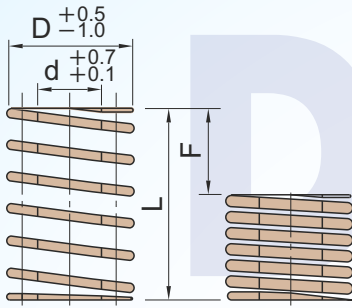


Coil Springs – LOW DEFLECTION DSWN



Load $\pm 10\%$
Squareness ≤ 3 or less
Free length L 50 or less $\pm 0.5\text{mm}$
55 or more $\pm 1.5\%$

M~SWP~A

Coil direction Right: Sectional drawing

For information on the D dimension and the counterbore hole, and also the d dimension and the shaft

Allowable deflection) is due to the measurement at normal temperature (40°C)

Maximum allowable deflection at high temperature (150/200°C).

| Part No. Type D-L | D | d | L | Spring Constant N/mm(kgf/mm) | F = L x 30% Fmm | Load N(kgf) |
|-------------------|-------------|------|------|------------------------------|-----------------|-------------|
| DSWN14.5 | 20 | 14.5 | 8.5 | 20 | 45.76 (4.67) | 6.0 |
| | | | | 25 | 36.61 (3.73) | 7.5 |
| | | | | 30 | 30.51 (3.11) | 9.0 |
| | | | | 35 | 26.15 (2.67) | 10.5 |
| | | | | 40 | 22.88 (2.33) | 12.0 |
| | | | | 45 | 20.34 (2.07) | 13.5 |
| | | | | 50 | 18.31 (1.87) | 15.0 |
| | | | | 55 | 16.64 (1.70) | 16.5 |
| | | | | 60 | 15.25 (1.56) | 18.0 |
| | | | | 65 | 14.08 (1.44) | 19.5 |
| | | | | 70 | 13.08 (1.33) | 21.0 |
| | | | | 75 | 12.20 (1.24) | 22.5 |
| | | | | 80 | 11.44 (1.17) | 24.0 |
| | | | | 90 | 10.17 (1.04) | 27.0 |
| | | | | 100 | 9.15 (0.93) | 30.0 |
| 125 | 7.32 (0.75) | 37.5 | | | | |
| 150 | 6.10 (0.62) | 45.0 | | | | |
| DSWN17 | 25 | 17 | 10.5 | 25 | 49.69 (5.07) | 7.5 |
| | | | | 30 | 41.41 (4.22) | 9.0 |
| | | | | 35 | 35.49 (3.62) | 10.5 |
| | | | | 40 | 31.05 (3.17) | 12.0 |
| | | | | 45 | 27.60 (2.81) | 13.5 |
| | | | | 50 | 24.84 (2.53) | 15.0 |
| | | | | 55 | 22.59 (2.30) | 16.5 |
| | | | | 60 | 20.70 (2.11) | 18.0 |
| | | | | 65 | 19.11 (1.95) | 19.5 |
| | | | | 70 | 17.75 (1.81) | 21.0 |
| | | | | 75 | 16.56 (1.69) | 22.5 |
| | | | | 80 | 15.53 (1.58) | 24.0 |
| | | | | 90 | 13.80 (1.41) | 27.0 |
| | | | | 100 | 12.42 (1.27) | 30.0 |
| | | | | 125 | 9.94 (1.01) | 37.5 |
| 150 | 8.28 (0.84) | 45.0 | | | | |
| DSWN 21 | 30 | 21 | 13.5 | 30 | 54.48 (5.56) | 9.0 |
| | | | | 35 | 46.70 (4.76) | 10.5 |
| | | | | 40 | 40.86 (4.17) | 12.0 |
| | | | | 45 | 36.32 (3.70) | 13.5 |
| | | | | 50 | 32.69 (3.33) | 15.0 |
| | | | | 55 | 29.72 (3.03) | 16.5 |
| | | | | 60 | 27.24 (2.78) | 18.0 |
| | | | | 65 | 25.15 (2.56) | 19.5 |
| | | | | 70 | 23.35 (2.38) | 21.0 |
| | | | | 75 | 21.79 (2.22) | 22.5 |
| | | | | 80 | 20.43 (2.08) | 24.0 |
| | | | | 90 | 18.16 (1.85) | 27.0 |
| | | | | 100 | 16.34 (1.67) | 30.0 |
| | | | | 125 | 14.86 (1.52) | 33.0 |
| | | | | 150 | 13.62 (1.39) | 36.0 |
| | | | | 175 | 13.08 (1.33) | 37.5 |
| | | | | 200 | 12.57 (1.28) | 39.0 |
| | | | | 140 | 11.67 (1.19) | 42.0 |
| | | | | 150 | 10.90 (1.11) | 45.0 |
| | | | | 175 | 9.34 (0.95) | 52.5 |
| 200 | 8.17 (0.83) | 60.0 | | | | |

