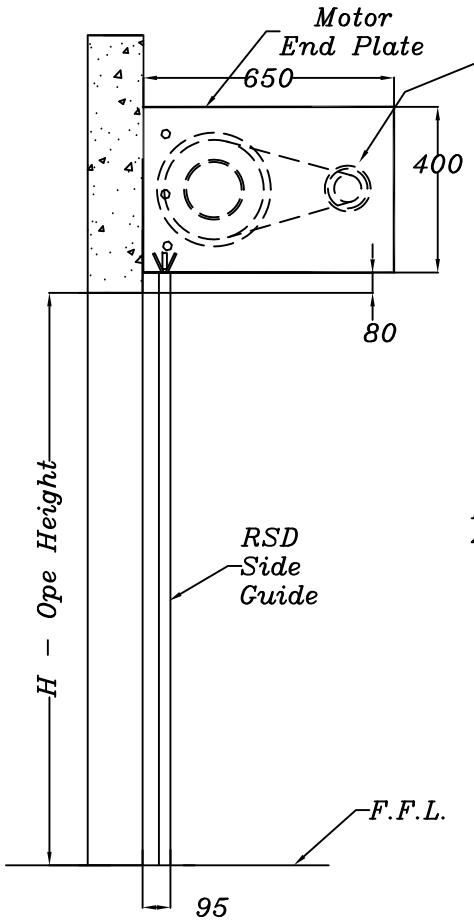
- Fusible link must be examined and/or replaced.

- Door can be reopened by push button station adjacent to door.

