

IF YOU CAN OBTAIN LATHE MOTOR POWER FROM MACHINE SHOP THEN:-

$$\text{Power} = \frac{2 \times N \times T \times \pi}{60} = \frac{2 \times 3300 \times T \times \pi}{60}$$

WHERE  $T = \text{MAX TORQUE}$ .

$$T = \frac{60 \times \text{Power}}{2\pi N} = \frac{60 \times \text{Power}}{2\pi \times 3300}$$

$$F = \text{SHEAR LOAD ON EACH BOLT} = \frac{T}{4 \times \text{BOLT RADIUS}} = \frac{T}{4 \times \frac{3302}{2}} = \frac{T}{.6604} = \text{FORCE}$$

$$\text{SHEAR STRESS} = \frac{F}{\text{BOLT AREA}}$$

YOU CAN WORKOUT FROM THE POWER OF THE MOTOR THE MAX TORQUE FOR THE GIVEN SPEED IN RPM BUT NOTE THE TORQUE WILL CHANGE IF THE ADAPTOR IS RUN AT A DIFFERENT RPM. TORQUE IS INVERSELY PROPORTIONAL TO SPEED (RPM).