Ms in individual planes peaks @ "B" & "C" ⇔
Torque is the same at both.

One of those sections is worse stressed!

@ "B":
\[ M_{\text{tot}} = \sqrt{23.0^2 + 262.5^2} = 263.5 \text{ N-m} \]

@ "C":
\[ M_{\text{tot}} = \sqrt{22.7^2 + 75^2} = 111.6 \text{ N-m} \]

"B" is worst-stressed section!

Bending moments at section "B":

\[ M_{\text{max}} = 23.0 \text{ N-m} \]
\[ M_{\text{tot}} = 111.6 \text{ N-m} \]

\[ \theta = \arctan \frac{23.0}{262.5} = 5.0^\circ \]

State of stress at worst stressed point, tensile bending stress:

\[ \sigma_{xx} = \frac{M_{c}}{I_{x}} = \frac{32M_{c}}{I_{d}A_{d}^2} \]
\[ = \frac{32 \times (263.5 \text{ N-m})}{\pi (0.254 \text{ m})^4} = 16.4 \text{ MPa} \]

\[ \tau_{xx} = \frac{T_{c}}{2A_{d}} = \frac{16T_{c}}{\pi d^3} \]
\[ = \frac{16 \times (225 \text{ N-m})}{\pi (0.254 \text{ m})^3} = 69.9 \text{ MPa} \]

Note: \( \sigma_{xx} \) actually reduced by
\[ \frac{A_{d}}{A_{x}} = 0.2 \text{ MPa} \] (negligible)