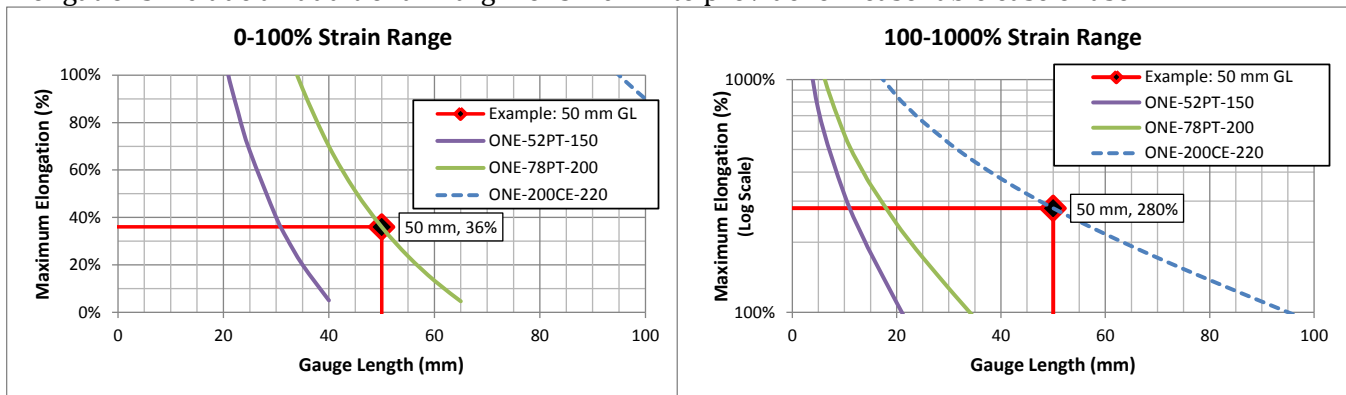


# Epsilon ONE – Optics Package Selection

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## Selecting a suitable Field of View

Listed elongation ranges for Epsilon ONE Optics Packages (see next page) are estimates for *typical* applications with standard ASTM E8 specimens, *assuming elongation occurs within the gauge length*. Elongations include an additional margin of 5-10mm to provide for reasonable ease of use.



**Example:** For a 50mm Gauge Length, **ONE-78PT-200** and **ONE-200CE-220** will accommodate up to 36%(18mm) and 280%(140mm) elongation, respectively. **ONE-52PT-150** does not leave enough margin for a 50mm Gauge Length.

If significant elongation of the specimen may occur outside the marked gauge section, the marks could leave the Field of View at a smaller elongation. A minimum Field of View sufficient for any specific application can be calculated from a quick test using your specimen:

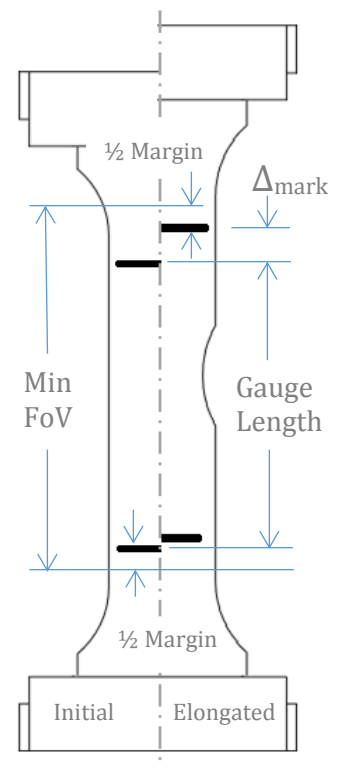
$$\text{Minimum FoV} = \text{Gauge Length} + \text{Maximum Displacement of Marks} + \text{Margin}$$

A tape measure may be used to determine the displacement of marked lines made on the specimen during a test. Alternatively, use the displacement of the crosshead. This method is more conservative. A margin of at least 5mm is required and 10mm is recommended; greater margin will provide the best ease of use.

