

# Hinges

## Grade 11 hinge / Journal supported



### Application

Hinges for general applications.



Journal-supported lift-off hinges.

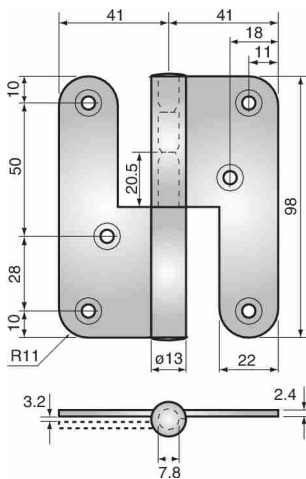
Right and left handed.

Supplied with 1 x 10g fully threaded countersunk wood screws.

For hinge selection and finishes see Hinges information appendix.

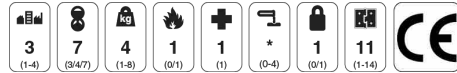
Manufactured from Grade CS4 rolled steel.

### 3220 hinge



Supplied with 6 wood screws.

(Dimension drawing shows RH hinge.)



Product has been successfully type-tested for conformity to BS EN 1935. Regular audit testing is undertaken.

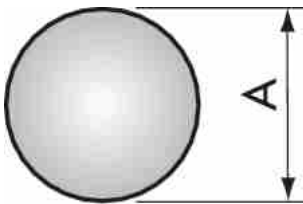
Tested and approved to BS EN 1935 Grade 11 (Heavy Duty). Maximum adjusted door weight: 80kg.

Minimum door thickness 28mm.

Approved for use on fire doors.

\*For corrosion resistance see appendix.

### 249 adjustment discs



May be inserted into the hinge knuckle to raise the door.

Note: the adjustment should be no more than 3mm. If this is insufficient then the fitting of the door and hinges themselves will need to be adjusted.

Ref	A	Use with hinge type
7 x 1	7mm	3220
8.5 x 1	8.5mm	3228

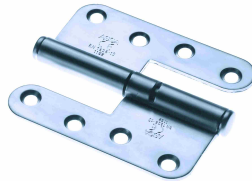


### Grade 13 hinges / Journal supported



#### Application

Hinges for heavy duty applications.



Journal-supported lift-off hinges.

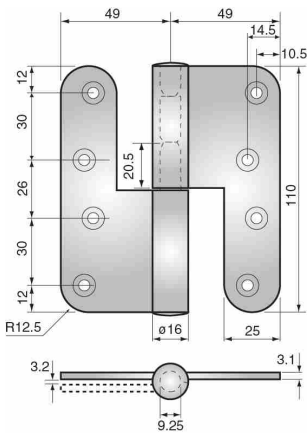
Right and left handed.

Supplied with 1 x 10g fully threaded countersunk wood screws.

For hinge selection and finishes see Hinges information appendix.

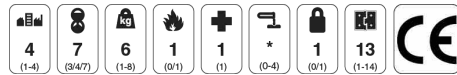
Manufactured from Grade CS4 rolled steel.

#### 3228 hinge



Supplied with 8 wood screws.

(Dimension drawing shows RH hinge.)



Product has been successfully type-tested for conformity to BS EN 1935. Regular audit testing is undertaken.

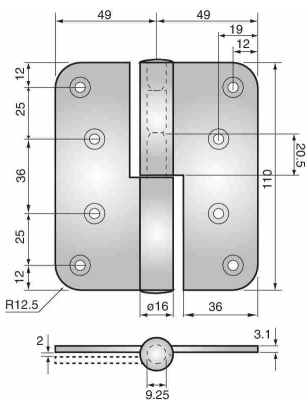
Tested and approved to BS EN 1935 Grade 13 (Severe Duty). Maximum adjusted door weight: 120kg.

Minimum door thickness 28mm.

Approved for use on fire doors.

