<https://www.mcmaster.com/torsion-springs/torsion-springs-5/>

Diagram

Description automatically generatedTable

Description automatically generated

Torsion spring

For music wire, from Table 10-4 we find that and . Therefore,

Using Equation (10-57) gives

The mean coil diameter is . The spring index

The bending stress-correction factor from Equation (10-43), is

Now rearrange Equation (10-44), substitute for , and solve for the maximum torque to obtain

Note that no factor of safety has been used. Next, from Equation (10-54) and Table 10-5, the number of turns of the coil body is

The active number of turns , from Equation (10-48), is

The spring rate of the complete spring, from Equation (10-51), is

The number of turns of the complete spring is

Total energy