

# GENERAL INFORMATION

Regarding hinge load values  
Reference value **300kg**

## Overview of load values for hinges

The following table provides you an overview of the maximum load value for the individual hinge type, taking the interaction of width and height of the door as well as the hinge gap into account.

Assuming a reference value with door leaf dimensions of 1000 x 2000 mm (W x H), the use of 2 hinges and a hinge gap of 1435 mm, the permissible load values change with different width and height ratios.

**Green:** load value = reference value. **Orange:** load value < reference value.

↑ Hinge gap in mm	2000	300	300	300	300	300	300	300	300	300
	1950	300	300	300	300	300	300	300	300	300
	1900	300	300	300	300	300	300	300	300	300
	1850	300	300	300	300	300	300	300	300	298
	1800	300	300	300	300	300	300	300	300	289
	1750	300	300	300	300	300	300	300	293	281
	1700	300	300	300	300	300	300	296	284	273
	1650	300	300	300	300	300	300	287	276	265
	1700	300	300	300	300	300	291	279	268	257
	1550	300	300	300	300	295	282	270	259	249
	1435	300	300	300	286	273	261	250	240	231
		900	950	1000	1050	1100	1150	1200	1250	1300

| → Leaf width in mm

The hinge gap dimensions according to DIN 18101 must be taken into account for standardised door elements.

The specifications above are guidelines. Especially in the case of borderline load requirements, please approach us.



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## Selection criteria

**When selecting or deciding on a hinge, the load alone is already often viewed as being identical to the weight of the door. However, the hinge load can often be several times the door weight, caused by various influential factors.**

Even taking these various criteria into account, an additional reserve should always still be included when selecting the hinge. Especially in public buildings where extra loads are incurred due to the high opening frequency and stress which is not always calculable (kindergarten, barracks etc.), sufficiently dimensioned hinges should be used even if this would not have been necessary merely based on the door weight as such.

Finally, a hinge is also only as good as its later machining. Therefore, proper fitting and expert installation are absolutely necessary. Only correctly fitted hinges are able to fulfil the intended function.

The material stability of the construction element to be fitted and friction locking with the masonry or stud frame forms the basis for the hinge's respective function. If questions regarding the correct selection of hinges arise in certain cases, we are more than happy to help you.

**The following criteria must be taken into account for hinge selection in order to avoid consequential damages:**

Location (*residential building, public building, school, administration, barracks, kindergarten etc.*)

The element's material type

Opening frequency

Door dimensions (e.g. excess widths)

Hinge positioning

Hinge installation

Doors opening outwards (*porches*)

Door stoppers

Door closers

Wall jambs

etc.

## Third hinge

In addition to the factors named above, the use of a third hinge can also influence the load value decisively. In practice, a third hinge is often placed centrally in order to do justice to the optical requirements and to guarantee the sealing pressure in the middle of the door. However, under certain conditions it may make sense or be necessary to additionally support the upper hinge, where the major tensile forces occur – e.g. this could be achieved using a door closer which develops additional forces or also the leverage effect of extra wide doors. In such cases, the third hinge must be placed in the upper third as this is the only means to influence the load value positively. SIMONSWERK recommend the use of a 3rd hinge 370 mm under the upper hinge (taking the upper hinge reference line as a reference).

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## Doors with excess widths

SIMONSWERK building hinges are generally geared for the load values specified, whereby you should observe that the load values diminish percentagewise from a door width of 100 cm with a constant hinge gap in the dimension in which the door width of 100 cm is exceeded (e.g. door width 125 cm = load value minus 25%).

The prerequisite for this is always precise and proper fitting in accordance with the SIMONSWERK installation instructions.

The following load specification for SIMONSWERK hinges refer to a maximum door weight whilst taking the named influential factors into account for hinge loads.

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## Reference details

The load specifications for SIMONSWERK hinges are based on a maximum door weight, taking the named influential factors into account for hinge loads.

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## All specifications are based on the following references:

Door leaf dimensions	1000 x 2000 mm
Use of	2 hinges
Hinge gap	1435 mm

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## Frame attachment

In order to reach the maximum load value of a door hinge, proper and expert installation of all components is a compulsory prerequisite. At the same time, special attention must be paid to the attachment of the door element to the wall. In particular for closed frames, irrespective of whether steel, aluminium or wooden composite frames, which as such frequently demonstrate greater instability, it is important to pay attention to the attachment of the frame to the masonry or stud frame. Mere foaming in this area is not recommended for door weights of > 80 kg. Friction locking by means of a screw or wall plug connection must be made here.

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## Attachment screws

If using SIMONSWERK hinges on acetylated, acidic and other modified timber, you must pay attention to the selection of corresponding attachment material/attachment screws.