



3DX-160 3D Stainless Steel Concealed Hinge

HINGE LOADING & LOCATION

Overview

The load values for concealed hinges is shown in the following table which provides you an overview of the maximum load value for 3DX Series concealed hinges. The data takes in consideration of width and height of the door as well as the required hinge gap.

The data is gathered with the assumption of a reference value with door leaf dimensions of 1000mm(Width) x 2000 mm (Height), with the use of 2 concealed hinges and a hinge gap of 1435 mm. The recommended allowed load values will change with different width and height ratios.

The hinge gap dimensions is in accordance to DIN 18101 which are taken into account for standardised door elements.

The specifications above are guidelines. Especially in the case of borderline load requirements, please consult our sales representative for more information and recommendations.

When you are selecting or deciding on a concealed hinge, various influential factors should be considered as these can often affect the actual door weight and door loading required is often dependant on the actual usage environment. It is essential to take account these various criteria elements and always pre-empt these additional usage factors.

This is especially important in public buildings where extra loads are incurred due to the high opening frequency and stress which is not always calculable (kindergarten, hospitals etc.), sufficiently dimensioned hinges should be used even if this would not have been necessary merely based on the door weight as such.

| | | | | | | | | | | |
|------------------------|----------------------|-----|------|------|------|------|------|------|------|-----|
| | 2000 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| | 1950 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| | 1900 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| | 1850 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 152 |
| | 1800 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 148 |
| | 1750 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 151 | 144 |
| ↑ Hinge Gap in (mm) | 1700 | 160 | 160 | 160 | 160 | 160 | 160 | 154 | 147 | 140 |
| | 1650 | 160 | 160 | 160 | 160 | 160 | 157 | 150 | 143 | 136 |
| | 1600 | 160 | 160 | 160 | 160 | 160 | 152 | 145 | 138 | 131 |
| | 1550 | 160 | 160 | 160 | 160 | 156 | 148 | 141 | 134 | 128 |
| | 1435 | 160 | 160 | 160 | 152 | 144 | 137 | 130 | 124 | 118 |
| | 900 | 950 | 1000 | 1050 | 1100 | 1150 | 1200 | 1250 | 1300 | |
| | → Door Width in (mm) | | | | | | | | | |

Reference details

The load specifications for WEIDER concealed hinges are based on a maximum door weight. Additionally, the named influential factors must be taken into account for hinge loads.

Designed & Manufactured by Weider Metal Inc.

GUARANTEE

WEIDER 3DX-160 are guaranteed for long-term use **1 year** from date of manufacture against any defects in material or workmanship. Defective products will be replaced with a new unit; will be replaced with a new unit; but no claims for damage incurred or work done thereon will be allowed. This guarantee is void if the product has been subjected to misapplication or abuse.





