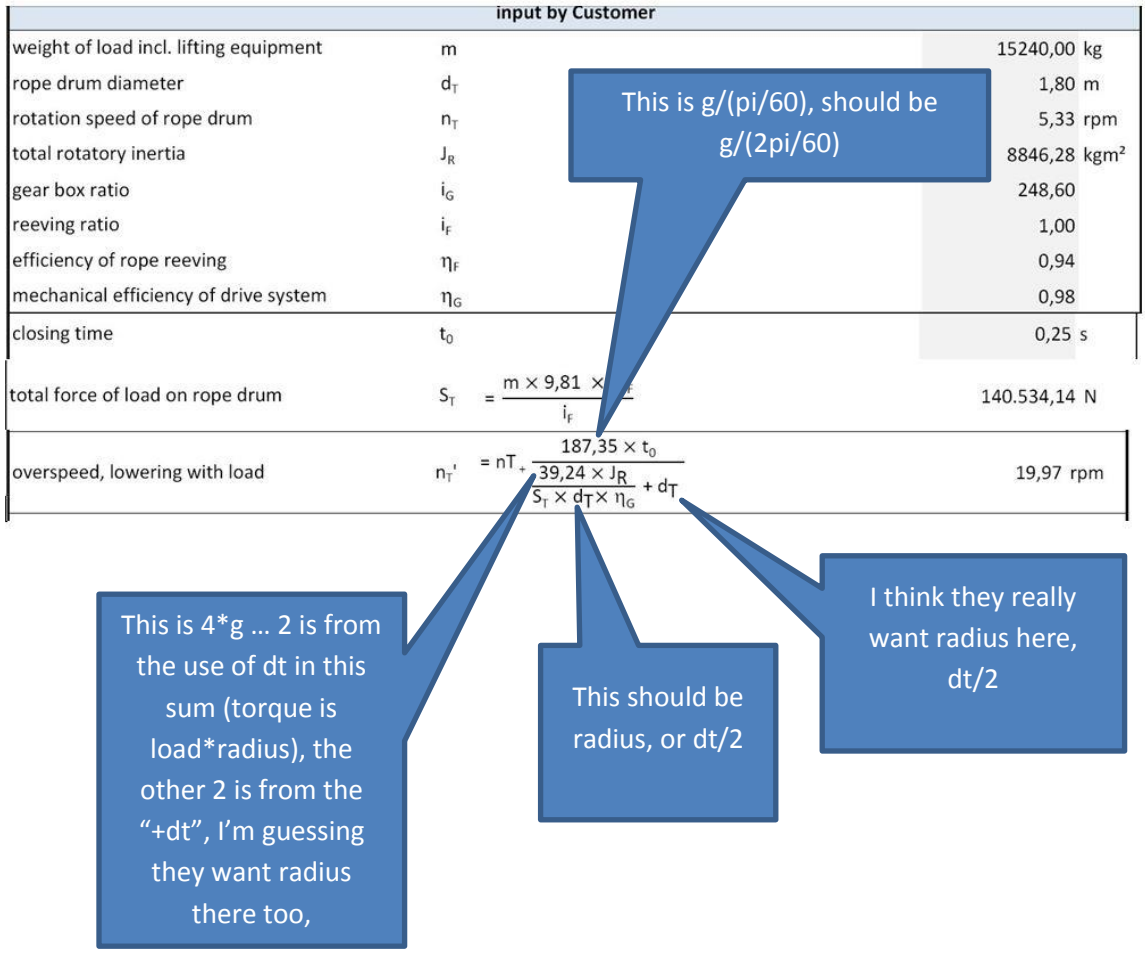

So that should read (g/2pi*60)*t0/((g*Jr)/(St*(dt/2)*nu)+(dt/2));

The presence of "g" in two terms suggests …

(1/2pi*60)*t0/(Jr/(St*(dt/2)*nu)+(dt/2)/g)

They're getting a rotational speed (omega) as rad/sec (converted to rpm), dimensionally sec^-1 …

This follows (!?) from g*t on the top = m/sec and the denominator reducing to meters, so sec^-1

Now Torque = J*omega_double_dot, so J/T = omega_double_dot,
and r/g is ?