



Depth of Field Formula

DEPTH OF FIELD (FOCUS)

The zone in the front and back of the area focused upon that will remain in focus. Anything within this depth of field will appear sharp. Depth of field has the following features:

1. Larger F-numbers give greater depth of field. The more the iris is stopped down the greater the depth of field.
2. Shorter focal lengths give greater depth of field.
3. Greater subject distance gives greater depth of field.
4. Depth of field is greater behind the subject than in front.

$$\text{Far limit of depth of field } d_1 = \frac{\delta \cdot FNO \cdot \eta^2}{f^2 - \delta \cdot FNO \cdot \eta}$$

$$\text{Far limit of depth of field } d_2 = \frac{\delta \cdot FNO \cdot \eta^2}{f^2 + \delta \cdot FNO \cdot \eta}$$

δ = permissible circle of confusion

FNO = F number

f = focal length

η = distance

$$\text{Depth of Field} = d_1 + d_2$$

Permissible circle of confusion:

1" = 0.03mm

2/3" = 0.021mm

1/2" = 0.016mm

1/3" = 0.011mm *

1/4" = 0.008mm *

* unofficial numbers