

Example 1

Determine minimum groove width, e_{min}

$$e_{min} = \frac{P D_i}{F_{su}}$$

Where

Maximum expected chamber pressure is:

$P = 1000$ psi

Motor casing inside diameter is:

$D_i = 2.50$ inches

Casing is 6061-T6 aluminum alloy. Use:

$F_{su} = 26000$ psi

The minimum groove width is:

$$e_{min} = 1000 \times 2.50 / 26000 = \underline{0.096 \text{ inches}}$$

Example 2

Determine minimum groove width, e_{min}

$$e_{min} = \frac{P D_i}{F_{su}}$$

Where

Maximum expected chamber pressure is:

$P = 7.0$ MPa

Motor casing inside diameter is:

$D_i = 64$ mm

Casing is 6061-T6 aluminum alloy. Use:

$F_{su} = 179$ MPa

The minimum groove width is:

$$e_{min} = 7.0 \times 64 / 179 = \underline{2.50 \text{ mm}}$$