



# About using Goliath G7 Rising Hinges

## ? WHICH PROJECTS NEED RISING HINGES

**A** Goliath G7 Rising Hinges overcome the problems encountered when installing gates on sloping driveways. It is normal practice for gates to maintain a constant ground clearance of approximately 50 mm in both the 'open' or 'closed' position. As a rule of thumb a tennis ball should not be able to roll under a closed gate.

G7 hinges are designed to 'lift' single or double gates opening inward and provide the correct parallel clearance as they are opened. Problem solved!

## GETTING THE BEST RESULTS

### 1 How to determine the rise required.

Measure the gate leaf width. As an example, assume a width of 1500 mm. Make a straight edge 1500 mm long (a board 150 x 25 mm is suitable) and place at right angles to the opening.

Put a 50 mm block under the high end and using a spirit level, (work from post end) lift the straight edge so that it is level.

Measure the distance from the bottom of straight edge to the ground, this is the 'rise' required. See the detailed examples in this Guide to achieve correct rise.

### 2 Factors that affect the rise.

(a) The width of gate. (b) The hinge separation. Hinge separation is the distance between the top of the lower butt to the top of the upper butt. This distance is an important factor as the closer the hinges are together the greater the rise. We do not recommend using heavy duty G7 Rising Hinges on gates less than 960 mm in height. For lower gates use the Goliath 'UltraHinge' which can provide the 'lift' required.

### 3 Positioning G7 hinges on the gate.

It is generally considered good practice to fit the lower hinge 150 mm to 200 mm off the bottom of the gate. This position allows for ease of fitting and importantly, reduces the possibility of damage to the hinge if the gate drops. The upper hinge is normally kept flush with the top of gate (or upper rail)

### Practical Rises.

This guide shows 50 rises achieved with different gate widths and hinge separations. Other rises can be approximated. Taking figures shown in Example Five:

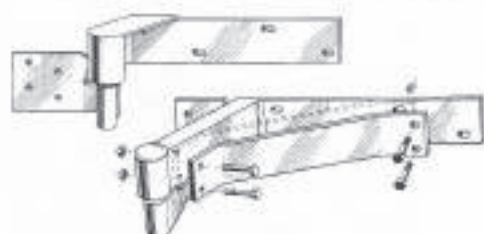
1200 mm wide gate, rise of 195 mm  
1500 mm wide gate, rise of 230 mm. Difference is 35mm.  
For a gate 1350 mm divide 35 by 2 = 17.5 mm and add to the 195 mm measurement, approx. rise is 212.5 mm.

Because of the many factors involved in individual installations, the rises in tables 1 to 10 must be read as approximate. Allow a variation of 2.5% to 5%.

Left Hand

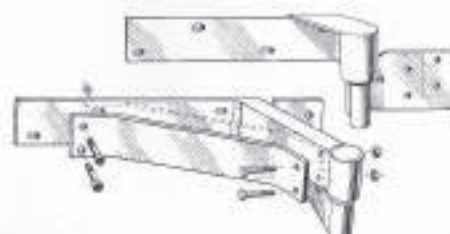
## G7 RISING HINGES AND COMPONENTS

Right Hand



G7 Left Hand Strap

Part G111



Part G112

G7 Right Hand Strap



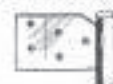
G7 Left Hand Top Butt

Part G88



Part G89

G7 Right Hand Top Butt

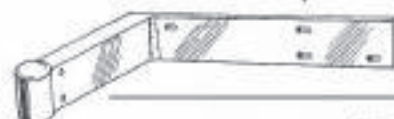


G7 Left Hand Bottom Strap

Part G113

Part G114

G7 Right Hand Bottom Strap



G7 Left Hand Bottom Butt

Part G91

Part G92

G7 Right Hand Bottom Butt



G7 Left Hand Strengthening Bar

Part G115



Part G115

G7 Right Hand Strengthening Bar



G7 Ball Bushing  
(Nachi SBB-12)



Part G120



## AVOIDING PROBLEMS

### Good gate installation is essential.

This is not a guide to installing gates but there are some simple procedures which should be followed (see 'Closing Thrust' and 'Posts and Jambs') to achieve satisfactory operation when using Goliath G7 Rising Hinges.

Fixing instructions for G7 hinges are supplied with each pair, or on request to Goliath Hinging Systems, PO Box 5142, Hallam, Victoria, Australia, 3803.

### Closing Thrust

As considerable closing thrust is generated by rising hinges (becoming greater as the rise is increased) the weight of the gate must be taken into account when installing posts, and the provision of some form of closure control.

Posts should be well set according to good installation practice. A restraining spring to help control the closure rate will probably be satisfactory in many installations. If very heavy gates are installed an hydraulic closer should be considered.

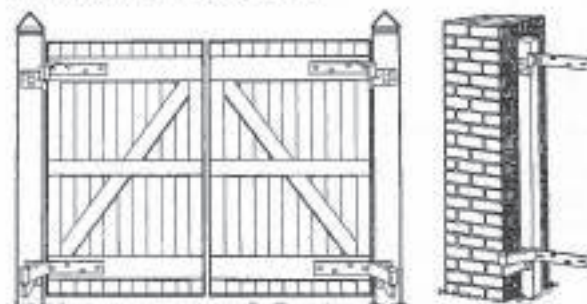
### Gate weights up to 80 Kg.

G7 hinges have been successfully used on gates up to 80 Kg. in weight. Their use on heavier gates could be considered, however this would require individual modification of the hinge to incorporate additional gussets.

### Posts and Jambs.

Posts should be at least 150 mm x 150 mm of red gum or jarrah as they are durable and have good screw holding capacity.

Brick piers must have timber jambs for fixing G7 hinges. We recommend 150 mm x 75 mm redgum, jarrah or any dense hardwood. Fix jambs to piers with loxins or anchor bolts.