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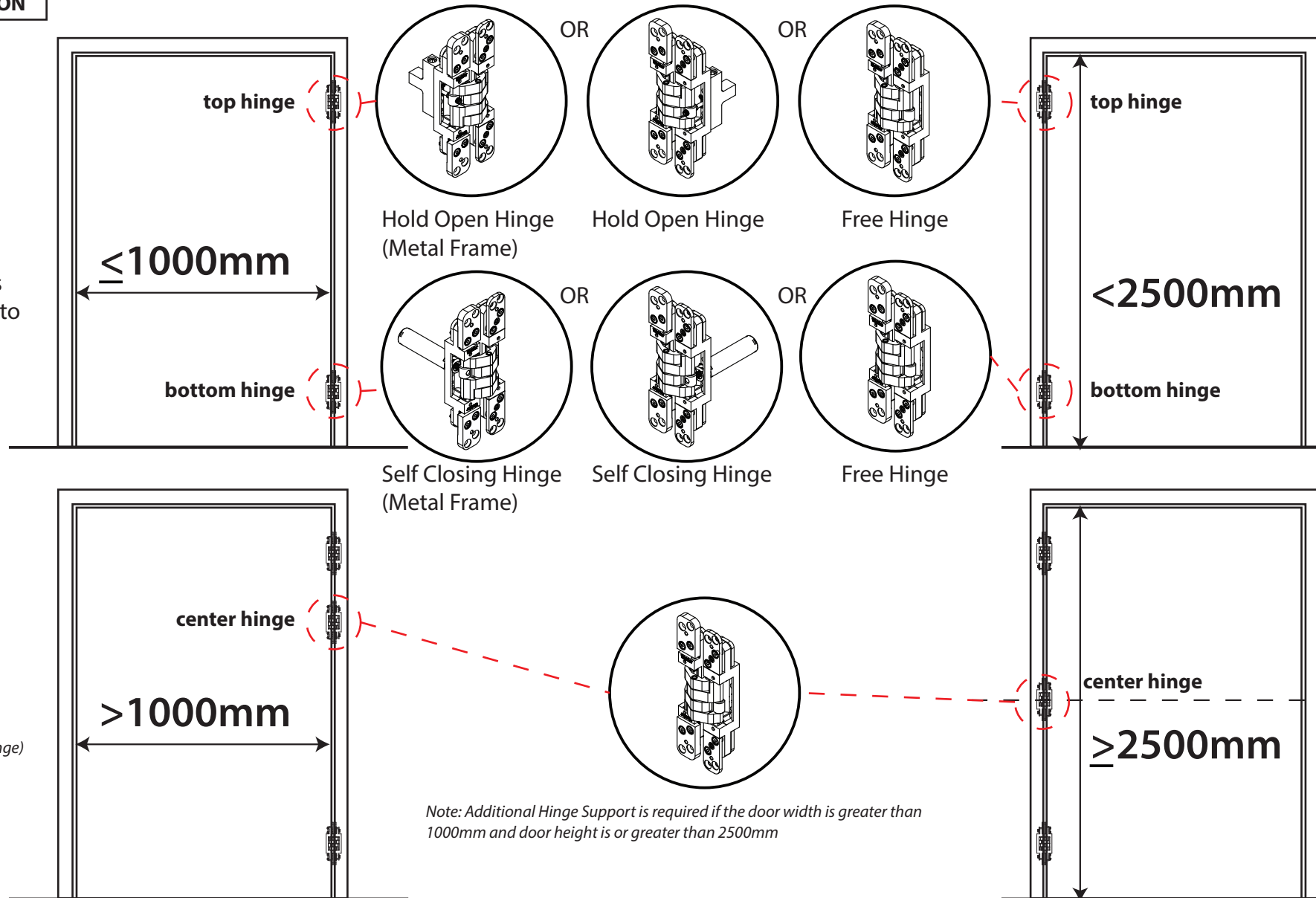
HINGE LOADING & LOCATION

MIX & MATCH Functionality & Location

Depending on functional requirements, different types of concealed hinges can be selected and used to perform each required functionality.

4 types of functional configuration:

- (1) Free swing operation
(2x Free hinge)
- (2) Self closing operation
(1x free hinge, 1x Self closing hinge)
- (3) Hold open operation
(1x free hinge, 1x Hold open hinge)
- (4) Self closing with hold open operation
(1x Hold open hinge, 1x self closing hinge)



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HINGE LOADING & LOCATION

Additional Hinge Support

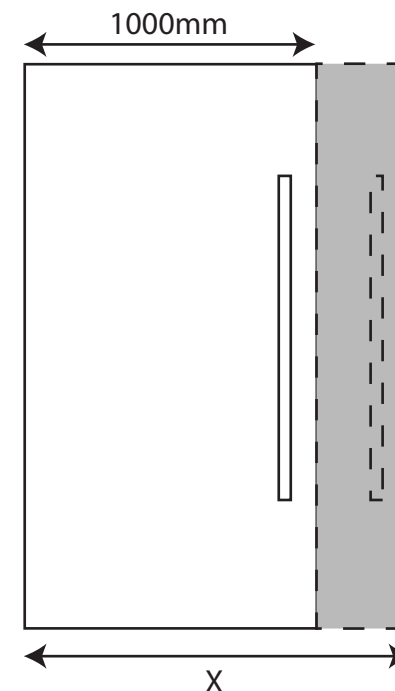
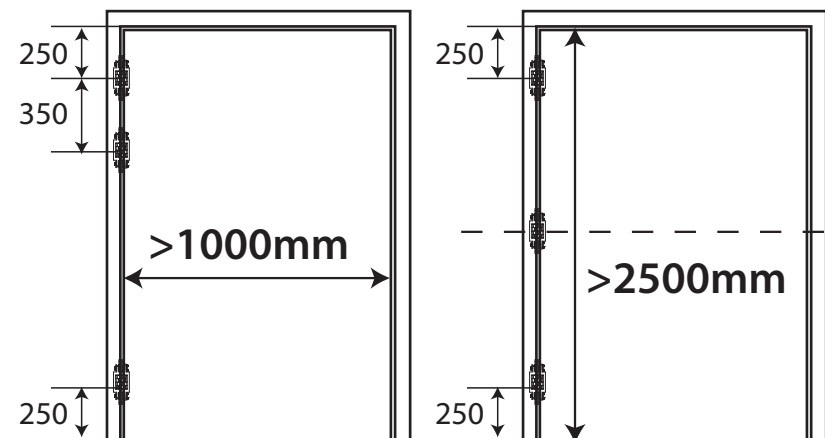
In addition to the factors mentioned above, the use of a third hinge can have a significant impact on the loading capacity. Due to optical demand a third hinge is located in the middle of the door and often used to minimise warpage in the centre of the door panel. However, in the case of extra-wide doors (>1000 mm), it would be necessary to install an additional support hinge located 350mm from the upper hinge. By installing an additional hinge 350mm below the upper hinge help to minimise most of the major tractive forces forces occur due to the lever action.

