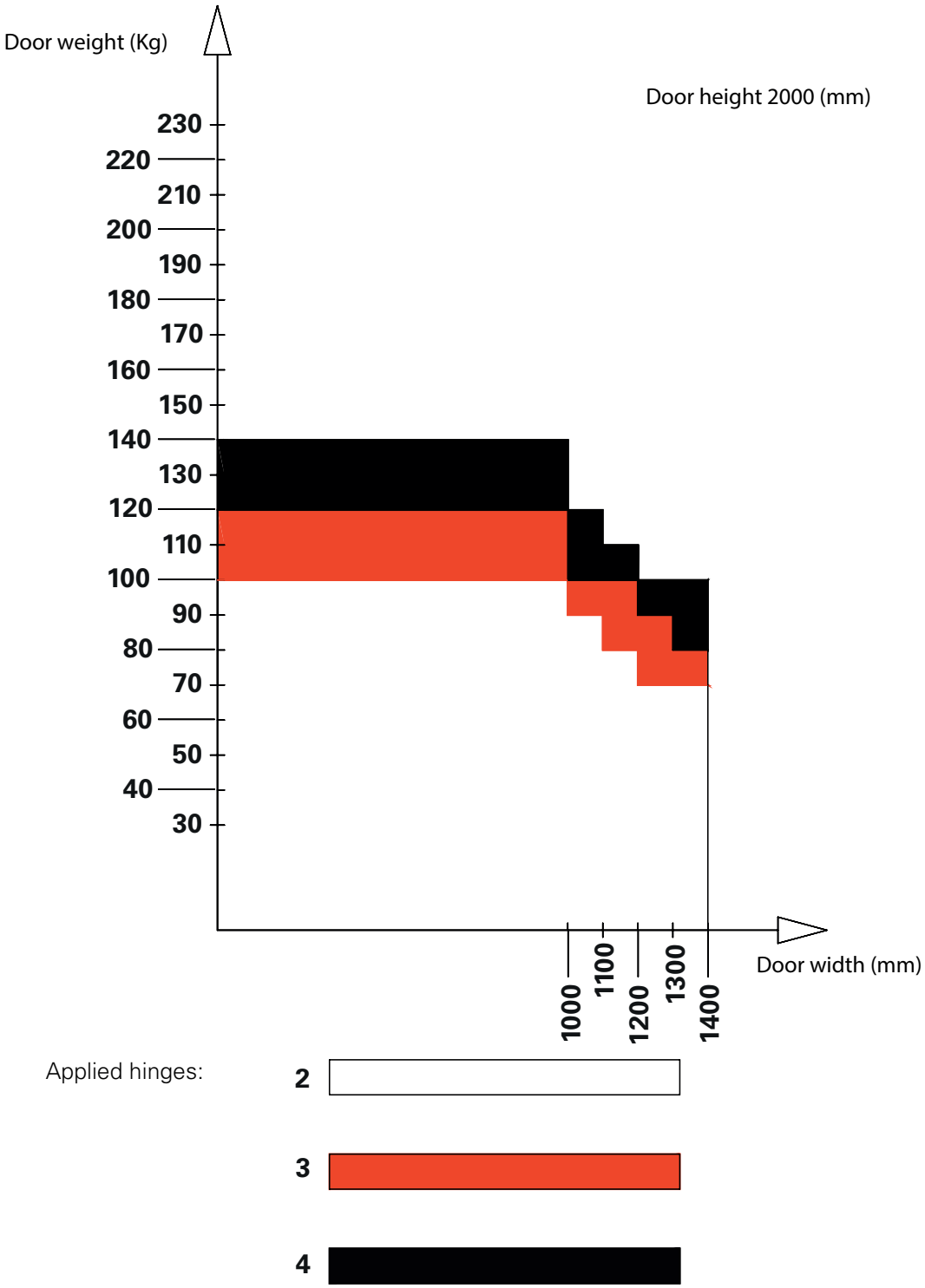
Technical information
Load capacity values of hinge Just 3D



Technical information Load capacity values of monoaxial hinges

The stated weight capacity value was calculated using a dynamic test carried out according to the RAL standard, involving:

- 200,000 opening movements at 90°
- door measuring 2000mm (height) x 1000mm (width)
- 2 fitted hinges

It is important to bear in mind not only the stress due to structural factors (weight and dimensions) but also the external factors to which the system is subjected, as these can affect the weight capacity and life-span of the hinge, for example:

- measurements of the door outside the tolerance ranges (width and/or height)
- place of installation and use of the door (residential buildings, public buildings, schools, nurseri es, etc.)
- frequency of opening
- presence of obstacles that prevent opening and/or closing (doorstops, reveals, etc.)
- self-opening/self-closing mechanism: Door closers put extra stress on hinges. For a standard door closing device it is recommended that the door mass should be notionally increased by 20%. The effect of a backcheck door closing device is greater and it is recommended that the door mass should be notionally increased by 75%. This has been addressed in BS EN 1935, annex E.
- inward or outward opening of the doors
- weather conditions
- type of door/window material (Wood, PVC-U, Aluminium etc.)