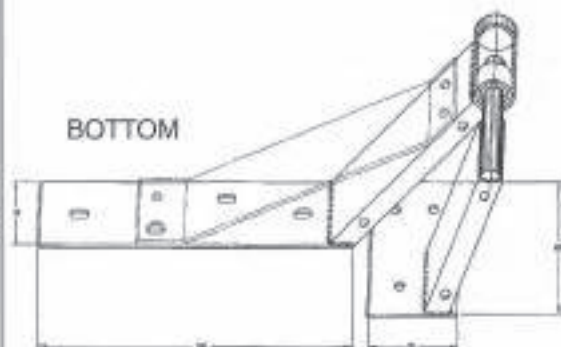
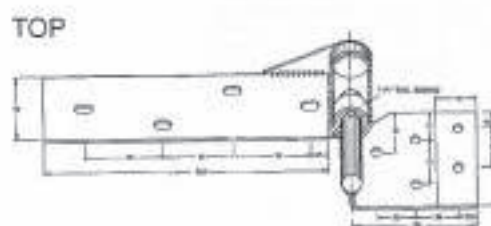
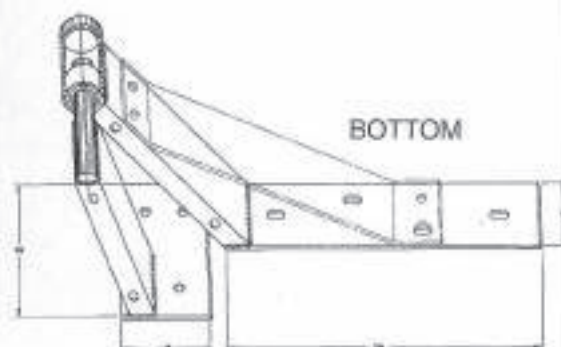
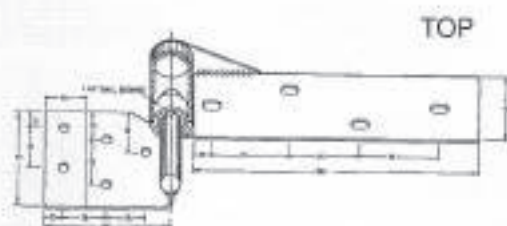


**Care should be taken.** The installation suggestions in this publication are based on practical experience but are not necessarily the only satisfactory procedures. Persons attempting to do a gate installation should have some basic aptitude or practical experience. We cannot accept any responsibility for any incident from a gate or hinge installation.

Left Hand

## G7 CUTAWAY TECHNICAL DRAWINGS

Right Hand

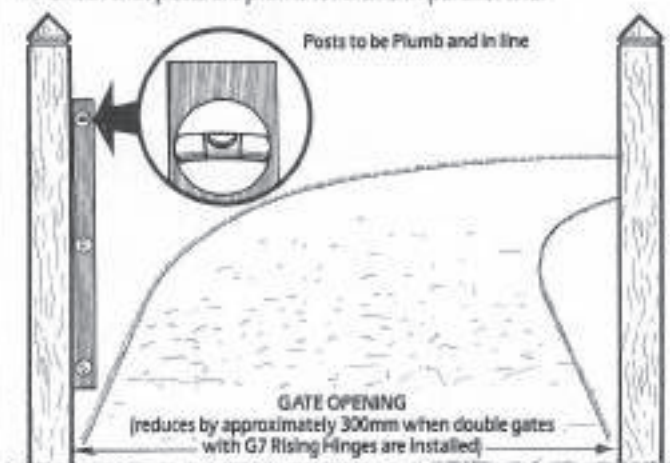


# G7 Rising Hinges

## Installation procedure.

The hinges are designed for fixing to a 125 x 125mm gate post, or to a 125 x 75mm jamb. Alternative fixing to pipe post or brick piers is shown in the installation diagrams.

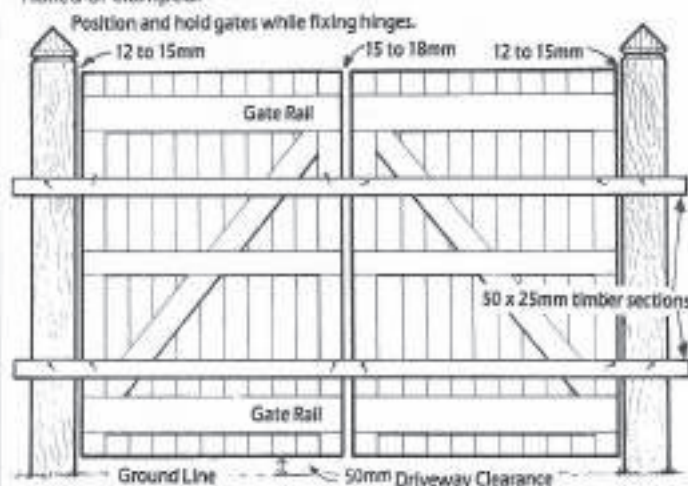
1. Check that posts are plumb level and in parallel line.



2. Place gates in position and wedge up to desired level line, (generally 50mm clearance from ground).

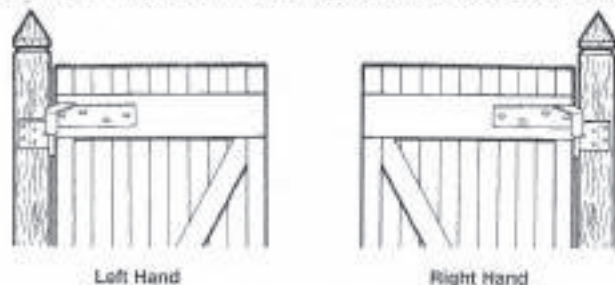
We suggest a centre clearance between gates of 15 to 18mm, and a side clearance between gate and post of 12 to 15mm.

