

4.4. Rigidity of the Spline Shaft

The rigidity of the spline shaft is expressed as a torsion angle per meter of shaft length. Its value should be limited within $1^\circ/4$.

$$\theta = 57.3 \times \frac{T \cdot L}{G \cdot I_p} \dots\dots\dots (5)$$

$$\text{Rigidity of the shaft} = \frac{\text{torsion angle}}{\text{unit length}} = \frac{\theta}{\ell} < \frac{1^\circ}{4}$$

- θ : Torsion angle (°)
 L : Spline shaft length (mm)
 G : Transverse elastic modulus ($7.9 \times 10^4 \text{ N/mm}^2$)
 ℓ : Unit length (1000mm)
 I_p : Polar moment of inertia (mm^4)
 (See table 3 on page B-13 and table 4 on page B-14)

