Program for Design of Belt Drive, Problem 4.

Problem Statement: A flat belt is required to transmit 25 kW from apulley 1 m effective diameter at 400 rom. THe angle of contact spread over 11/24 of the circumference. If thickness of the belt is 8 mm, mu = 0.25, r = 1,000 kg/m^3 and working stress = 3 MPa, determine the width of the belt required

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clc;

clear all;

Intializing the known variables:

P = 25;

D = 1000

N = 400

t = 8

mu = 0.25

roh = 1000

g = 9.81

S\_d = 3

Finding the angle of contact:

tt = ((11\*2\*pi)/24)

Finding the velocity of the belt:

V = ((pi\*(D+t)\*N)/(60\*1000))

Finding the width of the belt using Equation 14.5ab:

[b] = Eqn14\_5a\_b(P,S\_d,t,V,roh,g,mu,tt)