3. To temporarily hold gates in vertical and plumb position, fix 50 x 25mm timber sections across gates and posts. These can be lightly nailed or clamped.



4. The hinges should be located so that the straps will be fixed to the gate rails. Place top hinge in position so that the edge of the butt is level with the edge of post or jamb (if hinge is being fitted to jamb, cut off section of butt on score mark). Housing the butt into the post or jamb increases the strength and rigidity of the installation. Mark holes and drill for 50 x 8mm coach screws. If drilling hardwood we suggest a 7mm drill, for softwood a 6mm drill.

For ease of installation coach screws can be lubricated with either grease, Vaseline, or soap. A ratchet type spanner speeds up the job.



5. Make sure hinge butt is square on post, position hinge strap on gate so that it is in a parallel to the top rail, and drill 8mm holes in centre of the slotted holes. Fix 75 x 8mm coach bolts through from the outside, (or face of gate), place shakeproof washers on bolt and tighten nuts.

6. Place bottom hinge in position so that the edge of the butt is level with the edge of the post or jamb, hinge strap to be in a parallel line. If top butt is housed the bottom butt must also be housed.

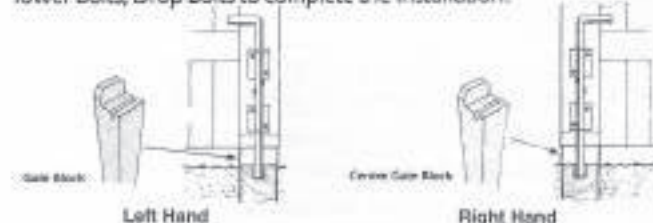
Mark holes and drill for 50 x 8mm coach screws. Drill sizes as suggested for top butt.

7. Check that the bottom butt is square on post, position hinge strap on gate so that it is in a parallel to the bottom rail, and drill 8mm holes in centre of the slotted holes. Fix 75 x 8mm coach bolts through from the outside, place shakeproof washers on bolt and tighten nuts.

8. Remove the temporary 50 x 25mm timber sections and open gates inwards. If a slight parallel adjustment is needed, loosen strap nuts and move gate along hinge. Note: it may be necessary to place a section of timber on edge of gate stile and use hammer to move the gate and achieve required adjustment.

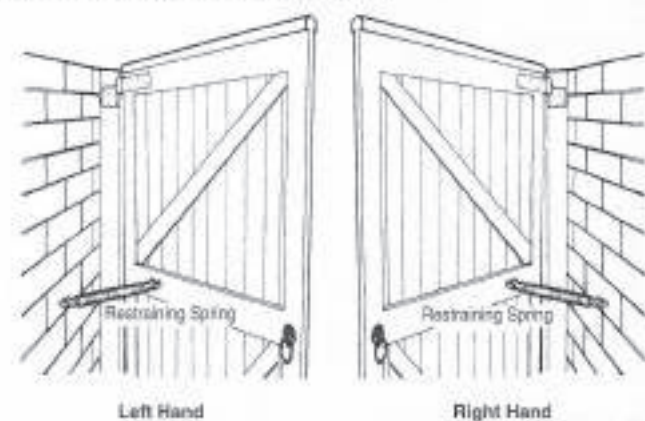
9. If the Strengthening Bar is to be fitted, place it in position, scribe holes, drill and bolt on.

10. We recommend a form of fixing to hold gates rigid when either opened or closed. The Goliath range of gate fittings has suitable Panic Bolts, Tower Bolts, Drop Bolts to complete the installation.



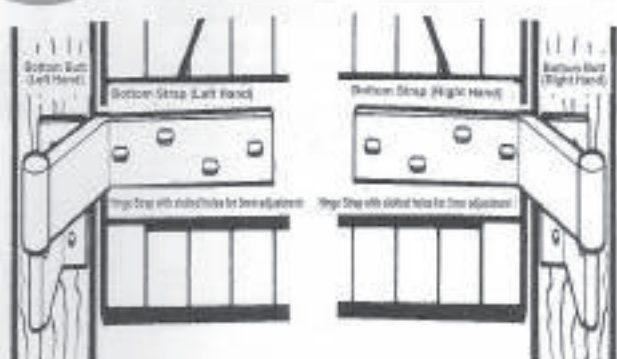
11. Minimising slam or thrust on closing gates. Depending on the height, width and weight of gates, gates fitted with rising hinges tend to close with some degree of slam or thrust. Gravity forces can be minimised by fixing a restraining spring at 90° as shown in the diagram. Our G96 component is adequate for most domestic applications.

The location of the spring determines the delaying action. It works on the simple principle of the spring going into tension as the gate closes, thus restricting the closing force.



Many installations do not have any restricting devices and the gates are physically held when opening or closing. The restraining spring simply makes it easier.

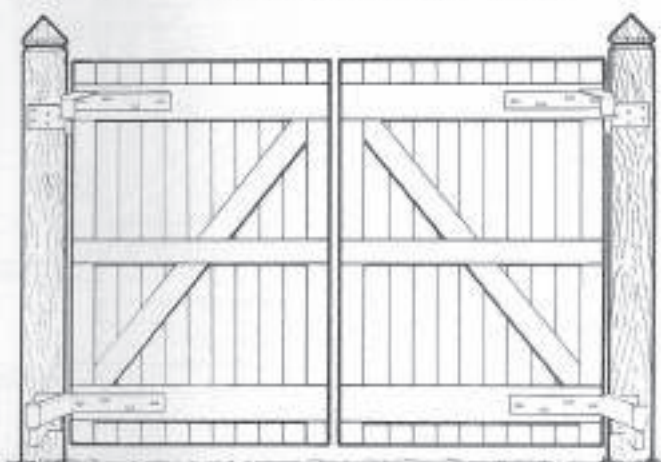
There are other closing systems which utilize hydraulics or other mechanical/electrical equipment to operate the gates. The manufacturers of these products can advise on their suitability for specific projects.