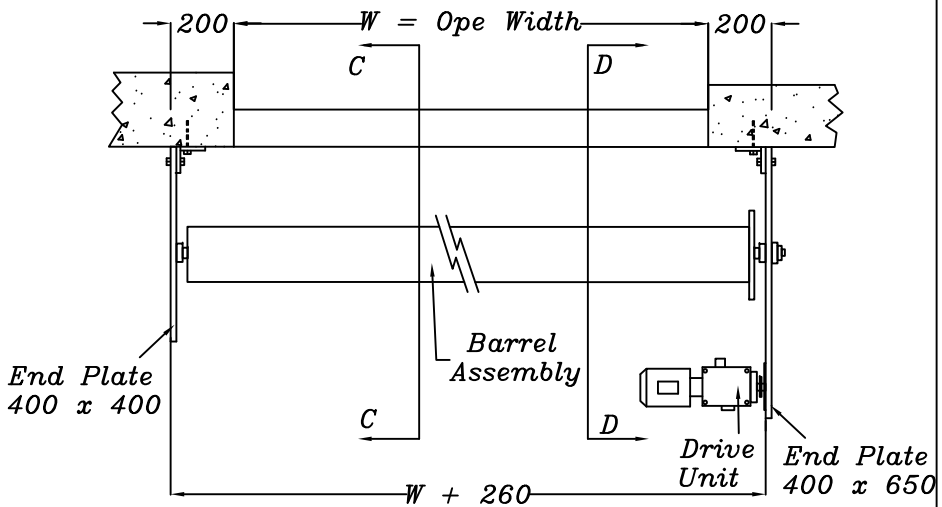
Canopy Removed for Clarity



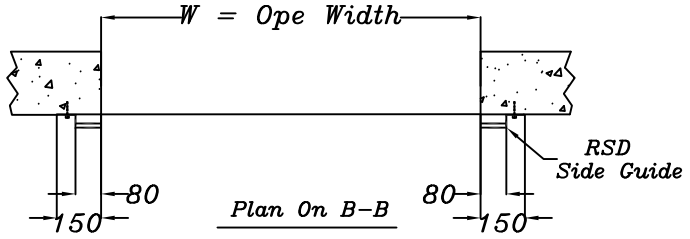

Section On C–C



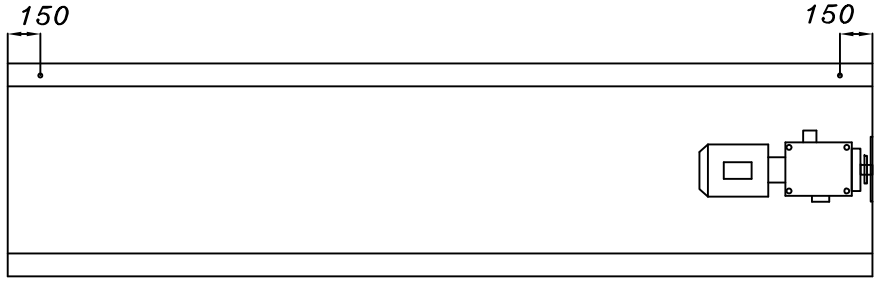

Section On D–D




Plan On A–A




Plan On B–B




Canopy & Support Detail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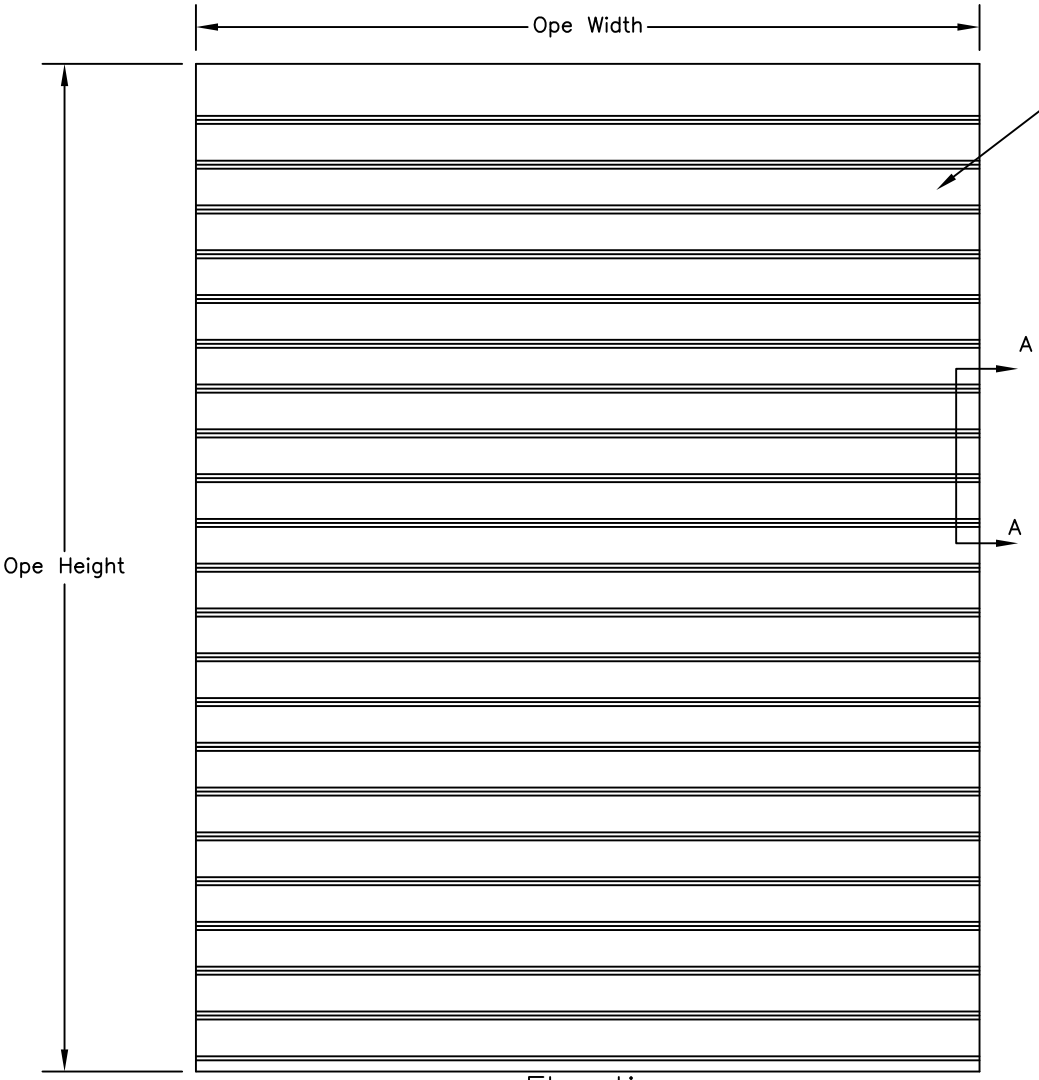
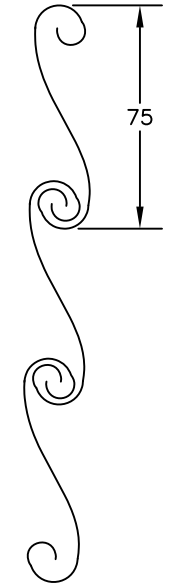
| | | | |
|---|---|---|---|
| UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETRES DO NOT SCALE DRAWING | | DRAWING TITLE: Ellickson Fire Rated R.S.D. Door | |
| DRAWN BY: A O Brien | DATE: 18-2-02 | STORAGE REFERENCE: | JOB REFERENCE |
| CHECKED BY | | DRAWING NO.: FRSD–AL–02 | |




Elevation




Section A/A

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| | | | |
|---|---|---|---|
| UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETRES DO NOT SCALE DRAWING | | DRAWING TITLE: *Fire Rate R.S.D. Showing Lath Arrangement* | |
| DRAWN BY: *A O Brien* | DATE: *25–5–11* | STORAGE REFERENCE: | JOB REFERENCE |
| CHECKED BY | | DRAWING NO.: *FRSD–AL–01* | |

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**Specification:**

All Shutters are manufactured to an approved specification out of the Fire-Testing or a shutter in accordance with EN 1634-1:2000 and assessment by the BRE in accordance with 85476 Part 22 for 1,2 and 4 hour fire exposure.

