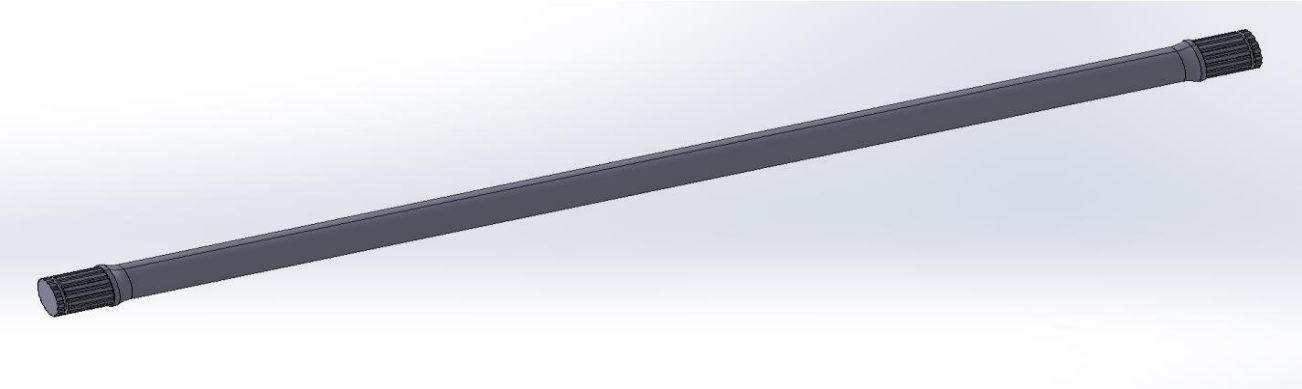
Axle

Material used for driveshaft is EN36 alloy steel Because of its excellent high strength and hardness . Driveshaft contains two tripod on both sides which provides angular flexibility and axial movement of driveshaft for smooth power transmission at different angles.



Axle Diameter Calculation

Let diameter of driveshaft is d

Factor of safety (Fos) : 4

Yield strength of material (∂y_t): 800Mpa

Torque(T) : 500 Nm

Shear stress(τ) : $\frac{\partial yt}{F_0 S}$

Using Torsional equation :

$$\frac{T}{J} = \frac{\tau}{R} = \frac{G\theta}{L}$$

$$\frac{T}{\left(\frac{\Pi}{32}d^4\right)} = \frac{\left(\frac{\partial y_t}{F_0 S}\right)}{\left(\frac{d}{2}\right)}$$

$$d^3 = \left(\frac{T}{2}\right) \cdot \left(\frac{F_0 s}{\partial_{y_t}}\right) \cdot \left(\frac{32}{\pi}\right)$$

$$d^3 = \left(\frac{500}{2}\right) \cdot \left(\frac{4}{800}\right) . \left(\frac{32}{3.14}\right) \cdot (10^3) mm$$

$$\mathrm{d} = \sqrt[3]{12738.8}\ mm$$

$$d = 23.3\ \mathrm{mm}$$