

GENERAL INFORMATION

Regarding hinge load values
Reference value **160 kg / 352 lbs.**

Overview of load values for hinges

The following table provides 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 spacing into account.

The reference load carrying capacity is based on a height / width ratio of 2:1. For example, assuming a reference value with door leaf dimensions of 1200 x 2000 mm (39.370" x 78.740") (W x H), a positioning of 250 mm / 10" from the top and 250 mm / 10" from the bottom to the center of each hinge is required.

For required number of hinges and hinge spacing refer to door manufacturer recommendation.

Values represent hinges positioned 250 mm / 10" from the top and 250 mm / 10" from the bottom to center of each hinge.

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

	>2743 / 108	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352
	2591 / 102	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352
	2438 / 96	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	156 / 343
→ Door panel height in mm / inch	2388 / 94	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	158 / 348	152 / 335
	2337 / 92	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	154 / 339	148 / 326
	2286 / 90	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	155 / 341	149 / 328
	2235 / 88	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	158 / 348	151 / 332
	2184 / 86	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	153 / 337	147 / 324
	2134 / 84	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	155 / 341	149 / 328
	2083 / 82	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	142 / 313	137 / 302
	2032 / 80	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	138 / 304	132 / 291
	1981 / 78	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	160 / 352	156 / 343	150 / 330
									144 / 317	138 / 304
								134 / 295	128 / 282	
								124 / 273	119 / 262	
	≤ 914 / 36	965 / 38	1016 / 40	1067 / 42	1118 / 44	1158 / 46	1219 / 48	1270 / 50	1321 / 52	
	→ Door width in mm / inch									

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

LOAD VALUES FOR HINGES

An accurate, professional fitting in accordance with the SIMONSWERK installation instructions is recommended.

Installation site (residential building, public building, school, administration, barracks, kindergarten etc.)
Type of material of the element
Frequency of operation
Door dimensions (e.g. excess widths)
Positioning of hinges
Assembly of hinges
Outward opening doors (porch)
Door stop
Door closer
Swing-door operator
Wall soffits
Closing sequence control systems, etc.

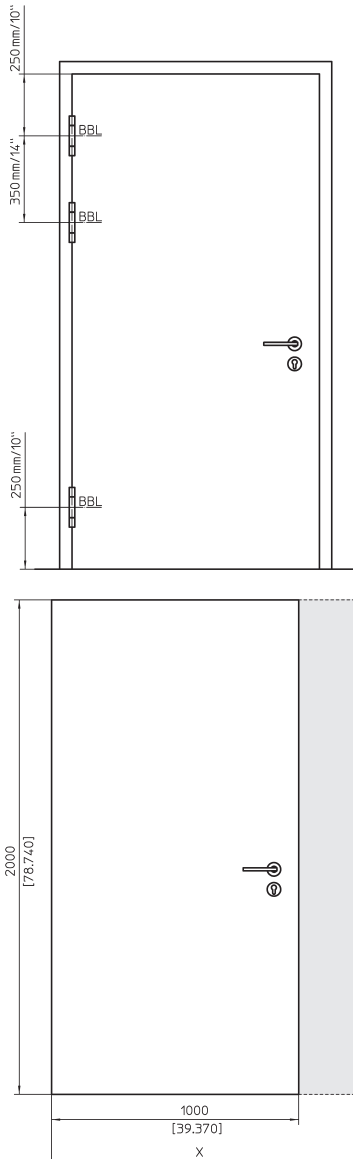
When selecting or deciding on a hinge, the load alone is already often viewed as being identical to the weight of the door. However, the hinge load can often be several times the door weight, caused by various influential factors.

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, hospitals etc.), a larger sized hinge should be used even if this would not have been necessary based on the door weight.

Reference details

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



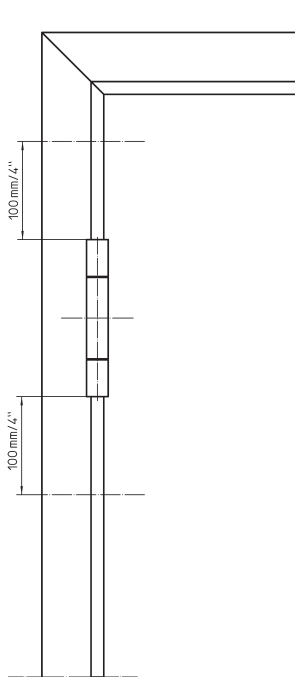
Third hinge

In addition to the factors mentioned above the use of a third hinge can have a significant impact on the load capacity. In practice, often a third hinge is located in the middle of the door in order to meet the visual demands and to minimize warping in the center of the door. If a third hinge is used to increase the durability and load capacity, the hinge must be positioned 350 mm / 14" below the upper hinge (center to center). If a third hinge is placed in a different location, e.g. the center, it does not increase the durability and load capacity. The use of a third hinge in order to increase the load capacity has to be determined on a case by case basis. Our hinge data refers to a height/width ratio of the door of 2:1 or more. Please contact us for further information and also see the door manufacturers' instructions. Proper preparation and alignment as well as tension-free adjustment are crucial for a hassle-free operation.

Doors with excess widths

SIMONSWERK heavy-duty hinges have been designed for the indicated load capacities. If the width of a door exceeds the height/width ratio of 2:1, the load capacity is reduced. Review the load value tables for additional details.

LOAD VALUES FOR HINGES



Frame anchoring

In order to achieve a maximum load capacity, it is necessary to anchor the frame within 100 mm / 4" above and below the upper hinge, plus in other areas as needed.

Door closers

When overhead door closers are used, SIMONSWERK 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 of the door unit.

Powered door openers

When a powered door opener is used, SIMONSWERK recommends using four hinges placed in two pairs at the top and the bottom. Using the recommended hinge location of 250 mm / 10" from the top and 250 mm / 10" from the bottom, the additional hinges should be placed 350 mm / 14" below and above the upper and lower installed hinges.

Closing sequence control systems

When closing sequence control systems are used with double-leaf doors, it is important to ensure that a cushioned closing device is used for the active door leaf, so that the forces are not directly transmitted to the hinges. In this case, SIMONSWERK recommends using a third hinge in the upper third of the door.

Wall openings, door stoppers

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

This information is only a guideline and other factors such as door material, door width, usage level, location, and environment might alter these. Therefore, it is suggested to contact SIMONSWERK for recommendations.