## Precision Telecentric vs Conventional Optics



An important factor in selection of any optical extensometer is the choice of either Precision Telecentric (ONE-PT-xx) or Conventional Entocentric (ONE-CE-xx) Optics systems. Be sure to consider and understand the *Out-of-plane Sensitivity* specification when purchasing any optical extensometer, by any manufacturer. For more information, see [Epsilon Tech Note – Precision Telecentric Optics](#).

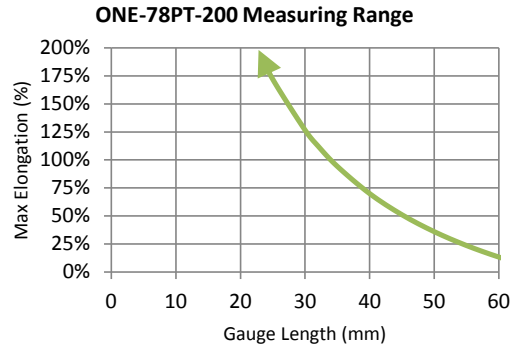


### Precision Telecentric Lens Systems

Model Number:

#### ONE-78PT-System

*Premium performance.*  
Precision telecentric lens.  
78 mm Field of View and  
200 mm Working Distance

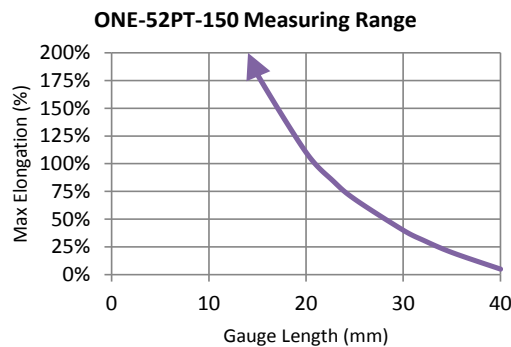


Gauge Length	Max Strain	Max Elongation
2 mm	>1000%	66 mm
5 mm	>1000%	63 mm
10 mm	580%	58 mm
12 mm	470%	56 mm
20 mm	240%	48 mm
25 mm	170%	43 mm
50 mm	35%	18 mm
65 mm	5%	3 mm

Model Number:

#### ONE-52PT-System

Precision telecentric lens.  
52 mm Field of View and  
150 mm Working Distance.



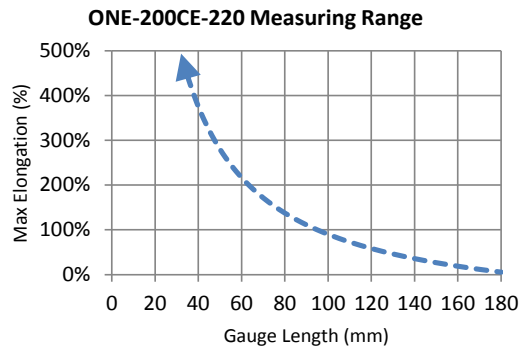
Gauge Length	Max Strain	Max Elongation
2 mm	>1000%	40 mm
5 mm	740%	37 mm
10 mm	320%	32 mm
12 mm	250%	30 mm
20 mm	110%	22 mm
25 mm	65%	17 mm
30 mm	40%	12 mm
40 mm	5%	2 mm

### Conventional Entocentric Lens Systems

Model Number:

#### ONE-200CE-System

Conventional entocentric lens.  
200 mm Field of View and  
220 mm Working Distance.



Gauge Length	Max Strain	Max Elongation
2 mm	>1000%	188 mm
12 mm	>1000%	178 mm
25 mm	660%	165 mm
50 mm	280%	140 mm
75 mm	150%	115 mm
100 mm	90%	90 mm
150 mm	25%	40 mm
181 mm	5%	9 mm

Epsilon ONE will work with any gauge length that is within the stated range for the Optics Package. Indicated maximum tensile strain values are approximate and include a margin of 5-10mm to provide for reasonable ease of use. See page 1 for details.  $\geq 4x$  the specimen width or diameter is recommended for most applications.



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