Left Hand

Right Hand

Slotted holes allow for adjustment of plus or minus 5mm. If hinging double gates see diagram showing gate on opposite side.



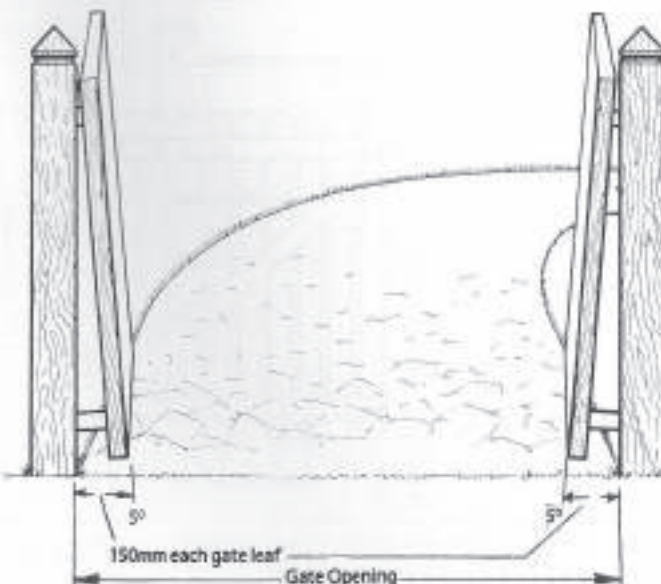
(Left Hand)

(Right Hand)

### Width of gate opening.

You should calculate the clearance required for vehicle access. Ordinarily gates opened to right angles only encroach about 75mm onto the driveway, a total of 150mm for double gates.

However, Rising Hinges reduce the opening by approximately 150mm on each side as the gates are opened and lifted, a total of 300mm for double gates. This should be taken into account when determining the gate opening. When gates are opened they are not vertical, as the bottom is further out from the post than the top. In order to achieve the rising action. The angle is approximately 5°.

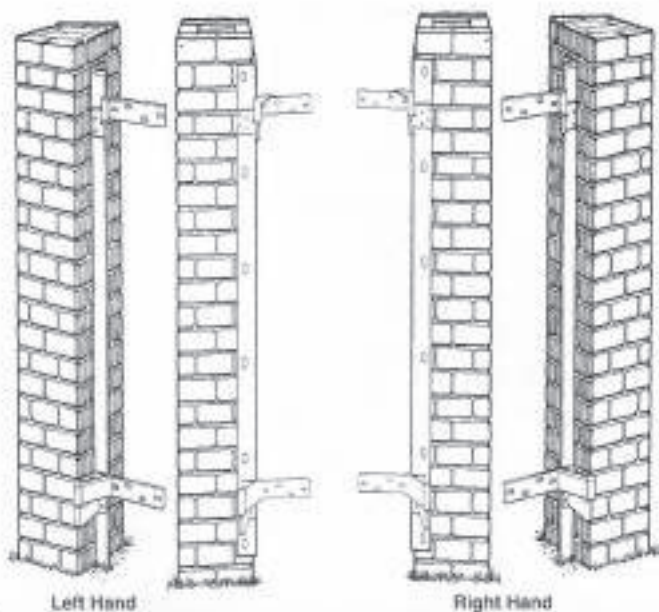


### Hinging methods for Brick piers or Pipe posts

#### Brick piers

G7 Rising Hinges can be fixed to brick piers if the piers are first prepared by applying angle iron sections to either the centre of pier, or on a corner.

A suitable angle iron section would be 75 x 75 x 5mm fixed with Loxins or suitable masonry anchors. The hinges are then bolted to the angle iron. A good way to do this is to drill the angle iron and thread the holes to take engine bolts (not supplied with hinges).



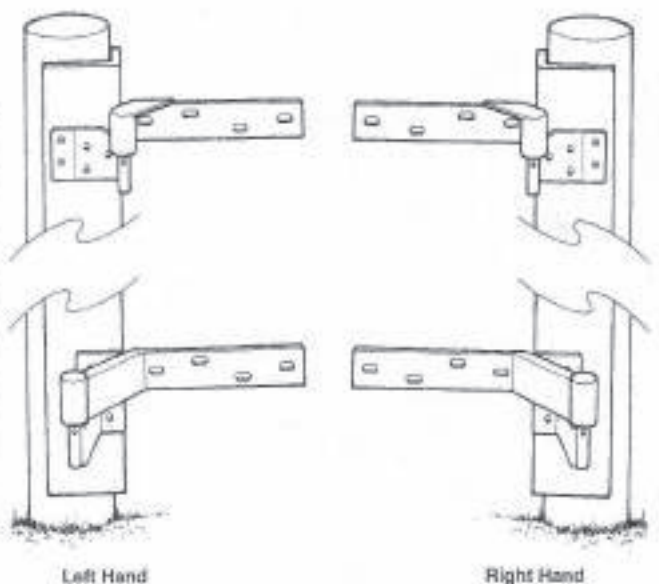
Left Hand

Right Hand

#### Pipe post

To fix to a pipe post, a flat surface must be provided to accept the hinge butt. An angle iron section bolted or welded to the pipe or pole as shown in the diagram is quite satisfactory.

A suitable section would be 75 x 75 x 6mm. The hinges are then fixed to the angle iron and post with appropriate length bolts. Alternatively the angle iron may be drilled and threaded to take engine bolts (not supplied with hinges).



Left Hand

Right Hand

## Example No.1 Gate Height: 960 mm - Hinge Separation: 750 mm

Gate Width	Rise at 90°
900 mm	275 mm

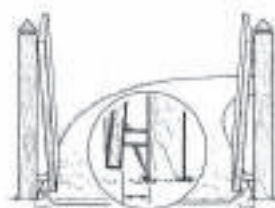
Gate Width	Rise at 90°
1800 mm	460 mm



These figures are the result of tests.

