Due to the varying characteristics of the material it is impossible to make identical springs. Material hardness, dimension and physical properties can vary, which influences the consistency of the spring.

Tolerances for spring diameter (coil springs)

TABLE A
(only for ompression springs with code A)

Base measurement, D_m	Tolerance
(0,1) – 2,5	+0,23
(2,5) – 4	+0,30
(4,0) – 6,3	+0,37
(6,3) – 10	+0,45
(10) – 16	+0,52
(16) – 25	+0,67
(25) – 32	+0,75
(32) – 40	+0,90
(40) – 50	+1,20
(50) – 63	+1,50
(63) – 80	+1,80
(80) – 100	+2,25
(100) – 125	+2,85
(125) – 160	+3,45

TABLE B
(for compression springs with code B and all other coil springs)

Base measurement, D_m	Tolerance
(0,1) – 2,5	±0,15
(2,5) – 4	±0,20
(4,0) – 6,3	±0,25
(6,3) – 10	±0,30
(10) – 16	±0,35
(16) – 25	±0,45
(25) – 32	±0,50
(32) – 40	±0,60
(40) – 50	±0,80
(50) – 63	±1,00
(63) – 80	±1,20
(80) – 100	±1,50
(100) – 125	±1,90
(125) – 160	±2,30

For the end coil of the compression springs, the values of the table A and B should be doubled.

$D_m = D_y - D_t = D_i + D_t$

Tolerances for free length (L_O)

Ratio D_m / D_t	Tolerance
4 –12	±5%
(12) –15	±7,5%

Lowest tolerance for L_o = ±0.3 mm

Tolerances for spring force (F)

Ratio D_m / D_t	No of active coils 2-3.5	>3.5-5.5	>5.5-8.5	>8.5-12.5	>12.5+
4 – 5	±15%	±12%	±11%	±10%	±9%
(5) – 11	±13%	±11%	±10%	±9%	±8%

Tolerances for Die springs (page 50-67)

LENGTH Unloaded length, mm	Tolerance
L0 25-89	+/- 1mm
L0 102-305	+/- 1%

FORCE Springforce	Tolerance
General	+/- 10%

Tolerances for other wire and strip steel formations

Base dimension (mm)	Tolerance (mm) Linear dimensions
≤ 3	± 0,2
>3–6	± 0,3
>6–30	± 0,5
>30–120	± 0,8
>120–400	± 1,2
>400–1000	± 2,0

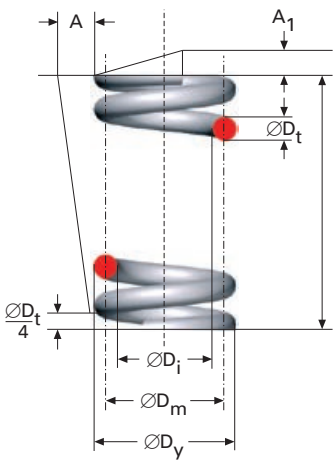
Base dimension (mm)	Tolerance (mm) Bending radius
≤ 3	± 0,2
> 3 - 6	± 0,3
> 6 - 30	± 1,0
> 30 - 60	± 2,0
> 60 - 120	± 4,0
> 120 - 300	± 10,0

Base dimension (mm)	Tolerance (°) Bending angles
≤ 10	± 3
> 10 – 50	± 2
> 50	± 1

Base dimension = shortest leg length

Tolerance for angle deviation

The deviation (A) of the generating line from the vertical line must not be greater than 0.05 Lo (2.9°). Parallel misalignment (A1) must not be greater than 0.03 Dy (1.7°).



TOLERANCES

Due to the varying characteristics of the material it is impossible to make identical springs. Material hardness, dimension and physical properties can vary, which influences the consistency of the spring.

Tolerances for Micro compression springs

Due to very small dimensions on our Micr springs, we need to have an adapted tolerance table.

Tolerances for spring diameter (CS-MS)

Base measurment D_m	Tolerance
(1,01) - 3,47 (mm)	+20%

Tolerances for free lenght (L0)

L0 (mm)	Tolerance
≤15,0	+/-0,3mm
>15,0	+/-20%

Tolerances for wire diameter

D_t (mm)	Tolerance
0,08 - 0,18	+/-0,005 (mm)

Tolerances for spring force

F_n (N)	Tolerance
0,16 - 1,0	+/-25%