| Part No. Type D-L | D | d | L | Spring Constant N/mm(kgf/mm) | F = L x 30% Fmm | Load N(kgf) |
|-------------------|--------------|------|-----|------------------------------|-----------------|--------------|
| DSWN26 - | 26 | 16.5 | 30 | 76.27 (7.78) | 9.0 | 686.5 (70.0) |
| | | | 35 | 65.38 (6.67) | 10.5 | |
| | | | 40 | 57.21 (5.83) | 12.0 | |
| | | | 45 | 50.85 (5.19) | 13.5 | |
| | | | 50 | 45.76 (4.67) | 15.0 | |
| | | | 55 | 41.60 (4.24) | 16.5 | |
| | | | 60 | 38.14 (3.89) | 18.0 | |
| | | | 65 | 35.20 (3.59) | 19.5 | |
| | | | 70 | 32.69 (3.33) | 21.0 | |
| | | | 75 | 30.51 (3.11) | 22.5 | |
| | | | 80 | 28.60 (2.92) | 24.0 | |
| | | | 90 | 25.42 (2.59) | 27.0 | |
| | | | 100 | 22.88 (2.33) | 30.0 | |
| | | | 110 | 20.80 (2.12) | 33.0 | |
| | | | 120 | 19.07 (1.94) | 36.0 | |
| | | | 125 | 18.31 (1.87) | 37.5 | |
| | | | 130 | 17.60 (1.79) | 39.0 | |
| | | | 140 | 16.34 (1.67) | 42.0 | |
| | | | 150 | 15.25 (1.56) | 45.0 | |
| | | | 175 | 13.08 (1.33) | 52.5 | |
| 200 | 11.44 (1.17) | 60.0 | | | | |
| DSWN31 - | 31 | 21 | 40 | 69.46 (7.08) | 12.0 | 833.6 (85.0) |
| | | | 45 | 61.75 (6.3) | 13.5 | |
| | | | 50 | 55.57 (5.67) | 15.0 | |
| | | | 55 | 50.52 (5.15) | 16.5 | |
| | | | 60 | 46.31 (4.72) | 18.0 | |
| | | | 65 | 42.75 (4.36) | 19.5 | |
| | | | 70 | 39.69 (4.05) | 21.0 | |
| | | | 75 | 37.05 (3.78) | 22.5 | |
| | | | 80 | 34.73 (3.54) | 24.0 | |
| | | | 90 | 30.87 (3.15) | 27.0 | |
| | | | 100 | 27.79 (2.83) | 30.0 | |
| | | | 110 | 25.26 (2.58) | 33.0 | |
| | | | 120 | 23.15 (2.36) | 36.0 | |
| | | | 125 | 22.23 (2.27) | 37.5 | |
| | | | 130 | 21.37 (2.18) | 39.0 | |
| 140 | 19.85 (2.02) | 42.0 | | | | |
| 150 | 18.52 (1.89) | 45.0 | | | | |
| 160 | 17.37 (1.77) | 48.0 | | | | |
| 170 | 16.34 (1.67) | 51.0 | | | | |
| 175 | 15.88 (1.62) | 52.5 | | | | |
| 180 | 15.44 (1.57) | 54.0 | | | | |
| 190 | 14.62 (1.49) | 57.0 | | | | |
| 200 | 13.89 (1.42) | 60.0 | | | | |
| 250 | 11.11 (1.13) | 75.0 | | | | |
| 300 | 9.26 (0.94) | 90.0 | | | | |

| Part No. Type D-L | D | d | L | Spring Constant N/mm(kgf/mm) | F = L x 30% Fmm | Load N(kgf) | |
|-------------------|--------------|------|----|------------------------------|-----------------|-------------|--------------|
| DSWN26 - | 40 | 37 | 26 | 40 | 73.55 (7.50) | 12.0 | 882.6 (90.0) |
| | | | | 45 | 65.38 (6.67) | 13.5 | |
| | | | | 50 | 58.84 (6.00) | 15.0 | |
| | | | | 55 | 53.49 (5.45) | 16.5 | |
| | | | | 60 | 49.03 (5.00) | 18.0 | |
| | | | | 65 | 45.26 (4.62) | 19.5 | |
| | | | | 70 | 42.03 (4.29) | 21.0 | |
| | | | | 75 | 39.23 (4.00) | 22.5 | |
| | | | | 80 | 36.77 (3.75) | 24.0 | |
| | | | | 90 | 32.69 (3.33) | 27.0 | |
| | | | | 100 | 29.42 (3.00) | 30.0 | |
| | | | | 110 | 26.75 (2.73) | 33.0 | |
| | | | | 120 | 24.52 (2.50) | 36.0 | |
| | | | | 125 | 23.54 (2.40) | 37.5 | |
| | | | | 130 | 22.63 (2.31) | 39.0 | |
| | | | | 140 | 21.01 (2.14) | 42.0 | |
| | | | | 150 | 19.61 (2.00) | 45.0 | |
| | | | | 160 | 18.39 (1.88) | 48.0 | |
| | | | | 170 | 17.31 (1.76) | 51.0 | |
| | | | | 175 | 16.81 (1.71) | 52.5 | |
| 180 | 16.34 (1.67) | 54.0 | | | | | |
| 190 | 15.48 (1.58) | 57.0 | | | | | |
| 200 | 14.71 (1.50) | 60.0 | | | | | |
| 250 | 11.77 (1.20) | 75.0 | | | | | |
| 300 | 9.81 (1.00) | 90.0 | | | | | |

M Equivalent of SWOSC- V (Steel Wire Oil Temper Silicon for Valve)

Load calculation method: Load=Spring constant×Deflection
(International unit) N = N/mm×Fmm
kgf=kgf/mm×Fmm
(kgf = N×0.101972)

Times used: 1 million (300 thousand times for L×35%)