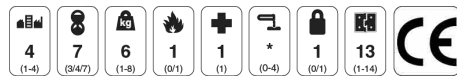
\*For corrosion resistance see appendix.

#### 3248 hinge



Allows symmetrical routing. Supplied with 8 wood screws.

(Dimension drawing shows RH hinge.)



Product has been successfully type-tested for conformity to BS EN 1935. Regular audit testing is undertaken.

Tested and approved to BS EN 1935 Grade 13 (Severe Duty). Maximum adjusted door weight: 120kg.

Minimum door thickness 36mm.

Approved for use on fire doors.

\*For corrosion resistance see appendix.

### Grade 13 hinges / Journal supported



#### Application

Hinges for heavy duty applications.



Journal-supported lift-off hinges.

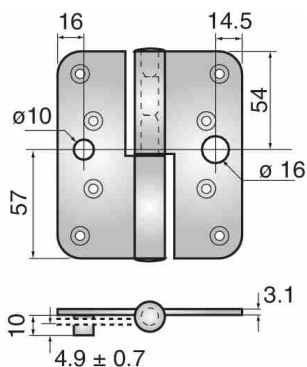
Right and left handed.

Supplied with 1 x 10g fully threaded countersunk wood screws.

For hinge selection and finishes see Hinges information appendix.

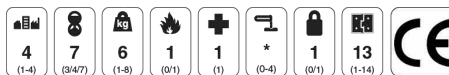
Manufactured from Grade CS4 rolled steel.

#### 3248-05 hinge



Allows symmetrical routing. Supplied with 8 wood screws. Integral 10mm diameter security dog bolt.

(Dimension drawing shows RH hinge.)



Product has been successfully type-tested for conformity to BS EN 1935. Regular audit testing is undertaken.

Tested and approved to BS EN 1935 Grade 13 (Severe Duty). Maximum adjusted door weight: 120kg.

Minimum door thickness 36mm.

Approved for use on fire doors.

\*For corrosion resistance see appendix.

### Grade 14 hinges / Journal supported



#### Application

Hinges for very heavy duty applications.



Journal-supported lift-off hinges.

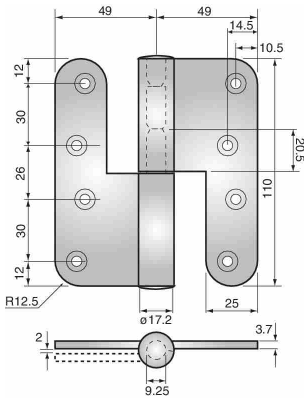
Right and left handed.

Supplied with 1 x 10g fully threaded countersunk wood screws.

For hinge selection and finishes see Hinges information appendix.

Manufactured from Grade CS4 rolled steel.

#### 3278 hinge



Supplied with 8 wood screws.

(Dimension drawing shows RH hinge.)

Product has been successfully type-tested for conformity to BS EN 1935. Regular audit testing is undertaken.

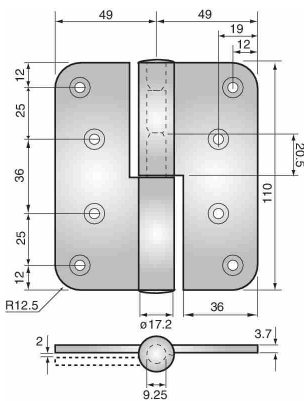
Tested and approved to BS EN 1935 Grade 14 (Severe Duty). Maximum adjusted door weight: 160kg.

Minimum door thickness 28mm.

Approved for use on fire doors.

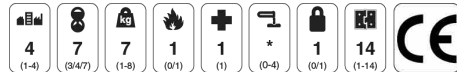
\*For corrosion resistance see appendix.

#### 3288 hinge



Allows symmetrical routing. Supplied with 8 wood screws.

(Dimension drawing shows RH hinge.)



Product has been successfully type-tested for conformity to BS EN 1935. Regular audit testing is undertaken.