**Curtain:**

Constructed from galvanised cold rolled interlocking lath profiles, of 75mm deep.
Each alternative lath is fitted with a steel endlock to prevent lateral movement.

**Bottom Rail:**

The base of the curtain is fitted with a rolled steel re-inforcing rail of adequate size forming an inverted T.

**Side Guides**:

Formed from cold rolled pre-galvanised channel sections secured to the opening structure by continuous mild steel fixing angles, slotted to allow thermal movement under fire conditions.
Dimensions: 75mm pre-galvanised steel roll form U section. with 50 x 75mm galvanised roll form angle attached.

**Roller Assembly:**

Constructed from mild steel tube of suitable size and support to meet the fire-performance standard mounted on bright steel shaft running in ball races and operated through a motor with geared or chain transmission to meet specification.
Dimensions: 101 x 3.2mm

**End Plates**:
The Roller Assembly is supported by mild steel end plates with mounting angles for fixing to the support structure. On one end plate gears or chain transmission provide drive to the barrel.
Dimensions: Drive Side 400 x 650 x 4mm, Non Drive Side 400 x 400 x 4mm

**Casings:**

Constructed from 22 gauge galvanised steel to enclose coils.
Casing supports are required for larger openings - refer to typical configuration.

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# FIRE RATED ROLLER SHUTTER DOOR

## Declaration of Conformance

**Introduction**

A C &S Shutters ltd Uninsulated steel rolling shutter was submitted to a fire test in accordance with BS 476 Part 22.1987 (Method 8) for 245 minutes on 28`1 October 2003.
The Roller Shutter Door was installed on the face exposed to fire on a brick wall.

The Shutter comprised a curtain interlocking galvanised steel laths at 75mm centres located in steel guides 72mm deep (internal) and attached to overhead horizontal steel roller. In the orientation test (the shutter mounted on the exposed face of the wall) the Roller Shutter door achieved Fire Resistance.

**Integrity:** 245 minutes

**Scope:**

The assessment was carried out in strict accordance of accepted structural analysis procedures and in terms of the integrity criterion of BS Part 22:1987 for up to 240 minutes for exposure from either side.
This is to confirm that C & S Fire Shutter doorsets are designed to provide a fire resistance of up to 240 minutes with respect of the integrity criterion of BS Part 22:1987

**BRE Test Report No: 214185**

The assessments were carried out on behalf of C & S Shutters ltd by BRE in association with LPC. This rigorous test and accredited meaning that the shutters manufactured by C & S Shutters ltd can withstand 4 hours of constant fire exposure and clients can be confident that the product satisfies there requirements.
Copies of the BRE fire shutter test assessment report can be made available in the strictest of confidence were appropriate on request.

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## Electrical Operation

Ellard type JM500 drive unit.
Consists of a totally enclosed motor to suit size of shutter.
Standard voltage is 380v. 3-phase 50hz.
Control Voltage is 24V. ac.
The motor is equipped with limit switches and electromagnetic brake.
A manual hand-chain override facility is provided.
A safety brake protecting against drive linkage failure is fitted as standard.

## Manual Operation

Current safety regulations and European Fire Door Standards now virtually preclude the use of unmotorised manually operated Fire Shutters.

## Automatic Closing

As standard all Fire Shutters are fitted with a fail safe fusible link device which allows the door to close mechanically when the temperature reaches 68°C. Provision can also be made for the motor to be activated to close the door upon receipt of a signal from the premises own fire alarm system before activation of the fusible link device.
Other safety operating devices and processes may be a requisite depending on location and other functions of the Fire Shutter.

## Finish

Standard galvanised finish or Poly-Gard powder paint finish is available in a variety of colours. P.V.C. (plastasol) finish is riot permitted on Fire Shutters due to its instantaneous combustion at high temperatures.

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## Automatic Fire Activation

To comply with appropriate existing and emerging European regulations on the operation of Fire Shutters consideration must be given to their location, application and use. Depending on such factors as differing automatic closing mechanisms and safety devices may be required. All Fire Shutters are designed to provide fail safe closing under fire conditions regardless of failure of the motor, wiring or electrical controls. In addition activation through a fire alarm signal can be incorporated into the control system as standard.

The use of time-delay or two part closing for limiting smoke passage, visual and audible signaling are optional requirements which may be recommended/specified by fire consultants or fire officers. It is imperative that clients obtain professional advice in this regard.

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# Operational Maintenance Instructions Manual

## Maintenance

Maintenance is an essential part in the purchase of a Fire Rolling Shutter and a comprehensive maintenance program is essential to ensure that your product longevity and costly repairs are to be avoided.