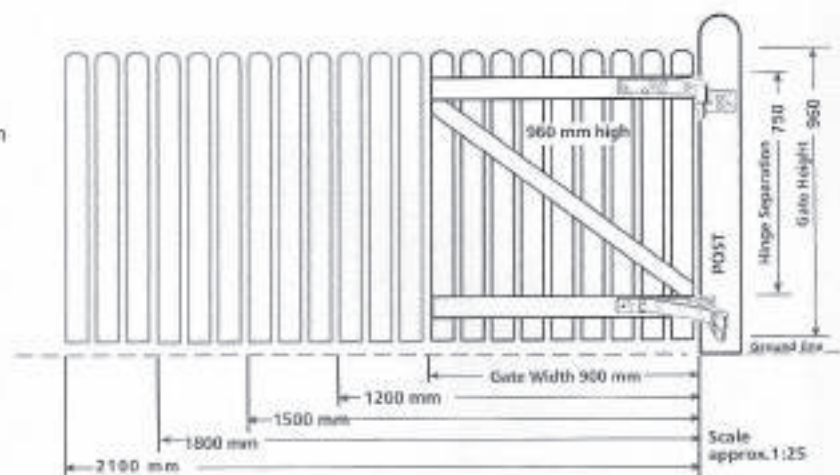


Rises shown in table are at 90° open



100 mm

Gate opening is reduced by approx. 100 mm each side at base.



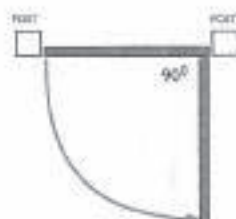
## Example No.2 Gate Height: 1100mm - Hinge Separation: 900 mm

Gate Width	Rise at 90°
900 mm	235 mm

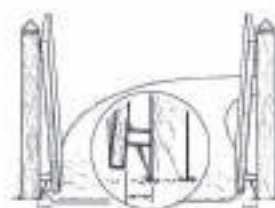
Gate Width	Rise at 90°
1800 mm	390 mm



These figures are the result of tests.

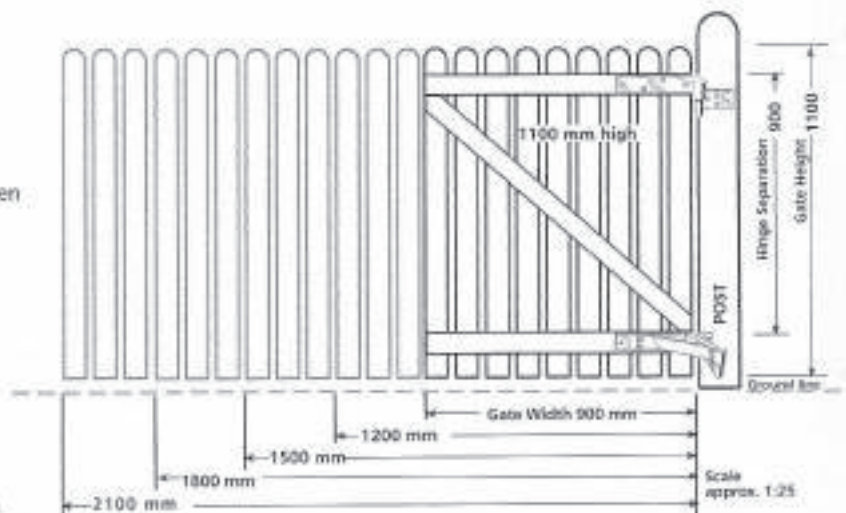


Rises shown in table are at 90° open



120 mm

Gate opening is reduced by approx. 120 mm each side at base.

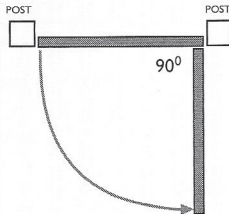


### Example No.3 Gate Height: 1250 mm - Hinge Separation: 1060 mm

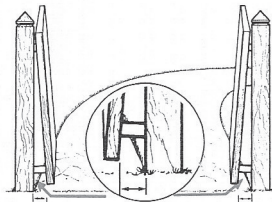
Gate Width	Rise at 90°
900 mm	200 mm
1200 mm	240 mm
1500 mm	290 mm

Gate Width	Rise at 90°
1800 mm	330 mm
2100 mm	380 mm

These figures are the result of tests.

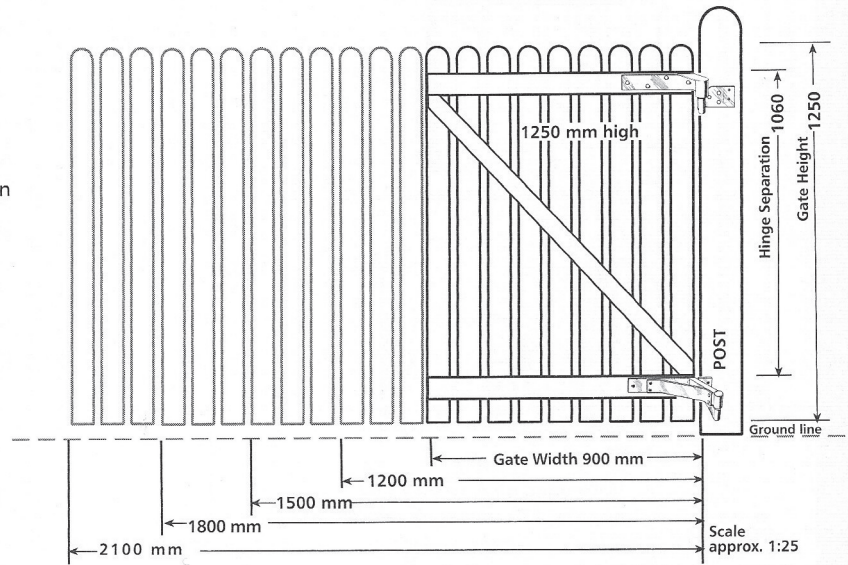


Rises shown in table are at 90° open



120 mm

Gate opening is reduced by approx. 120 mm each side at base.