Care should be taken to choose the most suitable system, bearing in mind the factors listed above and the following variables:

- number of hinges fitted
- position in which the hinges are fitted
- type of hinges fitted

The essential requirements for ensuring the best performance of a hinge are:

- correct installation of the hinge, its accessories and of the door itself
- stability and correct installation of the frame

Number of hinges to be fitted

In the case of some of the factors listed overleaf, there are formulas for correct calculation of the stress to which the hinges are prone.

Example A:

Weight of the door/window above the declared weight capacity value

The weight capacity value of 3rd or 4th additional hinge is as follows:

30% of the stated single hinge weight capacity up to 100 kg hinge.
20% of the stated single hinge weight capacity over 100 kg hinge.

Ex.:
Weight of the door: 90 kg
Dimensions of the door: 2000x1000 mm

Declared weight capacity for 2 hinges: 80 kg (=> weight capacity for 1 hinge: 40 kg)
Weight capacity of additional hinge (3rd or 4th): 20% of 40 kg = 8 kg

Number of hinges to be fitted: 80 kg + 8 kg + 8 kg = 96 kg => 4 hinges

Example B:

Width of the door/window above 1000mm

A 10% increase in weight of the door/window should be considered for each 100 mm of width above 1000 mm.

Ex.:
Weight of the door: 70 kg
Dimensions of the door: 2000x1200 mm
Door actual weight: 70 kg + 20% of 70 kg = 84 kg

Declared weight capacity for 2 hinges: 80 kg (=> weight capacity for 1 hinge: 40 kg)
Weight capacity of additional hinge (3rd or 4th): 20% of 40 kg = 8 kg

Number of hinges to be fitted: 3 hinges

Number of hinges to be fitted

Example C:

Weight of the door/window with standard door closing device

A 20% increase in weight of the door/window should be considered when a standard door closing device is present.

Ex.:
Weight of the door: 70 kg
Dimensions of the door: 2000x1000 mm
Door actual weight: 70 kg + 20% of 70 kg = 84 kg

Declared weight capacity for 2 hinges: 80 kg (=> weight capacity for 1 hinge: 40 kg)
Weight capacity of additional hinge (3rd or 4th): 20% of 40 kg = 8 kg

Number of hinges to be fitted (3 hinges at least, 4 hinges recommended):
80 kg + 8 kg + 8 kg = 96 kg => 4 hinges

Example D:

Weight of the door/window with backcheck door closing device

A 75% increase in weight of the door/window should be considered when a backcheck door closing device is present.

Ex.:
Weight of the door: 70 kg
Dimensions of the door: 2000x1000 mm
Door actual weight: 70 kg + 75% of 70 kg = 123 kg

Declared weight capacity for 2 hinges: 110 kg (=> weight capacity for 1 hinge: 55 kg)
Weight capacity of additional hinge (3rd or 4th): 20% of 55 kg = 11 kg

Number of hinges to be fitted (3 hinges at least, 4 hinges recommended):
110 kg + 11 kg + 11 kg = 132 kg => 4 hinges

Number of hinges to be fitted

In the case of obstacles, door stops, door closers and door openers, it is advisable to use an additional hinge and in any case to consider the extent of the leverage effect that could occur.

This rule is valid for a maximum of 4 fitted hinges. If the number is any higher, a different type of product should be used. Please contact the SFS intec technical assistance service for advice.

Installation of additional hinges

Additional hinges are usually fitted symmetrically for aesthetic reasons or to ensure pressure on the seal at the centre.
In any case, the fitting of additional hinges at the points under greatest stress improves the weight bearing capacity.

For example:

- if the door is of above standard width (2000mm x 1000mm), the third hinge should be fitted at an average distance of 300mm from the upper hinge.
- when there is a door stop on the floor, the additional hinge should be fitted at a distance of 300mm from the lower one.
- when there is a door open/closer and in any other case with 4 recomanded hinges, the third one should be fitted at an average distance of 300mm from the upper one and the forth one should be fitted at a distance of 300mm from the lower one.