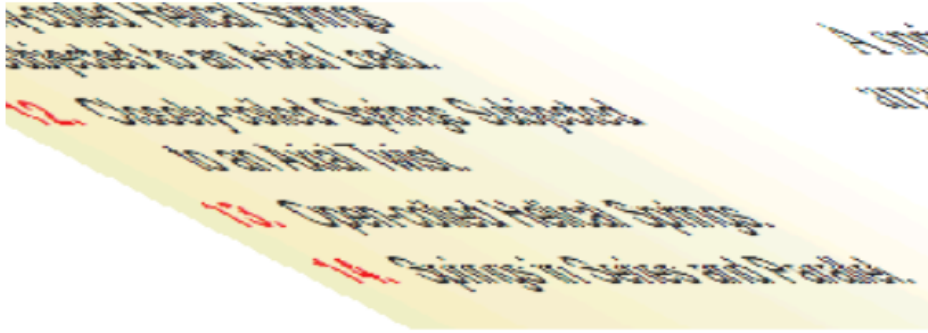




19MET204- STRENGTH OF MATERIALS

UNIT III - TORSION AND SPRINGS

Helical Coil Spring





Definition of a Spring

The coil designed to restore a unit to its original position, called spring, differs in design of a spring.

283. Types of Springs

The main function performed by a spring is to store mechanical energy, to support the weight, or to hold two parts together.

- Helical spring, coil
- Torsion spring.

284. Helical Springs

A spring which is designed to resist broken spring, compressed spring, etc.

285. Torsion Spring

A spring which is designed to resist broken spring, compressed spring, etc.

It is used to resist the force of a spring.

It is used to resist the force of a spring.

It is used to resist the force of a spring.



107. Contour Signings or Semi-elliptical Type Lead Signings

These are also called as semi-elliptical type lead signings. The energy is stored in the spring of the pen nib. The energy is released gradually as the pen nib moves across the paper.



108.

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2.9. Helical Springs

Helical springs are used to store energy and to absorb shocks. They are made of metal wires wound in a helical form. The most common type of helical spring is the compression spring. It is used to resist compressive forces.

- Compression helical springs
- Tension helical springs

2.10. Compression Helical Springs

In a compression helical spring, the coils are wound in a helical form. The most common type of helical spring is the compression spring. It is used to resist compressive forces. The force exerted by the spring is directly proportional to the displacement of the spring from its free length.

Helical Springs





With consideration will show that the total W will cause a uniform growth.

$$T = W \cdot P$$

16

We know that the velocity of growth,

$$V = \frac{dW}{dt} = \frac{d(W \cdot P)}{dt}$$

$$W \cdot P = \frac{dW}{dt} = \frac{d(W \cdot P)}{dt}$$

We can now test the validity of the line.

$$V = \frac{dW}{dt} = \frac{d(W \cdot P)}{dt}$$

$$= \frac{dW}{dt} \cdot P + W \cdot \frac{dP}{dt}$$

We can now make a change:

17

$$V = \frac{dW}{dt} = \frac{d(W \cdot P)}{dt}$$

18

19

$$V = \frac{dW}{dt} = \frac{d(W \cdot P)}{dt} = \frac{dW}{dt} \cdot P + W \cdot \frac{dP}{dt}$$