## Operation

Fire shutter operation electrically by means of geared motor complete with rotary limits and emergency hand mechanism.

## Access to electric motor

There is an important requirement that a service hatch be provided in order to gain access to the motor in order to provide/carry out essential regular maintenance and to the motor in the event of power failure.

## In the event of Power Failure

The motor has an emergency facility which comprises of an endless haul chain and a pull cord to allow the roller shutter to be closed or opened.

**To raise the shutter**
Pull haul chain until shutter is raised to the required height.

**To dose the shutter**
Pull cord gently and release when shutter has reached the floor.

## Automatic closing in the event of fire or fire testing

Fire shutters are fitted with fail safe systems which can operate from a fire control panel and linked in the building management system where appropriate.

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**Standard fusible link mechanical**
Activated when heated above 72°C
This unit IS fastened directly onto the electic motor and fusible link is fitted in the suitable area and can be replaced following a fire test.

**Operating Roller Shutter**
Before operating roller shutter ensure that there are no obstructions within the opening the roller shutter path of travel which could possibly cause injury to persons or damage property or damage the roller shutter.

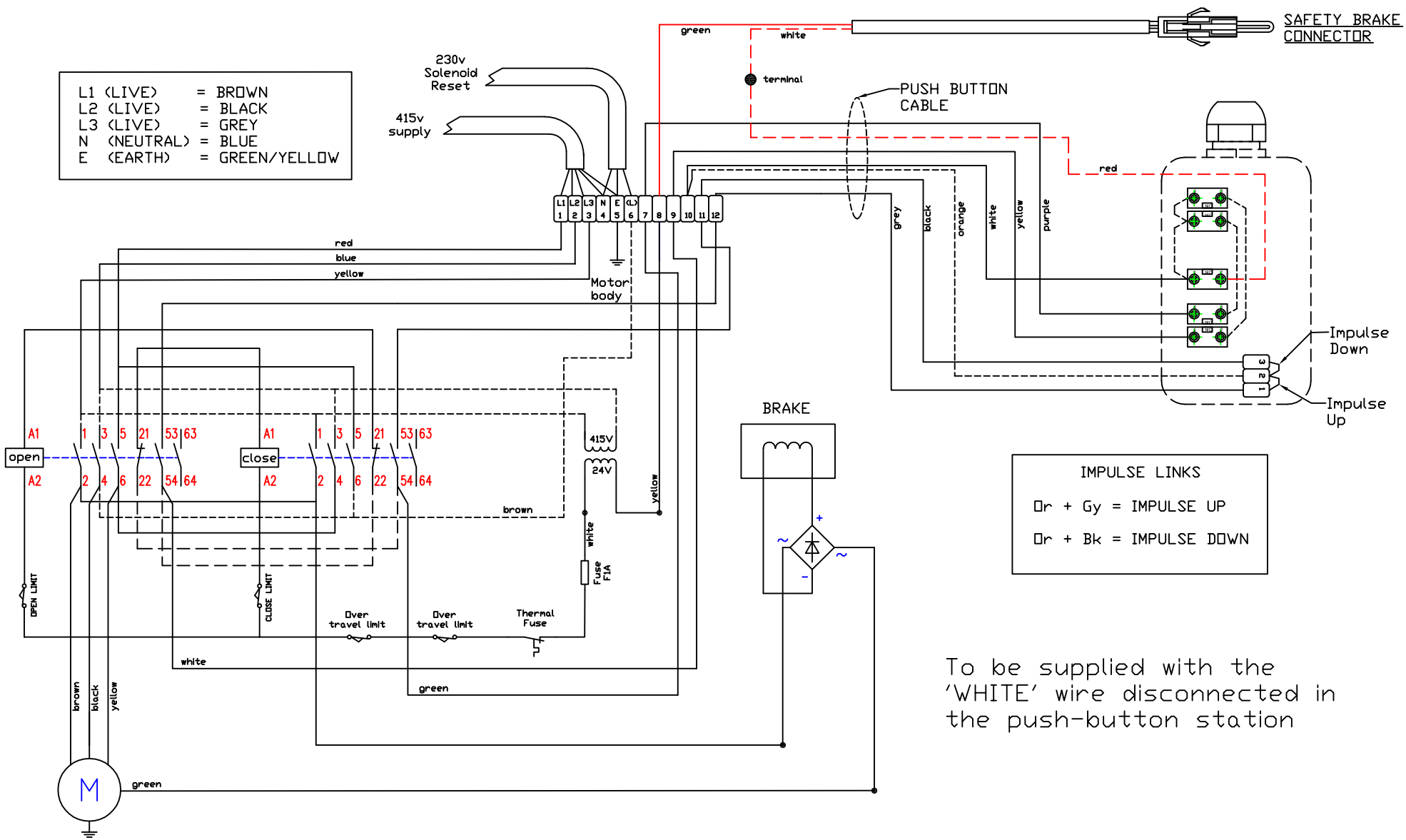
**Operating press button / key switches**
Ensure that the operator remain at the controls during the full cycle operations of the roller shutters
All press button I key switch controls are to be of a dead man control type.

