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CT-10

Tension and Compression spring analyzer

- The worlds most affordable, low load, precision, digital spring analysis system
- PC controlled to achieve outstanding low load resolution and accuracy.
- Special functionality for extra light springs
- Portable 12kg (25lbs), servo-motor driven - ideal for placement on location at the coiler!
- Optional SPC on-line control charts, capabilities tests and detailed report creation software
- Programmable for automated testing with spring test setups stored in files for quick recall and test.



- Excellent R+R performance
- Unique spring design module integrated with the system test results to enhance coiler setup efficiency and facilitate spring re-engineering, (optional).
- Includes automatic Self Calibration Routines
- Fully Microsoft Windows 2000, ME and XP compatible.

Forming
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SAS Inc.
Spring Analysis Systems

Specifications

	Compression	Tension
Load	<ul style="list-style-type: none"> <input type="checkbox"/> 10N 2.25lbf), standard load range, resolution – 0.001N (0.00022lbf) <input type="checkbox"/> 2N (0.45lbf) load range, resolution – 0.0001N (0.00002lbf) <input type="checkbox"/> Continuous digital display or Force/Load height graphical analysis tools and display <input type="checkbox"/> Accuracy: ±0.004N (to 10N) and ±0.0004 (to 2N) <input type="checkbox"/> Safe overload to 150% of FS (compression and tension overload protection at 100% of FS load) 	
Stroke	198mm (8")	190mm (7.5")
Fixtures	<ul style="list-style-type: none"> <input type="checkbox"/> Standard flat top/bottom compression fixtures <input type="checkbox"/> Optional fixtures for buckling springs 	<ul style="list-style-type: none"> <input type="checkbox"/> Standard 3mm (0.12") pin fixtures for open or closed loop tension springs <input type="checkbox"/> Optional additional pins
Displacement	<ul style="list-style-type: none"> <input type="checkbox"/> Resolution: 0.005mm (0.0002") <input type="checkbox"/> Accuracy: ±0.02mm (±0.0008") <input type="checkbox"/> Absolute display of load height above a user defined fixed reference. 	
Free Length	<ul style="list-style-type: none"> <input type="checkbox"/> 198mm (8") Maximum <input type="checkbox"/> Automatically determined 	<ul style="list-style-type: none"> <input type="checkbox"/> Within 190mm (7.5") <input type="checkbox"/> Automatically determined
OD	55mm (2.2") Maximum	55mm (2.2") Maximum
Spring rate	<ul style="list-style-type: none"> <input type="checkbox"/> Automatic or manual determination of spring rate (linear analysis), option for characterization of non-linear rates (e.g. conical springs) 	
Initial tension	NA	Automatic detection of tension spring initial tension.
Display	<ul style="list-style-type: none"> <input type="checkbox"/> 17" Color monitor. 	
Computer	<ul style="list-style-type: none"> <input type="checkbox"/> Pentium processor <input type="checkbox"/> Serial connection to PC for data transfer <input type="checkbox"/> Fully Microsoft Windows 2000, ME and XP compatible 	
Languages	English, German, French and Spanish	
Software	<ul style="list-style-type: none"> <input type="checkbox"/> Programmable for automated testing, Includes frelength, initial tension and spring rate results. Solid Height detection included. 	
Features	<ul style="list-style-type: none"> <input type="checkbox"/> Full reporting and printing capability available. <input type="checkbox"/> On-line and off-line SPC control charts and Cpk capability testing available. <input type="checkbox"/> Design and reverse engineering algorithms <input type="checkbox"/> Smart self calibration routines <input type="checkbox"/> Pass through or GoTo type testing available 	
Units	N, kgf, gf, ozf, lbf – mm, inches	
Test speeds	1.5mm/s – 12mm/s (3.5"/min – 28.5"/min)	
Power	<ul style="list-style-type: none"> <input type="checkbox"/> 110V~220V AC 1.5A (Maximum) 	
Dimensions	<ul style="list-style-type: none"> <input type="checkbox"/> 180mm x 440mm x 550mm (7.1"x17.3"x21.6") - LxBxH <input type="checkbox"/> Weight 12kg (25lbs) 	

The top screenshot displays a graph with force on the y-axis (0.00 to 2.00) and displacement on the x-axis (0 to 20). A data point is highlighted at L=11.95mm, F=0.40N, k=0.348. Below the graph is a table:

	L1	L2	L3
Ln	10.96	9.96	8.82
Fn	0.74	1.08	1.44
F+	0.8	1.3	1.7
F-	0.6	0.9	1.5

The middle screenshot shows the 'Design analysis' window with the following 'Spring data' fields:

- Material: Hard Drawn MB - 0.8mm
- Service Condition: None
- Wire Type: Round
- End Type: PL-Open or Plain
- Coil Dia.: 0.025

Below these fields is a table:

Item	Input	Output
Coil D	0.5	
OD	7.8	
FL	91.29	
TC	122	
AC		
HID		

The bottom screenshot shows a control chart for 'Xbar - F1' with a variable selection menu (F1, F2, F3, Other) and a 'Go' button. The chart shows data points around a mean of 2.024.

Full function spring design, analysis and SPC in real-time