



Ninox 300C

Lens Selection Guide

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Please refer to the Ninox User Manual for more detailed instructions on operating the Ninox cameras.

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The various lens options make this camera robust to a wide variety of work settings. Carefully select a lens based upon the field of view that is needed for your specific use-case.

Figure 1 provides an overview of the required working distance for a specific frame rate and lens with the camera in a landscape orientation. The scenario depicted is the recording of a walking gait stride of an individual 1.8m in height. At the given working distances and frame rates, the camera has a field of view wide enough to capture one full stride.

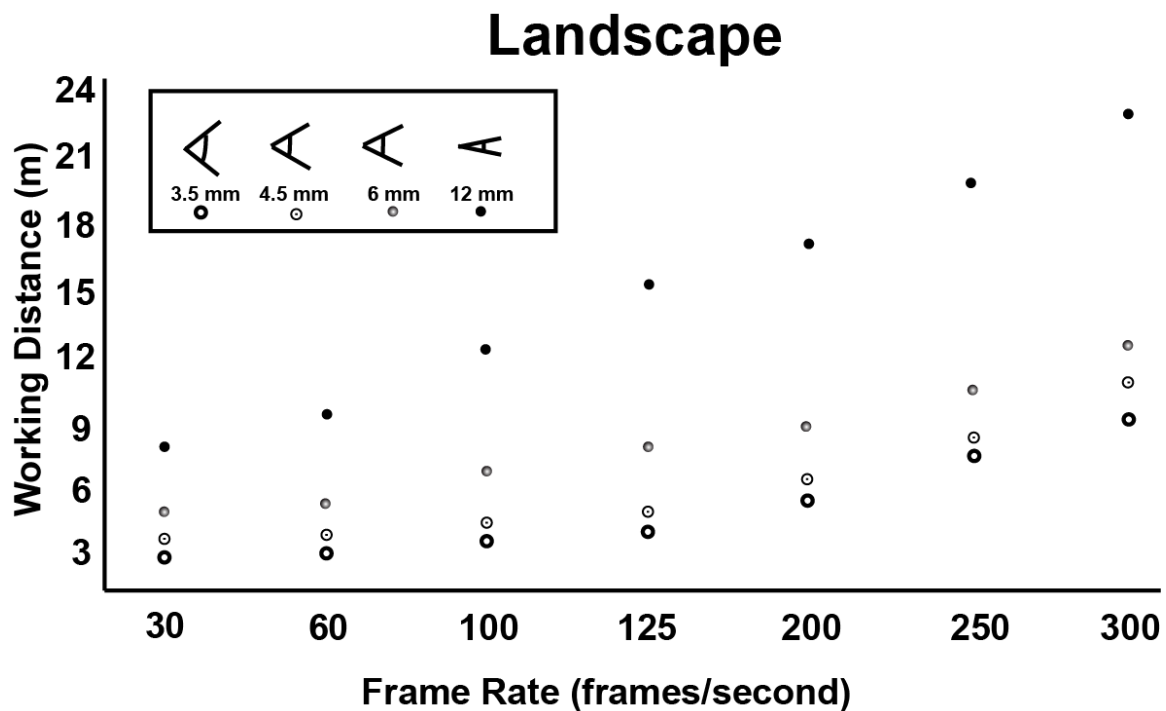


Figure 1: Ninox 300C Field of View (landscape)

For a less specific scenario, the WD, AOV, or FOV can be calculated from the information in Figure 2 and Table 1 using Equation 1. The diagram in Figure 2 shows the relationship between the WD, AOV, and FOV.

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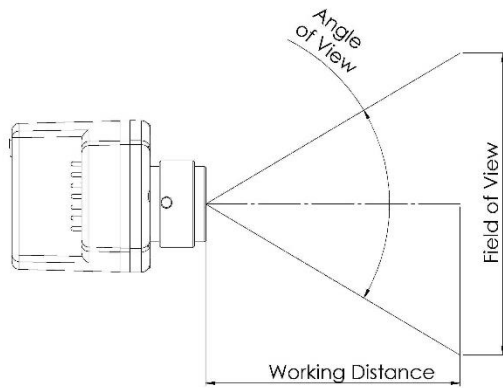


Figure 2: Ninox 300C Angle of View

$$\tan\left(\frac{AOV}{2}\right) = \frac{FOV/2}{WD}$$

Equation 1: AOV, WD, FOV relationship

Refer to Table 1 for a list of the AOV values for each available lens. The AOV is shown for the maximum available resolution at 30 fps and for the minimum resolution at 300 fps.

Table 1: Ninox 300C Angle of View (H-horizontal, V-vertical)

	Lens	H - Angle of View	V - Angle of View
1920 x 1080 30 fps	3.5 mm	75.5	46.6
	4.5 mm	67.9	38.1
	6 mm	50.0	28.4
	12 mm	26.6	14.6
480 x 340 300 fps	3.5 mm	20.9	15.0
	4.5 mm	17.4	11.9
	6 mm	13.1	8.3
	12 mm	6.8	2.1

The recommended resolutions for the Ninox 300C camera are presented in Table 2.

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Table 2: Ninox 300C recommended resolution and fps

Frate Rate (fps)	Recommended Resolution (pixel)
30	1920 x 1080
60	1280 x 1080
100	960 x 720
125	960 x 680
200	720 x 560
250	640 x 480
300	480 x 340

Example: A user needs to record a broad jump (jump length approximately 3m) and has to have the camera 8m from the jump location with a sagittal view. What lens should be used?

- WD = 8m
- FOV = 3m
- AOV=?

$$AOV = 2 * \operatorname{atan}\left(\frac{FOV/2}{WD}\right)$$

$$AOV = 21 \text{ degrees}$$

There are two possible options based on Table 1:

1. If the user wants to use the highest frame rate possible to capture the high speed movement, the 3.5mm lens would be the best choice. The user can select a frame rate of 300fps to capture the full detail of the movement.
2. If the user is more concerned about image quality a 12mm lens would be the best choice. With a 12mm lens, the user could select a high definition resolution of 1920 X 1080 (1080p).

With either solution, the shutter speed of the camera can be reduced to remove any image blur regardless of the fps.