**For your Safety while operating roller shutter**
Do not allow persons or clothing to come in contact with the roller shutter during its travel operations. In an emergency the shutter can be stopped by releasing you finger off the button or releasing your grip on the key on the switch

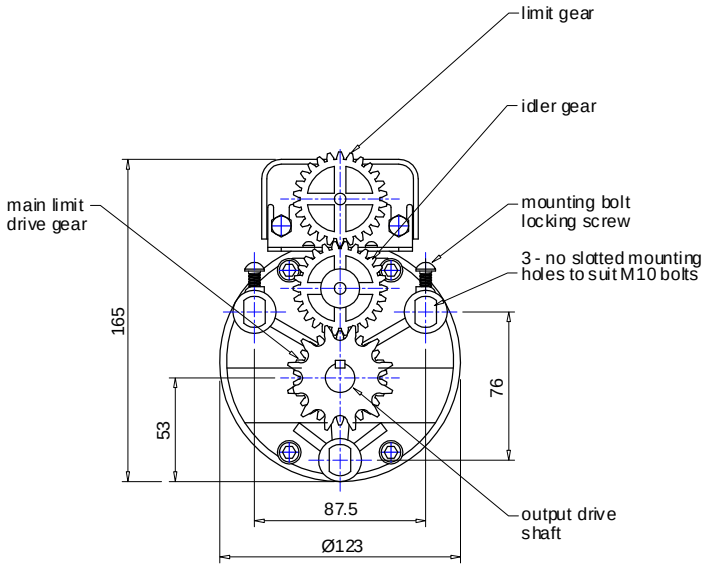
**Maintenance**
Maintenance must be carried out by a competent / qualified person. Do not try to repair or alter / modify any part of the roller shutter as this would be extremely dangerous and would affect the fire integrity of the product and have detrimental effect affecting the fire shutter warranty if applicable.