Tested and approved to BS EN 1935 Grade 14 (Severe Duty). Maximum adjusted door weight: 160kg.

Minimum door thickness 36mm.

Approved for use on fire doors.

\*For corrosion resistance see appendix.

Corrosion resistant



## Corrosion resistant hinges / Corrosion resistant



### Application

Hinge for use in severe environments where resistance to corrosion is vital.



Journal-supported lift-off hinges.

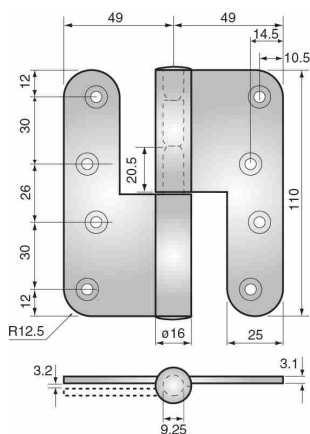
Right and left handed.

3228-ST/ST is supplied with 11/4 x 10g countersunk wood screws.

For hinge selection and finishes see Hinges information appendix.

Manufactured from Grade 304 S15 stainless steel.

### 3228-ST/ST stainless steel hinge



Supplied with 8 stainless steel fully threaded wood screws. Hinge, including journal pin, constructed entirely from stainless steel.

(Dimension drawing shows RH hinge.)



Product has been successfully type-tested for conformity to BS EN 1935. Regular audit testing is undertaken.

Tested and approved to BS EN 1935 Grade 13 (Severe Duty).

Maximum adjusted door weight: 120kg.

Minimum door thickness 28mm.

Approved for use on fire doors.





### Journal supported joinery hinge / Joinery hinge

#### Application

Hinge for general applications. For use on grooved timber doors and frames.



Journal-supported lift-off hinge.

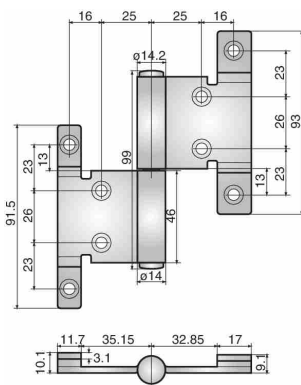
Right and left handed.

Supplied with 4.5 x 25mm countersunk wood screws.

For hinge selection and finishes see Hinges information appendix.

Manufactured from Grade CS4 rolled steel, with Grade 304 stainless steel pins.

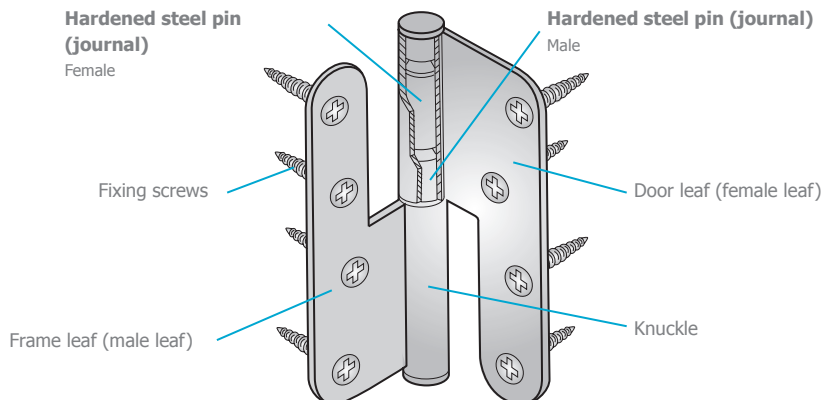
#### 3211-1 hinge



Supplied with 8 wood screws.  
(Dimension drawing shows RH hinge.)

Maximum adjusted door weight  
120kg. Minimum door thickness  
32.5mm.

## Terminology



## Features and benefits

### Hardened steel pins.

Reduces wear thus increasing the hinge life.

### Unique method of securing the pins, so they cannot be driven out.

Increased security and resistance to attack. Higher strength and performance. Fixed pins cannot be lost during installation.

