

HOW STEEP CAN A RAMP BE?

Determining the inclination is a very special factor. Because the inclination of a ramp and the required ramp length are based on different factors:

- Does the person operate the wheelchair on his own or is it pushed by a companion?
- How strong are the persons?
- What is the load the ramp must support?
- How high is the step or sill?
- How much space is available ?

The requirements of a ramp are described in detail in DIN 18040. The most important factor in this regard is the inclination of a ramp, which should normally not exceed 6%.

Problem:

This naturally presupposes a corresponding ramp length. A ramp length which however, is frequently not available in the required form.

Approach:

Assuming that the wheelchair is pushed by a companion, or an electric drive is available, the length of the ramp can also be shorter.

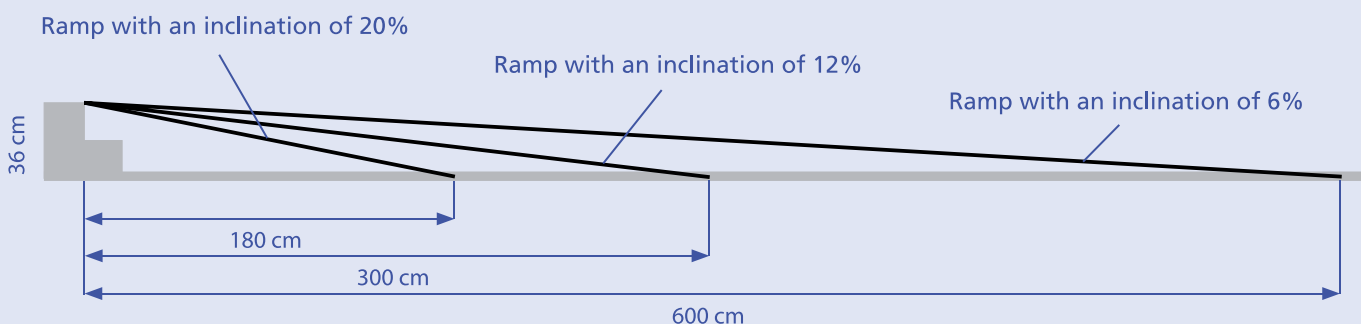
In this connection, the following inclination values have proved to be meaningful in practice:

- Self-operated: 6 %
- A strong self-operator: 7 % - 10 %
- A person pushes a rollator: max. 12 %
- A strong person pushes the wheelchair: max. 12 %
- A strong person pushes the wheel chair: 13 % - 19 %
- Electrical drive: ca. 20 %



When exceeding an incline of 20%, safe movement can no longer be guaranteed. There is a risk that the wheelchair may tip over, or that the footrests touch the ground. Ramps in public areas must always be implemented in accordance with DIN norms.

Therefore, please check your requirements thoroughly in advance. Only a properly chosen incline guarantees proper daily functioning of the ramp later.



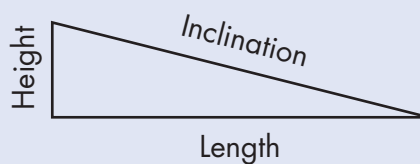
Ramp calculation

HOW BIG SHOULD A RAMP BE?



The step height to overcome is the most important measure for finding the optimal solution. Please, at first, keep yourself to the heights of the steps during the calculation. After that, you can choose the necessary inclination.

With these data you can calculate the necessary length of the ramp by using the formulas and examples below.



Length calculation

$$\text{Length} = \frac{\text{Height} \times 100}{\text{Inclination}}$$

Example:

The staircase has 2 steps of 18 cm each = 36 cm total height. The inclination should be 12 %.

$$\frac{36 \text{ cm} \times 100}{12 \%} = 300 \text{ cm}$$

Inclination calculation

$$\text{Inclination} = \frac{\text{Height} \times 100}{\text{Length}}$$

Example:

The step is 8 cm high. The ramp should be 70 cm long.

$$\frac{8 \text{ cm} \times 100}{70 \text{ cm}} = 11,4 \%$$

Height calculation

$$\text{Height} = \frac{\text{Inclination} \times \text{Length}}{100}$$

Example:

The Ramp is 150 cm long. The inclination should be 12%.

$$\frac{12\% \times 150 \text{ cm}}{100} = 18 \text{ cm}$$