**Servicing**
It is recommended that all fire shutters be Inspected and serviced twice yearly

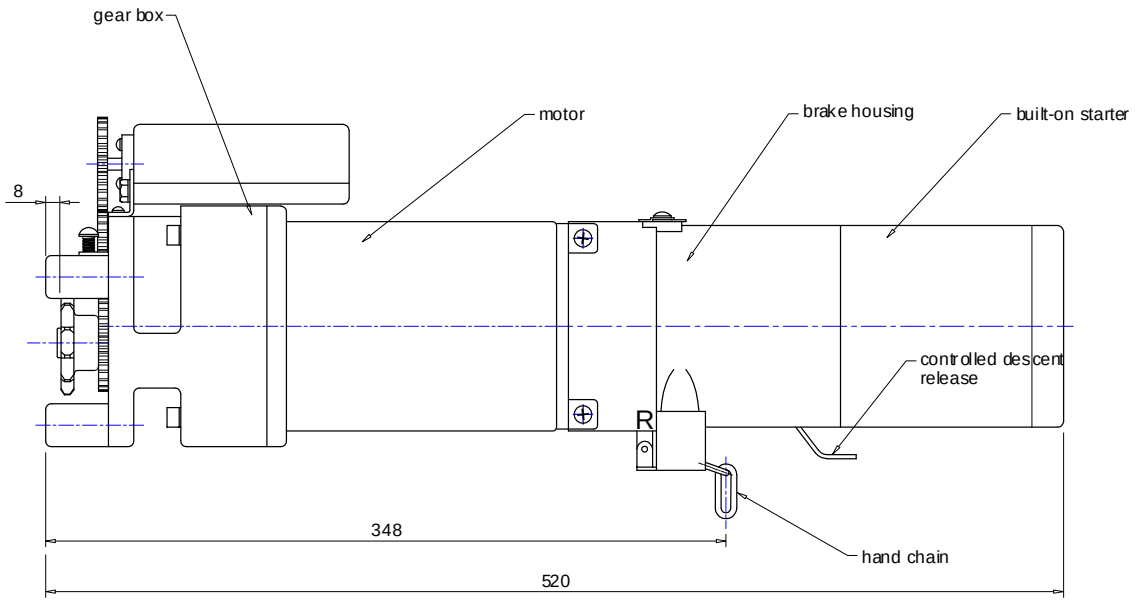
| Rev | | Note: |
|---|---|---|

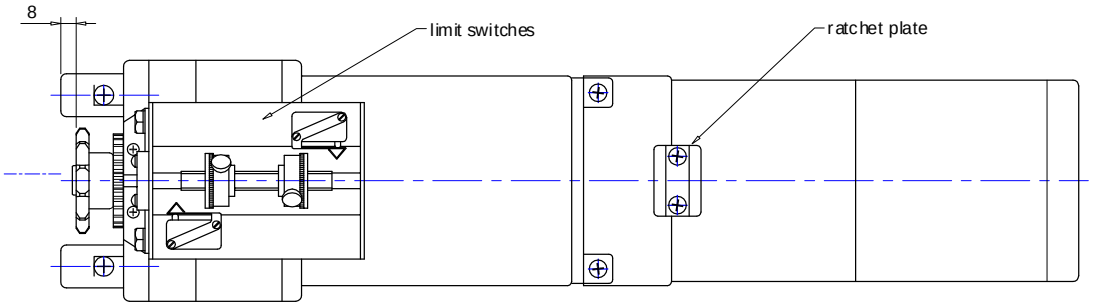



| | | All dimentions in millimetres | | | | Title | Scale | NTS |
|---|---|---|---|---|---|---|---|---|
| ellard | ellard Ltd<br>Roundthorn Ind Est<br>Dallimore Rd<br>Wythenshawe<br>Manchester M23 9NX<br>Tel: 0161 945 4561<br>Fax: 0161 945 4566 | Drawn by | Date | Rev | Aprvd | CIRCUIT DIAGRAM FOR JM500 (3 PHASE) OPERATOR (revised wiring) | File Name | JM500 |
| | | DE | 30/10/04 | | | | Darwing No | JM500/001 |




ATTENTION
Hand chain is disabled when operator is electrically operated for safety purposes




PLAN VIEW ON DRIVE UNIT

## INSTRUCTIONS

Once the door operator has been mounted, the emergency hand chain and the controlled descent release mechanism can be adjusted to suit the angle of installation.
Loosen the four brake housing securing screws and rotate the housing until the emergency hand chain falls vertically. Re-tighten the screws to secure the brake housing.

## EMERGENCY HAND CHAIN OPERATION

The emergency hand chain should only be used for opening the shutter. The door can be closed by pulling down the brake release lever and allowing the curtain to close under controlled descent. The rate of descent is controlled by an integral centrifugal speed governor.
The hand chain is prevented from closing the shutter by a reversible ratchet mounted on the top of the brake housing unit.
The ratchet must be set to suit site conditions i.e. left hand or right hand mounting position. The direction of the ratchet operation is changed by removing the two ratchet retaining screws and revolving ratchet mechanism through 180 degrees.

## SETTING LIMIT SWITCHES

Connect starter in accordance with starter instructions.
Set shutter in mid-travel position. Slacken knurled limit thumb screws and wind them both towards the centre of the screwed limit travel rod. Re-tighten both thumb screws which will allow maximum shutters travel in both directions. Run the door just short of the fully opening position and adjust the limit switch cam until it operates the open limit switch. Test run the shutter by closing the door by approximately one metre and checking the operation of the open limit switch. Adjust the cam to obtain final closing position.
Operate the shutter in the close position and repeat the setting procedure.

| Operator Reference | Number of phases | Voltage (V) | Power (watts) | Output Torque (Nm) | Full load Current (amps) | Start up Current (amps) |
|---|---|---|---|---|---|---|
| JM500 | 1 | 230 | 370 | 34 | 3.5 | 11.9 |
| JM500 | 3 | 415 | 250 | 34 | 0.7 | 2.38 |

Rev

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Tel 0161 945 4561
Fax 0161 945 4566
E-mail sales@ellard.co.uk

Title
General arrangement of JM500 single and three phase drives with built-on starters.

| | |
|---|---|
| Date | 16/8/2005 |
| Dwn by | Ron Swift |
| Ch'k'd by | C Foster |
| Dwg # | FRSD/JM500/GA/10066/001 |

# JM 500 Fire Door Operators

INSTALLATION

The intended use of this equipment is to govern the open and closure of a fire shutter, either by electrical means e.g.. Key switch or Push button or manual means e.g.. Haul chain and Controlled descent. It is designed to be used in an Ambient dry enviroment temp range -15 to +40°C

It should be securely fixed to a plate designed to accommodate the JM 500 operator.

The hand chain can be altered to suit the handing of the operator.
When the operator has been mounted in the required position, the haul chain and controlled descent ratchet can be adjusted to suit.
The four brake housing screws must be loosened and the brake housing rotated until the haul chain is in the correct position, i.e. hanging down.

The haul chain is designed for emergency use for opening only and is not for day to day operation. To close the descent lever must be activated either by manual or by means of a solenoid unit, the reversible ratchet prevents the haul chain from being used to close the door. This is altered by removing the 2 ratchet screws and rotating through 180°

Any site wiring must be carried out by a competent person in accordance with IEE wiring regulations.
The electrical supply must be fed via appropriate fuses to a 2 pole (1ph) or 4 pole (3ph) lockable isolator.