### Low-friction minimum bearing surface: load is carried on the journals.

The door is easy to open, even for the elderly. The hinges will not creak.

### No ball-bearings.

Easier on-site handling, with no risk of losing the ball bearings. Reduced costs and lower maintenance requirements.

### Well-chamfered journals with short pins.

Makes hanging the door faster and easier, thus reducing installation costs.

### Radiused hinge leaves.

Makes fitting the hinges to timber doors and frames faster, easier and neater.

### May be purchased either complete or as separate leaves and screws.

Ideal for either site or factory assembly.

## Standards

The main British Standard governing the performance of hinges is BS EN 1935. This divides products into 14 separate grades, depending on their strength and durability. Grade 1-10 hinges are for light to medium duty only, while Grade 11-14 hinges are also suitable for heavy and severe duty. Please note that section B3 of BS EN 1935 states that it should not be possible to remove the hinge pin or separate the hinged part of the door assembly without special tools. However, as written, the first version of this standard

omits the words 'with the door in the closed position', and if taken literally this would mean that lift-off hinges were barred from use on fire doors. This was not intended, and the CEN Committee has agreed to amend section B3 in the next edition of the standard. In the meantime, notified testing bodies have been advised that lift-off hinges can be approved and CE-marked, provided they meet all other criteria of the standard. Our policy is to test and classify our hinges according to BS EN 1935. By showing this information, the specifier

can be confident that the hinges chosen will meet the performance requirements of any particular application. Furthermore, our manufacturing plant is registered to ISO 9001, the international Quality Standard. This enables us to guarantee that all our products will meet our stringent quality requirements.

BS EN 1935 classifies hinges under the following categories:

Category of use	Durability	Door mass	Fire resistance
Safety	Corrosion resistance	Security	Hinge grade

(Note: graphic icons are copyright by the Door and Hardware Federation: [www.dhfonline.org.uk](http://www.dhfonline.org.uk))

## Hinge selection

### STEP 1 Find the weight of the door

The most important factor in determining the correct hinge to use is the weight of the door. When calculating this, remember to include the weight of any ironmongery, such as locks, furniture and door closers, as well as the weight of the door itself. The basic weight of the door should then be adjusted to take account of any special factors. To do this add together the relevant percentage increases from the table opposite then multiply them by the basic weight. This will give the Initial Adjusted Weight.

Factor	Adjustment	Notes
Door closer fitted	+20%	Adjustment recommended by BS EN 1935
Backcheck door closer fitted	+75%	Adjustment recommended by BS EN 1935
Subject to high wind forces	+10%	ASSA ABLOY Door Solutions recommendation
Subject to physical abuse	+10%	ASSA ABLOY Door Solutions recommendation
Duty	Select hinge to suit level of duty as recommended by BS EN 1935 Annex A (see table below)	

### EXAMPLE

A perimeter security door is 1,150mm wide, weighs 50kg and is fitted with 5kg of ironmongery. It is fitted with a backcheck door closer (+75%), and subject to high wind forces (+10%) and to physical abuse (+10%).

#### Basic Weight:

55kg (50kg plus 5kg)

#### Initial Adjusted Weight (Step 1):

107kg (55kg plus 95%)  
[95% is from 75%+10%+10%]

#### Final Adjusted Weight (Step 2):

135 kg (107kg plus 26%)  
[26% is from width 1150mm]

#### Hinges required

##### (Step 3):

#### Grade 14 hinges.

Note that because of the potential for abuse, Severe Duty hinges would be indicated; but Grade 14 already meets this requirement as standard.

### STEP 2 Check door adjusted weight against door width

Having calculated the Initial Adjusted Weight of the door, this should be cross-referenced with the width of the door, in the chart opposite, to identify the Width Adjustment. Multiply the Initial Adjusted Weight by the Width Adjustment to obtain the final Adjusted Weight.

