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Torsion Spring Design Calculator		
Input cells shown as blue		
Modulus of Elasticity $E_M =$	1.100e+007	lbs/in ²
Tensile Strength $T_s =$	9.000e+006	lbs/in ²
Spring cycle rate CR =	10.0	cycles/min.
Internal diameter ID =	1.000	in ▼
Outside diameter OD =	1.100	in
Number of active coils $N_a =$	30.000	#
Angular deflection from free position $\theta =$	0.500	rev.
Wire diameter $D_w =$	1.100	in
Calculated Results		
Eq. 1 Initial mean diameter $D_I =$	1.050	in
Eq. 2 Mean diameter after deflection $D_C =$	1.033	in
Eq. 3 Body length undeflected L =	34.000	in
Eq. 4 Body length length deflected $L_2 =$	34.650	in
Eq. 5 Bending stress S =	183,407	lbs/in ²
Torsion Spring Reliability Calculations		
Base failure rate for torsion spring, $\lambda_{SP,B} =$	14.3	fail/mil.-hours
Eq. 8 Multiplying factor $C_E =$	5.750e-2	-
Eq. 9 Multiplying factor $C_{DW} =$	2,167.311	-
Eq. 10 Multiplying factor $C_N =$	0.102	-
Eq. 11 Multiplying factor $C_Y =$	9.41e-6	-
Eq. 12 Multiplying factor $C_L =$	0.224	-
Eq. 13 Multiplying factor $C_{CS} =$	0.100	-
Eq. 14 Multiplying factor $C_{DC} =$	0.177	-
Eq. 15 Multiplying factor $C_R =$	1.000	-
Eq. 16 Multiplying factor $C_M =$	1.000	-
Calculated Results		
Eq. 6 Failure rate of torsion spring, $\lambda_{SP} =$	1.2102e-5	fail/mil.-hours
Eq. 7 Failure rate of torsion spring, $\lambda_{SP} =$	6.7654e-6	fail/mil.-hours