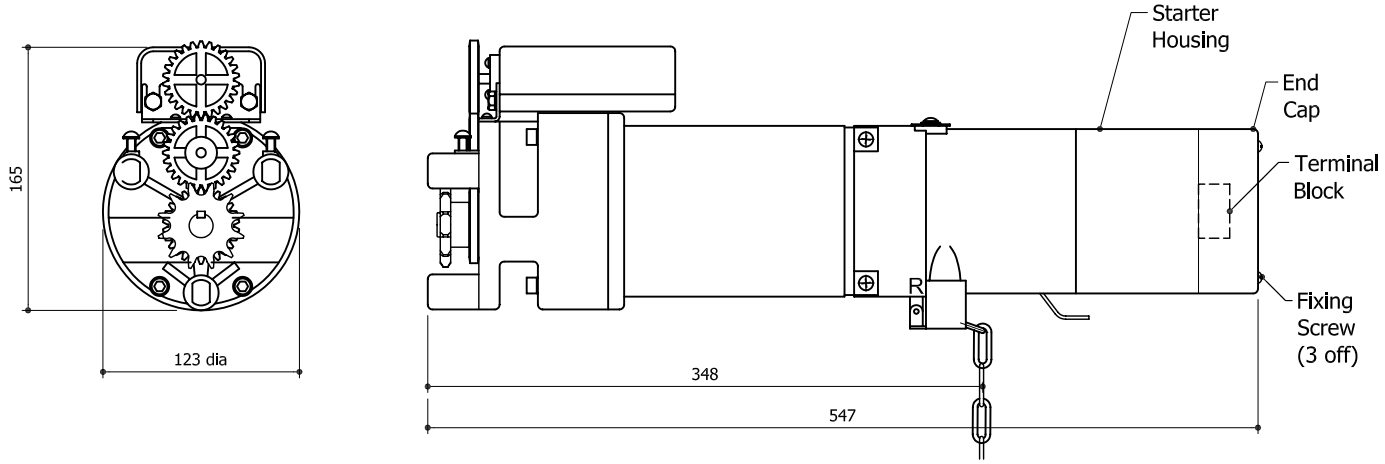
This unit **MUST** be permanently bonded to a supply earth, along with any mains control equipment.

This unit contains **NO USER SERVICEABLE PARTS**, should a fault arise seek advice from specialized personel.

## *THE MECHANICAL LOADING FOR THIS OPERATOR MUST NOT BE EXCEEDED*

## Technical details of JM500 controlled descent operators

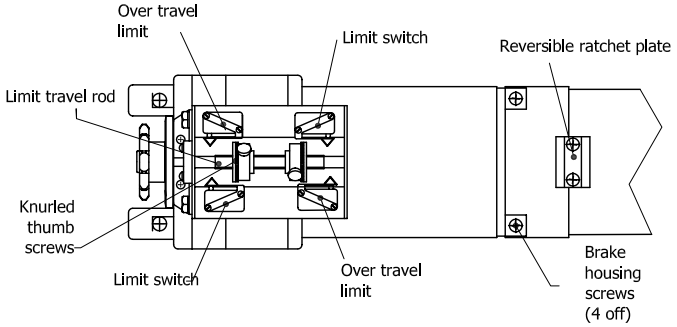
| Operator Reference | Number of phases | Voltage (V) | Power (watts) | Output Torque (Nm) | Full load Current (amps) | Start up Current (amps) |
|---|---|---|---|---|---|---|
| JM500 | 1 | 230 | 370 | 34 | 3.5 | 11.9 |
| JM500 | 3 | 415 | 250 | 34 | 0.7 | 2.38 |