Note: for door sizes not listed in the chart, use the formula:

$$2 - (\text{Height/Width}) \%$$

Door size		Width adjustment
Height mm	Width mm	
2,000	Up to 1,000	0
2,000	1,050	+10%
2,000	1,100	+18%
2,000	1,150	+26%
2,000	1,200	+33%
2,000	1,250	+40%

### STEP 3 Determine hinge grade required

The Final Adjusted Weight of the door should be checked in the table opposite to determine which grade of hinge is required.

However, please note that hinges which could be subject to abuse or rough handling may need to be of a higher grade (heavy or severe duty) than would otherwise be indicated by the door weight alone. Consult the table to ensure that a suitable hinge is specified.

Final adjusted weight	Hinge grade required	ASSA hinges recommended
Up to 80 kg	Grade 11	3220
81 - 100 kg	Grade 12	3228, 3248
101 - 120 kg	Grade 13	3228, 3248
121 - 160 kg	Grade 14	3278, 3288

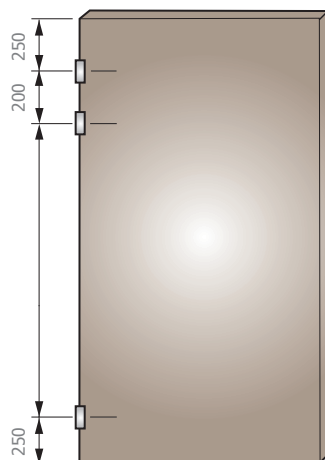


Duty	Type of use	Typical applications	BS EN grade	ASSA hinges recommended
Heavy duty	High frequency of use by members of the public.	Public, institutional and commercial buildings.	11	3220
Severe duty	Doors potentially subject to abuse or violence.	Security doors.	12-14	3228, 3248, 3278, 3288

## Hinge selection

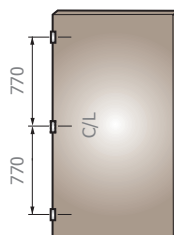
### STEP 4 Hinge positioning

Note that while it is common practice to fit two hinges to lightweight doors, BS EN 1935 recommends that at least three hinges should always be fitted. This is especially important when a door closer is used. BS ratings shown in this catalogue are based on the use of three hinges per door (Note, however, that ASSA recommends that 4 hinges are used on doors over 2250mm in height).



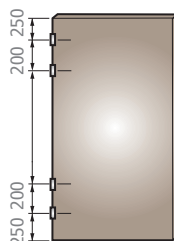
#### Standard doors

The standard positioning when fitting three hinges to a door is as shown. This gives the most effective load bearing capability.



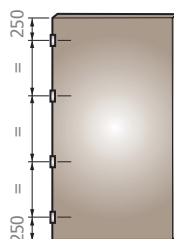
#### Lightweight doors

Two hinges may be fitted as shown. On doors subject to warping, such as glazed doors, fit a third hinge in the centre of the door.



#### Heavy doors

When load bearing is the prime consideration, fit four hinges as shown.

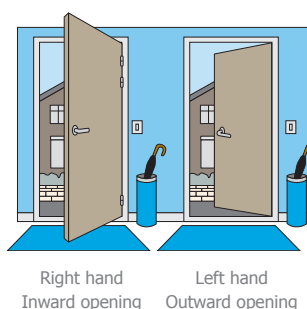
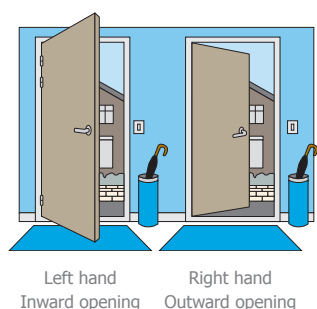


#### Tall doors (over 2250mm)

On tall doors or those which are particularly subject to warping (such as glazed doors) fit four hinges equally spaced, as shown.

