

FORMULAS FOR CALCULATIONS OF R-TOLERANCES OF COMPRESSION SPRINGS

R = spring rate [N/mm]
d = wire diameter [mm]
D = coil diameter [mm]
n = active coils
N = effective coils (total coils)
N = n + 2
(parameter)' means tolerance

METHOD 3

$$R' = \pm R \sqrt{\left(4 \frac{d'}{d}\right)^2 + \left(3 \frac{D'}{D}\right)^2 + \left(\frac{n'}{n}\right)^2} \quad [N / mm]$$

BS 1726

for heat treated springs, grade 2

for $3,5 \leq N \leq 5$

$$R' = \pm 1,8 \frac{0,244 \cdot N \cdot (N + 2,5)}{(N - 2,9)} \%$$

for $N > 5$

$$R' = \pm 7,2 \%$$

DIN 2096 Part 1

for springs made of rolled bars

$$R' = \pm 0,065 \cdot \left(\frac{2}{n} + 1\right) \cdot R \quad [N / mm]$$

JIS B 2707

Active Coils	Tolerance		
	Grade 1	Grade 2	Grade 3
3 to 10 incl.	± 5 %	± 10 %	± 15 %
over 10	± 4 %	± 8 %	± 12 %