

ALPHA ACOUSTIKI Ltd  
Acoustics. Noise & Vibration Control

73 Apostopoulou street 15231 Halandri Greece  
T +302106779875 F +302106779269  
Web: [www.alphacoustic.com](http://www.alphacoustic.com) [www.vibro.gr](http://www.vibro.gr)  
Email: [info@alphacoustic.com](mailto:info@alphacoustic.com) [info@vibro.gr](mailto:info@vibro.gr)

## Vibro-Spring 50 Technical Data

### Spring Type: Round Wire Compression

Designed To: EN 13906-1: 2002  
Tolerance Standard: EN 15800: 2010

### Material

EN 10270-1 Drawn  
Youngs Mod (E): 206000 N/mm<sup>2</sup>  
Rigidity Mod (G): 81500 N/mm<sup>2</sup>  
Density: .00000785 Kg/mm<sup>3</sup>  
Unprestress: 0-45 %  
Prestress: 45-50 %

End Type: Closed and Ground  
Dead Coils: 2,00  
Tip Thickness: 50,00 %  
End Fixation: Fixation not known

### Design Parameters

Wire Diameter: 4,50 mm  
Outside Diameter: 37,00 mm  
Total Coils: 6,00  
Spring Rate: 30,42 N/mm (Calculated)  
Free Length: 50,00 mm

### Calculated Data

Solid Length: 27,00 mm  
Min. Length (static): 30,21 mm  
Min. Length (dynamic): 31,81 mm  
Solid Load: 1004,0 N  
Solid Stress: 911,82 N/mm<sup>2</sup>  
Stress Factor: 1,19  
Active Coils: 4,00  
Spring Index: 7,22  
Helix Angle: 7,12 Deg  
Buckling Possible: Not Applicable  
Buckling Definite: Not Applicable  
Spring Pitch: 12,75 mm  
Inside Diameter: 28,00 mm  
Mean Coil Dia.: 32,50 mm  
Wire Length: 615,98 mm  
Weight / 100: 7,69 Kg  
Natural Freq: 23173 RPM

### Stress Data

	Lower Tensile	Solid	Operating Positions			
			% Tensile			
			1	2	3	4
SL	1290	71 O	21 U	34 U	43 U	64 O
SM	1500	61 O	18 U	29 U	37 U	55 P
DM	1500	61 O	18 U	29 U	37 U	55 P
SH	1690	54 P	16 U	26 U	33 U	49 P
DH	1690	54 P	16 U	26 U	33 U	49 P
Specified						

### Operating Data

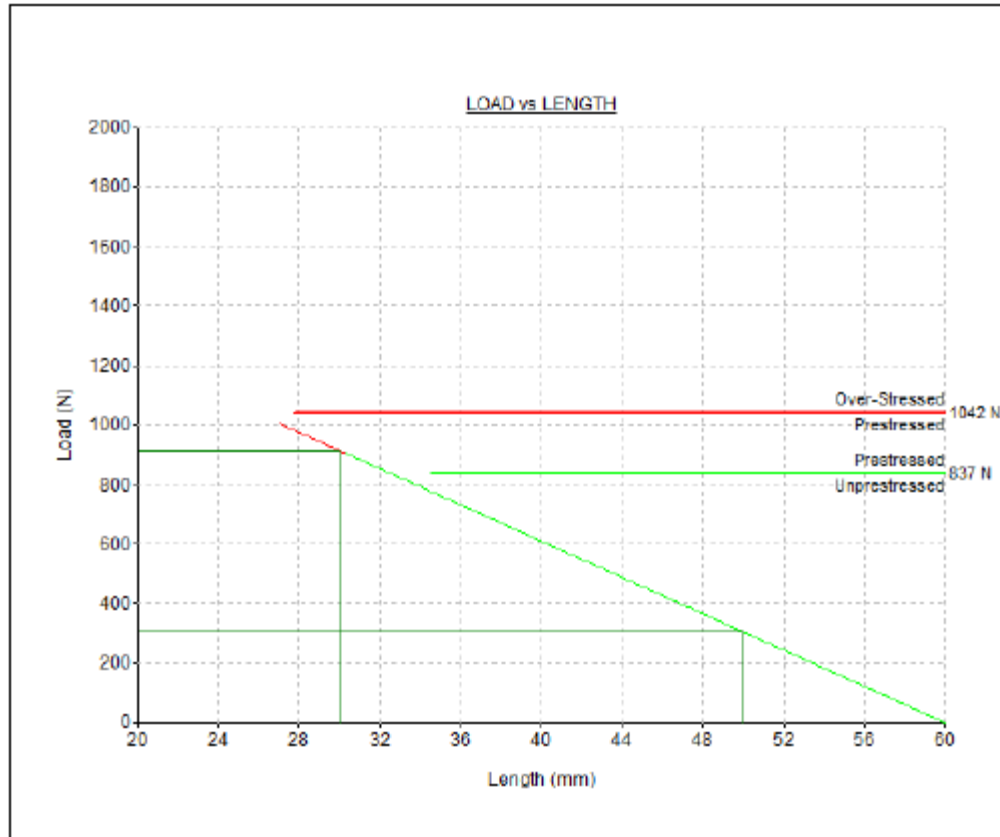
	Operating Positions			
	1	2	3	4
Length (mm)	50,00	44,00	40,00	30,00
Load (N)	304,23	486,77	608,47	912,70
Deflection (mm)	10,00	16,00	20,00	30,00
Stress (N/mm <sup>2</sup> )	276	442	553	829
Stress % Solid	30	48	61	91
Load Tol. Grade 1 (N)	26,47	28,19	29,34	32,22
Load Tol. Grade 2 (N)	42,02	44,75	46,58	51,14
Load Tol. Grade 3 (N)	67,22	71,51	74,53	81,83
O.D. Expansion (mm)	0,105	0,168	0,210	0,315

**Load / Length Graph**

Material: EN 10270-1 Drawn  
 Grade: SH  
 Lower Tensile (N/mm<sup>2</sup>): 1690

**Operating Positions**

	1	4
Length (mm):	50,00	30,00
Load (N):	304,23	912,70
Stress (N/mm <sup>2</sup> ):	276,31	828,92



**Relaxation Prediction (based on IST data)**

Material: EN 10270-1 Drawn  
Static Relaxation: Operating Position 2  
Corrected Stress: 527 N/mm<sup>2</sup>

Time: 1000 Hours  
Temperature: 20 °C  
Shot Peened: No  
Prestressing: None

Relaxation: 1,5 %

