

Telecentric Lens Vs. Non-telecentric Lens

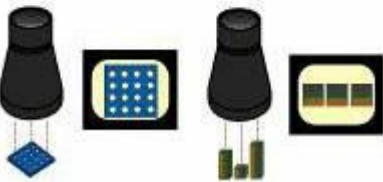
General industrial lens: The image becomes bigger as the object moves close to lens. Then the following problems will be introduced:

- The magnification changes when the object is in different position which means object distance to lens is difference;
- The distortion is bigger than telecentric lens.
- There is parallax which means magnification of objects changes with object distance increases;
- The resolution of lens is not as high as telecentric lens;

General lens



Telecentric lens



Telecentric lens can effectively solve above problems with general lens, and there's no judgment errors with it, therefore it can be used in high precision measurement application, Telecentric lens is high-end industrial lens, it can provide high image quality, and is especially suitable for high accuracy dimension measurement application.

A uniform magnification could be got by adjusting focus at specified working distance since the FOV of telecentric lens is related to lens iris. Bigger FOV with bigger lens dimension. Telecentric lens can provide high quality image with much less distortion than normal lens. The optical design of telecentric lens makes image plane more symmetrical, it can be used to do high accuracy measurement cooperated with software.

Normal lens' advantages: low cost, practical, widely used;

Disadvantages: non-uniform magnification, there is parallax.

Telecentric lens' advantage: Constant magnification, don't change with variation of depth of field, no parallax;

Disadvantages: high cost, large size, heavy weight.