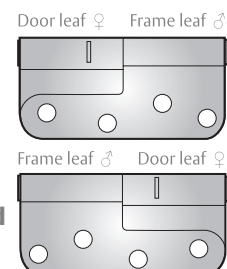
### STEP 5 Handing

Fit right hand hinges (symbol 'R') to right hand doors, and vice-versa. A simple rule to determine the handing of a door – stand in front of the closed door on the side where you can see the hinge knuckles. If they are to the right, it is a right hand door – if they to the left, it is a left hand door.



**L**  
Left hand hinge

**R**  
Right hand hinge

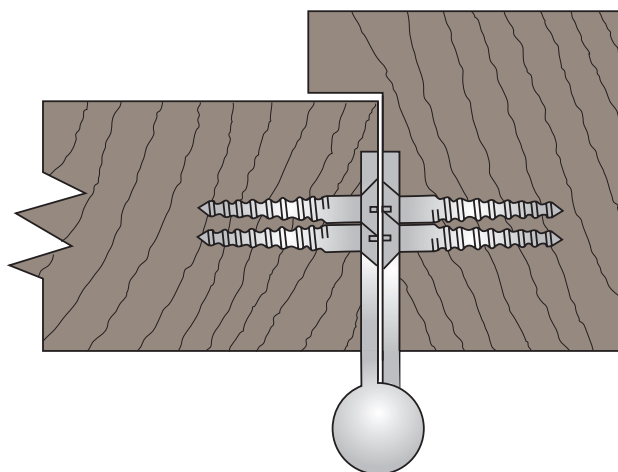


### STEP 6 Fitting and lubrication

Hinges should be morticed into the edge of the door and the frame. Ensure that all hinges fitted to the door are lined up vertically.

On a standard 44mm door, the centreline of the narrow part of the hinge leaf should align with the centreline of the door. The hinge knuckle will project beyond the face of the door, as shown.

Lubrication should normally be carried out on installation and then twice per annum.



Use only the ASSA screws provided when fitting hinges to timber doors, as the load-carrying capacity of the hinge is dependent on the correct screws being used. A pilot hole should be drilled for the screws. ASSA hinges are normally supplied with 10g wood screws: we recommend preparing the pilot holes with a 2.4mm diameter drill.

(These sizes are recommended for soft wood; pilot holes for hardwood may need a slightly larger drill size.)

## Finishes

In the increasingly polluted atmosphere in which we live, the demands on products to resist corrosion are particularly high. ASSA products have the benefit of the latest automatic plating equipment which incorporates the best of modern plating processes.

- ✓ Standard finish
  - Special finish
- Contact your stockist for up-to-date information.

Item	Satin s/steel Fin 31	Polished s/steel Fin 32	Bright zinc Fin 57	Yellow zinc/iron Fin 62	Satin chrome Fin 13	Polished brass Fin 20	Polished chrome Fin 11	Blue-silver zinc/iron Fin 58
3220			✓	✓	●	●	●	●
3228			✓	✓	●	●	●	●
3248*			✓	●	●	●	●	●
3228 ST/ST	✓	●						
3278, 3288			✓	●				
3211-1				✓**				●
CEN corrosion resistance	Grade 4	Grade 4	Grade 3	Grade 4	Grade 1	Grade 3	Grade 4	Grade 4

Zinc-iron finishes (58 and 62) include a protective lacquer coating.

\* 3248-05 available in finishes 57 and 62 only (ex-works).

\*\* 3211-1 hinge finish referred to as Fin 51: this is yellow zinc-iron with stainless steel hinge pins.

## Corrosion resistance

Finishes are rated according to the requirements of EN 1670: 2007 as shown in the table. Please note that the grade of stainless steel used to manufacture the ASSA stainless steel hinges has been tested to over 1,500 hours in a salt spray test without corrosion.

Grade 0	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
No defined resistance	Low resistance	Moderate resistance	High resistance	Very high resistance	Exceptionally high resistance