What size fan do I need?

Ventilation Requirements:

When growing in an enclosed space, it is vital to provide plants with fresh air and exhaust the stale air from the area. To achieve this, it is best to use an inline duct fan suitable for the area. Ideally, you should use a fan that can exchange the air in the space at least once per minute, so it is necessary to calculate the volume of the growing space and use a fan that matches the requirements.

To determine the size fan that is best suited to a grow area, first calculate the volume of the space: the length x width x height of the area. It is recommended to add at least ⅓ of your area to account for resistance and loss of velocity as the air travels.

For example:
To calculate the ventilation requirements for a grow space of 1.2m (L) x 70cm (W) x 1.65m (H): 1.2m x 0.7m x 1.65m = 1.386m^3. Let's round up the figure to 1.4m^3 for ease of calculation.
Adding ⅓ of the area to account for ducting and friction will give us: 1.4m^3 + 33% = 1.862m^3

After calculating the volume of the growing area, it is necessary to calculate the size of fan needed. To do this, multiply the area of the growing space by the number of times it must be exchanged per hour: 1.862m^3 x 60 (at least once per minute is recommended, therefore 60 times in an hour) = 111.72
So it is recommended to use a fan that moves no less than 112m^3 per hour.
If you use a carbon scrubber, it is necessary to increase the fan size and ensure the filter is the correct size for the area. Ideally, a fan that is rated to at least 1.5x the necessary size is recommended when using a carbon filter as the carbon restricts the flow of air as it passes through the filter.

For example: Following on from the previous example, an area of 1.862m^3 will require a fan that will move 112m^3 per hour. When used with a carbon filter, it is recommended that the fan is rated to at least 168m^3 per hour.