For these applications the third hinge has to be located in the upper third since only then the load capacity of the hinge is positively influenced. In the case of unregulated units (e.g. exterior doors), WEIDER would recommend reducing this size to as far as 250 mm depending on the knuckle length.

Doors with excess widths

WEIDER heavy-duty hinges have generally been designed for the indicated load capacities. Please take into account that for two doors wider than 1000mm and the hinge spacing remaining constant the load capacities are reduced in percentages by the same ratio as the Standard door width of 1000mm is exceeded (e.g. door width 125 cm = load capacity ./ . 25 %).

An accurate, professional fitting in accordance with the WEIDER installation instructions is always a prerequisite.



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Frame fixing

To achieve a max. load capacity of a door hinge a proper and appropriate assembly of all components is compulsory. Special emphasis shall be given to the fixing of the door element to the wall. Especially closed frames, whether made of steel, aluminium or derived timber boards, often show a higher instability, therefore it is necessary to pay attention to a secure fixing to the brickwork or framework. Foaming alone in this area is not recommended for door weights > 60 kg. Here, a force-fitted connection must be created via a screw or plug connection through the receiver, or max. 100 mm from the outer edge of the hinges.

Door closers

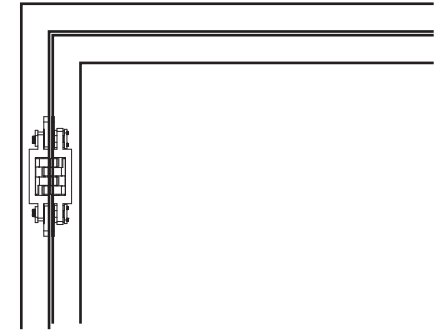
When door closers are used, WEIDER recommends the use of a third hinge in the upper third of the door. The correct adjustment of the closer is a fundamental requirement for a long-lasting, problem-free functioning. Closing sequence control systems. When closing sequence control systems are used with double-leaf doors, it is important to ensure that a cushioned locking device is used for the active leaf, so that the forces are not transmitted to the hinges 1:1. In this case, WEIDER recommends using a third hinge in the upper third of the door.

Swing Door Operator

When a swing-door operator is used, WEIDER recommends using a total of four hinges, placed in two pairs at the top and the bottom. The international distance between a pair of hinges should not exceed 350 mm.

Door Selectors - Closing sequence control systems

When using Door selectors on double-leaf doors, it is important to ensure that a cushioned locking device is used for the active leaf, so that the forces are not transmitted to the concealed hinges 1:1. In this case, WEIDER recommends using a third hinge in the upper third of the door.



Wall openings, door stoppers

Factors such as door stoppers, projecting wall openings or similar cannot be measured or estimated and need to be considered individually, due to the lever action and forces that may occur if the door is opened too far respected beyond a defined level. As a result of the doors' masses/weights, this can quickly lead to damaging the fastening, the hinges or construction. If it is necessary to use a door stopper, this should either be mounted on the wall or, instead, on the floor placed at 75 % of the door's width away from the hinge axis in the direction of the lock.

Miscellaneous

The points given here are simply guidelines. In practice, it may very well make sense, depending on the door's composition, usage levels, location, etc., to take the above factors into account even for door widths <= 1000 mm. This needs to be decided on a case-by-case basis. In any case, care must be taken to ensure that the hinges are of a sufficient size to be able to cover the extraneous factors.

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