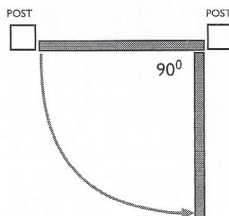


### Example No.4 Gate Height: 1400mm - Hinge Separation: 1200 mm

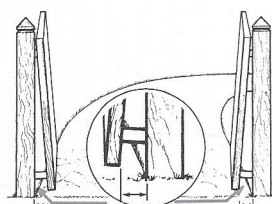
Gate Width	Rise at 90°
900 mm	180 mm
1200 mm	220 mm
1500 mm	255 mm

Gate Width	Rise at 90°
1800 mm	2900 mm
2100 mm	385 mm

These figures are the result of tests.

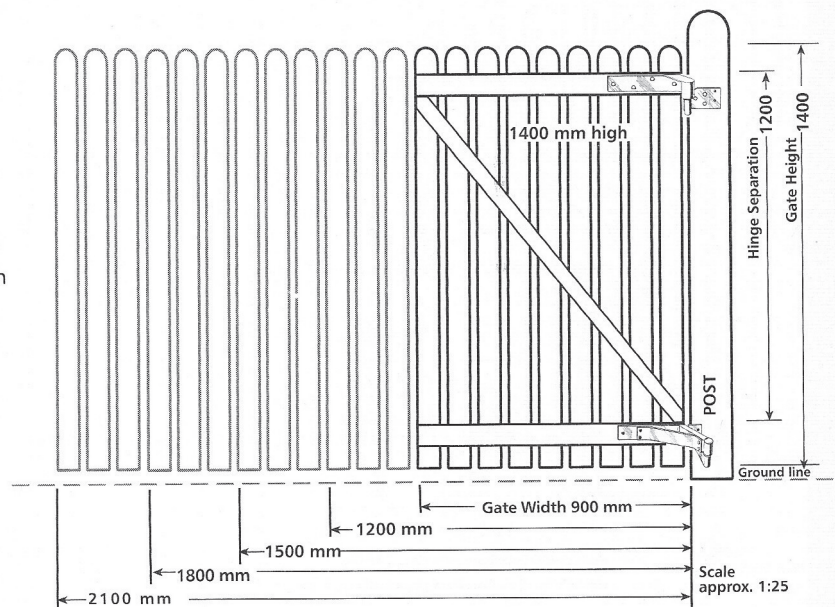


Rises shown in table are at 90° open



120 mm

Gate opening is reduced by approx. 120 mm each side at base.

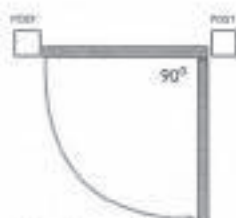


## Example No.5 Gate Height: 1545 mm - Hinge Separation: 1360 mm

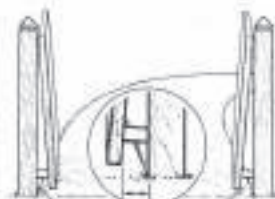
Gate Width	Rise at 90°
900 mm	160 mm
1200 mm	195 mm
1500 mm	230 mm

Gate Width	Rise at 90°
1800 mm	260 mm
2100 mm	300 mm

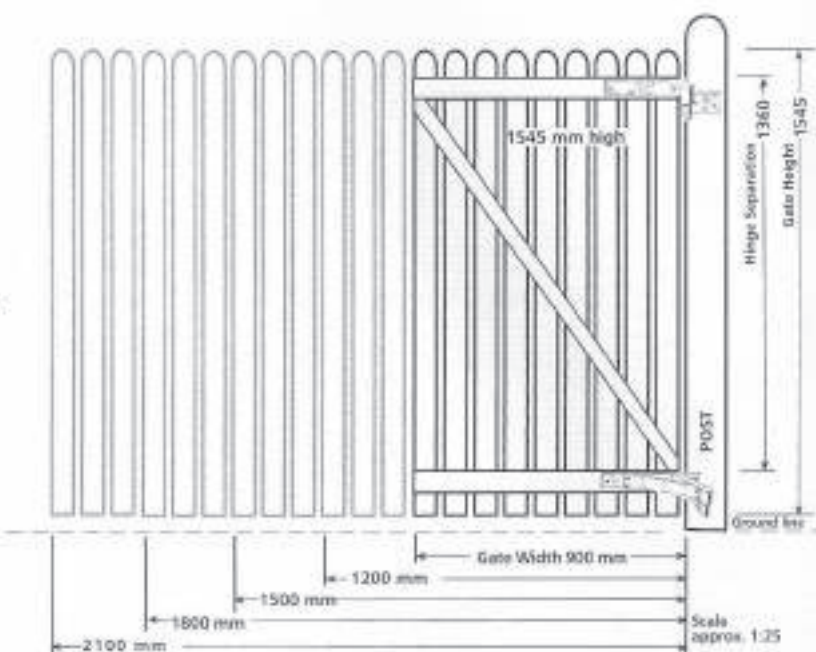
These figures are the result of tests.



Rises shown in table are at 90° open



125 mm  
Gate opening is reduced by approx. 125 mm each side at base.

