THE FACTS ON MAGNIFICATION?

Terms used in connection with magnification:
The definitions of commonly employed terminology below are intended to help you understand what magnification means.

Magnification factor
(also referred to as the magnification effect): The degree by which the observed object is enlarged. The magnification factor is stated as a numerical value followed by an x (e.g. 4x).

Diopter:
This term describes the refractive power of a lens. The diopter also establishes a relationship between magnification factor and focal length (see table below for relationship between diopter and magnification factor).

Focal length:
This is the distance between the centre of the magnifier and the observed object at which no distortion occurs.

Basic rule:
The focal length and the size of the lens decrease as the magnification factor increases.

Useful tip:
In order to obtain the maximum distortion-free magnification factor, you should keep the magnifier at a distance of around 25 cm from your eyes.

"System magnification":
The most commonly employed measure of magnification is the so-called system magnification. In addition to the magnification effect of the lens, this formula also takes the observer’s visual acuity into consideration. A mean reference visual range is included in the formula to take account of the individual using the lens/magnifier.

As we state the magnification effect in diopters (dpt), it is useful to understand the relationship between diopters and magnification factor (x). The following simple formula can be used for calculation purposes.

\[
\text{Magnification factor (x)} = \frac{\text{Diopters of lens}}{4} + 1
\]

or, more simply,

\[
x = \frac{D}{4} + 1
\]

When calculating the system magnification of the 3 diopter lens in the FGL 118 luminaire, this formula applies as follows:

\[
x = \frac{3 \text{ diopters}}{4} + 1 = 1.75x
\]

Examples of magnification factors

<table>
<thead>
<tr>
<th>Magnification factor (x)</th>
<th>Diopters (dpt.)</th>
<th>Focal length (Inch)</th>
<th>Focal length (mm)</th>
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