



Shrinkage compensators require evaluations for: fit, strength, expansion and deflection. Two separate deflection evaluations must be added for total deflection. These are load-deflection (Δa) and Delta r (Δr). Note that Delta r is the slack (lost motion) that results from load reversal due to shrinkage or movement.

Load-deflection (Δa) is determined by adjusting design load deflection to the actual load.

Delta r (Δr) is independent of load and is **added in full** to the system deflection. Both must be done!

AutoTight Example: Reaction Load = 11,000 pounds

Shrinkage Compensator AT 100 (Select based on the rod size)

Rated Capacity: 25,300 pounds.

Deflection Maximum: 0.032", $\Delta r = 0.002$ "

Expansion 1.1" (ICC ESR 1344)

$$\begin{aligned} \text{Calculate Deflection: Load Deflection} &= 0.032 * 11,000/25,300 = 0.014" \\ \text{Delta r } (\Delta r) \text{ (From Table)} &= 0.002" \\ \textbf{Total Deformation} &= \mathbf{0.016"} \end{aligned}$$

For System Elongation: Sum Rod, bearing plate and Shrinkage compensator deformation.

Ratchet Example: Reaction Load = 11,000 pounds

Shrinkage Compensator CN-8 (Select based on the rod size)

Rated Capacity: 42,130 pounds.

Deflection Maximum: 0.024", $\Delta r = 0.105$ " (ICC-ESR 2190)

$$\begin{aligned} \text{Calculate Deflection: Load Deflection} &= 0.024 * 11,000/42,130 = 0.006" \\ \text{Delta r } (\Delta r) &= 0.105" \\ \textbf{Total Deformation} &= \mathbf{0.111"} \end{aligned}$$

Note: the full value of Δr is added to the system elongation per AC 316 and AC 391 section 3.1.1.

Watch a working Demonstration shearwall looseness introduced into systems

[See Video 3 on our web site for A 2 minute Video that clearly demonstrates](#)

Δr .



US Patents 6,390,747 6,585,469. Other patents foreign and domestic, pending

**No Backlash with
AutoTight
=
Better Shear Wall
Performance**

**See Videos at
www.comminsmfg.com**