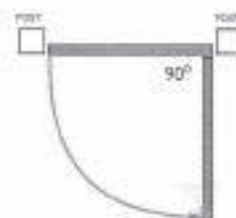


## Example No.6 Gate Height: 1600 mm - Hinge Separation: 1400 mm

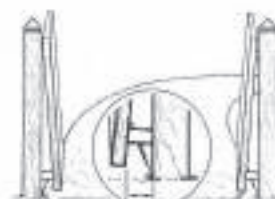
Gate Width	Rise at 90°
900 mm	140 mm
1200 mm	170 mm
1500 mm	200 mm

Gate Width	Rise at 90°
1800 mm	235 mm
2100 mm	270 mm

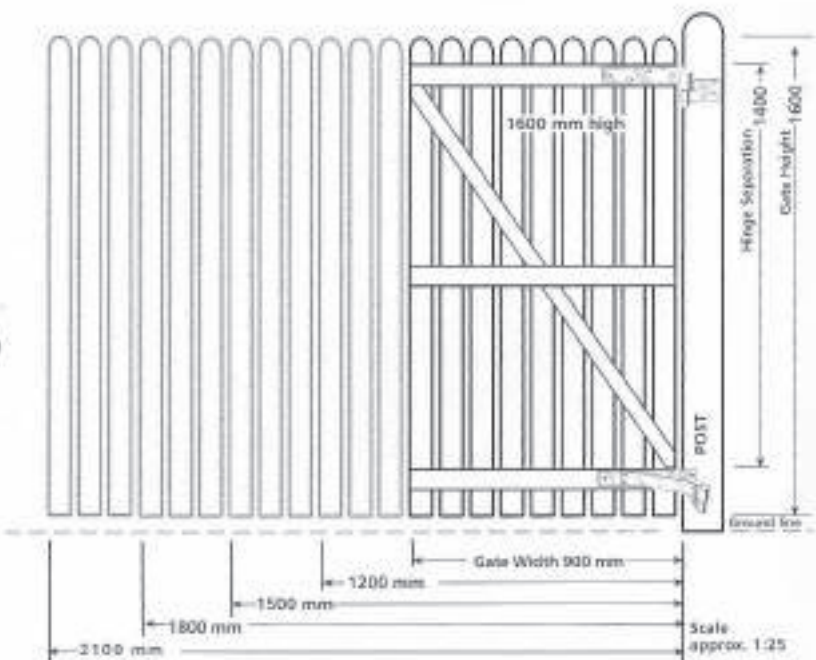
These figures are the result of tests.



Rises shown in table are at 90° open



125 mm  
Gate opening is reduced by approx. 125 mm each side at base.

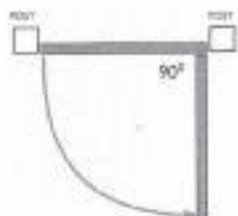


## Example No.7 Gate Height: 1700 mm - Hinge Separation: 1460 mm

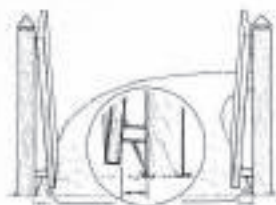
Gate Width	Rise at 90°
900 mm	150 mm
1200 mm	180 mm
1500 mm	210 mm

Gate Width	Rise at 90°
1800 mm	240 mm
2100 mm	270 mm

These figures are the result of tests.

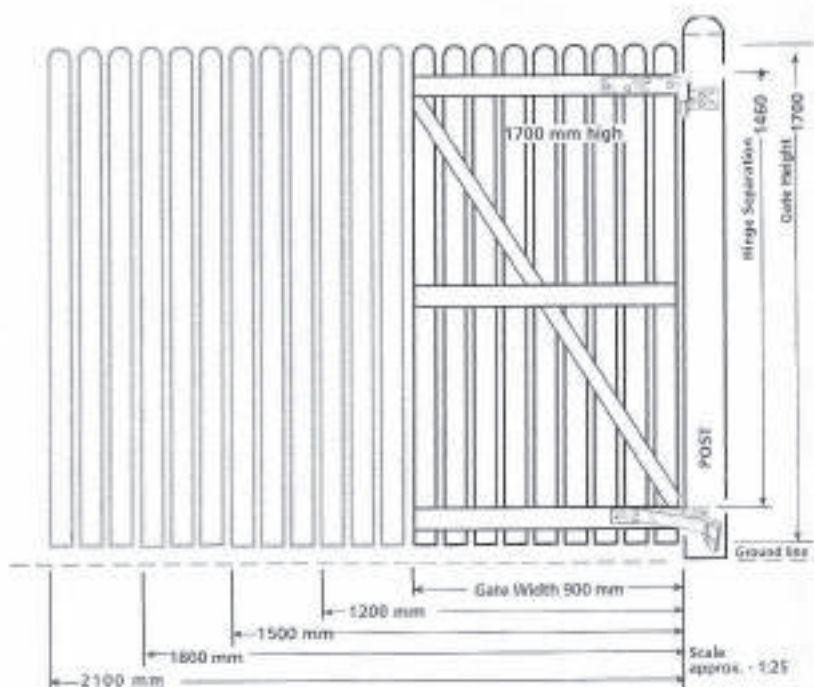


Rises shown in table are at 90° open



120 mm

Gate opening is reduced by approx. 120 mm each side at base.

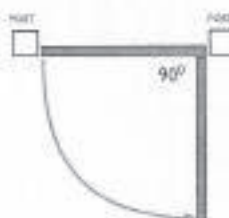


## Example No.8 Gate Height: 1840 mm - Hinge Separation: 1650 mm

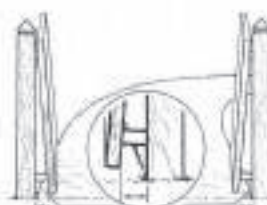
Gate Width	Rise at 90°
900 mm	140 mm
1200 mm	165 mm
1500 mm	190 mm

Gate Width	Rise at 90°
1800 mm	220 mm
2100 mm	250 mm

These figures are the result of tests.