Limit Setting Instructions

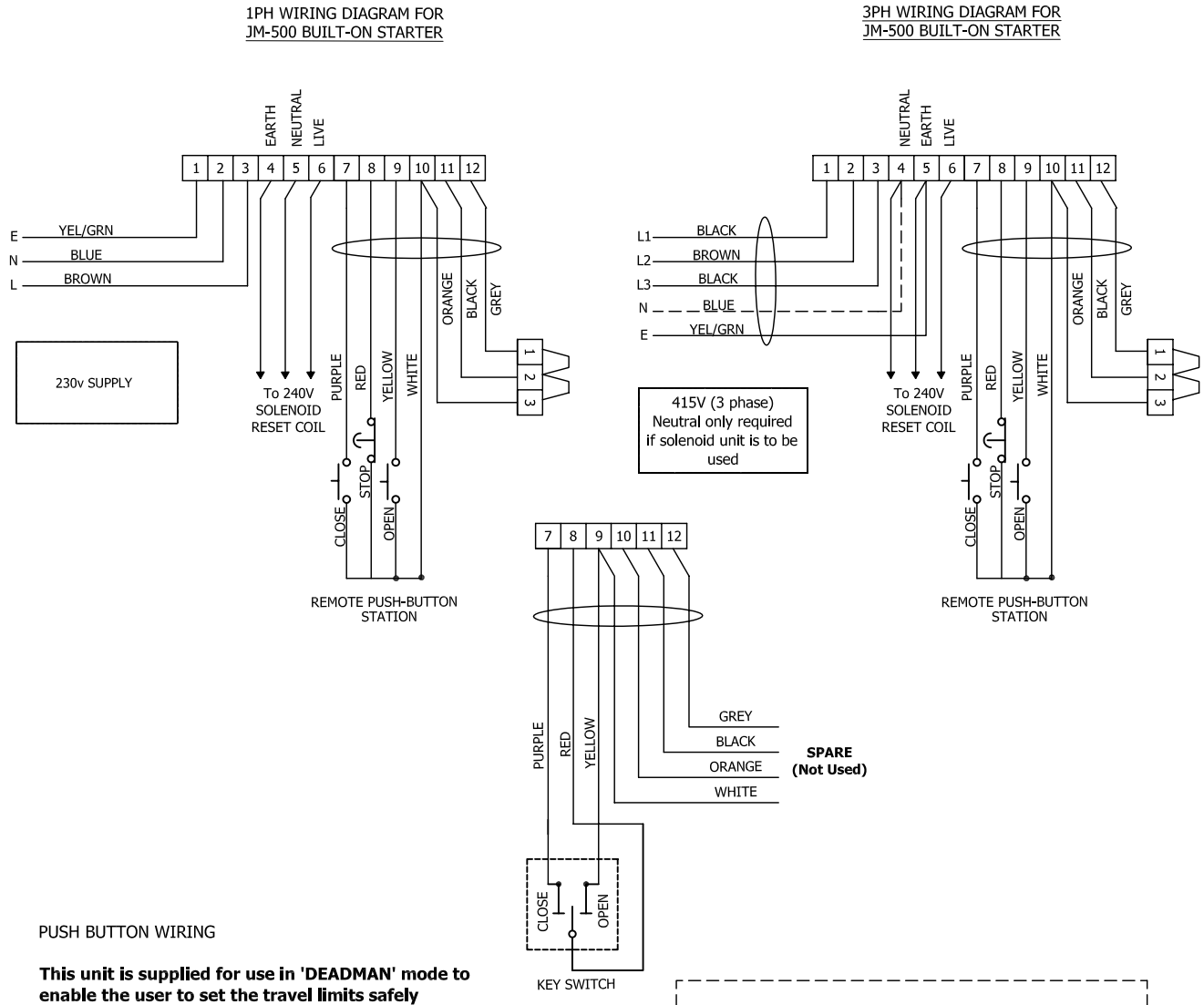
1. Position the door in mid travel.
2. Isolate the power supply.
3. Loosen the knurled limit switch screw.
4. Wind both knurled limit screws towards the centre of the Limit travel rod.
5. Re-tighten the knurled limit screws to allow the maximum travel in both directions.
6. Return power to the unit.
7. Open the door until it is just below the required height.
8. Isolate the power supply.
9. Loosen and move the knurled limit screw until it operates the limit.
10. Return power.
11. Test by bringing the door down a short distance then up, the door should stop on the set position.
12. Repeat No's 8 - 11 for the down limit.
13. Set over travel limits to operate after travel limits.

**N.B. If over travel limits are activated, the unit will not operate electrically until it has been moved manually away from the over travel limit switch**



# Electrical Connection and Configuration
# (Right hand mount shown)

Access to the terminal wiring is given by removal of three retaining screws securing the end cap to the starter housing. This should only be necessary to connect the 240 volt RESET facility for the release solenoid. All electrical work must be carried out by a competant person in accordance with the IEE wiring regulations.




PUSH BUTTON WIRING

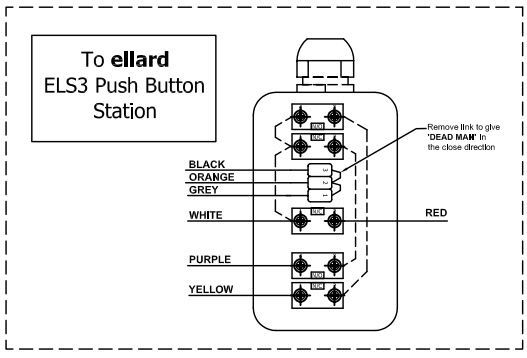
**This unit is supplied for use in 'DEADMAN' mode to enable the user to set the travel limits safely**

**After travel limit setting, the operator can be configured for the users choice of control**

1. For 'DEADMAN' in both directions
Leave as existing configuration (or remove the white wire if connected)

2. For continuous run in both directions
Connect the 'WHITE' wire in push button station as shown

3. For 'DEADMAN' on close
Connect the 'WHITE' wire in push button station as shown and remove the link from BLACK-ORANGE connection





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