

**Answer on Question #43409 – Physics - Mechanics | Kinematics | Dynamics**

The static friction force encountered by a titanium piston in a Formula One racing car engine is 3.36 N. If the coefficient of static friction is .15, the magnitude of the applied force necessary to start the piston is?

**Solution:**

$F_{\text{fric}} = 3.36 \text{ N}$  – friction force encountered by a titanium piston ;

$k = 0.15$  – coefficient of static friction;

Newton's second law for the piston (friction force just matching the applied force):

$$F_{\text{applied}} - F_{\text{fric}} = 0$$

$$F_{\text{applied}} = F_{\text{fric}} = 3.36 \text{ N}$$

**Answer:** magnitude of the applied force is equal to