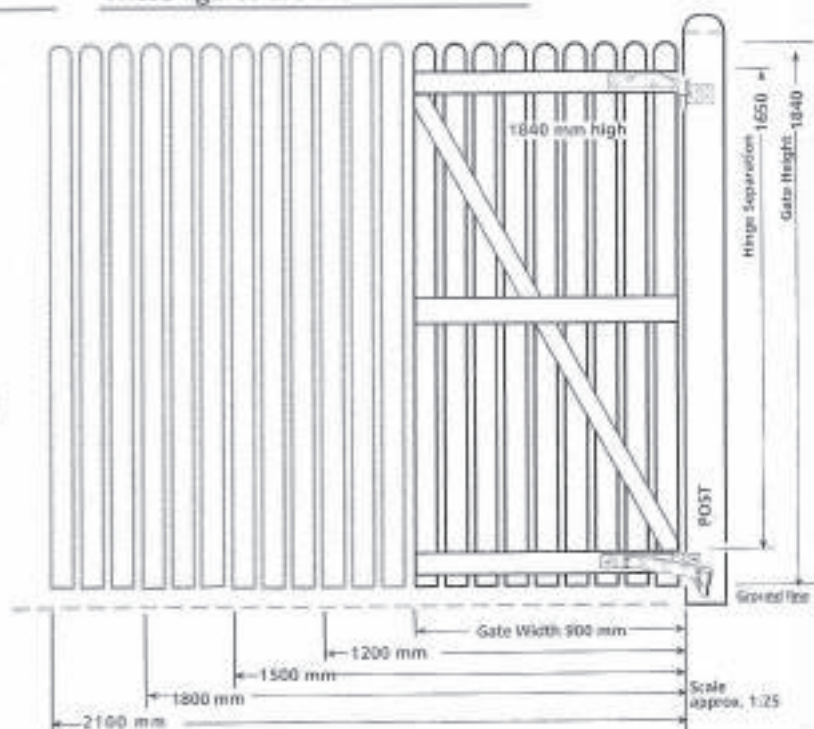


Rises shown in table are at 90° open



110 mm

Gate opening is reduced by approx. 110 mm each side at base.





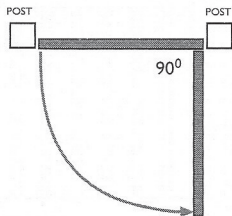
## Example No.9 Gate Height: 2000 mm - Hinge Separation: 1760 mm

Gate Width	Rise at 90°
900 mm	130 mm
1200 mm	150 mm
1500 mm	180 mm

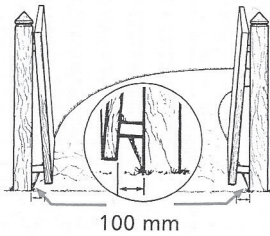
Gate Width	Rise at 90°
1800 mm	210 mm
2100 mm	235 mm



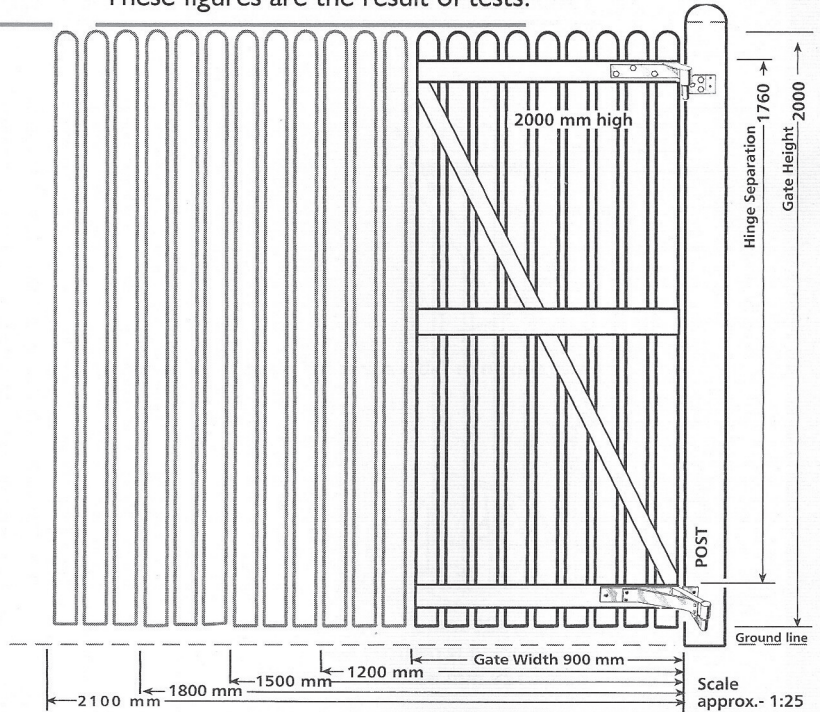
These figures are the result of tests.



Rises shown in table are at 90° open



Gate opening is reduced by approx. 100 mm each side at base.



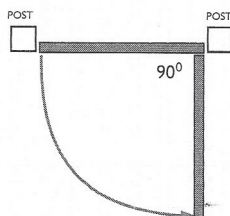
## Example No.10 Gate Height: 2145 mm - Hinge Separation: 1900 mm

Gate Width	Rise at 90°
900 mm	125 mm
1200 mm	145 mm
1500 mm	175 mm

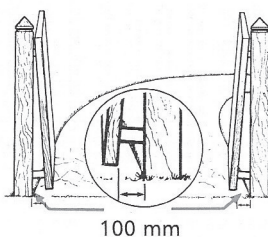
Gate Width	Rise at 90°
1800 mm	200 mm
2100 mm	225 mm



These figures are the result of tests.



Rises shown in table are at 90° open



Gate opening is reduced by approx. 100 mm each side at base.

